



Rhode Island Marine Fisheries Council

3 Fort Wetherill Road Jamestown, Rhode Island 02835

(401) 423-1920 Fax: (401) 423-1925

RIMFC: Robert Ballou, *Chairman*; Travis Barao; Andy Dangelo; Katie Eagan; Jason Jarvis; David Monti, *Vice Chair*; Christopher Rein; Michael Rice, Ph.D.; Mike Roderick.

MEETING NOTICE RI MARINE FISHERIES COUNCIL

September 9, 2019 – 6:00 PM
URI Narragansett Bay Campus, Coastal Institute Building
Corless Auditorium
South Ferry Road, Narragansett, RI

AGENDA

Agenda item	Recommended action(s)	ePacket Attachment(s) and/or links
1. Tonight's agenda	Approval of agenda.	<ul style="list-style-type: none"> • Tonight's meeting agenda
2. Meeting minutes from last meeting	Approval of meeting minutes.	<ul style="list-style-type: none"> • Draft meeting minutes 4/1/2019
3. Public comment	Discussion and/or recommendations for future action.	N/A
4. Council webpage: <i>B. Ballou</i>	FYI/discussion	N/A
5. Committee appointments: <i>B. Ballou</i>	<ul style="list-style-type: none"> • Nominate/approve new Shellfish Advisory Panel Chair • Recommendations to solicit new IAC/SAP membership 	<ul style="list-style-type: none"> • IAC membership list • SAP membership list
6. Industry Advisory Panel meeting summary: <i>J. Lake</i>	Approval of meeting minutes	<ul style="list-style-type: none"> • IAC agenda/ePacket • Powerpoint slides • Draft minutes
7. Responses to public comments made from last meeting: <i>J. McNamee</i> <ul style="list-style-type: none"> • Comm. Horseshoe crab quota and harvest. • Allowance for 2 licenses/poss. limits from single vessel. • Allowance of direct sales for marine products from vessels to consumers. 	FYI and/or recommendations for action	N/A

8. Regional fisheries science effort to evaluate impacts of and prepare for offshore wind development: <i>J. Livermore</i>	FYI and/or recommendations for action	N/A
9. Direct Final Rule (DFR) filings: <i>J. McNamee</i> <ul style="list-style-type: none"> • Part 3 Finfish • Part 7 Dealers 	Provide recommendations to the Director on regulations filed via DFR.	Annotated rules: <ul style="list-style-type: none"> • Part 3 Finfish • Part 7 Dealers
10. Economic impact of fishing: <i>D. Monti</i>	FYI/discussion and/or recommendations for future action	Fisheries Economics of the United States 2016
11. Transiting to/from Block Island with summer flounder, scup, and black sea bass - update: <i>B. Ballou</i>	FYI/discussion and/or recommendations for future action	NOAA Fisheries notice
12. <u>FYI:</u>		<ul style="list-style-type: none"> • Director Decision memo re: March 2019 hearing items
13. Any other matters		
14. Adjourn		

All RIMFC Meetings are open to the public

Posted to Sec. of State Open Meetings on August 19, 2019; revised/re-posted August 22, 2019



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MEETING SUMMARY

April 1, 2019

Chairperson: *B. Ballou (DEM)*

RIMFC members present: *J. Grant, D. Monti, M. Roderick, M. Rice, A. Dangelo, C. Rein, J. Jarvis*

Division: *S. Olszewski, C. McManus, J. Lake, J. Livermore, N. Costa, N. Ares, C. Parkins, A. Williams, P. Barrett, K. Rodrigue, C. Truesdale, M. Bucko, P. Duhamel*

DEM Legal: *C. Hoefsmit*

Public: Approximately 25 persons in attendance.

1. **Approval of the Agenda:** *B. Ballou* inquired as to any modifications, or objections to adopting the agenda. Hearing none, the agenda was approved by consent.
2. **Approval of minutes from meeting on December 3, 2019:** *B. Ballou* inquired as to any proposed modifications or objections to adopting the minutes. *D. Monti* noted that his name was not included in the attendance for this meeting, to which *B. Ballou* offered that the minutes would be corrected. Hearing no other requests for modifications, the minutes were approved by consent.
3. **Public comments regarding other matters not on agenda:**
 - *G. Duckworth* requested that federal transiting rules from Block Island to the mainland be considered for all species harvested within state waters around BI, in addition to species currently under consideration. *B. Ballou* offered that the matter would be placed on the next Council agenda.
 - *R. Kenyon:*
 - Requested that horseshoe crab rules be re-visited as the quota is not being fully harvested due to and unfair disadvantage for bait harvest which results in a shortage of bait for the whelk fishery. He offered that rules are unclear regarding dealer and harvester responsibilities for bio-medical harvest.
 - Requested that rules be considered for amendment regarding two licensees and two possession limits allowed on a single vessel.
 - Requested that rules be considered for amendment regarding the creation of a new endorsement for small scale artisanal type fishing operations that would provide for the direct sales for marine products from the vessel to consumers and restaurants. Another gentleman in the audience expressed support for this proposal.

4. **Shellfish Advisory Panel meeting summary:** *J. Grant* provided a brief overview of the meeting. *B. Ballou* inquired to any objections to accepting the minutes and placing on file; hearing none the minutes were approved.

5. **Aquaculture lease application review:**
 - 2018-05-159, Pinsky, Ninigret Pond: Motion made by *J. Grant* to recommend no objection to the application as the use as proposed is consistent with competing uses engaged in the utilization of marine species; 2nd by *M. Rice*. The motion passed 7-0.
 - 2018-09-033, Torre and Davidson, Sakonnet River: Motion made by *D. Monti* to recommend no objection to the application as the use as proposed is consistent with competing uses engaged in the utilization of marine species; 2nd by *A. Dangelo*. The motion passed 7-0.
 - 2018-08-071, Griffin, Narr. Bay West Passage: Motion made by *M. Rice* to recommend no objection to the application as the use as proposed is consistent with competing uses engaged in the utilization of marine species; 2nd by *J. Jarvis*. The motion passed 7-0.

6. **March 11 hearing items:**
 - **2019 recreational Summer flounder management:** *J. Lake* offered Division support for each of the two proposals noticed, however, with a change to the minimum size for the special shore angling sites increased from 16” to 17 “, and the opening date changed from May 1 to May 3 *if* adopting the special shore angling provision. Motion made by *D. Monti* to recommend an opening date of May 3 and a 16” minimum size for the special shore angling provision; 2nd by *J. Jarvis*. The motion passed 6-0 (*C. Rein* abstained).

 - **2019 commercial summer flounder management:** *J. Lake* provided that the updated quota figures presented at the hearing supported re-opening all three currently closed days during the summer sub-period, without risk of an early closure (based upon average daily 2018 harvest rates). Motion made by *J. Jarvis* to recommend to re-open all three currently closed days; 2nd by *M. Roderick*. The motion passed 7-0.

 - **2019 recreational Black sea bass management:** Motion made by *A. Dangelo* to recommend remaining at status quo; 2nd by *M. Rice*. *D. Monti* offered that he could not support status quo due to the opening date of June 24, in that an earlier opening is needed to provide for equitable access by shore and bay fishermen. *G. Vespe* of the Aquidneck Island Striper Team expressed support for an earlier opening. The motion passed 6-1 (*D. Monti* opposed).

 - **2019 commercial Black sea bass management:** Motion made by *M. Rice* to recommend remaining at status quo (option 1); 2nd by *D. Monti*. The motion passed 6-1 (*J. Grant* opposed).

- **2019 recreational Scup management:** *J. Lake* offered that a combination of options 2 and 3, which is to open January 1 and to increase the party/charter possession limit was a feasible option per ASMFC requirements, and was inadvertently not provided as an option. Motion made by *D. Monti* to recommend opening the season on January 1 and increasing the party/charter possession limit in September and October from 45 to 50 fish/day; 2nd by *C. Rein*. The motion passed 7 - 0.
- **Commercial Scup management regarding possession limits for trawl vessels with a minimum mesh size:** Motion made by *D. Monti* to recommend adopting the amendment as proposed; 2nd by *M. Roderick*. The motion passed 7 - 0.
- **2019 recreational Striped bass management:** Motion made by *A. Dangelo* to recommend remaining at status quo; 2nd by *D. Monti*. The motion passed 7-0.
- **2019 commercial Striped bass general category management:** Motion made by *C. Rein* to recommend adoption of option 2; 2nd by *M. Rice*. A substitute motion was made to recommend adoption of option 1; 2nd by *J. Jarvis*. This substitute motion failed 3-3 (*M. Rice, J. Grant, C. Rein* opposed; *A. Dangelo* abstained). The main motion (to recommend adoption of option 2) failed 3-4 (*M. Roderick, D. Monti, A. Dangelo, J. Jarvis* opposed). Motion made by *M. Rice* to recommend adoption of option 3; 2nd *A. Dangelo*. The Council entertained several comments from members of the audience. *D. Monti* offered that a variation of option 1 should be considered, which amends the season dates while maintaining the two sub-periods. The motion failed 3-4 (*M. Roderick, D. Monti, J. Grant, J. Jarvis* opposed). The Council discussed a possible 4th motion, to amend option 1 to open the second sub-period in July rather than August. *J. Grant* noted that modifying option 1 to open the second sub-period on July 1 is essentially what is offered by option 2. No other motions were made, and no recommendation was ultimately provided.
- **2019 commercial Striped bass floating fish trap:** Motion made by *D. Monti* to recommend remaining at status quo; 2nd by *M. Rice*. The motion passed 6-0 (*J. Grant* recused).
- **2019 party/charter possession limit for Tautog:** Motion made by *D. Monti* to recommend adoption of the amendment as proposed; 2nd by *C. Rein*. The motion passed 7-0.
- **2019 recreational Bluefish management:** Motion made by *A. Dangelo* to recommend remaining at status quo; 2nd by *D. Monti*. *A. Dangelo* noted that RI is at an unfair disadvantage with the state of Massachusetts and would like to re-visit the matter next year. The motion passed 7-0.
- **2019 commercial Bluefish management:** Motion made by *C. Rein* to recommend adoption of option 2 as noticed; 2nd by *J. Grant*. The motion passed 7-0.

- **2019 commercial Blacknose sharks:** Motion made by *A. Dangelo* to recommend adoption of the amendment as proposed; 2nd by *D. Monti*. The motion passed 7-0.
- **2019 recreational Cod management:** *J. Lake* offered that the proposal has been further refined to both remove the minimum size and possession limit from state rules, and to instead incorporate the federal rule by reference in order to ensure consistency with the federal rule at all times. *J. Grant* expressed support as refined but that specific sizes and possession limit should still be included in the Division's webpage and annual abstract. Motion made by *D. Monti* to recommend adoption of the revised language as presented at the Council; 2nd by *A. Dangelo*. The motion passed 7-0.
- **Commercial menhaden proposal #1 – Division proposal to broaden the commercial vessel restrictions to apply to all commercial vessels, other than small-scale fisheries and floating fish traps:** Motion made by *D. Monti* to recommend adoption of the amendment as proposed; 2nd by *J. Jarvis*. The motion passed 5-2 (*J. Grant* and *C. Rein* opposed).
- **Commercial menhaden proposal #2 – Industry proposal to restrict vessel length and useable storage capacity for commercial menhaden operations:** Motion made by *J. Jarvis* to recommend adoption of the amendment as proposed; 2nd by *J. Grant*. Upon discussion the motion was withdrawn with no objection. No motion or recommendation was ultimately provided by the Council.
- **Commercial menhaden proposal #3 - Division proposal to replace instances of “landing limit” with “possession limit”:** Motion made by *M. Rice* to recommend adoption of the amendment as proposed; 2nd by *D. Monti*. The motion passed 7-0.
- **Commercial menhaden proposal #4 - Industry proposal to provide for a possession limit trigger equaling 50% of the quota, which would trigger a possession limit of 80,000 lbs/vessel/day under the State Quota Program:** No motion or recommendation was provided by the Council.
- **Commercial menhaden proposal #5 - Division proposal to clarify the transiting rule as it pertains to the commercial menhaden fishery:** Motion made by *M. Rice* to recommend adoption of the amendment as proposed; 2nd by *J. Grant*. The motion passed 7-0.
- **Commercial menhaden proposal #6 - Division proposal to amend the date of the end of the Episodic Event Set Aside Program consistent with the ASMFC FMP:** Motion made by *D. Monti* to recommend adoption of the amendment as proposed; 2nd by *J. Grant*. The motion passed 7-0.
- **Whelk minimum size measurement:** Upon conclusion of a great deal of the discussion on the matter, no motion or recommendation was ultimately provided by the Council due to concerns raised in public comments that the proposed amendment

does not provide clarity to the rule as intended. The Council recommended that the Division continue to work with industry through a workshop to develop clarified language.

- **Whelk pot tagging program:** Motion made by *M. Rice* to recommend adoption of the amendment as proposed; 2nd by *D. Monti*. The motion passed 6-1 (*J. Jarvis* opposed). A second motion was made by *D. Monti* to recommend that rules be amended to include gear rotation and catastrophic tags due to concerns expressed in public comments; 2nd by *M. Rice*. This motion passed 7-0.
 - **Lobster trap tags – replacement of original tags ordered but not received and presumed to be lost:** Motion made by *M. Rice* to recommend adoption of the amendment as proposed; 2nd by *D. Monti*. The motion passed 7-0.
 - **Clarification of open and closed periods of the Upper Narragansett Bay Trawling Area to trawling:** Motion made by *D. Monti* to recommend adoption of the amendment as proposed; 2nd by *D. Monti*. The motion passed 7-0.
 - **Clarification of area description of the Upper Narragansett Bay Trawling Area (section 6.8.2(C)(1)(a)):** *J. Lake* explained that the area under consideration, including the new area proposed which identifies Castle Island as part of the revised boundary, is no longer recommended for adoption by the Division. He explained that the recommendation by the Division at this time is to revise the language such that it matches the area as depicted in the Division’s repealed rule “Part XVII – Maps”, which terminates the area’s northern and southern boundary at the Hog Island Shoal Light. Motion made by *J. Grant* to recommend adoption of revised language as recommended by the Division, which would depict the area as shown in the Division’s repealed rule “Part XVII - Maps; 2nd by *A. Dangelo*. The motion passed 7-0. A member of the audience offered that “Homestead Dock” as used in the boundary description has been re-built to the north of its previous location. The Division noted that there are several landmarks currently used in rules that may no longer be accurate, and that a review of these rules is needed. The Division offered that the matter would be addressed in subsequent rulemaking. *M. Rice* recommended that coordinates be included in addition to landmarks.
 - **Extension of gill net tag valid dates:** Motion made by *M. Rice* to recommend adoption of the amendment as proposed; 2nd by *J. Jarvis*. The motion passed 7-0.
7. **2018 RI Saltwater Recreational Fishing License Program Report:** *J. Lake* provided an overview of the program in 2018. Motion made by *D. Monti* to approve the report as consistent with its intended objective pursuant to statute; 2nd by *A. Dangelo*. The motion passed 7-0. *M. Rice* offered that as an original author of the legislation, he supports approval of the report as consistent with its intended objective pursuant to statute.

8. **2018 RIMFC Annual Report:** Motion made by *A. Dangelo* to approve the report as consistent with its intended objective pursuant to statute; 2nd by *M. Rice*. The motion passed 7-0.
9. **Offshore wind development update:** *J. Livermore* provided an update on offshore wind development.
10. **Meeting adjournment:** The meeting was adjourned by consent at approximately 8:30pm.

The full video recording of the meeting is available at the DEM YouTube channel at <https://www.youtube.com/watch?v=Fzgz7ILuyFo&t=3452s>. Individual agenda items and their times can be viewed by expanding the “SHOW MORE” tab.

INDUSTRY ADVISORY COMMITTEE

Name	Sector	Phone	Email
Chris Rein	Chair	996-1851	cgreinstrategies@gmail.com
Robert Mattiucci	Comm. Rod and Reel	789-9272	bsm3@cox.net
Gerry Carvalho	Comm. Inshore Trawler	741-7595	comfish100@gmail.com
Katie Almeida	Seafood Dealer	508-930-2633	Kalmeida@towndock.com
Michael McGiveney	Comm. Shellfish	573-7244; 828-9369	mclamdigger@aol.com
Robert Smith	Comm. Fish Pots	364-6610	seabi@aol.com
Steven Anderson	For-hire (i.e., party/charter)	255-0128	saboat10@gmail.com
Vacant	Recreational Fishing		
Aaron Gewirtz	Comm. Gillnet	218-5764	nbf05@verizon.net
Spencer Bode	Commercial Fishing License	508-264-2176	spencerbode17@gmail.com
John Lake	DEM	423-1942	john.lake@dem.ri.gov

SHELLFISH ADVISORY PANEL

Name	Sector	Phone	Email
Vacant	Chair		
Jeff Gardner <i>(Bob Rheault alternate)</i>	Aquaculture	322-7280 783-3360	watchhilloysters@gmail.com bob@ecsga.org
David Ghigliotty	Comm. Bullrake	632-5485	dlghig@aol.com
Mike McGiveney	Comm. Bullrake	828-9369	mclamdigger@aol.com
Gerald Schey	Comm. Bullrake	397-7151	gtschey@cox.net
Robert Smith	Dealer	884-2740	riclaminc@aol.com
Roger Tellier	Recreational Rod and Reel	533-1931	rogtel@cox.net
Richard Pastore	Recreational Rod and Reel	885-7255	rpengri@gmail.com
Manuel Sousa	Comm. Bullrake	829-9041	manuel.b.sousa.86@gmail.com
Edward Troiano	Recreational shellfishing	641-8510	etroiano@cox.net
Dale Leavitt	Scientific Advisor	450-2581	dleavitt@rwu.edu
Conor McManus	DEM Staff	423-1941	conor.mcmanus@dem.ri.gov



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IAC Membership: Chris Rein, *Chairman*; Katie Almeida; Steve Anderson; Spencer Bode; Jerry Carvalho; Aaron Gerwitz; Bob Mattiucci, Mike McGiveney; Bob Smith.
DEM Marine Fisheries: John Lake

MEETING NOTICE RI MARINE FISHERIES COUNCIL

INDUSTRY ADVISORY COMMITTEE (IAC)

August 19, 2019 – 5:30 PM

URI Narragansett Bay Campus, Coastal Institute Building

Hazard Room

South Ferry Road, Narragansett, RI

AGENDA

Agenda item	Recommended action(s)	ePacket Attachment(s) and/or links
1. Brief overview of regulatory and legislative amendment processes.	FYI.	
2. Proposed amendments to “Part 2 – Commercial and Recreational Saltwater Fishing Licensing Regulations.”	Provide recommendations to the RIMFC on proposed amendments.	<ul style="list-style-type: none">• Draft annotated rule:

		<ul style="list-style-type: none"> ○ <u>Section 2.7.4(C)</u>: Clarify reporting documentation requirements as it pertains to trip data reporting. ○ <u>Section 2.7.4(E)&(F)</u>: Clarify due dates for the submittal of commercial trip data reporting. ○ <u>Section 2.7.5(D)(1)(b)(3)</u>: Amend the standard of “Actively Fishing” as it pertains to eligibility for the issuance of a new Commercial Fishing License with Quahaug endorsement for holders of a Student Shellfish License ○ <u>Section 2.7.5(E)(3)(a)</u>: Add new language to rule that establishes that residency status must be maintained to maintain eligibility for license renewal. ○ <u>Section 2.7.5(G)(1)(e)</u>: Amend the eligibility requirements for the prioritization of the issuance of new licenses. ○ <u>Section 2.7.9(A)(7)</u>: Require dealer reporting compliance as a condition of dealer license renewal. ○ <u>Section 2.9.2(F)(2)</u>: Clarify the reporting requirements for the Party/Charter sector. ○ <u>Section 2.9.2(F)(5)</u>: For licensed Party/Charter vessels/captains, add reporting compliance as a condition of maintaining and/or renewing their P/C license.
3. Exit/entry ratios for restricted endorsements.	Provide recommendations for any changes to exit/entry ratios	<ul style="list-style-type: none"> ● Draft 2020 Sector Management Plan
4. Proposal to amend rules regarding Summer flounder Exemption certificates.	Discussion and/or recommendations	<ul style="list-style-type: none"> ● Part 3 Finfish, Section 3.10.2(D) “<i>Rhode Island Summer Flounder Exemption Certificate</i>”
5. Proposed new rule “Cooperative Multi-State Possession Pilot Program for Summer Flounder” regulations.	Discussion and/or recommendations	
6. Any other matters		
7. Adjourn		

All RIMFC Meetings are open to the public

To be posted to Sec. of State Open Meetings on August 14, 2019

Full ePacket available on the [DEM Marine Fisheries webpage](#)

Public Hearing
September 10, 2019

Proposed/annotated amendments

Note: Proposed new language is identified as **red, bold, underline**; proposed language to be deleted is identified as ~~red-stricken~~.

250-RICR-90-00-2

TITLE 250 – DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

CHAPTER 90 – MARINE FISHERIES

SUBCHAPTER 00 – N/A

PART 2 – Commercial and Recreational Saltwater Fishing Licensing Regulations

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2.1 Purpose

The purpose of these regulations is to establish a process for managing marine fisheries, through the development of management plans and programs, licensing protocols, and data collection systems.

2.2 Authority

These Rules and Regulations are promulgated pursuant to R.I. Gen. Laws Chapters 42-17.1, 20-2.1, and 20-2.2, R.I. Gen. Laws § 20-1-4 and in accordance with R.I. Gen. Laws Chapter 42-35.

2.3 Application

The terms and provisions of these Rules and Regulations shall be liberally construed to permit the Department to effectuate the purposes of state law, goals, and policies.

2.4 Severability

If any provision of these Rules and Regulations, or the application thereof to any person or circumstances, is held invalid by a court of competent jurisdiction, the validity of the remainder of the Rules and Regulations shall not be affected thereby.

2.5 Superseded Rules and Regulations

On the effective date of this Part, all previous Rules and Regulations, and any policies regarding the administration and enforcement of the R.I. Gen. Laws Chapters 20-2 ("Licensing"), 20-2.1 ("Commercial Fishing Licenses"), and 20-3.1 ("Marine Fisheries Management Modernization"), shall be superseded, provided that regulations promulgated by the Director or the Rhode Island Marine Fisheries Council pursuant to R.I. Gen. Laws Chapter 20-3 ("Marine Fisheries Council"), will remain in effect until amended or replaced. Provided, furthermore, that any enforcement action taken by, or application submitted to, the Department prior to the effective date of these Rules and Regulations shall be governed by the Rules and Regulations in effect at the time the enforcement action was taken or application was filed.

2.6 Definitions

See ~~Marine Fisheries Definitions~~, [Part 1 of this Subchapter](#).

2.7 General Management and Licensing Regulations

2.7.1 Management Controls

A. Fishery endorsements:

1. Fishery endorsement categories shall include:
 - a. Lobster;
 - b. Non-Lobster Crustacean: all crustacean species, as well as horseshoe crabs, available for commercial harvest, except lobster;
 - c. Quahaug;
 - d. Soft-shell Clam;
 - e. Shellfish Other: all shellfish species available for commercial harvest, except quahaug and soft-shell clams;
 - f. Restricted Finfish: scup (only from May 1 through October 31; scup shall be considered Non-Restricted January 1 through April 30, and November 1 through December 31), summer flounder, tautog, striped bass, and black sea bass;
 - g. Non-Restricted Finfish: all species of finfish and squid available for commercial harvest except the five species specified in the restricted finfish endorsement category; and
 - h. Whelk: all whelk species available for commercial harvest.
2. The Department may add, eliminate, or modify fishery endorsement categories; in doing so, the Department will consider the status of each fishery, levels of participation by existing license holders, and fisheries management plans and programs.

B. Limits on entry: The Department may establish entrance/exit ratios, lotteries, waiting lists, or other allocation measures as a means for limiting entry consistent with fisheries management plans.

C. Control dates

1. The Department may establish control dates, which shall serve as cut-off dates for potential use in establishing eligibility criteria for future access to a fishery.
2. Eligibility criteria may include, but are not limited to, historic participation and/or gear levels as documented by transaction records and official state or federal logbooks.
3. The establishment of a control date is intended to promote awareness of the potential establishment of eligibility criteria for future access to a

fishery and to discourage speculative shifting of effort into that fishery. To this end, the Department may give various weighted considerations to those active in the fishery before and after the control date.

4. Establishing a control date does not commit the Department to any particular management regime or criteria for limiting future access to a fishery; however, once enacted, control dates may only be used to limit future access to a fishery in accordance with a fisheries management plan.
5. Control dates may only be established prospectively, unless a retroactive control date is expressly required by federal law, regulation or court decision.
6. A control date of December 31, 2007 is established for the soft-shell clam fishery in Rhode Island.
7. A control date of December 31, 2007 is established for the purse seine and mid-water/pair trawl fisheries in Rhode Island.

D. Exit/Entry Ratios:

1. Restricted finfish: For every one (1) license, eligible to harvest restricted finfish, namely, Multi-Purpose Licenses and Principal Effort Licenses with a restricted finfish endorsement, that are not renewed, one (1) new Principal Effort License with restricted finfish endorsement will be made available; provided, that if the application of the exit/entry ratio yields a value less than a multiple of three (3) endorsements, the number of endorsements will be rounded up to yield a multiple of three (3) endorsements.
2. Quahaug: For every one (1) license eligible to harvest quahaug, namely, Multi-Purpose Licenses and Principal Effort Licenses with a quahaug endorsement, that are not renewed, one (1) new Commercial Fishing License with quahaug endorsement will be made available; provided, that if the application of the exit/entry ratio yields one (1) or two (2) licenses/endorsements, three licenses/endorsements will be made available.
3. Soft-Shell Clam: For every five (5) licenses, eligible to harvest soft shell clam, namely, Multi-Purpose Licenses, Principal Effort Licenses with a soft shell clam endorsement, and Commercial Fishing Licenses with a soft shell clam endorsement, that are not renewed, one (1) new Commercial Fishing License with soft shell clam endorsement will be made available; provided, that if the application of the exit/entry ratio yields one or two (2) licenses/endorsements, three licenses/endorsements will be made available.

E. Annual promulgation of rules:

1. Availability of new licenses and endorsements, harvest and gear levels, regulations affecting gear, times and seasons, area closures and restrictions, quotas and catch or landings limits, limits on entry, control dates and data reporting shall be established by rule as hereinafter described on an annual basis, no later than December 1 for the following year, provided that said regulations may run for longer periods where management conditions permit, or may be adjusted more frequently where such conditions require.

2.7.2 Management Plans

- A. The management controls set forth in these regulations shall be consistent with fisheries management plans adopted by the Department pursuant to R.I. Gen. Laws § 20-2.1-9(5). Such plans shall be updated annually, with the draft plan made available for public review a minimum of thirty (30) days prior to any public hearing that addresses commercial licensing.
- B. The management controls set forth in these regulations shall also be consistent with fisheries management plans adopted by a federal agency or regional body of competent jurisdiction.

2.7.3 Emergencies

The Director may promulgate marine fisheries management rules with less than thirty (30) days' notice to RIMFC if and to the extent necessary to comply with federal or regional requirements or to respond to sudden and/or imminent peril or unanticipated developments where delay would likely cause immediate harm to fishery resources or fishers pursuant to R.I. Gen. Laws § 42-35-2.10.

2.7.4 Data Reporting Required for Commercial Fishing Licenses

- A. The holder of any type of commercial fishing license, ~~dealer license~~, or landing ~~permit license~~ shall be deemed to have consented to providing such fishery-related information as the Department may require, ~~including but not limited to, catch, effort, and areas fished consistent with R.I. Gen. Laws § 20-4-5~~. Reporting shall be required on forms or in a format as prescribed by the Director (ref. R.I. Gen. Laws §§ 20-1-20 and 20-4-5).
- B. The Department will provide applicants with applicable reporting methods at the time of license issuance or renewal.
- ~~C. Licensed fishers and dealers may be required to file data reports at the point of sale, and fishers may also be required to maintain logs while fishing.~~
- ~~DC. Commercial Trips must shall be documented upon landing accurately logged in the Paper Catch and Effort Harvester logbook or entered in an electronic device, prior to offloading. Minimum trip elements shall include, but is not limited to:~~

1. Trip date.
2. Area fished.
3. Vessel State Registration or USCG Documentation number.
4. Gear type(s) fished.
5. Quantity of gear fished.
6. Fishing time.
7. Species.
8. Pounds or count of species caught.
9. Disposition.
10. Dealer sold to.

ED. Accurately completed copies of the federal Vessel Trip Reports or state reporting forms shall be kept in numerical order on board the vessel dating back to January 1st of the current year and furnished upon request. A vessel shall be exempt from this requirement if the captain of said vessel is currently enrolled in an electronic logbook program. Instead, the vessel must have all records dating back to January 1~~st~~ of the current year entered electronically.

FE. Due dates for the submittal of paper reports to DMF:

1. For fishing activity occurring in the months of January, February, and March: April 15.
2. For fishing activity occurring in the months of April, May, and June: July 15.
3. For fishing activity occurring in the months of July, August, and September: October 15.
4. For fishing activity occurring in the months of October, November, and December: January 15.
5. To renew prior to January 15, harvester reports must be submitted for all of December if renewing in January and up to date in December if renewing in December.

F. Captains enrolled in an electronic logbook program shall submit trip reports not later than forty-eight (48) hours after the end of the trip.

G. Collection and use of data:

1. Data will be collected, managed and disseminated according to the coastwide minimum protocols of the Atlantic Coastal Cooperative Statistics Program (ACCSP).
2. Reported data may be used for management purposes by any properly designated State or federal agency. Reported data may only be used for enforcement purposes by a properly designated state or federal agency if specifically authorized by rule.
3. Any data that are released or reported to the public shall be aggregated so as to not identify individual fishers, vessels or dealers.

2.7.5 Commercial Licensing

A. Application required: Applications for any license or permit issued under these regulations shall contain the following information:

1. Full name;
2. Age;
3. Occupation;
4. Residence address;
5. Mailing address;
6. Weight;
7. Height;
8. Hair color;
9. Eye color;
10. The name of any state or jurisdiction in which the applicant's commercial fishing license and/or permit is currently revoked or suspended; and
11. Driver's License number and state of issuance, or other state-issued photo identification card.
12. Applications must be notarized.
13. Reporting method: Paper Catch and Effort Harvester logbook; or, federal Vessel Trip Report (VTR), or e-TRIPS. The Paper Catch and Effort Harvester logbook and e-TRIPS reporting methods cannot be declared together.

B. Other requirements:

1. A license or permit must be signed and sworn to by the party to whom it is issued in order to be valid.
2. Licenses and permits are valid only for the signed holder and may not be transferred.
3. All fees must have been paid for a license or permit to be valid.
4. A lost or accidentally destroyed license or permit will be replaced for a fee of ten dollars (\$10.00), provided that the applicant submits an affidavit to the Department explaining the circumstances of the loss.
5. A lost or accidentally destroyed Certificate of Exemption or permit issued by the Department for harvest of commercial or recreational marine species shall also be replaced for a fee of ten dollars (\$10.00), provided that the applicant submits an affidavit to the Department explaining the circumstances of the loss, and provided that the holder notifies the Department within seven (7) days of discovery of the loss.
6. Notice of change of address. Whenever any person holding any commercial fishing license shall move from the address named in his or her last application, that person shall, within ten (10) days subsequent to moving, notify the office of boat registration and licensing of his or her former and current address.
7. Expiration. Unless otherwise specified in this title, all licenses issued under this chapter shall be annual and shall expire on December 31 annually. It shall be unlawful for any person to fish commercially in Rhode Island waters on an expired license application. The grace period set forth in § 2.7.5(C)(5) of this Part shall not extend the validity of any expired license.

C. Application deadlines:

1. The Department will notify all license and permit holders in writing by November 1 that said license or permit, as well as all vessel declarations, expire on December 31 of that year. The Department will also notify all holders of 65 and Over Shellfish, Commercial Fishing, Principal Effort, and Multi-Purpose Licenses in writing by November 1 that said licenses, along with any and all applicable endorsements, must be renewed by February 28 of the following year in order to remain valid. Holders of a Student Shellfish license (if renewable) will be notified by November 1 and the license must be renewed by June 30 of the following year in order to remain valid.

2. All notices will be sent by regular mail to the mailing address given on the license or permit holders last license application or change of address form.
3. All applications for 65 and Over Shellfish, Commercial Fishing, Principal Effort, and Multi-Purpose Licenses, along with any and all applicable endorsements, whether renewals or new issues, must be made in person by 4:00 PM on February 28, or on the first business day following February 28 if that day falls on a Saturday or Sunday or holiday. Applications for a Student Shellfish license, whether renewal or new issue, must be made in person by 4:00 PM on June 30, or on the first business day following June 30 if that day falls on a Saturday, Sunday, or holiday. All license applications shall be made at the Department of Environmental Management, Office of Boat Registration and Licensing, 235 Promenade Street, Providence, 02908. Alternatively, applications must be posted to the same address with a postmark no later than the above-referenced deadline date. Alternatively, renewals must be made electronically, via the Department's online renewal service at <https://www.ri.gov/DEM/commercialmarine/>, by midnight on the above-referenced deadline date. In order to be eligible to apply for a license, an application must be received, postmarked, or electronically filed by the above-referenced deadline date.
4. No 65 and Over Shellfish, Commercial Fishing, Principal Effort or Multi-Purpose License or applicable endorsement will be issued or renewed after the close of business on February 28, or on the first day following February 28 if that day falls on a Saturday or Sunday or holiday, unless said license or endorsement was applied for consistent with the requirements of §§ 2.7.5(C)(3) or (5) of this Part, or §§ 2.7.5(E)(3) or 2.7.5(F) of this Part. No student shellfish license will be issued or renewed after the close of business on February 28, or on the first day following June 30 if that day falls on a Saturday or Sunday or holiday, unless said license or endorsement was applied for consistent with the requirements of §§ 2.7.5(C)(3) or (5), or §§ 2.7.5(E)(3) or 2.7.5(F) of this Part.
5. With the exception of Student shellfish license applications, applications for renewal of licenses referenced in §§ 2.7.5(C)(3) and (4) of this Part above that are received by the Department or postmarked after February 28 or after the first day following February 28 if that day falls on a Saturday or Sunday or holiday shall be renewed only upon payment of a late fee in the amount of \$200.00 and only during the sixty (60) day grace period commencing on the day immediately following the application deadline. Such renewal applications must be made in person at the Department of Environmental Management, Office of Boating Registration and Licensing, 235 Promenade Street, Providence, RI 02908; or via mail at the same address; or electronically via the Department's online renewal service at www.ri.gov/DEM/commercialmarine.

D. Demonstration and verification of activity “Actively Fishing” and “Actively Participating” standards for the issuance of new licenses:

1. Actively Fishing:

- a. To meet the standard of “Actively Fishing”, the license holder must have held the license for a minimum of the immediate two (2) preceding calendar years, and demonstrate by dated transaction records, as verified by SAFIS dealer or dockside sales reporting, a minimum of forty (40) legal RI landings in the preceding two (2) calendar years, pursuant to a valid RI license.
 - (1) In cases where there are less than forty (40) legal RI landings, and one or more of those landings is associated with a multi-day trip(s), Vessel Trip Reports and days fished from those trip(s) may be used to meet the standard of Actively Fishing.
 - (2) In cases where dockside sales reports are being used to meet the standard of Actively Fishing, additional documentation may be required, including, but not limited to, the following: receipts pertaining to the sales of lobsters and/or crabs to consumers; income tax returns; trap tag orders; and receipts pertaining to purchases of fuel, bait, and other supplies.
 - (3) In cases where a person holds both a Landing Permit and a Commercial Fishing License concurrently issued by the Department, dated transaction records established in SAFIS which are recorded on a license holder’s Landing Permit may be considered for the demonstration or verification of the Activity Standard.
- b. For the issuance of a new license in accordance with § 2.7.5(E) of this Part, the ~~Activity Standard established in § 2.7.5(D)(1)(a) of this Part~~ standard of “Actively Fishing” must be met in addition to one of the following conditional criteria, as applicable:
 - (1) Issuance of a new license upon sale of vessel and/or gear: Landings must have occurred in the previous two (2) calendar years, with landings occurring in one (1) or both of those calendar years.
 - (2) Issuance of a new license under a medical hardship condition: Landings must have occurred in at least two (2) consecutive calendar years from 2006 to the date of the license holder’s hardship.

(3) Eligibility for the issuance of a new license based on previous license activity: This section applies only to a Commercial Fishing License with Quahaug endorsement, Student Shellfish license, and Over 65 Shellfish licenses. Persons are not eligible if cited for a violation of Rhode Island's marine fisheries laws or regulations during the two-year period preceding the date of application.

(AA) Any persons license holder who possess meets the standard of "Actively Fishing" and who held a valid Student Shellfish or Over 65 Shellfish License as of the immediately preceding year are is eligible to obtain a new Commercial Fishing License with a Quahaug endorsement for the immediate following year, unless assessed a criminal or administrative penalty in the past three (3) years for a violation of the marine fisheries regulations.

(BB) Any license holder who meets the standard of "Actively Fishing" and who held a valid Student Shellfish License as of the immediately preceding year is eligible to obtain a new Commercial Fishing License with a Quahaug endorsement for the immediate following year, unless assessed a criminal or administrative penalty in the past three (3) years for a violation of the marine fisheries regulations.

(i) For Student Shellfish License holders who become ineligible to renew their license due to age after holding the license in the immediately preceding year, the license will be considered eligible for the issuance of a new Commercial Fishing License with a Quahaug endorsement if the activity standard is met during the year the license was held.

(4) Issuance of a new Principal Effort License with Quahaug endorsement:

(BB) Any persons license holder who possess meets the standard of "Actively Fishing" and who held a valid Commercial Fishing License with Quahaug endorsement as of the immediately preceding year are is eligible to obtain a new Principal Effort License with Quahaug endorsement for the immediate following year. For the purposes of this section, only quahaug landings may be used to meet the Activity

~~Standard of “Actively Fishing” as specified in § 2.7.5(D)(1)(a) of this Part.~~

- (45) ~~Issuance of a new Whelk endorsement based on previous license activity: Persons Any license holder who possess meets the standard of “Actively Fishing” and who held~~ a valid Commercial Fishing or Principal Effort License with Quahaug or Soft-Shell Clam endorsement as of the immediately preceding year ~~are is~~ eligible to obtain a new Whelk endorsement for the immediate following year. For the purposes of this section, only quahaug and/or soft-shell clam landings may be used to meet the Actively Fishing ~~Activity Standard of “Actively Fishing” as specified in § 2.7.5(D)(1)(a) of this Part.~~
2. Actively Participating: To meet the standard of Actively Participating, a crew must be able to demonstrate via one or more affidavits that they have worked as a paid crew for one or more captains licensed in the state of Rhode Island on a vessel that was commercially declared during the period of activity, that had a minimum of forty (40) legal RI landings in the immediately preceding two (2) calendar years. To be considered a paid crew, persons must demonstrate a valid record of being a paid employee of the vessel owner or person licensed to fish commercially, including either a W-2 form, 1099 form, or paycheck stub from a financial institution for the period of time being used to meet the standard of Actively Participating.
 - a. Affidavits must reflect activity conducted upon a vessel that was commercially declared during the period of activity.
 3. A license holder with a dockside sales endorsement who sells all of his or her lobster and/or crab landings dockside may utilize documentation other than dated transaction records to demonstrate fishing activity. Such documentation shall include properly recorded and submitted logbooks, as well as some or all of the following: receipts pertaining to the sales of lobsters and/or crabs to consumers; income tax returns; trap tag orders; and receipts pertaining to purchases of fuel, bait, and other supplies. DEM shall determine whether the documentation submitted by the license holder substantiates the landings and associated fishing activity claimed by the license holder.
 4. Any application submitted in accordance with this section that includes inadequate or improper documentation, such as insufficient number or type of transaction records, invalid transaction records, Vessel Trip Reports, or affidavits that have not been notarized, will not be considered. Fraudulent submittals will be referred to the Department’s Division of Law Enforcement for further investigation and possible enforcement action.

Fraud on the part of any existing license holder, including a captain who signs an affidavit in support of a claim of crew member status that turns out to be false or inaccurate, may result in the suspension or revocation of the license held by the existing license holder pursuant to § 2.7.10 of this Part.

E. Issuance of new licenses; eligibility:

1. New licenses and endorsements shall be made available as of January 1 annually.
2. In cases where a limited number of new licenses or endorsements are to be issued, the Department will accept applications until the application deadline set forth under § 2.7.5(C) of this Part, and then issue said licenses or endorsements to eligible applicants by May 15. To ensure fairness in these cases, no new licenses or endorsements will be issued before the application deadline date.
3. License renewals:
 - a. No application for a license renewal will be considered from a person who's had a change in residency status (i.e., change from a Rhode Island resident to non-resident, or from a non-resident to Rhode Island resident) (ref. R.I. Gen. Laws § 20-1-3).
 - ab. No application for a license renewal will be accepted from a person who has failed to submit reports in a timely fashion and who has been previously notified regarding the deficiency.
 - bc. Persons who possess a valid Commercial Fishing License as of the immediate preceding year are eligible to renew their license.
 - ed. Persons who possess a valid Principal Effort License as of the immediate preceding year are eligible to renew their license for the immediate following year.
 - de. Residents who possess a valid Multi-Purpose License as of the immediate preceding year are eligible to renew their license for the immediate following year.
 - (1) Alternatively, residents who possess a valid Multi-Purpose License as of the immediate prior year may be eligible to obtain a new Principal Effort License with Quahaug, Soft-Shell Clam, Shellfish Other, Lobster, Non-Lobster Crustacean, Restricted Finfish, Non-Restricted Finfish, and/or Whelk endorsements for the immediate following year in place of a Multi-Purpose License. Prior to issuance of a new license, the currently held license must be surrendered.

- ef.** Residents who possess a valid Student Shellfish License as of the immediate preceding year are eligible to renew their Student Shellfish License pursuant to § 2.7.6(E) of this Part for the immediate following year.
- fg.** Residents who possess a valid 65 and Over Shellfish License as of the immediate preceding year are eligible to renew a 65 and Over Shellfish License for the immediate following year.
- gh.** Applicants who obtained a Principal Effort License with Lobster endorsement in 2008, or any year thereafter, must continue to hold a Lobster Trap Allocation to be eligible for renewal.

4. Issuance of New Licenses for Family Members or Crew:

- a. A family member or crew who qualifies as a priority applicant pursuant to §§ 2.7.5(G)(2) or (3) of this Part is eligible to obtain a Commercial Fishing License with applicable endorsement(s), or a Principal Effort License with a Restricted Finfish Endorsement, if they are a family member or crew of a license holder who has been actively fishing, and is not renewing their license.
- b. The applicable endorsement(s) will be in the fishery sector(s) that was/were being actively fished by the current license holder. Prior to issuance of a new license, the currently held license must be surrendered to the Department.
- c. One new license will be issued for each license surrendered.

5. Issuance of New Licenses upon Sale of Vessel and/or Gear:

- a. Residents are eligible to obtain a new license involving the sale of vessel and/or gear if the license holder is actively fishing.
- b. Prior to issuance of a new license, the currently held license must be surrendered to the Department. Upon application for a new license, the Department will then issue a new equivalent license to the purchaser.
- c. The new license/endorsement(s) issued may be at a lower harvest and gear level than the license surrendered where necessary to accomplish the purposes of fisheries management plans.
- d. New license applications made pursuant to this section are not subject to an application deadline.
- e. New license fees shall be applicable at the time of application.

6. Issuance of New Licenses to Resident Family Members in cases of Incapacity:
 - a. Resident family members are eligible to obtain a new equivalent license in cases of incapacity.
 - b. Demonstration of the incapacity shall be required in the form of a death certificate, or a diagnosis and prognosis signed by a medical doctor (M.D. or O.D.).
 - c. Prior to issuance of the new license, the currently held license must be surrendered to the Department. Upon application, the Department will then issue a new license equivalent to the license currently held.
 - d. The family member shall be designated by the license holder, or, if the license holder is deceased, by mutual agreement among surviving family members. If a mutual agreement has not been reached, the administrator or executor of the estate of the deceased license holder shall be eligible for a new equivalent license for not longer than two (2) years during the probating of the estate.
 - e. New license applications made pursuant to this section are not subject to an application deadline.
 - f. New license fees shall be applicable at the time of application.
7. Persons returning from active military service: Persons holding a valid license and/or landing permit when entering active service are eligible to obtain a new equivalent license and/or landing permit held at the time when entering active service, upon presentation of written ~~creditable~~ credible documentation, such as form DD214, demonstrating the continuity of active service since the license had previously been held.

F. Issuance of temporary operator permits to residents in cases of medical hardship:

1. Residents are eligible to obtain an operator permit in cases of medical hardship; such resident shall be designated by the current license holder.
2. Demonstration of the medical hardship shall be required in the form of a diagnosis and prognosis signed by a medical doctor (M.D. or O.D.).
3. Prior to issuance of the operator permit, the currently held license must be surrendered to the Department and will be temporarily suspended. Upon application for the operator permit, the Department will then issue an operator permit equivalent to the license held, which will remain valid for the balance of the license year, or until the return to wellness of the

incapacitated license holder, whichever occurs first. The operator permit will be eligible for renewal once, at a cost equivalent to the cost of the license, upon approval by the Director. Upon the return to wellness of the incapacitated license holder and application for re-instatement of the license, the license will be re-instated upon surrendering the operator permit.

4. New license applications made pursuant to this section are not subject to an application deadline.

G. Prioritization and lottery for the issuance of new licenses and endorsements:

1. General:

a. In cases where ~~only~~ a limited number of new licenses/endorsements are ~~to be issued~~ available, the Department shall provide priority to applicants as described herein.

b. All eligible applicants in each priority category will be issued licenses/endorsements before any licenses/endorsements are issued to applicants in the next lower priority category.

c. If in any priority category there are more eligible applicants than there are licenses/endorsements available for issue, those licenses/endorsements will be issued by lottery, unless otherwise specified herein.

d. Within each priority category, eligible applicants will be prioritized based on the length of time, in years, they have been actively fishing their license, or actively participating in the fishery as a crew member, on a continuing basis.

e. In cases where an applicant has previously surrendered a license to the Department pursuant to the sale of vessel and/or gear, and the applicant has subsequently acquired a new license, the applicant must have held the current license for a minimum of seven (7) years before being eligible to use the activity standard as a criteria for prioritization (as described in sections 2.7.5(G)(2)(a) and (b).

2. Priority categories:

a. First priority: ~~First priority in the issuance of new licenses with applicable endorsement(s)~~ shall be ~~given to~~ provided equally to the following sub-categories:

a.(1) Licensed Resident persons holding a Commercial Fishing Licenses who meet the standard of "Actively Fishing";

~~endorsed~~ in the same fishery sector for which a new license/endorsement is being sought, ~~who have been actively fishing that endorsement.~~

~~b.(2)~~ ~~Licensed~~ Resident persons holding a Principal Effort Licenses who have ~~been~~ actively ~~fishing~~ ~~fished~~ their license, and

~~c.(3)~~ Resident crew members who have ~~been~~ actively ~~participating~~ ~~participated~~ in the same fishery sector for which a new license/endorsement is being sought.

~~d.(4)~~ ~~One-third of the total number of new licenses/ with applicable endorsements will be made available to each of three priority categories.~~ If in any of these ~~se three sub-~~ categories there are fewer eligible applicants than ~~there are~~ licenses/endorsements available for issue, ~~then~~ the balance will be evenly distributed to the other two ~~sub-~~categories. ~~Within each category, eligible applicants will be prioritized based on the length of time, in years, they have been actively fishing their license, or actively participating in the fishery as a crew member, on a continuing basis.~~ If the selection of qualified applicants cannot be resolved equitably by the initial prioritization and lottery process, and if the number of remaining endorsements cannot be distributed evenly between the remaining categories, the number of remaining endorsements will be rounded up to provide each remaining category with the necessary endorsement(s) required to complete the selection process.

~~3b.~~ Second priority: Second priority ~~in the issuance of new licenses with applicable endorsement(s)~~ shall be ~~given to~~ provided equally as follows:

~~a.(1)~~ Licensed residents ~~s~~ ~~fishers~~ holding Commercial Fishing Licenses, endorsed in any fishery sector, who have ~~been~~ actively ~~fishing~~ ~~fished~~ their license and

~~b.(2)~~ Resident crew members who have ~~been~~ actively ~~participating~~ ~~participated~~ in any fishery sector.

~~c.(3)~~ ~~One-half of the total number of new licenses with applicable endorsements will be made available to each of the two categories.~~ If in any of these ~~se two sub-~~categories, there are fewer eligible applicants than there are licenses/endorsements available ~~for issue~~, then the balance will be distributed to the other category. ~~Within each~~

~~category, eligible applicants will be prioritized based on the length of time, in years, they have been actively fishing their license, or actively participating as a crew member, on a continuing basis.~~ If the selection of qualified applicants cannot be resolved equitably by the initial prioritization and lottery process, and if the number of remaining endorsements cannot be distributed evenly between the remaining categories, the number of remaining endorsements will be rounded up to provide each remaining category with the necessary endorsement(s) required to complete the selection process.

- 4c. Third priority: Third priority ~~in the issuance of new licenses with applicable endorsement(s)~~ shall be given provided to any resident, aged eighteen (18) or older.
- 5d. Fourth priority: Fourth priority ~~in the issuance of new licenses with applicable (i.e., restricted finfish) endorsement~~ shall be given provided to any non-resident, aged eighteen (18) or older.

H. Appeals of license denials due to medical hardship:

1. There shall be no right to appeal to the Department of Environmental Management's Administrative Adjudication Division (AAD) for the rejection of any new license applications submitted after February 28, or any license renewal applications submitted after the sixty (60) day grace period, except in the case of a documented medical hardship as defined herein.
2. The applicant may appeal the denial to the Administrative Adjudication Division for Environmental Matters pursuant to R.I. Gen. Laws § 42-17.7-1 *et seq.* and the procedures set forth in [Part 10-00-1 of this Title](#), Rules and Regulations for the Administrative Adjudication Division.
3. The burden of proof shall be on the applicant to demonstrate that he or she meets the criteria for issuance of a license. Such proof shall include written documentation of a diagnosis and prognosis of the medical hardship of the license holder signed by a medical doctor (M.D. or O.D.).

2.7.6 Licenses, Endorsements and Vessel Declarations; Resident:

A. Fishery Endorsements: Any Commercial Fishing or Principal Effort License issued to a Rhode Island resident pursuant to these regulations may, upon demonstration of eligibility by the applicant, be endorsed to allow participation in the following fishery sectors:

1. Non-Lobster Crustacean;

2. Lobster;
3. Quahaug;
4. Soft-shell clam;
5. Shellfish Other;
6. Non-Restricted Finfish;
7. Restricted Finfish;
8. Whelk

B. Commercial Fishing License:

1. Applicants must provide proof of Rhode Island residency and pay an annual fee of fifty dollars (\$50), plus twenty-five dollars (\$25) per fishery endorsement.
2. The holder of a Commercial Fishing License may participate in any fishery sector for which he/she holds an endorsement.

C. Principal Effort License:

1. Eligible applicants must present proof of Rhode Island residency and pay an annual fee of one hundred and fifty dollars (\$150) which entitles them to fish in a single fishery endorsement category.
2. The holder of a Principal Effort License may participate in any fishery sector for which he/she holds a fishery endorsement.
3. The holder of a Principal Effort License may also obtain a Commercial Fishing License with applicable endorsements to fish other sectors, and/or obtain additional fishery endorsements on his or her Principal Effort License to fish other sectors, if such endorsements are available for any given license year; provided that a license holder may not hold both a Principal Effort and Commercial Fishing License in the same fishery sector. The annual fee for additional fishery endorsements on Principal Effort Licenses is seventy-five dollars (\$75) each.
4. The holder of a Commercial Fishing License or a Principal Effort License with a Quahaug endorsement shall not be required to pay the annual fee for that license if the license holder is at least sixty-five (65) years old as of February 28 of the applicable license year. The license holder is still required to pay all other applicable fees, including but not limited to the fees for the "Non-Lobster Crustacean", "Lobster", "Non-Restricted Finfish", "Restricted Finfish", as well as all additional "Gear", "Dockside Sales", and

"Logbook" endorsements on their Commercial Fishing License or Principal Effort License.

D. Multi-Purpose License:

1. Eligible applicants must present proof of Rhode Island residency and pay an annual fee of three hundred dollars (\$300).
2. The holder of a Multi-Purpose License may participate in all fishery endorsement sectors.

E. Student Shellfish License:

1. Applicants must present proof of Rhode Island residency and pay an annual fee of fifty dollars (\$50).
2. Applicants must be no older than twenty-three (23) years as of June 30 of the license year.
3. Applicants must present proof that they are full-time students in the form of a notarized letter or transcript from the learning institution in which they are enrolled.
4. The holder of a Student Shellfish License may participate in the Quahaug endorsement sector.
5. The holder of a Student Shellfish License may also obtain a Commercial Fishing License and/or a Principal Effort License, with endorsements, if such licenses or endorsements are available for any given license year; provided that the holder of a Student Shellfish License may not also hold a Commercial Fishing or Principal Effort License with a quahaug endorsement.

F. 65 and Over Shellfish License:

1. Applicants must present proof of Rhode Island residency.
2. There is no fee.
3. Applicants must be at least sixty-five (65) years old as of February 28 of the license year.
4. The holder of a 65 and Over Shellfish License may participate in the Quahaug endorsement sector.
5. The holder of a 65 and Over Shellfish License may also obtain a Commercial Fishing License and/or a Principal Effort License, with endorsements, to fish other fishery sectors, if such licenses or

endorsements are available and the application requirements are met for any given license year; provided that the holder of a 65 and Over Shellfish License may not also hold a Commercial Fishing or Principal Effort License with a quahaug endorsement.

G. Gear Endorsements:

1. Gear endorsement categories shall include Fish Trap, Gill Net, Purse Seine, and Mid Water/Pair Trawl.
2. The Fish Trap gear endorsement shall allow the license holder to set one or more fish traps in accordance with all applicable requirements of R.I. Gen. Laws Chapter 20-5. The annual fee shall be twenty dollars (\$20) per trap location for a three-year period. Applicants who possessed a valid Fish Trap gear endorsement as of the immediately preceding year may obtain a Fish Trap endorsement for the immediately following year, subject to the same terms and conditions in effect as the immediately preceding year. New fish trap endorsement opportunities shall be established by rule, pursuant to fisheries management plans.
3. The Gill Net gear endorsement shall allow the license holder to set a gill net in accordance with all applicable regulations. The annual fee shall be twenty dollars (\$20). Applicants who possessed a Gill Net gear endorsement as of the immediately preceding year may obtain a Gill Net endorsement for the immediately following year. New gill net endorsement opportunities shall be established by rule, pursuant to fisheries management plans.
4. The Purse Seine and Mid Water/Pair Trawl gear endorsements shall allow the license holder to set these gear types in accordance with all applicable regulations. The holders of Purse Seine and/or Mid Water/Pair Trawl gear endorsements must consent to carry an observer on the vessel and/or on any spotter plane used as part of the operation, per the request of DEM; must report any/all landings of menhaden on a daily basis to the Division of Marine Fisheries; must report beginning, location, and cessation of fishing activities on a daily basis to the Division of Enforcement; and must obtain and have on board charts showing the known locations of fixed-gear clusters, as provided by the Division of Marine Fisheries. The annual fee for each endorsement shall be twenty dollars (\$20). New Purse Seine or Mid Water/Pair Trawl endorsement opportunities shall be established by rule, pursuant to fisheries management plans.
5. By rule, the Department may add, eliminate, or modify gear endorsement categories; in so doing, the Department will consider the status of each fishery, levels of participation by existing license holders, the impact of the gear type on fishing mortality, and the provisions of fisheries management plans and programs.

H. Vessel Declaration:

1. Every vessel employed in the commercial fishery must be declared with the Department at the time the owner/operator of such a vessel first applies for or subsequently renews his/her fishing license; or if a license has already been issued, prior to that vessel being used for commercial fishing.
2. Each such vessel must be individually and separately declared, on an annual basis, and the required fee paid.
3. The vessel declaration will include the name of the vessel and its owner, its length and horsepower, displacement, registration and/or federal permit number, gear type(s), principal fishery(s), and number of crew.
4. The annual fee for a vessel declaration is twenty-five dollars (\$25) per vessel for vessels up to and including twenty-five (25) feet in length, plus fifty cents (50¢) per linear foot for each whole foot over twenty-five (25) feet.
5. A declared vessel will be issued decals, which must be prominently displayed on the port and starboard bow, or on the port and starboard sides of the console cabin or wheelhouse, or elsewhere on the port and starboard sides of the vessel such that they are readily viewable. The displayed decals must be updated annually.
6. Declared vessels that are less than twenty-five (25) feet long may obtain a vessel declaration plate upon payment of an additional annual fee of fifteen dollars (\$15). The vessel declaration of the declared vessel may be temporarily transferred to another vessel less than twenty-five (25) feet long by affixing the aforementioned plate to that vessel. For purposes of this section, "temporary" shall mean not more than sixty (60) days, with one sixty (60) day extension in any given year by permission of the Department.

I. Dockside Sales Endorsement:

1. The endorsement shall enable the holder to sell live lobsters and crabs directly to consumers at dockside. Only live lobsters and crabs may be sold under the endorsement. Sales of shellfish and finfish to anyone other than licensed dealers are prohibited.
2. The endorsement shall be available to all Rhode Island license and landing permit holders who are authorized to harvest and land for sale lobsters and/or crabs. With regard to lobsters, such licenses and permits shall include: multi-purpose license, principal effort license with lobster endorsement, commercial fishing license with lobster endorsement; and resident and non-resident landing permit. With regard to crabs, such

licenses and permits shall include: multi-purpose license; principal effort license with non-lobster crustacean endorsement; commercial fishing license with non-lobster crustacean endorsement; and resident and non-resident landing permit.

3. The purchase of a dockside sales endorsement will ensure that the licensee/permittee receives a paper dockside sales logbook.
4. A licensee/permittee who declared their reporting method as a federal vessel trip report is required to report all dockside sales via the paper dockside sales logbook.
5. Individuals selling lobsters and crabs under the dockside sales endorsement must at all times possess, and display upon request, a current and proper license or landing permit, as set forth above; and said license or permit must include a dockside sales endorsement.
6. Only the licensee/permittee, or a regularly employed crew member of the licensee/permittee, may sell lobsters and crabs at dockside under the dockside sales endorsement. To be eligible to conduct such sales, a crew member must first receive written authorization from the licensee/permittee. Such authorization shall be in the form of a type-written statement, signed and dated by the licensee/permittee that expressly authorizes the crew member to act on behalf of the licensee/permittee with regard to dockside sales. The statement shall further specify: the name of the crew member, the name of the vessel from which the sales are conducted, and the month and year that the crew member began working on the vessel. The statement shall be kept on the vessel and be available at all times for inspection by Department personnel. A crew member who is acting on behalf of a licensee/permittee in accordance with this subsection must comply with all applicable regulations governing dockside sales, as set forth herein, and the licensee/permittee shall be responsible for any violations of regulations by the crew member.
7. Licensees/permittees offering live lobsters and crabs for sale at dockside must meet all applicable and current Federal and State laws and regulations governing harvest and possession relating to the species being sold.
8. Licensees/permittees offering live lobsters and crabs for sale at dockside must meet all applicable and current Federal, State, and local laws and regulations governing retail sales operations, including but not necessarily limited to those governing taxation, signage, noise, and hours of operation.

9. Licensees/permittees offering live lobsters and crabs for sale at dockside may only sell live lobsters and crabs that they harvested, and all sales must be made from the vessel that harvested the product, unless otherwise authorized by the Director.
10. Sales at dockside may only be to the final consumer – i.e. the individual(s) who will be consuming the product - and no resale of, or commercial transaction involving, the product beyond the final consumer is allowed.
11. Licensees shall include, on all landing reports and other data submitted to the National Marine Fisheries Service and/or the Department, the lobsters and crabs offered for sale at dockside to the general public.
12. The annual fee for the dockside sales endorsement shall be twenty-five dollars (\$25.00).
13. The dockside sales endorsement is not subject to the application deadline provisions as set forth in § 2.6.7(C) of this Part; as such, the endorsement shall be available at any time during the year to holders of current and proper commercial fishing licenses and landing permits issued by the Department.
14. All dockside sales reports and reports of no sales activity are due to the Division of Marine Fisheries quarterly.

J. Research Set Aside (RSA) Endorsement:

1. The RSA endorsement shall enable the holder to land marine species, for sale, in Rhode Island, in accordance with RSA quota obtained from the National Marine Fisheries Service.
2. The endorsement shall be automatically available to anyone who obtains an Exempted Fishing Permit from the Department, allowing for the harvest and/or landing of RSA quota in Rhode Island.
3. Both the endorsement and the permit must be obtained prior to the landing of any RSA quota for state quota monitored species in Rhode Island.
4. Upon presentation of an approved and valid Exempted Fishing Permit from the Department, an RSA endorsement will be issued.
5. The annual fee for the issuance of an RSA endorsement for state quota monitored species shall be twenty-five dollars (\$25).
6. The RSA endorsement is not subject to the application deadline provisions as set forth in § 2.6.7(C) of this Part; as such, the endorsement shall be available at any time during the year to holders of current and proper

commercial fishing licenses, and Exempted Fishing Permits, issued by the Department.

K. Paper catch and effort harvester logbook endorsement:

1. The Paper Catch and Effort Harvester logbook endorsement shall authorize the license holder to use a paper harvester catch and effort logbook in lieu of electronic reporting to report catch and effort information. Paper Catch and Effort Harvester logbooks are issued by the Director.
2. If declared as the reporting method, the Paper Catch and Effort Harvester logbook endorsement fee must be paid at the time of application.
3. Paper Catch and Effort Harvester logbook submissions will not be accepted from a license holder who does not hold the endorsement.
4. Annual fee: Twenty-five dollars (\$25).

2.7.7 Licenses, Endorsements and Vessel Declarations; Non-Resident:

A. Non-Resident Fishery Endorsements: Any Commercial Fishing or Principal Effort License issued to a non-resident pursuant to these regulations may, upon demonstration of eligibility by the applicant, be endorsed to allow participation in the following fishery sectors:

1. Non-Restricted Finfish;
2. Restricted Finfish.

B. Non-Resident Commercial Fishing License:

1. Applicants must be at least eighteen (18) years old.
2. The holder of a Non-Resident Commercial Fishing License may participate in either or both fishery sectors for which he/she holds an endorsement, provided that his/her state of residence does not prohibit commercial licensing opportunities for Rhode Island residents in finfish fisheries for which licensing opportunities are available for residents of that state.
3. The Division of Marine Fisheries shall annually review the regulations of the states of Massachusetts, Connecticut, and New York to determine whether those states provide Rhode Island residents the privileges referenced in § 2.7.7(B)(2) of this Part. For applicants from any other state, it shall be the applicant's burden to prove that his/her state of residence provides Rhode Island residents the privileges referenced in § 2.7.7(B)(2) of this Part through a certified copy of the relevant regulation.

This copy is to be forwarded to the Division of Marine Fisheries for review and approval a minimum of two weeks before a license may be issued.

4. The annual fee for a Non-Resident Commercial Fishing License shall be one hundred and fifty dollars (\$150) plus fifty dollars (\$50) per endorsement.

C. Non-Resident Principal Effort License:

1. Eligible applicants must demonstrate that their state of residence complies with § 2.7.7(B)(2) of this Part regarding treatment of Rhode Island residents.
2. The holder of a Non-Resident Principal Effort License may harvest, land and sell any species of fish for which he/she holds the appropriate endorsement(s) - Restricted and/or Non-Restricted Finfish.
3. The annual fee for a Non-Resident Principal Effort License shall be four hundred dollars (\$400), plus one hundred dollars (\$100) per endorsement.

D. Non-Resident Vessel Declaration:

1. Applicants must comply with the requirements of § 2.7.6(H) of this Part, provided that temporary transfers of vessel declarations between vessels less than twenty-five (25) feet in length via vessel declaration plates are not permitted.
2. The fee for a Non-Resident Vessel Declaration shall be fifty dollars (\$50), plus one dollar and fifty cents (\$1.50) for each whole foot over twenty-five (25) feet in length overall.

2.7.8 Landing Permits:

A. General Requirements:

1. A Landing Permit or a valid Rhode Island Resident or Non-Resident Licenses with the appropriate fishery endorsements, but not both a permit and license, is required to off-load any seafood product legally harvested outside of Rhode Island waters for sale or intended sale in Rhode Island, or to secure a vessel with the seafood products on board to a shoreside facility where the products may be offloaded for sale or intended sale.
2. If the operator of a vessel carrying seafood products notifies the Department's Division of Law Enforcement at least four hours before entering Rhode Island waters that he/she intends to dock in a Rhode Island port for specified purposes other than landing, selling, or offering that seafood for sale, and if permission to do so is first obtained from the

Division of Law Enforcement, no landing permit or Rhode Island license is required.

3. The Department will issue a Landing Permit upon proof that an applicant holds a valid federal or non-Rhode Island State license or permit(s) to harvest a given species or group of similar species, provided that the Landing Permit so issued will only allow the landing of those species authorized by said federal or state permit.
4. A Landing Permit is issued to an individual and not a vessel, although the vessel(s), which will generate the landings, must be identified. The landing permit may not be transferred and does not attach to a vessel when it is sold.
5. The individual in charge of a vessel subject to this section must be in possession of a Landing Permit issued to that individual in order for that vessel to legally enter Rhode Island waters.
6. Landing permits are not subject to the application deadline provisions set forth under § 2.7.5(C) of this Part.

B. Resident landing permit:

1. The holder of a Resident Landing Permit may land, sell, or offer for sale any marine fishery species or product, in accordance with all applicable Rules and Regulations governing those species.
2. The annual fee for a Resident Landing Permit is two hundred dollars (\$200).

C. Non-resident landing permit with restricted finfish:

1. The holder of a Non-Resident Landing Permit with Restricted Finfish may land, sell, or offer for sale any marine fishery species or product including restricted finfish species, in accordance with all applicable Rules and Regulations governing those species.
2. The annual fee for Non-Resident Landing Permit with Restricted Finfish is four hundred dollars (\$400).
3. New Non-Resident Landing Permit with Restricted Finfish will only be issued if the landing is charged to the quota of the state in which the vessel making the landing is registered or documented; or, if the state where the vessel making the landing is registered or documented allows Rhode Island residents to land against its quota for that species; or, if the Department pursuant to a fisheries management plan determines there to be excess harvesting capacity in the Rhode Island commercial quota for that species.

4. Renewal of Non-Resident Landing Permit with Restricted Finfish are considered to be new permits subject to the provisions of § 2.7.8(C)(3) of this Part unless the applicant can show evidence of Rhode Island landings of more than one thousand pounds of that species per year in four of the five years preceding the application. Having made that demonstration, a holder of a Non-Resident Landing Permit with Restricted Finfish who held that permit as of the immediately preceding year may renew it for the immediately following year as set forth herein.
5. If a non-resident vessel is upgraded by twenty percent (20%) or more in length, displacement or horsepower, renewal of a Non-Resident Landing Permit with Restricted Finfish will be considered a new permit application, issuance of which is subject to the requirements of § 2.7.8(C)(3) of this Part.

D. Non-resident landing permit:

1. The holder of a Non-Resident Landing Permit may land, sell, or offer for sale any marine fishery species or product, except restricted finfish, in accordance with all applicable Rules and Regulations governing those species and products.
2. The annual fee for a Non-Resident Landing Permit is four hundred dollars (\$400).

2.7.9 Dealer's Licenses:

A. General requirements:

1. No person, partnership, firm, association, or corporation shall sell, purchase, barter or trade in any marine fisheries species unless having first obtained a dealer's license as provided for in this section for the applicable fishery; or unless the activity is exempt from licensing requirements as set forth in § 2.7.9(A)(2) of this Part.
2. Any person, partnership, firm, association, or corporation engaged solely in the business of selling seafood to consumers, either directly or through restaurants or other retail outlets, and/or engaged solely in the processing or preparation of seafood for sale directly to consumers, is not required to be licensed under these regulations, provided that such person, partnership, firm, association, or corporation purchases or otherwise acquires said seafood from licensed dealers.
3. Applicants for a dealer's license shall complete such forms containing such information as the Department may require.
4. Applicants for a dealer's license must demonstrate that they or their registered agent maintain a fixed place of business in the State of Rhode

Island at which transaction records will be maintained and made available for inspection during normal business hours.

5. Each license is valid for the calendar year in which it is issued upon payment of the required fee.
6. A duly licensed dealer may transport any marine species otherwise subject to the requirement that a person transporting such species carry a Rhode Island commercial fishing license, so long as that dealer can demonstrate by a bill of lading that the fish in question had been sold by a duly licensed person.

7. License renewal: No application for a dealer license renewal will be accepted from a licensee who has failed to submit reports pursuant to section 7.7(F) of this Chapter.

B. Multi-purpose dealer's license:

1. The holder of a Multi-Purpose Dealer's License may buy and sell all wild marine fisheries species that may legally be landed in Rhode Island, but only in the amounts specified by rule. Licensed multi-purpose dealers may also buy and sell cultured marine fisheries species in accordance with applicable Rules and Regulations.
2. The annual fee is three hundred dollars (\$300).

C. Finfish dealer's license:

1. The holder of a Finfish Dealer's License may buy and sell all wild finfish species that may legally be landed in Rhode Island, but only in the amounts specified by rule. Licensed finfish dealers may also buy and sell cultured finfish species in accordance with applicable Rules and Regulations.
2. The annual fee is two hundred dollars (\$200).

D. Shellfish dealer's license:

1. The holder of a Shellfish Dealer's License may buy and sell all wild shellfish species that may legally be landed in Rhode Island, but only in the amounts specified by rule. Licensed shellfish dealers may also buy and sell cultured shellfish species in accordance with applicable Rules and Regulations.
2. The annual fee is two hundred dollars (\$200).

E. Lobster dealer's license:

1. The holder of a Lobster Dealer's License may buy and sell all wild crustacean species, including lobster, that may legally be landed in Rhode Island, but only in the amounts specified by rule. Licensed lobster dealers may also sell cultured crustacean species in accordance with applicable Rules and Regulations.
2. The annual fee is two hundred dollars (\$200).

2.7.10 Penalties:

~~A. Violations:~~

- ~~1. Violations of these regulations may subject the violator to the revocation or suspension of any license, endorsement or permit issued pursuant thereto.~~
- ~~2. Revocations or suspensions may be appealed to the Administrative Adjudication Division.~~

~~B. False statements:~~

- ~~1. Any person who willfully misrepresents any fact or facts required to be provided in support of any license, endorsement, or permit application provided for herein, or who is party to such willful misrepresentation, shall be punished by a fine of not more than fifty dollars (\$50).~~
- ~~2. Any license, endorsement, or permit obtained as a result of such false statements or misrepresentations shall be null and void and shall be surrendered to the Department forthwith.~~
- ~~3. No new license, endorsement, or permit may be issued to any violator of this section for a period of one (1) year from the date that penalties are imposed.~~

~~C. Alterations, forgeries and counterfeits:~~

- ~~1. Any person who falsely makes, alters, forges, or counterfeits, or who causes to be falsely made, altered, forged or counterfeited, a license, endorsement, or permit issued pursuant to these regulations, or who shall have in his or her possession such a license, endorsement, or permit, knowing it to be false, altered, forged or counterfeit is guilty of a misdemeanor and subject to a fine of not more than five hundred dollars (\$500) and imprisonment for not more than ninety (90) days, or both.~~
- ~~2. No new license endorsement or permit may be issued to any violator of this section for a period of one (1) year from the date that penalties are imposed.~~

~~D. Failure to possess, present or display a proper license, permit or vessel declaration:~~

~~1. Any person who fails to possess a valid, properly endorsed license, permit, or vessel declaration while engaged in commercial fishing, or fails or refuses to present or display said license, permit or endorsement upon request by individuals authorized by the Director, shall be guilty of a misdemeanor and subject to a fine of not more than five hundred dollars (\$500) and imprisonment for not more than ninety (90) days, or both. Any such person may also be subject to the seizure and forfeiture provisions under R.I. Gen. Laws §§ 20-1-8 and 20-1-8.1.~~

2.8 Recreational Saltwater Fishing Licenses

2.8.1 General Provisions:

- A. It shall be unlawful for any person to fish or spearfish recreationally for finfish or squid in the marine waters of Rhode Island without a valid and current recreational saltwater fishing license.
- B. For the purpose of this section, an individual will be considered to be fishing or spearfishing recreationally if they are engaged in the process of angling via the use of any type of hook and line, or spearfishing via the use of any type of spear or powerhead, or if they possess equipment used for angling or spearfishing and are in possession of finfish or squid.
- C. A valid and current recreational saltwater fishing license may include: a RI recreational saltwater fishing license, a recreational saltwater fishing license from a reciprocal state, or a national saltwater angler registration.
- D. Reciprocal states are listed at saltwater.ri.gov.
- E. Anglers and spearfishers must be in possession of, or within close proximity to, their license at all times while engaged in angling or spearfishing. The term close proximity shall be construed to mean aboard a vessel, on which or from which an individual is angling or spearfishing; or, for shore-based anglers, or spearfishers, within a nearby car or other location that is within walking distance from the point of exit from the water.
- F. Anglers and spearfishers shall present a valid and current recreational saltwater fishing license for inspection upon demand by an authorized law enforcement officer.
- G. Failure to meet the terms of this section shall be deemed a violation, subject to the penalties set forth under R.I. Gen. Laws § 20-2.2-8.

2.8.2 Exemptions:

- A. No license is required for: anglers or spearfishers who are under 16 years of age; anglers or spearfishers on party or charter vessels that are licensed in accordance with R.I. Gen. Laws § 20-2-27.1; licensed party or charter vessel operators when fishing in party/charter mode; anglers or spearfishers who are on leave from active military duty; anglers or spearfishers who are blind or permanently disabled; anglers or spearfishers who hold federal Highly Migratory Species Angling Permits, issued under their name of the angler or spearfisher; anglers or spearfishers who are fishing or spearfishing during a free-fishing day, designated by the Director; or anyone who is fishing commercially in accordance with a current and valid commercial fishing license.
- B. Where appropriate, anglers or spearfishers who are exempt shall carry applicable proof, and present such proof, along with a photo ID, upon demand by an authorized law enforcement officer.

2.9 Vessel Regulations

2.9.1 Recreational mode:

- A. Any vessel, including a commercially declared and/or licensed party/charter vessel, may operate in recreational mode, in accordance with all applicable recreational regulations.
- B. With regard to all species that are not subject to per-vessel restrictions, compliance with possession limits while fishing in recreational mode shall be determined by dividing the total number of fish aboard the vessel by the total number of licensed or exempt recreational fishers or spearfishers aboard the vessel.
- C. If a vessel makes more than one trip in recreational mode per day, the catches attributable to the same licensed or exempt fishers or spearfishers who go out again are cumulative.

2.9.2 Party/Charter Vessels:

- A. Only vessels licensed in accordance with R.I. Gen. Laws § 20-2-27.1 may operate in party/charter mode.
- B. A vessel is operating in party/charter mode whenever the vessel is carrying one or more passengers for hire for the purpose of engaging in recreational fishing or spearfishing.
- C. Unless otherwise specified, vessels operating in party/charter mode must adhere to recreational regulations.
- D. With regard to all species that are not subject to per-vessel restrictions, compliance for vessels operating in party/charter mode shall be determined by

dividing the total number of fish aboard the vessel by the total number of anglers or spearfishers aboard the vessel.

E. If a vessel makes more than one trip in party/charter mode per day, any marine species possessed by the captain and mate are cumulative.

F. Reporting:

1. ~~All~~ Trips made in party/charter mode shall be documented logged and submitted electronically in SAFIS.

2. ~~All~~ Trips shall be ~~documented on board the vessel upon landing~~ logged prior to the termination of the trip and submitted electronically within forty-eight (48) hours of the end of the trip. Trip elements shall include, but is not limited to:

a. Trip date.

b. Area fished.

c. Gear type(s) fished.

d. Quantity of gear fished.

e. Number of anglers on trip.

e. Fishing time.

f. Pounds or count of species caught.

g. Disposition.

~~3. All trip reports shall be submitted electronically within forty-eight (48) hours of the end of the trip.~~

4. In cases when no party/charter mode trips were made, at least one (1) negative report must be submitted to the Department prior to renewal of license.

5. Failure to submit reports as required shall result in one of the following actions: license suspension, revocation or ineligibility to renew.

2.9.3 Commercial mode:

A. Only vessels that are commercially declared may operate in commercial mode.

B. A vessel is operating in commercial mode whenever the vessel is engaged in the process of taking, harvesting, holding, transporting, loading or off-loading marine species for sale or intended sale.

- C. Vessels operating in commercial mode must adhere to all applicable commercial regulations.
- D. Vessels making more than one commercial trip per calendar day are bound by all applicable per-vessel, per-day possession limits.
- E. Vessels making more than one commercial trip per calendar day must have onboard a RI catch and effort logbook or a federal VTR, and the logbooks or VTRs must be completed prior to the initiation of the second commercial or recreational fishing trip on the same day. An exemption from carrying the RI catch and effort logbook shall be granted for vessels which are operated by licensed captains who are enrolled and currently active participants in the eTrips electronic reporting program. The eTrips report of the first commercial or recreational fishing trip must be entered prior to the initiation of the second commercial or recreational fishing trip on the same day.
- F. A commercially declared vessel, operating in commercial mode, may not possess or land more than the per-vessel limit; however, a portion of the catch may be retained for (non-commercial) personal use, provided that the amount of fish retained for personal use must be recorded in the licensee's commercial logbook.
- G. Any vessel operating commercially, including any vessel fishing commercially using rod and reel, may utilize, without restriction, any number of unlicensed crew members to assist with any commercial operations.
- H. For all commercial fisheries except shellfish, any number of unlicensed crews may assist in direct commercial harvest operations regardless of the manner, method or contrivance employed, as long as said crew is/are located onboard a commercially declared vessel that is operated by an individual who possesses a valid and proper commercial fishing license and is/are under the direct supervision and responsibility of said properly licensed commercial fisher. With respect to commercial shellfish operations, unlicensed crews may only assist with culling activities and other indirect harvest operations, while said crew is/are located onboard a commercially declared vessel that is operated by an individual who possesses a valid and proper commercial fishing license and is/are under the direct supervision and responsibility of said properly licensed commercial fisher.

2.9.4 Vessels Fishing in More Than One Mode:

- A. On a per-trip basis, a vessel may only operate in recreational mode, or party/charter mode, or commercial mode. No vessel may fish in more than one mode during the same trip.
- B. A vessel that is commercially declared, pursuant to § 2.7.8(H) of this Part herein, may operate in commercial mode during one portion of a calendar day and fish in recreational or party/charter mode during a separate trip on the same day,

subject to separate and non-overlapping commercial and recreational, or party/charter, regulations. A vessel that operates first commercially must complete their logbook prior to the initiation of the second trip.

- C. Upon boarding or inspection, the captain or operator of a commercially declared vessel must disclose whether the vessel is operating in commercial mode or party/charter mode or recreational mode.

RHODE ISLAND
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

DIVISION OF MARINE FISHERIES



2020 Sector Management Plan

DRAFT

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INTRODUCTION

During the 2002 legislative session, the Rhode Island General Assembly adopted the Commercial Fisheries Management Act, establishing a new commercial fishing license system and ending the moratorium on the issuance of new commercial fishing licenses that had been in place since 1995. One purpose of the act was to allow for new entrants into commercial fisheries, while still restricting access to those fisheries where warranted to rebuild depleted marine fishery resources.

To meet the purposes of the act, regulations developed included fishery “endorsements” to restrict access to, or to otherwise manage commercial harvest for a particular marine species, group of species, or by gear type. As implied by name, access to a species or fishery that is included in the *restricted* endorsement category is *limited*; while species or fisheries included in a *non-restricted* endorsement category is *open*. Two commercial license types (i.e., Commercial Fishing License, Principal Effort License) requires the license holder to hold at least one fishery endorsement. The following fishery endorsements are currently included in regulation and addressed in this plan:

- *Restricted Finfish*
- *Non-Restricted Finfish*
- *Bay quahog*
- *Soft-shell clam*
- *Whelk*
- *Shellfish Other*
- *Lobster*
- *Non-lobster Crustacean*

Finfish species for which access is limited in the marine waters of Rhode Island and are therefore included in the *Restricted Finfish Endorsement* include striped bass, scup (during the summer sub-period only), summer flounder, black sea bass, and tautog. All other regulated species of finfish common in RI waters (e.g., winter flounder, monkfish) are included in the *Non-Restricted Finfish Endorsement*, which is available to any resident or non-resident license holder.

Shellfish species for which access is limited include bay quahog, soft-shell clam, and whelk, and are included in the *Bay Quahog, Soft-Shell Clam, and Whelk endorsements* respectively. All other regulated species of shellfish (e.g., blue mussel, oyster) are included in the *Shellfish Other Endorsement*, which is available to any Rhode Island resident license holder.

Species of crustaceans for which access is limited include lobster, which is included in the *Lobster Endorsement*. All other regulated species of crustaceans (e.g., Blue crab, Jonah crab) are included in the *Non-Lobster Crustacean Endorsement* which is available to any Rhode Island resident license holder.

The availability of any new restricted endorsements is determined annually as a ratio of licenses not renewed. These *exit:entry ratios* are a principal mechanism in the Rhode Island commercial licensing system used to manage harvest through license access restrictions. Exit:entry ratios are reviewed annually by the Industry Advisory Committee (IAC) and Rhode Island Marine Fisheries Council (RIMFC) (the Council) and presented for public comment at a public hearing in accordance with the requirements of the Administrative Procedures Act (R.I. Gen. Law §42-35). Determining the level of fishing effort, the impacts to the resource that a particular license type collectively represents, and thus determining the number of licenses desired in a given fishery as a means to limit such effort, is a primary goal of the licensing program.

Pursuant to R.I. Gen. Law §20-2.1-9(5), this management plan is prepared to address the state of the fishery resources of the state, with focus on those fishery resources with the greatest value to the state and is updated annually prior to any proposed changes to commercial license restrictions on effort and catch. Any amendments made to the commercial licensing regulations must be consistent with this management plan.

The primary goal for quota-managed fisheries is to maintain open seasons with economically viable possession limits while minimizing regulatory discards, avoiding harvest overages, maximizing harvest opportunities, and ensuring equitable access to the fishery. However, due to the multi-species nature of the commercial fishing industry, increased effort can result in shorter seasons and higher discards for many species. Information contained in this plan seeks to aid in understanding if management goals are being realized under existing management and to provide guidance as to the degree of potential new effort that could be sustained in RI's most important fisheries.

This plan includes up-to-date information on stock status, management programs, and fishery performance of commercially important species in the state and provides licensing recommendations based on these parameters for the following year. The plan is provided to the IAC in draft form in August, followed by a public hearing in September, and a RIMFC meeting in October. At their annual meeting in October, the Council offers final recommendations on all restricted endorsements and matters brought to the hearing in September.

DRAFT

RESTRICTED FINFISH

BLACK SEA BASS



STOCK STATUS

The [2016 benchmark stock assessment](#) found black sea bass is not overfished nor experiencing overfishing. With improved recruitment and declining Fishing mortality (F) rates since 2007, Spawning Stock Biomass (SSB) has steadily increased. SSB in 2015 was estimated at 48.9 million pounds, 2.3 times the SSB target of 21.3 million pounds, and F was estimated at 0.27,

below the F_{target} of 0.36. Recruitment at age 1 averaged 24.3 million fish from 1989 to 2015, with peaks in 2000 (1999 cohort) at 37.3 million and at 68.9 million in 2012 (2011 cohort). The distribution of black sea bass continues to expand northward into the Gulf of Maine (GOM). Quotas since 2015 have been set based on projections from this benchmark assessment (NEFSC, 2017a). An operational assessment is expected to be completed in 2019. This new assessment will include the newly calibrated Marine Recreational Information Program (MRIP) time series and could have significant impacts to the assessment.

MANAGEMENT PROGRAM

Black sea bass is managed jointly by the Atlantic States Marine Fisheries Commission (ASMFC) and the Mid-Atlantic Fishery Management Council (MAFMC) through the Summer Flounder, Scup and [Black Sea Bass Fishery Management Plan \(FMP\)](#) and its' subsequent amendments and addenda. The FMP establishes coast-wide quotas for each state annually; with Rhode Island's share of the quota currently at 11%. Minimum size, seasons, and possession limits are then established by each state annually, with review by the ASMFC/MAFMC to assure compliance with the FMP. The specifications for 2019 are presented in the table below. These recommendations are consistent with the advice of the RIMFC. A Multi-Purpose License or *Restricted Finfish Endorsement* is required to harvest black sea bass in RI waters.

2019 RI COMMERCIAL REGULATIONS

Min. Size	Season	2019 Allocation (%)	Possession Limit (lbs/vsl)
11"	1/1 – 4/30	25%	500/week
	5/1 – 6/30	25%	50/day
	7/1 – 7/31	19.5%	50/day
	8/1 – 9/14	CLOSED	
	9/15 – 10/31	19.5%	50/day
	11/1 – 12/ 31	11%	50/day

Currently, only the first sub-period January 1 – April 30 is managed by aggregate, or weekly, possession limits; all other sub-periods are managed by a daily possession limit. As a means to reduce regulatory discards and provide greater flexibility to fishing practices, the Division is currently working to determine if aggregate possession limits are feasible for other sub-periods through an aggregate landings pilot program.

FISHERY PERFORMANCE

In 2018, 507 commercial fishers (Table 2) landed 375,853 pounds of black sea bass in RI valued at \$1,440,258 (Table 1). In 2019, the possession limit in the first sub-period was increased twice, on March 3 from 500 to 750 lbs/week, and then on March 24 to 850 lbs/week. The second sub-period closed on June 11, 19 days before the end of the sub-period. The sub-period beginning on July 1 closed on July 17, 14 days before the end of the sub period (Table 3).

DMF RECOMMENDATIONS FOR 2020

NOAA fisheries has proposed interim specifications for the 2020 fishing year that will be replaced in early 2020 following the results of a black sea bass operational assessment. The coastwide quota for 2020 is anticipated to be 3.52 million lbs, a slight increase from the 2019 coastwide quota of 3.14 million pounds. The current management program is performing reasonably well given the low quota and high availability of this species in our area, with closures minimized to the greatest extent practicable given the current quota and level of effort. Based on the interim 2020 quota and performance to date in 2019, the Division recommends maintaining the level of effort at or below current levels; and maintain as a restricted category species. An important note for 2020 is that there has been a significant recalibration in an important data stream (recreational catch data), and the operational assessment could have major repercussions to the commercial quota, therefore there is high uncertainty in this recommendation for 2020.

SCUP



STOCK STATUS

The [2017 stock assessment update](#) found scup is not overfished nor experiencing overfishing. With improved recruitment and declining F rates since 2000, SSB has steadily increased. SSB in 2016 was estimated at 396 million pounds, higher than the SSB_{target} of 192 million pounds, and F was estimated at 0.139, below the F_{target} of 0.22. Recruitment at age 0 averaged 121 million fish from 1984 to 2016, with peaks in 1999 at 222 million, 2006 at 222 million, and at 218 million in 2007. The 2015 year class estimate was large at 252 million fish while the 2016 estimate was below average at 65 million fish (NEFSC, 2017c).

MANAGEMENT PROGRAM

Scup is managed jointly by the ASMFC and MAFMC through the [Summer Flounder, Scup and Black Sea Bass FMP](#) and its subsequent amendments and addenda. The FMP establishes coast-wide quotas for each state annually, with RI's share currently at 56.19%.

During the two federal sub-periods, the quota is available coast-wide and is managed through daily possession limits. Scup is classified as a non-restricted species in RI during these two federal sub-periods. In the summer however, scup is classified as a restricted species for the purpose of managing catch rates when landings by state waters fishermen increases. RI further manages the summer sub-period by allocating the state quota into a General Category (GC) (i.e., gear types other than floating fish traps) and Floating Fish Trap (FFT) sector, at 40% and 60% respectively, with allocations to these two sectors based on historical landings. Another key aspect of the management program includes DEM's authority to transfer quota between the FFT and GC sectors, which provides for the full harvest of the RI quota each year. A Multi-Purpose License or *Restricted Finfish Endorsement* (summer only, *Non-Restricted Finfish Endorsement* in winter) is required to harvest scup in RI waters.

2019 RI COMMERCIAL GENERAL CATEGORY REGULATIONS

Min. size	Season	2019 Allocation	Starting Poss. limit
9"	Winter I (federal): (1/1 – 4/30)	Coastwide	50,000 lbs/vsl/day
	Summer: (5/1 – 9/30)	40% of sub-period quota	10,000 lbs/vsl/week
	Winter II (federal): (10/1 – 12/31)	Coastwide	2,000/18,000 lbs/vsl/day*

* Winter II possession limit begins at 2,000 lbs/vsl/day; change to 18,000/day if Winter I roll over available

2019 RI COMMERCIAL FLOATING FISH TRAP REGULATIONS

Min. size	Season	2019 Allocation	Starting Poss. limit
9"	Winter I (federal): (1/1 – 4/30)	Coastwide	50,000 lbs/vsl/day
	Summer: (5/1 – 9/30)	60% of sub-period quota	Unlimited
	Winter II (federal): (10/1 – 12/31)	Coastwide	2,000/18,000 lbs/vsl/day*

* Winter II possession limit begins at 2,000 lbs/vsl/day; change to 18,000/day if Winter I roll over available

FISHERY PERFORMANCE

In 2018, 433 commercial fishers (Table 2) landed 4,712,575 pounds of scup in RI valued at \$2,738,740 (Table 1). To date, no early closures have been needed. Two increases to the possession limit have been enacted in 2019 (July 21 to 15,000 lbs/week and August 4 to 20,000 lbs/week) (Table 3).

DMF RECOMMENDATIONS FOR 2020

NOAA fisheries has proposed interim specifications for the 2020 fishing year that will be replaced in early 2020 following the results of a scup operational assessment. The coastwide quota for 2020 is anticipated to be 23.98 million pounds, the same as 2019. Given the anticipated quota, good stock status, and performance to date in 2019, the Division recommends allowing for small increases in effort during the summer sub-period. Additionally, the Division recommends maintaining scup in the restricted category in the summer sub-period and in the non-restricted category only during the federal sub-periods at this time. An important note for 2020 is that there has been a significant recalibration in an important data stream (recreational catch data), and the operational assessment could have repercussions to the commercial quota, therefore there is high uncertainty in this recommendation for 2020.

STRIPED BASS



STOCK STATUS

A [benchmark stock assessment](#) for striped bass was completed and peer reviewed in November 2018 and subsequently adopted for management use by the ASMFC management board in May

2019. The assessment findings indicate that the striped bass stock is overfished and experiencing overfishing relative to the updated Biological Reference Points (BRPs). SSB in 2017 was estimated to be 151 million pounds, below both the SSB_{target} and $SSB_{threshold}$, 252 million pounds and 202 million pounds respectively. SSB has been declining since 2003 and has been below the threshold since 2010. F in 2017 was estimated to be 0.31, above both F_{target} and $F_{threshold}$, 0.20 and 0.24 respectively. F has been at or above the threshold in 13 of the last 15 years (NEFSC, 2019).

MANAGEMENT PROGRAM

Striped bass is managed by ASMFC through [Amendment 6](#) to the Interstate FMP for striped bass and its subsequent addenda I-IV, with [Addendum IV](#) being the most recent management document implemented in 2015. The recreational fishery is managed through minimum size and bag limits while the commercial fishery is managed with size limits and state-specific quota allocations. States can implement alternative management measures that are deemed to be equivalent to the preferred measures in the FMP through a Conservation Equivalency (CE) process. In RI, the recreational fishery has a 1 fish bag limit and a 28" minimum size. The commercial fishery is split between the GC and FFT sectors. The GC has a 5 fish possession limit, a 34" minimum size, and gets 61% of the RI allocation. The GC quota is divided between two sub-periods, designed to allocate harvest between inshore bay and offshore Block Island fishing. Days closed to fishing include Friday and Saturday as a means to extend the season as long as possible. The FFT sector operates under an ASMFC approved CE proposal that allows them to have a lower minimum size limit of 26" in exchange for a reduced quota. The FFT fishery opens annually on April 1 at an unlimited possession limit and continues until 70% of the sectors allocation is projected to be harvested. At the time a reduced possession limit of 500 pounds/fish trap licensee/day goes into effect until the FFT allocation is exhausted. If it is projected that the FFT sector will not be able to fully harvest their allocation, the Division may transfer a portion to the GC fishery. A Multi-Purpose License or *Restricted Finfish Endorsement* is required to harvest Striped bass in RI waters and the harvest of striped bass in federal waters (EEZ) is prohibited.

2019 RI COMMERCIAL GENERAL CATEGORY REGULATIONS

Min. Size	Season	2019 Allocation		Possession Limit
34"	5/20 – 6/30	61%	70%	5 fish/vessel/day
	7/1 – 12/31		30%	

2019 RI COMMERCIAL FLOATING FISH TRAP REGULATIONS

Min. Size	Season	2019 Allocation	Possession Limit
26"	4/1 – 12/31	39%	Unlimited until 70% of quota reached, then 500 lbs/licensee/day

FISHERY PERFORMANCE

In 2018, 267 commercial fishers (Table 2) landed 176,639 pounds of striped bass in RI valued at \$782,131 (Table 1). In 2019, the first sub-period of the GC sector did not experience an early closure and closed at the end of the sub-period, with an underage of 3,685 lbs (Table 3). The second sub-period began immediately on July 1 and closed prior to the end of the sub-period on July 11 with an overage of 9,535 lbs. As of the writing of this report, 57,263 lbs remain in the FFT quota.

DMF RECOMMENDATIONS FOR 2020

As a result of the findings of the 2018 striped bass benchmark stock assessments overfishing and overfished status, ASMFC is currently considering management changes for both the recreational and commercial fisheries in 2020 through Draft Addendum VI to Amendment 6 to the Interstate FMP for striped bass. The current timeline has the management board voting on final action on Addendum VI in October 2019. In the absence of information as to what management changes will occur in 2020, if any, the Division recommends maintaining effort at or below current levels and maintaining striped bass as a restricted category species.

DRAFT

SUMMER FLOUNDER



STOCK STATUS

The [2018 benchmark stock assessment](#) found summer flounder is not overfished or experiencing overfishing. With improved recruitment and declining fishing mortality rates since the late 1980s, SSB steadily increased, peaking in the early 2000s. SSB in 2017 was estimated at 98 million pounds, higher than the SSB_{threshold} of 63 million pounds, and F was estimated at 0.334, lower than the F_{threshold} of 0.448. Recruitment at age 0 was estimated to be below the

time series average of 53 million fish, at 42 million fish in 2017 (NEFSC, 2019).

MANAGEMENT PROGRAM

Summer flounder is managed jointly by the ASMFC and MAFMC via the [Summer Flounder, Scup and Black Sea Bass FMP](#) and its subsequent amendments and addenda. In RI, seasons are divided into three seasonal sub-periods. While previously the fishery had been closed for three days each week in the summer sub-period, following a quota increase in 2019 due to the findings of the benchmark stock assessment, these closed days were deemed no longer necessary and the fishery was restored to 7 days per week. Aggregate possession limits are currently only available to permit holders during the first sub-period. A Multi-Purpose License or *Restricted Finfish Endorsement* is required by license holders to harvest summer flounder in RI waters.

2019 RI COMMERCIAL REGULATIONS

Min. size	Season	2019 Allocation	Starting Poss. Limit (lbs/vsl/day)
14"	1/1 – 4/30 (Winter)	54%	100/1,500 Aggregate (bi-week)
	5/1 – 9/15 (Summer)	35%	50
	9/16 – 12/31 (Fall)	11%	100

FISHERY PERFORMANCE

In 2018, 492 commercial fishers (Table 2) landed 1,022,618 pounds of summer flounder in RI valued at \$4,706,067 (Table 1). In 2019, no early closures or daily possession limit changes were implemented during the first sub-period. The aggregate possession limit was increased once on March 31 to 4,000 lbs/bi-week. The possession limit in the summer sub-period was increased to 75 lbs/day on June 9 and raised again to 100 lbs/day on June 30. There have been no fishery closures to date in 2019 (Table 3).

DMF RECOMMENDATIONS FOR 2020

The coastwide quota for 2020 is estimated to be 11.53 million lbs, the same as 2019. Due to the current quota and current level of effort, the Division recommends maintaining effort at or below current levels and maintain as a restricted category species.

TAUTOG



STOCK STATUS

The [2016 stock assessment update](#), analyzes the stock in 4 regions (Massachusetts/Rhode Island - MARI, Long Island Sound, New Jersey/New York Bight, and Delaware/Maryland/Virginia); the updated assessment finds that the MARI region is not overfished and overfishing is not occurring. SSB has been

fairly steady over the past several years, and is estimated at 2,196 mt, above the threshold of 2,004 mt. F is estimated at 0.23, below the target of 0.28 (ASMFC, 2016).

MANAGEMENT PROGRAM

Tautog is managed regionally by the ASMFC through [Amendment 1](#) to the Interstate [FMP](#) for Tautog. Although not specifically required by the FMP, RI has an established commercial quota, which in part achieves the F targets required by the FMP. The commercial quota has remained stable for the past several years at 51,348 pounds. Traditionally, the quota was split between 3 seasons (spring, summer and fall), however, for 2019 the summer sub-period has been removed. A Multi-Purpose License or *Restricted Finfish Endorsement* is required by license holders to harvest Tautog in RI waters.

2019 RI COMMERCIAL REGULATIONS

Min. Size	Season	2019 Allocation	Possession Limit
16"	1/1 – 3/31		Closed
	4/1 – 5/31	50%	10 fish/day
	6/1 – 10/14		Closed
	10/15 – 12/31	50%	10 fish/day

FISHERY PERFORMANCE

In 2018, 242 commercial fishers (Table 2) landed 51,414 pounds of tautog in RI valued at \$196,178 (Table 1). The fishery experienced an early seasonal closure in the first sub-period in 2019 and closed early on May 24 (Table 3).

DMF RECOMMENDATIONS FOR 2020

The quota for 2020 is anticipated to be 51,348 pounds, minus any overages that may occur in 2019. Due to uncertainty in stock status pending a stock assessment update with the newly calibrated MRIP data and difficulty with maintaining open seasons, the Division recommends maintaining effort at or below current levels and maintain as a restricted category species.

2020 LICENSING RECOMMENDATIONS - *RESTRICTED FINFISH* *ENDORSEMENT*

DMF

Referring to Table 4, the number of licenses eligible to harvest restricted finfish has remained relatively stable in the last three years, which indicates that this ratio is maintaining a consistent number of licenses and participants in the fishery. More importantly however is that the new licenses that replaced the licenses not renewed has not led to an appreciable increase in effort, evidenced by the number of participants landing restricted species. Each of the restricted species had fewer participants in 2018 than 2017 and none have fluctuated more than 5% since 2014. (Table 2). **The Division therefore recommends that the 1:1 exit:entry ratio be maintained, and that the species currently included in the Restricted Finfish category also be maintained.**

In 2019, 13 licenses eligible to harvest restricted finfish were not renewed (8 MPURP, 5 PEL w/RFIN), which would *result in 15 new PEL restricted finfish endorsements being issued in 2020.*

RIMFC

A recommendation will be made at their meeting on October 7, 2019.

DRAFT

NON-RESTRICTED FINFISH

ATLANTIC HERRING



STOCK STATUS

The [2018 Atlantic herring benchmark stock assessment](#), peer reviewed at the 65th [Northeast Regional Stock Assessment Review Committee \(SARC\)](#), indicates Atlantic herring are not overfished and overfishing is not occurring; however, recent estimates of herring recruitment have been below average, leading to in-season ACL

adjustments in 2018 and 2019. SSB in 2017 was estimated at 141,473 mt, below the SSB_{target} (SSB_{MSY proxy}) of 189,000 mt (416 million pounds) and above the SSB_{threshold} ($1/2$ SSB_{MSY proxy}) of 94,500 mt (208 million pounds). In 2017, F was estimated at 0.16, below the F_{threshold} of 0.51 (NEFSC, 2018).

MANAGEMENT PROGRAM

Atlantic herring is managed jointly by the ASMFC, NOAA Fisheries and NEFMC. At ASMFC, Atlantic herring are managed through [Amendment 3 to the Interstate FMP for Atlantic Herring](#) and subsequent addenda I and II. Annual specifications are calculated and regional ACLs (quotas) are broken out into fishing areas. Area 2 encompasses Southern New England (SNE) waters including RI state waters. The 2019 Atlantic herring quota for Area 2 was set to 4,188 metric tons. River herring bycatch is a concern within the Atlantic herring fishery and also has regional ACLs (catch caps) that are set by fishing area and gear type. When the catch cap for river herring is reached in any given area, the Atlantic herring fishery is closed until the next fishing year. The 2019 Area 2 river herring catch cap was set at 251.9 mt. A Multi-Purpose License or *Non-Restricted Finfish Endorsement* is required to harvest Atlantic herring in RI waters.

In RI, any vessel is eligible to participate in the state waters Atlantic herring fishery, however a permit is required to possess greater than 2,000 pounds. This permit has been required since 2013 as a means to address issues arising from prohibited species interactions, mainly river herring, and gear conflicts. Fisheries violations may result in a vessel's state water Atlantic herring permit being revoked.

FISHERY PERFORMANCE

In 2018, 27 commercial fishers (Table 2) landed 2,159,432 pounds of Atlantic herring in RI valued at \$571,543 (Table 1). A state quota has not been established.

DMF RECOMMENDATIONS FOR 2020

It is recommended that the current permitting program be reviewed for effectiveness and continue to match federal landing limits in state waters. Maintain as a non-restricted category species.

BLUEFISH



STOCK STATUS

The most recent [ASMFC Benchmark Stock Assessment](#) was conducted by the Northeast Regional Stock Assessment Workshop (SAW) in August 2015. The assessment indicates lower biomass estimates and reference points relative to the previous assessment, though the species is not currently experiencing overfishing, nor is it overfished. SSB

in 2014 was estimated to be 191 million pounds, which is less than the SSB_{target} (223 million pounds) but greater than the SSB_{threshold} (112 million pounds). F in 2014 was estimated to be 0.157, below the F_{threshold} (F_{msy proxy} = F_{35%SPR} = 0.19).

MANAGEMENT PROGRAM

Bluefish is managed jointly by the ASMFC and MAFMC through the [FMP for Bluefish](#) and its subsequent amendment and addendum, which sets annual commercial coast-wide quotas for each state; Rhode Island receives 6.8%. Weekly aggregate possession limits in RI allow for fishermen to maximize harvest when they encounter bluefish in large numbers, while allowing for up-to-date quota tracking. In 2018, the first sub-period possession limit was changed from a 500/week aggregate to a 1000/bi-week aggregate, this approach was maintained in 2019. A Multi-Purpose License or *Non-Restricted Finfish Endorsement* is required to harvest Bluefish in RI waters.

2019 RI COMMERCIAL REGULATIONS

Min. Size	Season	Possession Limit (lbs/vsl)
12"	1/1 – 4/30	1000/bi-week
	5/1 – 11/9	8000/week
	11/10 – 12/31	500/week

FISHERY PERFORMANCE

In 2018, 278 commercial fishers (Table 2) landed 237,121 pounds of bluefish in RI valued at \$245,049 (Table 1). In 2019, the first sub-period remained open for its entirety with no possession limit decreases imposed, with a harvest underage of 11,468 pounds, which carried over into the second sub-period. The possession limit in the second sub-period was increased to 12,000/week on June 30 (Table 3) and has ~400,818 pounds remaining as of the writing of this report.

DMF RECOMMENDATIONS FOR 2020

The initial 2020 RI allocation is estimated to be 528,280 lbs., though NOAA may increase the quota in early 2020 in the event of a recreational to commercial sector transfer. This quota is subject to change depending on the performance of the recreational fishery in 2019, the results of the 2019 operational

assessment, and any potential transfers that may occur from the recreational sector to the commercial sector. Given a similar quota and current level of effort, the Division recommends maintaining effort in 2020 at current levels and maintaining bluefish as a non-restricted category species.

However, RI has required frequent commercial transfers from Atlantic states in past years. RI has received transfers ranging from 100,000 lbs. to 180,000 lbs. between 2014 and 2017, averaging an annual +55,949-lb transfer during that time. The Division will continue to monitor the situation and may consider adding bluefish to the restricted category in the future if transfers continue to occur frequently.

DRAFT

COD



STOCK STATUS

RI State waters are considered part of the George's Bank (GB) cod stock. An updated [operational assessment](#) for the GB Atlantic Cod stock was completed in 2017. This was a data-limited assessment using the PlanBsmooth approach that updated commercial fishery catch data through 2016 and updated research

survey indices of abundance. Based on this assessment, stock status cannot be quantitatively determined due to a lack of biological reference points, however it is qualitatively assessed as overfished. Overfishing status is unknown. Projections cannot be computed using the PlanBsmooth assessment approach, but instead this approach applies an estimate of recent change in the smoothed survey biomass (rate of change is estimated to be 1.517 in 2017) to the average of the recent three years of catch to produce catch advice (thus influenced by uncertainty in survey estimates). The smoothed survey biomass is increasing, but without a biomass reference point it is not known if rebuilding is on schedule (NEFSC, 2017b).

MANAGEMENT PROGRAM

Atlantic cod is managed on a federal fishing year (May 1 - April 30) under the NEFMC [Northeast Multispecies FMP](#). Due to the 35-day partial Federal government shutdown, there was a delay in the rulemaking process for Framework Adjustment 58 of the Northeast Multispecies Groundfish FMP. Beginning May 1st, 2019, the annual catch limit was set at 3,348,822 pounds under Framework 57, the same as for FY 2018. Framework 58 was passed and changes to the quota for seven species (including Atlantic Cod) were effective beginning July 18, 2019. The 2019 Annual Catch Limit (ACL) for the GB stock under this new framework is 3,838,248, up 14.6% from the 2018 ACL. In addition, the minimum size was lowered to 19" for the commercial fishery and 21" for the recreational and party/charter fisheries. In an effort to complement federal FMPs, RI has adopted a minimum size limit and daily possession limit consistent with federal regulations, and state quota set at 1% of the GB ACL (equal to 38,382 pounds for 2019). A Multi-Purpose License or *Non-Restricted Finfish Endorsement* is required to harvest Atlantic cod in RI waters.

2019 RI COMMERCIAL REGULATIONS

Min. Size	Season	Possession Limit (lbs/vsl/day)
19"	5/1 – 4/30	1,000

FISHERY PERFORMANCE

In 2018, 87 commercial fishers (Table 2) landed 65,696 pounds of Atlantic cod in RI valued at \$151,667 (Table 1). These landings include fish caught in state waters, as well as fish caught in federal waters. State-water landings for RI during FY2018 totaled approximately 3,144 pounds, or 9.4% of the RI state-water quota (33,488.22 lbs). The state quota for cod has not been harvested since its inception in 2009.

Cod abundance in state waters is ephemeral and potential landings for a given year cannot be accurately projected. This fishery still appears to be resource limited and given the increase in the ACL for 2019, it is unlikely that the RI state quota will be fully harvested.

DMF RECOMMENDATIONS FOR 2020

The 2020 ACL for GB Atlantic Cod is 2,182 mt (4,810,487 pounds). RI's 2020 state quota is set at 1% of the ACL, equal to 48,105 lbs. It is recommended that effort be maintained at current levels and this species be maintained in the non-restricted category.

DRAFT

MENHADEN



STOCK STATUS

A [2017 Atlantic menhaden stock assessment update](#) indicates the stock is neither overfished nor experiencing overfishing. The current BRPs use F and Fecundity (FEC, number of mature ova) to determine stock status. F has been variable over time series ranging between 0.31 and 0.58 with F in 2016 estimated to be 0.51. Fecundity in 2016 was estimated to be 83,486 billion eggs, above the threshold of 57,295 billion eggs but below the target of 99,467 billion eggs (ASMFC, 2017a). Work is currently underway on two benchmark stock assessments for Atlantic menhaden, a single species assessment and a series of assessment models that could be used for ecological reference points. Both assessment processes will be peer reviewed in November 2019 and are scheduled to go to the Atlantic menhaden management board in February 2020.

MANAGEMENT PROGRAM

Atlantic menhaden are managed by the ASMFC under [Amendment 3](#) to the Interstate [FMP](#) for Atlantic Menhaden which maintains the management program's current single-species BRPs until the review and adoption of menhaden-specific ecological reference points as part of the 2019 benchmark stock assessment process. It also addresses multiple commercial management measures, including allocation, quota transfers, quota rollovers, incidental catch, and the Episodic Events (EE) Set Aside Program. The ASMFC's Atlantic Menhaden Management Board sets an annual Total Allowable Catch (TAC) for menhaden that is allocated to the Atlantic coast jurisdictions, with each jurisdiction getting a 0.5% minimum quota allocation, with the remainder of the TAC being distributed to the states based on landings history occurring from 2009-2011. A TAC set-aside of 1% is used each year by states in the New England region (New York to Maine) for EE, or periods of time when large amounts of biomass are present (ASMFC, 2017b). RI has participated in the EE Set-Aside Program, which has allowed RI state waters to re-open to the landing of menhaden until the set-aside quota was harvested or the program ended. The RI menhaden allocation is 0.52% of the overall TAC. Upon harvest of the RI quota, the landing of menhaden in RI is prohibited, except for non-directed fisheries which have a bycatch allowance of 6,000 pounds/vessel/day, or 12,000 pounds/vessel/day if two licensed fishermen are on board the vessel. A Multi-Purpose License or *Non-Restricted Finfish Endorsement* is required to harvest Menhaden in RI waters.

In Rhode Island, Narragansett Bay in its entirety is designated a Menhaden Management Area through RI statute, which provides the Division with the ability to manage menhaden through additional [management measures](#) including:

- Areas permanently closed to purse seining (i.e., Providence River, Greenwich Bay);
- A daily possession limit of 120,000 pounds/vessel;
- Net size certification;
- Vessel capacity restrictions;
- Call-in requirements;

- A threshold amount of 2,000,000 lbs of fish that must be present in the management area before opening the commercial bait fishery;
- An overall cap on the amount of fish that can be harvested (i.e., 50% of the standing stock in the Bay over the threshold amount);
- A threshold amount of fish that must be present for the commercial bait fishery to remain open (i.e., 1.5 million pounds);
- A Fall opening of the fishery (subject to quota or EE availability) in the southern portion of the management area, regardless of biomass levels, with a daily possession limit of 25,000 lbs/vessel.

Biomass levels in the Management Area are monitored on a weekly or bi-weekly basis through a contracted spotter pilot who provides school counts and an estimate of biomass in pounds of fish. A depletion model for open systems (Gibson 2007) uses these spotter pilot estimates, commercial bait landings, and biological information to provide an overall estimate of biomass present, which is then used to open and close the commercial bait fishery in the management area.

FISHERY PERFORMANCE

In 2018, 7 commercial fishers (Table 2) landed 722,388 pounds of Atlantic menhaden in RI valued at \$54,990 (Table 1). As of the writing of this report, 50,431 pounds have been landed, with 2,390,949 pounds remaining in the quota. There have been no menhaden management area openings in 2019 to date as the biomass level has not reached the threshold amount to allow fishing to commence.

DMF RECOMMENDATIONS FOR 2020

The TAC for Atlantic menhaden for 2020 has been set by the ASMFC management board at status quo. RI's initial commercial menhaden quota for 2020 is 2,440,542 lbs, minus any overages that occur; therefore, the Division recommends maintaining effort at or below current levels in 2020 and maintaining menhaden as a non-restricted species.

MONKFISH



STOCK STATUS

The [2016 monkfish operational assessment](#) did not include an update to the population model (SCALE) used in previous assessments, because of uncertainty about the ageing methodology used to estimate monkfish growth. As a result, components of the biological reference points, such as $F_{threshold}$, could not be updated resulting in no updates to the Over Fishing Limit (OFL). The 2016 operational assessment did not vacate the 2013 operational assessment, which showed that F was estimated to be 0.11, the updated $F_{threshold}$ was 0.37, and the corrected total

Biomass (B) estimate of 88,806 mt was above both the B_{target} of 71,667 mt (BMSY proxy) and the 2013 corrected $B_{threshold}$ of 23,204mt ($1/2 * B_{target}$). The 2013 BRPs indicated monkfish are not overfished and overfishing is not occurring in the Southern Fishery Management Area; however, high levels of uncertainty in the BRPs likely contribute to underestimates of F and overestimates B in each area (NEFSC, 2016). A new operational assessment is expected to be completed in 2019.

MANAGEMENT PROGRAM

Monkfish is jointly managed by the NEFMC and MAFMC through the [Monkfish FMP](#) on a federal fishing year (May 1 - April 30), with the NEFMC having the administrative lead. Monkfish is managed as two stocks, with RI waters considered part of the Southern Management Area (SMA) stock. The SMA monkfish stock is regulated by the NEFMC through minimum size limits, gear restrictions, and Days at Sea (DAS) restrictions. A Multi-Purpose License or *Non-Restricted Finfish Endorsement* is required to harvest monkfish in RI waters.

In an effort to complement the FMP, RI has adopted a minimum size, daily possession limit, and state quota on monkfish harvested in state waters. The RI state-water quota is set at 3% of the SMA Total Allowable Landings (TAL) with a possession limit reduction to 50 lbs/vessel/day tail weight when state-water landings reach 2% of the SMA TAL

2019 RI COMMERCIAL REGULATIONS:

Min. Size	Season	Possession Limit (lbs/vsl/day)
17" whole/11" tail	5/1 – 4/30	3,027 whole/700 tail

FISHERY PERFORMANCE

In the May 1, 2017 – April 30, 2018 fishing year, 174 commercial fishers (Table 2) landed 3,057,088 pounds of monkfish in RI valued at \$2,329,546 (Table 1).

DMF RECOMMENDATIONS FOR 2020

Allowing for a modest increase in effort would appear to still provide for the directed fishery to remain open for the entire fishing year. Maintain in the non-restricted species category.

WINTER FLOUNDER



STOCK STATUS

The [2017 SNE/MA operational stock assessment](#) for Winter Flounder (WFL) indicates the stock is overfished, but overfishing is not occurring. SSB in 2016 was estimated to be 4,360 mt, which is 18% of the biomass target and 36% of the biomass threshold. F in 2016 was estimated to be 0.21 which is 62% of the overfished threshold (NEFSC, 2017d).

MANAGEMENT PROGRAM

Winter flounder are jointly managed on a federal fishing year (May 1 - April 30) by the ASMFC and NEFMC. At the NEFMC, WFL are managed through the Northeast Multispecies (Groundfish) FMP. Under [Framework Adjustment 58](#), harvest of WFL is allowed in the federal SNE/MA stock management area, and federally permitted vessels participating in a sector are allowed to fish with no limit until they reach their sector allowable catch limit. Federally permitted vessels in the “common pool” are currently restricted to a possession limit of 2,000 lb/vsl/day, or 4,000 lbs/vsl/trip limit, which is adjustable by the NMFS regional administrator. The SNE/MA management area remains open to common pool vessels until the allowable catch limit is reached.

At the state level, ASMFC manages the inshore WFL stocks through the FMP for Inshore Stocks of WFL and its subsequent [amendments and addenda](#). WFL are managed with minimum size, daily possession limits, mesh size restrictions, and areas closed to harvest. In RI, regulations include areas within state waters closed to harvest, including Point Judith Pond, the Harbor of Refuge, Potters Pond, and Narragansett Bay north of the Colregs line, which aim to protect a recovery of the population in these areas due to the SNE closure. In order to maintain a stream of commercial landings for biological data collection used in the stock assessment, RI also adopted a 50 lb daily possession limit. A Multi-Purpose License or *Non-Restricted Finfish Endorsement* is required to harvest WFL in RI waters.

2019 RI COMMERCIAL REGULATIONS

Min. Size	Season	Possession Limit (lbs/vsl/day)
12”	1/1 – 12/31	50

FISHERY PERFORMANCE

In 2018, 100 commercial fishers (Table 2) landed 191,198 pounds of winter flounder in RI valued at \$574,222 (Table 1). A state quota has not existed since 2006.

DMF RECOMMENDATIONS FOR 2020

As the fishery is determined to be overfished, with no overfishing, the Division recommends maintaining effort at or below current levels in 2020 and maintaining winter flounder as a non-restricted species. Any future changes in state waters management would need approval of the ASMFC Winter Flounder Management Board.

SPINY DOGFISH



STOCK STATUS

The [2018 stock assessment update](#) indicated that the spiny dogfish population is not overfished, and overfishing is not occurring. Spawning stock biomass is estimated to be 235 million pounds, a level slightly above the threshold of 175 million pounds (ASMFC, n.d.).

MANAGEMENT PROGRAM

Spiny dogfish is jointly managed on a federal fishing year (May 1 - April 30) by the MAFMC and NEFMC through a joint FMP, with the ASMFC overseeing the species interstate FMP. Spiny dogfish are managed under a quota system. The 2018 fishing season (May 1 - April 30) quota was 38.2 million pounds, with Rhode Island's quota is part of the Northern Region (Maine through Connecticut) at 58% of the coastwide allocation. Vessels are limited by a maximum possession of 6000 pounds per vessel per day. No minimum size exists currently with the species. A Multi-Purpose License or *Non-Restricted Finfish Endorsement* is required to harvest Spiny dogfish in RI waters.

FISHERY PERFORMANCE

In the May 1, 2017 – April 30, 2018 fishing year, 35 commercial fishers (Table 2) landed 197,732 pounds of spiny dogfish in RI valued at \$32,359 (Table 1).

DMF RECOMMENDATIONS FOR 2020

At this time, the Division recommends status quo of the current fisheries management plan. Any changes in state waters management would need approval of the ASMFC Spiny Dogfish Management Board. Maintain in the non-restricted species category.

SMOOTH DOGFISH

STOCK STATUS

The [2015 benchmark stock assessment](#) for smooth dogfish indicates that smooth dogfish are not overfished and not experiencing overfishing (SEDAR, 2015).

MANAGEMENT PROGRAM

Smooth dogfish is jointly managed by NOAA Fisheries and [ASMFC](#). In November 2018, NOAA Fisheries published the 2018 Atlantic smooth dogfish quota of 1,802.6 dressed weight (dw) mt (3,973,902 dw lbs). This quota level has not been changed since the 2017 specification. In 2018, less than a quarter of the Atlantic smooth dogfish quota was harvested. Given that smooth dogfish is not overfished, and overfishing is not occurring, up to 50% of the (federal) base quota can be carried over to the following year if there is an under harvest. NOAA Fisheries rolled over 33% of unused 2018 quota to the 2019 base quota. For the 2019 fishing year, Rhode Island received 1.363% of the coastwide quota, equating to 24.6 dw mt (or 54,167 dw lbs).

For Rhode Island management, the fishing season is from January 1 through December 31. There is no possession limit or minimum size. A Multi-Purpose License or *Non-Restricted Finfish Endorsement* is required by license holders to harvest Smooth dogfish in RI waters.

FISHERY PERFORMANCE

In 2018, 33 commercial fishers (Table 2) landed 55,053 pounds of smooth dogfish in RI valued at \$19,405 (Table 1).

DMF RECOMMENDATIONS FOR 2020

At this time, the Division recommends status quo of the current fisheries management plan. Any changes in state waters management would need approval of the ASMFC Coastal Sharks Management Board. Maintain in the non-restricted species category.

SKATE



STOCK STATUS

The skate fishery is broken into two categories: winter skate (wing fishery) and little skate (bait fishery). Based on updated survey data, winter skate are not overfished, and overfishing is not occurring. The average biomass index of winter skate was 6.65 kg/tow, which is above the biomass threshold reference point (2.83 kg/tow) and above the B_{msy} proxy (5.66 kg/tow). The 2014-2016 average index is above the 2013-2015 index by 24.2%, thus overfishing is determined to not be occurring (GARFO, n.d.).

Little skate are not overfished, and overfishing is not occurring. For little skate, the 2015-2017 NEFSC spring average biomass index of 5.49 kg/tow is above the biomass threshold reference point (3.07 kg/tow) but below the B_{msy} proxy (6.15 kg/tow). The 2015-2017 average index is below the 2014-2016 average by 2.6%, which is less than the 20% change threshold, thus little skate are determined to be not overfished and overfishing is not occurring (GARFO, n.d.).

MANAGEMENT PROGRAM

The skate complex is managed on a federal fishing year (May 1 - April 30) by the NEFMC under the [Northeast Skate Complex FMP](#), which specifies federal-water management for seven skate species (barndoor, clearnose, little, rosette, smooth, thorny and winter skates). The FMP has been updated through a series of amendments and framework adjustments, the most recent being Framework Adjustment 5 to the Northeast Skate Complex FMP. The FMP identifies two skate fisheries, the wing and bait fisheries that focus on winter and little skate, respectively.

In an effort to complement the federal FMP, RI has adopted a weekly possession limit for the wing fishery of 18,200 pounds/vessel/week for wings only; or 41,314 pounds/vessel/week for whole skate. The RI state-water bait fishery is managed and a combination of fishing seasons, daily possession limits, and a maximum size. A Multi-Purpose License or *Non-Restricted Finfish Endorsement* is required to harvest skate in RI waters.

FISHERY PERFORMANCE

In the May 1, 2017 – April 30, 2018 fishing year, 139 commercial fishers (Table 2) landed 1,497,953 pounds (wing weight) of winter skate, a value in RI of \$ 839,618 (Table 1). Also, in 2018, 46 fishers (Table 2) landed 7,064,778 pounds of little skate with a value of \$ 881,935 (Table 1).

DMF RECOMMENDATIONS FOR 2020

Allowing for a modest increase in effort and would appear to still provide for the directed skate wing and bait skate fisheries to remain open for the entire fishing year. Maintain in the non-restricted species category.

LONGFIN SQUID



STOCK STATUS

Based on the [2017 stock assessment update](#), the longfin inshore squid (*Doryteuthis pealeii*) stock is not overfished. In 2016 biomass was estimated to be 73,762mt; much greater than the threshold B_{msy} proxy of 21,203 mt. The overfishing status could not be determined because there are no fishing mortality reference points for the stock (NEFSC, 2017e).

MANAGEMENT PROGRAM

Longfin squid is managed on a federal fishing year (May 1 - April 30) by the MAFMC under the FMP for Squid, Atlantic mackerel, and Butterfish. The management unit includes all U.S. waters off the U.S. East Coast. In RI, longfin squid is not a regulated species in state waters. A *Non-Restricted Finfish Endorsement* is required by license holders to harvest longfin squid in RI waters.

FISHERY PERFORMANCE

In the May 1, 2017 – April 30, 2018 fishing year, 164 commercial fishers (Table 2) landed 14,044,883 pounds of longfin squid in RI valued at \$20,617,445 (Table 1).

DMF RECOMMENDATIONS FOR 2020

There is no quota established for longfin squid in RI State waters. Maintain in the non-restricted species category.

DRAFT

NORTHERN SHORTFIN (ILLEX) SQUID



STOCK STATUS

Northern shortfin squid was last assessed in 2005 at SAW 42 (NEFSC 2006). At SAW 42, it was not possible to evaluate stock status because there were no reliable estimates of stock biomass or fishing mortality rates. Stock status with respect to biomass was unknown (NEFSC, 2005).

MANAGEMENT PROGRAM

Northern shortfin squid is managed by the MAFMC under the [FMP for the Squid, Atlantic mackerel, and Butterfish](#). The management unit includes all U.S. waters off the U.S. East Coast. In RI, Northern shortfin squid is not a regulated species in state waters. A Multi-Purpose License or *Non-Restricted Finfish Endorsement* is required to harvest northern shortfin squid in RI waters.

PERFORMANCE OF THE FISHERY IN 2019

In the May 1, 2017 – April 30, 2018 fishing year, 27 commercial fishers (Table 2) landed 20,786,875 pounds of northern shortfin squid in RI worth \$11,887,408 (Table 1).

DMF RECOMMENDATIONS FOR 2020

There is no quota or regulations established for northern shortfin squid in RI State waters. Maintain in the non-restricted species category.

2020 LICENSING RECOMMENDATIONS - *NON-RESTRICTED FINFISH ENDORSEMENT*

DMF

The *Non-Restricted Finfish Endorsement* is an open and available to anyone during the application period. The number of these endorsements issued has decreased over the past seven years (Table 4). This decrease in participation has not had a discernible effect on the landings of non-restricted species. It should be noted that this endorsement allows new entrants into the finfish sector, with landings generated from the endorsement used to establish priority in the issuance of the Restricted Finfish Endorsement. **The Division recommends maintaining this approach for entry into the fishery and to keep this as an open endorsement for 2019.**

RIMFC

A recommendation will be made at their meeting on October 7, 2019.

SHELLFISH

BAY QUAHOG



RESOURCE ASSESSMENT

A formal, peer-reviewed stock assessment does not currently exist, but is being developed. However, both landings and relative abundance indices (the latter derived from DEM's hydraulic clam dredge survey) suggest the resource has been stable over the last several years. A new assessment is being developed to better assess the stock's status and improve its scientific rigor.

MANAGEMENT PROGRAM

A minimum size of 1 inch (hinge width) and daily possession limits have been established, with reduced possession limits established in Shellfish Management Areas (SMA) to further manage harvest. The fishery is open year-round to RI residents only. A Multi-Purpose License or *Bay Quahog Endorsement* is required to harvest bay quahogs in RI waters.

In 2015, the exit:entry ratio for the *Bay Quahog Endorsement* was changed from 2:1 to 1:1, believing that the number of active fishermen and corresponding effort is more an industry-based economic issue than a resource management or availability issue. While landings have slightly declined over the past five years, the economic value has remained relatively stable. As such, the Division believes that maintaining the 1:1 ratio to increase in number of people participating in the fishery is not having a negative impact and should be continued.

FISHERY PERFORMANCE

In 2018, 538 commercial fishers (Table 2) landed 512,678 meat weight pounds of bay quahogs, in RI worth \$4,805,137 (Table 1).

2020 LICENSING RECOMMENDATIONS - *BAY QUAHOG ENDORSEMENT*

DMF

The Division recommends maintaining effort at current levels by maintaining the 1:1 exit:entry ratio for the Bay Quahog Endorsement. In 2019, 36 licenses eligible to harvest quahog were retired (8 MPURP, 12 PEL QUOH, 16 CFL QUOH). Under the current management program, *this would result in 36 new quahog endorsements on the CFL being issued in 2020.*

RIMFC

A recommendation will be made at their meeting on October 7, 2019.

SOFT-SHELL CLAM



RESOURCE ASSESSMENT

A dynamic depletion model for open populations, based on the work of Restrepo (1998) and Sosa-Cordero (2003), suggested that the soft shell clam population declined from 2006 to 2011 with recruitment failing to replace fishery removals (Gibson 2012). Thus, overfishing was occurring. Since 2012 the model has not been updated due to a collapse in the fishery and lack of a depletion. During the peak of the fishery in 2010, an increase in minimum size, by itself, did not stop overfishing, and catch limits needed to be reduced to less than three bushels per day to bring fishing mortality rates into balance with resource productivity (Gibson 2012).

In addition, there is evidence of a range-wide decline of soft-shell clams in response to *Mya* leukemia. (Metzger et al. 2016; Walker et al. 2009). In RI, densities have substantially declined in both fished and unfished soft-shell clam beds. Landings of soft-shelled clams continue to decline. Results from work in the coastal ponds combined with anecdotal observations and landings suggest that the stock is severely depleted.

MANAGEMENT PROGRAM

A minimum size of 2 inches (longest axis) and daily possession limits have been established, with reduced possession limits established in SMAs to further manage harvest. The fishery is open year-round to RI residents only. A Multi-Purpose License or *Bay Quahog Endorsement* is required to harvest soft-shell clams in RI waters. The current exit:entry ratio for soft shell clam license endorsements 5:1. The Division is concerned with the low abundance of soft shell clams and thus supports a conservative approach to allowing new entrants in the fishery.

FISHERY PERFORMANCE

In 2018, 31 commercial fishers (Table 2) landed 1,055 pounds meat weight of soft-shell clams in RI, valued at \$16,547 (Table 1). Currently, fishery landings are at the lowest recorded levels in the history of the time series.

2020 LICENSING RECOMMENDATIONS - *SOFT-SHELL CLAM ENDORSEMENT*

DMF

Due to the continued poor status of the resource, **the Division recommends reducing effort by increasing the exit:entry ratio or prohibiting new entrants into the fishery.** In 2019, 23 licenses eligible to harvest soft shell clam were retired (8 MPURP, 7 PEL SSCLM, 8 CFL SSCLM). At the current 5:1 exit:entry ratio, ***this would result in 6 new CFL soft shell clam endorsements being issued in 2020.***

RIMFC

A recommendation will be made at their meeting on October 7, 2019.

WHELK (Channeled and Knobbed Whelk)



RESOURCE ASSESSMENT

In 2010, DMF conducted its first comprehensive analytical assessment on whelk resources in Rhode Island using a Biomass Dynamic Model (BDM) (Gibson 2010). The whelk BDM stock assessment was updated in 2016 and included data through 2016 and resulted in an estimated $F_{msy}=0.53$. A target F rate was also developed for this fishery as a precautionary measure, the updated target F rate is 0.39. F has risen since the original assessment and is now estimated to be at $F_{2015} = 0.5$, which is at or above both F_{msy} and the F target level, so overfishing is likely occurring. Stock biomass is declining but remains above the threshold for overfished status. An updated whelk stock assessment has not been performed since 2016.

MANAGEMENT PROGRAM

The two species of whelk commonly landed in RI are managed under the same regulatory provisions. The fishery is open year-round to RI residents only. All whelks must be landed whole in the shell and adhere to a minimum size (3-inch shell width or $5 \frac{3}{8}$ inch shell length). A commercial possession limit of 35 bushels/day and a 300-pot limit/licensee have been established in rule. Effort is managed by restricting access to the fishery to MPURP holders or PEL and CFL license holders who hold a *Whelk Endorsement*. Eligibility for this endorsement is restricted to holders of a PEL or CFL, who already hold an actively fished *Quahog or Soft-Shell Clam Endorsement*.

FISHERY PERFORMANCE

In 2018, 109 commercial fishers (Table 2) landed 678,433 pounds live weight of whelk (species combined) in RI, with a value of \$2,094,733 (Table 1). Of these two species commonly landed in RI, channeled whelk constitutes 98% of reported landings. Since peaking in 2012, whelk landings fluctuated but generally decreased during 2013-2016, however landings increased in 2017 and again in 2018 with total landings (all species) in 2018 of 674,433 pounds live weight, a 48% increase compared to 2017 (458,765 pounds live weight). Since peaking in 2010, the average whelk landings per license show an overall decreasing trend from 2011-2016 but increased sharply in 2017 (4,498 pounds/fisher) with an 86% increase over the 2016 average (2,421 pounds/fisher). Average whelk landings per fisher increased again in 2018 up to 6,224 pounds/fisher, a 38% increase over the 2017 average.

2020 LICENSING RECOMMENDATIONS - WHELK ENDORSEMENT

DMF

Maintain effort at current levels by maintaining the restriction of new issuance of the whelk endorsement only to active quahog and soft-shell clam harvesters.

RIMFC

A recommendation will be made at their meeting on October 7, 2019.

OYSTER



STOCK STATUS

The status of the RI oyster stock is currently unassessed, but is considered greatly depressed compared to historic levels (Beck et al. 2011; Griffin 2016). According to local researchers studying oyster populations within Narragansett Bay, the effects of disease, environmental conditions, poor sets of new recruits, and fishing pressure are all responsible for the sharp decline

in abundance levels (Oviatt et al. 1998). Given the low abundance of the wild oyster population, increased fishing pressure would facilitate even greater depletions of the resource. Several oyster restoration and enhancement projects are currently being conducting in RI waters, as well as research investigating factors influencing recruitment or lack thereof, on natural and restored reefs. Until levels of recruitment increase, the stock will likely remain severely depleted. Further investigation into the effects of fishing effort will be revisited when the stock has recovered.

CURRENT MANAGEMENT PROGRAM

Oysters are managed under the *Shellfish Other Endorsement*, which is an open entry endorsement. Minimum size and possession limits are established, with reduced possession limits in SMAs. Oyster restoration efforts are being conducted in a number of coastal ponds and portions of the Narragansett Bay, aimed at identifying the best restoration practices for establishing oyster reefs in the closed areas.

FISHERY PERFORMANCE

In 2018, 28 commercial fishers (Table 2) landed 7,425 meat weight pounds, in RI worth \$31,948 (Table 1).

OTHER SHELLFISH



STOCK STATUS

Other species of shellfish commercially harvested within Rhode Island waters besides oysters include blue mussels, bay scallops, sea scallops, surf clams and razor clams. These species are not routinely assessed by DEM, in large part due to the low volume of landings, which results in a lack of available data to conduct comprehensive analytical assessments on the status of these populations. However, landings data and anecdotal evidence from the commercial

fishing industry are reviewed annually by Marine Fisheries and are used for identifying species that warrant further research.

CURRENT MANAGEMENT PROGRAM

Species of shellfish other than bay quahog, soft-shell clam, and whelk are included and managed under the *Shellfish Other Endorsement*. Minimum size and possession limits are established for oysters, bay scallop, sea scallop, and surf clam. In addition to creating SMAs to support Oyster management (e.g., Jacobs Point, Bissel Cove, Narrow River, Green Hill Pond), the Sakonnet River SMA was created for the management of surf clams. The *Shellfish Other Endorsement* is an open license category available to any license holder and is not managed with an exit/entry ratio system.

FISHERY PERFORMANCE

In 2018, 5 commercial fishers (table 2) landed 2,628 meat weight pounds of other shellfish species not including oysters, worth \$1,831 (Table 1). Combined with oyster landings, fishers of all shellfish other species landed a total of 10,053 meat weight pounds, worth \$33,779.

2020 LICENSING RECOMMENDATIONS - SHELLFISH OTHER ENDORSEMENT

DMF

The Division recommends that the *Shellfish Other Endorsement* remains an open license category available to any license holder.

RIMFC

A recommendation will be made at their meeting on October 7, 2019.

CRUSTACEANS

LOBSTER



STOCK STATUS

The [2015 American Lobster Benchmark Stock Assessment and Peer Review Report](#) indicates that the GOM /GB stock is at record high abundance and recruitment, whereas the SNE stock is at record low abundance and recruitment. The GOM/GB stock is not overfished and not experiencing overfishing.

Conversely, the SNE stock is severely depleted with poor prospects of recovery, necessitating protection (ASMFC, 2015).

GOM/GB

GOM/GB stock abundance has increased since 1979, but at an accelerated pace since 2007. Current (i.e. 2008 – 2013) stock abundance is at an all-time high and recruitment has remained high. However, since 2012, there have been consistent declines in the young-of-year lobster surveys in the GOM/GB stock. This has been speculated to foreshadow declines in recruitment and landings (ASMFC, 2015).

SNE

SNE stock abundance increased from the early 1980s, peaked during the late 1990s, then declined steeply through the early 2000s to a record low in 2013. Both the stock assessment and its peer review supported the conclusion that the SNE stock is severely depleted, with record low abundance and recruitment failure. This poor stock condition can be attributed to several factors including changing environmental conditions (e.g. warming waters and increased predation) and continued fishing mortality. Declines in population abundance are most pronounced in the inshore portion of the stock where environmental conditions have been increasingly unfavorable for lobsters since the late 1990s (ASMFC, 2015). Despite attrition among the commercial fleet and fewer traps fished for lobster, the population has continued to decline.

Declines in catch and fishery-independent survey indices in the offshore portion are evident as well; however, they are not as severe (ASMFC, 2015). It is believed the offshore area of SNE depends on nearshore larval settlement and offshore migration as the source of recruits (e.g., young of the year lobsters). Therefore, unless fishing effort is curtailed, the offshore component will be in jeopardy in the future when the poor year classes fail to materialize offshore.

MANAGEMENT PROGRAM

Lobster is managed by the ASMFC through the [FMP for lobster](#) and its subsequent [amendments and addenda](#), which is organized by Lobster Conservation Management Areas (LCMA). Rhode Island state waters comprise a portion of LCMA 2. DEM complies with the FMP through a set of management

measures including minimum/maximum gauge and escape vent sizes, trap limits, protection of egg-bearing females, v-notching, a trap reduction schedule (currently in year 4 of a 6-year period), and a 10% conservation tax on trap allocation transfers designed to further reduce the number of traps fished and fishing mortality. Both state (RI-MA) and federal waters are included in LCMA 2, requiring cooperative management. Additionally, in RI, participants in the lobster fishery must possess either a Multipurpose Fishing License, a Principal Effort license with a *Lobster Endorsement*, or a Commercial Fishing License with *Lobster Endorsement*. Participants who do not hold a LCMA 2 Lobster Trap Allocation (LTA) are prohibited from harvesting lobster from pots and are limited to 100 lobsters per day or 500 lobsters for fishing trips 5 days or longer.

FISHERY PERFORMANCE

The regional lobster resource has experienced a significant decline in abundance since the 1990's, which has resulted in the removal of latent effort in the fishery and reduced landings. The number of participants landing lobster decreased from 2017 to 2018 (Table 2). The trap reduction program continued in 2018-2019, with total traps reduced based on the 5% reduction and the conservation tax (Table 7). In 2018, 136 fishers (Table 2) landed 1,904,244 pounds of lobster in RI, with an ex-vessel value of \$10,947,054 (Table 1).

DIVISION RECOMMENDATIONS FOR 2020

The state will continue to work with the ASMFC to rebuild the lobster resource throughout the region. Attrition is still occurring in the industry. The state began to reduce effort through the trap reductions included in Addendum XVIII starting in 2016. This effort aimed to remove latent effort from the fishery that could be reactivated if resource conditions improve, as well as reduce fishing mortality. Participation in LCMA 2 is based on historical performance and the state has reviewed lobster licensing and made appropriate changes in preparation for limited access-historical performance. An LTA transferability program that was initiated with Addendum XII has been developed in consultation with ASMFC and NOAA Fisheries via Addenda XVIII, XIX, and XXI. This can be used to bring new individuals into the fishery without increasing effort above that qualified in the initial trap allocation.

2020 LICENSING RECOMMENDATIONS - *LOBSTER ENDORSEMENT*

DMF: In view of ASMFC compliance requirements and state law, it is recommended that the moratorium on the issuance of new lobster endorsements be continued for 2020.

RIMFC: A recommendation will be made at their meeting on October 7, 2019.

HORSESHOE CRAB



STOCK STATUS

The [2019 benchmark stock assessment](#) of horseshoe crab indicates high variability in trends among the coastal regions. The Southeast is the only area indicating an increase in abundance while Delaware Bay and the Northeast show consistent abundance and the New York region is seeing a decline (ASMFC, 2019). While this is an improvement for the Northeast region from the 2013 stock assessment update status which exhibited a decline, Rhode Island specific data continues to show a downward trend. This neutral status in 2019 was achieved by

Rhode Island's negative trend being counterbalanced by the improving Massachusetts stock status.

MANAGEMENT PROGRAM

The commercial horseshoe crab fishery is managed at the regional level by the ASMFC [Interstate FMP for horseshoe crabs](#) and its subsequent [addenda](#). In RI waters, horseshoe crab is included and managed under the *Non-Lobster Crustacean Endorsement*. DEM uses temporal closures, possession limits, state established quotas, and a permitting/reporting program to achieve compliance with the FMP. In 2017, DEM regulations were adopted establishing broader time closures, improved reporting and reporting compliance measures, a minimum size of 7" (prosomal width), and daily possession limits for the bait fishery of 60 crabs per person per day. The biomedical daily possession limit is equal to the total annual quota.

FISHERY PERFORMANCE

The use of time closures and possession limits in the State's bait fishery has greatly restricted harvest during peak spawning activity and resulted in reduced fishing mortality rates and harvest equity among participants. However, due to a small quota and the nature of accountable commercial harvest, overages may occur annually and must be deducted from the following year possibly resulting in a shorter harvest season and may limit resource access. Annual bait harvest since 2017 has been less than 20% of the allotted quota. Biomedical harvest rates are driven by the needs of biomedical companies which bleed the crabs for medical testing. The estimated mortality rate of bled crabs is 15% (ASMFC, 2019). In 2018, 19 fishers (Table 2) contributed to the combined bait and biomedical fisheries landed 68,171 pounds of horseshoe crab worth \$29,737 in RI (Table 1).

DMF RECOMMENDATIONS FOR 2020

The Division will continue to monitor harvest levels to determine the effects of the management measures and strategy implemented in 2017, however it is too soon to conclude if these measures are effective as intended as this species takes 10 years to reach maturity. Considering the bait fishery has remained open longer than it has in the last 10 years could be an indication of its effectiveness. The Division recommends maintaining as a non-restricted species in the *Other Crustaceans* endorsement category for 2020.

JONAH CRAB



STOCK STATUS

Previously regarded as bycatch in the American lobster fishery, Jonah crab started gaining attention in the mid 2000's as commercial landings started to increase, reaching a high of nearly 20 million pounds in 2018 (ASMFC, n.d.). As commercial landings have increased and since ASMFC has started to manage Jonah crab, state, federal, and academic scientists have endeavored to collect data on Jonah crab life history and population characteristics to perform a formal stock assessment. No time table has been set for such an assessment.

MANAGEMENT PROGRAM

Jonah crab is managed at the regional level by the ASMFC [Interstate FMP for Jonah crab](#) and its subsequent addenda I-III. The FMP was first adopted in 2016 and includes an LTA requirement, a minimum size limit of 4.75", and the prohibition of egg bearing females. Pursuant to the FMP, a control date of June 1, 2016 was established in RI. [Addendum I](#) establishes incidental bycatch limits for non-trap gear and non-lobster trap gear, [Addendum II](#) sets limits on claw harvest, and [Addendum III](#) stipulates requirements for harvester reporting and biological data collection.

Per Addendum I, a bycatch limit of 1,000 crabs per trip for non-trap and non-lobster fishermen was set. To avoid the unintentional outcome of this addendum of creating small industries operating solely under this provision, the ASMFC Jonah Crab Board aimed to define bycatch. As per ASMFC, Jonah crab caught under the bycatch limit must comprise an amount lower, in pounds, than the target species the deployed gear is targeting. Target species is further defined as: "those species primarily sought by the fishermen in the fishery" and are "the subject of directed fishing effort." Addendum II, adopted in early 2017, allows Jonah crab fishermen to detach and harvest claws at sea, with a required minimum claw length of 2.75" if the volume of claws landed is greater than five gallons. Claw landings less than five gallons do not have to meet the minimum claw length standard.

In RI, Jonah crab is included and managed under the *Non-lobster Crustacean Endorsement*. The directed fishery is limited to any licensed person who holds an LTA, or any person who does not hold an LTA but can prove participation in the Jonah crab fishery prior to the control date.

FISHERY PERFORMANCE

In 2018, 67 fishers (Table 2) landed 4,645,747 pounds of Jonah Crab, with an ex-vessel value of \$4,295,861 (Table 1).

DMF RECOMMENDATIONS FOR 2020

The Division recommends that RI remains compliant with the ASMFC provisions, and continues its work toward collecting biological and fishery information on Jonah Crab for a future, formal stock assessment. No changes to Jonah crab licensing requirements are recommended for 2019. Maintain as a non-restricted crustacean species as well as continue requirements for the directed fishery.

ATLANTIC ROCK CRAB



STOCK STATUS

Status unknown; No stock assessment has been performed on Atlantic rock crab.

MANAGEMENT PROGRAM

In RI, Atlantic rock crab is included and managed under the *Non-Lobster Crustacean Endorsement*. As an unrestricted/open endorsement, any license holder may access the fishery. There is neither a possession limit nor any additional restrictions in effort or harvest at this time

A control date was established on June 1, 2016.

FISHERY PERFORMANCE

Being an unregulated fishery, overall performance cannot be determined. In 2018, 31 fishers (Table 2) landed 67,447 pounds of Atlantic rock crab with an ex-vessel value of \$35,322 (Table 1).

DMF RECOMMENDATIONS FOR 2020

The Atlantic rock crab fishery is not managed under any FMP; it is an unregulated species. Effort limitations are not subject to lobster trap allocation and tagging requirements making enforcement of untagged traps problematic in state waters. Consideration should be given to a dedicated trap tag program to potentially control effort and identify fishery specific gear. No changes to licensing requirements are recommended for 2019. Maintain as a non-restricted crustacean.

OTHER CRUSTACEANS



STOCK STATUS

Commercial landings in RI of crustacean species other than lobster, horseshoe crab, Jonah crab, and Atlantic rock crab include green crab (*Carcinus maenas*), blue crab (*Callinectes sapidus*), deep-sea red crab (*Chaceon quinque-dens*), and mantis shrimp (*Squilla empusa*). These species are not routinely assessed by DEM, in large part due to the low volume of landings, which results in a lack of available data to conduct comprehensive analytical assessments. However, landings data and anecdotal evidence

from the commercial fishing industry are reviewed annually by DMF and are useful pieces of information in identifying populations that warrant further research.

MANAGEMENT PROGRAM

In RI, Blue crab are subject to a minimum size of 5" from shell tip to tip. Harvest is limited to 25 individuals, unless using a scoop or crab net, trot, or hand line. Deep-sea red crab is managed by a federal permit.

FISHERY PERFORMANCE

In 2018, 11 fishers (Table 2) landed 27,625 pounds of these species, in RI valued at \$6,958 (Table 1).

2020 LICENSING RECOMMENDATIONS - *NON-LOBSTER CRUSTACEAN ENDORSEMENT*

DMF

The Division recommends that the Non-Lobster Crustacean Endorsement remains an open license category available to any license holder and is not managed with an exit:entry ratio system.

RIMFC

A recommendation will be made at their meeting on October 7, 2019.

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TABLES

Table 1. 2018 pounds landed and total x-vessel value for species landed in Rhode Island.

SPECIES	POUNDS	VALUE (X-VESSEL)
Black Sea Bass	375,853	1,440,258
Scup	4,712,575	2,738,740
Striped Bass	176,639	782,131
Summer Flounder	1,022,618	4,706,067
Tautog	51,414	196,178
Bluefish	237,121	245,049
Atlantic Cod	65,696	151,667
Atlantic Herring	2,159,432	571,543
Menhaden	722,388	54,990
Monkfish	3,057,088	2,329,546
Winter Flounder	191,198	574,222
Skates (Wings)	1,497,953	839,618
Skates (Bait)	7,064,778	881,935
Spiny Dogfish	197,732	32,359
Smooth Dogfish	55,053	19,405
Squid (Longfin)	14,044,883	20,617,445
Squid (Illex)	20,786,875	11,887,408
Lobster	1,904,244	10,947,054
Jonah Crab	4,645,747	4,295,861
Horseshoe Crab	68,171	29,737
Atlantic Rock Crab	67,447	35,322
Other Crabs	27,625	6,958
Quahog*	512,678	4,805,137
Soft-shell Clam*	1,055	16,547
Whelk (Channeled and Knobbed)	678,433	2,094,733
Other Shellfish*	2,628	1,831
Sea Scallops*	2,492,618	22,170,026
Oyster*	7,425	31,948
* meat weight		

Table 2: Number of participants per species per year (2014-2018)

SPECIES	2014	2015	2016	2017	2018
Bait skate	32	30	36	42	46
Bluefish	370	340	362	339	278
Quahog	539	524	562	538	538
Clam, soft	58	62	41	35	31
Cod, Atlantic	109	127	139	107	87
Crab, Atlantic Rock	25	20	31	23	31
Crab, Horseshoe	6	3	17	17	19
Crab, Jonah	74	67	69	74	67
Dogfish, Smooth	34	42	32	39	33
Dogfish, Spiny	57	54	57	48	35
Flounder, Summer (fluke)	491	484	527	502	492
Flounder, Winter	140	120	110	115	100
Monkfish	164	145	165	174	174
Herring, Atlantic	30	32	34	30	27
Lobster	164	149	154	149	136
Menhaden	9	9	8	11	7
Other crustacean	6	13	12	12	11
Oyster, eastern	33	39	20	14	28
Sea Scallop	49	36	56	54	57
Scup	449	418	450	437	433
Black Sea Bass	474	484	504	543	507
Shellfish other	5	5	3	4	5
Skate wings	138	127	140	142	139
Squid, long finned (loligo)	161	153	162	160	164
Squid, short finned (illex)	15	6	12	21	27
Striped bass	330	292	267	286	267
Tautog	232	226	231	250	242
Whelk	159	153	140	102	109

Table 3. Possession limit (pounds) modifications for common Rhode Island commercial fisheries January through August 14, 2019.

SPECIES	POSSESSION LIMIT (LBS)	POSSESSION LIMIT MODIFICATION
Black Sea Bass	500/wk (1/1)	750/wk (3/3) 850/wk (3/24)
	50/day (5/1)	Closed (6/11)
	50/day (7/1)	Closed (7/17)
Bluefish	1,000/bi-week (1/1)	
	8,000/week (5/1)	12,000/week (6/30)
Scup (Gen. Cat.)	50,000/day (1/1)	
	10,000/wk (5/1)	15,000/wk (7/21) 20,000/wk (8/4)
Scup (FFT)	50,000/day (1/1)	
	Unlimited (5/1)	
Striped Bass (Gen. Cat.)	5 fish/vessel (5/20)	
	5 fish/vessel (7/1)	Closed (7/11)
Striped Bass (FFT)	Unlimited (4/1)	
Summer Flounder	100/day (1/1)	
	50/day (5/1)	75/day (6/9) 100/day (6/30)
Tautog	10 fish/vessel (4/1)	Closed (5/24)

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Table 4. Historical commercial license counts (2012 – 2019).

LICENSE TYPE	2012	2013	2014	2015	2016	2017	2018	2019
MULTI-PURPOSE LICENSE	853	829	816	804	802	789	771	751
<i>Gillnet Endorsement</i>	233	227	221	218	218	214	213	204
<i>Dockside Sale Endorsement</i>	251	241	236	236	245	242	239	237
<i>Midwater/Pair Trawl Endorsement</i>	131	132	133	137	139	145	145	144
<i>Purse Seine Endorsement</i>	139	134	134	129	136	140	144	145
PRINCIPAL EFFORT LICENSE	690	655	615	593	580	586	585	560
<i>Lobster Endorsement</i>	36	30	27	21	20	19	16	16
<i>Non-lobster Crustacean Endorsement</i>	33	35	36	33	33	35	36	32
<i>Quahog Endorsement</i>	398	376	347	340	322	321	327	305
<i>Restricted Finfish Endorsement</i>	266	262	258	251	252	266	277	279
<i>Non-restricted Finfish Endorsement</i>	131	135	133	130	152	159	168	159
<i>Soft Shelled Clam Endorsement</i>	256	235	204	194	183	186	176	154
<i>Whelk Endorsement</i>	146	118	79	62	53	63	60	55
<i>Dockside Sale Endorsement</i>	13	13	12	11	13	15	14	11
<i>Midwater/Pair Trawl Endorsement</i>	9	8	9	7	10	9	13	13
<i>Purse Seine Endorsement</i>	8	7	6	5	9	9	13	13
<i>Other Shellfish Endorsement</i>	225	211	186	177	177	173	166	148
COMMERCIAL FISHING LICENSE	398	420	404	412	416	429	433	445
<i>Lobster Endorsement</i>	16	15	14	14	12	11	9	7
<i>Non-lobster Crustacean Endorsement</i>	114	100	101	95	95	104	104	110
<i>Quahog Endorsement</i>	158	165	181	189	197	217	215	227
<i>Restricted Finfish Endorsement</i>	0	0	0	0	0	0	0	0
<i>Non-restricted Finfish Endorsement</i>	252	256	240	243	248	253	270	213
<i>Soft Shelled Clam Endorsement</i>	174	163	155	148	139	129	124	125
<i>Whelk Endorsement</i>	109	92	75	65	58	56	53	50
<i>Dockside Sale Endorsement</i>	16	14	16	16	15	18	17	18
<i>Midwater/Pair Trawl Endorsement</i>	40	46	39	39	40	37	41	41
<i>Purse Seine Endorsement</i>	42	40	42	43	41	40	42	45
<i>Other Shellfish Endorsement</i>	171	160	149	152	142	129	145	158
OVER 65 SHELLFISH LICENSE	240	268	289	309	350	369	389	372
STUDENT SHELLFISH LICENSE	49	48	47	37	48	39	30	37

Table 5. Historical RI whelk landings and value (2006-2018).

Year	Total Landings (Live Pounds)	Total Landings Value (\$)
2006	368,028	450,137.43
2007	361,486	336,485.75
2008	423,952	407,997.33
2009	716,386	742,411.90
2010	659,204	973,404.09
2011	746,495	1,312,836.57
2012	773,885	1,599,227.40
2013	584,896	1,268,155.53
2014	446,154	1,036,116.42
2015	493,166	1,279,090.83
2016	338,914	909,068.20
2017	458,765	1,318,209.76
2018	678,433	2,094,732.73

Table 6. Rhode Island commercial fishing license and lobster license/endorsement issuance data, 2014-2019 fishing years.

LICENSE TYPE	2014	2015	2016	2017	2018	2019
MULTI-PURPOSE LICENSE	816	804	802	789	771	751
MPL with Area 2 Lobster Trap Allocation (LTA)	308	298	304	304	304	302
Dockside Sale Endorsement	236	236	245	242	239	237
PRINCIPAL EFFORT LICENSE	615	593	580	586	585	560
Lobster Endorsement with LTA	29	25	21	19	19	19
Non-Lobster Crustacean Endorsement	36	33	33	35	36	32
Dockside Sale Endorsement	12	11	13	15	14	11
COMMERCIAL FISHING LICENSE	404	412	416	429	433	445
Lobster Endorsement with LTA	4	4	4	4	4	3
Non-Lobster Crustacean Endorsement	101	95	95	104	104	110
Dockside Sale Endorsement	16	16	15	18	17	18

Table 7. Description of allocated traps, maximum traps fished, and the reduction of traps in 2018. Traps retired include those associated with the reduction program decrease and the conservation transfer tax.

AREA	# OF TRAPS ALLOCATED	# OF TRAPS TRANSFERRED	MAX # OF TRAPS FISHED	# OF TRAPS RETIRED DUE TO REDUCTIONS
Area 2	70,321	3,034	35,406	3,811
Area 3	33,529	100	31,722	1,697

PHOTO CREDITS

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SIGNATURE PAGE

Plan approved:

Dr. Jason McNamee, Chief
Division of Marine Fisheries

Date

DRAFT

250-RICR-90-00-3

TITLE 250 – DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

CHAPTER 90 – MARINE FISHERIES

SUBCHAPTER 00 – N/A

PART 3 – Finfish

3.10 Summer Flounder

3.10.2 Commercial

D. Rhode Island Summer Flounder Exemption Certificate:

1. Application: Applicants shall provide each of the following:
 - a. A copy of the operator's valid current Rhode Island commercial fishing license or non-resident landing license, and Federal Fluke Permit if the summer flounder is to be taken in the EEZ;
 - b. A completed notarized application;
 - c. Proof that the vessel meets the requirements set out in this section;
 - d. Provide a completed notarized waiver authorizing the Department to access records verifying that this vessel and operator meet the criteria set forth in this section; and
 - e. A copy of the vessel's U.S. Coast Guard documentation papers or state issued boat registration certificate proving ownership of the vessel.
2. Eligibility: DEM will issue an Exemption Certificate for a vessel if the owner of the vessel or his/her representative applies to DEM prior to January 1, 1997, for the issuance of such a certificate and demonstrates to the satisfaction of the Director that:
 - a. The operator of the vessel possesses a valid Rhode Island commercial fishing license to land Summer flounder up to the amount permitted by these regulations; and
 - b. The subject vessel meets any of the following criteria:
 - (1) The vessel was operated by a person who possessed a valid Rhode Island commercial fishing license and landed and

sold in excess of one pound of summer flounder to a Rhode Island licensed dealer during the period from January 1, 1987, through December 31, 1992;

- (2) The vessel fished exclusively in the Exclusive Economic Zone (EEZ) and landed and sold in excess of one pound of summer flounder to a licensed Rhode Island licensed dealer sometime during the period January 1, 1987, through December 31, 1992. The Department may require additional supporting documents including but not limited to the ship's logs, ice and fuel slips;
 - (3) The vessel replaces a vessel which was operated by a person who possessed a valid Rhode Island commercial fishing license, and the vessel being replaced landed and sold in excess of one pound of summer flounder to a Rhode Island licensed dealer during the period from January 1, 1987, through December 31, 1992, and if the vessel being replaced was lost by sinking or was otherwise destroyed, the replaced vessel is required to have been owned by the applicant at the time of the loss;
 - (4) The vessel replaces a vessel which fished exclusively in the EEZ and landed and sold in excess of one pound of summer flounder to a Rhode Island licensed dealer, during the period January 1, 1987, through December 31, 1992, and if the vessel being replaced was lost by sinking or was otherwise destroyed, the replaced vessel is required to have been owned by the applicant at the time of the loss.
 - (5) If the vessel is replacing a vessel that was lost by sinking or was otherwise destroyed, documentation must be presented from a licensed insurance company, U.S. Coast Guard report, or some other valid evidence of ownership to the satisfaction of the Director.
3. Transfer of an Exemption Certificate: An Exemption Certificate issued by the DEM is only valid for the vessel to which it is issued. A vessel may be sold with all certificates, permits (state and federal) and history transferred together or without the certificates, permits (state and federal) and history for purposes of replacing the vessel. In instances when a vessel owner retains all certificates, permits, and history they must be applied to a replacement vessel owned by said individual within ninety (90) days.
- a. Change in ownership: An Exemption Certificate is presumed to transfer with the vessel whenever it is bought, sold, or otherwise transferred, unless there is a written agreement, signed by the

transferor/seller and transferee/buyer, or other credible written evidence, verifying that the transferor/seller is retaining the vessel's fishing and permit history for purposes of replacing the vessel. Individuals who purchase a vessel issued an Exemption Certificate must supply credible written evidence verifying that they are the full owner of said vessel. Vessel ownership will be determined solely by an issued and valid (unexpired) US Coast Guard documentation or state registration.

- b. Replacement Vessels: A vessel owner wishing to transfer an Exemption Certificate must provide proof to the satisfaction of the DEM that the applicant vessel is replacing a vessel and that said certificate is only applicable to the vessel for which the Exemption Certificate has been transferred.
- (1) The vessel owner must supply credible written evidence verifying that the transferor/seller is retaining the vessel's Exemption Certificate for purposes of replacing the vessel. If a vessel owner elects to sever the Exemption Certificate from a vessel, the Exemption Certificate may be transferred only to another vessel fully owned by said vessel owner. Proof of full ownership of both vessels is required. Vessel ownership will be determined solely by an issued and valid (unexpired) US Coast Guard documentation or state registration.
 - (2) Vessel permits (state and federal), Exemption Certificates, and fishing history cannot be split.
 - (3) An Exemption Certificate may not be combined to create larger replacement vessels.
 - (4) The replacement vessel may not exceed a 10 percent increase in length overall (LOA), a 10 percent increase in gross registered tonnage (GRT) or net tonnage (NT), or a 20 percent increase in horsepower of the vessel's baseline specifications, as applicable.
 - (5) Vessel baseline specifications: The vessel baseline specifications in this section are the respective specifications (length, gross registered tonnage, net tonnage, horsepower) of the vessel that was initially issued an Exemption Certificate.
 - (6) A vessel may be upgraded, whether through refitting or replacement, and be eligible to retain an Exemption Certificate, only if the upgrade complies with the following:

(AA) The vessel's horsepower may be increased only once, whether through refitting or replacement. Such an increase may not exceed 20 percent of the horsepower of the vessel's baseline specifications, as applicable.

(BB) The vessel's length, GRT, and NT may be increased only once, whether through refitting or replacement. Any increase in any of these three specifications of vessel size may not exceed 10 percent of the vessel's baseline specifications, as applicable. If any of these three specifications is increased, any increase in the other two must be performed at the same time. This type of upgrade may be done separately from an engine horsepower upgrade.

4. Exemption Certificates may not be:
 - a. Pledged, mortgaged, leased, or encumbered in any way;
 - b. Transferred with any retained right of repossession or foreclosure, or any condition requiring a subsequent transfer; or
 - c. Attached, distrained, or sold on execution of judgment.
- E. Otter trawl Mesh size: Otter trawlers that land or possess 100 pounds (45.4 kg) or more of Summer flounder per day from May 1 through October 31; or 200 pounds (90.8 kg) or more of summer flounder per trip from November 1 through April 30, must fish with nets or combinations of nets that have a minimum mesh size of 5.5 inch (14.0 cm) diamond, or 6 inch (15.2 cm) square mesh applied throughout the body, extension(s) and cod end portion of the net.
- F. Summer flounder may be landed between the hours of 6:00 AM to 8:00 PM only;
- G. Control Date: A control date of December 31, 2010, is established for the commercial Summer flounder fishery in Rhode Island.

RI MARINE FISHERIES COUNCIL

INDUSTRY ADVISORY COMMITTEE

August 19, 2019



Statute



- Laws – new or amended- are introduced as “bills” to the General Assembly by any Representative or Senator in their respective chamber. A Representative or Senator who introduces a bill is a “sponsor”
- Prospective sponsors can be approached by any person, interest group, or state agency to introduce a bill.
- In Rhode Island, Title 20 “Fish and Wildlife” is the guiding statutory language that DEM commonly follows when developing rules to regulate fish and wildlife, including marine fisheries.

Statute



- Examples of what's in Title 20 relative to this discussion:
 - Types of licenses (Commercial, Recreational, Party Charter, Dealer, Landing Permits) and endorsements, fees, and application deadlines
 - Authority and criteria for issuances of licenses (for example residency requirements)
 - Requirement of license to fish
 - Enforcement powers/penalties for violations
- To amend statute, DEM, or any member of the public, must seek a sponsor to introduce a bill.
- See [“How a bill becomes a law”](#)

Regulation/Rule



- Once legislation is enacted, state agencies typically develop regulations to implement the legislation. Regulations must be consistent with all applicable statutory provisions (rules can't be inconsistent with the law).
- Examples of what's in RI Marine Fisheries Regulations:
 - Exit / Entry Ratios for new license issuance
 - Gear specifications
 - Requirements for reporting fisheries related data
 - Activity standards on commercial fishing licenses
 - Seasons, Allocations, Possession and Size limits

Prospective Bill to Address Commercial Licensing Reform



- RIDEM is planning to prepare legislation to restructure commercial and party/charter licenses
- Changes proposed would:
 - Address fee structure
 - Streamline and add flexibility to license structure
 - Allow for vessel based options
- Next steps:
 - Review by the Governor's office.
 - If given green light to proceed, DMF will vet proposal in a public forum through the RI Marine Fisheries Council, followed by the introduction of a bill in the 2020 legislative session of the RI General Assembly



Part 2 – Commercial and Recreational Saltwater Fishing Licensing Regulations

2020 Proposed Amendments

Timeline

- May 30: Workshop.
- July 19: Deadline for the public to submit proposals.
- August 19: IAC meeting.
- Sept. 10: Public hearing.
- October 7: RI Marine Fisheries Council.

2020 Proposed Amendments



1. Clarify reporting documentation requirements as it pertains to commercial trip data reporting. (section 2.7.4(C))
 - **Origin of proposal:** Recommended by the RI Marine Fisheries Council when rules adopted from last year's Licensing hearing.
 - **Issue:** Rules are not clear what is meant by "documentation" for reporting requirement. Trip elements are identified in the Paper Catch and Effort Harvester logbook instructions but are not currently identified in rule.
 - **Proposal:**
 - Clarify documentation requirements
 - Add trip elements that must be reported

2020 Proposed Amendments



2. Clarify due dates for the submittal of commercial trip data reporting (sections 2.7.4(E)&(F))

- **Origin of proposal:** Division proposal to clarify rule.
- **Issue:** Section does not specify type of reporting, paper or electronic.
- **Proposal:** Amend section 2.7.4(E) to apply to paper reports. Add section 2.7.4(F) to address electronic reporting.

2020 Proposed Amendments



3. Amend the standard of “Actively Fishing” as it pertains to eligibility for the issuance of a new Commercial Fishing License with Quahaug endorsement for holders of a Student Shellfish License (section 2.7.5(D)(1)(b)(3))
- **Origin of proposal:** Industry proposal from last year’s IAC meeting.
 - **Issue:** Rule currently requires that a Student Shellfish license (SSL) must be held at least 2 years to be “actively fished”. If obtained SSL in the final year of eligibility (i.e., age 23), the licensee ages out before they can hold license for 2 years. If SSL not “Actively fished” then not eligible to upgrade to a CFL w/quahog endorsement.
 - **Proposal:** Allow for the upgrade from SSL to CFL w/quahog endorsement for licensees aging out after a single year of holding license.
 - **Considerations:** Inconsistent with the eligibility requirements for other license upgrades.

2020 Proposed Amendments



4. Add new language to rule that establishes that residency status must be maintained to maintain eligibility for license renewal (section 2.7.5(E)(3)(a))

- **Origin of proposal:** Division proposal to clarify rule consistent with state law (R.I. Gen. Law Chapter 20-2.1),
- **Issue:** Rule does not currently address issue.
- **Proposal:** Add new language to rule consistent with state law.
- **Considerations:**
 - Per R.I. Gen. Law Chapter 20-2.1, licenses are categorized as resident or non-resident.
 - Change in residency status (i.e., resident or non-resident) disqualifies the license holder's eligibility to renew their existing license.
 - All applications received after a change in residency status would be considered for new license opportunities only.

2020 Proposed Amendments



5. Amend the eligibility requirements for the prioritization of the issuance of new licenses (section 2.7.5(G)(1)(e))
 - **Origin of proposal:** Division proposal.
 - **Issue:** The Division is seeing an increase in the number of occurrences where a person is selling their license, acquiring a new open license and reaching priority status through questionable fishing practices (e.g. selling a single fish/day). Current rules provide no protection against this practice.
 - **Proposal:** Amend eligibility requirement such that in cases where an applicant has previously surrendered a license to the Department pursuant to the sale of vessel and/or gear, and the applicant has subsequently acquired a new license, the applicant must have held the new license for a minimum of seven (7) years before being eligible for prioritization again.

2020 Proposed Amendments



6. Require dealer reporting compliance as a condition of dealer license renewal (section 2.7.9(A)(7))
 - **Origin of proposal:** Division proposal.
 - **Issue:** Currently no rule in place to require reporting compliance as a condition of dealer license renewal.
 - **Proposal:** Amend rule to require reporting as a condition of license renewal.

2020 Proposed Amendments



7. Clarify the reporting requirements for the Party/Charter sector (section 2.9.2(F))

- **Origin of proposal:** Division proposal based on recommendation from the RI Marine Fisheries Council when rule first adopted from last year's hearing.
- **Issue:** Lack of clarity of documentation required. Trip elements to be reported not specified.
- **Proposal:** Clarify rule and add trip elements to be reported.

2020 Proposed Amendments



8. For licensed Party/Charter vessels/captains, add reporting compliance as a condition of maintaining and/or renewing their P/C license (section 2.9.2(F)(5))

- **Origin of proposal:** Industry proposal to provide means for timely and accurate reporting data necessary for fisheries management.
- **Issue:** Current rules lack means by which to enforce reporting compliance.
- **Proposal:** Amend language to provide DEM with the ability to suspend or revoke license (new license) or render applicant ineligible for license renewal.

License Opportunities – Shellfish Sector



- **CFL CQUOH**

- 33 CFL CQUOH new licenses issued in 2018
- 36 license eligible to harvest quahog retired in 2019
- 36 CFL CQUOH new licenses are available to be issued in 2019 at the current 1:1 exit:entry ratio

- **CFL SSCLM**

- 6 CFL SSCLM new licenses issued in 2018
- 23 license eligible to harvest soft shell clam retired in 2019
- 6 CFL SSCLM new licenses are available to be issued in 2019 at the current 5:1 exit:entry ratio

License Opportunities – Finfish Sector



- **PEL RFIN**

- 15 new licenses issued in 2018
- 13 license eligible to harvest restricted finfish retired in 2019
- 15 PEL RFIN new licenses are available to be issued in 2019 at the current 1:1 exit:entry ratio

Fluke Exemption



- Industry proposal made to amend current regulations:
 - Remove the 90 day limit to apply permits to a new vessel.
 - Eliminate the rule that a fluke exemption transfers automatically with a vessel upon sale of the vessel.
 - Eliminate the requirement of the fluke exemption permit being permanently tied to the vessels federal permit.

Pilot Multi-State Landing Program



- Allow commercial fishers to simultaneously carry summer flounder possession limits for RI & CT during the same fishing trip (NY is a potential candidate state as well)
- Winter period I only
- Each possession limit must be landed in the respective state.
- Record of summer flounder landings dating back to at least 2014.
- No convictions for violations in the past 3 years
- Must report electronically.

End of Slides!



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Industry Advisory Committee

August 19, 2019; 5:30PM

URI Bay Campus, Coastal Institute Building, Hazard Room
218 S Ferry Road, Narragansett, RI

MEETING SUMMARY

Members in Attendance: G. Carvalho (GC), M. McGivney (MM), K. Almeida (KA), A. Gewirtz, B. Smith, J. Lake (DEM staff)

1. Brief overview of the regulatory and legislative processes: *J. Lake* provided a brief overview of the regulatory and legislative processes and the Department's prospective bill to address commercial licensing reform.
2. Proposal to amend rules regarding the Summer flounder Exemption certificate: *J. Lake* offered that a proposal to amend rules regarding the Summer flounder Exemption certificate was submitted to the Department by KA. He provided the main points of the proposal for discussion purposes. He explained that the Division would look to bring the matter to a planned hearing in November, with a workshop scheduled prior to noticing. KA provided a brief explanation of the rationale behind the request.
3. Proposed amendments to Part 2 – Commercial and Recreational Saltwater Fishing Licensing Regulations: *J. Lake* provided a powerpoint presentation of the Division's proposed regulatory amendments for Part 2 – Commercial and Recreational Saltwater Fishing Licensing Regulations, including the following:
 - Clarify reporting documentation requirements as it pertains to trip data reporting.
 - Clarify due dates for the submittal of commercial trip data reporting.
 - Amend the standard of "Actively Fishing" as it pertains to eligibility for the issuance of a new Commercial Fishing License with Quahaug endorsement for holders of a Student Shellfish License.
 - Add new language to rule that establishes that residency status must be maintained to maintain eligibility for license renewal.
 - Amend the eligibility requirements for the prioritization of the issuance of new licenses.
 - Require dealer reporting compliance as a condition of dealer license renewal.
 - Clarify the reporting requirements for the Party/Charter sector.
 - For licensed Party/Charter vessels/captains, add reporting compliance as a condition of maintaining and/or renewing their P/C license.

Discussion ensued for each of the items presented. Upon conclusion of the discussion, the IAC members present offered no alternative or additional proposals or objected to any of the matters being noticed for the planned hearing in September.

4. Exit/entry ratios for restricted license endorsements: *J. Lake* presented data regarding the number of licenses/endorsements eligible to harvest bay quahog (CFL QUOH) , soft-shell clam (CFL SSCLM), and restricted finfish (PEL RFIN)that were not renewed in 2019, and the resulting availability of new endorsements available for 2020. *J. Lake's* analysis showed that 36 CFL QUOH, 6 CFL SSCLM and 15 PEL RFIN would be issued based on current exit:entry ratios. Upon conclusion of the discussion, no amendments were proposed for any of these three restricted category endorsements.
5. Proposed new rule “Cooperative Multi-State Possession Pilot Program for Summer Flounder” regulations: *J. Lake* offered that the Division is considering the adoption of a new rule which would provide for multi-state possession limits being allowed on the same fishing trip. He explained that Connecticut has adopted new rules and New York is considering as well. He provided the main points of the proposal for discussion purposes. He explained that the Division would look to bring the matter to a planned hearing in November, with a workshop scheduled prior to noticing.

The meeting adjourned at approximately 7:30

Prepared by J. Lake/P. Duhamel

Public Notice - Direct Final Rule

Publicly noticed on July 9, 2019; end of comment period August 8, 2019

Proposed/annotated amendments

Note: Proposed new language is identified as **red, bold, underline**; proposed language to be deleted is identified as ~~red-stricken~~.

250-RICR-90-00-3

TITLE 250 – DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

CHAPTER 90 – MARINE FISHERIES

SUBCHAPTER 00 – N/A

PART 3 – Finfish

3.7 Black Sea Bass

3.7.2 Commercial

- A. Minimum size: Eleven (11) inches.
- B. Seasons, allocations, and possession limits:
 - 1. January 1 through April 30:
 - a. Allocation: Twenty-five percent (25%) of the quota.
 - b. Possession limit: Five hundred (500) pounds per vessel per week.
 - 2. May 1 through June 30:
 - a. Allocation: Twenty-five percent (25%) of the quota.
 - b. Possession limit: Fifty (50) pounds per vessel per calendar day.
 - 3. July 1 through July 31:
 - a. Allocation: Nineteen and a half percent (19.5%) of the quota.
 - b. Possession limit: Fifty (50) pounds per vessel per calendar day.
 - 4. August 1 through September 14: Closed.

5. September 15 through October 31:
 - a. Allocation: Nineteen and a half percent (19.5%) of the quota.
 - b. Possession limit: Fifty (50) pounds per vessel per calendar day.
6. November 1 through December 31:
 - a. Allocation: Eleven percent (11%) of the quota.
 - b. Possession limit: Fifty (50) pounds per vessel per calendar day.

C. Trawl vessel gear restrictions - minimum mesh size: Owners or operators of otter trawl vessels possessing greater than five hundred (500) pounds of black sea bass from January 1 through March 31; or greater than one hundred (100) pounds of black sea bass from April 1 through December 31, may only fish with nets that have a minimum mesh size of four and one-half (4.5) inches diamond mesh (inside measure) applied throughout the codend for at least seventy-five (75) continuous meshes forward of the terminus of the net; or, for trawl nets with codends (including an extension) less than seventy-five (75) meshes, the trawl net must have a minimum mesh size of four and one-half (4.5) inches diamond mesh throughout.

Public Notice - Direct Final Rule

June 2019

Proposed/annotated amendments

Note: Proposed new language is identified as **red, bold, underline**; proposed language to be deleted is identified as ~~red-stricken~~.

250-RICR-90-00-7

TITLE 250 – DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

CHAPTER 90 – MARINE FISHERIES

SUBCHAPTER 00 – N/A

PART 7 – Dealers

7.7 Applicability

- A. No person shall barter or trade any marine species taken by a licensed fishermen or aquaculturist unless a license to do so has been obtained from the Director.
- B. Any licensee operating under the provisions of these rules shall purchase marine species only from licensed fishermen or aquaculturist and shall purchase or possess only those marine species legally taken or possessed.

7.89 Shellfish Dealers

- A. Applicability: Shellfish dealers may only purchase, barter, or trade in wild or cultured shellfish that have been:
- B. Shellfish dealers may not purchase or accept any wild or cultured shellfish from a shellfisherman or aquaculturist without first being presented with a valid commercial fishing license or Aquaculture license issued by DEM.
- C. Shellfish dealers must also possess a DOH shellfish business license pursuant to DOH “Part 6 - Processing and Distribution of Shellfish (216-RICR-50-10-6)” ~~which are incorporated in § 7.10 of this Part.~~

Fisheries Economics of the United States 2016

Economics and Sociocultural
Status and Trends Series

U.S. Department of Commerce
National Oceanic and Atmospheric Administration
National Marine Fisheries Service
NOAA Technical Memorandum NMFS-F/SPO-187
December 2018





Front cover: Fishing in Imperial Beach, California. Photo: [Unsplash.com/Dakota Corbin](https://unsplash.com/photos/Dakota-Corbin)

Inside cover: Boats in Newport, Oregon. Photo: Pacific Fishery Management Council

Fisheries Economics of the United States 2016

Economics and Social Analysis Division
Office of Science and Technology
NOAA Fisheries (NMFS)
1315 East-West Highway, 12th floor
Silver Spring, MD 20910

**NOAA TECHNICAL MEMORANDUM NMFS-F/SPO-187
DECEMBER 2018**



U.S. Department of Commerce

Wilbur Ross, Jr., Secretary of Commerce

National Oceanic and Atmospheric Administration

RDML Timothy Gallaudet, Acting NOAA Administrator

National Marine Fisheries Service

Chris Oliver, Assistant Administrator for Fisheries

NOAA Fisheries Publications

Each year NOAA Fisheries produces three annual reports covering different aspects of the status of United States marine fisheries.

Status of Stocks is an annual report to Congress on the status of U.S. fisheries and is required by the Magnuson-Stevens Fishery Conservation and Management Act. This report, which is published each spring, summarizes the number of stocks on the overfished, overfishing and rebuilt lists for U.S. federally managed fish stocks and stock complexes. The report also shows trends over time, discusses the value and contributions of our partners, and highlights how management actions taken by NOAA Fisheries have improved the status of U.S. federally managed stocks. For example, the 2017 report shows that the number of stocks on the overfished list just reached a new all-time low.

<https://www.fisheries.noaa.gov/national/population-assessments/fishery-stock-status-updates#2018-quarterly-updates>

Fisheries of the United States, published each fall, has been produced in its various forms for more than 100 years. It is the NOAA Fisheries yearbook of fishery statistics for the United States. It provides a snapshot of data, primarily at the national level, on U.S. recreational catch and commercial fisheries landings and value. In addition, data are reported on U.S. aquaculture production, the U.S. fishery processing industry, imports and exports of fishery-related products, and domestic supply and per capita consumption of fishery products. The focus is not on economic analysis, although value of landings, processed products and foreign trade are included.

<https://www.fisheries.noaa.gov/national/commercial-fishing/fisheries-united-states>

Fisheries Economics of the United States, published each fall, provides a detailed look at the economic performance of commercial and recreational fisheries and other marine-related sectors on a state, regional and national basis. The economic impact of commercial and recreational fishing activities in the U.S. is also reported in terms of employment, sales and value-added impacts. The report provides management highlights for each region that include a summary of stock status, updates on catch share programs, and other selected management issues.

<https://www.fisheries.noaa.gov/national/commercial-fishing/fisheries-economics-united-states>

Suggested Citation:

National Marine Fisheries Service. 2018. Fisheries Economics of the United States, 2016. U.S. Dept. of Commerce, NOAA Tech. Memo. NMFS-F/SPO-187, 243 p.

A copy of this report may be obtained from:

Economics and Social Analysis Division
Office of Science and Technology
NOAA Fisheries (NMFS)
1315 East-West Highway, 12th floor
Silver Spring, MD 20910

Or online at:

<https://www.fisheries.noaa.gov/content/fisheries-economics-united-states-2016>

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The hand of a person who has spent their life on the water.
Photo: South Atlantic Fishery Management Council/Cameron J. Rhodes

Preface

Fisheries Economics of the United States, 2016

Fisheries Economics of the United States, 2016, is the eleventh volume in this annual series, which is intended to provide the public with easily accessible economic information about the nation's commercial and recreational fishing activities and fishing-related industries.

This year's report covers the years 2007 to 2016 and provides descriptive statistics for the following categories: economic impacts of the commercial fishing and seafood industry; commercial fisheries landings, revenue, and price trends; saltwater angler expenditures and economic impacts of marine recreational fishing; recreational fishing catch, effort, and participation rates; and employer and non-employer establishment, payroll, employees, and annual receipt information for fishing-related industries.

The report also provides management highlights for each region that include a summary of stock status, updates on catch share programs, and other selected management issues. Economic performance indicators for catch share programs are reported.

Sources of Data

Information in this report came from many sources. Commercial landings, revenue, and price data, as well as recreational fishing effort and participation data, were primarily obtained from the Fisheries Statistics Division, Office of Science and Technology NOAA Fisheries. Other data sources included the NOAA Alaska Fisheries Science Center; Alaska Department of Fish and Game; California Department of Fish and Game; Oregon Department of Fish and Wildlife; Washington Department of Fish and Wildlife; the Pacific Coast Fisheries Information Network (PacFIN); Texas Parks and Wildlife Department; and Western Pacific Fisheries Information Network (WPacFIN). Economic impacts from the commercial fishing and seafood industry and recreational fishing sectors are from two separate national IMPLAN models of the Economics and Sociocultural Analysis Division, Office of Science and Technology, NOAA Fisheries. Fishing-related industry information was obtained from the U.S. Census Bureau, Bureau of

Economic Analysis, and Bureau of Labor Statistics.

Acknowledgments

Many people participated in the production of this report. Cameron Speir and Cara Mayo are the editors of this report series; Rita Curtis, Sabrina Lovell, Kate Quigley, and Cara Mayo were primary authors and analysts on this edition of Fisheries Economics of the United States. Key collaborators include Jami Larson, Lauren Dolinger Few, Karen Greene, Laura Johansen, Jean Lee, Michael Lewis, Michael Liddel, Alan Lowther, Cindy Thomson, and Eric Thunberg. The report's design and layout was done by Avi Litwack, Jacqui Fenner, and Cara Mayo.

NOAA Fisheries staff in the regional fisheries science centers and regional offices provided expertise: Alan Haynie, Justin Hospital, Christopher Liese, Michael Travis, and Stephen Holiman. Other colleagues who provided information and expertise included Mark Fisher (Texas Parks and Wildlife Department), Ed Hibsich (Pacific States Marine Fisheries Commission), and William Romberg (Alaska Department of Fish and Game).

Address all comments and questions to:

Kathryn Cuff | Kathryn.Cuff@noaa.gov

Economics and Sociocultural Analysis Division

Office of Science and Technology
NOAA Fisheries (NMFS)
1315 East-West Highway, 12th floor
Silver Spring, MD 20910-3282
Phone: 301-427-8121/Fax: 301-713-4137

Commercial Fisheries

What Does the Term Mean?

Commercial fisheries, in this report, refers to fishing operations that sell their catch for profit. It does not include saltwater anglers that fish for sport or subsistence fishermen. It also excludes the for-hire sector, which earns its revenue from selling recreational fishing trips to saltwater anglers. The commercial fisheries section reports on economic impacts, landings revenue, landings, and ex-vessel prices of key species and species groups.

Metrics Definitions¹

Economic Impacts

The employment, personal income, and output generated by the commercial harvest sector and other major components of the U.S. seafood industry.

Landings Revenue

The price that fishermen are paid for their catch.

Landings

The poundage or number of fish unloaded by commercial fishermen or brought to shore.

Ex-vessel Prices

The price received by a captain, at the point of landing, for the catch.

Frequently Asked Questions

What are fish caught with in commercial fishing?

Fish can be caught using a variety of gear, including potts and traps, trawls and seines, gillnets, dredges, and hooks and lines.

What happens to seafood caught by commercial fishermen?

Fish caught by commercial fishermen are first processed and packaged. Then they are sold to various establishments for consumption, such as restaurants and supermarkets. They can also be used as animal food and for medical purposes (such as fish oil pills).

Does the United States get seafood from anywhere else?

Not all fish are caught by U.S. commercial fishermen. A large percent of the seafood the U.S. receives is imported.



¹ For full definitions, see the Glossary at the back of this publication.

Recreational Fisheries

What Does the Term Mean?

Recreational fisheries, or recreational fishing, refer to fishing for pleasure rather than selling the fish for profit (i.e., commercial fishing) or for subsistence. The recreational fisheries section of Fisheries Economics of the U.S. reports on angler trips, participation, expenditures and economic impacts, and catch of key species and species groups. Only saltwater, or marine, recreational fishing is included in FEUS.

Metrics Definitions

Economic Impacts and Expenditures

The employment, sales, and personal income generated by expenditures on fishing trips and fishing-related durable goods (i.e. equipment used for recreational fishing).

Fishing Trips/ Effort

The number of fishing trips taken by recreational fishermen (anglers).

Participation

The number of anglers who fish in a given state or region. Anglers can be from in-state or out-of-state and from a coastal county or non-coastal county.

Harvest and Release

The total number of fish either: 1) caught and kept (**harvested**), or 2) caught and **released**, by recreational anglers from an area over a period of time. Total catch is the sum of the number of fish harvested and released.

Frequently Asked Questions

How do anglers affect the fishing economy?

When anglers participate in fishing activities, they support sales and employment in recreational fishing and other types of businesses. Anglers buy fishing equipment from bait and tackle shops, rent or buy boats, or pay to have others take them on charter boats to fish. They may also pay for food and drink at local restaurants, purchase gas for their boat, and stay in hotels for overnight fishing trips.

What do anglers spend their money on?

Durable goods, such as fishing tackle and boat, vehicle, and second home expenses. **Trips**, which can be taken in one of three modes: as for-hire (charter or party boat), private (or rental boat), and shore (fishing from shore). Some examples of trip expenditures include fuel, bait, ice, and charter or guide fees.

What do anglers do with their catch?

Some anglers catch fish to eat (i.e., harvest), while others practice catch and release. In recreational fishing, anglers do not sell the fish they catch for profit.



Marine Economy

What Does the Term Mean?

The “Marine Economy,” in this report, refers to the economic activity generated by sectors of the economy that depend directly on oceans (or Great Lakes). We report on two industry sectors within the marine economy: 1) seafood sales and processing; and 2) transport, support, and marine operations. Information such as the number of establishments, number of employees, and annual payroll for these fishing and marine-related industries is used to determine their relative levels of economic activity in a state.

Metrics Definitions

Seafood Sales and Processing

These sectors are a direct representation of the Establishments, Employees, Sales and Payroll for seafood processors, wholesalers, and retailers that buy fish from commercial fishermen and distribute to consumers.

Transport, Support, and Marine Operations

The various sectors that contribute to the overall marine economy that may or may not support the fishing economy.

Frequently Asked Questions

Does the marine economy include commercial and recreational fisheries?

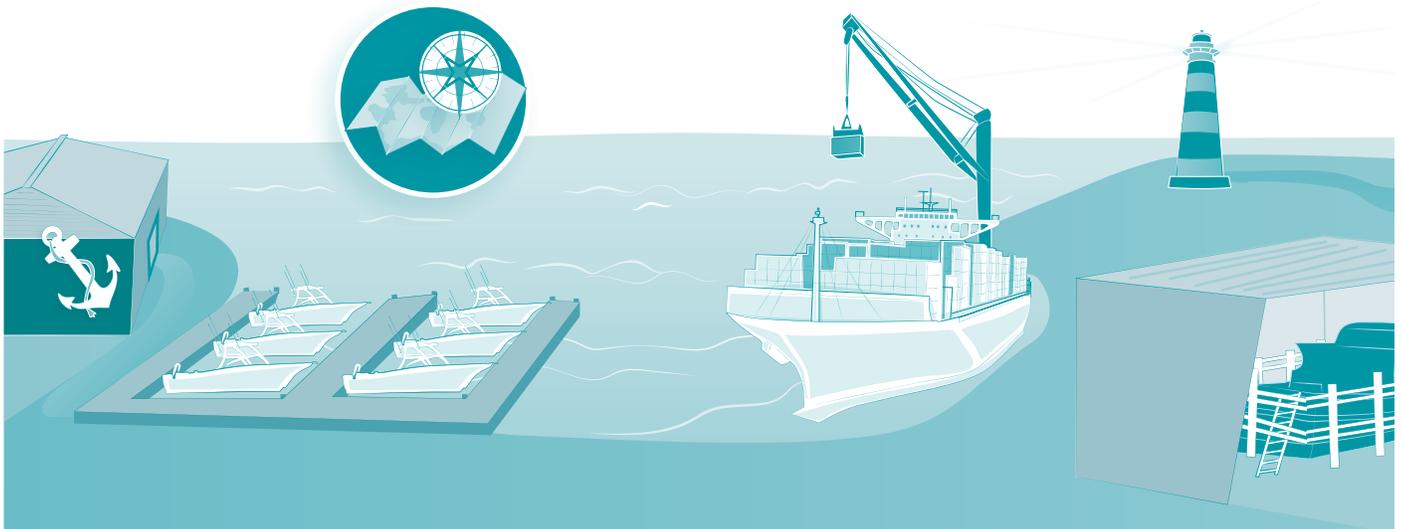
Yes, commercial and recreational fisheries contribute to the overall marine economy.

What marine economy sectors, featured in the report, are related to commercial and recreational fisheries?

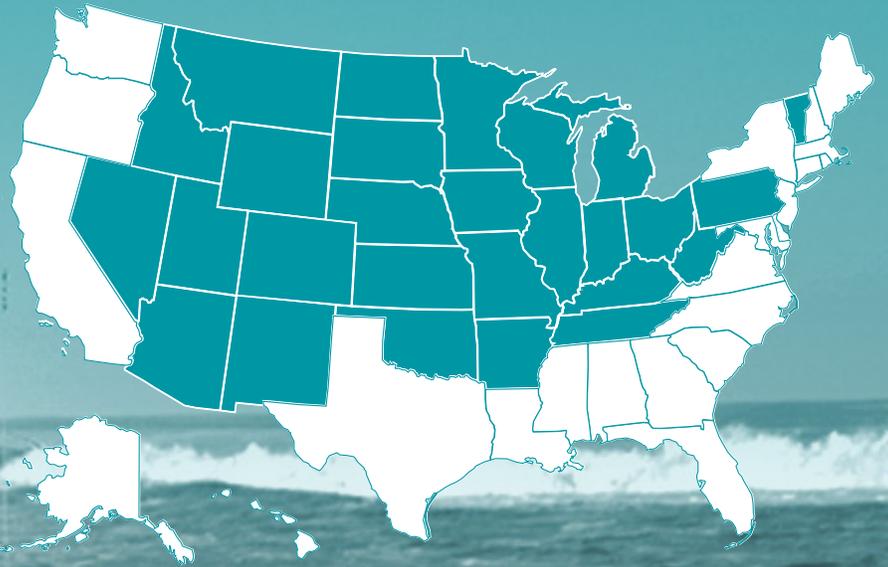
The seafood product preparation & packaging, wholesale, and retail seafood sales sectors are major parts of the commercial fishing industry. The Marinas, Navigational Services, Port & Harbor operations, and Ship & Boat Building sectors provide goods and services used in both commercial and recreational fisheries.

Why does the report include sectors that are independent of the fishing economy?

Information on sectors that are independent of the fishing economy, like freight transportation, provides context for how national and regional economies are affected by the use of ocean resources.



National Overview



Surf fishing on Chincoteague Island, Virginia.
Photo: Mid-Atlantic Fishery Management Council/Mary Sabo

MANAGEMENT CONTEXT

The authority to manage federal fisheries in the United States was granted to the Secretary of Commerce by the Magnuson-Stevens Fishery Conservation and Management Act (P.L. 94-265 as amended by P.L. 109-479). NOAA Fisheries is the federal agency with delegated authority from the Secretary of Commerce to oversee fishing activities in federal waters. Federal fisheries are generally defined as fishing activities that take place in the U.S. Exclusive Economic Zone (EEZ, between 3 and 200 nautical miles from the coastline). Generally, individual states retain management authority over fishing activities within three nautical miles of their coasts.

Nationwide, 46 fishery management plans (FMPs) provide a framework for managing the harvest of 474 fish stocks and stock complexes. These plans aim to manage the harvest of fish in U.S. and shared waters, using sound scientific research, to maximize fishing opportunity while ensuring the sustainability of fisheries and fishing communities. Regional Fishery Management Councils (FMCs) develop FMPs in eight regions nationwide: North Pacific, Pacific, Western Pacific, New England, Mid-Atlantic, South Atlantic, Gulf of Mexico and Caribbean.¹ After an FMP is developed, the Secretary of Commerce in consultation with NOAA Fisheries must approve it before it is implemented.

Regional Fishery Management Councils

- North Pacific
- Pacific
- Western Pacific
- New England
- Mid-Atlantic
- South Atlantic
- Gulf of Mexico
- Caribbean

Fishery management plans must specify objective and measurable criteria to determine when a stock is overfished or subject to overfishing. Enough information exists to determine the overfishing status for 316 (or 67%) of the 474 stocks and stock complexes. Of these 316, 30 stocks are subject to overfishing (or 9% of stocks with known status). The overfished status of 235 (or 50%) of the 474 stocks and stock complexes is known. Of these 235 stocks, 38 (or 16% of stocks with

known status) are categorized as overfished.²

Transboundary and International Fisheries

NOAA Fisheries is also actively involved in negotiating conservation and management measures including total allowable catch levels, fishery allocations, and monitoring and control schemes for internationally shared fisheries resources. Shared fisheries resources include those in areas where the EEZ of the U.S. overlaps with other nations (transboundary areas), and in areas beyond the U.S. EEZ, i.e., international waters or the high seas. The Gulf of Alaska and the Gulf of Maine are examples of these transboundary areas. An area in the Bering Sea outside the EEZs of Canada, Japan, and Russia, called the Donut Hole, is an example of international waters. Loss of sea ice will create new transboundary areas and international waters in the Arctic.

Regional Fishery Management Organizations (RFMOs) are multinational organizations with interests in internationally shared fish stocks and associated fishing activities. Primary objectives of these RFMOs are to research, assess and adopt measures for the conservation and coordinated management of target species, such as bigeye tuna. Some RFMOs also collect data and evaluate and adopt measures for the conservation and scientific assessment of non-target species, also known as bycatch. Non-target species include seabirds, marine mammals, sea turtles and fish species caught incidentally while fishing for target species. The commitment to conserving and protecting all species associated with, or affected by, fishing activities is outlined in the Food and Agriculture Organization's (FAO's) Code of Conduct for Responsible Fisheries established in 1995.

Another issue of particular concern for NOAA Fisheries is illegal, unreported and unregulated (IUU) fishing activities (see Policy Updates). IUU fishing generally refers to fishing that violates national laws or internationally agreed conservation and management measures in effect in oceans around the world. IUU fishing can include fishing without a license or quota for certain species, unauthorized transshipments to cargo

¹ Fishery management plans and fishery ecosystem plans for each region covered in this report are listed in their respective sections. The four FMPs developed by the Caribbean Fishery Management Council and the Atlantic Highly Migratory Species FMP developed by NOAA Fisheries are not included in this report.

² Source: NOAA Fisheries Office of Sustainable Fisheries, Status of Stocks 2016. <https://www.fisheries.noaa.gov/feature-story/status-stocks-2016>.

vessels, failing to report catches or making false reports, keeping undersized fish or fish that are otherwise protected by regulations, fishing in closed areas or during closed seasons, and using prohibited fishing gear.

Experts estimate that global economic losses from IUU fishing range from \$10 billion to \$23.5 billion annually, representing between 11 and 26 million tons of fish.³

Regional Fishery Management Organizations

NOAA Fisheries participates in eight RFMOs globally. Each RMFO is listed by ocean basin below.⁴

Pacific

- Pacific Salmon Commission
- International Pacific Halibut Commission
- Inter-American Tropical Tuna Commission
- Western and Central Pacific Fishery Commission

Atlantic

- International Commission for the Conservation of Atlantic Tunas
- North Atlantic Salmon Conservation Organization
- Northwest Atlantic Fisheries Organization

Antarctic

- Commission for the Conservation of Antarctic Marine Living Resources

NOAA Fisheries is actively collaborating with other federal agencies as part of the National Ocean Council Committee on IUU Fishing and Seafood Fraud. This network of agencies works together to implement measures outlined in an action plan developed by the Presidential Task Force on Combatting IUU Fishing and Seafood Fraud. The plan includes actions that will strengthen enforcement; create and expand partnerships with state and local governments, industry, and non-governmental organizations; and create a risk-based traceability program to track seafood from harvest to entry into U.S. commerce. The plan also highlights ways in which the United States will work with our foreign partners to strengthen international governance, enhance cooperation, and build capacity to combat IUU fishing and seafood fraud.

Saltwater Recreational Fisheries Policy

In February 2015, NOAA Fisheries established a formal National Saltwater Recreational Fisheries Policy to broadly guide future actions and better integrate recreational fishing with NOAA Fisheries' mission. The policy focuses on six guiding principles: 1) support ecosystem conservation and enhancement; 2) promote public access to quality recreational fishing opportunities; 3) coordinate with state and federal management entities; 4) advance innovative solutions to evolving science, management and environmental challenges; 5) provide scientifically sound and trusted social, cultural, economic and, ecological information; and 6) communicate and engage with the recreational fishing public.

Threatened and Endangered Species

NOAA Fisheries is also the lead agency for the conservation and protection of marine and anadromous species that fall within the purview of the Endangered Species Act (ESA). Currently, there are 161 threatened and endangered marine species under the ESA (see Table 1).

Table 1. Endangered and Threatened Species under NOAA Fisheries Jurisdiction⁵

Species Group	Number of Species
Marine and Anadromous Fish	74
Marine Mammals	33
Sea Turtles	26
Marine Invertebrates	27
Plants	1
Total Threatened and Endangered Marine Species	161

In addition to threatened and endangered marine and anadromous species, NOAA Fisheries also helps identify candidate and proposed species. Candidate species are actively being considered for listing as endangered or threatened under the ESA. These species also include those for which NOAA Fisheries has initiated a status review that it has announced in the *Federal Register*. Proposed species are candidate species that were found to warrant listing as either threatened or endangered. These species were officially proposed as such in a *Federal Register* notice after the completion of a status review and consideration of other protective measures.

³ Agnew DJ, Pearce J, Pramod G, Peatman T, Watson R, Beddington JR, et al. (2009) Estimating the Worldwide Extent of Illegal Fishing. *PLoS ONE* 4(2): e4570. doi:10.1371/journal.pone.0004570.

⁴ Source: http://www.nmfs.noaa.gov/ia/agreements/regional_agreements/intlagree.html.

⁵ See NOAA Fisheries Office of Protected Resources (<http://www.nmfs.noaa.gov/pr/species/esa/>) for current and proposed ESA species listings.

Currently, 12 candidate species and three proposed species are under consideration for listing.

NOAA Fisheries is also responsible for protecting marine mammals under the Marine Mammal Protection Act.⁶ In authorizing this act in 1972, Congress recognized that marine mammal species or stocks may be in danger of extinction or depletion as a result of human activities; marine mammal species or stocks should not be allowed to fall below their optimum sustainable population levels; measures should be taken to replenish marine mammal species or stocks; there is inadequate knowledge of the marine mammal ecology and population dynamics; and marine mammals have proven to be resources of great international significance. NOAA Fisheries engages in activities such as preventing the harassment, capture, or killing of marine mammals; preparing marine mammal stock assessments; and studying interactions between marine mammals and fisheries.

Essential Fish Habitats

Sustainable commercial and recreational fisheries depend on healthy habitats. These habitats include rivers, estuaries, and the open ocean where marine and anadromous species feed, grow, and reproduce. Consideration of these habitat areas is part of an ecosystem-based management approach for managing fisheries in a more sustainable and holistic manner. Since 1996, federal fishery management plans are required to identify and describe essential fish habitat (EFH) for all federally managed species. Habitat areas that are necessary for a fish species' growth, reproduction, and development are considered EFH. To the extent practicable, NOAA Fisheries and the FMCs must minimize adverse effects to EFH caused by fishing.

Though not required, Habitat Areas of Particular Concern (HAPC) can be identified to help focus EFH conservation efforts. The HAPC designation alone does not confer additional protection to or place restrictions on an area, but helps to focus EFH conservation, management, and research priorities. HAPC designation is a valuable way to acknowledge areas where detailed information exists on ecological function and habitat vulnerability, indicating a greater need for conservation and management. To

date, approximately 100 HAPCs have been designated, including specific coral, seamount, and spawning areas. A recent effort undertaken by NOAA Fisheries was the creation of a Habitat Assessment Improvement Plan.⁷ The goal of this plan is to advance NOAA Fisheries' ability to identify EFH and HAPCs and provide the information needed to assess impacts to EFH.

Catch Share Programs

Market-based management tools are used by fishery managers to reduce over-capitalization, increase the economic viability of fisheries, and promote individual accountability for harvest and harvesting practices. Catch share programs are one of these tools, and encompass a range of management strategies that share a common feature: A secure share of fish is dedicated to individual fishermen, cooperatives, fishing communities and other entities for their exclusive use. In 2010, the NOAA catch share policy was released to encourage well-designed catch share programs to help maintain or rebuild fisheries.⁸ The policy also aims to sustain fishermen, communities, and vibrant working waterfronts, including the cultural and resource-access traditions that have been part of this country since its founding.

Currently, there are 16 federal catch share programs nationwide. These programs include limited access privilege programs (LAPPs), individual fishing quota programs (IFQs), individual transferable quota programs (ITQs), fishing community development quota programs (CDQs), fishing cooperatives, and fishing sectors.⁹ Implementation dates of these programs span three decades, with five programs established in the 1990s and six established since 2010 (see Table 2). Ten programs manage a single species or, in some cases, two species but as separate management units; the other six programs manage multiple species. Six of the programs operate in the Alaska Region.

In 2010, NOAA Fisheries initiated an effort to track catch share program performance.¹⁰ Findings from the initial report show that existing catch share programs have ended the race to fish (in their respective fisheries) resulting in longer fishing seasons, safer working conditions, and improved management performance. The

⁶ The U.S. Fish and Wildlife Service protects walrus, manatees, otters, and polar bears.

⁷ The Habitat Assessment Improvement Plan is available at: https://www.st.nmfs.noaa.gov/st4/documents/habitatAssesmentImprovement-Plan_052110.PDF.

⁸ See <https://www.fisheries.noaa.gov/national/laws-and-policies/catch-shares>.

⁹ See Section 303A of the Magnuson-Stevens Act for more information on LAPP requirements.

¹⁰ See <http://www.st.nmfs.noaa.gov/economics/fisheries/commercial/catch-share-program/index>.

Table 2. Existing Catch Share Programs in Federal Fisheries

Region	Program	Year Implemented
Mid-Atlantic	Mid-Atlantic Surfclam & Ocean Quahog ITQ	1990
	Mid-Atlantic Golden Tilefish IFQ	2009
New England	Northeast Multispecies Sectors	2010
	Northeast General Category Atlantic Sea Scallop IFQ	2010
North Pacific	Western Alaska Community Development Quota	1992
	Alaska Halibut and Sablefish IFQ	1995
	American Fisheries Act (AFA) Pollock Cooperatives	1999
	Bering Sea and Aleutian Island (BSAI) Crab Rationalization	2005
	Central Gulf of Alaska (GOA) Rockfish (<i>pilot implemented in 2007</i>)	2012
	Non-Pollock Trawl Catcher/Processor Groundfish Cooperatives (Amendment 80)	2008
South Atlantic	South Atlantic Wreckfish ITQ	1992
Gulf of Mexico	Red Snapper IFQ	2007
	Grouper-Tilefish IFQ	2010
Pacific	Pacific Coast Sablefish Permit Stacking	2001
	Pacific Groundfish Trawl Rationalization Program (Whiting and Non-Whiting trawl)	2011
Atlantic	Highly Migratory Species Individual Bluefin Quota Program	2016

Table 3. Economic Performance Indicators for U.S. Federal Catch Share Programs (2015 dollars)¹¹

	Management Context		Participation		Economic Benefits			
	ACL Exceeded		Active Vessels		Total Revenue from Catch Share Species		Revenue per Active Vessel	
	Baseline	2015	Baseline	2015	Baseline	2015	Baseline	2015
Gulf of Mexico								
Grouper-Tilefish	Y	N	630	446	\$22,771,411	\$27,854,557	\$36,145	\$62,454
Red Snapper	Y	N	482	415	\$13,958,514	\$28,884,023	\$28,960	\$69,600
Mid-Atlantic								
Golden Tilefish	-	N	14	11	\$4,707,700	\$5,028,563	\$336,264	\$457,142
Ocean Quahog	N	N	67	16	\$29,406,847	\$21,858,000	\$438,908	\$1,366,125
Surfclam	-	N	137	37	\$39,625,107	\$28,589,183	\$289,234	\$772,681
New England								
General Category Scallop	-	-	271	150	\$28,366,002	\$31,591,134	\$104,672	\$210,608
Multispecies Sectors	Y	N	417	206	\$86,215,431	\$52,666,418	\$206,751	\$255,662
North Pacific								
Alaska Halibut	Y	N	3,432	874	\$93,232,899	\$102,001,633	\$27,168	\$116,707
Alaska Sablefish	Y	N	1,139	306	\$93,929,829	\$74,449,319	\$82,467	\$243,298
AFA Pollock Cooperatives	Y	N	147	99	\$253,467,523	\$368,407,672	\$1,720,368	\$3,721,290
BSAI Crab Rationalization	Y	N	264	80	\$186,746,805	\$244,176,102	\$706,482	\$3,052,201
Amendment 80	N	N	22	18	\$92,131,777	\$105,158,733	\$4,187,808	\$5,842,152
Central GOA Rockfish	Y	N	42	51	\$5,729,012	\$10,982,900	\$136,405	\$215,351
Pacific								
Pacific Sablefish	-	N	135	89	\$6,701,698	\$7,904,987	\$49,642	\$88,820
Whiting and Non-Whiting Directed	-	N	124	94	\$39,979,907	\$39,930,830	\$322,419	\$424,796

report also shows that existing catch share programs have resulted in reduced fishing capacity to better match stock size—a management objective in the majority of catch share programs evaluated. Economic performance for the vessels remaining in the program improved, as measured by such metrics as revenue per vessel and average price.

Updated information on selected performance indicators is provided in Table 3. Briefly, results show that inflation-

adjusted revenue from catch share species increased in 10 of the 15 programs and/or sub-components of the programs since their implementation. In addition, the number of active vessels decreased in all but one program (Central GOA Rockfish), while inflation-adjusted revenue per active vessel increased in all programs since their implementation. Further, results show that no stocks exceeded the annual catch limit (ACL) in 2015.

¹¹ The South Atlantic Wreckfish ITQ is not included due to confidentiality restrictions. The Western Alaska CDQ program was excluded because it is the only CDQ and thus fundamentally different from the other programs. In addition, note that some programs did not have a catch quota prior to the catch share program. For these programs, “-” indicates that the question of whether the ACL was exceeded is not applicable.

Policy Updates

In December 2016, NOAA Fisheries issued the final rule establishing the Seafood Import Monitoring Program to further curb illegal, unreported and unregulated (IUU) fishing practices and to identify misrepresented seafood imports before they enter the U.S. market. The program requires that importers report information and maintain records about the harvest, landing, and chain of custody of imported fish and fish products for certain priority species identified as especially vulnerable to IUU fishing and seafood fraud. The data collected under this program will allow these priority species of seafood to be traced from the point of entry into U.S. commerce back to the point of harvest or production to verify whether it was lawfully harvested or produced. For 11 of the 13 species/species groups covered in the final rule, the rule went into effect January 1, 2018; shrimp and abalone compliance will be mandatory by December 31, 2018.

Other Market-Based Management Tools

Vessel or permit buyback programs are another market-based tool used by fishery managers. Under these programs, the government purchases fishing vessels or permits. Doing so permanently decreases the number of participants in the fishery and eases fishing-related pressure on marine resources. Recent buyback programs include BSAI Crab, Pacific Coast Groundfish, Longline CP Non-Pol-lock Groundfish, Southeast Alaska Purse Seine Salmon, and AFA Pollock.

License limitation programs (LLPs), also known as limited entry programs, are another management tool available to fishery managers. In these programs, the number of fishing vessels allowed to harvest a specific fish stock or stock complex is limited to fishermen or vessels with permission to fish. LLPs have been implemented in almost all federally managed commercial fisheries and in every region except the Caribbean.

Ecolabels are market-based tools offered by third-party entities. An ecolabeling program entitles a fishery product to bear a distinctive logo or statement that certifies the fishery resource was harvested in compliance with specified conservation and sustainability standards. It allows the buyer to potentially influence the sustainable harvest of fishery resources through the purchase of such

ecolabeled seafood products at a price premium.

The Marine Stewardship Council (MSC) has one of the most recognizable ecolabeling programs in the world. Currently, nearly 300 fisheries worldwide meet MSC sustainability standards, 19 of which are U.S. fisheries (see Table 4). Fisheries obtaining MSC certification for the first time in 2016 include the U.S. Atlantic Surfclam and Ocean Quahog fishery and the Gulf of Maine Lobster fishery.

Table 4. U.S. Fisheries with MSC Certification¹²

Region	Fishery	Certified
North Pacific	Alaska flatfish - Bering Sea & Aleutian Islands	2010
	Alaska flatfish - Gulf of Alaska	2010
	Alaska Pacific cod - Bering Sea & Aleutian Islands	2010
	Alaska Pacific cod - Gulf of Alaska	2010
	Alaska pollock - Bering Sea & Aleutian Islands	2010
	Alaska pollock - Gulf of Alaska	2010
	American Western Fish Boat Owners Association albacore tuna	2010
	North Pacific	
	U.S. North Pacific halibut	2006
	U.S. North Pacific sablefish	2006
Pacific	Alaska salmon	2000
	American Albacore Fishing Association Pacific albacore tuna - north	2007
	American Albacore Fishing Association Pacific albacore tuna - south	2007
	Pacific hake mid-water trawl	2009
	U.S. West Coast limited entry groundfish trawl	2014
Gulf	Louisiana blue crab	2012
	U.S. Atlantic spiny dogfish	2012
North-east	U.S. North Atlantic swordfish	2013
	U.S. Atlantic sea scallop	2013
	U.S. Atlantic surfclam and ocean quahog	2016
	Gulf of Maine Lobster	2016

NATIONAL OVERVIEW

In 2016, commercial and recreational fisheries throughout the United States generated approximately 1.7 million jobs in the U.S. economy. In addition, commercial and recreational fishing together generated \$212.2 billion in sales impacts, \$64.2 billion in income

¹² For more information about these fisheries and the Marine Stewardship Council certification process, see <https://www.msc.org/>.

impacts, and \$99.5 billion in value-added impacts throughout the economy. Florida had the largest employment impacts from the combined fishing industry, with approximately 173,000 jobs. Florida also had the largest sales impacts from the combined fishing industry (\$27.8 billion), the largest income impacts (\$7.3 billion), and the largest value-added impacts (\$12.2 billion).

COMMERCIAL FISHERIES

In this report, commercial fishing refers to fishing operations that sell their catch for profit. The term does not include subsistence or saltwater anglers who fish for sport. It also excludes the for-hire sector, which earns its revenue from selling recreational fishing trips to saltwater anglers. The commercial fisheries section reports on economic impacts, landings revenue, landings, and ex-vessel prices of key species/species groups.

Key U.S. Commercial Species

- American lobster
- Blue crab
- Menhaden
- Pacific halibut
- Pacific salmon
- Sablefish
- Sea scallop
- Shrimp
- Tunas
- Walleye pollock

Regional Highlights

At the national level, this report includes landings revenue, landings, and prices for 10 key species or species groups, which were selected so that each region has at least one species in the top 10. Results show that commercial fishermen in Alaska caught the most salmon (587.7 million pounds) and earned \$407.3 million for their catch in 2016. Tuna was caught in large numbers in Hawai'i (23.5 million pounds) and generated \$88.5 million in landings revenue. Maine fishermen contributed the most to American lobster landings (132 million pounds) and earned \$537.9 million for their catch in 2016. In Massachusetts, sea scallopers harvested 22.9 million pounds of scallop and earned \$281.4 million for their catch. More blue crab was caught in Louisiana (40.1 million pounds) than in any other state, earning more than \$49.4 million. Louisiana

also accounted for the greatest quantity of menhaden landed in 2016, with fishermen landing 1.1 billion pounds worth \$132.1 million in dockside revenue. Sea scallop garnered the highest average ex-vessel price per pound (\$12) among the key species and species groups in 2016, with state-specific prices ranging from \$9.51 in New York to \$12.81 in Maine.

Economic Impacts

The premise behind economic impact modeling is that every dollar spent in a regional economy (direct impact) is either saved or re-spent on additional goods or services. If those dollars are re-spent on other goods and services in the regional economy, this spending generates additional economic activity in the region.

Four different measures are commonly used to show how commercial fisheries landings affect the economy in a region (state or nationwide): sales, income, value-added, and employment. The term sales refers to the gross value of all sales by regional businesses affected by an activity, such as commercial fishing. The category includes both the direct sales of fish landed and sales made between businesses and households resulting from the original sale. Income includes personal income (wages and salaries) and proprietors' income (income from self-employment). Value-added is the contribution made to the gross domestic product in a region. Employment is specified on the basis of full-time and part-time jobs supported directly or indirectly by the sales of seafood or purchases of inputs to commercial fishing. The first three measures are calculated in terms of dollars, whereas employment impacts are measured in numbers of jobs. Note that these categories are not additive. The United States seafood industry is defined here as the commercial fishing sector, seafood processors and dealers, seafood wholesalers and distributors, importers, and seafood retailers.¹³

This report provides estimates of total economic impacts for the nation and for each of the 23 coastal states. Total economic impacts for each state and the nation represent the sum of direct impacts; indirect impacts (in this case, the impact from suppliers to the seafood industry); and induced impacts (spending by employees on personal and household expenditures, where employees of both the

¹³ The NMFS Commercial Fishing Industry Input/Output Model was used to generate the impact estimates (see NMFS Commercial Fishing & Seafood Industry Input/Output Model, available at www.st.nmfs.noaa.gov/documents/commercial_seafood_impacts_2007-2009.pdf).

seafood industry and its full supply chain are included). That is, the total economic impact estimates reported here measure jobs, sales, value-added, and income impacts from the seafood industry as well as the economic activity generated throughout each region’s broader economy from this industry.

In 2016, the seafood industry supported 1.2 million full- and part-time jobs and generated \$144.3 billion in sales, \$39.9 billion in income, and \$60.8 billion in value-added impacts nationwide (Table 5). The retail sector generated the largest employment impacts across sectors (583,000 jobs), the largest income impacts (\$13.6 billion), and the largest value-added

impacts (\$18.5 billion). The importers sector generated the largest sales impacts (\$57.6 billion).

The largest state-level employment impacts generated by the seafood industry occurred in California (125,000 jobs), followed by Massachusetts (87,000 jobs), and Florida (77,000 jobs); see Graph 1. The highest income impacts were generated in California (\$4.9 billion), followed by Florida and Washington. The highest sales impacts were generated by the seafood industry in California (\$22.8 billion), followed by Florida and Massachusetts. The highest value-added impacts were generated in California (\$8.1 billion), followed by Florida and Washington (Table 6).

Table 5. U.S. Seafood Industry Economic Impacts Trends (\$ billions)

	2012	2013	2014	2015	2016
Jobs	1,270,141	1,350,627	1,394,833	1,179,848	1,190,092
Sales	\$140.70	\$142.20	\$153.30	\$144.19	\$144.29
Income	\$38.70	\$39.80	\$42.00	\$39.74	\$39.90
Value Added	\$59.00	\$60.30	\$64.10	\$60.57	\$60.76
Total Revenue	\$5.29	\$5.55	\$5.53	\$5.22	\$5.34

Table 6. Sales, Income and Value-Added Impacts Generated by the U.S. Seafood Industry, 2016 (\$ millions)

State	Sales	Income	Value Added
U.S.	\$144,293	\$39,905	\$60,758
California	\$22,776	\$4,912	\$8,141
Florida	\$16,874	\$3,172	\$5,659
Washington	\$7,464	\$2,004	\$3,048
Massachusetts	\$7,663	\$1,999	\$3,045
Alaska	\$3,895	\$1,654	\$2,074
New Jersey	\$6,226	\$1,413	\$2,282
New York	\$4,412	\$950	\$1,567
Maine	\$2,582	\$856	\$1,236
Louisiana	\$2,022	\$752	\$1,023
Texas	\$2,091	\$597	\$899
Virginia	\$1,435	\$464	\$660
Oregon	\$1,190	\$416	\$584
New Hampshire	\$1,511	\$348	\$558
Georgia	\$1,554	\$344	\$567
Maryland	\$1,241	\$335	\$504
Rhode Island	\$1,375	\$335	\$529
North Carolina	\$985	\$276	\$411
Hawai'i	\$867	\$269	\$392
Alabama	\$555	\$220	\$288
Mississippi	\$218	\$87	\$113
Connecticut	\$387	\$83	\$137
South Carolina	\$118	\$39	\$55
Delaware	\$136	\$26	\$44

Graph 1. Jobs supported by the U.S. Seafood Industry (With and Without Imports), 2016



Landings Trends

While nationally landings revenue ticked up 2 percent from 2015 to 2016, there was considerably more variation among the key species/species groups. Most notably, Pacific salmon (down \$94.8 million) and walleye pollock (down \$49.8 million) had the largest declines in landings revenue, while American lobster and sea scallops (both up \$46.0 million) had the largest increases in landings revenue. Salmon landings revenue declined due to a sharp decline in landings in 2016 (down 46%) relative to 2015. This was largely due to the decline in pink salmon landings, which fell 488 million pounds from 2015 levels. While pink salmon landings are typically lower in “even years” due to their biennial cycle, in 2016 the Gulf of Alaska (GOA) pink salmon harvests came in far below forecasted levels. The walleye pollock landings revenue decline (down 11% or \$49.8 million) was directly attributable to lower ex-vessel prices in both the Bering Sea–Aleutian Islands and Gulf of Alaska.

New England’s American lobster fishery continued its strong performance, driven by record abundance levels of Gulf of Maine lobsters that have allowed landings to almost double (up 99%) since 2007. The increase in New England and Mid-Atlantic sea scallop fisheries landings revenue (up \$17.1 million and \$29.4 million, respectively) over 2015 levels was similarly driven by an increase in landings.

Landings Revenue

Landings revenue in the United States totaled \$5.3 billion

in 2016 (Table 7). This represented a 28% increase in nominal value from 2007 levels (an 11% increase in real terms after adjusting for inflation) and a year-over-year increase of 2% from 2015 (Graph 2). Finfish landings revenue accounted for 43% of all landings revenue. American lobster had the highest landings revenue in 2016.

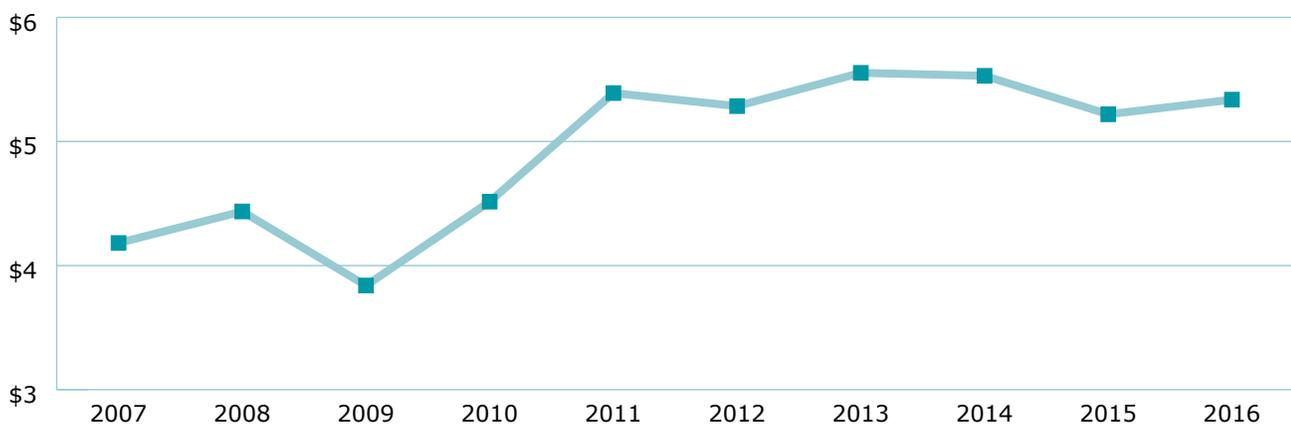
Table 7. Commercial Fisheries Landings Revenue by Region, 2016 (\$ millions)

Region	Landings Revenue	Region	Landings Revenue
U.S.	\$5,337.10	Pacific	\$688.90
North Pacific	\$1,609.60	Mid-Atlantic	\$550.30
New England	\$1,325.90	South Atlantic	\$190.90
Gulf of Mexico	\$912.10	Western Pacific	\$118.10

From 2007 to 2016, menhaden (96%, 71% in real terms), American lobster (81%, 58% in real terms), and tunas (64%, 44% in real terms) had the largest revenue increases, while Pacific halibut (-45%, -52% in real terms) had the largest revenue decreases. From 2015 to 2016, tunas (12%), sea scallop (11%), and American lobster (7%) had the largest revenue increases, while Pacific salmon (-17%) and walleye pollock (-11%) had the largest revenue decreases.

Alaska earned the greatest share of landings revenue in 2016 (\$1.6 billion), contributing 30% of the national total (Table 7). Maine (\$574 million, or 19% of U.S. shellfish revenue) and Massachusetts (\$451.6 million, or 15% of U.S. shellfish revenue) earned the most ex-vessel revenue from shellfish landings.

Graph 2. U.S. Commercial Fisheries Landings Revenue, 2007-2016 (nominal values, \$ billions)



Commercial Revenue: Largest Increases*From 2007:*

- Menhaden (96%, 71% in real terms)
- American lobster (81%, 58% in real terms)
- Tunas (64%, 44% in real terms)

From 2015:

- Tunas (12%)
- Sea scallop (11%)
- American lobster (7%)

Commercial Revenue: Largest Decreases*From 2007:*

- Pacific halibut (-45%, -52% in real terms)

From 2015:

- Pacific salmon (-17%)
- Walleye pollock (-11%)

Commercial Landings: Largest Increases*From 2007:*

- American lobster (96%)
- Menhaden (18%)
- Tunas (10%)

From 2015:

- Sea scallop (11%)
- American lobster (8%)
- Menhaden(7%)

Commercial Landings: Largest Decreases*From 2007:*

- Pacific halibut (-64%)
- Pacific salmon (-38%)
- Sea scallop (-31%)

From 2015:

- Pacific salmon (-46%)
- Shrimp (-15%)
- Sablefish (-3%)

Landings

Landings volume in the United States totaled 9.6 billion pounds in 2016 (Table 8). This represented a 3% increase from 2007 levels and a year-over-year decrease of 2% from 2015; see Graph 3. Finfish landings

accounted for 88% of all landed weight. Walleye pollock had the highest landings volume in 2016.

From 2007 to 2016, American lobster (96%), menhaden (18%), and tunas (10%) had the largest landings increases, while Pacific halibut (-64%), Pacific salmon (-38%), and sea scallop (-31%) had the largest landings decreases. From 2015 to 2016, sea scallop (11%), American lobster (8%), and menhaden (7%) had the largest landings increases, while Pacific salmon (-46%), shrimp (-15%), and sablefish (-3%) had the largest landings decreases.

Alaska accounted for the greatest share of landings volume in 2016 (5.6 billion pounds), contributing 59% of the national total (see Table 8). Louisiana (163.3 million pounds, or 14% of U.S. shellfish landings) and Maine (150.7 million pounds, 13%) had the highest shellfish landings by volume.

Table 8. Commercial Fisheries Landings by Region, 2016 (millions of pounds)

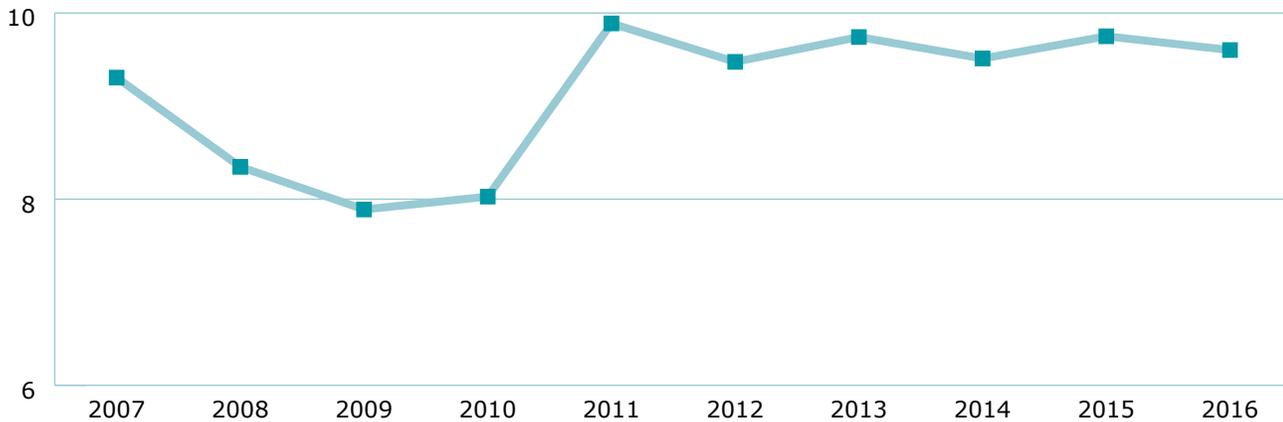
Region	Landings	Region	Landings
U.S.	9,602.00	Mid-Atlantic	597.50
North Pacific	5,630.99	New England	595.00
Gulf of Mexico	1,744.50	South Atlantic	106.30
Pacific	937.80	Western Pacific	35.10

Prices

Of all key species or species groups, sea scallop (\$12 per pound) had the highest national ex-vessel price. Menhaden (\$0.10 per pound) had the lowest ex-vessel price of all key species nationally.

From 2007 to 2016, large price increases were observed for sea scallop (82%, 67% in real terms), menhaden (67%, 52% in real terms), and Pacific salmon (59%, 39% in real terms), while walleye pollock (-9%, -5% in real terms) and American lobster (-8%, -22% in real terms) had the largest decreases in price. From 2015 to 2016, large year-over-year price increases were observed for Pacific salmon (53%), shrimp (19%), and tunas (15%), while walleye pollock (-25%), menhaden (-9%), and sea scallop (-3%) had the largest annual percentage decreases in price from 2015 to 2016.

Graph 3. U.S. Commercial Fisheries Landings, 2007-2016 (billions of pounds)



RECREATIONAL FISHERIES

In this report, recreational fishing refers to fishing for fun rather than to resell fish (commercial fishing) or for subsistence. The recreational fisheries section reports on angler participation, trips, economic impacts and expenditures, and catch of key species/species groups.¹⁴

Key U.S. Recreational Species

- Atlantic croaker and spot
- Little tunny and Atlantic bonito
- Pacific halibut
- Rockfishes and scorpionfishes
- Pacific salmon
- Seatrout
- Sharks
- Striped bass
- Summer flounder
- Tunas

Regional Highlights

At the national level, the report includes fishing trips, participation, and the harvest and release numbers of 10 key species or species groups, which were selected so that each region has at least one species in the top 10. Results show that in 2016, recreational anglers in West Florida took the most trips (13.2 million trips) and spent the most on trips (\$646.3 million). North Carolina spent the second most on trips (\$446.7 million). West Florida also had the most recreational anglers participate in fishing in their state, with 3.7 million anglers.

West Florida caught the most seatrouts (11.9 million fish), Virginia caught the most Atlantic croaker and spot (5.6 million fish), and New Jersey caught the most summer flounder (6.9 million fish). Alaska caught the most Pacific halibut (643,000 fish), and more striped bass (5.1 million fish) was caught in Maryland than in any other state.

Economic Impacts and Expenditures

The contribution of recreational fishing activities in the United States is reported in terms of economic impacts from angler expenditures.^{15,16} Total annual trip expenditures are estimated by multiplying mean trip expenditures by the estimated number of adult trips in each trip mode (for-hire, private boat, and shore). Total annual durable expenditures were estimated by multiplying mean durable expenditures by the estimated annual number of adult participants in a given state.

Four different measures are commonly used to show how angler expenditures affect the economy in a region (state or nationwide): sales, income, value-added, and employment. The term sales refers to the gross value of all sales by regional businesses affected by an activity, such as recreational fishing. It includes both the direct sales made by the angler and sales made between businesses and households resulting from that original sale by the angler. Income includes personal income (wages and salaries) and proprietors' income (income from self-employment). Value-added is the contribution made to the gross domestic product in a

¹⁴ Except where noted, Atlantic and Gulf recreational catch and effort estimates are based upon the MRIP APAIS and CHTS (<https://www.st.nmfs.noaa.gov/recreational-fisheries/Surveys/survey-details>) and not the revised MRIP estimates (<https://www.fisheries.noaa.gov/leadership-message/noaa-fisheries-releases-revised-mrip-recreational-catch-and-effort-estimates>) released in 2018.

¹⁵ Trip expenditure estimates were generated from the 2011 National Marine Recreational Fishing Expenditure Survey. Durable goods expenditure impacts were generated from the 2014 National Marine Recreational Fishing Expenditure Survey (see <http://www.st.nmfs.noaa.gov/economics/fisheries/recreational/Marine-Angler-Durable-Expenditures/2014-durable-expenditures-survey>). Economic impacts from recreational fishing activities were generated using the NMFS Recreational Economic Impact Model (see *The Economic Contribution of Marine Angler Expenditures in the United States, 2011*, available at <http://www.st.nmfs.noaa.gov/economics/publications/marine-angler-expenditures/marine-angler-2011>).

¹⁶ Economic impacts from recreational fishing activities were generated using the NMFS Recreational Economic Impact Model (see *The Economic Contribution of Marine Angler Expenditures in the United States, 2011*, available at <http://www.st.nmfs.noaa.gov/economics/publications/marine-angler-expenditures/marine-angler-2011>) and IMPLAN version 3.1.1001.12.

region. Employment is specified on the basis of full-time and part-time jobs supported directly or indirectly by the purchases made by anglers. The first three measures are calculated in terms of dollars, whereas employment impacts are measured in numbers of jobs. Note that these categories are not additive. NOAA Fisheries uses a regional impact modeling software, called IMPLAN, to estimate these four types of impacts.

Economic impacts from recreational fishing activities supported 472,000 jobs across the United States in 2016 (see Table 9). Recreational fishing also generated about \$67.9 billion in sales impacts, \$24.3 billion in income impacts, and \$38.7 billion in value-added impacts. Impacts from durable equipment expenditures (e.g., rods and reels, fishing-related equipment, boats, vehicles, and second homes) accounted for 86% of total job impacts, 85% of sales impacts, 87% of income impacts, and 87% of value added impacts. Of the three fishing trip modes, private-boat-based fishing trips had the greatest economic impact, accounting for 5% of employment, 6% of sales, 4% of income impacts, and 5% of value-added impacts.

Table 9. Recreational Economic Impacts Trends for the United States (\$ billions)

	2012	2013	2014	2015	2016
Number of Jobs	425,321	420,191	438,590	439,242	472,020
Sales	\$58.80	\$58.10	\$60.60	\$63.44	\$67.91
Income	\$21.40	\$21.10	\$22.00	\$22.68	\$24.33
Value Added	\$34.40	\$34.00	\$35.50	\$36.08	\$38.69
Total Trips (millions)	71.1	72.1	69.0	61.7	63.3

The greatest employment impacts from saltwater recreational fishing were generated in West Florida, followed by East Florida and California (see Graph 4). The highest sales impacts were generated in West Florida, followed by East Florida and California (see Table 10).

Graph 4. Jobs supported by the U.S. Recreational

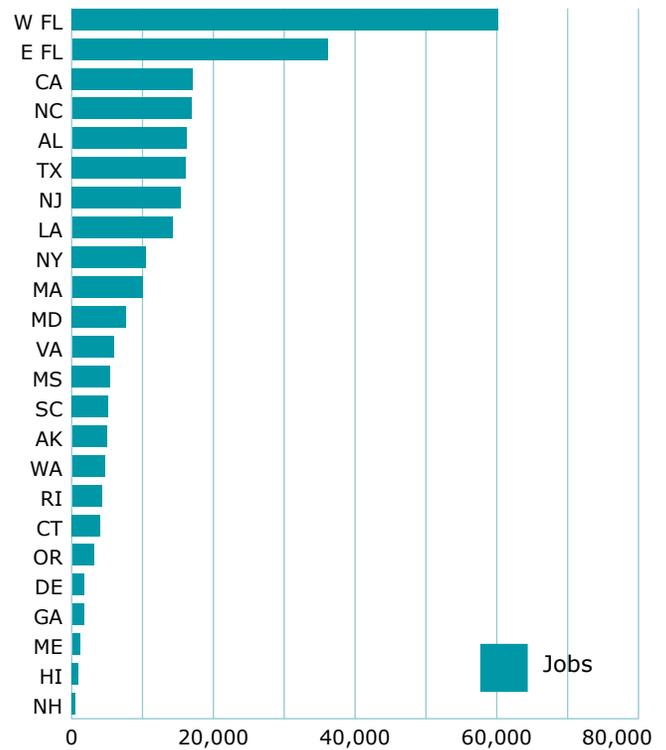


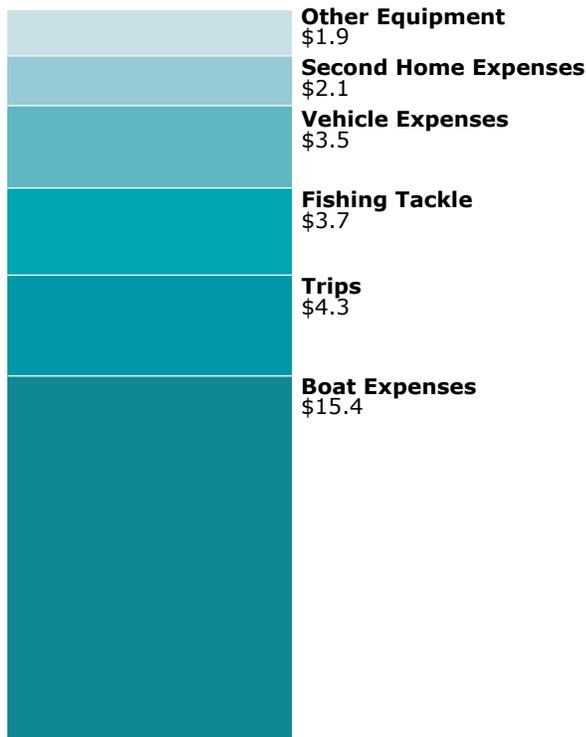
Table 10. Sales, Income, and Value-Added Impacts Generated by the Recreational Fishing Industry, 2016 (\$ millions)

State	Sales	Income	Value Added
U.S National Total	\$67,912	\$24,334	\$38,693
West Florida	\$6,827	\$2,575	\$4,112
East Florida	\$4,084	\$1,540	\$2,466
California	\$2,123	\$819	\$1,305
Texas	\$2,000	\$746	\$1,237
New Jersey	\$1,752	\$746	\$1,168
North Carolina	\$1,699	\$656	\$1,021
Louisiana	\$1,630	\$608	\$1,003
Alabama	\$1,436	\$616	\$1,030
New York	\$1,127	\$488	\$770
Massachusetts	\$1,071	\$496	\$716
Maryland	\$785	\$327	\$513
Mississippi	\$638	\$211	\$345
Virginia	\$584	\$239	\$379
Washington	\$542	\$209	\$340
Alaska	\$539	\$195	\$316
South Carolina	\$498	\$181	\$292
Connecticut	\$430	\$186	\$292
Rhode Island	\$412	\$176	\$270
Oregon	\$297	\$132	\$192
Delaware	\$168	\$67	\$110
Georgia	\$161	\$67	\$106
Hawaii	\$105	\$33	\$55
Maine	\$99	\$37	\$59
New Hampshire	\$48	\$22	\$31

In 2016, expenditures for fishing trips and durable equipment in the United States totaled \$30.8 billion.

Approximately \$4.3 billion of these expenditures were related to trip expenses. Total trip expenditures were composed of expenses on trips in the private boat (42%), shore (32%), and for-hire (26%) sectors. Durable goods expenditures totaled \$26.6 billion in 2016, with the largest portion coming from boat expenses (\$15.4 billion); see Graph 5.

Graph 5. Recreational Fishing Trip and Durable Expenditures, 2016 (\$ billions)



Fishing Trips

Nationwide, anglers took approximately 63.3 million saltwater fishing trips around the country (see Table 11).¹⁷ This number represents a 28% decrease from 2007 and a 3% increase from 2015 (see Graph 6). Forty-nine percent of fishing trips were taken via the private boat mode. West Florida anglers took the most fishing trips (13.2 million trips), followed by those in East Florida and North Carolina (Table 12).

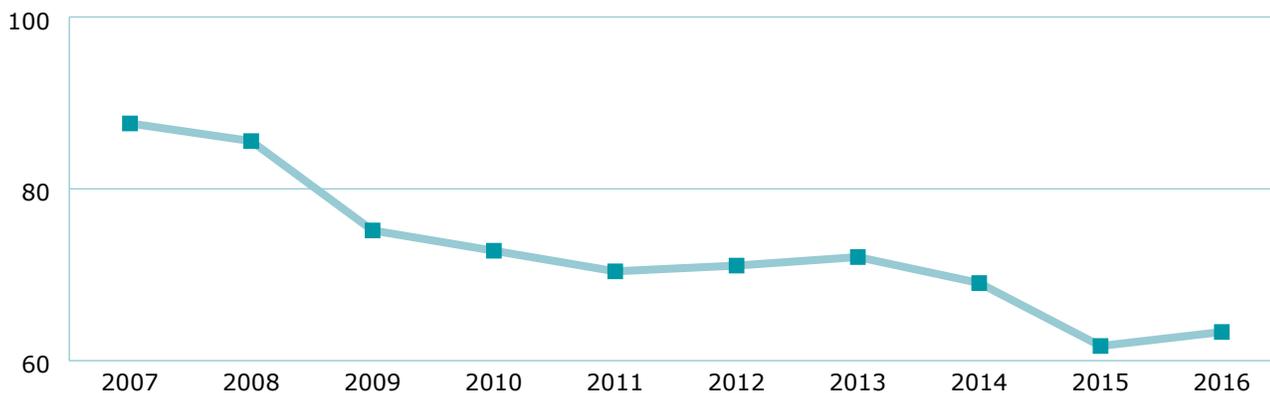
Table 11. Recreational Fishing Trips by Region, 2016 (millions of fishing trips)

Region	Trips
U.S. Total	63.3
Gulf of Mexico	19.5
South Atlantic	16.8
Mid-Atlantic	14.0
New England	6.1
Pacific	5.2
Hawai'i	1.0

Table 12. Recreational Fishing Trips by State, 2016 (thousands of trips)

State	Trips	State	Trips
West Florida	13,219	South Carolina	1,909
East Florida	8,827	Connecticut	1,644
North Carolina	5,411	Mississippi	1,512
New Jersey	4,306	Rhode Island	1,159
New York	4,294	Hawai'i	1,024
California	3,532	Washington	1,008
Alabama	2,567	Delaware	910
Massachusetts	2,384	Georgia	696
Maryland	2,383	Oregon	684
Louisiana	2,242	Maine	573
Virginia	2,108	New Hampshire	293

Graph 6. Recreational Fishing Trips, 2007-2016 (millions of angler trips)



¹⁷ Trip estimates include Puerto Rico but do not include Alaska or Texas. Hawai'i trip estimates are available only for the shore and private boat mode.

Participation

Nationwide, 9.8 million recreational saltwater anglers fished in their home states in 2016.¹⁸ This number represented a 29% decrease from 2007 and a 9% increase from 2015. Coastal county residents made up 86% of this total while non-coastal county residents made up 14%. West Florida had the highest participation of anglers (3.7 million), followed by North Carolina and East Florida.

Harvest and Release

In 2016, drum (seatrouts) (36.4 million fish), drum (Atlantic croaker and spot) (19.3 million fish), and summer flounder (14.2 million fish), were most frequently caught by recreational fishermen in the United States.¹⁹ From 2007 to 2016, rockfishes and scorpionfishes (44%) had the largest increase in catch, while drum (Atlantic croaker and spot) (-60%), Pacific salmon (-44%), and Pacific halibut (-37%) had the largest decreases. From 2015 to 2016, little tunny and Atlantic bonito (45%), striped bass (37%), and drum (seatrouts) (30%) had the largest increases in catch, while Pacific salmon (-37%), tunas (*Thunnus* species) (-25%), and drum (Atlantic croaker and spot) (-24%) had the largest decreases.

Harvest and Release: Largest Increases

From 2007:

- Rockfishes & scorpionfishes (44%)

From 2015:

- Little tunny & Atlantic bonito (45%)
- Striped bass (37%)
- Drum (seatrouts) (30%)

Harvest and Release: Largest Decreases

From 2007:

- Drum (Atlantic croaker & spot) (-60%)
- Pacific salmon (-44%)
- Pacific halibut (-37%)

From 2015:

- Pacific salmon (-37%)
- Tunas (*Thunnus* species) (-25%)
- Drum (Atlantic croaker & spot) (-24%)

MARINE ECONOMY

For this report, the marine economy refers to the economic activity generated by fishing and marine-related industries in a coastal state. The national marine economy consists of two industry sectors: 1) seafood sales and processing (employer establishments and non-employer firms) and 2) transport, support, and marine operations (employer establishments).

These sectors include several different marine-related industries. Note that Census Bureau data for the Marine Economy section of this report are available only through 2015. Percentage changes in inflation-adjusted (real dollar) terms are calculated using the annual Gross Domestic Product implicit price deflator published by the U.S. Bureau of Economic Analysis and the Federal Reserve Bank of St. Louis.²⁰

The Commercial Fishing Location Quotient (CFLQ) measures the proportional size of this sector in a state's economy relative to the size of the commercial fishing sector in the national economy.²¹ The CFLQ is calculated as the ratio of the percentage of regional employment in the commercial fishing sector relative to the percentage of national employment in the commercial fishing sector. The U.S. CFLQ is 1. If a state CFLQ is less than 1, then less commercial fishing occurs in this state than the national average. If a state CFLQ is greater than 1, then more commercial fishing occurs in this state than the national average.

In 2015, 7.7 million employee establishments operated throughout the entire U.S. economy (including marine and non-marine related establishments).²² These establishments employed 124.1 million workers and had a total annual payroll of \$6.3 trillion. The nation's gross domestic product was approximately \$17.9 trillion in 2015.

Seafood Sales and Processing

Seafood Product Preparation and Packaging: In 2015, there were 2,108 non-employer firms in the seafood product preparation and packaging sector (a 62% increase from 2007). Annual receipts for these firms totaled about \$163.6 million (a 64% increase in real terms from 2007). More of these non-employer

¹⁸ Participation estimates include Puerto Rico but do not include Alaska, Texas, or Hawai'i.

¹⁹ Harvest and release estimates do not include Puerto Rico or Alaska. For Hawai'i, these estimates are available only for shore and private boat mode.

²⁰ U.S. Bureau of Economic Analysis, "Table 1.1.5 Gross Domestic Product" and "Table SA6N Compensation of Employees by NAICS Industry,"

http://www.bea.gov/iTable/index_nipa.cfm (accessed September 26, 2017).

²¹ U.S. Bureau of Labor Statistics, "Location Quotient Calculator," https://data.bls.gov/cew/doc/info/location_quotients.htm (accessed September 26, 2017).

²² Unless otherwise stated, data are from the U.S. Census Bureau, <http://census.gov/> (accessed September 26, 2017).

firms were located in Florida (300), New York (183), Texas (178), and California (169) than in any other state. There were 618 employer firms in the seafood product preparation and packaging sector (a 10% decrease from 2007). These establishments employed 30,708 workers (a 7% decrease from 2007) and had a total annual payroll of about \$1 billion (this remained unchanged in real terms from 2007). Alaska (109) and Washington (85) had the greatest number of these employer establishments.

Seafood Sales, Retail: In 2015, there were 2,471 non-employer firms engaged in retail sales of seafood (a 5% decrease from 2007). Annual receipts for these firms totaled about \$206.7 million (a 21% decrease in real terms from 2007). More of these non-employer firms were located in Florida (355) and California (221) than in any other state. There were 2,059 employer firms in the retail seafood sales sector (a 2% decrease from 2007). These establishments employed 11,443 workers (a 10% increase from 2007) and had a total annual payroll of \$292.7 million (a 24% increase in real terms from 2007). New York (409), Florida (181), and California (170) had the greatest number of these employer establishments.

Seafood Sales, Wholesale: There were 2,132 employer firms in the wholesale seafood sales sector (a 13% decrease from 2007). These establishments employed 22,060 workers (a 9% decrease from 2007) and had a total annual payroll of \$999.3 million (a 4% decrease in real terms from 2007). California (349), New York (275), and Florida (242) had the greatest number of these employer establishments.

Transport, Support, and Marine Operations

Coastal and Great Lakes Freight Transportation: There were 593 employer firms providing coastal and Great Lakes freight transportation (a 3% increase from 2007). These establishments employed 19,983 workers (an 11% decrease from 2007) and had a total annual payroll of about \$2 billion (this remained unchanged in real terms from 2007). Louisiana (116), Alaska (74), and New York (73) had the greatest number of these employer establishments.

Deep Sea Freight Transportation: There were 350 employer firms providing deep sea freight transportation (an 18% decrease from 2007). These establishments employed 8,014 workers (a 29% decrease from 2007) and had a total annual payroll of \$671.6 million in 2015. Florida (76), California (56), and Texas (35) had the greatest number of these employer establishments.

Deep Sea Passenger Transportation: There were 61 employer firms in the deep sea passenger transportation sector (a 34% decrease from 2007). These establishments employed 15,157 workers and had a total annual payroll of \$1 billion. Florida (32), California (6), and Washington (6) had the greatest number of these employer establishments.

Marinas: There were 3,881 employer firms classified as marinas in 2015 (a 5% decrease from 2007). These establishments employed 26,999 workers (a 6% decrease from 2007) and had a total annual payroll of about \$1 billion (a 3% decrease in real terms from 2007). Florida (466), New York (429), and California (258) had the greatest number of these employer establishments.

Marine Cargo Handling: There were 492 employer firms providing marine cargo handling services in 2015 (an 11% decrease from 2007). These establishments employed 66,414 workers (a 6% increase from 2007) and had a total annual payroll of about \$4 billion (a 12% increase in real terms from 2007). Florida (69), California (67), and Texas (56) had the greatest number of these employer establishments.

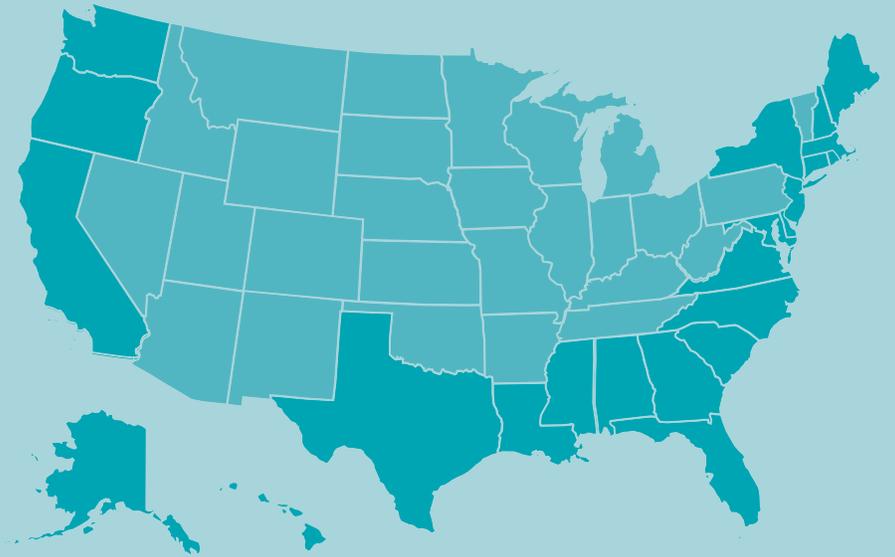
Navigational Services to Shipping: There were 889 employer firms providing navigational services to shipping in 2015 (a 7% increase from 2007). These establishments employed 11,864 workers (a 9% decrease from 2007) and had a total annual payroll of \$923.3 million (an 8% increase in real terms from 2007). Florida (196), Louisiana (142), and Texas (91) had the greatest number of these employer establishments.

Port and Harbor Operations: There were 337 employer firms in the port and harbor operations

sector in 2015 (a 51% increase from 2007). These establishments employed 7,855 workers (a 20% increase from 2007) and had a total annual payroll of \$434.2 million (a 21% increase in real terms from 2007). Florida (55), California (30), and Texas (25) had the greatest number of these employer establishments.

Ship and Boat Building: There were 1,541 employer firms in the ship and boat building sector in 2015 (a 13% decrease from 2007). These establishments employed 143,287 workers (a 4% decrease from 2007) and had a total annual payroll of about \$8 billion (an 11% increase in real terms from 2007). Florida (278), Washington (143), and Louisiana (109) had the greatest number of these employer establishments.

Tables | National Overview



2016 Economic Impacts of the United States Seafood Industry (thousands of dollars)

	With Imports				Without Imports			
	#Jobs	Sales	Income	Value Added	#Jobs	Sales	Income	Value Added
Total Impacts	1,190,092	144,293,187	39,904,566	60,758,157	711,409	53,110,090	19,407,193	27,553,434
Commercial Harvesters	166,952	14,231,679	4,698,535	7,334,409	166,952	14,231,679	4,698,535	7,334,409
Seafood Processors & Dealers	200,543	30,837,015	9,731,961	13,528,514	54,238	8,340,003	2,632,051	3,658,845
Importers	186,295	57,572,994	9,227,170	17,550,769	0	0	0	0
Seafood Wholesalers & Distributors	53,765	8,192,076	2,691,973	3,851,846	25,204	3,840,327	1,261,959	1,805,690
Retail	582,536	33,459,425	13,554,926	18,492,619	465,015	26,698,081	10,814,648	14,754,491

Total Landings Revenue & Landings Revenue of Key Species/Species Groups (millions of dollars)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Total Revenue	4,182	4,436	3,839	4,515	5,390	5,285	5,553	5,529	5,219	5,337
Finfish & Other	2,048	2,301	1,789	2,161	2,606	2,544	2,669	2,431	2,360	2,300
Shellfish	2,135	2,135	2,051	2,354	2,785	2,742	2,884	3,098	2,859	3,038
Key Species										
American lobster	369	325	311	404	423	431	463	564	621	667
Blue crab	149	161	163	205	184	193	193	215	220	219
Menhaden	93	91	90	93	133	126	125	114	180	181
Pacific halibut	227	217	140	207	213	152	117	115	118	125
Pacific salmon	451	484	445	614	716	637	835	690	543	448
Sablefish	116	128	130	139	197	154	110	119	123	124
Sea scallop	386	370	376	456	585	559	467	424	440	486
Shrimp	430	445	379	409	538	510	597	702	512	522
Tunas	94	107	96	108	136	164	146	134	137	154
Walleye pollock	392	435	328	334	473	510	462	466	457	407

Total Landings & Landings of Key Species/Species Groups (millions of pounds)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Total Landings	9,306	8,347	7,889	8,027	9,888	9,475	9,742	9,511	9,750	9,602
Finfish & Other	8,228	7,292	6,618	6,719	8,516	8,148	8,466	8,244	8,608	8,475
Shellfish	1,078	1,056	1,270	1,308	1,372	1,328	1,275	1,267	1,142	1,127
Key Species										
American lobster	81	88	101	118	126	150	150	147	147	159
Blue crab	157	162	176	199	202	185	135	140	161	160
Menhaden	1,484	1,344	1,407	1,259	1,899	1,598	1,341	1,232	1,632	1,748
Pacific halibut	70	67	60	56	43	34	30	23	24	25
Pacific salmon	971	726	764	848	839	683	1,111	754	1,122	606
Sablefish	48	46	45	42	43	43	39	35	35	34
Sea scallop	58	53	58	58	59	57	41	34	36	40
Shrimp	274	249	305	249	312	309	293	326	342	292
Tunas	51	48	49	48	50	59	56	58	57	56
Walleye pollock	3,068	2,278	1,869	1,947	2,811	2,872	3,003	3,146	3,263	3,355

Average Annual Price of Key Species/Species Groups (dollars per pound)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
American lobster	4.55	3.71	3.09	3.44	3.35	2.87	3.08	3.83	4.23	4.20
Blue crab	0.95	0.99	0.93	1.03	0.91	1.05	1.43	1.53	1.36	1.37
Menhaden	0.06	0.07	0.06	0.07	0.07	0.08	0.09	0.09	0.11	0.10
Pacific halibut	3.25	3.25	2.35	3.67	4.98	4.48	3.92	4.97	4.88	5.03
Pacific salmon	0.46	0.67	0.58	0.72	0.85	0.93	0.75	0.92	0.48	0.74
Sablefish	2.42	2.78	2.89	3.31	4.58	3.57	2.81	3.41	3.50	3.66
Sea scallop	6.60	6.93	6.48	7.92	9.89	9.82	11.39	12.52	12.32	12.00
Shrimp	1.57	1.79	1.24	1.64	1.72	1.65	2.04	2.16	1.50	1.78
Tunas	1.85	2.23	1.96	2.25	2.74	2.75	2.62	2.31	2.40	2.76
Walleye pollock	0.11	0.19	0.14	0.14	0.14	0.16	0.15	0.13	0.16	0.12

2016 Economic Impacts of Recreational Fishing Expenditures (thousands of dollars)

		#Jobs	Sales	Income	Value Added
Trip Impacts by Fishing Mode	For-Hire	19,890	2,893,120	1,000,008	1,550,124
	Private Boat	23,523	3,868,886	1,095,035	1,933,559
	Shore	22,588	3,164,227	962,607	1,661,185
Total Durable Expenditures		406,019	57,985,702	21,276,476	33,548,301
Total Impacts		472,020	67,911,935	24,334,126	38,693,169

2016 Angler Trip & Durable Goods Expenditures (thousands of dollars)¹

Fishing Mode	Trip Expenditures	Equipment	Durable Goods Expenditures
For-Hire	1,113,595	Fishing Tackle	3,679,848
Private Boat	1,769,038	Other Equipment	1,908,759
Shore	1,375,153	Boat Expenses	15,398,019
Total	4,257,786	Vehicle Expenses	3,473,756
		Second Home Expenses	2,102,010
		Total Durable Expenditures	26,562,392
Total State Trip and Durable Goods Expenditures			30,820,178

Recreational Anglers by Residential Area (thousands of anglers)^{2,3}

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Coastal	12,251	10,550	9,515	9,496	9,082	9,561	9,509	9,232	7,721	8,427
Non-Coastal	1,607	1,526	1,488	1,499	1,380	1,468	1,461	1,460	1,301	1,419
Total Anglers	13,858	12,076	11,004	10,994	10,462	11,028	10,970	10,692	9,022	9,846

Recreational Fishing Effort by Mode (thousands of angler trips)⁴

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
For-Hire	4,091	3,317	3,232	2,603	3,210	3,219	3,883	4,171	4,139	3,216
Private	46,497	45,008	38,292	38,054	35,492	34,870	34,293	32,815	29,459	31,169
Shore	37,024	37,233	33,633	32,135	31,694	32,976	33,882	32,049	28,108	28,955
Total Trips	87,611	85,558	75,156	72,792	70,395	71,064	72,058	69,035	61,706	63,339

Harvest (H) & Release (R) of Key Species/Species Groups (thousands of fish)⁵

		2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Drum (Atlantic croaker & spot)	H	26,566	24,014	15,766	13,355	13,319	11,950	17,597	17,615	13,162	8,381
	R	21,370	24,973	20,371	15,979	18,093	18,618	25,484	16,047	12,441	10,959
Drum (seatrouts) ⁶	H	17,560	21,075	20,189	16,736	22,232	20,874	17,555	9,611	11,648	14,389
	R	28,961	32,339	25,795	23,823	28,643	31,542	26,965	15,212	16,324	21,971
Little tunny & Atlantic bonito	H	292	201	233	185	282	386	345	384	428	414
	R	1,221	722	806	599	702	855	651	1,137	517	956
Pacific halibut	H	585	516	440	398	394	388	454	408	420	400
	R	438	359	321	304	311	324	324	251	271	244
Pacific salmon	H	1,013	651	789	660	750	667	996	972	944	596
	R	567	358	458	286	367	281	497	303	452	283
Rockfishes & scorpionfishes	H	2,664	2,162	2,439	2,448	3,116	3,677	4,160	4,380	4,215	3,830
	R	624	537	534	617	698	773	1,025	986	931	891
Sharks ⁷	H	308	181	172	209	184	157	252	204	131	139
	R	5,184	5,006	4,203	4,181	3,100	3,923	4,538	4,133	3,713	3,434
Striped bass	H	2,425	2,325	1,961	1,968	2,219	1,494	2,195	1,772	1,261	1,532
	R	16,186	12,677	8,094	6,347	6,120	5,369	8,638	7,365	8,543	11,863
Summer flounder	H	3,109	2,362	1,830	1,511	1,848	2,278	2,532	2,460	1,624	2,029
	R	17,628	20,548	22,297	22,227	19,722	14,257	13,584	16,512	10,535	12,148
Tunas (<i>Thunnus</i> species)	H	730	801	524	590	440	726	723	709	833	567
	R	97	93	57	54	70	53	33	62	67	107

¹ All anglers reported in this table are U.S. residents.

² Participation estimates do not include Puerto Rico, Alaska, Texas, or Hawai'i.

³ Includes Louisiana resident participation estimated from historical Marine Recreational Information Program (MRIP) data and a state creel survey.

⁴ Effort estimates do not include Alaska, or Texas. Hawai'i effort estimates are available only for the shore and private boat modes.

⁵ Harvest and release estimates do not include Puerto Rico or Alaska.

⁶ Drum (seatrouts) include spotted seatrout, silver seatrout, sand seatrout, weakfish and other species in the Cynoscion genus.

⁷ Sharks do not include spiny dogfish.

2015 United States Economy (% of national total)¹

	#Non-Employer Firms (millions)	#Establishments (millions)	#Employees (millions)	Annual Payroll (\$ trillions)	Employee Compensation (\$ trillions)	Gross Domestic Product (\$ trillions)	Commercial Location Quotient ²
Totals	24.33	7.66	124.09	6.25	9.70	17.93	1

Seafood Sales & Processing - Non-Employer Firms (thousands of dollars)

		2007	2008	2009	2010	2011	2012	2013	2014	2015
Seafood product	Firms	1,303	1,308	1,395	1,617	1,757	1,766	1,812	1,947	2,108
prep. & packaging	Receipts	88,230	89,670	95,219	104,990	110,745	115,167	128,927	146,626	163,625
Seafood sales, retail	Firms	2,610	2,522	2,455	2,513	2,514	2,657	2,497	2,557	2,471
	Receipts	231,776	233,002	207,139	199,810	212,679	217,702	205,555	203,459	206,676

Seafood Sales & Processing - Employer Establishments (thousands of dollars)

		2007	2008	2009	2010	2011	2012	2013	2014	2015
Seafood product	Establishments	685	663	645	638	620	589	604	640	618
prep. & packaging	Employees	33,169	33,323	30,894	31,789	31,261	30,988	31,390	32,180	30,708
	Payroll	1,196,086	1,161,637	1,091,727	1,116,305	1,200,263	1,196,207	1,228,826	1,311,910	1,354,572
Seafood sales, wholesale	Establishments	2,438	2,063	2,099	2,183	2,287	1,954	2,098	2,100	2,132
	Employees	24,232	20,116	19,290	19,386	20,622	20,030	20,367	21,155	22,060
	Payroll	924,654	782,178	758,332	798,794	848,454	867,179	884,645	910,527	999,264
Seafood sales, retail	Establishments	2,094	2,044	1,967	1,982	1,972	1,957	1,995	2,015	2,059
	Employees	10,380	9,732	9,439	9,857	10,006	10,293	10,631	11,037	11,443
	Payroll	209,404	205,423	211,264	219,045	222,508	237,619	253,490	271,732	292,726

Transport, Support & Marine Operations - Employer Establishments (thousands of dollars)³

		2007	2008	2009	2010	2011	2012	2013	2014	2015
Coastal & Great Lakes freight transportation	Establishments	573	513	513	547	549	496	497	598	593
	Employees	22,568	21,019	20,919	17,528	18,590	19,099	18,659	20,884	19,983
	Payroll	1,552,467	1,694,613	1,470,159	1,288,001	1,400,267	1,467,709	1,512,053	1,835,024	1,746,612
Deep sea freight transportation	Establishments	427	365	376	372	378	375	305	332	350
	Employees	11,308	10,231	11,180	10,288	10,362	12,375	8,704	8,646	8,014
	Payroll	855,683	852,063	863,363	867,797	921,990	1,073,529	703,003	683,281	671,624
Deep sea passenger transportation	Establishments	92	71	78	56	55	58	62	56	61
	Employees	ds	15,157							
	Payroll	ds	1,246,384							
Marinas	Establishments	4,085	3,972	3,891	3,937	3,896	3,782	3,844	3,811	3,881
	Employees	28,788	28,686	26,643	26,657	26,557	25,764	26,373	26,709	26,999
	Payroll	945,355	954,032	905,488	927,499	953,497	913,140	951,123	995,248	1,036,253
Marine cargo handling	Establishments	552	532	541	507	545	343	458	482	492
	Employees	62,941	63,736	56,386	57,275	59,517	43,824	66,301	69,830	66,414
	Payroll	3,428,126	3,272,723	2,776,791	3,026,861	3,159,964	2,601,146	4,086,182	4,406,525	4,334,958
Navigational services to shipping	Establishments	830	868	846	847	836	850	847	881	889
	Employees	12,997	13,419	12,689	13,529	13,441	12,532	12,485	12,148	11,864
	Payroll	756,552	847,938	826,384	937,980	893,889	838,959	929,419	907,763	923,303
Port & harbor operations	Establishments	223	268	258	287	255	525	383	351	337
	Employees	6,573	5,608	5,100	4,844	4,933	25,396	7,000	6,769	7,855
	Payroll	318,608	282,671	250,358	290,467	306,882	1,345,857	420,664	399,502	434,209
Ship & boat building	Establishments	1,771	1,782	1,615	1,540	1,497	1,560	1,514	1,524	1,541
	Employees	148,864	157,512	137,759	127,691	127,522	136,365	135,287	138,687	143,287
	Payroll	6,405,570	7,269,306	6,674,187	6,529,523	6,845,322	7,543,402	7,556,373	7,882,846	8,030,983

¹ Census Bureau data for the Marine Economy section of this report are available only through 2015.

² The U.S. Commercial Fishing Location Quotient (CFLQ) is 1. A CFLQ greater than 1 indicates that more commercial fishing occurs in this state than the national average. A CFLQ less than 1 indicates that less commercial fishing occurs in this state than the national average.

³ ds = these data are suppressed.

North Pacific Region

- Alaska



Holding king crabs.
Photo: NOAA/Maria Shawback

MANAGEMENT CONTEXT

The North Pacific Region includes the fisheries in the Exclusive Economic Zone (EEZ) off the state of Alaska. Federal fisheries in this region are managed by the North Pacific Fishery Management Council (NPFMC) and NOAA Fisheries under six fishery management plans (FMPs).

North Pacific Region FMPs

- Bering Sea/Aleutian Islands (BSAI) groundfish
- Gulf of Alaska (GOA) groundfish
- BSAI king and tanner crabs
- Alaska scallop
- Salmon in the EEZ
- Arctic

Of the stocks or stock complexes covered in these FMPs, only the blue king crab-Pribilof Islands stock is listed as overfished and subject to overfishing.

Catch Share programs

The North Pacific Region has six catch share programs, more than any other region. These are the: 1) Western Alaska Community Development Quota (CDQ) Program; 2) Alaska Halibut and Sablefish Individual Fishing Quota (IFQ) Program; 3) American Fisheries Act (AFA) Pollock Cooperatives; 4) Bering Sea and Aleutian Islands (BSAI) Crab Rationalization Program; 5) Bering Sea and Aleutian Islands (BSAI) Non-Pollock Trawl Catcher/Processor Groundfish Cooperatives (Amendment 80); and 6) Central Gulf of Alaska Rockfish Program. The landings revenues for these programs totaled \$854.9 million in 2015, exceeding the total landings revenue of any other state. Following are descriptions of these catch share programs and their performance.

Western Alaska Community Development

Quota (CDQ) Program: The program was originally implemented in 1992 as part of a restructuring of the BSAI groundfish fishery. Under this program, a percentage of the total allowable catch for groundfish, prohibited species, halibut, and crab is apportioned to 65 eligible villages in Western Alaska that are organized into six CDQ groups. The program has the following goals: 1) provide eligible Western Alaska villages with the opportunity to participate and invest in fisheries in

the Bering Sea and Aleutian Islands Management Area; 2) support economic development in Western Alaska; 3) alleviate poverty and provide economic and social benefits to residents; and 4) achieve a sustainable and diversified local economy.

Alaska Halibut and Sablefish IFQ Program: The program was implemented in 1995. The primary objectives of this IFQ program include the following: 1) eliminate gear conflicts; 2) address safety concerns; and 3) improve product quality. The performance results of the halibut fishery show that relative to its baseline period (3-year period prior to implementation) the following indicators decreased: 2015 quota, landings, and number of active vessels. However, inflation-adjusted halibut revenue and revenue per vessel increased. The 2015 performance results for the sablefish fishery show that quota, landings, inflation-adjusted revenue, and number of active vessels decreased, while inflation-adjusted revenue per vessel increased.

American Fisheries Act (AFA) Pollock Cooperatives:

The program was established in 1999 and 2000 with the goals of settling allocation disputes between inshore (catcher vessels), offshore (catcher/processors), and mothership sectors and ending the race for fish. Key performance indicators of this program show that relative to its baseline, the 2015 quota, landings, inflation-adjusted revenue, and revenue per vessel increased, while the number of active vessels decreased.

In 2017, the council approved two catch share program reviews: the AFA Program Review and the Central Gulf of Alaska Rockfish Program Review. In February 2017, the council reviewed and accepted the AFA Program Review as final with one addition: a section describing the revenue collected by the state for AFA fishing activity using the Alaska Fisheries Business tax and the Fisheries Resource Landing tax, how those revenues may have changed over time and how they were distributed to communities. In October 2017, the council reviewed the Central Gulf of Alaska Rockfish Program review and allocation policy review, and accepted both as complete and final. NOAA Fisheries and industry participants identified housekeeping issues and NOAA Fisheries intends to incorporate those into the reauthorization of the program starting in 2018.

Bering Sea and Aleutian Islands (BSAI) Crab

Rationalization Program: The program was implemented for the 2005–2006 crab fishing season to address the race to harvest; high bycatch and discard mortality; and product quality issues. The program also aims to balance the interests of those who depend on crab fisheries. This program includes share allocations to harvesters and processors. Processor quota was incorporated to preserve the viability of processing facilities in dependent communities and, in particular, to maintain competitive conditions in ex-vessel markets. The CDQ and Adak Community allocations, regional landings and processing requirements, and several community protection measures protect community interests. The key 2015 performance indicators of this program show that relative to its baseline, quota, landings, and number of active vessels decreased. However, inflation-adjusted revenue and revenue per active vessel increased.

In June 2016, the council approved a 10-year review of the Bering Sea and Aleutian Islands Crab Rationalization Program. One key finding of the review was that total allowable catch (TAC) had never been exceeded, evidence that resource conservation has improved. In addition, the program has led to decreased deadloss and greater accountability, as deadloss is deducted from IFQ holdings. The program was also successful at reducing harvest capacity, which sharply decreased from 256 vessels in the 2004/05 season to 91 vessels in the 2006/07 season (currently there are 72 vessels in the fishery). Consolidation also occurred in the processor sector, e.g., 11 processing plants processed Bristol Bay red king crab in 2005, down from 17 plants in 2004. The program also improved vessel safety, an important achievement for the fishery once recognized as the most hazardous in the nation. The review resulted in council initiation of a discussion paper focused on the arbitration system.

BSAI Non-Pollock Trawl Catcher/Processor

Groundfish Cooperatives: The program, commonly referred to as the Amendment 80 Program, was implemented in 2008 to create economic incentives that would improve retention of all fish caught. The cooperatives also seek to reduce bycatch by commercial

fishing vessels using trawl gear in the non-pollock groundfish fisheries. Key 2015 performance indicators of this program show that relative to its baseline, there was an increase in quota, landings, inflation-adjusted revenue, and revenue per vessel. However, the number of active vessels declined.

Central Gulf of Alaska Rockfish Program: The program was initially established as a two-year (2007–2008) pilot program by the U.S. Congress and was later extended to five years. NOAA Fisheries implemented this catch share program in 2012. The objectives of this program are to reduce bycatch and discards, encourage conservation-minded practices, improve product quality and value, and provide stability to the processing labor force. Results show that in 2015 the quota, landings, number of active vessels, inflation-adjusted revenue, and revenue per active vessel increased relative to the baseline.

Policy updates

In October 2015, Alaska Department of Fish and Game reduced the Bering Sea snow crab quota by 40% to 40.6 million pounds for the 2015/2016 fishing year. This reduction was deemed necessary due to the 56% decline in biomass from 2014 to 2015 to 46,410 metric tons, which is below the 20-year average. While the 2015 assessment noted strong future recruitment potential in the fishery, the 2016 assessment resulted in a 50% reduction in the 2016/2017 quota from the previous fishing year (21.57 million pounds, which would be the fishery's lowest harvest since the 1969/1970 season). The recent decline in snow crab mature biomass is similar to other crab stocks in the Bering Sea and is correlated to a substantial increase in ocean temperature and decreases in sea ice extent relative to the short- and long-term averages for environmental conditions in the region.

In February 2016, NOAA Fisheries implemented a cost-recovery fee program for the Western Alaska CDQ Program for groundfish and three limited access privilege programs (LAPPs). The three LAPPs with new cost recovery programs are AFA pollock, Aleutian Islands pollock, and the Amendment 80 fisheries). The cost-recovery fees recover the actual costs directly related to

the management, data collection efforts, and enforcement of the programs. However, the fees cannot exceed 3% of the annual ex-vessel value of fish harvested by a program that is subject to the cost-recovery fee.

In late 2016, the council approved a plan to allow guided recreational halibut fishermen to purchase commercial halibut individual fishing quota through the newly established Recreational Quota Entity (RQE) Program. The RQE Program is distinct from the Guided Angler Fish program, implemented in 2014, which allows halibut anglers to lease commercial quota. A recent study found that while the charter (guided) operators leased very little quota relative to the guided angler fish (GAF) program limits, GAF transfers reached up to 50% of quota transfers in some small boat IFQ sub-markets.¹ Under the 2016 plan, the RQE can hold up to 10% of Area 2C (Southeast Alaska) and 12% of Area 3C (Southcentral Alaska), which could potentially make it the single largest Alaska halibut quota holder. The RQE program should be effective in late 2018.

Also in late 2016, the council took final action to establish electronic monitoring as a part of the North Pacific Observer Program. Under this action, regulations were implemented to allow electronic monitoring to be used for catch estimation. Electronic monitoring was effective in 2017.

In early 2017, the council took final action to approve a regulatory amendment that would allow CDQ groups to lease Area 4B, 4C, and 4D halibut IFQ in years where the catch limits are below certain thresholds. In Area 4B, this option would become available to the groups if the catch limit was 1 million pounds or lower. This option would be available for Area 4C and 4D when the catch limit in Area 4CDE was at or below 1.5 million pounds. Leased IFQ would be available to vessels less than or equal to 51 feet length overall, subject to the groups' internal management. This action would not convert IFQ to CDQ. The council also added some restrictive provisions into this amendment in order to mitigate adverse impacts on other IFQ stakeholders and the quota share (QS) market. Specifically, the council adopted an option intended to prevent individuals from buying QS with the sole intention of leasing it. This

provision would not allow an individual to lease IFQ within the first three years after they have acquired it. Also, in an effort to discourage the reliance on the leasing of Area 4 QS, a QS holder may not lease halibut IFQ on a consecutive basis for more than two years. In any year that CDQ groups use this additional opportunity, the groups would be required to submit a report specifying the criteria used to select IFQ holders leasing to a CDQ group, the criteria used to determine who can receive leased IFQ, and the amount and type of IFQ leased. This action is expected to be in effect in late 2018.

COMMERCIAL FISHERIES

In this report, commercial fisheries refer to fishing operations that sell their catch for profit. The term does not include subsistence fishermen or saltwater anglers who fish for sport. It also excludes the for-hire sector, which earns its revenue from selling recreational fishing trips to saltwater anglers. The commercial fisheries section reports on economic impacts, landings revenue, landings, and ex-vessel prices of key species/species groups.

Key North Pacific Commercial Species

- Atka mackerel
- Crab
- Flatfish
- Pacific cod
- Pacific halibut
- Pacific herring
- Rockfish
- Sablefish
- Salmon
- Walleye pollock

The North Pacific groundfish fishery is different from most other United States fisheries in that a large portion of the fishery is processed at sea and, therefore, no landings revenues are reported. The landings revenue for the species landed and processed at sea is estimated by using prices obtained from the shore-side sector. These species include Atka mackerel, flatfish, Pacific cod, rockfish, sablefish, and walleye pollock. When data from the shore-side sector are inadequate, historical information about the relationship between the ex-vessel price and the wholesale price of finished products is used to estimate ex-vessel prices and revenue for portions of the fishery mostly processed at sea.

¹ Kroetz, Kailin and Lew, Daniel and Sanchirico, James N., Recreational Leasing of Alaska Commercial Halibut Quota: The First Two Years of the Guided Angler Fish Provision (September 30, 2016). Resources for the Future Discussion Paper 16-39.

Economic Impacts

The premise behind economic impact modeling is that every dollar spent in a regional economy (direct impact) is either saved or re-spent on additional goods or services. If those dollars are re-spent on other goods and services in the regional economy, this spending generates additional economic activity in the region.

Four different measures are commonly used to show how commercial fisheries landings affect the economy in a region (state or nationwide): sales, income, value-added, and employment. The term sales refers to the gross value of all sales by regional businesses affected by an activity, such as commercial fishing. The category includes both the direct sales of fish landed and sales made between businesses and households resulting from the original sale. Income includes personal income (wages and salaries) and proprietors' income (income from self-employment). Value-added is the contribution made to the gross domestic product in a region. Employment is specified on the basis of full-time and part-time jobs supported directly or indirectly by the sales of seafood or purchases of inputs to commercial fishing. The first three measures are calculated in terms of dollars, whereas employment impacts are measured in numbers of jobs. Note that these categories are not additive. The United States seafood industry is defined here as the commercial fishing sector, seafood processors and dealers, seafood wholesalers and distributors, importers, and seafood retailers.²

This report provides estimates of total economic impacts for the nation and for each of the 23 coastal states. Total economic impacts for each state and the nation represent the sum of direct impacts; indirect impacts (in this case, the impact from suppliers to the seafood industry); and induced impacts (spending by employees on personal and household expenditures, where employees of both the seafood industry and its full supply chain are included). That is, the total economic impact estimates reported here measure jobs, sales, value-added, and income impacts from the seafood industry as well as the economic activity generated throughout each region's broader economy from this industry.

In 2016, Alaska's commercial fishing and seafood industry generated \$3.9 billion in sales impacts, \$1.7 billion in income impacts, \$2.1 billion in value-added impacts, and 47,200 full- and part-time jobs. The commercial harvesters sector generated the largest employment impacts (33,400), sales impacts (\$2.7 billion), income impacts (\$1.2 billion), and value-added impacts (\$1.4 billion) across sectors.

Landings Trends

Among the Alaska key species, pollock (down \$49 million), crab (down \$60 million) and Pacific salmon (down \$88 million) had the largest one-year declines from 2015 to 2016. Alaska pollock landings revenue (\$407 million in 2016) fell 10.8% relative to the previous year despite landings being at their highest level since 2006. The landings revenue decline was directly attributable to lower ex-vessel prices in both the Bering Sea/Aleutian Islands (BSAI, \$375 million) and Gulf of Alaska (GOA, \$32 million).³ Pollock ex-vessel prices fell in both the BSAI and GOA, and while retained catch increased (particularly in the GOA), the net effect was a decrease in landings revenue of 9.2% in the BSAI and 26% in the GOA. A decrease in the price of head-and-gut (H&G) products and low roe yields due to small-sized pollocks were factors in ex-vessel price decline. Despite the year-over-year decline in landings revenue, 2016 landings revenues were above the 10-year average.

In contrast to ex-vessel value, pollock first-wholesale value increased 6.2% in the BSAI to \$1.35 billion and decreased 0.2% in the GOA to \$105.2 million. The difference in performance between the ex-vessel and first-wholesale sectors can be attributed to higher prices on more highly processed value-added products such as surimi and deep-skin fillets and higher prices for roe due to reduced supply. The fillet market faced challenges throughout 2016, including insolvency of a major international pollock trader and competition from low Russian pollock prices. The surimi market, which has been a strong performer in recent years, continued to grow in 2016, albeit at a more modest pace, 6% in the BSAI and 5% in the GOA, as the supply of raw surimi material continues to be constrained in Japan. The 2016 first-wholesale value in the pollock fishery was also above its 10-year average.

² The NMFS Commercial Fishing Industry Input/Output Model was used to generate the impact estimates (see NMFS Commercial Fishing & Seafood Industry Input/Output Model, available at www.st.nmfs.noaa.gov/documents/commercial_seafood_impacts_2007-2009.pdf).

³ Alaska pollock trends are summarized or quoted verbatim from the Stock Assessment and Fishery Evaluation Report for the Groundfish Fisheries of the Gulf of Alaska and Bering Sea/Aleutian Islands Area: Economic Status of the Groundfish Fisheries off Alaska, 2016.

Crab landings revenue was down in 2016 relative to 2015 largely due to the 40% reduction in the snow crab TAC, as described above. Production declines occurred, however, in nearly all crab fisheries, for example, Dungeness crab landings fell 23%, and king crab landings fell 17% year-over-year. Prices for these species were, however, near record highs. After adjusting for inflation, the price of king crab (\$7.17 per pound) and the price of Dungeness crab (\$3.09 per pound) were at their highest since 1999 and 1997, respectively.

Salmon landings also declined sharply in 2016 (down 46%) relative to 2015. This was largely due to the decline in pink salmon landings, which fell 488 million pounds from 2015 levels. While pink salmon landings are typically lower in “even years” due to their biennial cycle, in 2016 the Gulf of Alaska (GOA) pink salmon harvests came in far below forecasted levels. In January 2017, the Department of Commerce declared a fishery disaster for GOA pink salmon, citing “sudden and unexpected large decreases in fish stock biomass due to unusual ocean and climate conditions.”⁴ Overall, pink salmon landings were down 76% from 2015 and down 62% from the 10-year average. Chinook and chum salmon landings each had a sizable decline in landings (down 18% and 14%, respectively) from 2015 to 2016. Due to reduced inventory for pink salmon and lower overall supply of salmon (global capture fishery production was down 16%)⁵, the average price per pound of salmon was up 75% in 2016 relative to the previous year.

Landings Revenue

In 2016, Alaska landings revenue totaled \$1.6 billion, a 3% decrease from 2007 (a 15% decrease in real terms after adjusting for inflation) and a 10% decrease from 2015. Finfish landings revenue accounted for 86% of all landings revenue in the region. In 2016, salmon (\$407.3 million), walleye pollock (\$407.1 million), and crab (\$218.8 million) dominated Alaskan landings revenue.

From 2007 to 2016, Atka mackerel (75%, 53% in real terms), rockfish (59%, 39% in real terms), and crab (25%, 9% in real terms) had the largest revenue increases, while Pacific herring (-64%, -68% in real terms), Pacific halibut (-46%, -53% in real terms), and Pacific cod (-8%, -19% in real terms) had the largest

revenue decreases. From 2015 to 2016, flatfish (15%), Pacific halibut (6%), and Pacific cod (2%) had the largest revenue increases, while Pacific herring (-24%), crab (-23%), and salmon (-18%) had the largest revenue decreases.

Commercial Revenue: Largest Increases

From 2007:

- Atka mackerel (75%, 53% in real terms)
- Rockfish (59%, 39% in real terms)
- Crab (25%, 9% in real terms)

From 2015:

- Flatfish (15%)
- Pacific halibut (6%)
- Pacific cod (2%)

Commercial Revenue: Largest Decreases

From 2007:

- Pacific herring (-64%, -68% in real terms)
- Pacific halibut (-46%, -53% in real terms)
- Pacific cod (-8%, -19% in real terms)

From 2015:

- Pacific herring (-24%)
- Crab (-23%)
- Salmon (-18%)

Commercial Landings: Largest Increases

From 2007:

- Rockfish (69%)
- Pacific cod (44%)
- Flatfish (24%)

From 2015:

- Atka mackerel (3%)
- Rockfish (3%)
- Walleye pollock (3%)

Commercial Landings: Largest Decreases

From 2007:

- Pacific halibut (-65%)
- Sablefish (-40%)
- Salmon (-38%)

From 2015:

- Salmon (-46%)
- Crab (-29%)
- Pacific herring (-24%)

⁴ See <https://www.fisheries.noaa.gov/media-release/commerce-secretary-declares-fisheries-disasters-nine-west-coast-species>.

⁵ See FAO Global Capture Production 1950-2016 at <http://www.fao.org/fishery/statistics/global-capture-production/query/en>.

Landings

In 2016, North Pacific Region commercial fishermen landed over 5.6 billion pounds of finfish and shellfish, a 4% increase from 2007 and a 7% decrease from 2015. Walleye pollock contributed the most to landings, accounting for 60% of total volume.

From 2007 to 2016, rockfish (69%), Pacific cod (44%), and flatfish (24%) had the largest landings increases, while Pacific halibut (-65%), sablefish (-40%), and salmon (-38%) had the largest landings decreases. From 2015 to 2016, Atka mackerel (3%), rockfish (3%), and walleye pollock (3%) had the largest landings increases, while salmon (-46%), crab (-29%), and Pacific herring (-24%) had the largest landings decreases.

Prices

In 2016, Pacific halibut (\$5.03 per pound) received the highest North Pacific Region ex-vessel price. Landings of Pacific herring (\$0.10 per pound) had the lowest ex-vessel price.

From 2007 to 2016, Atka mackerel (86%, 62% in real terms), salmon (75%, 53% in real terms), and sablefish (60%, 40% in real terms) had the largest price increases while Pacific herring (-53%, -60% in real terms), Pacific cod (-35%, -43% in real terms), and flatfish (-28%, -37% in real terms) had the largest price decreases. From 2015 to 2016, salmon (75%), crab (34%), and sablefish (9%) had the largest price increases, while walleye pollock (-25%) and Pacific cod (-4%) had the largest price decreases.

RECREATIONAL FISHERIES

In this report, recreational fishing refers to fishing for fun rather than to resell fish (commercial fishing) or for subsistence. The recreational fisheries section reports on economic impacts and expenditures, angler participation, trips, and catch of key species/species groups.

Key North Pacific Recreational Species

- Chinook salmon
- Chum salmon
- Coho salmon
- Greenlings (lingcod)
- Pacific halibut
- Pink salmon
- Razor clams
- Rockfish
- Sockeye salmon

Economic Impacts and Expenditures

The contribution of recreational fishing activities⁶ in the United States is reported in terms of economic impacts from angler expenditures. Total annual trip expenditures are estimated by multiplying mean trip expenditures by the estimated number of adult trips in each trip mode (for-hire, private boat, and shore). Total annual durable expenditures are estimated by multiplying mean durable expenditures by the estimated annual number of adult participants in a given state.

Four different measures are commonly used to show how angler expenditures affect the economy in a region (state or nationwide): sales, income, value-added, and employment. The term sales refers to the gross value of all sales by regional businesses affected by an activity, such as recreational fishing. The category includes both the direct sales made by the angler and sales made between businesses and households resulting from that original sale by the angler. Income includes personal income (wages and salaries) and proprietors' income (income from self-employment). Value-added is the contribution made to the gross domestic product in a region. Employment is specified on the basis of full-time and part-time jobs supported directly or indirectly by the purchases made by anglers. The first three measures are calculated in terms of dollars, whereas employment impacts are measured in number of jobs. Note that these categories are not additive. NOAA Fisheries uses a regional impact modeling software, called IMPLAN, to estimate these four types of impacts.

In 2016, economic impacts from recreational fishing activities in Alaska generated 4,865 jobs, \$539.4 million in sales, \$195.1 million in income, and \$315.5 million in value-added impacts. Impacts from durable equipment expenditures (e.g., rods and reels, fishing-related

⁶ Trip expenditure estimates were generated from the 2011 National Marine Recreational Fishing Expenditure Survey. Durable good expenditure impacts were generated from the 2014 National Marine Recreational Fishing Expenditure Survey (see <http://www.st.nmfs.noaa.gov/economics/fisheries/recreational/Marine-Angler-Durable-Expenditures/2014-durable-expenditures-survey>). Economic impacts from recreational fishing activities were generated using the NMFS Recreational Economic Impact Model (see The Economic Contribution of Marine Angler Expenditures in the United States, 2011, available at <http://www.st.nmfs.noaa.gov/economics/publications/marine-angler-expenditures/marine-angler-2011>).

equipment, boats, vehicles, and second homes) accounted for 30% of employment, 20% of sales, 23% of income, and 21% of value-added impacts. Of the three fishing trip modes, for-hire fishing trips had the greatest economic impact, accounting for 38% of employment impacts.

Expenditures for fishing trips and durable equipment across Alaska in 2016 totaled over \$412 million. Approximately \$299 million of these expenditures were related to trip expenses, with a large portion coming from trips in the for-hire (48%) and private boat (47%) sectors. In 2016, durable goods expenditures totaled more than \$113 million, with the largest portion coming from boat expenses (\$51.8 million).

Days Fished

The state of Alaska records recreational fishing effort in terms of the number of days fished, rather than the number of fishing trips. Anglers who fished in Alaska spent approximately 863,648 days fishing in 2016. This number represented an 18% decrease from the days spent fishing in 2007. From 2015 to 2016, there was an 11% decrease in the number of days fished.

Recreational Catch: Largest Increases

From 2007:

- Pacific cod (84%)
- Rockfish species (34%)

From 2015:

- Razor clams (107%)
- Rockfish species (6%)

Recreational Catch: Largest Decreases

From 2007:

- Razor clams (-79%)
- Shark species (-78%)
- Lingcod (-57%)

From 2015:

- Coho salmon (-47%)
- Pacific cod (-35%)
- Pink salmon (-27%)

Participation

In 2016, about 293,000 recreational saltwater anglers

fished in Alaska. This number represented a 12% decrease from 2007 and a 4% decrease from 2015. These anglers are categorized as either residents of coastal/non-coastal counties in Alaska (39%) or out-of-state anglers (61%).

Harvest and Release

Of Alaska's key species and species groups, Pacific halibut (643,000 fish), rockfish species (504,000 fish), and coho salmon (305,000 fish) were most frequently caught by recreational fishermen. From 2007 to 2016, Pacific cod (84%) and rockfish species (34%) had the largest increases in catch, while razor clams (-79%), shark species (-78%), and lingcod (-57%) had the largest decreases. From 2015 to 2016, razor clams (107%) and rockfish species (6%) had the largest increases in catch, while coho salmon (-47%), Pacific cod (-35%), and pink salmon (-27%) had the largest decreases.

MARINE ECONOMY

For this report, the marine economy refers to the economic activity generated by fishing and marine-related industries in a coastal state. The state marine economy consists of two industry sectors: 1) seafood sales and processing (employer establishments and non-employer firms); and 2) transport, support and marine operations (employer establishments). These sectors include several different marine-related industries.^{7,8}

To measure the size of the commercial fishing sector in a state's economy relative to the size of the commercial fishing sector in the national economy, researchers use an index called the Commercial Fishing Location Quotient (CFLQ).⁹ The CFLQ is calculated as the ratio of the percentage of regional employment in the commercial fishing sector relative to the percentage of national employment in the commercial fishing sector. The U.S. CFLQ is 1. If a state CFLQ is less than 1, then less commercial fishing occurs in this state than the national average. If a state CFLQ is greater than 1, then more commercial fishing occurs in this state than the national average. The Bureau of Labor Statistics did not disclose CFLQ data for Alaska for 2015.

⁷ Unless otherwise stated, data are from the U.S. Census Bureau, <http://census.gov/> (accessed September 26, 2017).

⁸ U.S. Bureau of Economic Analysis, "Table 1.1.5 Gross Domestic Product" and "Table SA6N Compensation of Employees by NAICS Industry," http://www.bea.gov/ITable/index_nipa.cfm (accessed September 26, 2017).

⁹ U.S. Bureau of Labor Statistics, "Location Quotient Calculator," https://data.bls.gov/cew/doc/info/location_quotients.htm (accessed September 26, 2017).

In 2015, 20,907 employer establishments operated throughout the entire Alaskan economy (including marine- and non-marine-related establishments). These establishments employed about 268,000 workers and had a total annual payroll of \$15.6 billion. The gross state product of Alaska was approximately \$53.4 billion in 2015.

Seafood Sales and Processing

Seafood Product Preparation and Packaging:

In 2015, Alaska had 30 non-employer firms in the seafood product preparation and packaging sector (a 9% decrease from 2007). Annual receipts for these firms totaled about \$4.1 million (a 97% increase in real terms from 2007). There were 109 employer firms in the seafood product preparation and packaging sector (a 4% decrease from 2007). These establishments employed 8,472 workers (a 30% increase from 2007) and had a total annual payroll of \$356.9 million.

Seafood Sales, Retail: In 2015, there were 11 non-employer firms engaged in retail sales of seafood in Alaska (an 8% decrease from 2007). Annual receipts for these firms totaled about \$761,000 (a 50% decrease in real terms from 2007). There were 15 employer firms in the retail seafood sales sector (a 114% increase from 2007). These establishments employed 64 workers and had a total annual payroll of \$2.5 million.

Seafood Sales, Wholesale: There were 37 employer firms in the wholesale seafood sales sector (a 46% decrease from 2007). These establishments employed 94 workers and had a total annual payroll of \$7.3 million.

Transport, Support, and Marine Operations

Data for the transport, support, and marine operations sector of Alaska's economy were largely suppressed for confidentiality reasons. It is clear, however, that these sectors play an important role in the regional economy. For example, in 2015, the coastal and Great Lakes freight transportation sector in Alaska accounted for \$89.2 million in payroll.

Tables | Alaska



2016 Economic Impacts of the Alaska Seafood Industry (thousands of dollars)

	With Imports				Without Imports			
	#Jobs	Sales	Income	Value Added	#Jobs	Sales	Income	Value Added
Total Impacts	47,151	3,895,150	1,653,458	2,074,342	46,942	3,855,070	1,644,526	2,059,974
Commercial Harvesters	33,414	2,724,805	1,154,017	1,448,489	33,414	2,724,805	1,154,017	1,448,489
Seafood Processors & Dealers	10,726	967,808	422,333	523,622	10,659	961,779	419,696	520,358
Importers	99	30,442	4,879	9,280	0	0	0	0
Seafood Wholesalers & Distributors	335	39,282	13,450	17,563	317	37,166	12,726	16,617
Retail	2,578	132,814	58,780	75,388	2,552	131,319	58,087	74,511

Total Landings Revenue & Landings Revenue of Key Species/Species Groups (thousands of dollars)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Total Revenue	1,653,205	1,871,763	1,443,124	1,737,518	2,170,704	2,132,501	2,018,139	1,910,778	1,784,980	1,609,630
Finfish & Other	1,464,901	1,612,011	1,243,109	1,498,581	1,862,213	1,813,059	1,778,006	1,662,309	1,496,651	1,380,040
Shellfish	188,304	259,752	200,015	238,937	308,492	319,443	240,134	248,469	288,328	229,590
Key Species										
Atka mackerel	17,599	21,636	29,669	30,197	30,371	30,567	16,874	24,555	30,293	30,759
Crab	175,587	248,781	184,700	221,857	290,342	308,927	230,139	237,813	278,865	218,762
Flatfish	77,900	99,800	71,800	80,700	113,000	127,100	103,100	94,500	71,100	81,800
Pacific cod	213,964	246,145	120,217	141,376	182,407	216,581	180,369	206,731	193,792	197,213
Pacific halibut	217,399	208,983	134,603	200,454	205,211	144,801	111,483	106,674	110,709	117,066
Pacific herring	14,817	22,912	29,294	23,026	12,305	19,430	16,280	11,492	7,040	5,364
Rockfish	17,400	17,000	12,600	19,200	29,300	33,500	27,700	30,200	28,800	27,700
Sablefish	95,674	101,049	95,200	103,097	151,734	125,730	90,016	94,611	93,983	92,843
Salmon	416,866	456,536	419,676	564,696	662,141	589,046	757,270	619,135	494,784	407,259
Walleye pollock	391,763	435,092	328,186	333,666	472,737	510,480	461,609	465,817	456,315	407,116

Total Landings & Landings of Key Species/Species Groups (thousands of pounds)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Total Landings	5,408,420	4,604,863	4,128,898	4,408,396	5,413,956	5,392,685	5,832,979	5,703,903	6,069,071	5,630,998
Finfish & Other	5,330,051	4,497,908	4,032,927	4,322,836	5,328,134	5,276,459	5,741,926	5,612,863	5,963,794	5,557,727
Shellfish	78,369	106,955	95,971	85,560	85,822	116,226	91,053	91,040	105,277	73,271
Key Species										
Atka mackerel	126,962	127,030	156,888	145,205	112,594	103,994	51,425	69,512	117,678	121,285
Crab	70,699	99,454	89,530	79,574	80,457	111,914	87,089	85,106	97,230	68,607
Flatfish	423,340	599,585	506,166	563,817	649,451	646,680	659,799	663,865	510,860	522,934
Pacific cod	491,020	494,975	491,073	538,741	663,100	716,882	681,407	716,564	697,174	707,150
Pacific halibut	67,242	64,639	57,749	54,857	41,291	32,422	28,696	21,616	22,850	23,262
Pacific herring	67,137	83,787	86,951	108,116	98,600	75,058	85,076	96,789	68,461	51,822
Rockfish	86,569	89,761	83,987	100,068	106,287	114,581	122,950	133,320	141,854	145,970
Sablefish	36,103	32,540	28,960	27,026	28,847	31,427	30,150	25,679	23,845	21,775
Salmon	946,377	706,018	730,292	816,778	797,151	658,394	1,053,839	715,927	1,095,633	587,697
Walleye pollock	3,068,211	2,277,527	1,869,214	1,947,453	2,810,726	2,872,187	3,003,183	3,145,639	3,262,568	3,355,059

Average Annual Price of Key Species/Species Groups (dollars per pound)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Atka mackerel	0.14	0.17	0.19	0.21	0.27	0.29	0.32	0.36	0.26	0.26
Crab	2.38	2.42	2.01	2.37	3.09	2.46	2.64	2.79	2.35	3.19
Flatfish	0.18	0.16	0.14	0.14	0.17	0.19	0.16	0.13	0.13	0.13
Pacific cod	0.37	0.49	0.20	0.27	0.25	0.24	0.28	0.22	0.25	0.24
Pacific halibut	3.23	3.23	2.33	3.65	4.97	4.47	3.89	4.93	4.85	5.03
Pacific herring	0.22	0.27	0.34	0.21	0.12	0.26	0.19	0.12	0.10	0.10
Rockfish	0.20	0.19	0.17	0.22	0.32	0.29	0.22	0.24	0.21	0.21
Sablefish	2.45	2.83	3.01	3.60	4.84	3.82	2.73	3.40	3.62	3.93
Salmon	0.40	0.58	0.51	0.67	0.77	0.72	0.67	0.80	0.40	0.70
Walleye pollock	0.11	0.19	0.14	0.14	0.14	0.16	0.15	0.13	0.16	0.12

2016 Economic Impacts of Alaska Recreational Fishing Expenditures (thousands of dollars)¹

		#Jobs	Sales	Income	Value Added
Trip Impacts by Fishing Mode	For-Hire	1,857	238,118	89,312	132,960
	Private Boat	1,295	163,384	51,722	97,917
	Shore	253	28,338	9,709	16,879
Total Durable Expenditures		1,460	109,549	44,341	67,703
Total State Economic Impacts		4,865	539,389	195,084	315,459

2016 Angler Trip & Durable Goods Expenditures (thousands of dollars)

Fishing Mode	Trip Expenditures	Equipment	Durable Goods Expenditures
For-Hire	144,052	Fishing Tackle	24,717
Private Boat	141,703	Other Equipment	32,640
Shore	13,156	Boat Expenses	51,807
Total	298,911	Vehicle Expenses	4,241
		Second Home Expenses	0
		Total Durable Expenditures	113,405
Total State Trip and Durable Goods Expenditures			412,316

Recreational Anglers by Residential Area (thousands of anglers)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Out-of-State	205	190	158	159	159	159	176	169	180	180
Coastal/Non-Coastal	127	119	127	122	117	109	121	118	125	113
Total Anglers	332	309	284	281	276	268	298	287	305	293

Recreational Fishing Effort by Mode (thousands of angler fishing days)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Total Days Fished	1,053	935	914	811	812	808	980	960	975	864

Harvest (H) & Release (R) of Key Species/Species Groups (thousands of fish)^{2,3}

		2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Chinook salmon	H	110	71	89	78	85	63	81	111	111	101
	R	110	80	96	66	95	62	120	94	116	87
Coho salmon	H	506	404	418	350	386	263	493	390	479	263
	R	122	89	94	74	88	50	122	60	99	41
Pink salmon	H	133	88	117	82	72	78	113	69	110	103
	R	281	152	224	121	135	141	203	118	204	126
Sockeye salmon	H	32	29	34	28	31	28	40	35	33	34
	R	21	10	10	6	10	8	13	12	9	7
Chum salmon	H	18	12	22	11	21	11	25	12	13	10
	R	34	28	34	19	38	20	39	19	25	22
Pacific halibut	H	585	516	440	398	394	388	454	408	420	400
	R	438	359	321	304	311	324	324	251	271	244
Rockfish species	H	198	226	209	224	211	230	256	335	332	347
	R	178	171	149	151	122	121	121	148	143	157
Lingcod	H	42	37	32	32	33	33	34	32	28	26
	R	70	65	46	39	36	36	33	29	27	23
Pacific cod	H	20	25	36	37	48	42	38	61	58	44
	R	27	39	63	81	76	50	48	73	75	43
Shark species	H	1	1	0	0	1	0	1	2	1	0
	R	75	52	33	29	14	13	11	28	20	16
Razor clams	H	389	593	556	357	436	324	291	90	39	77
	R	0	0	0	0	0	0	3	3	0	3

¹ Data reported in this table include saltwater fishing activities only.² Information reported in this table is from the Sport Fish Division of the Alaska Department of Fish and Game (ADF&G) and includes saltwater fishing activities only.³ In this table, '<1' = 0-999 fish and '1' = 1,000-1,499 fish.

2015 Alaska State Economy (% of national total)^{1,3}

	#Non-Employer Firms	#Establishments	#Employees	Annual Payroll (\$ billions)	Employee Compensation (\$ billions)	Gross State Product (\$ billions)	Commercial Fishing Location Quotient ²
Totals	55,818 (0.2%)	20,907 (0.3%)	267,999 (0.2%)	15.64 (0.3%)	27.95 (0.3%)	53.38 (0.3%)	ds

Seafood Sales & Processing - Non-Employer Firms (thousands of dollars)

		2007	2008	2009	2010	2011	2012	2013	2014	2015
Seafood product prep. & packaging	Firms	33	31	32	28	26	25	35	31	30
	Receipts	1,837	1,455	1,693	2,482	2,882	2,708	3,268	2,472	4,091
Seafood sales, retail	Firms	12	13	16	23	15	15	11	17	11
	Receipts	1,358	1,431	1,350	1,595	903	1,626	1,458	1,539	761

Seafood Sales & Processing - Employer Establishments (thousands of dollars)

		2007	2008	2009	2010	2011	2012	2013	2014	2015
Seafood product prep. & packaging	Establishments	114	122	121	119	122	116	115	108	109
	Employees	6,506	7,707	7,572	8,074	8,578	8,289	8,638	9,115	8,472
	Payroll	262,127	254,894	255,403	268,208	296,851	297,284	308,961	337,171	356,855
Seafood sales, wholesale	Establishments	68	57	54	52	48	47	43	43	37
	Employees	167	143	ds	ds	159	143	102	120	94
	Payroll	8,528	8,389	8,445	9,141	9,985	10,943	7,205	7,024	7,306
Seafood sales, retail	Establishments	7	9	10	10	10	15	14	14	15
	Employees	ds	37	44	ds	ds	ds	ds	ds	64
	Payroll	ds	1,839	1,824	1,986	2,487	2,019	2,337	2,687	2,498

Transport, Support & Marine Operations - Employer Establishments (thousands of dollars)^{3,4}

		2007	2008	2009	2010	2011	2012	2013	2014	2015
Coastal & Great Lakes freight transportation	Establishments	46	49	50	55	63	47	53	72	74
	Employees	ds	1,067							
	Payroll	27,357	33,888	33,132	ds	ds	ds	82,692	89,020	89,281
Deep sea freight transportation	Establishments	3	3	3	3	1	2	3	6	5
	Employees	ds								
	Payroll	ds								
Deep sea passenger transportation	Establishments	6	1	1	0	1	1	2	1	1
	Employees	ds	ds	ds	NA	ds	ds	ds	ds	ds
	Payroll	ds	ds	ds	NA	ds	ds	ds	ds	ds
Marinas	Establishments	13	14	13	14	14	13	12	11	11
	Employees	48	66	56	ds	ds	ds	ds	ds	30
	Payroll	1,763	2,303	2,181	1,932	2,053	1,613	1,449	ds	1,423
Marine cargo handling	Establishments	17	12	13	13	14	8	9	9	9
	Employees	677	ds	ds	ds	ds	334	ds	ds	437
	Payroll	35,345	ds	ds	ds	ds	26,481	ds	ds	32,326
Navigational services to shipping	Establishments	31	25	23	25	22	21	22	25	24
	Employees	ds	296	312	303	321	97	103	138	140
	Payroll	25,058	23,233	25,630	27,543	27,156	9,938	10,805	13,015	13,596
Port & harbor operations	Establishments	2	7	8	9	8	18	13	12	11
	Employees	ds	ds	ds	ds	ds	582	ds	ds	ds
	Payroll	ds	ds	ds	ds	1,790	25,545	ds	ds	ds
Ship & boat building	Establishments	16	17	21	22	23	23	20	27	23
	Employees	ds	335	344						
	Payroll	ds	15,845	17,748						

¹ Census Bureau data for the Marine Economy section of this report are available only through 2015.

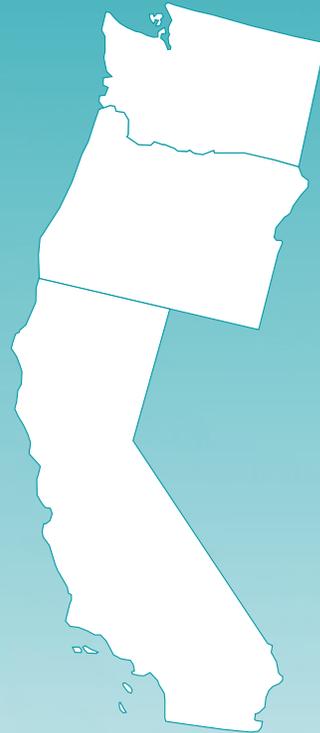
² The U.S. Commercial Fishing Location Quotient (CFLQ) is 1. A CFLQ greater than 1 indicates that more commercial fishing occurs in this state than the national average. A CFLQ less than 1 indicates that less commercial fishing occurs in this state than the national average.

³ ds = these data are suppressed.

⁴ NA = not applicable.

Pacific Region

- California
- Oregon
- Washington



Commercial boat.

Photo: Pacific Fishery Management Council

MANAGEMENT CONTEXT

The Pacific Region includes California, Oregon, and Washington. Federal fisheries in this region are managed by the Pacific Fishery Management Council (PFMC) and NOAA Fisheries under four fishery management plans (FMPs).

Pacific Region FMPs

- Coastal pelagic species
- Pacific coast salmon
- Pacific coast groundfish
- West Coast highly migratory species

Three of the stocks or stock complexes covered in these FMPs were listed as overfished in 2016: Pacific ocean perch, yelloweye rockfish, and Pacific bluefin tuna. Three stocks/complexes were subject to overfishing in 2016: coho salmon (Puget Sound: Hood Canal), Pacific bluefin tuna (Pacific), and swordfish (Eastern Pacific). Also in 2016, three stocks of Chinook salmon (Columbia River Basin: Upper River Summer; Washington Coast: Willapa Bay Fall Natural; and Washington Coast: Grays Harbor Fall) and one stock of coho salmon (Washington Coast: Hoh, which is prosecuted by both U.S. and international fleets) were removed from the overfishing list.

Conservative management techniques are employed in the Pacific Region's fisheries. For example, the Pacific groundfish and salmon fisheries are subject to "weak stock management" where access to the surplus of healthier stocks that can be harvested is often restricted to protect weaker stocks with which they commingle in the ocean. These weaker stocks include seven rebuilding groundfish stocks, salmon (listed under the Endangered Species Act), and other non-listed stocks that constrain the fishery.

Salmon management is further complicated by the need to ensure equal allocation of harvest among diverse user groups and coordination with other entities that have jurisdiction over various aspects of salmon management. Decades of habitat modification, hatchery practices, harvest, and growing competition for water have affected the viability of salmon stocks and made them more vulnerable to adverse environmental conditions. These

conditions include the prolonged drought and adverse ocean conditions experienced in recent years. Low returns of salmon to the Klamath River in 2006, and to the Sacramento River in 2008 and 2009, resulted in unprecedented closures of ocean and in-river fisheries, leading to federal disaster relief for affected entities.

Coastal pelagic species (CPS) are highly variable, environmentally sensitive stocks that provide food for marine mammals, birds, and fish. These species include Pacific sardine, northern anchovy, Pacific and jack mackerel, and market squid. Of these species, Pacific sardine is the most commonly targeted CPS finfish and is managed according to an innovative harvest control rule: allowable harvest varies with sea surface temperature. Because the geographic range of sardine tends to expand with abundance, harvest allocation between the California and Pacific Northwest fisheries is an ongoing and dynamic issue. The annual guideline for sardine harvest is allocated coast-wide on a seasonal basis. Recent decreases in harvest guideline limits have contributed to the development of an intense derby fishery.

Catch limits for Pacific halibut, a transboundary fish stock, are set in January by the International Pacific Halibut Commission (IPHC). This bilateral commission between the United States and Canada determines total allowable catch levels (TACs) for Pacific halibut that will be caught in the United States and Canadian exclusive economic zones (EEZs). After catch levels are determined, the PFMC develops a catch-sharing plan for tribal and non-tribal (i.e., commercial and recreational) fisheries in the federal waters of California, Oregon, and Washington. Pacific Halibut is targeted only with hook gear, but there are allocations to the trawl sector for bycatch, including individual bycatch quotas, in the Pacific groundfish trawl IFQ.

The Highly Migratory Species (HMS) FMP includes tunas, billfish, and pelagic sharks as managed species. The albacore surface hook-and-line fishery is by far the most economically important commercial HMS fishery, followed by the drift gillnet fishery for swordfish and thresher shark. HMS is also a very important component of the catch for the Pacific Region's commercial passenger fishing vessel fleet and the private recreational boat fleet.

Catch Share Programs

The Pacific Region has two catch share programs: 1) the Pacific Sablefish Permit Stacking Program; and 2) the Pacific Groundfish Trawl Rationalization Program. The landings revenues for these programs totaled more than \$47 million in 2015. Following are descriptions of these catch share programs and their performance.

Pacific Sablefish Permit Stacking Program: This program was implemented in 2001 and allows vessels to stack multiple vessel permits on a single vessel. The goal of this approach is to improve economic efficiency through rationalization of the fixed gear fleet, increase benefits for fishing communities, promote equity, lessen reallocation effects of previous harvest regulations, promote safety, and improve product quality and value. Results for this program show that in 2015, the number of active vessels and landings decreased compared with the baseline period (average of the 3-year period prior to the start of the program), while inflation-adjusted revenue and revenue per vessel increased during 2015.

A recent study¹ of this fleet demonstrated that after the catch share program was implemented, the probability of fishermen taking a fishing trip in high wind conditions decreased 82%. This provides evidence that institutional changes can significantly reduce risk-taking behavior and result in safer fisheries.

Pacific Trawl Rationalization Program: This program was implemented by the PFMC in January 2011. It involves individual fishing quotas (IFQs) for non-whiting groundfish and whiting trawlers delivering to shoreside plants, and cooperatives for whiting mothership and catcher processor sectors. Program objectives are to provide a mechanism for total catch accounting; provide a viable, profitable, and efficient groundfish fishery; promote practices that reduce bycatch and discard mortality while minimizing ecological impacts; increase operational flexibility; minimize adverse effects from the IFQ program on fishing communities and other fisheries; promote measurable economic and employment benefits through the seafood catching, processing, distribution, and support sectors of the industry; provide quality product for the consumer; and increase safety in the fishery.

As required by law, the council is reviewing the trawl catch share program five years after implementation. According to findings from the draft public review, the economic performance of the program has been strong. Net revenue per active catcher vessel increased 65% relative to the pre-catch share period (2009-2010) for the non-whiting groundfish fishery, and 400% for the whiting fishery. Meanwhile, motherships experienced a 62% increase and catcher-processors experienced a 7% decrease in net revenue.

Results for this program show that in 2015, landings, inflation-adjusted revenue, and revenue per vessel increased compared to the baseline period. However, the number of active vessels decreased during this period. There was no change in inflation-adjusted revenue. Expanded observer coverage and dockside monitoring, which were implemented with the catch share program, coupled with long-term adherence to catch targets and improved stock assessment models, have to varying degrees also contributed to improved fishery performance. For example, in the first three years of catch shares, the total catch of rebuilding stocks (of which two—canary rockfish and petrale sole—are now declared rebuilt) was 50% lower than in the previous three years.

Policy Updates

In September 2016, the council decided to manage darkblotched rockfish and Pacific ocean perch (POP) caught as bycatch by the at-sea whiting sectors using set-asides instead of total catch limits. Exceeding a set-aside does not result in an automatic fishery closure and thus mitigates the risk of the Pacific whiting at-sea sectors not attaining their respective Pacific whiting allocations due to the incidental catch of these two species. Importantly, this action does not increase the risk of exceeding darkblotched rockfish or POP ACLs because NMFS was given in-season authority to automatically close the fishery if species-specific set-aside amounts plus buffer amounts were expected to be exceeded. The final rule was published on January 8, 2018.

In April 2016², the PFMC recommended closing the directed, non-tribal Pacific sardine fishery for the 2016-2017 season due to the estimated biomass (106,137 metric tons) falling below the 150,000 metric tons

¹ Pfeiffer, Lisa and Trevor Gratz. The effect of rights-based fisheries management on risk taking and fishing safety (March 8, 2016). Proceedings of the National Academy of Sciences 113 (10) 2615-2620; DOI: 10.1073/pnas.1509456113.

² https://www.dfw.state.or.us/agency/commission/minutes/16/06_June/Exhibit%20I_Attachment%201_Agenda%20Item%20Summary.pdf.

required for the directed commercial fishery to open. This decision continued the closure implemented for the 2015-2016 season. Although the directed commercial fishery remains closed, the PFMC allowed up to 8,000 metric tons of sardine to be harvested to account for small amounts taken as incidental catch in other fisheries, live bait harvest, tribal harvest, and research.

At the April 2017 meeting, the PFMC recommended closing the directed commercial sardine fishery for the third year in a row based on the severely depleted biomass, which declined 18% from the previous year. The Pacific sardine biomass, which is prone to significant natural fluctuation due to large-scale changes in oceanic temperature, declined over 90% between 2006 and 2017, from approximately 1 million metric tons to 86,586 metric tons.

COMMERCIAL FISHERIES

In this report, commercial fisheries refer to fishing operations that sell their catch for profit. The term does not include subsistence fishermen or saltwater anglers who fish for sport. It also excludes the for-hire sector, which earns its revenue from selling recreational fishing trips to saltwater anglers. The commercial fisheries section reports on economic impacts, landings revenue, landings, and ex-vessel prices of key species/species groups.

Key Pacific Region Commercial Species

- Albacore tuna
- Crab
- Flatfish
- Hake
- Other shellfish
- Rockfish
- Sablefish
- Salmon
- Shrimp
- Squid

Economic Impacts

The premise behind economic impact modeling is that every dollar spent in a regional economy (direct impact) is either saved or re-spent on additional goods or services. If those dollars are re-spent on other goods and services in the regional economy, this spending

generates additional economic activity in the region.

Four different measures are commonly used to show how commercial fisheries landings affect the economy in a region (state or nationwide): sales, income, value-added, and employment. The term sales refers to the gross value of all sales by regional businesses affected by an activity, such as commercial fishing. The category includes both the direct sales of fish landed and sales made between businesses and households resulting from the original sale. Income includes personal income (wages and salaries) and proprietors' income (income from self-employment). Value-added is the contribution made to the gross domestic product in a region. Employment is specified on the basis of full-time and part-time jobs supported directly or indirectly by the sales of seafood or purchases of inputs to commercial fishing. The first three measures are calculated in terms of dollars, whereas employment impacts are measured in numbers of jobs. Note that these categories are not additive. The United States seafood industry is defined here as the commercial fishing sector, seafood processors and dealers, seafood wholesalers and distributors, importers, and seafood retailers.³

This report provides estimates of total economic impacts for the nation and for each of the 23 coastal states. Total economic impacts for each state and the nation represent the sum of direct impacts; indirect impacts (in this case, the impact from suppliers to the seafood industry); and induced impacts (spending by employees on personal and household expenditures, where employees of both the seafood industry and its full supply chain are included). That is, the total economic impact estimates reported here measure jobs, sales, value-added, and income impacts from the seafood industry as well as the economic activity generated throughout each region's broader economy from this industry.

In 2016, commercial fishing in California generated the largest employment impacts in the region: 124,800 jobs. Income impacts (\$4.9 billion), sales impacts (\$22.8 billion), and value-added impacts (\$8.1 billion) were also largest in California. The importers sector in California generated the highest employment impacts of any

³ The NMFS Commercial Fishing Industry Input/Output Model was used to generate the impact estimates (see NMFS Commercial Fishing & Seafood Industry Input/Output Model, available at: www.st.nmfs.noaa.gov/documents/commercial_seafood_impacts_2007-2009.pdf).

state-level sector: 55,100 jobs. The importers sector in California also generated the highest state-level income impacts (\$2.7 billion), sales impacts (\$17 billion), and value-added impacts in the region (\$5.2 billion).

Landings Trends

Landings revenue increased in the Pacific Region (up \$131.2 million or 24%) from 2015 to 2016 largely due to the increase in crab landings revenue (\$111.7 million) during this period. A fishery disaster had been declared for the Dungeness crab fishery in California and for the Quileute tribe in Washington State for the 2015 to 2016 season because of the closures that were implemented due to high levels of domoic acid, a neurotoxin. As these fisheries re-opened, landings bounced back to their highest level since 2013.

Whiting was another bright spot for the West Coast region, with 2016 landings and landings revenue up 67% and 93%, respectively, relative to 2015. While the 2016 whiting total allowable catch was unchanged from 2015, the major difference in performance between the two years was a higher utilization rate of the TAC. The 2015 utilization rate (47.4%) of the whiting TAC was the fisheries' lowest in the last decade. Reasons cited by industry for the 2015 performance included the unusual, dispersed distribution of the fish later in the season after the at-sea fleet returned from Alaska, possibly due to anomalously warm ocean conditions as well as less-favorable market conditions.⁴

Squid landings revenue also bounced back to a degree in 2016 (up \$15.8 million), but only because global supply shortages due to the strong El Niño event from 2015 to 2016 caused prices to surge 60% in California. Squid landings were essentially flat relative to 2015 landings. Prior to the most recent El Niño event, squid had been California's largest fishery by value and volume in 2014 and had represented 80% of U.S. squid landings and 64% of U.S. squid revenues in recent years. In 2016, California represented only 58% and 40% of U.S. squid landings and landings revenue, respectively. Similarly, revenues from albacore landings on the West Coast were up 28% relative to 2015 despite a 7% drop in landings. Tight inventories drove albacore prices up 39% in 2016.

Commercial Revenue: Largest Increases

From 2007:

- Shrimp (178%, 143% in real terms)
- Crab (79%, 56% in real terms)
- Albacore tuna (75%, 53% in real terms)

From 2015:

- Crab (106%)
- Hake (93%)
- Squid (65%)

Commercial Revenue: Largest Decreases

From 2007:

- There were no decreases from 2007 (in nominal dollar values).

From 2015:

- Shrimp (-45%)
- Salmon (-16%)
- Rockfish (-10%)

Commercial Landings: Largest Increases

From 2007:

- Shrimp (108%)
- Rockfish (41%)
- Hake (23%)

From 2015:

- Crab (177%)
- Hake (67%)
- Other shellfish (31%)

Commercial Landings: Largest Decreases

From 2007:

- Salmon (-25%)
- Squid (-23%)
- Flatfish (-22%)

From 2015:

- Shrimp (-48%)
- Salmon (-28%)
- Rockfish (-12%)

Landings Revenue

Landings revenue in the Pacific Region totaled \$688.9 million in 2016. This number represented a 50% increase from 2007 (a 31% increase in real terms after adjusting

⁴ <https://www.federalregister.gov/documents/2016/05/16/2016-11329/magnuson-stevens-act-provisions-fisheries-off-west-coast-states-pacific-coast-groundfish-fishery>.

for inflation) and a 24% increase from 2015. Landings revenue was highest in Washington (\$287.5 million), followed by California (\$216.1 million). Shellfish landings revenue made up 67% of total revenue in the region. Crab (\$216.7 million) and other shellfish (\$156.5 million) had the highest landings revenue in the Pacific Region in 2016. Together they accounted for 54% of total landings revenue.

From 2007 to 2016, shrimp (178%, 143% in real terms), crab (79%, 56% in real terms), and albacore tuna (75%, 53% in real terms) had the largest revenue increases. There were no decreases in revenue from 2007 to 2016 (in nominal dollar values). From 2015 to 2016, crab (106%), hake (93%), and squid (65%) had the largest revenue increases, while shrimp (-45%), salmon (-16%), and rockfish (-10%) had the largest revenue decreases.

Landings

In 2016, Pacific Region commercial fishermen landed 937.8 million pounds of finfish and shellfish, a 15% decrease from 2007 and a 26% increase from 2015. Hake had the highest landings volume in the Pacific Region, accounting for 60% of landed weight.

From 2007 to 2016, shrimp (108%), rockfish (41%), and hake (23%) had the largest landings increases, while salmon (-25%), squid (-23%), and flatfish (-22%) had the largest landings decreases. From 2015 to 2016, crab (177%), hake (67%), and other shellfish (31%) had the largest landings increases, while shrimp (-48%), salmon (-28%), and rockfish (-12%) had the largest landings decreases.

Prices

In 2016, other shellfish (\$10.12 per pound) received the highest Pacific Region ex-vessel price. Landings of hake (\$0.08 per pound) had the lowest ex-vessel price. From 2007 to 2016, albacore tuna (93%, 69% in real terms), squid (79%, 56% in real terms), and salmon (57%, 37% in real terms) had the largest price increases, while rockfish (-10%, -22% in real terms) had the largest price decreases. From 2015 to 2016, squid (58%), albacore tuna (39%), and salmon (17%) had the largest price increases, while crab (-25%) and other shellfish (-13%) had the largest price decreases.

RECREATIONAL FISHERIES

In this report, recreational fishing refers to fishing for fun rather than to resell fish (commercial fishing) or for subsistence. The recreational fisheries section reports on economic impacts and expenditures, angler participation, trips, and catch of key species/species groups.

Key Pacific Region Recreational Species

- Albacore & other tunas
- Barracuda, bass & bonito
- Croakers
- Flatfish
- Greenlings
- Rockfishes & scorpionfishes
- Salmon
- Sculpins
- Surfperches

Economic Impacts and Expenditures

The contribution of recreational fishing activities⁵ in the United States is reported in terms of economic impacts from angler expenditures. Total annual trip expenditures are estimated by multiplying mean trip expenditures by the estimated number of adult trips in each trip mode (for-hire, private boat, and shore). Total annual durable expenditures are estimated by multiplying mean durable expenditures by the estimated annual number of adult participants in a given state.

Four different measures are commonly used to show how angler expenditures affect the economy in a region (state or nationwide): sales, income, value-added, and employment. The term sales refers to the gross value of all sales by regional businesses affected by an activity, such as recreational fishing. The category includes both the direct sales made by the angler and sales made between businesses and households resulting from that original sale by the angler. Income includes personal income (wages and salaries) and proprietors' income (income from self-employment). Value-added is the contribution made to the gross domestic product in a region. Employment is specified on the basis of full-time and part-time jobs supported directly or indirectly by the purchases made by anglers. The first three measures are calculated in terms of dollars, whereas employment impacts are measured in number of jobs. Note that these categories are not additive. NOAA Fisheries uses

⁵ Trip expenditure estimates were generated from the 2011 National Marine Recreational Fishing Expenditure Survey. Durable good expenditure impacts were generated from the 2014 National Marine Recreational Fishing Expenditure Survey (see <http://www.st.nmfs.noaa.gov/economics/fisheries/recreational/Marine-Angler-Durable-Expenditures/2014-durable-expenditures-survey>). Economic impacts from recreational fishing activities were generated using the NMFS Recreational Economic Impact Model (see The Economic Contribution of Marine Angler Expenditures in the United States, 2011, available at <http://www.st.nmfs.noaa.gov/economics/publications/marine-angler-expenditures/marine-angler-2011>).

a regional impact modeling software, called IMPLAN, to estimate these four types of impacts.

The greatest employment impacts from expenditures on saltwater recreational fishing in the Pacific Region were generated in California (17,100 jobs), followed by Washington (4,600 jobs). The largest sales impacts were observed in California (\$2.1 billion), followed by Washington (\$542.1 million). The biggest income impacts were generated in California (\$819.4 million), followed by Washington (\$209.4 million). The greatest value-added impacts were in California (\$1.3 billion), followed by Washington (\$339.6 million).

Recreational fishing expenditures (on both fishing trips and durable equipment purchases) across the Pacific Region in 2016 totaled about \$2.3 billion. Trip expenditures totaled more than \$526 million, with a large portion coming from trips in the shore (35%) and for-hire (33%) sectors. Durable goods expenditures totaled \$1.8 billion, with the largest portion coming from boat expenses (\$880.2 million).

Recreational Catch: Largest Increases

From 2007:

- Greenlings (98%)
- Rockfishes & scorpionfishes (45%)
- Surfperches (2%)

From 2015:

- Croakers (29%)
- Barracuda, bass & bonito (19%)

Recreational Catch: Largest Decreases

From 2007:

- Croakers (-72%)
- Salmon (-61%)
- Sculpins (-7%)

From 2015:

- Albacore & other tunas (-61%)
- Salmon (-58%)
- Surfperches (-31%)

Fishing Trips

In 2016, recreational fishermen took 5.2 million fishing

trips in the Pacific Region. This number represented a 16% decrease from 2007 and an 11% decrease from 2015. The largest proportions of trips were taken in the shore mode (60%) and private boat mode (26%). States with the highest number of recorded trips in the Pacific Region were California (3.5 million trips) and Washington (1 million trips).

Participation

In 2016, there were 1.2 million recreational anglers who fished in the Pacific Region. This number represented a 26% decrease from 2007 and an 8% decrease from 2015. These anglers were Pacific Region residents from either a coastal county (71%) or non-coastal county (29%).

Harvest and Release

Of the Pacific Region's key species and species groups, rockfishes and scorpionfishes (4.2 million fish), barracuda, bass and bonito (19.5 million fish), and surfperches (1.8 million fish) were most frequently caught by recreational fishermen. From 2007 to 2016, greenlings (98%), rockfishes and scorpionfishes (45%), and surfperches (2%) had the largest increases in catch, while croakers (-72%), salmon (-61%), and sculpins (-7%) had the largest decreases. From 2015 to 2016, croakers (29%) and barracuda, bass and bonito (19%) had the largest increases in catch, while albacore and other tunas (-61%), salmon (-58%), and surfperches (-31%) had the largest decreases.

MARINE ECONOMY

For this report, the marine economy refers to the economic activity generated by fishing and marine-related industries in a coastal state. The state marine economy consists of two industry sectors: 1) seafood sales and processing (employer establishments and non-employer firms); and 2) transport, support, and marine operations (employer establishments). These sectors include several different marine-related industries.^{6,7}

To measure the size of the commercial fishing sector in a state's economy relative to the size of the commercial fishing sector in the national economy⁸, researchers use an index called the Commercial Fishing Location Quotient

⁶ Unless otherwise stated, data are from the U.S. Census Bureau, <http://census.gov/> (accessed September 26, 2017).

⁷ U.S. Bureau of Economic Analysis, "Table 1.1.5 Gross Domestic Product" and "Table SA6N Compensation of Employees by NAICS Industry," http://www.bea.gov/iTable/index_nipa.cfm (accessed September 26, 2017).

⁸ U.S. Bureau of Labor Statistics, "Location Quotient Calculator," https://data.bls.gov/cew/doc/info/location_quotients.htm (accessed September 26, 2017).

(CFLQ). The CFLQ is calculated as the ratio of the percentage of regional employment in the commercial fishing sector relative to the percentage of national employment in the commercial fishing sector. The U.S. CFLQ is 1. If a state CFLQ is less than 1, then less commercial fishing occurs in this state than the national average. If a state CFLQ is greater than 1, then more commercial fishing occurs in this state than the national average.

The Bureau of Labor Statistics suppressed the CFLQ value for Washington for 2015. Of the remaining states, Oregon had the highest CFLQ at 3.52. California had a CFLQ value of 0.61.

In 2015, 1.2 million employer establishments operated throughout the entire Pacific Region (including marine- and non-marine-related establishments). These establishments employed about 18.4 million workers and had a total annual payroll of \$1.1 trillion. The combined gross state product of Washington, Oregon, and California was approximately \$3.2 trillion in 2015.

Seafood Sales and Processing

Seafood Product Preparation and Packaging: In 2015, the Pacific Region had 240 non-employer firms in the seafood product preparation and packaging sector (a 30% increase from 2007). Annual receipts for these firms totaled about \$17.6 million (this remained unchanged in real terms from 2007). There were 153 employer firms in the seafood product preparation and packaging sector (a 9% decrease from 2007). These establishments employed 8,330 workers (this remained unchanged from 2007) and had a total annual payroll of \$426.4 million (this remained unchanged in real terms from 2007). The greatest number of seafood product preparation and packaging establishments was located in California (217), followed by Washington (144) and Oregon (32).

Seafood Sales, Retail: In 2015, there were 271 non-employer firms engaged in retail sales of seafood in the three states that make up the Pacific Region (a 2% increase from 2007). Annual receipts for these firms totaled about \$20.8 million (an 18% decrease in real terms from 2007). There were 234 employer firms in

the retail sales of seafood sector (an 8% decrease from 2007). These establishments employed 1,668 workers (an 18% increase from 2007) and had a total annual payroll of \$44.3 million (a 21% increase in real terms from 2007). The greatest number of retail seafood establishments was located in California (391), followed by Washington (74) and Oregon (40).

Seafood Sales, Wholesale: There were 491 employer firms in the wholesale sales of seafood sector in the Pacific Region in 2015 (a 10% increase from 2007). These establishments employed 5,443 workers and had a total annual payroll of \$265.4 million. The greatest number of wholesale seafood establishments was located in California (349), followed by Washington (118) and Oregon (24).

Transport, Support, and Marine Operations

Data for the transport, support, and marine operations sector of the Pacific Region's economy were largely suppressed for confidentiality reasons. However, these sectors play an important role in the regional economy. For example, the ship and boat building sector accounted for \$944.4 million in payroll in 2015.

Tables | Pacific Region



2016 Economic Impacts of the Pacific Seafood Industry (thousands of dollars)

California	216,139	124,803	22,776,152	4,911,619	8,141,191	14,900	1,225,433	459,683	632,590
Oregon	151,707	16,162	1,190,017	415,939	583,687	14,100	817,764	339,604	454,934
Washington	287,543	55,325	7,463,634	2,003,817	3,047,760	21,345	1,547,501	638,452	865,335

Total Landings Revenue & Landings Revenue of Key Species/Species Groups (thousands of dollars)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Total Revenue	459,772	500,447	501,938	566,579	729,785	674,465	814,834	776,098	557,669	688,918
Finfish & Other	177,529	218,718	170,610	206,161	267,963	252,144	282,370	265,357	203,535	227,249
Shellfish	282,243	281,729	331,327	360,418	461,821	422,321	532,464	510,742	354,134	461,669
Key Species										
Albacore tuna	21,612	28,845	27,541	28,780	43,347	45,827	41,930	32,792	29,387	37,744
Crab	121,136	107,107	123,865	132,843	182,085	176,880	249,579	199,222	105,053	216,733
Flatfish	16,266	18,016	16,716	12,828	13,377	13,492	17,417	15,664	16,751	17,791
Hake (whiting)	32,603	58,492	14,104	27,316	52,869	47,054	61,321	58,630	24,109	46,639
Other shellfish	114,639	122,905	133,940	134,460	172,541	141,221	166,551	177,487	137,035	156,483
Rockfish	7,541	9,257	8,974	9,226	9,446	9,421	9,872	9,820	10,531	9,526
Sablefish	20,984	27,279	34,481	35,977	44,873	28,108	19,559	24,178	28,719	31,346
Salmon	34,508	27,548	25,549	49,534	54,267	48,197	77,754	71,416	48,157	40,453
Shrimp	17,298	25,132	16,594	21,941	40,638	40,326	42,614	61,100	87,556	48,139
Squid	29,169	26,585	56,928	71,173	66,557	63,894	73,720	72,932	24,491	40,315

Total Landings & Landings of Key Species/Species Groups (thousands of pounds)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Total Landings	1,109,222	1,091,673	899,043	1,065,499	1,176,780	1,070,065	1,255,594	1,208,811	747,113	937,751
Finfish & Other	903,860	908,242	583,273	652,515	758,522	721,080	850,058	816,757	526,113	719,615
Shellfish	205,362	183,431	315,771	412,984	418,258	348,985	405,537	392,053	221,000	218,136
Key Species										
Albacore tuna	25,483	24,507	27,055	25,477	24,284	30,638	28,471	27,247	24,821	23,010
Crab	51,888	45,075	59,158	61,668	66,518	52,860	87,157	52,133	22,745	62,945
Flatfish	33,828	37,852	41,192	33,785	25,959	24,779	29,106	24,188	24,861	26,508
Hake (whiting)	454,533	531,277	253,053	355,216	496,363	347,171	505,614	574,921	333,290	558,047
Other shellfish	17,513	17,357	17,513	16,446	17,072	14,819	16,509	17,107	11,805	15,466
Rockfish	7,447	9,469	10,458	11,038	9,910	10,406	10,794	10,720	11,913	10,489
Sablefish	11,630	12,978	15,822	15,055	14,139	11,580	9,159	9,633	11,377	11,799
Salmon	25,050	19,503	34,132	31,107	42,224	24,619	56,892	37,187	26,134	18,757
Shrimp	26,497	35,799	33,456	46,191	66,686	66,319	71,505	93,150	105,324	55,017
Squid	109,464	85,200	205,643	288,678	267,983	214,988	230,365	229,664	81,127	84,708

Average Annual Price of Key Species/Species Groups (dollars per pound)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Albacore tuna	0.85	1.18	1.02	1.13	1.78	1.50	1.47	1.20	1.18	1.64
Crab	2.33	2.38	2.09	2.15	2.74	3.35	2.86	3.82	4.62	3.44
Flatfish	0.48	0.48	0.41	0.38	0.52	0.54	0.60	0.65	0.67	0.67
Hake (whiting)	0.07	0.11	0.06	0.08	0.11	0.14	0.12	0.10	0.07	0.08
Other shellfish	6.55	7.08	7.65	8.18	10.11	9.53	10.09	10.38	11.61	10.12
Rockfish	1.01	0.98	0.86	0.84	0.95	0.91	0.91	0.92	0.88	0.91
Sablefish	1.80	2.10	2.18	2.39	3.17	2.43	2.14	2.51	2.52	2.66
Salmon	1.38	1.41	0.75	1.59	1.29	1.96	1.37	1.92	1.84	2.16
Shrimp	0.65	0.70	0.50	0.48	0.61	0.61	0.60	0.66	0.83	0.87
Squid	0.27	0.31	0.28	0.25	0.25	0.30	0.32	0.32	0.30	0.48

2016 Economic Impacts of the Pacific Recreational Fishing Expenditures (thousands of dollars, trips)

	Trips	#Jobs	Sales	Income	Value Added
California	3,532	17,050	2,123,040	819,382	1,305,411
Oregon	684	3,048	296,940	131,937	192,078
Washington	1,008	4,597	542,066	209,416	339,605

2016 Angler Trip & Durable Goods Expenditures (thousands of dollars)

Fishing Mode	Trip Expenditures	Equipment	Durable Goods Expenditures
For-Hire	176,426	Fishing Tackle	426,331
Private Boat	164,271	Other Equipment	215,139
Shore	186,120	Boat Expenses	880,157
Total	526,817	Vehicle Expenses	252,846
		Second Home Expenses	3,936
		Total Durable Expenditures	1,778,408
Total State Trip and Durable Goods Expenditures			2,305,225

Recreational Anglers by Residential Area (thousands of anglers)¹

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Coastal	1,216	1,082	1,384	1,167	1,052	1,358	1,321	1,235	935	833
Non-Coastal	370	320	379	381	342	378	426	428	344	340
Out-of-State	NA									
Total Anglers	1,587	1,402	1,763	1,548	1,394	1,736	1,748	1,664	1,279	1,173

Recreational Fishing Effort by Mode (thousands of angler trips)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
For-Hire	517	415	442	457	681	689	753	1,085	881	759
Private	1,860	1,517	2,114	1,727	1,833	1,971	2,070	1,991	1,876	1,341
Shore	3,818	3,859	4,345	3,770	3,791	4,973	4,859	4,351	3,131	3,124
Total Trips	6,195	5,791	6,901	5,954	6,305	7,633	7,682	7,427	5,888	5,224

Harvest (H) & Release (R) of Key Species/Species Groups (thousands of fish)²

		2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Albacore & other tunas	H	113	59	90	80	54	151	108	188	272	109
	R	2	2	2	0	0	2	1	4	8	1
Barracuda, bass & bonito	H	534	411	387	389	425	354	153	384	367	276
	R	1,488	1,127	1,236	998	747	792	1,173	1,727	1,277	1,674
Croakers	H	758	355	499	248	132	302	201	168	110	151
	R	301	242	290	270	93	185	229	148	123	148
Flatfishes	H	258	368	367	416	607	559	711	992	404	357
	R	325	351	250	277	221	295	453	341	241	200
Greenlings	H	188	164	178	194	276	309	362	393	458	419
	R	156	137	172	199	288	294	268	261	255	261
Rockfishes & scorpionfishes	H	2,467	1,935	2,230	2,223	2,904	3,448	3,904	4,045	3,884	3,483
	R	446	367	386	466	576	652	903	838	788	734
Salmon ^{1,3}	H	213	47	108	111	154	224	244	356	198	83
	R	NA									
Sculpins	H	49	68	59	52	95	70	66	60	62	58
	R	208	218	198	199	234	226	300	200	187	180
Surfperches	H	875	937	788	721	1,075	1,279	1,060	1,244	1,477	1,072
	R	850	714	670	383	874	1,144	979	1,162	1,072	681

¹ NA = data are not available because out-of-state resident information is collected for individual states, but whether an angler is a resident of a region is not specified.

² In this table, '0' = 0-999 fish.

³ Salmon harvest estimates exclude release mortality.

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2016 Economic Impacts of the California Seafood Industry (thousands of dollars)

	With Imports				Without Imports			
	#Jobs	Sales	Income	Value Added	#Jobs	Sales	Income	Value Added
Total Impacts	124,803	22,776,152	4,911,619	8,141,191	14,900	1,225,433	459,683	632,590
Commercial Harvesters	4,093	431,853	146,717	215,772	4,093	431,853	146,717	215,772
Seafood Processors & Dealers	4,586	526,972	195,405	259,284	1,707	196,155	72,736	96,514
Importers	55,117	17,033,566	2,729,954	5,192,577	0	0	0	0
Seafood Wholesalers & Distributors	11,051	1,750,326	567,718	793,142	582	92,256	29,923	41,805
Retail	49,956	3,033,436	1,271,825	1,680,416	8,518	505,169	210,306	278,500

Total Landings Revenue & Landings Revenue of Key Species/Species Groups (thousands of dollars)¹

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Total Revenue	127,580	120,861	159,253	187,263	222,160	243,963	266,488	253,768	129,143	216,139
Finfish & Other	51,037	48,671	47,738	45,558	59,289	57,103	66,416	61,163	54,526	50,101
Shellfish	76,543	72,190	111,515	141,704	162,871	186,860	200,071	192,605	74,617	166,038
Key Species										
Crab	28,626	24,227	32,508	43,016	53,762	88,207	91,851	70,563	20,467	85,620
Pacific sardine	8,218	7,575	5,544	4,366	4,398	4,249	1,510	2,003	343	95
Rockfish	4,924	5,781	5,330	5,453	5,644	5,170	5,748	5,604	5,797	5,400
Sablefish	4,873	6,224	9,765	11,491	15,121	8,988	7,047	8,945	8,870	8,804
Salmon	7,835	6	NA	1,215	5,096	12,850	22,957	12,127	8,058	5,277
Sea urchins	5,400	6,550	7,806	7,413	8,102	8,320	9,832	9,057	6,879	7,269
Shrimp	4,064	5,696	5,462	4,951	8,598	8,492	9,520	11,791	13,769	11,107
Spiny lobster	6,916	8,008	7,934	11,386	12,972	13,749	13,842	18,238	15,806	13,731
Squid	29,131	26,477	56,877	71,165	66,546	63,886	73,701	72,903	24,458	39,194
Swordfish	3,127	2,365	1,932	2,203	3,350	2,090	2,699	3,049	3,628	3,717

Total Landings & Landings of Key Species/Species Groups (thousands of pounds)¹

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Total Landings	384,826	323,884	376,053	439,440	409,837	353,875	364,790	361,290	186,418	176,403
Finfish & Other	259,139	224,763	148,478	120,700	108,999	102,261	90,128	98,771	89,788	59,908
Shellfish	125,687	99,121	227,575	318,740	300,838	251,614	274,661	262,518	96,630	116,495
Key Species										
Crab	12,393	9,845	16,660	23,352	22,206	27,589	33,094	20,888	5,412	28,135
Pacific sardine	178,480	126,945	82,842	73,814	60,993	50,660	15,636	17,112	3,724	913
Rockfish	3,136	3,933	3,984	3,949	3,450	3,457	3,862	3,555	3,239	2,530
Sablefish	3,240	3,507	5,089	5,501	5,646	3,916	3,291	3,960	4,033	3,858
Salmon	1,743	1	NA	255	1,133	2,862	4,337	2,558	1,339	709
Sea urchins	11,131	10,283	12,205	11,230	11,465	11,443	12,945	11,833	8,106	5,885
Shrimp	2,015	3,011	3,596	4,522	8,217	7,255	9,712	9,873	9,443	4,818
Spiny lobster	663	741	706	716	751	876	764	951	768	680
Squid	109,150	84,071	205,278	288,497	267,890	214,867	230,061	229,466	80,968	81,751
Swordfish	1,210	1,168	898	815	1,365	887	1,174	1,252	1,358	1,364

Average Annual Price of Key Species/Species Groups (dollars per pound)¹

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Crab	2.31	2.46	1.95	1.84	2.42	3.20	2.78	3.38	3.78	3.04
Pacific sardine	0.05	0.06	0.07	0.06	0.07	0.08	0.10	0.12	0.09	0.10
Rockfish	1.57	1.47	1.34	1.38	1.64	1.50	1.49	1.58	1.79	2.13
Sablefish	1.50	1.77	1.92	2.09	2.68	2.29	2.14	2.26	2.20	2.28
Salmon	4.50	4.16	NA	4.76	4.50	4.49	5.29	4.74	6.02	7.44
Sea urchins	0.49	0.64	0.64	0.66	0.71	0.73	0.76	0.77	0.85	1.24
Shrimp	2.02	1.89	1.52	1.09	1.05	1.17	0.98	1.19	1.46	2.31
Spiny lobster	10.44	10.8	11.24	15.91	17.27	15.69	18.11	19.17	20.59	20.19
Squid	0.27	0.31	0.28	0.25	0.25	0.30	0.32	0.32	0.30	0.48
Swordfish	2.58	2.03	2.15	2.70	2.46	2.36	2.30	2.44	2.67	2.72

¹ NA = these data are confidential and therefore not disclosable.

2016 Economic Impacts of California Recreational Fishing Expenditures (thousands of dollars)

		#Jobs	Sales	Income	Value Added
Trip Impacts by Fishing Mode	For-Hire	1,818	258,084	97,532	147,866
	Private Boat	554	92,377	28,333	49,784
	Shore	1,608	224,305	73,732	128,216
Total Durable Expenditures		13,070	1,548,274	619,785	979,545
Total State Economic Impacts		17,050	2,123,040	819,382	1,305,411

2016 Angler Trip & Durable Goods Expenditures (thousands of dollars)

Fishing Mode	Trip Expenditures	Equipment	Durable Goods Expenditures
For-Hire	136,408	Fishing Tackle	327,770
Private Boat	61,998	Other Equipment	163,085
Shore	148,056	Boat Expenses	528,338
Total	346,462	Vehicle Expenses	168,135
		Second Home Expenses	0
		Total Durable Expenditures	1,187,327
Total State Trip and Durable Goods Expenditures			1,533,789

Recreational Anglers by Residential Area (thousands of anglers)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Coastal	913	812	992	863	722	1,024	964	893	591	576
Non-Coastal	215	177	220	230	190	222	264	263	182	189
Out-of-State	82	206	221	183	215	87	94	121	96	77
Total Anglers	1,210	1,195	1,433	1,277	1,127	1,334	1,322	1,277	869	842

Recreational Fishing Effort by Mode (thousands of angler trips)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
For-Hire	373	305	308	334	554	557	613	929	727	632
Private	843	640	681	690	683	800	786	785	676	522
Shore	3,072	3,113	3,599	3,024	3,045	4,227	4,113	3,605	2,385	2,378
Total Trips	4,288	4,058	4,588	4,048	4,282	5,584	5,512	5,319	3,788	3,532

Harvest (H) & Release (R) of Key Species/Species Groups (thousands of fish)^{1,4}

		2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Albacore & other tunas	H	28	13	23	11	9	37	32	65	158	24
	R	2	2	2	< 1	< 1	2	1	4	8	< 1
Barracuda, bass & bonito ²	H	534	411	387	389	425	354	153	384	367	276
	R	1,488	1,127	1,236	998	747	792	1,173	1,727	1,277	1,674
Croakers	H	758	355	499	248	132	302	201	168	110	151
	R	301	242	290	270	93	185	229	148	123	148
Flatfishes	H	185	298	300	351	541	490	640	921	333	280
	R	279	303	199	231	175	248	405	294	193	153
Greenlings	H	70	48	63	60	123	143	176	229	286	250
	R	74	53	84	92	169	183	160	169	153	156
Rockfishes & scorpionfishes ²	H	1,919	1,445	1,670	1,639	2,379	2,871	3,229	3,326	3,000	2,650
	R	396	311	320	383	506	583	823	752	674	635
Salmon ³	H	48	< 1	< 1	15	50	124	116	75	38	38
	R	NA									
Sculpins	H	19	37	27	19	62	39	37	32	34	30
	R	58	69	50	47	82	74	147	48	35	29
Surfperches	H	623	685	537	470	823	1,027	809	992	1,226	817
	R	690	554	510	223	714	984	819	1,002	912	520

¹ In this table, '<1' = 0-999 fish and '1' = 1,000-1,499 fish.² This species may not be equivalent to species with similar names listed in the commercial tables.³ Salmon harvest estimates exclude release mortality.⁴ NA = not available.

2015 California State Economy (% of national total)¹

	#Non-Employer Firms	#Establishments	#Employees	Annual Payroll (\$ billions)	Employee Compensation (\$ billions)	Gross State Product (\$ billions)	Commercial Fishing Location Quotient ²
Totals	3,117,591 (12.8%)	908,120 (11.8%)	14,325,377 (11.5%)	856.95 (13.7%)	1,321.14 (13.6%)	2,491.62 (13.9%)	0.61

Seafood Sales & Processing - Non-Employer Firms (thousands of dollars)

		2007	2008	2009	2010	2011	2012	2013	2014	2015
Seafood product prep. & packaging	Firms	121	139	159	184	187	151	157	164	169
	Receipts	10,842	11,460	10,852	9,695	9,788	9,283	9,866	11,112	12,978
Seafood sales, retail	Firms	222	210	202	203	209	236	218	227	221
	Receipts	19,703	19,892	17,095	19,021	18,006	18,238	18,581	17,055	17,896

Seafood Sales & Processing - Employer Establishments (thousands of dollars)

		2007	2008	2009	2010	2011	2012	2013	2014	2015
Seafood product prep. & packaging	Establishments	49	45	47	48	48	41	44	53	48
	Employees	2,229	2,024	2,167	1,820	1,842	1,668	1,871	1,799	1,661
	Payroll	75,886	65,215	69,529	62,480	60,411	52,977	57,603	60,762	59,829
Seafood sales, wholesale	Establishments	300	278	289	314	404	275	320	341	349
	Employees	4,429	3,321	3,183	3,223	3,505	3,441	3,671	3,912	4,170
	Payroll	159,672	132,139	128,813	137,810	149,302	173,959	181,698	175,927	201,903
Seafood sales, retail	Establishments	182	161	153	158	157	149	155	167	170
	Employees	1,004	932	976	985	1,088	1,043	1,119	1,124	1,208
	Payroll	21,224	20,585	21,785	22,718	25,168	24,221	26,702	28,044	28,437

Transport, Support & Marine Operations - Employer Establishments (thousands of dollars)³

		2007	2008	2009	2010	2011	2012	2013	2014	2015
Coastal & Great Lakes freight transportation	Establishments	29	28	30	25	21	22	24	30	34
	Employees	ds	ds	ds	554	395	ds	ds	ds	851
	Payroll	ds	ds	ds	30,431	24,708	ds	ds	ds	70,978
Deep sea freight transportation	Establishments	51	43	41	54	51	45	34	43	56
	Employees	1,643	ds	ds	2,562	2,464	2,431	2,073	2,467	2,554
	Payroll	116,628	ds	ds	236,235	256,962	236,423	218,054	187,383	235,546
Deep sea passenger transportation	Establishments	13	5	5	3	2	2	4	5	6
	Employees	ds	ds	ds	ds	ds	ds	ds	ds	ds
	Payroll	ds	ds	ds	ds	ds	ds	ds	ds	ds
Marinas	Establishments	276	277	276	270	269	251	250	249	258
	Employees	2,680	2,652	2,514	2,390	2,401	2,237	2,199	2,332	2,439
	Payroll	80,216	85,315	78,890	80,631	82,958	71,777	72,737	79,840	84,427
Marine cargo handling	Establishments	56	61	62	63	71	38	64	64	67
	Employees	22,395	22,086	17,428	18,449	18,812	18,759	ds	ds	18,859
	Payroll	1,484,308	1,453,281	1,211,572	1,273,268	1,333,805	1,351,874	ds	ds	1,761,284
Navigational services to shipping	Establishments	39	40	39	41	45	35	36	37	38
	Employees	858	815	804	765	760	800	805	634	587
	Payroll	63,610	65,225	61,720	58,899	62,065	61,166	67,665	59,927	60,228
Port & harbor operations	Establishments	18	17	19	21	19	59	31	33	30
	Employees	443	256	345	435	508	ds	651	535	570
	Payroll	30,001	23,316	26,889	37,560	41,688	ds	52,401	33,599	40,887
Ship & boat building	Establishments	136	136	123	117	108	120	113	108	103
	Employees	9,250	11,630	10,483	9,720	9,165	12,681	12,651	9,814	11,379
	Payroll	433,846	477,300	460,239	448,338	434,449	544,819	537,438	534,787	583,717

¹ Census Bureau data for the Marine Economy section of this report are available only through 2015.

² The U.S. Commercial Fishing Location Quotient (CFLQ) is 1. A CFLQ greater than 1 indicates that more commercial fishing occurs in this state than the national average. A CFLQ less than 1 indicates that less commercial fishing occurs in this state than the national average.

³ ds = these data are suppressed.

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2016 Economic Impacts of the Oregon Seafood Industry (thousands of dollars)

	With Imports				Without Imports			
	#Jobs	Sales	Income	Value Added	#Jobs	Sales	Income	Value Added
Total Impacts	16,162	1,190,017	415,939	583,687	14,100	817,764	339,604	454,934
Commercial Harvesters	4,795	287,124	119,939	168,205	4,795	287,124	119,939	168,205
Seafood Processors & Dealers	1,522	144,852	55,632	72,687	1,431	136,197	52,308	68,344
Importers	979	302,502	48,482	92,216	0	0	0	0
Seafood Wholesalers & Distributors	572	76,670	26,009	34,885	399	53,458	18,135	24,323
Retail	8,293	378,870	165,878	215,695	7,475	340,985	149,223	194,063

Total Landings Revenue & Landings Revenue of Key Species/Species Groups (thousands of dollars)¹

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Total Revenue	97,298	103,042	106,959	106,378	148,354	128,222	179,215	158,080	113,990	151,707
Finfish & Other	47,589	56,912	52,750	58,730	76,718	72,329	81,445	78,214	60,860	64,925
Shellfish	49,709	46,130	54,210	47,648	71,636	55,893	97,770	79,866	53,130	86,782
Key Species										
Albacore tuna	9,468	10,666	10,191	12,425	18,766	15,168	16,085	11,023	9,212	12,502
Crab	38,208	29,168	42,413	32,757	44,696	29,189	71,208	48,149	11,935	55,737
Flatfish	7,930	9,163	8,468	6,861	6,779	7,315	9,854	8,651	9,765	10,716
Hake (whiting)	6,501	6,830	3,783	5,414	16,518	14,611	20,405	18,274	7,146	8,601
Oysters	1,847	2,748	4,506	3,317	1,869	1,661	1,798	1,774	NA	3,615
Pacific sardine	4,551	5,665	5,291	5,252	3,192	8,979	6,299	3,522	813	0
Rockfish	2,002	2,610	2,500	2,520	2,473	2,661	3,023	3,246	3,744	3,589
Sablefish	9,494	13,737	15,919	15,069	17,351	11,530	7,595	8,076	12,807	15,086
Salmon	4,647	4,166	3,546	7,698	6,737	6,950	12,422	20,115	11,864	8,311
Shrimp	9,488	14,056	6,994	11,313	24,901	24,848	24,430	29,605	40,634	25,245

Total Landings & Landings of Key Species/Species Groups (thousands of pounds)¹

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Total Landings	253,543	195,688	199,458	201,974	274,533	296,091	339,589	291,655	194,575	209,486
Finfish & Other	216,134	155,837	154,147	153,588	208,445	237,822	265,454	227,318	138,601	153,909
Shellfish	37,410	39,851	45,310	48,386	66,088	58,269	74,136	64,337	55,974	55,578
Key Species										
Albacore tuna	10,468	8,876	10,082	10,703	9,682	9,938	10,209	8,767	7,574	7,250
Crab	17,007	13,875	21,848	15,817	17,240	8,681	26,016	11,910	2,284	15,702
Flatfish	19,697	23,842	26,047	22,226	15,957	15,322	18,965	15,955	16,722	18,640
Hake (whiting)	81,481	55,511	53,466	57,017	142,092	102,651	160,098	161,589	88,728	98,003
Oysters	197	162	1,127	829	467	415	449	443	NA	743
Pacific sardine	90,037	49,298	45,902	44,743	23,479	91,459	57,022	16,938	4,688	2
Rockfish	2,905	3,820	4,207	4,533	3,819	3,918	4,745	5,293	6,628	6,324
Sablefish	5,349	6,514	7,219	6,269	5,074	4,739	3,840	3,293	5,002	5,502
Salmon	1,370	1,860	2,311	2,765	2,386	1,918	3,505	6,373	3,142	1,838
Shrimp	20,027	25,433	22,085	31,516	48,276	49,054	47,535	51,835	53,457	35,344

Average Annual Price of Key Species/Species Groups (dollars per pound)¹

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Albacore tuna	0.90	1.20	1.01	1.16	1.94	1.53	1.58	1.26	1.22	1.72
Crab	2.25	2.10	1.94	2.07	2.59	3.36	2.74	4.04	5.22	3.55
Flatfish	0.40	0.38	0.33	0.31	0.42	0.48	0.52	0.54	0.58	0.57
Hake (whiting)	0.08	0.12	0.07	0.09	0.12	0.14	0.13	0.11	0.08	0.09
Oysters	9.40	16.96	4.00	4.00	4.00	4.00	4.00	4.00	NA	4.87
Pacific sardine	0.05	0.11	0.12	0.12	0.14	0.10	0.11	0.21	0.17	0.18
Rockfish	0.69	0.68	0.59	0.56	0.65	0.68	0.64	0.61	0.56	0.57
Sablefish	1.78	2.11	2.21	2.40	3.42	2.43	1.98	2.45	2.56	2.74
Salmon	3.39	2.24	1.53	2.78	2.82	3.62	3.54	3.16	3.78	4.52
Shrimp	0.47	0.55	0.32	0.36	0.52	0.51	0.51	0.57	0.76	0.71

¹ NA = these data are confidential and therefore not disclosable.

2016 Economic Impacts of Oregon Recreational Fishing Expenditures (thousands of dollars)

		#Jobs	Sales	Income	Value Added
Trip Impacts by Fishing Mode	For-Hire	264	31,161	11,928	16,950
	Private Boat	394	37,694	14,070	22,495
	Shore	153	14,523	5,327	8,628
Total Durable Expenditures		2,237	213,562	100,612	144,005
Total State Economic Impacts		3,048	296,940	131,937	192,078

2016 Angler Trip & Durable Goods Expenditures (thousands of dollars)

Fishing Mode	Trip Expenditures	Equipment	Durable Goods Expenditures
For-Hire	19,024	Fishing Tackle	45,798
Private Boat	43,426	Other Equipment	25,522
Shore	15,352	Boat Expenses	77,351
Total	77,801	Vehicle Expenses	60,103
		Second Home Expenses	3,936
		Total Durable Expenditures	212,711
Total State Trip and Durable Goods Expenditures			290,512

Recreational Anglers by Residential Area (thousands of anglers)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Coastal	86	79	85	82	82	86	89	92	90	86
Non-Coastal	130	121	129	125	125	129	134	137	135	129
Out-of-State	15	14	15	15	15	15	16	16	16	15
Total Anglers	232	213	229	223	222	230	239	246	241	230

Recreational Fishing Effort by Mode (thousands of angler trips)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
For-Hire	61	48	55	51	51	58	64	68	71	63
Private	401	357	402	385	380	402	424	440	416	388
Shore	233	233	233	233	233	233	233	233	233	233
Total Trips	695	638	690	669	664	693	721	741	720	684

Harvest (H) & Release (R) of Key Species/Species Groups (thousands of fish)^{1,2}

		2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Baitfishes	H	221	221	221	223	221	220	220	221	221	220
	R	125	125	125	125	125	125	125	125	125	125
Flatfishes	H	22	20	16	14	15	17	18	15	17	18
	R	6	8	9	5	5	5	6	5	5	6
Greenlings	H	94	92	90	99	108	120	142	119	130	114
	R	67	70	72	82	88	85	90	74	85	84
Rockfishes	H	280	266	317	332	251	278	361	376	516	443
	R	22	30	36	44	34	33	42	42	75	56
Salmon ³	H	68	14	91	23	24	35	45	118	38	13
	R	NA									
Sculpins	H	15	16	16	16	16	15	14	12	13	13
	R	58	58	58	61	61	61	63	60	60	61
Sturgeon	H	12	12	12	12	12	12	12	12	12	12
	R	25	25	25	25	25	25	25	25	25	25
Surfperches	H	118	118	118	118	118	118	118	118	118	118
	R	39	39	39	39	39	39	39	39	39	39

¹ In this table, '<1' = 0-999 fish and '1' = 1,000-1,499 fish.² NA = not available.³ Salmon estimates exclude release mortality.

2015 Oregon State Economy (% of national total)^{1,3}

	#Non-Employer Firms	#Establishments	#Employees	Annual Payroll (\$ billions)	Employee Compensation (\$ billions)	Gross State Product (\$ billions)	Commercial Fishing Location Quotient ²
Totals	269,901 (1.1%)	112,393 (1.5%)	1,498,727 (1.2%)	71.01 (1.1%)	112.27 (1.2%)	216.52 (1.2%)	3.52

Seafood Sales & Processing - Non-Employer Firms (thousands of dollars)³

		2007	2008	2009	2010	2011	2012	2013	2014	2015
Seafood product prep. & packaging	Firms	ds	19	15	15	16	14	11	11	12
	Receipts	ds	957	466	510	467	346	319	484	1,088
Seafood sales, retail	Firms	11	16	12	15	16	11	ds	16	15
	Receipts	1,210	2,101	1,140	1,907	1,896	1,600	ds	1,036	841

Seafood Sales & Processing - Employer Establishments (thousands of dollars)³

		2007	2008	2009	2010	2011	2012	2013	2014	2015
Seafood product prep. & packaging	Establishments	22	23	20	21	22	18	19	20	20
	Employees	819	850	812	806	805	934	907	980	916
	Payroll	27,394	27,616	26,202	27,007	32,438	31,970	37,265	39,290	41,181
Seafood sales, wholesale	Establishments	18	18	19	22	27	21	19	22	24
	Employees	ds	ds	ds	ds	ds	180	189	192	196
	Payroll	ds	ds	ds	ds	ds	7,602	8,065	8,601	9,121
Seafood sales, retail	Establishments	23	21	23	21	20	18	20	23	25
	Employees	171	178	151	162	163	126	147	170	181
	Payroll	3,185	3,370	3,515	3,651	3,613	2,851	4,238	4,440	4,951

Transport, Support & Marine Operations - Employer Establishments (thousands of dollars)^{3,4}

		2007	2008	2009	2010	2011	2012	2013	2014	2015
Coastal & Great Lakes freight transportation	Establishments	13	8	9	8	8	8	7	8	8
	Employees	476	ds	ds	ds	ds	ds	ds	ds	437
	Payroll	25,206	ds	ds	ds	ds	ds	ds	ds	40,746
Deep sea freight transportation	Establishments	5	4	3	3	3	3	3	2	3
	Employees	ds	ds	ds						
	Payroll	ds	ds	ds						
Deep sea passenger transportation	Establishments	2	0	0	0	0	0	0	0	0
	Employees	ds	NA	NA	NA	NA	NA	NA	NA	NA
	Payroll	ds	NA	NA	NA	NA	NA	NA	NA	NA
Marinas	Establishments	38	37	33	30	33	32	34	34	36
	Employees	138	106	109	102	102	119	104	113	119
	Payroll	3,754	2,178	2,602	2,290	2,382	3,034	3,148	3,584	3,643
Marine cargo handling	Establishments	9	13	13	12	13	5	8	7	7
	Employees	ds	ds	ds						
	Payroll	ds	ds	ds						
Navigational services to shipping	Establishments	17	20	17	18	18	20	15	15	15
	Employees	183	200	189	144	152	176	81	67	74
	Payroll	11,331	11,808	10,154	9,577	9,592	12,219	6,534	3,958	3,998
Port & harbor operations	Establishments	2	1	1	3	3	10	5	5	5
	Employees	ds	ds	ds	ds	ds	90	ds	ds	49
	Payroll	ds	ds	ds	ds	ds	6,512	ds	ds	3,437
Ship & boat building	Establishments	40	41	35	34	34	33	32	30	29
	Employees	1,441	1,692	1,886	980	1,179	1,504	1,406	ds	1,506
	Payroll	47,950	74,583	90,446	42,004	55,068	77,718	79,913	ds	94,956

¹ Census Bureau data for the Marine Economy section of this report are available only through 2015.

² The U.S. Commercial Fishing Location Quotient (CFLQ) is 1. A CFLQ greater than 1 indicates that more commercial fishing occurs in this state than the national average. A CFLQ less than 1 indicates that less commercial fishing occurs in this state than the national average.

³ ds = these data are suppressed.

⁴ NA = not applicable.

Tables | Washington



2016 Economic Impacts of the Washington Seafood Industry (thousands of dollars)

	With Imports				Without Imports			
	#Jobs	Sales	Income	Value Added	#Jobs	Sales	Income	Value Added
Total Impacts	55,325	7,463,634	2,003,817	3,047,760	21,345	1,547,501	638,452	865,335
Commercial Harvesters	6,195	573,085	242,998	343,112	6,195	573,085	242,998	343,112
Seafood Processors & Dealers	14,355	1,528,504	574,083	759,711	2,340	249,115	93,564	123,818
Importers	13,057	4,035,021	646,689	1,230,051	0	0	0	0
Seafood Wholesalers & Distributors	2,317	333,504	111,737	152,447	765	110,120	36,895	50,337
Retail	19,401	993,521	428,309	562,439	12,046	615,181	264,996	348,069

Total Landings Revenue & Landings Revenue of Key Species/Species Groups (thousands of dollars)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Total Revenue	216,119	232,841	227,773	255,332	329,785	275,585	335,450	329,109	299,952	287,543
Finfish & Other	60,137	69,445	62,173	84,269	102,481	96,026	100,844	90,855	73,583	78,694
Shellfish	155,981	163,396	165,600	171,063	227,305	179,560	234,606	238,254	226,368	208,849
Key Species										
Clams	56,428	64,142	72,647	73,625	88,774	69,445	83,788	83,643	75,342	82,882
Crab	54,302	53,712	48,944	57,070	83,627	59,485	86,520	80,509	72,651	75,376
Hake (whiting)	7,121	7,249	2,334	4,105	7,183	5,882	7,452	5,431	2,563	4,509
Halibut	8,842	7,525	4,879	5,764	6,740	6,122	4,929	6,985	6,199	6,896
Mussels	3,820	5,293	4,851	4,318	4,740	6,065	9,253	6,830	7,704	6,452
Oysters	37,437	34,794	34,993	30,370	43,021	37,576	46,378	47,555	37,507	32,353
Sablefish	6,608	7,312	8,796	9,402	12,378	7,578	4,888	7,098	7,020	7,456
Salmon	22,026	23,376	22,003	40,622	42,434	28,398	42,376	39,174	28,235	26,866
Shrimp	3,746	5,380	4,139	5,677	7,140	6,986	8,664	19,704	33,152	11,786
Tuna, albacore	10,439	17,225	16,390	14,575	22,253	28,440	24,745	21,177	19,961	24,769

Total Landings & Landings of Key Species/Species Groups (thousands of pounds)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Total Landings	194,449	173,176	163,937	189,486	210,282	213,578	263,639	191,391	153,568	168,136
Finfish & Other	152,221	128,825	121,060	143,705	159,034	174,597	207,194	126,364	85,300	122,279
Shellfish	42,228	44,351	42,877	45,782	51,248	38,982	56,445	65,027	68,268	45,856
Key Species										
Clams	3,363	4,071	4,267	3,876	4,038	3,677	3,978	4,320	4,262	3,355
Crab	22,487	21,355	20,651	22,500	27,072	16,590	28,046	19,335	15,048	19,109
Hake (whiting)	91,272	67,159	36,378	58,900	73,494	38,524	58,696	49,654	32,977	77,808
Halibut	2,428	2,055	1,731	1,371	1,301	1,295	1,065	1,284	1,157	1,370
Mussels	475	593	568	589	547	559	734	579	600	2,790
Oysters	11,189	10,258	9,386	8,650	9,389	8,143	9,420	9,329	5,911	5,748
Sablefish	3,035	2,954	3,514	3,277	3,410	2,916	2,006	2,345	2,317	2,391
Salmon	21,938	17,641	31,821	28,086	38,706	19,839	49,050	28,256	21,654	16,211
Shrimp	4,455	7,355	7,775	10,153	10,193	10,009	14,259	31,441	42,423	14,855
Tuna, albacore	13,129	14,801	16,112	13,148	13,209	19,275	17,552	18,039	17,133	15,500

Average Annual Price of Key Species/Species Groups (dollars per pound)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Clams	16.78	15.76	17.03	18.99	21.98	18.89	21.06	19.36	17.68	24.70
Crab	2.41	2.52	2.37	2.54	3.09	3.59	3.08	4.16	4.83	3.94
Hake (whiting)	0.08	0.11	0.06	0.07	0.10	0.15	0.13	0.11	0.08	0.06
Halibut	3.64	3.66	2.82	4.20	5.18	4.73	4.63	5.44	5.36	5.03
Mussels	8.05	8.93	8.54	7.33	8.66	10.85	12.60	11.79	12.85	2.31
Oysters	3.35	3.39	3.73	3.51	4.58	4.61	4.92	5.10	6.34	5.63
Sablefish	2.18	2.48	2.50	2.87	3.63	2.60	2.44	3.03	3.03	3.12
Salmon	1.00	1.33	0.69	1.45	1.10	1.43	0.86	1.39	1.30	1.66
Shrimp	0.84	0.73	0.53	0.56	0.70	0.70	0.61	0.63	0.78	0.79
Tuna, albacore	0.80	1.16	1.02	1.11	1.68	1.48	1.41	1.17	1.17	1.60

2016 Economic Impacts of Washington Recreational Fishing Expenditures (thousands of dollars)

		#Jobs	Sales	Income	Value Added
Trip Impacts by Fishing Mode	For-Hire	242	35,333	13,478	20,196
	Private Boat	442	71,852	20,302	35,897
	Shore	206	28,890	9,153	15,626
Total Durable Expenditures		3,707	405,991	166,483	267,886
Total State Economic Impacts		4,597	542,066	209,416	339,605

2016 Angler Trip & Durable Goods Expenditures (thousands of dollars)

Fishing Mode	Trip Expenditures	Equipment	Durable Goods Expenditures
For-Hire	20,994	Fishing Tackle	52,763
Private Boat	58,847	Other Equipment	26,532
Shore	22,712	Boat Expenses	274,468
Total	102,554	Vehicle Expenses	24,608
		Second Home Expenses	0
		Total Durable Expenditures	378,370
Total State Trip and Durable Goods Expenditures			480,924

Recreational Anglers by Residential Area (thousands of anglers)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Coastal	217	191	307	222	248	248	268	250	253	172
Non-Coastal	26	22	30	25	27	27	28	28	28	21
Out-of-State	20	17	24	19	21	21	22	22	22	17
Total Anglers	262	230	361	266	296	295	318	300	303	210

Recreational Fishing Effort by Mode (thousands of angler trips)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
For-Hire	83	62	79	72	76	74	76	88	83	64
Private	616	520	1,031	652	770	769	860	766	784	431
Shore	513	513	513	513	513	513	513	513	513	513
Total Trips	1,212	1,095	1,623	1,237	1,359	1,356	1,449	1,367	1,380	1,008

Harvest (H) & Release (R) of Key Species/Species Groups (thousands of fish)^{1,4}

		2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Baitfishes	H	2,486	2,486	2,486	2,486	2,486	2,486	2,486	2,486	2,486	2,486
	R	126	126	126	126	126	126	126	126	126	126
Flatfishes	H	51	50	51	50	51	52	53	55	54	59
	R	40	40	42	41	41	41	42	42	42	42
Greenlings	H	24	24	26	35	46	46	44	45	42	56
	R	14	14	16	25	31	25	19	18	17	21
Rockfishes ²	H	222	179	198	208	229	253	268	298	322	345
	R	12	9	13	22	18	18	21	26	23	25
Salmon ³	H	97	34	16	73	80	65	83	163	123	33
	R	NA									
Sculpins	H	16	15	16	16	17	16	16	16	16	16
	R	91	91	91	91	91	91	91	91	91	91
Sharks & Skates	H	5	8	5	4	2	3	3	< 1	< 1	< 1
	R	0	0	0	0	0	0	0	5	5	3
Sturgeon ^{3,4}	H	NA									
	R	NA									
Surfperches	H	133	134	133	133	133	134	134	134	133	137
	R	121	121	121	121	121	121	121	121	121	123

¹ In this table, '<1' = 0-999 fish and '1' = 1,000-1,499 fish.

² This species may not be equivalent to species with similar names listed in the commercial tables.

³ Data on sturgeon harvest not available for 2007-2016; Salmon harvest estimates exclude release mortality.

⁴ NA = not available.

2015 Washington State Economy (% of national total)^{1,3}

	#Non-Employer Firms	#Establishments	#Employees	Annual Payroll (\$ billions)	Employee Compensation (\$ billions)	Gross State Product (\$ billions)	Commercial Fishing Location Quotient ²
Totals	430,670 (1.8%)	182,913 (2.4%)	2,602,408 (2.1%)	149.26 (2.4%)	235.74 (2.4%)	446.42 (2.5%)	ds

Seafood Sales & Processing - Non-Employer Firms (thousands of dollars)

		2007	2008	2009	2010	2011	2012	2013	2014	2015
Seafood product prep. & packaging	Firms	63	44	47	39	37	42	42	51	59
	Receipts	4,698	5,167	5,022	4,228	3,859	4,377	4,094	5,270	3,555
Seafood sales, retail	Firms	32	33	42	30	34	42	41	36	35
	Receipts	1,458	1,807	2,462	1,273	2,370	1,871	3,017	2,559	2,071

Seafood Sales & Processing - Employer Establishments (thousands of dollars)

		2007	2008	2009	2010	2011	2012	2013	2014	2015
Seafood product prep. & packaging	Establishments	98	96	86	93	90	90	86	90	85
	Employees	5,249	5,893	4,860	5,296	5,387	6,118	6,224	5,945	5,753
	Payroll	275,662	306,213	232,543	254,592	293,112	326,827	315,379	329,739	325,389
Seafood sales, wholesale	Establishments	127	107	108	105	107	101	116	119	118
	Employees	1,086	996	1,103	970	911	1,085	999	1,098	1,077
	Payroll	46,085	48,251	48,044	45,871	45,543	51,508	49,683	52,761	54,339
Seafood sales, retail	Establishments	50	44	43	47	44	40	35	33	39
	Employees	244	247	239	282	253	256	266	276	279
	Payroll	8,001	7,947	8,324	9,098	7,786	8,210	9,069	9,938	10,865

Transport, Support & Marine Operations - Employer Establishments (thousands of dollars)³

		2007	2008	2009	2010	2011	2012	2013	2014	2015
Coastal & Great Lakes freight transportation	Establishments	37	24	24	30	28	28	35	38	35
	Employees	1,903	2,222	2,245	1,731	1,684	1,557	2,186	2,020	1,879
	Payroll	136,543	168,832	168,783	130,398	132,068	126,401	170,003	163,075	162,635
Deep sea freight transportation	Establishments	30	21	25	20	14	12	8	8	8
	Employees	227	263	305	209	ds	ds	200	204	194
	Payroll	19,692	24,843	28,897	24,711	ds	14,014	14,892	14,991	13,981
Deep sea passenger transportation	Establishments	3	4	5	4	2	2	5	4	6
	Employees	ds	1,412	1,277						
	Payroll	ds	54,346	73,134						
Marinas	Establishments	114	116	110	117	114	100	110	106	102
	Employees	485	573	570	560	517	479	529	530	588
	Payroll	15,623	18,931	18,811	18,783	18,364	18,038	18,914	20,348	21,944
Marine cargo handling	Establishments	28	25	27	26	32	13	30	29	30
	Employees	4,913	4,821	2,953	ds	3,910	ds	ds	ds	3,966
	Payroll	334,601	334,193	239,490	ds	323,286	ds	ds	ds	424,469
Navigational services to shipping	Establishments	61	76	69	79	78	72	73	71	68
	Employees	950	1,213	1,168	1,225	1,207	ds	ds	1,297	1,176
	Payroll	72,912	100,542	102,934	102,766	94,781	ds	ds	101,251	88,363
Port & harbor operations	Establishments	6	11	11	9	9	48	28	27	23
	Employees	129	111	118	74	75	1,509	181	304	250
	Payroll	4,631	6,359	6,437	4,662	4,937	85,042	11,894	16,449	14,278
Ship & boat building	Establishments	167	169	162	152	135	141	138	131	143
	Employees	7,742	8,067	6,710	5,406	5,232	5,294	5,387	5,060	4,653
	Payroll	354,084	402,253	312,240	284,759	276,402	290,400	273,825	262,730	265,732

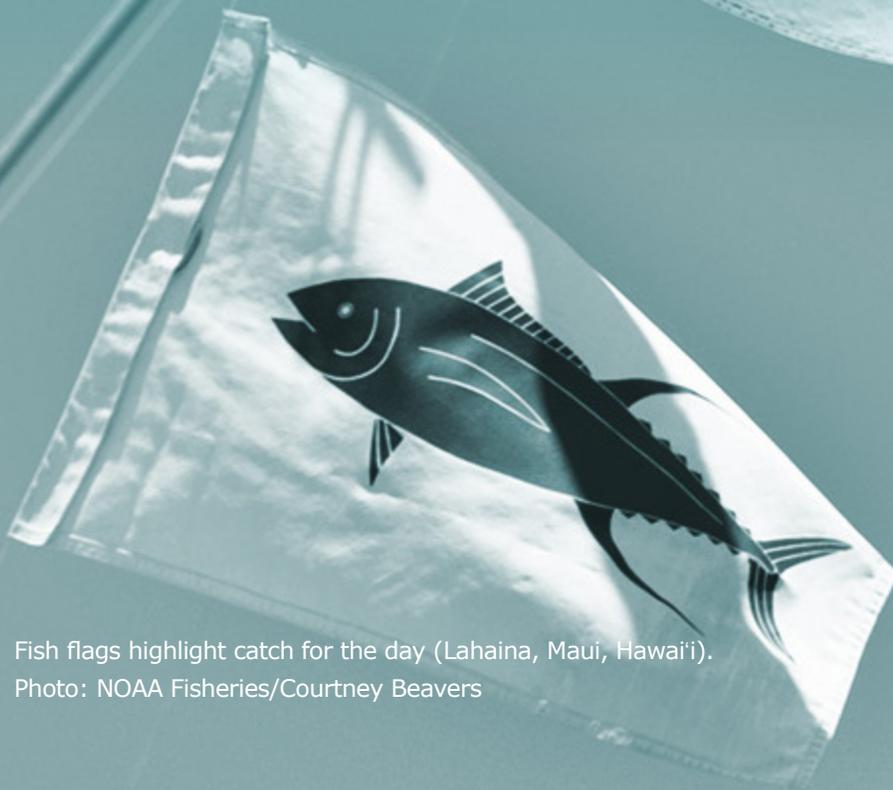
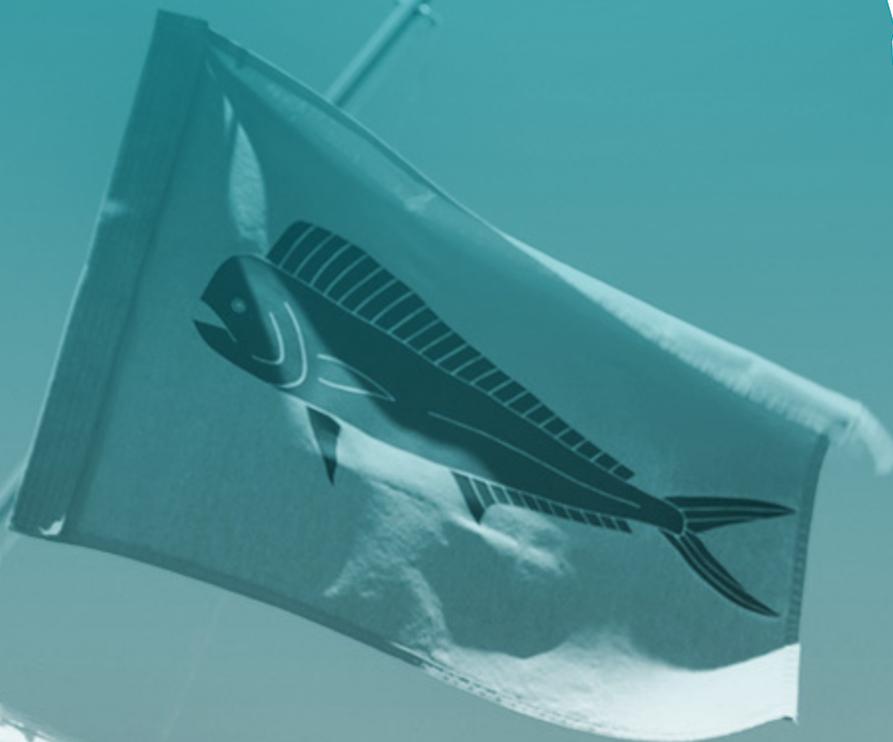
¹ Census Bureau data for the Marine Economy section of this report are available only through 2015.

² The U.S. Commercial Fishing Location Quotient (CFLQ) is 1. A CFLQ greater than 1 indicates that more commercial fishing occurs in this state than the national average. A CFLQ less than 1 indicates that less commercial fishing occurs in this state than the national average.

³ ds = these data are suppressed.

Western Pacific Region

- Hawai'i



Fish flags highlight catch for the day (Lahaina, Maui, Hawai'i).
Photo: NOAA Fisheries/Courtney Beavers

MANAGEMENT CONTEXT

The U.S. Pacific Islands Region includes the state of Hawai'i; the territories of American Samoa and Guam; the Commonwealth of the Northern Mariana Islands (CNMI); and the Pacific Remote Island Areas. Federal fisheries in this region are managed by the Western Pacific Fishery Management Council (WPFMC) and NOAA Fisheries under five fishery ecosystem plans (FEPs). These plans focus on place-based rather than species- or fishery-based management.

Western Pacific Fishery Ecosystem Plans

- American Samoa
- Hawai'i
- Mariana Archipelago (Guam and the CNMI)
- Pacific Remote Island Areas
- Western Pacific Pelagics

Because fishery data are limited in most of these areas, only information for the Hawai'i and Western Pacific Pelagics fisheries is reported here. No catch share programs operate in this region.

Hawai'i FEP: NOAA Fisheries, the WPFMC, and the State of Hawai'i collaborate to manage fisheries across the Hawai'i Archipelago. The major fisheries in Hawai'i include trolling for pelagic species such as tuna, marlin, wahoo and mahimahi; deepwater hook-and-line bottom fishing; and various forms of net fishing that target nearshore pelagic and reef fish species. Under this FEP, the Hancock Seamount groundfish complex is currently overfished. This fishery has been closed since 1986.

Western Pacific Pelagics FEP: The management species covered under this FEP include tunas, billfishes, sharks, squids, and an assortment of other species. These species include mahimahi, wahoo, moonfish, and pomfret caught by the Hawai'i longline fishery as well as smaller boats that use diverse gear including trolling, handline, and traditional fishing methods. Of these species, bigeye tuna, Pacific bluefin tuna, swordfish, and the Central Western Pacific striped marlin stock are considered subject to overfishing. The Central Western Pacific striped marlin stock and Pacific bluefin tuna stock are also listed as overfished.

In addition to management by the WPFMC and NOAA Fisheries, pelagic fish, such as bigeye and yellowfin tunas, are managed by two regional fishery management organizations (RFMOs). The Western and Central Pacific Fisheries Commission (WCPFC) has authority to manage pelagic fisheries in the Western and Central Pacific Ocean, while the Inter-American Tropical Tuna Commission (IATTC) manages pelagic fisheries in the Eastern Pacific Ocean. Fish species and fisheries under the purview of both RFMOs migrate across national boundaries and between RFMO areas, requiring coordinated management. Since 2009, the annual bigeye tuna catch limit has been recommended by the WCPFC and implemented by NOAA Fisheries for the U.S. longline fleet in the Western and Central Pacific. The IATTC establishes the harvest limit for bigeye tuna for U.S. longline vessels longer than 24 meters in the Eastern Tropical Pacific.

Policy Updates

The Hawai'i-based pelagic longline fleet accounts for most of the U.S. longline catch of bigeye tuna in the Western and Central Pacific Ocean. Under the authority of the WCPFC Implementation Act, the 2016 bigeye catch limit for U.S. longline vessels was set at 3,554 metric tons, less any overage from 2015. Under this same rule, U.S. purse seine vessels fishing in the convention area between the latitudes of 20 degrees north and 20 degrees south were required to have a WCPFC observer on board unless the fishing took place entirely within a single nation's jurisdiction outside the United States. Although U.S. purse seine vessels are exempt from this requirement on trips in which fishing occurs in the waters of a single foreign nation, those foreign nations generally require U.S. purse seine vessels to carry observers if fishing in their waters. The rule also established restrictions on U.S. purse seine vessels' use of fish aggregating devices (FADs).

On February 3, 2016, NOAA Fisheries published a final rule allowing large federally permitted U.S. longline vessels to fish in certain areas of the American Samoa Large Vessel Prohibited Area (LVPA). The LVPA was established in 2002 to prevent the potential for gear conflicts and catch competition between large and small fishing vessels. However, by 2016 the American Samoa

pelagic fisheries had changed so that the conditions that led to the establishment of the LVPA appeared no longer to exist. The final rule allowed fishing in an additional 16,817 square nautical miles of federal waters. On March 20, 2017, however, a U.S. federal judge in *American Samoa v. National Marine Fisheries Service*, 16-cv-00095 (D.Haw) issued an order vacating the regulations at 50 CFR 665.818(b), thus barring large federally permitted U.S. longline vessels from fishing within the LVPA.

COMMERCIAL FISHERIES

In this report, commercial fisheries refer to fishing operations that sell their catch for profit. The term does not include subsistence fishermen or saltwater anglers who fish for sport. It also excludes the for-hire sector, which earns its revenue from selling recreational fishing trips to saltwater anglers. The commercial fisheries section reports on economic impacts, landings revenue, landings, and ex-vessel prices of key species/species groups.

Key Western Pacific Commercial Species

- Lobsters
- Mahimahi
- Marlin
- Moonfish
- Pomfret
- Scad
- Snappers
- Swordfish
- Tunas
- Wahoo

Economic Impacts

The premise behind economic impact modeling is that every dollar spent in a regional economy (direct impact) is either saved or re-spent on additional goods or services. If those dollars are re-spent on other goods and services in the regional economy, this spending generates additional economic activity in the region.

Four different measures are commonly used to show how commercial fisheries landings affect the economy in a region (state or nationwide): sales, income, value-added, and employment. The term sales refers to the gross value of all sales by regional businesses affected by an activity, such as commercial fishing. The category includes both the direct sales of fish landed and sales

made between businesses and households resulting from the original sale. Income includes personal income (wages and salaries) and proprietors' income (income from self-employment). Value-added is the contribution made to the gross domestic product in a region.

Employment is specified on the basis of full-time and part-time jobs supported directly or indirectly by the sales of seafood or purchases of inputs to commercial fishing. The first three measures are calculated in terms of dollars, whereas employment impacts are measured in numbers of jobs. Note that these categories are not additive. The United States seafood industry is defined here as the commercial fishing sector, seafood processors and dealers, seafood wholesalers and distributors, importers, and seafood retailers.¹

This report provides estimates of total economic impacts for the nation and for each of the 23 coastal states. Total economic impacts for each state and the nation represent the sum of direct impacts; indirect impacts (in this case, the impact from suppliers to the seafood industry); and induced impacts (spending by employees on personal and household expenditures, where employees of both the seafood industry and its full supply chain are included). That is, the total economic impact estimates reported here measure jobs, sales, value-added, and income impacts from the seafood industry as well as the economic activity generated throughout each region's broader economy from this industry.

In 2016, the commercial fishing and seafood industry in Hawai'i generated \$867.1 million in sales impacts, \$269.3 million in income impacts, \$391.8 million in value-added impacts, and 9,900 full-and part-time jobs. The retail sector generated the largest employment impacts across sectors (4,100 jobs). The importers sector generated the largest sales impacts (\$318.4 million), while the retail sector generated the largest income impacts (\$100.7 million) and the largest value-added impacts (\$131.2 million).

Landings Trends

Hawai'i recorded its second highest commercial fisheries landings revenue (both nominally and after adjusting for inflation) on record in 2016 (\$118.1 million), only slightly bested by 2012 landings revenue. Landings

¹ The NMFS Commercial Fishing Industry Input/Output Model was used to generate the impact estimates (see NMFS Commercial Fishing & Seafood Industry Input/Output Model, available at www.st.nmfs.noaa.gov/documents/commercial_seafood_impacts_2007-2009.pdf).

revenue increased (up \$14.7 million or 14%) from 2015 to 2016 largely due to the increase in tuna landings revenue (up \$6.9 million or 8%) but with broad gains in landings revenue across most key species/species groups. Mahimahi, marlins, scads, snappers and wahoo were all up \$1 million or more during this period. From 2015 to 2016, yellowfin tuna landings revenue increased \$5 million while bigeye tuna landings revenue increased \$1.6 million. The deep-set longline fishery, which set a record number of hooks (51.1 million hooks) in 2016, accounted for most of this increase.²

In recent years, Hawai'i's landings and landings revenue trends largely reflect the growth of the tuna fishery. From 2007 to 2016, bigeye tuna dominated Hawai'i's landings revenue, accounting for 55% or more of state landings revenue. Overall, bigeye tuna landings increased 37% during this period, driving landings revenue up 72% (51% in real terms, after adjusting for inflation). Yellowfin tuna on average accounted for 10% of state landings revenue from 2007 to 2016, an increase in landings (up 44%) that coupled with significantly higher prices (up 36% nominally, 19% after adjusting for inflation) led to an almost doubling of yellowfin landings revenue (up 94% nominally, 72% in real terms). Overall, Hawai'i accounted for 57% of U.S. tuna landings revenue in 2016, slightly higher than the average annual rate for the 2007 to 2016 period (54%).

Landings Revenue

In 2016, landings revenue totaled about \$118.1 million, a 56% increase from 2007 (a 36% increase in real terms after adjusting for inflation) and a 14% increase from 2015. Finfish landings revenue accounted for more than 99% of all landings revenue in the region. In 2016, tunas (\$88.5 million), swordfish (\$4.8 million), and mahimahi (dolphin) (\$4.5 million) dominated landings revenue.

From 2007 to 2016, pomfret (140%, 109% in real terms), marlin (100%, 75% in real terms), and tunas (73%, 51% in real terms) had the largest revenue increases, while lobsters (-69%, -73% in real terms) and swordfish (-38%, -46% in real terms) had the largest revenue decreases. From 2015 to 2016, scad (989%), snappers (102%), and wahoo (41%) had the largest revenue increases. There

were no revenue decreases from 2015 to 2016.

Commercial Revenue: Largest Increases

From 2007:

- Pomfret (140%, 109% in real terms)
- Marlin (100%, 75% in real terms)
- Tunas (73%, 51% in real terms)

From 2015:

- Scad (989%)
- Snappers (102%)
- Wahoo (41%)

Commercial Revenue: Largest Decreases

From 2007:

- Lobsters (-69%, -73% in real terms)
- Swordfish (-38%, -46% in real terms)

From 2015:

There were no revenue decreases from 2015 to 2016.

Commercial Landings: Largest Increases

From 2007:

- Pomfret (97%)
- Marlin (69%)
- Wahoo (60%)

From 2015:

- Scad (923%)
- Snappers (113%)
- Wahoo (15%)

Commercial Landings: Largest Decreases

From 2007:

- Lobsters (-58%)
- Swordfish (-55%)
- Scad (-20%)

From 2015:

- Swordfish (-20%)
- Pomfret (-13%)
- Marlin (-11%)

Landings

In 2016, Western Pacific Region commercial fishermen landed about 35.1 million pounds of finfish and shellfish in

² Stock Assessment and Fishery Evaluation Report Pacific Island Pelagic Fisheries 2016.

the state of Hawai'i. This represents a 21% increase from 2007 and a 1% increase from 2015. Tunas contributed the most to landings, accounting for 67% of total landings.

From 2007 to 2016, pomfret (97%), marlin (69%), and wahoo (60%) had the largest landings increases, while lobsters (-58%), swordfish (-55%), and scad (-20%) had the largest landings decreases. From 2015 to 2016, scad (923%), snappers (113%), and wahoo (15%) had the largest landings increases, while swordfish (-20%), pomfret (-13%), and marlin (-11%) had the largest landings decreases.

Prices

In 2016, lobsters (\$8.56 per pound) received the highest ex-vessel price in Hawai'i. Landings of marlin (\$1.75 per pound) had the lowest ex-vessel price. From 2007 to 2016, mahimahi (dolphin) (51%, 32% in real terms), swordfish (38%, 21% in real terms), and snappers (35%, 18% in real terms) had the largest price increases, while lobsters (-28%, -37% in real terms) and wahoo (-2%, -14% in real terms) had the largest price decreases. From 2015 to 2016, marlin (52%), pomfret (40%), and swordfish (30%) had the largest price increases, while snappers (-5%) had the largest price decrease.

RECREATIONAL FISHERIES

In this report, recreational fishing refers to fishing for fun rather than to resell fish (commercial fishing) or for subsistence. The recreational fisheries section reports on economic impacts and expenditures, angler participation, trips, and catch of key species/species groups.

Key Western Pacific Recreational Species

- Blue marlin
- Dolphinfish
- Goatfishes
- Trevallies and other jacks
- Bigeye and mackerel scad
- Skipjack tuna
- Smallmouth bonefish
- Snappers
- Wahoo
- Yellowfin tuna

Economic Impacts and Expenditures

The contribution of recreational fishing activities³ in the United States is reported in terms of economic impacts from angler expenditures. Total annual trip expenditures are estimated by multiplying mean trip expenditures by the estimated number of adult trips in each trip mode (for-hire, private boat, and shore). Total annual durable expenditures are estimated by multiplying mean durable expenditures by the estimated annual number of adult participants in a given state.

Four different measures are commonly used to show how angler expenditures affect the economy in a region (state or nationwide): sales, income, value-added, and employment. The term sales refers to the gross value of all sales by regional businesses affected by an activity, such as recreational fishing. The category includes both the direct sales made by the angler and sales made between businesses and households resulting from that original sale by the angler. Income includes personal income (wages and salaries) and proprietors' income (income from self-employment). Value-added is the contribution made to the gross domestic product in a region. Employment is specified on the basis of full-time and part-time jobs supported directly or indirectly by the purchases made by anglers. The first three measures are calculated in terms of dollars, whereas employment impacts are measured in number of jobs. Note that these categories are not additive. NOAA Fisheries uses a regional impact modeling software, called IMPLAN, to estimate these four types of impacts.

Note that no information is available for durable goods expenditures related to recreational fishing in Hawai'i.

In 2016, economic impacts from recreational fishing activities in Hawai'i generated 854 jobs, \$105.4 million in sales, \$33.3 million in income, and \$54.7 million in value-added impacts. Of the three fishing trip modes, trips in the for-hire fishing trips sector had the greatest economic impact, accounting for 45% of employment impacts. Expenditures for fishing trips in Hawai'i in 2016 totaled over \$82 million. A large portion of these trip expenditures came from trips in the shore (37%) and for-hire (35%) sectors.

³ Trip expenditure estimates were generated from the 2011 National Marine Recreational Fishing Expenditure Survey. Durable good expenditure impacts were generated from the 2014 National Marine Recreational Fishing Expenditure Survey (see <http://www.st.nmfs.noaa.gov/economics/fisheries/recreational/Marine-Angler-Durable-Expenditures/2014-durable-expenditures-survey>). Economic impacts from recreational fishing activities were generated using the NMFS Recreational Economic Impact Model (see The Economic Contribution of Marine Angler Expenditures in the United States, 2011, available at <http://www.st.nmfs.noaa.gov/economics/publications/marine-angler-expenditures/marine-angler-2011>).

Fishing Trips

In 2016, recreational fishermen took 1 million saltwater fishing trips in the state of Hawai'i. This number represented a 60% decrease from 2007 and a 28% decrease from 2015. Of all fishing trips, 77% were taken from the shore sector.

Participation

Participation estimates for Hawai'i are not available after 2006.

Recreational Catch: Largest Increases

From 2007:

- Smallmouth bonefish (7%)

From 2015:

- Snappers (4%)

Recreational Catch: Largest Decreases

From 2007:

- Yellowfin tuna (-69%)
- Dolphinfish (mahimahi) (-68%)
- Skipjack tuna (-61%)

From 2015:

- Goatfishes (-75%)
- Yellowfin tuna (-71%)
- Skipjack tuna (-67%)

Harvest and Release

Of Hawai'i's key species and species groups, scads (bigeye and mackerel) (693,000 fish), goatfishes (261,000 fish), and jacks (trevallys and other jacks) (234,000 fish) were most frequently caught by recreational fishermen. From 2007 to 2016 smallmouth bonefish (7%) had the largest increase in catch, while yellowfin tuna (-69%), dolphinfish (mahimahi) (-68%), and skipjack tuna (-61%) had the largest decreases. From 2015 to 2016, snappers (4%) had the largest increase in catch, while goatfishes (-75%), yellowfin tuna (-71%), and skipjack tuna (-67%) had the largest decreases.

MARINE ECONOMY

For this report, the marine economy refers to the

economic activity generated by fishing and marine-related industries in a coastal state. The state marine economy consists of two industry sectors: 1) seafood sales and processing (employer establishments and non-employer firms); and 2) transport, support, and marine operations (employer establishments). These sectors include several different marine-related industries.^{4,5}

To measure the size of the commercial fishing sector in a state's economy relative to the size of the commercial fishing sector in the national economy⁶, researchers use an index called the Commercial Fishing Location Quotient (CFLQ). The CFLQ is calculated as the ratio of the percentage of regional employment in the commercial fishing sector relative to the percentage of national employment in the commercial fishing sector. The U.S. CFLQ is 1. If a state CFLQ is less than 1, then less commercial fishing occurs in this state than the national average. If a state CFLQ is greater than 1, then more commercial fishing occurs in this state than the national average. The Bureau of Labor Statistics did not disclose CFLQ data for Hawai'i for 2015.

In 2015, 31,915 employer establishments operated throughout the entire Hawai'ian economy (including marine- and non-marine-related establishments). These establishments employed about 524,000 workers and had a total annual payroll of \$22.1 billion. The gross state product of Hawai'i was approximately \$81 billion in 2015.

Seafood Sales and Processing

Seafood Product Preparation and Packaging:

In 2015, Hawai'i had 12 non-employer firms in the seafood product preparation and packaging sector (a 20% increase from 2007). Annual receipts for these firms totaled about \$1.3 million (a 10% increase in real terms from 2007). There were two employer firms in the seafood product preparation and packaging sector (a 100% increase from 2007). The Census Bureau suppressed data on employment and annual payroll for this sector in Hawai'i.

Seafood Sales, Retail: In 2015, there were 39 non-employer firms engaged in retail sales of seafood in the state of Hawai'i (a 5% decrease from 2007). Annual receipts for these firms totaled about \$4.1 million (an

⁴ Unless otherwise stated, data are from the U.S. Census Bureau, <http://census.gov/> (accessed September 26, 2017).

⁵ U.S. Bureau of Economic Analysis, "Table 1.1.5 Gross Domestic Product" and "Table SA6N Compensation of Employees by NAICS Industry," http://www.bea.gov/iTable/index_nipa.cfm (accessed September 26, 2017).

⁶ U.S. Bureau of Labor Statistics, "Location Quotient Calculator," https://data.bls.gov/cew/doc/info/location_quotients.htm (accessed September 26, 2017).

18% decrease in real terms from 2007). There were 25 employer firms in the retail seafood sales sector (this remained unchanged from 2007). These establishments employed 293 workers (a 25% decrease from 2007) and had a total annual payroll of \$7.4 million (a 9% decrease in real terms from 2007).

Seafood Sales, Wholesale: There were 30 employer firms in the wholesale seafood sales sector (a 17% decrease from 2007). These establishments employed 639 workers (a 16% increase from 2007) and had a total annual payroll of \$24.5 million (a 14% increase in real terms from 2007).

Transport, Support, and Marine Operations

Data for the transport, support, and marine operations sector of Hawai'i's economy were largely suppressed for confidentiality reasons. These sectors, however, are economically important in the regional economy. For example, the marine cargo handling sector accounted for \$83.4 million in payroll in 2015 in Hawai'i.

Tables | Hawai'i



2016 Economic Impacts of the Hawai'i Seafood Industry (thousands of dollars)

	With Imports				Without Imports			
	#Jobs	Sales	Income	Value Added	#Jobs	Sales	Income	Value Added
Total Impacts	9,916	867,111	269,335	391,841	7,790	469,772	186,129	252,787
Commercial Harvesters	3,691	205,769	75,140	108,000	3,691	205,769	75,140	108,000
Seafood Processors & Dealers	580	56,661	22,429	28,927	427	41,737	16,521	21,308
Importers	1,030	318,378	51,026	97,056	0	0	0	0
Seafood Wholesalers & Distributors	540	57,050	20,009	26,618	324	34,210	11,998	15,961
Retail	4,075	229,252	100,730	131,241	3,348	188,055	82,469	107,518

Total Landings Revenue & Landings Revenue of Key Species/Species Groups (thousands of dollars)¹

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Total Revenue	75,690	84,877	71,202	84,044	91,565	112,300	107,979	101,249	103,399	118,134
Finfish & Other	75,426	84,556	70,856	83,700	91,274	111,865	107,413	100,754	103,341	117,832
Shellfish	264	321	347	343	291	435	567	495	58	302
Key Species										
Lobsters	93	120	136	117	104	98	95	105	NA	28
Mahimahi (dolphin)	3,483	3,174	2,853	3,303	4,314	5,309	4,130	4,412	3,427	4,512
Marlin	2,028	2,072	2,142	1,756	2,375	2,888	2,802	3,197	3,015	4,064
Moonfish (opah)	2,171	2,198	2,409	2,591	2,853	3,163	3,203	2,910	3,151	NA
Pomfret	1,461	1,662	1,381	1,549	1,449	2,097	2,576	2,466	2,874	3,502
Scad	1,094	889	1,198	1,251	964	1,181	1,147	1,128	108	1,173
Snappers	1,690	1,715	1,860	1,681	1,415	1,738	2,003	2,223	1,124	2,272
Swordfish	7,730	7,177	7,336	7,303	6,669	6,693	4,493	5,405	4,629	4,813
Tunas	51,171	60,863	47,710	59,775	66,628	83,298	81,819	73,657	81,576	88,467
Wahoo	2,085	2,225	1,673	1,746	1,806	2,330	2,375	2,800	2,328	3,279

Total Landings & Landings of Key Species/Species Groups (thousands of pounds)¹

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Total Landings	28,934	30,652	26,906	28,069	29,289	31,048	32,447	33,474	34,623	35,051
Finfish & Other	28,890	30,599	26,849	28,007	29,240	30,968	32,346	33,387	34,612	34,999
Shellfish	44	52	57	62	49	79	101	86	11	52
Key Species										
Lobsters	8	10	11	9	10	8	9	10	NA	3
Mahimahi (dolphin)	1,388	1,250	1,287	1,518	1,423	1,746	1,515	1,689	1,132	1,193
Marlin	1,375	1,952	1,677	1,221	1,826	1,459	1,935	2,318	2,616	2,327
Moonfish (opah)	1,226	1,313	1,884	1,824	1,564	1,549	2,072	2,004	2,067	NA
Pomfret	593	671	627	593	427	731	1,142	1,243	1,339	1,166
Scad	461	318	405	460	323	383	361	356	36	368
Snappers	381	378	391	342	269	308	357	369	178	380
Swordfish	3,643	3,835	3,881	3,153	2,592	2,381	1,674	2,480	2,044	1,640
Tunas	17,594	18,295	14,594	16,706	18,519	20,147	20,900	20,296	22,932	23,507
Wahoo	715	849	605	600	564	652	744	1,056	993	1,144

Average Annual Price of Key Species/Species Groups (dollars per pound)¹

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Lobsters	11.84	12.14	12.37	12.36	10.39	11.84	10.71	10.21	NA	8.56
Mahimahi (dolphin)	2.51	2.54	2.22	2.18	3.03	3.04	2.73	2.61	3.03	3.78
Marlin	1.47	1.06	1.28	1.44	1.30	1.98	1.45	1.38	1.15	1.75
Moonfish (opah)	1.77	1.67	1.28	1.42	1.82	2.04	1.55	1.45	1.52	NA
Pomfret	2.46	2.48	2.20	2.61	3.39	2.87	2.25	1.98	2.15	3.00
Scad	2.37	2.80	2.95	2.72	2.98	3.08	3.18	3.17	2.99	3.19
Snappers	4.44	4.54	4.76	4.92	5.26	5.65	5.60	6.03	6.31	5.98
Swordfish	2.12	1.87	1.89	2.32	2.57	2.81	2.68	2.18	2.26	2.93
Tunas	2.91	3.33	3.27	3.58	3.60	4.13	3.91	3.63	3.56	3.76
Wahoo	2.92	2.62	2.77	2.91	3.20	3.57	3.19	2.65	2.34	2.87

¹ NA = these data are confidential and therefore not disclosable.

2016 Economic Impacts of Hawai'i Recreational Fishing Expenditures (thousands of dollars)¹

		#Jobs	Sales	Income	Value Added
Trip Impacts by Fishing Mode	For-Hire	384	45,734	16,617	26,852
	Private Boat	157	24,579	6,212	10,309
	Shore	313	35,088	10,427	17,575
Total Durable Expenditures		NA	NA	NA	NA
Total State Economic Impacts		854	105,401	33,256	54,736

2016 Angler Trip & Durable Goods Expenditures (thousands of dollars)¹

Fishing Mode	Trip Expenditures	Equipment	Durable Goods Expenditures
For-Hire	29,411	Fishing Tackle	NA
Private Boat	22,508	Other Equipment	NA
Shore	30,942	Boat Expenses	NA
Total	82,862	Vehicle Expenses	NA
		Second Home Expenses	NA
		Total Durable Expenditures	NA
Total State Trip and Durable Goods Expenditures			82,862

Recreational Anglers by Residential Area (thousands of anglers)^{2, 3}

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Coastal										
Non-Coastal										
Out-of-State										
Total Anglers										

Recreational Fishing Effort by Mode (thousands of angler trips)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Private	475	564	441	484	224	325	297	324	273	235
Shore	2,102	1,966	1,722	1,907	1,158	1,195	1,216	1,051	1,158	790
Total Trips	2,577	2,531	2,163	2,390	1,382	1,519	1,513	1,374	1,431	1,024

Harvest (H) & Release (R) of Key Species/Species Groups (thousands of fish)⁴

		2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Blue marlin	H	2	11	3	1	2	3	4	3	5	2
	R	< 1	0	< 1	0	0	0	0	< 1	0	0
Dolphinfish (mahimahi)	H	136	184	103	164	63	163	94	92	78	44
	R	< 1	0	0	0	0	0	0	< 1	0	< 1
Goatfishes ⁵	H	298	468	712	270	173	158	873	537	1,052	246
	R	9	6	7	18	13	13	3	22	15	16
Jacks (trevallys and other jacks) ⁶	H	169	277	123	140	99	110	144	156	170	112
	R	130	120	85	126	59	129	126	263	319	122
Scads (bigeye and mackerel)	H	1,089	402	1,102	840	662	608	889	899	1,245	690
	R	0	0	0	0	0	0	2	0	< 1	4
Skipjack tuna	H	228	568	230	289	125	197	380	199	268	88
	R	5	2	0	0	< 1	0	0	0	< 1	2
Smallmouth bonefish	H	20	50	37	55	13	27	23	29	26	26
	R	13	4	2	13	2	8	10	20	17	9
Snappers ⁷	H	104	138	147	340	113	195	152	220	119	119
	R	40	7	24	25	14	15	10	3	9	14
Wahoo	H	57	78	61	41	15	32	37	43	55	45
	R	< 1	0	0	0	0	0	0	< 1	< 1	< 1
Yellowfin tuna	H	273	461	198	302	141	182	150	220	292	85
	R	2	0	1	1	0	0	0	< 1	1	< 1

¹ NA = not available.

² Participation (number of anglers) data are not available for 2007 through 2016.

³ Data are not available because all Hawai'i residents are considered coastal county residents.

⁴ In this table, '<1' = 0-999 fish and '1' = 1,000-1,499 fish.

⁵ Goatfishes include yellowstripe, yellowfin, pfulgers, bandtail, doublebar, diespot, whitesaddle, manybar, blue and 'Goatfish family/genus'.

⁶ Trevallys & other jacks includes bluefin trevally, giant trevally, bigeye trevally, black trevally, African pompano, greater amberjack, island jack, and other species in the jack family.

⁷ Snappers include bluestip, blacktail, ruby, longtailed, pink, VonSiebolds, Bingham, green jobfish, ironjaw and smalltooth jobfish.

2015 Hawai'i State Economy (% of national total)^{1,3}

	#Non-Employer Firms	#Establishments	#Employees	Annual Payroll (\$ billions)	Employee Compensation (\$ billions)	Gross State Product (\$ billions)	Commercial Fishing Location Quotient ²
Totals	102,544 (0.4%)	31,915 (0.4%)	523,677 (0.4%)	22.07 (0.4%)	44.67 (0.5%)	80.60 (0.4%)	ds

Seafood Sales & Processing - Non-Employer Firms (thousands of dollars)

		2007	2008	2009	2010	2011	2012	2013	2014	2015
Seafood product prep. & packaging	Firms	10	9	7	11	14	14	16	14	12
	Receipts	1,023	1,020	712	741	866	965	821	1,048	1,271
Seafood sales, retail	Firms	41	37	35	37	39	42	40	38	39
	Receipts	4,353	4,394	3,666	4,124	3,558	4,086	3,764	3,727	4,053

Seafood Sales & Processing - Employer Establishments (thousands of dollars)³

		2007	2008	2009	2010	2011	2012	2013	2014	2015
Seafood product prep. & packaging	Establishments	1	1	1	1	1	2	2	2	2
	Employees	ds								
	Payroll	ds								
Seafood sales, wholesale	Establishments	36	37	38	37	40	33	32	30	30
	Employees	550	695	538	531	538	483	542	567	639
	Payroll	18,932	20,665	19,347	19,290	19,416	19,413	20,039	21,369	24,477
Seafood sales, retail	Establishments	25	25	25	24	25	24	25	26	25
	Employees	393	173	158	177	187	303	318	305	293
	Payroll	7,209	3,674	3,559	3,533	3,521	6,493	7,366	7,142	7,410

Transport, Support & Marine Operations - Employer Establishments (thousands of dollars)^{3,4}

		2007	2008	2009	2010	2011	2012	2013	2014	2015
Coastal & Great Lakes freight transportation	Establishments	11	5	5	2	2	5	5	6	7
	Employees	557	478	475	ds	ds	431	ds	ds	452
	Payroll	36,635	34,544	34,367	ds	ds	34,538	ds	ds	36,675
Deep sea freight transportation	Establishments	0	1	0	1	1	2	1	1	1
	Employees	NA	ds	NA	ds	ds	ds	ds	ds	ds
	Payroll	NA	ds	NA	ds	ds	ds	ds	ds	ds
Deep sea passenger transportation	Establishments	1	1	1	1	1	1	1	1	1
	Employees	ds	ds	ds	ds	ds	ds	ds	ds	ds
	Payroll	ds	ds	ds	ds	ds	ds	ds	ds	ds
Marinas	Establishments	11	9	10	13	13	9	11	9	9
	Employees	167	156	164	189	208	162	166	153	120
	Payroll	4,151	4,317	4,368	5,362	5,237	3,779	4,003	3,304	3,412
Marine cargo handling	Establishments	8	11	11	14	14	11	10	10	11
	Employees	1,048	1,098	1,075	1,236	1,278	664	709	700	782
	Payroll	87,770	89,104	87,833	109,059	109,134	54,309	61,651	66,034	83,408
Navigational services to shipping	Establishments	8	11	11	11	8	8	9	9	11
	Employees	ds	105	120	90	105	97	100	80	70
	Payroll	3,340	5,846	5,258	5,113	5,310	5,567	6,518	5,416	4,463
Port & harbor operations	Establishments	2	4	3	2	2	2	1	1	1
	Employees	ds	ds	ds	ds	ds	ds	ds	ds	ds
	Payroll	ds	3,218	2,031	ds	ds	ds	ds	ds	ds
Ship & boat building	Establishments	13	14	13	15	15	18	18	14	14
	Employees	ds	ds	ds	ds	ds	ds	ds	ds	660
	Payroll	ds	ds	ds	ds	ds	ds	ds	ds	46,560

¹ Census Bureau data for the Marine Economy section of this report are available only through 2015.

² The U.S. Commercial Fishing Location Quotient (CFLQ) is 1. A CFLQ greater than 1 indicates that more commercial fishing occurs in this state than the national average. A CFLQ less than 1 indicates that less commercial fishing occurs in this state than the national average.

³ ds = these data are suppressed.

⁴ NA = not applicable.

New England Region

- Connecticut
- Maine
- Massachusetts
- New Hampshire
- Rhode Island



Black sea bass.

Photo: NOAA Fisheries/Scott Steinback

MANAGEMENT CONTEXT

The New England Region includes Connecticut, Maine, Massachusetts, New Hampshire, and Rhode Island. Federal fisheries in this region are managed by the New England Fishery Management Council (NEFMC) and NOAA Fisheries under nine fishery management plans (FMPs). Two of these FMPs, monkfish and spiny dogfish, are developed in conjunction with the Mid-Atlantic Fisheries Management Council (MAFMC). The MAFMC is the lead council for the Spiny Dogfish FMP; the NEFMC is the lead for the Monkfish FMP.

New England Regional FMPs

- Northeast multi-species
- Sea scallops
- Monkfish (with the MAFMC)
- Atlantic herring
- Small mesh multi-species
- Spiny dogfish (with the MAFMC)
- Red crab
- Northeast skate complex
- Atlantic salmon

Fourteen of the stocks or stock complexes covered in these FMPs were listed as overfished in 2016: Atlantic cod (two stocks), Atlantic halibut, Atlantic salmon, Atlantic wolffish, ocean pout, thorny skate, windowpane flounder, winter flounder (two stocks), witch flounder, and yellowtail flounder (three stocks). Seven stocks or stock complexes are currently subject to overfishing: Atlantic cod (two stocks), witch flounder, yellowtail flounder (three stocks), and winter flounder (Georges Bank stock).

Catch Share Programs

Two catch share programs operate in the New England Region: 1) Northeast Multi-Species Sectors; and 2) Northeast General Category Atlantic Sea Scallop Individual Fishing Quota (IFQ) Program. Following are descriptions of these catch share programs and their performance.

Northeast Multi-Species Sectors: This program was developed between 2004 and 2006 and included two pilot sectors that operated with an allocation of Georges Bank cod. The program was expanded in 2010 to 17 sectors, and approximately 55% of eligible, limited-access permit holders joined a sector. At the same time, annual catch limits were implemented for the first time

and sharply reduced the available quota for fishermen. The key performance indicators of this program show that compared with the baseline period (the 3-year period prior to implementation), the following 2015 metrics decreased: quotas, landings, number of active vessels, and inflation-adjusted revenue for catch share species. On the other hand, inflation-adjusted revenue per vessel increased during this period.

Northeast General Category Atlantic Sea Scallop IFQ Program:

This program began in 2010 with two primary objectives: 1) Control capacity and mortality in the General Category Scallop fishery; and 2) Allow better and more timely integration of sea scallop assessment results in management. The key performance indicators of this program show that 2015 inflation-adjusted revenue and revenue per vessel increased. However, landings, quota, and the number of active vessels decreased compared with the baseline period.

Policy Updates

In May 2016, NOAA Fisheries implemented Framework 27, which specifies measures for fishing year 2016 and includes fishing year 2017 measures that will go into place as a default should the next specifications-setting framework be delayed beyond the start of fishing year 2017. This action also includes two set-asides. An annual research set-aside (RSA) of 1.25 million pounds was established for 2016 and 2017 to fund scallop research and to compensate participating vessels through the sale of scallops harvested under research set-aside projects. In addition, the action set aside 1% of the annual biological catch for the industry-funded observer program to help defray the cost of scallop vessels that carry an observer. The observer set-aside for fishing years 2016 and 2017 is 0.84 million pounds.

In November 2016, NOAA Fisheries implemented Amendment 19 to the Atlantic Sea Scallop Fishery Management Plan. The amendment adjusts the start of the scallop fishing year from March 1 to April 1. This change will help reduce potential economic and biological consequences from late implementation of specifications and reduce the overall administrative burden associated with late implementation. As a result of this change, NOAA Fisheries will be able to implement simple

specifications actions at the start of the fishing year on a more consistent basis.

In August 2016, NOAA Fisheries approved two out of three actions set out in Framework Adjustment 9 to the Monkfish Fishery Management Plan. This plan eliminates the monkfish possession limit for monkfish Category C- and D-permitted vessels fishing in the Northern Fishery Management Area under both a Northeast multispecies and monkfish days-at-sea allocation. The new measure is designed to help increase monkfish landings and better achieve the annual catch target. The plan also implements a measure that allows a Category C or D vessel fishing under both a Northeast multispecies and a monkfish days-at-sea allocation in the Southern Fishery Management Area to use 6.5-inch (16.5-cm) roundfish gillnets. Under the rule, a monkfish-permitted vessel fishing on a monkfish-only days-at-sea allocation in the Mid-Atlantic Exemption Area may now use 5-inch (12.7-cm) roundfish gillnets. In addition, monkfish-permitted vessels fishing on a monkfish-only days-at-sea limit in either the SNE Dogfish Gillnet Exemption Area or the Southern New England Monkfish and Skate Gillnet Exemption Area may retain both monkfish and dogfish on the same trip when declared into either area. Finally, this measure limits a vessel to using 50 roundfish gillnets in the SNE Dogfish and the Mid-Atlantic Exemption Areas.

COMMERCIAL FISHERIES

In this report, commercial fisheries refer to fishing operations that sell their catch for profit. The term does not include subsistence fishermen or saltwater anglers who fish for sport. It also excludes the for-hire sector, which earns its revenue from selling recreational fishing trips to saltwater anglers. The commercial fisheries section reports on economic impacts, landings revenue, landings, and ex-vessel prices of key species/species groups.

Key New England Region Commercial Species

- American lobster
- Atlantic herring
- Atlantic mackerel
- Cod and haddock
- Flounders
- Goosefish
- Quahog clam
- Sea scallop
- Softshell clam
- Squid

Economic Impacts

The premise behind economic impact modeling is that every dollar spent in a regional economy (direct impact) is either saved or re-spent on additional goods or services. If those dollars are re-spent on other goods and services in the regional economy, this spending generates additional economic activity in the region.

Four different measures are commonly used to show how commercial fisheries landings affect the economy in a region (state or nationwide): sales, income, value-added, and employment. The term sales refers to the gross value of all sales by regional businesses affected by an activity, such as commercial fishing. The category includes both the direct sales of fish landed and sales made between businesses and households resulting from the original sale. Income includes personal income (wages and salaries) and proprietors' income (income from self-employment). Value-added is the contribution made to the gross domestic product in a region. Employment is specified on the basis of full-time and part-time jobs supported directly or indirectly by the sales of seafood or purchases of inputs to commercial fishing. The first three measures are calculated in terms of dollars, whereas employment impacts are measured in numbers of jobs. Note that these categories are not additive. The United States seafood industry is defined here as the commercial fishing sector, seafood processors and dealers, seafood wholesalers and distributors, importers, and seafood retailers.¹

This report provides estimates of total economic impacts for the nation and for each of the 23 coastal states. Total economic impacts for each state and the nation represent the sum of direct impacts; indirect impacts (in this case, the impact from suppliers to the seafood industry); and induced impacts (spending by employees on personal and household expenditures, where employees of both the seafood industry and its full supply chain are included). That is, the total economic impact estimates reported here measure jobs, sales, value-added, and income impacts from the seafood industry as well as the economic activity generated throughout each region's broader economy from this industry.

In 2016, commercial fishing in Massachusetts generated

¹ The NMFS Commercial Fishing Industry Input/Output Model was used to generate the impact estimates (see NMFS Commercial Fishing & Seafood Industry Input/Output Model, available at: www.st.nmfs.noaa.gov/documents/commercial_seafood_impacts_2007-2009.pdf).

the largest employment impacts in the New England Region: 87,200 jobs. Income impacts (\$2 billion), sales impacts (\$7.7 billion), and value-added impacts (\$3 billion) were also largest in Massachusetts. The retail sector in Massachusetts generated the highest employment impacts of any state-level sector: 53,300 jobs. The importers sector in Massachusetts generated the highest state-level income impacts (\$643.6 million), sales impacts (\$4 billion), and value-added impacts (\$1.2 billion) in the region.

Landings Trends

New England landings revenue was up \$85.4 million in 2016 from the previous year, with lobster (up \$46 million), sea scallops (up \$17.1 million) and squid (up \$17.4 million) comprising the majority of this increase. The lobster fishery, New England’s largest fishery in terms of landings revenue, continued its strong performance, with revenues up 84% since 2007 due to landings almost doubling (up 99%) during this period. Although 2016 prices were slightly lower than in 2007 (down 7%) and 2015 (down 15%), strong demand has kept prices well above the 10-year average (up 16%). The higher landings trend is due to record abundance levels of Gulf of Maine lobsters, which have comprised between 85-90% of landings in recent years. Indeed, average annual landings in the past five years are more than three times the average annual landings for the previous 60 years. On average, Maine has accounted for 80% of New England’s lobster landings revenue since 2007.

Sea scallop landings declined 30% over this 10-year period primarily due to a 35% reduction in the catch limit that was implemented in 2012 to protect young sea scallops and prevent localized overfishing. Significantly higher prices (up 83% from 2007 but unchanged from 2015) have helped to offset the reduction in landings. For 2016, the increase in landings revenue was driven by higher harvest levels (up 6% relative to 2015).

Rhode Island is the center of the New England squid fishery, which comprised 36% of Rhode Island’s total landings revenue in 2016. Overall, squid landings in New England increased 66% from 2015 to 2016. Prices were also up (4%) year-over-year due to the 30% decrease in global production, which has been attributed to the

strong El Niño event in 2016. Illex squid prices, which are determined in the international market, increased 65% during this period in large part due to global supply shortages.

Commercial Revenue: Largest Increases

From 2007:

- Bluefin tuna (361%, 303% in real terms)
- Squid (135%, 106% in real terms)
- American lobster (84%, 61% in real terms)

From 2015:

- Squid (72%)
- Bluefin tuna (24%)
- Atlantic herring (17%)

Commercial Revenue: Largest Decreases

From 2007:

- Quahog clam (-60%, -65% in real terms)
- Cod and haddock (-51%, -57% in real terms)
- Atlantic mackerel (-50%, -57% in real terms)

From 2015:

- Atlantic mackerel (-11%)
- Flounders (-5%)

Commercial Landings: Largest Increases

From 2007:

- Bluefin tuna (455%)
- American lobster (99%)
- Squid (48%)

From 2015:

- Squid (66%)
- Atlantic mackerel (14%)
- Bluefin tuna (11%)

Commercial Landings: Largest Decreases

From 2007:

- Atlantic mackerel (-78%)
- Quahog clam (-71%)
- Flounders (-45%)

From 2015:

- Flounders (-28%)
- Atlantic herring (-22%)
- Quahog clam (-7%)

Landings Revenue

Landings revenue in the New England Region totaled \$1.3 billion in 2016. This number represented a 48% increase from 2007 (a 29% increase in real terms after adjusting for inflation) and a 7% increase from 2015. Landings revenue was highest in Maine (\$633 million), followed by Massachusetts (\$550.8 million). Shellfish landings revenue made up 86% of total revenue in the region. American lobster (\$663.5 million) and sea scallop (\$303.9 million) had the highest landings revenue in the New England Region in 2016. Together they accounted for 73% of total landings revenue.

From 2007 to 2016, bluefin tuna (361%, 303% in real terms), squid (135%, 106% in real terms), and American lobster (84%, 61% in real terms) had the largest revenue increases, while quahog clam (-60%, -65% in real terms), cod and haddock (-51%, -57% in real terms), and Atlantic mackerel (-50%, -57% in real terms) had the largest revenue decreases. From 2015 to 2016, squid (72%), bluefin tuna (24%), and Atlantic herring (17%) had the largest revenue increases, while Atlantic mackerel (-11%) and flounders (-5%) had the largest revenue decreases.

Landings

In 2016, New England Region commercial fishermen landed about 595 million pounds of finfish and shellfish, a 2% increase from 2007 and a 1% decrease from 2015. American lobster had the highest landings volume in the New England Region, accounting for 27% of landed weight.

From 2007 to 2016, bluefin tuna (455%), American lobster (99%), and squid (48%) had the largest landings increases, while Atlantic mackerel (-78%), quahog clam (-71%), and flounders (-45%) had the largest landings decreases. From 2015 to 2016, squid (66%), Atlantic mackerel (14%), and bluefin tuna (11%) had the largest landings increases, while flounders (-28%), Atlantic herring (-22%), and quahog clam (-7%) had the largest landings decreases.

Prices

In 2016, sea scallop (\$12.27 per pound) received the highest New England Region ex-vessel price. Landings of Atlantic herring (\$0.21 per pound) had the lowest ex-vessel price.

From 2007 to 2016, Atlantic mackerel (120%, 93% in real terms), sea scallop (83%, 60% in real terms), and Atlantic herring (78%, 56% in real terms) had the largest price increases, while bluefin tuna (-17%, -27% in real terms), cod and haddock (-14%, -25% in real terms), and goosefish (-11%, -23% in real terms) had the largest price decreases. From 2015 to 2016, Atlantic herring (50%), flounders (31%), and quahog clam (14%) had the largest price increases, while Atlantic mackerel (-22%), goosefish (-2%), and American lobster (-1%) had the largest price decreases.

RECREATIONAL FISHERIES

In this report, recreational fishing refers to fishing for fun rather than to resell fish (commercial fishing) or for subsistence. The recreational fisheries section reports on economic impacts and expenditures, angler participation, trips, and catch of key species/species groups.²

Key New England Recreational Species

- Atlantic cod
- Atlantic mackerel
- Bluefin tuna
- Bluefish
- Little tunny
- Scup
- Striped bass
- Summer flounder
- Winter flounder
- Tautog

Economic Impacts and Expenditures

The contribution of recreational fishing activities³ in the United States is reported in terms of economic impacts from angler expenditures. Total annual trip expenditures are estimated by multiplying mean trip expenditures by the estimated number of adult trips in each trip mode (for-hire, private boat, and shore). Total annual durable expenditures are estimated by multiplying mean durable expenditures by the estimated annual number of adult participants in a given state.

Four different measures are commonly used to show how angler expenditures affect the economy in a region (state or nationwide): sales, income, value-added, and employment. The term sales refers to the gross value of all sales by regional businesses affected by an activity,

² Except where noted, Atlantic and Gulf recreational catch and effort estimates are based upon the MRIP APAIS and CHTS (<https://www.st.nmfs.noaa.gov/recreational-fisheries/Surveys/survey-details>) and not the revised MRIP estimates (<https://www.fisheries.noaa.gov/leadership-message/noaa-fisheries-releases-revised-mrip-recreational-catch-and-effort-estimates>) released in 2018.

³ Trip expenditure estimates were generated from the 2011 National Marine Recreational Fishing Expenditure Survey. Durable good expenditure impacts were generated from the 2014 National Marine Recreational Fishing Expenditure Survey (see <https://www.st.nmfs.noaa.gov/economics/fisheries/recreational/Marine-Angler-Durable-Expenditures/2014-durable-expenditures-survey>). Economic impacts from recreational fishing activities were generated using the NMFS Recreational Economic Impact Model (see The Economic Contribution of Marine Angler Expenditures in the United States, 2011, available at <http://www.st.nmfs.noaa.gov/economics/publications/marine-angler-expenditures/marine-angler-2011>).

such as recreational fishing. The category includes both the direct sales made by the angler and sales made between businesses and households resulting from that original sale by the angler. Income includes personal income (wages and salaries) and proprietors' income (income from self-employment). Value-added is the contribution made to the gross domestic product in a region. Employment is specified on the basis of full-time and part-time jobs supported directly or indirectly by the purchases made by anglers. The first three measures are calculated in terms of dollars, whereas employment impacts are measured in number of jobs. Note that these categories are not additive. NOAA Fisheries uses a regional impact modeling software, called IMPLAN, to estimate these four types of impacts.

The greatest employment impacts from expenditures on saltwater recreational fishing in the New England Region were generated in Massachusetts (10,000 jobs), followed by Rhode Island (4,200 jobs). The largest sales impacts were observed in Massachusetts (\$1.1 billion), followed by Connecticut (\$430.2 million). The biggest income impacts were generated in Massachusetts (\$495.5 million), followed by Connecticut (\$186.4 million). The greatest value-added impacts were in Massachusetts (\$715.7 million), followed by Connecticut (\$291.8 million).

Recreational fishing expenditures (on both fishing trips and durable equipment purchases) across the New England Region in 2016 totaled about \$1.9 billion. Trip expenditures totaled more than \$262.8 million, with a large portion coming from trips in the private boat (54%) and shore (28%) sectors. Durable goods expenditures totaled \$1.7 billion, with the largest portion coming from boat expenses (\$1 billion).

Fishing Trips

In 2016, recreational fishermen took 6.1 million fishing trips in the New England Region. This number represented a 35% decrease from 2007 and a 20% increase from 2015. The largest proportions of trips were taken in the private boat mode (55%) and shore mode (42%). States with the highest number of recorded trips were Massachusetts (2.4 million trips) and Connecticut (1.6 million trips).

Participation

In 2016, there were 1.2 million recreational anglers who fished in the New England Region. This number represented a 26% decrease from 2007 and an 18% increase from 2015. These anglers were New England Region residents from either a coastal county (92%) or a non-coastal county (8%).

Recreational Catch: Largest Increases

From 2007:

- Little tunny (524%)
- Atlantic mackerel (226%)
- Winter flounder (103%)

From 2015:

- Little tunny (205%)
- Atlantic cod (103%)
- Summer flounder (60%)

Recreational Catch: Largest Decreases

From 2007:

- Bluefish (-61%)
- Striped bass (-51%)
- Bluefin tuna (-43%)
-

From 2015:

There were no decreases from 2015 to 2016.

Harvest and Release

Of New England's key species and species groups, Atlantic mackerel (6.5 million fish), porgies (scup) (6.5 million fish), and striped bass (4.4 million fish) were most frequently caught by recreational fishermen. From 2007 to 2016, little tunny (524%), Atlantic mackerel (226%), and winter flounder (103%) had the largest increases in catch, while bluefish (-61%), striped bass (-51%), and bluefin tuna (-43%) had the largest decreases. From 2015 to 2016, little tunny (205%), Atlantic cod (103%), and summer flounder (60%) had the largest increases in catch. There were no decreases in catch from 2015 to 2016.

MARINE ECONOMY

For this report, the marine economy refers to the economic activity generated by fishing and marine-

related industries in a coastal state. The state marine economy consists of two industry sectors: 1) seafood sales and processing (employer establishments and non-employer firms); and 2) transport, support and marine operations (employer establishments). These sectors include several different marine-related industries.^{4,5}

To measure the size of the commercial fishing sector in a state's economy relative to the size of the commercial fishing sector in the national economy⁶, researchers use an index called the Commercial Fishing Location Quotient (CFLQ). The CFLQ is calculated as the ratio of the percentage of regional employment in the commercial fishing sector relative to the percentage of national employment in the commercial fishing sector. The U.S. CFLQ is 1. If a state CFLQ is less than 1, then less commercial fishing occurs in this state than the national average. If a state CFLQ is greater than 1, then more commercial fishing occurs in this state than the national average.

The Bureau of Labor Statistics suppressed the CFLQ value for Connecticut, Massachusetts, and New Hampshire for 2015. Of the remaining states, Maine had the highest CFLQ at 20.07.

In 2015, 371,314 employer establishments operated throughout the entire New England Region (including marine- and non-marine- related establishments). These establishments employed about 6.2 million workers and had a total annual payroll of about \$359 billion. The combined gross state product of Connecticut, Maine, Massachusetts, New Hampshire, and Rhode Island was approximately \$932 billion in 2015.

Seafood Sales and Processing

Seafood Product Preparation and Packaging: In 2015, the New England Region had 105 non-employer firms in the seafood product preparation and packaging sector (a 3% increase from 2007). Annual receipts for these firms totaled about \$12.5 million (a 2% decrease in real terms from 2007). There were 85 employer firms in the seafood product preparation and packaging sector (an 11% decrease from 2007). The Census Bureau suppressed employment and payroll data for one or more states in the New England Region for this

sector in 2015. The greatest number of seafood product preparation and packaging establishments was located in Massachusetts (79), followed by Maine (64) and Connecticut (26).

Seafood Sales, Retail: In 2015, there were 145 non-employer firms engaged in retail sales of seafood in the five states that make up the New England Region (a 16% decrease from 2007). Annual receipts for these firms totaled about \$15.8 million (a 30% decrease in real terms from 2007). There were 235 employer firms in the retail sales of seafood sector (a 7% decrease from 2007). These establishments employed 1,278 workers (a 1% decrease from 2007) and had a total annual payroll of \$41.9 million (an 11% increase in real terms from 2007). The greatest number of retail seafood establishments was located in Massachusetts (158), followed by Maine (110) and Connecticut (53).

Seafood Sales, Wholesale: There were 332 employer firms in the wholesale sales of seafood sector in the New England Region in 2015 (a 16% decrease from 2007). These establishments employed 3,432 workers and had a total annual payroll of \$177.6 million. The greatest number of wholesale seafood establishments was located in Maine (146), followed by Massachusetts (129) and Rhode Island (28).

Transport, Support, and Marine Operations

Data for the transport, support, and marine operations sector of the New England Region's economy were largely suppressed for confidentiality reasons. It is clear, however, that these sectors play an important role in the regional economy. For example, the ship and boatbuilding sector in Massachusetts, Maine, New Hampshire and Rhode Island accounted for a total of \$500.6 million in payroll in 2015.

⁴ Unless otherwise stated, data are from the U.S. Census Bureau, <http://census.gov/> (accessed September 26, 2017).

⁵ U.S. Bureau of Economic Analysis, "Table 1.1.5 Gross Domestic Product" and "Table SA6N Compensation of Employees by NAICS Industry," http://www.bea.gov/iTable/index_nipa.cfm (accessed September 26, 2017).

⁶ U.S. Bureau of Labor Statistics, "Location Quotient Calculator," https://data.bls.gov/cew/doc/info/location_quotients.htm (accessed September 26, 2017).

Tables | New England Region



2016 Economic Impacts of the New England Seafood Industry (thousands of dollars)

	Landings Revenue	With Imports				Without Imports			
		#Jobs	Sales	Income	Value Added	#Jobs	Sales	Income	Value Added
Connecticut	15,087	2,306	387,244	83,307	137,449	808	53,328	18,277	25,482
Maine	633,014	41,960	2,581,806	855,773	1,236,431	40,246	2,300,020	795,211	1,136,921
Massachusetts	550,755	87,201	7,662,911	1,998,842	3,045,410	55,384	2,318,125	851,027	1,161,180
New Hampshire	33,215	9,922	1,511,091	348,439	558,040	2,577	160,077	59,239	81,009
Rhode Island	93,872	10,828	1,375,375	334,588	528,970	5,193	332,575	120,271	168,541

Total Landings Revenue & Landings Revenue of Key Species/Species Groups (thousands of dollars)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Total Revenue	895,381	808,816	787,206	960,090	1,103,010	1,192,900	1,163,328	1,195,545	1,240,539	1,325,943
Finfish & Other	178,819	190,526	176,399	189,803	212,059	243,355	204,318	193,491	182,234	188,670
Shellfish	716,562	618,290	610,806	770,288	890,951	949,546	959,010	1,002,054	1,058,305	1,137,273
Key Species										
American lobster	359,783	317,909	305,195	397,768	417,931	425,562	458,779	560,618	617,448	663,457
Atlantic herring	18,591	20,507	24,459	20,692	24,759	28,545	31,388	27,947	24,286	28,515
Atlantic mackerel	6,000	5,265	7,892	3,459	295	3,480	1,738	3,111	3,332	2,975
Bluefin tuna	2,077	2,993	4,448	8,470	9,258	8,394	3,649	6,114	7,723	9,583
Cod & haddock	39,326	47,166	38,745	49,710	48,775	29,972	16,350	20,681	19,042	19,373
Flounders	33,658	30,654	27,286	27,685	30,851	35,155	32,092	30,609	28,103	26,564
Goosefish	21,209	19,945	14,321	14,064	19,792	19,693	13,576	14,094	14,628	15,042
Quahog clam	30,026	8,901	9,002	9,713	8,314	9,276	9,383	10,121	11,285	11,922
Sea scallop	237,299	203,124	209,168	265,493	352,632	389,501	366,007	296,983	286,785	303,899
Squid	17,711	19,848	16,696	14,788	22,887	18,187	15,547	21,411	24,263	41,673

Total Landings & Landings of Key Species/Species Groups (thousands of pounds)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Total Landings	584,849	602,950	648,988	580,145	612,952	665,778	634,766	646,106	599,125	594,999
Finfish & Other	376,334	400,732	422,141	334,220	357,225	380,850	358,155	376,330	333,534	297,386
Shellfish	208,514	202,219	226,848	245,925	255,728	284,928	276,610	269,776	265,592	297,613
Key Species										
American lobster	79,435	86,229	99,199	116,024	125,167	148,906	149,116	146,454	146,095	157,942
Atlantic herring	156,602	167,709	210,784	140,789	174,338	190,532	203,763	197,908	171,823	134,696
Atlantic mackerel	50,760	38,359	39,398	16,904	913	9,680	9,049	12,934	10,016	11,418
Bluefin tuna	300	447	772	1,201	1,085	915	523	971	1,502	1,663
Cod & haddock	24,856	33,122	32,470	39,261	30,108	14,800	9,072	15,133	15,257	14,237
Flounders	16,093	15,501	16,232	14,531	17,913	18,353	16,320	14,270	12,304	8,865
Goosefish	19,968	17,757	14,256	12,378	14,700	16,422	14,321	14,552	15,272	15,981
Quahog clam	4,630	1,468	1,628	1,790	1,513	1,570	1,594	1,584	1,464	1,355
Sea scallop	35,390	28,867	31,604	32,884	35,285	39,209	32,103	23,482	23,296	24,770
Squid	26,421	28,615	28,014	21,722	27,907	16,153	14,575	28,781	23,698	39,224

Average Annual Price of Key Species/Species Groups (dollars per pound)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
American lobster	4.53	3.69	3.08	3.43	3.34	2.86	3.08	3.83	4.23	4.20
Atlantic herring	0.12	0.12	0.12	0.15	0.14	0.15	0.15	0.14	0.14	0.21
Atlantic mackerel	0.12	0.14	0.20	0.20	0.32	0.36	0.19	0.24	0.33	0.26
Bluefin tuna	6.93	6.69	5.76	7.05	8.54	9.18	6.98	6.29	5.14	5.76
Cod & haddock	1.58	1.42	1.19	1.27	1.62	2.03	1.80	1.37	1.25	1.36
Flounders	2.09	1.98	1.68	1.91	1.72	1.92	1.97	2.15	2.28	3.00
Goosefish	1.06	1.12	1.00	1.14	1.35	1.20	0.95	0.97	0.96	0.94
Quahog clam	6.49	6.06	5.53	5.43	5.50	5.91	5.89	6.39	7.71	8.80
Sea scallop	6.71	7.04	6.62	8.07	9.99	9.93	11.40	12.65	12.31	12.27
Squid	0.67	0.69	0.60	0.68	0.82	1.13	1.07	0.74	1.02	1.06

2016 Economic Impacts of the New England Recreational Fishing Expenditures (thousands of dollars, trips)

	Trips	#Jobs	Sales	Income	Value Added
Connecticut	1,644	3,974	430,216	186,430	291,827
Maine	573	1,097	98,666	37,412	59,185
Massachusetts	2,384	9,957	1,070,935	495,481	715,659
New Hampshire	293	473	47,954	21,470	30,575
Rhode Island	1,159	4,173	412,071	176,221	270,081

2016 Angler Trip & Durable Goods Expenditures (thousands of dollars)

Fishing Mode	Trip Expenditures	Equipment	Durable Goods Expenditures
For-Hire	47,916	Fishing Tackle	380,822
Private Boat	141,993	Other Equipment	136,449
Shore	72,851	Boat Expenses	1,024,515
Total	262,760	Vehicle Expenses	134,455
		Second Home Expenses	1,574
		Total Durable Expenditures	1,677,814
Total State Trip and Durable Goods Expenditures			1,940,574

Recreational Anglers by Residential Area (thousands of anglers)¹

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Coastal	1,408	1,389	1,222	1,317	1,156	1,171	1,043	1,080	924	1,104
Non-Coastal	205	187	165	169	131	144	100	99	95	94
Out-of-State	NA									
Total Anglers	1,614	1,576	1,387	1,486	1,288	1,316	1,143	1,179	1,018	1,198

Recreational Fishing Effort by Mode (thousands of angler trips)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
For-Hire	518	512	464	321	367	345	516	487	354	226
Private	4,820	4,894	3,374	3,967	3,161	3,132	3,459	3,226	2,677	3,312
Shore	3,951	3,735	3,321	2,926	2,532	2,687	2,313	2,939	2,004	2,516
Total Trips	9,289	9,141	7,160	7,213	6,060	6,164	6,287	6,652	5,036	6,054

Harvest (H) & Release (R) of Key Species/Species Groups (thousands of fish)²

		2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Atlantic cod	H	305	385	391	509	530	337	392	264	22	112
	R	966	954	833	1,071	915	472	642	667	509	969
Atlantic mackerel	H	1,886	3,358	2,464	3,471	5,335	3,276	3,712	3,263	5,138	5,767
	R	116	452	343	381	535	484	283	1,420	1,002	770
Bluefin tuna	H	11	9	9	1	2	9	0	8	3	8
	R	10	2	5	0	5	4	0	0	6	4
Bluefish	H	1,512	1,461	674	1,183	658	1,503	1,682	863	680	657
	R	2,906	2,995	1,435	1,848	1,931	1,951	1,954	2,753	913	1,087
Little tunny	H	5	0	1	2	0	11	1	9	51	36
	R	65	16	16	20	44	103	14	427	92	399
Porgies (scup)	H	3,049	1,944	1,498	2,411	2,286	2,953	3,800	3,171	2,216	2,268
	R	2,802	4,048	3,278	3,586	2,376	3,530	3,091	3,275	2,199	4,253
Striped bass	H	595	602	547	527	458	530	697	492	292	254
	R	8,366	7,713	4,164	2,771	2,041	1,780	3,796	2,655	3,010	4,170
Summer flounder	H	426	582	167	199	267	241	429	417	336	360
	R	1,045	2,112	908	818	1,252	939	1,456	1,393	910	1,633
Winter flounder	H	51	180	112	105	100	56	44	96	57	40
	R	44	71	102	85	60	27	24	56	65	153
Wrasses (tautog)	H	569	305	196	359	78	323	298	487	264	276
	R	1,425	514	395	562	385	909	966	2,213	749	1,335

¹ NA = data are not available because out-of-state resident information is collected for individual states but does not specify whether an angler resides in a region.
² In this table, '<1' = 0-999 fish and '1' = 1,000-1,499 fish.

Tables | Connecticut



2016 Economic Impacts of the Connecticut Seafood Industry (thousands of dollars)

	With Imports				Without Imports			
	#Jobs	Sales	Income	Value Added	#Jobs	Sales	Income	Value Added
Total Impacts	2,306	387,244	83,307	137,449	808	53,328	18,277	25,482
Commercial Harvesters	403	26,755	7,338	11,307	403	26,755	7,338	11,307
Seafood Processors & Dealers	100	11,559	4,414	5,706	50	5,791	2,212	2,859
Importers	916	283,114	45,374	86,305	0	0	0	0
Seafood Wholesalers & Distributors	139	24,734	8,096	10,877	16	2,811	920	1,236
Retail	748	41,083	18,085	23,253	339	17,970	7,807	10,080

Total Landings Revenue & Landings Revenue of Key Species/Species Groups (thousands of dollars)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Total Revenue	42,053	17,206	15,007	17,626	20,032	21,132	14,632	14,144	15,422	15,087
Finfish & Other	3,270	3,962	3,108	5,229	4,817	5,467	5,123	4,428	5,040	4,718
Shellfish	38,782	13,243	11,899	12,397	15,215	15,665	9,509	9,716	10,382	10,369
Key Species										
American lobster	3,222	2,102	1,763	1,894	943	1,057	577	608	1,073	1,316
Goosefish	512	551	591	564	976	1,040	1,022	510	680	467
Other flounders	232	172	87	42	33	65	184	89	164	253
Red hake	110	181	137	76	89	88	115	104	112	108
Scups or Porgies	311	383	196	272	408	837	705	573	820	773
Sea scallop	8,605	10,032	8,952	9,458	13,007	12,005	7,219	7,219	7,039	5,881
Silver hake	1,115	1,436	1,011	1,341	1,617	1,380	1,301	1,586	1,164	914
Squid, loligo	744	546	260	473	694	1,861	1,257	1,354	1,631	2,012
Summer flounder	648	680	649	850	1,005	940	902	921	1,078	806
Whelks and Conchs	312	453	796	449	159	616	295	336	487	992

Total Landings & Landings of Key Species/Species Groups (thousands of pounds)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Total Landings	10,050	7,131	6,568	6,698	7,403	8,940	7,957	7,523	9,390	12,370
Finfish & Other	3,845	4,520	4,155	4,409	5,218	5,756	5,875	5,221	7,110	9,602
Shellfish	6,205	2,611	2,414	2,288	2,186	3,184	2,082	2,302	2,280	2,768
Key Species										
American lobster	569	426	412	442	199	248	127	127	205	259
Goosefish	460	424	546	358	630	765	967	493	605	431
Other flounders	140	88	58	26	27	40	142	60	86	109
Red hake	266	284	310	176	158	185	173	167	146	162
Scups or Porgies	256	282	204	324	644	907	1,195	811	983	932
Sea scallop	1,313	1,407	1,386	1,260	1,318	1,231	640	609	577	530
Silver hake	1,565	2,178	1,881	1,973	2,041	1,848	1,647	2,037	1,320	943
Squid, loligo	811	523	256	366	498	1,518	1,098	1,318	1,317	1,671
Summer flounder	205	221	251	308	401	316	284	253	287	191
Whelks and Conchs	117	174	229	113	28	91	81	98	81	211

Average Annual Price of Key Species/Species Groups (dollars per pound)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
American lobster	5.67	4.93	4.27	4.29	4.74	4.26	4.53	4.78	5.23	5.09
Goosefish	1.11	1.30	1.08	1.58	1.55	1.36	1.06	1.04	1.12	1.08
Other flounders	1.66	1.96	1.50	1.60	1.23	1.60	1.29	1.49	1.91	2.33
Red hake	0.41	0.64	0.44	0.43	0.56	0.47	0.66	0.62	0.77	0.67
Scups or Porgies	1.22	1.36	0.96	0.84	0.63	0.92	0.59	0.71	0.83	0.83
Sea scallop	6.55	7.13	6.46	7.51	9.87	9.75	11.29	11.85	12.20	11.09
Silver hake	0.71	0.66	0.54	0.68	0.79	0.75	0.79	0.78	0.88	0.97
Squid, loligo	0.92	1.04	1.01	1.29	1.39	1.23	1.15	1.03	1.24	1.20
Summer flounder	3.16	3.08	2.59	2.76	2.50	2.98	3.18	3.63	3.76	4.22
Whelks and Conchs	2.66	2.61	3.47	3.98	5.63	6.75	3.65	3.43	6.04	4.71

2016 Economic Impacts of Connecticut Recreational Fishing Expenditures (thousands of dollars)

		#Jobs	Sales	Income	Value Added
Trip Impacts by Fishing Mode	For-Hire	63	10,270	4,764	6,443
	Private Boat	204	21,457	9,119	13,792
	Shore	91	7,411	3,204	4,564
Total Durable Expenditures		3,616	391,078	169,343	267,028
Total State Economic Impacts		3,974	430,216	186,430	291,827

2016 Angler Trip & Durable Goods Expenditures (thousands of dollars)

Fishing Mode	Trip Expenditures	Equipment	Durable Goods Expenditures
For-Hire	5,889	Fishing Tackle	75,576
Private Boat	28,496	Other Equipment	20,370
Shore	7,433	Boat Expenses	225,694
Total	41,818	Vehicle Expenses	16,369
		Second Home Expenses	0
		Total Durable Expenditures	338,010
Total State Trip and Durable Goods Expenditures			379,828

Recreational Anglers by Residential Area (thousands of anglers)¹

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Coastal	302	381	438	402	420	397	198	209	252	297
Non-Coastal	NA									
Out-of-State	61	123	93	112	98	67	43	64	57	88
Total Anglers	363	504	531	514	518	464	240	273	309	385

Recreational Fishing Effort by Mode (thousands of angler trips)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
For-Hire	63	74	43	41	46	27	63	62	80	38
Private	1,097	1,292	711	871	863	825	830	865	671	1,021
Shore	559	609	665	614	399	475	316	437	590	585
Total Trips	1,719	1,975	1,419	1,526	1,309	1,326	1,210	1,365	1,341	1,644

Harvest (H) & Release (R) of Key Species/Species Groups (thousands of fish)²

		2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Atlantic cod	H	0	0	0	0	0	1	0	0	0	20
	R	0	0	0	0	0	0	0	0	0	12
Bluefish	H	451	623	262	591	307	480	893	288	365	311
	R	888	1,144	295	715	997	679	727	425	401	340
Hickory shad	H	35	0	0	1	16	39	8	73	0	4
	R	4	5	< 1	0	0	0	1	67	< 1	5
Little tunny	H	0	0	0	1	0	< 1	0	1	0	< 1
	R	< 1	0	9	8	14	57	0	13	1	32
Porgies (scup)	H	925	549	289	1,088	933	868	937	561	477	824
	R	1,006	974	1,204	1,192	539	1,049	1,218	1,413	764	1,787
Striped bass	H	119	108	61	93	63	65	140	84	75	49
	R	985	3,105	1,161	671	612	265	775	310	667	621
Summer flounder	H	112	146	45	35	47	63	270	120	93	218
	R	297	991	428	373	345	306	866	638	408	1,105
White perch	H	0	7	60	0	0	10	0	14	< 1	4
	R	18	52	72	0	< 1	48	2	7	< 1	2
Winter flounder	H	0	0	12	14	19	9	0	< 1	12	< 1
	R	15	0	7	12	< 1	7	4	< 1	31	< 1
Wrasses (tautog)	H	353	167	86	116	26	194	104	318	126	165
	R	745	250	112	257	36	599	453	1,668	272	933

¹ NA = data are not available because out-of-state resident information is collected for individual states but does not specify whether an angler resides in a region.² In this table, '<1' = 0-999 fish and '1' = 1,000-1,499 fish.

2015 Connecticut State Economy (% of national total)^{1,3}

	#Non-Employer Firms	#Establishments	#Employees	Annual Payroll (\$ billions)	Employee Compensation (\$ billions)	Gross State Product (\$ billions)	Commercial Fishing Location Quotient ²
Totals	269,845 (1.1%)	89,232 (1.2%)	1,503,102 (1.2%)	92.56 (1.5%)	137.55 (1.4%)	256.31 (1.4%)	ds

Seafood Sales & Processing - Non-Employer Firms (thousands of dollars)

		2007	2008	2009	2010	2011	2012	2013	2014	2015
Seafood product prep. & packaging	Firms	ds	18	17	17	14	13	25	26	25
	Receipts	ds	2,375	2,550	1,518	1,066	882	3,058	3,969	2,692
Seafood sales, retail	Firms	26	25	23	25	21	21	20	18	19
	Receipts	4,436	3,247	2,142	2,473	2,165	1,388	1,543	1,655	1,813

Seafood Sales & Processing - Employer Establishments (thousands of dollars)³

		2007	2008	2009	2010	2011	2012	2013	2014	2015
Seafood product prep. & packaging	Establishments	3	3	2	2	2	1	1	1	1
	Employees	ds	59	ds						
	Payroll	ds	1,040	ds						
Seafood sales, wholesale	Establishments	20	24	25	23	24	16	17	19	20
	Employees	183	185	212	216	212	187	178	172	211
	Payroll	8,347	8,551	8,842	9,219	9,224	8,237	7,920	8,174	20,558
Seafood sales, retail	Establishments	36	35	36	39	37	37	36	35	34
	Employees	177	203	205	204	171	233	218	244	230
	Payroll	5,252	5,248	5,551	5,563	4,824	6,349	6,344	7,380	7,533

Transport, Support & Marine Operations - Employer Establishments (thousands of dollars)^{3,4}

		2007	2008	2009	2010	2011	2012	2013	2014	2015
Coastal & Great Lakes freight transportation	Establishments	4	5	5	6	5	10	9	9	9
	Employees	ds	ds	ds	ds	95	256	ds	ds	216
	Payroll	ds	ds	ds	8,148	7,856	32,789	ds	ds	27,698
Deep sea freight transportation	Establishments	14	12	12	10	11	14	11	11	11
	Employees	228	243	222	225	225	297	184	ds	164
	Payroll	48,110	46,595	45,045	29,407	41,302	37,711	28,513	26,891	26,880
Deep sea passenger transportation	Establishments	2	1	1	1	1	1	0	0	0
	Employees	ds	ds	ds	ds	ds	ds	NA	NA	NA
	Payroll	ds	ds	ds	ds	ds	ds	NA	NA	NA
Marinas	Establishments	124	125	126	129	128	130	130	128	125
	Employees	1,224	1,352	1,261	1,284	1,283	1,257	1,265	1,174	1,153
	Payroll	50,809	60,016	58,065	58,877	59,851	60,803	63,211	59,054	59,526
Marine cargo handling	Establishments	5	4	3	3	3	0	1	1	1
	Employees	ds	ds	ds	ds	ds	NA	ds	ds	ds
	Payroll	5,925	ds	ds	ds	ds	NA	ds	ds	ds
Navigational services to shipping	Establishments	6	6	6	6	5	2	2	4	3
	Employees	ds	ds	5	ds	5	ds	ds	3	2
	Payroll	432	338	696	242	898	ds	ds	185	159
Port & harbor operations	Establishments	4	8	8	6	5	4	5	5	5
	Employees	ds	179	166	122	34	ds	ds	ds	22
	Payroll	ds	6,136	5,787	2,162	848	1,414	ds	ds	1,142
Ship & boat building	Establishments	22	15	13	12	11	8	7	9	8
	Employees	ds								
	Payroll	ds								

¹ Census Bureau data for the Marine Economy section of this report are available only through 2015.

² The U.S. Commercial Fishing Location Quotient (CFLQ) is 1. A CFLQ greater than 1 indicates that more commercial fishing occurs in this state than the national average. A CFLQ less than 1 indicates that less commercial fishing occurs in this state than the national average.

³ ds = these data are suppressed.

⁴ NA = not applicable.

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2016 Economic Impacts of the Maine Seafood Industry (thousands of dollars)

	With Imports				Without Imports			
	#Jobs	Sales	Income	Value Added	#Jobs	Sales	Income	Value Added
Total Impacts	41,960	2,581,806	855,773	1,236,431	40,246	2,300,020	795,211	1,136,921
Commercial Harvesters	18,927	1,214,883	332,762	543,832	18,927	1,214,883	332,762	543,832
Seafood Processors & Dealers	3,157	246,437	98,941	126,425	2,888	225,457	90,518	115,662
Importers	710	219,310	35,149	66,855	0	0	0	0
Seafood Wholesalers & Distributors	1,285	136,984	49,138	63,941	1,126	120,068	43,070	56,045
Retail	17,881	764,192	339,784	435,378	17,304	739,612	328,861	421,383

Total Landings Revenue & Landings Revenue of Key Species/Species Groups (thousands of dollars)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Total Revenue	344,022	308,233	292,315	380,435	411,983	450,926	476,423	547,333	591,356	633,014
Finfish & Other	37,507	37,440	30,367	30,196	43,816	77,546	72,857	50,692	49,092	59,005
Shellfish	306,515	270,793	261,948	350,240	368,168	373,380	403,566	496,641	542,264	574,009
Key Species										
American lobster	280,634	245,146	237,519	318,304	334,577	341,861	370,207	459,183	501,194	537,872
Atlantic herring	9,173	8,396	7,867	8,643	14,404	14,490	15,514	16,212	13,534	19,422
Bloodworms	6,051	5,913	6,196	5,893	5,847	5,191	5,644	6,085	6,335	6,168
Blue mussel	1,934	1,627	2,203	2,071	1,969	1,919	2,341	2,153	2,458	2,400
Cod & haddock	3,728	5,257	1,752	1,528	1,666	1,362	976	1,267	1,069	886
Goosefish	2,402	1,478	526	393	578	1,059	773	566	616	456
Ocean quahog clam	3,194	2,195	1,821	1,721	2,117	1,737	1,378	1,238	1,311	1,299
Pollock	2,160	2,321	2,047	1,503	1,929	2,527	2,562	2,878	1,965	1,663
Sea urchins	4,367	5,410	5,866	5,490	5,113	5,024	5,781	5,325	4,950	6,616
Softshell clam	12,574	12,826	11,686	12,960	15,852	15,655	18,102	20,232	22,847	16,219

Total Landings & Landings of Key Species/Species Groups (thousands of pounds)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Total Landings	186,324	186,696	188,388	200,876	249,496	263,421	266,413	265,182	242,662	247,946
Finfish & Other	99,230	98,951	82,505	79,375	122,944	121,322	120,555	127,687	104,291	97,245
Shellfish	87,094	87,745	105,883	121,501	126,552	142,099	145,859	137,495	138,371	150,701
Key Species										
American lobster	63,959	69,863	81,179	96,246	104,923	127,237	127,756	124,218	122,402	131,954
Atlantic herring	74,817	67,731	64,606	57,557	97,116	92,506	98,859	103,530	86,485	78,156
Bloodworms	549	537	574	534	526	457	470	448	401	387
Blue mussel	2,643	2,289	2,760	2,582	2,810	2,399	2,282	2,270	2,401	1,743
Cod & haddock	2,345	2,455	1,401	876	842	549	418	685	658	489
Goosefish	2,376	1,178	603	404	533	1,075	874	633	740	542
Ocean quahog clam	1,011	669	556	549	645	698	557	438	416	367
Pollock	4,245	4,064	3,040	1,640	2,325	2,666	2,227	2,319	1,381	1,049
Sea urchins	2,761	2,900	3,487	2,592	2,407	1,904	1,988	1,981	1,775	2,058
Softshell clam	1,948	1,998	1,902	2,077	2,365	2,257	2,297	2,080	1,892	1,569

Average Annual Price of Key Species/Species Groups (dollars per pound)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
American lobster	4.39	3.51	2.93	3.31	3.19	2.69	2.90	3.70	4.09	4.08
Atlantic herring	0.12	0.12	0.12	0.15	0.15	0.16	0.16	0.16	0.16	0.25
Bloodworms	11.02	11.01	10.79	11.03	11.12	11.36	12.00	13.59	15.8	15.96
Blue mussel	0.73	0.71	0.80	0.80	0.70	0.80	1.03	0.95	1.02	1.38
Cod & haddock	1.59	2.14	1.25	1.74	1.98	2.48	2.33	1.85	1.62	1.81
Goosefish	1.01	1.25	0.87	0.97	1.09	0.99	0.88	0.89	0.83	0.84
Ocean quahog clam	3.16	3.28	3.27	3.13	3.28	2.49	2.47	2.82	3.15	3.54
Pollock	0.51	0.57	0.67	0.92	0.83	0.95	1.15	1.24	1.42	1.58
Sea urchins	1.58	1.87	1.68	2.12	2.12	2.64	2.91	2.69	2.79	3.22
Softshell clam	6.46	6.42	6.14	6.24	6.70	6.93	7.88	9.73	12.08	10.34

2016 Economic Impacts of Maine Recreational Fishing Expenditures (thousands of dollars)

		#Jobs	Sales	Income	Value Added
Trip Impacts by Fishing Mode	For-Hire	57	5,764	1,959	2,989
	Private Boat	65	7,351	2,044	3,371
	Shore	110	10,080	3,262	5,519
Total Durable Expenditures		865	75,471	30,147	47,306
Total State Economic Impacts		1,097	98,666	37,412	59,185

2016 Angler Trip & Durable Goods Expenditures (thousands of dollars)

Fishing Mode	Trip Expenditures	Equipment	Durable Goods Expenditures
For-Hire	3,504	Fishing Tackle	20,480
Private Boat	7,172	Other Equipment	7,679
Shore	7,730	Boat Expenses	39,871
Total	18,406	Vehicle Expenses	332
		Second Home Expenses	0
		Total Durable Expenditures	68,361
Total State Trip and Durable Goods Expenditures			86,767

Recreational Anglers by Residential Area (thousands of anglers)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Coastal	174	121	117	122	85	116	102	79	67	114
Non-Coastal	13	9	12	9	7	6	4	5	4	13
Out-of-State	260	180	324	159	107	126	129	129	74	110
Total Anglers	447	310	453	290	198	248	235	213	145	237

Recreational Fishing Effort by Mode (thousands of angler trips)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
For-Hire	33	26	26	23	22	20	29	24	21	15
Private	460	408	334	327	265	212	313	188	192	293
Shore	531	421	544	366	240	405	254	327	201	265
Total Trips	1,024	854	904	716	527	637	596	539	414	573

Harvest (H) & Release (R) of Key Species/Species Groups (thousands of fish)¹

		2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
American shad	H	0	< 1	< 1	0	0	0	0	< 1	1	2
	R	4	5	18	9	4	18	< 1	0	14	7
Atlantic cod	H	19	41	45	14	39	26	61	22	3	2
	R	73	50	36	45	99	80	75	50	100	77
Atlantic mackerel	H	806	837	1,111	1,093	1,544	1,028	709	706	883	1,754
	R	80	265	194	177	304	163	62	1,165	136	307
Blue shark	H	0	0	0	0	0	0	0	0	0	0
	R	< 1	0	< 1	0	9	2	13	10	11	< 1
Bluefin tuna	H	0	0	0	0	0	0	0	0	0	0
	R	0	< 1	0	0	0	0	0	0	0	0
Bluefish	H	49	30	3	14	< 1	4	20	< 1	< 1	< 1
	R	74	56	26	10	8	126	22	0	0	< 1
Haddock	H	12	20	10	4	12	4	6	3	26	27
	R	11	2	1	3	4	8	47	55	72	100
Pollock	H	50	68	61	58	57	49	141	136	66	29
	R	23	135	35	105	135	88	296	178	109	94
Striped bass	H	54	59	62	17	18	12	23	21	5	11
	R	1,115	465	264	194	143	214	422	277	214	676
Winter flounder	H	0	0	0	0	0	0	0	0	0	0
	R	0	1	5	0	0	0	< 1	4	0	14

¹ In this table, '<1' = 0-999 fish and '1' = 1,000-1,499 fish.

2015 Maine State Economy (% of national total)^{1,3}

	#Non-Employer Firms	#Establishments	#Employees	Annual Payroll (\$ billions)	Employee Compensation (\$ billions)	Gross State Product (\$ billions)	Commercial Fishing Location Quotient ²
Totals	111,777 (0.5%)	40,801 (0.5%)	500,549 (0.4%)	20.41 (0.3%)	33.55 (0.3%)	57.33 (0.3%)	20.07

Seafood Sales & Processing - Non-Employer Firms (thousands of dollars)

		2007	2008	2009	2010	2011	2012	2013	2014	2015
Seafood product prep. & packaging	Firms	65	64	63	59	51	51	36	37	32
	Receipts	7,177	4,261	6,605	4,480	3,077	3,294	2,757	4,142	2,583
Seafood sales, retail	Firms	55	46	48	47	48	46	49	57	50
	Receipts	5,905	4,035	4,882	5,835	4,608	4,492	4,200	4,664	5,848

Seafood Sales & Processing - Employer Establishments (thousands of dollars)

		2007	2008	2009	2010	2011	2012	2013	2014	2015
Seafood product prep. & packaging	Establishments	27	29	25	27	28	29	28	30	32
	Employees	536	490	545	594	500	492	376	546	552
	Payroll	9,351	9,288	10,427	12,851	10,353	12,011	11,797	18,713	18,506
Seafood sales, wholesale	Establishments	170	168	164	164	152	136	150	142	146
	Employees	1,015	1,210	1,126	1,153	1,109	1,047	1,340	1,047	1,123
	Payroll	32,005	36,185	37,687	39,915	38,412	40,734	46,782	40,392	42,337
Seafood sales, retail	Establishments	50	45	49	51	51	48	51	54	60
	Employees	181	148	152	176	177	215	243	235	237
	Payroll	4,635	4,148	4,481	5,126	5,108	6,902	7,618	7,558	9,601

Transport, Support & Marine Operations - Employer Establishments (thousands of dollars)^{3,4}

		2007	2008	2009	2010	2011	2012	2013	2014	2015
Coastal & Great Lakes freight transportation	Establishments	3	5	4	4	4	3	3	3	3
	Employees	ds	ds	22	28	ds	ds	ds	ds	17
	Payroll	ds	1,058	1,037	1,067	1,105	ds	ds	ds	1,071
Deep sea freight transportation	Establishments	0	1	1	1	0	0	0	0	0
	Employees	NA	ds	ds	ds	NA	NA	NA	NA	NA
	Payroll	NA	ds	ds	ds	NA	NA	NA	NA	NA
Deep sea passenger transportation	Establishments	2	1	1	1	1	0	0	0	0
	Employees	ds	ds	ds	ds	ds	NA	NA	NA	NA
	Payroll	ds	ds	ds	ds	ds	NA	NA	NA	NA
Marinas	Establishments	86	87	89	86	84	80	79	79	80
	Employees	464	411	376	395	349	428	403	435	430
	Payroll	18,600	15,206	14,654	14,699	15,426	17,102	17,476	19,694	20,400
Marine cargo handling	Establishments	3	3	3	2	2	1	2	2	2
	Employees	ds	ds	ds	ds	ds	ds	ds	ds	ds
	Payroll	ds	ds	ds	ds	ds	ds	ds	ds	ds
Navigational services to shipping	Establishments	15	15	14	13	13	13	14	14	13
	Employees	105	138	93	68	63	65	86	75	77
	Payroll	6,737	6,148	5,369	4,928	4,776	4,730	5,660	5,243	4,752
Port & harbor operations	Establishments	2	2	1	1	1	6	3	3	3
	Employees	ds	ds	ds	ds	ds	ds	2	ds	4
	Payroll	ds	ds	ds	ds	ds	ds	130	113	142
Ship & boat building	Establishments	94	90	82	75	76	76	79	84	84
	Employees	6,751	6,930	ds	ds	ds	ds	ds	ds	6,654
	Payroll	345,036	354,899	ds	ds	ds	ds	ds	ds	418,591

¹ Census Bureau data for the Marine Economy section of this report are available only through 2015.

² The U.S. Commercial Fishing Location Quotient (CFLQ) is 1. A CFLQ greater than 1 indicates that more commercial fishing occurs in this state than the national average. A CFLQ less than 1 indicates that less commercial fishing occurs in this state than the national average.

³ ds = these data are suppressed.

⁴ NA = not applicable.

Tables | Massachusetts



2016 Economic Impacts of the Massachusetts Seafood Industry (thousands of dollars)

	With Imports				Without Imports			
	#Jobs	Sales	Income	Value Added	#Jobs	Sales	Income	Value Added
Total Impacts	87,201	7,662,911	1,998,842	3,045,410	55,384	2,318,125	851,027	1,161,180
Commercial Harvesters	11,490	1,008,163	317,973	467,913	11,490	1,008,163	317,973	467,913
Seafood Processors & Dealers	6,698	966,228	368,384	478,963	1,586	228,715	87,200	113,375
Importers	12,994	4,015,577	643,573	1,224,124	0	0	0	0
Seafood Wholesalers & Distributors	2,762	488,166	159,524	216,451	1,003	177,294	57,937	78,612
Retail	53,257	1,184,777	509,387	657,960	41,306	903,952	387,917	501,281

Total Landings Revenue & Landings Revenue of Key Species/Species Groups (thousands of dollars)¹

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Total Revenue	420,004	399,822	400,473	478,691	571,583	616,466	565,739	523,410	524,112	550,755
Finfish & Other	109,089	121,567	113,973	126,262	132,388	126,152	93,961	103,615	99,325	99,112
Shellfish	310,915	278,254	286,500	352,430	439,195	490,314	471,779	419,795	424,787	451,643
Key Species										
American lobster	51,258	45,418	42,731	50,330	53,302	53,357	61,662	68,376	78,290	82,007
Atlantic herring	8,265	11,342	15,062	10,251	8,802	11,529	10,750	9,432	8,787	7,559
Atlantic mackerel	4,736	4,265	4,528	1,487	137	654	1,223	2,421	1,926	2,426
Clams, all other	15,680	15,255	16,745	17,966	19,154	37,294	28,311	26,484	27,502	39,140
Cod & haddock	32,043	38,696	33,684	45,210	43,397	26,123	14,083	18,440	17,577	17,919
Eastern oyster	4,559	5,496	6,432	8,225	9,066	12,071	13,896	19,575	22,742	22,631
Flounders	22,095	20,924	19,645	19,975	22,025	25,058	20,612	17,949	17,340	17,203
Goosefish	14,380	14,035	9,902	9,922	13,431	13,596	8,870	10,028	10,251	11,294
Ocean quahog clam	10,100	9,575	10,710	8,981	7,995	NA	10,229	9,814	9,063	NA
Sea scallop	218,292	189,891	197,280	252,253	330,944	364,864	334,205	271,373	264,933	281,445

Total Landings & Landings of Key Species/Species Groups (thousands of pounds)¹

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Total Landings	304,774	326,632	356,105	283,025	264,991	296,037	262,256	272,601	260,347	244,218
Finfish & Other	227,208	255,603	278,908	200,844	179,757	193,481	163,944	181,680	169,307	147,519
Shellfish	77,566	71,029	77,197	82,181	85,233	102,556	98,312	90,921	91,040	96,699
Key Species										
American lobster	10,145	10,600	11,782	12,760	13,373	14,485	15,260	15,323	16,451	17,687
Atlantic herring	73,268	94,266	133,531	71,922	66,970	81,781	74,992	77,873	70,888	46,969
Atlantic mackerel	46,240	35,406	30,199	12,156	515	4,131	7,279	10,755	6,935	9,894
Clams, all other	4,135	4,376	6,552	10,242	13,352	35,053	22,495	20,725	20,088	33,499
Cod & haddock	20,298	28,537	28,515	36,461	27,164	13,164	8,123	13,977	14,393	13,445
Eastern oyster	123	138	159	215	231	310	329	444	593	613
Flounders	10,977	11,609	12,405	11,159	13,692	14,250	11,517	9,018	8,294	5,974
Goosefish	13,597	12,680	10,015	8,887	10,143	11,583	9,498	10,533	11,084	12,474
Ocean quahog clam	20,158	18,126	18,691	15,646	12,479	NA	14,476	13,422	13,340	NA
Sea scallop	32,540	27,011	29,782	31,156	33,092	36,725	29,287	21,392	21,515	22,867

Average Annual Price of Key Species/Species Groups (dollars per pound)¹

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
American lobster	5.05	4.28	3.63	3.94	3.99	3.68	4.04	4.46	4.76	4.64
Atlantic herring	0.11	0.12	0.11	0.14	0.13	0.14	0.14	0.12	0.12	0.16
Atlantic mackerel	0.10	0.12	0.15	0.12	0.27	0.16	0.17	0.23	0.28	0.25
Clams, all other	3.79	3.49	2.56	1.75	1.43	1.06	1.26	1.28	1.37	1.17
Cod & haddock	1.58	1.36	1.18	1.24	1.60	1.98	1.73	1.32	1.22	1.33
Eastern oyster	37.00	39.77	40.36	38.30	39.25	38.96	42.28	44.12	38.32	36.9
Flounders	2.01	1.80	1.58	1.79	1.61	1.76	1.79	1.99	2.09	2.88
Goosefish	1.06	1.11	0.99	1.12	1.32	1.17	0.93	0.95	0.92	0.91
Ocean quahog clam	0.50	0.53	0.57	0.57	0.64	NA	0.71	0.73	0.68	NA
Sea scallop	6.71	7.03	6.62	8.10	10.00	9.93	11.41	12.69	12.31	12.31

¹ NA = these data are confidential and therefore not disclosable.

2016 Economic Impacts of Massachusetts Recreational Fishing Expenditures (thousands of dollars)

		#Jobs	Sales	Income	Value Added
Trip Impacts by Fishing Mode	For-Hire	350	43,788	18,509	25,541
	Private Boat	588	66,670	28,719	42,310
	Shore	521	54,729	22,551	35,522
Total Durable Expenditures		8,498	905,748	425,702	612,286
Total State Economic Impacts		9,957	1,070,935	495,481	715,659

2016 Angler Trip & Durable Goods Expenditures (thousands of dollars)

Fishing Mode	Trip Expenditures	Equipment	Durable Goods Expenditures
For-Hire	26,142	Fishing Tackle	192,074
Private Boat	85,474	Other Equipment	79,020
Shore	45,193	Boat Expenses	538,561
Total	156,809	Vehicle Expenses	95,299
		Second Home Expenses	795
		Total Durable Expenditures	905,748
Total State Trip and Durable Goods Expenditures			1,062,557

Recreational Anglers by Residential Area (thousands of anglers)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Coastal	664	655	489	586	490	502	546	582	428	476
Non-Coastal	179	170	144	152	115	130	77	82	85	73
Out-of-State	465	469	421	433	293	309	275	532	199	289
Total Anglers	1,309	1,293	1,054	1,171	897	941	898	1,196	711	837

Recreational Fishing Effort by Mode (thousands of angler trips)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
For-Hire	234	255	240	154	189	203	259	243	116	93
Private	2,440	2,338	1,760	2,148	1,319	1,471	1,621	1,568	1,223	1,440
Shore	1,947	1,929	1,451	1,186	1,305	1,151	1,058	1,586	842	850
Total Trips	4,622	4,522	3,450	3,489	2,813	2,825	2,939	3,397	2,181	2,384

Harvest (H) & Release (R) of Key Species/Species Groups (thousands of fish)¹

		2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Atlantic bonito	H	4	7	5	1	5	5	0	18	8	2
	R	12	9	< 1	3	0	< 1	< 1	8	6	5
Atlantic cod	H	231	261	214	413	360	229	216	185	2	29
	R	658	672	581	884	542	240	411	479	137	616
Atlantic mackerel	H	952	2,024	471	2,083	1,649	1,132	2,274	1,926	4,019	3,219
	R	27	152	68	186	42	161	178	225	815	336
Bluefish	H	683	519	343	474	225	337	447	438	245	273
	R	1,240	1,302	953	1,028	598	714	580	2,213	254	461
Haddock	H	293	233	155	143	52	89	105	115	56	371
	R	56	158	36	33	12	68	310	403	113	848
Porgies (scup)	H	1,770	762	1,069	925	785	1,587	2,043	1,634	1,197	867
	R	1,183	1,687	1,741	1,858	1,174	1,806	1,257	1,283	822	1,061
Striped bass	H	315	378	344	341	256	378	299	277	171	132
	R	5,331	3,649	2,283	1,671	973	990	1,691	1,826	1,546	2,225
Summer flounder	H	138	232	50	45	58	76	31	113	79	55
	R	135	273	96	215	183	250	62	337	90	145
Winter flounder	H	41	169	87	86	69	46	44	92	43	33
	R	19	62	84	67	58	18	17	46	30	132
Wrasses (tautog)	H	91	34	25	46	33	25	58	100	40	24
	R	413	77	96	118	210	96	231	423	185	119

¹In this table, '<1' = 0-999 fish and '1' = 1,000-1,499 fish.

2015 Massachusetts State Economy (% of national total)^{1,3}

	#Non-Employer Firms	#Establishments	#Employees	Annual Payroll (\$ billions)	Employee Compensation (\$ billions)	Gross State Product (\$ billions)	Commercial Fishing Location Quotient ²
Totals	502,274 (2.1%)	175,225 (2.3%)	3,167,329 (2.6%)	198.03 (3.2%)	286.94 (3%)	488.10 (2.7%)	ds

Seafood Sales & Processing - Non-Employer Firms (thousands of dollars)

		2007	2008	2009	2010	2011	2012	2013	2014	2015
Seafood product prep. & packaging	Firms	24	26	22	27	36	25	28	33	38
	Receipts	908	1,250	1,943	2,082	2,433	1,699	1,857	2,356	4,474
Seafood sales, retail	Firms	57	64	64	61	66	65	51	56	52
	Receipts	4,421	7,982	7,686	6,287	7,640	5,213	3,842	5,782	5,154

Seafood Sales & Processing - Employer Establishments (thousands of dollars)

		2007	2008	2009	2010	2011	2012	2013	2014	2015
Seafood product prep. & packaging	Establishments	52	44	44	44	44	39	40	42	41
	Employees	2,684	2,355	2,396	2,159	2,214	1,638	1,755	1,819	1,948
	Payroll	113,580	109,747	119,282	107,635	112,399	74,541	87,153	99,445	108,090
Seafood sales, wholesale	Establishments	160	141	144	149	141	140	142	130	129
	Employees	1,803	1,442	1,542	1,591	2,013	1,841	1,910	1,859	1,808
	Payroll	81,863	68,898	70,864	83,467	94,105	100,801	104,637	101,512	102,009
Seafood sales, retail	Establishments	126	118	115	112	106	114	114	114	106
	Employees	737	549	542	584	576	576	708	647	641
	Payroll	19,267	15,017	15,261	16,495	16,037	15,776	18,304	19,516	20,201

Transport, Support & Marine Operations - Employer Establishments (thousands of dollars)^{3,4}

		2007	2008	2009	2010	2011	2012	2013	2014	2015
Coastal & Great Lakes freight transportation	Establishments	14	14	12	12	10	14	8	12	12
	Employees	283	169	166	ds	ds	ds	22	25	36
	Payroll	18,620	11,701	10,011	ds	ds	3,266	1,352	1,478	2,766
Deep sea freight transportation	Establishments	12	8	10	8	7	9	8	9	8
	Employees	ds	361	ds	313	381	ds	ds	ds	ds
	Payroll	ds	38,908	35,473	36,069	38,797	ds	ds	ds	ds
Deep sea passenger transportation	Establishments	1	0	1	0	0	0	0	0	0
	Employees	ds	NA	ds	NA	NA	NA	NA	NA	NA
	Payroll	ds	NA	ds	NA	NA	NA	NA	NA	NA
Marinas	Establishments	173	175	177	175	176	172	178	177	178
	Employees	1,154	1,138	1,188	1,150	1,125	977	1,054	1,161	1,076
	Payroll	51,705	53,694	56,663	57,002	58,251	48,657	55,053	57,797	63,422
Marine cargo handling	Establishments	5	3	2	2	2	4	3	3	2
	Employees	69	ds							
	Payroll	2,867	2,271	ds						
Navigational services to shipping	Establishments	9	8	11	9	9	8	11	9	8
	Employees	65	75	71	150	139	120	94	83	88
	Payroll	4,540	4,355	4,342	9,413	6,980	5,965	6,578	6,645	7,311
Port & harbor operations	Establishments	3	4	4	8	6	5	3	1	1
	Employees	69	63	66	86	95	35	ds	ds	ds
	Payroll	647	1,289	1,323	2,662	3,035	1,519	ds	ds	ds
Ship & boat building	Establishments	49	43	38	37	37	40	41	43	39
	Employees	588	603	579	535	445	446	463	623	576
	Payroll	26,445	28,402	20,685	20,196	22,066	23,195	23,615	31,451	31,153

¹ Census Bureau data for the Marine Economy section of this report are available only through 2015.

² The U.S. Commercial Fishing Location Quotient (CFLQ) is 1. A CFLQ greater than 1 indicates that more commercial fishing occurs in this state than the national average. A CFLQ less than 1 indicates that less commercial fishing occurs in this state than the national average.

³ ds = these data are suppressed.

⁴ NA = not applicable.

Tables | New Hampshire



2016 Economic Impacts of the New Hampshire Seafood Industry (thousands of dollars)

	With Imports				Without Imports			
	#Jobs	Sales	Income	Value Added	#Jobs	Sales	Income	Value Added
Total Impacts	9,922	1,511,091	348,439	558,040	2,577	160,077	59,239	81,009
Commercial Harvesters	890	58,255	16,465	25,569	890	58,255	16,465	25,569
Seafood Processors & Dealers	1,060	128,231	50,387	64,971	204	24,709	9,709	12,519
Importers	3,395	1,049,319	168,173	319,878	0	0	0	0
Seafood Wholesalers & Distributors	638	90,836	32,020	42,138	79	11,272	3,974	5,229
Retail	3,940	184,450	81,394	105,484	1,404	65,841	29,092	37,692

Total Landings Revenue & Landings Revenue of Key Species/Species Groups (thousands of dollars)¹

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Total Revenue	17,021	17,471	17,754	20,599	23,483	23,241	20,163	24,313	27,816	33,215
Finfish & Other	4,151	4,824	5,569	5,122	6,147	5,579	2,908	2,932	2,732	2,425
Shellfish	12,870	12,647	12,186	15,477	17,336	17,662	17,256	21,381	25,084	30,790
Key Species										
American lobster	12,517	12,267	11,919	14,836	16,343	17,169	16,601	20,741	24,546	30,372
Atlantic cod	1,972	2,311	2,587	2,187	2,500	1,750	546	571	93	109
Atlantic herring	147	134	271	375	208	349	216	NA	584	NA
Goosefish	375	290	280	212	207	153	186	NA	351	338
Haddock	123	89	68	29	35	95	22	18	8	14
Hake	244	167	215	237	445	474	374	NA	263	271
Pollock	902	1,093	1,283	839	1,355	1,224	1,135	860	356	207
Sea scallop	30	16	4	3	26	143	287	346	399	286
Shrimp	NA	23								
Spiny dogfish	NA	419	557	293	451	420	96	NA	NA	NA

Total Landings & Landings of Key Species/Species Groups (thousands of pounds)¹

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Total Landings	8,430	10,464	13,886	11,809	12,315	12,148	8,254	9,115	11,094	7,926
Finfish & Other	5,174	7,180	10,093	7,026	7,144	7,546	3,995	4,302	6,148	1,961
Shellfish	3,256	3,284	3,793	4,783	5,171	4,603	4,259	4,813	4,946	5,965
Key Species										
American lobster	2,469	2,567	2,985	3,648	3,919	4,229	3,818	4,373	4,722	5,782
Atlantic cod	1,168	1,479	1,984	1,227	1,286	726	230	263	45	55
Atlantic herring	936	1,198	3,120	2,830	1,514	2,391	1,579	NA	3,999	NA
Goosefish	325	250	250	172	153	126	162	NA	314	331
Haddock	61	53	45	18	19	45	10	10	6	9
Hake	313	222	423	322	587	1,135	393	NA	309	329
Pollock	2,025	2,456	2,017	1,042	1,732	1,049	983	629	270	98
Sea scallop	4	2	1	0	3	12	25	27	31	23
Shrimp	NA	NA	NA	NA	NA	NA	NA	NA	NA	4
Spiny dogfish	NA	1,370	2,073	1,214	1,646	1,789	515	NA	NA	NA

Average Annual Price of Key Species/Species Groups (dollars per pound)¹

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
American lobster	5.07	4.78	3.99	4.07	4.17	4.06	4.35	4.74	5.20	5.25
Atlantic cod	1.69	1.56	1.30	1.78	1.94	2.41	2.38	2.17	2.09	1.97
Atlantic herring	0.16	0.11	0.09	0.13	0.14	0.15	0.14	NA	0.15	NA
Goosefish	1.15	1.16	1.12	1.23	1.36	1.21	1.15	NA	1.12	1.02
Haddock	2.01	1.70	1.52	1.57	1.91	2.13	2.16	1.74	1.41	1.55
Hake	0.78	0.75	0.51	0.74	0.76	0.42	0.95	NA	0.85	0.82
Pollock	0.45	0.45	0.64	0.81	0.78	1.17	1.15	1.37	1.32	2.12
Sea scallop	8.26	7.68	7.22	8.84	10.35	11.68	11.54	12.71	12.88	12.38
Shrimp	NA	NA	NA	NA	NA	NA	NA	NA	NA	5.85
Spiny dogfish	NA	0.31	0.27	0.24	0.27	0.23	0.19	NA	NA	NA

¹ NA = these data are confidential and therefore not disclosable.

2016 Economic Impacts of New Hampshire Recreational Fishing Expenditures (thousands of dollars)

		#Jobs	Sales	Income	Value Added
Trip Impacts by Fishing Mode	For-Hire	59	6,924	2,646	3,728
	Private Boat	44	4,581	2,004	2,838
	Shore	28	2,515	1,015	1,553
Total Durable Expenditures		342	33,934	15,805	22,456
Total State Economic Impacts		473	47,954	21,470	30,575

2016 Angler Trip & Durable Goods Expenditures (thousands of dollars)

Fishing Mode	Trip Expenditures	Equipment	Durable Goods Expenditures
For-Hire	4,161	Fishing Tackle	13,200
Private Boat	6,224	Other Equipment	4,065
Shore	2,187	Boat Expenses	16,746
Total	12,572	Vehicle Expenses	1,747
		Second Home Expenses	0
		Total Durable Expenditures	35,758
Total State Trip and Durable Goods Expenditures			48,330

Recreational Anglers by Residential Area (thousands of anglers)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Coastal	97	63	67	46	56	58	68	50	54	69
Non-Coastal	13	8	9	7	10	9	19	11	6	8
Out-of-State	63	46	58	33	30	54	66	58	54	57
Total Anglers	172	118	134	86	96	121	153	120	115	134

Recreational Fishing Effort by Mode (thousands of angler trips)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
For-Hire	114	90	98	61	71	55	116	105	86	34
Private	233	139	147	90	178	163	107	113	79	145
Shore	155	103	155	92	48	81	89	34	57	114
Total Trips	502	333	401	243	297	299	313	252	221	293

Harvest (H) & Release (R) of Key Species/Species Groups (thousands of fish)¹

		2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Atlantic cod	H	53	81	128	80	127	64	115	44	1	5
	R	235	232	209	130	259	150	156	132	260	229
Atlantic mackerel	H	128	497	882	295	2,142	1,116	707	628	233	793
	R	9	35	81	18	188	160	14	29	47	127
Bluefin tuna	H	0	< 1	< 1	0	0	< 1	0	0	0	0
	R	0	0	< 1	< 1	2	0	0	0	0	0
Bluefish	H	34	6	< 1	2	2	9	0	< 1	2	< 1
	R	18	3	2	< 1	1	5	< 1	2	0	0
Haddock	H	97	90	100	48	76	74	72	76	140	119
	R	44	18	28	11	20	114	258	424	322	271
Pollock	H	70	52	40	52	101	65	118	101	93	69
	R	17	20	50	75	104	147	237	154	320	134
Striped bass	H	6	5	9	6	33	14	17	6	2	4
	R	257	77	57	52	99	64	82	79	56	234
Winter flounder	H	9	11	10	2	12	< 1	0	4	3	6
	R	7	6	5	5	1	1	3	5	4	7

¹ In this table, '<1' = 0-999 fish and '1' = 1,000-1,499 fish.

2015 New Hampshire State Economy (% of national total)^{1,3}

	#Non-Employer Firms	#Establishments	#Employees	Annual Payroll (\$ billions)	Employee Compensation (\$ billions)	Gross State Product (\$ billions)	Commercial Fishing Location Quotient ²
Totals	103,345 (0.4%)	37,669 (0.5%)	576,424 (0.5%)	28.08 (0.4%)	42.44 (0.4%)	74.27 (0.4%)	ds

Seafood Sales & Processing - Non-Employer Firms (thousands of dollars)³

		2007	2008	2009	2010	2011	2012	2013	2014	2015
Seafood product prep. & packaging	Firms	5	ds	ds	3	7	7	6	6	4
	Receipts	927	ds	ds	687	856	1,166	1,239	1,019	1,411
Seafood sales, retail	Firms	11	17	14	11	11	12	15	15	9
	Receipts	1,540	1,894	1,870	1,502	2,152	2,096	1,861	2,419	1,722

Seafood Sales & Processing - Employer Establishments (thousands of dollars)³

		2007	2008	2009	2010	2011	2012	2013	2014	2015
Seafood product prep. & packaging	Establishments	7	7	8	8	8	8	7	6	8
	Employees	ds	ds	115	292	231	229	225	ds	182
	Payroll	ds	ds	3,234	10,971	12,010	12,181	13,751	ds	11,160
Seafood sales, wholesale	Establishments	8	8	8	8	7	8	9	8	9
	Employees	92	101	88	80	84	99	113	106	108
	Payroll	3,360	4,142	4,268	4,171	4,123	5,738	4,562	4,271	4,543
Seafood sales, retail	Establishments	15	14	14	12	16	9	9	9	9
	Employees	93	83	95	102	88	48	45	ds	57
	Payroll	2,077	2,011	2,299	2,296	1,934	870	966	1,699	1,659

Transport, Support & Marine Operations - Employer Establishments (thousands of dollars)^{3,4}

		2007	2008	2009	2010	2011	2012	2013	2014	2015
Coastal & Great Lakes freight transportation	Establishments	1	0	0	0	0	1	0	0	0
	Employees	ds	NA	NA	NA	NA	ds	NA	NA	NA
	Payroll	ds	NA	NA	NA	NA	ds	NA	NA	NA
Deep sea freight transportation	Establishments	1	1	1	1	1	1	1	1	0
	Employees	ds	NA							
	Payroll	ds	NA							
Deep sea passenger transportation	Establishments	0	0	0	0	0	0	0	0	0
	Employees	NA								
	Payroll	NA								
Marinas	Establishments	35	37	37	35	34	31	35	35	35
	Employees	171	173	146	135	139	131	155	144	153
	Payroll	7,774	8,114	7,022	6,920	7,090	6,927	8,031	8,043	8,788
Marine cargo handling	Establishments	1	0	0	0	0	0	0	0	0
	Employees	ds	NA							
	Payroll	ds	NA							
Navigational services to shipping	Establishments	2	2	2	2	2	3	3	3	3
	Employees	ds	18							
	Payroll	ds	1,920							
Port & harbor operations	Establishments	0	0	0	0	0	2	2	1	1
	Employees	NA	NA	NA	NA	NA	ds	ds	ds	ds
	Payroll	NA	NA	NA	NA	NA	ds	ds	ds	ds
Ship & boat building	Establishments	8	9	8	7	7	7	7	8	6
	Employees	ds	181							
	Payroll	ds	9,800							

¹ Census Bureau data for the Marine Economy section of this report are available only through 2015.

² The U.S. Commercial Fishing Location Quotient (CFLQ) is 1. A CFLQ greater than 1 indicates that more commercial fishing occurs in this state than the national average. A CFLQ less than 1 indicates that less commercial fishing occurs in this state than the national average.

³ ds = these data are suppressed.

⁴ NA = not applicable.

Tables | Rhode Island



2016 Economic Impacts of the Rhode Island Seafood Industry (thousands of dollars)

	With Imports				Without Imports			
	#Jobs	Sales	Income	Value Added	#Jobs	Sales	Income	Value Added
Total Impacts	10,828	1,375,375	334,588	528,970	5,193	332,575	120,271	168,541
Commercial Harvesters	2,316	161,929	48,839	76,197	2,316	161,929	48,839	76,197
Seafood Processors & Dealers	535	62,563	24,243	31,504	326	38,108	14,767	19,190
Importers	2,755	851,288	136,435	259,510	0	0	0	0
Seafood Wholesalers & Distributors	586	78,598	27,849	36,644	133	17,778	6,299	8,288
Retail	4,636	220,998	97,221	125,116	2,419	114,760	50,366	64,866

Total Landings Revenue & Landings Revenue of Key Species/Species Groups (thousands of dollars)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Total Revenue	72,282	66,085	61,657	62,739	75,929	81,136	86,371	86,344	81,833	93,872
Finfish & Other	24,802	22,732	23,383	22,995	24,891	28,611	29,470	31,824	26,044	23,411
Shellfish	47,480	43,353	38,274	39,744	51,038	52,525	56,901	54,521	55,788	70,462
Key Species										
All other flounders	3,585	2,171	1,455	593	806	1,025	2,124	2,945	1,771	1,462
American lobster	12,151	12,976	11,264	12,404	12,765	12,119	9,732	11,709	12,345	11,889
Atlantic herring	982	631	1,260	1,423	1,343	2,174	4,907	2,303	1,373	1,525
Atlantic mackerel	1,182	882	3,301	1,886	100	2,804	339	309	1,074	448
Goosefish	3,540	3,590	3,022	2,973	4,600	3,844	2,725	2,990	2,730	2,486
Quahog clam	4,010	3,273	2,849	3,293	3,920	5,169	5,033	5,099	5,449	5,609
Scups or porgies	2,767	2,324	2,640	2,833	3,312	3,904	3,666	4,118	4,278	4,056
Sea scallop	8,963	2,170	2,342	2,156	6,834	9,191	18,639	10,273	7,885	9,242
Squid	15,339	17,687	15,249	12,590	20,380	12,744	13,208	17,718	20,288	33,938
Summer flounder	4,346	4,485	4,502	5,534	6,408	6,937	6,751	7,298	6,107	5,475

Total Landings & Landings of Key Species/Species Groups (thousands of pounds)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Total Landings	75,271	72,027	84,041	77,738	78,747	85,232	89,886	91,684	75,633	82,539
Finfish & Other	40,878	34,478	46,479	42,566	42,162	52,745	63,787	57,440	46,678	41,058
Shellfish	34,393	37,549	37,562	35,172	36,585	32,487	26,099	34,245	28,955	41,480
Key Species										
All other flounders	1,871	1,144	1,027	358	615	664	1,368	2,158	1,057	766
American lobster	2,293	2,772	2,840	2,929	2,754	2,706	2,156	2,413	2,316	2,260
Atlantic herring	7,537	4,504	9,528	8,479	8,729	13,839	28,330	16,505	10,431	9,539
Atlantic mackerel	4,242	2,385	9,057	4,356	162	5,497	714	539	1,906	1,143
Goosefish	3,209	3,225	2,841	2,556	3,242	2,873	2,818	2,893	2,529	2,201
Quahog clam	610	556	511	599	666	903	818	764	683	659
Scups or porgies	3,932	2,151	3,619	4,299	6,335	6,309	7,346	6,949	6,794	6,815
Sea scallop	1,357	310	356	267	690	944	1,646	841	661	799
Squid	23,718	26,417	26,452	19,799	25,996	11,689	12,609	24,938	20,495	32,914
Summer flounder	1,516	1,473	1,794	2,289	2,824	2,409	2,193	2,056	1,716	1,305

Average Annual Price of Key Species/Species Groups (dollars per pound)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
All other flounders	1.92	1.90	1.42	1.66	1.31	1.54	1.55	1.36	1.68	1.91
American lobster	5.30	4.68	3.97	4.24	4.64	4.48	4.51	4.85	5.33	5.26
Atlantic herring	0.13	0.14	0.13	0.17	0.15	0.16	0.17	0.14	0.13	0.16
Atlantic mackerel	0.28	0.37	0.36	0.43	0.62	0.51	0.47	0.57	0.56	0.39
Goosefish	1.10	1.11	1.06	1.16	1.42	1.34	0.97	1.03	1.08	1.13
Quahog clam	6.57	5.88	5.58	5.50	5.89	5.72	6.15	6.67	7.98	8.51
Scups or porgies	0.70	1.08	0.73	0.66	0.52	0.62	0.50	0.59	0.63	0.60
Sea scallop	6.61	7.00	6.58	8.07	9.90	9.73	11.32	12.21	11.93	11.57
Squid	0.65	0.67	0.58	0.64	0.78	1.09	1.05	0.71	0.99	1.03
Summer flounder	2.87	3.04	2.51	2.42	2.27	2.88	3.08	3.55	3.56	4.20

2016 Economic Impacts of Rhode Island Recreational Fishing Expenditures (thousands of dollars)

		#Jobs	Sales	Income	Value Added
Trip Impacts by Fishing Mode	For-Hire	113	13,793	5,244	7,604
	Private Boat	117	12,243	4,885	7,840
	Shore	81	8,587	3,433	5,535
Total Durable Expenditures		3,862	377,448	162,659	249,102
Total State Economic Impacts		4,173	412,071	176,221	270,081

2016 Angler Trip & Durable Goods Expenditures (thousands of dollars)

Fishing Mode	Trip Expenditures	Equipment	Durable Goods Expenditures
For-Hire	8,220	Fishing Tackle	79,492
Private Boat	14,627	Other Equipment	25,315
Shore	10,308	Boat Expenses	203,643
Total	33,155	Vehicle Expenses	20,708
		Second Home Expenses	779
		Total Durable Expenditures	329,937
Total State Trip and Durable Goods Expenditures			363,092

Recreational Anglers by Residential Area (thousands of anglers)¹

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Coastal	171	169	111	161	105	99	129	160	123	149
Non-Coastal	NA									
Out-of-State	229	297	209	225	190	169	255	304	175	243
Total Anglers	401	465	320	387	296	268	383	464	298	392

Recreational Fishing Effort by Mode (thousands of angler trips)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
For-Hire	74	67	56	41	39	40	48	52	52	45
Private	590	716	423	531	536	461	587	491	513	412
Shore	759	673	507	667	539	575	595	556	314	701
Total Trips	1,423	1,456	986	1,239	1,114	1,077	1,229	1,099	879	1,159

Harvest (H) & Release (R) of Key Species/Species Groups (thousands of fish)²

		2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Atlantic bonito	H	5	< 1	< 1	< 1	0	< 1	4	2	< 1	0
	R	4	1	0	0	0	0	4	6	2	< 1
Atlantic cod	H	< 1	2	4	2	4	16	< 1	13	16	55
	R	< 1	< 1	7	12	14	1	< 1	5	12	35
Black seabass	H	44	52	36	160	50	103	75	214	234	255
	R	118	128	134	212	221	766	684	859	752	1,162
Bluefish	H	295	282	65	103	124	673	323	136	67	73
	R	686	491	160	94	328	427	625	114	258	286
Porgies (scup)	H	353	633	140	398	568	498	820	976	542	577
	R	613	1,386	333	536	662	675	616	579	614	1,405
Striped bass	H	101	51	71	70	89	62	217	104	40	58
	R	678	416	399	183	214	247	826	163	527	414
Summer flounder	H	176	204	72	118	161	103	128	185	164	87
	R	612	848	382	230	724	382	528	417	413	382
Winter flounder	H	< 1	< 1	4	2	0	0	0	< 1	< 1	< 1
	R	3	1	1	< 1	< 1	1	0	< 1	0	< 1
Wrasses (tautog)	H	125	104	85	197	19	104	136	69	98	87
	R	267	187	187	187	139	214	281	122	292	282
Yellowfin tuna	H	0	0	0	0	0	0	6	< 1	4	< 1
	R	0	0	0	0	0	0	0	0	6	0

¹ NA = not applicable because all Rhode Island residents are considered coastal county residents.² In this table, '<1' = 0-999 fish and '1' = 1,000-1,499 fish.

2015 Rhode Island's State Economy (% of national total)¹

	#Non-Employer Firms	#Establishments	#Employees	Annual Payroll (\$ billions)	Employee Compensation (\$ billions)	Gross State Product (\$ billions)	Commercial Fishing Location Quotient ²
Totals	75,223 (0.3%)	28,387 (0.4%)	425,748 (0.3%)	19.7 (0.3%)	31.85 (0.3%)	55.65 (0.3%)	3.9

Seafood Sales & Processing - Non-Employer Firms (thousands of dollars)

		2007	2008	2009	2010	2011	2012	2013	2014	2015
Seafood product prep. & packaging	Firms	8	7	9	6	9	10	8	8	6
	Receipts	2,291	1,376	1,045	907	1,168	1,441	1,393	1,418	1,381
Seafood sales, retail	Firms	23	19	16	17	25	20	22	16	15
	Receipts	3,536	2,748	2,821	2,769	3,033	2,536	2,501	1,331	1,259

Seafood Sales & Processing - Employer Establishments (thousands of dollars)³

		2007	2008	2009	2010	2011	2012	2013	2014	2015
Seafood product prep. & packaging	Establishments	6	8	7	5	4	3	3	3	3
	Employees	196	270	275	193	178	ds	ds	ds	71
	Payroll	6,876	6,354	5,821	6,096	5,544	ds	ds	ds	2,243
Seafood sales, wholesale	Establishments	35	29	34	32	34	32	31	28	28
	Employees	224	226	202	204	230	278	182	188	182
	Payroll	11,447	10,505	9,534	9,815	10,264	13,064	8,412	8,763	8,140
Seafood sales, retail	Establishments	27	23	24	26	23	24	24	27	26
	Employees	109	94	127	113	109	111	113	114	113
	Payroll	2,207	2,027	2,398	2,309	2,232	2,388	2,610	2,608	2,925

Transport, Support & Marine Operations - Employer Establishments (thousands of dollars)³

		2007	2008	2009	2010	2011	2012	2013	2014	2015
Coastal & Great Lakes freight transportation	Establishments	1	2	1	1	2	1	1	1	1
	Employees	ds								
	Payroll	ds								
Deep sea freight transportation	Establishments	2	2	2	2	2	2	1	1	2
	Employees	ds								
	Payroll	ds								
Deep sea passenger transportation	Establishments	1	1	1	1	1	1	2	3	3
	Employees	ds	18							
	Payroll	ds	1,574							
Marinas	Establishments	68	73	70	72	71	67	71	65	72
	Employees	463	476	459	428	460	424	466	449	409
	Payroll	22,029	23,204	21,372	22,227	22,618	20,811	24,214	24,876	25,206
Marine cargo handling	Establishments	2	5	5	5	5	4	4	3	2
	Employees	ds								
	Payroll	ds								
Navigational services to shipping	Establishments	7	8	8	8	8	7	7	6	6
	Employees	ds	ds	ds	ds	107	ds	ds	ds	69
	Payroll	ds	5,904	3,728	3,955	4,002	3,272	ds	ds	4,209
Port & harbor operations	Establishments	2	2	1	1	1	5	2	3	3
	Employees	ds	18							
	Payroll	ds	951							
Ship & boat building	Establishments	37	39	33	29	30	37	33	33	33
	Employees	1,374	1,342	1,085	954	916	717	768	939	902
	Payroll	55,788	54,225	41,246	40,004	33,316	32,070	34,483	42,200	41,096

¹ Census Bureau data for the Marine Economy section of this report are available only through 2015.

² The U.S. Commercial Fishing Location Quotient (CFLQ) is 1. A CFLQ greater than 1 indicates that more commercial fishing occurs in this state than the national average. A CFLQ less than 1 indicates that less commercial fishing occurs in this state than the national average.

³ ds = these data are suppressed.

Mid-Atlantic Region

- Delaware
- Maryland
- New Jersey
- New York
- Virginia



Black sea bass catch on party boat near Ocean City, Maryland.
Photo: Mid-Atlantic Fishery Management Council/Mary Sabo

MANAGEMENT CONTEXT

The Mid-Atlantic Region includes Delaware, Maryland, New Jersey, New York, and Virginia. Federal fisheries in this region are managed by the Mid-Atlantic Fishery Management Council (MAFMC) and NOAA Fisheries under seven fishery management plans (FMPs). Two of these FMPs are developed in conjunction with the New England Fishery Management Council (NEFMC). The MAFMC is the lead council for the Spiny Dogfish FMP; the NEFMC is the lead for the Monkfish FMP.

Mid-Atlantic Region FMPs

- Atlantic mackerel, squid and butterfish
- Atlantic bluefish
- Spiny dogfish (with the NEFMC)
- Summer flounder, scup and black sea bass
- Surfclam and ocean quahog
- Golden tilefish
- Monkfish (with the NEFMC)

Summer flounder was listed as experiencing overfishing in 2016.

Catch Share Programs

Two catch share programs operate in the Mid-Atlantic: 1) Atlantic Surfclam and Ocean Quahog Individual Transferable Quota (ITQ) Program; and 2) Golden Tilefish Individual Fishing Quota (IFQ) Program. Following is a description of these catch share programs and their performance. Each program is described separately because the surfclam and ocean quahog fisheries are prosecuted as independent fisheries despite being in the same ITQ program.

Atlantic Surfclam ITQ Program: This program was implemented in 1990 to conserve the surfclam resource and stabilize harvest rates; simplify regulatory requirements to minimize public and private management costs; promote economic efficiency by bringing harvest capacity in line with processing and biological capacity; and create a management approach that is flexible and adaptive to short-term events or circumstances. The key performance indicators of

this program show that compared with the baseline period (the 3-year period prior to implementation), the 2015 quota and inflation-adjusted revenue per vessel increased. However, landings, the number of active vessels, and inflation-adjusted total revenue decreased.

Atlantic Ocean Quahog ITQ Program: This program was implemented in 1990 to conserve the quahog resource and stabilize harvest rates; simplify regulatory requirements to minimize public and private management costs; promote economic efficiency by bringing harvest capacity in line with processing and biological capacity; and create a management approach that is flexible and adaptive to short-term events or circumstances. The key performance indicators of this program show that relative to the baseline period (the 3-year period prior to implementation), the 2015 inflation-adjusted revenue per vessel increased. However, quota, landings, number of active vessels, and inflation-adjusted total revenue decreased.

Golden Tilefish IFQ Program: This program was implemented in 2009 to reduce over-capacity and eliminate problems associated with the race to fish golden tilefish. This IFQ program is unique because many key events occurred outside the traditional management process. Prior to the implementation of the IFQ program, fishermen crafted internal agreements that promoted cooperation. Their cooperative processes helped fishing businesses stay viable under new regulations, which laid the foundation for implementing the IFQ program. The key performance indicators of this program show that relative to the baseline period (the 3-year period prior to implementation), the 2015 inflation-adjusted revenue and inflation-adjusted revenue per vessel increased. However, landings, quota, and the number of active vessels decreased.

Policy Updates

In 2016, Amendment 16 to the Atlantic mackerel, squid, and butterfish FMP established the Frank R. Lautenberg Deep-Sea Coral Protection Area. The action prohibits the use of bottom-tending commercial fishing gear within the designated deep-sea coral area to protect deep-sea corals and deep-sea coral habitats in the Mid-Atlantic. Vessels can transit the deep-sea coral area protection

area provided the vessels bring bottom-tending fishing gear onboard, and reel bottom-tending trawl gear onto the net reel. Exemptions for some fishing activities apply. This rule went into effect on January 13, 2017.

In April 2016, the council approved an amendment for golden tilefish. The amendment made changes to how discards are deducted from quota; made changes to certain reporting requirements; prohibited vessels from fishing more than one golden tilefish IFQ allocation at a time; required golden tilefish to be landed with the head attached; and required that for incidental permit holders, golden tilefish not make up more than 25% of the total of all combined species landed.

Also in April 2016, the council approved measures to establish management of blueline tilefish in federal waters off the Mid-Atlantic and New England coasts. Since June 2015, the portion of the fishery north of North Carolina has been managed under emergency measures that include a commercial trip limit. The amendment established a separate blueline tilefish management unit in federal waters north of the North Carolina/Virginia border extending up to the boundary with Canada.

In August 2016, final action was taken on an amendment to require electronic submission of vessel trip reports by for-hire vessels with federal permits for council-managed species. While electronic submission has been an option since 2011 for some for-hire fisheries, the first mobile app-based system for submitting electronically was approved by NOAA Fisheries in 2016. The council voted to require the electronic submission of vessel trip reports and to change the submission time frame to 48 hours instead of monthly.

COMMERCIAL FISHERIES

In this report, commercial fisheries refer to fishing operations that sell their catch for profit. The term does not include subsistence fishermen or saltwater anglers who fish for sport. It also excludes the for-hire sector, which earns its revenue from selling recreational fishing trips to saltwater anglers. The commercial fisheries

section reports on economic impacts, landings revenue, landings, and ex-vessel prices of key species/species groups.

Key Mid-Atlantic Region Commercial Species

- American lobster
- Atlantic surfclam
- Blue crab
- Eastern oyster
- Menhaden
- Quahog clam
- Sea scallop
- Squid
- Striped bass
- Summer flounder

Economic Impacts

The premise behind economic impact modeling is that every dollar spent in a regional economy (direct impact) is either saved or re-spent on additional goods or services. If those dollars are re-spent on other goods and services in the regional economy, this spending generates additional economic activity in the region.

Four different measures are commonly used to show how commercial fisheries landings affect the economy in a region (state or nationwide): sales, income, value-added, and employment. The term sales refers to the gross value of all sales by regional businesses affected by an activity, such as commercial fishing. The category includes both the direct sales of fish landed and sales made between businesses and households resulting from the original sale. Income includes personal income (wages and salaries) and proprietors' income (income from self-employment). Value-added is the contribution made to the gross domestic product in a region. Employment is specified on the basis of full-time and part-time jobs supported directly or indirectly by the sales of seafood or purchases of inputs to commercial fishing. The first three measures are calculated in terms of dollars, whereas employment impacts are measured in numbers of jobs. Note that these categories are not additive. The United States seafood industry is defined here as the commercial fishing sector, seafood processors and dealers, seafood wholesalers and distributors, importers, and seafood retailers.¹

This report provides estimates of total economic impacts for the nation and for each of the 23 coastal states. Total

¹ The NMFS Commercial Fishing Industry Input/Output Model was used to generate the impact estimates (see NMFS Commercial Fishing & Seafood Industry Input/Output Model, available at www.st.nmfs.noaa.gov/documents/commercial_seafood_impacts_2007-2009.pdf).

economic impacts for each state and the nation represent the sum of direct impacts; indirect impacts (in this case, the impact from suppliers to the seafood industry); and induced impacts (spending by employees on personal and household expenditures, where employees of both the seafood industry and its full supply chain are included). That is, the total economic impact estimates reported here measure jobs, sales, value-added, and income impacts from the seafood industry as well as the economic activity generated throughout each region's broader economy from this industry.

In 2016, commercial fishing in New Jersey generated the largest employment impacts in the Mid-Atlantic Region: 37,100 jobs. Income impacts (\$1.4 billion), sales impacts (\$6.2 billion), and value-added impacts (\$2.3 billion) were also largest in New Jersey. The retail sector in New York generated the highest employment impacts of any state-level sector: 16,700 jobs. The importers sector in New Jersey generated the highest state-level income impacts (\$672.9 million), sales impacts (\$4.2 billion), and value-added impacts (\$1.3 billion) in the region.

Landings Trends

Landings revenue increased \$36.6 million (7%) in the Mid-Atlantic Region from 2015 to 2016, with all states experiencing gains with the exception of New York (down 7%). New Jersey (up 16%) accounted for the majority of this increase (\$26.8 million) while Delaware had the highest growth rate (up 47% or \$3.3 million). In New Jersey, the landings revenue increase was primarily due to an increase in landings in a high-value fishery – sea scallop harvest was up 34%, driving landings revenue up \$25.4 million. Region-wide, sea scallop landings revenue was up \$29.4 million (20%) due to higher landings (up 28%).

Other species with sizable increases in landings revenue from 2015 to 2016 included blue crab (up 19% or \$18.7 million) and squid (up 81% or \$6.9 million). The blue crab fishery is the most important fishery in terms of value for Maryland and Delaware and is the second-most-valuable fishery in Virginia. Combined, these three states comprise 90% and 93% of regional blue crab landings and landings revenue, respectively. Landings revenue increased in all three states from 2015 to 2016: Delaware was up by \$3.4 million (75%), Maryland by

\$8.7 million (17%); and Virginia by \$7.8 million (23%).

New Jersey and New York account for almost all of the Mid-Atlantic squid landings. In a year when global squid production fell 30% year-over-year, Mid-Atlantic squid landings almost doubled (up 94%).² While this regional surge in supply depressed overall squid prices (down 7%), illex squid prices, which are determined in the international market, increased 119%.

Oysters was the only Mid-Atlantic key species with a sizable decrease in landings and landings revenue (down 22% and 25%, respectively) from 2015 to 2016. Although 2016 was down relative to the previous year, both landings and landings revenue exceeded the 10-year average by 45% and 62%, respectively, due to surging aquaculture production in Virginia during this time period.

Landings Revenue

Landings revenue in the Mid-Atlantic Region totaled \$550.3 million in 2016. This number represented a 30% increase from 2007 (a 14% increase in real terms after adjusting for inflation) and a 7% increase from 2015. Landings revenue was highest in Virginia (\$204.7 million), followed by New Jersey (\$193 million). Shellfish landings revenue made up 80% of total revenue in the region. Sea scallop (\$180.1 million) and blue crab (\$117.5 million) had the highest landings revenue in the Mid-Atlantic Region in 2016. Together they accounted for 54% of total landings revenue.

From 2007 to 2016, Eastern oyster (381%, 320% in real terms), squid (107%, 81% in real terms), and quahog clam (91%, 67% in real terms) had the largest revenue increases, while Atlantic surfclam (-65%, -70% in real terms) and American lobster (-64%, -69% in real terms) had the largest revenue decreases. From 2015 to 2016, squid (81%), sea scallop (20%), and blue crab (19%) had the largest revenue increases, while Eastern oyster (-25%), Atlantic surfclam (-17%), and menhaden (-10%) had the largest revenue decreases.

Landings

In 2016, Mid-Atlantic Region commercial fishermen landed 597.5 million pounds of finfish and shellfish, a 20% decrease from 2007 and an 8% decrease from 2015.

² The decline in global squid production has been attributed to the strong El Niño event in 2015–2016.

Commercial Revenue: Largest Increases*From 2007:*

- Eastern oyster (381%, 320% in real terms)
- Squid (107%, 81% in real terms)
- Quahog clam (91%, 67% in real terms)

From 2015:

- Squid (81%)
- Sea scallop (20%)
- Blue crab (19%)

Commercial Revenue: Largest Decreases*From 2007:*

- Atlantic surfclam (-65%, -70% in real terms)
- American lobster (-64%, -69% in real terms)

From 2015:

- Eastern oyster (-25%)
- Atlantic surfclam (-17%)
- Menhaden (-10%)

Commercial Landings: Largest Increases*From 2007:*

- Eastern oyster (99%)
- Squid (80%)
- Quahog clam (51%)

From 2015:

- Squid (94%)
- Sea scallop (27%)
- Quahog clam (20%)

Commercial Landings: Largest Decreases*From 2007:*

- Atlantic surfclam (-66%)
- American lobster (-62%)
- Striped bass (-32%)

From 2015:

- Summer flounder (-28%)
- Eastern oyster (-22%)
- Atlantic surfclam (-18%)

From 2007 to 2016, Eastern oyster (99%), squid (80%), and quahog clam (51%) had the largest landings increases, while Atlantic surfclam (-66%), American lobster (-62%), and striped bass (-32%) had the largest

landings decreases. From 2015 to 2016, squid (94%), sea scallop (27%), and quahog clam (20%) had the largest landings increases, while summer flounder (-28%), Eastern oyster (-22%), and Atlantic surfclam (-18%) had the largest landings decreases.

Prices

In 2016, sea scallop (\$11.58 per pound) received the highest Mid-Atlantic Region ex-vessel price. Landings of menhaden (\$0.10 per pound) had the lowest ex-vessel price. From 2007 to 2016, Eastern oyster (142%, 111% in real terms), striped bass (99%, 74% in real terms), and sea scallop (79%, 57% in real terms) had the largest price increases, while American lobster (-5%, -17% in real terms) had the largest price decrease. From 2015 to 2016, summer flounder (29%), striped bass (17%), and blue crab (9%) had the largest price increases, while quahog clam (-7%), squid (-7%), and sea scallop (-6%) had the largest price decreases.

RECREATIONAL FISHERIES

In this report, recreational fishing refers to fishing for fun rather than to resell fish (commercial fishing) or for subsistence. The recreational fisheries section reports on economic impacts and expenditures, angler participation, trips, and catch of key species/species groups.³

Key Mid-Atlantic Region Recreational Species

- | | |
|--------------------|-------------------|
| • Atlantic croaker | • Striped bass |
| • Black sea bass | • Summer flounder |
| • Bluefish | • Tautog |
| • Scup | • Weakfish drum |
| • Spot | • Winter flounder |

Economic Impacts and Expenditures

The contribution of recreational fishing activities⁴ in the United States is reported in terms of economic impacts from angler expenditures. Total annual trip expenditures are estimated by multiplying mean trip expenditures by the estimated number of adult trips in each trip mode (for-hire, private boat, and shore). Total annual durable expenditures are estimated by multiplying mean

³ Except where noted, Atlantic and Gulf recreational catch and effort estimates are based upon the MRIP APAIS and CHTS (<https://www.st.nmfs.noaa.gov/recreational-fisheries/Surveys/survey-details>) and not the revised MRIP estimates (<https://www.fisheries.noaa.gov/leadership-message/noaa-fisheries-releases-revised-mrip-recreational-catch-and-effort-estimates>) released in 2018.

⁴ Trip expenditure estimates were generated from the 2011 National Marine Recreational Fishing Expenditure Survey. Durable good expenditure impacts were generated from the 2014 National Marine Recreational Fishing Expenditure Survey (see <https://www.st.nmfs.noaa.gov/economics/fisheries/recreational/Marine-Angler-Durable-Expenditures/2014-durable-expenditures-survey>). Economic impacts from recreational fishing activities were generated using the NMFS Recreational Economic Impact Model (see The Economic Contribution of Marine Angler Expenditures in the United States, 2011, available at <http://www.st.nmfs.noaa.gov/economics/publications/marine-angler-expenditures/marine-angler-2011>).

durable expenditures by the estimated annual number of adult participants in a given state.

Four different measures are commonly used to show how angler expenditures affect the economy in a region (state or nationwide): sales, income, value-added, and employment. The term sales refers to the gross value of all sales by regional businesses affected by an activity, such as recreational fishing. The category includes both the direct sales made by the angler and sales made between businesses and households resulting from that original sale by the angler. Income includes personal income (wages and salaries) and proprietors' income (income from self-employment). Value-added is the contribution made to the gross domestic product in a region. Employment is specified on the basis of full-time and part-time jobs supported directly or indirectly by the purchases made by anglers. The first three measures are calculated in terms of dollars, whereas employment impacts are measured in number of jobs. Note that these categories are not additive. NOAA Fisheries uses a regional impact modeling software, called IMPLAN, to estimate these four types of impacts.

The greatest employment impacts from expenditures on saltwater recreational fishing in the Mid-Atlantic Region were generated in New Jersey (15,400 jobs), followed by New York (10,400 jobs). The largest sales impacts were observed in New Jersey (\$1.8 billion), followed by New York (\$1.1 billion). The biggest income impacts were generated in New Jersey (\$746.2 million), followed by New York (\$488 million). The greatest value-added impacts were in New Jersey (\$1.2 billion), followed by New York (\$770.2 million).

Recreational fishing expenditures (on both fishing trips and durable equipment purchases) across the Mid-Atlantic Region in 2016 totaled about \$3.9 billion. Trip expenditures totaled more than \$670.9 million, with a large portion coming from trips in the private boat (59%) and shore (27%) sectors. Durable goods expenditures totaled \$3.3 billion, with the largest portion coming from boat expenses (\$1.9 billion).

Fishing Trips

In 2016, recreational fishermen took 14 million fishing

trips in the Mid-Atlantic Region. This number represented a 37% decrease from 2007 and a 13% increase from 2015. The largest proportions of trips were taken in the private boat mode (55%) and shore mode (41%). States with the highest number of recorded trips were New Jersey (4.3 million trips) and New York (4.3 million trips).

Participation

In 2016, there were 2.4 million recreational anglers who fished in the Mid-Atlantic Region. This number represented a 30% decrease from 2007 and a 21% increase from 2015. These anglers were Mid-Atlantic Region residents from either a coastal county (93%) or non-coastal county (7%).

Recreational Catch: Largest Increases

From 2007:

- Porgies (scup) (33%)
- Black sea bass (21%)
- Wrasses (tautog) (8%)

From 2015:

- Winter flounder (97%)
- Wrasses (tautog) (51%)
- Black sea bass (47%)

Recreational Catch: Largest Decreases

From 2007:

- Drum (spot) (-86%)
- Drum (Atlantic croaker) (-68%)
- Winter flounder (-63%)

From 2015:

- Drum (Atlantic croaker) (-22%)
- Drum (weakfish) (-2%)

Harvest and Release

Of the Mid-Atlantic Region's key species and species groups, summer flounder (12.2 million fish), black sea bass (9.3 million fish), and striped bass (8.6 million fish) were most frequently caught by recreational fishermen. From 2007 to 2016, porgies (scup) (33%), black sea bass (21%), and wrasses (tautog) (8%) had the largest increases in catch, while drum (spot) (-86%), drum (Atlantic croaker) (-68%), and winter flounder (-63%) had the largest decreases. From 2015 to 2016, winter flounder (97%), wrasses (tautog) (51%), and black sea

bass (47%) had the largest increases in catch, while drum (Atlantic croaker) (-22%) and drum (weakfish) (-2%) had the largest decreases.

MARINE ECONOMY

For this report, the marine economy refers to the economic activity generated by fishing and marine-related industries in a coastal state. The state marine economy consists of two industry sectors: 1) seafood sales and processing (employer establishments and non-employer firms); and 2) transport, support, and marine operations (employer establishments). These sectors include several different marine-related industries.^{5,6}

To measure the size of the commercial fishing sector in a state's economy relative to the size of the commercial fishing sector in the national economy⁷, researchers use an index called the Commercial Fishing Location Quotient (CFLQ). The CFLQ is calculated as the ratio of the percentage of regional employment in the commercial fishing sector relative to the percentage of national employment in the commercial fishing sector. The U.S. CFLQ is 1. If a state CFLQ is less than 1, then less commercial fishing occurs in this state than the national average. If a state CFLQ is greater than 1, then more commercial fishing occurs in this state than the national average. The Bureau of Labor Statistics suppressed the CFLQ value for Delaware for 2015. Of the remaining states in the Mid-Atlantic Region, New Jersey had the highest CFLQ at 0.87.

In 2015, 1.1 million employer establishments operated throughout the entire Mid-Atlantic Region (including marine- and non-marine-related establishments). These establishments employed over 17 million workers and had a total annual payroll of \$1 trillion. The combined gross state product of Delaware, Maryland, New Jersey, New York, and Virginia was approximately \$2.9 trillion in 2015.

Seafood Sales and Processing

Seafood Product Preparation and Packaging: In 2015, the Mid-Atlantic Region had 360 non-employer firms in the seafood product preparation and packaging sector (a 71% increase from 2007). Annual receipts for these firms totaled about \$25.5 million (a 53% increase

in real terms from 2007). There were 67 employer firms in the seafood product preparation and packaging sector (a 20% decrease from 2007). The greatest number of seafood product preparation and packaging establishments was located in New York (200), followed by Virginia (102) and Maryland (70).

Seafood Sales, Retail: In 2015, there were 420 non-employer firms engaged in retail sales of seafood in the five states that make up the Mid-Atlantic Region (a 24% decrease from 2007). Annual receipts for these firms totaled about \$37.1 million (a 38% decrease in real terms from 2007). There were 676 employer firms in the retail sales of seafood sector (a 2% decrease from 2007). These establishments employed 3,463 workers (a 14% increase from 2007) and had a total annual payroll of \$89.4 million (a 28% increase in real terms from 2007). The greatest number of retail seafood establishments was located in New York (581), followed by New Jersey (185) and Maryland (166).

Seafood Sales, Wholesale: There were 477 employer firms in the wholesale sales of seafood sector in the Mid-Atlantic Region in 2015 (a 12% decrease from 2007). These establishments employed 3,943 workers and had a total annual payroll of \$186 million. The greatest number of wholesale seafood establishments was located in New York (275), followed by New Jersey (78) and Virginia (65).

Transport, Support, and Marine Operations

Data for the transport, support, and marine operations sector of the Mid-Atlantic Region's economy were largely suppressed for confidentiality reasons. These sectors, however, play an important role in the regional economy. For example, the region's ship and boatbuilding sector accounted for over \$2 billion in payroll in 2015. The marine cargo handling sector in Delaware, Maryland, New Jersey and New York totaled \$579.3 million in payroll in 2015.

⁵ Unless otherwise stated, data are from the U.S. Census Bureau, <http://census.gov/> (accessed September 26, 2017).

⁶ U.S. Bureau of Economic Analysis, "Table 1.1.5 Gross Domestic Product" and "Table SA6N Compensation of Employees by NAICS Industry," http://www.bea.gov/iTable/index_nipa.cfm (accessed September 26, 2017).

⁷ U.S. Bureau of Labor Statistics, "Location Quotient Calculator," https://data.bls.gov/cew/doc/info/location_quotients.htm (accessed September 26, 2017).

Tables | Mid-Atlantic Region



2016 Economic Impacts of the Mid-Atlantic Seafood Industry (thousands of dollars)

	Landings Revenue	#Jobs	Sales	Income	Value Added	#Jobs	Sales	Income	Value Added
Delaware	10,097	711	135,690	25,669	44,201	389	49,444	10,472	16,794
Maryland	94,814	12,084	1,241,437	334,891	503,948	7,794	455,214	167,654	228,300
New Jersey	193,011	37,127	6,226,130	1,412,545	2,282,101	8,244	737,544	245,105	351,891
New York	47,731	33,081	4,411,529	949,879	1,567,277	3,400	175,363	60,931	85,227
Virginia	204,690	18,220	1,434,996	463,734	660,196	15,852	972,185	371,324	502,628

Total Landings Revenue & Landings Revenue of Key Species/Species Groups (thousands of dollars)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Total Revenue	423,232	452,636	435,847	521,140	552,315	510,297	435,977	476,778	513,724	550,343
Finfish & Other	103,372	91,280	101,445	111,451	119,630	130,357	124,379	119,146	117,041	108,192
Shellfish	319,861	361,356	334,403	409,690	432,685	379,941	311,598	357,633	396,682	442,150
Key Species										
American lobster	8,744	7,213	5,989	6,265	4,692	5,271	4,063	3,731	3,195	3,132
Atlantic surfclam	32,479	30,019	26,426	19,940	18,737	16,501	13,688	12,792	13,581	11,212
Blue crab	69,498	80,912	80,019	127,737	101,630	101,942	86,787	88,992	98,759	117,454
Eastern oyster	9,039	11,205	9,356	12,038	13,043	20,231	37,230	54,577	57,914	43,459
Menhaden	29,918	24,457	28,581	40,315	39,666	40,043	33,780	33,332	40,358	36,243
Quahog clam	23,601	35,853	23,022	28,880	27,607	29,502	35,902	38,153	40,377	45,021
Sea scallop	147,053	165,916	161,814	184,288	227,443	168,921	100,411	125,680	150,716	180,147
Squid	7,443	7,724	7,158	12,031	20,646	17,819	12,078	8,294	8,529	15,443
Striped bass	10,993	10,671	11,459	9,450	10,520	14,622	19,792	16,553	13,181	14,837
Summer flounder	10,855	9,693	9,980	12,849	15,614	17,194	17,131	13,195	14,576	13,478

Total Landings & Landings of Key Species/Species Groups (thousands of pounds)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Total Landings	749,980	687,788	694,960	812,857	797,355	759,928	582,307	595,351	650,684	597,535
Finfish & Other	555,560	481,567	489,221	578,227	574,674	568,026	444,182	455,886	506,475	437,180
Shellfish	194,420	206,221	205,739	234,630	222,681	191,901	138,125	139,464	144,209	160,355
Key Species										
American lobster	1,604	1,520	1,576	1,549	1,086	1,271	980	818	632	602
Atlantic surfclam	53,952	48,099	41,692	30,946	30,272	26,535	22,788	21,430	22,452	18,328
Blue crab	65,070	67,975	76,097	119,286	104,414	88,964	55,424	54,407	67,949	74,064
Eastern oyster	2,388	1,778	1,438	1,770	2,038	2,749	4,311	5,456	6,067	4,750
Menhaden	472,086	397,537	395,469	499,578	496,829	492,532	366,343	379,997	436,568	375,201
Quahog clam	4,115	5,246	3,255	3,685	3,551	3,730	4,586	5,016	5,154	6,203
Sea scallop	22,793	24,355	25,646	23,998	23,385	17,627	8,855	10,256	12,202	15,557
Squid	8,607	8,241	8,310	26,822	33,333	26,069	14,549	8,142	7,970	15,454
Striped bass	5,477	5,693	5,852	5,582	5,461	5,589	4,709	5,045	3,853	3,719
Summer flounder	4,725	4,260	5,137	6,384	8,672	7,795	8,010	4,901	5,031	3,610

Average Annual Price of Key Species/Species Groups (dollars per pound)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
American lobster	5.45	4.75	3.80	4.04	4.32	4.15	4.14	4.56	5.06	5.20
Atlantic surfclam	0.60	0.62	0.63	0.64	0.62	0.62	0.60	0.60	0.60	0.61
Blue crab	1.07	1.19	1.05	1.07	0.97	1.15	1.57	1.64	1.45	1.59
Eastern oyster	3.79	6.30	6.51	6.80	6.40	7.36	8.64	10.00	9.55	9.15
Menhaden	0.06	0.06	0.07	0.08	0.08	0.08	0.09	0.09	0.09	0.10
Quahog clam	5.74	6.83	7.07	7.84	7.77	7.91	7.83	7.61	7.83	7.26
Sea scallop	6.45	6.81	6.31	7.68	9.73	9.58	11.34	12.25	12.35	11.58
Squid	0.86	0.94	0.86	0.45	0.62	0.68	0.83	1.02	1.07	1.00
Striped bass	2.01	1.87	1.96	1.69	1.93	2.62	4.20	3.28	3.42	3.99
Summer flounder	2.30	2.28	1.94	2.01	1.80	2.21	2.14	2.69	2.90	3.73

2016 Economic Impacts of the Mid-Atlantic Recreational Fishing Expenditures (thousands of dollars, trips)

	Trips	#Jobs	Sales	Income	Value Added
Delaware	910	1,658	168,169	67,446	110,381
Maryland	2,383	7,608	784,528	327,372	512,722
New Jersey	4,306	15,363	1,751,578	746,203	1,167,991
New York	4,294	10,404	1,127,261	488,015	770,189
Virginia	2,108	5,893	583,806	239,344	378,694

2016 Angler Trip & Durable Goods Expenditures (thousands of dollars)

Fishing Mode	Trip Expenditures	Equipment	Durable Goods Expenditures
For-Hire	91,613	Fishing Tackle	835,169
Private Boat	398,542	Other Equipment	290,995
Shore	180,755	Boat Expenses	1,925,349
Total	670,909	Vehicle Expenses	199,636
		Second Home Expenses	14,542
		Total Durable Expenditures	3,265,692
Total State Trip and Durable Goods Expenditures			3,936,601

Recreational Anglers by Residential Area (thousands of anglers)¹

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Coastal	3,234	2,823	2,437	2,598	2,244	2,093	2,080	2,111	1,860	2,238
Non-Coastal	212	197	187	178	145	175	139	130	124	169
Out-of-State	NA									
Total Anglers	3,446	3,020	2,623	2,776	2,389	2,268	2,219	2,241	1,984	2,407

Recreational Fishing Effort by Mode (thousands of angler trips)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
For-Hire	1,690	1,143	1,111	873	1,050	951	1,365	1,258	1,316	624
Private	12,371	11,566	9,708	9,366	8,512	7,676	6,851	7,633	6,082	7,682
Shore	8,125	8,005	6,196	6,346	6,413	5,805	6,000	5,455	5,022	5,695
Total Trips	22,186	20,714	17,015	16,585	15,976	14,432	14,216	14,346	12,420	14,001

Harvest (H) & Release (R) of Key Species/Species Groups (thousands of fish)

		2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Black sea bass	H	1,302	926	1,335	1,317	532	1,134	786	1,049	1,306	1,460
	R	6,403	8,475	6,273	6,458	3,203	7,666	5,110	4,997	5,026	7,842
Bluefish	H	4,947	3,515	2,933	2,560	2,467	2,640	2,167	3,210	1,635	1,928
	R	8,011	7,211	4,457	3,936	4,242	4,269	2,463	4,049	2,612	2,985
Drum (Atlantic croaker)	H	8,583	9,978	7,308	6,019	3,993	4,788	6,571	5,165	4,406	3,244
	R	11,025	12,910	9,405	6,232	5,390	8,429	10,516	5,638	3,567	3,001
Drum (spot)	H	11,998	6,557	4,346	3,698	4,032	2,849	5,791	5,444	1,402	1,536
	R	3,940	4,490	2,238	2,575	2,610	2,642	5,798	1,845	839	729
Drum (weakfish)	H	332	372	38	15	8	157	49	21	38	22
	R	1,037	1,987	180	459	469	955	211	217	509	517
Porgies (scup)	H	1,699	1,543	1,637	2,736	770	714	1,242	1,228	1,991	1,570
	R	2,500	3,171	2,292	2,413	1,041	1,628	1,967	1,765	2,260	4,006
Striped bass	H	1,775	1,683	1,387	1,407	1,653	951	1,478	1,271	944	1,271
	R	7,730	4,787	3,802	3,467	3,781	3,410	4,706	4,609	5,414	7,334
Summer flounder	H	2,543	1,724	1,564	1,226	1,513	1,968	2,048	1,995	1,245	1,650
	R	16,577	18,433	21,371	21,400	18,466	13,317	12,128	15,117	9,621	10,510
Winter flounder	H	108	44	76	56	92	44	6	37	6	46
	R	43	32	138	102	126	36	33	20	23	10
Wrasses (tautog)	H	728	669	692	761	352	165	236	547	278	403
	R	2,202	1,979	1,911	2,317	1,531	1,110	1,219	1,852	1,823	2,763

¹ NA = data are not available because out-of-state resident information is collected for individual states but does not specify whether an angler resides in a region.

Tables | Delaware



2016 Economic Impacts of the Delaware Seafood Industry (thousands of dollars)

	With Imports				Without Imports			
	#Jobs	Sales	Income	Value Added	#Jobs	Sales	Income	Value Added
Total Impacts	711	135,690	25,669	44,201	389	49,444	10,472	16,794
Commercial Harvesters	190	18,499	4,402	5,960	190	18,499	4,402	5,960
Seafood Processors & Dealers	43	8,539	1,502	2,888	36	7,162	1,260	2,423
Importers	237	73,132	11,721	22,294	0	0	0	0
Seafood Wholesalers & Distributors	63	9,472	3,602	4,294	24	3,618	1,376	1,640
Retail	178	26,049	4,442	8,764	138	20,165	3,434	6,771

Total Landings Revenue & Landings Revenue of Key Species/Species Groups (thousands of dollars)¹

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Total Revenue	7,931	6,900	7,543	7,845	7,092	8,464	7,422	7,220	6,846	10,097
Finfish & Other	1,303	1,092	1,004	1,047	1,248	1,012	1,493	1,219	1,075	1,070
Shellfish	6,628	5,808	6,538	6,798	5,844	7,452	5,929	6,001	5,771	9,027
Key Species										
American eel	292	190	134	206	274	159	244	156	127	130
Black sea bass	198	156	25	8	2	0	2	NA	304	7
Blue crab	5,329	4,605	5,435	5,957	4,819	6,664	4,576	4,379	4,498	7,856
Eastern oyster	490	410	334	404	347	345	407	420	358	462
Quahog clam	181	127	117	110	143	123	177	133	97	65
Sea scallop	NA	256	173	NA						
Spot	57	40	49	50	66	16	64	104	3	23
Striped bass	300	403	327	400	412	470	766	496	465	505
Weakfish	31	18	5	4	2	56	16	7	3	8
Whelks	540	352	389	272	361	83	414	577	436	333

Total Landings & Landings of Key Species/Species Groups (thousands of pounds)¹

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Total Landings	5,346	4,706	5,011	5,214	4,921	5,640	4,048	3,727	3,529	4,980
Finfish & Other	899	630	773	718	881	628	774	853	658	519
Shellfish	4,448	4,076	4,238	4,496	4,040	5,012	3,274	2,874	2,871	4,461
Key Species										
American eel	131	80	60	69	91	54	83	62	45	45
Black sea bass	73	61	6	3	4	0	4	NA	112	2
Blue crab	3,799	3,508	3,414	4,110	3,502	4,571	2,488	2,000	2,124	3,928
Eastern oyster	80	67	67	71	62	60	71	73	61	73
Quahog clam	44	36	31	30	39	32	43	41	30	17
Sea scallop	NA	38	25	NA						
Spot	62	32	61	60	82	18	73	107	3	14
Striped bass	143	189	184	185	185	190	187	167	144	137
Weakfish	25	11	3	2	1	29	9	4	1	5
Whelks	288	217	313	138	131	29	156	229	177	126

Average Annual Price of Key Species/Species Groups (dollars per pound)¹

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
American eel	2.22	2.38	2.24	3.00	3.03	2.93	2.94	2.50	2.83	2.93
Black sea bass	2.73	2.57	4.31	2.63	0.50	0.85	0.50	NA	2.73	4.50
Blue crab	1.40	1.31	1.59	1.45	1.38	1.46	1.84	2.19	2.12	2.00
Eastern oyster	6.14	6.09	4.97	5.67	5.56	5.76	5.71	5.71	5.85	6.35
Quahog clam	4.09	3.57	3.79	3.69	3.72	3.84	4.07	3.25	3.26	3.80
Sea scallop	NA	6.81	6.80	NA						
Spot	0.92	1.24	0.81	0.84	0.81	0.89	0.88	0.97	0.93	1.65
Striped bass	2.09	2.13	1.77	2.16	2.22	2.47	4.09	2.98	3.23	3.70
Weakfish	1.27	1.75	1.93	1.56	2.01	1.95	1.85	1.87	1.92	1.81
Whelks	1.88	1.62	1.24	1.97	2.76	2.89	2.66	2.51	2.46	2.63

¹ NA = these data are confidential therefore not disclosable.

2016 Economic Impacts of Delaware Recreational Fishing Expenditures (thousands of dollars)

		#Jobs	Sales	Income	Value Added
Trip Impacts by Fishing Mode	For-Hire	20	2,666	1,003	1,480
	Private Boat	99	11,581	2,921	5,394
	Shore	277	25,987	7,737	13,995
Total Durable Expenditures		1,262	127,935	55,785	89,512
Total State Economic Impacts		1,658	168,169	67,446	110,381

2016 Angler Trip & Durable Goods Expenditures (thousands of dollars)

Fishing Mode	Trip Expenditures	Equipment	Durable Goods Expenditures
For-Hire	1,678	Fishing Tackle	41,297
Private Boat	11,500	Other Equipment	13,820
Shore	22,756	Boat Expenses	79,480
Total	35,934	Vehicle Expenses	7,711
		Second Home Expenses	0
		Total Durable Expenditures	142,308
Total State Trip and Durable Goods Expenditures			178,242

Recreational Anglers by Residential Area (thousands of anglers)¹

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Coastal	150	134	114	128	129	111	82	93	67	104
Non-Coastal	NA									
Out-of-State	224	182	173	165	190	151	97	146	84	168
Total Anglers	374	315	287	293	318	262	179	239	151	272

Recreational Fishing Effort by Mode (thousands of angler trips)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
For-Hire	71	55	44	21	18	20	37	40	38	13
Private	721	528	487	408	511	481	349	363	195	312
Shore	459	444	379	391	397	374	378	464	262	585
Total Trips	1,251	1,028	911	819	926	875	765	867	495	910

Harvest (H) & Release (R) of Key Species/Species Groups (thousands of fish)²

		2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Atlantic mackerel	H	0	0	0	0	0	0	< 1	0	< 1	0
	R	0	0	2	0	0	< 1	< 1	0	0	< 1
Black sea bass	H	93	23	37	21	43	40	37	24	23	24
	R	584	464	293	231	211	204	249	229	167	289
Bluefish	H	153	69	98	32	46	36	25	128	59	42
	R	538	167	167	57	128	118	70	324	132	151
Drum (Atlantic croaker)	H	359	369	452	75	92	88	232	413	145	8
	R	673	602	538	229	89	447	770	665	119	171
Drum (weakfish)	H	4	4	6	< 1	< 1	4	8	3	< 1	< 1
	R	23	61	4	13	7	85	22	23	16	26
Striped bass	H	8	27	20	16	18	25	20	9	3	2
	R	249	261	146	65	110	110	83	185	44	116
Summer flounder	H	108	35	87	54	67	45	58	93	51	90
	R	1,072	605	964	619	616	253	238	292	156	285
White perch	H	34	40	64	187	112	70	119	106	34	4
	R	191	243	121	397	272	187	369	65	106	19
Wrasses (tautog)	H	100	102	120	57	45	47	38	50	7	30
	R	267	164	224	196	88	107	99	77	27	163
Yellowfin tuna	H	< 1	1	< 1	< 1	< 1	< 1	< 1	1	< 1	< 1
	R	0	0	< 1	0	< 1	0	< 1	< 1	< 1	0

¹ Data is not available because all Delaware residents are considered coastal county residents.

² In this table, '<1' = 0-999 fish and '1' = 1,000-1,499 fish.

2015 Delaware State Economy (% of national total)^{1,3}

	#Non-Employer Firms	#Establishments	#Employees	Annual Payroll (\$ billions)	Employee Compensation (\$ billions)	Gross State Product (\$ billions)	Commercial Fishing Location Quotient ²
Totals	59,078 (0.2%)	24,852 (0.3%)	397,385 (0.3%)	21.31 (0.3%)	30.63 (0.3%)	68.86 (0.4%)	ds

Seafood Sales & Processing - Non-Employer Firms (thousands of dollars)³

		2007	2008	2009	2010	2011	2012	2013	2014	2015
Seafood product prep. & packaging	Firms	ds	3	NA	ds	ds	ds	ds	ds	ds
	Receipts	ds	27	NA	ds	ds	ds	ds	ds	ds
Seafood sales, retail	Firms	12	9	10	9	9	11	8	13	11
	Receipts	1,025	418	813	1,107	1,226	1,333	520	452	479

Seafood Sales & Processing - Employer Establishments (thousands of dollars)³

		2007	2008	2009	2010	2011	2012	2013	2014	2015
Seafood product prep. & packaging	Establishments	1	1	1	1	1	1	1	2	1
	Employees	ds								
	Payroll	ds								
Seafood sales, wholesale	Establishments	3	6	7	7	7	7	9	8	6
	Employees	ds	54							
	Payroll	ds	ds	ds	ds	ds	ds	3,020	2,381	2,404
Seafood sales, retail	Establishments	19	18	16	15	18	16	17	17	14
	Employees	105	ds	50	47	49	ds	60	52	36
	Payroll	2,997	1,498	1,348	1,414	1,493	1,545	1,396	1,261	1,224

Transport, Support & Marine Operations - Employer Establishments (thousands of dollars)^{3,4}

		2007	2008	2009	2010	2011	2012	2013	2014	2015
Coastal & Great Lakes freight transportation	Establishments	3	2	2	1	0	0	0	0	1
	Employees	ds	ds	ds	ds	NA	NA	NA	NA	ds
	Payroll	ds	ds	ds	ds	NA	NA	NA	NA	ds
Deep sea freight transportation	Establishments	0	4	4	5	2	1	1	2	4
	Employees	NA	ds	ds	120	ds	ds	ds	ds	98
	Payroll	NA	ds	ds	10,768	ds	ds	ds	ds	8,771
Deep sea passenger transportation	Establishments	0	0	0	1	0	0	2	2	1
	Employees	NA	NA	NA	ds	NA	NA	ds	ds	ds
	Payroll	NA	NA	NA	ds	NA	NA	ds	ds	ds
Marinas	Establishments	17	19	16	19	17	18	19	18	18
	Employees	88	65	ds	65	ds	67	64	95	86
	Payroll	2,540	1,738	1,877	2,342	3,106	1,963	2,196	2,293	2,527
Marine cargo handling	Establishments	3	3	3	3	3	2	3	3	3
	Employees	527	629	ds	434	511	ds	565	541	577
	Payroll	19,027	19,204	16,952	16,835	19,203	ds	20,698	22,789	23,370
Navigational services to shipping	Establishments	8	9	8	8	8	8	8	10	10
	Employees	76	79	85	76	78	ds	82	92	81
	Payroll	4,961	5,360	5,672	5,176	5,096	3,111	5,330	5,350	5,938
Port & harbor operations	Establishments	2	2	2	3	3	4	3	2	2
	Employees	ds	ds	ds	29	44	ds	ds	ds	ds
	Payroll	ds	ds	ds	1,182	1,512	ds	ds	ds	ds
Ship & boat building	Establishments	1	2	2	2	3	4	4	6	6
	Employees	ds	ds	ds	ds	ds	50	61	55	57
	Payroll	ds	ds	ds	ds	ds	2,313	2,516	2,174	2,168

¹ Census Bureau data for the Marine Economy section of this report are available only through 2015.

² The U.S. Commercial Fishing Location Quotient (CFLQ) is 1. A CFLQ greater than 1 indicates that more commercial fishing occurs in this state than the national average. A CFLQ less than 1 indicates that less commercial fishing occurs in this state than the national average.

³ ds = these data are suppressed.

⁴ NA = not applicable.

Tables | Maryland



2016 Economic Impacts of the Maryland Seafood Industry (thousands of dollars)

	With Imports				Without Imports			
	#Jobs	Sales	Income	Value Added	#Jobs	Sales	Income	Value Added
Total Impacts	12,084	1,241,437	334,891	503,948	7,794	455,214	167,654	228,300
Commercial Harvesters	3,115	167,264	47,699	74,435	3,115	167,264	47,699	74,435
Seafood Processors & Dealers	1,310	129,799	50,582	64,590	706	69,971	27,267	34,819
Importers	1,977	611,003	97,925	186,261	0	0	0	0
Seafood Wholesalers & Distributors	544	80,243	27,277	36,218	223	32,895	11,182	14,847
Retail	5,137	253,128	111,409	142,444	3,750	185,085	81,507	104,199

Total Landings Revenue & Landings Revenue of Key Species/Species Groups (thousands of dollars)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Total Revenue	65,329	73,196	75,893	103,825	82,567	85,069	75,860	91,051	88,839	94,814
Finfish & Other	12,252	11,264	11,691	13,012	13,126	15,724	17,217	18,846	16,293	16,042
Shellfish	53,077	61,933	64,202	90,813	69,441	69,345	58,643	72,205	72,546	78,772
Key Species										
Atlantic croaker	335	442	415	482	482	663	450	492	360	146
Black sea bass	454	445	451	590	507	421	702	834	859	898
Blue crab	41,690	50,115	52,049	79,055	60,326	60,467	49,956	52,848	52,026	60,677
Clams or bivalves	5,074	5,436	4,403	5,400	4,173	2,259	362	1,253	1,915	3,563
Eastern oyster	3,146	2,277	3,849	4,385	3,691	5,710	7,357	15,687	15,093	12,265
Menhaden	1,379	915	884	729	685	1,669	861	1,380	1,253	987
Sea scallop	2,809	3,758	3,160	1,188	551	202	8	1,328	3,077	1,783
Striped bass	5,333	5,232	5,180	5,425	5,623	6,933	9,931	8,092	6,357	7,102
Summer flounder	546	578	551	541	463	380	519	598	770	624
White perch	619	776	942	1,154	1,493	1,430	1,029	1,360	1,317	1,221

Total Landings & Landings of Key Species/Species Groups (thousands of pounds)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Total Landings	61,585	63,534	66,819	101,739	76,258	75,416	43,374	49,922	54,248	56,316
Finfish & Other	21,644	18,732	20,038	27,229	18,582	27,350	16,904	21,201	21,580	17,917
Shellfish	39,942	44,802	46,781	74,510	57,675	48,066	26,470	28,721	32,667	38,399
Key Species										
Atlantic croaker	576	778	550	589	804	1,041	855	504	358	162
Black sea bass	171	159	126	203	167	141	219	252	263	272
Blue crab	30,778	34,872	38,801	66,262	51,163	43,737	24,179	24,690	28,674	34,861
Clams or bivalves	7,947	8,600	6,292	6,971	5,412	2,962	609	1,955	1,983	2,224
Eastern oyster	317	249	498	432	356	618	788	1,196	1,191	887
Menhaden	13,751	9,615	9,419	15,467	8,016	16,383	7,298	8,363	8,989	6,098
Sea scallop	450	569	521	153	58	20	1	110	248	149
Striped bass	2,640	2,655	2,812	2,510	2,343	2,541	2,018	2,353	1,752	1,709
Summer flounder	229	208	214	261	259	165	178	192	244	159
White perch	973	858	1,301	1,700	2,059	1,956	1,244	1,516	1,698	1,851

Average Annual Price of Key Species/Species Groups (dollars per pound)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Atlantic croaker	0.58	0.57	0.75	0.82	0.60	0.64	0.53	0.98	1.01	0.90
Black sea bass	2.66	2.79	3.59	2.90	3.04	2.99	3.20	3.31	3.27	3.30
Blue crab	1.35	1.44	1.34	1.19	1.18	1.38	2.07	2.14	1.81	1.74
Clams or bivalves	0.64	0.63	0.70	0.77	0.77	0.76	0.59	0.64	0.97	1.60
Eastern oyster	9.92	9.13	7.73	10.15	10.37	9.24	9.34	13.11	12.67	13.83
Menhaden	0.10	0.10	0.09	0.05	0.09	0.10	0.12	0.17	0.14	0.16
Sea scallop	6.25	6.60	6.06	7.77	9.53	10.23	12.27	12.11	12.4	11.94
Striped bass	2.02	1.97	1.84	2.16	2.40	2.73	4.92	3.44	3.63	4.15
Summer flounder	2.39	2.78	2.58	2.07	1.78	2.30	2.92	3.11	3.16	3.93
White perch	0.64	0.90	0.72	0.68	0.73	0.73	0.83	0.90	0.78	0.66

2016 Economic Impacts of Maryland Recreational Fishing Expenditures (thousands of dollars)

		#Jobs	Sales	Income	Value Added
Trip Impacts by Fishing Mode	For-Hire	395	41,511	15,987	23,622
	Private Boat	468	47,234	17,255	26,957
	Shore	461	42,382	15,513	25,445
Total Durable Expenditures		6,284	653,401	278,617	436,698
Total State Economic Impacts		7,608	784,528	327,372	512,722

2016 Angler Trip & Durable Goods Expenditures (thousands of dollars)

Fishing Mode	Trip Expenditures	Equipment	Durable Goods Expenditures
For-Hire	27,564	Fishing Tackle	142,447
Private Boat	58,098	Other Equipment	65,672
Shore	38,494	Boat Expenses	398,169
Total	124,156	Vehicle Expenses	48,903
		Second Home Expenses	3,479
		Total Durable Expenditures	658,670
Total State Trip and Durable Goods Expenditures			782,826

Recreational Anglers by Residential Area (thousands of anglers)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Coastal	850	643	514	552	415	374	404	413	364	453
Non-Coastal	78	50	43	54	49	40	36	41	31	23
Out-of-State	528	507	327	462	372	258	329	338	352	352
Total Anglers	1,456	1,200	884	1,068	836	672	769	792	748	829

Recreational Fishing Effort by Mode (thousands of angler trips)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
For-Hire	270	194	203	139	161	151	154	211	180	128
Private	2,352	1,891	1,608	1,643	1,453	1,281	1,576	1,388	1,477	1,450
Shore	1,082	1,273	1,082	1,150	1,206	817	1,005	874	662	805
Total Trips	3,704	3,358	2,893	2,932	2,819	2,249	2,735	2,473	2,319	2,383

Harvest (H) & Release (R) of Key Species/Species Groups (thousands of fish)¹

		2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Black sea bass	H	39	26	33	36	47	33	30	68	58	80
	R	577	674	454	669	353	290	350	501	302	404
Bluefish	H	676	551	591	273	259	114	54	160	102	113
	R	1,172	1,631	670	161	408	138	259	142	194	136
Drum (Atlantic croaker)	H	873	620	1,335	1,137	554	979	1,140	1,080	815	188
	R	1,258	2,127	1,138	1,011	366	1,731	2,937	1,146	627	245
Drum (spot)	H	3,615	1,892	2,064	1,164	913	766	936	1,254	524	467
	R	1,619	1,738	633	1,155	297	920	2,622	566	243	230
Striped bass	H	765	415	502	458	445	262	477	583	406	596
	R	3,065	1,339	1,423	1,509	1,128	2,207	2,387	2,415	3,118	4,511
Summer flounder	H	104	58	65	25	15	23	53	80	44	22
	R	1,018	923	816	1,225	473	214	280	631	244	382
Weakfish drum	H	7	2	4	5	< 1	11	2	1	3	1
	R	64	37	8	163	18	25	10	5	118	81
White perch	H	2,890	1,511	551	2,613	1,572	1,534	2,258	808	710	1,945
	R	5,424	3,853	1,137	2,891	2,348	4,143	6,295	2,164	2,125	2,344
Wrasses (tautog)	H	43	19	38	57	12	5	4	< 1	3	2
	R	178	151	133	361	76	110	53	2	79	80
Yellowfin tuna	H	4	< 1	5	1	< 1	0	2	10	5	11
	R	< 1	0	2	< 1	0	0	4	1	0	13

¹ In this table, '<1' = 0-999 fish and '1' = 1,000-1,499 fish.

2015 Maryland State Economy (% of national total)^{1,3}

	#Non-Employer Firms	#Establishments	#Employees	Annual Payroll (\$ billions)	Employee Compensation (\$ billions)	Gross State Product (\$ billions)	Commercial Fishing Location Quotient ²
Totals	473,516 (1.9%)	137,204 (1.8%)	2,239,817 (1.8%)	118.5 (1.9%)	202.55 (2.1%)	366.24 (2%)	0.48

Seafood Sales & Processing - Non-Employer Firms (thousands of dollars)

		2007	2008	2009	2010	2011	2012	2013	2014	2015
Seafood product prep. & packaging	Firms	56	56	42	43	55	67	49	60	53
	Receipts	3,940	3,310	2,268	2,138	2,374	3,030	3,158	3,230	3,133
Seafood sales, retail	Firms	99	84	94	85	86	96	95	87	87
	Receipts	10,493	9,010	8,819	6,177	7,396	6,454	6,147	8,437	8,104

Seafood Sales & Processing - Employer Establishments (thousands of dollars)

		2007	2008	2009	2010	2011	2012	2013	2014	2015
Seafood product prep. & packaging	Establishments	22	22	19	18	17	16	16	17	17
	Employees	1,296	1,003	245	273	264	266	309	284	288
	Payroll	32,386	39,328	13,049	12,652	12,773	13,587	12,455	13,131	13,631
Seafood sales, wholesale	Establishments	62	60	61	63	57	60	58	58	53
	Employees	978	851	777	795	775	724	636	630	605
	Payroll	50,353	42,296	39,055	39,067	38,971	34,194	30,119	31,503	33,739
Seafood sales, retail	Establishments	102	94	87	87	88	87	87	83	79
	Employees	613	590	485	526	562	575	574	562	539
	Payroll	14,777	11,510	11,499	11,810	12,883	13,027	13,623	13,907	15,033

Transport, Support & Marine Operations - Employer Establishments (thousands of dollars)^{3,4}

		2007	2008	2009	2010	2011	2012	2013	2014	2015
Coastal & Great Lakes freight transportation	Establishments	8	6	7	8	6	4	4	8	6
	Employees	ds								
	Payroll	ds	ds	ds	ds	ds	ds	538	ds	ds
Deep sea freight transportation	Establishments	14	13	15	15	16	14	10	11	11
	Employees	244	250	255	390	329	245	139	135	118
	Payroll	14,905	19,765	20,722	24,185	25,071	17,938	10,041	11,600	11,097
Deep sea passenger transportation	Establishments	1	3	2	1	0	0	1	0	0
	Employees	ds	ds	ds	ds	NA	NA	ds	NA	NA
	Payroll	ds	ds	ds	ds	NA	NA	ds	NA	NA
Marinas	Establishments	183	179	176	175	172	159	170	166	172
	Employees	1,326	1,383	1,289	1,275	1,294	1,276	1,328	1,366	1,380
	Payroll	48,752	45,965	45,483	43,508	43,330	43,531	45,540	47,443	50,633
Marine cargo handling	Establishments	15	15	16	17	17	6	12	12	12
	Employees	1,791	1,572	1,599	2,742	1,924	ds	1,519	1,132	1,140
	Payroll	85,328	48,382	46,727	95,182	86,680	ds	60,500	60,962	81,751
Navigational services to shipping	Establishments	8	9	11	10	11	10	11	10	11
	Employees	157	92	77	84	84	ds	245	131	125
	Payroll	4,882	3,968	3,807	4,015	4,259	ds	17,066	6,345	6,411
Port & harbor operations	Establishments	8	3	4	5	5	22	16	17	15
	Employees	323	ds	ds	ds	ds	1,875	962	1,220	1,349
	Payroll	13,427	ds	ds	ds	ds	93,001	44,436	57,543	55,375
Ship & boat building	Establishments	48	46	38	35	35	34	31	35	36
	Employees	874	677	416	ds	633	378	371	449	456
	Payroll	29,500	22,363	16,238	ds	36,675	14,619	16,822	18,130	20,599

¹ Census Bureau data for the Marine Economy section of this report are available only through 2015.

² The U.S. Commercial Fishing Location Quotient (CFLQ) is 1. A CFLQ greater than 1 indicates that more commercial fishing occurs in this state than the national average. A CFLQ less than 1 indicates that less commercial fishing occurs in this state than the national average.

³ ds = these data are suppressed.

⁴ NA = not applicable.

Tables | New Jersey



2016 Economic Impacts of the New Jersey Seafood Industry (thousands of dollars)

	With Imports				Without Imports			
	#Jobs	Sales	Income	Value Added	#Jobs	Sales	Income	Value Added
Total Impacts	37,127	6,226,130	1,412,545	2,282,101	8,244	737,544	245,105	351,891
Commercial Harvesters	2,935	384,655	101,056	163,908	2,935	384,655	101,056	163,908
Seafood Processors & Dealers	5,099	529,766	200,633	261,867	753	78,228	29,627	38,669
Importers	13,585	4,198,321	672,861	1,279,832	0	0	0	0
Seafood Wholesalers & Distributors	2,172	388,025	124,711	169,583	217	38,701	12,439	16,914
Retail	13,337	725,362	313,284	406,911	4,339	235,959	101,984	132,401

Total Landings Revenue & Landings Revenue of Key Species/Species Groups (thousands of dollars)¹

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Total Revenue	151,509	168,508	151,539	178,572	220,377	187,707	132,860	149,301	166,181	193,011
Finfish & Other	24,234	19,936	24,074	23,031	26,808	28,639	25,951	24,911	29,095	26,218
Shellfish	127,275	148,572	127,465	155,540	193,569	159,068	106,909	124,390	137,086	166,794
Key Species										
American lobster	4,056	3,215	2,278	2,895	3,039	3,938	2,797	2,380	2,249	1,892
Atlantic herring	562	548	1,507	422	415	147	401	615	308	292
Atlantic mackerel	668	1,568	1,539	848	53	589	18	12	546	79
Blue crab	5,471	7,284	184	12,030	9,422	10,009	8,111	4,145	8,704	7,696
Eastern oyster	NA	2,547	NA							
Goosefish	4,486	4,005	3,018	2,752	3,654	3,301	2,453	2,428	2,364	2,470
Ocean quahog & surfclams	26,547	30,838	27,496	23,889	25,301	25,453	22,962	11,455	10,889	9,970
Quahog clam	968	6,254	NA							
Sea scallop	77,359	91,317	90,150	109,118	142,505	110,560	65,190	87,746	97,856	123,266
Summer flounder	3,988	3,461	3,376	4,552	5,461	5,434	4,899	4,862	5,059	5,389

Total Landings & Landings of Key Species/Species Groups (thousands of pounds)¹

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Total Landings	153,848	162,308	162,029	162,164	187,539	180,505	119,912	125,114	148,419	123,565
Finfish & Other	65,166	62,821	73,623	74,881	94,678	104,174	61,790	64,901	94,220	62,297
Shellfish	88,683	99,487	88,406	87,282	92,861	76,331	58,122	60,213	54,198	61,268
Key Species										
American lobster	680	633	585	689	687	919	660	526	445	351
Atlantic herring	6,038	6,539	13,692	4,140	2,385	1,114	2,344	4,087	3,428	2,798
Atlantic mackerel	5,384	9,426	10,255	4,692	107	2,017	46	17	2,188	306
Blue crab	4,636	5,816	257	9,461	9,600	7,393	4,391	3,233	7,247	6,910
Eastern oyster	NA	550	NA							
Goosefish	4,231	3,698	2,692	2,024	2,274	2,212	2,231	2,172	1,903	1,885
Ocean quahog & surfclams	44,791	51,597	45,306	38,538	41,281	38,921	35,960	19,447	18,283	16,492
Quahog clam	240	1,516	NA							
Sea scallop	11,808	13,282	14,045	14,171	14,545	11,379	5,640	7,133	7,847	10,481
Summer flounder	1,697	1,541	1,799	2,165	2,831	2,269	2,004	1,826	1,682	1,286

Average Annual Price of Key Species/Species Groups (dollars per pound)¹

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
American lobster	5.96	5.08	3.89	4.20	4.42	4.28	4.23	4.52	5.05	5.38
Atlantic herring	0.09	0.08	0.11	0.10	0.17	0.13	0.17	0.15	0.09	0.10
Atlantic mackerel	0.12	0.17	0.15	0.18	0.50	0.29	0.40	0.73	0.25	0.26
Blue crab	1.18	1.25	0.72	1.27	0.98	1.35	1.85	1.28	1.20	1.11
Eastern oyster	NA	4.63	NA	NA	NA	NA	NA	NA	NA	NA
Goosefish	1.06	1.08	1.12	1.36	1.61	1.49	1.10	1.12	1.24	1.31
Ocean quahog & surfclams	0.59	0.60	0.61	0.62	0.61	0.65	0.64	0.59	0.60	0.60
Quahog clam	4.04	4.12	NA	NA	NA	NA	NA	NA	NA	NA
Sea scallop	6.55	6.88	6.42	7.70	9.80	9.72	11.56	12.30	12.47	11.76
Summer flounder	2.35	2.25	1.88	2.10	1.93	2.39	2.44	2.66	3.01	4.19

¹ NA = these data are confidential and therefore not disclosable.

2016 Economic Impacts of New Jersey Recreational Fishing Expenditures (thousands of dollars)

		#Jobs	Sales	Income	Value Added
Trip Impacts by Fishing Mode	For-Hire	221	33,359	14,459	20,176
	Private Boat	1,138	154,152	54,285	87,574
	Shore	594	71,915	26,791	43,350
Total Durable Expenditures		13,410	1,492,152	650,668	1,016,891
Total State Economic Impacts		15,363	1,751,578	746,203	1,167,991

2016 Angler Trip & Durable Goods Expenditures (thousands of dollars)

Fishing Mode	Trip Expenditures	Equipment	Durable Goods Expenditures
For-Hire	19,646	Fishing Tackle	302,804
Private Boat	138,129	Other Equipment	90,772
Shore	59,141	Boat Expenses	711,797
Total	216,915	Vehicle Expenses	76,099
		Second Home Expenses	3,715
		Total Durable Expenditures	1,185,188
Total State Trip and Durable Goods Expenditures			1,402,103

Recreational Anglers by Residential Area (thousands of anglers)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Coastal	890	765	656	776	687	662	581	607	515	507
Non-Coastal	19	26	35	36	23	27	20	17	24	32
Out-of-State	518	456	454	449	357	431	330	566	448	378
Total Anglers	1,427	1,246	1,145	1,261	1,067	1,121	931	1,189	987	916

Recreational Fishing Effort by Mode (thousands of angler trips)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
For-Hire	605	449	434	320	383	369	550	514	466	183
Private	3,614	3,595	2,671	3,265	2,446	2,580	1,914	2,508	1,877	2,347
Shore	2,979	2,857	2,234	2,278	2,334	2,072	1,900	1,846	1,945	1,776
Total Trips	7,198	6,901	5,339	5,863	5,163	5,020	4,364	4,868	4,287	4,306

Harvest (H) & Release (R) of Key Species/Species Groups (thousands of fish)¹

		2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Black sea bass	H	725	580	583	687	148	735	345	468	310	294
	R	2,423	4,432	3,138	3,870	1,302	3,818	2,546	2,243	2,053	2,454
Bluefin tuna	H	7	3	14	6	2	< 1	9	5	< 1	2
	R	< 1	1	2	7	6	0	0	< 1	< 1	4
Bluefish	H	1,654	1,028	814	910	1,150	1,190	792	1,343	827	924
	R	2,735	1,477	1,476	1,886	1,911	1,996	884	1,853	1,055	1,675
Drum (weakfish)	H	230	298	12	2	3	114	31	7	30	7
	R	613	1,436	79	103	100	732	94	80	246	136
Red hake	H	1	152	240	124	206	58	82	177	19	29
	R	0	20	23	24	13	15	55	13	6	7
Striped bass	H	290	309	283	320	393	169	401	226	284	271
	R	1,789	1,309	801	690	884	406	1,073	1,051	859	794
Summer flounder	H	1,067	762	825	552	737	1,130	1,232	1,175	497	755
	R	6,192	8,959	10,414	10,565	8,096	6,981	6,427	9,513	4,677	6,114
Winter flounder	H	97	3	7	24	28	< 1	5	13	< 1	19
	R	28	15	27	38	25	2	29	9	22	7
Wrasses (tautog)	H	300	173	127	375	137	38	111	170	157	83
	R	1,290	902	856	1,063	843	510	461	778	683	693
Yellowfin tuna	H	58	7	7	25	17	69	95	7	7	17
	R	0	1	16	< 1	< 1	9	7	0	9	12

¹ In this table, '<1' = 0-999 fish and '1' = 1,000-1,499 fish.

2015 New Jersey State Economy (% of national total)^{1,3}

	#Non-Employer Firms	#Establishments	#Employees	Annual Payroll (\$ billions)	Employee Compensation (\$ billions)	Gross State Product (\$ billions)	Commercial Fishing Location Quotient ²
Totals	653,271 (2.7%)	230,961 (3%)	3,558,619 (2.9%)	209.07 (3.3%)	308.41 (3.2%)	564.36 (3.1%)	0.87

Seafood Sales & Processing - Non-Employer Firms (thousands of dollars)

		2007	2008	2009	2010	2011	2012	2013	2014	2015
Seafood product prep. & packaging	Firms	25	22	33	47	29	35	48	45	39
	Receipts	2,399	1,851	3,670	3,613	3,447	3,565	4,981	5,736	3,603
Seafood sales, retail	Firms	90	92	86	66	68	77	74	74	70
	Receipts	11,320	11,196	11,131	8,265	8,049	8,972	8,257	7,135	7,711

Seafood Sales & Processing - Employer Establishments (thousands of dollars)

		2007	2008	2009	2010	2011	2012	2013	2014	2015
Seafood product prep. & packaging	Establishments	16	14	13	11	12	11	13	13	15
	Employees	628	566	661	482	518	404	671	647	715
	Payroll	18,403	18,703	22,025	17,427	17,940	13,747	22,764	21,933	25,929
Seafood sales, wholesale	Establishments	101	81	83	90	91	82	80	78	78
	Employees	978	856	858	848	935	1,058	765	795	784
	Payroll	41,994	37,462	37,348	38,065	40,103	44,033	37,405	36,773	39,900
Seafood sales, retail	Establishments	124	118	106	108	109	114	114	108	115
	Employees	472	368	332	332	332	382	419	434	446
	Payroll	10,352	9,372	9,126	9,094	9,264	11,561	11,657	12,520	12,591

Transport, Support & Marine Operations - Employer Establishments (thousands of dollars)^{3,4}

		2007	2008	2009	2010	2011	2012	2013	2014	2015
Coastal & Great Lakes freight transportation	Establishments	23	18	19	18	20	16	16	13	13
	Employees	778	645	594	600	508	402	367	365	414
	Payroll	56,017	48,911	41,925	44,246	40,587	32,007	32,431	33,308	37,888
Deep sea freight transportation	Establishments	31	27	26	26	26	25	20	21	24
	Employees	566	1,115	1,045	ds	ds	390	225	212	193
	Payroll	44,133	75,848	66,547	78,898	81,936	27,481	12,263	11,271	11,522
Deep sea passenger transportation	Establishments	2	2	3	2	2	2	0	2	1
	Employees	ds	ds	ds	ds	ds	ds	NA	ds	ds
	Payroll	ds	ds	ds	ds	ds	ds	NA	ds	ds
Marinas	Establishments	216	211	214	212	206	210	206	190	196
	Employees	1,045	916	784	781	773	811	787	737	776
	Payroll	41,624	39,596	35,811	35,475	34,675	35,760	37,606	36,583	38,469
Marine cargo handling	Establishments	23	21	22	21	22	15	20	21	20
	Employees	4,781	4,244	3,479	3,292	3,744	2,582	6,912	6,082	5,005
	Payroll	350,690	278,189	230,886	260,894	273,636	203,148	538,991	563,746	521,401
Navigational services to shipping	Establishments	26	20	19	16	17	18	18	18	20
	Employees	227	191	133	75	110	96	106	92	88
	Payroll	11,403	7,776	6,638	6,125	5,619	5,983	6,057	5,597	6,914
Port & harbor operations	Establishments	8	6	6	11	7	25	18	18	17
	Employees	271	143	54	124	163	ds	ds	ds	106
	Payroll	12,197	12,446	5,548	10,463	16,933	139,276	5,995	6,334	6,305
Ship & boat building	Establishments	31	30	25	24	23	21	24	24	23
	Employees	2,305	2,019	1,188	1,056	864	901	917	1,080	1,329
	Payroll	91,460	79,309	42,909	37,920	39,810	36,334	41,886	50,459	59,130

¹ Census Bureau data for the Marine Economy section of this report are available only through 2015.

² The U.S. Commercial Fishing Location Quotient (CFLQ) is 1. A CFLQ greater than 1 indicates that more commercial fishing occurs in this state than the national average. A CFLQ less than 1 indicates that less commercial fishing occurs in this state than the national average.

³ ds = these data are suppressed.

⁴ NA = data not available.

Tables | New York



2016 Economic Impacts of the New York Seafood Industry (thousands of dollars)

	With Imports				Without Imports			
	#Jobs	Sales	Income	Value Added	#Jobs	Sales	Income	Value Added
Total Impacts	33,081	4,411,529	949,879	1,567,277	3,400	175,363	60,931	85,227
Commercial Harvesters	1,591	85,636	24,618	37,859	1,591	85,636	24,618	37,859
Seafood Processors & Dealers	709	114,261	43,444	56,508	119	19,233	7,313	9,512
Importers	10,815	3,342,329	535,672	1,018,888	0	0	0	0
Seafood Wholesalers & Distributors	3,235	261,688	88,467	119,283	117	9,480	3,205	4,321
Retail	16,730	607,617	257,679	334,739	1,572	61,015	25,796	33,536

Total Landings Revenue & Landings Revenue of Key Species/Species Groups (thousands of dollars)¹

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Total Revenue	60,314	57,429	48,856	47,717	48,303	54,524	56,809	56,316	51,372	47,731
Finfish & Other	19,936	18,534	17,331	18,575	20,087	23,515	23,271	19,688	19,261	19,067
Shellfish	40,378	38,896	31,525	29,142	28,215	31,009	33,537	36,628	32,112	28,665
Key Species										
American lobster	4,623	3,821	3,468	3,165	1,398	999	938	985	710	1,035
Atlantic surfclam	5,932	5,670	5,858	3,929	545	2,783	2,410	1,338	1,530	1,242
Eastern oyster	2,627	2,870	1,428	2,046	2,174	2,227	4,149	9,372	6,196	NA
Loligo squid	5,157	5,290	4,167	4,516	7,250	8,648	5,949	5,448	5,413	7,795
Quahog clam	14,224	13,185	8,397	7,774	6,905	9,218	13,475	11,777	12,244	11,914
Scups or porgies	2,348	1,710	1,887	2,112	2,551	3,536	2,971	2,313	3,138	2,905
Sea scallop	3,872	5,050	5,018	3,778	4,960	4,083	2,602	2,963	978	3,783
Softshell clam	1,628	1,076	700	709	351	332	848	982	1,427	NA
Summer flounder	3,131	2,933	3,087	3,550	3,732	3,653	3,197	2,997	3,043	2,524
Tilefishes	3,843	3,343	3,262	4,077	4,525	4,260	4,676	4,255	3,656	2,985

Total Landings & Landings of Key Species/Species Groups (thousands of pounds)¹

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Total Landings	35,785	34,175	34,304	33,267	32,010	35,864	33,366	27,377	27,002	29,152
Finfish & Other	15,696	14,686	15,867	18,275	18,442	18,864	18,369	15,645	15,660	15,450
Shellfish	20,089	19,489	18,438	14,992	13,567	17,000	14,997	11,732	11,343	13,702
Key Species										
American lobster	912	850	932	814	344	275	248	223	147	218
Atlantic surfclam	9,161	8,753	8,799	5,857	809	4,117	3,452	1,983	2,266	1,836
Eastern oyster	124	135	64	81	98	108	204	422	241	NA
Loligo squid	5,437	5,469	4,098	3,900	5,630	7,838	4,985	5,138	4,259	6,275
Quahog clam	1,592	1,476	1,410	1,216	1,131	1,299	1,932	1,781	1,898	2,166
Scups or porgies	2,325	1,214	1,850	2,690	3,729	4,307	4,574	3,175	4,050	3,506
Sea scallop	619	782	918	508	522	430	256	262	87	398
Softshell clam	198	131	114	116	57	54	138	160	194	NA
Summer flounder	942	856	1,142	1,364	1,517	1,238	1,033	833	830	603
Tilefishes	1,393	1,199	1,435	1,586	1,521	1,413	1,468	1,383	936	745

Average Annual Price of Key Species/Species Groups (dollars per pound)¹

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
American lobster	5.07	4.49	3.72	3.89	4.06	3.63	3.78	4.42	4.82	4.74
Atlantic surfclam	0.65	0.65	0.67	0.67	0.67	0.68	0.70	0.67	0.68	0.68
Eastern oyster	21.21	21.21	22.23	25.41	22.23	20.58	20.32	22.23	25.70	NA
Loligo squid	0.95	0.97	1.02	1.16	1.29	1.10	1.19	1.06	1.27	1.24
Quahog clam	8.94	8.93	5.96	6.39	6.10	7.10	6.97	6.61	6.45	5.50
Scups or porgies	1.01	1.41	1.02	0.79	0.68	0.82	0.65	0.73	0.77	0.83
Sea scallop	6.25	6.46	5.47	7.44	9.50	9.50	10.18	11.33	11.21	9.51
Softshell clam	8.23	8.24	6.13	6.13	6.13	6.13	6.13	6.13	7.35	NA
Summer flounder	3.33	3.43	2.70	2.60	2.46	2.95	3.09	3.60	3.67	4.19
Tilefishes	2.76	2.79	2.27	2.57	2.97	3.01	3.18	3.08	3.90	4.01

¹ NA = these data are confidential and therefore not disclosable.

2016 Economic Impacts of New York Recreational Fishing Expenditures (thousands of dollars)

		#Jobs	Sales	Income	Value Added
Trip Impacts by Fishing Mode	For-Hire	450	63,405	26,298	36,650
	Private Boat	781	78,747	29,530	48,514
	Shore	292	24,997	9,322	15,200
Total Durable Expenditures		8,881	960,112	422,865	669,825
Total State Economic Impacts		10,404	1,127,261	488,015	770,189

2016 Angler Trip & Durable Goods Expenditures (thousands of dollars)

Fishing Mode	Trip Expenditures	Equipment	Durable Goods Expenditures
For-Hire	38,058	Fishing Tackle	221,233
Private Boat	117,183	Other Equipment	75,713
Shore	29,688	Boat Expenses	527,516
Total	184,929	Vehicle Expenses	41,535
		Second Home Expenses	529
		Total Durable Expenditures	866,527
Total State Trip and Durable Goods Expenditures			1,051,456

Recreational Anglers by Residential Area (thousands of anglers)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Coastal	881	817	638	646	497	533	595	657	555	780
Non-Coastal	39	32	21	24	18	30	8	19	10	29
Out-of-State	147	118	58	69	46	53	93	155	53	113
Total Anglers	1,067	967	717	740	561	616	695	830	618	922

Recreational Fishing Effort by Mode (thousands of angler trips)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
For-Hire	684	388	381	348	458	366	565	439	567	261
Private	3,315	3,199	2,819	2,351	2,320	1,908	1,711	2,165	1,407	2,321
Shore	2,522	2,341	1,625	1,675	1,389	1,492	1,597	1,351	1,261	1,712
Total Trips	6,521	5,928	4,824	4,374	4,168	3,766	3,873	3,955	3,235	4,294

Harvest (H) & Release (R) of Key Species/Species Groups (thousands of fish)¹

		2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Atlantic herring ²	H	214	69	4	79	76	174	222	188	1,462	268
	R	230	50	0	17	< 1	0	59	15	25	15
Black sea bass	H	410	260	566	543	274	322	353	469	877	1,033
	R	1,549	1,655	1,236	1,163	893	2,471	1,372	1,447	2,234	4,043
Bluefish	H	2,151	1,484	1,293	1,026	927	1,150	1,108	1,424	509	686
	R	2,650	3,224	1,793	1,471	1,598	1,809	1,030	1,543	1,055	845
Drum (weakfish)	H	4	40	0	3	< 1	5	7	< 1	< 1	2
	R	109	25	3	3	55	11	6	< 1	4	2
Porgies (scup)	H	1,596	1,451	1,460	1,990	715	592	1,096	1,182	1,957	1,255
	R	1,964	2,838	2,124	1,864	998	1,235	1,865	1,730	2,136	3,707
Shortfin mako shark	H	< 1	< 1	0	1	0	< 1	0	11	7	< 1
	R	0	0	0	0	3	3	1	11	9	9
Striped bass	H	474	686	356	538	675	425	491	392	154	290
	R	1,678	1,346	1,073	1,069	1,506	586	990	703	592	1,107
Summer flounder	H	866	609	299	334	376	509	518	508	492	712
	R	5,272	5,521	5,564	6,571	7,295	5,013	4,667	4,041	3,929	3,553
Winter flounder	H	11	41	69	31	65	43	1	24	5	28
	R	15	17	110	63	101	33	3	11	1	3
Wrasses (tautog)	H	224	319	346	146	111	62	77	300	99	271
	R	387	728	665	567	487	365	590	939	1,018	1,766

¹ In this table, '<1' = 0-999 fish and '1' = 1,000-1,499 fish.

² This species may not be equivalent to species with similar names listed in the commercial tables.

2015 New York State Economy (% of national total)¹

	#Non-Employer Firms	#Establishments	#Employees	Annual Payroll (\$ billions)	Employee Compensation (\$ billions)	Gross State Product (\$ billions)	Commercial Fishing Location Quotient ²
Totals	1,674,297 (6.9%)	540,298 (7%)	7,998,994 (6.4%)	513.08 (8.2%)	780.66 (8.1%)	1,445.61 (8.1%)	0.13

Seafood Sales & Processing - Non-Employer Firms (thousands of dollars)

		2007	2008	2009	2010	2011	2012	2013	2014	2015
Seafood product prep. & packaging	Firms	68	73	101	115	142	133	150	181	183
	Receipts	3,516	3,383	4,896	6,784	7,380	8,279	9,946	10,681	12,890
Seafood sales, retail	Firms	266	247	196	214	183	205	197	188	172
	Receipts	23,157	23,983	19,753	18,999	16,286	16,714	15,923	14,369	13,299

Seafood Sales & Processing - Employer Establishments (thousands of dollars)³

		2007	2008	2009	2010	2011	2012	2013	2014	2015
Seafood product prep. & packaging	Establishments	15	17	15	15	18	17	17	17	17
	Employees	294	379	ds	272	299	265	280	ds	310
	Payroll	18,723	18,570	15,227	16,976	21,372	25,666	22,776	22,687	24,100
Seafood sales, wholesale	Establishments	291	231	246	263	291	243	264	270	275
	Employees	2,058	1,627	1,741	1,798	1,876	1,839	1,937	2,051	2,056
	Payroll	84,361	72,233	68,345	72,442	76,970	78,324	84,346	87,511	93,859
Seafood sales, retail	Establishments	372	368	386	394	391	385	399	401	409
	Employees	1,575	1,470	1,509	1,586	1,660	1,674	1,796	2,054	2,163
	Payroll	28,497	30,741	31,640	32,001	35,664	38,721	45,049	51,605	53,952

Transport, Support & Marine Operations - Employer Establishments (thousands of dollars)³

		2007	2008	2009	2010	2011	2012	2013	2014	2015
Coastal & Great Lakes freight transportation	Establishments	50	50	48	65	62	42	59	72	73
	Employees	1,746	1,759	2,299	1,654	1,708	ds	ds	ds	1,551
	Payroll	125,570	160,735	198,352	136,577	154,087	ds	ds	ds	185,742
Deep sea freight transportation	Establishments	34	29	32	30	31	23	20	23	22
	Employees	ds	732	782	704	752	214	ds	ds	174
	Payroll	65,632	108,744	89,313	98,499	88,354	31,229	22,691	19,387	26,452
Deep sea passenger transportation	Establishments	4	3	4	2	1	2	3	2	2
	Employees	7	ds	8	ds	ds	ds	ds	ds	ds
	Payroll	240	316	126	ds	ds	ds	ds	ds	ds
Marinas	Establishments	411	419	418	429	431	415	424	427	429
	Employees	2,070	2,263	2,099	2,052	2,033	1,868	1,907	1,986	1,930
	Payroll	88,862	100,910	96,640	94,654	96,408	87,124	93,212	95,900	99,181
Marine cargo handling	Establishments	12	10	9	13	12	6	9	12	11
	Employees	ds	ds	ds	1,086	1,019	ds	922	835	577
	Payroll	ds	ds	ds	68,555	66,439	ds	60,079	52,523	52,731
Navigational services to shipping	Establishments	36	32	37	37	35	53	33	36	33
	Employees	578	386	312	598	596	712	687	722	695
	Payroll	40,976	23,294	19,126	50,119	54,406	63,334	68,141	74,395	73,699
Port & harbor operations	Establishments	5	3	4	8	9	18	15	15	14
	Employees	ds	ds	ds	ds	33	1,294	196	168	230
	Payroll	ds	ds	ds	568	1,493	105,325	12,358	10,342	13,774
Ship & boat building	Establishments	53	49	47	41	43	49	45	42	42
	Employees	643	688	585	575	552	560	ds	ds	487
	Payroll	26,653	30,462	28,880	26,771	25,998	24,599	24,338	28,028	25,591

¹ Census Bureau data for the Marine Economy section of this report are available only through 2015.

² The U.S. Commercial Fishing Location Quotient (CFLQ) is 1. A CFLQ greater than 1 indicates that more commercial fishing occurs in this state than the national average. A CFLQ less than 1 indicates that less commercial fishing occurs in this state than the national average.

³ ds = these data are suppressed.

Tables | Virginia



2016 Economic Impacts of the Virginia Seafood Industry (thousands of dollars)

	With Imports				Without Imports			
	#Jobs	Sales	Income	Value Added	#Jobs	Sales	Income	Value Added
Total Impacts	18,220	1,434,996	463,734	660,196	15,852	972,185	371,324	502,628
Commercial Harvesters	4,867	350,620	112,172	166,798	4,867	350,620	112,172	166,798
Seafood Processors & Dealers	1,592	156,599	60,928	78,634	1,540	151,541	58,961	76,095
Importers	1,251	386,636	61,966	117,864	0	0	0	0
Seafood Wholesalers & Distributors	764	103,879	35,911	47,860	523	71,120	24,586	32,767
Retail	9,747	437,263	192,757	249,039	8,921	398,904	175,605	226,968

Total Landings Revenue & Landings Revenue of Key Species/Species Groups (thousands of dollars)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Total Revenue	138,149	146,602	152,017	183,181	193,976	174,534	163,027	172,891	200,485	204,690
Finfish & Other	45,646	40,455	47,345	55,784	58,360	61,467	56,447	54,482	51,318	45,796
Shellfish	92,503	106,147	104,672	127,397	135,616	113,067	106,580	118,409	149,167	158,894
Key Species										
Atlantic croaker	4,445	5,269	6,940	6,025	4,571	7,532	6,247	4,186	4,150	3,173
Black sea bass	663	759	569	928	1,003	1,401	1,716	1,365	1,607	1,938
Blue crab	15,793	18,013	21,169	29,133	26,274	24,561	23,991	27,047	33,104	40,862
Goosefish	781	951	631	594	752	1,218	920	654	516	401
Menhaden	25,317	21,271	23,578	34,476	32,995	31,107	25,343	26,046	28,209	25,856
Oysters	2,775	3,101	3,745	5,202	6,832	11,949	25,318	29,099	36,267	30,732
Sea Scallop	63,013	65,534	63,312	70,204	79,427	54,076	32,610	33,643	48,806	51,315
Spot	3,232	1,171	3,411	975	3,431	769	2,406	5,763	2,471	414
Striped bass	3,831	3,378	4,219	3,635	4,497	5,542	5,702	6,390	4,735	4,968
Summer flounder	3,184	2,719	2,959	4,202	5,956	7,725	8,513	4,733	5,699	4,933

Total Landings & Landings of Key Species/Species Groups (thousands of pounds)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Total Landings	493,415	423,066	426,798	510,474	496,629	462,503	381,607	389,211	417,487	383,523
Finfish & Other	452,156	384,698	378,921	457,124	442,091	417,011	346,345	353,287	374,357	340,998
Shellfish	41,259	38,367	47,877	53,350	54,538	45,492	35,262	35,924	43,130	42,525
Key Species										
Atlantic croaker	10,588	11,214	8,576	7,873	5,569	6,942	6,325	4,814	4,582	3,999
Black sea bass	189	215	164	264	275	392	496	388	422	512
Blue crab	25,141	23,243	32,756	38,490	39,656	33,144	24,258	24,205	29,682	28,135
Goosefish	847	972	743	596	604	907	846	587	445	365
Menhaden	420,481	353,895	351,392	433,241	414,159	390,318	317,950	326,817	353,934	323,146
Oysters	1,867	776	809	1,187	1,522	1,963	3,248	3,765	4,574	3,790
Sea Scallop	9,916	9,685	10,137	9,167	8,260	5,798	2,958	2,752	4,020	4,529
Spot	4,328	1,977	3,910	1,024	3,742	613	2,085	3,983	1,576	281
Striped bass	1,962	2,196	2,109	2,139	2,077	2,175	1,680	1,995	1,441	1,334
Summer flounder	1,856	1,654	1,980	2,592	4,065	4,122	4,794	2,049	2,274	1,561

Average Annual Price of Key Species/Species Groups (dollars per pound)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Atlantic croaker	0.42	0.47	0.81	0.77	0.82	1.09	0.99	0.87	0.91	0.79
Black sea bass	3.50	3.52	3.46	3.52	3.65	3.57	3.46	3.52	3.80	3.79
Blue crab	0.63	0.77	0.65	0.76	0.66	0.74	0.99	1.12	1.12	1.45
Goosefish	0.92	0.98	0.85	1.00	1.25	1.34	1.09	1.11	1.16	1.10
Menhaden	0.06	0.06	0.07	0.08	0.08	0.08	0.08	0.08	0.08	0.08
Oysters	1.49	4.00	4.63	4.38	4.49	6.09	7.80	7.73	7.93	8.11
Sea Scallop	6.35	6.77	6.25	7.66	9.62	9.33	11.02	12.23	12.14	11.33
Spot	0.75	0.59	0.87	0.95	0.92	1.25	1.15	1.45	1.57	1.47
Striped bass	1.95	1.54	2.00	1.70	2.16	2.55	3.39	3.20	3.29	3.73
Summer flounder	1.72	1.64	1.49	1.62	1.47	1.87	1.78	2.31	2.51	3.16

2016 Economic Impacts of Virginia Recreational Fishing Expenditures (thousands of dollars)

		#Jobs	Sales	Income	Value Added
Trip Impacts by Fishing Mode	For-Hire	58	6,837	2,581	3,850
	Private Boat	612	61,041	21,280	35,638
	Shore	381	33,958	12,700	21,197
Total Durable Expenditures		4,842	481,970	202,783	318,009
Total State Economic Impacts		5,893	583,806	239,344	378,694

2016 Angler Trip & Durable Goods Expenditures (thousands of dollars)

Fishing Mode	Trip Expenditures	Equipment	Durable Goods Expenditures
For-Hire	4,667	Fishing Tackle	127,388
Private Boat	73,632	Other Equipment	45,018
Shore	30,676	Boat Expenses	208,387
Total	108,975	Vehicle Expenses	25,388
		Second Home Expenses	6,819
		Total Durable Expenditures	412,999
Total State Trip and Durable Goods Expenditures			521,974

Recreational Anglers by Residential Area (thousands of anglers)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Coastal	463	464	515	496	516	412	419	341	359	394
Non-Coastal	76	89	87	63	56	78	74	53	59	86
Out-of-State	297	338	305	279	320	193	267	206	203	244
Total Anglers	836	891	907	838	892	684	760	600	620	724

Recreational Fishing Effort by Mode (thousands of angler trips)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
For-Hire	60	57	48	45	30	45	59	53	65	39
Private	2,369	2,353	2,124	1,700	1,782	1,426	1,302	1,209	1,126	1,252
Shore	1,083	1,089	876	852	1,086	1,051	1,120	920	892	817
Total Trips	3,511	3,499	3,048	2,597	2,899	2,522	2,480	2,182	2,083	2,108

Harvest (H) & Release (R) of Key Species/Species Groups (thousands of fish)¹

		2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Black sea bass	H	36	38	115	30	19	4	21	19	39	29
	R	1,271	1,251	1,153	525	444	883	593	578	270	652
Cobia	H	10	5	17	7	4	1	11	6	21	27
	R	3	3	13	9	9	9	16	15	25	33
Drum (Atlantic croaker)	H	6,945	8,388	5,327	4,744	3,306	3,454	4,307	3,408	3,330	3,045
	R	8,504	7,807	7,621	4,824	4,873	5,100	6,011	3,622	2,744	2,544
Drum (spot)	H	8,203	4,398	2,147	1,670	2,967	1,350	4,265	3,832	867	1,058
	R	2,157	1,488	1,458	1,156	2,245	1,146	2,214	1,185	509	490
Drum (spotted seatrout)	H	159	104	23	17	248	126	55	47	9	67
	R	363	367	171	550	1,215	429	291	404	482	1,653
Drum (weakfish)	H	87	28	16	4	4	22	2	9	4	11
	R	229	428	85	177	288	102	79	109	125	272
Red drum	H	46	21	39	11	0	28	124	54	8	4
	R	111	237	178	29	61	2,503	220	116	26	50
Striped bass	H	238	245	226	74	122	70	89	61	96	111
	R	949	532	359	134	154	102	172	255	801	805
Summer flounder	H	397	260	289	260	318	260	186	139	159	72
	R	3,023	2,425	3,613	2,420	1,987	857	515	640	615	177
Wrasses (tautog)	H	61	56	60	127	46	14	6	26	12	17
	R	80	34	34	129	36	17	16	56	16	61

¹ In this table, '<1' = 0-999 fish and '1' = 1,000-1,499 fish.

2015 Virginia State Economy (% of national total)¹

	#Non-Employer Firms	#Establishments	#Employees	Annual Payroll (\$ billions)	Employee Compensation (\$ billions)	Gross State Product (\$ billions)	Commercial Fishing Location Quotient ²
Totals	560,597 (2.3%)	197,384 (2.6%)	3,198,718 (2.6%)	165.79 (2.7%)	280.14 (2.9%)	481.72 (2.7%)	0.65

Seafood Sales & Processing - Non-Employer Firms (thousands of dollars)

		2007	2008	2009	2010	2011	2012	2013	2014	2015
Seafood product prep. & packaging	Firms	62	74	69	56	73	76	84	83	85
	Receipts	4,845	5,020	4,053	3,698	3,792	4,691	4,276	5,720	5,849
Seafood sales, retail	Firms	84	80	82	82	78	87	94	90	80
	Receipts	7,265	8,273	6,642	6,951	7,819	8,373	7,612	7,084	7,489

Seafood Sales & Processing - Employer Establishments (thousands of dollars)

		2007	2008	2009	2010	2011	2012	2013	2014	2015
Seafood product prep. & packaging	Establishments	30	26	25	23	18	19	18	20	17
	Employees	955	490	941	961	899	919	781	804	790
	Payroll	34,520	11,366	30,600	30,460	33,285	32,955	30,682	29,763	31,614
Seafood sales, wholesale	Establishments	83	69	72	76	62	64	70	65	65
	Employees	734	621	519	518	469	492	483	448	444
	Payroll	25,365	17,667	15,620	17,901	15,733	14,271	14,719	14,769	16,089
Seafood sales, retail	Establishments	73	68	62	59	58	51	55	57	59
	Employees	282	251	271	265	277	280	254	224	279
	Payroll	5,227	5,170	5,401	5,480	5,453	5,563	5,526	5,537	6,641

Transport, Support & Marine Operations - Employer Establishments (thousands of dollars)³

		2007	2008	2009	2010	2011	2012	2013	2014	2015
Coastal & Great Lakes freight transportation	Establishments	15	10	9	7	7	12	11	12	10
	Employees	565	ds	ds	ds	ds	ds	177	152	186
	Payroll	30,704	ds	ds	ds	ds	ds	10,077	9,264	11,951
Deep sea freight transportation	Establishments	20	18	16	17	21	19	12	12	12
	Employees	1,611	409	ds	421	492	ds	ds	ds	254
	Payroll	148,502	32,473	19,241	35,917	42,018	ds	ds	ds	33,057
Deep sea passenger transportation	Establishments	1	2	2	1	2	1	1	1	1
	Employees	ds	ds	ds	ds	ds	ds	ds	ds	ds
	Payroll	ds	ds	ds	ds	ds	ds	ds	ds	ds
Marinas	Establishments	126	119	118	115	110	105	113	107	108
	Employees	992	964	829	868	818	673	840	814	818
	Payroll	26,186	24,326	24,631	24,182	23,379	18,874	24,468	24,436	25,146
Marine cargo handling	Establishments	15	12	12	7	11	6	8	8	8
	Employees	1,085	ds							
	Payroll	56,696	ds	ds	41,280	41,262	ds	ds	ds	ds
Navigational services to shipping	Establishments	18	23	25	26	21	20	18	20	20
	Employees	216	375	384	411	419	428	303	322	302
	Payroll	11,700	21,014	22,177	22,910	22,132	25,732	20,283	21,348	20,746
Port & harbor operations	Establishments	10	8	6	7	6	13	14	15	14
	Employees	ds	ds	ds	ds	ds	ds	ds	ds	1,922
	Payroll	ds	ds	ds	ds	ds	ds	ds	ds	132,983
Ship & boat building	Establishments	52	59	53	56	51	59	54	56	54
	Employees	ds	ds	ds	ds	ds	ds	ds	ds	30,622
	Payroll	ds	ds	ds	ds	ds	ds	ds	ds	1,955,354

¹ Census Bureau data for the Marine Economy section of this report are available only through 2015.² The U.S. Commercial Fishing Location Quotient (CFLQ) is 1. A CFLQ greater than 1 indicates that more commercial fishing occurs in this state than the national average. A CFLQ less than 1 indicates that less commercial fishing occurs in this state than the national average.³ ds = these data are suppressed.

South Atlantic Region

- East Florida
- Georgia
- North Carolina
- South Carolina



Returning to port during the Virginia Beach Billfish Tournament.
Photo: South Atlantic Fishery Management Council/Cameron J. Rhodes

MANAGEMENT CONTEXT

The South Atlantic Region includes East Florida, Georgia, North Carolina, and South Carolina. Federal fisheries in this region are managed by the South Atlantic Fishery Management Council (SAFMC) and NOAA Fisheries under eight fishery management plans (FMPs). The coastal migratory pelagic resources and spiny lobster FMPs are managed jointly with the Gulf of Mexico Fishery Management Council (GMFMC). The SAFMC, in cooperation with the Mid-Atlantic and New England Fishery Management Councils, developed a dolphin wahoo FMP for the Atlantic.

South Atlantic Region FMPs

- Coastal migratory pelagic resources (with GMFMC)
- Coral, coral reef and live/hardbottom habitat
- Dolphin/wahoo
- Golden crab
- Pelagic sargassum habitat
- Shrimp
- Snapper grouper
- Spiny lobster (with GMFMC)

Red porgy, red snapper, snowy grouper, and Southeast Florida hogfish were listed as overfished in 2016. Six stocks or stock complexes are currently subject to overfishing: red snapper, speckled hind, Warsaw grouper, Southeast Florida hogfish, blueline tilefish, and tilefish (Southern Atlantic coast).

Catch Share Programs

South Atlantic Wreckfish Individual Transferable Quota Program:

This program was implemented in 1992 and is the only catch share program in the South Atlantic Region. This program was developed to create incentives for the conservation of wreckfish; to provide a management regime that promotes stability and facilitates long-range planning and investment by harvesters and dealers; to promote management regimes that minimize gear and area conflicts among fishermen; to minimize the tendency for over-capitalization in the harvesting and processing/distribution sectors; and to provide a reasonable opportunity for fishermen to make adequate returns from commercial fishing by limiting entry into the program. NOAA Fisheries continues to collect data on this program to develop standard performance indicators

that measure its basic economic performance.

Policy Updates

In 2016, a System Management Plan was approved for eight deepwater Marine Protected Areas (MPAs) established through the Snapper Grouper FMP in 2009. The council developed this plan to serve as the framework for resource protection, research and monitoring, outreach, administration and evaluation of the MPAs. The System Management Plan includes action items to assist in achieving the goals and objectives as well as potential metrics for evaluating the management effectiveness of the Marine Protected Areas. Eventually, the plan will be expanded to encompass all of the council’s managed areas, with sections for Marine Protected Areas, Spawning Special Management Zones, other Special Management Zones, and Coral Habitat Areas of Particular Concern.

Under Amendment 36 of the Snapper Group FMP, NOAA Fisheries approved the designation of five offshore areas as Spawning Special Management Zones in June 2017 to help protect spawning fish and unique habitat associated with spawning activities in the South Atlantic. Spawning Special Management Zones are expected to protect important spawning habitat and associated species of fish by limiting specific fishing and anchoring activity within the sites. The action includes a sunset provision that would require the areas be reauthorized after a period of 10 years, based on their effectiveness. The five areas, ranging in size from 3 to 5 square miles off North Carolina, South Carolina, and Florida, are the first Spawning Special Management Zones designated in federal waters off the South Atlantic coast.

Also in June 2017, following a recent stock assessment, the council approved measures that will allow increases in the harvest of spiny lobster in both the South Atlantic and Gulf of Mexico. The action would increase the acceptable biological catch from 7.32 million pounds to 9.6 million pounds. The amendment would also prohibit the use of traps for recreational harvest of spiny lobster.

COMMERCIAL FISHERIES

In this report, commercial fisheries refer to fishing operations that sell their catch for profit. The term does not include subsistence fishermen or saltwater anglers who fish for sport. It also excludes the for-hire sector, which earns its revenue from selling recreational fishing trips to saltwater anglers. The commercial fisheries section reports on economic impacts, landings revenue, landings, and ex-vessel prices of key species/species groups.

Key South Atlantic Commercial Species

- Blue crab
- Clams
- Flounders
- Groupers
- King mackerels
- Oysters
- Shrimp
- Snappers
- Swordfish
- Tunas

Economic Impacts

The premise behind economic impact modeling is that every dollar spent in a regional economy (direct impact) is either saved or re-spent on additional goods or services. If those dollars are re-spent on other goods and services in the regional economy, this spending generates additional economic activity in the region.

Four different measures are commonly used to show how commercial fisheries landings affect the economy in a region (state or nationwide): sales, income, value-added, and employment. The term sales refers to the gross value of all sales by regional businesses affected by an activity, such as commercial fishing. The category includes both the direct sales of fish landed and sales made between businesses and households resulting from the original sale. Income includes personal income (wages and salaries) and proprietors' income (income from self-employment). Value-added is the contribution made to the gross domestic product in a region. Employment is specified on the basis of full-time and part-time jobs supported directly or indirectly by the sales of seafood or purchases of inputs to commercial fishing. The first three measures are calculated in terms of dollars, whereas employment impacts are measured in numbers of jobs. Note that these categories are not additive. The United States seafood industry is

defined here as the commercial fishing sector, seafood processors and dealers, seafood wholesalers and distributors, importers, and seafood retailers.^{1,2}

This report provides estimates of total economic impacts for the nation and for each of the 23 coastal states. Total economic impacts for each state and the nation represent the sum of direct impacts; indirect impacts (in this case, the impact from suppliers to the seafood industry); and induced impacts (spending by employees on personal and household expenditures, where employees of both the seafood industry and its full supply chain are included). That is, the total economic impact estimates reported here measure jobs, sales, value-added, and income impacts from the seafood industry as well as the economic activity generated throughout each region's broader economy from this industry.

In 2016, commercial fishing in Florida generated the largest employment impacts in the South Atlantic Region: 76,700 jobs. Income impacts (\$3.2 billion), sales impacts (\$16.9 billion), and value-added impacts (\$5.7 billion) were also largest in Florida. The importers sector in Florida generated the highest employment impacts of any state-level sector: 39,200 jobs. The importers sector in Florida also generated the highest state-level income impacts (\$1.9 billion), sales impacts (\$12.1 billion), and value-added impacts (\$3.7 billion) in the region.

Landings Trends

South Atlantic landings revenue was up \$6.1 million in 2016 relative to the previous year. Gains from shrimp landings revenue (up \$6.6 million) and numerous finfish species more than offset declines in blue crab (down \$9.8 million) and clams (down \$3.1 million). The shrimp fishery generates the highest landings revenue of all South Atlantic fisheries. Shrimp fishery performance was driven largely by a banner year for North Carolina shrimp trawlers, which had their highest level of production since 1953 and, after adjusting for inflation, their highest landings revenue since 2000. Mild weather in the fall of 2016 that extended the fishing season was among the reasons cited for the 68% increase in North Carolina shrimp landings revenue from 2015 to 2016.

The blue crab fishery is the second most important

¹ The NMFS Commercial Fishing Industry Input/Output Model was used to generate the impact estimates (see NMFS Commercial Fishing & Seafood Industry Input/Output Model, available at: www.st.nmfs.noaa.gov/documents/commercial_seafood_impacts_2007-2009.pdf).

² Commercial economic impacts data were not available for East Florida; data for the entire state of Florida are reported here.

fishery in the South Atlantic Region in terms of landings revenue. Reduced landings coupled with lower prices both regionally and nationally resulted in a 21% decline in landings revenue from 2015 to 2016. The precipitous decline was prompted in part by new management measures implemented in 2016 in North Carolina to improve the condition of its blue crab stock. While showing some improvement from the 2014 stock assessment, the 2015 assessment continued to show decreased recruitment and adult abundance.

Oyster landings increased more than seven-fold from 2007-2016 largely due to expanding South Carolina production. In recent years, South Carolina has accounted for almost 90% of oyster production in the South Atlantic Region. As this industry took off, South Carolina implemented a moratorium in April 2014 on importing oyster seed from all points north of South Carolina due to a concern over disease transfer. By 2016, all seed orders by South Carolina oyster farmers were filled with seed produced in-state using South Carolina broodstock.³

Landings Revenue

Landings revenue in the South Atlantic Region totaled \$190.9 million in 2016. This number represented a 25% increase from 2007 (a 9% increase in real terms after adjusting for inflation) and a 3% increase from 2015. Landings revenue was highest in North Carolina (\$94.1 million), followed by East Florida (\$64.6 million). Shellfish landings revenue made up 61% of total revenue in the region. Shrimp (\$57 million) and blue crab (\$36.6 million) had the highest landings revenue in the South Atlantic Region in 2016. Together they accounted for 49% of total landings revenue.

From 2007 to 2016, oysters (76%, 54% in real terms), shrimp (30%, 14% in real terms), and blue crab (9%, -5% in real terms) had the largest revenue increases, while groupers (-53%, -59% in real terms), snappers (-16%, -27% in real terms), and tunas (-12%, -23% in real terms) had the largest revenue decreases. From 2015 to 2016, shrimp (13%), king mackerels (11%), and oysters (1%) had the largest revenue increases, while clams (-44%), blue crab (-21%), and tunas (-15%) had the largest revenue decreases.

Commercial Revenue: Largest Increases

From 2007

- Oysters (76%, 54% in real terms)
- Shrimp (30%, 14% in real terms)
- Blue crab (9%, -5% in real terms)

From 2015

- Shrimp (13%)
- King mackerels (11%)
- Oysters (1%)

Commercial Revenue: Largest Decreases

From 2007

- Groupers (-53%, -59% in real terms)
- Snappers (-16%, -27% in real terms)
- Tunas (-12%, -23% in real terms)

From 2015

- Clams (-44%)
- Blue crab (-21%)
- Tunas (-15%)

Commercial Landings: Largest Increases

From 2007

- Oysters (608%)
- Shrimp (13%)
- Blue crab (1%)

From 2015

- King mackerels (15%)
- Shrimp (4%)

Commercial Landings: Largest Decreases

From 2007

- Groupers (-68%)
- Flounders (-37%)
- Snappers (-31%)

From 2015

- Clams (-28%)
- Flounders (-26%)
- Swordfish (-21%)

Landings

In 2016, South Atlantic Region commercial fishermen landed 106.3 million pounds of finfish and shellfish, a 1% increase from 2007 and a 6% decrease from 2015. Blue crab had the highest landings volume in the South Atlantic Region, accounting for 32% of landed weight.

³ http://www.scseagrant.org/pdf_files/FY16-17-Impacts-and-Accomplishments-SFA.pdf.

From 2007 to 2016, oysters (608%), shrimp (13%), and blue crab (1%) had the largest landings increases, while groupers (-68%), flounders (-37%), and snappers (-31%) had the largest landings decreases. From 2015 to 2016, king mackerels (15%) and shrimp (4%) had the largest landings increases, while clams (-28%), flounders (-26%), and swordfish (-21%) had the largest landings decreases.

Prices

In 2016, clams (\$7.77 per pound) received the highest South Atlantic Region ex-vessel price. Landings of blue crab (\$1.06 per pound) had the lowest ex-vessel price. From 2007 to 2016, flounders (65%, 57% in real terms), groupers (45%, 39% in real terms), and king mackerels (30%, 26% in real terms) had the largest price increases, while oysters (-75%, -66% in real terms) and tunas (-4%, -4% in real terms) had the largest price decreases. From 2015 to 2016, flounders (25%), swordfish (12%), and shrimp (8%) had the largest price increases, while clams (-22%), tunas (-14%), and blue crab (-8%) had the largest price decreases.

RECREATIONAL FISHERIES

In this report, recreational fishing refers to fishing for fun rather than to resell fish (commercial fishing) or for subsistence. The recreational fisheries section reports on economic impacts and expenditures, angler participation, trips, and catch of key species/species groups.⁴

Key South Atlantic Recreational Species

- Atlantic croaker
- Black sea bass
- Bluefish
- Dolphinfish
- King mackerel
- Sharks
- Sheepshead porgy
- Red drum
- Spanish mackerel
- Spotted seatrout

Economic Impacts and Expenditures

The contribution of recreational fishing activities⁵ in the United States is reported in terms of economic impacts from angler expenditures. Total annual trip expenditures

are estimated by multiplying mean trip expenditures by the estimated number of adult trips in each trip mode (for-hire, private boat, and shore). Total annual durable expenditures are estimated by multiplying mean durable expenditures by the estimated annual number of adult participants in a given state.

Four different measures are commonly used to show how angler expenditures affect the economy in a region (state or nationwide): sales, income, value-added, and employment. The term sales refers to the gross value of all sales by regional businesses affected by an activity, such as recreational fishing. The category includes both the direct sales made by the angler and sales made between businesses and households resulting from that original sale by the angler. Income includes personal income (wages and salaries) and proprietors' income (income from self-employment). Value-added is the contribution made to the gross domestic product in a region. Employment is specified on the basis of full-time and part-time jobs supported directly or indirectly by the purchases made by anglers. The first three measures are calculated in terms of dollars, whereas employment impacts are measured in number of jobs. Note that these categories are not additive. NOAA Fisheries uses a regional impact modeling software, called IMPLAN, to estimate these four types of impacts.

The greatest employment impacts from expenditures on saltwater recreational fishing in the South Atlantic Region were generated in East Florida (36,100 jobs), followed by North Carolina (16,800 jobs). The largest sales impacts were observed in East Florida (\$4.1 billion), followed by North Carolina (\$1.7 billion). The biggest income impacts were generated in East Florida (\$1.5 billion), followed by North Carolina (\$655.8 million). The greatest value-added impacts were in East Florida (\$2.5 billion), followed by North Carolina (\$1 billion).

Recreational fishing expenditures (on both fishing trips and durable equipment purchases) across the South Atlantic Region in 2016 totaled about \$5.4 billion. Trip expenditures totaled nearly \$982 million, with a large portion coming from trips in the shore (49%) and private boat (32%) sectors. Durable goods expenditures totaled \$4.4 billion, with the largest portion coming

⁴ Except where noted, Atlantic and Gulf recreational catch and effort estimates are based upon the MRIP APAIS and CHTS (<https://www.st.nmfs.noaa.gov/recreational-fisheries/Surveys/survey-details>) and not the revised MRIP estimates (<https://www.fisheries.noaa.gov/leadership-message/noaa-fisheries-releases-revised-mrip-recreational-catch-and-effort-estimates>) released in 2018.

⁵ Trip expenditure estimates were generated from the 2011 National Marine Recreational Fishing Expenditure Survey. Durable good expenditure impacts were generated from the 2014 National Marine Recreational Fishing Expenditure Survey (see <https://www.st.nmfs.noaa.gov/economics/fisheries/recreational/Marine-Angler-Durable-Expenditures/2014-durable-expenditures-survey>). Economic impacts from recreational fishing activities were generated using the NMFS Recreational Economic Impact Model (see The Economic Contribution of Marine Angler Expenditures in the United States, 2011, available at <http://www.st.nmfs.noaa.gov/economics/publications/marine-angler-expenditures/marine-angler-2011>).

from boat expenses (\$2.6 billion).

Fishing Trips

In 2016, recreational fishermen took 16.8 million fishing trips in the South Atlantic Region. This number represented a 23% decrease from 2007 and a 2% increase from 2015. The largest proportions of trips were taken in the shore mode (55%) and private boat mode (42%). East Florida (8.8 million trips) and North Carolina (5.4 million trips) had the highest number of recorded trips.

Participation

In 2016, there were 2.3 million recreational anglers who fished in the South Atlantic Region. This number represented a 36% decrease from 2007 and a 5% increase from 2015. These anglers were South Atlantic Region residents from either a coastal county (80%) or non-coastal county (20%).

Recreational Catch: Largest Increases

From 2007:

- Red drum (37%)
- Porgies (sheepshead) (30%)
- Black sea bass (4%)

From 2015:

- King mackerel (42%)
- Porgies (sheepshead) (29%)
- Spanish mackerel (27%)

Recreational Catch: Largest Decreases

From 2007:

- King mackerel (-75%)
- Dolphinfinh (-57%)
- Sharks (-28%)

From 2015:

- Dolphinfinh (-48%)
- Drum (Atlantic croaker and spot) (-38%)
- Sharks (-22%)

Harvest and Release

Of the South Atlantic's key species and species groups, drum (Atlantic croaker and spot) (7.4 million fish), drum (spotted seatrout) (5.6 million fish), and bluefish (5 million fish) were most frequently caught by recreational

fishermen. From 2007 to 2016, red drum (37%), porgies (sheepshead) (30%), and black sea bass (4%) had the largest increases in catch, while king mackerel (-75%), dolphinfinh (-57%), and sharks (-28%) had the largest decreases. From 2015 to 2016, king mackerel (42%), porgies (sheepshead) (29%), and Spanish mackerel (27%) had the largest increases in catch, while dolphinfinh (-48%), drum (Atlantic croaker and spot) (-38%), and sharks (-22%) had the largest decreases.

MARINE ECONOMY

For this report, the marine economy refers to the economic activity generated by fishing and marine-related industries in a coastal state. The state marine economy consists of two industry sectors: 1) seafood sales and processing (employer establishments and non-employer firms); and 2) transport, support, and marine operations (employer establishments). These sectors include several different marine-related industries. Note that when discussing the marine economy in the South Atlantic Region, all statistics include the entire state of Florida and not just East Florida.^{6,7,8}

To measure the size of the commercial fishing sector in a state's economy relative to the size of the commercial fishing sector in the national economy⁹, researchers use an index called the Commercial Fishing Location Quotient (CFLQ). The CFLQ is calculated as the ratio of the percentage of regional employment in the commercial fishing sector relative to the percentage of national employment in the commercial fishing sector. The U.S. CFLQ is 1. If a state CFLQ is less than 1, then less commercial fishing occurs in this state than the national average. If a state CFLQ is greater than 1, then more commercial fishing occurs in this state than the national average. Florida had the highest CFLQ in the South Atlantic Region in 2015, at 0.97.

In 2015, 1.1 million employer establishments operated throughout the entire South Atlantic Region (including marine- and non-marine-related establishments). These establishments employed about 16.8 million workers and had a total annual payroll of \$743 billion. The combined gross state product of Florida, Georgia, North Carolina, and

⁶ Marine Economy information was not available for East Florida; information for the entire state of Florida is provided here.

⁷ Unless otherwise stated, data are from the U.S. Census Bureau, <http://census.gov/> (accessed September 26, 2017).

⁸ U.S. Bureau of Economic Analysis, "Table 1.1.5 Gross Domestic Product" and "Table SA6N Compensation of Employees by NAICS Industry," http://www.bea.gov/iTable/index_nipa.cfm (accessed September 26, 2017).

⁹ U.S. Bureau of Labor Statistics, "Location Quotient Calculator," https://data.bls.gov/cew/doc/info/location_quotients.htm (accessed September 26, 2017).

South Carolina was approximately \$2.1 trillion in 2015.

Seafood Sales and Processing

Seafood Product Preparation and Packaging: In 2015, the South Atlantic Region had 485 non-employer firms in the seafood product preparation and packaging sector (a 95% increase from 2007). Annual receipts for these firms totaled about \$35.3 million (a 103% increase in real terms from 2007). There were 51 employer firms in the seafood product preparation and packaging sector (a 4% decrease from 2007). The Census Bureau suppressed employment and payroll data in this sector for one or more states in the South Atlantic Region in 2015. The greatest number of seafood product preparation and packaging establishments was located in Florida (327), followed by Georgia (93) and North Carolina (88).

Seafood Sales, Retail: In 2015, there were 642 non-employer firms engaged in retail sales of seafood in the four states that make up the South Atlantic Region (a 2% increase from 2007). Annual receipts for these firms totaled about \$56.1 million (a 10% decrease in real terms from 2007). There were 396 employer firms in the retail sales of seafood sector (a 10% increase from 2007). These establishments employed 1,825 workers (a 13% increase from 2007) and had a total annual payroll of \$44.2 million (a 28% increase in real terms from 2007). The greatest number of retail seafood establishments was located in Florida (536), followed by North Carolina (225) and Georgia (154).

Seafood Sales, Wholesale: There were 340 employer firms in the wholesale sales of seafood sector in the South Atlantic Region in 2015 (a 16% decrease from 2007). These establishments employed 4,089 workers and had a total annual payroll of \$160.3 million. The greatest number of wholesale seafood establishments was located in Florida (242), followed by North Carolina (59) and Georgia (23).

Transport, Support, and Marine Operations

Data for the transport, support, and marine operations sector of the South Atlantic Region's economy were largely suppressed for confidentiality reasons. It is clear, however, that these sectors play an important role in the

regional economy. For example, the deep sea passenger transportation sector in Florida alone accounted for \$967 million in payroll in 2015. The ship and boat building sector for the entire South Atlantic Region totaled \$779.7 million in payroll in 2015.

Tables | South Atlantic Region



2016 Economic Impacts of the South Atlantic Seafood Industry (thousands of dollars)

	Landings Revenue	With Imports				Without Imports			
		#Jobs	Sales	Income	Value Added	#Jobs	Sales	Income	Value Added
Florida	64,593	76,749	16,873,652	3,171,513	5,658,897	11,083	1,081,344	284,434	437,467
Georgia	11,488	9,983	1,554,347	343,991	566,586	1,349	69,592	27,316	37,213
North Carolina	94,050	10,156	984,700	275,651	410,851	6,105	332,945	135,957	180,719
South Carolina	20,784	1,478	118,153	38,818	55,055	1,209	71,612	29,332	39,034

Total Landings Revenue & Landings Revenue of Key Species/Species Groups (thousands of dollars)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Total Revenue	152,400	165,632	147,205	165,447	171,306	171,214	162,637	188,919	184,776	190,915
Finfish & Other	61,335	60,797	63,112	65,922	66,499	64,757	62,875	69,564	63,261	74,295
Shellfish	91,065	104,835	84,093	99,525	104,807	106,456	99,763	119,355	121,515	116,620
Key Species										
Blue crab	33,634	39,986	37,703	36,080	33,862	37,608	44,131	46,734	46,416	36,606
Clams	4,039	3,862	3,516	3,809	3,396	2,873	2,940	3,973	7,029	3,948
Flounders	11,802	11,230	10,389	11,118	9,528	8,011	7,529	13,509	13,204	12,209
Groupers	6,060	5,287	4,348	3,878	3,786	3,433	3,375	3,475	3,198	2,824
King mackerels	6,872	7,695	8,088	7,585	6,580	5,559	5,214	5,829	5,637	6,252
Oysters	3,806	4,028	4,603	7,175	6,850	5,133	6,076	7,207	6,641	6,689
Shrimp	43,807	51,064	33,078	46,146	53,652	54,921	38,770	50,698	50,423	56,993
Snappers	3,922	4,554	4,024	3,497	3,757	3,838	3,763	3,998	3,528	3,285
Swordfish	4,298	3,661	4,821	7,519	9,400	9,895	8,690	5,915	5,075	4,474
Tunas	4,894	4,672	4,869	3,681	5,096	6,926	5,849	6,049	5,104	4,322

Total Landings & Landings of Key Species/Species Groups (thousands of pounds)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Total Landings	105,285	116,527	113,479	119,494	123,657	113,530	98,737	111,059	113,345	106,336
Finfish & Other	46,613	43,948	51,117	52,569	53,824	39,673	37,338	50,244	38,348	35,489
Shellfish	58,672	72,580	62,362	66,925	69,833	73,858	61,398	60,815	74,998	70,847
Key Species										
Blue crab	34,045	44,970	38,959	38,840	42,127	40,388	32,762	34,228	40,445	34,486
Clams	663	628	611	641	569	512	446	614	705	508
Flounders	4,939	5,151	5,362	5,109	4,355	2,961	2,889	4,739	4,181	3,090
Groupers	1,820	1,580	1,295	1,105	949	856	783	762	676	587
King mackerels	3,736	4,352	4,858	4,247	3,048	2,456	1,899	2,380	2,267	2,615
Oysters	776	857	938	1,439	1,233	6,074	6,464	6,057	5,782	5,493
Shrimp	21,235	23,341	20,109	23,203	22,940	22,361	13,842	15,816	22,983	23,955
Snappers	1,354	1,515	1,373	1,196	1,246	1,227	1,171	1,181	1,034	940
Swordfish	1,417	1,307	1,800	2,288	2,611	2,850	2,540	1,762	1,699	1,336
Tunas	2,310	1,658	1,945	1,805	2,209	2,442	2,306	2,557	2,169	2,126

Average Annual Price of Key Species/Species Groups (dollars per pound)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Blue crab	0.99	0.89	0.97	0.93	0.80	0.93	1.35	1.37	1.15	1.06
Clams	6.09	6.15	5.76	5.94	5.97	5.61	6.59	6.47	9.98	7.77
Flounders	2.39	2.18	1.94	2.18	2.19	2.71	2.61	2.85	3.16	3.95
Groupers	3.33	3.35	3.36	3.51	3.99	4.01	4.31	4.56	4.73	4.81
King mackerels	1.84	1.77	1.66	1.79	2.16	2.26	2.75	2.45	2.49	2.39
Oysters	4.91	4.70	4.91	4.99	5.55	0.84	0.94	1.19	1.15	1.22
Shrimp	2.06	2.19	1.64	1.99	2.34	2.46	2.80	3.21	2.19	2.38
Snappers	2.90	3.01	2.93	2.92	3.02	3.13	3.21	3.38	3.41	3.50
Swordfish	3.03	2.80	2.68	3.29	3.60	3.47	3.42	3.36	2.99	3.35
Tunas	2.12	2.82	2.50	2.04	2.31	2.84	2.54	2.37	2.35	2.03

2016 Economic Impacts of the South Atlantic Recreational Fishing Expenditures (thousands of dollars, trips)

	Trips	#Jobs	Sales	Income	Value Added
East Florida	8,827	36,066	4,084,156	1,540,223	2,466,383
Georgia	696	1,642	160,818	66,636	106,409
North Carolina	5,411	16,811	1,699,040	655,798	1,020,499
South Carolina	1,909	5,117	497,748	181,326	292,141

2016 Angler Trip & Durable Goods Expenditures (thousands of dollars)

Fishing Mode	Trip Expenditures	Equipment	Durable Goods Expenditures
For-Hire	191,544	Fishing Tackle	1,026,335
Private Boat	309,468	Other Equipment	435,279
Shore	480,634	Boat Expenses	2,618,108
Total	981,645	Vehicle Expenses	313,426
		Second Home Expenses	42,561
		Total Durable Expenditures	4,435,707
Total State Trip and Durable Goods Expenditures			5,417,352

Recreational Anglers by Residential Area (thousands of anglers)¹

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Coastal	3,157	2,330	1,922	1,933	1,893	2,135	2,092	2,189	1,753	1,873
Non-Coastal	493	560	462	536	450	502	396	530	475	472
Out-of-State	NA									
Total Anglers	3,650	2,890	2,384	2,470	2,343	2,637	2,488	2,719	2,229	2,345

Recreational Fishing Effort by Mode (thousands of angler trips)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
For-Hire	503	415	391	368	372	348	336	414	499	493
Private	11,536	10,910	8,923	9,514	8,663	8,775	7,878	7,836	7,301	7,085
Shore	9,956	10,469	9,371	9,185	8,637	8,669	8,402	9,395	8,739	9,266
Total Trips	21,995	21,794	18,684	19,066	17,673	17,793	16,616	17,646	16,539	16,844

Harvest (H) & Release (R) of Key Species/Species Groups (thousands of fish)

		2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Black sea bass	H	435	347	271	509	337	293	246	338	213	188
	R	2,863	2,568	1,906	2,595	3,031	4,374	2,865	4,967	3,351	3,253
Bluefish	H	1,914	1,688	1,587	2,348	1,936	1,380	1,895	1,802	1,683	1,716
	R	4,089	3,085	2,559	4,268	3,457	2,367	3,680	3,412	3,221	3,284
Dolphinfish	H	1,079	1,025	728	825	824	802	522	575	923	583
	R	394	188	98	127	355	126	167	244	296	49
Drum (Atlantic croaker and spot)	H	4,575	5,514	2,817	1,946	3,074	2,796	3,314	4,255	5,991	2,275
	R	3,775	4,181	4,868	3,334	4,183	3,560	5,786	6,278	5,849	5,106
Drum (spotted seatrout)	H	1,547	1,633	1,411	932	859	1,690	1,069	876	521	1,085
	R	5,554	5,166	4,169	5,772	4,890	6,519	4,289	4,524	4,565	4,466
King mackerel	H	818	484	420	234	153	149	99	128	142	225
	R	301	169	97	75	47	27	23	67	52	51
Porgies (sheepshead)	H	638	694	626	705	664	523	593	736	448	645
	R	545	692	509	496	517	629	746	945	743	895
Red drum	H	414	463	276	607	494	458	633	589	419	569
	R	1,838	2,414	1,870	3,320	2,137	2,966	3,068	2,957	2,168	2,520
Sharks ²	H	50	37	38	30	26	18	40	50	22	41
	R	2,317	2,757	2,312	2,739	1,645	1,948	3,367	2,514	2,162	1,655
Spanish mackerel	H	1,061	1,315	1,124	1,072	868	820	1,055	863	604	878
	R	606	886	519	605	396	424	679	486	402	401

¹ NA = data are not available because out-of-state resident information is collected for individual states but does not specify whether an angler resides in a region.

² Sharks include species within the requiem shark family, blacktip sharks, Atlantic sharpnose sharks and unidentified sharks.

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2016 Economic Impacts of the Florida Seafood Industry (thousands of dollars)¹

	With Imports				Without Imports			
	#Jobs	Sales	Income	Value Added	#Jobs	Sales	Income	Value Added
Total Impacts	76,749	16,873,652	3,171,513	5,658,897	11,083	1,081,344	284,434	437,467
Commercial Harvesters	7,158	520,252	163,093	217,024	7,158	520,252	163,093	217,024
Seafood Processors & Dealers	4,442	801,532	155,120	304,952	580	112,172	21,709	42,677
Importers	39,207	12,116,639	1,941,923	3,693,682	0	0	0	0
Seafood Wholesalers & Distributors	9,586	1,226,678	481,589	599,160	482	61,714	24,229	30,144
Retail	16,356	2,208,551	429,788	844,078	2,862	387,205	75,404	147,621

Total Landings Revenue & Landings Revenue of Key Species/Species Groups (thousands of dollars)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Total Revenue	42,767	47,856	40,992	51,151	60,643	57,766	48,669	55,949	52,000	64,593
Finfish & Other	19,768	21,131	23,164	25,756	26,344	26,061	24,139	25,212	24,115	35,509
Shellfish	23,000	26,726	17,828	25,395	34,300	31,705	24,530	30,737	27,885	29,084
Key Species										
Blue crab	4,924	4,333	2,376	3,415	4,155	4,747	3,785	3,118	3,369	3,244
Clams	391	510	415	331	220	138	28	61	58	31
Groupers	1,062	848	662	620	613	893	734	799	879	684
King mackerel	4,833	6,036	6,563	6,911	5,500	4,685	4,320	4,583	4,804	5,309
Lobsters	2,488	3,312	1,089	2,825	3,207	1,720	3,437	5,150	3,736	2,826
Sharks	726	636	949	757	677	458	491	548	643	347
Shrimp	13,821	17,225	12,455	17,071	24,361	21,903	14,125	18,306	16,400	16,019
Snappers	1,279	1,905	2,383	1,454	1,673	1,604	1,769	2,188	1,658	1,322
Spanish mackerel	2,332	1,827	2,004	2,414	2,686	2,448	2,650	2,652	2,171	2,533
Swordfish	2,529	2,339	2,385	3,677	4,005	4,838	3,287	2,560	2,532	2,228

Total Landings & Landings of Key Species/Species Groups (thousands of pounds)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Total Landings	25,196	26,307	27,501	29,713	31,244	28,579	21,415	24,573	25,160	26,445
Finfish & Other	13,893	14,111	16,105	17,137	16,051	14,241	12,553	13,592	12,602	13,672
Shellfish	11,303	12,196	11,396	12,576	15,193	14,338	8,862	10,981	12,558	12,773
Key Species										
Blue crab	4,063	3,342	1,640	2,553	3,226	3,440	2,211	1,500	1,639	1,579
Clams	41	55	54	42	22	17	5	8	8	3
Groupers	315	239	188	167	154	222	174	179	187	142
King mackerel	2,631	3,299	4,064	3,905	2,633	2,143	1,547	1,811	1,859	2,160
Lobsters	361	506	298	481	514	302	486	543	481	369
Sharks	818	776	1,109	781	716	631	657	662	706	367
Shrimp	6,174	7,619	8,662	8,743	10,528	8,869	5,044	5,805	7,105	5,972
Snappers	461	635	805	510	564	523	572	661	497	393
Spanish mackerel	3,264	2,263	2,629	3,553	3,433	2,586	2,246	2,585	1,808	2,460
Swordfish	772	791	838	1,028	1,067	1,343	831	698	716	592

Average Annual Price of Key Species/Species Groups (dollars per pound)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Blue crab	1.21	1.30	1.45	1.34	1.29	1.38	1.71	2.08	2.05	2.05
Clams	9.52	9.29	7.73	7.90	9.84	8.17	6.00	7.58	7.49	9.80
Groupers	3.37	3.55	3.52	3.72	3.99	4.02	4.21	4.46	4.71	4.80
King mackerel	1.84	1.83	1.61	1.77	2.09	2.19	2.79	2.53	2.58	2.46
Lobsters	6.90	6.55	3.65	5.87	6.23	5.69	7.07	9.48	7.76	7.66
Sharks	0.89	0.82	0.86	0.97	0.95	0.73	0.75	0.83	0.91	0.95
Shrimp	2.24	2.26	1.44	1.95	2.31	2.47	2.80	3.15	2.31	2.68
Snappers	2.78	3.00	2.96	2.85	2.97	3.07	3.09	3.31	3.34	3.37
Spanish mackerel	0.71	0.81	0.76	0.68	0.78	0.95	1.18	1.03	1.20	1.03
Swordfish	3.28	2.96	2.85	3.58	3.75	3.60	3.96	3.67	3.54	3.77

¹ Information reported in this table is for the state of Florida, not East Florida.

2016 Economic Impacts of East Florida Recreational Fishing Expenditures (thousands of dollars)

		#Jobs	Sales	Income	Value Added
Trip Impacts by Fishing Mode	For-Hire	1,430	172,872	61,464	95,631
	Private Boat	1,345	140,979	47,642	82,849
	Shore	1,213	119,962	41,321	72,738
Total Durable Expenditures		32,078	3,650,343	1,389,796	2,215,165
Total State Economic Impacts		36,066	4,084,156	1,540,223	2,466,383

2016 Angler Trip & Durable Goods Expenditures (thousands of dollars)

Fishing Mode	Trip Expenditures	Equipment	Durable Goods Expenditures
For-Hire	96,793	Fishing Tackle	630,517
Private Boat	149,818	Other Equipment	275,233
Shore	100,052	Boat Expenses	1,709,364
Total	346,662	Vehicle Expenses	205,568
		Second Home Expenses	15,638
		Total Durable Expenditures	2,836,319
Total State Trip and Durable Goods Expenditures			3,182,981

Recreational Anglers by Residential Area (thousands of anglers)¹

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Coastal	2,168	1,317	1,099	1,033	1,109	1,181	1,263	1,334	1,001	1,059
Non-Coastal	NA									
Out-of-State	1,008	703	643	629	553	514	540	807	819	674
Total Anglers	3,176	2,021	1,741	1,662	1,662	1,695	1,803	2,141	1,821	1,733

Recreational Fishing Effort by Mode (thousands of angler trips)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
For-Hire	169	137	149	118	124	144	156	193	255	248
Private	7,157	6,452	5,394	5,706	5,298	5,028	4,643	4,951	4,133	4,217
Shore	5,277	4,651	4,577	4,393	4,735	4,219	4,183	4,500	4,246	4,362
Total Trips	12,603	11,240	10,120	10,218	10,156	9,390	8,981	9,644	8,634	8,827

Harvest (H) & Release (R) of Key Species/Species Groups (thousands of fish)

		2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Bluefish	H	471	377	623	787	556	278	409	526	433	294
	R	932	499	681	1,621	912	1,111	1,492	1,457	1,063	1,157
Dolphinfish	H	513	661	328	248	346	434	298	370	481	293
	R	373	185	77	118	347	105	163	240	266	47
Drum (kingfish)	H	854	949	409	721	936	825	971	1,212	495	746
	R	1,099	552	609	935	807	1,102	1,115	1,252	1,395	1,000
Drum (spotted seatrout)	H	278	182	172	251	287	427	336	308	164	353
	R	3,094	2,830	1,642	2,937	2,141	3,026	1,939	2,400	1,997	1,660
Gray snapper	H	689	352	224	161	187	209	640	611	427	755
	R	2,073	1,552	1,707	498	678	1,549	1,991	2,054	1,669	2,663
Jack (Florida pompano)	H	126	272	90	263	106	180	110	92	91	57
	R	164	360	81	160	297	278	184	313	175	287
King mackerel	H	515	349	291	183	133	114	73	99	101	168
	R	227	125	52	58	45	21	16	51	44	24
Porgies (sheepshead)	H	255	237	227	352	287	267	253	573	306	518
	R	307	465	354	336	357	475	472	704	563	689
Red drum	H	161	159	80	176	180	238	298	276	227	369
	R	759	890	522	1,414	1,051	799	1,542	1,649	1,094	1,197
Spanish mackerel	H	456	503	369	512	406	247	534	382	82	374
	R	198	364	150	282	147	89	365	208	86	143

¹ NA = Data are not available because all East Florida residents are considered coastal county residents.

2015 East Florida State Economy (% of national total)^{1,3}

	#Non-Employer Firms	#Establishments	#Employees	Annual Payroll (\$ billions)	Employee Compensation (\$ billions)	Gross State Product (\$ billions)	Commercial Fishing Location Quotient ²
Totals	1,948,357 (8%)	532,830 (7%)	7,777,990 (6.3%)	337.07 (5.4%)	492.39 (5.1%)	883.86 (4.9%)	0.97

Seafood Sales & Processing - Non-Employer Firms (thousands of dollars)

		2007	2008	2009	2010	2011	2012	2013	2014	2015
Seafood product prep. & packaging	Firms	173	202	217	280	294	307	300	315	300
	Receipts	10,497	11,065	12,473	14,635	14,618	17,557	17,214	22,329	21,841
Seafood sales, retail	Firms	319	331	316	361	362	383	338	346	355
	Receipts	27,557	26,087	25,667	27,964	29,037	30,765	25,332	26,433	29,033

Seafood Sales & Processing - Employer Establishments (thousands of dollars)

		2007	2008	2009	2010	2011	2012	2013	2014	2015
Seafood product prep. & packaging	Establishments	20	23	25	27	24	27	25	27	27
	Employees	1,748	1,637	1,143	1,269	1,095	1,608	1,374	1,419	1,429
	Payroll	58,233	53,455	46,235	45,772	42,612	51,735	50,003	50,556	58,246
Seafood sales, wholesale	Establishments	267	229	215	229	250	226	234	233	242
	Employees	2,308	1,913	1,762	1,747	1,913	1,957	1,878	1,974	2,055
	Payroll	85,019	75,203	72,159	70,889	77,115	75,945	79,266	83,964	90,247
Seafood sales, retail	Establishments	169	168	158	145	145	151	165	166	181
	Employees	989	991	885	865	849	945	909	1,037	1,137
	Payroll	20,595	21,604	21,182	20,783	20,158	21,577	23,476	25,844	29,066

Transport, Support & Marine Operations - Employer Establishments (thousands of dollars)⁴

		2007	2008	2009	2010	2011	2012	2013	2014	2015
Coastal & Great Lakes freight transportation	Establishments	47	42	42	50	54	60	47	62	57
	Employees	1,242	1,106	972	709	753	1,381	1,050	1,743	1,815
	Payroll	94,429	50,115	37,774	50,217	53,341	100,402	82,078	175,366	173,004
Deep sea freight transportation	Establishments	69	57	58	61	65	75	69	77	76
	Employees	3,190	2,486	2,801	2,279	2,374	3,345	2,485	2,015	2,154
	Payroll	208,144	169,055	180,139	159,025	177,386	231,887	140,564	131,069	137,786
Deep sea passenger transportation	Establishments	34	31	33	29	29	39	31	28	32
	Employees	ds	10,510							
	Payroll	ds	967,938							
Marinas	Establishments	493	442	428	430	411	432	444	464	466
	Employees	4,935	5,024	4,665	4,439	4,657	4,918	5,076	5,421	5,472
	Payroll	148,592	151,677	132,955	133,017	142,997	148,573	145,265	168,185	171,354
Marine cargo handling	Establishments	53	56	59	55	64	43	58	61	69
	Employees	6,585	8,052	7,288	7,547	7,484	4,598	6,258	6,992	7,834
	Payroll	173,788	192,473	185,309	191,560	195,458	86,461	188,997	179,024	208,186
Navigational services to shipping	Establishments	145	147	145	145	150	151	180	190	196
	Employees	1,484	894	829	980	1,047	853	1,390	878	861
	Payroll	61,470	56,917	60,641	76,853	75,561	68,366	130,893	74,185	72,483
Port & harbor operations	Establishments	29	40	32	34	32	66	61	56	55
	Employees	459	712	527	470	377	2,082	555	588	987
	Payroll	12,872	24,668	19,006	20,525	16,879	72,554	25,439	20,647	32,032
Ship & boat building	Establishments	296	297	261	248	246	258	259	263	278
	Employees	12,332	12,419	8,221	7,363	7,909	8,621	8,813	9,608	10,913
	Payroll	469,382	442,096	296,537	302,909	325,942	374,831	390,853	448,514	488,050

¹ All data presented on this page are for the entire state of Florida, not just East Florida.

² The U.S. Commercial Fishing Location Quotient (CFLQ) is 1. A CFLQ greater than 1 indicates that more commercial fishing occurs in this state than the national average. A CFLQ less than 1 indicates that less commercial fishing occurs in this state than the national average.

³ Census Bureau data for the Marine Economy section of this report are available only through 2015.

⁴ ds = these data are suppressed.

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2016 Economic Impacts of the Georgia Seafood Industry (thousands of dollars)

	With Imports				Without Imports			
	#Jobs	Sales	Income	Value Added	#Jobs	Sales	Income	Value Added
Total Impacts	9,983	1,554,347	343,991	566,586	1,349	69,592	27,316	37,213
Commercial Harvesters	472	19,841	6,808	9,784	472	19,841	6,808	9,784
Seafood Processors & Dealers	844	74,101	28,558	37,696	142	12,468	4,805	6,343
Importers	3,731	1,153,174	184,818	351,538	0	0	0	0
Seafood Wholesalers & Distributors	793	108,635	37,465	52,650	29	3,930	1,355	1,905
Retail	4,142	198,596	86,342	114,918	707	33,353	14,348	19,181

Total Landings Revenue & Landings Revenue of Key Species/Species Groups (thousands of dollars)¹

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Total Revenue	11,331	13,081	11,761	13,731	16,179	16,637	11,581	16,065	16,677	11,488
Finfish & Other	625	623	626	279	448	180	512	473	52	28
Shellfish	10,706	12,458	11,135	13,452	15,732	16,457	11,069	15,591	16,625	11,460
Key Species										
Blue crab	3,767	3,910	3,839	2,648	3,341	4,259	3,974	3,770	4,240	3,703
Clams	290	383	473	430	605	603	564	999	1,885	1,308
Groupers	183	NA								
Shrimp	6,446	7,877	6,608	10,103	11,398	11,045	5,773	10,469	9,759	5,983
Snails (conchs)	1	6	11	27	39	27	1	3	2	NA
Snappers	269	NA								

Total Landings & Landings of Key Species/Species Groups (thousands of pounds)¹

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Total Landings	7,908	8,930	7,424	7,220	12,795	10,746	11,452	10,366	7,824	6,182
Finfish & Other	304	267	306	168	4,828	113	155	4,729	38	16
Shellfish	7,603	8,663	7,118	7,053	7,967	10,633	11,297	5,636	7,786	6,166
Key Species										
Blue crab	4,421	4,227	3,598	2,329	3,427	4,265	3,216	2,667	2,934	3,069
Clams	49	54	76	81	107	91	86	168	275	170
Groupers	54	NA	NA	NA	NA	NA	NA	NA	NA	NA
Shrimp	2,797	3,132	3,324	4,553	4,355	3,928	1,901	2,751	3,652	2,120
Snails (conchs)	1	5	11	18	30	18	1	2	1	NA
Snappers	93	NA	NA	NA	NA	NA	NA	NA	NA	NA

Average Annual Price of Key Species/Species Groups (dollars per pound)¹

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Blue crab	0.85	0.92	1.07	1.14	0.97	1	1.24	1.41	1.45	1.21
Clams	5.89	7.03	6.24	5.30	5.68	6.60	6.57	5.96	6.86	7.72
Groupers	3.37	NA								
Shrimp	2.30	2.51	1.99	2.22	2.62	2.81	3.04	3.81	2.67	2.82
Snails (conchs)	1.25	1.31	1.00	1.50	1.30	1.52	1.65	1.51	2.61	NA
Snappers	2.89	NA								

¹ NA = these data are confidential and therefore not disclosable.

2016 Economic Impacts of Georgia Recreational Fishing Expenditures (thousands of dollars)

		#Jobs	Sales	Income	Value Added
Trip Impacts by Fishing Mode	For-Hire	92	11,240	4,193	6,143
	Private Boat	119	11,379	3,934	6,561
	Shore	148	13,749	4,739	7,940
Total Durable Expenditures		1,283	124,450	53,770	85,765
Total State Economic Impacts		1,642	160,818	66,636	106,409

2016 Angler Trip & Durable Goods Expenditures (thousands of dollars)

Fishing Mode	Trip Expenditures	Equipment	Durable Goods Expenditures
For-Hire	5,947	Fishing Tackle	40,029
Private Boat	13,201	Other Equipment	12,504
Shore	11,391	Boat Expenses	46,469
Total	30,540	Vehicle Expenses	22,650
		Second Home Expenses	0
		Total Durable Expenditures	121,652
Total State Trip and Durable Goods Expenditures			152,192

Recreational Anglers by Residential Area (thousands of anglers)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Coastal	149	190	146	145	146	134	99	125	81	110
Non-Coastal	115	154	91	136	131	96	72	115	80	89
Out-of-State	45	98	45	61	78	74	53	70	70	49
Total Anglers	308	441	282	342	355	303	225	310	231	248

Recreational Fishing Effort by Mode (thousands of angler trips)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
For-Hire	31	17	16	7	16	20	21	31	34	26
Private	577	731	516	530	620	496	387	340	255	344
Shore	421	456	311	335	335	376	283	456	301	326
Total Trips	1,029	1,204	842	873	970	892	690	827	590	696

Harvest (H) & Release (R) of Key Species/Species Groups (thousands of fish)¹

		2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Black drum	H	51	92	16	70	11	19	18	15	8	24
	R	35	66	23	40	5	20	10	8	13	16
Black sea bass	H	34	99	18	13	44	15	81	37	41	9
	R	292	581	113	163	227	134	294	528	232	82
Bluefish	H	11	7	2	13	3	6	3	20	6	3
	R	103	116	72	108	70	52	7	120	74	23
Drum (Atlantic croaker)	H	45	38	82	36	44	38	55	64	111	54
	R	229	294	435	264	262	167	298	471	210	152
Drum (southern kingfish)	H	575	697	587	585	873	377	396	441	451	305
	R	625	873	559	465	668	604	287	244	210	262
Drum (spotted seatrout)	H	577	642	507	384	290	527	238	256	163	253
	R	1,039	721	915	742	552	1,029	321	774	398	552
Porgies (sheepshead)	H	58	65	52	105	138	59	42	21	22	43
	R	84	98	33	39	45	29	38	18	21	16
Red drum	H	113	133	69	195	107	46	74	93	48	75
	R	226	314	168	484	214	90	199	290	168	160
Sharks ²	H	9	11	7	4	6	4	6	< 1	1	7
	R	592	541	345	284	342	366	265	314	166	257
Southern flounder	H	92	49	34	36	29	18	19	14	24	18
	R	< 1	1	10	3	12	5	7	9	18	6

¹ In this table, '<1' = 0-999 fish and '1' = 1,000-1,499 fish.

² Sharks include species within the requiem shark family, blacktip sharks, Atlantic sharpnose sharks and unidentified sharks.

2015 Georgia State Economy (% of national total)¹

	#Non-Employer Firms	#Establishments	#Employees	Annual Payroll (\$ billions)	Employee Compensation (\$ billions)	Gross State Product (\$ billions)	Commercial Fishing Location Quotient ³
Totals	848,952 (3.5%)	224,593 (2.9%)	3,692,490 (3%)	174.84 (2.8%)	275.59 (2.8%)	501.52 (2.8%)	0.05

Seafood Sales & Processing - Non-Employer Firms (thousands of dollars)

		2007	2008	2009	2010	2011	2012	2013	2014	2015
Seafood product prep. & packaging	Firms	34	45	51	52	61	71	60	62	87
	Receipts	2,187	3,489	3,817	5,458	5,540	4,974	4,378	5,471	6,265
Seafood sales, retail	Firms	87	101	98	96	89	97	77	103	84
	Receipts	8,671	6,922	5,701	6,474	8,646	8,233	6,932	9,338	8,379

Seafood Sales & Processing - Employer Establishments (thousands of dollars)²

		2007	2008	2009	2010	2011	2012	2013	2014	2015
Seafood product prep. & packaging	Establishments	6	7	6	6	5	6	5	7	6
	Employees	ds	ds	ds	1,056	1,022	854	945	895	854
	Payroll	ds	ds	ds	37,343	39,433	32,928	35,987	37,122	37,368
Seafood sales, wholesale	Establishments	42	30	33	36	28	18	28	24	23
	Employees	688	565	532	514	562	468	469	792	701
	Payroll	31,033	20,122	18,628	20,075	20,660	15,459	17,326	24,726	26,254
Seafood sales, retail	Establishments	44	48	42	48	51	54	60	62	70
	Employees	179	160	162	176	176	214	210	229	248
	Payroll	2,633	2,433	2,447	2,502	2,566	3,425	3,390	3,745	4,539

Transport, Support & Marine Operations - Employer Establishments (thousands of dollars)^{3,4}

		2007	2008	2009	2010	2011	2012	2013	2014	2015
Coastal & Great Lakes freight transportation	Establishments	6	6	5	4	4	3	4	7	8
	Employees	33	28	ds	ds	ds	ds	ds	ds	66
	Payroll	1,883	2,040	1,700	ds	ds	ds	ds	ds	4,356
Deep sea freight transportation	Establishments	13	14	13	14	12	12	7	9	9
	Employees	132	156	29	ds	51	236	28	63	64
	Payroll	10,090	11,275	2,192	2,465	4,833	11,238	2,311	3,856	4,421
Deep sea passenger transportation	Establishments	1	0	0	0	1	1	1	1	2
	Employees	ds	NA	NA	NA	ds	ds	ds	ds	ds
	Payroll	ds	NA	NA	NA	ds	ds	ds	ds	ds
Marinas	Establishments	68	60	58	62	63	63	59	65	67
	Employees	569	527	541	631	580	636	644	586	639
	Payroll	12,701	15,571	15,736	17,428	16,986	17,921	17,768	18,604	20,210
Marine cargo handling	Establishments	17	17	18	17	20	10	19	19	18
	Employees	2,501	2,660	3,707	2,971	4,655	ds	2,986	3,561	4,956
	Payroll	110,857	97,869	87,410	84,675	108,674	ds	120,985	124,394	117,785
Navigational services to shipping	Establishments	11	11	9	8	8	10	8	7	9
	Employees	217	182	ds	ds	ds	ds	ds	ds	203
	Payroll	11,141	10,193	12,185	11,237	ds	ds	ds	ds	12,202
Port & harbor operations	Establishments	4	5	5	4	2	13	7	4	4
	Employees	98	ds	ds	ds	ds	ds	ds	ds	68
	Payroll	3,108	ds	ds	ds	ds	ds	ds	ds	2,961
Ship & boat building	Establishments	21	20	14	12	15	14	15	16	17
	Employees	2,225	2,159	ds	ds	ds	ds	ds	ds	3,150
	Payroll	68,646	69,096	ds	ds	ds	ds	ds	ds	110,951

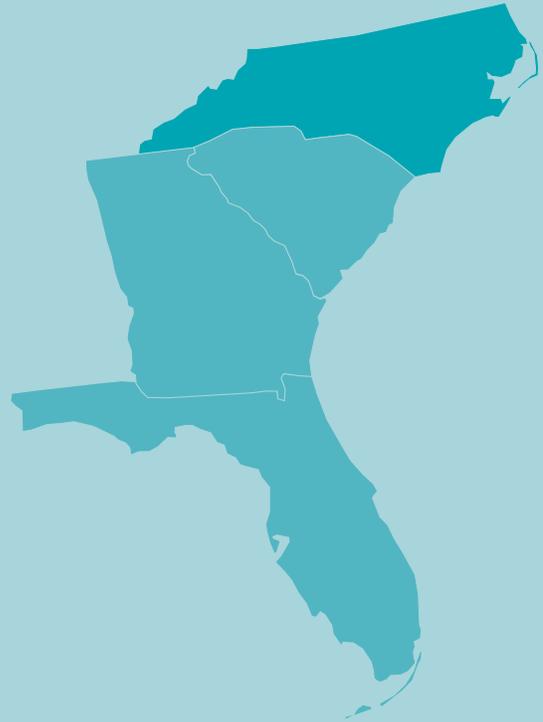
¹ Census Bureau data for the Marine Economy section of this report are available only through 2015.

² The U.S. Commercial Fishing Location Quotient (CFLQ) is 1. A CFLQ greater than 1 indicates that more commercial fishing occurs in this state than the national average. A CFLQ less than 1 indicates that less commercial fishing occurs in this state than the national average.

³ ds = these data are suppressed.

⁴ NA = not applicable.

Tables | North Carolina



2016 Economic Impacts of the North Carolina Seafood Industry (thousands of dollars)

	With Imports				Without Imports			
	#Jobs	Sales	Income	Value Added	#Jobs	Sales	Income	Value Added
Total Impacts	10,156	984,700	275,651	410,851	6,105	332,945	135,957	180,719
Commercial Harvesters	2,500	160,050	62,995	86,364	2,500	160,050	62,995	86,364
Seafood Processors & Dealers	1,166	87,099	33,865	43,760	481	35,959	13,981	18,066
Importers	1,631	504,063	80,786	153,660	0	0	0	0
Seafood Wholesalers & Distributors	473	57,041	20,005	26,405	141	16,972	5,952	7,856
Retail	4,386	176,447	78,000	100,660	2,983	119,965	53,029	68,432

Total Landings Revenue & Landings Revenue of Key Species/Species Groups (thousands of dollars)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Total Revenue	82,285	86,822	77,196	79,361	71,183	72,571	79,104	94,105	94,711	94,050
Finfish & Other	36,199	34,430	33,984	33,147	31,278	31,017	29,820	37,035	32,395	32,700
Shellfish	46,086	52,392	43,212	46,214	39,905	41,554	49,284	57,070	62,316	61,350

Key Species

Atlantic croaker	2,714	3,142	3,004	3,491	3,164	2,136	1,724	1,866	1,646	2,216
Black sea bass	1,195	1,156	1,401	953	628	688	869	1,414	1,367	1,343
Blue crab	21,432	27,555	27,429	26,425	21,282	22,807	30,006	34,027	33,980	24,116
Clams	2,660	2,435	2,086	2,359	1,933	2,131	2,349	2,913	5,086	2,609
Flounders	11,335	10,886	10,124	10,845	8,890	7,421	7,059	13,072	12,916	11,853
Groupers	2,394	2,274	1,879	1,734	1,463	1,421	1,247	1,265	1,120	1,103
King mackerel	1,967	1,632	1,500	650	1,062	831	877	1,204	801	869
Shrimp	17,905	19,251	8,528	10,804	10,886	13,333	12,947	14,145	16,834	28,242
Snappers	1,601	1,784	1,073	963	1,004	900	917	865	803	942
Tunas	4,046	3,393	2,922	1,193	2,437	4,398	3,207	3,631	2,883	3,194

Total Landings & Landings of Key Species/Species Groups (thousands of pounds)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Total Landings	62,871	71,209	68,955	71,994	67,487	56,670	50,191	61,958	65,942	59,936
Finfish & Other	30,422	27,630	32,323	32,491	29,725	22,714	21,996	29,450	23,290	19,899
Shellfish	32,450	43,580	36,632	39,503	37,762	33,956	28,194	32,508	42,652	40,037

Key Species

Atlantic croaker	7,271	5,792	6,135	7,312	5,054	3,107	1,928	2,630	1,819	2,092
Black sea bass	473	485	615	401	272	256	330	529	468	423
Blue crab	21,425	32,917	29,707	30,683	30,035	26,786	22,203	26,231	32,127	25,463
Clams	438	400	359	366	302	404	356	438	422	335
Flounders	4,754	5,009	5,256	5,001	4,102	2,736	2,728	4,589	4,082	2,970
Groupers	828	785	638	561	409	382	311	299	261	256
King mackerel	1,059	1,037	778	329	408	297	345	550	391	420
Shrimp	9,537	9,427	5,408	5,955	5,140	6,141	4,860	4,691	9,097	13,192
Snappers	550	603	374	320	326	279	276	251	232	275
Tunas	1,836	1,041	1,028	703	1,056	1,482	1,283	1,653	1,320	1,448

Average Annual Price of Key Species/Species Groups (dollars per pound)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Atlantic croaker	0.37	0.54	0.49	0.48	0.63	0.69	0.89	0.71	0.91	1.06
Black sea bass	2.53	2.39	2.28	2.38	2.31	2.69	2.64	2.67	2.92	3.18
Blue crab	1.00	0.84	0.92	0.86	0.71	0.85	1.35	1.30	1.06	0.95
Clams	6.08	6.09	5.82	6.44	6.39	5.28	6.61	6.65	12.06	7.78
Flounders	2.38	2.17	1.93	2.17	2.17	2.71	2.59	2.85	3.16	3.99
Groupers	2.89	2.89	2.95	3.09	3.58	3.72	4.01	4.22	4.30	4.30
King mackerel	1.86	1.57	1.93	1.98	2.60	2.79	2.54	2.19	2.05	2.07
Shrimp	1.88	2.04	1.58	1.81	2.12	2.17	2.66	3.02	1.85	2.14
Snappers	2.91	2.96	2.87	3.01	3.08	3.22	3.32	3.44	3.47	3.42
Tunas	2.20	3.26	2.84	1.70	2.31	2.97	2.50	2.20	2.18	2.21

2016 Economic Impacts of North Carolina Recreational Fishing Expenditures (thousands of dollars)

		#Jobs	Sales	Income	Value Added
Trip Impacts by Fishing Mode	For-Hire	762	85,734	31,143	45,817
	Private Boat	1,202	111,300	39,105	62,592
	Shore	4,151	361,064	127,533	208,080
Total Durable Expenditures		10,696	1,140,942	458,017	704,010
Total State Economic Impacts		16,811	1,699,040	655,798	1,020,499

2016 Angler Trip & Durable Goods Expenditures (thousands of dollars)

Fishing Mode	Trip Expenditures	Equipment	Durable Goods Expenditures
For-Hire	51,307	Fishing Tackle	272,244
Private Boat	115,696	Other Equipment	110,838
Shore	279,678	Boat Expenses	697,609
Total	446,680	Vehicle Expenses	63,785
		Second Home Expenses	26,923
		Total Durable Expenditures	1,171,398
Total State Trip and Durable Goods Expenditures			1,618,078

Recreational Anglers by Residential Area (thousands of anglers)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Coastal	564	587	446	544	490	614	564	549	479	541
Non-Coastal	265	303	259	296	254	283	240	301	239	281
Out-of-State	1,079	1,079	976	1,073	755	764	601	805	830	1,066
Total Anglers	1,908	1,970	1,681	1,914	1,499	1,661	1,405	1,656	1,548	1,889

Recreational Fishing Effort by Mode (thousands of angler trips)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
For-Hire	218	192	146	165	152	160	111	97	114	141
Private	2,671	2,461	2,005	2,199	1,899	2,061	2,101	1,707	2,041	1,792
Shore	3,445	4,246	3,158	3,313	2,690	3,082	2,756	3,150	2,491	3,478
Total Trips	6,333	6,898	5,309	5,678	4,740	5,303	4,968	4,954	4,646	5,411

Harvest (H) & Release (R) of Key Species/Species Groups (thousands of fish)¹

		2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Black sea bass	H	110	57	107	139	95	76	49	75	69	58
	R	951	559	667	1,104	1,063	2,085	1,368	1,334	1,429	1,836
Bluefish	H	1,257	1,177	828	1,104	1,152	889	1,184	1,084	978	1,179
	R	2,377	2,136	1,553	2,221	1,924	1,036	1,872	1,538	1,427	1,792
Dolphinfish	H	533	358	367	499	472	327	212	185	434	262
	R	5	2	3	5	8	3	3	4	30	< 1
Drum (Atlantic croaker and spot)	H	3,540	2,161	1,425	1,313	1,454	1,073	1,876	2,654	1,553	882
	R	2,805	2,741	3,135	2,469	2,799	2,014	3,299	3,605	3,186	2,646
Drum (spotted seatrout)	H	532	654	609	195	216	501	369	234	87	389
	R	849	881	1,214	1,685	1,916	1,647	1,427	961	1,776	1,772
Flounder (lefteye and summer)	H	190	71	99	144	93	105	91	145	81	31
	R	1,091	1,690	1,213	1,586	988	1,397	1,529	1,060	926	1,022
King mackerel	H	269	105	91	37	14	27	23	23	34	55
	R	44	25	12	6	< 1	3	5	10	7	24
Spanish mackerel	H	495	744	678	484	367	491	497	398	388	424
	R	258	449	313	294	171	235	289	241	216	188
Striped bass	H	49	36	12	34	107	8	20	8	17	4
	R	82	174	122	108	296	176	124	95	115	357
Yellowfin tuna	H	102	26	29	23	25	57	45	27	24	60
	R	< 1	< 1	< 1	< 1	< 1	4	1	4	2	10

¹ In this table, '<1' = 0-999 fish and '1' = 1,000-1,499 fish.

2015 North Carolina State Economy (% of national total)¹

	#Non-Employer Firms	#Establishments	#Employees	Annual Payroll (\$ billions)	Employee Compensation (\$ billions)	Gross State Product (\$ billions)	Commercial Fishing Location Quotient ²
Totals	706,538 (2.9%)	223,209 (2.9%)	3,670,284 (3%)	164.94 (2.6%)	263.88 (2.7%)	499.74 (2.8%)	0.06

Seafood Sales & Processing - Non-Employer Firms (thousands of dollars)²

		2007	2008	2009	2010	2011	2012	2013	2014	2015
Seafood product prep. & packaging	Firms	30	ds	34	40	50	46	58	63	72
	Receipts	1,813	ds	1,297	1,652	2,705	1,630	4,605	4,599	4,715
Seafood sales, retail	Firms	150	114	140	126	144	136	127	137	134
	Receipts	14,999	10,918	12,188	9,057	10,386	11,990	12,175	13,430	12,705

Seafood Sales & Processing - Employer Establishments (thousands of dollars)²

		2007	2008	2009	2010	2011	2012	2013	2014	2015
Seafood product prep. & packaging	Establishments	22	18	16	16	14	12	13	14	16
	Employees	ds	232	170	171	ds	ds	135	128	128
	Payroll	12,659	5,373	4,461	4,749	4,830	5,084	4,563	4,720	6,582
Seafood sales, wholesale	Establishments	71	65	66	66	64	59	59	56	59
	Employees	597	559	584	590	603	793	849	966	1,187
	Payroll	15,655	16,843	17,383	18,348	19,344	23,949	26,687	30,292	38,462
Seafood sales, retail	Establishments	86	90	77	82	84	88	86	93	91
	Employees	241	219	243	247	244	289	254	278	255
	Payroll	4,170	4,143	4,494	5,017	5,250	5,860	5,872	6,263	6,681

Transport, Support & Marine Operations - Employer Establishments (thousands of dollars)^{3,4}

		2007	2008	2009	2010	2011	2012	2013	2014	2015
Coastal & Great Lakes freight transportation	Establishments	6	4	6	4	5	6	5	5	6
	Employees	54	ds	ds	ds	ds	ds	ds	ds	ds
	Payroll	2,061	ds	2,366	ds	ds	ds	ds	ds	ds
Deep sea freight transportation	Establishments	6	5	6	10	8	7	8	8	6
	Employees	ds	ds	9	ds	ds	25	ds	ds	ds
	Payroll	510	533	617	ds	ds	1,579	ds	ds	ds
Deep sea passenger transportation	Establishments	1	0	1	0	1	0	0	0	0
	Employees	ds	NA	ds	NA	ds	NA	NA	NA	NA
	Payroll	ds	NA	ds	NA	ds	NA	NA	NA	NA
Marinas	Establishments	96	107	105	102	104	102	99	100	105
	Employees	522	656	501	536	524	531	501	541	579
	Payroll	14,922	17,164	15,858	16,238	16,187	15,975	16,369	16,774	18,672
Marine cargo handling	Establishments	13	13	12	11	14	6	9	9	9
	Employees	652	760	914	600	ds	ds	ds	ds	797
	Payroll	25,164	23,328	20,707	20,755	ds	ds	ds	ds	14,767
Navigational services to shipping	Establishments	14	10	11	13	11	8	10	13	13
	Employees	102	87	96	94	86	90	77	78	78
	Payroll	3,773	3,668	4,313	3,968	4,041	3,203	3,583	3,844	4,350
Port & harbor operations	Establishments	3	3	2	4	3	9	5	2	2
	Employees	ds	ds	ds	ds	ds	ds	46	ds	ds
	Payroll	ds	ds	ds	ds	ds	ds	1,579	ds	ds
Ship & boat building	Establishments	78	77	64	60	57	60	52	52	62
	Employees	ds	4,281	1,983	1,501	1,515	1,760	1,059	1,153	1,422
	Payroll	ds	138,243	68,004	64,807	66,929	74,843	49,462	50,102	65,388

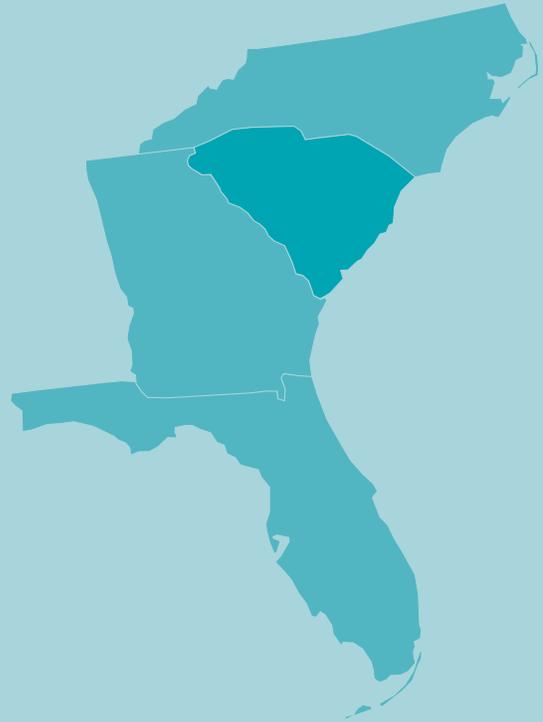
¹ Census Bureau data for the Marine Economy section of this report are available only through 2015.

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³ ds = these data are suppressed.

⁴ NA = not applicable.

Tables | South Carolina



2016 Economic Impacts of the South Carolina Seafood Industry (thousands of dollars)

	With Imports				Without Imports			
	#Jobs	Sales	Income	Value Added	#Jobs	Sales	Income	Value Added
Total Impacts	1,478	118,153	38,818	55,055	1,209	71,612	29,332	39,034
Commercial Harvesters	441	34,441	13,550	18,648	441	34,441	13,550	18,648
Seafood Processors & Dealers	101	8,582	3,357	4,317	89	7,590	2,969	3,818
Importers	124	38,394	6,153	11,704	0	0	0	0
Seafood Wholesalers & Distributors	55	6,222	2,186	2,871	31	3,569	1,254	1,647
Retail	757	30,515	13,572	17,515	647	26,013	11,559	14,921

Total Landings Revenue & Landings Revenue of Key Species/Species Groups (thousands of dollars)¹

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Total Revenue	16,017	17,872	17,256	21,205	23,300	24,239	23,284	22,800	21,387	20,784
Finfish & Other	4,744	4,614	5,338	6,740	8,429	7,499	8,403	6,844	6,699	6,058
Shellfish	11,274	13,259	11,918	14,465	14,871	16,740	14,880	15,956	14,688	14,726
Key Species										
Black sea bass	236	257	362	213	182	296	459	328	246	149
Blue crab	3,511	4,187	4,059	3,593	5,084	5,794	6,365	5,819	4,827	5,543
Clams	697	535	542	688	638	NA	NA	NA	NA	NA
Groupers	2,421	2,165	1,808	1,524	1,710	1,119	1,394	1,412	1,199	1,037
Oysters	1,375	1,739	1,738	1,858	1,975	2,153	2,403	2,242	2,252	2,318
Sharks	78	78	56	123	166	95	52	60	43	47
Shrimp	5,634	6,712	5,487	8,168	7,008	8,640	5,925	7,778	7,430	6,749
Snappers	773	864	568	1,079	1,080	1,334	1,078	945	1,067	1,021
Swordfish	NA	187	1,116	1,944	2,777	2,048	2,467	1,245	1,266	1,043
Tilefish	5	66	9	25	8	128	379	506	536	503

Total Landings & Landings of Key Species/Species Groups (thousands of pounds)¹

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Total Landings	9,310	10,081	9,599	10,567	12,131	17,535	15,679	14,163	14,419	13,773
Finfish & Other	1,994	1,940	2,384	2,774	3,220	2,604	2,633	2,473	2,417	1,901
Shellfish	7,316	8,141	7,215	7,793	8,911	14,930	13,046	11,690	12,002	11,871
Key Species										
Black sea bass	114	132	168	98	100	114	172	125	81	47
Blue crab	4,137	4,484	4,014	3,275	5,439	5,897	5,132	3,831	3,745	4,375
Clams	135	119	123	152	137	NA	NA	NA	NA	NA
Groupers	624	556	469	378	386	252	298	284	229	188
Oysters	285	324	309	332	337	5,538	5,805	5,244	5,061	4,780
Sharks	105	110	63	87	108	93	42	42	27	29
Shrimp	2,727	3,162	2,716	3,951	2,918	3,422	2,037	2,569	3,129	2,671
Snappers	250	277	194	365	356	425	322	269	305	272
Swordfish	NA	71	459	630	741	603	651	369	389	299
Tilefish	4	28	5	15	4	46	150	187	170	132

Average Annual Price of Key Species/Species Groups (dollars per pound)¹

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Black sea bass	2.07	1.94	2.15	2.16	1.82	2.59	2.66	2.62	3.04	3.18
Blue crab	0.85	0.93	1.01	1.10	0.93	0.98	1.24	1.52	1.29	1.27
Clams	5.17	4.51	4.42	4.54	4.65	NA	NA	NA	NA	NA
Groupers	3.88	3.90	3.85	4.04	4.42	4.45	4.68	4.97	5.24	5.52
Oysters	4.82	5.36	5.63	5.60	5.85	0.39	0.41	0.43	0.45	0.48
Sharks	0.74	0.71	0.89	1.42	1.53	1.02	1.23	1.44	1.59	1.62
Shrimp	2.07	2.12	2.02	2.07	2.40	2.52	2.91	3.03	2.37	2.53
Snappers	3.09	3.12	2.92	2.95	3.03	3.14	3.34	3.52	3.50	3.76
Swordfish	NA	2.64	2.43	3.09	3.75	3.39	3.79	3.37	3.25	3.49
Tilefish	1.36	2.30	2.00	1.71	1.84	2.78	2.53	2.71	3.15	3.82

¹ NA = these data are confidential and therefore not disclosable.

2016 Economic Impacts of South Carolina Recreational Fishing Expenditures (thousands of dollars)

		#Jobs	Sales	Income	Value Added
Trip Impacts by Fishing Mode	For-Hire	571	58,758	20,698	31,797
	Private Boat	308	25,617	8,457	14,116
	Shore	1,188	102,134	33,925	59,974
Total Durable Expenditures		3,050	311,239	118,246	186,254
Total State Economic Impacts		5,117	497,748	181,326	292,141

2016 Angler Trip & Durable Goods Expenditures (thousands of dollars)

Fishing Mode	Trip Expenditures	Equipment	Durable Goods Expenditures
For-Hire	37,497	Fishing Tackle	83,545
Private Boat	30,753	Other Equipment	36,704
Shore	89,513	Boat Expenses	164,666
Total	157,763	Vehicle Expenses	21,423
		Second Home Expenses	0
		Total Durable Expenditures	306,338
Total State Trip and Durable Goods Expenditures			464,101

Recreational Anglers by Residential Area (thousands of anglers)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Coastal	277	236	231	210	148	207	166	181	192	163
Non-Coastal	113	103	112	104	66	123	84	114	157	102
Out-of-State	551	604	554	494	264	406	602	569	684	510
Total Anglers	941	942	898	809	478	736	852	864	1,033	775

Recreational Fishing Effort by Mode (thousands of angler trips)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
For-Hire	85	69	80	77	81	25	48	94	96	77
Private	1,132	1,266	1,008	1,078	847	1,189	748	838	873	732
Shore	813	1,116	1,325	1,143	879	992	1,181	1,289	1,701	1,100
Total Trips	2,030	2,451	2,413	2,298	1,806	2,206	1,977	2,221	2,670	1,909

Harvest (H) & Release (R) of Key Species/Species Groups (thousands of fish)¹

		2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Black sea bass	H	126	90	37	216	57	92	24	108	42	21
	R	921	864	470	640	660	811	381	1,593	896	616
Bluefish	H	175	127	135	444	225	206	298	172	265	240
	R	677	333	252	318	551	169	309	298	657	311
Drum (Atlantic croaker and spot)	H	643	2,798	828	369	946	1,029	832	615	3,477	739
	R	376	394	841	354	463	359	1,751	1,207	1,758	1,361
Drum (southern kingfish)	H	699	823	1,056	389	610	778	1,195	698	462	399
	R	540	613	690	0	68	145	0	7	3	13
Drum (spotted seatrout)	H	161	155	124	101	66	235	126	78	106	91
	R	572	734	399	407	280	817	601	389	393	481
Porgies (sheepshead)	H	109	216	222	102	172	77	25	80	44	42
	R	21	60	24	58	93	45	81	150	124	115
Red drum	H	72	119	70	173	162	121	97	104	107	63
	R	437	552	751	786	664	544	673	636	571	338
Sharks ²	H	10	10	23	11	12	5	15	21	6	6
	R	418	475	804	1,170	389	673	1,164	845	898	409
Southern flounder	H	77	102	88	108	101	92	62	59	59	58
	R	106	102	75	< 1	17	35	0	0	0	< 1
Spanish mackerel	H	95	53	74	70	87	80	22	81	133	78
	R	97	68	56	28	67	98	25	36	100	70

¹ In this table, '<1' = 0-999 fish and '1' = 1,000-1,499 fish.

² Sharks include species within the requiem shark family, blacktip sharks, Atlantic sharpnose sharks and unidentified sharks.

2015 South Carolina State Economy (% of national total)¹

	#Non-Employer Firms	#Establishments	#Employees	Annual Payroll (\$ billions)	Employee Compensation (\$ billions)	Gross State Product (\$ billions)	Commercial Fishing Location Quotient ²
Totals	319,046 (1.3%)	103,973 (1.4%)	1,662,251 (1.3%)	66.12 (1.1%)	113.17 (1.2%)	201.83 (1.1%)	0.08

Seafood Sales & Processing - Non-Employer Firms (thousands of dollars)

		2007	2008	2009	2010	2011	2012	2013	2014	2015
Seafood product prep. & packaging	Firms	12	15	21	23	32	35	30	28	26
	Receipts	857	1,155	1,794	1,386	1,326	1,868	1,657	2,690	2,438
Seafood sales, retail	Firms	75	64	77	78	87	67	67	73	69
	Receipts	3,876	4,650	4,709	3,978	5,535	4,818	3,765	4,845	6,007

Seafood Sales & Processing - Employer Establishments (thousands of dollars)^{3,4}

		2007	2008	2009	2010	2011	2012	2013	2014	2015
Seafood product prep. & packaging	Establishments	5	2	2	2	1	0	0	4	2
	Employees	ds	ds	ds	ds	ds	NA	NA	ds	ds
	Payroll	ds	ds	ds	ds	ds	NA	NA	ds	ds
Seafood sales, wholesale	Establishments	26	20	15	16	12	15	16	12	16
	Employees	220	108	111	120	101	125	134	148	146
	Payroll	6,186	3,770	3,676	3,868	3,760	4,506	4,849	5,329	5,327
Seafood sales, retail	Establishments	60	64	57	56	61	60	56	56	54
	Employees	210	292	261	260	245	228	222	224	185
	Payroll	3,155	4,871	4,901	4,580	4,231	3,670	3,713	3,633	3,883

Transport, Support & Marine Operations - Employer Establishments (thousands of dollars)^{3,4}

		2007	2008	2009	2010	2011	2012	2013	2014	2015
Coastal & Great Lakes freight transportation	Establishments	5	4	4	4	4	5	5	5	4
	Employees	60	ds	ds	ds	ds	40	ds	ds	ds
	Payroll	2,352	ds	ds	ds	ds	2,625	ds	ds	ds
Deep sea freight transportation	Establishments	6	4	8	7	6	6	4	1	1
	Employees	67	ds	ds	20	ds	ds	21	ds	ds
	Payroll	3,419	659	ds	758	722	ds	633	ds	ds
Deep sea passenger transportation	Establishments	1	7	6	2	2	1	0	0	0
	Employees	ds	ds	ds	ds	ds	ds	NA	NA	NA
	Payroll	ds	ds	ds	ds	ds	ds	NA	NA	NA
Marinas	Establishments	72	68	69	73	75	70	77	70	70
	Employees	469	588	533	537	543	595	650	661	633
	Payroll	11,498	13,753	12,642	13,786	15,805	15,408	16,147	17,212	16,996
Marine cargo handling	Establishments	15	17	14	12	14	10	13	14	15
	Employees	1,419	1,282	1,953	1,731	1,717	715	ds	1,902	2,467
	Payroll	75,967	56,812	43,170	39,625	49,172	30,381	ds	66,803	59,595
Navigational services to shipping	Establishments	6	8	8	7	8	10	8	9	9
	Employees	152	227	208	222	217	247	221	219	236
	Payroll	7,369	11,916	12,522	12,591	11,922	16,625	13,820	14,513	16,311
Port & harbor operations	Establishments	3	3	2	2	5	7	2	3	4
	Employees	113	ds	ds	ds	ds	676	ds	ds	ds
	Payroll	7,058	ds	ds	ds	ds	29,332	ds	ds	ds
Ship & boat building	Establishments	41	46	41	39	41	39	37	37	34
	Employees	2,962	3,001	1,929	1,922	1,943	1,980	2,262	2,225	2,690
	Payroll	102,531	97,743	73,988	74,945	85,568	90,942	96,081	98,324	115,262

¹ Census Bureau data for the Marine Economy section of this report are available only through 2015.

² The U.S. Commercial Fishing Location Quotient (CFLQ) is 1. A CFLQ greater than 1 indicates that more commercial fishing occurs in this state than the national average. A CFLQ less than 1 indicates that less commercial fishing occurs in this state than the national average.

³ ds = these data are suppressed.

⁴ NA = not applicable.

Gulf of Mexico Region

- Alabama
- West Florida
- Louisiana
- Mississippi
- Texas



Offloading a commercial harvest of reef fish.
Photo: Gulf of Mexico Fishery Management Council/Ava Lasseter

MANAGEMENT CONTEXT

The Gulf of Mexico Region includes Alabama, Louisiana, Mississippi, Texas, and West Florida. Federal fisheries in this region are managed by the Gulf of Mexico Fishery Management Council (GMFMC) and NOAA Fisheries under seven fishery management plans (FMPs). The coastal migratory pelagic resources and spiny lobster fisheries are managed jointly with the South Atlantic Fishery Management Council (SAFMC).

FMPs in the Gulf of Mexico Region

- Aquaculture
- Coastal migratory pelagic resources (with SAFMC)
- Corals
- Red drum
- Reef fish
- Shrimp
- Spiny lobster (with SAFMC)

Three stocks or stock complexes in the Gulf of Mexico Region were identified as overfished in 2016: gray triggerfish, greater amberjack, and red snapper.

Catch Share Programs

Two catch share programs have been implemented in the Gulf of Mexico: the Red Snapper Individual Fishing Quota (IFQ) Program and the Grouper-Tilefish IFQ Program. Following are descriptions of these catch share programs and their performance.

Red Snapper IFQ Program: This program was implemented in 2007 to reduce overcapacity and mitigate derby fishing conditions in the red snapper segment of the commercial reef fish fishery. The key performance indicators of this program show that relative to the baseline period (the 3-year period prior to implementation), the 2015 quota, landings, inflation-adjusted total revenue, and inflation-adjusted total revenue per vessel increased. In contrast, the number of active vessels has decreased since the implementation of the IFQ Program.

Grouper-Tilefish IFQ Program: This program was implemented in 2010 to reduce overcapacity, increase harvesting efficiency, and eliminate the race to fish in the grouper-tilefish segment of the commercial reef fish fishery. The key performance indicators of this program

generally show that relative to the baseline period (the 3-year period prior to implementation), 2015 landings, inflation-adjusted total revenue, and inflation-adjusted revenue per active vessel increased. However, overall quota and the number of active vessels decreased during this period.

Policy Updates

In May 2016, NOAA Fisheries implemented Amendment 28 to the FMP for reef fish resources of the Gulf of Mexico. The amendment changed the allocation of the red snapper annual catch limit (ACL) between the commercial and recreational sectors from 51%:49% to 48.5%:51.5%, respectively. After a court order rejected the change, NOAA Fisheries in June 2017 returned the allocation to its previous levels. Sector ACLs, annual catch targets (ACTs), and the commercial quota were also adjusted to their pre-Amendment 28 levels.

In October 2016, new regulations increased the Gulf of Mexico red grouper allowable catch limit from 6.03 pounds gutted weight to 8.19 pounds gutted weight. Similarly, the quota/annual catch target for Gulf of Mexico red grouper was raised for the commercial sector from 5.72 million to 7.78 million pounds gutted weight. The new regulations increased the red grouper allowable catch limit for the recreational sector from 1.9 to 2.58 and increased the recreational sector’s red grouper annual catch target from 1.73 million to 2.37 million pounds gutted weight.

The increase to the commercial allocation was not distributed until the 2017 fishing season to ensure that the 2016 gag commercial ACL was not exceeded as a result of the red grouper commercial ACL increase. The increase in the recreational ACL was expected to allow the recreational sector to remain open for the entire 2017 fishing year by avoiding the implementation of an in-season accountability measure.

Also in 2016, NOAA Fisheries issued notices prohibiting the recreational harvest of gray triggerfish and greater amberjack from August 1 through December 31, and prohibiting the commercial harvest of greater amberjack from July 17 through December 31, as a result of meeting or exceeding their respective ACTs.

In addition, recreational harvest of gray triggerfish was prohibited in the Gulf of Mexico Exclusive Economic Zone for 2017 due to a harvest overage during the 2016 recreational fishing season. The harvest overage reduced the annual catch target to 0 pounds. Gulf of Mexico gray triggerfish are currently overfished and under a rebuilding plan that expires at the end of 2017. The Gulf of Mexico Fishery Management Council is expected to establish a new gray triggerfish rebuilding plan and modify management measures in 2018.

COMMERCIAL FISHERIES

In this report, commercial fisheries refer to fishing operations that sell their catch for profit. The term does not include subsistence fishermen or saltwater anglers who fish for sport. It also excludes the for-hire sector, which earns its revenue from selling recreational fishing trips to saltwater anglers. The commercial fisheries section reports on economic impacts, landings revenue, landings, and ex-vessel prices of key species/species groups.

Key Gulf of Mexico Region Commercial Species

- Blue crab
- Crawfish
- Groupers
- Menhaden
- Mulletts
- Oysters
- Red snapper
- Shrimp
- Stone crab
- Tunas

Economic Impacts

The premise behind economic impact modeling is that every dollar spent in a regional economy (direct impact) is either saved or re-spent on additional goods or services. If those dollars are re-spent on other goods and services in the regional economy, this spending generates additional economic activity in the region. Four different measures are commonly used to show how commercial fisheries landings affect the economy in a region (state or nationwide): sales, income, value-added, and employment. The term sales refers to the gross value of all sales by regional businesses affected by an activity, such as commercial fishing. The category includes both the direct sales of fish landed and sales made between businesses and households resulting from the original sale. Income includes personal income

(wages and salaries) and proprietors' income (income from self-employment). Value-added is the contribution made to the gross domestic product in a region. Employment is specified on the basis of full-time and part-time jobs supported directly or indirectly by the sales of seafood or purchases of inputs to commercial fishing. The first three measures are calculated in terms of dollars, whereas employment impacts are measured in numbers of jobs. Note that these categories are not additive. The United States seafood industry is defined here as the commercial fishing sector, seafood processors and dealers, seafood wholesalers and distributors, importers, and seafood retailers.^{1,2}

This report provides estimates of total economic impacts for the nation and for each of the 23 coastal states. Total economic impacts for each state and the nation represent the sum of direct impacts; indirect impacts (in this case, the impact from suppliers to the seafood industry); and induced impacts (spending by employees on personal and household expenditures, where employees of both the seafood industry and its full supply chain are included). That is, the total economic impact estimates reported here measure jobs, sales, value-added, and income impacts from the seafood industry as well as the economic activity generated throughout each region's broader economy from this industry.

In 2016, commercial fishing in Florida generated the largest employment impacts in the Gulf of Mexico Region: 76,700 jobs. Income impacts (\$3.2 billion), sales impacts (\$16.9 billion), and value-added impacts (\$5.7 billion) were also largest in Florida.

The importers sector in Florida generated the highest employment impacts of any state-level sector: 39,200 jobs. The importers sector in Florida also generated the highest state-level income impacts (\$1.9 billion), sales impacts (\$12.1 billion), and value-added impacts (\$3.7 billion) in the region.

Landings Trends

Gulf of Mexico landings revenue rose \$25.5 million from 2015 to 2016, largely due to the increase in shrimp landings revenue, which was up \$41.1 million (11%)

¹ The NMFS Commercial Fishing Industry Input/Output Model was used to generate the impact estimates (see NMFS Commercial Fishing & Seafood Industry Input/Output Model, available at www.st.nmfs.noaa.gov/documents/commercial_seafood_impacts_2007-2009.pdf).

² Separate commercial economic impacts were not available for West Florida. Impacts for the entire state of Florida are reported here.

and which more than offset declines in blue crab (down 13%, -\$9.9 million), oyster (down 9%, -\$8.9 million) and spiny lobster (down 11%, -\$4.7 million). The shrimp fishery is the most important fishery in terms of landings revenue in the region and in each Gulf state. White shrimp landings revenue increased \$50.8 million year-over-year due to the combined effect of higher landings and prices (up 28% and 4%, respectively). Brown shrimp landings declined 24% from 2015 to 2016, which had been predicted by NOAA Fisheries.³ High rainfall in Texas and Louisiana in spring 2016 led to large freshwater discharges into the estuaries. In Texas, the resulting flooding forced young shrimp out of the nursery habitat needed for growth and survival and into the mouths of the bays. Extremely low levels of dissolved oxygen in Texas and western Louisiana's shallow coastal water also impacted harvest predictions. Menhaden, the second most valuable fishery in the region, was another bright spot in 2016. Landings (up 15% from 2015) were at their highest level since 2011 and, after adjusting for inflation, landings revenue was at its highest level since 1984. Demand for menhaden was strong in 2016, in part due to the fact that the global production of sardines and anchovies, which are also used for fishmeal and fish oil, fell to their lowest levels since 1991.⁴

Oyster landings revenue was down in 2016, which was not surprising given that 2015 represented a banner year for Louisiana oystermen, with inflation-adjusted landings revenue at an all-time high. Louisiana has comprised almost 70% of the Gulf's oyster harvest in recent years; while Louisiana harvest was down relative to 2015, the 2016 harvest was on par with the 5-year average (less than 1% difference).

Landings Revenue

Landings revenue in the Gulf Region totaled \$912.1 million in 2016. This number represented a 32% increase from 2007 (a 15% increase in real terms after adjusting for inflation) and a 3% increase from 2015. Landings revenue was highest in Louisiana (\$426.1 million), followed by West Florida (\$196.7 million). Shellfish landings revenue made up 71% of total revenue in the region. Shrimp (\$412.9 million) and menhaden (\$143.3 million) had the highest landings

revenue in the Gulf of Mexico Region in 2016. Together they accounted for 61% of total landings revenue.

From 2007 to 2016, red snapper (176%, 141% in real terms), menhaden (131%, 102% in real terms), and spiny lobster (61%, 40% in real terms) had the largest revenue increases, while tunas (-45%, -52% in real terms) had the largest revenue decreases. From 2015 to 2016, crawfish (73%), tunas (29%), and shrimp (11%) had the largest revenue increases, while blue crab (-13%), spiny lobster (-11%), and oysters (-9%) had the largest revenue decreases.

Landings

In 2016, Gulf Region commercial fishermen landed 1.7 billion pounds of finfish and shellfish, a 24% increase from 2007 and an 11% increase from 2015. Menhaden had the highest landings volume in the Gulf of Mexico Region, accounting for 78% of landed weight.

From 2007 to 2016, red snapper (115%), spiny lobster (41%), and menhaden (36%) had the largest landings increases, while tunas (-50%), oysters (-29%), and crawfish (-14%) had the largest landings decreases. From 2015 to 2016, crawfish (149%), tunas (27%), and menhaden (15%) had the largest landings increases, while spiny lobster (-12%), oysters (-7%), and red snapper (-4%) had the largest landings decreases.

Prices

In 2016, spiny lobster (\$8.18 per pound) received the highest Gulf of Mexico Region ex-vessel price. Landings of menhaden (\$0.11 per pound) had the lowest ex-vessel price.

From 2007 to 2016, oysters (83%, 60% in real terms), menhaden (70%, 49% in real terms), and blue crab (59%, 39% in real terms) had the largest price increases. There were no price decreases from 2007 to 2016. From 2015 to 2016, shrimp (11%), mullets (6%), and groupers (2%) had the largest price increases, while crawfish (-30%), blue crab (-11%), and menhaden (-10%) had the largest price decreases.

³ http://sero.nmfs.noaa.gov/news_room/press_releases/2016/08_noaa_pre.html.

⁴ FAO Fisheries and Aquaculture Department Global Production Statistics http://www.fao.org/figis/servlet/TabLandArea?tb_ds=Production&tb_mode=TABLE&tb_act=SELECT&tb_grp=COUNTRY&lang=en.

Commercial Revenue: Largest Increases*From 2007:*

- Red snapper (176%, 141% in real terms)
- Menhaden (131%, 102% in real terms)
- Spiny lobster (61%, 40% in real terms)

From 2015:

- Crawfish (73%)
- Tunas (29%)
- Shrimp (11%)

Commercial Revenue: Largest Decreases*From 2007:*

- Tunas (-45%, -52% in real terms)

From 2015:

- Blue crab (-13%)
- Spiny lobster (-11%)
- Oysters (-9%)

Commercial Landings: Largest Increases*From 2007:*

- Red snapper (115%)
- Spiny lobster (41%)
- Menhaden (36%)

From 2015:

- Crawfish (149%)
- Tunas (27%)
- Menhaden (15%)

Commercial Landings: Largest Decreases*From 2007:*

- Tunas (-50%)
- Oysters (-29%)
- Crawfish (-14%)

From 2015:

- Spiny lobster (-12%)
- Oysters (-7%)
- Red snapper (-4%)

fun rather than to resell fish (commercial fishing) or for subsistence. The recreational fisheries section reports on economic impacts and expenditures, angler participation, trips, and catch of key species/species groups.⁵

Key Gulf of Mexico Region Recreational Species

- Atlantic croaker
- Gulf and southern kingfish
- Red drum
- Red snapper
- Sand and silver seatrout
- Sheepshead porgy
- Southern flounder
- Spanish mackerel
- Spotted seatrout
- Striped mullet

Economic Impacts and Expenditures

The contribution of recreational fishing activities⁶ in the United States is reported in terms of economic impacts from angler expenditures. Total annual trip expenditures are estimated by multiplying mean trip expenditures by the estimated number of adult trips in each trip mode (for-hire, private boat, and shore). Total annual durable expenditures are estimated by multiplying mean durable expenditures by the estimated annual number of adult participants in a given state.

Four different measures are commonly used to show how angler expenditures affect the economy in a region (state or nationwide): sales, income, value-added, and employment. The term sales refers to the gross value of all sales by regional businesses affected by an activity, such as recreational fishing. The category includes both the direct sales made by the angler and sales made between businesses and households resulting from that original sale by the angler. Income includes personal income (wages and salaries) and proprietors' income (income from self-employment). Value-added is the contribution made to the gross domestic product in a region. Employment is specified on the basis of full-time and part-time jobs supported directly or indirectly by the purchases made by anglers. The first three measures are calculated in terms of dollars, whereas employment impacts are measured in number of jobs. Note that these categories are not additive. NOAA

RECREATIONAL FISHERIES

In this report, recreational fishing refers to fishing for

⁵ Except where noted, Atlantic and Gulf recreational catch and effort estimates are based upon the MRIP APAIS and CHTS (<https://www.st.nmfs.noaa.gov/recreational-fisheries/Surveys/survey-details>) and not the revised MRIP estimates (<https://www.fisheries.noaa.gov/leadership-message/noaa-fisheries-releases-revised-mrip-recreational-catch-and-effort-estimates>) released in 2018.

⁶ Trip expenditure estimates were generated from the 2011 National Marine Recreational Fishing Expenditure Survey. Durable good expenditure impacts were generated from the 2014 National Marine Recreational Fishing Expenditure Survey (see <https://www.st.nmfs.noaa.gov/economics/fisheries/recreational/Marine-Angler-Durable-Expenditures/2014-durable-expenditures-survey>). Economic impacts from recreational fishing activities were generated using the NMFS Recreational Economic Impact Model (see The Economic Contribution of Marine Angler Expenditures in the United States, 2011, available at <http://www.st.nmfs.noaa.gov/economics/publications/marine-angler-expenditures/marine-angler-2011>).

Fisheries uses a regional impact modeling software, called IMPLAN, to estimate these four types of impacts.

The greatest employment impacts from expenditures on saltwater recreational fishing in the Gulf of Mexico Region were generated in West Florida (60,200 jobs), followed by Alabama (16,100 jobs). The largest sales impacts were observed in West Florida (\$6.8 billion), followed by Texas (\$2 billion). The biggest income impacts were generated in West Florida (\$2.6 billion), followed by Texas (\$746 million). The greatest value-added impacts were in West Florida (\$4.1 billion), followed by Texas (\$1.2 billion).

Recreational fishing expenditures (on both fishing trips and durable equipment purchases) across the Gulf of Mexico Region in 2016 totaled about \$11 billion. Trip expenditures totaled more than \$1.4 billion, with a large portion coming from trips in the private boat (41%) and for-hire (30%) sectors. Durable goods expenditures totaled \$9.6 billion, with the largest portion coming from boat expenses (\$5.5 billion).

Fishing Trips

In 2016, recreational fishermen took 19.5 million fishing trips in the Gulf of Mexico Region. This number represented a 20% decrease from 2007 and a 1% decrease from 2015. The largest proportions of trips were taken in the private boat mode (57%) and shore mode (37%). West Florida (13.2 million trips) and Alabama (2.6 million trips) had the highest number of recorded trips.

Participation

In 2016, there were 2.7 million recreational anglers who fished in the Gulf of Mexico Region. This number represented a 24% decrease from 2007 and an 8% increase from 2015. These anglers were Gulf of Mexico Region residents from either a coastal county (87%) or non-coastal county (13%).

Harvest and Release

Of the Gulf of Mexico's key species and species groups, drum (spotted seatrout) (23 million fish), red drum (4.9 million fish), and drum (sand and silver seatrouts) (4.3 million fish) were most frequently caught by

Recreational Catch: Largest Increases

From 2007:

- Striped mullet (85%)
- Drum (Gulf and southern kingfish) (1%)

From 2015:

- Red snapper (78%)
- Drum (Gulf and southern kingfish) (41%)
- Drum (spotted seatrout) (37%)

Recreational Catch: Largest Decreases

From 2007:

- Red drum (-47%)
- Southern flounder (-46%)
- Drum (spotted seatrout) (-26%)

From 2015:

- Porgies (sheepshead) (-31%)
- Red drum (-20%)
- Drum (Atlantic Croaker) (-4%)

recreational fishermen. From 2007 to 2016, striped mullet (85%) and drum (Gulf and southern kingfish) (1%) had the largest increases in catch, while red drum (-47%), southern flounder (-46%), and drum (spotted seatrout) (-26%) had the largest decreases. From 2015 to 2016, red snapper (78%), drum (Gulf and southern kingfish) (41%), and drum (spotted seatrout) (37%) had the largest increases in catch, while porgies (sheepshead) (-31%), red drum (-20%), and drum (Atlantic Croaker) (-4%) had the largest decreases.

MARINE ECONOMY

For this report, the marine economy refers to the economic activity generated by fishing and marine-related industries in a coastal state. The state marine economy consists of two industry sectors: 1) seafood sales and processing (employer establishments and non-employer firms); and 2) transport, support, and marine operations (employer establishments). These sectors include several different marine-related industries. Note that when discussing the marine economy in the Gulf of Mexico Region, all statistics include the entire state of Florida and not just West Florida.^{7,8,9}

To measure the size of the commercial fishing sector in a state's economy relative to the size of the commercial fishing sector in the national economy¹⁰, researchers use an index called the Commercial Fishing Location Quotient (CFLQ). The CFLQ is calculated as the ratio of the percentage of regional employment in the commercial fishing sector relative to the percentage of national employment in the commercial fishing sector. The U.S. CFLQ is 1. If a state CFLQ is less than 1, then less commercial fishing occurs in this state than the national average. If a state CFLQ is greater than 1, then more commercial fishing occurs in this state than the national average. Louisiana had the highest CFLQ in the Gulf region in 2015, at 2.33.

In 2015, 1.4 million employer establishments operated within the five states included in the Gulf of Mexico Region (including marine- and non-marine-related establishments). These establishments employed over 22 million workers and had a total annual payroll of \$1 trillion. The combined gross state product of Alabama, Florida, Louisiana, Mississippi, and Texas was approximately \$3 trillion in 2015.

Seafood Sales and Processing

Seafood Product Preparation and Packaging: In 2015, the Gulf of Mexico Region had 654 non-employer firms in the seafood product preparation and packaging sector (a 64% increase from 2007). Annual receipts for these firms totaled about \$47.4 million (a 75% increase in real terms from 2007). There were 132 employer firms in the seafood product preparation and packaging sector (this remained unchanged from 2007). These establishments employed 6,781 workers (a 22% decrease from 2007) and had a total annual payroll of \$238.7 million (a 4% decrease in real terms from 2007). The greatest number of seafood product preparation and packaging establishments was located in Florida (327), followed by Texas (207) and Louisiana (153).

Seafood Sales, Retail: In 2015, there were 801 non-employer firms engaged in retail sales of seafood in the five states that make up the Gulf of Mexico Region (a 2% decrease from 2007). Annual receipts for these firms totaled about \$69.9 million (a 17% decrease in real terms from 2007). There were 373 employer firms

in the retail sales of seafood sector (a 2% decrease from 2007). These establishments employed 2,494 workers and had a total annual payroll of \$56.6 million. The greatest number of retail seafood establishments was located in Florida (536), followed by Louisiana (259) and Texas (240).

Seafood Sales, Wholesale: There were 478 employer firms in the wholesale sales of seafood sector in the Gulf of Mexico Region in 2015 (a 12% decrease from 2007). These establishments employed 4,211 workers and had a total annual payroll of \$165.2 million. The greatest number of wholesale seafood establishments was located in Florida (242), followed by Louisiana (111) and Texas (90).

Transport, Support, and Marine Operations

Data for the transport, support, and marine operations sector of the Gulf of Mexico Region's economy were largely suppressed for confidentiality reasons. It is clear, however, that these sectors play an important role in the regional economy. For example, the ship and boatbuilding sector accounted for \$2 billion in payroll in 2015.

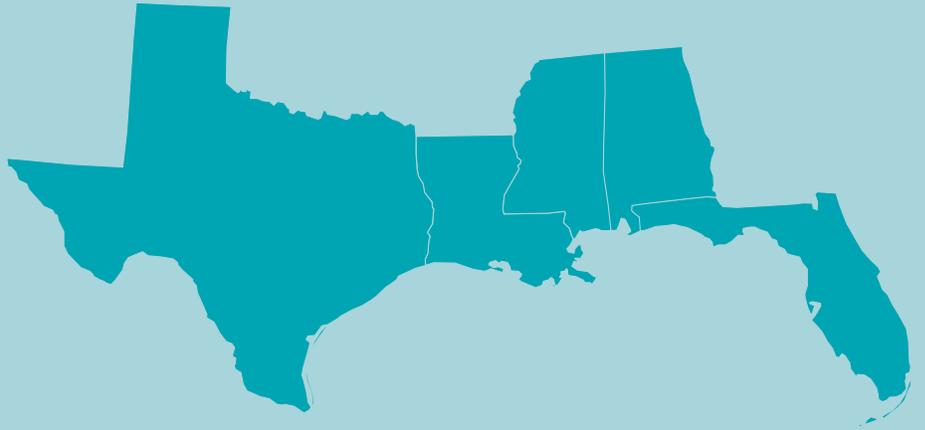
⁷ Marine Economy information was not available for West Florida, information for the entire state of Florida is provided in this report.

⁸ Unless otherwise stated, data are from the U.S. Census Bureau, <http://census.gov/> (accessed September 26, 2017).

⁹ U.S. Bureau of Economic Analysis, "Table 1.1.5 Gross Domestic Product" and "Table SA6N Compensation of Employees by NAICS Industry," http://www.bea.gov/iTable/index_nipa.cfm (accessed September 26, 2017).

¹⁰ U.S. Bureau of Labor Statistics, "Location Quotient Calculator," https://data.bls.gov/cew/doc/info/location_quotients.htm (accessed September 26, 2017).

Tables | Gulf of Mexico Region



2016 Economic Impacts of the Gulf of Mexico Seafood Industry (thousands of dollars)

	Landings Revenue	With Imports				Without Imports			
		#Jobs	Sales	Income	Value Added	#Jobs	Sales	Income	Value Added
Alabama	64,59	12,058	555,373	219,712	287,906	11,911	535,846	214,883	280,529
Florida	196,706	76,749	16,873,652	3,171,513	5,658,897	11,083	1,081,344	284,434	437,467
Louisiana	426,116	36,102	2,021,911	751,727	1,023,361	35,024	1,836,128	713,007	958,966
Mississippi	28,969	4,586	217,948	87,253	112,697	4,578	216,661	86,981	112,250
Texas	195,668	21,507	2,091,002	597,409	898,617	16,352	1,079,847	394,235	552,041

Total Landings Revenue & Landings Revenue of Key Species/Species Groups (thousands of dollars)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Total Revenue	690,211	663,848	636,427	624,629	811,905	784,869	941,557	1,059,780	886,519	912,050
Finfish & Other	146,525	147,115	142,425	117,831	184,721	188,283	200,892	200,092	251,733	262,150
Shellfish	543,686	516,732	494,003	506,797	627,184	596,586	740,665	859,688	634,786	649,901
Key Species										
Blue crab	46,028	39,813	45,484	41,264	48,794	53,708	61,804	79,458	74,525	64,632
Crawfish	9,034	9,507	15,547	13,971	9,914	8,325	16,490	16,088	6,851	11,877
Groupers	21,488	24,108	18,435	14,270	20,326	24,657	24,628	30,435	27,671	28,694
Menhaden	62,110	64,376	60,606	51,750	92,855	85,890	90,643	80,402	138,511	143,339
Mulletts	5,543	6,099	6,105	5,221	10,368	7,557	13,222	11,626	7,568	7,825
Oysters	69,542	60,464	73,464	55,085	65,273	76,042	76,450	93,007	99,324	90,399
Red snapper	9,570	7,972	7,984	10,202	11,413	13,681	20,621	23,158	27,437	26,450
Shrimp	367,060	366,808	327,608	339,228	441,384	412,209	513,055	587,267	371,845	412,947
Spiny lobster	24,527	19,141	12,203	32,747	35,610	21,128	46,744	53,415	44,055	39,367
Tunas	10,535	6,170	8,180	2,688	5,516	10,657	7,308	6,334	4,502	5,790

Total Landings & Landings of Key Species/Species Groups (thousands of pounds)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Total Landings	1,404,307	1,278,879	1,435,665	1,072,068	1,792,550	1,489,595	1,346,244	1,245,301	1,567,151	1,744,452
Finfish & Other	1,071,825	994,813	1,071,919	810,889	1,472,911	1,177,685	1,043,696	931,158	1,259,884	1,437,436
Shellfish	332,482	284,066	363,746	261,179	319,640	311,910	302,548	314,143	307,267	307,017
Key Species										
Blue crab	57,964	49,258	61,277	41,240	55,606	55,444	46,941	51,664	52,609	51,298
Crawfish	15,848	15,735	19,312	14,557	9,599	6,853	19,676	13,055	5,461	13,573
Groupers	7,723	8,941	7,008	5,075	7,175	8,325	7,613	8,991	7,815	7,936
Menhaden	1,005,325	927,517	1,002,579	753,442	1,398,654	1,102,539	971,308	848,599	1,188,984	1,364,030
Mulletts	8,933	10,609	11,303	8,963	14,233	10,772	13,482	15,101	10,784	10,545
Oysters	22,518	20,723	22,829	15,824	18,742	21,192	19,257	17,957	17,134	15,975
Red snapper	2,998	2,370	2,503	3,259	3,567	4,042	5,306	5,739	6,741	6,457
Shrimp	225,163	188,806	250,572	178,902	221,469	219,216	206,839	215,903	212,273	211,787
Spiny lobster	3,402	2,975	3,960	5,286	5,302	3,634	5,600	5,038	5,450	4,811
Tunas	3,426	1,786	2,836	1,322	1,588	3,070	2,094	1,760	1,343	1,706

Average Annual Price of Key Species/Species Groups (dollars per pound)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Blue crab	0.79	0.81	0.74	1.00	0.88	0.97	1.32	1.54	1.42	1.26
Crawfish	0.57	0.60	0.81	0.96	1.03	1.21	0.84	1.23	1.25	0.88
Groupers	2.78	2.70	2.63	2.81	2.83	2.96	3.24	3.39	3.54	3.62
Menhaden	0.06	0.07	0.06	0.07	0.07	0.08	0.09	0.09	0.12	0.11
Mulletts	0.62	0.57	0.54	0.58	0.73	0.70	0.98	0.77	0.70	0.74
Oysters	3.09	2.92	3.22	3.48	3.48	3.59	3.97	5.18	5.80	5.66
Red snapper	3.19	3.36	3.19	3.13	3.20	3.39	3.89	4.03	4.07	4.10
Shrimp	1.63	1.94	1.31	1.90	1.99	1.88	2.48	2.72	1.75	1.95
Spiny lobster	7.21	6.43	3.08	6.20	6.72	5.81	8.35	10.6	8.08	8.18
Tunas	3.07	3.45	2.88	2.03	3.47	3.47	3.49	3.60	3.35	3.39

2016 Economic Impacts of the Gulf of Mexico Recreational Fishing Expenditures (thousands of dollars, trips)

	Trips	#Jobs	Sales	Income	Value Added
Alabama	2,567	16,114	1,436,429	616,372	1,029,958
West Florida	13,219	60,179	6,827,238	2,575,065	4,111,852
Louisiana	2,242	14,142	1,629,917	608,048	1,003,379
Mississippi	1,512	5,351	637,880	211,438	344,605
Texas	1,187	16,030	2,000,004	746,008	1,237,327

2016 Angler Trip & Durable Goods Expenditures (thousands of dollars)

Fishing Mode	Trip Expenditures	Equipment	Durable Goods Expenditures
For-Hire	432,633	Fishing Tackle	2,025,330
Private Boat	590,553	Other Equipment	885,813
Shore	410,695	Boat Expenses	5,543,627
Total	1,433,882	Vehicle Expenses	983,006
		Second Home Expenses	130,943
		Total Durable Expenditures	9,568,717
Total State Trip and Durable Goods Expenditures			11,002,599

Recreational Anglers by Residential Area (thousands of anglers)^{1,2}

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Coastal	3,235	2,926	2,550	2,480	2,737	2,803	2,973	2,616	2,250	2,379
Non-Coastal	326	262	296	235	311	268	400	273	262	345
Out-of-State ³	NA									
Total Anglers	3,562	3,188	2,846	2,715	3,048	3,071	3,373	2,890	2,512	2,724

Recreational Fishing Effort by Mode (thousands of angler trips)⁴

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
For-Hire	852	819	822	580	735	884	907	927	1,086	1,115
Private	14,980	15,195	13,443	12,685	12,911	12,782	13,510	11,547	10,952	11,170
Shore	8,457	8,776	8,332	7,783	8,930	9,506	10,817	8,582	7,686	7,255
Total Trips	24,289	24,790	22,597	21,047	22,576	23,172	25,233	21,056	19,724	19,540

Harvest (H) & Release (R) of Key Species/Species Groups (thousands of fish)⁵

		2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Drum (Atlantic croaker)	H	1,408	1,936	1,291	1,634	2,208	1,462	1,883	2,681	1,349	1,288
	R	2,616	3,149	3,856	3,828	5,899	3,920	3,269	2,239	2,167	2,085
Drum (Gulf and southern kingfish)	H	1,136	1,305	1,065	1,421	939	918	1,622	707	1,173	1,406
	R	842	728	576	624	539	536	474	358	248	595
Drum (sand and silver seatrouts)	H	3,184	3,556	4,314	4,701	5,960	5,056	3,013	2,674	3,162	3,112
	R	1,911	1,990	2,444	1,806	2,540	2,476	1,851	482	675	1,156
Drum (spotted seatrout)	H	12,104	15,042	14,147	10,871	14,719	13,593	12,762	5,818	7,800	9,932
	R	18,850	21,017	17,364	14,565	19,119	20,215	19,527	8,932	9,067	13,104
Porgies (sheepshead)	H	1,244	1,615	1,607	1,195	2,273	1,596	1,355	1,391	1,327	1,060
	R	1,222	1,487	1,339	1,739	1,633	1,516	1,672	1,579	1,562	925
Red drum	H	3,135	3,560	2,893	3,516	3,891	3,013	4,138	2,115	2,250	2,049
	R	6,222	7,016	5,525	6,467	6,449	6,329	7,701	3,480	3,912	2,881
Red snapper	H	1,268	719	827	367	557	625	1,289	559	805	1,001
	R	3,258	2,111	2,146	1,436	1,521	1,425	2,824	1,786	1,543	3,175
Southern flounder	H	701	538	691	802	858	836	1,102	486	419	459
	R	240	122	193	220	222	310	339	73	83	49
Spanish mackerel	H	1,338	1,899	1,508	1,577	1,542	1,841	3,355	1,722	1,780	1,997
	R	2,104	2,041	1,636	2,476	1,942	1,442	4,159	2,779	1,200	962
Striped mullet	H	1,150	1,259	742	1,666	1,902	2,356	2,984	2,366	1,949	2,114
	R	157	146	225	126	313	204	195	293	68	300

¹ The Marine Recreational Program (MRIP) does not collect angler participation data for Texas.

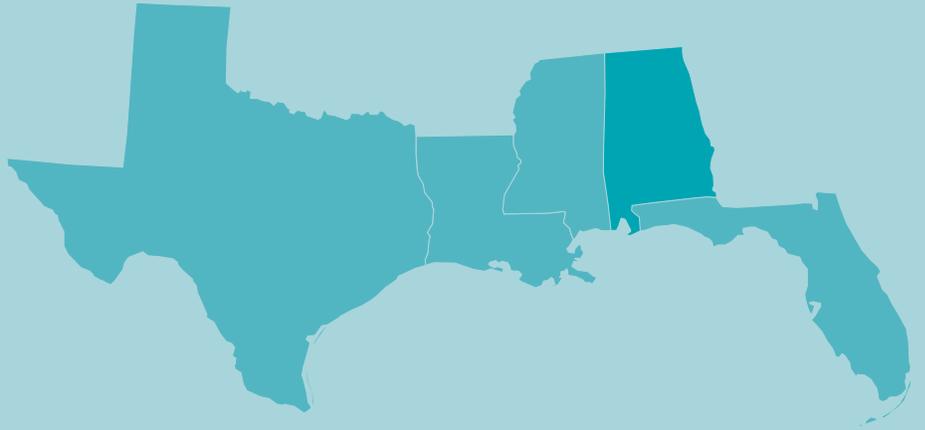
² Includes Louisiana resident participation estimated from historical MRIP data (2006-2013) and a state creel survey (2014-2015).

³ Data are not available because out-of-state resident information is collected for individual states, but whether an angler is a resident of a region is not specified.

⁴ The Marine Recreational Program (MRIP) does not collect effort data for Texas.

⁵ Data on the number of fish released in Texas are not collected by the Texas Parks and Wildlife Department (TPWD) and therefore not reported in this table.

Tables | Alabama



2016 Economic Impacts of the Alabama Seafood Industry (thousands of dollars)

	With Imports				Without Imports			
	#Jobs	Sales	Income	Value Added	#Jobs	Sales	Income	Value Added
Total Impacts	12,058	555,373	219,712	287,906	11,911	535,846	214,883	280,529
Commercial Harvesters	1,977	106,619	31,624	47,088	1,977	106,619	31,624	47,088
Seafood Processors & Dealers	2,030	143,433	56,183	71,397	1,933	136,560	53,491	67,975
Importers	40	12,251	1,963	3,735	0	0	0	0
Seafood Wholesalers & Distributors	183	9,641	3,380	4,353	181	9,560	3,351	4,317
Retail	7,829	283,429	126,561	161,333	7,820	283,106	126,417	161,149

Total Landings Revenue & Landings Revenue of Key Species/Species Groups (thousands of dollars)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Total Revenue	48,845	44,503	39,624	26,335	50,910	46,527	56,832	70,497	50,940	64,592
Finfish & Other	3,686	4,358	3,662	2,748	4,072	5,183	4,680	4,572	5,023	4,927
Shellfish	45,160	40,145	35,962	23,587	46,838	41,344	52,153	65,925	45,917	59,665
Key Species										
Blue crab	1,711	1,533	961	732	1,128	1,044	1,036	1,319	1,225	1,788
Flounders	261	214	197	97	222	185	58	53	66	56
Menhaden	71	59	42	15	58	84	104	147	154	164
Mulletts	984	1,030	765	594	687	1,206	1,178	1,046	761	514
Oysters	2,698	243	77	390	1,322	1,253	786	441	290	590
Red snapper	213	239	263	329	314	316	401	697	1,443	1,423
Sharks	250	403	275	111	381	330	247	219	262	256
Shrimp	40,742	38,355	34,894	22,463	44,361	39,040	50,321	64,149	44,399	57,271
Spanish mackerel	453	664	301	499	582	1,149	940	472	705	833
Vermillion snapper	323	507	841	384	622	393	88	387	247	242

Total Landings & Landings of Key Species/Species Groups (thousands of pounds)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Total Landings	29,434	24,612	29,199	14,063	26,119	26,335	23,421	25,790	26,565	29,355
Finfish & Other	4,857	5,577	4,478	3,441	4,966	6,596	5,831	5,276	5,095	5,115
Shellfish	24,578	19,035	24,721	10,622	21,153	19,739	17,590	20,514	21,470	24,240
Key Species										
Blue crab	2,557	1,799	1,458	927	1,617	1,325	1,025	1,184	1,300	1,919
Flounders	133	107	97	48	111	83	25	23	26	19
Menhaden	470	268	190	81	364	521	496	700	695	804
Mulletts	1,798	2,017	1,814	1,202	1,262	1,946	1,793	1,829	1,385	944
Oysters	769	71	23	68	296	265	133	58	34	52
Red snapper	59	61	65	83	78	78	108	180	356	320
Sharks	315	424	328	140	450	495	343	272	392	401
Shrimp	21,247	17,154	23,215	9,625	19,224	18,137	16,418	19,257	20,132	22,256
Spanish mackerel	580	921	418	733	839	1,377	972	431	617	859
Vermillion snapper	129	199	346	148	224	132	28	124	74	76

Average Annual Price of Key Species/Species Groups (dollars per pound)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Blue crab	0.67	0.85	0.66	0.79	0.7	0.79	1.01	1.11	0.94	0.93
Flounders	1.97	2.01	2.04	2.05	2	2.21	2.35	2.24	2.51	2.86
Menhaden	0.15	0.22	0.22	0.18	0.16	0.16	0.21	0.21	0.22	0.2
Mulletts	0.55	0.51	0.42	0.49	0.54	0.62	0.66	0.57	0.55	0.54
Oysters	3.51	3.41	3.33	5.75	4.47	4.72	5.91	7.6	8.62	11.44
Red snapper	3.62	3.93	4.04	3.97	4.04	4.05	3.7	3.86	4.05	4.45
Sharks	0.79	0.95	0.84	0.79	0.85	0.67	0.72	0.81	0.67	0.64
Shrimp	1.92	2.24	1.5	2.33	2.31	2.15	3.06	3.33	2.21	2.57
Spanish mackerel	0.78	0.72	0.72	0.68	0.69	0.83	0.97	1.09	1.14	0.97
Vermillion snapper	2.5	2.55	2.43	2.59	2.78	2.97	3.12	3.11	3.33	3.19

2016 Economic Impacts of Recreational Fishing Expenditures (thousands of dollars)

		#Jobs	Sales	Income	Value Added
Trip Impacts by Fishing Mode	For-Hire	528	59,410	21,180	31,020
	Private Boat	512	48,766	14,659	25,245
	Shore	1,100	92,952	30,450	51,589
Total Durable Expenditures		13,974	1,235,301	550,083	922,104
Total State Economic Impacts		16,114	1,436,429	616,372	1,029,958

2016 Angler Trip & Durable Goods Expenditures (thousands of dollars)

Fishing Mode	Trip Expenditures	Equipment	Durable Goods Expenditures
For-Hire	37,554	Fishing Tackle	315,526
Private Boat	47,904	Other Equipment	103,942
Shore	76,315	Boat Expenses	1,097,700
Total	161,773	Vehicle Expenses	48,043
		Second Home Expenses	24,625
		Total Durable Expenditures	1,589,834
Total State Trip and Durable Goods Expenditures			1,751,607

Recreational Anglers by Residential Area (thousands of anglers)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Coastal	253	192	205	195	295	254	279	220	225	274
Non-Coastal	169	116	151	140	177	131	224	123	151	176
Out-of-State	291	237	209	220	435	339	549	510	455	465
Total Anglers	712	545	566	554	907	723	1,052	853	831	915

Recreational Fishing Effort by Mode (thousands of angler trips)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
For-Hire	75	56	56	34	75	59	90	87	98	103
Private	985	946	885	840	1,206	1,035	1,006	714	918	958
Shore	901	702	772	812	1,202	1,211	1,767	1,368	1,308	1,505
Total Trips	1,961	1,704	1,713	1,686	2,483	2,305	2,862	2,169	2,324	2,567

Harvest (H) & Release (R) of Key Species/Species Groups (thousands of fish)

		2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Bluefish	H	26	16	14	30	75	56	163	36	17	120
	R	175	54	46	80	167	197	639	518	192	740
Drum (Atlantic croaker)	H	463	1,163	250	918	886	345	391	1,105	539	334
	R	924	1,371	1,821	1,861	2,593	1,206	886	1,393	1,401	638
Drum (kingfishes) ¹	H	476	668	593	633	626	227	929	322	350	436
	R	289	257	284	309	341	97	260	156	131	259
Drum (sand seatrout)	H	704	1,216	1,428	2,069	2,346	1,415	486	524	881	1,062
	R	481	409	752	835	743	480	294	246	317	567
Drum (spotted seatrout)	H	359	269	318	610	826	773	539	242	522	679
	R	488	844	757	454	1,301	1,126	761	254	907	1,499
Porgies (sheepshead)	H	320	289	166	218	480	313	285	121	316	94
	R	30	159	48	51	146	48	46	18	168	35
Red drum	H	84	88	62	123	143	124	188	90	161	157
	R	136	227	110	151	150	305	425	318	254	304
Red snapper	H	217	107	138	42	217	152	450	132	297	340
	R	851	340	394	288	488	194	857	758	610	1,490
Southern flounder	H	96	93	139	243	163	155	84	29	50	28
	R	38	38	22	65	60	53	43	18	26	7
Spanish mackerel	H	92	111	76	255	334	516	1,313	128	707	679
	R	21	32	60	101	128	148	1,130	53	275	114

¹ Kingfishes include southern kingfish and Gulf kingfish.

2015 Alabama State Economy (% of national total)¹

	#Non-Employer Firms	#Establishments	#Employees	Annual Payroll (\$ billions)	Employee Compensation (\$ billions)	Gross State Product (\$ billions)	Commercial Fishing Location Quotient ²
Totals	318,136 (1.3%)	98,540 (1.3%)	1,634,391 (1.3%)	67.37 (1.1%)	110.25 (1.1%)	199.98 (1.1%)	0.47

Seafood Sales & Processing - Non-Employer Firms (thousands of dollars)

		2007	2008	2009	2010	2011	2012	2013	2014	2015
Seafood product prep. & packaging	Firms	47	33	41	68	67	47	58	57	49
	Receipts	1,547	1,894	1,809	3,314	4,354	1,965	3,069	3,446	2,901
Seafood sales, retail	Firms	61	57	67	71	58	68	66	55	46
	Receipts	4,279	5,632	5,484	5,197	4,759	7,073	5,520	4,351	3,274

Seafood Sales & Processing - Employer Establishments (thousands of dollars)

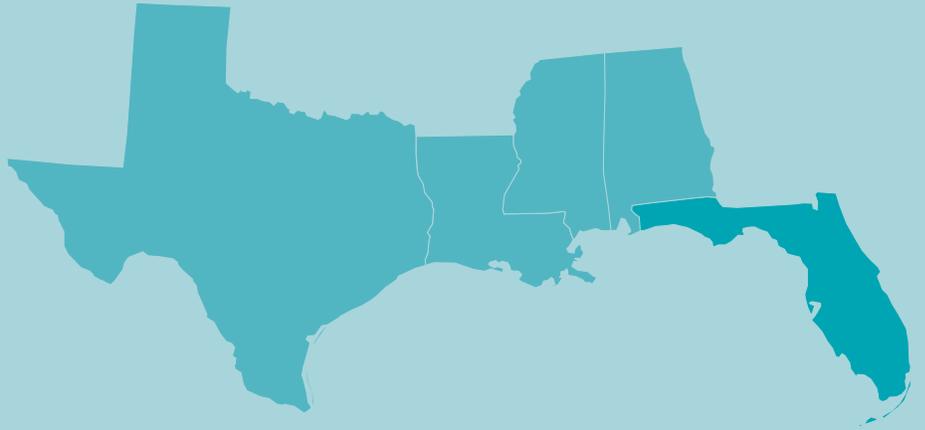
		2007	2008	2009	2010	2011	2012	2013	2014	2015
Seafood product prep. & packaging	Establishments	23	23	22	21	16	17	22	23	20
	Employees	1,510	1,450	1,086	1,128	882	778	989	963	961
	Payroll	32,774	29,277	24,900	22,824	21,922	19,730	22,641	23,973	25,951
Seafood sales, wholesale	Establishments	31	29	28	23	25	16	18	18	21
	Employees	395	494	339	332	321	306	281	388	378
	Payroll	6,202	8,751	5,893	5,119	6,547	6,221	6,861	9,321	10,034
Seafood sales, retail	Establishments	33	33	31	34	32	32	28	31	32
	Employees	ds	ds	130	132	120	189	219	200	234
	Payroll	1,809	1,710	2,044	2,016	1,888	2,990	3,267	3,330	3,706

Transport, Support & Marine Operations - Employer Establishments (thousands of dollars)^{3,4}

		2007	2008	2009	2010	2011	2012	2013	2014	2015
Coastal & Great Lakes freight transportation	Establishments	8	4	4	5	5	4	5	5	4
	Employees	48	ds	ds	ds	215	ds	ds	45	ds
	Payroll	3,266	ds	ds	ds	13,117	ds	ds	2,617	ds
Deep sea freight transportation	Establishments	5	7	7	5	6	5	5	2	2
	Employees	46	ds							
	Payroll	3,553	ds							
Deep sea passenger transportation	Establishments	1	2	3	2	2	1	0	0	0
	Employees	ds	ds	ds	ds	ds	ds	NA	NA	NA
	Payroll	ds	ds	ds	ds	ds	ds	NA	NA	NA
Marinas	Establishments	52	56	55	54	53	57	54	54	57
	Employees	364	316	278	609	ds	329	332	343	387
	Payroll	9,382	9,170	8,418	12,149	12,196	10,253	9,659	9,804	11,182
Marine cargo handling	Establishments	19	20	19	19	19	10	13	13	14
	Employees	491	756	658	548	536	ds	554	778	666
	Payroll	21,076	33,244	27,272	32,143	34,998	ds	34,481	37,273	37,154
Navigational services to shipping	Establishments	16	17	16	16	16	14	12	16	14
	Employees	338	287	294	276	283	241	208	124	121
	Payroll	17,554	16,712	15,383	14,737	14,981	8,808	14,761	6,902	6,922
Port & harbor operations	Establishments	2	4	5	5	3	6	3	2	2
	Employees	ds	ds	ds	ds	ds	101	4	ds	ds
	Payroll	ds	ds	ds	ds	ds	5,788	160	ds	ds
Ship & boat building	Establishments	42	42	40	32	35	37	38	37	41
	Employees	3,570	4,435	3,913	2,598	3,176	4,936	5,948	5,904	6,049
	Payroll	172,380	188,543	159,065	151,813	166,116	251,063	303,016	311,296	342,082

¹ Census Bureau data for the Marine Economy section of this report are available only through 2015.² The U.S. Commercial Fishing Location Quotient (CFLQ) is 1. A CFLQ greater than 1 indicates that more commercial fishing occurs in this state than the national average. A CFLQ less than 1 indicates that less commercial fishing occurs in this state than the national average.³ ds = these data are suppressed.⁴ NA = not applicable.

Tables | West Florida



2016 Economic Impacts of the Florida¹ Seafood Industry (thousands of dollars)

	With Imports				Without Imports			
	#Jobs	Sales	Income	Value Added	#Jobs	Sales	Income	Value Added
Total Impacts	76,749	16,873,652	3,171,513	5,658,897	11,083	1,081,344	284,434	437,467
Commercial Harvesters	7,158	520,252	163,093	217,024	7,158	520,252	163,093	217,024
Seafood Processors & Dealers	4,442	801,532	155,120	304,952	580	112,172	21,709	42,677
Importers	39,207	12,116,639	1,941,923	3,693,682	0	0	0	0
Seafood Wholesalers & Distributors	9,586	1,226,678	481,589	599,160	482	61,714	24,229	30,144
Retail	16,356	2,208,551	429,788	844,078	2,862	387,205	75,404	147,621

Total Landings Revenue & Landings Revenue of Key Species/Species Groups (thousands of dollars)²

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Total Revenue	132,162	123,850	117,324	139,046	166,015	143,886	182,172	212,961	215,678	196,706
Finfish & Other	46,828	51,698	49,976	41,321	59,580	60,710	67,994	74,935	67,107	69,389
Shellfish	85,334	72,152	67,349	97,725	106,434	83,176	114,178	138,026	148,572	127,317
Key Species										
Blue crab	5,769	3,289	4,195	6,706	7,719	5,142	6,454	7,385	8,487	6,127
Gag	4,348	4,913	2,759	2,079	1,439	2,437	2,799	2,889	2,782	4,659
Lobsters	24,546	19,175	12,206	32,752	35,616	21,136	46,749	53,418	44,056	39,371
Mulletts	3,663	4,172	5,069	4,188	8,630	5,050	11,081	9,387	6,148	6,336
Oyster	6,631	5,519	6,968	6,298	8,582	9,706	5,783	4,178	4,722	4,266
Quahog clam	914	1,825	1,524	1,002	921	753	921	NA	NA	NA
Red grouper	11,024	13,591	10,488	8,992	15,087	16,737	16,219	21,217	18,931	17,836
Red snapper	3,066	2,951	2,980	4,552	5,417	6,141	8,073	8,111	9,997	8,599
Shrimp	20,976	23,265	24,446	27,554	28,456	22,161	29,164	42,690	53,175	46,958
Stone crab	26,213	19,019	17,806	23,335	24,430	23,934	24,710	27,911	35,758	28,106

Total Landings & Landings of Key Species/Species Groups (thousands of pounds)²

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Total Landings	59,784	60,380	66,387	63,678	78,459	63,648	63,231	81,775	81,626	75,378
Finfish & Other	31,146	35,740	39,000	32,251	42,392	39,077	38,003	49,090	37,202	39,929
Shellfish	28,638	24,640	27,386	31,428	36,067	24,570	25,227	32,685	44,424	35,449
Key Species										
Blue crab	6,110	2,660	3,371	5,759	6,833	4,157	4,463	4,456	4,871	3,515
Gag	1,339	1,478	825	572	369	612	676	689	642	1,073
Lobsters	3,405	2,981	3,961	5,287	5,303	3,635	5,601	5,040	5,451	4,812
Mulletts	5,619	6,980	9,167	7,262	11,410	7,249	10,879	11,943	8,595	8,472
Oyster	2,959	2,526	2,877	2,165	3,100	3,316	1,298	757	844	722
Quahog clam	116	279	255	156	137	128	183	NA	NA	NA
Red grouper	4,352	5,628	4,387	3,488	5,635	6,141	5,412	6,629	5,664	5,290
Red snapper	919	849	863	1,317	1,538	1,698	2,181	2,104	2,642	2,324
Shrimp	8,628	9,942	11,451	12,892	11,975	7,958	9,676	11,946	18,944	16,864
Stone crab	5,884	6,163	5,382	5,100	5,460	5,202	3,767	1,944	2,758	2,838

Average Annual Price of Key Species/Species Groups (dollars per pound)²

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Blue crab	0.94	1.24	1.24	1.16	1.13	1.24	1.45	1.66	1.74	1.74
Gag	3.25	3.32	3.34	3.63	3.90	3.98	4.14	4.19	4.33	4.34
Lobsters	7.21	6.43	3.08	6.19	6.72	5.81	8.35	10.60	8.08	8.18
Mulletts	0.65	0.60	0.55	0.58	0.76	0.70	1.02	0.79	0.72	0.75
Oyster	2.24	2.19	2.42	2.91	2.77	2.93	4.46	5.52	5.60	5.90
Quahog clam	7.90	6.53	5.97	6.43	6.74	5.86	5.03	NA	NA	NA
Red grouper	2.53	2.41	2.39	2.58	2.68	2.73	3.00	3.20	3.34	3.37
Red snapper	3.34	3.47	3.45	3.46	3.52	3.62	3.70	3.86	3.78	3.70
Shrimp	2.43	2.34	2.13	2.14	2.38	2.78	3.01	3.57	2.81	2.78
Stone crab	4.45	3.09	3.31	4.58	4.47	4.60	6.56	14.36	12.96	9.90

¹ Information reported in this table is for the entire state of Florida, not just West Florida.

² NA = These data are confidential and therefore not disclosable.

2016 Economic Impacts of Recreational Fishing Expenditures (thousands of dollars)

		#Jobs	Sales	Income	Value Added
Trip Impacts by Fishing Mode	For-Hire	4,211	499,717	179,975	275,706
	Private Boat	2,502	260,148	89,392	154,162
	Shore	1,333	130,653	45,408	79,359
Total Durable Expenditures		52,133	5,936,720	2,260,290	3,602,625
Total State Economic Impacts		60,179	6,827,238	2,575,065	4,111,852

2016 Angler Trip & Durable Goods Expenditures (thousands of dollars)

Fishing Mode	Trip Expenditures	Equipment	Durable Goods Expenditures
For-Hire	273,518	Fishing Tackle	1,129,797
Private Boat	267,642	Other Equipment	470,826
Shore	105,111	Boat Expenses	2,687,489
Total	646,271	Vehicle Expenses	274,063
		Second Home Expenses	50,660
		Total Durable Expenditures	4,612,836
Total State Trip and Durable Goods Expenditures			5,259,107

Recreational Anglers by Residential Area (thousands of anglers)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Coastal	1,934	1,820	1,551	1,538	1,592	1,718	1,813	1,649	1,414	1,393
Non-Coastal ¹	NA									
Out-of-State	2,151	2,029	1,671	1,470	1,624	2,141	2,538	2,716	2,399	2,306
Total Anglers	4,085	3,849	3,222	3,008	3,216	3,859	4,351	4,365	3,813	3,699

Recreational Fishing Effort by Mode (thousands of angler trips)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
For-Hire	612	571	573	461	536	699	684	694	786	807
Private	10,005	10,145	8,623	8,160	7,520	7,865	8,328	8,115	6,997	7,363
Shore	6,319	6,782	6,482	5,645	5,845	6,216	6,937	6,370	5,643	5,049
Total Trips	16,936	17,497	15,677	14,266	13,901	14,780	15,949	15,179	13,425	13,219

Harvest (H) & Release (R) of Key Species/Species Groups (thousands of fish)²

		2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Common snook	H	35	25	14	0	< 1	< 1	33	14	21	27
	R	1,591	1,595	1,924	600	747	1,040	1,547	1,578	2,119	2,366
Drum (sand and silver seatrouts)	H	1,120	746	893	410	865	1,415	706	578	396	187
	R	598	584	460	210	294	742	239	122	206	187
Drum (spotted seatrout)	H	1,514	1,543	1,371	1,115	1,475	1,626	1,406	1,340	1,295	1,547
	R	10,059	9,584	7,672	8,470	11,382	10,920	7,759	7,936	7,342	10,023
Gag	H	285	434	203	232	98	132	213	105	96	86
	R	2,676	4,077	2,724	2,018	1,158	981	1,170	818	483	745
Gray snapper	H	1,047	1,393	1,176	560	419	948	1,482	1,933	1,449	1,507
	R	4,289	5,690	3,014	1,858	2,240	3,126	5,136	7,519	5,706	4,647
King mackerel	H	271	184	453	172	127	180	205	306	252	258
	R	85	155	138	81	47	62	87	118	73	105
Mullet ³	H	613	1,238	656	966	857	1,549	1,641	1,480	1,096	1,490
	R	183	143	191	73	106	88	224	319	204	434
Porgies (sheepshead)	H	591	557	681	455	607	628	524	895	589	581
	R	894	855	808	1,246	1,275	1,177	1,084	1,535	902	865
Red drum	H	412	457	225	240	287	414	364	389	504	395
	R	2,558	2,561	1,440	1,992	2,895	2,299	2,197	2,647	3,428	2,292
Spanish mackerel	H	1,205	1,754	1,392	1,284	1,155	1,215	1,970	1,566	1,033	1,204
	R	2,065	1,988	1,546	2,360	1,780	1,219	3,017	2,724	920	823

¹ Data is not available because all West Florida residents are considered coastal county residents.² In this table, '<1' = 0-999 fish and '1' = 1,000-1,499 fish.³ Mulletts encompass species within the mullet genus, including striped mullets.

2015 West Florida State Economy (% of national total)^{1,2}

	#Non-Employer Firms	#Establishments	#Employees	Annual Payroll (\$ billions)	Employee Compensation (\$ billions)	Gross State Product (\$ billions)	Commercial Fishing Location Quotient ³
Totals	1,948,357 (8%)	532,830 (7%)	7,777,990 (6.3%)	337.07 (5.4%)	492.39 (5.1%)	883.86 (4.9%)	0.97

Seafood Sales & Processing - Non-Employer Firms (thousands of dollars)

		2007	2008	2009	2010	2011	2012	2013	2014	2015
Seafood product prep. & packaging	Firms	173	202	217	280	294	307	300	315	300
	Receipts	10,497	11,065	12,473	14,635	14,618	17,557	17,214	22,329	21,841
Seafood sales, retail	Firms	319	331	316	361	362	383	338	346	355
	Receipts	27,557	26,087	25,667	27,964	29,037	30,765	25,332	26,433	29,033

Seafood Sales & Processing - Employer Establishments (thousands of dollars)

		2007	2008	2009	2010	2011	2012	2013	2014	2015
Seafood product prep. & packaging	Establishments	20	23	25	27	24	27	25	27	27
	Employees	1,748	1,637	1,143	1,269	1,095	1,608	1,374	1,419	1,429
	Payroll	58,233	53,455	46,235	45,772	42,612	51,735	50,003	50,556	58,246
Seafood sales, wholesale	Establishments	267	229	215	229	250	226	234	233	242
	Employees	2,308	1,913	1,762	1,747	1,913	1,957	1,878	1,974	2,055
	Payroll	85,019	75,203	72,159	70,889	77,115	75,945	79,266	83,964	90,247
Seafood sales, retail	Establishments	169	168	158	145	145	151	165	166	181
	Employees	989	991	885	865	849	945	909	1,037	1,137
	Payroll	20,595	21,604	21,182	20,783	20,158	21,577	23,476	25,844	29,066

Transport, Support & Marine Operations - Employer Establishments (thousands of dollars)⁴

		2007	2008	2009	2010	2011	2012	2013	2014	2015
Coastal & Great Lakes freight transportation	Establishments	47	42	42	50	54	60	47	62	57
	Employees	1,242	1,106	972	709	753	1,381	1,050	1,743	1,815
	Payroll	94,429	50,115	37,774	50,217	53,341	100,402	82,078	175,366	173,004
Deep sea freight transportation	Establishments	69	57	58	61	65	75	69	77	76
	Employees	3,190	2,486	2,801	2,279	2,374	3,345	2,485	2,015	2,154
	Payroll	208,144	169,055	180,139	159,025	177,386	231,887	140,564	131,069	137,786
Deep sea passenger transportation	Establishments	34	31	33	29	29	39	31	28	32
	Employees	ds	10,510							
	Payroll	ds	967,938							
Marinas	Establishments	493	442	428	430	411	432	444	464	466
	Employees	4,935	5,024	4,665	4,439	4,657	4,918	5,076	5,421	5,472
	Payroll	148,592	151,677	132,955	133,017	142,997	148,573	145,265	168,185	171,354
Marine cargo handling	Establishments	53	56	59	55	64	43	58	61	69
	Employees	6,585	8,052	7,288	7,547	7,484	4,598	6,258	6,992	7,834
	Payroll	173,788	192,473	185,309	191,560	195,458	86,461	188,997	179,024	208,186
Navigational services to shipping	Establishments	145	147	145	145	150	151	180	190	196
	Employees	1,484	894	829	980	1,047	853	1,390	878	861
	Payroll	61,470	56,917	60,641	76,853	75,561	68,366	130,893	74,185	72,483
Port & harbor operations	Establishments	29	40	32	34	32	66	61	56	55
	Employees	459	712	527	470	377	2,082	555	588	987
	Payroll	12,872	24,668	19,006	20,525	16,879	72,554	25,439	20,647	32,032
Ship & boat building	Establishments	296	297	261	248	246	258	259	263	278
	Employees	12,332	12,419	8,221	7,363	7,909	8,621	8,813	9,608	10,913
	Payroll	469,382	442,096	296,537	302,909	325,942	374,831	390,853	448,514	488,050

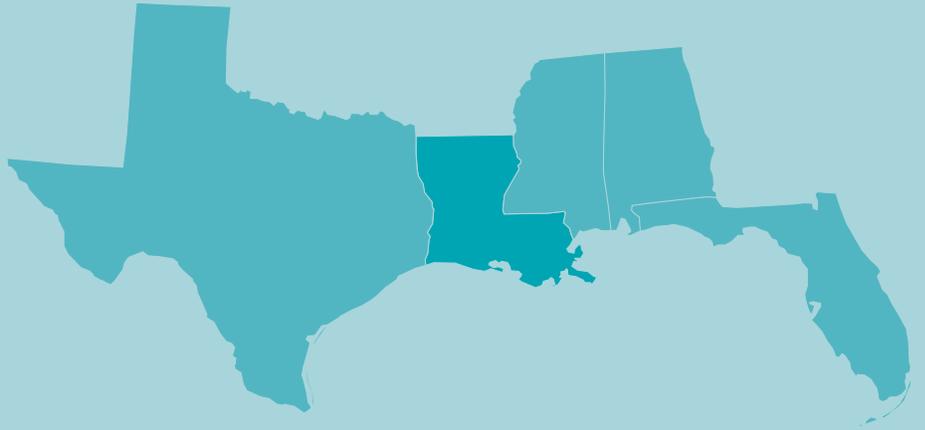
¹ All data presented on this page are for the entire state of Florida, not just West Florida.

² Census Bureau data for the Marine Economy section of this report are available only through 2015.

³ The U.S. Commercial Fishing Location Quotient (CFLQ) is 1. A CFLQ greater than 1 indicates that more commercial fishing occurs in this state than the national average. A CFLQ less than 1 indicates that less commercial fishing occurs in this state than the national average.

⁴ ds = these data are suppressed.

Tables | Louisiana



2016 Economic Impacts of the Louisiana Seafood Industry (thousands of dollars)

	With Imports				Without Imports			
	#Jobs	Sales	Income	Value Added	#Jobs	Sales	Income	Value Added
Total Impacts	36,102	2,021,911	751,727	1,023,361	35,024	1,836,128	713,007	958,966
Commercial Harvesters	14,635	794,582	272,048	397,100	14,635	794,582	272,048	397,100
Seafood Processors & Dealers	2,111	198,996	77,186	98,454	2,033	191,662	74,342	94,826
Importers	483	149,370	23,939	45,535	0	0	0	0
Seafood Wholesalers & Distributors	1,065	129,730	44,195	57,208	978	119,105	40,576	52,523
Retail	17,807	749,233	334,358	425,063	17,377	730,778	326,041	414,517

Total Landings Revenue & Landings Revenue of Key Species/Species Groups (thousands of dollars)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Total Revenue	289,288	275,701	286,993	233,559	324,123	329,754	399,064	487,718	373,393	426,116
Finfish & Other	65,201	64,118	62,632	56,912	102,097	88,989	103,919	98,773	109,672	158,548
Shellfish	224,087	211,582	224,361	176,647	222,026	240,766	295,145	388,945	263,720	267,567
Key Species										
Blue crab	35,044	32,203	37,301	30,325	36,784	43,921	51,568	66,706	58,069	49,408
Crawfish	9,034	9,507	15,547	13,971	9,914	8,325	16,490	16,088	6,851	11,877
King mackerel	1,298	1,307	1,184	1,149	1,594	1,475	1,517	2,414	2,006	2,152
Menhaden	41,368	45,768	42,555	43,331	82,881	63,374	80,262	72,844	85,322	132,105
Mulletts	690	749	73	185	775	976	626	893	418	720
Oysters	40,148	39,009	50,950	24,986	41,652	42,186	44,872	67,482	85,090	68,540
Red snapper	2,529	2,038	2,185	2,311	2,261	2,551	4,824	6,427	6,610	5,948
Shrimp	139,842	130,854	120,555	107,362	133,670	146,318	182,210	238,665	113,700	137,735
Tunas	8,334	4,409	6,338	1,649	3,369	7,893	4,595	4,276	2,743	4,414
Vermillion snapper	991	819	806	399	517	670	474	700	633	925

Total Landings & Landings of Key Species/Species Groups (thousands of pounds)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Total Landings	999,343	919,017	1,007,474	793,377	1,311,040	1,044,376	993,879	872,507	1,070,077	1,255,333
Finfish & Other	814,647	759,440	806,845	665,677	1,153,921	878,405	823,989	687,557	917,426	1,092,079
Shellfish	184,696	159,577	200,629	127,700	157,119	165,971	169,890	184,950	152,652	163,253
Key Species										
Blue crab	45,107	41,714	53,057	30,752	43,893	46,327	39,193	43,219	41,308	40,100
Crawfish	15,848	15,735	19,312	14,557	9,599	6,853	19,676	13,055	5,461	13,573
King mackerel	879	789	927	691	1,002	969	788	1,167	1,047	996
Menhaden	789,621	738,092	785,575	648,561	1,131,287	853,012	800,101	663,693	893,789	1,068,690
Mulletts	1,375	1,503	189	362	1,385	1,385	609	1,186	692	1,005
Oysters	12,858	12,840	15,006	6,874	11,156	11,368	11,364	12,692	14,488	12,053
Red snapper	807	589	667	828	918	1,028	1,216	1,489	1,591	1,444
Shrimp	110,860	89,285	113,250	75,515	92,469	101,406	99,655	115,982	91,390	97,522
Tunas	2,476	1,248	2,009	490	932	2,152	1,241	1,142	661	1,211
Vermillion snapper	517	409	412	186	234	291	174	242	213	335

Average Annual Price of Key Species/Species Groups (dollars per pound)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Blue crab	0.78	0.77	0.70	0.99	0.84	0.95	1.32	1.54	1.41	1.23
Crawfish	0.57	0.60	0.81	0.96	1.03	1.21	0.84	1.23	1.25	0.88
King mackerel	1.48	1.66	1.28	1.66	1.59	1.52	1.93	2.07	1.92	2.16
Menhaden	0.05	0.06	0.05	0.07	0.07	0.07	0.10	0.11	0.10	0.12
Mulletts	0.50	0.50	0.39	0.51	0.56	0.70	1.03	0.75	0.60	0.72
Oysters	3.12	3.04	3.40	3.63	3.73	3.71	3.95	5.32	5.87	5.69
Red snapper	3.13	3.46	3.28	2.79	2.46	2.48	3.97	4.32	4.15	4.12
Shrimp	1.26	1.47	1.06	1.42	1.45	1.44	1.83	2.06	1.24	1.41
Tunas	3.37	3.53	3.16	3.37	3.62	3.67	3.70	3.74	4.15	3.65
Vermillion snapper	1.92	2.00	1.95	2.15	2.21	2.30	2.73	2.89	2.97	2.76

2016 Economic Impacts of Recreational Fishing Expenditures (thousands of dollars)

		#Jobs	Sales	Income	Value Added
Trip Impacts by Fishing Mode	For-Hire	657	91,711	35,617	52,914
	Private Boat	694	93,278	24,446	45,273
	Shore	287	35,654	9,419	17,411
Total Durable Expenditures		12,504	1,409,274	538,566	887,781
Total State Economic Impacts		14,142	1,629,917	608,048	1,003,379

2016 Angler Trip & Durable Goods Expenditures (thousands of dollars)

Fishing Mode	Trip Expenditures	Equipment	Durable Goods Expenditures
For-Hire	53,884	Fishing Tackle	242,851
Private Boat	73,854	Other Equipment	120,737
Shore	29,712	Boat Expenses	987,716
Total	157,451	Vehicle Expenses	184,993
		Second Home Expenses	15,767
		Total Durable Expenditures	1,552,064
Total State Trip and Durable Goods Expenditures			1,709,515

Recreational Anglers by Residential Area (thousands of anglers)¹

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Coastal	853	795	669	609	690	651	709	NA	NA	NA
Non-Coastal	124	120	108	67	86	77	109	NA	NA	NA
Out-of-State	157	170	139	120	183	165	262	NA	NA	NA
Total Anglers	1,134	1,084	916	796	959	893	1,080	NA	NA	NA

Recreational Fishing Effort by Mode (thousands of angler trips)²

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
For-Hire	144	179	183	79	113	115	122	131	160	179
Private	3,156	3,508	3,176	3,055	3,342	2,891	3,190	2,096	2,264	2,063
Shore	889	933	769	729	1,122	1,131	1,349	NA	NA	NA
Total Trips	4,188	4,620	4,128	3,862	4,576	4,137	4,661	2,227	2,424	2,242

Harvest (H) & Release (R) of Key Species/Species Groups (thousands of fish)^{3,4}

		2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Black drum	H	386	543	519	398	468	424	454	217	220	138
	R	729	1,117	974	1,033	1,085	881	1,638	NA	NA	NA
Drum (Atlantic croaker)	H	683	357	471	229	606	520	829	235	209	150
	R	1,006	1,187	1,100	1,268	2,319	1,675	1,797	NA	NA	NA
Drum (sand seatrout)	H	888	1,085	879	1,065	1,187	895	755	532	368	354
	R	541	825	854	514	1,032	679	990	NA	NA	NA
Drum (spotted seatrout)	H	8,930	11,705	10,557	7,857	10,440	9,608	9,004	3,231	4,291	5,326
	R	7,394	9,580	7,975	5,054	5,803	6,776	9,709	NA	NA	NA
Drum(southern kingfish)	H	67	74	103	41	16	110	15	4	20	6
	R	28	118	59	47	25	40	65	NA	NA	NA
Porgies (sheepshead)	H	271	706	703	430	869	397	368	262	257	225
	R	287	448	473	439	188	237	477	NA	NA	NA
Red drum	H	2,308	2,673	2,237	2,812	3,023	2,011	3,169	1,283	1,242	1,045
	R	3,455	4,075	3,733	4,111	3,195	2,871	4,676	NA	NA	NA
Red snapper	H	160	84	97	7	31	101	83	128	171	145
	R	285	262	195	7	108	131	224	NA	NA	NA
Southern flounder	H	349	235	286	327	399	331	685	209	217	222
	R	67	37	50	72	61	98	134	NA	NA	NA
Yellowfin tuna	H	8	17	3	< 1	13	25	11	14	23	28
	R	< 1	7	0	0	4	3	2	NA	NA	NA

¹ Louisiana data not available for 2014-2016.² Effort for 2014-2016 is estimated using data from a state creel survey and does not capture shore-based effort separately from private boat effort.³ In this table, '<1' = 0-999 fish and '1' = 1,000-1,499 fish.⁴ Harvest and release totals for 2014-2016 are estimated using data from a state creel survey.

2015 Louisiana State Economy (% of national total)¹

	#Non-Employer Firms	#Establishments	#Employees	Annual Payroll (\$ billions)	Employee Compensation (\$ billions)	Gross State Product (\$ billions)	Commercial Fishing Location Quotient ²
Totals	357,815 (1.5%)	105,575 (1.4%)	1,724,973 (1.4%)	76.68 (1.2%)	120.55 (1.2%)	238.07 (1.3%)	2.33

Seafood Sales & Processing - Non-Employer Firms (thousands of dollars)

		2007	2008	2009	2010	2011	2012	2013	2014	2015
Seafood product prep. & packaging	Firms	85	77	68	120	94	78	99	111	115
	Receipts	6,523	7,365	5,308	10,358	9,308	8,492	9,136	8,632	10,086
Seafood sales, retail	Firms	196	182	173	197	192	184	173	177	169
	Receipts	20,932	25,900	17,622	16,001	18,758	16,804	17,538	17,383	17,870

Seafood Sales & Processing - Employer Establishments (thousands of dollars)

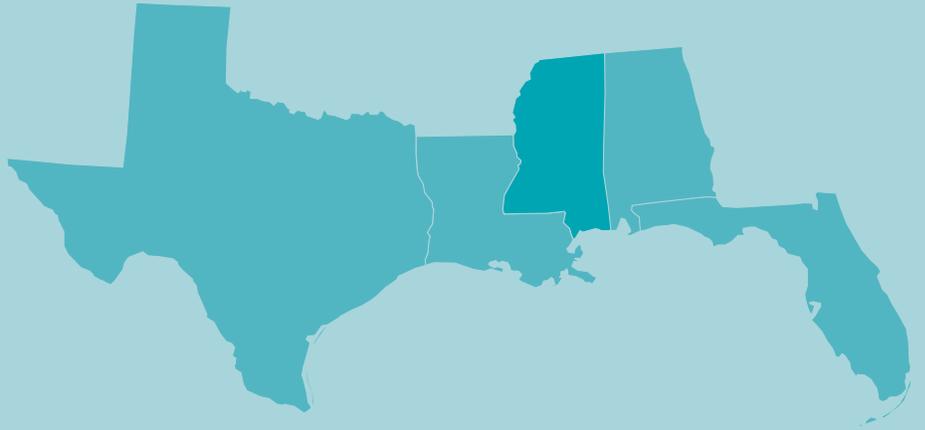
		2007	2008	2009	2010	2011	2012	2013	2014	2015
Seafood product prep. & packaging	Establishments	41	36	38	34	33	35	36	37	38
	Employees	1,253	991	1,301	1,209	1,006	1,117	964	943	1,015
	Payroll	41,391	32,382	37,657	35,770	46,440	51,237	49,339	50,881	63,909
Seafood sales, wholesale	Establishments	119	98	98	97	94	103	106	109	111
	Employees	954	739	702	683	767	862	846	672	865
	Payroll	21,604	15,858	17,261	15,554	18,427	22,296	23,235	24,107	25,837
Seafood sales, retail	Establishments	101	107	106	101	100	97	94	90	90
	Employees	781	681	703	527	590	704	643	562	612
	Payroll	11,827	11,141	11,564	11,214	11,090	13,042	11,213	10,421	11,802

Transport, Support & Marine Operations - Employer Establishments (thousands of dollars)³

		2007	2008	2009	2010	2011	2012	2013	2014	2015
Coastal & Great Lakes freight transportation	Establishments	138	123	117	125	125	105	102	124	116
	Employees	7,680	6,506	6,077	5,610	5,834	6,422	5,317	6,275	5,212
	Payroll	527,290	549,388	391,914	405,796	417,362	497,165	458,589	556,693	396,625
Deep sea freight transportation	Establishments	22	18	21	16	17	18	11	19	21
	Employees	685	1,095	1,192	93	93	ds	95	ds	451
	Payroll	39,843	87,479	91,760	6,147	5,608	ds	5,435	ds	21,706
Deep sea passenger transportation	Establishments	3	2	2	1	3	2	4	4	3
	Employees	ds	ds	ds	ds	ds	ds	3	ds	ds
	Payroll	ds	ds	ds	ds	ds	ds	363	ds	ds
Marinas	Establishments	50	43	43	43	45	44	41	39	36
	Employees	378	274	244	314	329	257	250	229	194
	Payroll	17,794	9,581	8,989	14,716	10,771	9,209	8,693	7,276	4,683
Marine cargo handling	Establishments	49	39	44	41	42	37	44	49	45
	Employees	2,978	2,010	2,193	2,511	2,526	2,016	2,834	3,106	3,418
	Payroll	128,207	85,484	92,883	105,063	108,491	93,896	174,054	212,786	175,092
Navigational services to shipping	Establishments	128	145	137	138	138	136	133	137	142
	Employees	2,508	2,884	2,893	3,176	3,396	2,545	2,533	2,816	2,862
	Payroll	141,757	183,381	175,271	224,533	208,306	162,094	169,795	206,318	218,379
Port & harbor operations	Establishments	14	22	17	21	20	46	18	14	15
	Employees	467	517	440	431	461	1,205	443	ds	399
	Payroll	31,734	37,181	33,907	38,776	38,745	80,780	37,122	ds	37,866
Ship & boat building	Establishments	112	117	109	109	109	116	110	117	109
	Employees	12,808	12,815	12,521	11,737	11,722	10,933	7,413	8,512	8,470
	Payroll	503,199	619,606	613,188	600,259	639,047	631,098	416,319	479,243	401,977

¹ Census Bureau data for the Marine Economy section of this report are available only through 2015.² The U.S. Commercial Fishing Location Quotient (CFLQ) is 1. A CFLQ greater than 1 indicates that more commercial fishing occurs in this state than the national average. A CFLQ less than 1 indicates that less commercial fishing occurs in this state than the national average.³ ds = these data are suppressed.

Tables | Mississippi



2016 Economic Impacts of the Mississippi Seafood Industry (thousands of dollars)

	With Imports				Without Imports			
	#Jobs	Sales	Income	Value Added	#Jobs	Sales	Income	Value Added
Total Impacts	4,586	217,948	87,253	112,697	4,578	216,661	86,981	112,250
Commercial Harvesters	841	46,904	14,225	20,823	841	46,904	14,225	20,823
Seafood Processors & Dealers	708	59,308	23,463	29,400	707	59,216	23,427	29,355
Importers	3	1,020	163	311	0	0	0	0
Seafood Wholesalers & Distributors	60	6,243	2,203	2,775	60	6,172	2,178	2,744
Retail	2,973	104,473	47,199	59,387	2,970	104,368	47,151	59,328

Total Landings Revenue & Landings Revenue of Key Species/Species Groups (thousands of dollars)¹

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Total Revenue	39,340	43,696	37,956	21,895	30,291	49,337	34,970	26,014	68,535	28,969
Finfish & Other	21,359	19,233	18,667	8,963	10,527	23,172	10,938	8,102	53,743	11,830
Shellfish	17,981	24,464	19,289	12,932	19,764	26,165	24,032	17,912	14,792	17,139
Key Species										
Blue crab	741	447	573	366	318	724	416	997	1,209	895
Flounders	58	40	58	64	118	101	45	55	76	75
Menhaden	20,658	18,534	17,987	8,378	9,871	22,394	10,230	7,358	52,962	10,973
Mulletts	35	32	30	31	56	63	61	25	12	22
Oysters	819	6,858	6,094	4,268	928	1,596	1,544	1,685	969	1,088
Red snapper	NA	NA	158	NA	168	226	NA	307	NA	NA
Shrimp	16,418	17,146	12,612	8,293	18,514	23,846	22,072	15,229	12,613	15,156

Total Landings & Landings of Key Species/Species Groups (thousands of pounds)¹

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Total Landings	227,834	201,822	230,255	111,229	278,075	263,640	180,600	190,555	307,035	307,565
Finfish & Other	216,375	190,191	217,461	105,274	267,407	249,382	171,000	184,393	294,723	294,641
Shellfish	11,459	11,631	12,794	5,955	10,668	14,259	9,599	6,162	12,312	12,923
Key Species										
Blue crab	737	450	545	366	370	782	359	570	798	773
Flounders	25	17	25	28	55	43	19	21	29	27
Menhaden	215,182	189,118	216,709	104,729	266,774	248,824	170,500	183,950	294,233	294,189
Mulletts	70	57	62	59	93	99	95	39	21	40
Oysters	299	2,606	2,189	1,453	247	425	336	321	182	245
Red snapper	NA	NA	57	NA	86	115	NA	170	NA	NA
Shrimp	10,421	8,570	10,054	4,135	10,048	13,051	8,903	5,270	11,332	11,905

Average Annual Price of Key Species/Species Groups (dollars per pound)¹

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Blue crab	1.01	0.99	1.05	1.00	0.86	0.93	1.16	1.75	1.51	1.16
Flounders	2.38	2.36	2.34	2.33	2.14	2.33	2.38	2.66	2.61	2.83
Menhaden	0.10	0.10	0.08	0.08	0.04	0.09	0.06	0.04	0.18	0.04
Mulletts	0.50	0.57	0.48	0.52	0.61	0.64	0.64	0.64	0.56	0.55
Oysters	2.74	2.63	2.78	2.94	3.75	3.75	4.59	5.25	5.32	4.44
Red snapper	NA	NA	2.75	NA	1.96	1.97	NA	1.81	NA	NA
Shrimp	1.58	2.00	1.25	2.01	1.84	1.83	2.48	2.89	1.11	1.27

¹ NA = these data are confidential and therefore not disclosable.

2016 Economic Impacts of Recreational Fishing Expenditures (thousands of dollars)

		#Jobs	Sales	Income	Value Added
Trip Impacts by Fishing Mode	For-Hire	91	10,531	3,625	5,225
	Private Boat	215	24,227	6,300	10,518
	Shore	100	9,514	2,667	4,454
Total Durable Expenditures		4,945	593,608	198,846	324,408
Total State Economic Impacts		5,351	637,880	211,438	344,605

2016 Angler Trip & Durable Goods Expenditures (thousands of dollars)

Fishing Mode	Trip Expenditures	Equipment	Durable Goods Expenditures
For-Hire	6,250	Fishing Tackle	85,603
Private Boat	27,039	Other Equipment	43,333
Shore	9,768	Boat Expenses	277,687
Total	43,057	Vehicle Expenses	81,652
		Second Home Expenses	291
		Total Durable Expenditures	488,566
Total State Trip and Durable Goods Expenditures			531,623

Recreational Anglers by Residential Area (thousands of anglers)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Coastal	196	119	125	137	160	179	171	171	195	156
Non-Coastal	34	26	36	29	48	60	67	62	48	83
Out-of-State	55	48	50	50	60	91	101	94	114	106
Total Anglers	284	194	212	216	268	331	339	328	357	345

Recreational Fishing Effort by Mode (thousands of angler trips)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
For-Hire	21	13	11	7	11	11	11	16	42	25
Private	834	596	759	629	843	991	986	621	773	786
Shore	349	359	310	597	761	948	764	843	736	701
Total Trips	1,204	969	1,079	1,233	1,615	1,950	1,761	1,481	1,551	1,512

Harvest (H) & Release (R) of Key Species/Species Groups (thousands of fish)¹

		2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Drum (Atlantic croaker)	H	72	182	340	209	453	317	330	820	328	582
	R	264	388	715	422	606	695	330	375	710	1,258
Drum (kingfishes) ²	H	161	180	126	174	177	234	519	190	550	655
	R	48	57	61	47	36	157	94	32	54	121
Drum (sand and silver seatrouts)	H	296	351	1,003	986	1,336	1,151	916	891	1,406	1,373
	R	230	166	378	246	472	574	327	113	152	402
Drum (spotted seatrout)	H	385	608	1,090	556	841	776	1,016	415	867	1,356
	R	909	1,008	960	586	633	1,394	1,298	743	818	1,581
Porgies (sheepshead)	H	17	17	22	43	260	115	93	75	113	54
	R	11	25	9	3	24	54	65	27	492	26
Red drum	H	43	77	84	77	91	140	148	106	100	165
	R	73	153	241	213	208	853	403	515	229	286
Red snapper	H	2	9	15	1	7	27	35	6	7	45
	R	9	103	55	25	< 1	2	95	42	194	165
Sharks ³	H	5	3	21	70	35	16	89	6	13	5
	R	43	31	36	87	38	104	75	44	12	76
Southern flounder	H	121	109	209	196	182	227	215	168	64	93
	R	31	45	120	79	99	153	159	54	57	38
Striped mullet	H	66	79	119	188	491	396	647	602	712	465
	R	14	4	4	13	83	108	19	5	43	6

¹ In this table, '<1' = 0-999 fish and '1' = 1,000-1,499 fish.² Kingfishes include southern kingfish and Gulf kingfish.³ Sharks include species within the requiem shark family, blacktip sharks, Atlantic sharpnose sharks and unidentified sharks.

2015 Mississippi State Economy (% of national total)¹

	#Non-Employer Firms	#Establishments	#Employees	Annual Payroll (\$ billions)	Employee Compensation (\$ billions)	Gross State Product (\$ billions)	Commercial Fishing Location Quotient ²
Totals	209,279 (0.9%)	58,662 (0.8%)	926,391 (0.7%)	33.95 (0.5%)	57.45 (0.6%)	105.87 (0.6%)	1.04

Seafood Sales & Processing - Non-Employer Firms (thousands of dollars)³

		2007	2008	2009	2010	2011	2012	2013	2014	2015
Seafood product	Firms	ds	17	16	30	25	27	ds	21	12
prep. & packaging	Receipts	ds	1,055	753	1,937	2,108	930	ds	1,932	1,539
Seafood sales, retail	Firms	57	48	56	69	51	50	54	42	53
	Receipts	4,126	3,437	4,206	3,421	3,505	3,957	3,855	3,129	4,053

Seafood Sales & Processing - Employer Establishments (thousands of dollars)³

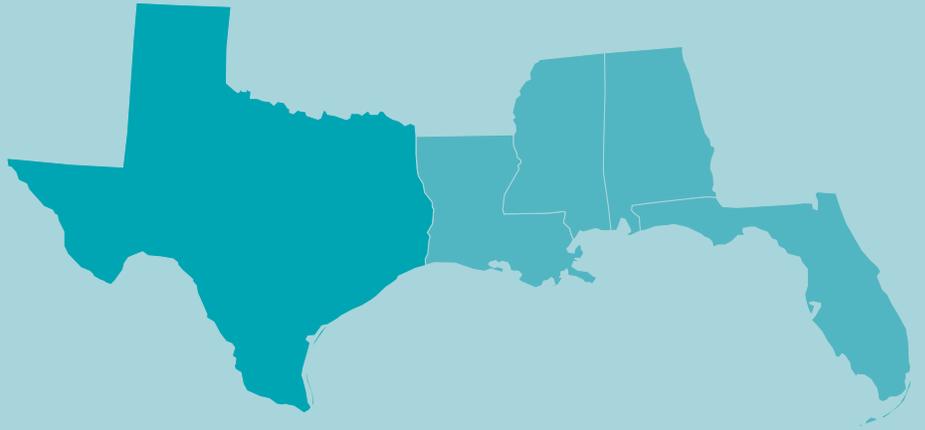
		2007	2008	2009	2010	2011	2012	2013	2014	2015
Seafood product	Establishments	22	20	20	20	18	18	19	19	18
prep. & packaging	Employees	3,022	3,062	2,796	2,849	2,464	2,368	2,284	2,289	2,370
	Payroll	60,633	61,723	61,926	61,731	52,502	55,407	59,212	57,324	60,906
Seafood sales, wholesale	Establishments	25	18	16	18	18	17	14	14	14
	Employees	106	61	113	ds	64	102	ds	ds	39
	Payroll	3,285	3,088	2,836	2,542	2,532	4,412	1,546	1,587	1,800
Seafood sales, retail	Establishments	15	18	14	15	17	13	13	10	8
	Employees	ds	50	46	50	58	ds	ds	ds	96
	Payroll	ds	699	841	810	838	1,902	ds	ds	2,672

Transport, Support & Marine Operations - Employer Establishments (thousands of dollars)^{3,4}

		2007	2008	2009	2010	2011	2012	2013	2014	2015
Coastal & Great Lakes freight transportation	Establishments	4	5	5	4	4	4	6	4	4
	Employees	ds	119	114	ds	127	ds	230	277	259
	Payroll	7,585	8,351	7,730	8,058	7,233	ds	17,080	16,365	17,353
Deep sea freight transportation	Establishments	1	0	1	1	1	2	1	1	1
	Employees	ds	NA	ds	ds	ds	ds	ds	ds	ds
	Payroll	ds	NA	ds	ds	ds	ds	ds	ds	ds
Deep sea passenger transportation	Establishments	1	0	0	0	0	0	0	0	0
	Employees	ds	NA	NA	NA	NA	NA	NA	NA	NA
	Payroll	ds	NA	NA	NA	NA	NA	NA	NA	NA
Marinas	Establishments	19	17	13	18	19	16	16	18	17
	Employees	ds	111	172	183	189	204	154	193	197
	Payroll	2,145	2,794	3,479	4,163	5,137	5,361	3,972	4,960	5,047
Marine cargo handling	Establishments	5	7	8	7	7	2	4	5	5
	Employees	ds	ds	ds	ds	ds	ds	ds	ds	241
	Payroll	ds	ds	ds	ds	ds	ds	ds	ds	10,390
Navigational services to shipping	Establishments	9	8	7	8	6	7	6	7	7
	Employees	ds	ds	ds	141	ds	ds	ds	ds	57
	Payroll	1,754	ds	ds	6,982	ds	ds	ds	ds	2,698
Port & harbor operations	Establishments	1	1	1	1	1	3	2	1	1
	Employees	ds	ds	ds	ds	ds	ds	ds	ds	ds
	Payroll	ds	ds	ds	ds	ds	ds	ds	ds	ds
Ship & boat building	Establishments	23	24	20	20	20	18	19	18	18
	Employees	14,578	ds	ds	ds	ds	ds	ds	ds	14,722
	Payroll	615,837	ds	ds	ds	ds	ds	ds	ds	892,317

¹ Census Bureau data for the Marine Economy section of this report are available only through 2015.² The U.S. Commercial Fishing Location Quotient (CFLQ) is 1. A CFLQ greater than 1 indicates that more commercial fishing occurs in this state than the national average. A CFLQ less than 1 indicates that less commercial fishing occurs in this state than the national average.³ ds = these data are suppressed.⁴ NA = not applicable.

Tables | Texas



2016 Economic Impacts of the Texas Seafood Industry (thousands of dollars)

	With Imports				Without Imports			
	#Jobs	Sales	Income	Value Added	#Jobs	Sales	Income	Value Added
Total Impacts	21,507	2,091,002	597,409	898,617	16,352	1,079,847	394,235	552,041
Commercial Harvesters	4,446	411,184	122,134	193,538	4,446	411,184	122,134	193,538
Seafood Processors & Dealers	1,466	134,823	50,719	66,799	1,336	122,801	46,197	60,842
Importers	2,682	828,853	132,839	252,671	0	0	0	0
Seafood Wholesalers & Distributors	1,035	153,639	51,263	70,990	490	72,696	24,256	33,589
Retail	11,877	562,503	240,453	314,620	10,081	473,167	201,649	264,071

Total Landings Revenue & Landings Revenue of Key Species/Species Groups (thousands of dollars)¹

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Total Revenue	180,575	176,098	154,530	203,795	240,566	215,365	268,519	262,589	177,973	195,668
Finfish & Other	9,452	7,709	7,488	7,888	8,445	10,231	13,361	13,709	16,188	17,455
Shellfish	171,123	168,389	147,043	195,907	232,121	205,134	255,158	248,880	161,785	178,213
Key Species										
Atlantic croaker	450	446	484	531	622	743	819	681	NA	NA
Black drum	1,660	1,363	1,377	1,573	1,448	1,491	1,699	1,981	2,074	2,266
Blue crab	2,763	2,342	2,454	3,134	2,845	2,878	2,331	3,050	5,534	6,414
Flounders	62	144	91	62	205	175	73	97	187	236
Groupers	474	606	695	389	572	774	1,168	1,156	1,483	1,601
Oysters	19,246	8,835	9,376	19,144	12,789	21,302	23,465	19,221	8,254	15,915
Red snapper	3,762	2,744	2,398	3,009	3,254	4,448	7,324	7,617	9,387	10,480
Shrimp	149,084	157,187	135,100	173,556	216,382	180,844	229,289	226,535	147,957	155,829
Tunas	NA	94	139	4	2	5	7	14	3	NA
Vermilion snapper	1,554	1,430	1,233	1,337	1,274	1,434	659	604	920	572

Total Landings & Landings of Key Species/Species Groups (thousands of pounds)¹

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Total Landings	87,912	73,048	102,351	89,721	98,857	91,596	85,113	74,674	81,848	76,822
Finfish & Other	4,800	3,866	4,134	4,247	4,224	4,225	4,872	4,842	5,438	5,671
Shellfish	83,111	69,182	98,216	85,475	94,633	87,371	80,241	69,832	76,410	71,151
Key Species										
Atlantic croaker	62	59	63	67	79	89	96	78	NA	NA
Black drum	1,687	1,468	1,610	1,729	1,795	1,623	1,689	1,747	1,879	1,973
Blue crab	3,454	2,635	2,844	3,436	2,893	2,853	1,902	2,234	4,331	4,990
Flounders	24	58	32	26	75	60	20	25	51	63
Groupers	161	188	227	156	199	227	306	281	355	375
Oysters	5,633	2,679	2,733	5,265	3,943	5,817	6,126	4,129	1,587	2,903
Red snapper	1,213	870	851	1,031	948	1,123	1,800	1,797	2,152	2,369
Shrimp	74,007	63,855	92,602	76,734	87,753	78,665	72,186	63,448	70,475	63,240
Tunas	NA	22	45	1	1	3	3	6	1	NA
Vermilion snapper	672	592	561	539	465	511	234	203	307	188

Average Annual Price of Key Species/Species Groups (dollars per pound)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Atlantic croaker	7.29	7.58	7.64	7.98	7.84	8.31	8.55	8.77	NA	NA
Black drum	0.98	0.93	0.86	0.91	0.81	0.92	1.01	1.13	1.10	1.15
Blue crab	0.80	0.89	0.86	0.91	0.98	1.01	1.23	1.37	1.28	1.29
Flounders	2.55	2.48	2.84	2.37	2.75	2.94	3.55	3.89	3.65	3.73
Groupers	2.95	3.22	3.06	2.49	2.87	3.41	3.81	4.12	4.18	4.27
Oysters	3.42	3.30	3.43	3.64	3.24	3.66	3.83	4.66	5.20	5.48
Red snapper	3.10	3.15	2.82	2.92	3.43	3.96	4.07	4.24	4.36	4.42
Shrimp	2.01	2.46	1.46	2.26	2.47	2.30	3.18	3.57	2.10	2.46
Tunas	NA	4.26	3.08	3.19	1.82	1.83	2.10	2.29	2.43	NA
Vermilion snapper	2.31	2.42	2.20	2.48	2.74	2.81	2.81	2.98	3.00	3.04

¹ NA = these data are confidential and therefore not disclosable.

2016 Economic Impacts of Recreational Fishing Expenditures (thousands of dollars)

		#Jobs	Sales	Income	Value Added
Trip Impacts by Fishing Mode	For-Hire	867	115,114	42,016	64,744
	Private Boat	2,129	274,752	82,530	149,912
	Shore	2,595	300,626	93,946	169,102
Total Durable Expenditures		10,439	1,309,512	527,516	853,569
Total State Economic Impacts		16,030	2,000,004	746,008	1,237,327

2016 Angler Trip & Durable Goods Expenditures (thousands of dollars)¹

Fishing Mode	Trip Expenditures	Equipment	Durable Goods Expenditures
For-Hire	61,427	Fishing Tackle	251,553
Private Boat	174,114	Other Equipment	146,975
Shore	189,789	Boat Expenses	493,035
Total	425,330	Vehicle Expenses	394,255
		Second Home Expenses	39,600
		Total Durable Expenditures	1,325,417
Total State Trip and Durable Goods Expenditures			1,750,747

Harvest (H) of Key Species/Species Groups (thousands of fish)²

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Black drum	66	82	98	165	129	257	150	139	128	138
Drum (Atlantic croaker)	95	64	117	125	157	157	152	117	214	126
Drum (sand seatrout)	95	152	111	127	227	177	151	147	110	135
Drum (spotted seatrout)	916	917	810	732	1,137	810	796	590	825	1,025
King mackerel	11	8	16	6	9	9	10	13	9	12
Porgies (sheepshead)	46	46	34	49	57	143	84	39	51	106
Red drum	289	266	285	264	347	323	269	247	241	288
Red snapper	45	41	31	33	36	34	48	40	50	31
Southern flounder	49	64	47	30	92	96	92	71	85	104

¹ The Marine Recreational Information Program (MRIP) does not collect participation (number of anglers) or effort (number of trips) data for Texas. To calculate trip expenditure estimates, effort by fishing mode was estimated based on 2013 data provided by the Texas Parks and Wildlife Department (TPWD). These effort estimates were reviewed by the TPWD. To calculate angler expenditure estimates (durable equipment expenditures), participation estimates were based on the sum of saltwater licenses sold in Texas plus a proportion of combination licenses sold in Texas. A change in the method of reporting landings occurred in 2007 so data from 2007 is not comparable to earlier years.

² Data collected by the TPWD is reported in this table. The data collected by the TPWD differs from the data collected and reported in the MRIP. Data on the number of fish released are not reported by TPWD. Please see the TPWD for more information: www.tpwd.state.tx.us/fishboat/.

2015 Texas State Economy (% of national total)¹

	#Non-Employer Firms	#Establishments	#Employees	Annual Payroll (\$ billions)	Employee Compensation (\$ billions)	Gross State Product (\$ billions)	Commercial Fishing Location Quotient ²
Totals	2,150,702 (8.8%)	569,091 (7.4%)	10,239,710 (8.3%)	521.1 (8.3%)	802.68 (8.3%)	1,611.19 (9%)	0.26

Seafood Sales & Processing - Non-Employer Firms (thousands of dollars)

		2007	2008	2009	2010	2011	2012	2013	2014	2015
Seafood product prep. & packaging	Firms	94	85	82	99	119	123	123	128	178
	Receipts	5,386	3,466	3,858	3,224	5,734	6,675	7,484	6,706	11,051
Seafood sales, retail	Firms	182	188	196	184	171	194	173	199	178
	Receipts	17,442	18,204	13,177	12,124	13,433	14,891	15,094	15,160	15,660

Seafood Sales & Processing - Employer Establishments (thousands of dollars)

		2007	2008	2009	2010	2011	2012	2013	2014	2015
Seafood product prep. & packaging	Establishments	26	27	24	22	24	22	30	32	29
	Employees	1,207	1,169	1,026	1,184	1,273	1,248	1,026	1,062	1,006
	Payroll	27,813	27,045	29,006	24,961	26,425	27,737	27,638	28,643	29,729
Seafood sales, wholesale	Establishments	104	69	75	77	82	71	75	89	90
	Employees	970	734	683	715	723	603	729	816	874
	Payroll	51,597	24,498	23,650	23,879	26,356	25,309	30,370	35,553	37,315
Seafood sales, retail	Establishments	62	60	51	52	50	60	60	59	62
	Employees	189	206	189	199	ds	ds	331	395	415
	Payroll	3,703	3,403	3,393	3,742	4,090	6,102	6,891	8,201	9,319

Transport, Support & Marine Operations - Employer Establishments (thousands of dollars)^{3,4}

		2007	2008	2009	2010	2011	2012	2013	2014	2015
Coastal & Great Lakes freight transportation	Establishments	43	42	43	48	48	39	42	48	48
	Employees	2,513	2,815	2,729	1,909	1,764	1,814	2,253	2,227	2,058
	Payroll	131,946	251,997	200,219	161,080	177,549	174,686	207,831	215,950	208,286
Deep sea freight transportation	Establishments	41	35	36	30	39	40	33	33	35
	Employees	920	514	802	764	860	742	ds	790	639
	Payroll	49,761	40,764	61,309	63,408	71,515	65,818	44,902	55,106	47,119
Deep sea passenger transportation	Establishments	4	3	2	1	1	0	2	2	2
	Employees	ds	ds	ds	ds	ds	NA	ds	ds	ds
	Payroll	ds	ds	ds	ds	ds	NA	ds	ds	ds
Marinas	Establishments	141	143	131	148	144	132	124	128	138
	Employees	1,200	1,486	1,423	1,198	1,233	1,169	1,258	1,222	1,209
	Payroll	28,359	34,039	33,803	33,968	34,928	34,711	36,461	36,776	37,054
Marine cargo handling	Establishments	62	55	57	54	55	42	48	53	56
	Employees	6,237	6,313	6,276	5,262	5,259	4,373	6,390	7,451	8,179
	Payroll	186,416	196,006	167,562	166,877	153,360	130,817	272,286	327,690	324,552
Navigational services to shipping	Establishments	90	99	95	87	91	91	89	93	91
	Employees	1,709	1,884	1,849	1,606	1,448	1,676	1,485	1,588	1,415
	Payroll	125,061	137,962	137,289	132,283	113,444	124,500	130,572	139,259	144,090
Port & harbor operations	Establishments	15	24	30	29	26	37	27	25	25
	Employees	98	ds	421	ds	439	1,381	630	387	395
	Payroll	5,163	10,538	13,778	18,627	18,842	55,470	25,229	13,544	16,436
Ship & boat building	Establishments	96	102	99	97	91	89	87	88	84
	Employees	4,810	5,368	3,891	3,386	2,773	5,601	5,686	5,178	4,956
	Payroll	210,275	235,190	158,261	147,492	153,077	310,230	297,248	306,571	283,838

¹ Census Bureau data for the Marine Economy section of this report are available only through 2015.² The U.S. Commercial Fishing Location Quotient (CFLQ) is 1. A CFLQ greater than 1 indicates that more commercial fishing occurs in this state than the national average. A CFLQ less than 1 indicates that less commercial fishing occurs in this state than the national average.³ ds = these data are suppressed.⁴ NA = not applicable.

Data Sources



Fish on the line!
Photo: NOAA Fisheries/Melanie King

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Fishery Management Councils & Fishery Plans:

- Caribbean Fishery Management Council. www.caribbeanfmc.com
- Gulf of Mexico Fishery Management Council. www.gulfcouncil.org
- Mid-Atlantic Fishery Management Council. www.mafmc.org/
- New England Fishery Management Council. www.nefmc.org/
- North Pacific Fishery Management Council. www.npfmc.org/
- Pacific Fishery Management Council. www.pcouncil.org
- South Atlantic Fishery Management Council. www.safmc.net
- Western Pacific Fishery Management Council. www.wpcouncil.org

COMMERCIAL FISHERIES

Data for New England, Mid-Atlantic, South Atlantic, Gulf of Mexico, North Pacific, Pacific and Western Pacific Regions:

- Commercial Landings Database. Obtained December 5, 2017. Office of Science & Technology, National Marine Fisheries Service, National Oceanic & Atmospheric Administration (NOAA Fisheries). www.st.nmfs.noaa.gov/st1/commercial/index.html

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- Alaska Fisheries Science Center, National Marine Fisheries Service, National Oceanic & Atmospheric Administration (NOAA Fisheries). Obtained December 5, 2017. www.afsc.noaa.gov

Economic Impacts of the U.S. Commercial Seafood Industry:

- A User's Guide to the National and Coastal State I/O Model. http://www.st.nmfs.noaa.gov/documents/commercial_seafood_impacts_2007-2009.pdf

Additional information:

- "Data Caveats." Office of Science & Technology, National Marine Fisheries Service, National Oceanic & Atmospheric Administration (NOAA Fisheries).
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Data for North Pacific Region:

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Publications



Herring catch.

Photo: NOAA Northeast Fisheries Science Center

Selected publications by NOAA Fisheries Economics and Social Sciences Program staff are grouped by geographic region of focus and then organized under the following categories:

Climate Change Research
Coastal & Marine Recreation Research
Commercial Fisheries Economics Research
Spatial Analysis & Marine Protected Areas Research
Ocean Policy & Management Research
Other Marine Environmental Research

Recreational Fisheries Economics Research
Habitat Economics Research
Seafood Marketing & Trade Research
Sociocultural Research
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United States

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Caribbean

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Agar, J., J. Waters, M. Valdes-Pizzini, M. Shivilani, T. Murray, J. Kirkley, and D. Suman. 2008. U.S. Caribbean Fish Trap Fishery Socioeconomic Study. *Bulletin of Marine Science* 82(3): 315-331.

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CARIBBEAN | Sociocultural Fisheries Research

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Resources



Tuna tails.

Photo: NOAA Fisheries/Brad McHale

UNITED STATES

Federal Agencies

- Economics & Social Analysis Division, Office of Science & Technology, NOAA Fisheries
www.st.nmfs.noaa.gov/economics/
- Office of Science & Technology, NOAA Fisheries
<https://www.fisheries.noaa.gov/about/office-science-and-technology>
- Marine Recreational Information Program
<https://www.fisheries.noaa.gov/topic/recreational-fishing-data>
- Bureau of Oceans and International Environmental and Scientific Affairs, U.S. Department of State
www.state.gov/e/oes/ocns/fish/

NORTH PACIFIC

Federal Agencies

- Economic & Social Sciences Research, Alaska Fisheries Science Center, NOAA Fisheries
<http://www.afsc.noaa.gov/REFM/Socioeconomics/default.php>
- Alaska Fisheries Science Center, NOAA Fisheries | www.afsc.noaa.gov
- Alaska Regional Office, NOAA Fisheries | <https://alaskafisheries.noaa.gov/>
- Alaska Region, U.S. Fish & Wildlife Service | <http://www.fws.gov/alaska/>
- District 17, U.S. Coast Guard | www.uscg.mil/D17

State Agencies

- Alaska Department of Fish & Game | www.adfg.state.ak.us

Councils & Commissions

- North Pacific Fishery Management Council | www.npfmc.org
- Pacific States Marine Fisheries Commission | www.psmfc.org
- Fisheries Economics Data Program Pacific States Marine Fisheries Commission | www.psmfc.org/efin
- International Pacific Halibut Commission | www.iphc.int

PACIFIC

Federal Agencies

- Economics, Groundfish Analysis Program, Northwest Fisheries Science Center, NOAA Fisheries
<http://www.nwfsc.noaa.gov/research/divisions/fram/economic/>
- Human Dimensions Program, Northwest Fisheries Science Center, NOAA Fisheries
www.nwfsc.noaa.gov/research/divisions/cbd/humandim
- Northwest Fisheries Science Center, NOAA Fisheries | www.nwfsc.noaa.gov
- West Coast Regional Office, NOAA Fisheries | www.westcoast.fisheries.noaa.gov
- Socioeconomics Research, Southwest Fisheries Science Center, NOAA Fisheries
<https://swfsc.noaa.gov/textblock.aspx?id=1038&ParentMenuId=109>
- Southwest Fisheries Science Center | <https://swfsc.noaa.gov/>
- Pacific Region, U.S. Fish & Wildlife Service | www.fws.gov/pacific
- California & Nevada, U.S. Fish & Wildlife Service | www.fws.gov/cno
- District 13, U.S. Coast Guard | www.uscg.mil/D13

State Agencies

- California Department of Fish & Game | www.wildlife.ca.gov
- Oregon Department of Fish & Wildlife | www.dfw.state.or.us
- Washington Department of Fish & Wildlife | <http://wdfw.wa.gov/>

Councils & Commissions

- Pacific Fishery Management Council | www.pcouncil.org
- Pacific States Marine Fisheries Commission | www.psmfc.org
- Fisheries Economics Data Program - Pacific States Marine Fisheries Commission | www.psmfc.org/efin
- International Pacific Halibut Commission | www.iphc.int

WESTERN PACIFIC

Federal Agencies

- Socioeconomics & Planning Group, Office of the Director, Pacific Islands Fisheries Science Center, NOAA Fisheries | www.pifsc.noaa.gov/socioeconomics/
- Pacific Islands Fisheries Science Center, NOAA Fisheries | www.pifsc.noaa.gov
- Pacific Islands Regional Office, NOAA Fisheries | www.fpir.noaa.gov
- Pacific Region, U.S. Fish & Wildlife Service | www.fws.gov/pacific
- District 14, U.S. Coast Guard | www.uscg.mil/d14

State Agencies

- Hawai'i Department of Land & Natural Resources | www.hawaii.gov/dlnr
- Guam Office of the Governor | <http://governor.guam.gov/>
- Department of Marine & Wildlife Resources, American Samoa Office of the Governor | <https://www.americansamoa.gov/department-of-marine-wildlife>
- Division of Fish & Wildlife, Commonwealth of the Northern Mariana Islands | <http://www.cnmi-dfw.com/>

Councils & Commissions

- Western Pacific Fishery Management Council | www.wpcouncil.org

NEW ENGLAND

Federal Agencies

- Social Sciences Branch, Northeast Fisheries Science Center, NOAA Fisheries | www.nefsc.noaa.gov/read/socialsci
- Northeast Fisheries Science Center, NOAA Fisheries | www.nefsc.noaa.gov
- Greater Atlantic Regional Fisheries Office, NOAA Fisheries | www.greateratlantic.fisheries.noaa.gov
- Northeast Region, U.S. Fish & Wildlife Service | www.fws.gov/northeast
- District 1, U.S. Coast Guard | www.uscg.mil/D1

State Agencies

- Maine Department of Marine Resources | www.maine.gov/dmr/
- Rhode Island Department of Environmental Management | www.dem.ri.gov
- Massachusetts Division of Marine Fisheries | www.mass.gov/eea/land-use-habitats/marine-fisheries/
- Connecticut Department of Environmental Protection | www.ct.gov/dep/site/
- New Hampshire Fish & Game Department | www.wildlife.state.nh.us

Councils & Commissions

- New England Fishery Management Council | www.nefmc.org
- Atlantic States Marine Fisheries Commission | www.asmfmc.org

MID-ATLANTIC

Federal Agencies

- Social Sciences Branch, Northeast Fisheries Science Center, NOAA Fisheries | www.nefsc.noaa.gov/read/socialsci
- Northeast Fisheries Science Center, NOAA Fisheries | www.nefsc.noaa.gov
- Greater Atlantic Regional Fisheries Office, NOAA Fisheries | www.greateratlantic.fisheries.noaa.gov
- Northeast Region, U.S. Fish & Wildlife Service | www.fws.gov/northeast
- District 5, U.S. Coast Guard | www.uscg.mil/D5

State Agencies

- Bureau of Marine Resources, New York Department of Environmental Conservation
www.dec.ny.gov/about/796.html
- New Jersey Division of Fish & Wildlife | www.state.nj.us/dep/fgw
- Pennsylvania Fish & Boat Commission | <http://fishandboat.com/>
- Delaware Division of Fish & Wildlife | www.fw.delaware.gov
- Fisheries Service, Maryland Department of Natural Resources | www.dnr.state.md.us/fisheries
- Virginia Marine Resources Commission | www.mrc.state.va.us

Councils & Commissions

- Mid-Atlantic Fishery Management Council | www.mafmc.org
- Atlantic States Marine Fisheries Commission | www.asmfc.org

SOUTH ATLANTIC

Federal Agencies

- Social Science Research Group, Southeast Fisheries Science Center, NOAA Fisheries
www.sefsc.noaa.gov/socialscience.jsp
- Southeast Fisheries Science Center, NOAA Fisheries | www.sefsc.noaa.gov
- Southeast Regional Office, NOAA Fisheries | <http://sero.nmfs.noaa.gov/>
- Southeast Region, U.S. Fish & Wildlife Service | www.fws.gov/southeast
- Southwest Region, U.S. Fish & Wildlife Service | www.fws.gov/southwest
- District 7, U.S. Coast Guard | www.uscg.mil/D7

State Agencies

- Division of Marine Fisheries, North Carolina Department of Environment & Natural Resources
<http://portal.ncdenr.org/web/mf/>
- Marine Resources Division, South Carolina Department of Natural Resources | www.dnr.sc.gov
- Coastal Resources Division, Georgia Department of Natural Resources | <https://coastalgadnr.org/>
- Florida Fish & Wildlife Conservation Commission | <http://myfwc.com/>

Councils & Commissions

- South Atlantic Fishery Management Council | www.safmc.net
- Atlantic States Marine Fisheries Commission | www.asmfc.org

GULF OF MEXICO

Federal Agencies

- Social Science Research Group, Southeast Fisheries Science Center, NOAA Fisheries
www.sefsc.noaa.gov/socialscience.jsp
- Southeast Fisheries Science Center, NOAA Fisheries | www.sefsc.noaa.gov
- Southeast Regional Office, NOAA Fisheries | <http://sero.nmfs.noaa.gov/>
- Southeast Region, U.S. Fish & Wildlife Service | www.fws.gov/southeast
- Southwest Region, U.S. Fish & Wildlife Service | www.fws.gov/southwest
- District 8, U.S. Coast Guard | www.uscg.mil/D8

State Agencies

- Florida Fish & Wildlife Conservation Commission | <http://myfwc.com/>
- Marine Resources Division, Alabama Department of Conservation & Natural Resources
www.outdooralabama.com
- Mississippi Department of Marine Resources | www.dmr.state.ms.us
- Louisiana Department of Wildlife & Fisheries | www.wlf.louisiana.gov/
- Texas Parks & Wildlife Department | www.tpwd.state.tx.us

Councils & Commissions

- Gulf of Mexico Fishery Management Council | www.gulfcouncil.org
- Gulf States Marine Fisheries Commission | www.gsmfc.org

PROFESSIONAL ORGANIZATIONS

- North American Association of Fisheries Economists | <http://oregonstate.edu/dept/IIFET/NAAFE/Home.html>
- International Institute of Fisheries Economics & Trade | <http://oregonstate.edu/dept/iifet/>

OTHER ORGANIZATIONS & INFORMATION

- Organisation for Economic Co-operation & Development | <http://www.oecd.org/>
- Fisheries and Aquaculture Department, Food and Agriculture Organization of the United Nations
<http://www.fao.org/fishery/capture/en>
- Marine Stewardship Council | www.msc.org

Glossary



Fishing in Florida.

Photo: NOAA Fisheries/Ayeisha Brinson

Angler¹ – A person catching fish or shellfish with no intent to sell, including people releasing the catch. Also known as a recreational fisherman.

Annual Payroll² – Includes all forms of compensation such as salaries, wages, reported tips, commissions, bonuses, vacation allowances, sick-leave pay, employee contributions to qualified pension plans, and the value of taxable fringe benefits. For corporations, it includes amounts paid to officers and executives; for unincorporated businesses, it does not include profit or other compensation of proprietors or partners. Payroll is reported before deductions for Social Security, income tax, insurance union dues, etc.

Annual Receipts³ – Includes gross receipts, sales, commissions, and income from trades and businesses, as reported on annual business income tax returns. Business income consists of all payments received for services rendered by nonemployer businesses, such as payments received as independent agents and contractors. The composition of nonemployer receipts may differ from receipts data published for employer establishments. For example, for wholesale agents and brokers without payroll (nonemployers), the receipts item contains commissions or earnings. In contrast, for wholesale agents and brokers with payroll (employers), the sales and receipts item published in the Economic Census represents the value of the goods involved in the transactions.

Buyback Program⁴ – A management tool available to fishery managers intended to ease fishing-related pressure on marine resources. Fishing vessels are purchased by the government or by the fishing industry itself. Then they are removed from a specific fishery where fish stocks or stock complexes are considered overfished or subject to overfishing.

Bycatch¹ – Species other than the primary target species that are caught incidental to the harvest of the primary species. Bycatch may be retained or discarded; discards may occur for regulatory or economic reasons.

Catch¹ – 1. To undertake any activity that results in taking fish out of its environment dead or alive, or to bring fish on board a vessel dead or alive; 2. The total number (or weight) of fish caught by fishing operations. Catch should include all fish killed by the act of fishing, not just those landed; 3. The component of fish encountering fishing gear, which is retained by the gear. Catch is usually expressed in terms of wet weight. It refers sometimes to the total amount caught and sometimes only to the amount landed. The fish that are not landed, but returned to the sea, are called discards or bycatch. For this report, recreational catch refers to the total number of individual fish released (thrown back into the sea) and harvested (not thrown back into the sea) by recreational fishermen (anglers).

Catch Share Program⁵ – This is a generic term used to describe a fishery management program that allocates a specific portion of the total fishery catch to individuals, cooperatives, communities or other entities, including sectors. The term encompasses more specific programs defined in legislation such as Limited Access Privilege Programs (LAPPs) and Individual Fishing Quotas (IFQs). Note that a catch share allocated to a sector is different from a general sectoral allocation or distribution to an entire segment of a fishery (such as a recreational sector allocation or a longline gear sector allocation). The two differ because the recipient of the catch share is responsible for terminating fishing activity when their specific share is reached.

Coastal County⁶ – A coastal county meets one of the following criteria: 1) at least 15 percent of a county's total land area is located within the nation's coastal watershed; 2) a portion of or an entire county accounts for at least 15 percent of a coastal cataloging unit. Any U.S. county that meets these criteria is classified as coastal.

Coastal County Angler – For this report, a coastal county angler refers to a recreational fishermen who lives within a given state and within a coastal county of that state.

Commercial Fishing Location Quotient (CFLQ)⁷ – For this report, the CFLQ is calculated as the ratio of a state’s distribution of employment in commercial fishing industries compared with the distribution of commercial fishing industries in the U.S. The CFLQ is calculated using the “Location Quotient Calculator” provided by the Bureau of Labor Statistics, U.S. Department of Labor.

Community Development Quota Program (CDQ)¹ – A program in western Alaska under which a percentage of the total allowable catch (TAC) of Bering Sea commercial fisheries is allocated to specific communities. Communities eligible for this program must be located within 50 miles of the Bering Sea coast or on an island within the Bering Sea; meet criteria established by the State of Alaska; be a village certified by the Secretary of the Interior pursuant to the Alaska Native Claims Settlement Act; and consist of residents who conduct more than half of their current commercial or subsistence fishing in the Bering Sea or waters surrounding the Aleutian Islands. Currently 7.5 percent of the TAC in the pollock, halibut, sablefish, crab and groundfish fisheries is allocated to the CDQ Program.

Dedicated Access Privileges (DAPs)⁸ – As defined by the U.S. Commission on Ocean Policy, a DAP program assigns an individual or other entity access to a pre-determined portion of the annual catch in a particular fishery. In some cases, the privilege is transferable and may be bought and sold, creating a market. The term encompasses a range of tools, including access privileges assigned to individuals (that is, individual transferable quotas), and to groups or communities (for example, community development quotas, cooperatives, and area-based quotas). DAP programs are sometimes known as rights-based management, and are of 10 synonymous with Limited Access Privilege Programs (see “Limited Access Privilege Program”). However, “rights-based management” implies granting an individual the “right” to fish. With the exception of certain tribes, U.S. fishermen do not have inalienable rights to fish because the fishery resources of the U.S. belong to all people of the U.S. Under current law, fishermen are granted a “privilege” to fish, subject to certain conditions.

Discards¹ – To release or return a fish or other species to the sea, dead or alive, whether or not such fish or other species are brought fully on board a fishing vessel. Estimates of discards can be made in a variety of ways, including samples from observers and logbook records. Fish (or parts of fish) can be discarded for a variety of reasons such as having physical damage, being a non-target species for the trip, and compliance with management regulations like minimum size limits or quotas.

Durable Equipment Expenditures or Durable Goods Expenditures⁹ – For this report, this term refers to expenses related to equipment used for recreational fishing activities. These expenses include the purchase of semi-durable goods (tackle, rods, reels, line, etc.); durable goods (motor boats and accessories, non-motorized boats, boating electronics, mooring, boat storage, boat insurance, and vehicles or homes); and angling accessories and multi-purpose items (magazines, club dues, saltwater angling-specific clothing, and camping gear).

Ecolabel or Ecolabelling Scheme¹⁰ – In fisheries, ecolabelling schemes entitle a fishery product to bear a distinctive logo or statement that certifies that the fish has been harvested in compliance with specified conservation and sustainability standards. The logo or statement is intended to facilitate informed decisions by purchasers whose choices may promote and stimulate the sustainable use of fishery resources.

Economic Impact Model^{11,12} – Economic impact models capture how sales in a sector generate economic impacts directly in the sector in which the sale was made. The sales then ripple throughout the state and national economies as each dollar spent generates additional sales by other firms and consumers. The NOAA Fisheries Commercial Fishing & Seafood Industry Input/Output Model uses an IMPLAN platform to estimate the economic impacts associated with the harvesting of fish by U.S. commercial fishermen and other major components of the U.S. seafood industry. As used here, the term fish refers to the entire range of finfish, shellfish and other life (that is, sea urchins, seaweed, kelp and worms) from marine and freshwaters that are included in the landings data maintained by the National Marine Fisheries Service. The NOAA Fisheries Recreational Economic Impact Model, which also uses an IMPLAN platform, estimates the economic impacts generated by expenditures made by saltwater anglers.

Economic Impacts^{11,12} – For this report, the economic impacts of the commercial fishing sector and seafood industry refer to the employment (full-time and part-time jobs), personal income, and output (sales by U.S. businesses) generated by the commercial harvest sector and other major components of the U.S. seafood industry. These components include processors and dealers, wholesalers and distributors, grocers, and restaurants. Economic impacts of recreational fishing activities refer to the amount of sales generated, the number of jobs supported, and the contribution to gross domestic product (GDP) by state (also known as value-added impacts) from expenditures related to recreational fishing.

Effort¹ – For this report, effort refers to the number of fishing trips taken by recreational fishermen (anglers). The term can also refer to the amount of time and fishing power used to harvest fish in commercial fisheries, including gear size, boat size and horsepower.

Employee Compensation¹³ – This is related to Gross Domestic Product (GDP) by State and is an estimate of the sum of employee wages and salaries and supplements to wages and salaries. Wages and salaries are measured on an accrual, or “when earned” basis, which may be different from the measure of wages and salaries measured on a disbursement, or “when paid” basis. Wages and salaries and supplements of Federal military and civilian government employees stationed abroad are excluded from the measure of GDP by state.

Employer Establishments¹⁴ – Businesses with payroll and paid employees with a single physical location at which business is conducted or services or industrial operations are performed. An employee establishment is not necessarily identical to a company or enterprise, which may consist of one or more establishments. When two or more activities are carried on at a single location under a single ownership, all activities generally are grouped together as a single establishment. The entire establishment is classified on the basis of its major activity, and all data are included in that classification.

Endangered Species¹⁵ – As defined by the Endangered Species Act (ESA), an endangered species is any species which is in danger of extinction throughout all or a significant portion of its range. See also “Threatened Species.”

Endangered Species Act (ESA)¹⁵ – The ESA was signed on December 28, 1973, and provides for the conservation of species that are endangered or threatened throughout all or a significant portion of their range, and the conservation of the ecosystems on which they depend. The ESA replaced the Endangered Species Conservation Act of 1969. Congress has amended the ESA several times.

Expenditures⁹ – For this report, expenditures are related to recreational fishing activities and described as being one of two types: 1) expenditures related to a specific fishing trip; or 2) durable equipment expenditures.

Ex-Vessel¹⁰ – Refers to activities that occur when a commercial fishing boat lands or unloads a catch. For example, the price for the catch that a captain receives at the point of landing is an ex-vessel price.

Exclusive Economic Zone (EEZ)¹ – The EEZ is the area that extends 200 nautical miles from the seaward boundaries of the coastal states. The seaward boundary for most states is 3 nautical miles with the exceptions of Texas, Puerto Rico and the Gulf Coast of Florida, which is 9 nautical miles. The U.S. claims and exercises sovereign rights and exclusive fishery management authority over all fish and continental shelf resources through this 200-nautical-mile boundary.

Fish Stock¹ – A fish stock refers to the living resources in the community or population from which catches are taken in a fishery. The term “fish stock” usually implies that the particular population is more or less isolated from other stocks of the same species and hence self-sustaining. In a particular fishery, the fish stock may be one or several species of fish. Here, it also includes commercial invertebrates and plants.

Fishery Management Council (FMC) or Regional Fishery Management Council⁴ – A regional fisheries management body established by the Magnuson-Stevens Act to manage fishery resources in eight designated regions of the United States.

Fishery Management Plan (FMP)⁴ – 1. A document prepared under supervision of the appropriate fishery management council (FMC) for management of stocks of fish judged to require management. The plan must generally be formally approved. An FMP includes data, analyses and management measures; 2. A plan containing conservation and management measures for fishery resources, and other provisions required by the Magnuson-Stevens Act, developed by fishery management councils or the Secretary of Commerce.

Fishing Cooperatives⁴ – A market-based fisheries management tool where access to fisheries resources is limited to a specific group of fishermen. See also “Catch Share Program.”

Fishing Day – For this report, a fishing day refers to a partial or full day spent in recreational fishing and can be different from a fishing trip. For example, one fishing trip can consist of more than 1 fishing day. This term is used in the Alaska recreational fishing tables.

Fishing Effort¹⁰ – The amount of fishing gear of a specific type used on the fishing grounds over a given unit of time. For example, hours trawled per day, number of hooks set per day, or number of hauls of a beach seine per day. When two or more kinds of gear are used, the respective efforts must be adjusted to some standard type before being added. For recreational fishing activities, fishing effort refers to the number of participants (that is, recreational fishermen or anglers) who engage in recreational fishing activities.

Fishing Mode – For this report, fishing mode refers to the type of recreational fishing a recreational fisherman (angler) engages in, such as fishing from shore, a private or rental boat, or a for-hire boat.

Fishing Trip – For this report, a fishing trip refers to a recreational fishing excursion and can be different from a fishing day. For example, one fishing trip can consist of more than 1 fishing day. Fishing trips are classified as occurring in one of three fishing modes: 1) a shore-based fishing trip; 2) by a private or rental boat; or 3) on a for-hire fishing boat.

For-Hire Mode – For this report, this fishing mode refers to trips taken by a recreational fishermen (angler) on a party (also referred to as a headboat) or charter boat.

Gross Domestic Product (GDP) by State or Gross State Product (GSP)¹³ – Previously known as the Gross State Product, the GDP by state is the value added in production by the labor and capital located in a state. GDP for a state is derived as the sum of the GDP originating in all industries in the state.

Harvest¹ – The total number of weight or fish caught and kept from an area over a period of time. Note that landings, catch and harvest are different. For recreational fishing activities, harvest refers to the number of individual fish not thrown back into the sea by a recreational fisherman (angler). However, in Hawai'i and the Gulf states, harvest includes fish thrown back dead. See also "Catch" and "Release."

Individual Fishing Quota (IFQ)¹ – A type of limited entry; an allocation to an individual (a person or a legal entity, for example, a vessel owner or company) of a right (privilege) to harvest a certain amount of fish in a certain period of time. It is also of 10 expressed as an individual share of an aggregate quota, or total allowable catch (TAC). See also "Individual Transferable Quota" and "Catch Share Program."

Individual Transferable Quota (ITQ)¹ – A type of individual fishing quota (IFQ) allocated to individual fishermen or vessel owners that can be transferred (sold or leased) to others. See also "Individual Fishing Quota."

Industry Sector – For this report, fishing- and marine-related industries were combined into industry sectors. Two industry sectors were included in this report: 1) seafood sales and processing; and 2) transport, support and marine operations. Fishing and marine-related industries were chosen from the County Business Patterns Data Series based on data availability and perceived relevance to fishing or marine activities. These industries were then combined into one of these two industry sectors.

Key Species or Species Groups – For this report, up to 10 species or species groups were chosen as "key" species or species groups due to their regional importance to commercial and recreational fisheries. The regional importance of these key species or species groups was chosen based on their economic and/or historical significance to a state or region.

Landings¹ – 1. The number or poundage of fish unloaded by commercial fishermen or brought to shore by recreational fishermen for personal use. Landings are reported at the locations at which fish are brought to shore; 2. The part of the catch that is selected and kept during the sorting procedures on board vessels and successively discharged at dockside.

Limited Access Privilege Program (LAPP) or Limited Access Privilege System⁴ – As defined in the Magnuson-Stevens Act, LAPPs limit participation in a fishery to those satisfying certain eligibility criteria or requirements contained in a fishery management plan (FMP) or associated regulation. A limited access privilege is a federal permit, issued as part of a limited access system, to harvest a quantity of fish expressed by a unit or units representing a portion of the total allowable catch (TAC) of the fishery that may be received or held for exclusive use by a person. A LAPP includes an individual fishing quota (IFQ) or individual tradable quota (ITQ) but does not include community development quotas (CDQs). LAPPs are sometimes known as Dedicated Access Privileges (DAPs). However, unlike LAPPs, DAPs generally encompass CDQs as well as IFQs (see "Dedicated Access Privileges"). LAPPs are a type of catch share program. See also "Catch Share Program."

License Limitation Program or Limited Entry Program¹ – A management tool available to fishery managers where the number of commercial fishermen or vessels licensed to participate in a fishery is legally restricted. A management agency of 10 uses this management tool to limit entry into a fishery.

Limited Entry Program – Also known as a license limitation program; see "License Limitation Program."

Location Quotient⁷ – Location Quotients (LQs) are ratios that allow an area’s distribution of employment by industry to be compared to a reference or base area’s distribution. The reference area is usually the U.S., but it can also be a state or a metropolitan area. The reference or base industry is usually the all-industry total. The following discussion assumes the defaults are used. LQs also allow areas to be easily compared with each other. If an LQ is equal to 1, then the industry has the same share of its area employment as it does in the reference area. An LQ greater than 1 indicates an industry with a greater share of the local area employment than in the reference area.

For example (assuming the U.S. as the reference area), Las Vegas will have an LQ greater than 1 in the Leisure and Hospitality industry, because this industry makes up a larger share of the Las Vegas employment total than it does for the country as a whole. LQs are calculated by first dividing local industry employment by the all-industry total of local employment. Next, reference area industry employment is divided by the all-industry total for the reference area. Finally, the local ratio is divided by the reference area ratio.

Magnuson-Stevens Fishery Conservation and Management Act or Magnuson-Stevens Act (MSA)¹

Federal legislation responsible for establishing the Regional Fishery Management Councils (FMCs) and the mandatory and discretionary guidelines for federal fishery management plans (FMPs). This legislation was originally enacted in 1976 as the Fishery Management and Conservation Act. Its name was changed to the Magnuson Fishery Conservation and Management Act in 1980, and in 1996 it was renamed the Magnuson-Stevens Fishery Conservation and Management Act.

Market-based Management⁴ – Market-based management is an umbrella term that encompasses approaches that provide economic incentives to protect fisheries from overharvest. These approaches contrast with conventional fisheries management approaches, such as buyback programs and license limitation programs (see “Buyback Program” and “License Limitation Program”). One example of a market-based management approach for fisheries is a limited access privilege program (LAPP; see “Limited Access Privilege Program”) that includes an individual fishing quota. A LAPP provides individual fishermen an exclusive, market-based share of a harvest quota or total allowable catch (TAC) of a fishery.

Marine Coastal County – For this report, a marine coastal county is a coastal county that is adjacent to an ocean coastline. See also “Coastal County.”

Marine Economy – For this report, the marine economy refers to the economic activity generated by fishing- and marine-related industries located in a coastal state. Fishing- and marine-related industries were chosen from industries defined in the County Business Patterns Data Series provided by the U.S. Census Bureau. Industries listed in this report were chosen based on that industry’s direct contribution to fishing and marine activities, and whether data was available for that industry. Information such as the number of establishments, number of employees, and annual payroll for these fishing and marine-related industries was used to determine their relative levels of economic activity in a state. These industries were categorized into one of two industry sectors: 1) seafood sales and processing; and 2) transport, support and marine operations. See also “Industry Sector.”

Non-Coastal County Angler – For this report, a non-coastal county angler refers to a recreational fisherman who lives within a given state but not in a coastal county of that state.

Nonemployer Firms³ – A nonemployer business is one that has no paid employees, has annual business receipts of \$1,000 or more (\$1 or more in the construction industries), and is subject to federal income taxes. Most nonemployers are self-employed individuals operating very small unincorporated businesses that may or may not be the owner’s principal source of income.

Non-Resident – For this report, a non-resident in the U.S. table refers to a recreational fisherman (angler) who resides outside the U.S.; a non-resident in the regional and state tables refers to an angler who did not reside in the state where they fished.

Out-of-state Angler – For this report, an out-of-state angler is a recreational fisherman (angler) who does not reside within a given coastal state.

Overcapacity¹⁶ – When the harvesting capability within a given fishery exceeds the level of harvest allowed for that fishery.

Overcapitalization¹⁰ – When the amount of harvesting capacity in a fishery exceeds the amount needed to harvest the desired amount of fish at least cost.

Overfished¹ – 1. An overfished stock or stock complex “whose size is sufficiently small that a change in management practices is required to achieve an appropriate level and rate of rebuilding.” A stock or stock complex is considered overfished when its population size falls below the minimum stock size threshold (MSST). A rebuilding plan is required for stocks that are deemed overfished; 2. A stock is considered overfished when exploited beyond an explicit limit past which its abundance is considered “too low” to ensure safe reproduction. In many fisheries, the term is used when biomass has been estimated to be below a biological reference point that is used as the signpost defining an “overfished condition.”

Overfishing¹ – 1. According to the National Standard Guidelines, “overfishing occurs whenever a stock or stock complex is subjected to a rate or level of fishing mortality that jeopardizes the capacity of a stock or stock complex to produce maximum sustainable yield (MSY) on a continuing basis.” Overfishing is occurring if the maximum fishing mortality threshold (MFMT) is exceeded for 1 year or more; 2. In general, the action of exerting fishing pressure (fishing intensity) beyond the agreed optimum level. A reduction of fishing pressure would, in the medium term, lead to an increase in the total catch.

Protected Species¹⁷ – Refers to any species that is protected by either the Endangered Species Act (ESA) or the Marine Mammal Protection Act (MMPA), and that is under the jurisdiction of NOAA Fisheries. This total includes all threatened, endangered and candidate species, as well as all cetaceans and pinnipeds, excluding walruses.

Regional Fishery Management Council or Fishery Management Council (FMC)⁴ – The Magnuson-Stevens Act established eight Regional FMCs around the United States. Each council consists of voting and non-voting members who represent various federal, state and tribal government; fishing industry groups (commercial and/or recreational); and non-fishing groups (such as environmental organizations and academic institutions). Each council is tasked with creating fishery management plans for important fisheries within their regions.

Release – For this report, release refers to the number of individual fish caught by a recreational fisherman (angler) that are then returned to the sea (dead or alive). In Hawai'i and the Atlantic and Gulf states, release does not include fish returned to the sea that are dead. See also “Catch” and “Harvest.”

Resident – For this report, a resident in the U.S. table refers to a recreational fisherman (angler) who resides inside the U.S.; a resident in the regional and state tables refers to an angler who resides in the state where they fished.

Sector Allocation Program¹⁷ – A fisheries management tool where a group of fishermen are allocated a quota or share of a total allowable catch (TAC), in accordance with an approved plan. This program is considered a type of catch share program. See also “Catch Share Program.”

Species¹ – A group of animals or plants having common characteristics that are able to breed together to produce fertile (capable of reproducing) offspring and maintain their “separateness” from other groups.

Species Group¹ – Group of species considered together of 10 because they are difficult to differentiate without detailed examination (very similar species), or because data for the separate species are not available (for example, in fishery statistics or commercial categories).

Threatened Species¹³ – As defined by the Endangered Species Act (ESA), a threatened species is any species that is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range. See also “Endangered Species.”

Trip Expenditures – For this report, trip expenditures refer to expenses incurred by recreational fishermen (anglers) on a fishing trip. Trip expenditures are described for residents (individuals who reside in a coastal or non-coastal county within a given state; a U.S. resident) and non-residents (individuals who do not reside within the U.S.).

Value-Added¹ – A firm’s sales minus the cost of the goods and services it purchases from other industries to produce its outputs.

GLOSSARY NOTES

¹ NOAA Fisheries Glossary. October 2005. K. Blackhart, D.G. Stanton, and A.M. Shimada, eds. Revised edition, June 2006. National Marine Fisheries Service (NOAA Fisheries), National Oceanic & Atmospheric Administration, U.S. Department of Commerce. NOAA Technical Memorandum NMFS-F/SPO-69. Available at: http://www.st.nmfs.gov/st4/documents/F_Glossary.pdf [accessed September 19, 2014].

² “CBP Definitions.” County Business Patterns, U.S. Census Bureau, U.S. Department of Commerce. Available at: <http://www.census.gov/econ/cbp/definitions.htm> [accessed September 19, 2014].

³ “Nonemployer Definitions.” Nonemployer Statistics, U.S. Census Bureau, U.S. Department of Commerce. Available at: <http://www.census.gov/epcd/nonemployer/view/define.html/> [accessed September 19, 2014].

⁴ Magnuson-Stevens Fishery Conservation and Management Act, as amended through January 12, 2007. (P.L. 94-265, as amended through P.L. 109-479). Available at: http://www.nmfs.noaa.gov/msa2007/docs/act_draft.pdf [accessed September 19, 2014].

⁵ NOAA Catch Share Policy, Office of Policy, National Marine Fisheries Service (NOAA Fisheries), National Oceanic & Atmospheric Administration, U.S. Department of Commerce. Available at: http://www.nmfs.noaa.gov/sfa/management/catch_shares/about/documents/noaa_cs_policy.pdf [accessed September 22, 2014].

⁶ “Coastal Counties.” U.S. Census Bureau, U.S. Department of Commerce. Available at: http://www.census.gov/geo/landview/lv6help/coastal_cty.html [accessed September 19, 2014].

⁷ Location Quotient Calculator. Bureau of Labor Statistics, U.S. Department of Labor. Available at: http://data.bls.gov/help/def/lq.htm#location_quotient_application [accessed September 19, 2014].

⁸ Pages 288-289 in: An Ocean Blueprint for the 21st Century, Final Report. 2004. U.S. Commission on Ocean Policy. Washington, D.C. Available at: <http://www.oceancommission.gov> [accessed September 19, 2014].

⁹ P. 4 in: The Economic Contribution of Marine Angler Expenditures in the United States, 2006. 2008. B. Gentner and S. Steinback. National Marine Fisheries Service (NOAA Fisheries), National Oceanic & Atmospheric Administration, U.S. Department of Commerce. NOAA Technical Memorandum NMFS-F/SPO-94. Available at: http://www.st.nmfs.noaa.gov/st5/publication/marine_angler.html [accessed September 19, 2014].

¹⁰ “Fisheries Term Portal.” FAO Fisheries Department, United Nations Food & Agriculture Organization. Available at: <http://www.fao.org/faoterm/collec-tion/fisheries/en/> [accessed September 19, 2014].

¹¹ The NMFS Commercial Fishing and Seafood Industry Input/Output Model (CFSI I/O Model). August 2009. J. Kirkley. Virginia Institute of Marine Science. Available at: http://www.st.nmfs.noaa.gov/documents/commercial_seafood_impacts_2006.pdf [accessed September 19, 2014].

¹² Pages 11-12 in: “The Economic Contribution of Marine Angler Expenditures in the United States, 2006.” November 2008. B. Gentner and S. Steinback. National Marine Fisheries Service (NOAA Fisheries), National Oceanic & Atmospheric Administration, U.S. Dept. of Commerce. NOAA Technical Memorandum NMFS-F/SPO-94, 301p. Available at: <http://www.st.nmfs.noaa.gov/economics/publications/marine-angler-expenditures/marine-angler-2006> [accessed September 19, 2014].

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¹⁴ “Economic Census Definitions.” U.S. Census Bureau. Available at: <http://www.census.gov/econ/census/help/sector/definitions.html> [accessed September 22, 2014].

¹⁵ Endangered Species Act of 1973 (P.L. 93-205, as amended through P.L. 100-707). Available at: <http://www.nmfs.noaa.gov/pr/laws/esa/> [accessed September 22, 2014].

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¹⁶ P. 4 in: “An Assessment of Excess Harvesting Capacity in Federally Managed Commercial Fisheries.” U.S. Dept. of Commerce, NOAA Technical Memorandum NMFSF/SPO-93, 366p. Available at: http://www.nmfs.noaa.gov/msa2007/docs/042808_312_b_6_report.pdf [accessed September 22, 2014].



Commercial fishing vessels in Ocean City, Maryland.
Photo: Mid-Atlantic Fishery Management Council/Jason Didden



RHODE ISLAND
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

OFFICE OF THE DIRECTOR

235 Promenade Street, Room 425
Providence, Rhode Island 02908

To: Jason McNamee
Chief, Marine Resource Management

From: Janet Coit
Director

Date: April 12, 2019

Re: Final Decisions Pertaining to March 11, 2019 Marine Fisheries Public Hearing Items

I have received and reviewed your memo to me, dated April 8, 2019, and attached herewith, regarding the public hearing items from the March 11, 2019 public hearing. I have also received and reviewed all relevant supporting documentation, including the public hearing documents and public comments, as well as the summary report (draft meeting minutes) from the April 1, 2019 meeting of the RI Marine Fisheries Council (Council).

I hereby approve all the recommendations, as set forth in your memo, which, with the exception of item 1, are consistent with those provided by the Council at the Council's April 1, 2019 meeting. The specific regulatory items, and the final decisions for each, are as follows:

1. Recreational Summer Flounder

- Decision: (1) Adoption of the amended provisions, which shifts the opening of the season for the entire recreational fishery from May 1 to May 3; and (2) adoption of the new special shore provision, which establishes a minimum size of seventeen inches (17") for up to two summer flounder, with the balance of the six-fish daily possession limit remaining at a minimum size of nineteen inches (19"). I note that this new special shore-fishing allowance pertains only to the seven designated shore sites previously established for the special shore-fishing program for scup.
- Comment: While I appreciate the Council's advice and recommendation regarding a sixteen inch (16") minimum size allowance at these sites, I concur with the Division's recommendation to maintain compliance with ASMFC on the issue and maintain consistency with the minimum-size provisions of Connecticut's similar shore-based program. The RI program is a positive step towards providing improved access to our recreational fisheries for shore anglers. I urge the Division to monitor the performance of the program this 2019 season and, if warranted, revisit the program

next year, with a view to considering a further decrease in the special minimum size allowance (i.e., to 16”) and/or an increase in the number of summer flounder allowed to be retained under the special shore-based minimum size provision.

2. Commercial Summer flounder

- Decision: Adoption of the amended provision, which extends the open days each week during the summer sub-period from four (4) to seven (7) days.

3. Recreational Black Sea Bass

- Decision: Status quo

4. Commercial Black Sea Bass

- Decision: Status quo

5. Recreational Scup

- Decision: Adoption of the amended provisions, which (1) open the fishery to all sectors on January 1st annually, and (2) increase the possession limit for the for-hire sector from 45 to 50 fish/day in September and October, annually.

6. Commercial Scup

- Decision: Adoption of the amended provisions pertaining to minimum mesh-size requirements for trawl vessels, which adjust the minimum scup possession threshold to 1,000 pounds from October 1 through April 14 annually, or 200 pounds from June 16 through September 30 annually.

7. Recreational Striped Bass

- Decision: Status quo

8. Commercial Striped Bass - General Category

- Decision: Adoption of the amended provisions, which (1) shift the closing date of the first sub-period from August 4 to June 30, and (2) shift the opening date of the second sub-period from August 5 to July 1.
- Comment: I recognize that public comment was split among the three options that were noticed, with no clear consensus, and that the Council was unable to reach agreement on a recommendation. I further recognize that with 30 percent of the State’s allocated commercial quota dedicated to the second sub-period, that season is always relatively short, lasting just nine (9) days in 2018. I note and appreciate the concerns raised by the public and the Council regarding equitable access to the resource for both inshore and offshore sectors, the unintended impact the RI season may have on illegal fishing in the EEZ, and how overlaps in the RI and Massachusetts seasons can affect price. I commend the Division for developing a compromise

proposal that essentially splits the differences among the various options, while attempting to address the above-noted concerns.

9. Commercial Striped Bass – Floating Fish Trap Sector

- Decision: Status quo

10. Recreational Tautog

- Decision: Adoption of the amended provision, which decreases the possession limit for the for-hire sector from 6 fish/person/day to 5 fish/person/day during the October 15 – December 31 sub-period, consistent with the provisions governing the overall recreational fishery. (Provided, however, that the for-hire sector remains not subject to the ten (10) fish/vessel/day restriction that governs the rest of the recreational fishery.)
- Comment: While I recognize that this adjustment corrects a mistake made during the amendment process last year, and is necessary to maintain compliance with ASMFC, I further recognize that there is strong interest on the part of RI's for-hire industry to maintain a 6-fish/person possession limit during this season to compensate for the perceived inequity with MA, which maintains a 1-fish/person possession limit during RI's closed season in June and July. Accordingly, I support the Division's commitment to explore the feasibility of a 6-fish/person possession limit during the Oct 15- Dec 31 sub-period via a conservation equivalency proposal through the ASMFC.

11. Recreational Bluefish

- Decision: Status quo

12. Commercial Bluefish

- Decision: Adoption of the amended provision, which increases the weekly possession limit during the May – November sub-period from 6,000 pounds to 8,000 pounds.

13. Commercial Blacknose Sharks

- Decision: Adoption of the amended provision, which adds blacknose sharks to the list of prohibited species, consistent with ASMFC specifications.

14. Recreational Cod

- Decision: Adoption of the amended provisions, which replace the specified minimum size and possession limit with references to the applicable federal rules in federal waters.
- Comment: This approach will ensure state-federal consistency in accordance with the federal management program for cod. It will enable the Division to update measures

in state waters in accordance with any changes to the federal-waters provisions, and enact such updates readily, without having to notice the updated measure(s) via regulatory amendment. I support this approach, provided the Division continues to keep the recreational fishing community well notified regarding specified minimum size and possession limits and any changes thereto.

15. Commercial Menhaden #1 – Commercial Vessel Restrictions

- Decision: Adoption of the amended provision, which broaden the restrictions pertaining to gear (nets), closed areas, closed days, and reporting requirements to apply to all commercial vessels (except those engaged in small-scale fisheries), not just vessels using purse seines.

16. Commercial Menhaden #2 – Fish Storage Capacity and Vessel Length

- Decision: Status quo

17. Commercial Menhaden #3 – Landing/Possession Limits

- Decision: Adoption of the amended provision, which replaces all references to “landing limit(s)” with “possession limit(s).”

18. Commercial Menhaden #4 -- Possession Limit Trigger

- Decision: Status Quo

19. Commercial Menhaden #5 -- Transiting

- Decision: Adoption of the amended provision, which clarifies that all commercial vessels in RI waters are subject to the applicable possession limits pertaining to RI waters, and are precluded from exercising the transiting provisions set forth at Subsection 1.6(C)(1).

20. Commercial Menhaden #6 - Episodic Event Set Aside Program

- Decision: Adoption of the amended provision, which shifts the end date for the Episodic Event Set Aside Program from November 1 to October 31.

21. Whelk #1 -- Minimum Size

- Decision: Status Quo
- Comment: I appreciate the considerable input provided on this matter, agree that the proposed new definition for determining minimum size is not acceptable, and direct the Division to continue to work with industry to develop improved language and consistent measuring methods.

22. Whelk #2 -- Pot Tagging

- Decision: Adoption of the new provisions, which establish a new whelk pot tagging program, to take effect in 2020, for the purpose of maintaining compliance with and enforcing the existing 300-pot limit.
- Comment: In further developing the program, the Division shall readdress provisions governing routine loss, catastrophic loss, and gear rotation, and re-notice these provisions prior to adoption and implementation.

23. Lobster Trap Tags

- Decision: Adoption of the amended provision, which provides for the use of catastrophic loss tags as replacement tags if original tag orders are not received and presumed lost.

24. Upper Narragansett Bay Trawling Area #1

- Decision: Adoption of the amended provision, which clarifies the dates during which the Upper Narragansett Bay Trawling Area is closed to trawling.

25. Upper Narragansett Bay Trawling Area #2

- Decision: Adoption of the amended provision, which better aligns the written delineation of the area with the (now repealed) map of the area.
- Comment: Given the need to further clarify the description of the Area to match the former map of the area, which has since been repealed from regulation, and given the Council's recommendation to consider use of lat/long coordinates, in addition to landmarks, to demarcate the Area, I urge the Division to re-address and then re-notice the description of the Area, in accordance with the former map of the area.

26. Gill Net Tags

- Decision: Adoption of the amended provision, which extends the time period for the validity of the orange tags currently being used to January 1, 2021.



RHODE ISLAND
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
DIVISION OF MARINE FISHERIES
Three Fort Wetherill Road
Jamestown, Rhode Island 02835

INTER-OFFICE MEMO

TO: Janet Coit, Director

FROM: Jason McNamee, Chief *JM*

DATE: April 8, 2019

SUBJECT: Decisions regarding proposed amendments to the RI Marine Fisheries regulations that were the subject of a public hearing conducted on March 11th and RI Marine Fisheries Council (RIMFC) meeting on April 1st. The public hearing folder contains all the necessary documentation related to this hearing, including a summary of the oral comments made at the hearing, written comments received, the noticed annotated regulations, and public notice.

1. **2019 recreational Summer flounder management (section 3.10.1):**

- **Background:** Annual review of the management program. A workshop was held on February 11th to provide stock status and solicit proposals from industry.
- **Proposal:** No amendments were proposed for the general recreational fishery (proposal #1). A special shore provision was noticed (proposal #2) as follows:

Mode	Min. Size	Season	Poss. Limit (person/day)
Recreational	19"	May 1 – Dec. 31	6 fish
<u>Special Shore Recreational</u>	<u>16"</u>	May 1 – Dec. 31	<u>2 fish</u>

- **Public comments:** Support to maintain status quo for the general recreational fishery (proposal #1) and also to adopt the special shore regulations (proposal #2) as proposed.
- **RIMFC:** 6 - 0 in support as proposed (one abstention). It was clarified that, for the special shore program, the possession limit would remain at 6 fish/day, with an allowance for 2 of the 6 fish to be at a reduced (e.g., 16") minimum size. In response to the Division's recommendation that a 17" minimum size would be preferred given consistency with ASMFC, the Council supported maintaining a 16" minimum size

citing overwhelming public sentiment that catching a 17” fish from shore would still be difficult.

- **Marine Fisheries:** Support for adoption of the special shore program, at a 17” minimum size, and a two-day delay in the opening of the recreational season, to May 3, to compensate for the modest amount of additional harvest anticipated. The Division notes that ASMFC’s review and pending approval of the RI proposal hinges on the 17” minimum size. The Division sought review by ASMFC of a 16” minimum size, as well as a 17” minimum size; in response, the ASMFC’s Technical Committee recommended an approach consistent with the special shore programs in CT and NJ, i.e., a 2-inch decrease from the minimum size applicable to the general recreational fisheries in those states. If RI were to adopt a 16” minimum size for the program, it is highly likely that the program would not pass muster with ASMFC.
- **Timing to file:** Immediately.

2. **2019 commercial Summer flounder management (section 3.10.2):**

- **Background:** Annual review of the management program. This matter was first brought to hearing in November 2018. However, due to the federal government shutdown, and the resulting delay in the release of the new benchmark stock assessment and 2019 quota, the decision at that time was to remain at status quo and re-address at this hearing. At the time of the hearing, a 15% increase in quota was anticipated, however at this time it has been confirmed that the 2019 quota has increased ≈ 73% (from ≈ 1 million lbs to 1.7 million lbs). A workshop was held on February 11th to provide stock status and to solicit proposals from industry.
- **Proposal:** Four options were noticed, which involved different scenarios of closed days during the summer sub-period:

Option	Min. Size	Season	Allocation	Days closed	Starting Poss. Limit (vsl/day)
Option 1: Status quo	14”	1/1 – 4/30	54%	N/A	100 lbs
		5/1 – 9/15	35%	Fri/Sat/Sun	50 lbs
		9/16 – 12/31	11%	N/A	100 lbs
		2/5 – 4/30	Agg. Program	N/A	1,500 lbs/2 wks
<u>Option 2</u>		5/1 – 9/15	35%	Fri/Sat/ Sun	50 lbs
<u>Option 3</u>		5/1 – 9/15	35%	Fri /Sat/ Sun	50 lbs
<u>Option 4</u>		5/1 – 9/15	35%	Fri/ Sat / Sun	50 lbs

Upon learning the magnitude of the quota increase, the Division conducted additional analysis regarding the number of additional open days the quota increase could support during the summer sub-period. As a result of this analysis, the Division offered at hearing that all three days could be re-opened without a season closure based on average 2018 harvest rates (total # of days in season with all seven days open = 138 days; at an avg. rate of 4,000lbs/day, season could last 149 days).

Option	Min. Size	Season	Allocation	Days closed	Starting Poss. Limit (vsl/day)
<u>Council recommendation</u>	14"	5/1 – 9/15	35%	Fri/Sat/Sun	50 lbs

- Public comments: Majority of comments in support of re-opening all three days currently closed.
- RIMFC: 7 - 0 in support of re-opening all three closed days.
- Marine Fisheries: Support for re-opening all three closed days. It is noted that the Division's longstanding directive/policy is to maintain open seasons at economically viable possession limits, per RIMFC advice. For summer flounder, this means not dropping below the 50-pound daily possession limit. Re-opening all three days is consistent with this directive/policy, in that the Division projects that the season can remain open throughout the subperiod at 50 pounds. The Division will monitor harvest rates closely and either adjust possession limits upward if landings fall short of the sub-period quota; or close the sub-period if landings unexpectedly push close to the sub-period quota.
- Timing to file: Immediately.

3. **2019 recreational Black sea bass management (section 3.7.1):**

- Background: Annual review of the management program. A workshop was held on February 11th to provide stock status and to solicit proposals from industry. An operational assessment is scheduled for 2019, which could result in a quota change for 2020. The 2018 projected recreational harvest is projected to exceed the 2019 Recreational Harvest Limit (RHL) for black sea bass. Although that could have prompted the need for a reduction in harvest for 2019 (i.e., a shorter season or reduced bag limit), the overage and associated reduction were relatively small ($\approx 7\%$). Accordingly, the ASMFC approved status quo management measures for 2019.
- Proposal: No amendments were proposed. Current management:

Min. Size	Season	Poss. Limit (person/day)
15"	6/24 – 8/31	3 fish
	9/1 – 12/31	7 fish

- Public comments: Support for both status quo and an earlier opening date in the summer sub-period. Many comments expressed concern that the June 24 opening date results in a lack of access to the fishery by bay anglers, particularly shore anglers, as the fish have left the bay by this date.
- RIMFC: 6-1 in support of status quo. *D. Monti* expressed strong concern that bay anglers are essentially closed out of the fishery with a June 24 opening date as the fish have left the bay by this date. He presented 2017 - 2018 recreational data to demonstrate the lack of shore-based recreational harvest with a late June opening date. The Council discussed the possibility of submitting an ASMFC conservation equivalency (C/E) proposal for an earlier start date for 2019, but decided to hold off until 2020 given the current timing constraint.

- Marine Fisheries: Support for status quo. The Division recognizes the frustration with the June 24 opening date as being late for bay anglers. In 2017, the fishery opened on May 25, but that was based on also enacting a September 22 – October 21 closure as a trade-off. That closure was not well received and thus discontinued in 2018, which pushed the opening date for 2018 back to June 24. Management advice for 2020 is likely to change in response to the operational assessment scheduled for the fall of 2019; this should enable a revisiting of the RI management program for next year, with a view to pursuing an earlier opening date.
- Timing to file: Immediately. (Note: changes to be filed are only for the purpose of aligning the regulations with modification made on May 9, 2018 via the Division’s authority to amend seasons and/or possession limits under R.I. Gen. Laws § 20-1-12.1).

4. **2019 commercial Black sea bass management (section 3.7.2):**

- Background: Annual review of the management program. This matter was first brought to hearing in November 2018. However, at that time, an additional proposal was submitted during the public comment period that generated interest by the public and Council (option 3 below). At that time, the Council recommended that the regulations remain at status quo and the matter be brought to hearing again. A workshop was held on February 11th to provide stock status and to solicit proposals from industry, which resulted in options 2 and 3 as shown below.
- Proposal: Three options were noticed:

Option	Min. Size	Season	Allocation	Starting Possession Limit (lbs)
<u>Option 1:</u> Status Quo.	11”	1/1 – 4/30	25%	500 (vsl/week)
		5/1 – 6/30	25%	50 (vsl/day)
		7/1 – 7/31	19.5%	50 (vsl/day)
		8/1 – 9/14	Closed	
		9/15 – 10/31	19.5%	50 (vsl/day)
		11/1 – 12/31	11%	50 (vsl/day)
<u>Option 2:</u> Industry proposal - combine sub-periods.	11”	1/1 – 4/30	25%	500 (vsl/week)
		5/1 — 6/30	25%	50 (vsl/day)
		7/1 <u>5/1</u> – 7/31	19.5 <u>44.5</u> %	50 (vsl/day)
		8/1 – 9/14	Closed	
		9/15 — 10/31	19.5 %	50 (vsl/day)
		11/1 <u>9/15</u> – 12/31	11 <u>30.5</u> %	50 (vsl/day)
<u>Option 3:</u> Industry proposal – align closed days for	11”	1/1 – 4/30	25%	500 (vsl/week)
		5/1 – 6/30	25%	50 (vsl/day)
		7/1 – 7/31	19.5%	50 <u>85</u> (vsl/day) (close Fri, Sat, Sun)

Black sea bass with Summer flounder.	8/1 – 9/14	Closed	
	9/15 – 10/31	19.5%	50 (vsl/day)
	11/1 – 12/31	11%	50 (vsl/day)

- Public comments: Support for both options 1 and 2. Option 3 was rendered moot in light of recommendation of re-opening all seven days for commercial summer flounder.
- RIMFC: 6-1 in support of option 1, maintaining status quo.
- Marine Fisheries: While the Division can manage either option, the Division supports status quo, consistent with the Council recommendation.
- Timing to file: N/A (no changes to be filed).

5. **2019 recreational Scup management (section 3.8.1):**

- Background: Annual review of the management program. A workshop was held on February 11th to provide stock status and to solicit proposals from industry. The 2018 projected recreational harvest for scup is expected to be well below the 2019 RHL, resulting in an ~30% liberalization for recreational scup in 2019. As a result, and in response to previously received public comment, the northern region for scup (MA-NY) requested liberalizing the Party/Charter mode for scup in 2019. Methodologies for liberalizing 2019 recreational measures in the Party/charter mode were approved by the ASMFC in February 2019. These methodologies were used to derive several options that were presented at the February 11th workshop.
- Proposal: Five options were noticed:

Option	Mode	Min. size	Season	Possession Limit (person/day)
Option 1: Status Quo	Recreational	9"	5/1 – 12/31	30 fish
	P/C	9"	5/1 – 8/31	30 fish
			9/1 – 10/31	45 fish
			11/1 – 12/31	30 fish
Special Shore	8"	5/1 – 12/31	30 fish	
Option 2	Recreational	9"	5/1 <u>1/1</u> – 12/31	30 fish
	P/C	9"	5/1 <u>1/1</u> – 8/31	30 fish
			9/1 – 10/31	45 fish
			11/1 – 12/31	30 fish
			Special Shore	8"
Option 3	Recreational	9"	5/1 – 12/31	30 fish
	P/C	9"	5/1 – 8/31	30 fish
			9/1 – 10/31	45 <u>50</u> fish
			11/1 – 12/31	30 fish

	Special Shore	8"	5/1 – 12/31	30 fish
Option 4	Recreational	9"	5/1 – 12/31	30 fish
	P/C	9"	5/1 – 8/31 <u>6/30</u>	30 <u>50</u> fish
			<u>7/1 – 8/31</u>	<u>30 fish</u>
			9/1 – 10/31	45 <u>50</u> fish
			11/1 – 12/31	30 fish
Special Shore	8"	5/1 – 12/31	30 fish	
Option 5	Recreational	9"	5/1 – 12/31	30 fish
	P/C	9"	5/1 – 8/31	30 fish
			9/1 – 10/31	45 <u>50</u> fish
			11/1 – 12/31	30 <u>50</u> fish
	Special Shore	8"	5/1 – 12/31	30 fish

- Public comments: Support for option 2, as well as a combination of options 2 and 3 combined, as follows:

Mode	Min. size	Season	Possession Limit
Recreational	9"	5/1 <u>1/1</u> – 12/31	30 fish
P/C	9"	5/1 <u>1/1</u> – 8/31	30 fish
		9/1 – 10/31	45 <u>50</u> fish
		11/1 – 12/31	30 fish
Special Shore	8"	5/1 <u>1/1</u> – 12/31	30 fish

- RIMFC: At the Council meeting the Division clarified that the combination of options 2 and 3 was a feasible option approach, per the analyses approved by ASMFC. The Council voted 7-0 in support of combining options 2 and 3 -- i.e., opening on January 1st combined with increasing the P/C possession limit from 45 to 50 fish/day in September and October.
 - Marine Fisheries: Support for options 2 and 3, combined.
 - Timing to file: Immediately.
6. **2019 commercial Scup management regarding possession limits for trawl vessels with a minimum mesh size (section 3.8.2(C)):**
- Background: This rule was published by NOAA effective January 1, 2019.
 - Proposal: Sync DEM rule with NOAA rule for FMP compliance.
 - Public comments: Support as proposed. One commenter expressed a desire to extend the June 15 date to mid-August to account for the possibility of fish availability during that time.
 - RIMFC: 7-0 in support as proposed. The Division acknowledges the public comment in support of extending the June 15 date to mid-August, however, as an FMP

compliance matter, this is not a viable option for 2019, as NOAA has already published the final rule.

- Marine Fisheries: Support adoption of the amendment as proposed.
- Timing to file: Immediately.

7. 2019 recreational Striped bass management (section 3.9.1):

- Background: Annual review of the management program. A workshop was held on December 18th to provide stock status and to solicit proposals from industry.
- Proposal: No amendments were proposed. Current management:

Min. Size	Season	Poss. Limit (person/day)
28"	1/1 – 12/31	1 fish

- Public comments: None provided.
- RIMFC: 7-0 in support of maintaining status quo.
- Marine Fisheries: Support for status quo.
- Timing to file: N/A (no changes to be filed).

8. 2019 commercial Striped bass general category management (section 3.9.2(A)):

- Background: Annual review of the management program. A workshop was held on December 18th to provide stock status and to solicit proposals from industry.
- Proposal: Three options were noticed:

Option	Min. Size	Season	Allocation	Poss. Limit (person/day)
Option 1: Status quo	34"	5/20 – 8/4 (closed Fri & Sat)	70%	5 fish (max 5 fish/vessel)
		8/5 – 12/31 (closed Fri & Sat)	30%	
Option 2: Industry proposal		5/20 – 8/4 12/31 (closed Fri & Sat)	70 100%	
		8/5 – 12/31 (closed Fri & Sat)	30%	
Option 3: Industry proposal		5/20 6/2 – 8/4 12/31 (closed Fri & Sat)	70 100%	
		8/5 – 12/31 (closed Fri & Sat)	30%	

- Public comments: A significant amount of comments were received, with varying support for all three options that were noticed. Comments focused on the issues of access to the fishery by all user groups, illegal fishing in federal waters that may be

affected by the RI season, and effects on price due to overlap of the RI season with Massachusetts.

- **RIMFC:** The Council deadlocked in its effort to render advice to the Director on this matter. (Three separate motions were made pertaining to each of the three options; each motion failed to pass on a 3-4 vote.) In response to public concerns regarding illegal fishing in the EEZ during August, the Council discussed a modified option that would shift the opening of the second sub-period from August 5 to July 1, but held off on considering this as a formal recommendation.
- **Marine Fisheries:** While the Division can manage any of the options, the Division recognizes the need to offer a recommendation that bridges the divide among the many split opinions offered by the public, and the Council’s inability to forge a consensus approach. Accordingly, the Division recommends that the sub-periods be amended such that the first sub-period ends on June 30, followed immediately by the start of the second sub-period on July 1. This compromise, which is within the bounds of the options presented at hearing, is aimed at addressing concerns regarding illegal fishing in the EEZ, particularly in late summer and early fall, and the effect of the RI season on the regional market. The Division’s recommendation is as follows:

Option	Min. Size	Season	Allocation	Poss. Limit (person/day)
<u>New Option</u>	34”	5/20 – 8/4 6/30 (closed Fri & Sat)	70%	5 fish (max 5 fish/vessel)
		8/5 7/1 – 12/31 (closed Fri & Sat)	30%	

- **Timing to file:** Immediately.

9. **2019 commercial striped bass floating fish trap management (section 3.9.2(B)):**

- **Background:** Annual review of the management program. A workshop was held on December 18th to provide stock status and to solicit proposals from industry.
- **Proposal:** No amendments were proposed. Current management:

Min. Size	Season	Starting Poss. Limit (lbs/vsl/day)
26”	4/1 – 12/31	Unlimited

- **Public comments:** None provided.
- **RIMFC:** 6-0 (one abstention) in support of maintaining status quo.
- **Marine Fisheries:** Support for status quo.
- **Timing to file:** N/A (no changes to be filed).

10. **2019 party/charter possession limit for Tautog (section 3.11.1(B)(7)(d)):**

- **Background:** Last year (2018), the recreational possession limit for the recreational fishery during the fall sub-period was amended from 6 to 5 fish/person/day, and the season was extended to Dec 31. These changes were intended to also apply to the

party/charter sector, but the possession limit reduction for that sector was inadvertently omitted during the final regulatory filing. This proposed amendment is intended to correct that error, and is necessary to maintain compliance with the FMP.

- Proposal: Amend the possession limit from 6 to 5 fish/person/day for the P/C sector during the fall sub-period.
- Public comments: Support to maintain at 6 fish bag limit, due to concern for an unfair disadvantage with Massachusetts, which has maintained a 1 fish/day possession limit during RI’s closed season during June and July, and has not adopted mandatory reporting requirements. The Division recognizes the inconsistencies with Massachusetts (namely the spawning season closure) and can investigate possible changes to address these inconsistencies. Any changes would need to be first approved by ASMFC.
- RIMFC: 7-0 in support as proposed.
- Marine Fisheries: Support for adoption of the amendment as proposed. It is noted that the 5 fish bag limit for RI is part of the FMP and is therefore necessary to maintain compliance at this time. The Division recognizes the inconsistencies with Massachusetts (namely, the seasonal spawning closure and reporting discrepancies). The Division is committed to investigating possible changes to address these inconsistencies, and to investigate the possibility of returning the possession limit to 6-fish during the fall sub-period via a conservation equivalency proposal to the ASMFC this year.
- Timing to file: Immediately.

11. 2019 recreational Bluefish management (section 3.18.1):

- Background: Annual review of the management program. A workshop was held on February 11th to provide stock status and to solicit proposals from industry.
- Proposal: No amendments were proposed. Current management:

Min. Size	Season	Poss. Limit (person/day)
No min. size	1/1 – 12/31	15 fish

- Public comments: None provided.
- RIMFC: 7-0 in support of maintaining status quo as proposed.
- Marine Fisheries: Support for status quo.
- Timing to file: N/A (no changes to be filed).

12. 2019 commercial Bluefish management (section 3.18.2):

- Background: Annual review of the management program. A workshop was held on February 11th to provide stock status and to solicit proposals from industry. A slight coastwide quota increase has been adopted for the 2019 fishing season, and is reflected in option 2 as a means to harvest the full state allocation. At the time of the workshop, a quota rollover from the recreational to commercial fishery had not yet been approved by NOAA. Option 3 was therefore offered as a contingency in the event the rollover was not approved, with the resulting reduction in commercial quota for 2019. This transfer has since been approved, rendering option 3 unnecessary.

- Proposal: Three options were noticed:

Option	Min. size	Sub-period	Poss. Limit
<u>Option 1:</u> Status Quo	12"	1/1 – 4/30	1,000 lbs/2 wks
		5/1 – 2 nd Sat. in Nov.	6,000 lbs/wk
		2 nd Sun. in Nov. – 12/31	500 lbs/wk
<u>Option 2:</u> Division proposal - Increase possession limit		1/1 – 4/30	1,000 lbs/2 wks
		5/1 – 2 nd Sat. in Nov.	6,000 <u>8,000</u> lbs/wk
		2 nd Sun. in Nov. – 12/31	500 lbs/wk
<u>Option 3:</u> Division “Contingency” proposal		1/1 – 4/30	1,000 <u>500</u> lbs/2 wks
		5/1 – 2 nd Sat. in Nov.	6,000 <u>1,000</u> lbs/wk
		2 nd Sun. in Nov. – 12/31	500 <u>250</u> lbs/wk

- Public comments: None provided.
- RIMFC: 7-0 in support of option 2.
- Marine Fisheries: While the Division can manage either option, the Division supports option 2, consistent with the Council recommendation.
- Timing to file: Immediately.

13. **2019 commercial Blacknose sharks (section 3.19.2):**

- Background: Proposal seeks consistency with the 2019 ASMFC specifications for coastal sharks, which prohibits possession of Blacknose sharks north of 34°N latitude in the commercial fishery.
- Proposal: Add species to list of prohibited species.
- Public comments: None provided.
- RIMFC: 7-0 in support as proposed.
- Marine Fisheries: Support for adoption of the amendment as proposed.
- Timing to file: Immediately.

14. **2019 recreational Cod management (section 3.20.1):**

- Background: Proposal seeks consistency with the 2018 federal specifications for the Georges Bank (GB) recreational Cod fishery.
- Proposal: Remove the minimum size language from rule and replace with a reference to the federal rule, so as to both maintain consistency with the federal rule, and also to avoid the need to amend the DEM rule when the federal rule is amended. The Council was presented with revised language to remove both the minimum size and possession limit language from rule and replace with a reference to the federal rules as outlined above. This revised language is consistent with the proposed amendment offered via notice.
- Public comments: Two comments in support as noticed.

- RIMFC: 7-0 in support of the revised language provided, as follows:
 - “A. Minimum size: ~~Twenty-two inches (22”)~~ *The minimum size in state waters is equal to the minimum size in federal waters, Outside Gulf of Maine (GOM) Regulated Mesh Area, as codified at 50 C.F.R. §648.89(b).*
 - B. Possession limit: ~~Ten (10) fish per person per calendar day~~ *The possession limit in state waters is equal to the possession limit in federal waters for Georges Bank (GB) Cod, as codified in 50 C.F.R. §648.89(c).*”
- Marine Fisheries: Support for adoption of the amendment, incorporating the revised wording presented to the Council. The Division will look to address other species where similar language would be appropriate.
- Timing to file: Immediately.

15. **Commercial menhaden proposal #1 (section 3.22.2(A)(2)):**

- Background: Division proposal to address the possibility of industry interest in conducting additional large-scale operations in RI as a result of the Amendment 3 quota increase and ongoing bait shortage in the lobster fishery.
- Proposal: Broaden the commercial vessel restrictions to apply to all commercial vessels, other than small-scale fisheries and floating fish traps; rule currently applies only to purse seine operations.
- Public comments: None provided.
- RIMFC: 5-2 in support as proposed.
- Marine Fisheries: Support for adoption of the amendment as proposed.
- Timing to file: Immediately.

16. **Commercial menhaden proposal #2 (proposed new section 3.22.2(A)(2)(f)):**

- Background: Industry proposal resulting from concerns over the possibility of industry interest in conducting additional large-scale operations in RI as a result of the Amendment 3 quota increase and ongoing bait shortage in the lobster fishery.
- Proposal: Restrict vessel length and useable storage capacity for commercial menhaden operations.
- Public comments: The majority of comments provided at the hearing were in support of the proposal.
- RIMFC: The Council offered no recommendation on the proposal due to concern that the proposed amendment is based on potential impacts rather than realized impacts.
- Marine Fisheries: The Division does not support the proposal at this time based on the same rationale provided by the Council as well as having no data and/or analysis to support a maximum vessel length of 80 feet. Regarding concerns over enforcing compliance with possession limits, DEM’s Division of Law Enforcement notes that portable truck scales can be mobilized to any location to weigh menhaden landings.
- Timing to file: N/A (no changes to be filed)

17. **Commercial menhaden proposal #3 (several instances in section 3.22.2(B)):**

- Background: Review of rules subsequent to adoption of Amendment 3 to the FMP for menhaden.
- Proposal: Division proposal to replace the term “landing limit” with “possession limit.”
- Public comments: None provided.
- RIMFC: 7-0 in support as proposed.
- Marine Fisheries: Support for adoption of the amendment as proposed.
- Timing to file: Immediately.

18. **Commercial menhaden proposal #4 (section 3.22.2(B)(2)):**

- Background: Industry proposal resulting from concerns over the possibility of industry interest in conducting additional large-scale operations in RI as a result of the Amendment 3 quota increase and ongoing bait shortage in the lobster fishery.
- Proposal: Provide for a possession limit trigger equaling 50% of the quota, which would impose a reduced possession limit of 80,000 lbs/vessel/day under the State Quota Program.
- Public comments: None provided.
- RIMFC: The Council offered no recommendation on the proposal due to concern that the proposed amendment is based on potential impacts rather than realized impacts, and that the proposal could impact the State’s ability to participate in the Episodic Event Set Aside Program.
- Marine Fisheries: The Division does support the proposal at this time based on the same rationale provided by the Council. The proposal would likely limit the State’s ability to participate in the Episodic Event Set Aside Program quota (≈ 4 million additional pounds) by increasing the time it takes to harvest the RI quota, as the entire commercial quota must be harvested before participation in the Episodic Event Set Aside Program can occur.
- Timing to file: N/A (no changes to be filed).

19. **Commercial menhaden proposal #5 (proposed new section 3.22.2(B)(4)):**

- Background: Division proposal to address the potential for a vessel to exceed the RI possession limit for menhaden while fishing in federal waters, and subsequently transit RI state waters and land in exceedance of the RI possession limit.
- Proposal: Division proposal to clarify the transiting rule, such that it would not pertain to the commercial menhaden fishery.
- Public comments: None provided.
- RIMFC: 7-0 in support as proposed.
- Marine Fisheries: Support for adoption of the amendment as proposed.
- Timing to file: Immediately.

20. **Commercial menhaden proposal #6 (section 3.22.2(C)(2)):**

- Background: Inaccuracy found regarding the ending date of the Episodic Event Set Aside Program.
- Proposal: Division proposal to amend the ending date of the Episodic Event Set Aside Program consistent with the ASMFC’s FMP.

- Public comments: None provided.
- RIMFC: 7-0 in support as proposed.
- Marine Fisheries: Support for adoption of the amendment as proposed.
- Timing to file: Immediately.

21. Whelk minimum size measurement (section 4.9(F)):

- Background: Division proposal to provide clarity to the rule regarding whelk minimum size measurement. This matter was brought to hearing at the request of industry due to confusion regarding accurate and consistent measurement protocols. It is recognized that whelk are uniquely shaped organisms that are difficult to measure.
- Proposal: Remove length as a component of the minimum size regulation and adopt more refined language specifying how whelk width is to be measured.
- Public comments: Majority of comments were in opposition to the amendment as proposed.
- RIMFC: The Council offered no official recommendation on the proposal due to concern raised during public comments that the proposed amendment does not provide sufficient clarity to the rule as intended. The Council recommended that the Division continue to work with industry to develop clarified language and/or develop a gauge.
- Marine Fisheries: On the basis of concerns raised by the public and the Council, the Division recommends not moving forward with this proposed amendment at this time. The Division recommends that collaborative efforts involving industry and the Division of Law Enforcement should continue, with a view to further improving the regulatory standard for measuring minimum size. On the basis of those efforts, the Division proposed to bring this matter back to hearing before the end of 2019.
- Timing to file: N/A (no changes to be filed).

22. Whelk pot tagging program (proposed new section 4.18):

- Background: A whelk pot tagging program was originally considered in 2012 when the commercial limit of 300 pots was adopted. At that time the Council recommended that a tagging program be considered to address pot limit compliance. This matter was recently raised again by industry due to concerns that pot limit exceedance may be an on-going problem.
- Proposal: Establish a commercial whelk pot tagging program.
- Public comments: Majority of comments were in opposition to the proposal.
- RIMFC: 6-1 in support as proposed. When prompted for guidance on gear rotation replacement tags and catastrophic loss tags, the Council recommended 7-0 to include provisions for both tag types in the final rule.
- Marine Fisheries: Support for adoption of the new program as proposed, including the Council's recommendation to incorporate provisions for gear replacement tags and catastrophic loss tags in the final rule.
- Timing to file: The Division needs to submit a regulatory analysis with the Office of Regulatory Reform prior to finalizing and filing this rule.

23. Lobster trap tags – replacement of original tags ordered but not received and presumed to be lost (section 5.8.1(R)(11) (c)):

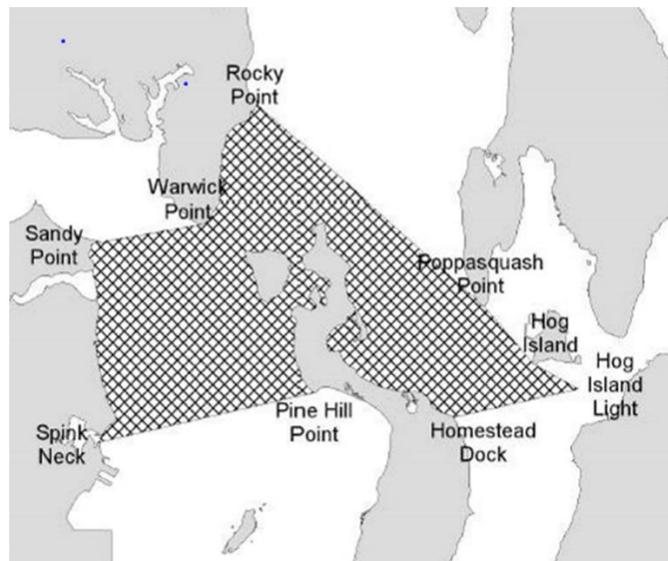
- Background: Division proposal to provide for replacement tags in the event the shipment of original tags ordered was not received. If a shipment of original tags ordered is not received (e.g., stolen or lost in the mail), there needs to be a provision to address their replacement. Original tags not received cannot be replaced with new original tags; those tags must be rendered null and void to prevent a possible compliance problem should the original order be found.
- Proposal: Provide for the use of catastrophic tags to replace original tags lost or stolen.
- Public comments: None provided.
- RIMFC: 7-0 in support as proposed.
- Marine Fisheries: Support for the amendment as proposed.
- Timing to file: Immediately.

24. Clarification of open and closed periods of the Upper Narragansett Bay Trawling Area to trawling (section 6.8.2(C)(1)):

- Background: Lack of clarity regarding timeframes when area is open to harvest.
- Proposal: Amend rule to clarify timeframes when area is open to harvest.
- Public comments: None provided.
- RIMFC: 7-0 in support as proposed.
- Marine Fisheries: Support adoption of amendment as proposed.
- Timing to file: Immediately.

25. Clarification of area description of the Upper Narragansett Bay Trawling Area (section 6.8.2(C)(1)(a)):

- Background: Inaccuracy regarding the area boundary description.
- Proposal: Amend rule to correct this inaccuracy.
- Public comments: One member of the public noted that the additional area proposed to be included in this management area is not accurate as the area is not generally accessible to trawling vessels.
- RIMFC: The Division provided the Council with alternate language that would align the written description of the area with the map of the area as shown in the Division's repealed regulation "*Part XVII – Maps.*" This area, as shown on the map, is depicted as follows:



The alternate language provided to the Council is as follows:

“Prohibited areas: In addition to those waters where all netting is prohibited, a trawling device is prohibited in the following areas: ~~In the Upper Narragansett Bay Trawling Area on any Saturday, Sunday, or legal State holiday between July 1st and November 1st annually.~~ The Upper Narragansett Bay Trawling Area is designated a Marine Life Management Area pursuant to R.I. Gen. Laws § 20-3-4, and is described as the ~~follows: the southern boundary extends~~ waters north of a line extending from Spink Neck in the Town of North Kingstown to Pine Hill Point on Prudence Island; ~~thence and~~ from Homestead Dock on the easterly shore of Prudence Island; ~~thence northeasterly to the~~ Hog Island Shoal Light; ~~and thence to the north abutment of the Mt. Hope Bridge in the Town of Bristol;~~ the western and south of a line extending boundary extends from Sandy Point in the City of Warwick to the southern tip of Warwick Point in the city of Warwick; ~~the northern boundary extends from and from~~ the dock at Rocky Point in the city of Warwick to the southern tip of Poppasquash Point in Bristol; ~~thence to Hog Island Shoal Light, and thence to the northern abutment of the Mt. Hope Bridge in the town of~~ Bristol.”

At the Council meeting, it was suggested that lat/long coordinates should be used to describe the area – either in lieu of or in addition to geographic landmarks -- due to possible inaccuracies regarding the names and status of these landmarks. It was specifically noted that there is an “old” and “new” Homestead Dock that differ in location, and that the Rocky Point location is also unclear. The Council therefore recommended that the landmark names and accuracy of locations be further investigated via subsequent rule-making. Notwithstanding, the Council voted 7-0 to recommend adoption of the language presented by the Division, as an interim measure.

- **Marine Fisheries:** Due to further analysis of the intent of the rule, and consistent with the public comment received, the Division recommends adoption of the revised language provided above to better align the description with the area with the (repealed) map of the area. The Division notes the inaccuracy that may remain with respect to Homestead Dock and will investigate the names and locations of all such

- landmarks as used in regulation, and prepare amended rules for a future public hearing upon conclusion of a review and field reconnaissance of these landmarks.
- Timing to file: Immediately.

26. **Extension of gill net tag valid dates:**

- Background: Division proposal to amend the valid dates so as to not require new tags beginning January 1, 2020.
- Proposal: Proposed extension of the gill net tag valid dates one additional year to January 1, 2021.
- Public comments: None provided.
- RIMFC: 7-0 in support as proposed.
- Marine Fisheries: Support for the amendment as proposed.
- Timing to file: Immediately.



RHODE ISLAND
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
DIVISION OF MARINE FISHERIES
Three Fort Wetherill Road
Jamestown, Rhode Island 02835

INTER-OFFICE MEMO
(ADDENDUM to memo dated April 8, 2019)

TO: Janet Coit, Director

FROM: Jason McNamee, Chief

DATE: June 11, 2019

SUBJECT: Update regarding proposed regulatory amendments for Part 4 – Shellfish, regarding the proposal to establish rules for a whelk pot tagging program.

At this time the Division has not filed any amendments to *Part 4 – Shellfish* regarding establishment of rules for a whelk pot tagging program resulting from the public hearing that took place on March 11, 2019. While recommended by the Council and directed by you to move forward with the filing and adoption of rules, upon further consideration the Division now recommends holding off with filing until we can obtain additional public input regarding certain aspects of the program that remain unsettled; namely that of routine gear loss tags, gear rotation tags, and valid dates of tags. As originally intended, this program remains planned for implementation in 2020, so the Division sees no downside to withdrawing this noticed amendment at this time and re-noticing for a planned hearing in November. In the interim the Division will hold a workshop to solicit additional feedback on operational details of the program, and also look to develop the necessary administrative components of the program so that implementation can occur in 2020 as planned.