

STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

DIVISION OF MARINE FISHERIES



2019 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 necessary to rebuild depleted marine fishery resources.

To meet the purposes of the act, regulations subsequently developed included fishery “endorsements” to include a given marine species, or groups of species, to restrict access to, or to otherwise manage commercial harvest. 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 currently *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 include striped bass, scup (during the summer sub-period only), summer flounder, black sea bass, and tautog, and are included in the *Restricted Finfish Endorsement*. All other regulated species of finfish (e.g., winter flounder, monkfish) are included in the *Non-Restricted Finfish Endorsement*, which is currently open and 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 currently open and available to any Rhode Island resident license holder.

Species of crustaceans for which access is limited include lobster, and 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 currently open and available to any Rhode Island resident license holder.

The availability of any of the endorsements described above to which access is limited (i.e., Restricted Finfish, Bay quahog, Soft-shell clam, Whelk, Lobster) is determined annually by the number of endorsements that are not renewed. A ratio is developed between the number of licenses not renewed and the number that will be allowed back in to replace the retired licenses. 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), and presented for public comment at a public hearing in accordance with the requirements of the Administrative Procedures Act (RIGL Chapter 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 RI 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 must be updated annually prior to any proposed changes to any 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 amount of potential new effort that could be sustained in RI's most important fisheries.

RESTRICTED FINFISH

BLACK SEA BASS



Stock status: The 2016 benchmark stock assessment found black sea bass not overfished nor experiencing overfishing (<http://www.asmfcr.org/species/black-sea-bass>). With improved recruitment and declining fishing mortality 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

fishing mortality (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. Quotas since 2015 have been set based on projections from this benchmark assessment.

Management program: Black sea bass is managed jointly by the ASMFC and the MAFMC through the Summer Flounder, Scup and Black Sea Bass FMP (<http://www.asmfc.org/species/black-sea-bass>). The FMP establishes coast-wide quotas for each state annually; with Rhode Island’s share of the quota is 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 2018 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.

2018 RI commercial regulations:

Min. Size	Season	2018 Allocation (%)	Possession Limit (lbs/vsl)
11"	Jan. 1 – April 30	25%	500/week
	May 1 – June 30	25%	50/day
	July 1 – July 31	19.5%	50/day
	Aug. 1 – Sept. 14	CLOSED	
	Sept. 15 – Oct. 31	19.5%	50/day
	Nov. 1 – Dec. 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.

Fishery performance: In 2017, 543 commercial fishers (Table 2) landed 458,131 pounds of black sea bass in RI valued at \$1,603,688 (Table 1). In 2018, the possession limit in the first sub-period was increased twice, on April 1 from 500 to 750 lbs/week, and then on April 15 to 1,000 lbs/week, resulting in an under harvest which was then rolled into the next sub-period. The second sub-period closed on June 17, thirteen days before the end of the sub-period. The sub-period beginning on July 1 closed on July 19, before the end of the sub period (Table 3).

RIDEM Division of Marine Fisheries recommendations for 2019: The coastwide quota for 2019 has been reviewed by the MAFMC’s Scientific and Statistical Committee (SSC) and is anticipated to be 2.95 million lbs, down from 3.52 million pounds in 2018. This is still pending final approval by the MAFMC and may change. 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 an assumed quota reduction and performance to date in 2018, the Division recommends maintaining the level of effort at or below current levels; and maintain as a restricted category species. An important note for 2018 is that there has been a significant recalibration in an important data stream (recreational catch data), and an update to the assessment is planned for black sea bass in early 2019. This new assessment could have major repercussions to the commercial quota, therefore there is high uncertainty in this recommendation for 2019.

SCUP



Stock status: The 2015 benchmark stock assessment found scup not overfished nor experiencing overfishing (<http://www.asmfc.org/species/scup>). With improved recruitment and declining fishing mortality rates since 2000, SSB has steadily increased. SSB in 2015 was estimated at 403 million pounds, higher than the SSB target of 192 million pounds, and F was estimated at 0.127,

below the F target of 0.22. Recruitment at age 0 averaged 109 million fish from 1984 to 2014, with peaks in 1999 at 222 million, 2006 at 222 million, and at 218 million in 2007. Since 2000, recruitment has been average with the 2014 cohort estimated at 112 million fish. Quotas since 2015 have been set based on projections from this benchmark assessment.

Management program: Scup is managed jointly by the ASMFC and MAFMC through the Summer Flounder, Scup and Black Sea Bass FMP (<http://www.asmfc.org/species/scup>). 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 (i.e., gear types other than floating fish traps) and floating fish trap 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 authority to transfer quota between the floating fish trap and general category sectors, which provides for the full harvest of the RI quota each year. A Multi-Purpose License or *Restricted Finfish Endorsement* is required to harvest scup in RI waters.

2018 RI commercial General Category regulations:

Min. size	Season	2018 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/wk
	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

2018 RI commercial Floating Fish Trap regulations:

Min. size	Season	2018 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 2017, 437 commercial fishers (Table 2) landed 5,968,081 pounds of scup in RI valued at \$3,040,684 (Table 1). To date, no early closures or possession limit changes have been needed (Table 3).

RIDEM Division of Marine Fisheries recommendations for 2019: The coastwide quota for 2019 has been reviewed by the MAFMC’s Scientific and Statistical Committee (SSC) and is anticipated to be 23.98 million pounds, the same as in 2018. Given the current quota, good stock status, and performance to date in 2018, 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 2018 is that there has been a significant recalibration in an important data stream (recreational catch data), and an update to the assessment is planned for scup in early 2019. This new assessment could have major repercussions to the commercial quota, therefore there is high uncertainty in this recommendation for 2019.

STRIPED BASS



Stock status: A stock assessment was completed in 2016 and indicates that the stock is neither overfished nor experiencing overfishing relative to the

biological reference points (<http://www.asmfc.org/species/atlantic-striped-bass>).

However, female SSB has been in decline since 2004, and is estimated at 129 million pounds in 2015. This is just above the SSB threshold of 127 million pounds, and below the SSB target of 159 million pounds. Total F is estimated at 0.16 in 2015, below both the F threshold and F target levels (0.22 and 0.18, respectively) (ASMFC 2016).

Management program: Striped bass is managed by ASMFC through the Interstate FMP for striped bass (<http://www.asmfc.org/species/atlantic-striped-bass>), which establishes minimum size limits and state quotas for the commercial fishery. States can implement alternative management measures that are deemed to be equivalent to the preferred measures in the FMP through a Conservation Equivalency process. In RI, the commercial quota is divided between a floating fish trap and general category sector, respective of historical landings by these sectors. The general category quota is then divided between two sub-periods, designed to allocate harvest between inshore bay and offshore fishing. Days closed to fishing include Friday and Saturday as a means to extend the season as long as possible. A Multi-Purpose License or *Restricted Finfish Endorsement* is required to harvest Striped bass in RI waters.

2018 RI commercial General Category regulations:

Min. Size	Season	2018 Allocation		Possession Limit
34"	May 20 – Aug. 4	61%	70%	5 fish/day
	Aug. 5 – Dec. 31		30%	5 fish/day

2018 RI commercial Floating Fish Trap regulations:

Min. Size	Season	2018 Allocation	Possession Limit
26"	April 1 – Dec. 31	39%	Unlimited

Another key aspect of the management program includes DEM authority to transfer quota between the floating fish trap and general category sectors, necessary to assure the full harvest of the RI striped bass quota each year.

Fishery performance: In 2017, 268 commercial fishers (Table 2) landed 175,312 pounds of striped bass in RI valued at \$759,653 (Table 1). In 2018, the first sub-period of the general category sector was closed on 7/3/2018, or 33 days before the end of the sub-period, with an overage of 6,034 lbs (Table 3). The second sub-period has 27,404 lbs available for harvest. As of the writing of this report, 18,160 lbs remain in the floating fish trap quota.

RIDEM Division of Marine Fisheries recommendations for 2019: The RI commercial striped bass 2019 quota for the general category sector is 111,459 lbs, unchanged from 2018. The floating fish trap quota is 70,113 lbs in 2019, also unchanged from 2018, minus any overages that may occur in 2018. With this quota and current level of effort, not much can be done to extend the season with current possession limits. Current management is felt to be working reasonably well to keep the season open as long as possible, with accessibility for both bay and offshore fishers. The Division therefore recommends maintaining effort at or below current levels, and maintain as a restricted category species.

SUMMER FLOUNDER



Stock status: The 2016 stock assessment update found summer flounder not overfished, but the population is experiencing overfishing (<http://www.asmfc.org/species/summer-flounder>). With improved recruitment and declining fishing mortality rates since the late 1980s, SSB steadily increased, peaking in the early 2000s. SSB in 2014 was estimated at 89 million pounds, higher than the SSB threshold of 69 million pounds, and F was estimated at 0.359,

higher than the F threshold of 0.309. Recruitment at age 0 averaged 41 million fish from 1982 to 2014, with peaks in 1983 at 75 million and 1985 at 62 million. Since 2009, recruitment has been below average with the 2014 cohort estimated at 41 million fish. Quotas since 2015 have been set based on projections from this update assessment.

Management program: Summer flounder is managed jointly by the ASMFC and MAFMC via the Summer Flounder, Scup and Black Sea Bass FMP (<http://www.asmfc.org/species/summer-flounder>). In RI, seasons are divided into three seasonal sub-periods. Due to the low quota, the fishery is closed for three days each week in the Summer sub-period, and 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.

2018 RI commercial regulations:

Min. size	Season	2018 Allocation	Starting Poss. Limit (lbs/vsl/day)	Days Closed
14"	1/1 – 4/30 (Winter)	54%	100/1,500 Aggregate (week)	Open 7 days
	5/1 – 9/15 (Summer)	35%	50	Fri./Sat./Sun.
	9/16 – 12/31 (Fall)	11%	100	Open 7 days

Fishery performance: In 2017, 502 commercial fishers (Table 2) landed 897,311 pounds of summer flounder in RI valued at \$4,304,769 (Table 1). In 2018, no early closures or daily possession limit changes were implemented during the first sub-period. The aggregate possession limit was increased once on April 15 to 1,750 lbs/day, and then closed a day early on April 29. There have been no fishery closures to date in 2018 (Table 2).

RIDEM Division of Marine Fisheries recommendations for 2019: The coastwide quota for 2019 is estimated to be 7.72 million lbs, up from 6.63 million pounds in 2018. Due to the continued low quota and current level of effort, the Division recommends maintaining effort at or below current levels and maintain as a restricted category species. An important note for 2018 is that there has been a significant recalibration in an important data stream (recreational catch data), and a benchmark assessment is currently underway for summer flounder. This new assessment could have major repercussions to the commercial quota, therefore there is high uncertainty in this recommendation for 2019.

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 (<http://www.asmfc.org/species/tautog>). The SSB has been fairly steady over the past several years, and is estimated at 2,196mt, above the threshold of 2,004mt. F is estimated at 0.23, below the target of 0.28.

Management program: Tautog is managed regionally by the ASMFC through the tautog FMP (<http://www.asmfc.org/species/tautog>). Although not specifically required by the FMP, RI has an established a commercial quota, which in part achieves the fishing mortality targets required by the FMP. The commercial quota has maintained stable for

the past several years at 51,348 pounds divided into three seasonal sub-periods. Traditionally, the quota was split evenly between the 3 seasons, however, the spring season has been difficult to manage with the most severe early closures and high discard mortality. Therefore, in 2017 the allocation percentages were adjusted and were maintained in 2018. A Multi-Purpose License or *Restricted Finfish Endorsement* is required by license holders to harvest Tautog in RI waters.

2018 RI commercial regulations:

Min. Size	Season	2018 Allocation	Possession Limit
16"	April 1 – May 31	40%	10 fish/day
	June 1 - July 31	Closed	
	Aug. 1 – Sept. 15	20%	10 fish/day
	Sept. 16 – Dec. 31	40%	10 fish/day

Fishery performance: In 2017, 250 commercial fishers (Table 2) landed 52,844 pounds of tautog in RI valued at \$194,380 (Table 1). The fishery experienced early seasonal closures in each sub-period in 2017, and closed 4 days early on May 27 in the spring season in 2018 (Table 3).

RIDEM Division of Marine Fisheries recommendations for 2019: The quota for 2019 is anticipated to be 51,348 pounds, minus any overages in 2018, consistent with 2018. Due to poor stock status and difficulty with maintaining open seasons, the Division recommends maintaining effort at or below current levels, and maintain as a restricted category species.

LICENSING RECOMMENDATIONS FOR THE RESTRICTED FINFISH ENDORSEMENT FOR 2019

RIDEM Division of Marine Fisheries: 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 trips landed in RI with restricted species. In 2016, 21,130 trips were landed by 657 participants which was slightly higher than 20,219 trips landed by 661 participants in 2017 (Table 3). **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 2018, 15 licenses eligible to harvest restricted finfish were not renewed (9 MPURP, 6 PEL w/RFIN), which would **result in 15 new PEL restricted finfish endorsements being issued in 2019.**

RI Marine Fisheries Council: **To be completed after the October 1, 2018 Council meeting.**

NON-RESTRICTED FINFISH

ATLANTIC HERRING



Stock status: The latest stock assessment update, conducted by the Northeast Regional Stock Assessment Workshop in 2015, indicates Atlantic herring are not overfished and overfishing is not occurring (<http://www.asmfc.org/species/atlantic-herring>). SSB in 2014 was estimated at 623,000 mt, well above the SSB threshold and target of 155,573 mt (342

million pounds) and 311,145 mt (685 million pounds), respectively. Current F is estimated at 0.16, below the fishing mortality threshold of 0.24 (cite).

Management program: Atlantic herring is managed jointly by the ASMFC, NOAA Fisheries and NEFMC through Interstate FMP for Atlantic herring (<http://www.asmfc.org/species/atlantic-herring>). 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 2018 Atlantic herring quota for area 2 (Southern New England) was 31,137 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 2018 Area 2 River Herring catch cap was set at 251.9 metric tons. 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 2017, 30 commercial fishers landed 4,535,139 pounds of Atlantic herring in RI valued at \$938,667 (Table 1). A state quota has not been established.

RIDEM Division of Marine Fisheries recommendations for 2019: It is recommended that the current permitting program be maintained, 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 in August 2015 (<http://www.asmfc.org/species/bluefish>). 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 (<http://www.asmfc.org/species/bluefish>), which sets annual commercial coast-wide quotas for each state; Rhode Island receives 6.8%. The weekly aggregate possession limits 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. A Multi-Purpose License or *Non-Restricted Finfish Endorsement* is required to harvest Bluefish in RI waters.

2018 RI commercial regulations:

Min. Size	Season	Possession Limit (lbs/vsl)
12"	Jan. 1 – April 30	1000/bi-week
	May 1 – Nov. 11	6000/week
	Nov. 12 – Dec. 31	500/week

Fishery performance: In 2017, 339 commercial fishers (Table 2) landed 646,979 pounds of bluefish in RI valued at \$462,880 (Table 1). In 2018, the first sub-period remained open for its entirety with no possession limit decreases imposed, with a harvest underage of 13,581 pounds, which carried over into the second sub-period. The possession limit in the second sub-period was increased to 10,000/week on May 27 and then to 15,000/week on July 15 (Table 2), and has ~470,000 pounds remaining as of the writing of this report (Table 3).

RIDEM Division of Marine Fisheries recommendations for 2019: The 2019 quota has not yet been determined as of the writing of this report, but based on the status of the fishery, it is anticipated that the quota will be similar to 2018. This quota is subject to change depending on the performance of the recreational fishery in 2018 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 2018 at or below current levels, and maintain as a non-restricted category species.

However, RI has required frequent commercial transfers from Atlantic states in recent years. RI has received transfers ranging from 100,000 lbs. to 180,000 lbs over the last 4 years (2014-2017), averaging an annual +55,949-lb transfer. The Division will continue to monitor the situation and may consider adding bluefish to the restricted category in the future if this trend continues.

ATLANTIC 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 ([Chris Legault, NOAA NEFSC 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.

Management program: Atlantic cod is managed on a federal fishing year (May 1 - April 30) under the NEFMC Northeast Multispecies FMP (<https://www.nefmc.org/management-plans/northeast-multispecies>). The 2018 Annual Catch Limit for the GB stock is 3,348,822 pounds, up from the 2017 Annual Catch Limit of 2,638,933 pounds. In an effort to complement federal FMPs, RI has adopted a minimum size limit, daily possession limit, and state quota set at 1% of the GB Annual Catch Limit (equal to 33,488 pounds for 2018). A Multi-Purpose License or *Non-Restricted Finfish Endorsement* is required to harvest Atlantic cod in RI waters.

2018 RI commercial regulations:

Min. Size	Season	Possession Limit (lbs/vsl/day)
22"	May 1 – April 30	1,000

Fishery performance: In 2017, 100 commercial fishers (Table 2) landed 96,427 pounds of atlantic cod in RI valued at \$278,573 (Table 1). These landings include fish caught in state waters, as well as fish caught in federal waters. State-water landings for RI during FY2017 totaled approximately 9,770 pounds, or 37% of the RI state-water quota (26,384 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 Annual Catch Limit for 2018, it is unlikely that the RI state quota will be fully harvested.

RIDEM Division of Marine Fisheries recommendations for 2019: The 2019 Annual Catch Limit for GB Atlantic Cod is 2,182 mt (4,810,487 pounds). RI's 2019 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.

ATLANTIC MENHADEN



Stock status: A Stock Assessment Update was completed in 2017

(<http://www.asmfc.org/species/atlantic-menhaden>). Based on this assessment, atlantic menhaden are neither overfished nor experiencing overfishing. The biological reference points used to evaluate the stock status used historical performance of the population during 1960- 2012. Since the 1960s, fishing mortality rates have remained below the overfishing threshold (1.85) and have hovered around the overfishing target (0.8) through the

1990s. F dropped below the target in 2003, and was estimated to be 0.51 in 2016 (the latest year in the assessment update). Throughout the history of the fishery, F has generally been decreasing. The biological reference point used to determine the fecundity target is defined as the expected mature egg production when the population is being fished at the threshold F rate. Population fecundity (a measure of reproductive capacity similar to the SSB metric used for other finfish stocks) has been well above the threshold (57,295 billion eggs) and at or near the target (99,467 billion eggs) in recent years. In 2016, fecundity is estimated to be 83,486 billion eggs, well above the threshold but below the target. Recruitment has been generally below average since the mid-1990s, with 2005, 2010, and 2016 being good recruitment events during this period (16.032, 18.654, and 13.363 billion fish respectively).

Management program: Atlantic menhaden are managed by the ASMFC under the Interstate FMP for Atlantic Menhaden (<http://www.asmfc.org/species/atlantic-menhaden>) which maintains the management program's current single-species biological reference points 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 Set Aside Program. The ASMFC's Atlantic Menhaden Management Board sets an annual Total Allowable Catch (TAC) for menhaden which is then allocated to the Atlantic coast jurisdictions based on landings history. A TAC set-aside of 1% is used each year by states in the New England region for episodic events, or periods of time when large amounts of biomass are present. RI participates in the Episodic Events Set-Aside Program annually, which allows RI state waters to re-open to the landing of menhaden until the set-aside quota is harvested or the program ends. 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 Narragansett Bay 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);
- 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 in the southern portion of the management area 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 contractor spotter pilot who provides school counts and an estimate of 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 determine if the fishery can remain open.

Fishery performance: In 2017, 11 commercial fishers (Table 2) landed 1,752,756 pounds of atlantic menhaden in RI valued at \$136,869 (Table 1). As of the writing of this report, 132,788 pounds have been landed, with 2,233,830 pounds remaining in the quota.

RIDEM Division of Marine Fisheries recommendations for 2019: RI's initial commercial menhaden quota for 2019 is 2,476,232 lbs, unchanged from 2018, minus any overages that occur; therefore, the Division recommends maintaining effort at or below current levels in 2019, and maintaining as a non-restricted species.

MONKFISH



Stock status: The NMFS conducted an operational assessment in 2016 (Richards, 2016), but due to uncertainty of growth rates the SCALE model could not be updated in this assessment. Since the SCALE model could not be updated for the 2016 assessment, updated BRPs and stock status could not be updated. Thus, the most recent BRPs are from the 2013 operational assessment, which showed that F was 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 (B_{msy} 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 due to gaps in the input data and a persistent retrospective pattern that underestimates F and overestimates B in each area.

Management program: Monkfish is jointly managed by the NEFMC and MAFMC on a federal fishing year (May 1 - April 30), with the NEFMC having the administrative lead (<https://www.nefmc.org/management-plans/monkfish>). 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

2018 RI commercial regulations:

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

Fishery performance: In 2017, 174 commercial fishers (Table 2) landed 1,707,366 pounds of monkfish in RI valued at \$2,060,988 (Table 1). State-water landings totaled 118,589 pounds.

RIDEM Division of Marine Fisheries recommendations for 2019: 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 indicates the stock is overfished, but overfishing is not occurring. SSB in 2016 was estimated to be 4,360mt, 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% if the overfished threshold (<http://www.asmfc.org/species/winter-flounder>).

Management program: Winter flounder are jointly managed on a federal fishing year (May 1 - April 30) by the ASMFC and NEFMC through the Northeast Multispecies (Groundfish) FMP (<http://www.asmfc.org/species/winter-flounder>). Under Framework 50, harvest of winter flounder 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 winter flounder stocks through Addendum I to Amendment 1 to the interstate FMP, which includes 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 (Gibson 2010). 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 winter flounder in RI waters.

2018 RI commercial regulations:

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

Fishery performance: In 2017, 115 commercial fishers (Table 2) landed 299,375 pounds of winter flounder in RI valued at \$900,222 (Table 1). A state quota has not existed since 2006.

RIDEM Division of Marine Fisheries recommendations for 2019: As the fishery is determined to be overfished, but that overfishing is not presently occurring, provide for an increase in the daily possession limit to 75 or 100 lbs/day. Any changes in state waters management would need approval of the ASMFC Winter Flounder Management Board. In 2018, the Division attempted to have a coastwide weekly winter flounder aggregate landing program approved by the ASMFC management board which did not go forward.

SPINY DOGFISH



Stock status: The 2015 stock assessment update indicated that spiny dogfish are not overfished and overfishing is not occurring, with SSB slightly above the target (<http://www.asmfc.org/species/spiny-dogfish>).

Management program: Spiny dogfish is jointly managed on a federal fishing year (May 1 - April 30) by the MAFMC and NEFMC through the FMP for spiny dogfish (<http://www.asmfc.org/species/spiny-dogfish>), and the ASMFC jointly manage the resource. Spiny dogfish are managed under a quota system. The 2017 fishing season (May 1 - April 30) quota was 39.1 million pounds, yet commercial landings have been substantially under the quota limit. Rhode Island's quota is part of the Maine through Connecticut region allocation at 58%, and are limited by a maximum possession of 6000 pounds per vessel per day.

For Rhode Island management, the fishing season is from May 1 through April 30. The possession limit is 6,000 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 2017, 48 commercial fishers (Table 2) landed 360,330 pounds of spiny dogfish in RI valued at \$54,801 (Table 1).

RIDEM Division of Marine Fisheries recommendations for 2019: 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: A benchmark assessment was held for smooth dogfish in 2015, indicating that smooth dogfish is not overfished and not experiencing overfishing (http://sedarweb.org/docs/sar/S39_Atl_smooth_dog_SAR.pdf).

Management program: Smooth dogfish is jointly managed by NOAA Fisheries and ASMFC (<http://www.asmfc.org/species/coastal-sharks>). In November 2017, NOAA Fisheries published the 2018 Atlantic smooth dogfish quota of 1,802.6 dressed weight (dw) metric tons (3,974,012 dw lbs). This quota level remains unchanged from 2017. In 2017, 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 2017 quota to the 2018 base quota. In 2018 Rhode Island received 1.363% of the coastwide quota, equating to 24.6 dw mt.

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 2017, 39 commercial fishers (Table 2) landed 58,097 pounds of smooth dogfish in RI valued at \$21,852 (Table 1).

RIDEM Division of Marine Fisheries recommendations for 2019: 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.

SKATE



Stock status: The skate fishery is broken into two categories: winter skate (wing fishery) and little skate (bait fishery). 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 Bmsy 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.

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 Bmsy 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 (<https://www.nefmc.org/management-plans/skates>).

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 (<https://www.nefmc.org/management-plans/skates>).

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 FY2017, 142 commercial fishers (Table 2) landed 1,711,287 pounds of winter skate with 279,595 pounds of which were RI state-water landings (wing weight). Also, in FY2017, 42 fishers (Table 2) landed 6,141,698 pounds of little skate of which 2,275,596 pounds were RI state-water landings (whole weight).

RIDEM Division of Marine Fisheries recommendations for 2019: 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, overfishing was not occurring in the longfin inshore squid (*Doryteuthis pealeii*) stock in 2016 because the average of catchability-adjusted, swept-area biomass estimates derived from the NEFSC spring and NEFSC plus NEAMAP fall surveys during 2015-2016 (73,762mt; 80% CL = 67,198, 80,327) was much greater than the threshold Bmsy proxy of 21,203mt. The overfishing status could not be determined because there are no fishing mortality reference points for the stock

(<https://www.fisheries.noaa.gov/species/longfin-squid>).

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 2017, 160 commercial fishers (Table 2) landed 10,701,382 pounds of longfin squid in RI valued at \$14,790,686 (Table 1).

Division recommendations for 2019: There is no quota established for longfin squid in RI State waters. Maintain in the non-restricted species category.

NORTHERN SHORTFIN 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. (<https://www.nefsc.noaa.gov/sos/spsyn/iv/sfsquid/>)

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 2018: In 2017, 21 commercial fishers (Table 2) landed 23,055,000 pounds of northern shortfin squid in RI worth \$13,536,534 (Table 1).

Division recommendations for 2019: There is no quota or regulations established for northern shortfin squid in RI State waters. Maintain in the non-restricted species category.

LICENSING RECOMMENDATIONS FOR THE NON-RESTRICTED FINFISH ENDORSEMENT FOR 2019

RIDEM Division of Marine Fisheries: The *Non-Restricted Finfish Endorsement* is an open and available to anyone during the application period. The number of these endorsements issued has increased slightly over the past five years by approximately 30 participants, or 20% (Table 4). This relatively low increase 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.

RI Marine Fisheries Council: To be completed after the October 1, 2018 Council meeting.

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 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 2017, 538 commercial fishers (Table 2) landed 4,096,611 shell weight pounds of bay quahogs (545,497 pounds meat weight), in RI worth \$5,005,362 (Table 1). Landings are broken down by shellfish tagging area and market category in Table 5.

Licensing recommendations for the *Bay Quahog Endorsement* in 2019:

Marine Fisheries: **The Division recommends maintaining effort at current levels by maintaining the 1:1 exit:entry ratio for the Bay Quahog Endorsement.**

In 2018, 32 licenses eligible to harvest quahog were retired (9 MPURP, 13 PEL QUOH, 10 CFL QUOH). Under the current management program, ***this would result in 33 new quahog endorsements on the CFL being issued in 2019.***

RI Marine Fisheries Council: **To be completed after the October 1, 2018 Council meeting.**

SOFT-SHELL CLAM



Resource assessment: A dynamic depletion model for open populations based on the work of Restrepo (2001) and Sosa-Cordero (2003) was developed and applied to monthly catch and effort data for the period 2006 to 2011 (Gibson 2012). The preliminary depletion model results suggested that the 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 able to be updated due to a collapse in the fishery and lack of a depletion response (i.e., landings were so low that the model assumed there was no stock remaining to deplete). During the peak of the fishery in 2010 (Table 6), 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 to historical overharvest, there is evidence of a range-wide decline of soft-shell clams in response to *Mya leukemia*. (Walker et al. 2009; Metzger et al. 2016). In RI, densities have substantially declined in both fished and unfished soft-shell clam beds. Landings of soft-shelled clams continues to decline (Table 6). Although the Division currently doesn't have a soft-shell clam survey, 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 (total length) and daily possession limits have been established, with reduced possession limits established in Shellfish Management Areas 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. Research to better understand mortality sources, including presence or absence

of neoplasia (i.e., leukemia-like cancer, see Metzger et al. 2015) could inform future management practices.

Fishery performance: In 2017, 35 commercial fishers (Table 2) landed 6,760 pounds shell weight of soft-shell clams in RI (1,380 meat weight), valued at \$20,797 (Table 1). Currently, fishery landings are at the lowest recorded levels in the history of the time series.

Licensing recommendations for the *Soft-Shell Clam Endorsement* in 2019:

Marine Fisheries: Due to the continued poor status of the resource, **Marine Fisheries recommends reducing effort by increasing the exit:entry ratio or prohibiting new entrants into the fishery.**

In 2018, 27 licenses eligible to harvest restricted finfish were retired (9 MPURP, 10 PEL SSCLM, 8 CFL SSCLM), **which would result in 6 new CFL soft shell clam endorsements being issued in 2019.**

RI Marine Fisheries Council: **To be completed after the October 1, 2018 Council meeting.**

WHELK (Channeled and Knobbed Whelk)



Resource Assessment: In 2010, DEM 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.

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. Effort is managed by restricting access to the fishery to Multipurpose License holders or PEL and CFL license holders with 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 2017, 137 commercial fishers (Table 2) landed 458,765

pounds live weight of whelk (species combined) in RI, with a value of \$1,318,210 (Tables 1 & 7). Of these two species commonly landed in RI, channeled whelk constitutes 98% of reported landings. Since peaking in 2012, whelk landings have generally decreased; however, landings increased in 2017 with total landings (all species) of 458,914 pounds live weight, a 35% increase compared to 2016 (338,914 pounds live weight). The average whelk landings per fisher show an overall decreasing trend from 2010-2016, but increase sharply in 2017 (4,542 pounds/fisher) with an 84% increase over the 2016 average (2,474 pounds/fisher).

Licensing recommendations for the *Whelk Endorsement* for 2019:

Marine Fisheries: 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.

RI Marine Fisheries Council: **To be completed after the October 1, 2018 Council meeting.**

OTHER SHELLFISH

OYSTER



Stock Status: The status of the RI oyster stock is currently unassessed, but is considered greatly depressed compared to historic levels.

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. Further investigation into the effects of fishing effort is warranted. 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 a severally depleted.

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 2017, 14 commercial fishers (Table 2) landed 78,470 shell weight pounds of wild oysters, equal to 5,239 meat weight, in RI worth \$34,642 (Table 1).

OTHER SHELLFISH:



Stock Status: Other species of shellfish commercially harvested within Rhode Island waters 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 2017, 4 commercial fishers (table 2) landed 15,407 shell weight pounds, equal to 3,489 meat weight pounds, worth \$38,584 (Table 1).

Licensing recommendations for the *Shellfish Other Endorsement* for 2019:

Marine Fisheries: The division recommends that the *Shellfish Other Endorsement* remains an open license category available to any license holder.

RI Marine Fisheries Council: **To be completed after the October 1, 2018 Council meeting.**

CRUSTACEANS

LOBSTER



Stock Status: The 2015 American Lobster Benchmark Stock Assessment and Peer Review Report indicates that the Gulf of Maine/Georges Bank (GOM/GB) American lobster stock is at record high stock abundance and recruitment, whereas the Southern New England (SNE) stock is at record low abundance and recruitment. The

GOM/GBK stock is not overfished and not experiencing overfishing. Conversely, the SNE stock is severely depleted with poor prospects of recovery, necessitating protection (ASMFC, 2015).

Gulf of Maine/Georges Bank: GOM/GBK stock abundance has increased since 1979, but at an accelerated pace since 2007. Current stock abundance is at an all-time high and recruitment has remained high (i.e. 2008 - 2013). However, since 2012, there have been consistent declines in the young-of-year lobster surveys in the GOM/GBK stock. This could foreshadow declines in recruitment and landings.

Southern New England: 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 support concluded 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, such as 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 remained unfavorable to lobsters since the late 1990s. Despite attrition among the fleet and fewer traps fished for lobster, population have 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. 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](#), 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 deployed. Both state (RI-MA) and federal waters are included in LCMA 2, making cooperative management essential. 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. While the number of license holders has decreased, the number of lobster trap allocations (LTAs) in 2017 did not differ greatly than 2016 across fishing license type (Table 2). The trap reduction program continued in 2017-2018, with total traps reduced based on the 5% reduction and the conservation tax (Table 3). In 2017, one-hundred forty-nine fishers landed 2.04 million pounds of lobster in RI, with an ex-vessel value of nearly \$11 million (Table 1).

Division recommendations for 2019: The state will continue to work with the ASMFC to rebuild the lobster resource throughout the region. Attrition may still be occurring in the industry, but at a reduced rate compared to previous years. The state began to neutralize latent effort through the trap reductions included in Addendum XVIII starting in 2016 so that it cannot re-activate if resource conditions improve. 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. A lobster trap allocation 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.

Licensing recommendations for the *Lobster Endorsement* for 2019:

Marine Fisheries: 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 2019.

RI Marine Fisheries Council: **To be completed after the October 1, 2018 Council meeting.**

OTHER CRUSTACEANS

HORSESHOE CRAB



Stock status: The 2013 coast wide stock assessment update of horseshoe crab concluded that each coastal region is experiencing a different trend. The Southeast is the only area indicating an increase in abundance while Delaware Bay shows consistent abundance and the Northeast is seeing a decline (ASMFC, 2013). The 2018 Benchmark Stock Assessment is currently underway with the Atlantic States Marine Fisheries Commission. This update is expected to be presented to the board in March of

2019.

Management program: The commercial horseshoe crab fishery is managed at the regional level by the ASMFC Interstate FMP for horseshoe crabs. In RI waters, horseshoe crab is included and managed under the *Non-Lobster Crustacean Endorsement*. As an unrestricted/open endorsement, any commercial license holder may access the fishery by obtaining a horseshoe crab permit from the DEM for bait and/or biomedical harvest. DEM uses temporal closures, possession limits, -state established quotas, and a permitting/reporting program to achieve compliance with the FMP. For the 2017 fishing year, DEM regulations were adopted establishing broader time closures, improved reporting and reporting compliance measures, a minimum size of 7 inches (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. As a result of management measures implemented in 2017, bait harvest during 2017 and 2018 was greatly reduced. Annual bait harvest during these years used 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, 2013). In 2017, seventeen fishermen contributed to the combined bait and biomedical fisheries landed 93,462 pounds of horseshoe crab worth \$37,275 in RI. (Table 1).

Division recommendations for 2019: 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. Considering the bait fishery has remained open longer than it has in the last 10 years would be an indication of its effectiveness. The Division recommends maintaining as a non-restricted species in the *Other Crustaceans* endorsement category for 2018.

JONAH CRAB



Stock Status: An ASMFC FMP for the Jonah Crab (*Cancer borealis*) fishery was implemented on June 1, 2016. The management plan ties Jonah Crab harvest to fishers holding a Lobster Trap Allocation (LTA) with elements including permitting, minimum size requirements, and the prohibition of egg bearing females. Additional addenda recently adopted by the ASMFC establishes incidental bycatch limits for non-trap gear and non-lobster trap gear and limits on claw harvest. Currently, there is an endeavor by state,

federal, and academic scientists 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 FMP for Jonah crab, which was first adopted in 2016 with and includes an (LTA) requirement, a minimum size limit of 4.75 inches and the prohibition of egg bearing females. Pursuant to the FMP, a control date of June 1, 2016 was established in RI. Additional addenda recently adopted by the ASMFC establishes incidental bycatch limits for non-trap gear and non-lobster trap gear and limits on claw harvest DEM achieves FMP compliance through state regulations adopted in 2016, including minimum size (i.e., 4.75”), minimum escape vent and trap size.

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 a lobster trap allocation (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: Due to the infancy of the FMP and state regulations, it is too early to determine the effects of management measures on the stock's productivity. In 2017, seventy-four fishers landed 3.88 million pounds of Jonah Crab, with an ex-vessel value of \$3.63 million.

Division recommendations for 2019: In view of ASMFC compliance requirements and state law, it is recommended 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 The Control date established on June 1, 2016 has not had any additional restrictions in effort or harvest

at this time.

Fishery performance: Being an unregulated fishery, overall performance cannot be determined. In 2017, 32 participants landed 759,864 pounds of Atlantic rock crab with an ex-vessel value of \$358,328.

Division recommendations for 2019: 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 un-tagged 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.

RI Marine Fisheries Council: **To be completed after the October 1, 2018 Council meeting.**

OTHER CRUSTACEANS:



Stock Status: Commercial 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 Marine Fisheries and are useful pieces of information in identifying populations that warrant further research.

Management Program: In RI, Blue crab harvested are subject to a minimum size of 5 inches 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: A total of 780,252 pounds of these species were landed in RI by twelve fishers in 2017 for a total ex-vessel value of \$400,440.

Licensing recommendations for the Non-Lobster Crustacean Endorsement for 2019:

Marine Fisheries: 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.

RI Marine Fisheries Council: **To be completed after the October 1, 2018 Council meeting.**

LITERATURE CITED

ASMFC (Atlantic States Marine Fisheries Commission). 2015. American lobster benchmark stock assessment and peer review report. ASMFC, Stock Assessment Report, Washington, D.C. 493 p. Can be viewed at: http://www.asmfc.org/uploads/file/55d61d73AmLobsterStockAssmt_PeerReview_Report_Aug2015_red2.pdf

ASMFC (Atlantic States Marine Fisheries Commission). 2015. Tautog benchmark stock assessment and peer review reports. ASMFC, Stock Assessment Report,

- Washington, D.C. 283 p. Can be viewed at:
http://www.asmf.org/uploads/file//54eccd8cTautogStockAssessment_PeerReviewReport_Feb2015.pdf
- _____. 2016. Atlantic Striped Bass stock assessment update. ASMFC, Stock Assessment Report, Washington, D.C. 101 p.
- ASMFC (Atlantic States Marine Fisheries Commission). 2013. 2013 Horseshoe Crab Stock Assessment Update, Washington, DC. Can be viewed at:
http://www.asmf.org/uploads/file//52a88db82013HSC_StockAssessmentUpdate.pdf
- Gibson, M. 2007. Estimating Seasonal Menhaden Abundance in Narragansett Bay from Purse Seine Catches, Spotter Pilot Data, and Sentinel Fishery Observations. Rhode Island Division of Fish and Wildlife, Marine Fisheries Section, Jamestown, RI. Unpublished. Can be viewed at:
<http://www.dem.ri.gov/programs/bnatres/fishwild/pdf/menabnbnb.pdf>
- Gibson, M. 2010. Salt Pond Winter Flounder Fishery Issue Paper. Rhode Island Division of Fish and Wildlife, Marine Fisheries Section, Jamestown, RI. Unpublished.
- MAFMC (Mid-Atlantic Fishery Management Council) and ASMFC. 1998. Amendment 1 to the bluefish fishery management plan. Publication of the MAFMC pursuant to National Oceanic and Atmospheric Administration Award No. NA57C0002.
- NEFSC (Northeast Fisheries Science Center). 2013. 55th Northeast Regional Stock Assessment Workshop (SAW 55) Assessment Report. US Dept. Commer, Northeast Fish Sci Cent Ref Doc. 13-11; 849 p.
- _____. 2015. 60th Northeast Regional Stock Assessment Workshop (60th SAW) Assessment Report. US Dept. Commer, Northeast Fish Sci Cent Ref Doc. 15-08; 967 p.
- Richards RA. 2016. 2016 Monkfish Operational Assessment. US Dept Commer, Northeast Fish Sci Cent Ref Doc. 16-09; 109 p. Available from: National Marine Fisheries Service, 166 Water Street, Woods Hole, MA 02543-1026, or online at <http://www.nefsc.noaa.gov/publications/>
- Ganz A., N. Lazar, and A. Valliere. 1999. Narragansett Bay Quahaug Management Plan. RI Division of Fish and Wildlife. Report to the Narragansett Bay Project and RI Marine Fisheries Council.
- Gibson, M.R. 1999. Assessment of quahaugs (*Mercenaria mercenaria*) in Narragansett Bay: technical analyses in support of a bay wide quahaug management plan. RI Division of Fish and Wildlife. Res. Ref. Doc. 99/2.
- Gibson, M.R. 2010. Stock Assessment of Whelk in Rhode Island and Recommendations for Research and Management. In progress

- Gibson, M.R. 2012. Stock Assessment of Soft-Shell Clams (*Mya arenaria*) in Rhode Island Using a Dynamic Depletion Model Applied to SAFIS Data. Draft Report - RI Division of Fish and Wildlife.
- Metzger, M.J., C. Reinisch, J. Sherry, and S.P. Goff. 2015. Horizontal Transmission of Clonal Cancer Cells Causes Leukemia in Soft-Shell Clams. *Cell* 161, 255–263. April 9, 2015 Elsevier Inc.
- Metzger, M., A. Villalba, M. J. Carballal, D. Iglesias, J. Sherry, C. Reinisch, A. F. Muttray, S. Baldwin, and S. Goff. 2016. Widespread transmission of independent cancer lineages within multiple bivalve species. *Nature*. 534. 705-709.
- Methot Jr., R.D., and C.R. Wetzel. 2013. Stock synthesis: A biological and statistical framework for fish stock assessment and fishery management. *Fisheries Research* 142: 86-99.
- Oviatt, C, Wolff, N, VanKeuren, D, and E. Nicosia. 1998. Oysters (*Crassostrea virginica*) as indicators of a climate warming trend in Northeast waters. CR822051-010 Final report. Funding agency: Environmental Protection Agency.
- Restrepo, V.R. 2001. Dynamic depletion models. Pages 345-356, In: J. G. Cano and V.R. Restrepo, eds. Report on the FAO/DANIDA/CFRAMP WECAFC regional workshops on the assessment of spiny lobster *Panulirus argus*. Belize City, Belize April 21- May 2, 1997 and Merida, Yucatan Mexico June 1-12, 1998. FAO Fish. Rep. 619. Part III: Stock Assessment Methods.
- Sosa-Cordero, E. 2003. Trends and dynamics of the spiny lobster, *Panulirus argus*, resource in Banco Chinchorro, Mexico. *Bull. Mar. Sci.* 73: 203-217.
- Walker, Charles & Anne Böttger, S & Mulkern, Joseph & Jerszyk, Emily & Litvaitis, Marianne & Lesser, Michael. 2009. Mass culture and characterization of tumor cells from a naturally occurring invertebrate cancer model: Applications for human and animal disease and environmental health. *The Biological Bulletin*. 216. 23-39.

TABLES

Table 1. 2017 pounds landed and total x-vessel value for species landed in Rhode Island.

Species	2017 Total Lbs Landed	2017 Total x-vessel value
Black Sea Bass	458,131	\$1,603,688
Scup	5,968,081	\$3,040,684
Striped Bass	175,312	\$759,653
Summer Flounder	897,311	\$4,304,769
Tautog	52,844	\$194,380
Bluefish	646,979	\$462,880
Atlantic Cod	96,427	\$278,573
Atlantic Herring	4,535,139	\$938,667
Menhaden	1,752,756	\$136,869
Monkfish	1,472,182	\$2,060,988
Winter Flounder	299,375	\$900,222
Skates (Wings)	2,129,406	\$853,203
Skates (Bait)	5,509,875	\$703,046
Spiny Dogfish	360,330	\$54,801
Smooth Dogfish	58,097	\$21,852
Squid (Longfin)	10,701,382	\$14,790,686
Squid (Illex)	23,055,000	\$13,536,534
Lobster	2,039,539	\$10,978,486
Jonah Crab	3,881,368	\$3,633,009
Horseshoe Crab	93,462	\$37,275
Atlantic Rock Crab	759,864	\$358,328
Other Crabs	20,388	\$42,112
Quahog*	545,497	\$5,005,362
Soft-shell Clam*	1,380	\$20,797
Whelk (Channeled and Knobbed)*	441,996	\$1,318,210
Other Shellfish*	3,489	\$38,584
Sea Scallops*	2,189,362	\$21,651,985
Oyster*	5,239	\$34,642

* = meat weight

Table 2: Number of participants per species per year (2013-2017)

Species	2013	2014	2015	2016	2017
BAIT SKATE	25	32	30	36	42
BLUEFISH	380	370	340	362	339
CLAM, NORTHERN QUAHOG	517	539	524	562	538
CLAM, SOFT	48	58	62	41	35
COD, ATLANTIC	123	109	127	139	107
CRAB, ATLANTIC ROCK	29	25	20	31	23
CRAB, HORSESHOE	13	6	3	17	17
CRAB, JONAH	87	74	67	69	74
DOGFISH, SMOOTH	45	34	42	32	39
DOGFISH, SPINY	91	57	54	57	48
FLOUNDER, SUMMER (FLUKE)	547	491	484	527	502
FLOUNDER, WINTER	125	140	120	110	115
GOOSEFISH	173	164	145	165	174
HERRING, ATLANTIC, SEA	36	30	32	34	30
LOBSTER, AMERICAN	180	164	149	154	149
MENHADEN	5	9	9	8	11
OTHER CRUSTACEAN	7	6	13	12	12
OYSTER, EASTERN	37	33	39	20	14
SCALLOP, SEA	62	49	36	56	54
SCUP	439	449	418	450	437
SEA BASS, BLACK	470	474	484	504	543
SHELLFISH OTHER	7	5	5	3	4
SKATE WINGS	154	138	127	140	142
SQUID, LONG FINNED (LOLIGO)	163	161	153	162	160
SQUID, SHORT FINNED (ILLEX)	10	15	6	12	21
STRIPED BASS	368	330	292	267	286
TAUTOG	235	232	226	231	250
WHELK	224	159	153	140	137

Table 3. Possession limits (pounds) modifications for common Rhode Island commercial fisheries January through July 2018.

Species	Date of Modification	Species	Date of Modification	Species	Date of Modification
Black Sea Bass	500/wk (1/1)*	Bluefish	500/wk (1/1)*	Scup Gen. Cat.	50,000/day (1/1)*
	750/wk (4/1)		1,000/bi-wk (4/1)		10,000/wk (5/1)*
	1,000/wk (4/15)		6,000/wk (5/1)*		
	50/day (5/1)*		10,000/wk (5/27)		20,000/wk (7/29)
	Closed (6/17)				
	50/day (7/1)*		15,000/wk (7/15)		
Scup FFT	50,000/day (1/1)*	Striped Bass Gen. Cat.	Closed (1/1)	Striped Bass FFT	Closed (1/1)
	Unlimited*		5 fish/day (5/20)*		Unlimited (4/1)*
			Closed (7/3)*		
Summer Flounder (w/o Ex. Permit)	100/day (1/1)*	Summer Flounder (with Ex. Permit)	100/day (1/1)*	Tautog	Closed (1/1)
	50/day (5/1)*		50/day (5/1)*		10 fish/day (4/1)*
					Closed (5/27)

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Table 4. Historical commercial license counts (2012 – 2018)

LICENSE TYPE	2012	2013	2014	2015	2016	2017	2018
MULTI-PURPOSE LICENSE	853	829	816	804	802	789	771
<i>GILLNET ENDORSEMENT</i>	233	227	221	218	218	214	213
<i>DOCKSIDE SALE ENDORSEMENT</i>	251	241	236	236	245	242	239
<i>MIDWATER/PAIR TRAWL ENDORSEMENT</i>	131	132	133	137	139	145	145
<i>PURSE SEINE ENDORSEMENT</i>	139	134	134	129	136	140	144
PRINCIPAL EFFORT LICENSE	690	655	615	593	580	586	585
<i>LOBSTER ENDORSEMENT</i>	36	30	27	21	20	19	16
<i>NON-LOBSTER CRUSTACEAN ENDORSEMENT</i>	33	35	36	33	33	35	36
<i>QUAHOG ENDORSEMENT</i>	398	376	347	340	322	321	327
<i>RESTRICTED FINFISH ENDORSEMENT</i>	266	262	258	251	252	266	277
<i>NON-RESTRICTED FINFISH ENDORSEMENT</i>	131	135	133	130	152	159	168
<i>SOFT SHELLED CLAM ENDORSEMENT</i>	256	235	204	194	183	186	176
<i>WHELK ENDORSEMENT</i>	146	118	79	62	53	63	60
<i>DOCKSIDE SALE ENDORSEMENT</i>	13	13	12	11	13	15	14
<i>MIDWATER/PAIR TRAWL ENDORSEMENT</i>	9	8	9	7	10	9	13
<i>PURSE SEINE ENDORSEMENT</i>	8	7	6	5	9	9	13
<i>OTHER SHELLFISH ENDORSEMENT</i>	225	211	186	177	177	173	166
COMMERCIAL FISHING LICENSE	398	420	404	412	416	429	433
<i>LOBSTER ENDORSEMENT</i>	16	15	14	14	12	11	9
<i>NON-LOBSTER CRUSTACEAN ENDORSEMENT</i>	114	100	101	95	95	104	104
<i>QUAHOG ENDORSEMENT</i>	158	165	181	189	197	217	215
<i>RESTRICTED FINFISH ENDORSEMENT</i>	0	0	0	0	0	0	0
<i>NON-RESTRICTED FINFISH ENDORSEMENT</i>	252	256	240	243	248	253	270
<i>SOFT SHELLED CLAM ENDORSEMENT</i>	174	163	155	148	139	129	124
<i>WHELK ENDORSEMENT</i>	109	92	75	65	58	56	53
<i>DOCKSIDE SALE ENDORSEMENT</i>	16	14	16	16	15	18	17
<i>MIDWATER/PAIR TRAWL ENDORSEMENT</i>	40	46	39	39	40	37	41
<i>PURSE SEINE ENDORSEMENT</i>	42	40	42	43	41	40	42
<i>OTHER SHELLFISH ENDORSEMENT</i>	171	160	149	152	142	129	145
OVER 65 SHELLFISH LICENSE	240	268	289	309	350	369	389
STUDENT SHELLFISH LICENSE	49	48	47	37	48	39	30

Table 5. 2017 RI commercial quahog landings for shellfish tagging areas by market category.

Shellfish Tagging Areas	Count of Quahogs Landed by Market Size					Total
	Little Neck	Top Neck	Cherry	Chowder	Un-classified	(#)
1A Conditional Area A	7,740,527	2,428,848	241,684	733,650	0	11,144,708
1B, Conditional Areas B & C	3,466,554	1,006,940	151,872	189,773	0	4,815,139
2 Greenwich Bay	1,164,849	351,803	40,410	49,617	0	1,606,679
3A, C, F, H West Passage MAs	105,621	5,090	1,894	496	0	113,102
3W West Passage	1,370,476	383,185	117,525	114,400	0	1,985,586
4A, B East Passage	2,178,565	843,671	23,368	418,943	0	3,464,547
5A, K Mount Hope Bay	5,729	1,802	286	712	0	8,529
5B Sakonnet River	19,197	11,393	0	6,775	0	37,365
6B, N, P, W, W Coastal Ponds & Block Island	643,566	79,158	2,501	23,504	0	748,729
Unknown	142,941	28,337	7,797	5,481	0	184,556
Total	20,160,404	6,116,909	743,191	1,564,835	0	24,108,939

Table 6. RI commercial soft-shell clam landings (lbs) for 2010-2018 by shellfish tagging area. N/A indicates confidential data.

Shellfish Tagging Area	2010	2011	2012	2013	2014	2015	2016	2017
RI 1 - UPPER NARRAGANSETT BAY	138754	15406						
RI 1A - CONDITIONAL AREA A	498901	49321	2371	N/A	5225	5876	1198	1174
RI 1B - CONDITIONAL AREA B		1849	192	92	1014	1223	N/A	223
RI 1C - CONIMICUT TRIANGLE		46476			N/A	12414	N/A	
RI 3 – F,W – Bissel Cove/Fox Island, West Passage	36227	16745	10377	14453	10024	7002	3302	1875
RI 4 – East Passage	13092	377	N/A	3927	2551	3113	132	13092
RI 5 A,B,K – Mt Hope Bay, Sakonnet River, Kickemuit		N/A	N/A	N/A	177	N/A	N/A	N/A
RI 6 Coastal Ponds	13749	33619	26579	29335	10420	4792	N/A	N/A

Table 7. Historical RI whelk landings and value (2006-2017).

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

Table 8. Rhode Island Commercial Fishing License and Lobster License/Endorsement Issuance Data, 2013-2017 Fishing Years.

License Type	2013	2014	2015	2016	2017
MULTI-PURPOSE LICENSE	829	816	804	802	789
<i>MPL with Area 2 Lobster Trap Allocation (LTA)</i>	317	308	298	304	304
<i>DOCKSIDE SALE ENDORSEMENT</i>	241	236	236	245	242
PRINCIPAL EFFORT LICENSE	655	615	593	580	586
<i>LOBSTER ENDORSEMENT with LTA</i>	34	29	25	21	19
<i>NON-LOBSTER CRUSTACEAN ENDORSEMENT</i>	35	36	33	33	35
<i>DOCKSIDE SALE ENDORSEMENT</i>	13	12	11	13	15
COMMERCIAL FISHING LICENSE	420	404	412	416	429
<i>LOBSTER ENDORSEMENT with LTA</i>	5	4	4	4	4
<i>NON-LOBSTER CRUSTACEAN ENDORSEMENT</i>	100	101	95	95	104
<i>DOCKSIDE SALE ENDORSEMENT</i>	14	16	16	15	18

Table 9. Description of allocated traps, maximum traps fished, and the reduction of traps in 2017. 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	79,570	1,147	30,318	3,689
Area 3	35,092	0	32,147	4,417

PHOTO CREDITS

- **Black Sea Bass:** <http://www.pewtrusts.org/en/about/news-room/opinion/2013/05/20/federal-fish-law-is-on-the-hook-for-black-sea-bass-recovery>
- **Scup:** <http://keywordsuggest.org/gallery/576192.html>
- **Striped bass:** <http://www.delaware-surf-fishing.com/delawares-2015-striped-bass-regulations/>
- **Summer flounder:** <https://www.sportfishingmag.com/summer-flounder-stock-assessment-2017-congress>
- **Tautog:** <http://www.angling-addict.com/2011/04/tautog-rig.html>
- **Atlantic herring:** <http://www.seachoice.org/our-work/species/atlantic-herring/>
- **Bluefish:** https://en.wikipedia.org/wiki/Bluefish#/media/File:Very_Large_Bluefish.JPG
- **Atlantic cod:** <http://identifyfish.blogspot.com/2010/10/atlantic-cod-gadus-morhua.html>
- **Atlantic menhaden:** <https://www.hatchmag.com/articles/bunker-advocates-deliver-over-90000-comments-asmfc-vote-pending/771137>
- **Monkfish:** <http://www.realmonstrosities.com/2014/12/deep-sea-goosefish.html>
- **Spiny dogfish:** https://en.wikipedia.org/wiki/Spiny_dogfish
- **Smooth dogfish:** <http://www.discovery.com/tv-shows/shark-week/bios/smooth-dogfish-shark/>
- **Longfin squid:** <https://noaateacheratsea.blog/2015/07/03/david-walker-equilibrium-at-sea-days-6-9-july-3-2015/olympus-digital-camera-701/>
- **Northern shortfin squid:** <http://floridasportfishing.com/squid-school/>
- **Bay quahog:** <https://www.rimonthly.com/celebrate-local-clams-quahog-week/>
- **Soft-shell clams:** <http://www.tonyandsonsseafood.com/shellfish.html>
- **Whelk:** <http://seagrants.gso.uri.edu/the-secret-life-of-whelks/>
- **Oyster:** <http://seagrants.gso.uri.edu/research/research-2016-2018/>
- **Other shellfish (blue mussel):** <http://newenglandboating.com/nantucket-sound-home-to-an-aquaculture-first/>
- **American lobster:** <http://theweek.com/articles/469901/how-calculate-lobsters-age>
- **Horseshoe crab:** <https://longreads.com/2017/04/18/the-pitfalls-and-promise-of-the-horseshoe-crab-unlikely-biomedical-hero/>
- **Jonah crab:** <https://www.sciencesource.com/archive/>
- **Atlantic rock crab:** <https://joshfecteau.com/16-30-nature-notes-aug-24-30-atlanticrockcrab08242016/>
- **Other crustaceans (blue crab):** <https://www.instructables.com/id/Crabbing-For-Beginners/>

LIST OF ACRONYMS

ASMFC: Atlantic States Marine Fisheries Council
ACCSP: Atlantic Coastal Cooperative Statistics Program
MAFMC: Mid-Atlantic Fisheries Management Commission
NEFMC: New England Fisheries Management Commission
NOAA: National Oceanic and Atmospheric Administration

SAFIS: Standard Atlantic Fisheries Information System
NEFSC: New England Fisheries Science Center (NOAA)
MPURP: Multi-purpose commercial fishing license
PEL: Principal Effort commercial fishing license
CFL: Commercial fishing license
PRFIN: PEL Restricted Finfish Endorsement
CQUOH: CFL Quahog Endorsement
CSSCLM: CFL Soft Shell Clam Endorsement
LTA: Lobster Trap Allocation
LCMA: Lobster Conservation Management Area
mt: Metric Tons
dw: Dressed Weight
FY: Fishing year
FMP: Fisheries Management Plan
F: Fishing mortality
Fmsy: Fishing mortality maximum sustainable yield
Bmsy: Spawning stock biomass maximum sustainable yield
DAS: Days at sea
TAL: Total allowable landing
TAC: Total allowable catch
NMFS: National Marine Fisheries Service (NOAA)
BRF: Biological reference point

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