Northeast Skate Complex

Fishery Management Plan

Framework Adjustment 12

Including an Environmental Assessment,
Regulatory Flexibility Analysis, and
Stock Assessment and Fishery Evaluation

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FRAMEWORK ADJUSTMENT 12 TO THE NORTHEAST SKATE COMPLEX FISHERY MANAGEMENT PLAN

Proposed Action: Propose skate specifications for fishing years 2024 and 2025 and skate possession limits.

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Abstract: The New England Fishery Management Council, in consultation with NOAA's National Marine Fisheries Service, has prepared Framework Adjustment 12 to the Northeast Skate Complex Fishery Management Plan, which includes an Environmental Assessment. The proposed action focuses on setting specifications for Fishing Years 2024-2025 and adjusting possession limits. The document describes the affected environment and valued ecosystem components and analyzes the impacts of the alternatives on both. It addresses the requirements of the Magnuson-Stevens Fishery Conservation and Management Act, the National Environmental Policy Act, the Regulatory Flexibility Act, and other applicable laws.

1.0 EXECUTIVE SUMMARY

The New England Fishery Management Council (NEFMC) is charged with developing management plans that meet the requirements of the Magnuson-Stevens Act (MSA). The Northeast Skate Complex Fishery Management Plan (Skate FMP) contains the management measures for seven skate species (barndoor, clearnose, little, rosette, smooth, thorny, and winter skates) off the New England and Mid-Atlantic coasts. The FMP has been updated through a series of amendments, framework adjustments and specification packages. Amendment 3 to the FMP established a control rule for setting the skate acceptable biological catch (ABC) based on survey biomass indices and median exploitation ratios; the annual catch limit (ACL) is set to the ABC.

This action, Framework Adjustment 12 (FW12) includes alternatives that would set specifications for fishing years (FY) 2024-2025 and adjusts possession limits (Table 1). This action is needed to meet regulatory requirements and adjust management measures that are necessary to prevent overfishing and help achieve optimum yield in the fishery consistent with the requirements of the Magnuson-Stevens Act.

Under the provisions of the MSA, Councils submit proposed management actions to the Secretary of Commerce for review. The Secretary of Commerce may approve, disapprove, or partially approve the action proposed.

Proposed Action

The proposed action comprises the preferred alternatives summarized here and detailed in Section 4.0.

Skate Specifications

The preferred alternative would adopt a new Annual Catch Limit (ACL), annual catch target (ACT) and total allowable landings (TAL) for the Northeast skate complex fishery for fishing years 2024-2025. The overfishing limit (OFL) would remain unknown, and the ABC/ACL would decrease from 37,236 mt to 32,155 mt, while the ACT would decrease from 33,513 mt to 28,940 mt. The TAL would decrease from 21,142 mt to 15,718 mt—the wing TAL would be 10,453 mt and the bait TAL would be 5,266 mt. These specifications would be in place until a subsequent action replaces them.

Skate Possession Limits

The preferred possession limit alternatives would increase the skate wing possession limits. For trips fishing on a day-at-sea (DAS), the Season 1 possession limit would increase by 1,000 lb to 4,000 lb, while the Season 2 possession limit would increase by 1,000 lb to 6,000 lb. In addition, skate wing possession limits would increase by 25% for trips fishing on a Northeast multispecies B-DAS, from 220 to 275 lb, and for trips not fishing on a DAS, the possession limit would increase from 500 to 625 lb.

The preferred alternatives also would remove the species-specific possession restrictions for barndoor and smooth skate. For barndoor skate, there would be no limit specific to barndoor skate within the overall skate possession limits - the 25% partial possession limit for trips landing skate wings on a DAS would be removed, and possession would be allowed on all trips in the skate fishery. The preferred alternatives would remove the smooth skate possession restriction on all trips landing skate in both the wing and bait skate fisheries.

Impacts of the Proposed Action

The environmental impacts of the proposed action are summarized in Table 1 and detailed in Section 6.0.

Impacts on Target Species

The proposed action would likely have slight positive impacts on target species (skates; Section 6.2). The proposed decreases in ABC/ACL, ACT and TAL are based on the most updated survey and fishery data, would likely prevent overfishing, and prevent more skates from becoming overfished, but these impacts are uncertain due to use of index-based reference points. Increasing the skate wing possession limits would help keep landings within the TAL and would likely have slightly positive impacts. Though mortality could increase, the increases in skate wing possession limits are expected to decrease the proportion of discards to landings on each trip and are unlikely to change fishing effort and behavior (e.g., number and duration of trips) from recent conditions. Increasing possession limits on B-DAS and non-DAS trips could help reduce skate discards in the incidental fisheries without incentivizing additional trips. Removing barndoor and smooth skate possession restrictions are both expected to have slight positive impacts on target species in bringing consistency to skate management, which is not species-specific for the rebuilt species. Though landings of barndoor and smooth skate may increase, these landings could be offset by decreases in landings of other species, since overall skate landings are constrained by the TAL.

Impacts on Non-Target Species

The proposed action would likely have slight negative to slight positive impacts on non-target species, depending on the stock status of the non-target species. Reducing the ABC/ACL could cause a slight decrease in fishing effort, which may lead to decreased catch of non-target species, though this conclusion is uncertain. Increased possession limits (both wing DAS possession limits and increases to B-DAS/non-DAS limits) would likely have slight negative to slight positive impacts depending on the species stock status given that the changes are unlikely to change fishing effort and behavior. Increases in B-DAS and non-DAS possession limits would allow for some discards to be converted to landings, and are unlikely to incentivize additional trips, resulting in similar fishing effort as recent years and continuing to have slight negative to slight positive impacts depending on stock status. Removing barndoor and smooth skate possession restrictions would likely have negligible impacts to non-target species since the changes are not anticipated to affect overall skate fishery effort.

Impacts on Protected Resources

The proposed action would likely have slight negative to moderate positive impacts on protected resources depending on the condition of the specific species. The proposed decrease in ACT and TAL may reduce fishery effort, which could reduce risks to protected species, though this is unlikely based on recent landings. Increased skate wing possession limits (Preferred Alternatives 2 and 3) and removing the barndoor and smooth skate possession restrictions are not expected to change fishing effort or behavior and therefore would not result in new or elevated risks to protected species, maintaining the slight negative to slight positive impacts of the skate fishery on protected species.

Impacts on Physical Environment and Essential Fish Habitat

The proposed action would likely have a slight negative impact on the physical environment and essential fish habitat (EFH). Gillnets and bottom trawls are used to target skates; gillnets do not cause adverse effects to EFH, but bottom trawls have an adverse effect. The preferred alternatives for both Actions 1 and 2 are unlikely to change fishing effort or behavior (e.g., type of fishing gear used) and would continue similar levels of adverse impacts to EFH in areas currently used by the skate fishery.

Impacts on Human Communities

The proposed action would likely have slight negative to slight positive economic and social impacts on human communities. Due to potential decreases in skate landings and revenues (though recent landings have been within the proposed TAL), the preferred alternative for specifications would likely have slight negative economic and social impacts, though there may be long term positive social impacts because the industry could realize the benefits of yield supported by the best available science. Increased wing possession limits under the proposed action would likely have slight positive impacts, allowing for increased landings and revenues on trips that normally approach the possession limit, as well as allowing other fisheries prosecuted in conjunction with the skate fishery to be less constrained. Removing the barndoor skate possession restriction would allow for increased landings and revenues on trips that are currently catching barndoor skate near the partial possession limit. Removing the smooth skate possession restriction may allow for a small percentage of trips, particularly those using otter trawl gear in the Gulf of Maine, to increase their landings, revenues, and catch per unit effort.

Alternatives to the Proposed Action

Besides the proposed action, other alternatives were considered, and are detailed in Section 4.0.

Skate Specifications

Under No Action, the specifications for fishing years 2024-2025 would be unchanged from the FY 2022-2023 values. The OFL would be unknown, the ABC/ACL would be 37,236 mt, and the TAL would be 21,142 mt (14,059 mt wing TAL and 7,082 mt bait TAL).

Skate Possession Limits

Under No Action, skate wing possession limits would remain at 3,000 lb (wing weight) for Season 1 and 5,000 lb for Season 2. Another option (Option A) would increase these limits to 3,750 lb and 6,250 lb. For trips not fishing on a DAS or fishing on a Northeast multispecies B-DAS, the skate wing possession limits would remain at 500 lb and 220 lb, respectively, under No Action.

For barndoor skate, under No Action, barndoor skate possession limits would continue to be set at 25% of the overall skate wing DAS possession limits and would be prohibited on other types of trips. For smooth skate, under No Action, the possession prohibition of smooth skate in the Gulf of Maine Regulated Mesh Area would remain in place, and smooth skate possession in the wing and bait fisheries would be prohibited.

Impacts of Alternatives to the Proposed Action

The environmental impacts of the alternatives to the proposed action are summarized in Table 1 and detailed in Section 6.0.

Impacts on Target Species

The No Action alternatives would likely have slight negative to slight positive impacts on target species (skates, Section 6.2). The impact of the No Action alternative for specifications is uncertain but would likely be slight negative because the fishery would be operating above specifications levels recommended by the SSC for fishing years 2024-2025. In addition, the 2023 assessment determined that overfishing is occurring on winter and little skates, and clearnose and thorny skate are close to the overfishing threshold, so maintaining a status quo ABC could potentially lead to negative long-term outcomes for skates. With no changes to the TAL under Alternative 1, fishing effort and behavior would be unlikely to change from recent conditions.

The No Action alternatives for skate possession limits would likely have slight positive impacts on skates—possession limits help keep skate landings within the wing and bait TALs and the ABC, which prevents species from becoming overfished. The increased possession limits under Alternative 2, Option A would allow for slightly more skate catch in Season 2 and slightly less in Season 1, which could result in less skate mortality than Option B. The No Action alternatives for barndoor and smooth skate possession limits would also likely have slight positive impacts as they would continue the possession restrictions and allow for continued growth of the stock, in addition to possibly reducing skate mortality.

Impacts on Non-Target Species

The No Action alternatives would likely have slight negative to slight positive impacts on non-target species depending on the stock status of the species. Fishing effort likely would not change under the No Action alternative for skate specifications, so non-target catches would likely remain the same. The No Action alternative for skate possession limits likely would not change fishing effort and behavior, maintaining similar non-target catches as previous years where catch was determined to be sustainable.

However, Option A would allow for fewer landings and therefore could have a slightly more positive impact. For barndoor and smooth skate, maintaining the current possession restrictions, would not impact the overall skate possession limit and therefore are unlikely to change fishing effort.

Impacts on Protected Resources

The No Action alternatives would likely have slight negative to slight positive impacts on protected resources. The No Action alternative for specifications would likely result in similar fishing effort (i.e., amount of gear, tow and soak durations) to current conditions and therefore similar risks to protected species. Maintaining current skate possession limits via the No Action alternative or Alternative 2, Option A would also likely result in fishing effort and behavior like current conditions and corresponding risks to protected species. The same outcome is expected if the No Action alternative for barndoor and smooth skate possession restrictions are implemented.

Impacts on Physical Environment and Essential Fish Habitat (EFH)

The No Action alternatives would likely have slight negative impacts on the physical environment and essential fish habitat. Bottom trawl gear used to target skates has an adverse effect on the physical environment and EFH, and the No Action alternatives as well as Alternative 2, Option A are unlikely to change fishing effort or behavior (i.e., type of fishing gear used), resulting in continued adverse EFH impacts in areas presently fished by the skate fishery.

Impacts on Human Communities

The No Action alternatives would likely have slight negative to negligible economic impacts and social impacts on human communities. The No Action alternative for specifications would be unlikely to constrain the fishery, though there could be long-term negative social impacts if setting the ABC above a level that prevents overfishing leads to more skate species being overfished. The No Action alternatives for possession limits would have slight negative economic and social impacts due to the economic inefficiencies of fishing under lower possession limits. Alternative 2, Option A would offer slightly less positive economic and social impacts than the proposed action because it does not increase economic efficiency as much. Maintaining the 25% barndoor skate possession restriction may result in economic losses, and the fishery would not realize the benefit of the additional yield from the preferred alternative. The No Action alternative for smooth skate possession would not result in any major losses in efficiency, revenues, or landings for most of the skate fishery. However, the fishery could not realize the benefits of the additional yield available under the preferred alternative.

Table 1. Summary of potential impacts of the alternatives under consideration in Framework 12 across the valued ecosystem components.

Alternatives		Direct and Indirect Impacts				
		Target Species	Non-target Species	Protected Resources	Physical Env. (EFH)	Human Communities
Action 1: ABC, ACL, TAL						
Alt. 1: No Action		Slight negative	Slight negative to slight positive	Slight negative to slight positive	Slight negative	**Economic:** negligible **Social:** negligible to slight negative
Alt. 2: Updated Specifications		Slight positive	Slight negative to slight positive	Slight negative to moderate positive	Slight negative	**Economic:** slight negative **Social:** slight negative short-term; positive long-term
Action 2: Skate Fishery Possession Limits						
Skate Fishery	Alt. 1: No Action	Slight positive	Slight negative to slight positive	Slight negative to slight positive	Slight negative	**Economic**: slight negative **Social:** slight negative
	Alt. 2: Increase Wing DAS PL	Slight positive	Slight negative to slight positive	Slight negative to slight positive	Slight negative	**Economic:** slight positive **Social:** slight positive
	Alt. 3: Increase Wing B-DAS, non-DAS PL	Slight positive	Slight negative to slight positive	Slight negative to slight positive	Slight negative	**Economic:** slight positive **Social:** slight positive
Barndoor Skate	Alt. 1: No Action	Slight positive	Negligible	Slight negative to slight positive	Slight negative	**Economic:** slight negative **Social:** slight negative
	Alt. 2: Remove Barndoor Restriction	Slight positive	Negligible	Slight negative to slight positive	Slight negative	**Economic:** slight positive **Social:** slight positive
Smooth Skate	Alt. 1: No Action	Slight positive	Negligible	Slight negative to slight positive	Slight negative	**Economic:** negligible **Social:** negligible to slight negative
	Alt. 2: Remove Smooth Restriction	Slight positive	Negligible	Slight negative to slight positive	Slight negative	**Economic:** negligible to slight positive **Social:** slight positive
Note: Preferred alternatives are shaded.						

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2.4 Acronyms

ABC	Acceptable Biological Catch
ACL	Annual Catch Limit
ACT	Annual Catch Target
ALWTRP	Atlantic Large Whale Take Reduction Plan
AM	Accountability Measure
AP	Advisory Panel
APA	Administrative Procedures Act
ASMFC	Atlantic States Marine Fisheries Commission
$B_{MSYproxy}$	A proxy for the biomass at maximum sustainable yield that is calculated for each skate species
BOEM	Bureau of Offshore Energy Management
DAS	Day(s)-at-sea
d/K	Ratio of discarded fish to kept catch in weight
EA	Environmental Assessment
EEZ	Exclusive economic zone
EFH	Essential fish habitat
EIS	Environmental Impact Statement
FEIS	Final Environmental Impact Statement
FMP	Fishery management plan
FW	Framework
FY	Fishing year
GARFO	Greater Atlantic Regional Fisheries Office
GB	Georges Bank
GOM	Gulf of Maine
HPTRP	Harbor Porpoise Take Reduction Plan
LOA	Letter of authorization
MA	Mid-Atlantic
MAFAC	Marine Fisheries Advisory Committee
MAFMC	Mid-Atlantic Fishery Management Council
MMPA	Marine Mammal Protection Act
MRIP	Marine Recreational Information Program
MSA	Magnuson-Stevens Fishery Conservation and Management Act
MSY	Maximum Sustainable Yield
NEAMAP	Northeast Area Monitoring and Assessment Program
NEFMC	New England Fishery Management Council
NEFOP	Northeast Fisheries Observer Program
NEFSC	Northeast Fisheries Science Center
NEPA	National Environmental Policy Act
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
OBDBS	Observer database system
PDT	Plan Development Team
SAFE	Stock Assessment and Fishery Evaluation
SARC	Stock Assessment Review Committee
SAW	Stock Assessment Workshop
SNE	Southern New England
SSC	Scientific and Statistical Committee
TAL	Total allowable landings
TEWG	Technical Expert Working Group

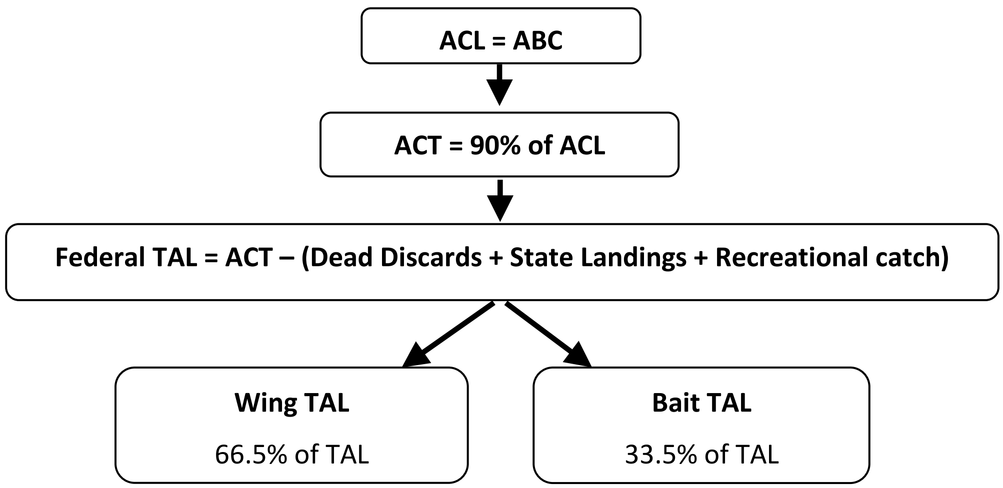
USDOC	United States Department of Commerce
USDOI	United States Department of Interior
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
VMS	Vessel monitoring system
VEC	Valued ecosystem component
VTR	Vessel trip report

3.0 BACKGROUND AND PURPOSE

3.1 BACKGROUND

The Skate FMP specifies the management measures for seven skate species (barndoor, clearnose, little, rosette, smooth, thorny, and winter skate) off the New England and Mid-Atlantic coasts. The NEFMC sets specifications every two years for the skate complex, explained in the flowchart below (Figure 1). The skate wing and bait fisheries have different seasonal management structures and are subject to effort controls and accountability measures (AM).

Figure 1. Flow chart for skate specifications setting.



Due to problems with species identification in commercial catches, the original Skate FMP (implemented in 2003) did not derive or propose an absolute maximum sustainable yield (MSY) estimate or MSY_{proxy} for skate species or for the skate complex (NEFMC 2003, Section 4.3.2). Catch histories for individual species were unreliable and probably underreported. Furthermore, the population dynamics of skates was largely unknown, so measures of carrying capacity or productivity were not available estimating MSY or the skate overfishing limit (OFL). In their February 11, 2009, report, the NEFMC Scientific and Statistical Committee (SSC) recommended that an OFL "cannot be determined, because overfishing reference points are survey proxies, and estimates of fishing mortality or fishing mortality reference points are not available." These issues are largely why skate specifications apply to the entire complex and are not set for individual species. In addition, dealers started reporting landings by disposition (wing or bait) in 2004, and in 2014, the reporting of species-specific landings was required. Species identification in the dealer and observer data has been improving, but there are still known errors.

Indices of relative abundance (stratified mean weight/tow) have been developed using Northeast Fisheries Science Center (NEFSC) bottom trawl survey data for the seven species in the skate complex. These indices and their rates of change form the basis for all the conclusions about the status of the complex (Section 5.1). Based on SAW 30 (NEFSC 2000), the original FMP established that the spring survey data are used for little skate and the fall survey data are used for the other managed skate species.

Maximum Sustainable Yield. The National Standard Guidelines define MSY as "the largest long-term average catch or yield that can be taken from a stock or stock complex under prevailing ecological and environmental conditions." Amendment 3 set the approach to defining the MSY_{proxy} that could be considered the yield if all skate species were at biomass at maximum sustainable yield ($B_{MSYproxy}$) (NEFMC 2009; Section 4.2). To calculate $B_{MSYproxy}$ for the skate complex, a $B_{MSYproxy}$ is first calculated for each skate species. A survey biomass index is calculated as survey catch per tow (kg/tow) during a specific set of years (e.g., 1963-1966 for barndoor; Table 7). The $B_{MSYproxy}$ is the 75th percentile of the given time series of each species, except barndoor, and half that value is the $B_{threshold}$. It is assumed that all species had passed through B_{MSY} at some point in the original reference time series. For barndoor skate, the mean of the first four years of the autumn survey is used instead, given that biomass had been extremely low during most of the time series.

$B_{MSYproxy}$= B_{target} = the 75th percentile (average for barndoor) of its survey biomass index, measured in kg/tow during a specific set of years for each species (see "Time Series Basis" in Table 7).

$B_{threshold} = 0.5 * B_{target}$

A proxy for the maximum sustainable yield (MSY_{proxy}) is calculated for the skate complex by first calculating the MSY_{proxy} for each species, which is the median of catch/biomass over the entire time series multiplied by the $B_{MSYproxy}$. Here, "catch" is total landings from dealer data, vessel to vessel transfers from Vessel Trip Report (VTR) data and dead discards (kg), and "biomass" is the survey biomass index (kg/tow). The MSY_{proxy} for each species is then summed over all seven skate species to calculate the skate complex MSY_{proxy}.

*MSY_{proxy} for each species = median catch/biomass for the entire time series * $B_{MSYproxy}$ (kg/tow)*

Where "catch" = total landings from dealer data, vessel to vessel transfers from VTR data, dead discards, and recreational catch (kg); and "biomass" = survey biomass index (kg/tow).

MSY_{proxy} for the complex = the sum of all seven skate $MSY_{proxies}$.

The MSY_{proxy} was updated in 2023 through the management track assessment, which updated data through 2022. As a result, the MSY_{proxy} increased to 41,698 mt (Table 2).

Table 2. MSY_{proxy} proposed for FY 2024-2025 specifications.

Species	Catch/Biomass Index (thousand mt/kg per tow)	B_{target} (kg/tow)	MSY_{proxy} (mt)
Barndoor	1.97	1.57	**3,100**
Clearnose	3.15	0.96	**3,028**
Little	2.23	6.76	**15,063**
Rosette	1.26	0.053	**66**
Smooth	2.43	0.23	**567**
Thorny	1.64	2.83	**4,650**
Winter	2.01	7.59	**15,224**
			Total MSY_{proxy} = 41,698
Source: NEFSC (2023).			

The MSY_{proxy} was last updated in 2017 for the FY 2018-2019 specifications using the time series with data through 2016, setting the value at 36,794 mt (Table 3) (NEFMC 2018a). This MSY_{proxy} was a slight decrease relative to the MSY_{proxy} that was calculated in 2015 for the FY 2016–2017 specifications, 36,806 mt, due to an update in discard mortality rate assumptions that changed data in the time series. In 2021, the MSY_{proxy} was not updated because the NEFSC has determined that only data through 2019 would be used for those specifications due to survey disruptions in 2020. Adding three more years of data (2017-2019) to a 50+ year time series for most species (44 for clearnose, 37 for little) was unlikely to substantially change the MSY_{proxy}.

Table 3. MSY_{proxy} updated in 2017.

Species	Catch/Biomass Index (thousand mt/kg per tow)	B_{target} (kg/tow)	MSY_{proxy} (mt)
Barndoor	2.76	1.57	**4,332**
Clearnose	2.94	0.66	**1,941**
Little	2.14	6.15	**13,132**
Rosette	2.25	0.048	**108**
Smooth	2.68	0.27	**723**
Thorny	1.44	4.13	**5,966**
Winter	1.87	5.66	**10,592**
			Total MSY_{proxy} = 36,794
Source: NEFMC (2018a).			

2023 Assessment. The Northeast Skate Complex underwent a Level 3 management track assessment in 2023. Skates were last formally assessed at the Data Poor Stocks Working Group in 2008. Since then, the NEFSC has updated the trawl survey biomass indices and stock status annually using methods reviewed and updated in the 2008 assessment. The 2023 assessment re-estimated commercial fishery catch data, updated survey biomass indices, added recreational catch to total catch, and updated reference points (NEFSC 2023). The assessment also included projections of total fishery catch of skates for 2024 and 2025.

For updating the catch time series, landings by species were again calculated using the species distribution in the trawl survey. Recreational catch was included for the first time, and catch by species were used as reported, since there was not time to develop a method to attribute recreational catch by species. Discards for 1989-2021 were estimated using the Standard Bycatch Reporting Methodology (SBRM) of dividing skate discards by K_{all}. Catch Accounting Management System (CAMS) data were used for 2022. Calculating catch of species continues to be challenging due to data limitations. Most landings were unclassified until 2004, and there are known species identification inaccuracies in observer, commercial and recreational data, though there have been improvements over time.

Survey biomass indices were calculated using three methods: the long-standing method of using the spring survey for little skate and the fall survey for all other species, the alternate survey, and averaged spring and fall surveys. There were some differences in results between methods, but the assessment concluded that the surveys used should not change. Reference points for all species were updated with data through 2022, except for the reference time series for barndoor, which remains at 1963-1966. The assessment also considered shortening the time series for thorny skate but found insufficient rationale for doing so at this time and that the analysis would take more time than was available.

The assessment results indicate two changes in stock status. It found that overfishing is occurring for winter and little skate, a change from what was reported in the FY 2021 Skate Annual Monitoring Report (NEFMC 2022b), which reported that overfishing was not occurring on any species. Barndoor, clearnose, little, rosette, smooth, and winter skates are still not overfished. Thorny skate, which is still overfished, is highly unlikely to rebuild by its 2028 target.

The assessment review concluded that it is the best scientific information available. The panel did have concerns over the level of uncertainty in the assessment and overfishing definitions. They offered a series of research suggestions for the complex: determining the best strategy for fast and accurate species identification; using maturity and age data to better understand the SSB and prevalence of age 1 fish; consider moving to either a stock synthesis or length-based model to provide status information, if even for only little and winter skates; conduct a simulation of the assumptions for splitting stocks and the 0.5 discard mortality rate; identify size morphs in thorny skates using clasper/cloaca measurements at size;

and evaluate potential interactions with offshore wind infrastructure, especially the behavioral and distributional responses of skates to electromagnetic field (EMF) radiation (Jordaan et al. 2023).

Acceptable Biological Catch (ABC). The ABC control rule for the Northeast Skate Complex, established through Amendment 3 (NEFMC 2009) is:

> *The skate ABC is the median ratio of catch/biomass of each of the seven skate species multiplied by its three-year moving average stratified mean biomass (weight/tow) for skates, summed over the seven skate species in the management unit. This method is considered an interim proxy for an ABC until an OFL and its uncertainty can be quantified.*

For the FY 2020-2021 and 2022-2023 specifications, adjustments to the control rule were made to account for gaps in survey coverage (NEFMC 2020; 2021). An adjustment was necessary again for the specifications considered in Action 1 (Section 4.1.2).

Annual Catch Limit (ACL). The skate ACL is equal to the ABC. The ACL is a limit that will trigger accountability measures if catch exceeds this amount.

Annual Catch Target (ACT). The skate ACT is 90% of the ACL. There is a 10% uncertainty buffer between the ACL and ACT to account for scientific and management uncertainty (NEFMC 2018b).

Total Allowable Landings (TAL). The skate federal TAL is set by subtracting deductions from the ACT for sources of catch outside of federal landings, using calendar year 2020-2022 data (Figure 1):

- Dead discards are calculated by applying the weighted discard mortality rate to the average commercial discards from the most recent three calendar years (using observer and ASM data).
- State landings are equal to the most recent average of three calendar years of landings by vessels that did not have a federal skate permit on the day of landing.
- Recreational catch is equal to the most recent average of three calendar years of recreational catch used for ABC setting. This is a new deduction for the FY 2024-2025 specifications.

Wing and Bait TALs. The Wing and Bait TALs are set at 66.5% and 33.5% of the TAL, respectively.

3.2 Purpose and Need

Periodic framework adjustments are used to adjust management measures in response to changing fishery conditions. The need for this action is to meet regulatory requirements and adjust management measures needed to prevent overfishing and help achieve optimum yield consistent with the status of skates and the Magnuson-Stevens Act requirements (Table 4). The primary purpose of this action is to adopt skate fishing specifications for FY 2024-2025 and set possession limits to help ensure the fishery remains within the ACT. This action is intended to help meet the goals and objectives of the Northeast Skate Complex FMP, as updated via Amendment 8 and listed on the Council's website.

Table 4. Purpose and need for Framework Adjustment 12.

Need for Framework 12	Corresponding Purpose for Framework 12
To prevent overfishing while promoting the full utilization of optimum yield and to ensure that skates are managed consistent with MSA requirements.	Specify OFL and ABC for the 2024-2025 fishing years, set possession limits to help ensure that the TAL is harvested while keeping catch within the ACT, and set appropriate possession limits for barndoor and smooth skate.

4.0 ALTERNATIVES UNDER CONSIDERATION

The Council considered the alternatives in this section. No others were considered because these provide a reasonable range of alternatives to address the purpose and need for action described in Section 3.2.

4.1 ACTION 1 – SPECIFICATIONS

This action sets fishery specifications for FY 2024 and 2025 according to the formula (Figure 1) established through Amendment 3 (NEFMC 2009). The two alternatives represent a reasonable range of alternatives for purposes of NEPA analysis given the status of the skate stocks and the requirements of the MSA.

4.1.1 Alternative 1 – No Action

Under Alternative 1 (No Action), the specifications for FY 2024-2025 would be unchanged from the FY 2022-2023 specifications. The OFL would continue to be unknown, and the other specifications would be equivalent to the FY 2022-2023 specifications. The ABC would be 37,236 mt with an equivalent annual catch limit (ACL; Table 5). The federal total allowable landings (TAL) would be 21,142 mt, the wing TAL would be 14,059 mt, and the bait TAL would be 7,082 mt. Deductions for expected dead discards and state landings would be 11,856 and 515 mt, respectively (35% and 1.5% of the annual catch target (ACT)). These specifications would remain in place until replaced by a future action.

These specifications were derived from the median catch/biomass ratio for the National Marine Fisheries Service (NMFS) bottom trawl time series up to 2016 and the three-year average stratified mean biomass for skates; using the 2017-2019 spring NEFSC survey data for little skate; the 2018-2019 fall survey data for rosette and clearnose skate; and 2017-2019 fall survey data for barndoor, thorny, smooth, and winter skate (modifications due to some missed fall survey stations in 2017 and 2018).

4.1.2 Alternative 2 – Updated Specifications (Preferred Alternative)

Under Alternative 2, the specifications for FY 2024-2025 would be updated as recommended by the SSC (Table 5). The OFL would continue to be unknown, and the ABC/ACL would be 32,155 mt with a corresponding ACT of 28,940 mt, a 14% decrease from FY 2022-2023. Federal TAL would decrease 26% to 15,718 mt, with a wing TAL of 10,453 mt and a bait TAL of 5,266 mt. Deductions for expected dead discards and state landings would be 12,149 and 756 mt, constituting 42% and 2.6% of the ACT, respectively. These specifications would remain in place until replaced by a future action. These specifications were derived from the median catch/biomass ratio for the NMFS bottom trawl time series from 1981-2022, including recreational catch data. There were no surveys conducted during 2020, so two-year averages including 2021-2022 were used to determine the stratified mean biomass for all species.

Table 5. Action 1 alternatives for specifications

		Alternative 1		Alternative 2	
		(mt)	(lb)	(mt)	(lb)
ABC = ACL	whole weight	37,236	82,091,230	32,155	70,889,640
ACT (90% of ACL)	whole weight	33,513	73,883,430	28,940	63,801,779
Expected Dead Discards	whole weight	11,856	26,137,975	12,149	26,783,960
Expected State Landings	whole weight	515	1,135,379	756	1,666,695
Recreational Catch	whole weight	N/A	N/A	316	696,661
Federal TAL	whole weight	21,142	46,610,076	15,718	34,652,258
Wing TAL (66.5% of TAL)	whole weight	14,059	30,994,753	10,453	23,044,920
	wing weight	6,193	13,654,076	4,605	10,152,287
Bait TAL (33.5% of TAL)	whole weight	7,082	15,613,119	5,266	11,609,543

4.2 Action 2 – Possession Limits

4.2.1 Skate Fishery Possession Limit Alternatives

Alternatives for revising the skate wing possession limits are included in this section. The Council reviewed recent fishery performance and decided against developing alternatives for revising skate Bait Letter of Authorization (LOA) possession limits.

If selecting an action alternative, the Council may select Alternative 2 and/or Alternative 3.

4.2.1.1 Alternative 1 – No Action

Under Alternative 1 (No Action), the Wing TAL is managed in two seasons and the Bait TAL is managed in three seasons, each with differing trip possession limits (Table 6). Season 1 for the wing fishery (May 1 – August 31) receives 57% of the Wing TAL and the remainder (43%) is allocated to Season 2. Season 1 for the bait fishery (May 1 – July 31) receives 30.8% of the Bait TAL, Season 2 (August 1 – October 31) receives 37.1%, and the remainder (32.1%) is allocated to Season 3.

Skate Wing Possession Limits.[1] For trips fishing on a DAS (i.e., Northeast multispecies, monkfish, scallop), FY 2020-2023, the overall skate wing possession limits have been 3,000 lb (wing weight) for Season 1 (May 1 to August 31) and 5,000 lb for Season 2 (September 1 to April 30). The barndoor skate possession limit has been 750 lb in Season 1 and 1,250 lb in Season 2 (set proportional at 25% of the limits). There is a seasonal incidental possession limit trigger of 85% of the Wing TAL. The incidental possession limit is 500 lb (up to 125 lb can be barndoor) and the wing fishery closes once 100% of the TAL is reached.

For trips not fishing on a DAS or fishing on a Northeast multispecies B-DAS, the skate wing possession limits are 500 lb and 220 lb, respectively. If an incidental possession limit is triggered, these limits remain.

Skate Bait Possession Limits (action alternatives would not revise). For FY 2020-2023, the overall skate bait possession limits have been 25,000 lb (whole weight) in all three seasons. Vessels that obtain a Skate

[1] On trips subject to the skate wing possession limits, vessels may retain skate wings, wings and racks, and whole skate (i.e., bait). This would not change under Alternatives 2 or 3.

Bait LOA from GARFO can retain whole skates up to the possession limit in all three seasons if they comply with related rules and size limits. There is a seasonal incidental possession limit of 8,000 lb, triggered at 90% in Seasons 1 and 2 and 80% in Season 3. When 100% of the Bait TAL is reached, the Bait LOAs are voided to slow landings.

Table 6. Skate seasonal management with FY 2020-2023 possession limits for trips fishing on a DAS (Alternative 1).

Fishery	Season	Dates	% of TAL	Possession Limit
Wing	1	May 1 – Aug 31	57%	3,000 lb wing weight (6,810 lb whole weight)
	2	Sept 1 – Apr 30	remainder	5,000 lb wing weight (11,350 lb whole weight)
Bait	1	May 1 – Jul 31	30.8%	25,000 lb whole weight
	2	Aug 1 – Oct 31	37.1%	
	3	Nov 1 – Apr 30	remainder	

4.2.1.2 Alternative 2 – Increase Skate Wing Possession Limits for Trips Fishing on a DAS (Preferred Alternative)

Under Alternative 2, skate wing possession limits would increase for trips fishing on a DAS (i.e., Northeast multispecies, monkfish, scallop); skate bait possession limits would be unchanged.

Option A. For Season 1, the limit would increase by 750 lb wing weight to 3,750 lb. For Season 2, the limit would increase by 1,250 lb to 6,250 lb.

Option B. For Season 1, the limit would increase by 1,000 lb wing weight to 4,000 lb. For Season 2, the limit would increase by 1,000 lb to 6,000 lb. **(Preferred Option)**

Rationale: Alternative 2 could help reduce skate discards in the directed wing fishery by turning discards into landings. This would help meet market demand for skate wings. Under Option A, the possession limit increase is equivalent to the current barndoor skate partial possession limit (25% of the current skate wing possession limits). Possession limits under Option B are higher in Season 1 and lower in Season 2, allowing more skates to be landed earlier in the year when they are more prevalent. Data on fishery performance in recent years shows that trips landing skate near the seasonal wing possession limits are discarding more than those landing below the limit (Section 5.5.1.3.1), suggesting that this catch could turn to landings under Alternative 2.

4.2.1.3 Alternative 3 – Increase Skate Wing Possession Limits for Trips Fishing on a Northeast Multispecies B-DAS or not on a DAS (Preferred Alternative)

Under Alternative 3, skate wing possession limits would increase by 25% for trips fishing on a Northeast multispecies B-DAS, or not fishing on a DAS. The possession limit for trips fishing on a B-DAS would increase by 55 lb, from 220 to 275 lb. The possession limit for trips not fishing on a DAS would thus increase by 125 lb, from 500 to 625 lb.

Rationale: Alternative 3 could help reduce skate discards in fisheries where skates are caught incidentally by turning discards into landings. This would help meet market demand for skate wings, allowing a few more skates to be landed. Data on fishery performance in recent years shows that trips landing skate wings near the seasonal possession limit are discarding more than those landing below the limit (Section 5.5.1.3.1), suggesting that this catch could turn to landings under Alternative 3.

4.2.2 Barndoor Skate Alternatives

4.2.2.1 Alternative 1 – No Action

Under Alternative 1 (No Action), the 25% partial possession limit of skate wings on trips fishing on a DAS would remain. Barndoor possession would not be allowed on trips fishing with a Bait LOA and on non-DAS or Northeast multispecies B-DAS trips in the wing fishery.

4.2.2.2 Alternative 2 – Remove Barndoor Skate Possession Restriction (Preferred Alternative)

Under Alternative 2, the barndoor skate possession restriction would be removed. Within the overall skate possession limits, there would be no limit specific to barndoor skate. The 25% partial possession limit for trips landing skate wings on a DAS would be removed, and possession would be allowed on all trips in the skate fishery.

Rationale: Alternative 2 would allow for landings of a fully rebuilt skate species and be consistent with the overall approach to skate management, which is not species-specific for rebuilt species. NOAA Fisheries declared that barndoor skate was overfished after the skate stock assessment in 1999 (NEFSC 2000) and the Original FMP prohibited possession of barndoor skate. Barndoor skate was declared rebuilt in 2016 and possession has been allowed since FY 2018 (NEFMC 2018a) up to 25% of the skate wing possession limit (further described on the GARFO website). The barndoor partial possession limit of 25% in the wing fishery was initially set to match the proportion of barndoor skate in the fishery, which would reduce incentives to high-grade catch. Currently, there is no known difference in price between barndoor skate and winter skate wings and high-grading is unlikely to occur. When partial possession was allowed, the intent was to potentially adjust this in the future as barndoor becomes part of the fishery. Barndoor skate catch above the partial possession limit has been discarded, so this alternative may help reduce skate discards.

Data on landings and discards of barndoor skate under the 25% partial possession limit since FY 2018 show that trips that land barndoor skate near the partial possession limit discard more barndoor skate than those landing below the limit, suggesting that this catch could turn to landings under Alternative 2 (Section 5.5.1.3.2).

4.2.3 Smooth Skate Alternatives

4.2.3.1 Alternative 1 – No Action

Under Alternative 1 (No Action), the possession prohibition of smooth skate in the Gulf of Maine Regulated Mesh Area would remain. Smooth skate possession would not be allowed in the wing or bait fisheries.

4.2.3.2 Alternative 2 – Remove Smooth Skate Possession Restriction (Preferred Alternative)

Under Alternative 2, the smooth skate possession restriction would be removed on all trips landing skate, in both the wing and bait skate fisheries.

Rationale: Alternative 2 would allow for landings of a fully rebuilt skate species on trips where skate landings are incidental. This would be consistent with the overall approach to skate management, which is not species-specific for the rebuilt species. Given that smooth skates are generally smaller in size than other skates, there may only be a minor amount of smooth skate landed under Alternative 2, depending on market demand (there is no minimum size limit in the wing fishery).

Like barndoor skate, NOAA Fisheries declared that smooth skate was overfished after SAW 30 (NEFSC 2000). By the time the Original FMP was finalized, smooth skate was no longer overfished, yet was depleted and well below the target biomass level. Possession of smooth skate was prohibited within the GOM Regulated Mesh Area (where smooth skate largely occurs; NEFMC 2003; Section 4.13). Smooth skate has been considered rebuilt since 2018, yet possession is still prohibited in the Gulf of Maine.

5.0 AFFECTED ENVIRONMENT

The Affected Environment is described in this action based on valued ecosystem components (VECs), including target species, non-target species, predator species, physical environment and Essential Fish Habitat (EFH), protected resources, and human communities. VECs represent the resources, areas and human communities that may be affected by the alternatives under consideration in this amendment. VECs are the focus since they are the "place" where the impacts of management actions occur.

5.1 TARGET SPECIES (NORTHEAST SKATE COMPLEX)

The following species of skates comprise the NE skate complex: winter skate, barndoor skate, thorny skate, smooth skate, little skate, clearnose skate, and rosette skate.

5.1.1 Species Distribution

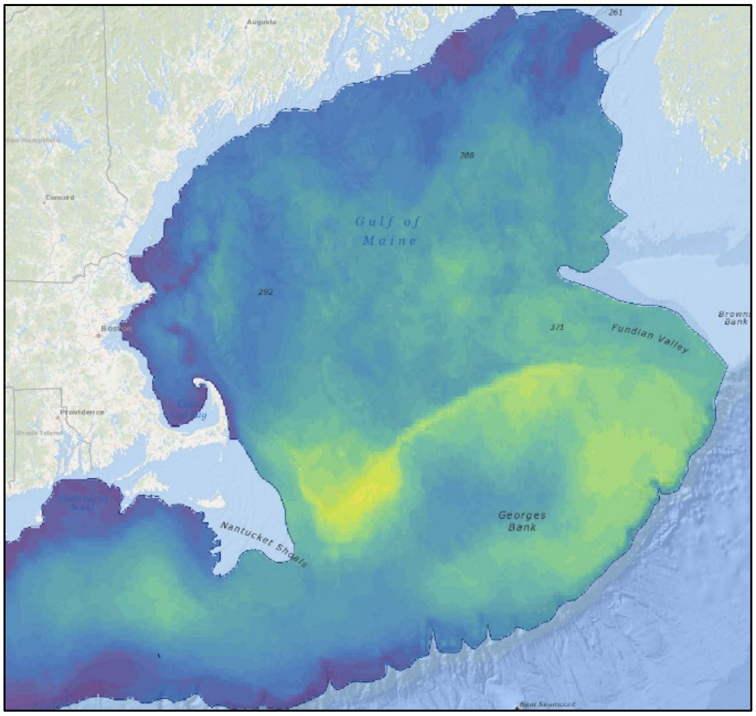
Skates are not known to undertake large-scale migrations but move seasonally with changing water temperature, moving offshore in summer and early autumn and returning inshore during winter and spring. Skates lay eggs that are enclosed in a hard, leathery case commonly called a mermaid's purse. Incubation time is six to 12 months. The young have an adult form at the time of hatching (Bigelow & Schroeder 1953).

Barndoor skate are generally found along the deeper portions of the Southern New England continental shelf and the southern portion of Georges Bank, extending into Canadian waters (<150-750 m; Map 1). The NEFSC surveys catch them as far south as NJ during the spring. The survey catches **clearnose** skate in shallower water along the Mid-Atlantic coastline but are known to extend into non-surveyed shallower areas and into the estuaries, particularly in Chesapeake and Delaware Bays. These inshore areas are surveyed by state surveys and the Mid-Atlantic NEAMAP Survey. **Little skate** are found along the Mid-Atlantic, Southern New England, and Gulf of Maine coastline, in shallower waters than barndoor, rosette, smooth, thorny, and winter skates. **Rosette** (590-5,905 m)**, smooth (**46-914 m**), and thorny** skate (20-1,000 m) are typically deep-water species. The survey catches rosette skate along the shelf edge in the Mid-Atlantic region, while smooth (Map 2) and thorny are found in the Gulf of Maine and along the northern edge of Georges Bank. **Winter** skate are found on the continental shelf of the Mid-Atlantic and Southern New England regions, as well as Georges Bank and into Canadian waters. Winter skate are typically caught in deeper waters than little skate (both found typically <90 m), but partially overlap the distributions of little and barndoor skates. Additional maps displaying NEFSC survey estimates of biomass can be found on the Northeast Ocean Data Portal.

There is some evidence that the distribution of barndoor skate has increased with its population increase. The Rhode Island Division of Marine Fisheries trawl survey first recorded catch of barndoor skate in

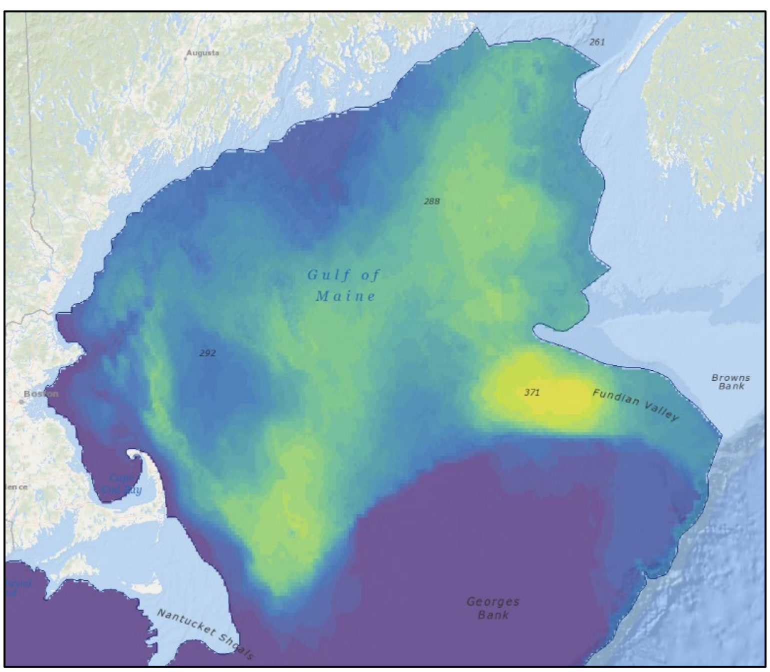
2012 and has caught one barndoor skate on average per year since 2017. Prior to 2010, skate was recorded as aggregate weight, so it is possible a barndoor was caught earlier in the time series, but not recorded.

Map 1. Barndoor skate biomass, NEFSC Fall Bottom-Trawl Survey, 2010-2019.



Source: Northeast Ocean Data Portal, accessed 5/18/2023.

Map 2. Smooth skate biomass, NEFSC Fall Bottom-Trawl Survey, 2010-2019.



Source: Northeast Ocean Data Portal, accessed 5/18/2023.

5.1.2 Stock Status

Skates had a Level 3 management track assessment in September 2023. Since the last formal skate assessment in 2008 (NDPSWG 2009), the NEFSC has annually updated survey biomass indices used to determine stock status. The fishing mortality reference points are based on changes in survey biomass indices.

Definitions: Overfishing is occurring on a skate species if the three-year moving average of the survey biomass index for a skate species declines by more than the average coefficient of variation (CV) of the survey time series, then fishing mortality is assumed to be greater than F_{MSY} (NEFSC 2007). The FMP identifies more specific overfishing definitions for each species. A skate species is *overfished* if the latest three-year moving average of its survey biomass index is below its biomass threshold reference point ($B_{threshold}$). An overfished determination triggers the need for a rebuilding plan. A skate species is *rebuilt* if its survey biomass index is equal to or greater than its $B_{MSYproxy}$. Details about these reference points and how they were chosen are given in NEFSC (NEFSC 2000). Except for little skates, the abundance and biomass trends are best represented by the fall survey; little skate are best represented by the spring survey.

Barndoor skate: The 2021-2022 average NEFSC fall survey biomass index of 1.68 kg/tow is above the biomass threshold reference point (0.78 kg/tow) and the $B_{MSYproxy}$ (1.57 kg/tow). The 2021-2022 average index is above the 2019 and 2021 average index by 10.2%, which is less than the threshold percent change of -30%. It is recommended that this stock is not overfished and overfishing is not occurring.

Clearnose skate: The 2021-2022 average NEFSC fall biomass index of 0.78 kg/tow is above the biomass threshold reference point (0.48 kg/tow) and below the $B_{MSYproxy}$ (0.96 kg/tow). The 2021-2022 average index is below the 2019 and 2021 average index by 37.1%, which is less than the threshold percent change of -40%. It is recommended that this stock is not overfished and overfishing is not occurring.

Little skate: the 2021-2022 NEFSC spring average biomass index of 3.92 kg/tow is above the biomass threshold reference point (3.38 kg/tow) but below the $B_{MSYproxy}$ (6.76 kg/tow). The 2021-2022 average index is below the 2019 and 2021 average by 20.1%, which is greater than the threshold percent change of -20%. It is recommended that this stock is not overfished but overfishing is occurring.

Rosette skate: The 2021-2022 average NEFSC fall biomass index of 0.057 kg/tow was above the biomass threshold reference point (0.026 kg/tow) and above the BMSY proxy (0.053 kg/tow). The 2020-2021 average index is above the 2019 and 2021 average index by 7.6%, which is greater than the threshold percent change of -40%. It is recommended that this stock is not overfished and overfishing is not occurring.

Smooth skate: The 2021-2022 average NEFSC fall biomass index of 0.16 kg/tow is above the biomass threshold reference point (0.12 kg/tow) but below the $B_{MSYproxy}$ (0.23 kg/tow). The 2021-2022 average index is below the 2019 and 2021 average index by 17.6%, which is less than the threshold percent change of -30%. It is recommended that this stock is not overfished and overfishing is not occurring.

Thorny skate: The 2021-2022 average NEFSC fall biomass index of 0.10 kg/tow is well below the biomass threshold reference point (1.41 kg/tow) and the $B_{MSYproxy}$ (2.83 kg/tow). The 2021-2022 average index is below the 2019 and 2021 average index by 29.6%, which is less than the threshold percent change of -30%. It is recommended that this stock is overfished but overfishing is not occurring.

Winter skate: The 2021-2022 average NEFSC fall biomass index of 8.50 kg/tow is well above the biomass threshold reference point (3.79 kg/tow) and the $B_{MSYproxy}$ (7.59 kg/tow). The 2021-2022 average index is below the 2019 and 2021 average index by 20.3%, which is greater than the threshold percent change of -20%. It is recommended that this stock is not overfished but overfishing is occurring.

Table 7. Recent survey indices, survey strata used, and biomass reference points of skate species

	BARNDOOR	CLEARNOSE	LITTLE	ROSETTE	SMOOTH	THORNY	WINTER
Annual survey	**Autumn**	**Autumn**	**Spring**	**Autumn**	**Autumn**	**Autumn**	**Autumn**
Time Series Basis	**1963-1966**	**1975-2022**	**1982-2022**	**1967-2022**	**1963-2022**	**1963-2022**	**1967-2022**
Strata Set	**Offshore: 1-30, 34-40**	**Offshore: 61-76; Inshore: 17,20,23, 26,29,32,35,38,41, 44**	**Offshore: 1-30, 34-40, 61-76; Inshore: 2,5,8,11,14, 17,20,23,26,29,32,35,38, 41,44-46,56,59-61,64-66**	**Offshore 61-76**	**Offshore 1-30, 34-40**	**Offshore 1-30, 34-40**	**Offshore 1-30, 34-40, 61-76**
Biomass Target	1.57	0.96	6.76	0.053	0.23	2.83	7.59
Biomass Threshold	0.78	0.48	3.38	0.026	0.12	1.41	3.79
Survey Indices (kg/tow)							
2014	1.58	0.70	6.76 [a]	0.053	0.20	0.21	7.38
2015	2.15	0.94	7.20	0.045	0.23	0.17	6.77
2016	1.10	0.39	3.75 [b]	0.044	0.22	0.13	7.52
2017	1.55 [c]	[c]	6.01	[c]	0.32 [c]	0.21 [c]	9.11 [c]
2018	2.83 [e]	1.01	4.85	0.053	0.24 [e]	0.14 [e]	6.98 [e]
2019	1.80	1.39	5.75	0.051	0.23	0.17	12.55
2021	1.25	1.07	4.07	0.055	0.15	0.09	8.80
2022	2.12	0.47	3.77	0.059	0.16	0.10	8.21
OVERFISHED METRIC (If 3-year moving average of survey biomass index < $B_{threshold}$ then overfished)							
2015-2017 3-year average	1.60 [c]	0.67 [c]	5.65 [b]	0.045 [c,d]	0.26 [c]	0.17 [c]	7.80 [c]
2016-2018 3-year average	1.83 [c,e]	0.70 [c,d]	4.87 [b]	0.049 [c,d]	0.26 [c,e]	0.16 [c,e]	7.87 [c,e]
2017-2019 3-year average	2.06 [c,e]	1.20 [c,d]	5.54	0.052 [c,d]	0.26 [c,e]	0.17 [c,e]	9.54 [c,e]
2018-2019 2-year average	2.32 [e,f]	1.20 [f]	4.30 [f]	0.052 [f]	0.24 [e,f]	0.16 [e,f]	9.76 [e,f]
2019-2021 2-year average	1.53 [f]	1.23 [f]	4.91 [f,g]	0.053 [f]	0.19 [f]	0.14 [f]	10.67 [f]
2021-2022 2-year average	1.68 [f]	0.78 [f]	3.92 [f,g]	0.057 [f]	0.16 [f]	0.10 [f]	8.50 [f]
OVERFISHING METRIC (If % change in 3-year moving average of survey biomass index > average coefficient of variation (CV) of the survey time series then overfishing is occurring.)							
% change 2016-2018 vs. 2015-2017	+14.0 [c,e]	+5.5 [d]	-13.9 [b]	+8.6 [d]	1.4 [c,e]	-6.6 [c,e]	+0.9 [c,e]
% change 2017-2019 vs. 2016-2018	+12.9 [c,e]	+70.8 [d]	+13.7 [b]	+6.8 [d]	+1.9 [c,e]	+10.5 [c,e]	+21.3 [c,e]
% change 2018-2019 vs. 2017-2019	+12.4 [c,e,f]	+0.0 [d,f]	-4.2 [f]	+0.0 [d,f]	-10.7 [c,e,f]	-9.2 [c,e,f]	+2.3 [c,e,f]
% change 2019-2021 vs. 2018-2019	-34.1 [e,f]	+2.7 [f]	-7.4 [f,g]	+2.1 [f]	-20.0 [e,f]	-14.6 [e,f]	+9.3 [e,f]
% change 2021-2022 vs. 2019-2021	+10.2 [f]	-37.1 [f]	-20.1 [f,g]	+7.6 [f]	-17.6 [f]	-29.6 [f]	-20.3 [f]
% change for overfishing status determination[f]	-30	-40	-20	-40	-30	-30	-20

Source: NEFSC (2023). *Notes:* Grey shading indicates the assessment conclusion that a species that is overfished or overfishing is occurring.

a. No survey tows completed south of Delaware in spring 2014. Values for 2014 were adjusted for missing strata (Offshore 61-68, Inshore 32, 35, 38, 41, 44) but may not be fully comparable to other surveys which sampled all strata.

b. The 2016 spring survey was later than usual.

c. No survey tows completed south of Georges Bank in fall 2017. Values either missing or adjusted for missing strata (Offshore 1-12, 61-76).

d. Two-year average due to missing 2017 survey.

e. Values were adjusted for missing Offshore strata 30, 34 and 35.

f. Spring and fall surveys not completed in 2020 due to COVID 19 restrictions.

g. No survey tows completed in the most southern area in spring 2021. Values for 2021 were adjusted for missing strata (Offshore 61-64, Inshore 38, 41, 44) but may not be fully comparable to other surveys which sampled all strata.

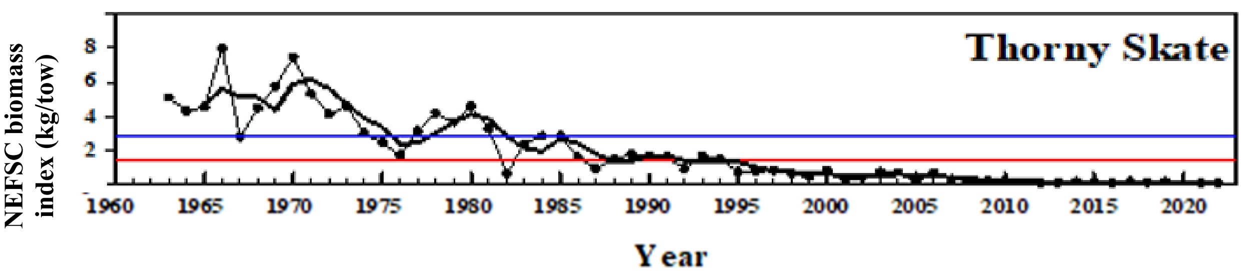
5.1.3 Thorny Skate Rebuilding Plan

Thorny skate is the one species in the Northeast Skate Complex which remains overfished. The Original Skate FMP (implemented in 2003) established a rebuilding plan for thorny skate but did not adopt a rebuilding schedule due to the lack of critical life history information. Through Amendment 3 (implemented in 2010), based on new life history parameter estimates, it was estimated that thorny skate would take longer than 10 years to rebuild; the Council estimated that it takes a female thorny skate 15 years to replace its own spawning capacity, i.e., its mean generation time. The maximum rebuilding period allowed by the MSA was 25 years (10 years plus one mean generation time). Amendment 3 established a 25-year rebuilding period for thorny skate, or by 2028 when counted from the start of the rebuilding period in 2003. It was estimated in Amendment 3 that, based on biomass at the time (0.42 kg/tow in 2007), it would take an average annual increase of 13.2% to rebuild to the B_{MSY} target of 4.41 kg/tow by 2028 (the target since changed to 4.13). At the time, the PDT advised that the best estimate of the maximum intrinsic rate of population growth was 0.17, so achieving the biomass target within the rebuilding schedule seemed achievable.

The rebuilding plan is to prohibit possession of thorny skate throughout the management unit. Additionally, if the 3-year moving average of the appropriate survey mean weight per tow declines below the average for the previous three years, then the Council must take management action to ensure that stock rebuilding will achieve target levels. The Annual Catch Limit is set for skates as a complex; there is no ACL set for thorny skate.

As of the 2023 management track assessment, 20 years into the rebuilding period, the survey biomass has continued to be low for thorny skate with no signs of rebuilding. The biomass index has declined from 0.21 in 2017 to 0.10 in 2022, which is just 3.5% of B_{MSY} (2.83; Figure 2).

Figure 2. Thorny skate NEFSC survey biomass indices (kg/tow), 1963 – 2022.



Note: Thin lines with symbols are annual indices, thick lines are three-year moving averages, and the thin horizontal lines are the biomass thresholds and targets developed through 2007/2008 with consistent strata sets.
Source: NEFSC (2023).

The white paper prepared by the PDT in 2023 on thorny skate rebuilding (Thorny Skate Rebuilding White Paper) summarizes the state of knowledge about thorny skate and progress toward rebuilding and identifies potential approaches to managing the species. The document highlights the continued challenge that thorny skate face as a cold-water, sedentary species given the rapidly warming waters of the Gulf of Maine, and notes that this steep decline in abundance has occurred across the southern extent of the species' range in both the northeast and northwest Atlantic. Identified potential approaches included continued possession prohibition, gear-modifications or time-area closures targeted to the gear type and/or areas where thorny skate are most encountered and revisiting the thorny skate rebuilding plan. Lastly, ongoing research was identified that will inform future decisions around thorny skate rebuilding, such as work identifying thorny skate bycatch hotspots and exploring the population connectivity across the species' range.

5.1.4 Uncertainty Buffer

There is a buffer between the ACL and the ACT to account for scientific and management uncertainty. It was set at 10% through Framework Adjustment 6 (implemented February 2019; NEFMC 2018b), reduced from 25%, the level originally set through Amendment 3.

Several sources of uncertainty have been identified (see Table 5 in Framework 6 for the full list of the sources of uncertainty). The skate complex has proven unsuitable for traditional stock assessment models to be used, resulting in an empirical assessment based on the NEFSC trawl survey indices that are used as biomass proxies. This adds to the uncertainty surrounding the specifications process. The calculation of ABC uses the median C/B, which is risk-averse relative to using a higher percentile. This helps account for the scientific uncertainty in the catch/biomass relationship. Other sources of uncertainty within the ABC calculation include species-specific landings, species-specific estimates of discards, estimates of discards, discard mortality rates, the relationship between survey catch and biomass, recreational catch, and skate landings by state-only permitted vessels not reported to the Federal database. Skates are encountered by many fisheries and gear types, and a large portion of biomass is set aside to account for expected dead discards.

A low buffer is likely to increase the risk of the ACL being exceeded. However, the effort controls currently in place in the skate fishery have proven effective at preventing the TAL and therefore the ACL from being exceeded, which may mitigate the risk of exceeding the ACL. Current effort controls do not prohibit discarding, which could result in discards exceeding the projected dead discards accounted for in specifications.

5.1.5 Biological and Life History Characteristics

The NEFSC prepared Essential Fish Habitat Source Documents for each of the seven skate species, which provide most available biological and habitat information on skates. These technical documents are available at http://www.nefsc.noaa.gov/nefsc/habitat/efh/ and contain the following information for each skate species in the Northeast complex:

- Life history, including a description of the eggs and reproductive habits
- Average size, maximum size, and size at maturity
- Feeding habits
- Predators and species associations
- Geographical distribution for each life history stage
- Habitat characteristics for each life history stage
- Status of the stock
- A description of research needs for the stock
- Graphical representations of stock abundance from NEFSC trawl survey and Massachusetts inshore trawl survey data
- Graphical representations of percent occurrence of prey from NEFSC trawl survey data

The seven species of the northeast skate complex follow a similar life history strategy but differ in their biological characteristics. A detailed summary of the biological and life history characteristics was in the FEIS for Amendment 3 (NEFMC 2009). Framework 5 (NEFMC 2018a) also contains updated life history information on the seven skate species.

5.1.6 Discards

Discard estimation method: Skate discards are estimated for a calendar year, rather than the fishing year, because they rely on the NMFS area allocation landings tables to expand observed skate Discard/Kept-all (D/K_{all}) ratios to total based on landings by gear, area, and quarter. The observed D/K_{all} ratios are derived from the Northeast Fisheries Observer Program (NEFOP) and the At Sea Monitoring program data and include both sector and non-sector vessels but are not stratified on that basis. The discard rate is calculated using a three-year average of the discards of skates divided by the landings of all species.

Estimates of total skate catch are sensitive to the discard mortality rate assumption (Table 8) and have direct implications for allowable landings in the skate fisheries. Based on the weighted average discard mortality across gear types (Table 9), dead discards are estimated (Figure 3). Data on immediate- and delayed (i.e., post-release) mortality rates of discarded skates and rays is extremely limited. Benoît (2006) estimated acute discard mortality rates of winter skates caught in Canadian bottom trawl surveys. The SSC in 2009 decided to use a 50% discard mortality rate assumption for all skates and gears for setting the Skate ACL, based on this paper.

This mortality rate continues to be used unless research has improved our understanding of discard mortality for the specific skate species in various gear types (Table 8). Mandelman et al. (2013) examined the immediate and short-term discard mortality rate of little, smooth, thorny and winter skates in the Gulf of Maine for otter trawl gear. The SSC approved revising the discard mortality rate estimates for little (22%), smooth (60%), thorny (23%) and winter (9%) skates for otter trawl. Knotek (2018) examined the immediate and short-term discard mortality rate of little, winter, and barndoor skates in scallop dredge gear by evaluating reflex impairment and injury indexes. The SSC approved revising the discard mortality rate estimates for only little (48%) and winter skate (34%) for scallop dredge gear based on this study, as the researchers considered the sample size was insufficient for an accurate estimate for barndoor skate. Sulikowski et al. (2018) estimated the discard mortality of winter skate in commercial sink gillnets, and SSC approved revising the discard mortality rate estimate for winter skate (14%) for sink gillnet gear based on this study.

Table 8. Assumed and estimated discard mortality rates of the seven skate species by gear type.

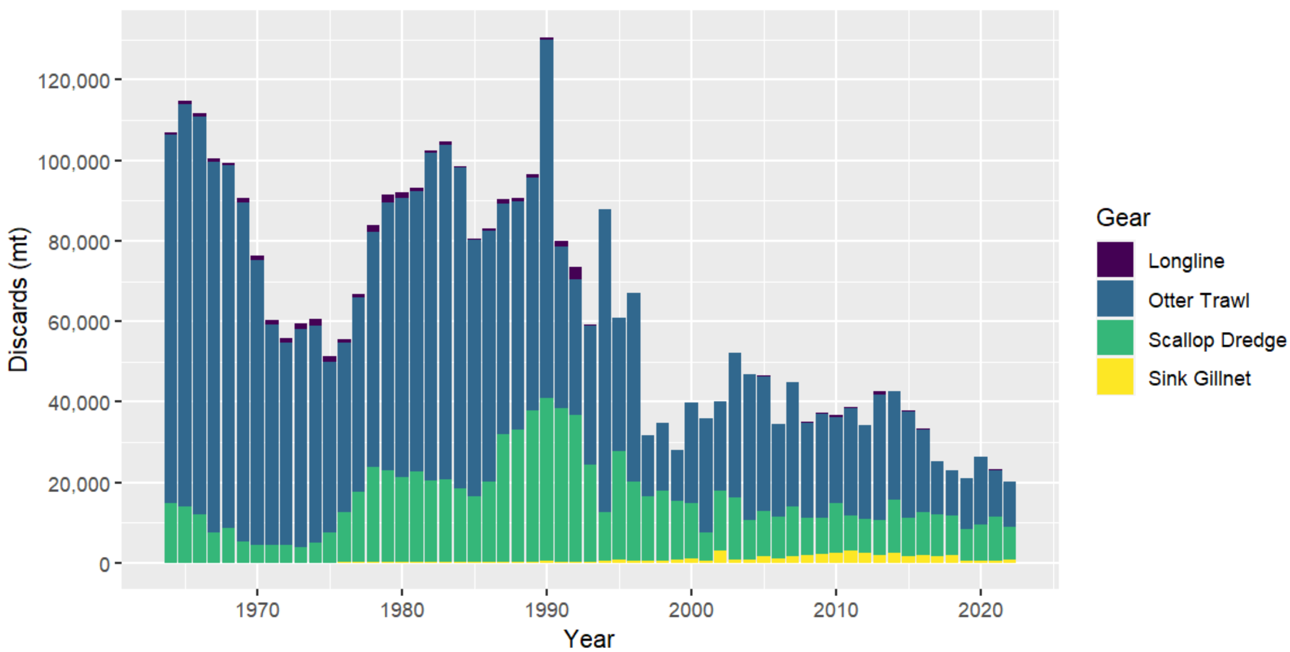
Gear Type	Barndoor	Clearnose	Little	Rosette	Smooth	Thorny	Winter
Gillnet	50%	50%	50%	50%	50%	50%	14%
Longline	50%	50%	50%	50%	50%	50%	50%
Otter Trawl	50%	50%	22%	50%	60%	23%	9%
Scallop Dredge	50%	50%	48%	50%	50%	50%	34%

Over the past few decades, skate discards have decreased substantially (Table 9, Figure 3). Between 2012 and 2022, total and dead skate discards peaked in 2014 and have declined since. During that period, landings were largely consistent until 2021, when landings declined by over 30% relative to 2020. Total discards for 2022 were 20,202 mt, a 13% decline from 2021.

Table 9. Dead discards (mt) of skates (all species) by gear type from all areas combined, CY 2012-2022.

Year	Longline	Otter Trawl	Sink Gillnet	Scallop Dredge	Total
2012	99	23,327	2,482	8,364	34,272
2013	762	31,384	1,924	8,604	42,674
2014	125	27,061	2,555	13,016	42,757
2015	367	26,201	1,672	9,655	37,895
2016	218	20,318	1,862	10,872	33,270
2017	131	13,111	1,684	10,438	25,364
2018	65	11,061	1,880	9,992	22,998
2019	81	12,565	543	7,873	21,062
2020	269	16,802	609	8,826	26,506
2021	133	11,494	545	11,022	23,194
2022	72	11,229	808	8,093	20,202
Source: NEFSC (2023).					

Figure 3. Dead discards of skates (all species) by gear type from all areas combined, CY 1964-2022



Source: NEFSC (2023).

Table 10. Landings, and total and dead discards of skates (all species) for all gear types, CY 1968 – 2022.

Year	Landings (mt)	Discards (mt)				Year	Landings (mt)	Discards (mt)		
		Total	Dead	% Dead				Total	Dead	% Dead
1968	6,483	99,466	21,620	22%		1996	15,539	67,107	18,593	28%
1969	9,462	90,593	18,453	20%		1997	12,630	31,748	10,366	33%
1970	4,128	76,204	15,914	21%		1998	16,250	34,740	11,316	33%
1971	5,905	60,391	13,715	23%		1999	15,148	28,154	9,608	34%
1972	8,823	55,966	12,101	22%		2000	16,012	39,961	12,369	31%
1973	7,963	59,457	12,888	22%		2001	15,888	36,041	8,475	24%
1974	3,651	60,499	13,357	22%		2002	14,740	40,094	12,132	30%
1975	3,968	51,758	12,224	24%		2003	16,254	52,204	14,283	27%
1976	1,212	55,641	14,480	26%		2004	17,063	46,823	11,249	24%
1977	1,418	66,710	16,573	25%		2005	14,885	46,474	12,866	28%
1978	1,353	83,823	21,348	25%		2006	17,168	34,565	10,134	29%
1979	1,423	91,478	22,348	24%		2007	20,342	44,920	13,182	29%
1980	1,650	92,179	21,110	23%		2008	20,191	35,031	10,160	29%
1981	847	93,175	20,538	22%		2009	19,731	37,441	10,070	27%
1982	878	102,593	21,499	21%		2010	18,683	36,766	10,523	29%
1983	3,603	104,708	22,205	21%		2011	16,963	38,760	10,508	27%
1984	4,156	98,840	20,832	21%		2012	17,144	34,274	10,087	29%
1985	3,984	80,941	16,918	21%		2013	14,698	42,674	11,551	27%
1986	4,253	83,508	18,471	22%		2014	15,904	42,758	12,673	30%
1987	5,078	90,554	23,581	26%		2015	15,532	37,894	10,417	27%
1988	7,264	90,840	22,952	25%		2016	15,799	33,271	10,435	31%
1989	6,483	96,661	25,701	27%		2017	14,470	25,884	8,544	33%
1990	9,462	130,869	32,887	25%		2018	14,341	23,000	7,580	33%
1991	4,128	80,110	24,445	31%		2019	11,776	21,062	6,594	31%
1992	5,905	73,881	24,159	33%		2020	13,536	26,506	9,165	35%
1993	8,823	59,105	17,622	30%		2021	9,197	23,194	7,706	33%
1994	9,463	87,903	21,565	25%		2022	9,645	20,202	6,424	32%
1995	7,978	60,924	19,568	32%						
Source: NEFSC (2023).										

5.2 NON-TARGET SPECIES

The skate fishery is closely associated with several fisheries managed by other FMPs, specifically the groundfish, monkfish, spiny dogfish, and scallop fisheries. These fisheries have ACLs, effort controls (DAS), possession limits, gear restrictions, and other measures that indirectly constrain overall effort on skates. A small number of trips could be described as targeting skates (Table 33, Section 5.5.1.5), and the wing fishery is less dependent on skates (i.e., more landings of other species) than the bait fishery (Figure

7, Figure 8). On trips landing skate, the main species landed in conjunction are managed within the Summer Flounder, Black Seabass, and Scup FMP, the Northeast Multispecies FMP, and the Monkfish FMP. Fluke, Silver hake, Dogfish, and Loligo squid are also landed in conjunction with skate (Table 30, Figure 6, Figure 7, Figure 8). Skates are discarded in otter trawl and scallop dredge fisheries (Table 9, Figure 3).

NE Multispecies. The Northeast Multispecies FMP manages 20 groundfish stocks and stock status varies by stock (NEFMC 2022a).

Monkfish. Monkfish (*Lophius americanus*), also called goosefish, occur in the Northwest Atlantic Ocean from the Grand Banks and northern Gulf of St. Lawrence south to Cape Hatteras, North Carolina (Collette & Klein-MacPhee 2002). Stock structure is not well understood, but two assessment and management areas for monkfish, northern and southern, were defined in 1999 through the original FMP based on patterns of recruitment and growth and differences in how the fisheries are prosecuted (NEFSC 2020). Monkfish occur from inshore areas to depths of at least 2,953 ft (900 m). Monkfish undergo seasonal onshore-offshore migrations, which may relate to spawning or possibly to food availability. Female monkfish begin to mature at age 4 with 50% of females maturing by age 5 (~17 in [43 cm]). Males generally mature at slightly younger ages and smaller sizes (50% maturity at age 4.2 or 14 in [36 cm]). Spawning takes place from spring through early autumn. It progresses from south to north, with most spawning occurring during the spring and early summer. Females lay a buoyant egg raft or veil that can be as large as 39 ft (12 m) long and 5 ft (1.5 m) wide, and only a few mm thick. The larvae hatch after 1 – 3 weeks, depending on water temperature. The larvae and juveniles spend several months in a pelagic phase before settling to a benthic existence at a size of ~3 in (8 cm; NEFSC 2011). The status of the monkfish stocks changed in 2023 to unknown from not subject to overfishing and not overfished, based on the 2022 monkfish stock assessment.

Dogfish

Life History and Population. Spiny dogfish, *Squalus acanthias*, occurs in the northwest Atlantic from Labrador to Florida. Spiny dogfish is a unit stock in the northwest Atlantic. In summer, dogfish migrate northward to the Gulf of Maine-Georges Bank region and into Canadian waters. They return southward in autumn and winter. Recent research has suggested that migratory patterns may be more complex (Carlson et al. 2014). Spiny dogfish tend to school by size and, when mature, by sex. The species births live young, with a long gestation period and produce 2 – 15 pups. Size at maturity for females has declined from around 80 cm in 1998 to 73 cm during 2012-2019 (Sosebee 2022).

Management and Fishery. The NEFMC and MAFMC (lead) jointly manage the spiny dogfish FMP for federal waters and the Atlantic States Marine Fisheries Commission (ASMFC) has an interstate management plan. Spawning stock biomass of spiny dogfish declined in response to consistent overfishing in the 1960s through 2000. NOAA Fisheries implemented management measures adopted by the Councils for spiny dogfish in 2000. These measures were effective in reducing fishing mortality, but overfishing resumed in the 2010s. Based on the 2023 management track assessment, the stock was relatively low historically in 2022 but slightly above its projected target (productivity appears to have declined so both biomass and catch targets are lower) and overfishing is not occurring. The spiny dogfish fishery is managed with an ACL, commercial quota, regional/state quotas through ASMFC, and federal and state possession limits (currently 7,500 lb per trip federally and varies by state).

Atlantic Sea Scallops

Life History and Population. Sea scallops, *Placopecten magellanicus,* are distributed in the northwest Atlantic Ocean from Newfoundland to North Carolina, mainly on sand and gravel sediments where bottom temperatures remain below 20º C (68º F). North of Cape Cod, concentrations generally occur in shallow water <40 m (22 fathoms) deep. South of Cape Cod and on Georges Bank, sea scallops typically occur at depths of 25 – 200 m (14 – 110 fathoms), with commercial concentrations generally 35 – 100 m

(19 – 55 fathoms). Sea scallops are filter feeders, feeding primarily on phytoplankton, but also on microzooplankton and detritus (Hart & Chute 2004). Sea scallops grow rapidly during the first several years of life. Between ages 3 and 5, they commonly increase 50 – 80% in shell height and quadruple their meat weight. Sea scallops can live more than 20 years. They usually become sexually mature at age 2, but individuals younger than age 4 probably contribute little to total egg production. Sexes are separate and fertilization is external. Spawning usually occurs in late summer and early autumn; spring spawning may also occur, especially in the Mid-Atlantic Bight. Sea scallops are highly fecund; a single large female can release hundreds of millions of eggs annually. Larvae remain in the water column for four to seven weeks before settling to the bottom. Sea scallops attain commercial size at about four to five years old, though historically, three-year-olds were often exploited. Sea scallops have a somewhat uncommon combination of life-history attributes: low mobility, rapid growth, and low natural mortality (NEFSC 2011).

Management and Fishery. The commercial fishery for sea scallops is conducted year-round, primarily using New Bedford style and turtle deflector scallop dredges. A small percentage of the fishery uses otter trawls, mostly in the Mid-Atlantic. The principal U.S. commercial fisheries are in the Mid-Atlantic (from Virginia to Long Island, New York) and on Georges Bank and neighboring areas, such as the Great South Channel and Nantucket Shoals. There is also a small, primarily inshore fishery for sea scallops in the Gulf of Maine. The NEFMC established the Scallop FMP in 1982. The scallop resource was last assessed in 2020, and it was not overfished, and overfishing was not occurring (NEFSC 2011). Scallop dredge discards comprise about half of all skate discards (Table 9).

5.3 PROTECTED SPECIES

5.3.1 Protected Species Present in the Area

Numerous protected species occur in the affected environment of the Skate FMP (Table 11) and could be impacted by the proposed action (i.e., there have been observed/documented interactions in the fisheries or with gear types like those used in the fisheries (bottom trawl, gillnet gear)). These species are under NMFS jurisdiction and are afforded protection under the Endangered Species Act (ESA) of 1973 and/or the Marine Mammal Protection Act (MMPA) of 1972.

Table 11. Species protected under the ESA and/or MMPA that may occur in the skate fishery affected environment.

Species	Status	Potentially impacted by this action?
Cetaceans		
North Atlantic right whale (Eubalaena glacialis)	***Endangered***	***Yes***
Humpback whale, West Indies DPS (*Megaptera novaeangliae)*	Protected (MMPA)	Yes
Fin whale (Balaenoptera physalus)	***Endangered***	***Yes***
Sei whale (Balaenoptera borealis)	***Endangered***	***Yes***
Blue whale (Balaenoptera musculus)	***Endangered***	***No***
Sperm whale (Physeter macrocephalus	***Endangered***	***Yes***
Minke whale (*Balaenoptera acutorostrata*)	Protected (MMPA)	Yes
Pilot whale (Globicephala spp.)[2]	Protected (MMPA)	Yes
Pygmy sperm whale (*Kogia breviceps*)	Protected (MMPA)	No
Dwarf sperm whale (*Kogia sima*)	Protected (MMPA)	No
Risso's dolphin (*Grampus griseus*)	Protected (MMPA)	Yes

Species	Status	Potentially impacted by this action?
Atlantic white-sided dolphin (*Lagenorhynchus acutus*)	Protected (MMPA)	Yes
Short Beaked Common dolphin (*Delphinus delphis*)	Protected (MMPA)	Yes
Atlantic Spotted dolphin (*Stenella frontalis*)	Protected (MMPA)	No
Striped dolphin (*Stenella coeruleoalba*)	Protected (MMPA)	No
Bottlenose dolphin, Western North Atlantic (WNA) Offshore Stock (*Tursiops truncatus*)	Protected (MMPA)	Yes
Bottlenose dolphin, WNA Northern Migratory Coastal Stock (Tursiops truncatus)	***Protected (MMPA)***	***Yes***
Bottlenose dolphin, WNA Southern Migratory Coastal Stock (Trusiops truncatus)	***Protected (MMPA)***	***Yes***
Harbor porpoise (*Phocoena phocoena*)	Protected (MMPA)	Yes
Sea Turtles		
Leatherback sea turtle (*Dermochelys coriacea*)	Endangered	Yes
Kemp's ridley sea turtle (*Lepidochelys kempii*)	Endangered	Yes
Green sea turtle, North Atlantic DPS (*Chelonia mydas*)	Threatened	Yes
Loggerhead sea turtle (*Caretta caretta*), Northwest Atlantic Ocean DPS	Threatened	Yes
Hawksbill sea turtle (*Eretmochelys imbricate*)	Endangered	No
Fish		
Shortnose sturgeon (*Acipenser brevirostrum*)	Endangered	No
Giant manta ray (*Manta birostris)*	Threatened	Yes
Oceanic whitetip shark (*Carcharhinus longimanus*)	Threatened	No
Atlantic salmon (*Salmo salar*)	Endangered	Yes
Atlantic sturgeon *(Acipenser oxyrinchus)*		
Gulf of Maine DPS	Threatened	Yes
New York Bight DPS, Chesapeake Bay DPS, Carolina DPS & South Atlantic DPS	Endangered	Yes
Pinnipeds		
Harbor seal (*Phoca vitulina*)	Protected (MMPA)	Yes
Gray seal (*Halichoerus grypus*)	Protected (MMPA)	Yes
Harp seal (*Phoca groenlandicus*)	Protected (MMPA)	Yes
Hooded seal (*Cystophora cristata*)	Protected (MMPA)	Yes
Critical Habitat		
North Atlantic Right Whale	ESA Designated	No
Northwest Atlantic DPS of Loggerhead Sea Turtle	ESA Designated	No
Notes: Marine mammal species italicized and in bold are considered MMPA strategic stocks.[1] [1] A strategic stock is defined under the MMPA as a marine mammal stock for which: (1) the level of direct human-caused mortality exceeds the potential biological removal level; (2) based on the best available scientific information, is declining and is likely to be listed as a threatened species under the ESA within the foreseeable future; and/or (3) is listed as a threatened or endangered species under the ESA, or is designated as depleted under the MMPA (Section 3 of the MMPA of 1972).		

Species	Status	Potentially impacted by this action?
[2] There are two species of pilot whales: short finned (*G. melas melas*) and long finned (*G. macrorhynchus*). Due to the difficulties in identifying the species at sea, they are often just referred to as *Globicephala spp*.		

5.3.2 Species and Critical Habitat Unlikely to be Impacted by the Proposed Action

Based on available information, it has been determined that this action is unlikely to impact multiple ESA listed and/or MMPA protected species or any designated critical habitat (Table 11). This determination has been made because either the occurrence of the species is not known to overlap with the area primarily affected by the action and/or based on the most recent ten years of information on documented interactions between the species and the primary gear type (i.e., bottom trawl and gillnet) used to prosecute the skate fishery (Greater Atlantic Region (GAR) Marine Animal Incident Database, unpublished data; NMFS Marine Mammal Stock Assessment Reports (SARs) for the Atlantic Region; NMFS NEFSC observer/sea sampling database, unpublished data; NMFS NEFSC marine mammal (small cetacean, pinniped, baleen whale) serious injury and mortality Reference Documents, Publications, or Technical Memoranda; MMPA List of Fisheries (LOF); NMFS 2021a).[2] In the case of critical habitat, this determination has been made because the action will not affect the essential physical and biological features of critical habitat identified in Table 11 and therefore, will not result in the destruction or adverse modification of any species critical habitat (NMFS 2021c).

5.3.3 Species Potentially Impacted by the Proposed Action

Table 11 lists protected species of sea turtle, marine mammal, and fish species present in the affected environment of the skate fishery, and that may also be impacted by the operation of this fishery; that is, could become entangled or bycaught in the fishing gear used to prosecute the fishery. To help identify MMPA protected species potentially impacted by the action, NMFS Marine Mammal SARs for the Atlantic Region, MMPA List of Fisheries (LOF), NMFS (2021c), NMFS NEFSC observer/sea sampling database (unpublished data), and NMFS NEFSC marine mammal (small cetacean, pinniped, baleen whale) serious injury and mortality Reference Documents, Publications, or Technical Memoranda were referenced.

To help identify ESA listed species potentially impacted by the action, the NMFS NEFSC observer/sea sampling, Sea Turtle Disentanglement Network (STDN), and the GAR Marine Animal Incident databases for interactions were queried and the May 27, 2021, Biological Opinion issued by NMFS was reviewed (NMFS 2021b).

As the primary concern for both MMPA protected and ESA listed species is the potential for the fishery to interact (e.g., bycatch, entanglement) with these species it is necessary to consider (1) species occurrence in the affected environment of the fishery and how the fishery will overlap in time and space with this occurrence; and (2) data and observed records of protected species interaction with particular

[2] For MMPA protected species, the most recent 10 years of information on estimated bycatch of small cetacean and pinnipeds in commercial fisheries covers the timeframe between 2011-2020; for large baleen whales, confirmed human caused serious injury, mortality, and entanglement reports are from 2012-2021. For ESA listed species, information on observer or documented interactions with fishing gear is from 2012-2021; the exception is Sea Turtle Disentanglement Network data, which is available through 2022.

fishing gear types, in order to understand the potential risk of an interaction. Information on species occurrence in the affected environment of the skate fishery and on protected species interactions with specific fishery gear is provided below.

5.3.3.1 Sea Turtles

Below is a summary of the status and trends, as well as the occurrence and distribution of sea turtles in the affected environment of the skate fishery. More information on the range-wide status of affected sea turtles species, as well as a description and life history of each of these species, is in several published documents, including NMFS (2021b); sea turtle status reviews and biological reports (NMFS & USFWS 2007; 2015; 2020; 2023; Seminoff et al. 2015; TEWG 1998; 2000; 2007; 2009), and recovery plans for the loggerhead (Northwest Atlantic DPS) sea turtle (NMFS & USFWS 2008), leatherback sea turtle (NMFS & USFWS 1992; 1998), Kemp's ridley sea turtle (NMFS & USFWS 2011), and green sea turtle (North Atlantic DPS; NMFS & USFWS 1991).

Status and Trends. Four sea turtle species could be impacted by the proposed action: Northwest Atlantic Ocean DPS of loggerhead, Kemp's ridley, North Atlantic DPS of green, and leatherback sea turtles (Table 11). Although stock assessments and similar reviews have been completed for sea turtles none have been able to develop a reliable estimate of absolute population size. As a result, nest counts are used to inform population trends for sea turtle species.

For the Northwest Atlantic Ocean DPS of loggerhead sea turtles, there are five unique recovery units that comprise the DPS. Nesting trends for each of these recovery units are variable; however, Peninsular Florida nesting beaches comprise most of the nesting in the DPS (https://myfwc.com/research/wildlife/sea-turtles/nesting/beach-survey-totals/). Overall, short-term trends for loggerhead sea turtle nestings (Northwest Atlantic Ocean DPS) have shown increases; however, over the long-term, the DPS is considered stable (Bolton et al. 2019; NMFS & USFWS 2023).

For Kemp's ridley sea turtles, from 1980 through 2003, the number of nests at three primary nesting beaches (Rancho Nuevo, Tepehuajes, and Playa Dos) increased 15% annually (Heppell et al. 2005); however, due to recent declines in nest counts, decreased survival of immature and adult sea turtles, and updated population modeling, this rate is not expected to continue (NMFS and USFWS 2015; Caillouett et al. 2018). Nest numbers have fluctuated in recent years. In 2020, there were 20,205 nests (Burchfield et al. 2021) which was a bit lower than 2017, which had the highest number (24,587) of nests. While the nesting trend is encouraging, given previous fluctuations in nesting and continued anthropogenic threats to the species, the overall trend is unclear.

The North Atlantic DPS of green sea turtle, overall, is showing a mixed trend in nesting. Green turtle nesting in Florida is increasing, with a record-breaking year in 2023 with 76,645 nests, and Caribbean Mexico and Cuba nesting also continues to increase. However, a recent analysis of 51 years of nesting data shows a recent (beginning in 2009) downward trend in green turtle nesting at Tortuguero, the largest nesting assemblage for this DPS (Restrepo et al. 2023). As anthropogenic threats to this species continue, the differences in nesting trends will need to be monitored to verify the North Atlantic DPS resiliency to future perturbations.

Leatherback turtle nesting in the Northwest Atlantic is showing an overall negative trend, with the most notable decrease occurring during the most recent time frame of 2008 to 2017 (Northwest Atlantic Leatherback Working Group 2018). The leatherback status review in 2020 concluded that leatherbacks are exhibiting an overall decreasing trend in annual nesting activity (NMFS & USFWS 2020). Given continued anthropogenic threats to the species, according to NMFS (2021b), the species' resilience to additional perturbation both within the Northwest Atlantic and worldwide is low.

Occurrence and Distribution.

Hard-shelled sea turtles. In U.S. Northwest Atlantic waters, hard-shelled turtles commonly occur throughout the continental shelf from Florida to Cape Cod, MA, although their presence varies with the seasons due to changes in water temperature (Blumenthal et al. 2006; Braun-McNeill & Epperly 2002; Braun-McNeill et al. 2008; Braun & Epperly 1996; Epperly, Braun & Chester 1995; Epperly, Braun, Chester, et al. 1995; Griffin et al. 2013; Hawkes et al. 2006; Hawkes et al. 2011; Mansfield et al. 2009; McClellan & Read 2007; Mitchell et al. 2003; Morreale & Standora 2005; Shoop & Kenney 1992; TEWG 2009). As coastal water temperatures warm in the spring, loggerheads begin to migrate to inshore waters of the southeast United States and also move up the Atlantic Coast (Braun-McNeill & Epperly 2002; Epperly, Braun & Chester 1995; Epperly, Braun, Chester, et al. 1995; Epperly, Braun & Veishlow 1995; Griffin et al. 2013; Morreale & Standora 2005), occurring in Virginia foraging areas as early as late April and on the most northern foraging grounds in the GOM in June (Shoop & Kenney 1992). The trend is reversed in the fall as water temperatures cool. The large majority leave the GOM by September, but some remain in Mid-Atlantic and Northeast areas until late fall (i.e., November). By December, sea turtles have migrated south to waters offshore of North Carolina, particularly south of Cape Hatteras, and further south, although it should be noted that hard-shelled sea turtles can occur year-round in waters off Cape Hatteras and south (Epperly, Braun & Chester 1995; Griffin et al. 2013; Hawkes et al. 2011; Shoop & Kenney 1992).

Leatherback sea turtles. Leatherbacks, a pelagic species, are known to use coastal waters of the U.S. continental shelf and to have a greater tolerance for colder water than hard-shelled sea turtles (Dodge et al. 2014; Eckert et al. 2006; James et al. 2005; Murphy et al. 2006; NMFS & USFWS 2013). Leatherback sea turtles engage in routine migrations between northern temperate and tropical waters (Dodge et al. 2014; James et al. 2005; James et al. 2006; NMFS & USFWS 1992). They are found in more northern waters (i.e., GOM) later in the year (i.e., similar time frame as hard-shelled sea turtles), with most leaving the Northwest Atlantic shelves by mid-November (Dodge et al. 2014; James et al. 2005; James et al. 2006).

5.3.3.2 Large Whales

Status and Trends. Six large whale species could be impacted by the proposed action: humpback, North Atlantic right, fin, sei, sperm, and minke whales (Table 12). Linden (2023) indicates continued annual mortalities above recovery thresholds (i.e., the Potential Biological Removal Level) for the North Atlantic right whale population; while for fin, humpback, minke, sperm, and sei whales, it is unknown what the population trajectory is as a trend analysis has not been conducted (Marine Mammal SARs for the Atlantic Region (for 2011-2020)).

Occurrence and Distribution. North Atlantic right, humpback, fin, sei, sperm, and minke whales occur in the Northwest Atlantic Ocean. As large whales may be present in these waters throughout the year, the skate fishery and large whales are likely to co-occur in the affected area. To further assist in understanding how the skates fishery overlaps in time and space with the occurrence of large whales, Table 12 is an overview of species occurrence and distribution in the affected environment of the fishery. More information on North Atlantic right, humpback, fin, sei, sperm, and minke whales is in NMFS Marine Mammal SARs for the Atlantic Region.

Table 12. Large whale occurrence, distribution, and habitat use in the skate fishery affected environment.

Species	Occurrence/Distribution/Habitat Use in the Affected Environment
North Atlantic Right Whale	● Predominantly occupy waters of the continental shelf, but based on passive acoustic and telemetry data, are also known to make lengthy excursions into deep waters off the shelf. ● Visual and acoustic data demonstrate broad scale, year-round presence along the U.S. eastern seaboard (e.g., GOM, New Jersey, and Virginia). ● Surveys have demonstrated the existence of several areas where North Atlantic right whales congregate seasonally, including Cape Cod Bay; Massachusetts Bay; and the continental shelf south of New England. Although whales can be found consistently in particular locations throughout their range, there is a high inter-annual variability in right whale use of some habitats. Since 2010, acoustic and visual surveys indicate a shift in habitat use patterns, including: > Fewer individuals are detected in the Great South Channel; > Increase in the number of individuals using Cape Cod Bay in the spring; > Apparent abandonment of central GOM in the winter; and, > Large increase in the numbers of whales detected in a region south of Martha's Vineyard and Nantucket Islands. Presence in this area is almost year-round, with highest sighting rates from winter through early spring. > Passive acoustic monitoring suggests a shift to a year-round presence in the Mid-Atlantic, including year round detections in the New York Bight with the highest presence between late February and mid-May in the shelf zone and nearshore habitat).
Humpback	• Distributed throughout all continental shelf waters of the Mid-Atlantic (SNE included), GOM, and GB throughout the year. • New England waters (GOM and GB) = Foraging Grounds (~March- November); however, acoustic detections of humpbacks indicate year-round presence in New England waters, including the waters of Stellwagen Bank. • Mid-Atlantic waters: Increasing evidence that mid-Atlantic areas are becoming an important habitat for juvenile humpback whales. • Since 2011, increased sightings of humpback whales in the New York-New Jersey Harbor Estuary, in waters off Long Island, and along the shelf break east of New York and New Jersey. • Increasing visual and acoustic evidence of whales remaining in mid- and high-latitudes throughout the winter (e.g., Mid- Atlantic: waters near Chesapeake and Delaware Bays, peak presence about January through March; Massachusetts Bay: peak presence about March-May and September-December).
Fin	• Distributed throughout all continental shelf waters of the Mid-Atlantic (SNE included), GOM, and GB; • Recent review of sighting data shows evidence that, while densities vary seasonally, fin whales are present in every season throughout most of the EEZ north of 30^{o}N. • New England waters (GOM and GB) = Major Foraging Ground
Sei	• Primarily found in deep waters along the shelf edge, shelf break, and ocean basins between banks; however, incursions into shallower shelf waters do occur

Species	Occurrence/Distribution/Habitat Use in the Affected Environment
	(e.g., Stellwagen Bank, Great South Channel, waters south of Nantucket, Georges Bank). • Spring through summer, sightings concentrated along the northern, eastern (into Northeast Channel) and southwestern (in the area of Hydrographer Canyon) edge of Georges Bank, and south of Nantucket, MA. • Recent acoustic detections peaked in northern latitudes in the summer, indicating feeding grounds ranging from Southern New England through the Scotian Shelf. • Persistent year-round detections in Southern New England and the New York Bight indicate this area to be an important region for sei whales. • The wintering habitat remains largely unknown. Passive acoustic monitoring conducted in 2015-2016 off Georges Bank detected sei whales calls from late fall through the winter along the southern Georges Bank region (off Heezen and Oceanographer Canyons).
Sperm	• Distributed on the continental shelf edge, over the continental slope, and into mid-ocean regions. • Seasonal Occurrence in the U.S. EEZ: >**Winter**: concentrated east and northeast of Cape Hatteras; >**Spring**: center of distribution shifts northward to east of Delaware and Virginia, and is widespread throughout the central portion of the mid-Atlantic bight and the southern portion of Georges Bank; >**Summer**: similar distribution to spring, but also includes the area east and north of Georges Bank and into the Northeast Channel region, as well as the continental shelf (inshore of the 100-m isobath) south of New England; and, >**Fall**: occur in high levels south of New England, on the continental shelf. Also occur along continental shelf edge in the mid-Atlantic bight.
Minke	• Widely distributed within the U.S. EEZ. • Spring to Fall: widespread (acoustic) occurrence on the continental shelf; most abundant in New England waters during this period of time. • September to April: high (acoustic) occurrence in deep-ocean waters.
*Sources***:** Baumgartner et al. (2011; 2007); Baumgartner and Mate (2005); Bort et al. (2015); Brown et al. (Brown et al. 2018; 2002); CeTAP (1982); Charif et al. (2020); Cholewiak et al. (2018); Clapham et al. (1993); Clark and Clapham (2004); Cole et al. (2013); Davis et al. (2017; 2020); Ganley et al. (2019); Good (2008); Hain et al. (1992); Hamilton and Mayo (1990); Hayes et al. (2017; 2018; 2019; 2020; 2021; 2022; 2023); Kenney et al. (1986; 1995); Khan et al. (2010; 2011; 2012; 2009); Kraus et al. (2016); Leiter et al. (2017); Mate et al. (1997); Mayo et al. (2018); McLellan et al. (2004); Moore et al. (2021); Morano et al. (2012); Muirhead et al. (2018); Murray et al. (2013); NMFS (1991; 2005; 2010; 2011; 2012; 2015; 2021a; c); NOAA (2008); Pace and Merrick (2008); Palka et al. (2017); Palka (2020); Payne et al. (1984; 1990); Pendleton et al. (2009); Record et al. (2019); Risch et al. (2013); Robbins (2007); Roberts et al. (2016)); Salisbury et al. (2016); Schevill et al. (1986); Stanistreet et al. (2018); Stone et al. (2017); Swingle et al. (1993); Vu et al. (2012); Watkins and Schevill (1982); Whitt et al. (2013); Winn et al. (1986); 81 FR 4837 (January 27, 2016); 86 FR 51970 (September 17, 2021).	

5.3.3.3 Small Cetaceans

Status and Trends. Risso's, white-sided, short beaked common, and bottlenose dolphins (Western North Atlantic Offshore, Northern Migratory Coastal, and Southern Migratory Coastal stocks); long and short – finned pilot whales; and harbor porpoise could be impacted by the proposed action (Table 12). As a trend analysis has not been conducted for Risso's, white-sided, short-beaked common dolphins; long-finned pilot whales; or harbor porpoise, the population trajectory for these species is unknown (Hayes et al. 2021). For short-finned pilot whales a generalized linear model indicated no significant trend in the abundance estimates (Hayes et al. 2022). For the Western North Atlantic Offshore stock, review of the most recent information on the stock shows no statistically significant trend in population size for this species; however, the high level of uncertainty in the estimates limits the ability to detect a statistically significant trend. In regards to the Northern and Southern Migratory Coastal stocks (both considered a strategic stock under the MMPA), the most recent analysis of trends in abundance suggests a probable decline in stock size between 2010–2011 and 2016, concurrent with a large UME in the area; however, there is limited power to evaluate trends given uncertainty in stock distribution, lack of precision in abundance estimates, and a limited number of surveys (Hayes et al. 2021).

Occurrence and Distribution. Atlantic white sided dolphins, short and long finned pilot whales, Risso's dolphins, short beaked common dolphins, harbor porpoise, and several stocks of bottlenose dolphins are found throughout the year in the Northwest Atlantic Ocean (see NMFS Marine Mammal SARs for the Atlantic Region). Within this range, however, there are seasonal shifts in species distribution and abundance. To further assist in understanding how the skate fishery overlaps in time and space with the occurrence of small cetaceans, Table 13 is an overview of species occurrence and distribution in the affected environment of the fishery. More information on small cetacean occurrence and distribution in the Northwest Atlantic is in the NMFS Marine Mammal SARs for the Atlantic Region.

Table 13. Small cetacean occurrence and distribution in the skate fishery affected environment.

Species	Occurrence and Distribution in the Affected Environment
Atlantic White Sided Dolphin	• Distributed throughout the continental shelf waters (primarily to 100 m) of the Mid-Atlantic (north of 35°N), SNE, GB, and GOM; however, most common in continental shelf waters from Hudson Canyon (~ 39°N) to GB, and into the GOM. • **January-May**: low densities found from GB to Jeffreys Ledge. • **June-September**: Large densities found from GB, through the GOM. • **October-December**: intermediate densities found from southern GB to southern GOM. • South of GB (SNE and Mid-Atlantic), particularly around Hudson Canyon, low densities found year-round, • Virginia (VA) and North Carolina (NC) waters represent southern extent of species range during winter months.
Short Beaked Common Dolphin	• Regularly found throughout the continental shelf-edge-slope waters (primarily between the 100-2,000 m isobaths) of the Mid-Atlantic, SNE, and GB (esp. in Oceanographer, Hydrographer, Block, and Hudson Canyons). • Less common south of Cape Hatteras, NC, although schools have been reported as far south as the Georgia/South Carolina border. • **January-May**: occur from waters off Cape Hatteras, NC, to GB (35° to 42°N). • **Mid-summer-autumn**: Occur in the GOM and on GB; Peak abundance found on GB in the autumn.
Risso's Dolphin	• **Spring through fall**: Distributed along the continental shelf edge from Cape Hatteras, NC, to GB.

Species	Occurrence and Distribution in the Affected Environment
	• **Winter**: distributed in the Mid-Atlantic Bight, extending into oceanic waters. • Rarely seen in the GOM; primarily a Mid-Atlantic continental shelf edge species (can be found year-round).
Harbor Porpoise	• Distributed throughout the continental shelf waters of the Mid-Atlantic, SNE, GB, and GOM. • **July-September**: Concentrated in the northern GOM (waters <150 meters); low numbers can be found on GB. • **October-December**: widely dispersed in waters from New Jersey (NJ) to Maine (ME); seen from the coastline to deep waters (>1,800 meters). • **January-March**: intermediate densities in waters off NJ to NC; low densities found in waters off New York (NY) to GOM. • **April-June**: widely dispersed from NJ to ME; seen from the coastline to deep waters (>1,800 meters). • Passive acoustic monitoring indicates regular presence from January through May offshore of Maryland.
Bottlenose Dolphin	**<u>Western North Atlantic Offshore Stock</u>** • Distributed primarily along the outer continental shelf and continental slope in the Northwest Atlantic from GB to Florida (FL). • Depths of occurrence: ≥40 meters **<u>Western North Atlantic Northern Migratory Coastal Stock</u>** • Most common in coastal waters <20 m deep. • Warm water months (e.g., July-August): distributed from the coastal waters from the shoreline to about 25-m isobaths between the mouth of the Chesapeake Bay and Long Island, NY. • Cold water months (e.g., January-March): stock occupies coastal waters from Cape Lookout, NC, to the NC/VA border. **<u>Western North Atlantic Southern Migratory Coastal Stock</u>** • Most common in coastal waters <20 m deep. • **October-December**: appears stock occupies waters of southern NC (south of Cape Lookout) • **January-March**: appears stock moves as far south as northern FL. • **April-June**: stock moves north to waters of NC. • **July-August**: stock is presumed to occupy coastal waters north of Cape Lookout, NC, to the eastern shore of VA (as far north as Assateague).
Pilot Whales: ***Short- and Long-Finned***	**<u>Short- Finned Pilot Whales</u>** • Except for area of overlap (see below), primarily occur south of 40^{o}N (Mid-Atlantic and SNE waters); although low numbers have been found along the southern flank of GB, but no further than 41^{o}N. • Distributed primarily near the continental shelf break of the Mid-Atlantic and SNE (i.e., off Nantucket Shoals). **<u>Long-Finned Pilot Whales</u>** • Except for area of overlap (see below), primarily occur north of 42^{O}N. • Winter to early spring: distributed principally along the continental shelf edge off the northeastern U.S. coast.

Species	Occurrence and Distribution in the Affected Environment
	• Late spring through fall: movements and distribution shift onto GB and into the GOM and more northern waters. • Species tends to occupy areas of high relief or submerged banks. **Area of Species Overlap:** along the mid-Atlantic shelf break between Delaware and the southern flank of GB.
Notes: Information is representative of small cetacean occurrence in the Northwest Atlantic continental shelf waters out to 2,000 m depth *Sources*: Marine Mammal SARs for the Atlantic Region; Payne and Heinemann (1993); Payne et al. (1984); Jefferson et al. (2009)	

5.3.3.4 Pinnipeds

Status and Trends. Harbor, gray, harp and hooded seals are identified as having the potential to be impacted by the proposed action (Table 14). Based on Hayes et al. (2019; 2022), the status of the:

- Western North Atlantic harbor seal and hooded seal, relative to Optimum Sustainable Population (OSP), in the U.S. Atlantic EEZ is unknown;
- gray seal population relative to OSP in U.S. Atlantic EEZ waters is unknown, but the stock's abundance appears to be increasing in Canadian and U.S. waters; and,
- harp seal stock, relative to OSP, in the U.S. Atlantic EEZ is unknown, but the stock's abundance appears to have stabilized.

Occurrence and Distribution. Harbor, gray, harp, and hooded seals are found in the nearshore, coastal waters of the Northwest Atlantic Ocean. Depending on species, they may be present year-round or seasonally in some portion of the affected environment of the skate fishery. To further assist in understanding how the skate fishery overlaps in time and space with the occurrence of pinnipeds, Table 14 is an overview of species occurrence and distribution in the affected environment of the fishery. More information on pinniped occurrence and distribution in the Northwest Atlantic, is in the NMFS Marine Mammal SARs for the Atlantic Region.

Table 14. Pinniped occurrence and distribution in the skate fishery affected environment.

Species	Occurrence and Distribution in the Affected Environment
Harbor Seal	• Year-round inhabitants of Maine; • September through late May: occur seasonally along the coasts from southern New England to Virginia.
Gray Seal	• Ranges from New Jersey to Labrador, Canada.
Harp Seal	• Winter-Spring (approx. January-May): Can occur in the U.S. Atlantic Exclusive Economic Zone. • Sightings and strandings have been increasing off the east coast of the United States from Maine to New Jersey.
Hooded Seal	• Highly migratory; can occur in waters from Maine to Florida. Usually occur between January and May in New England waters, and in summer and autumn off the southeast U.S. coast and in the Caribbean.
Sources: Marine Mammal SARs for the Atlantic Region.	

5.3.3.5 Atlantic sturgeon

Status and Trends. Atlantic sturgeon (all five DPSs) could be impacted by the proposed action (Table 11). Population trends for Atlantic sturgeon are difficult to discern; however, the most recent stock assessment report concludes that Atlantic sturgeon, at both coastwide and DPS level, are depleted relative to historical levels (ASMFC 2017; ASSRT 2007; NMFS 2021a).

Occurrence and Distribution. The marine range of U.S. Atlantic sturgeon extends from Labrador, Canada, to Cape Canaveral, Florida. All five DPSs of Atlantic sturgeon could be located anywhere in this marine range (Altenritter et al. 2017; ASMFC 2017; ASSRT 2007; Breece et al. 2016; Breece, Fox, Haulsee, et al. 2018; Dadswell 2006; Dadswell et al. 1984; Dovel & Berggren 1983; Dunton et al. 2015; Dunton et al. 2010; Erickson et al. 2011; Hilton et al. 2016; Ingram et al. 2019; Kazyak et al. 2021; Kynard et al. 2000; Laney et al. 2007; Novak et al. 2017; O'Leary et al. 2014; Rothermel et al. 2020; Stein et al. 2004a; Waldman et al. 2013; Wippelhauser et al. 2017; Wirgin, Breece, et al. 2015; Wirgin, Maceda, et al. 2015).

Based on fishery-independent and dependent surveys, and data collected from genetic, tracking, and/or tagging studies in the marine environment, Atlantic sturgeon appear to typically occur inshore of the 50 meter depth contour; however, Atlantic sturgeon are not restricted to these depths, as excursions into deeper continental shelf waters have been documented (Altenritter et al. 2017; Breece et al. 2016; Breece, Fox & Oliver 2018; Collins & Smith 1997; Dunton et al. 2010; Erickson et al. 2011; Ingram et al. 2019; Novak et al. 2017; Rothermel et al. 2020; Stein et al. 2004a; b; Wippelhauser et al. 2017). In addition to depth, numerous studies have demonstrated that temperature is a key variable in Atlantic sturgeon presence and distribution in the marine environment (Altenritter et al. 2017; Breece, Fox & Oliver 2018; Erickson et al. 2011; Ingram et al. 2019; Novak et al. 2017; Rothermel et al. 2020; Wippelhauser et al. 2017). Data from fishery-independent and dependent surveys, and data collected from genetic, tracking, and/or tagging studies also indicate that Atlantic sturgeon make seasonal coastal movements from marine waters to river estuaries in the spring and from river estuaries to marine waters in the fall; however, there is no evidence to date that all Atlantic sturgeon make these seasonal movements and therefore, may be present throughout the marine environment throughout the year (Altenritter et al. 2017; Breece, Fox & Oliver 2018; Dunton et al. 2010; Erickson et al. 2011; Ingram et al. 2019; Novak et al. 2017; Rothermel et al. 2020; Wippelhauser 2012; Wippelhauser et al. 2017). When in the marine environment, Atlantic sturgeon presence and distribution in nearshore or offshore environments also appears to be seasonally variable; with preference for shallow, coastal waters in the spring, more offshore waters in the late fall-winter, and mouths of estuaries in the summer. Residency times in these areas of the marine environment are variable, with suitable environmental conditions (e.g., depth and temperature) dictating residency in an area (Altenritter et al. 2017; Breece, Fox & Oliver 2018; Erickson et al. 2011; Ingram et al. 2019; Novak et al. 2017; Rothermel et al. 2020; Wippelhauser et al. 2017).

More information on the biology and range wide distribution of each DPS of Atlantic sturgeon is in 77 FR 5880 and 77 FR 5914, the Atlantic Sturgeon Status Review Team's (ASSRT) 2007 status review of Atlantic sturgeon (ASSRT 2007); the ASMFC 2017 Atlantic Sturgeon Benchmark Stock Assessment and Peer Review Report (ASMFC 2017), and NMFS (2021a).

5.3.3.6 Atlantic salmon

Status and Trends. Atlantic salmon (GOM DPS) could be impacted by the proposed action (Table 11). There is no population growth rate available for GOM DPS Atlantic salmon; however, the consensus is that the DPS exhibits a continuing declining trend (NMFS 2021a; NMFS & USFWS 2018; NOAA 2016).

Occurrence and Distribution. The wild populations of Atlantic salmon are listed as endangered under the ESA. Their freshwater range occurs in the watersheds from the Androscoggin River northward along the Maine coast to the Dennys River, while the marine range of the GOM DPS extends from the GOM (primarily the northern portion) to the coast of Greenland (Fay et al. 2006; NMFS & USFWS 2005; 2016). In general, smolts, post-smolts, and adult Atlantic salmon may be present in the GOM and coastal waters of Maine in the spring (beginning in April), and adults may be present throughout the summer and fall months (Baum 1997; Fay et al. 2006; Hyvärinen et al. 2006; Lacroix & Knox 2005; Lacroix & McCurdy 1996; Lacroix et al. 2004; NMFS & USFWS 2005; 2016; Reddin 1985; Reddin & Friedland 1993; Reddin & Short 1991; Sheehan et al. 2012; USASAC 2013). More information on the biology and range wide distribution of the GOM DPS of Atlantic salmon is in NMFS and USFWS (2005; 2016); Fay et al. (2006); and NMFS (2021a).

5.3.3.7 Giant Manta Ray

Status and Trends. Giant manta rays could be impacted by the proposed action (Table 11). While there is considerable uncertainty regarding the giant manta ray's current abundance throughout its range, the best available information indicates that in areas where the species is not subject to fishing, populations may be stable (NMFS 2021a). However, in regions where giant manta rays are (or were) actively targeted or caught as bycatch populations appear to be decreasing (Miller & Klimovich 2017).

Occurrence and Distribution. Based on the giant manta ray's distribution, the species may occur in coastal, nearshore, and pelagic waters off the U.S. east coast. Along the U.S. East Coast, giant manta rays are usually found in water temperatures between 19 and 22°C and have been observed as far north as New Jersey. Given that the species is rarely identified in the fisheries data in the Atlantic, it may be assumed that populations within the Atlantic are small and sparsely distributed (Miller & Klimovich 2017).

5.3.4 Gear Interactions and Protected Species

Protected species are at risk of interacting (e.g., bycaught or entangled) with various types of fishing gear, with interaction risks associated with gear type, quantity, soak or tow duration, and degree of overlap between gear and protected species. Information on observed or documented interactions between gear and protected species is available from as early as 1989 (NMFS Marine Mammal SARs for the Atlantic Region; NMFS NEFSC observer/sea sampling database, unpublished data). As the distribution and occurrence of protected species and the operation of fisheries (and, thus, risk to protected species) have changed over the last 30 years, we use the most recent ten years of available information to best capture the current risk to protected species from fishing gear. For marine mammals protected under the MMPA, the most recent 10 years of information on estimated bycatch of small cetacean and pinnipeds in commercial fisheries covers the timeframe between 2011-2020; for large baleen whales, confirmed human caused serious injury, mortality, and entanglement reports are from 2012-2021 (GAR Marine Animal Incident Database, unpublished data; Cole et al. 2013; Cole & Henry 2013; Hayes et al. 2017; 2018; 2019; 2020; Hayes et al. 2021; Hayes et al. 2022; 2023; Henry et al. 2017; Henry et al. 2016; Henry et al. 2020; Henry et al. 2021; 2022; 2023; Henry et al. 2019; Waring et al. 2016). For ESA listed species, the most recent ten years of data on observed or documented interactions is available from 2012-2021; the exception is Sea Turtle Disentanglement Network data, which is available through 2022 (ASMFC 2017; Kocik et al. 2014; NMFS 2021a; unpublished data: GAR Marine Animal Incident Database, NMFS NEFSC observer/sea sampling database, GAR Sea Turtle and Disentanglement Network, NMFS Sea Turtle Stranding and Salvage Network) (NMFS Marine Mammal SARs for the Atlantic Region; NMFS NEFSC protected species serious injury and mortality Reference Documents, Publications, or Technical Memoranda). Available information on gear interactions with a given species (or species group) is in the sections below. This is not a comprehensive review of all fishing gear types known to interact with a given species; emphasis is only being placed on the primary gear types used to prosecute the skate fishery (i.e., sink gillnet and bottom trawl gear).

5.3.4.1 Sea Turtles

Bottom Trawl Gear. Bottom trawl gear poses an injury and mortality risk to sea turtles (Sasso & Epperly 2006; NMFS Observer Program, unpublished data). Since 1989, the date of our earliest observer records for federally managed fisheries, sea turtle interactions with trawl gear have been observed in the GOM, Georges Bank, and/or the Mid-Atlantic; however, most of the observed interactions have been observed south of the GOM (Murray 2008; 2015; 2020; NMFS 2021a; Warden 2011a; b). As few sea turtle interactions have been observed in the GOM, there is insufficient data available to conduct a robust model-based analysis and bycatch estimate of sea turtle interactions with trawl gear in this region. As a result, the bycatch estimates and discussion below are for trawl gear in the Mid-Atlantic and Georges Bank.

Murray (2015) estimated that from 2009-2013, the total average annual loggerhead interactions in bottom trawl gear in the Mid-Atlantic was 231 (CV=0.13, 95% CI=182-298); this equates to approximately 33 adult equivalents. Most recently, Murray (2020) provided information on sea turtle interaction rates from 2014-2018 (the most recent five-year period that has been statistically analyzed for trawls). Interaction rates were stratified by region, latitude zone, season, and depth. The highest loggerhead interaction rate (0.43 turtles/day fished) was in waters south of 37º N during November to June in waters over 50 m deep. The most estimated interactions occurred in the Mid-Atlantic region north of 39º N, during July to October in waters under 50 m deep. In each stratum, interaction rates for non-loggerhead species were lower than rates for loggerheads (Murray 2020).

Based on Murray (2020)[3], from 2014-2018, 571 loggerhead (CV=0.29, 95% CI=318-997), 46 Kemp's ridley (CV=0.45, 95% CI=10-88), 20 leatherback (CV=0.72, 95% CI=0-50), and 16 green (CV=0.73, 95% CI=0-44) sea turtle interactions were estimated to have occurred in bottom trawl gear in the Mid-Atlantic region over the five-year period. On Georges Bank, 12 loggerheads (CV=0.70, 95% CI=0-31) and 6 leatherback (CV=1.0, 95% CI=0-20) interactions were estimated to have occurred from 2014-2018. An estimated 272 loggerhead, 23 Kemp's ridley, 13 leatherback, and 8 green sea turtle interactions resulted in mortality over this period (Murray 2020).

Gillnet Gear. Interactions between sink gillnet gear and green, Kemp's ridley, loggerhead, and leatherback sea turtles have been observed in the GAR since 1989 (NMFS NEFSC observer/sea sampling database, unpublished data). Specifically, sea turtle interactions with gillnet gear have been observed in the GOM, Georges Bank, and/or the Mid-Atlantic; however, most of the observed interactions have been observed south of the GOM (Murray 2009a; b; 2013; 2018; 2023; NMFS 2021a; NMFS NEFSC observer/sea sampling database, unpublished data). As few sea turtle interactions have been observed in the GOM, there is insufficient data available to conduct a robust model-based analysis and bycatch estimate of sea turtle interactions with sink gillnet gear in this region. As a result, the bycatch estimates and discussion below are for sink gillnet gear in the Mid-Atlantic and Georges Bank.

From 2012-2016, Murray (2018) estimated that sink gillnet fisheries in the Mid-Atlantic and Georges Bank[4] bycaught 705 loggerheads (CV=0.29, 95% CI over all years: 335-1116), 145 Kemp's ridleys (CV =0.43, 95% CI over all years: 44-292), 27 leatherbacks (CV =0.71, 95% CI over all years 0-68), and 112

[3] Murray (2020) estimated interaction rates for each sea turtle species with stratified ratio estimators. This method differs from previous approaches (Murray 2008; 2015; Warden 2011a; b), where rates were estimated using generalized additive models (GAMs). Ratio estimator results may be like those using GAM or generalized linear models (GLM) if ratio estimators are stratified based on the same explanatory variables in a GAM or GLM model (Murray 2007; Murray & Orphanides 2013; Orphanides 2010).

[4] The boundaries of the Mid-Atlantic and Georges Bank were defined by Ecological Production Units (Murray 2018).

unidentified hard-shelled turtles (CV=0.37, 95% CI over all years:64-321).[5] Of these, mortalities were estimated at 557 loggerheads, 115 Kemp's ridley, 21 leatherbacks, and 88 unidentified hard-shelled sea turtles. Total estimated loggerhead bycatch was equivalent to 19 adults. The highest bycatch rate of loggerheads occurred in the southern Mid-Atlantic stratum (≤ 37°N to 34°N) in large mesh (≥ 7 inches) gear during November to June. Though only one sea turtle was observed in this stratum, observed effort was low, leading to a high bycatch rate. Bycatch rates of all other species were lower relative to loggerheads. Highest estimated loggerhead bycatch occurred in the northern mid-Atlantic (>37°N to the Georges Bank boundary) from July to October in large mesh gears due to the higher levels of commercial effort in the stratum. Mean loggerhead bycatch rates were ten times those of Kemp's ridley bycatch rates in large mesh gear in the northern Mid-Atlantic from July to October (Murray 2018). Although interactions between sink gillnet gear and green sea turtles have been observed (NEFSC observer/sea sampling database, unpublished data); green sea turtles were excluded from the bycatch rate calculations in Murray (2018) because the observed interaction occurred in waters of North Carolina, and therefore, outside the study region.

Updates to Murray (2018) were recently issued by Murray (2023). From 2017-2021[6], Murray (2023) estimated that sink gillnet fisheries operating from Maine to North Carolina[7] bycaught 142 loggerheads (CV=0.89, 95% CI for all years: 15-376), 91 Kemp's ridleys (CV =0.62, 95% CI for all years: 0-218), 49 greens (CV=1.01, 95% CI for all years: 0-177), 26 leatherbacks (CV=0.98, 95% CI for all years: 0-79), and 32 unidentified hard-shelled turtles (CV=0.59, 95% CI for all years: 0-75). Of these interactions, mortalities were estimated at 88 loggerheads, 56 Kemp's ridley, 30 greens, 16 leatherbacks, and 20 unidentified hard-shelled sea turtles. Total estimated loggerhead bycatch was equivalent to 2.5 adults. The highest interaction rate of loggerhead sea turtles occurred in the northern Mid-Atlantic (>37°N to the Georges Bank boundary) from July to October in large mesh gears (≥ 7 inches); relative to loggerheads, interaction rates were lower for all other sea turtle species.

5.3.4.2 Atlantic Sturgeon

Sink Gillnet. Interactions between Atlantic sturgeon and gillnet gear are likely (ASMFC 2017; Boucher & Curti 2023; Miller & Shepard 2011; NMFS 2021c; NMFS observer data). The NEFSC Observer Program have observed Atlantic sturgeon bycaught in Federal commercial gillnet fisheries since 1989, with recent gillnet bycatch estimates provided by Boucher and Curti (2023).

On September 26, 2022, NOAA Fisheries released a final Action Plan to reduce Atlantic sturgeon bycatch in Federal large mesh gillnet fisheries (Sturgeon Action Plan). The Sturgeon Action Plan identified numerous factors, including environmental (e.g., depth (<50m), season (Spring or Fall), seasonal water temperature), and operational fishing practices (e.g., soak time (>24hrs), mesh size (5.5"-12"), low profile net structure), that affect the risk of Atlantic sturgeon being bycaught in sink gillnet gear.

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[5] Murray (2018) estimated interaction rates for each sea turtle species with stratified ratio estimators. This method differs from previous approaches Murray (2009a); (2013), where rates were estimated using GAMs. Ratio estimator results may be like to those using GAM or GLM if ratio estimators are stratified based on the same explanatory variables in a GAM or GLM model (Murray 2007; Murray & Orphanides 2013; Orphanides 2010).
[6] Due to the COVID 19 pandemic, observer coverage rates were greatly reduced in 2020 and 2021. Murray (2023) determined that estimated interactions derived from a 3-year time series (2017-2019) did not differ significantly from those derived from the 5-year time series (2017-2021), suggesting that reduced and uneven observer monitoring in 2020 and 2021 did not bias the results using the longer time series. As a result, observer data from 2017-2019 was used to estimate sea turtles interaction rates, confidence intervals, and CVs for the 2017-2021 time series (Murray 2023).
[7] Murray (2023) defined this range as the boundaries of the Gulf of Maine, Georges Bank, and Mid-Atlantic Ecological Production Units.

The 2022 Sturgeon Action Plan, based on an extensive literature review, also contains a suite of recommendations to NOAA Fisheries, the New England Fishery Management Council, and the Mid-Atlantic Fishery Management Council that should be considered, refined, and implemented to reduce Atlantic sturgeon bycatch in subject fisheries. The Councils started developing a related action in 2023 and took final action in April 2024.

Bottom Trawl. Interactions between Atlantic sturgeon and bottom trawl gear are likely (ASMFC 2017; Boucher & Curti 2023; Miller & Shepard 2011; NMFS 2021c; NMFS observer data). The NEFSC Observer Program has observed Atlantic sturgeon bycaught in Federal commercial bottom trawl fisheries since 1989, with recent bottom trawl bycatch estimates provided by Boucher and Curti (2023). Like gillnet gear, both environmental (e.g., depth, seasonal temperature) and operational fishing practices can affect the risk of Atlantic sturgeon being bycaught in bottom trawl gear (NMFS 2021a).

5.3.4.3 Atlantic Salmon

Sink Gillnet and Bottom Trawl Gear. Atlantic salmon are at risk of interacting with bottom trawl or gillnet gear (Kocik et al. 2014; NMFS 2021a; NEFSC observer/sea sampling database, unpublished data). NEFOP data from 1989-2019 show records of incidental bycatch of Atlantic salmon in seven of the 31 years, with a total of 15 individuals caught, nearly half of which (seven) occurred in 1992 (NMFS NEFSC observer/sea sampling database, unpublished data).[8] Of the observed incidentally caught Atlantic salmon, ten were listed as “discarded,” which is assumed to be a live discard (Kocik, pers comm.; February 11, 2013). Five of the 15 were documented as lethal interactions. The incidental takes of Atlantic salmon occurred in bottom otter trawls (4) and gillnets (11). Observed captures occurred in March (2), April (2), May (1), June (3), August (1), and November (6). Given the very low number of observed Atlantic salmon interactions in gillnet and bottom trawl gear, interactions with these gear types are believed to be rare in the GAR.

5.3.4.4 Giant Manta Ray

Sink Gillnet and Bottom Trawl Gear. Giant manta rays are potentially susceptible to capture by bottom trawl and gillnet gear based on records of their capture in fisheries using these gear types (NMFS 2021a; NMFS NEFSC observer/sea sampling database, unpublished data). The most recent 10 years of NEFOP data showed that between 2010-2019, two (unidentified) giant manta rays were observed in bottom trawl gear and two were observed in gillnet gear (NMFS NEFSC observer/sea sampling database, unpublished data). All the giant manta ray interactions in gillnet or trawl gear recorded in the NEFOP database (13 in 2001-2019) indicate the animals were encountered alive and released alive. However, details about specific conditions such as injuries, damage, time out of water, how the animal was moved or released, or behavior on release is not always recorded. While there is no information on post-release survival, NMFS Southeast Gillnet Observer Program observed a range of 0-16 giant manta rays captured per year between 1998 and 2015 and estimated that about 89% survived the interaction and release (NMFS reports: http://www.sefsc.noaa.gov/labs/panama/ob/gillnet.htm).

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[8] There is no information available on the genetics of these bycaught Atlantic salmon, so it is not known how many of them were part of the GOM DPS. It is likely that some of these salmon, particularly those caught south of Cape Cod, may have originated from the stocking program in the Connecticut River. Those Atlantic salmon caught north of Cape Cod and/or in the Gulf of Maine are more likely to be from the GOM DPS.

5.3.4.5 Marine Mammals

Depending on species, marine mammals have been observed seriously injured or killed in bottom trawl and/or gillnet gear. Pursuant to the MMPA, NMFS publishes a List of Fisheries (LOF) annually, classifying U.S. commercial fisheries into one of three categories based on the relative frequency of incidental serious injuries and/or mortalities of marine mammals in each fishery (i.e., Category I=frequent; Category II=occasional; Category III=remote likelihood or no known interactions). In the Northwest Atlantic, the 2024 LOF (89 FR 122257; February 16, 2024) categorizes commercial sink gillnet fisheries (Northeast and Mid-Atlantic) as a Category I fishery; and bottom trawl fisheries (Northeast or Mid-Atlantic) as a Category II fishery.

5.3.4.6 Large Whales

Bottom Trawl Gear. Documented interactions between large whales and bottom trawl gear are infrequent. Review of the most recent 10 years of information on large whale entanglement in fishing gear indicates that between 2012-2021, there has been one confirmed entanglement case between a humpback whale and a full trawl net.[9] In 2020, a live, humpback whale was anchored/entangled in fishing gear, later identified by NMFS as trawl net. The animal was disentangled by trained responders from the Atlantic Large Whale Disentanglement Network. Given the disentanglement efforts, gear was removed and recovered from the animal, resulting in the whale being released alive, with non-serious injuries. Additional information on this incident can be found in the 2020 Atlantic Large Whale Entanglement Report and Henry et al. 2023.

Sink Gillnet Gear. Large whale interactions (entanglements) with fishing gear have been observed and documented in the waters of the Northwest Atlantic.[10] Information available on all interactions (e.g., entanglement, vessel strike, unknown cause) with large whales comes from reports documented in the GAR Marine Animal Incident Database (unpublished data). The level of information collected for each case varies, but may include details on the animal, gear, and any other information about the interaction (e.g., location, description, etc.). Each case is evaluated using defined criteria to assign the case to an injury/information category using all available information and scientific judgement. In this way, the injury severity and cause of injury/death for the event is evaluated, with serious injury and mortality determinations issued by the NEFSC.[11]

Based on the best available information, the greatest entanglement risk to large whales is posed by fixed gear used in trap/pot or sink gillnet fisheries (Angliss & DeMaster 1998; Hamilton et al. 2019; Hartley et al. 2003; Henry et al. 2017; Henry et al. 2014; 2015; 2016; Henry et al. 2020; Henry et al. 2021; 2022; 2023; Henry et al. 2019; Johnson et al. 2005; Knowlton et al. 2012; NMFS 2021a; c; Sharp et al. 2019; Whittingham, Garron, et al. 2005; Whittingham, Hartley, et al. 2005) (NMFS Marine Mammal SARs for the Atlantic Region). Specifically, while foraging or transiting, large whales are at risk of becoming entangled in vertical endlines, buoy lines, or groundlines of gillnet and pot/trap gear, as well as the net panels of gillnet gear that rise into the water column (Baumgartner et al. 2017; Cassoff et al. 2011; Cole

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[9] GAR Marine Animal Incident Database (unpublished data); NMFS Marine Mammal Stock Assessment Reports for the Atlantic Region; NMFS Atlantic Large Whale Entanglement Reports; MMPA List of Fisheries (LOF)

[10] NMFS Atlantic Large Whale Entanglement Reports: For years prior to 2014, contact David Morin, Large Whale Disentanglement Coordinator, David.Morin@NOAA.gov; GAR Marine Animal Incident Database (unpublished data); NMFS Marine Mammal Stock Assessment Reports for the Atlantic Region; NMFS NEFSC Baleen Whale Serious Injury and Morality Determinations Reference Documents, Publications, or Technical Memoranda; MMPA List of Fisheries; NMFS 2021a,b.

[11] NMFS NEFSC Baleen Whale Serious Injury and Morality Determinations Reference Documents, Publications, or Technical Memoranda.

& Henry 2013; Hamilton & Kraus 2019; Hartley et al. 2003; Henry et al. 2017; Henry et al. 2014; 2015; 2016; Henry et al. 2020; Henry et al. 2021; 2022; 2023; Henry et al. 2019; Johnson et al. 2005; Kenney & Hartley 2001; Knowlton et al. 2012; Knowlton & Kraus 2001; NMFS 2021a; c; Whittingham, Garron, et al. 2005; Whittingham, Hartley, et al. 2005) (NMFS [Marine Mammal SARs for the Atlantic Region](#)).[12] Large whale interactions (entanglements) with these features of trap/pot and/or sink gillnet gear often result in the serious injury or mortality to the whale {Angliss, 1998 #2741;Johnson, 2005 #973;Knowlton, 2012 #980;NMFS, 2021 #2819;NMFS, 2021 #2838;Henry, 2014 #2770;Henry, 2015 #1716;Henry, 2016 #1828;Henry, 2017 #2740;Henry, 2019 #2754;Henry, 2020 #2840;Henry, 2021 #2923;Henry, 2022 #2924;Sharp, 2019 #2757;Cassoff, 2011 #2755;Cole, 2013 #2769;Knowlton, 2001 #2760;Moore, 2012 #978;NMFS, 2014 #906;Pettis, 2018 #2733;van der Hoop, 2016 #2811;van der Hoop, 2017 #2756;Henry, 2023 #3047}. In fact, review of Atlantic coast-wide causes of large whale human interaction incidents between 2010 and 2019 shows that entanglement is the highest cause of mortality and serious injury for North Atlantic right, humpback, fin, and minke whales in those instances when cause of death could be determined (NMFS 2021c). As many entanglements, and therefore, serious injury or mortality events, go unobserved, and because the gear type, fishery, and/or country of origin for reported entanglement events are often not traceable, the rate of large whale entanglement, and thus, rate of serious injury and mortality due to entanglement, are likely underestimated (Hamilton et al. 2018; 2019; Knowlton et al. 2012; NMFS 2021a; c; Pace III et al. 2017; Robbins et al. 2009).

As noted above, pursuant to the MMPA, NMFS publishes a LOF annually, classifying U.S. commercial fisheries into one of three categories based on the relative frequency of incidental serious injurious and mortalities of marine mammals in each fishery. Large whales, in particular, humpback, fin, minke, and North Atlantic right whales, are known to interact with Category I and II fisheries in the Northwest Atlantic Ocean. As fin, and North Atlantic right whales are listed as endangered under the ESA, these species are considered strategic stocks under the MMPA. Section 118(f)(1) of the MMPA requires the preparation and implementation of a Take Reduction Plan for any strategic marine mammal stock that interacts with Category I or II fisheries. In response to its obligations under the MMPA, in 1996, NMFS established the Atlantic Large Whale Take Reduction Team (ALWTRT) to develop a plan (Atlantic Large Whale Take Reduction Plan (ALWTRP)) to reduce serious injury to, or mortality of large whales, specifically, humpback, fin, and North Atlantic right whales, due to incidental entanglement in U.S. commercial fishing gear.[13] In 1997, the ALWTRP was implemented; however, since 1997, it has been modified as NMFS and the ALWTRT learn more about why whales become entangled and how fishing practices might be modified to reduce the risk of entanglement. In [2021](#), adjustments to Plan were implemented. In [2022](#), NOAA fisheries issued a notice of its intent to begin a rulemaking process to amend the ALWTRP to further reduce the risk of mortalities and serious injuries of NARW and other large whales caused by incidental entanglement in commercial trap/pot and gillnet fisheries along the U.S. East Coast. These recent ALWTRP actions are summarized [online](#).

[The ALWTRP](#) consists of regulatory (e.g., universal gear requirements, modifications, and requirements; area-and season- specific gear modification requirements and restrictions; time/area closures) and non-regulatory measures (e.g., gear research and development, disentanglement, education and outreach) that, in combination, seek to assist in the recovery of North Atlantic right, humpback, and fin whales by addressing and mitigating the risk of entanglement in gear employed by commercial fisheries, specifically trap/pot and gillnet fisheries. The ALWTRP recognizes trap/pot and gillnet Management Areas in Northeast, Mid-Atlantic, and Southeast regions of the U.S, and identifies gear modification requirements and restrictions for Category I and II gillnet and trap/pot fisheries in these regions; these Category I and II

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[12] Through the ALWTRP, regulations have been implemented to reduce the risk of entanglement in in vertical endlines, buoy lines, or groundlines of gillnet and pot/trap gear, as well as the net panels of gillnet gear. ALWTRP regulations currently in effect are summarized [online.](#)

[13] The measures identified in the ALWTRP are also beneficial to the survival of the minke whale, which are also known to be incidentally taken in commercial fishing gear.

fisheries must comply with all regulations of the Plan.[14]. For further details on the Plan, please refer to the ALWTRP.

5.3.4.7 Small Cetaceans and Pinnipeds

Sink Gillnet and Bottom Trawl Gear. Small cetaceans and pinnipeds are vulnerable to interactions with sink gillnet and bottom trawl gear.[15] Reviewing marine mammal stock assessment and serious injury reports that cover the most recent ten years of data (i.e., 2011-2020), as well as the MMPA LOF's, Table 15 has a list of species that have been observed (incidentally) seriously injured and/or killed by MMPA LOF Category I (frequent interactions) gillnet and/or Category II (occasional interactions) bottom trawl fisheries that operate in the affected environment of the skate fishery. Of the species in Table 15, gray seals, followed by harbor seals, harbor porpoises, short beaked common dolphins, and harps seals are the most frequently bycaught small cetacean and pinnipeds in sink gillnet gear in the GAR (Hatch & Orphanides 2014; 2015; 2016; Lyssikatos & Chavez-Rosales 2022; Orphanides 2019; 2020; 2021; Orphanides & Hatch 2017; Precoda & Orphanides 2022). In terms of bottom trawl gear, short-beaked common dolphins, Risso's dolphins, Atlantic white-sided dolphins, and gray seals are the most frequently observed bycaught marine mammal species in the GAR, followed by long-finned pilot whales, bottlenose dolphin (offshore), harbor porpoise, harbor seals, and harp seals (Chavez-Rosales et al. 2017; Lyssikatos 2015; Lyssikatos et al. 2020; 2021).

Table 15. Small cetacean and pinniped species incidentally injured and/or killed by Category I gillnet fisheries or Category II bottom trawl fisheries operating in the skate fishery affected environment.

Fishery	Category	Species Incidentally Injured/Killed
Northeast Sink Gillnet	I	Bottlenose dolphin (offshore; Northern Migratory Coastal)
		Harbor porpoise
		Atlantic white sided dolphin
		Short-beaked common dolphin
		Risso's dolphin
		Long-finned pilot whales
		Harbor seal
		Hooded seal
		Gray seal
		Harp seal
Mid-Atlantic Gillnet	I	Bottlenose dolphin (offshore, Northern and Southern Migratory coastal)
		Harbor porpoise
		Short-beaked common dolphin
		Harbor seal
		Hooded seal
		Harp seal

[14] The fisheries currently regulated under the ALWTRP include: Northeast/Mid-Atlantic American lobster trap/pot; Atlantic blue crab trap/pot; Atlantic mixed species trap/pot; Northeast sink gillnet; Northeast anchored float gillnet; Northeast drift gillnet; Mid-Atlantic gillnet; Southeastern U.S. Atlantic shark gillnet; and Southeast Atlantic gillnet.
[15] More information on small cetacean and pinniped interactions is in: NMFS NEFSC marine mammal serious injury and mortality Reference Documents, Publications, or Technical Memoranda; NMFS Marine Mammal SARs for the Atlantic Region; MMPA LOF.

Fishery	Category	Species Incidentally Injured/Killed
		Gray seal
Northeast Bottom Trawl	II	Harp seal
		Harbor seal
		Gray seal
		Long-finned pilot whales
		Short-beaked common dolphin
		Atlantic white-sided dolphin
		Harbor porpoise
		Bottlenose dolphin (offshore)
		Risso's dolphin
Mid-Atlantic Bottom Trawl	II	White-sided dolphin
		Short-beaked common dolphin
		Risso's dolphin
		Bottlenose dolphin (offshore)
		Gray seal
		Harbor seal
Source: NMFS Marine Mammal SARs for the Atlantic Region; MMPA 2017-2024 LOFs.		

To address the high levels of incidental take of harbor porpoise and bottlenose dolphins in sink gillnet fisheries, pursuant to section MMPA Section 118(f)(1), the Harbor Porpoise Take Reduction Plan (HPTRP) and the Bottlenose Dolphin Take Reduction Plan (BDTRP) were developed and implemented for these species.[16] Also, due to the incidental mortality and serious injury of small cetaceans, incidental to bottom and midwater trawl fisheries operating in both the Northeast and Mid- Atlantic regions, the Atlantic Trawl Gear Take Reduction Strategy was implemented. Refer to NMFS HPTRP, NMFS BDTRP, or NMFS Atlantic Trawl Gear Take Reduction Strategy for addition information on each take reduction plan or strategy.

5.4 Physical Environment and Essential Fish Habitat

5.4.1 Physical Environment

The Northeast U.S. Continental Shelf Large Marine Ecosystem includes the area from the Gulf of Maine south to Cape Hatteras, extending from the coast seaward to the edge of the continental shelf, including the slope sea offshore to the Gulf Stream. The continental slope includes the area east of the shelf, out to a depth of 2,000 m. Four distinct sub-regions comprise the ecosystem: the Gulf of Maine, Georges Bank, the Mid-Atlantic Bight, and the continental slope (Map 3, Map 4).

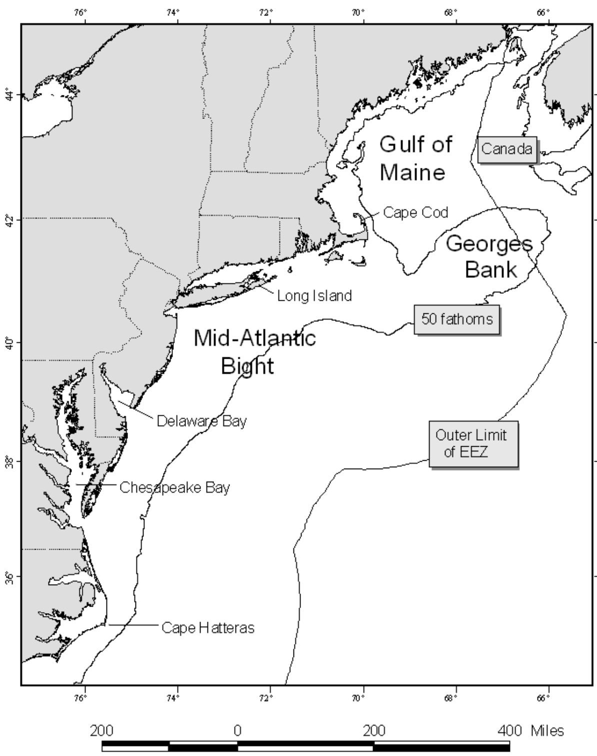
The Gulf of Maine is an enclosed coastal sea, characterized by relatively cold waters and deep basins, with a patchwork of various sediment types. Georges Bank is a relatively shallow coastal plateau that slopes gently from north to south and has steep submarine canyons on its southern flank. It is characterized by highly productive, well-mixed waters and strong currents. The Mid-Atlantic Bight is

[16] Although the most recent U.S. Atlantic and Gulf of Mexico Marine Mammal SARs (Hayes et al. 2023) no longer designates harbor porpoise as a strategic stock, HPTRP regulations are still in place per the mandates provided in Section 118(f)(1).

comprised of the sandy, relatively flat, gently sloping continental shelf from southern New England to Cape Hatteras, NC. The continental slope begins at the continental shelf break and continues eastward with increasing depth until it becomes the continental rise. It is homogenous, with exceptions at the shelf break, some of the canyons, the Hudson Shelf Valley, and in areas of glacially rafted hard bottom.

Pertinent physical characteristics of the sub-regions that could potentially be affected by this action are described in this section. Information in this document is from Stevenson et al. (2004) and NEFSC Ecosystem Dynamics Branch webpage.[17]

Map 3. Northeast U.S. Continental Shelf Large Marine Ecosystem

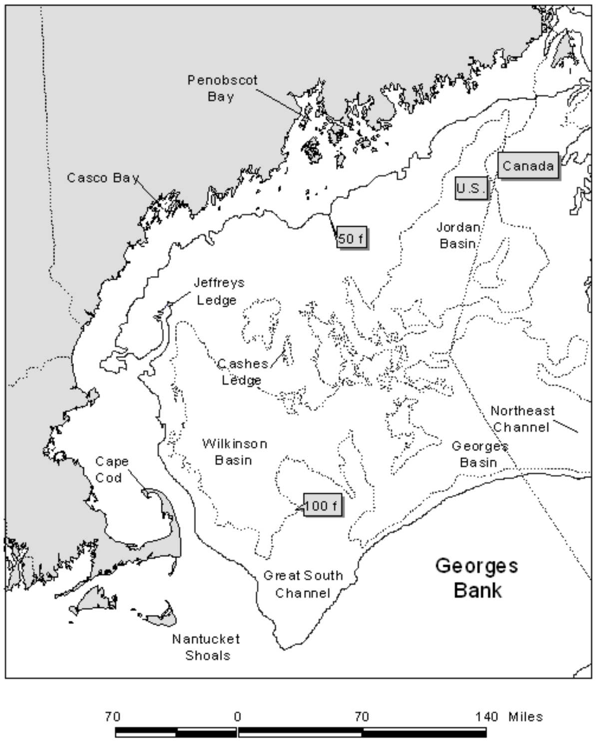


Gulf of Maine. The Gulf of Maine (GOM) is bounded on the east by Browns Bank, on the north by the Nova Scotian (Scotian) Shelf, on the west by the New England states, and on the south by Cape Cod and Georges Bank. The GOM was glacially derived, and is characterized by a system of deep basins, moraines and rocky protrusions with limited access to the open ocean. This geomorphology influences complex oceanographic processes that result in a rich biological community.

The GOM is topographically unlike any other part of the continental border along the U.S. Atlantic coast. The GOM's geologic features, when coupled with the vertical variation in water properties, result in a great diversity of habitat types. It has twenty-one distinct basins separated by ridges, banks, and swells. The three largest basins are Wilkinson, Georges, and Jordan. Depths in the basins exceed 250 m, with a maximum depth of 350 m in Georges Basin, just north of Georges Bank. The Northeast Channel between Georges Bank and Browns Bank leads into Georges Basin and is one of the primary avenues for exchange of water between the GOM and the North Atlantic Ocean.

[17] https://apps-nefsc.fisheries.noaa.gov/nefsc/ecosystem-ecology/

Map 4. Gulf of Maine



High points within the Gulf include irregular ridges, such as Cashes Ledge, which peaks at 9 m below the surface, as well as lower flat-topped banks and gentle swells. Some of these rises are remnants of the sedimentary shelf that was left after most of it was removed by the glaciers. Others are glacial moraines and a few, like Cashes Ledge, are outcroppings of bedrock. Very fine sediment particles created and eroded by the glaciers have collected in thick deposits over much of the GOM, particularly in its deep basins. These mud deposits blanket and obscure the irregularities of the underlying bedrock, forming topographically smooth terrains. Some shallower basins are covered with mud as well, including some in coastal waters. In the rises between the basins, other materials are usually at the surface. Unsorted glacial till covers some morainal areas, as on Sewell Ridge to the north of Georges Basin and on Truxton Swell to the south of Jordan Basin. Sand predominates on some high areas and gravel, sometimes with boulders, predominates on others.

Coastal sediments exhibit a high degree of small-scale variability. Bedrock is the predominant substrate along the western edge of the GOM north of Cape Cod in a narrow band out to a depth of about 60 m. Rocky areas become less common with increasing depth, but some rock outcrops poke through the mud covering the deeper sea floor. Mud is the second most common substrate on the inner continental shelf. Mud predominates in coastal valleys and basins that often abruptly border rocky substrates. Many of these basins extend without interruption into deeper water. Gravel, often mixed with shell, is common adjacent to bedrock outcrops and in fractures in the rock. Large expanses of gravel are not common but do occur near reworked glacial moraines and in areas where the seabed has been scoured by bottom currents. Gravel is most abundant at depths of 20 – 40 m, except in eastern Maine where a gravel-covered plain exists to depths of at least 100 m. Bottom currents are stronger in eastern Maine where the mean tidal range exceeds 5 m. Sandy areas are relatively rare along the inner shelf of the western GOM, but are more common south of Casco Bay, especially offshore of sandy beaches.

Georges Bank. Georges Bank is a shallow (3 – 150 m depth), elongate (161 km wide by 322 km long) extension of the continental shelf that was formed by the Wisconsinian glacial episode. It is characterized by a steep slope on its northern edge and a broad, flat, gently sloping southern flank. The Great South

Channel lies to the west. Natural processes continue to erode and rework the sediments on Georges Bank. Erosion and reworking of sediments will likely reduce the amount of sand available to the sand sheets and cause an overall coarsening of the bottom sediments (Valentine & Lough 1991).

Glacial retreat during the late Pleistocene deposited the bottom sediments currently observed on the eastern section of Georges Bank, and the sediments have been continuously reworked and redistributed by the action of rising sea level, and by tidal, storm and other currents. The strong, erosive currents affect the character of the biological community. Bottom topography on eastern Georges Bank is characterized by linear ridges in the western shoal areas; a relatively smooth, gently dipping sea floor on the deeper, easternmost part; a highly energetic peak in the north with sand ridges up to 30 m high and extensive gravel pavement; and steeper and smoother topography incised by submarine canyons on the southeastern margin.

The central region of the Bank is shallow, and the bottom is characterized by shoals and troughs, with sand dunes superimposed upon them. The two most prominent elevations on the ridge and trough area are Cultivator and Georges Shoals. This shoal and trough area is a region of strong currents, with average flood and ebb tidal currents greater than 4 km/h, and as high as 7 km/h. The dunes migrate at variable rates, and the ridges may also move. In an area that lies between the central part and Northeast Peak, Almeida *et al.* (2000) identified high-energy areas as between 35 – 65 m deep, where sand is transported daily by tidal currents, and a low-energy area at depths > 65 m that is affected only by storm currents.

The Great South Channel separates the main part of Georges Bank from Nantucket Shoals. Nantucket Shoals is similar in nature to the central region of the Bank. Currents in these areas are strongest where water depth is shallower than 50 m. This type of traveling dune and swale morphology is also found in the Mid-Atlantic Bight, and further described below. Sediments in this region include gravel pavement and mounds, some scattered boulders, sand with storm generated ripples, and scattered shell and mussel beds. Tidal and storm currents range from moderate to strong, depending upon location and storm activity (Valentine, pers. Comm.).

Mid-Atlantic Bight. The Mid-Atlantic Bight includes the shelf and slope waters from Georges Bank south to Cape Hatteras, and east to the Gulf Stream. Like the rest of the continental shelf, the topography of the Mid-Atlantic Bight was shaped largely by sea level fluctuations caused by past ice ages. The shelf's basic morphology and sediments derive from the retreat of the last ice sheet, and the subsequent rise in sea level. Since that time, currents and waves have modified this basic structure.

Shelf and slope waters of the Mid-Atlantic Bight have a slow southwestward flow that is occasionally interrupted by warm core rings or meanders from the Gulf Stream. On average, shelf water moves parallel to bathymetry isobars at speeds of 5 – 10 cm/s at the surface and 2 cm/s or less at the bottom. Storm events can cause much more energetic variations in flow. Tidal currents on the inner shelf have a higher flow rate of 20 cm/s that increases to 100 cm/s near inlets.

The shelf slopes gently from shore out to between 100 and 200 km offshore where it transforms to the slope (100 – 200 m water depth and deeper) at the shelf break. In both the Mid-Atlantic and on Georges Bank, numerous canyons incise the slope, and some cut up onto the shelf itself. The primary morphological features of the shelf include shelf valleys and channels, shoal massifs, scarps, and sand ridges and swales. Most of these structures are relic except for some sand ridges and smaller sand-formed features. Shelf valleys and slope canyons were formed by rivers of glacier outwash that deposited sediments on the outer shelf edge as they entered the ocean. Most valleys cut about 10 m into the shelf, except for the Hudson Shelf Valley that is about 35 m deep. The valleys were partially filled as the glacier melted and retreated across the shelf. The glacier also left behind a lengthy scarp near the shelf break from Chesapeake Bay north to the eastern end of Long Island. Shoal retreat massifs were produced by extensive deposition at a cape or estuary mouth. Massifs were also formed as estuaries retreated across the shelf.

Some sand ridges are more modern in origin than the shelf's glaciated morphology. Their formation is not well understood; however, they appear to develop from the sediments that erode from the shore face. They maintain their shape, so it is assumed that they are in equilibrium with modern current and storm regimes. They are usually grouped, with heights of about 10 m, lengths of 10 – 50 km and spacing of 2 km. Ridges are usually oriented at a slight angle towards shore, running in length from northeast to southwest. The seaward face usually has the steepest slope. Sand ridges are often covered with smaller similar forms such as sand waves, megaripples, and ripples. Swales occur between sand ridges. Since ridges are higher than the adjacent swales, they are exposed to more energy from water currents, and experience more sediment mobility than swales. Ridges tend to contain less fine sand, silt and clay while relatively sheltered swales contain more of the finer particles. Swales have greater benthic macrofaunal density, species richness and biomass, due in part to the increased abundance of detrital food and the physically less rigorous conditions.

Sand waves are usually found in patches of 5 – 10 with heights of about 2 m, lengths of 50 – 100 m and 1 – 2 km between patches. Sand waves are primarily found on the inner shelf, and often observed on sides of sand ridges. They may remain intact over several seasons. Megaripples occur on sand waves or separately on the inner or central shelf. During the winter storm season, they may cover as much as 15% of the inner shelf. They tend to form in large patches and usually have lengths of 3 – 5 m with heights of 0.5 – 1 m. Megaripples tend to survive for less than a season. They can form during a storm and reshape the upper 50 – 100 cm of the sediments within a few hours. Ripples are also found everywhere on the shelf, and appear or disappear within hours or days, depending upon storms and currents. Ripples usually have lengths of about 1 – 150 cm and heights of a few centimeters.

Sediments are uniformly distributed over the shelf in this region. A sheet of sand and gravel varying in thickness from 0 – 10 m covers most of the shelf. The mean bottom flow from the constant southwesterly current is not fast enough to move sand, so sediment transport must be episodic. Net sediment movement is in the same southwesterly direction as the current. The sands are mostly medium to coarse grains, with finer sand in the Hudson Shelf Valley and on the outer shelf. Mud is rare over most of the shelf but is common in the Hudson Shelf Valley.

One notable feature is the mud patch located just southwest of Nantucket Shoals and southeast of Long Island and Rhode Island. Tidal currents in this area slow significantly, which allows silts and clays to settle out. The mud is mixed with sand and is occasionally resuspended by large storms. This habitat is an anomaly of the outer continental shelf. Occasionally relic estuarine mud deposits are re-exposed in the swales between sand ridges. Fine sediment content increases rapidly at the shelf break, which is sometimes called the "mud line," and sediments are 70 – 100% fines on the slope. On the slope, silty sand, silt, and clay predominate.

Artificial reefs are another significant Mid-Atlantic habitat, formed much more recently on the geologic time scale than other regional habitat types. These localized areas of hard structure have been formed by shipwrecks, lost cargoes, disposed solid materials, shoreline jetties and groins, submerged pipelines, cables, and other materials (Steimle & Zetlin 2000). While some materials have been deposited specifically for use as fish habitat, most have an alternative primary purpose; however, they have all become an integral part of the coastal and shelf ecosystem. It is expected that the increase in these materials has had an impact on living marine resources and fisheries, but these effects are not well known. In general, reefs are important for attachment sites, shelter, and food for many species, and fish predators such as tunas may be attracted by prey aggregations or may be behaviorally attracted to the reef structure.

5.4.2 Essential Fish Habitat

EFH designations for all the managed skate species and for the other species managed by the New England Fishery Management Council were updated in April 2018 as part of the NEFMC Omnibus EFH Amendment 2 (NEFMC 2016). The Council began a review of its EFH designations in 2023; a timeline for a fishery management action or actions to update these designations has not yet been established. Skate EFH maps are also available for viewing via the Essential Fish Habitat Mapper: https://www.fisheries.noaa.gov/resource/map/essential-fish-habitat-mapper. Within the Greater Atlantic region, any managed species and life stage that occupies a benthic habitat within the geographic range of the skate fishery could potentially be affected by fishing gear used in the fishery that contacts the bottom (i.e., bottom trawls and bottom gillnets).

EFH impacts are related to the amount and location of fishing effort, and the gear type used. A more detailed discussion of habitat types, as well as biological and physical effects of fishing by various gears in the skate fishery is in the 2008 SAFE Report and Skate Amendment 3 (NEFMC 2009, Section 7.4.6). This provides a discussion of the biological and physical effects various gear types may have on EFH. An updated analysis of the effects of all gears used in fisheries managed by the NEFMC on marine habitats in the NE region is included in the NEFMC Omnibus EFH Amendment 2 (Appendix D, Swept Area Seabed Impact Model). This model was updated in 2019 and is now referred to as the Fishing Effects Model (NEFMC 2019). The gear effects assessment is very similar to the prior work, and Fishing Effects includes updated spatial depictions of habitat disturbance by gear type, through December 2017.

5.5 HUMAN COMMUNITIES

5.5.1 Commercial Skate Fishing

Bait fishery. As bait, small skates (< 23") are landed whole to be used primarily for the American lobster (*Homarus americanus*) fishery. Vessels involved in the bait fishery are primarily from Southern New England ports (Table 43) and target little skates (94%) and, to a much lesser extent, juvenile winter skates (5%). Juvenile winter skates and little skates are difficult to differentiate due to their nearly identical appearance. Bait skate is primarily landed by trawlers, often as a secondary species while targeting monkfish or groundfish.

Effort on skates increases in state waters seasonally to supply increased market demand from the lobster fishery in the spring through fall. Skates caught for lobster bait are landed whole by otter trawlers and either sold 1) fresh, 2) fresh salted, or 3) salted and strung or bagged for bait by the barrel. Inshore lobster boats usually use 2 – 3 skates per string, while offshore boats may use 3 – 5 per string.

The market for skates as lobster bait has been relatively consistent. Size and quality drive the dockside price for bait skates, rather than supply and demand. For the lobster bait market, a "dinner plate" is the preferable size to be strung and placed inside lobster pots. Little and winter skates are rarely sorted prior to landing, as fishermen acknowledge that species identification between little skates and small winter skates is very difficult. Numerous draggers and lobster vessels have historically worked out seasonal cooperative business arrangements with a stable pricing agreement for skates.

Lobster bait usage varies regionally and from port to port, based upon preference and availability. Some lobstermen in the Gulf of Maine prefer herring, mackerel, menhaden, and hakes (whiting and red hake) for bait, which hold up in colder water temperatures; however, the larger offshore lobster vessels still indicate a preference for skates and Acadian redfish in their pots. Some offshore boats have indicated they will use soft bait during the summer months when their soak time is shorter. The Gulf of Maine vessels use skates caught by vessels fishing in the southern New England area.

Wing fishery. Larger skates (> 3 lb), mostly captured by gillnet and trawl gear, have their pectoral flaps, or wings, cut off and sold for food. Vessels involved in the wing fishery are more distributed across the region, although primarily from Southern New England ports (Map 6) and land winter skates (95%) and barndoor skates (2%). Winter, thorny, and barndoor skates are large enough for processing of wings, however, barndoor skate possession is currently only allowed up to 25% of the skate wing limit since 2018, and possession and landing of thorny skates has been prohibited since 2003. Winter skate remains the dominant component of the wing fishery, but illegal thorny wings still occasionally occur in landings to a very minor degree.

Vessels land skate wings as an incidental catch in mixed fisheries, primarily while targeting species like groundfish, monkfish, and scup, and land them if the price is high enough. The wing fishery has recently grown due to increasing restrictions on other, more profitable groundfish species. The southern New England sink gillnet fishery targets winter skates seasonally along with monkfish. Highest catch rates are in the early spring and late fall when the boats are targeting monkfish, at about a 5:1 average ratio of numbers of skates to monkfish. Smaller skates, such as little skate and juvenile winter skate are caught incidentally year-round in gillnets and sold for bait. The bodies of winter skates cut for wings may also be sold for bait. Gillnetters have become more dependent upon incidental skate catch due to cutbacks in their fishery mandated by both the Monkfish and Multispecies FMPs. Gillnet vessels use 12-inch mesh when fishing for monkfish and catch larger skates.

5.5.1.1 Permits and Vessels

There is only one type of federal skate permit, an open-access permit. Any vessel with a valid federal fishing permit can annually obtain or drop a federal skate permit at any point in the fishing year. Vessels with a federal skate permit may commercially fish for, possess, or land skate caught in Federal waters. If a vessel has a federal fishing permit but does not have a federal skate permit, it must fish for skate in state waters under state regulations.

From FY 2003 to 2022 (data from the last few years may be subject to future corrections), the number of federal fishing permits with a federal skate permit peaked in FY 2007 (2,686) and has declined each year since (1,869 in FY 2022; Table 17). The number of active Federal skate permits has declined since FY 2003 (594) to 244 in FY 2022. There are a smaller number of vessels with federal fishing permits that do not land skates with a federal skate permit, perhaps landing skates exclusively from state waters.

5.5.1.2 Catch Limits, Catch, and Landings

Skates have been reported in New England fishery landings since the late 1800s. However, commercial fishery landings never exceeded several hundred metric tons until the advent of distant-water fleets during the 1960s (a full description of historic landings is in Amendment 3, NEFMC, 2009).

In total, the skate fishery caught 21,134 mt in FY 2022, or 56.8% of the ACL, an increase from FY 2021 catch (19,082 mt, Table 17). Federal commercial landings (9,706 mt) and dead discards (9,755 mt) were almost equivalent in FY 2022, while state landings, recreational catch and non-landed bait were substantially lower (1,673 mt combined). Since FY 2018, the wing and bait landings have been substantially lower than their respective TALs (Figure 4). Total skate landings have fluctuated, largely attributable to the wing fishery as landings in the bait fishery have been more stable. It is unclear what is driving the trend in wing landings as quota is likely not limiting the fishery. A potential explanation is the decrease in winter skate survey index that suggests fewer winter skate were available to the fishery. Skate landings relative to TALs have also fluctuated during this time. In FY 2016 and 2017, when in-season incidental possession limits were triggered, TALs had been lowered by 23% relative to FY 2014 and 2015. Landings were also lower, but not by that much.

An explanation of the method for in-season TAL monitoring as well as ACL accounting can be found in the 2022 Annual Monitoring Report. Note however, that the transition to use of the Catch Accounting and Monitoring System (CAMS) has revised catch estimates from what was previously reported.

Table 16. Federal fishing permits with a skate permit and landing skate, FY 2003-2022.

Fishing Year	Vessels with a Federal Skate Permit	Active Federal Fishing Permits		
		Total Active	Active with Federal Skate Permit	Active Without Federal Skate Permit[1]
2003	1,967	710	594	116
2004	2,391	575	522	53
2005	2,629	586	528	58
2006	2,669	597	538	59
2007	2,686	586	533	53
2008	2,630	550	506	44
2009	2,576	572	515	57
2010	2,503	547	493	54
2011	2,326	567	502	65
2012	2,265	528	468	60
2013	2,202	456	411	45
2014	2,147	455	414	41
2015	2,084	442	394	48
2016	2,075	419	377	42
2017	2,049	432	381	51
2018	2,033	398	347	51
2019	2,032	366	324	42
2020	1,996	318	288	30
2021	1,965	291	260	31
2022	1,869	267	244	23

Note: Active defined as a vessel with federal landings and revenues or home consumption for skate species.

[1] "Active Without Federal Skate Permit" are federal fishing permits that landed and sold skates to a federal dealer or harvested skates for home consumption but did not have a federal skate permit at any time within the fishing year.

Source: PERMIT and CAMS_LAND tables, accessed August 2023. Includes records where landing source is dealer.

Map 5. Skate landings by statistical area of trip, FY 2018 - 2021

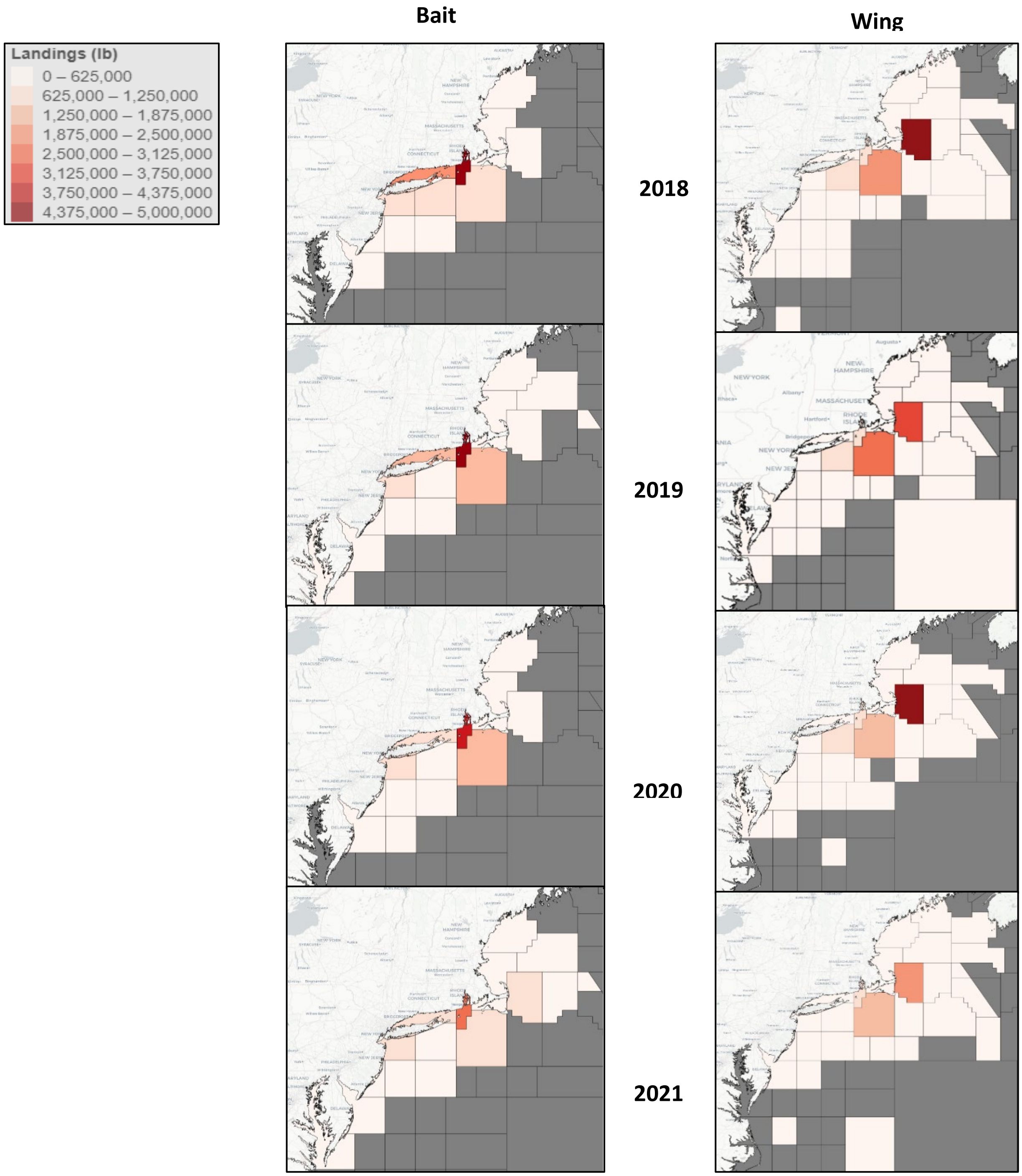


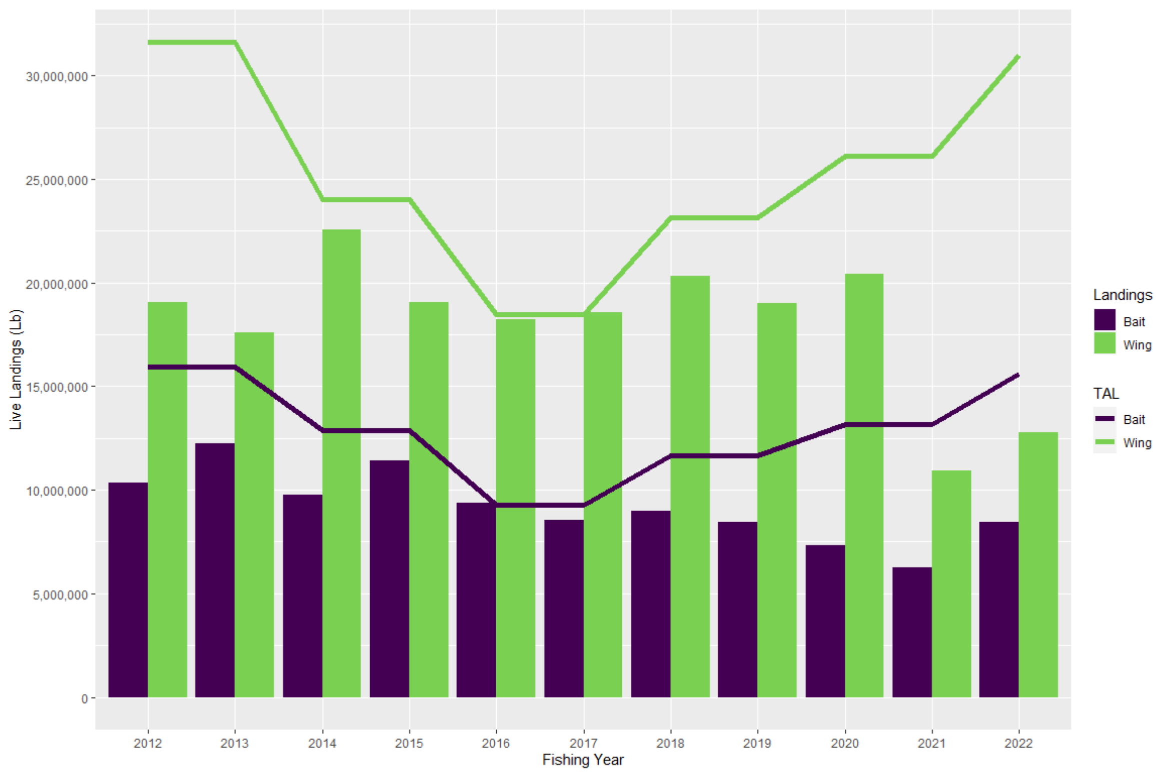
Table 17. FY 2018-2022 year-end Northeast skate complex ACL accounting.

	Whole weight		Percent of ACL
	(lb)	(mt)	
FY 2018 (ACL = 31,327 mt)			
Northeast skate federal commercial landings	28,750,630	13,041	39.9%
Northeast skate state-permitted only vessel landings	3,255,015	1,476	4.5%
Northeast skate non-landed bait	341,142	155	0.5%
Northeast skate estimated dead discards	26,595,302	12,063	36.9%
Northeast skate recreational catch	2,348,192	1,065	3.3%
Total Northeast skate catch	**61,290,281**	**27,800**	**85.0%**
FY 2019 (ACL = 31,327 mt)			
Northeast skate federal commercial landings	26,743,236	12,131	37.1%
Northeast skate state-permitted only vessel landings	2,390,905	1,084	3.3%
Northeast skate non-landed bait	464,685	211	0.6%
Northeast skate estimated dead discards	23,334,922	10,585	32.4%
Northeast skate recreational catch	2,795,395	1,268	3.9%
Total Northeast skate catch	**55,729,143**	**25,279**	**77.3%**
FY 2020 (ACL = 32,715 mt)			
Northeast skate federal commercial landings	27,452,375	12,452	38.1%
Northeast skate state-permitted only vessel landings	1,657,130	752	2.3%
Northeast skate non-landed bait	484,046	220	0.7%
Northeast skate estimated dead discards	30,223,461	13,709	41.9%
Northeast skate recreational catch	683,145	310	0.9%
Total Northeast skate catch	**60,500,157**	**27,443**	**83.9%**
FY 2021 (ACL = 32,715 mt)			
Northeast skate federal commercial landings	17,440,045	7,911	24.2%
Northeast skate state-permitted only vessel landings	1,326,519	602	1.8%
Northeast skate non-landed bait	385,967	175	0.5%
Northeast skate estimated dead discards	21,746,496	9,864	30.2%
Northeast skate recreational catch	1,168,971	530	1.6%
Total Northeast skate catch	**42,067,998**	**19,082**	**58.3%**
FY 2022 (ACL = 37,236 mt)			
Northeast skate federal commercial landings	21,397,412	9,706	26.1%
Northeast skate state-permitted only vessel landings	2,031,083	921	2.5%
Northeast skate non-landed bait	396,995	180	0.5%
Northeast skate estimated dead discards	21,505,283	9,755	26.2%
Northeast skate recreational catch	1,260,933	572	1.5%
Total Northeast skate catch	**46,591,706**	**21,134**	**56.8%**

Source: CAMS accessed 8/18/2023; Marine Recreational Information Program accessed 8/18/2023.
Notes:

- Due to changes in discard estimation attributed to CAMS, estimated dead discards of skates are substantially higher than previously understood, leading to larger annual catch estimates for FY 2018-2021.
- "Northeast skate federal commercial landings" are landings by vessels that had a federal skate permit on the day of landing (include research landings reported to federal dealers).
- "Northeast skate state-permitted only vessel landings" are landings with no federal skate permit on the day of landing. May include state permitted landings reported by state-only dealers provided to GARFO from states.
- "Northeast skate non-landed bait" is catch reported only in VTRs (not by federal dealers).
- "Northeast skate estimated dead discards" is based on landings of all species and skate discards on observed trips extrapolated to all commercial landings of all species (weighted by area, gear, etc.) to calculate total skate discards. Then, a discard mortality rate is applied to the calculated total skate discards (discard estimation method differs from how discards are estimated during specifications setting, which uses the NEFSC method).
- "Northeast skate recreational catch" is private angler and party/charter landings and dead discards.

Figure 4. Skate wing and bait landings relative to total allowable landings, FY 2012 - 2022.



Source: GARFO Quota Monitoring Archive, accessed 5/10/2023.

5.5.1.3 Possession Limits

The wing and bait fisheries have differing seasonal possession limits and triggers for when an incidental limit may be implemented under the discretion of the Regional Administrator. If for either skate fishery, at the end of a fishing year, it is calculated that the TAL was exceeded by more than 5%, an automatic adjustment to that fishery's TAL trigger would occur for the next fishing year. A straight one-for-one percent reduction in a TAL trigger for prior overages reduces the likelihood that future landings would exceed that TAL. This increases the buffer between the TAL and trigger to account for incidental landings in a skate fishery when the skate possession limit declines to the incidental limit. An overage of less than 5% would not be alarming and might be offset by reductions in skate discards.

In FY 2022 and 2023, the bait LOA fishery has three seasons with a 25,000 lb whole weight possession limit (Table 6). The wing fishery has two seasons, with 3,000 lb and 5,000 lb wing weight possession limits. Multispecies B-DAS and non-DAS trips are limited to a 220 lb and 500 lb wing weight possession limit, respectively. In the wing fishery, if an 85% trigger is reached, the incidental limit will be in place until the end of the season. In the bait fishery, if a 90% trigger is reached in Seasons 1 and 2, or 80% in Season 3, the incidental limit will be in place until the end of the season. In both fisheries, the Regional Administrator has the discretion to not implement, or to later lift, the incidental limit if the full TAL is not expected to be reached.

Provided below are data on skate landings and discards relative to possession limits to inform decisions around the potential adjustments to FY 2024-2025 wing possession limits, as well as the expansion of barndoor skate possession and permitting smooth skate possession. Data to support potential adjustments to FY 2024-2025 bait possession limits were initially considered, which helped the Council decide against adjusting bait possession limits.

5.5.1.3.1 Skate Wing Possession Limit Performance

Treatment of data where skate landings exceed possession limits. Dealer data have records where skate landings exceed skate possession limits. There are data entries where the landed wing weight equaled the whole weight, indicating that skates were landed whole, and the dealer processed the wings. Other reasons for trips seeming to exceed the possession limits include vessels landing aggregated landings, miscoding between wing and bait disposition codes, data entry errors, or fishing activity inconsistent with regulations. Further investigation would be needed to determine if these trips occurred in state or federal waters, particularly for vessels with federal fishing permit numbers ending in #998, as they may fish in state waters and land an aggregate federal possession limit.

Skate wing landings on DAS trips exceeded the wing possession limits by over 10% for 4,221 trips in FY 2018-2022 (Table 18). Of these, 109 trips had skate wing landings exceeding 20,000 lb and were removed from the data reported in this section where noted, which is referred to in the impacts analysis, because there needs to be additional work to understand if these are data entry errors or true records of landings. Removing these trips, the remaining trips that exceeded the possession limits constituted about 24% of all trips landing skate on a DAS in FY 2018-2022. There were 3,064 non-DAS trips in FY 2018-2022 that landed skate by over 10% of 500 lb (Table 19). Nineteen of these trips were removed from the data provided in this section due to landings exceeding 20,000.

Binning of trips into DAS and non-DAS trips. Because the alternatives in this action consider changing skate wing possession limits for trips on a DAS and for trips not using a DAS, the trips landing skate wings were binned into DAS and non-DAS trips. Dealer-reported landings that possess a matching DAS declaration code were binned as a DAS trip. Trips on a Northeast Multispecies non-DAS declaration, vessels declared out of fishery (DOF), and trips with dealer-reported landings that do not possess a matching VMS declaration code were reported here as skate landings on non-DAS trips.

Landings relative to possession limits. During FY 2018–2022, trips landing skate wings on a DAS in Season 1, which had a lower possession limit, tended to approach the wing possession limit more frequently compared to trips in Season 2 (Table 18). On average, 44% of DAS trips landing skate landed at least 90% of the possession limit, while 56% landed less. Although the TAL and possession limits increased between FY 2019 and 2020, there was no clear difference in the proportion of trips landing skate wings within 10% of the possession limit between FY 2018-2019 and FY 2020-2021. This lack of difference could be influenced by the overall decline in the number of trips taken.

Trips landing skate wings not on a DAS are subject to a 500 lb possession limit, and account for more than 50% of all trips landing skate wings from FY 2018-2022 (Table 19). A handful of trips[18] were declared Northeast multispecies B-DAS trips with a possession limit of 220 lb. During this period, among trips not on a DAS (52% of trips landing skate wings in FY 2022), 25% landed at least 90% of the possession limit, while 75% landed less. A higher proportion of non-DAS trips landed within 10% of the 500 lb possession limit during Season 1 compared to Season 2, despite both seasons having the same possession limit.

Table 18. DAS trips landing skate wings relative to the DAS seasonal possession limits, FY 2018-2022.

Fishing Year	Wing Season	PL Category	# of Wing Trips	% of Wing Trips
2018	Season 1 2,600 lb	Below PL	1,367	51%
		Within +/-10% of PL	772	29%
		Above PL	548	20%
	Season 2 4,100 lb	Below PL	1,928	74%
		Within +/- 10% of PL	331	13%
		Above PL	358	14%
	Total	**Below PL**	**3,295**	**62%**
		Within +/-10% of PL	**1,103**	**21%**
		Above PL	**906**	**17%**
2019	Season 1 2,600 lb	Below PL	1,023	46%
		Within +/-10% of PL	744	33%
		Above PL	460	21%
	Season 2 4,100 lb	Below PL	1,532	67%
		Within +/- 10% of PL	275	12%
		Above PL	490	21%
	Total	**Below PL**	**2,555**	**57%**
		Within +/-10% of PL	**1,019**	**23%**
		Above PL	**950**	**21%**
2020	Season 1 3,000 lb	Below PL	795	35%
		Within +/-10% of PL	889	39%
		Above PL	582	26%
	Season 2 5,000 lb	Below PL	1,040	66%
		Within +/- 10% of PL	244	18%
		Above PL	286	16%
	Total	**Below PL**	**1,835**	**48%**
		Within +/-10% of PL	**1,133**	**30%**

[18] The number of B-DAS trips that landed skate is confidential due to the low number of vessels involved.

		Above PL	**868**	**23%**
2021	Season 1 3,000 lb	Below PL	650	49%
		Within +/-10% of PL	242	18%
		Above PL	430	33%
	Season 2 5,000 lb	Below PL	748	71%
		Within +/- 10% of PL	52	5%
		Above PL	255	24%
	Total	**Below PL**	**1,398**	**59%**
		Within +/-10% of PL	**294**	**12%**
		Above PL	**685**	**29%**
2022	Season 1 3,000 lb	Below PL	654	48%
		Within +/-10% of PL	350	25%
		Above PL	371	27%
	Season 2 5,000 lb	Below PL	724	62%
		Within +/- 10% of PL	60	5%
		Above PL	376	32%
	Total	**Below PL**	**1,378**	**54%**
		Within +/-10% of PL	**410**	**16%**
		Above PL	**747**	**29%**
2018 – 2022 Average		**Below PL**	**2,902**	**56%**
		Within +/-10% of PL	**792**	**20%**
		Above PL	**831**	**24%**

Notes:
The 109 trips with skate wing landings of greater than 20,000 lb were not included.
'Below PL' = landings that are <10% below the seasonal possession limit.
'Above PL' = landings that are ≥10% above the seasonal possession limit.
Source: CAMS data, accessed 5/10/2023.

Table 19. Non-DAS trips landing skate wings relative to the non-DAS possession limit and as a subset of total non-DAS trips and all trips landing skate wings, FY 2018-2022.

Fishing Year	Wing Season	PL Category	# of Trips	% of Total Non-DAS Trips
2018	Season 1 500 lb	Below PL	2,148	85%
		Within +/-10% of PL	147	6%
		Above PL	239	9%
	Season 2 500 lb	Below PL	2,773	77%
		Within +/- 10% of PL	398	11%
		Above PL	430	12%
	Total	**Below PL**	**4,928**	**80%**
		Within +/-10% of PL	**546**	**9%**
		Above PL	**669**	**11%**
2019	Season 1 500 lb	Below PL	2,523	74%
		Within +/-10% of PL	104	11%

		Above PL	229	15%
	Season 2 500 lb	Below PL	2,088	85%
		Within +/- 10% of PL	310	4%
		Above PL	419	11%
	Total	**Below PL**	**4,613**	**81%**
		Within +/-10% of PL	**415**	**7%**
		Above PL	**649**	**11%**
2020	Season 1 500 lb	Below PL	1,906	85%
		Within +/-10% of PL	92	4%
		Above PL	253	11%
	Season 2 500 lb	Below PL	1,854	72%
		Within +/- 10% of PL	263	10%
		Above PL	458	18%
	Total	**Below PL**	**3,762**	**78%**
		Within +/-10% of PL	**355**	**7%**
		Above PL	**711**	**15%**
2021	Season 1 500 lb	Below PL	1,332	81%
		Within +/-10% of PL	68	4%
		Above PL	253	15%
	Season 2 500 lb	Below PL	1,159	71
		Within +/- 10% of PL	209	7%
		Above PL	466	21%
	Total	**Below PL**	**2,496**	**71%**
		Within +/-10% of PL	**279**	**8%**
		Above PL	**719**	**21%**
2022	Season 1 500 lb	Below PL	825	71%
		Within +/-10% of PL	85	7%
		Above PL	246	21%
	Season 2 500 lb	Below PL	919	57%
		Within +/- 10% of PL	262	16%
		Above PL	426	26%
	Total	**Below PL**	**1,747**	**63%**
		Within +/-10% of PL	**347**	**13%**
		Above PL	**672**	**24%**
2018 – 2022 Average		**Below PL**	**3,505**	**75%**
		Within +/-10% of PL	**388**	**9%**
		Above PL	**684**	**16%**

Notes:
'Below PL' = landings that are <10% below the seasonal possession limit.
'Above PL' = landings that are ≥10% above the seasonal possession limit.
Skate trips with dealer-reported landings that do not possess a matching VMS declaration code were treated as undeclared and attributed to the non-DAS category.
Source: CAMS data, accessed 5/10/2023.

Discards.[19] From FY 2018 to FY 2021, mean skate discards per trip for observed DAS trips landing skate wings within 10% of the possession limit (369 lb (95% CI [242, 569])) were significantly higher than trips landing below the limit (137 lb (95% CI [117, 159]), *P*=.00006 Table 18). Skate mean discards for observed non-DAS trips landing within 10% of the 500 lb possession limit (1,098 lb (95% CI [782, 1542]), *P*<.000001) were significantly higher than those landing below the limit (246 lb (95% CI [216, 280]). Some observed DAS trips exhibited very high skate discards, with 33 trips reporting discards above 50,000 lb, and one trip reporting discards above 100,000 lb. Notably, the number of observed trips landings skates is very low relative to all trips landing skate (e.g., 266 of 5,720 DAS trips landing skate wings in FY 2018 were observed), so using observer data to estimate total discards is challenging.

Table 20. Vessels and trips landing skate wings by season and VMS declaration, FY 2018 – 2022.

Wing Season 1								
FY	# of vessels				# of trips			
	DAS	Non-DAS	B-DAS	Total	DAS	Non-DAS	B-DAS	Total
2018	134	203	0	**295**	2,690	2,534	0	**5,225**
2019	120	182	C	**273**	2,232	2,856	C	**>5,094**
2020	117	149	0	**220**	2,269	2,252	0	**4,521**
2021	75	153	0	**202**	1,331	1,654	0	**2,985**
2022	78	123	0	**177**	1,385	1,160	0	**2,545**
Wing Season 2								
FY	**# of vessels**				**# of trips**			
	DAS	**Non-DAS**	**B-DAS**	**Total**	**DAS**	**Non-DAS**	**B-DAS**	**Total**
2018	162	232	0	**327**	2,625	3,602	0	**6,227**
2019	132	201	0	**273**	2,309	2,856	0	**5,127**
2020	116	188	0	**257**	1,586	2,576	0	**4,162**
2021	84	173	0	**218**	1,062	1,842	0	**2,904**
2022	88	146	0	**203**	1,216	1,609	0	**2,825**

Note: The number of vessels in each category does not necessarily add to the row totals, as some vessels landed skate wings on DAS and not on a DAS. DAS data includes trips on Northeast multispecies, monkfish, and scallop DAS, though there were just nine scallop DAS trips in these years. Skate trips with dealer-reported landings that do not possess a matching VMS declaration code were treated as undeclared and attributed to the non-DAS category.
Source: CAMS data, accessed 5/10/2023.

[19] Observed discards reported in this document do not have the discard morality assumption applied and are called "live discards."

Table 21. Mean skate live discards on observed DAS trips that landed skate wings by year and possession limit performance.

FY	Trips below possession limit		Trips within 10% of possession limit	
	Mean live discards	n	Mean live discards	n
2018	151 lb	266	264 lb	41
2019	109 lb	332	236 lb	46
2020	583 lb	58	11,604 lb	8
2021	106 lb	189	484 lb	23

Source: CAMS data, accessed 5/10/2023.
Note: These data do not include trips with reported landings more than 10% above the possession limit due to very low number of observed trips.

Table 22. Mean skate live discards on observed non-DAS trips that landed skate wings by year and possession limit performance.

FY	Trips below possession limit		Trips within 10% of possession limit	
	Mean live discards	n	Mean live discards	n
2018	191 lb	394	989 lb	60
2019	271 lb	325	1,105 lb	37
2020	469 lb	69	2,185 lb	7
2021	279 lb	128	1,261 lb	5

Source: CAMS data, accessed 5/10/2023.
Note: These data do not include trips with reported landings more than 10% above the possession limit.

5.5.1.3.2 Barndoor Skate Catch

Barndoor skate possession has been prohibited except in the DAS wing fishery since FY 2018. To assess the feasibility of allowing possession of barndoor skate and integrating the species into the skate complex, the magnitude of barndoor skate discards was investigated. Dead discards of barndoor skate, as calculated by the NEFSC, averaged 1,815 mt (~4.0M lb) per year from 2012 to 2022. On average, 65% of barndoor skate discards are attributed to otter trawls, 19% to scallop dredges and 10% to gillnets (Table 23). Notably, it is difficult to differentiate skate species, there is speciation error in fishery and observer data, and there have likely been inadvertent landings of barndoor skate.

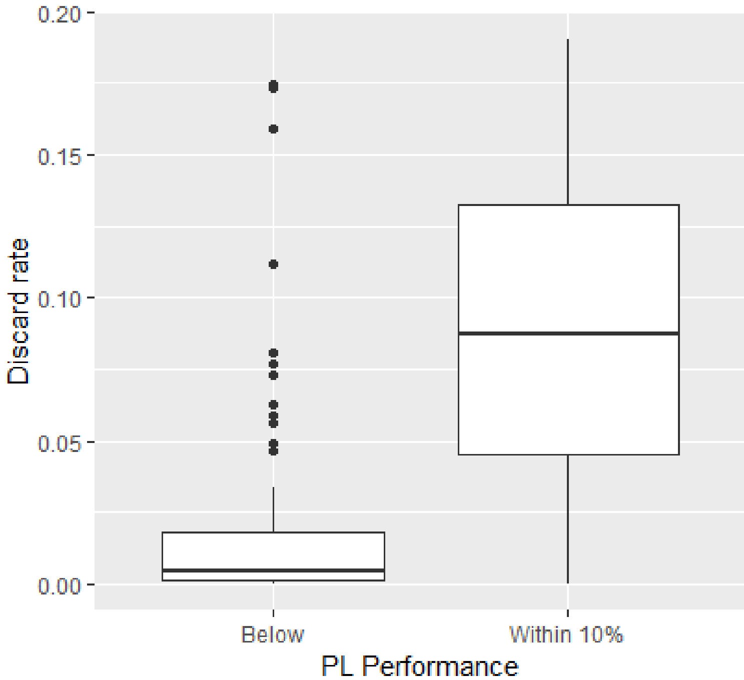
Table 23. Dead discards (mt) of barndoor skate on all trips, CY 2012 – 2022.

CY	Longline		Gillnet		Scallop Dredge		Otter Trawl		Total
2012	16	< 1%	335	14%	329	13%	1,787	72%	**2,467**
2013	76	3%	260	10%	366	13%	2,023	74%	**2,725**
2014	35	1%	364	11%	275	8%	2,735	80%	**3,409**
2015	76	5%	102	8%	228	17%	945	70%	**1,351**
2016	25	2%	138	9%	325	22%	997	67%	**1,485**
2017	15	1%	303	22%	223	16%	824	60%	**1,365**
2018	10	< 1%	258	19%	367	27%	734	54%	**1,369**
2019	23	3%	65	7%	282	29%	587	61%	**957**
2020	81	4%	62	3%	390	17%	1,731	76%	**2,264**
2021	46	3%	62	4%	701	45%	754	48%	**1,563**
2022	25	2%	61	6%	379	38%	544	54%	**1,009**
Average	**39**	**2%**	**61**	**10%**	**351**	**19%**	**1,242**	**65%**	**1,815**

Notes: These are estimated dead discards and attributed to species using NEFSC survey proportions at length. A discard mortality rate of 50% is assumed for all gear.
Source: NEFSC data, accessed February 2023.

DAS wing fishery. After being declared rebuilt in 2018, barndoor skates have been landed as a component of the DAS wing fishery, with a partial possession limit of 25% of the skate wing limit since FY 2018. During FY 2018 – 2021, 9% of barndoor skate catch was discarded for trips landing barndoor within 10% of the DAS barndoor partial possession limit compared to 1% for trips landing barndoor below this limit (Figure 5). During FY 2018-2022, an average of 258 trips landed up to 90% of the barndoor skate partial possession limit (Table 24), or 59.7% of all DAS trips that landed barndoor skates. The proportion of DAS trips landing at least 90% of the barndoor skate partial possession limit increased over the time, despite the overall increase in the skate possession limit between these periods. Even with a higher possession limit allowing for potentially greater landings, the proportion of trips landing near or above the limit remained high. From FY 2018-2022, observed DAS trips that landed >50 lb of barndoor skate (743 trips) had average discards of barndoor of 948 lb.

Figure 5. Barndoor skate discard rate for observed trips landing barndoor below and within 10% of the DAS partial possession limit, FY 2018 – 2021.



Source: CAMS data, accessed 5/10/2023.
Notes: Discard rate describes the proportion of barndoor skate discarded relative to total barndoor skate catch on an observed trip. Trips include all trips (DAS and non-DAS trips) landing greater than 50 lb of barndoor skate.

Table 24. DAS trips landing barndoor skate relative to the barndoor partial possession limit, FY 2018 – 2022.

FY	Below limit		± 10% of limit		> 10% above limit		Total
	# of trips	% of trips	# of trips	% of trips	# of trips	% of trips	# of trips
2018	197	62.3%	25	7.9%	94	29.7%	316
2019	421	63.9%	32	4.9%	206	31.2%	659
2020	247	60.7%	18	4.4%	142	34.9%	407
2021	217	58.2%	22	5.9%	134	35.9%	373
2022	210	53.6%	23	5.9%	159	40.6%	492
Avg.	258	59.7%	24	5.8%	147	34.4%	449

Notes: Trips include all trips landing greater than 50 lb of barndoor skate.
Source: CAMS data, accessed 11/7/2023

Non-DAS wing fishery. Barndoor skate possession has been prohibited when not fishing on a DAS, however 140 non-DAS trips from 2018 to 2022 have recorded barndoor skate landings. From FY2018-2022, observed non-DAS trips that landed skate wings (n=459) discarded an average of 365 lb of barndoor skate per trip.

Bait LOA fishery. Barndoor skate possession has been prohibited when fishing on a Bait LOA (with a maximum size limit of 23”). From FY 2018 - 2022, there were 546 observed trips that landed skate with a

Bait LOA, and of these, only 4 that discarded barndoor skate (Table 25). There were no barndoor under 23” in length discarded on any observed trip landing skate during these years.

Table 25. Discarding of barndoor skate on active skate trips, FY 2018 - 2022

		FY 2018 to FY 2022 observed trips landing skates		
		Observed trips	**Average barndoor discards/trip**	
	Total	**Discarding barndoor**	**Length < 23”**	**Length > 23”**
Trips w/ Bait LOA	546 trips	4	No discards	1.6 lb
Trips w/o Bait LOA	3022 trips	831		85.6 lb
Source: CAMS data, accessed December 2023.				

5.5.1.3.3 Smooth Skate Catch

Smooth skate possession has been prohibited in the Gulf of Maine (the only region where smooth skate have been caught in the NEFSC bottom trawl survey) since 2003. To assess the feasibility of allowing possession of smooth skate and integrating the species into the skate complex, the magnitude of smooth skate discards was investigated. Dead discards of smooth skate, as calculated by the NEFSC, averaged 391 mt (~862K lb) per year from 2012 to 2022. On average, 56% of smooth skate discards are attributed to otter trawls and 41% to scallop dredges, and 3% to gillnets (Table 26).

From FY 2018-2021 observer data, smooth skate discards per trip were highest in eastern Gulf of Maine (Map 6, Statistical areas 515, 521, 522). For observed trips that landed skate, 77-90% of the trips in these years discarded under 250 lb of smooth skate; just a handful discarded over 750 lb (Table 27). On observed trips that discarded smooth skates, but landed other species skates, from FY 2018-2021 (n=485), average discards of smooth skate were 199 lb/trip.

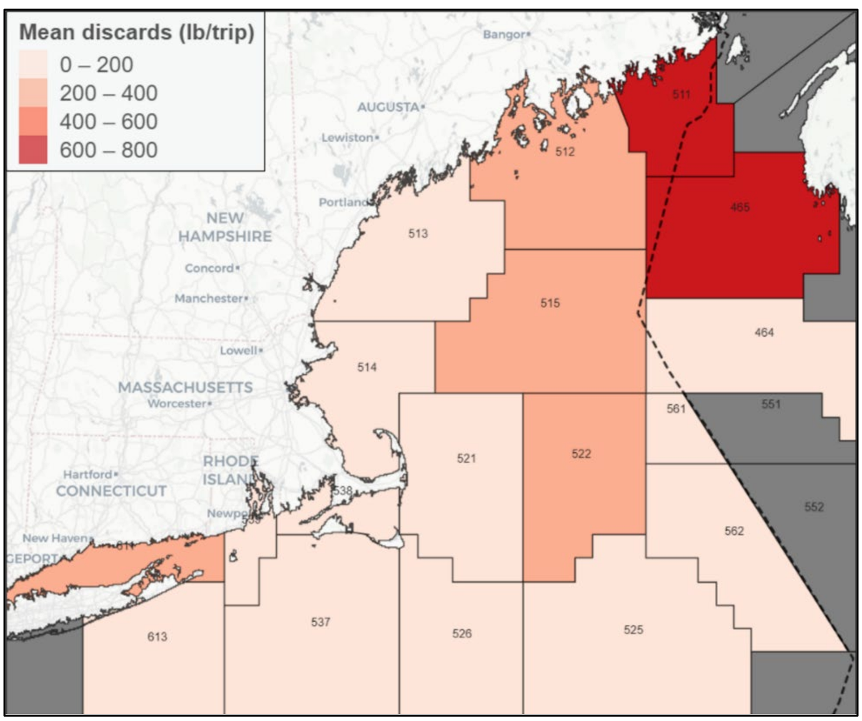
Notably, a small number of observed trips discarded smooth skate in areas outside the species' range in Southern New England. Given that smooth skate do not occur in Southern New England, according to NEFSC trawl survey data (Map 2), there is likely some species identification error in the observer data.

Table 26. Dead discards (mt) of smooth skate on all trips, CY 2012 – 2022.

CY	Longline	Gillnet		Scallop Dredge		Otter Trawl		Total
2012	2	29	6%	116	25%	317	68%	**463**
2013	2	14	5%	103	33%	188	61%	**308**
2014	1	7	3%	101	40%	146	57%	**255**
2015	2	8	3%	138	44%	163	52%	**312**
2016	1	15	4%	94	22%	313	74%	**423**
2017	1	13	3%	177	38%	276	59%	**467**
2018	<1	16	3%	330	61%	198	36%	**544**
2019	<1	9	2%	234	51%	216	47%	**460**
2020	<1	5	1%	171	41%	237	57%	**414**
2021	<1	14	3%	234	50%	221	47%	**469**
2022	<1	7	4%	78	42%	100	54%	**185**
Average	**<1.5**	**12**	**3%**	**161**	**41%**	**216**	**56%**	**391**

Notes: These are estimated dead discards and attributed to species using NEFSC survey proportions at length. A discard mortality rate of 50% is assumed for all gear, except otter trawl which is 60%.
Source: NEFSC data, accessed February 2023.

Map 6. Smooth skate discards (lb/trip) on observed trips by statistical area, FY 2018-2021



Note: Dashed line represents U.S/Canada EEZ boundary. While statistical areas overlap both U.S. and Canadian waters, data are solely from U.S. waters.
Source: CAMS data, accessed 5/10/2023.

Table 27. Smooth skate discards on observed trips landing skate, FY 2018-2021.

Fishing Year	Smooth skate discards (lb/trip)	# of trips	% of trips
2018	< 250	150	88%
	250 – 749	18	11%
	≥ 750	3	1%
2019	< 250	130	81%
	250 – 749	17	11%
	≥ 750	14	8%
2020	< 250	103	77%
	250 – 749	16	12%
	≥ 750	13	11%
2021	< 250	146	90%
	250 – 749	12	7%
	≥ 750	4	3%

5.5.1.3.4 Prior Skate Possession Limits

The wing possession limits for both seasons have remained relatively constant since annual catch limits and accountability measures were implemented in 2010, with seasonal possession limit increases effective beginning in FY 2020 (Table 28). The bait possession limits have varied since annual catch limits and accountability measures were implemented in 2010, with Season 3 possession limit increases effective beginning in FY 2020 (Table 29). The incidental limit trigger and incidental possession limit have also changed over time. As explained above, the in-season adjustments to possession limits were linked between the bait and wing fisheries through March 15, 2018, which was problematic in FY 2016).

Table 28. Skate wing possession limits by season and fishing year.

FY	Season	Dates	Possession Limit	Barndoor Possession Limit (Wing)	Incidental Limit
2003 – Northeast Skate Complex FMP implemented			10,000 lb/ <24 hours (i.e. day) & 20,000 lb/ > 24 hours (i.e. trip)		
FY 2009	No season	May 1–Apr. 30	10,000 lb/ <24 hours (i.e. day) & 20,000 lb/ > 24 hours (i.e. trip)	0	
FY 2010	No season	May 1–Jul. 16	10,000 lb/ <24 hours (i.e. day) & 20,000 lb/ > 24 hours (i.e. trip)		
		Jul. 16–Sep. 3	5,000 lb		500 lb (if 80% of wing TAL is landed)
		Sep. 3-Apr. 30	500 lb		
FY 2011	No season	May 1-May 17	5,000 lb		
	1	May 17–Aug. 31	2,600 lb		500 lb (if 85% of wing TAL is landed)
	2	Sep. 1–Apr. 30	4,100 lb		
FY 2012 – 2015	1	May 1 – Aug. 31	2,600 lb		
	2	Sep. 1 – Apr. 30	4,100 lb		
FY 2016	1	May 1 – Aug. 31	2,600 lb		
	2	Sep. 1 – Jan. 29	4,100 lb		
		Jan. 30–Mar. 13	500 lb		
		Mar. 14–Apr. 30	4,100 lb		
FY 2017	1	May 1 – Aug. 31	2,600 lb		
	2	Sep. 1 – Dec. 26	4,100 lb		
		Dec. 27 – Apr. 8	500 lb	*	
		Apr. 9 – Apr. 30	4,100 lb	1,025 lb	
FY 2018 - 2019	1	May 1 – Aug. 31	2,600 lb	650 lb	
	2	Sep. 1 – Apr. 30	4,100 lb	1,025 lb	
FY 2020 - 2023	1	May 1 – Aug. 31	3,000 lb	750 lb	
	2	Sep. 1 – Apr. 30	5,000 lb	1,250 lb	
*From February 13 – April 8, 2018, the barndoor skate possession limit was 125 lb due to the soft closure.					

Table 29. Skate bait possession limits by season and fishing year.

<table>
<tr><th>FY</th><th>Season</th><th>Dates</th><th>Possession Limit</th><th>Incidental Limit Regulations</th></tr>
<tr><td colspan="5">2003 – Northeast Skate Complex FMP implemented, Skate Bait LOA requirement</td></tr>
<tr><td rowspan="3">FY 2010 - 2011</td><td>1</td><td>May 1 – Jul. 31</td><td rowspan="3">20,000 lb</td><td rowspan="15">5,902 lb (Season 1) and 9,307 lb (Season 2) (if 90% of bait season’s TAL or annual TAL is landed)
or 1,135 lb (if 85% of wing TAL is also landed)[1]</td></tr>
<tr><td>2</td><td>Aug. 1 – Oct. 31</td></tr>
<tr><td>3</td><td>Nov. 1 – Apr. 30</td></tr>
<tr><td rowspan="3">FY 2012 - 2015</td><td>1</td><td>May 1 – Jul. 31</td><td rowspan="3">25,000 lb</td></tr>
<tr><td>2</td><td>Aug. 1 – Oct. 31</td></tr>
<tr><td>3</td><td>Nov. 1 – Apr. 30</td></tr>
<tr><td rowspan="6">FY 2016</td><td>1</td><td>May 1 – Aug. 31</td><td>25,000 lb</td></tr>
<tr><td rowspan="2">2</td><td>Sep. 1 – Oct. 17</td><td>25,000 lb</td></tr>
<tr><td>Oct. 18 – Oct. 31</td><td>9,307 lb</td></tr>
<tr><td rowspan="3">3</td><td>Nov. 1 – Jan. 29</td><td>25,000 lb</td></tr>
<tr><td>Jan. 30 – Mar. 13</td><td>1,135 lb</td></tr>
<tr><td>Mar. 14 – Apr. 30</td><td>9,307 lb</td></tr>
<tr><td rowspan="4">FY 2017</td><td>1</td><td>May 1 – Jul. 31</td><td rowspan="2">25,000 lb</td></tr>
<tr><td>2</td><td>Aug. 1 – Oct. 31</td></tr>
<tr><td rowspan="2">3</td><td>Nov. 1 – Mar. 14</td><td>25,000 lb</td></tr>
<tr><td>Mar. 15 – Apr. 30</td><td>12,000 lb</td><td>8,000 lb (if 80% of bait TAL is landed in a season)</td></tr>
<tr><td rowspan="3">FY 2018 - 2019</td><td>1</td><td>May 1 – Jul. 31</td><td rowspan="2">25,000 lb</td><td rowspan="2">8,000 lb (if 90% of bait TAL is landed in a season)</td></tr>
<tr><td>2</td><td>Aug. 1 – Oct. 31</td></tr>
<tr><td>3</td><td>Nov. 1 – Apr. 30</td><td>12,000 lb</td><td>8,000 lb (if 80% of bait TAL is landed in a season)</td></tr>
<tr><td rowspan="3">FY 2020 - 2023</td><td>1</td><td>May 1 – Jul. 31</td><td rowspan="3">25,000 lb</td><td rowspan="2">8,000 lb (if 90% of bait TAL is landed in a season)</td></tr>
<tr><td>2</td><td>Aug. 1 – Oct. 31</td></tr>
<tr><td>3</td><td>Nov. 1 – Apr. 30</td><td>8,000 lb (if 80% of bait TAL is landed in a season)</td></tr>
<tr><td colspan="5">[1] The bait fishery was only held to the wing incidental limit if BOTH the bait AND wing triggers were reached. If only the wing fishery trigger was reached, the bait fishery would still operate at normal limits until it hits its 90% trigger.</td></tr>
</table>

5.5.1.3.5 Incidental Limits

The wing and bait fisheries have different triggers for when an incidental limit may be implemented under the discretion of the Regional Administrator (described on the GARFO website). An incidental limit has been triggered five times (two for bait, three for wing) since first implemented July 2010, out of over 50 seasons of the wing and bait fisheries. The first time was in September 2010 when the wing fishery reached 80% of the wing TAL, triggering the 500 lb incidental limit for about eight months. This was due to increased landings of skate wings and a delay in implementing Amendment 3 which reduced the skate wing possession limit to 5,000 lb. The second time the incidental limit was triggered was in October 2016 for the bait fishery in Bait Season 2 for the remainder of that season (about two weeks). Then later in FY 2016 (January 2017), both the wing and bait fisheries reached their respective triggers of 85% (wing) and 90% (bait), so the incidental limit for the third and fourth time was triggered for both fisheries. At the time, the bait incidental limit was tied to the wing incidental limit, meaning 1,135 lb whole weight for bait and 500 lb wing weight for wings. Both fisheries were limited to the wing incidental limit until March 14, 2017. At that time, the RA projected the wing and bait TALs would not be exceeded for the remainder of that fishing year (about one and a half months), so the skate wing possession limit was increased to the full 4,100 lb possession limit, while the bait possession limit was not increased to the full 25,000 lb limit but rather the whole weight wing limit equivalent of 9,307 lb. Framework 4 lowered the Bait Season 3 possession limit and trigger and de-coupled the triggers of the wing and bait incidental limits, creating an independent incidental possession limit for the bait fishery. Since then, the bait trigger is no longer linked to the wing fishery possession limits. The fifth (and latest) time an incidental limit was triggered was for the wing fishery in December 2017. It remained in place for most of the rest of the fishing year (about 3.5 months). For the last few weeks of that fishing year, the Regional Administrator returned the fishery to its regular seasonal limit when it was determined that the annual TAL was unlikely to be reached.

5.5.1.4 Declarations

If fishing for skate wings with the intent to land over 500 lb, the vessel must: 1) have a Federal limited access permit for either the Northeast (NE) multispecies, monkfish or scallop fishery, and must declare into and use a day-at-sea (DAS) of one of those fisheries; or 2) declare out of fishery (DOF) for either fishing in a skate exemption area in Southern New England or the Mid-Atlantic or for transiting the EEZ with skates on board the vessel or landing skates in U.S. ports that were caught while fishing in the NAFO Regulatory Area. If planning to land under 500 lb, a vessel with a NE multispecies, monkfish or scallop limited access permit may declare out of fishery (DOF) to avoid using a DAS. If the vessel has another limited access permit (e.g., herring, squid-mackerel-butterfish), it must declare into one of those fisheries. If the vessel does not have a limited access permit, then it does not need to make a declaration ("undeclared").

If the vessel wishes to maintain the maximum bait possession limit under the LOA but does not want to fish in an exemption area, it must possess a limited access permit for and declare into either a Northeast multispecies, monkfish or scallop fishery DAS trip. If the vessel is fishing in a skate exemption area in Southern New England or the Mid-Atlantic and the vessel has a limited access NE multispecies, monkfish or scallop permit, it may declare out of fishery (DOF) to retain skate without using a DAS. If a vessel does not have a NE multispecies, monkfish or scallop permit and is fishing for bait under a LOA, it can only fish in the exemption area and would not make a declaration (undeclared).

In the years FY 2012, FY 2015, FY 2017, and FY 2018, most of the skate wing landings were either from declared Northeast multispecies trips (41-49% of wing landings) or from declared monkfish trips (36-45% of wing landings) followed by undeclared trips (6-15% of wing landings; March 14, 2020 PDT memo). Most skate bait landings were from declared Northeast multispecies trips (29-63% of bait landings) and on undeclared trips (20-44% of bait landings). Table 30 describes skate landings by VMS declaration and skate disposition in FY 2022, with declared Northeast multispecies trips landing a slightly larger proportion of skates for the wing fishery while declared monkfish trips landed slightly less than previous years, and the bait fishery not varying from previous years.

Table 30. Skate landings by VMS declaration and skate fishery disposition, FY 2022

Declaration	Live lb		Landed lb		Trips (#)		Vessels (#)	
WING landings by declaration (plan) code								
SES	2,730	0%	1,203	0%	13	0%	4	2%
SMB	517,255	3%	234,411	3%	487	10%	61	25%
DOF	1,928,734	12%	383,437	5%	1,008	21%	88	36%
Undeclared	250,535	2%	681,873	8%	745	15%	113	47%
MNK	5,039,312	30%	2,689,252	33%	946	19%	44	18%
NMS	8,874,949	53%	4,153,914	51%	1,698	35%	80	33%
TOTAL	**16,613,515**	**100%**	**8,144,090**	**100%**	**4,897**	**100%**	**242**[a]	**100%**
BAIT landings by declaration (plan) code								
SMB	305,954	3%	305,954	3%	26	2%	6	10%
MNK	148,148	2%	248,835	3%	96	6%	8	13%
Undeclared	815,802	9%	823,019	8%	342	21%	30	48%
DOF	2,891,232	33%	2,911,154	29%	504	30%	32	52%
NMS	4,624,752	53%	5,617,871	57%	698	42%	28	45%
TOTAL	**8,785,888**	**100%**	**9,906,833**	**100%**	**1,666**	**100%**	**62**[a]	**100%**

[a] The number of unique vessels, not the column total.
Source: CAMS, accessed September 2023.

5.5.1.5 Revenue and Dependence on Skates

Recent skate revenue ranged from $4.1M (FY 2021) to $12.1M (FY 2014), with annual fluctuations in revenue ranging from $50K to $3.6M (Table 31). The fluctuations in skate revenue are largely due to changes in wing revenue and landings, ranging from $232K to $3.4M annually. Revenue from the skate bait fishery is much lower and fluctuates less, $33K to $670K annually. Average yearly wing revenue from FY 2012 - 2022 was $7.3M, while the average yearly bait revenue for those years was $1.96M. Total revenue peaked in FY 2014; the wing fishery had its top revenue year in FY 2014, while the bait fishery had its top year in FY 2017. Notably, skate landed for the wing fishery fetches a consistently higher price that bait skate ($0.49-0.93/lb vs $0.15-0.25/lb over FY 2012-2022; Table 37 has price by species).

Revenue by Disposition. Given the diversity of participation in the skate fishery, revenue dependence for vessels landing at least 1 lb of skate in a FY is summarized by vessels that land only skate for bait, for food, or skate for bait and food (Table 32). Within each of these disposition categories, vessels were further divided by those with ≤ or > than 10% of their revenue from skate to further understand the importance of skate (Table 33). For vessels landing skate for bait and food in a FY, there are trips where skate is landed for only food, only bait, or both. During FY 2022, 205 vessels (172 +33) landed skate for food only, 25 (17+8) vessels landed bait, and 36 vessels (19+17) landed skate for both food and bait (Table 33).

Food only: For the 205 vessels that landed skate for food only in FY 2022 (Table 32), the 172 vessels with ≤ 10% of their annual fishing revenues from skate for food had very low dependence (0.3%, Table 33). The 33 vessels with >10% revenue from skate had higher revenue dependence, with a median value of 27%.

Table 31. Skate wing and bait landings (landed lb) revenues, and average prices, FY 2012 – 2022.

FY	Number of Vessels[a]	WING			BAIT			Total Revenue ($)
		Landed lb	Revenue ($)	Avg. Price ($/lb)	Landed lb	Revenue ($)	Avg. Price ($/lb)	
2012	528	10,557,620	8,381,058	0.79	10,747,128	1,897,579	0.18	10,278,637
2013	456	9,293,026	8,613,000	0.93	11,258,454	1,716,188	0.15	10,329,188
2014	453	11,561,778	10,203,696	0.88	9,770,110	1,918,716	0.20	12,122,412
2015	440	11,678,525	7,006,288	0.60	10,563,772	1,535,594	0.15	8,541,882
2016	417	10,298,179	5,798,153	0.56	10,250,717	1,568,616	0.15	7,366,769
2017	431	9,562,643	6,166,525	0.64	12,552,748	2,238,664	0.18	8,405,189
2018	397	9,757,438	7,462,404	0.76	10,836,499	2,094,220	0.19	9,556,624
2019	364	9,181,165	6,739,299	0.73	9,031,988	1,699,051	0.19	8,438,350
2020	318	9,604,882	6,135,340	0.64	7,590,437	1,533,126	0.20	7,668,466
2021	290	5,481,203	2,696,791	0.49	6,272,984	1,410,364	0.22	4,107,155
2022*	267	6,731,140	3,665,609	0.54	8,239,804	2,051,364	0.25	5,716,973

Note: * Data are preliminary. All dollar values are presented in 2022 constant dollars. Includes vessels without a federal skate permit such as (000000) however, these are listed as a single vessel.
Source: Data accessed from CAMS_LAND 8.2023 (excludes home consumption).

Bait only: For the 25 vessels that landed only skate bait during FY 2022 (Table 32), the 17 vessels with ≤10% of their annual fishing revenues from skate bait had very low revenue dependence, 1.3% on average (Table 33). The 8 vessels with >10% revenue from skate, had much higher revenue dependence, with a median of 16.4% skate revenues.

Bait and food: For the 36 vessels that landed skate for both food and bait during FY 2018, the 19 vessels with ≤10% of their annual fishing revenues from skate, had very low dependence (2.8%, Table 33). The 17 vessels with >10% revenue from skate had a median 31.8% of their revenues depending on skate.

Table 32. Percent skate revenue of total vessel revenues for any federal vessel landing skate by wing/bait vessels, FY 2018-2022 (%)

Fishing Year	Wing Only Vessels			Bait Only Vessels			Wing and Bait Vessels		
	Num Vessels	Average	Median	Num Vessels	Average	Median	Num Vessels	Average	Median
2018	313	7.4%	0.9%	15	19%	4.8%	68	14%	4.6%
2019	267	6.5%	0.6%	15	11%	1.3%	81	19%	7.8%
2020	241	6.1%	0.6%	16	13%	2.7%	60	26%	14%
2021	214	4.2%	0.3%	23	20%	7.6%	52	14%	4.2%
2022	205	6.0%	0.5%	25	12%	2.9%	36	20%	7.4%

Table 33. Percent skate revenue of total vessel revenue for any federal vessel landing skate, by wing/bait vessels, broken down by vessels that derive over or ≤ 10% of their revenues from skate, FY 2018-2022.

Fishing Year	Wing Only Vessels				Bait Only Vessels				Wing and Bait Vessels			
	Skate Revenues > 10%		Skate Revenues ≤ 10%		Skate Revenues > 10%		Skate Revenues ≤ 10%		Skate Revenues > 10%		Skate Revenues ≤ 10%	
	N	Median (%)	N	Median (%)	N	Median (%)	N	Median (%)	N	Median (%)	N	Median (%)
2018	58	24%	255	0.5%	6	44%	9	3.6%	25	27%	43	1.9%
2019	46	26%	221	0.4%	3	29%	12	0.6%	37	34%	44	1.9%
2020	38	26%	203	0.4%	3	44%	13	1.9%	32	43%	28	1.7%
2021	24	26%	190	0.2%	8	44%	15	3.8%	22	29%	30	1.4%
2022	33	27%	172	0.3%	8	16%	17	1.3%	17	32%	19	2.8%

Table 34. Percent of total revenues by gear type for trips landing skate, FY 2018-2022 (%).

Fishing Year	Percent Revenues from All Species from Trips Landing Skate (%)			Percent Revenues from All Species from Wing Only Trips (%)			Percent Revenues from All Species from Bait Only Trips (%)			Percent Revenues from All Species from Mixed Trips (Both Wing and Bait)		
	Gillnet	Other	Bottom Trawl	Gillnet	Other	Bottom Trawl	Gillnet	Other	Bottom Trawl	Gillnet	Other	Bottom Trawl
2018	21.6	1.5	76.9	24.91	1.75	73.34	*	*	98.20	5.97	0.37	93.66
2019	21.8	2.4	75.9	22.98	2.62	74.40	*	*	99.79	14.05	0.77	85.17
2020	17.7	2.1	80.2	17.02	2.30	80.68	*	*	96.76	22.78	0.89	76.33
2021	14.2	1.6	84.2	13.05	1.73	85.22	*	*	97.72	19.94	1.01	79.04
2022	18.4	0.4	81.2	17.58	0.38	82.04	*	*	99.29	22.39	0.62	76.99

Source: CAMS_LAND, accessed August 2023. Excludes permit numbers equal to 0.

For trips landing skates conducted over the past five fishing years, total revenue was primarily on trips using bottom trawls. Trips landing bait skate are fished almost exclusively using bottom trawl gear, as evident in the distribution of percent skate revenues by gear, which show negligible contributions from gillnet or other gear for the past five fishing years. Trips landing only skate wings included gillnets and other gears (Table 34).

In each of the past five fishing years (FY 2018-2022), the highest percentage of revenue on trips landing skates has come from summer flounder/black sea bass/scup, followed by groundfish, while skate revenues were comparable to monkfish and squid revenues on these trips (Figure 6). Much of this diversity in catch and related revenues comes from landings on trips landing skate wings (Figure 7), while trips landing bait skate from FY 2018 to 2022 had average percent skate revenues ranging from 90.3% to 100% (Figure 8). Mixed (both wing and bait) trips followed a similar trend as the wing fishery, though the percent revenue from skates was the second highest for four out of five of the past five fishing years (following summer flounder/black sea bass/scup; Figure 9). This may indicate overlap between the skate fishery and other fisheries less frequently discussed with regards to skate management, notably the summer flounder/ black sea bass/scup fishery.

Figure 6. Average percent revenues from all species landed on trips landing >1lb of skate, by species and fishing year.

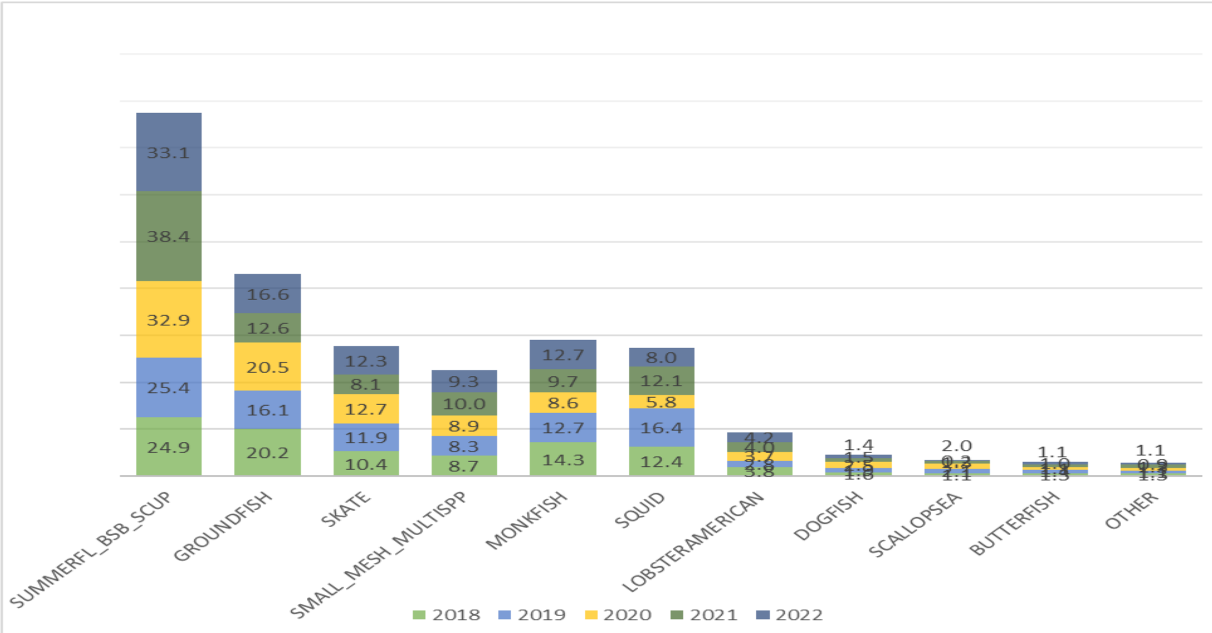


Figure 7. Average percent revenues from all species landed on trips landing >1 lb of skate wing, by species and fishing year.

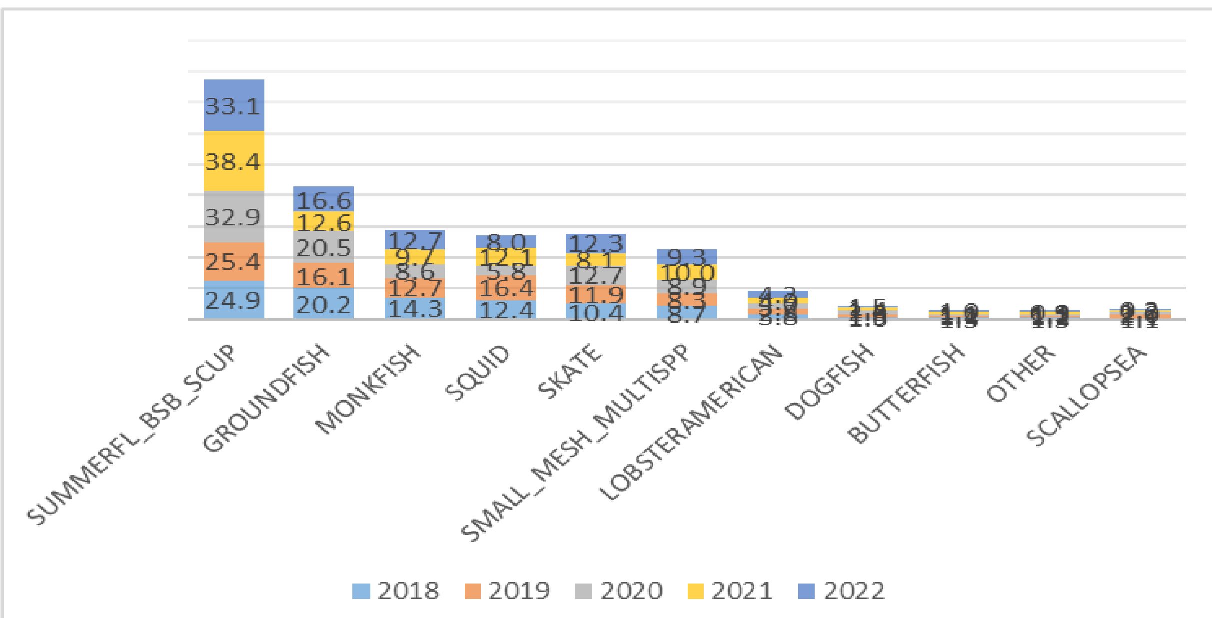


Figure 8. Average percent revenues from all species landed on trips landing >1 lb of skate bait, by species and fishing year.

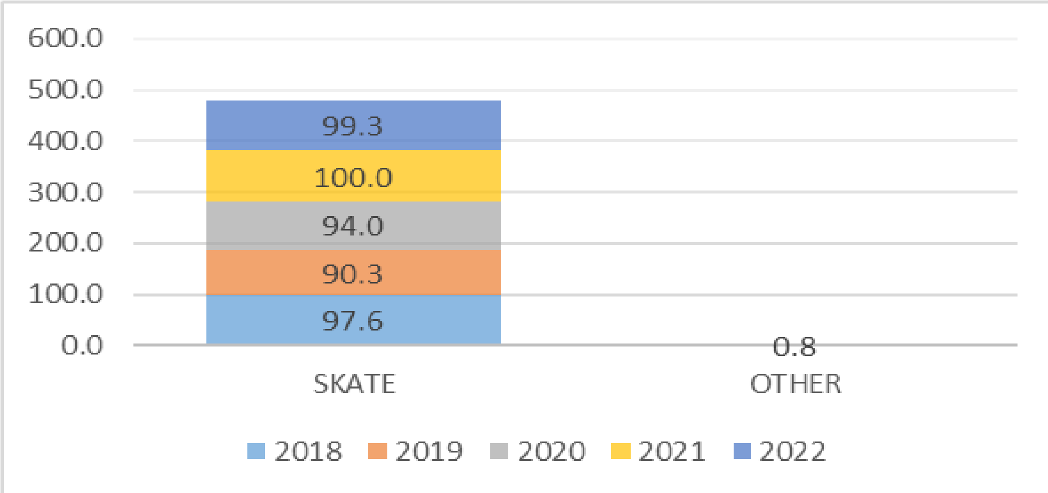
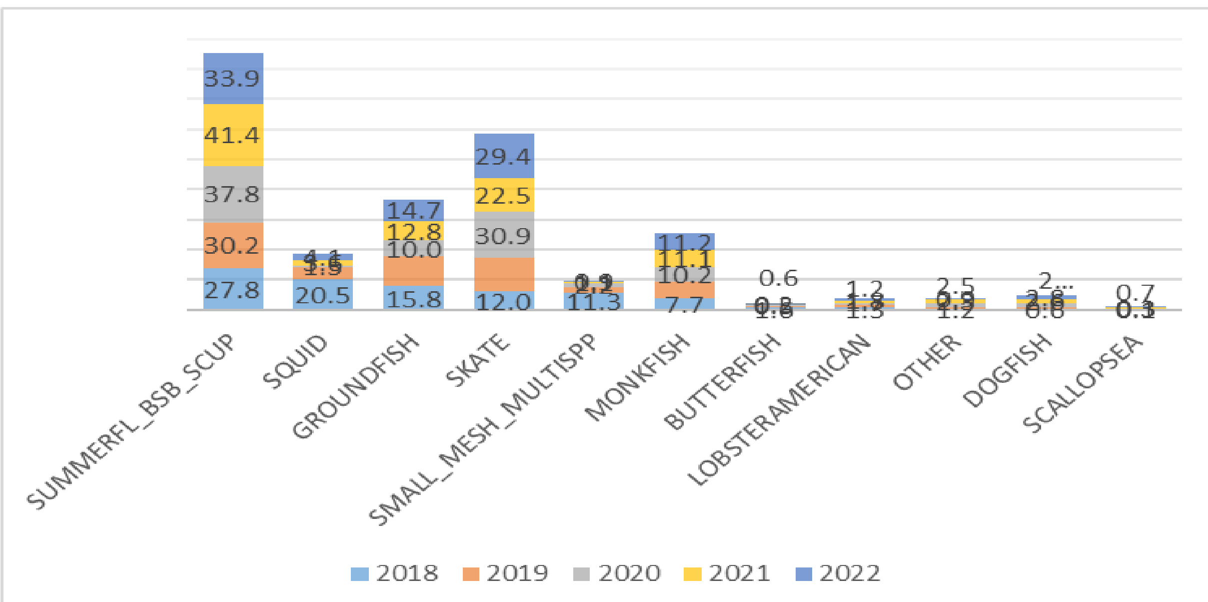


Figure 9. Average percent revenues from all species landed on trips landing skate wings and bait, by species and fishing year.



5.5.1.6 Dealers, Processors, Market, and Substitute Goods

Skate processors buy whole, hand-cut, and/or onboard machine-cut skates from vessels primarily out of Massachusetts and Rhode Island. Because of the need to cut the wings, it is relatively labor-intensive to fish for skates. The current market for skate wings remains primarily an export market. France, Korea, and Greece are the leading importers. There is a limited domestic demand for processed skate wings from the white tablecloth restaurant business.

The number of Federal skate dealers has generally decreased over time, falling from 126 in fishing year 2012 to a low of 78 in 2020 before picking back up slightly in 2021 and 2022 (Table 35). Most dealers buying skate are wing only, making up 76% of the total dealers each year on average, followed by wing and bait dealers and bait only dealers, which make up an average of 13% and 11% of total dealers, respectively. Trends in number of wing, bait, and wing and bait dealers are somewhat consistent with trends in number of wing, bait and wing and bait vessels. In FY 2022, total federal dealers purchasing skates ranged from four to 27 dealers per state. New York state had the most total federal dealers purchasing skates (27) and the most wing-only dealers (24) (Table 36). Rhode Island had the most bait only dealers, with 9 out of 22 total Federal dealers in the state.

Table 35. Number of federal skate dealers by skate disposition and fishing year, FY 2012-2022.

Fishing Year	Total Skate Dealers	Wing Only	Bait Only	Both Wing and Bait
2012	126	108	7	11
2013	118	100	9	9
2014	106	85	9	12
2015	114	97	11	6
2016	101	85	11	5
2017	91	68	7	16
2018	98	67	11	20
2019	97	69	11	17
2020	78	54	10	14
2021	87	57	13	17
2022	88	62	17	9
Source: CAMS_LAND, accessed August 2023.				

Table 36. Number of Federal dealers purchasing skates by skate disposition and state, FY 2022.

State	Total Skate Dealers	Wing Only	Bait Only	Both Wing and Bait
MA	22	15	C	C
RI	22	10	9	3
CT	16	10	3	3
NY	27	24	0	3
NJ	11	9	C	C
MD	4	0	C	C
VA	5	C	C	0
Note: C = confidential. NC, ME, and NH not displayed due to data confidentiality constraints. *Source:* CAMS_LAND, accessed August 2023.				

The average price of barndoor skates has declined slightly over the past five years, from $0.64/lb in 2018 to $0.57/lb in 2021 before rebounding to $0.60/lb in 2022 (Table 37). Winter skates have a slightly higher average price than both barndoor and unclassified skates, though prices have decreased by about $0.10/lb over the last five years even as total landings have overall decreased over the time series. It should be noted that winter skates also have a particularly large standard deviation ranging from $0.48-$0.65, suggesting a wide range of prices yielded for the species. The average price for skates labeled as “unclassified” ranged from $0.69 to $0.64/lb before dropping to $0.46/lb in 2022. The increase in prices in unclassified skates in 2021 may be due to the relatively large drop in landings in that year. The drop in prices for FY 2022 should be considered preliminary and interpreted with caution. Overall, winter skates have the largest standard deviation and are the most stable over time, which is expected given that this species has the largest sample size which should be considered when comparing prices between species.

Table 37. Annual skate prices by species and fishing year, FY 2018-2022.

Fishing Year	Skate Species		
	Barndoor	**Winter**	**Unclassified**
2018			
Mean Price (2022 $/lb.)	0.64	0.84	0.68
Standard deviation	0.19	0.5	0.38
Number of Records	366	11,057	1,444
2019			
Mean Price (2022 $/lb.)	0.65	0.84	0.69
Standard deviation	0.36	0.48	0.43
Number of Records	801	10,077	398
2020			
Mean Price (2022 $/lb.)	0.64	0.75	0.64
Standard deviation	0.16	0.51	0.28
Number of Records	497	9,033	260
2021			
Mean Price (2022 $/lb.)	0.57	0.74	0.67
Standard deviation	0.33	0.65	0.42
Number of Records	484	6,311	206
2022			
Mean Price (2022 $/lb.)	0.6	0.74	0.46
Standard deviation	0.17	0.6	0.32
Number of Records	547	5,747	82

Note: Rosette, Thorny, Clearnose, Smooth, Little and "Big" Skate omitted due to data confidentiality and data quality concerns. Data excludes some home consumption. Price values are not weighted and do not account for monthly variations in price. N Records indicates the number of sales transactions for the species.
Source: CAMS_LAND, accessed August 2023.

5.5.1.7 Recreational Skate Landings

Skates have little to no recreational value and are primarily discarded in other recreational fisheries. As discards far exceed landings and there is little evidence of any directed recreational fishing of skates, the number of dockside intercepts is very low and the reliability of skate recreational catch estimates is a concern. Likewise, anglers are often unable to adequately identify discarded skates to species, leaving a large proportion of the catch identified only to the genus *Raja*.

While there is recreational skate catch from Maine to Virginia, the largest proportion of this catch is attributed to fishers in New Jersey and New York. Skates tend to be caught in recreational fisheries during the summer, from May to August, although an increasing amount is caught through October. The main fishing modes are private or for-hire vessels and shore-fishing. For most states, recreational skate catch comes almost entirely from nearshore (within three 3 miles of shore) or inland waters (bays, estuaries, and sounds). New York and New Jersey have a small proportion of recreational catch in federal waters.

5.5.2 Other Managed Resources and Fisheries

In addition to skates, other fisheries could be impacted by the Alternatives under Consideration. The groundfish and monkfish fisheries are often prosecuted in conjunction with skates and the lobster fishery is dependent on skate as bait.

5.5.2.1 Large Mesh Multispecies (Groundfish)

Northeast Multispecies are managed under a dual management system which breaks the fishery into two components: sectors and the common pool. For stocks that permit fishing, each sector is allotted a share of each stock's ACL that consists of the sum of individual sector member's potential sector contribution based on their annual catch entitlements. Sector allocations are strictly controlled as hard total allowable catch limits and retention is required for all stocks managed under an ACL. Overages are subject to accountability measures including payback from the sector's allocation for the following year. Common pool vessels are allocated days at sea (DAS) and their effort further is controlled by a variety of measures including trip limits, closed areas, minimum fish size and gear restrictions varying between stocks. Only a very small portion of the ACL is allotted to the common pool. Framework Adjustment 58 to the NE Multispecies FMP has more detail on the stock status and control of fishing effort (NEFMC 2022a).

The overall trend since the start of sector management through 2014 has been a decline in groundfish landings and revenue ($55M in FY 2014) and the number of vessels with revenue from at least one groundfish trip (273 in FY 2014). The groundfish fishery has had a diverse fleet of vessels sizes and gear types. Over the years, as vessels entered and exited the fishery, the typical characteristics defining the fleet changed as well. The decline in active vessels has occurred across all vessel size categories. Since FY 2009, the 30' to < 50' vessel size category, which has the largest number of active groundfish vessels, experienced a decline from 305 to 145 active vessels. The <30' vessel size category, containing the least number of active groundfish vessels, experienced the largest reduction since FY 2009 (34 to 14 vessels; Murphy et al. 2015; NEFMC 2017).

5.5.2.2 Monkfish

The monkfish fishery is jointly managed by the New England and the Mid-Atlantic Fishery Management Councils, with the NEFMC having the administrative lead. The Monkfish FMP defines two management areas for monkfish (northern and southern), divided roughly by an east-west line bisecting Georges Bank. The directed monkfish fishery is primarily managed with a yearly allocation of monkfish Days-at-Sea (DAS) and possession limits, though incidental landings are allowed in other fisheries. Landings relative to TAL since FY 2016 been 80-107% in the northern area and lower in the southern area, between 39-51% (NEFMC 2023). In the north, landings and catch have fluctuated around a steady level since 2009, but increased after 2015, with discards increasing only slightly. In the south, catch and landings had been declining since around 2000, but catch increased after 2015 due to discarding of a strong 2015-year class, with almost a doubling of the discard rate. Additional information on monkfish management is at: http://www.nefmc.org/management-plans/monkfish.

5.5.2.3 American Lobster Fishery

Population status: The 2015 peer-reviewed stock assessment report (ASMFC 2015) indicated a mixed picture of the American lobster resource. The assessment found the GOM/GBK stock was experiencing record stock abundance and recruitment (not overfished, not experiencing overfishing), though population indicators show young-of-year estimates are trending downward. This indicates a potential decline in recruitment in the coming years, and the Panel recommended that the ASMFC be prepared to impose restrictions should recruitment decline. Conversely, the assessment found the SNE stock is severely depleted, though overfishing was not occurring, with abundance indices at or near time-series lows. Recruitment indices show the stock has continued to decline and is in recruitment failure.

Management: The Atlantic States Marine Fisheries Commission and NMFS jointly manage lobster. The fishery occurs within the three stock units: Gulf of Maine, Georges Bank, and Southern New England, each with an inshore and offshore component. The fishery is managed using minimum and maximum carapace length; limits on the number and configuration of traps; possession prohibitions on egg-bearing (berried) and v-notched female lobsters, lobster meat, or lobster parts; prohibitions on spearing lobsters; and limits on non-trap landings and entry into the fishery (ASMFC 2023).

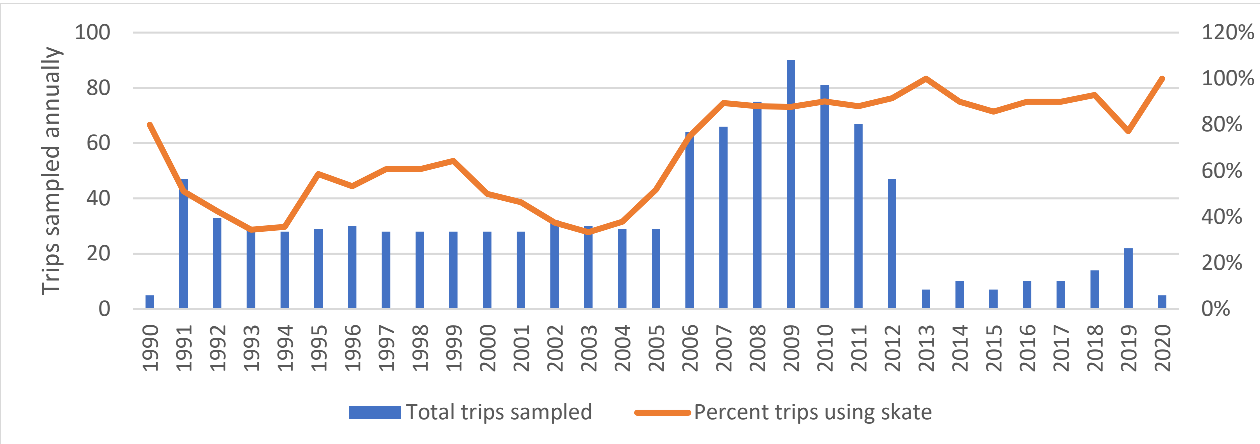
Fishery: The American lobster fishery has seen incredible expansion in effort and landings over the last 40 years and is now one of the top fisheries on the U.S. Atlantic coast. In the 1920s, lobster landings were about 11M lb. Landings were stable from 1950 to 1975, around 30M lb; however, from 1976 to 2008, landings tripled, reaching 92M lb in 2006. Landings continued to increase and peaked in 2013 at over 150M lb. Landings leveled off but remained high in 2014 and 2015 (Table 28), but again jumped to over 159M lb (over $660 M) in 2016. Since the peak in 2016, landings have slightly declined to 119M lb in 2022. Recently, 99% of lobster landings have been attributed to Maine (83%), Massachusetts (12%), New Hampshire (4%), and Rhode Island (1%; ASMFC 2023). The most recent management action, Addendum XXVII, implements gauge and vent size requirements that are expected to add an additional biological buffer through the protection of spawning stock biomass, as well as standardizing management measures across Lobster Conservation Management Areas in the Gulf of Maine, Georges Bank, and Southern New England.

In Maine, the fishery is most active during the months of July to November. For the years 2004-2022, about 85% of the pounds landed were landed in those months. Just 4% of landings occurred in the months of January to April (www.maine.gov).

There was an average of 8,748 vessels issued commercial lobster permits for the fishery in state waters each year from 2014 to 2018, and 3,159 vessels were issued federal permits, though in most cases, a vessel holding a federal permit also holds a state permit. Thus, there are about 8,700 vessels in the lobster fishery. The State of Maine has issued the largest number of state permits, averaging 5,931 from 2010-2018 (ASMFC 2020).

Reliance on skate as bait: Use of skate by the lobster fishery has varied with geography and market conditions. The Maine lobster industry typically prefers herring or menhaden as bait, though it depends on price and availability. South of Maine, lobstermen tend to use skate or other bait, as herring tends to break down in warmer water. For lobstermen surveyed in 2010 from Maine, New Hampshire and Massachusetts who harvest in Lobster Conservation Management Area A (inshore Gulf of Maine), skate was a minor bait source (<5%; Dayton et al. 2014). Among lobster and Jonah crab trips sampled by the Rhode Island DEM from 1991-2005, fewer than 60% of trips used skate as bait. Since 2006, skate was a bait source on 75-100% of trips sampled (Figure 10). This suggests that skates have become a more important bait source in the Rhode Island lobster and Jonah crab fishery over time. However, as the lobster fishery in Southern New England makes up a very small percentage of coast-wide lobster landings, skates are likely a minor source of bait for the lobster fishery.

Figure 10. Use of skate as bait on lobster and Jonah crab trips sampled by RI DEM, calendar year 1990-2020.



Source: RI DEM, May 2020. *Note:* 2020 data are for a partial year.
Note: The number of trips sampled was low in 2013-2018 due to staffing limitations.

5.5.3 Fishing Communities

Considering the economic and social impacts on fishing communities of proposed fishery regulations is required by NEPA (NEPA 1969) and the MSA, particularly National Standard 8 (MSA 2007) which defines a "fishing community" as "a community which is substantially dependent on or substantially engaged in the harvesting or processing of fishery resources to meet social and economic needs, and includes fishing vessel owners, operators, and crew and United States fish processors that are based in such community" (16 U.S.C. § 1802(17)). Determining which fishing communities are "substantially dependent" on, and "substantially engaged" in a fishery can be difficult. Skates are widely used as bait for the lobster fishery, and it is impractical to identify every community with substantial involvement in the lobster fishery (and consequently some dependence on the skate fishery) for assessment in this document.

5.5.3.1 Skate Fishing Communities Identified

Over 400 communities have been a homeport or landing port to one or more active Northeast skate vessels since 2010 (more homeports than landing ports). These ports are located throughout the coastal northeast and mid-Atlantic, primarily from Maine to New Jersey. The level of activity in the skate fishery has varied over time. This section identifies the communities for which skates are particularly important. While the involvement of communities in the skate fishery is described, individual vessel participation may vary.

Communities dependent on the skate resource are categorized into primary and secondary port groups. Because geographical shifts in the distribution of Northeast skate fishing activity have occurred, the characterization of some ports as "primary" or "secondary" may not reflect their historical participation in and dependence on the skate fishery. The NOAA Fisheries Fishing Engagement and Reliance Indicators[20] reveal that there are over 488 communities that have a skate fishery engagement and reliance index in the range of low to high, using CY 2018-2022 data. Reported in Table 38 are the 28 communities that have a ranking of at least medium-high for either engagement or reliance.

Primary Port Criteria. The skate fishery primary ports are those that are substantially engaged in the fishery, and which are likely to be the most impacted by the alternatives under consideration. The primary ports meet the following criterion:

- A ranking of high for engagement in and reliance on the skate fishery on average in CY 2018-2022 according to the NOAA Fisheries Community Social Vulnerability Indicators (Table 38), or
- Average revenue of at least $500,000 per year over CY 2018-2022 (Table 40).

Secondary Port Criteria. The skate fishery secondary ports are those that may not be as dependent or engaged in the fishery as the primary ports but are involved to a lesser extent. The secondary ports meet the following criteria:

- A ranking of at least medium-high for engagement in or reliance on the skate fishery on average in 2018-2022 according to the NOAA Fisheries Community Social Vulnerability Indicators (Table 38).

Changes to Primary and Secondary Port Criteria. This action updates the engagement and reliance indicators from 2014-2018 to 2018-2022. In previous actions, the additional criterion for determining primary skate ports was a recent average revenue threshold of $1M. The threshold has been revised to $500,000 to reflect the declining trend in total skate revenue (Table 31). The criteria for secondary ports included a revenue threshold of at least $100,000. This revenue threshold was removed because revenue is included in the engagement and reliance indices. The revenue threshold for primary ports was not removed because doing so would have shifted New Bedford from a primary port. However, New Bedford has the third highest skate revenue and the second highest number of active vessels landing in the port (Table 40), so it should be considered a primary port.

Primary and Secondary Ports Identified. Based on the updated criteria, there are still eight primary ports in the Northeast skate fishery (Table 38). There are 20 secondary ports from Massachusetts to North Carolina. The primary and secondary ports comprised about **7**2% and 24% of total fishery revenue, respectively, during 2018-2022 (Table 40). There are 64 other ports that have had more minor participation (4%) in the fishery recently.

The highest revenue ports are Chatham, Massachusetts, Point Judith, RI, and New Bedford, Massachusetts. Chatham had the highest average revenue between 2018 and 2022, $2.4M, or 16.8% of total revenue in Chatham for all fisheries (Table 40). Point Judith had an average of roughly $1.25M of revenues from skates, while New Bedford had just over $550K. Point Judith, RI had the most vessels (128) and the highest number of active federal skate dealers (30) of the primary ports (Table 42). Chatham, on the other hand, had just 36 active vessels and 7 active skate dealers. Though New Bedford had more active vessels (80) than Chatham, just 0.1% of total revenue for the port comes from skates. There has been a notable decline in skate effort and revenues in New Bedford since FY 2010-2018, when average revenue was $1.2M and there were 178 active vessels. Although these three ports are important for the skate fishery, other fisheries dominate their overall fishing activity. For most of the secondary

[20] More information about the indicators may be found at: http://www.st.nmfs.noaa.gov/humandimensions/social-indicators/index.

ports, the percent revenue from skates is also very low, from 0.1-5.4%. Active skate vessels in the secondary ports ranged from 7 (Westport, MA) to 72 (Gloucester, MA).

More port information is available from the NEFSC Social Sciences Branch website (Clay et al. 2007).

Table 38. Skate fishing community engagement and reliance indicators, 2018-2022 average.

State	Community	Community Index		Primary/ Secondary Port
		Engagement 2018-2022	Reliance 2018-2022	
ME	Monhegan	Low	High	Secondary
	Portland	Medium-High	Low	Secondary
MA	Gloucester	High	Medium	Secondary
	Boston	Medium-High	Low	Secondary
	Scituate	Medium-High	Low	Secondary
	Chatham	High	High	**Primary**
	Harwichport	Medium-High	Medium-High	Secondary
	Woods Hole	Medium	Medium-High	Secondary
	New Bedford	High	Medium	**Primary**
	Westport	High	Medium	Secondary
	Chilmark	Medium	High	Secondary
RI	**Little Compton**	High	High	**Primary**
	Newport	High	Medium	Secondary
	Narragansett/Pt. Judith	High	High	**Primary**
CT	Stonington/Mystic/Pawcatuck	High	Medium	Secondary
	New London	High	Medium	Secondary
NY	**Montauk**	High	High	**Primary**
	Amagansett	Medium	High	Secondary
	Wainscott	Low	Medium-High	Secondary
	Hampton Bays/Shinnecock	High	Medium-High	Secondary
	Oak Beach-Captree	Low	High	Secondary
NJ	**Belford**	High	High	**Primary**
	Point Pleasant	High	Medium	Secondary
	Barnegat Light/Long Beach	High	High	**Primary**
	Cape May	High	High	**Primary**
MD	Ocean City	Medium-High	Medium	Secondary
VA	Newport News	Medium-High	Low	Secondary
NC	Wanchese	Medium-High	Medium-High	Secondary

Notes: This list includes those communities that have a ranking of at least medium-high for engagement or reliance.
Source: http://www.st.nmfs.noaa.gov/humandimensions/social-indicators/index.

The Engagement Index can be used to determine trends in a fishery over time. Engagement and reliance indices for all skate ports remained unchanged from 2014-2018 to 2018-2022. There are 11 ports that have had high engagement during all four periods, indicating a stable presence in those communities (Table 39).

Table 39. Changes in skate fishery engagement for all primary and secondary skate ports, plus any port with medium-high or high skate engagement, 2004-2022.

State	Community	Skate Engagement Index			
		2004-2008	2009-2013	2014-2018	2018 -2022
ME	Monhegan	Low	Low	Low	Low
	Portland	Med-High	Med-High	Med-High	Med-High
NH	Portsmouth	Med-High	Med-High	Low	Low
MA	Gloucester	High	High	High	High
	Boston	High	High	Med-High	Med-High
	Scituate	High	High	Med-High	Med-High
	Marshfield	Med-High	Medium	Medium	Medium
	Plymouth	Med-High	Medium	Medium	Medium
	Provincetown	High	Med-High	Medium	Medium
	Chatham	High	High	High	High
	Harwichport	Medium	Medium	Med-High	Med-High
	Woods Hole	Medium	Medium	Medium	Medium
	Fall River	Medium	High	Low	Low
	New Bedford	High	High	High	High
	Westport	Med-High	Med-High	High	High
	Chilmark	Low	Medium	Medium	Medium
RI	Tiverton	High	Medium	Medium	Medium
	Little Compton	High	High	High	High
	Newport	High	High	High	High
	Narragansett/Pt. Judith	High	High	High	High
CT	Stonington/Mystic/Pawcatuck	Med-High	Medium	High	High
	New London	Medium	High	High	High
NY	Mattituck	Med-High	Med-High	Medium	Medium
	Montauk	High	High	High	High
	Amagansett	Medium	Medium	Medium	Medium
	Wainscott	Medium	Low	Low	Low
	Hampton Bays/Shinnecock	High	High	High	High
	Oak Beach-Captree	Low	Low	Low	Low
NJ	Belford	Med-High	Med-High	High	High
	Point Pleasant	High	High	High	High
	Barnegat Light/Long Beach	High	High	High	High
	Cape May	High	High	High	High
MD	Ocean City	Med-High	Med-High	Med-High	Med-High
VA	Newport News	Medium	Medium	Med-High	Med-High
NC	Wanchese	Medium	Med-High	Med-High	Med-High
Source: http://www.st.nmfs.noaa.gov/humandimensions/social-indicators/index.					

Table 40. Average revenues and number of active vessels in top skate ports by revenue, calendar years 2018-2022.

Port	Average revenue, 2018-2022			Total active skate vessels, 2018-2022	Total active federal dealers 2018-2022
	All fisheries	Skates only	% Skates		
Chatham, MA	$14,232,848	$2,385,893	16.8%	36	7
Point Judith, RI	$72,504,800	$1,254,918	1.7%	128	30
New Bedford, MA	$538,450,240	$550,849	0.1%	80	18
Little Compton, RI	$2,814,457	$448,246	15.9%	17	5
Newport, RI	$8,300,437	$441,320	5.3%	11	13
Point Pleasant, NJ	$36,882,512	$220,292	0.6%	60	17
Montauk, NY	$19,344,966	$214,264	1.1%	69	25
Barnegat Light, NJ	$28,212,692	$212,234	0.8%	31	9
Stonington, CT	$51,809,072	$205,333	0.4%	17	12
Harwichport, MA	$4,305,423	$164,897	3.8%	14	3
New London, CT	$3,074,131	$163,090	5.3%	15	17
Hampton Bays, NY	$5,954,423	$155,782	2.6%	39	23
Belford, NJ	$1,969,354	$96,773	4.9%	21	4
Gloucester, MA	$64,435,888	$58,405	0.1%	72	11
Westport, MA	$1,040,636	$56,004	5.4%	7	7
Other (n=64)	$288,045,484	$271,228	0.1%		
Total	**$1,141,377,362**	**$6,899,527**	0.6%		

Source: CAMS database (CAMS_LAND), accessed August 2023.
Revenues presented in 2022 constant dollars.

Social and Gentrification Pressure Vulnerabilities. The NOAA Fisheries Community Social Indicators (see also Jepson & Colburn 2013) are quantitative measures that describe different facets of social and economic well-being that can shape either an individual's or community's ability to adapt to change. The indicators represent different facets of the concepts of social and gentrification pressure vulnerability to provide context for understanding the vulnerabilities of coastal communities engaged in and/or reliant on commercial fishing activities. Provided here are these indicators for the primary and secondary skate ports. At least some data are missing for Wainscott and Oak Beach/Captree, NY because these communities are not included in the American Community Survey five-year estimates upon which the social and gentrification pressure vulnerability indicators are based. Therefore, their status in these categories could not be analyzed.

The Social Vulnerability Indicators. There are five social vulnerability indicators (Table 41): Labor force structure, Housing characteristics, Personal disruption, Poverty, and Population composition. The variables used to construct each of these indices have been identified in the literature as representing different factors that may contribute to a community's vulnerability. The **Labor force structure** index characterizes the strength/weakness and stability/instability of the labor force. The **Housing characteristics** index is a measure of infrastructure vulnerability and includes factors that indicate housing that may be vulnerable to coastal hazards. The **Personal disruption** index represents factors that disrupt a community member's ability to respond to change because of personal circumstances affecting family life such as unemployment or educational level. The **Poverty** index is a commonly used indicator of vulnerable populations. The **Population composition** index shows the presence of populations who are traditionally considered more vulnerable due to circumstances often associated with low incomes and fewer resources. A high rank in any of these indicates a more vulnerable population.

Overall, most primary and secondary skate port communities exhibited medium to high vulnerability in at least one of the five social vulnerability indicators. For primary ports, only New Bedford, MA and Cape May, NJ show vulnerabilities in more than one of the five indicators. New Bedford has vulnerabilities in four out of the five indicators, while Cape May has vulnerabilities in two indicators. For secondary ports, New London, CT, Ocean City, MD, and Newport News, VA scored medium to high for four out of the five indicators. For both primary and secondary ports, the most common indicator of vulnerability is labor force structure, followed by housing characteristics.

Gentrification Pressure Indicators. Gentrification pressure indicators (Table 42) characterize factors that, over time, may indicate a threat to the viability of a commercial or recreational working waterfront, including the displacement of fishing and fishing-related infrastructure. The **Housing Disruption** index represents factors that indicate a fluctuating housing market where some fishing infrastructure displacement may occur due to rising home values and rents. The **Retiree migration** index characterizes areas with a higher concentration of retirees and elderly people in the population. The **Urban sprawl** index describes areas with increasing population and higher costs of living. A high rank in any of these indicates a population more vulnerable to gentrification.

All primary skate ports scored medium to high on at least one of the three gentrification pressure indicators, with seven out of eight ports scoring medium to high on at least two of three indicators. Similar results are found for secondary ports, with 15 out of 20 scoring medium or higher on at least two of the three indicators. This suggests that shoreside fishing infrastructure and fishing family homes may face rising property values (and taxes) from an influx of second homes and businesses catering to those new residents, which may displace the working waterfront.

Combined Social and Gentrification Pressure Vulnerabilities. Overall, six of the eight primary port communities have medium to high levels of vulnerability for four or more of the eight indicators (combined social and gentrification pressure; Table 41, Table 42). New Bedford, MA has five indicators at the medium to high level. For secondary ports, 12 of the 20 communities have medium to high levels of vulnerability for four or more of the eight indicators. Ocean City, MD has six out of eight indicators at the medium to high level, while Boston, MA has five. This indicates high social and gentrification pressure vulnerability overall for both the primary and secondary communities, though some individual communities exhibit low levels for one or more indicators.

Table 41. Social vulnerability in primary and secondary skate ports, 2020.

	State	Community	Labor Force Structure	Housing Characteristics	Personal Disruption	Poverty	Population Composition
Primary Skate Ports	MA	Chatham	High	Low	Low	Low	Low
		New Bedford	Low	Med-High	Med-High	Med-High	Med-High
	RI	Little Compton	Med-High	Low	Low	Low	Low
		Narragansett/Pt. Judith	Medium	Low	Low	Low	Low
	NY	Montauk	Med-High	Low	Low	Low	Low
	NJ	Barnegat Light	High	N/A*	Low	Low	Low
		Belford	Low	Low	Low	Low	Low
		Cape May	Med-High	Medium	Low	Low	Low
Secondary Skate Ports	ME	Monhegan	Low	N/A*	Low	Low	Med-High
		Portland	Low	Medium	Low	Medium	Low
	MA	Boston	Low	Low	Medium	Med-High	High
		Chilmark	Medium	Low	Low	Low	Low
		Gloucester	Low	Low	Low	Low	Low
		Harwichport	High	Medium	Low	Low	Low
		Scituate/ North Scituate	Low	Low	Low	Low	Low
		Westport	Low	Medium	Low	Low	Low
		Woods Hole	High	N/A*	Medium	Low	Low
	RI	Newport	Low	Low	Low	Med-High	Low
	CT	New London	Low	Med-High	Med-High	High	Med-High
		Stonington/Mystic/ Pawcatuck	Low	Low	Low	Low	Low
	NY	Amagansett	Med-High	N/A*	Low	Low	Low
		Hampton Bays/Shinnecock	Low	Low	Low	Low	Medium
		Oak Beach-Captree	N/A*	N/A*	N/A*	N/A*	N/A*
		Wainscott	Medium	N/A*	Low	Low	Low
	NJ	Pt. Pleasant Beach	Medium	Low	Low	Low	Low
	MD	Ocean City	Medium	Med-High	Med-High	Medium	Low
	VA	Newport News	Low	Medium	Medium	Medium	Med-High
	NC	Wanchese	Low	High	Low	Low	Low

*N/A indicates ranking is not available due to incomplete data.
Source: NOAA Fisheries Community Social Vulnerability Indices.

Table 42. Gentrification pressure in primary and secondary skate ports, 2020.

	State	Community	Housing Disruption	Retiree Migration	Urban Sprawl
Primary Skate Ports	MA	Chatham	High	High	Medium
		New Bedford	Low	Low	Med-High
	RI	Little Compton	Med-High	Med-High	Medium
		Narragansett/Pt. Judith	Med-High	Medium	Low
	NY	Montauk	High	Med-High	Med-High
	NJ	Barnegat Light	Med-High	High	Medium
		Belford	High	Low	Medium
		Cape May	High	Med-High	Low
Secondary Skate Ports	ME	Monhegan	High	Low	N/A*
		Portland	Medium	Low	Medium
	MA	Boston	High	Low	High
		Chilmark	High	Med-High	High
		Gloucester	Medium	Low	Medium
		Harwichport	Medium	High	Low
		Scituate/ North Scituate	Medium	Medium	Med-High
		Westport	Medium	Medium	Medium
		Woods Hole	N/A*	High	Medium
	RI	Newport	High	Low	Medium
	CT	New London	Low	Low	Low
		Stonington/ Mystic/ Pawcatuck	Medium	Medium	Low
	NY	Amagansett	High	Med-High	High
		Hampton Bays/Shinnecock	High	Low	Medium
		Oak Beach-Captree	N/A*	N/A*	N/A*
		Wainscott	High	Medium	High
	NJ	Pt. Pleasant Beach	High	Medium	Medium
	MD	Ocean City	Medium	Med-High	Low
	VA	Newport News	Low	Low	Low
	NC	Wanchese	Medium	Low	Low

*N/A indicates ranking is not available due to incomplete data.
Source: NOAA Fisheries Community Social Vulnerability Indices.

5.5.3.2 Ports by fishery (wing and bait)

Wing fishery: During 2018-2022, skate wings (food) were landed in 73 ports (Table 43). Skate wing revenue was highest in Chatham and New Bedford, MA and Point Judith and Little Compton, RI during that time. The top port for skate wing revenue has been Chatham, averaging $2.3M for 2018-2022, accounting for 44.7% of wing revenue. The second highest port for skate wings is Point Judith, with a FY 2018-2022 average revenue of just over $542K (Table 43). New Bedford and Little Compton follow Point

Judith with a five-year average skate wing revenue of just under $447K and just under $443K, respectively.

Trawl and gillnet vessels land skate wings. Some trawlers target skate; others catch skate incidentally. Gillnet vessels targeting skate are based largely in Chatham but also in New Bedford. There is a very small skate wing fleet in Virginia, though it has dramatically declined in recent years. Most of these are monkfish gillnets though some draggers caught skate incidentally at the height of the fishery.

Bait fishery: From 2018-2022, skate bait was landed in over 34 ports. The bait fishery, based on FY 2018-2022 revenue averages, is largely based out of Rhode Island (primarily Point Judith and Newport) with other ports in Massachusetts (New Bedford, Chatham), Connecticut (New London, Stonington), and New Jersey (Belford) also active in the directed bait fishery (Table 43). The top port for skate bait revenue was Point Judith, RI, averaging $712K over FY 2018-2022, accounting for 42.8% of bait revenue, followed by Newport, RI with an average of $302K. These revenues are those reported by Federal dealers. Ports such as Montauk, NY have individual vessels which sell skate directly to lobster and other pot fishermen for bait.

Table 43. Skate revenue by disposition and port, for calendar years 2018-2022.

Port	Avg. 2018-2022
Wing	**$5,234,270**
Chatham, MA	$2,341,914
Point Judith, RI	$542,672
New Bedford, MA	$446,991
Little Compton, RI	$442,814
Point Pleasant, NJ	$218,599
Montauk, NY	$214,225
Barnegat Light, NJ	$202,990
Hampton Bays, NY	$155,376
Harwichport, MA	$152,535
Newport, RI	$138,983
Other (n=63)	$377,173
Bait	**$1,665,257**
Point Judith, RI	$712,245
Newport, RI	$302,337
Stonington, CT	$165,592
New London, CT	$128,799
New Bedford, MA	$103,858
Belford, NJ	$84,046
Chatham, MA	$43,980
Other (n=27)	$124,399
Grand Total	**$6,899,527**

Source: CAMS database (CAMS_LAND), accessed August 2023. Revenues presented in 2022 constant dollars.

5.5.3.3 Fishery by states

During 2018-2022, skates were landed in ten states, mostly in Massachusetts and Rhode Island (Table 44). The bait fishery is primarily located in Rhode Island, and the wing fishery in Massachusetts. The skate fishery is a small contribution (0.0-2.6%) to overall fishing revenue to these ten states.

Table 44. Average revenues by skate disposition and fishery and state, calendar year 2018-2022.

State	Wing	Bait	Total Skates	All fisheries	% Skates
ME	$3,360	$0	$3,360	$475,396,032	0.00%
NH	$5,100	$17,934	$23,034	$43,016,716	0.05%
MA	$3,082,215	$181,895	$3,264,110	$719,512,320	0.45%
RI	$1,153,946	$1,027,313	$2,181,260	$103,053,680	2.12%
CT	$83,692	$294,391	$378,084	$14,720,796	2.57%
NY	$393,608	$21,248	$414,856	$28,368,504	1.46%
NJ	$443,078	$103,522	$546,601	$175,336,096	0.31%
MD	$6,972	$452	$7,334	$6,866,677	0.11%
VA	$29,653	$357	$29,724	$61,859,064	0.05%
NC	$9,740	$0	$9,740	$18,711,378	0.05%

5.5.3.4 Environmental Justice

Executive Order 12898 requires federal agencies conduct their programs, policies, and activities in a manner to ensure individuals or populations are not excluded from participation in, or denied the benefits of, or subjected to discrimination because of their race, color, or national origin. This executive order is generally referred to as environmental justice. Environmental justice is measured at the community level. Here, community is defined as a fishing community. Indicators of vulnerability for purposes of environmental justice can include but are not limited to income, race/ethnicity, household structure, education levels, and age. The focus of E.O. 12898 is to consider "the disproportionately high and adverse human health or environmental effects of [an agency's] programs, policies, and activities on minority populations and low-income populations in the United States and its territories…"

The poverty, population composition, and personal disruption indices (Table 41) can help identify the communities where environmental justice may be of concern. New Bedford and Boston, MA; New London, CT; and Newport News, VA are the primary and secondary skate ports that ranked medium to high for all three indices. The vulnerability characteristics of these communities indicate they may be more vulnerable to changing conditions, due to factors described above as important indicators for environmental justice.

6.0 ENVIRONMENTAL IMPACTS OF ALTERNATIVES

The impacts of the alternatives under consideration are evaluated herein relative to the valued ecosystem components (VECs) described in the Affected Environment (Section 5.0) and to each other.

6.1 INTRODUCTION

This action evaluates the potential impacts using the criteria in Table 45.

Table 45. General definitions for impacts and qualifiers relative to resource condition (i.e., baseline).

<table>
<tr><th rowspan="2">VEC</th><th rowspan="2">Resource Condition</th><th colspan="3">Impact of Action</th></tr>
<tr><th>Positive (+)</th><th>Negative (-)</th><th>No Impact (0)</th></tr>
<tr><td>Target and Non-target Species</td><td>Overfished status defined by the MSA</td><td>Alternatives that would maintain or are projected to result in a stock status above an overfished condition*</td><td>Alternatives that would maintain or are projected to result in a stock status below an overfished condition*</td><td>Alternatives that do not impact stock / populations</td></tr>
<tr><td>ESA-listed Protected Species (endangered or threatened)</td><td>Populations at risk of extinction (endangered) or endangerment (threatened)</td><td>Alternatives that contain specific measures to ensure no interactions with protected species (e.g., no take)</td><td>Alternatives that result in interactions/take of listed resources, including actions that reduce interactions</td><td>Alternatives that do not impact ESA listed species</td></tr>
<tr><td>MMPA Protected Species (not also ESA listed)</td><td>Stock health may vary but populations remain impacted</td><td>Alternatives that will maintain takes below PBR and approaching the Zero Mortality Rate Goal</td><td>Alternatives that result in interactions with/take of marine mammal species that could result in takes above PBR</td><td>Alternatives that do not impact MMPA Protected Species</td></tr>
<tr><td>Physical Environment / Habitat / EFH</td><td>Many habitats degraded from historical effort (see condition of the resources table for details)</td><td>Alternatives that improve the quality or quantity of habitat</td><td>Alternatives that degrade the quality, quantity or increase disturbance of habitat</td><td>Alternatives that do not impact habitat quality</td></tr>
<tr><td>Human Communities (Social and Economic)</td><td>Highly variable but generally stable in recent years (see condition of the resources table for details)</td><td>Alternatives that increase revenue and social well-being of fishermen and/or communities</td><td>Alternatives that decrease revenue and social well-being of fishermen and/or communities</td><td>Alternatives that do not impact revenue and social well-being of fishermen and/or communities</td></tr>
<tr><th colspan="5">Impact Qualifiers</th></tr>
<tr><td rowspan="6">A range of impact qualifiers is used to indicate any existing uncertainty</td><td colspan="2">Negligible</td><td colspan="2">To such a small degree to be indistinguishable from no impact</td></tr>
<tr><td colspan="2">Slight (sl) as in slight positive or slight negative</td><td colspan="2">To a lesser degree / minor</td></tr>
<tr><td colspan="2">Moderately (M) positive or negative</td><td colspan="2">To an average degree (i.e., more than “slight”, but not “high”)</td></tr>
<tr><td colspan="2">High (H), as in high positive or high negative</td><td colspan="2">To a substantial degree (not significant unless stated)</td></tr>
<tr><td colspan="2">Significant (in the case of an EIS)</td><td colspan="2">Affecting the resource condition to a great degree, see 40 CFR 1508.27.</td></tr>
<tr><td colspan="2">Likely</td><td colspan="2">Some degree of uncertainty associated with the impact</td></tr>
<tr><td colspan="5">*Actions that will substantially increase or decrease stock size, but do not change a stock status may have different impacts depending on the particular action and stock. Meaningful differences between alternatives may be illustrated by using another resource attribute aside from the MSA status, but this must be justified within the impact analysis.</td></tr>
</table>

Methods for analyzing possession limit alternatives. The analysis of possession limit alternatives assumes constant TAL under each alternative in Action 2. If Action 1, Alternative 2 is selected, which would lower the TAL from FY 2022-2023 levels, there could be less skate mortality than described here. In general, the TAL has more impact on skate mortality than the possession limit changes contemplated in these alternatives. The data treatments and assumptions in this impacts analysis are consistent with those described in the Affected Environment (Section 5.5.1.3), briefly summarized here:

- The analysis focuses on possession limit performance for wing fishery and barndoor and smooth skate possession due to the range of alternatives.
- Trips landing skate wings are binned into "DAS trips" and "trips not on a DAS," defining a DAS trip as dealer-reported trips with a matching Northeast Multispecies, Monkfish, or Scallop DAS declaration code. Trips not on a DAS included undeclared, DOF, and Northeast Multispecies non-DAS declared trips.
- Trips where wing landings >20,000 lb were removed from analysis (n=109).
- Fishery performance in FY 2018-2022 was examined to characterize the degree of change that could be experienced under the alternatives.
    a. Trips landing skate < 90 % of the possession limit were assumed to continue with a similar level of skate landings, not increase landings with a potential possession limit increase.
    b. Trips landing skate ± 10% of the possession limit were assumed to increase skate landings with a potential possession limit increase. Some skate discards would be turned into landings.
    c. Trips landing skate > 10% of the possession limit were assumed to have more of their landings be within possession limits with a potential possession limit increase. Some skate discards could be turned into landings, though there are data limitations to estimate this.
- There are several uncertainties that preclude quantification of potential skate mortality under the alternatives. Landings relative to TAL and relative to possession limits have not been fully realized due to market, interactions with other fisheries, and other factors. With low observer coverage, projecting discards across the fishery or within specific components is difficult.

6.2 Impacts on Target Species (Skates)

Biological impacts discussed below focus on expected changes in fishing mortality of skates. The impacts associated with the measures are unlikely to be significant relative to the No Action alternatives.

6.2.1 Action 1 – FY 2024-2025 Specifications

A simple positive/negative impact determination on target species based on whether the alternatives would lead to the skate complex being overfished (Table 45) is inappropriate for this action. The reasons include: 1) the degree of uncertainty in the skate reference points, 2) that an overfished determination is not made for skates as a complex but rather for each species, and 3) that two of the seven species are experiencing overfishing and one is overfished. As a result, the analysis and conclusions for target species focus on a broader view of biological impacts to the entire complex. The direction and magnitude of impact determinations are based on factors including risks of overfishing, recent biomass trends, and overall skate mortality.

The lack of an analytical assessment in 2023 again precluded the estimation of absolute biomass and a fishing mortality rate for species in the Northeast skate complex. Impacts on target species cannot be quantified because biomass projections are not possible to calculate for skates. Based on the assessment conclusions, thorny skate is the only species in the complex that is overfished. Overfishing is occurring for winter and little skate, though the assessment peer review noted several uncertainties, particularly with the overfishing conclusions. Despite long-standing uncertainties about the skate resource, the fishery continues to be managed with the latest available data and catch limits have been set at levels determined, at the time, to prevent overfishing and promote the long-term health of the resource. Uncertainty is accounted for in the structure established for specifications that includes a buffer between the ACL and the ACT. Moreover, accountability measures would be triggered if a TAL or ACL are exceeded, further reducing the risk of overfishing and adverse impacts to the stock.

6.2.1.1 Alternative 1 – No Action

Under Alternative 1, the specifications for FY 2024-2025 would be unchanged from that of FY 2022-2023 (Table 5). The OFL would be unknown; the ABC and ACL would be 37,236 mt; the TAL would be 21,142 mt, with wing and bait TALs of 14,059 mt and 7,082 mt, respectively.

The impacts of Alternative 1 on target species are uncertain but would likely be slight negative. Impacts are uncertain, because the lack of an analytical assessment in 2023 precluded an estimation of absolute biomass, fishing mortality rates, and an OFL. The fishery would operate above specification levels recommended by the SSC for FY 2024-2025 (Alternative 2 levels), and the ABC would be set without using the latest available data (e.g., outcomes of the latest (2023) stock assessment that used survey and fishery data through 2022). The ABC would be set above levels that prevent overfishing, which could lead to more skate species being overfished. The ABC would be lower than the MSY_{proxy} (41,698 mt; Table 2), signaling that the skate complex has species that are below their B_{target}, especially thorny skate.

The 2023 assessment determined that overfishing is occurring on winter and little skates and clearnose and thorny skate are close to the overfishing threshold, so maintaining a status quo ABC suggests that Alternative 1 could lead to negative outcomes for skates in the long term. The negative impacts would be slight because winter and little skates are just below the overfishing threshold. For thorny skate though, the possession prohibition has more impact on limiting catch than the complex-wide ABC. Fishing effort and behavior (e.g., trips, discarding) are unlikely to change from recent conditions under Alternative 1, because the TAL would not change. The amount of dead skate discards would be like in prior fishing years.

6.2.1.2 Alternative 2 – Updated Specifications (Preferred Alternative)

Under Alternative 2, the specifications for FY 2024-2025 would be updated as recommended by the SSC (Table 5). The OFL would be unknown, and the ABC and ACL would be 32,155 mt, a 14% decrease from FY 2022-2023. The Federal TAL would decrease 26% to 15,718 mt, with wing and bait TALs of 10,453 mt and 5,266 mt, respectively.

The impacts of Alternative 2 on target species are uncertain but would likely be slight positive and more positive than Alternative 1. Impacts are uncertain, because the lack of an analytical assessment in 2023 precluded an estimation of absolute biomass, fishing mortality rate, and OFL for the skate species in the complex. The fishery would operate at specification levels recommended by the SSC (Alternative 2 levels) that are based on outcomes of the latest (2023) stock assessment. The specifications in Alternative 2 are based on the most updated survey information and therefore, there should be slight positive impacts on the skate resource from setting fishery limits with the updated data.

The 2023 assessment concluded that overfishing is now occurring for winter and little skates and that thorny skate remains overfished, though NOAA Fisheries has not yet formally changed the stock status for winter and little skate. Under Alternative 2, the ABCs would be reduced relative to FY 2022-2023 levels and would likely be set at levels that prevent overfishing and prevent skates from being overfished, though notably, the thorny skate biomass index continues to be very low. For thorny skate though, the possession prohibition has more impact on limiting catch than the complex-wide ABC. Avoiding overfishing would help prevent more skates from becoming overfished.

Considering the differences between the ACLs of Alternatives 1 and 2, the overall fishing mortality on skates could be lower under Alternative 2, though fishing mortality cannot be quantified, and the Alternative 2 ACL (32,155 mt) is higher than recent catch 19,082-27,800 mt per year, FY 2018-FY 2022 (Table 17). Alternative 2 could lead to more positive biological outcomes for skates in the long term than Alternative 1. Like Alternative 1, the ABC would be lower than the MSY_{proxy} (41,698 mt; Table 2), signaling that the skate complex has species that are below their B_{target}, and the lower ABC would more likely lead to biomass increases for skates. Reducing the TAL could result in fewer trips targeting skate, leading to less skate mortality. However, recent landings (7,911-13,041 mt per year since FY 2018; Table 17) have been within the Alternative 2 TAL (15,798 mt), so Alternative 2 may not constrain effort relative to current conditions and mortality could be similar.

6.2.2 Action 2 – Possession Limits

6.2.2.1 Skate Fishery Possession Limit Alternatives

If selecting an action alternative, the Council may select Alternative 2 and/or Alternative 3.

6.2.2.1.1 Alternative 1 – No Action

Under Alternative 1, the skate wing and bait possession limits would be unchanged from FY 2020. For trips fishing on a DAS, the skate wing possession limit would be 3,000 lb (wing weight) for Season 1 and 5,000 lb for Season 2. For trips not fishing on a DAS or fishing on a Northeast multispecies B-DAS, the annual skate wing possession limits are 500 lb and 220 lb, respectively.

The impacts of Alternative 1 on target species would likely be slight positive. Having possession limits helps keep skate landings within the wing and bait TALs, which helps keep catch within the ABC, which prevents species from becoming overfished. The skate specifications method was designed to prevent overfishing of the skate complex. Maintaining current possession limits would unlikely change fishing effort and behavior (e.g., trips, discarding). From 2020 to 2022, when skate wing DAS possession limits were also 3,000 and 5,000 lb, an average of 1,379 DAS trips landed wings landed within 10% or above the possession limit (Table 18). There would likely be a similar number of trips and a similar proportion of skate discards to landings on each trip. This is also the likely outcome if the Wing TAL for FY 2023-2024 is decreased through this action, should Alternative 2 in Action 1 be selected, because wing landings would not be constrained relative to actual recent skate wing landings (Figure 4).

6.2.2.1.2 Alternative 2 – Increase Skate Wing Possession Limits on Trips Fishing on a DAS (Preferred Alternative)

Under Alternative 2, skate wing possession limits would increase for trips fishing on a DAS. Under Option A, the Season 1 limit would increase from 3,000 lb to 3,750 lb, and the Season 2 limit would increase from 5,000 lb to 6,250 lb. Under Option B, the Season 1 limit would increase from 3,000 lb to 4,000 lb, and the Season 2 limit would increase from 5,000 lb to 6,000 lb. Option B is the preferred option.

The impacts of Alternative 2 on target species would likely be slight positive but less positive than Alternative 1. Alternative 2 would also help keep landings within the TAL (and therefore prevent the ABC from being exceeded).

Landings and discard data from FY 2020-2022 were used to identify the potential for discards to be turned into landings under Alternative 2. The DAS possession limit for skate wings during these years were 3,000 and 5,000 lb for Seasons 1 and 2, respectively. Trips were broken down by those that landed skate wings at least 10% below possession limits, those within 10% of possession limits, and those more than 10% above the limits. Most trips landed wings at least 10% below the limits.

- There were 1,537 DAS trips on average with skate wing landings skate wings at levels that were at least 10% below the possession limit (Table 18). Assuming similar fishing activity occurs in the future, it is likely that this type of fishing would continue under Alternative 2, unaffected by the increase in possession limits under Option A or B. Skate discards would not be reduced for these trips.
- There were 613 DAS trips on average that landed skate within 10% of the possession limit. If fishing under the Alternative 2 possession limit levels, these trips could have landed 750-1,250 lb more skate per trip depending on the season and option. Examining discard data, observed DAS trips that landed skate in FY 2020-2021 within 10% of the possession limit (n=31 trips) had mean skate discards per trip of 6,044 lb (Table 21). Assuming these observed discards are representative of DAS trips[21], the potential increases in possession may reduce but not eliminate discards on DAS trips. As some discards would turn into landings, skate mortality would increase (i.e., fewer discards released alive).
- There were 766 DAS trips on average that landed skate > 10% over the possession limit (Table 18)[22]. Assuming this type of trip continues under higher possession limits, more of these landings would be within possession limits, but it cannot be estimated the degree of discarding that would turn into landings.

Under Alternative 2, there would be negligible impacts to fishing effort. Notably, about half of the trips landing skate wings in recent years were at least 10% below the No Action possession limits. The increase in DAS possession limits is small enough that it is unlikely to incentivize substantially more trips. The impacts on trip duration may vary slightly depending on the degree to which vessels encounter skates and other species. Thus, the number and duration of trips overall would be largely unchanged under Alternative 2. Alternative 2 would likely result in decreasing the proportion of skate discards to landings on trips (some of what would have been discarded may now be landed). Because skates tend to be more prevalent earlier in the fishing year, evidenced by trips in Season 1 landing skates within 10% or above possession limits more frequently than in Season 2 (Table 18), the impacts on target species might be less positive under Option B than under Option A, because Option B could result in more skate mortality (i.e., fewer live discards).

As skate discards may be reduced, there would be fewer live skate discards under Alternative 2. The higher possession limits would improve the ability of the wing fishery to achieve its TAL, but an increase in possession limits increases the risk of the incidental possession limit being implemented during the fishing year which would increase regulatory discards, which would have low negative biological impacts. Should the Wing ACL for FY 2023-2024 decrease, if Alternative 2 in Action 1 is selected, there could be positive impacts on target species from lowering TAL, but these would be offset somewhat by reducing live discards through increasing wing DAS possession limits. The revised skate ACL would have a more substantial (positive) impact on target species than possession limits.

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[21] With little observer data on skate discards from trips landing skate, this assumption is uncertain.

[22] See Section 5.5.1.3.1 on known data uncertainties.

6.2.2.1.3 Alternative 3 – Increase Skate Wing Possession Limits on Trips Fishing on a Northeast Multispecies B-DAS or not on a DAS (Preferred Alternative)

Under Alternative 3, skate wing possession limits would increase by 25% for trips fishing on a Northeast multispecies B-DAS (from 220 to 275 lb), or not fishing on a DAS (from 500 to 625 lb).

The impacts of Alternative 3 on target species would likely be slight positive, less positive than Alternative 1, and more positive than Alternative 2. Alternative 3 would help keep landings within the TAL, and therefore prevent the ABC from being exceeded. Skates are landed incidentally on B-DAS trips and on trips not fishing on a DAS. Increasing the wing possession limits by the amounts considered is unlikely to result in extending trip lengths or incentivizing additional trips taken, but the proportion of skate discards to landings on each trip would decrease (some of what was previously discarded may now be landed). Thus, fishing effort is unlikely to change due to this alternative alone. Alternative 3 could help reduce skate discards in fisheries where skates are caught incidentally by turning discards into landings, so there would be fewer live discards under Alternative 3 relative to Alternative 1 (i.e., more skate mortality under Alternative 3).

Landings and discard data from FY 2018-2022 (non-DAS possession limit was 500 lb.) were used to identify the potential for discards to be turned into landings under Alternative 3. Focusing on vessels landing skate from non-DAS trips, an annual average of 3,509 non-DAS trips during that time landed skate at levels that were at least 10% below the 500 lb possession limit (≤ 450 lb), or 75% of the non-DAS trips that landed skate (Table 19). Assuming similar fishing activity occurs in the future, it is likely that this type of fishing would continue under Alternative 3 unaffected by the 125 lb increase in possession limit. The other non-DAS trips could be impacted. During FY 2018-2022, an annual average of 388 non-DAS trips landed skate within 10% of the 500 lb possession limit (450-550 lb), or 9% of the non-DAS trips that landed skate. If fishing under a possession limit of 625 lb, 388 trips could land an additional 48,500 lb of skate (388*125 lb). Observed non-DAS trips that landed skate in FY 2018-2021 within 10% of the 500 lb possession limit (n=109) had mean skate discards per trip of 1,632 lb (Table 22). Assuming these observed discards are similar across the non-DAS trips, the 125 lb increase in possession may reduce discards on these trips, but observed discards on these trips far exceeded the possession limit increase. However, as some discards would turn into landings, skate mortality would increase (i.e., fewer discards released alive), but the impact is expected to be slight. Finally, there were 684 non-DAS trips in FY 2018-2022 on average that landed skate > 10% over the 500 lb possession limit (i.e., over 550 lb, Table 19). Assuming this type of trip continues under a possession limit of 625 lb, more of these landings would be consistent with regulations. Assuming this type of trip continues under higher possession limits, more of these landings would be within possession limits, but it cannot be estimated the degree of discarding that would turn into landings.

Focusing on vessels landing skate from a Northeast multispecies B-DAS trip, there were very few of this type of trip that landed skate during FY 2018-2021. Assuming similar fishing activity going forward, increasing the skate possession limit from 220 to 275 lb for two trips per year would have minimal impact on turning discards into landings and overall skate mortality.

The increase in skate mortality (i.e., reduction in live discards) under Alternative 3 is likely to be less than Alternative 2, as the increase in the possession limit is much smaller for Alternative 3 than Alternative 2 and trips fishing on a DAS (impacted by Alternative 2) make up about half of all trips landing skate wings (Table 20). Thus, the impacts of Alternative 3 are likely to be more positive than Alternative 2. The subsets of vessels taking non-DAS or B-DAS trips are largely, but not entirely distinct from the vessels that land skate using DAS. Thus, the impacts of Alternatives 2 and 3, if selected together, would likely be additive, slight positive but less positive than Alternative 1, because there would be fewer live discards.

Should the Wing ACL for FY 2023-2024 decrease, if Alternative 2 in Action 1 is selected, there could be positive impacts on target species from lowering TAL, but these would be offset somewhat from reducing live discards through increasing wing non-DAS possession limits. The revised skate ACL would have a more substantial (positive) impact on target species than possession limits.

6.2.2.2 Barndoor Skate Alternatives

6.2.2.2.1 Alternative 1 – No Action

Under Alternative 1, the 25% partial possession limit of barndoor skate on trips fishing on a DAS would remain. Barndoor possession would not be allowed on trips fishing with a Bait LOA and on non-DAS or Northeast multispecies B-DAS trips in the wing fishery.

The impacts of Alternative 1 on target species would likely be slight positive. It would not change the barndoor possession limit from what was determined to be a sustainable level when possession was allowed in 2018 (NEFMC 2018a). Since then, the barndoor skate biomass index has been above B_{target} in all years except 2021 when it was just under B_{target} (Table 7). Continuing to restrict barndoor possession would allow continued growth in the stock, but it has been at or near its B_{target} for some time.

Discarding of barndoor skate would continue at similar levels to status quo, with an assumed 50% mortality rate across all gear types. From FY 2018-2022, average discards of barndoor skate on observed trips was: 1) 948 lb on DAS trips landing >50 lb of barndoor (743 trips); 365 lb on non-DAS trips that landed skate wings (459 trips). From FY 2018 - 2022, there were 546 observed trips that landed skate with a Bait LOA, and of these, only 4 that discarded barndoor skate (Table 25). There were no barndoor under 23" in length discarded on any observed trip landing skate during these years. Because possession of whole barndoor skate has been allowed on DAS trips, and that it is difficult to differentiate juvenile barndoor from other adult skate species in the field, some landings of juvenile barndoor may be occurring and would continue under No Action.

6.2.2.2.2 Alternative 2 – Remove Barndoor Skate Possession Restriction (Preferred Alternative)

Under Alternative 2, the barndoor skate possession restriction would be removed. Within the overall skate possession limits, there would be no limit specific to barndoor skate.

The impacts of Alternative 2 on target species would likely be slight positive and the difference in impacts would be negligible compared to Alternative 1. Alternative 2 would allow for a more consistent approach to skate management, which is not species-specific for the rebuilt species. When trips fish up to the possession limit, increases in barndoor landings would decrease in landings of other species, so that the decrease in barndoor discards would be offset by increased discards of other species, resulting in negligible impacts to total mortality of the skate complex.

In the skate wing fishery, barndoor skate discards could be reduced, increasing barndoor mortality. From FY 2018-2022, an average of 258 DAS trips landed up to 90% of the barndoor skate partial possession limit (Table 24), or 59.7% of all DAS trips that landed barndoor skates. Of these trips, only 4% landed at least 90% of the overall skate wing possession limit, suggesting that removing the restriction would increase skate landings (i.e., there could be more barndoor landings and still be within the overall skate wing limit). The level of discarding described under No Action (Section 6.2.2.2.1) would be reduced, with full possession allowed in the DAS, non-DAS, and B-DAS fisheries.

For the skate Bait LOA fishery, allowing barndoor skate possession would be unlikely to substantially increase barndoor landings. Bait LOA vessels could land juvenile barndoor under Alternative 2, increasing juvenile mortality. However, the fishery data indicate that barndoor landings in the bait fishery would be rare. First, most of the bait fishery (Map 5) is inshore and to the southwest of the main barndoor biomass (Map 1), so allowing barndoor possession may not create substantive new impacts on barndoor. Second, there is a maximum size limit of 23" for landing whole skate under the Skate Bait LOA. From FY 2018 - 2022, there were 546 observed trips that landed skate with a Bait LOA, and of these, only 4 that discarded barndoor skate (Table 25). There were no barndoor under 23" in length discarded on any observed trip landing skate during these years. Thus, if barndoor possession had been allowed that year, there would have been no barndoor landings. The maximum length of barndoor skate is 60 inches (see Skate ID Guide) and the size at 50% maturity is well above 23 inches. It is likely that the bait fishery has been inadvertently catching some juvenile barndoor, given that it is a volume fishery and juvenile barndoor could be confused with other species. However, there has been little documented catch of barndoor skate in the bait fishery.

6.2.2.3 Smooth Skate Alternatives

6.2.2.3.1 Alternative 1 – No Action

Under Alternative 1, the possession prohibition of smooth skate in the Gulf of Maine Regulated Mesh Area would remain. Smooth skate possession would not be allowed in the wing or bait fisheries.

The impacts of Alternative 1 on target species would likely be slight positive. Alternative 1 would not change the smooth skate possession prohibition in place since 2003 which was determined to be a sustainable level at the time. The possession prohibition likely helped smooth skate to rebuild. Smooth skate was declared rebuilt in 2018, yet the possession restriction was continued as a precautionary measure. Continuing the possession prohibition would allow continued growth in this species. From 2014-2019, the smooth skate biomass index was at or near its $B_{target,}$ though it declined in 2021 and 2022 to be closer to $B_{threshold}$ (Table 7).

Discarding of smooth skate would continue at similar levels to status quo, with an assumed 60% discard mortality rate for otter trawls, and 50% for other gears (Table 8). Since 2012, there have been about 390 mt (860K lb) of smooth skate discarded per year (Table 26). For observed trips that landed skate, 77-90% of the trips in these years discarded under 250 lb of smooth skate; just a handful discarded over 750 lb (Table 27). On observed trips that discarded smooth skates, but landed other species skates, from FY 2018-2021 (n=485), average discards of smooth skate were 199 lb/trip (Section 5.5.1.3.3).

6.2.2.3.2 Alternative 2 – Remove Smooth Skate Possession Restriction (Preferred Alternative)

Under Alternative 2, the smooth skate possession restriction would be removed on all trips landing skate, in both the wing and bait skate fisheries.

The impacts of Alternative 2 on target species would likely be slight positive and the difference in impacts would be negligible relative to Alternative 1. Some smooth skate could be landed rather than discarded under Alternative 2, so smooth skate mortality could increase (i.e., fewer discards of smooth skate released alive). However, increases in smooth skate landings could be offset by decreases in landings of other species (i.e., more discards of other skate species released alive), so that mortality of the skate complex may be more neutral. Alternative 2 would allow for landings of a fully rebuilt skate species. This would be consistent with the overall approach to skate management, which is not species-specific for the rebuilt species.

For the skate bait fishery, smooth skate is unlikely to become a target species. The maximum length of smooth skate is 26" (see Skate ID Guide), and the bait fishery has a 23" maximum size limit. While perhaps better-sized for the bait fishery, smooth skate occur in the Gulf of Maine (Map 2), largely outside of where the bait fishery has operated, in Southern New England (Map 5).

For the skate wing fishery, smooth skate is also unlikely to become a target species. In areas where smooth skate occur, there has been a small amount of skate wing landings and effort is very low. While there is no length limit in the wing fishery, the Skate Advisory Panel has noted that the size of skates retained for the wing fishery will fluctuate based on the prevalence of skates in the gear, and that processors prefer to wing larger skates (see August 29, 2023 Skate AP Meeting Summary). The species could still be landed whole as bait for vessels without a bait Letter of Authorization under the 8,000 lb incidental limit. Thus, given that smooth skate are generally smaller in size than other skates, there may only be a minor amount of smooth skate landed under Alternative 2 dependent on market demand.

6.3 Impacts on Non-target Species

This section considers the impacts on the non-target species identified in Section 5.2, specifically the groundfish, monkfish, spiny dogfish, and scallop fisheries. On the small portion of trips targeting skates while on a DAS, common non-target species include monkfish and spiny dogfish. While impacts on non-target species are expected, the overall mortality of non-target species is controlled by catch limits and other measures set by their individual FMPs and previously determined to be sustainable.

6.3.1 Action 1 – FY 2024-2025 Specifications

6.3.1.1 Alternative 1 – No Action

Under Alternative 1, the specifications for FY 2024-2025 would be unchanged from that of FY 2022-2023 (Table 5). The OFL would be unknown; the ABC and ACL would be 37,236 mt; the TAL would be 21,142 mt, with wing and bait TALs of 14,059 mt and 7,082 mt, respectively.

The impacts of Alternative 1 on non-target species would likely be slight negative to slight positive, depending on the stock status of the non-target species. Catch and fishing mortality of non-target species would likely remain like recent levels. Fishing effort and behavior (e.g., trips, discarding) are unlikely to change under Alternative 1. This level of effort is not expected to result in a change in the stock status of any non-target species. Non-target stocks that are overfished and/or are experiencing overfishing would likely continue to have slight negative impacts from fishing at similar levels under No Action, while stocks that are not overfished and not experiencing overfishing would continue to experience slight positive impacts. The skate wing fishery is largely an incidental fishery prosecuted during fishing under other FMPs (Section 5.5.1). Catch of other species on trips landing skates are controlled by the DAS limits, sector rules, or other discard limiting measures in other FMPs.

6.3.1.2 Alternative 2 – Updated Specifications (Preferred Alternative)

Under Alternative 2, the specifications for FY 2024-2025 would be updated as recommended by the SSC (Table 5). The OFL would be unknown, and the ABC and ACL would be 32,155 mt, a 14% decrease from FY 2022-2023. The Federal TAL would decrease 26% to 15,718 mt, with wing and bait TALs of 10,453 mt and 5,266 mt, respectively.

The impacts of Alternative 2 on non-target species would likely be slight negative to slight positive but generally more positive than Alternative 1, depending on the status of non-target species. A 26% decrease in skate TAL could cause a minor change in fishing effort and behavior, reducing the number of trips taken, though recent landings have been within the Alternative 2 TAL, so this conclusion is uncertain. Thus, catch and fishing mortality of non-target species under Alternative 2 could be like recent conditions. This level of effort is not expected to result in a change in the stock status of any non-target species. Relative to Alternative 1, impacts of Alternative 2 on non-target species would likely be more positive, but any positive effect would likely be minor. Non-target stocks that are overfished or are experiencing overfishing would likely continue to have slight negative impacts from fishing if trips are continuing to catch these stocks while stocks that are not overfished and not experiencing overfishing would continue to experience slight positive impacts. The decrease in the TAL may increase the likelihood of triggering the incidental possession limit, and if so, depending on how early in the fishing year these are triggered, effort could shift from skates to another target species, likely groundfish, monkfish, or spiny dogfish. However, with landings in recent years falling within the Alternative 2 TAL (Figure 4), triggering the incidental possession limit is unlikely.

6.3.2 Action 2 – Possession Limits

6.3.2.1 Skate Fishery Possession Limit Alternatives

If selecting an action alternative, the Council may select Alternative 2 and/or Alternative 3.

6.3.2.1.1 Alternative 1 – No Action

Under Alternative 1, the skate wing and bait possession limits would be unchanged since FY 2020. For trips fishing on a DAS, the skate wing possession limit would be 3,000 lb (wing weight) for Season 1 and 5,000 lb for Season 2. For trips not fishing on a DAS or fishing on a Northeast multispecies B-DAS, the annual skate wing possession limits are 500 lb and 220 lb, respectively.

The impacts of Alternative 1 on non-target species would likely be slight negative to slight positive depending on the status of the non-target species. Non-target stocks that are overfished or are experiencing overfishing would likely continue to have slight negative impacts from fishing if trips are continuing to catch these stocks, while stocks that are not overfished and not experiencing overfishing would continue to experience slight positive impacts. Maintaining current skate possession limits would unlikely change fishing effort and behavior (e.g., trips, discarding). There would likely be the same number of trips and the proportion of discards to landings on each trip would be unchanged. This level of effort is not expected to result in a change in the stock status of any non-target species.

6.3.2.1.2 Alternative 2 – Increase Skate Wing Possession Limits on Trips Fishing on a DAS (Preferred Alternative)

Under Alternative 2, skate wing possession limits would increase for trips fishing on a DAS. Under Option A, the Season 1 limit would increase from 3,000 lb to 3,750 lb, and the Season 2 limit would increase from 5,000 lb to 6,250 lb. Under Option B, the Season 1 limit would increase from 3,000 lb to 4,000 lb, and the Season 2 limit would increase from 5,000 lb to 6,000 lb. Option B is the preferred option.

The impacts of Alternative 2 on non-target species would likely be slight negative to slight positive depending on the status of the non-target species, but generally less positive than Alternative 1. An increase in DAS possession limits would allow for some current discards to convert to landings, but it is unlikely to incentivize substantially more trips, and would likely result in similar levels of fishing effort as Alternative 1. There would likely be the same number of trips, so catch and discard mortality of non-target species would largely be unchanged from recent levels. This level of effort is not expected to result in a change in the stock status of any non-target species. Allowing additional skate landings on a trip could lead to slight variation in trip duration depending on the rate at which vessels encounter skates and other species. Vessels encountering large amounts of skates quickly may hit the possession limit faster, while it could take some vessels slightly longer to catch the higher limits under Alternative 2, which could potentially increase the landings of other species fished in conjunction with skates, such as monkfish. However, the overall number and duration of trips is not expected to change substantially, resulting in a similar level of fishing effort and, therefore, similar impacts to non-target species. In addition, total mortality of other species is controlled under other FMPs. Thus, there may be less positive impacts of Option B relative to Option A, because Option B may allow for more skate landings, though the impacts would likely be similar in practice given the minimal, if any, changes in fishing effort expected. The risk of triggering the incidental possession limit mid-year would be higher than under Alternative 1, so shifting effort to other species would be more likely to make up the difference in skate landings and revenue. Skate landings on just over half of all DAS trips taken from FY 2018-2022 were at least 10% below the possession limit (Table 18), indicating that even with a higher possession limit, if fishing effort remained the same, the likelihood of triggering the incidental possession limit will remain low.

6.3.2.1.3 Alternative 3 – Increase Skate Wing Possession Limits on Trips Fishing on a Northeast Multispecies B-DAS or not on a DAS (Preferred Alternative)

Under Alternative 3, skate wing possession limits would increase by 25% for trips fishing on a Northeast multispecies B-DAS (from 220 to 275 lb), or not fishing on a DAS (from 500 to 625 lb).

The impacts of Alternative 3 on non-target species would likely be slight negative to slight positive but negligible compared to Alternative 1 and Alternative 2. These increases in skate possession limits would allow some current skate discards to be converted to landings, decreasing the ratio of discards to landings. Like Alternative 2, Alternative 3 would not incentivize additional trips and would likely have limited impacts on the duration of trips. Thus, catch and discard mortality of non-target species would largely be unchanged from recent levels and negligible relative to Alternative 2. This level of effort is not expected to result in a change in the stock status of any non-target species. As Alternative 3 could allow for more skate landings than Alternative 1 (but less than Alternative 2), the risk of triggering the incidental possession limit mid-year would be higher than under Alternative 1, so, depending on how early in the fishing year these are triggered, shifting effort to other species could make up the difference in skate landings and revenue.

6.3.2.2 Barndoor Skate Alternatives

6.3.2.2.1 Alternative 1 – No Action

Under Alternative 1, the 25% partial possession limit of barndoor skate on trips fishing on a DAS would remain. Barndoor possession would not be allowed on trips fishing with a Bait LOA and on non-DAS or Northeast multispecies B-DAS trips in the wing fishery.

The impacts of Alternative 1 on non-target species would likely be negligible. Alternative 1 does not impact the overall skate possession limit, which is the main factor that can influence non-target mortality and overall effort. Thus, overall fishing effort is unlikely to change under Alternative 1, with no change in the catch, fishing mortality, or stock status of any non-target species.

6.3.2.2.2 Alternative 2 – Remove Barndoor Skate Possession Restriction (Preferred Alternative)

Under Alternative 2, the barndoor skate possession restriction would be removed. Within the overall skate possession limits, there would be no limit specific to barndoor skate.

The impacts of Alternative 2 on non-target species would likely be negligible and the difference in impacts would be negligible relative to Alternative 1. Alternative 2 does not impact the overall skate possession limit, which is the main factor that can influence non-target mortality and overall effort. Thus, overall fishing effort, including the amount and proportion of non-target catch, is unlikely to change under Alternative 2, with no change in the catch, fishing mortality, or stock status of any non-target species.

6.3.2.3 Smooth Skate Alternatives

6.3.2.3.1 Alternative 1 – No Action

Under Alternative 1, the possession prohibition of smooth skate in the Gulf of Maine Regulated Mesh Area would remain. Smooth skate possession would not be allowed in the wing or bait fisheries.

The impacts of Alternative 1 on non-target species would likely be negligible. Alternative 1 does not impact the overall skate possession limit, which is the main factor that can influence non-target mortality and overall effort. Thus, overall fishing effort is unlikely to change under Alternative 1, with no change in the catch, fishing mortality, or stock status of any non-target species.

6.3.2.3.2 Alternative 2 – Remove Smooth Skate Possession Restriction (Preferred Alternative)

Under Alternative 2, the smooth skate possession restriction would be removed on all trips landing skate, in both the wing and bait skate fisheries.

The impacts of Alternative 2 on non-target species would likely be negligible and the difference in impacts would be negligible relative to Alternative 1. Alternative 2 does not impact the overall skate possession limit, which is the main factor that can influence non-target mortality and overall effort. Thus, overall fishing effort, including the amount and proportion of non-target catch, is unlikely to change under Alternative 2, with no change in the catch, fishing mortality, or stock status of any non-target species.

6.4 Impacts on Protected Species

The Framework 12 alternatives are evaluated for their impacts on species protected under the Endangered Species Act (ESA) of 1973 and/or the Marine Mammal Protection Act (MMPA) of 1972. The current conditions of protected species are summarized in Table 13 and described in Section 5.3. The species that are likely to be impacted by this action are described in Section 5.3.3 (e.g., sea turtles, large whales, Atlantic sturgeon).

The following impact analysis considers how the fishery may overlap with protected species in time and space, as well as records of protected species interaction by gear type (e.g., gillnet, bottom otter trawl). Understanding expected fishing behavior/effort in a fishery informs potential interaction risks with protected species. Specifically, interaction risks with protected species are strongly associated with amount of gear in the water, the duration of time the gear is in the water (e.g., soak or tow duration), and the degree of overlap between gear and a protected species, with risk of an interaction increasing with increases in any of these factors. In addition, the impacts of the alternatives on protected species consider impacts to ESA-listed species and impacts to MMPA-protected species (non-ESA listed) in good condition (i.e., marine mammal stocks whose PBR level have not been exceeded) or poor condition (i.e., marine mammal stocks that have exceeded or are near exceeding their PBR level). All ESA-listed species are in poor condition and any interaction (i.e., take) can negatively impact that species' recovery. As a result, for ESA-listed species, any action, that may result in interactions or take, including actions that may reduce interactions is likely to have some level of negative impact to these species. Actions likely to have positive impacts on ESA-listed species include only those that contain specific measures to ensure no interactions or take. The stock conditions for marine mammals not listed under the ESA varies by species; however, all need protection. For marine mammal stocks that have their PBR level reached or exceeded, some level of negative impacts would be expected from alternatives that result in the potential for interactions between fisheries and those stocks. For species that are at more sustainable levels (i.e., PBR levels have not been exceeded), alternatives not expected to change fishing behavior or effort relative to current operating conditions in the fishery may have some level of indirect positive impacts by maintaining takes below the PBR level and approaching the zero mortality rate goal (Table 13).

Current Fishery Impacts on Protected Resources

Current fishery impacts on protected resources likely range from slight negative to slight positive and are like No Action. These impacts stem from current levels of fishing opportunities for vessels and their fishing effort and behavior (e.g., gear quantity, gear soak/tow duration, area fished). Additionally, the skate fishery must comply with take reduction plans of specific protected resources (i.e., HPTRP, the BDTRP, ALWTRP) and sea turtle resuscitation guidelines.

<u>MMPA (Non-ESA Listed) Protected Species Impacts</u>. Considering the above information, and the fact that there are non-listed marine mammal stocks/species whose populations may or may not be at optimum sustainable levels, current fishery impacts on non-ESA listed species of marine mammals are likely to be slight negative to slight positive.

As provided in Section 5.3, there are some bottlenose dolphin stocks (i.e., WNA Northern and Southern Migratory Coastal Stocks) experiencing levels of interactions that have resulted in exceedance of their PBR levels. These stocks/populations are not at an optimum sustainable level and therefore, the continued existence of these stocks/species is at risk. As a result, any potential for an interaction is a detriment to the species/stocks ability to recover from this condition. As provided above, the risk of an interaction is strongly associated with the amount of gear in the water, the duration of time the gear is in the water (e.g., soak or tow duration), and the presence of protected species in the same area and time as the gear, with risk of an interaction increasing with increases in of any of these factors. As provided in Section 5.3, marine mammal stock assessment and serious injury reports, as well as the MMPA LOF's indicate that that there have been no observed or documented interactions between bottom trawl gear and WNA Northern or Southern Migratory Coastal Stocks of bottlenose dolphins; however, records of interactions (i.e., entanglement) with gillnet gear have been documented with these stocks. As the skate fishery uses both gear types, current fishery impacts to these non-ESA listed marine mammal stocks/species in poor condition (i.e., WNA Northern or Southern Migratory Coastal bottlenose dolphin stocks), are likely negligible to slight negative.

There are also many non-ESA listed marine mammals that, even with continued fishery interactions, are maintaining an optimum sustainable level (i.e., PBR levels have not been exceeded) over the last several years. For these stocks/species, it appears that the fishery management measures that have been in place over this timeframe have resulted in levels of effort that result in interaction levels that are unlikely to impair the stocks/species ability to remain at an optimum sustainable level. These fishery management measures, therefore, have resulted in indirect slight positive impacts to these non-ESA listed marine mammal species/stocks. Should future fishery management actions maintain similar operating condition as they have over the past several years, it is expected that these slight positive impacts would remain. Given the information above, as well as the fact that the risk of interacting with gear types used in the fishery varies between non-ESA listed marine mammal species in good condition (e.g., Aside from humpback whales, there have been no recently observed or documented interactions between bottom trawl gear and large whales; Section 5.3), current fishery impacts on these non-ESA listed species of marine mammals in good condition are expected to be negligible to slight positive.

ESA-Listed Species Impacts. Interactions between ESA-listed species and bottom trawl, and/or sink gillnet gear have been observed or documented (Section 5.3). Based on this, the current fishery is likely to result in some level of negative impacts to ESA listed species. Given this, and the fact that the potential risk of interacting with gear types used in the fishery varies between ESA listed species (e.g., interactions between ESA-listed species of large whales and bottom trawl gear have never been documented or observed; however, interactions between these species and gillnet gear have been documented, refer to Section 5.3), the impacts of the current fishery on ESA listed species are expected to be negligible to slight negative.

6.4.1 Action 1 – FY 2024-2025 Specifications

6.4.1.1 Alternative 1 – No Action

Under Alternative 1, the specifications for FY 2024-2025 would be unchanged from that of FY 2022-2023 (Table 5). The OFL would be unknown; the ABC and ACL would be 37,236 mt; the TAL would be 21,142 mt, with wing and bait TALs of 14,059 mt and 7,082 mt, respectively.

The impacts of Alternative 1 on protected species would likely be slight negative to slight positive. As Alternative 1 would continue the recent ACT and TALs, skate fishing effort and behavior is likely to be like current operating conditions. Specifically, the amount of gear (i.e., bottom trawls and gillnets), tow or soak durations, and area fished are not expected to change significantly from current operating conditions. As noted above, interaction risks with protected species are strongly associated with the amount of gear in the water, the duration of time the gear is in the water (e.g., soak or tow duration), and the presence of protected species in the same area and time as the gear. Continuation of "status quo" fishing behavior/effort is not expected to change any of these operating conditions, and, therefore, Alternative 1/No Action is not expected to introduce new or elevated interaction risks to any protected species. Based on this and considering the information in Sections 6.4 and Section 5.3, impacts to protected species are expected to range from slight negative to slight positive, with negligible to slight negative impacts expected for ESA-listed species and MMPA protected species in poor condition, and negligible to slight positive impacts to MMPA protected species in good condition.

6.4.1.2 Alternative 2 – Updated Specifications (Preferred Alternative)

Under Alternative 2, the specifications for FY 2024-2025 would be updated as recommended by the SSC (Table 5). The OFL would be unknown, and the ABC and ACL would be 32,155 mt, a 14% decrease from FY 2022-2023. The Federal TAL would decrease 26% to 15,718 mt, with wing and bait TALs of 10,453 mt and 5,266 mt, respectively.

The impacts of Alternative 2 on protected species would likely be slight negative to moderate positive and more positive than Alternative 1. The decreases in the ACT and TALs under Alternative 2, which could possibly impact fishery effort (e.g., fewer trips resulting in less gear in the water), are unlikely to do so relative to current operating conditions given that recent landings have remained within the Alternative 2 TAL of 15,718 mt (Figure 4). As the potential for interactions is dependent upon fishing behavior and effort, reduced effort may result in reduced interaction risks to protected species. However, based on landings in recent years, Alternative 2 is not expected to drastically change fishing effort and patterns (Section 6.2.1.2). Based on this and considering the information in Sections 6.4 and Section 5.3, impacts to protected species are expected to range from slight negative to moderate positive, with negligible to slight negative impacts expected for ESA-listed species and MMPA protected species in poor condition, and negligible to moderate positive impacts to MMPA protected species in good condition. Impacts would be more positive than Alternative 1, because less fishery effort is possible under Alternative 2, though effort is likely to be like in recent years.

6.4.2 Action 2 – Possession Limits

6.4.2.1 Skate Fishery Possession Limit Alternatives

If selecting an action alternative, the Council may select Alternative 2 and/or Alternative 3.

6.4.2.1.1 Alternative 1 – No Action

Under Alternative 1, the skate wing and bait possession limits would be unchanged since FY 2020. For trips fishing on a DAS, the skate wing possession limit would be 3,000 lb (wing weight) for Season 1 and 5,000 lb for Season 2. For trips not fishing on a DAS or fishing on a Northeast multispecies B-DAS, the annual skate wing possession limits are 500 lb and 220 lb, respectively.

The impacts of Alternative 1 on protected species would likely be slight negative to slight positive. As noted above, interaction risks with protected species are strongly associated with the amount of gear in the water, the duration of time the gear is in the water (e.g., soak or tow duration), and the overlap between protected species and fishing gear. Maintaining current skate possession limits would likely result in fishing effort and behavior remaining like current operating conditions, and therefore new or elevated interaction risks to protected species are not expected. Based on this and considering the information in Sections 6.4 and Section 5.3, impacts to protected species are expected to range from slight negative to slight positive, with negligible to slight negative impacts expected for ESA-listed species and MMPA protected species in poor condition, and negligible to slight positive impacts to MMPA protected species in good condition.

6.4.2.1.2 Alternative 2 – Increase Skate Wing Possession Limits on Trips Fishing on a DAS (Preferred Alternative)

Under Alternative 2, skate wing possession limits would increase for trips fishing on a DAS. Under Option A, the Season 1 limit would increase from 3,000 lb to 3,750 lb, and the Season 2 limit would increase from 5,000 lb to 6,250 lb. Under Option B, the Season 1 limit would increase from 3,000 lb to 4,000 lb, and the Season 2 limit would increase from 5,000 lb to 6,000 lb. Option B is the preferred option.

The impacts of Alternative 2 on protected species would likely be slight negative to slight positive and negligible relative to Alternative 1. The increase in the wing possession limit on DAS trips under Option A or B is not expected to change fishing effort (e.g., amount of gear fished, number of trips taken, gear soak or tow duration) or behavior (e.g., area fished) relative to current operating conditions in the fishery. Over half of trips taken in recent years (FY 2018-2022) had landings that were at least 10% below the possession limit (Section 6.2.2.1.2), indicating that the possession limit has not been limiting for most trips. Given that possession limits have not been restrictive for those trips in recent years, an increase in possession limits are unlikely to lead to an increase in effort. The increase in wing possession limit may reduce the ratio of discards to landings as skate discards could be converted to landings, which is not expected to impact fishing effort or behavior. While increased possession limits are unlikely to increase the number of trips, there may be some slight variations in trip duration depending on the rate at which vessels encounter skates and other species. This is highly dependent on the conditions encountered on each trip, so the duration of trips is expected to remain largely unchanged overall. As interaction risks with protected species are strongly associated with the amount of gear in the water, the duration of time the gear is in the water (e.g., soak or tow duration), and the overlap between protected species and fishing gear, expected fishing effort and behavior under Alternative 2 is not expected to result in new or elevated interaction risks to any protected species. The impacts of Option A and B on protected species are likely negligible relative to each other. Based on this and considering the information in Sections 6.4 and Section 5.3, impacts to protected species are expected to range from slight negative to slight positive, with negligible to slight negative impacts expected for ESA-listed species and MMPA protected species in poor condition, and negligible to slight positive impacts to MMPA protected species in good condition.

6.4.2.1.3 Alternative 3 – Increase Skate Wing Possession Limits on Trips Fishing on a Northeast Multispecies B-DAS or not on a DAS (Preferred Alternative)

Under Alternative 3, skate wing possession limits would increase by 25% for trips fishing on a Northeast multispecies B-DAS (from 220 to 275 lb), or not fishing on a DAS (from 500 to 625 lb).

The impacts of Alternative 3 on protected species would likely be slight negative to slight positive and the difference in impacts would be negligible relative to Alternatives 1 and 2. The increase in the wing possession limit on non-DAS and B-DAS trips is not expected to change fishing effort (e.g., amount of gear fished, number of trips taken, gear soak or tow duration) or behavior (e.g., area fished) relative to current operating conditions in the fishery. The relatively small increase in possession limits may decrease the proportion of skate discards to landings as some skate catch that would have previously been discarded could be landed, though this is unlikely to incentivize additional trips. Converting discards to landings would not substantially impact the number of trips or the amount of gear used on trips, and therefore is unlikely to change the risk to protected species. It may impact the duration of trips, depending on where and when vessels encounter skates and other species, but this is variable and likely will not substantially influence trip duration overall. As interaction risks with protected species are strongly associated with the amount of gear in the water, the duration of time the gear is in the water (e.g., soak or tow duration), and the overlap between protected species and fishing gear, fishing effort and behavior under Alternative 3 is not expected to result in new or elevated interaction risks to any protected species. Based on this and considering the information in Sections 6.4 and Section 5.3, impacts to protected species are expected to range from slight negative to slight positive, with negligible to slight negative impacts expected for ESA-listed species and MMPA protected species in poor condition, and negligible to slight positive impacts to MMPA protected species in good condition.

6.4.2.2 Barndoor Skate Alternatives

6.4.2.2.1 Alternative 1 – No Action

Under Alternative 1, the 25% partial possession limit of barndoor skate on trips fishing on a DAS would remain. Barndoor possession would not be allowed on trips fishing with a Bait LOA and on non-DAS or Northeast multispecies B-DAS trips in the wing fishery.

The impacts of Alternative 1 on protected species would likely be slight negative to slight positive. Maintaining current barndoor skate possession limits/restrictions would likely result in fishing effort and behavior remaining like current operating conditions; therefore, new or elevated interaction risks to protected species are not expected under Alternative 1. Based on this and considering the information in Sections 6.4 and Section 5.3, impacts to protected species are expected to range from slight negative to slight positive, with negligible to slight negative impacts expected for ESA-listed species and MMPA protected species in poor condition, and negligible to slight positive impacts to MMPA protected species in good condition.

6.4.2.2.2 Alternative 2 – Remove Barndoor Skate Possession Restriction (Preferred Alternative)

Under Alternative 2, the barndoor skate possession restriction would be removed. Within the overall skate possession limits, there would be no limit specific to barndoor skate.

The impacts of Alternative 2 on protected species would likely be slight negative to slight positive and negligible relative to Alternative 1. Removing the barndoor skate possession restriction would not impact overall possession limits and is therefore not expected to change fishing effort (e.g., amount of gear fished, number of trips taken, gear soak or tow duration) or behavior (e.g., area fished) relative to current operating conditions in the fishery. As interaction risks with protected species are strongly associated with the amount of gear in the water, the duration of time the gear is in the water (e.g., soak or tow duration), and the overlap between protected species and fishing gear, fishing effort and behavior under Alternative 2 is not expected to result in new or elevated interaction risks to any protected species. Based on this and considering the information in Sections 6.4 and Section 5.3, impacts to protected species are expected to range from slight negative to slight positive, with negligible to slight negative impacts expected for ESA-listed species and MMPA protected species in poor condition, and negligible to slight positive impacts to MMPA protected species in good condition.

6.4.2.3 Smooth Skate Alternatives

6.4.2.3.1 Alternative 1 – No Action

Under Alternative 1, the possession prohibition of smooth skate in the Gulf of Maine Regulated Mesh Area would remain. Smooth skate possession would not be allowed in the wing or bait fisheries.

The impacts of Alternative 1 on protected species would likely be slight negative to slight positive. Maintaining current smooth skate possession prohibition is not expected to change fishing effort (e.g., amount of gear fished, number of trips taken, gear soak or tow duration) or behavior (e.g., area fished) relative to current operating conditions in the fishery. As interaction risks with protected species are strongly associated with the amount of gear in the water, the duration of time the gear is in the water (e.g., soak or tow duration), and the overlap between protected species and fishing gear, fishing effort and behavior under Alternative 1 is not expected to result in new or elevated interaction risks to any protected species. Based on this and considering the information in Sections 6.4 and Section 5.3, impacts to protected species are expected to range from slight negative to slight positive, with negligible to slight negative impacts expected for ESA-listed species and MMPA protected species in poor condition, and negligible to slight positive impacts to MMPA protected species in good condition.

6.4.2.3.2 Alternative 2 – Remove Smooth Skate Possession Restriction (Preferred Alternative)

Under Alternative 2, the smooth skate possession restriction would be removed on all trips landing skate, in both the wing and bait skate fisheries.

The impacts of Alternative 2 on protected species would likely be slight negative to slight positive and the difference in impacts would be negligible relative to Alternative 1. Removing the smooth skate possession prohibition would not impact overall skate possession limits and, therefore, is not expected to change fishing effort (e.g., amount of gear fished, number of trips taken, gear soak or tow duration) or behavior (e.g., area fished) relative to current operating conditions in the fishery. As interaction risks with protected species are strongly associated with the amount of gear in the water, the duration of time the gear is in the water (e.g., soak or tow duration), and the overlap between protected species and fishing gear, fishing effort and behavior under Alternative 2 is not expected to result in new or elevated interaction risks to any protected species. Based on this and considering the information in Sections 6.4 and Section 5.3, impacts to protected species are expected to range from slight negative to slight positive, with negligible to slight negative impacts expected for ESA-listed species and MMPA protected species in poor condition, and negligible to slight positive impacts to MMPA protected species in good condition.

6.5 Impacts on Physical Environment and Essential Fish Habitat

6.5.1 Action 1 – FY 2024-2025 Specifications

6.5.1.1 Alternative 1 – No Action

Under Alternative 1, the specifications for FY 2024-2025 would be unchanged from that of FY 2022-2023 (Table 5). The OFL would be unknown; the ABC and ACL would be 37,236 mt; the TAL would be 21,142 mt, with wing and bait TALs of 14,059 mt and 7,082 mt, respectively.

The impacts of Alternative 1 on the physical environment and EFH would likely be slight negative. The fishing gears used to target skate are primarily gillnets and bottom trawls (Table 34). Gillnet gear does not cause adverse effects to EFH, but bottom trawl gear has adverse effects on seafloor habitats and EFH. Bottom trawls are associated with most of the landings on skate wing trips, and all skate landings on bait trips. Maintaining current catch limits would allow adverse EFH impacts to continue in areas presently fished by the skate fishery.

6.5.1.2 Alternative 2 – Updated Specifications (Preferred Alternative)

Under Alternative 2, the specifications for FY 2024-2025 would be updated as recommended by the SSC (Table 5). The OFL would be unknown, and the ABC and ACL would be 32,155 mt, a 14% decrease from FY 2022-2023. The Federal TAL would decrease 26% to 15,718 mt, with wing and bait TALs of 10,453 mt and 5,266 mt, respectively.

The impacts of Alternative 2 on the physical environment and EFH would likely be slight negative but more positive than Alternative 1. The fishing gears used to target skate are primarily gillnets and bottom trawls (Table 34). Gillnet gear does not cause adverse effects to EFH, but bottom trawl gear has adverse effects on seafloor habitats and EFH. Under the lower TAL of Alternative 2, there may be some reduction in fishing effort, with less negative impact to the physical environment and EFH than under Alternative 1. However, recent landings have been well within the Alternative 2 TAL (e.g., FY2022 federal landings were slightly less than 10,000 mt), so a reduction in effort and EFH impacts may be minor. Even if effort and impacts are slightly reduced, adverse EFH impacts would continue in areas presently fished by the skate fishery.

6.5.2 Action 2 – Possession Limits

6.5.2.1 Skate Fishery Possession Limit Alternatives

If selecting an action alternative, the Council may select Alternative 2 and/or Alternative 3.

6.5.2.1.1 Alternative 1 – No Action

Under Alternative 1, the skate wing and bait possession limits would be unchanged from FY 2020. For trips fishing on a DAS, the skate wing possession limit would be 3,000 lb (wing weight) for Season 1 and 5,000 lb for Season 2. For trips not fishing on a DAS or fishing on a Northeast multispecies B-DAS, the annual skate wing possession limits are 500 lb and 220 lb, respectively.

The impacts of Alternative 1 on the physical environment and EFH would likely be slight negative. Maintaining current skate possession limits would unlikely change the number of trips or fishing gear and would continue similar levels of adverse impacts to EFH in areas presently fished by the skate fishery. The fishing gears used to target skate are primarily gillnets and bottom trawls (Table 34). Gillnet gear does not cause adverse effects to EFH, but bottom trawl gear has adverse effects on seafloor habitats and EFH.

6.5.2.1.2 Alternative 2 – Increase Skate Wing Possession Limits on Trips Fishing on a DAS (Preferred Alternative)

Under Alternative 2, skate wing possession limits would increase for trips fishing on a DAS. Under Option A, the Season 1 limit would increase by 750 lb to 3,750 lb, and the Season 2 limit would increase by 1,250 lb to 6,250 lb. Under Option B, the Season 1 limit would increase by 1,000 lb to 4,000 lb, and the Season 2 limit would increase by 1,000 lb to 6,000 lb. Option B is the preferred option.

The impacts of Alternative 2 on the physical environment and EFH would likely be slight negative and negligible relative to Alternative 1. Given current patterns of activity in the fishery relative to the possession limits (Section 6.6.2.1.2), increasing the skate wing possession limit on DAS would unlikely change the number of trips or fishing gear. Although some skate discards would likely be converted to landings, this is not expected to influence the impacts of those trips on EFH, which would likely continue at similar levels in areas historically utilized by the skate fishery. The fishing gears used to target skate are primarily gillnets and bottom trawls (Table 34). Gillnet gear does not cause adverse effects to EFH, but bottom trawl gear has adverse effects on seafloor habitats and EFH. Impacts of Options A and B would likely be negligible relative to each other as total trips are likely similar.

6.5.2.1.3 Alternative 3 – Increase Skate Wing Possession Limits on Trips Fishing on a Northeast Multispecies B-DAS or not on a DAS (Preferred Alternative)

Under Alternative 3, skate wing possession limits would increase by 25% for trips fishing on a Northeast multispecies B-DAS (from 220 to 275 lb), or not fishing on a DAS (from 500 to 625 lb).

The impacts of Alternative 3 on the physical environment and EFH would likely be slight negative and negligible relative to Alternatives 1 and 2. Increasing the skate wing possession limit on non-DAS and B-DAS trips would unlikely change the number of trips or fishing gear, and the number of such trips is small (Section 6.6.2.1.3). The fishing gears used to target skate are primarily gillnets and bottom trawls (Table 34). Gillnet gear does not cause adverse effects to EFH, but bottom trawl gear has adverse effects on seafloor habitats and EFH, which would likely continue at similar levels in areas currently fished by the skate fishery.

6.5.2.2 Barndoor Skate Alternatives

6.5.2.2.1 Alternative 1 – No Action

Under Alternative 1, the 25% partial possession limit of barndoor skate on trips fishing on a DAS would remain. Barndoor possession would not be allowed on trips fishing with a Bait LOA and on non-DAS or Northeast multispecies B-DAS trips in the wing fishery.

The impacts of Alternative 1 on the physical environment and EFH would likely be slight negative. Maintaining the barndoor skate possession restriction would unlikely change the number of trips or fishing gear (Section 6.6.2.2.2). The fishing gears used to target skate are primarily gillnets and bottom trawls (Table 34). Gillnet gear does not cause adverse effects to EFH, but bottom trawl gear has adverse effects on seafloor habitats and EFH, which would likely continue at similar levels in areas currently fished by the skate fishery.

6.5.2.2.2 Alternative 2 – Remove Barndoor Skate Possession Restriction (Preferred Alternative)

Under Alternative 2, the barndoor skate possession restriction would be removed. Within the overall skate possession limits, there would be no limit specific to barndoor skate.

The impacts of Alternative 2 on the physical environment and EFH would likely be slight negative and negligible relative to Alternative 1. Removing the barndoor skate possession restriction would unlikely change the number of trips or fishing gear. The fishing gears used to target skate are primarily gillnets and bottom trawls (Table 34). Gillnet gear does not cause adverse effects to EFH, but bottom trawl gear has adverse effects on seafloor habitats and EFH, which would likely continue at similar levels in areas currently fished by the skate fishery.

6.5.2.3 Smooth Skate Alternatives

6.5.2.3.1 Alternative 1 – No Action

Under Alternative 1, the possession prohibition of smooth skate in the Gulf of Maine Regulated Mesh Area would remain. Smooth skate possession would not be allowed in the wing or bait fisheries.

The impacts of Alternative 1 on the physical environment and EFH would likely be slight negative. Maintaining the smooth skate possession prohibition would unlikely change the number of trips or fishing gear. The fishing gears used to target skate are primarily gillnets and bottom trawls (Table 34). Gillnet gear does not cause adverse effects to EFH, but bottom trawl gear has adverse effects on seafloor habitats and EFH, which would likely continue at similar levels in areas currently fished by the skate fishery.

6.5.2.3.2 Alternative 2 – Remove Smooth Skate Possession Restriction (Preferred Alternative)

Under Alternative 2, the smooth skate possession restriction would be removed on all trips landing skate, in both the wing and bait skate fisheries.

The impacts of Alternative 2 on the physical environment and EFH would likely be slight negative and negligible relative to Alternative 1. Smooth skate occur in the Gulf of Maine, while the directed skate fishery occurs further south, on Georges Bank and in Southern New England. It seems unlikely that allowing smooth skate possession would be sufficient incentive to cause substantial increases in fishing activity overall, including in the Gulf of Maine, especially in the context of a lower TAL (if Action 1, Alternative 2 is selected). Thus, removing the smooth skate possession prohibition would unlikely change the number of trips or fishing gear (Section 6.6.2.3.2 has more discussion), and would likely continue similar levels of EFH impacts in areas currently fished by the skate fishery. The fishing gears used to target skate are primarily gillnets and bottom trawls (Table 34). Gillnet gear does not cause adverse effects to EFH, but bottom trawl gear has adverse effects on seafloor habitats and EFH, which would likely continue at similar levels in areas currently fished by the skate fishery.

6.6 Impacts on Human Communities

The analysis of impacts on human communities characterizes the magnitude and extent of the economic and social impacts likely to result from the alternatives considered, individually and in relation to each other. Management regulations influence the direction and magnitude of economic and social change, but attribution is difficult, because communities are constantly evolving in response to many external factors (e.g., market conditions, technology, alternate uses of waterfront) that contribute to community vulnerability and adaptability to changing regulations.

Economic impacts. The economic effects of regulations can be categorized by changes in costs (including transactions costs such as search, information, bargaining, and enforcement costs) or revenues (by changing market prices or by changing the quantities supplied), and ultimately profits. These economic effects may be felt by the directly regulated entities, and by crew who are generally compensated through a revenue sharing arrangement. They may also be felt by related industries (e.g., dealers, processors).

Social impacts. The social effects of regulations relate to changes such as demographics, employment, fishery dependence, safety, attitudes, equity, cultural values, and the well-being of persons, families, and fishing communities (Burdge 1998; NMFS 2007).

It is important to consider impacts on the following: the fishing fleet (vessels grouped by fishery, primary gear type, and/or size); vessel owners and employees (captains and crew); dealers and processors; consumers; community cooperatives; fishing industry associations; cultural components of the community; and fishing families. While some management measures may have a short-term negative impact on some communities, this should be weighed against potential long-term benefits to all communities which can be derived from a sustainable skate fishery.

6.6.1 Action 1 – FY 2024-2025 Specifications

General impacts of skate fishery specifications on human communities

Human communities are impacted by skate fishery specifications as they set harvest levels for the fishery. Generally, increasing the skate ABC (and associated catch limits) would likely have positive short-term impacts on fishing communities. Lowering allowable harvests could result in net short-term revenue reductions, which may, in turn, have negative impacts on profits, employment, and the size of the skate fishery within fishing communities. Additionally, declines in fishing earnings may decrease job satisfaction among fishermen (e.g., Pollnac & Poggie 2008; Pollnac et al. 2015), which may reduce the well-being of fishermen, their families, and their communities (e.g., Pollnac et al. 2015; Smith & Clay 2010). In the long term, ensuring continued, sustainable harvest of the resource benefits all fisheries.

The specific communities that may be impacted by this action are identified in Section 5.5.3.1. This includes eight primary ports (Chatham, New Bedford, Little Compton, Narragansett/Point Judith, Montauk, Belford, Barnegat Light/Long Beach, and Cape May; Table 38) and 20 secondary ports for the skate fishery. The communities more involved in the skate fishery are likely to experience more direct impacts of this action, though indirect impacts may be experienced across all the key communities. As these specifications largely affect area-wide harvest levels, impacts would likely occur across the communities that participate in the skate fishery, proportional to their degree of participation.

6.6.1.1 Alternative 1 – No Action

Under Alternative 1, the specifications for FY 2024-2025 would be unchanged from FY 2022-2023 (Table 5). The OFL would be unknown; the ABC and ACL would be 37,236 mt; the TAL would be 21,142 mt, with wing and bait TALs of 14,059 mt and 7,082 mt, respectively.

Alternative 1 is expected to have negligible economic impacts on the skate fishery. Bait and wing landings have been substantially lower than their respective TALs since FY 2018 (Figure 4), suggesting that the current TALs are not the constraining factor in metrics such as profit maximization. It is possible that landings could approach the TAL, as in FY 2016 and 2017, for both wing and bait. However, even under those scenarios, constraints in landings are unlikely to have substantial impacts on vessels operating in the fishery, given that skate revenues comprise a relatively low percentage of total revenues. Specifically, skate revenues for wing vessels (~77% of the skate vessels from FY18-22) only contributed 6% of total earnings (Table 32). Skate revenues from both wing and bait as well as bait vessels contribute slightly more to total revenues on average (18.5% and 15%), but only make up 15% and 6% of the skate fishery, respectively.

The social impacts of Alternative 1 would likely be negligible to slight negative. Recent fishery landings have been within the Alternative 1 TAL, so fisheries and fishing communities would unlikely be constrained relative to status quo. Employment levels of the fishery-related workforce would likely be similar as would the historical dependence on, and participation in, the fishery (structure of fishing practices, income distribution and rights). The SSC recommended that the ABC should be lower than the No Action level to sustain the resource, so selecting Alternative 1 might cause distrust in management, and a feeling that managers are not making use of the best available science in a timely manner. This may lead to negative impacts on the attitudes of stakeholders towards management. Long term social impacts may be negative if the ABC is set above a level that prevents overfishing, which could lead to more skate species being overfished. In the long term, the industry may not be able to realize the benefits of yield that is supported by the best available science.

6.6.1.2 Alternative 2 – Updated Specifications (Preferred Alternative)

Under Alternative 2, the specifications for FY 2024-2025 would be updated as recommended by the SSC (Table 5). The OFL would be unknown, and the ABC and ACL would be 32,155 mt, a 14% decrease from FY 2022-2023. The Federal TAL would decrease 26% to 15,718 mt, with wing and bait TALs of 10,453 mt and 5,266 mt, respectively.

Alternative 2 is likely to pose slight negative economic impacts and greater negative economic impacts on the skate fishery relative to Alternative 1, due to potential decreases in skate landings and revenues. The extent of the impact is dependent on the utilization rate of skates (Figure 4). As discussed in Section 6.5.1.2, the Alternative 2 TAL exceeds the landings for the bait and wing fisheries by a notable margin for majority of years over the past decade, except for FY 2016 and 2017. This trend is particularly evident in most recent years. On the contrary, over the past five years, there has been significant variation in wing landings such that a decrease in TAL could have the potential for negative economic impacts by constraining landings and revenues.

The social impacts of Alternative 2 would likely be slight negative and negligible relative to Alternative 1 in the short term. Recent fishery landings have been within the Alternative 2 TAL, so fisheries and fishing communities would likely not be constrained relative to Alternative 1. Employment levels of the fishery-related workforce would likely be similar as would the historical dependence on and participation in the fishery (structure of fishing practices, income distribution and rights). Although the ABC would be lower, using the SSC recommendation would likely cause more trust in management among the industry relative to No Action and a feeling that managers are making use of the best available science in a timely manner. This may lead to positive impacts on the attitudes of stakeholders towards management. In the long term, the industry could realize the benefits of yield that is supported by the best available science, so there may be long-term positive social impacts of Alternative 2.

6.6.2 Action 2 – Possession Limits

6.6.2.1 Skate Fishery Possession Limit Alternatives

If selecting an action alternative, the Council may select Alternative 2 and/or Alternative 3.

6.6.2.1.1 Alternative 1 – No Action

Under Alternative 1, the skate wing and bait possession limits would be unchanged since FY 2020 (only wing possession limits would change under the action alternatives). For trips fishing on a DAS, the skate wing possession limit would be 3,000 lb (wing weight) for Season 1 and 5,000 lb for Season 2. For trips not fishing on a DAS or fishing on a Northeast multispecies B-DAS, the annual skate wing possession limits are 500 lb and 220 lb, respectively.

The economic impacts of Alternative 1 would be slight negative given the economic inefficiencies that are suggested under current possession limits. Specifically, 17%-29% of DAS trips landing skate wings landed above the possession limit and 12%-30% were within 10% of the possession limit over FY2018-2022. There were 11%-23% of non-DAS trips landing wings, which were above the possession limit and 7%-13% of trips that were within 10% of the possession limit during those years (Table 18). There are potential economic inefficiencies that exist at the current wing trip possession limit level. This is further supported by statistically significant higher mean discards resulting from DAS and non-DAS trips landing within 10% of their respective possession limit relative to trips below the limit (pvalues= <0.001; Table 21). Allowing for the possession of these discards, however, would most likely only generate marginal economic benefits as wing vessels (~77% of the fishery) earn only 6% of their revenues from skate, on average.

The social impacts of Alternative 1 would likely be slight negative. The wing fishery would continue to fish under the current possession limits but could not realize the benefits of additional yield that may occur under Alternatives 2 and/or 3. Reduced income for fishermen may translate into negative social impacts in the short term on the size and demographic characteristics of the fishery-related workforce. There may be reduced business opportunities for shoreside service providers, impacting employment in the wider fishing community. Additionally, lower fishing earnings may decrease job satisfaction among fishermen, which may reduce the well-being of fishermen, their families, and their communities. However, the risk of triggering the in-season adjustment to possession limits would be lower than under Alternative 2.

6.6.2.1.2 Alternative 2 – Increase Skate Wing Possession Limits on Trips Fishing on a DAS (Preferred Alternative)

Under Alternative 2, skate wing possession limits would increase for trips fishing on a DAS. Under Option A, the Season 1 limit would increase from 3,000 lb to 3,750 lb, and the Season 2 limit would increase from 5,000 lb to 6,250 lb. Under Option B, the Season 1 limit would increase from 3,000 lb to 4,000 lb, and the Season 2 limit would increase from 5,000 lb to 6,000 lb. Option B is the preferred option.

The economic impacts of Alternative 2, Options A and B, would likely be slight positive for the skate fishery relative to Alternative 1. These options would specifically allow for increased landings and revenues on trips that normally operate above the possession limit (Table 21) or are approaching the possession limit and therefore would discard disproportionately more to avoid exceeding the limit. This has impacted anywhere 17%-29% (24% average) of DAS trips landing skate wings landed above the possession limit and 12%-30% (20% average) were within 10% of the possession limit over FY2018-2022, suggesting a non-negligible number of trips where revenues could have been increased. Raising the possession limit may also allow harvesters who are risk averse to increase their efficiency and decrease discards as they use the increased buffer between their landings and the possession limit. The gains in economic efficiency would most likely be maximized under Option B, which increases the Season 1 possession limit by 1,000 lb rather than Option A which only increases by 750 lb, given that Season 1 has had a larger number of trips approaching the skate possession limit from FY 2018-2021 relative to Season 2 (Table 18). However, the difference between the two Options (Option A and B) is a matter of 250 lb; Option A allocating those additional pounds to Season 2 and Option B to Season 1. Overall, the expected economic impact of either option is expected to be positive.

The social impacts of Alternative 2 would likely be slight positive and more positive than No Action. The wing DAS fishery would be able to fish under higher possession limits, realizing the benefits of additional skate yield that may occur and the ability for other fisheries to be less constrained by the skate possession limit that are fished in conjunction with skates. While vessels may continue fishing for other species such as monkfish once they have met their skate possession limit, they would be required to discard skates to catch other species, reducing fishing efficiency. Discarding high volumes of skates when vessels still have monkfish quota available can increase the amount of time spent on a trip without proportionally increasing revenues. The increased possession limits in Alternative 2 would allow vessels to make these trips more lucrative by landing some of the skates that would have been discarded under Alternative 1.

Increased income for some fishermen may translate into slight positive social impacts in the short term on the size and demographic characteristics of the fishery-related workforce. Potential increases in fishing earnings and reduced discards may increase job satisfaction among fishermen, which may increase the well-being of fishermen, their families, and their communities. There may be increased business opportunities for shoreside service providers, impacting employment in the wider fishing community. However, this increase is likely not enough to incentivize additional vessels to activate their skate permit and/or direct trips onto skate wings. Notably, of the 172-255 vessels landing only skate wings annually from FY 2018-2022, just 24-58 vessels derived over 10% of their annual revenue from skates (Table 33). Thus, the subset of vessels targeting skate, and likely to benefit from an increase in the DAS possession limit, is a relatively small portion of vessels landing skate. Because skates tend to be more prevalent earlier in the fishing year, evidenced by trips in Season 1 landing skates within 10% or above possession limits more frequently than in Season 2 (Table 18), the social impacts under Option B could be more positive than under Option A, because Option B has more potential to increase landings and reduce discards.

6.6.2.1.3 Alternative 3 - Increase Skate Wing Possession Limits on Trips Fishing on a Northeast Multispecies B-DAS or not on a DAS (Preferred Alternative)

Under Alternative 3, skate wing possession limits would increase by 25% for trips fishing on a Northeast multispecies B-DAS (from 220 to 275 lb), or not fishing on a DAS (from 500 to 625 lb).

The economic impacts of Alternative 3 would likely be slight positive for the skate fishery relative to Alternative 1 and slightly less positive than Alternative 2. This is considering that, from FY 2018-2021, very few trips landed skate with a Northeast Multispecies B-DAS trip declaration, and for trips not on a DAS, an average of 16% of trips landed above the possession limit and an average of 9% of trips within 10% of the possession limit over FY 2018-2022 (Table 18). Mean skate discards from non-DAS trips landing within 10% of the possession limit are also statistically higher than mean discards from trips below this threshold. This suggests that discarded catch could be converted to landings and revenues. This would also positively impact metrics such as efficiency. Given that the limits are increasing by a non-negligible percentage, there may be some shifts in harvesting behavior and potential gains in revenues and efficiency, which could lead to marginal economic impacts.

The social impacts of Alternative 3 would likely be slight positive and more positive than No Action. The wing non-DAS fishery and vessels declaring a Northeast multispecies B-DAS would be able to fish under higher possession limits, realizing the benefits of additional skate yield that may occur. The modest increase in skate income or fishermen may translate into positive social impacts in the short term on the size and demographic characteristics of the fishery-related workforce. Increases in fishing earnings and reduced discards may increase job satisfaction among fishermen, which may increase the well-being of fishermen, their families, and their communities. There may be increased business opportunities for shoreside service providers, impacting employment in the wider fishing community. However, this increase is likely not enough to incentivize additional vessels to activate their skate permit and/or direct trips onto skate wings.

The subset of vessels taking non-DAS or B-DAS trips is largely, but not entirely distinct from the vessels that land skate using DAS. Thus, the impacts of Alternatives 2 and 3, if selected together, would likely be additive.

6.6.2.2 Barndoor Skate Alternatives

6.6.2.2.1 Alternative 1 – No Action

Under Alternative 1, the 25% partial possession limit of barndoor skate on trips fishing on a DAS would remain. Barndoor possession would not be allowed on trips fishing with a Bait LOA and on non-DAS or Northeast multispecies B-DAS trips in the wing fishery.

The economic impacts of Alternative 1 would likely be slight negative given that the 25% of the skate wing possession limit for barndoor was initially set to reduce incentives to high-grade catch, yet there has been no evidence of differences in mean prices between winter and barndoor skate (Table 37). Barndoor catch has also been discarded above the partial possession limit, suggesting that there may be economic losses driven by the 25% partial possession limit which are currently impacting the fishery and will persist under this alternative. From FY 2018-2021, 9% of barndoor skate catch was discarded for trips landing within 10% of the partial possession limit compared to the 1% discarded for those landing below the limit. In addition, as barndoor skate biomass index has been above B_{target} in all years except 2021 when it was just under B_{target}, this may suggest the potential for increases in future barndoor-harvester interactions such that the partial possession limit may further constrain landings, revenues, and catch per unit effort under Alternative 1.

The social impacts of Alternative 1 would likely be slight negative. Just the wing fishery would continue to benefit from fishing under the current barndoor skate partial possession limits but could not realize the benefits of additional yield that may occur under Alternative 2. Skates are managed as a complex, particularly for stocks that are not overfished and considered rebuilt. Maintaining species-specific management for barndoor skate would be inconsistent with the general management approaches, which could result in unnecessary administrative burden, distrust in management, and a feeling that managers are not making use of the best available science in a timely manner. This may lead to negative impacts on the attitudes of stakeholders towards management.

6.6.2.2.2 Alternative 2 – Remove Barndoor Skate Possession Restriction (Preferred Alternative)

Under Alternative 2, the barndoor skate possession restriction would be removed. Within the overall skate possession limits, there would be no limit specific to barndoor skate.

The economic impacts of Alternative 2 would likely be slight positive and more positive than Alternative 1 (Status Quo) and allow harvesters that are currently catching barndoor skate above its 25% partial possession limit to retain catch rather than discard, resulting in increased landings and revenues. From FY 2018-2021, 9% of barndoor skate catch was discarded for trips landing within 10% of the partial possession limit compared to the 1% discarded for those landing below the limit. Alternative 2, retrospectively, would have impacted around 5.8-11.7% of trips from FY 2018-2021 that were within the 10% limit. This would also cause gains in efficiency and in metrics such as catch per unit effort. The trends in discards around the partial possession limit and no significant difference in winter and barndoor skate prices suggest that high-grading is not anticipated to occur or outweigh the potential economic gains from removing the 25% possession limit (Table 37).

The social impacts of Alternative 2 would likely be slight positive and more positive than Alternative 1. The entire skate fishery could benefit from removing all barndoor possession restrictions, so Alternative 2 may be perceived as more equitable than Alternative 1. Vessels could realize the benefits of additional yield that may occur under Alternative 2. Skates are managed as a complex, particularly for stocks that are not overfished and considered rebuilt. Alternative 2 would help bring the fishery into a more consistent approach to management, which could result in less administrative burden, trust in management, and a feeling that managers are making use of the best available science in a timely manner. This may lead to positive impacts on the attitudes of stakeholders towards management.

6.6.2.3 Smooth Skate Alternatives

6.6.2.3.1 Alternative 1 – No Action

Under Alternative 1, the possession prohibition of smooth skate in the Gulf of Maine Regulated Mesh Area would remain. Smooth skate possession would not be allowed in the wing or bait fisheries.

The economic impacts of Alternative 1 would likely be negligible on the skate fishery. Disallowing smooth skate possession does not create an economic barrier for most trips, where estimated discards of smooth skates for the entire year have ranged from 544-185 mt over the past five calendar years across all trips (Table 26). In addition, the discards are mainly from otter trawl gear, such that the impact is on a very low percentage of the fishery. Under the status quo there are no major losses in efficiency, revenues, or landings for most of the skate fishery.

The social impacts of Alternative 1 would likely be negligible to slight negative. The smooth skate possession prohibition impacts vessels fishing in the Gulf of Maine, which is largely outside of where most fishing for skates occurs (Map 5), so it is likely that relatively few vessels that land skates would be impacted by Alternative 1. By continuing the prohibition, the fishery could not realize the benefits of additional yield that may occur under Alternative 2. Skates are managed as a complex, particularly for stocks that are not overfished and considered rebuilt. Maintaining species-specific management for smooth skate would be inconsistent with the general approaches, which could result in unnecessary administrative burden, distrust in management, and a feeling that managers are not making use of the best available science in a timely manner. This may lead to negative impacts on the attitudes of stakeholders towards management.

6.6.2.3.2 Alternative 2 – Remove Smooth Skate Possession Restriction (Preferred Alternative)

Under Alternative 2, the smooth skate possession restriction would be removed on all trips landing skate, in both the wing and bait skate fisheries.

The economic impacts of Alternative 2 would likely be negligible to slight positive and more positive than Alternative 1. Allowing for the possession of smooth skate would allow a small percentage of trips, primarily those using otter trawl gear in the Gulf of Maine (Section 5.5.1.3.3), to increase their economic metrics including landings, revenues and catch per unit effort. This is however, a very small percentage of the fishery and the historic discards are low, such that the economic gains will ultimately be negligible.

The social impacts of Alternative 2 would likely be slight positive and more positive than Alternative 1. Skates are managed as a complex, particularly for stocks that are not overfished and considered rebuilt. Alternative 2 would help bring the fishery into a more consistent approach to management, which could result in less administrative burden, trust in management, and a feeling that managers are making use of the best available science in a timely manner. This may lead to positive impacts on the attitudes of stakeholders towards management. Given that smooth skate have a maximum size of about 58-61 cm its range is confined to the Gulf of Maine (Map 2), allowing possession would have a minimal impact on the vessels that direct on skate, which fish primarily south of this region (Map 5). Alternative 2 could reduce skate discards in the Gulf of Maine primarily by the groundfish fishery. Vessels could realize the benefits of additional yield that may occur under Alternative 2.

6.7 CUMULATIVE EFFECTS ANALYSIS

6.7.1 Introduction

A cumulative effects analysis (CEA) is required by the Council on Environmental Quality (CEQ; 40 CFR part 1508.7) and NOAA policy and procedures for NEPA, found in NOAA Administrative Order 216-6A (Companion Manual, January 13, 2017). The purpose of the CEA is to consider the combined effects of many actions on the human environment over time that would be missed if each action were evaluated separately. The intent is to focus on those effects that are truly meaningful. The following remarks address the significance of the expected cumulative impacts as they relate to the federally managed skate fishery.

A cumulative effects assessment makes effect determinations based on a combination of: 1) impacts from past, present, and reasonably foreseeable future actions; 2) the baseline conditions of the VECs (the combined effects from past, present, and reasonably foreseeable future actions plus the present condition of the VEC); and 3) impacts of the alternatives under consideration for this action.

Consideration of the Valued Ecosystem Components (VECs)

The valued ecosystem components for the skate fishery are generally the “place” where the impacts of management actions occur and are identified in Section 5.0.

- *Target species (Northeast Skate Complex)*
- *Non-target species*
- *Protected species*
- *Physical environment and Essential Fish Habitat*
- *Human communities*

The CEA identifies and characterizes the impacts on the VECs by the alternatives under consideration when analyzed in the context of other past, present, and reasonably foreseeable future actions.

Geographic Boundaries

The analysis of impacts focuses on actions related to the commercial harvest of skates. The Western Atlantic Ocean is the core geographic scope for each of the VECs. The core geographic scope for the managed species is the management unit (Section 5.1). For non-target species, that range may be expanded and would depend on the range of each species in the western Atlantic Ocean. For habitat, the core geographic scope is focused on EFH within the EEZ but includes all habitat used by skates and non-target species in the Western Atlantic Ocean. The core geographic scope for protected species is their range in the Western Atlantic Ocean. For human communities, the core geographic boundaries are defined as those U.S. fishing communities in coastal states from Maine to North Carolina directly involved in the harvest or processing of skates (Section 5.5.3).

Temporal Boundaries

Overall, while the effects of the historical skate fishery are important and considered in the analysis, the temporal scope of past and present actions for skates, non-target species and other fisheries, the physical environment and EFH, and human communities is primarily focused on actions that occurred after FMP implementation (2003). An assessment using this timeframe demonstrates the changes to resources and the human environment that have resulted through management under the Council process and through U.S. prosecution of the fishery. For protected species, the scope of past and present actions is focused on the 1980s and 1990s (when NMFS began generating stock assessments for marine mammals and sea turtles that inhabit waters of the U.S. EEZ) through the present.

The temporal scope of future actions for all VECs extends about five years (2029) into the future beyond the implementation of this action. The dynamic nature of resource management for these species and lack of information on projects that may occur in the future make it difficult to predict impacts beyond this timeframe with any certainty. The impacts discussed in Section 6.7.3 are focused on the cumulative effects of the proposed action (i.e., the suite of preferred alternatives) in combination with the relevant past, present, and reasonably foreseeable future actions over these time scales.

6.7.2 Relevant Actions Other Than Those Proposed in this Document

This section summarizes the past, present, and reasonably foreseeable future actions and effects that are relevant for this cumulative effects assessment. Some past actions are still relevant to the present and/or future actions.

6.7.2.1 Fishery Management Actions

6.7.2.1.1 Northeast Skate Complex FMP Actions

Past, present, and reasonably foreseeable future actions for skate management include the establishment of the original FMP, all subsequent amendments and frameworks, and the setting of specifications (annual catch limits and measures to constrain catch and harvest). Key actions are described below.

Target species

The Northeast Skate Complex FMP was implemented in 2003. Amendment 3 implemented an ACL and AMs for the skate complex and was designed to reduce skate discards and landings sufficiently to rebuild stocks of thorny and smooth skates, and to prevent other skates from becoming overfished. The FMP has been amended several times, most recently in 2021 via the FY 2022-2023 Specifications action. The documents pertaining to previous management actions are available on the Skate FMP webpage. It is anticipated that skate specifications will be set in a future action for FY 2026-2027 based on a management track assessment in 2026.

Non-target species

There have been no skate actions that directly managed non-target species.

Physical habitat/EFH

The EFH Omnibus Amendment 2 (April 2018) reviewed and updated EFH designations, identified Habitat Areas of Particular Concern, and updated the status of current knowledge of gear impacts. It also implemented new management measures for minimizing the adverse impact of fishing on EFH that affect all species managed by the NEFMC. The fishing gears used to target skate are primarily gillnets and bottom trawls. Gillnet gear does not cause adverse effects to EFH. Bottom trawl gear used to target skates has adverse effects on seafloor habitats and EFH. Bottom trawls are associated with most of the landings on skate wing trips, and all skate landings on bait trips.

The Council is currently developing Skate Framework Adjustment 11, which is primarily a habitat and scallop action that would establish a scallop rotational harvest program within and/or around the Closed Area II Habitat Closure Area (i.e., "habitat management area" or "HMA") that avoids habitats important to juvenile cod, minimizes adverse effects to essential fish habitats, minimizes adverse biological and economic impacts to other managed fisheries, and contributes to optimum yield for the scallop fishery.

Human communities

All actions taken under the Northeast Skate Complex FMP have had effects on human communities. Updating catch limits based on the latest scientific information has positive impacts in the long-term from setting fishing limits to ensure the long-term sustainability of the resource. Many actions have included specific measures designed to improve flexibility and increase efficiency from measures such as revising effort controls.

6.7.2.1.2 Other Fishery Management Actions

In addition to the Northeast Skate Complex FMP, there are many other FMPs and associated fishery management actions for other species that impacted these VECs over the temporal scale described in Section 6.7.1. These include FMPs managed by the Mid-Atlantic Fishery Management Council, New England Fishery Management Council, Atlantic States Marine Fisheries Commission, and to a lesser extent the South Atlantic Fishery Management Council. Omnibus amendments are also frequently developed to amend multiple FMPs at once. Actions associated with other FMPs and omnibus amendments have included measures to regulate fishing effort for other species, measures to protect habitat and forage species, and fishery monitoring and reporting requirements. There are management plans in place for non-target species potentially impacted by this action. Those species managed by the NEFMC include monkfish, Northeast multispecies, Atlantic herring and scallop FMP. Spiny dogfish is jointly managed by the MAFMC and NEFMC. Scup, fluke and Loligo squid are managed by the MAFMC. The implementation of ACLs and AMs for these fisheries will help constrain total catch of these species, as well as bycatch of non-target species like skates.

Monkfish. Monkfish Framework Adjustment 12 implemented specifications for FY2023-2025, revised DAS allocations and gillnet mesh size.

Atlantic Sea Scallops. Scallop Framework Adjustment 36 set FY 2023 specifications and default measures for 2024, set landing limits for the LA and LAGC components in the NGOM area based on exploitable biomass, and standardized the approach to setting default measures for open-area DAS and LAGC IFQ allocations.

American Lobster. Since the skate bait fishery supplies a large proportion of bait to lobster trap fisheries, regulations affecting lobster fishing effort may influence demand for skate products. American Lobster is managed by the Atlantic States Marine Fisheries Commission. In May 2023, the ASMFC Lobster Management Board approved Addendum XXVII which established a trigger mechanism to implement management measures (gauge and escape vent sizes) to provide additional protections for the Gulf of Maine and Georges Bank spawning stock biomass. The Addendum also included changes to management measures for Lobster Conservation Management Areas 1, 3, and Outer Cape Cod to standardize measures across the stock.

Atlantic Herring. If the supply of herring bait for the lobster fishery declines, it could result in increased demand for skate bait. The impacts of the herring fishery on skate catch are negligible. The herring ACL has remained low in recent years, set at 12,429 mt in 2023, though specifications proposed increases in 2024 and 2025. Framework Adjustment 9 to the Herring FMP established a rebuilding plan for the stock with a rebuilding target time of 2026. Herring specifications for FY 2023-2025 were implemented in March 2023.

6.7.2.1.3 Protected Resources Actions

Protected resources impacted by the skate fishery include sea turtles, large whales, small cetaceans, pinnipeds, Atlantic sturgeon, Atlantic salmon, and giant manta rays. There are several Take Reduction Plans (TRPs) in place to reduce serious injury to, or mortality, of protected species, including the Atlantic Large Whale Take Reduction Plan (ALWTRP) for gillnet and pot/trap fisheries, the Bottlenose Dolphin Take Reduction Plan (BDTRP) for gillnet fisheries, and the Harbor Porpoise Take Reduction Plan (HPTRP) for gillnet fisheries.

Past and Present Actions: NMFS has implemented specific actions to reduce injury and mortality of protected species from gear interactions.

As provided in section 6.3.3, to address the high levels of incidental take of harbor porpoise and bottlenose dolphins in sink gillnet fisheries, pursuant to section MMPA Section 118(f)(1), the Harbor Porpoise Take Reduction Plan (HPTRP) and the Bottlenose Dolphin Take Reduction Plan (BDTRP) were developed and implemented for these species. Also, due to the incidental mortality and serious injury of small cetaceans, incidental to bottom and midwater trawl fisheries operating in both the Northeast and Mid- Atlantic regions, the Atlantic Trawl Gear Take Reduction Strategy was implemented. Refer to NMFS HPTRP, NMFS BDTRP, or NMFS Atlantic Trawl Gear Take Reduction Strategy for addition information on each take reduction plan or strategy. In addition, NMFS has also implemented regulations, pursuant to the Atlantic Large Whale Take Reduction Plan (ALWTRP), to reduce serious injury and mortality of large whale species in commercial fixed gear (i.e., trap/pot and gillnet) fisheries; see section 6.5.3 for additional information, as well as NMFS ALWTRP website33F. These voluntary or regulatory measures have had slight to moderate positive impacts on these protected species by reducing the number of interactions with fishing gear.

On May 27, 2021, the NMFS completed formal consultation pursuant to section 7 of the ESA of 1973, as amended, and issued a biological opinion (2021 Opinion) on the authorization of eight FMPs, two interstate fishery management plans (ISFMP), and the implementation of the New England Fishery Management Council's Omnibus Essential Fish Habitat (EFH) Amendment 2. On January 10, 2024, NMFS issued a 7(a)(2)/7(d) memorandum that reinitiated consultation on the 2021 Biological Opinion. Consultation is currently ongoing; additional information on the reinitiation is provided in section 7.4.

On September 26, 2022, NOAA Fisheries released a final Action Plan to reduce Atlantic sturgeon bycatch in Federal large mesh gillnet fisheries. Based on an extensive literature review, the Action Plan provides a suite of recommendations to NOAA Fisheries, the New England Fishery Management Council, and the Mid-Atlantic Fishery Management Councils that should be considered, refined, and implemented in order to reduce Atlantic sturgeon bycatch in subject fisheries by 2024. The Councils started developing a related action in 2023 to reduce Atlantic sturgeon bycatch in monkfish and spiny dogfish fisheries, with expected final action in April 2024.

Reasonably Foreseeable Future Actions: NMFS is working on amending the Atlantic Large Whale Take Reduction Plan (ALWTRP) to reduce the risk of mortalities and serious injuries of North Atlantic right, fin, and humpback whales in U.S. East Coast gillnet and Atlantic mixed species trap/pot fisheries. On

August 11, 2021, NMFS issued a Notice of Intent (NOI) to prepare an Environmental Impact Statement (EIS) in accordance with the National Environmental Policy Act (NEPA) to analyze the impacts to the environment of alternatives to amend the Plan (86 FR 43996). The NOI also informed the public of upcoming scoping meetings to solicit public input. A second NOI to prepare an EIS published on September 9, 2022, that added lobster and Jonah crab trap/pot fisheries to the list of fisheries being analyzed in future amendments (87 FR 55405). These efforts to modify the Plan are still ongoing. ALWTRP measures from this action would likely impact bluefish gillnet fisheries.

On July 19, 2023, NMFS issued a proposed rule to designate new areas of critical habitat and modify existing critical habitat for threatened and endangered distinct population segments (DPSs) of the green sea turtle, in areas under U.S. jurisdiction, pursuant to the ESA (88 FR 46572). The comment period on the proposed rule closed on October 17, 2023; rule making is currently ongoing.

These future measures would likely have some degree of positive impacts on these protected species by reducing the number of interactions with fishing gear, and therefore, reducing the risk of injury and mortality to these protected species and/or adversely affecting habitat.

6.7.2.1.4 Fishery Management Action Summary

The Council and NOAA Fisheries have taken many actions to manage skates and associated commercial and recreational fisheries. The MSA is the statutory basis for federal fisheries management. The cumulative impacts on the VECs of past, present, and reasonably foreseeable future federal fishery management actions under the MSA should generally be associated with positive long-term outcomes because they constrain fishing effort and manage stocks at sustainable levels. Constraining fishing effort through regulatory actions can have negative short-term social and economic impacts. These impacts are sometimes necessary to bring about long-term sustainability of a resource, and as such should promote positive effects on human communities in the long-term.

6.7.2.2 Non-Fishing Impacts

6.7.2.2.1 Other Human Activities

Non-fishing activities that occur in the marine nearshore and offshore environments and connected watersheds can cause the loss or degradation of habitat and/or affect the fish and protected species that use those areas. The impacts of most nearshore, human-induced, non-fishing activities tend to be localized in the areas where they occur, although effects on species could be felt throughout their populations since many marine organisms are highly mobile. For offshore projects, some impacts may be localized while others may have regional influence, especially for larger projects. The following discussion of impacts is based on past assessments of activities and assumes these activities will continue as projects are proposed.

Non-fishing activities include point source and non-point source pollution, shipping, dredging/deepening, wind energy development, oil and gas development, construction, and other activities. Specific examples include at-sea disposal areas, oil and mineral resource exploration, aquaculture, construction of offshore wind farms, and bulk transportation of petrochemicals. Episodic storm events and the restoration activities that follow can also cause impacts. The impacts from these activities primarily stem from habitat loss due to human interaction and alteration or natural disturbances. These activities are widespread and can have localized impacts on habitat related to accretion of sediments, pollutants, habitat conversion, and shifting currents and thermoclines. For protected species, primary concerns associated with non-fishing activities include vessel strikes, dredge interactions (especially for sea turtles and sturgeon), and underwater noise. These activities have both direct and indirect impacts on protected species. Wherever these activities co-occur, they are likely to work additively or synergistically to decrease habitat quality and as such may indirectly constrain the productivity of managed species, non-target species, and protected species. Decreased habitat suitability tends to reduce the tolerance of these VECs to the impacts of fishing effort. Non-fishing activities can cause target, non-target, and protected species to shift their distributions away from preferred areas and may also lead to decreased reproductive ability and success (from current changes, spawning disruptions, and behavior changes), disrupted or modified food web interactions, and increased disease. While localized impacts may be more severe, the overall impact on the affected species and their habitats on a population level is unknown, but likely to have impacts that mostly range from no impact to slight negative, depending on the species and activity.

Non-fishing activities permitted by other federal agencies (e.g., beach nourishment, offshore wind facilities) require examinations of potential impacts on the VECs. The MSA imposes an obligation on other federal agencies to consult with the Secretary of Commerce on actions that may adversely affect EFH (50 CFR 600.930). NMFS and the eight regional fishery management councils engage in this review process by making comments and recommendations on federal or state actions that may affect habitat for their managed species. Agencies need to respond to, but do not necessarily need to adopt these recommendations. Habitat conservation measures serve to potentially minimize the extent and magnitude of indirect negative impacts federally-permitted activities could have on resources under NMFS' jurisdiction. In addition to guidelines mandated by the MSA, NMFS evaluates non-fishing effects during the review processes required by Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act for certain activities that are regulated by Federal, state, and local authorities. Non-fishing activities must also meet ESA mandates, specifically Section 7(a)(2)[23], which ensures that agency actions do not jeopardize the continued existence of endangered species and their critical habitat.

In recent years, offshore wind energy and oil and gas exploration have become more relevant activities in the Greater Atlantic region. They are expected to impact all VECs, as described below.

Impacts of offshore wind energy development on Biological Resources (Target species, Non-target species, Protected Species) and the Physical Environment

Construction activities may have both direct and indirect impacts on marine resources, ranging from temporary changes in distribution to injury and mortality. Impacts could occur from changes to habitat in the areas of wind turbines and cable corridors and increased vessel traffic to and from these areas. Species that reside in affected wind farms year-round may experience different impacts than species that seasonally reside in or migrate through these areas. Species that typically reside in areas where wind turbines are installed may return to the area and adapt to habitat changes after construction is complete. Inter-array and electricity export cables will generate electromagnetic fields, which can affect patterns of movement, spawning, and recruitment success for various species. Effects will depend on cable type, transmission capacity, burial depth, and proximity to other cables. Substantial structural changes in habitats associated with cables are unlikely unless cables are left unburied (see below). However, the cable burial process may alter sediment composition along the corridor, thereby affecting infauna and emergent biota. Taormina et al. (2018) provide a recent review of various cable impacts, and Hutchinson et al. (2020) and Taormina et al. (2020) examine the effects of electromagnetic fields in particular.

The full build out of offshore wind farms will result in broad habitat alteration. The wind turbines will alter hydrodynamics of the area, which may affect primary productivity and physically change the distribution of prey and larvae. It is not clear how these changes will affect the reproductive success of marine resources. Scour and sedimentation could have negative effects on egg masses that attach to the bottom. Benthic habitat will be altered due to the placement of scour protection at wind turbine

[23] "Each Federal agency shall, in consultation with and with the assistance of the Secretary, ensure that any action authorized, funded, or carried out by such agency (hereinafter in this section referred to as an "agency action") is unlikely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of critical habitat."

foundations, and over cables that are not buried to target depth in the sediment, converting soft substrates into hard substrates. This could alter species composition and predator/prey relationships by increasing favorable habitat for some species and decreasing habitat for others. The placement of wind turbines will also establish new vertical structure in the water column, which could serve as reefs for bottom species, fish aggregating devices for pelagic species, and substrate for the colonization of other species, e.g., mussels. Various authors have studied these types of effects (e.g., Bergström et al. 2013; Dannheim et al. 2019; Degraer et al. 2019; Langhamer 2012; Methratta & Dardick 2019; Stenberg et al. 2015).

Elevated levels of sound produced during site assessment activities, construction, and operation of offshore wind facilities will impact the soundscape.[24] Temporary, acute, noise impacts from construction activity could impact reproductive behavior and migration patterns; the long-term impact of operational noise from turbines may also affect behavior of fish and prey species, through both vibrations in the immediate area surrounding them in the water column, and through the foundation into the substrate. Depending on the sound frequency and source level, noise impacts to species may be direct or indirect (Finneran 2015; Madsen et al. 2006; Nowacek et al. 2007; NRC 2000; 2003; 2005; Piniak 2012; Popper et al. 2014; Richardson et al. 1995; Thomsen et al. 2006). Exposure to underwater noise can directly affect species via behavioral modification (avoidance, startle, spawning) or injury (sound exposure resulting in internal damage to hearing structures or internal organs; Bailey et al. 2014; Bailey et al. 2010; Bergström et al. 2014; Ellison et al. 2011; Ellison et al. 2018; Forney et al. 2017; Madsen et al. 2006; Nowacek et al. 2007; NRC 2003; 2005; Richardson et al. 1995; Romano et al. 2004; Slabbekoorn et al. 2010; Thomsen et al. 2006; Wright et al. 2007). Indirect effects are likely to result from changes to the acoustic environment of the species, which may affect the completion of essential life functions (e.g., migrating, breeding, communicating, resting, foraging; Forney et al. 2017; Richardson et al. 1995; Slabbekoorn et al. 2010; Thomsen et al. 2006).[25]

Wind farm survey, construction activities, and turbine/cable placement will substantially affect NMFS scientific research surveys, including stock assessment surveys for fisheries and protected species[26] and ecological monitoring surveys. Disruption of such scientific surveys could increase scientific uncertainty in survey results and may substantially affect NMFS' ability to monitor the health, status, and behavior of marine resources and protected species and their habitat use within this region. Based on existing regional Fishery Management Councils' acceptable biological catch control rule processes and risk policies (e.g., 50 CFR §§ 648.20 and 21), increased assessment uncertainty could result in lower commercial quotas and recreational harvest limits that may reduce the likelihood of overharvesting and mitigate associated biological impacts on fish stocks. However, this would also result in lower associated fishing revenue and reduced recreational fishing opportunities, which could result in indirect negative impacts on fishing communities. It is possible that new survey technologies will be developed that mitigate these impacts, but it is uncertain whether they will be developed, and (or) how quickly they can be adopted. NOAA and BOEM published a survey mitigation strategy in December 2022.[27]

Impacts of Offshore Wind Energy Development on Social and Economic Resources

Several potential offshore wind energy sites have been leased or identified for future wind energy development in federal waters from Massachusetts to North Carolina (Map 7). One offshore wind pilot project off Virginia, Coastal Virginia Offshore Wind, installed two turbines in 2020**.** According to BOEM, about 22 gigawatts (close to 2,000 wind turbines based on current technology) of Atlantic offshore wind development via 17 projects are reasonably foreseeable along the east coast (BOEM 2020).

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[24] See NMFS Ocean Noise Strategy Roadmap: https://cetsound.noaa.gov/Assets/cetsound/documents/Roadmap/ONS_Roadmap_Final_Complete.pdf
[25] See NMFS Ocean Noise Strategy Roadmap
[26] Changes in required flight altitudes due to proposed turbine height would affect aerial survey design and protocols (BOEM 2020a).
[27] https://www.fisheries.noaa.gov/resource/document/federal-survey-mitigation-strategy-northeast-us-region

BOEM has recently begun a planning process for the Gulf of Maine via a regional intergovernmental renewable energy task force. It is unclear where development might occur in the Gulf of Maine. As of December 2023, BOEM has issued a draft Wind Energy Area for the Gulf of Maine, and the public comment period recently concluded. BOEM also identified three Secondary Areas for Further Analysis, which are not part of the draft WEA, and was seeking public comment on whether these areas (whole or portions) should be considered as final WEAs. A final WEA is expected in early 2024, and BOEM is targeting lease issuance towards the end of 2024. Given the water depth in the region, floating turbines will likely be the primary type of wind turbine foundations to be deployed. Lease areas in the New York Bight were auctioned in February 2022, and two lease areas were announced in the Central Atlantic in December 2023, one off of Delaware/Maryland and one off of Virginia, but these locations are generally beyond the geographic scope of skate species and the skate fishery. As the number of wind farms increases, so too would the level and scope of impacts to affected habitats, marine resources, and human communities.

Offshore wind energy development is underway in parts of the outer continental shelf that overlap with a small portion of the skate resource, specifically with the active lease areas off Rhode Island. As of December 2023, two projects, South Fork Wind (12 turbines) and Vineyard Wind 1 (62 turbines), have been permitted and are under construction. Multiple other projects are undergoing environmental review. Ocean Wind 1 (New Jersey), Empire Wind (New York), and Revolution Wind (Rhode Island), were permitted by BOEM during 2023, but construction has not yet begun. Permit issuance for Sunrise Wind (Rhode Island) is expected soon. Other projects are earlier in the site assessment and planning phases. Some East Coast offshore wind projects, including Commonwealth Wind, Revolution Wind 2, Empire Wind 1 and 2, Beacon Wind, and Sunrise Wind are seeking new power purchase agreements (PPAs) as of December 2023, which lends uncertainty to the construction timelines for these projects. The skate fishery has been active in the areas of the Massachusetts and Rhode Island lease areas (Map 7) and is expected to be for the near future. The social and economic impacts of offshore wind energy on fisheries could be generally negative due to the overlap of wind energy areas with productive skate fishing grounds. Impacts may vary by year based on species availability.

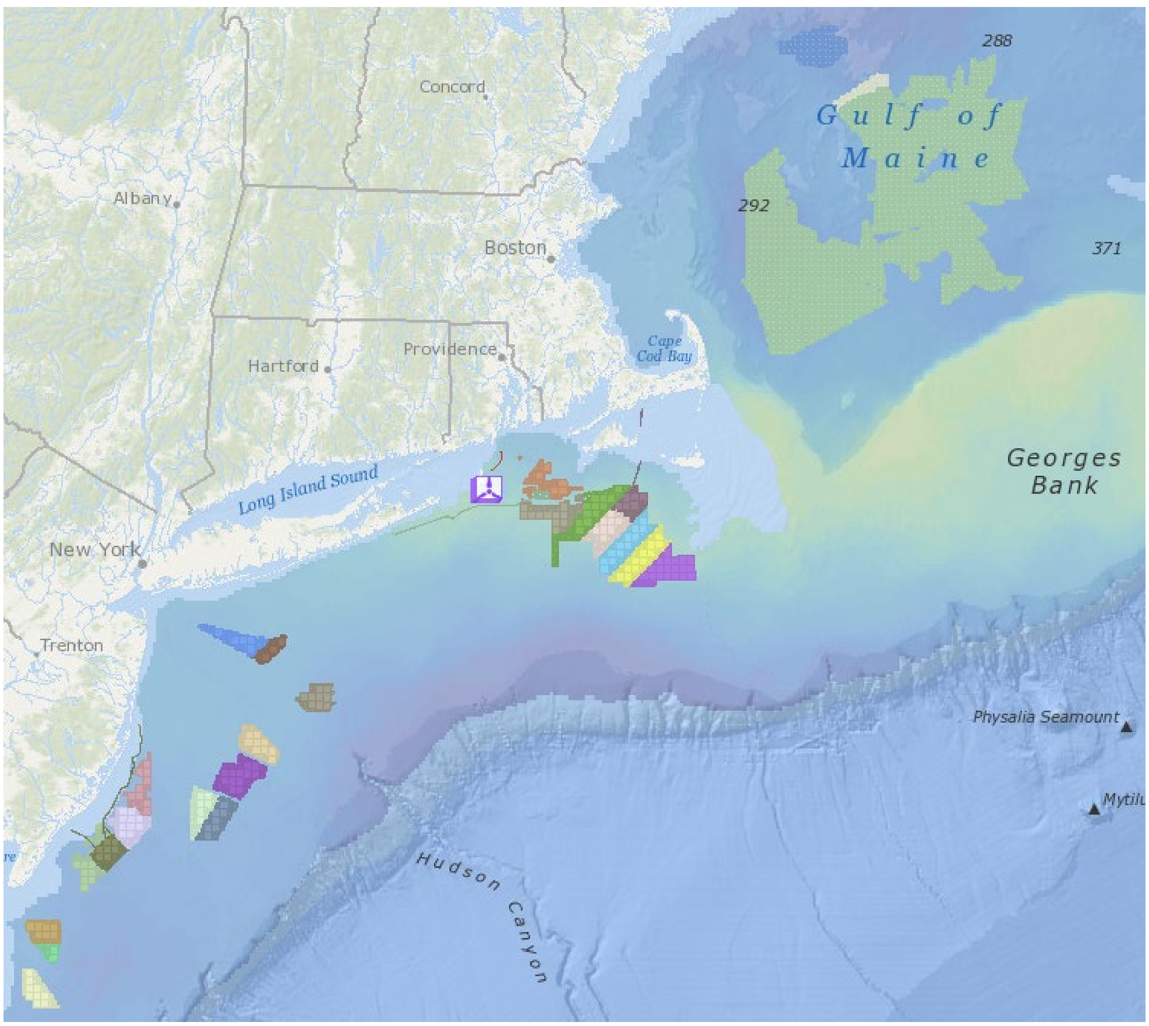
It is worth noting that this analysis represents only a rough approximation of potential effects from offshore wind development on skate fishing grounds; however, because this productive region of the resource would be expected to support skate fishing in the future in the absence of offshore wind energy development, any restriction of fishing access to this region due to offshore wind energy development would be perceived as a negative overall effect to the fishery. In some cases, effort could be displaced to another area, which could compensate for potential economic losses if vessel operators choose not to operate in the wind energy areas. There could also be social and economic benefits in the form of jobs associated with construction and maintenance, and replacement of some electricity generated using fossil fuels with renewable sources (AWEA 2020).

It is unclear how fishing or transiting to and from fishing grounds (if those grounds are within a wind farm) might be affected by the presence of a wind farm. While no offshore wind developers have indicated an intent to exclude fishing vessels from wind turbine arrays once construction is complete, it could be difficult for operators to tow bottom-tending mobile gear or transit amongst the wind turbines, depending on the spacing and orientation of the array and weather conditions. The U.S. Coast Guard has considered transit and safety issues related to the Massachusetts and Rhode Island lease areas in a recent port access route study and has recommended uniform 1 mile spacing in east-west and north-south directions between turbines to facilitate access for fishing, transit, and search and rescue operations. Studies in other regions could result in different spacing recommendations (USCG 2020). If vessel operators choose to avoid fishing or transiting within wind farms, effort displacement and additional steaming time could result in negative social and economic impacts to affected communities, including increased user conflicts, decreased catch and associated revenue, safety concerns, and increased fuel costs. If vessels fish within wind farms, effects could be negative due to reduced commercial fishery catch and associated revenue, user conflicts, gear damage/loss, and increased risk of allision or collision.

Offshore Energy Summary

The overall impact of offshore wind energy and oil and gas exploration on the affected species and their habitats at a population level is unknown, but likely to range from no impact to moderate negative, depending on the number and locations of projects that occur. The individual project phases (site assessment, construction, operation, and decommissioning) as well as different aspects of the technology (foundations, cables/pipelines, turbines) will have varying impacts on resources. Mitigation efforts, such as habitat conservation measures, time of year construction restrictions, layout modifications, and fishery compensation funds could lessen the magnitude of negative impacts as well. The overall impact on social and economic resources is likely slight positive to moderate negative; potentially positive due to a potential increase in jobs and recreational fishing opportunities, but negative due to displacement and disruption of commercial fishing effort.

Map 7. Skate biomass in NEFSC trawl surveys relative to wind energy call areas and active lease areas



Note: Colored polygons are active renewable energy lease areas, Gulf of Maine Draft Wind Energy Area (October 2023), and Block Island turbine locations. Heat map is skate biomass in federal survey, 2010-2019.

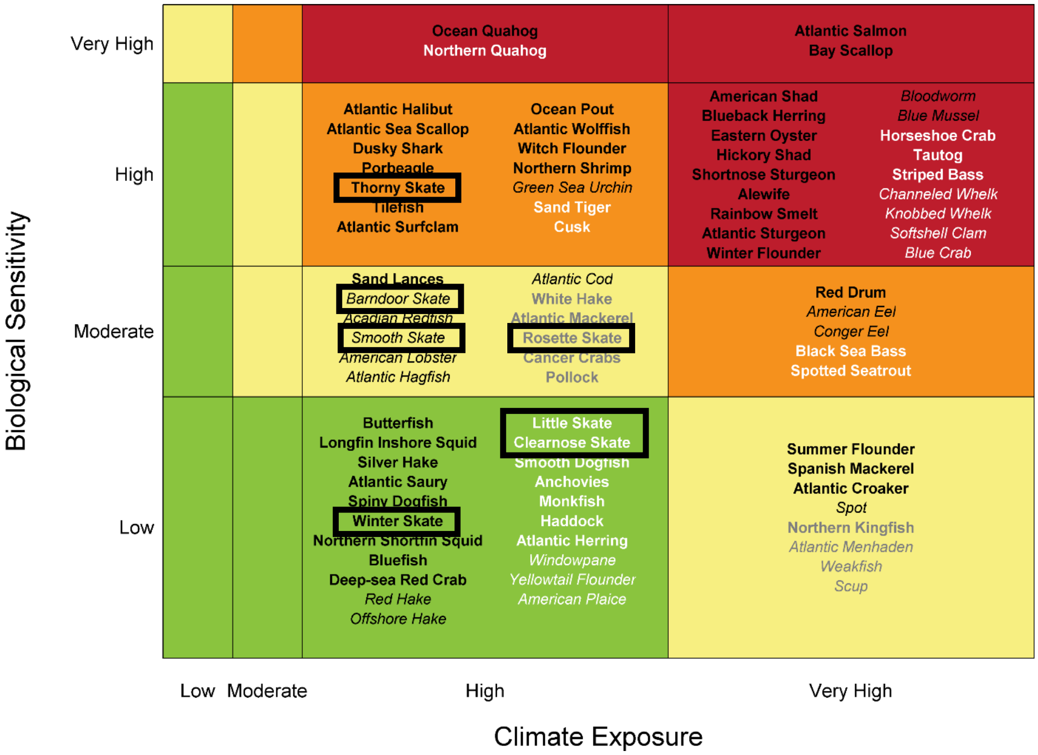
Source: Map generated from Northeast Ocean Data Portal on December 4, 2023.

6.7.2.2.2 Global Climate Change

Global climate change affects all components of marine ecosystems, including human communities. Physical changes that are occurring and will continue to occur to these systems include sea-level rise, changes in sediment deposition; changes in ocean circulation; increased frequency, intensity and duration of extreme climate events; changing ocean chemistry; and warming ocean temperatures. The rates of physical and chemical changes in marine ecosystems have been most rapid in recent decades (Johnson et al. 2019). Emerging evidence demonstrates that these physical changes are resulting in direct and indirect ecological responses within marine ecosystems, which may alter the fundamental production characteristics of marine systems (Stenseth et al. 2002). The general trend of changes can be explained by warming causing increased ocean stratification, which reduces primary production, lowering energy supply for higher trophic levels and changing metabolic rates. Different responses to warming can lead to altered food-web structures and ecosystem-level changes. Shifts in spatial distribution are generally to higher latitudes (i.e., poleward) and to deeper waters as species seek cooler waters within their normal temperature preferences. Climate change will also potentially exacerbate the stresses imposed by fishing and other non-fishing human activities and stressors. Survival of marine resources under a changing climate depends on their ability to adapt to change, but also how and to what degree those other human activities influence their natural adaptive capacity.

Results from the Northeast Fisheries Climate Vulnerability Assessment indicate that climate change could have impacts on Council-managed species that range from negative to positive (Figure 11), depending on the adaptability of each species to the changing environment (Hare et al. 2016). Based on this assessment, the seven skate species scored as having low to high biological sensitivity to climate change, with winter, little and clearnose skate having low sensitivity and thorny skate having high sensitivity. While the effects of climate change may benefit some habitats and the populations of species through increased availability of food and nutrients, reduced energetic costs, or decreased competition and predation, a shift in environmental conditions outside the normal range can result in negative impacts for those habitats and species unable to adapt. This, in turn, may lead to higher mortality, reduced growth, smaller size, and reduced reproduction or populations. Thus, already stressed populations are expected to be less resilient and more vulnerable to climate impacts. Climate change is expected to have impacts that range from positive to negative depending on the species. However, future mitigation and adaptation strategies to climate change may mitigate some of these impacts. The science of predicting, evaluating, monitoring, and categorizing these changes continues to evolve. The social and economic impacts of climate change will depend on stakeholder and community dependence on fisheries, and their capacity to adapt to change. Commercial and recreational fisheries may adapt in different ways, and methods of adaptation will differ among regions. In addition to added scientific uncertainty, climate change will introduce implementation uncertainty and other challenges to effective conservation and management.

Figure 11. Overall climate vulnerability score for Greater Atlantic species, with skate species highlighted with black boxes.



Note: Overall climate vulnerability is denoted by color: low (green), moderate (yellow), high (orange), and very high (red). Certainty in score is denoted by text font and text color: very high certainty (>95%, black, bold font), high certainty (90–95%, black, italic font), moderate certainty (66–90%, white or gray, bold font), low certainty (<66%, white or gray, italic font).
Source: Hare et al. (2016).

Regarding climate change, the incremental effects of this proposed action would be negligible to slight positive as fishery effort is expected to be similar if not reduced relative to status quo.

6.7.3 Magnitude and Significance of Cumulative Effects

In determining the magnitude and significance of the cumulative impacts of the proposed action, the incremental impacts of the direct and indirect impacts should be considered, on a VEC-by-VEC basis, in addition to the effects of all actions (those identified and discussed relative to the past, present, and reasonably foreseeable future actions of both fishing and non-fishing actions). Table 1 summarizes the likely impacts of management alternatives contained in this action. The CEA baseline, as described in Sections 6.7.1 and 6.7.2 represents the sum of past, present, and reasonably foreseeable future actions and conditions of each VEC. When an alternative has a positive impact on the VEC, for example, reduced fishing mortality on a managed species, it has a positive cumulative effect on the stock size of the species when combined with "other" actions that were also designed to increase stock size. In contrast, when an alternative has negative effects on a VEC, such as increased mortality, the cumulative effect on the VEC would be negative and tend to reduce the positive effects of the other actions. The resultant positive and negative cumulative effects are described below for each VEC. As in Section 6.7.2.2, non-fishing impacts on the VECs generally range from no impact to slight negative.

6.7.3.1 Magnitude and Significance of Cumulative Effects on Target Species

Past fishery management actions taken through the Northeast Skate Complex FMP have ensured that stocks are managed sustainably and that measures are consistent with the objectives of the FMP under the guidance of the MSA. The impacts of specifications are largely dependent on how effective those measures are in meeting the objectives of preventing overfishing and achieving optimum yield, and on the extent to which mitigating measures (e.g., accountability measures) are effective; however, these actions have generally had a positive cumulative effect on skates. It is anticipated that the future management actions will have additional indirect positive effects on the target species through actions which reduce and monitor bycatch, protect habitat, and protect the ecosystem services on which the productivity of the skate species depends.

As noted in Section 6.2, the proposed action is unlikely to result in substantially increased levels of fishing effort or changes to the character of that effort relative to current conditions. Therefore, impacts of the fisheries on target species are unlikely to change relative to current conditions under the proposed action (i.e., generally positive for target species). The proposed action described in this document would positively reinforce the past and anticipated positive cumulative effects on target species by achieving the objectives specified in the FMP.

When the direct and indirect effects of the Framework Adjustment 12 alternatives are considered in combination with all other actions (i.e., past, present, and reasonably foreseeable future actions), *the cumulative effects on target species are expected to yield non-significant slight positive impacts.*

6.7.3.2 Magnitude and Significance of Cumulative Effects on Non-target Species

The combined impacts of past federal fishery management actions on non-target species have been mixed, as decreased effort and reduced catch of non-target species continue, though some stocks are in poor status (Section 5.2). Current regulations continue to manage for sustainable stocks, thus controlling effort on direct and discard/bycatch species. As noted in Section 6.3, the proposed action would likely continue this trend. Future actions are anticipated to continue rebuilding non-target species stocks and limit the take of incidental/bycatch in the monkfish fishery. Continued management of directed stocks will also control catch of non-target species.

As noted in Section 6.3, the proposed action is unlikely to result in substantially increased levels of fishing effort or changes to the character of that effort relative to current conditions. Therefore, impacts of the fishery on non-target species are unlikely to change relative to the current condition under the proposed action (i.e., slight negative to slight positive for non-target species). The proposed action would positively reinforce past and anticipated cumulative effects on non-target species by achieving the objectives in the FMP.

When the direct and indirect effects of Framework Adjustment 12 alternatives are considered in combination with all other actions (i.e., past, present, and reasonably foreseeable future actions), *the cumulative effects on non-target species are expected to yield non-significant impacts, ranging from slight negative to slight positive.*

6.7.3.3 Magnitude and Significance of Cumulative Effects on Protected Species

Given their life history dynamics, large changes in protected species abundance over long time periods, and the multiple and wide-ranging fisheries management actions that have occurred, the cumulative impacts on protected species were evaluated over a long-time frame (i.e., from the early 1970s when the MMPA and ESA were implemented through the present).

Numerous protected species (ESA listed and/or MMPA protected) occur in the Northwest Atlantic. The distribution and status of those species in the region are described in Section 5.3. Depending on species and status, the population trends for these protected resources are variable.

Taking into consideration the above information, past fishery management actions taken through the respective FMPs and annual specifications process have had slight indirect positive cumulative effects on protected species. The actions have constrained fishing effort both at a large scale and locally, and have implemented, pursuant to the ESA, MMPA, or MSA, gear modifications, requirements, and management areas. These measures and/or actions have served to reduce interactions between protected species and fishing gear. It is anticipated that future management actions, described in Section 6.7.2.1 will result in additional indirect positive effects on protected species. These impacts could be broad in scope.

The proposed action would not substantially modify current levels of fishing effort in terms of the overall amount of effort, seasonal timing, and location. They would allow existing fishing effort to continue. As described in Section 6.4, the proposed action is expected to have impacts on protected species that range from slight negative to moderate positive, depending on the species.

When the direct and indirect effects of the Framework 12 alternatives are considered in combination with all other actions (i.e., past, present, and reasonably foreseeable future actions), *the cumulative effects on protected species are expected to yield non-significant impacts, ranging from slight negative to slight positive impacts.*

6.7.3.4 Magnitude and Significance of Cumulative Effects on Physical Environment

Past fishery management actions taken through the Northeast Skate Complex FMP have had positive cumulative effects on habitat. The actions have constrained fishing effort both at a large scale and locally and have implemented gear requirements which may reduce impacts on habitat. As required under the FMP actions, EFH and Habitat Areas of Particular Concern were designated for the managed resources. It is anticipated that the future management actions described in Section 6.7.2.1 will result in additional direct or indirect positive effects on habitat through actions which protect EFH and protect ecosystem services on which these species' productivity depends.

Many additional non-fishing activities, as described in Section 6.7.2.2, are concentrated near-shore and likely work either additively or synergistically to decrease habitat quality. The effects of these actions, combined with impacts resulting from years of commercial fishing activity, have negatively affected habitat. These impacts could be broad in scope. All the VECs are interrelated; therefore, the linkages among habitat quality, managed resources and non-target species productivity, and associated fishery yields should be considered. Some actions, such as coastal population growth and climate change may indirectly impact habitat and ecosystem productivity; however, these actions are beyond the scope of NMFS and Council management. Reductions in overall fishing effort and protection of sensitive habitats have mitigated some negative effects.

As noted in Section 6.5, the proposed action is unlikely to result in substantially increased levels of fishing effort or changes to the character of that effort relative to current conditions. Although the impacted areas have been fished for many years with many different gear types and therefore will unlikely be further impacted by these measures, continued fishing effort will continue to impact habitats. Therefore, the impacts of the fishery on the physical environment are unlikely to change relative to the current condition under the preferred alternatives (i.e., slight negative for physical environment).

When the direct and indirect effects of the Skate Framework Adjustment 12 alternatives are considered in combination with all other actions (i.e., past, present, and reasonably foreseeable future actions), *the* *cumulative effects on the physical environment and EFH are expected to yield non-significant, slight negative impacts.*

6.7.3.5 Magnitude and Significance of Cumulative Effects on Human Communities

Past fishery management actions taken through the Northeast Skate Complex FMP have had both positive and negative cumulative effects on human communities. They have benefitted domestic fisheries through sustainable fishery management but can also reduce participation in fisheries. The impacts from specification of management measures are largely dependent on how effective those measures are in meeting their intended objectives and the extent to which mitigating measures (e.g., accountability measures) are effective. Quota overages may alter the timing of commercial fishery revenues such that revenues can be realized a year earlier. Fishermen may be impacted by reduced revenues in years which the overages are deducted.

It is anticipated that the future management actions described in Section 6.7.2.1 will result in positive effects for human communities due to sustainable management practices, although additional indirect negative effects on some human communities could occur if management actions result in reduced revenues. Overall, the past, present, and reasonably foreseeable future actions that are truly meaningful to human communities have had overall positive cumulative effects. Despite the potential for negative short-term effects on human communities due to reduced revenue, positive long-term effects are expected due to the long-term sustainability of the managed stocks.

By providing revenues and contributing to the overall functioning of and employment in coastal communities, the skate fishery has both direct and indirect positive social impacts. As described in Section 6.6, the proposed action is unlikely to result in substantial changes to levels of fishing effort or the character of that effort relative to current conditions. Through implementation of this action, the Councils seek to achieve the primary objective of the MSA, which is to achieve OY from the managed fisheries.

When the direct and indirect effects of the Framework Adjustment 12 alternatives are considered in combination with all other actions (i.e., past, present, and reasonably foreseeable future actions), *the cumulative effects on human communities are expected to yield non-significant slight negative to slight positive impacts.*

6.7.4 Proposed Action on all the VECs

The Council's proposed action is described in Section 4.0. The direct and indirect impacts of the proposed action on the VECs are described in Sections 6.2 to 6.6 and are summarized in the Executive Summary (Section 1.0). The magnitude and significance of the cumulative effects, including additive and synergistic effects of the proposed actions, as well as past, present, and future actions, have been considered.

When considered in conjunction with all other pressures placed on the fisheries by past, present, and reasonably foreseeable future actions, the proposed action (i.e., FY 2024-2025 specifications and possession limits) is not expected to result in any significant impacts, positive or negative.

The proposed action is consistent with other management measures that have been implemented in the past for the skate fishery and are part of a broader management scheme for this fishery. This management scheme has helped to rebuild stocks and ensure long-term sustainability, while minimizing environmental impacts.

The regulatory atmosphere within which federal fishery management operates requires that management actions be taken in a manner that will optimize the conditions of managed species, habitat, and human communities. Consistent with NEPA, the MSA requires that management actions be taken only after consideration of impacts to the biological, physical, economic, and social dimensions of the human environment. Given this regulatory environment, and because fishery management actions must strive to create and maintain sustainable resources, impacts on all VECs from past, present and reasonably foreseeable future actions have generally been positive and are expected to continue in that manner for the foreseeable future. This is not to say that some aspects of the VECs are not experiencing negative impacts, but rather that when considered as a whole, and due to the management measures implemented in these fisheries, the overall long-term trend is slight positive.

There are no significant cumulative effects associated with the preferred alternatives based on the information and analyses presented in this document and in past FMP documents. Cumulatively, through 2029, it is anticipated that the proposed action will result in non-significant impacts on all VECs, ranging from slight negative to moderate positive.

7.0 APPLICABLE LAWS/EXECUTIVE ORDERS

7.1 MAGNUSON-STEVENS FISHERY CONSERVATION AND MANAGEMENT ACT

7.1.1 National Standards

Section 301 of the Magnuson-Stevens Fishery Conservation and Management Act (MSA) requires that regulations implementing any fishery management plan or amendment be consistent with ten national standards. Below is a summary of how this action is consistent with the National Standards and other required provisions of the Magnuson-Stevens Act.

National Standard 1. The proposed action is consistent with National Standard 1, because it will likely prevent overfishing, while achieving optimum yield for managed species and the U.S. fishing industry on a continuing basis. The measures implemented through this action should further achieve the goals/objectives and reduce the possibility of overfishing the skate resource. As of the 2023 management track assessment, the skate resource is not overfished, except for thorny skate. Overfishing is occurring on winter and little skate (Section 5.2).

National Standard 2. The proposed action is consistent with National Standard 2, because it was informed by the most recently available fisheries-independent data from several surveys, commercial fishery landings data, stock assessments, and other scientific data sources. The 2024-2025 skate specifications are supported by the latest available scientific information, and recommendations for skate catch during 2024-2025 are based on advice from the Council's SSC. The supporting science and analyses, upon which the proposed action is based, are summarized and described in Sections 5.0 and 6.0 of this document.

National Standard 3. The proposed action is consistent with National Standard 3, because the Northeast skate complex is managed throughout their range. While most skates are landed in Massachusetts and Rhode Island, landings have been reported from Maine through New Jersey. While the Skate FMP manages the coastal skate species as a single unit, it also considers impacts of fishing mortality on individual species.

National Standard 4. The proposed action is consistent with National Standard 4, because the measures apply equally to permit holders of the same category regardless of homeport or residence and therefore do not discriminate among residents of different states. The proposed 2024-2025 skate fishery specifications allocate the complex-wide skate TAL to Wing and Bait sub-TALs, intended to maximize opportunities for the fishery while minimizing the potential for overfishing. While the proposed action does not discriminate among residents of different states and permit holders, it does have different impacts on different participants.

National Standard 5. The proposed action is consistent with National Standard 5, because it promotes efficiency in the use of fishery resources through appropriate measures intended to provide access to the skate fishery for both current and historical participants while minimizing the race to fish. The management measures do not have economic allocation as their sole purpose.

National Standard 6. The proposed action is consistent with National Standard 6, because it accounts for variations in the fishery. Measures in the FMP, such as the Wing and Bait sub-TALs and various seasonal possession limits are based on the differences among various fisheries that catch skates either as a target or incidental catch species. These considerations are not changed under the proposed action. The primary effort control in the skate fishery is possession limits, allow each vessel operator some flexibility to fish when and how it best suits his or her business. The proposed action further enhances operational flexibility based on the purpose and need for this action.

National Standard 7. The proposed action is consistent with National Standard 7, because the Council considered the costs and benefits associated with the proposed 2024-2025 skate fishery specifications and possession limits. Any costs incurred because of the management action proposed in this document are necessary to achieve the goals and objectives of the Skate FMP and are expected to be outweighed by the benefits of taking the management action. Consistent with National Standard 7, the management measures proposed in this document are not duplicative and were developed in close coordination with NMFS and other interested entities and agencies.

National Standard 8. The proposed action is consistent with National Standard 8, because the importance of fishery resources to fishing communities is considered, and it provides for their sustained participation while minimizing adverse economic impacts. A description of the fishing communities participating in and depending on the skate fishery is in Section 5.5.3. Relative to the No Action alternative, the measures proposed are expected to have minimal impacts on communities engaged in and dependent on the skate fishery while preventing overfishing. In the long-term, communities that depend on the skate resource are expected to benefit by this action by managing the skate resource in a manner to ensure long-term sustainable catch.

National Standard 9. The proposed action is consistent with National Standard 9, because it is not expected to substantially change bycatch levels of non-target species. Section 5.2 has comprehensive information related to non-target catch in the skate fishery. The primary non-target species in this fishery are monkfish, Northeast multispecies, spiny dogfish, and scallops. The overall impact on non-target species will be negligible, and a change in discarding of certain species is not expected.

National Standard 10. The proposed action is consistent with National Standard 10, because none of the measures are expected to create unsafe conditions and situations at sea.

7.1.2 Other MSA Requirements

This action is also consistent with the fourteen additional required provisions for FMPs. Section 303 (a) of MSA contains required provisions for FMPs.

1. *Contain the conservation and management measures, applicable to foreign fishing …*

   Foreign fishing is not allowed under the Skate FMP, or this action and so specific measures are not included that specify and control allowable foreign catch. The proposed action is designed to prevent overfishing and rebuild overfished stocks by vessels of the U.S. consistent with the National Standards by implementing ACLs and ACTs for skates. There are no international agreements that are germane to the management of skates.
2. *Contain a description of the fishery …*

   All the information required by this provision can be found in the Final EIS for the FMP (NEFMC 2003) and Section 5.0 of this action.
3. *Assess and specify the present and probable future condition of, and the maximum sustainable yield and optimum yield from the fishery …*

   The present and probable future condition of the skate resource was updated through the most recent stock assessment: the 2023 skate management track assessment. Information related to the skate stock assessment and updated biological reference points are summarized in Section 5.1 of this document.
4. *Assess and specify-- (A) the capacity and the extent to which fishing vessels of the United States, on an annual basis, will harvest the optimum yield specified under paragraph (3); etc.*

This MSA provision relates directly to the skate fishery specification process and is addressed when the Council develops the specifications for the skate fishery. In previous FYs, the domestic fishery has caught skate in amounts equivalent to or less than the TALs and ACTs specified in each year that would be continued under this action. Thus, there is no amount of OY available for foreign fishing. Furthermore, sufficient domestic processing capacity exists to use all skate harvested by United States vessels.

5. *Specify the pertinent data which shall be submitted to the Secretary with respect to commercial, recreational, and charter fishing in the fishery …*

   Data regarding the type and quantity of fishing gear used, catch by species, areas fished, season, sea sampling hauls, and domestic harvesting/processing capacity are updated in the Affected Environment (Section 5.5) of this document.

6. *Consider and provide for temporary adjustments, after consultation with the Coast Guard and persons utilizing the fishery, regarding access to the fishery for vessels otherwise prevented from harvesting because of weather or other ocean conditions …*

   The proposed action does not alter any adjustments made in the Skate FMP that address opportunities for vessels that would otherwise be prevented from harvesting because of weather or other ocean conditions affecting safety aboard fishing vessels. Therefore, consultation with the U.S. Coast Guard was not required relative to this issue. The safety of fishing vessels and life at-sea is a high priority issue for the Council and was considered throughout the development of the management measures proposed in this action.

7. *Describe and identify essential fish habitat for the fishery …*

   Section 5.4 contains the description of skate essential fish habitat and Section 6.5 contains the analysis of impacts of the preferred alternatives and other alternatives on EFH. Nothing in this action changes those descriptions and evaluations.

8. *In the case of a fishery management plan that, after January 1, 1991, is submitted to the Secretary for review under section 304(a) assess and specify the nature and extent of scientific data which is needed for effective implementation of the plan;*

   A discussion of research needs in the fishery is: 1) included in stock assessments conducted by the NEFSC, 2) characterized by the Council's SSC, and 3) described in the Council's list of Research Priorities and Data Needs.

9. *Include a fishery impact statement for the plan or amendment*

   Any additional impacts from measures proposed in this action are evaluated in Section 6.0 of this document.

10. *Specify objective and measurable criteria for identifying when the fishery to which the plan applies is overfished …*

    The status determination criteria for skate were established in the Skate FMP and Amendment 3 and have been periodically updated. The outcomes of the latest assessment have been considered in this action, which indicated that thorny skate is overfished (Section 5.1.2).

11. *Establish a standardized reporting methodology to assess the amount and type of bycatch occurring in the fishery …*

    In 2015, NMFS approved a Standardized Bycatch Reporting Methodology (SBRM) amendment submitted by the Councils. NMFS led the development of an omnibus amendment to establish provisions for industry-funded monitoring across all New England and Mid-Atlantic Council-managed FMPs (Amendment 4 to the Skate FMP). The amendment's final measures were published in April 2018 and are effective.

12. *Assess the type and amount of fish caught and released alive during recreational fishing under catch and release fishery management programs and the mortality of such fish …*

    The Skate FMP does not include a catch and release recreational fishery management program. There is very little recreational catch of skates (Table 17), and the catch is mostly discarded (Section 5.5.1.7).

13. *Include a description of the commercial, recreational, and charter fishing sectors which participate in the fishery …*

    Commercial fishery sectors are described in the Affected Environment section of the EIS for the Original FMP, as well as in subsequent NEPA documents (plan amendments and framework adjustments) and is updated in Section 5.5 of this document. A brief description of the minor recreational catch of skates is included.

14. *To the extent that rebuilding plans or other conservation and management measures which reduce the overall harvest in a fishery are necessary, allocate any harvest restrictions or recovery benefits fairly and equitably among the commercial, recreational, and charter fishing sectors in the fishery.*

    The proposed action would not change the allocation of catch between the commercial, recreational and charter fisheries. As noted under the discussion of NS 4, while conservation measures may have a differential impact on different sectors of the industry, that differential impact is not the purpose of the regulations and is done in a manner that is intended to achieve the conservation and management goals of the FMP. A purpose of this action was to adjust skate possession limits to achieve, but not exceed the TAL and ACT.

15. *Establish a mechanism for specifying annual catch limits in the plan (including a multiyear plan), implementing regulations, or annual specifications, at a level such that overfishing does not occur in the fishery, including measures to ensure accountability.*

    The Skate FMP includes a multi-year specifications process for the skate fishery that complies with the ACL/AM provisions of the MSA. Future Council actions for this FMP will continue to address the mechanism for specifying ACLs and the need to ensure accountability in the fishery. The Proposed Action would not change the mechanism for establishing ACLs.

7.2 National Environmental Policy Act

The National Environmental Policy Act (NEPA) provides a mechanism for identifying and evaluating the full spectrum of environmental issues associated with federal actions and for considering a reasonable range of alternatives to avoid or minimize adverse environmental impacts. The Council on Environmental Quality has issued regulations specifying the requirements for NEPA documents (40 CFR 1500 – 1508), as has NOAA in its policy and procedures for NEPA (NAO 216-6A). This EA applies CEQ’s NEPA regulations currently in effect. See 50 C.F.R. § 1506.13.

7.2.1 Environmental Assessment

The required elements of an Environmental Assessment (EA) are specified in 40 CFR 1508.9(b). They are included in this document as follows:

- The need for this action is in Section 3.2;
- The alternatives that were considered are in Section 4.0;
- The environmental impacts of the proposed action are in Section 6.0;
- The agencies and persons consulted on this action are in Sections 7.2.3.

While not required for the preparation of an EA, this document includes the following additional sections that are based on requirements for an Environmental Impact Statement (EIS).

- An executive summary is in Section 1.0;
- A table of contents is in Section 2.0;
- Background and purpose are in Section 3.0;
- A brief description of the affected environment is in Section 5.0;
- Cumulative impacts of the proposed action are in Section 6.7;
- A list of preparers is in Section 7.2.4.

7.2.2 Point of Contact

Questions concerning this document may be addressed to:

Dr. Cate O'Keefe, Executive Director
New England Fishery Management Council
50 Water Street, Mill 2
Newburyport, MA 01950 (978) 465-0492

7.2.3 Agencies Consulted

The following agencies, in alphabetical order, were consulted in preparing this document:

- Mid-Atlantic Fishery Management Council
- New England Fishery Management Council, including representatives from:
  - Connecticut Department of Environmental Protection
  - Maine Department of Marine Resources
  - Massachusetts Division of Marine Fisheries
  - New Hampshire Fish and Game
  - Rhode Island Department of Environmental Management
- National Marine Fisheries Service, NOAA, Department of Commerce
- United States Coast Guard, Department of Homeland Security
- United States Fish and Wildlife Service, Department of Interior

7.2.4 List of Preparers

The following personnel participated in preparing this document:

- ***New England Fishery Management Council***. Dr. Rachel Feeney (Skate Plan Coordinator), Michelle Bachman, Emily Bodell, Connor Buckley, Woneta Cloutier, Chris Kellogg, Dr. Cate O'Keefe
- ***National Marine Fisheries Service.*** Cynthia Ferrio, Shannah Jaburek, Ashleigh McCord, Danielle Palmer, Katherine Sosebee, Samantha Werner, Kris Winiarski
- ***State agencies.*** Eric Schneider (RIDEM)

7.2.5 Opportunity for Public Comment

This action was developed in 2023, and there were 19 public meetings related to this action (Table 46). Opportunities for public comment occurred at Advisory Panel, Committee, and Council meetings. There were more limited opportunities to comment at PDT meetings. Meeting discussion documents and summaries are available at www.nefmc.org.

Table 46. Public meetings related to Framework 12

Date	Meeting Type	Location
2/17/2023	PDT	Wakefield, MA
3/22/2023	AP and Committee	Warwick, RI and webinar
4/11/2023	PDT	Webinar
4/18-20/2023	Council	Mystic, CT and webinar
5/18/2023	PDT	Webinar
6/12/2023	AP	Webinar
6/14/2023	Committee	Webinar
6/27-29/2023	Council	Freeport, ME and webinar
7/10/2023	PDT	Webinar
8/14/2023	PDT	Webinar
8/29/2023	AP	Webinar
8/30/2023	Committee	Webinar
9/25/2023	PDT	Webinar
9/25-28/2023	Council	Plymouth, MA and webinar
10/2/2023	PDT	Webinar
10/11/2023	SSC	Portland, ME and webinar
10/23/2023	PDT	Webinar
11/15/2023	AP and Committee	Warwick, RI and webinar
12/5-7/2023	Council	Newport, RI and webinar

7.3 Marine Mammal Protection Act (MMPA)

The various species of marine mammals occurring in the management unit of this FMP that are afforded protection under the Marine Mammal Protection Act of 1972 (MMPA) are described in Section 5.3. Section 6.4 contains an assessment of the impacts of the proposed action on marine mammal species identified in Section 5.3. As provided in Section 6.4, various MMPA protected species have the potential to interact with the gear types used in the FMP. None of the proposed measures are expected to significantly alter fishing methods or activities or substantially change effort relative to current operating conditions in the fishery. The New England Fishery Management Council has reviewed the impacts of the proposed 2024-2025 skate fishery specifications on marine mammals and has concluded that the management actions proposed are consistent with the provisions of the MMPA and would not alter existing measures (e.g., take reduction plans) to protect the species likely to occur in management unit of this FMP. A final determination of consistency with the MMPA will be made by the agency when this action is approved.

7.4 Endangered Species Act (ESA)

Section 7 of the ESA requires federal agencies conducting, authorizing, or funding activities that affect threatened or endangered species to ensure that those effects do not jeopardize the continued existence of listed species and do not adversely affect designated critical habitat of listed species.

On May 27, 2021, the National Marine Fisheries Service's (NMFS) completed formal consultation pursuant to section 7 of the ESA of 1973, as amended, and issued a biological opinion (2021 Opinion) on the authorization of eight FMPs, two interstate fishery management plans (ISFMP), and the implementation of the New England Fishery Management Council's Omnibus Essential Fish Habitat (EFH) Amendment 2.[28] The 2021 Opinion considered the effects of the authorization of these FMPs, ISFMPs, and the implementation of the Omnibus EFH Amendment on ESA-listed species and designated critical habitat, and determined that those actions were unlikely to jeopardize the continued existence of any ESA-listed species or destroy or adversely modify designated critical habitats of such species under NMFS jurisdiction. An Incidental Take Statement (ITS) was issued in the Opinion. The ITS includes reasonable and prudent measures and their implementing terms and conditions, which NMFS determined are necessary or appropriate to minimize impacts of the incidental take in the fisheries assessed in this Opinion.

On January 10, 2024, NMFS issued a 7(a)(2)/7(d) memorandum that reinitiated consultation on the 2021 Biological Opinion. The federal actions to be addressed in this reinitiation of consultation include the authorization of the federal fisheries conducted under the aforementioned eight federal FMPs (see footnote 1). The reinitiated consultation will not include American lobster and Jonah crab fisheries, which are authorized under ISFMPs. On December 29, 2022, President Biden signed the Consolidated Appropriations Act (CAA), 2023, which included the following provision specific to NMFS' regulation of the lobster and Jonah crab fishery to protect right whales, "Notwithstanding any other provision of law ... for the period beginning on the date of enactment of this Act and ending on December 31, 2028, the Final Rule ... shall be deemed sufficient to ensure that the continued Federal and State authorizations of the American lobster and Jonah crab fisheries are in full compliance with the Marine Mammal Protection Act of 1972 (16 U.S.C. 1361 et seq.) and the Endangered Species Act of 1973 (16 U.S.C. 1531 et seq.)." Given this, the American lobster and Jonah crab fisheries remain in compliance with the ESA through December 31, 2028.

Based on our preliminary assessment of the proposed action, the Council has determined that the proposed action does not entail making any changes to the skate fishery during the reinitiation period that would cause an increase in interactions with or effects to ESA-listed species or their critical habitat beyond those considered in NMFS' January 10, 2024, reinitiation memorandum. Therefore, this action is consistent with NMFS' January 10, 2024, 7(a)(2) determination.

7.5 Administrative Procedure Act (APA)

Sections 551-553 of the Administrative Procedure Act established procedural requirements applicable to informal rulemaking by federal agencies. The purpose is to ensure public access to the federal rulemaking process, and to give public notice and opportunity for comment. The Council did not request relief from

[28] The eight Federal FMPs considered in the May 27, 2021, Biological Opinion include: (1) Atlantic Bluefish; (2) Atlantic Deep-sea Red Crab; (3) Mackerel, Squid, and Butterfish; (4) Monkfish; (5) Northeast Multispecies; (6) Northeast Skate Complex; (7) Spiny Dogfish; and (8) Summer Flounder, Scup, and Black Sea Bass. The two ISFMPs are American Lobster and Jonah Crab.

notice and comment rule making for this action and expects that NOAA Fisheries will publish proposed and final rule making for this action.

7.6 Paperwork Reduction Act

The purpose of the Paperwork Reduction Act is to minimize paperwork burden for individuals, small businesses, nonprofit institutions, and other persons resulting from the collection of information by or for the Federal Government. It also ensures that the Government is not overly burdening the public with information requests. This action does not include any revisions to the current PRA collection requirements; therefore, no review under the Paperwork Reduction Act is necessary.

7.7 Coastal Zone Management Act (CZMA)

Section 307 of the Coastal Zone Management Act (CZMA) is known as the federal consistency provision. Federal Consistency review requires that "federal actions, occurring inside or outside of a state's coastal zone, that have a reasonable potential to affect the coastal resources or uses of that state's coastal zone, to be consistent with that state's enforceable coastal policies, to the maximum extent practicable." NOAA| Fisheries has previously made determinations that the FMP was consistent with each state's coastal zone management plan and policies, and each coastal state concurred in these consistency determinations. Once the Council has adopted final measures and submitted Framework 12 to NMFS, NMFS will request consistency reviews by CZM state agencies directly.

7.8 Information Quality Act (IQA)

Section 515 of the Treasury and General Government Appropriations Act for Fiscal Year 2001 (Public Law 106-554, also known as the Data Quality Act or Information Quality Act) directed the Office of Management and Budget (OMB) to issue government-wide guidelines that "provide policy and procedural guidance to federal agencies for ensuring and maximizing the quality, objectivity, utility, and integrity of information (including statistical information) disseminated by federal agencies." OMB directed each federal agency to issue its own guidelines, establish administrative mechanisms allowing affected persons to seek and obtain correction of information that does not comply with the OMB guidelines, and report periodically to OMB on the number and nature of complaints. The NOAA Section 515 Information Quality Guidelines require a series of actions for each new information product subject to the Data Quality Act. Information must meet standards of utility, integrity, and objectivity. This section provides information required to address these requirements.

Utility of Information Product

Framework 12 and the proposed 2024-2025 skate fishery specifications include: a description of the management issues to be addressed, statement of goals and objectives, a description of the proposed action and other alternatives/options considered, analyses of the impacts of the proposed specifications and other alternatives/options on the affected environment, and the reasons for selecting the preferred specifications. These proposed modifications implement the FMP's conservation and management goals consistent with the MSA and all other existing applicable laws.

Utility means that disseminated information is useful to its intended users. "Useful" means that the content of the information is helpful, beneficial, or serviceable to its intended users, or that the information supports the usefulness of other disseminated information by making it more accessible or easier to read, see, understand, obtain or use. The information presented in this document is helpful to the intended users (the affected public) by presenting a clear description of the purpose and need of the proposed action, the measures proposed, and the impacts of those measures. A discussion of the reasons for selecting the proposed action is included so that intended users may have a full understanding of the proposed action and its implications. The intended users of the information contained in this document are participants in the skate fishery and other interested parties and members of the public. The information contained in this document may be useful to owners of vessels holding an Atlantic herring permit as well as Atlantic herring dealers and processors since it serves to notify these individuals of any potential changes to management measures for the fishery. This information will enable these individuals to adjust their fishing practices and make appropriate business decisions based on the new management measures and corresponding regulations.

The information being provided in Framework Adjustment 12 concerning the status of the skate fishery is updated based on landings and effort information through FY 2022 when possible. Information presented in this document is intended to support Framework 12 and the proposed specifications for FY 2024-2025, which have been developed through a multi-stage process involving all interested members of the public. Consequently, the information pertaining to management measures contained in this document has been improved based on comments from the public, fishing industry, members of the Council, and NOAA Fisheries.

Until a proposed rule is prepared and published, this document is the principal means by which the information herein is publicly available. The information provided in this document is based on the most recent available information from the relevant data sources, including detailed and relatively recent information on the herring resource and, therefore, represents an improvement over previously available information. This document will be subject to public comment through proposed rulemaking, as required under the Administrative Procedure Act and, therefore, may be improved based on comments received.

This document is available in several formats, including printed publication, and online through the NEFMC's web page (www.nefmc.org). The *Federal Register* notice that announces the proposed rule and the final rule and implementing regulations will be made available in printed publication, on the website for the Greater Atlantic Regional Fisheries Office (www.greateratlantic.fisheries.noaa.gov), and through the Regulations.gov website. The *Federal Register* documents will provide metric conversions for all measurements.

Integrity of Information Product

Integrity refers to security – the protection of information from unauthorized access or revision, to ensure that the information is not compromised through corruption or falsification. Prior to dissemination, information associated with this action, independent of the specific intended distribution mechanism, is safeguarded from improper access, modification, or destruction, to a degree commensurate with the risk and magnitude of harm that could result from the loss, misuse, or unauthorized access to or modification of such information. All electronic information disseminated by NMFS adheres to the standards set out in Appendix III, "Security of Automated Information Resources," of OMB Circular A-130; the Computer Security Act; and the Government Information Security Act. All confidential information (e.g. dealer purchase reports) is safeguarded pursuant to the Privacy Act; Titles 13, 15, and 22 of the U.S. Code (confidentiality of census, business, and financial information); the Confidentiality of Statistics provisions of the Magnuson-Stevens Act; and NOAA Administrative Order 216-100, Protection of Confidential Fisheries Statistics.

Objectivity of Information Product

Objective information is presented in an accurate, clear, complete, and unbiased manner, and in proper context. The substance of the information is accurate, reliable, and unbiased; in the scientific, financial, or statistical context, original and supporting data are generated and the analytical results are developed using sound, commonly accepted scientific and research methods. "Accurate" means that information is within an acceptable degree of imprecision or error appropriate to the *kind* of information at issue and otherwise meets commonly accepted scientific, financial, and statistical standards.

For purposes of the Pre-Dissemination Review, this document is a "Natural Resource Plan." Accordingly, the document adheres to the published standards of the MSA; the Operational Guidelines, Fishery Management Plan Process; the Essential Fish Habitat Guidelines; the National Standard Guidelines; and NOAA Administrative Order 216-6, Environmental Review Procedures for Implementing NEPA. This information product uses information of known quality from sources acceptable to the relevant scientific and technical communities. Several data sources were used in the development of this action, including, but not limited to, historical and current landings data from the Commercial Dealer database, vessel trip report (VTR) data, and fisheries independent data collected through the NMFS bottom trawl surveys. The analyses herein were prepared using data from accepted sources and have been reviewed by members of the Skate Plan Development Team and by the SSC where appropriate.

Despite current data limitations, the conservation and management measures considered for this action were selected based upon the best scientific information available. The analyses important to this decision used information from the most recent complete calendar years, generally through 2022. The data used in the analyses provide the best available information on the number of permits, both active and inactive, in the fishery, the catch (including landings and discards) by those vessels, the landings per unit of effort (LPUE), and the revenue produced by the sale of those landings to dealers, as well as data about catch, bycatch, gear, and fishing effort from a subset of trips sampled at sea by government observers.

Specialists, including professional members of PDTs, technical teams, committees, and Council staff, who worked with these data are familiar with the most current analytical techniques and with the available data and information relevant to the small-mesh multispecies fishery. The proposed action is supported by the best available scientific information. The policy choice is clearly articulated in Section 4.0, the management alternatives considered in this action.

The supporting science and analyses, upon which the policy choice was based, are summarized and described in the Affected Environment (Section 5.0). All supporting materials, information, data, and analyses within this document have been, to the maximum extent practicable, properly referenced according to commonly accepted standards for scientific literature to ensure transparency. The review process used in preparation of this document involves the responsible Council, the NEFSC, GARFO, and NOAA Fisheries Service Headquarters. The NEFSC's technical review is conducted by senior-level scientists specializing in population dynamics, stock assessment, population biology, and social science.

The Council review process involves public meetings at which affected stakeholders have opportunity to comment on the document. Review by staff at GARFO is conducted by those with expertise in fisheries management and policy, habitat conservation, protected species, and compliance with the applicable law. The Council also uses its SSC to review the background science and assessment to approve the OFLs and ABCs, including the effects those limits would have on other specifications in this document. The SSC is the primary scientific and technical advisory body to the Council and is made up of scientists that are independent of the Council.

Final approval of the action proposed in this document and clearance of any rules prepared to implement resulting regulations is conducted by staff at NOAA Fisheries Service Headquarters, the Department of Commerce, and the U.S. Office of Management and Budget. In preparing this action for the Herring FMP, NMFS, the Administrative Procedure Act, the Paperwork Reduction Act, the Coastal Zone Management Act, the Endangered Species Act, the Marine Mammal Protection Act, the Information Quality Act, and Executive Orders 12630 (Property Rights), 12866 (Regulatory Planning), 13132 (Federalism), and 13158 (Marine Protected Areas). The Council has determined that the proposed action is consistent with the National Standards of the MSA and all other applicable laws.

7.9 EXECUTIVE ORDER 13158 (MARINE PROTECTED AREAS)

Executive Order (EO) 13158 on Marine Protected Areas (MPAs) requires each federal agency whose actions affect the natural or cultural resources that are protected by an MPA to identify such actions, and, to the extent permitted by law and to the maximum extent practicable, in taking such actions, avoid harm to the natural and cultural resources that are protected by an MPA. The EO directs federal agencies to refer to the MPAs identified in a list of MPAs that meet the definition of MPA for the purposes of the EO. The EO requires that the Departments of Commerce and the Interior jointly publish and maintain such a list of MPAs. A list of MPA sites has been developed and is available at: http://marineprotectedareas.noaa.gov/nationalsystem/nationalsystemlist/. No further guidance related to this EO is available at this time.

In the Northeast U.S., the only MPAs are the Stellwagen Bank National Marine Sanctuary (SBNMS), the Tilefish Gear Restricted Areas in the canyons of Georges Bank, and the National Estuarine Research Reserves and other coastal sites. The only MPA that overlaps the skate fishery footprint is the SBNMS.

This action is not expected to more than minimally affect the biological/habitat resources of MPAs, which were comprehensively analyzed in the Omnibus Habitat Amendment 2 (NEFMC 2016). Fishing gears regulated by the Skate FMP are unlikely to damage shipwrecks and other cultural artifacts because fishing vessel operators avoid contact with cultural resources on the seafloor to minimize costly gear losses and interruptions to fishing.

7.10 EXECUTIVE ORDER 13132 (FEDERALISM)

Executive Order 131321 on federalism established nine fundamental federalism principles for federal agencies to follow when developing and implementing actions with federalism implications. However, no federalism issues or implications have been identified relative to the measures proposed in this action, thus preparation of an assessment under EO 13132 is unwarranted. The affected states have been closely involved in the development of the proposed action through their representation on the Councils. All affected states are represented as voting members of at least one Regional Fishery Management Council. No comments were received from any state officials relative to any federalism implications that may be associated with this action.

7.11 EXECUTIVE ORDER 12898 (ENVIRONMENTAL JUSTICE)

Executive Order 12898: Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations provides guidelines to ensure that potential impacts on these populations are identified and mitigated, and that these populations can participate effectively in the NEPA process (EO 12898 1994). NOAA guidance NAO 216-6A, Companion Manual, Section 10(A) requires the consideration of EO 12898 in NEPA documents. Agencies should also encourage public participation, especially by affected communities, during scoping, as part of a broader strategy to address environmental justice issues. Minority and low-income individuals or populations must not be excluded from participation in, denied the benefits of, or subjected to discrimination because of their race, color, or national origin.

Environmental justice is measured at the community level. Here, community is defined as a fishing community. Indicators of vulnerability for purposes of environmental justice can include but are not limited to income, race/ethnicity, household structure, education levels, and age. The NOAA Fisheries Community Social Indicators, especially the poverty, population composition, and personal disruption indices (Table 41) can help identify the communities where environmental justice may be of concern. Primary and secondary skate ports that ranked medium-high to high for at least one of these indices are:

Monhegan, Maine; Boston and New Bedford, Massachusetts; Newport, Rhode Island; New London, Connecticut; and Newport News, Virginia, noting that New Bedford and Newport News have low reliance on the skate fishery due to the population size of these cities (Table 38), so any impacts in these ports may be less pronounced than in other communities. These communities may be more vulnerable to changes in federal actions, due to factors described above as important indicators for environmental justice.

Although the impacts of the proposed action may affect communities with environmental justice concerns, the proposed actions should not have disproportionately high effects on low income or minority populations. The proposed actions would apply to all participants in the affected area, regardless of minority status or income level. There is insufficient demographic data on participants in the skate fishery (i.e., vessel owners, crew, dealers, processors, employees of supporting industries) to quantify the income and minority status of potentially affected fishery participants. However, it is qualitatively known that people of racial or ethnic minorities constitute a substantial portion of the employees in the seafood processing sector, particularly in communities such as New Bedford. Without more data, it is difficult to fully determine how this action may impact various population segments. The public comment process is an opportunity to identify issues that may be related to environmental justice, but none have been raised relative to this action. The public has never requested translations of documents pertinent to the skate fishery.

Regarding subsistence consumption of fish and wildlife, federal agencies are required to collect, maintain, and analyze information on the consumption patterns of populations who principally rely on fish and/or wildlife for subsistence. GARFO tracks these issues, but there are no federally recognized tribal agreements for subsistence fishing in New England federal waters.

7.12 Regulatory Flexibility Act (RFA)

The purpose of the Regulatory Flexibility Act is to reduce the impacts of burdensome regulations and record-keeping requirements on small businesses. To achieve this goal, the RFA requires federal agencies to describe and analyze the effects of proposed regulations, and possible alternatives, on small business entities. Based on this information, the RFA analysis determines whether the preferred alternative would have a "significant economic impact on a substantial number of small entities."

7.12.1 Description and Estimate of Small Entities to Which the Rule Applies

For RFA purposes only, NMFS has established a small business size standard for businesses, including their affiliates, whose primary industry is commercial fishing (see 50 CFR § 200.2). A business primarily engaged in commercial fishing (NAICS code 11411) is classified as a small business if it is independently owned and operated, is not dominant in its field of operation (including its affiliates) and has combined annual receipts not more than $11 million for all its affiliated operations worldwide.

For the purposes of this analysis, ownership entities are defined by those entities with common ownership personnel as listed on permit application documentation. Permits with identical ownership personnel are categorized as a single entity. For example, if five permits have the same seven personnel listed as co-owners on their application paperwork, those seven personnel form one ownership entity, covering those five permits. If one or several of the seven owners also own additional vessels, with sub-sets of the original seven personnel or with new co-owners, those ownership arrangements are deemed to be separate ownership entities for the purpose of this analysis.

There were 1,869 vessels with a federal skate permit (Table 16) in FY 2022. Note, there is only one federal permit category for the Skate complex (General). Given that there is no quota share system in the skate fishery, we expect that the proposed regulations would only directly impact the vessels holding a federal skate permit. Each vessel may be individually owned or part of a larger corporate ownership structure, and for RFA purposes, it is the ownership entity that is ultimately regulated by the proposed action. Ownership entities are identified on June 1 of each year based on the list of all permit numbers, for the most recent complete calendar year, that have applied for any type of Northeast Federal fishing permit. The current ownership data set is based on the permits identified above and identifying each corresponding ownership affiliation information from calendar year 2023. For each affiliation, a five-year trailing average revenues (calendar years 2018 – 2022) is used to define the industry size determination (small or large), per the Small Business Administration (SBA) guidance. For RFA purposes only, NOAA Fisheries has established a small business size standard for businesses, including their affiliates, whose primary industry is commercial fishing (50 CFR § 200.2). A business primarily engaged in commercial fishing (NAICS code 11411) is classified as a small business if it is independently owned and operated, is not dominant in its field of operation (including its affiliates) and has combined annual receipts not more than $11 million for all its affiliated operations worldwide. The determination as to whether the entity is large or small is based on the average annual revenue for the three years from 2018-2022. The SBA has established size standards for all other major industry sectors in the U.S., including for-hire fishing (NAICS code 487210). These entities are classified as small businesses if combined annual receipts do not exceed $11 million for all its affiliated operations. As with commercial fishing businesses, the annual average of the three most recent years (2018-2022) is used in determining annual receipts for businesses primarily engaged in for-hire fishing.

Ownership data collected from permit holders indicate there are 1,332 distinct business entities that held at least one permit that could be directly regulated by the proposed action in 2022 (Table 47). Of these 1,332 entities, there are a total of 1,980 affiliated permits with an average of 1.5 permits per entity. There are 154 entities that classify as a For Hire business, rather than commercial. Lastly, there are 11 entities that classify as “Large” (rather than small) per SBA guidelines in this analysis.

Table 47. Industry affiliation summary statistics derived from active federal skate permits in 2022.

Total Unique Entities	Average Num of Permits Per Entity	Total Num Affiliated Federal Permits	Num Large Entities	Num of For Hire Businesses
1,332	1.5	1,980	11	154
*Permits were defined using the same data used to generate Table 16 (flat files from August 2023 to avoid data inconsistencies) along with RFA data. *Source:* 2023_06_28 provided by SSB staff Min-Yang Lee, accessed December 2023.				

7.12.2 Description and Estimate of Economic Impacts on Small Entities, by Entity Size and Industry

The proposed action is estimated to impose slight negative to slight positive economic impacts to the skate fishery. Given that most of the skate fishery is comprised of small commercial fishing entities, the economic impacts previously described in section 6.6 can extend to this analysis as well. Specifically, skate revenues for wing vessels (~77% of the skate vessels from FY 2018-2022) only contributed 6% of total earnings (Table 32). Skate revenues from both wing and bait as well as bait vessels contribute slightly more to total revenues on average (18.5% and 15%), but only make up 15% and 6% of the skate fishery, respectively. As skate revenues contribute a relatively small proportion to total annual revenues at the vessel-level, we could expect that the impacts of these proposed regulations would be further diluted at the entity-level.

Impacts on small firms

The overwhelming majority of firms affiliated with federal skate permits in 2022 were small firms. The average number of permits per affiliation is 1.5 permits, including vessels active in other fisheries. This indicates that the economic impacts previously discussed in section 6.6 could also be applied to this assessment. Given that the average number of permits per entity is 1.5, we can assume there are many single-permit entities. In these single-permit entities the economic impacts will mirror that which has been previously discussed for the proposed regulations, ranging from slightly negative to slightly positive. In entities with more than one permit, we can assume additional revenues are contributed by additional permits, further diminishing the economic impacts of the proposed regulations skate on the entities.

7.13 Executive Order 12866 (Regulatory Planning and Review)

The purpose of Executive Order 12866 (E.O. 12866, 58 FR 51735, October 4, 1993) is to enhance planning and coordination with respect to new and existing regulations. This E.O. requires the Office of Management and Budget (OMB) to review regulatory programs that are considered to be "significant." E.O. 12866 requires a review of proposed regulations to determine if the expected effects would be significant, where a significant action is any regulatory action that may:

- Have an annual effect on the economy of $200 million or more, or adversely affect in a material way the economy, a sector of the economy, productivity, jobs, the environment, public health or safety, or State, local, or tribal governments or communities;
- Create a serious inconsistency or otherwise interfere with an action taken or planned by another agency;
- Materially alter the budgetary impact of entitlements, grants, user fees, or loan programs or the rights and obligations of recipients thereof; or
- Raise novel legal or policy issues arising out of legal mandates, the President's priorities, or the principles set for the Executive Order.

In deciding whether and how to regulate, agencies should assess all costs and benefits of available regulatory alternatives. Costs and benefits shall be understood to include both quantifiable measures (to the fullest extent that these can be usefully estimated) and qualitative measures of costs and benefits that are difficult to quantify, but nevertheless essential to consider. The proposed action will set specifications for fishing years (FY) 2024-2025 and adjusts possession limits.

Changes in consumer surplus are not projected from this proposed rule. Changes in vessel profits and crew earnings from changes in skate revenues earned from other species while on skate trips are quantified and used as a proxy for producer surplus measures. Since crew are typically paid a share of the revenue from a fishing trip, but also pay the trip costs, their earnings are broken out separately from the vessel earnings.

7.13.1 Statement of the Problem/Goals and Objectives

Problem, goals, and objectives are explained in Section 3.2.

7.13.2 Description of the Fishery and other Affected Entities

A description of the fishery is available in Section 5.5.

7.13.3 Economic Impacts Relative to the Baseline

Skate Specifications

The preferred alternative would adopt a new Annual Catch Limit (ACL), annual catch target (ACT) and total allowable landings (TAL) for the Northeast skate complex fishery for fishing years 2024-2025. The overfishing limit (OFL) would remain unknown, and the ABC/ACL would decrease from 37,236 mt to 32,155 mt, while the ACT would decrease from 33,513 mt to 28,940 mt. The TAL would decrease from 21,142 mt to 15,718 mt—the wing TAL would be 10,453 mt and the bait TAL would be 5,266 mt. The preferred alternative is likely to pose slight negative economic impacts skate fishery relative to the baseline, due to potential decreases in skate landings and revenues. The extent of the impact is dependent on the utilization rate of skates (Figure 4). As discussed in Section 6.5.1.2, the Alternative 2 TAL exceeds the landings for the bait and wing fisheries by a notable margin for most years over the past decade, except for FY 2016 and 2017. This trend is particularly evident in most recent years. If the proposed TAL was imposed retrospectively over the past five years, there would be no impact on landings if imposed for both the bait and wing fishery such that the estimated cost would equal $0.00. There is relatively high uncertainty in this cost estimate, as changes in multiple parameters could lead to the TAL being exceeded. The cost estimate yielded by the retrospective analysis is the most feasible given our limitations in modeling these uncertainties.

Skate Possession Limits

The preferred possession limit alternatives would increase the skate possession limits in Seasons 1 and 2. For Season 1, the possession limit would increase by 1,000 lb to 4,000 lb, while the Season 2 possession limit would increase by 1,000 lb to 6,000 lb. In addition, skate wing possession limits would increase by 25% for trips fishing on a Northeast multispecies B-DAS, or not fishing on a DAS. For trips fishing on a B-DAS, the possession limit would increase from 220 to 275 lb, and for trips not fishing on a DAS, the possession limit would increase from 500 to 625 lb.

The economic impacts of the preferred possession limit increase would likely be slightly positive for the skate fishery relative to the baseline. There was an average of 478 and 353 DAS wing trips which landed over the possession limit for Season 1 and Season 2, respectively, over FY 2018-2022 (Table 18). If the possession limits were to increase by 1,000 lb in both Seasons, and we assume that the full limit would be landed at an average price of $0.632 (2022 constant dollars), the additional aggregate revenues would equate $302,222 and $223,096 for Season 1 and Season 2 respectively. This yields an estimate of an additional $525,318 for a hypothetical fishing year when imposed using historical averages. This analysis, however, could overestimate benefits if vessels do not fully use the additional 1,000 lb per trip but could also underestimate benefits if additional vessels which are operating within the 10% below the possession limit also use the increase. These uncertainties may also interact resulting in no net increases or decreases to the estimated benefit.

There was an average of 245 and 506 trips which fished on a non-DAS trip for Season 1 and 2, respectively, over FY 2018-2022, which landed above the possession limit. There were only a handful of B-DAS trips overall, over this same time. Given the relatively low number of B-DAS trips compared to the Non-DAS trips (Table 19), an estimate of benefits in the form of additional revenues can be generated using the 5-year average from the non-DAS trip numbers above the possession limit as well as the 125 lb which results from the increase 25% increase on Non-DAS trips. If we assume that on each trip, an additional 125 lb is landed and by the average number of trips from the two Seasons (245 and 506) multiplied by the average wing price of $0.632 in 2022 constant dollars, this results in an additional $19,375 and $39,935 in revenues for the two Seasons, respectively. This yields a total of $59,309 in potential additional revenues for a simulated fishing year. Similarly, this analysis does not consider the potential for vessels to not use the full additional 25% and does not factor in those that may enter the universe of vessels operating above the prior possession limit which adds uncertainty around the estimate.

The preferred alternative for barndoor skate possession limits would remove the barndoor skate possession restriction. There would be no limit specific to barndoor skate within the overall skate possession limits—the 25% partial possession limit for trips landing skate wings on a DAS would be removed, and possession would be allowed on all trips in the skate fishery. The preferred alternative for smooth skate possession limits would remove the smooth skate possession restriction on all trips landing skate in both the wing and bait skate fisheries. From FY 2018-2021, 9% of barndoor skate catch was discarded for trips landing within 10% of the partial possession limit compared to the 1% discarded for those landing below the limit. As described in Section 5.5.1.3.2, there was an average of 948 lb of live discarded skates from 743 trips over FY 2018-2022 or 418 lb of potential harvestable landings when the 2.27 conversion factor is applied. Given the barndoor possession limit would be completely removed, we could assume that for an average of 149 trips, an additional 418 lb of barndoor skate could be landed at an average price of $0.62/lb (Table 35). Under this scenario, an additional $259 per trip or $38,476 dollars in revenue for a hypothetical fishing year would be earned. This analysis, however, fails to deduct the baseline discards which may be discarded regardless of regulation changes given that trips under the possession limit currently have non-zero discards. Prohibiting smooth skate possession does not create an economic barrier for most trips, where estimated discards of smooth skates for the entire year have ranged from 544-185 mt when aggregated over the past five calendar years across all trips (Table 26). This is an average of 414 live discards per year or 183 landed lb after applying the 2.27 conversion factor. Using the unclassified skate species to estimate a price for smooth skate (Table 37), an additional revenue of $115 would result from this regulation change for a modeled fishing year when accounting for all trips.

The costs and benefits discussed in this section are expected to be realized in the future post implementation. This is such that comparison of benefits requires converting all benefit streams to a present value. For this purpose, a discount rate of 2% was selected as recommended by NOAA to reflect the Social Rate of Time Preference (SRTP) (Circular A-4, released November 9, 2023). This discount rate supersedes previous rates (3% and 7%) established in 2003. In addition to the 2% discount rate, the 3% and 7% discounted values are also provided for comparison purposes. In addition, the Executive Branch's Office of Management and Budget recommends a discount rate of 7% to estimate the rate of return on average investments. Both discount rates (3% and 7%) are included here for the purpose of comparison with a 0% discount rate as a baseline. Benefits, the form of additional revenues, resulted from the skate fishery possession limit (DAS $525,318, Non-DAS/B-DAS $59,309, barndoor ($38,476) and smooth skate ($115) proposed regulations for a standard fishing year under the proposed regulations. The costs assigned to the proposed skate specifications amounted to $0.00 as the 5-year historical landings still fell below the proposed TAL when applied retrospectively.

Table 48. Net Present Value of Benefits Relative to Baseline

Discount rate	Net Present Value of Total Benefits ($2022)
0%	$623,218
2%	$599,018
3%	$587,443
7%	$544,343

7.13.4 Summary of EO 12866 findings

There is currently no economic model that can account for the specifications and possession limits for the skate fishery, and barndoor and smooth skate specifically, so it is not possible to fully assess the benefits and costs of this action in an integrated manner. Despite this, the current isolated assessments can be summed up to determine if the total approaches $100 million.

In summary, retrospective analyses using historical data from the past five fishing years were applied to each of the preferred regulations in estimating monetary costs and benefits for a hypothetical fishing year. Benefits, the form of additional revenues, resulted from the skate fishery possession limit (DAS $525,318, Non-DAS/B-DAS $59,309, barndoor ($38,476) and smooth skate ($115) proposed regulations for a standard fishing year under the proposed regulations. The costs assigned to the proposed skate specifications amounted to $0.00 as the 5-year historical landings still fell below the proposed TAL when applied retrospectively. The total benefits for the hypothetical fishing year would equate $623,218 in 2022 constant dollars, well below the $200 million threshold. Adjusting to present value by applying discount rates further decreases this dollar value. There are caveats and limitations to the analyses conducted above, however, the margin of error does not impact the result of this analysis.

7.13.5 Determination of Significance

The proposed action does not constitute a significant regulatory action under EO 12866 for the following reasons: the proposed action will not have an annual effect on the economy of more than $200 million. Adverse impacts on fisherman and fishing businesses, ports, recreational anglers, and operators of party/charter businesses are expected to be quite small.

In addition, there should be no interactions with activities of other agencies and no impacts on entitlements, grants, user fees, or loan programs. The proposed action does not raise novel legal or policy issues. As such, the Proposed Action is not considered significant as defined by EO 12866.

8.0 GLOSSARY

Fishing mortality (F): A measurement of the rate of removal of fish from a population caused by fishing. This is usually expressed as an instantaneous rate (F) and is the rate at which fish are harvested at any given point in a year. Instantaneous fishing mortality rates can be either fully recruited or biomass weighted. Fishing mortality can also be expressed as an exploitation rate (see exploitation rate) or less commonly, as a conditional rate of fishing mortality (m, fraction of fish removed during the year if no other competing sources of mortality occurred. Lower case m should not be confused with upper case M, the instantaneous rate of natural mortality).

Overfished: A condition defined when stock biomass is below minimum biomass threshold and the probability of successful spawning production is low.

Overfishing: A level or rate of fishing mortality that jeopardizes the long-term capacity of a stock or stock complex to produce MSY on a continuing basis.

Acceptable Biological Catch (ABC) – A level of a stock or stock complex's annual catch that accounts for the scientific uncertainty in the estimate of OFL.

Annual Catch Limit (ACL) – The level of annual catch of a stock or stock complex that serves as the basis for invoking accountability measures (AMs).

Adult stage – One of several marked phases or periods in the development and growth of many animals. In vertebrates, the life history stage where the animal is capable of reproducing, as opposed to the juvenile stage.

Adverse effect – Any impact that reduces quality and/or quantity of EFH. May include direct or indirect physical, chemical, or biological alterations of the waters or substrate and loss of, or injury to, benthic organisms, prey species and their habitat, and other ecosystem components, if such modifications reduce the quality and or quantity of EFH. Adverse effects to EFH may result from actions occurring within EFH or outside of EFH and may include sites-specific of habitat wide impacts, including individual, cumulative, or synergistic consequences of actions.

Aggregation – A group of animals or plants occurring together in a particular location or region.

Accountability Measure (AM) – A management control that prevents ACLs from being exceeded, where possible, and correct or mitigate overages if they occur.

Amendment – a formal change to a fishery management plan (FMP). The Council prepares amendments and submits them to the Secretary of Commerce for review and approval. The Council may also change FMPs through a "framework adjustment procedure".

Availability – refers to the distribution of fish of different ages or sizes relative to that taken in the fishery.

Benthic community – Benthic means the bottom habitat of the ocean and can mean anything as shallow as a salt marsh or the intertidal zone, to areas of the bottom that are several miles deep in the ocean. Benthic community refers to those organisms that live in and on the bottom.

Biological Reference Points – specific values for the variables that describe the state of a fishery system which are used to evaluate its status. Reference points are most often specified in terms of fishing mortality rate and/or spawning stock biomass.

Biomass – The total mass of living matter in a unit area or the weight of a fish stock or portion thereof. Biomass can be listed for beginning of year (Jan 1), Mid-Year, or mean (average during the entire year). Also, biomass can be listed by age group (numbers at age * average weight at age) or summarized by groupings (e.g., age 1+, ages 4+ 5, etc.). See also spawning stock biomass, exploitable biomass, and mean biomass.

Biota – All the plant and animal life of a region.

Bottom tending mobile gear – All fishing gear that operates on or near the ocean bottom that is actively worked to capture fish or other marine species. Some examples of bottom tending mobile gear are otter trawls and dredges.

Bottom tending static gear – All fishing gear that operates on or near the ocean bottom that is not actively worked; instead, the effectiveness of this gear depends on species moving to the gear which is set in a particular manner by a vessel, and later retrieved. Some examples of bottom tending static gear are gillnets, traps, and pots.

B_{MSY} – the stock biomass that would produce maximum sustainable yield (MSY) when fished at a level equal to F_{MSY}. For most stocks, B_{MSY} is about ½ of the carrying capacity.

B_{target} – A desirable biomass to maintain fishery stocks. This is usually synonymous with B_{MSY} or its proxy.

$B_{threshold}$ – 1) A limit reference point for biomass that defines an unacceptably low biomass i.e., puts a stock at high risk (recruitment failure, depensation, collapse, reduced long term yields, etc). 2) A biomass threshold that the SFA requires for defining when a stock is overfished. A stock is overfished if its biomass is below $B_{threshold}$. A determination of overfished triggers the SFA requirement for a rebuilding plan to achieve B_{target} as soon as possible, usually not to exceed 10 years except certain requirements are met.

Bycatch – (v.) the capture of nontarget species in directed fisheries which occurs because fishing gear and methods are not selective enough to catch only target species; (n.) fish which are harvested in a fishery but are not sold or kept for personal use, including economic discards and regulatory discards but not fish released alive under a recreational catch and release fishery management program.

Capacity – the level of output a fishing fleet can produce given specified conditions and constraints. Maximum fishing capacity results when all fishing capital is applied over the maximum amount of available (or permitted) fishing time, if all variable inputs are used efficiently.

Catch – The total of fish killed in a fishery in a period. Catch is given in either weight or number of fish and may include landings, unreported landings, discards, and incidental deaths.

Continental shelf waters – The waters overlying the continental shelf, which extends seaward from the shoreline and deepens gradually to the point where the sea floor begins a slightly steeper descent to the deep ocean floor; the depth of the shelf edge varies but is about 200 meters in many regions.

DAS (day-at-sea) – A day-at-sea is an allocation of time that a vessel may be at-sea on a fishing trip. For vessels with VMS equipment, it is the cumulative time that a vessel is seaward of the VMS demarcation line. For vessels without VMS equipment, it is the cumulative time between when a fisherman calls in to leave port to the time that the fisherman calls in to report that the vessel has returned to port.

Discards – animals returned to sea after being caught; see Bycatch (n.)

Environmental Impact Statement (EIS) – an analysis of the expected impacts of a fishery management plan (or some other proposed federal action) on the environment and on people, initially prepared as a "Draft" (DEIS) for public comment. The Final EIS is referred to as the Final Environmental Impact Statement (FEIS).

Essential Fish Habitat (EFH) – Those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity. The EFH designation for most managed species in this region is based on a legal text definition and geographical area that are described in the Habitat Omnibus Amendment 2 (NEFMC 2016).

Exclusive Economic Zone (EEZ) – for the purposes of the Magnuson-Stevens Fishery Conservation and Management Act, the area from the seaward boundary of each of the coastal states to 200 nautical miles from the baseline.

Exempted fisheries – Any fishery determined by the Regional Director to have less than 5 percent regulated species as a bycatch (by weight) of total catch according to 50 CFR 648.80(a)(7).

Exploitation Rate – the percentage of catchable fish killed by fishing every year. If a fish stock has 1,000,000 fish large enough to be caught by fishing gear and 550,000 are killed by fishing during the year, the annual exploitation rate is 55%.

Fathom – A measure of length, containing six feet; the space to which a man can extend his arms; used chiefly in measuring cables, cordage, and the depth of navigable water by soundings.

Fishing effort – the amount of time and fishing power used to harvest fish. Fishing power is a function of gear size, boat size and horsepower.

Fishing Mortality (F) – (see also exploitation rate) a measurement of the rate of removal of fish from a population by fishing. F is that rate at which fish are harvested at any given point in time. ("Exploitation rate" is an annual rate of removal, "F" is an instantaneous rate.)

F_{MSY} – a fishing mortality rate that would produce the maximum sustainable yield from a stock when the stock biomass is at a level capable of producing MSY on a continuing basis.

F_{MAX} – the fishing mortality rate that produces the maximum level of yield per recruit. This is the point beyond which growth overfishing begins.

F_{target} – the fishing mortality that management measures are designed to achieve.

$F_{threshold}$ – 1) The maximum fishing mortality rate allowed on a stock and used to define overfishing for status determination. 2) The maximum fishing mortality rate allowed for a given biomass as defined by a control rule.

FMP (Fishery Management Plan) – a document that describes a fishery and establishes measures to manage it. This document forms the basis for federal regulations for fisheries managed under the Regional Fishery Management Councils. The New England Fishery Management Council prepares FMPs and submits them to the Secretary of Commerce for approval and implementation.

Framework adjustments: adjustments within a range of measures previously specified in a fishery management plan (FMP). A change usually can be made more quickly and easily by a framework adjustment than through an amendment. For plans developed by the New England Council, the procedure requires at least two Council meetings including at least one public hearing and an evaluation of environmental impacts not already analyzed as part of the FMP.

Landings – The portion of the catch that is harvested for personal use or sold.

Larvae (or Larval) stage – One of several marked phases or periods in the development and growth of many animals. The first stage of development after hatching from the egg for many fish and invertebrates. This life stage looks fundamentally different than the juvenile and adult stages and is incapable of reproduction; it must undergo metamorphosis into the juvenile or adult shape or form.

Limited access – a management system that limits the number of participants in a fishery. Usually, qualification for this system is based on historic participation, and the participants remain constant over time (except for attrition).

Limited-access permit – A permit issued to vessels that met certain qualification criteria by a specified date (the "control date").

Maximum sustainable yield (MSY) – the largest average catch that can be taken from a stock under existing environmental conditions.

Minimum biomass level – the minimum stock size (or biomass) below which there is a significantly lower chance that the stock will produce enough new fish to sustain itself over the long term.

Mortality – Noun, either referring to fishing mortality (F) or total mortality (Z).

Multispecies – the group of species managed under the Northeast Multispecies Fishery Management Plan. This group includes whiting, red hake and ocean pout plus the regulated species (cod, haddock, pollock, yellowtail flounder, winter flounder, witch flounder, American plaice, windowpane flounder, white hake and redfish).

Natural Mortality (M) – a measurement of the rate of fish deaths from all causes other than fishing such as predation, cannibalism, disease, starvation, and pollution; the rate of natural mortality may vary from species to species.

Northeast Shelf Ecosystem – The Northeast U.S. Shelf Ecosystem has been described as including the area from the Gulf of Maine south to Cape Hatteras, extending from the coast seaward to the edge of the continental shelf, including the slope sea offshore to the Gulf Stream.

Observer – Any person required or authorized to be carried on a vessel for conservation and management purposes by regulations or permits under this Act.

Overfishing Limit (OFL) – The annual amount of catch that corresponds to the estimate of the maximum fishing mortality threshold applied to a stock or stock complex's abundance and is expressed in terms of numbers or weight of fish.

Open access – Describes a fishery or permit for which there is no qualification criteria to participate. Open-access permits may be issued with restrictions on fishing (for example, the type of gear that may be used or the amount of fish that may be caught).

Optimum yield (OY) – the amount of fish which-

(a) will provide the greatest overall benefit to the Nation, particularly with respect to food

production and recreational opportunities, and taking into account the protection of

marine ecosystems;

(b) is prescribed as such on the basis of the maximum sustainable yield from the fishery,

as reduced by any relevant economic, social, or ecological factor; and

(c) in the case of an overfished fishery, provides for rebuilding to a level consistent with

producing the maximum sustainable yield in such fishery.

Overfished – A conditioned defined when stock biomass is below minimum biomass threshold and the probability of successful spawning production is low.

Overfishing – A level or rate of fishing mortality that jeopardizes the long-term capacity of a stock or stock complex to produce MSY on a continuing basis.

PDT (Plan Development Team) – a group of technical experts responsible for developing and analyzing management measures under the direction of the Council; the Council has a Monkfish PDT that meets to discuss the development of this FMP.

Proposed rule – a federal regulation is often published in the Federal Register as a proposed rule with a time for public comment. After the comment period closes, the proposed regulation may be changed or withdrawn before it is published as a final rule, along with its date of implementation and response to comments.

Rebuilding plan – a plan designed to increase stock biomass to the BMSY level within no more than ten years (or 10 years plus one mean generation period) when a stock has been declared overfished.

Recruitment – the amount of fish added to the fishery each year due to growth and/or migration into the fishing area. For example, the number of fish that grow to become vulnerable to fishing gear in one year would be the recruitment to the fishery. “Recruitment” also refers to new year classes entering the population (prior to recruiting to the fishery).

Relative exploitation – an index of exploitation derived by dividing landings by trawl survey biomass. This variable does not provide an estimate of the proportion of removals from the stock due to fishing but allows for general statements about trends in exploitation.

Sediment – Material deposited by water, wind, or glaciers.

Spawning stock biomass (SSB) – the total weight of fish in a stock that sexually mature, i.e., are old enough to reproduce.

Status determination criteria – objective and measurable criteria used to determine if overfishing is occurring or if a stock is in an overfished condition according to the National Standard Guidelines.

Stock assessment – An analysis for determining the number (abundance/biomass) and status (life-history characteristics, including age distribution, natural mortality rate, age at maturity, fecundity as a function of age) of individuals in a stock.

Stock – A grouping of fish usually based on genetic relationship, geographic distribution and movement patterns. A region may have more than one stock of a species (for example, Gulf of Maine cod and Georges Bank cod). A species, subspecies, geographical grouping, or other category of fish capable of management as a unit.

Ten-minute- “squares” of latitude and longitude (TMS) – A measure of geographic space. The actual size of a ten-minute-square varies depending on where it is on the surface of the earth, but in general each square is about 70-80 square nautical miles at 40° of latitude. This is the spatial area that EFH designations, biomass data, and some of the effort data have been classified or grouped for analysis.

Total mortality – The rate of mortality from all sources (fishing, natural, pollution) Total mortality can be expressed as an instantaneous rate (called Z and equal to F + M) or Annual rate (called A and calculated as the ratio of total deaths in a year divided by number alive at the beginning of the year).

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