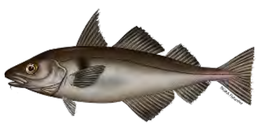
# Essential Fish Habitat Designation Framework

**Atlantic Sea Scallop Fishery Management Plan**

**Framework Adjustment 41**

**Northeast Multispecies Fishery Management Plan**

**Framework Adjustment 73**



**Draft**

**September 4, 2026**

Prepared by the

New England Fishery Management Council

In consultation with the

National Marine Fisheries Service

**FRAMEWORK ADJUSTMENT 41 TO THE ATLANTIC SEA SCALLOP FISHERY MANAGEMENT PLAN**

**FRAMEWORK ADJUSTMENT 73 TO THE NORTHEAST MULTISPECIES FISHERY MANAGEMENT PLAN**

| | |
|---|---|
| **Proposed Action:** | Revise Essential Fish Habitat designations for all life history stages of Acadian redfish, American plaice, Atlantic halibut, Atlantic sea scallop, Atlantic wolffish, haddock, ocean pout, offshore hake, pollock, red hake, silver hake, white hake, windowpane flounder, winter flounder, witch flounder, and yellowtail flounder. |
| **Responsible Agencies:** | New England Fishery Management Council<br>50 Water Street, Mill #2<br>Newburyport, MA  01950<br><br>National Marine Fisheries Service<br>National Oceanic and Atmospheric Administration<br>U.S. Department of Commerce<br>Washington, D.C. 20235 |
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| **Abstract:** | The New England Fishery Management Council, in consultation with NOAA’s National Marine Fisheries Service and the Mid-Atlantic Fishery Management Council, has prepared this framework adjustment to multiple Council Fishery Management Plans (FMPs). Through this action, the Council has developed revised Essential Fish Habitat designations for a subset of its managed species. |

**Document history:**

| | |
|---|---|
| Initial Framework Meeting: | January 28, 2026 |
| Final Framework Meeting: | September 16, 2026 (anticipated) |
| Preliminary Submission: | |
| Document Finalized: | |

# 1.0 EXECUTIVE SUMMARY

The New England Fishery Management Council (NEMFC, Council) prepared this framework adjustment to the Northeast Multispecies and Atlantic Sea Scallop Fishery Management Plans, which recommends updated Essential Fish Habitat (EFH) designations for Acadian redfish, American plaice, Atlantic halibut, Atlantic sea scallop, Atlantic wolffish, haddock, ocean pout, offshore hake, pollock, red hake, silver hake, white hake, windowpane flounder, winter flounder, witch flounder, and yellowtail flounder. EFH designations for these species were previously updated by the Council via Omnibus Habitat Amendment 2 (OHA2), which became effective on April 18, 2018. EFH regulations recommend review of habitat information every five years. The Council completed a comprehensive EFH 5-Year Technical Review in January 2025. This review included development of model-based EFH designation methods, which were used to develop updated maps and text descriptions in this framework. OHA2 EFH designations and EFH 5-Year Review materials are available at https://www.nefmc.org/library/essential-fish-habitat-efh-information. These approaches include species-specific models for Atlantic halibut, Atlantic sea scallop, Atlantic wolffish, and offshore hake, as well as other refinements to the methods since the EFH 5-Year Review was completed in January 2025.

The framework includes two alternatives: a no action alternative which would continue to use existing EFH designations from OHA2, and an action alternative which updates these designations using recent data and methods. The Council recommends revising EFH designations for all 16 species via the action alternative.

This framework also evaluates the effects of fishing with respect to updated EFH designations, building upon the general evaluation included in the EFH 5-Year Technical Review. Considering the entire northeast region and all gears combined, percent disturbance to habitat was around 11% in 2022. Percent disturbance within the various EFH designation areas updated via this action ranges from 4%-19%, indicating varying degrees of spatial overlap between EFH areas and areas with higher intensities of fishing and/or more vulnerable benthic habitats.

EFH designations, while important tools for habitat conservation, are generally administrative and do not require revisions to fishery regulations. No direct impacts are expected to result from the alternatives in this action on managed species, the physical environment, protected species, or human communities. Indirect positive impacts to fishery resources and the physical environment are anticipated to result from using updated EFH designations for development of habitat conservation recommendations. This action does not alter previously designated Habitat Areas of Particular Concern, which are subsets of EFH intended to receive greater conservation focus, or Habitat Management Areas, which have restrictions on gears and methods of fishing in order to minimize the impacts of fishing on EFH.

The EFH designations in this action do not individually or cumulatively have a significant effect on the human environment. Therefore, it has been preliminarily determined that the action qualifies for a categorical exclusion from the need for NEPA review as it is primarily administrative in nature.

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| | |
|---|---|
| CFR | Code of Federal Regulations |
| EcoMon | Ecosystem Monitoring |
| EEZ | Exclusive Economic Zone |
| EFH | Essential Fish Habitat |
| FMP | Fishery management plan |
| FW | Framework |
| GARFO | Greater Atlantic Regional Fisheries Office |
| GB | Georges Bank |
| GLOBEC | Global Ocean Ecosystem Dynamics |
| GOM | Gulf of Maine |
| HAPC | Habitat Area of Particular Concern |
| HMA | Habitat Management Area |
| MADMF | Massachusetts Division of Marine Fisheries |
| MARMAP | Marine Resources Monitoring and Assessment and Prediction |
| MSA | Magnuson-Stevens Act; Magnuson-Stevens Fishery Conservation and Management Act |
| NEFMC | New England Fishery Management Council |
| NEFSC | Northeast Fisheries Science Center |
| NEPA | National Environmental Policy Act |
| NMFS | National Marine Fisheries Service |
| NOAA | National Oceanic and Atmospheric Administration |
| SNE | Southern New England |
| USC | United States Code |
| WOTUS | Waters of the United States |

# 3.0 INTRODUCTION

## 3.1 MSA EFH REQUIREMENTS

The Magnuson-Stevens Fishery Conservation and Management Act, 16 U.S.C. § 1801-1882 (1976) includes provisions concerning the identification and conservation of Essential Fish Habitat (EFH). The Magnuson-Stevens Act (MSA) defines EFH as “those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity” (MSA, 16 U.S.C. § 1802) The regional fishery management councils and National Marine Fisheries Service (NOAA Fisheries) must describe and identify EFH in fishery management plans (FMPs), minimize to the extent practicable the adverse effects of fishing on EFH, and identify other actions to encourage the conservation and enhancement of EFH.

Descriptions and identification of EFH consist of written summaries (text descriptions), tables, and maps in the FMPs and are developed for individual life history stages (eggs, larvae, juveniles, adults) when sufficient information exists to do so. The EFH regulations provide guidance on pertinent habitat information that, where available, should be included in the EFH text descriptions for each life stage (50 CFR § 600.815(a)(1)):

- Habitats or habitat types determined to be EFH;
- Specific geographic location or extent of habitats described as EFH (e.g., using longitude and latitude, isotherms, isobaths, political boundaries, and major landmarks);
- Patterns of temporal and spatial variation in the distribution of each major life stage to aid in understanding habitat needs;
- Physical, biological, and chemical characteristics of EFH and, if known, how these characteristics influence the use of EFH by the species/life stage and/or control or limit distribution, abundance, reproduction, growth, survival, and productivity of managed species;
- Life history information necessary to understand each species’ relationship to, or dependence on, its various habitats;
- Current and historic stock size as it affects occurrence in available habitats

In addition, the EFH regulations provide a four-level approach to organize the information necessary to describe and identify EFH (50 CFR § 600.815(a)(1)(iii)(A) and 50 CFR 600.815(a)(1)(iv)(A)). When designating EFH, the Council should strive to describe and identify EFH information in the FMPs at the highest level possible in a risk-averse fashion to ensure EFH is adequately designated for managed species. The regulations include the following levels of EFH information:

- *Level 1:* Distribution data are available for some or all portions of the geographic range of the species.
- *Level 2:* Habitat-related densities or relative abundance of the species are available.
- *Level 3:* Growth, reproduction, or survival rates within habitats are available.
- *Level 4:* Production rates by habitat are available.

NEFMC EFH text and maps, including all of those revised via this action, rely on level 2 data for most species, although a few NEFMC managed species use distribution data only (level 1). We elaborate on how these habitat information requirements are addressed through the designation methods in Section 3.6 and how this information can be used in EFH consultations in Section 3.7. Per the EFH regulations, “Councils should interpret this information in a risk-averse fashion to ensure adequate areas are identified as EFH for managed species” (50 CFR 600.815(a)(1)(iv)(A)).

Federal agencies that authorize, fund, or undertake actions that may adversely affect EFH must consult with NOAA Fisheries; for state agencies, an EFH consultation is not required for state actions that would adversely affect EFH. However, in both cases, NOAA Fisheries must provide conservation recommendations to federal and state agencies to mitigate any adverse effects. This EFH consultations process is described in Appendix C. Regional fishery management councils also have the authority to comment on federal or state agency actions that would adversely affect the habitat, including EFH, of managed species.

## 3.2 NORTHEAST REGIONAL HABITAT ASSESSMENT

In late 2017, a Steering Committee composed of leadership from the major habitat conservation, restoration, and science organizations in the region, met and agreed to identify ways to improve fish habitat science within the region. They concluded that a Northeast Regional Marine Fish Habitat Assessment was needed to describe and characterize estuarine, coastal, and offshore fish habitat distribution, abundance, and quality in the Northeast. The assessment assembled habitat and species distribution and abundance data in both inshore and offshore regions and included development of species distribution models and a crosswalk of habitat distribution and vulnerability information. The major work of the assessment was completed between 2018-2022 and served as a foundation for the subsequent EFH 5-Year Review and this EFH Framework. Future updates and enhancements to data products are planned for 2026. The results of the assessment are provided in the NRHA Data Explorer: https://nrha.shinyapps.io/dataexplorer/#!/.

## 3.3 NEFMC EFH 5-YEAR REVIEW

Federal regulations at 50 CFR 600.815(a)(10) state that the Councils and NOAA Fisheries should periodically review the EFH provisions of FMPs and revise or amend EFH provisions as warranted based on best available information. Building upon the Northeast Regional Habitat Assessment and working collaboratively with the Mid-Atlantic Fishery Management Council, the Council completed an EFH Review in January 2025 which included the following elements for all managed species:

1. Model-based methods for EFH descriptions and identification,
2. Spatially and temporally explicit summary of fishing activities that may adversely affect EFH using the Fishing Effects model,
3. A report summarizing non-Magnuson-Stevens Act fishing activities in state waters that may adversely affect EFH,
4. A report describing new information about non-fishing activities that may adversely affect EFH,
5. A discussion of approaches to cumulative impacts analysis and opportunities for future work,
6. A summary of existing EFH conservation measures implemented by the Council,
7. Food habits for each managed species by region, time period, and fish size,
8. A summary of currently implemented Habitat Areas of Particular Concern (HAPC) and considerations for future HAPC identification, and
9. A list of research and information needs generated throughout the course of the review.

EFH 5-Year Review materials are available at https://www.nefmc.org/library/essential-fish-habitat-efh-information. The component 1 report was revised to reflect adjustments made to the EFH designations during the development of this framework, and is included with this action as Appendix E.

## 3.4 PROBLEM STATEMENT AND OBJECTIVE FOR THIS ACTION

This action follows directly from the methods developed during the Northeast Regional Habitat

Assessment and EFH 5-Year Review and applied previously to the 2025 EFH Designation Framework.

**Problem statement:** During the EFH 5-year technical review completed in January 2025, the Council recognized the need to update EFH designations for its managed species based on recent species distribution and abundance data and species distribution model outputs. The current designations are based on data through approximately 2005 and may not reflect current habitat use by Council-managed species.

The **objective** of this action is to revise EFH text descriptions and maps for all life history stages of Acadian redfish, American plaice, Atlantic halibut, Atlantic sea scallop, Atlantic wolffish, haddock, ocean pout, offshore hake, pollock, red hake, silver hake, white hake, windowpane flounder, winter flounder, witch flounder, and yellowtail flounder.

## 3.5 MANAGEMENT REGIME AND STOCK UNITS

This document was developed in accordance with the MSA. The species for which EFH is being revised via this action are managed via two Fishery Management Plans (FMPs): the Atlantic Sea Scallop FMP and Northeast Multispecies FMP. The management regime for these fisheries is detailed in their respective FMPs available at: https://www.nefmc.org/, and in the comprehensive descriptions of the current regulations as detailed in the Code of Federal Regulations (CFR) at: https://www.fisheries.noaa.gov/content/greater-atlantic-region-regulations. Reports on stock status for these fishery resources can be found at: https://www.fisheries.noaa.gov/national/sustainable-fisheries/status-stocks-reports.

EFH may be described by Councils wherever it occurs within the waters of the U.S. (WOTUS; defined in 33 CFR § 328.3), and in the exclusive economic zone (EEZ; defined in 50 CFR § 600.10). In simple terms, WOTUS generally includes navigable waters like large rivers and lakes, interstate waters as well as wetlands adjacent to those waters, and territorial seas (which end at 3 nautical miles from the coastal states baseline). The EEZ generally extends from the territorial sea up to 200 nautical miles from the coastal states baseline. Therefore, EFH may be designated and described by Councils in WOTUS and out to the edge of the EEZ. The inland extent of EFH is determined by the habitat requirements of the managed fish species. EFH is not designated in international waters, although important fish habitat and adverse effects to it can be addressed in accordance with international agreements between the United States and the foreign nation(s).

Councils can designate EFH wherever it occurs, including in areas where other Councils have management jurisdiction (the inter-council boundaries are described in 50 CFR § 600.105). EFH is designated for the management unit, rather than by stock, where there are multiple stocks within a management unit. In addition, Councils are not constrained to only describing EFH within the current management unit for a given species in areas of WOTUS or the EEZ, as EFH may occur for the species outside that management unit. Current management units, stock definitions, and both common and scientific names for the Council's managed species are given below. Management unit definitions are drawn from either the original FMP documents or the FMP-specific regulations (see respective subparts in 50 CFR § 648).

**Table 1. Common and scientific name, management unit, and stocks for New England Council managed species where EFH updates are being considered via this management action.**

| Common Name | Management Unit and Scientific Name |
|---|---|
| *Atlantic Sea Scallop Fishery Management Plan* | |
| Atlantic sea scallop | The management unit for Atlantic sea scallop (*Placopecten magellanicus*) includes all of the populations of sea scallops that occur along the continental shelf of the Northwest Atlantic from the shoreline to the outer boundary of the EEZ and encompasses all commercial and recreational activity affecting those populations. |
| *Northeast Multispecies Fishery Management Plan*<br>The management unit is the multispecies finfish fishery that occurs from Eastern Maine through Southern New England, encompassing all commercial and recreational harvesting sectors in New England and all fish species that factor into a fishery within a trip, from trip to trip and from season to season, except those species managed under other fishery management plans under the Magnuson Stevens Act. It is necessary that each species specifically regulated under this FMP shall be regulated throughout its range. | |
| Acadian redfish | Acadian redfish (*Sebastes fasciatus*) is currently managed as one unit stock within its range. |
| American plaice | American plaice (*Hippoglossoides platessoides*) is currently managed as one unit stock within its range. |
| Atlantic halibut | Atlantic halibut (*Hippoglossus hippoglossus*) is currently managed as one unit stock within its range. |
| Atlantic wolffish | Atlantic wolffish (*Anarhichas lupus*) is currently managed as one unit stock within its range. |
| Haddock | Haddock (*Melanogrammus aeglefinus*) is currently managed as two stocks: Gulf of Maine and Georges Bank. |
| Ocean pout | Ocean pout (*Macrozoarces americanus*) is currently managed as one unit stock within its range. |
| Offshore hake | Offshore hake (*Merluccius albidus*) is currently managed as one unit stock within its range. |
| Pollock | Pollock (*Pollachius virens*) is currently managed as one unit stock within its range. |
| Red hake | Red hake (*Urophycis chuss*) is currently managed as two stocks: Northern (Gulf of Maine / Northern Georges Bank) and Southern (Mid-Atlantic / Southern Georges Bank). |
| Silver hake | Silver hake (*Merluccius bilinearis*) is currently managed as two stocks: Northern (Gulf of Maine / Northern Georges Bank) and Southern (Mid-Atlantic / Southern Georges Bank). |
| White hake | White hake (*Urophycis tenuis*) is currently managed as one unit stock within its range. |
| Windowpane flounder | Windowpane flounder (*Scophthalmus aquosus*) is currently managed as two stocks: Northern (Gulf of Maine / Georges Bank) and Southern (Southern New England / Mid-Atlantic). |
| Winter flounder | Winter flounder (*Pseudopleuronectes americanus*) is currently managed as three stocks: Gulf of Maine, Georges Bank, and Southern New England / Mid-Atlantic. |

| Common Name | Management Unit and Scientific Name |
|---|---|
| Witch flounder | Witch flounder (*Glyptocephalus cynoglossus*) is currently managed as one unit stock within its range. |
| Yellowtail flounder | Yellowtail flounder (*Limanda ferruginea*) is currently managed as three stocks, Cape Cod / Gulf of Maine, Georges Bank, and Southern New England / Mid-Atlantic. |

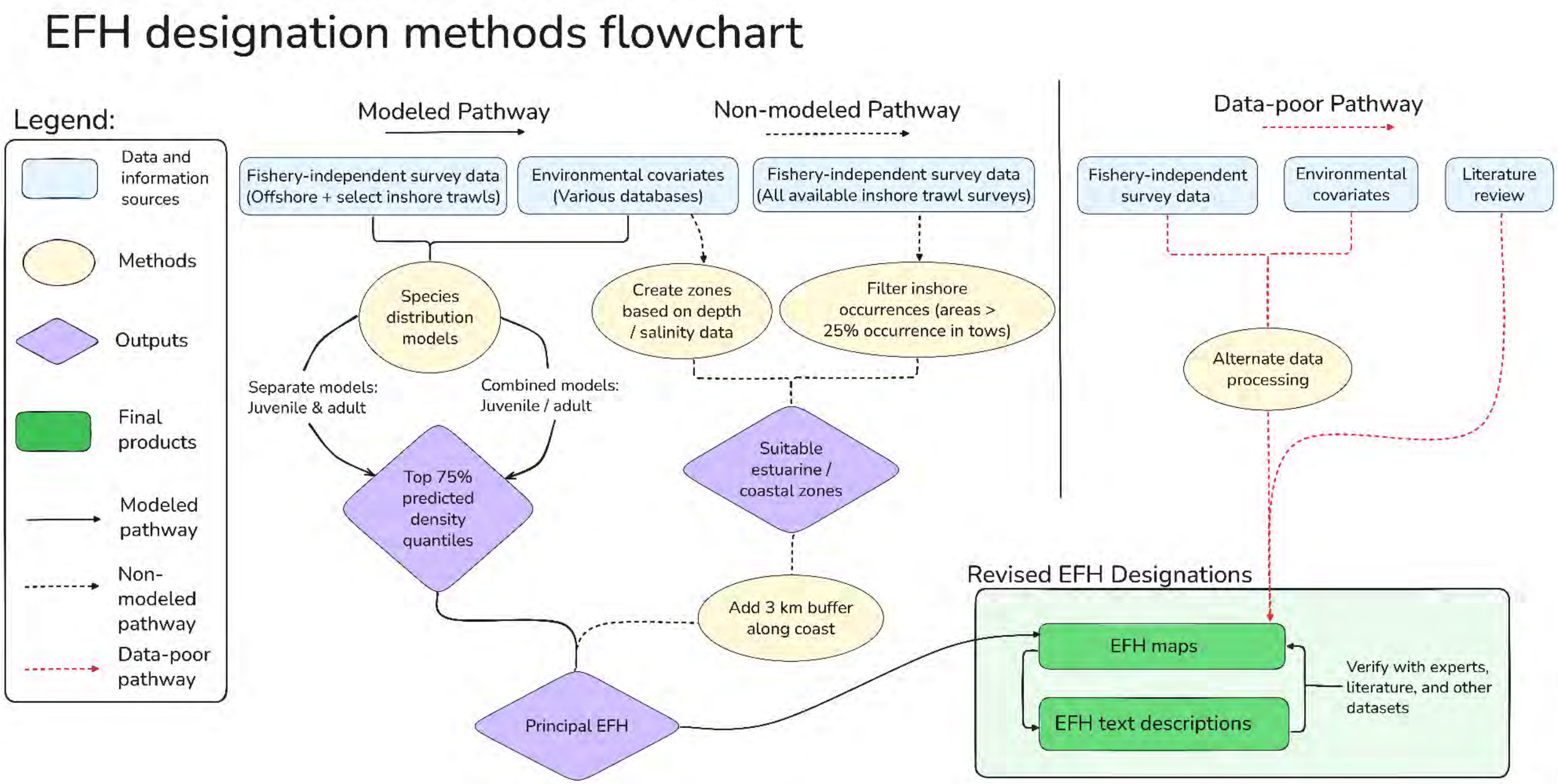
## 3.6 Summary of EFH designation methods used in this action

The EFH designation approach employed for this action combines several complementary methods to map the extent of EFH for each species, which are depicted as a flowchart in Figure 1. As previously noted, these methods represent the culmination of several years of work completed via the Northeast Regional Habitat Assessment (2018-2022, with updates ongoing) and the EFH 5-Year Review (2024-2025). A full description of these methods is available in Appendix E, which will be a revised version of the EFH Review Component 1 Report. The model-based portion of the EFH mapping workflow is generally as described in the EFH Review, with some adjustments to data sources used, while the non-modeled estuarine and coastal aspects of the mapping workflow were substantively refined after the review during the development of the 2025 EFH Framework and this framework. Similarly, methods to develop EFH text descriptions were developed during the EFH 5-Year Review and further refined during preparation of the 2025 and 2026 actions.

For species and life-stages with sufficient abundance data in federal and state fishery-independent surveys, the EFH designation map consists of a modeled component and non-modeled component that are joined into a single footprint for each life stage and species and trimmed to the U.S. Exclusive Economic Zone (EEZ). The resulting joined EFH footprint is defined as the **principal EFH area**, terminology borrowed from the North Pacific Council's 5-Year EFH Review (NPFMC 2023). In the following subsections, we describe the modeled and non-modeled workflows. Generally, the modeled component supports EFH mapping within inshore to offshore areas and relies on federal, regional inshore, and state fishery-independent surveys. The non-modeled component refines the inshore areas of the EFH map based on additional regional inshore and state fisheries survey data not included in the species distribution models, paired with depth and salinity data. The draft maps and text are further supplemented by literature reviews and feedback from scientific and fishery experts. For species generally known to use continental slope habitats, the designation has been extended to the maximum extent of depth usage reported in the previous OHA2 designations, EFH Source Documents, and/or literature (see Table 23 in Appendix B).

Table 2, below, lists the various survey and environmental datasets used throughout these parallel processes. Most species in this framework have sufficient abundance data spanning 2002-2022 for use in both the modeled and non-modeled parts of the workflow. Several species required species-specific modeling approaches owing to data limitations and/or unique data needs (i.e., Atlantic sea scallop, Atlantic halibut, Atlantic wolffish, and offshore hake). Some of these models rely on datasets not included in the joint model and integrate them with bottom trawl survey data. Specifically, the Atlantic sea scallop model uses dredge surveys, and the Atlantic halibut and Atlantic wolffish adult models include longline survey data for adults (Appendix E, Table 2). For "data-poor species" (e.g., New England Council species: Atlantic salmon and deep-sea red crab), EFH designation updates (planned for 2027) will rely on alternate data processing methods and literature reviews. These data-poor designations will be developed via a future Council action, so the methods are not detailed here.

**Figure 1. Flowchart summarizing updated Essential Fish Habitat (EFH) designation methods. With sufficient fish abundance data, designation methods use modeled and non-modeled pathways to update and revise the EFH designations. The data-poor pathway is not used for this action, but alternative species distribution models were developed for four species given unique data limitations or needs.**



### 3.6.1 Modeled pathway

For the modeled component, life stage-specific species distribution models (SDMs) for each managed species were built using abundance data from offshore and select inshore fisheries-independent surveys and using environmental covariates (Table 2). SDMs estimate the habitat "niche" of organisms by relating observed densities (abundance) to the environmental covariates, which can then be used to "predict" species density beyond the survey-sampled locations. To translate these model outputs into mapped EFH areas, we identified the locations (1 $km^2$ grid cells, or "grids") representing the top 75% of model-predicted species density, constrained to each species' occupied habitat[1] area; for adult halibut, we used an alternate approach that constrains the locations to the grids containing 95% of the cumulative proportion of predicted density (see Section 4.1.6 in Appendix E for details). Additionally, the SDM prediction grid was constrained to conditions representing marine (> 30 ppt) or polyhaline (18-30 ppt) salinity values to match the range of conditions available as model inputs, given that the fishery-independent surveys did not frequently catch fish in salinities fresher than approximately 18 ppt. Therefore, there is less confidence in the species density predictions in lower salinity habitats. In addition, there are operational depth limits for survey vessels which precludes their use in shallow (< 3 m) waters. The fish abundance data used in the models comes from spring and fall surveys, such that the predictions represent the months of March through May and September through November.

On the seaward extent along the continental shelf / slope interface, the SDMs can be used to estimate species density to depths of approximately 400 m, given the maximum depths sampled in the Northeast Fisheries Science Center (NEFSC) bottom trawl survey. However, some Council-managed species occur at or below these depths, and the need to include deeper areas within the EFH map for these species was evaluated based on the literature. Table 23 in Appendix B lists maximum continental slope depths reported in the literature, EFH Source Documents, and those described in OHA2, which were largely based on ranges reported in Moore et al. (2003a). Appendix E includes a detailed description of methods to append continental slope areas for relevant managed species. Briefly, for each species, we defined minimum and maximum depth limits for a "slope expansion" footprint. Maximum depth limits used the slope depths from Table 23 in Appendix B. For minimum depth limits, we used the 95% quantile of depths from the modeled EFH area to ensure the slope expansion was contiguous with the rest of the EFH footprint. Finally, we constrained gridded bathymetry data (1 $km^2$ cells, to match the resolution of SDM predictions) to the minimum and maximum depth limits and appended it to the EFH footprint.

Throughout the development of this and the 2025 action, a recurring point of discussion was the need to be relatively specific about which areas are essential habitat, vs. those areas that are within the range of the species but may be used more occasionally, or where the species and life stage occurs at lower density. Ultimately, the SDM output representing the top 75% of predicted density was selected as the foundation for the EFH maps. The top 95% of model-predicted species density was considered for this purpose but ultimately not used as a foundation for the EFH maps due to concerns that it is too general. Similarly, smaller percentages (e.g., 50% or 25%) were not used for developing EFH maps as they are potentially too specific, and risk leaving areas out of the designation that could be important to the species and life stage, potentially during seasons not represented in the spring and fall survey data. All percentiles

[1] As defined in the EFH Review Component 1 report, "occupied habitat" refers to areas where a species' encounter probability (which can be estimated from model-predicted density) is greater than 5%. For a detailed description, see Laman et al. (2022) and the North Pacific Council's recent 5-Year EFH Review (NPFMC 2023).

are presented in the ancillary products that serve as a companion to the EFH designation maps and text (see Appendix D).

The distinction between juvenile and adult fish was determined based on length at 50% maturity. All species considered in this action had a large enough sample size of survey data to be able to model juveniles and adults separately.

Four species used a species distribution modeling approach separate from the joint community basis function model used for the remaining 12 species and for the 10 species updated in the 2025 EFH Framework. Additional details about these models will be made available in Appendix E. These models included the following species:

- **Atlantic halibut**: Single-species SDM based on spring and fall bottom trawl survey data (juveniles) and spring and fall bottom trawl and bottom longline survey data (adults). The longline survey encompasses portions of the Gulf of Maine. Model-predicted densities for adults were constrained to the area encompassing 95% of the cumulative proportion of abundance, to account for the sparse distribution of this life stage.
- **Atlantic sea scallop**: Single-species “single index” SDM based on NEFSC, Maine DMR, and VIMS dredge surveys, which are conducted in the summer, combined with spring and fall bottom trawl surveys.
- **Atlantic wolffish**: Single-species SDM based on spring and fall bottom trawl survey data (juveniles) and spring and fall bottom trawl and bottom longline survey data (adults). The longline survey encompasses portions of the Gulf of Maine.
- **Offshore hake**: Single-species SDM based on spring and fall bottom trawl survey data, with a simplified set of environmental covariates (bottom temperature, depth, complexity, and grain size).

### 3.6.2 Non-modeled pathway

For inshore areas, we applied an alternate, non-modeled approach to designate EFH based on suitable environmental conditions combined with fish abundance data. Specifically, we identified estuary and coastal zones based on depth and salinity thresholds (Table 3) and overlaid species occurrence data from additional inshore surveys (Table 2) to identify which zones represented suitable conditions for each species and life stage. Zones with occurrences were added to the EFH map, and additional zones were added to the EFH map only if they matched the environmental conditions of other suitable zones and were directly adjacent to or within the geographic range of the top 75% of inshore occurrence data. Once zones with occurrences and suitable habitat conditions in the range of the species were added to the map, we added a 3-km buffer around these estuarine and coastal zones to ensure coverage of habitats that are difficult to sample or prone to shifting (e.g., marsh) and to account for the coarse resolution of the coastline. Finally, these buffered estuarine and coastal zones were joined to the model-based 75% density grid to produce the revised EFH designation footprints, trimmed to the U.S. Exclusive Economic Zone (EEZ). The resulting map based on this 75% threshold is defined as the **principal EFH area**, terminology borrowed from the North Pacific Council’s 5-Year EFH Review (NPFMC 2023).

**Table 2. Data sources for modeled and non-modeled components of updated EFH designations.**

| Data Source | Data type | Modeled component | Non-modeled estuarine / inshore component |
|---|---|---|---|
| GEBCO global gridded bathymetry, ~500m resolution | Bathymetry | | X |
| Estuarine Bathymetric DEM, 30m resolution | Bathymetry | | X |
| NOAA Atlantic Regional Climatology, 1/10 degree | Surface and bottom temperature and salinity | | X |
| Chesapeake Bay Atlas, ~600m resolution | Surface and bottom temperature and salinity | | X |
| Wetland Salinity Maps of Select Estuary Sites in the United States, 2020 | Salinity | | X |
| Estuarine salinity zones in US East Coast, Gulf of Mexico, and US West Coast | Salinity zones | | X |
| Marine Ecoregions of North America | Zones with common physiographic, oceanographic, biological characteristics | | X |
| GLORYS 1/12th deg reanalysis (2000-2006) | Surface and bottom temperature and salinity | X | |
| DOPPIO ~1/16th deg reanalysis (2007-2019) | Surface and bottom temperature, salinity, currents | X | |
| ADCIRC EC2015 Tidal Database | Tidal current velocities | X | |
| NREL WPTO wave hindcast | Wave Bottom orbital velocities | X | |
| NCEI 1-arcsecond Coastal Relief Model | Bathymetry & derived variables Bathymetric Position Index (BPI) and complexity | X | |
| USGS sediment texture & USSEABED databases | Sediment Grain Size | X | |
| NEFSC Bottom Trawl | Fish abundance | X | |
| NEAMAP Bottom Trawl | Fish abundance | X | X |
| Maine-New Hampshire Inshore Trawl | Fish abundance | X | X |
| Massachusetts Bottom Trawl | Fish abundance | X | X |
| Rhode Island Narragansett Bay Trawl | Fish abundance | | X |
| Connecticut Long Island Sound Trawl | Fish abundance | X | X |
| New Jersey Delaware Bay Juvenile Trawl | Fish abundance | | X |
| New Jersey Ocean Stock Assessment | Fish abundance | | X |

| Data Source | Data type | Modeled component | Non-modeled estuarine / inshore component |
|---|---|---|---|
| Delaware 30ft Bottom Trawl | Fish abundance | | X |
| Delaware Bay Juv. Finfish Trawl | Fish abundance | | X |
| Maryland Bottom Trawl | Fish abundance | | X |
| ChesMMAP | Fish abundance | X | X |
| VIMS Juvenile Finfish Trawl Survey | Fish abundance | | X |
| North Carolina Nursery Area Juv. Survey (NC120) | Fish abundance | | X |
| North Carolina Pamlico Sound Survey (N195) | Fish abundance | | X |
| SEAMAP-SA Coastal Trawl Survey | Fish abundance | | X |
| NEFSC Scallop Dredge | Fish Abundance | X | |
| ME DMR Scallop Dredge | Fish Abundance | X | |
| VIMS Scallop Dredge | Fish Abundance | X | |
| NEFSC Bottom Longline Survey | Fish Abundance | X | |

**Table 3. Estuarine and inshore habitat zone definitions.**

| | | Depths | | |
|---|---|---|---|---|
| | | **Channel (> 75th percentile depth)** | **Mid (2 m – 75th percentile)** | **Shallow (< 2 m)** |
| **Salinities** | **Marine (> 30 ppt)** | Marine Channel | Marine Mid | Marine Shallow |
| | **Polyhaline (18-30 ppt)** | Polyhaline Channel | Polyhaline Mid | Polyhaline Shallow |
| | **Mixing (0.5-18 ppt)** | Mixing Channel | Mixing Mid | Mixing Shallow |
| | **Tidal Fresh (< 0.5 ppt)** | Tidal Fresh Channel | Tidal Fresh Mid | Tidal Fresh Shallow |

### 3.6.3 Eggs and larvae

Limited and/or incomplete data are available for egg and larvae life stages. Specifically, the Ecosystem Monitoring Survey (ECOMON) only samples areas that are part of the federal trawl survey, limiting the scope of information on egg and larvae data to that region only. Compiling limited plankton data on areas in state waters, or outside the federal survey area, was not feasible given staff resources during the EFH 5-Year Review and framework development processes. In addition, the data available from ECOMON are patchy even within the survey's sampling range, rarely provided identification for both early life stages (only data for eggs or larvae; recently, only for larvae), and for some species only provided identification of early life stages at the family level (not at species level). Overall, this confounded our ability to delineate EFH for egg and larvae life stages using ichthyoplankton data directly. Given the limited and incomplete nature of the egg and larval data, separate egg and larval maps were not developed for species in this framework. Juvenile and adult EFH maps combined with egg and larval text descriptions can be used to indicate distribution of eggs and larvae for the purposes of EFH consultation. The lack of separate egg and larval maps does not preclude the ability of NOAA Fisheries consultation staff to delve into life stage specific details for a specific project site, if more detailed data are available. In addition, this does prevent further development of maps for egg and larval stages in the future, as more refined methods and data permit.

### 3.6.4 Text descriptions

The EFH text for each species and life stage is intended to align with and complement the EFH map designations. To address the EFH requirements described in Section 3.1, EFH text descriptions were revised to be consistent with the updated map footprints and include the following information where applicable and/or available: geographic range of the species (as depicted in the maps); geographic descriptions of key fishing areas; appropriate depth, temperature, and salinity ranges (described below); associated habitat types (substrates such as sands and gravels, submerged aquatic vegetation, etc.); and other life history information relevant to species distributions and habitat (e.g., seasonal migrations, spawning areas). For these revisions, we drew upon best available sources as required by the EFH regulations (50 CFR 600.815(a)(1)(ii)(B)), specifically including the following: survey data and model outputs, peer-reviewed literature including the EFH Source Documents, spatially summarized commercial landings data, and consultations with species experts.

For each species and life stage combination, the EFH text references specific depth, temperature, and salinity ranges, which were derived by pooling depth, temperature, and salinity data associated with unique occurrences in offshore and inshore survey tows (Table 2). These ranges do not reflect lethal limits or the full range of conditions each species can inhabit, especially since the underlying surveys cannot exhaustively sample each species. These ranges are compiled in Appendix B (Table 22).

For salinity and temperature ranges, the lower and upper 2.5% of values were trimmed (i.e., retaining the interior 95% quantile) to represent a relatively broad range of values. Full salinity (34-36 ppt) is the upper bound for salinity range, regardless of species, but the lower bounds vary somewhat, and fishery independent survey sampling is limited in low salinity areas, so there are fewer data to support estimates of the lower bound of the salinity ranges. Temperature varies seasonally and by location. While the spring and fall trawl surveys are expected to reflect the coldest and warmest temperature periods, respectively, using 95% of the temperature range avoids a definition of EFH that is too narrow and does not reflect conditions experienced throughout the year.

For depth, the text includes both a “full” depth range and the range that roughly matches the EFH map based on the 75% model outputs (i.e., depth at which the species is more common). The “full” depth range trims out the upper and lower 0.5% to exclude unrealistic, extreme outliers (i.e., retaining the interior 99% quantile). The 75% depth range trims the upper and lower 12.5% (i.e., retaining the interior 75% quantile) to highlight the depth range at which the species is more “frequently” found. For the text descriptions, we rounded these values outward (i.e., rounding down for lower bounds and rounding up for upper bounds) to the nearest whole number. We also note that many of the surveys used for these range analyses cannot sample in extremely shallow areas, so the lower bound of the “full” range does not capture intertidal or very shallow habitat use. To address this issue, we followed the approach in OHA2 where we report the minimum depth as 0 meters and explicitly reference the intertidal zone in the text description if species and/or life stages are known to utilize intertidal habitats.

On the seaward extent of the continental shelf / slope interface, there are limits to the maximum depths sampled by the NEFSC bottom trawl surveys. For species with potential deepwater habitat usage, we cross-referenced the text descriptions in OHA2 with the literature to update these continental slope depths where appropriate (see below). Abundance data are somewhat limited for these slope depths, with occurrences more often reported in the literature. We used best professional judgment, combining information from the literature with SDM outputs, to evaluate whether portions of the continental slope below 400 m should be identified as EFH, as follows:

- If the species occurs at slope depths but was described in the literature as being most common or primarily occurring at depths shallower than 400 m, we used the maximum depth derived from the survey data used in the SDMs (trimming the upper 2.5% of values) as the maximum depth of EFH (i.e., American plaice, Atlantic halibut, Atlantic wolffish, haddock, ocean pout, pollock, juvenile red hake, juvenile silver hake, juvenile white hake, windowpane flounder, winter flounder, yellowtail flounder). For Atlantic sea scallop, the text description is based on expert knowledge rather than survey data, as catchability is low in the trawl surveys and the dredge surveys sample a relatively narrow range of potential scallop habitat.
- Absent information about relative abundance in shallower vs. deeper areas of the continental slope, we relied on the SDM outputs. For species and life stages where highest density areas (i.e., the top 25% density quantile) run along the shelf-slope break (i.e., offshore hake, adult red hake, adult silver hake, adult white hake, witch flounder), we inferred that deeper areas adjacent to but beyond the domain of the model likely harbor relatively high fish densities and thus should be included in the EFH designation. In these cases, we based the maximum depth of EFH on values reported in the literature for the Northeast U.S. region, defaulting to the OHA2 / No Action depth limit unless more recent data were available. These depths were added to the text description, noting the geographic extent, and to the EFH map in locations adjacent to the 25% quantile only.
- For species where lower density areas (i.e., the top 50% or 75% quantiles) run along the shelf-slope break (i.e., Acadian redfish), and decreasing density with increasing depth is indicated, we inferred that deeper areas adjacent to but beyond the domain of the model are likely to be relatively less important to the species as compared to shallower areas of the shelf-slope region, and thus should not be included in the EFH designation. For these species, we limited the EFH map to 75% quantile of the SDM output and did not add the slope depths to the text description.

Table 23 in Appendix B compares the maximum depths described in the No Action (OHA2) designation and those reported in the literature. The depths provided in the text indicate the full range of depths that are designated as EFH as well as the depths at which the species is more common.

### 3.6.5 Feedback and engagement

In addition to oral feedback and discussion during Habitat Plan Development Team, Advisory Panel, and Committee meetings, as well as the June Council meeting, Council staff sought feedback on the draft EFH designations from scientific and industry experts via correspondence and small group video conferences. These conversations were aimed at leveraging expertise to ensure the draft maps and text adequately represent species habitat use and distributions. In particular, conversations revolved around capturing seasonal or life history variations in habitat use, flagging gaps or unrealistic areas (e.g., where low species densities are encountered), and identifying additional information sources to validate and groundtruth the draft designations. Section 4.5 in Appendix E provides a detailed description of these approaches and considerations, including a table summarizing broad categories of feedback received throughout this process.

### 3.6.6 Adjustments to final maps and text

The feedback process described above resulted in 29 specific suggestions to make adjustments to the draft EFH maps for selected species and life stages; Table 4 lists these suggestions, whether they were implemented, and any rationale for the adjustment or relevant notes (see also Appendix E – Section 4.6:

Map Adjustments for maps highlighting these specific adjustments). Per guidance from GARFO staff (see Section 4.5 in Appendix E) and the EFH regulations ([50 CFR 600.815(a)(1)(iv)(A)]), Council staff applied a risk-averse approach to making map adjustments on an ad-hoc, species and/or life stage-specific basis. Generally, map adjustments were considered if well-supported by multiple data sources and/or published literature, and Council staff strove to balance consistency in methods across all managed species (including those with species-specific models: Atlantic halibut, Atlantic sea scallop, Atlantic wolffish, and offshore hake) versus species-specific nuances in habitat use or data limitations. Otherwise, maps relied on the model-based and inshore analyses.

In many cases, if not directly implemented as a map adjustment, feedback provided useful context to include in the text descriptions, particularly on aspects of managed species' biology, life history, seasonality, and potential distribution shifts. These conversations were also informative for data sources to include and considerations to address in future EFH updates (see Appendix E – Section 6: Future Directions).

Of the 29 suggestions, 11 map adjustments were made to maps for eight species in this action (Table 4; see also Appendix E, Section 4.6). Council staff reviewed inshore occurrence data, offshore survey observations, model quantiles, and/or the literature to verify suggested removals. Most suggested map adjustments constituted removing small model polygons or inshore zones where species densities or catch is expected to be low and/or small patches that were isolated at large distances from other EFH areas. Larger inshore zone removals (e.g., pollock juveniles, Table 4, row 19; Appendix E, Map 6) were typically isolated from model-based EFH areas, were at the edge of the EFH range, and/or had little to no inshore occurrence data to support inclusion of the zone. One of these map adjustments for adult Atlantic wolffish (Table 4,, row 12) was specifically reviewed with the Habitat Advisory Panel and Committee on August 20 as they represented larger policy / management decisions. These are documented in the following section, as the AP and Committee reviewed two separate options for adult maps for wolffish.

**Table 4. Feedback on species- and life stage-specific map adjustments received for the 2026 Essential Fish Habitat Designation Framework. Manual adjustments implemented in preferred alternative maps are given in bold font. Adjustment status maps refer to those in Appendix E, Section 4.6. Life stages with similar adjustments are referred to by row number (#)**

| # | Species | Life stage | Suggestion | Adjustment Status | Rationale / Notes |
|---|---|---|---|---|---|
| 1 | Acadian redfish | Juvenile | Consider removing inshore bays along ME coast for juveniles (Blue Hill, Isle au Haut, and Penobscot Bays) | Reviewed but not recommended by staff | Suggest retaining standard data processing and inshore analyses. Model quantiles extend into Blue Hill, Isle au Haut, and Penobscot Bays, and there are inshore survey catches in all three areas. Inshore data also trigger EFH designation for other Gulf of Maine embayments – John's Bay, Linekin Bay, Saco Bay. Potentially consider alternative inshore data processing approaches during next 5-year review. |
| **2** | **Acadian redfish** | **Juvenile** | **Consider clipping the isolated eastern canyon area along southern Georges Bank** | **Made this adjustment (Appendix E, Section 4.6, Map 2)** | **Very small, isolated polygons (three 1-km$^2$ grids). These polygons fall within the lowest quantile mapped as EFH and are discontinuous from the rest of the EFH footprint which is entirely in the Gulf of Maine. Similar to haddock adult (row 14), ocean pout juvenile (row 17), and pollock juvenile (row 18).** |
| 3 | Acadian redfish | Juvenile | Consider filling in small gaps in the map in the southern Gulf of Maine just north of the Great South Channel and/or off Cape Cod | Reviewed by not recommended by staff | Suggest retaining standard methods including direct reliance on model outputs. These areas are predicted to have relatively lower species densities and therefore the EFH map is potentially going to be patchy. |
| 4 | Acadian redfish | Adult | Consider filling in gaps on Platts Bank, Jeffreys Ledge, and Cashes Ledge, as these areas are too shallow | Reviewed but not recommended by staff | Suggest retaining standard methods including direct reliance on model outputs. These areas are predicted to have relatively lower species densities and therefore the EFH map is potentially going to be patchy. Retaining gaps communicates that redfish are less likely to use the shallowest areas of these features |

| # | Species | Life stage | Suggestion | Adjustment Status | Rationale / Notes |
|---|---|---|---|---|---|
| 5 | American plaice | Adult | Consider removing inshore polygons around Mt. Desert Island and in Penobscot Bay | Reviewed but not recommended by staff | Similar rationale to Acadian redfish juvenile (row 2). Most embayments in Gulf of Maine are designated for adult American plaice using the current inshore data processing approach, so adjusting only two embayments is difficult to justify. Better to note that upper parts of these bays may not be used by the species in the text description. Potentially consider alternative inshore data processing approaches during next 5-year review. |
| 6 | American plaice | Juvenile & Adult | Consider filling in gap on shallowest part of Stellwagen Bank (less than approximately 40 m) | Reviewed but not recommended by staff | Suggest retaining standard methods including direct reliance on model outputs. Retaining these gaps communicates that American plaice are less likely to use these depths on Stellwagen Bank. Species distribution does appear to be shallower in fall, based on seasonal model outputs, but plaice are not predicted to occur on the top of Stellwagen Bank in either spring or fall. |
| 7 | **Atlantic sea scallop** | **Adult** | **Consider removing EFH areas off Cape Hatteras** | **Made this adjustment (Appendix E, Section 4.6, Map 3)** | **Unexpected to see high densities this far south. Recently southern areas have become less important to the species, which is thought to be due to warming bottom temperatures. Commercial catch data suggests that the southern extent of scallops may be even further north, which has been noted in the text description.** |

| # | Species | Life stage | Suggestion | Adjustment Status | Rationale / Notes |
|---|---|---|---|---|---|
| 8 | Atlantic sea scallop | Adult | Model density hotspots in deepwater areas in the Gulf of Maine (e.g., around Cashes Ledge and Platts Bank) are unexpected | Reviewed but not recommended by staff | While scallop beds have been encountered in deeper waters recently, they are not generally expected to be deeper than 180 m (100 fathoms). This issue may be a depth artifact on or around the shallower tops of these banks and may potentially be addressed using a depth cutoff (see row 10) or a smaller model quantile threshold. The text description has been updated to note higher densities on shallower portions of these banks. |
| 9 | Atlantic sea scallop | Adult | Seeing 25% and 50% quantiles off Portland, Maine is inconsistent with understanding of species distribution | Issue was resolved by using non-spatiotemporal model fit | These areas are not identified as hotpots in the non-spatiotemporal model fit, which was ultimately recommended by the model developer. |
| 10 | Atlantic sea scallop | Adult | High density quantiles extend too far beyond Nantucket Lightship SAMS area and beyond the expected distribution of scallops; consider using a 180-meter depth cutoff | Issue is largely resolved by using non-spatiotemporal model fit. | This area is less prominent in the non-spatiotemporal model fit, which was ultimately recommended by the model developer. The model fit designates EFH within the suggested 180-meter depth cutoff for most of the designation, except select areas around offshore banks and channels in the Gulf of Maine (see row 8). The text description has been updated to specify 180 meters as the upper bound to the depth range, to build in depth flexibility as bottom temperatures rise and scallop beds are encountered in deeper waters. |
| 11 | Atlantic wolffish | Adult | Consider using longline-trawl integration map (rather than trawl-only map) | Using the integrated map | Based on expert input, the combined map better represents the distribution of adult wolffish. Including the longline survey provides additional data for a species with fewer survey observations. |

| # | Species | Life stage | Suggestion | Adjustment Status | Rationale / Notes |
|---|---|---|---|---|---|
| 12 | Atlantic wolffish | Adult | Consider using the 95% cumulative density approach rather than 5% encounter probability approach. The cumulative approach results in a larger footprint and could be appropriate for a species with low encounter rates. | Reviewed but not recommended by staff or CTE/AP | Based on expert input, the standard encounter probability approach better represents spatial distribution, despite low estimated encounter rates for this species and life stage. Also, consistency in data processing methods across species is preferred where possible. See Section 3.6.7 for expanded rationale. |
| 13 | Haddock | Juvenile | Consider removing nearshore areas between Woods Hole, MA and New London, CT. There has been a recent contraction in haddock's distribution and this area overlaps a lower model density quantile. | Reviewed but not recommended by staff | Similar rationale to Acadian redfish juvenile (row 1) and American plaice adult (row 5). Better to note that some parts of these bays may not be used by the species in the text description. Potentially consider alternative inshore data processing approaches during next 5-year review. |
| **14** | **Haddock** | **Adult** | **Consider removing (isolated) nearshore areas around Woods Hole and isolated grid cell in Narragansett Bay** | **Made this adjustment (Appendix E, Section 4.6, Map 4)** | **Similar rationale to Acadian redfish juvenile (row 2), ocean pout juvenile (row 17), and pollock juvenile (row 18). These isolated grids are very disconnected from rest of EFH footprint (70+ km distance), nor are there any inshore occurrence data in this area.** |
| 15 | Halibut | Adult | Consider adding EFH areas along the backside of Cape Cod and into the Great South Channel where halibut are known to occur. | Indirectly addressed with alternative data processing developed after expert review | The 95% cumulative abundance map includes these areas; the approach identifies a larger EFH footprint for adult halibut (see row 17). |
| 16 | Halibut | Adult | Consider using the 95% cumulative density approach rather than 5% encounter probability approach | Using this map | Adult halibut is a rarely encountered species in fishery surveys and trimming all areas with encounter probabilities below 5% results in a smaller EFH footprint, vs. taking a cumulative density approach. The cumulative map includes areas off Cape Cod where adult halibut are known to occur, and is therefore more consistent with expert knowledge. |

| # | Species | Life stage | Suggestion | Adjustment Status | Rationale / Notes |
|---|---|---|---|---|---|
| **17** | **Ocean pout** | **Juvenile** | **Consider removing EFH areas in Delaware Bay** | **Made this adjustment (Appendix E, Section 4.6, Map 5)** | **Similar to Acadian redfish juvenile (row 2), haddock adult (row 14), and pollock juvenile (row 18). These grids are discontinuous with the rest of the EFH footprint: offshore EFH area is 80+ km from the mouth of Delaware Bay. There are also no inshore occurrence data in Delaware Bay to support these grids.** |
| **18** | **Pollock** | **Juvenile** | **Consider trimming isolated model polygons along the southern edge of Georges Bank** | **Made this adjustment (Appendix E, Section 4.6, Map 6)** | **Similar to Acadian redfish juvenile (row 2), haddock adult (row 14), and ocean pout juvenile (row 17). These grids are discontinuous with the rest of the EFH footprint.** |
| **19** | **Pollock** | **Juvenile** | **Consider removing polygons in Long Island Sound and along the coast of New Jersey** | **Made this adjustment (Appendix E, Section 4.6, Map 6)** | **Similar to witch flounder adult (row 25). Low inshore occurrence and at edge of EFH range; because Long Island Sound is low salinity, model predictions are more likely to be artifacts. Potentially consider alternative inshore data processing approaches during next 5-year review.** |
| 20 | White hake | Adult | Consider trimming the southern extent of the footprint that runs along the continental slope (approximately south of Hudson Canyon) | Reviewed but not recommended by staff | Survey observations include these areas; can note seasonal difference in distribution in text (white hake are distributed further south in spring) |
| 21 | White hake | Juvenile & Adult | Consider filling in patchiness/gaps in the Gulf of Maine portion of the juvenile map for greater consistency between juvenile and adult EFH | Reviewed but not recommended by staff | Suggest retaining standard methods including direct reliance on model outputs. Based on review of density quantiles, juvenile and adult distributions are different, and lower juvenile densities are predicted in Wilkinson Basin and Georges Basin. Retaining gaps communicates where these lower density areas are located. |

| # | Species | Life stage | Suggestion | Adjustment Status | Rationale / Notes |
|---|---|---|---|---|---|
| 22 | Windowpane flounder | Juvenile | Consider trimming the southern extent of the designation that extends beyond Cape Hatteras | Reviewed but not recommended by staff | Juvenile windowpane flounder are caught in the SEAMAP survey south of Cape Hatteras. Including this area is consistent with how the juvenile clearnose skate map was developed in 2025. |
| 23 | **Winter flounder** | **Adult** | **Consider removing isolated patches near the Hague line in eastern Gulf of Maine as these are too deep; would expect to see adult winter flounder no deeper than 175 meters** | **Made this adjustment (Appendix E, Section 4.6, Map 7)** | **Removed areas closest to Hague Line in deep areas; there is little to no catch in the trawl survey in these locations, and a preference for shallower depths aligns with model outputs (smooth terms; see Appendix D, Section 4.2.14)** |
| **24** | **Winter flounder** | **Juvenile & Adult** | **Consider clipping southern extent along NJ coast, consistent with No Action designation.** | **Clipped at Delaware Bay, as recommended by CTE/AP (Appendix E, Section 4.6, Map 8)** | **Suggest a data-driven designation – there are few observations south of Delaware Bay, but there are observations in the mouth of the bay and off southern New Jersey. Designating areas along the Delaware / Maryland coast based on these data extended the EFH map beyond the observations, so these areas were removed from the map.** |
| **25** | **Witch flounder** | **Adult** | **Consider removing EFH polygons along the New Jersey coast and in Long Island Sound** | **Made this adjustment (Appendix E, Section 4.6, Map 9)** | **Similar to pollock juvenile (row 19). These areas have low inshore occurrence at the edge of the EFH range and are discontinuous with other EFH which generally occurs offshore. Potentially consider alternative inshore data processing approaches during next 5-year review.** |

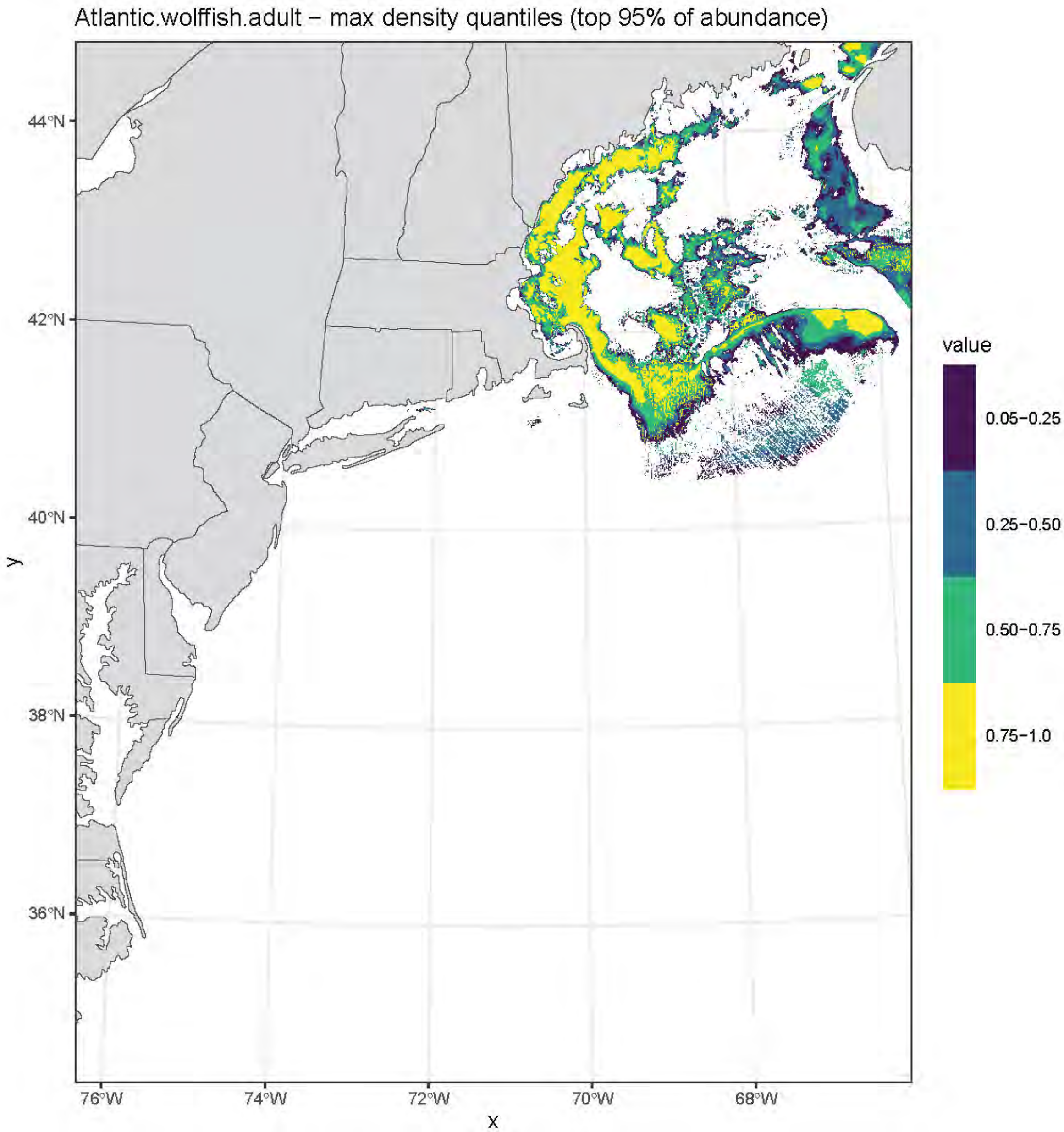
| # | Species | Life stage | Suggestion | Adjustment Status | Rationale / Notes |
|---|---|---|---|---|---|
| 26 | Witch flounder | Adult | Consider trimming the shallow edge of the habitat footprint that runs along the continental slope in Southern New England / Mid-Atlantic | Reviewed but not recommended by staff | Suggest retaining standard methods including direct reliance on model outputs. The 50$^{th}$ quantile represents the suggested distribution and mapping approach well, but using the 50% quantile would be inconsistent with other species. Will note lower densities in shallower areas in the text description. |
| 27 | Witch flounder | Juvenile & Adult | Consider removing polygon on Bear Seamount | Reviewed but not recommended by staff | Inclusion of the top of Bear Seamount is based on depth. A handful of studies (e.g., see Moore et al., 2003; Kelly et al., 2010 for reviews and meta-analyses) have sporadically identified witch flounder on Bear Seamount in low abundances (typically three or four individuals). |
| **28** | **Witch flounder** | **Juvenile** | **Consider removing inshore polygons in Blue Hill Bay and Frenchman Bay** | **Made this adjustment (Appendix E, Section 4.6, Map 10)** | **Unlike for other species where multiple inshore zones are designated, this is the only inshore zone turned on for witch flounder (juveniles or adults) such that an ad hoc adjustment seems reasonable. Observations are generally not far up the bay into shallower areas, so the EFH designation will rely on the model quantiles only (in deeper channels), not the full inshore zone.** |
| **29** | **Yellowtail** | **Adult** | **Consider removing inshore polygons in Penobscot Bay and/or restricting it only to the deepest portions of the bay** | **Made this adjustment (Appendix E, Section 4.6, Map 11)** | **While inshore areas are designated throughout the western Gulf of Maine, there are only lower density quantiles in this part of the Gulf of Maine. The EFH designation will rely on the model quantiles only (in deeper channels), not the full inshore zone.** |

### 3.6.7 Considered but rejected maps

This section discusses map options that were developed by the Habitat Plan Development Team (PDT) and reviewed with the Advisory Panel (AP) and Committee but were not formally included by the Council for analysis in this Framework.

For adult Atlantic wolffish, the Habitat PDT developed two maps for the AP and Committee to consider based on two approaches to processing the model-predicted spatial density outputs. These methods are described in greater detail in Sections 4.1.5 and 4.1.6 of Appendix E (see also Table 4, row 12 in this document). Briefly, after using the models to predict species densities in each cell across the model spatial domain, for most managed species the resulting habitat footprint is constrained to the "occupied habitat area" (defined as cells > 5% encounter probability; Laman et al., 2022). However, this encounter probability-based approach risks underrepresenting the spatial extent of the habitat footprint for very rare or sparsely distributed species, such as adult halibut and wolffish. An alternative approach was developed that constrains the habitat footprint to the cells containing 95% of the species' / life stage's cumulative proportion of predicted densities (Map 1). Notably, this approach still relies on the same underlying data, modeling methods, and quantile thresholds (i.e., top 75% quantile = principal EFH area). Based on expert feedback and review of published literature, Council staff and the PDT recommended the cumulative proportion-based map for adult halibut, as it aligns better with known halibut distributions, and this map is included with the updated EFH designations under the preferred alternative. However, for adult wolffish, the Habitat PDT asked the AP and Committee to consider both maps at their August 20 meeting, as there were merits to using either. On the one hand, stock assessment and Council staff had recommended retaining the encounter probability-based map for adult wolffish, given marked declines in wolffish populations since ~2004 and consequent contraction of the distribution. On the other hand, the cumulative proportion-based map may better account for the sparse distribution of wolffish from a prediction-processing perspective and may be more risk-averse in depicting a broader EFH designation. Ultimately, the AP and Committee emphasized the recommendation to use the encounter probability-based map for the reasons stated as well as for consistency in methods across species.

**Map 1. Considered but rejected maximum density quantile map for adult Atlantic wolffish using the 95% cumulative proportion of abundance approach (in contrast to the 5% encounter probability approach). The resulting essential fish habitat (EFH) area would have still used the top 75% quantile areas (turquoise, green, and yellow), like other managed species.**



## 3.7 Use of EFH designations in consultation

The EFH maps, text, and detailed ancillary information from the species distribution models are intended to be used in combination to support EFH consultation (see Appendix C for details on the consultation process). The model-based EFH designation approach relates multiple different environmental variables to observed fish abundance across space and time to generate predicted species densities. A threshold is applied to the model outputs to determine whether a location is or is not EFH, and consultation should be triggered in any location mapped as EFH that meets the description provided in the text. Within the mapped EFH extent, the full depth range and 95% temperature and salinity ranges represent EFH for the species and life stage. Additional details about seasonality in habitat use as well as preferred conditions such as bottom substrates should also be used to determine whether a proposed activity is likely to impact EFH for a species and life stage, depending on where and when that activity occurs.

One advantage of this updated approach is that, within the EFH area, the species distribution models and underlying abundance and environmental data can provide additional, detailed information for use during EFH consultations. In particular, this ancillary information can help inform which areas within the EFH designation are likely to support the highest densities of each species and life stage. For example, the areas representing the top 50% and top 25% quantiles of density predictions may merit additional attention during the consultation process (seasonal maps with color-coded quantiles are provided in Appendix D). Within the surveys' temporal domain (i.e., spring and fall), monthly density prediction maps can also be used to understand seasonal variability in habitat use, though this also comes with the limitation that predictions will not reflect differences in habitat use during the summer and winter seasons. Similarly, the full depth range and 95% salinity and temperature ranges reflect the range of conditions that may be found within designated EFH, and EFH conservation recommendations should be developed for any habitats meeting these conditions. The narrower 75% depth range provided in the text as well as the narrower salinity and temperature ranges provided in Table 22 in Appendix B indicate conditions under which higher species densities are predicted.

Overall, the updated EFH designations are intended to be relatively broad to capture many of the areas used by the species throughout the year and serve as an entry point for EFH consultation. Additional detailed information can be used to focus attention and conservation on relatively more important areas, at the discretion of consultation staff.

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# 4.0 ALTERNATIVES UNDER CONSIDERATION

## 4.1 NO ACTION EFH DESIGNATIONS

Under the No Action alternative, no changes would be made to the description and identification of EFH for all FMPs and managed species.

The No Action EFH designations were developed via OHA2 and implemented in April 2018. See Appendix A: No Action EFH Designations for the current text and maps that comprise this alternative. The methods for developing the No Action designations differ from the methods used for this action (see OHA2 Volume 2[2] and OHA2 Appendix A[3]). The approach used to develop the No Action EFH designation maps is summarized in the table below.

**Table 5. Summary of EFH designation approach used in Omnibus EFH Amendment 2. Generally, survey data were summarized based on ten-minute squares (TMS) of latitude and longitude.**

| Species | Egg | Larval | Juvenile | Adult |
|---|---|---|---|---|
| Acadian redfish | No egg map; redfish are ovoviviparous emerge as larvae | Abundance of **juveniles** in 1968-2005 spring and fall bottom trawl surveys (90%) + abundance of **larvae** in 1978-1987 MARMAP surveys (100%) | Abundance of **juveniles** in 1968-2005 spring and fall bottom trawl surveys (90%) + adjacent areas with suitable depth and temperature conditions + the continental slope to 600 m + TMS where **juveniles** occurred in at least 10% of inshore survey tows. | Abundance of **adults** in 1968-2005 spring and fall bottom trawl surveys (90%) + adjacent areas with suitable depth and temperature conditions + the continental slope to 600 m + TMS where **adults** occurred in at least 10% of inshore survey tows. |
| American plaice | Abundance of **eggs** in 1978-1987 MARMAP surveys (75%) + estuaries and embayments where **eggs** were identified as ‘common’ or ‘abundant’. | Abundance of **larvae** in 1978-1987 MARMAP surveys (75%) + estuaries and embayments where **larvae** were identified as ‘common’ or ‘abundant’. | Abundance of **juveniles** in spring and fall bottom trawl surveys (75%) + adjacent areas with suitable depth and temperature conditions + TMS where **juveniles** occurred in at least 10% of inshore survey tows + estuaries and embayments where **juveniles** were identified as ‘common’ or ‘abundant’. | Abundance of **adults** in spring and fall bottom trawl surveys (75%) + adjacent areas with suitable depth and temperature conditions + TMS where **adults** occurred in at least 10% of inshore survey tows + estuaries and embayments where **adults** were identified as ‘common’ or ‘abundant’. |

[2] Available at https://d23h0vhsm26o6d.cloudfront.net/OA2-FEIS_Vol_2_FINAL_171025.pdf

[3] Available at https://d23h0vhsm26o6d.cloudfront.net/Appendix_A_EFH_Designation_Methods_v2.pdf.

| Species | Egg | Larval | Juvenile | Adult |
|---|---|---|---|---|
| Atlantic halibut | Single map based on a GIS depiction of preferred depth and bottom temperature ranges that were determined from graphical 1963-2003 spring and fall NMFS trawl survey for juveniles and adults. It was also based on average catch per tow data at the 90th percentile of catch level for juveniles and adults in TMS of latitude and longitude in the 1968-2005 spring and fall NMFS trawl surveys, and includes a portion of the continental slope. The map was bounded by the historic range of the species, which was determined to approximate the area east of 70˚W longitude, i.e., the Gulf of Maine and Georges Bank. | | | |
| Atlantic sea scallop | Single map that included all the TMS where scallops of any size were caught during the following surveys: 1968-2011 NMFS trawl (fall and spring), 1981-2012 NMFS summer scallop dredge, 2000-2013 Maine/NH trawl, and 2005-2013 Maine scallop dredge. For each survey, scallop EFH was only identified if at least three tows were conducted in a particular TMS. Thus, some TMS with very low sampling rates could not be designated EFH on the basis of some surveys, despite having positive catches of scallops. In addition, the map includes bays and estuaries identified by the NOAA ELMR program where juvenile or adult Atlantic sea scallops were "common" or "abundant.” The resulting EFH footprint was then clipped by the 110 m contour to remove areas deeper than 110 m. | | | |
| Atlantic wolffish | The map depicted the estimated species range for Atlantic wolffish and was intended to be combined with information in the text description to understand whether a specific location represented EFH for the species. The map included all areas of Georges Bank and the Gulf of Maine, east of 71° W and north of 41° N. | | | |
| Haddock | Abundance of **eggs** in 1978-1987 MARMAP surveys (100%) | Abundance of **larvae** in 1978-1987 MARMAP surveys (100%) | Abundance of **juveniles** in spring and fall bottom trawl surveys (90%) + adjacent areas with suitable depth and temperature conditions + TMS where **juveniles** occurred in at least 10% of inshore survey tows + estuaries and embayments where **juveniles** were identified as ‘common’ or ‘abundant’. | Abundance of **adults** in spring and fall bottom trawl surveys (90%) + adjacent areas with suitable depth and temperature conditions + TMS where **adults** occurred in at least 10% of inshore survey tows + estuaries and embayments where **adults** were identified as ‘common’ or ‘abundant’ + additional TMS where spawning was known to occur. |

| Species | Egg | Larval | Juvenile | Adult |
| --- | --- | --- | --- | --- |
| Ocean pout | Abundance of **adults** in spring and fall bottom trawl surveys (75%) + adjacent areas with suitable depth and temperature conditions + TMS where **adults** occurred in at least 10% of inshore survey tows + estuaries and embayments where **eggs** were identified as ‘common’ or ‘abundant’. | No larval map, no true larval stage | Abundance of **juveniles** in spring and fall bottom trawl surveys (75%) + adjacent areas with suitable depth and temperature conditions + TMS where **juveniles** occurred in at least 10% of inshore survey tows + estuaries and embayments where **juveniles** were identified as ‘common’ or ‘abundant’. | Abundance of **adults** in spring and fall bottom trawl surveys (75%) + adjacent areas with suitable depth and temperature conditions + TMS where **adults** occurred in at least 10% of inshore survey tows + estuaries and embayments where **adults** were identified as ‘common’ or ‘abundant’. |
| Offshore hake | Abundance of **eggs** in 1978-1987 MARMAP surveys (75%) | Abundance of **larvae** in 1978-1987 MARMAP surveys (75%) | Abundance of **juveniles and adults** in spring and fall bottom trawl surveys (90%) + adjacent areas with suitable depth and temperature conditions, + continental slope habitats. | |
| Pollock | Abundance of **adults** in spring and fall bottom trawl surveys (90%) + Abundance of **eggs** in 1978-1987 MARMAP surveys (90%) | Abundance of **adults** in spring and fall bottom trawl surveys (90%) + Abundance of **larvae** in 1978-1987 MARMAP surveys (90%) | Abundance of **juveniles** in spring and fall bottom trawl surveys (90%) + adjacent areas with suitable depth and temperature conditions + TMS where **juveniles** occurred in at least 10% of inshore survey tows + estuaries and embayments where **juveniles** were identified as ‘common’ or ‘abundant’. | Abundance of **adults** in spring and fall bottom trawl surveys (90%) + adjacent areas with suitable depth and temperature conditions + TMS where **adults** occurred in at least 10% of inshore survey tows + estuaries and embayments where **adults** were identified as ‘common’ or ‘abundant’. |
| Red hake | Abundance of **juveniles** in spring and fall bottom trawl surveys (75%) + adjacent areas with suitable depth and temperature conditions + TMS where **juveniles** occurred in at least 10% of inshore survey tows + estuaries and embayments where **eggs, larvae, or juveniles** were identified as ‘common’ or ‘abundant’. | | | Abundance of **adults** in spring and fall bottom trawl surveys (90%) + adjacent areas with suitable depth and temperature conditions + TMS where **adults** occurred in at least 10% of inshore survey tows + estuaries and embayments where **adults** were identified as ‘common’ or ‘abundant’ + continental slope areas. |

| Species | Egg | Larval | Juvenile | Adult |
|---|---|---|---|---|
| Silver hake | Abundance of **juveniles** in spring and fall bottom trawl surveys (75%) + adjacent areas with suitable depth and temperature conditions + TMS where **juveniles** occurred in at least 10% of inshore survey tows + estuaries and embayments where **eggs or larvae** were identified as 'common' or 'abundant'. | | Abundance of **juveniles** in spring and fall bottom trawl surveys (75%) + adjacent areas with suitable depth and temperature conditions + TMS where **juveniles** occurred in at least 10% of inshore survey tows + estuaries and embayments north of Cape Cod where **juveniles** were identified as 'common' or 'abundant'. | Abundance of **adults** in spring and fall bottom trawl surveys (75%) + adjacent areas with suitable depth and temperature conditions + TMS where **adults** occurred in at least 10% of inshore survey tows + estuaries and embayments north of Cape Cod where **adults** were identified as 'common' or 'abundant'. |
| White hake | Abundance of **adults** in spring and fall bottom trawl surveys (90%) + adjacent areas with suitable depth and temperature conditions + TMS where **adults** occurred in at least 10% of inshore survey tows + estuaries and embayments where **eggs or adults** were identified as 'common' or 'abundant' + continental slope areas. | Abundance of **juveniles** in spring and fall bottom trawl surveys (90%) + adjacent areas with suitable depth and temperature conditions + TMS where **juveniles** occurred in at least 10% of inshore survey tows + estuaries and embayments where **larvae or juveniles** were identified as 'common' or 'abundant'. | Abundance of **juveniles** in spring and fall bottom trawl surveys (90%) + adjacent areas with suitable depth and temperature conditions + TMS where **juveniles** occurred in at least 10% of inshore survey tows + estuaries and embayments in the Gulf of Maine where **juveniles** were identified as 'common' or 'abundant'. | Abundance of **adults** in spring and fall bottom trawl surveys (90%) + adjacent areas with suitable depth and temperature conditions + TMS where **adults** occurred in at least 10% of inshore survey tows + estuaries and embayments in the Gulf of Maine where **adults** were identified as 'common' or 'abundant'. |
| Windowpane flounder | Abundance of **eggs** in 1978-1987 MARMAP surveys (90%) + estuaries and embayments where **eggs** were identified as 'common' or 'abundant'. | Abundance of **larvae** in 1978-1987 MARMAP surveys (90%) + estuaries and embayments where **larvae** were identified as 'common' or 'abundant'. | Abundance of **juveniles** in spring and fall bottom trawl surveys (90%) + adjacent areas with suitable depth and temperature conditions + TMS where **juveniles** occurred in at least 10% of inshore survey tows + estuaries and embayments where **juveniles** were identified as 'common' or 'abundant'. | Abundance of **adults** in spring and fall bottom trawl surveys (90%) + adjacent areas with suitable depth and temperature conditions + TMS where **adults** occurred in at least 10% of inshore survey tows + estuaries and embayments where **adults** were identified as 'common' or 'abundant'. |

| Species | Egg | Larval | Juvenile | Adult |
|---|---|---|---|---|
| Winter flounder | Depth based, shoreline to 5 m from Cape Cod to Absecon Inlet, NJ, and to 70 m in the Gulf of Maine and on Georges Bank. | See adult | Abundance of **juveniles** in spring and fall bottom trawl surveys (90%) + adjacent areas with suitable depth and temperature conditions + TMS where **juveniles** occurred in at least 10% of inshore survey tows + estuaries and embayments where **juveniles** were identified as 'common' or 'abundant'. | Abundance of **adults** in spring and fall bottom trawl surveys (90%) + adjacent areas with suitable depth and temperature conditions + TMS where **adults** occurred in at least 10% of inshore survey tows + estuaries and embayments where **adults** were identified as 'common' or 'abundant'. |
| Witch flounder | Abundance of **eggs** in 1978-1987 MARMAP surveys (100%) | Abundance of **larvae** in 1978-1987 MARMAP surveys (100%) | Abundance of **juveniles** in spring and fall bottom trawl surveys (90%) + adjacent areas with suitable depth and temperature conditions + TMS where **juveniles** occurred in at least 10% of inshore survey tows + continental slope areas. | Abundance of **adults** in spring and fall bottom trawl surveys (90%) + adjacent areas with suitable depth and temperature conditions + TMS where **adults** occurred in at least 10% of inshore survey tows + continental slope areas. |
| Yellowtail flounder | Abundance of **eggs** in 1978-1987 MARMAP surveys (100%) | Abundance of **larvae** in 1978-1987 MARMAP surveys (100%) | Abundance of **juveniles** in spring and fall bottom trawl surveys (90%) + adjacent areas with suitable depth and temperature conditions + TMS where **juveniles** occurred in at least 10% of inshore survey tows + estuaries and embayments where **juveniles** were identified as 'common' or 'abundant'. | Abundance of **adults** in spring and fall bottom trawl surveys (90%) + adjacent areas with suitable depth and temperature conditions + TMS where **adults** occurred in at least 10% of inshore survey tows + estuaries and embayments where **adults** were identified as 'common' or 'abundant'. |

## 4.2 UPDATED EFH DESIGNATIONS (PREFERRED ALTERNATIVE)

Under the Updated EFH Designation alternative, description and identification of EFH for all FMPs and managed species would be updated as described in the following sections. As described in Section 3.6, we generally applied the model-based approaches to mapping EFH separately for both juveniles and adults. These consisted of the dredge-trawl single-index model for scallops, longline-trawl integrated model for adult halibut and wolffish, trawl-only model for juvenile halibut and wolffish, and joint hurdle model for all other species and life stages. For joint hurdle species, these modeled EFH footprints were then combined with a non-modeled inshore map footprint based on suitable estuarine and coastal zones and fish abundance data as well as continental slope extensions for relevant species to form the draft updated EFH map.

Given the limited and incomplete nature of the egg and larval data, separate egg and larval maps were not developed for species in this framework. Juvenile and adult EFH maps combined with egg and larval text descriptions can be used to indicate distribution of eggs and larvae for the purposes of EFH consultation. The lack of separate egg and larval maps does not preclude the ability of NOAA Fisheries consultation staff to delve into life stage specific details for a specific project site, if more detailed data are available.

These EFH designation approaches are summarized by species in the table below. Additional model outputs that are not formally part of these designations, but which can be considered during Council activities and NOAA's EFH consultations, are provided in Appendix B: Environmental Ranges and Appendix D: Species Distribution Model Outputs.

**Rationale:** These updated methods and the resulting designation maps and text use a more recent and shorter time series of data as compared to the designations under No Action and therefore better reflect current patterns of distribution. While the No Action designations include depth and temperature information in addition to relative abundance data, the species distribution models used in the updated designations include additional environmental covariates beyond depth and temperature to better explain patterns of habitat use. These include salinity, tidal current velocities, bottom orbital velocities, bathymetric position index, topographic complexity, sediment grain size, and sediment mobility (see Appendix E). Further, model-based approaches improve our ability to estimate habitat use in areas where fish surveys are not conducted as compared to prior data processing techniques.

In addition, the species distribution models directly integrate some state and regional surveys, including major surveys in the New England region (Maine-New Hampshire Trawl, Massachusetts Trawl, Northeast Area Monitoring and Assessment Program), rather than simply appending these areas to the offshore designation area as was done with the No Action maps. Finally, the estuarine and inshore methods use the highest spatial resolution data available to map zones within estuaries based on their depth and salinity, rather than identifying entire estuaries as EFH, including lower salinity mixing or tidal fresh that are not suitable habitat for some species.

**Table 6. Summary of map approaches to life stage-specific EFH designation updates.**

| Species | Juvenile | Adult |
|---|---|---|
| Acadian redfish | Joint model-based | Joint model-based |
| American plaice | Joint model-based | Joint model-based |
| Atlantic halibut | Trawl-only model-based, single species SDM | Longline-integrated model-based, single species SDM |
| Atlantic sea scallop | Single index model-based, single map for all life stages, single species SDM | |
| Atlantic wolffish | Trawl-only model-based, single species SDM | Longline-integrated model-based, single species SDM |
| Haddock | Joint model-based | Joint model-based |
| Ocean pout | Joint model-based | Joint model-based |
| Offshore hake | Trawl-only model-based, single species SDM | Trawl-only model-based, single species SDM |
| Pollock | Joint model-based | Joint model-based |
| Red hake | Joint model-based | Joint model-based |
| Silver hake | Joint model-based | Joint model-based |
| White hake | Joint model-based | Joint model-based |
| Windowpane flounder | Joint model-based | Joint model-based |
| Winter flounder | Joint model-based | Joint model-based |
| Witch flounder | Joint model-based | Joint model-based |
| Yellowtail flounder | Joint model-based | Joint model-based |

## 4.2.1 Acadian redfish

Essential fish habitat (EFH) for Acadian redfish (*Sebastes fasciatus*) is designated anywhere within the geographic areas that are shown on the following maps and meets the conditions described below. There is no egg designation for redfish because the species is ovoviviparous, meaning that live young hatch from eggs brooded internally.

For juveniles, small areas of potential model-based EFH were manually removed from the EFH map south of Georges Bank, as they were discontinuous with the rest of the designation. See Table 4 in Section 3.6.6 of this document and Map 2 in Appendix E.

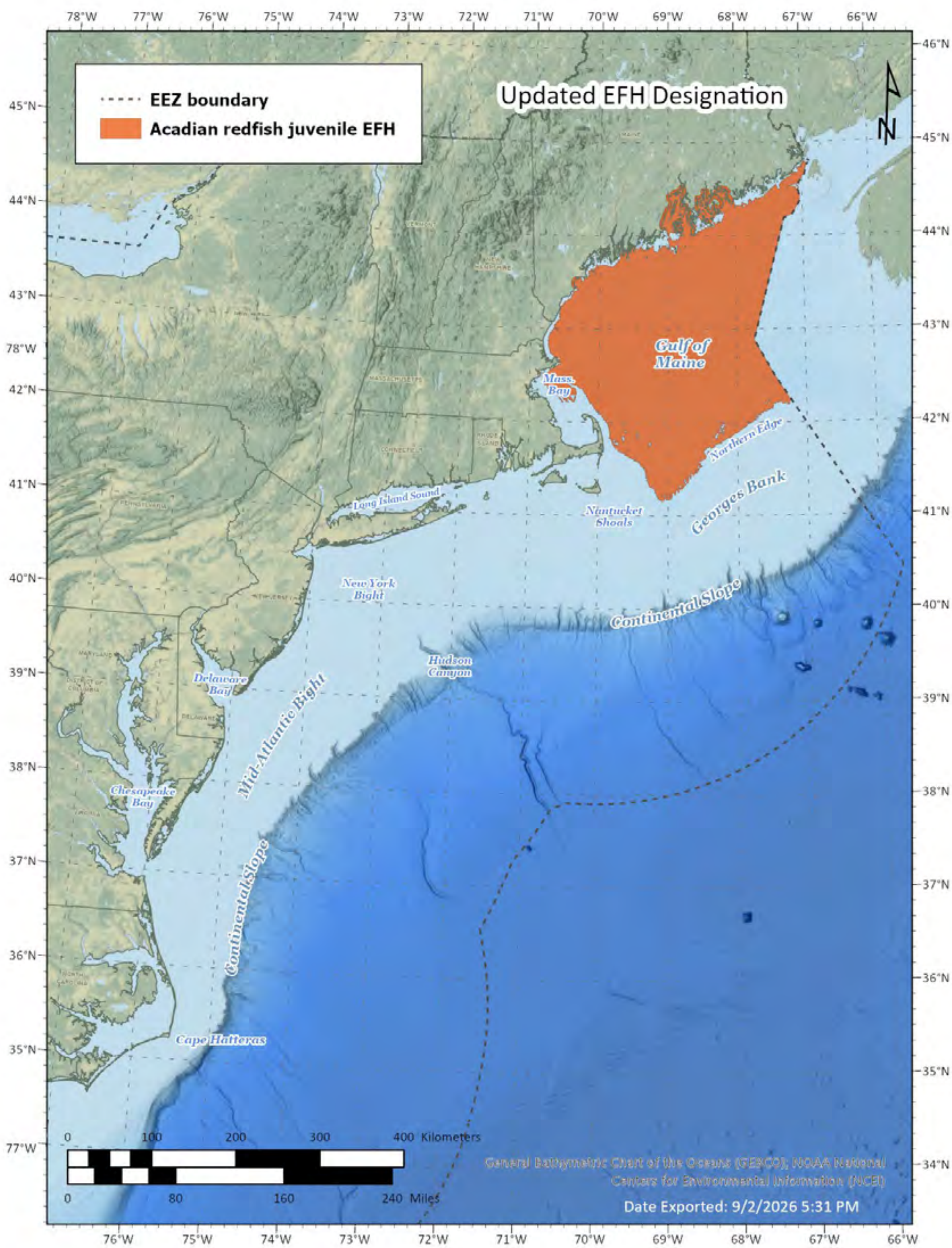
**Larvae:** EFH for larval Acadian redfish consists of pelagic habitats in the Gulf of Maine, on the southern portion of Georges Bank, and on the continental slope north of 37°38'N latitude. Redfish (*Sebastes spp.*) larvae are commonly found associated with deep cold-water corals, such as sea pens. The EFH source document notes that larvae have been collected throughout the water column in temperatures ranging from 3-15°C and most commonly from 6-11°C. In deeper waters, larvae associated with sea pens have been found predominantly on soft sediments from 400-600 meters depth and between 4-6°C.

**Juveniles:** EFH for juvenile Acadian redfish (TL < 22 cm) consists of the principal habitat area and includes subtidal coastal and offshore benthic habitats in the Gulf of Maine as well as continental slope habitats on the southern edge of Georges Bank (Map 1). Within the principal habitat area, juvenile EFH ranges from 30-244 meters depth, but juveniles most commonly occur between 74-209 meters depth (Appendix B, Table 22). On the continental slope, they can be found to maximum depth of 600 meters (Appendix B, Table 23). Juvenile EFH also includes bottom temperatures between 3-12°C and marine waters between 31-36 ppt (Appendix B, Table 22). Bottom habitats of complex rocky reef substrates with associated structure-forming epifauna (e.g., sponges, corals, sea pens), and soft sediments with cerianthid anemones are EFH for juvenile redfish. Young-of-the-year juveniles are found on boulder reefs, while older juveniles are found in dense cerianthid habitats. Juvenile redfish expand their distribution to adjacent gravel habitats when local abundance on reefs is high. Both juvenile and adult redfish make diel vertical migrations, and juveniles have been observed migrating to sponge habitat during daytime hours and feeding in the water column at night; these sponge habitats also appear to serve as refugia from predators and strong currents. They do not use unstructured mud habitat. Areas of hard bottom in the deep basins are also good habitat for juveniles.

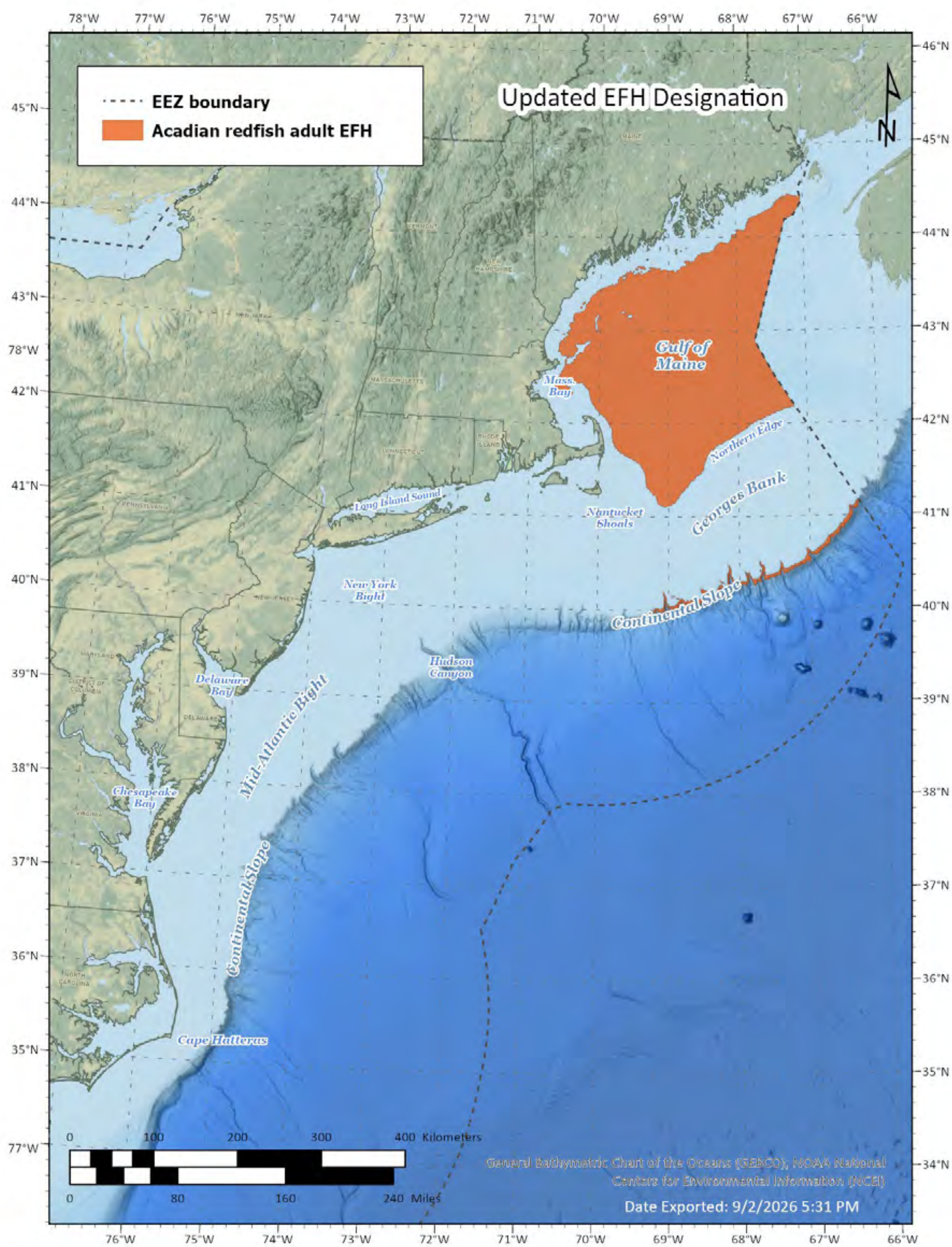
**Adults:** EFH for adult Acadian redfish (TL ≥ 22 cm) consists of the principal habitat area and includes offshore benthic habitats in the Gulf of Maine and on the continental slope as far south as Hudson Canyon (Map 2). Fishing effort is generally spread throughout the Gulf of Maine, but commercial landings and discards indicate key fishing areas along the northern edge of Georges Bank, the area north of the Great South Channel extending along the continental shelf edge into Wilkinson Basin, Massachusetts Bay, Scantum Basin, and areas northwest of Cashes Ledge between Jeffreys Bank and Davis Swell, extending toward Jordan Basin. Within the principal habitat area, adult EFH ranges from 48-355 meters depth, but adults most commonly occur between 106-230 meters depth (Appendix B, Table 22). On the continental slope, they can be found to maximum depth of 600 meters (Appendix B, Table 23). Adult EFH also includes bottom temperatures between 3-11°C and marine waters between 32-36 ppt (Appendix B, Table 22). EFH for adult Acadian redfish occurs on finer grained bottom sediments and variable deposits of clays, silts, gravel, and boulders with associated structure-forming epifauna (e.g. corals, sponges, cerianthid anemones, sea pens). Complex sponge habitats may serve as feeding grounds for adult redfish as well as refugia from predators and strong currents. Mating is thought to occur in the fall (broadly, sometime between September and December), but larval extrusion does not occur until the following late spring / early summer (April to July).

**References Consulted:** Pikanowski et al., 1999 (EFH Source Document); Baillon et al. 2012, Baillon et al. 2015; Rowley, 2018 (FMP Resource Guide, and references within); Froese and Pauly, 2018; Pickens et al., 2020; Senay et al. 2021;Grinyo et al. 2023, Coleman 2024, De Clippele et al. 2025; NEFSC 2025 (Management Track Assessment Report)

**Map 2. Acadian redfish (*Sebastes fasciatus*) juvenile EFH.**



**Map 3. Acadian redfish (*Sebastes fasciatus*) adult EFH.**



### 4.2.2 American plaice

Essential fish habitat (EFH) for American plaice (*Hippoglossoides platessoides*) is designated anywhere within the geographic areas that are shown on the following maps and meets the conditions described below.

**Eggs:** EFH for American plaice eggs consists of pelagic habitats in the Gulf of Maine and on Georges Bank. Eggs are fertilized near the bottom but are buoyant. Although eggs drift near the surface for approximately two weeks before hatching, they tend to be retained near spawning areas.

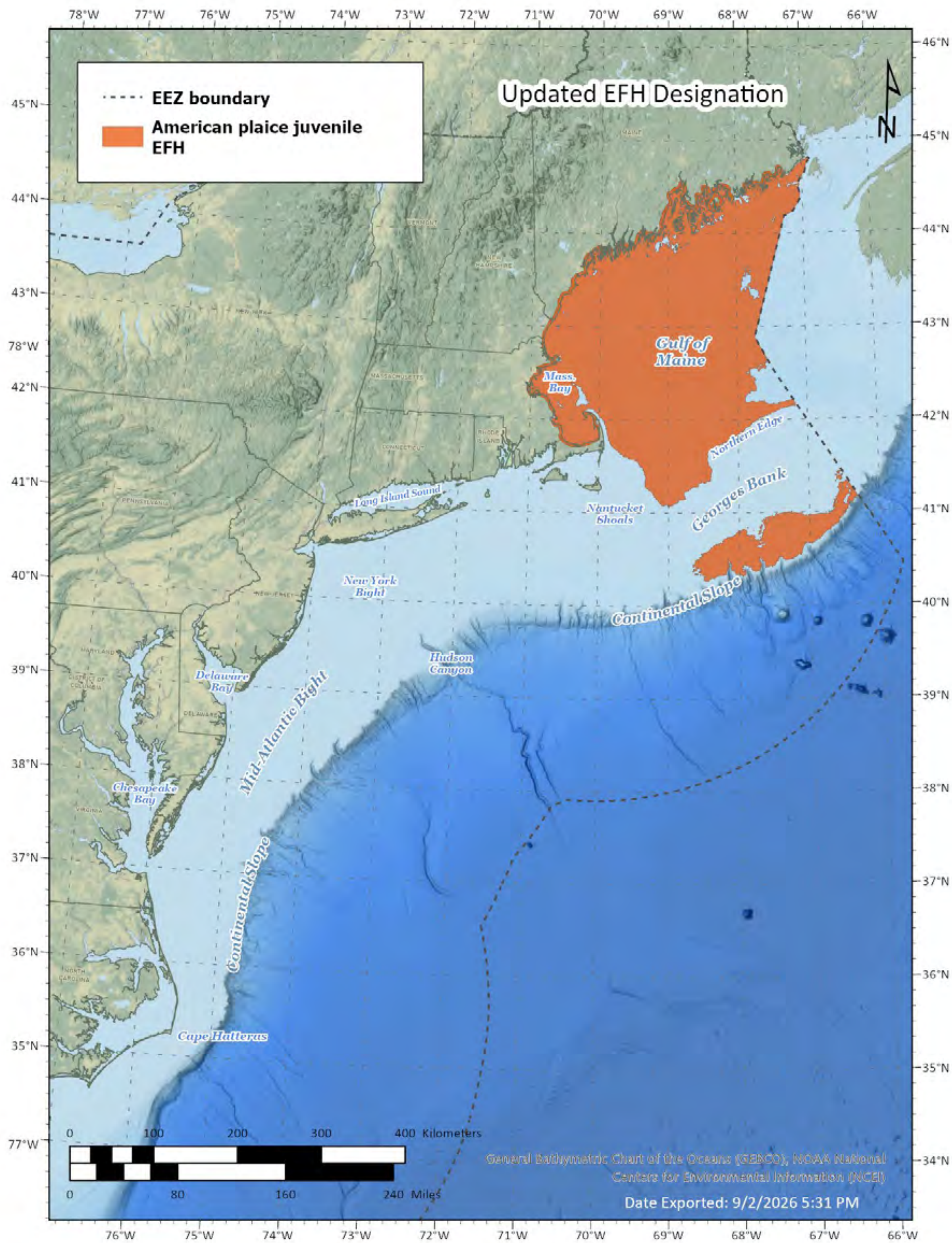
**Larvae:** EFH for larval American plaice consists of pelagic habitats in the Gulf of Maine, on Georges Bank, and in southern New England. Larvae are pelagic but descend and settle toward the bottom as eye migration completes.

**Juveniles:** EFH for juvenile American plaice (TL < 24 cm) consists of the principal habitat area and includes subtidal benthic habitats in the Gulf of Maine and on the western and southern portions of Georges Bank (Map 3). Inshore juvenile EFH typically includes marine zones of bays and estuaries; specific portions of these inshore areas can be identified from Map 3. Within the principal habitat area, juvenile EFH ranges from 23-273 meters depth, but juveniles most commonly occur between 48-179 meters depth (Appendix B, Table 22). Juvenile EFH also includes bottom temperatures between 3-12°C and marine waters between 31-35 ppt (Appendix B, Table 22). EFH for juvenile American plaice consists of soft bottom substrates (mud and sand), and generally prefer finer, gravelly sand versus sand mixed with mud, silt, or clay. They are also found on gravel and sandy substrates bordering bedrock, which is thought to be preferred habitat for green sea urchins, an important prey species. Deep-sea, offshore sponge habitats may act as nursery grounds for juvenile plaice, particularly in the summer and autumn.

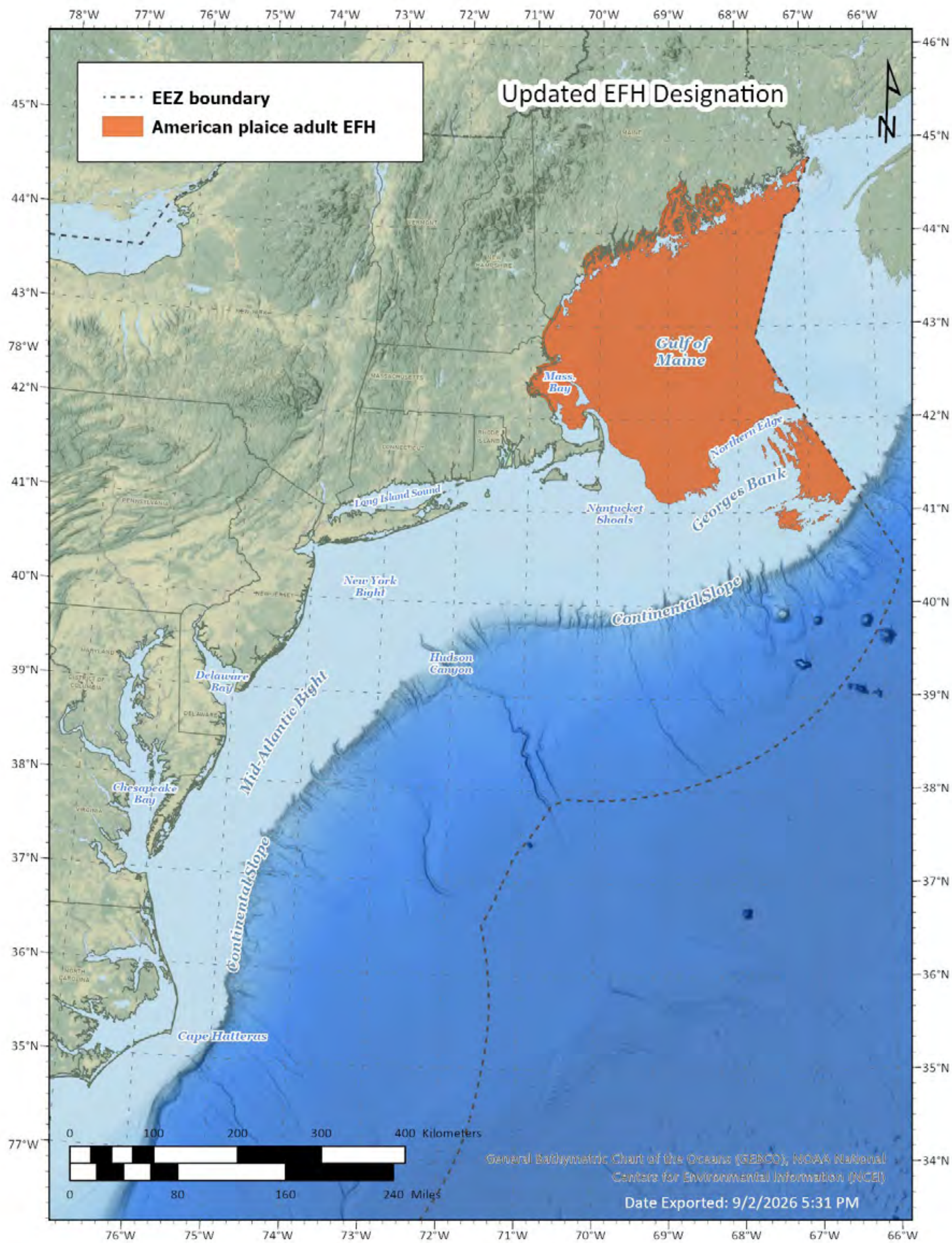
**Adults:** EFH for adult American plaice (TL ≥ 24 cm) consists of the principal habitat area and includes subtidal benthic habitats in the Gulf of Maine and on the western and eastern portions of Georges Bank (Map 4). Key fishing areas include offshore habitats in the western Gulf of Maine, such as east of Jeffreys Ledge, into Wilkinson Basin, and along the northern edge of Georges Bank. Historically, U.S. commercial landings for plaice have extended into southern New England and into the Mid-Atlantic Bight, but more recently landings have been concentrated in the Gulf of Maine. Inshore adult EFH typically includes marine zones of bays and estuaries; specific portions of these inshore areas can be identified from Map 4, but adults are not frequently found in the upper portions of bays. Within the principal habitat area, adult EFH ranges from 26-313 meters depth, but adults most commonly occur between 53-200 meters depth (Appendix B, Table 22). Adult EFH also includes bottom temperatures between 3-12°C and marine waters between 31-35 ppt (Appendix B, Table 22). EFH for adult American plaice consists of soft bottom substrates (mud and sand), but they are also found on gravel and sandy substrates bordering bedrock, which is thought to be preferred habitat of green sea urchins, an important prey species. Adults make limited migrations to shallower (typically < 90 m depth), coastal waters to spawn. The timing of spawning season varies regionally; in northern Gulf of Maine, spawning occurs in the summer, whereas in the southern portion of its range spawning occurs between March and mid-June, peaking in April-May. In Canadian waters, American plaice have been found to make seasonal migrations to deeper, warmer waters in the winter.

**References Consulted:** Johnson 2004 (EFH Source Document 2nd Edition); Salter, 2018 (FMP Resource Guide, and references within); Alade et al. 2022 (2022 RTWG, especially Figure 2.5); Behan et al. 2022 (2022 RTWG, TOR1); Behan and Kerr 2026; De Clippele et al. 2025

**Map 4. American plaice (*Hippoglossoides platessoides*) juvenile EFH.**



**Map 5. American plaice (*Hippoglossoides platessoides*) adult EFH.**



### 4.2.3 Atlantic halibut

Essential fish habitat (EFH) for Atlantic halibut (*Hippoglossus hippoglossus*) is designated anywhere within the geographic areas that are shown on the following maps and meets the conditions described below. Note that Atlantic halibut are relatively data-poor in the bottom trawl surveys; as such, EFH was determined for adults using outputs from a separate species distribution model (SDM) that integrates longline data and for juveniles using a trawl-only model, as juveniles are relatively rare in the longline survey. Large halibut are usually fast enough to outpace trawl surveys, and longline catchability may be dependent on hook type and bait. Model development and additional information sources consulted are described in Appendix E. Environmental ranges are presented for the limited bottom trawl data available but were verified with the literature. In Canadian waters, modeled thermal habitat for Atlantic halibut is projected to increase under climate warming scenarios (Czich et al., 2023).

For adults, the EFH map is based on the 75% density quantile within the area where the cumulative 95% of adult halibut individuals were predicted to occur, as estimated by the SDM. Clipping areas with < 5% encounter probability, as was done for other species, resulted in an overly restricted spatial footprint for the EFH map. See Table 4 in Section 3.6.6 of this document for more information.

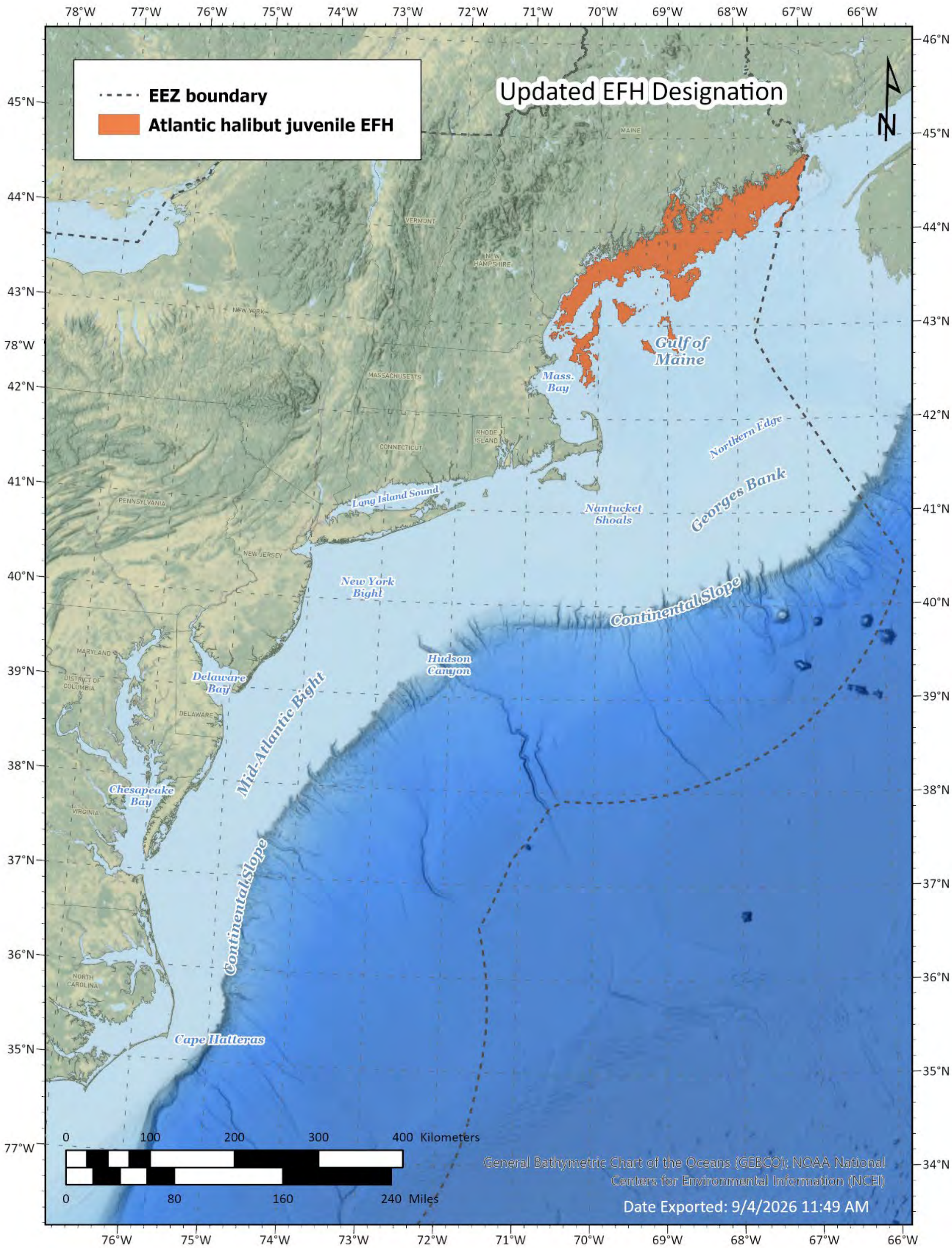
**Eggs and larvae:** EFH for egg and larval Atlantic halibut consists of pelagic habitats in the Gulf of Maine and on Georges Bank. Eggs are buoyant and typically float in the water column between 54-200 meters depth. Egg incubation is strongly temperature-dependent and lasts between 13-20 days at 4.7-7°C. After hatching, larvae are thought to remain pelagic near the water surface, until metamorphosis begins approximately 80 days after hatching. Settlement to the bottom occurs during or after metamorphosis is complete.

**Juveniles:** Essential fish habitat (EFH) for juvenile Atlantic halibut (TL < 75 cm) consists of the principal habitat area and includes subtidal and coastal offshore benthic habitats in the Gulf of Maine and on Georges Bank (Map 5). Nearshore juvenile and adult EFH typically includes marine zones of coastal areas, which can be identified from Map 5. Within the principal habitat area, juvenile EFH ranges from 13-214 meters depth, but juveniles most commonly occur between 42-125 meters depth (Appendix B, Table 22). On the continental slope, they can be found to a maximum depth of 900 meters (Appendix B, Table 23). Juvenile EFH also includes bottom temperatures between 3-13°C and marine waters between 31-35 ppt (Appendix B, Table 22). Generally, EFH for Atlantic halibut consists of sand, gravel, or clay substrates. Juvenile nursery grounds are in waters 20-60 meters deep in apparently well-defined coastal areas with sandy bottoms. At around 3-4 years old, juveniles migrate away from nursery areas, and tagging studies have shown that juveniles undergo greater migrations than adults.

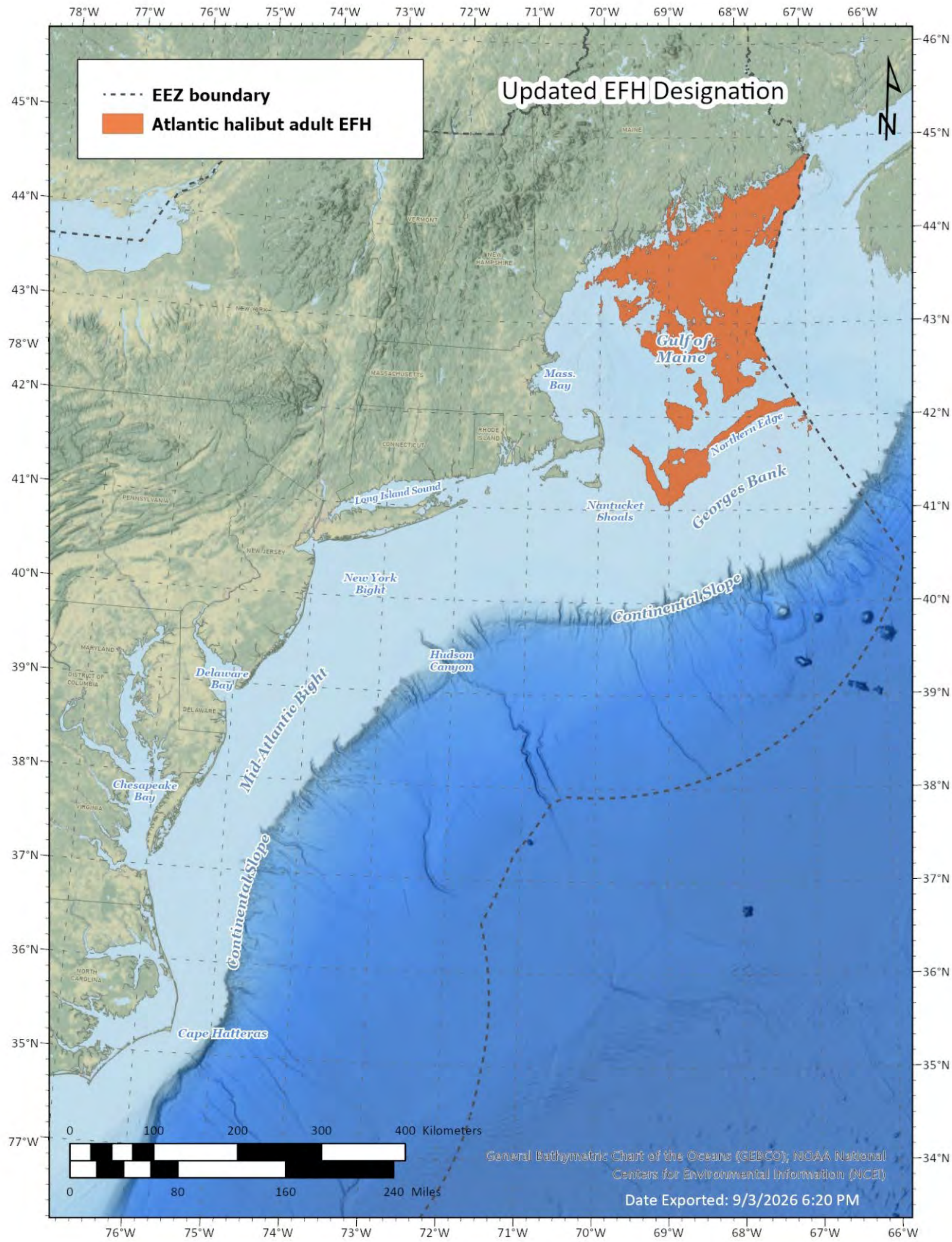
**Adults:** Essential fish habitat (EFH) for adult Atlantic halibut (TL ≥ 75 cm) consists of the principal habitat area and includes subtidal and coastal offshore benthic habitats in the Gulf of Maine and on Georges Bank (Map 6). U.S. commercial landings of halibut are generally spread throughout offshore portions of the Gulf of Maine. Key fishing areas include the area north of the Great South Channel extending toward Cape Cod, Massachusetts Bay, offshore banks such as Platts Bank, swells surrounding Rodgers Basin extending toward Cashes Ledge; and areas northwest of Cashes Ledge between Jeffreys Bank and Davis Swell, extending toward Jordan Basin. Nearshore juvenile and adult EFH typically includes marine zones of coastal areas, which can be identified from Map 6. Adults occupy similar conditions as juveniles but are typically found deeper. Within the principal habitat area, adult EFH ranges from 30-255 meters depth, but adults most commonly occur between 70-175 (Appendix B, Table 22). Like juveniles, adults can be found on the continental slope to 900 meters (Appendix B, Table 23). Adult EFH also includes bottom temperatures between 3-12°C and marine waters between 31-35 ppt (Appendix B, Table 22). Generally, EFH for Atlantic halibut consists of sand, gravel, or clay substrates. Tagging studies have shown that Atlantic halibut within the Gulf of Maine exhibit both year-long residency and migratory behavior (both short- and long-distance, including across the Hague line), for example between summer feeding grounds and winter spawning grounds. Adults have been observed or inferred spawning on the eastern Scotian Shelf and in the eastern Gulf of Maine, typically from November to April (peaking in mid-February), but not in the western Gulf of Maine. Spawning generally occurs over rough or rocky bottom along the deepwater margins of offshore banks, in deeper canyons, and on the continental slope, such as in the Gully Marine Protected Area, Laurentian Channel, and Northeast Channel.

**References Consulted:** Cargnelli et al., 1999 (EFH Source Document) ; Ransier et al., 2024; Czich et al. 2023; McBride et al., 2022; Shackell et al., 2022; Gatti et al., 2020; Hansell et al., 2020; Liu et al., 2019; Roberts, 2018 (FMP Resource Guide, and references within); Boudreau et al., 2017; Seitz et al., 2016; Froese and Pauly, 2018; Pickens et al., 2020

**Map 6. Atlantic halibut (*Hippoglossus hippoglossus*) juvenile EFH.**



**Map 7. Atlantic halibut (*Hippoglossus hippoglossus*) adult EFH.**



### 4.2.4 Atlantic sea scallop

Essential fish habitat (EFH) for Atlantic sea scallop (*Placopecten magellanicus*) is designated anywhere within the geographic areas that are shown on the following map and meets the conditions described below. Atlantic sea scallops are not well-sampled by the federal bottom trawl surveys owing to substrate-specific catchability rates. Therefore, the EFH map for scallops is based on a separate, dredge-trawl integrated model. This model uses data for scallops > 75 mm and assumes juvenile scallops have similar habitat preferences as adults, given that adults are known to settle and form stationary aggregations at around 80 mm shell height. Appendix E provides additional details on the development, inputs, and assumptions of this scallop-specific model. Because scallops are poorly sampled by the trawl surveys and dredge surveys sample a narrow range of conditions, depth, temperature, and salinity ranges are based on literature and input from scientific and industry experts.

Small areas off Cape Hatteras were manually removed from the EFH map. See Table 4 in Section 3.6.6 of this document and Map 3 in Appendix E.

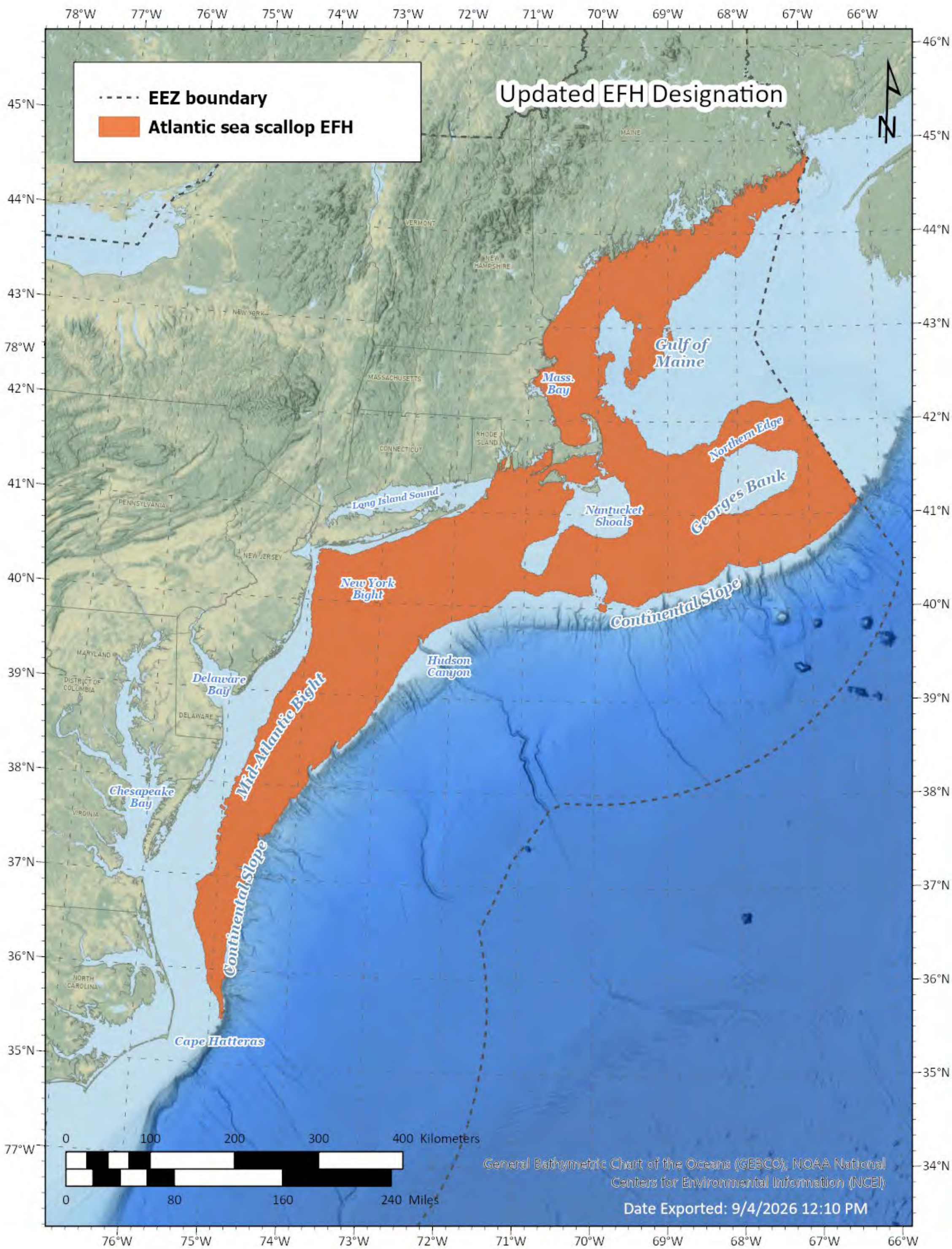
**Eggs:** Essential fish habitat (EFH) for Atlantic sea scallop eggs consists of benthic habitats in inshore areas and on the continental shelf in the vicinity of adult scallops. Eggs are heavier than seawater and remain on the seafloor until they develop into the first free-swimming larval stage.

**Larvae:** Essential fish habitat (EFH) for larval Atlantic sea scallop consists of benthic and water column habitats in inshore and offshore areas throughout the region. Any hard surface can provide an essential habitat for settling pelagic larvae (“spat”), including shells, pebbles, and gravel. They also attach to macroalgae and other benthic organisms such as hydroids. Spat attached to sedentary branching organisms or any hard surface have greater survival rates; spat that settle on shifting sand do not survive.

**Juveniles and Adults:** Essential fish habitat (EFH) for juvenile (shell height ≤ 75 mm) and adult (shell height > 75 mm) Atlantic sea scallop consists of the principal habitat area and includes subtidal and coastal offshore benthic habitats in the Gulf of Maine, on Georges Bank, and in the Mid-Atlantic region as far south as Cape Hatteras (Map 7). Key fishing areas include the New York Bight ranging approximately from Baltimore Canyon to Block Channel, the southern flank and northern edge of Georges Bank, Great South Channel, and along the shelf edge in the western Gulf of Maine extending into Massachusetts Bay and off Cape Ann. While scallops have been historically encountered and caught further south, more recently southern areas are thought to be less important to the species due to warming bottom temperatures. As such, high densities are not expected further south than Baltimore Canyon. For similar reasons, scallop beds have been shifting to deeper waters, though there is regional variation in maximum depth extent utilized. Within the principal habitat area, adult EFH ranges from 18 to 180 meters depth, but they are also found in shallower water and as deep as 180 meters in the Gulf of Maine. In the Mid-Atlantic, they are found primarily between 45-75 meters and on Georges Bank they are more abundant between 70-90 meters. Adult EFH consists of sand and gravel substrates, where scallops often form aggregations called beds. These beds may be sporadic or essentially permanent, depending on how suitable the habitat conditions are (temperature, food availability, and substrate) and whether oceanographic features (fronts, currents) keep larval stages in the vicinity of the spawning population. Additionally, large recruitment year events may temporarily put scallops in less favorable habitat. Bottom currents stronger than 25 cm/sec (half a knot) inhibit feeding. Growth of adult scallops is optimal between 10 and 15°C and they prefer full strength seawater.

**References Consulted:** Hart and Chute, 2004 (EFH Source Document 2nd Edition); Atlantic Sea Scallop Research Track Assessment, 2025; *others to be added*

**Map 8. Atlantic sea scallop (*Placopecten magellanicus*) EFH (all life stages).**



### 4.2.5 Atlantic wolffish

Essential fish habitat for Atlantic wolffish (*Anarhichas lupus*) is designated anywhere within the geographic areas that are shown on the following map and meets the conditions described below. Note that Atlantic wolffish are relatively data-poor in the bottom trawl surveys; as such, EFH was determined for adults using outputs from a separate species distribution model that integrates longline data and for juveniles using a trawl-only model, as juveniles are relatively rare in the longline survey. Model development and additional information sources consulted are described in Appendix E. Environmental ranges are presented for the limited bottom trawl data available but were verified with the literature.

**Eggs:** Sub-tidal benthic habitats at depths less than 100 meters within the geographic area shown on Map 9. Wolffish egg masses are hidden under rocks and boulders in nests.

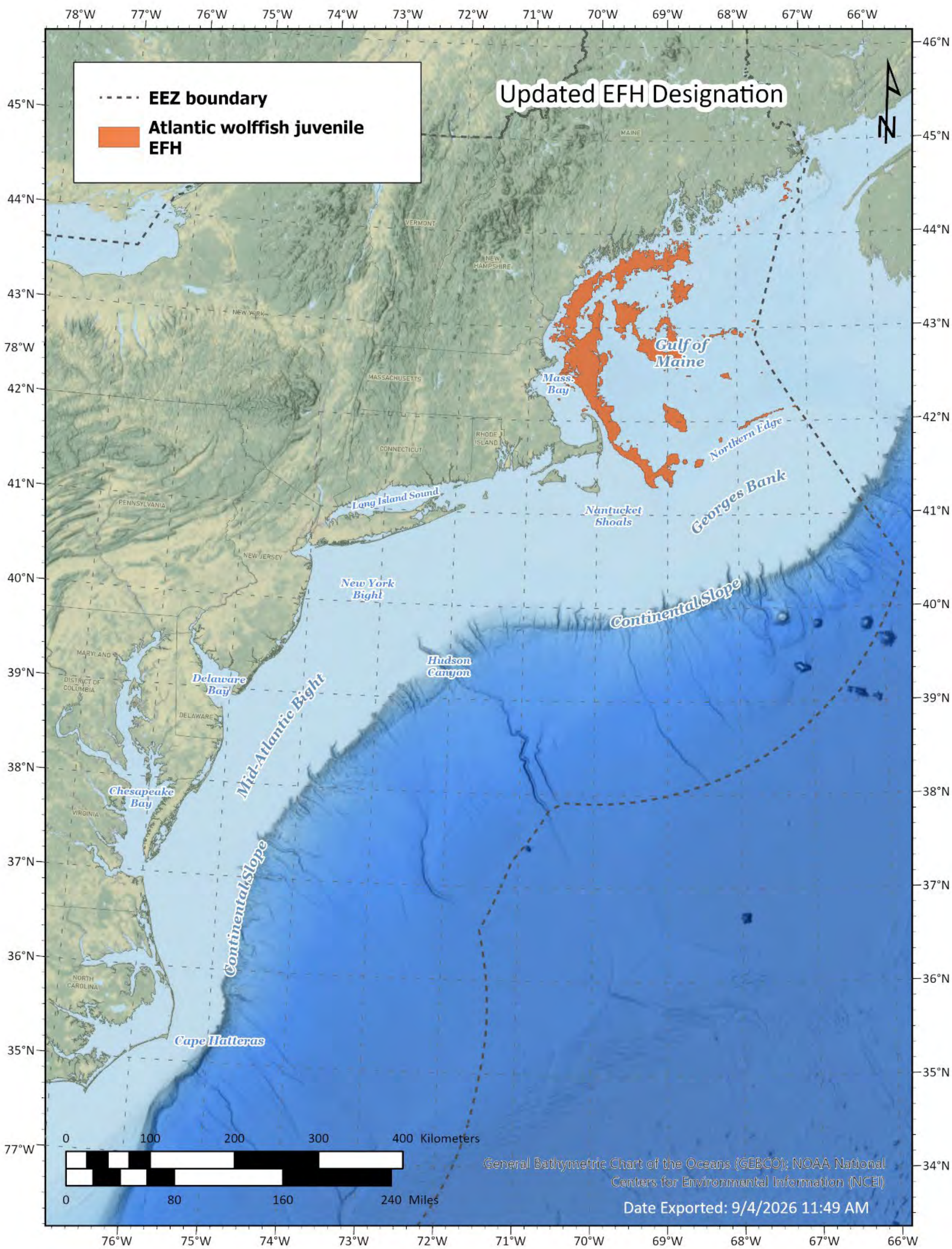
**Larvae:** Pelagic and sub-tidal benthic habitats within the geographic area shown on Map 9. Wolffish larvae remain near the bottom for up to six days after hatching but gradually become more buoyant as the yolk sac is absorbed.

**Juveniles:** Essential fish habitat for juvenile Atlantic wolffish (TL < 40 cm) consists of the principal habitat area and includes subtidal benthic habitats in the western Gulf of Maine and along the northern edge of Georges Bank (Map 8). Within the principal habitat area, juvenile wolffish have been caught in federal trawl surveys in waters ranging from 37-230 meters depth but are encountered most commonly in these surveys between 73-172 meters depth (Appendix B, Table 14). Juveniles are commonly found in bottom temperatures between 3-11°C and marine waters between 32-35 ppt (Appendix B, Table 14). Sub-tidal benthic habitats at depths of 70-184 meters within the geographic area defined as EFH. Juvenile Atlantic wolffish do not have strong substrate preferences.

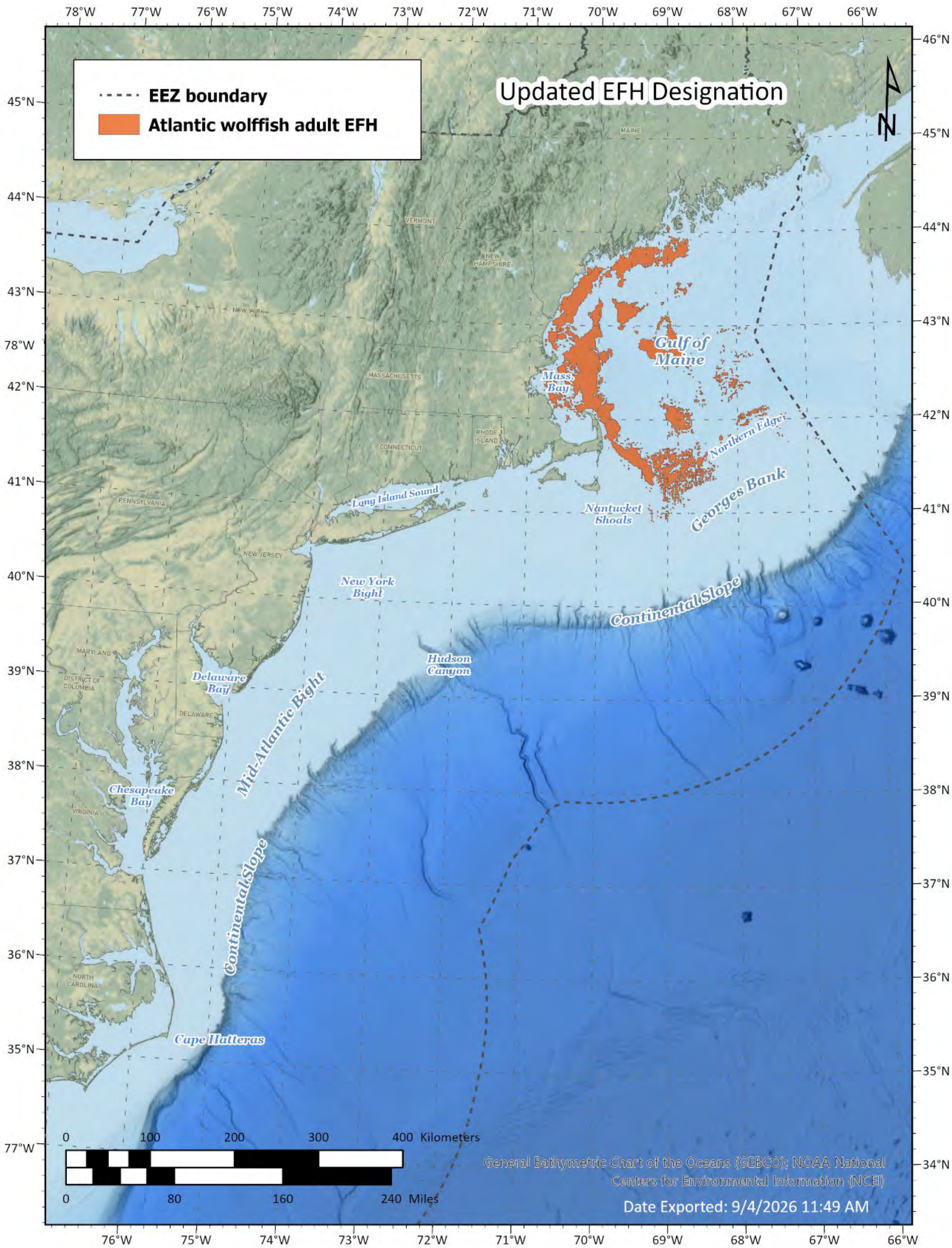
**Adults:** Essential fish habitat for adult Atlantic wolffish (TL ≥ 40 cm) consists of the principal habitat area and includes subtidal benthic habitats in the western Gulf of Maine and on the northern portion of Georges Bank (Map 9). Within the principal habitat area, adult wolffish have been caught in federal trawl surveys in waters ranging from 24-205 meters depth but are encountered most commonly in these surveys between 52-153 meters depth (Appendix B, Table 22). Adults are commonly found in bottom temperatures between 2-11°C and marine waters between 31-35 ppt (Appendix B, Table 22). Sub-tidal benthic habitats at depths less than 173 meters within the geographic area defined as EFH. Adult Atlantic wolffish have been observed spawning and guarding eggs in rocky habitats in less than 30 meters of water in the Gulf of St. Lawrence and Newfoundland and in deeper (50-100 meters) boulder reef habitats in the Gulf of Maine. Egg masses have been collected on the Scotian Shelf in depths of 100-130 meters, indicating that spawning is not restricted to coastal waters. Adults are distributed over a wider variety of sand and gravel substrates once they leave rocky spawning habitats but are not caught over muddy bottom.

**References Consulted:** Roberts, 2018 (FMP Resource Guide, and references within); Atlantic Wolffish Biological Review Team, 2009

**Map 9. Essential fish habitat for juvenile (TL < 40 cm) Atlantic wolffish (*Anarhichas lupus*)**



**Map 10. Essential fish habitat for adult (TL ≥ 40 cm) Atlantic wolffish (*Anarhichas lupus*).**



### 4.2.6 Haddock

Essential fish habitat (EFH) for haddock (*Melanogrammus aeglefinus*) is designated anywhere within the geographic areas that are shown on the following maps and meets the conditions described below.

For adults, small areas of potential model-based EFH were manually removed from the EFH map near Woods Hole, MA and Narragansett, RI, as they were discontinuous with the rest of the designation. See Table 4 in Section 3.6.6 of this document and Map 4 in Appendix E.

**Eggs:** EFH for haddock eggs consists of pelagic habitats in coastal and offshore waters in the Gulf of Maine, southern New England, and on Georges Bank.

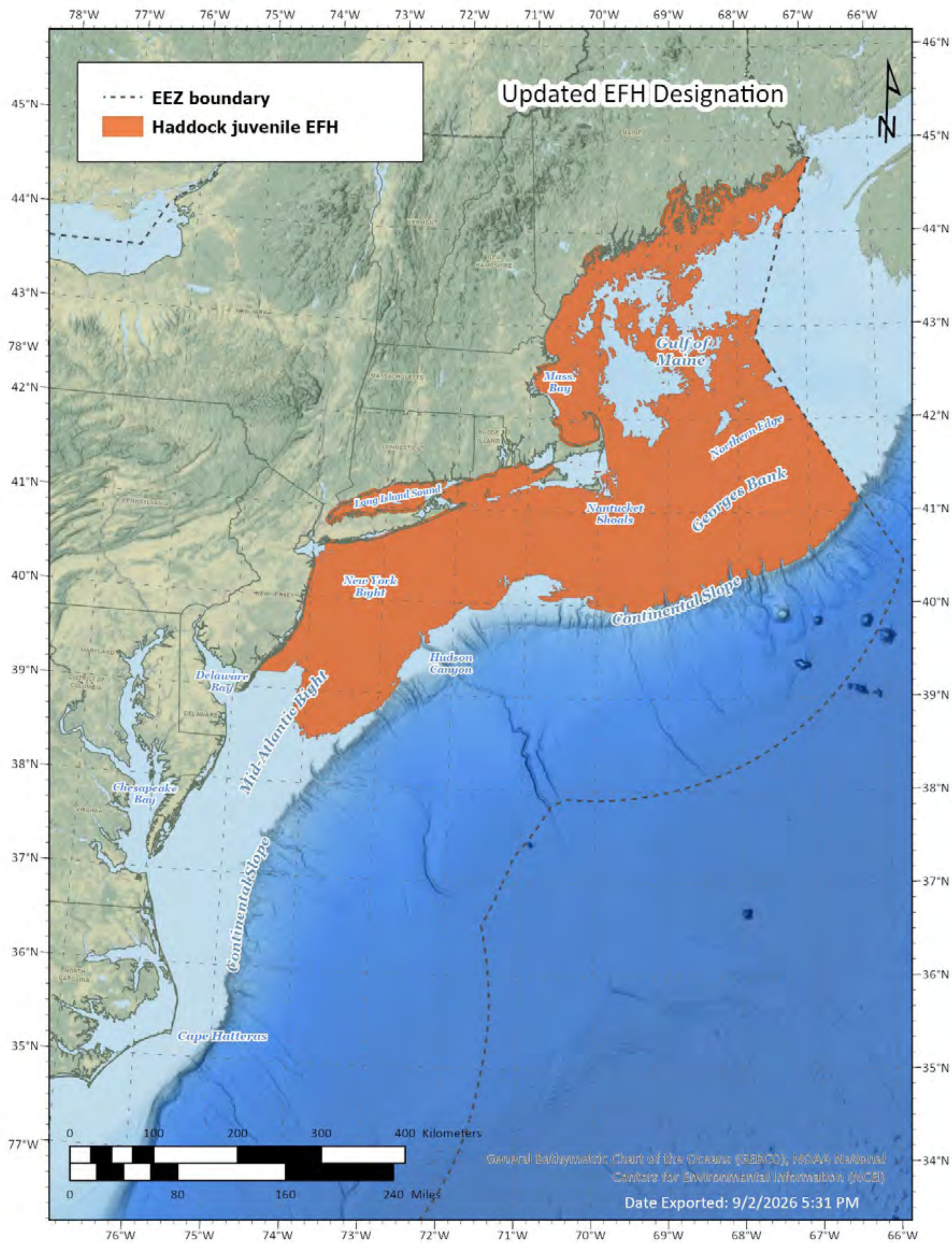
**Larvae:** EFH for larval haddock consists of pelagic habitats in coastal and offshore waters in the Gulf of Maine, the Mid-Atlantic, and on Georges Bank.

**Juveniles:** EFH for juvenile haddock (TL < 32 cm) consists of the principal habitat area and includes coastal and subtidal benthic habitats in the Gulf of Maine, on Georges Bank, and in coastal and continental shelf waters in southern New England including the Long Island Sound, and in the Mid-Atlantic region as far south as Delaware (Map 10). Inshore juvenile EFH typically includes the marine zones of bays and estuaries; specific portions of these inshore areas can be identified from Map 10, but juveniles may be encountered in lower densities in nearshore areas in southern New England, given recent contraction of the distribution onto Georges Bank, the Great South Channel, and the western Gulf of Maine. Within the principal habitat area, juvenile EFH ranges from 14-271 meters depth, but juveniles most commonly occur between 44-159 meters depth (Appendix B, Table 22). Juvenile EFH also includes bottom temperatures between 3-15°C and marine waters between 31-36 ppt (Appendix B, Table 22). EFH for juvenile haddock occurs on hard sand (particularly smooth patches between rocks), mixed sand and shell, gravelly sand, and gravel. Young-of-the-year juveniles settle on sand and gravel on Georges Bank, but are found predominantly on gravel pavement areas within a few months after settlement. As they grow, they disperse over a greater variety of substrate types on the bank. Young-of-the-year haddock do not inhabit shallow, inshore habitats. Large or boomer year classes may expand haddock distributions into areas with less favorable habitat.

**Adults:** EFH for adult haddock (TL ≥ 32 cm) consists of the principal habitat area and includes subtidal benthic habitats in the Gulf of Maine, including coastal waters in Massachusetts Bay, and on Georges Bank (Map 11). Key fishing areas include portions of Georges Bank on the southern flank and along the northern edge as well as offshore waters north of the Great South Channel, Franklin Basin, Massachusetts Bay, Wilkinson Basin, and northwest of Cashes Ledge extending into Jordan Basin Recent trends indicate concentration of landings in the southwest Gulf of Maine and along the northern edge of Georges Bank. Nearshore adult EFH typically includes the marine zones of coastal areas, which can be identified from Map 11. Within the principal habitat area, adult EFH ranges from 32-338 meters depth, but adults most commonly occur between 62-205 meters depth (Appendix B, Table 22). Adult EFH also includes bottom temperatures between 3-13°C and marine waters between 32-36 ppt (Appendix B, Table 22). EFH for adult haddock occurs on hard sand (particularly smooth patches between rocks), mixed sand and shell, gravelly sand, and gravel substrates. They also are found adjacent to boulders and cobbles along the margins of rocky reefs in the Gulf of Maine. Large or boomer year classes may expand haddock distributions into areas with less favorable habitat.

**References Consulted:** Brodziak, 2005 (EFH Source Document 2nd Edition); Rowley, 2018 (FMP Resource Guide, and references within); Haddock Research Track Assessment Working Group, 2022

**Map 11. Essential fish habitat for juvenile (TL < 32 cm) haddock (*Melanogrammus aeglefinus*).**



**Map 12. Essential fish habitat for adult (TL ≥ 32 cm) haddock (*Melanogrammus aeglefinus*).**

### 4.2.7 Ocean pout

Essential fish habitat (EFH) for ocean pout (*Macrozoarces americanus*) is designated anywhere within the geographic areas that are shown on the following maps and meets the conditions described below. There is no EFH designation for ocean pout larvae.

For juveniles, small areas of potential model-based EFH were manually removed from the EFH map in Delaware Bay, as they were discontinuous with the rest of the designation. See Table 4 in Section 3.6.6 of this document and Map 5 in Appendix E.

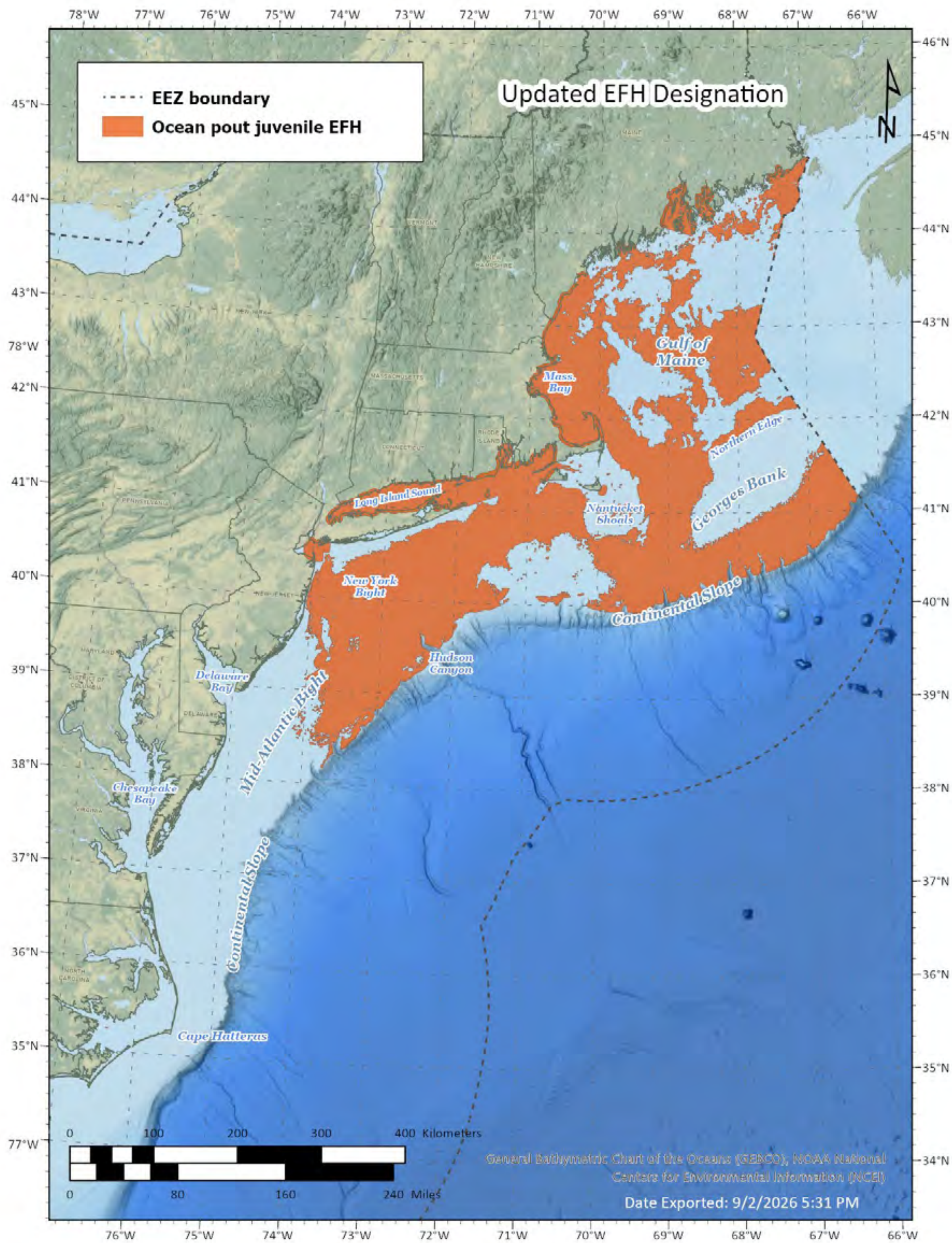
**Eggs:** EFH for ocean pout eggs consists of hard bottom habitats on Georges Bank, in the Gulf of Maine, and in the Mid-Atlantic Bight. Eggs are laid in gelatinous masses, generally in sheltered nests, holes, or rocky crevices. Essential fish habitat for ocean pout eggs occurs in depths less than 100 meters on rocky bottom habitats.

**Juveniles:** EFH for juvenile ocean pout (TL < 29 cm) consists of the principal habitat area and includes intertidal and subtidal benthic habitats in the Gulf of Maine, on the western and southern portion of Georges Bank, and in coastal and continental shelf waters in southern New England extending into the Mid-Atlantic region as far south as Delaware. Juvenile EFH is relatively patchy in the Gulf of Maine (Map 12). Inshore juvenile EFH typically includes the polyhaline and marine zones of bays and estuaries; specific portions of these inshore areas can be identified from Map 12. Within the principal habitat area, juvenile EFH ranges from intertidal areas out to 243 meters depth, but juveniles most commonly occur between 30-144 meters depth (Appendix B, Table 22). Juvenile EFH also includes bottom temperatures between 3-14°C and polyhaline and marine waters between 30-36 ppt (Appendix B, Table 22). EFH for juvenile ocean pout occurs on a wide variety of substrates, including shells, rocks, algae, soft sediments, sand, and gravel.

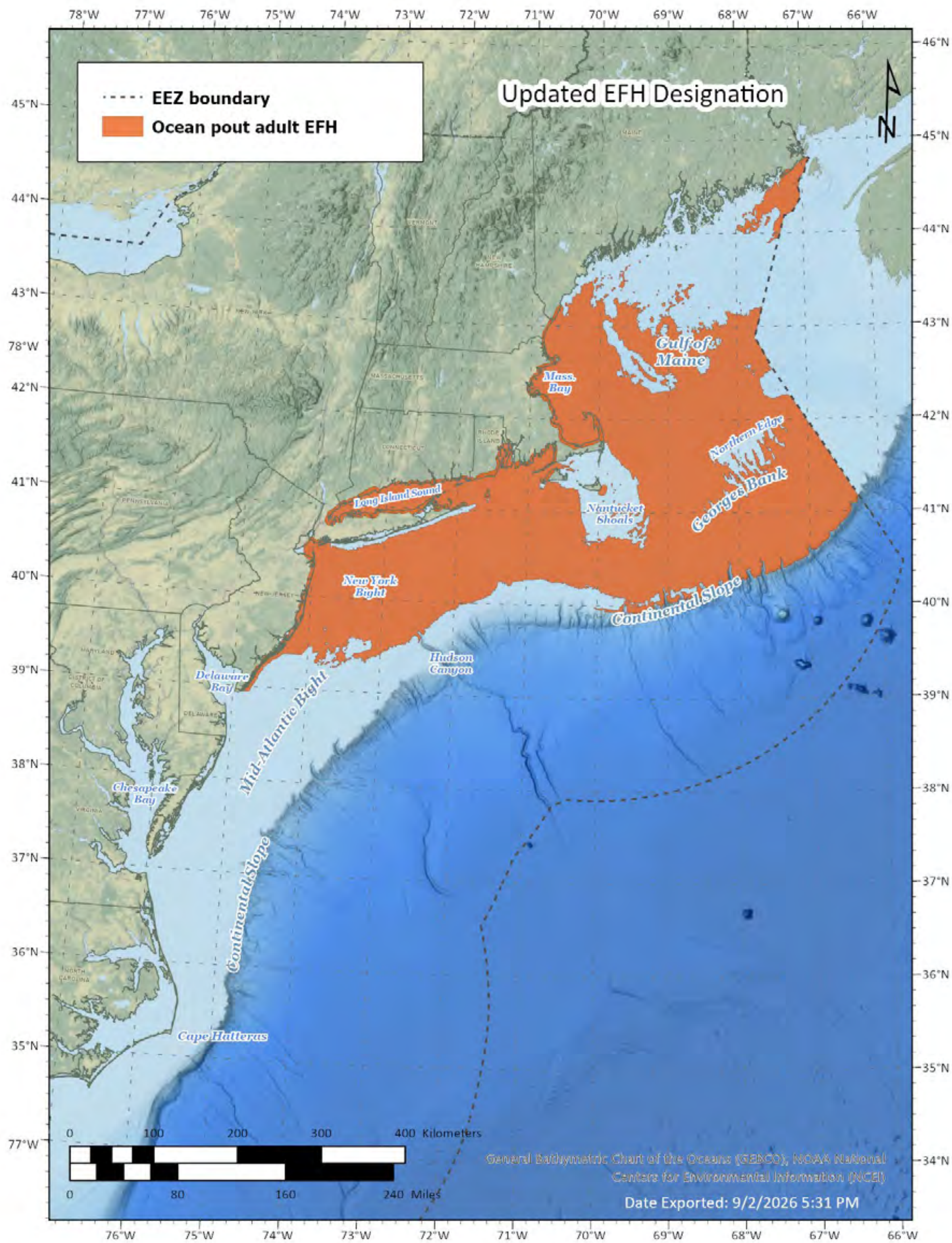
**Adults:** EFH for adult ocean pout (TL ≥ 29 cm) consists of the principal habitat area and includes subtidal benthic habitats in the Gulf of Maine, on Georges Bank, and in coastal and continental shelf waters in southern New England and the Mid-Atlantic region as far south as the mouth of Delaware Bay (Map 13). Inshore adult EFH typically includes the polyhaline and marine zones of bays and estuaries; specific portions of these inshore areas can be identified from Map 13. Within the principal habitat area, adult EFH ranges from 8-239 meters depth, but adults most commonly occur between 23-115 meters depth (Appendix B, Table 22). Adult EFH also includes bottom temperatures between 3-13°C and polyhaline and marine waters between 29-36 ppt (Appendix B, Table 22). EFH for adult ocean pout includes mud and sand, particularly in association with structure-forming habitat types, i.e. shells, gravel, or boulders. In softer sediments, they burrow tail-first and leave a depression on the sediment surface. Ocean pout congregate in rocky areas prior to spawning and frequently occupy nesting holes under rocks or in crevices in depths less than 100 meters.

**References Consulted:** Steimle et al., 1999 (EFH Source Document); Rowley, 2018 (FMP Resource Guide, and references within)

**Map 13. Essential fish habitat for juvenile (TL < 29 cm) ocean pout (*Macrozoarces americanus*).**



**Map 14. Essential fish habitat for adult (TL ≥ 29 cm) ocean pout (*Macrozoarces americanus*).**



### 4.2.8 Offshore hake

Essential fish habitat (EFH) for offshore hake (*Merluccius albidus*) is designated anywhere within the geographic areas that are shown on the following map and meets the conditions described below. Note that offshore hake are relatively data-poor in the bottom trawl surveys; as such, EFH was determined based on outputs from a separate, offshore hake-specific model use the limited trawl survey data. Model development and additional information sources consulted are described in Appendix E. Environmental ranges are presented for the limited bottom trawl data available but were verified with the literature.

**Eggs:** EFH for offshore hake eggs consists of pelagic habitats along the outer continental shelf and slope between 100 and 1500 meters.

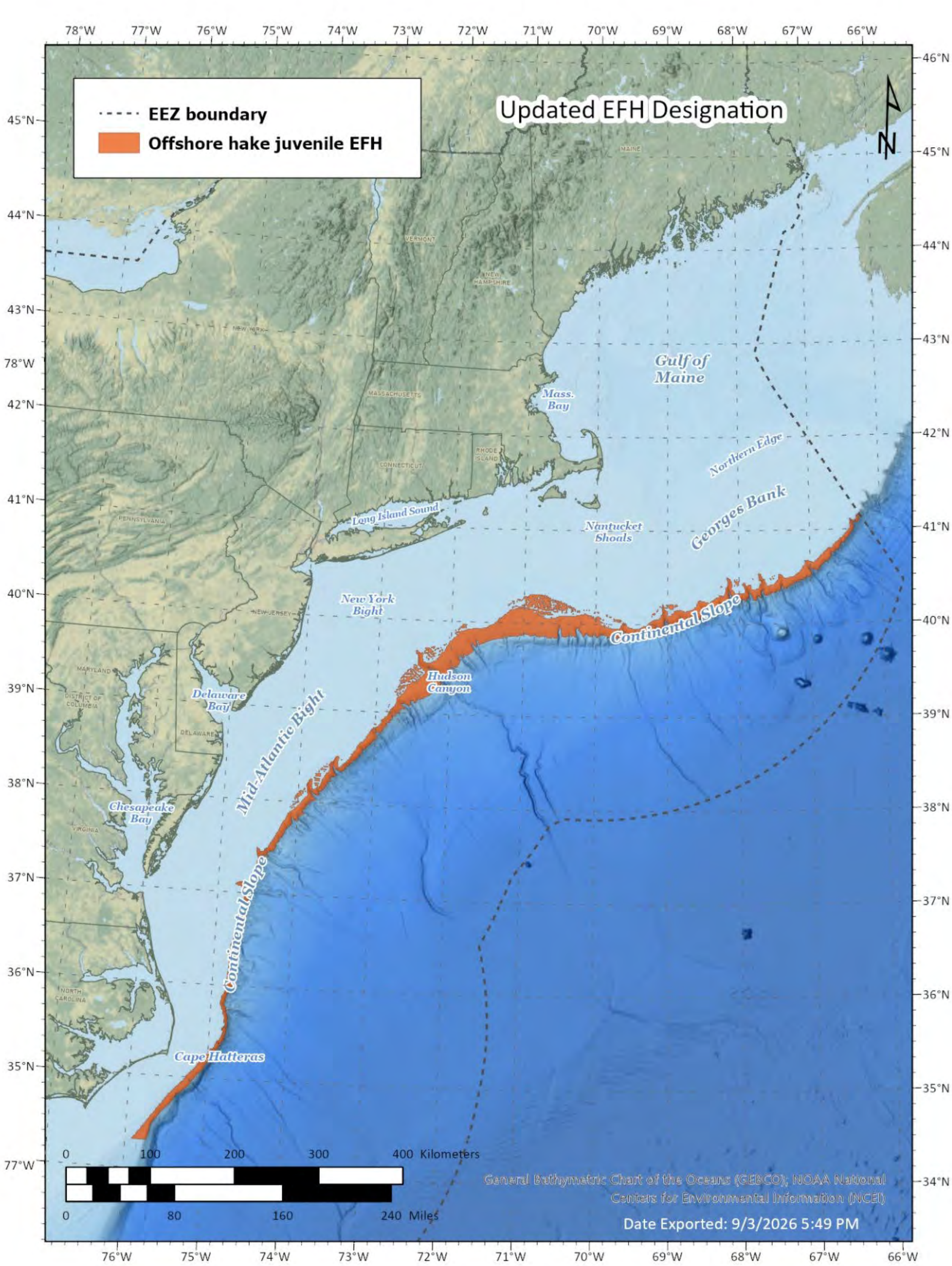
**Larvae:** EFH for larval offshore hake consists of pelagic habitats along the outer continental shelf and slope between 60 and 1500 meters.

**Juveniles:** EFH for juvenile offshore hake (TL < 26 cm) consists of the principal habitat area and includes outer continental shelf and slope waters from southern Georges Bank to as far south as Cape Hatteras (Map 14). Within the principal habitat area, juvenile offshore hake have been caught in federal trawl surveys in waters ranging from 81-430 meters depth but are encountered most commonly between 193-323 meters depth (Appendix B, Table 22). On the continental slope, juveniles can be encountered to 750 meters depth (Appendix B, Table 23). Juveniles are commonly found in bottom temperatures between 5-15°C and marine waters between 35-36 ppt (Appendix B, Table 22). Pelagic and benthic habitats on the outer continental shelf and slope in depths of 160-750 meters.

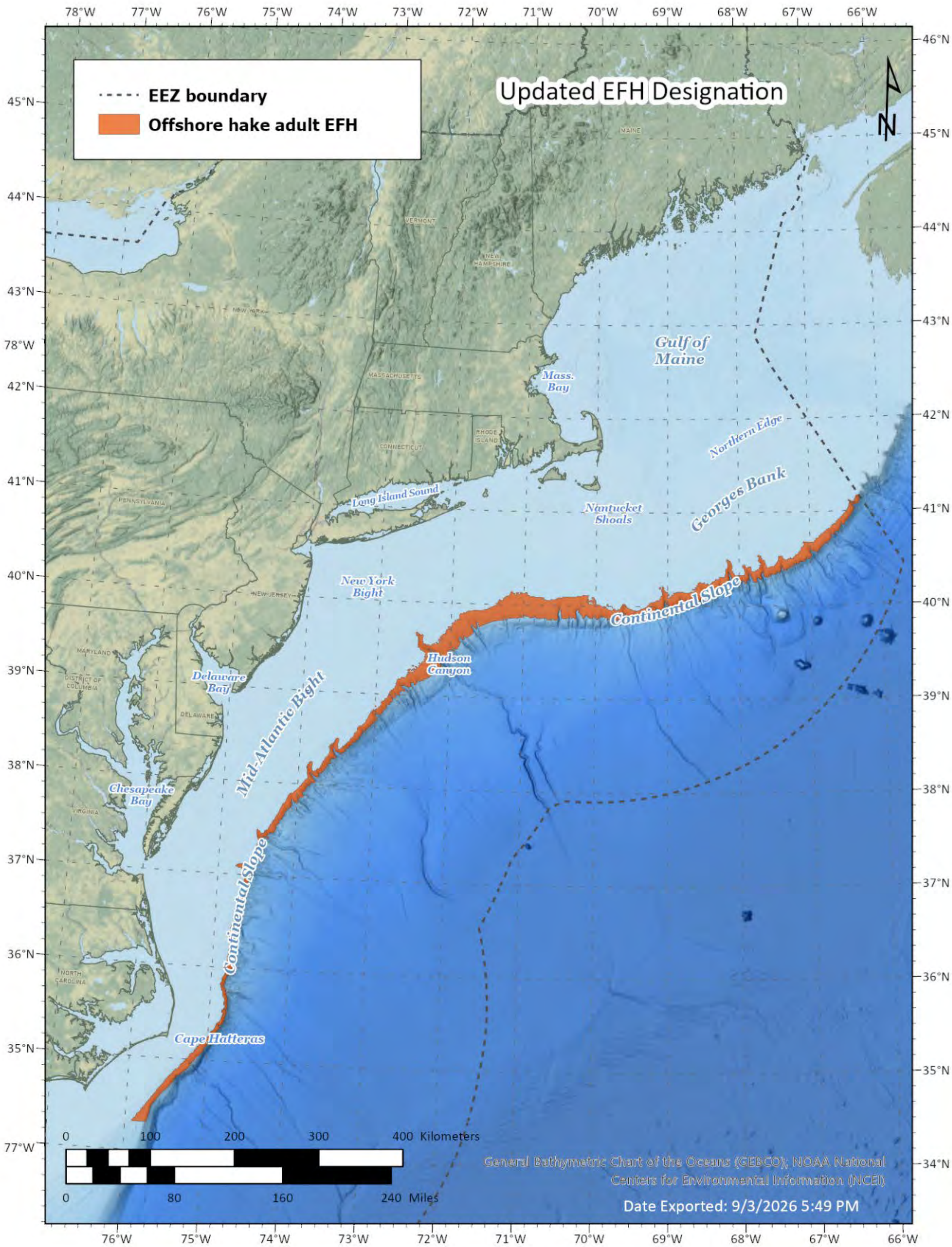
**Adults:** EFH for adult offshore hake (TL ≥ 26 cm) consists of the principal habitat area and includes outer continental shelf and slope waters from southern Georges Bank to as far south as Cape Hatteras (Map 15). Within the principal habitat area, adult offshore hake have been caught in federal trawl surveys in waters ranging from 63-496 meters depth but are encountered most commonly between 168-327 meters depth (Appendix B, Table 22). Like juveniles, adults can be encountered on the continental slope to 750 meters depth (Appendix B, Table 23). Adults are commonly found in bottom temperatures between 5-14°C and marine waters between 34-36 ppt (Appendix B, Table 22). Pelagic and benthic habitats on the outer continental shelf and slope in depths of 200-750 meters. Spawning generally occurs between 330 and 550 meters between April and July.

**References Consulted:** Chang et al., 1999 (EFH Source Document); Cohen et al. 1990; Travers et al., 2012; Froese and Pauly, 2018; Pickens et al., 2020

**Map 15. Essential fish habitat for juvenile (TL < 26 cm) offshore hake (*Merluccius albidus*).**



**Map 16. Essential fish habitat for adult (TL ≥ 26 cm) offshore hake (*Merluccius albidus*).**



## 4.2.9 Pollock

Essential fish habitat (EFH) for pollock (*Pollachius virens*) is designated anywhere within the geographic areas that are shown on the following map and meets the conditions described below.

For juveniles, Long Island Sound and coastal New Jersey were manually removed from the EFH map, based on expert opinion and lower abundance in inshore surveys. Also, small model-based potential EFH areas in the heads of selected canyons south of Georges Bank were also removed from the juvenile EFH map, as they were discontinuous with the rest of the designation. See Table 4 in Section 3.6.6 of this document and Map 6 in Appendix E.

**Eggs:** EFH for pollock eggs consists of pelagic inshore and offshore habitats in the Gulf of Maine, on Georges Bank, and in southern New England.

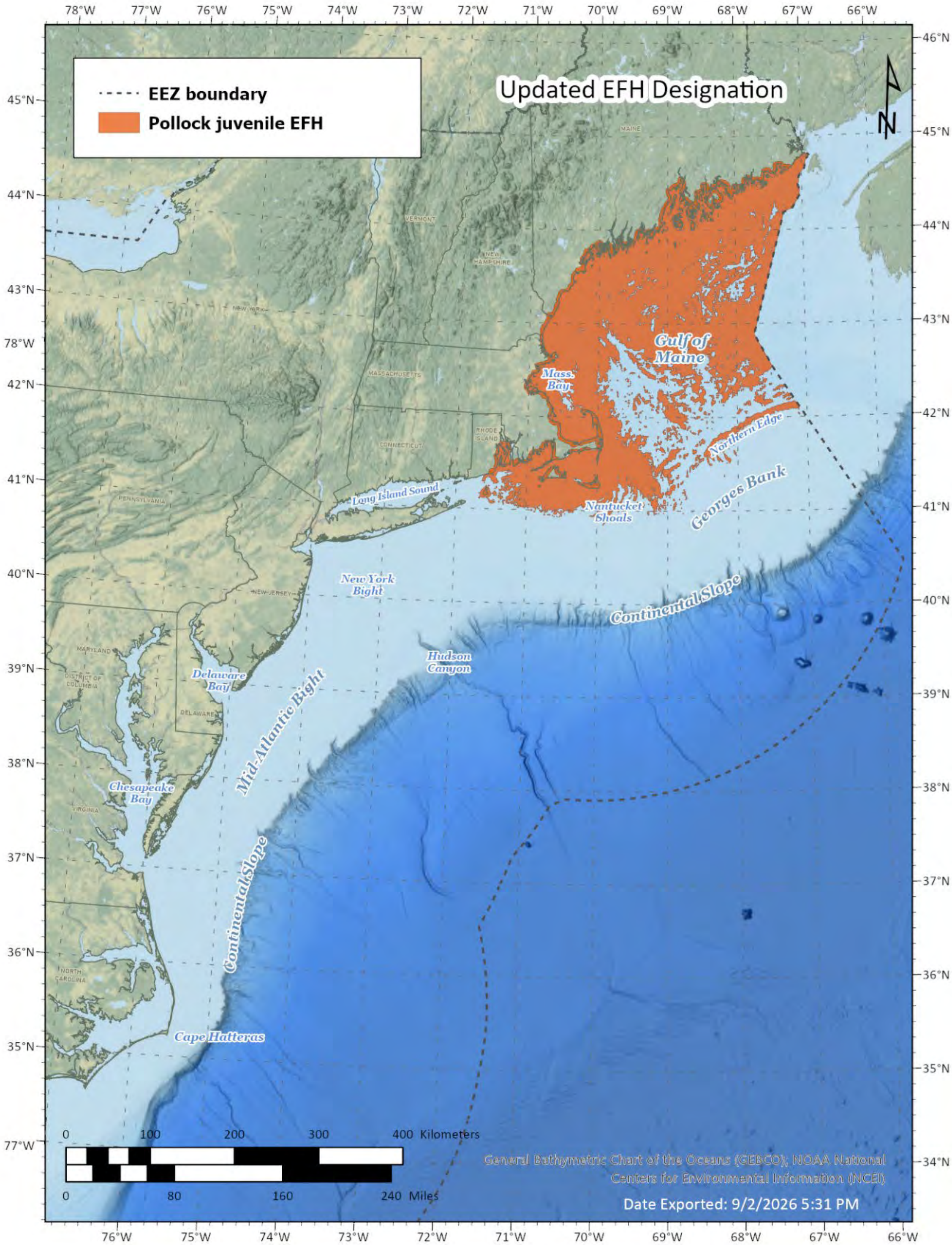
**Larvae:** EFH for larval pollock consists of pelagic inshore and offshore habitats in the Gulf of Maine, on Georges Bank, and in the Mid-Atlantic region.

**Juveniles:** EFH for juvenile pollock (TL < 39 cm) consists of the principal habitat area and includes inshore and offshore pelagic habitats in the Gulf of Maine and in coastal waters in southern New England as far south as Nantucket Shoals (Map 16). Inshore juvenile EFH typically includes the polyhaline and marine zones of bays and estuaries; specific portions of these areas can be identified from Map 16. Within the principal habitat area, juvenile EFH ranges from intertidal areas out to 253 meters depth, but juveniles most commonly occur between 17-166 meters depth (Appendix B, Table 22). Juvenile EFH also includes bottom temperatures between 3-15°C and polyhaline and marine waters between 29-35 ppt (Appendix B, Table 22). EFH for juvenile pollock consists of rocky bottom habitats with attached macroalgae (rockweed and kelp) that provide refuge from predators. Shallow water eelgrass beds are also essential habitats for young-of-the-year pollock in the Gulf of Maine. Older juveniles move into deeper water habitats also occupied by adults.

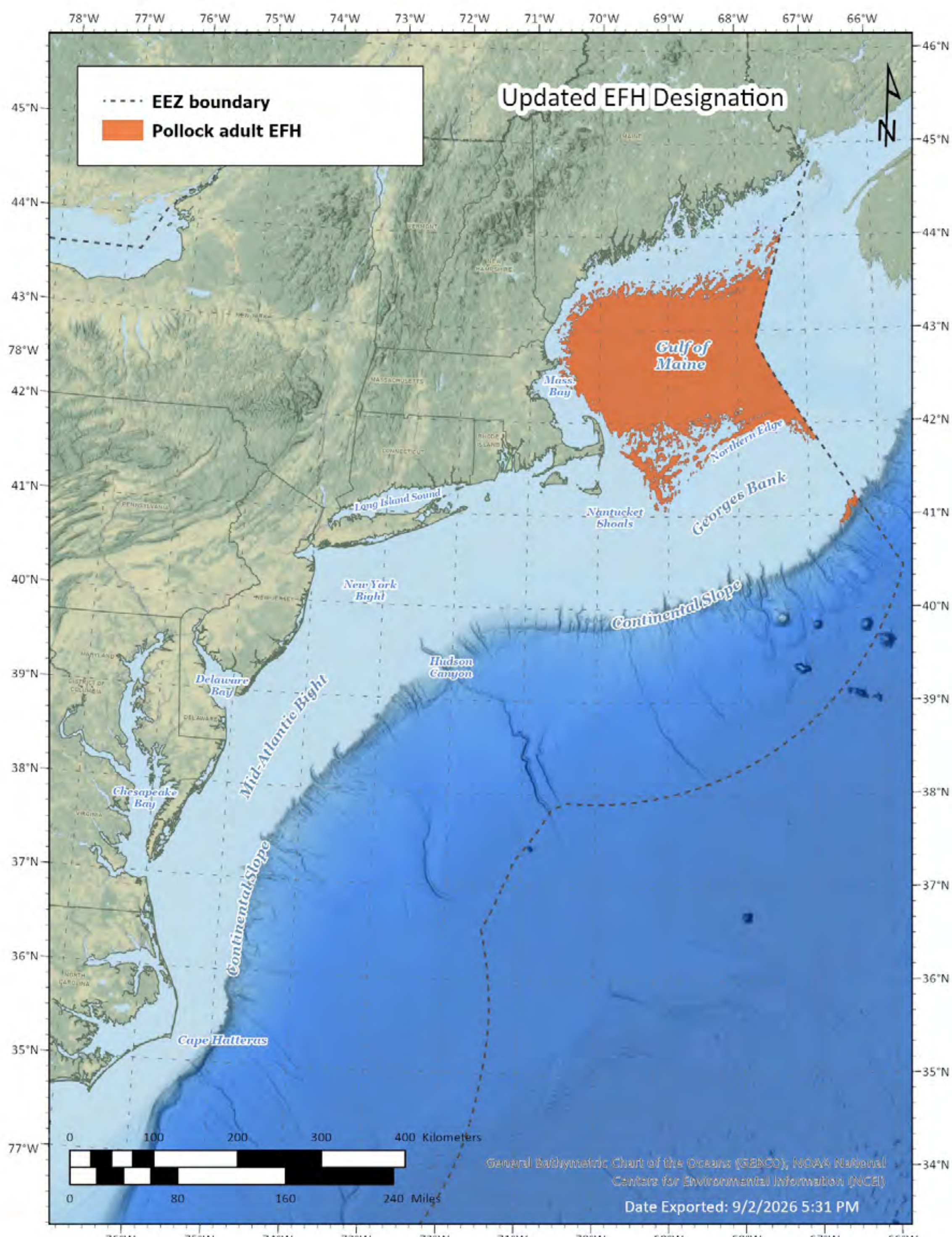
**Adults:** EFH for adult pollock (TL ≥ 39 cm) consists of the principal habitat area and includes offshore pelagic habitats in the Gulf of Maine and along the northern edge of Georges Bank but not on the bank itself (Map 17). Key fishing areas include offshore waters in the Gulf of Maine such as Massachusetts Bay, Platts Bank, Wilkinson Basin, and Rodgers Basin; more recently, commercial landings have been concentrated in the latter basins. Adult EFH includes just the marine zones of nearshore areas, such as Massachusetts Bay; specific portions of these areas can be identified from Map 17. Within the principal habitat area, adult EFH ranges from 26-319 meters depth, but adults most commonly occur between 72-221 meters depth (Appendix B, Table 22). Adult EFH also includes bottom temperatures between 4-11°C and marine waters between 32-36 ppt (Appendix B, Table 22). Adult EFH consists of the tops and edges of offshore banks and shoals (e.g., Cashes Ledge) with mixed rocky substrates, often with attached macro algae.

**References Consulted:** Cargnelli et al., 1999 (EFH Source Document); Roberts, 2018 (FMP Resource Guide, and references within); NEFSC 2024 (Pollock 2024 Management Track Assessment Report and Peer Review)

**Map 17. Essential fish habitat for juvenile (TL < 39 cm) pollock (*Pollachius virens*).**



**Map 18. Essential fish habitat for adult (TL ≥ 39 cm) pollock (*Pollachius virens*).**



### 4.2.10 Red hake

Essential fish habitat (EFH) for red hake (*Urophycis chuss*) is designated anywhere within the geographic areas that are shown on the following map and meets the conditions described below.

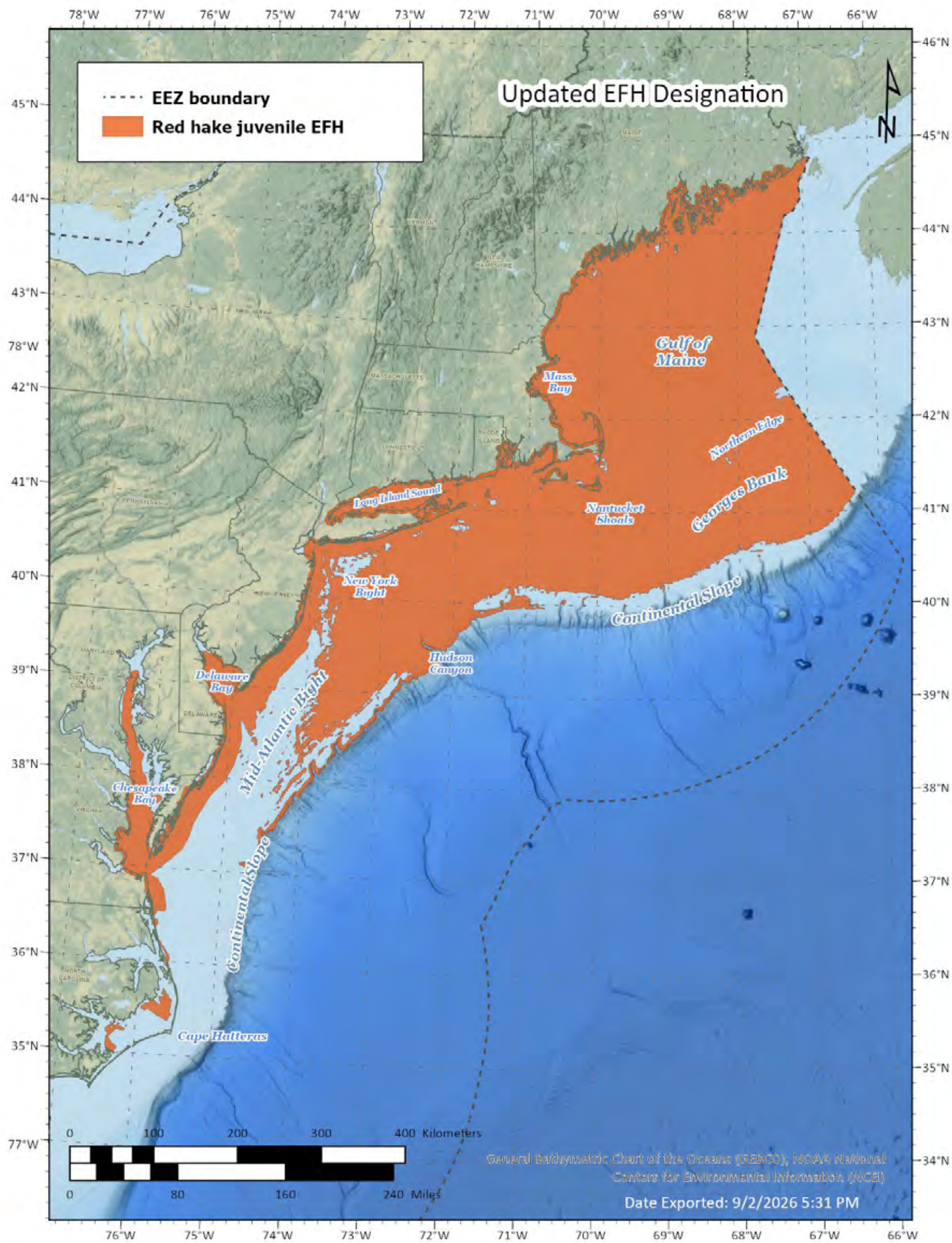
**Eggs and larvae:** EFH for red hake eggs and larvae includes pelagic habitats in the Gulf of Maine, on Georges Bank, and in the Mid-Atlantic region.

**Juveniles:** EFH for juvenile red hake (TL < 22 cm) consists of the principal habitat area and includes intertidal and subtidal benthic habitats in the Gulf of Maine, on Georges Bank, in southern New England, and in coastal waters in the Mid-Atlantic region as far south as Cape Hatteras (Map 18). Inshore juvenile EFH typically includes the polyhaline and marine zones of bays and estuaries; specific portions of these inshore areas can be identified from Map 18. Within the principal habitat area, juvenile EFH ranges from intertidal area out to 296 meters depth, but juveniles most commonly occur between 15-162 meters depth (Appendix B, Table 22). Juvenile EFH also includes bottom temperatures between 3-19°C and polyhaline and marine waters between 22-36 ppt (Appendix B, Table 22). Bottom habitats that provide shelter are essential for juvenile red hake, including mud substrates with biogenic depressions and other substrates that provide biogenic complexity (e.g., eelgrass, macroalgae, shells, anemone and polychaete tubes). Similarly, artificial reefs provide suitable shelter for juvenile red hake. Newly settled juveniles occur in depressions on the open seabed, while older juveniles are commonly associated with shelter or structure, often including live bivalves, such as scallops.

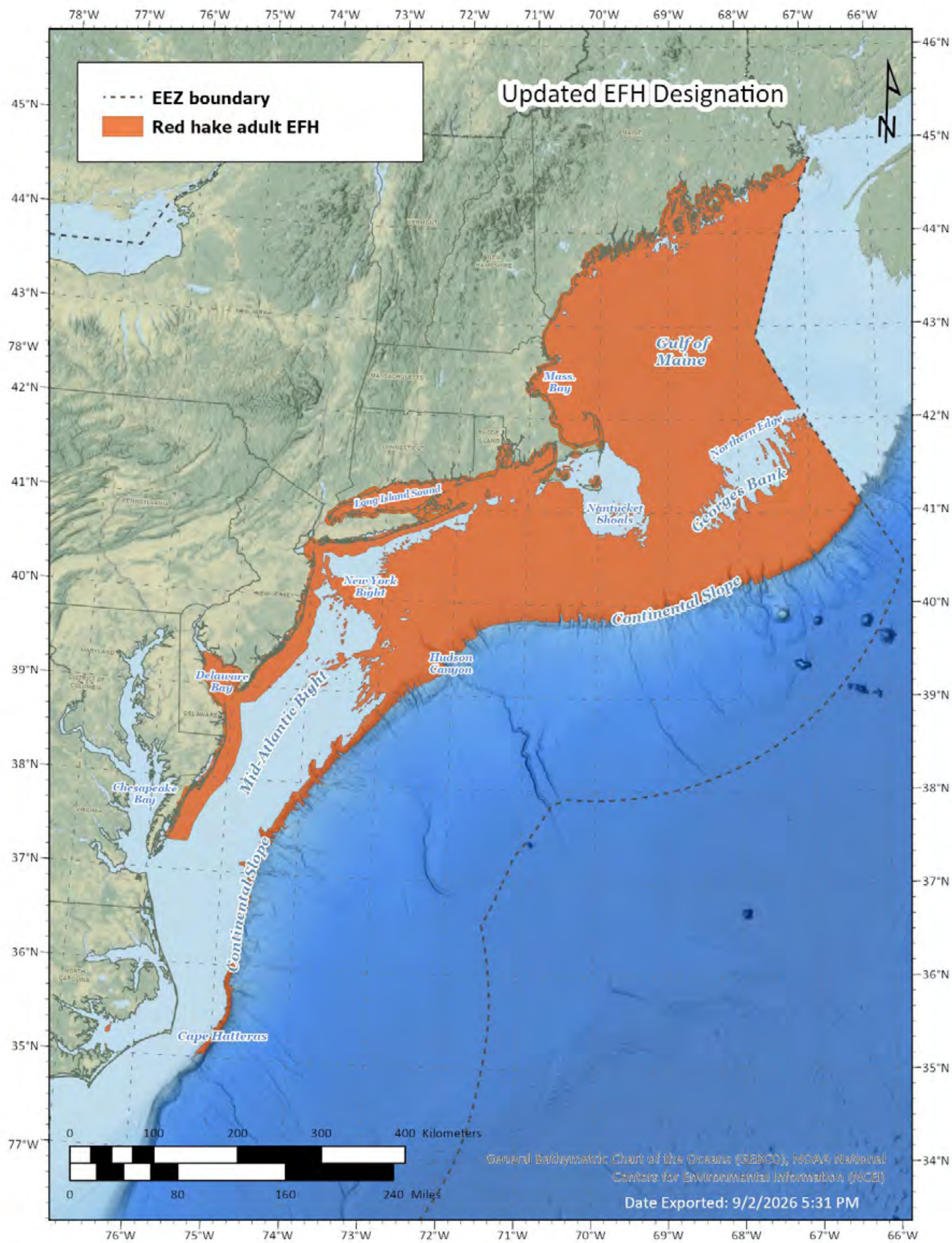
**Adults:** EFH for adult red hake (TL ≥ 22 cm) consists of the principal habitat area and includes benthic habitats in the Gulf of Maine, on Georges Bank, and in coastal and continental shelf waters in southern New England and the Mid-Atlantic region extending as far south as Chesapeake Bay. Adult EFH also includes continental slope habitats from the southern edge of Georges Bank as far south as Chesapeake Bay (Map 19). Inshore adult EFH typically includes the polyhaline and marine zones of bays and estuaries; specific portions of these inshore areas can be identified from Map 19. Within the principal habitat area, adult EFH ranges from 8-329 meters depth, but adults most commonly occur between 33-199 meters depth (Appendix B, Table 22). On the continental slope, they can be found to a maximum depth of 1000 meters (Appendix B, Table 23). Adult EFH also includes bottom temperatures between 4-17°C and polyhaline and marine waters between 28-36 ppt (Appendix B, Table 22). EFH for adult red hake includes shell beds, soft sediments (mud and sand) and artificial reefs. They are usually found in depressions in softer sediments or in shell beds but not on open sandy bottom. In the Gulf of Maine, they are much less common on gravel or hard bottom, but they are reported to be abundant on hard bottoms in temperate reef areas of Maryland and northern Virginia.

**References Consulted:** Steimle et al., 1999 (EFH Source Document); NEFSC, 2020; LaFreniere et al., 2023

**Map 19. Essential fish habitat for juvenile (TL < 22 cm) red hake (*Urophycis chuss*).**



**Map 20. Essential fish habitat for adult (TL ≥ 22 cm) red hake (*Urophycis chuss*).**



### 4.2.11 Silver hake

Essential fish habitat (EFH) for silver hake (*Merluccius bilinearis*) is designated anywhere within the geographic areas that are shown on the following map and meets the conditions described below.

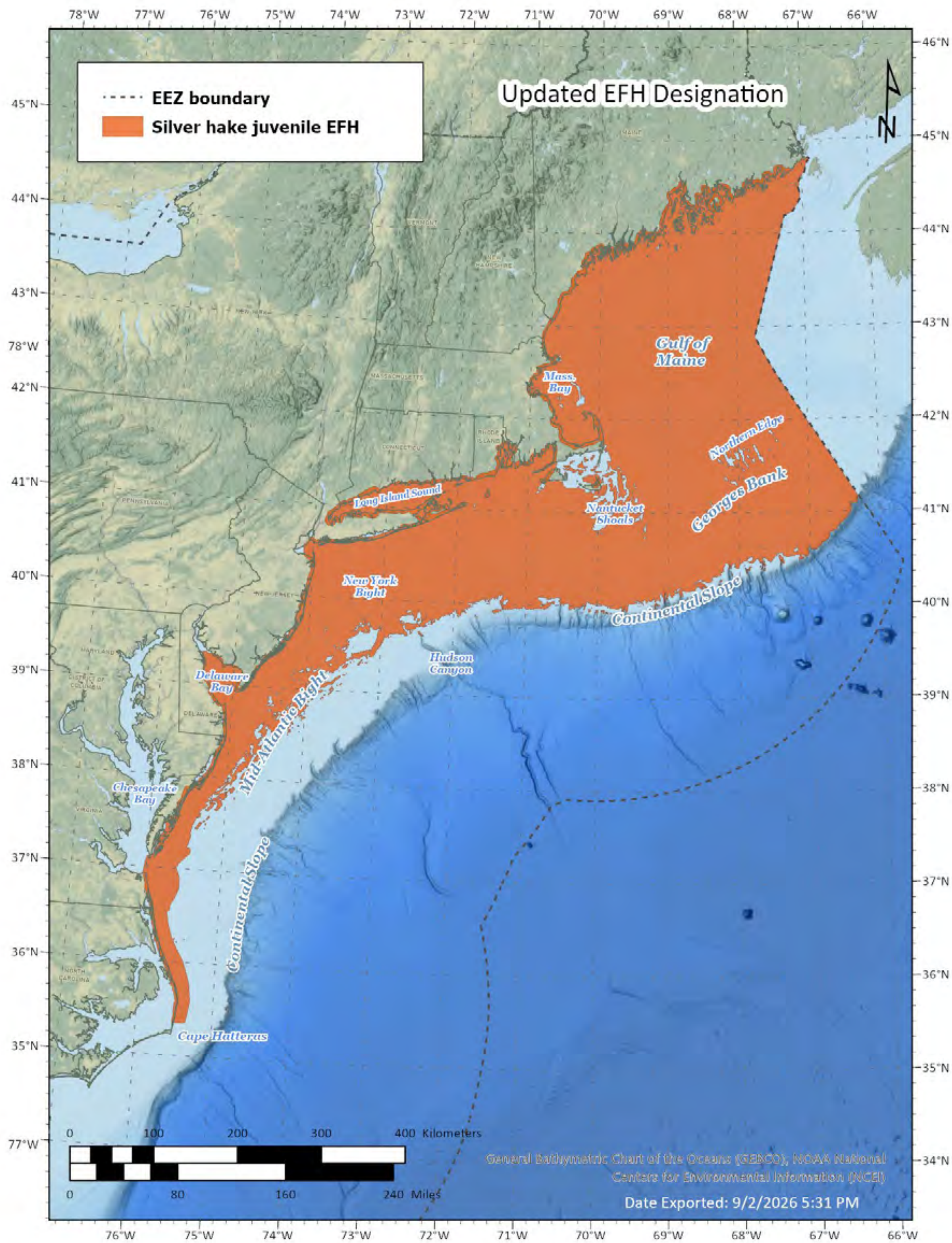
**Eggs and larvae:** EFH for silver hake eggs and larvae includes pelagic habitats from the Gulf of Maine to Cape May, New Jersey, including Cape Cod and Massachusetts Bays.

**Juveniles:** EFH for juvenile silver hake (TL < 22 cm) consists of the principal habitat area and includes pelagic and benthic habitats in the Gulf of Maine including coastal bays and estuaries, on Georges Bank, in coastal and outer continental shelf waters in southern New England, and along the Mid-Atlantic coast as far south as Cape Hatteras (Map 20). Inshore juvenile EFH typically includes the polyhaline and marine zones of bays and estuaries; specific portions of these inshore areas can be identified from Map 20. Within the principal habitat area, juvenile EFH ranges from 7-320 meters depth, but juveniles most commonly occur in bottom trawl surveys between 17-179 meters depth (Appendix B, Table 22). Juvenile EFH also includes bottom temperatures between 3-19°C and polyhaline and marine waters between 27-36 ppt (Appendix B, Table 22). EFH for juvenile silver hake occurs on sandy substrates often in association with sand waves, flat sand with amphipod tubes and shells, and in biogenic depressions. In the New York Bight, juveniles settle to the bottom at mid-shelf depths on muddy sand substrates and find refuge in amphipod tube mats.

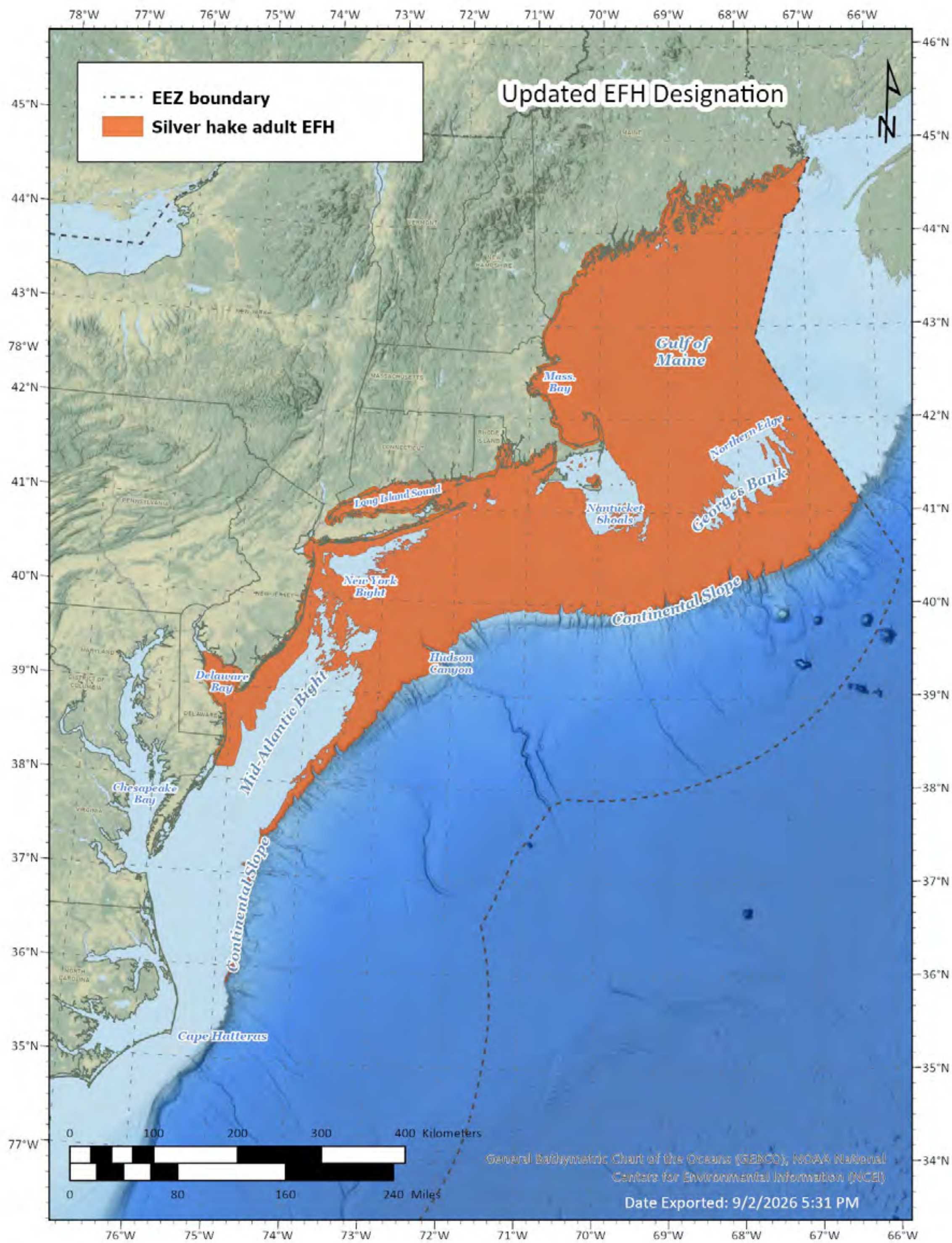
**Adults:** EFH for adult silver hake (TL ≥ 22 cm) consists of the principal habitat area and includes pelagic and benthic habitats in the Gulf of Maine, on Georges Bank (excluding portions along the northern edge), in coastal and continental shelf waters in southern New England (excluding Nantucket Shoals), and in coastal and outer shelf waters in the Mid-Atlantic Bight (Map 21). Inshore adult EFH typically includes the marine zones of bays and estuaries; specific portions of these inshore areas can be identified from Map 21. Within the principal habitat area, adult EFH ranges from 11-341 meters depth, but adults most commonly occur in bottom trawl surveys between 34-201 meters depth (Appendix B, Table 22). On the outer continental shelf, they can be found to a maximum of 500 meters (Appendix B, Table 23). Adult EFH also includes bottom temperatures between 4-16°C and marine waters between 31-36 ppt (Appendix B, Table 22). EFH for adult silver hake includes both soft substrates and hard structures. They are often found on sandy substrates in bottom depressions or in association with sand waves and shell fragments. They have also been observed in high densities in mud habitats bordering deep boulder reefs, resting on boulder surfaces, and foraging over deep boulder reefs in the southwestern Gulf of Maine. This species makes greater use of the water column than red or white hake, particularly for nighttime feeding.

**References Consulted:** Lock and Packer, 2004 (EFH Source Document 2nd Edition);

**Map 21. Essential fish habitat for juvenile (TL < 22 cm) silver hake (*Merluccius bilinearis*).**



**Map 22. Essential fish habitat for adult (TL ≥ 22 cm) silver hake (*Merluccius bilinearis*).**



### 4.2.12 White hake

Essential fish habitat (EFH) for white hake (*Urophycis tenuis*) is designated anywhere within the geographic areas that are shown on the following map and meets the conditions described below.

**Eggs:** EFH for white hake eggs includes pelagic habitats in the Gulf of Maine, including Massachusetts and Cape Cod bays, and the outer continental shelf and slope.

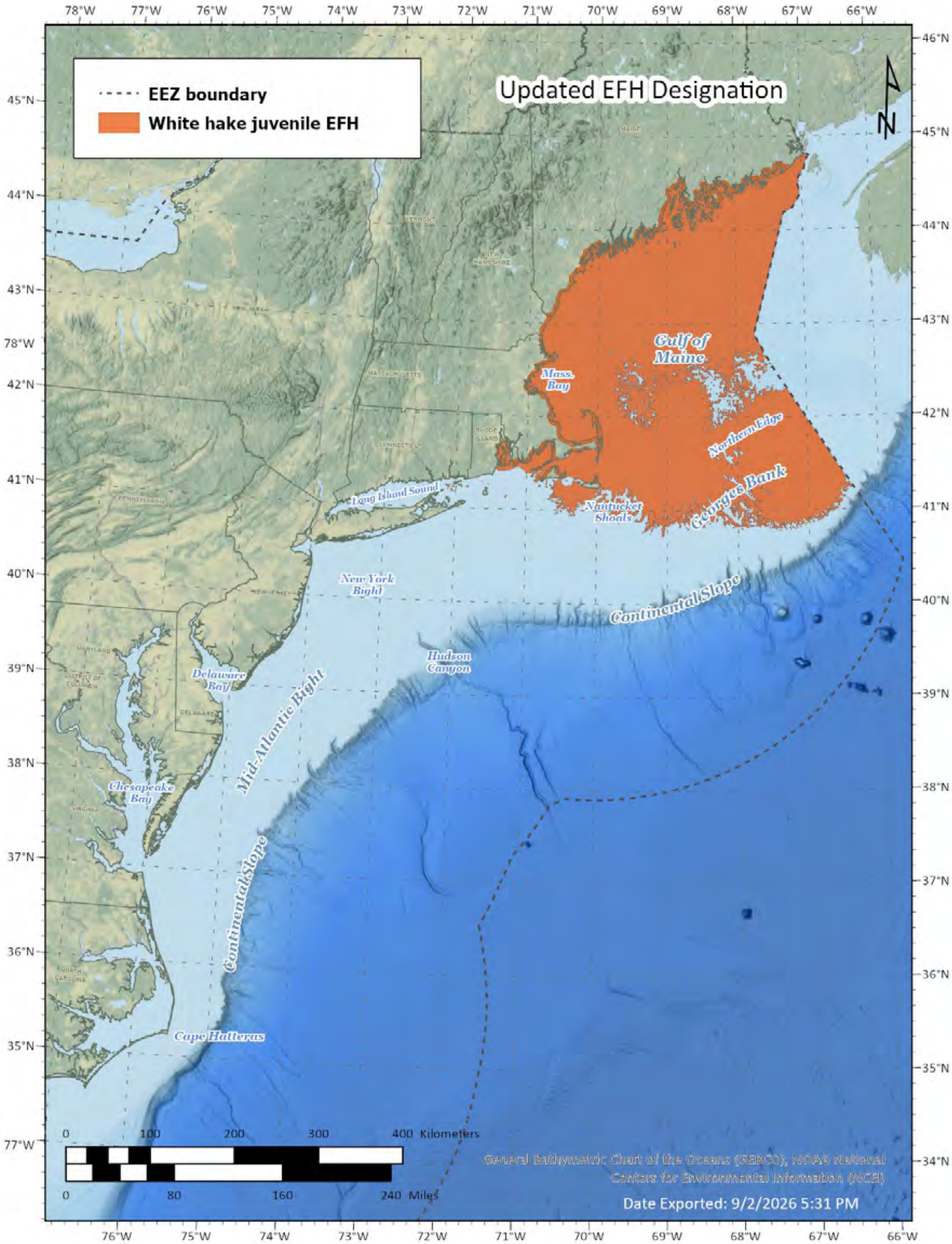
**Larvae:** EFH for white hake larvae includes pelagic habitats in the Gulf of Maine, in southern New England, and on Georges Bank. Early-stage white hake larvae have been collected on the continental slope but cross the shelf-slope front and use nearshore habitats for juvenile nurseries. Larger larvae and pelagic juveniles have been found only on the continental shelf.

**Juveniles:** EFH for juvenile white hake (TL < 32 cm) consists of the principal habitat area and includes intertidal and subtidal habitats in the Gulf of Maine, on the northern portions of Georges Bank, and in southern New England along the Massachusetts and Rhode Island coastline, including Nantucket Shoals and coastal estuaries (Map 22). Inshore juvenile EFH typically includes the marine zones of bays and estuaries; specific portions of these inshore areas can be identified from Map 22. Within the principal habitat area, juvenile EFH ranges from 0-292 meters depth, but juveniles most commonly occur in bottom trawl surveys between 29-179 meters depth (Appendix B, Table 22). Juvenile EFH also includes bottom temperatures between 3-16°C and marine waters between 31-35 ppt (Appendix B, Table 22). Offshore-spawned pelagic juveniles typically move inshore to estuarine nursery areas Pelagic phase juveniles remain in the water column for about two months. In nearshore waters, EFH for benthic phase juveniles occurs on fine-grained, sandy substrates in eelgrass, macroalgae, and un-vegetated habitats. In the Mid-Atlantic, most juveniles settle to the bottom on the continental shelf, but some enter estuaries, especially those in southern New England. Older young-of-the-year juveniles occupy the same habitat types as the recently settled juveniles but move into deeper water (> 50 meters).

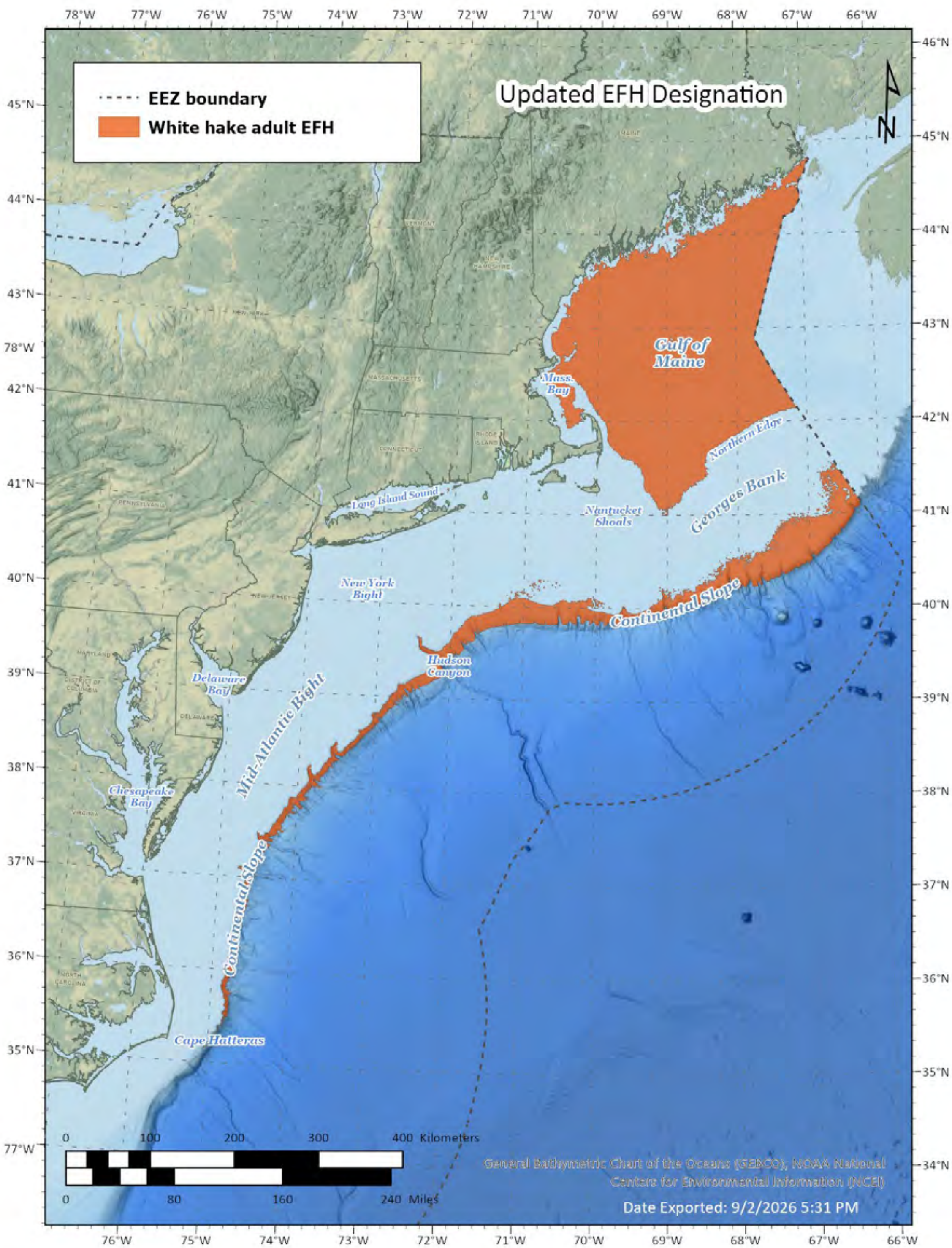
**Adults:** EFH for adult white hake (TL ≥ 32 cm) consists of the principal habitat area and includes subtidal benthic habitats in the Gulf of Maine, while on the outer continental shelf and slope, EFH ranges from the southern edge of Georges Bank as far south as Cape Hatteras (Map 23). Within the principal habitat area, adult EFH ranges from 29-361 meters depth, but adults most commonly occur in the bottom trawl surveys between 80-236 meters depth (Appendix B, Table 22). On the continental slope, they can be found to a maximum of 1000 meters (Appendix B, Table 23). Adult EFH also includes bottom temperatures between 4-13°C and marine waters between 32-36 ppt (Appendix B, Table 22). EFH for adult white hake occurs on fine-grained, muddy substrates and in mixed soft and rocky habitats. Spawning takes place in deep water on the continental slope and in Canadian waters. On the shelf edge, white hake are distributed further south in the spring than in the fall based on federal trawl surveys.

**References Consulted:** Chang et al., 1999 (EFH Source Document); Salter, 2018 (FMP Resource Guide, and references within); LaFreniere et al., 2023; Froese and Pauly, 2018; Pickens et al., 2020 ; Scott and Scott, 1988

**Map 23. Essential fish habitat for juvenile (TL < 32 cm) white hake (*Urophycis tenuis*).**



**Map 24. Essential fish habitat for adult (TL ≥ 32 cm) white hake (*Urophycis tenuis*).**



### 4.2.13 Windowpane flounder

Essential fish habitat (EFH) for windowpane flounder (*Scophthalmus aquosus*) is designated anywhere within the geographic areas that are shown on the following map and meets the conditions described below.

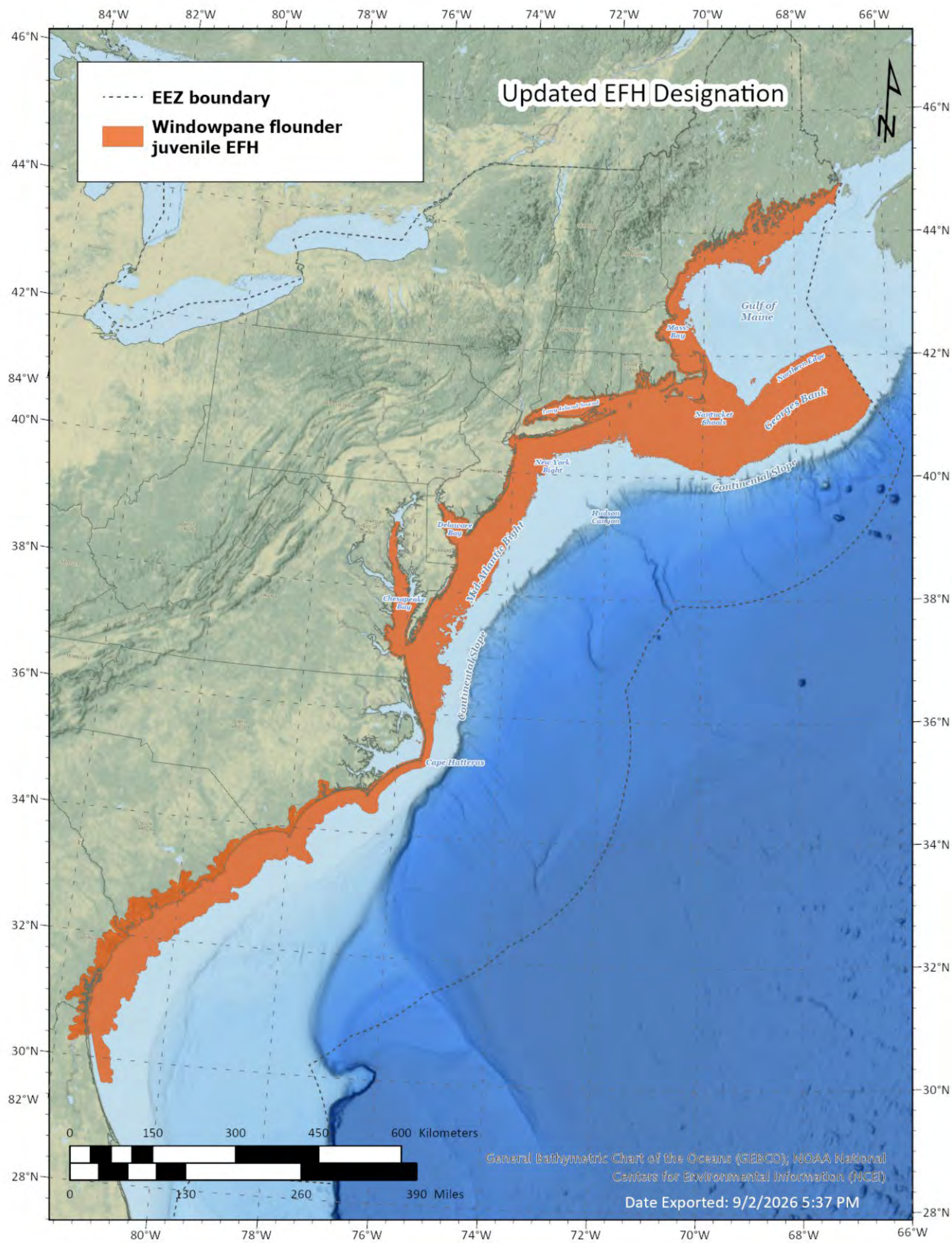
**Eggs and larvae:** EFH for egg and larval windowpane flounder includes pelagic habitats on the continental shelf from Georges Bank to Cape Hatteras and in mixed and high salinity zones of coastal bays and estuaries throughout the region.

**Juveniles:** EFH for juvenile windowpane flounder (TL < 22 cm) consists of the principal habitat area and includes intertidal and subtidal benthic habitats in estuarine, coastal, and continental shelf waters from the Gulf of Maine to northern Florida (Map 24). Inshore juvenile EFH typically includes the polyhaline and marine zones of bays and estuaries; specific portions of these inshore areas can be identified from Map 24. Within the principal habitat area, juvenile EFH ranges from 0-116 meters depth, but juveniles most commonly occur between 8-55 meters depth (Appendix B, Table 22). Juvenile EFH also includes bottom temperatures between 3-25°C and polyhaline and marine waters between 17-34 ppt (Appendix B, Table 22). EFH for juvenile windowpane flounder occurs on mud and sand substrates and includes polyhaline and marine waters in bays and estuaries. Young-of-the-year juveniles prefer sand over mud.

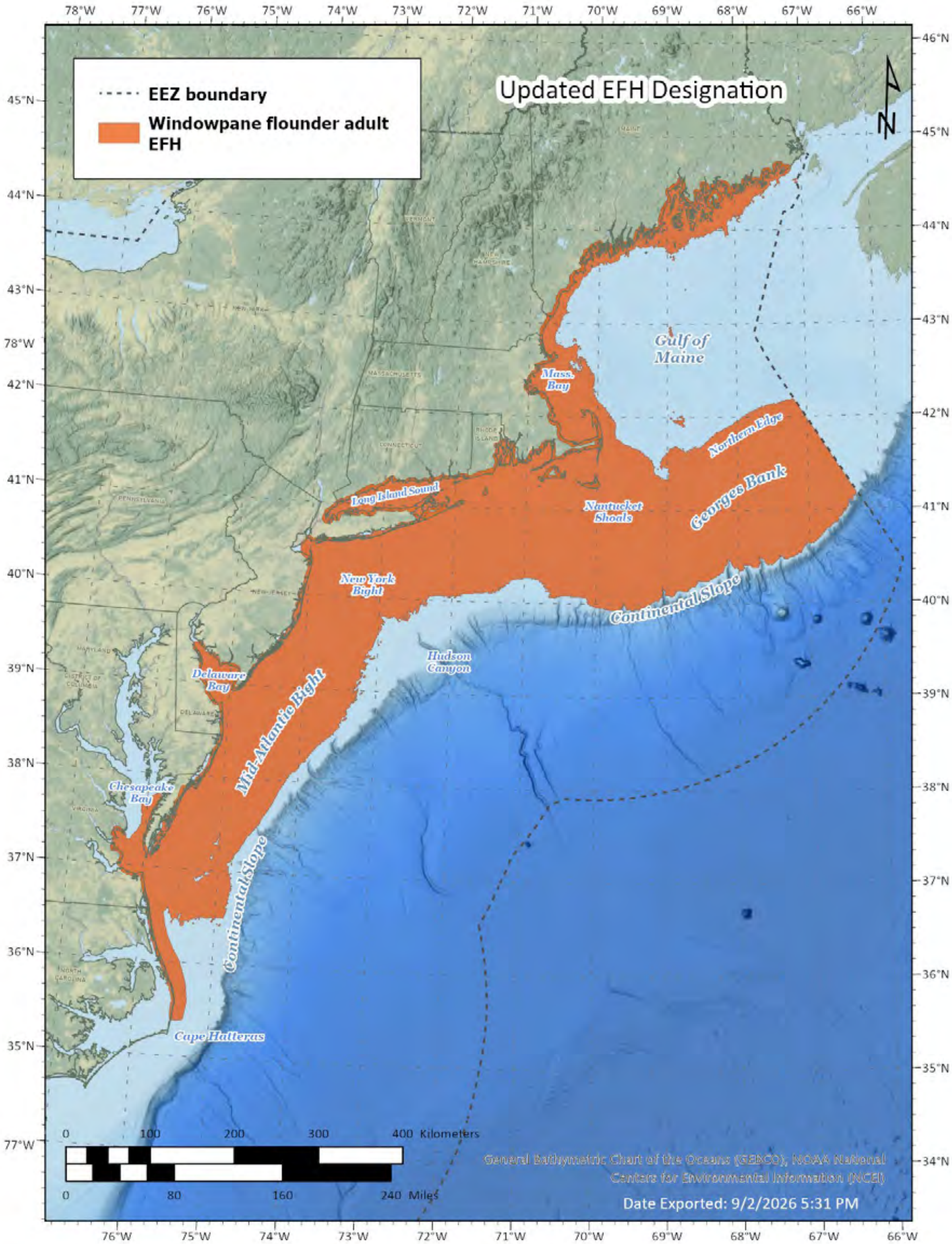
**Adults:** EFH for adult windowpane flounder (TL ≥ 22 cm) consists of the principal habitat area and includes intertidal and subtidal benthic habitats in estuarine, coastal, and continental shelf waters from the Gulf of Maine to Cape Hatteras (Map 25). Inshore adult EFH typically includes the polyhaline and marine zones of bays and estuaries; specific portions of these inshore areas can be identified from Map 25. Within the principal habitat area, adult EFH ranges from 0-127 meters depth, but adults most commonly occur between 10-58 meters depth (Appendix B, Table 22). Adult EFH also includes bottom temperatures between 3-22°C and polyhaline and marine waters between 24-35 ppt (Appendix B, Table 22). EFH for adult windowpane flounder occurs on mud and sand substrates and includes polyhaline and marine waters in bays and estuaries.

**References Consulted:** Chang et al., 1999 (EFH Source Document); Shinn, 2018 (FMP Resource Guide, and references within); Winton et al., 2017

**Map 25. Essential fish habitat for juvenile (TL < 22 cm) windowpane flounder (*Scophthalmus aquosus*).**



**Map 26. Essential fish habitat for adult (TL ≥ 22 cm) windowpane flounder (*Scophthalmus aquosus*).**



### 4.2.14 Winter flounder

Essential fish habitat (EFH) for winter flounder (*Pleuronectes americanus*) is designated anywhere within the geographic areas that are shown on the following maps and meets the conditions described below.

For adult winter flounder, some potential model-based areas in deeper areas of the Gulf of Maine were manually removed from the EFH map based on expert opinion, review of survey data, and guided by model outputs which indicate a shallower distribution for the species. For both juveniles and adults, the southern extent of EFH is limited to Delaware Bay and does not include coastal areas off Delmarva. Winter flounder are generally not captured in surveys south of the identified EFH boundary. See Table 4 in Section 3.6.6 of this document and Map 7 in Appendix E.

**Eggs:** EFH for winter flounder eggs includes sub-tidal estuarine and coastal benthic habitats from mean low water to 5 meters from Cape Cod to Absecon Inlet (39° 22’ N), and as deep as 70 meters on Georges Bank and in the Gulf of Maine. The eggs are adhesive and deposited in clusters on the bottom. Essential habitats include mud, muddy sand, sand, gravel, macroalgae, and submerged aquatic vegetation. Bottom habitats are unsuitable if exposed to excessive sedimentation which can reduce hatching success.

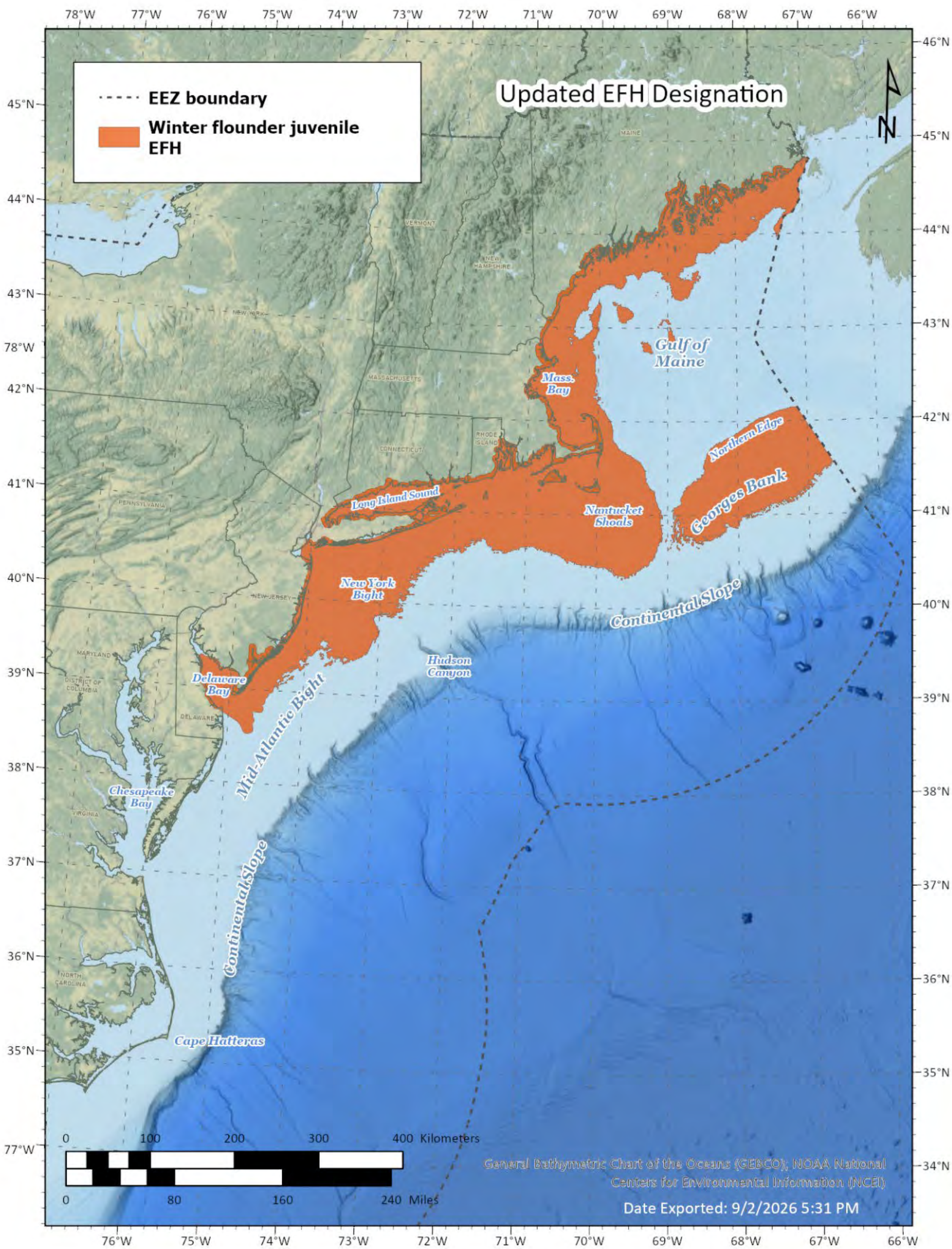
**Larvae:** EFH for winter flounder larvae includes estuarine, coastal, and continental shelf water column habitats from the shoreline to a maximum depth of 70 meters from the Gulf of Maine to Absecon Inlet (39° 22’ N), and including Georges Bank. Larvae hatch in nearshore waters and estuaries or are transported shoreward from offshore spawning sites where they metamorphose and settle to the bottom as juveniles. They are initially planktonic, but become increasingly less buoyant and occupy the lower water column as they get older.

**Juveniles:** EFH for juvenile winter flounder (TL < 27 cm) consists of the principal habitat area and includes intertidal and subtidal benthic habitats in estuarine, coastal, and continental shelf waters from the Gulf of Maine to Delaware Bay (Map 26). Inshore juvenile EFH typically includes the polyhaline and marine zones of bays and estuaries; specific portions of these inshore areas can be identified from Map 26. Within the principal habitat area, juvenile EFH ranges from 0-140 meters depth, but juveniles most commonly occur between 11-75 meters depth (Appendix B, Table 22). Juvenile EFH also includes bottom temperatures between 3-22°C and polyhaline and marine waters between 24-34 ppt (Appendix B, Table 22). EFH for juvenile winter flounder occurs on a variety of bottom types, such as mud, sand, rocky substrates with attached macroalgae, tidal wetlands, and eelgrass. Young-of-the-year juveniles are found inshore on muddy and sandy sediments in and adjacent to eelgrass and macroalgae, in bottom debris, and in marsh creeks. They tend to settle to the bottom in soft-sediment depositional areas where currents concentrate late-stage larvae and disperse into coarser-grained substrates as they get older.

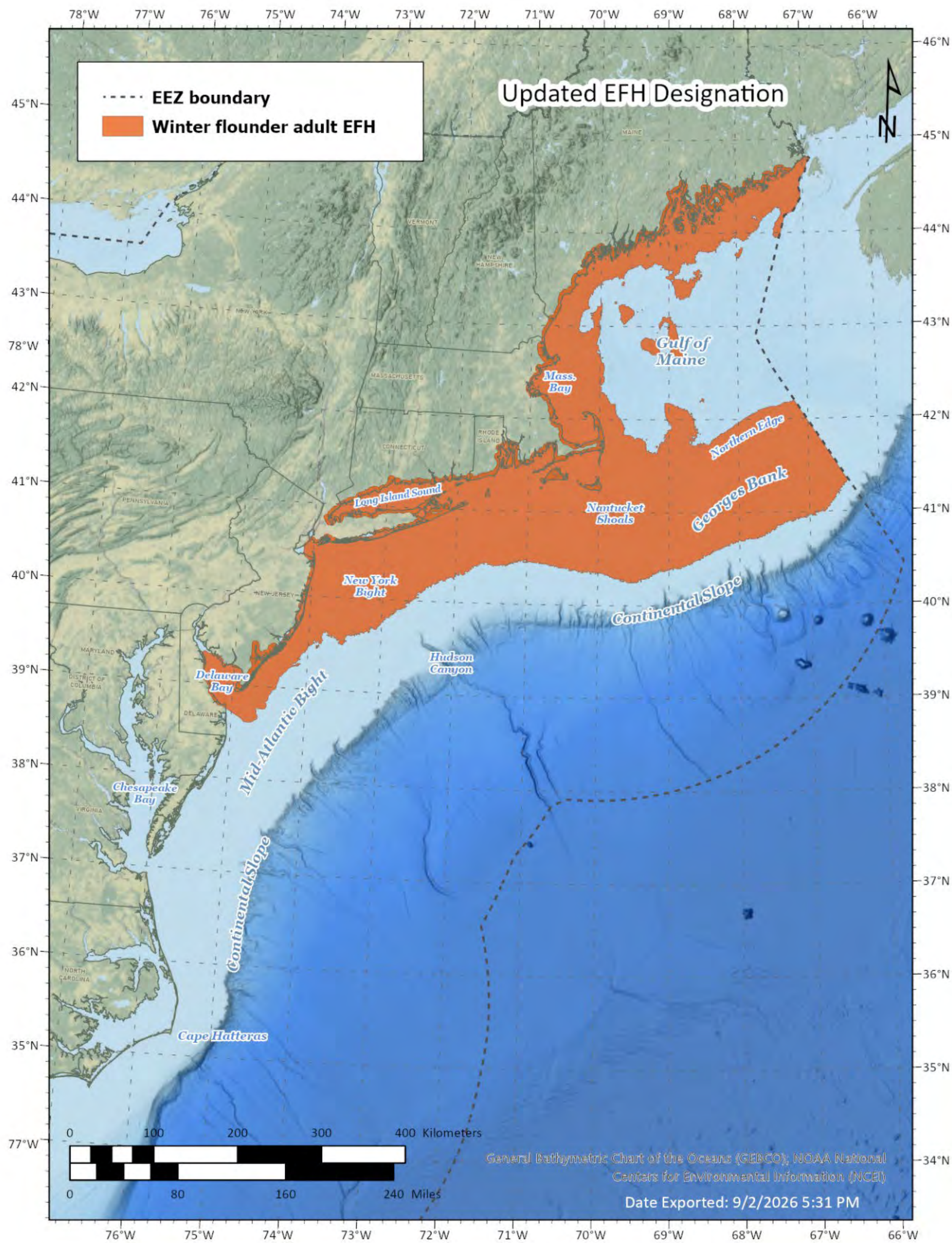
**Adults:** EFH for adult winter flounder (TL ≥ 27 cm) consists of the principal habitat area and includes intertidal and subtidal benthic habitats in estuarine, coastal, and continental shelf waters from the Gulf of Maine to Delaware Bay (Map 27). Inshore adult EFH typically includes the polyhaline and marine zones of bays and estuaries; specific portions of these inshore areas can be identified from Map 27. Within the principal habitat area, adult EFH ranges from 0-173 meters depth, but adults most commonly occur between 12-83 meters depth (Appendix B, Table 22). Adult EFH also includes bottom temperatures between 3-19°C and polyhaline and marine waters between 25-34 ppt (Appendix B, Table 22). EFH for adult winter flounder occurs on muddy and sandy substrates, and on hard bottom on offshore banks. In inshore spawning areas, EFH includes a variety of substrates where eggs are deposited on the bottom.

**References Consulted:** Pereira et al., 1999 (EFH Source Document); Shinn, 2018 (FMP Resource Guide, and references within); Ober et al. 2026; Winton et al., 2017

**Map 27. Essential fish habitat for juvenile (TL < 27 cm) winter flounder (*Pleuronectes americanus*).**



**Map 28. Essential fish habitat for adult (TL ≥ 27 cm) winter flounder (*Pleuronectes americanus*).**



### 4.2.15 Witch flounder

Essential fish habitat (EFH) for witch flounder (*Glyptocephalus cynoglossus*) is designated anywhere within the geographic areas that are shown on the following maps and meets the conditions described below.

Table 4 in Section 3.6.6 of this document lists species-specific, manual map adjustments made to draft EFH maps; for witch flounder, these included several inshore polygons that were removed based on expert feedback, literature, and review of inshore occurrence data. See Map 9 in Appendix E for areas removed from the adult witch flounder EFH map, and Map 10 in Appendix E for areas removed from the juvenile witch flounder map. Bear Seamount has been retained (see row 27 in Table 4) based on depth and for consistency in methods (i.e., continental slope depth extension), and witch flounder have been found sporadically on or over this seamount (Moore et al., 2003a,b; Kelly et al., 2010).

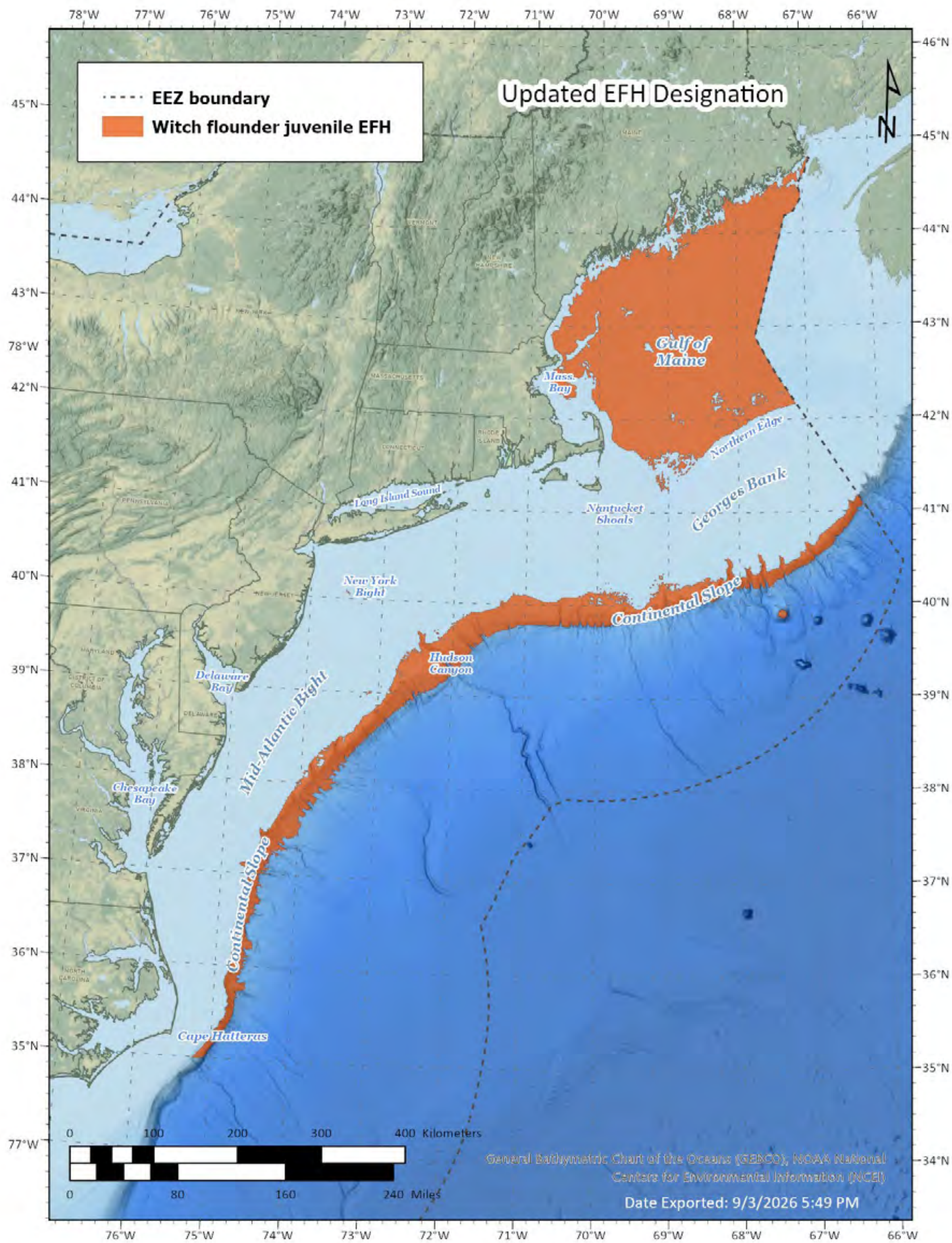
**Eggs and larvae:** EFH for egg and larval witch flounder includes pelagic habitats on the continental shelf throughout the Northeast region. Eggs are spawned at or near the bottom, but are buoyant and hatch in the water column after seven to eight days at 7.8-9.4°C. Both eggs and larvae are pelagic and historically have been encountered over depths of 30-150 m for eggs and 10-210 m for larvae. Larvae remain pelagic before settling to the bottom once metamorphosis is complete, which can occur anywhere between four to twelve months of age.

**Juveniles:** EFH for juvenile witch flounder (TL < 28 cm) consists of the principal habitat area and includes subtidal benthic habitats in the Gulf of Maine and on the outer continental shelf and slope from the southern edge of Georges Bank extending as far south as Cape Hatteras (Map 28). Within the principal habitat area in the Gulf of Maine and shelf waters, juvenile EFH ranges from 34-376 meters depth, but juveniles most commonly occur between 84-217 meters depth (Appendix B, Table 22) and tend to inhabit deeper water than adults. On the continental slope, they can be found to a maximum depth of 1500 meters (Appendix B, Table 23). Juvenile EFH also includes bottom temperatures between 3-13°C and marine waters between 31-36 ppt (Appendix B, Table 22). EFH for juvenile witch flounder occurs on mud, clay, silt, or muddy sand substrates, which may be tied to availability of prey such as polychaete worms. Sea pens fields may also serve as suitable feeding habitat for juvenile witch flounder.

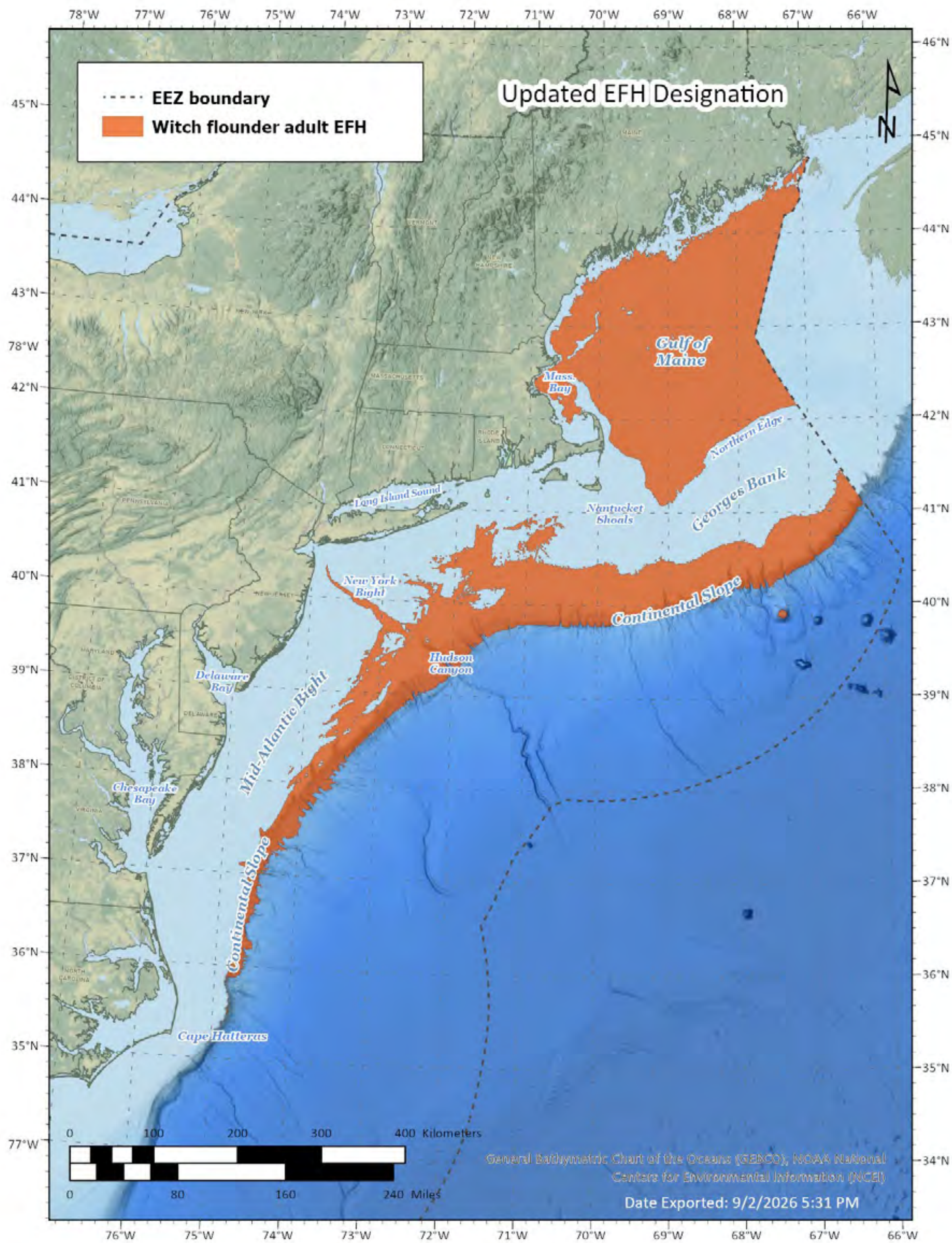
**Adults:** Essential fish habitat (EFH) for adult witch flounder (TL ≥ 28 cm) consists of the principal habitat area and includes subtidal benthic habitats in the Gulf of Maine and on the outer continental shelf and slope from the southern edge of Georges Bank extending as far south as Cape Hatteras (Map 29). Within the principal habitat area in the Gulf of Maine and shelf waters, adult EFH ranges from 23-357 meters depth, but adults most commonly occur between 71-219 meters depth (Appendix B, Table 22). On the continental slope, they can be found to a maximum depth of 1500 meters (Appendix B, Table 23). Adults tend to be found in lower densities in shallower areas of the continental shelf; highest densities are found in a relatively narrow strip along the shelf edge. Adult EFH also includes bottom temperatures between 3-13°C and marine waters between 32-36 ppt (Appendix B, Table 22). EFH for adult witch flounder occurs on mud, clay, silt, or muddy sand substrates.

**References Consulted:** Cargnelli et al. 1999 (EFH Source Document); Shinn, 2018 (FMP Resource Guide, and references within); Boulard et al. 2024; Froese and Pauly, 2018; Pickens et al., 2020; Moore et al., 2003a,b; Kelly et al., 2010

**Map 29. Essential fish habitat for juvenile (TL < 28 cm) witch flounder (*Glyptocephalus cynoglossus*).**



**Map 30. Essential fish habitat for adult (TL ≥ 28 cm) witch flounder (*Glyptocephalus cynoglossus*).**



### 4.2.16 Yellowtail flounder

Essential fish habitat (EFH) for yellowtail flounder (*Limanda ferruginea*) is designated anywhere within the geographic areas that are shown on the following maps and meets the conditions described below.

For adults, species distribution model outputs were used as the basis for EFH in Penobscot Bay, rather than designating the entire embayment as EFH. See Table 4 in Section 3.6.6 of this document and Map 11 in Appendix E.

**Eggs:** EFH for yellowtail flounder eggs includes coastal and continental shelf pelagic habitats in the Gulf of Maine, on Georges Bank, and in the Mid-Atlantic region as far south as the upper Delmarva peninsula. Eggs are deposited near the bottom, but are buoyant after fertilization and hatch into pelagic larvae after approximately five days at 10-11°C.

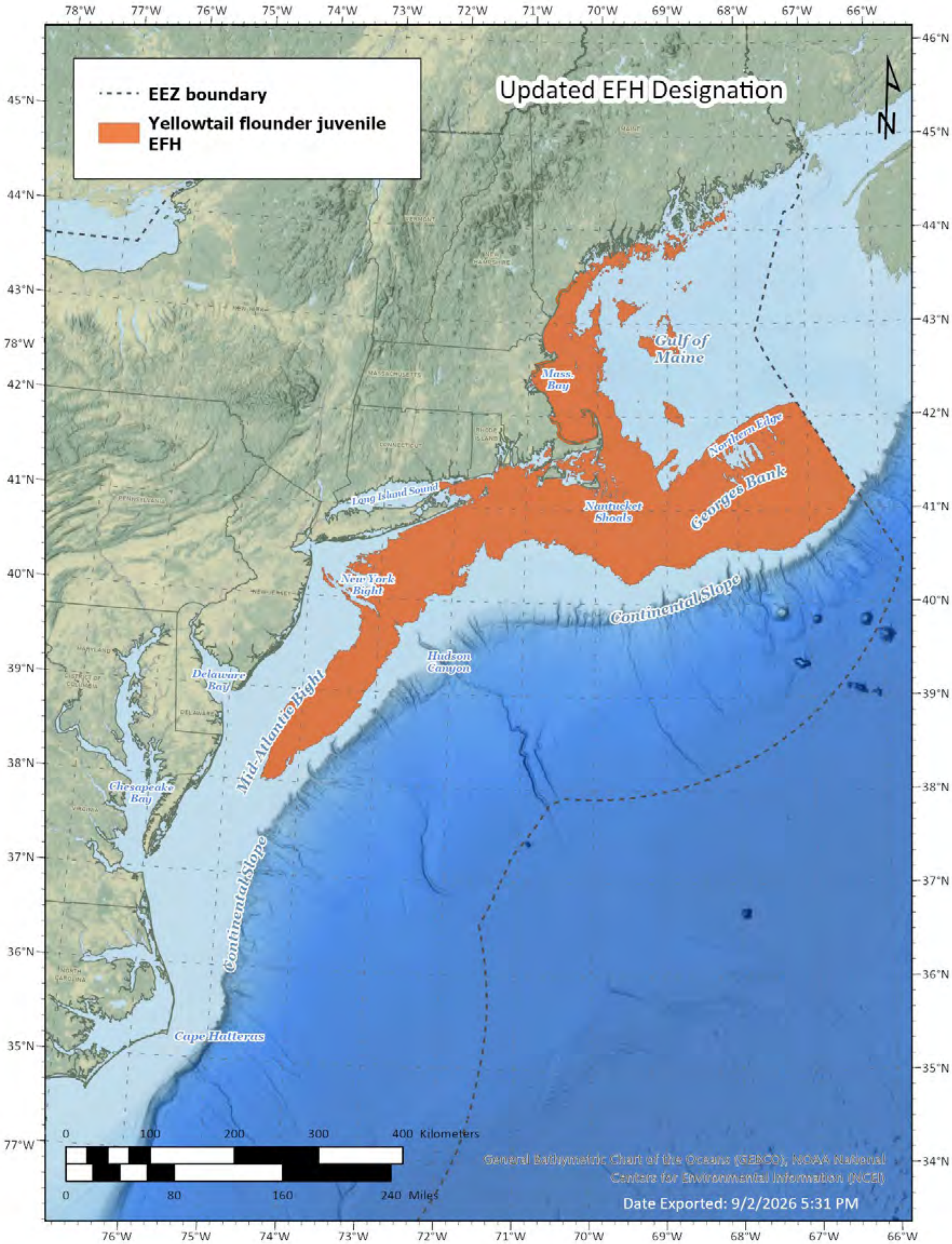
**Larvae:** EFH for yellowtail flounder larvae includes coastal marine and continental shelf pelagic habitats in the Gulf of Maine, and from Georges Bank to Cape Hatteras. Larvae are pelagic for approximately two months before settling to the bottom as juveniles.

**Juveniles:** EFH for juvenile yellowtail flounder (TL < 24 cm) consists of the principal habitat area and includes subtidal benthic habitats in coastal and continental shelf waters in the Gulf of Mane, on Georges Bank, in southern New England, and extending into the Mid-Atlantic region; south of the New York Bight, EFH primarily occurs in outer shelf waters but not to the continental slope (Map 30). Where applicable, inshore and nearshore juvenile EFH typically includes the marine zones of coastal areas, bays, and estuaries; specific portions of these areas can be identified from Map 30. Within the principal habitat area, juvenile EFH ranges from 7-159 meters depth, but juveniles occur most commonly occur between 24-81 meters depth (Appendix B, Table 22). Juvenile EFH also includes bottom temperatures between 3-15°C and marine waters between 31-34 ppt (Appendix B, Table 22). EFH for juvenile yellowtail flounder occurs on sand and muddy sand; in the Mid-Atlantic, young-of-the-year juveniles settle to the bottom on the continental shelf following the pelagic larvae stage, approximately two months after hatching. Both juvenile and adult yellowtail flounder undergo limited seasonal migrations away from coastal areas during late summer and into autumn. Notably, habitat preferences, spawning timing, and seasonal movements for yellowtail flounder can vary between the Gulf of Maine, Georges Bank, southern New England, and Mid-Atlantic regions.

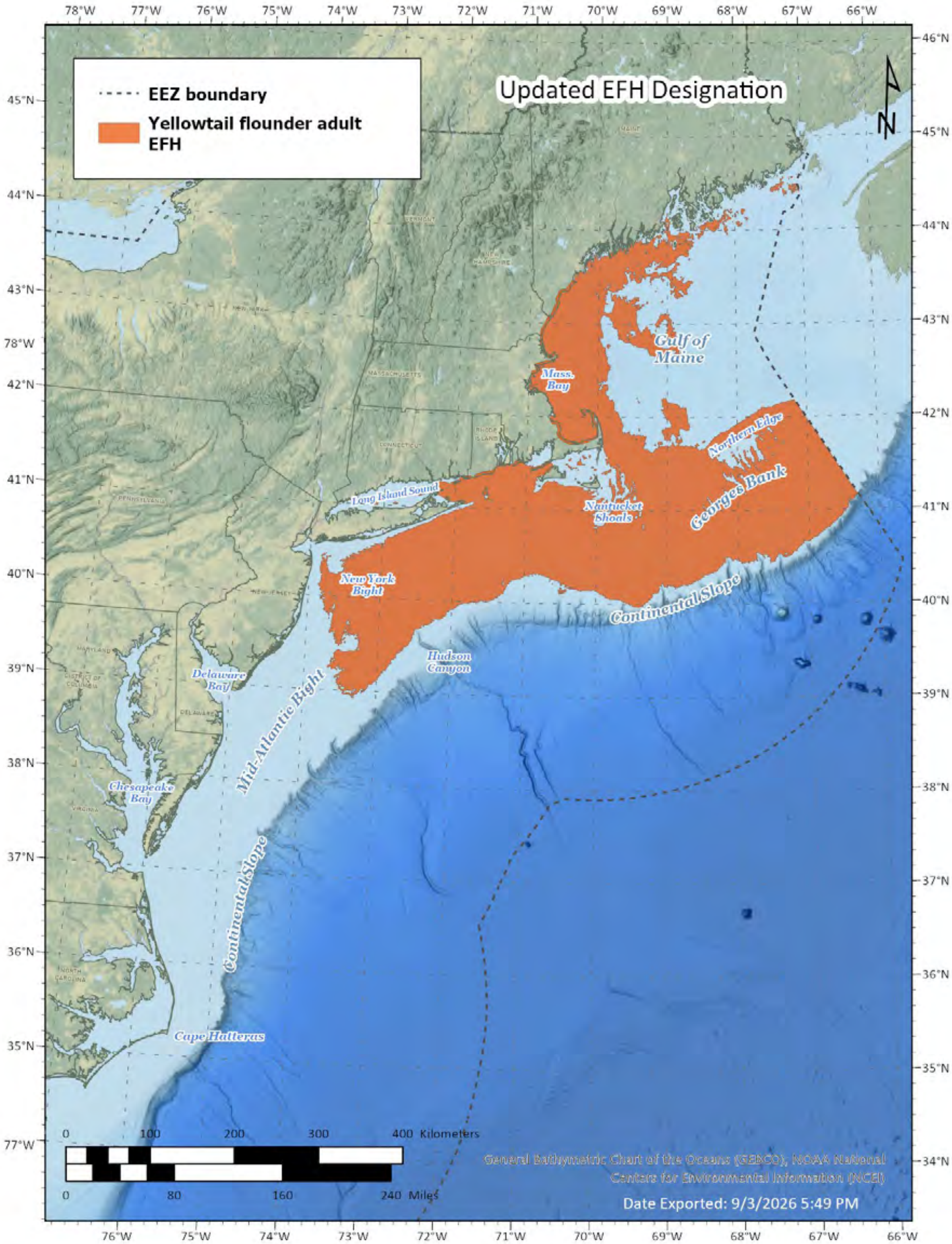
**Adults:** EFH for adult yellowtail flounder (TL ≥ 24 cm) consists of the principal habitat area and includes subtidal benthic habitats in coastal and continental shelf waters in the Gulf of Maine, on Georges Bank, in southern New England, and extending into the Mid-Atlantic region as far south as Delaware Bay (Map 31). Where applicable, inshore and nearshore adult EFH typically includes the marine zones of coastal areas, bays, and estuaries; specific portions of these areas can be identified from Map 31. Within the principal habitat area, adult EFH ranges from 8-183 meters depth, but adults most commonly occur between 27-93 meters depth (Appendix B, Table 22). Adult EFH also includes bottom temperatures between 3-15°C and marine waters between 31-35 ppt (Appendix B, Table 22). EFH for adult yellowtail flounder occurs on sand and sand with mud, shell hash, gravel, and rocks, particularly in low energy environments with high availability and diversity of benthic invertebrates. Both juvenile and adult yellowtail flounder undergo limited seasonal migrations away from coastal areas during late summer and into autumn, while in winter adults are more dispersed throughout Georges Bank, southern New England, and the Mid-Atlantic Bight. Spawning generally occurs in continental shelf waters on Georges Bank, Gulf of Maine, and southern New England, particularly in waters between 5-12°C. Spawning spans mid-March to September but peaks in April to June. Notably, however, habitat preferences, spawning timing, and seasonal movements for yellowtail flounder can vary between the Gulf of Maine, Georges Bank, southern New England, and Mid-Atlantic regions.

**References Consulted:** Johnson et al. 1999 (EFH Source); Shinn, 2018 (FMP Resource Guide, and references within); Kittel, 2025; Pereira et al. 2012; Link et al. 2005; Hansell et al. 2025; Winton et al. 2017; Yellowtail Flounder Research Track Working Group, 2024 (Adams et al., 2024 RT WG Report); Kittel et al., 2024 (2024 RT TOR1 background); Cadrin 2010; McElroy et al. 2016; McManus and Richardson 2024 (2024 RT TOR1 background)

**Map 31. Essential fish habitat for juvenile (TL < 24 cm) yellowtail flounder (*Limanda ferruginea*).**



**Map 32. Essential fish habitat for adult (TL ≥ 24 cm) yellowtail flounder (*Limanda ferruginea*).**



# 5.0 FISHING EFFECTS EVALUATION

Each Council FMP must contain an evaluation of the potential adverse effects of fishing on EFH designated under the FMP, including effects of each fishing activity regulated under the FMP or other Federal FMPs (50 CFR §600.815(a)(2)). Councils must act to prevent, mitigate, or minimize any adverse effects from fishing to the extent practicable, if there is evidence that a fishing activity adversely affects EFH in a manner that is more than minimal and not temporary in nature. In determining whether it is practicable to minimize an adverse effect from fishing, the Council considers the nature and extent of the adverse effect on EFH and the long and short-term costs and benefits of potential management measures to EFH, associated fisheries, and the nation, consistent with National Standard 7. In determining whether management measures are practicable, Councils are not required to perform a formal cost/benefit analysis.

The Council made determinations related to fishing effects across all its FMPs through Omnibus EFH Amendment 2. Amendment 2 implemented a series of spatial gear restriction measures to minimize effects on fish habitats occurring in federal waters of the New England region, including designating EFH. The following provides an evaluation of the potential adverse effects of fishing on EFH designated through this framework. This evaluation includes:

- An inventory of current fishing gear prohibitions in place that prevent, mitigate, or minimize adverse effects of fishing on habitat and EFH,
- Recent changes in the New England fleet, including size, stability, and trends in landings,
- Model-based outputs of fishing effects on benthic habitat in the Northeast region, and,
- Fishing effects estimates for areas identified as EFH in the update descriptions provided in Section 4.2.

## 5.1 CURRENT MEASURES TO MINIMIZE ADVERSE EFFECTS

In the Northeast, effort is constrained for federally managed fisheries using restrictions on fishery outputs through annual catch limits for target fishery species. These limits are developed to prevent overfishing and influence the overall magnitude of fishing activity in the Northeastern U.S. region. The New England Council manages its fisheries to ensure catch limits are not exceeded and the fisheries can be prosecuted efficiently and sustainably.

The Councils (i.e., Mid-Atlantic and New England), and NOAA Fisheries, have created many fishery management and conservation areas in the Northeast region of the EEZ that have fishing gear prohibitions and have documented these in a database and mapping application (webmap; application). The eight regional fishery management councils developed a database that documents fishing gear prohibitions associated with conservation areas (i.e., those implemented under MSA as well as other authorities) that minimize adverse environmental effects on habitat. A detailed list of all these areas in the Northeast region is available in Bachman et al., 2025. A summary of year-round areas in the New England Council region is provided below (Table 6). As of September 2025, within the New England region, excluding any overlap among areas, 39.2% of the EEZ has prohibitions on the use of mobile bottom tending gears (e.g., trawls, dredges, etc.), which are one of the more environmentally adverse gears in the region that contact seafloor habitat (Bachman et al., 2025, Table 7). Area coverage of mobile bottom tending gear in the Mid-Atlantic region, which includes EFH areas for species evaluated in this framework is slightly higher at 58.3% (Table 7). The various habitat management, deep-sea coral protection, research areas, and year round groundfish closure areas are distributed throughout the region, from the eastern Gulf of Maine to the edge of the EEZ (Map 32)

**Table 7. Conservation areas in the New England EEZ, including Ecosystem Conservation (EC) areas and Year-Round Fishery Management (YFM) areas. Adapted from Bachman et al., 2025.**

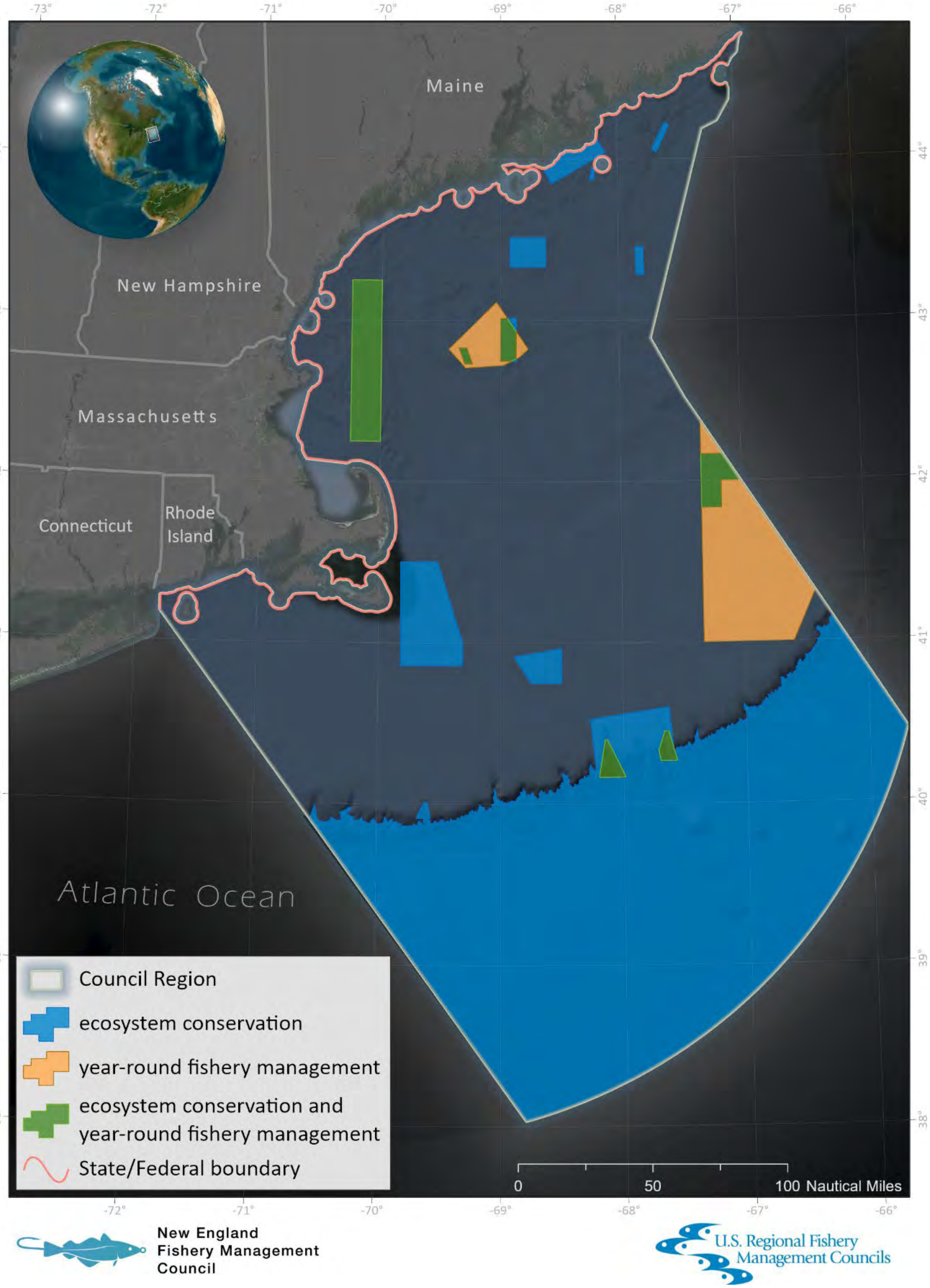
| Category | Area Type (number of areas) | Area names | Gears prohibited | Regulations | Years implemented |
|---|---|---|---|---|---|
| EC | Habitat Management Areas (8) | Eastern Maine, Jeffreys Bank, Cashes Ledge, Ammen Rock, Fippennies Ledge, Western Gulf of Maine, Closed Area II, Great South Channel | Mobile bottom tending | 50 CFR §648.370 | 2003-2018 |
| EC | Dedicated Habitat Research Areas (3) | Stellwagen Bank, Georges Bank, Jordan Basin | Mobile bottom tending, bottom tending, or none, depending on area | 50 CFR §648.371 | 2018, 2021 |
| EC | Deep-Sea Coral Protection Areas (3) | Outer Schoodic Ridge, Mt. Desert Rock, Georges Bank | Mobile bottom-tending, or bottom tending, depending on area | 50 CFR §648.373 | 2021 |
| EC | Monkfish Closed Areas (2) | Lydonia Canyon, Oceanographer Canyon | Bottom tending | 50 CFR §648.97 | 2005 |
| EC | Marine National Monument (1) | Northeast Canyons and Seamounts Marine National Monument | None | None | 2016 |
| YFM | Groundfish Closure Areas (3) | Cashes Ledge, Western Gulf of Maine, Closed Area II | Bottom tending | 50 CFR §648.81 | 1994-2002 |

- Fixed bottom tending gears other than lobster traps are prohibited in the Ammen Rock Habitat Management Area
- Deep-Sea Coral Protection Areas in the Gulf of Maine prohibit mobile bottom-tending gears; the Georges Bank Coral Protection Area prohibits all bottom tending gears with an exemption for red crab pots.
- Monkfish Closed Areas prohibit fishing under the Monkfish Fishery Management Plan; monkfish are captured in bottom trawls and sink (bottom) gillnets.
- Groundfish Closure Areas prohibit most bottom tending gears with authorizations for exempted fisheries.

**Table 8. Area coverage (n.mi.2) and percentage of EEZ where fishing gear is prohibited year-round, in the Northeast Region. Source: Bachman et al., 2025.**

| Region | Total area of U.S. EEZ | All bottom tending gears | Mobile bottom tending gears | Bottom trawl | Dredge | Other gears |
|---|---|---|---|---|---|---|
| New England | 55,947 | 3,703 (6.6%) | 29,915 (39.2%) | 24,041 (43%) | 34,009 (60.8%) | 22,778 (40.7%) |
| Mid-Atlantic | 53,307 | 23 (0.0%) | 31,100 (58.3%) | 31,100 (58.3%) | 31,282 (58.7%) | 31,100 (58.3%) |

**Map 33. Locations of fishery management and conservation areas in the EEZ in the New England region that prohibit the use of certain fishing gears. Source: Bachman et al., 2025.**



## 5.2 Fishing Effects Modeling Results

Since 2009, model-based estimates of fishing effects from bottom-tending gears have been generated at the scale of the Northeastern U.S. region, across fisheries managed by both Councils (Mid-Atlantic and New England) and the Atlantic States Marine Fisheries Commission. The initial modeling approach was developed by the New England Council's Habitat Plan Development Team (NEFMC Habitat PDT) and was called the Swept Area Seabed Impact Model (SASI). These fishing gear impact estimates were used as the foundation for development of spatial measures to minimize the adverse effects of fishing on EFH in NEFMC's 2018 Omnibus Habitat Amendment 2 (OHA2). Since OHA2, the NEFMC has been using the Fishing Effects Model, which was developed in the North Pacific region and is based on SASI and other analyses, to estimate effects. Updated Fishing Effects Model outputs using fishing effort data through December 2023 were considered. In addition, a fishing gear effects on marine habitats database was created to document the literature available that describes the effects of specific types of fishing gears used in the Northeast and across the US. Specific details on the modeling methods and approach are available in the report, "Fishing Impacts on Essential Fish Habitat in the Northeast U.S. Region and Minimization of Adverse Effects," available at: https://www.nefmc.org/library/essential-fish-habitat-efh-information.

For the recent EFH review, the realized annual time-series of fishing effects were examined across all six core gear types (bottom trawl, scallop dredge, clam dredge, demersal longline, gillnet, and trap) for the entire Northeast, irrespective of a corresponding FMP. There has been a decline in the mean annual effect of all these fishing gears on seafloor habitat over the period 1996-2023 (Figure 2). Comparing the mean annual effect for each of the six core gear types, trawl gear is responsible for most of the realized effects in the region. Since 1996, there have been overall declines in effects from bottom trawl, scallop dredge, demersal longline, and gillnet, and increases in the effects from clam dredge and trap (Figure 2, Figure 3). Although, the mean effect for these gears is very small (with a mean effect of approximately 0.2% for both hydraulic dredges and traps in the most recent years), the magnitude of effects has nearly tripled for hydraulic clam dredge and quadrupled for traps.

Mean values at the northeast regional scale do not provide a complete picture of gear effects, as the spatial and temporal distribution of fishing and associated fishing effects is not uniform throughout the Northeast region. To assess regional differences, the realized annual time-series of fishing effects were summarized by region according to commonly used Ecological Production Units (EPUs), across all gears and irrespective of a corresponding FMP. These EPUs include the Mid-Atlantic Bight, Southern New England, Georges Bank, and the Gulf of Maine. Note that Southern New England includes areas south of Long Island, New York, as well as the area west of the Great South Channel including Nantucket Shoals. Figure 4 shows percentage disturbance for four years, 2000, 2010, 2020, and the terminal year of the model runs, 2023, by four regions, Gulf of Maine, Georges Bank, Southern New England, and Mid-Atlantic Bight. Over time in all regions, there has been a general decline in the mean annual effect of these fishing gears on seafloor habitat. In recent years, average effects are lowest in the Mid-Atlantic Bight (around 0.05, or 5%) and higher in the other three regions (around 0.15-0.20, or 15-20%).

**Figure 2. Realized annual time-series of fishing effects for the entire Northeast across all gear types (left) and for each of the six core gear types (right), 1986-2023 (hydraulic dredge excludes 2023). Colored lines show the annual means, and the black lines show the monthly means (the temporal resolution at which the model is run). Confidence intervals (grey bands) shown across all gear types (left). Effects are shown as proportions.**

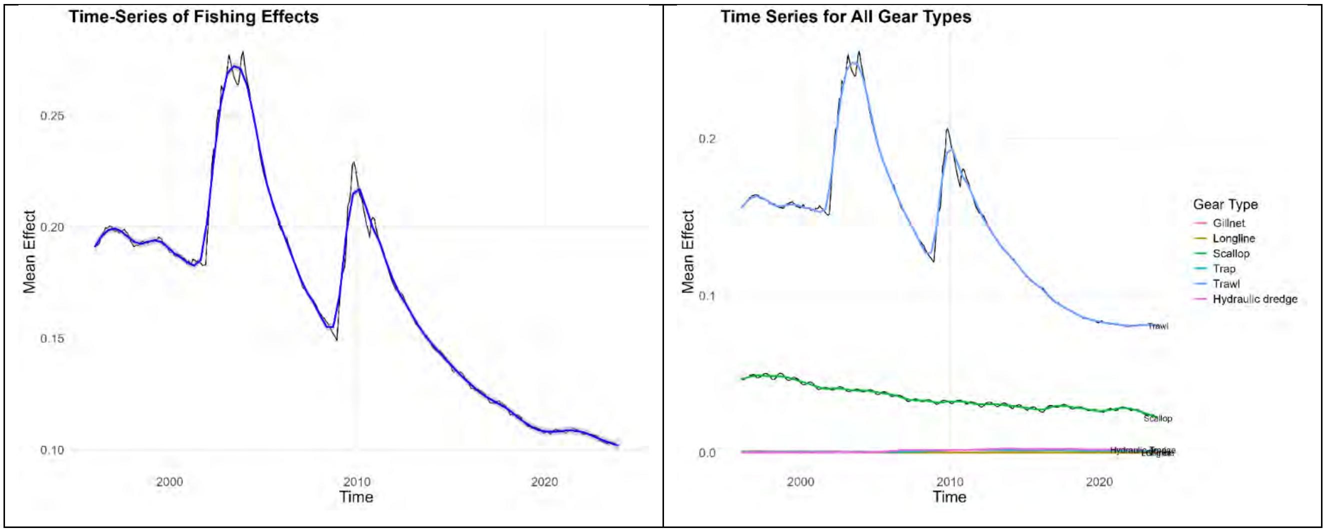



**Figure 3. Realized annual time-series for each of the six core gear types with scales adjusted for each gear, 1996-2023. Blue lines show the annual means, the grey bands show the confidence intervals, and the black lines show the monthly means (the temporal resolution at which the model is run). Effects are shown as proportions.**

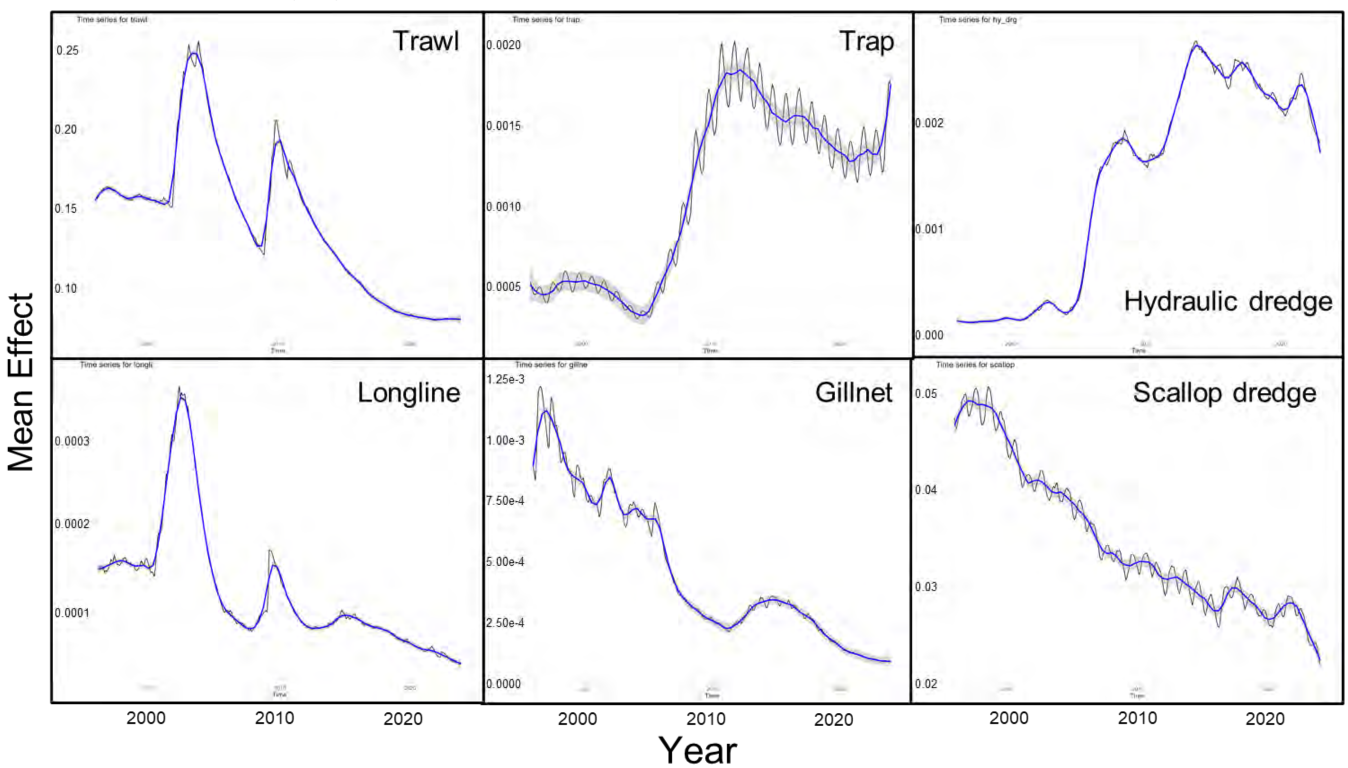
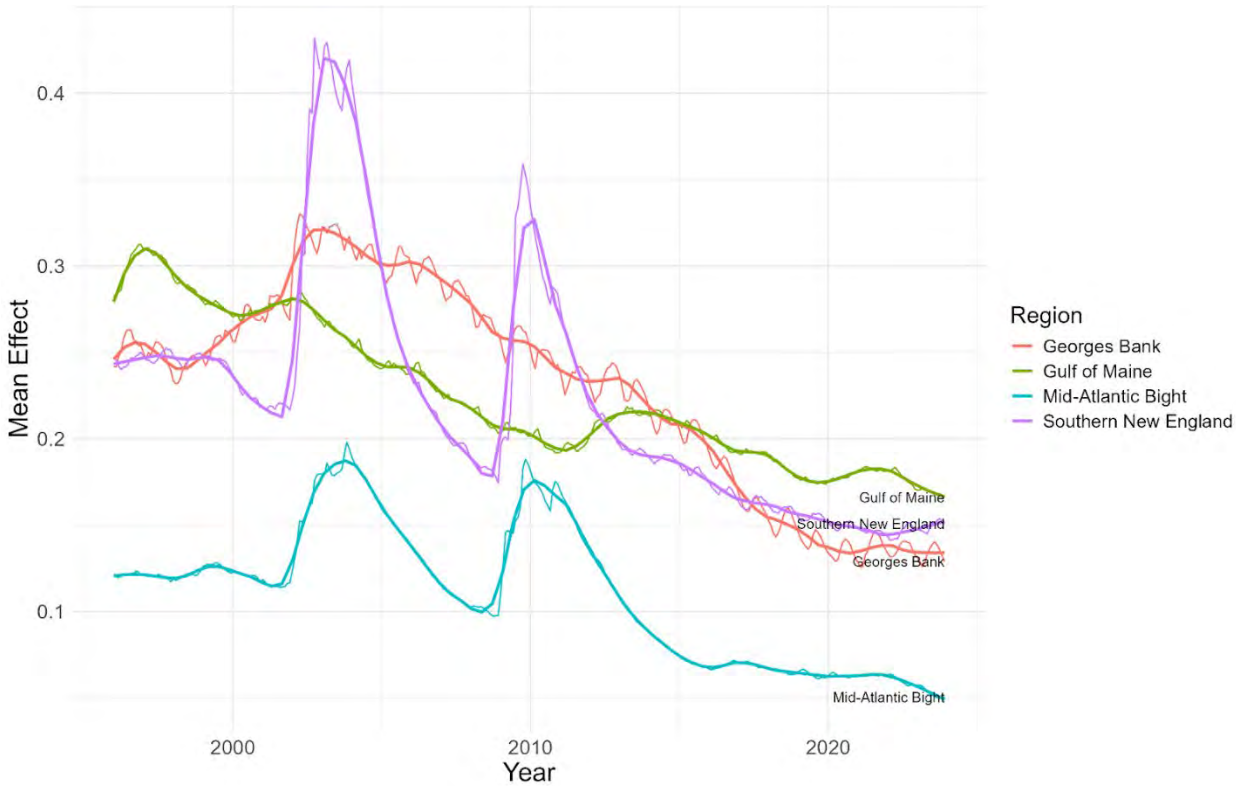


**Figure 4. Realized annual time-series of fishing effects for each region across all gear types, 1986-2023 (Hydraulic dredge excludes 2023). Colored lines show the annual mean, with the thinner colored lines showing monthly mean. Effects are shown as proportions.**




## 5.3 FISHERY TRENDS

The Northeast Fishery Science Center's 2025 State of the Ecosystem Report provides trends and status of indicators related to broad ecosystem-level fishery management objectives. Updated indicators for total commercial landings, (includes seafood, bait, and industrial landings), U.S. seafood landings, and Council-managed U.S. seafood landings have declined in the Georges Bank and Gulf of Maine regions since the 1980s (Figure 5).

Several diversity estimates are used to evaluate stability for fleets landing federally managed species, and species landed by commercial vessels with New England permits. Commercial fishery fleet count has rebounded recently but is still below the historical average (Figure 6) while fleet revenue diversity (Figure 7) has declined to a near low since records began. Revenue diversity measures the effective number of species being managed by the commercial fleet.

**Figure 5. Total commercial landings (black), total U.S. seafood landings (blue), and New England managed U.S. seafood landings (red), with significant decline (purple) in total landings. Left panel, Georges Bank, right panel, Gulf of Maine. Source: 2025 State of the Ecosystem Report New England and Northeast US Ecosystem Indicator Catalog.**

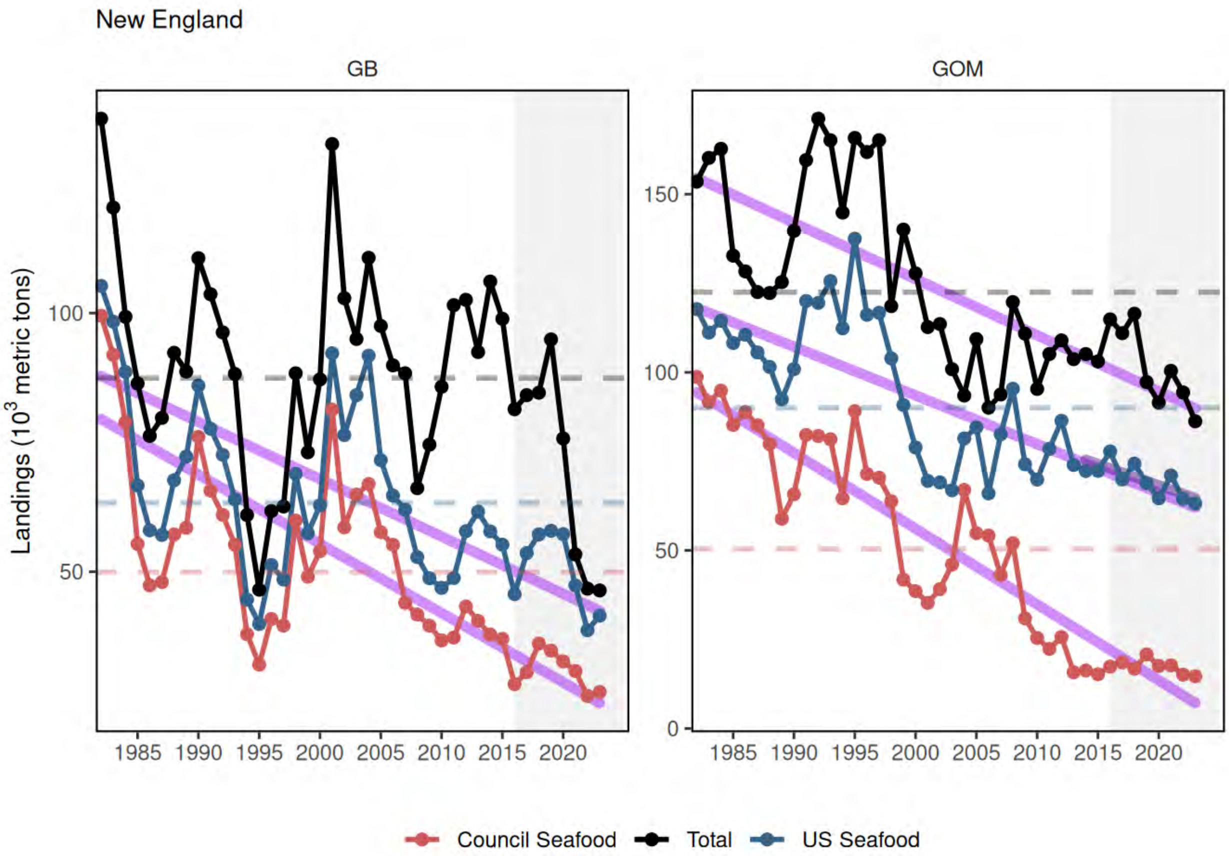


**Figure 6. Commercial fleet count in New England. Source: 2025 State of the Ecosystem Report New England and Northeast US Ecosystem Indicator Catalog.**

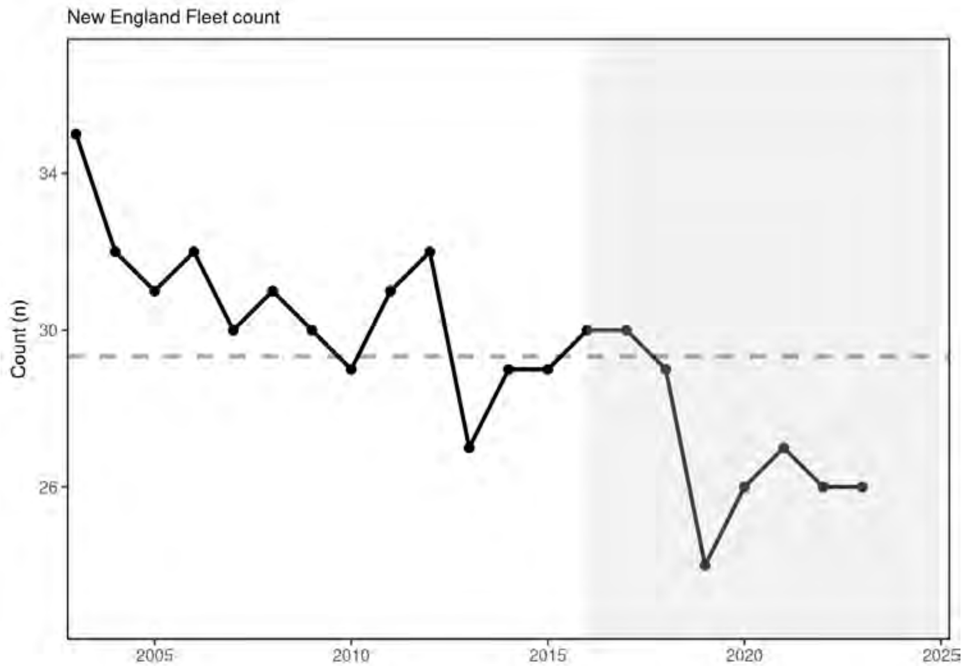
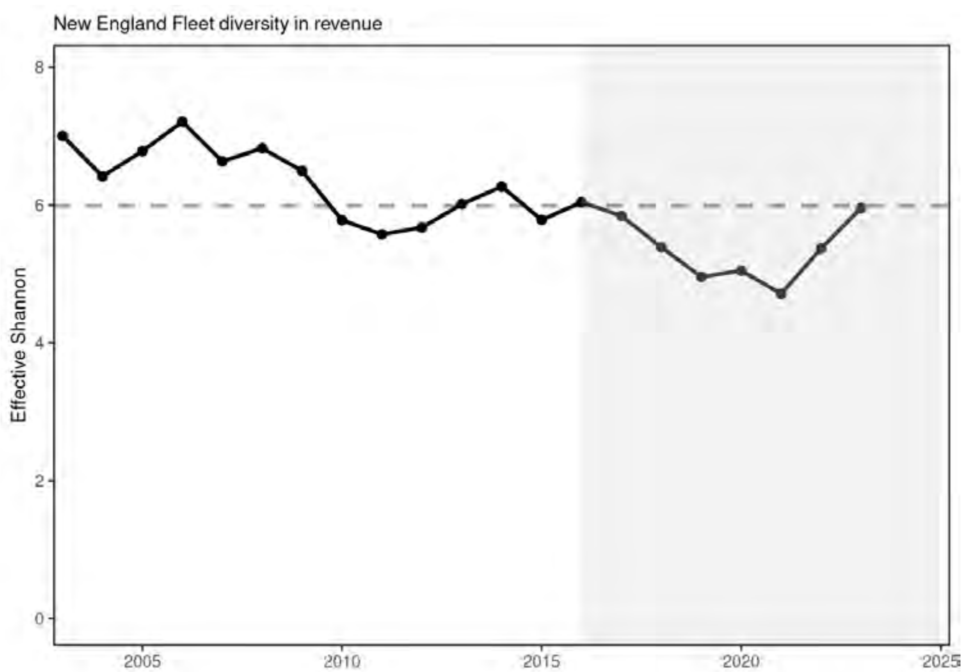



**Figure 7. Fleet diversity in revenue in New England. Source: 2025 State of the Ecosystem Report New England and Northeast US Ecosystem Indicator Catalog.**



## 5.4 Average Fishing Effects Within Updated EFH Areas

As shown in the left panel of Figure 2, the recent average fishing effect for the Northeast region overall, across all gears, is roughly 10-11%. The average fishing effect within updated EFH areas was calculated for four different months in 2022 (Table 8). If the average fishing effect with the EFH area is lower than the northeast region average, this suggests that the essential habitats for the species overlap less vulnerable habitat types and/or are less intensively fished. If the average within the EFH area is higher, this indicates that essential habitats for the species overlap areas that are on average more vulnerable to fishing and/or are more intensively fished. Higher values may indicate species to examine further when considering measures to minimize adverse effects of fishing on EFH.

**Table 9. Average percentage habitat disturbance (fishing effect) across all gears within the EFH area for the range of species considered in this action. The domain-wide average for this year is 11%. Fishing effects estimates are for January, April, July, and October 2022. [To be updated]**

| Species | Lifestage | January | April | July | October |
|---|---|---|---|---|---|
| *Entire Fishing Effects Domain* | *n/a* | *11%* | *11%* | *11%* | *11%* |
| Acadian redfish | Juvenile | | | | |
| Acadian redfish | Adult | | | | |
| American plaice | Juvenile | | | | |
| American plaice | Adult | | | | |
| Atlantic halibut | Juvenile | | | | |
| Atlantic halibut | Adult | | | | |
| Atlantic sea scallop | Juvenile | | | | |
| Atlantic sea scallop | Adult | | | | |
| Atlantic wolffish | Juvenile | | | | |
| Atlantic wolffish | Adult | | | | |
| Haddock | Juvenile | | | | |
| Haddock | Adult | | | | |
| Ocean pout | Juvenile | | | | |
| Ocean pout | Adult | | | | |
| Offshore hake | All | | | | |
| Pollock | Juvenile | | | | |
| Pollock | Adult | | | | |
| Red hake | Juvenile | | | | |
| Red hake | Adult | | | | |
| Silver hake | Juvenile | | | | |
| Silver hake | Adult | | | | |
| White hake | Juvenile | | | | |
| White hake | Adult | | | | |
| Windowpane flounder | Juvenile | | | | |
| Windowpane flounder | Adult | | | | |
| Winter flounder | Juvenile | | | | |
| Winter flounder | Adult | | | | |
| Witch flounder | Juvenile | | | | |
| Witch flounder | Adult | | | | |
| Yellowtail flounder | Juvenile | | | | |
| Yellowtail flounder | Adult | | | | |

# 6.0 APPLICABLE LAWS / EXECUTIVE ORDERS

## 6.1 MAGNUSON STEVENS FISHERY CONSERVATION AND MANAGEMENT ACT

### 6.1.1 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. This action contains no measures that affect the current operational regulations of the fisheries, rather this action modifies administrative measures of the Northeast Multispecies and Atlantic Sea Scallop FMPs. As a result, each of the FMPs would continue to comply with all elements of the MSA following this action, including all ten National Standards. Table 9 provides a list of the most recent actions for the affected FMPs which summarize how the actions are consistent with the National Standards of the MSA.

**Table 10. Most recent actions by FMP.**

| Fishery Management Plan (FMP) | Action | Summary of Consistency with MSA Nationals Standards is Available at: |
|---|---|---|
| Northeast Multispecies | Framework Adjustment 69 | https://www.nefmc.org/management-plans/northeast-multispecies |
| Small-Mesh Multispecies | 2024-2026 Specifications | https://www.nefmc.org/management-plans/small-mesh-multispecies |
| Atlantic Sea Scallop | Framework Adjustment 40 | https://www.nefmc.org/management-plans/scallops |

***National Standard 1.*** The proposed action is consistent with National Standard 1, because EFH supports development of conservation measures for the ten species considered in this action. This measure will likely contribute to the prevention of overfishing and achievement of optimum yield for managed species and the U.S. fishing industry on a continuing basis.

***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 and other scientific data sources. The model-based EFH designation approaches used in this action have been refined over a period of years and reviewed by the Council’s SSC. The supporting science and analyses, upon which the proposed action is based, are summarized in the Council’s EFH 5-Year Review and in Appendix E.

***National Standard 3.*** The proposed action is consistent with National Standard 3, because EFH is designated throughout the management units for each of the ten species.

***National Standard 4.*** The proposed action is consistent with National Standard 4. EFH is designated throughout the management unit based on habitats used by the species. The designations do not have a direct effect on fishing and therefore do not discriminate among residents of different states.

***National Standard 5.*** The proposed action is consistent with National Standard 5. EFH is designated throughout the management unit based on habitats used by the species. The designations do not have a direct effect on fishing, and the purpose of the designations is not related to economic allocation.

***National Standard 6.*** The proposed action is consistent with National Standard 6, because it accounts for variations in the fishery. The EFH designations are reliant on and reflective of recent data and can be updated in the future as conditions change. EFH designations do not have a direct effect on fishing.

***National Standard 7.*** The proposed action is consistent with National Standard 7. EFH designations do not have a direct effect on fishing and therefore no direct costs are expected to be incurred as a result of this 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, the MAFMC, and other interested entities and agencies to minimize duplicity.

***National Standard 8.*** The proposed action is consistent with National Standard 8, because EFH identification and conservation inherently recognizes and supports the importance of fishery resources to fishing communities and provides for their sustained participation. EFH designations do not have a direct effect on fishing activity and consideration of minimizing adverse economic impacts of EFH-related management measures is beyond this scope of this action.

***National Standard 9.*** The proposed action is consistent with National Standard 9. EFH designations do not have a direct effect on fishing activity and therefore do not directly influence bycatch levels of non-target species.

***National Standard 10.*** The proposed action is consistent with National Standard 10, because EFH designations do not have a direct effect on fishing activity and thus none of the measures are expected to create unsafe conditions and situations at sea.

### 6.1.2 Other MSA Requirements

Section 303 (a) of MSA contains required provisions for FMPs. The action is administrative in nature. As such, the Northeast Multispecies, and Atlantic Sea Scallop FMPs would continue to be consistent with the fourteen additional required provisions of the statute (see Table 9).

## 6.2 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. It has been preliminarily determined that this action qualifies for a categorical exclusion from the need for further NEPA review, as it is primarily administrative in nature.

### 6.2.1 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

### 6.2.2 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

### 6.2.3 List of Preparers

The following personnel participated in preparing this document:

- ***New England Fishery Management Council***. Julian Garrison, Michelle Bachman, Andrew Applegate, Emily Bodell, Connor Buckley, Jenny Couture, Robin Frede, Mark Grant, and Chandler Nelson
- ***National Marine Fisheries Service.*** Sharon Benjamin, Gabby Feil, Thomas Heimann, David Packer, Sabrina Pereira
- ***State agencies.*** Julia Livermore (RI DEM), Anne Simpson (ME DMR)
- ***Academic/other.*** Dr. Chris Haak (Monmouth University), Dr. Peter Auster (University of Connecticut, Mystic Aquarium), Dr. Fiona Hogan (Responsible Offshore Development Alliance)
- ***Mid-Atlantic Fishery Management Council***. Jessica Coakley, Tori Kentner

### 6.2.4 Opportunity for Public Comment

This action was developed between January and September 2026. There were three Council meetings, one Habitat Advisory Panel meeting, one Habitat Committee meeting, one joint Habitat Committee / Habitat Advisory Panel meeting, and five Habitat Plan Development Team meetings related to this action. The action was also discussed at various Whiting and Sea Scallop PDT meetings as noted below. Other meetings to review the draft updated designations were held with small groups of species experts and Groundfish, Whiting, and Sea Scallop Advisory Panel member feedback was solicited via email. 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](www.nefmc.org).

**Table 11. Public meetings related to the 2026 EFH Designation Framework.**

| Date | Meeting Type | Location |
|---|---|---|
| January 28, 2026 | Council (Initiation) | Via webinar |
| April 1, 2026 | Habitat PDT | Webinar |
| April 30, 2026 | Habitat PDT | Webinar |
| May 29, 2026 | Habitat Advisory Panel | Webinar |
| June 11, 2026 | Whiting PDT | Webinar |
| June 12, 2026 | Habitat Committee | Webinar |

| Date | Meeting Type | Location |
|---|---|---|
| June 17, 2026 | Habitat PDT | Webinar |
| June 24, 2026 | Council | Mystic CT and via webinar |
| July 29, 2026 | Scallop PDT | Wakefield MA and via webinar |
| August 4, 2026 | Habitat PDT | Webinar |
| August 13, 2026 | Habitat PDT | Webinar |
| August 20, 2026 | Joint Habitat Committee and Advisory Panel | New Bedford, MA and via webinar |
| September 16, 2026 | Council (Final action) | Plymouth, MA and via webinar |

## 6.3 Marine Mammal Protection Act (MMPA)

The proposed action is administrative in nature and is not expected to result in any direct or indirect impacts to MMPA protected species. As a result, this action would not affect marine mammals in any manner not considered in previous consultations on the fisheries. A final determination of consistency with the MMPA will be made by the agency when this action is approved.

## 6.4 Endangered Species Act (ESA)

The proposed action would implement adjustments to the Atlantic Sea Scallop and Northeast Multispecies FMPs. The following summarizes the ESA section 7 consultations completed (or soon to be completed) on these fisheries, as well as an evaluation of the proposed action's consistency with each consultation's determination under the ESA.

### 6.4.1 ESA Section 7 Consultations

***Northeast Multispecies FMPs***

On May 27, 2021, the National Marine Fisheries Service (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[4]. 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 not likely 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 2021 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 the 2021 Opinion.

On September 13, 2023, NMFS issued a 7(a)(2)/7(d) memorandum that reinitiated consultation on the 2021 Opinion. The Federal actions to be addressed in this reinitiation of consultation include the

[4] 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.

authorization of the Federal fisheries conducted under the aforementioned eight Federal FMPs. The reinitiated consultation will not include the 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 American 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.

On January 8, 2025, and amended on November 25, 2025, NMFS issued a memorandum titled, "Section 7(a)(2) and 7(d) Determinations for the Extended Reinitiation Period for Endangered Species Act Section 7 Consultation on Eight Fishery Management Plans." This reinitiation memorandum determined that the authorization of these fisheries during the extended reinitiation period would not violate section 7(d) of the ESA and would not be likely to jeopardize the continued existence of ESA-listed large whales, sea turtles, Atlantic sturgeon, Atlantic salmon, or giant manta rays, or adversely modify designated critical habitat.

***Atlantic Sea Scallop FMP***

On July 17, 2021, NMFS completed formal consultation pursuant to section 7 of the ESA of 1973, as amended, and issued a biological opinion (2021 Scallop Opinion) on the authorization of the Atlantic sea scallop FMP. The 2021 Scallop Opinion considered the effects of the authorization of this FMP on ESA-listed species and designated critical habitat and determined…[insert]

### 6.4.2 Overall ESA Determination

The proposed action is administrative in nature and therefore is not expected to result in any direct or indirect impacts to ESA-listed species or designated critical habitat. Based on this and the information provided above, it has been determined that the proposed action does not entail making any changes to the Atlantic sea scallop or Northeast multispecies fisheries that would cause an increase in interactions with or effects to ESA-listed species or designated critical habitat beyond those considered in NMFS':

- May 27, 2021, Opinion and amended January 8, 2025, reinitiation memorandum on eight FMPS (including the Northeast Multispecies, Monkfish, and Northeast Skate FMPs); and
- [insert Atlantic sea scallop-related opinions, memoranda, consultations, etc. here]

Based on the above, as it pertains to the Atlantic sea scallop and Northeast multispecies fisheries, the proposed action is consistent with the determinations made by NMFS in the respective fisheries Opinions, informal consultations, and/or reinitiation memorandums described above.

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

## 6.6 Paperwork Reduction Act (PRA)

The purpose of the Paperwork Reduction Act (PRA) 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 PRA is necessary.

## 6.7 Coastal Zone Management Act (CZMA)

Section 307 of the Coastal Zone Management Act 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 these FMPs were 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 the 2025 EFH Framework to NMFS, NMFS will request consistency reviews by CZM state agencies directly.

## 6.8 Information Quality Act (IQA)

This document includes a description of the management issues and the reasons for selecting the proposed action. The proposed action updates Essential Fish Habitat designations consistent with the MSA and all other existing applicable laws. Until a notice of action is prepared and published, this document is the principal means by which the information herein is publicly available. This document will be subject to public comment before final approval, as specified in Section 304 (a)(1)(B) of the MSA, 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 this action will be made available in printed publication, on the website for the Greater Atlantic Regional Fisheries Office (GARFO; www.greateratlantic.fisheries.noaa.gov), and through the Regulations.gov website.

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.

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, the Council must comply with the Magnuson-Stevens Fishery Conservation and Management Act, the Regulatory Flexibility Act, 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.

## 6.9 Executive Order 13158 (Marine Protected Areas)

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.

This action is administrative in nature, will not directly affect resources within MPAs, and is thus exempt from review under Executive Order 13158.

## 6.10 Executive Order 13132 (Federalism)

EO 13132 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.

## 6.11 Regulatory Flexibility Act (RFA)

The purpose of the Regulatory Flexibility Analysis (RFA) is to reduce the impacts of burdensome regulations and record-keeping requirements on small businesses. To achieve this goal, the RFA requires government agencies to describe and analyze the effects of regulations and possible alternatives on small business entities. Analysis and review of this action under the RFA is not necessary, because this action is administrative in nature and contains no measures that affect the current operational regulations of the fisheries. The implementing regulations under this proposed action modify Essential Fish Habitat designations in the Northeast Multispecies and Atlantic Sea Scallop FMPs.

# 7.0 REFERENCES [IN PROGRESS]

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# 8.0 APPENDIX A: NO ACTION EFH DESIGNATIONS

These are the no action / current essential fish habitat designations as designated by Omnibus Essential Fish Habitat Amendment 2 (OHA2). The methods and text are taken from Volume 2 of the OHA2 Final Environmental Impact Statement.

## 8.1 ACADIAN REDFISH

There is no egg designation for redfish because the species is ovoviviparous, meaning that live young hatch from eggs brooded internally.

The no action EFH map for redfish larvae was based on average juvenile catch per tow data in ten minute squares of latitude and longitude in the 1968-2005 spring and fall NMFS trawl surveys at the 90$^{th}$ percentile of catch level. The map also includes inshore areas where juvenile redfish were caught in 10% or more of tows made in individual ten minute squares during state trawl surveys. All the ten-minute squares where larval redfish were collected during the MARMAP surveys were added to the larval EFH map.

The no action EFH map for juvenile redfish is also based on average juvenile catch per tow data in ten minute squares of latitude and longitude in the 1968-2005 spring and fall NMFS trawl surveys at the 90$^{th}$ percentile of catch level, plus additional areas with depths and bottom temperatures associated with high catch rates of juveniles in the 1963-2003 spring and fall NMFS trawl surveys. The map also includes inshore areas where juvenile redfish were caught in 10% or more of tows made in individual ten minute squares during state trawl surveys, and the maximum depth and geographic range where they were determined to be present on the slope (to 600 m).

The no action adult redfish EFH map was created using the same methods and data sources that were used to map juvenile EFH, but using data specific to adults.

***Text descriptions:***

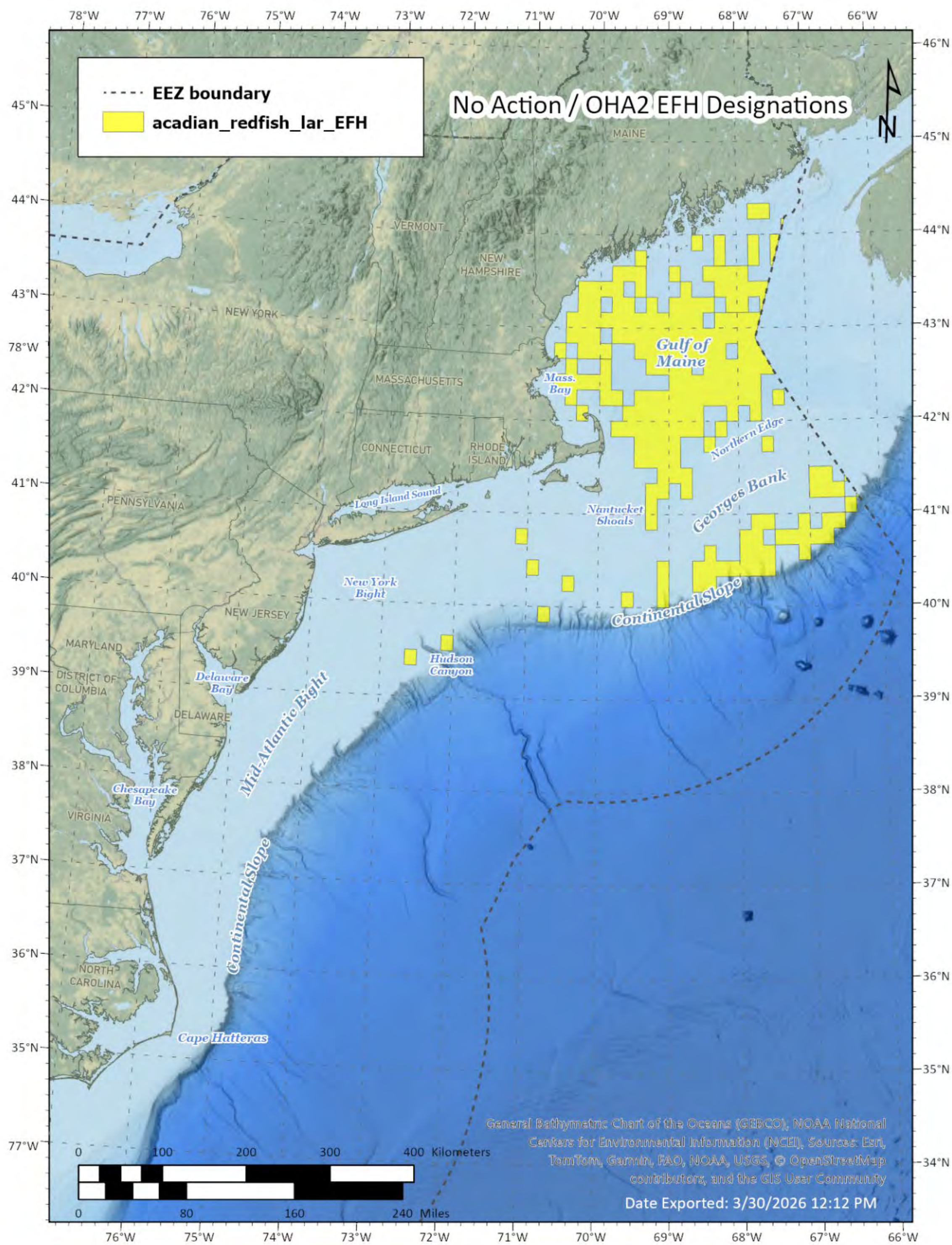
For Acadian redfish, *Sebastes fasciatus*, essential fish habitat is designated anywhere within the geographic areas that are shown on the following maps and meets the conditions described below.

**Larvae:** Pelagic habitats in the Gulf of Maine, on the southern portion of Georges Bank, and on the continental slope north of 37°38’N latitude.

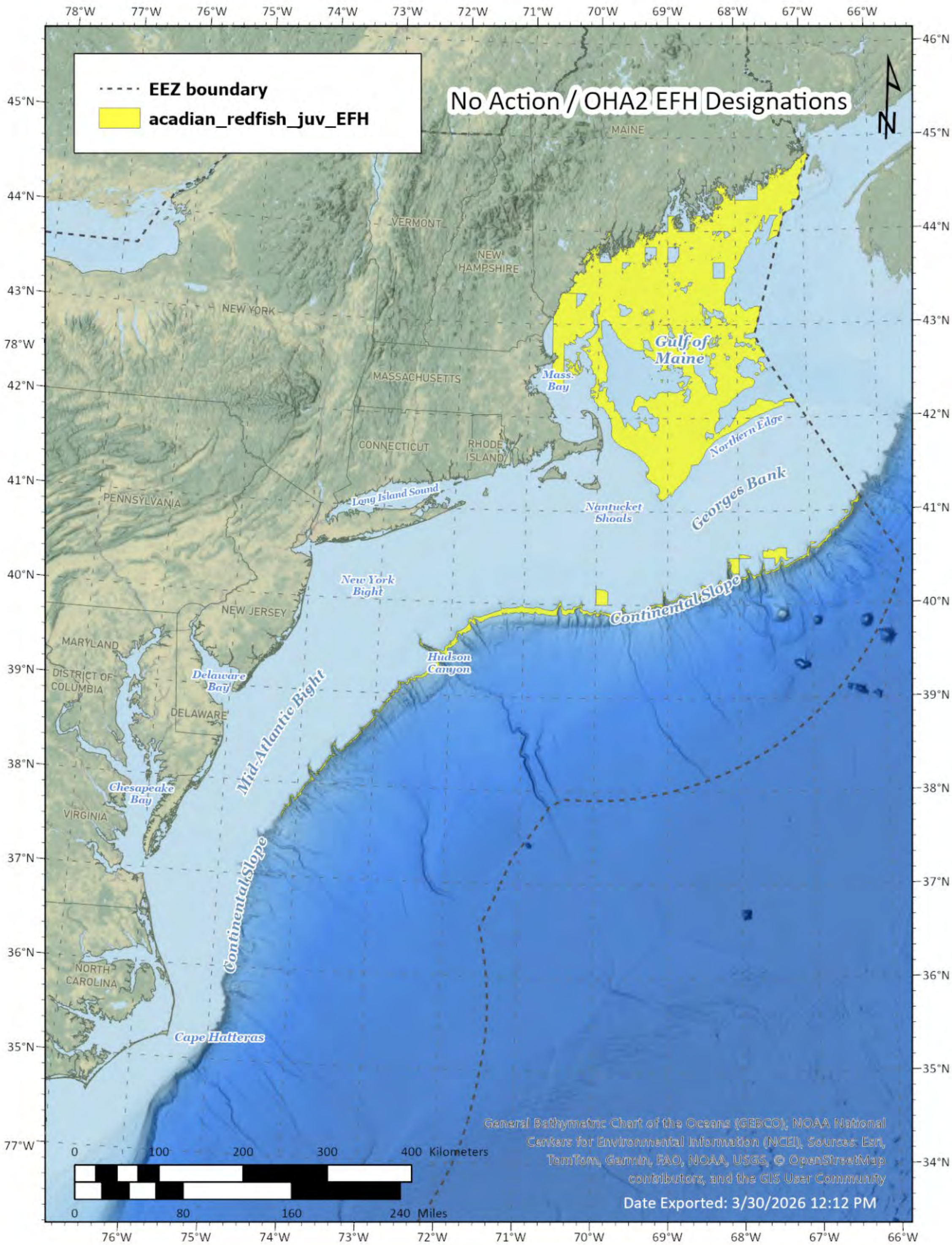
**Juveniles**: Sub-tidal coastal and offshore benthic habitats in the Gulf of Maine between 50 and 200 meters, and on the continental slope to a maximum depth of 600 meters north of 37°38’N latitude. Bottom habitats of complex rocky reef substrates with associated structure-forming epifauna (e.g., sponges, corals), and soft sediments with cerianthid anemones are essential fish habitat for juvenile redfish. Young-of-the-year juveniles are found on boulder reefs, while older juveniles are found in dense cerianthid habitats. Juvenile redfish expand their distribution to adjacent gravel habitats when local abundance on reefs is high. They do not use unstructured mud habitat. Areas of hard bottom in the deep basins are also good habitat for juveniles.

**Adults**: Offshore benthic habitats in the Gulf of Maine, primarily in depths between 140 and 300 meters, and on the continental slope to a maximum depth of 600 meters north of 37°38’N latitude. Essential fish habitat for adult redfish occurs on finer grained bottom sediments and variable deposits of clays, silts, gravel, and boulders with associated structure-forming epifauna (e.g. corals, sponges, cerianthid anemones, sea pens).

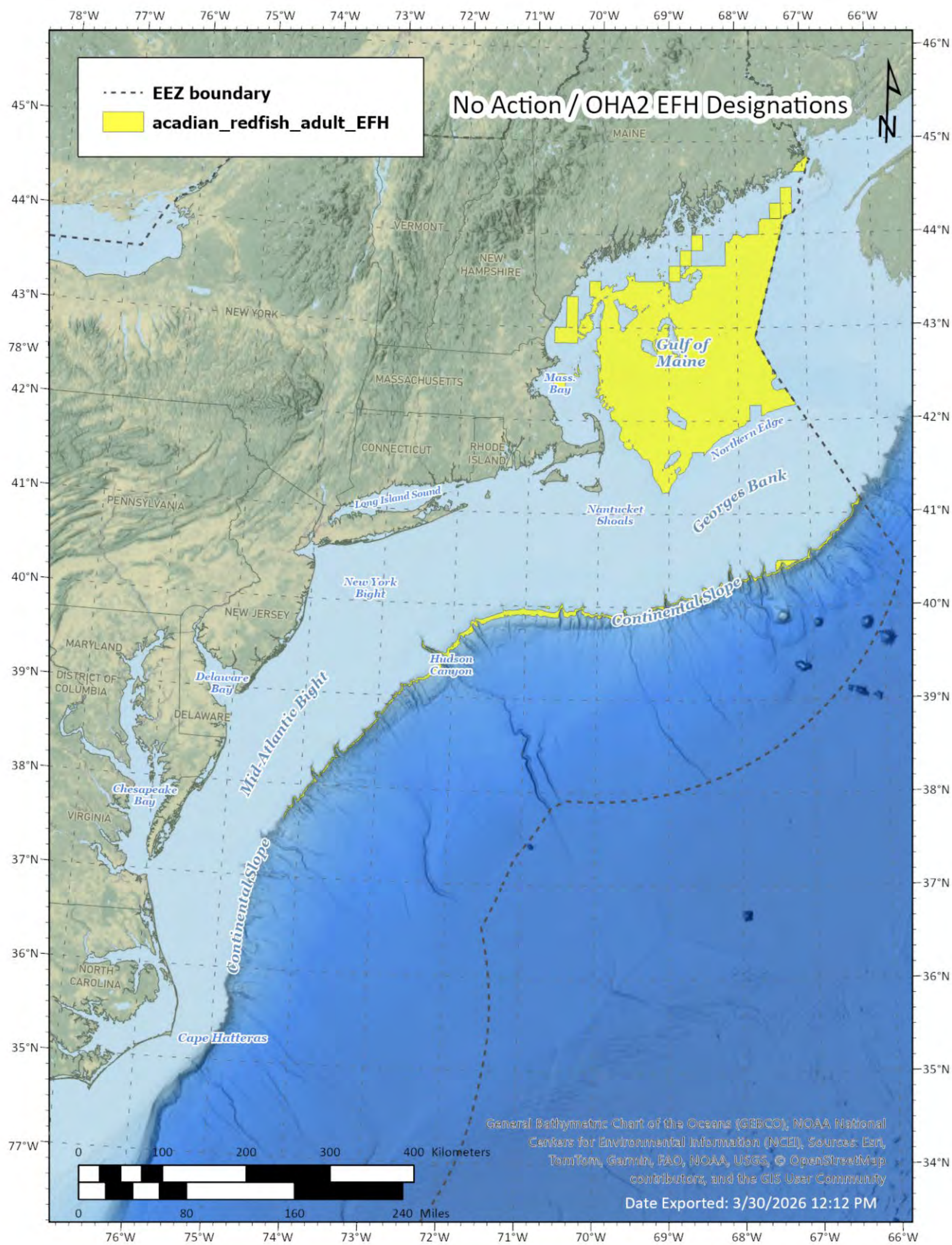
**Map 34. No Action Acadian redfish larval EFH, from Omnibus Habitat Amendment 2.**



**Map 35. No Action Acadian redfish juvenile EFH, from Omnibus Habitat Amendment 2.**



**Map 36. No Action Acadian redfish adult EFH, from Omnibus Habitat Amendment 2.**



## 8.2 AMERICAN PLAICE

The no action EFH maps for egg and larval American plaice are based on the 75th percentile of the observed range of the MARMAP survey data. The egg and larval EFH designations also include those bays and estuaries identified by the ELMR program as supporting American plaice eggs or larvae at the "common" or "abundant" level.

The no action EFH maps for juvenile and adult American plaice within the NMFS trawl survey area were developed using a GIS depiction of preferred depth and bottom temperature ranges that were determined from graphical 1963-2003 spring and fall NMFS trawl survey data in Johnson (2005), plus average catch per tow data for each life stage in ten minute squares of latitude and longitude in the 1968-2005 spring and fall NMFS trawl surveys mapped at the 75th percentile level. They also include inshore areas where American plaice were caught in 10% or more of tows made in individual ten-minute squares during state trawl surveys, and ELMR information for coastal bays and estuaries. The 75th percentile and 10% frequency of occurrence data layers were created separately for juveniles and adults.

***Text descriptions:***

For American plaice, *Hippoglossoides platessoides*, essential fish habitat is designated anywhere within the geographic areas that are shown on the following maps and meets the conditions described below.

**Eggs:** Pelagic habitats in the Gulf of Maine and on Georges Bank, including the high salinity zones of the bays and estuaries listed in the table below.

**Larvae:** Pelagic habitats in the Gulf of Maine, on Georges Bank, and in southern New England, including the high salinity zones of the bays and estuaries listed in the table below.

**Juveniles**: Sub-tidal benthic habitats in the Gulf of Maine and the western portion of Georges Bank, between 40 and 180 meters and including mixed and high salinity zones in the coastal bays and estuaries listed in the table below. Essential fish habitat for juvenile American plaice consists of soft bottom substrates (mud and sand), but they are also found on gravel and sandy substrates bordering bedrock.

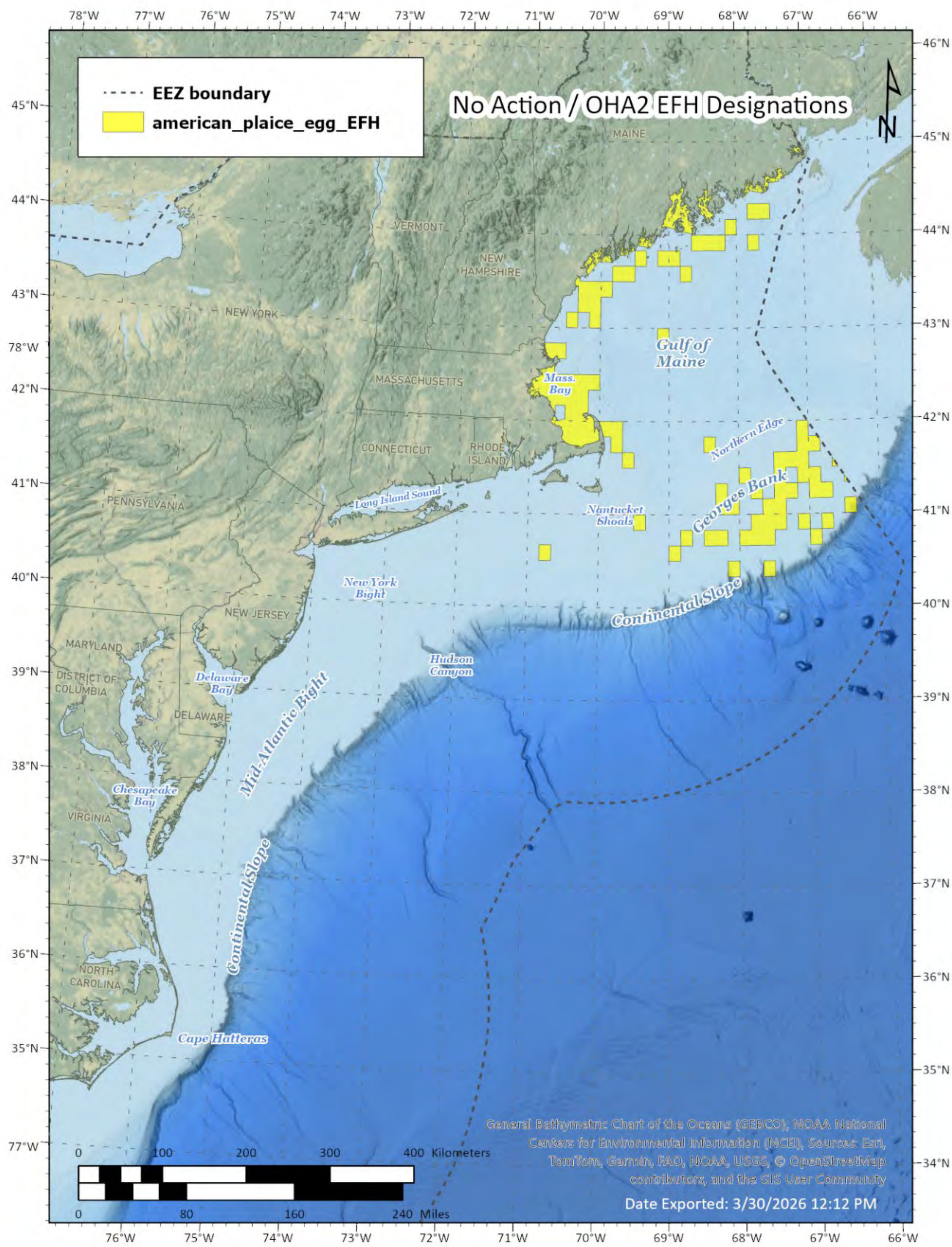
**Adults**: Sub-tidal benthic habitats in the Gulf of Maine and the western portion of Georges Bank, between 40 and 300 meters and including high salinity zones in the coastal bays and estuaries listed in the table below. Essential fish habitat for adult American plaice consists of soft bottom substrates (mud and sand), but they are also found on gravel and sandy substrates bordering bedrock.

**Table 12. No action American plaice EFH designation for estuaries and embayments.**

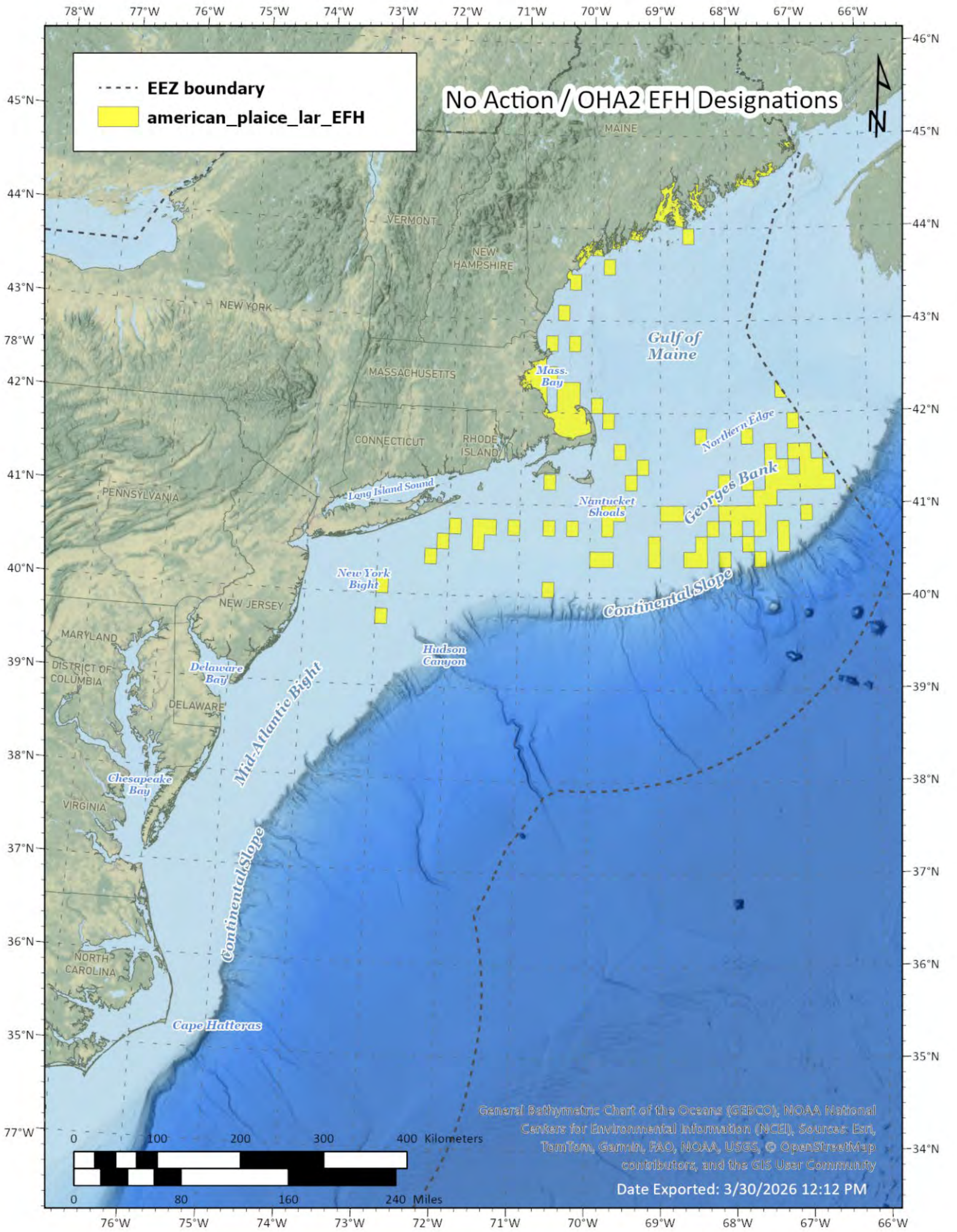
| Estuaries and Embayments | Eggs | Larvae | Juveniles | Adults |
|---|---|---|---|---|
| Passamaquoddy Bay | S | S | S,M | S |
| Englishman/Machias Bay | S | S | S,M | S |
| Narraguagus Bay | S | S | S,M | S |
| Blue Hill Bay | S | S | S,M | S |
| Penobscot Bay | S | S | S,M | S |
| Muscongus Bay | S | S | S,M | S |
| Damariscotta River | S | S | S,M | S |
| Sheepscot River | S | S | S,M | S |
| Kennebec / Androscoggin | S | S | S,M | S |
| Casco Bay | S | S | S,M | S |
| Saco Bay | S | S | S | S |
| Massachusetts Bay | S | S | S | S |
| Boston Harbor | S | S | S | S |
| Cape Cod Bay | S | S | S | S |

*S ≡ The EFH designation for this species includes the seawater salinity zone of this bay or estuary (salinity > 25.0‰).*
*M ≡ The EFH designation for this species includes the mixing water / brackish salinity zone of this bay or estuary (0.5 < salinity < 25.0‰).*

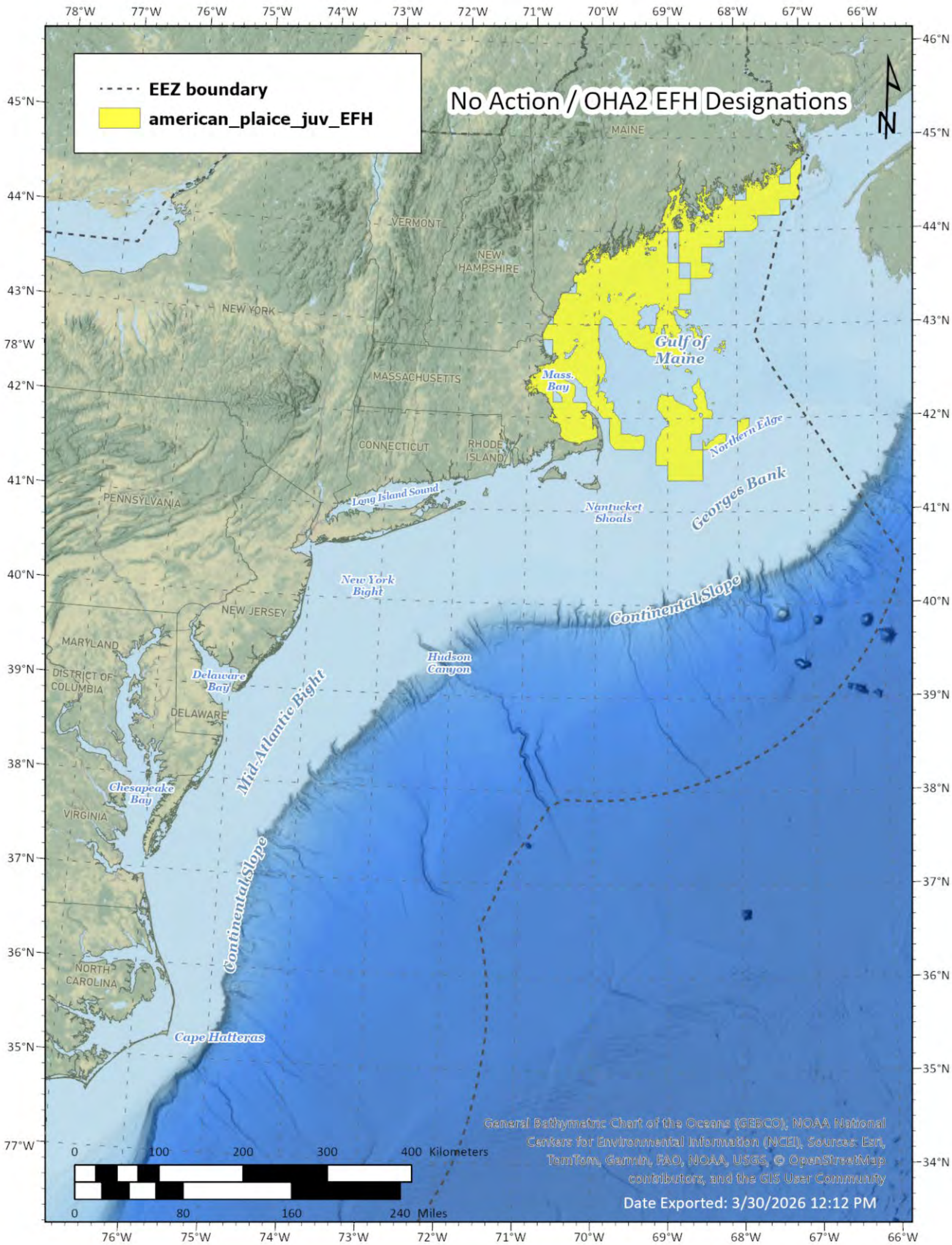
**Map 37. No Action American plaice egg EFH, from Omnibus Habitat Amendment 2.**



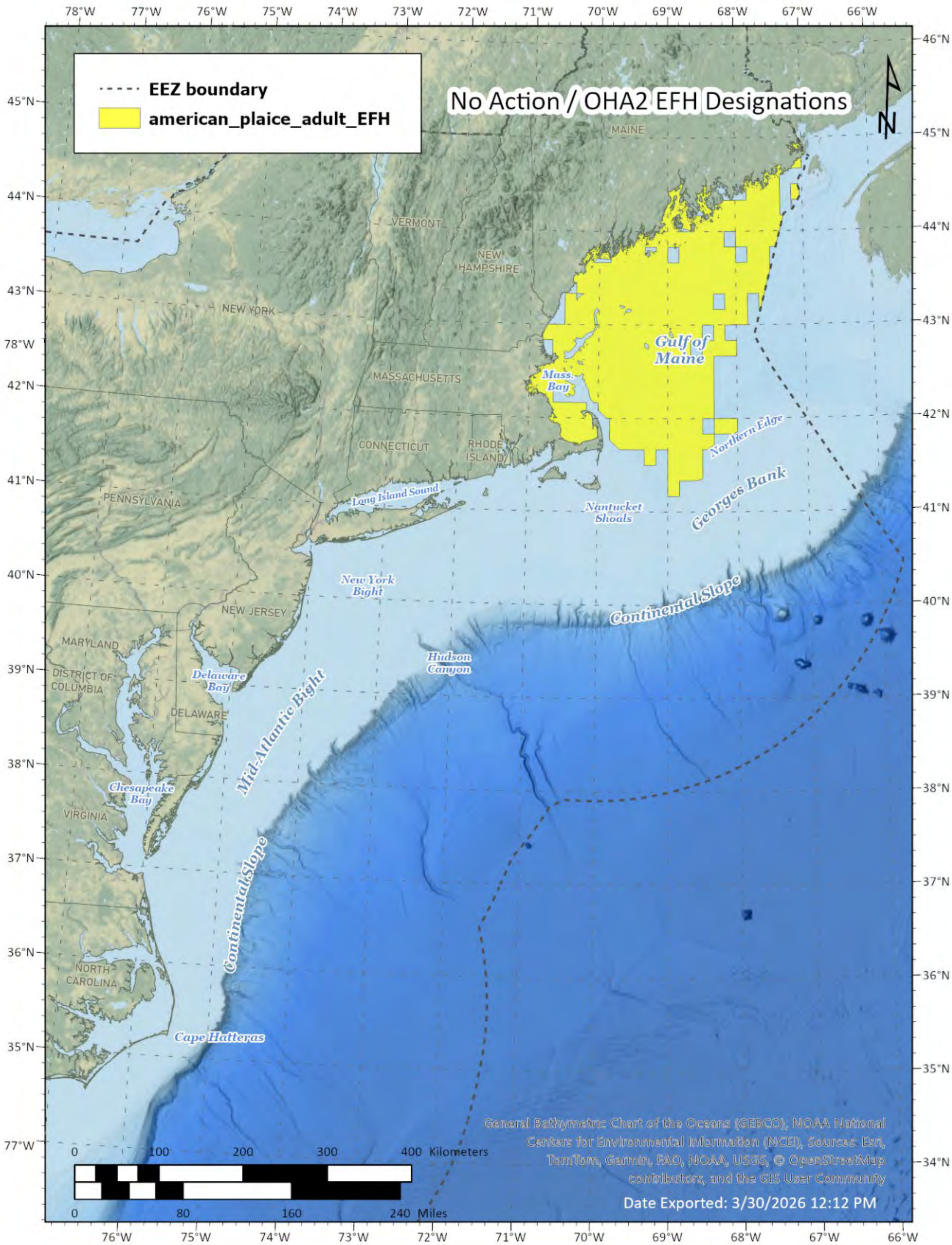
**Map 38. No Action American plaice larval EFH, from Omnibus Habitat Amendment 2.**



**Map 39. No Action American plaice juvenile EFH, from Omnibus Habitat Amendment 2.**



**Map 40. No Action American plaice adult EFH, from Omnibus Habitat Amendment 2.**



## 8.3 ATLANTIC HALIBUT

The no action EFH map for all life stages of Atlantic halibut was developed using a GIS depiction of preferred depth and bottom temperature ranges that were determined from graphical 1963-2003 spring and fall NMFS trawl survey for juveniles or adults in NEFSC (2004a). It is also based on average catch per tow data at the 90th percentile of catch level for juveniles or adults in ten minute squares of latitude and longitude in the 1968-2005 spring and fall NMFS trawl surveys, and includes a portion of the continental slope. The map is bounded by the historic range of the species, which was determined to approximate the area east of 70˚W longitude, i.e., the Gulf of Maine and Georges Bank.

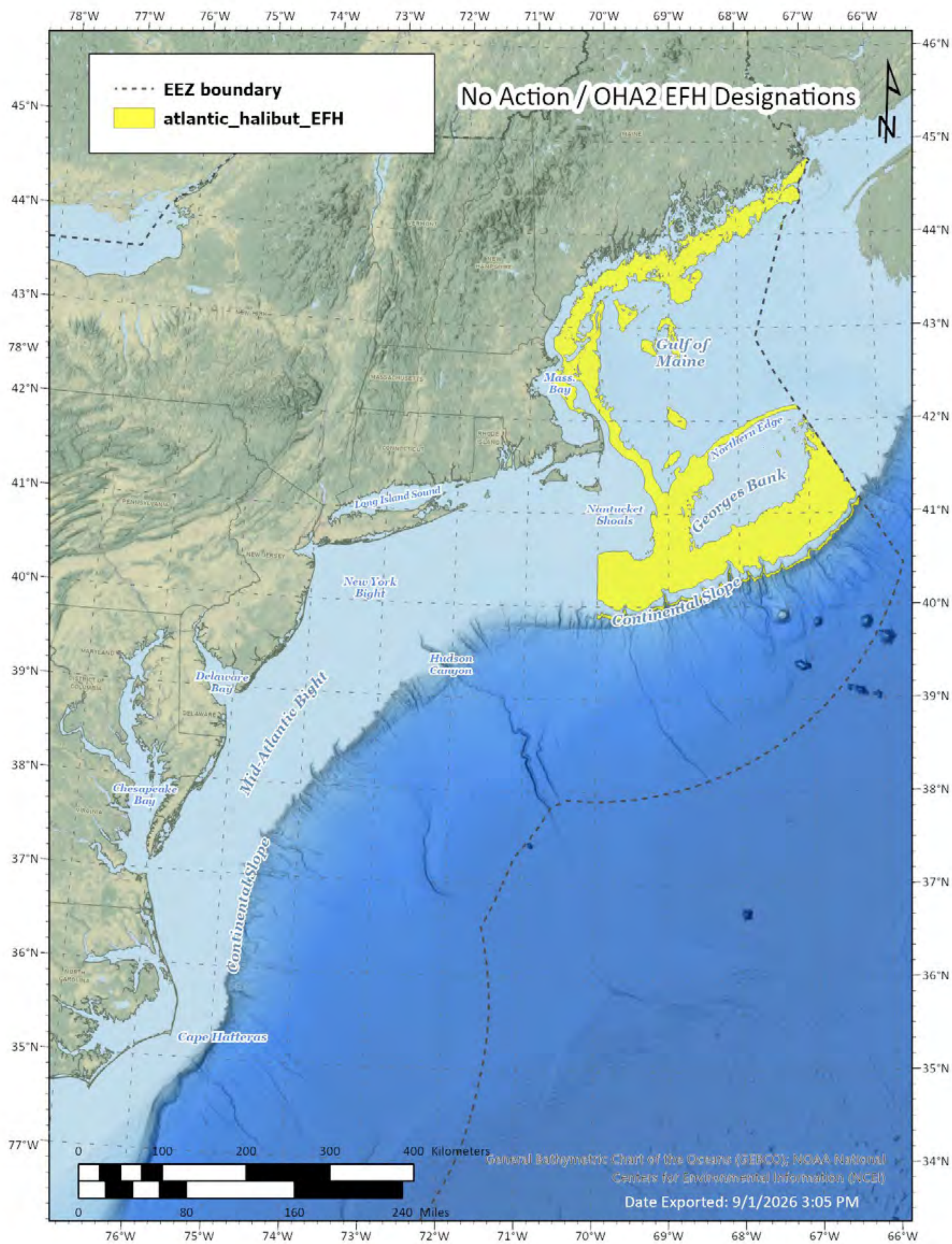
***Text descriptions:***

For Atlantic halibut, *Hippoglossus hippoglossus*, essential fish habitat is designated anywhere within the geographic areas that are shown on the following map and meets the conditions described below.

**Eggs and larvae:** Pelagic habitats in the Gulf of Maine, on Georges Bank, and on the continental slope south of Georges Bank.

**Juveniles and adults**: Benthic habitats in the Gulf of Maine and on Georges Bank in depths of 60 – 140 meters and on the continental slope south of Georges Bank between 400 and 700 meters on sand, gravel, or clay substrates. Juvenile Atlantic halibut nursery grounds are in water 20-60 meters deep in apparently well-defined coastal areas with sandy bottoms. Spawning generally occurs over rough or rocky bottom on offshore banks and on the continental slope, but not in the Gulf of Maine.

**Map 41. No Action Atlantic halibut EFH (all life stages), from Omnibus Habitat Amendment 2.**



## 8.4 ATLANTIC SEA SCALLOP

The no action EFH map for all life stages of Atlantic sea scallops includes all the ten minute squares where scallops of any size were caught during the following surveys: 1968-2011 NMFS trawl (fall and spring), 1981-2012 NMFS summer scallop dredge, 2000-2013 Maine/NH trawl, and 2005-2013 Maine scallop dredge. For each survey, scallop EFH was only identified if at least three tows were conducted in a particular ten minute square. Thus, some ten minute squares with very low sampling rates could not be designated EFH on the basis of some surveys, despite having positive catches of scallops. In addition, the map includes bays and estuaries identified by the NOAA ELMR program where juvenile or adult Atlantic sea scallops were "common" or "abundant."

***Text descriptions:***

For Atlantic sea scallop, *Placopecten magellanicus*, essential fish habitat is designated anywhere within the geographic areas that are shown on the following map and listed in the table and meets the conditions described below.

**Eggs:** Benthic habitats in inshore areas and on the continental shelf, in the vicinity of adult scallops. Eggs are heavier than seawater and remain on the seafloor until they develop into the first free-swimming larval stage.

**Larvae:** Benthic and water column habitats in inshore and offshore areas throughout the region. Any hard surface can provide an essential habitat for settling pelagic larvae ("spat"), including shells, pebbles, and gravel. They also attach to macroalgae and other benthic organisms such as hydroids. Spat attached to sedentary branching organisms or any hard surface have greater survival rates; spat that settle on shifting sand do not survive.

**Juveniles**: Benthic habitats in the Gulf of Maine, on Georges Bank, and in the Mid-Atlantic, in depths of 18 to 110 meters. Juveniles (5-12 mm shell height) leave the original substrate on which they settle (see spat, above) and attach themselves by byssal threads to shells, gravel, and small rocks (pebble, cobble), preferring gravel. As they grow older, they lose their byssal attachment. Juvenile scallops are relatively active and swim to escape predation. While swimming, they can be carried long distances by currents. Bottom currents stronger than 10 cm/sec retard feeding and growth. In laboratory studies, maximum survival of juvenile scallops occurred between 1.2 and 15°C and above salinities of 25 ppt. On Georges Bank, age 1 juveniles are less dispersed than older juveniles and adults and are mainly associated with gravel-pebble deposits. Essential habitats for older juvenile scallops are the same as for the adults (gravel and sand).

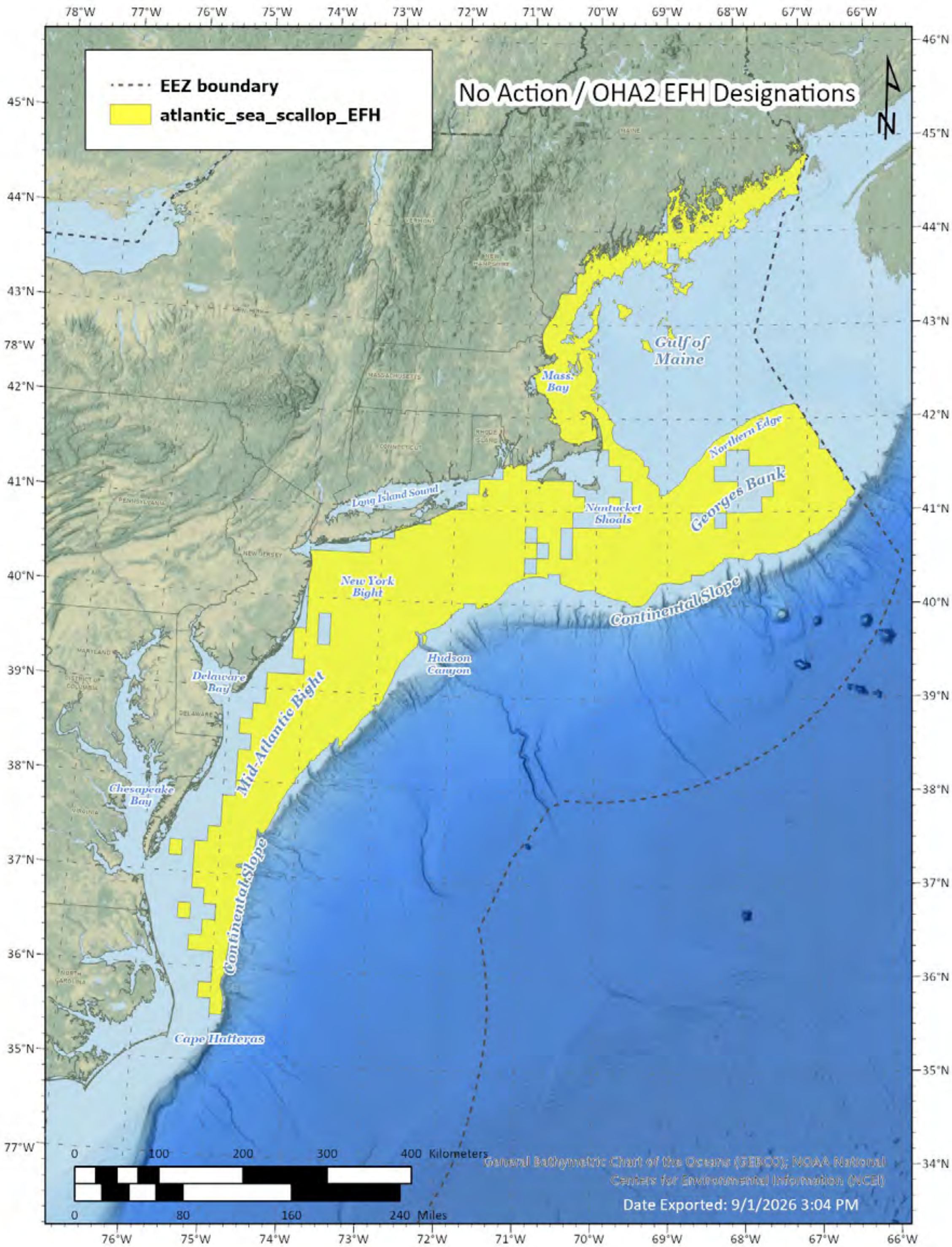
**Adults**: Benthic habitats in the Gulf of Maine, on Georges Bank, and in the Mid-Atlantic. Essential habitats for older juvenile and adult sea scallops are found on sand and gravel substrates in depths of 18 to 110 meters, but they are also found in shallower water and as deep as 180 meters in the Gulf of Maine. In the Mid-Atlantic they are found primarily between 45 and 75 meters and on Georges Bank they are more abundant between 60 and 90 meters. They often occur in aggregations called beds which may be sporadic or essentially permanent, depending on how suitable the habitat conditions are (temperature, food availability, and substrate) and whether oceanographic features (fronts, currents) keep larval stages in the vicinity of the spawning population. Bottom currents stronger than 25 cm/sec (half a knot) inhibit feeding. Growth of adult scallops is optimal between 10 and 15°C and they prefer full strength seawater.

**Table 13. No action Atlantic sea scallop EFH designation for estuaries and embayments**

| **Estuaries and Embayments** | **All life stages** |
|---|---|
| Passamaquoddy Bay | S |
| Englishman/Machias Bay | S |
| Narraguagus Bay | S |
| Blue Hill Bay | S |
| Penobscot Bay | S |
| Muscongus Bay | S |
| Damariscotta River | S |
| Sheepscot River | S |
| Casco Bay | S |
| Great Bay | S |
| Massachusetts Bay | S |
| Cape Cod Bay | S |

*S ≡ The EFH designation for this species includes the seawater salinity zone of this bay or estuary (salinity > 25.0‰).*
*M ≡ The EFH designation for this species includes the mixing water / brackish salinity zone of this bay or estuary (0.5 < salinity < 25.0‰).*

**Map 42. No Action Atlantic sea scallop EFH (all life stages), from Omnibus Habitat Amendment 2.**



## 8.5 ATLANTIC WOLFFISH

The no action EFH map for all life stages of Atlantic wolffish depicts the geographic range for the species in U.S. waters and is defined as occurring east of 71° W longitude and north of 41° N latitude. Specific habitat requirements are provided in the text description.

***Text descriptions:***

For Atlantic wolffish, *Anarhichas lupus*, essential fish habitat is designated anywhere within the geographic areas that are shown on the following map and meets the conditions described below.

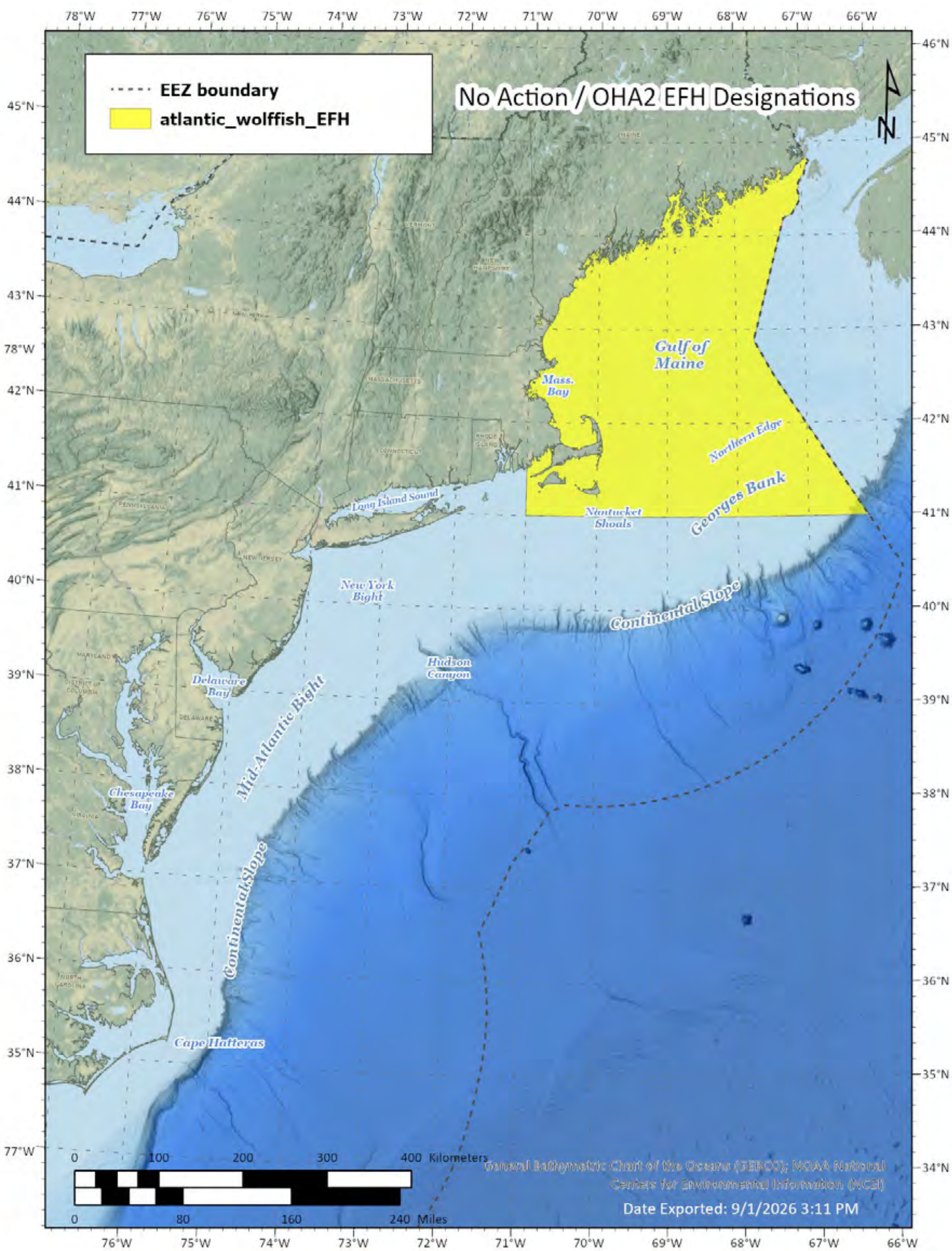
**Eggs:** Sub-tidal benthic habitats at depths less than 100 meters within the geographic area defined as EFH. Wolffish egg masses are hidden under rocks and boulders in nests.

**Larvae:** Pelagic and sub-tidal benthic habitats within the geographic area defined as EFH. Atlantic wolffish larvae remain near the bottom for up to six days after hatching, but gradually become more buoyant as the yolk sac is absorbed.

**Juveniles**: (<65 cm total length): Sub-tidal benthic habitats at depths of 70-184 meters within the geographic area defined as EFH. Juvenile Atlantic wolffish do not have strong substrate preferences.

**Adults**: Sub-tidal benthic habitats at depths less than 173 meters within the geographic area defined as EFH. Adult Atlantic wolffish have been observed spawning and guarding eggs in rocky habitats in less than 30 meters of water in the Gulf of St. Lawrence and Newfoundland and in deeper (50-100 meters) boulder reef habitats in the Gulf of Maine. Egg masses have been collected on the Scotian Shelf in depths of 100-130 meters, indicating that spawning is not restricted to coastal waters. Adults are distributed over a wider variety of sand and gravel substrates once they leave rocky spawning habitats, but are not caught over muddy bottom.

**Map 43. No Action Atlantic wolffish EFH (all life stages), from Omnibus Habitat Amendment 2.**



## 8.6 Haddock

The no action EFH maps for egg and larval haddock are based on the complete range (100$^{th}$) percentile of the MARMAP survey data. The proposed designations include the coastal bays and estuaries identified by the ELMR program as supporting haddock eggs or larvae at the "rare," "common," or "abundant" level.

The no action EFH maps for juvenile and adult haddock are based on the distributions of depth and bottom temperature that were associated with high catch rates of juveniles or adults in the 1963-2003 spring and fall NMFS trawl surveys. The proposed designations are also based on average catch per tow data for juveniles or adults in ten-minute squares of latitude and longitude in the 1968-2005 spring and fall NMFS trawl surveys at the 90$^{th}$ percentile of catch level. The maps include inshore areas where juvenile and adult haddock were caught in 10% or more of tows made in individual ten-minute squares during state trawl surveys, and, for the adults, ten-minute squares that include historic spawning grounds, as reported by Ames (2002).

***Text descriptions:***

For haddock, *Melanogrammus aeglefinus*, essential fish habitat is designated anywhere within the geographic areas that are shown on the following maps and meets the conditions described below.

**Eggs:** Pelagic habitats in coastal and offshore waters in the Gulf of Maine, southern New England, and on Georges Bank, and in the high salinity zones of the bays and estuaries listed in the table below.

**Larvae:** Pelagic habitats in coastal and offshore waters in the Gulf of Maine, the Mid-Atlantic, and on Georges Bank, and in the high salinity zones of the bays and estuaries listed in the table below.

**Juveniles**: Sub-tidal benthic habitats between 40 and 140 meters in the Gulf of Maine, on Georges Bank and in the Mid-Atlantic region, and as shallow as 20 meters along the coast of Massachusetts, New Hampshire, and Maine. Essential fish habitat for juvenile haddock occurs on hard sand (particularly smooth patches between rocks), mixed sand and shell, gravelly sand, and gravel. Young-of-the-year juveniles settle on sand and gravel on Georges Bank, but are found predominantly on gravel pavement areas within a few months after settlement. As they grow, they disperse over a greater variety of substrate types on the bank. Young-of-the-year haddock do not inhabit shallow, inshore habitats.

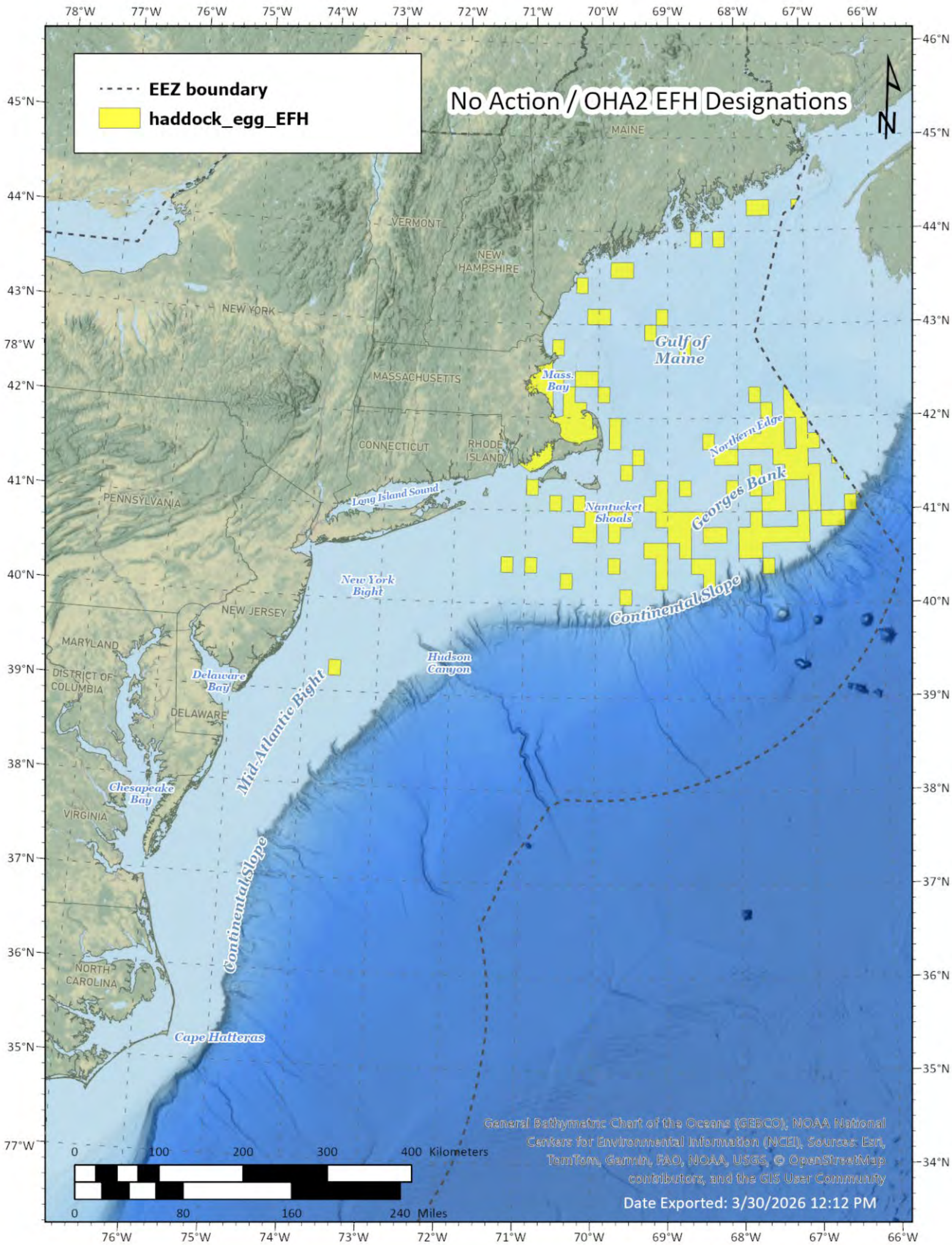
**Adults**: Sub-tidal benthic habitats between 50 and 160 meters in the Gulf of Maine, on Georges Bank, and in southern New England. Essential fish habitat for adult haddock occurs on hard sand (particularly smooth patches between rocks), mixed sand and shell, gravelly sand, and gravel substrates.  They also are found adjacent to boulders and cobbles along the margins of rocky reefs in the Gulf of Maine.

**Table 14. No action haddock EFH designation for estuaries and embayments**

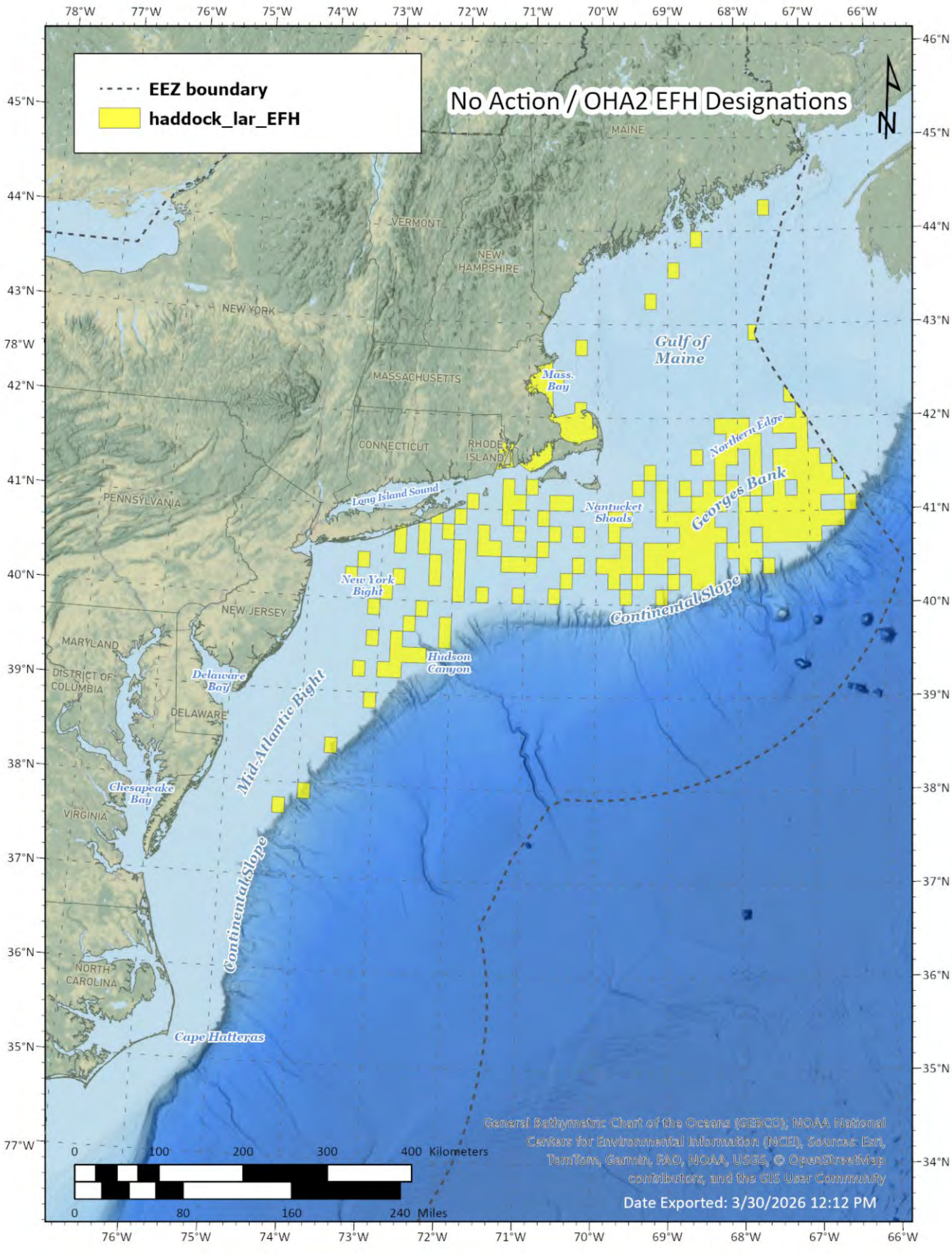
| Estuaries and Embayments | Eggs | Larvae | Juveniles | Adults |
|---|---|---|---|---|
| Great Bay | S | S | | |
| Hampton Harbor* | S | S | | |
| Plum Island Sound* | S | S | | |
| Massachusetts Bay | S | S | | |
| Boston Harbor | S | S | | |
| Cape Cod Bay | S | S | | |
| Buzzards Bay | S | S | | |
| Narragansett Bay | | S | | |

*S ≡ The EFH designation for this species includes the seawater salinity zone of this bay or estuary (salinity > 25.0‰).*
*M ≡ The EFH designation for this species includes the mixing water / brackish salinity zone of this bay or estuary (0.5 < salinity < 25.0‰).*
** = This water body was not included in the original ELMR reports, but it was included in the salinity zone maps that were appended to all the relevant fishery management plans and amendments which implemented the no action EFH designations; EFH designations were inferred in these locations if there were ELMR-based designations in the adjacent north and south locations.*

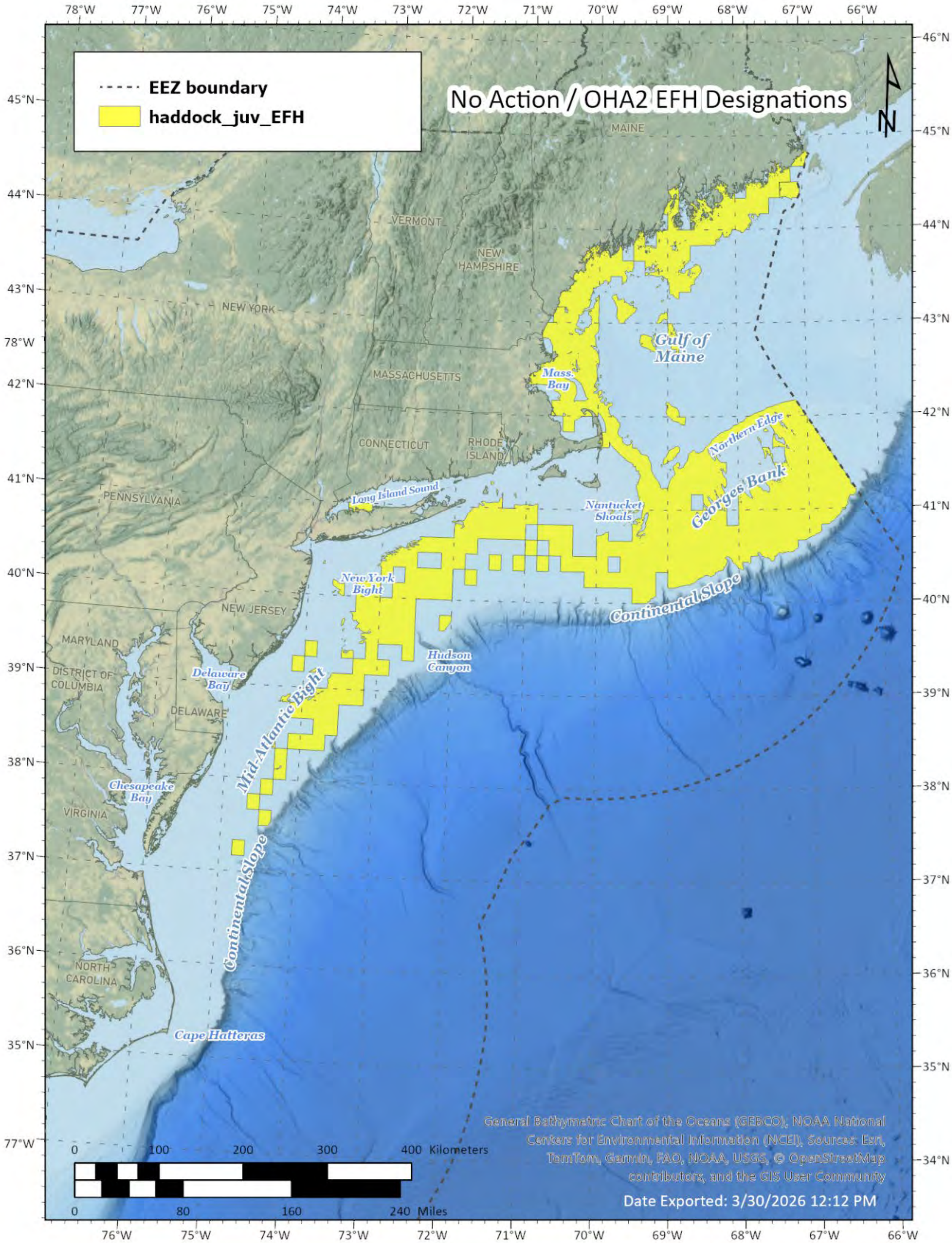
**Map 44. No Action haddock egg EFH, from Omnibus Habitat Amendment 2.**



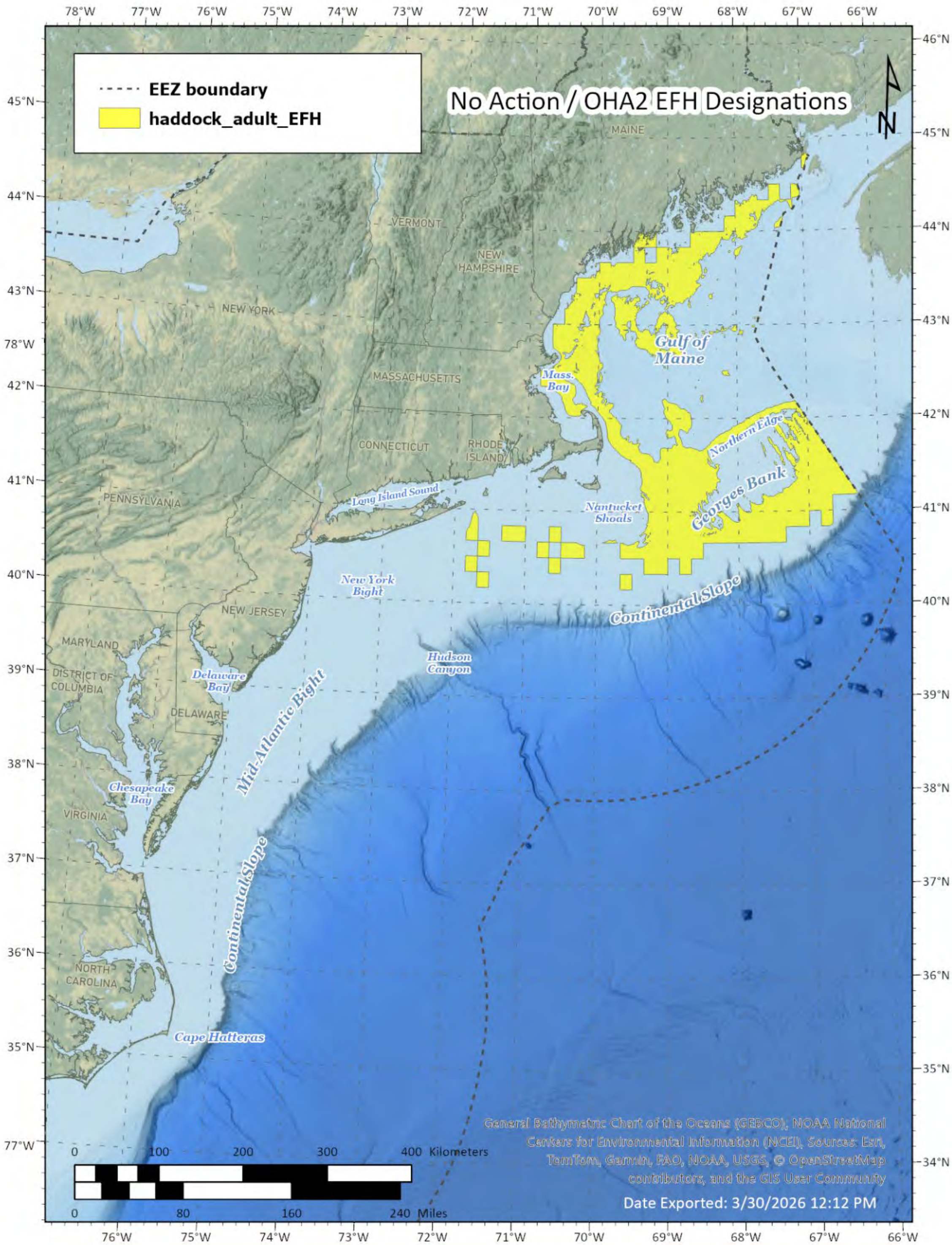
**Map 45. No Action haddock larval EFH, from Omnibus Habitat Amendment 2.**



**Map 46. No Action haddock juvenile EFH, from Omnibus Habitat Amendment 2.**



**Map 47. No Action haddock adult EFH, from Omnibus Habitat Amendment 2.**



## 8.7 Ocean Pout

The no action EFH map for ocean pout eggs is based on the average catch per tow of adults in ten-minute squares of latitude and longitude during 1968-2005 in the fall and spring NMFS trawl survey at the 75th percentile of catch and is limited by the maximum depth (100 meters) at which this species reportedly spawns in the Gulf of Maine. It also includes ten-minute squares in inshore areas where adult ocean pout were caught in state trawl surveys in more than 10% of the tows, as well as those bays and estuaries identified by the ELMR program where ocean pout eggs were "common" or "abundant." There is no true larval stage for ocean pout and therefore there is no map or text description for this stage.

The no action EFH maps for juvenile and adult ocean pout are based on the distributions of depths and bottom temperatures that are associated with high catch rates of juveniles and adults, respectively, in the 1963-2003 spring and fall NMFS trawl surveys. They also are based on average catch per tow data for juveniles and adults in ten minute squares of latitude and longitude in the 1968-2005 spring and fall NMFS trawl surveys at the 75th percentile of catch level, and include inshore areas where juvenile or adult ocean pout were caught in 10% or more of tows made in individual ten minute squares during state trawl surveys, and ELMR information for coastal bays and estuaries.

***Text descriptions:***

For ocean pout, *Macrozoarces americanus,* essential fish habitat is designated anywhere within the geographic areas that are shown on the following maps and meets the conditions described below.

**Eggs:** Hard bottom habitats on Georges Bank, in the Gulf of Maine, and in the Mid-Atlantic Bight, as well as the high salinity zones of the bays and estuaries listed in the table below. Eggs are laid in gelatinous masses, generally in sheltered nests, holes, or rocky crevices. Essential fish habitat for ocean pout eggs occurs in depths less than 100 meters on rocky bottom habitats.

**Juveniles**: Intertidal and sub-tidal benthic habitats in the Gulf of Maine and on the continental shelf north of Cape May, New Jersey, on the southern portion of Georges Bank, and in the high salinity zones of a number of bays and estuaries north of Cape Cod, extending to a maximum depth of 120 meters. Essential fish habitat for juvenile ocean pout occurs on a wide variety of substrates, including shells, rocks, algae, soft sediments, sand, and gravel.

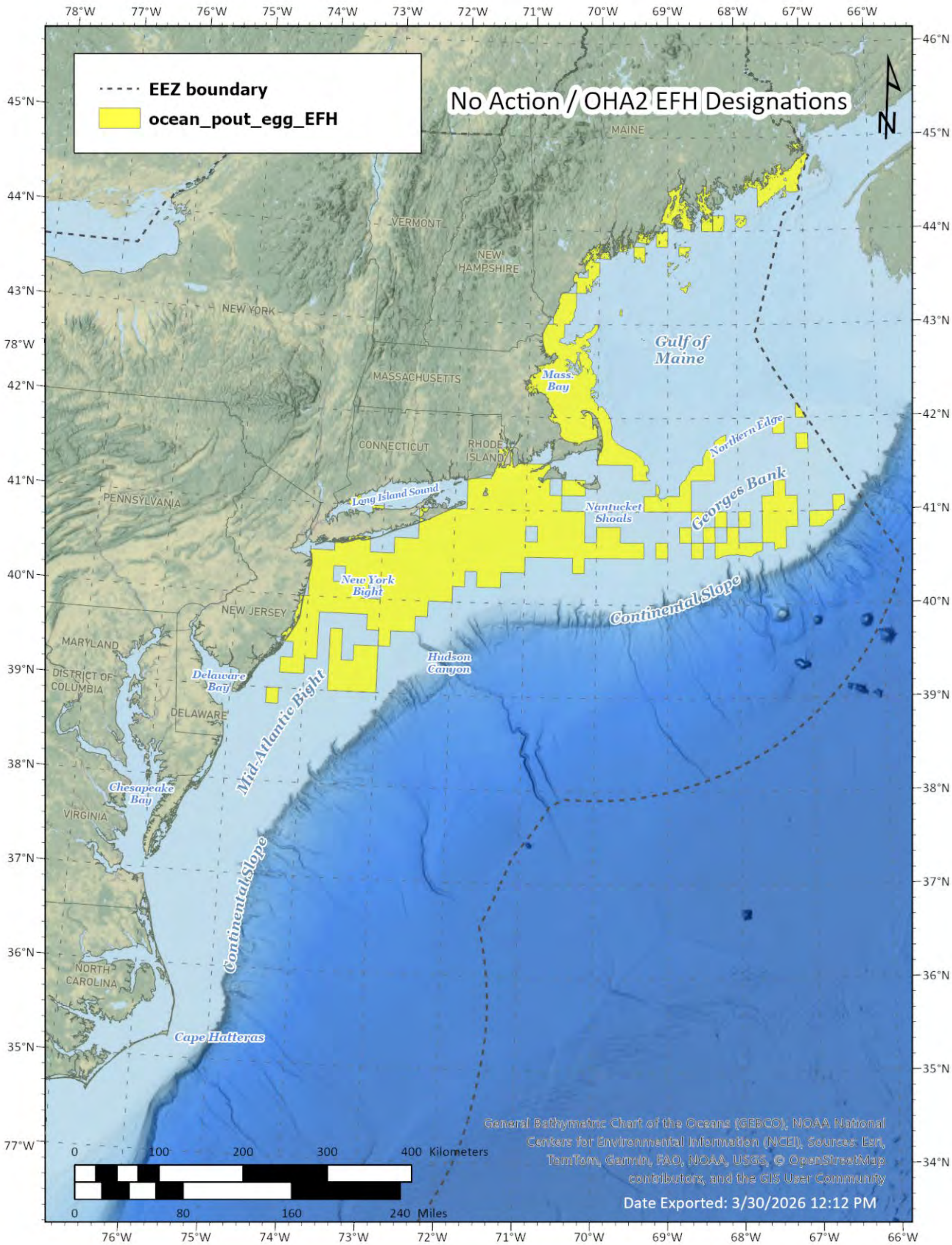
**Adults**: Sub-tidal benthic habitats between 20 and 140 meters in the Gulf of Maine, on Georges Bank, in coastal and continental shelf waters north of Cape May, New Jersey, and in the high salinity zones of a number of bays and estuaries north of Cape Cod. Essential fish habitat for adult ocean pout includes mud and sand, particularly in association with structure forming habitat types, i.e. shells, gravel, or boulders. In softer sediments, they burrow tail first and leave a depression on the sediment surface. Ocean pout congregate in rocky areas prior to spawning and frequently occupy nesting holes under rocks or in crevices in depths less than 100 meters.

**Table 15. No action ocean pout EFH designation for estuaries and embayments**

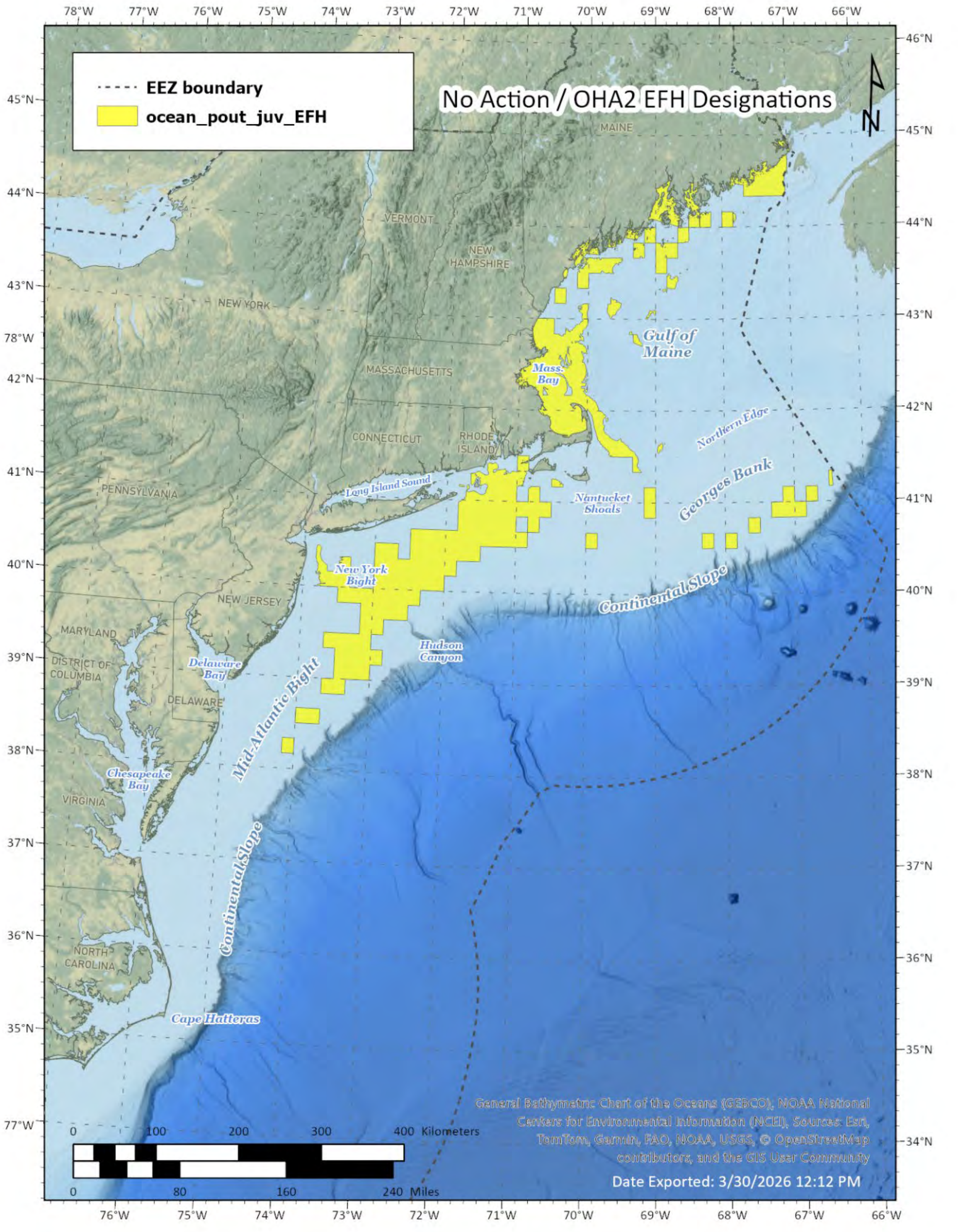
| Estuaries and Embayments | Eggs | Juveniles | Adults |
|---|---|---|---|
| Passamaquoddy Bay | S | S | S |
| Englishman/Machias Bay | S | S | S |
| Narraguagus Bay | S | S | S |
| Blue Hill Bay | S | S | S |
| Penobscot Bay | S | S | S |
| Muscongus Bay | S | S | S |
| Damariscotta River | S | S | S |
| Sheepscot River | S | S | S |
| Kennebec / Androscoggin | S | S | S |
| Casco Bay | S | S | S |
| Saco Bay | S | S | S |
| Massachusetts Bay | S | S | S |
| Boston Harbor | S | S | S |
| Cape Cod Bay | S | S | S |

*S ≡ The EFH designation for this species includes the seawater salinity zone of this bay or estuary (salinity > 25.0‰).*
*M ≡ The EFH designation for this species includes the mixing water / brackish salinity zone of this bay or estuary (0.5 < salinity < 25.0‰).*

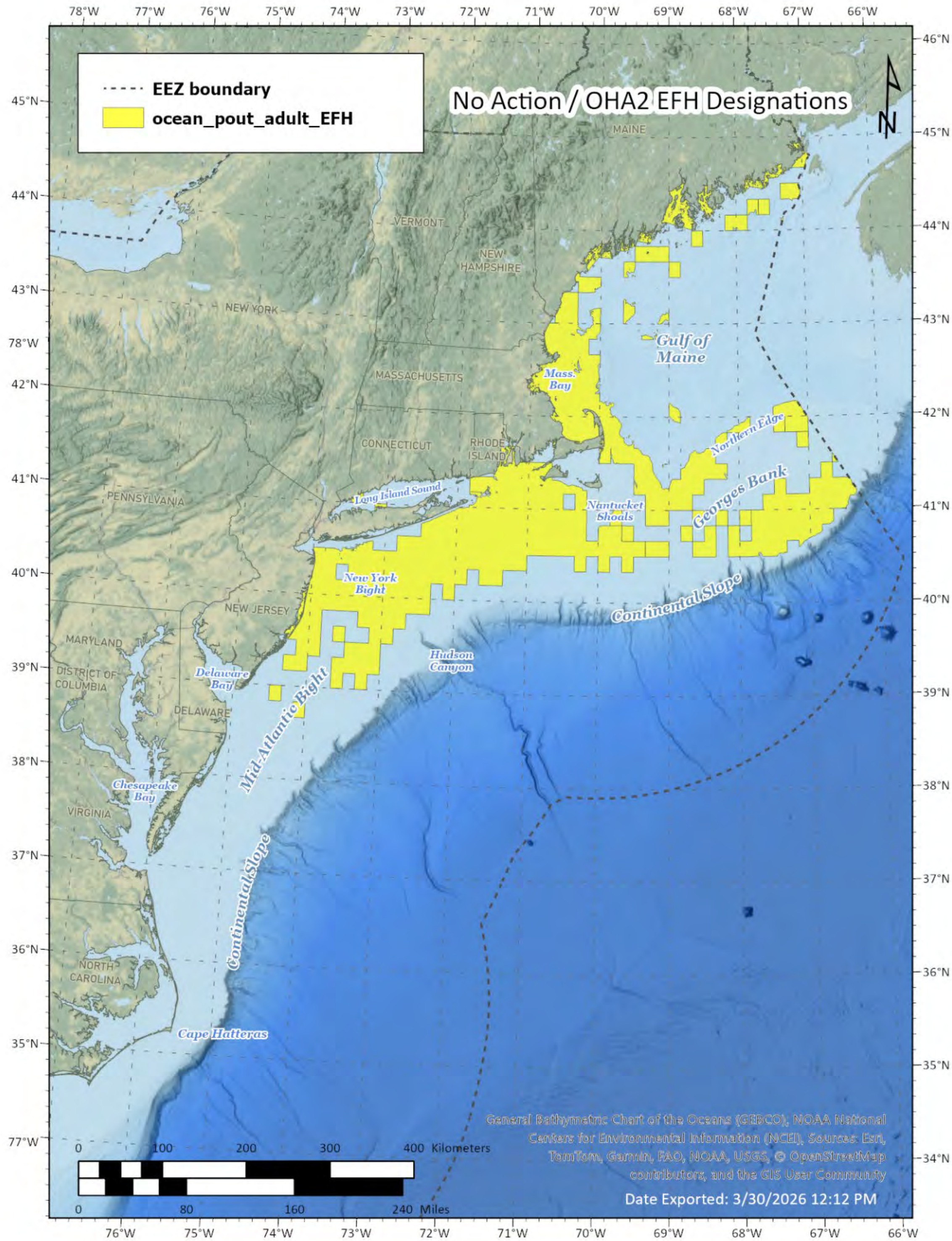
**Map 48. No Action ocean pout egg EFH, from Omnibus Habitat Amendment 2.**



**Map 49. No Action ocean pout juvenile EFH, from Omnibus Habitat Amendment 2.**



**Map 50. No Action ocean pout adult EFH, from Omnibus Habitat Amendment 2.**



## 8.8 OFFSHORE HAKE

The no action EFH maps for egg and larval offshore hake are based on on the 75th percentile of the observed range of the MARMAP survey data.

The no action EFH map for juvenile and adult offshore hake is based on the distributions of depths and bottom temperatures that were associated with high catch rates of juveniles and adults in the 1963-2003 spring and fall NMFS trawl surveys and on the abundance of juveniles in the 1968-2005 spring and fall NMFS trawl surveys at the 90th percentile of catch level, but excludes a couple of ten minute squares in the Gulf of Maine. It also includes continental slope habitats that were defined using known maximum depth and geographic range information. The range of this species extends to Florida and into the Gulf of Mexico in deep water, but EFH was not designated south of Cape Fear, North Carolina, because no survey data are available.

***Text descriptions:***

For offshore hake, *Merluccius albidus,* essential fish habitat is designated anywhere within the geographic areas that are shown on the following maps and meets the conditions described below.

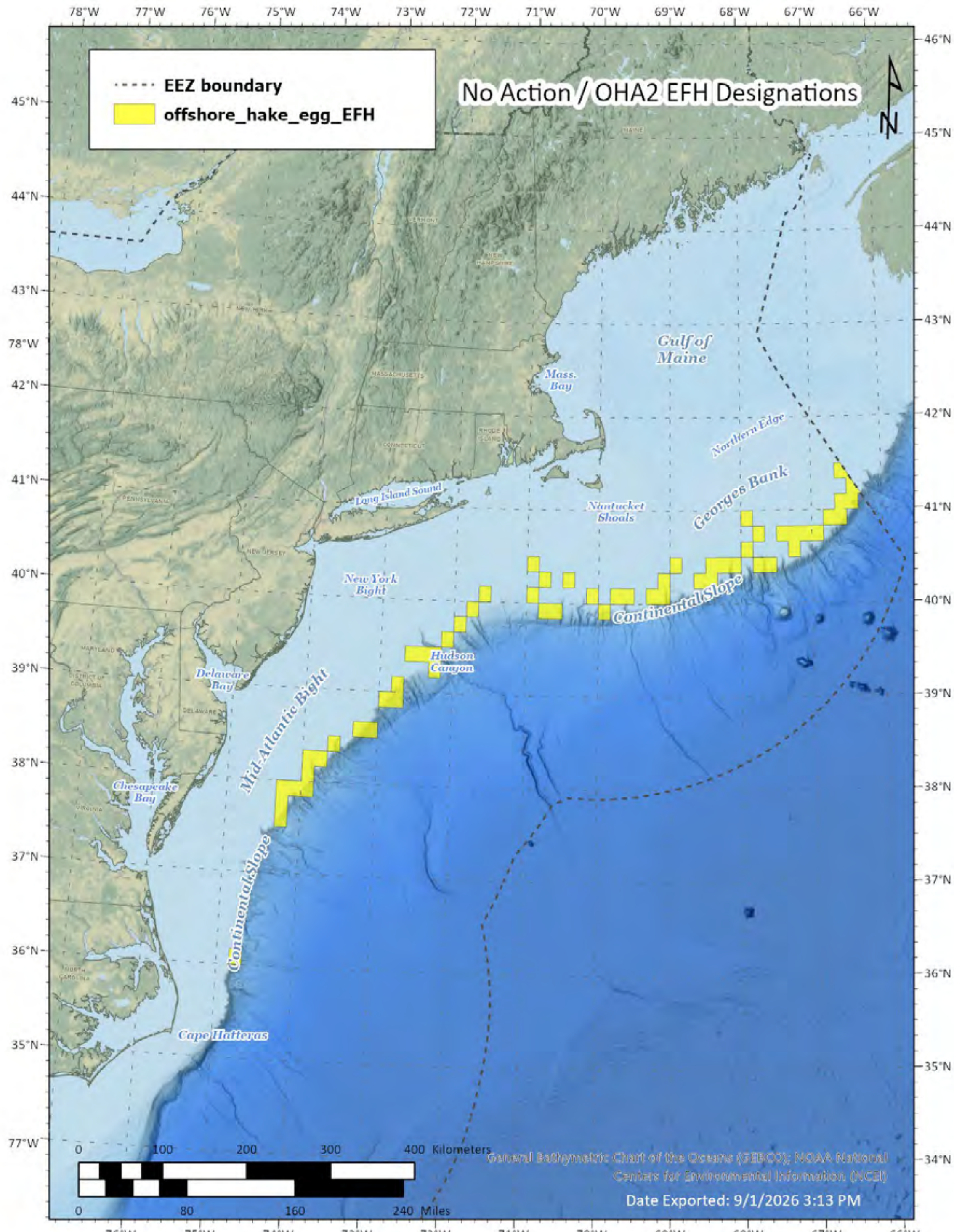
**Eggs:** Pelagic habitats along the outer continental shelf and slope between 100 and 1500 meters.

**Larvae:** Pelagic habitats along the outer continental shelf and slope between 60 and 1500 meters.

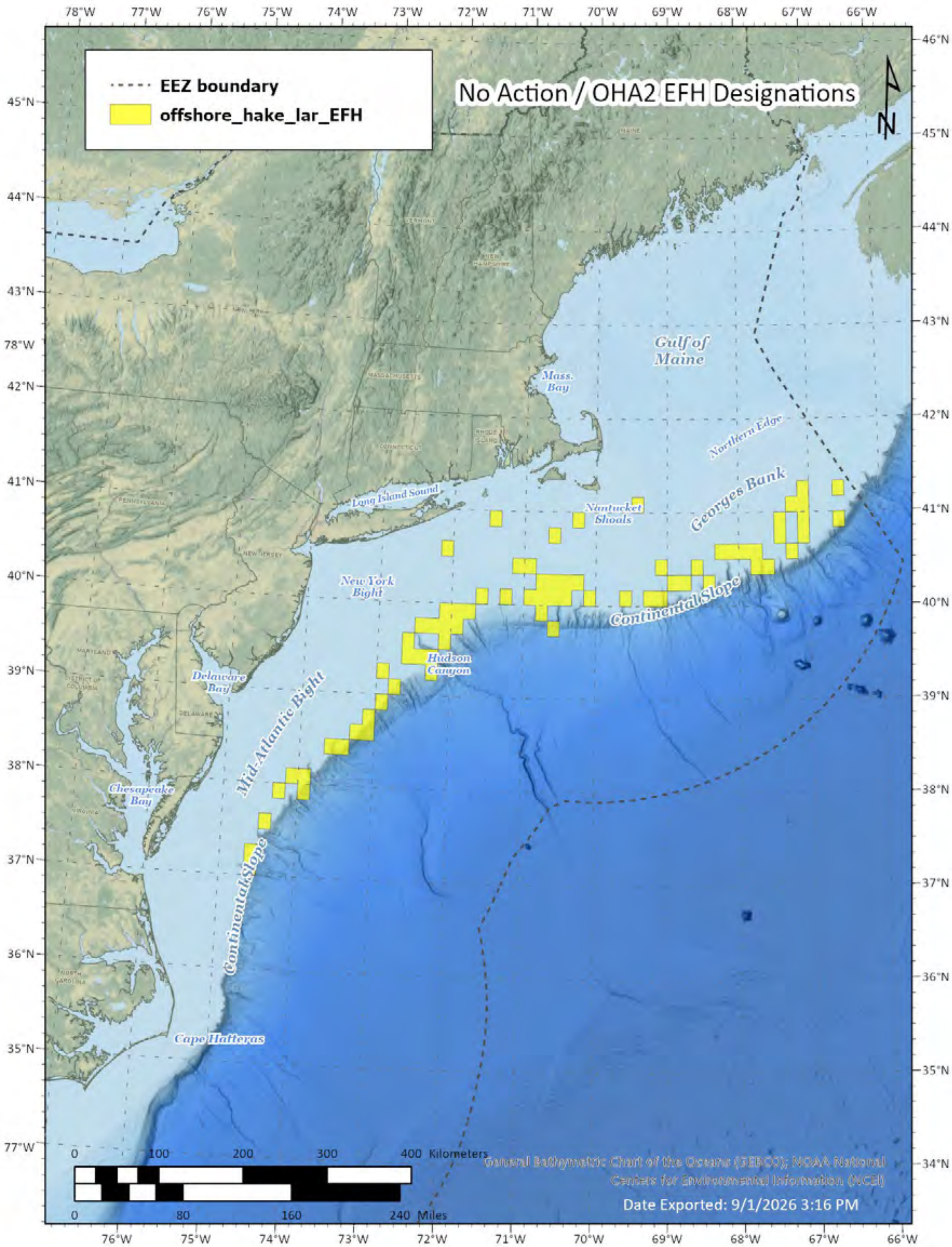
**Juveniles**: Pelagic and benthic habitats on the outer continental shelf and slope in depths of 160 – 750 meters.

**Adults**: Pelagic and benthic habitats on the outer continental shelf and slope in depths of 200 – 750 meters. Spawning generally occurs between 330 and 550 meters.

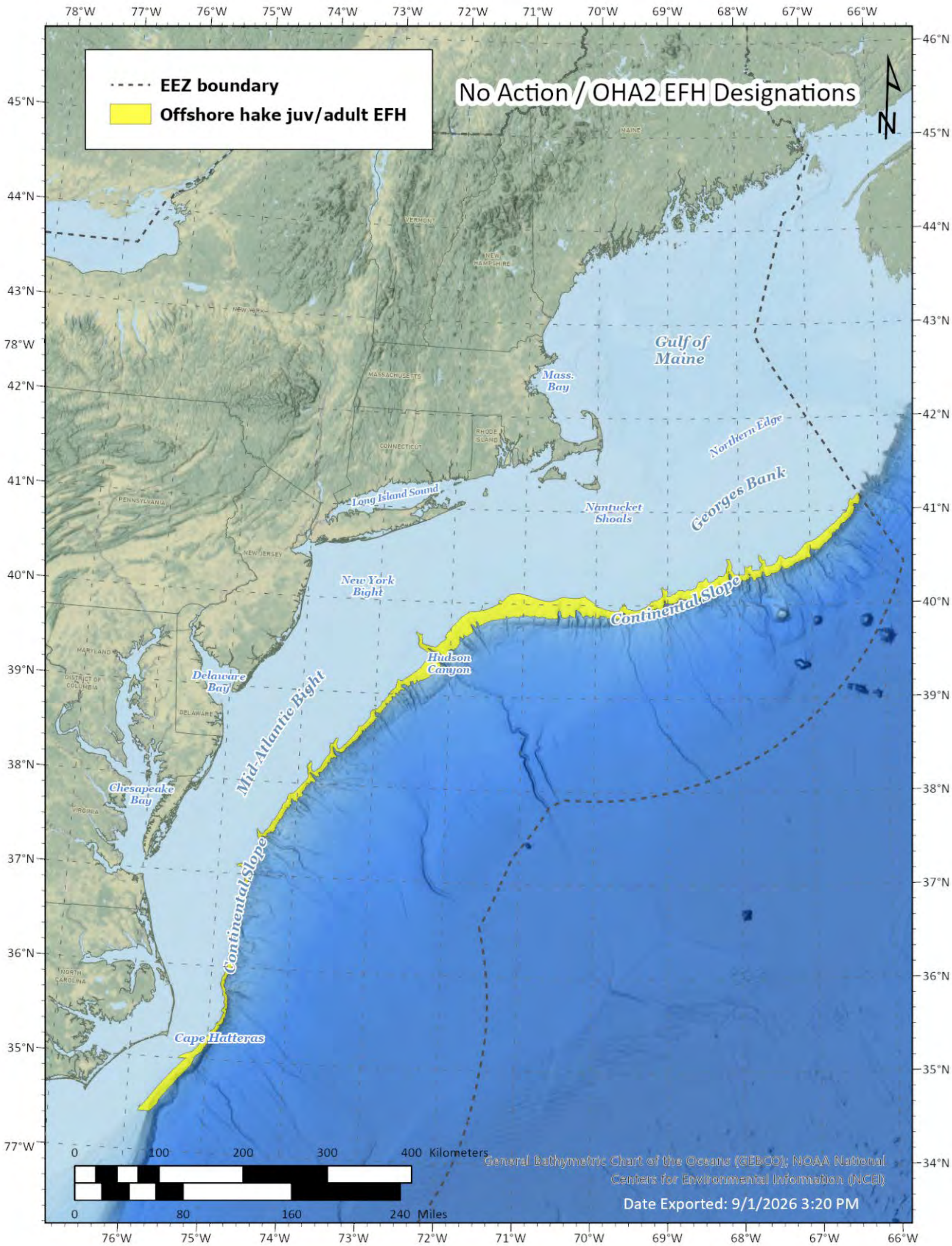
**Map 51. No Action offshore hake egg EFH, from Omnibus Habitat Amendment 2.**



**Map 52. No Action offshore hake larval EFH, from Omnibus Habitat Amendment 2.**



**Map 53. No Action offshore hake juvenile and adult EFH, from Omnibus Habitat Amendment 2.**



## 8.9 POLLOCK

The no action EFH maps for egg and larval pollock are based upon the relative abundance of adult pollock during 1968-2005 in the fall and spring NMFS trawl surveys at the 90th percentile catch level and the relative abundance of eggs and larvae, respectively, during 1978-1987 in the MARMAP ichthyoplankton surveys at the 90th percentile area level. The designations also include ten-minute squares in inshore areas where adult pollock were caught in state trawl surveys in more than 10% of the tows made in individual squares, as well as those bays and estuaries identified by the ELMR program where pollock eggs or larvae, respectively, were "common" or "abundant".

The no action EFH maps for juvenile and adult pollock are based on preferred depth and bottom temperature ranges for each life stage that were determined from graphical 1963-2003 spring and fall NMFS trawl survey data, on average catch per tow data for juveniles and adults in ten minute squares of latitude and longitude in the 1968-2005 spring and fall NMFS trawl surveys at the 90th percentile of catch level, and on ELMR information for coastal bays and estuaries. The juvenile map also includes inshore areas where juveniles were caught in 10% or more of tows made in individual ten-minute squares during state trawl surveys.

***Text descriptions:***

For pollock, *Pollachius virens*, essential fish habitat is designated anywhere within the geographic areas that are shown on the following maps and meets the conditions described below.

**Eggs:** Pelagic inshore and offshore habitats in the Gulf of Maine, on Georges Bank, and in southern New England, including the bays and estuaries listed in the table below.

**Larvae:** Pelagic inshore and offshore habitats in the Gulf of Maine, on Georges Bank, and in the Mid-Atlantic region, including the bays and estuaries listed in the table below.

**Juveniles**: Inshore and offshore pelagic and benthic habitats from the intertidal zone to 180 meters in the Gulf of Maine, in Long Island Sound, and Narragansett Bay, between 40 and 180 meters on western Georges Bank and the Great South Channel, and in mixed and full salinity waters in a number of bays and estuaries north of Cape Cod listed in the table below. Essential fish habitat for juvenile pollock consists of rocky bottom habitats with attached macroalgae (rockweed and kelp) that provide refuge from predators. Shallow water eelgrass beds are also essential habitats for young-of-the-year pollock in the Gulf of Maine. Older juveniles move into deeper water into habitats also occupied by adults.

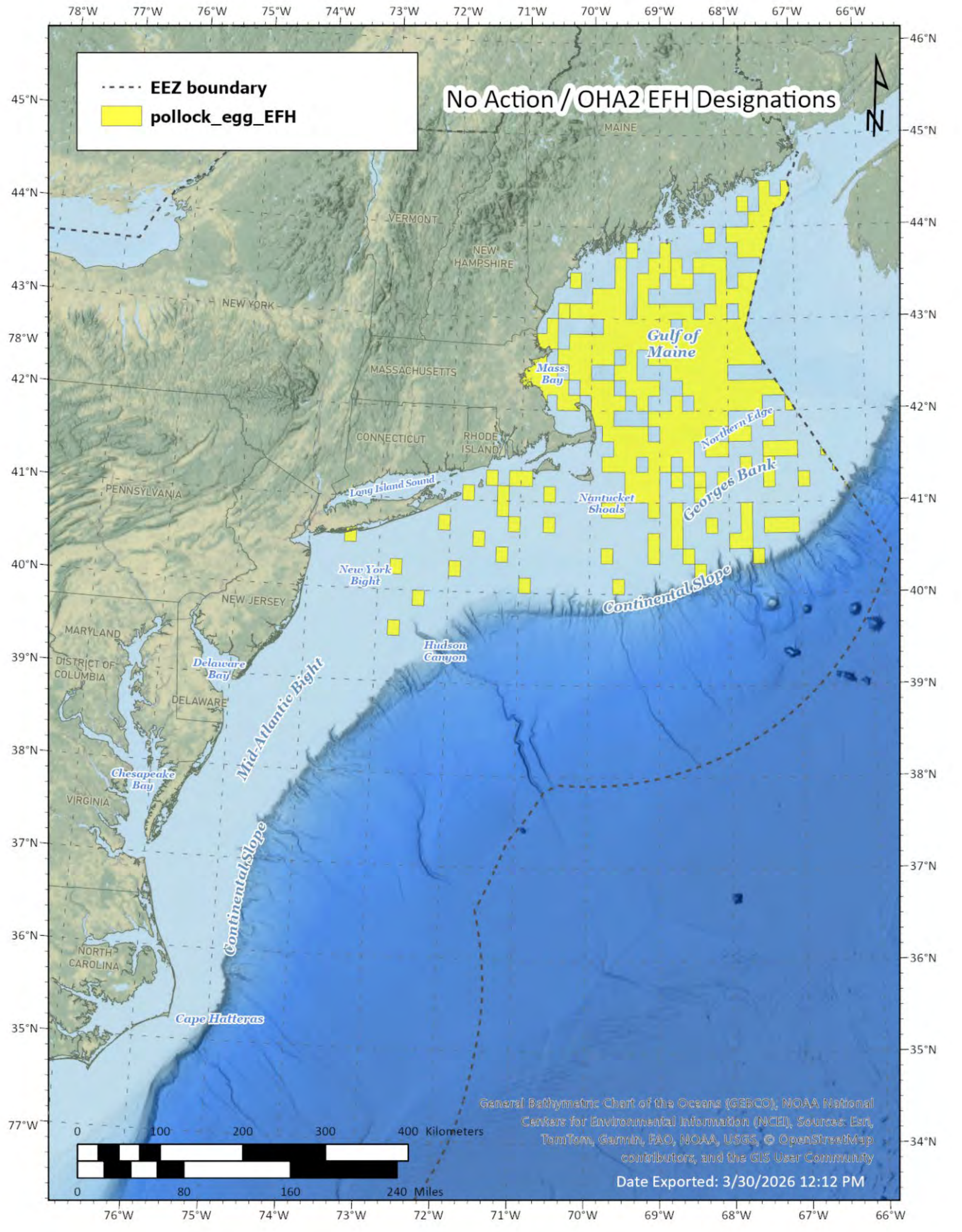
**Adults**: Offshore pelagic and benthic habitats in the Gulf of Maine and, to a lesser extent, on the southern portion of Georges Bank between 80 and 300 meters, and in shallower sub-tidal habitats in Long Island Sound, Massachusetts Bay, and Cape Cod Bay (see the table below). Essential habitats for adult pollock are the tops and edges of offshore banks and shoals (e.g., Cashes Ledge) with mixed rocky substrates, often with attached macro algae.

**Table 16. No action pollock EFH designation for estuaries and embayments**

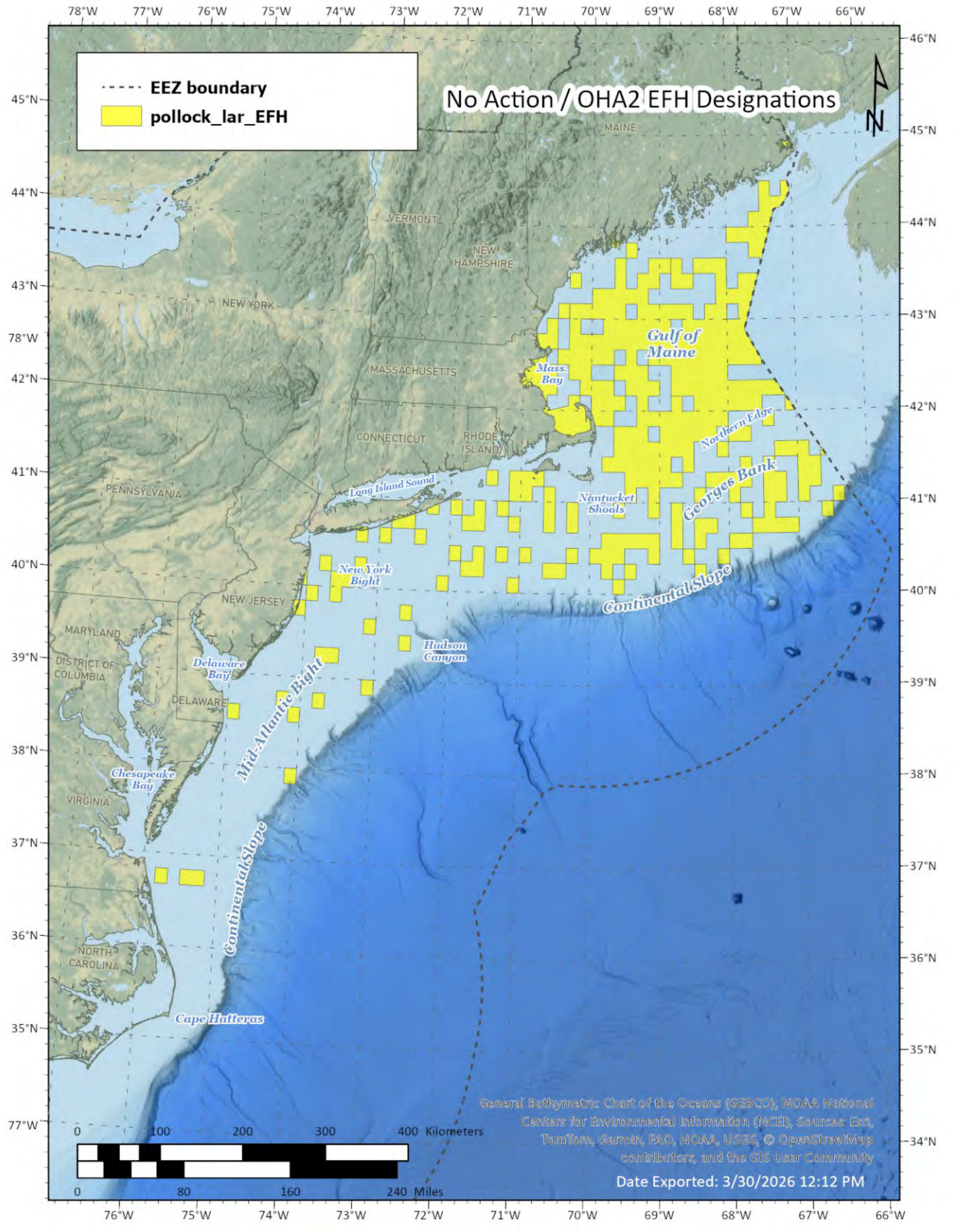
| Estuaries and Embayments | Eggs | Larvae | Juveniles | Adults |
|---|---|---|---|---|
| Passamaquoddy Bay | | S | S,M | S |
| Englishman/Machias Bay | | | S,M | |
| Narraguagus Bay | | | S,M | |
| Blue Hill Bay | | | S,M | |
| Penobscot Bay | | | S,M | |
| Muscongus Bay | | | S,M | |
| Damariscotta River | | | S,M | S |
| Sheepscot River | | S | S,M | |
| Kennebec / Androscoggin | | | S,M | |
| Casco Bay | | | S,M | |
| Saco Bay | | | S,M | |
| Great Bay | S | S | S | |
| Hampton Harbor* | S | S | S | |
| Merrimack River | M | M | M | |
| Plum Island Sound* | S | S | S | |
| Massachusetts Bay | S | S | S | S |
| Boston Harbor | S | S | S,M | |
| Cape Cod Bay | | S | S | S |
| Waquoit Bay | | | S | |
| Long Island Sound | | | S | S |
| Great South Bay | | | S | |

*S ≡ The EFH designation for this species includes the seawater salinity zone of this bay or estuary (salinity > 25.0‰).*
*M ≡ The EFH designation for this species includes the mixing water / brackish salinity zone of this bay or estuary (0.5 < salinity < 25.0‰).*
** = This water body was not included in the original ELMR reports, but it was included in the salinity zone maps that were appended to all the relevant fishery management plans and amendments which implemented the no action EFH designations; EFH designations were inferred in these locations if there were ELMR-based designations in the adjacent north and south locations.*

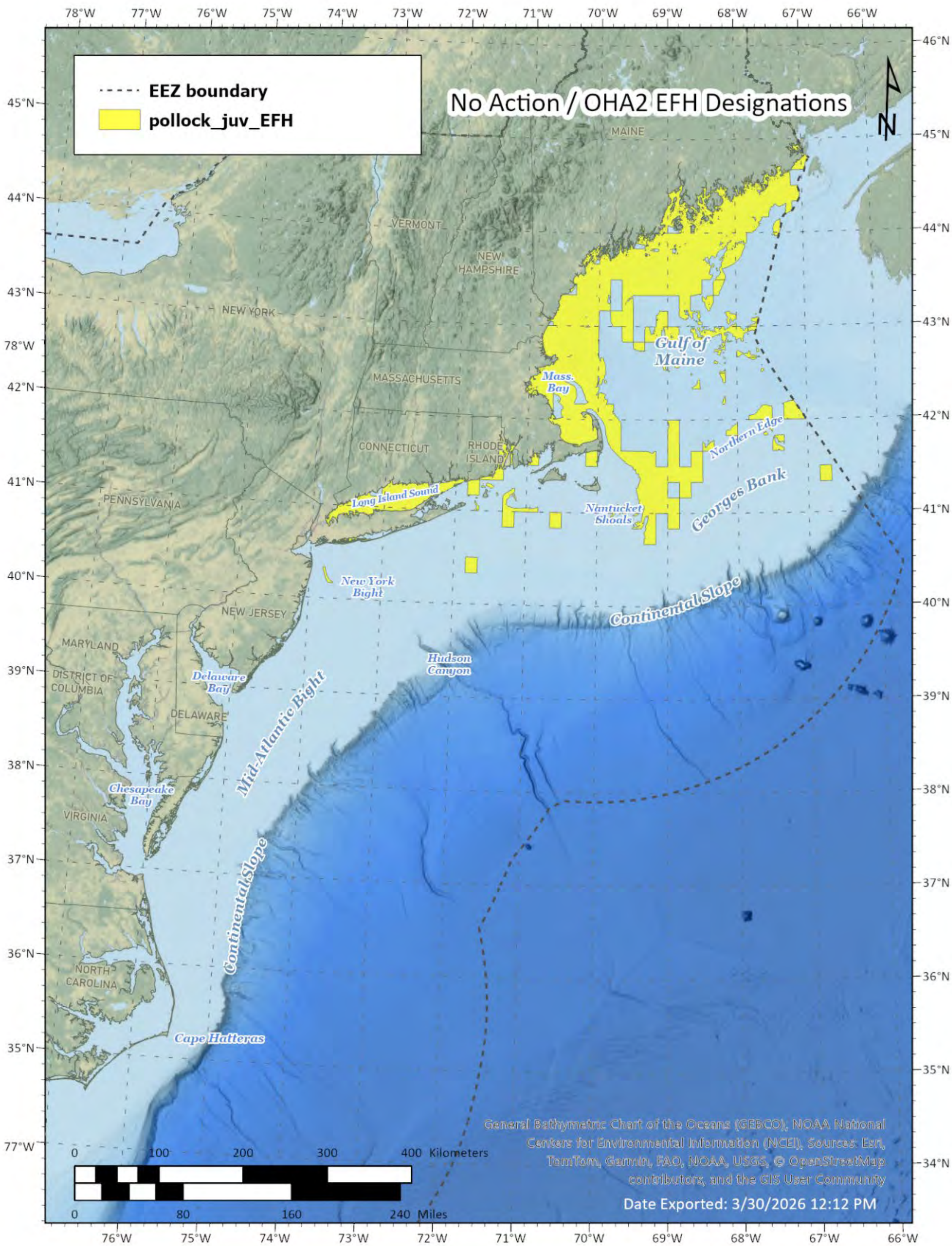
**Map 54. No Action pollock egg EFH, from Omnibus Habitat Amendment 2.**



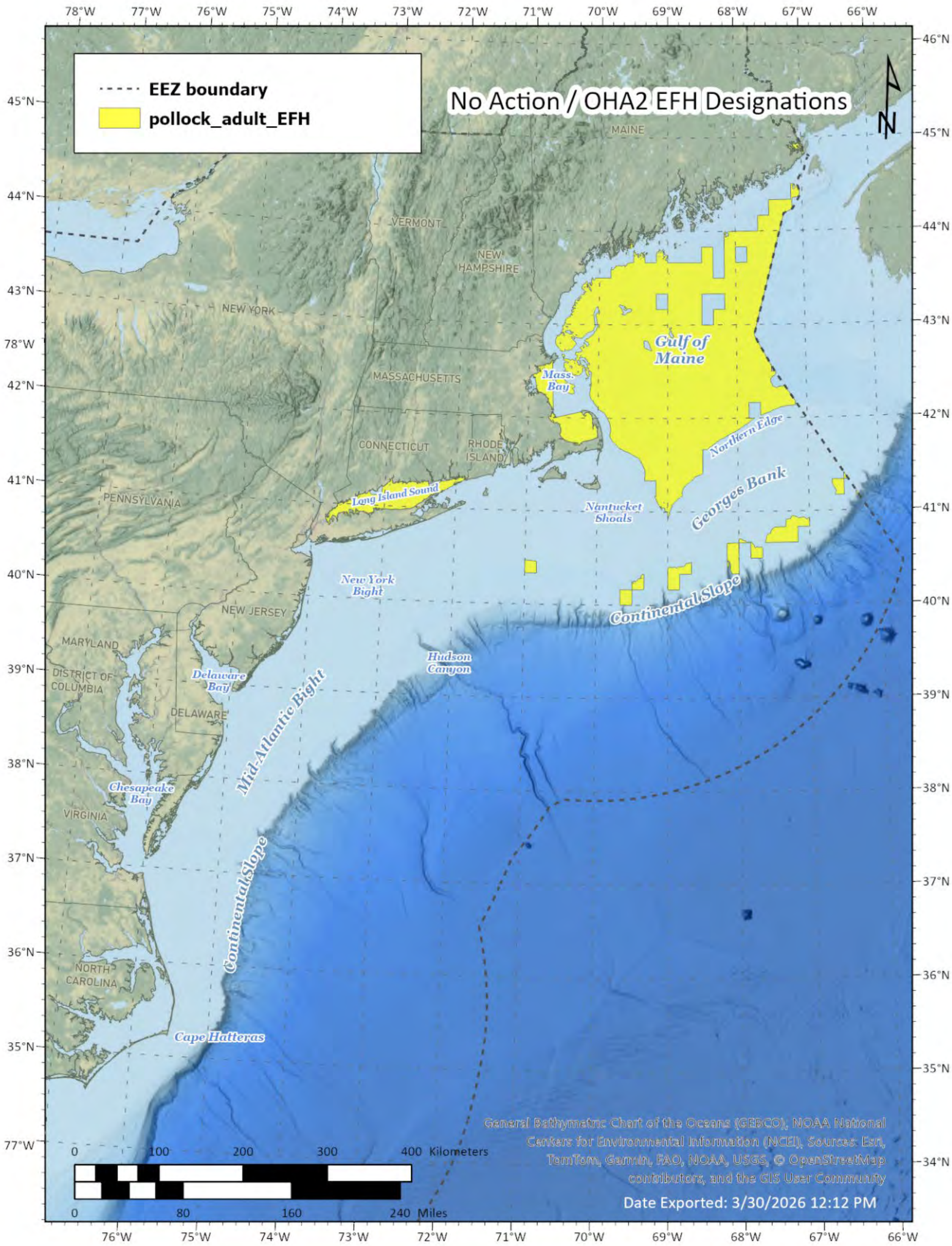
**Map 55. No Action pollock larval EFH, from Omnibus Habitat Amendment 2.**



**Map 56. No Action pollock juvenile EFH, from Omnibus Habitat Amendment 2.**



**Map 57. No Action pollock adult EFH, from Omnibus Habitat Amendment 2.**



## 8.10 Red hake

The no action EFH map for egg, larval, and juvenile red hake is based on the distributions of depths and bottom temperatures that are associated with high catch rates of juveniles in the 1963-2003 spring and fall NMFS trawl surveys. This designation is also based on average catch rates of juveniles in ten minute squares of latitude and longitude in the 1968-2005 spring and fall NMFS trawl surveys at the 75$^{th}$ percentile of catch level, includes inshore areas where juvenile red hake were caught in 10% or more of tows made in individual ten minute squares during state trawl surveys and ELMR areas for eggs, larvae, and juveniles.

The no action EFH maps for adult red hake was created in the same way, except that the 1968-2005 trawl survey data were mapped at the 90$^{th}$ percentile and the map includes the continental slope down to 750 meters, the reported maximum depth for adult red hake in the northeast region.

***Text descriptions:***

For red hake, *Urophycis chuss*, essential fish habitat is designated anywhere within the geographic areas that are shown on the following maps and meets the conditions described below.

**Eggs and larvae:** Pelagic habitats in the Gulf of Maine, on Georges Bank, and in the Mid-Atlantic, and in the bays and estuaries listed in the table.

**Juveniles**: Intertidal and sub-tidal benthic habitats throughout the region on mud and sand substrates, to a maximum depth of 80 meters, including the bays and estuaries listed in the table. Bottom habitats providing shelter are essential for juvenile red hake, including mud substrates with biogenic depressions, substrates providing biogenic complexity (e.g., eelgrass, macroalgae, shells, anemone and polychaete tubes), and artificial reefs. Newly settled juveniles occur in depressions on the open seabed.  Older juveniles are commonly associated with shelter or structure and often inside live bivalves.

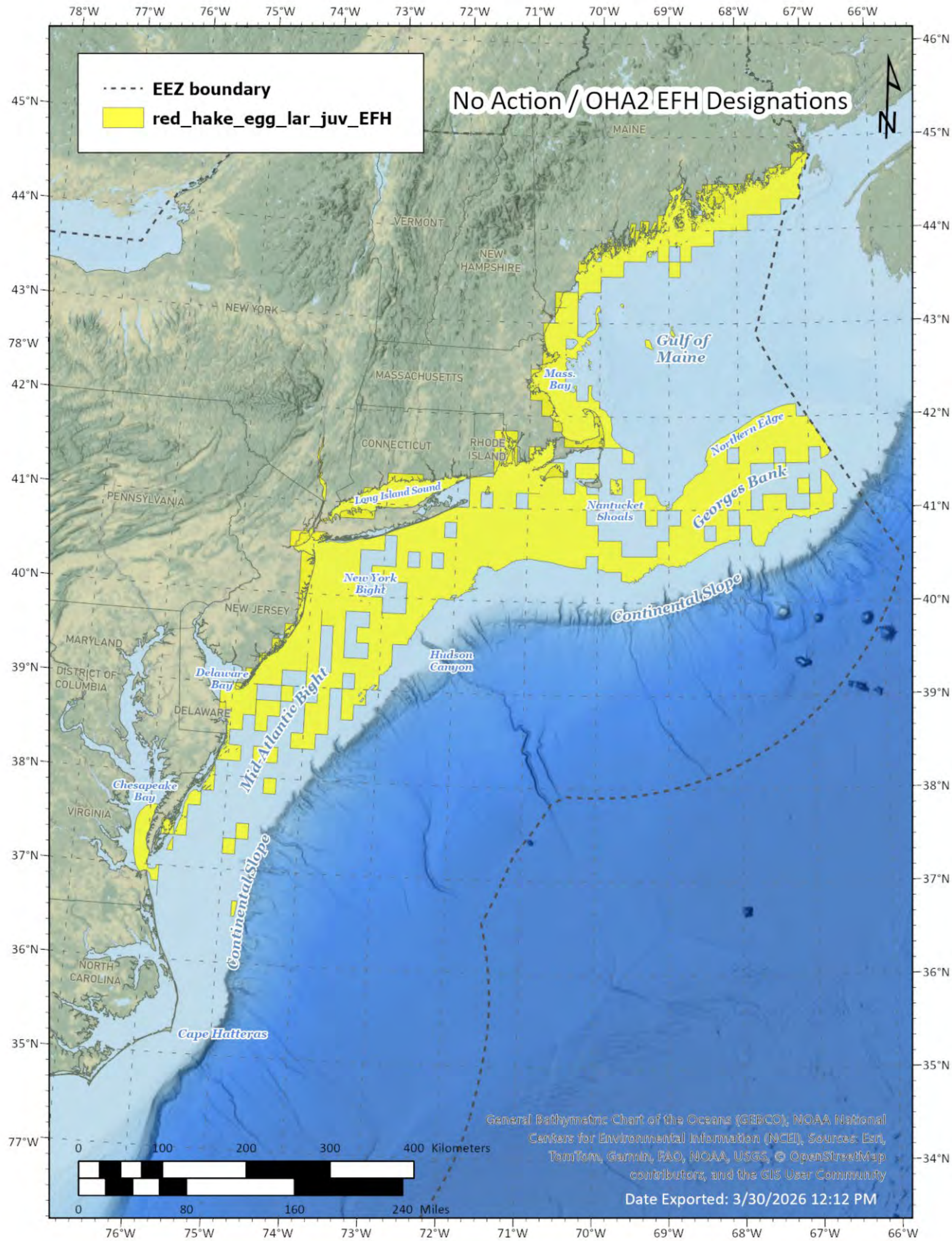
**Adults**: Benthic habitats in the Gulf of Maine and the outer continental shelf and slope in depths of 50 – 750 meters and as shallow as 20 meters in a number of inshore estuaries and embayments (see table below) as far south as Chesapeake Bay. Shell beds, soft sediments (mud and sand), and artificial reefs provide essential habitats for adult red hake. They are usually found in depressions in softer sediments or in shell beds and not on open sandy bottom. In the Gulf of Maine, they are much less common on gravel or hard bottom, but they are reported to be abundant on hard bottoms in temperate reef areas of Maryland and northern Virginia.

**Table 17. No action red hake EFH designation for estuaries and embayments**

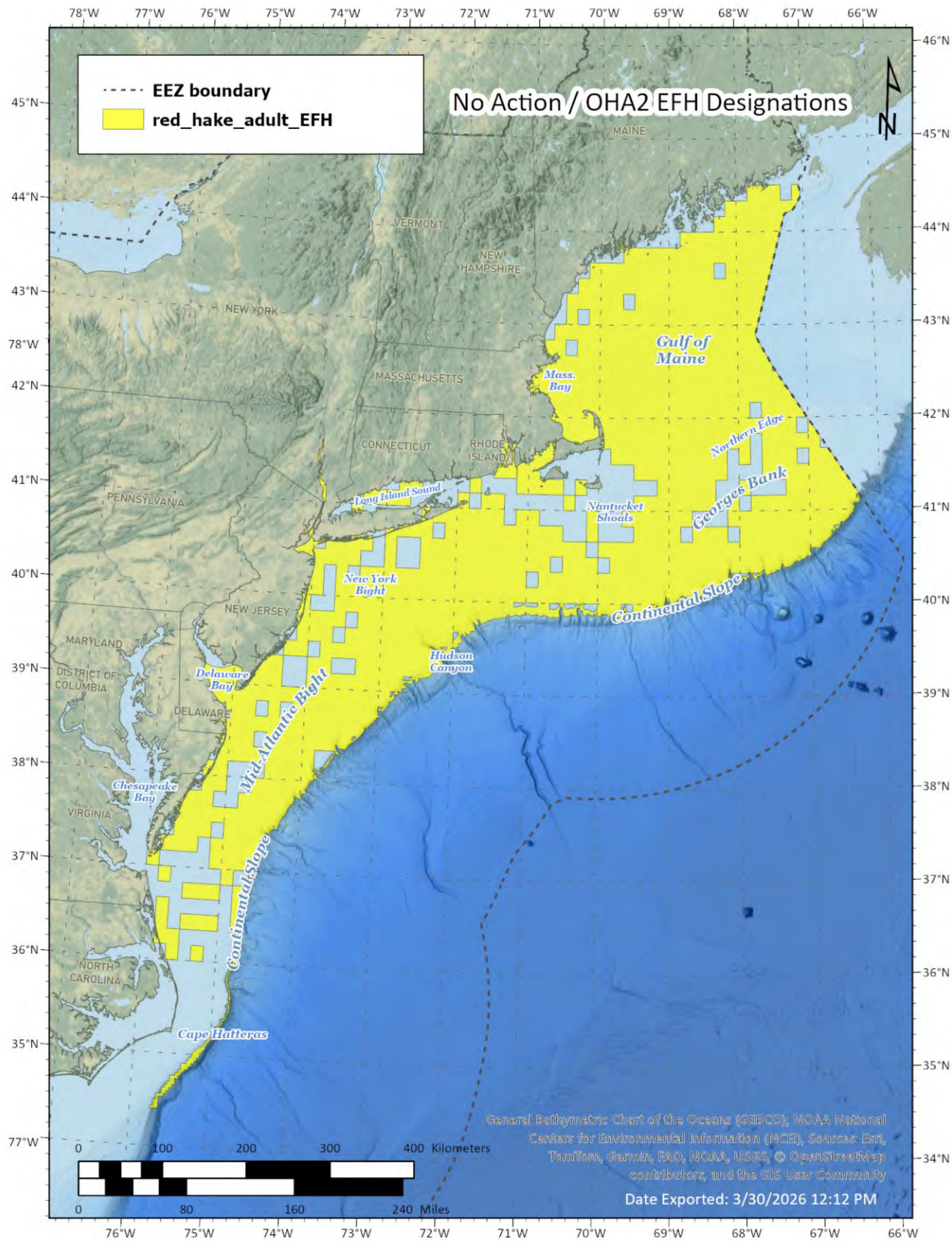
| Estuaries and Embayments | Eggs | Larvae | Juveniles | Adults |
|---|---|---|---|---|
| Passamaquoddy Bay | | | S,M | S,M |
| Englishman/Machias Bay | | | S | S |
| Narraguagus Bay | | | S | S |
| Blue Hill Bay | | | S | S |
| Penobscot Bay | | | S,M | S,M |
| Muscongus Bay | | | S,M | S,M |
| Damariscotta River | | | S,M | S |
| Sheepscot River | | | S,M | S,M |
| Kennebec / Androscoggin | | | S,M | S,M |
| Casco Bay | | | S | S |
| Saco Bay | | | S | S |
| Great Bay | | S | S | S |
| Hampton Harbor* | | | S | S |
| Merrimack River | | M | | |
| Plum Island Sound* | | | S | S |
| Massachusetts Bay | | S | S | S |
| Boston Harbor | | S | S | S |
| Cape Cod Bay | | S | S | S |
| Buzzards Bay | S | S | S,M | S,M |
| Narragansett Bay | S | S | S | S |
| Long Island Sound | | | S,M | S,M |
| Connecticut River | | | M | M |
| Hudson River / Raritan Bay | | S,M | S,M | S,M |
| Delaware Bay | | | | S |
| Chesapeake Bay | | | S | S |

*S ≡ The EFH designation for this species includes the seawater salinity zone of this bay or estuary (salinity > 25.0‰).*
*M ≡ The EFH designation for this species includes the mixing water / brackish salinity zone of this bay or estuary (0.5 < salinity < 25.0‰).*
** = This water body was not included in the original ELMR reports, but it was included in the salinity zone maps that were appended to all the relevant fishery management plans and amendments which implemented the no action EFH designations; EFH designations were inferred in these locations if there were ELMR-based designations in the adjacent north and south locations.*

**Map 58. No Action red hake egg, larval, and juvenile EFH, from Omnibus Habitat Amendment 2.**



**Map 59. No Action red hake adult EFH, from Omnibus Habitat Amendment 2.**



## 8.11 Silver hake

The no action EFH map for egg and larval silver hake is based upon the average catch per tow of juvenile silver hake in ten-minute squares of latitude and longitude during 1968-2005 in the fall and spring NMFS trawl surveys at the 90th percentile of catch level. This alternative also includes ten-minute squares in inshore areas where juvenile silver hake were caught in state trawl surveys in 10% or more of the tows made in each square, and bays and estuaries identified by the ELMR program where silver hake eggs and larvae were "common" or "abundant."

The no action EFH maps for juvenile and adult are based on the distributions of depths and bottom temperatures that were either associated with high catch rates of juveniles and adults, respectively, in the 1963-2003 spring and fall NMFS trawl surveys. They are also based on average catch per tow data for juveniles and adults in ten minute squares of latitude and longitude in the 1968-2005 spring and fall NMFS trawl surveys at the 75th percentile of catch level, and they include inshore areas where juvenile or adult silver hake were caught in 10% or more of the tows made in individual ten minute squares during state trawl surveys and ELMR information (north of Cape Cod only). Juvenile silver hake occupy distinct depth ranges in the spring (140-400 m) and fall (40-100 m). Since it is assumed the species is transitioning between these depth zones between these two seasons, the proposed EFH map within the NEFSC survey area is based on the union of spring and fall depth data layers, i.e. relative abundance data are clipped shallower than 40 m and deeper than 400 m.

***Text descriptions:***

For silver hake, *Merluccius bilinearis*, essential fish habitat is designated anywhere within the geographic areas that are shown on the following maps and meets the conditions described below.

**Eggs and larvae:** Pelagic habitats from the Gulf of Maine to Cape May, New Jersey, including Cape Cod and Massachusetts Bays.

**Juveniles**: Pelagic and benthic habitats in the Gulf of Maine, including the coastal bays and estuaries listed in the table below, and on the continental shelf as far south as Cape May, New Jersey, at depths greater than 10 meters in the Mid-Atlantic and between 40 and 400 meters in the Gulf of Maine, on sandy substrates. Juvenile silver hake are found in association with sand-waves, flat sand with amphipod tubes, and shells, and in biogenic depressions. Juveniles in the New York Bight settle to the bottom at mid-shelf depths on muddy sand substrates and find refuge in amphipod tube mats.

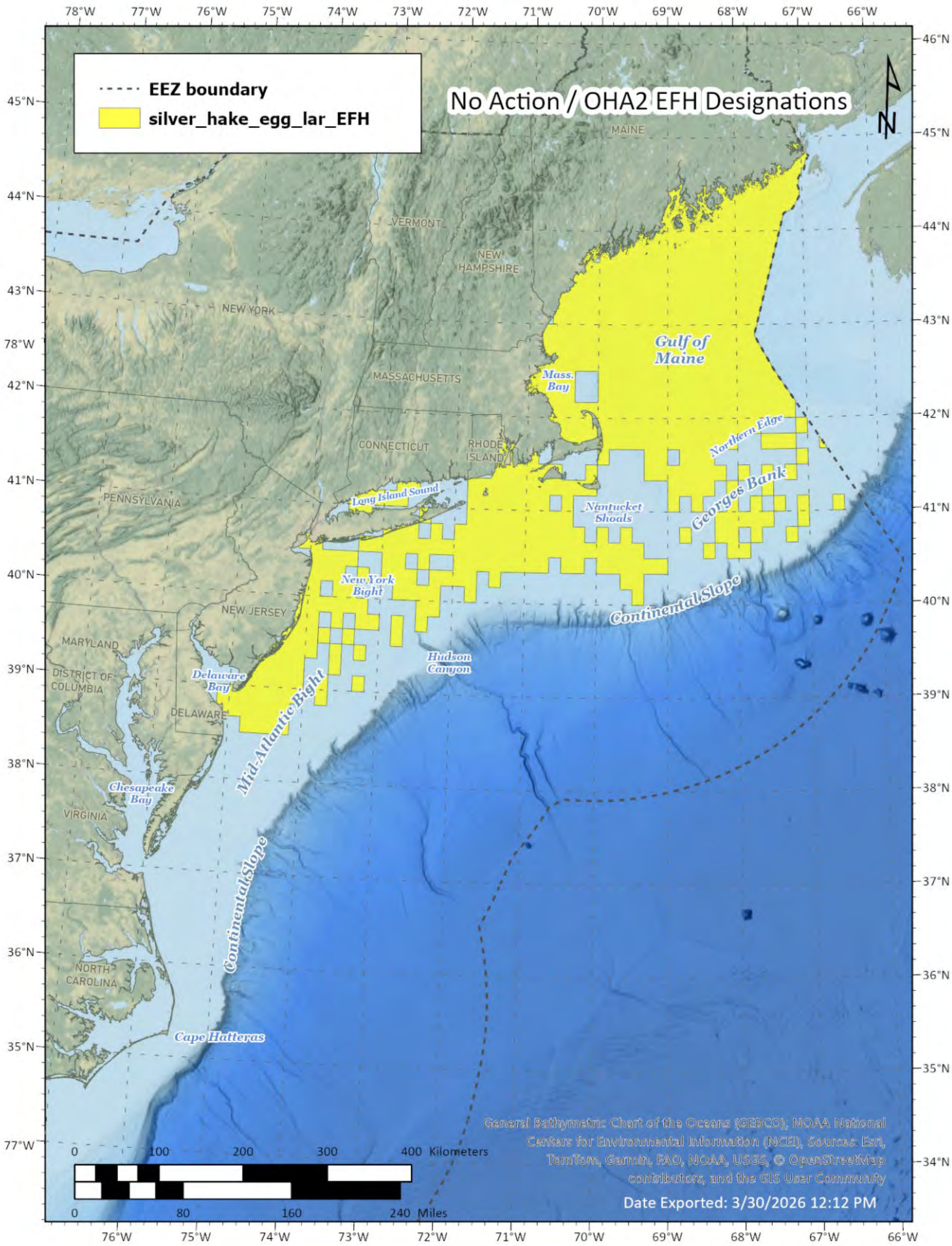
**Adults**: Pelagic and benthic habitats at depths greater than 35 meters in the Gulf of Maine and the coastal bays and estuaries listed in the table below, between 70 and 400 meters on Georges Bank and the outer continental shelf in the northern portion of the Mid-Atlantic Bight, and in some shallower locations nearer the coast, on sandy substrates. Adult silver hake are often found in bottom depressions or in association with sand waves and shell fragments. They have also been observed at high densities in mud habitats bordering deep boulder reefs, resting on boulder surfaces, and foraging over deep boulder reefs in the southwestern Gulf of Maine. This species makes greater use of the water column (for feeding, at night) than red or white hake.

**Table 18. No action silver hake EFH designation in estuaries and embayments**

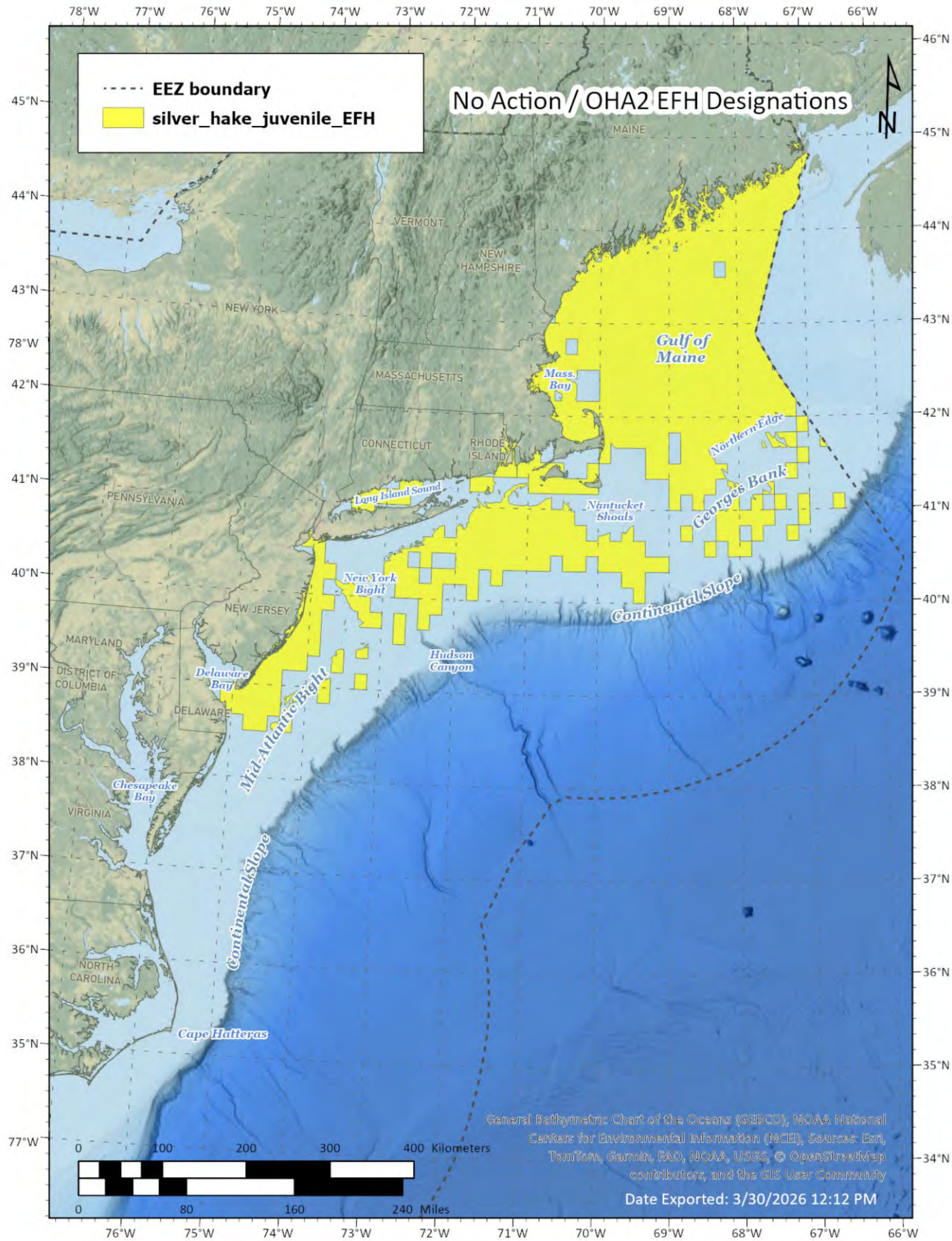
| Estuaries and Embayments | Eggs | Larvae | Juveniles | Adults |
|---|---|---|---|---|
| Passamaquoddy Bay | | | S,M | S,M |
| Englishman/Machias Bay | | | S,M | S,M |
| Narraguagus Bay | | | S,M | S,M |
| Blue Hill Bay | | | S,M | S,M |
| Penobscot Bay | | | S,M | S,M |
| Muscongus Bay | | | S,M | S,M |
| Damariscotta River | | | S,M | S,M |
| Sheepscot River | | | S,M | S,M |
| Kennebec / Androscoggin | | | S,M | S,M |
| Casco Bay | | | S,M | S,M |
| Saco Bay | | | S,M | S,M |
| Massachusetts Bay | S | S | S | S |
| Boston Harbor | S | S | S,M | S,M |
| Cape Cod Bay | S | S | S | S |

*S ≡ The EFH designation for this species includes the seawater salinity zone of this bay or estuary (salinity > 25.0‰).*
*M ≡ The EFH designation for this species includes the mixing water / brackish salinity zone of this bay or estuary (0.5 < salinity < 25.0‰).*
** = This water body was not included in the original ELMR reports, but it was included in the salinity zone maps that were appended to all the relevant fishery management plans and amendments which implemented the no action EFH designations; EFH designations were inferred in these locations if there were ELMR-based designations in the adjacent north and south locations.*

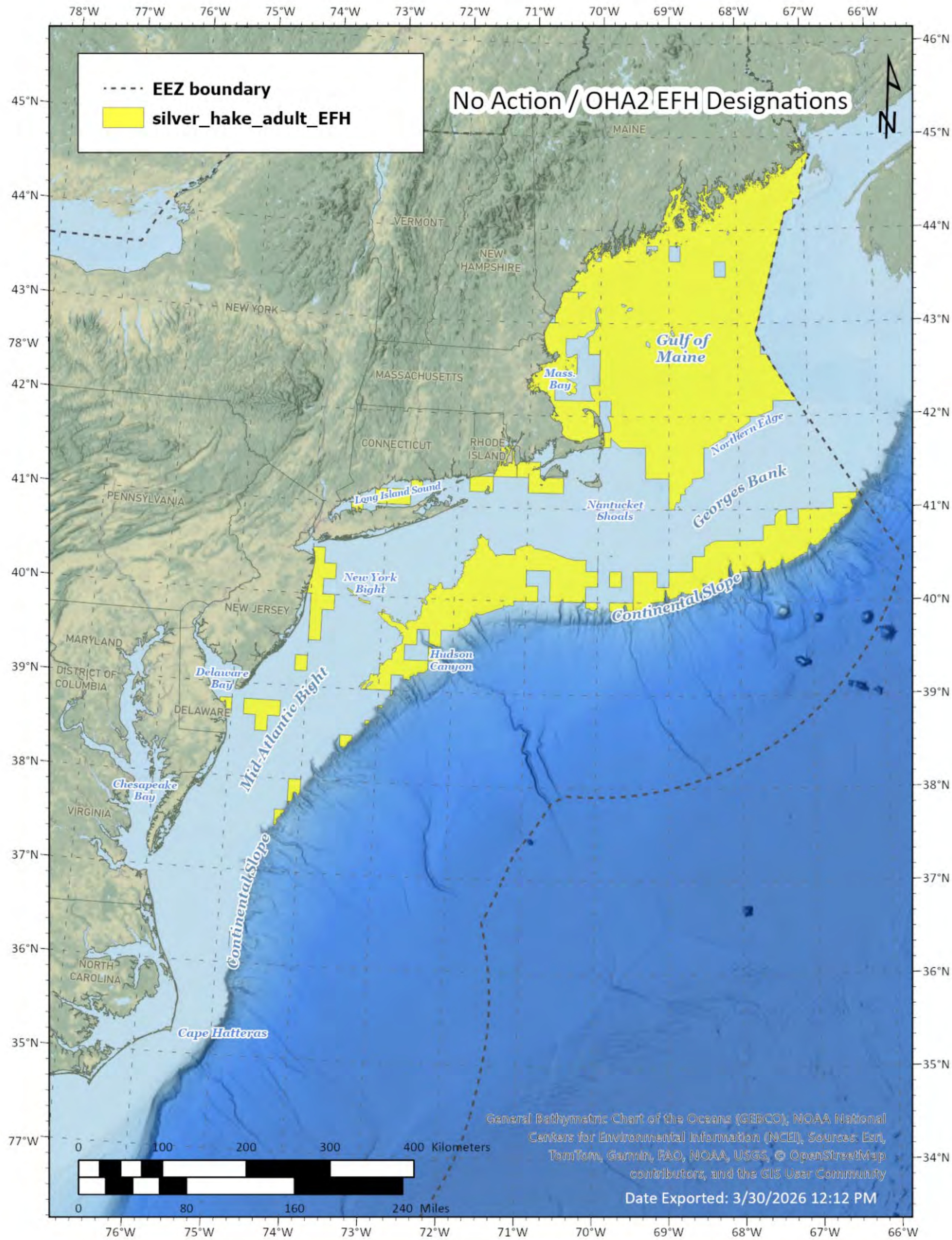
**Map 60. No Action silver hake egg and larval EFH, from Omnibus Habitat Amendment 2.**



**Map 61. No Action silver hake juvenile EFH, from Omnibus Habitat Amendment 2.**



**Map 62. No Action silver hake adult EFH, from Omnibus Habitat Amendment 2.**



## 8.12 White hake

The no action EFH map for white hake eggs was based on average catch per tow data for adults in ten minute squares of latitude and longitude during 1968-2005 in the fall and spring NMFS trawl survey at the 90th percentile catch level and depths and bottom temperatures that are associated with high catch rates of adults in the 1963-2003 spring and fall NMFS trawl surveys. It also includes ten minute squares in inshore areas where adult white hake were caught in state trawl surveys in 10% or more of the tows made in any given square, bays and estuaries in the Gulf of Maine identified by the ELMR program where white hake eggs or adults were reported to be common or abundant, and a depth-defined portion of the continental slope where white hake spawn.

The no action EFH map for white hake larvae was also generated based upon the 90th percentile, but in this case, using catch and habitat data for juveniles. It also includes inshore survey data for juveniles and ELMR areas in the Gulf of Maine where white hake larvae or juveniles were reported to be common or abundant, but no additional coverage for the continental slope.

The no action EFH maps for juvenile and adult white hake are based on the distributions of depths and bottom temperatures that are associated with high catch rates of juveniles and adults, respectively, in the 1963-2003 spring and fall NMFS trawl surveys. They are also based on average catch rates of juveniles or adults in ten minute squares of latitude and longitude in the 1968-2005 spring and fall NMFS trawl surveys at the 90th percentile catch level, include inshore areas where juvenile or adult white hake were caught in 10% or more of tows made in individual ten minute squares during state trawl surveys, and ELMR information for the Gulf of Maine.

***Text descriptions:***

For white hake, *Urophycis tenuis*, essential fish habitat is designated anywhere within the geographic areas that are shown on the following maps and meets the conditions described below.

**Eggs:** Pelagic habitats in the Gulf of Maine, including Massachusetts and Cape Cod bays, and the outer continental shelf and slope.

**Larvae:** Pelagic habitats in the Gulf of Maine, in southern New England, and on Georges Bank. Early stage white hake larvae have been collected on the continental slope, but cross the shelf-slope front and use nearshore habitats for juvenile nurseries. Larger larvae and pelagic juveniles have been found only on the continental shelf.

**Juveniles**: Intertidal and sub-tidal estuarine and marine habitats in the Gulf of Maine, on Georges Bank, and in southern New England, including mixed and high salinity zones in a number of bays and estuaries north of Cape Cod (see table below), to a maximum depth of 300 meters. Pelagic phase juveniles remain in the water column for about two months. In nearshore waters, essential fish habitat for benthic phase juveniles occurs on fine-grained, sandy substrates in eelgrass, macroalgae, and un-vegetated habitats. In the Mid-Atlantic, most juveniles settle to the bottom on the continental shelf, but some enter estuaries, especially those in southern New England. Older young-of-the-year juveniles occupy the same habitat types as the recently-settled juveniles, but move into deeper water (>50 meters).

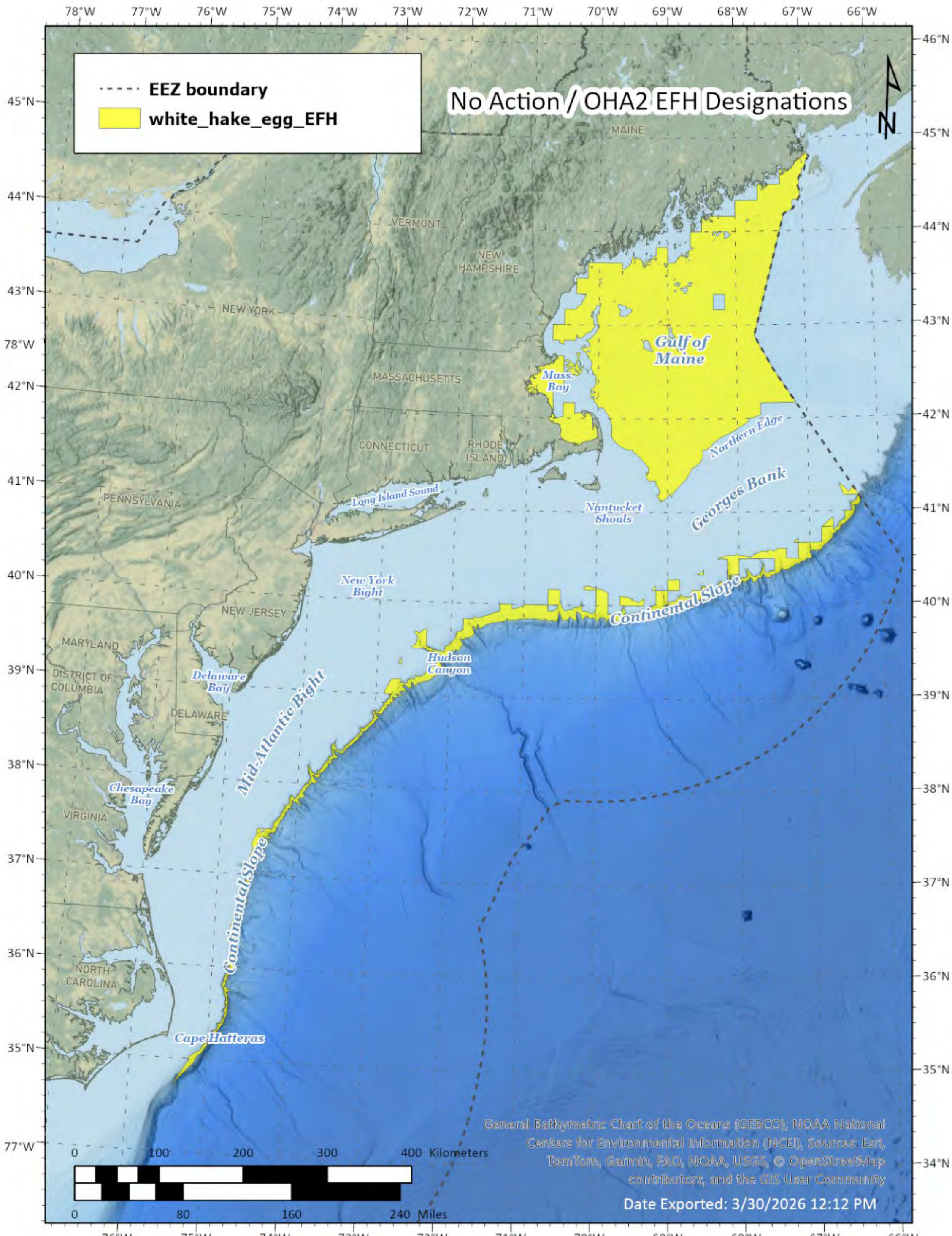
**Adults**: Sub-tidal benthic habitats in the Gulf of Maine, including depths greater than 25 meters in certain mixed and high salinity zones portions of a number of bays and estuaries (see table below), between 100 and 400 meters in the outer gulf, and between 400 and 900 meters on the outer continental shelf and slope. Essential fish habitat for adult white hake occurs on fine-grained, muddy substrates and in mixed soft and rocky habitats. Spawning takes place in deep water on the continental slope and in Canadian waters.

**Table 19. No action white hake EFH designation for estuaries and embayments.**

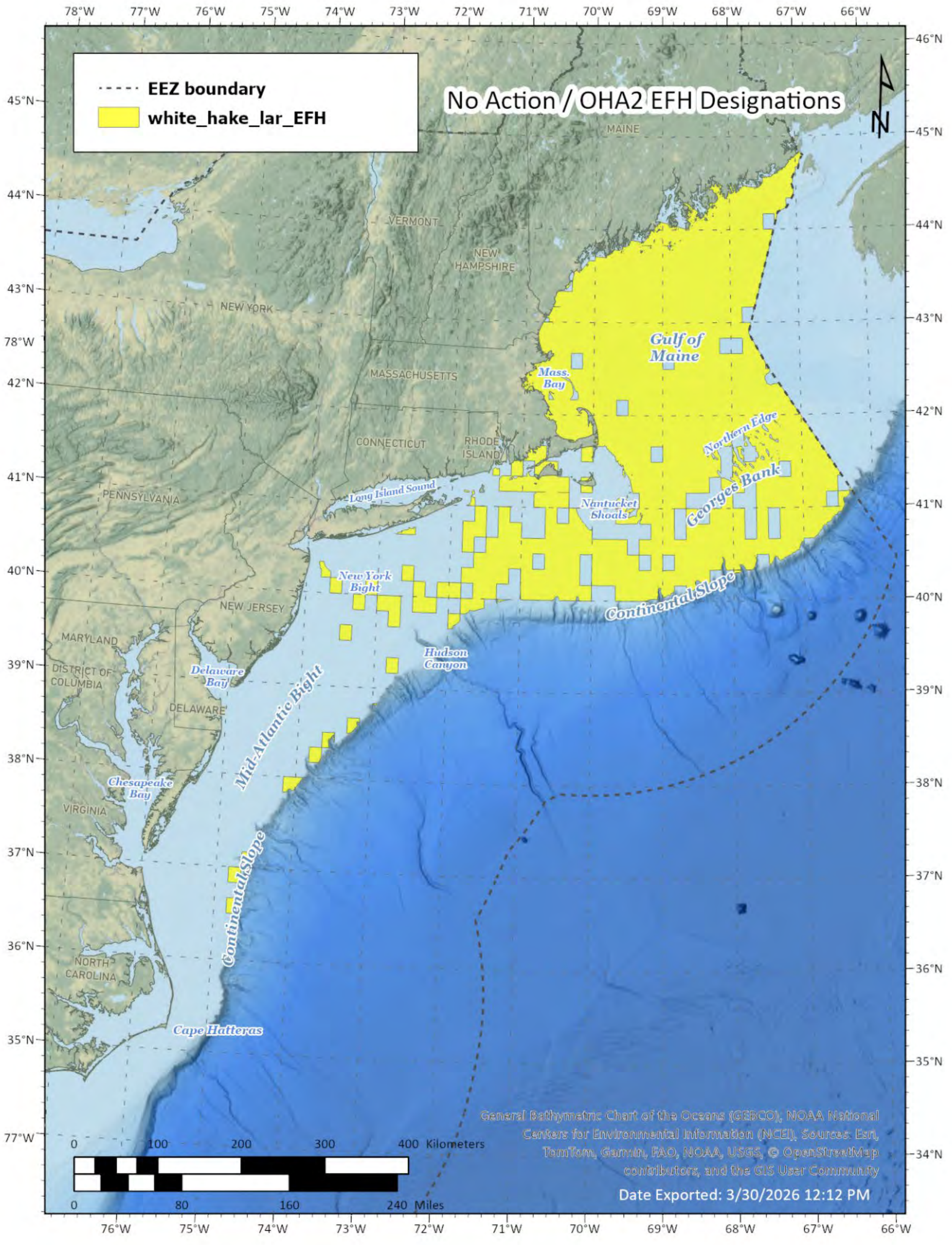
| Estuaries and Embayments | Eggs | Larvae | Juveniles | Adults |
|---|---|---|---|---|
| Passamaquoddy Bay | | | S,M | S,M |
| Englishman/Machias Bay | | | S,M | S |
| Narraguagus Bay | | | S,M | S |
| Blue Hill Bay | | | S,M | S |
| Penobscot Bay | | | S,M | S |
| Muscongus Bay | | | S,M | S,M |
| Damariscotta River | | | S,M | S,M |
| Sheepscot River | | | S,M | S,M |
| Kennebec / Androscoggin | | | S,M | S,M |
| Casco Bay | | | S,M | S,M |
| Saco Bay | | | S,M | S,M |
| Wells Harbor | | | S,M | S,M |
| Great Bay | S | | S | S |
| Hampton Harbor* | S,M | | S,M | S,M |
| Merrimack River | M | | | |
| Plum Island Sound* | S,M | | S,M | S,M |
| Massachusetts Bay | S | S | S | S |
| Boston Harbor | S | S | S | S |
| Cape Cod Bay | S | S | S | S |

*S ≡ The EFH designation for this species includes the seawater salinity zone of this bay or estuary (salinity > 25.0‰).*
*M ≡ The EFH designation for this species includes the mixing water / brackish salinity zone of this bay or estuary (0.5 < salinity < 25.0‰).*
** = This water body was not included in the original ELMR reports, but it was included in the salinity zone maps that were appended to all the relevant fishery management plans and amendments which implemented the no action EFH designations; EFH designations were inferred in these locations if there were ELMR-based designations in the adjacent north and south locations.*

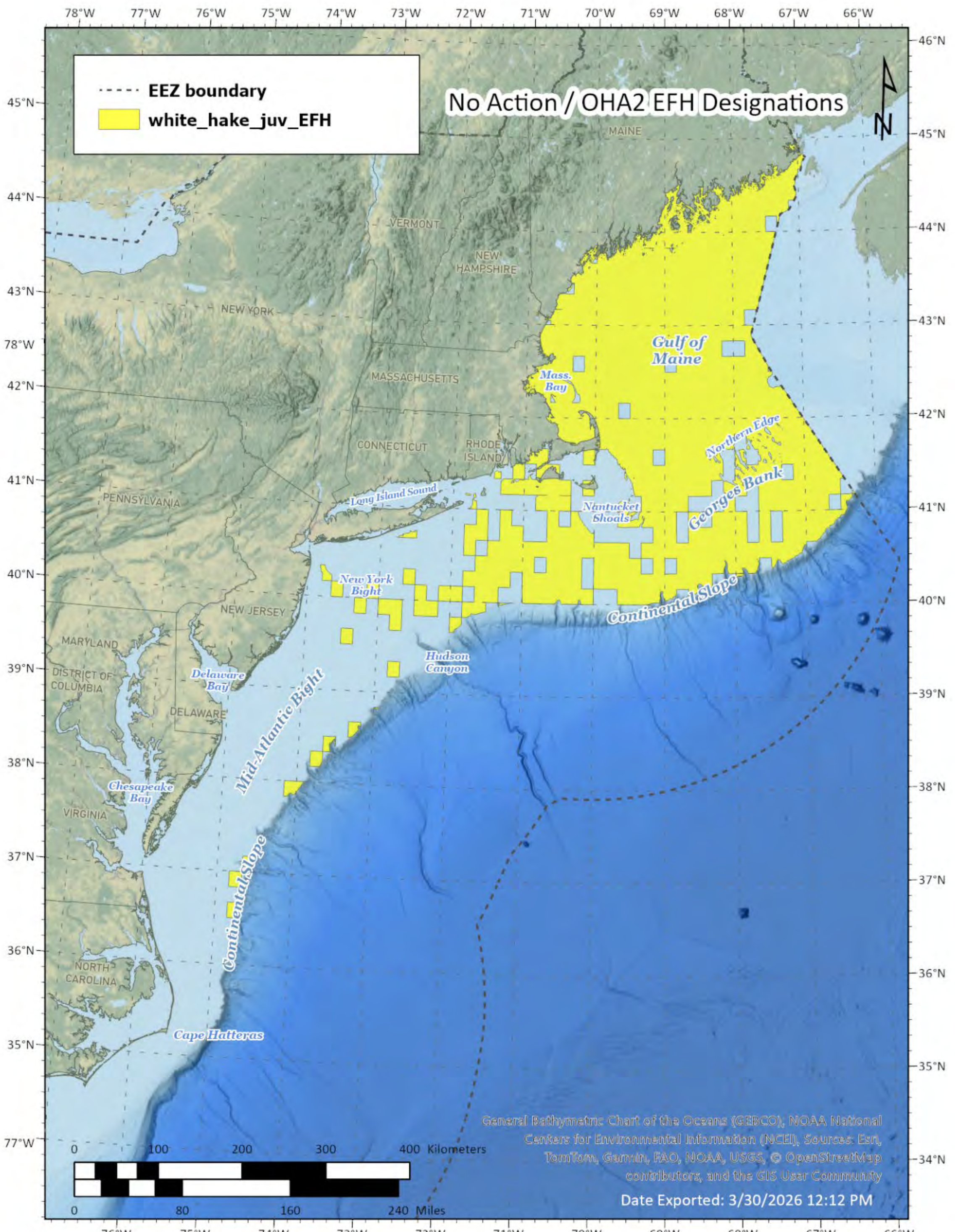
**Map 63. No Action white hake egg EFH, from Omnibus Habitat Amendment 2.**



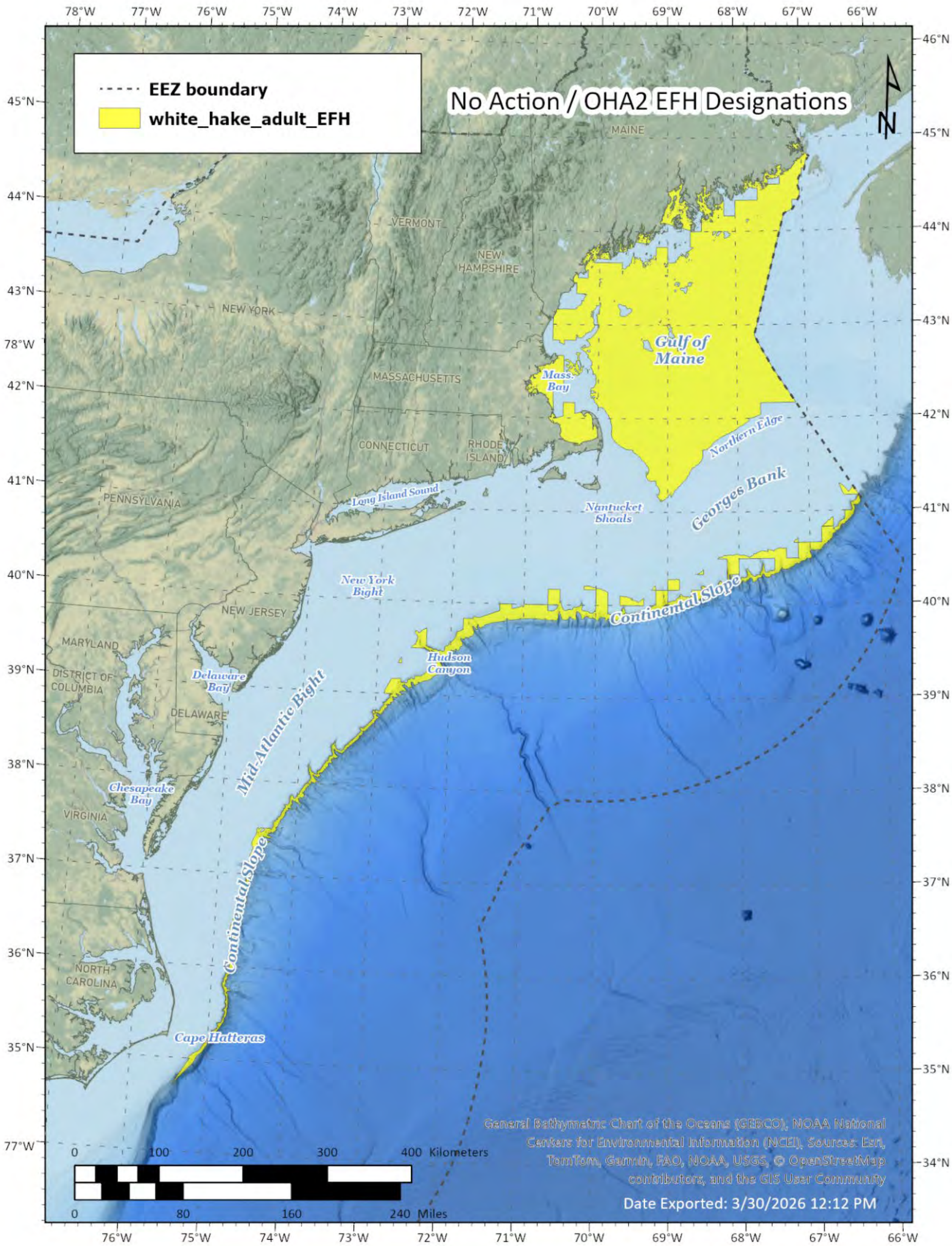
**Map 64. No Action white hake larval EFH, from Omnibus Habitat Amendment 2.**



**Map 65. No Action white hake juvenile EFH, from Omnibus Habitat Amendment 2.**



**Map 66. No Action white hake adult EFH, from Omnibus Habitat Amendment 2.**



## 8.13 Windowpane flounder

The no action EFH maps for egg and larval windowpane flounder maps are based on the 90th percentile of the observed range of the MARMAP survey data. These designations also include those bays and estuaries identified by the ELMR program as supporting windowpane flounder eggs or larvae at the "common" or "abundant" level.

The no action EFH maps for juvenile and adult windowpane flounder are based on the distributions of depths and bottom temperatures that are associated with high catch rates of juveniles and adults, respectively, in the 1963-2003 spring and fall NMFS trawl surveys. They are also based on average catch per tow data in ten minute squares of latitude and longitude in the 1968-2005 spring and fall NMFS trawl surveys at the 90th percentile of catch level, and they include inshore areas where juvenile or adult windowpane were caught in 10% or more of the tows made in individual ten minute squares during state trawl surveys and ELMR information. Inshore survey data used in the proposed map of juvenile EFH includes SEAMAP survey data between Cape Hatteras and northern Florida.

***Text descriptions:***

For windowpane flounder, *Scophthalmus aquosus*, essential fish habitat is designated anywhere within the geographic areas that are shown on the following maps and meets the conditions described below.

**Eggs and larvae:** Pelagic habitats on the continental shelf from Georges Bank to Cape Hatteras and in mixed and high salinity zones of coastal bays and estuaries throughout the region.

**Juveniles**: Intertidal and sub-tidal benthic habitats in estuarine, coastal marine, and continental shelf waters from the Gulf of Maine to northern Florida, including mixed and high salinity zones in the bays and estuaries listed in the table below. Essential fish habitat for juvenile windowpane flounder is found on mud and sand substrates and extends from the intertidal zone to a maximum depth of 60 meters. Young-of-the-year juveniles prefer sand over mud.

**Adults**: Intertidal and sub-tidal benthic habitats in estuarine, coastal marine, and continental shelf waters from the Gulf of Maine to Cape Hatteras, including mixed and high salinity zones in the bays and estuaries listed in the table below. Essential fish habitat for adult windowpane flounder is found on mud and sand substrates and extends from the intertidal zone to a maximum depth of 70 meters.

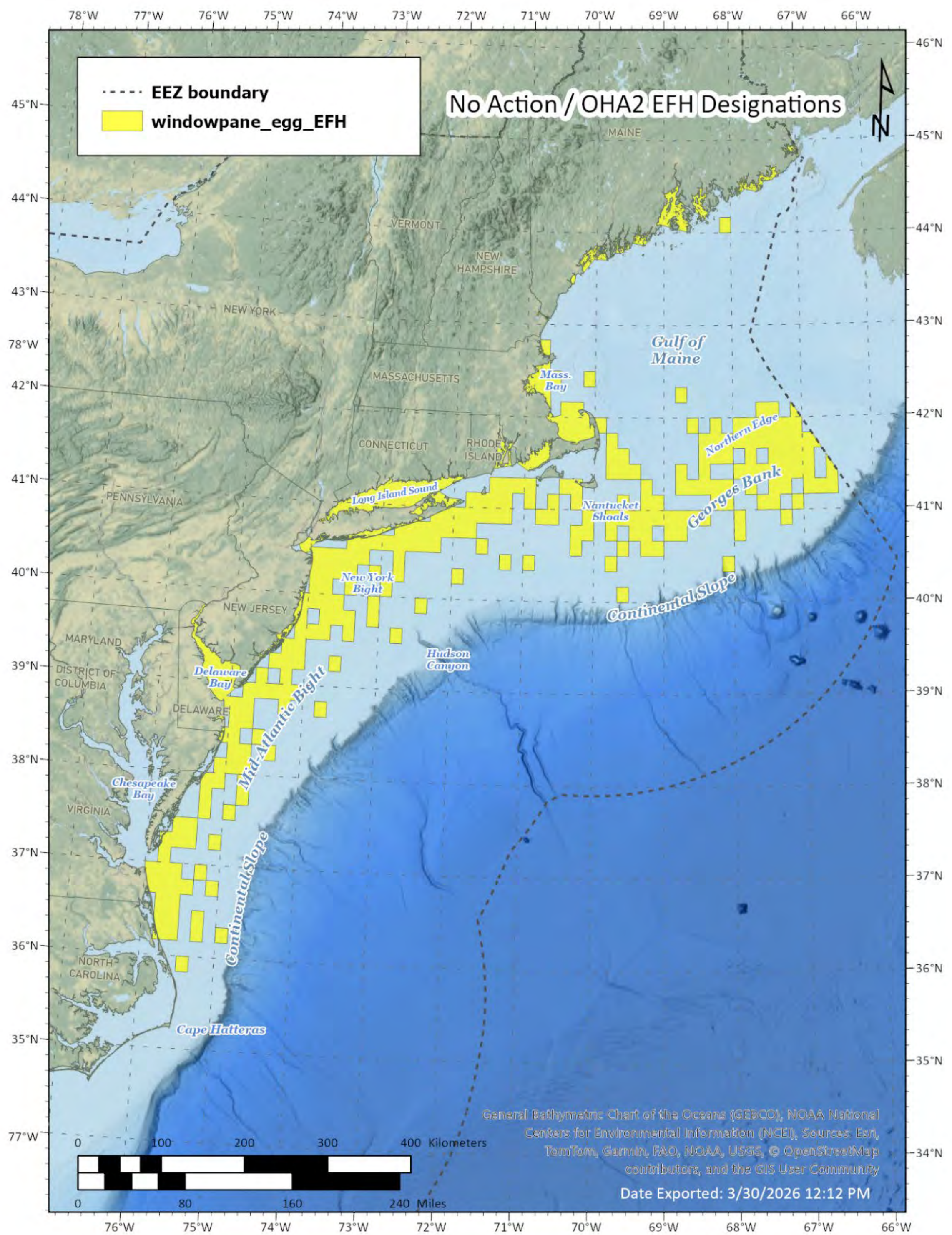
**Table 20. No action windowpane flounder EFH designation for estuaries and embayments**

| Estuaries and Embayments | Eggs | Larvae | Juveniles | Adults |
|---|---|---|---|---|
| Passamaquoddy Bay | S,M | S,M | S,M | S,M |
| Englishman/Machias Bay | S,M | S,M | S,M | S,M |
| Narraguagus Bay | S,M | S,M | S,M | S,M |
| Blue Hill Bay | S,M | S,M | S,M | S,M |
| Penobscot Bay | S,M | S,M | S,M | S,M |
| Muscongus Bay | S,M | S,M | S,M | S,M |
| Damariscotta River | S,M | S,M | S,M | S,M |
| Sheepscot River | S,M | S,M | S,M | S,M |
| Kennebec / Androscoggin | S,M | S,M | S,M | S,M |
| Casco Bay | S,M | S,M | S,M | S,M |

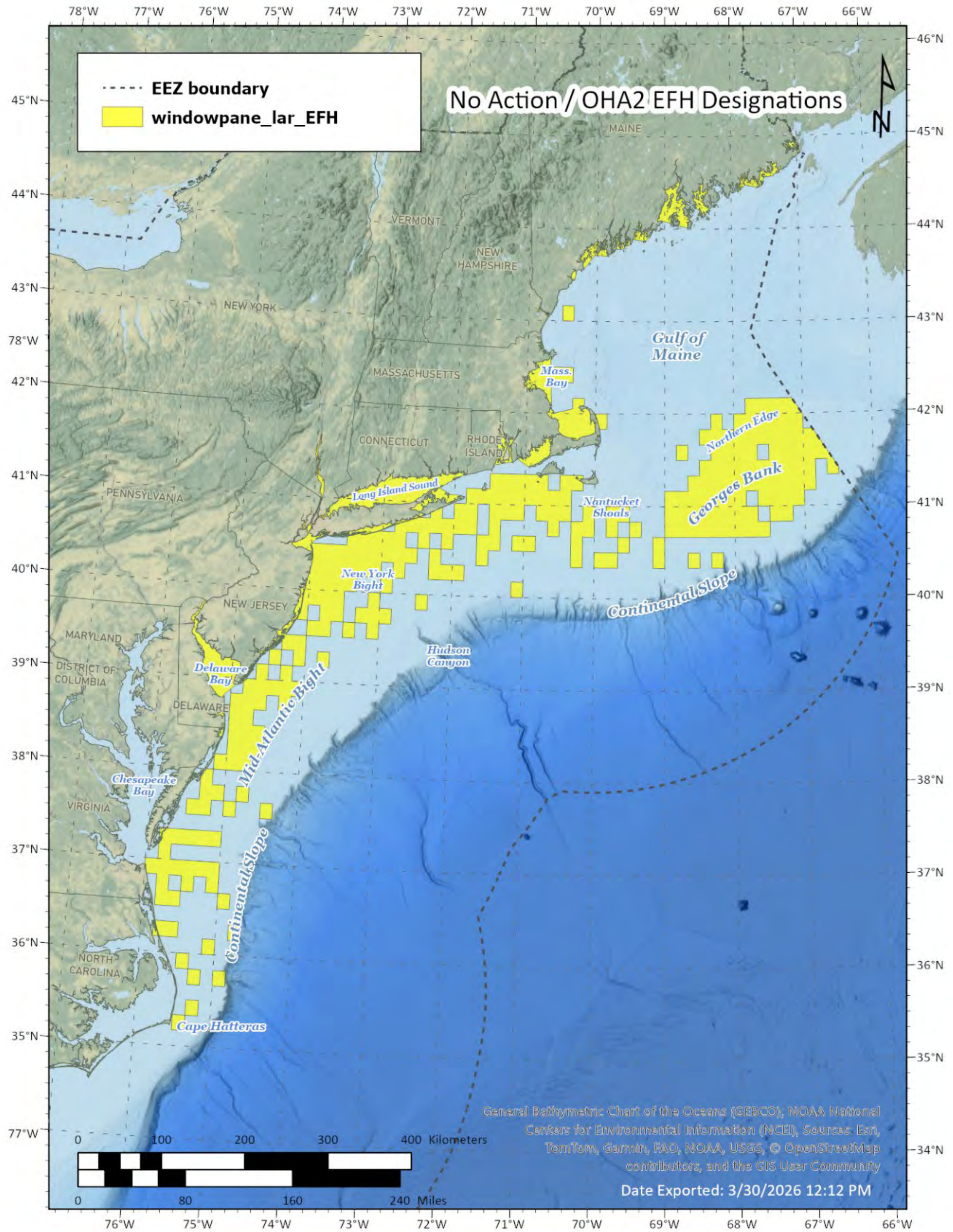
| **Estuaries and Embayments** | **Eggs** | **Larvae** | **Juveniles** | **Adults** |
|---|---|---|---|---|
| Saco Bay | S,M | S,M | S,M | S,M |
| Wells Harbor | S,M | S,M | S,M | S,M |
| Great Bay | S | S | S | S |
| Hampton Harbor* | S,M | S,M | S,M | S,M |
| Plum Island Sound* | S,M | S,M | S,M | S,M |
| Massachusetts Bay | S | S | S | S |
| Boston Harbor | S,M | S,M | S,M | S,M |
| Cape Cod Bay | S | S | S | S |
| Waquoit Bay | S,M | S,M | S,M | S,M |
| Buzzards Bay | S,M | S,M | S,M | S,M |
| Narragansett Bay | S,M | S,M | S,M | S,M |
| Long Island Sound | S,M | S,M | S,M | S,M |
| Connecticut River | M | M | M | M |
| Gardiners Bay | S,M | S,M | S,M | S,M |
| Great South Bay | S,M | S,M | S,M | S,M |
| Hudson River / Raritan Bay | S | S,M | S,M | S,M |
| Barnegat Bay | S,M | S,M | S,M | S,M |
| New Jersey Inland Bays | S,M | S,M | S,M | S,M |
| Delaware Bay | S,M | S,M | S,M | S,M |
| Delaware Inland Bays* | S,M | S,M | S,M | S,M |
| Maryland Inland Bays* | S,M | S,M | S,M | S,M |
| Chincoteague Bay | | | S | S |
| Chesapeake Bay | | | S,M | S,M |
| Tangier/Pocomoke Sound | | | M | M |

*S ≡ The EFH designation for this species includes the seawater salinity zone of this bay or estuary (salinity > 25.0‰).*
*M ≡ The EFH designation for this species includes the mixing water / brackish salinity zone of this bay or estuary (0.5 < salinity < 25.0‰).*
** = This water body was not included in the original ELMR reports, but it was included in the salinity zone maps that were appended to all the relevant fishery management plans and amendments which implemented the no action EFH designations; EFH designations were inferred in these locations if there were ELMR-based designations in the adjacent north and south locations.*

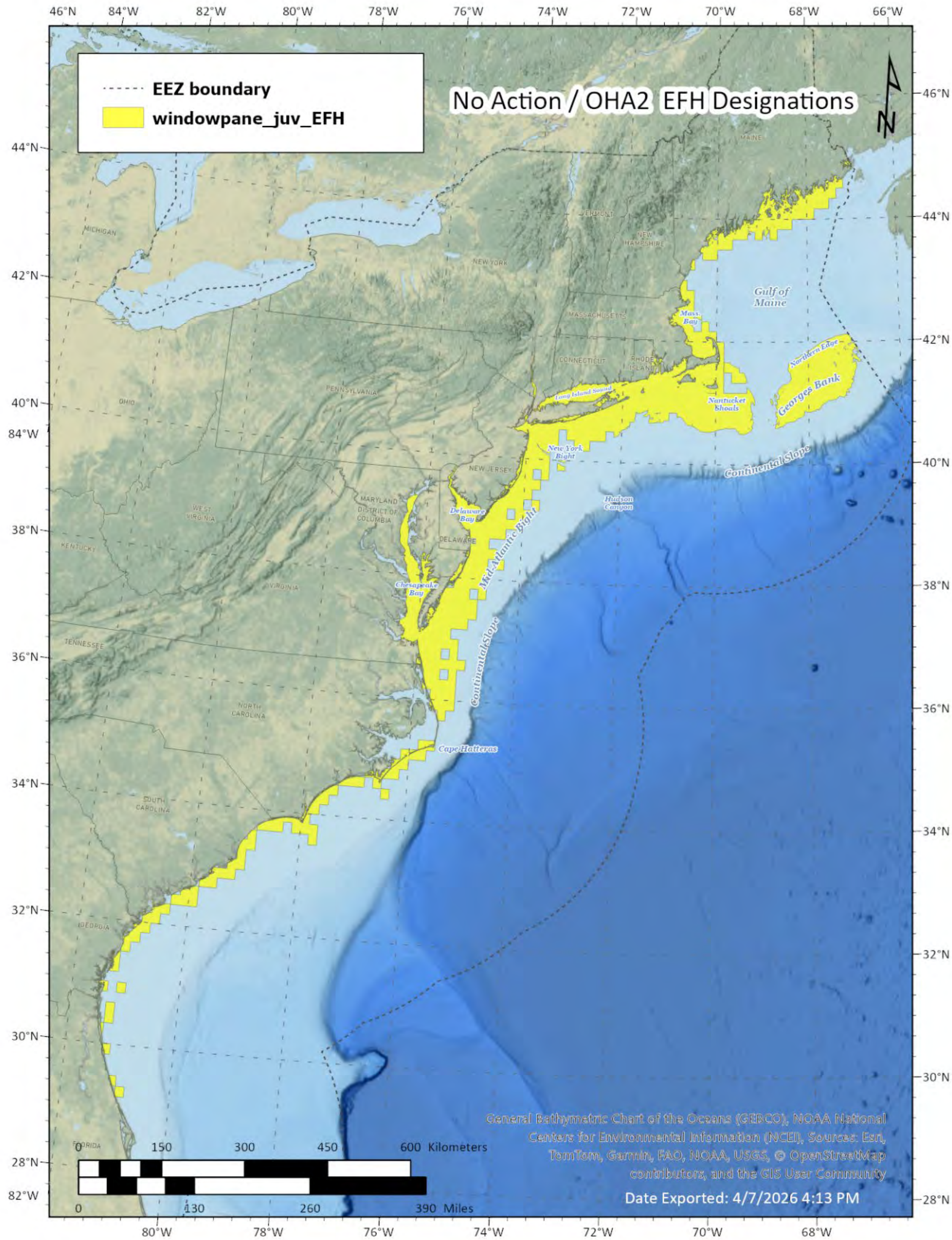
**Map 67. No Action windowpane flounder egg EFH, from Omnibus Habitat Amendment 2.**



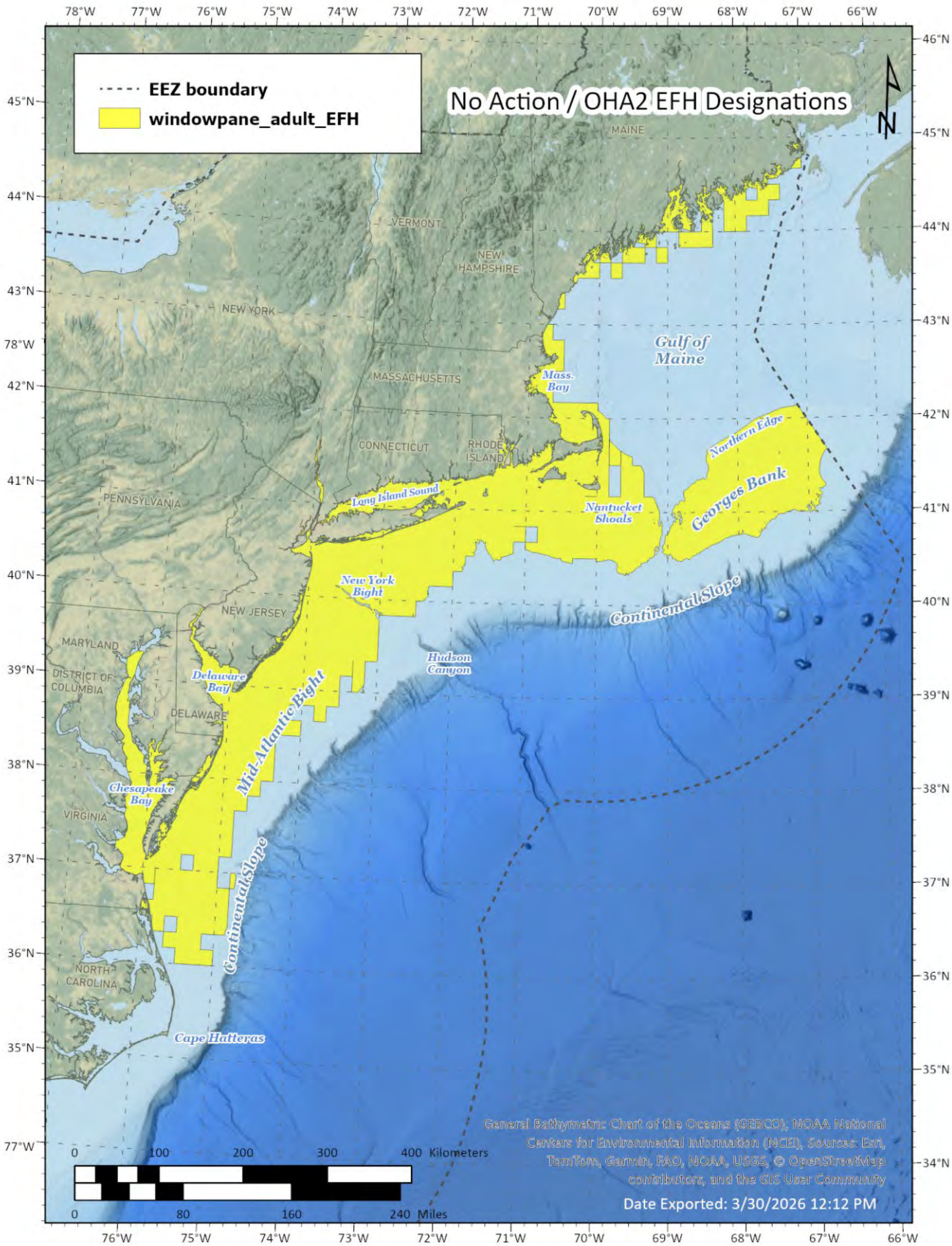
**Map 68. No Action windowpane flounder larval EFH, from Omnibus Habitat Amendment 2.**



**Map 69. No Action windowpane flounder juvenile EFH, from Omnibus Habitat Amendment 2.**



**Map 70. No Action windowpane flounder adult EFH, from Omnibus Habitat Amendment 2.**



## 8.14 Winter flounder

The no action designation for winter flounder eggs defines EFH as sub-tidal coastal waters from the shoreline to a maximum depth of 5 meters from Cape Cod to Absecon Inlet, New Jersey, and from the shoreline to a maximum depth of 70 meters in the Gulf of Maine and on Georges Bank. Depth is relative to mean low water. In coastal waters, the geographic extent of EFH for the eggs is based on the geographic range of the adults and, south of Cape Cod, the maximum depth where eggs have been observed on the bottom, and on Georges Bank and in the Gulf of Maine, the reported maximum depth for spawning adults on Georges Bank. Survey data in support of the southern limit of EFH are provided in Appendix I of OHA2.

The 5-meter depth area begins at the tip of Cape Cod at Provincetown, Massachusetts, and includes waters along the eastern and southern sides of the Cape, south to New Jersey. Data collected during a series of benthic winter flounder egg surveys by the U.S. Army Corps of Engineers in the New York Harbor area in recent years indicate that many more eggs are deposited on the bottom in shallow water areas, not in the deeper shipping channels (Wilber et al. 2013). Based on this information, the Council concluded that the shoal water areas in New York harbor were the primary habitat for winter flounder eggs. Other information summarized by Pereira et al. (1999) and reported in Schultz et al. (2007) also indicates that winter flounder in Long Island Sound and Rhode Island spawn in shallow coastal water.

The 70-meter maximum depth applies along the entire coast of the Gulf of Maine as far south as Cape Cod Bay. Evidence from research studies in the southwestern Gulf of Maine (DeCelles and Cadrin 2010, Fairchild et al. 2013) show that winter flounder spawn in deeper water as well as in coastal estuaries. Based on this information, the Council decided to extend EFH for winter flounder eggs to 70 meters north of Cape Cod and on Georges Bank. Seventy meters is the maximum depth identified in the original edition of Fishes of the Gulf of Maine for spawning winter flounder on Georges Bank (Bigelow and Schroeder 1953).

The no action maps for juveniles and adults are largely based on trawl survey catch data (numbers per tow). The EFH map for larvae and adults is the same, although the larvae are pelagic and the actual extent of EFH for each life stage within the area that is mapped is subject to the habitat requirements provided in Appendix B to OHA2. Specifically, the maps are based on the distributions of depths and bottom temperatures that were associated with high catch rates of juveniles and adults, respectively, in the 1963-2003 spring and fall NMFS trawl surveys. The maps are also based on average catch rates in ten-minute squares of latitude and longitude for juveniles and adults in the 1968-2005 spring and fall NMFS trawl surveys at the 90$^{th}$ percentile of catch level. They also include inshore areas north of Absecon Inlet where juvenile or adult winter flounder were caught in 10% or more of the tows made in individual ten minute squares in state trawl surveys, as well as the ELMR information. Additional un-surveyed ten-minute squares were filled in along the Maine, New Hampshire, and Connecticut coasts and east of Nantucket Island (see Map 9 in Appendix A to OHA2).

***Text descriptions:***

For winter flounder, *Pleuronectes americanus*, essential fish habitat is designated anywhere within the geographic areas that are shown on the following maps and meets the conditions described below.

**Eggs:** Sub-tidal estuarine and coastal benthic habitats from mean low water to 5 meters from Cape Cod to Absecon Inlet (39° 22’ N), and as deep as 70 meters on Georges Bank and in the Gulf of Maine. The eggs are adhesive and deposited in clusters on the bottom. Essential habitats for winter flounder eggs include mud, muddy sand, sand, gravel, macroalgae, and submerged aquatic vegetation. Bottom habitats are unsuitable if exposed to excessive sedimentation which can reduce hatching success.

**Larvae:** Estuarine, coastal, and continental shelf water column habitats from the shoreline to a maximum depth of 70 meters from the Gulf of Maine to Absecon Inlet (39° 22’ N), and including Georges Bank, including mixed and high salinity zones in the bays and estuaries listed in Table 20. Larvae hatch in nearshore waters and estuaries or are transported shoreward from offshore spawning sites where they metamorphose and settle to the bottom as juveniles. They are initially planktonic but become increasingly less buoyant and occupy the lower water column as they get older.

**Juveniles**: Estuarine, coastal, and continental shelf benthic habitats from the Gulf of Maine to Absecon Inlet (39° 22' N), and including Georges Bank, and in mixed and high salinity zones in the bays and estuaries listed in the table below. Essential fish habitat for juvenile winter flounder extends from the intertidal zone (mean high water) to a maximum depth of 60 meters and occurs on a variety of bottom types, such as mud, sand, rocky substrates with attached macroalgae, tidal wetlands, and eelgrass. Young-of-the-year juveniles are found inshore on muddy and sandy sediments in and adjacent to eelgrass and macroalgae, in bottom debris, and in marsh creeks. They tend to settle to the bottom in soft-sediment depositional areas where currents concentrate late-stage larvae and disperse into coarser-grained substrates as they get older.

**Adults**: Estuarine, coastal, and continental shelf benthic habitats extending from the intertidal zone (mean high water) to a maximum depth of 70 meters from the Gulf of Maine to Absecon Inlet (39° 22' N), and including Georges Bank, and in mixed and high salinity zones in the bays and estuaries listed in the table below. Essential fish habitat for adult winter flounder occurs on muddy and sandy substrates, and on hard bottom on offshore banks. In inshore spawning areas, essential fish habitat includes a variety of substrates where eggs are deposited on the bottom (see eggs).

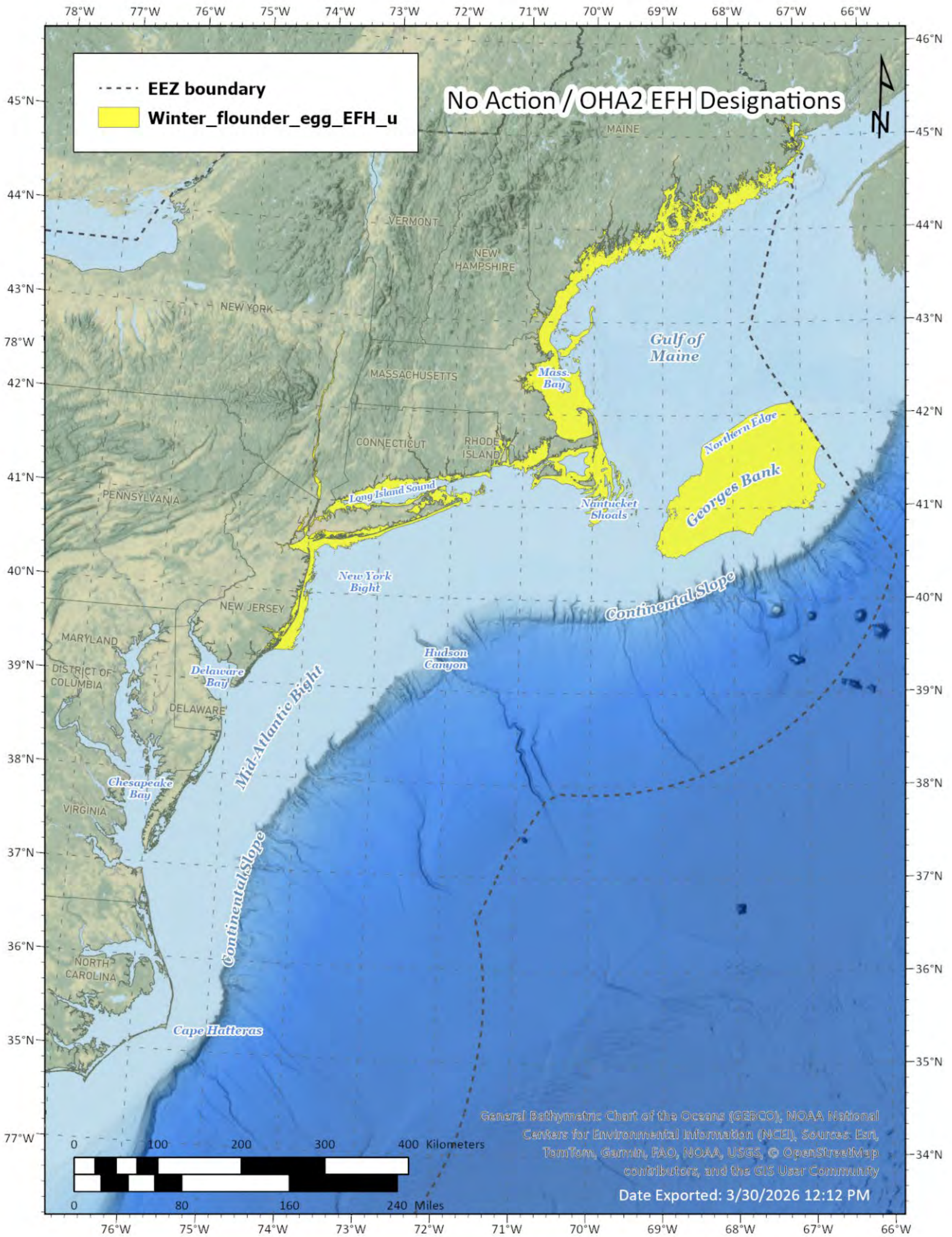
**Table 21. No action winter flounder EFH designation for estuaries and embayments.**

| Estuaries and Embayments | Larvae | Juveniles | Adults |
|---|---|---|---|
| Passamaquoddy Bay | S,M | S,M | S,M |
| Englishman/Machias Bay | S,M | S,M | S,M |
| Narraguagus Bay | S,M | S,M | S,M |
| Blue Hill Bay | S,M | S,M | S,M |
| Penobscot Bay | S,M | S,M | S,M |
| Muscongus Bay | S,M | S,M | S,M |
| Damariscotta River | S,M | S,M | S,M |
| Sheepscot River | S,M | S,M | S,M |
| Kennebec / Androscoggin | S,M | S,M | S,M |
| Casco Bay | S,M | S,M | S,M |
| Saco Bay | S,M | S,M | S,M |
| Wells Harbor | S,M | S,M | S,M |
| Great Bay | S,M | S,M | S,M |
| Hampton Harbor* | S,M | S,M | S,M |
| Merrimack River | M | M | M |
| Plum Island Sound* | S,M | S,M | S,M |
| Massachusetts Bay | S | S | S |
| Boston Harbor | S,M | S,M | S,M |

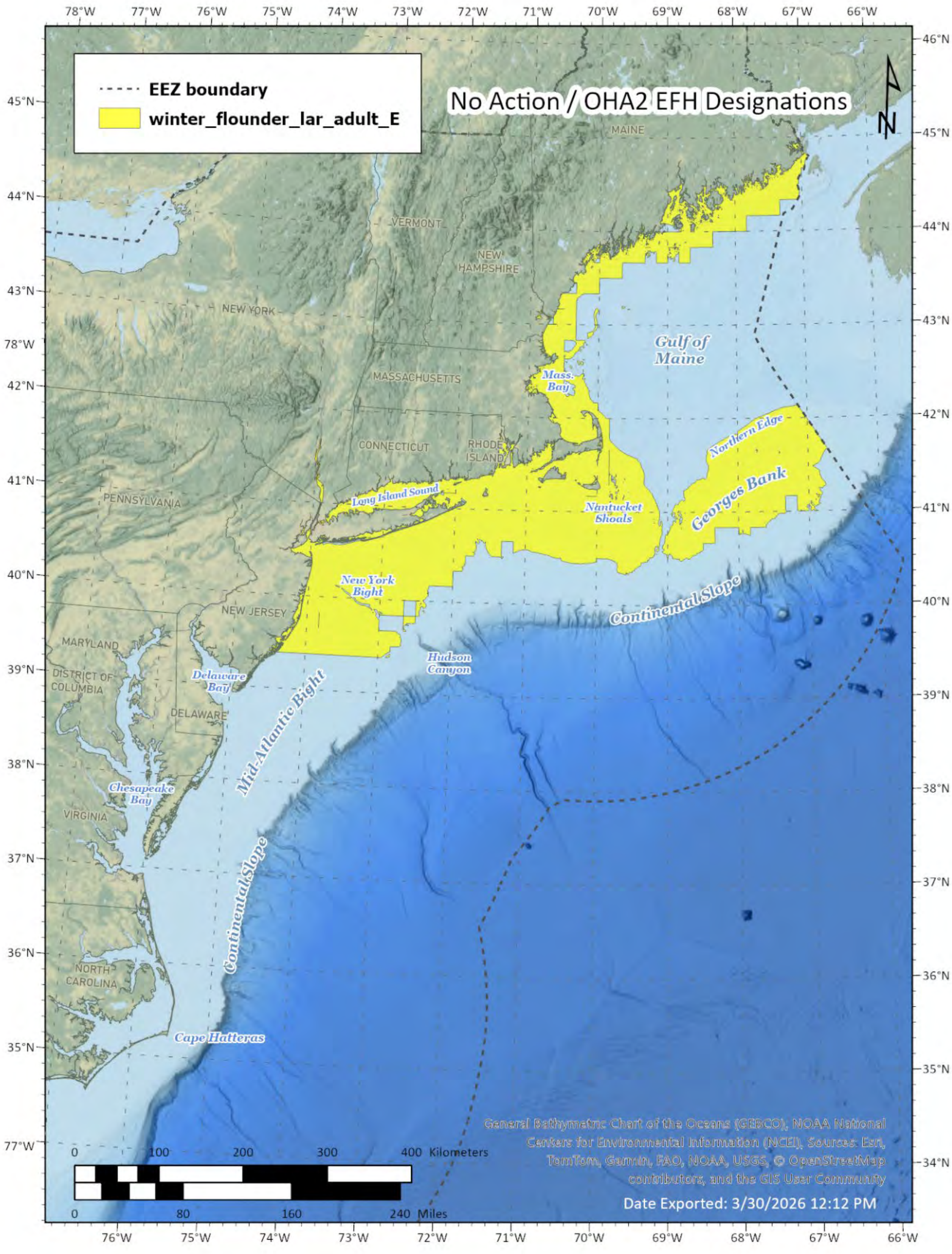
| **Estuaries and Embayments** | **Larvae** | **Juveniles** | **Adults** |
|---|---|---|---|
| Cape Cod Bay | S | S | S |
| Waquoit Bay | S,M | S,M | S,M |
| Buzzards Bay | S,M | S,M | S,M |
| Narragansett Bay | S,M | S,M | S,M |
| Long Island Sound | S,M | S,M | S,M |
| Connecticut River | M | M | M |
| Gardiners Bay | S,M | S,M | S,M |
| Great South Bay | S,M | S,M | S,M |
| Hudson River / Raritan Bay | S,M | S,M | S,M |
| Barnegat Bay | S,M | S,M | S,M |
| New Jersey Inland Bays** | S,M | S,M | S,M |

*S ≡ The EFH designation for this species includes the seawater salinity zone of this bay or estuary (salinity > 25.0‰).*
*M ≡ The EFH designation for this species includes the mixing water / brackish salinity zone of this bay or estuary (0.5 < salinity < 25.0‰).*
** = This water body was not included in the original ELMR reports, but it was included in the salinity zone maps that were appended to all the relevant fishery management plans and amendments which implemented the no action EFH designations; EFH designations were inferred in these locations if there were ELMR-based designations in the adjacent north and south locations.*
*** EFH is only designated within NJ inland bays north of 39° 22' N.*

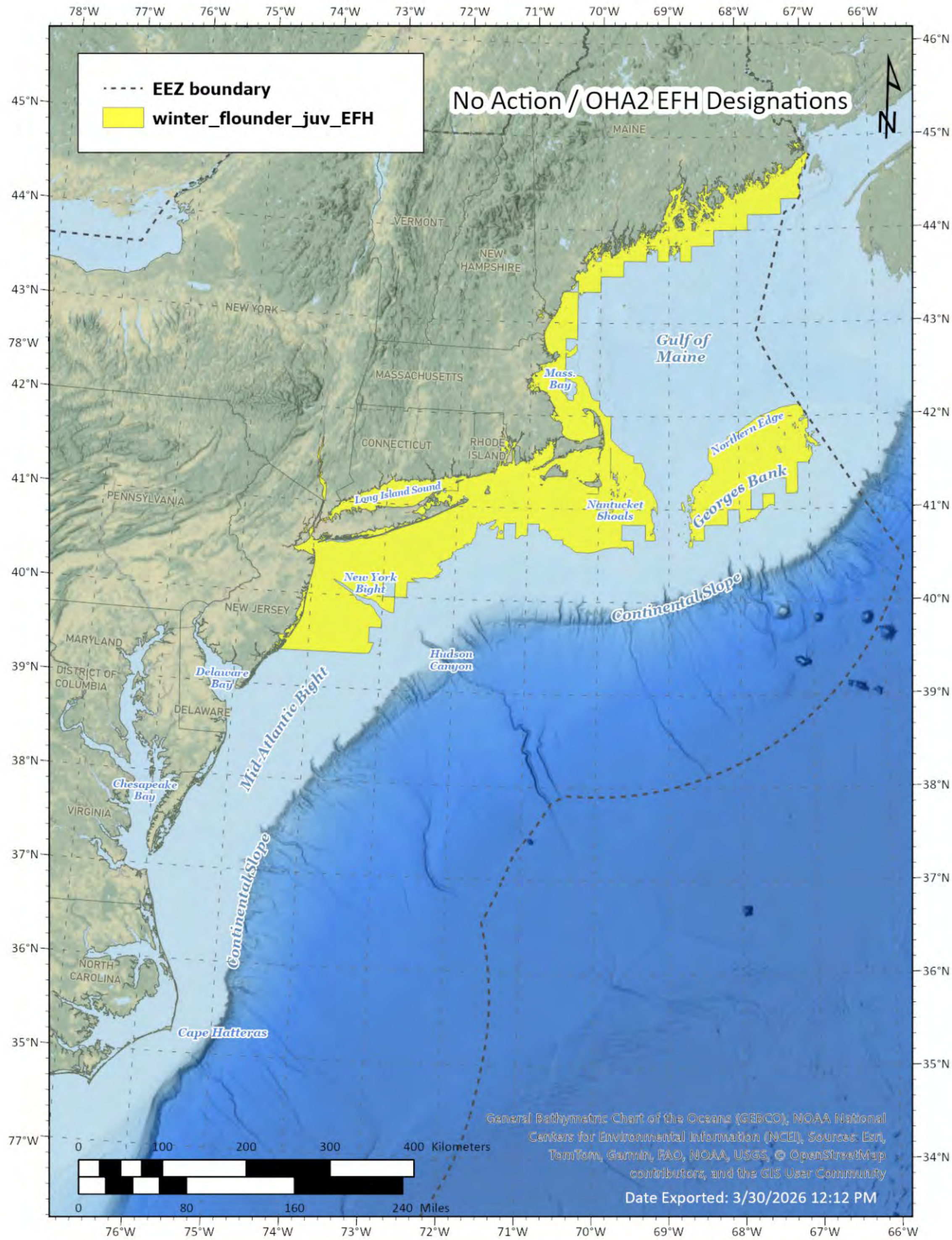
**Map 71. No Action winter flounder egg EFH, from Omnibus Habitat Amendment 2.**



**Map 72. No Action winter flounder larval and adult EFH, from Omnibus Habitat Amendment 2.**



**Map 73. No Action winter flounder juvenile EFH, from Omnibus Habitat Amendment 2.**



## 8.15 WITCH FLOUNDER

The no action EFH maps for egg and larval witch flounder are based on 100% of the ten-minute squares where witch flounder eggs and larvae were collected in the 1977-1987 MARMAP surveys. There is no ELMR information for any of the four life stages of witch flounder.

The no action EFH maps for juvenile and adult witch flounder are based on the distribution of depths and bottom temperatures that were associated with high catch rates of juveniles or adults, respectively, in the 1963-2003 spring and fall NMFS trawl surveys. The maps are also based on average catch rates for each life stage in ten minute squares of latitude and longitude in the 1968-2005 spring and fall NMFS trawl surveys at the 90th percentile of catch level, and they include inshore areas where juvenile or adult witch flounder were caught in 10% or more of tows made in individual ten minute squares during state trawl surveys, and a depth and geographic range on the continental slope where they were determined to be present (see Appendix A of OHA2). The designations define minimum depths of 80 and 100 meters for juveniles and adults, respectively, on the shelf (but not in the Gulf of Maine) and include the continental slope down to 1500 meters.

***Text descriptions:***

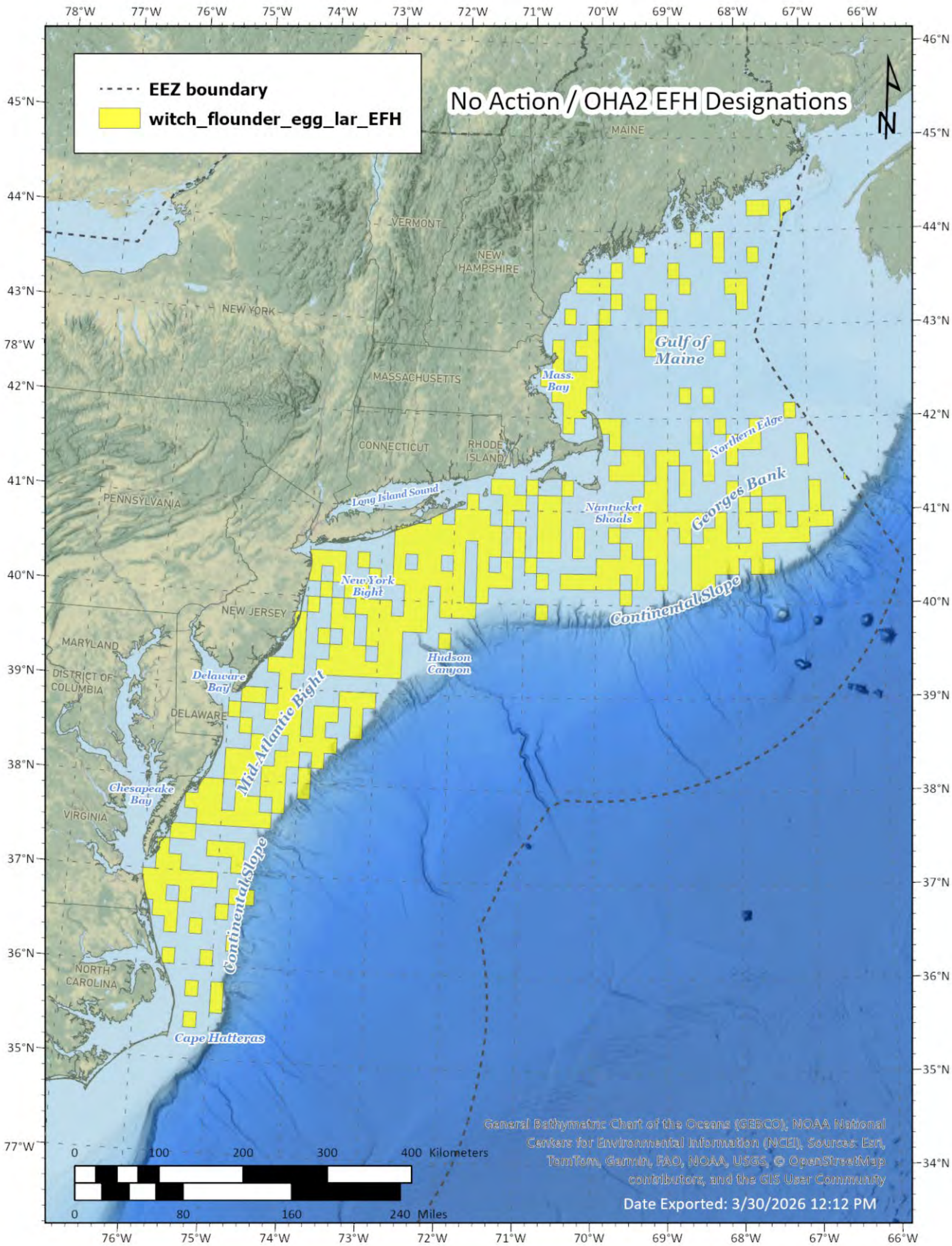
For witch flounder, *Glyptocephalus cynoglossus*, essential fish habitat is designated anywhere within the geographic areas that are shown on the following maps and meets the conditions described below.

**Eggs and larvae:** Pelagic habitats on the continental shelf throughout the Northeast region.

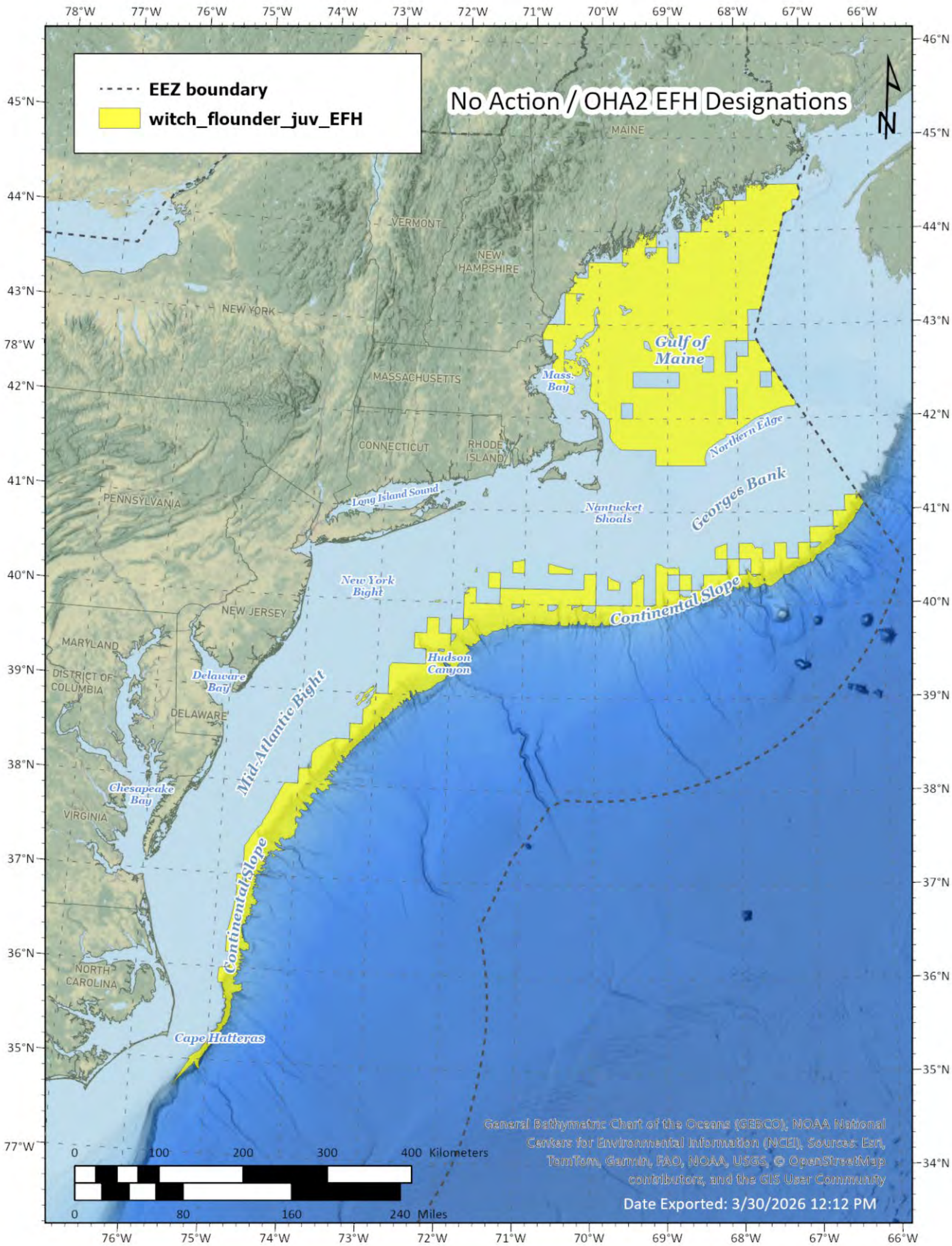
**Juveniles**: Sub-tidal benthic habitats between 50 and 400 meters in the Gulf of Maine and as deep as 1500 meters on the outer continental shelf and slope, with mud and muddy sand substrates.

**Adults**: Sub-tidal benthic habitats between 35 and 400 meters in the Gulf of Maine and as deep as 1500 meters on the outer continental shelf and slope, with mud and muddy sand substrates.

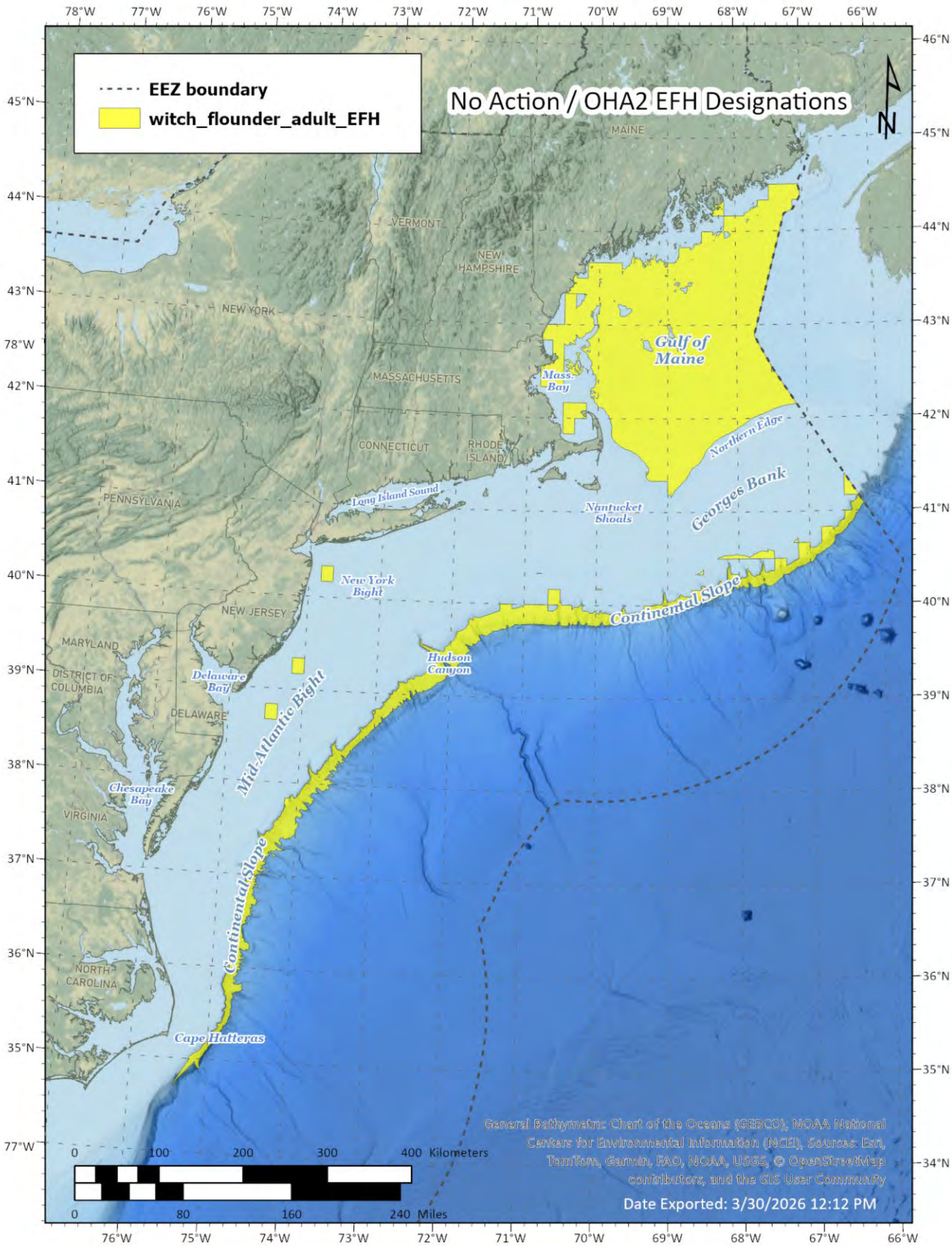
**Map 74. No Action witch flounder egg and larval EFH, from Omnibus Habitat Amendment 2.**



**Map 75. No Action witch flounder juvenile EFH, from Omnibus Habitat Amendment 2.**



**Map 76. No Action witch flounder adult EFH, from Omnibus Habitat Amendment 2.**



## 8.16 Yellowtail flounder

The no action EFH maps for egg and larval yellowtail flounder are based on 100% of the ten-minute squares where witch flounder eggs and larvae were collected in the 1977-1987 MARMAP surveys. The maps also include those bays and estuaries identified in the ELMR program as supporting yellowtail flounder eggs or larvae at the "rare", "common", or "abundant" level.

The no action EFH maps for juvenile and adult are based on the distribution of depths and bottom temperatures that were associated with high catch rates of juveniles or adults, respectively, in the 1963-2003 spring and fall NMFS trawl surveys. They are also based on average catch per tow data in ten minute squares of latitude and longitude for juveniles and adults in the 1968-2005 spring and fall NMFS trawl surveys at the 90th percentile of catch level and include inshore areas where juvenile or adult yellowtail flounder were caught in 10% or more of tows made in individual ten minute squares during state trawl surveys, and ELMR information. EFH extends to 80 m (juveniles) or 90 m (adults).

***Text descriptions:***

For yellowtail flounder, *Limanda ferruginea*, essential fish habitat is designated anywhere within the geographic areas that are shown on the following maps and meets the conditions described below.

**Eggs:** Coastal and continental shelf pelagic habitats in the Gulf of Maine, on Georges Bank, and in the Mid-Atlantic region as far south as the upper Delmarva peninsula, including the high salinity zones of the bays and estuaries listed in the table below.Table 21

**Larvae:** Coastal marine and continental shelf pelagic habitats in the Gulf of Maine, and from Georges Bank to Cape Hatteras, including the high salinity zones of the bays and estuaries listed in the table below.

**Juveniles**: Sub-tidal benthic habitats in coastal waters in the Gulf of Maine and on the continental shelf on Georges Bank and in the Mid-Atlantic, including the high salinity zones of the bays and estuaries listed in the table below.  Essential fish habitat for juvenile yellowtail flounder occurs on sand and muddy sand between 20 and 80 meters. In the Mid-Atlantic, young-of-the-year juveniles settle to the bottom on the continental shelf, primarily at depths of 40-70 meters, on sandy substrates.

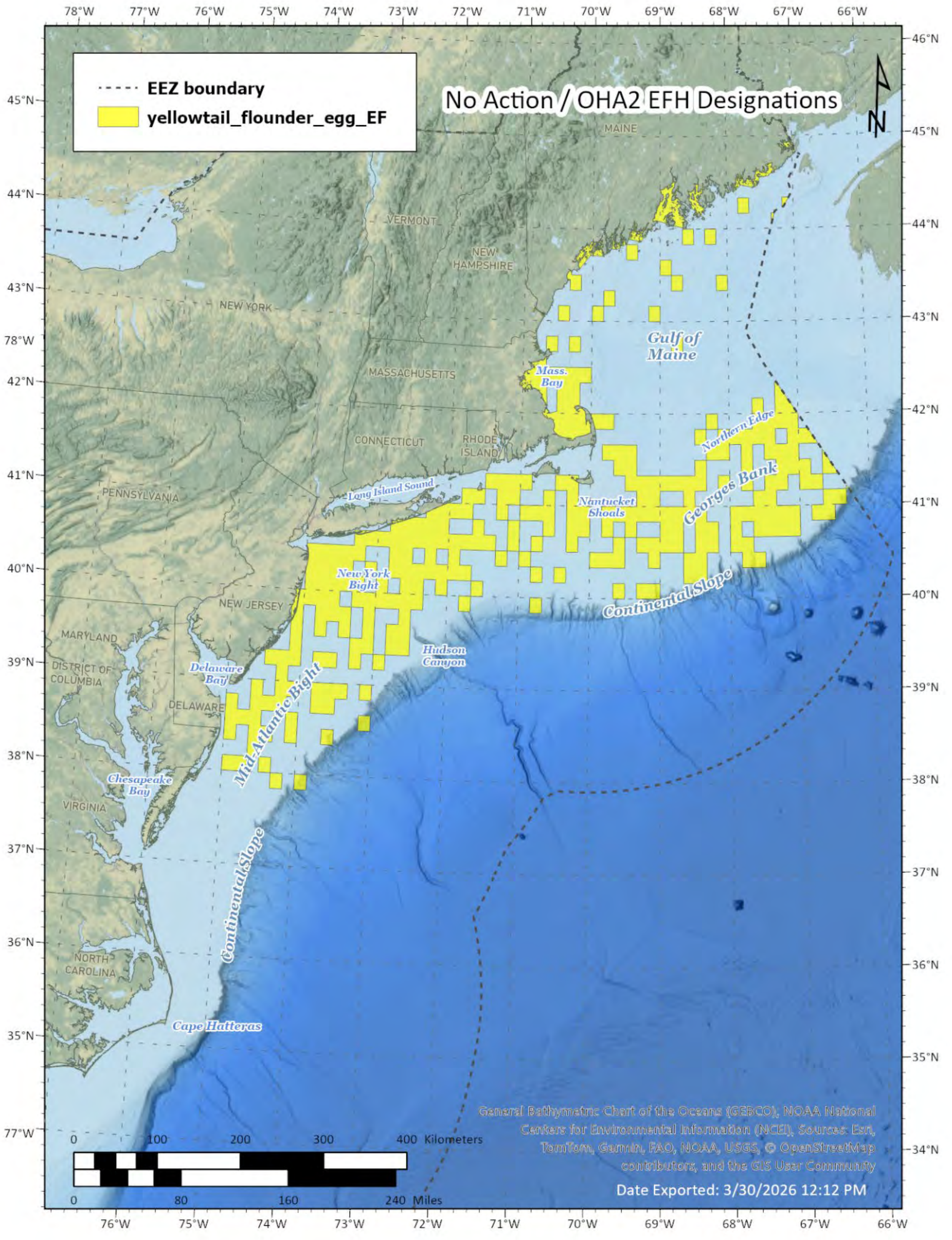
**Adults**: Sub-tidal benthic habitats in coastal waters in the Gulf of Maine and on the continental shelf on Georges Bank and in the Mid-Atlantic, including the high salinity zones of the bays and estuaries listed in the table below. Essential fish habitat for adult yellowtail flounder occurs on sand and sand with mud, shell hash, gravel, and rocks at depths between 25 and 90 meters.

**Table 22. No action yellowtail flounder EFH designation for estuaries and embayments.**

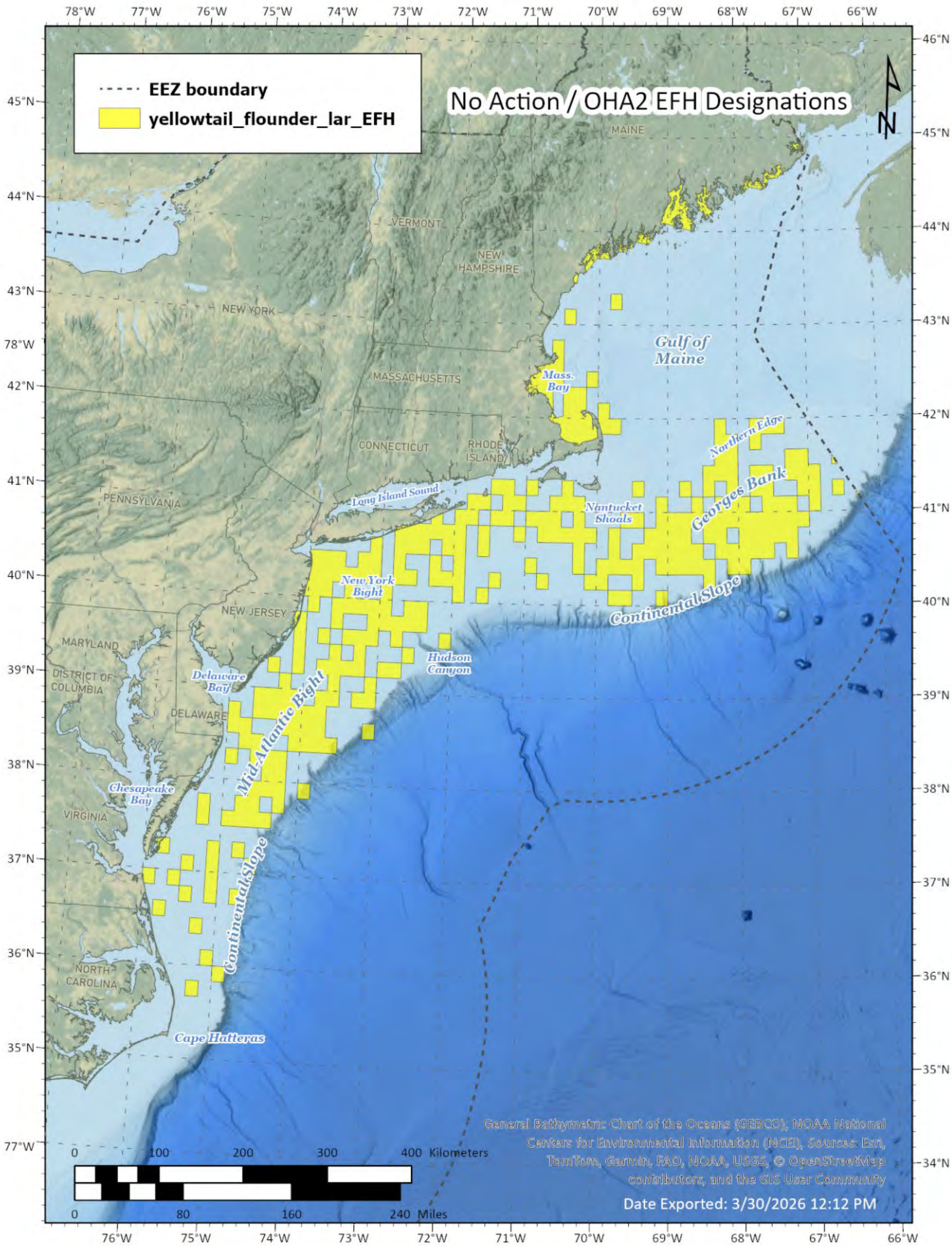
| Estuaries and Embayments | Eggs | Larvae | Juveniles | Adults |
|---|---|---|---|---|
| Passamaquoddy Bay | S | S | | |
| Englishman/Machias Bay | S | S | | |
| Narraguagus Bay | S | S | | |
| Blue Hill Bay | S | S | | |
| Penobscot Bay | S | S | | |
| Muscongus Bay | S | S | | |
| Damariscotta River | S | S | | |
| Sheepscot River | S | S | S | S |
| Kennebec / Androscoggin | S | S | | |
| Casco Bay | S | S | S | S |
| Saco Bay | S | S | | |
| Wells Harbor | | S | | |
| Great Bay | S | S | | |
| Hampton Harbor* | S | S | | |
| Plum Island Sound* | S | S | | |
| Massachusetts Bay | S | S | S | S |
| Boston Harbor | S | S | S | S |
| Cape Cod Bay | S | S | S | S |

*S ≡ The EFH designation for this species includes the seawater salinity zone of this bay or estuary (salinity > 25.0‰).*
*M ≡ The EFH designation for this species includes the mixing water / brackish salinity zone of this bay or estuary (0.5 < salinity < 25.0‰).*
** = This water body was not included in the original ELMR reports, but it was included in the salinity zone maps that were appended to all the relevant fishery management plans and amendments which implemented the no action EFH designations; EFH designations were inferred in these locations if there were ELMR-based designations in the adjacent north and south locations.*

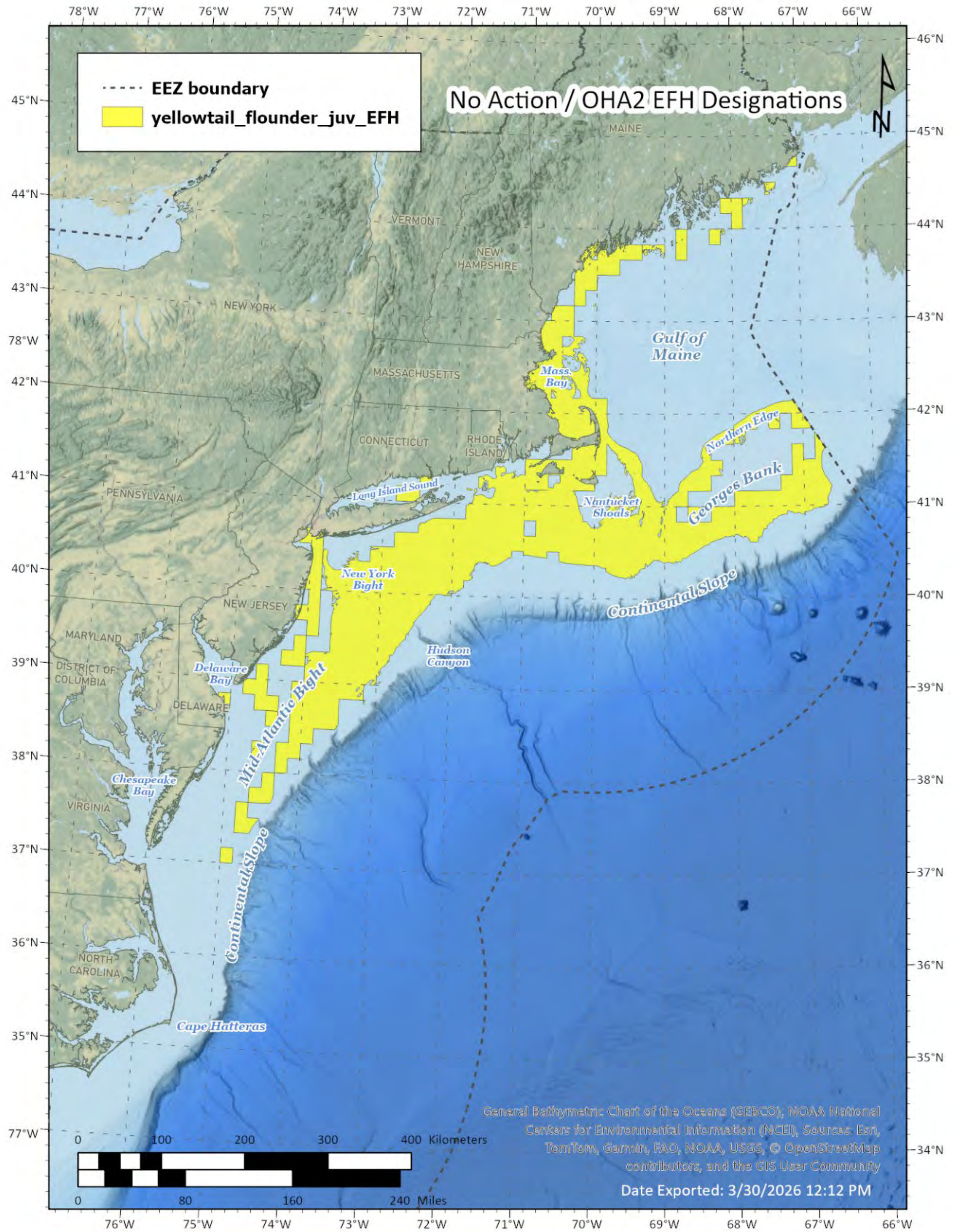
**Map 77. No Action yellowtail flounder egg EFH, from Omnibus Habitat Amendment 2.**



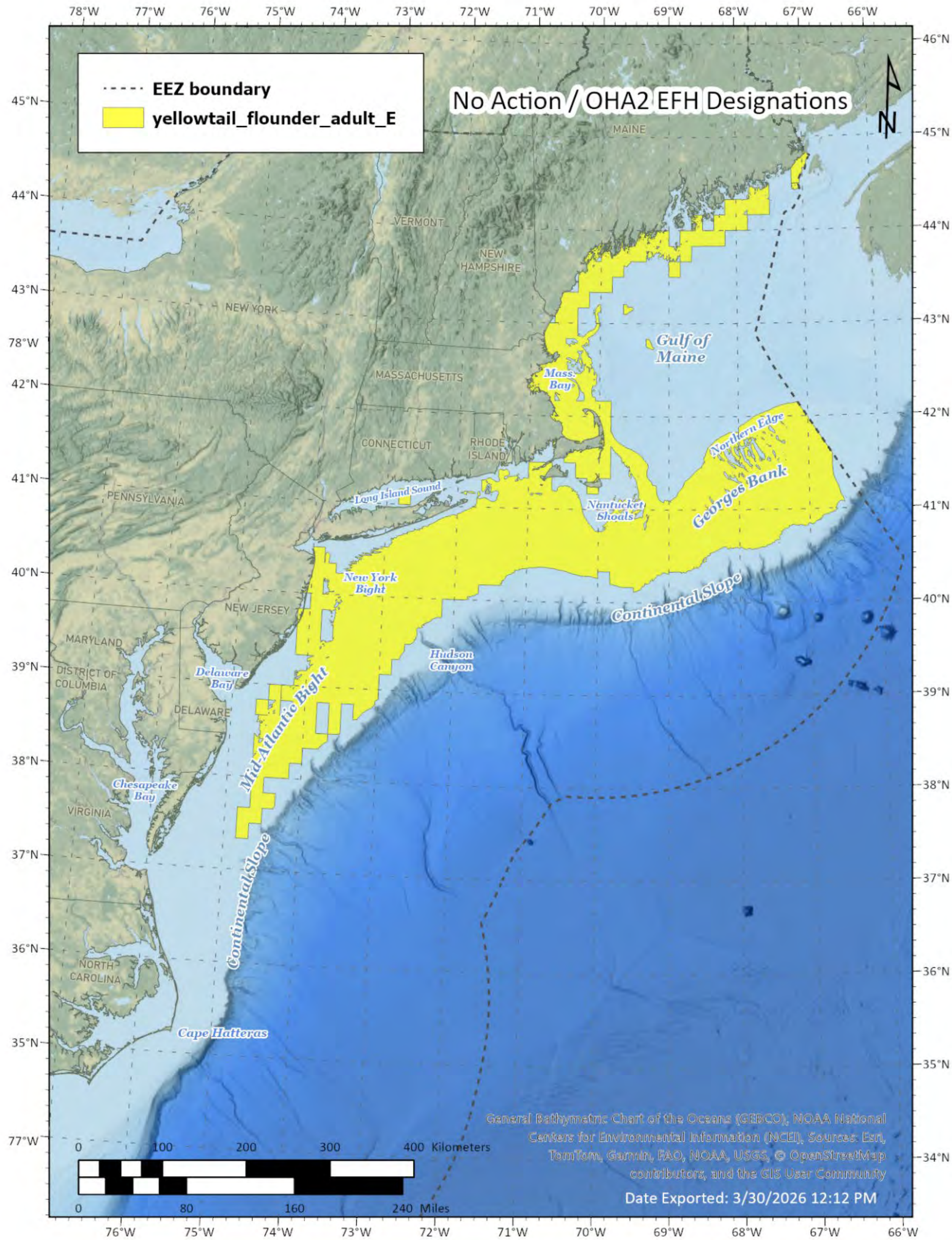
**Map 78. No Action yellowtail flounder larval EFH, from Omnibus Habitat Amendment 2.**



**Map 79. No Action yellowtail flounder juvenile EFH, from Omnibus Habitat Amendment 2.**



**Map 80. No Action yellowtail flounder adult EFH, from Omnibus Habitat Amendment 2.**



# 9.0 APPENDIX B: ENVIRONMENTAL RANGES

**Table 23. Depth, temperature, and salinity ranges associated with unique species occurrences in offshore and inshore trawl survey data. The "Full" column depicts environmental ranges estimated from the full range of survey data with outliers removed (i.e., the interior 99% quantile); the 95% and 75% columns represent the respective quantile of survey data. Values in bold are referenced in the text descriptions (full and 75% range for depth; 95% range for temperature and salinity). No Action depths are shown for comparison. Intertidal habitat use is denoted as 0 m depth.**

| Species | Life stage | Depth (m) | | | | Temperature (°C) | | | Salinity (ppt) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | *No Action* | Full[1] | 95% | 75% | Full[1] | 95% | 75% | Full[1] | 95% | 75% |
| Acadian redfish | Juvenile | *50-200; to 600 m on slope north of 37°38'N* | **30-334** | 46-274 | **74-209** | 2-13 | **3-12** | 4-10 | 30-36 | **31-36** | 32-35 |
| | Adult | *140-300; to 600 m on slope north of 37°38'N* | **48-355** | 67-320 | **106-230** | 2-13 | **3-11** | 5-10 | 31-36 | **32-36** | 32-35 |
| American plaice | Juvenile | *40-180* | **23-273** | 31-224 | **48-179** | 2-14 | **3-12** | 4-10 | 28-36 | **31-35** | 31-34 |
| | Adult | *40-300* | **26-313** | 36-248 | **53-200** | 2-13 | **3-12** | 4-10 | 29-36 | **31-35** | 32-35 |
| Atlantic halibut[2] | Juvenile | *60-140; 400-700 m on southern GB slope; juvenile nursery grounds 20-60 m* | **13-214** | 21-173 | **42-125** | 2-14 | **3-13** | 4-11 | 30-35 | **31-35** | 31-34 |
| | Adult | | **30-255** | 46-199 | **70-175** | 2-13 | **3-12** | 4-10 | 28-35 | **31-35** | 31-34 |
| Atlantic sea scallop[2] | Juvenile | *18-110; older juveniles similar to adults* | | | | | | | | | |

| Species | Life stage | Depth (m) | | | | Temperature (°C) | | | Salinity (ppt) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | *No Action* | Full[1] | 95% | 75% | Full[1] | 95% | 75% | Full[1] | 95% | 75% |
| | Adult | *18-110; shallower and to 180 m in GOM; 45-75 m in Mid-Atlantic; 60-90 m on GB* | | | | | | | | | |
| Atlantic wolffish[2] | Juvenile | *70-184* | **37-230** | 45-205 | **73-172** | 1-13 | **3-11** | 4-9 | 31-35 | **32-35** | 32-34 |
| | Adult | *≤ 173* | **24-205** | 32-190 | **52-153** | 1-12 | **2-11** | 3-9 | 31-35 | **31-35** | 32-34 |
| Haddock | Juvenile | *40-140; to 20 m along MA, NH, ME coast* | **14-271** | 23-218 | **44-159** | 3-18 | **3-15** | 5-12 | 26-36 | **31-36** | 32-35 |
| | Adult | *50-160 (GOM, GB, SNE)* | **32-338** | 42-269 | **62-205** | 2-15 | **3-13** | 4-10 | 31-36 | **32-36** | 32-35 |
| Ocean pout | Juvenile | *0-120* | **9-243** | 17-197 | **30-144** | 2-16 | **3-14** | 4-11 | 25-36 | **30-36** | 32-35 |
| | Adult | *20-140* | **8-239** | 13-183 | **23-115** | 2-15 | **3-13** | 4-10 | 25-36 | **29-36** | 31-34 |
| Offshore hake[2] | Juvenile | *160-750 m on outer shelf / slope* | **81-430** | 128-362 | **193-323** | 3-16 | **5-15** | 8-13 | 34-36 | **35-36** | 35-36 |
| | Adult | *200-750 m on outer shelf / slope* | **63-496** | 103-373 | **168-327** | 4-15 | **5-14** | 7-13 | 32-36 | **34-36** | 35-36 |

| Species | Life stage | Depth (m) | | | | Temperature (°C) | | | Salinity (ppt) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | *No Action* | Full[1] | 95% | 75% | Full[1] | 95% | 75% | Full[1] | 95% | 75% |
| Pollock | Juvenile | *0-180 (GOM, LIS, NB); 40-180 (GB, GSC)* | **6-253** | 8-216 | **17-166** | 2-18 | **3-15** | 4-12 | 26-36 | **29-35** | 31-35 |
| | Adult | *80-300 in GOM and southern GB; shallower in estuaries and embayments* | **26-319** | 42-272 | **72-221** | 3-13 | **4-11** | 5-10 | 32-36 | **32-36** | 32-35 |
| Red hake | Juvenile | *0-80* | **6-296** | 8-231 | **15-162** | 2-22 | **3-19** | 4-14 | 14-36 | **22-36** | 30-34 |
| | Adult | *50-750 on outer shelf / slope; to 20 m in estuaries and embayments* | **8-329** | 14-269 | **33-199** | 3-21 | **4-17** | 5-13 | 23-36 | **28-36** | 31-35 |
| Silver hake | Juvenile | *40-400 in GOM; > 10 m in Mid-Atlantic* | **7-320** | 9-246 | **17-179** | 3-21 | **3-19** | 5-15 | 21-36 | **27-36** | 31-35 |
| | Adult | *> 35 m in GOM and coastal bays / estuaries; 70-400 m on GB and outer shelf in MAB* | **11-341** | 18-281 | **34-201** | 3-19 | **4-16** | 5-13 | 27-36 | **31-36** | 32-35 |
| White hake | Juvenile | *0-300* | **7-292** | 11-231 | **29-179** | 3-19 | **3-16** | 5-13 | 28-36 | **31-35** | 31-34 |

| Species | Life stage | Depth (m) | | | | Temperature (°C) | | | Salinity (ppt) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | *No Action* | Full[1] | 95% | 75% | Full[1] | 95% | 75% | Full[1] | 95% | 75% |
| | Adult | *100-400; to 25 m in bays and estuaries; to 900 m on slope* | **29-361** | 46-326 | **80-236** | 3-14 | **4-13** | 5-11 | 31-36 | **32-36** | 32-35 |
| Windowpane flounder | Juvenile | *0-60* | **3-116** | 5-95 | **8-55** | 2-28 | **3-25** | 5-21 | 12-36 | **17-34** | 24-33 |
| | Adult | *0-70* | **5-127** | 7-97 | **10-58** | 2-24 | **3-22** | 5-19 | 18-36 | **24-35** | 27-33 |
| Winter flounder | Juvenile | *0-60* | **5-140** | 7-111 | **11-75** | 1-24 | **3-22** | 4-18 | 17-36 | **24-34** | 27-33 |
| | Adult | *0-70* | **6-173** | 8-122 | **12-83** | 2-22 | **3-19** | 4-15 | 23-36 | **25-34** | 27-34 |
| Witch flounder | Juvenile | *50-400; to 1500 m on slope* | **34-376** | 61-325 | **84-217** | 3-14 | **3-13** | 4-11 | 28-36 | **31-36** | 32-35 |
| | Adult | *35-400; to 1500 m on slope* | **23-357** | 41-315 | **71-219** | 3-14 | **3-13** | 5-10 | 31-36 | **32-36** | 32-35 |
| Yellowtail flounder | Juvenile | *20-80* | **7-159** | 11-112 | **24-81** | 2-17 | **3-15** | 4-12 | 30-35 | **31-34** | 31-34 |
| | Adult | *25-90* | **8-183** | 13-134 | **27-93** | 2-17 | **3-15** | 4-12 | 29-36 | **31-35** | 32-34 |

*Notes:*
[1] "Full" range refers to the interior 99% quantile and is intended to trim extreme outliers.
[2] These species are either data-limited (scallops, dredge-trawl integrated SDMs) or data-poor (Atlantic wolffish, Atlantic halibut, offshore hake) in the trawl surveys; environmental ranges for these species are included in this table for completeness but only reflect trawl survey data; the revised text descriptions consulted additional information sources for these ranges.

**Table 24. Maximum extent of depth (m) usage on continental slope by New England Fishery Management Council-managed species in this action. Depth ranges from the No Action designations in Omnibus Habitat Amendment 2 are included for reference, which mainly draw on Moore et al. (2003a) and references therein, as denoted by italicized text. See main text for updated depth ranges designated as EFH.**

| Species | Life stage | No Action Designation | Maximum depth in literature |
|---|---|---|---|
| Acadian redfish | Juvenile | *50-200 m GOM; to 600 m on slope* | EFH Source Document (Pikanowski et al., 1999): To **592 m** (Kelly and Barker 1961) |
| | Adult | *140-300 m GOM; to 600 m on slope* | 100-1000 m, usually 100-500 m (Froese and Pauly, 2018; Pickens et al., 2020)<br><br>100-700 m in northwest Atlantic Ocean; less than 300 m in Canadian waters (Senay et al. 2021) |
| American plaice | Juvenile | *40-180 m* | *Does not occur on continental slope* |
| | Adult | *40-300 m* | |
| Atlantic halibut | Juvenile | *400-700 m on slope, southern edge GB* | 700 m (720-900 m depth limit; Bowering 1986 and Miller et al., 1991 *in* Cargnelli et al. 1999)<br><br>Spawning at depths 450-1050 m on the Grand Banks and south of Newfoundland (Armsworthy et al. 2014 *in* Shackell et al. 2022) |
| | Adult | | US Waters: to **800-1200 m GOM** (movement to Northeast Channel in Canadian waters; **Liu et al. 2019**; Shackell et al. 2022)<br><br>Canada: Migration- / residency-dependent (range from < 250 m to > 900 m; Ransier et al., 2024)<br><br>50-2000 m (Froese and Pauly, 2018; Pickens et al., 2020) |
| Atlantic sea scallop | Juvenile | *18-110 m* | *Does not occur on continental slope* |
| | Adult | *18-110 m generally; 45-75 m MAB; 60-90 m GB To 180 m GOM* | |
| Atlantic wolffish | Juvenile | *70-184 m* | *Does not occur on continental slope* |
| | Adult | *Subtidal-173 m* | |
| Haddock | Juvenile | *40-140 m; As shallow as 20 m, coastal MA, NH, ME* | *Does not occur on continental slope* |
| | Adult | *50-160 m* | |

| Species | Life stage | No Action Designation | Maximum depth in literature |
|---|---|---|---|
| Ocean pout | Juvenile | *Intertidal (0 m)-120 m* | *Does not occur on continental slope* |
| | Adult | *20-140 m* | |
| Offshore hake | Juvenile | *160-750 m* | 80-1170 m, usually 160-640 m (Cohen et al. 1990; Klein-MacPhee 2003 *in* Collette and Klein-MacPhee eds. 2003; Froese and Pauly, 2018; Pickens et al., 2020) |
| | Adult | *200-750 m* | 731 m (One specimen captured in Exuma Sound deep-sea slope community, Bahamas; Shipley et al., 2017) |
| Pollock | Juvenile | *Intertidal (0 m)-180 m GOM, LIS, Narragansett Bay; 40-180 m GB, GSC* | *Does not occur on continental slope* |
| | Adult | *80-300 m GOM, GB; shallower subtidal in LIS, MA Bay, CC Bay* | |
| Red hake | Juvenile | *Intertidal (0 m)-80 m* | Adults: **980 m** (Bigelow and Schroeder 1953, *in* Perez et al., 2027) |
| | Adult | *50-750 m* | |
| Silver hake | Juvenile | *> 10 m MAB; 40-400 m GOM* | *Does not occur on continental slope* |
| | Adult | *> 35 m GOM; 70-400 m GB, outer shelf in northern MAB* | Spring 11-**500 m,** fall 21-400 m (EFH Source Document 2nd Edition, Lock and Packer 2004)<br><br>Table 6 Lock and Packer 2004:<br>> 700 m (Bigelow and Schroeder 1953)<br>30-410 m (Fritz 1965) |
| White hake | Juvenile | *Intertidal (0 m)-300 m* | *Does not occur on continental slope* |
| | Adult | *> 25 m bays, estuaries; 100-400 m outer GOM; 400-900 m outer shelf, slope* | 0-1000 m (Moore et al., 2003 *in* OHA2 Appendix A)<br><br>10-1000 m (Scott and Scott, 1988)<br><br>100-1000 m, usually 100-247 m (Cohen et al., 1990; Froese and Pauly, 2018; Pickens et al., 2020) |
| Windowpane flounder | Juvenile | *Intertidal (0 m)-60 m* | *Does not occur on continental slope* |
| | Adult | *Intertidal (0 m)-70 m* | |
| | Juvenile | *Intertidal (0 m)-60 m* | *Does not occur on continental slope* |

| Species | Life stage | No Action Designation | Maximum depth in literature |
| --- | --- | --- | --- |
| Winter flounder | Adult | *Intertidal (0 m)-70 m* | |
| Witch flounder | Juvenile | *50-400 m;<br>to 1500 m on slope* | "max 635 m" (Balcom 1997 *in* OHA2 Appendix A)<br><br>20-1565 m (Bigelow and Schroeder, 1953; Markle 1975; Lange and Lux, 1978 *in* Cargnelli et al., 1999) |
| | Adult | *35-400 m;<br>to 1500 m on slope* | 18-1570 m, usually 45-366 m (Moore et al. 2003 *in* OHA2 Appendix A; Froese and Pauly, 2018; Pickens et al., 2020) |
| Yellowtail flounder | Juvenile | *20-80 m;<br>40-70 m YOY in MAB* | *Does not occur on continental slope* |
| | Adult | *25-90 m* | |

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# 10.0 APPENDIX C: EFH CONSULTATION PROCESS

The Magnuson-Stevens Fishery Conservation and Management Act (MSA) requires federal agencies to consult with NOAA Fisheries on all actions or proposed actions authorized, funded, or undertaken by the agency that may adversely affect EFH. Adverse effect is defined in 50 CFR 600.910 as any impact that reduces quality and/or quantity of EFH. Adverse effects 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 site-specific or habitat-wide impacts, including individual, cumulative, or synergistic consequences of actions. Activities that may adversely affect EFH include fishing operations and also non-fishing activities such as construction and operation of power plants, dredging and dredged material placement, coastal development port expansion, pollutant discharge, and offshore energy development. Through the consultation process, NOAA Fisheries identifies measures to avoid, minimize, mitigate, or otherwise offset any adverse impacts to EFH. EFH consultation is not required for state actions that would adversely affect EFH, however, NOAA Fisheries is still required to provide conservation recommendations to mitigate any adverse effects. Private landowners and federal actions that will not adversely affect EFH are not required to consult with NOAA Fisheries.

More specifically, actions that require consultations with NOAA Fisheries include:

- Proposed activities that are either fully or partially authorized, funded, or undertaken by a federal agency, including the military. If a project requires a federal permit or receives federal funds, the federal agency issuing the permit or providing the funding must consult with NOAA Fisheries if the activity adversely affects EFH.
- Proposed actions that will directly or indirectly adversely affect EFH either physically, chemically, or biologically. This includes adverse changes to waters or substrate, species and their habitat, other ecosystem components including prey species, and/or quality / quantity of EFH.

The consultation process entails the following steps for actions that will adversely affect EFH:

1. The action / implementing agency provides notification to NOAA Fisheries in writing (as early as possible); pre-consultation discussions occur.
2. The action agency submits an EFH assessment to NOAA Fisheries.
3. NOAA Fisheries reviews the EFH assessment for completeness.
4. If incomplete, NOAA Fisheries requests additional information.
5. Once deemed complete, NOAA provides the EFH conservation recommendations, if necessary, to the action agency within 30-60 days (60 days if the action is undergoing an expanded EFH consultation*).
6. The action agency responds to NOAA Fisheries in writing within 30 days for how the agency will proceed with the action (i.e., which, if any, conservation recommendations will be adopted, and a rationale for why certain recommendations are not being adopted)

EFH consultations can be combined where appropriate with interagency consultation, coordination, and environmental review procedures required by other statutes, such as NEPA, the Fish and Wildlife Coordination Act, Clean Water Act, Endangered Species Act, and Federal Power Act.

*Actions undergo an expanded EFH consultation process when NMFS determines that the action may result in substantial adverse effects on EFH. Expanded consultation allows maximum opportunity for NOAA Fisheries and the federal agency to work together to review the action's impacts on EFH and develop Conservation Recommendations. NOAA Fisheries must respond within 60 days of submittal of a complete EFH Assessment unless consultation is extended by agreement between NOAA Fisheries and the federal agency (67 FR 2376).

For more information: https://www.fisheries.noaa.gov/new-england-mid-atlantic/habitat-conservation/essential-fish-habitat-consultations-greater-atlantic-region

# 11.0 APPENDIX D: SPECIES DISTRIBUTION MODEL OUTPUTS

Provided as a separate document.

# 12.0 APPENDIX E: DETAILED EFH DESIGNATION METHODS

Provided as a separate document.