SPINY DOGFISH
SQUALUS ACANTHIAS

MID-ATLANTIC FISHERY MANAGEMENT COUNCIL (MAFMC) - ESSENTIAL FISH HABITAT (EFH) PROFILE

1. Management Unit

The management unit is the entire spiny dogfish (*Squalus acanthias*) population along the Atlantic coast of the US.

2. Stock Status

The stock is not overfished and overfishing is not occurring based on the most recent stock assessment (2018). For current stock status: https://www.fisheries.noaa.gov/national/status-stocks-reports

3. Current Text Designations

Source: MAFMC. 2014. Amendment 3 to the Spiny Dogfish Fishery Management Plan. Dover, DE. Available at: www.mafmc.org

Juveniles (male and female, <36 cm): Pelagic and epibenthic habitats, primarily in deep water on the outer continental shelf and slope between Cape Hatteras and Georges Bank and in the Gulf of Maine, as depicted in Figure 5 [section 4]. Young are born mostly on the offshore wintering grounds from November to January, but newborns (neonates or "pups") are sometimes taken in the Gulf of Maine or southern New England in early summer.

Female Sub-Adults (36-79 cm): Pelagic and epibenthic habitats throughout the region, as depicted in Figure 6 [section 4]. Sub-adult females are found over a wide depth range in full salinity seawater (32-35 ppt) where bottom temperatures range from 7 to 15°C. Sub-adult females are widely distributed throughout the region in the winter and spring when water temperatures are lower, but very few remain in the Mid-Atlantic area in the summer and fall after water temperatures rise above 15°C.

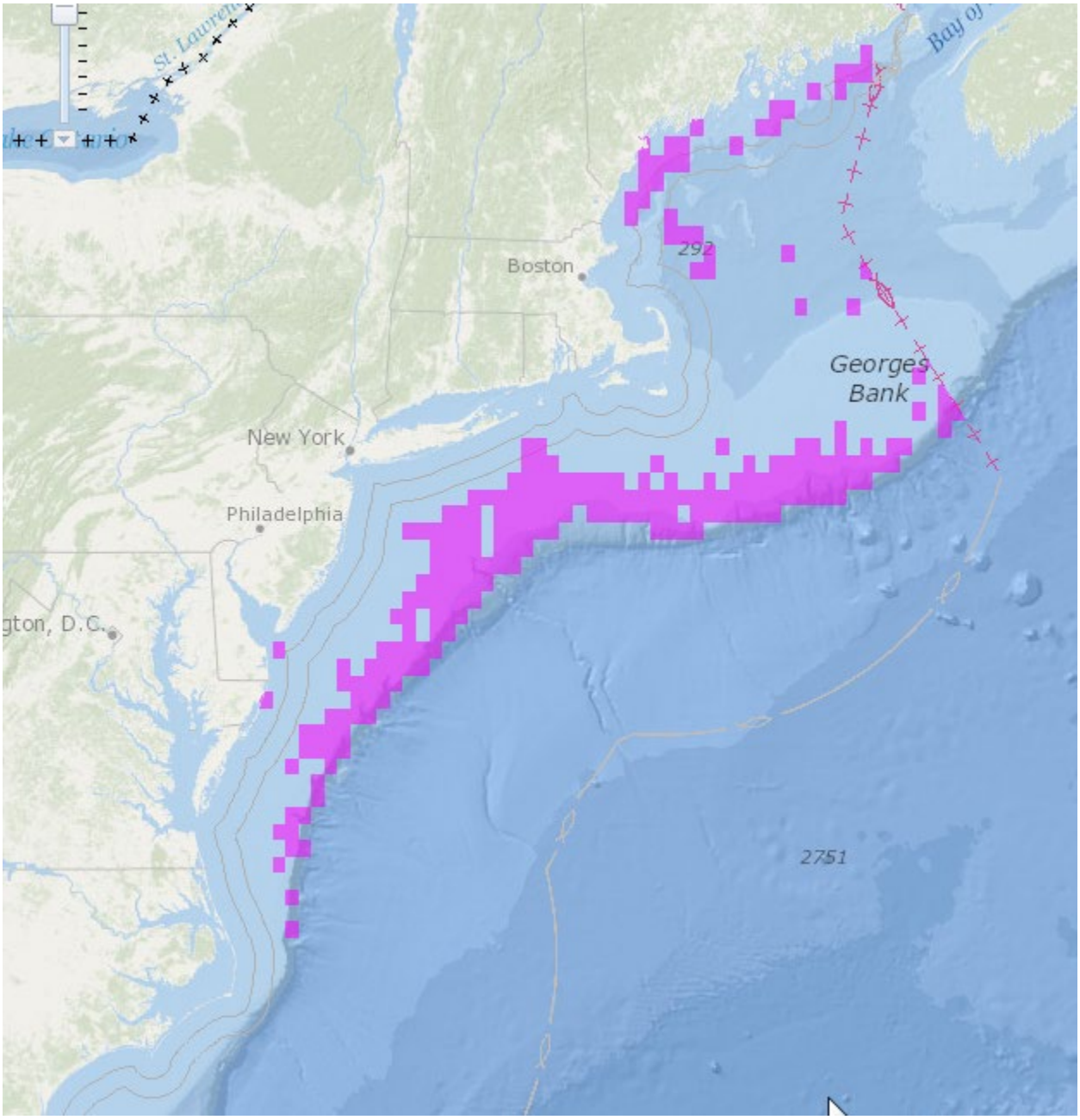
Male Sub-Adults (36-59 cm): Pelagic and epibenthic habitats, primarily in the Gulf of Maine and on the outer continental shelf from Georges Bank to Cape Hatteras, as depicted in Figure 7 [section 4]. Sub-adult males are found over a wide depth range in full salinity seawater (32-35 ppt) where bottom temperatures range from 7 to 15°C. Sub-adult males are not as widely distributed over the continental shelf as the females and are generally found in deeper water. They are widely distributed throughout the region in the winter and spring when water temperatures are lower, but very few remain in the Mid-Atlantic area in the summer and fall after water temperatures rise above 15°C.

Female Adults: Pelagic and epibenthic habitats throughout the region, as depicted in Figure 8 [section 4]. Adult females are found over a wide depth range in full salinity seawater (32-35 ppt) where bottom temperatures range from 7 to 15°C. They are widely distributed throughout the region in the winter and spring when water temperatures are lower, but very few remain in the Mid-Atlantic area in the summer and fall after water temperatures rise above 15°C.

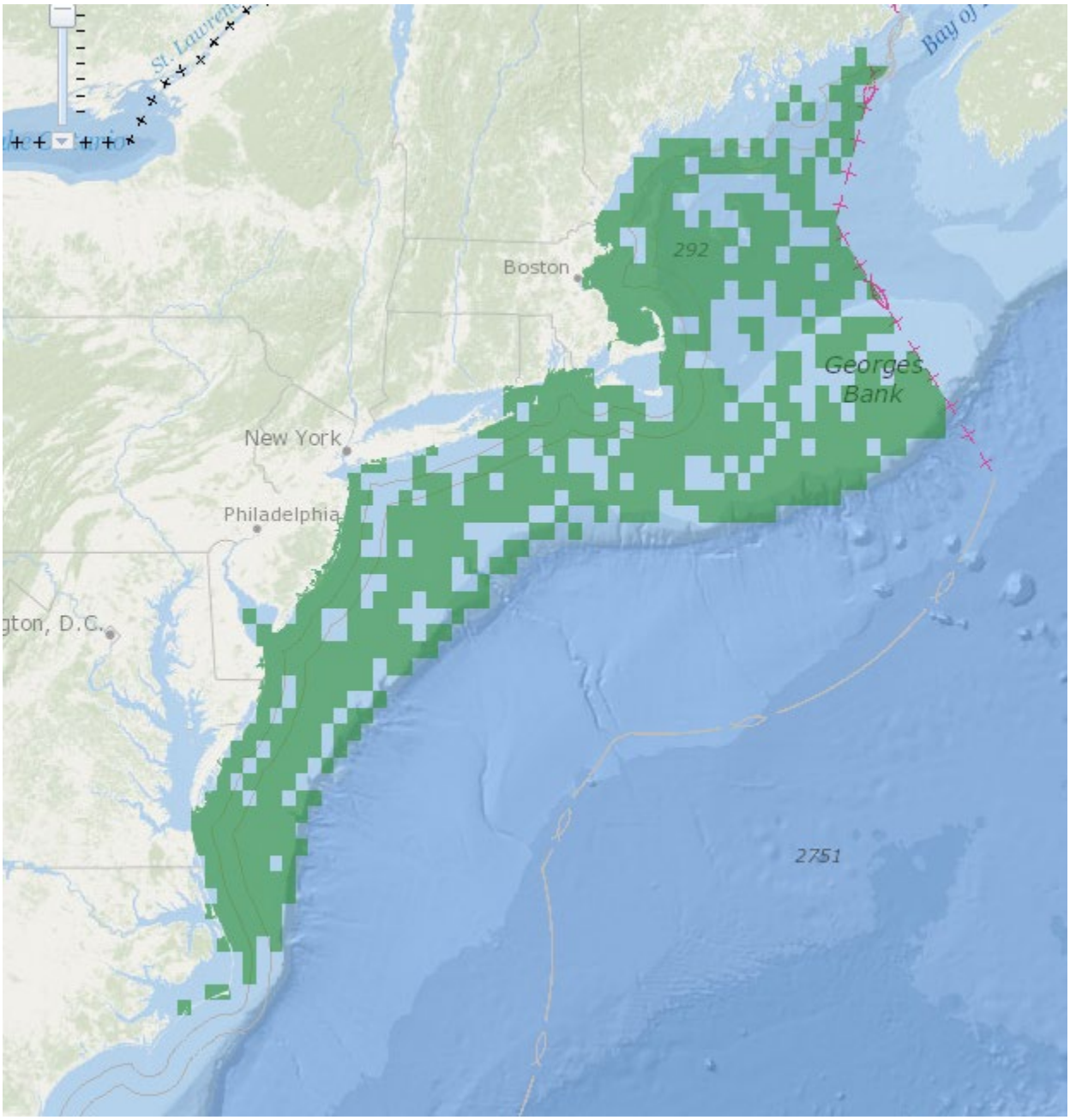
Male Adults: Pelagic and epibenthic habitats throughout the region, as depicted in Figure 9 [section 4]. Adult males are found over a wide depth range in full salinity seawater (32-35 ppt) where bottom temperatures range from 7 to 15°C. They are widely distributed throughout the region in the winter and spring when water temperatures are lower, but very few remain in the Mid-Atlantic area in the summer and fall after water temperatures rise above 15°C.

4. Current Map Designations

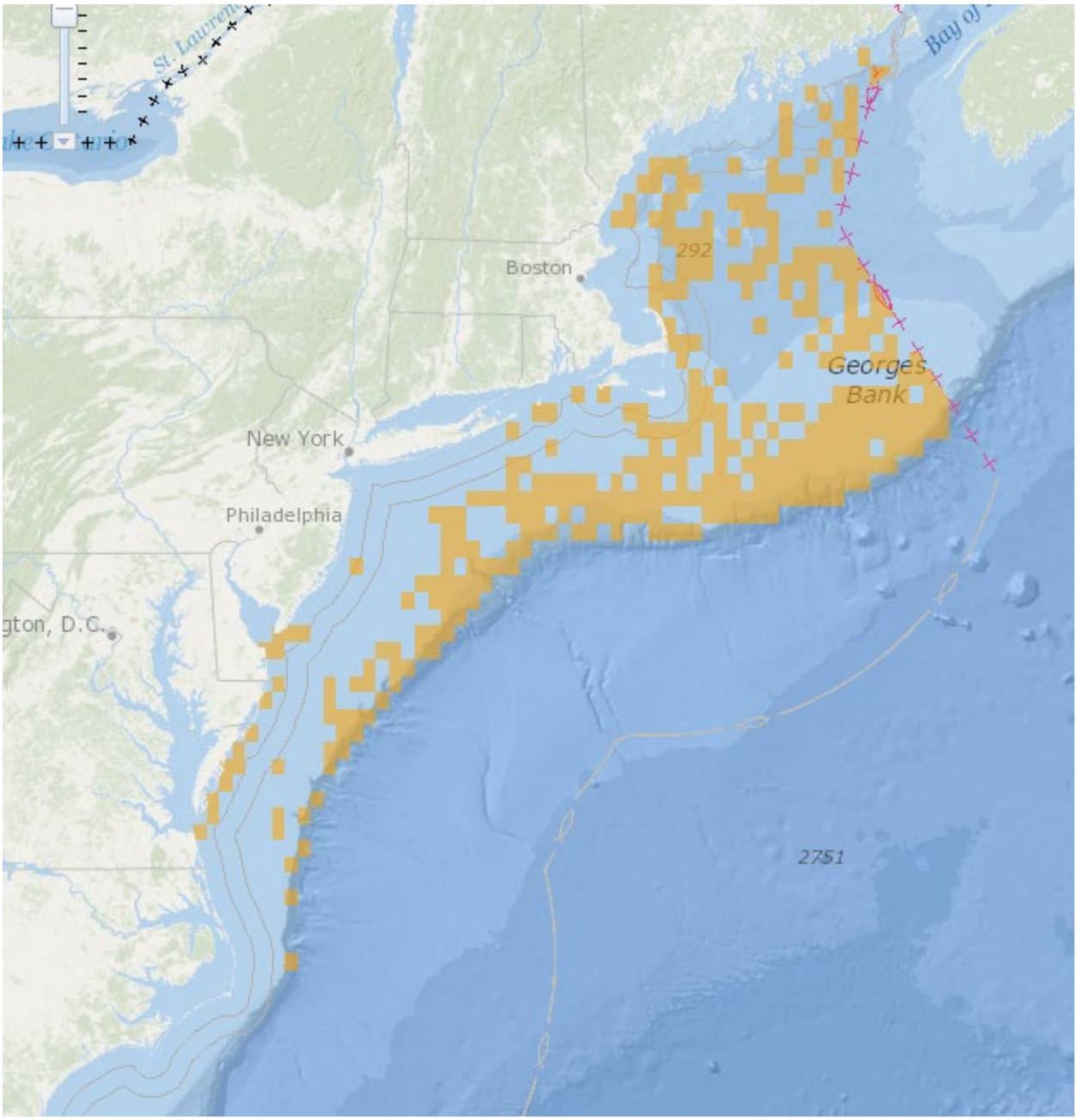
Juveniles (male and female, <36 cm): Areas that represent the 90th percentile of the average catches by ten-minute square (TMSQ) in the Northeast Fisheries Science Center (NEFSC) trawl survey and those TMSQ squares where spiny dogfish occurred in >10% of the tows for state and other nearshore surveys.



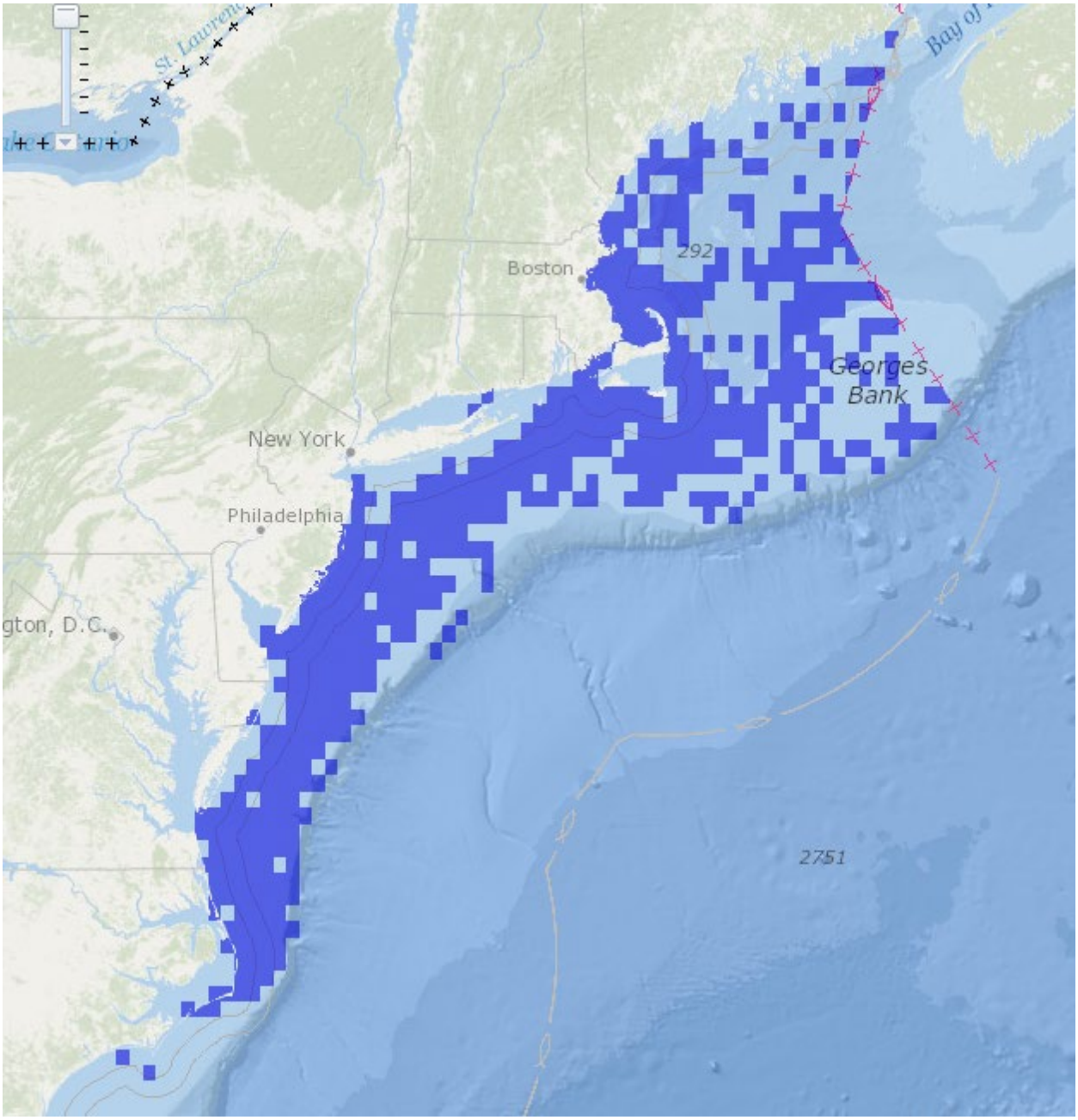
Female Sub-Adults (36-79 cm): Areas that represent the 90th percentile of the average catches by TMSQ in the NEFSC trawl survey and those TMSQ where spiny dogfish in this size range occurred in >10% of the tows for state and other nearshore surveys. NEFSC TMSQ and inshore TMSQ in Maine, New Hampshire, and Massachusetts are further defined by sex.



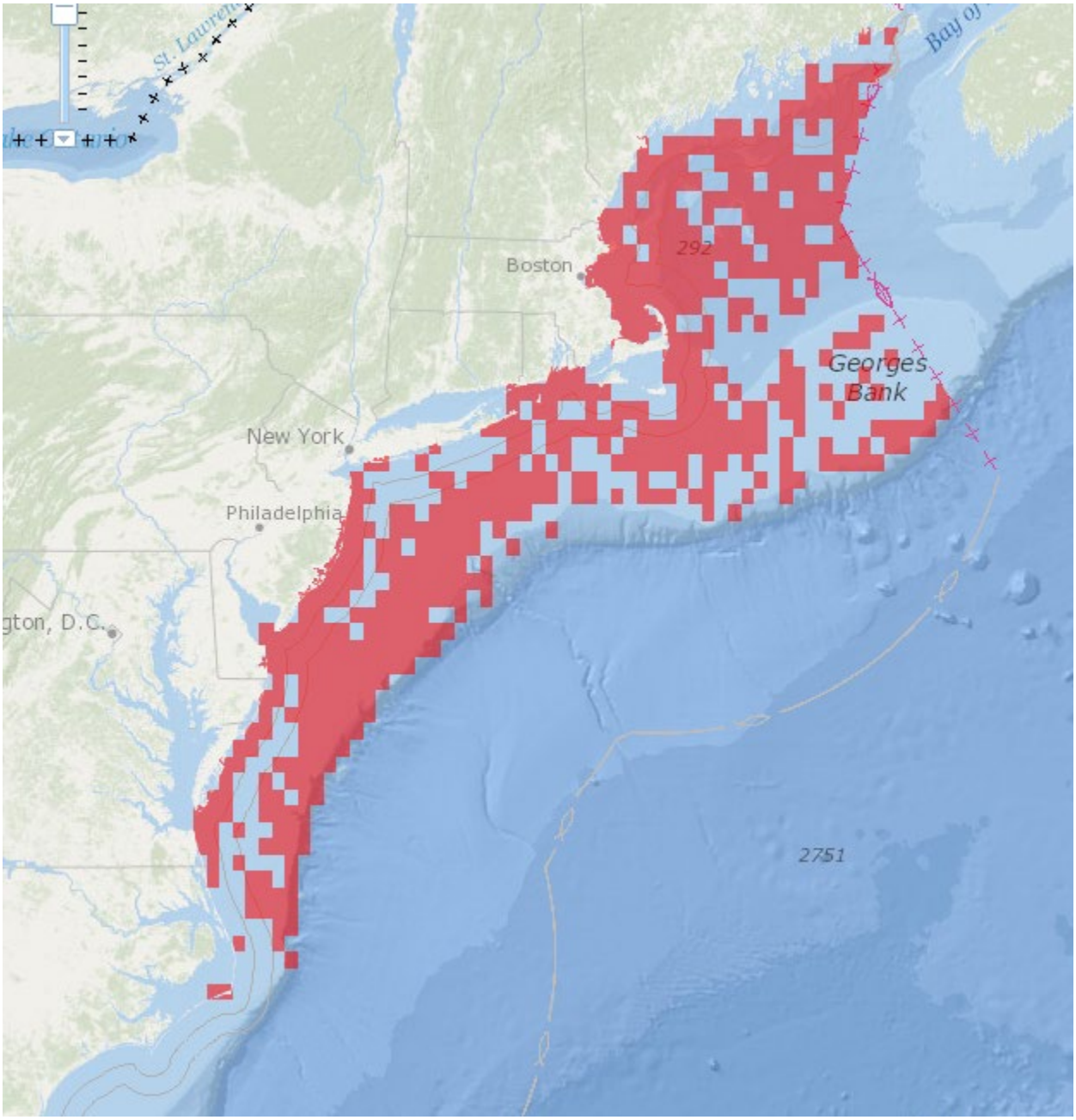
Male Sub-Adults (36-59 cm): Areas that represent the 90th percentile of the average catches by TMSQ in the NEFSC trawl survey and those TMSQ where spiny dogfish in this size range occurred in >10% of the tows for state and other nearshore surveys. NEFSC TMSQ and inshore TMSQ in Maine, New Hampshire, and Massachusetts are further defined by sex.



Female Adults: Areas that represent the 90th percentile of the average catches by TMSQ in the NEFSC trawl survey and those TMSQ where spiny dogfish in this size range occurred in >10% of the tows for state and other nearshore surveys. NEFSC TMSQ and inshore TMSQ in Maine, New Hampshire, and Massachusetts are further defined by sex.



Male Adults: Areas that represent the 90th percentile of the average catches by TMSQ in the NEFSC trawl survey and those TMSQ where spiny dogfish in this size range occurred in >10% of the tows for state and other nearshore surveys. NEFSC TMSQ and inshore TMS in Maine, New Hampshire, and Massachusetts are further defined by sex.



5. Designation and Mapping Methods

The Council has generally identified EFH using level 1 and/or level 2 data (see EFH regulations; section 7). The designations were comprised of a detailed text description and a series of maps by ten-minute square areas (TMSQ). The Mid-Atlantic EFH Technical Team, NEFSC scientists, and other experts developed alternatives for the Council to consider. Four alternatives were proposed and, for mapping purposes, the Council selected the alternative that used a distributional percentage (50%, 75%, 90%, or 100% of observations) of the catches by area based on which level of information was available and stock status. EFH maps were developed for each life stage and displayed the distribution and abundance data by TMSQ.

In the Spiny Dogfish FMP (1999), EFH was identified as the highest 90% of the TMSQ for all life stages in order to be inclusive and risk averse, since spiny dogfish were overfished at that time. Amendment 3 (2014) reviewed and updated EFH for all life stages. This EFH review used new scientific data from sampling programs including the NEFSC trawl survey, the coastal Northeast Area Monitoring and Assessment (NEAMAP) survey, and state surveys. Due to the different sex and size-specific life history stages of spiny dogfish, which occupy different habitats throughout the year, the revised designations applied to juveniles, sub-adults, and adults of both sexes, which results in five distinct life stages. The Council used 90% of the TMSQ for federal waters (geometric mean), and where dogfish occurred greater than 10% of the time in state waters.

6. EFH Source Documents

Information on spiny dogfish habitat requirements can be found in:

McMillan DG, Morse WW. 1999. Essential fish habitat source document: Spiny dogfish, *Squalus acanthias*, life history and habitat characteristics. NOAA Technical Memorandum, NMFS-NE-150. Available at: http://www.nefsc.noaa.gov/nefsc/habitat/efh/.

Stehlik LL. 2007. Essential fish habitat source document: Spiny dogfish, *Squalus acanthias*, life history and habitat characteristics, 2nd edition. NOAA Technical Memorandum, NMFS-NE-203. Available at: http://www.nefsc.noaa.gov/nefsc/habitat/efh/.

7. Other Information

EFH Legal Authorities

EFH from Magnuson Stevens Act:
http://www.fisheriesforum.org/HigherLogic/System/DownloadDocumentFile.ashx?DocumentFileKey=014976d6-5bc1-f0c4-be6b-ade7c99fc932&forceDialog=0

EFH Contents of Fishery Management Plans under CFR §600.815:
https://www.gpo.gov/fdsys/pkg/CFR-2013-title50-vol12/pdf/CFR-2013-title50-vol12-sec600-815.pdf

Federal agency consultation with the Secretary under CFR §600.920:
https://www.gpo.gov/fdsys/pkg/CFR-2014-title50-vol12/pdf/CFR-2014-title50-vol12-sec600-920.pdf

NMFS 2006 EFH Guidance:
http://www.nmfs.noaa.gov/op/pds/documents/03/201/03-201-15.pdf

Management and Stock Assessments

MAFMC: http://www.mafmc.org

ASMFC: http://www.asmfc.org

NEFSC Stock Assessments: http://www.nefsc.noaa.gov/saw/