



Regional EFH Profile: Atlantic Highly Migratory Species

This document was prepared by the Fisheries Leadership & Sustainability Forum with input from council and NOAA Fisheries staff as briefing material for the National Essential Fish Habitat Summit, May 17-19, 2016.

Summary

The Atlantic Highly Migratory Species (HMS) management unit, which includes swordfish, tunas, sharks, and billfish, is managed by the NOAA Fisheries Atlantic Highly Migratory Species Management Division. HMS are pelagic, wide-ranging species and habitat associations are based on oceanic conditions and features; however, life stages of certain shark species are dependent on coastal and estuarine habitats. Essential Fish Habitat (EFH) is identified by species and life stage based on level 1 data from a wide range of fishery dependent and independent sources.

EFH timeline (adapted from Table 1.1, NMFS 2015)

Year	Action
1999	EFH first identified and described for all HMS species
2003	EFH updated for 5 shark species (blacktip, sandbar, finetooth, dusky, and nurse shark)
2006	Fishery Management Plans (FMPs) combined into Consolidated Atlantic HMS FMP, first comprehensive EFH review
2009	EFH updated for all Atlantic HMS (Amendment 1 to Consolidated HMS FMP)
2010	EFH defined for additional species (smoothhound sharks, roundscale spearfish)
2015	Second 5-Year EFH review completed
2016	EFH updated for all Atlantic HMS (Amendment 10 to the Consolidated HMS FMP – <i>in progress</i>)

Atlantic HMS management and EFH authorities

The Atlantic HMS management unit includes swordfish, tuna, shark, and billfish species, and the management unit spans the U.S. east coast, Caribbean, and Gulf of Mexico Exclusive Economic Zones (EEZs). Atlantic HMS are managed internationally through the International Commission for the Conservation of Atlantic Tunas (ICCAT) and domestically in the U.S. under the Magnuson-Stevens Act (MSA) through a FMP administered by NOAA Fisheries under the Secretarial authority of the MSA. The Atlantic HMS FMP is subject to the same requirements as all federal FMPs, including the requirement to describe and identify EFH. EFH reviews, and the development and selection of management alternatives, are conducted by HMS Division staff with input through an HMS Advisory Panel and the public rulemaking process.

EFH identification and review

Initial EFH designations

NOAA Fisheries first identified EFH for HMS in 1999. At that time, there were two separate FMPs: the Atlantic Billfish FMP, and the Atlantic Tunas, Swordfish, and Sharks FMP. Due to the

data-poor nature of some species and the need to use multiple data sources housed inside and outside the agency (all of which have their own structure and caveats), EFH for HMS is defined by the most common type of data (i.e., distribution or level 1 data). HMS habitat is usually described in terms of species' associations with dynamic oceanographic features such as currents, and tolerance for properties including temperature, salinity, and oxygen content, rather than by associations with substrate or benthic habitat type. HMS may also depend on habitat areas outside of the U.S. EEZ that cannot be identified as EFH. For tunas, swordfish, and billfish, EFH is identified for three life history stages: egg/larval/spawning, juvenile, and adults; for sharks, the earliest life history stage is defined as neonates/young of year.

EFH descriptions are based on published and unpublished life history information, expert opinion, and presence/absence and relative abundance information derived from observers, tagging programs, and research surveys. EFH maps were developed by analyzing spatial information in GIS to establish probability boundaries that are further refined to reflect aggregations and geographical boundaries.

Adverse impacts to EFH (for both HMS and council-managed species) from HMS fishing gear are minimal, as most HMS gear is fished in the water column. EFH for HMS is primarily offshore pelagic habitat but is nonetheless impacted by land-based and coastal development activities. HMS associate with oceanographic features such as river plumes and currents that transport and concentrate the effects of land-based and coastal development activities. In addition, many shark species use coastal and estuarine habitat that could be susceptible to anthropogenic activities for mating, pupping, and early life stages.

Recent EFH review under the previous FMP

In 2003, NOAA Fisheries updated EFH for 5 shark species to reflect new information and changes in stock status. EFH maps were updated based on the concentration of observations per ten-minute square (approx. 100 mi²). EFH was identified for overfished stocks based on 1 observation per ten-minute square. A higher threshold of 10 observations per square was used for rebuilt stocks.

First EFH review under current FMP

In 2006, NOAA Fisheries combined the two FMPs into the Consolidated Atlantic Highly Migratory Species FMP, consolidated EFH information, and initiated the first comprehensive EFH review. Changes to EFH were implemented later through Amendment 1 in 2009. NOAA Fisheries updated EFH maps using kernel density estimator and percent volume contour spatial tools contained in the Hawth's Toolkit (spatialecology.com). These tools first generate a raster shapefile depicting the density of points within a defined area surrounding each output raster cell, and then delineate probability boundaries that encompass 95% of the observations (shown as polygons). Output polygons were then subjected to stringent scientific and public review via the amendment process, and then adopted as HMS EFH. This approach was intended to provide a reproducible, transparent method for identifying spatial boundaries based on areas of high concentration. The use of a precautionary 95% probability boundary reflects that HMS species are wide-ranging and that observations (e.g., research surveys) provide greater coverage of some geographic areas.

Second EFH review under current FMP

NOAA Fisheries conducted an EFH review in 2015, and determined that updates to EFH were warranted. The review identified new information, including insights into life history, stock structure, and spatiotemporal distribution, which could be used to update EFH text descriptions and/or maps for some species. NOAA Fisheries will update EFH maps for all species with new observer, survey, and tagging data using the same 95% probability boundary approach used in 2009. The amendment will likely be completed in 2017.

EFH consultations

EFH consultations are coordinated by NOAA Fisheries staff within the Habitat Conservation Division of the Greater Atlantic Regional Fisheries Office and the Southeast Regional Office.

Looking ahead

The Atlantic HMS Management Division is working with the NOAA Fisheries Office of Habitat Conservation to evaluate and improve Atlantic HMS EFH products, and with NOAA Fisheries scientists to identify statistically robust methods to incorporate different types of data (survey, observer, conventional tag, acoustic tag, and pop-up satellite tag) into EFH designations.