

3. ESSENTIAL FISH HABITAT

3.1 Designations in the 2006 Consolidated Atlantic HMS FMP and its Amendments

The Magnuson-Stevens Act requires NMFS to identify and describe Essential Fish Habitat (EFH), minimize to the extent practicable the adverse effects of fishing on EFH, and identify other actions to encourage the conservation and enhancement of EFH. In 2009, NMFS completed the five year review and update of EFH for Atlantic HMS with the publishing of Amendment 1 to the 2006 Consolidated HMS FMP (June 12, 2009, 74 FR 288018). In Amendment 1, NMFS updated and revised existing identifications and descriptions of EFH for Atlantic HMS, designated a Habitat Area of Particular Concern (HAPC) for bluefin tuna in the Gulf of Mexico, and analyzed fishing and non-fishing impacts on EFH pursuant to Section 305(b) of the Magnuson-Stevens Act.

NMFS has also published a Final Environmental Impact Statement (FEIS) for Amendment 3 to the 2006 Consolidated HMS FMP (June 1, 2010, 75 FR 30484) which, among other things, added smoothhound (*Mustelus canis*, also known as smooth dogfish) under Secretarial management. Implementation of that particular provision is pending completion of Endangered Species Act (ESA) Section 7 consultation on the proposed smoothhound actions. As a Magnuson-Stevens Act condition of adding a species to federal management, NMFS designated EFH for smoothhound using the same methodology employed in Amendment 1. Details, including a map of the final EFH, are available in Chapter 11 of the Amendment 3 FEIS.

On September 22, 2010, NMFS published an interpretive rule and final action (75 FR 57698) which, among other things, added roundscale spearfish (*Tetrapturus georgii*) to the definition of terms in the implementing regulations of the Magnuson-Stevens Act and the Atlantic HMS regulations, and defined EFH for roundscale spearfish. Roundscale spearfish and white marlin were managed as one species before this final action because the roundscale spearfish were not recognized as a distinct species until recently. Therefore, NMFS determined that the designation of roundscale spearfish EFH is the same as the designation of EFH for white marlin in Amendment 1 to the Consolidated HMS FMP.

NMFS is currently planning to initiate an EFH five-year review in 2013.

EFH maps are presented in hard copy in Amendments 1 and 3 and electronically on the internet via spatial files in Adobe (.pdf) format. The electronic maps and downloadable spatial EFH files for HMS and all federally managed species can be found on the NMFS EFH Mapper at: <http://www.habitat.noaa.gov/protection/efh/habitatmapper.html>. A summary of the management history of HMS EFH is given in Table 3.1.

Table 3.1 Management History for HMS Essential Fish Habitat

FMP or Amendment	EFH and Species
1999 FMP for Atlantic Tunas, Swordfish, and Sharks	EFH first identified and described for Atlantic tunas, swordfish and sharks
1999 Amendment 1 to the Billfish FMP	EFH first identified and described for Atlantic billfish
2003 Amendment 1 to the FMP for Atlantic Tunas, Swordfish and Sharks	EFH updated for five shark species (blacktip, sandbar, finetooth, dusky, and nurse sharks)
2006 Consolidated Atlantic HMS FMP	Comprehensive review of EFH for all HMS. EFH for all Atlantic HMS consolidated into one FMP; no changes to EFH descriptions or boundaries
2009 Amendment 1 to the Consolidated Atlantic HMS FMP	EFH updated for all federally managed Atlantic HMS. HAPC for bluefin tuna spawning area designated in the Gulf of Mexico
2010 Amendment 3 to the Consolidated Atlantic HMS FMP	EFH first defined for smooth dogfish (smoothhound)
2010 White Marlin/ Roundscale Spearfish Interpretive Rule and Final Action	EFH first defined for roundscale spearfish (same as white marlin EFH designation in Amendment 1)

3.2 Shark Nursery Grounds and Essential Fish Habitat Studies

NMFS continues to study EFH for HMS to refine our understanding of important habitat areas for HMS. The Magnuson-Stevens Act defines EFH as habitat necessary for spawning, breeding, feeding, and growth to maturity. The Magnuson-Stevens Act requires the identification of EFH in FMPs, and towards that end NMFS has funded two cooperative survey programs designed to further delineate shark nursery habitats in the Atlantic and Gulf of Mexico. The Cooperative Atlantic States Shark Pupping and Nursery (COASTSPAN) Survey, and the Cooperative Gulf of Mexico States Shark Pupping and Nursery (GULFSPAN) Survey are designed to assess the geographical and seasonal extent of shark nursery habitat, determine which shark species use these areas, and gauge the relative importance of these coastal habitats in order to provide information that can then be used in EFH determinations. Also, survey data collected are being incorporated into stock assessment models as abundance trends and life history parameters.

The COASTSPAN program, administered by the NMFS Northeast Fisheries Science Center’s Narragansett, Rhode Island laboratory, has been collecting information on shark nursery areas along the U.S. Atlantic coast since 1998. It involves NMFS scientists along with state and university researchers in Massachusetts, Delaware, North Carolina, South Carolina, Georgia, Florida and the U.S. Virgin Islands. NMFS initiated the GULFSPAN program in 2003 to expand upon the COASTSPAN Survey. This cooperative program, which is administered by the NMFS Southeast Science Center’s Panama City, Florida laboratory, includes, in addition to NMFS scientists, the states of Florida, Alabama, and Mississippi. Following is a summary of the results from the 2011 COASTSPAN and GULFSPAN surveys (Bethea et al., 2011; McCandless et al., 2012).

Massachusetts

COASTSPAN sampling was conducted in Plymouth, Kingston, and Duxbury Bays in 2011. The shark catch consisted entirely of immature sand tiger sharks, with the majority of the catch being young-of-the-year. There were also several captures of age 1 and age 2 sharks this year, including seven sharks that were tagged in Plymouth Bay in 2009 and 2010 as young-of-the-year or age 1 and recaptured there the following years. Two of these individuals returned to Plymouth Bay for three consecutive years (young-of-the-year – age 2), suggesting some sharks utilize this bay repeatedly in their early years of life. This work confirms the importance of this area as summer nursery habitat for this prohibited species.

Rhode Island

COASTSPAN sampling was conducted off Point Judith, Rhode Island in 2011. A total of three sand tigers were tagged and released, all of which were young-of-the-year. These results continue to provide supporting evidence that Rhode Island waters are used as nursery habitat for this prohibited species and transitional habitat during their migrations to northern waters.

Delaware Bay

COASTSPAN sampling encompassed the entire Bay from the mouth of the Delaware River to the mouth of Delaware Bay using a random stratified design based on depth and geographic location. Additional sampling was also conducted at historical fixed stations throughout the bay. Sandbar shark was the most abundant shark species caught in 2011, followed by smoothhound and sand tigers. The majority of sandbar sharks caught were immature, with nearly a quarter of these as young-of-the-year; the remaining sandbar sharks caught were considered mature females based on length and girth measurements. Smoothhound were represented nearly equally by juvenile and adult fish in 2011, with the overwhelming majority of immature and mature fish as young-of-the-year and females, respectively. The number of immature sand tigers caught in 2011 was nearly double that of the mature sand tigers. Delaware Bay continues to provide important nursery habitat for sandbar shark, smoothhound and sand tiger sharks. The extensive use of the Bay by all life stages of sand tiger and smoothhound continues to highlight the seasonal importance of this essential shark habitat.

North Carolina

Sampling occurred year round in inland (Pamlico Sound and Pungo, Neuse, New, and Cape Fear Rivers) and nearshore waters along the southern coast of North Carolina from New River Inlet to the South Carolina border. No sharks were captured in Pamlico Sound and the Pungo and Neuse Rivers in 2011. In the New and Cape Fear Rivers, Atlantic sharpnose shark was the most abundant species, followed by bonnetheads. In the Atlantic coastal waters, the catch was seasonally dominated by spiny dogfish and smoothhound in the cooler months. Atlantic sharpnose sharks dominated the catch in the warmer months, with bonnetheads at a distant second.

South Carolina

COASTSPAN sampling took place in both nearshore and estuarine waters along the South Carolina coast including: Bulls Bay, Charleston Harbor, North Edisto, Port Royal Sound, St. Helena Sound, and Winyah Bay. Twelve species of sharks were captured, the most abundant of which was Atlantic sharpnose. Other sharks captured, in order of abundance, were sandbar, finetooth, bonnethead, blacktip, blacknose, smoothhound, scalloped hammerhead, spinner, nurse, tiger, and bull sharks. Six species were also captured as young-of-the-year in South Carolina estuarine waters: Atlantic sharpnose, blacktip, finetooth, scalloped hammerhead, sandbar, and spinner sharks. The majority of each shark species captured were immature, with the exception of three species: Atlantic sharpnose, blacknose, and bonnethead sharks. These findings continue to highlight the importance of South Carolina estuarine and nearshore waters as nursery habitat for many small and large coastal shark species and indicate the extensive use of these waters as habitat for several adult small coastal shark species.

Georgia

COASTSPAN sampling took place in both estuarine (St. Simon and St. Andrew sound systems) and nearshore waters along the Georgia coast from Sapelo Island to the Florida border. Of the ten species of shark captured, Atlantic sharpnose was the most abundant. Other sharks included bonnethead, blacknose, sandbar, blacktip, scalloped hammerhead, spinner, finetooth, nurse, and tiger sharks, and one spiny dogfish. Four species captured were also present as young-of-the-year in estuarine waters: Atlantic sharpnose, sandbar, blacktip, and spinner sharks. In addition, Atlantic sharpnose, blacknose, blacktip, sandbar, tiger, and spinner sharks and one bonnethead were present as young-of-the-year in Georgia's nearshore waters. The majority of sharks captured were immature, highlighting the importance of these areas as potential nursery habitat for both small and large coastal shark species. In addition, the majority of blacknose sharks and bonnetheads were mature, indicating these waters continue to provide important adult habitat for these small coastal shark species.

Atlantic Coast of Florida

COASTSPAN sampling occurred within 2 km of Florida's north Atlantic coast in and around the following locations: Cumberland Sound, Nassau Sound, Tolomato River, St. Johns River, St. Augustine Inlet, and Matanzas Inlet. Species represented in the catch included, in order of abundance: Atlantic sharpnose, blacktip, scalloped hammerhead, bonnethead, blacknose, sandbar, finetooth, nurse, and spinner sharks. In addition, one sand tiger and one smoothhound were caught in 2011. Nassau and Cumberland Sounds continue to provide nursery habitat for juvenile Atlantic sharpnose, scalloped hammerhead, and blacktip sharks. Cumberland Sound also continues to provide habitat for adult female bonnetheads. Northern Florida's nearshore waters provided habitat for mature blacknose sharks in 2011. The multi-year seasonal use of the waters around Pine Island in the Tolomato River by neonate scalloped hammerheads provides supporting evidence of an inshore nursery area for this species.

U.S. Virgin Islands

COASTSPAN sampling took place in Coral Bay and Fish Bay of St. John in January and May 2011. Two species of shark were captured, blacktip and lemon sharks. All sharks captured were immature and were also present as young-of-the-year in both bays. Long-term passive tracking data indicates strong site fidelity towards these two bays and continues to show connectivity between areas with similar habitat composition (mangrove associated seagrass and macroalgae beds), such as Lameshur Bay and Hurricane Hole, St John. Distinct habitat partitioning is present in Coral Bay, with lemon sharks occupying the areas of Johnson's Bay and blacktip sharks occupying areas of inner Coral Bay to the north with little overlap. Inner Fish Bay has a higher degree of overlap between species and may be due to the relatively small size of the bay and limited habitat. These results continue to highlight Coral and Fish Bay as important nursery habitat for blacktip and lemon sharks, particularly areas like Johnson's Bay, inner Coral Bay, and inner Fish Bay.

Panhandle of Florida

GULFSPAN sampling covered 5 areas in the Florida panhandle: St. Andrew Bay, Crooked Island Sound, St. Joseph Bay, and the Gulf of Mexico side of St. Vincent Island. Ten species of sharks and three species of rays were captured; the most abundant of which was Atlantic sharpnose shark. Others included blacknose, blacktip, bonnethead, finetooth, Florida smoothhound, sandbar, scalloped hammerhead, and spinner sharks, as well as cownose, smooth butterfly, and southern stingrays. The majority of the sharks captured were immature, indicating that areas along the Florida panhandle are potentially important nursery areas for both large and small coastal shark species. In general, young-of-the-year sharks were more often collected in shallower water with higher temperature, lower salinity, and more turbid conditions compared to juveniles and adults. Benthic habitat included shallow seagrass beds, clay, sand, mud and oyster shoals.

Big Bend of Florida

GULFSPAN sampling by Florida State University covered more than 300 km of Florida's coastline from St. George Sound to Anclote Keys. Longlines and gillnets were used to collect data. Twelve elasmobranch species were caught; the majority of which was Atlantic sharpnose, bonnethead, blacktip, and blacknose sharks. Others included bull, lemon, tiger, great hammerhead, nurse, and Florida smoothhound sharks, as well as cownose and smooth butterfly rays. Sampling indicates that this region serves as a primary nursery for at least three species of small coastal sharks (Atlantic sharpnose, bonnethead sharks, and blacknose) and one species of large coastal shark (blacktip).

Alabama

GULFSPAN sampling took place in Mississippi Sound (Point Aux Pins, Dauphin island), Mobile Bay (Dog River, Fairhope and Cedar Point south to Pelican Bay), and the Perdido system (Perdido Bay to Orange Beach and Perdido Pass). Seven species of sharks were collected; the most abundant of which was Atlantic sharpnose. Others included finetooth, blacktip, bull, bonnethead, scalloped hammerhead, and spinner sharks. Immature individuals made up majority

of the catch, indicating potential nursery areas for the species captured. Similar to previous surveys, western and southern sites of coastal Alabama (i.e., Mississippi Sound) had higher levels of observed shark abundance, occupying a wide range of habitats and environmental conditions within those areas.

Mississippi

GULFSPAN sampling sites were located in five major areas within the waters of the Mississippi Sound, including waters surrounding Horn, Cat, Round, and Deer Islands, and Davis Bayou, capturing five species of sharks and one species of ray. Greater than 75% of individuals encountered were immature.

Conclusion

The data obtained from both COASTSPAN and GULFSPAN surveys continues to provide the needed information to identify new EFH areas and to further refine areas already designated as EFH by determining specific habitat characteristics associated with these EFH. Time series for both surveys continue to be used in the stock assessments for large and small coastal shark species and are essential for monitoring these populations and their habitat use in the areas surveyed.

Chapter 3 References

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