

Species Status Assessment

Common Name: Tiger shark

Date Updated: 1/12/2024

Scientific Name: *Galeocerdo cuvier*

Updated by: Siobhan Keeling

Class: Chondrichthyes

Family: Carcharhinidae

Species Synopsis (a short paragraph which describes species taxonomy, distribution, recent trends, and habitat in New York):

The tiger shark is a wide-ranging species, occurring throughout the world's temperate and tropical waters in the open ocean as well as shallow coastal waters. Off the Atlantic Coast, tiger sharks are found from Cape Cod to Uruguay, including the Gulf of Mexico, Bermuda and islands of the Caribbean. Tiger sharks undergo seasonal migrations, moving into temperate waters during warmer months and returning to tropical waters in the winter (Knickle 2010). They have been documented making transoceanic migrations between islands and are capable of traveling long distances in a short amount of time (NMFS 2009). Tiger sharks are rarely encountered north of the Mid-Atlantic Bight, but on occasion have been sighted in shallow coastal areas of New York (NMFS 2009). They are caught in numerous fisheries worldwide, both as target species and as by-catch. The Atlantic Ocean population of tiger sharks is part of the large coastal shark (LCS) complex managed by the National Marine Fisheries Service, which enforces commercial and recreational fishing regulations to combat the overfished status for these species. Although the tiger shark generally does not face a high risk of extinction due to their high fecundity and fast growth rates, there is little information about pupping, nursery areas and population and abundance numbers, therefore continued demand may result in further decline in the future.

I. Status

a. Current legal protected Status

i. **Federal:** Not Listed **Candidate:** No

ii. **New York:** Not Listed

b. Natural Heritage Program

i. **Global:** G4, Apparently Secure

ii. **New York:** N/A **Tracked by NYNHP?:** No

Other Ranks:

-New York 2025 SGCN status: Species of Greatest Conservation Need

-IUCN Red List: Near Threatened

-Northeast Regional SGCN: N/A

Status Discussion:

There is evidence of declines for several populations where the tiger shark has been heavily fished, but in general this species does not face a high risk of extinction due to their fast growing and fecund nature (Simpfendorfer 2009). However, continued demand, mainly for fins, may result in further declines in the future and this warrants the IUCN's "Near Threatened" status throughout the range (Simpfendorfer 2009). The 2005/2006 Southeast Data, Assessment and Review (SEDAR) stock assessment for the large coastal shark complex determined that it is inappropriate

to assess the LCS complex as a whole due to variation in life history parameters, different intrinsic rates of increase, and different catch and abundance data (Casey 2006). Based on these results, NOAA Fisheries has changed the status of the LCS complex from overfished to unknown.

II. Abundance and Distribution Trends

Region	Present?	Abundance	Distribution	Time Frame	Listing status	SGCN?
North America	Yes	Unknown	Stable			-
Northeastern US	Yes	Unknown	Stable	(Northeast Atlantic Ocean)		-
New York	Yes	Unknown	Unknown			-
Connecticut	No data	-	-		Not Listed	No
Massachusetts	No data	-	-		Not Listed	No
New Jersey	No data	-	-		Not Listed	No
Pennsylvania	No	-	-			-
Vermont	No	-	-			-
Ontario	No	-	-			-
Quebec	No	-	-			-

Column options

Present?: Yes; No; Unknown; No data; (blank) or Choose an Item

Abundance and Distribution: Declining; Increasing; Stable; Unknown; Extirpated; N/A; (blank) or Choose an item

SGCN?: Yes; No; Unknown; (blank) or Choose an item

Monitoring in New York (*specify any monitoring activities or regular surveys that are conducted in New York*):

There are no regular monitoring activities in New York.

Trends Discussion (*insert map of North American/regional distribution and status*):

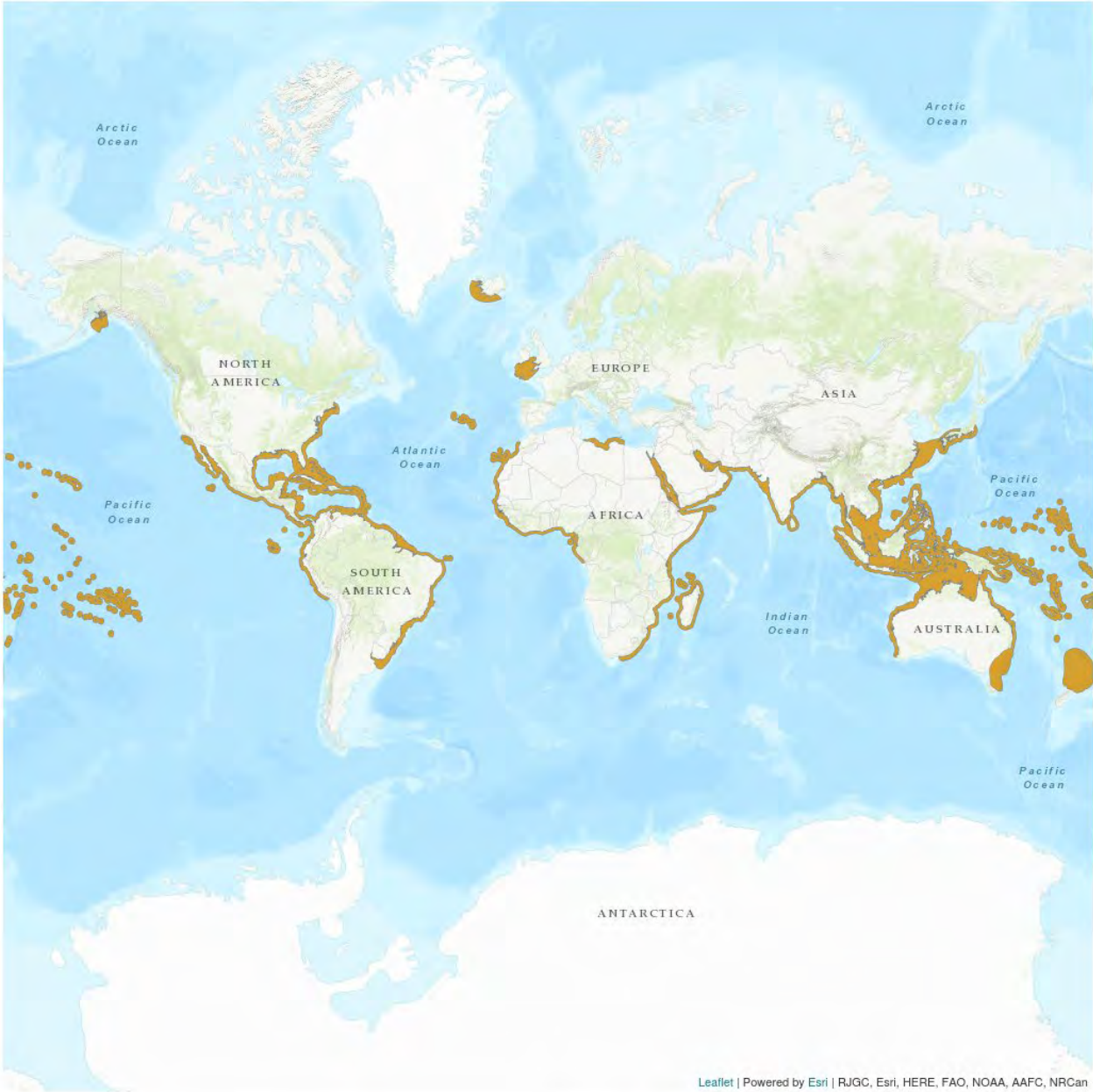
The current population trend is decreasing according to the IUCN red list (Ferreira and Simpfendorfer 2019). There is no trend data available for New York or the Northeast. Because tiger sharks are managed as part of the large coastal shark complex, there is no individual species data for the tiger shark or indication of their current status.

The U.S. commercial shark fishery is primarily a southern coastal fishery extending from North Carolina to Texas, with 90% of catches during the 1990s coming from the southeastern region. In the East Coast/Gulf of Mexico shark fishery, tiger sharks are the third most common large, coastal species caught in the fishery, accounting for 12-20% of the catch (Simpfendorfer 2009). Estimated commercial landings of tiger sharks are 12,174 lbs. dw for 1998, and 30,274 lbs. dw for 1999

(Cortes 2000). Recreational landings were estimated at 1,380 fish in 1988 and 146 fish in 1999 for the large coastal shark complex (Cortes 2000). See Figure 6 for commercial landing data from 2001-2006.

Distribution Map

Galeocerdo cuvier



Legend
■ EXTANT (RESIDENT)

Compiled by:
IUCN SSC Shark Specialist Group 2018

Figure 1. IUCN Red List Tiger Shark distribution map (Ferreira 2019)



Figure 2. Global distribution of the tiger shark (Knickle 2010)

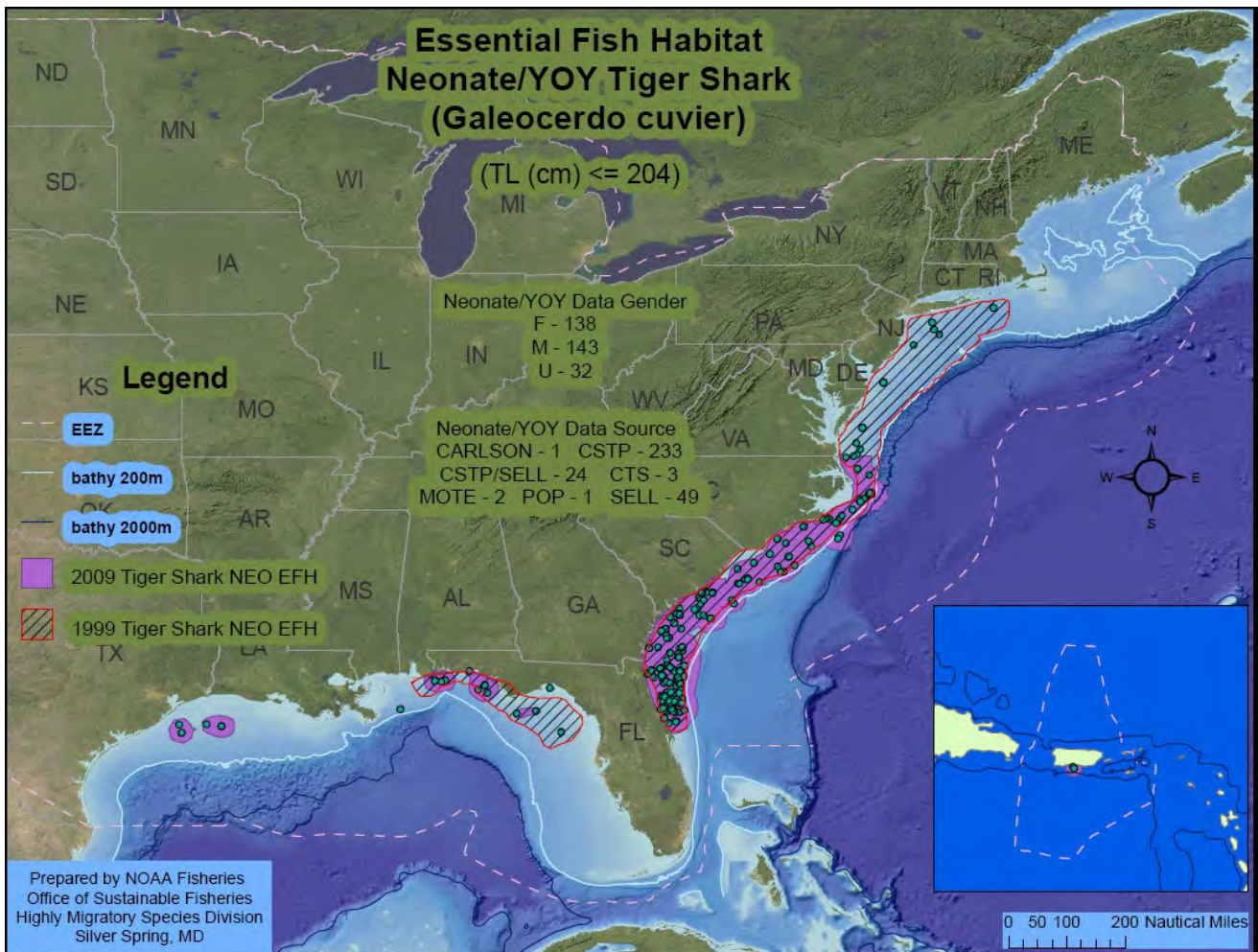


Figure 3. Essential fish habitat of neonate/young-of-the-year tiger shark (NMFS 2009).

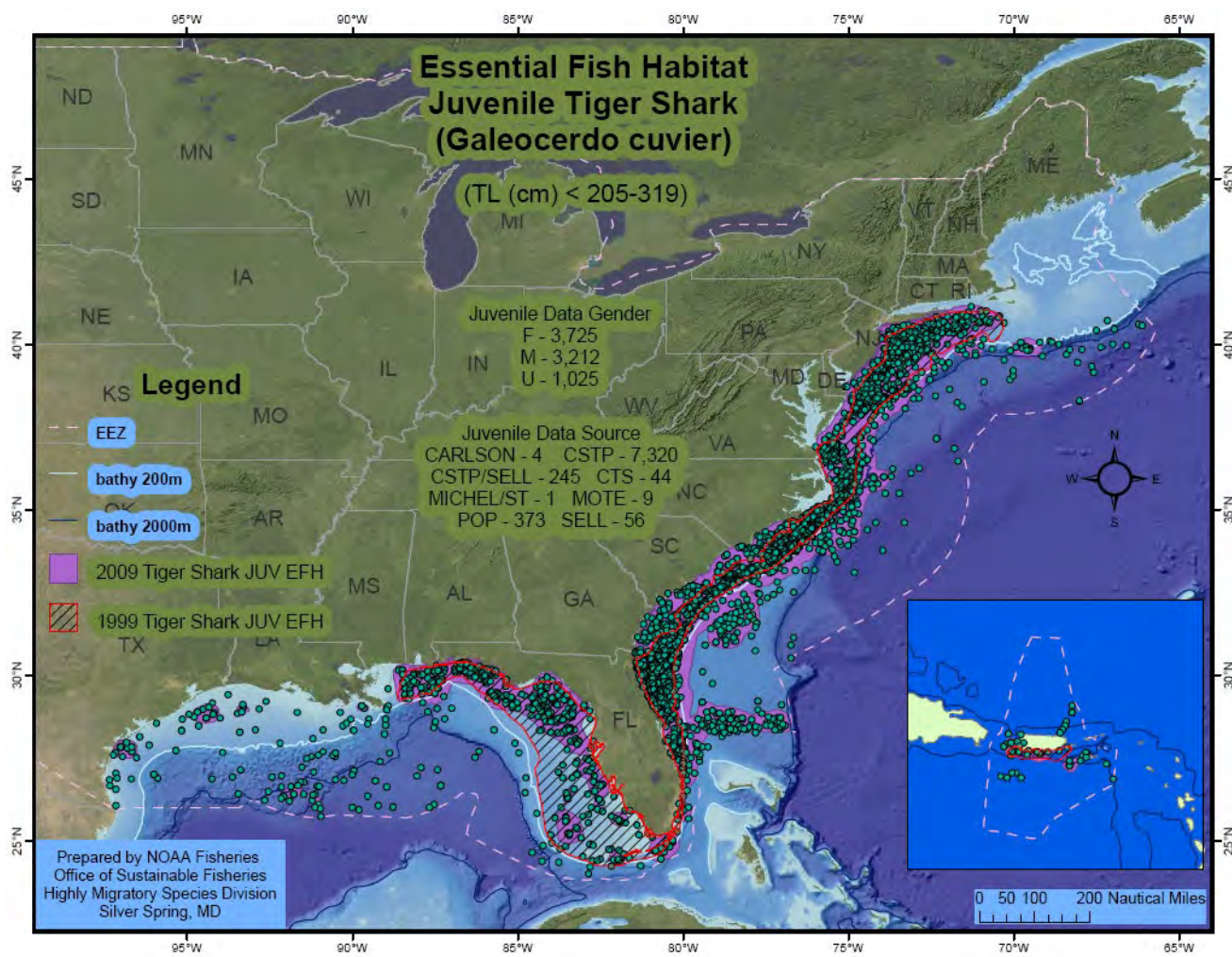


Figure 4. Essential fish habitat of juvenile tiger shark (NMFS 2009).

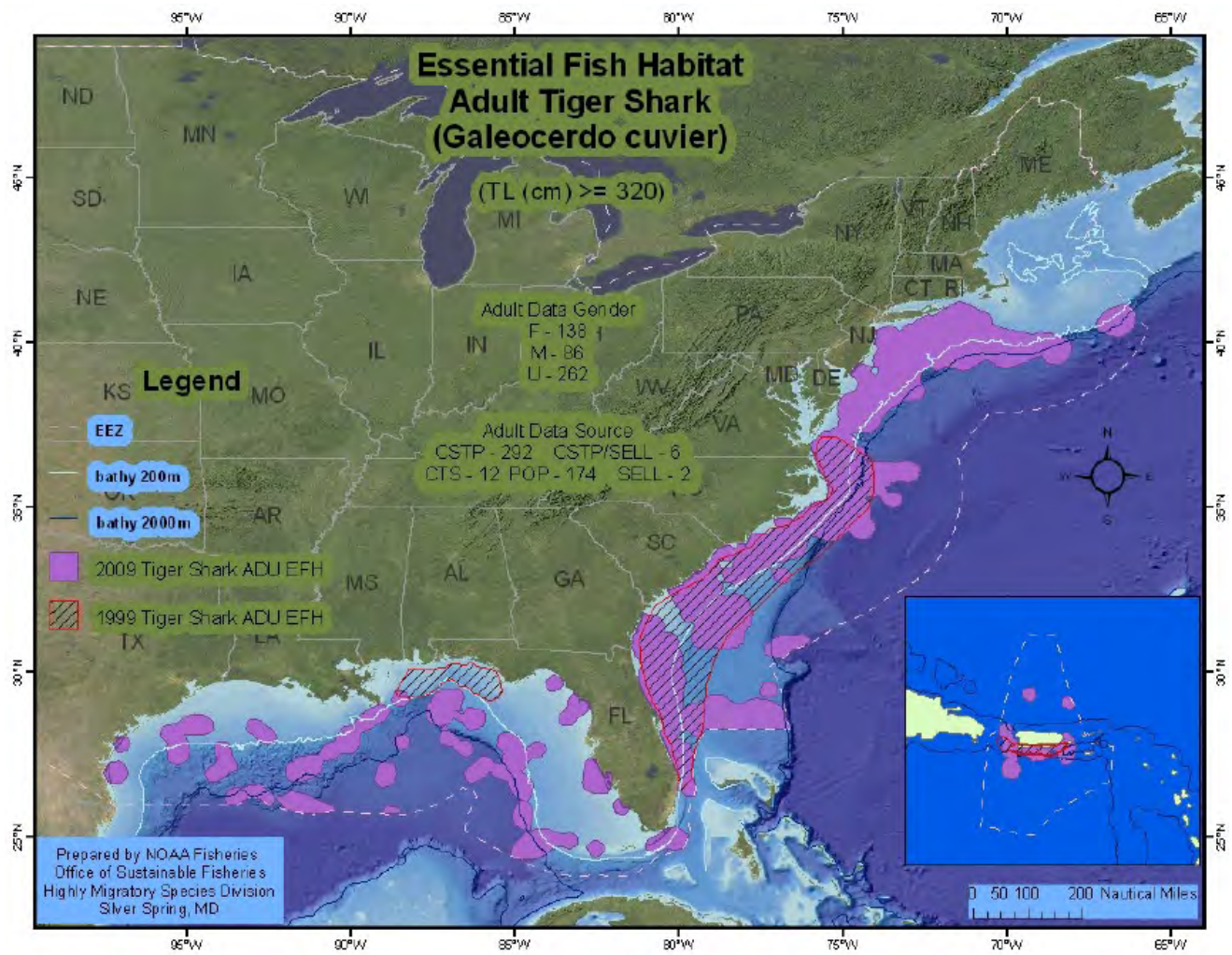


Figure 5. Essential fish habitat of adult tiger shark (NMFS 2009).

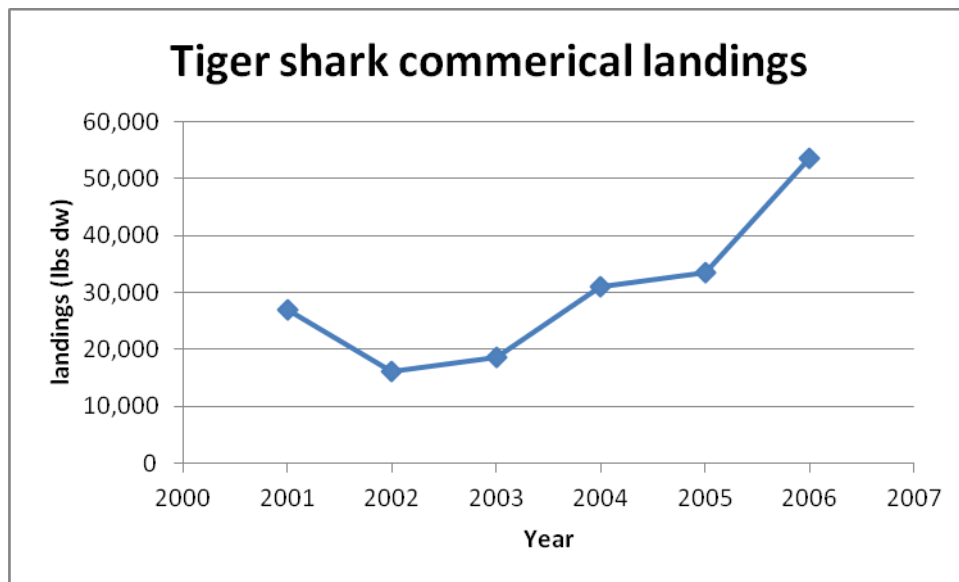


Figure 6. Tiger shark landings in lbs dw for 2001-2006 from the U.S. pelagic longline fishery (NMFS 2007).

III. New York Rarity (provide map, numbers, and percent of state occupied)

Tiger sharks are rarely encountered north of the Mid-Atlantic Bight, but they may be found in shallow coastal regions of New York at night during feeding time (NMFS 2009).

Details of historic and current occurrence:

Historic:

There is no historical occurrence data available.

Current:

There is no current occurrence data available.

New York’s Contribution to Species North American Range:

Percent of North American Range in NY	Classification of NY Range	Distance to core population, if not in NY
1-25%	Peripheral	

Column options

Percent of North American Range in NY: 100% (endemic); 76-99%; 51-75%; 26-50%; 1-25%; 0%; Choose an item

Classification of NY Range: Core; Peripheral; Disjunct; (blank) or Choose an item

IV. Primary Habitat or Community Type (from NY crosswalk of NE Aquatic, Marine, or Terrestrial Habitat Classification Systems):

- a. Marine, Deep Subtidal
- b. Marine, Shallow Subtidal

Habitat or Community Type Trend in New York

Habitat Specialist?	Indicator Species?	Habitat/Community Trend	Time frame of Decline/Increase
No	No	Stable	

Column options

Habitat Specialist and Indicator Species: Yes; No; Unknown; (blank) or Choose an item

Habitat/Community Trend: Declining; Stable; Increasing; Unknown; (blank) or Choose an item

Habitat Discussion:

The tiger shark is a saltwater species, preferring seagrass ecosystems of coastal areas but occasionally inhabiting other areas where prey is available, including estuaries, harbors, and lagoons. They spend approximately 36% of their time in shallow coastline habitats, generally from the surface to depths of 150 meters (Heithaus et al. 2002). Tiger sharks are commonly found at 100m but will dive to depths of about 1,000 m. The maximum recorded depth is 1,136. They inhabit shelf, reef and slope habitats (Ferreira and Simpfendorfer 2019). Nurseries appear to be in offshore areas, but they have not been well described. Natanson et al. (1998) reported nursery areas occurring at approximately 35°N to 29°20’N (approximately North Carolina to Florida) along the East Coast, out to a depth of 100 meters. Driggers et al. (2008), however, found that tiger sharks in the western North Atlantic Ocean do not use specific areas as nurseries, but that

parturition appears to occur over a broad range and the general pupping area from at least 27 to 25°N, off the coast of southeastern North America and in the Gulf of Mexico. Locations where high abundances of young-of-the-year individuals occurred were likely influenced by areas of high localized productivity.

Essential fish habitat for neonates and juveniles is defined as shallow coastal areas up to depths of 200 meters from Cape Canaveral, FL to offshore of Montauk, Long Island, NY. Adult habitat occurs offshore from Chesapeake Bay, MD south to Ft. Lauderdale, FL (NMFS 2009).

Tiger sharks are voracious, indiscriminate predators, feeding on all kinds of fish, marine mammals, turtles, seabirds, sea snakes, squids, mollusks, crabs, and even carrion and garbage. Tiger sharks are solitary nocturnal predators, except during the mating season or while communally feeding on large carcasses (Draper 2011). As one of the largest carnivores in the ocean, there are few predators that feed on tiger sharks, although some juveniles fall prey to other sharks. Tiger sharks have very large home ranges, swimming up to 16 km in one day and often not returning to that area for a year (Draper 2011).

V. Species Demographics and Life History

Breeder in NY?	Non-breeder in NY?	Migratory Only?	Summer Resident?	Winter Resident?	Anadromous/Catadromous?
Unknown	Choose an item.	Unknown	Choose an item.	Choose an item.	Choose an item.

Column options

First 5 fields: Yes; No; Unknown; (blank) or Choose an item

Anadromous/Catadromous: Anadromous; Catadromous; (blank) or Choose an item

Species Demographics and Life History Discussion (include information about species life span, reproductive longevity, reproductive capacity, age to maturity, and ability to disperse and colonize):

Tiger sharks reach a maximum size of 500cm total length (TL) and the largest recorded size was 740 cm (TL). Maximum age is about 27 to 37 years and age at maturity is 4 to 13 years. Males mature at 250 to 305 cm (TL). Females mature at 274 to 345 cm (TL) and are lecithotrophic viviparous (ovoviviparous) (Ferreira and Simpfendorfer 2019). The embryo engages in embryotrophy, where it feeds off uterine fluid during the later stages of its development (Knickle et al. 2018). Tiger Shark Litters average 26 to 33 pups and there has been a maximum recording of 82 embryos (Ferreira and Simpfendorfer 2019). Mating is reported to take place in the northern hemisphere during spring, with pupping occurring during the following spring or summer after an estimated gestation period of 13-16 months (Camhi et al. 1998). Mating occurs before females have given birth to young, indicating that litters are produced every two years or less.(Camhi et al. 1998). Growth and reproductive rates are high, making the levels of mortality that the tiger shark can survive higher than that for many other species of shark.

VI. Threats (from NY 2015 SWAP or newly described)

Tiger sharks are caught in many fisheries worldwide, both as target species and by-catch, for commercial and recreational fisheries. Valuable products from tiger shark include flesh, fins, liver oil and cartilage. The fins, skin and liver oil from tiger sharks are considered to be of high quality and can garner good prices, leading to an increase in commercial fishing pressure (Fowler et al. 2005). Tiger sharks are most often taken as by-catch in tuna and swordfish longline fisheries, particularly those operating on or close to the continental and insular shelves. Another threat facing tiger sharks is their tendency to ingest human garbage. Direct effects of climate change on tiger

sharks are unknown, but habitat shifts and alterations are likely to influence distribution, abundance and behavior (Harley et al. 2006). As populations of apex predators like the tiger shark decrease, there are cascading effects on marine ecosystem dynamics and lower trophic levels, exacerbating stresses on already highly degraded coastal benthic systems (Myers et al. 2007, Nye et al. 2012).

Threat Level 1	Threat Level 2	Threat Level 3	Spatial Extent	Severity	Immediacy	Trend	Certainty
5. Biological Resource Use	5.4 Fishing & Harvesting Aquatic Resources (bycatch)	-	Choose an item.	Choose an item.	Choose an item.	Choose an item.	Choose an item.
5. Biological Resource Use	5.4 Fishing & Harvesting Aquatic Resources	5.4.1 Recreational or subsistence fishing	Choose an item.	Choose an item.	Choose an item.	Choose an item.	Choose an item.
5. Biological Resource Use	5.4 Fishing & Harvesting Aquatic Resources	5.4.2 Commercial fishing	Choose an item.	Choose an item.	Choose an item.	Choose an item.	Choose an item.
9. Pollution	9.4 Garbage & Solid Waste	-	Choose an item.	Choose an item.	Choose an item.	Choose an item.	Choose an item.
11. Climate Change	11.3 Changes in Temperature Regimes	11.3.3 Gradual temperature change (warming ocean temperatures)	Choose an item.	Choose an item.	Choose an item.	Choose an item.	Choose an item.

Table 1. Threats to tiger shark.

Are there regulatory mechanisms that protect the species or its habitat in New York?

Yes: X

No: _____

Unknown: _____

If yes, describe mechanism and whether adequate to protect species/habitat:

Tiger sharks are managed by the National Marine Fisheries Service (NMFS) under the Consolidated Highly Migratory Species Fishery Management Plan (FMP). The tiger shark is a member of the large coastal shark species complex, which has a commercial quota of 1,017 tons dressed weight imposed in 2003. There is a recreational bag limit of 1 shark per vessel per trip, and a minimum size of 137 cm fork length for all shark species. The 2006 Consolidated HMS FMP implemented additional measures including mandatory shark identification workshops for federally permitted shark dealers. Shark finning has been banned in the U.S. since 2002, prohibiting any person from finning or possessing shark fins on board a U.S. fishing vessel. The Atlantic States Marine Fisheries Commission also manages tiger sharks under the Interstate Fishery Management Plan for Atlantic Coastal Sharks as part of the non-sandbar large coastal shark group. In NYS, anglers must enroll in the recreational marine fishing registry prior to pursuit of this species. New York anglers may take one tiger shark per vessel per trip with a minimum fork length of 54 inches. Any shark that is landed must have head and fins attached while returning to the dock (NYSDEC 2021).

Describe knowledge of management/conservation actions that are needed for recovery/conservation, or to eliminate, minimize, or compensate for the identified threats:

Detailed information on potential use of pupping and nursery areas in New York is essential to protect critical habitat for the tiger shark. Species-specific fishery independent data are needed to assess population status and abundance.

Action Category	Action	Description
A.1 Direct Habitat Management	A.1.0.0.0 Direct habitat management	Site/area management
A.2 Direct Species Management	A.2.0.0.0 Direct species management	Harvest Management
A.2 Direct Species Management	A.2.0.0.0 Direct species management	Trade Management
A.2 Direct Species Management	A.2.0.0.0 Direct species management	Species Recovery
A.1 Direct Habitat Management	C.6.5.0.0 Conservation planning	Site/area protection
C.7 Legislative and Regulatory Framework or Tools	C.7.0.0.0 Legislative and Regulatory Framework or Tools	Policies/Regulation

Action Category	Action	Description
B.4 Law Enforcement and Prosecution	B.4.0.0.0 Law Enforcement and Prosecution	Compliance and enforcement (National level)

Table 2. Recommended conservation actions for tiger shark (Ferreira and Simpfendorfer 2019).

VII. References

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