

Species Status Assessment

Common Name: Thresher shark

Date Updated: 1/12/2024

Scientific Name: *Alopias vulpinus*

Updated by: Siobhan Keeling

Class: Chondrichthyes

Family: Alopiidae

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

Thresher sharks occur worldwide in tropical, subtropical, and temperate waters. This species inhabits coastal epipelagic and oceanic epibenthic area. It usually occurs 40-75 miles of land over continental and insular shelves and slopes (Strasburg 1958, Compagno 1984, Holts 1998). In the western Atlantic, this species ranges from Newfoundland to Cuba and into the Gulf of Mexico (Compagno 2001). Northwest and central Atlantic logbook and observer records for common and big-eye (*A. superciliosus*) thresher sharks combined show a decline of 50-80% from 1986-2005 (Goldman 2009). Population trend of this species is unknown in New York. Thresher sharks are globally vulnerable due to having slow life history characteristics, a low capacity to recover from moderate levels of exploitation, and high levels of unmanaged and unreported mortality by target and bycatch fisheries (Goldman et al. 2009).

I. Status

a. Current legal protected Status

- i. **Federal:** Not listed **Candidate:** No
- ii. **New York:** Not listed

b. Natural Heritage Program

- i. **Global:** GNR, Unranked
- ii. **New York:** SNR, Unranked **Tracked by NYNHP?:** No

Other Ranks:

- New York 2025 SGCN status: High Priority Species of Greatest Conservation Need
- IUCN Red List: Vulnerable
- Northeast Regional SGCN: RSGCN
- CITES: II

Status Discussion:

All species of the genus *Alopias* are listed globally vulnerable on the IUCN Red List. Declining populations, slow life history characteristics, low capacity to recover from and unmanaged and unreported mortalities have caused populations to decline globally (Goldman et al. 2009). Thresher sharks are vulnerable because of their epipelagic habitat occurring within the range of many gillnet and longline fisheries (Goldman et al. 2009). A majority of common thresher shark harvests are from fisheries in the eastern Pacific. Western Atlantic fisheries supply roughly 1/3 of the annual U.S. harvest of thresher shark. In 2010, 61,290 pounds were harvested off the East Coast, mainly from North Carolina, New Jersey and Virginia (NOAA 2013). The International Commission for the Conservation of Atlantic Tunas (ICCAT) reviews an ecological risk assessment for pelagic sharks

caught in Atlantic longline fisheries. Thresher shark was deemed the least vulnerable on the assessment (Cortés et al. 2008)

II. Abundance and Distribution Trends

Region	Present?	Abundance	Distribution	Time Frame	Listing status	SGCN?
North America	Yes	Declining	Stable	1986-present		-
Northeastern US	Yes	Declining	Stable	1986-present (Northwest Atlantic)		Yes
New York	Yes	Declining	Stable	Not specified		Yes
Connecticut	No data	-	-	Not specified	Not listed	No
Massachusetts	No data	-	-	Not specified	Not listed	No
New Jersey	No data	-	-	Not specified	Not listed	No
Pennsylvania	No	-	-			-
Vermont	No	-	-			-
Ontario	No	-	-			-
Quebec	No data	-	-	Not specified	Not listed	-

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 known 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 (Rigby et al. 2022). In the western Atlantic, thresher shark ranges from Newfoundland south to Cuba and into the Gulf of Mexico (Last and Stevens 1994). Logbook and observer records from 1986-2005 showed a decrease in population 50-80% in the Northwest and Western Central Atlantic (Baum et al. 2003). In the North Atlantic, thresher sharks are estimated to be declining. In the Eastern North Pacific the population trend is increasing according to a managed fishery, which may not reflect overall population trends in the Pacific (Rigby et al. 2022).

Distribution Map

Alopias vulpinus



Legend

■ EXTANT (RESIDENT)

Compiled by:

IUCN SSC Shark Specialist Group 2018

Figure 1. IUCN Red List Thresher Shark distribution map (Rigby et al. 2022)

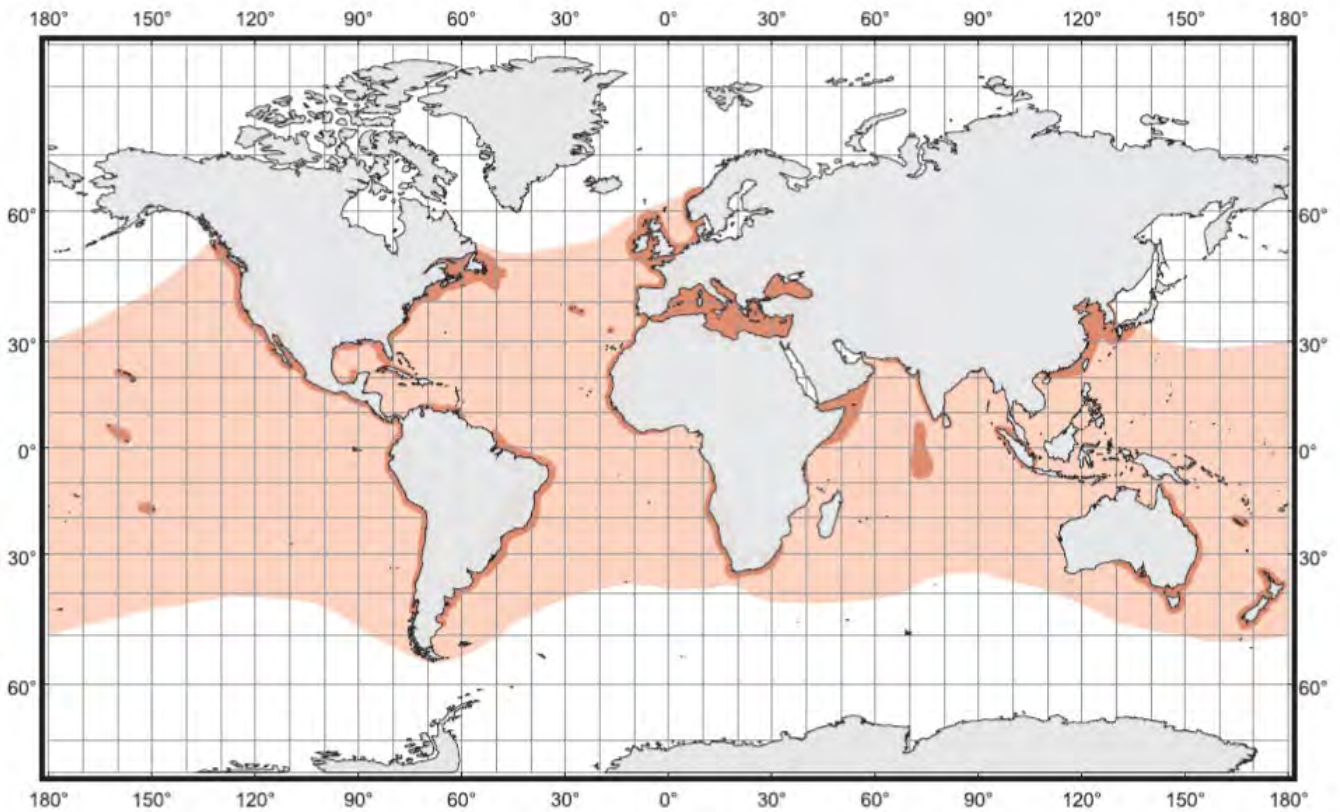


Figure 2. Global distribution of thresher shark (Compagno 2001).

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

Thresher sharks are sporadically recorded in the northwest and central Atlantic, with big-eye thresher sharks being more common (Goldman et al. 2009). Briggs and Waldman (2002) considered the thresher shark to be common in waters surrounding Long Island.

Details of historic and current occurrence:

Historic:

This species was recorded to be in the Long Island Sound at Orient in 1946 (Briggs and Waldman 2002).

Current:

Annually, there are reports of a few individuals caught off the south shore of Long Island (Briggs and Waldman 2002).

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%	Core	

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, Shallow Subtidal
- b. Marine, Deep 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:

Thresher sharks occur worldwide in tropical, subtropical and temperate waters, with a tolerance for cold waters (Castro 1983). This species inhabits coastal to epipelagic and oceanic epibenthic areas, but usually occurs 40-75 miles of land over continental and insular shelves and slopes (Strasburg 1958, Compagno 1984, Holts 1998). Young juveniles are often seen inshore and in shallow bays. (Compagno 2001). Thresher sharks are mainly found in coastal temperate waters but are also found in oceanic areas at depths ranging from 650m to the surface (Rigby et al. 2022).

V. Species Demographics and Life History

Breeder in NY?	Non-breeder in NY?	Migratory Only?	Summer Resident?	Winter Resident?	Anadromous/Catadromous?
-	-	Yes	-	-	-

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):

Thresher sharks are a long-lived with slow life history characteristics. At birth, thresher sharks are 120-150 cm total length (TL) and individuals can reach a maximum of 573 –635 cm (TL) when fully grown (Rigby et al. 2022). Female thresher sharks are estimated to mature between 3-9 years of age and between 260-465cm total length (Bigelow and Schroeder 1948, Cailliet et al. 1983). Males are mature between 3-7 years of age (Cailliet et al. 1983) and they have a total length of 260-420 cm (Rigby et al. 2022). This species can reach 20+ years old (Gervelis 2005). The most recent estimation of generation time is 8-14 years old (Cortés 2008). Thresher sharks have an annual or

biennial reproductive cycle and produce litters of 2 to 6 pups that are aplacental viviparous oophagous (Rigby et al. 2022). Thresher sharks feed on schooling and bottom fishes and squid. Thresher shark commonly stuns its prey using its long tail (Compagno 2001). During the warm season, this species undertakes inshore and northerly coastal migrations, traveling in schools segregated by sex and size (Smith et al. 2008).

Due to the behavioral tactics used by thresher sharks, they are commonly hooked in the caudal fin. A tail hooked shark increases the fight time and stress placed on the individual. Thresher sharks are a ram ventilator species, which requires it to be constantly moving in order to ventilate. Tail-hooked individuals cannot properly ventilate when brought in to a boat backwards. In a study on post-release survivorship of tail hooked thresher sharks found that with increased fight time, stress levels in the blood greatly increase and mortality was 100% when the fight time was greater than 85 minutes, which places greater stress on the animal (Heberer et al. 2010).

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

Thresher shark fished commercially and recreationally throughout their range (Compagno 1990). It is often caught by long line, gillnet, and as bycatch in trawls and fish traps (Maquire et al. 2006). Even though it is referred to as bycatch, it is normally utilized and is more a secondary catch (Goldman et al. 2009).

The effect of increased global ocean temperatures on sharks is unknown but is likely to result in changes in distribution, migratory movements, and prey availability (ZSL 2010). Synergistic effects between climate and other present threats, particularly by-catch mortality, will likely exacerbate climate-induced changes (Harley et al. 2006).

Threat Level 1	Threat Level 2	Threat Level 3	Spatial Extent	Severity	Immediacy	Trend	Certainty
3. Energy Production & Mining	3.3 Renewable Energy	3.3.2 Wind farms (offshore)	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.
5. Biological Resource Use	5.4 Fishing & Harvesting Aquatic Resources	5.4.2 Commercial fishing (bycatch/discard)	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 thresher 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:

In NYS, anglers must enroll in the recreational marine fishing registry prior to pursuit of this species. New York anglers may take one thresher 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:

Current management strategies in New York aim to improve the capacity to sample and quantify demersal and pelagic shark populations at all life stages and the role the state’s waters play in their life cycle (NYSDEC 2005).

The New York State Wildlife Action Plan (NYSDEC 2005) provides recommendations for conservation/management actions for pelagic shark species:

- Develop fact sheets for distribution to commercial and recreational fisherman regarding the well being of the pelagic shark stocks.
- Conduct literature review to determine the pupping and juvenile habitat requirements for pelagic coastal sharks in the Middle Atlantic bight.
- Modify New York's regulations as necessary to conform to the federal protection of sharks.
- Initiate a volunteer shark data collection program which would collect additional catch and biological information from New York's recreational anglers.
- Develop appropriate webpage information relative to the shark species found in the Mid-Atlantic bight and their status.

The thresher shark is listed as a large coastal shark by NOAA, under the Atlantic Highly Migratory Species Fishery Management Plan for Atlantic Tuna, Swordfish and Sharks (NMFS 2006). This listing results in the monitoring of international stock and development of future management goals.

Action Category	Action	Description
C.6 Design and Plan Conservation	C.6.5.0.0 Conservation planning	Site/area protection
A.2 Direct Species Management	A.2.0.0.0 Direct species management	-Harvest management -Trade management
A.2 Direct Species Management	A.2.0.0.0 Direct species management	Species recovery

Table 2. Recommended conservation actions for thresher shark (Rigby et al. 2022)

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