

# Species Status Assessment

**Common Name:** Porbeagle shark

**Date Updated:** 12/4/2023

**Scientific Name:** *Lamna nasus*

**Updated by:** Tajrian Sarwar, MISC

**Class:** Chondrichthyes

**Family:** Lamnidae

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

The porbeagle (*Lamna nasus*) is a large cold-temperate pelagic shark species with a disjointed distribution, occurring in the North Atlantic and in the South Atlantic, South Indian and South Pacific Oceans; genetic analysis indicates that the North Atlantic and Southern Hemisphere populations are distinct subpopulations. In the western Atlantic this species can be found from Newfoundland, Canada to North Carolina and from Iceland and the western Barents Sea to Morocco and the Mediterranean in the eastern North Atlantic (Natanson et al. 2002, Campana and Joyce 2004). The Atlantic population is further divided into the following stocks by the International Commission for the Conservation of Atlantic Tunas: NE, NW, SE, and SW Atlantic (ICCAT 2022). This species is in decline due to decades of overexploitation and low biological productivity, and it has been listed as vulnerable by the IUCN, (Rigby 2019). The porbeagle is likely rare in New York waters, as the state is close to the southern limit of the range for the northern Atlantic population (NYSDEC 2005).

## I. Status

### a. Current legal protected Status

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

ii. **New York:** Not Listed

### b. Natural Heritage Program

i. **Global:** Not Ranked

ii. **New York:** Not Ranked **Tracked by NYNHP?:** No

### Other Ranks:

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

-IUCN Red List: Vulnerable A2bd

-Northeast Regional SGCN:

- Committee on the Status of Endangered Wildlife in Canada (COSEWIC): Endangered (01May2004)

- CITES Appendix II

- CMS Appendix II

### Status Discussion:

This species is protected by CITES as of March 2013 because its life history characteristics, especially late maturity and low fecundity, which render this species particularly vulnerable to overexploitation. This wide-ranging oceanic shark is the only representative of its genus in the North Atlantic. It is absent in the North Pacific, which the Salmon Shark occupies. The Porbeagle has experienced large

reductions across both the North Atlantic and the Southern Hemisphere subpopulations, but the North Atlantic population has declined to a far greater degree than the Southern Hemisphere population (Rigby 2019). As of 2009, the Northwest Atlantic Porbeagle population has been estimated to be 22-27% of the 1961 population, but assessment of biomass indicates that this population is experiencing continued population growth (Curtis 2016).

## II. Abundance and Distribution Trends

Region	Present?	Abundance	Distribution	Time Frame	Listing status	SGCN?
North America	Yes	Declining	Stable	Past 20 years		-
Northeastern US	Yes	Declining	Stable	Past 20 years (NW Atlantic)		-
New York	Yes	Declining	Stable	Past 20 years		Yes
Connecticut	Yes	Declining	Declining	Past 20 years	Not Listed	No
Massachusetts	Yes	Declining	Declining	Past 20 years	Not Listed	No
New Jersey	Yes	Declining	Declining	Past 20 years	Not Listed	No
Pennsylvania	No	-	-			-
Vermont	No	-	-			-
Ontario	Yes	Declining	Declining	Past 20 years	Not Listed	-
Quebec	Yes	Declining	Declining	Past 20 years	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

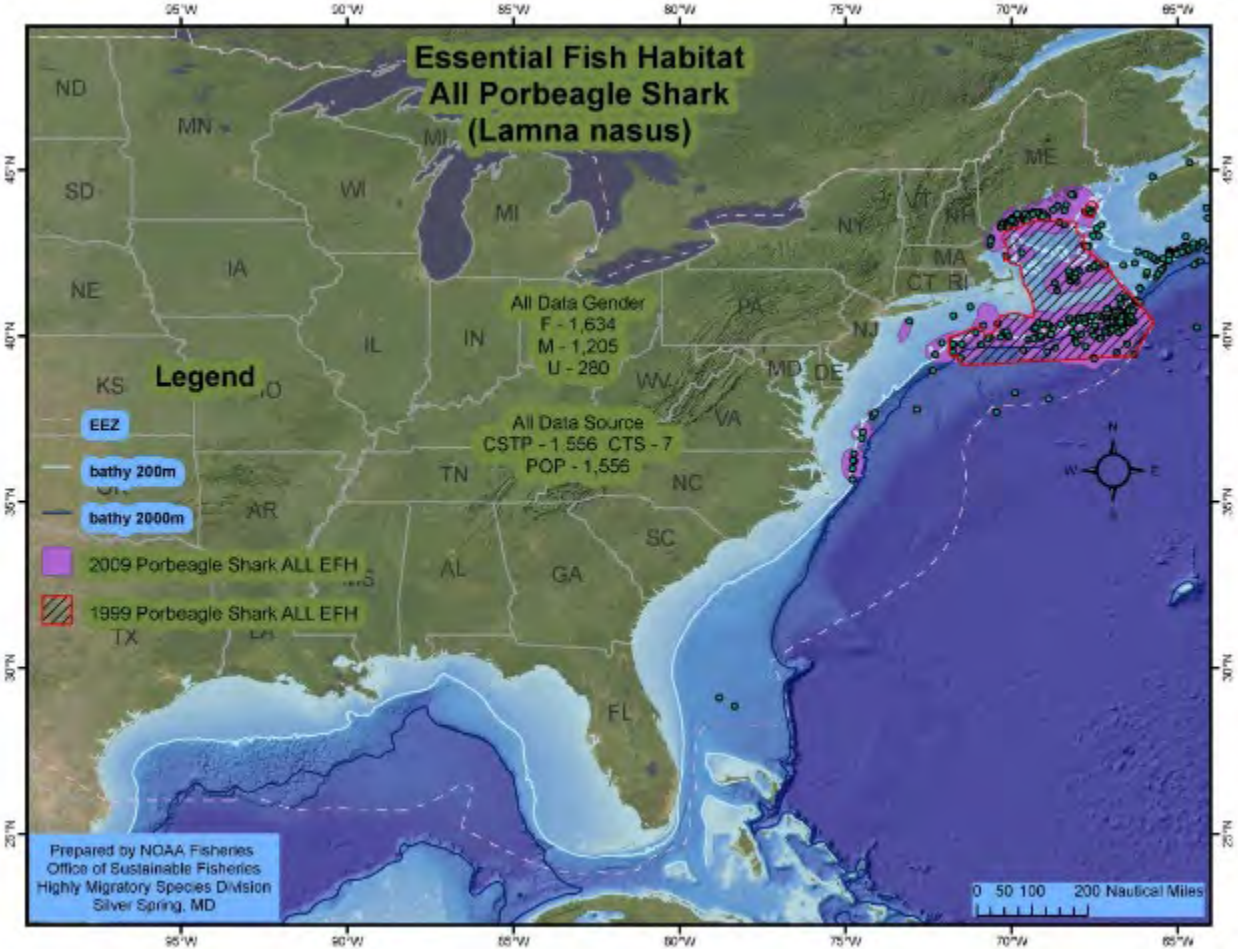
### **Monitoring in New York** (*specify any monitoring activities or regular surveys that are conducted in New York*):

Currently no survey or monitoring activities for this species exist in New York, but this species is monitored by ICCAT.

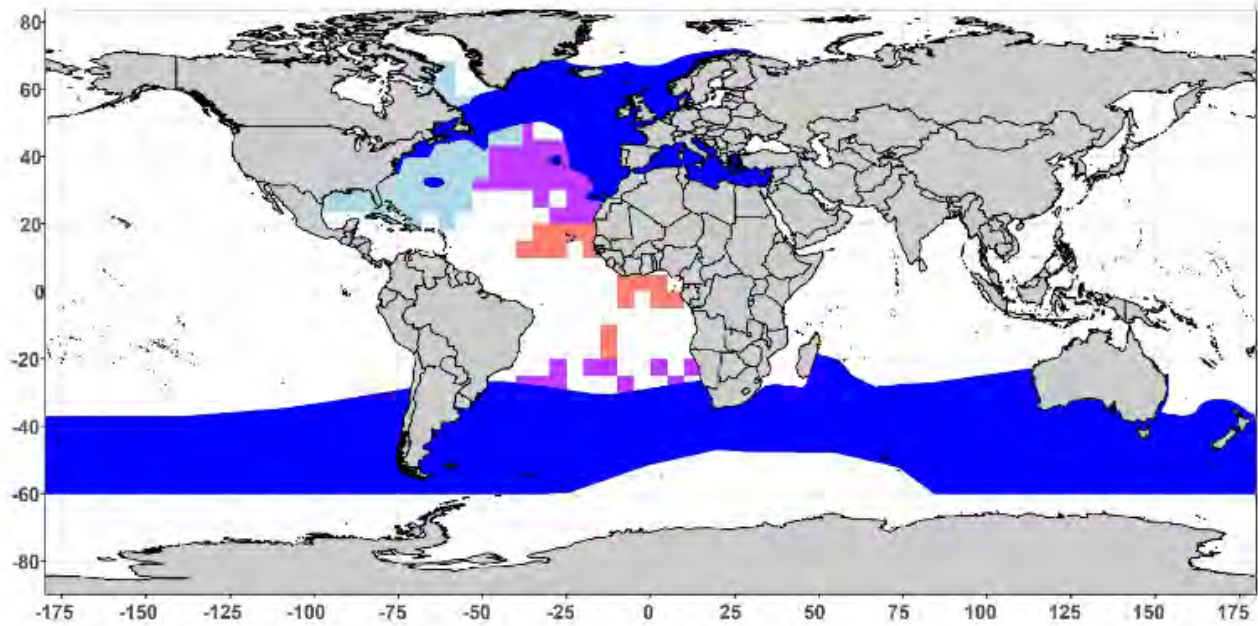
### **Trends Discussion** (*insert map of North American/regional distribution and status*):

This species is in decline, but declines are most severe in the northern Atlantic population. The species underwent massive declines during the 1960s, crashing in 1967 from overharvesting (Campana et al. 2002, Stevens et al. 2006). Canada reduced its quotas to 350 metric tons in an attempt to allow the population to recover (Campana et al. 2002). After a slight rebound in the 1970s and 1980s, unsustainable targeted fisheries during the 1990s reduced the population to well below baseline levels (Stevens et al. 2006). It is estimated that 90% of the sexually mature population has been lost (Campana et al. 2002). In 2004, the porbeagle was designated an

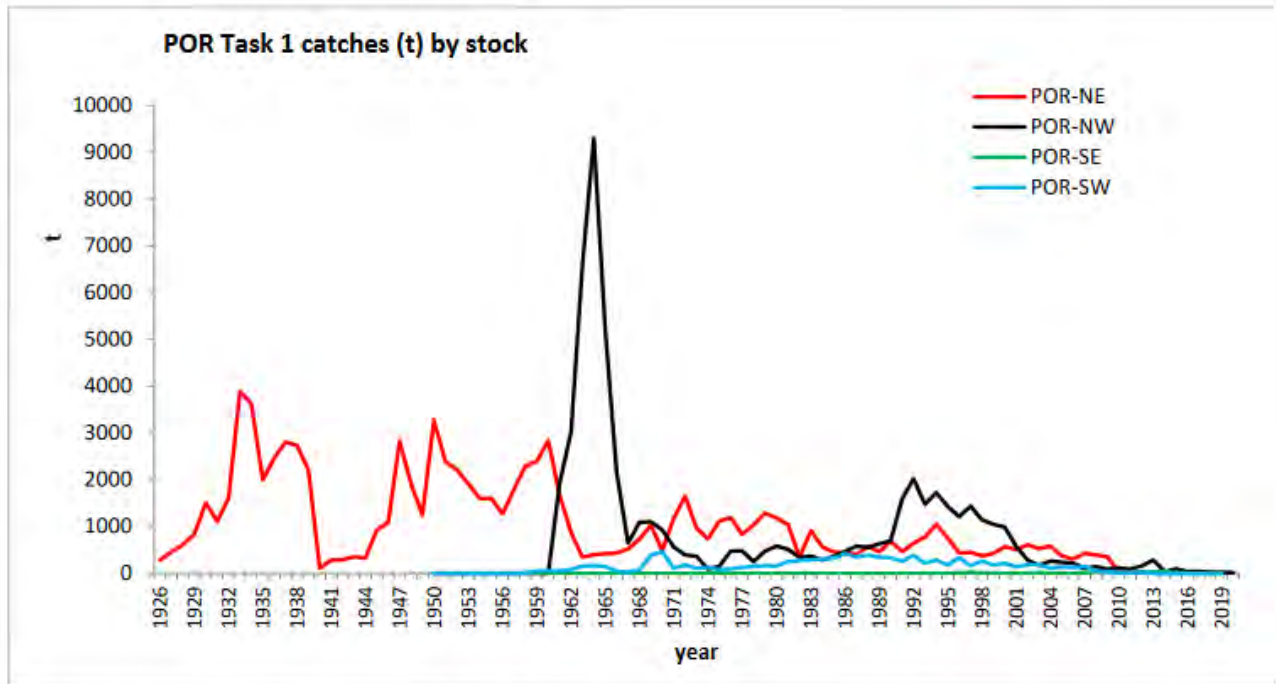
endangered species by COSEWIC and in March 2013 it was listed in Appendix II of CITES. As of 2009, the North Atlantic Porbeagle population was estimated to be at 37% of the biomass of this species in 1961, and that with the current low fishing mortality, the stock is slowly recovering (ICCAT 2010). A 2020 stock assessment for the porbeagle by ICCAT indicates that neither the North Atlantic and South Atlantic stocks are experiencing overfishing and suggest that the NW Atlantic stock has been rebuilding since 2001 (ICCAT 2022).



**Figure 1.** Essential Fish Habitat (light purple area) for the Porbeagle within the US EEZ (Source: NMFS 2009)



**Figure 2.** Map of porbeagle distribution (*Lamna nasus*). Taken and modified from the International Union for Conservation of Nature (IUCN) (IUCN SSC Shark Specialist Group 2018. *Lamna nasus*. The IUCN Red List of Threatened Species. Version 2021-1). The data taken from Bowlby *et al.* (2020a) are in light blue, and those from Mejuto *et al.* (2020) are shown in violet and salmon pink. To distinguish, the data from intertropical areas of the East Atlantic between 20°N and 20°S are indicated in salmon pink.



**Figure 3.** Nominal catch of porbeagle (t) in each of the 4 stocks considered in the Atlantic Ocean, reported to ICCAT in Task 1 for the period 1950-2020 (Anon., 2022).

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

This species is rare throughout its range.

**Details of historic and current occurrence:**

There is no historical occurrence information available.

There is no current occurrence information 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%	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, 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 porbeagle shark’s anti-tropical distribution is hypothesized to have originated during glacial periods, when tropical regions were narrower, and this species was able to cross between hemispheres (ICCAT 2022). This species is commonly found in littoral and epipelagic waters, inhabiting continental shelves and the open ocean (Compagno 2001, ICCAT 2022). It is most abundant on continental offshore banks but can be found far from land in ocean basins and occasionally close inshore (Compagno 2001, COSEWIC 2004). This shark typically occurs in cold water, less than 18°C down to 1°C (Compagno 2001), but an analysis of a Canadian commercial fishery found that more than half of the porbeagle were caught between 5°C and 10°C with a mean temperature of 7.4°C, suggesting a preference for temperatures within that range (Campana et al. 2004, COSEWIC 2004, ICCAT 2022). The porbeagle ranges in depth from the surface and inshore waters less than 1 meter deep down to at least 700 m (Compagno 2001, Campana et al. 2004, COSEWIC 2004, ICCAT 2022).

## V. Species Demographics and Life History

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

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):*

The biology of the porbeagle is poorly understood, as much remains unknown about this species' age and growth (Compagno 2001). The porbeagle is a very active and strong-swimming shark that can be found singly, in schools, or in feeding aggregations (Compagno 2001). Like other sharks belonging to the Lamnidae family, the porbeagle maintains an internal body temperature up to 11 °C higher than surrounding temperatures (ICCAT 2022). This species is slow growing, late to mature, and produces low numbers of offspring (COSEWIC 2004). Mating in the Northwest Atlantic occurs in winter to late-spring (Compagno 2001, COSEWIC 2004). It is thought that mating occurs on the Grand Banks, off southern Newfoundland, and at the mouth of the Gulf of St. Lawrence because pregnant females were found in these areas during the fall (COSEWIC 2004). Sexual segregation is common in pregnant females, which move into remote areas during gestation and birth and remain segregated from males in breeding grounds (ICCAT 2022). The porbeagle is ovoviviparous and exhibits oophagy - embryos feed on the yolk of their own egg, and on unfertilized eggs produced by the mother (Compagno 2001, COSEWIC 2004). Average litter size of this species is 4 pups, and no parental care is given after birth (COSEWIC 2004). The porbeagle can grow to 145 inches, but most are smaller (Compagno 2001).

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

In the Northwestern Atlantic, longline fisheries targeting swordfish and tuna result in porbeagle bycatch (Stevens et al. 2006). This species is exceptionally vulnerable to fisheries exploitation as its epipelagic habitat occurs within the range of gillnet and longline fisheries (Campana and Joyce 2004, Stevens et al. 2006). While at-vessel mortality rates for this species have been reported to be relatively low, with average mortality (between multiple studies) being 20%, there is considerable variability in survival which is dependent upon several factors including temperature, handling, shark size, and degree of injury (Curtis 2016). The slow biological productivity and inherent life history characteristics of this species makes recovery from overexploitation difficult (Compagno 2001). 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 change and other present threats, particularly bycatch mortality, will likely exacerbate climate-induced changes (Harley et al. 2006).

<b>Threat Level 1</b>	<b>Threat Level 2</b>	<b>Threat Level 3</b>	<b>Spatial Extent</b>	<b>Severity</b>	<b>Immediacy</b>	<b>Trend</b>	<b>Certainty</b>
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)	Choose an item.	Choose an item.	Choose an item.	Choose an item.	Choose an item.

**Table 1.** Threats to porbeagle 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:**

This species is listed on Appendix II of CITES, which regulates its harvest and trade.

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

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

- Develop fact sheets for distribution to commercial and recreational fisherman regarding the wellbeing 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.

To prevent overfishing and allow recovery, it is recommended that Porbeagles be subject to regional and national catch limits based on scientific advice and/or the precautionary approach, as well as improved reporting of catch data (including discards), efforts to minimize bycatch mortality, and full implementation of all commitments agreed through international treaties (Rigby 2019).

Action Category	Action	Description
A.2 Direct Species Management	A.2.0.0.0 Direct species management	Harvest management

**Table 2.** Recommended conservation actions for porbeagle shark.

**VII. References**

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