# Species Status Assessment

**Common Name:** Sandbar shark **Date Updated:** 1/12/2024

**Scientific Name:** *Carcharhinus plumbeus* **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 sandbar shark is a large coastal species widespread in subtropical and warm temperate waters around the world. In the Western Atlantic Ocean, it occurs from southern Massachusetts southward to Brazil. Sandbar sharks are long lived with low fecundity and consequently very vulnerable to overfishing. The sandbar shark was historically taken in commercial and recreational fisheries along the Southern Atlantic Coast of the U.S. and in the Gulf of Mexico, which expanded rapidly in the last 20 years and led to significant population declines (Musick et al. 2009). Genetic data indicates no differentiation between Atlantic and Gulf individuals and tagging data shows a high frequency of movement between the basins (NMFS 2011). Individuals have historically been observed along the south shore of Long Island during spring and summer, indicating this is an important pupping area for this species (Spring 1960). Outside the shark research fishery, sandbar sharks are a prohibited species in Atlantic waters (Musick et al. 2009). The IUCN Red List status has changed from vulnerable in 2009 to endangered in the 2021 assessment.

## 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:** SNR, Unranked **Tracked by NYNHP?:** No

### Other Ranks:

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

-IUCN Red List: Endangered

-Northeast Regional SGCN: RSGCN

-UNCLOS: Annex I

-CITES: II

### Status Discussion:

The IUCN has assessed the sandbar shark as globally Vulnerable due to the high intrinsic vulnerability of this species and given significant population declines throughout its Northwest and Western Central Atlantic range as a result of target and by-catch exploitation by fisheries (Kyne et al. 2009).

## II. Abundance and Distribution Trends

| Region | Present? | Abundance | Distribution | Time Frame | Listing status | SGCN? |
|---|---|---|---|---|---|---|
| **North America** | Yes | Declining | Unknown | 1988 - present | | - |
| **Northeastern US** | Yes | Declining | Unknown | 1988 – present (Mid-Atlantic Bight) | | Yes |
| **New York** | Yes | Declining | Unknown | 1988 - present | | Yes |
| **Connecticut** | Yes | Declining | Unknown | 1988 - present | Not Listed | Yes |
| **Massachusetts** | Yes | Declining | Unknown | 1988 - present | Not Listed | No |
| **New Jersey** | Yes | Declining | Unknown | 1988 - present | 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):*

The National Marine Fisheries Services (NMFS) Cooperative Shark Tagging Program is an ongoing effort from recreational anglers, commercial anglers and the NMFS to tag sharks throughout the Atlantic Ocean and Gulf Coast. Since 1962 over 221,000 sharks of 52 different species have been tagged. The tagging of sharks provides information on stock identity, movements and migration, abundance, age and growth, mortality and behavior (NMFS 2011)

### 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. 2021). At the 1998 Shark Evaluation Workshop a modeling approach was used to assess sandbar sharks, determining that the 1998 stock was 58-70% of the stock size at maximum sustainable yield (NMFS 2011). The 2006 assessment concluded that the stock was overfished with overfishing occurring. The commercial landings of sandbar sharks increased overall from 1981 to a peak in 1994 (126,300 sharks) and steadily declined thereafter (NMFS 2011). The majority of landings occurred in the Gulf of Mexico (53%) with only 15% occurring in the Mid-Atlantic region (NMFS 2011). Stock abundance and biomass trends show little depletion from 1960 to 1982, corresponding with low catch numbers, and a resulting decline up until 2007 due to increased catches (NMFS 2011). Fishing mortality was low from 1960-1981 in accordance with reduced

catches and effort, but widely escalated after 1982 and has dropped below the fishing maximum sustainable yield reference point in 2009 due to reduced catches imposed by management. Studies have calculated that sandbar shark stocks are being fished above their ability to replace themselves and that stricter management action is needed to reduce mortality rates of juvenile and sub-adults to aid in the recovery of this species (Brewster-Geisz and Miller 2000).

**Distribution Map**

*Carcharhinus plumbeus*


Legend

EXTANT (RESIDENT)

Compiled by:

IUCN SSC Shark Specialist Group 2020

**Figure 1.** ICUN Red List Sandbar Shark distribution map (Rigby 2021)

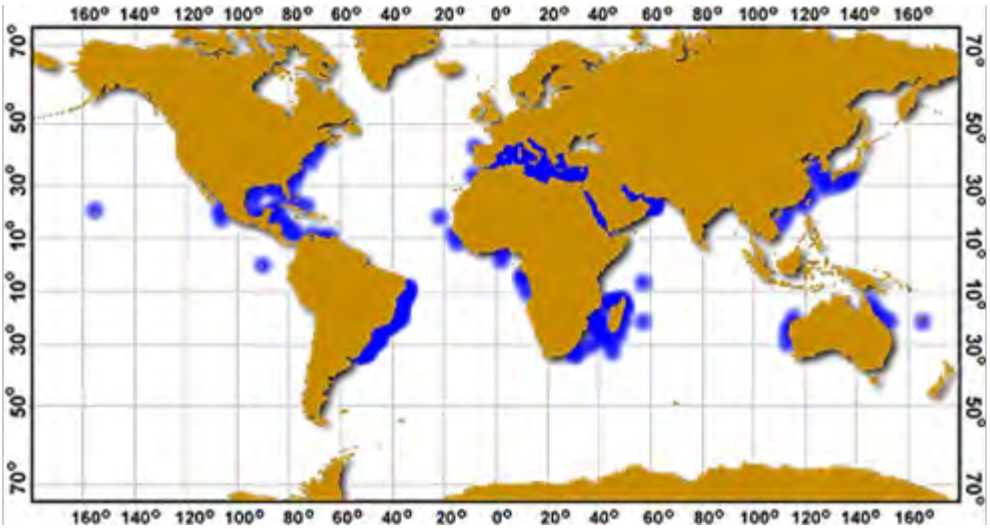


**Figure 2.** Global distribution of the sandbar shark (Compagno 1984).

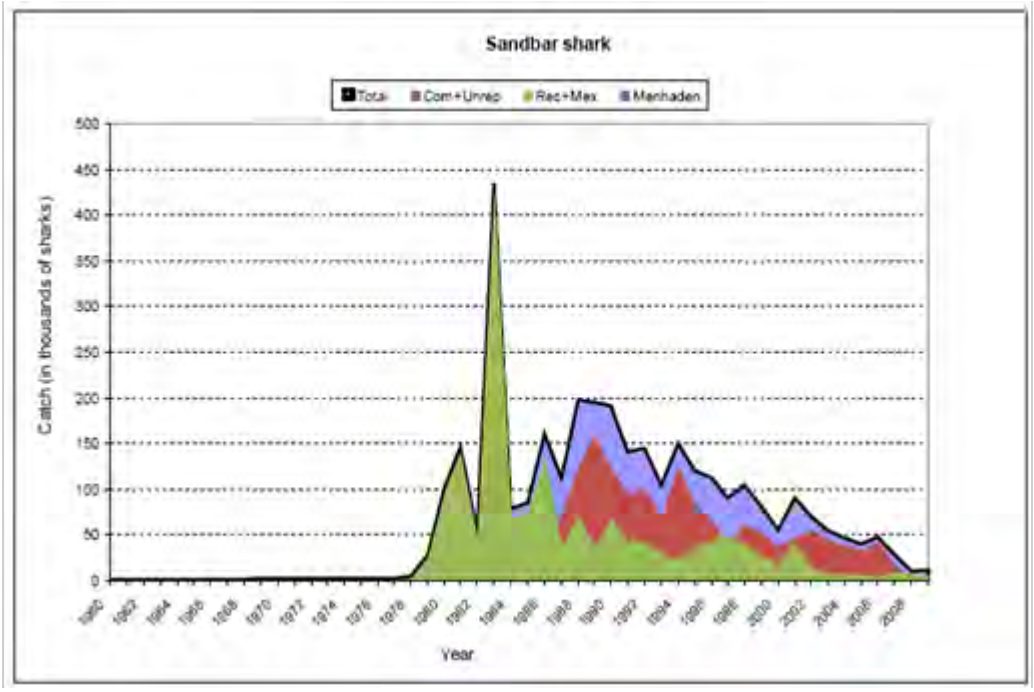


**Figure 3**. Catch of sandbar sharks (in thousands of individuals), 1960-2009 (NMFS 2011).

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

Sandbar sharks are a fairly abundant coastal species and a significant component of coastal shark fisheries worldwide (Musick et al. 2009).

### Details of historic and current occurrence:

**Historic:**

Nursery grounds were identified in the shallow water along the southern shore of Long Island, particularly Great South Bay, in 1916 (Springer 1960). It was also noted that adults of the two sexes were almost never taken together near Long Island, and females will enter the nursery area to give birth, not remaining for long or actively feeding while there (Springer 1960). Other records indicate that sandbar sharks are common in bays along the ocean side of Long Island from mid-June to mid-September (Nicholas and Breder Jr. 1927).

**Current:**

There are no observations of current occurrence; however its likely sandbar sharks are still using the south shore of Long Island as nursery grounds.

### 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

**c.** Estuarine, 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:

Sandbar sharks are found in tropical and temperate waters where they are demersal and pelagic. They occur on continental and insular shelves, in adjacent deep water, and oceanic banks (Compagno 1984, Rigby et al. 2021). This species occurs in shallow watrs such as bays, estuaries, and harbors (Rigby et al. 2021). They are common at bay and river mouths, in harbors, and inside shallow muddy and sandy bays, avoiding the surf zone, coral reefs, and rough bottoms (Compagno 1984). Sandbar sharks are found nearshore and at depths of 280m (Rigby et al. 2021).

Stocks migrate seasonally along the western North Atlantic seaboard, heading south for the winter and north in the summer (Compagno 1984). Migrations are likely influenced by water temperature, changes in areas of upwelling, and ocean currents. Young form mixed-sex schools on shallow coastal nursing grounds, moving into deeper, warmer water in winter (Compagno 1984). Adults are usually segregated except during southward migration when individuals often travel in large

schools. This species is a primarily a predator on small fishes, mollusks and crustaceans (Compagno 1984).

## V. Species Demographics and Life History

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

Sandbar sharks reach a maximum size of around 240 to potentially 300cm total length (TL). Females reach maturity at 129 to 190 cm (TL) and are around 8 to 16 years with a maximum age of 21 to 27 years. Males reach maturity at 123 to 180 cm (TL) and at birth sandbar sharks are 40 to 76 cm (TL) (Rigby et al. 2021). Sandbar sharks are viviparous, producing litters of 1-14 with an average of 9 pups (Rigby et al. 2021, Springer 1960, NMFS 2006) and have a yolk-sac placenta (Rigby et al. 2021, Knickle 2018 ). Mating occurs in the spring and summer. Gestation period ranges from 8-12 months depending upon the geographical location and reproduction occurs every 2 to 3 years, with a resting year occurring after each birthing event (Compagno 1984). Young pups inhabit shallow coastal nursery grounds during the summer and move offshore into deeper, warmer waters for the winter; females leave pupping grounds soon after giving birth (Compagno 1984). Adult sandbar sharks are rarely eaten by predators, but juveniles fall prey to larger shark species, particularly bull and tiger sharks, which feed on young in inshore areas (Compagno 1984).

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

Due to its moderate size, high fin-to-carcass ratio, and desirable meat, sandbar shark have been the primary targeted species along the eastern U.S. in the commercial shark fishery (Musick et al. 2009). Their slow growth rate, late sexual maturity, and low reproductive output are all factors that make this species vulnerable to over-exploitation from fishing. Inshore habitats, which are important nursery grounds for sandbar shark, may be impacted by human activities altering and degrading the coastal environment (Kyne et al. 2009). Marine migratory species like the sandbar shark are potentially vulnerable to climate change impacts from changes in food distribution and abundance, changing ocean circulation, and exacerbation of present threats (ZSL 2010).

| 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 | 5.4.3 Poaching/persecution of aquatic species | 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 sandbar 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:**

The National Marine Fishery Service first implemented a Fishery Management Plan for Sharks of the Atlantic Ocean in 1993, when sandbar sharks (part of the large coastal shark (LCS) complex) were identified as overfished and commercial quotas were established for the whole complex. Sandbar sharks were assessed individually in 1998 and later in 2002 and 2006. In 2006, the assessment concluded the stock was still overfished with overfishing occurring (NMFS 2011). Shark finning has been banned in the U.S. since 1993 as part of the Atlantic shark FMP and all commercial shark fisheries must have a permit and report landings by species. Amendment 2 to the FMP removed sandbar sharks from the LCS complex and a quota of 87.9 mt dw annually was established based on the most recent stock assessment (NMFS 2011). Only commercial vessels participating in the shark research fishery and carrying an observer are authorized to land sandbar sharks (NMFS 2011). Amendment 2 also prohibited recreational anglers from possession of sandbar sharks. New York anglers are prohibited from possessing sandbar sharks (NYSDEC 2021).

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

New York's inshore habitat should be evaluated to determine if sandbar sharks as well as other demersal sharks are still using the southern shore of Long Island as pupping and nursery grounds. New York should continue to implement regulations consistent with the National Marine Fisheries Service regulations to support recovery of all demersal sharks.

| Action Category | Action | Description |
|---|---|---|
| A.1 Direct Habitat Management | C.6.5.0.0 Conservation planning | Site/area protection |
| A.2 Direct Species Management | A.2.0.0.0 Direct species management | Species management<br>Harvest management<br>Trade management |
| A.2 Direct Species Management | A.2.0.0.0 Direct species management | Species recovery |
| C.7 Legislative and Regulatory Framework or Tools | C.7.0.0.0 Legislative and Regulatory Framework or Tools | Legislation<br>National level |
| B.4 Law Enforcement and Prosecution | B.4.0.0.0 Law Enforcement and Prosecution | Compliance and enforcement |

| Action Category | Action | Description |
|---|---|---|
| | | National level |

**Table 2.** Recommended conservation actions for sandbar shark (Rigby et al. 2021)

## VII. References


Brewster-Geisz, K.K. and T.J. Miller. 2000. Management of the sandbar shark, *Carcharhinus plumbeus*: implications of a stage-based model. Fishery Bulletin 98: 236-249.

Compagno, L.J.V. 1984. An annotated and illustrated catalogue of shark species known to date part 2-Carcharhiniformes. FAO species catalogue Vol. 4. Sharks of the World. 125(4).

Knickle, C. 2018. Carcharhinus plumbeus, Sandbar Shark. https://www.floridamuseum.ufl.edu/discover-fish/species-profiles/carcharhinus-plumbeus/ Accessed on 10 January 2024

Kyne, P.M., J.K. Carlson, D.A. Ebert, S.V. Fordham, J.J. Bizzaro, R.T. Graham, D.W. Kulka, E.E. Tewes, L.R. Harrison, and N.K. Dulvy. (eds). 2012. The conservation status of North American, Central American, and Caribbean chondrichthyans. IUCN Species Survival Commission Shark Specialist Group, Vancouver, Canada. 156p.

Musick, J.A., J.D. Stevens, J.K. Baum, M. Bradai, S. Clo, I. Fergusson, R.D. Grubbs, A. Soldo, M. Vacchi, and C.M. Cooren. 2009. *Carcharhinus plumbeus*. In: IUCN 2012. IUCN Red List of Threatened Species. Version 2012.2.

National Marine Fisheries Service (NMFS). 2006. Southeast Data, Assessment, and Review (SEDAR) 11. Large coastal shark complex, blacktip and sandbar shark stock assessment report. NOAA/NMFS Highly Migratory Species Division, Silver Spring, MD.

National Marine Fisheries Service (NMFS). 2011. Southeast Data, Assessment, and Review (SEDAR) 21. Highly migratory species- sandbar shark. NOAA/NMFS Highly Migratory Species Division, North Charlston, SC. 459p.

National Marine Fisheries Service (NMFS). 2011. NMFS Cooperative Shark Tagging Program. Apex Predators Program, NOAA/NMFS/NEFSC, Narragansett, Rhode Island. <http://na.nefsc.noaa.gov/sharks/tagging.html>.

NatureServe Explorer. 2023. NatureServe Explorer. Page last published 5 January 2024. https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.105518/Carcharhinus_plumbeus Accessed 11 January 2024.

New York State Department of Environmental Conservation. 2015. New York State Species of Greatest Conservation Need. https://extapps.dec.ny.gov/docs/wildlife_pdf/sgnc2015list.pdf

New York State Department of Environmental Conservation. 2021. NYCRR: Chapter 1-Fish and Wildlife Part 40.7 Coastal Sharks. https://govt.westlaw.com/nycrr/Document/I21d644f5c22211ddb7c8fb397c5bd26b?viewType=FullText&originationContext=documenttoc&transitionType=CategoryPageItem&contextData=(sc.Default)&bhcp=1

Nichols, J.T. and C.M. Breder Jr. 1927. The marine fishes of New York and southern New England. Zoologica 9(1): 1-92.

Northeast Fish and Wildlife Diversity. 2023. Regional Species of Greatest Conservation Need (RSGCN). https://northeastwildlifediversity.org/rsgcn Accessed 5 January 2024.

Rigby, C.L., Derrick, D., Dicken, M., Harry, A.V., Pacoureau, N. & Simpfendorfer, C. 2021. Carcharhinus plumbeus. The IUCN Red List of Threatened Species 2021: e.T3853A2874370. https://dx.doi.org/10.2305/IUCN.UK.2021-2.RLTS.T3853A2874370.en. Accessed on 11 December 2023.

Springer, S. 1960. Natural history of the sandbar shark, *Eulamia milberti*. Fishery Bulletin 178 (61): 1-28.

Zoological Society of London. 2010. McNamara, A., J. Atkinson, J. Baillie, B. Collen, K. Breach, H. Froy, S. Khela, A. Mukherjee, J. Peet, R. Smith, W. Foden, A. Kuhl. Climate change vulnerability of migratory species: the path ahead. A Project Report for CMS Scientific Council 16, Bonn, 28-30 June. 224p.