

Common Name: Dusky shark
Scientific Name: *Carcharhinus obscurus*
Taxon: Sharks, Skates, and Rays

SGCN – High Priority

Federal Status: Not Listed
New York Status: Not Listed

Natural Heritage Program Rank:
 Global: G3
 New York: Not Ranked
 Tracked: No

Synopsis:

This species is found along continental coastlines in tropical and temperate waters ranging from Nova Scotia to Cuba, including the northern Gulf of Mexico, from Nicaragua to southern Brazil in the western Atlantic and from southern California to the Gulf of California in the eastern Pacific (NOAA 2011, NatureServe 2012). It is also found in the Mediterranean, Indian, and western Pacific, including Madagascar and Australia (Knickle no date, Musick et al. 2007, NatureServe 2012). This species is especially vulnerable to overfishing because of its large size and low fecundity (NOAA 2011, NRDC 2013). The northwest Atlantic population, which includes New York waters, is in decline (Cortés et al. 2006, NRDC 2013).

The current northwestern Atlantic and Gulf of Mexico dusky shark population represents approximately 15–20% of its 1970s abundance (Cortés et al. 2006). In the Gulf of Mexico there has been an estimated 79% population decline in dusky sharks (Baum and Myers 2004).

Distribution (% of NY where species occurs)		Abundance (within NY distribution)		NY Distribution Trend	NY Abundance Trend
0% to 5%		Abundant		Moderate Decline	Severe Decline
6% to 10%		Common			
11% to 25%		Fairly common			
26% to 50%		Uncommon	X		
> 50%	X	Rare			

Habitat Discussion:

This is a coastal-pelagic species that occupies mostly continental shorelines from shallow waters to the outer reaches of the continental shelf and adjacent waterways to 1,300 feet in depth (NOAA 2011, NRDC 2013). Adults avoid areas of low salinity, but juveniles will use shallow coastal estuaries and bays as nurseries (NRDC 2013).

Primary Habitat Type
Marine; Deep Sub-tidal

Distribution:

No distribution information specific to New York is available.



Distribution of the dusky shark in the western hemisphere (NOAA 2011).

Threats to NY Populations				
Threat Category	Threat	Scope	Severity	Irreversibility
1. Biological Resource Use	Fishing & Harvesting Aquatic Resources (bycatch)	P	M	V
2. Climate Change & Severe Weather	Habitat Shifting & Alteration (warming ocean temperatures)	P	L	V
3. Biological Resource Use	Fishing & Harvesting Aquatic Resources (illegal harvest)	P	L	H
4. Biological Resource Use	Fishing & Harvesting Aquatic Resources (recreational fishing)	P	L	M
5. Energy Production & Mining	Renewable Energy (offshore wind energy)	N	L	M

References Cited:

Baum, J.K. and Myers, R.A. 2004. Shifting baselines and the decline of pelagic sharks in the Gulf of Mexico. *Ecology Letters* 7(2):135-145.

National Oceanic and Atmospheric Association (NOAA). 2011. Species of concern dusky shark. NOAA National Marine Fisheries Service.

Natural Resource Defense Council (NRDC). 2013. Petition to list northwest Atlantic dusky shark (*Carcharhinus obscurus*) as threatened under the Endangered Species Act.

NatureServe. 2012. NatureServe Explorer: An online encyclopedia of life [web application]. Version 7.1. NatureServe, Arlington, Virginia. <<http://www.natureserve.org/explorer>> (Accessed: April 24, 2013).

Common Name: Porbeagle shark
Scientific Name: *Lamna nasus*
Taxon: Sharks, Skates, and Rays

SGCN – High Priority

Federal Status: Not Listed
New York Status: Not Listed

Natural Heritage Program Rank:
 Global: Not Ranked
 New York: Not Ranked
 Tracked: No

Synopsis:

The porbeagle is a large cold-temperate pelagic shark that can be found in isothermic bands across the North Atlantic Ocean as well as the South Atlantic and South Pacific oceans (Campana and Joyce 2004, COSEWIC 2004, Stevens et al. 2006). 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). This species is in decline and has been listed as vulnerable by the IUCN (Stevens et al. 2006). 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). This species is in decline throughout its range as a result of overharvesting and its low reproductive capacity (Stevens et al. 2006, CITES 2013).

Distribution (% of NY where species occurs)		Abundance (within NY distribution)		NY Distribution Trend	NY Abundance Trend
0% to 5%		Abundant		Stable	Severe Decline
6% to 10%		Common			
11% to 25%		Fairly common			
26% to 50%		Uncommon	X		
> 50%	X	Rare			

Habitat Discussion:

This species is commonly found in littoral and epipelagic waters (Compagno 2001). 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 (Campana et al. 2004, COSEWIC 2004). 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).

Primary Habitat Type
Marine; Deep Sub-tidal

Distribution:

No distribution information specific to New York is available.



Global distribution of the porbeagle shark (IUCN 2006)

Threats to NY Populations				
Threat Category	Threat	Scope	Severity	Irreversibility
1. Biological Resource Use	Fishing & Harvesting Aquatic Resources (commercial catch)	P	L	H
2. Biological Resource Use	Fishing & Harvesting Aquatic Resources (bycatch/discard)	P	L	H
3. Biological Resource Use	Fishing & Harvesting Aquatic Resources (recreational catch)	P	L	M

References Cited:

Campana, S.E. and W.N. Joyce. 2004. Temperature and dept associations of porbeagle shark (*Lamna nasus*) in the northwest Atlantic. Fisheries Oceanography 13(1): 52-64.

Compagno, L.J.V. 2001. Sharks of the world. An annotated and illustrated catalogue of shark species known to date. Vol. 2. Bullhead, mackeral and carpet sharks (Heterodontiformes, Lamniformes and Orectolobiformes). FAO species catalogue for fisheries purposes. No. 1. Vol. 2. FAO, Rome.

COSEWIC. 2004. COSEWIC assessment and status report on the porbeagle shark *Lamna nasus* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. viii + 43 pp. (www.sararegistry.gc.ca/status/status_e.cfm).

International Union for Conservation of Nature (IUCN) 2006. *Lamna nasus*. In: IUCN 2012. IUCN Red List of Threatened Species. Version 2012.2

Natanson, L.J., Mello, J.J., and S.E. Campana. 2002. Validated age and growth of the porbeagle shark, *Lamna nasus*, in the western North Atlantic Ocean. Col. Vol. Sci. Pap. ICCAT 54(4): 1261-1279.

Stevens, J., Fowler, S.L., Soldo, A., McCord, M., Baum, J., Acuña, E., Domingo, A. & Francis, M. 2006.
Lamna nasus. In: IUCN 2012. IUCN Red List of Threatened Species. Version 2012.2.
<www.iucnredlist.org> (Accessed: April 15, 2013).

Common Name: Roughtail stingray
Scientific Name: *Dasyatis centroura*
Taxon: Sharks, Skates, and Rays

SGCN – High Priority

Federal Status: Not Listed
New York Status: Not Listed

Natural Heritage Program Rank:
 Global: Not Ranked
 New York: Not Ranked
 Tracked: No

Synopsis:

This is one of the largest marine and brackish water stingrays, occurring in three separate populations: the northwest Atlantic, the southwest Atlantic and the eastern Atlantic oceans (Bullis and Struhsaker 1961, Struhsaker 1969, Rosa et al. 2007). New York is included in the northwest Atlantic population. Despite the limited amount of data available on the biology of this species, its large size and low fecundity make it inherently vulnerable to overexploitation (Rosa et al. 2007). In United States waters of the northwest Atlantic this species is not targeted and the data suggests that populations off the East Coast are stable (Rosa et al. 2007). In the southwest Atlantic and Mediterranean, it is taken by fisheries operating throughout much of its habitat (Eagle no date, Rosa et al. 2007). This species has been captured occasionally off Long Island (M. Richards, personal communication), but because there are so few records experts feel that conservation actions are best approached at a level higher than species (SGCN Expert Marine Fish Meeting).

Distribution (% of NY where species occurs)		Abundance (within NY distribution)		NY Distribution Trend	NY Abundance Trend
0% to 5%		Abundant		Unknown	Unknown
6% to 10%		Common			
11% to 25%		Fairly common			
26% to 50%	X	Uncommon	X		
> 50%		Rare			

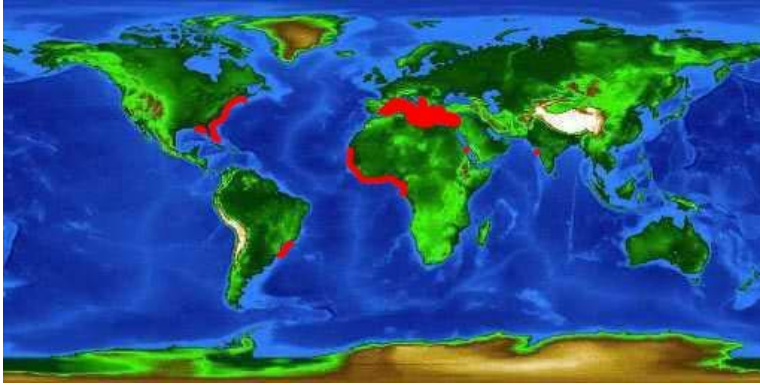
Habitat Discussion:

This species is found in coastal waters over sandy and muddy bottoms, sometimes in brackish water, normally less than 328 feet in depth (Rosa et al. 2007). It has been recorded in waters up to 900 feet in depth in the Bahamas (McEachran and Fechhem 1998).

Primary Habitat Type
Marine

Distribution:

There little catch data available for this species in New York. The NYSDEC has records of two individuals being captured during trawl surveys from 2009 in Noyack Bay, Suffolk County (M. Richards, personal communication).



Global distribution of the rough-tail stingray (Eagle no date).

Threats to NY Populations				
Threat Category	Threat	Scope	Severity	Irreversibility
1. Biological Resource Use	Fishing & Harvesting Aquatic Resources (bycatch)	P	L	H

References Cited:

Bullis, H.R. Jr. and P. Struhsaker. 1961. Life history notes on the rough-tail stingray, *Dasyatis centroura* (Mitchill). *Copeia* 2:232-234.

Eagle, D. No date. Florida Museum of Natural History Ichthyology Department (On-line). Rough-tail Stingray. Available at: <<http://www.flmnh.ufl.edu/fish/Gallery/Descript/RtailStingray/RtailStingray.html>> (Accessed: April 23, 2013).

McEachran, J.D. and Fechhelm, J.D. 1998. Fishes of the Gulf of Mexico: Myxiniiformes to Gasterosteiformes. University of Texas Press, Austin, USA.

Richards, M. 2013. E-mail with excel file featuring rough-tail stingray catches in Long Island. Personal communication. NYSDEC. East Setauket, NY.

Rosa, R.S., Furtado, M., Snelson, F., Piercy, A., Grubbs, R.D., Serena, F. & Mancusi, C. 2007. *Dasyatis centroura*. In: IUCN 2012. IUCN Red List of Threatened Species. Version 2012.2. <www.iucnredlist.org> (Accessed: April 22, 2013).

Common Name: Sand tiger shark *SGCN – High Priority*
Scientific Name: *Carcharias taurus*
Taxon: Sharks, Skates, and Rays

Federal Status: Not Listed **Natural Heritage Program Rank:**
New York Status: Not Listed Global: G3G4
New York: Not Ranked
Tracked: No

Synopsis:

The sand tiger shark, *Carcharias taurus* is found in a wide range of inshore waters, excluding the eastern Pacific. Primarily found in subtropical and warmer temperate waters, this species is found from the Gulf of Maine to Florida along the East Coast and in the northern Gulf of Mexico. It can occur in the surf zone, shallow bays, around rocky or coral reef structure, and have even been found at up to depths of 200 meters along the continental shelf (Pollard et al. 2009). Since 1997, harvesting of this species has been prohibited under the federal Highly Migratory Species Fishery Management Plan (FMP). Additionally, since 2010 the Shark Interstate Fisheries Management Plan has banned the retention or possession of sand tiger sharks from Maine to Florida. This shark is fished for consumption in Japan, as well as for its oil and fins. It is often caught as bycatch in longline fishing and with various trawls and gillnets. Sand tiger sharks tend to aggregate for different events making them an easy target for fishermen (NMFS 2010). Sand tigers are late-to-mature, mate biannually, and produce only one to two pups per litter (Gilmore et al. 1983). Although recent assessments show that this species is not in severe decline and is not experiencing severe exploitation, it remains on the NMFS Species of Concern list due to its extremely low productivity (Carlson et al. 2009). In order to assess the stock more accurately, better data is needed on the catch of this species along with a better understanding of their life history traits.

Distribution (% of NY where species occurs)		Abundance (within NY distribution)		NY Distribution Trend	NY Abundance Trend
0% to 5%		Abundant		Stable	Moderate Decline
6% to 10%		Common			
11% to 25%	X	Fairly common	X		
26% to 50%		Uncommon			
> 50%		Rare			

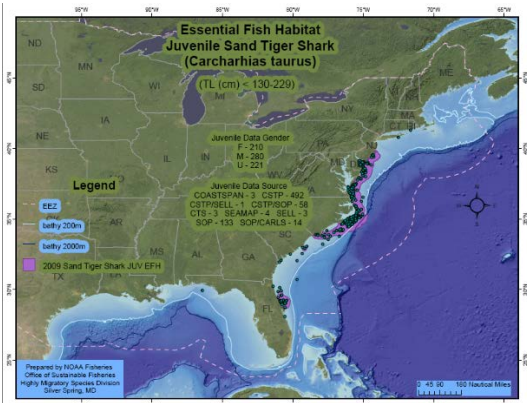
Habitat Discussion:

Sand tiger sharks have been shown to be in a range of habitats. They typically remain coastal and are found in the surf zone out to 25 meters depth, often hovering over the sea bed. Although not as common, they can also be found in shallow bays, around coral or rocky reefs, and at the edge of the continental shelf at depths up to 200 meters (NMFS 2010, Pollard et al. 2009). They have a wide distribution range, and are primarily found in subtropical and warm temperate waters. Along the eastern U.S. they are found from the Gulf of Maine to Florida and in the northern Gulf of Mexico. They are not found in the eastern Pacific off of North and South America (Pollard et al. 2009). In warmer months there is high abundance of sand tiger sharks in the Delaware Bay, and off of North and South Carolina. They are also found year-round off of Florida’s eastern coast (Carlson et al. 2009).

Primary Habitat Type
Marine; Deep Sub-tidal
Marine; Shallow Sub-tidal

Distribution:

Sand tigers are currently found in New York waters, including the Atlantic Ocean and the Long Island Sound.



NMFS (2009)

Threats to NY Populations				
Threat Category	Threat	Scope	Severity	Irreversibility
1. Climate Change & Severe Weather	Habitat Shifting & Alteration (effects of warming ocean temperature)	P	L	V
2. Biological Resource Use	Fishing & Harvesting Aquatic Resources (bycatch)	P	M	H
3. Biological Resource Use	Fishing & Harvesting Aquatic Resources (illegal harvest)	P	L	H
4. Biological Resource Use	Fishing & Harvesting Aquatic Resources (recreational fishing)	P	L	M
5. Energy Production & Mining	Renewable Energy (wind farms)	N	L	M

References Cited:

Carlson, J.K., C.T. McCandless, E. Cortes, R. D. Grubbs, K.I. Andrews, M. A. MacNeil, and J. A. Musick. 2009. An Update on the Status of the Sand Tiger Shark, *Carcharias taurus* in the Northwest Atlantic Ocean. NOAA Technical Memorandum NMFS-SEFSC-585.

Gilmore, R.G., J.W. Dodrill, and P.A. Linley. 1983. Reproduction and Embryonic Development of the Sand Tiger Shark, *Odontaspis Taurus* (Rafinesque). *Fishery Bulletin*. 8(2):201-225.

National Marine Fisheries Service (NMFS). 2010. Species of Concern Fact Sheet: Sand tiger shark, *Carcharius taurus*. http://www.nmfs.noaa.gov/pr/pdfs/species/sandtigershark_highlights.pdf. Accessed 15 May 2013.

Pollard, D. and A. Smith. 2009. *Carcharias taurus*. In: IUCN 2012. IUCN Red List of Threatened Species. Version 2012.2. <www.iucnredlist.org>. Accessed 15 May 2013.

Common Name: Thorny skate
Scientific Name: *Amblyraja radiata*
Taxon: Sharks, Skates, and Rays

SGCN – High Priority

Federal Status: Not Listed
New York Status: Not Listed

Natural Heritage Program Rank:
 Global: GNR
 New York: Not Ranked
 Tracked: No

Synopsis:

The thorny skate is a temperate to arctic species distributed on both sides of the North Atlantic Ocean. The northwest Atlantic population occurs from Greenland and Hudson Bay, Canada, southward to South Carolina, most commonly at depths of 50 to 100 meters (Packer et al. 2003). Its geographic range includes contrasting population trends; the U.S. has experienced declines while Canada and the northeast Atlantic populations have been relatively stable in recent years (Kulka et al. 2009). There is evidence indicating population segregation and division into subpopulations, but it is currently unknown if genetic mixing of subpopulations takes place in the northeast or northwest Atlantic stocks (Kyne et al. 2012).

Thorny skate have been caught off the south shore of Long Island, but they are most abundant in the Gulf of Maine and Georges Bank offshore strata with very few individuals caught in inshore Mid-Atlantic or Southern New England regions (NEFMC 2009). Thorny skate have been targeted and taken as by-catch in numerous fisheries and survey indices have declined steadily since the late 1970s. Commercial and recreational fisheries for thorny skate are now prohibited in the U.S. and management is coordinated by the Northeast Fishery Management Council (NEFMC) under the Northeast Skate Complex Fishery Management Plan of 2003.

Skates have been reported in New England fishery landings since the late 1800s. However, landings never exceeded more than a few hundred metric tons until the rise of distant water fishing fleets in the 1960s, and were never recorded by species (Sosebee 2006). Northeast Fishery Science Center (NEFSC) spring and autumn survey biomass indices for thorny skate have declined continuously since the 1960s and are now at historic lows with biomass at about 10% of the peak observed in the late 1960s. The 3-year average (2009–2011) survey biomass of 0.24 kg/tow was the lowest in the survey time series, and only 6% of the maximum sustainable yield target (4.13 kg/tow). The rebuilding deadline for this species is 2028, but 8 years into the rebuilding period, the stock continues to decline (NEFMC 2012).

Distribution (% of NY where species occurs)		Abundance (within NY distribution)		NY Distribution Trend	NY Abundance Trend
0% to 5%	X	Abundant		Moderate Decline	Severe Decline
6% to 10%		Common			
11% to 25%		Fairly common			
26% to 50%		Uncommon	X		
> 50%		Rare			

Habitat Discussion:

Thorny skate are found over a variety of bottom substrates including sand, mud, gravel, broken shell and pebbles primarily at depths of 18–1,400 meters, but most commonly at 27–439 meters (Kulka et al.

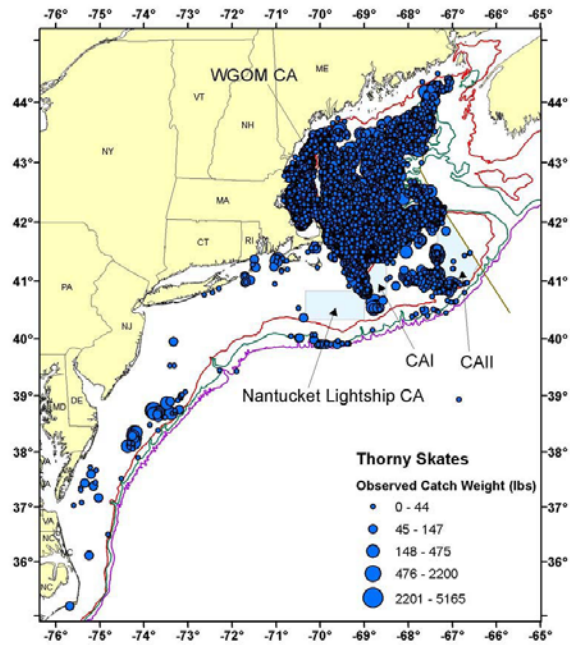
2009). It occurs in water temperature ranging from -1.3°C to 14°C , with highest concentrations between 2.5°C and 5°C (Packer et al. 2003).

Skates generally don't undergo large-scale migrations, but they do move seasonally in response to changing water temperatures, moving offshore in summer and early autumn and returning inshore during winter and spring. The thorny skate is an opportunistic feeder on the most abundant and available prey species including crustaceans, squids, bony fishes, and polychaete worms (Kulka et al. 2009).

Primary Habitat Type
Marine; Deep Sub-tidal

Distribution:

Thorny skate are caught every year in the NEFSC trawl surveys, which sample along the south shore of Long Island.



Distribution thorny skate collected from NEFSC observer data, 1989-2005 (44th SAW 2007).

Threats to NY Populations				
Threat Category	Threat	Scope	Severity	Irreversibility
1. Biological Resource Use	Fishing & Harvesting Aquatic Resources (bycatch)	P	H	H
2. Biological Resource Use	Fishing & Harvesting Aquatic Resources (illegal harvest)	P	M	H

References Cited:

Kulka, D.W., J. Sulikowski, J. Gedamke, P. Pasolini, and M. Endicott. 2009. *Amblyraja radiata*. In: IUCN Red List of Threatened Species. Version 2012.2.

Kyne, P.M., J.K. Carlson, D.A. Ebert, S.V. Fordham, J.J. Bizzarro, 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.

New England Fishery Management Council (NEFMC). 2009. Final amendment 3 to the fishery management plan (FMP) for the northeast skate complex and final environmental impact statement (FEIS) with an initial regulatory flexibility act analysis. NMFS, NEFMC. Newburyport, MA. 459p.

New England Fishery Management Council (NEFMC). 2012. Annual monitoring report: northeast skate complex fishery management plan. NMFS, NEFMC. Newburyport, MA. 6p.

Northeast Fishery Science Center (NEFSC). 2006. Skate complex: assessment summary for 2006. 44th Report of the SAW Southern Demersal Working Group. 236p.

Packer, D.B., C.A. Zetlin, and J.J. Vitaliano. 2003. Essential fish habitat source document: thorny skate, *Amblyraja radiata*, life history and habitat characteristics. NOAA Technical Memorandum NMFS-NE-178. Woods Hole, Ma. 50p.

Sosebee, K. 2006. Status of fishery resources off the Northeastern US. NOAA, NEFSC-Resource Evaluation and Assessment Division. Woods Hole, MA. 23p.

Common Name: Thresher shark *SGCN – High Priority*
Scientific Name: *Alopias vulpinus*
Taxon: Sharks, Skates, and Rays

Federal Status: Not Listed **Natural Heritage Program Rank:**
New York Status: Not Listed Global: GNR
New York: Not Ranked
Tracked: No

Synopsis:

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).

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. The 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).

Distribution (% of NY where species occurs)		Abundance (within NY distribution)		NY Distribution Trend	NY Abundance Trend
0% to 5%		Abundant		Stable	Moderate Decline
6% to 10%		Common			
11% to 25%		Fairly common	X		
26% to 50%		Uncommon			
> 50%	X	Rare			

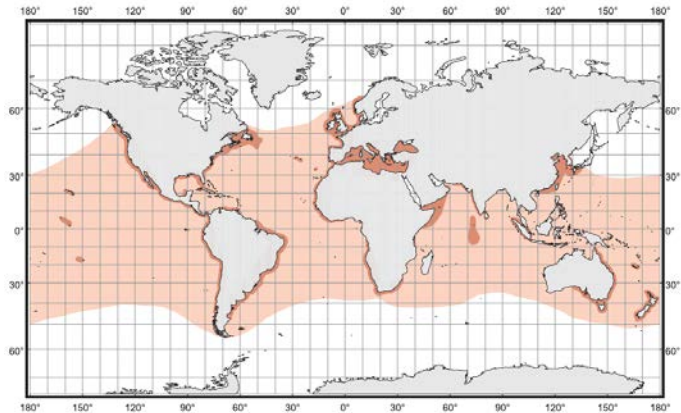
Habitat Discussion:

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. This species can be found at depths ranging from 350m to the surface (Compagno 2001).

Primary Habitat Type
Marine; Deep Sub-tidal

Distribution:

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



Compagno (2001)

Threats to NY Populations				
Threat Category	Threat	Scope	Severity	Irreversibility
1. Biological Resource Use	Fishing & Harvesting Aquatic Resources (commercial fishing)	P	L	H
2. Climate Change & Severe Weather	Habitat Shifting & Alteration (warming ocean temperatures)	P	L	V
3. Biological Resource Use	Fishing & Harvesting Aquatic Resources (recreational fishing)	P	L	M
4. Energy Production & Mining	Renewable Energy (offshore wind farms)	N	L	M
5. Biological Resource Use	Fishing & Harvesting Aquatic Resources (bycatch/discard)	N	L	H

References Cited:

Briggs, P.T. and J.R. Waldman. 2002. Annotated list of fishes report from the marine waters of New York. *Northeastern Naturalist* 9:47-80.

Castro, J.I. 1983. *The sharks of North American waters*. Texas A & M University Press, College Station.

Compagno, L.J.V. 1984. *FAO Species Catalogue No. 4. Sharks of the world. An annotated and illustrated catalogue of shark species known to date. Part 1. Hexanchiformes to Lamniformes*. *FAO Fish. Synop.* (125) Vol 4, Part 1. 246 pp. FAO, Rome.

Compagno, L.J.V. 2001. Sharks of the world. An annotated and illustrated catalogue of shark species known to date. Volume 2. Bullhead, Mackerel and Carpet Sharks (Heterodontiformes, Lamniformes and Orectolobiformes). FAO, Rome.

Goldman, K.J., J. Baum, G.M. Cailliet, E. Cortés, S. Kohin, D. Macías, P. Megalofonous, M. Perez, A. Soldo, & T. Trejo. 2009. *Alopias vulpinus* In: IUCN 2012. IUCN Red List of Threatened Species. Version 2012.2 <www.iucnredlist.org>. Accessed 22 April 2013.

Holts, D.B. 1988. Review of US West Coast commercial shark fisheries. *Marine Fisheries Review* 50: 1-8.

Strasburg, D.W. 1958. Distribution, abundance, and habits of pelagic sharks in the central Pacific Ocean. *Fishery Bulletin* 138: 335-361.

Common Name: White shark
Scientific Name: *Carcharodon carcharias*
Taxon: Sharks, Skates, and Rays

SGCN – High Priority

Federal Status: Not Listed
New York Status: Not Listed

Natural Heritage Program Rank:
 Global: TNR
 New York: Not Ranked
 Tracked: No

Synopsis:

As the world’s largest predatory fish, the white shark, frequently called the great white shark due to its size, plays an important role at the top of the marine food web. Despite its fame and reputation, little is known about its biology and behavior. The great white shark is widely distributed, occurring throughout temperate and sub-tropical regions in the northern and southern hemispheres. They are primarily found in coastal and offshore areas of the continental and insular shelves and offshore continental islands. Off the Atlantic Coast, white sharks occur from Newfoundland, Canada, southward to Argentina. Recent tagging studies show that this species undergoes long-distance and transoceanic migrations (Bonfil et al. 2005). White sharks generally aggregate in coastal waters during autumn and winter, moving offshore into oceanic waters during winter and spring, but sightings in the Mid-Atlantic Bight have occurred year round (Weng et al. 2007).

Great white sharks are declining and rare due to a history of being illegally hunted by trophy hunters for fins and teeth. They are often caught as by-catch by commercial fishermen and can also become entangled in beach protection nets. As with most species of shark, white sharks are slow-growing with low productivity and high vulnerability to overfishing and there is a significant lack of data on population numbers, abundance, fecundity, age and growth.

Because of the importance of this species as a key predator in marine ecosystems, white sharks were granted protection under Appendix II of CITES, indicating that they are vulnerable to exploitation but not at risk of extinction. The northeastern Pacific Ocean population segment is currently a candidate for listing under the Endangered Species Act. The rationale for the IUCN vulnerable listing states that where detailed population data are available, these indicate that the abundance and average size of white sharks have declined (Fergusson et al. 2009).

Population estimates for this species are unknown and even regional and localized estimates are questionable. Evidence suggests that numbers have declined in several areas throughout their range by up to 90% over the last 40–100 years. Baum et al. (2003) analyzed logbook data from the U.S. pelagic longline swordfish and tuna fleets in the Northwest Atlantic from 1986 to 2000, identifying an estimated 79% decline in CPUE (catch per unit effort) during this period. Global populations have declined 60-95% from the 1950s to the present (CITES 2004).

Distribution (% of NY where species occurs)		Abundance (within NY distribution)		NY Distribution Trend	NY Abundance Trend
0% to 5%		Abundant		Unknown	Unknown
6% to 10%		Common			
11% to 25%		Fairly common			
26% to 50%		Uncommon	X		
> 50%	X	Rare			

Habitat Discussion:

The white shark is principally a pelagic coastal and offshore inhabitant of continental and insular shelves, frequenting waters from the surface to depths of 1,875 meters and preferring waters with surface temperatures of 59 to 72°F (Chewning and Hall 2009). They may be found from the surfline and the intertidal zone to far offshore and near oceanic islands, patrolling for their prey (seals, sea lions and walruses), and occasionally entering shallow bays. Recent research has demonstrated that adults spend most of the year in the oceanic environment and can migrate across ocean basins (Bonfil et al. 2005). Results from this tagging study showed individuals undergoing transoceanic migrations, returning to the original capture location, diving to depths of 980 meters, and tolerating water temperatures as low as 3.4°C. Juveniles remain closer to shore, but also undertake very long-distance coastal migrations, crossing national boundaries. Patterns in movement and abundance within some areas are thought to be linked with temperature variations and life stage, however this may only have a minimal effect on the distribution of white sharks and is not considered responsible for the decline over recent decades (WCS 2004).

White sharks are an important apex predator in marine systems, actively feeding during the daytime on prey species like marine mammals (seals, sea lions, elephant seals, dolphins) and fish (including other sharks and rays) (Fergusson et al. 2009). They play an important role in the marine food web by controlling populations of their prey.

Primary Habitat Type
Marine; Deep Sub-tidal

Distribution:

No distribution information specific to New York is available.

Threats to NY Populations				
Threat Category	Threat	Scope	Severity	Irreversibility
1. Biological Resource Use	Fishing & Harvesting Aquatic Resources (recreational fisheries)	P	L	M
2. Climate Change & Severe Weather	Habitat Shifting & Alteration (warming ocean temperature)	P	L	V
3. Biological Resource Use	Fishing & Harvesting Aquatic Resources (illegal landings)	P	M	H
4. Biological Resource Use	Fishing & Harvesting Aquatic Resources (bycatch/discard)	P	L	H
5. Energy Production & Mining	Renewable Energy (offshore wind)	N	L	M

References Cited:

Bonfil, R. M. Meyer, M.C. Scholl, R. Johnson, S. O'Brien, H. Oosthuizen, S. Swanson, D. Kotze, and M. Paterson. 2005. Transoceanic migration, spatial dynamics, and population linkages of white sharks. *Science* 310: 100-103.

Chewning, D. and M. Hall. 2009. "*Carcharodon carcharias*" (On-Line). Animal Diversity Web. Accessed March 29, 2013. <http://animaldiversity.ummz.umich.edu/accounts/Carcharodon_carcharias/>

Fergusson, I., L.J.V. Compagno, and M. Marks. 2009. *Carcharodon carcharias*. In: IUCN 2012. IUCN Red List of Threatened Species. Version 2012.2.

Weng, K.C., A.M. Boustany, P. Pyle, S.D. Anderson, A. Brown, and B.A. Block. 2007. Migration and habitat of white sharks (*Carcharodon carcharias*) in the eastern Pacific Ocean. *Marine Biology* 152(4): 877-894.

Wildlife Conservation Society. 2004. White shark *Carcharodon carcharias*: status and management challenges. Conclusions of the workshop on great white shark conservation research. Wildlife Conservation Society Report to CITES AC20. 7p.