| | | |
|---|---|---|
| **Common Name:** | Blue whale | ***SGCN – High Priority*** |
| **Scientific Name:** | *Balaenoptera musculus* | |
| **Taxon:** | Whales, Dolphins, and Porpoises | |

| | | | |
|---|---|---|---|
| **Federal Status:** | Endangered | **Natural Heritage Program Rank:** | |
| **New York Status:** | Endangered | Global: | G3G4 |
| | | New York: | SNA |
| | | Tracked: | Yes |

**Synopsis:**

The blue whale is the largest animal to have ever lived on Earth, as well as the largest species of whale and can be found in all of the world's oceans (Gambell 1979, Mead and Brownell 1993). This includes the North Atlantic and North Pacific. There are three known subspecies of blue whales: *Baleanoptera musculus musculus*, which inhabits the Northern Hemisphere; *B. m. intermedia*, which inhabits the Antarctic; and *B. m. brevicauda*, also known as the pygmy blue whale, found in the southern Indian Ocean and southwestern Pacific (Rice 1977, Ichihara 1966).

In the North Atlantic, blue whales are found from the subtropics to the poles, with most recent records being from the Gulf of St. Lawrence, where they can be found during the spring, summer and fall (Sears et al. 1987). They rarely appear in US waters of the North Atlantic and spend much more time further off shore than other baleen whales. It is believed that blue whales are using waters of the New York Bight primarily as part of their migration routes from summer feeding areas to lower latitude winter breeding areas.

The species has been documented in the NY Bight during visual surveys and a pilot passive acoustic study (Sadove and Cardinale 1993, BRP 2010). Sightings and acoustic detections have been confined to offshore waters greater than 25 miles off the coast (Sadove and Cardinale 1993, BRP 2010). Additionally, blue whales were detected acoustically only during the late winter and early spring. It should be noted, however, that monitoring did not take place during the summer due to a lack of funds. It is, therefore, unknown if blue whales are present in the NY Bight during summer months (BRP 2010). The blue whale is seen very rarely along the eastern U.S. seaboard. These sightings are too infrequent to reliably determine population size in this area. Unfortunately, because such a small portion of the blue whale range in the western North Atlantic has been reliably sampled, existing studies cannot be used to analyze abundance of the species (Hammond et al. 1990, Sears and Calambokidis 2002).

Blue whales were severely depleted by whaling throughout their range starting with the introduction of steam-powered ships in the second half of the 19th century. At that time the blue whale became the most profitable species due to its size and was heavily targeted before gaining protection in the North Atlantic in the 1955 (Gambell 1979, Best 1993). Long-term studies in the Gulf of St. Lawrence have identified over 400 individual blue whales. Unfortunately, studies only occurred in this small portion of their range due to the rarity of sightings in other parts of the range. Therefore, it is difficult to determine population estimates and trends for this species (NMFS website, NMFS 2010). However, the most recent stock assessment for the western North Atlantic stock by NMFS gives 440 as the minimum population estimate (NMFS 2010).

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

**Habitat Discussion:**
Little is known about the habitat used by blue whales in New York waters. This area is generally considered to be a migratory corridor, although Sadove and Cardinale (1993) noted that the blue whales seen in surveys by the Okeanos Foundation (all single individuals) were associated with large groups of feeding fin whales and therefore were possibly feeding. Blue whales are often associated with bathymetric features that are believed to concentrate their main prey source, euphausiids (DFO 2009). These include continental shelf edges, underwater canyons, and deep channels where upwelling occurs (DFO 2009). If blue whales are feeding while migrating through New York they may be found in areas where their prey could be expected to be concentrated.

The blue whales seen during Okeanos Foundation surveys were always in water greater than thirty meters deep (Sadove and Cardinale 1993). Observations also came from areas 25 or more miles south of Montauk Point. In the Cornell passive acoustic monitoring program, two strings of recording devices were set up. One was in the New York Harbor area, and the other string began ten miles south of Southampton and extended to the edge of the continental shelf (BRP 2010). Blue whales were only detected on the devices off of Long Island, and most frequently on the device farthest out to sea, implying a more offshore distribution (BRP 2010). Blue whales were detected for a week in March 2008, and several times in January and February 2009 (BRP 2010). Further research is needed to be able to determine which areas of New York waters are most frequently used by this species. Also, research is needed to determine if blue whales are feeding while in this area.

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

**Distribution:**
The distribution is unknown for New York. Similar surveys to those conducted by Okeanos Ocean Research Foundation (above) have not been conducted in recent years. Surveys have been conducted by NOAA, Fisheries but nature of the surveys and rarity of sightings makes abundances difficult to determine. Blue whales are known to exist from acoustical monitoring conducted by Cornell University in 2008 and 2009, where they were detected on 28 of 258 recording days (BRP 2010).


Locations of sightings of blue whales by surveys conducted by the Okeanos Ocean Research Foundation from 15 years of research from the 1970s to early-1990s. From Sadove and Cardinale (1993).

| Threats to NY Populations | | | | |
|---|---|---|---|---|
| Threat Category | Threat | Scope | Severity | Irreversibility |
| 1. Transportation & Service Corridors | Shipping Lanes (vessel strikes) | N | H | H |
| 2. Biological Resource Use | Fishing & Harvesting Aquatic Resources (entanglement in fishing gear) | N | M | M |
| 3. Climate Change & Severe Weather | Habitat Shifting & Alteration (loss/change of prey from climate change) | P | V | V |
| 4. Energy Production & Mining | Oil & Gas Drilling (exploration and production) | R | M | H |
| 5. Energy Production & Mining | Renewable Energy (offshore wind) | N | L | H |
| 6. Human Intrusions & Disturbance | Recreational Activities (whale watching, recreational fishing) | N | L | L |
| 7. Pollution | Excess Energy (anthropogenic noise including shipping) | W | H | V |
| 8. Pollution | Garbage & Solid Waste | N | L | H |
| 9. Pollution | Industrial & Military Effluents (contaminants) | N | L | H |
| 10. Human Intrusions & Disturbance | War, Civil Unrest & Military Exercises (military sonar) | R | L | H |
| 11. Invasive & Other Problematic Species & Genes | Invasive Non-Native/Alien Species (transmittable, viruses, parasites) | N | L | V |
| 12. Invasive & Other Problematic Species & Genes | Problematic Native Species (algal blooms) | N | L | V |

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| | | |
|---|---|---|
| **Common Name:** | Fin whale | ***SGCN – High Priority*** |
| **Scientific Name:** | *Balaenoptera physalus* | |
| **Taxon:** | Whales, Dolphins, and Porpoises | |

| | | | |
|---|---|---|---|
| **Federal Status:** | Endangered | **Natural Heritage Program Rank:** | |
| **New York Status:** | Endangered | Global: | G3G4 |
| | | New York: | S1 |
| | | Tracked: | Yes |

**Synopsis:**

The fin, or finback, whale is the second largest of all of the great whales. A sleek and stream-lined rorqual, the fin whale is found in all of the world's oceans. There are currently two recognized subspecies of fin whales: *Balaenoptera physalus physalus* of the Northern Hemisphere, and *B. p. quoyi* of the Southern Hemisphere. The International Whaling Commission (IWC) has designated different stock boundaries for North Atlantic fin whales. Under the IWC, fin whales of the eastern United States, Nova Scotia, and southeastern Newfoundland comprise a single stock. However, recent genetic work suggests the presence of several subpopulations of fin whales with limited gene flow throughout the North Atlantic (Berube et al. 1998). Such a structure was originally proposed by Kellogg (1929), who also proposed that these subpopulations utilize the same feeding grounds. Genetic work conducted by Berube et al. (1998) provides evidence for this hypothesis.

Surveys by NOAA, Fisheries have frequently encountered fin whales in the waters from Cape Hatteras north to Canada (NMFS 2013). In the New York Bight fin whales are the most abundant baleen whales and can be found year-round (Sadove and Cardinale 1993, BRP 2010). Surveys done by Okeanos Ocean Research Foundation found fin whales concentrated in five feeding grounds within 30 miles of shore during the summer, over the continental shelf during the fall and early winter, and feeding very close to Long Island during late winter to spring (Sadove and Cardinale 1993). Fin whales exhibit a high degree of site fidelity, and the same whales are often seen throughout the year and from year to year (Sadove and Cardinale 1993). It should also be noted that Hain et al. (1992) found that, based on neonate stranding data, there is some possibility that during Oct-Jan calving may take place in the mid-Atlantic. However, the exact location of calving has not been confirmed.

The fin whale is the most common baleen whale in New York waters (Sadove and Cardinale 1993, BRP 2013). While most species of baleen whales are believed to use state waters primarily as a migratory route, fin whales are found year-round, and use the area as a summer feeding ground (Sadove and Cardinale 1993, BRP 2010). Surveys by Okeanos Foundation in the 1970s – early 1990s found fin whales on most surveys, with feeding groups of over 200 animals not uncommon in the summer (Sadove and Cardinale 1993). They estimated that around 400 animals used the New York Bight region regularly, although there were instances when over 800 fin whales were in the area at one time (Sadove and Cardinale 1993). Passive acoustic monitoring in 2008 and 2009 documented fin whales every single day. No monitoring occurred in the summer period due to lack of funding (BRP 2010). Unfortunately, there is no way to document how many fin whales are present in a recording, only that they are present.

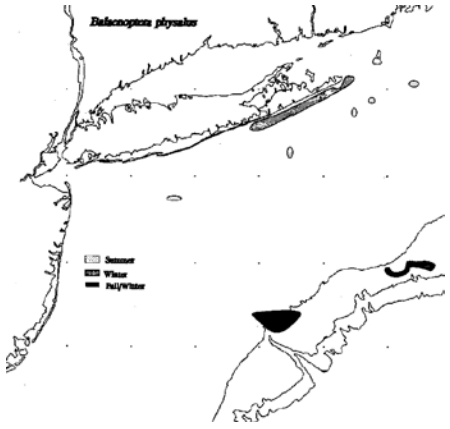
Like the other species of great whales, fin whales were heavily exploited by the whaling industry. The IWC declared a moratorium for the North Atlantic population in 1987. Currently, fin whales remain fairly common in U.S. waters (NMFS 2013). Trend data is not available; however, recent abundance estimates range from 1,925 to 3,628 (NMFS 2013).

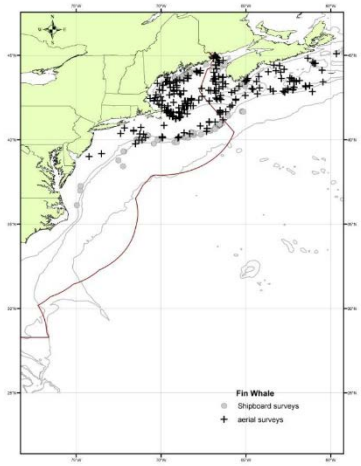
| Distribution (% of NY where species occurs) | | Abundance (within NY distribution) | | NY Distribution Trend | NY Abundance Trend |
|---|---|---|---|---|---|
| 0% to 5% | | Abundant | | Unknown | Unknown |
| 6% to 10% | | Common | X | | |
| 11% to 25% | | Fairly common | | | |
| 26% to 50% | | Uncommon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

**Habitat Discussion:**
The habitat is unknown for New York. Passive acoustic monitoring by Cornell University's Bioacoustic Research Program (2010) documented fin whales on all 269 days of monitoring during the spring, autumn, and winter 2008–2009. They were recorded on both the New York harbor devices and also the devices placed offshore of Long Island.

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

**Distribution:**
Fifteen years of surveys by Okeanos Foundation in the New York Bight resulted in good knowledge of the distribution of fin whales in state waters throughout the year. Okeanos Foundation researchers Sadove and Cardinale (1993) reported that fin whales could typically be found within five feeding areas in the New York Bight area from April through August. The feeding areas were located within thirty miles of land, and there were often large groups of 20 or more whales feeding together in these areas (Sadove and Cardinale 1993). From September until December fin whales could usually be found on the continental shelf farther offshore, near the 200m isobath. From January until March fin whales could be found feeding within one mile of the eastern shores of Long Island (Sadove and Cardinale 1993).
The Okeanos Foundation surveys were conducted from the 1970s – early 1990s, and it is currently unknown if fin whales exhibit these same distribution patterns today. The passive acoustic monitoring done by Cornell University in 2008 – 2009 provided some evidence that they may.



Left: Locations of sightings of fin whales by surveys conducted by the Okeanos Ocean Research Foundation from 15 years of research (1970s–early 1990s). Figure from Sadove and Cardinale (1993). Right: Distribution of fin whale sightings from NEFSC and SEFSC shipboard and aerial surveys during the summers of 1995, 1998, 1999, 2002, 2004, 2006, 2007, 2008, 2010 and 2011. Isobaths are the 100 m, 1000 m, and 4000 m depth contours. Figure and caption from NMFS (2013).

| Threats to NY Populations | | | | |
|---|---|---|---|---|
| Threat Category | Threat | Scope | Severity | Irreversibility |
| 1. Transportation & Service Corridors | Shipping Lanes (vessel strikes) | W | H | H |
| 2. Biological Resource Use | Fishing & Harvesting Aquatic Resources (entanglement in fishing gear) | R | M | M |
| 3. Climate Change & Severe Weather | Habitat Shifting & Alteration (loss/change of prey from climate change) | P | V | V |
| 4. Energy Production & Mining | Oil & Gas Drilling (exploration and production) | R | M | H |
| 5. Energy Production & Mining | Renewable Energy (offshore wind) | R | M | H |
| 6. Human Intrusions & Disturbance | Recreational Activities (whale watching, recreational fishing) | R | L | L |
| 7. Pollution | Excess Energy (anthropogenic noise including shipping) | W | H | V |
| 8. Pollution | Garbage & Solid Waste | N | L | H |
| 9. Pollution | Industrial & Military Effluents (contaminants) | N | L | H |
| 10. Human Intrusions & Disturbance | War, Civil Unrest & Military Exercises (military sonar) | R | L | H |
| 11. Invasive & Other Problematic Species & Genes | Invasive Non-Native/Alien Species (transmittable, viruses, parasites) | N | L | V |
| 12. Invasive & Other Problematic Species & Genes | Problematic Native Species (algal blooms) | N | L | V |

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| | | |
|---|---|---|
| **Common Name:** | Harbor porpoise | ***SGCN – High Priority*** |
| **Scientific Name:** | *Phocoena phocoena* | |
| **Taxon:** | Whales, Dolphins, and Porpoises | |

| | | | |
|---|---|---|---|
| **Federal Status:** | Not Listed | **Natural Heritage Program Rank:** | |
| **New York Status:** | Special Concern | Global: | G4G5 |
| | | New York: | S4 |
| | | Tracked: | No |

**Synopsis:**

Four populations of harbor porpoise are generally recognized in the western North Atlantic (Gaskin 1984, 1992, Johnston 1995, Wang et al. 1996, Westgate et al. 1997, Westgate and Tolley 1999, Read and Hohn 1995). These four populations include the Gulf of Maine/Bay of Fundy, Gulf of St. Lawrence, Newfoundland, and Greenland. Genetic studies indicate that ~60% of harbor porpoises found in New York and other mid-Atlantic waters are from the Gulf of Maine stock, ~25% are from the Newfoundland stock, about 12% are from the Gulf of St. Lawrence stock and less than 3% are from the Greenland stock (Rosel et al. 1999; Hiltunen 2006, NMFS 2013).

In the eastern U.S. EEZ, harbor porpoises are found concentrated in the northern Gulf of Maine and Bay of Fundy in the summer. In the spring and fall, harbor porpoises are typically widely dispersed from New Jersey to Maine. In the winter, the greatest concentrations of harbor porpoise can be found from New Jersey to North Carolina, with animals also found from New York to Canada (NMFS 2013). Sadove and Cardinale (1993) found that harbor porpoises were most commonly in New York waters from December – June in the late 1980s to early 1990s. They found that harbor porpoise were sighted 12 miles or more offshore during March and April, while they were commonly seen inshore March–June (Sadove and Cardinale 1993). They also found that sightings in Long Island Sound frequently occurred between January and March; while sightings in Great South Bay and eastern bays typically fell during April and May (Sadove and Cardinale 1993). Current population trends are unknown.

In 1991, the Sierra Club Legal Defense Fund submitted a petition to the National Marine Fisheries Service (NMFS) to list the Gulf of Maine/Bay of Fundy (GOM/BOF) stock of harbor porpoise as threatened under the Endangered Species Act (NMFS 2001). In 1993, NMFS published a proposed rule listing the stock as threatened, based on the fact that bycatch in gillnet gear was a significant threat to the population, and that no regulations were currently in place to attempt to reduce bycatch (NMFS 1993). In 1999, NMFS determined that listing the stock under the ESA was not warranted, and the GOM/BOF stock was maintained as a candidate species (NMFS 2001).

As a result of the settlement of Center for Marine Conservation et al. v. Daley et al (Civ. No. 1:98CV02029 EGS), NMFS initiated a status review of the GOM/BOF harbor porpoise stock, which was published in 2001 (NMFS 2001). As a result of this status review, NMFS determined that listing of the stock under the ESA was not warranted, and the stock was removed from the candidate species list (NMFS 2001). NMFS (2013) considers this stock to be a strategic stock, as the number of human-caused mortalities and serious injuries each year exceeds the Potential Biological Removal (as described by the MMPA Sec. 3 16 U.S.C. 1362 as a product of the minimum population size, one-half the maximum productivity rate, and a recovery factor). The western North Atlantic population of harbor porpoise is currently designated a species of special concern under the Committee on the Status of Endangered Wildlife in Canada, and is being reviewed as a possible addition to the Canadian Species at Risk Act under the same title (DFO 2013). Harbor porpoise is also designated a species of special concern by the state of New York.

The most recent minimum population estimate of just under 62,000 individuals from North Carolina to the lower Bay of Fundy is based on surveys conducted in 2011 (NMFS 2013). It is believed that ~60% of these animals are from the Gulf of Maine stock, ~25% are from the Newfoundland stock, about 12% are from the Gulf of St. Lawrence stock and less than 3% are from the Greenland stock (Rosel et al. 1999; Hiltunen 2006, NMFS 2013).

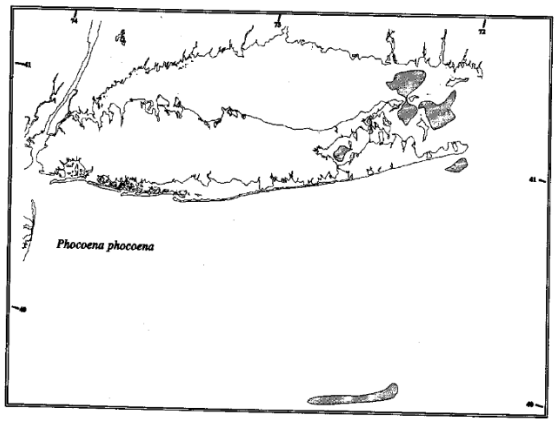
Trends have not been analyzed for any of the four stocks of harbor porpoise found in the western North Atlantic. Although several abundance estimates for the GOM/BOF stock (which is the stock the majority of harbor porpoise sighted in NY waters are believed to belong to) have been calculated, the surveys covered different areas and used different methods, so the estimates are not comparable. Gaskin (1992) mentioned that the GOM/BOF stock of harbor porpoises was in decline during the 1980s and early 1990s due to incidental catches in the gill net fishery, although he noted that this "must be used with the greatest caution." There has not been subsequent information to support this claim, and there is no recent monitoring to determine population trends.

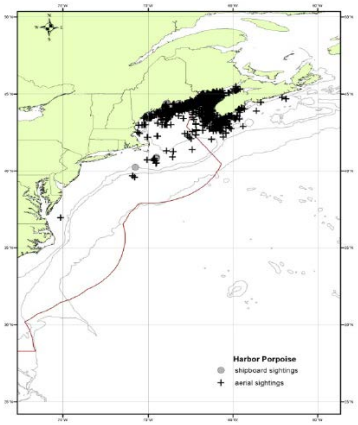
| **Distribution** (% of NY where species occurs) | | **Abundance** (within NY distribution) | | **NY Distribution Trend** | **NY Abundance Trend** |
|---|---|---|---|---|---|
| 0% to 5% | | Abundant | | Unknown | Unknown |
| 6% to 10% | | Common | X | | |
| 11% to 25% | | Fairly common | | | |
| 26%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

**Habitat Discussion:**
Harbor porpoises can be found in temperate waters throughout the Northern Hemisphere (Gaskin 1984). They are found most frequently in continental shelf waters (Read 1999); only 0.6% of harbor porpoise documented by the CETAP (1982) surveys were found deeper than 2000 m. Harbor porpoise are often found in coastal bays and waters less than 200 m deep (Hammond et al. 2008), although they are capable of diving to depths of at least 220 m (Otani et al. 1998).

| **Primary Habitat Type** |
|---|
| Marine; Deep Sub-tidal |

**Distribution:**
Harbor porpoise use New York waters primarily during the winter months (Sadove and Cardinale 1993, NMFS 2013), but the current specific distribution is unknown. In New York, 15 years of surveys by Okeanos Foundation from the 1970s to 1990s found harbor porpoises in a variety of locations. Harbor porpoise can occasionally be seen in the open ocean (12 or more miles from shore), where group size typically ranges from single animals to groups of over twelve (Sadove and Cardinale 1993). These groups are most frequently seen during the months of April and May (Sadove and Cardinale 1993). In Long Island Sound, groups of up to five animals can be seen most often from January through March (Sadove and Cardinale 1993). Harbor porpoise have also been sighted in Peconic Bay, Block Island Sound, Gardiners Bay and Great South Bay (Sadove and Cardinale 1993).




Left: Locations of sightings of harbor porpoises during surveys by the Okeanos Ocean Research Foundation from 15 years of research (1970s – early 1990s). Figure from Sadove and Cardinale (1993). Right: Distribution of harbor porpoises from NEFSC and SEFSC shipboard and aerial surveys during the summers of 1995, 1998, 1999, 2002, 2004, 2006, 2007, 2008, 2010 and 2011. Isobaths are the 100m, 1000m, and 4000m depth contours. Figure and caption from NMFS (2013).

| Threats to NY Populations | | | | |
|---|---|---|---|---|
| Threat Category | Threat | Scope | Severity | Irreversibility |
| 1. Biological Resource Use | Fishing & Harvesting Aquatic Resources (entanglement in gill nets) | R | L | M |
| 2. Climate Change & Severe Weather | Habitat Shifting & Alteration (loss of prey from climate change) | P | V | V |
| 3. Energy Production & Mining | Oil & Gas Drilling | R | M | H |
| 4. Energy Production & Mining | Renewable Energy (offshore wind) | R | M | H |
| 5. Human Intrusions & Disturbance | Recreational Activities | N | L | L |
| 6. Pollution | Excess Energy (anthropogenic noise) | W | H | H |
| 7. Pollution | Garbage & Solid Waste | N | L | H |
| 8. Pollution | Industrial & Military Effluents (contaminants) | R | M | H |
| 9. Human Intrusions & Disturbance | War, Civil Unrest & Military Exercises (military sonar) | R | H | H |
| 10. Invasive & Other Problematic Species & Genes | Invasive Non-Native/Alien Species (transmissible diseases) | N | L | V |
| 11. Invasive & Other Problematic Species & Genes | Problematic Native Species (algal blooms) | N | L | V |

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**Common Name:** North Atlantic right whale ***SGCN – High Priority***
**Scientific Name:** *Eubalaena glacialis*
**Taxon:** Whales, Dolphins, and Porpoises

**Federal Status:** Endangered
**New York Status:** Endangered

**Natural Heritage Program Rank:**
Global: G1
New York: SNA
Tracked: Yes

**Synopsis:**
The North Atlantic right whale, which was first listed as endangered under the Endangered Species Act in 1973, is considered to be critically endangered (Clapham et al 1999, NMFS 2013). The western population of North Atlantic right whales (NARWs or simply right whales) has seen a recent slight increase. The most recent stock assessment gives a minimum population size of 444 animals with a growth rate of 2.6% per year (NMFS 2013). It is believed that the actual number of right whales is about 500 animals (Pettis 2011, L. Crowe, pers. comm.).

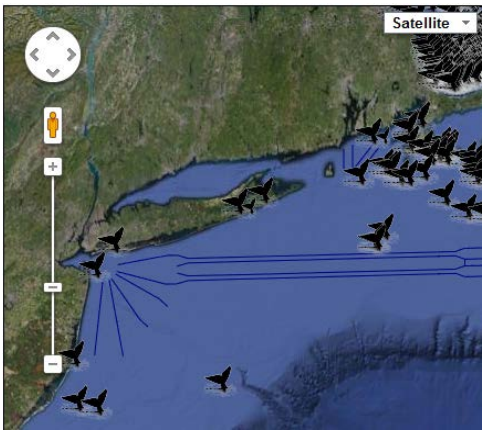
Mother/calf pairs and individual animals are spotted in New York waters each year, primarily from March – June (Sadove and Cardinale 1993). However, right whales have been found year round in the nearby waters of New Jersey (Whitt et al. 2013). They were also present during all three seasons of the 2008-09 passive acoustics study conducted in New York (BRP 2010). Right whales are usually found in shallow, coastal waters off the south side of Long Island. It is believed that right whales primarily use New York waters for migration purposes, as they rarely remain in the area for an extended period of time (Sadove and Cardinale 1993, NMFS 2005). However, a recent study in New Jersey waters found skim-feeding behavior which may indicate that right whales are feeding as they migrate through the mid-Atlantic (Whitt et al 2013).

| **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 | | | |
| > 50% | | Rare | X | | |

**Habitat Discussion:**
Right whales are believed to use New York waters primarily for migration (Sadove and Cardinale 1993, NMFS 2005). Sadove and Cardinale (1993) reported that most sightings of right whales in state waters occurred between March and June. Whales were often spotted very close to shore; they are seen most frequently along the south shore of Long Island (Sadove and Cardinale 1993, NEFSC 2013), and Sadove and Cardinale (1993) reported sightings within Long Island Sound, Block Island Sound, Gardiners Bay and south shore inlets and bays. However, recent studies conducted in New Jersey indicate that right whales may be feeding in the mid-Atlantic (Whitt et al. 2013). This study also found year round presence of right whales in the mid-Atlantic as did the acoustic study conducted by Cornell in New York waters (Whitt et al. 2013, BRP 2010). This may indicate that right whales are present in the mid-Atlantic more often than previously believed.

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

**Distribution:**
Much of the information for the state comes from opportunistic sightings. Right whales have also been sighted in Long Island Sound, Block Island Sound, Gardiners Bay and south shore inlets and bays (Sadove and Cardinale 1993).



North Atlantic right whale sightings in the New York area from March 20, 2012 – March 20, 2013.
Map adapted from NEFSC (2013).

| Threats to NY Populations | | | | |
|---|---|---|---|---|
| Threat Category | Threat | Scope | Severity | Irreversibility |
| 1. Transportation & Service Corridors | Shipping Lanes (vessel strikes) | W | H | M |
| 2. Biological Resource Use | Fishing & Harvesting Aquatic Resources (entanglement in fishing gear) | R | H | M |
| 3. Climate Change & Severe Weather | Habitat Shifting & Alteration (loss/change of prey from climate change) | P | V | V |
| 4. Energy Production & Mining | Oil & Gas Drilling (exploration and production) | R | H | H |
| 5. Energy Production & Mining | Renewable Energy (offshore wind) | R | M | H |
| 6. Human Intrusions & Disturbance | Recreational Activities (whale watching, recreational fishing) | R | L | L |
| 7. Pollution | Excess Energy (anthropogenic noise including shipping) | W | H | V |
| 8. Pollution | Garbage & Solid Waste | N | L | H |
| 9. Pollution | Industrial & Military Effluents (contaminants) | N | L | H |
| 10. Human Intrusions & Disturbance | War, Civil Unrest & Military Exercises (military sonar) | R | M | H |
| 11. Invasive & Other Problematic Species & Genes | Invasive Non-Native/Alien Species (disease: (transmittable, viruses, parasites) | N | M | V |
| 12. Invasive & Other Problematic Species & Genes | Problematic Native Species (algal blooms) | N | M | V |

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**Common Name:** Sei whale ***SGCN – High Priority***
**Scientific Name:** *Balaenoptera borealis*
**Taxon:** Whales, Dolphins, and Porpoises

**Federal Status:** Endangered
**New York Status:** Endangered

**Natural Heritage Program Rank:**
Global: G3
New York: SNA
Tracked: Yes

**Synopsis:**
The sei whale is the third largest species of baleen whale after the blue and fin whale. This whale is one of the least studied of the large whales. Its taxonomy is currently being disputed, with some arguing for two subspecies of sei whales, a northern form (*B. borealis borealis*) and a southern form (*B. borealis schlegelli*) (Flower 1883, Baker et al. 2004). Other genetic and morphological research found only weak evidence for the existence of a southern subspecies (Perrin et al. 2010). In 2004, a prioritized list of cetacean species in need of further taxonomic research was developed (Taylor 2005, Prieto et al. 2011). Both the northern and southern sei whales were listed under medium priority, indicating that further taxonomic research is needed to determine whether the two populations can be called separate subspecies (Prieto et al. 2011).

Sei whales are found in all oceans, but appear to prefer temperate, offshore areas (Horwood 1987, Perry et al. 1999, NMFS 2011, Prieto et al. 2011). In the western North Atlantic and northeastern United States, sei whales travel to presently unknown breeding grounds in lower latitude waters. The whales are believed to migrate along the continental shelf north to Georges Bank and the southwestern Gulf of Maine (NMFS 2011, Prieto et al. 2011). No known resident seasonal population has been found in New York waters; however, these areas may be important as a migration corridor.

Little is known on the abundance and trends of these elusive whales. Historically, sei whales were targeted by the whaling industry after fin and blue whales became hunted to the point of rarity (Perry et al. 1999, NMFS 2011, Prieto et al. 2012, NMFS 2012). While this hunting was sure to have decreased the population, there are no historical estimates of abundance, so it is not known how much of an effect whaling had on the western North Atlantic sei whales (Perry et al. 1999, NMFS 2011, Prieto et al. 2012, NMFS 2012). Recent trends are also currently unknown. Further research is necessary to establish population estimates.

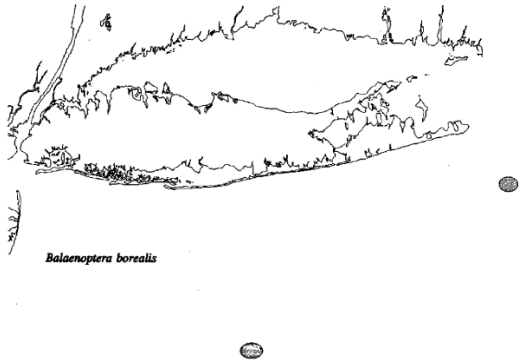
| **Distribution** (% of NY where species occurs) | | **Abundance** (within NY distribution) | | **NY Distribution Trend** | **NY Abundance Trend** |
|---|---|---|---|---|---|
| 0% to 5% | | Abundant | | Unknown | Unknown |
| 6% to 10% | | Common | | | |
| 11% to 25% | | Fairly common | X | | |
| 26%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

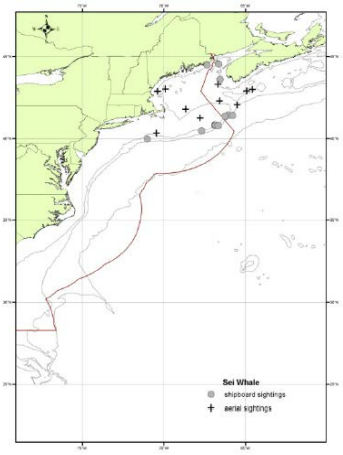
**Habitat Discussion:**
Sei whales are notorious for having a highly variable and unpredictable distribution. In general, they prefer deeper waters, and are frequently found over the continental slope, shelf breaks, and deep ocean basins between banks (Perry et al. 1999, NMFS 2011, Prieto et al. 2011). Occasionally, they are found in

more inshore waters, presumably in response to changes in prey density (Prieto et al. 2012). Sei whales are often associated with ocean fronts and eddies, which are believed to concentrate prey (Skov et al. 2008, Olsen et al. 2009, NMFS 2011).

| **Primary Habitat Type** |
| --- |
| Marine; Deep Sub-tidal |

**Distribution:**
There have been few, if any, sightings of sei whales in New York waters in recent years. They are known to exist from presence in acoustic surveys that took place from 2008-2009 (BRP 2010). There have been attempts in recent years to gain a more reliable abundance estimate for sei whales in the North Atlantic. Unfortunately, differences in survey effort and methods make it impossible to make direct comparisons of historic and current occurrences. The most recent survey of the Nova Scotia stock was in summer 2011. This survey included both aerial and shipboard surveys that, together, stretched from North Carolina to the lower Bay of Fundy and estimated 357 sei whales (NMFS 2013).




Left: Locations of sightings of sei whales during surveys by the Okeanos Ocean Research Foundation from 15 years of research (1970s-1993). Figure from Sadove and Cardinale (1993).
Right: Distribution of sei whales from NEFSC and SEFSC shipboard and aerial surveys during the summers of 1995, 1998, 1999, 2002, 2004, 2006, 2007, 2008, 2010 and 2011. Isobaths are the 100m, 1000m, and 4000m depth contours. Figure and caption from NMFS (2013).

| Threats to NY Populations | | | | |
|---|---|---|---|---|
| Threat Category | Threat | Scope | Severity | Irreversibility |
| 1. Transportation & Service Corridors | Shipping Lanes (vessel strikes) | W | H | H |
| 2. Biological Resource Use | Fishing & Harvesting Aquatic Resources (entanglement in fishing gear) | R | M | M |
| 3. Climate Change & Severe Weather | Habitat Shifting & Alteration (loss/change of prey from climate change) | P | V | V |
| 4. Energy Production & Mining | Oil & Gas Drilling (exploration and production) | R | M | H |
| 5. Energy Production & Mining | Renewable Energy (offshore wind) | R | M | H |
| 6. Human Intrusions & Disturbance | Recreational Activities (whale watching, recreational fishing) | R | L | L |
| 7. Pollution | Excess Energy (anthropogenic noise including shipping) | W | H | V |
| 8. Pollution | Garbage & Solid Waste | N | L | H |
| 9. Pollution | Industrial & Military Effluents (contaminants) | N | L | H |
| 10. Human Intrusions & Disturbance | War, Civil Unrest & Military Exercises (military sonar) | R | L | H |
| 11. Invasive & Other Problematic Species & Genes | Invasive Non-Native/Alien Species (transmittable disease, viruses, parasites) | N | L | V |
| 12. Invasive & Other Problematic Species & Genes | Problematic Native Species (algal blooms) | N | L | V |

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**Common Name:** Sperm whale ***SGCN – High Priority***
**Scientific Name:** *Physeter macrocephalus*
**Taxon:** Whales, Dolphins, and Porpoises

**Federal Status:** Endangered
**New York Status:** Endangered

**Natural Heritage Program Rank:**
Global: G3G4
New York: SNA
Tracked: Yes

**Synopsis:**
For the purposes of management sperm whales in the North Atlantic are considered one stock, though finer population structure may exist it is difficult to define (Reeves and Whitehead 1997, Lyrholm and Gyllensten 1998, NMFS 2013).

In general, sperm whales in the U.S. Exclusive Economic Zone (EEZ) are found in areas associated with the edge of the Gulf Stream and other oceanographic factors. These include the continental shelf, the shelf edge and mid-ocean regions beyond (Waring et al 1993, 201, NMFS 2013). Another factor affecting sperm whale distribution is social structure, where animals may group themselves according to social units, with males tending to travel the furthest (Best 1979, Whitehead 2002). In New York, sperm whales have been observed in deep continental shelf waters, as well as in a relatively shallow area off of Montauk Point (Sadove and Cardinale 1993, Scott and Sadove 1997). They are most often seen in spring and early summer in New York waters (Sadove and Cardinale 1993, Scott and Sadove 1997). Most of these whales were sighted in an area that corresponds to a seafloor depression making a channel between Block Island Sound and Block Canyon (Scott and Sadove 1997). Sperm whales occasionally wash on New York beaches.

Much of our knowledge of sperm whale use of New York state waters comes from surveys conducted by Okeanos Foundation from the 1970s – early 1990s. Sperm whales were documented in eight years from 1983 – 1995 (Scott and Sadove 1997). Unfortunately, there has been little follow-up work to these surveys in recent years. It is currently unknown how often and how many sperm whales are found in New York waters. They seem to be consistently found further offshore in the New York Bight near and over the shelf edge however (NMFS 2013). Though details about time of year when they are present and how long they remain in the area are unknown.

Trends have not been analyzed for the western North Atlantic population of sperm whales. Although they were heavily exploited by commercial whaling until the 1970s, the sperm whale remains one of the most abundant large whales in the area (NMFS 2010). Using methods developed by Whitehead (2002), NMFS (2010) estimated the Atlantic population of sperm whales to number between 90,000 – 134,000 sperm whales. Vessel and aerial surveys in 2004 from Florida to the Bay of Fundy developed a population estimate of about 4,804 (NMFS 2013). 2,607 was the estimate for the population from Maryland north to the Bay of Fundy (NMFS 2013). These estimates were not corrected for dive time, and thus are most likely an underestimation of actual abundance (NMFS 2013). The best estimate for sperm whale abundance off of the eastern U.S. comes from shipboard and aerial surveys conducted in 2011 (NMFS 2013). These surveys covered the area north of North Carolina to the lower Bay of Fundy, and estimated an abundance of 1,593 sperm whales (NMFS 2013). Because the survey methods changed between years it is not possible to directly compare the 2011 estimate with earlier estimates. This makes it is very difficult to detect trends (NMFS 2013).

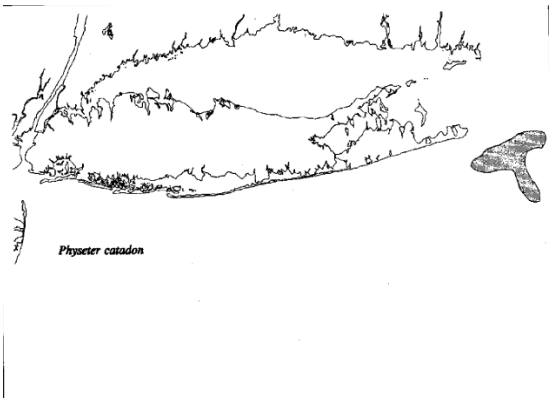
| Distribution (% of NY where species occurs) | | Abundance (within NY distribution) | | NY Distribution Trend | NY Abundance Trend |
|---|---|---|---|---|---|
| 0% to 5% | X | Abundant | | Unknown | Unknown |
| 6% to 10% | | Common | | | |
| 11% to 25% | | Fairly common | | | |
| 26% to 50% | | Uncommon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

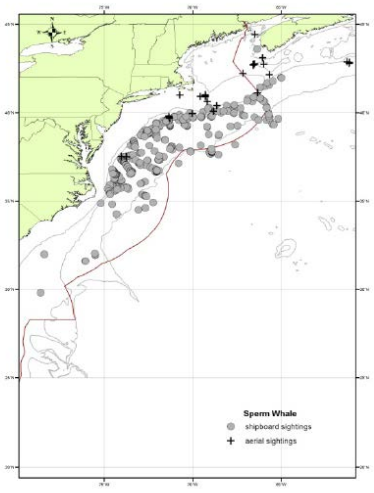
**Habitat Discussion:**
Sperm whales are often found in deep water areas along the outer shelf edge and open ocean waters (Waring et al. 2001). They are often found near seamounts and underwater canyons (Waring et al. 2001). Sperm whales are also believed to be associated with the Gulf Stream edge and warm-core rings (Waring et al. 1993, 2001). Typically, males range farther north into cooler waters than females, who remain in temperate to tropical waters with calves and immature animals (NMFS 2010). Distribution seems to be driven primarily by suitability of the area for breeding and the availability of prey. Sperm whale diet consists of sharks, skates, fishes and large squid (NMFS website). They are able to perform long, deep dives to access their prey. Dives may last from 30-60 minutes and be to depths of 400 m (1,312 ft) (NMFS website).

In New York state waters, the majority of sperm whale sightings have occurred in the late spring to early summer period (Sadove and Cardinale 1993, Scott and Sadove 1997). Two of the 28 sightings of sperm whales from 1983 – 1994 were in the fall; sampling was not as intense during this period of time, so it is unknown whether whales return to the area during this time (Scott and Sadove 1997). The average water depth of the sightings was 55 m (Scott and Sadove 1997). The sightings reported by Scott and Sadove (1997) centered on a bathymetric depression that marks the channel running between Block Island Sound and Block Canyon, just under 30 km SSE of Montauk Point. Although feeding was not confirmed, Scott and Sadove (1997) believed that foraging was occurring and hypothesized the sperm whales used the channel to follow prey inshore. In New York Bight waters sperm whales have been sighted at and over the edge of the continental shelf (NMFS 2013).

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

**Distribution:**
Surveys done by NOAA. Fisheries show consistent presence in the New York Bight at the edge of the continental shelf. For state waters the most recent accessible information comes from Okeanos Foundation. Scott and Sadove (1997) reported sperm whales in New York waters on sixteen occasions from 1990 – 1994. It is unknown whether sightings were of the same individuals (Scott and Sadove 1997).




Left: Locations of sightings of sei whales during surveys by the Okeanos Ocean Research Foundation from 15 years of research (1970s-1993). Figure from Sadove and Cardinale (1993).
Right: Distribution of sei whales from NEFSC and SEFSC shipboard and aerial surveys during the summers of 1995, 1998, 1999, 2002, 2004, 2006, 2007, 2008, 2010 and 2011. Isobaths are the 100m, 1000m, and 4000m depth contours. Figure and caption from NMFS (2013).

| Threats to NY Populations | | | | |
|---|---|---|---|---|
| Threat Category | Threat | Scope | Severity | Irreversibility |
| 1. Transportation & Service Corridors | Shipping Lanes (vessel strikes) | N | M | H |
| 2. Biological Resource Use | Fishing & Harvesting Aquatic Resources (entanglement in fishing gear) | N | M | M |
| 3. Climate Change & Severe Weather | Habitat Shifting & Alteration (loss/change of prey from climate change) | P | V | V |
| 4. Energy Production & Mining | Oil & Gas Drilling (exploration and production) | R | M | H |
| 5. Energy Production & Mining | Renewable Energy (offshore wind) | N | L | H |
| 6. Human Intrusions & Disturbance | Recreational Activities (whale watching, recreational fishing) | N | L | L |
| 7. Pollution | Excess Energy (anthropogenic noise including shipping) | W | H | V |
| 8. Pollution | Garbage & Solid Waste | N | L | H |
| 9. Pollution | Industrial & Military Effluents (contaminants) | N | L | H |
| 10. Human Intrusions & Disturbance | War, Civil Unrest & Military Exercises (military sonar) | R | M | H |
| 11. Invasive & Other Problematic Species & Genes | Invasive Non-Native/Alien Species (disease: transmittable, viruses, parasites) | N | L | V |
| 12. Invasive & Other Problematic Species & Genes | Problematic Native Species (algal blooms) | N | L | V |

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