

Humpback Whale

Megaptera novaeangliae

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DESCRIPTION:

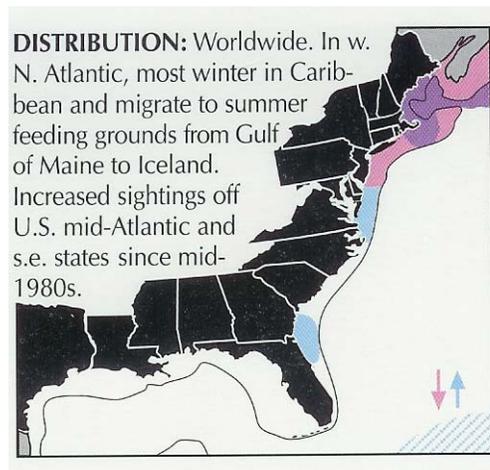
The humpback is a moderately large baleen whale. First described by Borowski (1781), the humpback's most distinguishable features include: robust body with a broad, rounded head, series of fleshy knobs on the rostrum and lower lip; long flippers (one-third body length); broad flukes with irregular trailing edge; ventral throat grooves (12-36 in number) extending to navel; black with white coloring on throat and belly and variable amount of white on underside of flukes and both sides of flippers; and broad and bushy blow. Adults reach 11-16 m (36-52 ft) in length and weight of 36 metric tons (40 tons); females are slightly larger than males (Wynne & Schwartz, 1999).



Status: Humpback whales are federally listed as endangered under the Endangered Species Act. The U.S. Atlantic stock (Gulf of Maine stock) is defined as strategic under the Marine Mammal Protection Act because the average annual fishery-related mortality and serious injury exceeds its Potential Biological Removal (PBR) level [PBR is an estimate of the maximum number of animals, not including natural mortalities, which may be removed from a marine mammal stock while allowing that stock to reach or maintain its Optimum Sustainable Population (OSP)], and because the North Atlantic humpback is an endangered species.

POPULATION:

The humpback whale is worldwide in its distribution. In the western North Atlantic, most winter in the West Indies, where they mate and calve, and migrate to summer feeding grounds from the Gulf of Maine to Iceland. A notable number of humpbacks, however, do not undertake this extensive seasonal migration but instead overwinter in mid- and high-latitude regions (Clapham *et al.* 1993; Swingle *et al.* 1993). There have been increased sightings of this species off the U.S. mid-Atlantic and the southeastern states since the mid-1980s (Swingle *et al.* 1993; Wiley *et al.* 1995). In this region, sightings have been reported in all seasons but are more predominant January to March (Barco *et al.* 2002). Whether these increased sightings represent a distributional change, or are simply due to an increase in sighting effort and/or whale abundance, is currently unknown (Waring *et al.* 2004).



The best available estimate of the population size for the North Atlantic is 11,570 humpback whales while 500 to 900 animals have been estimated to use U.S. Atlantic waters (Gulf of Maine stock) (Waring *et al.* 2004). The most recent abundance estimates indicate continued population growth; however, the size of the humpback stock in the U.S. Atlantic Exclusive Economic Zone (EEZ) may be below its OSP. There are insufficient data to reliably determine population trends for humpback whales in the North Atlantic overall.

HABITAT:

The humpback is considered a pelagic and coastal species. They are typically encountered over shallow banks and in shelf waters while feeding or breeding but may traverse open ocean during migration (Leatherwood & Reeves 1983; Wynne & Schwartz 1999). Feeding occurs in the cold, nutrient-rich waters of high latitudes. In the western North Atlantic, several discrete feeding grounds exist extending from the Gulf of Maine to off Iceland and northern Norway. Humpbacks exhibit strong fidelity to a particular feeding ground. Calves will typically return the same feeding ground as its mother. Off the U.S. Atlantic coast, the primary feeding ground for humpbacks is the Gulf of Maine. Humpbacks begin to arrive in the waters off New England in early spring and remain through the fall. Their distribution in this area has been largely correlated to prey species and abundance, although behavior and bottom topography are also factors in foraging strategy (Payne *et al.* 1986, 1990). Humpbacks are generally piscivorous (fish-eating) when in these waters but euphasiids are also frequently taken in the northern Gulf of Maine (Paquet *et al.* 1997).

Humpbacks fast for the several months they are on the breeding and calving grounds; living off their vast reserve of blubber. Individuals from different feeding grounds mix while on the breeding grounds. Such mixing is also recorded within the group of humpback whales that winter off the U.S. mid-Atlantic coast. Most identified individuals from this group have belonged to the Gulf of Maine stock, though a few animals have been identified as belonging to stocks off Newfoundland and in the Gulf of St. Lawrence (Barco *et al.* 2001). This population, composed of mostly first-year animals and a smaller number of juveniles and adults, is thought to use the mid-Atlantic/southeast region as a supplemental winter feeding ground. Some individuals have been observed over multiple years indicating repeated use of this area.

THREATS:

Though hunting caused a major decline in all humpback whale populations, they are no longer, currently, endangered by that activity. Ship collisions and entanglements in fixed fishing gear are the greatest causes of non-natural mortality in humpback whales. Other factors that may be affecting the recovery of humpback whales include disturbance or displacement caused by noise and other activities associated with shipping, recreational boating, whale watching or air traffic; pollutants from waste disposal; activities associated with mineral exploration and extraction; habitat degradation associated with coastal development; and competition with fisheries for prey species. These factors could affect reproductive success in individual whales, alter survival, and impact habitat (NMFS 1991).

For further reading on known threats to the humpback whale's recovery see the *Final Recovery Plan for the Humpback Whale*, which has been published and is in effect (NMFS 1991). Also see the most current humpback whale stock assessment report (Gulf of Maine stock) in Waring *et al.* 2004.

CONSERVATION:

A take reduction plan has been developed for Atlantic large whales, which includes the humpback whale, to reduce the incidental take of animals in commercial fishing operations to below the PBR level. To date, despite efforts of the plan to reduce large whale entanglements and other activities to reduce ship strikes, annual mortalities (2.6 whales from the Gulf of Maine stock for the period 1997 through 2001) are still exceeding PBR for this stock (PBR=1.3) (Waring, *et al.* 2004). Consequently, the ALWTRT is currently working with NOAA Fisheries to amend the Atlantic Large Whale Take Reduction Plan in order to meet the goals of the MMPA which mandate reducing incidental mortality or serious injury to below each stock's PBR level within six months of the plan's implementation. The longer term goal is to reduce serious injuries and mortality to an insignificant level approaching a zero mortality and serious injury rate (Zero Mortality Rate Goal, or ZMRG) in order that they can reach or maintain their optimum sustainable population size.

To reduce the incidence of ship strikes, especially in the area of shipping lanes, NOAA Fisheries in collaboration with other Federal agencies, state agencies, environmental groups, citizen groups and the shipping industry has been working to develop ship strike reduction measures along the U.S. Atlantic coast. Currently, the focus of this effort is on the northern right whale given its highly endangered status, though such measures are also expected to benefit the humpback.

CONSERVATION:

Numerous individuals from the scientific, management, and conservation communities have been working for some time to improve the status of the humpback whale. One of the outcomes of these efforts has been the development of the humpback whale recovery plan. Another was a major research initiative known as the Years of the North Atlantic Humpback (YONAH) (Smith *et al.* 1999) conducted from 1992-1993. This project was a large-scale, intensive study of humpback whales throughout almost their entire North Atlantic range, from the West Indies to the Arctic. It addressed large-scale issues such as size and structure of the population, vital population rates, migratory movement and structure of the mating system. Information resulting from this study will serve a baseline against which to evaluate, among other things, whether the population is increasing or decreasing over time.

The following priority conservation and implementation recommendations are taken, in part, from the humpback recovery plan as appropriate for our region.

Habitat protection:

- Identify essential/critical habitat in U.S. waters;

- Identify and minimize possible adverse impacts of human activities and pollution on important habitat;
- Encourage protection of essential habitat under the jurisdiction of other nations.

Management:

- Reduce mortality and injury from entanglement in fishing gear and ship strikes;
- Update the Recovery Plan;
- Identify and implement seasonal and/or geographic regulations for fishing gear that may kill or injure humpback whales.

Priority research and survey needs:

- Evaluate impacts on humpback whales from collisions with vessels;
- Improve current population estimates;
- Continue photo-identification studies;
- Continue biological studies on stranded animals;
- Develop standardized protocol for sampling tissues of humpback whales using strandings and biopsies;
- Identify and evaluate fisheries competition and the impacts of prey abundance;
- Employ radio tags, underwater listening stations, and genetic techniques to define migration routes and transit times;
- Continue assessment of mortality levels and population structure of the wintering aggregation in the mid-Atlantic/southeast region.

Monitoring:

- Develop protocol for monitoring physical and chemical factors that could decrease habitat suitability;
- Increase observer coverage in fisheries;
- Define measurable criteria for monitoring the success of implemented management measures within the ALWTRP;
- Improve reporting of entangled whales.

Education, public outreach and cooperative efforts:

- Improve cooperation with commercial fishermen and maritime interests;
- Improve coordination among federal, state, and non-governmental agencies/groups involved in education, outreach, and cooperative efforts;
- Develop educational materials in support of Recovery Plan objectives;
- Collaborate with other research, monitoring and outreach efforts such as the effort by the Commission for Environmental Cooperation (CEC), which is directing a pilot study on humpbacks in the Pacific as part of their undertaking to develop North American Conservation Action Plans. The plans will focus on migratory species and establish a common conservation approach across the continent and will act to reduce threats, share expertise and provide information to wildlife managers as well as the public.

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