SEI WHALE (*Balaenoptera borealis*): Western North Atlantic Stock

STOCK DEFINITION AND GEOGRAPHIC RANGE

Indications are that, at least during the feeding season, the sei whale population is centered in northerly waters, perhaps on the Scotian Shelf (Mitchell and Chapman 1977). The southern portion of the species' range during spring and summer includes the northern portions of the U.S. Atlantic Exclusive Economic Zone (EEZ) — the Gulf of Maine and Georges Bank. The period of greatest abundance there is in spring with sightings concentrated along the eastern margin of Georges Bank and into the Northeast Channel area, and along the southwestern edge of Georges Bank in the area of Hydrographer Canyon (CeTAP 1982). The sei whale is generally found in the deeper waters characteristic of the continental shelf edge region (Hain et al. 1985). Mitchell (1975) similarly reported that sei whales off Nova Scotia were often distributed closer to the 2,000 m depth contour than were fin whales.

This general offshore pattern of sei whale distribution is disrupted during episodic incursions into more shallow and inshore waters. The sei whale, like the right whale, is largely planktivorous — feeding primarily on euphausiids and copepods. In years of reduced predation on copepods by other predators, and thus greater abundance of this prey source, sei whales are reported in more inshore locations, such as the Great South Channel and Stellwagen Bank areas (Kenney, personal communication; Payne et al. 1990). An influx of sei whales into the southern Gulf of Maine occurred in the summer of 1986 (Schilling et al. 1992).

Based on analysis of records from the Blandford, Nova Scotia, whaling station, where 825 sei whales were taken between 1965 and 1972, Mitchell (1975) described two "runs" of sei whales, in June-July and in September-October. He speculated that the sei whale population migrates from south of Cape Cod and along the coast of eastern Canada in June and July, and returns on a southward migration again in September and October; however, such a migration remains unverified.

Mitchell and Chapman (1977) reviewed the sparse evidence on stock identity of northwest Atlantic sei whales, and suggested two stocks — a Nova Scotia stock and a Labrador Sea stock. The Nova Scotian stock includes the continental shelf waters of the northeastern U.S., and extends northeastward to south of Newfoundland. The Scientific Committee of the IWC, while adopting these general boundaries, noted that the stock identity of sei whales (and indeed all North Atlantic whales) was a major research problem (Donovan 1991). In the absence of evidence to the contrary, the proposed IWC stock definition is provisionally adopted.

POPULATION SIZE

Mitchell and Chapman (1977), based on tag-recapture data, estimated the Nova Scotia, Canada, stock to contain between 1,393 and 2,248 sei whales. Based on census data, they estimated a minimum Nova Scotian population of 870 sei whales.

The total number of sei whales in the U.S. Atlantic EEZ is unknown. Seasonal abundance estimates are available from an aerial survey program conducted in the continental shelf and shelf edge waters between Cape Hatteras, North Carolina, and Nova Scotia from 1978 to 1982 (CeTAP 1982). A spring population estimate of 253 (CV = 0.63) was based on CeTAP (1982) data. This estimate is not corrected for submerged animals that may have gone unsighted by the aerial surveys. Spring data were used since it was the only seasonal estimate provided in CeTAP (1982). This estimate may not reflect the current true population because of the fact that data are a decade old and because of low survey effort in areas and seasons that are likely to be significant for sei whales. No sei whales were sighted during an August-October 1991 aerial survey in the CeTAP study area (NMFS unpublished data); therefore, there are no current estimates of sei whale abundance.

Minimum Population Estimate

A current minimum population size cannot be estimated because there are no current abundance estimates (within the last 10 years).

Current Population Trend

There are insufficient data to determine the population trends for this species.

CURRENT AND MAXIMUM NET PRODUCTIVITY RATES

Current and maximum net productivity rates are not known for this stock. The maximum net productivity rate was assumed to be 0.04 for purposes of this assessment. This value is based on theoretical calculations showing that cetacean populations may not grow at rates much greater than 4% given the constraints of their reproductive life history (Anon. 1994).

POTENTIAL BIOLOGICAL REMOVAL

Potential biological removal (PBR) was specified as the product of minimum population size, one-half the maximum productivity rate, and a "recovery" factor for endangered, depleted, threatened stocks, or stocks of unknown status relative to optimum sustainable population (OSP) (Anon. 1994). No PBR can be calculated because minimum population size is unknown.

ANNUAL HUMAN-CAUSED MORTALITY AND SERIOUS INJURY

There are few if any data on fishery interactions or human impacts. There are no reports of mortality, entanglement, or injury in the NEFSC or NE Regional Office databases; however, there is a report of a ship strike. The New England Aquarium documented a sei whale carcass hung on the bow of a container ship as it docked in Boston on November 17, 1994. The crew estimated that the whale had been hung on the bow for approximately four days prior to the ship's arriving in port. There was no reported fishery-related mortality or serious injury to fin whales in fisheries observed by NMFS during 1989-1993. The total fishery-related mortality and serious injury for this stock is unknown, but can be considered insignificant and approaching zero mortality and serious injury rate. This determination cannot be made for specific fisheries until the implementing regulations for Section 118 of the MMPA have been reviewed by the public and finalized.

Fishery Information

There have been no reported entanglements or other interactions between sei whales and commercial fishing activities; therefore there are no descriptions of fisheries.

STATUS OF STOCK

The status of this stock relative to OSP is unknown, but the species is listed as endangered under the ESA. There are insufficient data to determine the population trends for sei whales. The total level of human-caused mortality and serious injury is unknown, but it is believed to be insignificant. Any fishery-related mortality would be unlawful because there is no recovery plan currently in place. This is a strategic stock because the sei whale is listed as an endangered species under the ESA.

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