

FRASER'S DOLPHIN (*Lagenodelphis hosei*): Western North Atlantic Stock

STOCK DEFINITION AND GEOGRAPHIC RANGE

Fraser's dolphin is distributed worldwide in tropical waters (Perrin *et al.* 1994), and has recently been reported from temperate and subtropical areas of the North Atlantic (Gomes-Pereira *et al.* 2013). They are generally oceanic in distribution but may be seen closer to shore where deep water can be found near the shore, such as in the Lesser Antilles of the Caribbean Sea (Dolar 2009). Sightings of this species are rare, and in fact there has been only a single sighting on NMFS surveys in the western North Atlantic (Figure 1). Sightings in the more extensively surveyed northern Gulf of Mexico are uncommon but occur on a regular basis in oceanic waters (>200m) and in all seasons (Leatherwood *et al.* 1993; Hansen *et al.* 1996; Mullin and Hoggard 2000; Mullin and Fulling, 2004). Fraser's dolphins in the western North Atlantic are managed separately from those in the northern Gulf of Mexico. Although there have been no directed studies of the degree of demographic independence between the two areas, this management structure is consistent with the fact that the western North Atlantic and Gulf of Mexico belong to distinct marine ecoregions (Spalding *et al.* 2007; Moore and Merrick 2011). Due to the paucity of sightings in the western North Atlantic, there are insufficient data to determine whether the western North Atlantic stock comprises multiple demographically independent populations. Additional morphological, acoustic, genetic, and/or behavioral data are needed to further delineate population structure within the western North Atlantic and across the broader geographic area.

POPULATION SIZE

The numbers of Fraser's dolphins off the U.S. or Canadian Atlantic coast are unknown since it was rarely seen in any surveys. A group of an estimated 250 Fraser's dolphins was sighted in waters 3300 m deep in the western North Atlantic off Cape Hatteras during a 1999 vessel survey (Figure 1; NMFS 1999). Abundances have not been estimated from the 1999 vessel survey in western North Atlantic (NMFS 1999) because the sighting was not made during line- transect sampling effort. Therefore, the population size of Fraser's dolphins is unknown. No Fraser's dolphins have been observed in any other NMFS surveys.

Minimum Population Estimate

Present data are insufficient to calculate a minimum population estimate for this stock.

Current Population Trend

There are insufficient data to determine the population trends for this stock because no estimates of population size are available.

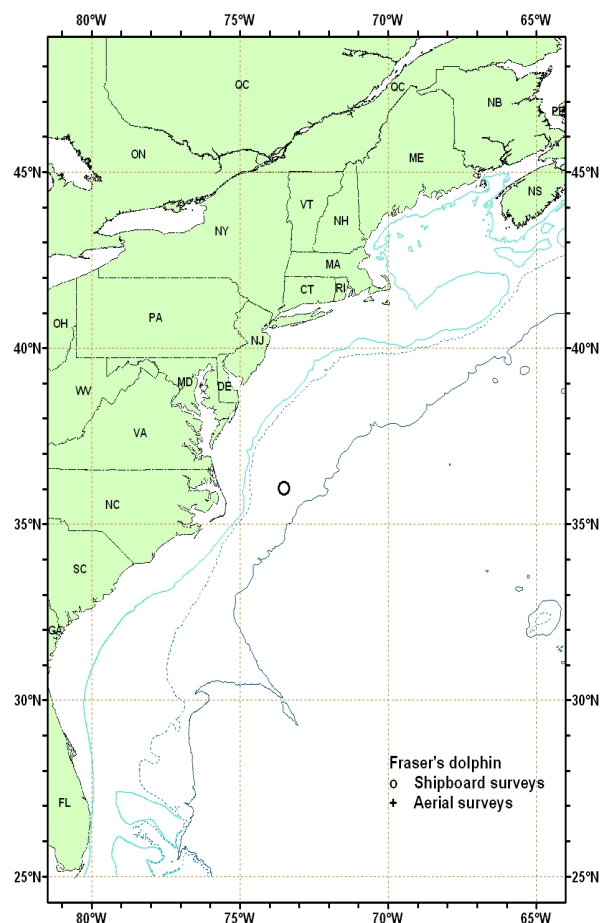


Figure 1. Location of a Fraser's dolphin sighting from a SEFSC vessel survey during summer 1999. NEFSC and SEFSC shipboard and aerial surveys were conducted during 1995, 1998, 1999, 2002, 2004, 2006, 2007, 2008, 2010, 2011 and 2016. Isobaths are the 100m, 1,000m and 4,000m depth contours.

CURRENT AND MAXIMUM NET PRODUCTIVITY RATES

Current and maximum net productivity rates are unknown for this stock. For purposes of this assessment, the maximum net productivity rate was assumed to be 0.04. This value is based on theoretical modeling showing that cetacean populations may not grow at rates much greater than 4% given the constraints of their reproductive history (Barlow *et al.* 1995).

POTENTIAL BIOLOGICAL REMOVAL

Potential Biological Removal level (PBR) is the product of the minimum population size, one-half the maximum productivity rate, and a recovery factor (MMPA Sec. 3.16 U.S.C. 1362; Wade and Angliss 1997). The minimum population size is unknown. The maximum productivity rate is 0.04, the default value for cetaceans. The “recovery” factor, which accounts for endangered, depleted, threatened stocks, or stocks of unknown status relative to optimum sustainable population (OSP), is assumed to be 0.5 because this stock is of unknown status. PBR for the western North Atlantic Fraser’s dolphin stock is unknown because the minimum population size is unknown.

ANNUAL HUMAN-CAUSED MORTALITY AND SERIOUS INJURY

Total annual estimated fishery-related mortality and serious injury to this stock during 2013–2017 was presumed to be zero, as there were no reports of mortalities or serious injuries to Fraser’s dolphins in the western North Atlantic.

Fishery Information

The commercial fisheries that interact, or that could potentially interact, with this stock in the Atlantic Ocean are the Category I Atlantic Highly Migratory Species longline and Atlantic Ocean, Caribbean, Gulf of Mexico large pelagics longline fisheries (Appendix III). Percent observer coverage (percentage of sets observed) for these longline fisheries for each year during 2013–2017 was 9, 10, 12, 15, and 12, respectively.

The Atlantic Highly Migratory Species longline fishery operates outside the U.S. EEZ. No takes of Fraser’s dolphins within high seas waters of the Atlantic Ocean have been observed or reported thus far.

The Atlantic Ocean, Caribbean, Gulf of Mexico large pelagics longline fishery operates in the U.S. Atlantic (including Caribbean) and Gulf of Mexico EEZ, and pelagic swordfish, tunas and billfish are the target species. There were no observed mortalities or serious injuries to Fraser’s dolphins by this fishery in the Atlantic Ocean during 2013–2017 (Garrison and Stokes 2014; 2016; 2017; 2019; 2020).

Other Mortality

There were no reported strandings of a Fraser’s dolphin in the U.S. Atlantic Ocean during 2013–2017 (NOAA National Marine Mammal Health and Stranding Response Database unpublished data, accessed 13 June 2018 (SER) and 8 June 2018 (NER)).

HABITAT ISSUES

Anthropogenic sound in the world’s oceans has been shown to affect marine mammals, with vessel traffic, seismic surveys, and active naval sonars being the main anthropogenic contributors to low- and mid-frequency noise in oceanic waters (e.g., Nowacek *et al.* 2015; Gomez *et al.* 2016; NMFS 2018). The long-term and population consequences of these impacts are less well-documented and likely vary by species and other factors. Impacts on marine mammal prey from sound are also possible (Carroll *et al.* 2017), but the duration and severity of any such prey effects on marine mammals are unknown.

The chronic impacts of contaminants (polychlorinated biphenyls [PCBs] and chlorinated pesticides [DDT, DDE, dieldrin, etc.]) on marine mammal reproduction and health are of concern (e.g., Schwacke *et al.* 2002; Jepson *et al.* 2016; Hall *et al.* 2018), but research on contaminant levels for this stock is lacking.

Climate-related changes in spatial distribution and abundance, including poleward and depth shifts, have been documented in or predicted for plankton species and commercially important fish stocks (Nye *et al.* 2009; Pinsky *et al.* 2013; Poloczanska *et al.* 2013; Grieve *et al.* 2017; Morley *et al.* 2018) and cetacean species (e.g., MacLeod 2009; Sousa *et al.* 2019). There is uncertainty in how, if at all, the distribution and population size of this species will respond to these changes and how the ecological shifts will affect human impacts to the species.

STATUS OF STOCK

Fraser’s dolphins are not listed as threatened or endangered under the Endangered Species Act, and the Western

North Atlantic stock is not considered strategic under the Marine Mammal Protection Act. No fishery-related mortality or serious injury has been observed during recent years; therefore, total fishery-related mortality and serious injury can be considered insignificant and approaching the zero mortality and serious injury rate. The status of Fraser's dolphins in the western U.S. Atlantic EEZ relative to OSP is unknown. There are insufficient data to determine the population trends for this species.

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