



**UNITED STATES DEPARTMENT OF COMMERCE**  
**National Oceanic and Atmospheric Administration**  
Office of National Marine Sanctuaries  
Stellwagen Bank National Marine Sanctuary  
175 Edward Foster Rd Scituate, Massachusetts 02066

April 29, 2024

Cate O'Keefe  
Executive Director, NEFMC  
50 Water Street, Mill 2  
Newburyport, MA 01950

Re: Atlantic Herring FMP Amendment 10 Scoping Comments

Dear Director O'Keefe:

I appreciate the opportunity to provide comments during the scoping period for Amendment 10 (A10) to the Atlantic Herring Fishery Management Plan. I ask that the Council consider the following during development of A10: 1) Development of a time/area closure for Stellwagen Bank National Marine Sanctuary (SBNMS) to reduce user conflicts for herring, account for its role in the forage base, and promote conservation of Atl. herring and river herring/shad, and 2) Analyze and mitigate the environmental impacts of the directed herring fishery on SBNMS when considering new measures under A10.

In 1992, the U.S. Congress designated SBNMS, located off the coast of Massachusetts in the southwestern Gulf of Maine. The sanctuary stretches from Cape Ann to Cape Cod and encompasses 842 square miles surrounding Stellwagen Bank, a shallow, glacially-deposited underwater plateau and the sanctuary's most prominent bathymetric feature. The interaction between tides, currents, winds, and Stellwagen Bank drives remarkable productivity and biodiversity. The sanctuary's rich waters serve as a critical feeding ground and nursery for whales and dolphins, provide a vital stopover and seasonal destination for migrating seabirds, and offer essential habitat for commercially-harvested fish. Humpback whales are consistently abundant in the Stellwagen Bank area due to the presence of forage fish<sup>1</sup> and declines in recruitment, variability in abundance and distribution, patch characteristics that increase vulnerability to overfishing, and potential climate change impacts are concerns for ecologically and commercially important forage species. The sanctuary's proximity to the Boston

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<sup>1</sup> NOAA Fisheries. 2020. Marine Mammal Stock Assessment Report: Humpback Whales (Megaptera novaeangliae): Gulf of Maine Stock.  
<https://www.fisheries.noaa.gov/national/marine-mammal-protection/marine-mammal-stock-assessment-reports-species-stock>.



metropolitan region also attracts many valuable commercial and recreational activities such as fishing, shipping, and tourism.

***1) Consider development of a midwater trawl gear restricted area in SBNMS from October 1 through December 31 to reduce user conflicts for the herring resource, account for herring and its role as forage in the ecosystem, and improve the conservation status of Atl. herring and river herring/shad.***

### *Reduce User Conflicts*

A midwater trawl gear restricted area in SBNMS from October 1 through December 31 will reduce conflicts between the multiple user groups that rely on herring and the ecosystem services that forage fish support year-round. These user groups include eco-tourism such as whale watching, birding, and recreational boating and fishing. SBNMS is an important area for eco-tourism and is “one of the world’s premier whale watching destinations” (Cape Cod Times, 2022)<sup>2</sup>. SBNMS is ideal for whale watching and other recreational opportunities because of its close proximity to several ports, including a major metropolitan area. Whale watching operations in and around SBNMS, which depend on the local population of herring as prey for whales, generate \$182.1 million dollars of economic activity annually (Schwarzmann et al., 2020)<sup>3</sup>. Herring also supports recreational and commercial fishing opportunities in and around SBNMS, as prey for species like cod, haddock, winter flounder and tuna. In 2009, private recreational boats visiting SBNMS generated an output of \$10.1 million dollars (Hellin et al., 2011)<sup>4</sup>. Eco-tourism and recreational activities are likely to increase in SBNMS as climate change causes milder weather to remain later into the year, and whales and other species remain in the area longer. Midwater trawl vessels in SBNMS can impact where and when eco-tourism and recreational boaters and fishers operate in real-time, and also impact operations year-round by removing herring as forage that indirectly supports these user groups, their activities, and the economic value they generate.

There are a number of additional sources of data the Council could consider to further substantiate the importance of SBNMS to various user groups, including the marine economic

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<sup>2</sup> Karns, M. 2022. Story from Dolphin Fleet Whale Watch: Stellwagen Bank is New England’s whale watching destination. Cape Cod Times. <https://www.capecodtimes.com/story/sponsor-story/dolphin-fleet-whale-watch/2022/08/25/stellwagen-bank-new-englands-whale-watching-destination/7876587001/>.

<sup>3</sup> Schwarzmann, D., Shea, R. 2020. Whale Watching in Stellwagen Bank National Marine Sanctuary: Understanding Passengers and their Economic Contributions. National Marine Sanctuaries Conservation Series ONMS-20-12. U.S. Department of Commerce, National Oceanic and Atmospheric Administration, Office of National Marine Sanctuaries, Silver Spring, MD.

<sup>4</sup> Hellin, D., Wiggins, J., Uiterwyk, K., Starbuck, K., Napoli, N., Terkla, D., Watson, C., Roman, A., Roach, L., Welch, T., 2011. 2010 Massachusetts Recreational Boater Survey. Technical Report 03.UHI.11. Massachusetts Ocean Partnership, Boston, MA.

data available on NOAA's E-NOW portal<sup>5</sup> and the Northeast Ocean Data Portal<sup>6</sup>. Additionally, the Council should analyze Vessel Monitoring System (VMS) data, Automatic Identification System (AIS) data for commercial whale watching vessels, and fishing vessel trip reports and recreational fishing reports.

### *Account for the Role of Atl. Herring as Forage in the Ecosystem*

In the early fall, marine mammals are preparing for migration, calving, and breeding. Baleen whales (humpback, fin, and minke) require a minimum threshold level of prey density to successfully forage (Piatt and Methven, 1992; Hazen et al., 2009)<sup>7 8</sup>, and humpback whales depend on the spatial characteristics and density of prey schools to maximize their efficiency when surface feeding (Hazen et al., 2009). The Center for Coastal Studies' research and Gulf of Maine Humpback Whale Catalog indicate that SBNMS is a major humpback whale feeding area.<sup>9</sup> Fish species are also spatially influenced by forage fish abundance (Richardson et al., 2014)<sup>10</sup>, and the number of schools of prey is a critical bioenergetic issue for predators such as cod and whales. SBNMS staff, along with scientific partners, are engaged in a multi-year effort to monitor the presence and abundance of cod and marine mammal species in SBNMS using passive acoustics, and results from 2018-2021 indicate increased cod grunts from October through December, increased humpback whale calls from September through December, increased dolphin calls October through November, and increased fin whale calls September through April.<sup>11</sup> These results, which can be viewed on the SanctSound Data Portal, indicate the presence of multiple species that rely on herring and the forage base in SBNMS during the fall and winter months. Additional information on this research that the Council may want to consider can be found on the SanctSound webpage.<sup>12</sup>

Seabirds also rely on schools of herring as forage during the fall when they stage at shore-side areas near SBNMS before their winter migration. Our science team conducts a standardized survey each season (2012- present) to collect bird population and distribution data in and near

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<sup>5</sup> See: <https://coast.noaa.gov/enowexplorer/>.

<sup>6</sup> See: <https://www.northeastoceandata.org/>.

<sup>7</sup> Piatt, J. F., Methven, D. A. 1992. Threshold foraging behavior of baleen whales. *Marine Ecology Progress Series*. Vol. 84, No. 3 , 205-210.

<sup>8</sup> Hazen, E.L., Friedlaender, A.S., Thompson, M.A., Ware, C., Weinrich, M.T., Halpin, P.N., Wiley, D.N., 2009. Finescale prey aggregations and foraging ecology of humpback whales (*Megaptera novaeangliae*). *Marine Ecology Progress Series* 395, 75–89.

<sup>9</sup> See: <https://coastalstudies.org/humpback-whale-research/gulf-of-maine/#:~:text=The%20Gulf%20of%20Maine%2C%20off%20New%20England%2C,feeding%20areas%20in%20the%20North%20Atlantic%20Ocean.>

<sup>10</sup> Richardson, D.E., Palmer, M.C. and Smith, B.E., 2014. The influence of forage fish abundance on the aggregation of Gulf of Maine Atlantic cod (*Gadus morhua*) and their catchability in the fishery. *Canadian Journal of Fisheries and Aquatic Sciences* 71, 1349–1362.

<sup>11</sup> Integrated Ocean Observing System. SanctSound: Stellwagen Bank National Marine Sanctuary. [https://sanctsound.portal.axds.co/#sanctsound/sanctuary/stellwagen-bank.](https://sanctsound.portal.axds.co/#sanctsound/sanctuary/stellwagen-bank)

<sup>12</sup> Integrated Ocean Observing System. SanctSound: Stellwagen Bank National Marine Sanctuary. [https://sanctsound.ioos.us/s\\_sbnms.html.](https://sanctsound.ioos.us/s_sbnms.html)

SBNMS, which could assist the Council determine foraging hotspots for seabirds and other animals. I ask that the Council analyze the presence and abundance of seabird, marine mammal, and fish species such as cod and tuna in SBNMS as an indicator of its importance as a foraging hotspot in the fall that may warrant further gear restrictions at this time to conserve the forage base for those animals. Other potential sources for additional information on seabirds is the U.S. Fish & Wildlife Service and the National Audubon Society, which tracks many seabird species that migrate offshore and along the coast, and could provide additional information on seabird foraging hotspots.

To support herring's role as forage in the ecosystem, the Council should consider allocating a greater portion of the optimum yield of the Atlantic herring fishery to the benefit of recreational opportunities that depend on an available forage base year-round in SBNMS and the protection of the marine ecosystem as described in National Standard 1 (50 C.F.R. § 600.310). Recent studies by Savorca et al. (2021) conclude that baleen whale prey consumption is currently underestimated by three times or more in some ecosystems<sup>13</sup>. In addition, sand lance will be in lower abundance for the rest of the century, and sand lance will no longer be able to fill the role of lipid-rich forage (Suca et al., 2021)<sup>14</sup>, which will put additional pressure on herring as forage. One adaptive strategy to ensure protection of marine ecosystems and recreational opportunities is to follow a precautionary approach to account for herring's role in the ecosystem by considering a greater portion of the optimum yield be set-aside for marine ecosystems and recreational opportunities.

#### *Promote Conservation of Atl. Herring and Reduce Bycatch of River Herring/Shad*

Additional biological benefits from a fall midwater trawl gear restriction in SBNMS include protecting essential fish habitat for herring eggs, larvae, juveniles and adults. Much of SBNMS is sandy, coarse-grained, and gravel habitats down to 90 m depth; this is optimal habitat for herring eggs and egg mats, which have been documented in SBNMS in October (Stevenson et al., 2005)<sup>15</sup>. SBNMS has observed and documented midwater trawl vessel activity on Stellwagen Bank in areas less than 50 m deep, which leads us to believe that these vessels fish the entire water column and interact with bottom habitat and disturb herring eggs mats. Decreasing

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<sup>13</sup> Savoca, M.S., Czapanskiy, M.F., Kahane-Rapport, S.R., Gough, W. T., Fahlbusch, J. A., Bierlich, K. C., Segre, P. S., Di Clemente, J., Penry, G. S., Wiley, D. N., Calambokidis, J., Nowacek, D. P., Johnston, D. W., Pyenson, N. D., Friedlaender, A. S., Hazen, E. L., Goldbogen, J. A. 2021. Baleen whale prey consumption based on high-resolution foraging measurements. *Nature* 599, 85–90. <https://doi.org/10.1038/s41586-021-03991-5>.

<sup>14</sup> Suca, J. J., Wiley, D. N., Silva, T. L., Robuck, A. R., Richardson, D. E., Glancy, S. G., Clancey, E., Giandonato, T., Solow, A. R., Thompson, M. A., Hong, P., Baumann, H., Kaufman, L., Llopiz, J. K. 2021. Sensitivity of sand lance to shifting prey and hydrography indicates forthcoming change to the northeast US shelf forage fish complex. *ICES Journal of Marine Science*, fsaa251. <https://doi.org/10.1093/icesjms/fsaa251>.

<sup>15</sup> Stevenson, D. K.; Scott, M. L. 2005. Essential fish habitat source document. Atlantic herring, *Clupea harengus*, life history and habitat characteristics. Northeast Fisheries Science Center (U.S.). Series: NOAA technical memorandum NMFS-NE; 192. URL: <https://repository.library.noaa.gov/view/noaa/4034>.

disturbance in areas where herring spawning and larval and juvenile development occur will support conservation of Atl. herring.

Additional biological benefits from a fall midwater trawl gear restriction may also further reduce incidental bycatch of river herring and shad. River herring has been documented as bycatch in the midwater trawl fleet in the fall and winter in SBNMS<sup>16</sup>, and river herring migrate through the Gulf of Maine in the fall which puts them at greater risk of being incidentally caught during this time (Bethoney et al., 2014)<sup>17</sup>. A midwater trawl restricted area will promote and complement local shore-side efforts to rebuild river herring by reducing bycatch. Data sources the Council may wish to consider include river herring bycatch data from the NEFOP observer program, port-side sampling data, and any local watershed herring run data or genetic data that may indicate where spawning river herring are migrating to and from, and when and where river herring are present in deeper waters such as SBNMS.

***2) The Council should analyze and mitigate the environmental impacts of the directed herring fishery on resources and ecosystem services in SBNMS when considering new measures under A10.***

SBNMS, a Congressionally-designated marine protected area, is a highly productive, biodiversity hotspot, and is ecologically significant to several commercially and recreationally important species. Any Council action to reduce user conflicts for Atl. herring, account for its role in the forage base, and promote conservation of Atl. herring and river herring/shad should consider measures for SBNMS. Herring are a main forage fish that support the continued presence of species abundance and biodiversity in SBNMS, and indirectly support multiple user groups in SBNMS. Specifically, herring indirectly supports recreational fishing as prey for winter flounder, cod, and haddock. Research by Silva et al (2020)<sup>18</sup> found that winter flounder are one of the top 10 species landed over sand habitat in SBNMS, and documented their spawning activity in sand habitat of SBNMS. Cod spawning hotspots have been identified in and near Stellwagen Bank, in particular the northwest corner of the Bank has been confirmed as an area with one of the highest levels of cod spawning activity (Caiger et al, 2020)<sup>19</sup>. Haddock is

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<sup>16</sup> See: <https://www.umassd.edu/smast/bycatch/>.

<sup>17</sup> Bethoney, N.D., Stokesbury, K.D.E., Schondelmeier, B.P., Hoffman, W.S. and Armstrong, M.P. (2014), Characterization of River Herring Bycatch in the Northwest Atlantic Midwater Trawl Fisheries. *North American Journal of Fisheries Management*, 34: 828-838. <https://doi.org/10.1080/02755947.2014.920736>.

<sup>18</sup> Silva, T. L., Wiley, D. N., Thompson, M. T. (2020). Analysis of vessel trip report data (2007–2016) to investigate relationships between commercial fishes and sand habitat [Unpublished data]. U.S. Department of Commerce, National Oceanic and Atmospheric Administration, Stellwagen Bank National Marine Sanctuary.

<sup>19</sup> Caiger, P. E., Dean, M. J., DeAngelis, A. I., Hatch, L. T., Rice, A. N., Stanley, J. A., Tholke, C., Zemeckis, D. R., & Van Parijs, S. M. (2020). A decade of monitoring Atlantic cod *Gadus morhua* spawning aggregations in Massachusetts Bay using passive acoustics. *Marine Ecology Progress Series*, 635, 89–103. <https://doi.org/10.3354/meps13219>.

one of the most caught species by charter and party boats (Schwarzmann et al 2020)<sup>20</sup>, and also represents a large percentage of all haddock caught in statistical area 514. The patchiness of herring is a key factor in their ecological role at SBNMS, and the distribution of these patches can be impacted by midwater trawl vessels and lead to decreased prey availability in discrete areas. The National Marine Sanctuaries Act mandates NOAA “to maintain the natural biological communities in the national marine sanctuaries, and to protect, and, where appropriate, restore and enhance natural habitats, populations, and ecological processes” (SEC. 301. [16 U.S.C. 1431]). As the Council considers alternatives and commences its analysis under the National Environmental Policy Act, the Council should consider the impacts that the directed herring fishery has on SBNMS’ resources and ecosystem services, and consider measures designed to minimize and avoid these impacts.

I hope that the Council acknowledges the economic and ecological significance of SBNMS by establishing measures to reduce user conflicts, and conserve herring and their role as forage in the ecosystem of SBNMS. I ask that the Council treat the entire sanctuary as a single ecological unit, instead of imposing differing management measures within SBNMS’ boundaries, which aligns with the goals in our 2023 final management plan of comprehensive sanctuary management and conserving the forage base. I also ask the Council to consider analyzing the impacts of any measures developed through A10 on sanctuary resources; my staff are willing to assist the PDT with any data or information necessary to support an analysis for SBNMS.

Thank you for the opportunity to provide input to this process. If you have any questions regarding these comments, please contact me at 781-635-0163 or at [Pete.DeCola@noaa.gov](mailto:Pete.DeCola@noaa.gov).

Sincerely,

Captain Peter DeCola  
U.S. Coast Guard (retired)  
Superintendent  
Stellwagen Bank National Marine Sanctuary

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<sup>20</sup> Schwarzmann, D., Shea, R., Leeworthy, V. R., Steinbeck, S., & Dato, C. (2020). Estimates of economic contributions and fishing effort for commercial and for-hire recreational fisheries in Stellwagen Bank National Marine Sanctuary. National Marine Sanctuaries Conservation Series ONMS-20-05. U.S. Department of Commerce, National Oceanic and Atmospheric Administration, Office of National Marine Sanctuaries.  
<https://nmssanctuaries.blob.core.windows.net/sanctuaries-prod/media/docs/onms-20-05-estimates-of-economic-contributions-and-fishing-effort-sbnms.pdf>.

cc: Mike Pentony, NOAA Greater Atlantic Regional Fisheries Office

Jon Hare, NOAA Northeast Fisheries Science Center

Robert Beal, ASMFC