2022 United States Voluntary National Cetacean Conservation Report

**Submitted by the Government of the United States
to the International Whaling Commission's Conservation Committee
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1. Legal and other mechanisms

1.1. The Marine Mammal Protection Act

All cetaceans in U.S. waters are protected under the Marine Mammal Protection Act (MMPA). The objectives of the MMPA are to maintain the health and stability of marine ecosystems and maintain marine mammal stocks at optimum sustainable population levels, taking into account the carrying capacity of the ecosystem. It was passed 50 years ago, along with other key statutes that protect oceans and coasts (https://www.noaa.gov/50-years-ocean-coastal-conservation/our-ocean-and-coasts-yesterday-today-and-tomorrow). Under the MMPA, it is unlawful for any person or vessel subject to U.S. jurisdiction to take any marine mammal, subject to certain exceptions[1]. Take is defined in the MMPA as "to harass, hunt, capture, or kill, or attempt to harass, hunt, capture or kill any marine mammal."

Cetacean species or stocks that are below the optimum sustainable population level are considered "depleted" under the MMPA, and cetaceans listed under the Endangered Species Act (ESA) are also considered depleted under the MMPA. The cetacean species considered depleted under the MMPA that are not listed under the ESA (see **Section 1.2**) are:

- Pantropical spotted dolphin, Pacific northeastern offshore stock
- Eastern Spinner dolphin
- Killer whale, AT1 Transient stock
- Beluga, Yakutat Bay subgroup of Cook Inlet stock
- Beluga, Sakhalin Bay-Nikolaya Bay-Amur River stock
- Common bottlenose dolphin, Western North Atlantic Central Florida Coastal stock
- Common bottlenose dolphin, Western North Atlantic Northern Florida Coastal
- Common bottlenose dolphin, Western North Atlantic Northern Migratory Coastal
- Common bottlenose dolphin, Western North Atlantic South Carolina/Georgia Coastal stock
- Common bottlenose dolphin, Western North Atlantic Southern Migratory Coastal
- Bottlenose dolphin, U.S. mid-Atlantic coastal population
- Coastal spotted dolphin

[1] Under the MMPA, Alaska Natives may take marine mammals for subsistence purposes or for the creation of authentic native articles of handicrafts and clothing, provided neither is done in a wasteful manner. The Endangered Species Act has a similar provision.

Permits or other authorizations are required under the MMPA to conduct activities that are likely to result in the "taking" of a marine mammal. When applicable requirements are met, the U.S. National Oceanic and Atmospheric Administration (NOAA) National Marine Fisheries Service (NMFS) can, inter alia, authorize the take or import of cetaceans (or their parts) for scientific research, enhancing the survival or recovery of a marine mammal species or stock, commercial and educational photography, public display, and incidental take during commercial fishing operations or non-fishery activities.

The MMPA also established the Marine Mammal Commission (Commission) as an independent agency of the U.S. government. The Commission advises and makes recommendations to both the executive and legislative branches of the U.S. government regarding measures needed to promote the policies and provisions of the Act. In addition, the Commission supports a research program to identify and guide marine mammal conservation measures at local, regional, national, and international levels.

The MMPA contains provisions to address the incidental mortality and serious injury of marine mammals in both domestic and foreign commercial fisheries. With respect to foreign fisheries, section 101(a)(2) of the MMPA states that the Secretary of the Treasury shall ban the importation of commercial fish or products from fish which have been caught with commercial fishing technology which results in the incidental kill or incidental serious injury of ocean mammals in excess of United States standards. In August 2016, NOAA Fisheries Service issued a final rule implementing these import provisions of the MMPA. Information on the implementation of these provisions is described in Section 2.2.1 below.
More information on NMFS' marine mammal protection efforts is available online at: https://www.fisheries.noaa.gov/topic/marine-mammal-protection.

1.2. The Endangered Species Act

In the United States, a cetacean species determined to be "in danger of extinction throughout all or a significant portion of its range" is protected as "endangered" under the Endangered Species Act (ESA). Cetacean species which are likely to become endangered within the foreseeable future are protected as "threatened." The ESA prohibits the taking of any endangered species including any distinct population segment (DPS) of a species, subject to certain exceptions. Similar prohibitions may be applied to threatened species. Take is defined by the ESA as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." Cetacean species (including DPSs), which are currently listed under the ESA include:

- Beluga whale, Cook Inlet DPS (not including Yakutat Bay animals) (endangered)
- Blue whale (endangered)
- Bowhead whale (endangered)
- Chinese River dolphin / baiji (endangered)
- False killer whale, Main Hawaiian Islands insular DPS (endangered)
- Fin whale (endangered)
- Gray whale, all stocks except the eastern North Pacific stock (endangered)

- Humpback whale (endangered Cape Verde Islands/Northwest Africa DPS, endangered Western North Pacific DPS; endangered Arabian Sea DPS, endangered Central America DPS; threatened Mexico DPS)
- Indus River dolphin (endangered)
- Killer whale, Southern Resident DPS (endangered)
- Maui dolphin (endangered)
- North Atlantic right whale (endangered)
- North Pacific right whale (endangered)
- Rice's whale (endangered)
- Sei whale (endangered)
- South Island Hector's dolphin (threatened)
- Southern right whale (endangered)
- Sperm whale (endangered)
- Taiwanese humpback dolphin (endangered)
- Vaquita (endangered)

In 2016, NMFS revised the ESA listing for the humpback whale to identify 14 separate DPSs. One DPS was listed as threatened, four DPSs were listed as endangered, and nine other DPSs were found to not warrant ESA listing. More information on the revised ESA listing of the humpback whale is available online at: http://www.nmfs.noaa.gov/pr/species/mammals/whales/humpback-whale.html.

The ESA requires the federal government to review actions authorized, funded, or carried out by federal agencies that may adversely affect threatened or endangered species and their critical habitat. Accordingly, all U.S. federal agencies must consult with NMFS or the U.S. Fish and Wildlife Service on such activities. These interagency consultations (also called "section 7" consultations), assist federal agencies to ensure that their actions do not jeopardize the continued existence of a species or destroy or adversely modify designated critical habitat. The Services document their findings in written Biological Opinions, which may authorize limited incidental "take" of ESA-listed species while specifying the amount or extent of take anticipated and the measures necessary to minimize impacts from the federal action. More information on NMFS' endangered species conservation efforts is available online at: https://www.fisheries.noaa.gov/topic/endangered-species-conservation.

1.3. The National Environmental Policy Act

The National Environmental Policy Act (NEPA) requires all federal agencies to consider the effects of their activities on the human environment. Federal activities that may affect cetacean and other wildlife species, or their habitats, or other components of the human environment, must undergo an environmental analysis under NEPA. Activities that may affect cetaceans include seismic surveying, marine energy development, military exercises, coastal development (e.g., dredging, bridge construction, and port expansions), and scientific research activities.

1.4. The National Marine Sanctuaries Act

The United States also protects cetaceans and their habitat through the designation of national marine sanctuaries, authorized under the National Marine Sanctuaries Act. National marine sanctuaries, as well as marine national monuments, manage and protect designated areas of the nation's oceans and Great Lakes and provide habitat for multiple cetacean and other protected species. NOAA's Office of National Marine Sanctuaries serves at the trustee for the National Marine Sanctuary System encompassing more than 600,000 square miles of marine and Great Lakes waters from Washington State to the Florida Keys, and from Lake Huron to American Samoa. The network includes a system of 13 national marine sanctuaries and the Papahānaumokuākea and Rose Atoll marine national monuments. The Hawaiian Islands Humpback Whale National Marine Sanctuary, one of the 13 designated sanctuaries, was designated specifically to protect humpback whales that occur in Hawaiian waters during their breeding/calving season. Other sanctuaries provide important habitat for other large and small cetaceans. More information on the National Marine Sanctuary System is available online at: https://sanctuaries.noaa.gov/.

2. Current Government programs related to cetacean conservation

The United States conducts population abundance and distribution surveys within the U.S. EEZ and Eastern Tropical Pacific (ETP) waters, which aid in management actions to prevent or reduce human-caused mortality and injury of various cetacean species.

2.1. Cooperation with States, Tribes, Alaska Native Organizations, and Non-Governmental Organizations

Under the ESA, NMFS enters into agreements with states that establish and maintain an "adequate and active" program for the conservation of endangered and threatened species. Once a state enters into such an agreement, NMFS provides federal funding through the Species Recovery Grants to States through a competitive grant program for implementation of the state's conservation program. States use federal grant funding to support management, outreach, research, and monitoring projects with direct conservation benefits for threatened and endangered species. A separate grant program - the Species Recovery Grants to Tribes Program - supports similar conservation efforts through grants to federally recognized tribes.

Under the MMPA, NMFS can enter into cooperative agreements with Alaska Native organizations to conserve marine mammals and co-manage subsistence hunting of cetaceans and other marine mammals. Cooperative agreements may include federal grants to Alaska Native organizations for collecting and analyzing marine mammal population data, monitoring the harvest of cetaceans for subsistence use, participating in cetacean research, and developing marine mammal co-management structures with government agencies. NMFS currently has several cooperative agreements with various Alaska Native organizations, including with the Alaska Eskimo Whaling Commission.

To respond to cetacean strandings, NMFS partners with stranding network organizations in all coastal states and is developing capacity in some U.S. territories. NMFS coordinates the

National Marine Mammal Stranding Network, develops best practices, assists with diagnostics and research, and provides training. In addition, NMFS provides some financial support through the John H. Prescott Marine Mammal Rescue Assistance Grant Program. The Prescott Grant Program provides grants or cooperative agreements to eligible stranding network participants for: (1) recovery and treatment (i.e., rehabilitation) of stranded marine mammals; (2) data collection from living or dead stranded marine mammals, and (3) facility upgrades, operation costs, and staffing needs directly related to the recovery and treatment of stranded marine mammals and the collection of data from living or dead stranded marine mammals. For fiscal year 2021, 55 competitive Prescott Grants were awarded to recipients in 19 states and 1 tribe totaling $3,715,471. For fiscal year 2022, NOAA Fisheries received 56 eligible proposals requesting $4,935,843. These proposals are under review and final decisions will be made in summer 2022.

2.2. National Initiatives

National Marine Fisheries Service (NMFS) and the U.S. Fish and Wildlife Service are responsible for developing Stock Assessment Reports (SARs) for each marine mammal stock that occurs in waters under the jurisdiction of the United States. Each stock assessment, as data availability allows, describes the stock's geographic range, abundance estimates (including a minimum population estimate), current population trends, current and maximum net productivity rates, status with respect to optimum sustainable population levels and allowable removal levels, and estimates of all annual human-caused mortality and serious injury. This information is used, among other things, to evaluate the progress of U.S. commercial fisheries in reducing the incidental mortality and serious injury of marine mammals. Three regional scientific review groups advise NMFS and the U.S. Fish and Wildlife Service on the status of marine mammal stocks, research needs for stocks, impacts to stocks, and methods to reduce mortality of marine mammals incidental to fishing operations within Alaskan waters, along the Pacific Coast (including Hawaii), and the Atlantic Coast (including the Gulf of Mexico).

NMFS also develops and implements recovery plans for cetaceans listed as "threatened" or "endangered" under the ESA. Recovery plans incorporate: 1) a description of site-specific management actions necessary to achieve recovery of the species; 2) objective, measurable criteria which, when met, would result in a determination that the species may be removed from the list; and 3) estimates of the time and costs required to achieve the plan's goal. NMFS has published final recovery plans for endangered blue, Cook Inlet beluga, humpback, North Atlantic right, North Pacific right, fin, sperm, sei, and Southern Resident killer whales. NMFS is in the process of developing a recovery plan for Main Hawaiian Islands insular false killer whales.

2.2.1. Marine Mammal Protection Act Import Provisions Rulemaking

In August 2016, NMFS published a final rule implementing the fish and fish product import provisions of the Marine Mammal Protection Act (MMPA) (81 FR 54390; August 15, 2016). This rule establishes conditions for evaluating a harvesting nation's regulatory programs to address incidental and intentional mortality and serious injury of marine

mammals in fisheries producing fish and fish products exported to the United States. Under this rule, fish or fish products cannot be imported into the United States from commercial fishing operations that result in the incidental mortality or serious injury of marine mammals in excess of United States standards (16 U.S.C. 1371(a)(2)). The regulations apply to any foreign nation that exports fish and fish products to the United States, either directly or through an intermediary nation. Under these provisions, nations were given a five-year exemption period, extended due to the COVID-19 pandemic until January 1, 2023, to come into compliance with these requirements.

As part of the exemption period, NOAA Fisheries published its most recent List of Foreign Fisheries (LOFF) in 2020. The LOFF classifies fisheries based on the likelihood of marine mammal bycatch in commercial fisheries exporting fish and fish products to the United States. The LOFF can be found at: https://www.fisheries.noaa.gov/foreign/international-affairs/list-foreign-fisheries.

To develop the LOFF, NMFS identified harvesting nations with commercial fishing operations exporting to the United States and classified those fisheries based on their likelihood of marine mammal interactions as either "exempt" or "export" fisheries. "Export" fisheries are foreign commercial fishing operations that have more than a remote likelihood of incidental mortality and serious injury of marine mammals in the course of its commercial fishing operations. "Exempt" fisheries are foreign commercial fishing operations that have a remote likelihood of, or no known, incidental mortality and serious injury of marine mammals in the course of commercial fishing operations.

Harvesting nations applied for comparability findings for all fisheries included in their LOFF in 2021. NMFS is currently reviewing comparability finding applications from 131 nations and approximately 2,600 exempt and export fisheries. The conditions to receive a comparability finding for export and exempt fisheries are set out in the rule in section 216.24(h)(6)(iii). Both exempt and export fisheries must obtain a comparability finding. Failure to receive a comparability finding for any fishery on the LOFF will result in import prohibitions for the fish and fish products from that fishery. NMFS will publish the results of the comparability finding review in the Federal Register.

2.3. Research

The U.S. Government conducts and sponsors a wide variety of cetacean conservation research. Research projects include, inter alia: surveys to assess population abundance and population dynamics; satellite tagging to ascertain cetacean movement patterns and habitat use; behavioral studies; biopsy collections to provide tissue samples for genetic research on population structure; fisheries bycatch mitigation efforts (including research on fishing gear modification and acoustic deterrent devices); studies on the impacts of anthropogenic noise; and studies to assess the effectiveness of ship strike reduction strategies. In addition, NMFS partners with scientists worldwide to conduct health assessment studies of wild marine mammal populations to develop baseline data, monitor trends, and investigate the impacts of disease, natural toxins, and pollution, depending on funding availability.

2.4. Marine Mammal Commission

The Marine Mammal Commission (Commission) is an independent agency of the U.S. government charged by the Marine Mammal Protection Act (MMPA) to further the conservation of marine mammals and their environment. The Commission works to ensure that marine mammal populations are restored and maintained as functioning elements of healthy marine ecosystems. It provides science-based oversight of domestic and international policies and actions of other U.S. federal agencies with regulatory authority for, or whose actions may affect marine mammals and their ecosystems. The Commission's role is unique as it is the only U.S. government agency that provides comprehensive oversight of all science, policy, and management actions affecting marine mammals.

Marine Mammal Bycatch - The Commission addresses marine mammal bycatch globally at multiple levels through its policy work, grants program, and participation in efforts to protect vulnerable marine mammal species. Those efforts have included working with partners to prevent the extinction of the vaquita, North Atlantic right whale, Māui's dolphin, humpback whales in the Indian Ocean, and Irrawaddy dolphins in the Mekong River. Within the United States, the Commission works closely with other federal and state agencies, fishermen, scientists, and conservationists to identify and implement measures designed to keep incidental serious injuries to and deaths of marine mammals from commercial fishing activities at biologically sustainable levels as mandated by the MMPA. Further, the Commission works to understand the importance of prey populations to marine mammals, and the impact that fishing has on those resources. The Commission provides analysis, advice and recommendations to federal agencies regarding their actions and polices that have the potential to affect fisheries interactions with marine mammals. In addition, the Commission sponsors research and workshops aimed at understanding fisheries interactions and seeking innovative solutions to reduce entanglement and hooking of marine mammals in commercial fishing gear. The Commission has contributed to the development of analytical tools for use by countries that are required to obtain a comparability finding to continue exporting seafood to the United States. Those tools are designed to be used to estimate marine mammal abundance, bycatch rates and the impact of that bycatch on marine mammal populations. The Commission also continues to participate in or support bycatch mitigation processes led by international bodies such as the IWC and the Food and Agriculture Organization of the United Nations.

Commissioner Dr. Michael Tillman and the IWC – Marine Mammal Commissioner Dr. Michael Tillman chaired the IWC Aboriginal Subsistence Whaling Working Group. His work, in tackling long-term questions regarding Aboriginal Subsistence Whaling was recognized at IWC67 in 2018.

Marine Mammal Co-Management Review in Alaska – Following its review of select Alaska Native co-management organizations in 2019, the Commission is continuing to engage in Alaska Native co-management issues through participation in meetings of the Indigenous People's Council for Marine Mammals and other Alaska Native organizations. The Commission is also serving as an advisor to the Chugach Regional Resources Commission, an Alaska Native Tribal organization located in the Prince William Sound area, to develop

methods for assessing marine mammal stocks and obtaining better information on subsistence activities in that region. The Commission is engaged with NMFS, FWS, USGS, BOEM, USCG, and Alaska Native communities to ensure systematic monitoring of Alaska marine mammal abundance and movements to address critical information needs and to mitigate the impacts of climate change and increased human activities on marine mammals and the Alaska Native communities that depend on them for subsistence and cultural purposes.

Vaquita Conservation Efforts – The Commission continues its engagement in the international fight to save the most endangered marine mammal on earth, the vaquita, from extinction. The Commission has supported the deployment of passive acoustic monitoring to detect vaquitas and efforts to develop "vaquita-friendly" fishing gear and economic alternatives to gillnet fisheries for the communities of the upper Gulf of California.

Small Grants Program – With a relatively modest budget, the Commission's Grants and Research program fills a unique niche in marine mammal research funding, focused primarily on novel, low-cost projects. The Commission currently is supporting 34 active research grants, including nine new projects for Fiscal Year 2022. Commission grants often target community-driven conservation approaches to reduce, manage, or mitigate threats to marine mammals. Recent examples of grants involving cetaceans include: linking climate indices to southern right whale body condition and vital rates; understanding impacts of climate change on reproductive performance and health of humpback whales in Hawai'i, Southeast Alaska, and around the Antarctic Peninsula; and quantifying the impacts of a marine heatwave on individual growth and reproductive success in a recovering population of killer whales.

Commission Annual Meetings– Each year, the Commission holds an annual meeting in different regions of the country to examine matters of local interest, as well as priority national and global issues. Due to concerns regarding COVID-19, the Commission decided not to host its Annual Meeting during the years of 2020-2022. The Commission has hosted smaller, virtual meetings in the meantime on Mississippi bottlenose dolphin conservation, effects of low-salinity exposure on bottlenose dolphins, and federal agency approaches to reducing vessel strike of cetaceans.

Critically Endangered North Atlantic Right Whale – In response to the continuing risk of entanglement in lobster and crab pot gear and vessel strikes as the major source of mortality for the endangered North Atlantic right whales, the Commission continues to press for additional actions to protect this species. Efforts by the Commission included (1) providing expertise and seed funding to advance new technologies to reduce bycatch, like the development of 'ropeless' or "on-demand" fishing gear, (2) recommending supplementary federal conservation measures, including increased use of time-area closures, and (3) providing leadership on the Atlantic Large Whale Take Reduction Team (ALWTRT).

Take Reduction Team Participation – The MMPA directs the National Marine Fisheries Service (NMFS) to prepare and implement take reduction plans for fisheries that frequently or occasionally kill or seriously injure marine mammals at levels high enough to raise

conservation concerns. NMFS uses Take Reduction Teams (TRTs) to recommend measures for inclusion in take reduction plans and to monitor their effectiveness. Commission representatives participate on all TRTs, including those focused on reducing cetacean bycatch, such as the ALWTRT, Pacific offshore cetacean, bottlenose dolphin, harbor porpoise, pelagic longline, and Hawaiian false killer whale TRTs.

3. Current threats to cetacean conservation and management measures taken/proposed

3.1. Fisheries interactions

Fishing gear can incidentally injure and kill cetaceans and is a leading human-related cause of mortality and serious injury for multiple cetacean species (including North Atlantic right whales and harbor porpoise in the Atlantic Ocean, bottlenose dolphins in the Atlantic Ocean and Gulf of Mexico, humpback whales in the Eastern Pacific Ocean, and false killer whales in the Pacific Ocean). NMFS works with the fishing industry and other experts to develop or modify fishing gear and practices to minimize bycatch. The MMPA requires NMFS to reduce the incidental mortality and serious injury of marine mammals in commercial fishing operations to insignificant levels approaching a zero mortality and serious injury rate. NMFS publishes an annual List of Fisheries classifying each commercial fishery based on whether it has frequent (Category I), occasional (Category II), or a remote likelihood of or no known (Category III) incidental mortality and serious injury of marine mammals. Fishers operating in Category I or II fisheries must register with NMFS, carry an observer if requested, and comply with any applicable take reduction plan regulations.

NMFS develops and implements take reduction plans to reduce the mortality and serious injury of strategic marine mammal stocks that interact with Category I and II fisheries to a zero mortality and serious injury rate. A strategic stock is one which is listed as “threatened” or “endangered” under the ESA, is declining and likely to be listed under the ESA, is listed as depleted under the MMPA, or has direct human-caused mortality which exceeds the stock's "Potential Biological Removal (PBR) level" (defined as the maximum number of animals, not including natural mortalities, that may be removed from a marine mammal stock while allowing that stock to reach or maintain its optimum sustainable population). NMFS convenes stakeholder-based Take Reduction Teams, which consist of a balance of representatives from the fishing industry, fishery management councils, State and Federal resource management agencies, the scientific community, and conservation organizations to prepare take reduction plans. Once a take reduction plan becomes effective, the team meets periodically to monitor the implementation and effectiveness of the plan. There are currently seven active Take Reduction Teams.

In 2004, NMFS published a report titled, “Evaluating Bycatch: A National Approach to Standardized Bycatch Monitoring Programs.” The report describes a National Bycatch Strategy for monitoring bycatch in U.S. fisheries. The U.S. subsequently released a National Bycatch Report; the most recent update was published in 2019 and is based on data from 2014 and 2015. The National Bycatch Report provides a comprehensive quantification of bycatch estimates in U.S. commercial fisheries and may provide a basis for setting bycatch management goals in the future. The 2019 report discusses impacts of bycatch on protected

species, including cetaceans, in U.S. federal and select state commercial fisheries where data and estimation procedures are available to support the development of bycatch estimates. The 2019 National Bycatch Report can be found online at https://media.fisheries.noaa.gov/dam-migration/nbr_update_3.pdf.

In 2016, NMFS published a *National Bycatch Reduction Strategy*. The Strategy sets objectives and actions that guide and coordinate NMFS' efforts to reduce bycatch and bycatch mortality in support of sustainably managing fisheries and recovering and conserving protected species. The National Bycatch Reduction Strategy report can be found online at: https://www.fisheries.noaa.gov/international/bycatch/national-bycatch-reduction-strategy. The National Bycatch Reduction Strategy Implementation Plan for 2020-2024 describes NMFS' planned actions to implement the Strategy and can be found online at: https://media.fisheries.noaa.gov/dam-migration/national_bycatch_reduction_strategy_implementation_plan-final.pdf.

3.2. Marine Debris Interactions

Marine debris is one of the most widespread pollution problems facing the global ocean today with millions of tons of debris entering the ocean annually. Marine debris can have negative impacts on cetaceans, including through entanglement and ingestion. In a review paper analyzing marine debris ingestion by megafauna (including cetaceans), it was found that 52 species of cetaceans are confirmed to have ingested marine debris.[2] This same review documented individuals from 22 species of cetaceans entangled, including 15 species that are found in the United States.[3] Cetacean entanglement interactions occur predominantly with fishing gear (active (operational) or derelict (lost or abandoned) gear).[4] These studies (Baulch and Perry, 2014; Kühn & van Franeker, 2020) acknowledge the challenges with identifying the source of fishing gear entanglement, whether due to derelict or active gear, and this remains a data gap in research. Documented ingestion interactions have included plastic items (including plastic bags to large plastic sheeting), fishing gear (nets - small pieces to large, identifiable net types, lines, etc.), and other miscellaneous items.[5] The NOAA Marine Debris Program leads federal efforts to remove and prevent debris from the marine and Great Lakes environment. The NOAA Marine Debris Program conducts marine debris removal efforts through its Marine Debris Removal Grant Programs. Funded projects have removed thousands of tons of debris, including consumer debris, abandoned and derelict vessels, and fishing gear from U.S. waters. In addition to these efforts, the NOAA Marine Debris Program and other divisions of NOAA collaborate to facilitate large-scale marine debris removal

[2] See Table 1 in Kühn, S., & van Franeker, J. A. (2020). Quantitative overview of marine debris ingested by marine megafauna. Marine Pollution Bulletin, 151, 110858. https://doi.org/10.1016/j.marpolbul.2019.110858
[3] Kühn & van Franeker, 2020, Table 1 and data derived from Supplementary Table 1.
[4] Baulch, S., & Perry, C. (2014). Evaluating the impacts of marine debris on cetaceans. Mar Pollut Bull, 80(1-2), 210-221. https://doi.org/10.1016/j.marpolbul.2013.12.050
[5] Alexiadou, P., Foskolos, I., & Frantzis, A. (2019). Ingestion of macroplastics by odontocetes of the Greek Seas, Eastern Mediterranean: Often deadly! Mar Pollut Bull, 146, 67-75. https://doi.org/10.1016/j.marpolbul.2019.05.055; Baulch and Perry, 2014; Jacobsen, J. K., Massey, L., & Gulland, F. (2010). Fatal ingestion of floating net debris by two sperm whales (Physeter macrocephalus). Mar Pollut Bull, 60(5), 765-767. https://doi.org/10.1016/j.marpolbul.2010.03.008

missions from the Northwestern Hawaiian Islands where the large majority of debris is derelict fishing gear.

Grant Program funded projects aim to educate specific audiences and drive behavior changes that will reduce and prevent marine debris. These projects can range from working with restaurants to reduce single-use disposables to conducting outreach with fishers to prevent gear loss. The NOAA Marine Debris Program is also part of Fishing for Energy, a public-private partnership focused on providing free gear disposal and recycling solutions for fishing communities and derelict gear removal projects. Through March 2020, Fishing for Energy has provided collection bins at 56 ports in 13 states, collecting over four million pounds of fishing gear. The NOAA Marine Debris Program also funds research projects that evaluate the sources, pathways, as well as the fate and transport of marine debris, in addition to evaluating the risk of wildlife interactions with debris.

Through the combination of removal, prevention, and research the NOAA Marine Debris Program is working towards a global ocean free from the harmful impacts of marine debris.

3.3. Marine Acoustics

Anthropogenic underwater sound has the potential to cause adverse effects on cetaceans and cetacean populations. To better assess these potential impacts, NMFS has finalized technical guidance for assessing acoustic effects of anthropogenic sound on marine mammal hearing. More information is available online at http://www.nmfs.noaa.gov/pr/acoustics/guidelines.htm.

In addition, through its various consultation and authorization responsibilities, NOAA works with other federal agencies, including the U.S. Bureau of Ocean Energy Management and the U.S. Navy, and with various industries to establish plans to monitor and mitigate the impacts of noise on cetaceans and their habitats. NOAA also has partnered with the U.S. Coast Guard to work within the International Maritime Organization (IMO) to address the issue of commercial shipping noise and its contribution to the ambient acoustic environment. NOAA Fisheries Ocean Acoustics Program funds research to improve understanding of the potential impact of sound on marine mammals and other species and habitats.

In 2010, NOAA committed to improving the tools used by the agency to manage underwater noise impacts more comprehensively, including to better address cumulative impacts to cetaceans. This commitment led to two phases. Phase 1, or “CetSound” developed two mapping tools, CetMap and SoundMap, which aimed to improve our ability to visualize cetacean density and distribution, and man-made underwater noise, respectively, and culminated in a large stakeholder symposium to discuss management applications of these tools. Phase 2 began in 2013 and engaged offices across NOAA in developing an agency-wide Ocean Noise Strategy, which seeks to ensure that NOAA is more comprehensively addressing noise impacts to aquatic species and their habitat over the next 10 years.

Successful implementation of the Strategy would achieve four overarching goals:

- Science: NOAA and federal partners are filling shared critical knowledge gaps and building understanding of noise impacts over ecologically-relevant scales.
- Management: NOAA's actions are integrated across the agency and minimizing the acute, chronic and cumulative effects of noise on marine species and their habitat.
- Decision Support Tools: NOAA is developing publically available tools for assessment, planning and mitigation of noise-making activities over ecologically-relevant scales.
- Outreach: NOAA is educating the public on noise impacts, engaging with stakeholders & coordinating with related efforts internationally.

To support the Strategy, NOAA issued a Roadmap document in 2016, intended to serve as a high-level guide. It summarizes the status of the science to support the Ocean Noise Strategy's goals, details relevant NOAA management and science capacities, and recommends cross-agency actions that could be taken to achieve more comprehensive management of noise impacts. Fundamentally, the Roadmap serves as an organizing tool to rally the multiple NOAA offices that address ocean noise impacts around a more integrated and comprehensive approach. A series of key goals and recommendations are presented that would enhance NOAA's ability to manage both species and the places they inhabit in the context of a changing acoustic environment. NOAA is continuing to work towards achieving the Ocean Noise Strategy's goals, including through established Strategy projects, such as maintenance of a coordinated network of acoustic monitoring sensors throughout the U.S. EEZ and establishment of a federal long-term passive acoustic data archive, and through implementation planning to support expanded activity, as recommended by the Roadmap. More information on the Ocean Noise Strategy can be found online at http://cetsound.noaa.gov/ons.

3.4. Vessel Strike Reduction

Vessel strikes are a significant threat to large whales. In the United States, vessel collisions are one of the leading human-caused sources of mortality for the endangered North Atlantic right whale. To address this threat, NOAA has developed regulatory and non-regulatory measures to reduce vessel strikes, including modification of vessel operations, education and outreach programs, and research and monitoring activities. Stranded large whales are examined externally and internally whenever logistically feasible to assist in diagnosis and appropriate quantification of vessel strikes.

In December 2008, NMFS implemented speed restrictions along the U.S. East Coast to reduce the threat of vessel collisions with North Atlantic right whales, and to minimize the risk of serious injury or death should a collision occur. These regulations require most vessels 65 feet or longer to travel 10 knots or less in seasonally designated areas. NMFS also establishes temporary voluntary speed limits at other times when a group of three or more right whales is sighted in proximity or a right whale acoustic detection is confirmed outside seasonal speed areas. In these areas, mariners are expected, but not required, to either avoid these areas or transit through at 10 knots or less. NOAA monitors vessel operations in

these management areas for the purposes of enforcing and evaluating the effectiveness of the regulations.

In August 2022, NOAA Fisheries proposed modifications to the current vessel speed regulations to reduce further the likelihood of mortalities and serious injuries to endangered right whales from vessel collisions. The proposed rule would: (1) modify the spatial and temporal boundaries of current speed restriction areas, currently referred to as Seasonal Management Areas (SMAs), (2) include most vessels greater than or equal to 35 ft (10.7 m) and less than 65 ft (19.8 m) in length in the vessel size class subject to speed restriction, (3) create a Dynamic Speed Zone framework to implement mandatory, temporary speed restrictions when whales are known to be present outside active SMAs, and (4) update the speed rule's safety deviation provision. Changes to the speed regulations are proposed to reduce lethal vessel strike risk based on a coast wide collision mortality risk assessment and updated information on right whale distribution, vessel traffic patterns, and vessel strike mortality and serious injury events.

The United States has established other protective measures to reduce the overlap of vessel traffic with North Atlantic right whales, including an IMO-approved Area To Be Avoided (ATBA; 2009) for the waters of the Great South Channel and two modifications (in 2007 and 2009) to the Traffic Separation Scheme (TSS) that services Boston, Massachusetts. In addition, NMFS established a set of recommended vessel routes in two locations off the U.S. East Coast in November 2006. Information on these measures and the North Atlantic right whale vessel speed restrictions is available at: https://www.fisheries.noaa.gov/national/endangered-species-conservation/reducing-vessel-strikes-north-atlantic-right-whales

In the Pacific Ocean, modifications to vessel routing and speed are employed to reduce vessel strikes. In 2014, following a U.S. application to the IMO, the width of the Santa Barbara Channel TSS separation zone was reduced from 2 nautical miles to 1 nautical mile by moving the inbound lane shoreward, decreasing the co-occurrence of vessels and blue and fin whales. New lanes were added to, and existing lanes were modified in, the San Francisco TSS to reduce the risk of marine casualties, reduce the likelihood of ship strikes with cetaceans, and avoid interaction between fishing and commercial vessels. Amendments to the current Santa Barbara Channel TSS and an expanded ATBA were recently approved by a subcommittee of the IMO. A separate IMO subcommittee is expected to adopt the recommended measures in November 2022, and they would come into effect in May 2023. The proposed 13-nautical mile extension of the Santa Barbara TSS will queue ships farther west and off the continental shelf in deeper waters where there are fewer whales. The ATBA expansion covers important whale feeding habitat in and around Channel Islands National Marine Sanctuary. Additionally, the U.S. Coast Guard is currently leading a planning process to reassess the shipping lanes along the U.S. West Coast through their Pacific Coast-Port Access Route Study.

NOAA, with support from the U.S. Coast Guard and U.S. Environmental Protection Agency, annually issues voluntary Vessel Speed Reduction requests that go into effect seasonally off San Francisco and Southern California. The goal of these seasonal voluntary Vessel Speed

Reduction (VSR) zones is to reduce the risk of fatal vessel strikes to endangered blue, fin, and humpback whales, reduce ocean noise, and protect public health within and near Greater Farallones, Cordell Bank, Monterey Bay, and Channel Islands national marine sanctuaries. NOAA strongly recommends that all vessels 300 gross tons (GT) or larger reduce speeds to 10 knots when transiting within the designated VSR zones.

In 2014, the Channel Islands National Marine Sanctuary, in partnership with local agencies and NGOs, launched a trial incentive program to slow ships down in the Santa Barbara Channel. The ongoing incentive-based Protecting Blue Whales and Blue Skies Vessel Speed Reduction Program is largely modeled off the 2014 trial, but has been expanded along the coast. Participating companies that slow their vessel speeds to 10 knots or less within designated seasonal zones are eligible for certain incentives. The program is a collaboration of government agencies, non-profit organizations, and shipping industry stakeholders working together to reduce air pollution, ocean noise, and vessel strikes on endangered whales in Southern California and in the San Francisco Bay region.

Southern Resident killer whales are a very small, endangered population and although rare, vessel strikes are a concern and identified as a threat in the recovery plan. NOAA Fisheries finalized regulations to protect Southern Resident killer whales from vessel impacts, including strikes, in 2011. Since then we reviewed their effectiveness, and continue to work with outreach, enforcement, and industry partners to educate boaters to achieve high rates of compliance to minimize impacts from sound and physical disturbance and avoid strikes. We continue to promote our *Be Whale Wise* campaign to educate boaters and work with Canada, Washington State, and San Juan County as they have updated or developed additional protective regulations and voluntary guidelines.

In recent years, we have evaluated potential impacts from large ships transiting through our waters. We have been building on our long-term partnership with the Canadian ECHO (Enhancing Cetacean Habitat and Observation) Program, an industry-led program, working to understand and manage the impacts of shipping activities. ECHO has implemented voluntary measures to slow down and shift vessel operations to reduce sound in important foraging areas since. While focused on protecting Southern Resident killer whales, reducing risk of strikes for multiple whale species is a benefit of this program. As recommended by a Washington State Task Force for Southern Residents, NOAA participated with partners on a planning team to develop a framework and launch a new U.S. program similar to ECHO, called Quiet Sound. We are also collaborating with transboundary and local partners on specific projects like broader application of the Whale Report Alert System in U.S. waters and linking to other networks like Whale Alert to enhance awareness of whale movements, and foster implementation of responsible vessel operations.

Whale Alert is a free mobile app (supported by a cloud-based data infrastructure) designed to provide comprehensive and immediate information to mariners relative to large whale conservation and management. Its goal is to reduce the threat of collisions between large whales and vessels. Information, including the operating vessels' location, speed restriction zones to protect whales, ATBAs and TSSs, recommended routes, acoustic whale detections, short term whale aggregations and, in some areas, individual whale sightings are visualized on raster nautical charts that can be updated in near-real time. Mariners and other users can

input whale sightings or report distressed or injured whales to authorities through Whale Alert, assisted by an easy to use whale identification guide. Now active on the east and west coasts of the U.S. (including Alaska), and in eastern and western Canadian waters, Whale Alert has worldwide applications, including expansion to cover additional taxa and species needing protection. Whale Alert is the product of partnerships among a network of government agencies, NGOs, and shipping and technology companies with the common goal of reducing ship strikes of whales. Whale Alert can be downloaded from: whalealert.org.

4. Whale watching

This section outlines U.S. domestic efforts related to whale watching.

4.1. Research

The United States regularly conducts research on the impacts of vessels on marine mammals directly with government scientists, in collaboration with University scientists, and by providing funding, through grants, to support research of independent scientists and graduate students. This research occurs through regular assessments of marine mammal population abundance and trends, studies on the impacts of human activities on marine mammals, and directed research on the impacts of whale watching activities. This information is used to assess the potential effects of ecotourism activities, including whale watching, on those populations. The United States uses existing and ongoing research efforts to inform management of whale watching activities, including regional voluntary viewing guidelines and regulations (described in Section 4.4).

4.2. Assessment (Monitoring)

The United States conducts population abundance and distribution surveys throughout its waters, assessing the health of cetacean populations, and managing human-caused injury and mortality. As described in section 2.3, NMFS develops annual Stock Assessment Reports (SARs) for cetaceans that occur in U.S. waters. These annual reports assist in assessing the status of stocks. Further, as described in section 4.1, the United States regularly collaborates with independent scientists, increasing the chance that the U.S. is able to detect adverse impacts on populations through current and ongoing research studies. This information is used, among other things, to evaluate the progress of U.S. management of human interactions with marine mammals, including vessel interactions (through viewing guidelines and/or regulations).

NMFS makes all SARs and the information from its research and monitoring programs easily accessible to the public online at https://www.fisheries.noaa.gov/national/marine-mammal-protection/marine-mammal-stock-assessments.

NMFS maintains websites like https://www.fisheries.noaa.gov/topic/marine-life-viewing-guidelines#overview dedicated to providing information on whale watching in the region, the status of species most popular to the whale watching industry, and information on viewing guidelines and regulations.

4.3. Development

The United States works regularly with the whale watching industry to assist in the development of a sustainable industry that operates in a manner that is not detrimental to marine mammals. For example, NOAA Fisheries and Canada's Department of Fisheries and Oceans collaborated with commercial whale watch companies and conservation groups to establish the "Be Whale Wise" campaign to foster responsible viewing of killer whales in the Pacific Northwest.

NMFS partnered with Whale and Dolphin Conservation and NOAA Stellwagen Bank National Marine Sanctuary to develop a program called "Whale SENSE" to engage the whale watching industry and foster guideline compliance when viewing humpback, fin, minke, and sei whales in the U.S. Mid-Atlantic, New England, and Alaska. Since its launch in 2009, the Whale SENSE program has gained momentum and credibility within the whale watching industry, expanding in the U.S. and gaining international recognition.

Businesses participating in the "Whale SENSE" program are provided with outreach materials for their customers, including educational brochures, posters, and a flag and/or sticker decal to display on their vessels and identify themselves as participants in the program.

4.4. Management

NMFS prohibits viewing of marine mammals in a manner that can cause "harassment" of the animal, including feeding or attempting to feed an animal. Whale watching in the United States is managed mainly through viewing guidelines or regulations that include region-specific information for local species and habitats. These guidelines or regulations can be found online at https://www.fisheries.noaa.gov/topic/marine-life-viewing-guidelines#guidelines-&-distances.

NMFS develops and provides multiple training and education tools for industry practitioners and the public, include brochures, posters, and websites. These viewing guidelines or regulations, which vary by region and species, promote a "Code of Conduct" that recommends approach distances for vessels and aircraft, methods for vessel and aircraft approach, speed limits for vessels in areas with high numbers of cetaceans, advises against swimming with marine mammals in the wild, prohibits feeding marine mammals in the wild, and recommends maximum viewing time limits. In addition, NMFS and the NOAA's National Marine Sanctuary Program have developed a broad-based "Ocean Etiquette" program to promote ocean stewardship by providing the public with guidance on minimizing impacts to marine life and habitats, as well as other initiatives such as the "Whale SENSE" program discussed in Section 4.3.

Uncrewed aircraft systems, also known as model aircraft or drones, are rapidly emerging as a new way to obtain unique views of wildlife and natural landscapes, and whale watch operators are beginning to incorporate this technology into their activities. However,

uncrewed aircraft systems can be disruptive to both people and animals if not used safely, appropriately, or responsibly. Scientists and wildlife managers are concerned that acute or chronic disturbances of wildlife can significantly impact the animals' health and fitness by disrupting migratory patterns, breeding, feeding, and sheltering. As a result, NMFS developed guidance when flying unmanned aircraft systems, which is available online at https://www.fisheries.noaa.gov/topic/marine-life-viewing-guidelines#guidelines-&-distances.

While the majority of whale watching in the United States is managed through voluntary guidelines, whale watching is managed under MMPA and regulations specifically for humpback whales in Alaska and Hawaii, endangered North Atlantic right whales, and endangered Southern Resident killer whales. Regulations for humpback whales in Hawaii and Alaska prohibit, with some exceptions, vessels from approaching within 100 yards (300 feet or 91.4 m) of any humpback whale, including placing a vessel in the path of an oncoming humpback whale so that the whale surfaces within 100 yards (300 feet or 91.4 meters) of the vessel. It is also prohibited to disrupt the normal behavior or prior activity of a whale by any other act or omission. In Alaska, the regulations also require vessels to operate at a slow, safe speed when near a humpback whale. In Hawaii, aircraft are also prohibited within 333 yards (1,000 feet or 308.4 m) of any humpback whale. In Alaska, the U.S. National Park Service has additional regulations that prohibit the operation of a vessel within one-quarter nautical mile of a humpback whale and limits the speed of cruise ships to 13 knots in Glacier Bay National Park. Glacier Bay National Park also limits the number of cruise ships allowed in parts of the park when humpback whales are present.

The critically endangered status of North Atlantic right whales has prompted regulations that prohibit anyone from approaching (including by interception) within 500 yards (1,500 feet or 460 m) of a right whale by vessel, aircraft, or any other means. When within 500 yards (1,500 feet or 460 m) of a right whale, a vessel must steer a course away from the right whale and immediately leave the area at a slow safe speed, and any aircraft must take a course away from the right whale and immediately leave the area at a constant airspeed.

The effects of vessels, including physical interference and sound, are potential contributing factors in the decline of the endangered Southern Resident killer whale population in the Pacific Northwest. NMFS issued regulations to protect the whales that prohibit vessels from approaching killer whales in the Pacific Northwest closer than 200 yards (600 feet or 183 m), intercepting the whales, or positioning vessels in their path. The regulations apply to all types of boats, including motor boats, sailboats, and kayaks.

In addition, broader regulations under the MMPA prohibit anyone from engaging in "the negligent or intentional operation of an aircraft or vessel, or the doing of any other negligent or intentional act which results in disturbing or molesting a marine mammal; and feeding or attempting to feed a marine mammal in the wild."

5. Reporting systems for cetacean mortalities/injuries/strandings

5.1. Fisheries bycatch reporting

All U.S. fishing vessel owners or operators must report all incidental mortalities and injuries of marine mammals that occur during commercial fishing operations under the Marine Mammal Authorization Program. In addition, NMFS's Regional Fishery Observer Programs, Marine Mammal Health and Stranding Response Program, and Large Whale Entanglement Response Programs document and report marine mammal mortalities and injuries incidental to commercial fishing operations. Information on marine mammal mortalities and injuries collected under these programs provides the basis for determining whether the incidental mortality and serious injury of marine mammals in commercial fishing operations has been reduced to insignificant levels approaching a zero mortality and serious injury rate, as required by the U.S. Marine Mammal Protection Act.

5.2. Marine Mammal Health and Stranding Response Program

The MMPA was amended in 1992 to formally establish the Marine Mammal Health and Stranding Response Program (MMHSRP) to:

- Facilitate collection and dissemination of reference data on the health of marine mammals and to assess health trends of marine mammal populations in the wild;
- Correlate marine mammal health with available data on physical, chemical, and biological environmental parameters; and
- Coordinate effective responses to unusual mortality events (UMEs).

The MMHSRP has several components including:

- National Marine Mammal Stranding Network;
- National Marine Mammal Entanglement Response Program;
- Marine Mammal Unusual Mortality Event Response and Investigation Program;
- John H. Prescott Marine Mammal Rescue Assistant Grant Program;
- National Marine Mammal Archiving Program;
- Marine Mammal Biomonitoring, Surveillance, and Investigation Program;
- Marine Mammal Analytical Quality Assurance Program; and
- Information Management Program.

The National Marine Mammal Stranding Network consists of over 120 organizations, including other federal agencies, nonprofit organizations, aquaria, universities, and state and local governments, partnered with NMFS to investigate marine mammal strandings, unusual mortality events, outbreaks, and mass strandings. The MMHSRP oversees the activities of the national stranding response networks through a national coordinator and six regional coordinators. Every rescue and detailed study of stranded marine mammals yields information on species, sex, length, location, and any evidence of human interaction, as well as tissues and specimens for use in scientific studies, for determining the causes of strandings

and mortalities, for educational purposes, for life history investigations, and for biological or health science needs. With these data, along with data from other sources, NMFS and its partners gain insight into the causes of strandings, the health and health trends of cetacean populations in the wild, and the identification of factors that may impact the health of wild marine mammal populations.

The MMHSRP also oversees the activities of the National Marine Mammal Entanglement Response Program through a national coordinator, regional coordinators, and a network of trained and authorized partners. Every response to entangled marine mammals, particularly large whales, prioritizes documentation that allows NMFS and its partners to gain insight into the mechanics and consequences of large whale entanglements that may impact the health of wild whale populations. This type of data is informative to managers who are making decisions on strategies for entanglement prevention such as the Ropeless Roadmap. Responses also fulfill an animal welfare need by attempting to free whales from life-threatening and debilitating entanglements when possible. The program continues to improve tools and techniques for entanglement response as well as maintain and enhance capacity where needed.

In addition to the collection of health and disease information from stranding and entanglement response activities, NMFS works with partners to evaluate the health and disease status of marine mammals in the wild through live capture release studies, bycatch monitoring programs working with fisheries observers, subsistence monitoring programs, and assessments of free-swimming animals, including remote sensing, such as photogrammetry, and remote sampling such as biopsies and exhaled air collections. Finally, the program has invested in the development of new tools, techniques, and models that will enhance our collection and evaluation of health data from free swimming cetaceans. In 2021-2022 the program supported several studies conducted by partners that will add to our health assessment toolbox such as epigenetic aging using biopsy samples, salinity tag development for evaluating dolphin movements in varying salinity habitats, development of a system to collect small amounts of blood from the skin of dolphins, and methods to evaluate the inhalation/aspiration risk to cetaceans from surface oil.

In 2021 and 2022 energies were focused on day to day stranding and entanglement responses, emergency response efforts as emergencies have arisen, continuing unusual mortality event (UME) responses to on-going cetacean events, responding to two new UMEs (manatees along the Atlantic coast of Florida and pinnipeds in Maine), continued participation in Natural Damage Resource Assessments, and post-Deepwater Horizon Oil Spill restoration planning and monitoring and adaptive management. The impacts of the COVID-19 pandemic on marine mammal stranding response and research activities were varied across our partners and over time; we are currently working with our partners to understand the effects of restrictions that were implemented to protect human health.

With regard to improving oil spill response and assessments of the impacts, the MMHSRP team in collaboration with our Damage Assessment, Remediation, and Restoration program held six NRDA workshops to inform marine mammal managers and scientists as well as the DARRP personnel on the studies that could be done to assess the impacts of oil spills or

other chemical contaminants on marine mammals and their habitat. The MMHSRP has been working to develop cetacean monitoring and assessment studies, tools, and techniques to evaluate the impacts of projects addressing storm surge, flood control, coastal erosion, river diversion for sedimentation, and sea level rise and the impacts of climate change driven extreme weather events. The team has focused closely on the impacts or responses of bottlenose dolphins to freshwater exposures as a result of extreme weather events or anthropogenic activities.

The team has undertaken an evaluation of all MMHSRP activities by developing a Programmatic Environmental Impact Statement, which includes Best Practice documents for many different subjects including guidelines for marine mammal rehabilitation facilities, entanglement response, carcass disposal, euthanasia, transport, and cetacean health assessments.

The National Marine Mammal Tissue Bank was established in collaboration with the U.S. National Institute of Standards and Technology and provides protocols and techniques for the long-term storage of tissues from marine mammals for retrospective contaminant analyses. Since 1987, tissue samples have been contributed from several sources, including the stranding network, fisheries bycatch, health assessment studies and legal subsistence hunts. The Tissue Bank uses a network of trained partners to collect tissues from specific indicator species (including pilot whales, harbor porpoises, Atlantic white-sided dolphins, pygmy sperm whales, bottlenose dolphins, rough-toothed dolphins, common dolphins, beluga whales, and bowhead whales), animals from mass-stranding events, and from UMEs. Recently, the Tissue Bank has expanded to include banking of samples for additional purposes such as infectious disease and biotoxin detection or studies from the Natural Resource Damage Assessment investigation and several UMEs. The bank also provides support for sample collection and long term archival for our field studies. For instance, the bank currently contains serum collected from 578 individual animals (bottlenose, beluga, Atlantic spotted) and from those 578 individuals approximately 8727 small cryovials of serum are archived for future retrospective studies.

NMFS MMHSRP leads the investigations of UMEs, which are declared when a stranding event or disease outbreak is unexpected, involves a significant die-off of any marine mammal species, and demands an immediate response. A Working Group on Marine Mammal Unusual Mortality Events comprising experts in marine mammal health, conservation medicine, biology, toxicology, and marine science, aids NMFS and the Stranding Network in conducting thorough investigations of such unusual stranding events. As of July 2022, the program has investigated marine mammal 72 UMEs in the U.S. with four events declared in 20219-22. Currently the program has several active investigations as shown in the table available online at https://www.fisheries.noaa.gov/national/marine-life-distress/active-and-closed-unusual-mortality-events

Over the last several years, NMFS's collaborations with partners including the U.S. Centers for Disease Control and Prevention, state laboratories, and academic institutions have documented new viruses, new bacterial diseases, and new fungal diseases in cetaceans in the wild. Detection and response to emerging infectious diseases continues along all coasts of

the U.S. NMFS has also been a participant in the One Health Federal Interagency COVID-19 Coordination Group which was operational throughout the pandemic.

Finally the MMHSRP continues to support training, capacity building, and response assistance for marine mammal health issues in other countries. In 2019-2022 opportunities for fieldwork and travel were limited due to the pandemic, but the MMHSRP remotely supported stranding responses in multiple countries, as well as providing training virtually. The program also participated in the development of the IWC Stranding Initiative and is a member of the IWC GWERN program.

6. International cooperation activities

6.1. Food and Agriculture Organization of the United Nations (FAO)

At the 2012, 2014, and 2016 meetings of the FAO Committee on Fisheries, the United States noted its ongoing efforts to assemble information on the mitigation of marine mammal bycatch in commercial fisheries through a series of international workshops, and signaled its desire to develop international guidelines to reduce the bycatch of marine mammals in commercial fisheries similar to existing guidelines for sea turtles and seabirds. In 2021 FAO published the "Guidelines to prevent and reduce bycatch of marine mammals in capture fisheries." The guidelines were drafted and developed through a series of activities undertaken by FAO at the request of COFI at its Thirty-second and Thirty-third sessions, namely:

- the Expert Workshop on Means and Methods for Reducing Marine Mammal Mortality in Fishing and Aquaculture Operations (Rome, 20–23 March 2018), and
- the Expert Meeting to Develop Technical Guidelines to Reduce Bycatch of Marine Mammals in Capture Fisheries (Rome, 17–19 September 2019). These efforts were undertaken with the support of NMFS.

6.2. Collaborative initiatives

The United States continues to work with international partners to reduce bycatch of marine mammals through gear modification and to support collaborative initiatives to better understand and mitigate serious injuries and mortalities of marine mammal.

6.2.1. Vaquita

The U.S. has strong interest in the conservation of all cetaceans, especially those that are considered critically endangered by the IWC. In May 2016, NMFS's Southwest Fisheries Science Center assisted Mexico in efforts to analyze data on the trends of the vaquita population in the northern Gulf of California collected using shipboard surveys and a passive acoustic monitoring array in the Upper Gulf of California. Following initial analyses, which showed evidence of a startling acceleration in the decline of the vaquita, a group of experts reviewed the findings of the monitoring program. The panel confirmed that the decline was real. Subsequently, the Seventh Meeting of the

International Committee for the Recovery of the Vaquita (CIRVA) in May 2016, reported to Mexico's Secretary of the Environment the findings of the surveys and provided recommendations for additional action.

For many years, the U.S. Marine Mammal Commission and the NMFS have provided support to Mexico for efforts to develop and deploy fishing gear that does not entangle the critically depleted vaquita, as an alternative to using gillnets. This support has been used to design and test alternative fishing gear as well as to promote market incentives for the sale and purchase of shrimp harvested with alternative, "vaquita-safe" fishing gear.

In July 2016, President Obama and President Enrique Peña Nieto committed to intensify bilateral cooperation to protect the critically endangered vaquita, including through the following actions: (1) Mexico would make permanent a ban on the use of gillnets in all fisheries throughout the range of the vaquita in the upper Gulf of California; (2) Both countries would increase cooperation and enforcement efforts to immediately halt the illegal fishing for and illegal trade in totoaba swim bladders since illegal nets targeting totoaba entangle and drown the vaquita; (3) Both countries would redouble efforts, in collaboration with international experts, to develop alternative fishing gear to gillnets that does not result in the entanglement of vaquita and establish "vaquita-safe" fisheries; and (4) Both countries would establish and implement a long-term program to remove and permanently dispose of illegal and derelict fishing gear from vaquita habitat in the upper Gulf of California. President Enrique Peña Nieto undertook the first and fourth action. However, under the Administration of President Andrés Manuel López Obrador, Mexico has abandoned its commitments by failing to take adequate action to stop illegal fishing and preventing the removal of illegal fishing gear.

The United States led efforts at the last CITES Conference of the Parties (CoP18) in 2019 to strengthen several draft decisions considered during CoP18 to combat the illegal harvest and trade of totoaba. Illegal fishing is putting the critically endangered vaquita at risk of extinction since vaquita are caught and drown in illegal gillnets set for totoaba. Among the decisions that were adopted by the CoP, Mexico is called to take urgent actions to address the threats to these species. These actions include the deployment of enforcement personnel to effectively prevent fishers and vessels from entering the Vaquita Refuge area and re-establishment of a trilateral enforcement task force (comprised of enforcement personnel from Mexico, the United States, and China) aimed at enhancing collaboration to tackle the illegal trade in totoaba. The decisions also urge Mexico to expand its current efforts to confiscate and destroy the deadly gillnets fishermen use to illegally catch totoaba that entangle and kill vaquita.

The CITES Standing Committee was directed to review and assess progress made by Mexico in fulfilling these decisions and make any appropriate recommendations, including potential compliance measures. At its 74th meeting, the CITES Standing Committee failed to take strong action to protect vaquita and totoaba, both Appendix I-listed species. Despite the CITES Secretariat's determination that Mexico has not implemented some provisions of the CITES CoP18 decisions calling on Mexico to

effectively prevent fishers and vessels from entering the vaquita refuge area, the United States' proposal for CITES to take strong action, including restricted trade with Mexico in CITES-listed species was rejected. In addition, despite strong opposition from the United States and a coalition of like-minded Parties, a controversial application from Mexico to register a captive breeding facility for totoaba was approved. Although international commercial trade is prohibited, approval of the application will allow legal trade of captive-bred totoaba, facilitating the laundering of illegally caught wild totoaba – highly prized for its swim bladder in China – and the demise of the critically endangered vaquita. Mexico pledged to temporarily destroy totoaba swim bladders and prohibit their export, but there is no requirement for this action to be undertaken.

At the 19th meeting of the Conference of the Parties to CITES in November 2022, the United States will seek to renew and strengthen the decisions adopted at CoP18 to help ensure Mexico takes effective action to combat the illegal fishing and harvest of totoaba for the conservation of vaquita.

6.2.2. Western Gray Whales

Multiple NOAA scientists are currently serving on the International Union for Conservation of Nature (IUCN) Western Gray Whale Advisory Panel (WGWAP). This panel provides independent scientific and technical advice to decision makers in industry, government and civil society with respect to the potential effects of human activities, particularly oil and gas development activities, on the Western Gray Whale population. The panel also coordinates research to, among other objectives, minimize disturbance to Western Gray Whales and identify and mitigate potential risks associated with scientific research activities.

The United States signed a Memorandum of Understanding at IWC 65 with the Russian Federation and Japan to implement the IUCN's range-wide Western Gray Whale Conservation Plan. The IUCN Western Gray Whale Conservation Plan was drafted in 2010 with the goal of 'managing human activities that affect western Gray Whales and maximizing the population's chances for recovery, based on the best scientific knowledge.'

6.2.3. North Atlantic Right Whales

North Atlantic right whales are critically endangered. Today, there are likely less than 350 North Atlantic right whales in existence, with fewer than 95 reproductive-age females in the population. Female numbers are declining more rapidly than males, and the corresponding loss of reproductive potential leads to an alarming concern about an increasing risk of extinction, Human-caused mortality and serious injury, particularly entanglements and vessel strikes, is the greatest threat to recovery of the species. More specifically, whales become entangled in the ropes connecting lobster traps or crab pots to buoys at the surface of the water. Other stressors affect right whales, such underwater noise and changes in oceanographic conditions that affect prey distribution and availability.

Both the U.S. NOAA Fisheries and Fisheries and Oceans Canada (DFO), in partnership with other agencies, have taken a number of regulatory, research, and field-based actions to curtail entanglements and other anthropogenic impacts. These include implementing modifications to fishing gear, closing certain fishing areas to reduce entanglement risk, a disentanglement response network, conducting aerial surveys for both population monitoring and detection of entangled whales, and coordinating other working groups and response networks.

6.2.4. Pacific Ocean Whale and Ecosystem Research (POWER) Program

IWC-POWER cruises were conducted annually in the North Pacific between 2019 and 2022. The Government of Japan has provided most of the resources to carry out these non-lethal surveys for cetaceans in the North Pacific. NOAA scientists have also participated in these cruises, facilitating the authorization and collection of biopsy samples from large whales throughout the survey area. The US also contributed sonobuoys to record vocalizing whales and a US scientist to deploy and monitor the sonobuoys. These have contributed much needed data on the distribution of the endangered North Pacific right whale, among other whales. The 2022 survey got underway in August with two U.S. scientists and will return to port in Japan on September 30, 2022.

6.2.5. Southern Ocean Research Program (SORP)

The Southern Ocean Research Partnership (IWC-SORP) has grown to include 13 member countries: Argentina, Australia, Belgium, Brazil, Chile, France, Germany, Italy, Luxembourg, New Zealand, Norway, South Africa and the United States. Although the COVID-19 pandemic caused major disruptions to most projects, limited fieldwork around the Antarctic Peninsula, Marion Island, South Africa and Australia successfully collected data from aerial surveys, photo-ID images, biopsies, satellite tags and acoustic recordings. The United States strongly supports SORP and provides financial and staff support for research. More information can be found online at https://iwc.int/scientific-research/sorp and http://www.marinemammals.gov.au/sorp.

6.3. Cross-border sanctuaries

The Sister Sanctuary Program, managed by Stellwagen Bank National Marine Sanctuary, was established in 2006 to facilitate the effective management of a shared population of humpback whales across jurisdictional boundaries throughout its migratory range, from feeding and nursery grounds in the Gulf of Maine to breeding and calving areas in the Wider Caribbean region. In 2011, the Stellwagen Bank sanctuary signed a sister sanctuary agreement with the French Antilles Agoa Marine Mammal Sanctuary along with a Letter of Intent, expanding the sister sanctuary program and creating a marine mammal protected areas (MMPA) network for the Wider Caribbean Region.

The multi-sanctuary, science-based program has increased the area of protection for North Atlantic humpback whales from a previous 2,180 square kilometers within the Sanctuary to a total area of 669,429 square kilometers combined among the sanctuaries over the past ten years, making it one of the largest networks of coordinated marine conservation areas in the world. This successful cooperation was achieved through education, conservation and science exchanges and by improving communications, aligning priorities, and enhancing resource-sharing between sister sanctuary partners/nations, with support and involvement from more than 60 national and international agencies as well as other levels of government and a wide array of NGO partners. The Sister Sanctuary Program provides a model for leadership to catalyze action and link assets and resources of governments/nations, intergovernmental organizations and NGOs to focus attention on the need to manage and protect humpback whales beyond their borders.