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Written Testimony of

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Subcommittee on Water, Oceans, and Wildlife

Legislative Hearing

Chairman Huffman, Ranking Member Bentz, and Members of the Subcommittee:

My name is Steven Honigman. Thank you for inviting me to appear before the Subcommittee this afternoon and offer my views about H.R. 6987.

I was privileged to serve as the General Counsel of the Navy from 1993 to 1998. During my service, I learned a great deal about the impact of man-made sound in the oceans upon whales and other marine life. I worked closely with NOAA and its National Marine Fisheries Service in developing Naval procedures for operating ships and their equipment and designing exercises and ship shock tests to comply with the mandates that Congress enacted in the Marine Mammal Protection Act and the Endangered Species Act. I led the Navy's team in establishing the Hawaiian Islands National Humpback Whale Sanctuary and instituting operational requirements to safeguard North Atlantic right whales along the east coast of the United States.

Based on that experience, I am convinced that it is possible to be a responsible steward of the oceans and the marine life within them, while at the same time fully performing the missions, training, and other activities that our national defense requires. At the conclusion of my tenure as General Counsel, I received the Department of the Navy Distinguished Public Service Award which recognized my "commitment to supporting naval operations while protecting environmental resources."

After leaving the Navy Department, I have participated in a number of *pro bono publico* efforts to protect marine mammals. On behalf of the Pew Charitable Trusts, I worked with the late Senator John Warner and the Government of the United Kingdom to establish a Marine Protected Area in the Chagos Archipelago including Diego Garcia. I advised the Natural Resources Defense Council in its production of the film entitled *Sonic Sea* about the harmful impact of underwater radiated noise upon whales and also appear briefly on-screen. *Sonic Sea* received the 2017 Emmy Award for Outstanding Nature Documentary and the Ocean Issues and Solutions award at the United Nations Headquarters' Living Oceans Showcase in 2019. Under the auspices of the International Fund for Animal Welfare and the Natural Resources Defense Council, I have supported the on-going development of a work program by the International Maritime Organization to reduce the generation of underwater noise by commercial shipping throughout the world's oceans. However, the views that I am expressing today are solely my own.

Since *Sonic Sea* was released to the public, I have screened the film and led panel discussions and question and answer sessions about the issues it raises at film festivals, historic theatres, art galleries, corporate events, the EarthX environmental forum, and at colleges and high schools. Although I was not able to be present, *Sonic Sea* was shown last month at the Alaska Ocean Sciences Bowl for high school students in Seward, Alaska.

To me, the award-winning success of *Sonic Sea* and the widespread interest and engagement of audiences in its call to action to protect whales and other marine mammals from noise-related harm underscore the importance of the Subcommittee's work and the legislation that you are considering today.

As *Sonic Sea* compellingly demonstrates, for marine animals, sound is life. Whales, dolphins and many species of fish rely upon sound to find food, locate mates and offspring, maintain social bonds and navigate and orient themselves in the sea. Similarly, an article in the *New York Times* last year noted that, "[m]any marine species are impeccably adapted to detect and communicate with sound." But their ability to function is under increasing threat from rising levels of man-made noise in the ocean. Few aspects of the marine environment have changed as drastically in as short a time.

In much of the northern hemisphere, ocean noise has risen by orders of magnitude since the 1950s. Indeed, scientists calculate that between 1950 and 2000, underwater noise doubled each decade. Because sound travels much more efficiently in water than through air, noise blankets a much broader area undersea than on land. For example, when we swim in the vicinity of a boat, the noise from its motor seems much louder and much closer when we are underwater than when we come up for air.

A prime contributor to noise pollution in the oceans is cavitation from commercial ships' propellers and oscillation from their propulsion machinery. Today, roughly ninety percent of the world's goods are transported by ships across the maritime commons – by close to one hundred thousand container and cargo ships, bulk carriers and tankers. With global trade increasing each year, the noise that commercial ships create and its impact upon marine animals is getting progressively worse.

An increasing number of studies have demonstrated that underwater noise emitted from commercial vessels is a stressor for marine species and ecosystems. For example, the noise emitted from commercial ships is generally below 1,000 Hertz (1kHz), which is the same low-frequency range that has been identified as critically important for many whale and fish species. The renowned oceanographer Sylvia Earle has said that, for the inhabitants of the seas, the ubiquitous noise they cannot escape represents "a death of a thousand cuts."

This undersea cacophony not only has dire implications for marine life in the ocean, but underwater noise pollution also can also undermine the security of our naval vessels and their sailors. Just as noise pollution interferes with a whale's ability to hear, navigate, and hunt for prey, the excessive noise in the ocean can degrade the ability of our warships to detect, localize

and track adversary vessels that are also present in the water, including quiet diesel-electric submarines. For that reason, quieter ocean soundscapes are important to the Navy as well as to marine mammals.

Quieting oceans to protect whales from harm will also achieve another vital environmental goal, as evidenced by an article published on September 15, 2019 by the International Monetary Fund's *Finance & Development Magazine*. Entitled, "Nature's Solution to Climate Change," that IMF article advocates the adoption of a strategy to protect whales because whales limit greenhouse gasses and global warming. According to its authors, "When it comes to saving the planet, one whale is worth thousands of trees" because whales accumulate carbon in their bodies during their long lives. When they die and sink to the bottom of the ocean, each great whale sequesters 33 tons of CO<sub>2</sub> on average, taking that carbon out of the atmosphere for centuries. In addition, whales' waste products contain iron and nitrogen that phytoplankton need to grow, and phytoplankton capture an estimated fourth percent of all CO<sub>2</sub> produced, about 37 billion metric tons of CO<sub>2</sub>. Accordingly, the article urges that whales be protected from significant life-threatening hazards, including ship strikes and noise pollution.

With these concerns and objectives in mind, I would like to commend H.R. 6987. It is a forward-looking, thoughtful and, in my opinion, appropriately cost-effective approach to quieting commercial vessels and reducing their harmful impact upon whales, marine mammals and other species within the oceans. Its provisions also provide for appropriate coordination with the Department of Defense to ensure that national security considerations and interests are duly safeguarded.

How does it do so?

Fundamentally, by marshaling American technology and innovation to reduce noise in the oceans and prevent vessels from striking or disturbing whales.

H.R. 6987 motivates and empowers American shipbuilders and designers to do what they can do best – create and improve technologies to solve a genuine, important problem. Simply stated, the coming decade will be an inflection point in commercial shipping technology as the world moves to decarbonize the global merchant fleet. As it meets that challenge, industry needs to invest in research and development that will enable our shipyards to deliver commercial ships that are quiet as well as carbon-free.

Because one of the primary causes of underwater noise is the cavitation that commercial ships' propellers produce – the sounds that result from the rotation of the propellers and the popping of the air bubbles that the rotation creates – switching to more eco-friendly electric or alternative fuel engines will not cure the noise that the ship radiates. However, some technologies that enable the ship to move through the water with less friction, and thus require less energy and consume less fuel to push against the water's resistance, can also contribute to quieting the ship. Current examples include advanced hull or propeller forms and surrounding the ship's hull with bubbles.

Mastering the interplay between designing technologies to reduce the energy that ships need to propel themselves and technologies that make a ship more quiet as it moves will capture a significant leadership position for American industry. It will also enable the United States to contribute effectively to a work program that the International Maritime Organization adopted at the end of last year. In response to a submission by the United States, Canada and Australia, the IMO recognized that “there are potential dual benefits that may prove to be a powerful economic incentive for ship owners and operators who can reduce operating expenses with quieter ship designs,” and directed that its Marine Environmental Protection Committee and the Sub-Committee on Ship Design and Construction combine their efforts to address this issue.

By providing financial firepower along with competitive recognition through grants to support technology that reduces underwater noise from vessels, Section 4 of H.R. 6987 will deliver significant incentives to American companies seeking to develop, implement and export new or improved technologies that quantifiably reduce underwater noise from marine vessels, including noise produced incidental to their propulsion. In addition to their primary purpose – protecting whales and other marine species from noise-created harm – technologies that emerge from the grants that the Maritime Administration administers may also contribute to reducing carbon emissions, a win-win outcome for the inhabitants of the oceans and our environment at large.

From supporting the development of new technology to quiet ships, a logical next step is to use existing technologies more broadly. Because making warships operate more quietly and containing noise within their hulls makes them less vulnerable to detection, for many decades the Navy has been a state of the art practitioner in implementing ship-quieting technologies. While some of the Navy’s concepts are already publicly known, including bulbous hulls, stern flaps, new hull forms and sheaths of bubbles to reduce the noise from propeller cavitation, other non-classified naval technologies may be ripe for insertion on non-combatant vessels operated by sister agencies of the United States, such as NOAA’s fleet of research vessels, or by the Navy’s own Military Sealift Command. By the same token, those technologies may also merit adoption by commercial shipbuilders and operators, particularly for ships that operate within American waters in accordance with the Jones Act.

Section 5 will accomplish this significant objective by providing for a technology assessment for quieting United States Government vessels. Funding the publication of a non-classified report that identifies disclosable naval technologies that reduce underwater noise, and evaluates the effectiveness and feasibility of incorporating them in the design, procurement and construction of non-combatant vessels of the United States, will enlist the Government’s non-combatant fleet in quieting the oceans, and will also provide ready access to a roster of proven, effective technologies for commercial shipbuilders to include in their new-vessel designs.

In turn, Section 1 will harness existing and emerging technology to ensure that we can understand, measure and track the scope and severity of underwater noise. Directing NOAA to maintain and expand its ocean soundscape development program and provide grants to increase the deployment of systems capable of collecting measurements of underwater sound in high-

priority ocean and coastal locations, will generate valuable data for use in analyzing baselines and trends in the underwater soundscape.

The standardized forms of measurement and the datasets, modeling and analysis they will enable will become effective tools to inform responsible management of noise and prevention of noise-generated harm. Underwater soundscape measurements will assist in evaluating technologies that emerge through the auspices of Sections 4 and 5, and in designing means to reduce overlaps between sounds from animals and vessel noise. Learning how underwater soundscapes are changing can also reveal changes in marine mammal populations, distribution and migration pathways as the basis of protocols for reducing vessel impacts on them.

In this regard, the four-year Sanctuary Soundscape Monitoring Project known as *SanctSound*, which is managed by the Navy and NOAA to study sound within national marine sanctuaries and the marine national monument off Hawaii, is a commendable model for further developments under Section 1. Its measurements can track the types of vessels present, how often harmful noise levels arise, and the tonal ranges of noise – an important data set because marine animals have acoustic niches in which some are impacted by lower-frequency noise and others by noise with higher frequencies. Unfortunately, *SanctSound* may be ending in Spring 2022. Like the NOAA-National Park Service’s Ocean Noise Reference Station Network that Section 1 directs to be maintained and expanded, *SanctSound* should be preserved for further service.

H.R. 6987 also recognizes the value of local initiatives at the deck-plate level by assisting seaports to develop and implement mitigation measures that will quantifiably reduce physical impacts to marine mammals from vessel traffic. As the bill recognizes, reducing underwater stressors and vessel strike mortality, enhancing marine mammal habitats, and implementing monitoring to achieve those goals, based on the best science available, is an important goal that will benefit from the broadest range of projects that are developed by local jurisdictions responding to their particular local conditions – a pro-environmental application of our constitutional principle of federalism.

Many of the nation’s busiest seaports share waters with endangered whales. As vessels transit into and out of those ports, they not only emit underwater noise, but they can physically displace whales from their feeding grounds and can strike them, causing serious injury or death. A small number of far-sighted ports have responsibly stepped forward to mitigate these threats through innovative new programs.

In the Salish Sea, home to the critically endangered Southern Resident orcas, Canada’s Vancouver Fraser Port Authority and the ports of Seattle and Tacoma are working to develop solutions that minimize the impacts of shipping traffic on the orcas and other imperiled whales. The Port of Vancouver established its *Enhancing Cetacean Habitat and Observation* Program in 2014. The *ECHO* Program collaborates with partners and advisors including government agencies, the marine transportation industry and pilot vessel organizations, Indigenous communities, conservation groups, and scientists. The voluntary reroutes and slowdowns that the program

has trialed have achieved compliance rates of more than eighty percent by large vessels. *ECHO* has also created monitoring programs to track actual progress in reducing underwater noise from vessel slowdowns, and it has established an incentive program to reward vessels that adopt quieting technologies by lowering their fees when they berth.

In United States waters, the ports of Seattle and Tacoma with their operating partnership, Northwest Seaport Alliance, have helped to establish *Quiet Sound*, an initiative modeled after the *ECHO* program that is governed by maritime stakeholders. Still in its infancy, *Quiet Sound* is partnering with the Navy's *Northwest Tech Bridge* on a technology challenge to develop new onboard whale sensing capabilities for vessels underway, and is joining with whale sighting networks to alert mariners in real time to avoid disturbing whales. At the same time, *Quiet Sound* is assessing a trial vessel slowdown program to reduce vessel noise and disturbance to orcas.

Other ports such as the Ports of Los Angeles and Long Beach, and the Port of New York & New Jersey have created incentive programs for approaching ships that slow their speed to reduce localized air pollution. All of these efforts should be sustained, and grants awarded under Section 2 will incentivize additional seaports to build upon their success.

To the same effect, Section 3 assigns NOAA responsibility for designing and deploying a science-based, results-oriented, near real time monitoring and mitigation program that will produce actionable alerts to reduce the risk to large whales of vessel collisions. Protecting the critically endangered North Atlantic right whales from deadly vessel strikes is a key to preserving their species from extinction.

The existing and emerging advanced technologies that Section 3 will foster can learn from and expand upon existing efforts to protect other large whale species from vessel impacts in real time. For example, California's *Whale Safe* Program by the Benioff Ocean Initiative integrates acoustic and visual whale detections with model predictions to provide mariners with the latest information on whale presence to help reduce lethal collisions between endangered whales and large ships in Southern California waters. *Whale Safe* also uses Automatic Identification System (AIS) data to track ship speeds and calculate cooperation rates with voluntary speed limits that are put in place by NOAA and the Coast Guard to protect whales.

Taken as a whole, the programs and technologies that H.R. 6987 is intended to support are an array of effective, timely and much-needed instruments for reducing oceanic noise and preventing deadly collisions to protect whales, marine mammals and other marine species from man-made harm. I salute Representative Larsen for introducing H.R. 6987 and hope that it will be acted upon favorably by the Subcommittee.

I would be happy to respond to any questions you may have.