

Viewpoint

Quiet the oceans

By Steven S. Honigman
and Joel Reynolds

As the recent Emmy Award-winning nature documentary “Sonic Sea” 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. But their ability to function is under increasing threat from fast-rising levels of man-made noise in the ocean. Few aspects of the marine environment have changed as drastically in as short a time.

A prime contributor to noise pollution in the oceans on a global scale is commercial shipping — specifically “cavitation,” the intense sound generated by and around a ship’s propeller in the water, and oscillation radiated outward from their propulsion machinery.

Today, roughly 90 percent of the world’s goods are transported by ships across the maritime commons — more than 50,000 massive 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.

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.”

Driven by scientific concern, underwater shipping noise has rapidly emerged as a significant issue for marine conservation worldwide, with engagement by numerous international government and non-government organizations, including the Natural Resources Defense Council, Transport Canada, the International Fund for Animal

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– International Maritime Organization

Welfare and the International Whaling Commission.

But there is a need for sustained, focused and resourced leadership — to marshal the technical expertise and focus public and national pressure for quieting commercial ships on the body with jurisdiction to set mandatory standards, the International Maritime Organization (IMO) and its Marine Environmental Protection Committee (MEPC).

The coming year presents a significant opportunity to begin reducing ocean shipping noise. In 2014, the IMO adopted voluntary guidelines for the design and operation of quieter vessels. In issuing its Guidelines For the Reduction of Underwater Noise From Commercial Shipping to Address Adverse Impacts on Marine Life, the IMO declared, “The international community recognizes that underwater-radiated noise from commercial ships may have both short and long-term negative consequences on marine life, especially marine mammals.”

Now the Canadian and French governments are seeking to include an underwater noise work plan in the IMO’s agenda, with the goal of achieving mandatory global requirements for quiet-ship design. These requirements could significantly reduce ocean noise from shipping by embedding noise-reducing design

into the propellers, internal propulsion technology and hull configuration of commercial ships and by adapting proven military technology by surrounding hulls with a sheath of bubbles, operational modifications and regulatory rules and incentives.

In their May 2019 proposal for “Advancing international collaboration for quiet ship design and technologies to protect the marine environment,” Canada and France told the IMO Marine Environment Protection Committee that “ship noise has been recorded to reach echolocation frequencies used by various whales, including dolphins and killer whales. This acoustic overlap can cause the masking, or canceling, of acoustic communication between individuals; permanent or temporary hearing loss; increased stress levels; and behavioral changes ... These impacts can all lead to a reduced survivability of the animal, as well as its population.”

Significantly, the harmful effects of underwater noise go beyond their impacts upon whales, dolphins and other marine life.

The same underwater cacophony also threatens the safety of American sailors and the security of their ships. In the South Asian Sea, the Arabian Gulf, the North Atlantic, wherever our naval ships are

deployed, commanders must keep watch for signs of adversary submarines and undersea hazards, using sonar systems that were inspired in part by the echolocation of whales and dolphins.

But now all of the background noise, which marine biologists have called “acoustic smog,” can create a threatening space for ever-quieter diesel-electric submarines to hide.

For decades the U.S. Navy has devoted substantial effort through research and technology to making its own ships quieter in order to make them more difficult for adversaries to detect. Some of those advances include stern flaps, bulbous bows, and new hull forms to reduce the noise from propeller cavitation. Some of the navy’s advances could be adapted for use by commercial ships, and some of them could also reduce their fuel consumption, making commercial shipping less expensive.

The navy could also help commercial ship designers and ship builders measure the actual sound reduction that new technologies can achieve, thereby demonstrating how technologies that protect marine from harmful noise are also cost-effective because noise reduction promotes fuel efficiency. In these areas and many others, there are ample opportunities for the Navy and commercial shipping to partner as responsible stewards of the oceans.

The Honorable Steven S. Honigman, a former general counsel for the Department of the Navy, is a founding member of Quieter Oceans, LLC., a consulting firm that seeks to make commercial ships more quiet. Joel Reynolds is a senior attorney for the Natural Resources Defense Council. Both will participate in a panel discussion following a screening of “Sonic Sea” Aug. 7 at the Criterion, along with Steve Katona, Sean Todd and others.