OVERPOPULATION AND THE OCEAN

By Leon Kolankiewicz, CAPS Senior Writing Fellow

Shorebirds, terns and myriad other creatures great and small depend on healthy oceans.

“We all live in a yellow submarine …” crooned Ringo Starr 45 years ago in a Beatles song.

In fact, of course, not a single human being actually lives permanently in or atop the oceans, submarine or no. If one doesn’t count the tens of thousands of sailors, crews and passengers transiting the seas at any one moment, the human population density of the vast oceans per se is zero persons per square mile.

Yet paradoxically, human overpopulation on Earth’s land masses is drastically compromising the productivity and health of the sea. It was recognition of this stark reality that led the legendary ocean explorer and documentary filmmaker Jacques Cousteau to comment on his 85th birthday in 1996 that: “The monumental problem for the future is overpopulation.” And that future is now.

The Beatles’ whimsical, catchy tune bespoke a romantic, childlike era in which the conventional wisdom was that the oceans were big and bountiful and boundless—beyond humanity’s ability to harm in any widespread or lasting way.

In the 1950s and 60s, industrial-scale harvests of marine fish were just beginning to skyrocket. International commerce and ship traffic began to boom as prosperity and mass consumption blossomed, and the economic ideologies of free trade and comparative advantage were propagated far and wide.

Ancient and modern ports all had to be expanded and deepened to accommodate ever larger and deeper-draft vessels. Offshore oil and gas exploration and production in the shallow portions of the Gulf of Mexico represented an exciting new energy frontier.

Around the world, human populations have been concentrated in coastal regions for millennia.
In the 20th century, global human population quadrupled from about 1.5 billion to 6 billion. Populations already clustered in villages and cities along coasts multiplied even more rapidly than the booming population in general. Beachfronts and barrier islands developed pell-mell—covered by hotels and bungalows.

Meanwhile, salt marshes and mangroves that serve as critical nursery habitats for marine fish and shellfish were cleared, filled or drained to make way for everything from salt farms and shrimp farms to golf courses and airport runways.

By the close of the century, California alone had lost more than 90 percent of its coastal wetlands. As coastal regions and upstream watersheds filled with people, houses, strip malls and pavement, urban runoff pouring onto beaches and into bays and estuaries polluted waters and the creatures that live in them. Pesticides, fertilizers, PCBs, oil and grease, microbial contaminants, sewage effluent and treated and untreated industrial waste all wound up in the water, bottom sediments and the blood and flesh of marine organisms. Orcas (killer whales) that ply the waters of Puget Sound in Washington bear a heavy toxic burden of man-made poisons in their tissues, as do the belugas of the Gulf of St. Lawrence in Quebec, Canada.

Tons of plastic litter are a particularly pernicious problem, because marine life can mistake plastic particles for food and ingest them, causing sickness or even death. The endangered black-footed albatross is native to the North Pacific, yet the vastness of these waters has not protected it from a destructive type of fishing known as long-lining and from the ingestion of plastic debris.

According to the Surfrider Foundation, an environmental, nonprofit organization, most plastic pollution in the ocean does not originate from boats at sea, but rather as litter discarded carelessly on beaches, streets and sidewalks. This litter is carried by runoff to the ocean in storm drain systems, streams and rivers.

The Great Pacific Garbage Patch, and its counterpart, the North Atlantic Garbage Patch, are huge areas of man-made marine debris floating in the North Pacific Gyre and the North Atlantic Gyre, respectively. One study estimated the latter to contain some 200,000 pieces of debris per square kilometer (over half a million pieces per square mile).

Not just urban areas, but even farmlands that produce the food consumed by the burgeoning population, contribute to the contamination of coastal waters. To maintain high crop harvests in the face of depleted soils and sagging fertility, modern industrialized agriculture depends on heavy doses of petrochemicals—fertilizers, herbicides, insecticides and fungicides—derived from natural gas, oil and coal.

Nitrogen and phosphorus nutrients from these farmlands inevitably end up in streams and rivers that flow into bays, estuaries and the ocean, where they cause algal blooms that deplete vital dissolved oxygen and choke water surfaces with mats of unsightly, smelly slime. Chesapeake Bay (Virginia and Maryland) and Pamlico Sound (North Carolina) are two prime examples of rich coastal waters that have been badly degraded by excessive nutrients and other pollutants. The fabled oyster harvest in Chesapeake Bay—decimated as well by overharvest and nonnative diseases—has been reduced to a mere 1 percent of its original haul. The loss of so many filter feeders that once cleaned the bay’s water has had an added detrimental effect.

Every summer at the mouth of the Mississippi River in the Gulf of Mexico off the Louisiana coast a massive “dead zone” forms. At more than 8,000 square miles in size, it is larger than New Jersey. In this zone of “hypoxia” or low-oxygen waters, most marine organisms—both fish and shellfish—must escape or perish. This has affected the Gulf’s shrimp fishing grounds. Residual nutrients from widespread modern agriculture in the vast Mississippi Basin are the main culprit. Some of the fertilizers used on corn fed to humans, livestock and (via ethanol) vehicles end up fertilizing algal blooms in the Gulf, leading to oxygen depletion.

Jacques Cousteau once referred to the underwater oceans as “The Silent World,” but sadly, that is no longer true. As a result of the exponential growth in ship and boat traffic over the past century, the oceans have become increasingly and perhaps dangerously noisy.
Oceanographer Sylvia Earle, former chief scientist at the National Oceanic & Atmospheric Administration (NOAA), said, “Undersea noise pollution is like the death of a thousand cuts. Each sound in itself may not be a matter of critical concern, but taken altogether, the noise from shipping, seismic surveys and military activity is creating a totally different environment than existed even 50 years ago. That high level of noise is bound to have a hard, sweeping impact on life in the sea.”

These are just a few of the many ways in which increasing human numbers, increasing human activity, neglect and even malice are threatening the living ocean. There also are marine overfishing, pirate whaling and damage to seafloor habitat from bottom trawling, warming waters (from global warming), coral bleaching and death, ocean acidification and declining primary productivity. Each of these alone is a huge challenge, but together they constitute an unfolding tragedy of immeasurable import.

While stopping human population growth alone will not solve the ocean’s woes, it must be a crucial part of any successful, multi-pronged attempt to “Save Our Seas.”

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