

Protecting our seas

Would marine conservation meet with Teddy Roosevelt's approval?

By **Stuart Sandin**
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The phrase “shifting baseline” was coined by Daniel Pauly, a Canadian fisheries scientist, to describe the change in perspective that human society has undergone through time, in particular with respect to the state of our oceans' health. Although our parents may remember an active cod fishery off Nova Scotia, we now accept that cod is not common in the markets and that the fishery is only sporadically open.

Continue back a couple of generations and consider our forebears who fed nations far and wide with cod, a fish that seemed limitless. Our general acceptance of the paltry supply of cod, something that would shock our predecessors, is one example of a shifted baseline of our generation. The dramatic shift of our oceans' resources is not limited only to the eastern seaboard but is widespread across the globe.

In past years, countless academic, federal and international reports have been publicized, highlighting the wholesale change of coastal ecosystems. However, it does not take rocket science to document these changes.

Look at the fishing photographs on the walls of many of our local restaurants and stores here in San Diego. The older black-and-white photos depict scenes from the glory days of Southern Californian fishing – the man with the very small boat holding the very large yellowtail, or the couple wearing sophisticated clothing beside a 400-pound-plus black sea bass.



DONALD MIRALLE / Getty Images
 A school of manini fish pass over a coral reef in Honolulu's Hanauma Bay.

Now shift your gaze toward the more recent, color photographs – a group of friends by their

large sportfishing boat holding a string of kelp bass, or the spearfisher holding a couple of sheephead that are almost eclipsed by the state-of-the-art speargun. All of the people in the photos are happy, but imagine if the roles could be reversed. The man in the small boat would not have taken a photo if he had caught that string of kelp bass, while the spearfisher would make headlines for landing the yellowtail (and a different kind of headline for hauling out the black sea bass!).

The fact is that most of our ocean communities are severely altered relative to those of the past. However, all is not yet lost. Despite the long reach of human activities, there remain a handful of pristine marine environments scattered across the globe. These are places that still have the fabled fish recorded in the black-and-white photos. These are also our windows to the past, the last remaining vestiges of a slowly disappearing prehistoric ocean.

Recently, our group at Scripps Institution of Oceanography at the University of California San Diego, with colleagues from San Diego State University and a host of other organizations, has been visiting these remaining “gems of the sea” to record firsthand what marine environments of the past looked like. Among these are the coral reefs of the Line Islands archipelago in the central Pacific Ocean. The Line Islands are located about 1,000 miles south of Hawaii and are among the most remote islands on the planet, with the closest continent more than 3,000 miles away.

Diving on the uninhabited islands of Kingman and Palmyra is breathtaking. A typical dive includes visits from 10 or so reef sharks, dozens of very large snappers and groupers, and myriad other reef fish. The water is crystal clear, and the coral is luxuriant, including table corals more than a body-length wide with countless baby corals bringing in the next generation.

Expeditions to the Revillagigedo Islands off Baja California and Cocos Island off Costa Rica have revealed similarly stunning marine environments and tremendous natural bounty. The results of these expeditions have revealed novel insights into ways to better manage our local marine resources. Both as remnants of the past and as guides for resource management for the future, it is clear that preserving these sites is a conservation priority.

A century ago, the president of the United States was closing his second and final term in office, following through with his vision of national resource stewardship. During his time in the White House, Theodore Roosevelt set aside hundreds of millions of acres of wildlands as federally protected areas. His position was straightforward, in his words, "To waste, to destroy our natural resources, to skin and exhaust the land instead of using it so as to increase its usefulness, will result in undermining in the days of our children the very prosperity which we ought by right to hand down to them amplified and developed." Anyone who has been to the Grand Canyon will readily appreciate the benefits derived from Roosevelt's conservation actions.

Moving forward a century, we see evidence of a similar spirit of resource management emerging for our marine environment. In 2004, the Australian government formally protected a full one-third of the Great Barrier Reef as a marine reserve. Not to be outdone, in 2006 President Bush formally protected the single largest marine conservation area to date, the Papahnaumokukea Marine National Monument, better known as the Northwestern Hawaiian Islands. Earlier this year the Republic of Kiribati announced creation of the Phoenix Islands Protected Area, a huge swath of the central Pacific Ocean now standing as the largest marine-protected area on the planet. These areas each include untouched marine wilderness, similar to that of the Line Islands. It is inspiring to watch three nations step forward to announce bold and ambitious conservation goals, protecting snapshots of the pristine ocean, of the baselines, for the generations to follow.

But conservation of remote wild ocean areas is only half of the equation. We also need to find ways to manage remaining ocean areas for the betterment of society. This was the duality behind Teddy Roosevelt's conservation ethic. Lands were protected by the National Park Service largely for preservation into the future, but lands were also protected by the Forest Service and other agencies to maintain provision of natural resources, thereby "increasing its usefulness." In the sea, the new, remote protected areas serve to keep the last remaining vestiges of prehistoric marine environments intact. But closer to home we have to find ways to maximize the benefits derived from our local marine resources.

Over the coming months, there will be an increasing number of reports about the progress of California Fish and Game and partner organizations in implementing an updated marine management plan for San Diego. The management proposals will link state regulations with the interests of key user groups, using the most current scientific insights to maximize benefits for all parties. The goal will not be to re-establish the pristine areas off our coastlines, much like the goal of the National Park Service is not to restore wolves to La Jolla. Instead, the goal will be to increase the value of our nearby marine resources for our generation and for future generations, and thus to not let our baselines shift any further. After a century of attention to our lands, it seems fitting to extend TR's conservation ethic fully to the sea.

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