

Responses to Admiral Watkins' Questions on Marine Protected Areas by Elliott A. Norse, President, Marine Conservation Biology Institute

Question 1: If permanent marine protected areas were created that give fish and other species a safe haven, would you still recommend that large rockhopper and roller gear be banned? Why?

MCBI recommends that large rockhopper and roller gear, or large footropes, be banned regardless of whether a system of permanent marine protected areas is instituted.

Large rockhopper and roller gears are widely recognized by state and federal researchers and agencies to be especially destructive to structurally complex habitats, which are unaccustomed to disturbance and populated with species that are slow-growing and long-lived, and, hence, have little ability to recover after disturbance. These habitats are used by a plethora of species in all stages of life, from eggs to adults. Without large footropes, trawls are unable to enter many of these areas and fragile species and life stages are afforded protection in the nooks and crannies offered by canyons, boulders, crags, and large cobble.

The complex habitats impacted by bottom trawls -- rock pinnacles, seamounts, sponge beds, deep-sea coral forests, and rock gardens -- occur in all regions of the United States. Different federal regions and states have instituted a patchwork of regulations with varying degrees of effectiveness in protecting these habitats. While the Western Pacific FMC banned all bottom trawling in 1986, it is only the past several years that other regions, like the Pacific and New England, have taken steps. Regulations short of a total ban on bottom trawling include everything from area closures to restriction of footropes to 6, 8, 12, or 18 inches, to restriction of trawling only for specified species, places and times. Consistency of habitat protection is therefore lacking.

Area closures in the South Atlantic and North Pacific provide cogent examples of the dangers of over-reliance on closed-area management. In the South Atlantic, *Oculina* Banks was closed to bottom trawling and all bottom-disturbing activities in an effort to protect the remaining *Oculina varicosa* coral, an important element of snapper and grouper spawning habitat. Despite the closure, roughly 90% of the deep-sea coral in the closed areas is dead rubble. While it is unclear the extent to which pirate trawling in the closed areas has resulted in damage since the closure, researchers who work on trying to restore the *Oculina* have noticed that some of the newly planted reef balls have been moved, rolled and entangled in fishing gear, a clear indication of illegal trawling.

The Coast Guard has reported that it has had significant difficulty patrolling the area, which is 17 nautical miles off the east coast of Florida. The cost and time involved have been obstacles, particularly because the majority of pirate fishing occurs at night. Further, the weak penalty if a vessel is caught trawling within the closed area (merely the seizure of the catch on board) is hardly a strong disincentive. Moreover, these Coast

Guard enforcement difficulties precede the shift in their priorities to homeland defense. So, the level of enforcement can be assumed to be significantly less than it was a year and a half ago. These reports, from those working in the area, indicate that the closure has not been entirely effective at preventing entry by bottom trawls or damage to the corals, and highlight the enforcement difficulties in policing marine protected areas without vessel monitoring systems.

In Alaska, area-based management has been the predominant method of stopping and preventing the destruction of sensitive habitats by bottom trawls. Roughly 90% of state waters and 90,000 nm² of federal waters, comprising about 25% of the Bering Sea and 10% of the Gulf of Alaska, have been closed to bottom trawling. Due in part to limited habitat mapping, however, these closures do not necessarily protect the areas of highest coral and sponge concentration. Very little is yet understood about these deep-sea corals and sponges. For example, classification of deep-sea corals beyond taxonomic order level is very difficult, new species are frequently discovered, and abundance and life histories of individual species are largely unknown. Given the paucity of information, informed decisions on where to locate closed areas that would be most effective at protecting structurally complex habitat are going to be hit-or-miss. In other words, we need protection now but don't have enough scientific information to say which areas are most important to protect.

Alaska has the best information of any state on its deep-sea corals and sponges, yet even in that region, there is little agreement of what areas would be appropriate for permanent closed areas. Other regions of the country have little to no information on their structured habitats, including deep-sea corals and sponges. In speaking with directors of research labs around the country, MCBI has found that greater funding for mapping is one of the highest priorities for research into the impacts of fishing on habitat. Repeatedly, we have heard how difficult it is to restrict fishing by area without knowledge of what the areas consist of. And ironically, the fishermen know the kinds of bottom communities in greater detail than the scientists, because they've been trawling up the corals and sponges for years. Unfortunately, they are reluctant to share this information.

Yet, we are all aware of how expensive and slow seafloor mapping is. We are years away from having adequate habitat mapping and analysis, not to mention even a basic understanding of the deep-sea corals and sponges found in our nation's waters. Waiting until we have such information before protecting these sensitive and important habitats will only mean that there is less to protect by the time we do have information. Restricting rockhoppers and rollers to an 8 inch diameter, on the other hand, is a precautionary strategy that would offer *immediate protection* to the most complex habitats that are so important to diversity and sustainable fisheries.

Restricting large rollers and rockhoppers would prevent use of the gear in what the National Research Council called the highest priority for protection against trawling, the hard bottom communities. Because fishermen know the locations of these complex habitats and do not want to lose their gear (which would be a risk without rollers or rockhoppers, hard bottoms would become *de facto* protected areas (from trawling).

Enforcement requirements are much easier because gear can be easily checked dockside to ensure that no large footropes are on board, whereas at-sea patrolling of dispersed areas in the post 9/11 era would not likely be as effective.

To summarize, we support restrictions on footrope size *in addition to*, but *not instead of* a permanent system of no-take marine protected areas. Enforcement of footrope restrictions is practical, effective and efficient when compared with patrolling a number of dispersed closed areas. Until there are better seafloor habitat maps, restrictions on roller and rockhopper gear buy a substantial amount of habitat protection and would have immediate benefits fish habitat and biodiversity protection. When combined with a system of permanent protected areas, footrope restrictions would help provide comprehensive protection for both concentrated areas of complex habitat and dispersed underwater “oases.”

Question 2: Are there any international governance models for MPAs that you have identified that have been successful? If so, what areas or countries?

A number of MPAs have been established by other nations ranging from developing countries in the Caribbean that have few local scientists to nations with well-developed scientific communities such as Australia and New Zealand. Kelleher et al (1995) identified the locations of MPAs world- wide in a report prepared for the World Bank called “A Global Representative System of Marine Protected Areas.” Although MCBI has not systematically assessed existing MPAs to determine which country or countries have had the most success with their MPAs, it is common knowledge among scientists working in the field that MPAs produce lasting, positive ecological effects. These benefits are summarized in a paper, “Marine Reserves Have Rapid and Lasting Effects” by Benjamin S. Halpern and Robert R. Warner (2002). *Ecology Letters* 5: 361-366. The authors examined 80 reserves around the world as a basis for their conclusions.

However, it is also common knowledge among experts that Australia and New Zealand have been leaders in establishing MPAs among developed countries. The United States Executive Order 13158 creates the mandate to do more than these nations have—specifically, to establish a national system of marine reserves—but has not fulfilled its promise as yet. Absent that happening, the United States is two decades behind Australia and New Zealand, and is falling farther behind.

Question 3. Jurisdiction for Federal marine protected areas is spread across several departments and agencies within departments. Is this appropriate or should jurisdiction for Federal marine protected areas be consolidated under a single office? If so, where and why?

A number of federal agencies play a role in conserving specific areas of marine waters that may be considered as MPAs, broadly defined as an area that receives some degree of protection from certain or all human uses or whose purpose is at least partly conservation of resources. There is no overarching MPA statute in federal law; the closest thing is

Executive Order 13158. Thus, our nation's MPAs are not uniform in purpose, objectives, character or management, but instead reflect the variety of authorities under which they have been created.

The consolidation question is thus a tricky one because different agencies have different mandates, and the first need is for a strong biodiversity conservation mandate for all MPAs in federal waters. Because we have so few MPAs in the United States relative to the size of our territorial and EEZ waters, a better question to ask is how should our nation build an effective system of MPAs.

MCBI recommends a single-agency manager for MPAs created specifically for protecting marine biodiversity and maintaining crucial marine ecological processes in federal waters. No extractive use would be allowed in these areas. As no such MPA authority exists now, legislation should be passed establishing a viable system of no-take areas for the primary purpose of biodiversity conservation. This system should be managed by a marine protection authority similar to the park or refuge service, and should be given the resources to accomplish its mission within 20 years. A time frame is important because at current rates of destruction and degradation, we may not have more than 20 years to save the full range of marine biodiversity that we have today.

The new law should allow other agencies to designate and manage no-take areas as long as they conform to the objectives and standards of the biodiversity areas law. Other agencies could also create and manage other types of MPAs as deemed appropriate under their other statutes.

Of course, this would be far easier if all or nearly all major ocean authorities were consolidated into one independent cabinet-level Department of Oceans.

Question 4. There are many different definitions of MPAs, and it seems they are so general and broad in scope as to be at the very least confusing and at the most virtually worthless. In your opinion can we come up with a better, more scientifically meaningful definition, and if yes do you have an idea of what that definition should be?

It is important not to get too entangled in the labor of defining MPAs. The term MPA is a broad term denoting different kinds of areas of marine waters that are protected and managed in certain ways and that allow specified use on a continuum ranging from little or no use to many uses. Moreover, because uses of these areas varies based on type of area and jurisdiction, it is to be expected that the term needs to be broad to encompass the full range of entities. Saying an area is an MPA is just like saying that any one of the many forms of shelter in the world is "housing."

It is both possible and useful to define certain types of MPAs in very specific ways so as to reflect the purposes of the area for public recognition and compliance with management standards. Just as "national park" has come to mean an area where no commercial development or extraction can occur except for food, lodging and souvenir facilities, and as a place where nature is little manipulated or interfered with, so we could

define a fully protected marine reserve as one type of MPA that has specified purposes, uses and prohibitions, namely biodiversity protection and recovery without extractive uses, pollution or any other activities that allow degradation of resources. Furthermore, we could give this type of MPA any name, such as “ocean habitat conservation area,” “sanctuary” or “refuge,” to name just a few.

Question 5. The Commission has heard considerable testimony about MPAs; however, we’ve had little exposure to how this concept works in practice. Can you provide us with examples of existing MPAs, how they are working, and their ecologic and economic benefits and impacts on natural resources as well as local communities?

The world’s most successful MPA is the Great Barrier Reef Marine Park, which I visited for the second time this past August. It is not a national park (or a fully protected marine reserve), but is a mosaic of different ecosystem types that get different levels of protection. In other words, it is a perfect example of ocean zoning. There is a substantial literature on the Great Barrier Reef Marine Park. An excellent start is:

Day, Jon C. (2002). Zoning—lessons from the Great Barrier Reef Marine Park. *Ocean and Coastal Management* 45:139-156