

A Lingua Franca for Marine Habitat Classification—an Idea Whose Time Has Come

BY NOREEN PARKS

Scientists spend no small effort trying to convince politicians that effective natural resource management must be based on entire ecosystems, not on single species. They have been successful—to a point.

In 1992 the US Forest Service adopted ecosystem-based management strategies for federal forests and grasslands. In 1997 the Federal Geographic Data Committee adopted the US National Vegetation Classification Standard as a federal standard, facilitating implementation of those strategies. Applying such approaches to marine resource management, however, is problematic, because scientists have not yet developed a uniform system of nomenclature for marine environments.

“Just as our system of taxonomic nomenclature is essential to biodiversity assessments,” says Michael Weinstein, director of the New Jersey Sea Grant College Program, “it’s also essential to have a common vocabulary on habitat types.” And so far, no comprehensive system for the classification of marine habitats exists.

In 1996 Congress first attempted to incorporate the ecosystem concept into marine fisheries management by directing NOAA (National Oceanic and Atmospheric Administration) Fisheries to identify and protect “essential fish habitat” (EFH) for all federally managed fish stocks—more than 700 of them. But the agency simply lacked the staff and money to produce fine-scale definitions. Instead, EFH descriptions typically are vague, using broad terms such as “vegetation, rocky bottom, sand.” As a result, all US coastal and marine waters are currently considered to be EFH.

Thomas Hourigan, marine biodiversity coordinator for NOAA’s Office of Protected Resources, acknowledges, “In many cases, we just don’t know what’s out there. A classification framework would help us in assessing the status of habitats and identifying the priority needs so we can use our conservation monies as efficiently as possible.”

A good start for the classification system is the draft framework that came out of a workshop cosponsored by the Ecological Society of America and NOAA in 1999. Previous approaches to marine habitat classification focused mainly on large-scale characterizations such as biogeographic realms, says Becky Allee, deputy director of NOAA’s Restoration Center. “Our group of participating marine scientists strove to come up with a kind of aquatic gap analysis that would serve our needs, especially for coastal water habitats.” Their efforts produced a prototype hierarchical system that combined physical and biological information to classify “ecotypes” that represent biological communities or assemblages within habitats.

In January 2002, under contract with NOAA’s Offices of Habitat Conservation and Protected Resources, NatureServe—an organization spun off from The Nature Conservancy’s Natural Heritage Program—launched a project to develop the kind of comprehensive classification system that is needed to implement ecosystem-based management in the marine environment.

“NatureServe will build on the considerable efforts of the NOAA–ESA workshop and will review other, regional schemes to refine a set of coastal and marine habitat classification standards,” says Dennis Grossman, Nature-

Serve’s vice president for science. In the fall of 2002, NatureServe will hold a workshop for a professional review of the classification system. Pilot programs for evaluating the benefits of the classification system will be identified, with a particular focus on NOAA’s EFH and Marine Protected Areas programs, Grossman says. A long-term goal is to achieve adoption of the final product as a federal standard by the Federal Geographic Data Committee. Federal agencies would then be expected to use the classification system in their work.

Of course, the vast marine environment goes beyond regional schemes and national territorial waters, because aquatic ecosystems extend uninterrupted to international waters and the territorial waters claimed by other nations. Says Grossman, “We are also looking at international classification efforts, with the explicit goal to be compatible with international science and standards.”

With a range of state, regional, and multinational initiatives for marine mapping and conservation under way, there’s a sense of urgency to get a comprehensive classification system firmly in place to avoid a “tower of Babel” among the various stakeholders. Hourigan says the NOAA–NatureServe endeavor will most likely be “an iterative process, rather than a top-down, imposed classification system.” But, he adds, “To the extent that we can ensure that regional efforts aren’t left to their own devices to reinvent the wheel, the transition to ecosystem management and conservation will go further faster.”

Noreen Parks (nmparks@nasw.org)
is a science writer based in Hawaii.