A Functional Classification System for Marine Protected Areas in the United States

The U.S. Classification System: An Objective Approach for Understanding the Purpose and Effects of MPAs as an Ecosystem Management Tool

Toward a Common Language for Marine Protected Areas

Faced with widespread declines in ocean health and a growing interest in place-based ecosystem management, many nations, including the United States, are establishing marine protected areas (MPAs) to conserve vital marine habitats and resources. Familiar examples of U.S. MPAs include national marine sanctuaries, national parks and wildlife refuges, many state parks and conservation areas, and a variety of fishery management closures. Over the past several decades, a variety of legal authorities and programs have been established at all levels of government resulting in a dramatic increase in the number of MPAs. More than 1,500 such federal and state/territory sites exist today.

This complex assortment of different MPA types and purposes poses many challenges to policy-makers and stakeholders alike. Chief among these is terminology. Although MPAs have long been used for decades in the U.S. as a conservation and management tool, the nation still lacks a straightforward and consistent language to accurately describe the many types of MPAs occurring in our waters and to understand their effects on ecosystems and the people that use them.

For example, the official programmatic names of many U.S. MPAs (such as sanctuaries, parks, preserves, or natural areas) rarely reflect the area's actual conservation purpose, allowable uses, or management approach. Similarly, the generic term "marine protected area" is frequently assumed in the policy arena to mean "no-take reserves," when in fact, no-take MPAs are rare in the United States. This chronic confusion over MPA terms continues to unnecessarily complicate the critically important national dialogue about whether, when, and how to use this promising ecosystem management tool.

In response, the National Marine Protected Areas Center has developed a Classification System that provides agencies and stakeholders with a straightforward means to describe MPAs in purely functional terms using five objective characteristics common to most MPAs:

- Conservation Focus
- Level of Protection
- Permanence of Protection
- Constancy of Protection
- Ecological Scale of Protection

For most MPAs in the U.S. and elsewhere, these five functional characteristics provide an accurate picture of why the site was established, what it is intended to protect, how it achieves that protection, and how it may affect local ecosystems and local human uses. Combining elements of several domestic and international MPA classification schemes, this new approach to describing U.S. MPAs is intended to augment, but not replace official programmatic names and terms. It is designed to provide a neutral, intuitive, common language with which to describe, understand, and evaluate proposed and existing MPA sites, networks and systems.

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What is a Marine Protected Area?

"Marine protected area" is an umbrella term that encompasses a wide variety of approaches to U.S. place-based conservation and management. The official federal definition of an MPA in Executive Order 13158 is: "any area of the marine environment that has been reserved by federal, state, tribal, territorial, or local laws or regulations to provide lasting protection for part or all of the natural and cultural resources therein." Specific operational criteria for several key terms within this broad definition (for example, "protection" and "lasting") have been developed by the National MPA Center based on guidance from the MPA Federal Advisory Committee, governmental agencies, and the public. The criteria were published as part of the framework for developing the national MPA system, which was released in July 2006 and available for public comment for 145 days.

In practical terms, marine protected areas are delineated areas in the oceans, estuaries, and coasts with a higher level of protection than prevails in the surrounding waters. MPAs are used extensively in the U.S. and abroad for a variety of conservation and management purposes. They span a range of habitats including areas in the open ocean, coastal areas, inter-tidal zone, estuaries, and Great Lakes waters. They vary widely in purpose, legal authorities, agencies and management approaches, level of protection, and restrictions on human uses.

Overview of the U.S. MPA Classification System

The MPA Classification System uses five key functional characteristics to describe any MPA. Taken together, these characteristics influence the site's effects on local ecosystems and human users, and thus its role in contributing to the conservation of healthy marine ecosystems. Among these five site characteristics, the first two – the site's Conservation Focus and its Level of Protection – reflect many of the issues of greatest interest to stakeholders in local, regional, and national MPA dialogues.

(a) Conservation Focus *(one or more)*

- Natural Heritage
- Cultural Heritage
- Sustainable Production

(b) Level of Protection Afforded *(one attribute)*

- Uniform Multiple-Use
- Zoned Multiple-Use
- Zoned with No-Take Area(s)
- No Take
- No Impact
- No Aceess

(c) Permanence of Protection *(one attribute)*

- Permanent
- Conditional
- Temporary

(d) Constancy of Protection *(one attribute)*

- Year-round
- Seasonal
- Rotating

(e) Ecological Scale of Protection *(one atrribute)*

- Ecosystem
- Focal Resource

Detailed User's Guide to the Classification System

This section describes how to interpret and use the MPA Classification System. Much of the information needed to classify and understand any specific MPA in the U.S. is publicly available through NOAA's National Inventory of Marine Managed Areas, which contains more than 1,500 individual sites and is available on www.MPA.gov. Other relevant information can be found in official programmatic documents including management plans, regulations, designation documents, and statutes. The MPA Center will use these data sources to publish a complete classification of U.S. MMAs and MPAs.

The MPA Classification System can be applied to a single MPA site, or to individual management zones established within a larger MPA site. In a zoned MPA, each zone is classified independently based on its own characteristics and attributes. The overall MPA site then reflects the aggregate characteristics of its component management zones. Four of the five classification characteristics require unique, site-specific selections for the associated attribute options. One (Conservation Focus) allows multiple attribute selections in recognition of the complexity and variety of MPA applications. MPA examples are presented here for illustrative purposes only and may not always correspond to specific local sites.

(a) Conservation Focus (select all attributes that apply to the MPA or zone)

Most MPAs have legally established goals, conservation objectives, and intended purpose(s). Common examples include MPAs created to conserve biodiversity in support of research and education; to protect benthic habitat in order to recover over-fished stocks; and to protect and interpret shipwrecks for maritime education. These descriptors of an MPA are reflected in the site's Conservation Focus, which represents the characteristics of the area that the MPA was established to conserve. The Conservation Focus, in turn, influences many fundamental aspects of the site, including its design, location, size, scale, management strategies and potential contribution to surrounding ecosystems. U.S. MPAs generally address one or more of these areas of Conservation Focus:

Natural Heritage: MPAs or zones established and managed wholly or in part to sustain, conserve, restore, and understand the protected area's natural biodiversity, populations, communities, habitats, and ecosystems; the ecological and physical processes upon which they depend; and, the ecological services, human uses and values they provide to this and future generations.

Examples: Natural Heritage MPAs include most national marine sanctuaries, national parks, national wildlife refuges, and many state MPAs.

Cultural Heritage: MPAs or zones established and managed wholly or in part to protect and understand submerged cultural resources that reflect the nation's maritime history and traditional cultural connections to the sea.

Examples: Cultural Heritage MPAs include some national marine sanctuaries, national and state parks, and national historic monuments.

Sustainable Production: MPAs or zones established and managed wholly or in part with the explicit purpose of supporting the continued extraction of renewable living resources (such as fish, shellfish, plants, birds, or mammals) that live within the MPA, or that are exploited elsewhere but depend upon the protected area's habitat for essential aspects of their ecology or life history (feeding, spawning, mating, or nursery grounds).

Examples: Sustainable Production MPAs include some national wildlife refuges and many federal and state fisheries areas, including those established to recover over-fished stocks, protect by-catch species, or protect essential fish habitats.

(b) Level of Protection (select the one attribute that applies to the MPA or zone)

MPAs in the U.S. vary widely in the level and type of legal protections afforded to the site's natural and cultural resources and ecological processes. Any MPA, or management zone within a larger MPA, can be characterized by one of the following six levels of protection, which will directly influence its effects on the environment and human uses.

Uniform Multiple-Use: MPAs or zones with a consistent level of protection and allowable activities, including certain extractive uses, across the entire protected area.
Examples: Uniform multiple-use MPAs are among the most common types in the U.S., and include many sanctuaries, national and state parks, and cultural resource MPAs.

Zoned Multiple-Use: MPAs that allow some extractive activities throughout the entire site, but that use marine zoning to allocate specific uses to compatible places or times in order to reduce user conflicts and adverse impacts.
Examples: Zoned multiple-use MPAs are increasingly common in U.S. waters, including some marine sanctuaries, national parks, national wildlife refuges, and state MPAs.

Zoned Multiple-Use With No-Take Area(s): Multiple-use MPAs that contain at least one legally established management zone in which all resource extraction is prohibited.
Examples: Zoned no-take MPAs are emerging gradually in U.S. waters, primarily in some national marine sanctuaries and national parks.

No-Take: MPAs or zones that allow human access and even some potentially harmful uses, but that totally prohibit the extraction or significant destruction of natural or cultural resources.
Examples: No-take MPAs are relatively rare in the U.S., occurring mainly in state MPAs, in some federal areas closed for either fisheries management or the protection of endangered species, or as small special use (research) zones within larger multiple-use MPAs. Other commonly used terms to connote no-take MPAs include marine reserves or ecological reserves.

No Impact: MPAs or zones that allow human access, but that prohibit all activities that could harm the site's resources or disrupt the ecological or cultural services they provide. Examples of activities typically prohibited in no-impact MPAs include resource extraction of any kind (fishing, collecting, or mining); discharge of pollutants; disposal or installation of materials; and alteration or disturbance of submerged cultural resources, biological assemblages, ecological interactions, physiochemical environmental features, protected habitats, or the natural processes that support them.
Examples: No- impact MPAs are rare in U.S. waters, occurring mainly as small isolated MPAs or in small research-only zones within larger multiple-use MPAs. Other commonly used terms include fully protected marine (or ecological) reserves.

No Access: MPAs or zones that restrict all human access to the area in order to prevent potential ecological disturbance, unless specifically permitted for designated special uses such as research, monitoring or restoration.
Examples: No-access MPAs are extremely rare in the U.S., occurring mainly as small research-only zones within larger multiple-use MPAs. Other commonly used terms for no access MPAs include wilderness areas or marine preserves.

(c) Permanence of Protection (select the one attribute that applies to the MPA or zone)

Not all MPAs are permanently protected. Many sites differ in how long their protections remain in effect, which may in turn profoundly affect their ultimate effects on ecosystems and users.

Permanent: MPAs or zones whose legal authorities provide some level of protection to the site *in perpetuity* for future generations, unless reversed by unanticipated future legislation or regulatory actions.
Examples: Permanent MPAs include most national marine sanctuaries and all national parks.

Conditional: MPAs or zones that have the potential, and often the expectation, to persist administratively over time, but whose legal authority has a finite duration and must be actively renewed or ratified based on periodic governmental reviews of performance.
Examples: Conditional MPAs include some national marine sanctuaries with 'sunset clauses' applying to portions of the MPA in state waters

Temporary: MPAs that are designed to address relatively short-term conservation and/or management needs by protecting a specific habitat or species for a finite duration, with no expectation or specific mechanism for renewal.
Examples: Temporary MPAs include some fisheries closures focusing on rapidly recovering species (e.g. scallops).

(d) Constancy of Protection (select the one attribute that applies to the MPA or zone)

Not all MPAs provide year-round protection to the protected habitat and resources. Three degrees of constancy throughout the year are seen among U.S. MPAs.

Year-Round: MPAs or zones that provide constant protection to the site throughout the year.
Examples: Year-round MPAs include all marine sanctuaries, national parks, refuges, monuments, and some fisheries sites.

Seasonal: MPAs or zones that protect specific habitats and resources, but only during fixed seasons or periods when human uses may disrupt ecologically sensitive seasonal processes such as spawning, breeding, or feeding aggregations.
Examples: Seasonal MPAs include some fisheries and endangered species closures around sensitive habitats.

Rotating: MPAs that cycle serially and predictably among a set of fixed geographic areas in order to meet short-term conservation or management goals (such as local stock replenishment followed by renewed exploitation of recovered populations).
Examples: Rotating MPAs are still rare in the U.S. They include some dynamic fisheries closures created for the purpose of serially recovering a suite of localized population to harvestable levels.

(e) Ecological Scale of Protection (select one attribute that applies to the MPA or zone)

MPAs in the U.S. vary widely in the ecological scale of the protection they provide. MPA conservation targets range from entire ecosystems and their associated biophysical processes, to focal habitats, species, or other resources deemed to be of economic or ecological importance. The ecological scale of a site's conservation target generally reflects its underlying legal authorities and, in turn, strongly influences the area's design, siting, management approach, and likely effects.

Ecosystem: MPAs or zones whose legal authorities and management measures are intended to protect all of the components and processes of the ecosystem within its boundaries.
Examples: Ecosystem-scale MPAs include most marine sanctuaries, national parks and national monuments.

Focal Resource: MPAs or zones whose legal authorities and management measures specifically target a particular habitat, species complex, or single resource (either natural or cultural).
Examples: Focal-resource MPAs include many fisheries and cultural resource sites, including some national wildlife refuges and marine sanctuaries.

For Additional Information

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