

State of California

Memorandum

Date: June 11, 2007

To: Marine Life Protection Act Initiative Blue Ribbon Task Force, Master Plan Science Advisory Team and North Central Coast Regional Stakeholder Group

From: **John Ugoretz**
Department of Fish and Game 

Subject: **Statement of feasibility criteria for use in analyzing siting alternatives during the second phase of the Marine Life Protection Act Initiative**

BACKGROUND

The California Department of Fish and Game (Department) will be reviewing and commenting on marine protected area (MPA) proposals developed by the Marine Life Protection Act (MLPA) Initiative process. In particular, the Department will provide input to the California Fish and Game Commission on the feasibility of each proposal and comment on facets of the proposals that do not meet basic criteria. In order to facilitate this review and to better inform the Initiative process, the memorandum of understanding (MOU) between the California Resources Agency, Department, and Resources Legacy Fund Foundation requires the Department to prepare a statement of the feasibility criteria used in its evaluation of proposals.

The following statement provides details on the criteria that will be used. While no individual criterion is absolute, the criteria taken together should form the guiding principle used in designing MPA proposals. These criteria should be considered along with the scientific guidance and other design advice found in the Draft Master Plan for Marine Protected Areas. Together, this statement and the Master Plan provide the necessary information to craft feasible MPA proposals.

Definitions

Marine managed areas (MMAs) are areas intended to protect or manage marine resources¹. The State of California defines a marine managed area as “a named, discrete geographic marine or estuarine area along the California coast designated by law or administrative action, and intended to protect, conserve, or otherwise manage a variety of resources and their uses [Public Resources Code (PRC), subsection 36602(d)].”

Marine protected areas are a subset of MMAs that aim to protect and conserve living marine resources and their habitats. State law defines an MPA as “a named,

¹ Esch, G. G. (ed.) 2006. Marine managed areas: best practices for boundary making. NOAA Coastal Services Center, Charleston, 66 pp.

discrete geographic marine or estuarine area seaward of the mean high tide line or the mouth of a coastal river, including any area of intertidal or subtidal terrain, together with its overlying water and associated flora and fauna that has been designated by law or administrative action to protect or conserve marine life and habitat [PRC, subsection 36602(e)].”

Requirements of the Marine Life Protection Act

The Marine Life Protection Act (Stats. 1999, Chap. 1015) requires that the existing array of California MPAs be improved based on sound science. The MLPA specifically provides for the protection of ecosystems and ecosystem functions through the use of a statewide network of MPAs, with a focus on “marine life reserves” (presently known as “state marine reserves” or SMRs), defined as no-take areas. The MLPA also allows the use of two other classifications of MPAs: state marine parks (SMP), in which some recreational take may be allowed; and state marine conservation areas (SMCA), in which some commercial and/or recreational take may be allowed. The latter two classifications require specific regulations detailing the allowed take.

The MLPA requires development of a "Master Plan" to guide implementation of the Marine Life Protection Program, including the development of a network of MPAs in State waters (Fish and Game Code Section 2855). The Master Plan establishes specific goals and provides the guidelines for the State's marine life protection program. The Master Plan provides scientific guidance for designing MPAs to meet the goals of the MLPA. The success of a MPA, and in particular a network of MPAs, relies heavily on the use of "best readily available science."

There are subtle differences in MPA network design and individual MPA design. Network design considers ecosystems functions and socioeconomic values in recommending size and spacing, location, habitat replication and classification. Individual MPA design considers the physical location, arrangement and definitions of the MPA. The design of individual MPAs - the habitats they contain; their shape, size and spacing; and their MPA regulatory classification - is critical to the success of a network of MPAs. MPAs with poorly defined, difficult to recognize or unenforceable boundaries are unlikely to achieve their desired goals.

DESIGN ELEMENTS THAT INCREASE MPA FEASIBILITY

Using basic boundary design guidelines when siting MPA boundaries will contribute greatly to the ease of understanding by the public as well as enhance enforceability. Following these guidelines will also increase the likelihood of success for individual MPAs as well as the network as a whole.

Straight Lines

The use of straight lines is strongly recommended for MPA boundaries. In general, marine protected area boundaries ideally would consist of straight lines that run due north/south or east/west, wherever possible. The use of straight lines provides easy reference which eases public understanding and enhances enforceability. Using whole minutes of latitude and longitude to define these lines additionally

facilitates their legal definition, enforceability, and ease of recognition. Irregular boundaries such as circles, lines that follow a depth contour or distance offshore, or lines that extend diagonally to latitude and longitude should be avoided.

Easily Recognizable Landmarks

Marine protected area boundaries should be well marked where possible, recognizable, and measurable. Selecting known, easily recognizable landmarks or shoreline features, where possible, as corners will provide a common, easily referenced understanding of those boundaries. Easily recognizable landmarks include, but are not limited to; rocks, points, headlands, capes, islands, and buoys. Likewise, any offshore corners or boundary lines should be located at easily determined coordinates. This is especially true if installation and maintenance of boundary marker buoys is not cost-effective or feasible.

Multiple Zoning of Adjacent Areas

Multiple zoning occurs when an area is split to allow for different uses in different portions of the area. For instance, a marine reserve could be sited adjacent to a marine park, in which some types of recreational fishing are allowed with specified restrictions, or with a marine conservation area, where limited recreational and commercial fishing are allowed according to specific regulations. In general, MPAs should avoid abrupt transitions from highly protected areas to areas of relatively little protection².

By avoiding such transitions, multiple zoning can provide a tool for buffering critical areas contained in marine reserves. For example, if the objective of an MPA is to protect a specific habitat, an SMR can be buffered by the adjacent placement of an SMP or SMCA that allows only limited take without disturbance to habitat. Areas split into multiple zones can be an effective method for allowing compatible uses where appropriate, but should be used only when appropriate to enhance enforceability and to improve public understanding and acceptance. However, care must be taken when creating multiple zoning to avoid unnecessarily complex arrangements (see below).

Other Special Management Areas

Siting marine protected areas within, adjacent to or near locations under special management (upland protected areas; national, state or local parks; water quality protection areas; etc) may provide an added layer of enforcement, observation, and public awareness. This is especially true if there are shore-side facilities and personnel based at the site. It is important to develop boundaries collaboratively with agencies that manage these areas.

In addition to the multiple zoning scenarios and special management areas described above, another type of area-based management that should be considered when designing boundaries is the presence of fisheries management

² Kelleher, G. (1999). *Guidelines for Marine Protected Areas*. IUCN, Gland, Switzerland and Cambridge, UK. xxiv +107pp.

areas. Fisheries management areas are seasonal or year-round, area based closures, designed specifically to protect stocks or a particular critical life stage. Such fisheries management areas are often delineated by lines connecting latitude and longitude coordinates or by depth contours, such as the Rockfish Conservation Areas, which exclude certain types of fishing within a specified depth range. Existing fisheries management zones can be used to help reduce impacts to fisheries by incorporation within new MPAs. Similarly, MPA designation can provide more lasting protection to the habitats and species within these areas by the use of more comprehensive ecosystem goals.

Accessibility

Accessibility by different user groups should also be considered when siting MPA boundaries. Marine protected areas should be accessible to researchers, enforcement personnel and others with a legitimate interest in resource protection. Various benefits and disadvantages can occur when marine protected areas are sited in locations that are accessible and/or observable, either from the shore or the water. On one hand, they can increase the likelihood that potential illegal activities will be observed and reported, thereby discouraging such activities because they might be observed. Conversely, MPAs sited in areas that are very easily accessed may facilitate illegal activities to occur.

MPAs sited in areas that are difficult to access may reduce the potential of unintentional infractions or make it difficult for intentional violators to reach the area. However, this same difficulty would hinder enforcement in a similar manner and allow intentional illegal activities to potentially go unnoticed. Siting MPAs must be balanced between the ease of enforcement and monitoring and the potential for infractions to occur.

Siting MPAs in areas close to harbors may raise issues of safety by requiring extractive users to travel farther to areas open to fishing. At the same time, non-consumptive users may prefer MPAs close to ports and harbors to reduce travel times and facilitate use. If enforceable alternative areas are available farther from ports and harbors, but still accessible to non-consumptive users and enforcement, they should be considered.

Simple Regulations

One of the most important feasibility factors is crafting MPA regulations that are easily understood by the public, that reduce unintentional infractions and that are readily enforceable. Complex regulations would include, among others, those which preclude some uses while allowing other uses that are very similar; those which prohibit very specific gear types that must be checked on the water, those which allow all but a very few types of activities, and those which include technical or complex prohibitions. The best regulations are those which can be simply stated in one or two sentences without qualifying or clarifying language.

DESIGN ELEMENTS THAT MAY DECREASE MPA FEASIBILITY

Multiple Zoning of Adjacent Areas

As noted above, care must be taken in regards to multiple zoning to ensure that regulations are understandable and are observed by the public and enforced as necessary. Problems are likely to occur with multiple zoning when confusing differences in regulations occur over small spatial areas. This can lead to unintentional infractions and a degradation of the integrity of the MPA relative to its function. If multiple zoning in an area is deemed necessary, the Department recommends adjacent alongshore zones or, secondarily, adjacent inshore/offshore zones.

A particular type of multiple zoning that should be avoided is the creation of “doughnut zones”. Doughnut zones occur when different levels of protection are sited within a protected area, such as, a marine conservation area surrounded by a no take zone. This type of zoning can cause public confusion and is difficult to enforce.

Depth Contour Boundaries

Using depth contours as boundary designations should be avoided due to ambiguities in determining exact depths and enforceability. The use of depth contours can make enforcement of MPA boundaries infeasible and can become confusing for the general public when boundaries are placed in areas with largely varying depths.

Distance from Shore Boundaries

Similar issues arise when distance from shore is used to define MPA boundaries. These types of boundaries can make enforcement of MPA boundaries unfeasible and can become confusing for the general public due to the difficulty in readily determining these distances.

Complex Regulations

As noted above, complex regulations reduce the ease of understanding and enforcement.

Intertidal MPAs

Intertidal MPAs, not continuing into the adjacent subtidal waters, are not recommended. Intertidal MPAs are difficult to define, often have confusing or hard to locate offshore boundaries, and pose unique problems for enforcement. These areas do not follow the scientific guideline which recommends extending MPAs from shallow to deep habitats. If intertidal protection is desired, it should be located in areas where offshore habitats are also protected.

SUMMARY

Criteria to consider when designing MPAs

- Individual MPAs and the network as a whole must be based on specific goals and objectives

- Proposals should identify existing boundaries and jurisdictions and incorporate them as appropriate
- The science guidelines adopted by the Fish and Game Commission should be considered
- MPA classification (SMR, SMP, or SMCA) should be consistent with the desired regulations
- Proposals should consider existing fishery closures or fishery management areas and incorporate them as appropriate
- Accessibility, enforceability, and regulatory simplicity should be addressed in the proposal

Factors that increase feasibility when delineating boundaries

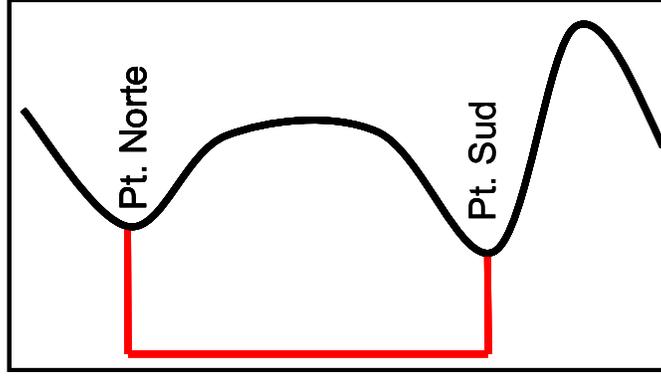
- MPAs should use straight lines that run along cardinal coordinates and connecting easily identified latitude and longitude lines
- MPAs should use easily recognizable, permanent, landmarks
- When multiple zoning occurs delineate boundaries preferably in an alongshore fashion or, secondarily in an inshore/offshore fashion
- Maintain consistency in regulations within MPA boundaries
- Use clear and concise boundary descriptions

Factors to avoid, which decrease feasibility when delineating boundaries

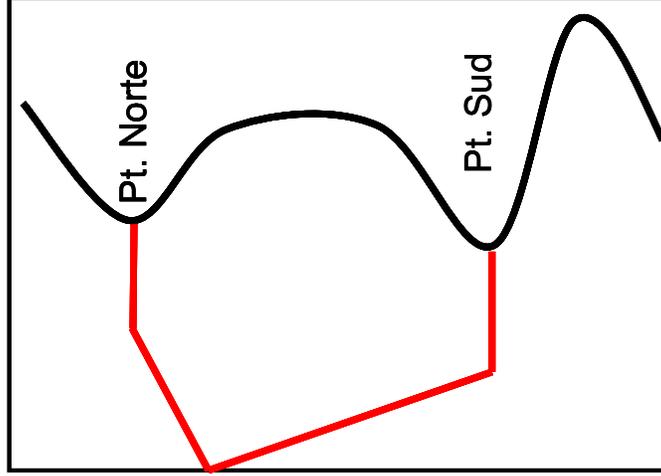
- Avoid using undulating boundary lines or contours
- Avoid “doughnut zones”
- Avoid depth contours or distance from shore
- Avoid lines diagonal to lines of latitude and longitude
- Avoid the use of intertidal MPAs that do not connect with subtidal areas

The following graphs illustrate some appropriate and inappropriate examples of boundary design:

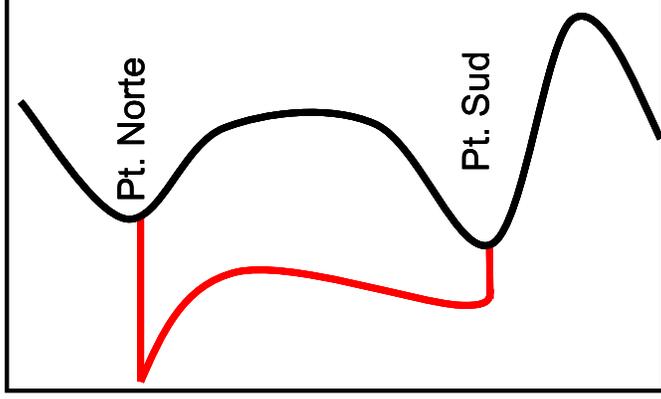
Good!



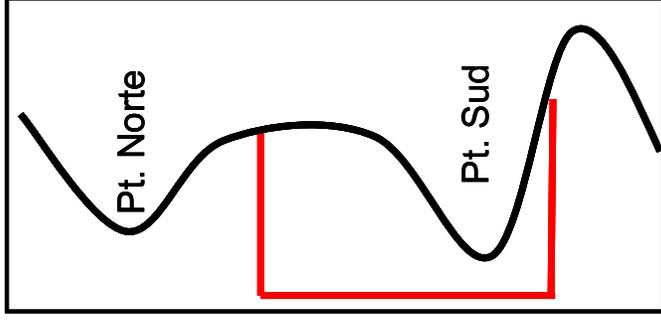
Irregular Lines



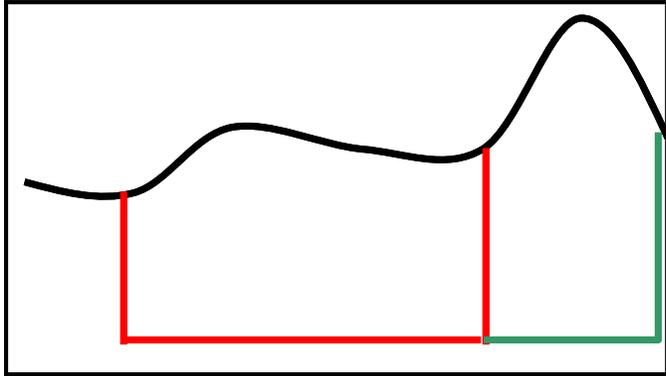
**Doesn't use
straight lines**



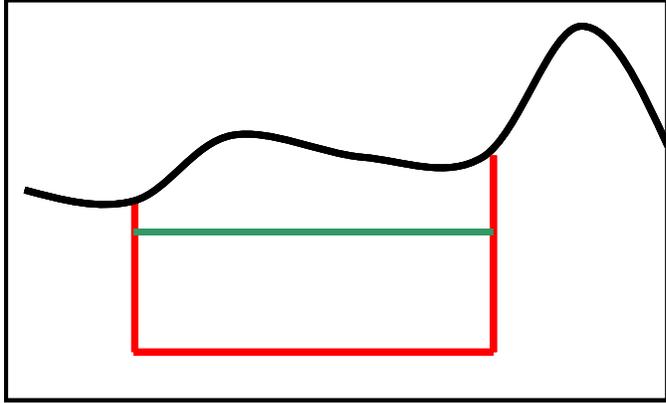
**Doesn't use
major landmarks**



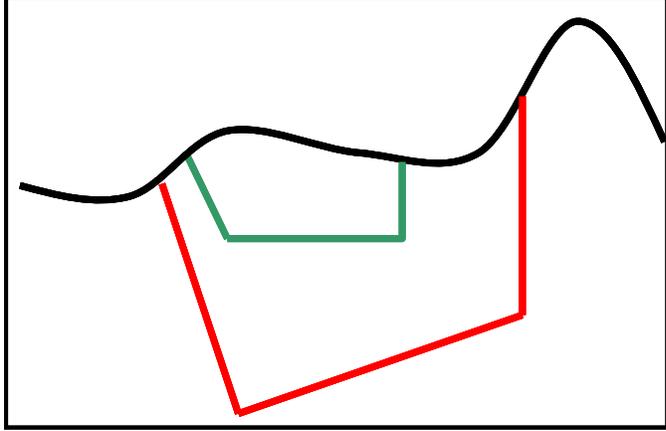
Best!



O.K.



Doughnut design



Doesn't use
straight lines

