

Designing a Marine Reserve in the Mediterranean

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Source: C. Roberts and J. Hawkins

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OVERVIEW

The Pelagos Sanctuary

The complexity, challenge, and promise of designing a marine protected area (MPA) are compellingly evident in the case of the Pelagos Sanctuary for Mediterranean Marine Mammals (Box 1; Notarbartolo di Sciara and Hyrenbach with Agardy, 2007).

Box 1. The Pelagos Sanctuary for Mediterranean Marine Animals

“The Pelagos Sanctuary for Mediterranean Marine Mammals is a large protected area covering more than 87,000 km² of sea surface in the north-western Mediterranean Sea, between south-eastern France, the Principality of Monaco, north-western Italy and northern Sardinia. The waters of the Sanctuary contain the internal maritime and territorial waters of France, Monaco and Italy, as well as the adjacent high seas.”

“The Pelagos Marine Sanctuary was established for three primary reasons: (1) the discovery of significant populations of fin whale (*Balaenoptera physalus*) and numerous other cetacean species in the Ligurian Sea; (2) the emergence of signs that significant threats to these cetaceans existed, based primarily on evidence of a striped dolphin (*Stenella coeruleoalba*) epizootic, or mass disease event, in 1989, and increasing numbers of strandings of marine mammals accidentally caught in the drift net fishery; and (3) no adequate legal framework existed to provide an adequate mechanism for the protection of marine wildlife in the Mediterranean high seas, where most of these cetaceans are found.”

[In the Mediterranean during the late 1980s] “... public recognition of threats to marine biodiversity grew. In part this awareness was spurred by strandings caused by cetacean accidental catch, otherwise known as by-catch, in the Italian pelagic drift net fishery for swordfish. (Pelagic drift net fisheries are those that take place offshore involving large hanging nets through which fish and other marine life try to swim but become entangled.) The national and international media highlighted these by-catch impacts, leading to United Nations Resolution 44/225 of Dec. 1989. This established a global moratorium on large-scale pelagic drift net fishing (Scovazzi, 1998). In addition to fishing, other major anthropogenic impacts on the marine environment began affecting cetaceans. Maritime traffic, including high-speed passenger vessels, pleasure craft, naval ships and expanding commercial whale watching activity were all increasing, with the risk of disturbance and collisions (Notarbartolo di Sciara et al., in prep). Growing ship traffic also carried with it the risk of hazardous substance release, such as occurred during the 1994 oil spill caused by the blaze of the tanker Haven off Genoa. These threats slowly entered

the public consciousness.”

“The drive to protect the area was led by a few environmental champions, who recognized both the threats and the opportunities to promote large-scale marine conservation. These champions include Prince Rainier III, who mobilized Monaco and led the neighboring states into multilateral agreements, top diplomats, legal scholars and the founder of Tethys, a highly regarded Italian Non-Governmental Organization (NGO).”

“In spite of the difficulties posed by the formidable task of granting protection to cetacean populations in such a large area, and within such a heavily exploited environment, the Pelagos Sanctuary has already resulted in a number of positive outcomes. These include: raising public awareness; taking what for the region is the rare but necessary step of creating and implementing a management plan; catalyzing voluntary measures by the three governments to minimize environmental impacts on the area; and providing a demonstration model for large scale, ecosystem-based management, high seas MPAs, the utility of regional seas agreements, the use of umbrella species to protect whole ecological communities, and the role of individuals in carrying forward a conservation vision.”

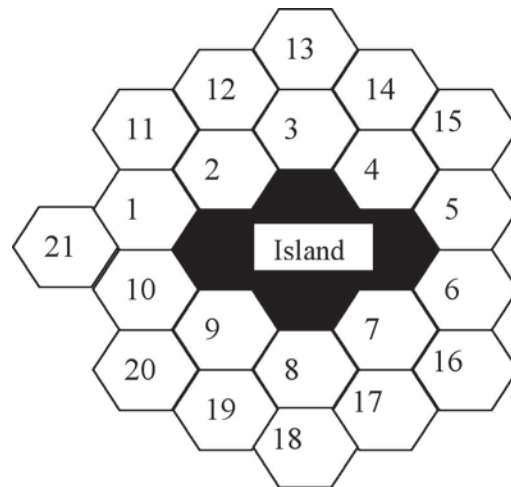
(Excerpted from the NCEP case study: *The Pelagos Sanctuary for Mediterranean Marine Mammals*).

THE EXERCISE

Although the Pelagos sanctuary does have a formal management plan, zoning measures are not included. Zoning is the spatial definition of activities permitted within areas of a reserve, and is a useful management tool worldwide. Zones can range from areas under strict protection to those where regulated human use is permitted. Notarbartolo di Sciara and Hyrenbach (2007) note that zoning could be helpful for management and conflict resolution at Pelagos as well, for example with respect to whale watching activities.

In this exercise, you have been invited to a meeting convened by interested parties to inform Mediterranean stakeholders about systematic reserve design and zoning. The meeting organizers hope that, by experiencing the simplified reserve planning process described below, participants will consider: 1) establishing a zoning plan at Pelagos; and 2) adopting a participatory process when designing other marine protected areas.

You will be part of a group that is designing a marine protected area and formulating a zoning plan. Your group will be composed of the major stakeholders in this case, and you will be undergoing a participatory reserve design process designed to fairly address concerns. The target site has been divided into 21 planning units surrounding a fictional island:



PROCEDURE

First, one or two students in your team will choose or be assigned a stakeholder category representing: 1) Biodiversity Conservation; 2) Fishing; or 3) Recreation and Tourism, so that all three categories are represented in each group by one or two students.

In the case of Pelagos, stakeholders interested in biodiversity conservation have focused on protecting fin whales and other cetaceans, as well as their ecosystems. These stakeholders may include NGOs such as Tethys, researchers, government representatives such as Prince Rainier III, or private citizens. However, there is also extensive commercial fishing in the Mediterranean, including long line and drift net fisheries, and these activities play an important role in the economy and in social welfare. As well, the Mediterranean is world famous for its beauty, and thus other stakeholders, such as entrepreneurs or governmental representatives, are interested in promoting the area for recreation and tourism.

Conservation Planning

Now consider that all of the data deemed necessary for the reserve design process have been input into a computer program which, based on clear and transparent criteria, has designated whether each site is a priority for each stakeholder group. If the site is a priority, “Y” was entered for yes, if not, “N” was entered for no (Table 1).

On three separate planning unit maps, students in each stakeholder category within each group are next asked to shade in the subset of sites that they consider priority areas for biodiversity protection, fishing, or recreational use according to Table 1. Thus, each student group will produce three separate maps, one per stakeholder category.

Compare and discuss your results with each other. What reserve design tools are available

for reconciling differing biological and socio-economic needs?

Table 1. Priority Sites for Reserve Planning

Site	Biodiversity	Fishing	Recreation
1	N	Y	Y
2	N	N	Y
3	Y	N	Y
4	Y	N	N
5	N	Y	N
6	N	N	Y
7	N	Y	N
8	Y	N	Y
9	N	Y	N
10	Y	Y	Y
11	N	Y	N
12	Y	N	N
13	Y	Y	Y
14	Y	N	Y
15	N	Y	N
16	Y	N	Y
17	Y	Y	N
18	Y	N	N
19	N	N	Y
20	Y	Y	Y
21	N	Y	N

Zoning

The group agrees to designate three kinds of zones stipulating permitted activities at each site: 1) no-access/no-take (NN); 2) access/take (T); and 3) access/no-take (AN).

Which category of stakeholder would benefit primarily from each zone? It is important to note that these are overly simplified categories for the purposes of the exercise, and that in the real world multiple objectives can be reached within one zone.

Consensus Building

On an unmarked map, produce a preliminary zoning plan for each site in the park.

Start with the sites that are only important for one group. Tally up the number of sites for each kind of zone.

Next work on the sites that are priorities for two groups.

Propose a few strategies for accommodating both stakeholders. In the case of biodiversity, consider that there is a preference for adjacent sites because species with large home ranges, such as cetaceans, are present. Due to the characteristics of this area, it is important to include sites that are arranged in a row of three.

Now work with the sites that are priorities for all groups and devise strategies for a compromise.

DISCUSSION

It is essential to note that for the purposes of this exercise, issues have been simplified. In the “real world”, creation of protected areas is a highly complex process. To explore this further, consider the following questions:

A. Consider the implications if:

- There had been more stakeholders with diverging interests.
- There had been fewer stakeholders because not all of the interested parties participated in the planning process.
- The preferences of particular stakeholder groups were valued more highly than others by the decision makers.
- The results of the computer program differed depending on stakeholder criteria.

Is a participatory MPA design process typical or an exception? Would you recommend this kind of process?

B. Consider enforcement and funding issues. Now that you have a good zoning plan, devise strategies to avoid this becoming a “paper park”, or park in name only.

C. Now think about this case in a larger socio-economic context. How might decisions and recommendations vary depending on how the area surrounding the park is used? For example, what if the waters around all of the nearby islands were open to fishing and recreation, with no provision for biodiversity conservation? What if they were closed off to fishing because of conservation priorities?

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LITERATURE CITED

- Notarbartolo di Sciarra, G., and D. Hyrenbach, with T. Agardy. 2007. The Pelagos Sanctuary for Mediterranean Marine Mammals. Available from <http://ncep.amnh.org>
- Notarbartolo di Sciarra, G., T. Scovazzi. In preparation. The Pelagos Sanctuary for Mediterranean Marine Mammals.
- Scovazzi, T. 1998. The enforcement in the Mediterranean of United Nations resolutions on large-scale driftnet fishing. Pages 365-385 in J.A. Frowein and R. Wolfrum, editors, Max Planck Yearbook of United Nations Law, Vol. 2. Max-Planck-Institut für ausländisches öffentliches Recht und Völkerrecht.

