Americas: Chile

Marine Conservation in Chile: private actions can speed up the process

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Abstract

A diversity of legal tools allows the protection of the ocean and coastal zones in Chile. Marine Parks, Marine Coastal Protected Areas, Natural Sanctuaries, Marine Reserves, and National Monuments can protect single species or marine biodiversity in coastal zones and in the open ocean. Although in most cases the administration of these protection mechanisms is in the hands of national agencies, private organizations can become involved in conservation actions. This potential has not yet been explored as a nationwide strategy that can have multiple benefits minimizing the conservation costs for the government. Furthermore, private actions can often help establish marine protection quicker than national agencies, which is a major advantage in regions where the rapid expansion of exclusive use areas (i.e., aquaculture and exploitation) may prevent the establishment of conservation areas in the future. This case study identifies the past, present, and potential future role of private marine conservation efforts in Chile emphasizing recent collaborations with fishermen to implement private marine protected areas.

Project Overview

Protection and Agreement Mechanisms

A diversity of legal tools allows the protection of the ocean and coastal zones in Chile. Marine Parks, Marine Coastal Protected Areas (MCPAs), Natural Sanctuaries, Marine Reserves, and National Monuments can protect single species or marine biodiversity in coastal zones and in the open ocean. This diversity of legal tools can be implemented and administered by an equally large number of national agencies, which imposes serious constraints to the design of a common conservation approach. For instance, the Fisheries Administration, the Comisión Nacional de Medio Ambiente (CONAMA), and the Navy Undersecretary each have independently selected priority sites and in some cases implemented protected areas. However, these agencies have sponsored protected areas at very slow pace. The Fisheries Administration can declare Marine Parks (the best mechanism to fully protect marine biodiversity) and Marine Reserves. Marine Protected Coastal Areas (MPCAs) can be declared by the Navy Undersecretary. CONAMA, however, can only collaborate with these agencies because it lacks independent authority to create marine protected areas on its own.

The situation is even more complex if we consider that Marine Concessions and Natural Sanctuaries. In contrast with the legal mechanisms described above, Marine Concessions and Natural Sanctuaries can be sponsored and administered by private organizations. In fact, these two mechanisms have been used in the past by private organizations, such as private mining companies and universities (e.g., Las Cruces, Mehuin, Montemar, and Escondida). Two Marine Concessions assigned to Chilean universities were established in the early ´80s, providing crucial scientific information about the effect of humans on coastal marine ecosystems. Moreover, the evidence on the rate of recovery of exploited species prompted the establishment of a novel management instrument, called Management and Exploitation Areas (MEA).

The MEAs are implemented through Marine Concessions. MEAs are partially protected areas, administered by local fishers who pay the running costs of the MEA, including enforcement, but benefit from the exclusive use rights of the resources in these areas. The success of this management strategy is reflected in more than 500 exclusive-use MEAs that were established in the last 15 years, interspersed with devastated free-access fishing grounds. Preliminary results show that the abundance of highly valued species such as loco (*Concholepas concholepas*), limpets (*Fissurella spp.),* crabs, sea urchins (*Loxechinus albus*), and macroalgae is higher in MEAs than in open fishing grounds (Gelcich, Fernández

& Castilla, in prep). Moreover, MEAs often also exhibit higher biodiversity than open-access neighboring coastal areas. These preliminary exciting and unexpected results highlight the potential (but unexplored) stewardship value that MEAs may have for coastal ecosystems and offers the potential to integrate two traditionally antagonistic activities, exploitation and conservation, in preserving ecosystem services. Furthermore, MEAs offer the potential to combine public and private approaches to marine conservation in a national network of fully and partially protected areas.

The processes to obtain a Marine Concession, a Natural Sanctuary, or a Management and Exploitation Area are different because the applications are submitted to different agencies. However, the processes always involve consultation with several local and national agencies. In all cases, the application needs to consider a clear enforcement plan as well as biological information supporting the importance of the site to be protected. There are no costs associated with these mechanisms, except for the cost related to the application itself (biological surveys, meetings, etc).

Context

In 1982, the Pontificia Universidad Católica obtained a Marine Concession for scientific purposes in Las Cruces. The goal was to study human impacts on marine ecosystems. Similar approaches were followed by other Chilean universities (Universidad Austral in Mehuin, Universidad de Valparaíso in Montemar, Universidad Católica de la Santisima Concepción in Lenga, and Universidad Católica del Norte in Herradura) and private companies (Minera Escondida in northern Chile and Endesa in Huinay, southern Chile). In the case of Las Cruces, full protection occurred since the scientific studies required human exclusion. Given the long lasting status of this Marine Concession as a no-take area, the new status of Marine Protected Coastal Area was added in 2005. Las Cruces is now part of the national system of marine protected areas of Chile.

In the last few years, and based on the experience of Las Cruces, we decided to explore the possibility of establishing marine protected areas (MPAs) in central Chile through private initiatives, sponsored by local or national authorities. Our priority on central Chile is related not only to the fact that our biological databases are centered there, but also to the urgent need to protect coastal zones in the most populated region of Chile. Our role in all cases is to provide scientific advice, help preparing the documents to apply for the protected area, and advocate for approval.

With the goal of establishing protected areas, we established contact with two local fisher organizations after receiving information of their interest to protect a fraction of the coast. In one case, we intend to establish a Natural Sanctuary in Navidad, sponsored by the local government (Municipalidad) and local fishers (Sindicato La Boca). Navidad is one of the top ten poorest counties of Chile. We have been working for almost two years to develop the biological information necessary to apply for a Natural Sanctuary. All local agencies involved in the evaluation process are willing to approve the proposal to establish a marine protected area in this zone. This area contains a kelp forest, a typical habitat in this region, but also an important local resource. In the second case, we intend to establish (1) a no-take zone in Isla Juan Fernández, and (2) an exclusive fishing-right area around the no-take zone. Juan Fernández Island is one the regions with highest levels of endemism in the world. We are starting to prepare the application in association with the fishers union and sponsored by CONAMA.

Process & Issues

The best legal tool for private entities to implement protected areas should be determined on a case-by-case basis, depending on the specific entities and facts involved. By law, the Navy is responsible of the preservation of marine ecosystems and the Fisheries Administration is responsible for the preservation of exploited resources. The CONAMA had played, however, a vital role in the implementation of the existing Marine Protected Coastal Areas sponsored by the national government in Chile. The private approaches to marine conservation in Chile, existing or in progress, were based on opportunism. As of now, it seems

that Natural Sanctuaries and MPCAs are the only viable marine protection mechanisms as the Fisheries Administration has been more reluctant to work on joint ventures.

Natural Sanctuaries are approved by the National Council of Natural Monuments, which confers all enforcement and administration responsibilities to the organization (or groups of organizations) that proposed the creation of the protected area. Natural Sanctuaries are usually small. There are 12 Natural Sanctuaries that protect coastal (intertidal) zones, the first one to include subtidal zones is the one proposed in Navidad. In most cases Natural Sanctuaries were established to protect specific flag species (marine vertebrates). However, the proposed Natural Sanctuary of Navidad promotes the protection of biodiversity associated with kelp forests. All existing Natural Sanctuaries were created upon the request of private organizations or local governments (municipalities). The Consejo Nacional de Monumentos Naturales officially protects the area and regulates the activities in the area assuring that the local organizations that administer the area are meeting the goals stated in the proposal. In the case of Navidad, the proposal brings together the local government and fishers, who are responsible for the enforcement and administration of the area, and are committed to report regularly the progresses made to the National Council of Natural Monuments. The collaboration between private initiatives and local governments is interesting as it can help to implement the enforcement plan.

The size of MPCAs can range from very small (Eastern Island, Las Cruces, and Huinay) to extremely large (> 30 km of coastline). Four MPCAs have been created by the Navy, in most cases driven by a proposal submitted by CONAMA, and sponsored by other national agencies dealing with coastal zones. It is important to note, however, that only one of the four existing MPCAs includes a no-take zone. The rest of the MPCAs are still open to all kinds of activities, including fisheries and aquaculture. As of now, two MPCAs were established by private organizations (Las Cruces and Huinay). In the case of Huinay, only intertidal zones are protected. In Las Cruces, 10 ha have been protected in the intertidal and subtidal zone, which includes in a no-take area and a buffer area. MPCAs are administered by the agency or organization that requested the protection of the area, which is responsible to produce reports on the area (biodiversity and education) to the national government. The cost of producing such reports, and the information supporting them, is paid by the private entities involved. It is important to note that both legal mechanisms, MPCAs and Natural Sanctuaries, may be overlapped with a Marine Concession. Also, the tenure can be renewed over time, if the goals have been reached. This is the case of the MPCA of Las Cruces.

There is a clear difference between the preservation goal of existing Natural Sanctuaries and MPCAs. While the first mostly target single species, the latter were established with the goal of protecting local marine biodiversity. There are also clear differences in the spatial scale of these areas. Natural Sanctuaries usually protect small areas while MPCAs can protect areas that are very small or quite large. However, the specific threats affecting them (aquaculture and exploitation of marine resources) are common and the main persistent threats along the entire coast. In the case of Navidad, a region that heavily depends on the exploitation of macroalgae, protection of natural kelp forests is seen as a priority given the increasing fishing effort driven by aquaculture of abalone. In the case of Juan Fernández, the major threat to local endemic species is the increased fishing efforts of industrial fleets which are moving toward the island after depleting other regions. Local fishers are very concerned since fishing effort of artisanal fisheries in Juan Fernández Island has proved to be sustainable.

In order to implement any legal tool to protect marine ecosystems in Chile a proposal is needed. The proposal needs to compile biological information emphasizing the main reasons to establish a marine protected area. Biological information can be based on the compilation of existing literature, local surveys, or both. This biological information is critical to convince the different agencies to support the project based on the habitats, hot spots of biodiversity, presence of flag species, or unique ecosystem processes. To receive official support, the project needs to be approved not only by the agency that deals with each specific conservation tool, but also by other agencies (e.g., Local Coastal Committee, the Fisheries Administration, and CONAMA, among others).

Another existing mechanism, which has not yet been used but which has the potential to protect marine biodiversity, is the Management and Exploitation Area (MEA). Although MEAs are established to develop

exploitation plans, recent studies showed that if properly administered, MEAs can help achieve marine biodiversity conservation goals as species abundance and size were comparable to no-take zones. If the proper incentives are created, MEAs can contribute to the national network of marine protected areas assuring connectivity among areas. Currently, the minimum distance between MPCAs is 411 km while between MEAs is less than 5 km (Gonzalez et al. submitted). The maximum average potential for dispersal of planktonic species is 240 km, suggesting the need to increase connectivity among marine populations. The novelty will be the involvement of local fishers in a project that combines conservation and exploitation goals.

Scientists sponsored by a PEW Fellowship have:

(1) Provided the scientific support for the private approaches to marine conservation that are in-progress (Navidad and Juan Fernández);
(2) Helped to refine conservation ideas behind each initiative;
(3) Organized meetings involving the actors participating in developing the conservation proposals;
(4) Conducted lobbying with local and national agencies;
(5) Collaborated in the search for national or international financial support; and
(6) Developed conservation courses directed to local communities.

It is important to keep in mind that specific activities need to be developed on a case-by-case basis. For instance, the proposal can be entirely developed by local communities or organizations which may have the capacity to develop scientific research, outreach activities and the necessary lobbying, or may involve more entities if some of these capacities are not present locally. The costs of developing biological and oceanographic information, and outreach activities are major detractors of private initiatives.

There is no doubt, however, that the major challenge is the implementation of an enforcement plan because of the cost and the legal mechanisms needed. Although local organizations can develop plans to prevent poaching and can have the personnel to constantly monitor the area, only the Navy can undertake the actual enforcement. This is a major and costly problem especially in isolated areas.

Socioeconomic Considerations

Since the long term persistence of a protected area depends on its success, the development of the preconditions for success, namely participation, education, and economic benefits, is crucial. We think that local communities need to be involved from the first stage, engaging them in the project to assure the success of the protected area. For this reason we continue to assess the value that local communities (permanent residents and tourists) ascribe to coastal ecosystems, natural resources, and to MPAs. We have also developed outreach activities related to these values. In Navidad we developed courses for school children and talks for the general public and local authorities. We have not yet developed specific outreach activities for Juan Fernandez, where the community is aware and very proud of their unique natural resources.

The two communities we are working with are poor and heavily dependent on tourism and exploitation of natural marine resources. Therefore, direct benefits from the marine protected areas can help support the area and assure its success. In Juan Fernández Island it is possible to develop activities compatible with the protected areas (diving and an outreach center) that can bring benefits to the local community. Unfortunately, the highly exposed coast of Navidad prevents diving excursions. For this reason we belive it is critical to develop a small outreach center which can be administered by the local actors involved. We consider outreach activities to be critical at all stages -- before, during and after the protected area has been established. However, the maintenance of a novel and long term outreach program is critical for the long term success of the area. Funding to support these private approaches to marine conservation in Chile is a major constraint.

Conclusions

We think that private initiatives can bring fresh air and dynamism to marine conservation initiatives in Chile. The existing legal tools allow the involvement of private organizations in the process, but we think that this possibility may become more restrictive in the future unless economic and conservation benefits can be achieved simultaneously. Private initiatives can speed up the establishment of protected areas, pacing conservation actions with the increasing threats on marine ecosystems. Local authorities and CONAMA seem to be more willing to engage in this type of joint venture. Therefore, the projects need to be conducted at small, local scales (few kilometers of coastline). Nevertheless, several small and coordinated local initiatives can have significant impact at regional scales. However, coordination may not occur because it depends on the existence of local actors in relevant areas for marine conservation, their capacity to administer the area, and their long-term goals.

We are currently working on two initiatives to establish a Natural Sanctuary and a Marine Coastal Protected Area and hope to extend this project to other areas. For instance, Los Molles, is a unique area in terms of marine biodiversity, oceanographic features, and biological processes. The Local Coastal Committee may be willing to sponsor this project after officially receiving the proposal, and we are looking for partners to join this project.

This process of combining private and public sectors in partially and fully marine protected areas has not yet been explored as a nationwide strategy that can have multiple benefits, including minimizing the conservation costs for the government. The main challenges ahead are how to link these individual actions to a nationwide strategy, how to optimize the cost and benefits of such a network, and how to assure long-term success of the areas. The major constraints for the success of private conservation programs will be funding to support enforcement and outreach activities.