

## California's Coastal Reserves

### Marine management decisions supported by local fisheries knowledge

By Daniel Etra  
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(PORTLAND, OREGON) “In an ecosystem-based approach to fisheries management, you have to consider people as part of the ecosystem,” says Ecotrust Senior GIS Analyst Charles Steinback. Steinback is leading an innovative project that is gathering local knowledge from fishermen to help in the designation of Marine Protected Areas (MPAs) along the California Coast.

Passed by the California Legislature in 1999, the Marine Life Protection Act Initiative (MLPA) directed the state to design and manage a network of Marine Protected Areas throughout the 1100 miles of coastal waters with the broad goal of protecting the natural diversity and abundance of marine life, and the structure, function, and integrity of marine ecosystems. By restricting the types of activities permitted in specific geographic areas, MPAs are one of several tools used worldwide to protect and manage ocean ecosystems. In California, the process of designating these areas will be carried out in five different phases – each for a specific geographic region – and is scheduled to be completed by 2011.

In May of 2005, Ecotrust was retained by MLPA staff to provide spatially explicit information and analyses about numerous coastal fisheries. It became apparent early on, however, that accurate data to create these analyses did not yet exist.

To find the information it needed, Ecotrust turned to those who know it best: the fishermen who are out on the water every day. This approach better enabled decision-makers to understand how fisheries closures might help to protect marine habitat – as well as how the economic and social systems that depend on these fisheries might be affected by the closures.

“Our role in this project is to develop a tool that allows everyone to have equal access to the information they need to make the best decisions about marine management,” says Steinback, a native of Astoria, Oregon.



Decisions about the location and type of MPAs ultimately rest with the State Fish and Game Commission. Even though the language of the MLPA does not require consideration of the impacts of protected area designations on port communities, these human and economic considerations are at the forefront of many people's minds, especially those who earn their livelihood from the sea.

Unlike some fisheries that utilize onboard computer systems to automatically collect data about fishing activity, the California Department of Fish and Game still tracks data through landing receipts: handwritten dockside reports filed by the fishermen. In 2005, though, Ecotrust's work with

ECOTRUST KNOWLEDGE SYSTEMS

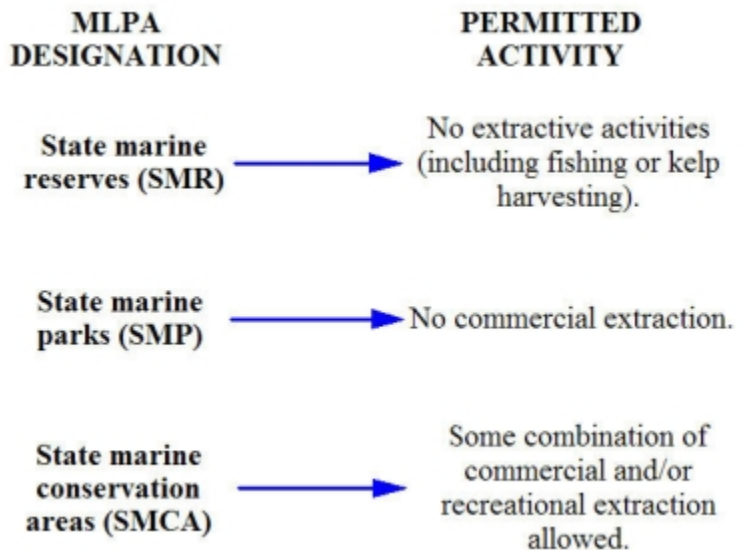
California’s National Marine Sanctuaries examined those records and showed them to be unreliable.

To construct an accurate map of fishing effort for each fishery, Ecotrust refined a process that it has utilized since its 2001 work on groundfish fleet restructuring along the Pacific Coast. Researchers visited fishermen in their port communities to collect data through structured interviews.

Hauling along laptops loaded with Ocean Map, a software program developed by Environmental Defense, the research team asked fishermen to draw shapes representing their fishing grounds and then to allocate a fixed number of imaginary pennies across their grounds, based on their importance. Three months and over one-hundred interviews later, Ecotrust had a fairly comprehensive set of data – of both where fishing grounds are located as well as the relative economic importance of those grounds to fishing communities.

This methodology has received many accolades from the research community. Dr. James Wilen, Professor of Agriculture and Resource Economics at the University of California Davis, is the principle author of a paper discussing the Ecotrust methodology. “[Ecotrust’s work] is an innovative and vital contribution to the understanding of fisheries and to the engagement of fishermen in participatory research,” reads the paper. “Without such information, obtained through sensitive participatory methodologies, MPAs and the spatial management of marine resource will be contentious and difficult to enforce.”

With the process completed at the end of 2006, the State Fish and Game Commission announced the first set of twenty-nine MPAs for the Central Coast Region, from Pigeon Point in San Mateo County to Point Conception in Santa Barbara County (link to map). The MPAs cover over 200 square miles, or approximately 18 percent of the region, and include 85 square miles that are designated as state marine reserves, in which no extractive activities at all are allowed.



Now, as the MLPA initiative shifts its attention to the second region to be evaluated – the North Central Coast from Alder Creek in Mendocino County to Pigeon Point in San Mateo County – the state has again hired Ecotrust to conduct local knowledge interviews in the region’s four major ports.

“We’ve got a lot of ideas for how to refine this process for the next phase in the North Coast Region,” says Charles Steinback. Ecotrust will be developing a system to allow fishermen to review their data after the initial interview, using a web-based platform. This functionality is part of Ecotrust’s OCEAN toolkit, a suite of spatial analysis tools for marine management.



The toolkit will include Open Ocean Map, an open-source version of Ocean Map, which will be customizable and available for researchers from around the world to download and utilize.

California's new protected areas are the first along the West Coast and represent the latest in a long series of state and federal regulations that have sought to stem fisheries declines. In addition to spatially based regulations like MPAs, other regulations specify gear types, maximum catches, and fishing seasons. Regulations based on dedicated access privileges are also being adopted in select fisheries. This patchwork quilt of regulations leaves some in the industry dissatisfied.

As it turns out, the methods used by Ecotrust may have some additional benefits over the "black box" represented by an onboard monitoring system. Primarily, it gives fishermen increased ownership of the data and increased involvement in the whole process.

Working to build collaborative opportunities for resource management is a key feature of Ecotrust's work, and also one of the things that keeps Charles striving for better ways to engage fishing communities in these decision-making processes.

"We're just trying to get the best data and the best tools to the people who need it," concludes Steinback. "By finding new ways to give the fishing community a seat at the table and building trust between all these stakeholder groups, we're also building more resilient and effective processes for marine habitat conservation in California and beyond."