



Photography of Kelp Forest by Photographer *Jon Kris* on Flickr.

## Pollution from our cities makes its way to the ocean

The coastal waters between Cambria and Point Conception boast a stunning diverse marine ecosystem. This ocean region is home to kelp forests, gray whale migration routes, and one of the most sustainable fisheries in the country. Yet, major threats leave this delicate ecosystem hanging in the balance, including the threats posed by land and ocean-based pollution. That is why Sierra Club is working with local partners to permanently protect this area and promote management practices based on the best available science to preserve our unique marine environment.

More than 80% of ocean pollution comes from land-based sources such as abandoned mines, failing septic systems, agricultural sources, urban runoff, fertilizers, and animal waste. This pollution continues to be a huge threat to the central coast marine ecosystems, causing fish die-offs and interrupted reproduction. [1] Not only does pollution threaten our fish, but San Luis Obispo's vibrant fishing industry as well. A 2006 Environmental Protection Agency study found that two of the three commercial shellfish lease areas in Morro Bay were partially closed because of elevated bacteria levels, and all harvesting areas are closed following storm events. [2]

A national marine sanctuary designation would mean a ban on polluted discharge off the coast of San Luis Obispo. Throughout the country, national marine sanctuaries have been working with communities to prevent ocean pollution and mitigate its impacts through efforts such as water quality monitoring, public education, and partnering with farmers and ranchers to curtail the flow of pollutants into our oceans.

## Fish farms bring new threats to wild fish

California fisheries may soon be contending with open ocean aquaculture operations off our coast. These operations bring a myriad of problems, including polluting the marine environment and spreading diseases and parasites to wild fish populations. The farms also pose a threat of releasing invasive species into the wild with unknown consequences. Moreover, studies have shown that farmed fish are less nutritious than wild-caught fish and can deplete the fish stocks on which they rely for feed. [3]

Before moving forward with aquaculture projects, we must know more about the risks posed to local fisheries. Local stakeholders should have the opportunity to weigh in on proposals to ensure that aquaculture projects create permanent jobs, are sustainable, and complement the existing wild fish catch.

A national marine sanctuary along the central coast would create a Sanctuary Advisory Council to bring together local stakeholders. This council would be comprised of government experts, local commercial and recreational user groups, including fishing industry representatives, conservation and public interest organizations, scientific and educational organizations, and members of the general public. Together, these stakeholders would advise the sanctuary manager on the management and protection of the sanctuary, and help the National Marine Sanctuary Program guide a proposed site through the designation process.



Photography on left of open ocean aquaculture by *Astacus* on Flickr. Photo on right of danger sign by Photographer *Brian Auer* on Flickr.

## Planning for healthy oceans and healthy fish

The central coast is home to one of the most sustainable fisheries in the country. However, the responsibility for maintaining a healthy ocean, where fish and the fishing industry prosper, is up to all of us who live, work, or recreate along the central coast.

Protecting California’s fisheries is about more than just protecting the fish themselves. It is also about protecting fish habitats, food chains, and ecosystem interactions. Our national marine sanctuaries use ecosystem-based management, which is a comprehensive management approach that takes into account the interaction of multiple factors that can impact the overall health of marine ecosystems. Specific factors cited by the Office of National Marine Sanctuaries are: “pollution, coastal development, harvest pressure, predator/prey, and other ecological interactions, as well as nearby watershed management.” [4]

San Luis Obispo’s waters would benefit from an ecosystem-based management approach like that employed by the national marine sanctuaries. We can

replicate past successes by implementing a regime that is adaptable, collaborative, voluntary, regionally directed, and inclusive of a variety of external influences. [5]

Healthy fish can only survive in a healthy ocean – and we are all responsible for protecting this treasure for future generations. To help create good stewards for estuaries and oceans, local sanctuaries regularly sponsor educational material for schools, outdoor recreation programs, and a “Fishermen in the Classroom” program. According to studies conducted along the central coast, early-life outdoor experiences have been identified as the most important factor in developing an environmental ethic. [6]

Through these programs, and with help from a new national marine sanctuary, we can protect our healthy, vibrant, and productive marine environment now and for generations to come.

For more information about the threats of offshore oil, and our campaign to create a central coast sanctuary, visit <http://sierraclubcalifornia.org/campaigns/resilient-habitats/the-campaign/central-coast-nms/>

[1] B. Austin. “The effects of pollution on fish health.” *Journal of Applied Microbiology*: Volume 85, Issue S1, pages 234S–242S, December 1998. <<http://onlinelibrary.wiley.com/doi/10.1111/j.1365-2672.1998.tb05303.x/abstract>>.

[2] United States Environmental Protection Agency. “Chapter 6: West Coast National Estuary Program Coastal Condition, Morro Bay National Estuary Program.” June 2007: National Estuary Program Coastal Condition Report.

[http://water.epa.gov/type/oceb/nep/upload/2007\\_05\\_09\\_oceans\\_nepccr\\_pdf\\_nepccr\\_nepccr\\_west\\_partf.pdf](http://water.epa.gov/type/oceb/nep/upload/2007_05_09_oceans_nepccr_pdf_nepccr_nepccr_west_partf.pdf)

[3] Pietro Parravano. “Job Creation for America’s Fisheries: An Open Letter to President Obama.” *Pacific Coast Federation of Fishermen’s Associations: Fishermen’s News*, November 2011. <http://www.pcffa.org/fn-nov11.htm>.

[4] Office of National Office of Marine Sanctuaries, National Oceanic and Atmospheric Administration. “Resources: Fisheries Glossary.” Last updated June 11, 2012. <<http://sanctuaries.noaa.gov/education/voicesofthebay/glossary.html#ebm>>.

[5] NOAA “What is Ecosystem-Based Management?” Revised May 31, 2007.

<[http://celebrating200years.noaa.gov/magazine/chesapeake\\_fish\\_mgmt/side1.html](http://celebrating200years.noaa.gov/magazine/chesapeake_fish_mgmt/side1.html)>.

[6] Dan Haifley, O’Neill Sea Odyssey. “Long Term Study Presentation.” May 31, 2011: Headwaters to Ocean Conference, San Diego, California.