

Bycatch Reduction

Bycatch in coastal gillnets is a major cause of sea turtle death. The halibut gillnet fisheries of BCS are a leading source of loggerhead sea turtle mortality. Thus the future of the north Pacific loggerhead population is partly in the hands of Mexican halibut fishers.



Sea turtle caught in gillnet.

In 2004, ProCAGUAMA supported by the WPRFMC, instituted a fishery mitigation and research project to find solutions to reduce the incidental capture of sea turtles in this halibut fishery. The objectives are:



Fishers deploying experimental gillnet in hopes of finding realistic solutions to the bycatch problem.

- To actively involve fishermen of Puerto Magdalena and Puerto Adolfo López Mateos in sea turtle protection activities.
- To characterize the dynamics of the gillnet fishery to better understand how solutions can be implemented.
- To find cost-effective solutions to reduce sea turtle mortality by halibut gillnets while maintaining the performance of the fishery and the livelihoods of fishermen. Efforts are achieved through community workshops, networking, training and education, experimental testing of modified gear, and a voluntary observer program.
- To implement a community-based social science study to assess the project's effectiveness, to monitor fisher attitudes and practices, and to better understand community perceptions. Data from this study are being used to refine and implement the project's strategic, culturally appropriate communication and education campaigns to reduce sea turtle bycatch and exploitation in the region.



Fishers of Puerto Magdalena and Lopez Mateos committed to finding solutions to gillnet fishery bycatch.



Success to Date — June 2005

The novelty and strength of this project has yielded a conservation constituency among *costeños* (fishers) characterized by local pride, empowerment, and stewardship. Two years into this five-year initiative, preliminary results indicate decreased sea turtle bycatch, poaching, changes in local attitude and an emerging "sea ethic."

- Law enforcement agents (from PROFEPA and SAGARPA), and local councils are pursuing sea turtle violations that in the past were ignored.
- Increasing numbers of fishermen are self-enforcing sea turtle protection amongst themselves and between and within their cooperatives.
- Fishermen, students and their families are celebrating sea turtles through festivals, artwork and music.

All of these efforts translate into sea turtles spared and steps toward population recovery. Finally, there are indications that this emerging "sea ethic," borne by people's increasing interest in sea turtle conservation, is leading them to manage other fisheries, such as lobster and abalone, more sustainably, an unexpected but welcomed result.



THE WESTERN PACIFIC REGIONAL FISHERY MANAGEMENT COUNCIL is one of eight Councils in the United States established by the Magnuson Fishery Conservation and Management Act of 1976. The Council oversees the nation's fisheries in the 200 mile U.S. Exclusive Economic Zone of the Pacific Islands (an area as large as the continental U.S.). The Council is the funding agency of the Bycatch Reduction component of ProCAGUAMA and a co-sponsor of the Educational Outreach, Community Networks and Pride Campaigns.

PRO PENINSULA and GRUPO TORTUGUERO are dedicated to environmental preservation in Baja California Sur, Mexico. Together they manage the ProCAGUAMA project, build and maintain community networks, promote outreach and education for the conservation of sea turtle and marine resources, and organize biannual network meetings. Their mission is to empower local communities and organizations on the Baja California peninsula to protect and preserve their environment. For more information, visit www.grupotortuguero.org.



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An Integrated Approach

to Reducing Mortality of North Pacific Loggerhead Sea Turtles in Baja, California Sur, Mexico





Juvenile loggerhead sea turtle.

North Pacific Loggerhead Sea Turtles

Six species of sea turtle occur in the Pacific Ocean; all are endangered or threatened, including the loggerhead sea turtle (*Caretta caretta*).

Fewer than 1,000 loggerhead sea turtles nest each year in the north Pacific, representing a rapid decline in recent decades.

North Pacific loggerheads nest exclusively in Japan, but juveniles undertake long migrations that last more than three decades and span the entire Pacific Basin. A large proportion of these turtles gather along the coast of the Baja California Sur (BCS), Mexico peninsula to feed in its legendarily rich waters.

Unfortunately, the richness that attracts turtles to the peninsula also draws heavy fishing pressure, resulting in severe bycatch mortality. Additional threats include predation, deliberate capture for human consumption, boat traffic, and ingestion of toxins and marine debris.

The Western Pacific Regional Fishery Management Council (WPRFMC) recognizes that a collaborative management approach that considers a turtle's entire life history is essential for the recovery of depleted sea turtle populations. Therefore the WPRFMC with partners – ProPeninsula, Grupo Tortuguero and NOAA Fisheries – have implemented the ProCAGUAMA project to conserve loggerhead sea turtles at their critical foraging habitats in the northeast Pacific.



Study area and focus of the gill net fishery mitigation project in Bahia Magdalena, BCS.



The Turtle Festival engages, informs, and empowers the people of the region by celebrating the unusual abundance of loggerhead sea turtles in local waters.



Lopez Mateos fishery workshop participants, April 2004. Community workshops are organized to exchange information and develop solutions to help conserve sea turtles.



ProCAGUAMA Project Components

Community Networks

We build local conservation capacity by partnering directly with fishermen, by engaging local women's groups, and by offering internships for local students. These conservation leaders are empowered and connected through workshops, regional meetings, and international conferences.

By interacting with colleagues from other towns, regions, and countries, these leaders' perspectives are broadened so that they appreciate the global impact of local bycatch and learn of ways to avoid it. This conservation network serves as a new social fabric that fosters and facilitates a culture of marine conservation.

Educational Outreach

Our diverse team designs and continually refines a suite of outreach initiatives to convey our core message of empowerment: specifically that Baja California fishermen and families hold the fate of the north Pacific loggerhead sea turtle in their hands.

Informative workshops for fishermen and curriculum enrichment for schoolchildren convey the facts about bycatch. To supplement these experiences across whole communities, we offer a range of locally resonant media including comic books, children's books, neighborhood murals, informative brochures, and local radio programming.

Public events such as regional turtle festivals, holiday parades, sports competitions, and puppet shows are offered to celebrate sea turtles as natural treasures to be cherished and protected.

Conservation Research

Local fishermen, community members and conservation biologists are collecting information through scientific research to help develop practical bycatch solutions.

Fishermen are learning firsthand the conservation process and the status of loggerhead sea turtles while helping to generate new knowledge that is credible both locally and scientifically.

Current projects include:

- Satellite telemetry to understand sea turtle habitat use and dive patterns.
- Research on sea turtle diet, feeding behavior, and growth rates to model population dynamics.
- Monitoring sea turtle mortality through systematic shoreline surveys and collecting information through semi-structured interviews.
- Experiments to modify fishing strategy or gillnet design to reduce bycatch.



Migratory route of "Adelita" the first loggerhead sea turtle documented to migrate from Baja to Japan (1997).



Community members releasing a satellite transmitted loggerhead turtle to collect migratory information.



Loggerhead sea turtles are ocean ambassadors, connecting people of Baja and Japan in conservation.

As a result of ProCAGUAMA, citizens throughout Baja California are combating sea turtle poaching and are working to reduce sea turtle mortality in their fisheries.