

## MESM 2010 Group Project Proposal

### Enhancing Business Operations and Scientific Capacity of Loreto Baykeeper in Baja California Sur, Mexico

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**Problem Statement**

Loreto is a small town in Baja California Sur with population of less than 5,000, located along the Sea of Cortez. It has amazing landscapes and diverse flora and fauna that attract thousands of visitors every year. The local economy has evolved from one based on artisanal fisheries to a society heavily dependent on the tourism industry. However, ill-planned coastal development projects are increasingly impacting the area's water resources.

Loreto has very limited water treatment capacity, thus most of the sewage is untreated and discharged into Loreto bay. Within the next 2 to 3 years the number of people in the area is expected to grow 10-fold due to increasing tourism investments and infrastructure occurring. This will exacerbate existing sewage treatment and disposal problems as well as other observed adverse impacts occurring from development activities. The Loreto watershed has been part of a National Marine park since 2000 providing refuge to an abundance of marine wildlife in the Sea of Cortez, including the largest and most varied population of whales in the world. The unique ecosystem attracts tourists from all around the world, leading in part to the current expansion in development projects along the coast and in turn threatening these natural systems.

Currently, the Loreto Baykeeper, established in 2008, is understaffed and works in collaboration with Loreto National Park personnel. Together they collect data on the number of tourists visiting the area, marine mammal diversity and abundance in the area, effects of introduced species into the islands, and cases of illegal fishing practices and poaching of sea turtles. Water quality testing has so far been limited to baseline data, such as turbidity, chlorophyll, pH, and temperature. In the months to come, it will be crucial to design and implement reliable data collection protocols that will include *E. coli*, Nitrogen and Phosphorus sampling, in order to better assess increasing impacts from human activities on the watershed.

While expanding its scientific capacities, this grassroots program must improve business operation efficiency in order to successfully address water resource challenges that coastal development projects are bringing to the area at a fast and furious rate. Adequate and realistic suggestions for operational improvement are crucial to the long term viability of the Loreto Baykeeper program.

**Project Objectives**

This project will focus on strengthening and enhancing the operation and activities of the Loreto Baykeeper program, located in the southern state of Baja California Sur in Mexico.

Specific objectives include:

- Identify the main sources and extent of threats to watersheds from coastal development.
- Evaluate efficiency and validity of existing water quality sampling protocols and provide valuable recommendations for continuous monitoring and conservation efforts.
- Provide recommendations for feasible actions allowing Loreto Baykeeper to address water quality threats with an array of advocacy tools.

- Provide recommendations for strategic operation of programs and capacity-building techniques.
- Determine ways to affect policy and build bridges between environmental compliance officials and the stakeholders.
- Develop environmental education for the community to increase awareness of and involvement in overall Waterkeeper goals of advocacy and conservation.
- Develop fundraising strategies to diversify sources of revenue and cultivate sponsors.

## **Project Significance**

The technical assistance that this project intends to provide for the Loreto Baykeeper program, which is focused on water resource sustainability, is crucial to preserving the natural assets in Baja California Sur. The analysis and results of this project will help address the sources of water resource degradation and facilitate the expansion and long-term viability of Waterkeeper programs. While group project efforts will focus on the Loreto Baykeeper program, lessons learned can be applied to other existing Waterkeeper programs in the region and can help establish new ones. Since most programs are still fairly young, recommendations from Bren students along with their implementation will have significant consequences on the progression and success of these programs. Ultimately, success of these local initiatives will be of great significance to the local communities affected by threats to their water resources. Current Waterkeeper programs have very strong boards, which uniquely positions them to be able to provide solid recommendations to authorities at local and state levels that will be effective. Since NGOs in Baja are scarce, their input is extremely valuable in government planning and decision-making processes.

## **Background Information**

The Waterkeeper Alliance is an umbrella organization of 184 watershed advocates worldwide. This Alliance connects and supports local Waterkeeper programs to provide a voice for waterways and their communities worldwide. Starting in 1999, Waterkeeper programs were developed to counteract adverse effects of coastal development on water resources in Baja California Sur. Currently there are six Waterkeeper programs on the peninsula that face a range of impacts depending on their location. What is consistent is that ill-planned coastal development projects are severely affecting the water quality and the marine resources of each of these watersheds. Sources of water resource degradation include insufficient sewage processing plants, construction of marinas, high rise resorts, as well as fuel spills, discarded fishing equipment, and increased boat traffic.

Recently, Waterkeeper Alliance admitted a proposal from the nonprofit organization, Eco-Alianza A.C. in Loreto, to develop the Loreto Baykeeper program and address these water resource issues. This program gathers environmental organizations and individuals committed to working collaboratively to protect and preserve the coastal, marine and terrestrial eco-systems of the Municipality of Loreto while promoting smart growth strategies and viable communities in the region.

## **Stakeholders**

- Eco-Alianza, A.C. (NGO) and its Loreto Baykeeper program: This local Waterkeeper program is supported by the Waterkeeper Alliance, an organization with the objectives of protecting communities, ecosystems, and water quality.
- City of Loreto: Founded approximately 200 years ago, now an emerging tourist destination with an important fishing industry.
- State of Baja California Sur (decision makers)
- Pro Peninsula (partner NGO)

## **Approaches and Available Data**

In order to make recommendations for the improvement and the expansion of the Loreto Baykeeper program and other programs in Baja California Sur, a thorough assessment of their capacities, strengths, main obstacles, opportunities and weaknesses will be conducted. Current water quality sampling protocols will be assessed for efficiency and validity and will be extended to include nutrient and *E.coli* sampling where not already in place. It will be essential to verify that existing data collection procedures will be useful in assessing impacts from human activities on the watershed. Areas that we may focus on will include critical areas and their overlap with degradation activities, such as an existing golf course, a marina near critical fishing spots, and a mangrove patch in the watershed. In addition, recommendations will be made for ongoing water quality monitoring. Water quality in pertinent sites will be measured at least over the course of one month, which will provide useful baseline information for further project implementation by Loreto Baykeeper. Other primary data may be collected, including GIS assessments to locate sites of highest priority and/or most susceptible to water resource degradation.

Marketing strategies will be assessed and developed, such as the program website and media campaigns, as well as environmental educational materials, in order to effectively communicate the area's water resource challenges. Program activities will be prioritized based on feasibility and impact. Educational materials will aim to heighten awareness of water resource issues and will include information on the sources of water quality problems and ways to reduce overall impacts. These materials will be directed to tourist populations as well as local residents. All information and results obtained will be extremely relevant for local authorities and decision makers and shall be used to inform them during planning and decision-making processes.

Loreto Baykeeper will supplement secondary data available on water quality conditions and sources of impacts.

## **Deliverables**

The following will be deliverables:

- 1) A final report that synthesizes findings and recommendations based on the assessments done will be made available to the client and stakeholders for implementation in ongoing programs.
- 2) Educational materials will be developed and distributed to the community.
- 3) Primary data on water quality in the area and possible GIS data, such as high priority sites, will be used to supplement the report and educational materials.

## **Client**

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## **Anticipated Financial Needs and Sources of Support**

MESM group project fund anticipated to cover on-site visits, including travel and board for one or two members of the group project.

## **Internship Possibilities**

There is potential for unpaid internships for on-site assistance and capacity-building with the Waterkeeper organization.