Project Update: March 2006

The project is been carried out according to the initial planning. Below I describe the main activities and achievements for the current period:

1. - During the first months we collected all the existing data and information related to the distribution and abundance of all the species having an important role on sub tidal community structure (e.g. kelps, sea urchins, sea stars, rock fishes) and those having an economical importance as a resource, within the Isla Grande de Atacama multiple uses marine protected area (MUMPA). We further collected all the information concerning physical characteristics of the MUMPA (e.g. bathymetry), type of uses and municipality shore zoning.

2. - As there was no previous biological data on sediment bottoms, we did detailed field sampling of all the sandy beaches within the MUMPA until ~25 m in depth, using air lift apparatuses (Figs. 1, 2).

3.- We determined the main types of benthic communities within the MUMPA through qualitative and quantitative (UPGMA analyses), which revealed 7 types of benthic communities on rocky bottoms some of the dominated by one species (shallow barren zone, deep barren zone, *Lessonia* spp., barnacles, Phragmatopoma, erect algae, *Pyura chilensis*) (Fig. 3). For sandy beaches, we found 3 types of communities segregated by depth (Fig. 4).

4. - We identified the different zones used by main users (e.g. fishermen, tourists), for establishing the conservation costs within the MUMPA. This by identifying the zones with different use levels by fishermen and tourists. We (1) identified main traditional users of the MUMPA, (2) GPS-marked al the main and secondary roads (Fig. 5), (3) made sociologic surveys to fishermen, divers and algae harvesters to asses the types of use and their spatial and temporal location.

The project is at its final phase and we are presently focused on two activities:

1. - Defining the conservation goals for the different benthic communities within the MUMPA.

2. - Preparation of the matrices for selecting the potential sites with high conservation priority.

Figure 1. SCUBA diver sampling the sediment bottom with an airlift apparatus. (Photo by Alejandro Perez-Matus)

Figure 2. SCUBA divers on a fishermen boat getting prepared for benthic sampling. (Photo by Alejandro Perez-Matus)

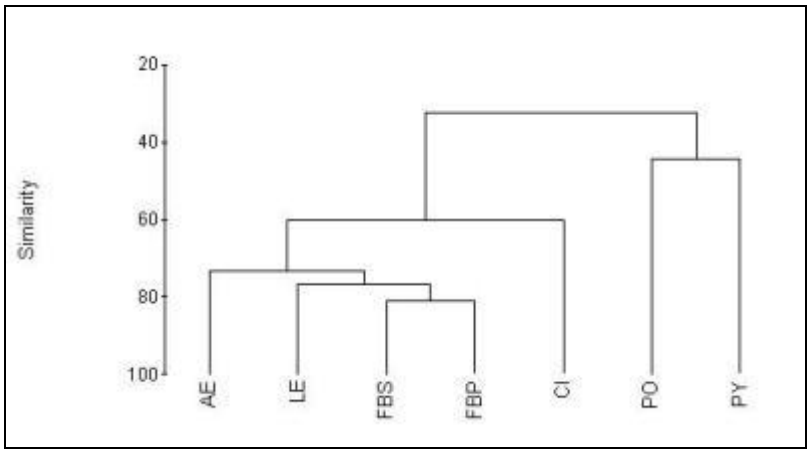

Figure 3. Cluster analysis showing the 7 main benthic communities found on rocky bottoms within the MUMPA. Shallow barren zone (FBS), deep barren zone (FBP), *Lessonia* spp. (LE), barnacles (CI), Phragmatopoma (PO), erect algae (AE), *Pyura chilensis* (PY).

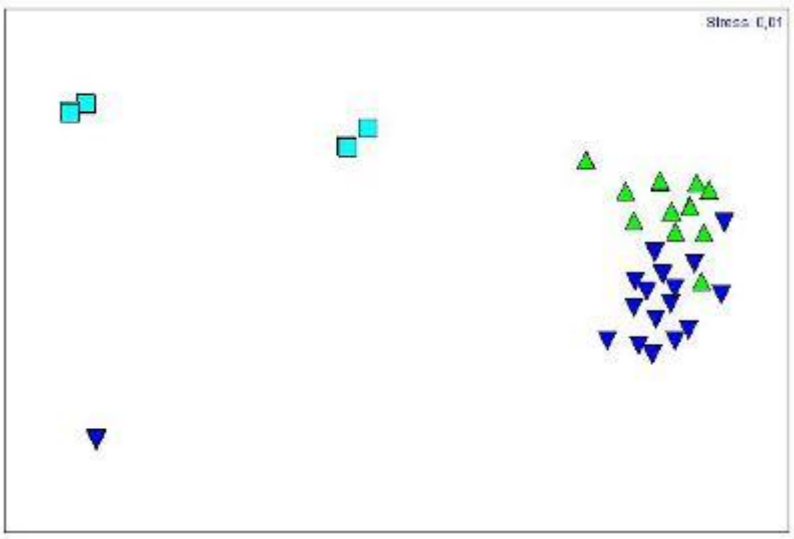

Figure 4. Multi-dimensional scaling (nMDS) analysis showing the 3 types of sandy beaches communities found segregated by depth. ■ : 0 – 6 mt ▲: 6 – 15 mt ▼: >15 mt.

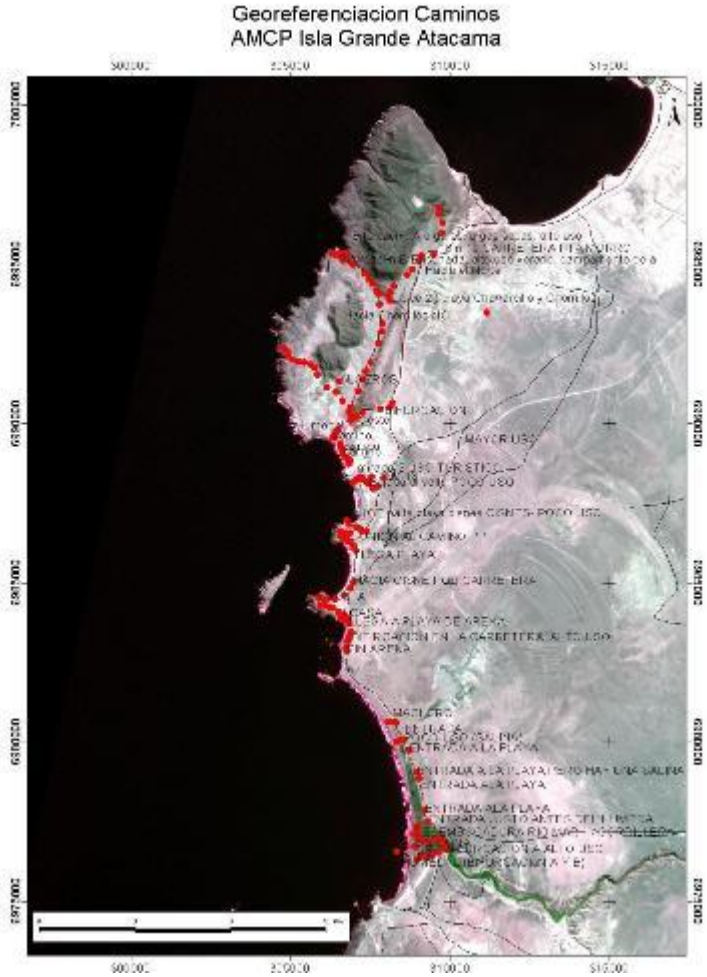

Figure 5. GPS-marked main and secondary roads within the MUMPA. Landsat TM image of the mucMPA. U.S. Geological Survey, NASA Landsat Program. Modified by David Lopez, CEAZA. Roads by Ursula Rojas and David Lopez.