INTRODUCTION

Despite a heavy reliance on scientific research as the primary source of information to understand linkages between marine ecosystems and fisheries, a multi and interdisciplinary framework where geo-technologies and the fishing communities are included in a more participative manner is needed.

The incorporation of participatory approaches of collaboration, cooperation and co-production of information, guarantees the support needed to integrate the unique knowledge, experience, and skills of fishers and scientists. This paper describes a framework where fishers’ and other community members’ participation is crucial to understand the spatial and temporal dimension of small-scale fishing activities and their linkages with marine resources.

The framework was developed in the context of small-scale fisheries in Northwest Mexico. The procedure includes four phases:

1. Social and Conservation Context
2. Data Collection
3. Data Integration, Classification and Analysis
4. Representation Of Results / Outcomes

METHODS

1. Social and Conservation Context

We describe a methodology where the use of GPS data-loggers and catch data are used to map target species with commercial value.

2. Data Collection Process

- Training Sessions
- Data Collection
- Data Transfer
- Public Meetings
- GPS Data-loggers
- Catch data logbook
- Geospatial Databases

3. Data Integration, Classification and Analysis

Examples of fishing ground identification with no waypoints provided: 1) corvina Gulfina (Cynoscion othopterus); 2) Gulf croaker (Microgonoglymus megalops) and sierra (Scomberomorus spp.); 3) blue shrimp Liopenaeus stylirostris; Example of fishing ground identification with waypoints: 4) barred sand bass (Paralabrax nebulifer); 5) halibut or flounder (Paralichthys californicus, P. wolfani); and 6) white seabass (Atractoscion nobilis).

SPATIAL AND TEMPORAL REPRESENTATION OF DATA

Figure 1: a) Fishing trips displayed as tracks for one year in El Golfo de Santa Clara, Mexico; b) Fishing activity area polygon for El Golfo de Santa Clara and San Felipe, Mexico, showing a common area of fishing activity. Figure 2: From Erisman et al., 2012: a) positions of Gulf corvina (Cynoscion othopterus) spawning aggregations in relation to lunar day (day before peak moon, dbm) and management zones within the Biosphere Reserve; b) semi-lunar trends in catch rates of the Gulf corvina fishery; c) spatial fishing intensity. Figure 3: a) assignment of catch data through the spatial join tool and statistics obtained by pixel through summarized process tool; b) example of total catch per area (sum of catch per cell) for Gulf croaker (Microgonoglymus megalops) in one fishing season, using the Standard deviation classification method.

REFERENCES


Marcia Moreno-Báez, Post-doctoral Scholar
Center for Marine Biodiversity and Conservation
Scripps Institution of Oceanography, University of California San Diego. 9500 Gilman Drive, La Jolla, CA 92037-0550 (858) 534-3372
Email: mmorenobaez@ucsd.edu