

Annual report – Project R/MPA-25: California Spiny Lobsters – MPA

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Recipients

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Summary of progress to date

The original objectives of our project were to:

1. Map benthic substrata in order to link lobster abundance to benthic habitat composition and distribution across a range of spatial scales;
2. Establish baseline estimates of lobster density and shelter use through SCUBA-based surveys;
3. Implement a tag-recapture program to estimate spiny lobster abundance, size-frequency distribution, growth, spillover, and mortality;
4. Determine how CPUE and the amount and distribution of lobster fishing effort changes after MPA establishment.
5. Establish a public outreach system to provide information on the purpose of our work with Monitoring Enterprise and the progress made toward project goals.

Progress on each of these objectives is described below.

1. Map benthic substrata in order to link lobster abundance to benthic habitat composition and distribution across a range of spatial scales.

Benthic substratum mapping has been underway since the fall of 2011, with nearly all of Pt. Loma and La Jolla mapped with our narrow beam sonar that allows substratum mapping even in dense kelp cover. During the later summer season of 2012 we are focusing on deeper water geological features that may be linked to onshore-offshore movements of lobsters. Major expenditures for this component include a laptop computer necessary to conduct the mapping and to conduct post-processing analyses. In year 2 we will be linking substratum maps with lobster distribution data collected in objective 2.

2. Establish baseline estimates of lobster density and shelter use through SCUBA-based surveys.

SCUBA-based surveys for lobster density, shelter use, and habitat associations began in spring of 2012 (though a small number of preliminary surveys to establish methodology were conducted in fall of 2011). Based on early surveys, we constructed a protocol for quantifying lobster and sea urchin abundance, as well as biotic and geologic features of the benthos, by combining our previous survey protocols with those of programs like CRANE and MPA monitoring in the Channel Islands. To date we have conducted surveys (100 total) inside and outside of four MPAs (Cabrillo in Pt. Loma; South La Jolla; Swami's in Encinitas; and Laguna

Beach). Surveys will continue into year 2 and will commence after lobster fishing season ends in March 2013, and in year 2 all four MPAs will be resampled and the Pt. Vicente MPA in Palos Verdes MPA will be added. Data presently are being analyzed and we expect to report year 1 results to Monitoring Enterprise at the meeting of all south coast PIs in January 2013. Major expenditures for this component have included salary for the PI, the graduate trainee, and an undergraduate assistant, and fuel.

3. Implement a tag-recapture program to estimate spiny lobster abundance, size-frequency distribution, growth, spillover, and mortality.

Lobster tagging began in the fall of 2011 when we tagged approximately 5000 lobsters within two MPAs in San Diego (Cabrillo and South La Jolla). Fall 2011 tagging was done to work out tagging protocols for scientists, students, and fishermen involved in the project, as well as to introduce the tagging program to the public in preparation for our larger tagging effort in 2012. Beginning in May 2012, we began tagging lobsters inside and outside of five MPAs (Cabrillo, South La Jolla, Swami's, Laguna Beach, and Pt. Vicente). Tagging was conducted aboard lobstermen's vessels by lobstermen, project personnel (PIs, students, and DFG personnel), and volunteers (*see below for details on establishing our volunteer program*). All lobsters captured in traps > 55 mm carapace length were tagged ventrally with individually numbered, plastic t-bar tags, and data were collected on length, sex, reproductive status, and shell condition for each lobster. Tag numbers of any recaptured lobsters were noted. By September 2012 we have conducted four rounds of tagging in each of the five MPAs, with each "round" consisting of three days at sea (one day to place traps, and two sampling days). Data are still being entered, but we estimate we have tagged between 15,000 and 20,000 lobsters across all five MPAs. Tagging will resume after lobster fishing season in 2013, with at least two more rounds per MPA scheduled for summer 2013. Major expenditures for this component have been to reimburse lobstermen for daily trips aboard their vessels, as well as some salary for students to assist with tagging.

An important goal for this component of the project was to establish a strong corps of volunteers we could rely on to assist with lobster tagging. SDOF reached out to over 20,000 southern Californian residents within their database to recruit volunteers for this project. With the help of the SDOF staff and program interns, they received hundreds of volunteer applications. SDOF sorted through the volunteers and interviewed them individually. SDOF created a volunteer manual and tested each potential volunteer. Once trained, volunteers helped the lobster fishermen and scientists capture and record data.

4. Determine how CPUE and the amount and distribution of lobster fishing effort changes after MPA establishment.

This component of the project is scheduled to be implemented in year 2 when data on fishing effort becomes available.

5. Establish a public outreach system to provide information on the purpose of our work with Monitoring Enterprise and the progress made toward project goals.

This component of the project was and continues to be spearheaded by SDOF. Progress to date includes:

- Creation of a website and database (taggedlobster.com) to collect data submitted from lobster tags retrieved from commercial and recreational fishers.
- Providing information about the project via: answering phone calls and emails relating to the project; attending community events to promote the project to the public; hosting an annual Open House for lobster fishermen to educate them on the project; working with media outlets; and through outreach via social media sites.
- Creation of postcards and posters to distribute at Bait and Tackle shops, Dive Shops and on opening night of lobster season.
- Personally contacting local commercial fishermen to inform them of our efforts.
- Sending Press Releases and Media Alerts when appropriate.

Major expenditures for this component of the project have been salary for SDOF staff.

Problems encountered and how they were resolved.

No major problems arose that seriously delayed our progress on any of the project components. Some relatively minor problems encountered included:

- Selecting appropriate sites for surveys inside and outside of MPAs: in some areas, suitable habitat for lobsters is very patchy, and surveys may yield little information on lobster habitat use if unsuitable substrates are surveyed. We overcame this problem by consulting closely with lobstermen who have detailed knowledge of lobster habitat in and around each MPA. With their guidance we were able to target appropriate habitat on dives and for our trapping and tagging. This illustrates a chief advantage of the kind of collaborative work among different stakeholders that we are conducting.
- Public volunteers: though all volunteers were personally vetted and trained, some proved to be unreliable or unable to assist on board vessels. Additionally, occasional miscommunications occurred between project personnel and volunteers. These issues were not unexpected. Luckily, our careful selection of volunteers resulted in the vast majority being excellent and enthusiastic assistants. As the research progressed we were able to be more selective about volunteers as we came to know them, and we improved our system of communication with volunteers to ensure each day's sampling trip is fully staffed.