



MPA Baseline Program

Annual Progress Report



Principal Investigators - please use this form to submit your MPA Baseline Program project annual report, including an update on activities completed over the past year and those planned for the upcoming year. This information will be used by the MPA Baseline Program Management Team to track the progress of individual projects, and will be provided to all MPA Baseline Program PIs and co-PIs prior to the Annual PIs workshop to facilitate discussion of project integration. Please submit this form to California Sea Grant when complete (sgreport@ucsd.edu, Subject [Award Number, project number, PI, "Annual Report"].)

Project Information

Project Year: 2011-12 Study Region: North Central Coast Study Region

Project Title & Number: Reef Check California, Rocky Reef Baseline monitoring NCCSR R/MPA13 Grant# 09-015

PI name: Jan Freiwald Co-PI name: Gregor Hodgson

PI Contact Info Co- PI Contact Info (please list additional PIs and contact info in the "Project Personnel" section if necessary)

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Project Goals & Objectives

- Reef Check California (RCCA) programs objectives for the NCCSR baseline monitoring are:
1. To use highly trained and certified citizen scientists to conduct scientifically robust shallow subtidal baseline characterization of MPAs and reference areas using the RCCA protocol.
a. Continue to monitor the abundance of key indicator species annually at 5 existing sites
b. Add abalone and urchin size distribution surveys to the PISCO SCUBA project surveys at 10 sites located inside MPAs and associated reference sites
c. Add full RCCA survey within Stewarts Pt. SMR coordinated with PISCO (1 site)
2. Build capacity for baseline and future long-term monitoring needs by conducting 1 community training (16 divers/yr) for the first 2 yrs of the project.
3. Post all data on web and produce integrated final report w/ collaborators.

## Summary of Project Activities Completed to Date

### Overview of Project Year 2 Activities, including progress towards meeting goals & objectives

#### Surveys

Reef Check California (RCCA) conducted surveys at four of its five established sites in the NCCSR. One site 'Stornetta' in the Sea Lion Cove SMCA was not surveyed due to adverse weather and ocean conditions during several survey attempts. Since we had not added a site within the Stewards Pt. SMR in year one of the project due to difficulties with access to the site, we focused in 2011 on another MPA and added two sites inside and outside of the Pt. Arena SMR. These sites are identical to some of PISCO's survey site at this MPA and were chosen so that some data overlap between the programs exists in this area. We will continue to monitor these sites in the future after the completion of the baseline monitoring in the region.

We monitored abalone and urchin densities and size frequency distribution in collaboration with PISCO this year. Again, we completed a total of 34 sites in the NCCSR. This far exceeds the proposed number of abalone and urchin surveys (10 sites) and was particularly important this year in light of the abalone die-off in the study region (see below). This success highlights the benefit and synergistic effects of collaborative efforts in the baseline monitoring of difficult and expensive-to-access subtidal habitats.

#### Trainings and Capacity Building

Over the 2011 survey and training season RCCA conducted three public volunteer trainings in northern and central California. Two of the trainings were held at Sonoma State University and in Monterey – our traditional training locations in this region. Additionally, we have had our first community training in the northern region of the state, in Fort Bragg, where we trained eight volunteers. This was a very successful training, adding a number of dedicated divers with extensive local knowledge of the region to our volunteer body. They will form the core of a new survey team we are developing in this region of the state. This training also sparked interest by the local commercial urchin diving community and we are making arrangements to incorporate this group into our 2012 Ft. Bragg training. For the first time, in 2011 Reef Check retained more volunteer citizen scientists than trained new ones. 52% of previously trained volunteers returned this year. This demonstrates how our body of volunteers is maturing and how more and more divers stay involved over the years. For a program such as RCCA that requires intensive training, it is of critical importance to retain skilled volunteers. This is especially critical in areas such as the NCCSR where we do not have permanent local staff after the funding for our baseline coordinator position ended in 2011.

In addition to our public trainings we also trained and recertified divers at Humboldt State University – our strongest partner for volunteer recruitment in the region. At this institution alone we trained 18 and recertified 22 previously RCCA trained students. Additionally, we worked with UCSC and Monterey Bay State University to establish RCCA trainings in conjunction with their scientific diver classes. Trainings at both Universities are ongoing right now and these divers will be ready for the 2012 survey season. This will lead to many AAUS trained divers in the northern region of the state and will give us the capacity to continue long-term monitoring after these two initial years of baseline monitoring in the NCCSR are complete.

Overall, we met or exceeded the proposed objectives in the NCCSR for year two and we look forward to continuing our work in this region beyond the temporal scope of the baseline monitoring project. These two years have allowed us to build the capacity and the collaborative approaches to survey MPAs and reference sites in the region. In the future, we will work with our university partners (especially HSU and UCSC) to continue the monitoring in this region.

*Highlights from project progress so far, such as successes achieved or interesting stories from the past year*

A widespread die-off of red abalone was reported in September of 2011 along the Sonoma coast. Reef Check California was surveying its sites in the NCCSR right after this event and was able to document the population decline in red abalone. Due to the long-term dataset that RCCA has for some of the study sites in the region this recent die-off could be put into a historical perspective and we were able to show that abalone populations at our sites were reduced to densities well below their levels in previous years. The six year time series at one of our MPA sites, Gerstle Cove, shows a similar reduction in population densities of red abalone in 2007. This reduction was accompanied by observations of empty abalone shells not unlike what was seen in 2011 but it was limited in its spatial extent to the Gerstle Cove. After the 2007 reduction, abalone numbers seem to have stayed low until 2009 when a trend of recovery can be seen in the surveys between 2009 and spring of 2011. This demonstrates the need for long-term monitoring time-series. If we didn't have the data from 2006/07 to compare to, the recent decline would not look as dramatic of a change in abalone densities as it does in light of the high abundances in those years. In addition to the sampling of abalone densities and size frequencies at the RCCA sites we were also able to document the impact of the die-off on populations in our collaborative work with PISCO (see below).

*Description of any unforeseen events and substantial challenges, and resulting effect on data collection*

The above mentioned die-off of red abalone in the study region has led to a change in the sampling protocol of the abalone densities and size frequency in the combined PISCO/RCCA abalone protocol and in the RCCA protocol in 2011. At the PISCO/RCCA sites we started not only measuring and counting alive abalone but also counted and measured empty shells of recently died red abalone and recorded other dead invertebrate species. These protocol changes allowed us to not only investigate the effect of the die-off on the population density but also to see if there has been preferential mortality to certain size classes. Overall we documented a decline in the population densities of red abalone but did not see any preferential mortality across size classes based on a comparison of dead and live abalone shell sizes.

*Data status (i.e., paper/raw format or digitized; if digitized, what format?)*

Reef Check California's data from the NCCSR has been entered into Reef Check's Nearshore Ecological Database (NED). Currently, it is available through the online interface of NED. As in year one of the project we will have all data available in two common data formats this year. It will be available in an Access database and as text files. Both will be available for public download on Reef Check's NED website. Metadata according to the Metadata standards has been developed.

**Activities Planned for following Project Year 3 (if applicable) – Please describe remaining work and approximate timelines for completing that work, including any anticipated budget variances necessary to complete the project.**

RCCA is planning to work with the MPA Monitoring Enterprise and its collaborators on the reporting of the baseline monitoring in the remaining year of the project. The timeline for this part of the project has not changed from the way in which it was proposed.

Additionally, RCCA is working on continued monitoring in the study region. Due to the capacity of volunteer citizen scientists that we have build over the last two years in this region we are well positioned to continue monitoring of the established sites and we already began to add some sites to our monitoring network in the region in 2011. We will work closely with PISCO at UCSC to insure that sites we will add in 2012 will aligned with monitoring sites that have been sampled by them in previous years. This approach will insure that at least some rocky reef sites in the study region will be monitored for the long-term after the completion of the baseline monitoring project. Funding for this work will be secured from other sources and will not affect the Sea Grant budget for the baseline monitoring project.

**Project Personnel – Please indicate additional project personnel involved in your MPA baseline project, including students and volunteers, or additional PI contact information if necessary.**

		<i>Student Volunteers</i>
<i>Regional Manager</i>	<i>1</i>	
<i>Baseline monitoring coordinator</i>	<i>1</i>	

*Number of other Volunteers not counted above:*

Reef Check California trained or recertified 115 volunteers in northern and central California in 2011 – many of which helped to survey sites in the NCCSR.

*Additional PI contact info not listed on first page:*

**Cooperating Organizations and Individuals** - Please list organizations or individuals (e.g., federal or state agencies, fishermen, etc.) that provided financial, technical or other assistance to your project since its inception, including a description of the nature of their assistance.

<i>Name of Organization or Individual</i>	<i>Sector (City, County, Fed, private, etc.)</i>	<i>Nature of cooperation (If financial, provide dollar amount.)</i>
<i>PISCO UCSC</i>	<i>University</i>	<i>Technical, collaboration in field and use of UCSC boats</i>
<i>Humboldt State University</i>	<i>University</i>	<i>Trained divers, helped with Reef Check surveys</i>
<i>Campbell Foundation for the environment</i>	<i>Private Foundation</i>	<i>Funding, \$50k for California program part of which was used for monitoring in NCCSR</i>
<i>Goldman Foundation</i>	<i>Private Foundation</i>	<i>Funding, \$75k for northern and central California part of which was used for monitoring in NCCSR</i>
<i>RLFF</i>	<i>Private Foundation</i>	<i>Funding, \$115k for California program part of which was used for monitoring in NCCSR</i>
<i>CLif Family Foundation</i>	<i>Private Foundation</i>	<i>Funding, \$10k for California program part of which was used for monitoring in NCCSR</i>
<i>Department of Fish and Game</i>	<i>State</i>	<i>Boat time, scientific diver training for RCCA staff</i>

**Additional Information** – Please provide any other project-relevant information, such as descriptions of attached materials, media coverage your project has received, etc.