

Mendocino County Fish & Game Project Proposal Summary Sheet

(This must be the first page of the submitted proposal)

The deadline for receiving proposals is 5:00pm, December 22, 2017.

Project Title: Sub-tidal Marine Protected Area's Monitoring by Reef Check California

Amount Requested (\$): 10,450

Contractor: Reef Check Foundation

Type of Contractor: 501(c)3 NGO

Contact Person: Anna Neumann

Taxpayer/Organizational ID/EID Number: 95-4858649

Street Mailing Address:

City, State, Zip Code:

Telephone Number:

Email address:

Website address(es): reefcheck.org

Fish and Game Code Section 13103 Category: 13103 (i)

Objectives: This project aims to complete 15 sub-tidal scuba surveys with volunteer divers in Mendocino County and additional abalone measurements. Volunteers will be trained or re-certified in one of four courses held in the Fort Bragg area. Data collected by Reef Check California will be compiled and made available to the public and California's Department of Fish and Wildlife and other management agencies.

Specie(s) Benefited: 35 species of fish, 33 species of invertebrates, 5 species of algae

Work Schedule: March - November

Site Location (include reference to nearest city, town, and/or prominent landmark, GPS Coordinates): Point Arena MPA, Van Damme SMCA, Russian Gulch SMCA, Point Cabrillo MPA, Caspar Cove, Mendocino Headlands, Noyo Headlands. See reference material for GPS coordinates.

Please also fill out the following, if applicable:

Stream: _____

Tributary to: _____

Major Drainage System: _____

The deadline for receiving proposals is 5:00pm, December 22, 2017.

- **Proposals must be submitted by email** as a PDF, .DOC, .DOCX, .TXT, or ZIP file to the Commission at: mendofishgamecommission@gmail.com. Applicants without personal computers or internet access to the Commission website can request assistance from County branch libraries in Ukiah, Ft. Bragg, Willits, Coast Community (Pt. Arena), and Round Valley (Covelo) to download and print the application materials. *Note: County library personnel can also assist with scanning and emailing completed proposals.*
- **Applicants must also mail or hand-deliver eight double-sided copies** to the Commission c/o County Planning & Building Services, 860 North Bush Street, Ukiah, CA 95482.
- **Grant applicants are encouraged to attend the Tuesday, January 9, 2017 meeting of the Commission**, location to be announced, beginning 6:00pm, to make a brief (5 minute) presentation regarding their proposal.
- For additional information, please call Fish and Game Commission at (707) 234-6094, or email the Commission at mendofishgamecommission@gmail.com.

Reef Check California

2018 Marine Protected Area and Abalone Monitoring

Proposal to the Mendocino County Fish and Game Commission

Background

Founded in 1996, the Reef Check Foundation is a California based 501(c)3 non-profit organization dedicated to the conservation of the world's reefs. Reef Check's mission is to empower people to save our reefs and oceans, stimulating action through a combination of education, training, and targeted collaborations. Our volunteers in more than 90 nations around the world work to monitor vital coral and temperate reef habitats, providing essential data needed for informed marine management. In addition, our training and speakers bureaus offer the public a rare window into underwater ecology, building a sense of direct personal investment in the preservation of the world's oceans.

Whether the focus of monitoring is coral or kelp, Reef Check pursues four principle goals:

- To educate the public and governments about the value of coral reefs and rocky reef ecosystems and the crisis facing them
- To create a global network of volunteer teams, trained and led by scientists, that regularly monitor and report on reef health using a standard method
- To facilitate collaborative use of reef health information by community groups, governments, universities, and businesses to design and implement ecologically sound and economically sustainable solutions
- To stimulate local action to protect remaining pristine reefs and rehabilitate damaged reefs worldwide

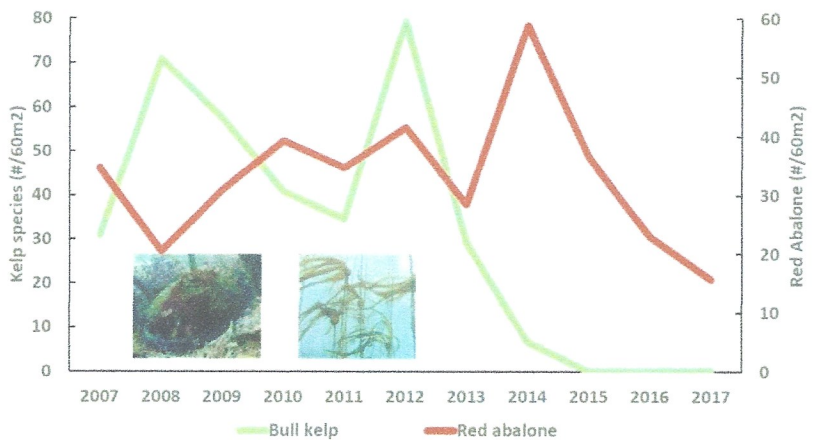
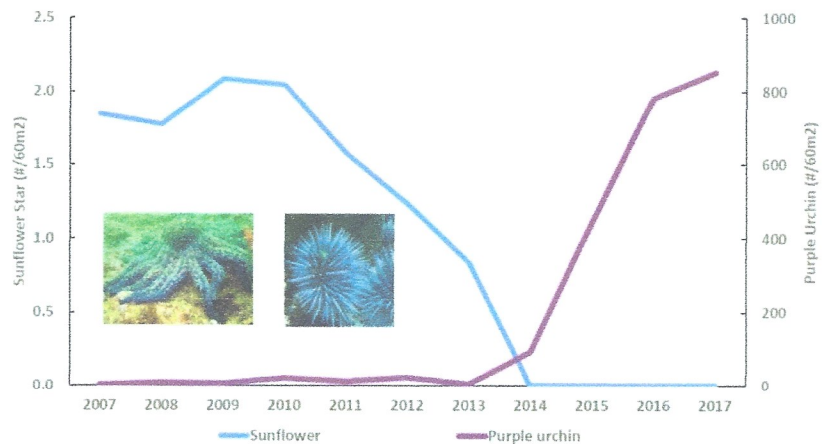
Reef Check California (RCCA), started in 2005, is now the largest statewide citizen-scientist monitoring program for California's marine protected areas (MPA) and nearshore rocky reef ecosystems. RCCA's goal is it to provide scientific information to state marine resource managers, so that they can make informed science-based management decisions. RCCA is truly a community endeavor and the program continues to grow as volunteers, communities and supporters join our ranks and share our mission. We empower California's ocean enthusiasts, through education, training & community engagement, to become active stewards of local ocean resources. Specifically, RCCA uses citizen science, community-based monitoring and data collection to improve marine management and educate the public about the marine environment off our coast. Annually, we train over 250 volunteers and lead them on dives along the entire California coast to scientifically monitor the health of the kelp forest ecosystem. As California has implemented its statewide network of MPAs over the last decade, Reef Check has helped provide the data and community involvement to establish the ecological baselines against which the performance of these MPAs can be evaluated in the future. Subsequently, RCCA has continued to monitor these MPAs every year and is committed to surveying the MPA network for the long-term as the only statewide group monitoring California's reefs and MPAs. With its statewide dataset spanning more than a decade now, RCCA is in a unique position to track the health of the ocean and the performance of MPAs as we continue monitoring for the long-term.

Project Overview in Detail

RCCA has established a baseline of the ecological conditions of the rocky reefs and kelp forests in every region of California where MPAs have been established according to the Marine Life Protection Act (MLPA). Following the baseline programs, RCCA is the only group that has continued to monitor its sites following the MPA baseline studies in all regions and now maintains a network of over 100 sites to monitor MPAs. Over the last few years we have documented dramatic changes to the nearshore ecosystem along California's north coast, including the Mendocino County coast. The sea star wasting disease and consequent loss of the kelp forest and explosion of purple urchin population, have created urchin barrens - reefs denuded of kelp and other alga and overrun by urchins. This has created a lack of food for the red abalone and their populations are declining. This trend, documented in our data, has led to the recent decision by the California Fish and Game Commission to close the recreational abalone fishery for the 2018 seasons in order to conserve the remaining populations and hopefully have a sustainable fishery again in the future.

When the Commission decided to close the fishery they also insured that the closure will be reviewed in a year from now (December 2018) and requested that new data will be used to inform their decision in 2018. RCCA is in a perfect position to provide these data and in fact citizen science and Reef Check were explicitly mentioned during the Commission meeting as a source for the information needed to continue to manage the abalone populations sustainably into the future. Therefore, it is imperative that we continue to monitor the health of the ecosystems system in Mendocino County.

The California Department of Fish and Game has outline that in future abalone management plans the health of the entire kelp forest ecosystem will be considered as an indicator. RCCA is the only citizen science program collecting this information in Mendocino County. A grant from the Mendocino Fish and Game Commission will help insure that the ecosystem data needed to inform fisheries management in Mendocino County will be collected.



Work plan

Volunteer Trainings

In 2018, Reef Check California plans to continue to train and recertify citizen science scuba divers in RCCA's protocols. Two community trainings will be held in Fort Bragg; one training will focus on RCCA's standard protocol during which the divers will learn how to conduct subtidal surveys of fish, algae, invertebrates and the benthic habitat. A second training will be held to focus on abalone management and techniques to measure subtidal red abalone. All divers who were trained in previous years will be required to participate in one of the two recertification course offered before being eligible to collect data. In addition to community trainings, divers from Humboldt State University will also be trained on RCCA's protocols as part of an American Academy of Underwater Science certification and will complete their in-water training and subsequent surveys in Mendocino County.

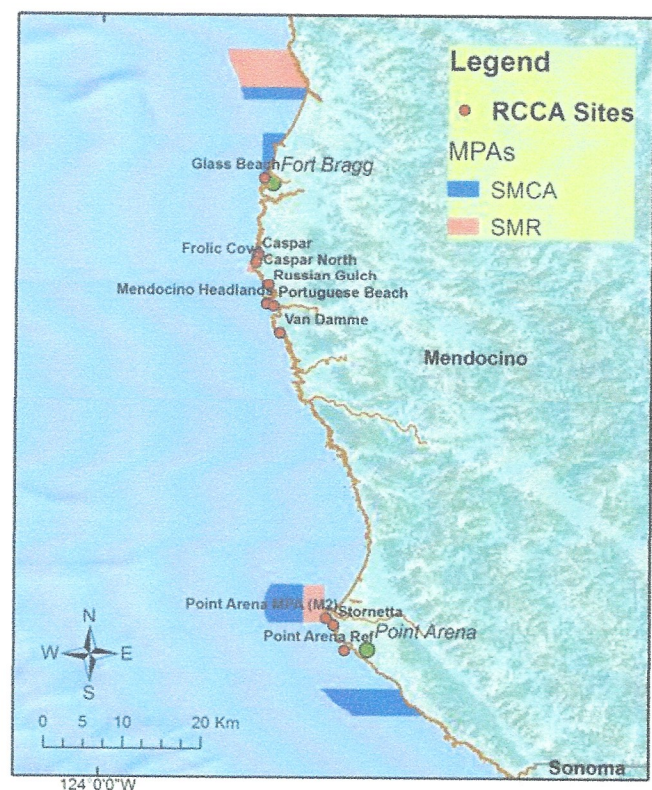
Site	Lat	Long
10 Mile MPA		
Westport		
Glass Beach	39.4517	-123.815
N. Caspar	39.3644	-123.821
S. Caspar	39.3617	-123.822
Frolic Cove	39.355	-123.824
Russian Gulch	39.328	-123.809
Mendocino Headlands	39.3053	-123.811
Portuguese Beach	39.3032	-123.803
Van Damme	39.2719	-123.796
Point Arena MPA 1	38.9512	-123.744
Point Arena MPA 2	38.9448	-123.741
Stornetta	38.9372	-123.732
Sea Lion Cove Ref	38.9277	-123.735
Point Arena Ref	38.908	-123.719

Surveys

Currently 15 sites are scheduled to be surveyed from May to November using the standard RCCA monitoring protocol and the additional recently developed red abalone size frequency protocol (Table 1). Ten days aboard a chartered dive boat will be required to complete surveys at the following sites: 10 Mile MPA, Westport, N. Caspar, S. Caspar, Portuguese Beach, Glass Beach, Point Arena MPA 1, Point Arena MPA 2, Stornetta, Sea Lion Cove Ref and Point Arena Reference.

Survey Methods

Reef Check California surveys consist of visual surveys performed by scuba divers. At each site, buddy teams of divers conduct eighteen 30 m x 2 m benthic transects, to monitor key species of fishes (35 species), invertebrates (33 species) and algae (5 species & 4 invasive species) and to characterize the reef substrate and relief. These surveys have been used statewide for MPA monitoring. They have been compared to academic monitoring programs and found to be compatible with the state's needs for scientific



monitoring data as recognized in a Memorandum of Understanding between the California Department of Fish and Wildlife and the Reef Check Foundation. RCCA also has a permit to collect data from California State Parks issued by the California State Park System.

Fish are counted and sized by the divers along 18 transects at each sites. Fish are identified to species and their total length is recorded. Fish are counted by searching along a 30 m long x 2 m wide swath on the substrate and up to 2 meters into the water column. Cracks and crevices in the reef are searched using flashlights but no rocks are moved to during the search.

Individual invertebrates and algae are counted along six 30 m long x 2 m wide transects at each site. Typically, a diver slowly swims one direction counting targeted invertebrates and then swims back counting targeted algae. Cracks and crevices are searched and understory algae are pushed aside to search for invertebrates. No organisms are removed.

In addition to these surveys, roving abalone data collection will be conducted. Divers will be equipped with calipers designed by The Nature Conservancy and the Abalone Working Group to take measurements of abalone sizes to the nearest millimeter.

Data is entered in the Nearshore Ecosystem Database and undergoes strict quality assurance and control protocols before being published. Once published data is made available at data.reefcheck.org it is available for public download. All of RCCA's data is also made available to the California Department of Fish and Wildlife and other relevant management agencies.

Timeline

March - May: Training and recertification of citizen science divers

May – November: Sub-tidal surveys conducted

November – December: Data entered into the Nearshore Ecosystem Database

Budget

Item	Requested	OPC match for Mendocino County
Salaries and Contractors	\$2,500	\$14,850
Boat rental	\$5,000	\$5,000
Travel	\$1,000	\$ 1,333
Field supplies	\$1,000	\$1,629
Subtotal	\$9,500	\$22,812
Overhead	\$950	\$3,422
Total	\$10,450	\$26,234

Budget justification

State funding from the Ocean Protection Council for the long-term monitoring of the MPA in the north coast covers a large part of the salaries needed to conduct our work in Mendocino County. A grant from

the Mendocino County Fish and Game Commission would substantially match these funds and allow us to perform additional work beyond the MPA monitoring that we are tasked with by the State.