

Project Summary Form - California Sea Grant - Fillable PDF

Institution: University Of California, California Sea Grant College

ICode: 0600

Title:

Project Number: _____

Revision Date: _____

Project Status: _____

Initiation Date: _____

SubProgram: _____

Completion Date: _____

Last

First

Initial

Principal Investigator: _____ **Effort:** _____

Affiliation: _____ **Affil. Code:** _____

Co-Principal Investigator: _____ **Effort:** _____

Affiliation: _____ **Affil. Code:** _____

Assoc. Investigator 1: _____ **Effort:** _____

Affiliation: _____ **Affil. Code:** _____

Assoc. Investigator 2: _____ **Effort:** _____

Affiliation: _____ **Affil. Code:** _____

Sea Grant Funds: _____

State Matching Funds: _____

Last Year Sea Grant Funds: _____

Last Year Matching Funds: _____

Pass-Through Funds: _____

Last Year Pass-Through: _____

Related Projects: _____

Parent Projects: _____

Sea Grant Classification: No. _____ Classif. _____

Keywords:

Objectives:

Methodology:

Empty text area for Methodology.

Rationale:

Empty text area for Rationale.

Accomplishments:

Empty text area for Accomplishments.

**Project Cover Sheet
California Sea Grant College Program
New Proposal**

TO: Russell A. Moll, Director
California Sea Grant College Program
University of California
9500 Gilman Drive Dept. 0232
La Jolla, California 92093-0232

Project Title: Socioeconomic Baseline Data Collection, Resource Use Mapping, and Rapid Social Assessment

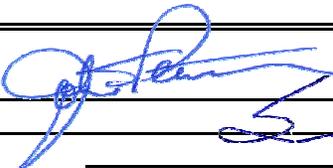
Project Leader Name: John S. Petterson, Ph.D.
Institution: Impact Assessment, Inc.
Address: 2166 Avenida de la Playa
City & Zip: La Jolla, California
Telephone: (858) 459-0142
Fax: (858) 459-9461
E-mail: iai@san.rr.com
% of Time: 4 calendar months

Co-Project Leader Name: Edward Glazier, Ph.D.
Institution: Impact Assessment, Inc.
Address: 2166 Avenida de la Playa
City & Zip: La Jolla, California
Telephone: (858) 459-0142
Fax: (858) 459-9461
E-mail: iai@san.rr.com
% of Time: 6 calendar months

Financial Summary:

	Proposed Year 1 of 1	Proposed Total all Years
Extramural Project Funds: (Do not include trainee stipend costs)	\$ <u>\$455,827</u>	\$ <u>\$455,827</u>
Matching Funds:	\$ _____	\$ _____
Number of Trainees Requested:	_____	
Estimated Start/Completion Date:	<u>6/11/2007</u> <u>6/10/2008</u>	

Approvals

Project Leader		Date	<u>25-Apr-07</u>
Co-Project Leader		Date	<u>25-Apr-07</u>
Organizational Approval	_____	Date	<u>25-Apr-07</u>

Will animal subjects be used? NO
Does this application involve any recombinant DNA technology or research? NO

Project Summary Form - California Sea Grant - Fillable PDF

Institution: University Of California, California Sea Grant College

ICode: 0600

Title:

Project Number: _____

Revision Date: _____

Project Status: _____

Initiation Date: _____

SubProgram: _____

Completion Date: _____

Last

First

Initial

Principal Investigator: _____ **Effort:** _____

Affiliation: _____ **Affil. Code:** _____

Co-Principal Investigator: _____ **Effort:** _____

Affiliation: _____ **Affil. Code:** _____

Assoc. Investigator 1: _____ **Effort:** _____

Affiliation: _____ **Affil. Code:** _____

Assoc. Investigator 2: _____ **Effort:** _____

Affiliation: _____ **Affil. Code:** _____

Sea Grant Funds: _____

State Matching Funds: _____

Last Year Sea Grant Funds: _____

Last Year Matching Funds: _____

Pass-Through Funds: _____

Last Year Pass-Through: _____

Related Projects: _____

Parent Projects: _____

Sea Grant Classification: No. _____ Classif. _____

Keywords:

Objectives:

Methodology:

Empty text area for Methodology.

Rationale:

Empty text area for Rationale.

Accomplishments:

Empty text area for Accomplishments.

Project Summary Form - California Sea Grant - Fillable PDF

Institution: University Of California, California Sea Grant College

ICode: 0600

Title: Baseline Surveys of Deep-water Demersal Communities In and Near Central California MPAs

Project Number:

Project Status: 1 = new

SubProgram: Research - Fisheries

Revision Date:

Initiation Date: 06/11/2007

Completion Date: 06/11/2008

	Last	First	Initial	
Principal Investigator:	Starr	Richard	M.	Effort: 5 mos
Affiliation:	SJSU, Moss Landing Marine Laboratories			Affil. Code: 0628
Co-Principal Investigator:	Yoklavich	Mary	M.	Effort: 5 mos
Affiliation:	National Marine Fisheries Service			Affil. Code: 0000
Assoc. Investigator 1:	Tissot	Brian		Effort:
Affiliation:	Washington State University Vancouver			Affil. Code: 0000
Assoc. Investigator 2:				Effort:
Affiliation:				Affil. Code:

Sea Grant Funds: \$1,009,219

State Matching Funds: \$0

Last Year Sea Grant Funds: \$0

Last Year Matching Funds: \$0

Pass-Through Funds: \$0

Last Year Pass-Through: \$0

Related Projects:

Parent Projects:

Sea Grant Classification: No. 31 **Classif.** Ecosystem Based Management

Keywords: Rockfish, fishery, ecosystem

Objectives:

- The primary objectives of our project, including associated performance indicators, are to:
- Develop baseline information to evaluate changes in species composition, size composition, relative abundance of fishes and macroinvertebrates associated with demersal habitats (including high relief rock substrata and low relief sediments), and trophic structure inside and outside MPAs (MLPA goals 1 and 2).
 - Identify long-term trends in species composition, size composition, biomass, and relative abundance of fishes and macroinvertebrates in proposed or existing MPAs where data have been previously collected, (e.g., Big Creek Reserve, Soquel Canyon, Point Sur, and Portuguese Ledge) (MLPA goals 1 and 2).
 - Collect information on abundance, size of harvested species, and potential reproductive output for development of stock assessments (MLPA goal 2).
 - Provide detailed characterization on both biological and physical components of deep-water habitats, and validate (groundtruth) interpretations of habitat types made from previous seafloor mapping surveys. Groundtruthing of mapping efforts and defining species-habitat associations in deepwater are critical to meaningful comparisons of biological communities inside and outside MPAs – this cannot be accomplished by remote mapping alone (provides information useful for MLPA regional goal 4).
 - Identify biological hot spots in MPAs, including areas containing deep-water coral communities and other sensitive structure-forming invertebrates to inform ecosystem based management plans (provides information useful for MLPA regional goal 4).
 - Collect baseline information

Methodology:

The clear expectation associated with the MPA Monitoring Plan is that MPAs in California will be monitored to evaluate both temporal and spatial changes, and will be evaluated in such a way that allows inferences to be made with respect to causality of observed changes. This is an important directive, because to answer questions about causes of changes in species composition, species diversity, and recruitment, it is necessary to design a monitoring program that enables a comparison among MPAs and reference sites outside MPAs, provides inferences about the entire MPA (not just at fixed stations), and also is sufficiently robust to detect differences with time (i.e., is able to differentiate between spatial and temporal effects). Based on this stated need to evaluate both spatial and temporal changes, we have designed a baseline survey that will enable our results to be used in future monitoring efforts to detect statistically significant changes, both within an MPA over time and among MPAs and reference areas outside MPAs.

In order to collect information that can be used in the future to evaluate entire MPAs, we will randomly sample the deep rock habitats in the newly proposed MPAs and at nearby reference sites (Table 2, Figs. 1-5). We will use the methodology developed in our past surveys. We will first use all available side-scan sonar, multi-beam, and habitat maps to identify rock habitats in three depth ranges: 30-100 m, 100-200 m, and 200-300 m. We will then divide the rock habitats into 500 m by 500 m grids, which will define our sampling universe (Fig. 3).

We will randomly select grid cells to locate submersible dives. A random sampling of grid cells is necessary to infer across all rock habitats inside MPAs and nearby reference sites. There are differences of opinions among scientists about the use of these same selected grid cells in future sampling efforts.

Once the data are collected, analyzed, and compared with data we have collected from some of these areas in the past, we will have more information with which to evaluate the question about continued randomization of sampling locations.

Rationale:

A random sampling of grid cells is necessary to infer across all rock habitats inside MPAs and nearby reference sites. There are differences of opinions among scientists about the use of these same selected grid cells in future sampling efforts. One argument is that because the grid cells are randomly chosen the first year, they can be used again to determine both temporal and spatial changes in the future. An assumption inherent in this position is that, if spatial changes occur from patchy recruitment events or animal movement, the randomly selected grid cells all have an equal chance of detecting this movement. The other argument is that grid cells randomly chosen in the first year do not have an equal chance of detecting spatial changes in abundance if the changes are not random, that is if there is an interaction between a temporal change and a spatial change in abundance (e.g., habitat specific recruitment or depth dependent movement). Our opinion, based on discussions with several statisticians from the fields of both fisheries science and ecology and from the published literature (e.g., van der Meer 1997, Urquhart and Kincaid 1999), is that sampling locations in the future will need to be randomized again to avoid a potential time-space interaction.

Accomplishments:

Our proposed surveys are designed to collect quantitative information about the distribution and abundance of species in deep-water rocky communities, and will provide comprehensive data with which to evaluate temporal changes inside MPAs and differences between MPAs and reference areas. In this respect, the information and protocols we develop will provide the basis for adaptive management decisions that can be made about the new MPAs. Our surveys also will complement baseline surveys conducted in shallow waters and will contribute information helpful to fishery managers about the relative abundance of fished species in central California waters. Moreover, because the populations of most rockfish species have not been assessed, and could very likely be in decline (e.g., the population of bronzespotted rockfish, a relatively rare but economically valuable species, has never been assessed but now appears to be severely depleted following recent evaluation of historic catch records [A. MacCall, NMFS, Santa Cruz, CA, Pers. Comm.]), the information collected in our surveys will be critical to the efforts to develop management plans for these species, as required by the Marine Life Management Act (MLMA).

Project Summary Form - California Sea Grant - Fillable PDF

Institution: University Of California, California Sea Grant College

ICode: 0600

Title: Collaborative Surveys of Nearshore Fishes In and Near Central California MPA's

Project Number: 07-109

Revision Date:

Project Status: 1 = new

Initiation Date: June 11, 2207

SubProgram: Research - Coastal Ocean Research

Completion Date: June 11, 2009

Last First Initial

Principal Investigator: Wendt Dean E **Effort:** 38.3%

Affiliation: California Polytechnic State University **Affil. Code:** 0654

Co-Principal Investigator: Starr Richard M **Effort:** 35% (est.)

Affiliation: Moss Landing Marine Laboratories (SJSU) **Affil. Code:** 0628

Assoc. Investigator 1: **Effort:**

Affiliation: **Affil. Code:**

Assoc. Investigator 2: **Effort:**

Affiliation: **Affil. Code:**

Sea Grant Funds: \$721,160

State Matching Funds: \$46,728

Last Year Sea Grant Funds:

Last Year Matching Funds:

Pass-Through Funds:

Last Year Pass-Through:

Related Projects:

Parent Projects:

Sea Grant Classification: No. 21, 31 Classif. Environmental Monitoring and Assessment and EBM

Keywords: Collaborative Fisheries, Citizen Scientists, Nearshore Fish, MPA Monitoring

Objectives:

We are proposing to monitor Central California MPAs by conducting collaborative research activities with scientists at academic institutions and the commercial and recreational fishing industries of Port San Luis, Morro Bay, Monterey, Moss Landing, and Half Moon Bay, California. We are further proposing to engage the general public in the project by using "citizen scientists" (e.g., recreational fisherman, members of the conservation community, etc.) to help monitor the MPAs and reference sites. The primary objectives of our proposed project are to collect baseline information and develop protocols for a collaborative monitoring program, from which to evaluate long-term changes in fish communities of nearshore rocky habitats associated with MPAs off central California. Our project will provide the biological information necessary to evaluate effectiveness of regional MLPA Goal 1 (protect the natural diversity and abundance of marine life, and the structure, function, and integrity of marine ecosystems), Goal 2 (help sustain, conserve, and protect marine life populations, including those of economic value, and rebuild those that are depleted), and will provide information with which to address Goal 6 (ensure that the central coast's MPAs are designed and managed, to the extent possible, as a component of a statewide network). It is our belief (and experience) that engaging the fishing community and broader public in the process of implementation of the MLPA is critical to the success of this landmark conservation effort.

Methodology:

We will collect information on species composition, size composition (length and weight), sex (when possible), and CPUE. Four nearshore MPA sites and four corresponding reference sites will be selected for monitoring, for a total of eight sites. The 4 MPAs (Año Nuevo State Marine Reserve (SMR), Point Lobos SMR, Piedras Blancas SMR and Point Buchon SMR) we will be monitoring were specifically chosen for several reasons: 1) the nearshore rocky habitat within the selected MPAs is extensive and representative of the rocky habitat in the entire central coast region, so we will be able to extrapolate our results to other areas; 2) three of the four sites are popular fishing areas for both recreational and commercial fisherman (Pt. Lobos has been closed since 1973); 3) including Pt. Lobos will allow us to determine how an MPA that has been in place for several years will "behave" relative to reference sites and newly established MPAs; and, 4) the sites are located relatively close to ports and as such are readily sampled in a single day. Our approach is to identify nearshore rock habitats and stratify these areas with 200m by 200 m grids. We will then present these maps to fishermen and ask them to rate each grid based on their knowledge of its fishing productivity. To detect change over time, we will use fixed stations. We will establish fixed stations based on conversations with fishermen about historically fished areas. In this way we are incorporating fisher experience and knowledge into our sampling protocol. This combination of fixed station sampling and random sampling will provide the greatest opportunity to detect both spatial and temporal changes within and near MPAs. Once at sea, the fishermen will fish anywhere within the cells they deem appropriate using standardized fishing methods (traps, sticks, hook and line gear; ca. 640 citizen scientists will be used per year). All captured species will be measured, tagged with external T-bar anchor tags, and released at location of capture. Our previous data suggests that given the variability between sampling events, we need to sample at least 8 days within a given MPA or reference site. Our schedule will thus include 2 days of sampling for each of three gear types during the months of July to October.

Rationale:

The rationale for the proposed study is to use a collaborative fisheries approach and citizen scientists to help monitor California's marine protected areas established as part of the Marine Life Protection Act. The process for design of California's MPAs incorporated stakeholder knowledge and input through the active design of the network of reserves by regional stakeholder groups. It is critical for the successful implementation of the MLPA that fishermen and other stakeholders take an active role and ownership in the monitoring process as well. Moreover, collaborative approaches to fishery management are gaining support in recent years and our methodology allows us to also collect meaningful data for use in fisheries management as well. Collaborative research has been identified in many policy documents as a desirable way to bridge the gap in credibility of data provided by researchers and fisherman. The policy benefits include increased utilization of the fishing industry's expertise, more information for managers, increased acceptance of data used in management, and increased sense of co-management of resources.

Accomplishments:

We expect to extend our demonstrated value through the proposed program by engaging the general public and fishing industry in a scientifically sound monitoring program and providing critical data to develop a baseline for monitoring MPA effectiveness. Both PIs on the project (Rick Starr, Moss Landing; Dean Wendt, Morro Bay) have successfully worked with the fishing community to gather management-relevant data on near-shore fish species. We have spent a combined time of over 330 days at sea with the fishing industry and we have previously collected "inside/outside" comparisons at Big Creek Marine Reserve with commercial fishermen. As such, the proposed program rests on a foundation of successful multiyear collaborative-research efforts conducted by the PI's. Indeed, the results from the previous efforts have been presented in reports, at academic society conferences and in peer-reviewed journals. Moreover, the data from our previous studies have been requested for use in current stock assessments (e.g., the blue rockfish, cabezon) further illustrating the previous success we have had working with fishermen to collect fisheries-relevant information.