REVISED* Request for Proposals

North Central Coast Marine Protected Areas Baseline Program

(* changes indicated by yellow highlighting)

I. Funding Opportunity Description

The North Central Coast Marine Protected Areas (MPA) Baseline Program is a collaborative effort among the State Coastal Conservancy, Ocean Protection Council (OPC), California Department of Fish and Game (DFG), California Ocean Science Trust, MPA Monitoring Enterprise, and California Sea Grant. The program seeks to provide a summary description, assessment and understanding of ecological and socioeconomic conditions, inside and outside North Central Coast MPAs to be designated under the Marine Life Protection Act, at or near the time of MPA implementation. It also seeks to document the initial socioeconomic effects of MPA implementation and initial ecological changes in select ecosystem elements predicted to respond rapidly to protection.

$4,000,000 has been authorized to support the North Central Coast MPA Baseline Program. Proposals will be accepted for projects of up to three years in duration and including total funding requests of up $3,720,000, with a maximum indirect cost rate of 25%. A bidders' conference will be held on Tuesday, August 25, 2009, from 10:00 am to 5:00 pm in the San Francisco Airport Commission Aviation Library & Louis A. Turpen Aviation Museum, located in the International Terminal of the San Francisco airport, to provide more information to potential applicants and promote partnerships among applicants and collaborators. Additional details of this conference are available on the Sea Grant website. Project proposals will be due no later than 5:00 pm PDT September 28, 2009, and awards are expected to be made by December 18, 2009. Selected projects may begin any time after award contracts have been fully executed, but must commence within one year of the date of adoption of new MPA regulations by the FGC and preferably prior to implementation of regulations. Additional information and project requirements are provided below.

A. Background

The 1999 Marine Life Protection Act (Chapter 10.5 of the California Fish & Game Code, §2850-2863) directs the state to reevaluate and redesign California's system of marine protected areas (MPAs) to meet the following goals:

1. Protect the natural diversity and abundance of marine life, and the structure, function and integrity of marine ecosystems.
2. Help sustain, conserve and protect marine life populations, including those of economic value, and rebuild those that are depleted.
3. Improve recreational, educational and study opportunities provided by marine ecosystems that are subject to minimal human disturbance, and manage these uses in a manner consistent with protecting biodiversity.
4. Protect marine natural heritage, including protection of representative and unique marine life habitats in California waters for their intrinsic values.
5. Ensure California's MPAs have clearly defined objectives, effective management measures and adequate enforcement and are based on sound scientific guidelines.
6. Ensure the State's MPAs are designed and managed, to the extent possible, as a network.

The Marine Life Protection Act (MLPA) further requires monitoring of MPAs, specifically "monitoring, research, and evaluation at selected sites to facilitate adaptive management of MPAs and ensure that the [MPA] system meets the goals

stated in this chapter".[1] The MLPA Master Plan for Marine Protected Areas directs that MPA monitoring programs be developed sequentially as planning is completed for each region.[2] The MPA Monitoring Enterprise has been established under the auspices of the California Ocean Science Trust to lead development of MPA monitoring that will meet MLPA requirements efficiently and cost-effectively. Accordingly, the MPA Monitoring Enterprise, in close collaboration with DFG and in consultation with stakeholders, scientists, and others, is leading development of a North Central Coast MPA Monitoring Plan.

The North Central Coast MPA Monitoring Plan is being built around an innovative, scientific framework designed to meet MLPA monitoring requirements. The framework includes: an assessment of the condition of North Central Coast marine ecosystems and changes in conditions over time, inside and outside MPAs; evaluation of changes in human uses of marine ecosystems following MPA implementation; and approaches to long-term evaluations relating to the design of the regional MPA network, such as MPA size and spacing. The framework has been designed to facilitate adaptive management of MPAs, help ensure that the regional MPA network component meets the goals of the MLPA, and improve understanding of the interaction of different elements within marine systems, as required under the MLPA. A draft of the monitoring plan, incorporating the framework, is scheduled for release for public review and comment in the fall of 2009. The final plan is expected to be submitted to the FGC in early 2010.

B. Program Purposes

The North Central Coast MPA Baseline Program (Baseline Program) is designed to be consistent with the monitoring framework and is essential for providing a foundation for ongoing monitoring.

The purposes of the Baseline Program are:

1. **Baseline Characterization**
   To provide a broad ecological and socioeconomic baseline characterization, meaning a characterization of the system at the time of MPA implementation or prior to MPA related changes occurring. This baseline characterization will provide a frame of reference to support subsequent assessment of MPA network performance against MLPA goals and facilitate future adaptive management. Baseline characterization includes:

   a. *Description of North Central Coast ecosystems inside and outside MPAs*
      Describe ecosystem structure and function, habitats, species assemblages and socioeconomic patterns at specific sites, inside and outside MPAs, and across the study region.
   b. *Initial data points for long-term tracking of condition and trends in North Central Coast ecosystems*
      Establish the initial or "time zero" point(s) to begin long-term monitoring of changes in ecological and socioeconomic elements of the system, inside and outside MPAs, after MPA implementation.
   c. *Assessment of ecosystem condition at MPA implementation*
      Interpret ecological and/or socioeconomic data and results in the context of historical trend data, physical and other system drivers, and data from other protected or unprotected locations to understand the context of the implementation conditions.
   d. *Long-term monitoring recommendations*
      Inform long-term monitoring planning and implementation, for example through:
      i. Assessment and recommendation of new approaches to broad ecosystem assessment;

[1] California Marine Life Protection Act, Fish and Game Code section 2853(c)(3). See also sections 2852(a), and 2856(a)(2)(H).
[2] California Marine Life Protection Act Master Plan for Marine Protected Areas. California Department of Fish and Game. Revised Draft. January 2008. p. 73

ii. Initial examination of draft monitoring indicators provided in the framework, recommendation of refinements or alternatives to these indicators, and recommendation of a minimum or sufficient set of indicators to assess long-term status and trends for one or more Ecosystem Features (defined later in this document);
iii. Surveys of sites inside and outside MPAs to identify and characterize appropriate test and reference or control sites for long-term monitoring, or;
iv. Pilot testing of new or improved methods (analyses, technologies, etc.) for long-term monitoring.

2. Assessment of Initial Socioeconomic and Ecological Changes

To identify and measure initial socioeconomic and ecological changes occurring following MPA implementation, with a focus on those considered likely to be rapid and important effects of the MPAs and investigation of the extent to which such changes can or cannot be attributed to the establishment of the MPAs or other causal or contributing factors. Priorities for assessing initial changes following MPA implementation are:

a. Description of changes in commercial and recreational fishing
Describe changes in commercial and recreational fishing effort, catch and value that are or seem likely to be attributable to MPA implementation.

b. Description of changes in non-consumptive recreational use
Describe changes in recreational boating, shore/beach visitation, marine wildlife viewing, scuba diving, and other recreational activities that are or seem likely to be attributable to MPA implementation.

c. Description of changes in selected ecological components of North Central Coast marine ecosystems
Identify and select habitat, species, or other ecosystem elements considered to be sensitive and rapid in responding to MPA implementation and describe any changes observed that may or seem likely to be due to the MPAs.

This Request for Proposals (RFP) seeks proposals that collectively will best address the above Baseline Program purposes. Proposed projects should include project goals that are explicitly linked to the Baseline Program purposes. Individual projects will be evaluated on their contribution towards the Baseline Program purposes. Proposals addressing multiple purposes and/or ecosystems are encouraged.

C. Program Scope & Timeframe

Priority will be accorded to projects with specific project goals that effectively and efficiently meet one or more of the Baseline Program purposes described above, although consideration will also be given to proposals presenting a compelling case for additional purposes and project goals. Proposals will be accepted for projects up to three years in duration. However, applicants should carefully consider the project duration necessary to achieve stated project goals and should articulate the need for multi-year approaches, where proposed.

The North Central Coast region extends along the California coastline from Alder Creek near Point Arena in Mendocino County to Pigeon Point in San Mateo County and includes all state waters within this region, including the Farallon Islands. Proposals that include data collection outside the North Central Coast region may be considered, but applicants should clearly justify why this is important and necessary to achieve the Baseline Program purposes. The final MPA network for the region is expected to include MPAs of three different types: state marine reserves, state marine parks, and state marine conservation areas as well as other special closures (see Supporting Information, North Central Coast Draft Environmental Impact Report for definitions and more information). All of these are included within the Baseline Program.

Projects may include analysis of existing data and/or collection of new data. Projects to conduct baseline characterization should involve collection of new data only if, or to the extent that, existing data are insufficient to describe and interpret system conditions at the time of MPA implementation. Projects to assess initial socioeconomic or ecological changes following MPA implementation are expected to require collection of new data; the duration of data collection should be scaled to match the timeframe of expected initial changes to a maximum of three years.

D. Program Priorities

As noted above, priority will be given to proposals that best contribute towards achieving the Baseline Program purposes. In order to provide information allowing future assessment of progress toward meeting MLPA goals and to support adaptive management, proposed projects should also align with planned long-term MPA monitoring as described below.

Draft MPA Monitoring Framework

The MPA Monitoring Enterprise, in collaboration with the DFG, has developed a North Central Coast draft MPA Monitoring Framework as the foundation for long-term MPA monitoring. The central focus of this framework is to collect monitoring information that can be interpreted at an ecosystem level – i.e., that can provide information about the condition of, and trends within, whole ecosystems over long time scales, and which also assesses the effectiveness of the regional MPA network toward achieving MLPA goals. The following ecosystem types and human-use categories have been identified as the focuses for MPA monitoring in the region:

- Rocky intertidal ecosystems
- Kelp and shallow (0-30m depth) rock ecosystems
- Deep (30-116m depth) rock ecosystems
- Estuarine ecosystems
- Beaches and soft-bottom intertidal ecosystems
- Subtidal (0-100m depth) soft-bottom ecosystems
- Pelagic ecosystems (defined here as the water column habitat within state waters)
- Consumptive uses
- Non-consumptive uses

These seven ecosystem types and two use categories are collectively referred to as “Ecosystem Features” within the draft monitoring framework, explicitly including humans within ecosystems. These Ecosystem Features collectively represent and encompass the North Central Coast region for the purposes of MPA monitoring, providing a focus for long-term monitoring and a framing for baseline characterization.

Priority will be accorded to proposals that are consistent with this draft framework, and thus will contribute to providing a robust foundation for long-term monitoring. Summary descriptions of the draft long-term monitoring recommendations for the Ecosystem Features are included in Attachment 1 to assist development of project proposals that are consistent with the draft framework.

Priorities for MPA Baseline Characterization

To meet the overall objectives of baseline characterization and align with the long-term draft MPA Monitoring Framework the following priority topics have been identified:

- Description of each Ecosystem Feature including ecosystem structure, ecosystem processes, habitat characteristics, species assemblages, human-uses and socioeconomic structures and patterns inside and outside MPAs
- Analysis and interpretation of habitat mapping data to describe the distribution and characteristics of the Ecosystem Features within the region, inside and outside MPAs
- Provision of the initial data points for ongoing monitoring through collection of data on all candidate metrics for each Ecosystem Feature (see Attachment 1 for summary of candidate metrics)
- Assessment of the implementation conditions for each Ecosystem Feature, inside and outside MPAs, using historical and other existing contextual information (such as economic, fisheries or oceanographic information) where available
- Evaluation of the candidate metrics for each Ecosystem Feature and recommendations for modifications as necessary

In addition, proposals will also be accepted that suggest an alternative approach to meet the Baseline Program purposes. Innovative approaches may be proposed that retain aspects of the draft MPA monitoring framework (e.g., Ecosystem Features) or which include an entirely novel approach to baseline MPA characterization, but compelling justification for the alternative should be provided.

Priorities for Assessment of Initial Socioeconomic and Ecological Changes Following MPA Implementation

The following topics have been identified as priorities for assessment of initial socioeconomic and ecological changes following MPA implementation, aligning with the long-term draft MPA monitoring framework:

- Description of initial changes in consumptive uses, focused on changes in commercial and recreational fishing effort, catch and value associated with individual MPAs, regional ports and across the full North Central Coast region
- Description of changes in non-consumptive uses, focused on changes in the level of recreational boating, shore/beach visitation, marine wildlife viewing and scuba diving activity associated with individual MPAs, coastal communities, access locations and across the full North Central Coast region
- Identification and selection of habitats, species or other ecosystem elements within the Ecosystem Features that are considered to be sensitive and likely to respond to MPA implementation, and description of the changes (or lack of changes) observed inside and outside MPAs
- Assessment of the observed socioeconomic and ecological changes using historical and other contextual information (such as economic indicators, fishing regulations, oceanographic information) to evaluate whether the observed changes may be attributable to MPA implementation

Proposals will also be accepted that suggest alternative focuses for assessment of initial socioeconomic and ecological effects of MPA implementation but compelling justification for the alternative focal topics should be provided.

Project Characteristics (for all projects)

To incorporate the priorities identified above and provide a foundation for a subsequent synthesis of results across all projects and topic areas, projects should strive to include the following elements:

- Inclusion of multiple MPAs and, where appropriate, reference or control sites outside MPAs
- Generalized regional results and conclusions in addition to MPA- or location-specific analyses and conclusions

- For projects addressing MPA baseline characterization, complete baseline characterization for one or more Ecosystem Features including data collection encompassing the draft long-term monitoring recommendations and additional data as necessary to broadly characterize and assess implementation conditions

Given these desired project characteristics, partnerships are strongly encouraged - including partnerships between and among academic scientists and citizen-groups, and partnerships that build upon existing programs and relevant data. The creation of these partnerships will be facilitated by a bidders' conference and participation in this meeting is strongly recommended (additional details described below).

E. Project Deliverables

Primary Investigators are responsible for the production and delivery of the following project products: (1) raw data and metadata; (2) annual progress report(s) for projects exceeding 16 months duration; and (3) final report.

Data and Metadata

Raw data and associated metadata should be delivered to DFG and the MPA Monitoring Enterprise before or as part of the completion of the project. Final project payment will not be made until data and metadata have been received. Raw data products may include, but are not limited to, text reports, databases, spreadsheets, maps, GIS layers, photographs and other images. All projects should employ a standardized reporting protocol. Sufficient metadata should also be provided to fully describe the raw data, collection methods, and data reporting structure. Ecological Metadata Language (EML) is adopted here as a minimum metadata reporting standard. Projects not employing this standard should include justification and description of how their alternative standard meets the minimum requirements.

Upon delivery to DFG and the MPA Monitoring Enterprise and thereafter, all data and metadata will be widely available to the public and other researchers. Investigators, however, will retain the right to publish results before and after project completion.

Annual Progress Reports

For projects exceeding 16 months duration, annual progress reports are required at 12-month intervals following the contract start date. Annual progress reports should briefly describe progress towards specified project goals, and provide timelines (progress in meeting milestones) for work completed and remaining. They should also provide updated financial information including budgeted costs and actual expenditures and justifications for variances. Incurred or anticipated budget (positive or negative) variances in excess of 10% of the budgeted amount should be approved by the Sea Grant Office.

Final Reports

Each project is required to produce and deliver a final report to California Sea Grant. Final reports must include the following sections:

1. A narrative accounting of the project's progress towards program purposes and project goals.
2. A financial report showing budgeted and actual costs and variances, with explanations of any positive or negative variances of greater than 10% of the budgeted amount.
3. For projects including baseline characterization components, a final baseline characterization report, which should include appropriate methods descriptions, data summaries, analyses and interpretation to describe, assess and understand the implementation conditions. Reports should include explicit reference to the Baseline Characterization objectives (Section B, item 1) and the supporting results, analyses and interpretation required to

meet each objective. In addition, reports should include MPA or site characterizations as well as a regional assessment.

4. For projects including identification of initial socioeconomic or ecological changes following MPA implementation, a final report of changes observed (or explored but not observed), the rationale for focusing on those (potential) changes to document potential initial MPA effects, and an interpretation of the causes and contributing factors for the changes or lack of changes observed.
5. An Executive Summary, summarizing methods and key findings and conclusions, in 1-2 pages of text and, if needed, an additional 1-2 pages of figures. The Executive Summary should be written to be appropriate for broad public release (e.g., posting on MPA Monitoring Enterprise website, provision to the FGC).

Final reports will be reviewed by California Sea Grant, DFG, and the MPA Monitoring Enterprise. The sections of final reports consisting of baseline characterization reports and/or reports of initial changes following MPA implementation will also be subject to scientific peer review. Final reports should be revised in accordance with reviewer comments before final submission and acceptance by California Sea Grant. Final project payments will be made following receipt and acceptance of all deliverables.

Following completion of all projects and receipt and acceptance of all final project reports, a synthesis of major findings will be prepared and a final public summary report will be produced. Project Leaders will be given the opportunity to review a draft of the summary report.

F. Supporting Information

MLPA Master Plan
http://www.dfg.ca.gov/mlpa/masterplan.asp

North Central Coast Regional Profile
http://www.dfg.ca.gov/mlpa/nccprofile.asp

North Central Coast Draft Environmental Impact Report (includes detailed descriptions, maps, objectives, and rationale for proposed MPAs)
http://www.dfg.ca.gov/mlpa/impact_ncc.asp

Additional documents relating to regulatory process for North Central Coast MPAs, including proposed regulatory language
http://www.fgc.ca.gov/regulations/new/2009/proposedregs09.asp#632ncc

Additional background information for the North Central Coast MLPA planning process and documents
http://www.dfg.ca.gov/mlpa/northcentralhome.asp

MPA Monitoring Enterprise
http://www.calost.org/monitoring_ent.html

II. Award Information

$4 million is available to support the North Central Coast MPA Baseline Program. Funding is available for projects of any duration up to three years. No limit has been placed on the budget for individual proposals so that multiple investigators can submit collaborative proposals that address numerous issues identified under Program Priorities. Funds are expected to be awarded in December, 2009. Full payment of awards may be contingent on continued availability of state funding.

III. Eligibility Information

A. Eligible Applicants

Individuals, institutions of higher education, nonprofit organizations, commercial organizations, and state, local, and Indian tribal governments are all eligible to submit proposals.

B. Cost-sharing or Match Requirement

Projects must include at least a 25 percent match in funds (cash and/or in-kind contributions) from applicants. Larger matches or additional cost sharing arrangements are encouraged and will be taken into consideration when evaluating proposals (see Evaluation Criteria for more information).

IV. Application and Submission Information

A. Application Package

The entire application package is available online through California Sea Grant's website:
http://www.csgc.ucsd.edu/FUNDING/APPLYING/NorthCentralCoastMPA2009-10.html

If you do not have internet access, please contact Carol Bailey-Sumber at 858-534-7855 or sgproposal@ucsd.edu.

B. Content and Form of Application Submission

Preliminary proposals are *not required*. Only full proposals will be considered. Proposals should include all required elements; incomplete proposals may not be accepted.

Please submit an electronic copy of the full proposal (see Submission Information and Date). The number of pages must be in accordance with the page limitation specified under "Required Elements." All files in the full proposals when printed must measure 8.5" x 11" with an 11 point, san serif font (Arial or Helvetica).

C. Required Elements

Cover Sheet

A cover sheet template is located on the California Sea Grant website. Please provide all requested information and obtain the required signatures. If you are applying from an academic institution, send your original proposal to your Campus research office for local campus approval. If your proposal encompasses more than one campus, please obtain approval from each campus and all required signatures. Make sure to send your original, signed coversheet with your full proposal.

Percentage of time should be shown for the Project Leader and the Co-Project Leader. This should agree with the amount shown on the Sea Grant Project Summary Form and should be converted to "Months of Effort." (Example: 10 percent time=1.2 months of effort.) Please leave the trainee section blank.

Project Summary

A project summary form is located on the California Sea Grant website. The form is a PDF that can be filled out electronically. You may save your information at any time. In addition, there are detailed instructions available that should help you to accurately complete the form. Please follow them carefully - the project summary is the most widely consulted description of your project.

Narrative

Proposal format may vary, however proposals should include all the information listed below. The proposal narrative should not exceed 15 pages (excluding references, illustrations, charts, tables, and figures).

- *Project Title* – Project titles should be constructed to provide as much information as possible but must not exceed two lines (approximately 16 words).
- *Project Leader(s) and Associated Staff* - The roles of the project leader(s) and associated staff should be included.
- *Project Goals and Objectives* – This section should identify the scope of the proposed project in relation to the Baseline Program purposes and priorities identified above.
- *Rationale* – The project rationale should articulate the significance of the proposed project in contributing towards the Baseline Program purposes. Projects will be evaluated on the basis of criteria which include innovative approaches to MPA monitoring. New approaches included in the proposal should be identified and discussed, including discussion of the potential value of the approach for long-term monitoring.
- *Approach to be Used (Plan of Work)* – This section should describe the proposed methods and analytical approaches, and should explicitly consider the utility of existing information and the need for new data collection. Where projects propose new data collection, a rationale for the proposed temporal and spatial scale of sampling should be provided, including rationale for MPA selection. A description of the intended mechanism or analytical framework to provide a regional assessment of the studied ecosystem component should also be included.
- *Outcomes and Deliverables* – Project outcomes should be clearly related to the initial project goals. A clear description of the intended project deliverables should be provided, including description of final reports, data and other products, and associated timelines for development and delivery.
- *Milestones Chart* – Projects may be proposed for up to three years in duration. A graphical representation of the total project duration and sequence of key steps or tasks over the course of the project, with associated timing, should be provided with clear justification for the duration of each key step or task (see example on Sea Grant website).
- *References* – List all included references alphabetically following the list format from the Chicago Manual of Style.

Note: Project Leader(s) will be required to execute a non-disclosure agreement with DFG for awarded projects that require DFG confidential information (such as landings or license information) and/or may be asked to sign a mutually agreed-upon Memorandum of Understanding regarding data expectations (e.g., data housing, maintenance, and protection) for awarded projects that generate their own confidential information as part of the scope of work.

Budget and Budget Justification

Applicants are strongly encouraged to use the California Sea Grant budget form, available to download from the California Sea Grant Proposal web page. Applicants may use their own form as long as it includes the same information as the California Sea Grant form. Each budget should include a separate budget justification page that itemizes all budget items in sufficient detail to enable reviewers to evaluate the appropriateness of the funding requested. Please see the California Sea Grant website for detailed instructions.

Current and Pending Support

Applicants must provide information on all current and pending support where this is relevant to conducting the proposed project. Please use the Current and Pending Research form on the California Sea Grant website.

Vitae

Curriculum vitae should include relevant experience, skills and publications. Publications should be provided in reverse chronological order. A complete list is not required; however applicants should include those publications that are relevant to the proposal. Full vitae should not exceed two pages, single-spaced per individual.

C. Submission Information and Date

Proposals are due in the California Sea Grant office by 5:00 pm (PDT) on Monday, September 28, 2009. Late proposals will not be accepted.

Please upload an electronic copy of all proposal items, with required signatures. The electronic version of your proposal must be submitted as PDFs using the California Sea Grant proposal submission link:

https://csgc.ucsd.edu/wpe/submissions/PILogin.php

IMPORTANT: Contact us at sgproposal@ucsd.edu to obtain a password to use the website link BEFORE submitting any files.

Please make sure to include your last name in the file name for each section of the proposal (e.g., Smith_budget.pdf or Smith_cv.pdf). Once submitted through the website, PDFs may not be edited. To change a PDF, it must be deleted and resubmitted. The maximum size of a PDF submitted online is 6 MB. To submit larger files, please contact sgproposal@ucsd.edu.

For questions regarding the proposal submission website itself, please contact Roberto Chavez at: (858) 534-4441; email rachavez@ucsd.edu.

D. Funding Restrictions

Your total request may not exceed $3,720,000 and in addition, research conducted with North Central Coast MPA Baseline Program funds must limit the indirect cost rate to 25% or less. There are no other funding restrictions.

E. Bidders' Conference

A bidders' conference will be held on Tuesday, August 25, 2009, from 10:00 am to 5:00 pm in the San Francisco Airport Commission Aviation Library & Louis A. Turpen Aviation Museum, located in the International Terminal of the San Francisco airport. Staff from California Sea Grant, the MPA Monitoring Enterprise and DFG will use this opportunity to more fully discuss the objectives of the program with all applicants. The conference will be an opportunity for applicants to ask specific questions or request additional data. Individual applicants or potential collaborators and partners can use it as an opportunity to form collaborations with the objective of submitting joint applications.

All potential applicants are strongly encouraged to attend. Potential public partners, including fishermen and other citizens interested in taking part in monitoring efforts, are also encouraged to attend to explore potential collaborations.

Additional information about the bidders' conference, including directions to the Aviation Museum, is available on the Sea Grant website.

V. Proposal Review Information

A. Evaluation Criteria

Proposals will be evaluated against the following criteria:

1. *Relevance and applicability to the North Central Coast MPA Baseline Program purposes and priorities.*
   Assessment of the alignment of project goals, objectives, and rationale with Baseline Program purposes and with the North Central Coast draft MPA Monitoring Framework or a clearly justified alternative approach.

2. *Scientific/technical merit*
   Assessment of the conceptual framing and technical approaches proposed to achieve project goals. Proposals should seek efficiencies in collecting data that answer multiple questions and address multiple program purposes and priorities.

3. *Innovation*
   Innovative approaches to monitoring that take into account new and/or recently proven monitoring methods or approaches are encouraged particularly where these test efficient approaches for ecosystem assessment including ecosystem structure, function and integrity.

4. *Collaboration and partnerships*
   Inclusion of partnerships between and among, academic scientists, citizen science groups and other community organizations, and partnerships with existing organizations and programs to leverage the financial resources and support from existing efforts. Priority will be given to projects that address multiple MPA Baseline Program purposes through partnerships and collaboration.

5. *Project costs and funding leverage*
   A minimum 25% funding match is required in all proposals. Additional matching funds or cost-sharing is encouraged and will be considered during proposal evaluation. Project costs should appropriately reflect the goals and objectives and proposed methods and should seek efficiencies via collaboration and careful work plan design.

6. *Qualifications of investigator(s)*
   Assessment of whether the applicants possess the necessary knowledge, experience, training, facilities and resources to complete the project.

7. *Project management experience, expertise, and skills*
   Assessment of multiple facets of project management, including a proven track record in completing contracts on time and within budget, experience managing and working in multi-party, multidisciplinary teams, and communication skills. Communication skills include the ability to provide clear and effective communication of project goals, approaches and results to diverse audiences interested in monitoring information.

8. *North Central Coast knowledge & experience*
   Where proposals are ranked equally on the basis of the above criteria, additional priority will be given to those projects that take best advantage of the knowledge and capacity existing within the North Central Coast region, through demonstrated knowledge, partnerships, collaborations or other mechanisms.

B. Review & Selection Process

Selection is competitive. Proposals will be subject to peer-review on the basis of scientific & technical merit. Applications must be submitted to the California Sea Grant College Program Office no later than 5:00pm (PDT) on September 28, 2009 in order to be considered for peer-review and funding. The Baseline Program management team, including representatives of California Sea Grant, the MPA Monitoring Enterprise, DFG, and the OPC will make the final project selection based on the peer-review results and the criteria outlined above. All applicants will be notified of the selection decision by mid-December, 2009.

C. Selection Factors

The Baseline Program management team shall award in rank order unless the proposal is justified to be out of rank order based on any of the following criteria: availability of funds, distribution of funds, duplication of other projects, program priorities, and applicant's prior performance.

Applicants may be asked to modify objectives, work plans, or budgets prior to award funding. Applications must reflect the total budget necessary to accomplish the project. Applicants will be bound by the percentage of cost sharing reflected in the grant award.

D. Announcement & Award Dates

September 28, 2009 (5:00 pm PDT) - Applications due at California Sea Grant College Program
December 7, 2009 (approximate) - Applicants notified of selection results
December 18, 2009 (approximate) - Funds awarded for selected applicants

VI. Award Administration

A. Award Notices

A member of the Baseline Program management team will notify successful applicants by telephone shortly after the review panel meeting in mid-November. A subsequent letter with reviewer comments will follow.

B. Reporting

Applicants who receive a grant award will be responsible for submitting both financial and technical (progress and final) reports to California Sea Grant, as described above.

VII. Program Contacts

A. California Sea Grant

Assistance with overall RFP process and information about the bidders' conference

- Shauna Oh, Assistant Director, California Sea Grant College Program
  Phone: (858) 822-2708
  Email: sgproposal@ucsd.edu

General Proposal Help (assistance with forms, format and submission)

- Carol Bailey-Sumber, Grants Specialist
  Phone: (858) 534-7855
  Email: sgproposal@ucsd.edu

Budget Help

- Catherine Hughes, Business Office
  Phone: (858) 534-4440
  Email: sgbudget@ucsd.edu

Computer/Internet-related Help

- Roberto Chavez , Programmer
  Phone: (858) 534-4441

Email: webadmin@seamail.ucsd.edu

B. MPA Monitoring Enterprise

Assistance with Baseline Program and proposal objectives

- Liz Whiteman, Lead Scientist
  Phone: (510) 251-8317
  Email: mpamonitoring@calost.org

C. Department of Fish and Game

Assistance with DFG programs, priorities, or data

- Jason Vasques, Associate Marine Biologist, MPA Project
  Phone: (650) 631-6759
  Email: jvasques@dfg.ca.gov

Attachment 1: Summary of North Central Coast Draft MPA Monitoring Framework

The following pages provide a summary of aspects of the draft monitoring framework for on-going monitoring of the North Central Coast MPAs. This framework has been developed through consultations with scientists and stakeholders, including members of the former North Central Coast Regional Stakeholder Group and Science Advisory Team. This framework is still under development. It will form the core of the draft North Central Coast MPA Monitoring Plan, which is scheduled for release for public review and comment in October 2009.

The North Central Coast MPA Baseline Program (Baseline Program) responds to the most time-sensitive needs for collecting data to support monitoring: data to describe system conditions at or near the time of MPA implementation in order to provide one frame of reference for future comparisons; and identification and measurement of key socioeconomic and ecological changes in the first two to three years following MPA establishment. Thus, the Baseline Program is being launched before completion of the North Central Coast MPA Monitoring Plan, which focuses more on long-term monitoring and will take several additional months to complete.

The Baseline Program aligns with the North Central Coast MPA Monitoring Plan. It has been designed to complement the monitoring framework, thereby providing a robust foundation on which to implement long-term monitoring. As described in the RFP, the Baseline Program also offers the opportunity to collect data which can help refine this framework and inform long-term monitoring, for example by testing candidate metrics or informing selection of long-term monitoring sites. Priority will thus be given to proposals which are consistent with the draft monitoring framework, as described in the RFP.

Each of the following pages summarizes the current draft approach to monitoring the condition and trends of one of the identified Ecosystem Features. For each Feature, candidate monitoring metrics are presented. Candidates for inclusion in "Ecosystem Feature Checkup" are being developed to facilitate community-based monitoring. Candidates for use in "Ecosystem Feature Assessment" are being developed to provide a finer-grained evaluation of the specified ecosystem. Either or both of "Ecosystem Feature Checkup" and "Ecosystem Feature Assessment" approaches may be used in long-term monitoring to track the condition of the Ecosystem Features, inside and outside MPAs, and how conditions change over time. Possible monitoring configurations will be included in the draft North Central Coast MPA Monitoring Plan.

SUMMARY: KELP & SHALLOW ROCK ECOSYSTEMS

Kelp ecosystems and shallow rock ecosystems occur in areas of rocky substrate between mean lower low tide and 30m water depth. Kelp beds are highly dynamic and canopy extent, for example, may vary dramatically among seasons and years. Many of the same fish and invertebrate species, including economically important species, are found in shallow rock substrate habitats regardless of the presence of kelp. These habitats have therefore been combined into one ecosystem feature. Important drivers of these ecosystems include water temperature and geomorphological context, as well as salinity, nutrients, light, and turbidity.

CANDIDATE METRICS FOR ECOSYSTEM FEATURE CHECKUP

Vital Signs:

- Red sea urchin abundance
- Purple sea urchin abundance
- Red abalone abundance
- Average & maximum rockfish size
- Lingcod average size and abundance

CANDIDATE METRICS FOR ECOSYSTEM FEATURE ASSESSMENT

Candidate Attributes	Candidate Focal Species/Indicators
Biogenic Habitat: Macroalgae assemblage	Areal extent of surface kelp canopy (*Macrocystis pyrifera* & *Nereocystis leutkeana)*
	Kelp stipe density & size structure
Invertebrates	Purple sea urchin (*Strongylocentrotus purpuratus*) density & size structure
	Red sea urchin (*Strongylocentrotus franciscanus*) density & size structure
	Red abalone (*Haliotis rufescens*) density & size structure
	Sea star (*Pisaster/Pycnopodia* spp.) density & size structure
Piscivorous fishes	Black rockfish (*Sebastes melanops*) density & population size structure[1]
	Lingcod (*Ophiodon elongatus*) density & population size structure[1]
	Cabezon (*Scorpaenichthys marmoratus*) density & population size structure[1]

[1] Size structure includes young of the year rockfish where feasible.

POTENTIAL ADDITIONAL METRICS FOR ECOSYSTEM FEATURE ASSESSMENT

Candidate Attributes	Candidate Focal Species/Indicators
Biogenic Habitat: Macroalgae assemblage	Sub-canopy & turf algae cover
	Compound tunicate (multiple species) cover
Planktivorous fishes	Blue rockfish (*Sebastes mystinus*) density and population size structure[1]
Omnivorous fishes	Black & yellow rockfish (*Sebastes chrysomelas*) density & population size structure[1] AND Gopher rockfish (*Sebastes carnatus*) density & population size structure[1]
	Kelp rockfish (*Sebastes atrovirens*) density & population size structure[1]
Unfished fishes	Giant kelpfish (*Heterostichus rostratus*) abundance
	Painted greenling (*Oxylebius pictus*) abundance

[1] Size structure includes young of the year where feasible.

SUMMARY: DEEP ROCK ECOSYSTEMS

Deep rock ecosystems are defined as those areas of rock substrate occurring between depths of 30m and 116m, the maximum depth at which this ecosystem type is found within state waters in the North Central Coast. However most of the deep rock ecosystems in this region occur at depths of 30-50m and monitoring focuses on gathering information most appropriate for the habitats and species assemblages occurring in this depth range. Important physical drivers and contextual information for this ecosystem include geomorphological context and habitat characterization/complexity.

CANDIDATE METRICS FOR ECOSYSTEM FEATURE CHECKUP

Vital Signs:

- Dungeness crab abundance
- Average & maximum rockfish size
- Lingcod average size and density
- Total dwarf rockfish abundance

CANDIDATE METRICS FOR ECOSYSTEM FEATURE ASSESSMENT

Candidate Attributes	Candidate Focal Species/Indicators
Sessile Invertebrates	Density of structure forming invertebrates
	Cover of structure forming invertebrates
Mobile Invertebrates	Density of Dungeness crab (*Cancer magister*)
	Density of sheep (spider) crabs (*Loxorhynchus grandis*)
	Density of box crabs (*Lopholithodes foraminatusi*)
Piscivorous fishes	Bocaccio (*Sebastes paucispinis*) density and size structure
	Yelloweye rockfish (*Sebastes ruberrimus*) density and size structure[1]
	Vermilion rockfish (*Sebastes miniatus*) density and size structure[1]
	Lingcod (*Ophiodon elongatus*) density and size structure
Dwarf rockfish	Total dwarf rockfish abundance

[1] Size structure includes young of the year rockfish where feasible.

POTENTIAL ADDITIONAL METRICS FOR ECOSYSTEM FEATURE ASSESSMENT

Candidate Attributes	Candidate Focal Species/Indicators
Sessile Invertebrates	Cover of encrusting invertebrates
	Metridium spp. bed cover
	Hydrocoral density
Omnivorous fishes	China rockfish (*Sebastes nebulosus*) density and size structure[1]
	Gopher rockfish (*Sebastes carnatus*) density and size structure[1]

[1] Size structure includes young of the year rockfish where feasible.

SUMMARY: ROCKY INTERTIDAL ECOSYSTEMS

Rocky intertidal ecosystems are defined as areas of rock substrate occurring within the zone between mean high tide and mean lower low tide. In the North Central Coast region this includes exposed rocky cliffs, boulder rubble, exposed wave cut platforms and sheltered rocky shores. Important drivers of this ecosystem include geomorphology, temperature, swell, sediment flux, freshwater input, and disturbance (e.g., trampling).

CANDIDATE METRICS FOR ECOSYSTEM FEATURE CHECKUP

Vital Signs:

- Mussel bed cover
- Purple sea urchin abundance
- Owl limpet abundance
- Ochre sea star abundance
- Black abalone abundance
- Red abalone abundance
- Abundance of black oystercatchers

CANDIDATE METRICS FOR ECOSYSTEM FEATURE ASSESSMENT

Candidate Attributes	Candidate Focal Species/Indicators
Biogenic Habitat	Cover of turf algae
	Cover of foliose red algae
	Cover of Fucoids (fleshy brown algae)
	Cover of mussels (*Mytilus* spp.)
	Cover of feather boa kelp *(Egregia* sp.)
	Cover of surf grass (*Phyllospadix* spp.)
Invertebrates	Black abalone (*Haliotis cracherodii*) density and size structure
	Red abalone (*Haliotis rufescens*) density and size structure
	Sea star (*Pisaster ochraceous, Pycnopodia*) density
	Purple sea urchin (*Strongylocentrotus purpuratus*) density
	Giant/owl limpet (*Lottia gigantea)* density and size structure

POTENTIAL ADDITIONAL METRICS FOR ECOSYSTEM FEATURE ASSESSMENT

Candidate Attributes	Candidate Focal Species/Indicators
Predatory birds	Total abundance of piscivorous birds and shorebirds
	Diversity of piscivorous birds and shorebirds
	Abundance of black oystercatchers (*Haematopus bachmani*)
Intertidal fishes	Total YOY (young-of-the-year) rockfish abundance
	Monkeyface prickleback (*Cebidichthys violaceus*) density
	Rock prickleback (*Xiphister mucosus*) density

SUMMARY: SOFT-BOTTOM SUBTIDAL ECOSYSTEMS

Soft-bottom subtidal ecosystems are defined as areas of sediment substrate occurring between mean lower low tide and 100m depth. This ecosystem feature encompasses both nearshore and offshore environments, including sediment habitats in flat expanses and on slopes. This is the predominant habitat type on the continental shelf and slope throughout the region. Important drivers of this ecosystem include oceanographic features (e.g., subsurface currents), sediment supply and characteristics (e.g. grain size), and physical disturbance.

CANDIDATE METRICS FOR ECOSYSTEM FEATURE CHECKUP

Vital Signs:

- Sea star abundance and size structure
- Dungeness crab abundance
- Starry flounder abundance
- Halibut abundance and average size
- Total flatfish abundance

CANDIDATE METRICS FOR ECOSYSTEM FEATURE ASSESSMENT

Candidate Attributes	Candidate Focal Species/Indicators
Biogenic habitat	Total cover of biogenic habitat (multiple species)
	Biogenic habitat diversity
Benthic Infauna	Functional diversity of benthic infauna (feeding guilds) Sand dollar (*Dendraster excentricus*) abundance and size structure
Benthic Invertebrate Predators	Dungeness crab (*Cancer magister*) density and size structure
	Sea star (*Pycnopodia/Pisaster* spp.) abundance and size structure
Demersal Fish Predators	California halibut (*Paralichthys californicus*) density & size structure
	Starry flounder (*Platichthys stellatus*) density and size structure
	Sanddab (*Citharichthys* spp.) density and size structure

POTENTIAL ADDITIONAL METRICS FOR ECOSYSTEM FEATURE ASSESSMENT

None currently.

SUMMARY: ESTUARINE ECOSYSTEMS

Estuarine ecosystems within the North Central Coast region encompass soft-sediment habitats, including coastal marsh, tidal mudflats and eelgrass beds, and areas of open water. The shoreward boundary of this ecosystem feature is drawn at the extent of tidal reach and salt water associated vegetation. Lagoons that are rarely open to the ocean and characterized by more freshwater species are not included. Important drivers of this ecosystem include freshwater regime (flow, sedimentation, nutrients), invasive species, contaminant loads, and geomorphology (grain size).

CANDIDATE METRICS FOR ECOSYSTEM FEATURE CHECKUP

Vital Signs:

- Areal extent of eel grass
- Ghost and mud shrimp abundance
- Clam abundance & size structure (Geoduck, gaper, littleneck clams)
- Starry flounder abundance
- Total diversity and abundance of piscivorous & shore birds
- Harbor seal abundance (colony size)

CANDIDATE METRICS FOR ECOSYSTEM FEATURE ASSESSMENT

Candidate Attributes	Candidate Focal Species/Indicators
Biogenic Habitat	Eelgrass (*Zostera marina*) areal extent
Infaunal Assemblage	Mud shrimp (*Upogebia pugettensis)* abundance
	Ghost shrimp (*Neotrypaea californiensis*) abundance
	Fat innkeeper worm (*Urechis caupo*) abundance
	Pacific gaper clam (*Tresus nuttalli*) abundance
	Littleneck clam (*Protothaca staminea*) abundance
Resident Fish	Shiner (*Cymatogaster aggregata*) and striped (*Embiotoca lateralis*) surfperch abundances
Predatory Birds	Total abundance and diversity of piscivorous birds and shorebirds
Predatory Fish	Leopard shark (*Triakis semifasciata*) abundance
	Bat ray (*Myliobatis californica*) abundance
Harbor seal haulout sites	Harbor seal (*Phoca vitulina richardsi*) abundance (colony size)

POTENTIAL ADDITIONAL METRICS FOR ECOSYSTEM FEATURE ASSESSMENT

Candidate Attributes	Candidate Focal Species/Indicators
Biogenic Habitat	Eelgrass (*Zostera marina*) shoot density
	Areal extent of common pickleweed (*Salicornia virginica*)
	Areal extent of sea lettuce (*Ulva* spp.)
	Native oyster abundance
Infaunal Assemblage	Abundance and foraging rates of shorebirds

SUMMARY: SOFT-BOTTOM INTERTIDAL & BEACH ECOSYSTEMS

Soft sediment intertidal and beach ecosystems are defined as wave-dominated areas of sand and gravel substrate occurring below the mean high tide and above mean lower low water. In the North Central Coast region this includes continuous expanses of sandy shores as well as enclosed or pocket beaches. Habitats with mud substrates, including tidal flats and coastal marsh, and barrier beaches forming at the mouths of rivers are included within the estuarine ecosystem feature for the purposes of identifying key attributes and indicators. Important drivers of this ecosystem include wave regime and nutrient inputs.

CANDIDATE METRICS FOR ECOSYSTEM FEATURE CHECKUP

Vital Signs:

- Abundance of sand crabs
- Total diversity and abundance of piscivorous & shore birds
- Harbor seal colony size

CANDIDATE METRICS FOR ECOSYSTEM FEATURE ASSESSMENT

Candidate Attributes	Candidate Focal Species/Indicators
Suspension feeders	Sand crab (*Emerita analoga*) abundance and size structure
	Razor clam (*Siliqua patula*) abundance and size structure
Surf zone fish assemblage	Surfperch abundance (Embiotocidae, multiple species)
	Surf smelt (*Hypomesus pretiosus*) abundance and size structure
Predatory birds	Total abundance of predatory birds
	Predatory birds species diversity

POTENTIAL ADDITIONAL METRICS FOR ECOSYSTEM FEATURE ASSESSMENT

None currently.

SUMMARY: PELAGIC ECOSYSTEMS

The pelagic ecosystem feature is defined as the water column habitat occurring within state waters, and includes waters overlaying the continental shelf to 116m deep. This ecosystem feature includes oceanographic features such as upwelling and retention areas that affect the productivity and species assemblages within the pelagic environment and influence benthic habitats. During upwelling seasons, nutrient-rich waters fuel highly productive and diverse ecosystems linking pelagic and benthic habitats. Important drivers of this ecosystem include physical oceanography (PDO; temperature; multivariate ENSO index), water quality (oxygen; temperature; HAB occurrence; chlorophyll concentration; nutrients).

CANDIDATE METRICS FOR ECOSYSTEM FEATURE CHECKUP

Vital Signs:

- Pelagic/semi-pelagic rockfish average & maximum size
- Brandt's cormorant abundance (colony size)
- Pelagic cormorant abundance (colony size)
- Pigeon guillemot abundance (colony size)
- Cassin's Auklet breeding success

CANDIDATE METRICS FOR ECOSYSTEM FEATURE ASSESSMENT

Candidate Attributes	Candidate Focal Species/Indicators
Piscivorous Fishes	Widow rockfish (*Sebastes entomelas*) abundance and size structure
	Yellowtail rockfish (*Sebastes flavidus*) abundance and size structure
	Blue rockfish (*Sebastes mystinus*) abundance and size structure
	Shortbelly rockfish (*Sebastes jordani*) abundance and size structure
Seabirds	Brandt's cormorant (*Phalacrocorax penicillatus*) colony size (abundance) and fledgling rate
	Pelagic cormorant (*Phalacrocorax pelagicus*) colony size (abundance) and fledgling rate
	Pigeon Guillemot (*Cepphus columba*) abundance and fledgling rate
	Common murre (*Uria aalge*) colony size (abundance) and fledgling rate

POTENTIAL ADDITIONAL METRICS FOR ECOSYSTEM FEATURE ASSESSMENT

Candidate Attributes	Candidate Focal Species/Indicators
Ichthyoplankton	Total ichthyoplankton abundance
	Total abundance of rockfish larvae
	Ratio of fished species to unfished species

SUMMARY: CONSUMPTIVE USES

Consumptive uses include those activities involving extraction or consumption of living marine resources and reflect the activities discussed within the MLPA Initiative planning process. Important drivers of consumptive uses include changing fishing effort inside and outside MPAs, changes in fisheries regulations, climate and oceanographic shifts causing natural fluctuations in fish stocks, and the broader economic environment.

CANDIDATE METRICS FOR ECOSYSTEM FEATURE CHECKUP

[Under revision]

CANDIDATE METRICS FOR ECOSYSTEM FEATURE ASSESSMENT

DRAFT INDICATOR FRAMEWORK

For each consumptive use or activity, indicators may follow a similar overarching structure:

1. **Number of people engaged in the activity**
2. **Level of activity** (e.g. number of trips, landings of key species per vessel/port/region, CPUE)
3. **Economic value or quality of activity** (e.g. landings value of key species per vessel/port/region, ex vessel value, net revenue)
4. **Knowledge, Attitudes and Perceptions (KAP) of participants**

DRAFT CONSUMPTIVE USES FOR MONITORING

For each consumptive use or activity, potential key fishery species for monitoring are noted. The indicator framework above can be applied to each consumptive use and associated fishery species.

- Commercial Fishing
  - Nearshore rockfish (*Sebastes* spp.)
  - Dungeness crab (*Cancer magister*)
  - California halibut (*Paralichthys californicus*)
  - Red sea urchin (*Strongylocentrotus franciscanus)*
- Recreational Fishing – Commercial passenger fishing vessels (CPFVs)
  - Rockfish (*Sebastes* spp.)
  - Lingcod (*Ophiodon elongates)*
  - California halibut (*Paralichthys californicus*)
- Recreational fishing – Abalone diving

DRAFT ADDITIONAL CONSUMPTIVE USES FOR MONITORING

- Recreational Fishing – Private vessels
- Recreational Fishing – Clamming
  - Pacific gaper clams (*Tresus nuttalli*)
  - Littleneck clams (*Prortothaca staminea*)

SUMMARY: NON-CONSUMPTIVE USES

Non-consumptive uses include activities that do not involve removal of marine resources. Both recreational and commercial aspects of non-consumptive uses are included within this ecosystem feature. Important divers include economic indicators (e.g., fuel costs, unemployment level, GDP, county income statistics), education & outreach activities, and ecological conditions.

CANDIDATE METRICS FOR ECOSYSTEM FEATURE CHECKUP

[Under revision]

CANDIDATE METRICS FOR ECOSYSTEM FEATURE ASSESSMENT

DRAFT INDICATOR FRAMEWORK

For each non-consumptive use or activity, indicators may follow a similar overarching structure:

1. **Level of activity** (spatial use and intensity)
2. **Knowledge, Attitudes and Perceptions (KAP) of participants**

DRAFT NON-CONSUMPTIVE USES FOR MONITORING

The indicator framework above can be applied to each non-consumptive use or activity. Draft non-consumptive uses for monitoring include:

- Scuba diving
- Wildlife viewing – boating and kayaking
- Wildlife viewing – shore based
- Tidepooling

DRAFT ADDITIONAL NON-CONSUMPTIVE USES FOR MONITORING

- Recreational beach use
- Educational opportunity