

**CALIFORNIA GEOSPATIAL COASTAL AND MARINE DATA
INFORMATION MANAGEMENT SYSTEM
SCOPING STUDY**

Request for Qualifications

The [California Ocean Protection Council](#) (OPC) plans to develop a web-based information management system to access, download and view geospatial data to further improve the state's ability to carry out regulation and permitting under and compliance with ocean and coastal protection laws as well as implement environmental management policies. These environmental laws and management policies include, but are not limited to, the following: The California Coastal Act; the California Marine Life Management Act; the federal Coastal Zone Management Act; the federal Oceans Act of 2000, and the resulting US Commission on Ocean Policy report *An Ocean Blueprint for the 21st Century*; the *Interim Framework for Effective Coastal and Marine Spatial Planning, Interagency Ocean Policy Task Force*, December 9, 2009; President Obama's *Executive Order--Stewardship of the Ocean, Our Coasts, and the Great Lakes*, July 19, 2010; and the Public Trust Doctrine.

The OPC is seeking an environmental services consulting firm to conduct a detailed scoping study that will inform the development of this information management system through the following tasks: (1) characterize and summarize the data management and analytical needs of the system's primary users – state government agency staff – and (2) develop a requirements document that summarizes the functional and compliance requirements for a system that would effectively meet the needs of these users. The scoping study shall not be biased towards a specific design solution, but shall focus on the functional requirements of the system based on user needs and requirements.

Interested firms are expected to submit qualifications and relevant experience, a description of their approach, and an estimate of hours and timeline for completing the work. At present, the OPC has budgeted \$100,000 as the maximum amount available for the work sought under this solicitation. Ranking of potential contractors will be based on qualifications alone; however firms should bear in mind the maximum currently available for the proposed work. See the submission requirements of this document for more details.

The deadline for submitting qualifications is 5:00 p.m. on February 8, 2011.

A. BACKGROUND

The California Ocean Protection Council (OPC) was established by the California Ocean Protection Act (COPA) that Governor Arnold Schwarzenegger signed into law in September 2004. COPA directs the OPC to improve the effectiveness of the state in protecting its ocean and coastal resources by coordinating the activities of state agencies that are related to the protection and conservation of coastal waters and ocean ecosystems and recommending policies to coordinate the collection, evaluation, and sharing of scientific data.

Pursuant to this mandate, OPC supports projects and policies that expand marine and coastal data collection and sharing for improving the state's ability to carry out ocean and coastal protection laws and management decisions. The OPC and other California state agency partners have made significant investments in marine and coastal ecological, physical, and socioeconomic data collection. These investments include seafloor mapping, coastal LiDAR data collection, and ecological and socio-economic data gathering to support marine protected area planning.

The OPC is now turning its focus to facilitating access to this data to improve the ability of California's marine and coastal agencies to carry out ocean and coastal protection laws and management policies. These data can provide the best available information and science for informing permitting and regulatory decisions, as well as the planning, scoping, and stakeholder processes that lead up to these decisions.

2009 Geospatial Information and Tools Workshop

In August 2009, the OPC, in collaboration with the California Ocean Science Trust, NOAA Coastal Services Center, the Center for Ocean Solutions, and The Nature Conservancy, hosted a workshop titled "Collaborative Geospatial Information and Tools for California Coastal and Ocean Managers" at Stanford University. The purpose of the workshop was to assess agencies' current and potential capacities and needs to manage and share geospatial data, with the goal of identifying concrete recommendations for improving geospatial data management at the state level. Workshop attendees identified barriers to managing and sharing geospatial data among agencies and methods to overcome those barriers. The workshop's final report (see Attachment 2) identified a number of recommendations for improving geospatial information management and sharing, including coordinating state agencies' data management efforts; developing common data and metadata standards to facilitate the gathering and interpretation of data over time; and assessing data discovery and search tools for investment by the state of California.

The workshop final report also recommended increased collaboration between agencies and the state's Geospatial Information Officer (GIO). In response, the OPC formed the California Coastal and Marine Geospatial Working Group (CCMG-WG) under the California GIS Council. The CCMG-WG includes technical managers and users of coastal and marine geospatial data from the various California state agencies (See Attachment 3). The CCMG-WG seeks to facilitate the improved management, exchange and analysis of geographic information to assist with the protection of California's coastal and marine resources, support environmental assessment efforts, and improve comprehensive planning in coastal and marine areas. To date, the group has catalogued its top-priority data uses and needs, identified several data gaps, and reviewed numerous data management and decision-support tools. The CCMG-WG recently issued a resolution (see Attachment 4) stating that California currently does not possess a coordinated statewide system for sharing and accessing geospatial data on coastal and marine resources, human uses, and existing and potential environmental conditions relevant to coastal management. The resolution recommends that the state expediently fund a stakeholder scoping study and development of an online data-sharing network that allows for the efficient management, accessing, and downloading of coastal and marine geospatial information for the benefit of natural resource management agency staff, decision-makers, and potentially the greater public.

California Legislation Calling for OPC Support for the Use and Sharing of Geospatial Information

The OPC is also responsible for meeting the geospatial information management needs of state agencies pursuant to Assembly Bill 2125 (2010), which states that "the OPC shall support state agencies' use and sharing of scientific and geospatial information for coastal and ocean decision-making, including marine spatial planning" (see AB 2125, Attachment 5). Specifically, AB 2125 requires the OPC to do the following:

- Assess the needs of California's public agencies with respect to their abilities to gather, manage, use, and share information and decision-support tools relevant to ecosystem-based management in the coastal and ocean environment;
- Subject to a determination of need, and in consultation with the relevant coastal or ocean management agency, increase the amount of baseline scientific and geospatial information that is available to agencies in a publicly accessible, electronic, and geospatial format;
- Support public agencies' collaborative management and use of scientific and geospatial information relevant to ecosystem-based management; and

- Help identify decision-support tools relevant to ecosystem-based management, and, where appropriate, support the adaptation of those tools or the creation of new tools to serve the state's needs.

National Directive for Marine and Coastal Geospatial Planning

The need for improved access to and integration of coastal and marine spatial data is also a primary directive of the Executive Order No. 14547 signed by President Obama (July 2010) that adopted the Final Recommendations of the Interagency Ocean Policy Task Force¹. The Executive Order and Final Recommendations call for the development of coastal and marine spatial plans that build upon and improve existing federal, state, tribal, local, and regional decision-making and planning processes. The development of these regional plans will rely heavily on state and regional coastal and marine geospatial data. California will be working with Oregon and Washington to develop methods for sharing relevant data across state boundaries and in developing regional data products for the West Coast Region.

Learning from Existing Information Management Systems

In recent years, a number of government, academic, and private-sector groups have developed information management and decision support tools for geospatial data sharing, analysis, and presentation capabilities. These systems and tools have advantages and disadvantages that can serve to inform the type of information system that California develops. For example, many of these tools incorporate open source data standards and web-based interfaces to provide accessible and user-friendly visual interfaces for understanding coastal and marine geospatial information. Other tools incorporate visualization, mapping, and analysis tools to improve users' ability to participate in decision-making processes like the California Marine Life Protection Act (MLPA) Initiative. Examples of geospatial data management tools that include coastal and/or marine data are listed in Attachment 6.

B. CONTRACT PURPOSE

Coastal and marine geospatial data provide critical baseline information for evaluating the uses and resources of the state's ocean and coasts and for effectively carrying out regulation and permitting under and compliance with ocean and coastal protection laws, as well as implementing environmental management policies. These environmental laws and management policies include, but are not limited to, the following: The California Coastal Act; the California Marine Life Management Act; the federal Coastal Zone Management Act; the federal Oceans Act of 2000, and the resulting US Commission on Ocean Policy report An Ocean

¹ *Final Recommendations Of The Interagency Ocean Policy Task Force July 19, 2010 (The White House Council on Environmental Quality)*. http://www.whitehouse.gov/files/documents/OPTF_FinalRecs.pdf.

Blueprint for the 21st Century; the Interim Framework for Effective Coastal and Marine Spatial Planning, Interagency Ocean Policy Task Force, December 9, 2009; President Obama's Executive Order--Stewardship of the Ocean, Our Coasts, and the Great Lakes, July 19, 2010; and the Public Trust Doctrine.

Currently, these geospatial data are housed in various agencies and databases, using different standards for quality control and varying formats and spatial-temporal resolutions. This heterogeneity presents significant problems for conducting comprehensive marine and coastal ecosystem-based management, which requires sharing and integrating these data, as well as displaying it in publicly-accessible formats to support decision-making processes.

In the 2009 workshop on Collaborative Geospatial Information and Tools for California Ocean and Coastal Managers (Attachment 2), California agencies also identified a number of internal and external barriers to sharing and using geospatial data including: a lack of GIS staff and expertise, insufficient IT infrastructure, and inadequate funding. One way of leveraging capacity and overcoming infrastructure restraints that was discussed is to develop a geospatial information sharing system that provides a user-friendly web interface for accessing coastal and marine geospatial data. California currently has several different web sites for environmental data (listed under References); a few of these provide coastal data, but are generally short on marine data. Other sites are not active, due to a lack of management and/or funding.

The primary goals for the development of a California coastal and marine geospatial information management system are to:

- (1) Provide a web-based, user friendly and well-organized system for locating, accessing, downloading, and viewing California coastal and marine geospatial data, including ecological and socio-economic data;
- (2) Provide direct access to these geospatial data and derived information products (such as seafloor data and maps) for downloading to geospatial viewers (such as ArcGIS, Google Earth, etc.) and other decision support tools, along with accurate metadata;
- (3) Establish a long-term steward for this information management system;
- (4) Identify relevant standards and protocols for making data and derived information products available through the information management system; for meeting the user's data quality and resolution requirements; and for maintaining confidentiality standards; and
- (5) Facilitate access to third-party geospatial mapping and analysis tools and provide links to other relevant state, regional, and federal marine and coastal information management

systems, such as the Integrated Ocean Observing Systems and the Multipurpose Marine Cadastre.

C. SCOPE OF WORK

The principal deliverable of the contract is a scoping document that defines and prioritizes the functional requirements of state agencies for a web-based information management system for California ocean and coastal geospatial data and summarizes potential options for making the California system interoperable with other information management systems. The deliverable should also include a background analysis to justify the prioritized user needs and suggested functional requirements, and it should build upon the information within the Collaborative Geospatial Information and Tools for California Coastal and Ocean Managers Workshop report and additional information provided by the CCMG-WG.

The tasks undertaken as part of this contract should include at a minimum:

1. **Project Kick-off Meeting:** Present the project approach to the CCMG-WG for feedback, including a demonstrated understanding of the findings from the Collaborative Geospatial Information and Tools for California Coastal and Ocean Managers Workshop report (Attachment 2).
2. **Primary User Consultations:** Consult directly with the state agency users of coastal and marine geospatial data including, but not limited to: California Department of Fish and Game, California Coastal Commission, San Francisco Bay Conservation and Development Commission, California State Lands Commission, California Geological Survey, California Department of Parks and Recreation, California State Coastal Conservancy, and California State Water Resources Control Board. Consultations should include both agency GIS staff and project managers and decision-makers and encompass information content and management methods, data formats, spatial and temporal resolution, and metadata, as well as other topics of concern to the users.
3. **Interoperability Assessments:** Conduct scoping sessions with relevant information management system operators to assess approaches for interoperability. These will include:
 - a. Managers of California-based geospatial data and systems, such as those developing data and tools for climate change adaptation, sediment

management, marine protected area monitoring, and other coastal and marine management issues.

- b. Administrators of the Oregon and Washington Coastal Atlas systems.
 - c. Administrators of federal applications, including but not limited to the NOAA Coastal Services Center's Multipurpose Marine Cadastre and the federal Geospatial Platform.
4. Final Scoping Document: Prepare and deliver a document that defines and prioritizes the information requirements of state agencies as users of the information produced by the system. The document shall contain at least the following sections:
- a. User Requirements Document: Translate the results of the user consultations into specific information system requirements that are traceable to a particular user or users. The document should include:
 - i. Functional Requirements: An inventory of functional requirements described for each product or service that the system must provide. These requirements could include, but are not limited to: structure of a database or repository, web portal, data mapper/viewer, data management protocols for updates/sharing/archiving, and security management. For each issue, the inventory should include a description that can be referred to uniquely in the traceability matrix (see 4iii).
 - ii. Workflow Diagrams: Diagrams illustrating the decision processes of project users and the relationship of the information products to those processes.
 - iii. Traceability Matrix: A tabular appendix listing each requirement number and name followed by a point-of-contact for the origination of the requirement.
 - b. Systems Operation Assessment: Provide a summary of considerations for long-term operational sustainability of the system. This assessment should include:
 - i. An evaluation of existing types of information management systems and user interfaces for ocean and coastal geospatial data. Include both proprietary and open source alternatives.
 - ii. A review of existing infrastructure capabilities to meet the identified user requirements and a summary of critical agency or data barriers that could prevent the implementation of a successful system.

- iii. An evaluation of the feasibility and relative cost of adapting an existing state system (i.e. California Coastal Atlas, California Environmental Resources Evaluation System's (CERES) Cal Atlas, Virtual California) versus building a new one.
- iv. A list of entities that could administer such a system effectively for the long-term. Pros and cons of both state and private entities should be evaluated.

The selected contractor is expected to work closely with OPC Project Managers and the CCMG-WG (see Attachment 3 for list of members) and should incorporate several opportunities for feedback on draft materials from this group as part of their project approach.

D. TIMELINE

All deliverables are expected to be completed in six months or less. Submissions shall include a proposed timeline (see Qualification Submission Requirements below).

E. TERMS OF ENVIRONMENTAL SERVICES CONTRACT

The selected firm will be hired under contract to the State Coastal Conservancy (Conservancy), on behalf of the Ocean Protection Council. The Conservancy will attempt to negotiate a contract with the best qualified individual or firm at compensation which the Conservancy determines is fair and reasonable to the State of California. If the Conservancy is unable to do so, negotiation with that individual or firm will be terminated and negotiations will then proceed in the same manner with the other individuals or firms on the list in order of ranking. If the Conservancy is unable to negotiate a satisfactory contract with any of the selected individuals or firms, the Conservancy may select additional individuals or firms and continue the negotiation process.

The retained contractor will be paid for its actual time and expenses for work under the contract up to the amount provided for each task in the final project budget. The contractor should anticipate that ten percent (10%) will be withheld until all work is completed to the satisfaction of the Conservancy. The Conservancy must also approve all interim work products before payment. The contractor will also be required to comply with the substantive requirements of the "Standard Provisions", provided as Attachment 1.

At present, the OPC has budgeted \$100,000 as the maximum amount available for the work sought under this solicitation. Ranking of potential contractors will be based on qualifications

alone (no cost information should be submitted). However, in providing information in connection with the Statement of Qualifications, firms should bear in mind the maximum currently available for the proposed work.

F. REQUIRED KNOWLEDGE, SKILLS, AND ABILITIES:

- Knowledge of natural resource management issues and the role of natural and social science geospatial data and derived information products data in carrying out environmental laws and policies, preferably with respect to California marine resources;
- Familiarity and experience with relevant federal and state regulatory and management agencies that operate in the coastal zone and with their respective mission and statutory and regulatory objectives. These agencies include, but are not limited to California Coastal Commission, California State Lands Commission, California Department of Fish and Game, Coastal Conservancy, and San Francisco Bay Conservation Development Commission.
- Experience with user needs assessments for developing information management systems, with emphasis on initial problem definition
- Understanding of data management and information systems for environmental and the related socio-economic geospatial data, preferably with respect to California marine resources
- Ability to synthesize technical information and present findings accurately, clearly, and effectively

In addition, the following criteria will be used to rank contractors who otherwise have comparable qualifications and competence under the above criteria:

- State-Certified small Business status of the contractor submitting a statement of qualification.
- State-Certified Disabled Veteran Business Enterprise (DVBE) status of the contractor submitting a statement of qualification
- The “good faith effort” of the contractor to subcontract with DVBEs. “Good faith effort” means that a contractor has taken all of the following steps: (a) made contact with the Conservancy to identify DVBEs; (b) made contact with other state and federal agencies and with local DVBE organizations to identify DVBEs; (c) advertised in trade papers and papers focusing on DVBEs unless the Conservancy's time limits do not allow; (d) submitted to DVBEs invitations to bid or other offers to contract; and (e) considered available DVBEs.

G. QUALIFICATIONS SUBMISSION REQUIREMENTS

Statements of Qualifications must include:

1. Cover letter describing approach, relevant experience and qualifications
2. Resume/Curriculum vitae of all relevant employees of contractor
3. An estimate of the number of hours and percent of time each of the contractor's employees will devote to the project
4. A description of contractor's proposed approach to completing the work including an estimated timeline
5. At least one writing sample
6. Name and contact information of three professional references
7. Identification of any *potential* conflicts of interest that the individual or firm may have in carrying out the tasks described herein.

Statement of Qualifications must be received by the Ocean Protection Council on or before 5pm on February 8, 2010 to be considered.

Submissions shall be sent by email or mail to:

Laura Engeman
Ocean Protection Council
1330 Broadway, 13th Floor
Oakland, CA 94612
lengeman@scc.ca.gov

H. List of Attachments

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| Attachment 1 | Standard Contract Provisions |
| Attachment 2 | Collaborative Geospatial Information and Tools for California Coastal and Ocean Managers November 2009 Workshop Proceedings (also available at http://www.centerforoceansolutions.org/Spatial-Data-and-Tools/Workshop-2009/report.html) |
| Attachment 3 | California Coastal and Marine Geospatial-Working Group Members |
| Attachment 4 | California Coastal and Marine Geospatial Working Group Resolution |

Attachment 5 California Assembly Bill 2125

Attachment 6 Examples of Existing Geospatial Information Management Systems with Coastal and/or Marine Data