

**West Coast Governors Alliance on Ocean Health  
FY2011 Regional Ocean Partnership Funding Program Focus Area 2 Objective 3  
Work Plan**

**The West Coast Regional Data Framework: A Next-Generation Coastal and Marine  
Data Network and System to Support Regional and National Ocean Priorities and  
Planning for Ocean Uses**

**Amount of Special Award Condition (Focus Area 2) — \$117,000**



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Project Duration — 1 year

Proposed Cooperative Agreement between NOAA and NFWF to develop a Next-Generation Coastal and Marine Data Network and System to Support West Coast Regional and National Ocean Priorities and Planning for Ocean Uses—Objective #3

**The West Coast Regional Data Framework (Objective 3) : A Next-Generation Coastal and Marine Data Network and System to Support Regional and National Ocean Priorities and Planning for Ocean Uses**

**Phase One**

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## **Project Summary**

**i. Project Name/Title:** The West Coast Regional Data Framework: A Next-Generation Coastal and Marine Data Network and System to Support Regional and National Ocean Priorities and Planning for Ocean Uses.

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**Recipient Organization:** Krystyna Wolniakowski, National Fish and Wildlife Foundation (WCGA fiscal sponsor)

**iv. Other Investigators:** (a) Governor's offices of California, Oregon, and Washington and (b) Regional Data Framework Action Coordination Team Co-Chairs: Andy Lanier, Coastal Resources Specialist, Department of Land Conservation and Development 635 Capitol Street NE, Suite 150 Salem, OR 97301 Phone: (503) 373-0050 ext. 246, [Andy.Lanier@state.or.us](mailto:Andy.Lanier@state.or.us); Matthew Armsby, Environmental Law and Policy Fellow, Stanford Law School, 559 Nathan Abbott Way, Stanford, CA 94305, Phone: (650) 724-8619, [Armsbym1@stanford.edu](mailto:Armsbym1@stanford.edu)

### **v. Brief Project Summary:**

This proposal is intended to advance actions related to Regional Ocean Partnerships and National Ocean Policy priorities by building on work achieved to date to improve geospatial data sharing and coordination to support West Coast ocean health. Funding from this request will implement Phase One of the core elements developed for the Regional Data Framework Action Coordination Team work plan<sup>1</sup>, including an inventory of available West Coast data and data managers and the development of a prototype regional data Registry that provides access to a catalogue of regionally relevant data for download.

The National Fish and Wildlife Foundation (NFWF), acting on behalf of, and fiscal sponsor for, the West Coast Governors Alliance on Ocean Health (WCGA), proposes to launch Phase One in the development of a Regional Data Framework to work with Ecotrust to:

- engage the public and stakeholders in a productive and collaborative process consistent with coastal and marine spatial planning (CMSP) guiding principles;
- provide access to a repository of science-based information to be accessed regionally and nationally;
- help shape a regionally coordinated approach to inform ocean management issues at the ecosystem scale;
- build regional capacity for effective planning for existing and emerging ocean uses on the West Coast as well as regional ocean priorities identified in the WCGA 2008 Action Plan and corresponding 10 Action Coordination Team Work Plans;
- inventory and catalogue available regionally relevant data sources and contacts for data managers; and
- develop the data Registry to increase access to and use of regionally relevant West Coast data.

This proposal has been endorsed by the WCGA, which represents the governors of California, Oregon, and Washington.

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<sup>1</sup> The Regional Data Framework is the overarching structure for regional data management, sharing, and coordination on the West Coast and encompasses both an organization of data managers and users (Network) as well as the technological infrastructure to link those data and people (System).

In 2008, the WCGA released an Action Plan identifying 26 actions aimed at improving and sustaining the health of our shared coastal and ocean resources and the coastal communities that depend on them. To implement the Action Plan, 10 diverse work groups, known as Action Coordination Teams (ACTs), were established to develop comprehensive work plans for tri-state coordination and communication for coast-wide implementation. In 2011, the ACTs expressed the need for better access to, as well as improved management and sharing of scientific and geospatial information as they address specific regional priorities.

In 2012, the WCGA recognized this need by creating the Regional Data Framework ACT to develop and implement recommendations to increase the discovery and use of ocean and coastal data on the West Coast and to help the ACTs and the region address regional ocean issues. The issues include addressing the effects of sea level rise and severe climatic events on marine and coastal environments and communities; preparing for challenges faced by working waterfronts and sustainable coastal communities; exploring options for renewable ocean energy; addressing existing and emerging ocean and coastal health challenges; planning for existing and emerging uses of the ocean; and helping planners visualize the physical, biological, and human environment to support informed decision making.

The primary beneficiaries of the outcomes of the Regional Data Framework are local, tribal, state and federal decision-makers who must consider a variety of complex physical, biological, and socioeconomic issues in the conservation and management of West Coast ocean and coastal resources and uses. Additionally, these outcomes have benefits for coastal communities, academic scientists, private industry investigators, and non-governmental organizations as well as stakeholders that benefit from healthy coasts and oceans. This work is intended to coordinate efforts, avoid duplication, ensure consistency with the national approach, outlined in the National Ocean Policy, be transferable to other regional ocean partnerships, and inform national data sets necessary for National Ocean Policy implementation.

The entire project involves three main phases. The purpose of this proposal is to fund and implement Phase One from May 2012–May 2013:

**1. Phase One—Assess capacity and data needs on West Coast, provide mechanisms for public feedback about Regional Data Framework development, and develop a prototype regional data Registry, to allow for discovery, download, and use of regionally relevant ocean and coastal data sets.**

2. Phase Two—Increase regional capacity for the Regional Data Framework and the WCGA to support and inform West Coast ocean management issues as identified by the WCGA, Regional Planning Body, and National Ocean Council through enhancement of human and technological components of the Regional Data Framework, including developing a map viewer and strengthening partner capacity to participate; and

3. Phase Three—Support the integration of regional scale data sets to inform regional ocean planning and ecosystem-based resource management and develop additional analytical tools.

**vi. Partners and Collaborators:** A comprehensive list of partners and collaborators are listed in Appendix A, and include the West Coast Governors Alliance on Ocean Health (WCGA), the Pacific Fishery Management Council (PFMC), federal, state, and local agencies, nonprofit organizations, academic institutions, tribal sovereign governments, industry representatives, West Coast Integrated Ocean Observing Systems (IOOS) Regional Associations, and others.

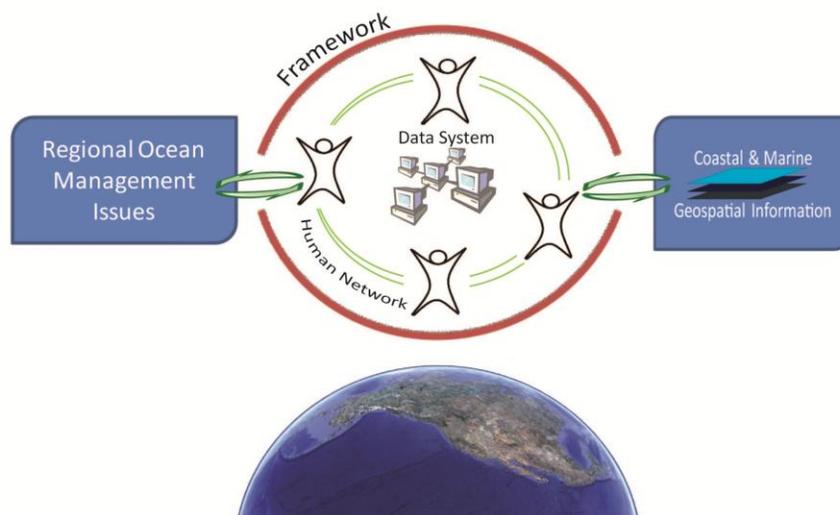
**vii. Proposed funding. \$117,000**

## Project Description

### I. Goals and Objectives

The goal of this proposal is to implement Phase One of the core elements of the Regional Data Framework Action Coordination Team (“**RDF ACT**”) Work Plan to enhance the human and technological components of the West Coast Regional Data Framework (“**Framework**”). The Framework is the overarching structure for regional data management, sharing, and coordination on the West Coast and encompasses both an organization of data managers and users (“**Human Network**”) as well as the technological infrastructure to link those data and people (“**Data System**”). The RDF ACT is the body that represents the broader Human Network and will coordinate and oversee actions described in this proposal. Through the work proposed here, the Framework will inventory available West Coast data and increase access to and discovery of regional oceanographic observations, geospatial records, and socioeconomic data that are essential to informing regional ecosystem-based management, CMSP activities, and issues of regional significance identified through the WCGA 2008 Action Plan<sup>2</sup>.

## Westcoast Regional Data Framework



The West Coast Coastal Atlas Workshop in 2009<sup>3</sup>, the California Geospatial Collaboration Workshop in 2009<sup>4</sup>, the WCGA-hosted stakeholder engagement workshops in each of three states in November of 2010<sup>5</sup>, the West Coast Regional Ocean and Coastal Data Framework Workshop in 2011<sup>4</sup>, and the first meeting of the RDF ACT in 2012 all incorporated the expertise of data managers, data collectors, and data users from state, federal, tribal, academic, and non-governmental institutions and recommended the development of a coordinated approach for regional data sharing and management as described in this proposal.

<sup>2</sup> [http://www.westcoastoceans.org/media/WCGA\\_ActionPlan\\_lowest-resolution.pdf](http://www.westcoastoceans.org/media/WCGA_ActionPlan_lowest-resolution.pdf)

<sup>3</sup> [http://dusk.geo.orst.edu/ICAN\\_EEA/WestCoast/West\\_Coast\\_Atlasses\\_Workshop.pdf](http://dusk.geo.orst.edu/ICAN_EEA/WestCoast/West_Coast_Atlasses_Workshop.pdf)

<sup>4</sup> <http://www.centerforoceansolutions.org/Spatial-Data-and-Tools/Workshop-2009/main.html>

<sup>5</sup> <http://www.westcoastoceans.org/index.cfm?fuseaction=content.display&pageID=137>

<sup>4</sup> [http://www.westcoastoceans.org/media/Data\\_Network\\_ACT/OceanDataProcngsAppends-web.pdf](http://www.westcoastoceans.org/media/Data_Network_ACT/OceanDataProcngsAppends-web.pdf)

In early 2012, the WCGA formalized the organization and coordination of West Coast data managers and users through a new WCGA Action Coordination Team (ACT)—the RDF ACT. In spring of 2012, this group determined their governance structure, organization, core elements of their work plan, and user feedback mechanisms. The core elements of their work plan calls for a three-phased approach to build and enhance human and technological components of the Framework. This work plan describes the Phase One work which will be carried out during 2012 and early 2013:

**PHASE ONE: Assess capacity and data needs on West Coast, provide mechanisms for public feedback about Framework development, and develop a prototype application that will allow for discovery, download, and use of regionally relevant ocean and coastal data sets.**

More specifically, Phase One of the project, to be completed in early 2013, will:

- allow for a robust stakeholder input process to understand West Coast state and federal agency and organizational capacity to contribute and participate in Framework development. This will ensure that the technological infrastructure developed is compatible with partner organizations and takes into account the needs of West Coast users;
- identify the regionally relevant data sets that exist as well as those that are a priority for addressing West Coast issues identified by the WCGA; and
- create a web accessible prototype West Coast Data Registry (“**Registry**”) application allowing partner agencies and organizations to register their data in a central location and thereby increase access to and download of coastal and marine data.

Objectives include:

1. Establish the human and technological Framework necessary to support regional ecosystem-based management on the West Coast ;
2. Inventory and catalogue the available ocean and coastal data on the West Coast as well as the points of contact and data managers responsible for maintaining those datasets;
3. Implement recommendations to build the data Registry to a single point of access to a distributed network of ocean and coastal data on the West Coast.

Upon completion, Phase One will have (1) engaged a broad cross section of interested state, tribal, federal, and regional stakeholders, improving their understanding of the Framework efforts, and incorporating their input into the Framework design; (2) inventoried and catalogued available West Coast ocean and coastal data; (3) built a highly functional and easy to use web-based Registry for increased access, discovery, download, and viewing of regional ocean and coastal data. The results will be increased capacity of Framework partners to inform management issues of regional significance; a data sharing System built to be interoperable, i.e., allow exchange of information, with state, regional, and national systems; and the integration of regional data useful in supporting coastal and marine spatial planning consistent with applicable federal guidelines, including those outlined in the CMSP Guiding Principles.

**MEASURABLE OUTCOMES:** Phase One successes will be measured using the following metrics (work products and established processes):

- Developed a comprehensive list of commonly needed datasets from ACT work plans and related WCGA documents, including a list of priority datasets.

- Created a structured database populated with contact, location, and metadata for selected available content.
- Prepared a report that describes the methodology for the content acquisition process, including a roadmap for the ongoing inclusion of datasets in the RDF Data Catalog.
- Worked with Outreach WG to document regional data contacts/managers identified in the metadata acquisition process.
- Developed a report detailing the costs and benefits of different web services/server options for current and future web storage and processing.
- Created a web-based prototype for the Data Registry and populated it with available data listed in the Data Catalog.
- Worked with NOAA Special Projects Office, the Data and IT Working Groups, and the ACTs to identify and build upon existing relevant system architecture and computer programming code, and create an interface specific to the WCGA.
- Develop recommendations and options for the long-term maintenance and revision of the Data Registry.

## **II. Background**

### Regional Ocean Priorities

The West Coast Governors Alliance on Ocean Health (WCGA) was formed in 2006 as a proactive regional collaboration between the Governors of California, Oregon, and Washington to protect and manage the ocean and coastal resources along the entire West Coast. The WCGA Action Plan, released in 2008, identified 26 critical actions, several of which reference using better data and mapping capabilities for improved decision making, including Action 2.1, which specifically calls for “documenting, describing, and mapping marine and estuarine ecological communities throughout West Coast waters, characterizing existing human uses of those areas, and establishing measures to ensure effective habitat protection.” Additionally, Priority Area 6, Expand Ocean and Coastal Scientific Information, Research, and Monitoring, states that “for the states to support the collection and dissemination of scientific information, they must identify data priorities for management issues, and sustain and expand data collection,” and that there must be “regional data comparability to allow a regional gauge of the state of the ecosystem.” This proposal establishes a Framework to meet these WCGA priority objectives.

Multiple region-wide workgroups, known as Action Coordination Teams (ACTs), were established to develop comprehensive work plans<sup>6</sup> for tri-state coordination and communication for coast-wide implementation of the WCGA Action Plan. Since development of their work plans, the ACTs have identified the need for access to data to achieve specific work plan tasks, including:

The Effects of Sea Level Rise and Severe Climatic Events on Marine and Coastal Environments and Communities

- plan for sea level rise and coastal inundation
- address resiliency and adaptation of coastal communities to climate change and ocean acidification
- respond to climate change adaptation and mitigation
- incorporate habitat usage and climate change information as well as spatial data on vectors for Spartina dispersal

Challenges Faced by Working Waterfronts and Sustainable Coastal Communities

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<sup>6</sup> <http://www.westcoastoseans.org/index.cfm?content.display&pageID=68>

- prepare for manmade and natural hazards, and minimize impact to coastal communities while managing multiple uses
- minimize fishing gear loss
- create/expand cross-sector partnerships to support flexible, adaptable, and resilient coastal economies
- understand current uses and plan investments and improvements in tourism and recreation infrastructure and activities

#### Renewable Ocean Energy Options

- avoid conflicts with other types of offshore development or uses
- provide for public access, and increase certainty and predictability for economic investments
- inform new technologies and uses of oceans

#### Ocean and Coastal Health Challenges

- evaluate alternatives, tradeoffs, cumulative effects, and sustainable uses
- reduce conflict, enhance compatibility among uses, and ensure sustained ecosystem function and services
- establish standards and indicators for ocean health
- address cumulative effects to ensure the protection, integrity, maintenance, resilience, and restoration of ocean and coastal ecosystems while promoting sustainable uses
- describe ecosystem structure, function, services, and human uses on a regional scale

#### Planning for Ocean Uses

- assess implications of alternative ocean use scenarios in the region; evaluate tradeoffs, cumulative effects, sustainable uses
- help planners visualize the physical, biological, and human environment to support informed decision making
- provide numerical ocean observations, geospatial records, socioeconomic data, and other relevant data to support regional ocean planning goals and objectives through an inclusive and collaborative stakeholder process
- inform legal and policy analysis and options for regional ocean governance and ocean planning to advance habitat conservation, renewable ocean energy, and regional and national priorities
- support state and federal ocean planning processes and decision support tools
- develop a long-term plan for hosting and sustainability of the Framework to inform regional and national priorities
- provide access to outcomes/scenarios generated by regional ocean models, climate forcing simulations, socioeconomic forecast models, sub-regional integrated ecosystem assessments, and other decision support tools
- provide a Framework that works directly with and extends the capabilities of present federally supported systems and inform current national data sets with regional information advance regional and national ocean priorities

Access to the best available information is fundamental to improving ocean resource decision making and implementing ecosystem-based management of coastal and marine environments. Often this information already exists, but is not widely known, easily accessible, or in a format that is useful for management.

The West Coast Regional Data Framework workshop, held in December of 2011, was a significant step toward improving the regional coordination and accessibility of high priority ocean and coastal data. By bringing together the technical expertise of state, federal, tribal, academic, and non-governmental organizations, this workshop resulted in new perspectives, partnerships, and potential solutions for improving regional data sharing. Beyond the technical solutions, the establishment of a formal organization

of data managers, developers, and users operating under this Framework can connect people to data in ways that have not been possible in the past. This organization of the human component of the Framework was realized in 2012, with the creation of the Regional Data Framework ACT, comprised of data management and outreach experts from state, federal, tribal, nongovernmental, academic institutions. This group represents and communicates with the broader Human Network of data managers and users on the West Coast.

### The National Ocean Policy

In July 2010, the Obama Administration issued an Executive Order endorsing the first ever *National Policy for the Stewardship of the Ocean, Our Coasts and the Great Lakes*, which established an interagency National Ocean Council and a Framework for “effective coastal and marine spatial planning that establishes a comprehensive, integrated, ecosystem-based approach to address conservation, economic activity, user conflicts and sustainable uses of the ocean, coasts and Great Lakes Resources.” The policy supports a regional planning process based on large marine ecosystems. The WCGA is recognized by NOAA as the leading regional ocean partnership (ROP) for the West Coast.

The National Ocean Policy Task Force defines CMSP as “a comprehensive, adaptive, integrated, ecosystem-based, and transparent spatial planning process, based on sound science, for analyzing current and anticipated uses of ocean and coastal areas. CMSP identifies areas most suitable for various types of activities to reduce conflicts among uses, reduce environmental impacts, facilitate compatible uses, and preserve critical ecosystem services to meet economic, environmental, security, and social objectives.”

The WCGA believes that planning for existing and emerging ocean uses can enable efficient use and protection of natural resources needed to sustain healthy, productive coastal ecosystems and quality of life; help people recognize the complex interrelationships between social, economic and environmental values in coastal areas and work together to balance multiple uses and optimize environmental sustainability; and support diverse economic potential, abundant recreation and tourism opportunities, and sustainable fishing and port operations.

Currently, state agencies in California, Oregon, and Washington are engaged in a variety of activities with components and products that are building blocks for regional CMSP. Notable examples include Washington State’s 2010 marine spatial planning law<sup>7</sup>, Oregon’s process to establish marine reserves and site renewable ocean energy facilities under its Territorial Sea Plan<sup>8</sup>, California’s Marine Life Protection Act Initiative<sup>9</sup> that establishes a network of marine protected areas in state waters, and the California Ocean Protection Council’s 2009 resolution<sup>10</sup> to support interagency collaboration and management of geospatial information.

The outcomes achieved through this proposal address key aspects of the CMSP National Guiding Principles and inform Essential Elements of the CMSP process. By increasing access to and discovery of regional scale geospatial data and best available science, this proposal increases the capacity of resource managers, technical GIS staff, and the public to understand and manage ocean resources on an ecosystem scale. This proposal specifically calls for both environmental and socioeconomic data to help resource managers understand the tradeoffs and cumulative impacts of existing and emerging uses of the ocean. It is designed to be responsive to the needs of a West Coast RPB when one is established. The WCGA has entered into a formal partnership with the West Coast IOOS Regional Associations so that the Framework can be adaptable in real time to changing ocean conditions. Finally, the strong emphasis on public input

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<sup>7</sup> <http://www.ecy.wa.gov/programs/sea/msp/pdf/SB6350.pdf>

<sup>8</sup> [http://www.oregon.gov/LCD/OCMP/Ocean\\_TSP.shtml](http://www.oregon.gov/LCD/OCMP/Ocean_TSP.shtml)

<sup>9</sup> <http://www.dfg.ca.gov/mlpa/highlights.asp>

<sup>10</sup> <http://www.opc.ca.gov/category/projectsbystrategicplan/governance-projectsbystrategicplan/>

into the design and implementation of the Framework ensures that applications developed will meet user needs.

The outcomes achieved through this proposal will also inform both national and regional priorities and enable the WCGA to facilitate a coordinated comprehensive approach to planning and managing marine and coastal resources by its members, stakeholders, and partners. In addition, this proposal addresses four Areas of Special Emphasis identified in the National Ocean Policy:

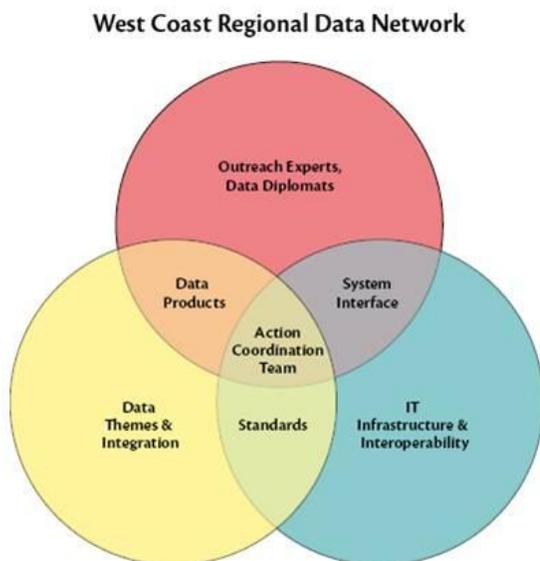
- Resiliency and Adaptation to Climate Change and Ocean Acidification
  - Inform research, observations, and modeling to forecast the effects of sea level rise, coastal inundation, severe climatic events, and other vulnerabilities to coastal communities
  - Enhance integration of coastal and ocean science will improve understanding of interconnectedness
  - Contribute to the development and strategies for research and monitoring
- Regional Ecosystem Protection and Restoration
  - Address science-based ecosystem protection and restoration strategies that align with regional, tribal sovereign nation, and local goals, and will help prioritize ecosystem restoration projects, facilitate collaboration among stakeholders, inform methods for control and prevention of invasive species, and protect, restore, and enhance essential habitats.
- Water Quality
  - Promote sustainable practices on land
  - Identify the impacts of urban and suburban development
  - Inform recommendations to integrate and improve pollution programs
  - Produce best management practices to control factors that degrade ecosystems
- Observations, Mapping, and Infrastructure
  - Integration of data and data sets
  - Meet regional and national needs for ocean information
  - Identify data gaps within highlighting potential opportunities among partners to address the gap
  - Contribute to data management, communication, access, and modeling

### **III. Management Approach and Partnerships**

The West Coast RDF ACT was created in early 2012 to establish a project management approach that leverages the collective resources and expertise of numerous individuals and their respective organizations, as well as to ensure coordination among the West Coast states, federal agencies, and stakeholders. Our approach, modeled after the structure of the Northeast Data Portal management team, includes three working groups: Outreach, Data and Information Technology (IT):

- The **Outreach Working Group** serves as the communication branch of the Framework, ensures that the data products and applications meet the needs of the Framework's intended users, and establishes partnerships with data managers. The Outreach working group is led by Andy Lanier, Co-Chair of the RDF ACT.
- The **Data Working Group** of the ACT determines which data sets need to be included in the System, recommends data standards, provides technical expertise to integrate data from disparate sources into regionally relevant products, and establishes partnerships with data managers. The Data Working Group is led by Chris Romsos, RDF ACT member.
- The **IT Working Group** provides the technical expertise to integrate disparate data sets in different formats into the System, leads the development of the technological infrastructure (Data

System) of the Framework by designing Data System applications including the Registry and map viewer, establishing connections with regional data providers, and hosting technical webinars about Data System functionality. The IT Working Group is led by Emilio Mayorga, RDF ACT member.



*Figure 1: The three circles represent the West Coast Regional Data Network, which is the human component of the Framework. The overall goal of the Framework is to support the informational needs of the WCGA and its constituents. Three technical working groups provide the internal organization of the Network: Outreach, Data, and IT. Aspects of this proposal will be carried out by working groups and overseen and coordinated by the RDF ACT.*

The RDF ACT (area where all circles overlap in Figure 1) oversees and coordinates the activities of all three working groups and fosters cross-pollination of ideas among the groups and throughout the Human Network. The RDF ACT assumes responsibility for the Human Network's organizational and governance policies, ensures that the three technical groups work together to support the information needs of the WCGA and West Coast stakeholders, and oversees the scope of work in this proposal. The working groups are open to any interested member of the West Coast data community, and the ACT benefits from inclusion of representatives from each working group and from the WCGA as well as well as representatives from each West Coast state, tribes, federal agencies, NGOs, academic institutions, and other stakeholders.

The RDF ACT developed core elements of a work plan<sup>11</sup> that describes their 3–5 year vision and strives to maximize opportunities for collaboration, data sharing, and integration of federal, regional, and state efforts. Specific federal involvement includes participation on the RDF ACT as well as providing in-kind contributions and expertise to advance specific tasks in the work plan. The RDF ACT meets monthly to track progress and ensure efficient and coordinated implementation of the work plan. In addition, other entities, such as the Pacific Fishery Management Council, and other key regional organizations, have opportunities, through the outreach proposed in the core elements of the RDF ACT work plan, to provide input and perspectives to the development of the Framework.

The RDF ACT is chaired by Matt Armsby and Andy Lanier, and includes the following members:

**Matt Armsby, Co-Chair**, Stanford Law/Center for Ocean Solutions (COS)

**Andy Lanier, Co-Chair**, Oregon Dept. of Land Conservation and Development (DLCD)

Greg Benoit, California Coastal Commission (CCC)

Christina Cairns, NOAA Coastal Services Center (CSC)

<sup>11</sup>

[http://www.westcoastcoceans.org/media/Data\\_Network\\_ACT/DataNetworkACT\\_WorkPlan\\_CoreElements\\_032212.pdf](http://www.westcoastcoceans.org/media/Data_Network_ACT/DataNetworkACT_WorkPlan_CoreElements_032212.pdf)

Brodie Cox, Washington Dept. of Fish and Wildlife (WFDW)  
Tanya Haddad, Oregon Dept. of Land Conservation and Development (DLCD)  
Emilio Mayorga, Northwest Association of Networked Ocean Observing Systems (NANOOS)  
Samantha Murray, Ocean Conservancy  
Jan Newton, Northwest Association of Networked Ocean Observing Systems (NANOOS)  
Jim Power, U.S. Environmental Protection Agency (EPA)  
Rachel Rodriguez, Yurok Tribe  
Chris Romsos, Oregon State University (OSU)  
Rex Sanders, US Geological Survey (USGS)  
Joel Shinn, U.S. Fish and Wildlife Service (USFWS)  
Charles Steinback, EcoTrust  
Steve Steinberg, Southern California Coastal Water Research Project (SCCWRP)  
Scott Toews, California Ocean Protection Council (OPC)

In addition to overall management oversight for the proposed work provided by the technical expertise of the RDF ACT, we propose forming a Project Team to manage the work described in this proposal. For this work, the RDF ACT developed the contract requirements and an informal call was put out to multiple contractors. Their responses were evaluated against objective criteria and qualifications developed by the RDF ACT. The RDF Act then recommended to our fiscal sponsor the entity that was most uniquely qualified for the work.

**Ecotrust**, a nonprofit organization in Portland, Oregon, was uniquely qualified to conduct the Objective 3 Data Portal Network work due to extensive previous experience with GIS, software development and data mapping. Ecotrust will serve as the project manager for this part of the WCGA grant program and will work closely with NFWF and the Project Team to implement Phase One. They will ensure that the work proceeds on time, within budget, and meets the deliverable requirements.

### **The National Fish and Wildlife Foundation — the Fiscal Agent to the WCGA**

The NFWF was established by Congress in 1984 as an independent not-for profit organization to be the vehicle for the USFWS to establish public-private partnerships. In the early 1990s, NOAA recognized the need to have a similar instrument and underwent a deliberative process to determine whether to create a new entity or to adopt the NFWF as their official foundation. Based on NFWF's success with the USFWS, and with NOAA's concurrence, Congress expanded NFWF's Charter to include NOAA's mission in 1994. Since then, NFWF has been NOAA's not-for-profit foundation and has continued to develop strong partnerships with many different programs within NOAA. NFWF also has partnerships with 20 other federal agencies.

NFWF will serve as the fiscal agent for the WCGA to provide all financial management, grant administration, related technical assistance services, and the reporting needed to support implementation of WCGA initiatives by the states of Oregon, Washington and California, and third party contractors. NFWF's excellence in financial management, combined with its extensive experience bringing experts, managers, industry and stakeholders together to deliver marine and coastal management results, and its seasoned and competent staff make it the ideal fiscal agent for the WCGA's participation in NOAA Regional Ocean Partnership Funding Opportunity. NFWF consistently receives unqualified opinions, with no findings of significant or material weaknesses, on its annual financial and A-133 audits.

NFWF will:

- reach into diverse sectors of the grantee community;
- efficiently solicit proposals through an online application system and then administer grants;
- assist with generating/documenting grantee match;
- raise additional public and private funds through partnerships to leverage investments;

- develop grant contracts, track all expenditures and report on measureable outcomes; and
- coordinate across agencies to maximize the effectiveness of federal funds towards shared objectives.

NFWF will assist WCGA in leveraging funds with other public and private donors to expand the amount of funds available for CMSP efforts in the West Coast region. As fiscal agent for the WCGA, NFWF will work with the WCGA to manage funds raised and help the grantee/partners to develop work plans and grant agreements, and coordinate the reporting and account for the funds both programmatically and financially to donors/funding sources for West Coast initiatives.

#### **IV. Audiences**

The primary audiences are WCGA Action Coordination Teams, which include resource managers, technical GIS staff, and stakeholders from the states of California, Oregon, and Washington, federal agencies (e.g., NOAA, BOEM, EPA, USFWS, USGS), academic, non-governmental organizations, and tribal sovereign nations. Specific audiences include:

- West Coast state agencies including coastal zone management offices, and program-specific offices (e.g., fisheries, nongame species programs, Governor's offices, maritime resource programs, public utility commissions);
- federal agencies and tribal sovereign governments with an interest in coastal and ocean management, science, and governance;
- ocean user groups and commercial and private sector stakeholder sectors, including tourism and recreation groups, offshore energy, and renewable energy developers, commercial and recreational fishing groups, ports, shipping and navigation interests, and marine trades;
- the regional research community, including the ocean observing systems, universities, and Sea Grant programs; and
- stakeholders concerned with habitat protection and ocean conservation, including local government leaders, non-governmental organizations, fishers, recreationists, entities with tourism interests, and other businesses dependent on healthy and resilient coastal and ocean ecosystems.

#### **Approach**

The approach is to carry out actions described in core elements of the RDF ACT Work Plan to build the human and technological components of the Framework to support and inform regional ecosystem-based management, CMSP, and regional ocean management issues as described by the WCGA. Some of the work will be implemented with in-kind contributions from the RDF ACT and Working Group members. Additionally, for Phase One we will work to adapt Registry software that has already been developed by NOAA, and likewise make our technology transferable to others.

#### **Task 1. Synthesis of West Coast Governors' Alliance (WCGA) Action Coordination Team (ACT) Priority Data Needs**

**Cost:** \$10,209

**Timeline:** 3 Months

**Description:** Consultant will review the 10 other WCGA ACT work plans and other relevant WCGA materials to create an initial synthesis of regional data needs. Using the initial synthesis, consultant will conduct correspondence with the 10 ACTs to identify and prioritize specific data and metadata needs. Consultant will then prepare a prioritized list of data and metadata needs and indicate whether the listed data exists or needs to be created. Consultant will also work with existing federal and state agencies and

working groups like the ocean.data.gov team, the NOAA Data and Tools team, and the International Coastal Atlas Network to inventory the data that is available for the region. The consultant will summarize this information and provide it to the Regional Data Framework (RDF) ACT.

**Task 1 Deliverables:**

1. Develop an annotated list of commonly needed datasets from ACT work plans and related WCGA documents. Prioritize needed datasets. (Data and Outreach Working Groups of the Regional Data Framework ACT will assist with the development of appropriate prioritization rules.)
2. Obtain ACTs' feedback on and approval of the list created in Deliverable 1.
3. Summarize findings in a report to the Regional Data Framework ACT and other WCGA audiences, as identified by project supervisors.

**Task 2. Compile Regional Data Framework (RDF) Data Catalog**

**Cost:** Up to \$30,000

**Timeline:** 6 Months

**Description:** Contractor will work with the Regional Data Framework ACT's Data and IT Working Groups to create a Data Catalog. Catalog development will entail populating a database with identified metadata for available priority datasets. In a parallel task, the contractor will help to develop data categories and other filtering tags (e.g. provider, data format, location, specific ACT need etc.) supporting organization of the RDF Data Catalog.

**Definition of RDF Data Catalog:** Structured metadata database with informational attributes identified by the Data and IT Working Groups that describe the priority data's metadata, its location, current availability, access instructions and any needed permissions, and other additional information that is necessary for the data record. This Data Catalog will provide the initial information about priority data for the RDF Data Registry (Task 3).

**Task 2 Deliverables:**

1. Create a structured database and populate it with the selected content defined by the Data and IT Working Groups.
2. Prepare a brief report that describes the methodology for the content acquisition process, including a roadmap for the ongoing inclusion of datasets in the RDF Data Catalog.
3. Work with Outreach WG to document regional data contacts/managers identified in the metadata acquisition process.
4. Develop a report detailing the costs and benefits of different web services/server options for current and future web storage and processing.

**Task 3. Develop RDF Data Registry Prototype**

**Cost:** Up to \$60,000

**Timeline:** 6-12 Months

**Description:** Contractor will work with the RDF Data and IT Working Groups to create a Data Registry working prototype that is based on system design elements identified by the IT Working Group and borrowing heavily from the NOAA CMSP Data Registry. The Data Registry will be populated with the

priority data identified in Task 1 above and listed in the Data Catalog (Task 2). In a parallel task, the contractor will develop a method to evaluate the Data Registry using server metrics to track usage. In addition, the contractor will help to develop recommendations and options for the long-term maintenance and revision of the Data Registry.

**Definition of RDF Data Registry:** A web-accessible catalog system for managing, storing, categorizing and making accessible for machine and human access structured, standardized information about prioritized geospatial datasets. The Registry includes information on remote location and access to data files, and on remote access via standard geospatial web services, including map-rendering services such as OGC Web Mapping Service (WMS). The RDF Data Registry task will also encompass the development of a web-accessible data-storage system for the direct management of a subset of prioritized data sets; this component will include data-download and web-service access capabilities made available via the RDF Data Registry as with remote datasets.

### **Task 3 Deliverables:**

1. Create a Web-based prototype for the Data Registry and populate it with available data listed in the Data Catalog.
2. Work with NOAA Special Projects Office, the Data and IT Working Groups, and the ACTs to identify and build upon existing relevant system architecture and computer programming code, and create an interface specific to the WCGA.
3. Develop recommendations and options for the long-term maintenance and revision of the Data Registry.

## **Benefits**

The benefits of completing the objectives in this proposal would be a major step forward in the ability to discover, use, and apply information, access available decision support tools, and conduct geospatially smart planning for the West Coast as it relates to the increasingly complex task of marine and coastal management. The entire nation will benefit from the increased capacity to conserve and sustainably develop ocean and coastal resources.

A Framework is a necessary first step to support regional CMSP. An interoperable database will:

- help facilitate a synthesis of relevant science in support of marine ecosystem-based management;
- help address the Areas of Special Emphasis identified in the National Ocean Policy and site-specific management needs identified by the WCGA as high-priority issues of regional concern (e.g., community responses to climate change, conservation and habitat protection, marine renewable energy development, gaps in seafloor habitat mapping, sediment and erosion issues, marine debris, polluted runoff, and invasive species);
- support the infrastructure developed by the West Coast IOOS Regional Associations (SCCOOS, CeNCOOS, NANOOS) and incorporate data visualization and geospatial mapping tools;
- be developed with input from regional stakeholders;
- build upon existing CMSP activities;
- make use of forecasts and tools to evaluate alternative coastal and ocean use scenarios;
- constitute a robust and interoperable data visualization system that can accommodate multi-disciplinary data inputs and integrate disparate geospatial data, bio-physical data, social science information, and associated uncertainties in an explicit manner;
- contribute directly to the data access and synthesis requirements of the sub-regional IEAs; and

- offer tangible benefits to coastal and ocean resource managers who are engaged in science-based decision-making.

Other expected benefits from this project include a robust, *Next-Generation Coastal and Marine Data System to support Regional and National Ocean Priorities and Planning for Ocean Uses*, and other pragmatic outcomes and outputs that substantially build capacity for regional ocean governance along the West Coast through development of tools and processes to support planning for existing and emerging uses of the ocean. Collaboration with state and federal agencies, regional fisheries management organizations, tribal sovereign governments, ocean resource stakeholders, and others will help inform the questions that can drive data needs. The enhanced Framework, proposed here, will support efficient and effective stakeholder engagement. The core elements of the RDF ACT Work Plan include key nexus points for the West Coast and its many communities to participate in the development, use, and future of the Framework. The proposed work will identify key existing data sets as well as data gaps and needs. In addition, this proposal ensures long-term sustainability by incorporating a long-term plan for hosting and future versions and upgrades. All of these, and other benefits, will ensure effective CMSP along the West Coast.

**Project Schedule and Milestones**

Project Schedule	Timeline and Milestones			
	Months 1-3	Months 4-6	Months 7-9	Months 10-12
Task 1. Synthesis of West Coast Governors' Alliance (WCGA) Action Coordination Team (ACT) Priority Data Needs	■	■		
Task 2. Compile Regional Data Framework (RDF) Data Catalog		■	■	
Task 3. Develop RDF Data Registry Prototype		■	■	■

**Project Budget by Task**

	<b>Amount</b>	<b>Purpose for Funding</b>
<b>Task 1. Synthesis of West Coast Governors' Alliance (WCGA) Action Coordination Team (ACT) Priority Data Needs</b>	\$10,209	<ol style="list-style-type: none"> <li>1. Develop an annotated list of commonly needed datasets from ACT work plans and related WCGA documents. Prioritize needed datasets. (Data and Outreach Working Groups of the Regional Data Framework ACT will assist with the development of appropriate prioritization rules.)</li> <li>2. Obtain ACTs' feedback on and approval of the list created in Deliverable 1.</li> <li>3. Summarize findings in a report to the Regional Data Framework ACT and other WCGA audiences, as identified by project supervisors.</li> </ol>
<b>Task 2. Compile Regional Data Framework (RDF) Data Catalog</b>	\$30,000	<ol style="list-style-type: none"> <li>1. Create a structured database and populate it with the selected content defined by the Data and IT Working Groups.</li> <li>2. Prepare a brief report that describes the methodology for the content acquisition process, including a roadmap for the ongoing inclusion of datasets in the RDF Data Catalog.</li> <li>3. Work with Outreach WG to document regional data contacts/managers identified in the metadata acquisition process.</li> <li>4. Develop a report detailing the costs and benefits of different web services/server options for current and future web storage and processing.</li> </ol>
<b>Task 3. Develop RDF Data Registry Prototype</b>	\$60,000	<ol style="list-style-type: none"> <li>1. Create a Web-based prototype for the Data Registry and populate it with available data listed in the Data Catalog.</li> <li>2. Work with NOAA Special Projects Office, the Data and IT Working Groups, and the ACTs to identify and build upon existing relevant system architecture and computer programming code, and create an interface specific to the WCGA.</li> <li>3. Develop recommendations and options for the long-term maintenance and revision of the Data Registry.</li> </ol>
<b>Subtotal</b>	<b>\$100,209</b>	
<b>Overhead cost (15%)</b>	<b>\$16,791</b>	
<b>Subtotal</b>	<b>\$117,000</b>	
<b>TOTAL</b>		<b>\$117,000</b>

**Project Budget Line Items following the SF424a form**

<b>Ecotrust Staff</b>	<b>Hourly Rate</b>	<b>Number of Hours</b>	<b>Total</b>
Jennifer Bloeser, Marine Planning Business Manager	\$41.40	267	\$11,055
Tim Welch, Senior Software Developer/Project Manager	\$36.66	445	\$16,313
Cheryl Chen, Marine Planning Project Manager	\$30.62	320.4	\$9,810
Edwin Knuth, Senior Front-end Developer	\$30.62	320.4	\$9,810
Matt Perry, Applications Developer	\$36.66	320.4	\$11,745
Ryan Hodges, Applications Developer/Server Deployment Specialist	\$30.34	320.4	\$9,720
Jon Bonkoski, GIS Analyst	\$30.62	231.4	\$7,085

**Salary total: \$75,538**

**Benefits (at 32%): \$23,417**

**Overhead (at about 15%): \$16,791**

**Travel: \$1,254**

3 Ecotrust Staff at 2 meetings:

Hotel at \$100 per person per night x 3 people x 2 nights = \$600

Meals at \$58 per person per night x 2 days x 3 people = \$348

Airfare/mileage: \$306

**TOTAL BUDGET: \$117, 000**