ANNOUNCEMENT OF FEDERAL FUNDING OPPORTUNITY

EXECUTIVE SUMMARY

Federal Agency Name(s): National Ocean Service (NOS), National Oceanic and Atmospheric Administration (NOAA), Department of Commerce

Funding Opportunity Title: 2011 REPP Concept of Operations for Models to Support Regional Coastal Ecosystem Management

Announcement Type: Initial

Funding Opportunity Number: NOAA-NOS-NCCOS-2011-2002587

Catalog of Federal Domestic Assistance (CFDA) Number: 11.478, Center for Sponsored Coastal Ocean Research - Coastal Ocean Program

Dates: Full proposals must be received and validated by Grants.gov on or before 3 p.m. EST on October 21, 2010. Please note: Validation or rejection of your application by Grants.gov may take up to 2 business days after submission. Please consider this process in developing your submission timeline.

If an applicant does not have Internet access, hard copy proposals will be accepted, and date recorded when they are received in the NCCOS/CSCOR program office. Electronic or hard copies received after the deadline will not be considered, and hard copy applications will be returned to the sender.

Funding Opportunity Description: The purpose of this document is to advise the public that NOAA/NOS/NCCOS/CSCOR is soliciting proposals for a project of 2 years in duration to develop a concept of operations for scenario-type forecasts used for ecosystem-based management of coastal ecosystems. Note that for this opportunity, the term coastal includes Great Lakes systems. Funding is contingent upon the availability of Fiscal Year 2011 Federal appropriations. It is anticipated that final recommendations for funding under this announcement will be made by early Calendar Year 2011, and that any project funded under this announcement will have an August 1, 2011 start date. One project is expected to be supported for 2 years, with an annual budget less than $250K.

Electronic Access: Background information about the NCCOS/CSCOR efforts can be found at www.cop.noaa.gov. Proposals should be submitted through Grants.gov (http://www.grants.gov.)

FULL ANNOUNCEMENT TEXT

I. Funding Opportunity Description

A. Program Objective

The complex environmental challenges in large coastal ecosystems necessitate an integrated systems analysis and adaptive management approach at the regional or ecosystem scale. Given the complexity of these systems, the processes they contain, the multiple sectors they house and multiple uses and ecosystem services they support, information and predictions provided by model simulations have increasingly become essential. These computer models may be used to diagnose environmental problems (i.e., assess what happened) and examine causes and precursor conditions (i.e., why it happened) of events that have taken place or to forecast outcomes and future events (i.e., what will happen). In a management and operational context, decision makers need to project the ecosystem consequences of different climatic or environmental conditions, management scenarios, and/or population trends. These scenario-type forecasts are critical for enabling coastal decision-making to move from a reactive to a proactive mode. Modeling to support coastal management decisions can address a number of issues including water and habitat quality, pollution abatement, invasive species, coastal and marine spatial planning and climate change adaptation. Further, a systems analysis approach is useful for formulating and optimizing management responses to these and other competing issues. Suites of models can be used to analyze not only the processes in the ecosystem under consideration but also address the socio-economic context within which it exists. This type of multi-disciplinary analysis may be a foundational part of an Integrated Ecosystem Assessment (IEA), which is emerging as an important component of ecosystem-based management, and can help in identifying robust and sustainable management actions and policies.

For scenario-type ecosystem-based forecasts there is often no clear pathway for transition to application following research and development, nor objective parameters for judging when a model product becomes sufficient for its intended application. This has slowed the development and availability of these forecasts for critical coastal and ocean management decisions and policies. Scenario-type forecasts present unique challenges because they are typically produced on an as needed basis or on some pre-determined periodic assessment or adaptive management cycle that may have intervals of several years, i.e., calendar-driven, unlike model applications producing forecasts on a 24/7/365 basis which require a more consistent and sustained operational framework. Scenario forecasts also predict multiple future outcomes of complex ecosystems under various if-then scenarios. This makes the communication of model assumptions and uncertainty critical to developing what could be considered an operational decision support tool. As a result, any definition for operational, within a scenario-type predictive environment, has to go beyond

defining operational based on routine availability and move toward a framework related to sustainability, reliability, adaptive improvement cycles, comprehensiveness, accuracy, and defined uncertainty of the prediction product.

Over the past decade, as scenario-based forecasts have matured and moved from scientific to management applications, scientists, managers, and agencies have struggled to develop and apply scenario-based forecasts to regional ecosystem management decisions. Major factors impeding progress have been the costs and long time frames necessary to develop the scientific understanding, data support, availability of model constructs that include key ecosystem parameters of management interest, and operational support required to address complex issues over large spatial and temporal scales. Nevertheless, the field is maturing and much experience has been gained in understanding the technical and policy hurdles, and a variety of lessons learned can be gleaned from these examples to improve procedures and approaches that could lead to more efficient and effective application of ecosystem modeling products to coastal and ocean management. Modeling and forecasting of ecological processes is a priority with many state agencies and regional governance entities as a critical tool to achieve regional ecosystem-based management goals. Several examples are described below.

National task force recommendations, and input from the science community, have urged the development of ecological forecasting capabilities http://aiwg.gsfc.nasa.gov/esappdocs/progplans/eco_ver1-1.pdf, (e.g., Science, Vol 293, 27 Jul 2001, pp 657-660). Several surveys and workshops with coastal managers point to the need for ecological models able to make predictions that will inform ecosystem-based management (for examples, see http://www.nccos.noaa.gov/documents/nutrientpollution.pdf;

http://www.csc.noaa.gov/survey/02survey.pdf; http://www.coastalstates.org/; http://www.csc.noaa.gov/mpa/MPANAFINAL.pdf; http://www.cop.noaa.gov/ecoforecasting/workshops/MPP_finalreport_0107.pdf).

The NOAA Science Advisory Board developed a 2006 report from an external task team to provide advice on ecosystem science within NOAA (http://www.sab.noaa.gov/Reports/eETT_Final_1006.pdf). A key finding from that report was, "Much of the science support for management is needed to forecast the trajectory of ecosystems under different scenarios for management actions, environmental variability, and human actions. Such projections are made with models ranging from conceptual, through statistical and theoretical. All approaches require integrative studies and forecasts to support an ecosystem approach to science and management."

In 2005, the CSCOR supported a workshop to determine modeling needs that utilize the regional observing system in the Gulf of Maine

(http://www.rargom.org/theme/RARGOM_Report%2005-1.pdf). The workshop developed the following critical issues for development:

-Funding regional infrastructure that will allow regional coordination, outreach, and training;

-Advancement of models that have experimental forecasts as products;

-Regional coordination of model assessment (e.g., model skill assessment, evaluation of uncertainties, model ensemble approach to predictions)

In order for ecological forecasts to become more widely utilized to support ecosystem approaches to management, coastal managers and stakeholders need to know the accuracy and uncertainty associated with these predictions. To this end, CSCOR sponsored two workshops of modeling experts to explore methods of quantifying uncertainties in coupled physical-biological models that managers can use in decision-making. A 2009 special volume of an international publication (Journal of Marine Systems Volume 76, Issues 1-2) outlined various methods to quantify uncertainties in these models, and showed examples of their use as applied to models in focus areas of harmful algal blooms, ecosystem dynamics, fisheries, and water quality.

In 2008, the NOAA Integrated Ocean Observing System (IOOS) convened a workshop to discuss modeling needs that could be addressed through IOOS data and modeling activities (http://www.ocean.us/files/MAST_Report_2008.pdf). Recommendations included:

- aggregate a set of standard attributes (e.g., space-time resolution, accuracy, forecast horizons, and timeliness) for operational ocean prediction core variables that can be traced back to user requirements;

- assemble a suite of model skill assessment metrics which form the basis for uncertainty estimates of predictions, tradeoff studies between alternative observing system networks, and validation studies;

- summarize attributes of standard observational data (e.g., variables, including topographic, hydrological, meteorological, ecological, etc. data; space-time resolution; and accuracy) needed for multi-disciplinary model forcing, verification, validation, and data assimilation;

- define needs and outline design and implementation plan for a distributed, one-stop shopping national data portal and archive system for ocean prediction input and output data; and

- draft a CONOPS that delineates the respective roles and responsibilities of the National Backbone and the regional coastal ocean observing systems, including joint activities; e.g., testbeds and ocean prediction experiments.

The National Science Foundation supports activities to develop modeling approaches and environmental observatories (EOs) that provide data assimilated into ecosystem models. NSF supported a Workshop in May, 2006 to assess the views of the environmental modeling community on how it might collectively contribute to the success of the planned EOs. The workshop report (Beck, M.B. 2009. Grand Challenges of the Future for Environmental Modeling. Report of NSF Project Award # 0630367) identifies several grand challenges for the environmental modeling community. While many of the technical modeling challenges identified are beyond the scope of this announcement, some of the challenges apply:

- Challenge # 8: How are structural error/uncertainty and structural change in these models to be identified, quantified, rectified, and accounted for (in the propagation of prediction errors and the making of decisions)? What new schemes of generating environmental foresight will be needed to cope with these challenges?

- Challenge #10: What new methods of evaluating the alternative models designed to fulfill the predictive tasks of policy formation, decision-support, and management for environmental stewardship are urgently needed? How is the uncertainty associated with both the model and the decision-making context to be handled?

- Challenge #12: What steps can the community of model-builders in the Environmental Sciences take to pre-empt and reduce to a minimum the still readily apparent scope for re-inventing the wheels of modeling in contemporary research across the various disciplines of the EOs?

The Environmental Protection Agency has a Council for Regulatory Environmental Modeling (CREM), which recently published a White Paper on Integrated Modeling for Integrated Environmental Decision Making recommending a new approach in modeling and decision making which adopts a systems thinking approach (http://www.epa.gov/crem/library/IM4IEDM_White_Paper_Final_(EPA100R08010).pdf). The white paper recommended:

- Promote better understanding of integrated modeling, its purpose, utility and applicability;

- Develop infrastructures that enhance interoperability among information sources, including models and data;

- Implement mechanisms that enhance communication, coordination, collaboration and knowledge sharing among stakeholders (i.e. scientists, modelers, risk assessors, decision makers and affected stakeholders);

- Foster an enhanced analytical ability to characterize, communicate and understand uncertainties associated with integrated modeling and the implications of these uncertainties for decision making;

- Enable more transparent decision making supported by objective sound scientific analysis.

Active research and development activities have centered on scenario-type ecological forecasts, but no coordinated approach exists to transition them into operational status for regional coastal decision makers. A few examples exist of regional bodies employing scenario models for operational decision-making. For example, the Chesapeake Bay Program uses models to help project the delivery of nutrients and sediments under different conditions (http://www.chesapeakebay.net/modeling.aspx). However, in many other cases, these types of models are still in research or quasi-operational mode, rather than being run within an operational context in standardized ways for decision making.

Demand is growing rapidly for reliable predictive capabilities that can support ecosystem approaches to managing large aquatic ecosystems. A strategic, sustained and efficient approach to meeting these increasing demands will yield the following benefits for a variety of agencies and coastal management authorities:

- Cost-savings and efficiencies by taking advantage of existing capabilities or economies of scale rather than inventing or re-inventing new processes for every particular forecast;

- Closer linkages and shorter time frames between model development and applications;

- Clearer operational pathway for ocean observations to be assimilated into predictive models and forecasts;

- More opportunities for collaboration, cost-sharing and consistency in approaches across model development efforts;

- Known accuracy and precision of predictions to facilitate decision-making processes;

- Ability to develop and sustain more sophisticated model constructs to better match the demand for realistic ecosystem simulations across traditional management sectors;

- Increased availability, and therefore use, of state-of-the-art modeling tools to support science-based coastal management decisions;

- Higher probability of success in ecosystem restoration at the regional scale.

B. Program Priorities

CSCOR has been a leader in the development of marine and coastal ecological forecasts (http://coastalscience.noaa.gov/about/ecoforecasts.html) and is committed to providing decision makers with high-quality scientific information and predictive tools that provide the underpinnings for ecosystem-based management in coastal regions. The development of ecological forecasts and predictive capacity has been the driving force behind CSCOR's ecosystem research and that of its predecessor, the Coastal Ocean Program, for over 20 years.

To facilitate the further development and application of scenario-type forecasts to support proactive management of coastal systems, CSCOR requests proposals to support a working group made up of experts in the field that will carefully examine the current and future requirements of models for coastal resource management, particularly at the regional ecosystem scale, and examine existing procedures being used by various federal, state, academic, private, and non-profit entities to develop the modeling and predictive capabilities required for ecosystem-based management. No new experimental research activities will be supported by this RFP as the primary focus will be on the synthesis of existing information and knowledge through working group meetings, workshops and subsequent analysis. From analysis of current activities and a projection of future requirements and capabilities, recommendations will be developed to increase the use, acceptability, and sustainability of scenario forecasts to coastal managers and the users of forecast products.

The synthesis, findings and recommendations should include:

- Examination of the existing and future predictive information needs of coastal managers and policymakers working at the regional ecosystem scale so that they can be translated into operational criteria for scenario- and ecosystem-based forecasts and an analysis of existing multi-disciplinary modeling frameworks in support of the needs above to understand the limitations, costs, and benefits of each approach;

- Identification of pathways for the robust and efficient development, linkage and dissemination of model components and platforms which leverage activities among federal, state, academic, private and non-profit entities and lead to actionable information for coastal managers and policymakers working at the regional ecosystem scale.

- Recommendations regarding existing physical, chemical and biological modeling frameworks; pros and cons of alternative model types; and how various modeling components can be linked to provide more holistic decisions support.

Specifically, the effort will target the following questions:

- What constitutes an operational scenario forecast for sustained, adaptive management of regional coastal ecosystems considering:

o Time scales - how often should the model(s) be run and model results conveyed?

o Uncertainty - how can uncertainties and model assumptions be specified and relayed with model results? What levels of certainty are needed for decision-makers to act on the results of model forecast results?

o Sustainability - who would be appropriate owner(s)/operator(s) of these models? What would it take to sustain operational scenario forecasts, including support for data collection, management, and assimilation into forecasts?

o Communication - how should management requirements and questions be refined and detailed modeling results be distilled into actionable information for coastal management decisions?

o Information technology - what role does existing and emerging information technology play in facilitating interoperability among models and serving model outputs to local and regional decision makers?

o Standardization of data input and model output - how standardized can we expect these approaches to become, while still maintaining regional specificity?

- Should operational scenario forecasting infrastructure be established on a regional basis, or through a centralized national structure?

o Are there model components that can be modularized, standardized, or handled as a national backbone (e.g. common physical circulation models)?

o Is there a role for modeling test beds, or quasi-operational entities that can provide a link between research, development and operations?

- While physical circulation models for coastal regions are becoming more mature and robust, modeling of the many critical chemical and biological components of these ecosystems is less well developed.

o Are there emerging modeling frameworks for chemical and biological processes that are (1) particularly promising in terms of their representation of key variables and process that are of critical interest to coastal managers and (2), can also be efficiently linked to other model components and adapted to multiple systems at the regional scale?

o What are the possibilities for model nesting from global-scale models to the regional and local scales that coastal managers require?

- How could research needs be identified in an ongoing iterative way to fill modeling gaps, and how can the resulting research be incorporated into improved modeling frameworks in a routine manner in harmony with adaptive management cycles?

o What are the most efficient approaches to developing complex ecosystem models (e.g., single fully integrated model, linkage of large sub-models, community modeling, ensemble modeling)

o What are the tradeoffs among model complexity, model applicability to multiple ecosystem components, and model utility to management objectives?

Through analyses of current and past programs, workshops and working group deliberations, a pathway, or multiple pathways, will be articulated for the development and transition of scenario-based modeling approaches to address coastal ecosystem-based management objectives at a regional scale. The main result of the working group's efforts will be a synthesis of the issues involved in developing, transitioning and using scenario-based forecasts in coastal management decisions (many of which are posed as questions above), and recommendations on improving the pathway from research and development to use in the coastal management community. A comprehensive report of working group synthesis and recommendations should be made widely available to coastal managers and model developers through publication in a national forum. Special sessions and symposia at national scientific and coastal zone management meetings are expected to be utilized to solicit input as well as disseminate findings. In addition to articulating robust pathways for operationalizing scenario-based forecasts, best practices for the major components of the modeling to management pathway should be identified so that these types of forecasts, and their use, can be handled with more success and efficiency in the future. Proposals should describe the anticipated synthesis report in detail.

The format and activities of the working group should meet the following expectations:

- The working group is expected to include representatives from the scientific model development community, from state and Federal management and policy agencies, and operational or industry forecasting entities. Applications that include only scientific or only user community representatives will not be successful.

- Experts beyond the core working group may be involved through workshops, symposia, or other meetings of the working group. Wider meetings could include modelers experienced in areas such as watershed modeling, estuarine modeling, coastal ocean modeling, airshed modeling, climate change modeling, ecosystem modeling and socio-economic modeling, and representatives from management groups who routinely utilize

models or model output in management contexts, and who are involved in developing and implementing ecosystem-based management approaches, especially in a regional context.

- The working group is expected to look broadly across many model types, coastal geographies and coastal management issues at a regional ecosystem scale in order to understand current practices, management needs and future opportunities. However, the primary focus of the working group's recommendations should be on models used to generate information for adaptive coastal management at the regional ecosystem scale.

- One project is expected to be supported for 2 years, with annual budgets not to exceed $250K.

Application to Management

To ensure continued interaction with, and attention to, critical management issues, the following are requirements of this proposal: 1) The project working group must include representatives from management agencies that utilize scenario-type forecasts for decision-making; and 2) The meetings and workshops convened by the working group must include management practitioners and end users of model output. Relevance to management applications is specifically included as an important review criterion for these proposals.

C. Program Authority

16 U.S.C. 1456c

II. Award Information

A. Funding Availability

Funding is contingent upon availability of Federal appropriations. NOAA is committed to continual improvement of the grants process and accelerating the award of financial assistance to qualified recipients in accordance with the recommendations of the Business Process Reengineering Team. In order to fulfill these responsibilities, this solicitation announces that award amounts will be determined by the proposals and available funds. Award amounts will not exceed $250,000 per project per year with project durations of 2 years.

Applicants are hereby given notice that funds have not yet been appropriated for this program. In no event will NOAA or the Department of Commerce be responsible for proposal preparation costs if this program fails to receive funding or is cancelled because of other agency priorities. There is no guarantee that sufficient funds will be available to make awards for all qualified projects. Publication of this notice does not oblige NOAA to award

any specific project or to obligate any available funds. If one incurs any costs prior to receiving an award agreement signed by an authorized NOAA official, one would do so solely at one's own risk of these costs not being included under the award.

Publication of this notice does not obligate any agency to any specific award or to obligate any part of the entire amount of funds available. Recipients and subrecipients are subject to all Federal laws and agency policies, regulations and procedures applicable to Federal financial assistance awards.

B. Project/Award Period

Full proposals may cover a project/award period of up to 5 years, but shorter-term project proposals will also be welcomed. Multi-year awards may be funded incrementally on an annual basis, but once awarded those awards will not compete for funding in subsequent years. Each award requires a project description that can be easily divided into annual increments of meaningful work representing solid accomplishments.

The following is a description of multi-year awards for those applicants subsequently recommended for award. Multi-year awards are awards that have an award/project period of more than 12 months of activity. Multi-year awards are partially funded when the awards are approved, and are subsequently funded in increments. One of the purposes of multi-year awards is to reduce the administrative burden on both the applicant and the operating unit. For example, with proper planning, one application can suffice for the entire multi-year award period. Funding for each year's activity is contingent upon the availability of funds from Congress, satisfactory performance, and is at the sole discretion of the agency. Multi-year funding is appropriate for projects to be funded for 2 to 5 years. Once approved, full applications are not required for the continuation out years.

During the implementation phase of research projects funded under this announcement, regardless of the funding mechanism used, CSCOR Program Managers will analyze financial statements and progress reports for each continuing multi-year project, and will have dialogue with the Principal Investigators and Authorized Representatives of the recipient institutions to discuss research progress and expected time lines for the remaining award period. Program Managers will consider the length of time remaining for each project, the amount of funds available, the tasks to be completed in the upcoming fiscal year, the pace of research, and any delayed progress relative to that originally proposed, before determining the amount of funds to allocate to continuing research projects in any given fiscal year.

C. Type of Funding Instrument

The funding instrument will be a Cooperative Agreement. A cooperative agreement implies that the Federal government will assist recipients in conducting the proposed research. The application should be presented in a manner that demonstrates the applicant's ability to address the research problem in a collaborative manner with the Federal government. A cooperative agreement is appropriate when substantial Federal government involvement is anticipated. This means that the recipient can expect substantial agency collaboration, participation, or intervention in project performance. Substantial involvement exists when: responsibility for the management, control, direction, or performance of the project is shared by the assisting agency and the recipient; or the assisting agency has the right to intervene (including interruption or modification) in the conduct or performance of project activities. In the case of the Scenario Forecasting announcement, the CSCOR program manager will participate in important activities which may include education about and discussion of research activities, participation in meetings, suggestions on management linkages, guidance on NOAA philosophy, directions, and priorities, and research strategy discussions. The NOAA program manager may also seek the advice of other partners in providing advice to the funded project.

In an effort to maximize the use of limited resources, applications from non-Federal, non-NOAA Federal and NOAA Federal applicants will be competed against each other.

Research proposals selected for funding from non-Federal researchers will be funded through a cooperative agreement. Research proposals selected for funding from non-NOAA Federal applicants will be funded through an interagency transfer, provided legal authority exists for the Federal applicant to receive funds from another agency and NOAA applicants will be funded through an intra agency transfer. PLEASE NOTE: Before non-NOAA Federal applicants may be funded, they must demonstrate that they have legal authority to receive funds from another Federal agency in excess of their appropriation. Because this announcement is not proposing to procure goods or services from the applicants, the Economy Act (31 U.S.C. section 1535) is not an appropriate basis. Support may be solely through NCCOS/CSCOR or partnered with other Federal offices and agencies.

III. Eligibility Information

A. Eligible Applicants

Eligible applicants are institutions of higher education, other non-profits, state, local, Indian Tribal Governments, commercial organizations US Territories and Federal agencies

that possess the statutory authority to receive financial assistance. DOC/NOAA supports cultural and gender diversity and encourages women and minority individuals and groups to submit applications to the CSCOR programs. In addition, DOC/NOAA is strongly committed to broadening the participation of historically black colleges and universities, Hispanic serving institutions, tribal colleges and universities, and institutions that work in underserved areas. DOC/NOAA encourages proposals involving any of the above institutions

Please note that:

(1) NCCOS/CSCOR will not fund any Federal Full Time Employee (FTE) salaries, but will fund travel, equipment, supplies, and contractual personnel costs associated with the proposed work.

(2) Researchers must be employees of an eligible entity listed above; and proposals must be submitted through that entity. Non-Federal researchers should comply with their institutional requirements for proposal submission.

(3) Non-NOAA Federal applicants will be required to submit certifications or documentation showing that they have specific legal authority to receive funds from the Department of Commerce (DOC) for this research.

(4) Foreign researchers may apply as subawards through an eligible US entity

(5) Non-Federal researchers affiliated with NOAA-University Cooperative/Joint Institutes should comply with joint institutional requirements; they will be funded through grants either to their institutions or to joint institutes.

B. Cost Sharing or Matching Requirement

None

C. Other Criteria that Affect Eligibility

Each proposal must also include the thirteen elements listed under Required Elements, (1)-(13) or it will be returned to sender without further consideration. A check list with the required and requested proposal elements can be found in Section VIII.

Permits and Approvals

It is the applicant's responsibility to obtain all necessary Federal, state and local government permits and approvals where necessary for the proposed work to be conducted.

Applicants are expected to design their proposals so that they minimize the potential adverse impact on the environment. If applicable, documentation of requests or approvals of environmental permits must be received by the Program Manager prior to funding. Applications will be reviewed to ensure that they have sufficient environmental documentation to allow program staff to determine whether the proposal is categorically excluded from further National Environmental Policy Act (NEPA) analysis, or whether an Environmental Assessment is necessary in conformance with requirements of the NEPA. For those applications needing an Environmental Assessment, affected applicants will be informed after the peer review stage; and will be requested to assist in the preparation of a draft of the assessment (prior to award). Failure to apply for and/or obtain Federal, state, and local permits, approvals, letters of agreement, or failure to provide environmental analysis where necessary (e.g. NEPA environmental assessment) will also delay the award of funds if a project is otherwise selected for funding.

IV. Application and Submission Information

A. Address to Request Application Package

Applications submitted in response to this announcement are strongly encouraged to be submitted through the Grants.gov web site. The full funding announcement for this program is available via the Grants.gov web site: http://www.grants.gov. This announcement will also be available by contacting the program official identified below. You will be able to access, download and submit electronic grant applications for NOAA Programs in this announcement at http://www.grants.gov. The closing dates will be the same as for the paper submissions noted in this announcement. NOAA strongly recommends that you do not wait until the application deadline date to begin the application process through Grants.gov.

Please refer to important information in Submission Dates and Times (Section IV.C.) to help ensure your application is received on time.

Applicants should contact the Program Manager for non-electronic submission instructions.

Facsimile transmissions and electronic mail submission of full proposals will not be accepted.

B. Content and Form of Application

This document requests full proposals only.

1. Proposals

The provisions for full proposal preparation provided here are mandatory. Proposals received after the published deadline (refer to DATES) or proposals that deviate from the prescribed format will be returned to the sender without further consideration. Information regarding this announcement and additional background information are available on the NCCOS/CSCOR home page: http://coastalscience.noaa.gov/about/ecoforecasts.html. An example proposal can be found: http://www.cop.noaa.gov/opportunities/grants/pdf/sample_application.pdf and FAQs are also available:

2. Required Elements

For clarity in the submission of proposals, the following definitions are provided for applicant use: Funding and/or Budget Period - The period of time when Federal funding is available for obligation by the recipient. The funding period must always be specified in multi-year awards, using fixed year funds. This term may also be used to mean budget period. A budget period is typically 12 months. Award and/or Project Period - The period established in the award document during which Federal sponsorship begins and ends. The term award period is also referred to as project period in 15 CFR 14.2(cc).

Each proposal must include the following thirteen elements or it will be returned to sender without further consideration. The Summary title page, Abstract, Project Description, References, Biographical Sketch, Current and Pending Support, Budget Narrative and Collaborators List must be in 12-point font with 1-inch margins. The thirteen elements are as follows:

(1) Standard Form 424. At the time of proposal submission, all applicants requesting direct funding must submit the Standard Form, SF-424, Application for Federal Assistance, to indicate the total amount of funding proposed for their institution for the whole project period. This form is to be the cover page for the original proposal. Multi-institutional proposals must include signed SF-424 forms from all institutions requesting direct funding. Original signatures are required on SF-424 forms provided to a lead institution by a collaborating institution for grants.gov submission.

(2) Summary title page. The Summary title page identifies the project's title, starting with the short title: REPP -Concept of Operations and the Principal Investigator's (PI) name and affiliation, complete address, phone, FAX and E-mail information. The requested budget for each fiscal year with and without ship funding should be included on the Summary title page. Multi-institution proposals must also identify the lead investigator for each institution and the requested funding with and without ship funding for each fiscal year for each institution on the title page. Lead investigator and separate budget information is

not requested on the title page for institutions that are proposed to receive funds through a subaward to the lead institution;

(3) One-page abstract/project summary. The summary (abstract) should appear on a separate page, headed with the proposal title, institution(s), investigator(s), total proposed cost (with and without ship funds), and budget period. It should be written in the third person and not exceed one page in length. The summary is used to help compare proposals quickly and allows the respondents to summarize these key points in their own words. Project summaries of applications that receive funding may be posted on program related websites.

The project summary shall include an introduction of the problem, rationale, scientific objectives and/or hypotheses to be tested, and a brief summary of work to be completed.

(4) Project description. The description of the proposed project must include narratives of the Proposed Research and of the Applications to Management.

The Proposed Research Narrative must be thorough and explicitly indicate its relevance to the program goals and scientific priorities by:

(a) Identifying the topic that is being addressed by the proposal;

(b) Describing the proposed scientific objectives and research activities in relation to the present state of knowledge in the field and in relation to previous and current work by the proposing principal investigator(s);

(c) Discussing how the proposed project lends value to the program goals;

(d) Identifying the function of each PI. The Lead PI (s) will be responsible for communicating with the Federal Program Manager on all pertinent verbal or written information. If applicable, the format and role of management and technical advisory committees should be included in this section. If required, proposals should specifically identify direct participation of resource manager(s) as co-Principal Investigators.

The Proposed Research Narrative should provide a full scientific justification for the research, rather than simply reiterating justifications presented in this document. Specific research activities must be divided into annual increments of work that include specific objectives and methodology.

The Applications to Management Narrative should establish the connection to relevant resource management needs by explicitly identifying the end user group(s) including evidence of the linkage between the scientific questions and management needs. If applicable, the format and role of management and technical advisory committees should be included in this section. If required, proposals should specifically identify direct participation of resource manager(s) as co-Principal Investigators.

This narrative should provide the management justification for the research through:

(a) Articulating the coordination with one or more management entities;

(b) Discussing the expected significance of the project to resource management priorities and needs. Specific management targets, with proposed outputs and outcomes, should describe how this project will improve management capabilities. Outputs are defined as products (e.g. publications, models) or activities that lead to outcomes (changes in management knowledge or action). Definitions and examples of outputs and outcomes can be accessed at http://www.cop.noaa.gov/opportunities/grants/outcomes.aspx. The timeline for achieving outcomes should be included in the Milestone Chart (below).

(c) Describing specific activities, such as workshops or development of outreach materials, that will enhance information transfer from project scientists to relevant management entities, other end-users, or the public.

The project description must not exceed 25 pages in 12-point, easily legible font with 1 to 2 pages for the Applications to Management Narrative and the balance used for the Proposed Research Narrative, inclusive of figures and other visual materials, but exclusive of references, a milestone chart, letters of intent from unfunded collaborators, and letters of endorsement.

(5) References cited. Reference information is required. Each reference must include the names of all authors in the same sequence they appear in the publications, the article title, volume number, page numbers, and year of publications. While there is no established page limitation, this section should include bibliographic citations only and should not be used to provide parenthetical information outside of the page limits given above for proposal descriptions.

(6) Milestone chart. Provide time lines of major tasks covering the duration of the proposed project.

(7) Standard Form 424A. At time of proposal submission, all applicants are required to submit a SF-424A Budget Form which identifies the budget for each fiscal year of the proposal. Place each fiscal year in separate columns in Section B of page 1 on the SF424A. (Note that this revised 424A Section B format is a NOAA requirement that is not reflected in the Instructions for the SF 424A). For 5 year projects, use two SF424As. Place the first four years on one form in Section B columns one through four. The first four years will total in column five. Place the total from the first form onto the second form in Section B column one and use column two for the fifth year budget figures. The budget figures must correspond with the descriptions contained in the proposal. Multi-institution proposals must include a SF-424A for each institution, and multi-investigator proposals using a lead investigator with a subaward approach must submit a SF-424A for each subaward. For

Scenario Forecasting, we are soliciting multi-investigator proposals using one lead investigator per working group proposal, with subawards to other participating PIs. Each subaward must submit a separate SF-424A. Each subaward should be listed as a separate item. The lead PI should list all subaward costs under line item 6.f. contractual on the SF-424A.

Provide separate budgets for each subaward and contractor regardless of the dollar value and ist all subaward and contractor costs under line item 6.f. contractual on the SF-424A. Signed approval from the institution of each subaward and contractor must be provided. Indirect cost may not be applied to ship costs.

(8) Budget narrative and justification. In order to allow reviewers to fully evaluate the appropriateness of costs, all applications must include a detailed budget narrative and a justification to support all proposed budget categories for each fiscal year. Personnel costs should be broken out by named PI and number of months requested per year per PI. Support for each PI should be commensurate with their stated involvement each year in the milestones chart (see Required Elements (6) Milestone chart). Any unnamed personnel (graduate students, post-doctoral researchers, technicians) should be identified by their job title, and their personnel costs explained similar to PI personnel costs above. The contribution of any personnel to the project goals should be explained. Describe products/services to be obtained and indicate the applicability or necessity of each subaward and contractor. Travel costs should be broken out by number of people traveling, destination and purpose of travel, and projected costs per person. Equipment costs should describe the equipment to be purchased, and its contribution to the achievement of the project goals. For additional information concerning each of the required categories and appropriate level of disclosure please see http://www.cop.noaa.gov/opportunities/grants/other_instructions.aspx.

A separate budget justification is required for each institution in a multi institutional project and for each subcontract. Signed approval from each subaward and contractor's institution is also required.

(9) Biographical sketch. All principal and co-investigators, including unfunded collaborators making a substantial contribution to the research, must provide summaries of up to 2 pages that include the following:

(a) A listing of professional and academic credentials and mailing address;

(b) A list of up to five publications most closely related to the proposed project and five other significant publications. Additional lists of publications, lectures, and the rest should not be included;

(10) Current and pending support. Describe all current and pending federal financial/funding support for all principal and co-investigators, including unfunded

collaborators making a substantial contribution to the research. Continuing grants must also be included. The capability of the investigator and collaborators to complete the proposed work in light of present commitments to other projects should be addressed. Therefore, please discuss the percentage of time investigators and collaborators have devoted to other Federal or non-Federal projects, as compared to the time that will be devoted to the project solicited under this notice. A current and pending support form is not required but is available on the CSCOR web site for your use; http://www.cop.noaa.gov/opportunities/grants/initial_submission.aspx. You must respond to the requirement whether or not you have any current and/or pending support.

(11) A list of all applicable permits that will be required to perform the proposed work. You must respond to this requirement element whether or not permits are required

(12) Provide one list that includes all (US and Foreign) collaborators, advisors, and advisees for each investigator (principal and co-principal investigators, post-docs, and subawardees), complete with corresponding institutions. Submit only one, combined and alphabetized list per proposal. Collaborators are individuals who have participated in a project or publication within the last 48 months with any investigator, including co-authors on publications in the resumes. Collaborators also include those persons with which the investigators may have ongoing collaboration negotiations. Advisees and Advisors do not have a time limit. Advisees are persons with whom the individual investigator has had an association as thesis advisor or postdoctoral sponsor. Advisors include an individual?s own graduate and postgraduate advisors. Unfunded participants in the proposed study should also be listed (but not their collaborators). This information is critical for identifying potential conflicts of interests and avoiding bias in the selection of reviewers.

(13) Evidence of accomplishments from prior CSCOR support. Please supply a list of manuscripts published or other products, such as models, developed as a result of prior CSCOR support including projects not yet completed. You must respond to the requirement whether or not you have accomplishments from prior CSCOR support

Proposal format and assembly. Proposals submitted via Grants.gov APPLY should follow the format guidelines below:

Attachments must be submitted in Adobe Acrobat PDF format to maintain format integrity. Please submit the required documents as described below.

Follow the instructions found on the Grants.gov web site for application submission into the Grants.gov system. All required forms that do not have specific placeholders in the Mandatory Document box must be submitted in the Optional Form box as Other Attachments and labeled with the document name i.e., budget narrative, project description, milestone chart etc.

For a multi institutional proposal: Combine all of the required documents for the individual institution into one PDF file in the Optional Form box as Other Attachments and submit the file labeled with the name of the institution. Repeat this procedure for each collaborating institution.

Save your completed application package with two different names before submission to avoid having to re-create the package should you experience submission problems. If you experience submission problems that may result in your application being late, send an e-mail to support@grants.gov and call the Grants.gov help desk. Their phone number is posted on the Grants.gov web site. The Program Manager associated with the RFA will use programmatic discretion in accepting proposals due to documented electronic submission problems. Please note: If more than one submission of an application is performed, the last application submitted before the due date and time will be the official version.

In addition to the thirteen required elements, it is requested the SF-424B, CD-511, Key Contact form (available on the CSCOR web site at http://www.cop.noaa.gov/opportunities/grants/initial_submission.aspx and the indirect rate agreement be provided upon application submission. It is allowable for applicants to suggest merit reviewers on the Summary Title Page.

These forms can be uploaded in to the Optional Form box under Other Attachments in Grants.gov. Signed approval from each subaward and contractor's institution is also requested.

Lead applicants of multi-institutional proposals should include in their submission complete application packages for each institution requesting direct funding. PLEASE NOTE: Signed SF424s from each applicant requesting direct funding is a submission requirement.

Lead applicants using the Co-PI subaward approach should include SF424A, budget justification, current and pending support, and CVs, for each subaward.

C. Submission Dates and Times

Full proposals must be received and validated by Grants.gov on or before 3 p.m. EST on October 21, 2010. Please note: Validation or rejection of your application by Grants.gov may take up to 2 business days after submission. Please consider this process in developing your submission timeline.

If an applicant does not have Internet access, hard copy proposals will be accepted, and date recorded when they are received in the NCCOS/CSCOR program office. Electronic or hard copies received after the deadline will not be considered, and hard copy applications will be returned to the sender.

Note that late-arriving hard copy applications will be accepted for review only if the applicant can document that:

1) the application was provided to a delivery service with delivery to the National Oceanic & Atmospheric Administration, 1305 East-West Highway, SSMC4, Mail Station 8240 8th Floor, Silver Spring, Maryland 20910-3282;

2) delivery was guaranteed by 3 pm, Eastern Time on the specified closing date; and,

3) the proposal was received in the NCCOS/CSCOR office by 3 p.m., Eastern Time no later than 2 business days following the closing date.

Investigators submitting proposals electronically are advised to submit well in advance of the deadline.

D. Intergovernmental Review

Applications under this program are not subject to Executive Order 12372, Intergovernmental Review of Federal Programs. It has been determined that this notice is not significant for purposes of Executive Order 12866. Pursuant to 5 U.S.C. 553(a) (2), an opportunity for public notice and comment is not required for this notice relating to grants, benefits and contracts. Because this notice is exempt from the notice and comment provisions of the Administrative Procedure Act, a Regulatory Flexibility Analysis is not required, and none has been prepared. It has been determined that this notice does not contain policies with Federalism implications as that term is defined in Executive Order 13132.

E. Funding Restrictions

Indirect Costs: Regardless of any approved indirect cost rate applicable to the award, the maximum dollar amount of allocable indirect costs for which DOC will reimburse the recipient shall be the lesser of (a) the line item amount for the Federal share of indirect costs contained in the approved budget of the award or (b) the Federal share of the total allocable indirect costs of the award based on the indirect cost rate approved by a cognizant or oversight Federal agency and current at the time the cost was incurred, provided the rate is approved on or before the award end date. NCCOS/CSCOR will not fund start up or

operational costs for private business ventures and neither fees nor profits will be considered as allowable costs. Ship costs may not be included in indirect cost calculations. NCCOS/CSCOR will not pay for ship overhead expenses.

F. Other Submission Requirements

Full proposals must include evidence of linkages between the scientific questions and management needs, such as the participation of co-investigators from both scientific and management entities. Proposals previously submitted to NCCOS/CSCOR FFOs and not recommended for funding must be revised and reviewer or panel concerns addressed before resubmission. Resubmitted proposals that have not been revised will be returned without review.

Please refer to important information in submission dates and times above to help ensure your application is received on time.

Applications must be submitted through www.grants.gov, unless an applicant does not have internet access. In that case, hard copies with original signatures may be sent to:

Laurie Golden

National Oceanic and Atmospheric Administration

1305 East West Highway

Mail Station 8240

Silver Spring, MD 20910

V. Application Review Information

A. Evaluation Criteria

1. Importance and/or relevance and applicability of proposed project to the program goals: This ascertains whether there is intrinsic value in the proposed work and/or relevance to NOAA, Federal, regional, state, or local activities as defined in the program priorities section of the announcement. (40 percent)

2. Technical/scientific merit: This assesses whether the approach is technically sound and/or innovative, if the methods are appropriate, and whether there are clear project goals and objectives The proposed work should have focused objectives and a complete and technically sounds strategy for project design, methodologies, data management, data analysis, and development of products and outcomes in support of the objectives. (20 percent)

3. Overall qualifications of applicants: This ascertains whether the applicant possesses the necessary education, experience, training, facilities, and administrative resources to accomplish the project This includes the capability of the investigator and collaborators to complete the proposed work as evidenced by past research accomplishments, previous cooperative work, timely communication, and the sharing of findings, data, and other research products. (20 percent)

4. Project costs: The Budget is evaluated to determine if it is realistic and commensurate with the project needs and time-frame. (10 percent)

5. Outreach and education: NOAA assesses whether this project provides a focused and effective education and outreach strategy regarding NOAA's mission to protect the Nation's natural resources. The applicant must demonstrate clear connections to the relevant management entities that will use the results of the proposed work and define the specific products, outcomes, and timing of the proposed work that will be used in achieving this goal. (10 percent)

B. Review and Selection Process

Once a full application has been received by NOAA, an initial administrative review is conducted to determine compliance with requirements and completeness of the application. All proposals will be evaluated and scored individually in accordance with the assigned weights of the above evaluation criteria by independent peer mail review and/or by independent peer panel review. Both Federal and non-Federal experts may be used in this process. The peer mail reviewers will be several individuals with expertise in the subjects addressed by particular proposals. Each mail reviewer will see only certain individual proposals within his or her area of expertise, and score them individually on a scale of one to five, where scores represent respectively: Excellent (5), Very Good (4), Good (3), Fair (2), Poor (1).

The peer panel will comprise 5 to 10 individuals, with each individual having expertise in a separate area, so that the panel, as a whole, covers a range of scientific expertise. The panel will have access to all mail reviews of proposals, and will use the mail reviews in discussion and evaluation of the entire slate of proposals. All proposals will be evaluated and

scored individually. The peer panel shall rate the proposals using the evaluation criteria and scores provided above and used by the mail reviewers. The individual peer panelist scores shall be averaged for each application and presented to the Program Manager. No consensus advice will be given by the independent peer mail review or the review panel.

The Program Manager will neither vote or score proposals as part of the independent peer panel nor participate in discussion of the merits of the proposal. Those proposals receiving an average panel score of Fair or Poor will not be given further consideration, and applicants will be notified of non-selection.

For the proposals scored by the panel as either Excellent,Very Good, or Good, the Program Manager will (a) create a ranking of the proposals to be recommended for funding using the average panel scores (b) determine the total duration of funding for each proposal; and (c) determine the amount of funds available for each proposal subject to the availability of fiscal year funds. Awards may not necessarily be made in rank order. In addition, proposals rated by the panel as either Excellent,Very Good, or Good' that are not funded in the current fiscal period, may be considered for funding in another fiscal period without having to repeat the competitive review process.

Recommendations for funding are then forwarded to the selecting official, the Director of NCCOS, for the final funding decision. In making the final selections, the Director will award in rank order unless the proposal is justified to be selected out of rank order based on the selection factors listed below in C.

Investigators may be asked to modify objectives, work plans or budgets, and provide supplemental information required by the agency prior to the award. When a decision has been made (whether an award or declination), verbatim anonymous copies of reviews and summaries of review panel deliberations, if any, will be made available to the applicant. Declined applications will be held in the NCCOS/CSCOR for the required 3 years in accordance with the current retention requirements, and then destroyed.

C. Selection Factors

Based on the panel review scores, the Program Manager will provide a listing of proposals in rank order to the Selecting Official for final funding recommendations. A Program Manager may first make recommendations to the Selecting Official applying the selection factors below. The Selecting Official shall award in the rank order unless the proposal is justified to be selected out of rank order based upon one or more of the following factors:

1. Availability of funding.

2. Balance/distribution of funds:

a. Geographically

b. By type of institutions

c. By type of partners

d. By research areas

e. By project types

3. Whether this project duplicates other projects funded or considered for funding by NOAA or other federal agencies.

4. Program priorities and policy factors. Refer to section 1.B.Program Priorities

5. Applicant's prior award performance.

6. Partnerships and/or participation of targeted groups.

7. Adequacy of information necessary for NOAA to make a NEPA determination and draft necessary documentation before recommendations for funding are made to the grants officer.

Awards may also be modified for selected projects depending on budget availability or according to the selection factors listed above.

D. Anticipated Announcement and Award Dates

Subject to the availability of funds, review of proposals will begin in December 2010. Applicants should use a start date of August 1, 2010.

VI. Award Administration Information

A. Award Notices

The notice of award is signed by the NOAA Grants Officer and is the authorizing document. It is provided by postal mail or electronically through the Grants Online system to the appropriate business office of the recipient organization.

B. Administrative and National Policy Requirements

The Department of Commerce Pre-Award Notification Requirements for Grants and Cooperative Agreements

The Department of Commerce Pre-Award Notification Requirements for Grants and Cooperative Agreements contained in the Federal Register notice of February 11, 2008 (73 FR 7696) are applicable to this solicitation.

Limitation of Liability

In no event will NOAA or the Department of Commerce be responsible for proposal preparation costs if these programs fail to receive funding or are cancelled because of other agency priorities. Publication of this announcement does not oblige NOAA to award any specific project or to obligate any available funds.

National Environmental Policy Act (NEPA)

NOAA must analyze the potential environmental impacts, as required by the National Environmental Policy Act (NEPA), for applicant projects or proposals which are seeking NOAA federal funding opportunities. Detailed information on NOAA compliance with NEPA can be found at the following NOAA NEPA website: http://www.nepa.noaa.gov/ including our NOAA Administrative Order 216-6 for NEPA: http://www.corporateservices.noaa.gov/~ames/NAOs/Chap_216/naos_216_6.html and the Council on Environmental Quality implementation regulations, http://ceq.hss.doe.gov/nepa/nepanet.htm Consequently, as part of an applicant's package, and under their description of their program activities, applicants are required to provide detailed information on the activities to be conducted, locations, sites, species and habitat to be affected, possible construction activities, and any environmental concerns that may exist (e.g., the use and disposal of hazardous or toxic chemicals, introduction of non-indigenous species, impacts to endangered and threatened species, aquaculture projects, and impacts to coral reef systems).

In addition to providing specific information that will serve as the basis for any required impact analyses, applicants may also be requested to assist NOAA in drafting of an environmental assessment, if NOAA determines an assessment is required. Applicants will also be required to cooperate with NOAA in identifying and implementing feasible measures to reduce or avoid any identified adverse environmental impacts of their proposal. The failure to do so shall be grounds for the denial of an application.

In conformance with the Uniform Administrative Requirements for Grants and Cooperative Agreements section 15 CFR 14.36, any data collected in projects supported by NCCOS/CSCOR should be delivered to a National Data Center (NDC), such as the National Oceanographic Data Center (NODC), in a format to be determined by the institution, the NDC, and the Program Manager. Information on NOAA NDC's can be found at

http://www.nodc.noaa.gov/. It is the responsibility of the institution for the delivery of these data; the DOC will not provide additional support for delivery beyond the award. Additionally, all biological cultures established, molecular probes developed, genetic sequences identified, mathematical models constructed, or other resulting information products established through support provided by NCCOS/CSCOR are encouraged to be made available to the general research community at no or modest handling charge (to be determined by the institution, Program Manager, and DOC).

C. Reporting

All performance (i.e. technical progress) reports shall be submitted electronically through the Grants Online system unless the recipient does not have internet access. In that case, performance (technical) reports are to be submitted to the NOAA Program Manager. All financial reports shall be submitted in the same manner. All ship time use must be reported by the PI or Chief Scientist on each cruise within the performance reports.

VII. Agency Contacts

Technical Information: Beth Turner, NCCOS/CSCOR Program Manager, 603/862-4680; e-mail Elizabeth.turner@noaa.gov

Business Management Information: Laurie Golden, NCCOS/CSCOR Grants Administrator, 301-713-3338/ext 151, e-mail: Laurie.Golden@noaa.gov.

VIII. Other Information

Collection of information requirements

Notwithstanding any other provision of law, no person is required to respond to, nor shall any person be subject to a penalty for failure to comply with a collection of information subject to the requirements of the Paperwork Reduction Act, unless that collection displays a currently valid OMB control number.

This notification involves collection-of-information requirements subject to the Paperwork Reduction Act. The use of Standard Forms 424, 424A, 424B, and SF-LLL has

been approved by the Office of Management and Budget (OMB) under control numbers 0348-0043, 0348-0044, 0348-0040 and 0348-0046.

Check List for Required and Requested Documents

SF-424

Title Page

Abstract

Project Description

References

Milestone Chart

SF-424A (One for the lead institution and each institution in a multi-institutional project and/or each subcontract)

Budget Narrative and Justification (One for the lead institution and each institution in a multi-institutional project and/or each subcontract).

Bio Sketch

Current and Pending Support

Permits

Alphabetized Collaborator List

Accomplishments from prior CSCOR support

SF-424B (requested)

CD-511 (requested)

Indirect Rate Agreement (requested)

Signed Approval from Subaward andcontractor institutes