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: National Competitive HAB Programs Authorized by Harmful Algal Bloom and Hypoxia Research Control Act

Announcement Type: Initial

Funding Opportunity Number: NOAA-NOS-NCCOS-2011-2002577

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

Dates: The deadline for receipt of full proposals for all programs at the NCCOS/CSCOR office is 3 p.m., Eastern Time on October 14, 2010.

Applications received after the closing date and time will not be accepted. 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.

The required Letters of Intent for all programs must be received by 5:00 p.m. Eastern Time on August 16, 2010. LOIs should be submitted by email to Mary.Payne@noaa.gov.

Funding Opportunity Description: The purpose of this document is to advise the public that NOAA/NOS/NCCOS/CSCOR is soliciting proposals for the Ecology and Oceanography of Harmful Algal Blooms Program, the Monitoring and Event Response for Harmful Algal Blooms Program and the Prevention, Control and Mitigation of Harmful Algal Blooms Program. 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

A. HAB Program Objectives

1. Growing Problem of Harmful Algal Bloom Occurrence and Impacts

Harmful Algal Blooms (HABs) are caused by diverse organisms, including toxic and noxious phytoplankton, some protists, cyanobacteria, benthic algae, and macroalgae. Blooms can extend over large geographic areas, be composed of more than one harmful or toxic species, and cause significant impacts on fisheries, recreation, human health, and the ecology of both marine and fresh water bodies. HABs are now a recurrent and serious problem in many areas of the US and evidence suggests that the frequency and distribution of HABs is also increasing globally, impacting many countries that have commercial and recreational activities in coastal areas.

HAB impacts on public health and local/regional economies are also dramatic and increasing. In a recent study, average annual economic losses in the U.S. from HABs were approximated at $82 million7. Costs are attributable to maintenance of toxin monitoring programs; closures of shellfish beds; marine mammal stranding networks; collapse of some fisheries; mortality of fish, shellfish, turtles, birds, and mammals; disruptions in tourism; threats to public and coastal resource health; publication of watershed, health, and seafood advisories; and medical treatments7. Despite greater public awareness and advisories of bloom events, human illnesses and even fatalities continue to be reported. Additionally, some toxins may cause only a few documented illnesses but result in serious public reaction and temporary aversion to local seafood products and activities [e.g., $46 million in lost revenue from the 1997 Maryland fish health/Pfiesteria events1]. These deleterious impacts have increased public awareness and demand for intervention to reduce or eliminate bloom impacts on coastal resources, local economies, and threats to public health. Over the course of the last decade, numerous national and Agency reports have described the magnitude of the HAB problem and outlined research plans to systematically address the issue 1,2,3,4,5,6,8,9,10,11,15.

2. Federal Legislation and Programs to Address HAB Problems

The 1998 Harmful Algal Bloom and Hypoxia Research Control Act (HABHRCA) and the Harmful Algal Bloom and Hypoxia Amendments Act of 2004 (2004 HABHRCA Reauthorization) authorized the establishment of three national programs on HABs:

1) Ecology and Oceanography of Harmful Algal Blooms (ECOHAB) (HABHRCA Sec. 605 (2));

2) Monitoring and analysis activities for HABs (renamed Monitoring and Event Response for Harmful Algal Blooms or MERHAB) (HABHRCA Sec. 605 (4)); and

3) A peer-reviewed research project on management measures that can be taken to prevent, reduce, control, and mitigate HABs. (HABHRCA Sec. 605 (3))

Under HABHRCA the ECOHAB program was authorized as an interagency (NOAA, NSF, EPA, NASA, ONR), competitive research program, led by NOAA, and the MERHAB program was established as a NOAA competitive research program. A Federal Register Notice (FRN), published 5/04/2009 (http://edocket.access.gpo.gov/2009/E9-10187.htm), announced that NOAA was establishing the Prevention, Control, and Mitigation of Harmful Algal Blooms (PCM HAB) Program.

ECOHAB, MERHAB, and PCM HAB are coordinated with other federal programs that sometimes fund or conduct HAB research. Collaboration within NOAA includes the Oceans and Human Health Initiative, the Office of Protected Resources, and the Sea Grant Program and is facilitated by intra-agency workgroups. Interagency collaboration and coordination are facilitated by the Joint Subcommittee on Ocean Science and Technology Interagency Working Group on Harmful Algal Blooms, Hypoxia and Human Health. Coordination includes the NSF Biological Oceanography ECOHAB program and the NSF/NIEHS Oceans and Human Health Program.

3. Establishment of Regional Rotation of HAB Programs and Guidance for Applying by Regions

The 5/04/2009 FRN also announced that funding for the national competitive HAB programs, ECOHAB, MERHAB, and PCM HAB will be implemented on a rotating regional basis in order to address programmatic needs and make more efficient use of resources. The need for a regional approach to addressing marine problems was emphasized in An Ocean Blueprint for the 21st Century16 and America's Living Oceans: Charting a Course for Sea Change14. In response, Charting the Course for Ocean Science in the United States for the Next Decade: An Ocean Research Priorities Plan and Implementation Strategy13, Advancing NOAA's Priorities through Regional Collaboration12, and Changing Oceans, Changing World17 recommend that federal agencies and NOAA take a regional approach. The 2004 Reauthorization of HABHRCA also acknowledged the need for a regional approach to HAB research and response by establishing a procedure for requesting Regional Assessments of HABs. Further regional coastal and ocean governance bodies like the West Coast Governor's Agreement on Ocean Health and the Gulf of Mexico Alliance have identified HABs as an issue of priority in their respective regions18, 19. In addition the regional rotation will make more efficient use of the funding available for the large, regional ecosystem-scale studies frequently funded by these programs and facilitate the proposal review process.

Each year every region will be eligible to submit funding proposals to one of the three HAB programs. Regional eligibility will rotate annually on a three-year cycle, as described in the following table.

Table 1. Regional rotation of programs.

Regional Group	Geographic Regions	2011	2012	2013

1	Gulf of Mexico,Caribbean/PacificIslands	ECOHAB	PCM HAB	MERHAB
2	West Coast, Alaska, Great Lakes	PCM HAB	MERHAB	ECOHAB
3	South Atlantic, Mid-Atlantic, Northeast Atlantic	MERHAB	ECOHAB	PCM HAB

The geographic region signifies where the HAB occurs, where the field work will be conducted, and/or where the benefit of the research will accrue. The location of the investigator (s) is not a determining factor. In cases where the choice of region is ambiguous, investigators are advised to consult with the appropriate Program Manager prior to submitting a letter of intent. Both regional-scale and targeted ECOHAB and MERHAB proposals will be accepted in the funding competitions held for each geographic region. Regional-scale proposals can extend across Geographic Regions in the same Regional Group (e.g. a regional-scale proposal can extend between the South Atlantic and Mid-Atlantic - both Group 3), but not across different Groups (e.g. the South Atlantic - Group 3, and Gulf of Mexico - Group 1) without permission of the Program Manager.

Most of the boundaries between regions listed in the table are self-evident. However, the boundary between the Gulf of Mexico and South Atlantic is set at Jupiter, FL in order to group together HABs associated with coral reefs that occur in both the Gulf of Mexico and the southeast coast of Florida. However, all proposals concerning primarily Karenia species will be submitted to competitions for the Gulf of Mexico, even if they occur on the Atlantic coast.

The NOAA HAB programs do not fund research on inland or freshwater HABs except in the Great Lakes and coastal waters, which, as defined in the Coastal Zone Management Act (16 U.S.C. 1453 (3)), contain a measurable quantity or percentage of sea water. Proposals for research on freshwater HABs that do not involve field work and cannot be clearly assigned to a particular region should be submitted for the Great Lakes region rotation.

Proposals for some projects may be submitted in any year regardless of the regional rotation, but only with permission of the appropriate Program Manager:

1) Not all research readily fit into a regional context. For example, a project may compare regions, involve many species, have a national scope, or be independent of a particular region.

2) Some HAB events are so significant that research cannot wait for the regional rotation. Events that fall into this category would involve newly emerging species or expansion in time or space of a known HAB species and represent an immediate and unusual or extraordinarily severe threat to ecosystems and/or human health.

Proposals for projects that do not clearly fit into the regional rotation designated for each program in Table 1 must have permission of the appropriate Program Manager or they will be rejected without review. Instructions for obtaining Program Manager permission are given in Section III.C. A positive response to a Letter of Intent (LOI; see Section IV.B.) does not constitute permission. It is in the best interests of investigators to obtain permission to submit a proposal outside of the regional rotation order prior to submitting a LOI.

4. ECOHAB Objectives

The ECOHAB Program was authorized by the original HABHRCA and reauthorized as a research program designed to increase the understanding of the fundamental processes underlying the causes and impacts of HABs. Such understanding is required in order to develop appropriate HAB management and response strategies. Three major research themes, encompassing the priorities of national importance on the HAB phenomenon, were identified in the original ECOHAB Plan1: 1) Organisms - with a goal towards determining the physiological, biochemical, and behavioral features that influence bloom dynamics; 2) Environmental regulation - with a goal toward determining and parameterizing the factors that govern the initiation, growth, and maintenance of these blooms; and 3) Food-web and community interactions - with a goal toward determining the extent to which food webs and trophic structure affect and are affected by the dynamics of HABs. Information in these areas, in turn, supported a critical goal of the ECOHAB program, the development of reliable models to forecast bloom development, persistence, and toxicity. Research results will be used directly to guide management of coastal resources to reduce HAB development, impacts, and future threats and will feed into other HAB programs for development of tools to improve HAB management and response. Numerous additional reports and plans have provided more information about the magnitude of the HAB problem and outlined research plans to systematically address this issue 1,2,3,4,5,6,8,9,10,11,15. While considerable progress has been made toward understanding and predicting bloom events and their impacts, the complexity of the problem has also become more apparent and new HAB problems have emerged with alarming frequency6,8,9,10.

Since its inception, the ECOHAB Program has sponsored more than 115 projects with topics ranging from molecular aspects of HAB detection to large-scale, multi-disciplinary regional studies of bloom formation, maintenance, and dissipation. Project summaries may be viewed at http://www.whoi.edu/page.do?pid=11913. Projects cover a wide spatial spectrum along the U.S. coastline and its territories. In the past ECOHAB-sponsored projects also addressed the detection, prevention, control, and mitigation of HABs and their impacts, as well as economic assessments of these recurring events. However, with the addition of the new PCM HAB program, ECOHAB is retaining the focus on understanding the causes and impacts of HABs that was established in the original ECOHAB Plan1, as updated by HARRNESS 20056.

5. MERHAB Objectives

Currently, the most effective way to mitigate HAB impacts on U.S. coastal communities and coastal resources is with enhanced monitoring and forecasting combined with rapid response to HAB events8,9,10,11. Resource management agencies, water quality agencies, public health departments and national seafood safety systems routinely prevent outbreaks of HAB-toxin related illness and death. While current monitoring programs are doing an excellent job they are under increasing pressures to detect more toxins impacting more organisms over larger areas; expand water quality and shellfish programs to track and respond to high

biomass and toxic bloom events; enhance public health surveillance to improve diagnosis and treatment of HAB-related illnesses; and protect our recreational and drinking water from HAB toxins. These agencies need access to new technologies and advances in our understanding of fundamental processes underlying the impacts and population dynamics of HABs to keep pace with the growing national HAB problem. Further, agencies need to be confident that new technologies have been validated and are comparable or better than existing methods20. Finally, agencies often need training in the use of new technologies and monitoring strategies5.

Recognizing the need to assist coastal resources, water quality, public health, seafood safety, and drinking water systems managers develop enhanced monitoring and response capabilities, the NOAA National Centers for Coastal Ocean Science (NCCOS) Center for Sponsored Coastal Ocean Research (CSCOR) initiated the MERHAB program. The principal objective of MERHAB is to build capacity of local, state, and tribal governments, and the private sector, for less costly and more precise and comprehensive monitoring of HAB cells and toxins, and for responding to HAB events. Improved monitoring and event response capability will be achieved through applications that meet management needs including:

1. The adoption, not development, of faster, less expensive and more reliable detection methods for HAB cells and toxins in routine monitoring programs;
2. The adoption, not development, of instrumentation for low-cost, long-term observations of conditions that influence HAB dynamics;
3. Improved monitoring strategies and forecast models to enhance early warning capability, foster improved response to HAB events, and demonstrate operational capabilities.
4. Enhanced response capabilities to ensure trained and equipped personnel are able to mobilize quickly, conduct appropriate sampling and testing, and communicate effectively during HAB events.

Since 1999, MERHAB has sponsored nearly 30 projects with topics ranging from low cost HAB detection methods to large-scale, multi-disciplinary regional efforts to develop enhanced HAB monitoring programs. Project summaries may be viewed at: http://www.cop.noaa.gov/stressors/extremeevents/hab/current/fact-merhab.aspx

MERHAB projects are enhancing coastal monitoring programs and assisting resource and public health risk managers in their response to growing threats from HABs. This will make existing monitoring programs more efficient while providing for better coverage in time and space. MERHAB is also laying a foundation for regional operational HAB forecasts contributing to the priority NOAA\NOS\NCCOS\CSCOR focus on ecological forecasting; (http://www.cop.noaa.gov/stressors/extremeevents/hab/current/ecoforecasting.aspx). With these advances, State programs will be better able to take preventative actions (e.g. increase monitoring efforts, close shellfish beds, warn affected communities) to safeguard the public health, local economies, and fisheries. Further advancements will assist the wildlife health communities respond to HAB-related mortalities. As a result of the MERHAB Program,

managers will be able to mitigate the expanding HAB problems in their coastal regions and be better positioned, especially during difficult state fiscal climates, to request long-term support from local, state, regional or Federal funding sources.

6. PCM HAB Objectives

After more than 10 years of research, HAB programs like ECOHAB and MERHAB have produced many new methods and strategies to improve HAB management and response. A dedicated program is now needed to provide the additional development, demonstration, and technology transfer required to transition existing and future approaches to end-users5,8. NOAA established the PCM HAB program in 2009 (http://edocket.access.gpo.gov/2009/E9-10187.htm) to address this issue, as authorized in HABHRCA (1998 and 2004); the first competition was held in 2010.

Multiple interagency and HAB community reports and plans provide guidance for the new PCM HAB Program. The 2004 HABHRCA Reauthorization called for a National Scientific Research, Development, Demonstration, and Technology Transfer Plan on Reducing Impacts from Harmful Algal Blooms (RDDTT Plan) to establish priorities and guidelines for a competitive, peer-reviewed, merit based interagency research, development, demonstration, and technology transfer program on methods for the prevention, control, and mitigation of HABs. In response a workshop was held to obtain input for this plan from HAB researchers, state and federal resource and public health managers, and private industry. The resulting workshop report was published in September 2008, HAB RDDTT National Workshop Report: A Plan for Reducing HABs and HAB Impacts (2008)5. The RDDTT Plan, based on the Workshop Report, was published in an interagency report, Harmful Algal Bloom Management and Response: Assessment and Plan (2008)8. Both the RDDTT Workshop Report5 and the RDDTT Plan8 provide recommendations to advance research on prevention, control and mitigation of HABs and form the basis for the new PCM HAB program. Additional guidance is provided by Harmful Algal Research and Response: A Human Dimensions Strategy3, Prevention, Control, and Mitigation of Harmful Algal Blooms: A Research Plan15, and Harmful Algal Blooms in Coastal Waters: Options for Prevention, Control, and Mitigation4.

The PCM HAB program transitions promising technologies and strategies for preventing, controlling, or mitigating HABs and their impacts from development through demonstration and technology transfer for field application by end-users. The technologies may arise from HAB research conducted by the two existing national HAB programs, ECOHAB and MERHAB, or other research programs such as Sea Grant, the NOAA Oceans and Human Health Initiative and the NSF/NIEHS Centers for Oceans and Human Health. Summaries of recently funded PCM HAB projects and some past ECOHAB and MERHAB projects that fit the PCM program are provided at;

http://www.cop.noaa.gov/stressors/extremeevents/hab/current/PCM_projects.aspx

Note that proposals for the development of new methods and instrumentation should now be submitted to the PCM HAB Program.

B. Program Priorities

1. ECOHAB Priorities

This ECOHAB solicitation provides an opportunity for investigators to propose research projects for HABs in the Gulf of Mexico, Caribbean, and Pacific Islands, as described in Section I.A.3.

The major subjects of interest, as outlined in the ECOHAB Plan1 and reiterated in HARRNESS6, can generally be broken down as follows: Bloom Ecology and Dynamics, Toxins and their Effects, and Food Webs and Fisheries. The goals of ECOHAB are to develop:

1) Quantitative understanding of HABs and, where applicable, their toxins in relation to the surrounding environment with the intent of developing new information and tools, predictive models and forecasts, and prevention strategies to aid managers in coastal environments; and

2) Understanding leading to models of trophic transfer of toxins, knowledge of biosynthesis and metabolism of toxins, and assessment of impacts of toxins on higher trophic levels.

The ECOHAB program will consider support of studies ranging from relatively small, targeted laboratory or field studies by individual investigators or small teams, to regional-scale studies involving larger teams of investigators conducting coordinated, well-integrated, multi-disciplinary field programs. Details for each type of project are provided below:

1) Targeted studies are individual studies or small interdisciplinary efforts investigating fundamental ecological and oceanographic questions related to HAB events. Support for targeted studies may be requested for up to 3 years duration.

2) Regional studies are large, multi-disciplinary, multi-institutional projects that take an ecosystem approach to determining the linkages between HAB species and their environment, including the ecology, physiology, behavior, and toxin production of the HAB species and the chemistry, physics, bathymetry, and meteorology of the surrounding ecosystem. They may also include cross-regional comparison of a particular HAB problem. These studies may be 3 to 5 years in duration with a team of collaborating investigators. Projects will usually lead to development of models for management purposes. Research proposals must describe specific plans for sharing information and research products with end-users and the community in a timely manner, for example by proposing workshops and public outreach activities. Participation of potential users of the results in the research is encouraged. Investigators must obtain permission to submit a regional or cross-regional study from the NOAA ECOHAB Program Coordinator, identified in this solicitation. Instructions for obtaining Program Manager permission are given in Section III. C. A positive response to a Letter of Intent (LOI; see Section IV.B.) does not constitute permission.

HABs and related biotoxin risk must be managed if we are to ensure public health, build viable and valuable sustainable fisheries, protect living marine resources including threatened and endangered species and their habitats, and effectively manage coastal

activities and resources. In order to meet the goals stated above, NOAA is soliciting proposals in the following areas:

1) Understanding the factors controlling HAB growth and toxicity by focusing on harmful algal genetics, physiology, and toxin production;
2) Understanding community ecology and ecosystem dynamics, including top-down and bottom-up control of HABs;
3) Delineating the biosynthetic pathways and metabolism of toxins;
4) Determining the trophic transfer of toxins within food webs and the impacts of toxins on individual organisms and food webs;
5) Effects of environmental changes, such as eutrophication or climate change, on HABs and their impacts.

Multi-disciplinary regional ecosystem investigations, addressing several of these research topics and leading to development of ecological forecasting capabilities in geographic areas with severe, recurrent blooms along the US coast will continue to be a major priority. These can be either in new areas, areas that have been studied previously but where new or unanswered questions remain, or involve comparisons between ecosystems. Where ECOHAB or other funding has already established a foundation of knowledge, the need for additional research must be clearly articulated. Projects to be funded by NOAA must demonstrate a clear link to management issues and specify outcomes that will provide managers and the public with sound scientific information for making decisions. Articulation of outcome-based management goals is required in proposals (see Section I.B.4.c.). Although all three HAB programs have a strong interest in the public health impacts of HABs and the application of HAB research to reducing public health risks, research specifically on the human health impacts of HABs is addressed by the NOAA Oceans and Human Health Initiative (OHHI).

2. MERHAB Priorities

This MERHAB solicitation provides an opportunity for investigators to propose research projects for HABs in the South Atlantic, Mid-Atlantic, and Northeast Atlantic, as defined in Section I.A.2.

The primary goal of the MERHAB Program is to mitigate HAB impacts by incorporating products generated from past or ongoing research programs including ECOHAB, OHHI, Sea Grant, the NSF/NIEHS Centers for Oceans and Human Health, the Integrated Ocean Observing System and its Regional Associations into existing monitoring and forecasting programs in HAB-impacted coastal regions and by providing the validation, comparison to existing technologies, and training needed to effectively utilize those products. Further MERHAB can incorporate the evolving observing system infrastructure into existing HAB monitoring and forecasting programs. MERHAB is not intended to provide long-term support for routine monitoring efforts, but to help build sustainable regional partnerships infused with new technologies that provide managers with crucial information in time for critical decisions needed to mitigate HAB impacts.

The MERHAB program will consider support of projects ranging from relatively small, targeted laboratory or field studies by individual investigators or small teams, to regional-scale studies involving larger teams of investigators conducting coordinated, well-integrated, multi-disciplinary field programs. Details for each type of project are provided below:

1) MERHAB-Targeted Research Projects

a) Objectives:

i) Demonstrate management application of a new technology that will enhance HAB monitoring activities in U.S. coastal waters;

ii) Incorporate new technology into existing HAB monitoring programs.

iii) Enhance HAB monitoring and response capacity through methods validation, comparison, and\or training.

b) Characteristics:

i) From 1 to 3 years in duration;

ii) Should rigorously field-test, not develop, new technologies to detect algal species, toxin, or toxicity and/or monitor the environmental conditions that support HABs. Technologies may include, but are not limited to, rapid field assays for shellfish toxicity, improved diagnostic techniques for in situ detection of HAB cells, remote sensing technology to help target sampling efforts, instruments to observe coastal ocean conditions and mathematical models useful in predicting or forecasting HABs;

iii) Must include efforts specified in work plans to build support for the incorporation of technology into one or more existing state or regional HAB monitoring and/or forecasting programs,

iv) May be conducted either by an individual or small investigative team; and

v) Must address specific needs of the HAB management community.

c) Examples of expected outputs include but are not limited to

i) New management applications to rapidly detect HABs and their toxins; to monitor and track HABs and key HAB-related ecosystem conditions; and to predict or forecast HABs;

ii) Enhanced HAB monitoring programs;

iii) Enhanced capacity for HAB event Response; and

iv) Enhanced HAB forecasting to inform monitoring programs.

2) MERHAB-regional, intensive HAB monitoring projects

a) Objectives

i) Develop new or increase existing regional capabilities for HAB monitoring;

ii) Incorporate new tools for HAB measurement into existing monitoring efforts;

iii) Include local, state, regional, Federal, or non-governmental entities as active partners;

iv) Determine need and work to secure long-term local, state, regional, or other funding that will support enhancements in HAB monitoring when MERHAB project funding ends;

v) Develop local and/or regional capabilities to respond to HAB events; and

b) Develop partnerships to test and utilize models for forecasting as part of specific monitoring programs.

c) Characteristics

i) From 3 to 5 years in duration;

ii) Include a suite of annual studies and involve a multi-disciplinary, collaborative team of investigators. The team should represent groups with strong interests in mitigating the impacts of HABs, including, but not limited to, the natural and social science research community, existing monitoring programs, communities dependent upon affected resources, business and industry associations, and non-profit organizations;

iii) Include in the team of investigators representatives of appropriate local, state, tribal, regional, and Federal agencies that have responsibility for the economic, regulatory, and management issues being addressed;

iv) Include a plan for continued interaction with these and other representatives of management agencies to facilitate the incorporation of research results into existing monitoring programs and to identify means to continue HAB monitoring efforts after MERHAB project funding has ended; and

v) Form a management team with a designated chairperson serving as the main point of contact with the MERHAB Program Manager.

d) Examples of expected outputs include but are not limited to the following.

i) Include regional stakeholder input and participation through means that may include, but are not limited to, annual workshops, management and technical advisory committees that involve a broad spectrum of regional interests and training in use of new technology;

ii) Provide recommendations to management of the parameters to be measured in a region and the types of instruments that should be developed or adapted into existing monitoring programs; which can include the results of methods validation or comparison studies.

iii) Deploy new HAB monitoring tools in existing monitoring programs;

iv) Provide training on new monitoring technologies

v) Enhanced HAB forecasting to inform monitoring;

vi) Develop commitments from one or more local, state, tribal, regional, or Federal organizations or governing bodies for continued, long-term support of expanding HAB monitoring capabilities;

vii) Develop real-time, scientific response capability during HAB outbreaks for the region that includes, but is not limited to, the use of local experts, establishing local academic-government- NGO-private partnerships for providing immediate analytical and sampling capacities, and expanding local abilities for transferring samples to analytical services outside the region; and

viii) Conduct outreach to improve awareness of HAB outbreaks and their environmental and societal costs, and to mitigate their impact on vital natural resources, public health and local/regional economies.

3) Shared Characteristics of Targeted and Regional, Intensive Projects. Projects will result in the deployment of new HAB monitoring technologies and strategies that are incorporated into state monitoring and forecasting operations to provide a higher level of protection for

public health and economic interests. Project results will be distributed to stakeholders via scientific, peer-reviewed articles, synthesis documents, briefings, electronic web sites, and any other means defined by the applicants. Project proposals should also clearly identify a timetable of accomplishments and major program elements that will lead to specific interim and final assessments of applicability and effectiveness of a number of monitoring approaches. Explicit identification of the end user group(s) is required and must include evidence of linkages between the scientific questions and management needs.

3. PCM HAB Priorities

This PCM HAB solicitation provides an opportunity for investigators to propose research projects for HABs in the West Coast, Alaska, and Great Lakes, as described in Section I.A.2

The goals of PCM HAB are as follows:

1) Develop and make widely available new socially and environmentally acceptable strategies and methods for preventing, controlling, and mitigating HABs and their impacts; and

2) Assess the social and economic costs of HAB events and the costs and benefits of prevention, control, and mitigation to guide future research and aid in the selection of the most appropriate management strategies and methods.

PCM research should address the following topics in order to meet the stated goals:

1) Prevent HABs by

a) Using and modifying existing models to identify strategies to prevent HABs, for example by nutrient reductions or hydrodynamic modifications

b) Minimizing or preventing introductions of invasive HAB species, their cysts, and organisms that facilitate the success of HAB species

2) Control HABs and their impacts by

a) Eliminating or reducing the levels of HAB organisms through biological, chemical, or physical removal mechanisms,

b) Eliminating or reducing the levels of HAB toxins through biological, chemical or physical removal mechanisms

3) Mitigate HABs and their impacts by developing or improving methods for

a) HAB cell and toxin detection

b) Relocating or modifying aquaculture and wild-capture resources

c) Harvesting bans and closures

d) Fishing and processing practices

e) Education and outreach

f) Enhancing community capacity to respond to social and economic impacts

g) Intervening to reduce wildlife mortality

4) Enhance HAB response and ensure socially responsible development and effective implementation of PCM by

a) Measuring social and economic costs of HABs and their impacts and the costs and

benefits of HAB PCM

b) Improving communication strategies and approaches for facilitating changes in human behavior/attitudes

c) Improving coordination of researchers, decision-makers, and stakeholders in implementing PCM research.

The PCM HAB program will support projects in three phases. Proposals can be submitted for any phase (i.e., a project does not have to start in the first phase). The phases are as follows:

In the Development phase research will advance and evaluate unproven but promising PCM technologies and strategies. The Demonstration phase will test, validate and evaluate promising technologies in the field across a broad temporal and spatial scale. The Technology/ Information Transfer phase will facilitate the transition of technologies and strategies to end-user application. PCM HAB projects will be typically 3 years in duration. A single proposal can cover one or more phases, depending on the magnitude of the project. All projects must specify the phase or phases of the research to be conducted for the project period. If all three phases are not covered by the proposal, the proposal must outline how additional phases will be conducted. End-users, including local, state, and Federal resource and public health managers, nonprofit organizations, and a variety of businesses, must be identified and will normally be involved in all three stages (see Section I.B.4.c. for exceptions). Projects in the Technology Transfer phase will also need to demonstrate end-user support secured either for long-term operations or the application of the developed tool or technology. Examples of end-user support include, but are not limited to, matching funds or demonstrated commitment of in-kind support for the technology transfer.

PCM HAB Projects must have a Transition Advisory Committee (TAC) whose purpose is to provide advice to the investigator team to assist with project design and insure technology/information transfer. The structure, size, and activities of the TAC will be designed by the investigators and described in the proposal, including a plan for how the TAC will provide advice to the investigators. Members of the TAC must be named and letters included in the proposal indicating that they have agreed to serve on the TAC; these letters do not count against the page limits. The TAC must include some members that are independent of the project (not funded investigators), who will typically have expertise in the research area and/or be potential end users. CSCOR employees cannot be TAC members. Funding can be requested for TAC activities such as participation in project investigator meetings, observation of field tests, or participation in technology/information transfer events. The PCM Program Manager may request additional members during the project negotiation stage.

4. Further information about Program Criteria

a. Examples of Appropriate Research Topics for Each Program

The following guidance clarifies the scope of ECOHAB, MERHAB and PCM HAB in relation to three specific research topics:

1) Developing methods of measuring and monitoring HAB cells and toxins.

a) ECOHAB will fund method development only when it is necessary to conduct research.

b) MERHAB will not fund the development of new methods, only the improvement or testing of an existing method to facilitate its use in monitoring HAB cells or toxins or environmental conditions that foster HABs.

c) PCM HAB Development phase will fund novel method development where the concept is so new to the HAB community that it is unknown whether it will be suitable for research or monitoring.

d) PCM HAB will also fund efforts to fully develop existing technologies, making them widely available to potential end users.

2) Use of models for forecasting and prediction.

a) HAB forecasting and prediction through the development of models, is covered by ECOHAB.

b) Development of partnerships to test and utilize models for forecasting as part of specific monitoring programs is under the purview of MERHAB.

c) Transfer of models for HAB forecasting and prediction to end users will be covered by PCM HAB.

d) Modification or use of models to develop prevention strategies will be funded by PCM HAB.

3) HAB-related human dimensions research will be conducted as part of the PCM HAB program, including socio-economic impacts of HABs. However, an ECOHAB or a MERHAB proposal may have a socio-economic component as part of a larger study.

b. Examples of Non-Applicable Research Topics

Some HAB research is conducted by other programs within NOAA or within other state or federal agencies. The priorities of those programs are described in several recent reports8,9,10. To avoid duplication of effort, ECOHAB, MERHAB, and PCM HAB will not fund research in the following areas:

1) Prevention of HABs by implementation of nutrient reductions or hydrodynamic modifications is a possible strategy, but numerous other programs in other agencies address implementation issues. PCM HAB will not fund, for example, research to develop new methods of nutrient removal or develop land use practices that may reduce nutrient inputs. However, if actual nutrient reductions or hydrodynamic changes are implemented, PCM HAB may fund research to monitor and model the consequences of those activities if they will be transferable to other situations;

2) Direct human health impacts of HABs, such as disease surveillance, clinical characterization, and therapeutic guidance in humans, are the purview of other programs within NOAA, such as NOAA OHHI, and other agencies, such as NSF/NIEHS COHH, CDC and FDA;

3) Freshwater bodies (e.g. ponds, lakes, and reservoirs) other than the Great Lakes (see Section I.A. 3 for specific definition);

4) Drinking water treatment (with the exception of desalinization of coastal waters);
5) Routine monitoring for HABs, HAB toxins, and water quality.

c. HAB Program Project Requirements

1) All the HAB programs support the needs of federal, state, local, and tribal resource and public health managers and other end users, but the degree of management focus and end user involvement varies. Investigators are urged to confer with Program Managers to insure that they have included the appropriate level of end user participation.

a) ECOHAB projects must have clearly articulated management relevance and a long range plan describing the transition to applications. Participation in the research of potential end users is encouraged, especially for regional-scale projects.

b) MERHAB targeted projects must have clearly articulated management relevance and a general plan describing the transition to applications. MERHAB regional-scale projects must include monitoring program partners as part of the research team and proposals must contain a specific plan to transition the project to applications.

c) PCM HAB projects in the demonstration and technology transfer phases must involve end users in the project and include a specific plan to transition the project to applications. While most projects in the development phase will also include end users, it is possible that some developmental projects may be too exploratory to include end users. In that case, end users must still be identified and a plan to transition the project to applications must be outlined. Permission of the program managers is required to submit a proposal without end user involvement, and proposals should explain why end users are not involved in the project. Instructions for obtaining Program Manager permission are given in Section III.C.

2) Articulation of outcome-based goals is required in all proposals and recipients will be expected to report progress toward achieving outcome-based goals annually. NOAA definitions and examples of outputs and outcomes can be accessed at www.cop.noaa.gov.

5. References

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Control, and Mitigation. NOAA/COP/Decision Analysis Series No.10. Silver Spring, MD: NOAA Coastal Ocean Office, 61 pp. http://www.cop.noaa.gov/pubs/das/das10.pdf
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9) Lopez, C.B., Dortch, Q., Jewett, E.B., Garrison, D. 2008. Scientific assessment of marine Harmful Algal Blooms. Interagency Working Group on Harmful Algal Blooms, Hypoxia, and Human Health of the Joint Subcommittee on Ocean Science and Technology, Washington, D.C., 62 pp.
10) Lopez, C.B., Jewett, E.B., Dortch, Q., Walton, B.T., Hudnell, H.K. 2008. Scientific Assessment of Frewhater Harmful Algal Blooms. Interagency Working Group on Harmful Algal Blooms, Hypoxia, and Human Health of the Joint Subcommittee on Ocean Science and Technology, Washington, D.C., 65 pp.
11) National Assessment of Harmful Algal Blooms in U.S. Waters. 2000. National Science and Technology Council Committee on Environmental and Natural Resources, 47 pp. http://www.cop.noaa.gov/pubs/habhrca/Nat_Assess_HABs.pdf (PDF) (47 pp, 2.07 MB)
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19) Gulf of Mexico Alliance Governor?s Action Plan for Health and Resilient Coasts, 2006-2009. http://gulfofmexicoalliance.org/pdfs/gap_final2.pdf
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C. Program Authority

1. ECOHAB:
NOAA/NOS/NCCOS/CSCOR 16 U.S.C. 1456C; 33 U.S.C. 883d; 33 U.S.C. 1442; 15 U.S.C. 1540; and/or Pub.L. 105-383, as amended by 108-456.
2. MERHAB HAB:
NOAA/NOS/NCCOS/CSCOR: 16 U.S.C. 1456C; 33 U.S.C. 883d; 33 U.S.C. 1442; 15 U.S.C. 1540; and/or Pub.L. 105-383, as amended by 108-456.
3. PCM HAB:
NOAA/NOS/NCCOS/CSCOR: 16 U.S.C. 1456C; 33 U.S.C. 883d; 33 U.S.C. 1442; 15 U.S.C. 1540; and/or Pub.L. 105-383, as amended by 108-456.

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. The

following program-specific guidelines for budget requests are provided.
1) ECOHAB Targeted: $100,000-$250,000/yr not including ship time
2) MERHAB Targeted: $100,000-$250,000/yr not including ship time
3) ECOHAB Regional: $1,000,000/yr, not including ship time
4) MERHAB Regional: $600,000/yr, not including ship time
5) PCM HAB: $100,000-$500,000/yr, not including ship time
Budget requests that exceed the guidelines will need to be specifically justified. Project periods may be modified after review due to the availability of Federal appropriations. It is anticipated that up to 1 or 2 regional-scale projects and up to 8 targeted projects will be funded.
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

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

Funding instruments available are project grants and cooperative agreements.
(1) Research Project Grants: A research project grant is one in which substantial programmatic involvement by the Federal government is not anticipated by the recipient during the project period. Applicants for grants must demonstrate an ability to conduct the proposed research with minimal assistance, other than financial support, from the Federal government.
(2) Cooperative Agreements: 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.
NOAA will review the applications in accordance with the evaluation criteria. Before issuing awards, NOAA will determine whether a grant or cooperative agreement is the appropriate instrument based upon the need for substantial NOAA involvement in the project. If a cooperative agreement is determined to be the appropriate instrument, the CSCOR program officer will participate in important activities which may include education about and discussion of research activities, participation in meetings, guidance on NOAA philosophy, directions, and priorities, and research strategy discussions.
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 project grant or 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

1. Letter of Intent (LOI)

The purpose of the LOI process is to provide information to potential applicants on the relevance of their proposed project and the likelihood of it being funded in advance of preparing a full application. A LOI is required for all projects; proposals for which no LOI was submitted will not be considered. Full applications will be encouraged only for LOIs deemed relevant, however the final decision to submit a full proposal is made by the investigator. The LOI should provide a concise description of the proposed work and its relevance to the targeted Competition. The LOI should be no more than two pages in length and should include in order the components listed below. If these components are not included, the LOI risks a delayed response and may not be considered.

(1) Identification of the Competition that is being targeted in the LOI.

(2) Specification of a tentative project title.

(3) Name(s) and institution(s) of all Principal Investigator(s), and specification of which individual is the Lead Principal Investigator.

4) Approximate cost of the project, with and without ship costs.

(5) Statement of the problem and its management relevance.

(6) Brief summary of work to be completed, methodology to be used, and the plan for transfer of project results to end-users.

CSCOR Program Managers will review each LOI to determine whether it is responsive to the Program's goals, as advertised in this notice. A letter or email to encourage or discourage a full application is scheduled to be sent out two weeks after the LOI due date. The final decision to submit a full application will be made by the investigator.

2. 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://www.cop.noaa.gov/stressors/Default.aspx. An example proposal can be found: http://www.cop.noaa.gov/opportunities/grants/pdf/sample_application.pdf and FAQs are also available.

3. 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 acronym: ECOHAB, MERHAB or PCM and the Principal Investigators (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.

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 be described, including articulation of 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.
(d) For PCM HAB projects the description of the Transition Advisory Committee and its activities should be included in this section (see required information in Section I.B.3.).

The project description for ECOHAB Targeted and MERHAB Targeted and all PCM HAB proposals must not exceed 15 pages in 12-point, easily legible font with 1 inch margins. ECOHAB Regional-scale and MERHAB Regional-scale proposals must not exceed 20 pages. (Note that permission of the Program Manager is required to submit a regional-scale ECOHAB proposal). The page limit includes figures, tables, and other visual materials as well as letters of endorsement, but excludes references, a milestone chart, and letters of intent from unfunded collaborators. Letters from TAC members for PCM HAB program are not included in the page limit.

(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. Each subaward should be listed as a separate item.
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 (an example is provided at: http://www.cop.noaa.gov/opportunities/grants/pdf/sample_application.pdf). 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 (f) 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.

Any ship time needs must be clearly identified in the proposed budget. The applicant is responsible for requesting ship time through appropriate channels and for meeting all requirements to ensure the availability of requested ship time. Copies of relevant ship time

request forms (e.g. UNOLS ship request forms at http://www.gso.uri.edu./unols/ship/mainmenu.html) should be included with the proposal.

If any NOAA personnel will be present during ship operations, vessel safety clearances must be obtained through the NOAA Office of Marine and Aviation Operations (OMAO) in advance of the cruise. Required information and procedures are detailed in a Charter Vessel Acquisition and Safety NOAA Administrative Order which can be accessed via the OMAO website at http://www.omao.noaa.gov/charterreq.html.

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 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. 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/pdf/current_pending_form.pdf. 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 collaborative 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) Accomplishments from Prior Federal Support. If any PI or co-PI identified on the project has received federal funding in the past five years for research on HABs, information on the award(s) is required. Each PI and co-PI who has received more than one award (excluding amendments) must report on the award most closely related to the proposal. Accomplishments must be summarized in no more than two pages (total for all investigators) for ECOHAB Targeted, MERHAB Targeted and PCM HAB proposals and four pages (total for all investigators) for ECOHAB Regional-scale and MERHAB Regional-scale proposals, which should follow the Project Description. The following information must be provided:
a) the award number, amount and period of support;
b) the title of the project;
c) a summary of the results of the completed work;
d) publications resulting from the award;
e) a brief description of outputs and outcomes; and
f) as appropriate, a description of the relation of the completed work to the proposed work.
Reviewers will be asked to comment on the quality of the prior work described in this section of the proposal. You must respond to the requirement whether or not you have accomplishments from prior federal 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: 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 that 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 a page after the Summary Title Page.
These forms can be uploaded in to the Optional Form box under Other Attachments in Grants.gov.
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

LOIs for all programs must be received at the CSCOR Program Office by 5 p.m. Eastern Time, August 16, 2010. Applicants who have not received a response to their LOI within three weeks should contact Mary Payne at Mary.Payne@noaa.gov. Applicants may not submit full applications if they do not submit a LOI.
The deadline for receipt of full proposals for all programs at the NCCOS/CSCOR office is 3 p.m., Eastern Time on October 14, 2010. These deadlines are for hand delivered or electronically submitted proposals.
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.

Important: All applicants, both electronic and paper, should be aware that adequate time must be factored into applicant schedules for delivery of the application. 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. Paper applicants should allow adequate time to ensure a paper application will be received on time, taking into account that guaranteed overnight carriers are not always able to fulfill their guarantees.

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

LOIs should be submitted by email Mary.Payne@noaa.gov. If an applicant does not have Internet access, LOI hard copies may be sent to Mary Payne, NOAA Center for Sponsored Coastal Ocean Research, 1305 East-West Highway, SSMC4, Mail Station 8218, 8th floor, Silver Spring, MD 20910 or faxed to 301-713-4044. Please allow two weeks after receipt for a response.

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.

National Oceanic and Atmospheric Administration
Center for Sponsored Coastal Ocean Research

1305 East West Highway
Mail Station 8240, 8th Floor
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, other Federal, regional, state, or local activities. This should also include a detailed review of the management relevance of the proposed work, an assessment of whether the research addresses documented end user needs, and evaluation of information and technology transfer plans and activities. A significant component of this criterion includes the degree to which the proposed work will develop outcomes leading to improved management of coastal resources in the targeted regions (as articulated within the proposal Application to Management Narrative). (35 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. (35 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 (as described in the Accomplishments from Prior Federal Support), previous cooperative work, timely communication, and the sharing of findings, data, and other research products. (10 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. HAB Program Research 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 September 1, 2011.

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.nesdis.noaa.gov/datainfo.html. 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: Quay Dortch, ECOHAB Coordinator, 301-713-3338 extension 157, Internet: Quay.Dortch@noaa.gov.
Marc Suddleson, MERHAB Program Manager, 301-713-3338 extension 162, Internet: Marc.Suddleson@noaa.gov.
Quay Dortch, PCM Acting Program Manager, 301-713-3338 extension 157, Internet: Quay.Dortch@noaa.gov.
Business Management Information: Laurie Golden, NCCOS/CSCOR Grants Administrator, 301-713-3338 extension 151, Internet: 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 Federal support
SF-424B (requested)
CD-511 (requested)
Indirect Rate Agreement (requested)
Signed approvals from subaward/contractor institutes