

National Competitive Harmful Algal Bloom Programs: The Ecology and Oceanography of Harmful Algal Blooms (ECO HAB) and Prevention, Control and Mitigation of Harmful Algal Blooms Program (PCMHAB)

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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 Harmful Algal Bloom Programs: The Ecology and Oceanography of Harmful Algal Blooms (ECOHAB) and Prevention, Control and Mitigation of Harmful Algal Blooms Program (PCMHAB)

Announcement Type: Initial

Funding Opportunity Number: NOAA-NOS-NCCOS-2017-2004943

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

Dates: The required letters of intent (LOI) for the PCMHAB Program should be sent by e-mail to Laurie.Golden@noaa.gov and must be received by 5:00 p.m. Eastern Time on September 2, 2016. Full applications for the ECOHAB and PCMHAB programs must be received and validated by Grants.gov by 5:00 p.m. Eastern Time on November 2, 2016. Electronic or paper copies received after the deadline will not be considered, and paper copy applications will be returned to the sender. NOAA will also accept paper applications subject to further details described in this Announcement that are postmarked or provided to a commercial carrier with tracking number and receipt on or before 5:00 pm Eastern Time on [90 Days from Publication] for both HAB programs. Private metered postmarks will not be accepted. Applicants submitting by paper are responsible for tracking their applications and should notify the Program Manager in Section VII of this Announcement that they are submitting by paper.

When developing your submission timeline, keep in mind the following information necessary to submit an application on Grants.gov: (1) a free annual registration process in the electronic System for Award Management (SAM) may take between three and five business days or as long as several weeks, as described in Section IV.F. of this Announcement, and (2) if you submit an application via Grants.gov, you will receive a series of email notifications for up to two business days before learning via validation or rejection whether NOAA has received your application.

Funding Opportunity Description: The purpose of this document is to advise the public that NOAA/NOS/National Centers for Coastal Ocean Science (NCCOS)/Center for Sponsored Coastal Ocean Research (CSCOR) is soliciting proposals for the Ecology and Oceanography of Harmful Algal Blooms (ECOHAB) and Prevention and Control of Harmful Algal Blooms

Program (PCMHAB). Funding is contingent upon the availability of Fiscal Year 2017 Federal appropriations. It is anticipated that projects funded under this announcement will have a September 1, 2017 start date.

Total funding for this research:

ECO HAB: Approximately 4 - 5 targeted projects for approximately 2-4 years in duration are expected to be funded at a level not to exceed \$250,000 per year per proposal. It is anticipated that up to approximately \$1,000,000 may be available in Fiscal Year 2017 for the first year for all ECO HAB projects. In addition to these annual funding limits, NOAA will not accept any proposals submitted with total budgets (across all years) that are greater than \$750,000 for ECO HAB.

PCMHAB: Approximately 3-6 projects 2-3 years in duration are expected to be funded at a level not to exceed \$100,000 per year per proposal. A total of up to approximately \$300,000 may be available in Fiscal Year 2017 for the first year for all PCMHAB projects. NOAA will not accept any proposals submitted with total budgets (across all years) that are greater than \$300,000 for PCMHAB

Electronic Access: Background information about NOAA's ECO HAB and PCMHAB Programs can be found at <https://coastalscience.noaa.gov/research/habs/ecohab> and <https://coastalscience.noaa.gov/research/habs/pcmhab>, respectively.

Any Frequently Asked Questions that arise will be posted at these sites. Proposals should be submitted through Grants.gov, <http://www.grants.gov>. Sign up to receive any potential amendments to this Announcement via www.grants.gov.

FULL ANNOUNCEMENT TEXT

I. Funding Opportunity Description

A. Program Objective

1. Growing Problem of HAB Occurrence and Impacts

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 freshwater 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. 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, drinking water and seafood advisories; and medical treatments (7). 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. 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, but appropriate response requires an understanding of the causes and impacts. Over the course of the last decade, numerous reports have described the magnitude of the HAB problem and outlined research plans to systematically address the issue (1, 2, 3, 4, 6, 8, 10, 12, 13, 14, 15, 16).

2. Legislative Mandates and Justification for HAB Programs

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 research programs for HABs: Ecology and Oceanography of HABs (ECO HAB), Monitoring and Event Response for HABs (MERHAB), and Prevention, Control, and Mitigation of HABs (PCMHAB). The Harmful Algal Bloom and Hypoxia Research and Control Amendments Act of 2014 (2014 HABHRCA Reauthorization) requires these existing competitive programs be maintained

and enhanced. See 33 U.S.C. §§ 4001-4009.

NOAA described each national competitive program in more detail and established a regional rotation in a 2009 Federal Register Notice found at 74 FR 20465 (May 4, 2009). NOAA ended the regional rotation of HAB programs in 2016, as announced at 81 FR 37187 (June 9, 2016). Abstracts of previously funded ECOHAB, MERHAB and PCMHAB projects are available online at <http://www.whoi.edu/redtide/research/projects>.

NOAA/NOS/NCCOS also has a substantial intramural HAB portfolio focused on the analysis, detection and development of forecasting tools. This portfolio is meant to be interleaved with extramural research to address a broader range of challenges. NCCOS carries out these research, monitoring, and assessment activities through NOAA-operated laboratories and through extramural awards for competitive, peer-reviewed, interdisciplinary research investigations. This combination of intramural and extramural research enables NCCOS to address research questions of diverse scopes and time scales.

These HAB programs address multiple interagency, Department of Commerce, and NOAA goals and objectives.

- The Harmful Algal Blooms and Hypoxia Comprehensive Research and Action Plan (15), mandated by the 2014 HABHRCA Reauthorization, calls on all federal agencies to:
 - o Add to and improve scientific understanding of HABs and hypoxia, and their causes and effects, as well as improve testing and research methods.
 - o Strengthen and integrate new and existing monitoring programs.
 - o Improve predictive capabilities by developing and enhancing HAB and hypoxia modeling programs; improve disease surveillance for human and animal exposure, illnesses, and death.
 - o Improve stakeholder communications, including having more effective and readily-available public advisories, stronger connections with susceptible communities, and a better understanding of the socioeconomic and health-related impacts of HABs and hypoxia.
 - o Continue and expand collaborations in research, management, and policy-related arenas.

- The Interstate Shellfish Sanitation Conference (ISSC), which fosters and promotes shellfish sanitation through the cooperation of state and federal control agencies (Food and Drug Administration, NOAA, Environmental Protection Agency), the shellfish industry and the academic community, has developed research priorities to address the needs of managers and the shellfish industry to assist with monitoring for HAB toxins in seafood.

- The U.S. Department of Commerce, Strategic Plan 2014-2018 (18) calls for NOAA to “help communities and businesses prepare for and prosper in a changing environment” by deploying “the next generation of satellites and observations and data gathering systems and developing the next-generation environmental modeling system and transition models.” (p.23) “Geographically specific forecasts will allow resource managers to make decisions based on predicted environmental and socioeconomic impacts, predict the impacts of ecosystem stressors, and evaluate the potential options to mitigate those stressors to better manage ecosystem use and condition” (p.42).
- NOAA’s Ecological Forecasting Roadmap 2015-2019 (17) specifies that “NOAA’s priority through this Ecological Forecasting Roadmap is to develop ecological forecasts for harmful algal blooms in regions of the country where these are issues of major concern.” (p.3).

B. Program Priorities

This FFO calls for proposals for ECOHAB and a narrowly focused PCMHAB.

1. ECOHAB Priorities

The ECOHAB Program, based on The Ecology and Oceanography of Harmful Algal Blooms: A National Research Agenda (1), was authorized in HABHRCA 1998 as an applied competitive 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. 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, 6, 8, 10, 12, 13, 14, 15, 16). 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 frequency (8, 10, 12, 13, 15).

The overall 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.

HABs and related biotoxin risk must be managed 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 for targeted projects on one or more of the following topics:

- 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) Determining the effects of environmental changes, such as eutrophication, ocean acidification and/or climate change, on HABs and their impacts.

ECOHAB also supports the development of ecological forecasting capabilities in geographic areas with severe, recurrent blooms along the US coast (17). These can be either in new geographic 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 to support model/forecast development must be clearly articulated. Development of HAB models, where the long-term intent is to operationalize the model among the HAB research community, must be based on community-supported modeling frameworks, such as Regional Ocean Modeling System (ROMS) or Finite Volume Community Ocean Model (FVCOM).

The 2014 Reauthorization of HABHRCA emphasizes the need to coordinate HAB research and response within NOAA and across federal agencies. Coordination of ECOHAB and PCMHAB within NOAA and across other federal agencies, as demonstrated by development of co-funding or partnerships with other NOAA National Ocean Service offices, other NOAA offices, other Federal agencies, state governments and the private sector, is encouraged. In particular partnerships with the following entities are strongly encouraged, where appropriate.

- 1) NOAA NOS National Marine Sanctuaries (<http://sanctuaries.noaa.gov/>)
- 2) NOAA NOS National Estuarine Research Reserves (<http://nerrs.noaa.gov>)
- 3) Integrated Ocean Observing System (IOOS) Regional Associations (<http://www.ioosassociation.org/>)

The Interstate Shellfish Sanitation Conference (ISSC) has developed research priorities to

address the needs of managers and the shellfish industry to assist with monitoring for HAB toxins in seafood. Although some of these involve the development of methods for measuring toxins in seafood, which are more appropriately addressed by the PCMHAB program, others specify the need for basic understanding of HABs and their toxins, which are appropriate topics for ECOHAB.

ECOHAB projects must demonstrate a clear link to management issues and specify outputs and outcomes that will provide managers and the public with sound scientific information for making decisions. 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 throughout the life of the project. Articulation of outcome-based management goals is required in proposals.

The ECOHAB program will support targeted laboratory or field studies by individual investigators or small teams, investigating fundamental ecological and oceanographic questions related to HAB events and their management. Support for targeted studies may be requested for up to 3 years duration.

2. PCMHAB Priorities

HABHRCA 1998 called for a program to develop “measures that can be taken to prevent, reduce, control, and mitigate harmful algal blooms.” Based on two reports authorized by HABHRCA 2004 (6, 10), NOAA implemented the PCMHAB program in 2009 at 74 FR 20465 (May 4, 2009) and the first projects were funded in 2010.

Proposals are requested to address one of two main goals of the PCMHAB program - develop and make widely available new socially and environmentally acceptable strategies and methods for preventing, controlling, and mitigating HABs and their impacts.

This FFO will further focus on mitigation by requesting proposals for developing, demonstrating, and transferring to end users new methods for monitoring HAB toxins in shellfish and other animals consumed by humans in order to protect public health. Proposals will be required to address research priorities developed by the Interstate Shellfish Sanitation Commission (ISSC), as outlined below.

The ISSC fosters and promotes shellfish sanitation through the cooperation of state and federal control agencies, the shellfish industry and the academic community. Together they developed and continue to update the National Shellfish Sanitation Program (NSSP) 2015 Guide for the Control of Molluscan Shellfish. Among other things, the NSSP Guide lays out acceptable methods for monitoring shellfish for biotoxins and each state adopts the

appropriate procedures into their regulations.

Emerging issues include the appearance of new HABs and HAB toxins, expansion of known HABs into new areas, increases in bloom intensity, and the discovery of HAB toxins in seafood not previously known to be impacted. Methods for monitoring for HAB toxins in seafood for making regulatory decisions must be adopted into the NSSP for each toxin and seafood matrix. As indicated in the 2015 Revision of the NSSP Guide (7) (p. 276-278), there are very few approved methods for biotoxins. The most commonly used method is the Mouse Bioassay (MBA) but, for a variety of reasons, only a few states with annually recurring HAB events maintain that capability. Analytical methods that measure toxins directly (5, 11) are preferred, but are often costly, requiring a high level of technical expertise and specialized instrumentation. Only a few of the methods for directly measuring toxins have been validated by the ISSC for some shellfish species. Most are not feasible for use in states with intermittent HAB events. Thus, there is a shortage of validated methods available to managers to address the growing problem of monitoring HAB toxins in seafood in the U.S.

The Laboratory Methods Review Committee (LMRC), now the Laboratory Committee, of the ISSC conducted a survey of ISSC members and developed a list of research Priorities to Improve Shellfish Monitoring for HAB Toxins. High on their list of priorities was the development of methods for measuring HAB toxins in bivalve molluscs, as described below: There is a need for qualitative (screening) and quantitative/confirmatory methods of analysis for all toxins and for each commercially-harvested bivalve species. All methods must be validated according to NSSP guidelines and demonstrated as fit for intended purpose (see ISSC Constitution, By-Laws, and Procedures, p. 37-40 and Single Lab Validation for Laboratory Methods).

- Screening methods for qualitative or semi-quantitative detection of toxins (i.e., ASP and DSP) with the following characteristics:
 - o Field deployable by managers and industry
 - o Reliable with respect to guidance levels (no false negatives and minimal false positives)
 - o Inexpensive, rapid, and facile
- Quantitative and confirmatory methods, such as LC and LC-MS/MS methods are available for some toxins and species, but they require costly instrumentation and considerable technical expertise. Multiple additional methods are needed with the following characteristics:
 - o High throughput
 - o Minimal cost and technical expertise

- o Do not require costly instrumentation

Although the purview of the ISSC is bivalve molluscs, state managers also expressed concern about many non-bivalve molluscan species that are also consumed. The ISSC biotoxin research priorities include a table of species known to accumulate biotoxins and are of concern to managers. This FFO requests proposals to develop and validate either or both screening and quantitative methods of measuring specific HAB toxins in seafood (see examples in Table 1 of the ISSC Priorities).

PCM projects will be typically 2-3 years in duration and will usually be conducted in three phases, as described below. Readiness Levels (RLs), as described in the NOAA Policy on Research and Development Transitions (NAO 216-105A), are provided for guidance. Research in the Development Phase (Phase 1, RLs 2-5) will advance and evaluate unproven but promising PCM technologies and strategies. The Demonstration Phase (Phase 2, RLs 6-7) will test, validate and evaluate promising technologies in the field across a broad temporal and spatial scale. The Technology Transfer phase (Phase 3, RL 8) will facilitate the transition of technologies and strategies to end-user operation, application, commercial product or service, or other use. Phase 1 proposals must demonstrate familiarity with the process of ISSC review of a method and adoption into the NSSP for regulatory use (ISSC Constitution, By-Laws, and Procedures, p. 37-40). Phase 2 projects must provide a detailed plan for obtaining ISSC adoption and Phase 3 projects must implement the plan. The plan for obtaining ISSC adoption of a method into the NSSP can fulfill the requirement for a Data Management Plan (see Section IV.B.2.2.(4) (f)). Proposals can address any Phase or combination of Phases. Products for commercialization must also plan to obtain ISSC review for adoption into the NSSP. Applications from state, local, or tribal managers or including managers as funded co-principal investigators are strongly encouraged.

In order to develop and implement plans for obtaining ISSC review for adoption of new methods, applicants should follow the instructions provided in the following documents.

1. the Constitution, By-laws and Procedures of the ISSC, especially Procedure XVI, Procedure for the Approval of Analytical Methods for the NSSP (p. 37-40) and the Single Lab Validation for Laboratory Methods,
2. the Single Laboratory Validation (SLV) Protocol for Submission to the ISSC; and
3. The 2015 Revision of the NSSP Guide for the Control of Molluscan Shellfish (7), especially pp. 40-41, 47-48, 60-62, 176-179, 220-225, 228, 245-247, 276-278 and others as needed.

Applicants developing methods for biotoxin measurements in all other species that do not

fall under the purview of the ISSC must follow the guidelines of the FDA.

Projects must have a Transition Advisory Committee (TAC) whose purpose is to provide advice to the investigator team to assist with project design to insure successful method validation. 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 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. Travel funds for the TAC should be included within the budget. Although federal employees may be TAC members, they cannot receive travel funds. The HAB Program Manager may request additional TAC members during the project period.

3. Important information about ECOHAB and PCMHAB Program Criteria

The following guidance clarifies the scope of ECOHAB and PCMHAB in relation to 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) PCMHAB 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.
 - c) PCMHAB will also fund efforts to sufficiently develop proven HAB methods to translate them into products that are 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. Development of HAB models, where the long-term intent is to operationalize the model within NOAA, must be based on community-supported modeling frameworks, such as ROMS or FVCOMM.
 - b) ECOHAB will not fund the transition of models to operational use.

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 reports (10, 12, 13, 15).

To avoid duplication of effort ECOHAB and PCMHAB will not fund research in the following areas:

- 1) 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.
- 2) Direct human health impacts of HABs, such as disease surveillance, clinical characterization, and therapeutic guidance in humans, are the purview of other agencies, such as NSF/NIEHS COHH, CDC and FDA;
- 3) Routine monitoring for HAB cells and toxins and water quality.

All NOAA 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 NOAA HAB Program Managers to insure that they have included the appropriate level of end user participation.

- 1) ECOHAB projects must have clearly articulated management relevance and a long range plan describing the transition to applications. Participation in the research by potential end users is encouraged, especially for regional-scale projects.
- 2) PCMHAB projects must include end users, such as state, local, and tribal managers, members of the fishing or shellfishing industries, or companies that sell test kits or instrumentation for measuring HAB toxins, as investigators and/or members of the TAC.

4. References

- (1) Anderson, D.M. 1995. ECOHAB, the Ecology and Oceanography of Harmful Algal Blooms. Woods Hole, MA: Woods Hole Oceanographic Institution.
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MA: Woods Hole Oceanographic Institution. 72 pp. http://www.whoi.edu/cms/files/HARR-HD_18203_23047.pdf

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(7) FDA, 2015. National Shellfish Sanitation Program (NSSP) Guide for the Control of Molluscan Shellfish 2015 Revision. 464 pp. <http://www.fda.gov/downloads/Food/GuidanceRegulation/FederalStateFoodPrograms/UCM505093.pdf>

(8) HARNNESS, 2005. Harmful Algal Research and Response: A National Environmental Science Strategy 2005-2015. Ramsdell, J.S., D.M. Anderson and P.M. Glibert (Eds.), Ecological Society of America, Washington DC, 96 pp. <http://www.esa.org/HARNNESS/harnessReport10032005.pdf>

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Assessment and management of biotoxin risks in bivalve molluscs. FAO Fisheries and Aquaculture Technical Paper 551. Rome. 358 pp.
<http://www.fao.org/docrep/015/i2356e/i2356e.pdf>

(12) 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.
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(17) NOAA, 2015. A Strategic Vision for NOAA's Ecological Forecasting Roadmap 2015-2019. 14 pp <http://oceanservice.noaa.gov/ecoforecasting/noaa-ecoforecasting-roadmap.pdf>

(18) U.S. Department of Commerce, America Is Open for Business Strategic Plan Fiscal Years 2014-2018 ver 1.1. Washington, DC. 53 pp.
https://www.commerce.gov/sites/commerce.gov/files/media/files/2014/doc_fy2014-

2018_strategic_plan.pdf

C. Program Authority

33 U.S.C. §§ 4001-4009, The Harmful Algal Bloom and Hypoxia Research and Control Act of 1998 (HABHRCA), as amended; Public Law 102-567, § 201(c), Coastal Ocean Program.

II. Award Information

A. Funding Availability

Approximately 4 -5 targeted ECOHAB projects of 2-4 years duration are expected to be funded at a level not to exceed \$250,000 per year per proposal. It is anticipated that up to approximately \$1,000,000 may be available in Fiscal Year 2017 for the first year for all ECOHAB projects. In addition to these annual funding limits, NOAA will not accept any proposals submitted with total budgets (across all years) that are greater than \$750,000 for ECOHAB. Approximately 3-6 PCMHAB projects of 2-3 years duration are expected to be funded at a level not to exceed \$100,000 per year per proposal. A total of up to approximately \$300,000 may be available in Fiscal Year 2017 for the first year for all PCMHAB projects. NOAA will not accept any proposals submitted with total budgets (across all years) that are greater than \$300,000 for PCMHAB

B. Project/Award Period

Full applications may cover a project/award period up to 4 years for ECOHAB and up to 3 years for PCMHAB, but shorter-term project proposals are also encouraged.

Awards may be funded incrementally, generally on an annual basis, but, once awarded, those awards will not compete for funding in subsequent years. This multi-year funding is often appropriate for projects to be funded for two to five years. Once approved, full applications are not required for the continuation out years. While applicants are not required to divide Federal assistance project activities into annual increments based on appropriations law, this approach may be constructive given the possibility that funding may not be available in subsequent years.

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.

During the implementation phase of research projects funded under this announcement, regardless of the funding mechanism used, NCCOS/CSCOR Program Managers will analyze

financial statements and progress reports for each continuing award, 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. If NOAA experiences budget reductions in future fiscal years, the amount of funding provided in any given fiscal year will be determined on a project-specific basis by the remaining tasks to be completed, the overall pace of the research and the length of time remaining on the award and/or across the board reductions based on the overall funds available.

Regardless of the budget for any given fiscal year, 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 funding amount in any given fiscal year.

C. Type of Funding Instrument

In an effort to maximize the use of limited resources, applications from non-Federal, non-NOAA Federal and NOAA Federal applicants will be evaluated in the same competition, with different funding instruments applicable to the type of applicant.

The funding instrument for a research application selected for funding from a non-Federal researcher is expected to be a cooperative agreement. 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. "Substantial involvement" will be coordinated and communicated by NCCOS/CSCOR Program Managers, and can include collaboration and participation by NOAA (including NCCOS, but see section III.A.6.) researchers, as well as NCCOS/CSCOR Program Manager involvement in PI meetings, setting up management advisory groups, development of management transition plans, and communication of project results.

If the non-Federal applicant is at an institution that has a NOAA Cooperative Institute (CI), it is allowed to submit applications that reference the CI by attaching a cover letter to the application stating its desire to have the application associated with the CI. This letter should specify the name of the cooperative institute, the CI cooperative agreement number, and the NOAA-approved research theme and task that applies to the proposal. The application will use the Facilities & Administrative (F&A, or indirect cost) rate associated with the main CI

agreement. If the application is selected for funding, NOAA will notify the university that a separate award will be issued with its own award number. However, the award will include two Special Award Conditions (SACs): (1) the existing University/NOAA Memorandum Of Agreement (MOA) would be incorporated by reference into the terms of the competitive award, and (2) any performance report(s) for the competitive project must follow the timetable of the funding program and be submitted directly to the funding program. Report(s) will be copied to the CI's administrator when due, to be attached to the main cooperative agreement progress report as an appendix. This will allow the CI to coordinate all the projects submitted through the CI, since the terms of these awards will specify that this is a CI project via the MOA.

The funding instrument for a selected application from an eligible NOAA Federal applicant will be an intra-agency transfer of funds.

The funding instrument for a selected application from a non-NOAA Federal applicant will be through an inter-agency transfer of funds, provided legal authority exists for the Federal applicant to receive funds from another agency. Non-NOAA Federal applicants that intend to be the lead institution must call Laurie Golden/240-533-0285 to discuss technical details. PLEASE NOTE: Before non-NOAA Federal applicants may be funded, they must demonstrate that they have applicable legal authority for an interagency transfer of funds.. Support may be solely through NCCOS/CSCOR or partnered with other Federal offices and agencies.

The intra- and inter-agency transfers of funds are not Federal assistance (grants or cooperative agreements), and the policies described in this Announcement applicable to Federal assistance awards do not apply to Federal entities receiving intra- and inter-agency transfers of funds. Refer to the Agency Contact officials in Section VII. for more information.

III. Eligibility Information

A. Eligible Applicants

Eligible applicants for Federal financial assistance in this competition are institutions of higher education, other non-profits, state, local, Indian Tribal Governments, for-profit organizations, U.S. Territories and Federal agencies that possess the statutory authority to receive transfers of funds. DOC/NOAA supports cultural and gender diversity and encourages women and minority individuals and groups to submit applications to the NCCOS/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 applications involving any of the above institutions to apply.

Please note that:

(1) Principal Investigators should be employees of an eligible entity listed above; and applications should be submitted through that entity. Non-Federal researchers should comply with their institutional requirements for application submission.

(2) Non-NOAA Federal applicants will be required to submit certifications or documentation showing that they have specific legal authority to accept funds for this type of research.

(3) Foreign researchers must apply as subawards or contracts through an eligible US entity.

(4) Non-Federal researchers affiliated with NOAA-University Cooperative/Joint Institutes will be funded through cooperative agreements.

(5) NOAA/NOS/NCCOS researchers are ineligible to apply.

a.They may not be included in applications as funded or unfunded investigators.

b.They may not provide letters of support for the application.

c.Applications that disregard either a. or b. will be rejected without review.

B. Cost Sharing or Matching Requirement

None

C. Other Criteria that Affect Eligibility

Letters of intent are required for the PCMHAB program. A full proposal that did not submit a LOI will not be considered and will be returned to the proposer without review.

Each application must substantially comply with the sixteen elements listed under Content and Form of Application, Required Elements, (1) - (16), or it will be returned to sender without further consideration. A checklist with the required and requested application elements can be found in Section VIII.

IV. Application and Submission Information

A. Address to Request Application Package

Laura Golden
1305 East West Hwy

SSMC 4 Station 8219
Silver Spring, MD 20910

B. Content and Form of Application

1. Letter of Intent (LOI) for PCMHAB program

LOIs are required only for the PCMHAB Program. Any full proposals submitted without a prior timely LOI submission will not be considered. 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 competitive in advance of preparing a full application. 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 PCMHAB Program. The LOI should be no more than two pages (front only) in length, single spaced in 12-point font with 1-inch margins and should include in order the components listed below. If all these components are not included, the LOI will not be considered.

- (1) Tentative project title.
- (2) Name(s) phone number(s), email address(s) and institution(s) of all Principal Investigator(s), and specification of which individual is the Lead Principal Investigator.
- (3) Approximate cost of the project.
- (4) Statement of the problem and its management relevance.
- (5) Brief summary of work to be completed, methodology to be used, and the plan for seeking ISSC adoption of a method into the NSSP or FDA approval.

CSCOR Program Managers will review each LOI to determine whether it is responsive to the Program's goals, as advertised in this notice. Letters or emails to encourage or discourage a full application are scheduled to be sent out two weeks after the LOI due date.

Late LOIs will not be considered and any associated full applications will not be considered.

2. Full Applications

Example Application

An example application can be found on the NCCOS/CSCOR home page at:
<http://coastalscience.noaa.gov/funding/applicants/forms>.

Required Elements

Collaborative Proposals - If more than one institution is collaborating in a project awarded

funds, the lead institution will be the only institution to directly receive funds from NOAA. Collaborating institutions expected to receive funds must be budgeted as subawards or contracts. Unfunded collaborators may also participate.

Each application must substantially comply with the following sixteen elements to be forwarded for merit review. The Summary, Title page, Abstract, Project Description, References, Biographical Sketch, and Budget must be single spaced in 12-point font with 1-inch margins. The Collaborators List must be an Excel spread sheet. The sixteen elements are as follows:

(1) Standard Form 424. The applicant must submit the Standard Form, SF-424, "Application for Federal Assistance," to indicate the total amount of funding proposed for the whole project period. This form is to be the cover page for the original application and is the first required form in the grants.gov application package.

(2) Summary title page. One-page maximum. The Summary title page identifies the project's title, starting with the acronym: ECOHAB 2017 or PCMHAB 2017 and the Principal Investigator's (PI) name and affiliation, complete address, phone and E-mail information. The requested funding amounts for each fiscal year with and without ship funding should be included on the Summary title page. If this proposal is a resubmission from a previous NCCOS competition, indicate that information on the Summary title page.

(3) One-page abstract/project summary. The summary (abstract) should appear on a separate single 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. The summary is used to help compare proposals quickly and allows the respondents to summarize their key points in their own words. Project summaries of applications that receive funding may be posted on program-related websites. The project summary should 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 (elements a through d), the Application to Management (element e), and the Data Management Plan (element f).

The description of the proposed project must not be more than 15 pages for elements (a) through (e) and an additional 2 pages for the Data Management Plan (f).

The Proposed Research Narrative should 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.
- (e) 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. For PCMHAB projects the description of the Transition Advisory Committee and its activities should also be included in this section (see required information in Section I.B.2.)

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

- (i) Articulating the coordination with one or more management entities;
- (ii) Discussing the expected significance of the project to management priorities and needs. Specific management targets, with proposed outputs and outcomes, should describe how this project will improve management capabilities. Outputs are defined as products (e.g. publications, models) or activities that lead to outcomes (changes in management knowledge or action). Definitions and examples of outputs and outcomes can be accessed at <http://coastalscience.noaa.gov/funding/recipients/outcomes>. The timeline for achieving outcomes should be included in the Milestone Chart (below).
- (iii) 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.

If the proposal is a resubmission from a previous competition, any concerns identified in the previous review process and provided to the applicant should be addressed in the resubmitted proposal.

(f) Providing a detailed Data Management Plan that describes how metadata and data collected as part of the project will be disseminated to the broader community, and plans for longer term archiving of these data. For the PCMHAB Program the plan for obtaining ISSC adoption of a method into the NSSP can fulfill the requirement for a Data Management Plan. Principal Investigators that propose to collaborate with data centers or networks are advised to obtain letters of commitment that affirm the collaboration. Where possible, all PIs are strongly encouraged to use existing data centers and data portals to archive and disseminate

their data. Costs associated with use of data centers, or data archiving, should be included in the application budget. See the section on the NOAA Data Reporting requirements below (Section VI. C.).

(5) References cited. Reference information is required. Each reference should include the names of all authors in the same sequence they appear in the publications, the article title, the journal or book 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 Project Description.

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

(7) 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.

(8) 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. A current and pending support form is available on the CSCOR web site for your use: <http://coastalscience.noaa.gov/funding/applicants/forms>. You should respond to this element whether or not you have any current and/or pending support, e.g., by indicating “not applicable.”

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

(10) Accomplishments from Prior Federal Support addressing HAB research. If any PI or co-PI identified on the project has received Federal funding in the past five years for HAB research, 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. This section should not exceed two pages per award in addition to the 20 pages for the Project Description.

The following information should 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.

When applicable, this information will be considered by reviewers in the evaluation of overall qualifications of applicants. You should respond to this element whether or not you have accomplishments from prior Federal support on HABs; e.g. by indicating “no prior Federal research on HABs.”

(11) Budget narrative/justification. In order to allow reviewers to fully evaluate the appropriateness of costs, all applications must include a detailed budget narrative and a justification to support all proposed budget categories for each fiscal year. Personnel costs should be broken out by named PI and number of months and percentage of time requested per year per PI. Support for each PI should be commensurate with their stated involvement each year in the milestones chart (see Required Elements (6) Milestone chart).

Any unnamed personnel (graduate students, post-doctoral researchers, technicians) should be identified by their job title, and their personnel costs explained similar to PI personnel costs above. The contribution of any personnel to the project goals should be explained. 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://coastalscience.noaa.gov/funding/applicants/requirements>.

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 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.oma.noaa.gov/learn/headquarters/safety-environmental-compliance/vessel-chartering-info>.

If more than one institution is collaborating in a project awarded funds, the lead institution will be the only institution to directly receive funds from NOAA. A separate budget justification is required for each subaward. Signed approval from each identified subaward institution is also required. The lead institution is responsible for sending funds to their subaward institutions. For acquisition contracts, the purpose and cost or price must be fully justified and the contract must fully comply with 2 C.F.R. 200.317-.326.

An applicant requesting funds for indirect costs in its proposal budget that has a current Federally approved rate should submit documentation of the indirect cost rate agreement as an attachment to its application submission. An applicant without a Federally approved rate should refer to Section IV.F. of this Announcement regarding options.

(12) CD 511. Certification Regarding Lobbying. Lead institutions can submit these forms through the grants.gov CD511 document placeholder without a hard signature because electronic signatures are allowed on documents from the submitting institution.

(13) SF 424B. Assurances - Non-Construction Programs. Lead institutions can submit these forms through the grants.gov SF 424B document placeholder without a hard signature because electronic signatures are allowed on document from the submitting institutions.

(14) Standard Form 424A. All applicants are required to submit a SF-424A Budget Form that 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 by filling in the fiscal years 1 to 5 in Section A Budget Summary - Grant Program Function or Activity column. (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. Each subaward should be listed as a separate item in the budget justification and each subaward should provide a SF424A for each year of funding requested.

Provide separate budgets for each subaward and indicate the basis for the cost estimates. Describe project activities for subawards and products/services to be obtained for acquisitions, and indicate the applicability or necessity of each to the project. List total subaward and contractor costs under line item 6.f. contractual on the SF-424A. Signed approval from the institution of each identified subaward and contractor should be provided.

Indirect cost may not be applied to ship costs.

(15) Provide one list that includes all (U.S. 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 application in an excel spreadsheet using First Name, Last Name and Institution for the column headings. Collaborators are individuals who have participated in a project or publication within the last 48 months with any investigator, including co-authors on publications in the resumes. Collaborators also include those persons with which the investigators may have ongoing collaboration negotiations. Advisees and Advisors do not have a time limit. Advisees are persons with whom the individual investigator has had an association as thesis advisor or postdoctoral sponsor. Advisors include an individual's own graduate and postgraduate advisors. Unfunded participants in the proposed study should also be listed (but not their collaborators). This information is critical for identifying potential conflicts of interests and avoiding bias in the selection of reviewers.

(16) Key Contacts form. All applicants must submit the Key Contacts form. This form can be found on the NCCOS/CSCOR website:

http://coastalscience.noaa.gov/funding/docs/key_contacts_form.pdf. This form identifies the official applicant contacts.

Application format and assembly. Applications submitted via Grants.gov APPLY should follow the format guidelines below:

Attachments must be submitted in Adobe Acrobat PDF, text document or Microsoft word or excel 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 collaborative application: The documents for each additional institution should be combined into one file. The lead institution should label the file with the name of the institution and upload the file into the Optional Form box as Other Attachments. 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 this FFO will use

programmatic discretion in accepting applications 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 sixteen required elements, applicants may provide the following:

- (1) A list of potential merit reviewers on a page after the Summary Title Page.
- (2) Letters from unfunded collaborators, verifying their contribution to the project, and TAC members, verifying their willingness to serve on the TAC. These letters do not count against the page limit for the Project Description. Letters of support may also be included, but they count against the page limit for the Project Description. These elements can be uploaded in to the Optional Form box under Other Attachments in Grants.gov.

Applications containing known subawards must provide - SF424A, Budget Justification, Current and Pending Support, and Key Contacts. Signed approval from the institution of each subaward and contractor should be provided. We also request submission of the indirect rate agreement for subawards, if applicable. Applicants should provide Key Contacts for acquisition contracts and may provide additional information similar to that requested in this section for an acquisition contract if it may help NOAA assure compliance of the contract with 2 C.F.R. 200.317-.326.

Permits, accomplishments, Biographical sketches and the collaborators lists should be supplied to the lead institution in order for them to be combined within the lead application information.

It will be 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 should 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) may delay the award of funds if a project is otherwise selected for funding.

C. Unique Entity Identifier and System for Award Management (SAM)

To enable the use of a universal identifier and to build the quality of information available to the public as required by the Federal Funding Accountability and Transparency Act, 16 U.S.C. 6106 Note, to the extent applicable, any applicant awarded in response to this Announcement will be required to use the System for Award Management (SAM), which may be accessed online at <https://www.sam.gov/portal/public/SAM/>. Applicants are also required to use the Dun and Bradstreet Universal Numbering System (DUNS) and will be subject to reporting requirements, as identified in OMB guidance published at 2 CFR Part 25, which may be accessed online at: http://www.ecfr.gov/cgi-bin/text-idx?tpl=/ecfrbrowse/Title02/2cfr25_main_02.tpl. See Section IV.G. of this Announcement for more information.

D. Submission Dates and Times

The required LOIs for the PCMHAB Program must be sent by e-mail to Laurie.Golden@noaa.gov and must be received by 5:00 p.m. Eastern Time on September 2, 2016. Applicants will receive an email verification of receipt.

The deadline for receipt of full applications for PCMHAB and ECOHAB at NOAA is 5 p.m., Eastern Time on November 2, 2016. Full applications should be submitted electronically to Grants.gov and must be received and validated by Grants.gov by the deadline. A paper application Note that late-arriving hard copy applications will be accepted for review only if the applicant can document with tracking number and receipt 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 8219 8th Floor, Silver Spring, Maryland 20910-328;

- 2) Delivery was guaranteed by 5 p.m., Eastern Time on the specified closing date; AND,

- 3) The application was received by NOAA by 5 p.m., Eastern Time no later than 2 business days following the closing date. In this situation, the applicant is responsible for notifying the Program Manager of its submission. If an applicant is not notified of receipt of its application by NOAA, the applicant is responsible for following up to assure its application was received and demonstrating documentation of timely submission.

Investigators submitting applications 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. Electronic applicants are advised that volume on Grants.gov is currently extremely heavy, and if Grants.gov is unable to accept applications electronically in a timely fashion, applicants are encouraged to exercise their option to submit applications in paper format. 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.

Applications received after the deadline will be rejected and returned to the sender without further consideration.

E. 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.

F. Funding Restrictions

Indirect Costs: If an applicant has not previously established an indirect cost rate with a Federal agency it may choose to use the de minimis indirect cost rate of 10% of Modified Total Direct Cost as allowable under 2 C.F.R. §200.414 or negotiate a rate with the Department of Commerce. The negotiation and approval of such a new rate is subject to the procedures required by NOAA and the Department of Commerce Standard Terms and Conditions, Section B.06. The NOAA contact for indirect or facilities and administrative costs is: Lamar Revis, Grants Officer NOAA Grants Management Division 1325 East West Highway 9th Floor Silver Spring, Maryland 20910, lamar.revis@noaa.gov.

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 unless specified within the indirect cost rate agreement of the institution. NCCOS/CSCOR will not pay for ship overhead expenses otherwise. If indirect costs are applied, an approved indirect cost agreement or budget revision will be required before an application can be recommended for funding

G. Other Submission Requirements

Applications previously submitted to NCCOS/CSCOR FFOs and not recommended for funding must be revised to address any reviewer or panel concerns before resubmission. Resubmitted applications that have not been revised to address identified concerns may be returned without review.

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>. You will be able to access, download and submit electronic grant applications for NOAA Programs in this announcement at <http://www.grants.gov>. NOAA strongly recommends that you do not wait until the application deadline date to begin the application process through Grants.gov.

Applicants must register with Grants.gov before any application materials can be submitted. To use Grants.gov, applicant must have a Dun and Bradstreet Data Universal Number System (DUNS) number and be registered in the System for Award Management (SAM), and periodic renewals are required. Applicants can receive a DUNS number at no cost by calling the dedicated toll-free DUNS Number request line at 1-866-705-5711 or online at <http://fedgov.dnb.com/webform>. Allow a minimum of five days to complete the SAM registration. (Note: Your organization's Employer Identification Number (EIN) will be needed on the application form). An organization's one time registration process may take up to three weeks to complete. In addition, it may take two days until the applicant is notified as to whether NOAA received the application, so allow sufficient time to ensure applications are submitted before the closing date.

After electronic submission of the application through Grants.gov, the person submitting the application will receive within the next 24 to 48 hours two email messages from Grants.gov updating them on the progress of their application. The first email will confirm receipt of the application by the Grants.gov system, and the second will indicate that the application has either been successfully validated by the system before transmission to the grantor agency or has been rejected because of errors. Only validated applications are sent to NOAA for review. After the application has been validated, this same person will receive a third email when the application has been downloaded by the Federal agency.

In addition to Grants.gov, this announcement will also be available by contacting the program official identified in Section VII. The closing dates for electronic and paper applications are the same. Please refer to important information in Submission Dates and Times (Section IV.D.) to help ensure your application is received on time.

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

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

V. Application Review Information

A. Evaluation Criteria

1. Importance and/or relevance and applicability of proposed project to the program goals: This ascertains whether there is intrinsic value in the proposed work and/or relevance to NOAA, Federal, regional, state, or local activities. Does the research address respectively the priorities of the ECOHAB (Section I.B.1) or the PCMHAB (Section I.B.2) programs? What is the management relevance of the proposed work? (35 percent)
2. Technical/scientific merit: This assesses whether the approach is technically sound and/or innovative, if the methods are appropriate, whether there are clear project goals and objectives. Does the proposal include an acceptable Data Management Plan that includes details on the types of environmental data and information expected and how and when the data will be shared? (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, previous cooperative work, timely communication, and the sharing of findings, data, and other research products (as described in the Accomplishments from Prior Federal Support). (15 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 include plans for communicating and disseminating the results of research in ways that are appropriate to inform the relevant management entities that will use the results of the proposed work, including specific products, outcomes, and timing of the proposed work that will be used in achieving this goal. (5 percent)

B. Review and Selection Process

Once an application has been received by NOAA, an initial administrative review is conducted to determine compliance with requirements and completeness of the application. Ineligible, incomplete, and/or non-responsive applications may be eliminated from further review. NOAA, in its sole discretion, may continue the review process for applications with non-substantive issues that can easily be rectified or cured. All applications that pass this initial review will be evaluated and scored individually 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 applications. Each mail reviewer will see only certain individual applications 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). Reviewers will consider the relative weighting of the evaluation criteria in providing an overall proposal score.

The peer panel will comprise several individuals, with each individual having expertise in a separate area, so that the panel, as a whole, covers a range of relevant 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. The peer panel shall rate the proposals using the evaluation criteria and scores provided above and used by the mail reviewers. The individual peer panelists' scores shall be combined, using one or more methods, to obtain a numerical ranking of the proposals. If a full review (mail and panel) is conducted, only the panel scores shall be used to rank each proposal. If more than one non-Federal reviewer is used, no consensus advice will be given by the independent peer mail review or the review panel.

The Program Manager will neither vote or score applications as part of the independent peer review panel nor participate in discussion of the merits of the applications other than to ask questions. Those applications 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 applications scored by the reviewers as either "Excellent," "Very Good," or "Good", the Program Manager will (a) create a ranking of the applications to be recommended for funding using the panel scores; (b) recommend the total duration of funding for each application; and (c) recommend the amount of funds available for each application subject to the availability of fiscal year funds. Recommendations for funding are forwarded from the Program Manager to the appropriate Branch Chief and then CSCOR Director for development of the final recommendation to the Selecting Official, the Director of NCCOS or designee, for the final funding recommendation decision. Recommendations will be made

in rank order from the peer-review process unless the proposal is justified to be selected out of rank order based on the selection factors listed below in Section V.C.

NOAA reserves the right to negotiate the budget with the applicants that have been selected to receive awards, which may include requesting that the applicant removes certain costs, combine budgets into a single application, or change the lead institution. Additionally, NOAA may request that the applicant modify objectives or work plans and provide supplemental information required by the agency prior to award. NOAA may select some, all, or none of the applications, or part(s) of any particular application, and may request that applicants combine projects. In addition, applications 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.

The Selecting Official will make recommendations to the NOAA Grants Management Division, and the final approval of selected applications and issuance of awards will be by the NOAA Grants Officer. The award decisions of the NOAA Grants Officer are final.

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 NCCOS/CSCOR for three years in accordance with current retention policies, and then destroyed.

The NOAA Grants Officer will review financial and grants administration aspects of a proposed award, including conducting an assessment of the risk posed by the applicant in accordance with 2 C.F.R. 200.205. In addition to reviewing repositories of government-wide eligibility, qualifications or financial integrity information, the risk assessment conducted by NOAA may consider items such as the financial stability of an applicant, quality of the applicant's management systems, an applicant's history of performance, previous audit reports and audit findings concerning the applicant and the applicant's ability to effectively implement statutory, regulatory, or other requirements imposed on non-Federal entities. Applicants should be in compliance with the terms of any existing NOAA grants or cooperative agreements and otherwise eligible to receive Federal awards, or make arrangements satisfactory to the Grants Officer, to be considered for funding under this competition. All reports due should be received and any concerns raised by the agency should be timely addressed in order to receive a new award. Upon review of these factors, if appropriate, specific award conditions that respond to the degree of risk may be applied by the NOAA Grants Officer pursuant to 2 C.F.R. 200.207. In addition, NOAA reserves the right to reject an application in its entirety where information is uncovered that raises a

significant risk with respect to the responsibility or suitability of an applicant. The final approval of selected applications and issuance of awards will be by the NOAA Grants Officer. The award decision of the Grants Officer is final and there is no right of appeal.

In accordance with Federal appropriations law expected to be in effect at the time of award, NOAA will provide a successful corporate applicant a form to be completed by its authorized representatives certifying whether the corporation has Federally-assessed unpaid or delinquent tax liability or recent felony criminal convictions under any Federal law.

C. Selection Factors

Proposals may 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 I.B.
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 the HAB applications will begin in October 2016. Applicants may be notified of award or declination by September, 2017, and applicants should use a start date of September 1, 2017.

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 electronically through NOAA's Grants Online system to the appropriate business office of the recipient organization. The award cover page, i.e., CD-450, Financial Assistance Award, is available at <http://go.usa.gov/SNMR>. The Internet Explorer browser should be used with Grants Online.

B. Administrative and National Policy Requirements

Department of Commerce Pre-Award Notification Requirements

The Department of Commerce Pre-Award Notification Requirements for Grants and Cooperative Agreements contained in the Federal Register Notice of December 30, 2014 (79 FR 78390), are applicable to this solicitation and may be accessed online at: <http://www.gpo.gov/fdsys/pkg/FR-2014-12-30/pdf/2014-30297.pdf>.

Uniform Administrative Requirements, Cost Principles and Audit Requirements for Federal Awards

The Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards (Uniform Guidance) at 2 C.F.R. Part 200, adopted by the Department of Commerce through 2 C.F.R. 1327.101, applies to awards in this program. Refer to <http://go.usa.gov/SBYh> and <http://go.usa.gov/SBg4>.

Department of Commerce Financial Assistance Standard Terms and Conditions

Successful applicants who accept a NOAA award under this solicitation will be bound by Department of Commerce Financial Assistance Standard Terms and Conditions. A current version of this document is available at <http://go.usa.gov/hKbj>. In addition, award documents provided by the NOAA Grants Management Division in the Grants Online award package may contain special award conditions unique to a project, including conditions that may limit the use of funds for activities that have outstanding environmental compliance requirements and/or stating other compliance requirements for the award as applicable.

Limitation of Liability

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 application preparation costs. 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.nepa.noaa.gov/NAO216_6.pdf, and the Council on Environmental Quality implementation regulations, http://energy.gov/sites/prod/files/nepapub/nepa_documents/RedDont/G-CEQ-GuidanceRegulations.pdf. 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).

Applicants to be recommended for funding will be required to answer relevant questions from the "Environmental Compliance Questionnaire for NOAA Federal Financial Assistance Applicants" (OMB Control No. 0648-0538). The Program Manager will determine which questions are relevant to each specific proposal. Answers must be provided before the application can be submitted for final funding approval.

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.

DUNS and SAM

To enable the use of a universal identifier and to enhance the quality of information available to the public as required by the Federal Funding Accountability and Transparency Act of 2006 to the extent applicable, any proposal awarded in response to this announcement will be required to use the System for Award Management (SAM)

<https://www.sam.gov/portal/public/SAM/> and the Central Contractor Registration and Dun and Bradstreet Universal Numbering System and be subject to reporting requirements, as identified in OMB guidance published at 2 CFR Parts 25, 170 (2013),

<http://www.ecfr.gov/cgi-bin/text->

[idx?SID=1ccffb4c1d4de03add6a041113460f9&mc=true&node=se2.1.200_1300&rgn=div8](http://www.ecfr.gov/cgi-bin/text-idx?SID=1ccffb4c1d4de03add6a041113460f9&mc=true&node=se2.1.200_1300&rgn=div8)

Proprietary or Privileged Information

Patentable ideas, trade secrets, privileged or confidential commercial or financial information, disclosure of which may harm the proposer, should be included in proposals

only when such information is necessary to convey an understanding of the proposed project. Such information should be clearly marked in the proposal or included as a separate statement accompanying the proposal and should be appropriately labeled with a legend such as, "The following is [proprietary or confidential] information that [name of proposing organization] requests not be released to persons outside the Government, except for purposes of review and evaluation." While NOAA will make every effort to prevent unauthorized access to such material, it is not responsible or in any way liable for the release of such material.

Release of Grantee Proposal Information

A proposal that results in an award will be available to the public on request, except for privileged information or material that is personal, proprietary or otherwise exempt from disclosure under law. Appropriate labeling in the proposal aids identification of what may be specifically exempt. Such information will be withheld from public disclosure to the extent permitted by law, including the Freedom of Information Act, referenced further in the next paragraph. Without assuming any liability for inadvertent disclosure, NOAA will seek to limit disclosure of such information to its employees and to outside reviewers when necessary for merit review of the proposal or as otherwise authorized by law. Portions of proposals resulting in grants that contain descriptions of inventions in which either the Government or the grantee owns a right, title, or interest (including a nonexclusive license) will not normally be made available to the public until a reasonable time has been allowed for filing patent applications. NOAA will notify the grantee of receipt of requests for copies of funded proposals so the grantee may advise NOAA of such inventions described, or other confidential, commercial or proprietary information contained in the proposal.

Freedom of Information Act (FOIA)

Department of Commerce regulations implementing the Freedom of Information Act (FOIA), 5 U.S.C. § 552, are found at 15 C.F.R. Part 4, Public Information. These regulations set forth rules for the Department regarding making requested materials, information, and records publicly available under the FOIA. Applications submitted in response to this Federal Funding Opportunity may be subject to requests for release under the Act. In the event that an application contains information or data that the applicant deems to be confidential commercial information which is exempt from disclosure under FOIA, that information should be identified, bracketed, and marked as Privileged, Confidential, Commercial or Financial Information. Based on these markings, the confidentiality of the contents of those pages will be protected to the extent permitted by law.

Scientific Integrity

CSCOR adheres to the principles of scientific integrity. This policy can be found at;

<http://nrc.noaa.gov/scientificintegrity.html>.

C. Reporting

All performance (i.e. technical progress) reports shall be submitted electronically through NOAA's electronic Grants Online system unless the recipient does not have electronic 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.

The Federal Funding Accountability and Transparency Act, 16 U.S.C. 6106 Note, includes a requirement for awardees of applicable Federal grants to report information about first-tier subawards and executive compensation under Federal assistance awards. All awardees of applicable grants and cooperative agreements are required to report to the Federal Subaward Reporting System (FSRS) available at www.FSRS.gov on all subawards over \$25,000.

Data Reporting Requirement

1. Environmental data and information collected or created under NOAA grants or cooperative agreements must be made discoverable by and accessible to the general public, in a timely fashion (typically within two years), free of charge or at no more than the cost of reproduction, unless an exemption is granted by the NOAA Program. Data should be available in at least one machine-readable format, preferably a widely-used or open-standard format, and should also be accompanied by machine-readable documentation (metadata), preferably based on widely used or international standards.
2. Proposals submitted in response to this Announcement must include a Data Management Plan of up to two pages describing how these requirements will be satisfied. The Data Management Plan should be aligned with the Data Management Guidance provided by NOAA in the Announcement. The contents of the Data Management Plan (or absence thereof), and past performance regarding such plans, will be considered as part of proposal review. A typical plan should include descriptions of the types of environmental data and information expected to be created during the course of the project; the tentative date by which data will be shared; the standards to be used for data/metadata format and content; methods for providing data access; approximate total volume of data to be collected; and prior experience in making such data accessible. The costs of data preparation, accessibility, or archiving may be included in the proposal budget unless otherwise stated in the Guidance. Accepted submission of data to the NOAA National Centers for Environmental Information (NCEI) is one way to satisfy data sharing requirements; however, NCEI is not obligated to accept all submissions and may charge a fee, particularly

for large or unusual datasets.

3. NOAA may, at its own discretion, make publicly visible the Data Management Plan from funded proposals, or use information from the Data Management Plan to produce a formal metadata record and include that metadata in a Catalog to indicate the pending availability of new data.

4. Proposal submitters are hereby advised that the final pre-publication manuscripts of scholarly articles produced entirely or primarily with NOAA funding will be required to be submitted to NOAA Institutional Repository after acceptance, and no later than upon publication. Such manuscripts shall be made publicly available by NOAA one year after publication by the journal. Environmental data and information collected or created under NOAA grants or cooperative agreements must be made discoverable by and accessible to the general public, in a timely fashion (typically within two years), free of charge or at no more than the cost of reproduction, unless an exemption is granted by the NOAA Program. Data should be available in at least one machine-readable format, preferably a widely-used or open-standard format, and should also be accompanied by machine-readable documentation (metadata), preferably based on widely used or international standards.

Data Management Guidance to Proposal Writers

1. Responsible NOAA Official for questions regarding this guidance and for verifying accessibility of data produced by funding recipients: Laurie Golden, Grant Coordinator, NOAA Center for Sponsored Coastal Ocean Research, laurie.golden@noaa.gov, 240-533-0285. Responsible NOAA Data Manager for questions regarding data management and implementing this guidance: Jessica Morgan, Responsible NOAA Data Manager, NOAA National Centers for Coastal Ocean Science, 240-533-0300.

2. Data Accessibility: The NCCOS/CSCOR Program requires that public access to grant-produced data be enabled as follows; Data Management Plans (see Section IV.B.2.) submitted with Proposals should reflect one or more of the option(s) provided by NCCOS/CSCOR.

Option A: For the majority of oceanographic and ecological data, except those listed below, funding recipients are expected to submit data to the NOAA National Centers for Environmental Information (NCEI) for long-term preservation, which will provide public access, archiving, discovery metadata meeting NOAA standards and formats, and a Digital Object Identifier (DOI). NCCOS/CSCOR has held preliminary consultation with NCEI regarding these pending data.

Option B: For any other data not appropriate for submission to NOAA NCEI, funding recipients are expected to submit data to an appropriate data facility (i.e., NIH GenBank for genomics data) that preserves data, properly manages archived data to assure their quality, mints DOIs, and makes archived data and related information available to users in a timely and efficient manner. Funding recipients should submit discovery metadata meeting NOAA standards and formats documenting these non-NOAA data archives to the Responsible NOAA Data Manager listed above.

Option C: For limited-release data that are limited by law, regulation, policy, security requirements, commercial or international agreements, or valid technical considerations, funding recipients may request permission not to make data publicly accessible from the Responsible NOAA Official listed above.

3. Technical recommendations: The NOAA Program is not offering specific technical guidance. Proposals are to describe their proposed approach. Use of open-standard formats and methods is encouraged. Definitions of data management terms are included here:

Environmental data are recorded and derived observations and measurements of the physical, chemical, biological, geological, and geophysical properties and conditions of the oceans, atmosphere, space environment, sun, and solid earth, as well as correlative data such as socio-economic data, related documentation, and metadata. Digital audio or video recordings of environmental phenomena (such as animal sounds or undersea video) are included in this definition. Numerical model outputs are included in this definition, particularly if they are used to support the conclusion of a peer-reviewed publication. Data collected in a laboratory or other controlled environment, such as measurements of animals and chemical processes, are included in this definition.

Sharing data means making data publicly visible and accessible in a timely (see below) manner at no cost (or no more than the cost of reproduction), in a format which is machine-readable and based on open standards, along with metadata necessary to find and properly use the data. Data are to be made available in a form that would permit further analysis or reuse: data must be encoded in a machine-readable format, preferably using existing open-standard formats; data must be sufficiently documented, preferably using open metadata standards, to enable users to independently read and understand the data. Data should undergo quality control (QC) and a description of the QC process and results should be referenced in the metadata.

Machine-readable means the data are stored on a computer in a digital format whose structure is well described and which can be read without the aid of a human. An open-

standard format is one which does not require proprietary software to be read. Metadata is documentation that is machine-readable and structured according to an open-standard format and which describes the data so that users can search for, access, read, understand, and use the data. International Organization for Standardization (ISO) EXtensible Markup Language (XML) is an acceptable metadata format.

Timely means no later than publication of a peer-reviewed article based on the data, or two years after the data are collected and verified, or two years after the original end date of the grant (not including any extensions or follow-on funding), whichever is soonest, unless a delay has been authorized by the NOAA funding program.

NCCOS/CSCOR resources for data archiving at NOAA NCEI have already been identified; proposals should not include such costs. Proposals are permitted to include the costs of additional project-level data management, including: coordinating, organizing, documenting, formatting, or otherwise preparing datasets for submission to NOAA or non-NOAA data facilities; establishing and maintaining data access tools and services and related metadata; managing non-digital data that are not required to be made publicly accessible, including laboratory notebooks, preliminary analyses, drafts of scientific papers, plans for future research, peer review reports, communications with colleagues, or physical objects, such as laboratory specimens.

VII. Agency Contacts

Technical Information: Quay Dortch, Program Manager for NCCOS/CSCOR, 240-533-0198, Internet: Quay.Dortch@noaa.gov

Grants Administration Information: Laura Golden, NCCOS/CSCOR Grants Administrator, 240-533-0285, Internet: Laurie.Golden@noaa.gov

VIII. Other Information

Additional background information on this program and announcement are available on the NCCOS/CSCOR home page at <http://go.usa.gov/3SYKV>. If any Frequently Asked Questions arise, they will be posted at this site.

Check List for Required and Requested Documents:

- (1) SF-424
- (2) Title Page
- (3) Abstract
- (4) Project Description

- (5) References
- (6) Milestone Chart
- (7) Bio Sketch
- (8) Current and Pending Support
- (9) Permits (if none, say so)
- (10) Accomplishments (if none, say so)
- (11) Budget Narrative and Justification (One for the lead institution and each subaward/subcontract).

If Applicable: Signed Approval from subaward/subcontractor institutes; Ship Request form

- (12) CD-511
 - (13) SF-424B
 - (14) SF-424A (One for the lead institution and each subaward/subcontract)
 - (15) Alphabetized Collaborator List (ONE excel spreadsheet for all)
 - (16) Key Contact form
- Indirect Rate Agreement (requested).