

Cooperative Institute for
Coastal & Estuarine Environmental Technology

Proposal Preparation Guide

Funding Opportunity:
Environmental Technology Development / Demonstration



FY 2007 Environmental Technology Development Program
October 12, 2006



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Ask Us

Feel free to call CICEET with questions about any aspect of this RFP. Clarifying the requirements of each funding opportunity before you submit will improve your proposal's chance of success.

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The deadline for receipt of your proposal by CICEET is 1 p.m. (1300 hours), EST, on December 13, 2006.

1) About CICEET

The Cooperative Institute for Coastal and Estuarine Environmental Technology (CICEET) develops and applies tools for clean water and healthy coasts nationwide. CICEET is a partnership of the National Oceanic and Atmospheric Administration (NOAA) and the University of New Hampshire (UNH).

As a needs-based organization, CICEET works with coastal resource managers around the country to identify their priority environmental challenges. Then we analyze the obstacles—technical, social, political, and regulatory—that stand in the way of solutions.

If this analysis reveals that new or enhanced technology would help address a problem, CICEET designs a targeted competitive funding opportunity to meet this need. Investigators funded by CICEET must collaborate with the coastal management and regulatory communities to insure that their work stays focused on end user needs.

Tools created through CICEET funding opportunities are made available through training, outreach, and an evolving technology utilization program. CICEET has invested in more than 150 environmental technology development and demonstration projects since its inception in 1997. You can learn more about these projects on CICEET's Project Explorer: <http://ciceet.unh.edu>

While its administrative offices are located on the UNH campus in Durham, N.H., CICEET sponsors technology development in coastal states nationwide—primarily through its relationship with the National Estuarine Research Reserve System (NERRS). Many projects funded through CICEET are connected to one or more of the 27 NERRS sites or their watersheds.

2) About this RFP

The Cooperative Institute for Coastal and Estuarine Environmental Technology (CICEET) invites proposals to its Environmental Technology Development (ETD) Program for funding in FY 2007.

Through this program, CICEET makes strategic investments in the development, demonstration, and application of tools to detect, prevent, and reverse the impacts of coastal pollution and habitat degradation to coastal ecosystems and communities.

This Request for Proposals (RFP) is open to U.S. scientists and innovators from academia, private industry, and the public sector who seek to develop tools that meet the priority needs of coastal management.

Those familiar with CICEET's previous funding opportunities will note that research priorities presented here are more specific than those in the past. This reflects CICEET's new approach to RFP development, one that incorporates an analysis of the technical and non-technical factors that influence coastal management problems.

Research priorities for FY 2008 are under development, and we welcome your input! Please contact us with ideas for research priorities to consider for future RFPs:

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3) Funding Opportunity Description

CICEET invites proposals to its FY 2007 Environmental Technology Development/Demonstration (ETD) funding opportunity. Up to \$2.5 million will be made available for this opportunity. Proposals may request up to two years of funding. Research Priorities are organized under three categories:

- Detection (Tools to detect pollution)
- Prevention (Tools to prevent the impacts of pollution)
- Recovery (Tools to recover healthy coastal habitat and water quality)

CICEET's mission is to develop and apply effective, accessible technologies that coastal resource managers nationwide can use to address their highest priority environmental challenges. CICEET defines such "technologies" broadly to encompass instrumentation, protocols, decision support systems, and other information-based tools.

To insure that projects are designed and executed with the needs of the end user in mind, CICEET requires that all proposals to this funding opportunity include a potential technology user on the investigator team. The selection of this team member will depend on the nature of the technology presented in the proposal. Applicants must justify why this person is suited to providing practical input on the technical and non-technical challenges that may limit the application of the proposed technology.

4) Research Priorities

Applicants must clearly state which of the following research priorities their proposal seeks to address.

A. Detection

- 1) Develop or demonstrate tools to quantify dry deposition of mercury to coastal or estuarine wetlands and/or water bodies.
- 2) Develop or demonstrate tools to monitor or track dry deposition of nutrients to coastal or estuarine wetlands and/or water bodies.
- 3) In the context of setting sediment quality standards/criteria, develop or demonstrate methods and/or tools to assess the bioavailable fraction of contaminants as a means to measure potential toxicity of sediments and their potential for bioaccumulation. Proposals should account for multiple modes of exposure, including direct exposure via interstitial porewater as well as through ingestion of sediment-bound contaminants. Preference will be given to proposals with both field and toxicity components, i.e., not solely based on models of trophic transfer.
- 4) Develop or demonstrate more cost-effective and rapid screening tools (e.g., based on contaminant surrogates) to identify estuarine/coastal areas with higher potential for contaminant accumulation in sediments. Preference will be given to *in situ* or in-the-field solutions.
- 5) Develop or demonstrate more rapid and more cost-effective tools to identify sources of PAHs. At a minimum, solutions should be able to differentiate between three general sources: natural, combustion related, or oil related.
- 6) Develop or demonstrate more convenient and cost-effective tools to detect emerging contaminants. Examples of emerging contaminants include perfluorinated compounds, pharmaceuticals and personal care products, and current-use (i.e., not regulated at present) pesticides. Applicants should try to put their project in the context of EPA efforts. When possible, CICEET would like to leverage, rather than duplicate, EPA initiatives. Additionally, applicants must justify which target contaminants within the broad group of emerging contaminants are being addressed.
- 7) Develop or demonstrate tools to better understand sediment-bound pollutant loading as it relates to stormwater. CICEET's goal for this priority is to facilitate better understanding of the relationship between storms, peak flows, sediment delivery, and pollutant loading to inform appropriate Best Management Practices (BMPs) design. Example topics include:
 - Development of tools (preferably autonomous) to obtain higher frequency data to better understand during-storm changes to stream channels and floodplains
 - Tools to better understand particle size class changes throughout a storm or series of storms.

Note: Some of the Research Priorities in both the "Detection" and "Prevention" sections involve issues related to stormwater. The CICEET-funded University of New Hampshire Stormwater Center is available for collaborative research projects involving stormwater control systems and associated infrastructure and monitoring issues: <http://www.unh.edu/erg/cstev>

B. Prevention

1. Develop tools to address cumulative impact issues in the context of stormwater control measures. In addition to issues of water quality, proposals should address the following:
 - How traditional versus alternative (e.g., Low Impact Development Systems (LIDS) stormwater control measures impact watershed resilience to flooding due to large rain events. Preferably, models and/or empirical approaches will involve the watershed scale and an economic component.
 - How climate change and sea level rise might affect coastal BMP designs and projected efficiencies.
2. Develop or demonstrate technology retrofits for on-site wastewater treatment of emerging contaminants associated with pharmaceuticals and personal care products. Applicants must justify in a management context which target contaminants within the broad group of emerging contaminants are being addressed.

Proposals addressing this priority should consider collaborating with an existing test facility such as The Massachusetts Alternative Septic System Test Center: <http://www.buzzardsbay.org/etimain.htm>.

3. Develop or demonstrate technology retrofits for existing on-site wastewater treatment systems to improve nutrient reduction. Technologies should be passive or nearly passive to decrease maintenance and monitoring requirements. Proposals addressing this priority should consider collaborating with an existing test facility such as The Massachusetts Alternative Septic System Test Center: <http://www.buzzardsbay.org/etimain.htm>.

C. Recovery

1. Demonstrate restoration technologies for seagrass, salt marsh, or shellfish habitats. Applicants addressing this priority must include the following:

- Justification that the chosen approach requires demonstration to be applied more effectively and frequently than traditional methods.
- The chosen approach has the potential for regional, if not national, relevance.
- Steps to analyze both environmental and economic implications of the approach.
- Objectives relating to the protection or improved condition of an identified coastal resource, e.g., fisheries, water quality, etc.

2. Develop or demonstrate technologies to improve the ability of resource managers to predict the ecological effects of dam removal.

5) Eligibility

This RFP is open to investigators from United States academic institutions, state and local government agencies, non-governmental organizations (NGOs), and the private sector. Researchers from institutions outside the United States may be included as additional investigators, but cannot be principal investigators.

Federal agency personnel—including those from NOAA—are eligible if they can document statutory authority to supplement their appropriations with funds from other federal programs and entities. In some cases, obtaining this documentation can take time, so CICEET encourages such applicants to plan ahead. Federal applicants may not request salary compensation. Private-sector applicants may not include fee or profit in their budget requests.

Please note: CICEET will not accept proposals from CICEET investigators who have failed to submit final reports for completed projects, or progress reports for ongoing work.

6) NERRS Connection

Through its funding opportunities, CICEET seeks to leverage the capabilities of its NOAA partner, the National Estuarine Research Reserve System (NERRS). We strongly encourage you to incorporate a connection to the NERRS as part of your proposal.

Proposed activities may include, but are not limited to, the testing of technology or methods at a reserve, using a reserve as a control site, or training and/or dissemination of project results. Contact the individual NERRS sites to discuss your research plans and to determine which activities would have the most value to that particular site. You will find that they have considerable expertise in coastal and estuarine research and outreach.

The NERRS national web site provides general information on each reserve, as well as links to individual reserve web sites: <http://nerrs.noaa.gov/>.

If you have questions regarding how to make the best use of NERRS resources in planning your proposal, please contact us.

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7) Technology Transfer

The process of technology development and application is complicated and involves the participation of many essential players: innovators, applied researchers, evaluators, producers, and adopters. We have found that the transfer of technologies into the hands of coastal managers (end users) is most effective when all of these participants are involved—to a certain degree—at all stages of the development and application cycle.

Often, when a CICEET project's funding is complete, work remains to facilitate the technology's or method's application. In cases where researchers have shown a commitment to collaborate with adopters and producers, CICEET may consider investing additional resources to support further development and/or application.

8) Intellectual Property

In some instances, commercialization is the most efficient means of disseminating knowledge or technology. In others case, however, a non-commercial approach may be more appropriate.

Since the dissemination pathway is often not clear at the outset of a project, CICEET strongly suggests that you take the following steps to protect your technology's intellectual property at the proposal stage. By doing this, you will be able to talk freely about your invention and avoid the inadvertent loss of intellectual property rights.

Step 1: Take steps to protect your intellectual property as soon as possible so that you can discuss your research with colleagues in a manner that does not restrict your ability to choose the most appropriate dissemination path. If you receive funding, CICEET will ask you to discuss your research at a meeting with colleagues, coastal managers and industry representatives.

Step 2: Do not make assumptions about the commercialization value of your work. In our experience, researchers often make assumptions about the intellectual property process that are inaccurate.

Step 3: Talk to your institution's Office of Technology Transfer, or its Office of Intellectual Property. Determine the proper approach to intellectual property protection for your technology. This could include any of the following: prior-art research and determination of patentability; pursuit of "confidential and proprietary information"; pursuit of copyright; or no intellectual property protection steps whatsoever. (Note: The title page you download from this site comes with a confidentiality statement. Please review it and contact us with any questions.)

Step 4: Until talking with one of the specialists recommended in Step 3, do not disclose your idea in a public setting. "Disclosure" entails giving enough information—verbally or in written/graphic form—for a person "skilled in the art" to reproduce your invention.

9) Outreach

For some projects, outreach will be integral to the research process. For example, the testing and implementation of new microbial source tracking methods in southern Maine required the cooperation and coordination of various federal and state agencies, land trusts, and private citizens. In such cases, you should include an outreach professional—rather than a researcher or graduate student—as a project investigator and represent outreach activities in the project budget. For advice on outreach professionals in your area, consider the following resources:

- NERRS: Most Reserves have staff members who interface with local and regional outreach experts. Coastal Training Program coordinators are especially suited to connecting researchers with relevant end users, educators, and regulators.
- Sea Grant Extension: Check with the Sea Grant program in the state in which you plan to conduct your project. Extension specialists are dedicated to providing science-based information to coastal decision makers and may know outreach specialists who would be ideal for your project.
- National Estuaries Program (NEP): Check with the NEP program active in the state which you plan to conduct your research. Many of them have active public outreach and education programs, and may be able to advise you on the outreach aspect of your project.
- Cooperative State Research, Education, and Extension Service: Check with the USDA Extension program in the state in which you plan to conduct your project, if it is related to agriculture. Extension specialists may be able to contribute to your project.
- Local non-profits: These can be wellsprings of information in planning outreach activities.

10) Proposal Preparation

CICEET has prepared the following guide to submitting proposals for this funding opportunity. Each proposal must include the following:

- A) Title page
- B) Abstract
- C) Narrative
- D) Investigator curriculum vitae
- E) Appendix of literature cited
- F) Budget forms

A) Title Page

CICEET requires all title pages to be in a standard format. Download the title page template on the CICEET website:

http://ciceet.unh.edu/rfp_2007/rfp_forms.html

B) Abstract

On a separate page, provide a one to two paragraph abstract summarizing the salient points of the proposal, including objectives, methods and expected outcomes.

C) Narrative

Narratives are not to exceed 15 single-spaced pages, with one-inch margins. They must be formatted in "Times" 12-point font. Narratives must include the following elements:

1) Introduction: This section should contain the following elements:

- Identification of which research priority the proposal targets (e.g., "Detection, #1" or "Prevention, #4).
- Brief description of the coastal management problem your project seeks to address. Explain how your approach would address one or more of the technical or non-technical bottlenecks to resolving this problem.
- Indication of whether the objectives of the proposal are primarily demonstration or development in nature. If demonstration, describe how the research will lead to increased awareness, trust and usage of the technology by targeted users. If development, explain how existing tools are insufficient, e.g., they are not cost-effective or have inadequate performance characteristics. In either case, please be as specific as possible (citations when appropriate) in placing your approach in the context of other alternatives.

2) Objectives: State your project's objectives and how they relate to the targeted Research Priority.

3) Methods: Provide a detailed description of methods (including hypotheses, experimental design) that will achieve the stated objectives. Please include a description of methods for data management (QA/QC) and data analysis (e.g., statistical methods). If the project primarily involves demonstration activities, describe how success will be evaluated. Also include a detailed timeline for completing the proposed activities.

4) Research to Application: Describe the pathway by which the proposed work will most effectively be transferred to coastal/estuarine resource managers, and how your objectives reflect this pathway. Use this section to demonstrate your knowledge of the management context into which your research must fit. This includes constraints related to budgets, technical skill, regulatory environment, incentive to change, and social and political issues. Also, indicate to what extent the context you describe is particular to the location in which you are working, and how transferable this research is to other regions around the country.

5) Technology User: Please indicate who on the investigator team represents the potential technology user, and justify how the person is an appropriate choice.

Note: Finding the appropriate person for this team member can be challenging. We urge you to contact us with any questions. Along with clarification, we also may be able to put you in touch with appropriate people.

6) Institutional Support/Capabilities: Provide a description of the facilities and equipment available for project activities.

7) Roles and Responsibilities: Describe the roles and responsibilities of the project participants.

8) Budget Justification: Please provide a detailed budget justification that explains the separate items in the budget file.

D) Appendix of literature cited

E) Investigator curriculum vitae

Please limit to two pages.

F) Budget forms

You must submit one budget form for each year of your project, as well as a cumulative form.

See http://ciceet.unh.edu/rfp_2007/rfp_forms.html

11) Building on Previous CICEET Projects

In addition to the standard narrative required for all proposals, CICEET requires that proposals building on projects previously funded by CICEET also include the following information. You may use an additional two pages to convey this information. Please note: CICEET will not accept proposals from CICEET investigators who have failed to submit final reports for completed projects, or progress reports for ongoing work.

- 1) Provide the previous CICEET project title and name(s) of the principal investigator(s).
- 2) List the start and end dates of the previous project.
- 3) Briefly describe the previous project's objectives, related accomplishments, and deliverables, including efforts to transfer technology and disseminate information such as web sites, CD ROMS, stakeholder meetings, training programs, technology tools, and products.
- 4) Describe any problems you encountered in the previous project, and how they were addressed. Were there any changes to the original objectives or methods during the execution of the project?
- 5) Describe how useful the end products of the project were to coastal management. Identify the end users/adopters and producers of the technology if appropriate.
- 6) Provide justification for continued work on the topic. How will the utility of the previous project be improved by the proposed new activities? Does the endpoint of the proposed work represent an incremental step or a final product?
- 7) List any presentations, manuscripts, theses, and dissertations resulting from the previous project.

12) Submission

The deadline for receipt of your proposal by CICEET is 1 p.m. (1300 hours), EST, on December 13, 2006. Your initial submission MUST be an electronic PDF file, not a hard copy. After the deadline, applicants will be prevented from submitting proposals and will receive an automated reply that CICEET is no longer accepting submissions.

Please send your proposal as a single PDF attachment in an e-mail: submissions@ciceet.unh.edu

If you have questions about converting documents from common formats to PDF, please contact CICEET. Note that proposals sent in any other file format will NOT be accepted.

You must also send one signed hard copy of your proposal that includes documentation of your institution's federally negotiated indirect cost rate and contact information for the sponsored research office at your institution. The postmark must not be later than Wednesday, December 20, 2006. Please mail this to CICEET's Program Coordinator:

Cindy Tufts
Gregg Hall, Room 130
35 Colovos Road
University of New Hampshire
Durham, NH 03824

13) Evaluation

CICEET will conduct an initial compliance review of all proposals. Proposals deemed "non-compliant" will be eliminated from the competition, and CICEET will notify the applicants as quickly as possible. Proposals will be deemed "non compliant" for failure to do one or more of the following:

- Follow the narrative structure outlined above;
- Adequately address the questions posed within each narrative component;

- Adequately address the Research Priorities noted above;
- Follow directions with regard to formatting and submission procedures.

Compliant proposals will be peer-reviewed by experts in the field of the proposal. Please note that CICEET includes a rebuttal process to allow applicants to respond to issues raised by peer reviewers. Applicants are typically given five working days for the rebuttal process. At present, the rebuttals are scheduled to occur between March 19th and March 23rd, 2007. Should this schedule change, all applicants will be notified.

The final step is a technical panel, in which experts review the proposals, the peer reviews and the rebuttals and make final funding recommendations. In some cases, the panel may elect to recommend that a proposal be awarded funds contingent on clarification or changes to the proposal. Applicants will receive notification of the panel recommendations by the second week of April, 2007.

Please note that projects recommended for funding are subject to a National Environmental Policy Act (NEPA) review regarding the environmental impacts of the proposed research. Funding is contingent upon compliance with NEPA guidelines. You can learn more about NEPA at <http://www.epa.gov/compliance/nepa/>.

Proposals will be evaluated according to the following criteria:

- 1) Appropriateness: Are the objectives, methods and overall approach consistent with the goals of CICEET as stated in this RFP as well as the referenced Research Priority (e.g., Detection, #4)?
- 2) Technical Approach: To what extent does the proposal demonstrate excellence in technical capability and familiarity with the scientific subject matter? Will the methods allow the applicants to achieve the stated objectives?
- 3) Research to Application: To what extent has the applicant demonstrated an understanding of the factors that will ultimately affect the management impact and utility of the research presented in the proposal? Has the applicant included steps that will maximize the transfer of this research to managers? Is it transferable to other geographic areas? Is the designated technology user an appropriate choice?
- 4) Impact: How likely is it that this research will result in a benefit to targeted users? What is the potential magnitude of the impact?
- 5) Institutional Support/Capabilities: Are the facilities, equipment, and other resources of the host institution adequate for the proposed activities?
- 6) Personnel: Are the identified personnel qualified for the proposed work? Is the team sufficient for the work described, or are there critical skill sets not represented in the project team?
- 7) Budget: Is the budget appropriate?