

# Proposal Guidelines for Undersea Investigations off the Southeast U.S. and Gulf of Mexico in 2006 and 2007



NOAA's Undersea Research Center  
University of North Carolina Wilmington



## CENTER CONTACTS

For information related specifically to the Florida program and the *Aquarius* undersea laboratory, please contact:

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For information related specifically to the South Atlantic Bight and Gulf of Mexico science programs, please contact:

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For general information about the National Program or other NURP centers, contact:

NOAA Undersea Research Program  
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Preliminary proposals are **required and must be submitted by email by July 1, 2005**. Pre-proposals should be <3 pages and give a summary of the proposed research, describe research goals and facilities/equipment requirements, outline time or logistic constraints, give area of operations including depths, and estimate the level of support required. This will ensure that appropriate research guidelines are addressed, and permit operations staff to evaluate feasibility. Preliminary proposals should be sent to the appropriate contact listed above.

Proposal deadline: Proposals must be received by the center no later than **August 19, 2005**.

Proposal requirements:

- One original, signed copy with requisite forms
- 10 paper copies
- Digital proposal in MS Word or Adobe PDF format
- All materials should be sent to Thomas Potts via address above

## **I. Funding Opportunity Description**

### **A. NOAA Undersea Research Center at the University of North Carolina Wilmington**

The National Oceanic and Atmospheric Administration (NOAA) is responsible for the assessment, protection, development and utilization of U.S. underwater resources and understanding the role of oceans in climate and environmental change. To help address this mandate, NOAA funds the NOAA Undersea Research Program (NURP), which consists of a national office in Silver Spring, Maryland and six regional centers that specialize in undersea research and technology. The NOAA Undersea Research Center at the University of North Carolina Wilmington (NURC/UNCW) supports undersea research in more than 345,000 nm<sup>2</sup> of the U.S. Exclusive Economic Zone from North Carolina to Texas.

The NOAA Undersea Research Center is hosted by UNCW's Center for Marine Science and also maintains a field station and research program based in Key Largo, Florida. The center's geographic region includes the South Atlantic Bight (SAB), Florida Keys, and Gulf of Mexico (GOM). The region includes the nation's most valuable developed oil and gas resources, recreational fishing and marine-related tourism industries, the second most valuable commercial fishing industry in the nation, and the only emergent, living coral reef ecosystems in the continental U.S.

The center's mission is to provide service to NOAA as a model extramural science program that provides knowledge required for the wise use of the nation's marine environment and resources. The center's program objectives emphasize quality service to the nation, and include:

- Provide **undersea technology** to scientists, safely and effectively, for studies of the nation's Exclusive Economic Zone, from the coasts to the deep sea.
- Address regional and **national science needs** and concerns by directing research towards the most relevant problems facing the marine environment.
- Enhance **public awareness** of the problems and solutions facing our coastal oceans and resources by sharing knowledge through education, hands-on experience and training, and access to the products of center research.
- Establish **partnerships** with NOAA, academia, and other ocean-related agencies and programs to enhance program resources, efficiency and the relevance of center research.

### **B. Research Objectives**

The center is soliciting proposals for FOUR specific funding opportunities. The following general themes are identified as priority items, but other projects will be considered based on submission of pre-proposal review. All proposals are strongly encouraged to involve industry and need to have broad societal impact through education and outreach programs.

**Opportunity #1: NOAA Coral Reef Conservation Program (NCRCP).** Funds for two-year projects (with one-year projects preferred) beginning in 2006 that address the priority research needs for the southeast U.S. and Gulf of Mexico. There is a 100 percent non-federal match required for NCRCP projects.

*Systems available: Scuba, saturation diving*

NOAA and regional priorities:

- Define the role of keystone species within coral communities and determine how they sustain such roles through studies of their trophic and behavioral webs, physiological metrics in comparison to other guild members (including reproductive physiology), recruitment dynamics, and population dynamics.
- Assess the baseline microbial communities of keystone species in the region.
- Study life histories of economically important marine organisms associated with coral ecosystems and identify indicators of community change and recovery.

- Conduct research to better understand the threats faced by shallow coral reefs, including, but not limited to, coral bleaching, coral diseases, land-based pollution, and invasive species; assess the impact of these stressors on coral reef ecosystems; evaluate management effectiveness.
- Conduct epizootiological studies to determine the relationships between coral disease, coral health and changing environmental conditions.
- Determine the effects of environmental and climatic factors on infectivity and susceptibility.
- Develop restoration methods of damaged coral reefs.
- Develop models to accurately predict the effects of environmental changes (including natural events) on habitats of interest and marine managed areas.

**Opportunity #2: NURP core projects.** Funds for one- or two-year projects beginning in 2006 focusing on NOAA/NURP research priorities off the southeast region:

*Systems available: Scuba, glider, saturation diving*

NOAA and regional priorities:

- Corals (see Coral Reef Conservation Program opportunity)
- Fisheries:
  - Determine how spatial and temporal patterns of diversity are regulated and relate spatial patterns to phenotypic and genetic variation in key taxa in critical habitats and marine managed areas.
  - Conduct research to better understand how ecosystems function, including interrelationships between environments, populations, species, and individual organisms to predict how such systems will react to anthropogenic change and natural events.
  - Use advanced underwater technology to develop improved techniques for stock assessment of fish populations, and to determine the effectiveness of stock enhancement efforts.
  - Develop improved methods/models to assess the abundance and condition of fishery populations or affected ecosystems, and the effectiveness of stock or habitat enhancements.
  - Identify, characterize, and understand essential fish habitat to determine requirements for healthy fish populations and assess the effectiveness of management strategies for conserving fish stocks.
  - Conduct research on life histories of commercially or ecologically important fish and invertebrate stocks.
  - Assess the influence of trophic interactions and oceanographic conditions on recruitment success and abundance of fish populations.
- Ecosystems:
  - Characterize, assess, and analyze the spread of alien and invasive species.
  - Collect, analyze, and archive marine samples for biomedical and commercial applications.
  - Assess function and effectiveness of marine managed areas including Marine Protected Areas, Habitat Areas of Particular Concern, National Marine Sanctuaries (Flower Garden Banks, Florida Keys and Gray's Reef), and National Parks

**Opportunity #3: Ocean mapping initiative** using the new NURP AUV (30 days of survey time available). One-year projects beginning in 2006 or 2007

*Undersea System: Explorer AUV*

NOAA and regional priorities:

- Provide detailed habitat maps and characterizations of significant ecosystems, such as managed areas, resilient, and less resilient ecosystems
- Provide maps to facilitate exploration and research of shelf and slope areas of ecological and economic importance.

**Opportunity #4: 2007 Deep Submergence Facility.** One-year projects beginning in 2007.

*Undersea Systems: DSV Alvin, ROV Jason II (<http://www.whoi.edu>)*

NOAA and regional priorities:

- Conduct studies to increase the understanding of deep-sea corals, and how communities of corals may function as habitat for fish and invertebrates.
- Develop models to predict the succession of cold seep communities as a response to changes in chemical flux.
- Seek out, recover, and culture novel organisms from unique, extreme environments, such as cold seeps, for the purpose of identifying unique bioactive compounds with commercial potential.
- Evaluate, model, and predict the effects of anthropogenic stressors and/or environmental changes to cold seep ecosystems, and estimate rates of impact recovery.
- Investigate the relationships between seep geochemistry and the associated seep communities.
- Understand the role that methane hydrate degassing plays in the carbon cycle.

### **C. Description of available systems:**

*Note: Due to funding limitations, the center is not soliciting proposals that require submersibles or remotely operated vehicles with the exception of Deep Submergence vehicles identified in opportunity #4 listed above.*

- **Non-Saturation Diving:** Personnel and equipment support for ambient air or nitrox scuba diving. Use of nitrox can increase the bottom time by as much as 200 percent over the course of a 12-hour dive day.
- **Technical Diving:** Technical diving involves the use of techniques and equipment to enable divers to safely conduct scientific research to depths of 300 fsw. Technical diving supported by the center includes air and nitrox decompression diving and mixed gas decompression diving using alternative inert gas (AIG). Personnel must be certified for decompression diving using air, nitrox, or AIG.
- **Saturation Diving from the Aquarius Undersea Laboratory:** Aquarius is the most sophisticated undersea laboratory operational in the world today. Aquarius is located at Conch Reef, 5 nm off Key Largo in the Florida Keys. Saturation missions of 7-14 days are typically supported.
- **Glider AUV:** Long-duration shelf deployments (<200m). The vehicle will be deployed from small vessels of opportunity to perform wide-area coastal ocean surveys lasting up to 30 days. The vehicle may survey in a yo-yo fashion through the water column or horizontally across programmed transects while recording CTD and limited oceanographic data, e.g., turbidity, oxygen, fluorescence.

- **Ocean mapping AUV** (2200m depth rated): Surveys are generally 10 days in length and cover up to 18 km<sup>2</sup> per day. The AUV is 4.9 meters long, 0.69 meters in diameter, 940 kg weight in air, and operated from vessels of opportunity of sufficient size and with appropriate handling equipment. Standard payloads include: Simrad EM-2000 multi-beam echosounder (MBES), SeaBird FastCat 49 CTD, and navigation and communications system that enable it to perform seafloor mapping at much higher resolution than possible from surface ships in deep water. Other optional payloads provided by the investigator are possible.

#### D. Outreach & Education (new for 2006)

All proposals must address one or more of the strategies from the NOAA Education Plan:

- Integrate funded science into high-quality educational materials.
- Support educator professional development programs to improve understanding marine-related sciences.
- Promote marine-related sciences and careers, particularly by members of underrepresented groups.
- Leverage partnerships to enhance formal education and informal environmental science education.

#### E. Terms of Support

Proposals may be written for one or two years of direct science support of \$40,000 per year. Of the total science subaward, a minimum of \$5,000 must be allocated to addressing outreach and education outlined above. Undersea system and support vessel time is provided by the center at no cost to the principal investigator. Awards from previous years averaged \$25,000 per year and are partly determined by NOAA funding to the center and partly by peer review rankings.

The types of items that can be included in subcontract requests include:

- Salaries and fringe for technicians, students and up to **3 months total for principal investigator(s)**
- Research supplies and specialized equipment needed at-sea
- Scientists' travel to and from the study area
- Laboratory processing and analysis of samples collected during the mission, including film processing
- Shipping costs for equipment/supplies
- Facilitation of education and outreach activities, such as development of lesson plans, professional development for teachers, accommodation of a teacher/educator-at-sea, participation in a media event or press conference to describe the expedition and its findings, at-sea media participation, and support for student tours of the research vessel and interaction with scientists in shipboard labs.
- Engineering support, such as design, materials and fabrication of research devices.

Other terms and conditions of center support include:

- Photography supplies and services (film, batteries, processing) will not be provided by the center and should be included in the subcontract request.
- Videotapes **will be provided by the center when vendor cameras are used** and should not be included in PI subcontracts. If the PI provides the camera, the cost of videotapes should be included in the PI subcontract.
- Title to capital equipment (\$1000 or more, with a life expectancy of more than two years) purchased directly by the center remains with UNCW and is loaned to PIs. Title to capital equipment purchased via PI subcontract that costs from \$1,000 to \$4,999 remains with the PI's institution. Capital equipment costing \$5,000 or more will be owned by NOAA and disposition is variable.
- Foreign travel requires federal approval and more extensive description than domestic travel, including traveler(s) name(s), locations, approximate dates, justification for the travel, and a breakdown of estimated costs by daily per diem, transportation, and other costs.

- Subcontracts are cost-reimbursable agreements, thus, the center may be charged **overhead, up to 10 percent** of the total subcontract.
- The University of North Carolina at Wilmington and NURP **must be acknowledged** in all publications and media events as a condition of the grant.

**Please be sure your institutional representative understands these conditions before signing the certification page.**

## **II. Proposal Submission**

Preliminary proposals are **required and must be submitted by email by July 1, 2005**. Pre-proposals should be <3 pages and give a summary of the proposed research, describe research goals and facilities/equipment requirements, outline time or logistic constraints, give area of operations including depths, and estimate the level of support required. This will ensure that appropriate research guidelines are addressed, and permit operations staff to evaluate feasibility. Preliminary proposals should be sent to the appropriate contact listed on page two.

Proposal deadline: Proposals must be received by the center no later than **August 19, 2005**.

**--Proposals received after the deadline will not be processed--**

Proposal requirements:

- One original, signed copy
- 10 paper copies
- Digital proposal in MS Word or Adobe PDF format
- All materials should be sent to Thomas Potts via address listed on page two.

## **III. Peer Review**

Proposal review:

All proposals are peer-reviewed by mail and panel reviewers. Proposals are evaluated on the basis of the following criteria:

- Scientific merit
- Relevance of the proposed research to NOAA and center research objectives or other overriding national need
- Operational feasibility of the proposed approach
- Focused and effective education and outreach strategy regarding NOAAs mission to protect the nation's natural resources.

Principal investigators are asked to submit the names and addresses of at least four qualified reviewers, without known conflicts of interest that might bias their reviews. They may also submit the names and addresses of persons that should not review the proposal. Principal investigator selections will be considered, but not automatically used for reviews.

In the event of a significant development that might materially affect the outcome of the review of a pending proposal, the proposer should contact the center to discuss the changed circumstances. The possibility of submitting the additional information must not be used as a means of circumventing page limitations or stated deadlines, but is intended to provide an opportunity to communicate unexpected and significant breakthroughs or developments.

When a decision has been made, verbatim copies of reviews, excluding the names of the reviewers, and summaries of review panel deliberations are mailed to the principal investigator. Proposers may also request and obtain any other releasable material in NURC/UNCW's file on their proposal. Everything in the file except information that directly identifies either reviewers or other pending or declined proposals is usually releasable.

Proposers are cautioned that only an appointed grants officer may make commitments or obligations on behalf of the government or authorize the expenditure of funds. No commitment on the part of the government to fund preparation of a proposal or to support research or education should be inferred from technical or budgetary discussions with NURC/UNCW. A principal investigator or institution that makes financial or personnel commitments in the absence of a grant or cooperative agreement signed by the NOAA Grants Officer does so at his or her own risk.

#### Withdrawals

A proposal may be withdrawn at any time before a final decision is made. Both the principal investigator and the authorized institutional representative must sign a request for withdrawal. NURC/UNCW does not normally return the copies of withdrawn proposals to the PI but does retain a file copy. Copies of reviews received by NURP before a proposal is withdrawn will be provided to the investigator.

#### Resubmission

A declined proposal may be resubmitted only after revision. NURC/UNCW will treat the revised proposal as a new one subject to the standard review procedures.

#### Notification of peer review results

A panel will convene in mid-November to rank proposals. Principal investigators with proposals not recommended for funding by the panel will be notified by December 1. The remainder of proposals will be considered for inclusion in the center's omnibus proposal submitted to NOAA in early January.

### **IV. Post-Mission Requirements**

Submission of a signed proposal to the center implies consent to meet post-mission requirements as follows:

- Three (3) types of reports are required from each principal investigator: 1) **Cruise Plan** due 30 days prior to the mission start; 2) **Annual Project Summary** due two weeks after the end of the mission, which is essentially an update of the Project Summary submitted with the original proposal; and 3) a **Final Project Summary** due one year after project completion (i.e., end of a single or multi-year investigation), which is an update of the last Annual Project Summary.
- All investigators are expected to **publish their results in refereed journals** within two years of their last mission. Future funding is contingent upon a successful publication record. Authors are expected to cite support from NOAA and the center in all publications resulting wholly or partially from center sponsored activities. **Appropriate acknowledgment** is: "This research was funded ('in part' if appropriate) by a grant from the National Oceanic and Atmospheric Administration's Undersea Research Center at the University of North Carolina at Wilmington pursuant to NOAA award number [NA03OAR4300088](#)."
- **Original 35 mm photographs, videotapes, and digital images** will remain with principal investigators, who will provide, upon request from the center, duplicates of representative slides and tapes (paid for by the center), or copies of digital images. The center may image and tapes to a broad-based worldwide audience through television, Internet video streaming and other multimedia platforms. PIs will have proprietary use of all data collected on their project for up to two years after the last operational day.

- An **official press release** on the overall program and on specific missions may be prepared by NURC/UNCW and the mission chief scientist to be used by all program participants for distribution to the news media at an agreed upon date. In a similar manner, official program photographs and movies may be developed. As news stories and releases evolve, it is **essential that proper credits and acknowledgments** be given to program participants and the center. Notification of any such interviews and releases should be provided to the center as soon as possible.

## **V. Final Proposal Format**

It is extremely important that final proposals are complete and **adhere to a standard format**, including:

- Stapled in the upper left-hand corner, but otherwise unbound.
- Margins of 2.5 cm (1 in.).
- Three-hole punched for insertion into a binder.
- Clear and readily legible type (minimum of 12 pt font).
- **Original** printed one sided; other **ten copies** may be printed two-sided.
- Use Metric System of weights and measures.
- **Proposal Text:** Brevity will assist reviewers and NURP staff in dealing effectively with proposals. Therefore, the proposal text may not exceed 15 pages.
  - **INCLUDED** in the 15-page limit: Visual materials, including charts, graphs, maps, photographs and other pictorial presentations.
  - **NOT INCLUDED** in the 15-page limit: Literature cited, subcontract description, biographical sketches and appendices.

*Note:* A digital copy of the proposal text must accompany the hard copy on CD. Alternatively, it can be emailed as an attachment to [pottst@uncw.edu](mailto:pottst@uncw.edu). Text should be saved in one of the following formats:

- MS Word (\*.doc)
- Adobe Acrobat (\*.pdf)

*Please keep in mind that the digital copy may be sent to reviewers in lieu of a hard copy if so requested by reviewers.*

Proposals that are not consistent with these instructions may be returned without further consideration by NURC/UNCW. **Deviation from the prescribed guidelines must be obtained in writing from the center at least two weeks prior to the proposal deadline.**

### **Requisite Forms:**

1. Project certification form (with original signatures; need only be submitted with original proposal)
2. Project keyword(s) form (need only be submitted with original proposal)
3. Proposal coversheet form
4. Proposal project summary form(s) (one required for each year of multi-year projects)
5. Subcontract request form(s) (one required for each year of multi-year projects)
6. Current and pending support form(s)
7. Project participants and suggested reviewer form (need only be submitted with original proposal)

## Proposal Content:

The final proposal must include the following sections:

### 1. **Project Description**

#### **Table of Contents**

A table of contents with page numbers is an essential aid for the reviewers. Sections should match the sections in the proposal text.

#### **Situation and Need**

Discuss notable gaps in knowledge or capabilities, review past and continuing significant work by yourself or by others in the proposed area of interest (include reference citations) and its relationship to present state of knowledge in the field. Clearly state how this research relates to NOAA and NURP goals.

#### **Objective(s)**

State what is to be studied, measured, observed, assessed, modified, or developed and the anticipated results. For equipment development or modification, describe the proposed technical and operational characteristics of the device.

#### **Methods and Approach**

*Description of Major Tasks* -- Divide the proposed effort into a meaningful set of tasks that must be performed to accomplish the objectives and describe each task. Emphasize quantitative *in-situ* methodology to be used. State the tasks in the same order as the hypotheses they are designed to test. Experimental design must be described with statistical tests, if applicable, for hypotheses proposed.

*Study Area* -- A chart of the mission area must be included for continuous at-sea projects using large vessels as well as a realistic estimate of maximum working depth.

*Proposed Dive Schedule* -- List approximate number of dives, related tasks to be accomplished and bottom time needed.

*Description of Facilities, Systems, and Equipment* -- Describe the equipment, systems (undersea and support vessels), and facilities --and how they will be used-- that the center must provide for achieving the proposed objectives. If applicable, provide graphics (actual or sketched) of special sampling equipment.

*Description of Secondary Support* -- Describe required equipment and facilities that will be provided by other sources; if applicable, appendices should include letters from collaborators.

*Alternate Approach* -- Describe realistic alternate methods, if any exist, for accomplishing the proposed work. This should answer questions such as, "Why not use a surface-based system instead of *Aquarius*?" and, "Why use this particular system?"

## Program Management

*Project Team* -- Describe the administrative responsibilities and authority of the team leader or principal investigator; describe the team composition (including names of key individuals) and their major task assignments; provide estimates of the time commitment (in hours, days, or FTEs) for each member.

## Results from Prior NURP Support

If the principal investigator(s) has received NURP funding in the past six years, information on the prior award is required. If the proposer has received *more than one prior award* (amendments to an award are not considered separate awards), the proposer should provide the following information for the award most closely related to the proposal:

1. Project title; center that funded project; amount and period of support; and summary of the results of the completed work.
2. List publications resulting from the NURP award.
3. Brief description of available data, samples, physical collections, new technology, and other products not described elsewhere.

Reviewers will consider the quality of the prior work described in this section of the proposal.

## 2. Literature Cited

Use of a specific format is not mandatory, but a bibliography of cited literature is required. Citations must be complete (including author names, title, journal or book, volume and pages).

3. **Subcontract Description:** In addition to the subcontract request form, up to three pages of description and justification are required. Separate subcontract request forms must be prepared for each year of support requested. The proposal may request funds under any of the categories listed as long as the item and amount are considered necessary to perform the proposed work and is not precluded by specific program guidelines or applicable cost principles.

## 4. Biographical sketches and support personnel

*Biographical Sketches* -- Maximum of **2 pages per PI**, written as curricula vitae. Emphasize experience using undersea technologies; provide vehicle names, number of dives or deployments, etc. If scuba diving is planned, include certifying organization, date certified and recent experience.

*Support Personnel* -- Information on exceptional qualifications that merit consideration in the evaluation of the proposal may also be included (no more than **one page per individual**) for postdoctoral associates, other professionals and students (research assistants) dedicated to the project.

## 5. Appendices: Special information and supplementary documentation

Except in the areas indicated below, special information and supplementary documentation should be included in the proposal as part of the 15-page project description. Information in the following areas may be included in appendices and **not** counted as part of the 15-page project text limitation:

- Letters of commitment for collaborative arrangements of significance to the proposal.
- Environmental impact statement for activities with potential impacts on the environment. Indicate the type and duration of such changes. Are any special permits required to

undertake the proposed research? **If collecting is required, be as specific as possible regarding species, sizes and numbers required.**

- Appendices should describe, if applicable, any unusual circumstances that require special handling, such as proprietary or other privileged information in the proposal, matters affecting individual privacy, required intergovernmental review under E.O. 12372 for activities that directly affect state or local governments, or possible national security implications.
- Projects involving the following will require supplemental documentation:
  - ◇ Cooperation from other organizations -- If clearance or a permit from any government agency or other domestic or foreign government is required for program execution, please provide the name of the body, the method of obtaining the clearance or permit, and the time required.
  - ◇ Data or facility access -- If access is required to data or facilities held by another organization, please identify the data or facility, the nature and type of access required, the methods of obtaining such access, and the effect of being denied access.
  - ◇ Research in a location designated, or eligible to be designated, a registered historical place.
  - ◇ Research involving field experiments with genetically engineered organisms.
  - ◇ Research involving the use of human subjects, hazardous materials, vertebrate animals or endangered species requires a copy of an approved protocol or, in the case of hazardous materials, a copy of any required licenses or approvals.
  - ◇ Projects that involve technology utilization/transfer activities require a management plan that should identify special reports or final product.