

# **GUIDELINES FOR PROGRAM DEVELOPMENT PROPOSALS**

Funding is available for the development of research and education programs in the Wider Caribbean Region through the Caribbean Marine Research Center (CMRC) under the auspices of the NOAA's National Undersea Research Program (NURP). Investments of program development funds are used to stimulate nationally important scientific research at NOAA's marine laboratory in the Bahamas and throughout the Caribbean. These investments are intended to provide researchers the opportunity to strengthen future proposals. It is our intention that program development funds will focus on initiating projects that stimulate additional proposal submissions to other Federal, State, local, industry, or private institutions.

**The goals of our program development efforts include:**

- 1. developing new partnerships to work together on issues of national importance to the sustainability of marine resources,**
- 2. promoting strategic assets of CMRC's undersea research program and addressing priorities identified by NURP, and**
- 3. integrating programmatic efforts with those of the universities to advance the marine sciences and to produce greater benefits for communities being served.**

Proposals for program development must be discussed with CMRC first. If you have excellent ideas for a program development proposal please contact Dr. John Marr, Center Director of CMRC. Following discussion of your ideas, we may request a written proposal that meets competitive and high standards of peer review. Program Development proposals are selected based on scientific merit, applicability to CMRC's current research themes and NOAA's mission, and feasibility in terms of logistics and environmental considerations. Proposals must address both NOAA and NURP goals and guidelines and must be compatible with CMRC's established research and education programs.

CMRC operates a marine laboratory at Lee Stocking Island (LSI) in the Exuma Cays, Bahamas, and, although CMRC will consider funding work at any site in the Caribbean, we encourage investigators to first consider use of our excellent facilities at LSI. Accordingly, Program Development grants are awarded primarily to provide facility support at LSI. They provide funds for room and board, laboratory use, small boat use, and scuba diving support for short-term projects at LSI.

The CMRC program year begins on 1 February. Funds for Program Development grants are limited and although there is no deadline for submission, it is advisable to submit proposals as early in the program year as possible. When funds dedicated for Program Development support are expended, no more projects are considered for the year.

## *Research Priorities*

While we welcome inquiries about any area of research that falls under the NOAA/NURP research themes of *Sustainable Fisheries, Healthy Coastal Ecosystems, Predicting Environmental Change, and Developing New Value from the Sea*. There are several areas of particular interest to CMRC including:

### *Coral reefs*

Coral reef degradation throughout the world has prompted CMRC to support a coral reef research program focused on the long-term study and understanding of shallow to deep coral reef ecosystems. Areas of particular interest include:

- a. coordinated field and laboratory research that establishes long-term studies to assess anthropogenic influences on physiology and ecology of coral reef systems. This includes establishing LSI as a sampling site for integrated monitoring programs (e.g. AGGRA, SEAKEYS, LTER, etc.)**
- b. the reproductive biology of coral reef fish and invertebrates (including mass spawning of coral species) and the importance of mid and deep water coral populations as reproductive refugia for shallower populations**
- c. development of a Coordinated Coral Sampling Program that utilizes a network of corals that are sampled in a consistent manner to maximize the quality and quantity of data necessary to manage coral reefs while minimizing impact to the reefs themselves**
- d. innovative techniques of coral aquaculture plus larval recruitment which may aid restoration efforts**

### *Sustainable Fisheries*

CMRC has a long and continuing association with research on factors influencing the recruitment, reproductive biology, and population dynamics of commercially and ecologically important fish and invertebrates to tropical communities, particularly coral reefs. Much of this research has focused on the locally important species, for example queen conch, spiny lobster, Nassau grouper. Areas of particular interest include:

- a. identification and characterization of habitats essential for spawning, larval recruitment, survival and sustainability of commercially and ecologically important species of invertebrates and fishes**

- b. obtain information to aid in the management and prediction of mid and deep water commercial fish stocks including under utilized species and comparisons of heavily exploited to minimally exploited populations**
- c. research focused on the effectiveness and establishment of marine protected areas in increasing the abundance or reproductive ability of commercially important species (e.g. spiny lobster, grouper, snapper, conch) or modifying their distribution**

### *Biotechnology Research*

Developing new and sustainable values from the sea, is a growing area for CMRC sponsored research. Although substantial gains have been made in the last several decades in our knowledge of the ocean and its resources, the economic potential for use of marine biomedical and biotechnological products has barely been tapped. CMRC's areas of particular interest are:

- a. research on the diversity, ecology, physiology, biochemistry, genetics, and evolutionary history of marine organisms found in the shallow to deep sea, and their sustainable use in the biomedical and biotechnology fields**
- b. identifying novel bioactive compounds for ultimate biomedical or industrial applications and determining the mechanisms of action and natural functions of these novel compounds. Also developing techniques to sustainably culture the living marine resources associated with these compounds.**

### *Aquaculture Research*

CMRC is interested in a research program focused on the development of environmentally sound aquaculture. CMRC especially encourages proposals that deal with commercially valuable endemic species that are currently threatened by anthropogenic factors such as overfishing (e.g., Nassau grouper, queen conch, spiny lobster, and tropical ornamentals) as well as the culture of species of biomedical or industrial importance. Particular areas of interest include:

- a. study new candidate species for culture through their complete life cycle to determine which are economically and biologically suitable for commercial culture or wild stock enhancement**
- b. develop practical and efficient methodology for the release of captive bred species into the wild as a means of repopulating and/or enhancing populations in overfished or otherwise impacted habitats**

### *Underwater Observation and Technology*

Many marine issues, such as fisheries management, the siting of reserves, protection and restoration of habitats require information acquired by submersibles, remotely operated vehicles, and *in situ* sensors. This information often enhances the ability to conduct research, manage resources, and educate the public. CMRC is interested in developing technological capabilities that establish our ability to observe and monitor biological, chemical, or physical processes in underwater tropical and subtropical ecosystems. Specific areas of interest include:

- a. define new technologies to improve the observation and collection of information necessary to advance fisheries oceanography, prediction of fisheries, and surveillance compliance requirements of regulatory regimes**
- b. use of marine technologies to automate or expand the sampling of biological, physical and/or chemical parameters to complement more traditional ecological studies**
- c. identify and implement more efficient ways to observe, monitor, and determine the ecological status of marine protected areas, essential fish habitats, and other critical (e.g., coral reefs) coastal habitats and their biodiversity.**

### *Predict Environmental Change*

Key objectives for CMRC sponsored research relate to characterizing the role of the ocean in environmental change. The ultimate purpose of monitoring programs is to provide detection of change and as such CMRC has had an active environmental monitoring program for the past 15 years. Monitoring programs should trigger responsive actions of additional investigation when signs of change beyond normally anticipated levels are observed. Monitoring of biotic and abiotic resources can provide information relative to all of these information needs. Some specific areas of interest include:

- a. understand the linkages between forcing agents, climate variability and ecosystem change. Develop scenarios for regional climate and ecosystem change in a form suitable for various impact models.**
- b. improve our ability to monitor the physical, chemical, and biological parameters in subtropical habitats to provide information necessary for management and conservation.**

### *Use of Advanced Diving Techniques in Research*

NURP is a recognized international leader in the use of mixed-gas scuba, saturation diving, and advanced breathing technologies (e.g., closed and semi-closed circuit rebreathers) in diving to support

scientific research. As a NURP Center, CMRC is acknowledged as a leading institution in support of scientific diving with thousands of dives supported annually. NURP annually supports nearly 10,000 air saturation and mixed-gas scuba dives that address NOAA high priority issues. CMRC will focus its safe diving research on improving nitrox, mixed gas, and rebreather procedures in the following areas:

- a. scientific diving advanced training and safety issues including treatment and management of nitrox diving-related accidents, gas mixing and handling, and certification requirements**
- b. assessing benefits and safety for the use of advanced technologies in scientific research for collecting behavioral or other biological data underwater**
- c. exploring new areas, including deep coral habitats**

#### *Research-Education Initiatives*

CMRC has a record of successful courses, seminars, and conferences that are held on Lee Stocking Island. We plan on continuing our dedication to education and have interest in developing the following programs:

- a. courses in Tropical Marine Biology, or other field intensive courses, that have long-term potential for developing into annual offerings at LSI (support is typically offered in the form of discounted rates for facilities use at LSI)**
- b. CMRC is soliciting interest in graduate and/or post-doctoral scholarships that support individuals in residence at LSI in exchange for part-time logistic and scientific assistance to CMRC. Research proposals should be developed with the involvement of CMRC scientific staff.**

#### *Laboratory Facility Use*

CMRC operates a marine field station at Lee Stocking Island, Exuma Cays, Bahamas. This laboratory is located in a tropical reef environment with near pristine conditions. A wide range of habitats including coral reefs, seagrass beds, mangroves, subtidal stromatolites, ooid shoals and shelf-edge drop-off are in close proximity and easily accessible for study. The relatively unimpacted nature of the environment allows for a unique opportunity for comparative studies with similar heavily impacted reefs in the Florida Keys. Facilities at Lee Stocking Island include scuba and nitrox support, 24-hr AC power, air-conditioned laboratory space, flow-through seawater system and vessel support. Investigators are strongly encouraged to consider use of these excellent facilities at Lee Stocking Island for their projects.

Further information regarding facilities, equipment and support available at Lee Stocking Island can be found at [http://www.perryinstitute.org/forms/PIMS\\_Lab\\_Facilities\\_Guide.pdf](http://www.perryinstitute.org/forms/PIMS_Lab_Facilities_Guide.pdf) for will be provided upon request to the CMRC Florida Office (see *also proposal development guide - facilities*).

Further information regarding the CMRC Diving Program and requirements for diving at Lee Stocking Island can be found at <http://www.perryinstitute.org/forms.htm> or will be provided upon request to the CMRC Florida Office.

### ***Submitting Program Development Proposals***

Investigators are encouraged to discuss their prospective projects by phone with the CMRC Center Director before submission and pending suitability, submit a short (5 page limit) proposal as described below.

#### **Format and Content**

All proposals must conform to the instructions provided in this section. Proposals that are not consistent with these instructions will be returned without further consideration, unless a deviation has been approved in writing by CMRC (see below). Please pay particular attention to the proposal page limits, content, and formatting requirements.

Critical Items (see appropriate sections for more information)

1. Type size no smaller than 12 pt.
2. Project Description less than or equal to 5 pages
3. Biographical sketch (PI only - 2 page limit)
4. 2.5 cm margins (top, bottom, both sides)
5. 8½" x 11" paper size

Proposers may deviate from these instructions only to the extent authorized. Deviation must be approved by CMRC in writing. If you wish to obtain such permission, contact the Center Director. Proposals must identify the deviation by including one copy of the written deviation authorization with the original (signed) document.

#### **SECTIONS OF THE PROPOSAL**

- 1) Proposal Cover Sheet
- 2) LSI Facilities Request Form
- 3) Project Description (**5 page limit**)
- 4) Literature Cited
- 5) Biographical Sketch (PI only - **2 page limit**)
- 6) Budget **and** Budget Justification

Proposals must be stapled in the upper left-hand corner, but otherwise unbound.

**Five copies are required, including the original signed copy.**

## **1. Proposal Cover Sheet**

The cover sheet must accompany all 5 copies, only one needs to be signed originally. If the research is going to be conducted at a site other than Lee Stocking Island (LSI) indicate by checking the appropriate box and then specifically identify the proposed research site. If the research is going to be conducted exclusively at LSI, check the “LSI” box.

Starting and Ending Dates: Proposed start and end dates must fall within the CMRC grant year, which runs from February 1 to January 31 of the following year. If specific dates are not critical for the successful completion of the project, please supply preferred dates.

At least one copy of the proposal must be signed by the Principal Investigator (PI). Proposals submitted without at least one signed copy will not be accepted.

## **2. Lee Stocking Island Facilities Request Form**

If you plan to utilize the facilities at CMRC’s Lee Stocking Island Field Station, you are required to detail your proposed facilities use in terms of number of visits, number of people on each visit, length of stay for each person, and number of boats and boat-days needed to conduct the research. If your project will entail shipping large amounts of equipment and supplies or if you require especially large pieces of equipment not already in place at the field station, please list these requirements in as much detail as possible. PIs should budget for shipping charges (rates per pound apply) for any supplies or equipment in excess of personal luggage (i.e., the amount of personal luggage permitted on commercial air carriers).

## **3. Project Summary**

Summary - Provide a brief summary of the proposed project that is suitable for publication and not more than one paragraph in length. This summary should not be an abstract of the proposal, but rather a self-contained description of the activity that would result if the proposal is funded. It should be written in the third person and should include a statement of the objectives, methods to be employed, and the significance of the proposed research. It should be informative to other persons working in the same or related fields and, insofar as possible, understandable to a scientifically or technically literate reader. Summaries will be included in CMRC’s Omnibus Proposal and Annual Report to The National Undersea Research Program and may be provided to congressional delegations and the press, upon request, by the National Office.

Situation and Need - Briefly discuss the current state of knowledge or capabilities, or lack thereof, in the field and why the proposed project is significant and should be funded.

Objective(s) - State what is to be studied, measured, observed, assessed, modified, or developed, and the anticipated results. State the null and alternate hypotheses the proposed research is designed to test. For equipment development or modification, describe the proposed technical and operational characteristics of the device.

Relevance to CMRC, NOAA and NURP Themes - Describe how the anticipated results relate to CMRC and/or NOAA/NURP science goals as well as their expected benefits or utility. Specifically identify the CMRC and/or NOAA/NURP science goals addressed by the proposed research.

Methods and Approach - Describe the experimental design and the specific tasks that must be performed to accomplish the objective(s) of the proposed research. Emphasis should be placed on quantitative *in situ* methodology to be used. State the tasks in the same order as the hypotheses they are designed to test.

Proposed Dive Schedule - List the number of dives, number of divers, and bottom time needed.

Description of Facilities, Systems, and Equipment - Describe the instruments, apparatus, equipment, and facilities required for achieving your objectives and how they will be used. Also describe the undersea support needed (e.g., boats, scuba, nitrox, special diving gear, sampling gear, and *in situ* instrumentation).

Future Research - How will the expected results of the proposed research be used (e.g., data may be used to strengthen a future proposal to CMRC or other funding agencies, or data may be necessary for publication of a manuscript in a peer-review journal).

#### **4. Literature Cited**

A full citation, including all co-authors, date of publication, title, publication, and page numbers for all references cited in the Project Description must be listed. This section of the proposal will not be considered a part of the 5-page limitation set for the Project Description.

#### **5. Biographical Sketch**

A brief biographical sketch (2-page limit) is required for the Principal Investigator only. Biographical sketches of co-PIs may be included (2-page limit for each), but are not required.

#### **6. Budget and Justification**

(The required format for the *Proposal Budget* is provided at the end of this Program Development section.)

Program Development awards are limited to support for facilities and diving support (usually at LSI). Support for minimal supplies will be provided only under exceptional circumstances. Salaries, transportation, equipment, and other project expenses must be covered by other funding sources. The fees associated with facilities use at LSI (e.g., room and meal charges, boat fees, personnel support), and taxi fares (land and water taxi) are provided in the *LSI Rate Schedule*.

CMRC cannot provide Indirect Costs for Program Development projects.

If funds are requested for supplies, a detailed list of the proposed supplies, including prices, must be provided in the budget justification. The number of project personnel and the number of days requested at LSI must also be justified.

## **PROPOSAL EVALUATION CRITERIA**

All Program Development proposals that satisfy the established format will be evaluated on the basis of the following criteria:

1. Scientific Merit
2. Applicability of the proposed research to CMRC's current research themes, relevance to NOAA's mission, or an overriding national responsibility with broad benefit to the U.S.
3. Applicability and availability of the *in situ* approach and/or technology requested to conduct the proposed research

A science review committee composed of CMRC staff and representatives from several academic institutions may evaluate each proposal submitted for participation in CMRC's science program. Final decisions regarding funding will be made by the Center Director.

## CONTACTS

The CMRC Center Director is located at CMRC's Florida Office.

Caribbean Marine Research Center  
100 North U.S. Highway One, Suite 202  
Jupiter, FL 33477  
phone: (561) 741-0192  
fax: (561) 741-0193  
[pims@perryinstitute.org](mailto:pims@perryinstitute.org)