CMORE Grant-writing Workshop:
Shaping Tomorrow’s Leaders in Microbial Oceanography

As the postdoctoral representative for the Center for Microbial Oceanography: Research and Education, I have the privilege to connect CMORE students’ and postdocs’ career goals to the Executive Committee’s priorities. A major CMORE objective is to train the next generation of leaders in microbial oceanography. It is apparent to those of us involved in CMORE that its most likely enduring legacy is a period of major cross-disciplinary discovery in microbial oceanography, that will likely foster lasting scientific ingenuity among all who are involved. Members of CMORE labs are intimately engaged in this age of discovery, which serves as the most valuable form of scientific training, though it cannot be formalized. A great scientist, however, does not necessarily make a great principal investigator. To become a leader in the field, one must write competitive grants to various funding agencies in order to support his/her research. CMORE members recognize this necessity: most evident among the training objectives requested by the students and postdocs as a whole, is to learn effective grant-writing strategies.

As principal investigators, the CMORE faculty has proven to be well versed in proposal preparation. I therefore would like to develop a grant-writing workshop which consists of two components: an online module that outlines effective grant-writing strategies and a one-day grant writing program where scientists can evaluate their colleagues’ proposals and gather feedback on their own.

The online component:

Prior to the workshop, participants will be asked to identify a proposal that they are interested in submitting, which can range from a full NSF proposal to a request for funding to attend a scientific meeting. Participants will prepare a formal pre-proposal or full proposal for this program, using pointers outlined in an online module. Since I have never received an NSF grant, I have gathered input to be used in structuring and enriching the program from Barbara Bruno and Paul Kemp. Moreover, Chris Scholin, Angel White, Sonya Dyhrman and Michael Rappe have agreed to aid in the editing of the online module as well as delivering the workshop on February 21, 2010 at the Oregon Convention Center. This scheduling is the result of feedback from students and postdocs, the vast majority of whom will be attending the Ocean Sciences Meeting at the OCC on February 22-25.

The online module:
This module will use valuable, current information provided by NSF program managers and found online and through direct communication.
Proposal preparation (using NSF as an example since it is the most appropriate funding agency for CMORE research)

Choosing a research hypothesis/question
Framing the question
Intellectual Merit, Broader Impact, Transformative Research
Project Summary
Project Description
Biographical Sketches
Budget
Facilities and Special Considerations
Fastlane
Sample proposal dissection: What can be changed about sample proposal #1?
What is exemplary in sample proposal #2?

The workshop:

9am – 12pm (with 15 minute coffee break):
Lecture/discussion of successful grant-writing strategies (using NSF as an example):
1) General proposal-writing advice (go over online module and elaborate where requested):
   Follow the guidelines, Serve on review panels, etc.
   Discussion of common strengths and weaknesses in submitted proposals
   Discussion of the sample proposals from the online module
2) The appropriate program for your proposal / Know your program (e.g. NSF, NASA, NRC...)
   Description of the funding agencies/programs, where to find them online, email alerts, etc.
   Short description of the proposal review process at NSF, as an example
   Intellectual Merit, Broader Impact, Transformative Research (revisit)

12-3pm: Working lunch: Participants organize in groups of 4 and review 1 or 2 proposals from
their group, using techniques learned in lecture, where appropriate

3-4:30pm: Participants give examples of what they plan to change about their proposal, given
the feedback they received and speaking specifically where comfortable doing so.
Suggestions from other meeting attendees (outside of their group) encouraged.

4:30-5pm: Question and answer session.

End with an informal networking event

In 2009, CMORE was reviewed by two major committees in anticipation of the renewal proposal. Both committees recommended expansion of training of junior members. In response to CMORE Question 5: ‘What elements of the education program have the greatest potential to become enduring legacies?’ the External Advisory Committee was encouraging:

At the graduate level, continue to build on the program’s innovative efforts to further develop the emerging C-MORE tradition of engaging and developing graduate student/postdoc/staff capacity and creativity to improve education and outreach. Eric G., Rachel, Sarah, and Angel’s talks at the All-Hands meeting provided us with a range of excellent examples of what students have accomplished (or can accomplish) with modest funding from the EDVentures fund.

It seems that CMORE is currently building a legacy through efforts of members at all levels. The cited talks delivered at the All-Hands meeting all had a common quality in that they have the potential to be enduring programs that result in the education of future scientists. In the form presented in this proposal, a grant-writing workshop has great potential to become a lasting CMORE legacy in that it will likely result in a number of high-quality proposals, and the majority of the information will be easily available online for current and future CMORE members’ reference.
The following problems were sited by the NSF site visit committee, as the first three challenges to be addressed:

- To define a generalized ‘vision’ as to what it means to be a CMORE student or postdoc.
- To develop a clearer vision for the legacy of CMORE.
- Providing comparable and programmatically consistent research, educational and outreach opportunities for graduate students across different institutions.

This proposal seeks to address all of these points. Bringing CMORE students and postdocs together at a major scientific meeting will provide an important ‘equal institutional opportunity’ and foster a camaraderie among the members that is rarely available. We will use the University of Hawaii ‘Halawai’ communication system to involve members who could not attend the meeting. A list of CMORE presentations will be provided for each of the workshop participants. The Ocean Sciences Meeting will serve as an immediate venue for post-workshop discussions to take place and members will likely attend presentations delivered by other members of the workshop, thus providing detailed insight into colleagues’ ongoing research. Interdisciplinary science will likely stem from discussions among the workshop participants that attend the meeting and familiarize themselves with CMORE science outside of their fields. The nature of the workshop will undoubtedly initiate new science: participants with various research expertise will be learning about their colleagues’ intended projects through the proposal review process, and will likely provide complimentary insight with the potential to expand into solid collaborations. These linkages will more intimately connect CMORE science across institutions, spawning scientific connections among the future leaders in microbial oceanography.

**Budget**

Estimated participation: 50 (This is an overestimation. There are 50 students/postdocs on the cmore-chat mail list, and Laure-Anne Ventouras and I are currently working to increase the participation to other members of CMORE labs).

- Facility rental fee: $100
- Breakfast pastries: $35 * 2 (= 24 pastries: $70)
- Bagels/cream cheese: $36 * 2 (= 24 bagels: $72)
- Fresh Fruit: $22 * 1 (= 12 pieces of fruit: $22)
- Coffee: $42 * 4 gallons (= $168)
- Juice: $16 * 3 (= $48)
- Lunch: $18 * 50 (= $900)
- Soft drinks: $3 * 25 (= $75)
- Bottled water: $3 * 50 (= $75)
- Break: $9 * 50 (= $450)
- 1 hour service for break (= $100)
- 25% food/beverage service charge ($495)
- One beverage per person, at a local bar: ($7 *50 = $350)
- Total food/beverage + venue/service charge: $2925
- Contribution to one night hotel stay for 50 guests ($100 each) $5000

**TOTAL BUDGET** $7925