

# LMR Program's First Needs Collection Yields Six Priority Needs

## Navywide Evaluation & Ranking Effort Helps to Focus Future Program Investments

**THE LIVING MARINE** Resources (LMR) program's Fiscal Year (FY) 2013–14 needs collection and evaluation process is now complete and yielded a total of 65 submittals from across the Navy. After a thorough review, evaluation and consolidation of the submitted needs, six were forwarded to the program's resource sponsor, the Chief of Naval Operations Energy and Environmental Readiness Division (CNO N45), by the LMR Program Manager on behalf of the Living Marine Resources Advisory Committee (LMRAC). Successful proposals that address those priority needs will be initiated in FY13 and FY14 as available funds allow.

All LMR program decisions and investments are based on environmental needs which meet the following conditions:

- Identifies an existing gap in knowledge, technology, and/or capability
- Is associated with an environmental constraint or regulatory driver
- Can be categorized under one of the program's investment areas

Submitted needs were evaluated by the LMRAC. Each statement of need was assigned to an appropriate LMRAC member, typically within their claimant command (e.g. needs from Naval Facilities Engineering Command (NAVFAC) personnel would be assigned to the NAVFAC representative(s) on the LMRAC). The assigned LMRAC member was responsible for coordinating priorities among the needs submitted within their command, and was responsible for providing a liaison for questions and requests for clarification from the LMRAC to the need submitter. Once

the LMRAC had down-selected to a number of priority needs appropriate to the anticipated available funds, the LMR Program Manager conveyed the final selections to CNO N45 for approval and concurrence. Once concurrence from CNO N45 is obtained, the LMR Program Manager will draft a Broad Agency Announcement (BAA) that translates the needs into guidance for submission of proposals to meet those needs.

The LMR program will post a BAA in Federal Business Opportunities (FedBizOpps) at [www.fbo.gov](http://www.fbo.gov) some-



For more insights into the LMR program, visit [www.lmr.navy.mil](http://www.lmr.navy.mil).

time in the spring of 2013. (Specific evaluation criteria, due dates and other specifics will be included in this posting.)

Pre-proposals will be submitted via the LMR website at [www.lmr.navy.mil](http://www.lmr.navy.mil). Non-Federal agencies such as academic institutions, businesses and other qualified public and private sector applicants interested in responding will be encouraged to submit a pre-proposal using the web-based standardized pre-proposal template. This Microsoft Word™ template is available by visiting the LMR website ([www.lmr.navy.mil](http://www.lmr.navy.mil)) then by clicking on the “Pre-proposals” menu button then the “template” link in the “How to Submit a Pre-proposal” section. A reference guide for submitting and evaluating pre-proposals is also available via the LMR website at [www.lmr.navy.mil](http://www.lmr.navy.mil), then click on the “Pre-proposals” menu on the left, then click on the “Submitting and Evaluating Pre-proposals” link.

The initial pre-proposal phase saves submitters and reviewers the effort of preparing and evaluating a full proposal until we know how many of the pre-proposals adequately address the needs, are of sufficient overall quality to be competitive and are likely to be funded, given the available resources each year. Pre-proposals should adhere to the following guidance:

1. Be approximately three to four pages in length.
2. Clearly identify the applicable statement of need being addressed. (If more than one need is identified, one need should be identified as the primary need that is targeted by the pre-proposal.)
3. Focus on the problem to be addressed.



Bottlenose dolphins.

## The Basics About the LMR Program

**THE LMR PROGRAM** seeks to develop, demonstrate, and assess data and technology solutions to protect living marine resources by minimizing the environmental risks of Navy at-sea training and testing activities while preserving core Navy readiness capabilities. This mission is accomplished through the following five primary focus areas:

1. Providing science-based information to support Navy environmental effects assessments for at-sea training and testing.
2. Improving knowledge of the ecology and population dynamics of marine species of concern.
3. Developing the scientific basis for the criteria and thresholds to measure the biological effects of Navy-generated sound.
4. Improving understanding of underwater sound and sound field characterization unique to assessing the biological consequences of underwater sound (as opposed to tactical applications of underwater sound or propagation loss modeling for military communications or tactical applications).
5. Developing technologies and methods to mitigate and monitor environmental consequences to living marine resources resulting from naval activities on at-sea training and testing ranges.

For more information about the LMR program, visit [www.lmr.navy.mil](http://www.lmr.navy.mil).

## LMR Program's FY 2013–14 Priority Needs

THE FOLLOWING LIST contains a description of the six priority needs that resulted from the LMR program's FY 2013–14 needs collection and evaluation process:

### Need N-0006-13: Demonstration of Passive Acoustic Monitoring (PAM) Technology

The Navy needs persistent automated monitoring of test and evaluation sites of interest, such as those covered by the National Environmental Policy Act Phase II process. PAM is a proven means of detecting, classifying, and localizing vocally active marine mammals, as well as a number of fish species. Sensors can be moored, drifting, vessel towed, or mounted on unmanned mobile platforms. The pros and cons of alternatives will be a priority consideration in the selection of proposals. Top priority will be given to reviews of existing systems and their performance metrics; the next level of priority will be given to comparative performance analysis of two or more systems operated simultaneously in the same location; proposals for the development of new systems will be given lowest priority.

### Need N-0011-13: Behavioral Responses of Marine Mammals to Navy Sound Sources

Potential behavioral effects from Navy activities on marine life, in particular marine mammals, make up the largest and most poorly defined category of environmental risk to marine life from Navy activities. Much of the available historical data comes from non-Navy sound sources, for species and locations of relatively low Navy concern. Data are needed to strengthen the quantitative, statistical foundations of current risk thresholds developed jointly by Navy and the regulatory agencies, the National Marine Fisheries Service, Office of Protected Resources, and the U.S. Fish and

Wildlife Service. Priority species, locations, sound sources and data products will be identified in the "Suggested Solutions" section of the BAA.3.

### Need N-0012-13: Hearing and Auditory System Information for Hearing-Based Risk Criteria

Three kinds of information generation have been or are currently in use. They are listed in approximate order of statistical and scientific impact, and cost (in both funds and time).

#### 1. Behavioral psychophysical testing of trained captive animals

Methodologies and facilities requirements are well documented. Preference will be given to studies most relevant to Navy sound sources, species of high interest, and integration with existing data and theories.

#### 2. Auditory Evoked Potentials (AEP) obtained by direct measurement of electrical activity by the auditory nerve and auditory brainstem as obtained by surface or subcutaneous electrodes

Such quick, direct measures enable testing of wild animals under minimal restraint or while stranded. Emphasis should be placed on well-demonstrated methods and tools, as opposed to creation of new technologies with unproven performance characteristics.

#### 3. Anatomical models

This methodology relies on obtaining direct anatomical measurements of physiological structures and their properties by direct observation, CT (computed x-ray tomography), electron microscopy, atomic force microscopy and other methods,

4. Clearly explain the project objectives and approach.
5. Quantify and qualify the technical criteria for a successful project.
6. Identify the environmental issue to be addressed.
7. Include the basic strategy for successfully integrating the proposed solution into the Navy user community.
8. Identify the main or primary users targeted by the proposed effort.
9. Include a short one-paragraph to one-page biography of the Principal Investigator (PI).
10. Include a short annual budget estimate indicating the likely cost of salaries (personnel effort), major equipment, major subcontracts, and a total anticipated award amount for each year of the proposed project.

Supplemental supporting materials are optional and should be limited to no more than four pages

The pre-proposals will be reviewed by the program's Technical Review Committee (TRC) and the LMRAC. The TRC consists of subject matter experts drawn from the Navy and non-Navy expert community. The TRC members will provide independent, confidential technical peer review of the pre-proposals for technical merit, appropriateness and

as appropriate. Results should be incorporated into state-of-the-art and well-developed models of mechanical properties (e.g. Finite Element or Finite Difference models) or existing human/mammalian electro-mechanical models of auditory structures like the cochlea and auditory nervous system. The BAA will contain more details on priority species and data needs.

### **Need N-0020-13: Demonstration and Evaluation of Platform-Independent Improvements to Automated Signal Processing of PAM Data**

As PAM sensors continue to deliver more and more data for both baseline surveys and mitigation monitoring, the cost in time and funds to process the data remains inconsistent and slow, making it difficult to evaluate competing data processing systems relative to what might be potentially available via the scientific literature or open resources. A process is needed by which new and emerging signal processing systems are evaluated against common, shared benchmarks. In particular, there is a need to develop, test, and evaluate existing or new PAM signal processing systems designed for users with relatively little or no subject matter expertise. Signal processing remains the greatest technical challenge to non-expert wide scale application of PAM technology as a survey and mitigation monitoring tool. Benchmarking of current systems, identification of system shortcomings and efforts to improve and standardize system signal processing is an ideal LMR role and will compliment the considerable investment by the Office of Naval Research and other Navy activities to improve the available tools for automated PAM signal processing.

### **Need N-0029-13: Capability Development for Hearing Measurements**

This statement of need focuses on technology and methodology developments to expand the sample size and range of species that can be tested, along with reducing cost and time to obtain data. Existing alternatives to behavioral testing of trained animals include evoked potential audiometry and modeling from anatomy. Other solutions may exist or deserve further exploration. For AEP, several aspects of AEP methods need validation and/or improvement. Measurements of in-air and underwater behavioral hearing thresholds need to be compared to in-air and underwater AEP thresholds obtained from the same individual in a variety of species. Innovations in electrode placement (i.e. subcutaneous or otherwise embedded) may be required to record evoked responses in some species (i.e. baleen whales). To achieve wide scale application, test equipment and training in equipment use must be developed, must be economically feasible, and must be robust under challenging field conditions.

### **Need N-0001-13: Assessing and Mitigating the Effects of Construction Noise on Living Marine Resources**

Better methods to assess the potential effects of underwater sound in inland waterways and cost-effective methods to mitigate the impacts of underwater sound during in-water construction, maintenance, operation and training operations in inland waters are needed to support cost-effective planning and execution of projects. Potential projects might include modification of standard transmission loss models to better fit shallow nearshore environments, collection of data to verify or modify existing models of transmission loss, and the demonstration (but not development) of sound attenuating technologies, including the evaluation of cost, applicability and effectiveness of sound attenuating technologies such as coffer dams, bubble curtains or other technologies.

feasibility of the methodological approach, likelihood of success in achieving the stated goals of the pre-proposal, and goodness of fit between proposed effort and budget. Each pre-proposal will receive at least two independent TRC reviews.

The TRC will present their assessments of the pre-proposals to the LMR program manager who will in turn, with the LMRAC, review and down-select the pre-proposals based on the TRC assessments of technical merit as well as programmatic relevance, likely impact on Navy compliance and readiness goals, feasibility of transition, and other overall program goals.

Once a pre-proposal has been approved, the PI will be invited to develop and submit a full technical proposal. A standard template will be provided on the LMR website (the preferred submission route). The full proposal should include the following components:

1. Reference to the appropriate need (if more than one need is addressed a primary need should be identified from among the multiple needs)
2. Proposed solution(s)
3. Technical approach and objectives

## The LMRAC

LMRAC MEMBERS CAN be reached at the phone numbers and email addresses below:

NAME	ORGANIZATION	PHONE	EMAIL
Gisiner, Bob (Chair)	NAVFAC	805-982-4853	bob.gisiner@navy.mil
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4. Success criteria (including quantifiable performance metrics)
5. End user endorsement of the project
6. Stakeholder endorsement of the project
7. Potential benefits to Navy
8. Scheduled tasks and milestones
9. Go/No Go decision points
10. Anticipated products
11. A transition strategy
12. A proposed budget

The full proposal will define quantifiable performance metrics to evaluate the ultimate success of the project and present baseline data on the performance of the pre-existing conditions for later comparison to post-integration conditions. The pre-proposal process ensures that proposals address high priority Navy needs. Further down-selection of candidate proposals will be performed by the TRC, LMRAC, and CNO N45 following a protocol similar to that used to select pre-proposals. In addition to the Federal Acquisition Regulation criteria

requirements, considerations will include overall LMR investment portfolio balance, likelihood of successful, timely completion of project objectives, relative impact to Navy (including cost savings and reduction of regulatory risk), and likelihood of successful transition to operational use.

Full proposals will be assigned to appropriately qualified TRC member(s) for technical review. The LMR Program Manager and LMRAC will then review those full proposals, taking into consideration the TRC's input. Once a project is approved, the submitter will work directly with the Navy's contracting office to get a contract in place so that work may begin.

For more information about the LMR program and its pre- and full proposal solicitation and evaluation processes, visit the LMR website at [www.lmr.navy.mil](http://www.lmr.navy.mil) or contact Bob Gisiner, the LMR program manager. 

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### CONTACT

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