Living Marine Resources
RDT&E Program
First in Class Workshop

SCIENCE • STEWARDSHIP • NAVY READINESS

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NAVY ENVIRONMENTAL COMPLIANCE DRIVES OUR SCIENCE

ENVIRONMENTAL COMPLIANCE = UNINTERRUPTED TRAINING AND TESTING

- **Navy Mission** "Maintain, train, and equip combat-ready naval forces capable of winning wars, deterring aggression, and maintaining freedom of the seas" (Title 10)
  - Navy must train and test to achieve combat readiness.
  - Navy must be in full legal compliance with environmental laws to ensure uninterrupted training and testing.
  - Navy must assess potential impacts from military readiness activities and apply for/obtain environmental "permits" to conduct activities that impact protected species.

- **Permit Requirements**
  - Implement mitigation measures
  - Implement a U.S. Navy Marine Species Monitoring program
  - Submit annual reports (exercises conducted and monitoring accomplished)
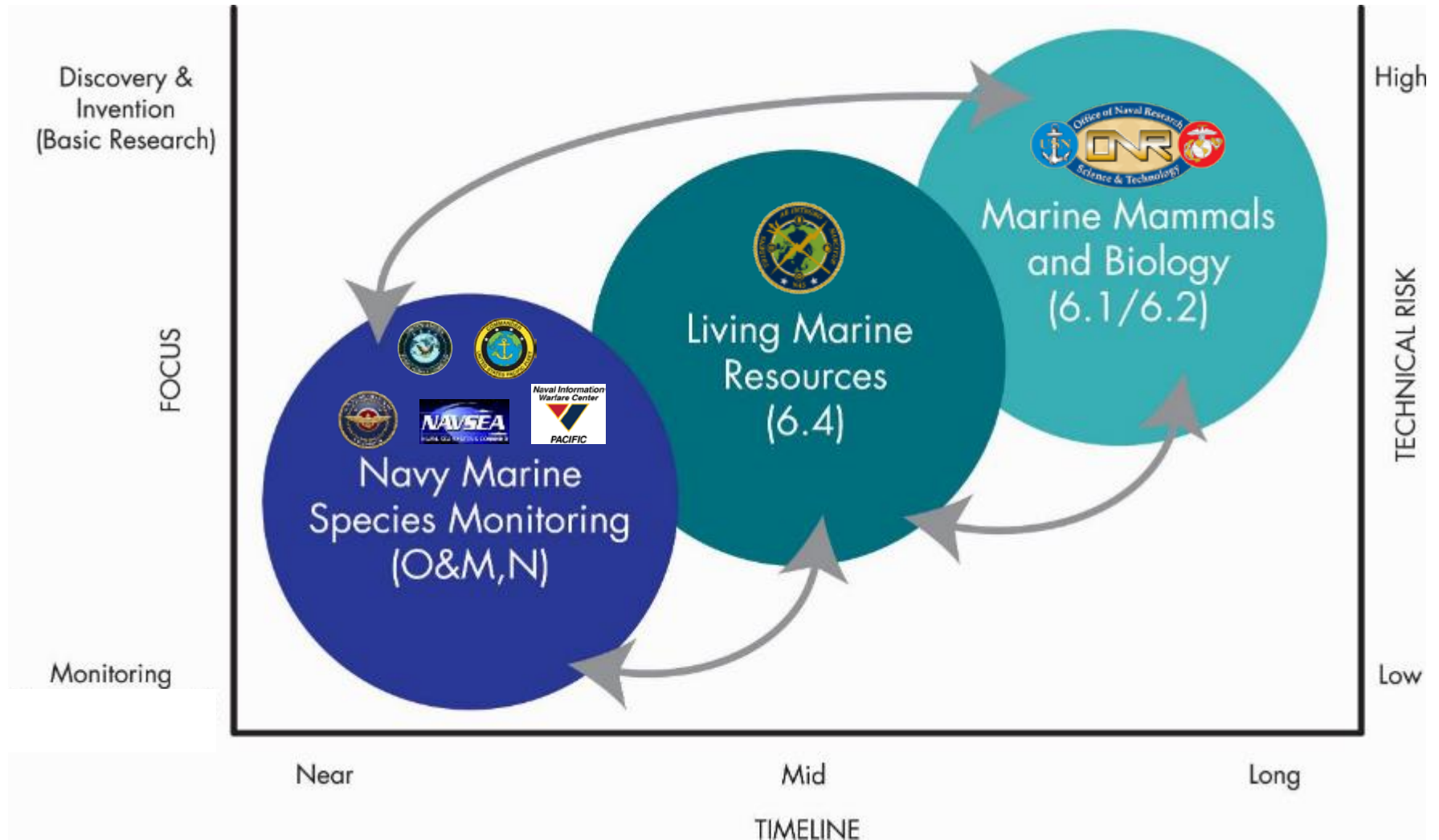
WHAT IS LMR'S MISSION?

LMR is a 6.4 applied RDT&E program with a fundamental mission to support the Navy's ability to conduct uninterrupted training and testing, which preserve core Navy readiness capabilities. The LMR program meets its mission and responsibilities by:

- Improving the best available science regarding the potential impacts to marine species from Navy activities, available for use in at-sea environmental compliance documentation
- Demonstrating and validating basic research projects that are ready for applied research investment,
- Broadening the use of or improving the technology and methods available to the U.S. Navy Marine Species Monitoring program.

Research funded by the LMR program is needed to support the Navy's at-sea environmental compliance and permitting processes.

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1. Data to Support Risk Threshold Criteria

Warfighter focus: Validate impact assessments and mitigation requirements. The goal of this investment area is to improve the Navy's estimates of how many animals are potentially impacted by acoustic and explosive sources in order to validate mitigation requirements associated with environmental permits. This is accomplished by obtaining and analyzing data pertaining to how well animals can hear, how and when animals may be exposed to acoustic and explosive sources, and how animals respond or are affected when exposed.

2. Data Processing and Analysis Tools

Warfighter focus: Science solutions to meet permit requirements. The goal of this investment area is to make required monitoring program data processing and analysis more efficient and cost effective. This is accomplished by developing tools to automate the processing of data and improve statistical methods.

3. Monitoring Technology Demonstrations

Warfighter focus: Enable effective compliance with monitoring program requirement. The goal of this investment area is to make field data collection requirements under the Navy's marine species monitoring program more efficient and cost effective. This is accomplished by demonstrating and validating new monitoring technologies and platforms (such as sea gliders, wave gliders, and REMUS 600s).

4. Standards and Metrics

Warfighter focus: Enable effective compliance with limited data. The goal of this investment area is to create standards and metrics for collection and analysis of data to support aggregation of limited data that is often collected from a variety of sources. This is accomplished through projects that set data standards for collection of data and establish metrics for reporting performance of data analysis methods.

5. Emergent Topics

This investment area is reserved for other priority topics needed by the Navy that may come up and do not fall within the preceding topics.

THE LMR PROCESS

- **Annual Process**
  - Collect/prioritize needs from Navy stakeholders
  - Solicit/review project proposals through a competitive process
  - Initiate new projects/manage ongoing projects
  - Review project progress (monthly financial tracking, quarterly status updates and annual In-progress Review)
  - Transition/implement results

- **LMR Advisory Committee (LMRAC)**
  - Key Navy stakeholders that are involved throughout the process
  - 14 members representing 10 different Navy organizations

OUR PROCESS STARTS WITH NAVY NEEDS

- Our science is driven by Navy needs

- Only Navy personnel can submit a science need (or need must be sponsored by Navy person)

- Science need topics are accepted through our management website year-round

- There is a form that must be filled out on the website
  - Description of science need
  - Ramifications if need is not met (mission impacts, etc.)
  - Time frame for a solution before ramifications occur

- Key need requirements must be met
  - Must be applied research
  - Must be applicable to the at-sea environmental compliance process
  - Must be applicable to the LMR investment areas

THE NEEDS ARE EVALUATED

- Once per year we have a deadline (June) for what science needs will go through our evaluation process to be considered for next FY funding

- The LMRAC ranks the approved needs in priority order
  - Highest priority species or regions
  - Benefit to the largest number of Navy organizations
  - Most direct impact to the environmental compliance process
  - Shortest timeline for need to be addressed
  - Opportunities to leverage co-funding

- Once list of needs is prioritized, then we determine how many needs we can solicit project proposals for based on our available budget
  - Valid needs that do not make the cut due to budget constraints are then put on hold for reconsideration the following year

FINDING THE RIGHT TEAM TO MEET THE NEEDS

- Approved need topics are posted on the LMR website for <u>pre-proposal solicitation</u>
  - Federal government applicants submit pre-proposals directly to the LMR program via email
  - Non-federal applicants submit pre-proposals in response to a published Broad Agency Announcement (BAA) solicitation

- The pre-proposal solicitation is announced through a variety of ways
  - BAA posted under contract opportunities on beta.sam.gov
  - Email notification to the LMR distribution list
  - Announcement posted on applicable listservs dependent on need topic (e.g., MARMAM, CTURTLE, Bioacoustics-L)

- We are always looking to improve announcement opportunities and encourage folks to share the announcement far and wide!

PRE-PROPOSALS ARE EVALUATED

- Each LMRAC member evaluates pre-proposals based on the following criteria
  - Scientific/technical merits
  - Offeror's (academic institution, organization, firm, etc.) experience
  - Principal Investigator's experience
  - Cost
  - Expected benefits Intended product(s)

- Based on the evaluation, each LMRAC members provides an overall disposition
  - Request a full proposal, or
  - Do not request a full proposal

- The LMRAC meets and reviews <u>all</u> evaluations and prioritizes which pre-proposals best address the needs and warrant full proposals.

FULL PROPOSALS ARE EVALUATED

- LMR identifies individuals to serve as part of a Technical Review Committee (TRC)
  - Individuals are knowledgeable on the technical aspects of each need topic
  - TRC provides comments on the technical aspects of the full proposals

- Each LMRAC member evaluates full proposals based on the same criteria used for the pre-proposals

- Based on the evaluation, each LMRAC member provides an overall disposition
  - Recommend funding the effort
  - Do not recommend funding the effort
  - Put on hold

- The LMRAC meets and reviews all evaluations (both LMRAC and TRC) and prioritizes which projects they will fund, put on hold or not fund. Decisions to fund/put on hold depend on available budget.

- Types of outputs/products
  - Hearing, temporary threshold shift and behavioral response data (e.g. analyzed data and peer-reviewed publications)
  - Data analysis and Processing Tools (e.g. density modeling techniques and acoustic signal detectors/classifiers)
  - Monitoring Technology (e.g. animal tags and PAM devices)
  - Data standards and metrics (e.g. ANSI standards and data analysis performance metrics)

- Ways we evaluate outputs/products—did the output address the need?
  - Navy stakeholder feedback from LMRAC during In-progress Reviews
  - User feedback (both Navy and non-Navy) from feedback forms or workshops (e.g. DTAGs, Tethys)

- How are the outputs/products used?
  - Findings incorporated directly into at-sea environmental compliance documentation (e.g. EISs, LOAs, BAs)
  - Data incorporated into the Navy's Acoustic Effects Model (NAEMO) (e.g. Level A/Level B takes under MMPA)
  - Tools/technology made available to the Navy's marine species monitoring program (e.g. detectors/classifiers, statistical tools, tags, acoustic monitoring devices)

- How do we communicate outputs?
  - Participate in Navy working groups to ensure stakeholder awareness
  - Encourage PIs present work at conferences and meetings
  - Maintain publication spreadsheet (updated quarterly)
  - Publish quarterly newsletters
  - Publish annual report

PROGRAM IMPACT?

- What do we expect of the LMR program?
  - Address specific end-user needs
  - Improve best available science for use within the at-sea environmental compliance process
  - Improve Return On Investment (ROI)
    - Increase the accuracy/reliability and cost effectiveness of our outputs
    - Leverage funding opportunities
  - Collaborate with other agencies and international researchers to increase buy-in and use of outputs by a larger community

- How do we evaluate the program's impact?
  - Brief our sponsor each year to evaluate at the overall program level
  - Conduct in-progress review to evaluate at project level
  - Obtain informal feedback from stakeholders and sponsor
  - Track continued impact beyond individual studies through publication spreadsheet

- Use the Broad Agency Announcement process
  - Open and fair competition

- Work closely with LMRAC throughout our process
  - Allows us to reach a variety of Navy stakeholders
  - Essential to ensuring that projects meet the needs of the Navy mission

- Involve appropriate TRC members during full proposal review
  - Insight from technical experts informs decision-making process
  - Identifies issues that can be addressed in technical approach

- Conduct annual In-Progress Review
  - Each year all the project principal investigators present progress to date
  - The LMRAC (stakeholders) provide feedback regarding whether the project is on track to meet the need. Allows for course correction or addition of effort if necessary
  - Other PIs in the room are encouraged to raise technical questions that may come up during presentations and share information

- Cooperation/Co-funding
  - Increases our return on investment
  - Increases buy in from larger community on science being conducted
  - Done informally by sharing need topics and inviting collaboration

  - Within U.S. Navy
    - Office of Naval Research
    - Marine Species Monitoring Program
    - Naval Post-graduate School
    - Small Business Innovative Research (SBIR) program

  - Outside Navy
    - Other government agencies (e.g. NMFS, BOEM, MMC)
    - International Navies (Norway, UK, France and Netherlands)

SOST = Subcommittee on Ocean Science and Technology
ITF-ONML = Interagency Task Force on Ocean Noise and Marine Life
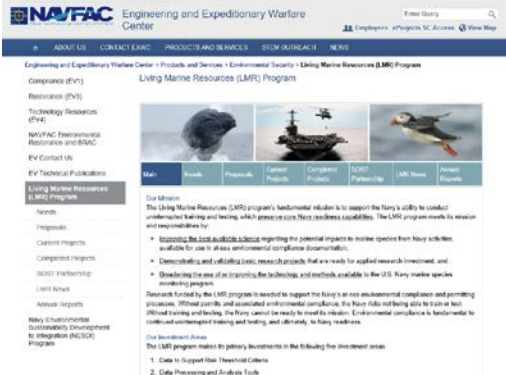**Agencies** = Navy (OPNAV N45/LMR/ONR), BOEM, NMFS, MMC

Research Need: This task force acknowledged that in order to better understand and assess impacts of noise on large whales, we need data on large whale hearing.
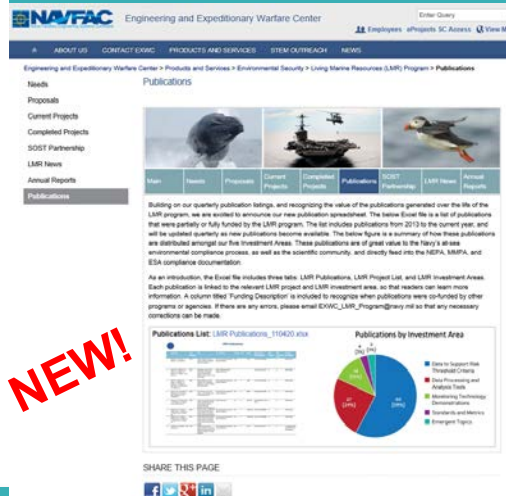
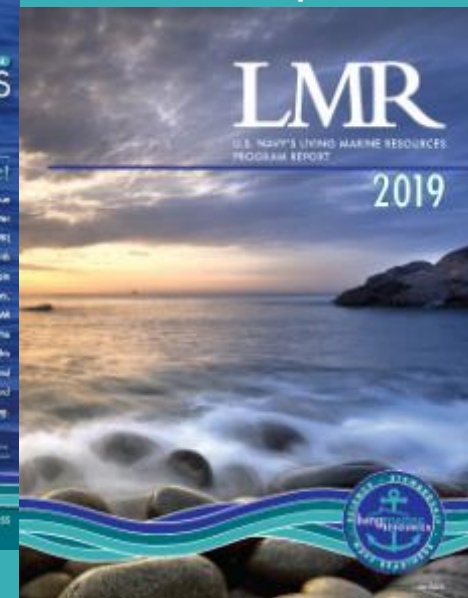**Projects:** As a group, we funded three projects that address the need in a variety of ways.

PROGRAM OUTREACH

living marine RESOURCES
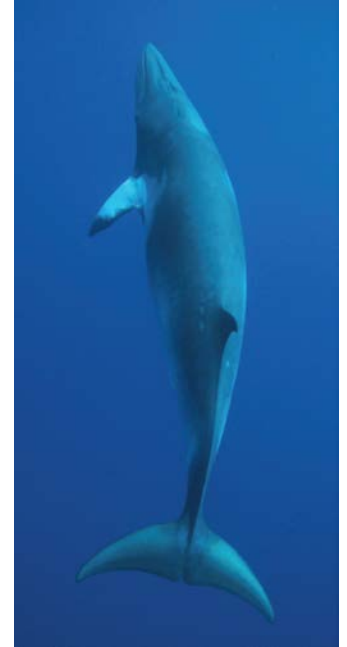
Website

Project Factsheets

Electronic only

Newsletter

Electronic only

Annual Report

Publications

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