ISSUE 39

LMR news

NAVY READINESS • STEWARDSHIP • SCIENCE

Welcome!

Welcome to the latest issue of *LMR News*—the newsletter from the Living Marine Resources (LMR) program. Our goal is to provide you with the latest information about program operations, significant accomplishments and future focus areas for the LMR program. We hope you will find the content useful and that it provides insights into our efforts to support the at-sea compliance process and enable the Navy to conduct essential training and testing activities.

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NAVFAC Naval Facilities Engineering Systems Command
EXWC Engineering & Expeditionary Warfare Center

WHO WE ARE

The LMR program's fundamental mission is to support the Navy's ability to conduct uninterrupted training and testing, which preserves core Navy readiness capabilities. LMR is an applied research program, sponsored by Chief of Naval Operations for Fleet Readiness and Logistics (N4) and managed by the Naval Facilities Engineering and Expeditionary Warfare Center (NAVFAC EXWC) in Port Hueneme, CA. LMR funds Navy-driven research needs to support at-sea compliance and permitting.

PROGRAM OFFICE INSIGHTS

We are off to a good start implementing our Fiscal Year (FY)26 program plan. However, we are faced with budget reductions this year that are hindering our ability to take on new projects, beyond what was planned in FY25. Despite the challenges, we have been making great progress within the program.

See the Recent Publications list for citations of three peer-reviewed publications that have gone to press.

This issue's Project Spotlight provides an overview of Project 68—Thermal Imaging for Vessel Strike Mitigation on Autonomous Vessels.

See the Project Updates section for interesting news from three LMR projects.

We have four new projects to announce:

MC Seaman Joseph M. Paolucci

Investment Area	Project Number & Title	Principal Investigator(s)
Data to Support Risk Threshold Criteria	Project 79—Investigation of Temporary Threshold Shifts in Sea Turtles to Support Navy Compliance Permits	Aran Mooney Wendy Piniak Craig Harms
Data to Support Risk Threshold Criteria	Project 81—Continuously Active Sonar—Responses via Ecologically-based Documentation of Perturbation (CAS-REP)	Greg Shorr Erin Falcone
Emergent Topics	Project 78—Advancing the Navy Acoustic Effects Model (NAEMO)	Samantha Simmons Magda Chudzińska
Emergent Topics	Project 80—Measurement and Quantification of Acoustic Energy Radiated into the Ocean from a Near-surface Airborne Explosion	David Dall'Osto Peter H. Dahl

IN-PROGRESS REVIEW

The 2025 In-progress Review (IPR) has now been rescheduled for the week of March 9, 2026. It will be held in Ventura, California. An updated notice was sent to project principal investigators and members of the LMR committee. Additional details will be forthcoming.

RECENT PUBLICATIONS

This section includes recent publications and reports resulting from projects that are or have been partially or fully funded by the LMR program. The information provided in the publications is of significant value to the Navy's at-sea compliance process and directly feeds into the National Environmental Policy Act, Marine Mammal Protection Act and Endangered Species Act compliance documentation.


MC3 Gladjimi Balisage

Dunlop, R.A., Noad, M.J. and Houser, D.S. (2025). A predicted humpback whale hearing curve based on modified behavioral observation audiometry data. *Current Biology*, 36:1-6. DOI 10.1016/j.cub.2025.11.068.

Salas, A.K., Sims, M.A., Harms, C.A., Piniak, W.E.D. and Mooney, T.A. (2025). Temporary threshold shifts in the Eastern painted turtle (*Chrysemys picta picta*) in response to narrowband underwater noise exposures. *The Journal of the Acoustical Society of America*, 158(3):2508-2522. DOI 10.1121/10.0039241.

Hilmo, R., Harris, D. and Wilcock, W.S.D. (2025). Applying distance sampling to estimate densities of fin whale calls recorded by ocean bottom seismometers in the Marianas region. *Endangered Species Research*, 58:159-174. DOI 10.3354/esr01439.

As a reminder, the full and updated publication spreadsheet, which includes these entries, is available on our website.

LMR PROJECT SPOTLIGHT

Wondering about some of the LMR-supported projects? This section provides a brief overview of a selected project funded by the LMR program.

For this issue we present a project from Investment Area 3: Monitoring Technology Demonstrations.

This project is an example of how the LMR program directly supports Navy warfighters by reducing risk and enabling military readiness. The Navy is required to assess the impacts of military readiness activities on protected marine species and reduce impacts where practicable.

Project 68—Thermal Imaging for Vessel Strike Mitigation on Autonomous Vessels

This project is focused on adapting and testing an existing and proven thermal imaging-based whale detection system from the Woods Hole Oceanographic Institution (WHOI) to reduce the potential for unmanned Navy surface vessels to strike whales during navigation. The team, led by Daniel Zitterbart at WHOI, is taking a four-phase approach to address key components of a detection system: mission-specific performance requirements, image stabilization, detection and classification algorithms, false alert rate and ultimate system effectiveness. Phase I of this is largely complete and initial field tests on two USV platforms initiated.

After gathering all relevant data (e.g. speeds, maneuverability, height above water) on the range of potential unmanned surface vessels (USV), the team analyzed system hardware and software requirements. The team determined that the existing WHOI system (WhaleSpotter) meets the Navy's performance requirements. After testing data are collected, the system's artificial intelligence (AI) algorithm can be modified to determine acceptable false positive rates.

The Navy's USV platform design does include several detection components for autonomous operation, including an infrared (IR) camera. The project team worked with the program office on plans to evaluate the effectiveness of existing components relative to the WhaleSpotter system. However, with the USV platforms still in development and testing, there is no currently identified technology to test against. Given the known capabilities of the WhaleSpotter to meet Navy requirements, it was decided to proceed with performance testing of the existing WHOI system on multiple relevant Navy platforms.

The team updated the detection software and data access protocol to support data collection on Navy vessels. The system was successfully installed on two USVs in October and November 2025. For these initial tests the WhaleSpotter system is running completely independent of the vessel command and control, referred to as passive mode. The system is capturing and recording data on IR detections and the data are being analyzed after trial runs. The results will be used to determine false positive rates and identify any potential AI algorithm modifications required.

WhaleDetect 2025.
Daniel P. Zitterbart

An initial performance analysis was conducted for data collected through January, while both systems continue to collect additional data. Preliminary results show that the WhaleSpotter system is performing well, using delphinid detections as a test, and have detected at least one whale blow. The team will continue to collect data for as long as possible to fully evaluate the system's performance.

During the next phase the team will work with the USV teams to define the next steps to be accomplished before integrating the system with the vessel command and control and to detail the decision-making process for how the vessel will respond when a detection occurs.

PROJECT STATUS UPDATES

Project 64—3S4–Effect of Continuous Active Sonar and Longer Duration Sonar Exposures

The 3S4 team completed its third and final data collection field effort at the end of October 2025.


George Sato, 3S-project

During this 18-day undertaking, the team deployed two splash tags and 17 mixed-DTAGs to killer whales and seven mixed-DTAGs to humpback whales. As planned, they conducted four controlled exposure experiments (CEE): two with continuous active sonar (CAS) and two with traditional pulsed active sonar (PAS). These CEEs included 10 animals (seven killer whales and three humpback whales). The CEEs were conducted during both daytime and nighttime, all using the Socrates low-frequency active sonar source. While all CEEs were long duration five of the 10 tags detached before the start of the second approach. Thus, while data from all 10 tags are useful for CAS vs PAS comparison, only five will provide data to long-duration analyses. Overall, the team has now collected a rich dataset for analyzing the project's CAS vs PAS questions.

The team will now focus on data analyses and reporting.

Project 76—Evaluating Behavioral Responses of Pinnipeds to Mid-frequency Sonar to Support Navy Compliance Permits

Dan Costa and team from UC Santa Cruz completed a second pilot field effort during August and September 2025. They continued testing the deployment and recovery procedures for the tagging portion of the study. Two D-tags were deployed on female California sea lions on San Nicholas Island. Unfortunately, neither was recovered. Additionally, the team deployed two Lotek tags and 12 Wildlife computer tags on California sea lions at Año Nuevo State Park in California to continue refining tag placement, programming and tracking. All of this work will prepare the team for the project's first behavioral response experiment in 2026.

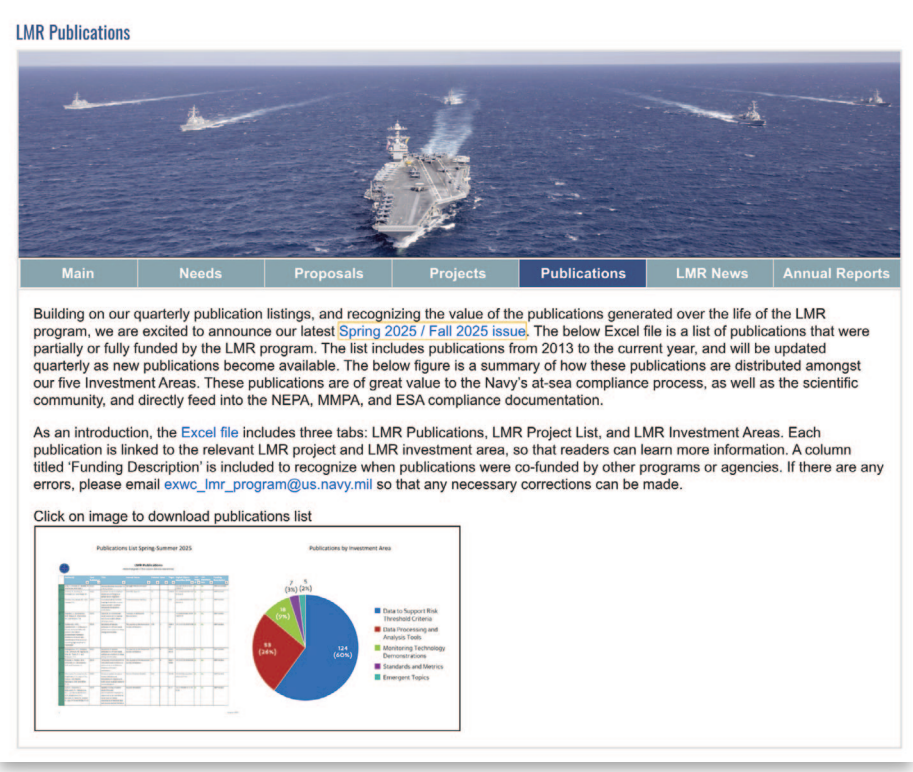

California sea lions.

Project 78—NAEMO Advancements

The project team met with the Navy Acoustics Effects Modeling (NAEMO) team at the Naval Undersea Warfare Center Newport in September 2025 to prioritize task progress and define how to address each task most efficiently. This new project is off to a strong start, with the team currently designing, building and testing the simulator that will be used to model how relevant inputs to the model affect results. We look forward to continued status updates on where the project will go and recommendations on what improvements will be most important to make.

OUR WEBSITE

At our website—exwc.navfac.navy.mil/lmr—you can find links to all our informational materials, including fact sheets, an updated publication spreadsheet and our annual reports.



exwc.navfac.navy.mil/lmr

PROGRAM SCHEDULE

A note on our program schedule: The LMR program normally issues a proposal solicitation in the Fall of each year. However, due to budget cuts, we will not be soliciting proposals for specific need topics in 2026. We will continue to collect, evaluate and prioritize need topics to keep a record of ongoing needs.

No.	What	When
1.	Quarterly Status Reports (QSR)	
a.	Submit spring QSR	April 30, 2026 (effort from January–March)
b.	Submit summer QSR	July 31, 2026 (effort from April–June)
c.	Submit fall QSR	October 30, 2026 (effort from July–September)
d.	Submit winter QSR	January 29, 2027 (effort from October-December)
2.	In-progress Review	Week of March 9, 2026

LMR-RELATED PHOTOS—KEEP THEM COMING

We encourage all LMR participants to share photos of marine mammals, survey efforts, personnel who were involved and the equipment used. We'd like to include some of those images in future issues of *LMR News* and give you credit—right there with your photo. Please email your high-resolution photos, accompanied by captions, photo credits and permit numbers (as applicable), to EXWC_LMR_program@us.navy.mil.

Humpback whale.
Mandy Shoemaker

HELP WITH OUR MAILING LIST

If you want to subscribe to, or unsubscribe from, *LMR News*, please send your email address to Michelle Alcorn at michelle.c.alcorn.civ@us.navy.mil. Please note that this is a new email for mailing list updates.

CONTACT THE LMR PROGRAM

For more information about the LMR program and its operations, please contact Anu Kumar, Program Manager, at EXWC_LMR_program@us.navy.mil and 805-982-4853.

IN THE NEXT ISSUE OF *LMR NEWS*

Our next issue will provide available information on new projects, our In-progress Review, project updates and publications.

LMR Investment Areas

The LMR program focuses its research funding in five investment areas:

1. DATA TO SUPPORT RISK THRESHOLD CRITERIA

Collect required data to support the Navy's acoustic and explosive impact assessments and validate mitigation requirements, information critical to Navy at-sea compliance and permitting.

2. DATA ANALYSIS AND PROCESSING TOOLS

Make required monitoring program data processing and analysis more efficient and cost-effective. This includes developing tools to automate the processing of large amounts of data to reduce costs, increase efficiency and provide consistency. These tools support Navy at-sea compliance and permitting.

3. MONITORING TECHNOLOGY DEMONSTRATIONS

Continue to develop and demonstrate technologies that provide critical field data collection capabilities and methods. The technologies enable efficient and cost-effective implementation of the Navy's Marine Species Monitoring program.

4. STANDARDS AND METRICS

Work to establish interagency and scientific community standards and metrics for data collection, management and analysis. This promotes data comparability and enables data aggregation from different data sets. This increases the utility of limited data and provides a cost-effective means of incorporating results into Navy at-sea compliance and permitting.

5. EMERGENT TOPICS

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