

Maryland Sea Grant College

Request for Proposals

Funding Period February 1, 2020–January 31, 2022



REQUEST FOR PROPOSALS

MARYLAND SEA GRANT COLLEGE PROGRAM

Two-Year Funding Period: February 1, 2020 to January 31, 2022

Pre-proposals due January 30, 2019 at 5:00 PM Full Proposals due mid-June 2019 (Final date TBD)



Program Synopsis

The Maryland Sea Grant College (MDSG) seeks pre-proposals for its next funding cycle, February 1, 2020 to January 31, 2022. Research projects within Maryland's coasts and watersheds focused in three areas will be considered: 1) healthy coastal ecosystems; 2) sustainable fisheries and aquaculture; and 3) resilient communities and economies. Both small-scale pilot studies and large interdisciplinary research projects will be considered. Principal investigators should focus on outcomes that can be achieved in a 24-month period. Maryland Sea Grant is particularly interested in proposals that have a clear **connection to the needs of management and policy** and include a clear **outreach plan** for disseminating that information to targeted audiences. We anticipate funding 7–8 projects at about \$70,000 per year per grant. 50% nonfederal cost match is required for each proposal (\$1 match for every \$2 of Sea Grant funding). Maryland Sea Grant support is offered on an open, competitive basis. The full solicitation with instructions specific to the request for proposals (RFP) will be maintained at https://www.mdsg.umd.edu/funding-opportunities.

Proposal Preparation and Submission Instructions

- Webinar to discuss expectations for RFP and outreach: December 19, 2018 at 2:00 PM EST
- Preliminary Proposal (Pre-proposal) Submission: Required, due January 30, 2019 at 5:00 PM EST via eSeaGrant
- Full Proposal Submission: Required, mid-June 2019 (Final date TBD)
- Application Instructions: This solicitation contains specific instructions on the format and content that must be adhered to in each proposal. Failure to follow the instructions outlined in the text below is grounds for rejection without review.

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Important Notes for Principal Investigators

- Funding of all proposals is contingent upon Maryland Sea Grant's allocation from NOAA in the FY2020 and FY2021 federal budgets. Modification in the number of and funding for individual proposals may be made based upon the final program budget.
- Principal investigators must provide a strong rationale for how their proposed research will affect policy and/or management decisions and how that information will be communicated outside of academia. A webinar to discuss expectations for an outreach component will be held on December 19, 2018 at 2 PM.
- A "Data Management and Sharing Plan" will be required in the full proposal (but not the pre-proposal). This
 will be an important component of the proposal evaluation and selection process. Pls should consider data
 stewardship funding needs as they develop their proposals. For more information, visit
 www.mdsg.umd.edu/data-management-and-sharing.
- Pre-proposals and full proposals must be submitted to Maryland Sea Grant through eSeaGrant. Please consult the guidance and site well in advance of the deadlines.

I. INTRODUCTION

Maryland Sea Grant's mission is to conduct a locally responsive and nationally eminent program that supports research to address key questions important to environmental management; supports and enriches marine education for students of all ages; and supports outreach efforts that clarify for key audiences the applications of research findings to science-based management of our watersheds and coastal ecosystems.

Sound policy decisions for Maryland's coasts and watersheds demand comprehensive scientific information and novel research to address a variety of challenges facing our coastal communities and ecosystems. For example, effective coastal restoration and adaptive management require a broad understanding of many complex issues including coastal ecosystem function, watershed processes, social consequences, and economic opportunities in coastal communities (rural, suburban, or urban). Resilience to climate change and natural hazards, ecosystem-based management, sustainable aquaculture and seafood safety, pollutant abatement, and multiple uses of coastal resources and spaces continue to challenge coastal communities. Scientific and policy discussions concerning these issues emphasize the need for strong research input to help attain restored and sustainable Maryland coastal ecosystems. However, success also depends on linking research efforts with resource uses, economics, and human communities—from rural to suburban and urban areas.

Through the use of laboratory studies, field investigations, models, and/or socioeconomic studies, Maryland Sea Grant seeks research proposals that provide scientific and socioeconomic information that can inform policy decisions for fisheries management and sustainable aquaculture, climate change adaptation, coastal community resilience, and ecosystem restoration in coastal systems in Maryland. Projects must demonstrate a connection between the proposed research and the focus areas and strategies (one or more) highlighted in this RFP. A proposal must demonstrate integration among its scientific approaches, research outcomes, and outreach plan. We particularly encourage proposals that are novel or exploratory, have a clear connection to management, policy and stakeholders, and link social and natural sciences research.

Through this competition, additional funds from the National Sea Grant Office are available to Maryland Sea Grant for aquaculture research projects that have relevance to Maryland and the Chesapeake Bay. Proposals focused on this topic are encouraged. This funding is in addition to funding that will be made available through the National Sea Grant Office Aquaculture National Strategic Initiative federal funding opportunity.

Projects must demonstrate a direct connection with users beyond academia, such as resource managers, citizen scientists, communities, and/or informal and formal learners. To that end, proposals must include a well-defined outreach plan for engaging and disseminating information to targeted audiences. **Pls are encouraged to engage and**

collaborate with extension specialists, end users, and other outreach specialists to develop a comprehensive outreach plan in the full proposal.

II. MARYLAND STRATEGIC RESEARCH PRIORITIES

Maryland Sea Grant is soliciting research proposals in the three focus areas highlighted in our 2018-2021 Strategic Plan:

- Healthy Coastal Ecosystems
- Sustainable Fisheries and Aquaculture
- Resilient Communities and Economies

Focus Area: Healthy Coastal Ecosystems

Promoting the sustainability of the Chesapeake and coastal bays and their watersheds requires science-based decisions about how and when conservation and restoration efforts can be most effective. To address conservation, restoration, and resilience of ecosystems, Maryland Sea Grant seeks proposals that investigate key ecosystem processes in our watersheds and coastal and marine waters and assess how they respond to changing conditions. Research proposals should consider appropriate temporal and spatial changes in ecological systems as they respond to changing conditions. This could include wetland function, changes at the land-water margin, water quality (e.g., nutrients, sediments, acidification), species composition, coastal / marine food webs, or land-use. Maryland Sea Grant encourages integrated research and outreach projects that address the following topics:

- Species responses (e.g. keystone, invasive, harmful algae) to environmental conditions
- How changing coastal, estuarine, and watershed conditions (e.g., temperature, salinity, precipitation, wind, waves, nutrients, sediments, contaminants, heat, flooding) affect estuarine and coastal ecosystem function, resilience, and food web dynamics on multiple spatial and temporal scales
- Ecosystem responses to the effects of climate change, energy development, water quality, restoration and management actions, and other emerging issues though social and natural science research
- How restoration efforts affect or are affected by changes in watershed, estuarine, and coastal conditions
- Restoration and resiliency practices and their effectiveness to prevent and/or reduce loading of nutrients, sediments, and other pollutants within the watershed
- Social, economic, and environmental research; synthesis; and statistical analysis
 to understand ecosystem change over time and to advance ecosystem-based
 management

Focus Area: Sustainable Fisheries and Aquaculture

An in-depth research foundation is critical for 1) supporting ecosystem-based fisheries management, an approach we believe is essential for restoring and conserving sustainable fisheries and 2) achieving profitable aquaculture in Maryland. Success will require work on many fronts, including investigations of species' population trends, harvest targets, the effect of harvests on ecosystems, and sustainable aquaculture. On the social sciences side, developing a better understanding of the needs of multiple audiences with differing views and priorities regarding fishing sustainability, aquaculture, multiple uses, and regulation will be important for building support for effective fisheries and aquaculture management strategies. MDSG is interested in research, particularly small-scale projects, that yield focused products (e.g. models, tools, reference points) to inform management decisions and advance integrative approaches regarding important Chesapeake and coastal bay fish and shellfish species. Research should recognize the important link between the social and natural sciences in achieving effective natural resource management. We invite proposals that address one or more of the following:

- Sustainable recreational and commercial fisheries and their effects on ecosystem function and restoration
- Natural and social science research on sustainable fisheries targets, economics, and ecosystem-based fisheries management
- Ecosystem issues that are important for individual fisheries species and critical interactions between species with emphasis on projects that can lead to development of new tools for use by management
- Models to improve understanding of Chesapeake and coastal bays fishery scenarios
- Sustainable aquaculture within Maryland, the Chesapeake Bay, and the coastal bays, including such research topics as multi-user conflicts, environmental impacts of and influences on aquaculture, optimization of aquaculture systems

Focus Area: Resilient Communities and Economies

The emerging need to adapt to the effects of climate change and meet new Total Maximum Daily Load (TMDL) requirements to limit nutrient and sediment pollution presents unprecedented challenges for communities and local governments throughout the Chesapeake and coastal bays and their watersheds. Additionally, addressing energy, food, and water needs under changing climate conditions is likely to require comprehensive planning and adaptation across the region. Increased precipitation, nuisance flooding, and accelerating rates of sea-level rise—all anticipated consequences of climate change—require well-informed communities who understand these issues and are engaged in strategic decision-making to strengthen their communities. New energy technologies and efforts to reduce greenhouse gas emissions are likely to touch all sectors of the state. It is imperative that Maryland Sea Grant work collaboratively with our constituents to improve understanding of the socio-

environmental relationships necessary to reach state and national goals in stormwater management and climate adaptation. In addition, we need to understand the societal constraints that influence policy directions and community engagement and action. Further, we continue our commitment to supporting research and outreach to both urban and rural communities who experience a paucity of resources and engagement on environmental issues.

Pls are encouraged to consider multi-disciplinary natural and social science research that focuses on understanding critical decision points in community and land use planning that affect coastal and watershed ecosystem resilience and consider the socioeconomic consequences of how communities may respond to climate change (e.g., restoration and adaptation strategies). Research proposals should offer clear, well-designed plans to engage and transfer findings to communities, managers, planners, and industry. We invite proposals that address one or more of the following:

- Technologies and research-based strategies for sustainable and resilient communities, including such topics as stable shorelines, tourism, multi-user conflicts, working waterfronts, and natural hazards
- Socio-economic research to understand and help coastal communities become more resilient
- Tools and strategies to engage with communities and decision makers regarding the risks from climate change and other hazards
- Socioeconomic value and ecological consequences of water resources (e.g. water quality, water quantity) management options
- The effects of land use on ecosystems and communities
- Models that evaluate ecological, economic, and/or societal responses to meet TMDLs, Watershed Implementation Plans, and Best Management Practices

III. AWARD AND ELIGIBILITY INFORMATION

A. Award Information

The award period for research projects is February 1, 2020 to January 31, 2022. We anticipate supporting 7 to 8 projects at about \$70,000 per award per year, contingent on availability of funds. Maryland Sea Grant requires 50% non-federal cost match for each proposal (\$1 match for every \$2 of Sea Grant funding). Only non-federal funds may be committed as matching contribution. Full federally-negotiated indirect cost rates are allowable. Note that pre-proposal budget estimates are expected to be realistic; a substantial increase in the final budget request will be viewed negatively and will likely result in rejection or budget cuts.

Historically, **50 percent** of investigators submitting a pre-proposal have been encouraged to submit a full proposal (though all investigators are welcome to do so) and about **40 percent** of full proposals are funded. Successful full proposals are forwarded to the National Sea Grant Office (NSGO) for final funding approval. Inclusion

of a proposal in Maryland Sea Grant's proposal package to the NSGO does not guarantee final approval or funding.

Approximately **50 percent** of the funded projects may receive a Maryland Sea Grant Research Fellowship (MDSGRF) to support one student for two years. However, PIs are expected to meet their grant obligations fully regardless of whether or not they receive support for a fellowship.

B. Eligibility Information

Principal Investigators (PIs) must be affiliated with an academic institution or research laboratory in Maryland or the District of Columbia. Co-Principal Investigators (Co-PIs) on projects can be from institutions outside of Maryland or the District of Columbia. Single investigators and multiple investigator research teams from different institutions are encouraged to apply. Maryland Sea Grant extension personnel are welcome to serve as Co-PIs or senior personnel but are restricted from requesting salary support. Maryland Sea Grant encourages participation from the broad science and social science research community within Maryland and the District of Columbia and invites participation by investigators new to the Maryland Sea Grant RFP process.

IV. SCHEDULE AND SUBMISSION INSTRUCTIONS

A. Preliminary and Full Proposal Schedule

Request for Proposals issued	November 30, 2018
Pre-proposals due	January 30, 2019
Pre-proposals reviewed, Pls notified	Mid-April 2019
Guidelines for full proposals available	Mid-April 2019
Full proposals due	Mid-June 2019
Final proposal selection, Pls notified	Mid-September 2019
Omnibus proposal to NOAA	Mid-October 2019
Funding cycle	February 1, 2020 to January 31, 2022

B. Pre-proposal Submission Instructions

You must submit your pre-proposal online at https://eseagrant.mdsg.umd.edu. The deadline is January 30, 2019 at 5:00 PM EST. The system will shut down automatically at the deadline, locking out late submissions. Pre-proposals received after the deadline will not be accepted.

To submit a pre-proposal through our online system, you must do the following:

- Login to the proposal online submission system by following the link above. Fill out the registration information to create an account, if necessary.
- Click "Add Proposal" and enter a title to start a new submission.

- Complete the "Start Here", "Principal Investigator", and "Co-Principal Investigators" tabs.
- Upload the proposal narrative on the "Narrative Upload" form.
- Press the submit button on the "Submission Preview" tab.

Upon submission, PIs will receive an email confirmation and the system will label your proposal "submitted" on the "Submission Preview" tab. PIs are encouraged to keep a copy of the email confirmation for their records.

V. PRE-PROPOSAL PREPARATION INSTRUCTIONS

Pre-proposals should present a succinct but sufficiently detailed synopsis of the project in order to evaluate its relevance to the Maryland Sea Grant Strategic Plan, its technical feasibility, and the Pls' qualifications. Pre-proposals are not letters of intent and will be evaluated rigorously in a highly competitive process. Pre-proposals should include a description of the problem (question(s) to be addressed), rationale for the research, methodologies and tools to be used in the effort, and benefits likely to be derived from the anticipated results. Pls must follow the instructions regarding pre-proposal components as explained in this document or risk pre-proposal rejection.

A. Formatting for Uploaded Components

For general text, use 12-point or greater Arial font. Captions and labels may be smaller but should be legible. **Use single spacing,** left justified only, and one hard return between paragraphs. All margins should be 1 inch. The project narrative of the preproposal should be typed continuously (that is, do not start a new page for each new section). The *References* and *Outreach plan* should each start on new pages and are not included in the 3-page single-spaced limit required for the project narrative. The first page of the project narrative should be numbered 1, and numbering should continue throughout the narrative. Please save the completed pre-proposal as a PDF to upload to eSeaGrant.

B. Explanation of Pre-Proposal Components Submitted through eSeaGrant

eSEAGRANT TAB: START HERE

Provide your proposal title and any keywords. The dates of your project should be 2-1-2020 to 1-31-2022. On this tab, you can also add a delegate—someone who has access to your submission—by clicking on the "Actions" dropdown box. This person must already be registered for an eSeaGrant account.

eSEAGRANT TAB: PRINCIPAL INVESTIGATOR/CO-PRINCIPAL INVESTIGATORS

Complete the requested information for the principal investigator and each co-principal investigator in the appropriate eSeaGrant form. You may only have one PI, but you may have multiple Co-PIs. Upload a 2-page (maximum) curriculum vita for each of the PIs and Co-PIs. We request you use the National Science Foundation biographical sketch format. Explicit guidance can be found in NSF's grant proposal guide:

https://www.nsf.gov/pubs/policydocs/pappg19 1/pappg 2.jsp#iic2f. An example can be found at http://www.mdsg.umd.edu/proposal-forms-and-worksheets.

eSEAGRANT TAB: NARRATIVE UPLOAD

Enter the title of your proposal and then upload the proposal narrative file (PDF only).

Each pre-proposal narrative file must include the following components in this sequence:

- Cover sheet
- Project description (major headings), Limited to 3 pages, single-spaced:
 - Abstract
 - o Introduction / Background / Rationale
 - Objectives
 - General Approach and Methods
 - Anticipated Results and Outcomes
 - Facilities and Equipment
 - Personnel Description and Roles
 - Budget Estimate
- References
- Outreach plan, <u>Limited to 1 page</u>, <u>single-spaced</u>

Letters of support are not allowed at the pre-proposal stage, but are allowed at the full proposal stage.

COVER SHEET

Include the pre-proposal title and full contact information for the PIs/Co-PIs on the cover sheet. We do not require that pre-proposals be routed through campus' research administration or be signed, as no binding financial commitments are required. However, follow your home institution's guidance.

PROJECT DESCRIPTION

The main body of the pre-proposal (excluding references) is limited to **three pages of single-spaced text and graphics**. Write your pre-proposal using the headings in the sequence listed in this document and following the formatting instructions above.

Abstract: Briefly summarize the proposed project objectives, methodologies, and rationale clearly and concisely. Emphasize the importance, relevance, application, and value to Maryland Sea Grant constituents. Limit the abstract to 300 words.

Introduction / Background / Rationale: Indicate the specific problem addressed by the proposed effort and provide sufficient background information to allow a preliminary assessment of the relationship of the problem to the research questions posed in this RFP.

Objectives: State the objectives of the research effort as they would appear in a full proposal. Research hypotheses, if relevant, should be clearly stated.

General Approach and Methods: You need not explain methods in detail. However, readers should be able to make a preliminary determination of the appropriateness of the proposed approach, including statistical analyses, for achieving the stated objectives.

Anticipated Results and Outcomes: Briefly explain the anticipated results and potential implications of those results in relation to Maryland Sea Grant program objectives.

Facilities and Equipment: List any facilities or equipment currently available and/or necessary for conducting the project. Give a justification for any equipment requested.

Personnel Description and Roles: List names of PI(s), senior technical staff, outreach personnel, and students (if appropriate) and briefly outline their roles and interactions in the project.

Budget Estimate: This pre-proposal budget estimate is a non-binding statement of your total funding request. Please provide in this section of the pre-proposal only your estimate of the dollar amount of your total funding request with a statement acknowledging your understanding that a 50% non-federal match on the total funding request is required. Please remember that your total budget estimate should include any indirect costs required by your institution. Substantial (>10%) deviations from the pre-proposal budget estimate at the full proposal stage are discouraged without prior consultation with MDSG. Further, Maryland Sea Grant recognizes that this pre-proposal budget estimate is not a commitment on behalf of your institution. Please note here if you plan to participate in the separately funded

competition to add a Maryland Sea Grant Research Fellow to your project.

REFERENCES

List references on a separate page. Reference pages are not included in the three-page maximum for the project description.

OUTREACH PLAN

The outreach plan should explicitly describe how the proposed research emphasis(es) will **link to policy**, **management decisions**, **and/or behavior change** and how the results of the study will be **translated** for end-users outside of scientific peers. The section should include how PIs will connect or partner with users, specifics about the user(s)/partner(s), how their needs integrate with the research project, and how the partners will be engaged in the research. The description should explain how the PI intends to inform and advise interested parties outside of academia about how the research findings could help inform specific policy and management actions. Outreach efforts may also include working with K-12 education and informal learner partners

through specific lesson building and teacher training activities or community engagement. Potential tools or technologies that may arise from this research and be applied to audiences outside of academia should be noted. Pls are strongly encouraged to include end-users during the development of the pre-proposal and full proposal. A detailed discussion of project outreach is available at: http://www.mdsg.umd.edu/share-your-research. This section is limited to **one page**.

Investigators are strongly encouraged to contact the Maryland Sea Grant office to discuss potential outreach approach and audiences (including industry, policy-makers, the broad researcher community, and the public) and take part in our webinar to be held on December 19, 2018. **Discussions with Maryland Sea Grant Extension Program faculty or other outreach partners are encouraged in the early stages of preproposal development.** Extension faculty may contribute to projects or direct you to other appropriate partners. A list of Maryland Sea Grant Extension personnel can be found at: http://www.mdsg.umd.edu/our-office. A more detailed outreach plan (and outreach budget, if appropriate) is required for the full proposal.

eSEAGRANT TAB: SUBMISSION PREVIEW

Review the data and filenames of your submission. Click the "Submit" button in the upper right corner to submit your proposal package. You MUST click submit by the deadline or your proposal will not be considered, regardless of what you have already uploaded.

VI. FULL PROPOSAL PREPARATION GUIDANCE

Investigators interested in submitting a full proposal will have electronic access to *Guidelines for Preparing the Full Proposal*, which contains information on content, format, and necessary forms for full proposals. The guidelines will be available to download in mid-April at: http://www.mdsg.umd.edu/funding-opportunities.

Data and Publication Sharing Plan Required in the Full Proposal

In 2013, the federal government began requiring that data and publications from federally supported research be made accessible to the public. NOAA is requiring Sea Grant programs to have mechanisms in place to meet these data access requirements. As part of the full proposal, Pls will be required to include a "Data Management and Sharing Plan." This plan must demonstrate that data are being archived and made publicly available, typically within two years of creation and consistent with federal and university policies. A data management plan will not be required until the full proposal stage; at the pre-proposal stage, Pls should consider if funds are needed for this task and include this budget development. More details regarding data management obligations are available at: http://www.mdsg.umd.edu/data-management-and-sharing.

What is meant by "environmental data"?

Environmental data are recorded and derived observations and measurements of the physical, chemical, biological, geological, and geophysical properties and conditions of the oceans, atmosphere, space environment, sun, and solid earth, as well as correlative data, such as socio-economic data, related documentation, and metadata. Media, including voice recordings and photographs, may be included. Numerical model outputs are included in this definition, particularly if they are used to support the conclusion of a peer-reviewed publication. Data collected in a laboratory or other controlled environment, such as measurements of animals and chemical processes, are included in this definition.

National Environmental Policy Act (NEPA) Compliance

All proposals recommended for funding by Maryland Sea Grant must complete and submit a NEPA Environmental Compliance Questionnaire for review by NOAA as part of the acceptance process.

VII. PROPOSAL REVIEW PROCESS

A. Pre-proposal Review

Maryland Sea Grant will conduct an extensive review to determine those submissions best qualified to compete for inclusion in the 2020-2022 Maryland Sea Grant College Omnibus funding request to NOAA. After the review process is completed, Maryland Sea Grant will contact all PIs who have submitted pre-proposals. Those PIs whose pre-proposals review favorably will be encouraged to submit full proposals.

Pre-proposals will be evaluated based on the following criteria:

- Scientific and technical feasibility of the proposed study
- Relevance, as articulated in this RFP, as well as the goals and strategies of the Maryland Sea Grant Strategic Plan: 2018-2021
- Planning and potential for significant outreach activities during the project
- Feasibility of the project within the proposed budget and timeframe
- Investigators' expertise and publication record
- Use of collaborative or multidisciplinary teams where appropriate
- Leveraging of Sea Grant resources through coordination and collaboration with other programs and funding sources
- Appropriateness of Sea Grant support relative to support from other sources

Pre-proposals will be evaluated by:

- External electronic reviewers
- Maryland Sea Grant Extension faculty
- Maryland Sea Grant's Academic Advisory Committee (provides final consensus recommendations based on all evaluations)

B. Full Proposal Review

After full proposals are received, they will be sent out for external electronic review. In addition, an external review panel and an extension panel will be convened consisting of researchers and faculty with expertise in the disciplines represented by proposals under consideration. Based on the expert panel's review, external written reviews, and extension panel reviews, the expert panel will recommend a set of proposals for Maryland Sea Grant to consider for funding. The specific criteria for these reviews will be laid out in the full proposal guidelines.

Depending on funding constraints and reviewers' comments, Maryland Sea Grant may ask Pls to revise their proposed budgets and scope of work, for example, by considering modifications to a proposed study.

VIII. AWARD ADMINISTRATION INFORMATION

A. Notification of the Award

Notification of the award is made to the submitting organization by Maryland Sea Grant. Organizations whose proposals are declined will be advised as promptly as possible. Anonymous copies of reviews will be provided to the Principal Investigator.

B. Reporting Requirements

As part of all award agreements, Maryland Sea Grant and NOAA require mandatory annual financial and progress reports and a final report to evaluate the project. Grant money may be withheld pending completion of reports as outlined in the project terms and award conditions.

IX. CONTACTS AND ADDITIONAL INFORMATION

For further information about this RFP, please contact:

Maryland Sea Grant College, 4321 Hartwick Road Suite 300, College Park, MD 20740 (301) 405-7500

- Fredrika Moser, Director: moser@mdsg.umd.edu
- Mike Allen, Associate Director for Research and Administration: mallen@mdsg.umd.edu
- Olivia Isaacs, Graduate Assistant: mdsg.research@mdsg.umd.edu

A list of Maryland Sea Grant Extension agents and specialists can be found at the following website: http://www.mdsg.umd.edu/programs/about/staff.

The Maryland Sea Grant College is a partnership between the National Oceanic and Atmospheric Administration (NOAA) and the University System of Maryland. We are administered by the University of Maryland Center for Environmental Science. To learn more about Maryland Sea Grant's mission, previously funded research, or other funding opportunities, visit http://www.mdsg.umd.edu.