

U.S. Coastal Research Program

Request for Proposals

2021

February 18, 2021



The U.S. Coastal Research Program (USCRP: <https://uscoastalresearch.org>) is a collaboration of federal agencies, academics, and stakeholders that aims to connect scientific and engineering research to societally-relevant coastal challenges. By building a strong community of practice, the USCRP has fostered collaborative opportunities, enhanced available funding, and promoted science translation to users.

In 2021, the USCRP intends to provide up to \$3M for competitive academic proposals addressing the topics described below. Academic proposals should align with or support federal research priorities to address critical research needs within the coastal community and advance the state of knowledge of coastal science. These academic awards will also fund graduate students to help build expertise in coastal research and develop the next generation of leaders. Researchers at U.S. institutions of higher education are invited to respond to this RFP. The period of performance for the awards is up to 3 years.

Application Process

A Research Proposal, describing the science/engineering questions and planned work, should be submitted to the USCRP in response to this RFP. The format and content of the research proposal is described below. Direct all questions to USCRP Information Specialist Christina Alagna at malagna@usgs.gov. As questions are addressed, a FAQs document will be posted at: <https://uscoastalresearch.org/2021-awards-info>.

Research Proposal Deadline

The research proposals are due by March 19, 2021 at 11:59 PM (EST). The proposals should be submitted to USCRP online at: <https://uscoastalresearch.org/2021-awards-info>. Click on the Submit Proposal button.

Award Information

Total anticipated funding for all awards is up to \$3 million for FY2021 to support approximately 10 awards, inclusive of indirect costs. Applicants must be in good standing with previous USCRP awards to receive FY21 funds. The amount of the individual awards will be from \$100K to \$300K, inclusive of indirect costs. Do not submit a proposal that exceeds \$300K. The exact amount of funds for each award will be finalized in pre-award discussions/negotiations between the applicant and USCRP representatives. Eligible funding applicants are institutions of higher education.

Applicants may submit proposals with a period of performance of up to 3 years from the anticipated start date. For FY21 awards, the anticipated start date is January 1, 2022.

Approximate timetable for proposals and awards

2021 Timing	Task
March 19	Research Proposals due to USCRP
April	Proposals Reviewed
May	Proposals recommended or funding; Researchers notified
June	Recommended proposals submitted through the USACE BAA program
December	Awards made

Eligible Applicants

The PI should be a researcher in good standing at a U.S. institution of higher learning and in a role that includes educating and supervising graduate students. Supporting a graduate student who is developing research skills is a higher priority to the USCRP than a post-doctoral researcher who has already expertise in these areas. Encouraging STEM undergraduates into the coastal field is also important to the USCRP.

Academic collaborations are encouraged. Disbursements of funding should be handled by the lead university, who will receive the USCRP award, and detailed in the proposed budget including overhead for the collaborating universities. Collaborations with international academics are acceptable.

Research Topics

To inform the Call for 2021 Academic Research Proposals, USCRP hosted a virtual workshop series on Human and Ecosystem Health in Coastal Systems (<https://uscoastalresearch.org/upcoming-workshop>) on January 5-7 and 12-14, 2021. Participants from universities, NGOs, and state and federal agencies met to identify key challenges and high priority needs that can be addressed by research at the intersection of coastal physical processes and human and ecosystem health. Topics discussed include:

Identifying and Mitigating Coastal Pollutants

- a. Nutrients and Harmful Algal Blooms (NHAB)
- b. Fecal Pollution (FP)
- c. Microplastics (MP)

Resilient Coastal Ecosystems

- d. Coastal Fisheries (CF)
- e. Shellfisheries (SF)
- f. Natural and Nature-Based Features (NNBF)

Following the workshop, attendees were invited to participate in an online poll to collaboratively prioritize needs for future research investment in these areas and to help inform this call for proposals.

Prioritized Needs

Research proposals should address needs identified and prioritized in the workshop. Prioritized needs within each subtopic are detailed in the Appendix. Overall, needs related to observations and improved modeling ranked high for most subtopics.

Proposals should focus on coastal and estuarine physical processes related to pollution and resilient ecosystems, including terrestrial/estuarine/coastal inputs and exchanges; nearshore hydrodynamics; storm-related flooding and overwash; sediment dynamics; or sea level rise and longer-term processes.

Research Proposal Content

The focus of this RFP is fundamental or applied science that addresses connections between the above-listed research topics, the prioritized needs, and coastal and estuarine processes.

The proposal should describe the research plan, show how the work aligns with prioritized needs, specify the graduate student(s) role, and present a detailed budget. The proposals will be ranked on individual merit. There is no limitation on how many proposals a Principal Investigator (PI)/co-PI can submit. A PI can submit different proposals addressing one or more prioritized needs. Please avoid submitting blanket proposals to several needs or topic areas as they are unlikely to thoughtfully address the RFP requirements.

Research proposals, including references and budget, must be no more than six pages (single-spaced, 12-point font). Appendices should not be included. Proposals must be submitted electronically in a single pdf file. Only material that is submitted as a single pdf will be reviewed. Reviewers will not consider information provided in excess of the stated page limit. The total electronic file size of the proposal narrative and appendices combined should not exceed 4 megabytes in storage space. Files that are larger than 4MB may not be properly downloaded, uploaded, or received by USCRP or the reviewers. Files that cannot be opened or downloaded will not be reviewed. You will be notified of receipt of your proposal via email.

Do not name your proposal USCRPresearchProposal.pdf. Name the file as follows [LASTNAME_SUBTOPIC.pdf], for example Smith_CF.pdf.

The research proposal should include the following sections:

- 1. Research Proposal Overview**
 - a. PI Name, Title, Organization and Contact Information
 - b. Research Proposal Title
 - c. Research Topic and Prioritized Need Addressed (i.e., Coastal Pollutants, NHAB, Observations)
 - d. Proposed project performance period (start and end dates)
 - e. Funding request by year, as appropriate, and total funding
 - f. Geographic location (ie. state) where research will take place, if applicable
- 2. Goal and Objectives.** Statements describing the goal and objectives of the working hypothesis. If the proposal is for a multi-year project, goals and objectives should be specific for each year of the work plan presented. Recipients will be required to submit quarterly progress reports and an annual presentation in which progress against these goals and objectives will be reported.
- 3. Societal Relevance.** Provide sufficient background information for reviewers to independently assess the significance of the proposed project. Summarize the problem, gap or need to be addressed and

the status of ongoing efforts and coordination to address the identified needs or gaps. Summarize how the research aligns with prioritized needs. Describe benefits to federal stakeholders if applicable.

4. **Scientific and Technical Approach.** Explain the technical approach to be taken in the course of the research that will advance coastal science related to the topical area. If experimental, include a description of the scope of the testing program. If analytical, include key assumptions to be made, the scientific basis for the analysis, and the numerical procedures to be used. Describe expected outcomes and potential breakthroughs that should/may arise from this research. Provide a research timeline to ensure the scope of work can be completed in the stated period of performance.
5. **Deliverables.** Provide a brief description of and timeline for products, such as publications, tools, services, metadata, data sharing plan, communication of results to federal partners, etc. Acknowledge willingness to meet USCRP performance assessment and communication requirements, including annual presentation of research findings, quarterly progress reports, and a research highlight for program communications.
6. **Qualifications**
 - a. Brief biographical sketch. The amount of information provided about co-investigators, if applicable, should be relative to the amount of work they will contribute to the total effort.
 - b. Relevant past projects as they relate to the present effort
 - c. Describe the role of the student(s), explain the differences between the roles of the PI and the student, and outline opportunities for student research leadership. Include funding for the student in the detailed budget. Our intent is to fund graduate students.
 - d. Brief description of existing capabilities that will help you to successfully complete the project (e.g. equipment, laboratory facilities, field facilities, etc.).
7. **Partners.** If applicable, list partners and describe their expected role and responsibilities. Describe how the project implements strategies that align with USCRP and the partner(s) goals. Describe the approach to cost-sharing and leveraging available resources such as programs, partnerships, data, and tools across the government, industry and NGOs. Do not include letters of support. There are no restrictions on hiring subcontractors.
8. **Project Budget.** Provide a table of estimated costs with a narrative justification. Indirect costs should be included in your budget estimates. Overhead amounts are generally set by the university. There are no restrictions on USCRP funds supporting international travel for science meetings and/or collaborations. Do not submit a full university budget with signature pages. Identify the cost of separable elements of the proposed work and identify the elements of the project that could be revised or eliminated if sufficient funding is not available for all proposed activities.

Proposal Process

Applicants should submit their proposal to USCRP by March 19, 2021. Successful proposals will receive a letter of recommendation from the USCRP and then will be asked to submit through the USACE Broad Agency Announcement (BAA) program. Details on how to apply through the BAA program will be reviewed later but can be accessed at any time¹. Anyone, with or without a USCRP letter of recommendation, can submit a proposal to the USACE BAA program, but a letter of recommendation from USCRP will identify that the proposal has been endorsed by the process described herein. **Awards from this Request for Proposals will be made by 31 December 2021.**

¹ <https://beta.sam.gov> , search for ERDC BAA.

Evaluation Criteria

The evaluation method and selection criteria for research and development awards will include:

1. Scope - 25%
 - a. Does the proposal address research topics and priority needs outlined in RFP?
 - b. Does the research question connect to societal needs and/or management challenges?
2. Scientific and Technical Merit - 25%
 - a. Are the goals, objectives, and deliverables are clearly stated and described
 - b. Are the methods novel and creative?
 - c. Does the research advance fundamental or applied science?
3. Experience / Research Team / Partners - 20%
 - a. Do the project teams demonstrate the appropriate experience, qualifications and skill for successful completion of the project?
 - b. Do they have the capacity - resources such as lab, boat, equipment, staff necessary to complete work?
 - c. Have collaboration and partnerships been pursued where appropriate? If so, does it tie back to the stated societal relevance?
4. Deliverables - 10%
 - a. Are deliverables such as publications, products, tools, services, metadata described?
 - b. Are USCRP requirements understood?
5. Graduate student - 5%
 - a. Does the project support a graduate student?
 - b. Are there leadership opportunities for the student?
6. Timeline - 5%
 - a. Are the project phases and milestones clearly described?
 - b. Is the proposed workload feasible given the project duration?
7. Budget - 10%
 - a. Are a budget table and justification provided?
 - b. Are salaries and contractor costs, travel, and equipment/ publication costs justified and appropriate to project needs?
 - c. Is there in-kind support or leveraging?



**Appendix to FY21 Request for Proposals
 Prioritized Needs from the U.S. Coastal Research Program Virtual Workshop Series:
 Human & Ecosystem Health in Coastal Systems**

To inform the 2021 Request for Proposals, USCRP hosted a virtual workshop series, Human and Ecosystem Health in Coastal Systems (<https://uscoastalresearch.org/upcoming-workshop>), on January 5-7 and 12-14. The workshop aimed to identify key challenges and high priority federal agency needs that can be addressed by coastal science research at the intersection of coastal physical processes and human and ecosystem health. Following the workshop, attendees were invited to participate in an online poll to collaboratively prioritize needs for future research investment and to help inform this call for proposals. Prioritized needs within each subtopic are detailed here. Overall, topics related to observations and improved modeling ranked high for most subtopics.

COASTAL POLLUTANTS:

Nutrients and Harmful Algal Blooms
OBSERVATIONS: HAB monitoring is often visual, reactive, and not science-based
DATA STANDARDIZATION: Biologically-relevant water quality standards; Data should be open and machine readable.
IMPROVED MODELING: Numeric models capable of hindcasting to evaluate causes and forecasting to predict effects

Fecal Pollutants
SOURCE IDENTIFICATION: Detection methods do not differentiate between sources of pollution
OBSERVATIONS: Implementation of rapid and/or lower cost methods for sampling/detection
FATE & TRANSPORT of fecal pollutants

Microplastics
Baseline occurrence data: How much is out there and how is it allocated among different matrices, such as water column, sediment, and biota?
FATE & TRANSPORT: How are microplastics redistributed via nearshore physics/processes, circulation patterns, and storm disturbance?
SOURCE IDENTIFICATION: Where do the microplastics come from?

RESILIENT COASTAL ECOSYSTEMS

Fisheries
OBSERVATIONS: Geographic scale/environmental conditions influence monitoring outcomes; Concentrate collection activities that align with previously collected data; Sampling to understand which habitats are used by fish and when in life cycle; Methods to quantify fish removals or processes that reduce fish recruitment and survival; Hypothesis testing as an organizing principle for monitoring
DATA: Establish data warehouse accessible to data producers and users; National repository of lessons learned from restoration monitoring; Data systems that are integrated and responsive; Nearshore data needs for fisheries management are extensive; Big data processing
MODELING: Expensive, need higher resolution for restoration areas, incorporate tidal/subtidal vegetation & shellfish beds; Use existing environmental data to compare to trends in fish stock abundance to predict future harvest levels

Shellfisheries
OBSERVATIONS: Empirical data to help ground-truth models, Point and non point source inputs, Freshwater inputs (sediment, nutrients), Acquire/expand key abiotic/biological/ecological data, Real-time data on changing ocean conditions (e.g., ocean acidification observations, water quality, sediment dynamics) that affect siting and shellfish communities
MODELING: Develop tools to explore shellfish health; biosensors, drifters, telemetry, tagging; Estuarine hydrodynamics (larvae transport)
COMMUNICATION & EDUCATION: Connect scientists and stakeholders; Involve stakeholders in large scale restorative efforts to facilitate buy in and increase productivity

Natural and Nature-Based Features
OBSERVATIONS: Monitoring of NNBF to obtain long-term data; Analysis and vetting appropriate parameters; Monitoring to engage stakeholders and inform models, multiple lines of evidence
MODELING: Field/lab data to validate numerical models (especially corals/mangroves); Better constrain the role of NNBF on nearshore hydrodynamics (water levels and waves) and coastal flooding
QUANTIFY BENEFITS: Truly capture ecosystem service benefits in updated benefit-cost analyses; Understand impacts of NNBF degradation on humans (flooding, cascading socioeconomic effects)

In addition to ranking societal needs and the tools and technologies needed, the post-workshop online poll also asked about the most important nearshore physical processes to address those needs above for each subtopic area. For most subtopics, respondents selected terrestrial-estuarine-nearshore inputs and exchanges; whereas, the most important nearshore process to address NNBF was sea level rise and long-term coastal processes (Table 1).

Table 1. Results of a post-workshop online poll ranking the nearshore physical processes most important to addressing each subtopic.

Nearshore Process	Sub-Topics					
	Nutrients /HABs	Fecal Poll.	Microplastics	Fisheries	Shellfisheries	NNBF
Terrestrial - estuarine - nearshore inputs and exchanges	1	1	1	1	1	5
Nearshore hydrodynamics (e.g., waves and currents)	2	3	2	4	4	2
Storm-related flooding and overwash	3	2	4	5	5	3
Sediment dynamics (e.g., resuspension) and morphologic change	4	4	3	3	3	4
Sea level rise and long-term coastal processes	5	5	5	2	2	1