

The background of the cover is a photograph of a coastal scene. In the foreground, there are tall, dry, yellowish-brown grasses. Behind them is a rocky shoreline with several large, dark grey rocks. The ocean is visible, with white-capped waves crashing against the rocks. The sky is a clear, pale blue.

ANNUAL REPORT

2024

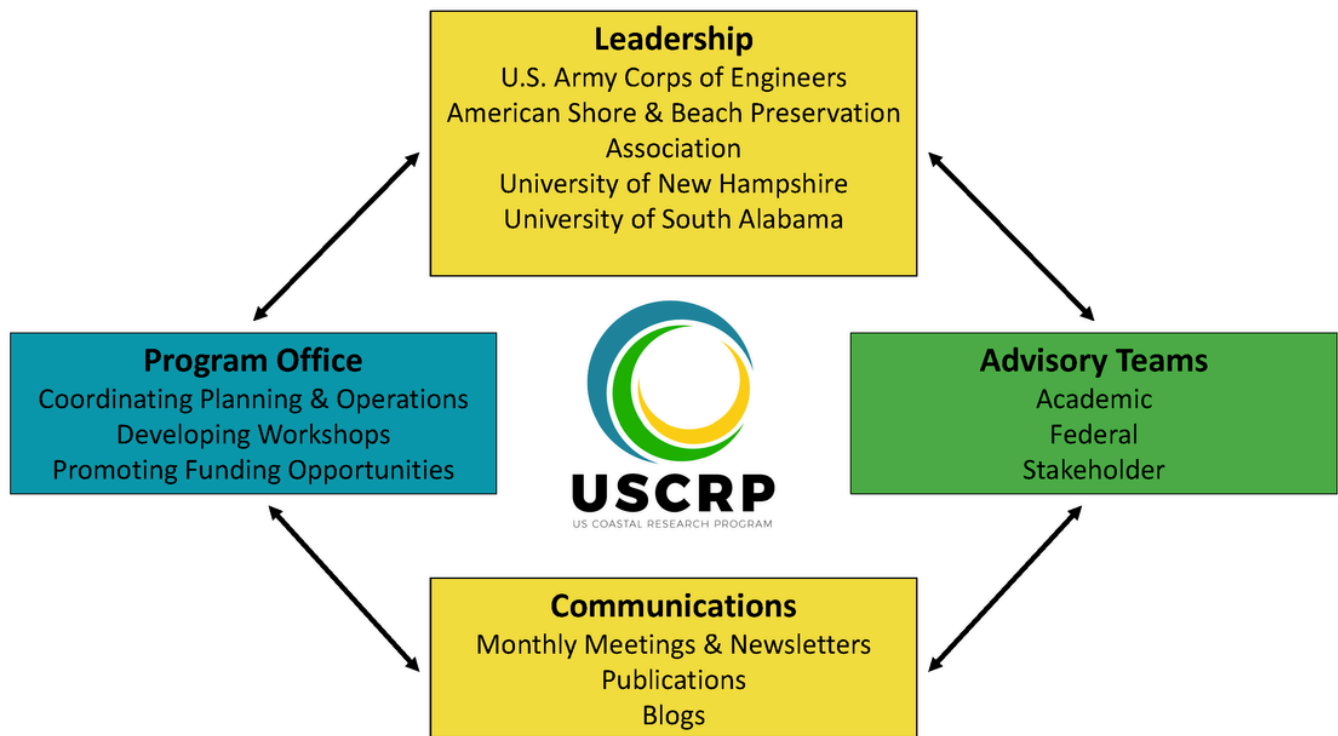
EDITION



US Army Corps
of Engineers®



science for a changing world



OUR MISSION

The U.S. Coastal Research Program (USCRP) is a multi-agency led effort to **coordinate** federal activities, **strengthen** academic programs, and **address** coastal community needs by *identifying* coastal research priorities, *enhancing* funding for coastal academic programs, *fostering* collaboration, and *promoting* science translation. USCRP is guided by priorities of coastal leaders in federal agencies, academics, and non-governmental organizations and by the overarching framework and needs as identified in the seminal 2014 Nearshore Research Report (Elko et al. 2015).

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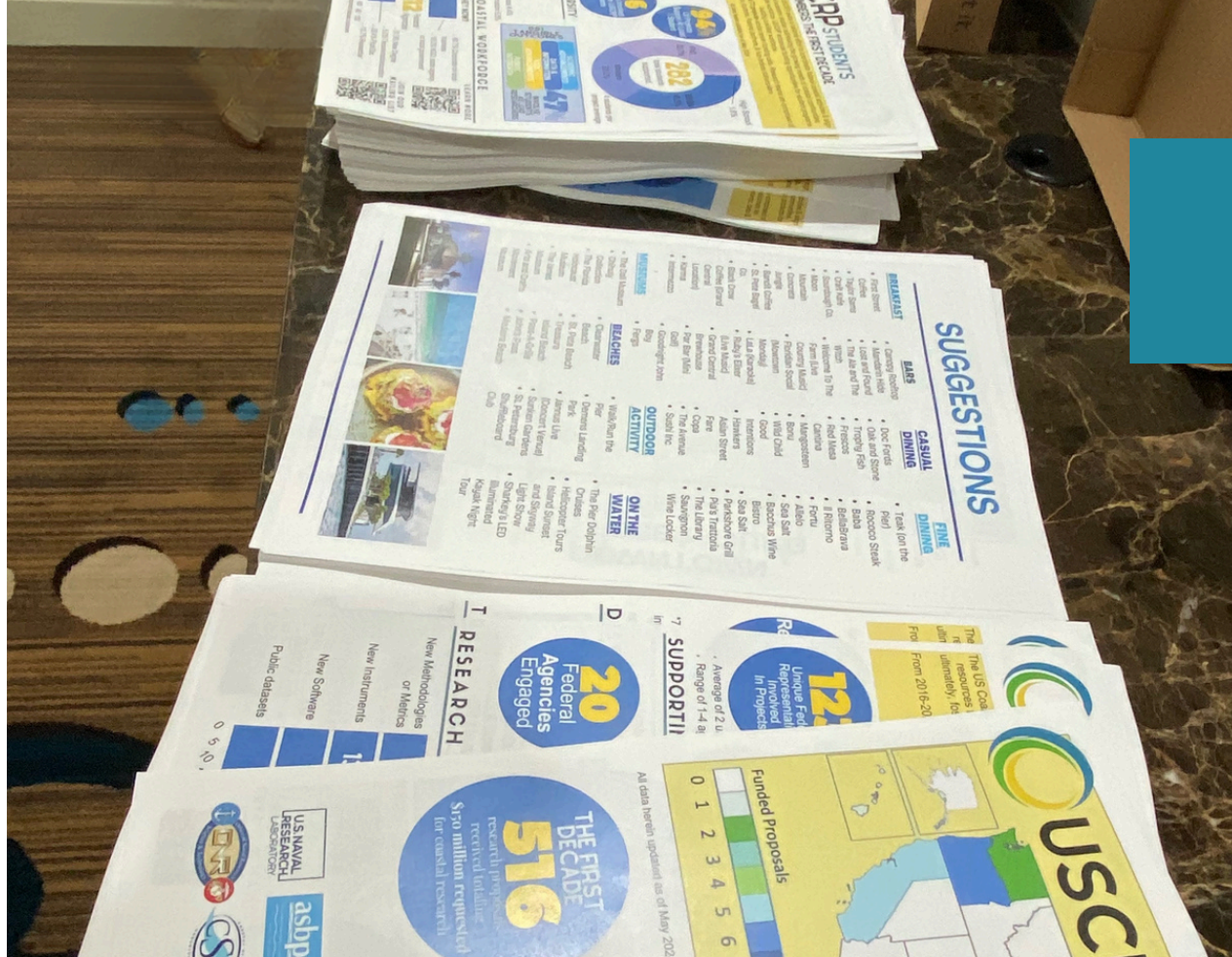
Products from USCRP

04.

USCRP in the Community

05.

Summary



USCRP program handouts on the results of annual initiatives at the 2024 Decadal Visioning Workshop.

ANNUAL INITIATIVES

The USCRP regularly engages in several initiatives to further strengthen, coordinate, and address coastal research priorities. We engage with new and existing members, host monthly meetings, and administer funding calls.

Membership Report

You, our membership, are what makes the US Coastal Research Program unique. Members from academia, federal agencies, and industry contribute to a coordinated coastal voice, inform future funding, and share your work with us through thematic workshops, visioning sessions, and monthly meetings.



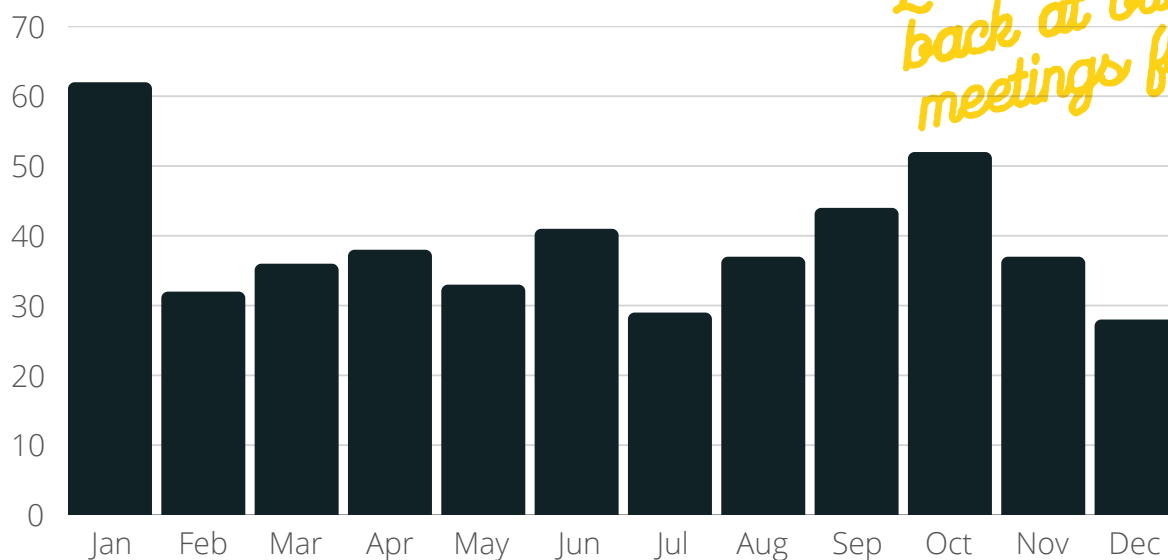
USCRP has connected most with:

- Higher Education Professionals
- Those in Entry Level positions
- Organizations with 501-1000 employees

USCRP members make up a distinctive community of practice which was exemplified in the 2024 workshop participation, monthly meetings, survey responses, and a record number of proposal submissions.

Staff worked to increase communications to members in 2024 and saw great engagement at meetings and beyond. It was great to hear updates on research projects from around the nation. Do not miss out on a single meeting in 2025 by adding them to your calendar!

Monthly Meeting Attendance in 2024



Let's take a look back at our meetings from 2024.

2024 MONTHLY MEMBERSHIP MEETINGS 2:00-3:00 PM ET



JANUARY 9

Dr. Bret Webb (University of South Alabama)
Systems Engineering Approaches for Resilience to Coastal Hazards

Dr. Giulio Mariotti (Louisiana State University)
Bridging the gap between process-based marsh evolution models and data-driven metrics of marsh health

FEBRUARY 6

Dr. Kemal Cambazoglu and Dr. Kim DeMutsert (University of Southern Mississippi)
Using a coupled modeling framework to evaluate how freshwater and nutrient input from Bonnet Carré spillway openings affects water quality, phytoplankton blooms, food webs, and fisheries in the Mississippi Sound and Bight

MARCH 5

Dr. Reza Marsooli (Stevens Institute of Technology)
Benefits of Vegetation for Preventing Coastal Flooding Induced by Failure of Seawalls

Dr. Ryan Mieras (University of North Carolina Wilmington)
Breaking wave-induced rapid beach profile evolution in the inner surf and swash zones

APRIL 2

Dr. Alberto Canestrelli (University of Florida)
Identification of sources of fecal pollution in populated estuaries by a combination of monitoring and numerical modeling

MAY 7

Dr. Antonio Rodriguez (University of North Carolina at Chapel Hill)
Investigating oyster-reef morphodynamics to optimize nature-based infrastructure
Dr. Alberto Canestrelli (University of Florida)
Quantifying morphological changes driven by oyster reef breakwaters under different tidal and wave conditions to inform restoration strategies

JUNE 4

Dr. Morteza Derakhti (University of Washington)
Sediment Transport Over the Nearshore Environment (STONE): Linking nonlinear wave effects across the shoaling and breaking zone
Dr. Casey Godwin (University of Michigan)
Quantifying the Role of Microcystis Resuspension on HABs in Coastal Lake Erie Using Multidisciplinary Approaches

2024 MONTHLY MEMBERSHIP MEETINGS 2:00-3:00 PM ET



JULY 2

Dr. Diane Foster
(University of New Hampshire) *Observations of Sediment Overwash into Salt Marsh Environments with Implications for Coastal Resiliency in Colder Climates*

Dr. Amanda Spivak
(University of Georgia) *Hydrological management of a tidally restricted coastal wetland: Characterizing biogeochemical responses over multiple time scales*

OCTOBER 1

Dr. Karl Kaiser (Texas A&M University at Galveston) *Microplastics(R)us: Sources and transport pathways of microplastics in a coastal estuary*

Dr. Hussain Abdulla
(Texas A&M University-Corpus Christi) *Microplastic presence and circulation in Galveston, Corpus Christi, and Matagorda Bays*

AUGUST 6

Dr. Natalie Nelson (North Carolina State University) *Towards Real-Time Fecal Indicator Bacteria Monitoring in Coastal Waters*

Dr. Cindy Palinkas
(University of Maryland) *Assessing Shoreline Erosion and Sediment Deposition as Contrasting Influences on the Sustainability of Natural Marshes and Living Shorelines*

NOVEMBER 5

Dr. Jon Miller (Stevens Institute of Technology) *Evaluating the Influence of Water Level on Wave Attenuation of Natural and Nature Based Features in Low-High Energy Environments*

Dr. Thomas Lippmann
(University of New Hampshire) *Biophysical Drivers of Sedimentation in Salt Marsh Environments with Implications for Coastal Resiliency*

SEPTEMBER 10

Dr. Joe Long (University of North Carolina Wilmington) *Beach Berms: The missing link to predicting decadal-scale barrier island evolution?*

Dr. Kevin Befus
(University of Arkansas) *Long-term feedbacks in levels: Trajectories of groundwater, surface water, and land elevations in managed settings with sea-level rise*

DECEMBER 3


Dr. Rachel Gittman (East Carolina University) *Evaluating the coastal protection and ecological co-benefits of novel marsh-oyster restoration approaches*

Dr. Bret Webb (University of South Alabama) *Augmenting Hurricane Sentinel Towers with Chemical and Biological Sensors*


Dr. Diane Foster
(University of New Hampshire) *Scaling Transport in Nearshore Vegetated and Non-Vegetated Environments: Sediment, Seeds, and Stiffness*



2024 FUNDING



In fiscal year 2024 (FY24), the USCRP provided over \$5M for competitive academic proposals addressing program priorities by reinvesting in previously collected data and resources to explore new science questions, hypotheses, and problems. Additionally, allowing new students to work with existing data towards a new analysis, supports the USCRP goal of supporting the next generation of coastal researchers.



2024 Funding

The USCRP sought academic proposals that addressed at least one USCRP research priority—long-term coastal processes, extreme events, or human and ecosystem health—by leveraging existing data and resources to continue analysis or explore new science questions, hypotheses, and challenges.

The USCRP received a record 84 proposals in response to its 2024 Request for Proposals. Fourteen funded projects were competitively selected from universities in Virginia, Florida, California, Michigan, Alabama, Hawaii, New Hampshire, Indiana, Georgia, Washington, New York, Maryland, Wisconsin, New Jersey, and Louisiana. The 2024 funded projects focused on one or multiple program priority areas of Human and Ecosystem Health (n=4), Extreme Events (n=8), and/or Long-term Processes (n=7).

USCRP Research Themes

Complex issues require integrated approaches and provide opportunities for unique, and new partnerships



Extreme events: storm-induced flooding, coastal erosion, community impacts, natural recovery



Long-term processes and coastal response: sea level changes, future storms, sediment supply, land use changes, human interventions



Biological, chemical, physical processes that impact human and ecosystem health.

Nearshore Report:

<https://uscoastalresearch.org/publications>

USCRP

5.5
M\$

The Projects



Virginia Tech

Physically Informed, Equitable, and Efficient Hurricane Surge Characterization



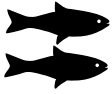
University of California Los Angeles

Analyzing and Modeling Hybrid Dune Resilience to Energetic Waves



University of Florida

How colliding forces change: The influence of climate and geography on flood transition zones



University of Michigan

Identifying At-Risk Habitats for Walleye, Yellow Perch, and Lake Whitefish in the U.S. Great Lakes Amid Aquatic Invasive Species Impacts



University of South Alabama

Performance Evaluation of Nature-based Retrofits for Hardened Shorelines and Impacts on Adjacent Properties



University of Hawaii at Manoa

An investigation of morphodynamic long-term variability at Waikiki Beach



University of New Hampshire

Coastal Resiliency in Salt Marshes and Marine Vegetated Environments



Purdue University

Quantifying and Understanding the Lake Michigan Shoreline Response Associated with an Extreme Water Level Increase



University of Georgia

Assessing Compound Flood Impacts on Groundwater Levels in Coastal Urban Communities



University of Washington

Automated sediment characterization to understand long-term coastal change in response to human interventions



Lamont-Doherty Earth Observatory of Columbia University

A Multi-Decadal Re-Analysis of Water Quality and Health Risks In An Urban, Coastal Watershed With Changing Precipitation



University of Washington

Implementing species-specific root traits into hydrodynamic and geomorphological models of marsh evolution to understand Blue Carbon dynamics



Princeton University

Probabilistic predictions of rainfall associated with tropical cyclones over land



Indiana University

Climate Resilience and Adaptation of Communities to Storm-Related Flooding in the US Great Lakes Watershed 2024



USCRP Executive Directors and staff gather ahead of the 2024 Decadal Visioning Workshop in St. Petersburg, FL.


EVENTS

The USCRP is committed to science translation and communication with members and the coastal research community about the program, member engagement, funded projects, community announcements, and more. Through member meetings, membership newsletters, the website, our social media, special projects, and events USCRP regularly disseminates impacts, outcomes, and updates. In 2024, USCRP hosted the 2024 Decadal Visioning Workshop, SEDCOLAB coordination visit to ERDC-CHL, and a Student Training and Professional Development Week.




The coastal community gathers for the 2024 Decadal Visioning Workshop in St. Petersburg, FL.

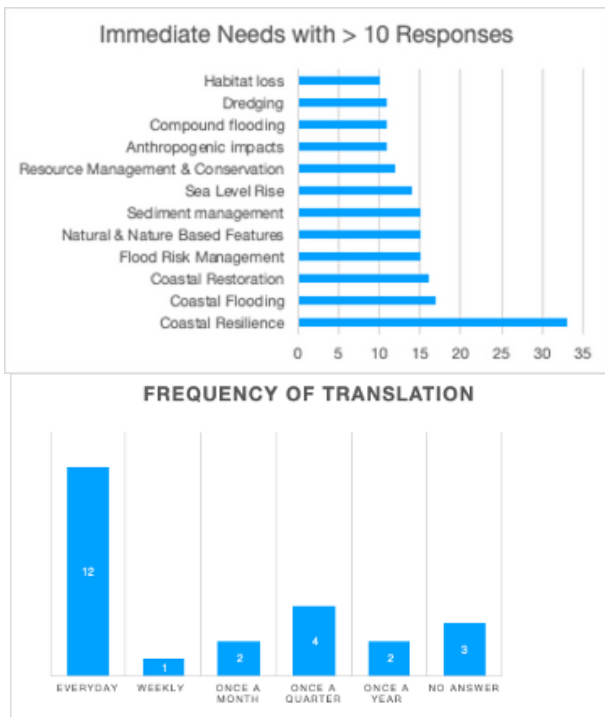
DECADAL VISIONING WORKSHOP



The objective of the visioning workshop was to bring together federal agencies, stakeholders, and academia to identify and prioritize key management challenges and high priority science gaps to guide the next decade of coastal research.



PRE WORKSHOP SURVEYS



Top Chart: The top challenges identified by stakeholder responses.
Bottom Chart: The frequency stakeholders are being asked to translate research.

In preparation for the 2024 Decadal Visioning Workshop, the US Coastal Research Program has collected information from stakeholders and federal partners. The Stakeholder Engagement Survey was developed to gather feedback from stakeholder partners focused on coastal community needs and priorities for the next 10 years. Survey questions targeted immediate (1-5 year) coastal management challenges; challenges and shortcomings in data, tools, and resources; and how often stakeholders are being called on to translate scientific research. Federal engagement focused on identifying agency specific mission priorities in the coastal zone and overlap.

PRE WORKSHOP SESSIONS

Pre-workshop sessions aimed to collect additional information useful to the workshop follow-on report and confirm the findings of the pre-workshop surveys. The sessions briefly overviewed the stakeholder and federal partners' survey results. The presentation was followed by a facilitated discussion to elaborate on quantitative responses with more detail. Community participation allowed staff to identify topics, guide structure, and draft handout material.

Right Chart: Ranks responses from pre-session workshop participants on workforce needs.



head more . . .

THE COMMUNITY CONVERSATION

The 2024 USCRP Decadal Visioning Workshop was the latest in a 30 year tradition of coastal visioning sessions, with 116 participants representing a broad range of coastal community members. This included academics (40%), stakeholders (13%), federal representatives (41%), and 4 facilitators. Similar to previous visioning sessions, the goal of this workshop was to identify and prioritize key management challenges and high priority science gaps to guide the next decade of coastal research.

The agenda began with a review of the past ten years, a comprehensive historical perspective on nearshore research, and a thought provoking panel from the stakeholder perspective. This was followed by a breakout session considering and prioritizing coastal community challenges. Day one ended with a summary of research priorities from federal agencies and academia.

The next day attendees heard about examples of co-developed solutions to coastal challenges from around the country from a panel of Federal, Academic, and Stakeholder representatives, followed by a breakout session to identify solutions to challenges identified in the first breakout session. After lunch, another great panel of federal representatives dove into applied research opportunities. Day three kicked off with a presentation on compound flooding before launching into the final breakout on research questions and data gaps that support the solutions to community challenges. Attendees gathered together for a final large group presentation and discussion on workforce development.

HIGHLIGHTS

- Research is needed at all scales to transition coastal science
- Collaboration across disciplines to co-develop effective solutions
- Incorporation of human and ecosystem influences on current and future shoreline change
- Nature Based Solutions should be considered as a continuum
- Methods for measuring effective adaptation need to be developed

NEXT STEPS

- Coordinate, Review, and Publish the Future of Coastal Processes Report
- Host a Federal Leadership Summit
- Publish an Article on the Coastal Workforce





SEDCOLAB COORDINATION VISIT

Nine Academic partners across eight institutions gathered at ERDC-CHL July 15-17 to discuss planning and coordination for the U.S. Coastal Research Program (USCRP) 2025 Sediment Transport Collaborative Laboratory Experiment (SEDCOLAB).



Duncan Bryant leads PIs in a tour of the facility.

GOALS & AGENDA

The goal of the visit was for SEDCOLAB Academic PIs to meet with the CHL physical modeling team and coordinate facility use plans, instrumentation, address needs/questions, and collaboration for the 2025 full experiment. Dr. Duncan Bryant led the site visit coordination and provided information on all the CHL flumes and basin as well as capabilities, instrumentation opportunities, and project plans with SEDCOLAB PIs. Visitors also toured CHL and received an ERDC/CHL overview from Ms. Patty Tolley, a tour of the Watercraft and Ship Simulator from Mr. Jacob Hodges, a tour of the sediment laboratory from Dr. Jarrell Smith, and a tour of the Mt. St. Helen's Physical Model from Mr. Jeremy Sharp.

THE PROJECTS

The 2023 USCRP-funded research projects include interdisciplinary collaborative teams exploring quantification of the efficacy of oyster reefs; developing a more comprehensive perspective of sediment transport and suspension over the nearshore environment; hydro-morphodynamic feedback mechanisms driving major sediment transport events; the scaling laws associated with net onshore mass and momentum transport resulting from oscillatory flows, and understanding extreme events through the continuous measurement of atmospheric and hydrographic parameters.

SEDCOLAB academic teams coordinate on experiment plans, project planning and instrumentation.

read more . . .





STUDENT TRAINING & PROFESSIONAL DEVELOPMENT WEEK

25 students across 19 academic institutions gathered at ERDC-CHL October 15-17 to learn from and network with ERDC-CHL researchers, design a coastal protection solution, and learn about career opportunities.

STUDENTS ARE THE FOCUS

Developing the Next Generation

During October 15-17, USCRP hosted 25 students from 19 academic institutions at ERDC-CHL for a training and professional development opportunity including laboratory experiment experiences, classroom instruction, and career development opportunities.

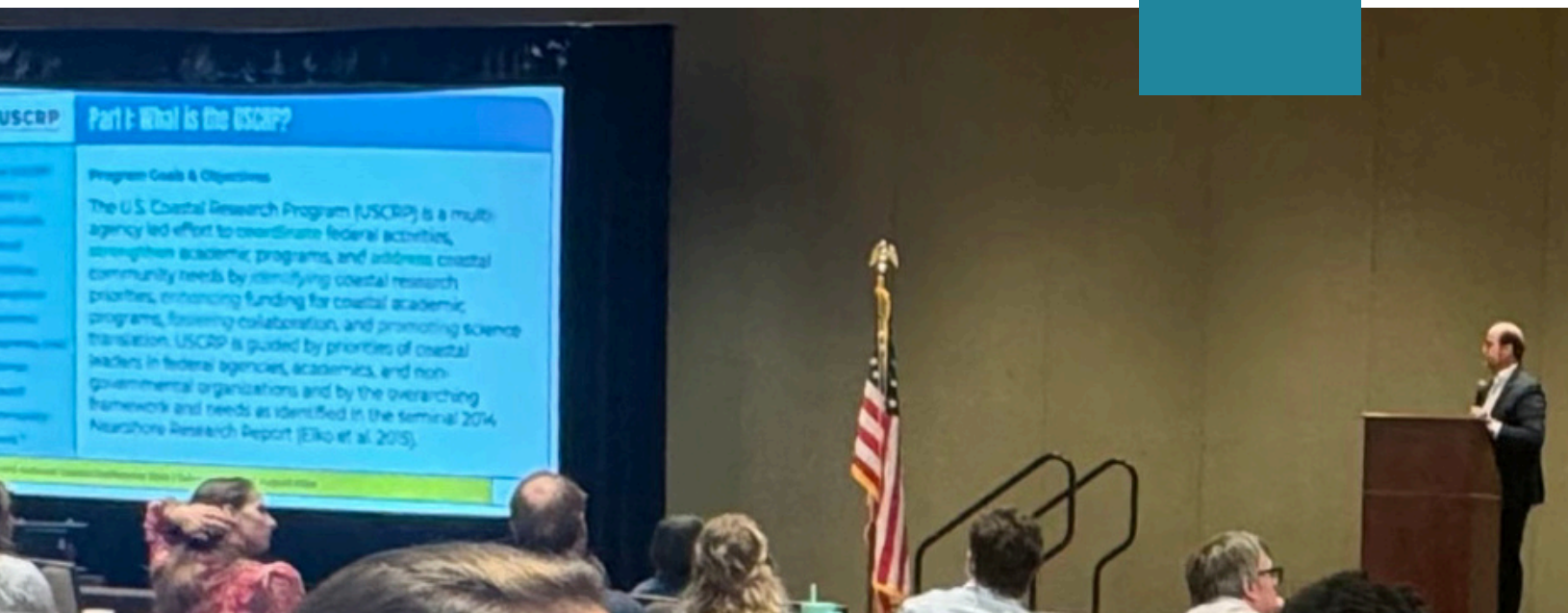
GOALS

The goal of the visit was to increase participation and exposure of coastal students to laboratory experiments and techniques and provide all participants with professional development opportunities and ideas for potential future career paths.




COASTAL DESIGN CHALLENGE

The coastal design challenge included each team designing and carrying out a coastal protection solution that was the most effective at reducing wave height and provided the largest cost to benefit ratio. Return on investment including wave reduction and ecological benefit was calculated for each group.




Academic Co-Executive, Bret Webb, presents on USCRP outcomes from the Decadal Workshop at the American Shore and Beach Preservation Association's National Coastal Conference.

USCRP PRODUCTS



The USCRP is committed to science translation and communication with members and the broader coastal research community about the program, member engagement, funded projects, community announcements, and more. Through member meetings, membership newsletters, the website, our social media, and special projects, USCRP regularly disseminates impacts, outcomes, and updates.

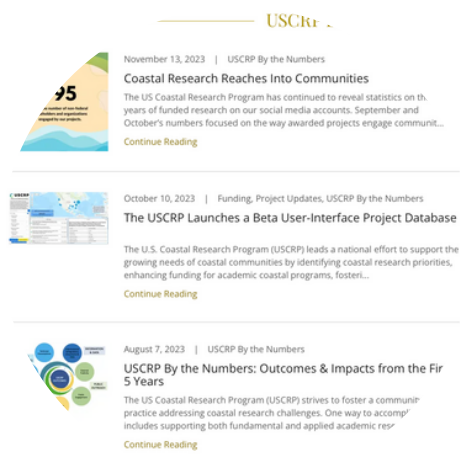
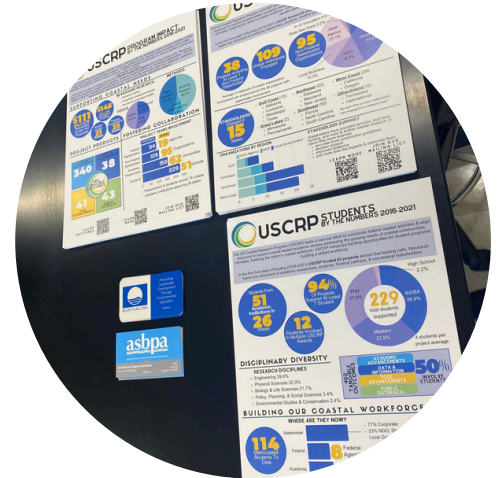


BY THE NUMBERS

In 2023, the US Coastal Research Program launched its “By the Numbers” Campaign as a meaningful way to evaluate and communicate impacts and outcomes towards advancing program objectives. The campaign continued in 2024 with several additional social media posts, blogs on program impact, and with new reports on 5 year numbers and full 10 year program numbers.

FLYERS

Staff updates flyers highlighting quantitative and qualitative metrics related to the first 62 projects; academia, federal partners, stakeholders, and students. In preparation for the Decadal Visioning Workshop, staff also created flyers looking at outcomes across all 10 years of the program. Check out examples on the next pages →



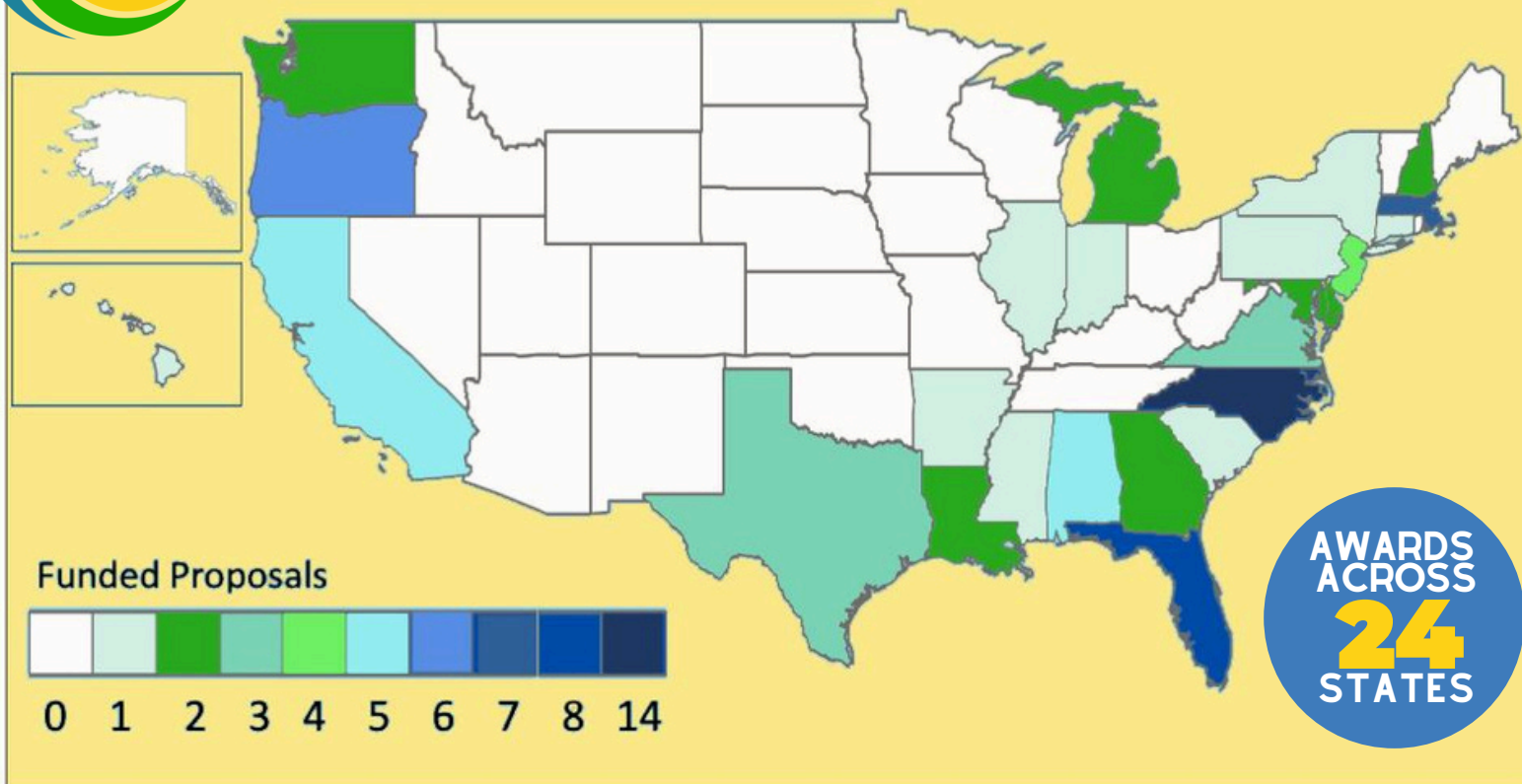
BLOGS

Looking for more insight into the numbers presented on social media? Staff wrote 2 blog posts diving into the nuances of the program's impacts over the first 5 years of funding. They focused on the numbers of academics and students supported and the range of outcomes resulting from funding. Read more on [OUR WEBSITE](#).

USCRP continues to explore and update "USCRP By the Numbers" as additional information is gathered, and as a way to demonstrate the vast impacts of the program across different coastal locales, industry sectors, and agencies working together to protect and understand our coasts. We plan to continue this work in 2025 as we update the USCRP Funded Projects Database giving you more reports, accurate numbers, and dynamic reporting options.



USCRP BY THE NUMBERS THE FIRST DECADE



All data herein updated as of May 2024

THE FIRST DECADE

516

research proposals
received totaling
\$150 million requested
for coastal research

The U.S. Coastal Research Program (USCRP) is a collaboration between Federal agencies, academics, & stakeholders which aims to identify research priorities, enhance funding for academic programs, foster collaborations, & promote science translation. The USCRP leads a national effort to coordinate federal activities & align resources to support academic studies addressing the growing needs of coastal communities, ultimately, fostering the nation's workforce.

The program represents a national community of researchers & practitioners with shared passions working together to identify priorities & leverage resources supporting research-to-user objectives. By facilitating partnerships, multi-agency collaborations, & leveraging limited resources, the USCRP increases coastal research impacts & applications, building a community of practice to address societal needs along the coast.

OUR PARTNERS



THE FIRST DECADE OF FUNDING 2016-2023

FUNDING

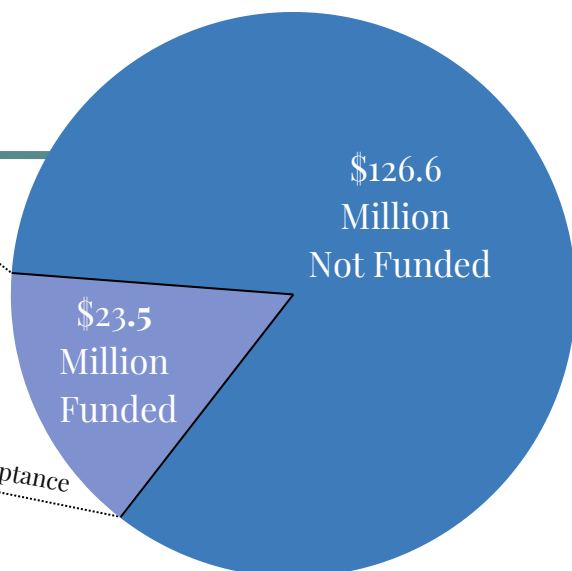
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Funding call opportunities

- Dunes on Developed Coasts
- Storm Processes & Impacts
- Federal Stakeholder Priorities
- Federal Priorities in Long-Term Processes & Estuarine Ecosystems
- Human & Ecosystem Health
- Gaps identified by past projects & Sea Grant partnerships
- Federal priorities in sediment transport

77
RESEARCH PROPOSALS FUNDED

15% acceptance



FEDERAL AGENCIES & STAKEHOLDERS

20

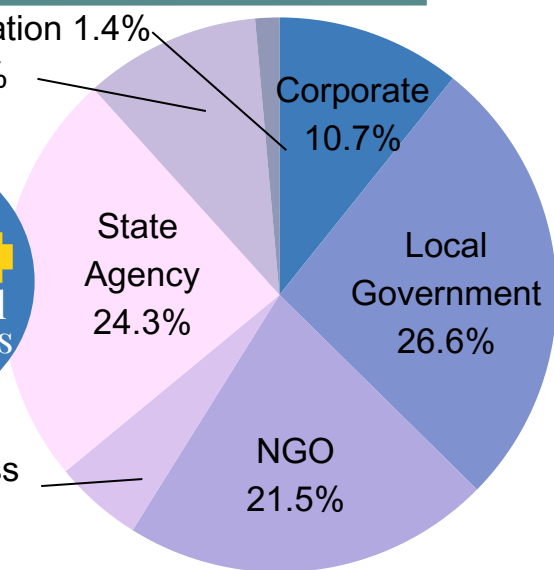
Federal Agencies Engaged

- | | |
|--------|---------------|
| ○ BOEM | ○ NRC |
| ○ DOE | ○ NRL |
| ○ DOS | ○ ONR |
| ○ DOT | ○ USACE |
| ○ EPA | ○ USGS |
| ○ FEMA | ○ NSF |
| ○ NASA | ○ Smithsonian |
| ○ NAVY | ○ USDA |
| ○ NOAA | ○ USFWS |
| ○ NPS | ○ USGOV |

K-12 Education 1.4%
State Sea Grant 10.3%

164
Non-Federal Stakeholders

Local Business 5.1%



STUDENTS

195

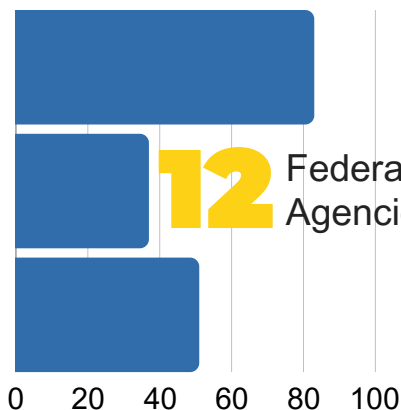
Matriculated to date:

- Where are they now?

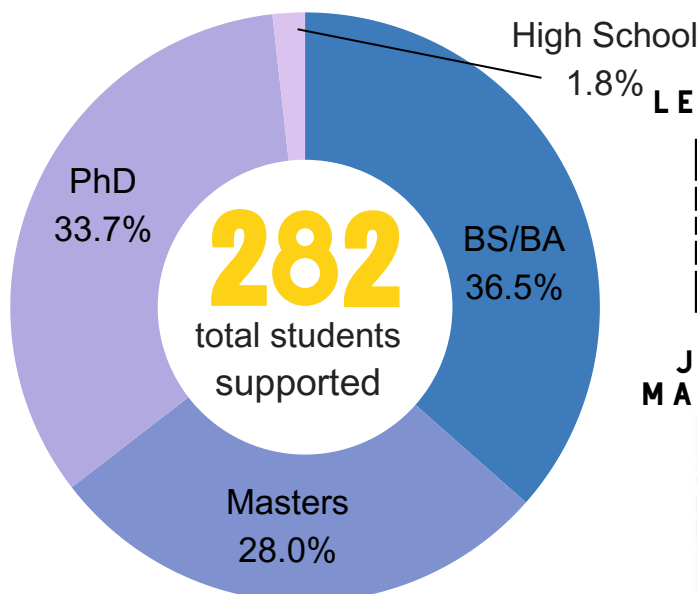
Stakeholder

Federal

Academia



12
Federal Agencies



282
total students supported

LEARN MORE



JOIN OUR MAILING LIST



STUDENT SPOTLIGHTS

Meet the Next Generation

The U.S. Coastal Research Program supports students through several initiatives. This year we went beyond annual funding and engaged with students at several of our events including the Decadal Visioning Workshop. Students shared their perspectives on the events they attended in our new series “Student Spotlights”. Share your student perspectives on coastal events with us at contact.uscrp@gmail.com!



🎓 Meet Megan Beever, a third-year PhD student in civil engineering at Virginia Tech. Her research focuses on barrier island breaching and tidal inlet evolution.



Narayan Kumar is a coastal engineering PhD student at the University of Delaware with a focus on numerical modeling of beach profile evolution due to sediment transport.



Leanne is a Ph.D. candidate at Florida Atlantic University studying coastal resiliency through beach management, the impact of hurricanes, and the effects of beach changes on marine ecosystems. 🌊 Her research integrates natural and built environments to find solutions that enhance coastal resilience.



🎓 Jacopo, a first-year PhD Coastal Engineering student at the University of Florida, is researching how oyster reef structures impact sedimentation and coastal processes.

CONTENT ROUND UP



Most Popular



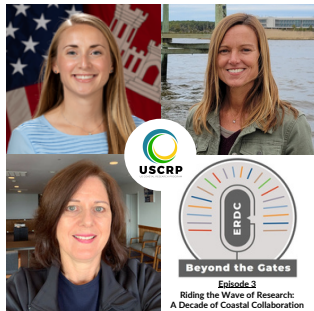
Best-All Around



Most USCRP Spirit



Most Unforgettable



Most Likely to be Insta Famous



Most Likely to Save the Planet



Facebook



Instagram



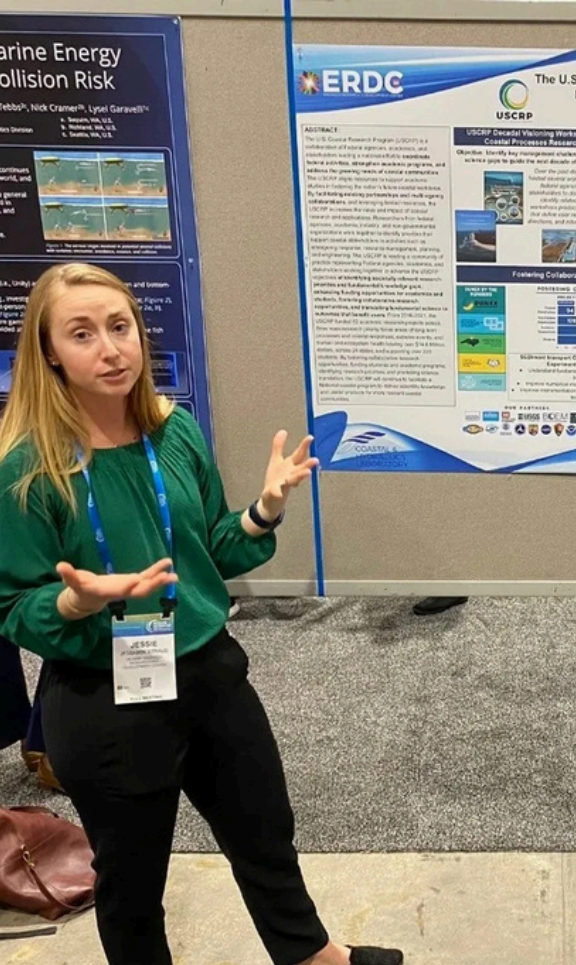
Twitter



From Left to Right, Dr. Julie Rosatti, Co-Executive Director; Mary Cialone, former USCRP Managing Director; Jessie Straub, USCRP Program Manager; and Annie Mercer, Associate Program Manager.

USCRP IN THE COMMUNITY

The coastal community of practice is active throughout the year. USCRP staff attended several coastal community events and engaged with members, researchers, students, and communities. We enjoyed the opportunity to hear about your work, share the USCRP mission more broadly, and continue to connect societal needs with opportunities for academic investigation. Here are some of the stories we told about events we attended.



Program Manager Jessie Straub presenting the USCRP poster.

OCEAN SCIENCES

Ocean Sciences was held February 18-23 in New Orleans. Several USCRP abstracts were included in a “Nearshore Processes” session as well as other relevant sessions. These presentations highlighted the collaborative and interdisciplinary aspects of the DUNEX project, demonstrating the benefits of sharing resources to conduct a community-led research campaign focused on improving our understanding, predictive capabilities, and observational technologies of extreme storm processes and impacts. The USCRP presented a poster “The U.S. Coastal Research Program: Addressing Coastal Needs through Research and Engagement”.

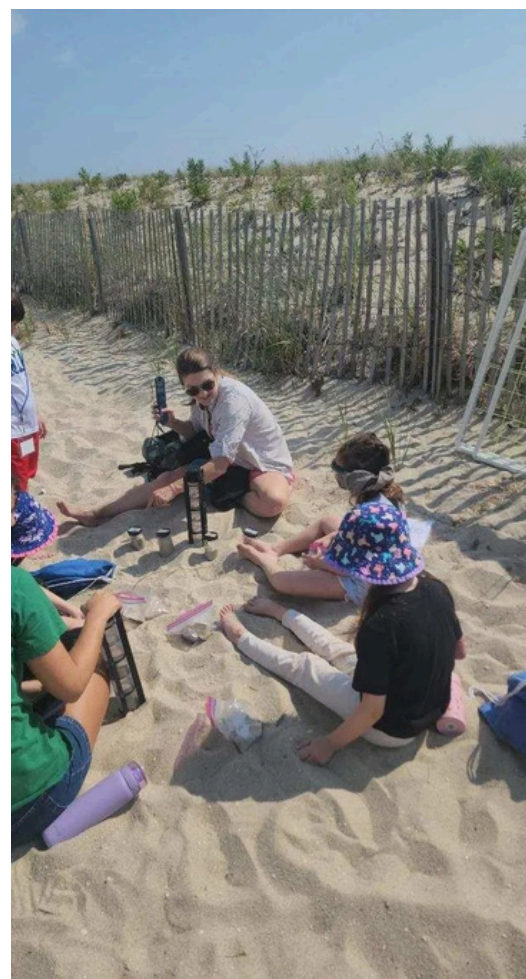
[*read more . . .*](#)

STEM/STEAM OUTREACH

The US Coastal Research Program (USCRP) is committed to serving the coastal community by engaging in both direct and indirect forms of outreach. Many USCRP projects use STEM and STEAM outreach to inform their projects as they conduct their research such as by forming large and varied advisory committees, participating in existing programs, partnering with non-profits, or creating citizen scientists.

Caption: Dr. Bianca Charbonneau worked with Save Barnegat Bay, a local NJ non-profit, and taught students ages 5-13 all about beach and dune field techniques as part of a summer STEAM educational program.

[*read more . . .*](#)





BCER UPDATE IN CA

The U.S. Coastal Research Program was invited to present at the Board on Coastal Engineering Research's 100th Meeting in August. The meeting took place in San Francisco and celebrated the past decade of progress and began planning for the next decade. As an initiative of the BCER, the board was excited to hear about the numerous accomplishments from the USCRP over the past decade.

Program Manager, Jessie Straub shares USCRP insights to the BCER.

USCRP AT ASBPA

USCRP Co-Executive Director Dr. Bret Webb was invited to present at the American Shore and Beach Preservation Association's National Coastal Conference on the initial outcomes from the Decadal Visioning Workshop. Dr. Webb spoke to all 500 plus attendees during the opening plenary session on US Coastal Research activities over the past 10 years, technical contributions, and a comprehensive look at the Decadal Visioning Workshop. USCRP's ORISE Fellow, Bianca Charbonneau, was selected to speak at the ASBPA National Coastal Conference on her work related to the coastal workforce. Her focus has been preparing a paper on the current state of workforce development, USCRPs role in coastal workforce development, and ways the community can continue to engage an active workforce.

Dr. Charbonneau presents her update on the coastal workforce.

[*read more . . .*](#)





STAFF LIVE ON AIR

USCRP Executive Directors and staff were invited to be on Vicksburg Radio's ERDC Beyond the Gates. The episode focused on the topic of Collaborative Impact. Program Manager, Jessie Straub, Mary Cialone, former USCRP Managing Director, and Nicole Elko, Co-Executive Director, participated in the episode. They shared insights and lessons learned from the first 10 years of USCRP initiatives.



Episode 3

Riding the Wave of Research:
A Decade of Coastal Collaboration



SUMMARY

In conclusion, 2024 was a year of community for the USCRP. Staff looks forward to engaging with you at conferences or meetings and continuing to learn from your research.

Want to get involved, learn more, or share an event for 2025?
Email us at contact.uscrp@gmail.com