

Virgin Islands NSF EPSCoR Evaluation Report- Year 1

March 2022

RII Track 1: Ridge to Reef Processes and Interdependent Drivers of Small Island Resilience

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Introduction

Ridge to Reef (R2R) Processes and Interdependent Drivers of Small Island Resilience is an NSF EPSCoR RII Track-1 project among investigators from the University of the Virgin Islands (St. Thomas and St. Croix campuses). The project aims to address the impacts of changing environmental conditions on small island social-ecological systems.

The project started in July 2020 and is scheduled to end in June 2025. The evaluation team worked with the project leadership to develop an External Evaluation Plan to help guide evaluation activities. A survey instrument called the Faculty Baseline Survey was created and deployed in 2021 to collect baseline information from faculty associated with the project.

This report summarizes project data collected from three sources: The Faculty Baseline Survey, R2R Year 1 Annual Report, and ERCORE.

Survey Development Approach

The development of the Faculty Baseline Survey instrument was informed by the project evaluation logic model, a review of project documents, and discussions with the project leadership.

The survey instrument had 30 questions/items, which included a participant background section and five other domains:

- Participants Background (9 questions)
- Institutionalization (2 questions)
- Management (1 question)
- Research Activities (6 items)
- R2R Impacts (8 items)
- R2R Outreach/Engagement (4 items)

The survey instrument was then converted into a web-based survey using SurveyMonkey™ platform.

Research Productivity

Project participants reported various types of research outputs they produced in Year 1. A total of fourteen entries are reported of which three are in press. Journals, frequency, and impact factor are presented in Table 1 below:

Table 1. Publications- Year 1

Journal	Frequency	Impact Factor
Animal Biotelemetry	2	2.3
Ecosphere	1	3.2
Frontiers in Marine Science	2	4.9
Harmful Algae	2	4.3
Journal of the Acoustical Society of American	1	1.8
Marine Ecology Progress Series	3	2.4

The project reports submission of 41 non-EPSCoR-related research proposals during the reporting period, totaling a requested \$13,051,067.50. Twenty-seven proposals were funded for a total of \$4,127,780, and 31 proposals, valued at \$21,298,074, remain pending and five were not funded.

Research Theme 1: Watershed Monitoring and Land Use (WL)

This Research Theme examines how human land-based activities impact the health and function of marine habitats of the USVI at the Salt River Bay, St. Croix and Fish Bay, St. John watersheds. The team will determine terrestrial-based inputs into the coastal and marine ecosystems by connecting land use practices in upland and nearshore habitats to downstream impacts including offshore habitats and reefs. There are three research goals:

- WL1 – Identify and characterize the sources of sediment flux in two watersheds in the USVI.
- WL2 – Characterize the impacts downstream by experimentally testing several conservation land use interventions.
- WL3 – Share communication, community education, and integration activities to educate and inform the public of the benefits of land use research.

This impact of this Research Theme will identify which land uses are majority contributors to problematic erosion and runoff into the marine ecosystems of the Virgin Islands.

In Year 1, the group reported **very good progress** towards all three WL goals.

- WL1 – The team has identified locations and obtained sampling permits. Spin-up of the St. Croix lab is underway. Together with co-PI Nemeth, the WL team has worked on identifying study sites. Protocols have been created and the UV/Vis spectrometer has been delivered.
- WL2 – The team has established field studies and equipment has been ordered. Importantly, agreements have been obtained with landowners so that the team can position equipment in anticipation of the rainy season. The breadfruit

agroforestry landscape study and the plantain ground cover experiment has been established, and data have been collected for both studies.

- WL3 – The WL lead has appeared on a UVI radio show on Watershed and Land Use research and presented at the International Tropical Islands Water Conference in April 2021. The title of the talk was, “*Making water flow again: The case of the St. Croix aquifer and the future of freshwater resources in the Virgin Islands*”

Research Theme 2: Mangrove Function, Recovery & Restoration (M)

This Research Theme develops science-based opportunities for mangrove restoration by determining the current and historic distribution, loss and recover of mangrove species in the USVI territory. The goals are:

- M1 – The Mangrove Ecosystem Function & Recovery: Determine the current and historic distribution, loss, and recovery of the different mangrove species in the territory using a mix of archival maps and new technologies. This will identify stressors and other factors that influence their current distribution, health, and function in provisioning ecosystem services.
- M2 – Mangrove Restoration: Develop science-based opportunities for restoration by field testing restoration techniques and the factors that influence seedling success and resilience. These activities are coupled with citizen science programs.
- M3 – Work with our R2R communications, informal learning and education and workforce development (EWFD) teams to engage the local community including K-12 students, their teachers, and local citizenry.

The team has made **excellent progress** towards its year 1 goals.

- M1 – The team has compiled aerial and historical documents that indicate mangrove extent and identified priority sites for imagery. The team has started fieldwork and acquired equipment needed for analyses.
- M2 – The team has finalized research sites and investigated mangrove nursery methods and practices. The team has constructed two wet nurseries including tables plumbed for fresh and saltwater. The team has had several remarkable extramural funding successes including leveraging R2R research to: submit a proposal to the National Park Service (NPS) to expand mangrove and coral restoration and coral disease; receive a FEMA Hazard Mitigation award (\$620K) for mangrove restoration; and a National Fish and Wildlife Foundation (NFWF) award (\$237K subaward to UVI).
- M3 – The team created a Mangrove Kids Activity Book (shared with VI ISERP), participated in the STT Great Mangrove Cleanup, given presentations, and provided opportunities for student training. This generated significant community

interaction and include broadening participation for the project by employing two UVI undergraduates for summer research; both students identify as black women. Lead Grimes and Specialist Durdall have also created opportunities to increase Diversity, Equity, and Inclusion (DEI) through geospacer sciences, National Institute of Water Resources (NIWR) interactions, and participation in the NSF-funded *Unlearning Racism in the Geosciences (URGE)* program.

Outputs: In Year 1, the M Research Theme had 2 peer-reviewed journal articles and 2 more that are in-review. The team gave 8 oral presentations at local, national, and international conferences. In this reporting period, a total of 7 proposals were submitted with 3 successfully awarded, 3 pending, and one declined. One graduate student successfully completed her thesis within the Master's of Marine and Environmental Science program in December 2020. Four UVI graduate students and two undergraduate students have been recruited to work with this Research Theme. The Mangrove Restoration postdoctoral position was created, advertised, first and second interviews conducted, and hired.

Issues: 1) The team encountered delays caused by permitting for drone flights. They have filed the necessary paperwork and are awaiting issuing of permits. 2) Delays in renovation of the Environmental Analysis Laboratory (EAL) means a lack of efficient space for analyses.

Research Theme 3: Emerging Areas of Research (EA)

This Research Theme has three integrated projects centered around seagrass communities, the effects of *Sargassum* on beaches, and their connections to ridge-to-reef processes. The Emerging Areas will improve understanding of the physical variables that influence coastal and nearshore ecosystem function and resilience, including the role of seagrasses and impacts of the brown algae *Sargassum*. There are three integrated areas of focus with two research projects specific to Brewers Bay on the southwest coast of St. Thomas.

- EA1 – Determine the impacts of invasive seagrass that may alter movement, habitat, and food resources for invertebrates, fish, sea turtle species.
- EA2 – Quantify the role of seagrass type in short and long-term beach evolution.
- EA3 – Measure the spread of the invasive seagrass *Halophila stipulacea* in the territory and the mechanisms affecting its expansion.
- EA4 – Analyze the effects of *Sargassum* golden tides on Virgin Islands ecosystems.

The EA team made **good progress** towards its goals in Year 1.

- EA1 – The team has applied for permitting and has acquired Temperature and Dissolved Oxygen equipment for installation in Year 2. A postdoctoral fellow has been hired. The EA1 lead has given two presentations.
- EA2 – The team encountered pandemic-related difficulties due to the suspension of field activities. The team has been able to pivot by obtaining wave hindcast data from the University of Puerto Rico (UPR) that allows them to baseline measurements once field activities restart. The team has ordered the equipment for field activities once the suspension has lifted.
- EA3 – The team encountered pandemic-related difficulties due to the suspension of field studies. Appropriate lab space is not available due to delays in the renovations of the Environmental Analysis Lab. Nevertheless, the group has been able to recruit two graduate students and obtain the needed permits for diving and begun transects for queen conch surveys. The team has established a collaboration with Dr. Christian Omar at NC Central University, an HBCU.
- EA4 – The team developed protocols for *Sargassum* analysis. The collaboration with Krueger-Hadfield (University of Alabama at Birmingham) is in place as is that with Rogers (University of Kansas).

Outputs: 1 article submitted, 2 presentations.

Issues: Federal Permitting (NOAA permit 23259) is under review (EA1). Suspension of field studies has impacted EA2, EA3, and EA4. Appropriate lab space lacking due to delays in the renovations of the EAL.

Research Theme 4: Fish Ecology

This Research Theme addresses the question, “How do environmental impacts and food quality affect reproduction in parrotfish.” The focus is on the relationship between habitat composition and sedimentation rates on herbivorous species composition, and the effect of these factors on feeding rates and reproduction of the yellowtail parrotfish (*Sparisoma rubripinne*), as well as how oceanographic variability influences reproductive output.

The Fish Ecology Research Theme has three research goals:

- FE1 – Advance understanding of how natural and anthropogenic stressors on coral reefs change herbivore assemblages.
- FE2 – Advance understanding of how benthic characteristics of impacted reefs affect feeding rates and reproduction (frequency of spawning, fecundity) of herbivorous parrotfishes.

- FE3 – Improve understanding of oceanographic and environmental variables that influence reproductive rates (frequency of spawning and fecundity) of coral reef fish that spawn in aggregations.

The team has made **very good progress** towards goals in Year 1.

- FE1 – The team has initiated the synthetic analysis focused on how resistance or recovery potential of coral reef ecosystems impact fish herbivore communities.
- FE2 – The team has completed preliminary logistics (research permits, IRB approvals, equipment acquisition, graduate student recruitment, and research site plan) in preparation for summer field work.
- FE3 – The team has completed preliminary logistics (research permits, IRB approvals, equipment acquisition, graduate student recruitment, and research site plan) in preparation for summer field work.

Outputs: 1 proposal to the Puerto Rico Sea Grant College program.

Research Theme 5: Oceanography (OC)

This Research Theme is focused on understanding oceanographic variables affecting the spawning of yellowtail parrotfish and coral reef resilience, specifically the oceanographic conditions that drive connectivity patterns related to the increased biodiversity at more resilient coral reefs, and the influence of oceanographic, environmental, and terrestrial inputs on the reproductive rates of a ubiquitous reef fish, the yellowtail parrotfish (*Sparisoma rubripinne*), between algal turf vs. macroalgal dominated nearshore reef sites. The Oceanography Research Theme has three research goals:

- OC1 – Quantify the influence of oceanographic and environmental variables on the variability in reproductive rates (frequency of spawning and fecundity) of *S. rubripinne*.
- OC2 – Determine larval dispersal pathways from point-source spawning aggregation sites of *S. rubripinne*. Insights into the linkage and distribution of larval and juvenile populations with the spawning sites of the parents is a powerful fisheries management tool that can help manage the species.
- OC3 – Share USVI Oceanography Research with Stakeholders & Provide Opportunities for New Partnerships.

In Year 1, the OC team has made **good progress** towards its goals.

- OC1 – The team conducted an audit of existing instrumentation for resumption of field work.

- OC2 – 330m resolution models of STT and STX for US Caribbean Coastal Ocean Model.
- OC3 – Student recruitments have been frozen due to leave of absence for lead Habtes.

Outputs: 1 proposal to NSF CoPe program, 1 manuscript submitted.

Issues: Departure of Habtes to USVI Division of Fish and Wildlife. Habtes has a courtesy faculty appointment and will support OC beginning Summer 2022.

Research Theme 6: Coral Disease and Restoration (MD MR)

This Research Theme will identify how the interactions of species diversity and environmental stressors affect disease susceptibility and coral restoration success. The team will specifically test for species interactions for coral outplantings. The eight goals for this Research Theme include those for Marine Disease (MD) and Marine Restoration (MR):

- MD1 – Determine how species biodiversity affects the spread and impact of coral disease.
- MD2 – Determine how local stressors (e.g., nutrients, turbidity) and global stressors (e.g., temperature stress) drive temporal and spatial distributions of disease.
- MD3 – Predict the spread and impact of multi-species coral disease.
- MD4 – Share Disease (and Restoration) Research with Stakeholders through participation in outreach and education activities.
- MR1 – Expand capacity for restoration ecology research in the US Virgin Islands.
- MR2 – Determine how diversity affects success of coral outplanting configurations.
- MR3 – Determine how gradients in water quality affect success of coral outplanting.
- MR4 – Share Restoration Research with Stakeholders through participation in outreach and education activities.

This research area addresses knowledge gaps in how species diversity and different water quality regimes affect the growth, health, and survival of coral outplants.

In Year 1, the MD MR team made **excellent/very good progress** towards meeting project goals:

- MD1 – The team identified and compiled coral reef monitoring datasets
- MD2 – Publication of MS thesis data
- MD3 – Requires data from MD1 and MD2

- MD4 – Six interns worked on coral restoration
- MR1 – Posted a position for a restoration ecology
- MR2 – Coral outplanting pilot study, established a collaboration with The Nature Conservancy (TNC).
- MR3 – Water quality sampling in spring 2021.
- MR4 – MOU with Lovango Resort and Beach Club; presentation created for coral restoration interns.

Outputs: 2 manuscripts submitted, 2 in preparation; 1 proposal to NSF Ecology and Evolution of Infectious Disease (EEID) program.

Research Theme 7: Coral Reef Resilience (CR)

This Research Theme will determine the attributes that support resistance and recovery from disturbances. The team will determine the impact of multiple drivers (variation in biodiversity, magnitude and frequency of thermal and storm disturbances, resistance to coral disease, herbivory rates, and exposure to land-based run-off and water quality) for why some locations show resilience where others show precipitous declines in coral cover. CR Research will determine internal and external drivers underlying resistance and recovery of coral reefs to stress and disturbance in the northeastern Caribbean. The team will create a mechanistic understanding for management actions to improve coral reef condition and can be contrasted with other systems, such as the Indo-Pacific. Coral connectivity research will create an understanding of how connectivity networks shape biodiversity of coral reefs. The CR Research Theme has three goals:

- CR1 – Determine the internal and external drivers most critical to coral reef ecosystem resilience in the USVI and identify targets for restoration of resilience.
- CR2 – Understand the impact of regional larval connectivity patterns on biodiversity patterns.
- CR3 – Share Coral Reef Resilience Research with Stakeholders through participation in outreach and education activities.

In Year 1 the CR team has made **good progress** towards project goals.

- CR1 – The team has acquired data to groundtruth modeling from OC2. The databases of biological characteristics and processes at 42 long-term research sites has been initiated, with progress in coral diversity, marine disease, nuisance species, other invertebrates, fish diversity, herbivory, rugosity, coral health, and coral interactions, but delayed in connectivity network development.
- CR2 – The team did not report progress towards this goal. The Year 1 deliverable for this goal was the connectivity network model.

- CR3 – The team did not report progress towards this goal. The Year 1 deliverable for this goal was 1 event and 1 contribution this year. The Year 1 newsletter appears to have a contribution for CR.

Education & Workforce Development (WF)

This team trains junior faculty to be mentors and produce STEM education research to improve students' success and inclusion. The long-term goal is to transform STEM education in the USVI to be more grounded within the local environmental context. WF will require increased engagement from both stakeholders and the EWFD, and more encouraging of community action.

The Education and Workforce Development (WF) team has four goals:

- WF1 – WF is integrating resilience research themes into culturally relevant, place-based content for teachers to use in curricula development/planning as part of their professional development.
- WF2 – Increase recruitment, retention, and persistence of URM undergraduates in STEM and resilience-related majors, minors, and certificate programs.
- WF3 – Support student/ faculty research infrastructure via support for pre and in-service STEM workforce, with the goal to increase STEM career interest, skills, and retention.

The EWD component has made **very good progress** to completing the Year 1 goals.

- WF1 – The team pivoted and hosted meetings to assess PD needs for teachers impacted by COVID. PBL-certificate program curriculum has been developed.
- WF2 – Three undergraduate and one graduate student have led efforts in Science 100 data analysis and assessment.
- WF3 – Completed review of student Individual Development Plans (IDPs).

Outputs: 1 book chapter

Issues: Protocols for community partnerships delayed by COVID; culmination event delayed by COVID; student-support network for retention delayed by COVID.

Informal Learning (IL)

The goal of the Informal Learning (IL) Team is to advance the comprehensive and culturally responsive Education and Outreach plan that will expand to be more inclusive of URM groups within the Virgin Islands. The IL Team will increase the level of engagement with existing and new external partners as well as foster collaborations with other universities/research entities. The IL Team has six goals:

- IL1 – Increase and sustain the reach of the IL Team throughout the Territory.
- IL2 – Diversify the range of topics presented in informal education and outreach initiatives, drawing upon the research outputs and related activities from the R2R research teams.
- IL3 – Promote and guide K-12 underrepresented minority students into the geosciences and broader STEM pipeline as part of the larger R2R objective to build and enhance the local STEM workforce.
- IL4 – Become a recognized information and resource hub for STEM and environmental education, awareness, and sustainability for the Territory's largely underserved communities.
- IL5 – Build new and improved-upon existing connections and lines of communication to better reach and understand target audiences.
- IL6 – Build self-sufficiency and innovation within the IL team and its efforts by pursuing funding that puts the IL team in a position to be more independent in building out and promoting its initiatives.

The IL team made **fair progress** towards its goals in Year 1, due mostly to COVID-induced delays.

- IL1 – No progress was made due to funding restrictions; IL orientation and training resources has begun but is not yet complete.
- IL2 – Collaborations with researchers have been diminished due to COVID. One new partnership with the World Oceans School has been established.
- IL3 – The team has participated in two Science Saturday events (virtual) and provided support for SCUBA certifications for ten Youth Ocean Explorer students.
- IL4 – The team has started the process of identifying workshops; this remains uncompleted.
- IL5 – Initial meetings with community groups have occurred.
- IL6 – The team was part of a submission of an NSF AISL proposal.

Issues: Hiring for the STX Community Engagement Specialist was halted in Year 1 due to funding restrictions. The team has not identified partnerships and collaborations with other universities that would benefit from R2R research.

Communication and Dissemination (CD)

The Communications Team develops and share information and content that captures the research outputs and related activities emerging from the work and success of the R2R teams and affiliated students. The tools to do so include updates to the R2R website (viepscor.org), the production and dissemination of a biannual newsletter,

updates on social media outlets including Instagram, Facebook and Twitter and YouTube. The CD team has three goals:

- CD1 – Inform stakeholders and community of R2R project research and educational goals and progress made toward achieving those goals.
- CD2 – Produce a biannual VI EPSCoR Newsletter for broad audiences.
- CD3 – Support R2R project team's promotional needs.

The CD team made **very good** progress towards Year 1 goals.

- CD1 – The viepscor.org website has been updated to reflect the new R2R team. Flyers and social media posts have been generated in Year 1.
- CD2 – The newsletter has been written and published.
- CD3 – Visual support materials have been created as needed. A logo for VI ISERP has been finalized. Also, several researchers' design needs have been supported with website design, document creation/design, and a design/infographic class taught to students.

R2R Management (RM)

R2R has a thorough and responsive management structure overseen by Leadership and Management Teams, assisted by two panels of authorities and experts (External Advisory Board and Governing Committee). The Leadership and Management teams ensure that R2R meets the goals and objectives in the Strategic Plan.

R2R Management has three goals:

- RM1 – Meeting the data management needs of the R2R team.
- RM2 – R2R Project management, including project implementation, development and coordination of workshops, and preparation of the USVI Science and Technology Plan.
- RM3 – Collaboration with the external evaluator and NSF EPSCoR program teams to meet NSF's expectation for R2R Project Evaluation and Assessment.

The RM team has made **very good** progress towards Year 1 goals. Deficiencies are caused by COVID including supply chain issues, delays, and shutdowns.

- RM1 – The team has identified research buildings on STT and STX to upgrade research-related in-building wired and wireless services. They have obtained vendor quotes and are working with contractors on cabling and fiber. They continue to work with research/project leads to identify research data storage needs. All project data for Year 1 was entered into ERCORE.
- RM2 – The team has held the planned meetings (virtual) for staff, research leads, and the External Advisory Board.

- RM3 – The team has completed the initial evaluation plan and strategic planning meeting.

Issues: The network throughput and speed tests have been delayed in Year 1 due to the pandemic.

Faculty Baseline Survey

Based on the project team roster shared by the Project Administrator (PA), there are 18 faculty members (15 from the University of the Virgin Islands and three collaborators) directly involved in project. All 18 faculty members received an invitation to participate in the survey. The Faculty Baseline Survey received 18 responses, which constitutes a response rate of 100%. The respondents had the option to skip questions that they did not wish to answer.

Table 2 summarizes the main characteristics of the survey participants, including institution, academic rank, and demographics. The team is diverse and spans all academic ranks within both tenure track and research lines.

Table 2. Characteristics of Survey Participants

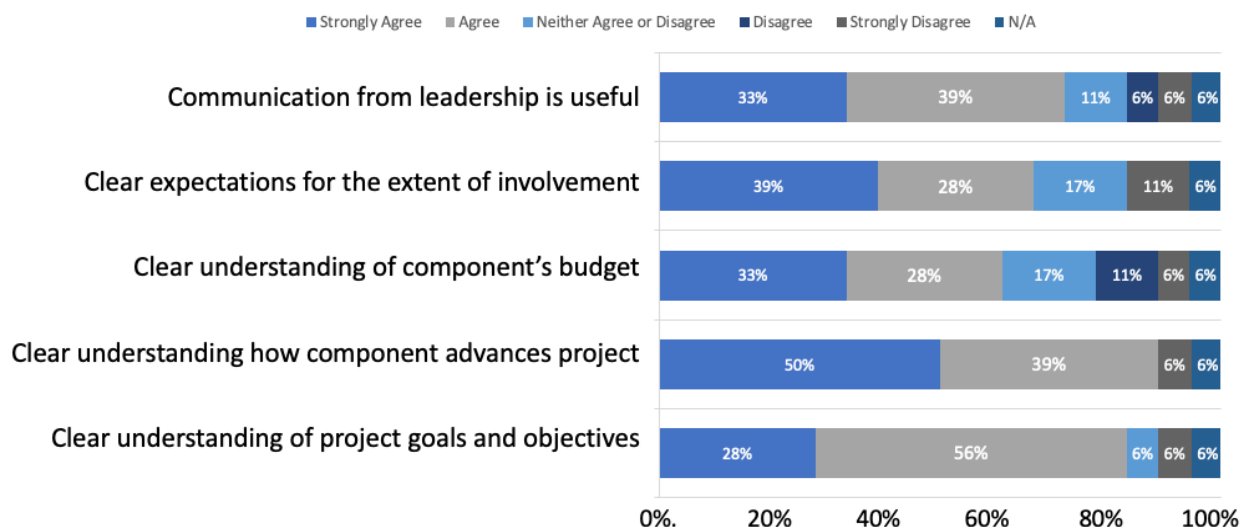
Participant Characteristics	Number (%)
Institution	
University of the Virgin Islands (St. Thomas)	13 (72%)
University of the Virgin Islands (St. Croix)	2 (11%)
University of Kansas	1 (6%)
University of Alabama at Birmingham	1 (6%)
Louisiana State University	1 (6%)
Academic Rank	
Research Assistant Professor	2 (11%)
Assistant Professor	6 (33%)
Research Associate Professor	2 (11%)
Associate Professor	2 (11%)
Research Professor	2 (11%)
Director	2 (11%)
Research Specialist	1 (6%)
No response	1 (6%)
Gender	
Female	9 (50%)
Male	7 (39%)
Prefer not to answer	2 (11%)

Race	
African American or Black	3 (17%)
White	10 (56%)
Prefer not to answer	5 (28%)
Ethnicity	
Hispanic or Latino or Spanish Origin	1 (5.56%)
Not Hispanic or Latino or Spanish Origin	13 (72.22%)
Prefer not to answer	3 (16.67%)

Project Management

The Faculty Baseline Survey included questions that asked participants to indicate the extent of their agreement with several statements that describe their understanding of the project's goals and priorities as well as their role and expected contributions to the project. On average, approximately 75% of respondents indicated strong agreement or agreement with the statements as shown in Figure 1.

Figure 1. Communication from Project Management



Implementation Feasibility

Participants in the survey were asked about possible concerns with the project implementation feasibility. As show in Table 3, the top three concerns selected by faculty are: Issues and delays caused by the pandemic, time constraints, and access to critical infrastructure and resources.

Table 3. Concerns about Project Implementation Feasibility

Reason	Frequency
Q: Given your understanding of what the project is trying to achieve, what concerns do you have about the project implementation feasibility	
Issues and delays caused by the pandemic	12
Time constraints	10
Access to critical infrastructure and resources	8
Feasibility in recruiting, retaining, and attracting faculty	6
Funding limitations	5
Access to critical expertise	4
Lack of interest	2
Competing priorities among team members	2
Overly ambitious goals	2
Loss of key research leads	1
Researchers being over-worked / over-busy	1
Changing Faculty	1
Uncertainty about sustained involvement	1

Collaboration

Cross-disciplinary and cross-jurisdictional collaborations are an important aspect of NSF EPSCoR RII Track-1 programs. One aspect of growth in research capacity at the project and individual researcher levels is the enhanced access to knowledge, expertise, equipment, and collaborators through the participation in collaborative research networks.¹ Of the 18 faculty who completed the Faculty Baseline Survey, 12 reported engaging in cross-disciplinary and cross-jurisdictional collaborations related to R2R research themes. Of those collaborations, an average of 50% have resulted in collaborations on studies or grants. Other collaborations (Table 4) have resulted in co-authorship of publications, developing models and tools, stakeholder engagement activities, and developing and teaching courses.

Table 4. Collaboration Outcomes

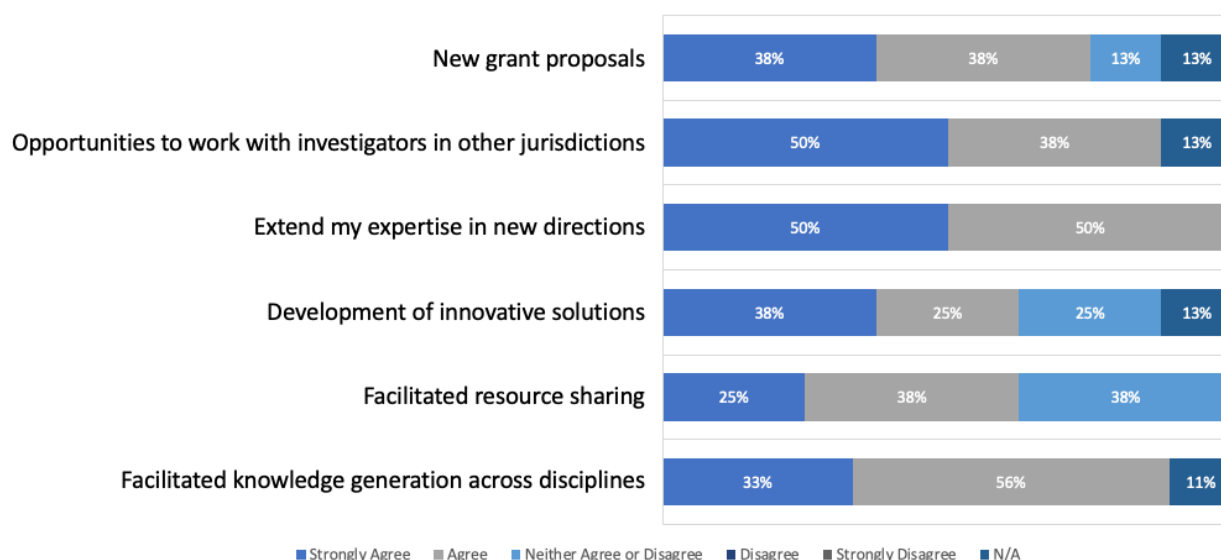
Collaboration Outcomes	%
Study or grant	50%
Developing models and tools	9%
Co-authorship publication(s)	16%
Stakeholder engagement activities	23%

¹ Melkers J, Wu Y. Evaluating the Improved Research Capacity of EPSCoR States: R&D Funding and Collaborative Networks in the NSF EPSCoR Program. Vol 30.; 2013. doi:10.1111/ropr.12008

Developing and teaching a course	1%
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Importantly, R2R faculty have reported many perceived benefits (Figure 2) resulting from cross-disciplinary and cross-jurisdictional collaborations. All 12 respondents either strongly agreed or agreed that their collaborations have provided opportunities for them to extend their expertise in new directions. 89% of respondents either strongly agreed or agreed that the collaborations have facilitated knowledge generation and transfer among researchers from different disciplines.

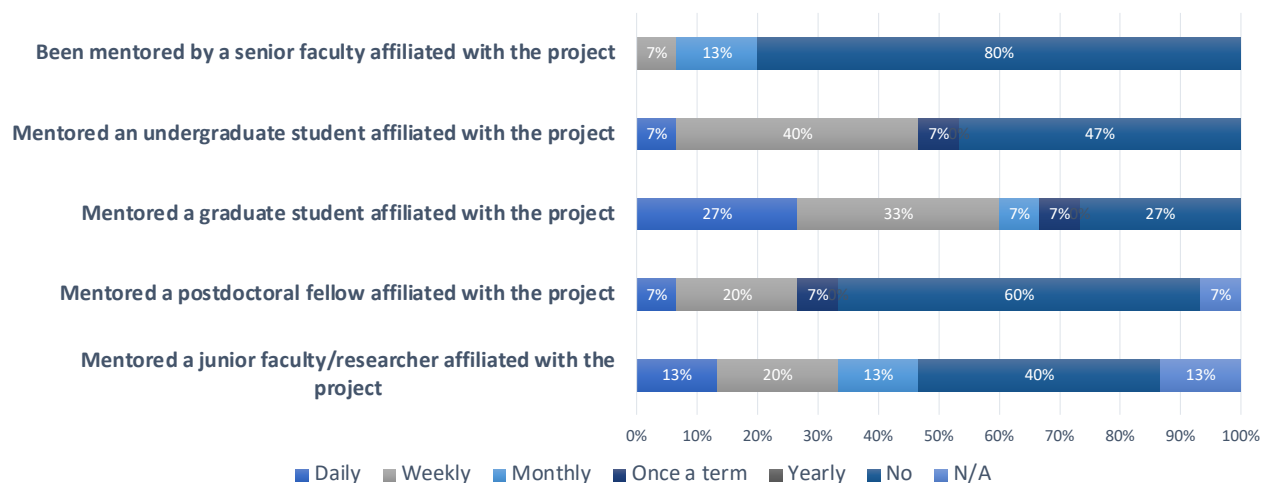
Figure 2. Perceived Benefits of Collaboration



Mentoring and Professional Development

R2R faculty reported involvement in mentoring relationships as mentors, mentees, or both (Figure 3). Of the 14 respondents to this set of questions, only 20% reported being mentored by a senior faculty member associated with the project. This is significant due to 50% of respondents being classified as junior faculty. 73% of R2R faculty respondents report mentoring a graduate student(s) and 53% report mentoring a undergraduate student(s).

Figure 3. Mentoring Activities Reported by Survey Participants



Of the faculty who report mentoring students, research projects and interests as well as professional development and networking are cited as the top two areas of focus (Figure 4). Mentoring activities for faculty tended to focus primarily on research (Figure 5).

Figure 4. Focus of Mentoring Activities- Students

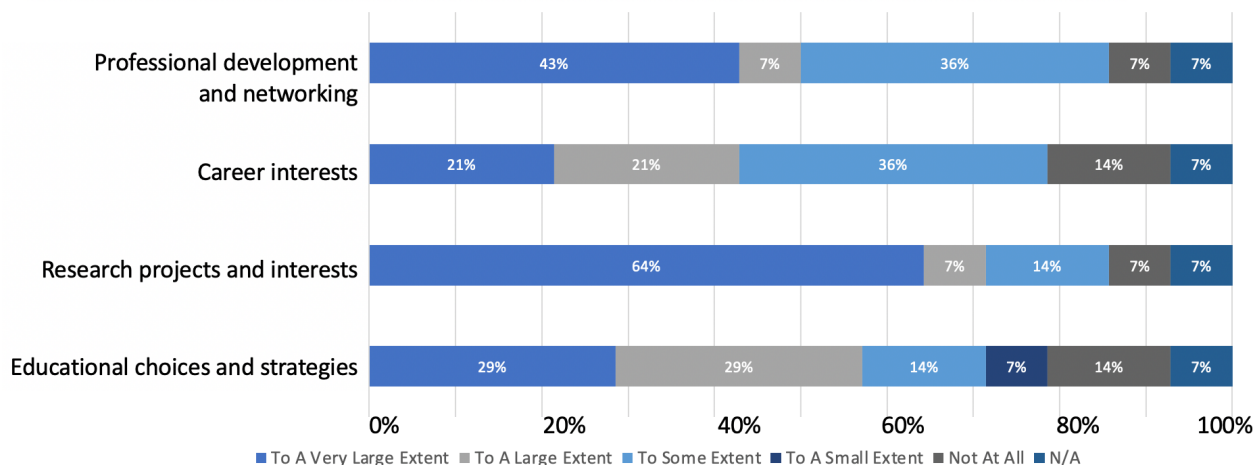
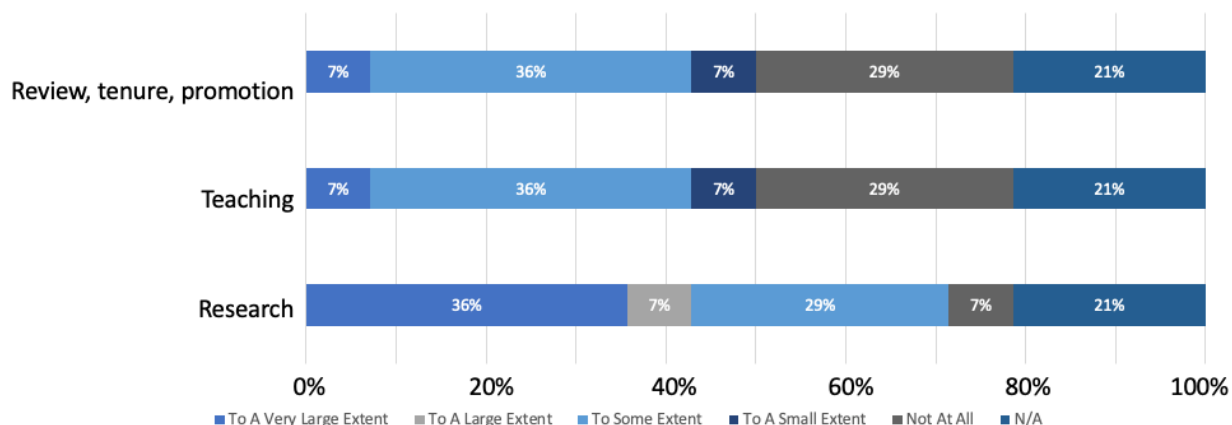
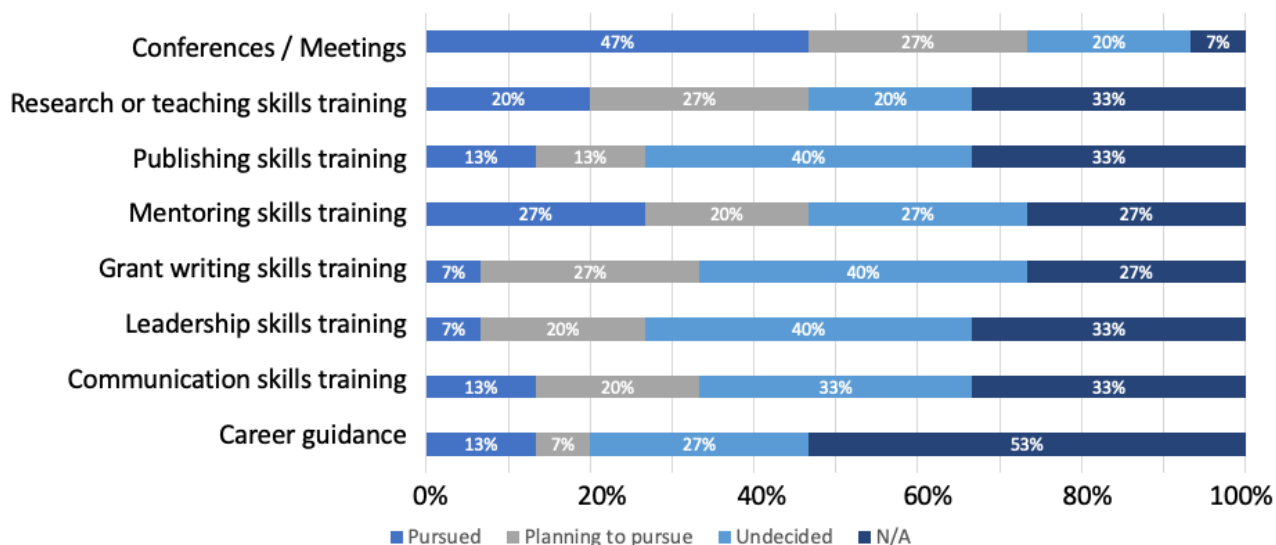


Figure 5. Focus of Mentoring Activities- Researchers



The Faculty Baseline Survey included questions that asked participants to indicate if they have pursued (since joining R2R) or planned to pursue professional development activities/opportunities. As illustrated in Figure 6, conferences and professional meetings constituted most of these professional development activities, followed by training to enhance mentoring skills as well as training to improve research or teaching skills.

Figure 6. Professional Development Activities/Opportunities



The participants were also asked to identify the main barriers for them to pursue professional development activities (Table 5). Of the respondents, 92% identified “insufficient time for professional development due to high workload” as the main barrier.

Table 5. Barriers for Pursuing Professional Development Activities

Barrier	%
Q. What are the main barriers for you to pursue professional development activities?	
Insufficient time for professional development due to high workload	92%
Lack of institutional / department support or incentives for professional development	50%
Lack of relevant professional development being offered	17%
Lack of resources for professional development (at the project and/or institution level)	17%

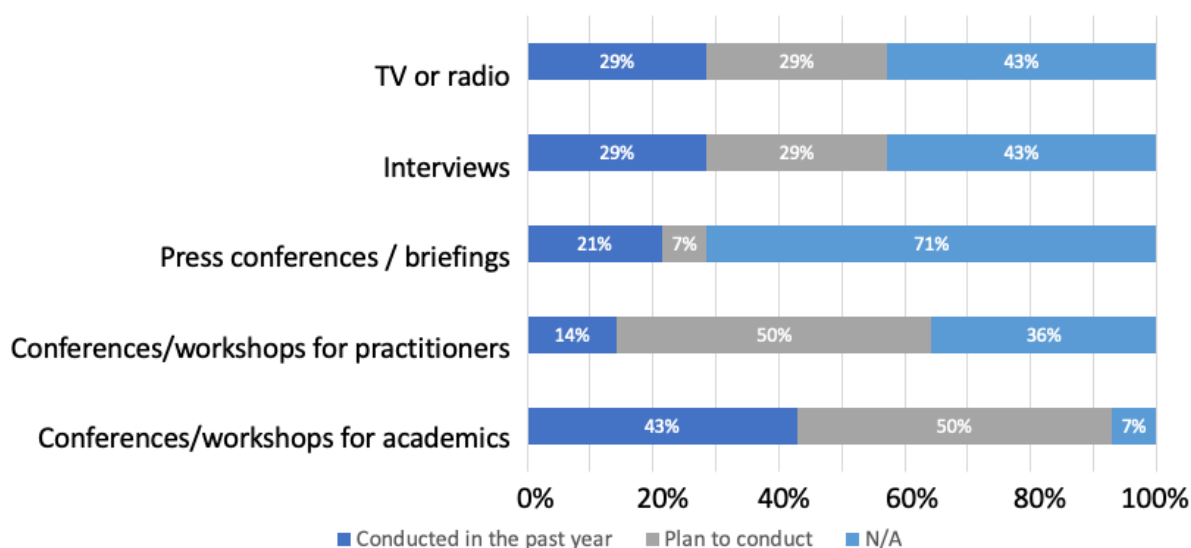
External Stakeholder Engagements

Of 14 respondents, all indicated that their work as part of this project involves engaging external stakeholders. Of those, 10 report participating in outreach to external groups to share information about R2R. Sharing knowledge/information/data and training workshops are the top two reported outreach/engagement activities. Nearly half of respondents cited a need for further support from R2R project leadership to facilitate outreach/engagement.

Dissemination Activities

The Faculty Baseline Survey included a question that asked participants if they have conducted (or plan to conduct) any dissemination activities as part of their work on the project (Figure 7). Of 14 respondents, 93% reported conferences or workshops primarily for academics. Also, 58% reported media presentations (TV or radio).

Figure 7. Dissemination Activities



Participants in the Faculty Baseline Survey were given the opportunity to provide additional comments or suggestions for ways in which the project could further support individual researchers and teams, and more effectively achieve its goals. The following are some of the most common responses:

- More support for mentoring post-docs and junior faculty
- Further development of outreach and social media platforms
- Assistance with grant writing

In addition to the above suggestions, survey participants expressed concerns regarding the following:

- Loss of key research leads
- Building delays at key facilities (Marine Science Building and Environmental Analysis Laboratory)
- Insufficient work/lab spaces
- High workload for faculty researchers

Summary and Conclusion

This section summarizes the main outcomes from assessment of the progress achieved toward project goals in each of the R2R areas based on findings from the Faculty Baseline Survey, ERCORE, and highlights areas that might need further attention.

Overall R2R evaluation questions concentrate on three main themes: 1) project implementation and infrastructure; 2) research activities and outcomes; and 3) R2R impacts.

Project Implementation and Infrastructure

The project is in Year 1 of implementation. Based on responses to the Faculty Baseline Survey, participants seem to have a clear and consistent understanding of the project's overarching goals and priorities and how their contribution advances project goals. This could be interpreted as evidence of effective communication and initial implementation efforts undertaken by the project leadership. If sustained, this could translate to tangible benefits in the coming years in terms of research productivity at the individual level and research capacity at the institution level.

Identifying innovative and feasible solutions to help project participants to overcome “time constraints” and “access to critical infrastructure and resources” as barriers to project implementation is an area that could benefit from further attention and support from the project leadership.

Research Activities and Outcomes

It is not useful to interpret productivity data based on ERCORE entries since not enough time has passed to expect significant progress. The R2R team is to be commended on the progress that they have made in Year 1.

These advances have occurred in the face of barriers caused by the COVID-19 pandemic and construction delays in re-building the Marine Science Building and Environmental Analysis Laboratory. Continued delays have the potential to derail forward progress toward project goals and milestones.

The resilience of the team is apparent in their strong accomplishments of R2R objectives despite constraints caused by delays in institutional provisioning of infrastructure (Marine Science Building, Environmental Analysis Lab), and pandemic-caused impacts on fieldwork and personnel.

R2R Impacts

While it is too early in the project to form an assessment of the research, institutional, student, or education and workforce impacts, most of those areas are progressing well in achieving Year 1 goals and milestones. This is due to the agility of the team - activities that are curtailed by COVID-19 have been either prepared for when the project can spin-up, post-pandemic, or they have been able to pivot to methods that allow them to still achieve project objectives.