Excerpt from project proposal prepared for Wells Reserve Project Page

October 31, 2018 by Christine Feurt

Project Title: **Resilience Dialogues: Strategies for Conflict Management in Collaborative Science**

Timing of project: October 2017 – September 2019

Project Lead / Principal Investigator

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Additional Team Members

**Nature of contribution of team members**: Team members attending the 2017 Annual Meeting will participate in a *Getting Creative Session* to kick off the project and share examples of conflicts and conflict resolution strategies in the context of collaborative science at their reserves. The same session will include a discussion of needs for conflict resolution knowledge and skills based upon circumstances at individual reserves. Team members with *conflict examples to share* will be contacted by phone/visit to provide information to be used to develop case studies for the curriculum. Team members with a *need for the conflict resolution curriculum and resources* will participate in a follow up phone call/visit as part of the needs assessment. During the 18 months of the project, three conference calls/webinars will engage the entire team in discussions of curriculum/resource development. Materials under development will be available for review and comment by all team members. The entire team will participate in the pilot training at the 2018 Annual Meeting.

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5) Name of Reserves

GTM NERR

Wells NERR

Grand Bay NERR

North Carolina NERR

Old Woman Creek NERR

Rookery Bay NERR

San Francisco Bay NERR

Narragansett Bay NERR

Hudson River NERR

Lake Superior NERR

Mission Aransas NERR

Great Bay NERR

Waquoit Bay NERR

Project Budget – $99, 948

Project Summary

Collaborative science engages scientists from diverse disciplines, practitioners active in real world management situations, and stakeholders with commitments to places, businesses and communities. As these diverse stakeholders work together on challenging projects, shared goals for resilience can be obscured by conflict. For almost a decade, the National Estuarine Research Reserve System has wrestled with approaches to collaborative science, casting a wide net over coastal management issues in every bioregion of the country. While considerable effort has focused on the definition, design and implementation of collaborative science projects, conflict and conflict resolution strategies that arise during a collaborative science project have received less scrutiny. This Transfer Project will tap the knowledge and experiences within the NERRS to develop a curriculum, resources and training that synthesizes lessons learned about conflict and conflict resolution associated with the practice of collaborative science. The goal is collect and synthesize valuable conflict related lessons learned in the practice of collaborative research while they are fresh and to reflect those lessons to the larger system to share knowledge and best practices. The curriculum, resources and pilot training will increase the capacity of Coastal Training Program Coordinators and others to understand and mediate conflict in their roles as science integrators, project managers and facilitators of collaborative science. The outputs of this project will be designed to be relevant to all sectors within the NERRS, their “state partner” agencies and organizations, and their external partners engaged in collaborative science in estuarine ecosystems.

**Project Narrative**

***Resilience Dialogues: Strategies for Conflict Management in Collaborative Science***

**1) Statement of Need and Current Conditions**

The practice of collaborative science has evolved in the National Estuarine Research Reserve System (NERRS) through two iterations of the NERRS Science Collaborative (NSC) managed by the University of New Hampshire and the University of Michigan. The current (NSC) focus areas broadly include impacts of climate change, use of ecosystem valuation, shoreline stabilization, mitigation of contamination and habitat restoration. These focus areas align generally with those of the previous NSC as well as with priorities identified in the NERRS Strategic Plan. These focus areas aim to foster the resilience of estuaries and coastal watersheds and the communities that depend upon them.

Since 2009, the NSC Requests for Proposals (RFP) have created and refined a road map for the practice of collaborative science and the effective engagement of science end users in all aspects of research. While considerable effort has focused on the definition, design and implementation of collaborative science projects, conflict and conflict management strategies that arise during a collaborative science project have received less scrutiny. The Collaborative Learning Approach (Daniels and Walker, 2001) is one method that has been used to foster stakeholder engagement and support the “co-creation of knowledge” goals of collaborative science. Conflict management is a core principle and practice of Collaborative Learning, addressing three types of conflict that can affect the progress made in a collaborative science project. Conflict can arise over the process used in the collaboration, the relationships among members of a collaboration and the substance or content that the collaboration is focusing on. Collaborative Learning stresses conflict management in order to make progress on a situation.

NERRS professionals and their colleagues have confronted and managed conflict situations during the course of collaborative science projects. These teams have creatively honed the emerging practice of collaborative science on a variety of research topics, using interdisciplinary methods and working with a broad range of coastal management stakeholders. The lessons learned have been essential to the effectiveness of the individual projects and have value to the system as a whole. This Transfer Project will tap the knowledge and experiences within the NERRS. The *Resilience Dialogues* Transfer Project aims to synthesize lessons learned about managing conflict in collaborative science to create a curriculum, resources and training to share this knowledge and best practices. The outputs of this project will be designed for all sectors within the NERRS, their “state partner agencies” and their external partners engaged in collaborative science in coastal regions. The outcomes of this project will increase awareness and knowledge about 1) the kinds of conflict that arise during the course of a collaborative science project, 2) the causes and consequences of conflict that arises during a collaborative science project, and 3)the times or phases of a collaborative science project when conflict is more likely. This project will increase the capacity for applying conflict management strategies in NERRS collaborative science projects as a result of best practices shared through curriculum, resources and peer to peer training.

Resilience Dialogues will transfer lessons learned about conflict related to the practice of collaborative science in each of the focus areas. Examples of conflicts that the reserves included on the team for this project have experienced in each of the focus areas are summarized in the table below.

|  |  |
| --- | --- |
| Focus Area | Example Conflicts |
| Biophysical and socio-demographic impacts of climate change on estuarine systems, including, but not limited to, sea level rise, marsh sustainability, and estimating community risk to climate change | Restrictions on use of terminology or concepts fundamental to the science of climate change. Public acceptance of climate science. Scientific disagreement and uncertainty regarding causes/impacts/approaches |
| How to utilize ecosystem valuation to characterize the benefits and tradeoffs of preserving estuarine ecosystems | Disciplinary conflicts over the gap that emerges from the results of valuation studies and the application of those results to a decision making context. Distrust of any attempt to put a dollar value on nature. |
| The impacts and tradeoffs of shoreline stabilization, and which factors communities need to consider when adopting such measures | Property rights and property owner responsibilities. Negative public response to shoreline stabilization techniques. Will retreat ever be a viable option?  |
| How to mitigate the impacts of land use change and estuarine eutrophication and contamination in estuarine ecosystems | Property rights and property owner responsibilities. Conflicting policy impact assessments. Conflicting judgements on sources of contamination. |
| How to restore estuarine habitat once it has been degraded or lost | Prioritizing restoration projects. Should areas that will be inundated be ineligible? |

Intended users are NERR staff from all sectors, including interested friend's groups, engaged in dialogues and work related to resilience and collaborative science. The team for this project is an integrated team of science transfer providers and intended users. This team includes 13 reserves, one friends group and NOAA’s Office for Coastal Management Training and Engagement Program. Team members represent the “experience spectrum” of collaborative science, including principal investigators on long term projects and new Coastal Training Program (CTP) Coordinators with an interest and need to build competencies as facilitators of collaborative science. The team members for this project represent the end user audience. Managers and CTP Coordinators and one Friends Group representative comprise the project team.

The team will be engaged in a needs assessment and training design process beginning at the 2017 NERRS Annual Meeting and continuing through individual phone calls/in-person meetings and three team conference calls, a pilot training and ending with the *Resilience Dialogues* Training at the 2018 Annual meeting. Experienced team members will provide examples of conflict management strategies that the P. I. will synthesize and use to prepare draft case studies, resources and training curriculum for review by the team. A pilot training during the design phase will be scheduled for one of the reserves with a new CTP Coordinator. The final *Resilience Dialogues* training will include interested participants from all sectors of the NERRS. The training format will be peer to peer, interactive and involve team members in sharing their *Resilience Dialogue* case studies. The training content will build knowledge and present best practices for conflict management in collaborative science around the following questions:

* What kinds of conflict arise during the course of a collaborative science project?
* What are the causes and consequences of conflict that arises during a collaborative science project?
* Are there times or phases of a collaborative science project when conflict is more likely?
* What actions or strategies were used to address the conflict? Did they manage the conflict? (discussing what didn’t work can be as valuable as sharing success)
* What advice would you give to members of a collaborative science team to avoid or manage conflict during collaborative science projects?

Following the Resilience Dialogues training at the 2018 Annual Meeting, curriculum and resources will be revised and finalized. The potential and desire for a “train the trainers” workshop/web-based trainings or incorporation of training content into NOAA Digital Coast resources will be evaluated by the team after this training.

**2a)** **Project Outputs**

1. Kick off session with team members, open to other NERRS end users, at NERRS 2017 Annual Meeting. This begins the Needs Assessment process, end users will be engaged, using the five content questions above to guide the session, P.I. will facilitate.
2. Needs Assessment for Conflict Management in Collaborative Science in the NERRS

End users will be engaged through phone/in person meetings and team conference calls. Literature review of natural resource management conflict will be conducted by P.I targeting existing conflict management trainings and approaches used by natural resource management agencies like US Forest Service and US Fish and Wildlife Service.

1. Three conference calls/webinar format to engage the end user team and additional NERRS end users. Conference calls will share current status of output development and engage participants is discussion of findings from needs assessment, development of case studies and design of curriculum.
2. Four case studies exemplifying conflict management in collaborative science connected to each of the NSC focus areas. At least four end users will provide information for the case studies. P.I. will synthesize lessons learned for use in training and resources.
3. A “conflict management in collaborative science” training curriculum: 1) designed with experienced collaborative science practitioners and practitioners new to collaborative science, 2) using lessons learned from NERRS projects,3) that have relevance to NERRS networks. End users will provide input during three conference calls and through paced interaction with draft documents on google docs. 4) incorporates adult learning theory and instructional design best practices in the course development
4. Conflict management resources for collaborative science (determined by Needs Assessment, can be print/web-based, will be disseminated with Pilot Training and maintained on Wells NERR and NERRS Intranet), based upon NERRS expertise and experiences, targeted to the needs of NERRS professionals and their networks. End users will provide input during three conference calls, through paced interaction with google docs and through summative evaluation.
5. At the request of the reserve, presentation of a pilot training during design phase at one reserve with a CTP Coordinator less experienced in collaborative science (candidates include Grand Bay, Old Woman Creek, San Francisco, Rookery, Mission Aransas, Lake Superior)
6. Training *Resilience Dialogues: Strategies for Conflict Management in Collaborative Science.* Interactive,peer to peer learning format. End users will participate in training. Open to all NERR staff attending 2018 Annual Meeting.
7. Summative Evaluation by team members of all outputs and recommendations for future dissemination through web based trainings, train-the-trainer or incorporation of training content into NOAA Digital Coast resources. Some of this dissemination is planned for in the grant.
8. Maintenance of curriculum, resource materials and **Resilience Dialogues** training products on the Wells NERR website and NERRS Intranet with potential posting on NERRA website and Digital Coast pending results of the summative evaluation. With the exception of NERRS Intranet, all posted resources will be available to the coastal research and management community.
9. Presentation of project results at one national conference such as RAE/Coastal Society, CERF or Social Coast.

**2b) Project Outcomes**

Increased awareness and knowledge across NERRS sectors, based upon NERRS examples of the following:

* Kinds of conflict that arise during the course of a collaborative science project
* Causes and consequences of conflict that arises during a collaborative science project
* Times or phases of a collaborative science project when conflict is more likely

Recognition among NERRS researchers engaged in collaborative science that the role of process/legitimacy and relationships/trust in conflict management is as important as the substance/science.

Documentation (through the outputs) that the evolving NERRS model of collaborative science is demonstrating innovation and leadership with outcomes for coastal resilience. Identifying the challenges that remain.

Increased capacity for applying conflict management strategies in NERRS collaborative science projects as a result of best practices shared through curriculum, resources and peer to peer training, with special emphasis given to CTP Coordinators as neutral facilitators of collaborative science.

An enhanced NSC model for collaborative science using the lens of conflict management.

**3) Project Approach**

Summary of Approach: Team members attending the 2017 Annual Meeting will participate in a *Getting Creative Session* to kick off the project and share examples of conflicts and conflict resolution strategies in the context of collaborative science at their reserves. The same session will include a facilitated discussion of needs for conflict resolution knowledge and skills based upon circumstances at individual reserves. This meeting will be open to other NERRS staff. Examples of conflict situations will be collected. Team members with experience in *conflict examples to share* will be contacted by phone/visit to provide information to be used to develop case studies for the curriculum. These meetings will be used to determine the nature of the conflict and the stage that it emerges in processes. Team members with a *need for the conflict resolution curriculum and resources* will participate in a follow up phone call/visit as part of the needs assessment. During the 18 months of the project, three conference calls/webinars will engage the entire team in discussions of curriculum/resource development. During spring/summer 2018 a design phase pilot training will be presented at one of the reserves with less experience in collaborative science. This training will be part of the formative evaluation for training materials. The final *Resilience Dialogues* training will be presented at the 2018 Annual Meeting, open to all sectors. A summative evaluation of that training will be used to finalize curriculum and resources and determine next steps for dissemination.

Methodology: The project approach will draw from three primary sources familiar to many experienced CTP Coordinators. The Collaborative Learning approach, first described by Daniels and Walker in 200, was adapted by the P. I. for the Coastal Training Program at Wells NERR as part of her dissertation research. Dr. Feurt has adapted and applied the Collaborative Learning approach for 15 years in her work with collaborative science within the NERRS. The principles and practices of Collaborative Learning come from a synthesis of three broad theoretical foundations: systems thinking, conflict resolution and adult learning. The design of this transfer project, engagement with team/end users and outreach to the larger NERRS community will follow methods and best practices associated with Collaborative Learning.

Two NOAA developed sources will guide the curriculum design and evaluation. NOAA’s Coastal Services Center, now Office for Coastal Management, synthesized two broad areas of coastal learning to create trainings and resources to guide project design and evaluation. The *Project Design and Evaluation* training uses the five step ADDIE model of instructional design to develop learning materials and activities. Many of the team members/end users engaged in this project are familiar with this method through participation in the training. The ADDIE models includes Assessment and Analysis (needs assessment), Design (much of which is included in this proposal), Development (content and delivery mechanisms), Implementation (pilot training) and Evaluation. Evaluation that occurs during the project is called formative evaluation. Evaluation that takes place at the end of the project is summative evaluation. This is where the second NOAA document comes in. Expanding upon the Project Design and Evaluation course, NOAA developed *Planning for Meaningful Evaluation*. As with *Project Design and Evaluation*, a number of team members/end users have participated in this training. The practices in *Planning for Meaningful Evaluation* will guide the formative evaluations that team members/end users participate in during the 2017 Annual Meeting Kick Off and the three conference call/webinars as materials are being developed. A design phase pilot training will be offered at one Reserve as part of the formative evaluation. During both the design phase training and final training all participants/end users will have input into the evaluations. The team members/end users will be part of the summative evaluation after the pilot training to create the final version of the curriculum, resources and training.

The P. I. with assistance from the Wells NERR CTP Coordinator will be responsible for project management. The P.I. will meet with and collect lessons learned from individual team members who have experience in conflict management on collaborative science projects. The experience of other reserve staff engaged in collaborative science will be incorporated into the case studies. These meetings will be by phone and in person if distance allows. The P.I. will develop draft case studies and a draft needs assessment and share copies of these documents with the team on google docs. During the regularly schedule conference calls/webinars the P.I. will collect feedback from the team on draft documents and update the documents based on feedback. The P.I. is a qualitative data researcher. While this project does not include research, the skills associated with qualitative data methodology will be used including framing of questions, listening, taking notes, looking for patterns in data, coding and synthesizing text to accurately reflect the intent of the speakers. These skills will be used to develop the Needs Assessment, curriculum, conflict management resources and training based upon the input of the team, review of relevant literature and examples of conflict training from other natural resources agencies. NOAA’s Office for Coastal Management will provide support in instructional design and curriculum development and will be engaged throughout the project as a member of the team.

An important aspect of the approach used on this project will be to avoid what CTP Coordinators call “collaboration overload.” Collaborative science can place demands on CTP Coordinators in their role as Collaborative Leads and as Principal Investigators. Engaging stakeholders, facilitating meetings and managing the dialogues and relationships among collaborative science participants frequently includes managing conflicting views of the situation, disciplinary approaches, stakeholder needs and values, and budgetary resources that have not allowed for the complexity inherent in collaboration. Meaningful, targeted engagement of the project team is designed to tailor levels of participation to the needs of the group. The approach used in this project is designed to efficiently add value, build competencies and improve the impact of NERRS collaborative science through conflict management.

**4) Team**

The team for this project is an integrated team of science transfer providers and intended users. Team members represent the “experience spectrum” of collaborative science, including principal investigators on long term projects and new Coastal Training Program (CTP) Coordinators with an interest and need to build competencies as facilitators of collaborative science. Even the experienced principal investigators are approaching this project as an opportunity to learn from colleagues on other projects.

The team includes Managers and CTP Coordinators and the President of Laudholm Trust, the non-profit partner and friends group associated with the Wells NERR. Geographic representation of this team includes representation from the Great Lakes, northeast, southeast, gulf coast and west coast. Natural resources conflict take on very different flavors in different regions of the country. Just as the NERRS collectively represent unique estuarine bioregions, they also collectively represent distinct socioeconomic and cultural regions. Sharing lessons and practices for dealing with natural resources conflict in different cultural contexts will be an important outcome of this project.

The group below has experience with collaborative science conflict situations at their reserves and would like to see their knowledge and experiences combined with that from other reserves and synthesized into a curriculum, resources and training to be shared with the NERRS. This group will contribute to case studies and participate in training development. Expertise in NSC Focus areas is indicated using the numbering system below:

NERRS Science Collaborative Focus Areas (descriptions abbreviated)

1. Biophysical and socio-demographic impacts of climate change
2. How to utilize ecosystem valuation to characterize the benefits and tradeoffs
3. The impacts and tradeoffs of shoreline stabilization
4. How to mitigate the impacts of land use change and estuarine eutrophication
5. How to restore estuarine habitat once it has been degraded or lost

Emilie Hauser, Hudson River NERR CTP Coordinator 3

Erika Washburn, Lake Superior NERR Manager 2

Emily Kuzmick, Old Woman Creek NERR Coastal Training Program Coordinator, 4

Nik Charov, President Laudholm Trust 1

Christine Feurt, Wells NERR, Coastal Training Program Director 2, 4

Tina Gordon, GTM NERR Coastal Training Program Coordinator 1, 3

Annie Cox, Wells NERR Coastal Training Program Coordinator 1

Whitney Jenkins, North Carolina NERR Coastal Training Program Coordinator 1,4

Jennifer West, Narragansett Bay NERR Coastal Training Program Coordinator 1, 4, 5

Steve Miller, Great Bay NERR Coastal Training Program Coordinator 1,2,3,4

Tonna-Marie Surgeon-Rogers Waquoit Bay NERR Coastal Training Program Coordinator 1, 2, 4, 5

These Coastal Training Program Coordinators have been in their positions less than three years. They indicated an interest in attending the training and building their knowledge and skills in conflict management. They will provide input about conflict situations they encounter in their reserves and contribute to the needs assessment used to design and develop the training.

Kelly Heber Dunning, Mission Aransas NERR Coastal Training Program Coordinator,

Aimee Good, San Francisco Bay NERR Coastal Training Program Coordinator

Jessica McIntosh, Rookery Bay NERR Coastal Training Program Coordinator

Emily Kuzmick, Old Woman Creek NERR Coastal Training Program Coordinator

Margo Posten, Grand Bay NERR Coastal Training Program Coordinator

Each NERR is embedded in a rich network of agencies, organizations, and communities whose stewardship actions affect the coastal systems that communities depend on. Coastal Training Program Coordinators are a primary end user of this project because they engage regularly with coastal managers, government officials, NGOs, and community groups whose actions contribute to the stewardship and resilience of coastal ecosystems. CTP Coordinators are on the front line where conflicts among resources users emerge. They are also skilled as facilitators of dialogue and can be called upon by other sectors in the reserve and by organizations in the region to plan and facilitate collaborate meetings and manage conflict as a neutral party. The team formed for this proposal phase of the project does not include Research Coordinators or Stewardship Coordinators. We anticipate engaging these sectors early, during the needs assessment, and including their experiences in case studies and trainings drawing from the Reserves already included in this proposal development phase.

**References used for project approach**

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NOAA Office for Coastal Management. 2018 update. Planning and Facilitating Collaborative Meetings Training Workbook. Charleston, SC. 245 pgs.