

## **Collaboration Agreement**

NSF EPSCoR RII Track-1 Constortium for Research in Environmental Sciences (CREWS) project  
2018-2023 - <https://www.mtnsfepscor.org/projects/crews>

### **I. Introduction and Rationale**

This collaboration plan establishes a framework for an open and collaborative working environment for the Montana NSF EPSCoR CREWS team. CREWS project team members agree to operate under the guidelines described in this document. This agreement will be modified as necessary over the course of the CREWS project. Changes require approval by the Management Team.

### **II. Collaboration and Team Expectations**

Successful execution of the CREWS project will require collaboration across disciplines, institutions, project components, and all project roles. We strive to create a culture that promotes mutual respect, shared learning and interdisciplinary research. As members of the CREWS project team, we will encourage and promote:

- Learning from each other and our stakeholders,
- Mentoring of students, postdocs, faculty, and project staff
- Integration of research and other project components,
- Building capacity to bridge knowledge around water quality and its impacts, and
- Respect for one another and representing the project in a professional and positive manner.

Expectations for CREWS Team members include:

- Compliance with the terms and conditions stated in award letters.
- Collaboration and sharing of resources (funds, expertise, equipment, data) across all project components and participating institutions.

CREWS research team members will

- Work collaboratively with other researchers, including faculty, postdocs, staff, and students, to advance project goals and objectives according to the strategic plan. This expectation includes efforts to engage *within and across disciplines, study sites, and disciplinary syntheses*.
- Participate in project Broader Engagement components (outreach, workforce development, commercialization, partnerships, diversity and inclusion).
- Undergo a formal review by the CREWS Management Team on an annual basis (starting in Year 2) to assess scientific productivity and contributions to the project.

CREWS Broader Engagement Team members will

- Work with research team members across institutions to integrate project science with their activities
- Undergo a formal review by the CREWS Management Team on an annual basis (starting in Year 2) to assess productivity and contributions to the project.

### **III. Leadership and Project Management**

Responsibility for project administration and management and final decision authority resides with the Project Director/Principal Investigator (PD/PI). The PD/PI oversees the Management Team, comprised of Co-PIs, the Associate Project Director and Project Administrator. The Management Team is responsible for making decisions to ensure that the CREWS project complies with the merit-reviewed proposal, the NSF-accepted Strategic Plan and award Terms and Conditions. Co-PIs provide institutional coordination with the team members associated with each Strategic Plan Element and/or Research Thrust. All project elements, including the Research Thrusts, have a designated 'Project Lead' who is responsible for coordinating within their project component and communicating across all other project elements.

### **IV. Communication**

Team members will utilize shared team platforms and communications resources to facilitate collaborative team functioning and participate in group meetings and forums for open sharing of ideas. The Management Team conducts weekly meetings to facilitate timely and meaningful communication and to adapt quickly to emerging issues and opportunities. These meetings are open, and any CREWS team member is welcome to participate in the meeting when issues arise. Project Leads conduct team meetings and share information with the Management Team. Project-wide annual meetings are held for the joint purposes of disseminating information, evaluating progress, establishing new collaborations, and planning future activities.

Should a conflict arise, team members agree to discuss concerns in a timely, professional and respectful manner. Members of the Management Team are available to assist and mediate conflict resolution and encourage open and civil dialogue in all areas related to team interactions. If the Management Team is not the appropriate venue for conflict resolution, individuals are encouraged to seek out a trusted mentor, colleague, or other institutional resource to help navigate the conflict.

Team members will identify and address potential conflicts of interest through the Research Office at their institution, ensuring compliance with NSF and institutional policies.

### **Authorship**

Team members acknowledge that due to the collaborative nature of the CREWS project, manuscripts/papers may have many authors spanning multiple disciplines. Researchers at all levels agree to the following approach:

- Working group members are proactive about their interest in participating in manuscript development.
- Authorship can and often should include faculty, postdocs and students.
- Authors and co-authors communicate early and often about roles, expectations and responsibilities.

Decisions about authorship are led by the senior author with consideration of the following general guidelines criteria (ICMJE recommendations\*).

- Substantial contributions to the conception or design of the work; or the acquisition, analysis, or interpretation of data for the work.
- Drafting the work or revising it critically for important intellectual content.
- Final approval of the version to be published.
- Agreement to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

\* Fontanarosa P, Bauchner H, Flanagin A. Authorship and Team Science. *JAMA*. 2017;318(24):2433–2437. doi:10.1001/jama.2017.19341

## **V. Acknowledgement and External Communication**

Contributions from partners and stakeholders that do not warrant authorship should be acknowledged and communicated in detail both prior to publication and afterwards. For example, all relevant results should be communicated to Native and rural communities that were involved in any way with the research.

## **VI. Mentoring**

Mentorship is a foundational aspect of CREWS team culture and will help build a cohort of interdisciplinary scientists to address water quality issues over the course of the project. CREWS participants, including faculty, postdocs, students, and technicians, are necessarily participants in mentoring activities (as either the mentor or mentee). Mentorship opportunities are outlined in the CREWS Mentoring Plan and participation is a requirement for all postdocs and new faculty hires, as described in the strategic plan. Mentorship can take place between postdocs and students, between faculty and students, between faculty and postdocs, and across disciplines and institutions.

## **VII. Money and Budget**

The Montana NSF EPSCoR Office is the fiscal and budget management entity for the project. Individual awardees agree to work closely with Office staff on annual budgets and ongoing expenditures. This two-way communication about fiscal information and use of resources is essential for success across all research, education, and broader engagement activities.

*Fiscal compliance:* CREWS has a core team focused on peer-reviewed and defined research and broader engagement activities. All team members must ensure that all expenditures align with the merit-reviewed proposal, NSF-accepted strategic plan, and award terms and conditions. This fiscal responsibility includes expenditures incurred as cost match (20% required), whether these are ‘real dollar’ expenditures or in-kind salary support. The RII Track-1 award to Montana is not a general “infrastructure” award that can be used to fund a broad spectrum of activities, needs, or opportunities.

*Fiscal collaboration:* As long as project outcomes and success per NSF oversight are maintained, annual subawards and individual investigator budgets developed as part of the proposal can be relied on over the five-year award. (Note that the CREWS project is a cooperative agreement, and any NSF-directed changes to the project scope of work may result in changes in individual investigator annual budgets.) This commitment to maintain individual investigator budgets and focus on a small team requires a fiscally collaborative culture. Each awardee needs to be realistic with annual expenditures and open to sharing resources when not needed. We have to report project spending to NSF at a high level of detail, including how funds link to specific project work. Transparency and on-going communication with the Montana NSF EPSCoR Office about how award funds are used and about projected spending is required for every funded participant on the project.

*Policy for Unspent Funds:* There will be no carry forward of funds for individual investigator budgets from year to year (each award index number is limited to the project year and new index numbers will funds will be allocated to each new project year). Any unspent funds that can be carried forward will be pooled and reallocated according to project priorities. The management team has responsibility for this prioritization and reallocation with final approval by the PI/PD. This practice ensures that resources remain aligned with strategic plan activities and that unspent funds can be used strategically to ensure full project success.

### **VIII. Data Management Policy**

CREWS is dedicated to disseminating the research, data, and publications generated by its personnel. Data generated by the team are viewed as assets available to participants and to the public in a way that is open, discoverable, and usable. CREWS project participants will follow the CREWS Data Management Plan (CDMP) that addresses project, institutional, and grant requirements. CREWS project participants will work with the CREWS Data Curation Librarian to implement policy and procedures outlined by the CDMP. The CDMP will be updated as the

project progresses to reflect any changes in requirements. A detailed Action Plan will be developed to implement the CDMP. A CREWS Data Policy overview includes the following data management and sharing practices:

- *Scope* – The policy applies to all research conducted under CREWS authority regardless of origin of funding.
- *Ownership* – The most senior CREWS researcher is the Data Steward for that project and is accountable for data management activities. Each data set will identify a responsible data owner.
- *Obligations* – Researchers are responsible for making themselves familiar with and adhering to legislation, obligations, and funder policies governing their research.
- *Planning* – a project management plan is required for each investigation to include the required behaviors and documents stipulated by the CDMP
- *Storing* – Data (and associated metadata) must be stored securely and protected from loss on the approved CREWS storage platform. Data stewards must ensure that access is not limited to a single person.
- *Describing* – Researchers must provide sufficient metadata as described by the CDMP to ensure that the data are discoverable, understandable, and re-usable.
- *Distributing* – The project management plans must include a statement regarding how and on what terms any supporting research data may be accessed and, if appropriate, be included in publications. Clear statements of data proprietary use should be part of the project plan. To the fullest extent possible, data associated with a publication should be available for download at or before the time of publication. Creative commons licensing can be an option for open data sharing at different levels.
- *Archiving* – Data generated by CREWS participants will be archived in association data project generation. Data Stewards will be responsible for interacting with the CREWS Data Curation Librarian to ensure archiving following the CDMP.
- *Registering* – All data that are retained should be registered with the CREWS data inventory; assignment of DOIs are strongly encouraged.
- *Licensing* – Research data that are made available should not be assigned licenses or terms of use that unnecessarily restrict their management, sharing, or use by others.