

Edit SAES-422 Report

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<p>Remember to click save at the bottom of the screen to ensure that your data is saved before moving to another section!</p> <p>Basic Info (/seas/51948/edit)</p> <p>Participants (/seas/participants/51948)</p> <p>Summary of Minutes (/seas/minutes/51948)</p> <p>Accomplishments (/seas/accomplishments/51948)</p> <p>Impact Statements (/seas/impact/51948)</p> <p>Publications (/seas/publications/51948)</p> <p>View/Submit Report (/seas/submit/51948)</p>	<p>Use this option to send an email to the System Administrators (and other parties) telling them that the SAES-422 has been finalized and submitted.</p> <p>Basic Information</p> <ul style="list-style-type: none"> • Project No. and Title: NC_old1190 : Catalysts for Water Resources Protection and Restoration: Applied Social Science Research • Period Covered: 07/01/2020 to 09/30/2021 • Date of Report: 09/30/2021 • Annual Meeting Dates: 08/24/2021 to 08/24/2021 <p>Participants</p> <p>Aaron Thompson (Purdue) Stephen Gasteyer (Michigan State U) J. Arbuckle (Iowa State U) Tonya Haigh (U Nebraska-Lincoln) Kristin Floress (USFS) Doug Jackson-Smith (Ohio State U) Mae Davenport (U Minnesota) Anil Kumar Chaudhary (Penn State) Emily Usher (Purdue) Jessica Schad (Utah State U) Sarah Roth (UMN) Ronald Cossman (Miss State) Yu Lu (UW-Madison) Jeff Peterson (UM/NIFA Hatch)</p> <p>Brief Summary of Minutes of Annual Meeting</p> <p>August 24, 2021</p> <p>Hatch group NC1190 meeting minutes</p> <p>Agenda</p> <ol style="list-style-type: none"> 1. a) update each other on work; 2. b) talk through the new proposal and implications; 3. c) talk about ongoing and new initiatives – including an update on accomplishments and plans; 4. d) set goals for next year; 5. e) elect new officer 6. f) decide on where and when we will meet next year (IN PERSON)!!! <p>Note-taker: Chloe Wardropper</p> <p>Current leadership: Stephen Gasteyer (Chair and host), Mae Davenport (Vice-Chair), Chloe Wardropper (Secretary)</p> <ol style="list-style-type: none"> 1. We discussed our work from the past year and prepared impact statements (see Accomplishments and Impacts sections). 2. We then discussed the new proposal that was approved and set goals for the next year, below. 3. We did not elect a new Secretary - that needs to be done ASAP. 4. Finally, we will meet next year in Coeur d'Alene, Idaho. Tentative dates are June 15-17, 2022. <p>Notes on new objectives:</p> <p>Objective 1. Empirically test already developed typologies of catalysts for change in conservation behavior, resource management and governance in a water context to determine the mechanisms and conditions by which catalysts are translated into individual, collective, and institutional action.</p> <p>Further describe objective</p> <ul style="list-style-type: none"> • Develop Obj. 2 first, potentially get funding to further test <p>Potential synergistic activities</p> <ul style="list-style-type: none"> • Wait for Obj 2 and 3, then initiate conversations about some coordinated data collection and analysis work we might facilitate across our states <p>Interested people: Adena</p>	

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Objective 2. Understand and develop conceptual frameworks, typologies, and analytical models of individual, institutional, and collective actions and link these to social and ecological outcomes.

Further describe objective

- Frameworks describing interactions of individuals, society, institutions related to water decision-making and action have been developed in the past.
 - Examples: A Typology of Catalyst Events for Collaborative Watershed Management in the United States
 - <https://www.tandfonline.com/doi/full/10.1080/08941920.2014.918230> (<https://www.tandfonline.com/doi/full/10.1080/08941920.2014.918230>)
 - <https://experts.umn.edu/en/publications/a-multilevel-community-capacity-model-for-sustainable-watershed-m> (<https://experts.umn.edu/en/publications/a-multilevel-community-capacity-model-for-sustainable-watershed-m>)
 - Most empirical studies of catalysts have been conducted as case studies at local levels, with few meso- or macro-level studies.

Potential synergistic activities

- Work group to assess which facets of past frameworks (starting with Catalyst model) have been studied empirically. What are the gaps? What is the future?
 - Trouble current frameworks. Is a collaborative model still useful in a polarized democracy?
- Monthly workgroup meetings focusing on a different framework/facet. One person presents per meeting (potential reading assignment)
- Work towards updated shared model(s) that could guide future data collection planning (for objective 1)
- Highlight dynamic aspects - including adaptive responses through time (to articulate to Obj 3)
- Discuss interactions between water quality and quantity management
- Consider working towards NSF RCN or other funding source to support coordinated data collection and analysis/collaborations

Leadership

- Chloe, Anil, and Doug can co-organize, Adena

Objective 3. Identify, develop, and evaluate adaptive strategies to achieve desired actions and capacities to protect water resources.

Further describe objective

- Water systems are changing dramatically. Many in our group work on issues of adaptation.
- Opportunities for comparison

Potential synergistic activities

- Adaptation extreme water availability conditions - drought and increased precipitation; conditions to promote transformation vs. coping; tipping point/threshold of transformation; conflict theme; restoration as adaptation strategy; interactions with larger-scale structures/incentives; role of maladaptation (Chloe, Tonya, Doug, Sarah, Stephen, Anil, Kristin)
- Examine how collaborative models of decision-making (for adaptation) are evolving in watersheds / acknowledging differences in approaches / emergent criticism of collaboration and its impacts on adaptive processes
- Integration of indigenous perspectives and ways of doing in adaptation science -- importance of consideration of perspectives beyond agriculture
- Distributional implications of climate change impacts and adaptation, capacity for doing so

Leadership

Adaptation activity: Tonya, Stephen, Aaron

Objective 4: Assess the justice, equity, and inclusion dimension of water resources management and protection.

Further describe objective

- One sub-objective is to increase recruitment to the group, especially focused on inclusion of under-represented groups
- Justice, equity, and inclusion across the urban-rural spectrum
 - Equity regarding septic system access
- Participatory research and deliberative science. How does deliberative science improve process and outcomes? What are the process outcomes from collaborative science? Can we offer recommendations for others?

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- o Useful paper by Davis and Ramirez-Andreotta (2021):
<https://ehp.niehs.nih.gov/doi/full/10.1289/EHP6274>
 (<https://ehp.niehs.nih.gov/doi/full/10.1289/EHP6274>)
- o Mae's new model of community analysis of scientific data
- o Mae's paper on collaboration with Tribal partners
<https://www.sciencedirect.com/science/article/pii/S1462901120313599>
 (<https://www.sciencedirect.com/science/article/pii/S1462901120313599>)
- o Paper from Chloe and many others' collaboration in a mining-impacted region:
<https://www.tandfonline.com/doi/full/10.1080/02626667.2020.1808218>
 (<https://www.tandfonline.com/doi/full/10.1080/02626667.2020.1808218>)
- o Sarah's work on citizen/community science
- o Work in PA with Amish and Mennonite communities

Potential synergistic activities

- Monthly meetings - we'll invite new people
 - o New people ideas: Doug's SESYNC project; Wes and others led project on engaged research; Mae's collaborators on the manomin project (e.g. Mike Dockry); Chloe's collaborator from Coeur d'Alene tribe (Chris Meyer); Kyle Powyss Whyte (U of Michigan) has done a lot of work on collaboration; visiting Tribal scholar at UI (Shanny Spang Gion)

Leadership

Mae & Sarah R. and Kristin

Accomplishments

Accomplishments by member:

Aaron Thompson

- Activity: Great Lakes Restoration Initiative funded project in Saginaw Bay integrating landscape design into agricultural buffers. The project is using USFS Ag Buffer Builder. Results suggest that enough land is out of production in the watershed to meet goals, but not in the riparian areas. Developing principles for good design into buffers. Collaborating with Kristin Floress.
- Output: Video game simulation project to teach about designing agricultural buffers.

Chloe Wardropper

- Output: MS student defended her thesis, and will work with Tanya Haigh at the NDMC. Her work was based on a national survey of risk perception and trust in government related to managing lead exposure in watersheds, Superfund sites, and domestic.
- Output: Recent report for the Washington Department of Ecology on perceptions of riparian buffers among farmers and other landowners.

Kristin Floress

- Activity: On national conservation behavior leadership team with USDA assessing precursors of agricultural conservation practice adoption and helping to inform assessments.
- Activity: Working with Emily Huff to expand research related to agroforestry buffers
- Output: Publishing work from INFEWS grant: intervention messages that impact food, energy, and water actions in suburban households.
- Activity: Working on Chicagoland conservation behaviors, esp. Related to flooding and WQ, conservation landscaping

Doug Jackson-Smith

- Outputs: Several recent publications related to organic farmer antibiotic use and soil management, with particular focus on the practice of soil balancing - key themes and lessons relate to complexities of farmer decision making and use of science, role of traditional LGU research and extension in farm management decision-making.
- Activity: Participated in NSF-SESYNC project to develop a multi-social science discipline integrated conceptual model to explain conservation behavior on private lands; conceptual framework paper currently under review, but builds on NC1190 catalyst/behavior models.
- Outputs: Recent publications out (and under review) on implications of inadequate representation of farmer fertilizer behavior in water quality models (e.g., SWAT), and demonstrated potential for using empirical data to ground assumptions about farmer fertilizer behavior in models.
- Activity: Continued work on food-energy-water system linkages in eastern corn belt/great lakes (NSF)
- Outputs: Conducted statewide farm poll in Ohio spring 2020 - focused on impacts of catalysts/shocks like extreme weather and trade wars in 2019 on farm and farm household adaptive behaviors and well being. Developed and disseminated a series of extension resources through project website:
<https://senr.osu.edu/ohiofarmpoll> (<https://senr.osu.edu/ohiofarmpoll>)

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- Activities: Submitted funding proposals (under review): related to agroforestry (w/ Kristin F, Adena R, and Emily H), farm diversification (AFRI/SAS); Circular economy/water systems in rust belt (USGS); building an on-farm research network (NCSARE); and to establish panel study to study farm resilience over time (USDA S&M farms program).

Mae Davenport and Sarah Roth.

- Activity and output: Working with Tribes on wild rice conservation and management. Developed qualitative framework of meaningful collaboration. Have CNH grant, waiting to hear about NOAA climate adaptation sciences grant.
- Activity: Agriculture and groundwater project in Minnesota and Iowa. Survey of farmers on risk perception and concerns about water supply. Irrigation may be an adaptation strategy.
- Activity: Urban water justice project. Conducted surveys on water values and priorities for water management. Uplifting different voices in policy and planning in MN. Have a new LTER urban site, and Mae's role will be to track long-term effects of water/nature disparities on communities.
 - Found statistical diffs between white and BIPOC respondents on multiple items. Conducted focus groups to understand those results and changes needed for water justice.
- Activity: Assessment of public-private partnerships - successes, lessons learned

Emily Usher, Linda Prokopy, Pranay Ranjan (Overview of Purdue NRSS lab)

- Activity: ACPF (ag conservation planning framework). A decision-support tool for planning at farm and community-level. Assessing the tool through surveys, interviews, focus groups in 5 upper-Midwest states. Will be developing an implementation guide for NRCS. Additional funding secured for a second phase.
- Activity: (Pranay lead) Evaluating FRPP for NRCS. FRPP enables acquisition of agricultural easements. Will administer mail surveys.
- Activity: (Pranay and Emily) Working with TNC and General Mills - meta-analysis of characteristics of successful farmer-led learning networks.
- Activity: Comparison of cover crop data using OPTIS satellite data and interviews to understand differences between county adoption rates.

Ron Cossman

- Activity: Working with SeaGrant (<https://nicholasinstitute.duke.edu/sites/default/files/gems/ESLM-Salt-Marsh-Restoration.png> (<https://nicholasinstitute.duke.edu/sites/default/files/gems/ESLM-Salt-Marsh-Restoration.png>)) on social indicator planning and evaluation system and decision tree for ecosystem restoration (see <https://h2o.ssrc.msstate.edu/> (<https://h2o.ssrc.msstate.edu/>))
- Activity: Interested in creating indicators of grassroots environmental groups. What makes them viable? Can we track establishment, work, potential disbandment of groups over time?

Tonya Haigh

- Output: REcent pub: Typology of drought decision-making in journal Weather and Climate Extremes
- Activity: Midwest drought decisions for specialty-crop growers (e.g., irrigated potatoes, cranberries, grapes, apples)
- Output: At NDMC, portfolio on ranchers' management of drought. Recently trying to assess what information ranchers are looking for. Created dashboard focused on questions and answers.
- Activity: NC climate and drought summary and outlook webinar series. Doing an evaluation of the webinar series (impact, use of information).

J. Arbuckle

- Activity: Iowa nutrient reduction strategy. Working with biophysical scientists to assess impacts of nutrient reduction practices
- Activity: Study on 4Rs+ with TNC and Practical Farmers of Iowa
- Activity: Walton family foundation-funded survey and focus groups of NR professionals in MRB related to what is working and not working in their jobs.
- Activity: MRB nutrient reduction strategies paper with multiple NC1190 members

Anil Kumar Chaudhary

- Activity: EQIP assessment. Interviewing NRCS and other stakeholders about funding decisions, differences between farmers who have and have not participated in EQIP.
- Activity: NIFA SAS project: urbanized ag landscape, urban agriculture. Working on education and outreach, formal stakeholder analysis.
- Activity: Penn Dept of Ag funded project: PA progress toward Chesapeake Bay TMDL. How are farmers writing and using conservation plans? What factors are associated with adoption of BMPs through use of conservation plans?
- Activity: Water for Ag project (led by Kathy Brasier, Wes Eaton). Wrapping up the project this next year.

Stephen Gasteyer

- Activity: Project funded by MI assoc of cons districts. Assessing willingness of different farmers in MI to engage with conservation. Want to better understand how to reach populations that don't often respond to surveys. Particularly focused on a MI Agriculture Environmental Assurance Program (<https://maeap.org/> (<https://maeap.org/>)) which certifies farms for conservation best practice.

- Activity: Drainage governance project with Landon and Pranay. Adaptation to higher precipitation is more tiling. Describing drainage policies across states.
- Activity: Drainage ditch monitoring with biophysical scientists. Then using data to talk to farmers.
- Activity: PFAS contamination of surface water. Under what conditions do groups emerge to address emerging surface water contaminants?

Greg Pasternack

- Activity: One of my research sponsors is Yuba Water Agency, who operates a variety of water/river facilities to supply water to agricultural and municipal users in Yuba County, California. I help them develop solutions to a variety of human-ecological-physical river problems they need addressed, including habitat enhancement and river restoration among others. I also participate in the monthly “managers” meeting of the Yuba Accord stakeholders group that includes NGOs, state and federal agencies, and “industry” (YWA, PG&E, and USACE).
- Activity: This year we have been adding a new algorithm to our River Architect software on Github (<https://riverarchitect.github.io>) that produces maps of suitable cottonwood recruitment locations on rivers. River Architect as a whole evaluates geomorphic sustainability, ecological functionality, and economic cost of river projects. Hoping to find others to collaborate with on new ideas/tools to add to this platform.
- Output: Beginning in spring 2021 I started going around the state of California recording videos of all the different kinds of rivers based on the new classification a team of us has developed. I am producing the videos and posting them to YouTube on my RiverSciLife channel (<https://www.youtube.com/channel/UCAZOB4DrcgfBmH3PtySSJew>). It is hard to find time to do the production work, so I have a backlog, but after the wildfires abate I plan to head back out to record more videos.
- Activity: One last note. This summer I became an advisor to the PhD Program about “Human River Systems in the 21st century (HR21)” at BOKU in Vienna, Austria. I am heading there for the second half of September to collaborate and help with the students. They have a really good team of people spanning social and natural sciences working on rivers for the benefit of Austria, so it is interesting to learn from their model.

Mark Burbach.

- Activity: On-going program evaluation of the Nebraska Water Leaders Academy shows that Academy alumni have emerged as leaders in their communities and with the knowledge and skills to drive innovative approaches to water management in Nebraska.
- Activity: In a laboratory experiment, Dr. Burbach and colleagues found that information, communication, and empowerment resulted in decreases in groundwater extraction and increases in irrigation profits over nine-year extraction horizons. Enhanced information and communication also increased the fraction of subjects who voted for and complied with collective action in the form of quotas on pumping levels.

Adena Rissman

- Activity: Research on grassland and managed grazing policy and governance with USDA Grassland 2.0 SAS-CAP grant on grassfed milk and meat in the upper Midwest. Research includes what a just transition to grazing looks like, and an understanding of coalitions between grassland conservation and sustainable agriculture communities.
- Activity: Participating in an NSF INFEWS grant FEWscapes on water quality, water quantity, agriculture, forestry and biofuels in the upper Midwest. We will be doing a policy actor and farmer survey.
- Activity: I serve as the university representative on the WI Council on Forestry which is a multistakeholder forestry group advising the DNR and legislature
- Activity: Research and stakeholder engagement on the social dimensions of spatial, temporal and functional fit with water quality institutions on a UW Sea Grant project
- Activity: Continuing research on a USDA Small and Medium Sized Farms grant with outreach to new landowners
- Activity: Contributed to a USDA proposal on agroforestry with Doug, Kirsten, and Emily Huff

Jessica Schad

- Activity: As part of external evaluation role for SAS grant led by PSU, conducted an online panel survey of Chesapeake Bay Watershed (CBW) residents on their awareness and views of water quality in the CBW and locally, perceptions of causes of water quality issues, views on how water quality issues should be addressed, and what they see as the role/future of agriculture in an urbanized area; we will be conducting a similar survey in 4-5 years to examine change over time; we will also conduct a farmer survey on similar issues in coming months as well as the follow-up in 4-5 years
- Activity and output: Conducted a follow-up survey on South Dakota farmers who took a 2018 survey on their conservation practice usage and attitudes; we were able to get about 350 of the 700 farmers to take the follow-up survey; we are currently working on “one-pagers” to make available to the public on SDSU Open Prairie and will be sending out postcards to our 2018 sample notifying them of their presence
- Activity: Leading a manuscript (with many NC1190 members) that outlines some of the commonly used sources for samples in survey research of agricultural producers in the U.S., as well as provide an assessment of the quality of sources and discussion of when they are appropriate to use
- Activity: Papers in various stages of publication including one using the theory of planned behavior to look at adoption of conservation tillage in South Dakota; a review of non-operating agricultural and absentee forest landowners in the U.S. and Europe; South Dakota farmer usage of nitrogen fertilizer best management practice; testing modified sense of place measures and cover crop usage on working landscapes in low; sense of place and responsibility among South Dakota farmers and their usage of diversified crop rotations; and understanding South Dakota livestock grazers’ usage of parasiticides

Kurt

- Output: Co-organized a workshop on barriers and strategies to enhance BMP adoption in the Chesapeake Bay Program, funded by the Scientific and Technical Advisory Committee to the Chesapeake Bay Program.
- Activity: Co-leading a comprehensive review of the Chesapeake Bay Program's progress to achieve water quality standards in the Chesapeake Bay. The review includes an analysis of the gaps and uncertainties in the implementation of the nutrient and sediment reduction strategies/management actions with a focus on agricultural and urban nonpoint sources. The Chesapeake Bay Program's Scientific and Technical Advisory Committee is conducting the review.

Sarah Church

- Activity: As a co-PI on a USGS 104b grant, we are developing a social and cultural ecosystem service (ES) module to include in a tool to rapidly assess wetlands, streams, and riparian buffers in the Western US. My team administered the first round of an online Delphi survey to aquatic systems experts in several western states (MT, ID, WA, CO, SD) (n=179). The primary purpose of the survey is to build a consensus list of cultural, provisioning, and regulating ES to include in a rapid assessment tool. In addition to ES questions, we asked about respondents' perceptions of different components of wetland protection, including public access, public and wetland-decision makers' understanding of wetland ecosystem services, collaborative planning processes, communication between different scales of government agencies, federal and state policies, and local government land-use decisions and processes. We will administer the second round survey in October 2021.
- Activity: Through a collaboration with the Montana Conservation Corps, my team administered an online survey (n=79) to all watershed groups and Conservation Districts in Montana and are currently conducting interviews throughout the state (a second survey will be administered in October 2021). We are trying to understand the role of Big Sky Watershed Corps (BSWC) members in increasing their host-sites' capacity to achieve environmental outcomes and whether adaptive co-management is occurring in Montana.
- Activity: I am currently completing two manuscripts. One is an examination of the impacts of United States Department of Agriculture National Institute of Food and Agriculture (USDA-NIFA) Water (2001-2013) and Climate (2010-2015) funded projects that supported research, education, and extension programs related to climate and water issues on working lands. For this paper we report on whether/how co-produced research (between project directors and stakeholders) increase community adaptive capacity. The second paper reports results of a Delphi survey process in which my team asked government staff working in water, what water priorities USDA-NIFA should fund in the future.

Impacts

1. Wardropper was awarded NSF DISES grant #2109005 "Cumulative effects of ecological and social stressors on the dynamics of integrated ranching-wildlife systems: drought, wolves, and human decision-makers" - specific to NC-1190 goals, we will assess risk assessments and adaptations by ranchers under water stress.
2. Jackson-Smith received \$1 million USDA/AFRI award from IDEAS program for "Comparing the Environmental Tradeoffs and Synergies of Alternative Modes of Integrating Livestock into Cash Grain Cropping Systems." Led by PI Jackson-Smith, this project will run from 2021-2024 and focuses on dynamics, outcomes, and drivers/barriers to reintegrating livestock into corn/soy rotations in Ohio.
3. Davenport received EPA funding to create a manual of key social indicators and metrics associated with human dimensions of nutrient management in MN.
4. Prokopy received funding from The Nature Conservancy to assess persistence with cover crops among farmers who have received EQIP funding.
5. Burbach awarded Nebraska Environmental Trust grant "Nebraska Water Leaders Academy" - specific to NC-1190 goals, we will test already developed typologies of catalysts for change in conservation behavior, resource management and governance in a water context to determine the mechanisms and conditions by which catalysts are translated into individual, collective, and institutional action.
6. Rissman served farmers and agricultural and water policy stakeholders through convening a series of state learning hubs to examine scenarios and nexus governance of water quality and quantity, agriculture, bioenergy, and ecosystem health in the upper Midwest, through the FEWscapes project funded by NSF INFEWS.
7. Schad awarded SAS grant to examine producers' willingness to use smart foodscapes in western rangelands; CO-PI on the project which will focus on Utah and will run from 2021-2026.
8. Stephenson: The state of Virginia approved the development of a \$1 million dollar pilot of a "demonstrated pay-for-performance system" in the Spring of 2021. A USDA NIFA grant (grant no. 2018-08690) supported development of the initiative.
9. Church received \$27,600 USGS 104b grant to examine how characteristics of volunteer monitoring programs (VWMP) influence diffusion of knowledge and trust in scientific data in Montana.

Publications

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