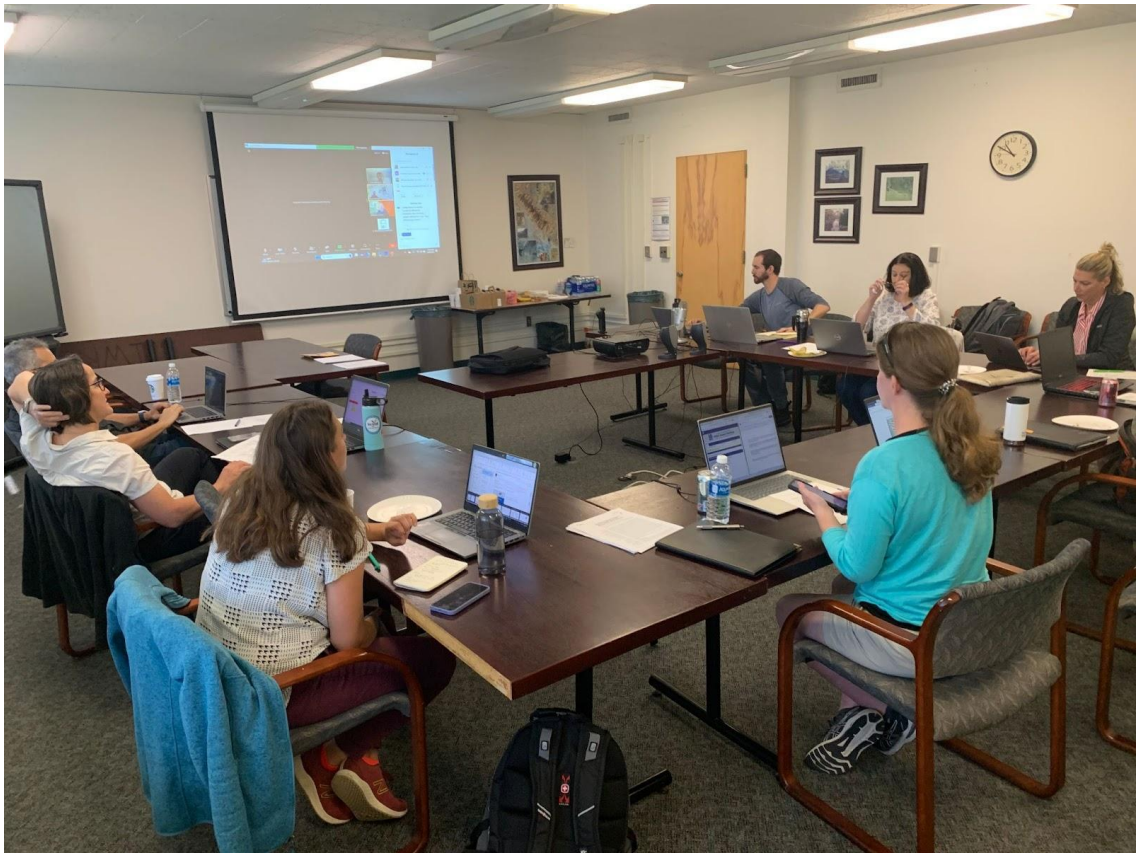
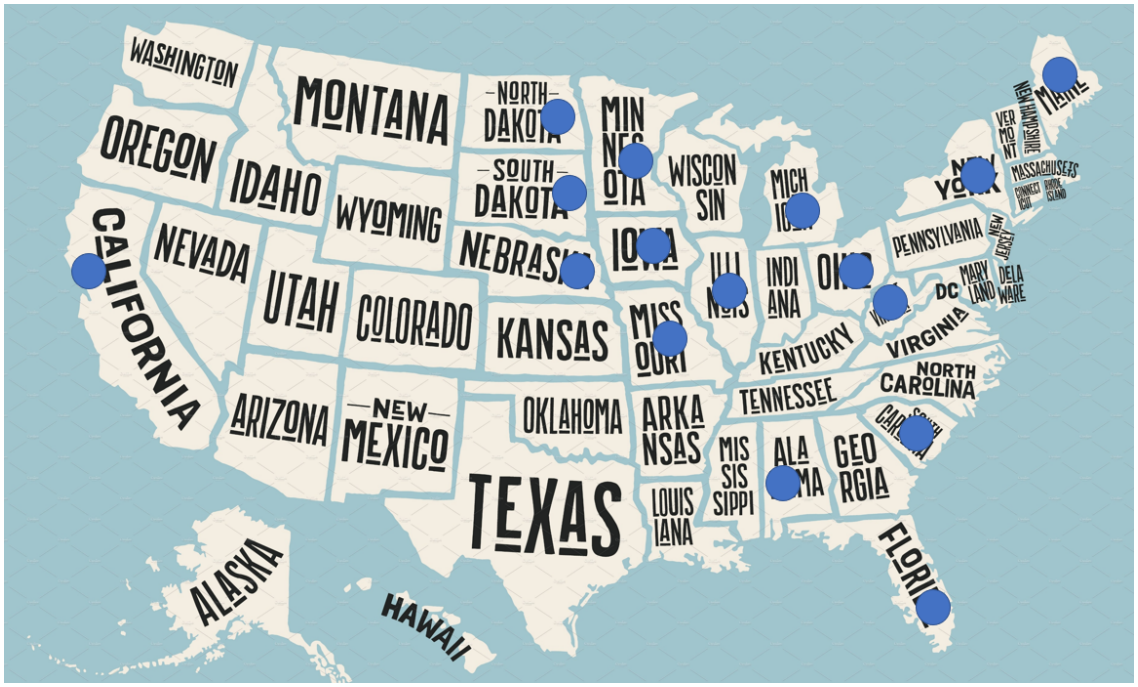
NC1189 Meeting Notes - 18 August 2023



Map showing locations of NC1189 participants:



1. Lightning Talks

Some of the lightning talk slides have been uploaded to this Google Drive folder. If you'd like to upload your own slides, please feel free to do so. If you need access to this folder, reach out to Kyle or Dana.

2. Fisheries as CHANS Discussion (led by Andrew)

Teleconnections: environmental conditions between natural systems over distances
Globalization: socioeconomic interactions between human systems
Telecoupling: environmental and socioeconomic interactions

We discussed Anchoveta as one example:

- Sending system (Peru)
- Receiving system (China, Germany)
- Flows (fish, money, people, etc.)
- Spillover system (USA, Chile)

Intracoupling: within a system, coupled human and natural components
Pericoupling: near or around a system

Scale is a primary focus of telecoupling and metacoupling research
Telecoupling: interactions between far off, non-adjacent systems
Metacoupling: human-nature interactions within and between adjacent and distant systems

"Anglersheds" - Ruskamp 2018
Walleye and smallmouth bass fisheries in anglersheds - Lant et al. 2022

a. Scale (thoughts from in the room)

- Scales may not be discrete. Do scales have boundaries? Heat maps are a good way to show scales.
- Information/results may need to be generated/shared at scales that are meaningful to management.
- Temporal scale is important to consider (related to time lags).
- In the EU, river basin management may be a focus of scale.
- Scale at which humans interact with biota (individual fish vs. fish stocks, recreational vs. commercial fisheries)
- Note that spatial scale may switch with temporal scale
- Pericoupling example: "old school" ways of thinking about fisheries management/stocking

b. Heterogeneity (thoughts from the room)

- Professionals who have different educational backgrounds or job duties may have differences in their understanding of how a system operates
- Factors (stressors) affect fish differently by region
- The term "tribal" is very heterogeneous (additional details in the section below)
- The perception of angler success is very different regionally
- Heterogeneity in how people define quality
- Broader heterogeneity in information flow
- Heterogeneity in regulations - varies by country, state, etc.

- Heterogeneity of systems as a whole (biophysical, human, ideological). (Note that a broadly cast framework has received criticism in the literature.)
- Possible suggestion for survey = ask respondents to envision a scenario when responding to questions.

c. Feedbacks (thoughts from the room)

- Feedbacks related to overfishing - fewer fish, higher costs, higher fishing effort, etc.
- Habitat restoration - all the changes that result from the effort
- Angler perceptions drive management, while management drives angler perceptions
- From river basin management planning, adaptive management. Driver, pressure, response, impact (DPRI).
- We shift genes in populations, which shifts our governance approaches.
- Feedbacks depend on fish, fish assemblages, fisheries, etc. Management creates feedbacks all the time. We can see these loops at broad spatial scales.

d. Time lags and legacy effects (thoughts from the room)

- Situations where stocking no longer happens, yet species are still on the landscape, part of commercial harvest, etc.
- Universal lag between systems and the data we collect (connected to heterogeneity)
    - Example: dam removal and different species' responses (e.g., herring vs sturgeon)
- Legacy effects of landscape factors no longer on the landscape
- Chemicals (i.e., mercury, PCBs) and their long-lasting effects
- In EU, some rivers are thought to be "too clean"
- Nutrients are being stored in the landscape, continue to drive blooms
- Fish predators protected by policies that lead to depression of key stocks of fish
- In Survey - ask about perceptions of lag scale for their particular study system
- Life span or generation time of fish doesn't match with that of other organisms in ecosystems (i.e., mussels)
- When a fishery has changed, time lag in when anglers start to value what the fishery has become
- Time lag in river restoration, what people see
- Time lags affect people's incentives to adopt new practices, etc.
- People might not notice the time lag. When you have a governance shift or policy shift, there is a mismatch in perception about the governance and its effectiveness
- Time lag in training professionals (i.e., graduate students) to meet the needs of agencies, etc.
- Global recession, price increases - this may lead to a lag in people accessing fishing
- In the survey, we could ask about perceived lag from (a) identification of project idea, to (b) project outcome. (what are the common scales of lags?)

e. Nonlinearity and thresholds (thoughts from the room)

- Differences in what managers observe as thresholds
- How people managing against thresholds
- Nearly all ecological processes are non-linear (extinction spirals, invasion spread)
    - Detecting these dynamics can be challenging in management because we are often trying to quantify change in low response or very high response windows
- Some thresholds are "firm," others are "soft" (i.e., angler's catches are poor)
- Nonlinearity of ecological systems makes it tough to manage
- Thresholds at one scale may not relate to another. Also, thresholds may vary by management agency/user group

f. Surprises (thoughts from the room)

- Anchoveta linked to el nino/la nina cycle; crash caused wheat production to decline around the world
- Covid rattled many inland fisheries systems (e.g., license spike, less monitoring, less out-of-state tourism)
- Natural disasters/wildfires
- PFAS in fisheries and perceptions about edibility
- Disruptive technologies and policies (e.g., social media, eDNA, water access rules etc.)
- Interactive, synergistic stressors acting in concert
- Magnitude or rate of change can be the surprise (this relates to the idea of how to "measure" metacouplings)
- Disruptive technologies and policies that come into the system (e.g., seaweed harvest, eDNA might allow more access)
- Human response to any management action, including how they can change over time (i.e., how people feel about native species now might change how things change in the future)
- Rapid economic shifts (local to global)
- Unexpected shifts in species distributions (can we elicit response in the survey about data and surprises)

3. Tribal Discussion, led by Mazeika and Gayle

Initial materials were developed in support of a previous manuscript (see Box 2).

A new manuscript about water protection on tribal lands is coming out soon (Mazeika may share this with the group when it is ready?).

The need to increasingly integrate Tribal, and perhaps more broadly, environmental justice issues into fisheries has been recognized. This includes, for example, the need to consider aspects of tribal sovereignty and trust in government-government relations. Rebuilding trust will, in part, require us to consider environmental injustices of the past (an example of a legacy effect).

We need to be conscious of how to respectfully engage tribes. We cannot simply send around a survey asking to document Tribal perspectives or experiences in thinking about fisheries as CHANS. This effort would require us to be much more intentional. Getting Tribal leaders to the table early will be key.

One additional point to consider is that many Eastern tribes have very little land base compared to tribes in the West. This form of heterogeneity would likely influence perceptions of fisheries as CHANS. 'Tribal' is a very broad category in and of itself.

a. Potential Outputs and/or Goals

A paper on emergent outcomes of Indigenous (local) and Eurocentric ways of knowing, with an emphasis on investigating themes across spatial scales.

An opportunity to host/convene tribal partners in the form of a mini summit; to really sit down and listen to what people have to say; to have representatives come together in one place; and to better understand “what we can do that would be helpful or informative for Tribes”.

How might we/do we want to try and develop survey questions to address issues which are unique to Tribes?

As a way of helping to lead these discussions, we talked about the idea of organizing a panel of individuals having different perspectives or ways of knowing.

An important note is that Tribal natural resource offices (Western science) tend to work differently than Tribes. There may be an opportunity to develop surveys or conduct interviews with one goal being to understand how intra-tribal structures and interactions differ from extra-tribal interactions (e.g., state, federal governments).

For example: Tribal natural resource Divisions vs. Tribal academics vs. Tribal leaders, to better capture some of this heterogeneity.

And/or: Tribal resource users vs. Tribal resource managers.

These ideas reflect an opportunity to actually spend time interrogating some ontological and epistemological assumptions of the CHANS framework.

- Compare and contrast Tribal ways of knowing with the CHANS framework.
- Is the CHANS framework capable of accommodating different ways of knowing?
- How might different ways of knowing inform/improve/expand the CHANS framework? (i.e., feedbacks)

b. In what ways can we be of service to Tribes?

Frameworks that may be used by Tribes to support science and management approaches.

Do we have the capacity to fully integrate tribal colleagues into the design of our approaches/frameworks? Or are we simply looking for input along the way? Option 1 appears to be the right move…

Modify CHANS to make incorporation/integration of tribes and TEK more efficient/synthetic

Starting the conversation is key.

c. Moving this discussion forward

Who wants to be involved? What resources do we need to proceed? Sign up sheet to gauge interest in participating in this effort moving forward. Include a ‘level of involvement’ question in there as well.

What are barriers to interacting and engaging with Tribes from both sides (tribes engaging outside researchers, outside researchers engaging tribes) (e.g., when Universities, Management agencies are working with Tribes, and vice versa)?

Are there opportunities or strategies that might help overcome these barriers?

Here are a range of ways of knowing. How can we think about this without imposing objectives?

4. Aspects of the survey (notes may be incomplete due to a slow internet connection)

Given our assertion that fisheries are CHANS, which aspects of CHANS are most commonly used in practice, and how does their implementation vary between sectors (e.g., agency, academia, etc.)?

Gauging perceptions of how fisheries professionals view CHANS (both in terms of breadth and depth). How do those perceptions vary across regions or job levels? (following past surveys)

How much is this meant to be a data gathering exercise or be educational?

We need to keep in mind that this will go to international fisheries professionals if distributed through AFS.

For the next steps, maybe come up with example questions under each, and think about specific ways of asking the questions?

Present a conceptual model and ask respondents to rate the scale and extent of the paths. Have boxes that show systems, flows, causes, and effects.

- ask respondents to envision a single scenario/system that they work in when responding to questions in the survey

Could present a summary of survey responses to respondents

Could ask respondents to provide us with contact information for others who work in that same system. This could be a way to help supplement via snowballing.

5. Funding needs

1. A postdoc with time fully dedicated to the survey analysis and network analysis
2. Tribal workshop
    - Dana will reach out to Chris Hamilton about meeting funds and/or post doc funds for multistate projects
    - Tribal biologists conference could be a way to reduce costs

a. Potential funding sources for a postdoc

USDA human dimensions call (reach out to the program officer):

- Agroecosystems
- Environmental justice

SeaGrant:

- Internal RFP focused on Great Lakes and coastal states
- Could be used for the tribal piece

NSF call (November 2023 due date):

- Research coordination network
- Dynamics of integrated social and environmental systems

6. Next steps

a. Scheduling meetings

- Find a new time for monthly calls (due dates for ‘homework’ should be two weeks before)

b. Developing the survey

- Develop/adapt a conceptual model of CHANS (e.g., Andrew’s paper - Figure 2)
- Develop the survey questions
- Consider different/specific ways of asking the questions