



How data is (or is not)
tractable to management: A
case study in the Kuskokwim



Based on research done for a publication under review for the Ecology and Society SASAP special issue

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SASAP

State of Alaska's Salmon and People

Integrating and sharing information on Alaska's salmon systems for collaborative & informed decision-making

Working Groups are collaborations of experts from diverse backgrounds and institutions that **synthesize** information and incorporate indigenous knowledge alongside western science



Round 1 Working Groups

Statewide scale examination of three core variables

Biological-Physical state of knowledge on salmon productivity, distribution, & habitat

Synthesis of salmon populations and habitat through abundance, productivity, distribution, age and size structure, water temperature and quality, riverscape analysis, and fish passage data

Team: Peter Westley – UAF College of Fisheries and Ocean Sciences, Dan Rinella – US Fish and Wildlife Service, Rebecca Shafiqel – UAA Alaska Center for Conservation Science, Matt Sloat – Wild Salmon Center, Stephanie Quinn-Davidson – Yukon River Intertribal Fish Commission, Madeline Jovanovich – UAF College of Fisheries and Ocean Sciences

Sociocultural & Economic dimensions of salmon systems

Encompassing social and cultural values, spatial distribution and trends in salmon use and nonuse, and key threats to dependent communities

Team: Courtney Carothers – UAF College of Fisheries and Ocean Sciences, Toby Schwoerer – UAA Institute of Social and Economic Research, Jessica Black – UAF Alaska Native Studies and Rural Development, Danielle Ringer – UAF College of Fisheries and Ocean Sciences, Brooke Wright – UAF Alaska Native Studies and Rural Development

Governance & Subsistence

Analyzing the process of interaction and decision-making among actors involved in salmon systems and how they lead to the creation, reinforcement, and reproduction of social norms and institutions

Team: Rachel Donkersloot – Alaska Marine Conservation Council, Jessica Black – UAF Alaska Native Studies and Rural Development, Courtney Carothers – UAF College of Fisheries and Ocean Sciences



Questions? Comments?
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Goals

- Connect** knowledge across regions, disciplines and agencies, between cultures and users
- Share** research priorities
- Develop** indicators of salmon system health
- Contribute** to sustainable management policies
- Create** new institutional capacity to generate interdisciplinary salmon knowledge



Round 2 Working Groups

Examining pressures on salmon, dependent communities, & options for response

Community Well-being

Identifying and applying well-being concepts to improve social sustainability management

Team: Rachel Donkersloot – Alaska Marine Conservation Council, Jessica Black – UAF Alaska Native Studies and Rural Development, Courtney Carothers – UAF College of Fisheries and Ocean Sciences, and others

Participatory modeling empowering community engagement in salmon science

Synthesize ideas between modelers, population dynamics experts, and stakeholders for community-based monitoring of salmon populations and their dependent fisheries

Lead: Michael L. Jones – MSU Quantitative Fisheries Center, and others

Continuity, Causes, and Consequences of declining size and age of salmon

Examining declining physical trends in all five species of Pacific salmon

Team: Eric Palkovacs – UC Santa Cruz, Peter Westley – UAF College of Fisheries and Ocean Sciences, Bert Lewis – ADF&G, Marissa Baskett – UC Davis, Stephanie Carlson – UC Berkeley, Andrew Hendry – McGill University, and others

Interacting effects of ocean climate & at-sea competition on Alaskan salmon

Building on recent oceanographic studies and long-term salmon population monitoring, accounting for interplay between processes across broad ocean domains

Team: Peter Rand, Robert Campbell, and Kristen Gorman – Prince William Sound Science Center, and others

Kenai Lowlands research synthesis & design of tools for integrated watershed management

Engaging multiple stakeholders to identify how natural salmon capital is valued, and what degree people are willing to make trade-offs in development activities to benefit salmon resources

Team: Coowe Walker – UAA Alaska Center for Conservation Science, Mark Rains – University of South Florida, Ryan King – Baylor University, Charles Simerstad – University of Washington, and others



Literature Review Details

- 2 Reviewers
- 3 Databases
- Sequential online searches for the following keywords:
 - “Community based monitoring” OR “participatory monitoring” AND
 - “fisheries management” OR “fisheries monitoring” OR “fisheries assessment” OR “fisheries
- Snowballing

Community Based Monitoring Literature Review (Responses) SHARE

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Main issues surfaced from lit review

1. The stated goals for CBM centered around community engagement and connection to decision-making; however, relatively few studies were conducted to measure proposed outcomes;
2. Monitoring is typically born out of the scientific observing community rather than locally-situated communities and data collected are primarily biological and quantitative; and,
3. Little research has explored CBM data utility or how and when citizen-derived data are seen as useful to management.





Community Based Monitoring in the Kuskokwim





Interview Study

- Interviewed 15 tribal, state, and federal in-season managers as well as a few participants locally involved in community-based monitoring projects.
- Semi—structured questions focused on questions around how managers assess data utility and credibility. Interview participants were asked questions about how data is useful for making management decisions, and what types of data or information do they see as critical for making these decisions.
- Interviews were conducted between January 2018 and June 2019.
- Transcribed and thematically coded January 2019-August 2019.



Findings

- **Different perceptions on what is considered community-involvement;**
- Expertise is relational; data and information sharing is a social process;
- Trust in data stewards as a major component of trust in the data;
- Importance of prior involvement of ONC and its role as a liaison between government and local citizen;
- Change as a major theme in terms of relying on locally-derived data.



Findings: Different perceptions on community involvement

- Collaborative weirs
- Harvest monitoring surveys
- Voluntary adherence to restrictions*
- And local observations expressed in the Kuskokwim River Salmon Management Working Group Calls and the Kuskokwim River Intertribal Fish Commission (KRITFC)





How this project connects to Mat-Su Basin Salmon Habitat Partnership

- The major focus on encouraging the development and dissemination of *relevant* science-based information
- Provide effective and inclusive outreach and education focused on healthy salmon habitats.
- Address data gaps.
- Kuskokwim like the Mat-Su is a vast area and although fast growing is geographically rural and remote. Additionally, the Mat-Su is still characterized as relatively data poor compared to areas more dominated by commercial or sport fishing interests.

Concluding questions & implications for management

- If designing a framework for others in fisheries management, what are the factors that make data visible to scientists and managers?

Identify more formal ways to incorporate local observations into management

Opportunities like the Kuskokwim River Intertribal Fish Commission (KRITFC) and Kuskokwim River Salmon Management Working Group (KRSMWG) are great for voicing concerns but require a deeper connection to governance; need for elevating it above an advisory group.



Chin'an!