State of Alaska's Salmon and People
SASAP

Meagan Krupa, PhD

SASAP

State of Alaska's Salmon and People

AlaskaSalmonandPeople.org

Norton Sound resident processing salmon at her fish camp. Credit: Julie Raymond-Yakoubian. Used with permission.

- Integrate knowledge across disciplines, between user groups, and across regions and cultures
- Provide a holistic view of the salmon/people system
- Generate institutional capacity
- Establish an ongoing, shared baseline of knowledge
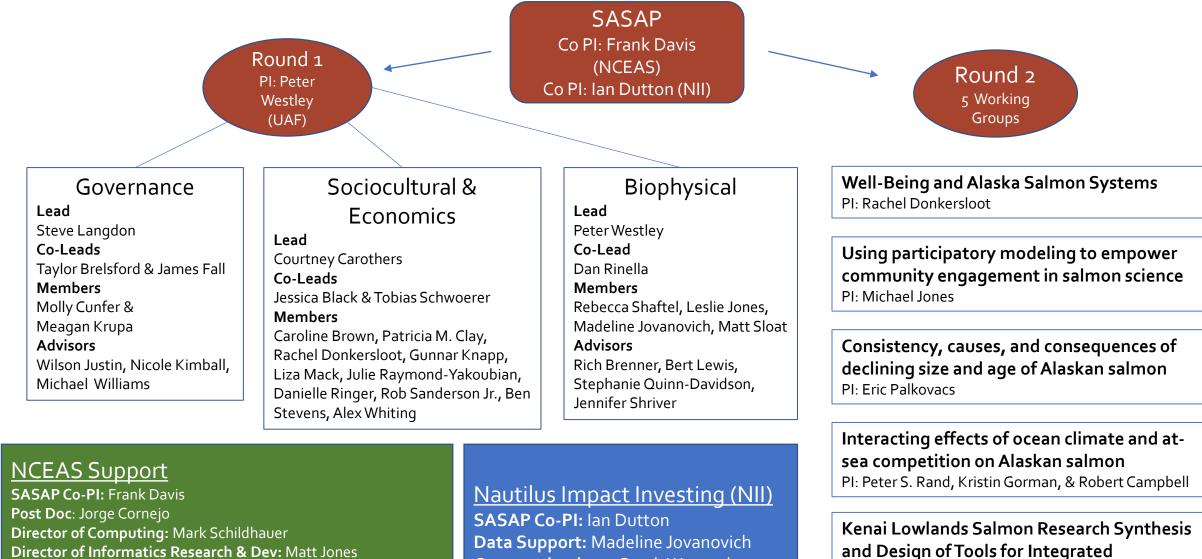
Why NCEAS?

www.nceas.ucsb.edu

- NSF Center 1995-2013
- UCSB Research Unit 2014
- >500 synthesis projects
- *NSF Long Term Ecological Research Network Communication Office*
- *NSF Arctic Data Center*
- *Science for Nature and People Partnership (SNAPP)*
- *Gulf of Alaska Synthesis*
- *Long-term Foundation partner*

Courtesy: LTER Network Office

State of Alaska's Salmon and People (SASAP): 106 participants

SASAP
Co PI: Frank Davis (NCEAS)
Co PI: Ian Dutton (NII)

Round 1
PI: Peter Westley (UAF)

Round 2
5 Working Groups

Governance
Lead
Steve Langdon
Co-Leads
Taylor Brelsford & James Fall
Members
Molly Cunfer & Meagan Krupa
Advisors
Wilson Justin, Nicole Kimball, Michael Williams

Sociocultural & Economics
Lead
Courtney Carothers
Co-Leads
Jessica Black & Tobias Schwoerer
Members
Caroline Brown, Patricia M. Clay, Rachel Donkersloot, Gunnar Knapp, Liza Mack, Julie Raymond-Yakoubian, Danielle Ringer, Rob Sanderson Jr., Ben Stevens, Alex Whiting

Biophysical
Lead
Peter Westley
Co-Lead
Dan Rinella
Members
Rebecca Shaftel, Leslie Jones, Madeline Jovanovich, Matt Sloat
Advisors
Rich Brenner, Bert Lewis, Stephanie Quinn-Davidson, Jennifer Shriver

Well-Being and Alaska Salmon Systems
PI: Rachel Donkersloot

Using participatory modeling to empower community engagement in salmon science
PI: Michael Jones

Consistency, causes, and consequences of declining size and age of Alaskan salmon
PI: Eric Palkovacs

Interacting effects of ocean climate and at-sea competition on Alaskan salmon
PI: Peter S. Rand, Kristin Gorman, & Robert Campbell

Kenai Lowlands Salmon Research Synthesis and Design of Tools for Integrated Watershed Management
PI: Coowe Walker

NCEAS Support
SASAP Co-PI: Frank Davis
Post Doc: Jorge Cornejo
Director of Computing: Mark Schildhauer
Director of Informatics Research & Dev: Matt Jones
Scientific Programmer: Julien Brun, Jared Kibele
Project Data Coordinator: Jeanette Clark & Jesse Goldstein

Nautilus Impact Investing (NII)
SASAP Co-PI: Ian Dutton
Data Support: Madeline Jovanovich
Communications: Sarah Warnock
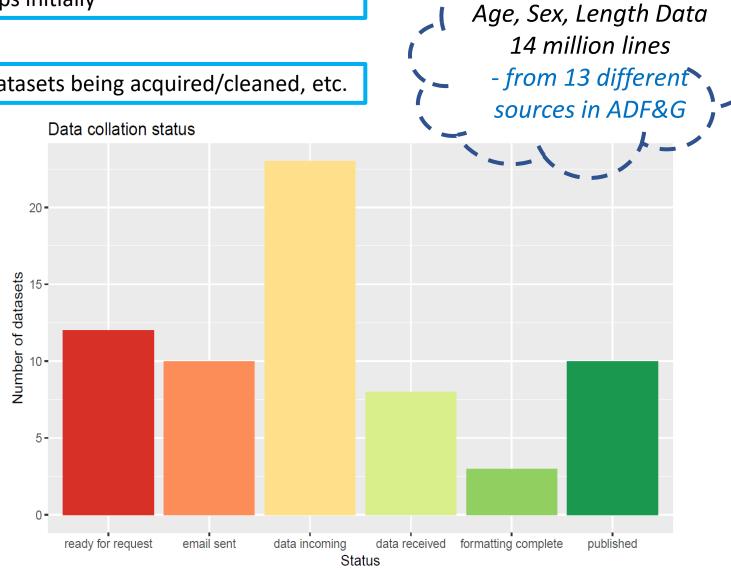
Data, Data Everywhere …

148 datasets identified by working groups initially

66 datasets being acquired/cleaned, etc.

Age, Sex, Length Data 14 million lines - from 13 different sources in ADF&G

Data collation status

Examples of Published Datasets

Data Description	Archive Link
CFEC Permit values	https://knb.ecoinformatics.org/#view/urn:uuid:a058c862-34be-4a99-a024-2027164c0eed
CFEC permit holder database	https://knb.ecoinformatics.org/#view/urn:uuid:cfb72b77-a8db-4555-8e01-63e346241e44
USGS Stream Temperature	https://knb.ecoinformatics.org/#view/urn:uuid:216759e1-8d13-49da-a7b4-8a6686a2c161
USGS Streamflow	https://knb.ecoinformatics.org/#view/urn:uuid:8f58a1fb-25fb-41c7-abf8-d708fb077b92
High-Seas Salmon Tag Recovery Database	https://knb.ecoinformatics.org/#view/urn:uuid:4ee77426-8633-4df4-ad0d-71756b8afe37
Well Locations	https://knb.ecoinformatics.org/#view/urn:uuid:4f136a49-2b6a-4918-a71f-100e92819689
Salmon Wholesale Prices (COAR)	https://knb.ecoinformatics.org/#view/urn:uuid:c24ca3d8-3390-4dd8-bef7-db97e14a0a39
Commercial Salmon Exvessel Values	https://knb.ecoinformatics.org/#view/urn:uuid:45e51431-83a0-47d2-975d-840537a337ed
Coastal Habitat Injury Assessment	https://goa.nceas.ucsb.edu/#view/doi:10.5063/F100001W
Salmon Commercial Harvest	https://knb.ecoinformatics.org/#view/urn:uuid:e6cf5331-a5c3-4e3b-889d-f44e15001780
Board of Fish Proposal Data 1959-2018	doi.org/10.5063/F1G73BVP

NCEAS Support Staff

Matt Jones, Director of Informatics and R&D *(Juneau)*
Responsible for deliverables. Driving the Data Task Force project; providing technical training and guidance on tools to assist Working Groups in managing, tracking, and archiving data.

Mark Schildhauer, Director of Computing (just retired) *(Santa Barbara)*
Drives how NCEAS infrastructure is used and assists Working Groups in utilizing infrastructure. Fosters a culture of sharing knowledge (codes, data formats, etc.) that have been useful to other WGs.

Julien Brun, Scientific Programmer *(Santa Barbara)*
Assists Working Groups in the use of NCEAS analytical & collaborative tools and infrastructure.

Jeanette Clark, Project Data Coordinator *(Santa Barbara)*
Jesse Goldstein, Project Data Coordinator *(Santa Barbara)*
Jorge Cornejo, SASAP Post Doc *(Santa Barbara)*

Graduate student interns
~6 FTE trained by the Projects Data Coordinator and responsible for GitHub ticketing, tracking down data, metadata cleaning, etc.
Jared Kibele, Scientific Programmer 50% SASAP, 50% DTF;
Software Developer Part time, to help develop the salmon data portal as a part of the KNB

Salmon Data Task Force

Co PI: Matt Jones (NCEAS)
Co PI: Ian Dutton (NII)

Ethnography Study *University of Washington*
Human Centered Design & Engineering

David Ribes, Associate Professor
Sarah Inman, PhD Student
Charles Hahn, PhD Student

Subcontracts
AK Dept of Fish & Game (ADFG)

US Fish & Wildlife Service (USFWS)

NOAA National Marine Fisheries Service (NMFS)

Board of Fish Records – Meagan Krupa & Molly McCarthy

Nautilus Impact Investing
Ian Dutton, SASAP & Data Task Force Co PI *(Anchorage)*
Responsible for securing data, integration of SASAP/DTF

Madeline Jovanovich, Coordinator *(Fairbanks)*
Assist coordination between all SASAP working groups and data task force; assists working groups with data needs

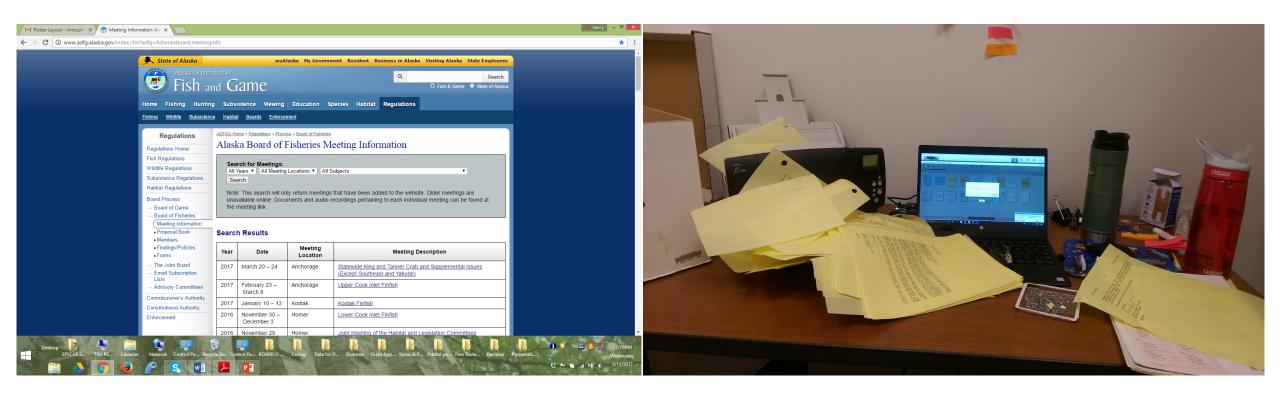*Salmon Data Task Force: Project Example*

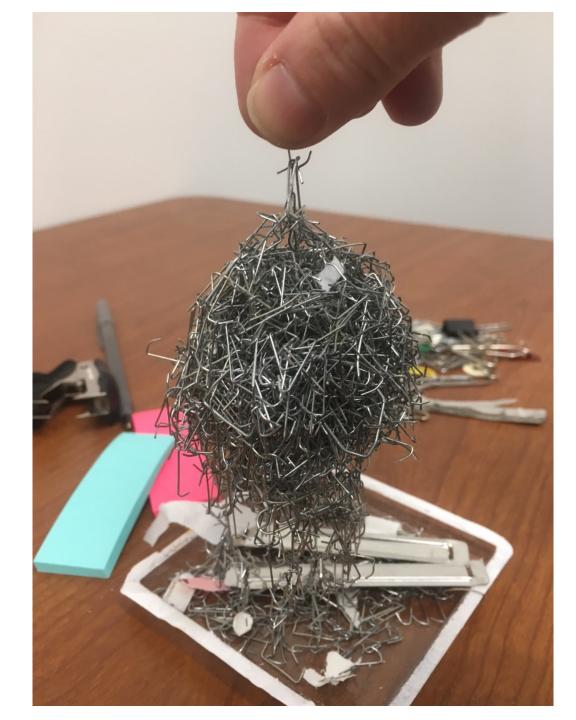Assessing Alaska's Board of Fish process from 1959 to the present

Meagan Krupa, Molly Cunfer, Jeanette Clark, Emily O'Dean

Methods: Downloading/Digitization

2003-present   Pre-2003
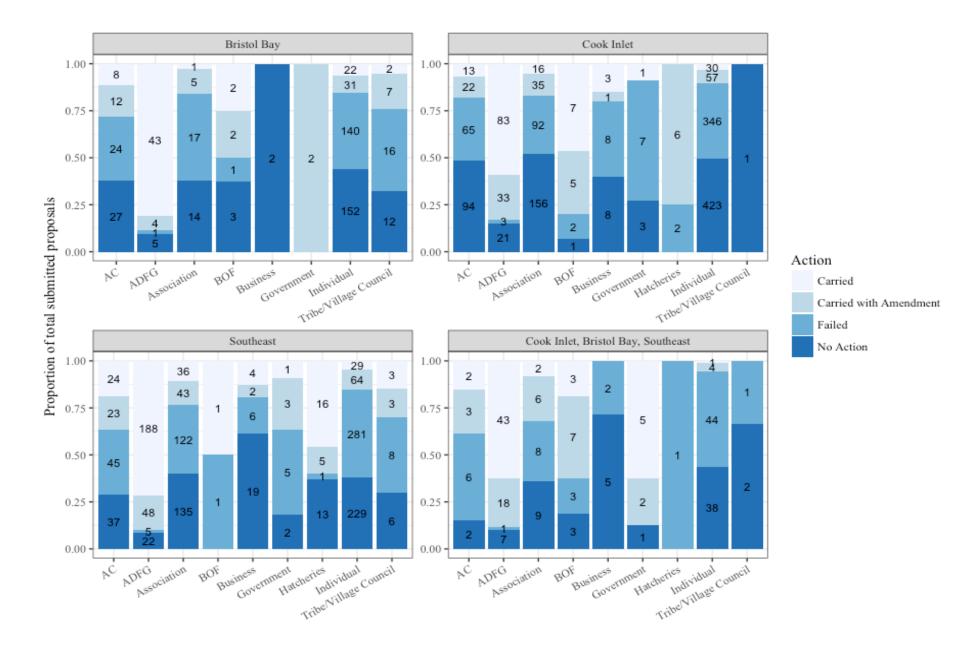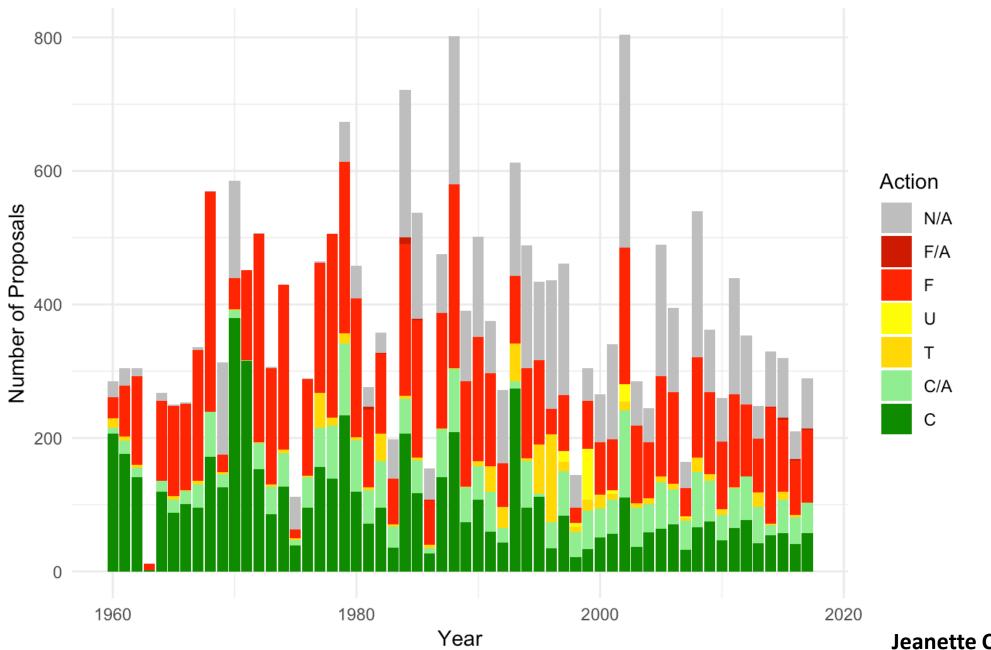
Fun Digitizing Facts

#proposals coded = 45,789

#pages scanned = 96,781

#hours digitizing = 182

#boxes = 185

#new data = 670,000

#paper cuts/staple wounds = >4300

Methods: Coding 19 categories

- **Date**
- **Area**
- **Meeting**
- **Species**
- **Sector**
- **Proposal #**
- **Regulatory Proposal Summary**
- **Statute**
- **Category**
- **Action**
- **Action 2**
- **Proposed By (M/F)**
- **Group**
- **Gender**
- **Board Action**
- **Board Positions**
- **Board abstains, absences**
- **ADF&G position**
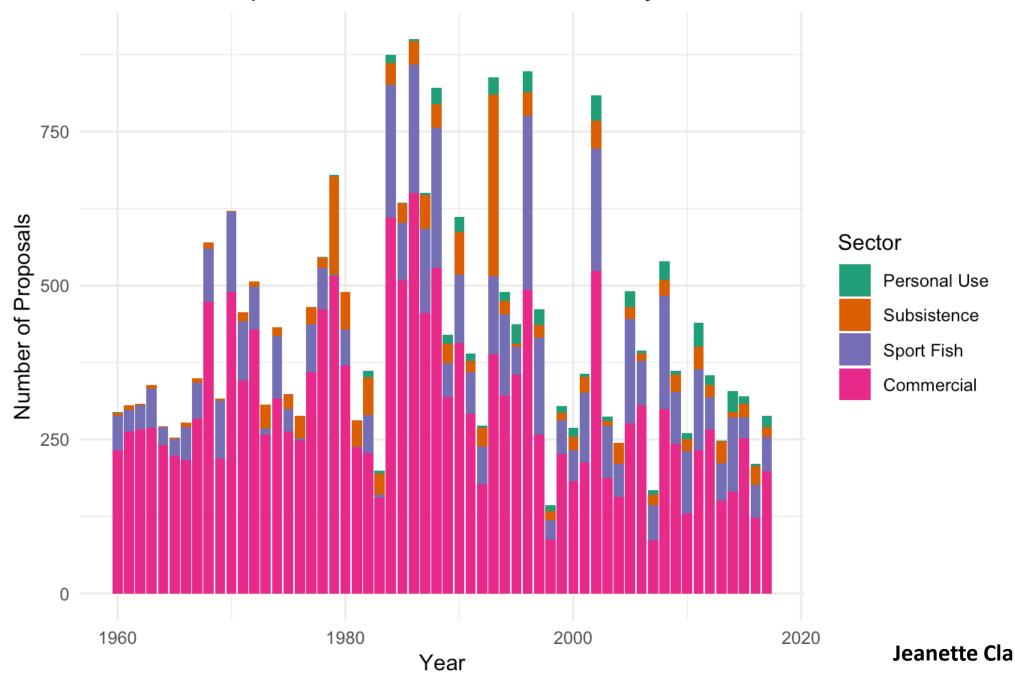
Proportion of submitted proposals by group and region, Krupa et al. 2018

Number of Proposals to the Board of Fisheries by Action
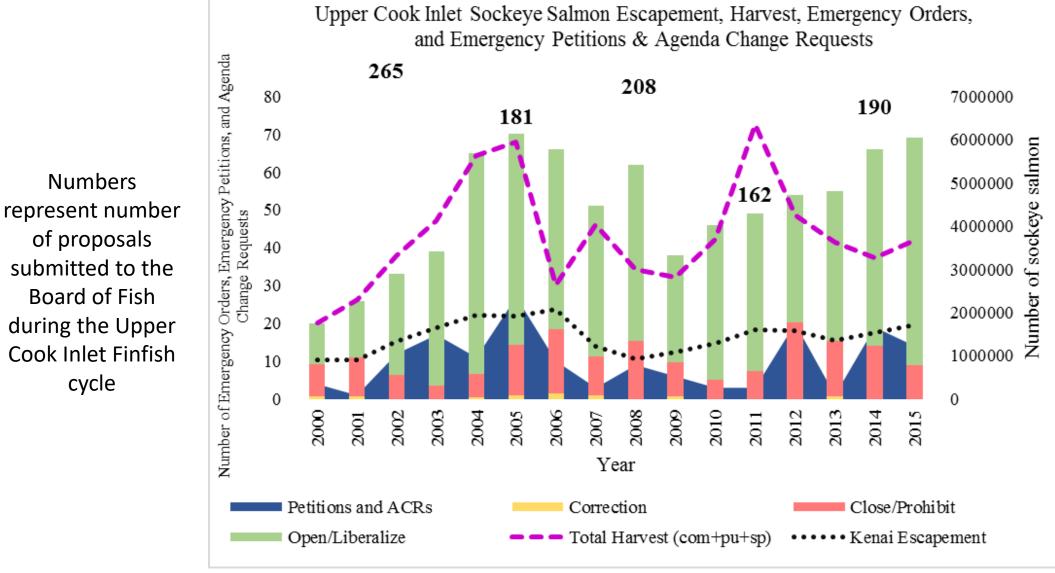
Jeanette Clark, NCEAS

Number of Proposals to the Board of Fisheries by Sector

Jeanette Clark, NCEAS

Draft: Pairing Emergency Orders, Harvest, and Escapement with Proposals, Petitions, and ACRs

Numbers represent number of proposals submitted to the Board of Fish during the Upper Cook Inlet Finfish cycle

Upper Cook Inlet Sockeye Salmon Escapement, Harvest, Emergency Orders, and Emergency Petitions & Agenda Change Requests

Jeanette Clark, NCEAS

Project Outputs

- OCR'd and cleaned PDFs of each BoF proposal from 1959-2016

- Online, open access dataset with attached proposals from 1959-present

- Accurate SLAM records

- Replicable method to quantify public documents and compare them with biophysical data

- Recommendations to the BoF on how to improve the effectiveness and efficiency of the process

- Data supporting the need to include equity and accessibility into public participation processes

- Recommendations on how to develop a more equitable and accessible framework for public participation in natural resource management

- 5+ peer reviewed journal papers

- 1-2 articles in popular (non peer reviewed) fisheries publications focusing on inclusion and diversity

- Presentations to local communities and ACs (Kenai, Nome, Cordova, Bethel, Fairbanks, Anchorage, Dillingham)

- Presentations to Natural Resource Managers (ORAFS)

Project Needs

- Develop ongoing programmatic upload of proposals into the dataset

- Find missing data

- ID errors

- Improve method for future applications

- Develop a public interface with the dataset

- Communicate results beyond academics

- ID funding to digitize nearly destroyed testimony tapes ($$$)

Krupa, M. B. and M. M. Cunfer. 2017. Alaska Board of Fish Proposals 1959–2016. Knowledge Network for Biocomplexity (KNB), 10.5063/F1G73BVP

Krupa, M.B. and M.M. Cunfer. 2018. Resurrecting the Public Record:
Assessing stakeholder participation in Alaska's Board of Fish process. Marine Policy 96:36-43,
https://doi.org/10.1016/j.marpol.2018.07.010

megkrupa@gmail.com

SASAP *Engagement*

What are the key gaps/research needs in your area?
How can you help others access/use SASAP products?

EMAIL Ian Dutton anytime – ian@nautilusii.com
ENGAGE with SASAP Working Group Members

VISIT website: alaskasalmonandpeople.org