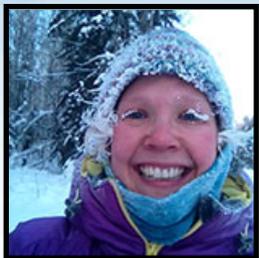


# Ocean Acidification

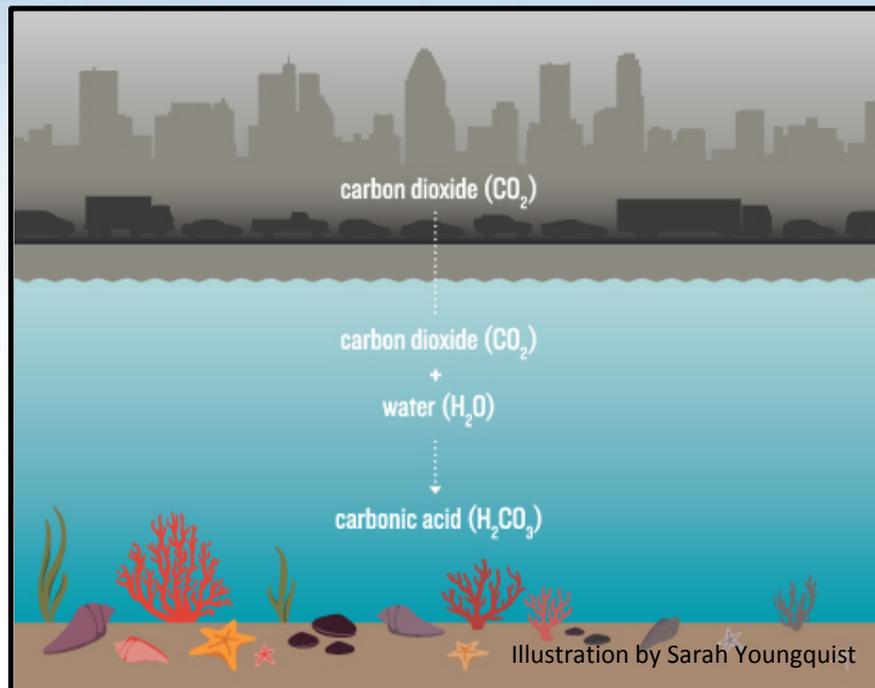
## Coastal Resilience & Stakeholder Engagement



Tina Buxbaum



Dr. Jeremy Mathis



Stacey Reisdorph



Lauren Frisch



Ocean Acidification Research Center

AT THE UNIVERSITY OF ALASKA FAIRBANKS



# Resilience of Coastal Communities

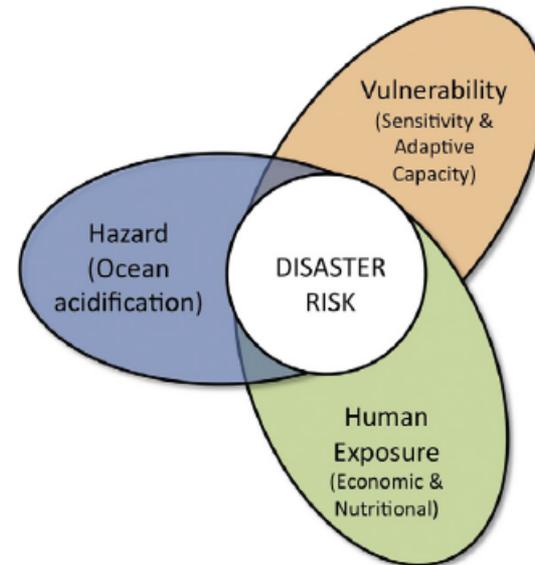
- Integration of research and engagement as process
- Risk assessment in Alaska
- Public perceptions of OA in Alaska
- ACCAP OA partnership and engagement
- Future research



Photo by Russ Hopcroft, UAF.

# Evaluating the Risks of OA In Alaska

- Highly productive fisheries
- Indigenous reliance on marine ecosystems
- Many sensitive species
- Alaskan waters particularly vulnerable
  - Relatively shallow shelf seas, cold water, high rates of primary production, and glacial melt



Consistent with IPCC SREX (2012)

**Final Index Value**

- 3.01 - 3.92 (High)
- 2.44 - 3.00 (Medium)
- 1.65 - 2.43 (Low)

**Population**

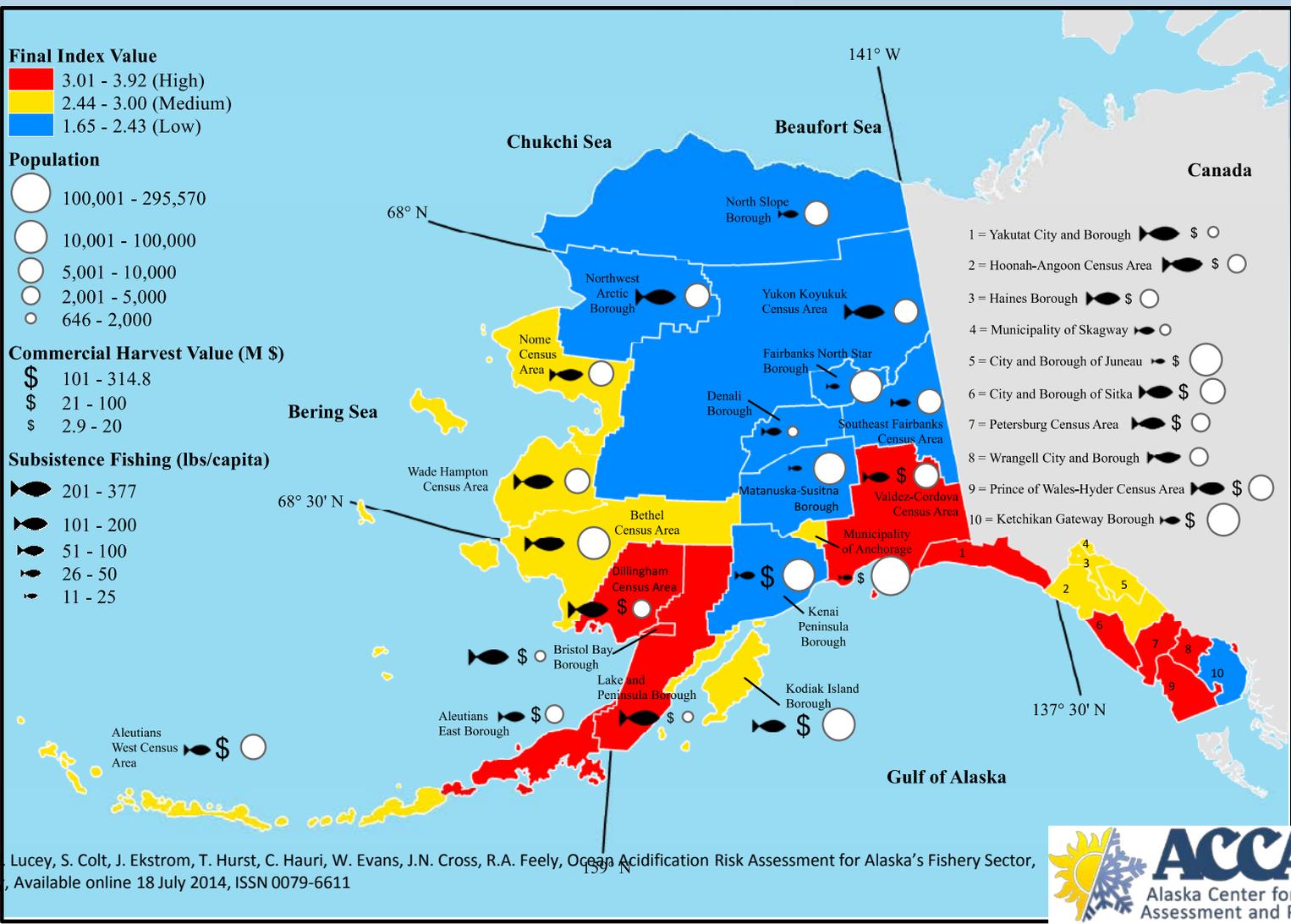
- 100,001 - 295,570
- 10,001 - 100,000
- 5,001 - 10,000
- 2,001 - 5,000
- 646 - 2,000

**Commercial Harvest Value (M \$)**

- \$ 101 - 314.8
- \$ 21 - 100
- \$ 2.9 - 20

**Subsistence Fishing (lbs/capita)**

- 201 - 377
- 101 - 200
- 51 - 100
- 26 - 50
- 11 - 25



# Gauging Public Perceptions of OA in Alaska

- Basic understanding of drivers of OA
  - 74% think *human activity* drives OA
  - 63% think *CO2* drives OA
  - 35% think *natural variability* drives OA



**Alaska Dispatch News**

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## Study finds Alaskans concerned about ocean acidification, but hazy on details

Yereth Rosen | Alaska Dispatch News | December 27, 2014

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Alaskans are three times as likely as Americans as a whole to know about ocean acidification and be worried about it, but are hazy on the scientific process that is changing the chemistry of the oceans, according to a newly published study by researchers from the University of Alaska Fairbanks and the National Oceanic and Atmospheric Administration.

The study, based on a detailed survey of 311 state residents and published online in the journal *Marine Policy*, is the first in-depth analysis of Alaskans' understanding of ocean acidification, the process by which marine waters are holding more carbon and becoming more acidic and thus more dangerous to shell-bearing life-forms.

**RELATED:**

Report says government agencies must act faster to counter ocean acidification

Marine waters off Alaska are at enhanced risk for acidification, a process occurring around the world as carbon dioxide emitted into the atmosphere is absorbed by the oceans.

Cold waters like those off Alaska hold more carbon dioxide than do warm waters. Other characteristics also prime Alaska marine waters to be more

- OA perceived as threat
  - 2<sup>nd</sup> to overfishing
- Overall concern ...
- But, not by commercial and subsistence fishers



# Baseline for public literacy and designing science communication

**Table 3**

The percentage of respondents that support various OA and climate change (CC) research and policies. Respondents were asked to give a yes, no, or I don't know response to each of the following questions pertaining to OA or CC policy, and indicate their level of support for increasing various kinds of OA research.

	Yes	No	Don't know
Politicians are doing enough to address OA	9	44	48
Politicians are doing enough to address CC	16	46	37
Policies can be created to address both OA and CC	46	10	44
My community needs a group to address OA	21	20	59
The US should sign international treaties to regulate CO <sub>2</sub> emissions	49	23	28
I support research to better understand the causes and effects of OA	82	7	11
I support research to better understand how OA and CC may or may not be linked	77	11	12
I support research to better understand how OA may or may not impact Alaska fisheries	83	8	9

# Engagement in Glacier Bay National Park

- Joint project between UAF and NPS
- Local NPS rangers and volunteers helped with sample collection during cruises
- OA and project results presented to NPS staff in Glacier Bay
  - Town Hall OA presentation at Glacier Bay Lodge
  - Glacier Bay Interpreter & Ranger Training Session on OA in Glacier Bay



# Webinar



## **Ocean Acidification: Perceptions, Risks and Uncertainties**

Dr. Jeremy T. Mathis  
NOAA-PMEL, UAF-OARC  
November 5<sup>th</sup>, 2013



<https://accap.uaf.edu/?q=webinars>



# OA Workshop, December 2, 2014: Evaluating next steps for OA research

## Ocean Acidification in Alaska

Learn about it. Discuss it. Build support for State action.



- 11 presentations
- 70+ in-person participants
- 70+ online participants
- Expert summaries
  - Current state of knowledge
  - Impacts to local, state, and federal policies, coastal communities, and economies
- Workshop evaluation in progress
- Recordings available:  
<http://www.aos.org/ocean-acidification-workshop/>

# Workshop Participants/Stakeholder Groups

- Tribal Governments
- Federal - BOEM, DOD, EPA, IARPC, NOAA, NPS, USGS, USFWS
- State – Dept of Fish & Game, Dept of Health
- Municipal & Borough Governments
- IPCC Reviewer
- Industry – Consulting, Engineering/Infrastructure, Oil, Tourism
- NGOs – Activism, Civic Engagement, Conservation, Education, Health, News Media, Science, Sustainability, Tech Innovation
- University Scientists and Sea Grant

# OA Work Session, December 3, 2014: Evaluating next steps for OA research

- The state of OA funding
- Challenges and strategies for future research, monitoring, and outreach
- Engaging a local, diverse array of support



SE Alaska

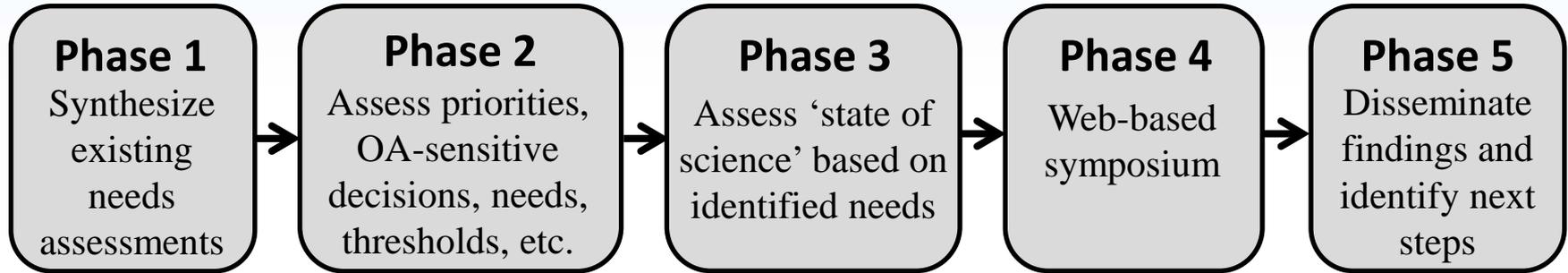
Kodiak

GAKOA

M2

# Proposed Future Research

## Assessing the capacity of local hatchery and fishery managers to adapt to OA



# Thank You



Brook Gamble

[sarah.trainor@alaska.edu](mailto:sarah.trainor@alaska.edu)