

# Makah Tribe's Climate Adaptation & Outreach Efforts

Katie Wrubel

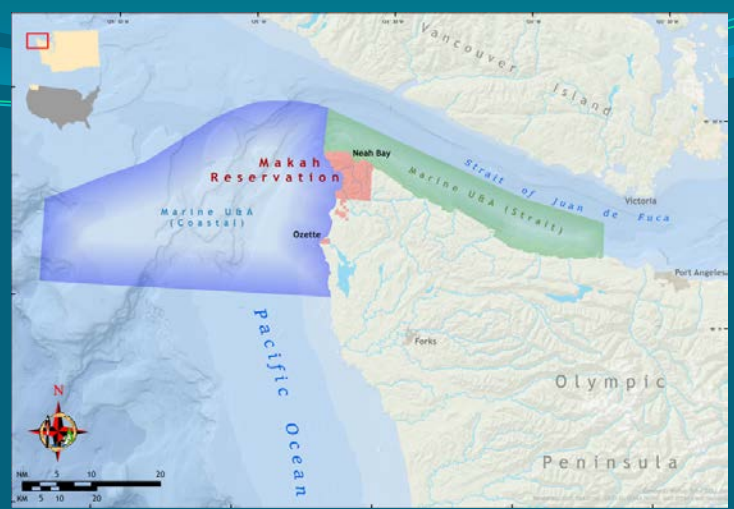
Natural Resource Policy Analyst

Makah Tribe



# Makah Tribe

- 1855 Treaty of Neah Bay
- Ceded 300,000 acres of land to the U.S. and reserved the rights to hunt, fish, gather, seal, and whale within surrounding Usual and Accustomed Areas
- Makah identity, culture, and economy are dependent on natural resources, especially from the ocean



# Lessons Learned from Climate Assessments

- Dense, Highly Technical Review of Literature
  - Written by scientists for scientists
- Lack of Traditional and Cultural Knowledge Expressed
  - How to complement traditional knowledge with western science?
- Lack of Planning Relevancy
  - How does a vulnerability assessment translate into an adaptation plan? And how can an adaptation plan be implemented?
  - Issue of scale?

# Makah Climate Change Workgroup

## Core Team

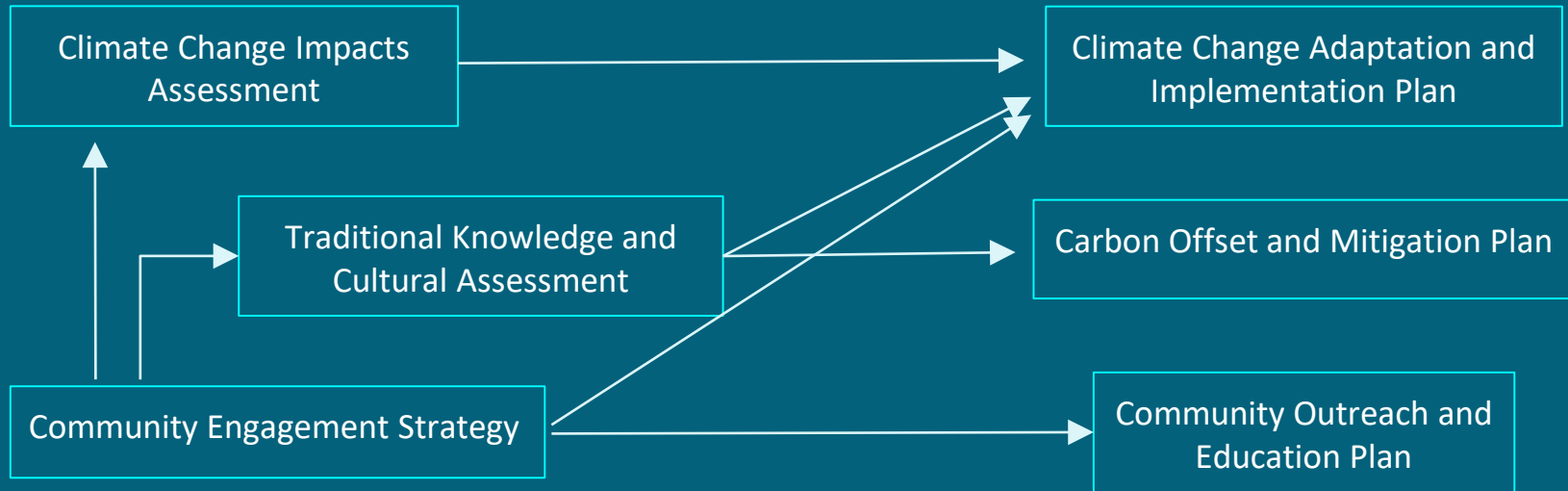
- Katie Wrubel: Natural Resources Policy Analyst
- Seraphina Gagnon: Project Coordinator I
- Michael Chang: Climate Change Consultant
- Dana Sarff: Former Environmental Division Manager
- Haley Kennard: Hershman Marine Policy Fellow
- Adrienne Akmajian: Marine Ecologist
- Stephanie Martin: Habitat Division Manager
- Doug Sternback: Air Quality Specialist
- Aaron Parker: Former Water Quality Specialist
- Chad Bowechop: Office of Marine Affairs Manager
- Laura Nelson: Marine Affairs Consultant
- Forrest Howk: Former Hershman Fellow

- Rob McCoy: Wildlife Manager
- Shannon Murphie: Wildlife Biologist
- Dave Herda: GIS Manager
- Rebekah Monette: Historic Preservation Officer
- Michelle Smith: Planner III
- Rickson Kanichy: Emergency Management Coordinator
- Patty Manuel: Operations Manager
- Dave Lucas: Public Works Director
- Patrick Anderson: Makah Clinic Director

## Advisors

- Russell Svec: Fisheries Director  
Ray Colby: Assistant Fisheries Director  
Hap Leon: Fisheries Biometrician

# Climate Adaptation Logic Model



# Climate Change Planning

## Makah Climate Impacts Assessment

- Reviews current Western science publications for consensus climate impacts relevant to Makah
- Five Sections (Terrestrial, Marine, Aquatic, Infrastructure, & Health)

## Species Vulnerability Assessment

- Compilation of 2-page descriptions for each species' vulnerability to projected climate change impacts
- We have over 100 species

## Makah Traditional Knowledge Assessment

- Interview Makah tribal members on how cultural activities have been impacted over time
- Integrate TEK in our impacts assessment and adaptation planning efforts

# Community Engagement

- Surveys on climate impacts, baseline knowledge, and adaption ideas at community dinners
  - February 2017 and October 2018
- 15 Interviews on Climate Change and Ocean Acidification
  - May 2018
- Upcoming workshops on regional vulnerability to ocean acidification
  - With Washington Sea Grant
- Education and Outreach efforts
  - Speaker series on specific topics
  - OA with Drs Jan Newton, Dick Feely, and Nina Bednarsek

# Community Impacts Survey

Developed a community survey with the following goals:

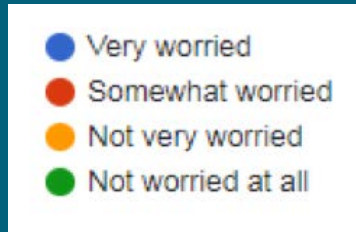
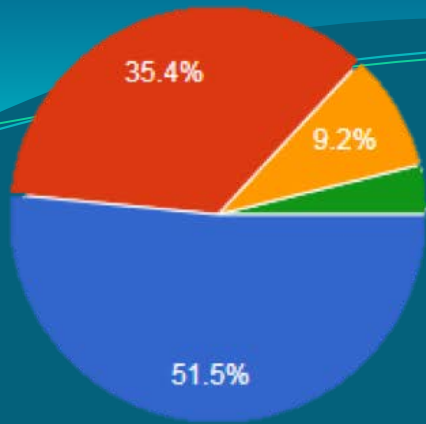
1. Help us to identify community concerns so that we can address those in the adaptation plan.
2. Learn some about the community's understanding of climate change.
3. Understand the level of support for climate planning efforts.
4. Explore the challenges natural resource managers face when trying to incorporate climate change planning into their work; are there things the CCWG can do to make this easier.



# Community Dinner

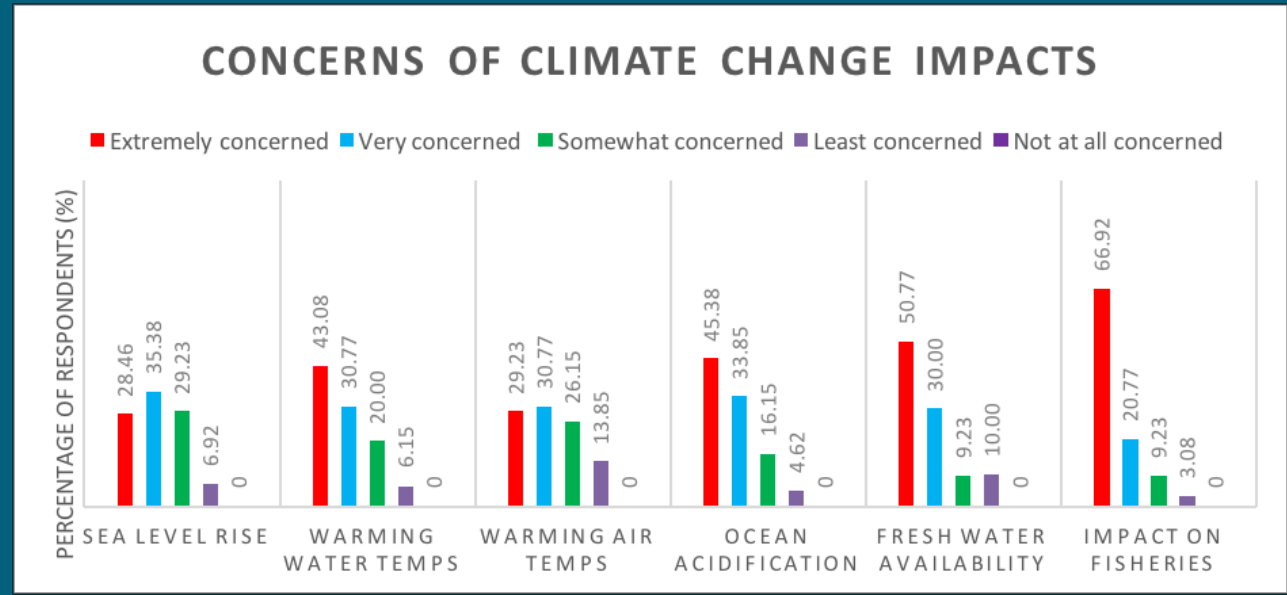
- Held a dinner in Neah Bay in February 2017.
- Members of the climate change workgroup discussed ongoing and future work.
- Had a table set up for people to take the community survey.



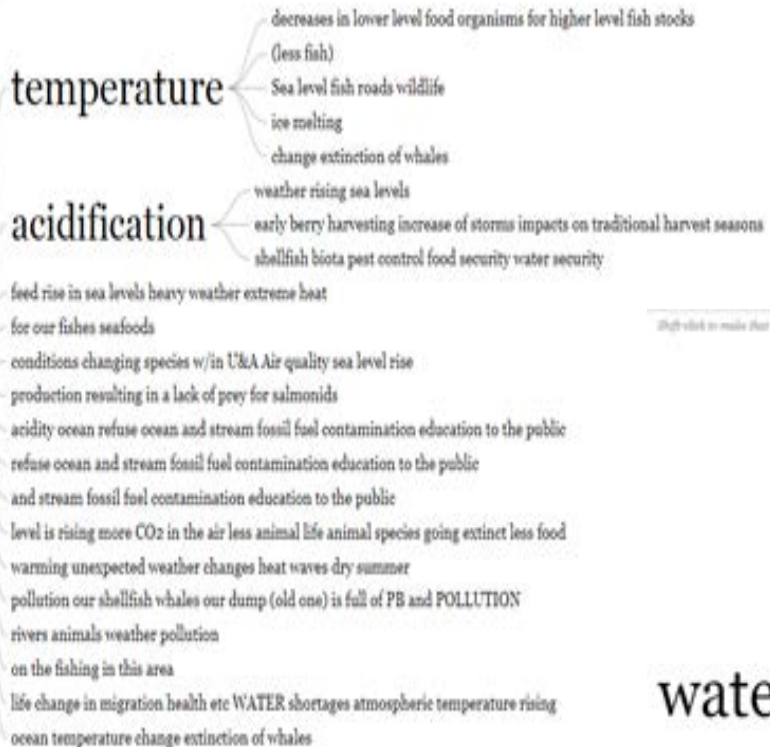


Community members' level of worry about climate change impacts to the Makah Tribe.

Ranked concerns of climate change impacts from the Makah community. Impacts to fisheries ranked the highest concern.



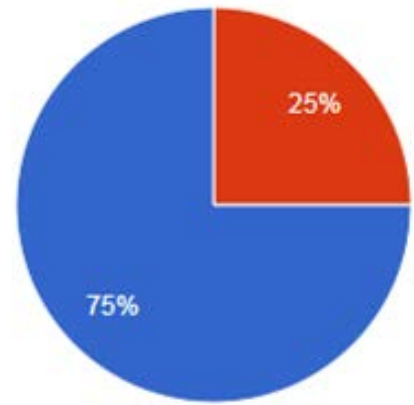
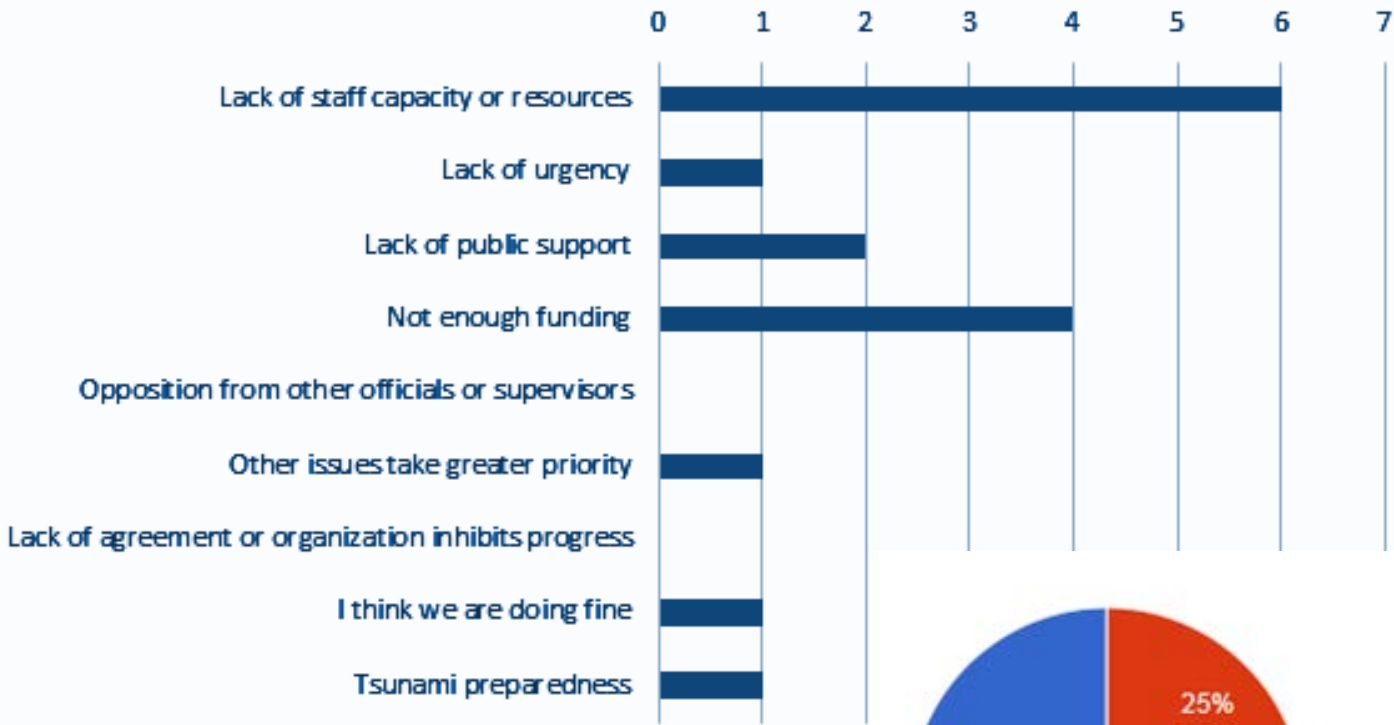
# ocean



click link to make that word the root

# water





- Very important
- Important
- Somewhat important
- Not important
- Not relevant

How important is it that your job addresses climate change?

# Climate Adaptation Strategies:

## Current Strategies

### *Makah Fishing Fleet Repower Program*

- securing funds to alter fishing fleet engines to become more sustainable and emit less greenhouse gases

### *Clean Air-Healthy Woodstoves*

- changing old woodstoves for newer, more efficient and sustainable woodstoves for community members

### *Energy Audit/Carbon Footprint Analysis*

- analysis of energy use from government buildings and implement steps to increase efficiency and decrease GHG emissions

## Future Strategies

### *Scoping Water Supply*

- Water conservation and mitigation strategies

### *Carbon sequestration*

- eelgrass, kelp, timber, etc.



# Next Steps

**June 2018**: Finalized Climate Vulnerability and Impacts Assessment

**Fall 2018**: Makah Traditional and Cultural Knowledge Assessment

**October 2018**: Makah community dinner and Adaptation Surveys

**Winter 2018**: Makah Energy Audit and Carbon Mitigation Plan

**2018-2019**: Makah Climate Adaptation Plan

Staff workshops and community surveys

# Acknowledgments

Makah Tribal Council  
Bureau of Indian Affairs  
Department of Energy  
Makah Fisheries Management  
Makah Office of Marine Affairs  
Washington Sea Grant  
Marc Hershman Marine Policy Fellowship



A scenic coastal sunset with waves crashing against rocks and a wooden railing in the foreground.

# Thank you - Questions?

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