

Makah Tribe's Climate Resilience, Adaptation, and Mitigation Planning

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Outline

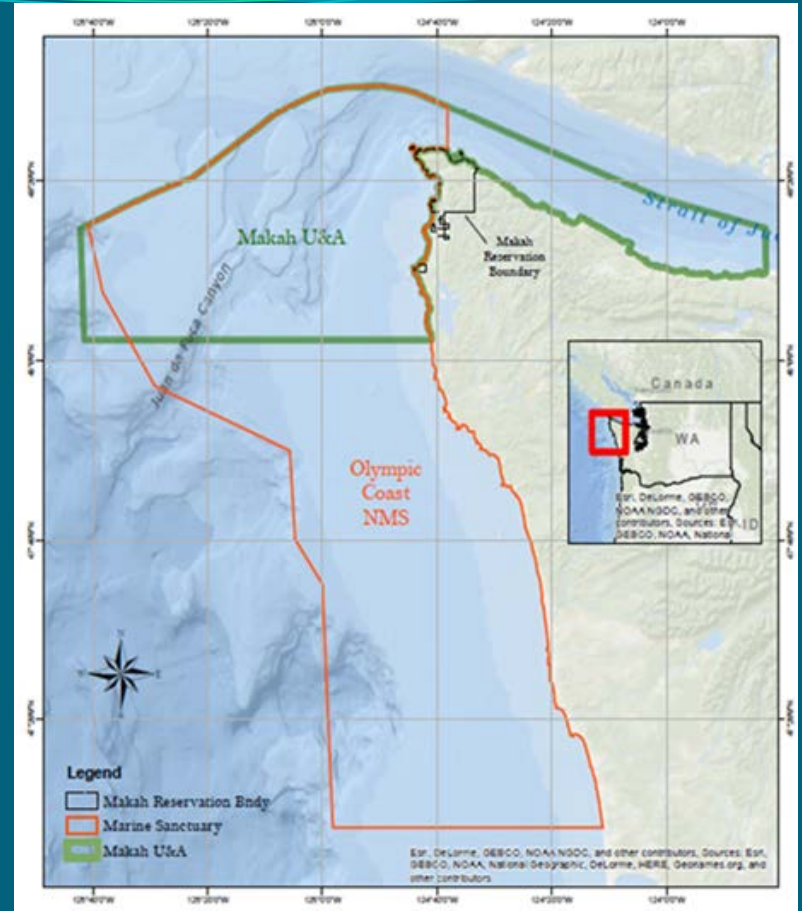
1. Makah Tribe Context
2. Previous Climate Planning Efforts
3. Community Engagement
4. Next Steps



1. Makah Tribe Context

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
- Reservation 47 sq miles
- U&A extends ~40 miles offshore and east to Tongue Point, approximately 1,550 sq mi marine area
 - Co-managers of the resource



Makah Tribe

- 2,800 registered Makah Tribal Members
 - 1,200 live on Reservation
- 1,400 people live on Reservation
- Commercial fishing employs ~50% of working age population
- Makah identity, culture, and economy are dependent on natural resources, especially from the ocean



2. Makah Tribe Planning Efforts

Makah Climate Change Assessment

- 2014 BIA Funding for Climate Change Impacts Assessment
- 2015 BIA Funding for intertidal surveys and OA/CC Literature Review
- 2017 DOE Funding for Climate Adaptation Planning



Lessons Learned from CC 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

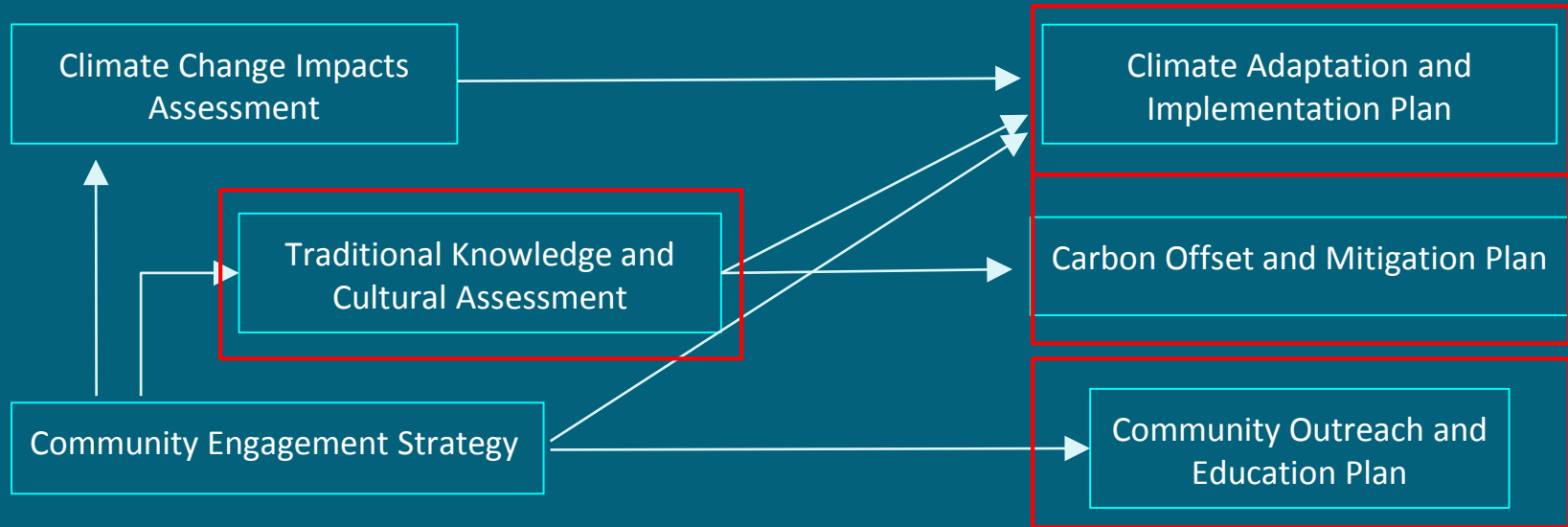
- Katie Wrubel: Natural Resources Policy Analyst
- Seraphina Gagnon: Project Coordinator I
- Michael Chang: Climate Change Consultant
- Dana Sarff: Environmental Division Manager
- Adrienne Akmajian: Marine Ecologist
- Haley Kennard: Hershman Marine Policy Fellow
- Stephanie Martin: Habitat Division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

- Rob McCoy: Wildlife Manager
- Shannon Murphie: Wildlife Biologist
- Dave Herda: GIS Manager
- Rebekah Monette: Historic Preservation Officer
- Michelle Smith: Planner III
- Jerry Gardener: Emergency Management Coordinator
- Patty Manuel: Assistant General 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 Impacts Assessment

Makah Climate Impacts Assessment

- Reviews current Western science 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 almost 100 species

Makah Traditional Ecological Knowledge Assessment

- Interview Makah tribal members on how cultural activities have been impacted over time
- Proposed Traditional Ecological Knowledge Interview Document

3. Community Engagement

Community Engagement

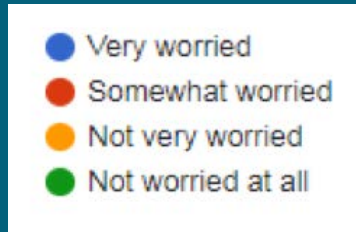
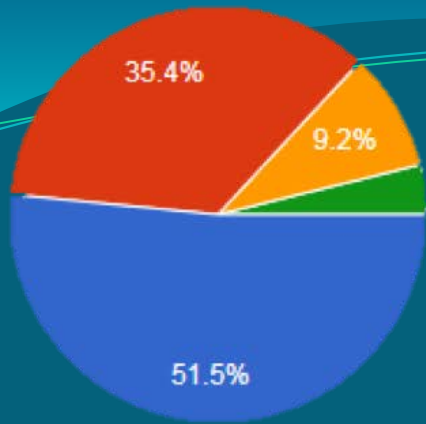
Developed a community survey with the following goals:

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

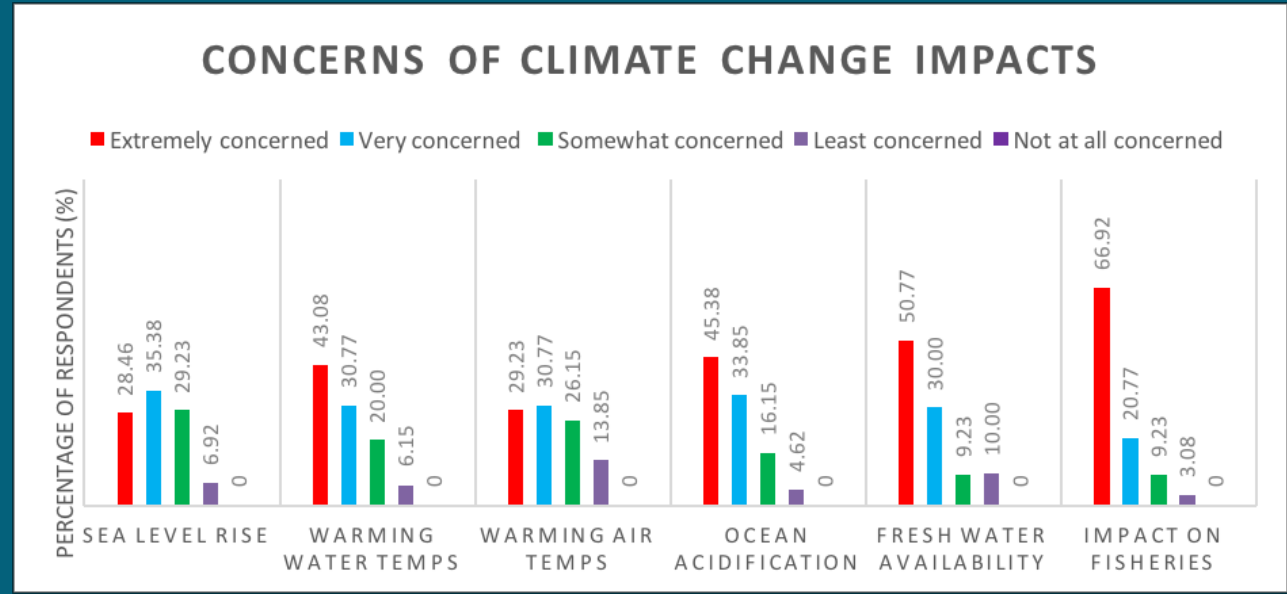
- Held a dinner in Neah Bay in February 2017.
- Members of the climate change workgroup discussed ongoing and future work.
- Had a table set up for people to take the community survey.
- Plan for additional Community Events with DOE grant in 2018 and 2019.



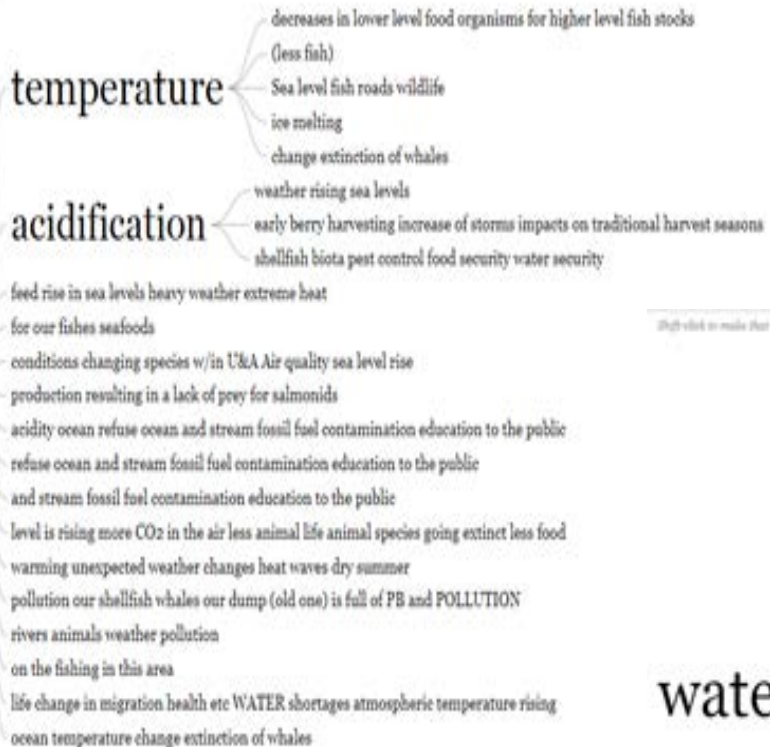


Community members' level of worry about climate change impacts to the Makah Tribe.

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

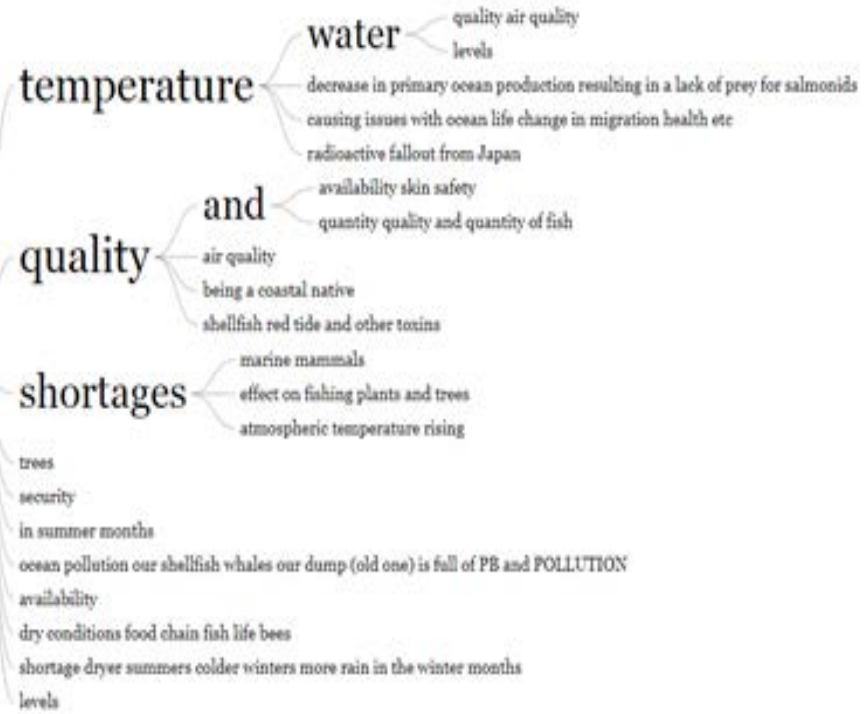


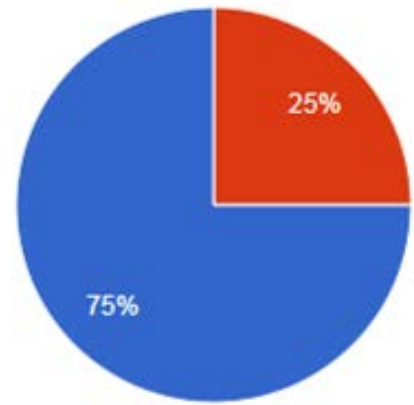
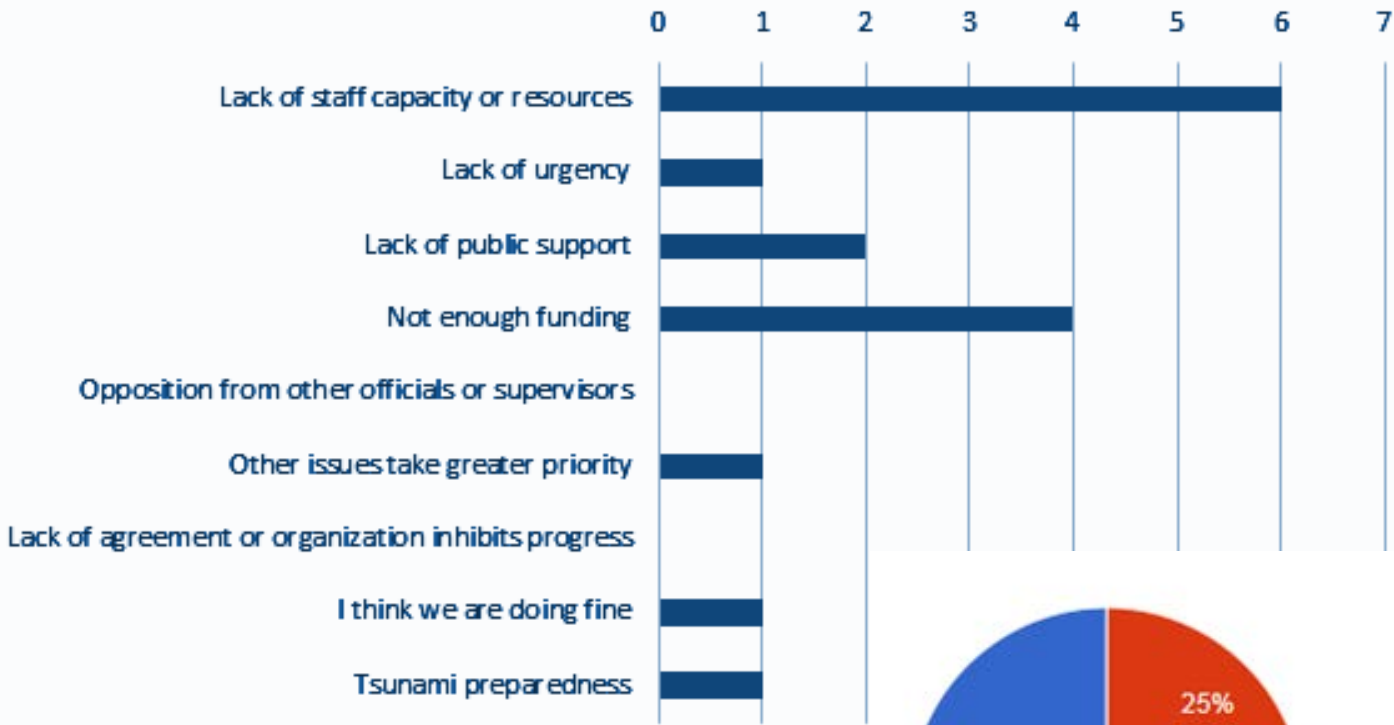
ocean



click link to make that word the most

water





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

How important is it that your job addresses climate change?

4. Next Steps

Proposed Scope of Work

- Traditional Ecological Knowledge Assessment & Community Outreach efforts
- Climate Change Workgroup discuss potential climate impacts internally and with Tribal Community
- Identify short-term and long-term strategies to build resilience
 - Makah Climate Adaptation Plan
- Identify ways to reduce our impact
 - Carbon Footprint Analysis and Mitigation Plan
- Strategize how to secure funding resources to implement

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 woodstoves for community members



Future Strategies

Scoping Water Supply

- Pursue rainwater collection to alleviate strain on water resources

Carbon Footprint Analysis

- analysis of GHG emission from government buildings and implement steps to decrease these emissions

-Renewable energy potential?

Carbon Sequestration

- restoring eelgrass, trees, and kelp habitats to store carbon

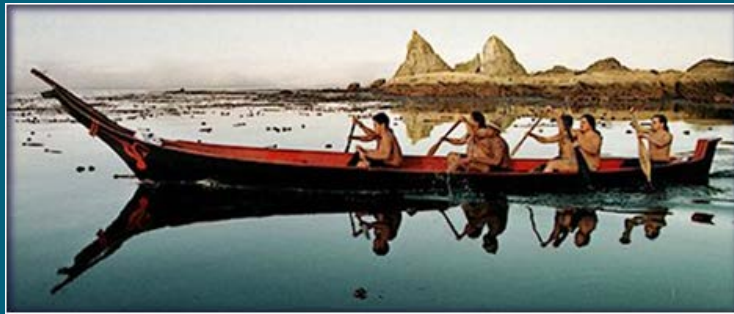
Timeline

- Winter '17-Spring '18: Finalize Climate Vulnerability and Impacts Assessment
- Present - 2018: Makah Traditional Ecological Knowledge and Cultural Assessment
- 2017-2019: Makah Climate Adaptation Plan
- 2018-2019: Makah Carbon Mitigation Plan



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Thank you - Questions?

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