

# Makah Tribe's Climate Resiliency, Adaptation, and Mitigation Planning

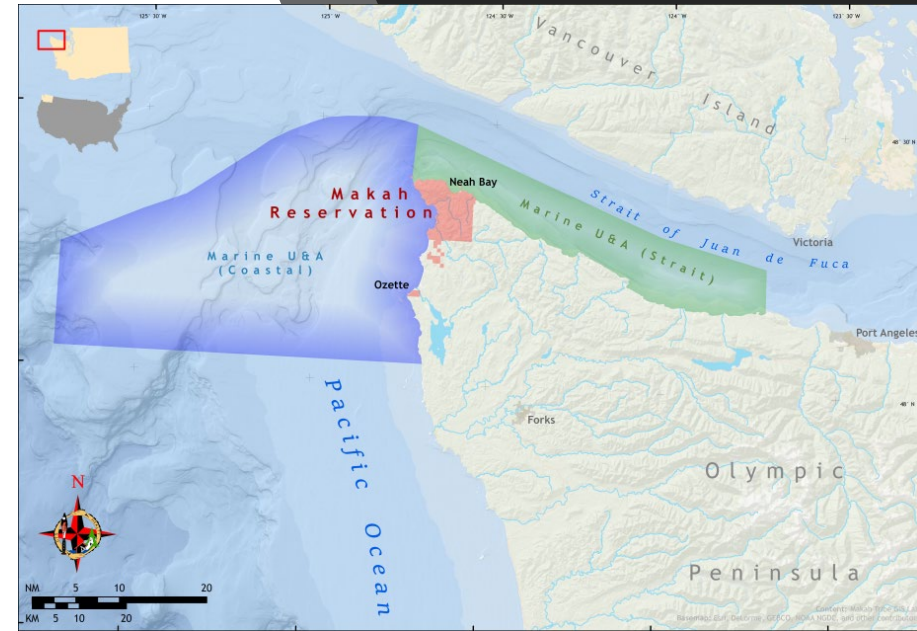
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Natural Resource Policy Analyst  
Makah Tribe

16<sup>th</sup> Annual Indian Energy Program Review  
Lakewood, Colorado  
December 10-14, 2018



# Makah Tribe

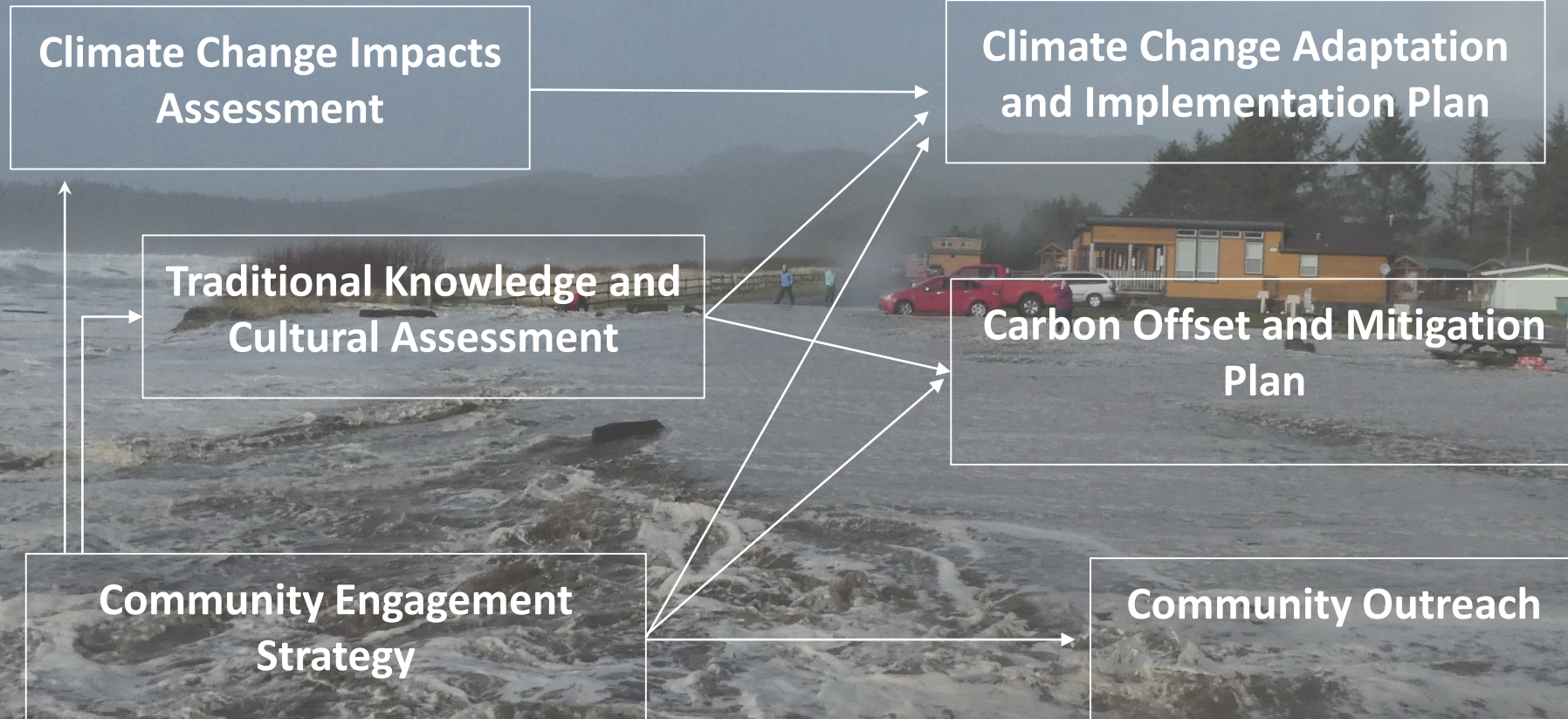
- Q<sup>w</sup>idicca?a'tx - “People of the Cape”
- 1855 Treaty of Neah Bay
- Ceded 300,000 acres of land to the U.S. and reserved the rights to fish, whale, seal, hunt and gather within surrounding Usual and Accustomed Areas
  - U&A extends ~40 miles offshore and east to Tongue Point, approximately 1,550 sq mi marine area
- 2,900 registered Makah Tribal Members
  - 1,200 live on Reservation, 200-300 non-tribal members on reservation
- Makah identity, culture, and economy are dependent on natural resources, especially from the ocean
  - Fishing comprises ~50% of the Neah Bay economy
  - Subsistence and ceremonial use



# Makah Climate Resiliency – 2018 Updates

- Finished Climate Impacts Assessment
  - Conducted climate impacts surveys – 140 surveys returned
  - Species Vulnerability Assessment ongoing – over 100 species
- Makah Cultural and Traditional Knowledge Assessment
  - Conducted 13 detailed interviews with Makah tribal members
  - Transcribed interviews – coding and analyses underway
- Makah Climate Adaptation Plan
  - Conducted climate adaptation surveys Oct 2019 – 89 surveys returned
- Makah Carbon Mitigation Plan
  - Site visits complete – analysis and reporting underway
  - Final report early 2019

# Makah Climate Adaptation Logic Model



# Makah Climate Change Workgroup

## Core Team

- Katie Wrubel: Natural Resources Policy Analyst
- Seraphina Gagnon: Project Coordinator I
- Michael Chang: Climate Change Consultant
- Haley Kennard: Hershman Marine Policy Fellow
- Adrienne Akmajian: Marine Ecologist
- Stephanie Martin: Habitat Division Manager
- Doug Sternback: Air Quality Specialist
- Riley Smith, Water Quality Specialist
- Chad Bowechop: Office of Marine Affairs Manager
- Laura Nelson: Marine Affairs Consultant
- Rob McCoy: Forestry 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 Director
- Dave Lucas: Public Works Manager
- Roxanna Phillips: Makah Clinic

## Former Contributors

- Zak Greene: Climate Change Consultant
- Dana Sarff: Environmental Division Manager
- Aaron Parker: Water Quality Specialist
- Forrest Howk: Hershman Marine Policy Fellow
- Jerry Gardener: Emergency Management Coordinator
- Patrick Anderson: Makah Clinic Director

## Advisors

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

# Makah Climate Impacts Assessment

- Focus on 5 different areas:
  - Oceans
    - Temperature, ocean acidification, hypoxia, HABs
  - Forest and Lands
    - Forest fires, droughts, precipitation
  - Freshwater
    - Water quantity and quality, salmon habitat
  - Infrastructure and Support Systems
    - Roads, water and energy security
  - Public Health and Wellbeing
    - Cultural and spiritual impacts



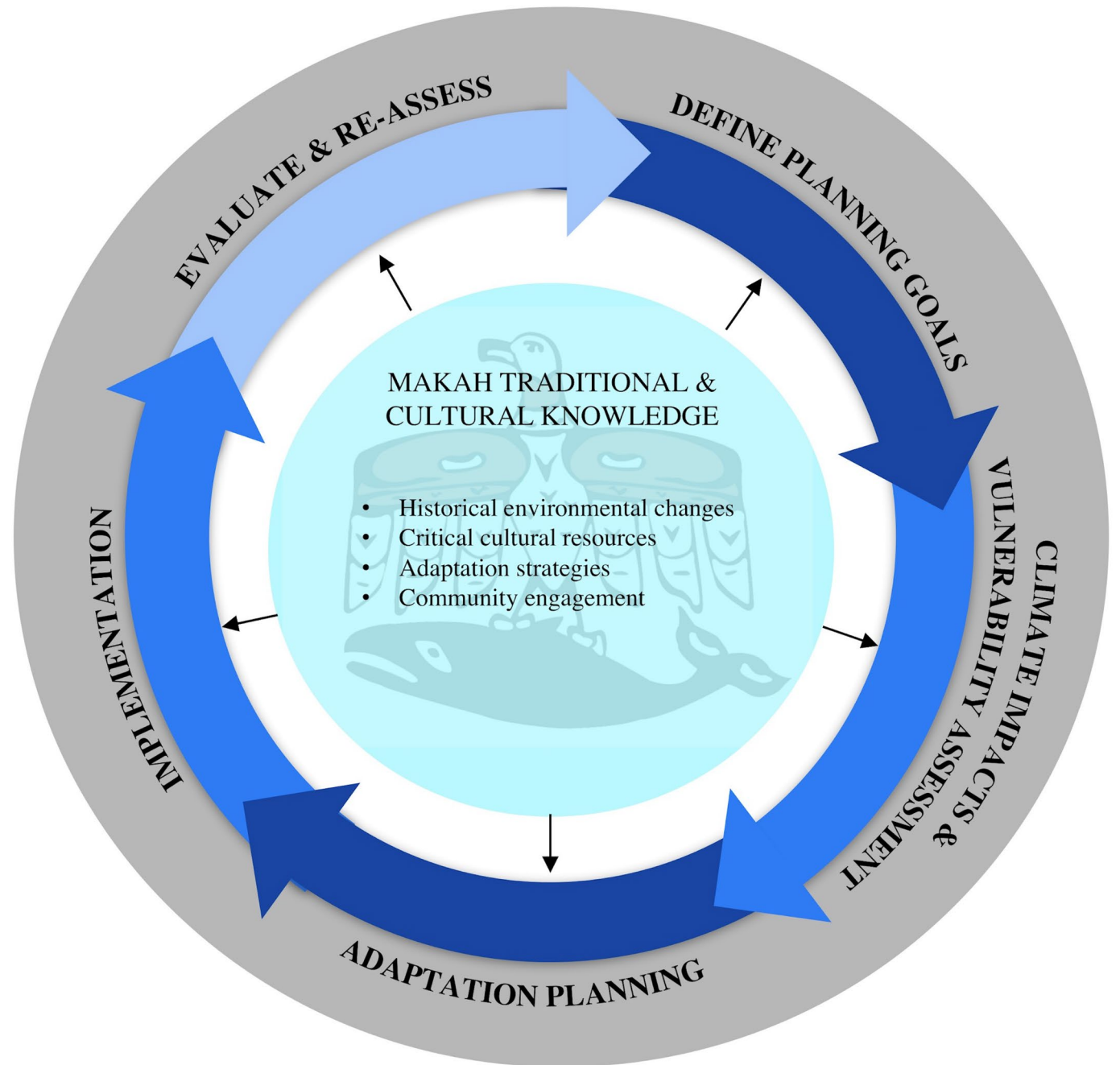
## ASSESSMENT OF CLIMATE CHANGE IMPACTS FOR THE MAKAH TRIBE



A report to the Makah Tribe  
Prepared by the Makah Climate Change Working Group  
June 2018

# Makah Traditional and Local Knowledge Framework

- Define historical baselines and observational environmental changes;
- Identify critical cultural resources;
- Identify culturally—relevant adaptation strategies;
- And be able to engage the community into the climate planning process.





# *Community Engagement*

- Goal: The Makah community is able to engage and connect their experiences directly to climate change; creates “buy-in” from the community into the planning outputs
- 2017 & 2018 community surveys to direct our focus
- 80% supports climate adaptation work for the Tribe
- Continued engagement with speaker series on climate impacts, cultural activities, and current research
- Outreach materials – 2 pagers





# *Makah Climate Adaptation Plan*

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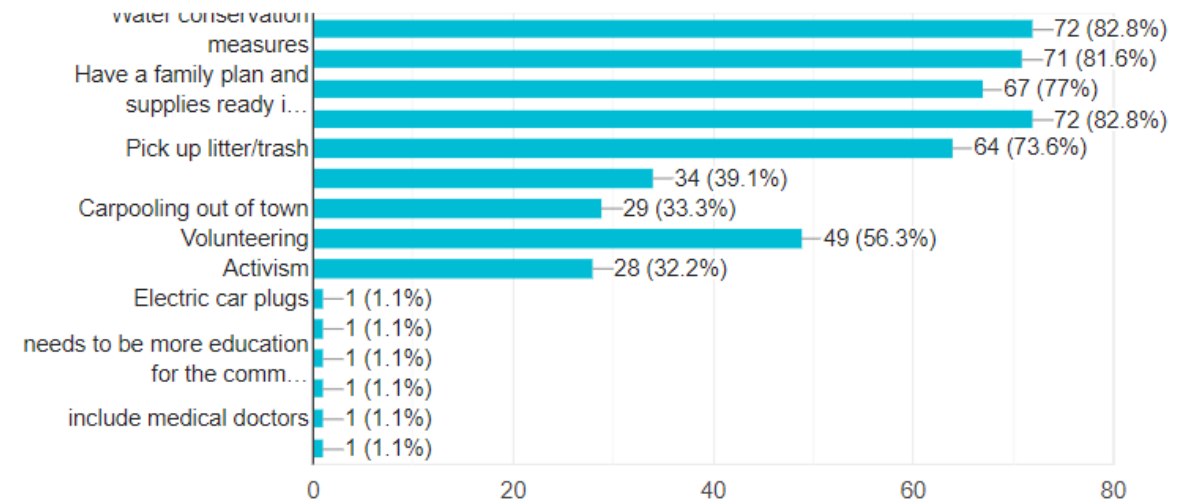
- Short-term and Long-term planning goals
- Culturally-relevant solutions
- Integrates TK interviews, Community surveys, staff input
- Other hazards need to be integrated (TIZ)
- Integrate into Tribe's Strategic Plan

# Preliminary Results – Climate Adaptation Survey

- Both the Tribe and the individual are responsible to adapt to climate change. However, local, State, and Federal governments should also be proactive in adapting and mitigating climate change impacts.
- Preliminary adaptation priority results:
  - Salmon Habitat (Score = 4.77)
  - Water Quantity and Quality (Score = 4.83)
  - Subsistence Resources (Score = 4.74)
  - Physical and Mental Health (Score = 4.71)
- Preliminary Strategies
  - Emergency planning for extreme events (TRIBE)
  - Water conservation measures (INDIVIDUAL)
- Barriers
  - Money, training, knowledge, time

Actions that YOU could take: Which of these adaptation actions would you be willing to take? (Select all that apply)

87 responses



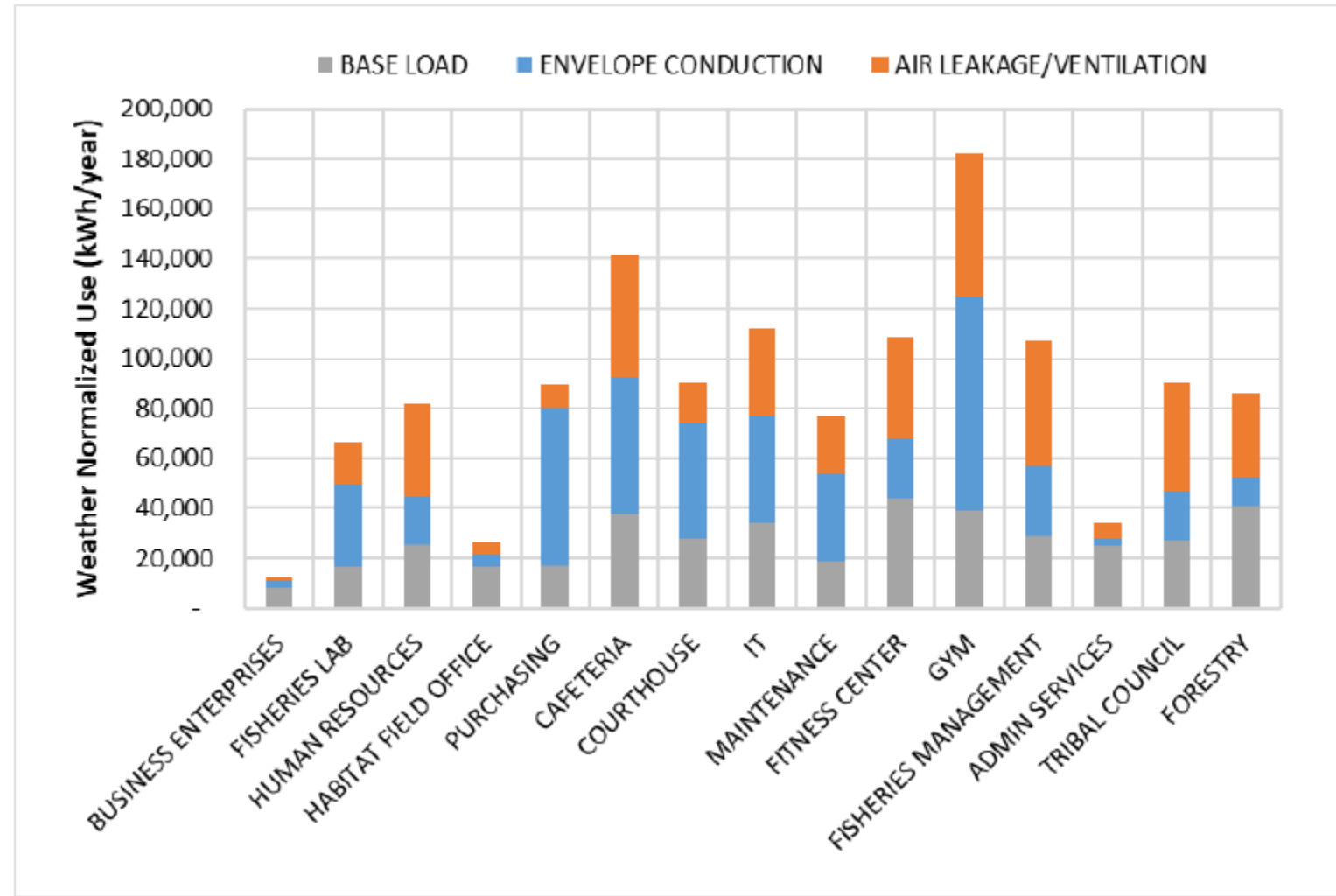
# Makah Carbon Footprint Analysis and Mitigation Plan

- Selected Cascadia Consulting Group
- Energy Audit on 16 buildings
  - Tribal center (14 Buildings)
  - Forestry
  - Marina
- Electricity and water
- GHG emission mitigation plan
- Outreach materials for Makah Community



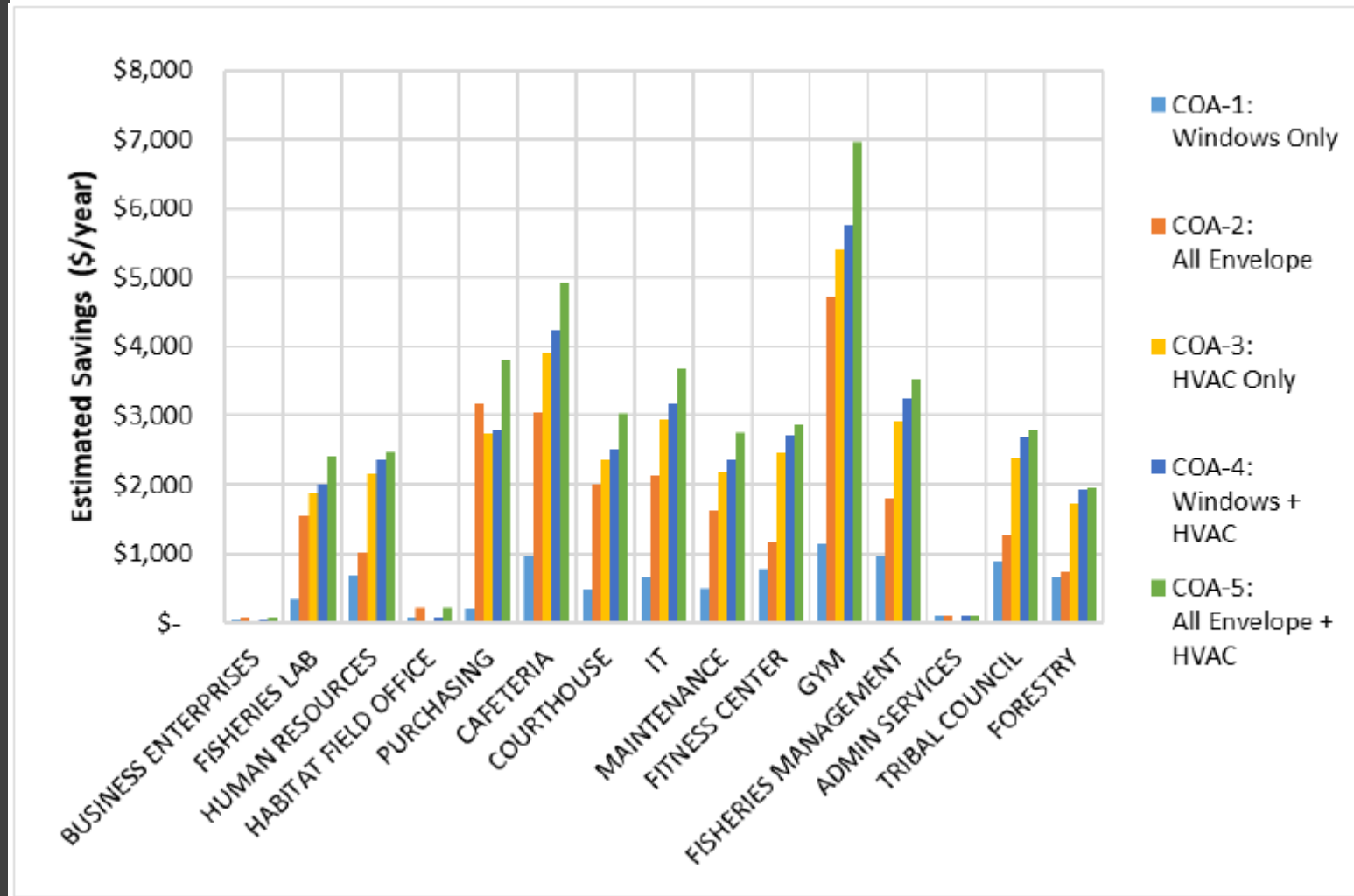
# Makah Carbon Footprint Analysis and Mitigation Plan

- Preliminary results on electricity use for each building analyzed
- Enhance energy and water security
  - Regular power outages
  - Regular water shortages



# Makah Carbon Footprint Analysis and Mitigation Plan

- Preliminary results on estimated cost savings for implementing electricity saving measures.
- Identify retrofits we can implement to reduce our energy consumption and GHG emissions
- Including payback (within 10 years)



# Next Steps

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TK Interviews & Surveys: Finish coding and analyzing, integrate into stand alone report and Adaptation Plan

Energy Audit: Finalize analysis and report and present to staff and Council. Pursue additional funding to implement recommended retrofits.

Adaptation Plan: Integrate TK report, community surveys, and energy audit results. Meet with staff and refine draft Adaptation Plan. Community review. Final plan Sept 2019. Implementation Strategy – integrate into Tribe’s Strategic Plan

Other efforts: Biomass energy scoping with State Wood Energy Program, Water Availability scoping, Relocation out of the Tsunami Inundation Zone, Hazard Mitigation Plan, Coastal Erosion Grant



# Acknowledgments

- Makah Tribal Council
- Makah Community
- Bureau of Indian Affairs
- Department of Energy
- Climate Change Workgroup
- Washington Sea Grant
  - Washington State Sea Grant Fellowship





Questions?


## Contact Information

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# Defining Traditional Knowledge

“TK or TEK is built on personal experience and interaction with peers, including people from other communities and passed on through stories, apprenticeship, and practice. It can be understood as knowledge and skills that are fluid, dynamic, flexible, adaptable, and continually updated and revised in light of new observations and experiences, and it can incorporate new technologies alongside the traditional.”

– Pearce et al. 2015, pg. 235



## *Historical baselines & observational changes*

- Why: This directly informs Makah Tribe's planning goals and helps fill in gaps in Western science monitoring efforts.
- How: Utilized TK interviews and archival data from Makah Cultural Research Center.
- Example: Using archaeological evidence from 1969-70; 1990s subsistence surveys and 2018 TK interviews to determine historical resource use, abundance, and habitat changes



## *Identify critical cultural resources*

Why: Help identify critical resources and relationships important for the Makah culture and community.

How: Utilized from 2018 TK interviews, 2017 & 2018 community surveys; archival research

Example: 1990s and 2018 subsistence surveys; 2018 TK interviews

“Being on the water – I have to be. There is nothing like it. The water draws me to it. The ocean draws me to it, and I just need to be out there.” – Makah commercial and subsistence fisherman, 49 y.o.

# *Identifying culturally-relevant adaptation strategies*

Why: Provides a suite of culturally-relevant adaptation strategies that aims to address community priorities.

How: 2017 & 2018 community surveys; 2018 TK interviews

Examples: Support the teaching and learning of traditional and cultural foods with youth; sharing of harvest methods and food preparation across generations; emphasizing community events to increase social cohesion

