

Responding to Tribal Concerns: Identification of Climate Change Impacts to Water and Aquatic Resources



YUROK TRIBE ENVIRONMENTAL PROGRAM
Suzanne Fluharty, Ph.D.



OVERVIEW:

- Yurok Location & Importance of Water
- Community Guides Research
- Research Questions
- Questions



**Yurok
Tribal
Council**

THANKS TO OUR TEAM

**All the Community Members
& Tribal Staff who have
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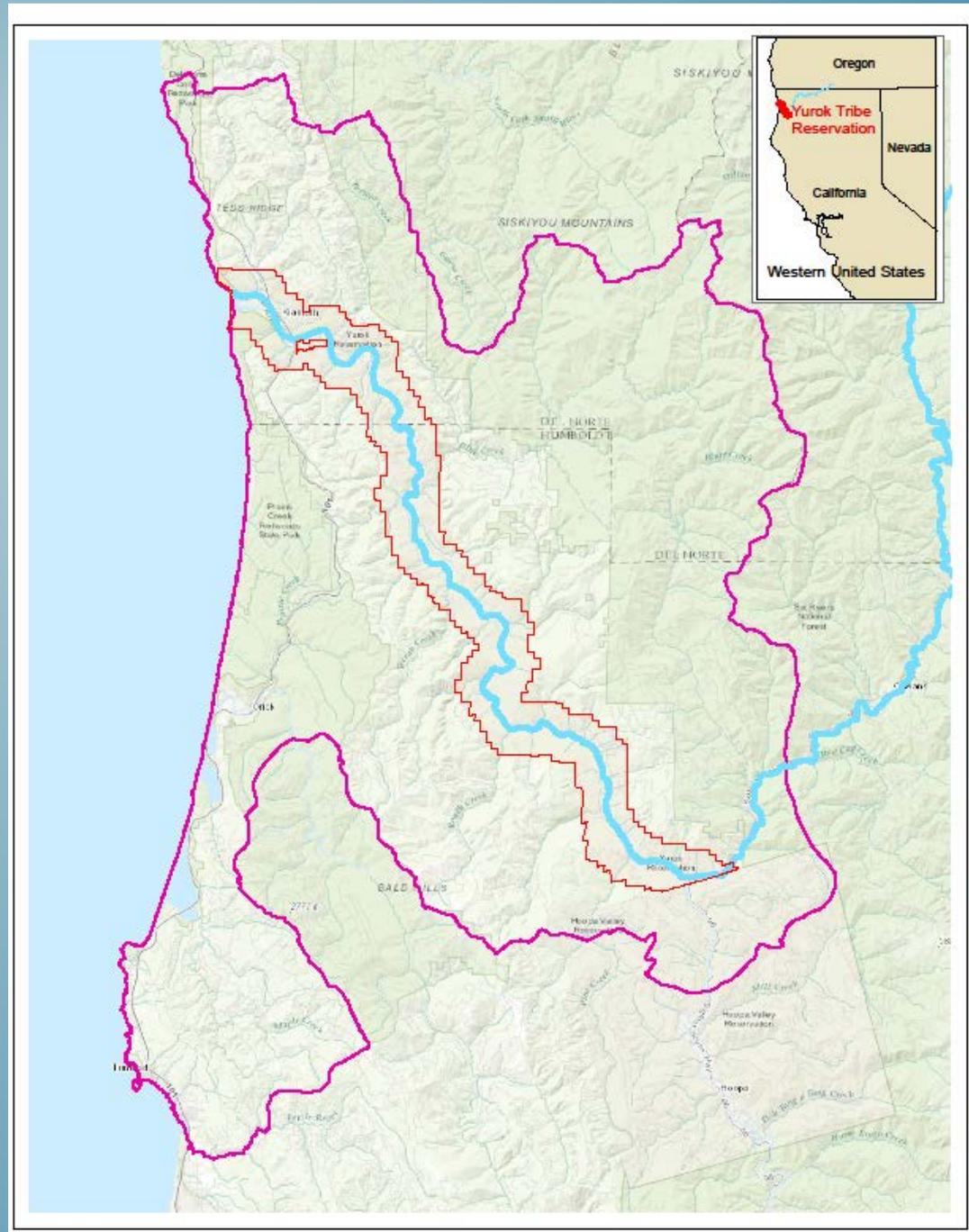
Yurok Reservation

One mile on each side
of the Klamath River
From mouth
upriver 45 miles

Yurok Ancestral Territory

Includes 56 miles of coastline

And...





Yurok Reservation

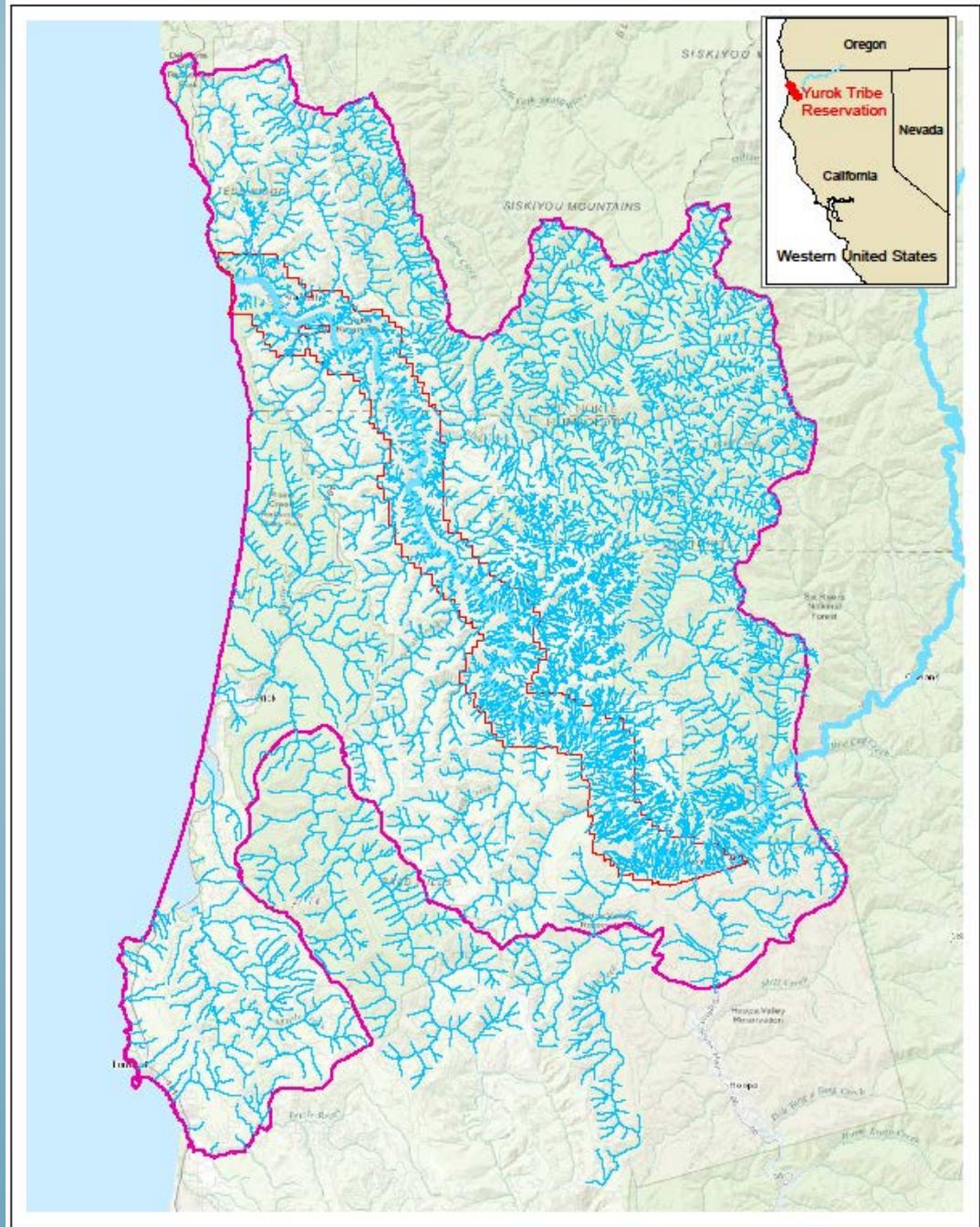
One mile on each side
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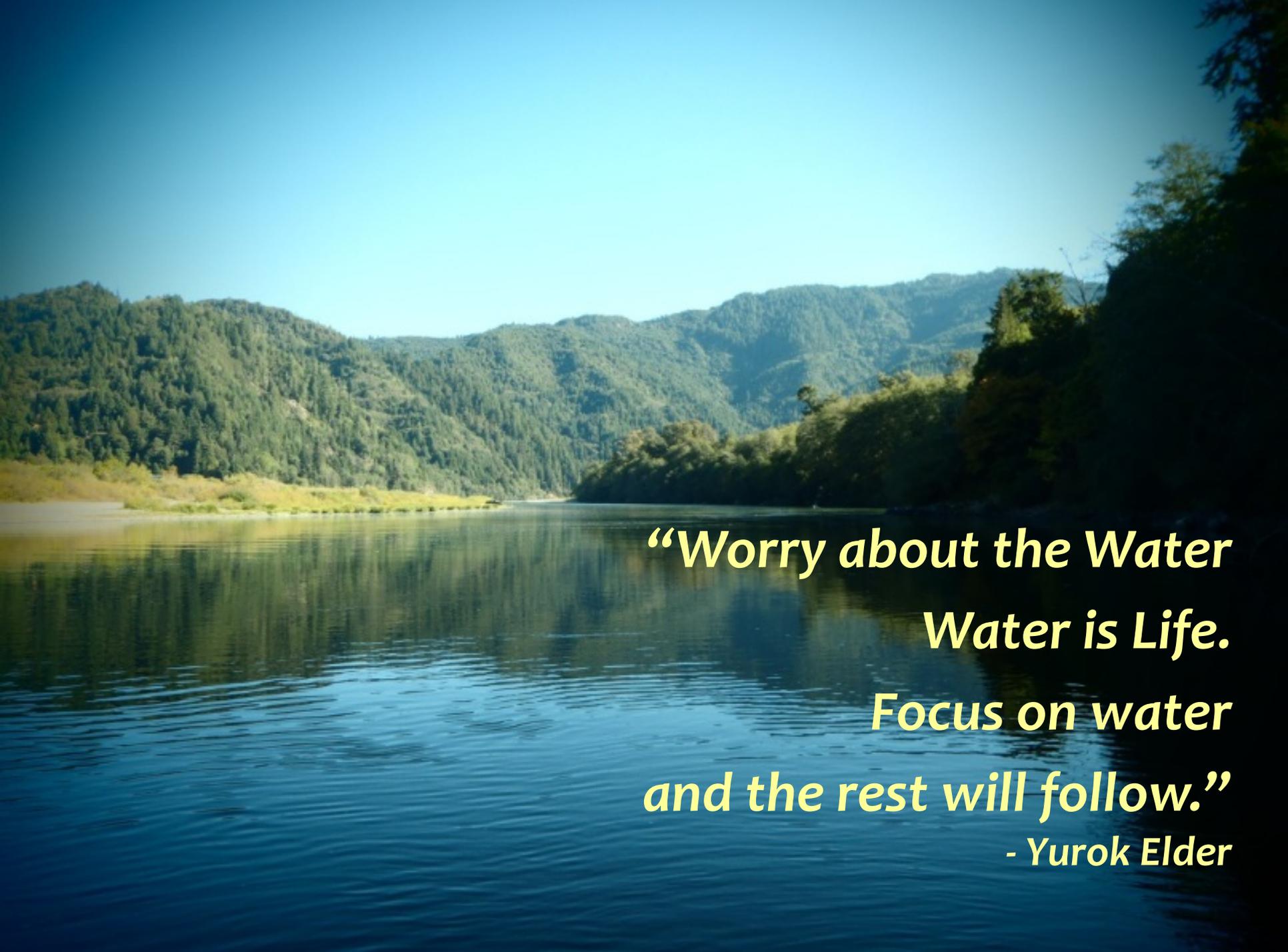
Yurok Ancestral Territory

Includes 56 miles of coastline

And...

133 Tributaries





***“Worry about the Water
Water is Life.
Focus on water
and the rest will follow.”
- Yurok Elder***

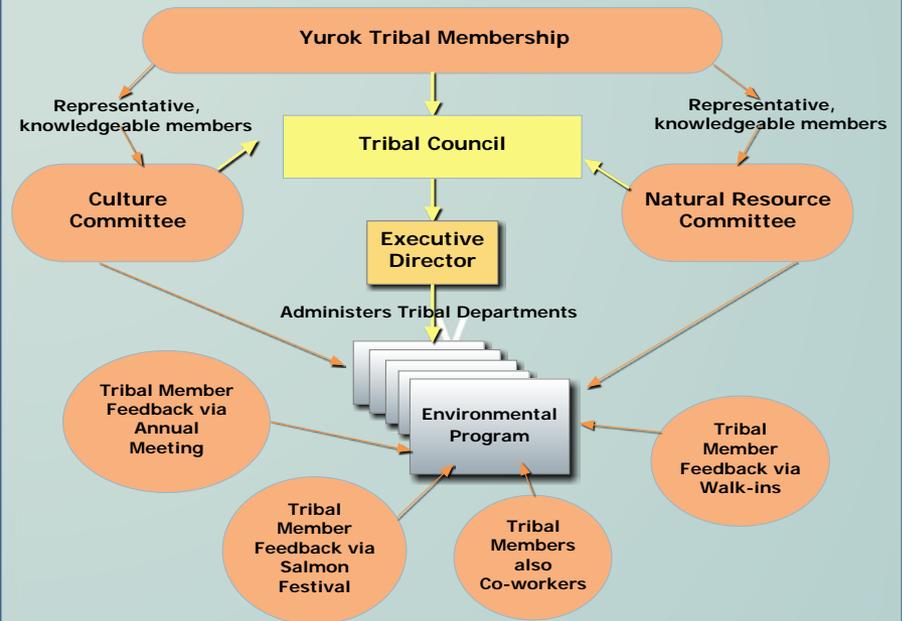
Research Questions:

What are the cultural appropriate ways the Yurok Tribe can prepare for impacts from climate change?

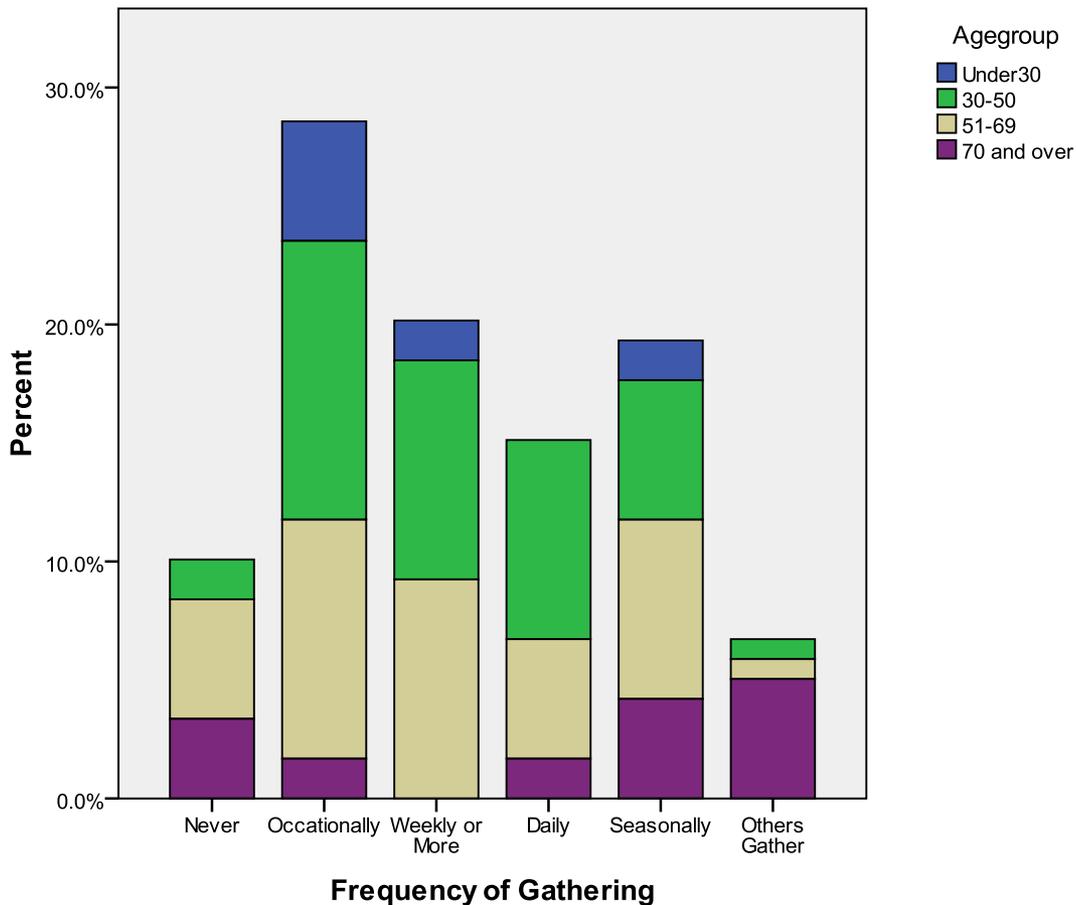
1. **Respectful hunting & gathering**
2. **Prayer**
3. **Sharing**
4. **Community networks**
(between upriver & coast communities)
5. **Restore cultural burning**
6. **Rebuild healthy ecosystems**



Routine Community Involvement with Yurok Tribe Environmental Program



Deliverable includes:
Community workshops, outreach, and
review of Climate Change Adaptation Plan



What are the cultural appropriate ways the Yurok Tribe can prepare for impacts from climate change?

CHALLENGES INCLUDE:

- ***Community burn-out***

They want answers now about how their time and knowledge was incorporated, used in past projects

STRATEGIES INCLUDE:

- ***Increasing Department feedback***
- ***'Piggy-backing' on other meetings***
- ***Outreach activities at festivals (raffle entries tied to questionnaire)***

*“Communicating with the elders. Never put that off..
That's the best teacher right there. Yeah Grandmother,
Grandfather.”*

–Axel Lindgren III



Research Questions:

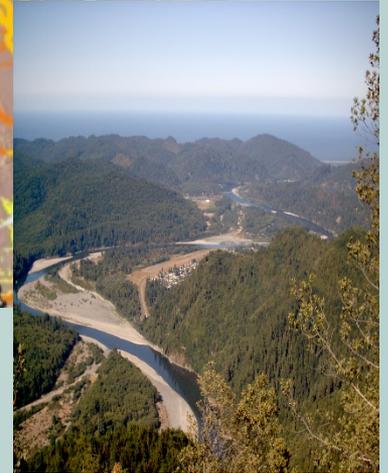
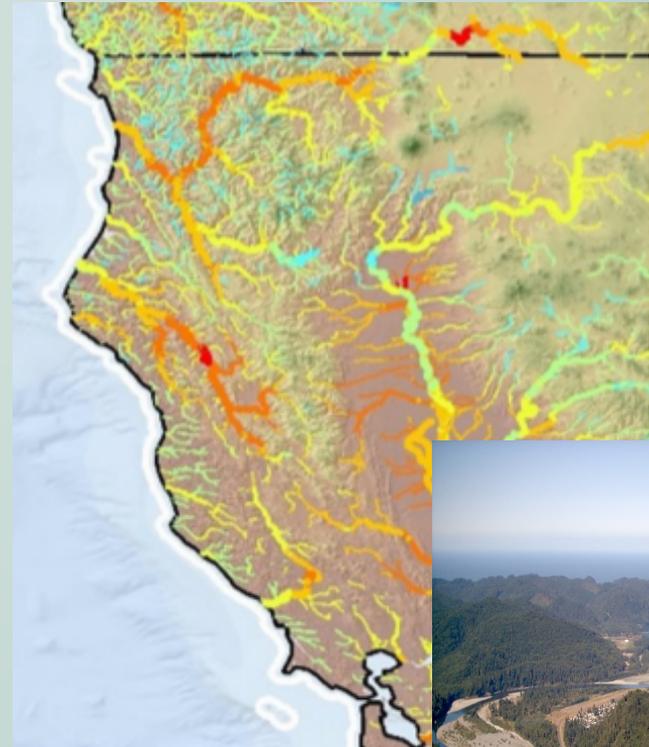
What are the baseline conditions of Yurok Reservation water resources?



*LOW FLOWS
and
WARMER water
RESULTS*

*In more bacteria
and pathogens
for fish and
humans*

*90 temperature probes
deployed in 25
tributaries & 16 springs,
2015-2016*



Deliverable includes:
Collecting, formatting,
& uploading of local data
onto USFS NorWest Streams network
and into Yurok ArcMap layers.

<http://www.fs.fed.us/rm/boise/AWAE/projects/NorWeST.html>



What are the baseline conditions of Yurok Reservation water resources?

CHALLENGES INCLUDE:

- *Locating correct reach of target creeks*
- *Missing & broken probes*
- *Historic USGS Topo maps inaccurate (naming & anthropogenic changes)*
- *NHD 1:24,000 data incomplete and inaccurate*

STRATEGIES INCLUDE:

- *Reiteration of GIS point collection and map updates*
- *Increased community outreach*
- *'Beefing-up' cable, casing, and attachment connections*
- *Generating new reaches and manually calculating parameter inputs*



“I never did enjoy swimming in the Klamath when I was a kid, because it was so cold ... up our way it was all redwood trees. All the way up the river, until about the early 50's they really started logging hard up the river...

-Raymond Mattz

Research Questions:

What are areas of high vulnerability & alternately, high resiliency for Yurok resources, habitats, & ecosystems?



Sea level rise will greatly impact the Klamath River estuary, threaten ancestral village sites and burials, & submerge rocky harvest areas for seaweed, mussels, & other shellfish

PEE'-EEH
Marine mussels



KEY-WEEN WE CHEY-GEL'
Early spring seaweed



Deliverable includes:
Tributaries' Flow Measurements
Water Quality Analysis
Yurok Climate Change Adaptation Plan



What are areas of high vulnerability & alternately, high resiliency for Yurok resources, habitats, & ecosystems?



CHALLENGES INCLUDE:

- *Living at 'tail-pipe' of watershed*
- *Jurisdictional challenges*
- *Shifting times for harvest of traditional resources that provided resiliency in food security systems*

STRATEGIES INCLUDE:

- *Development of LEO to inform T. Members of current harvest opportunities*
- *Development of Yurok staff reputation as 'Leader in Regional Water Quality'*
- *Development of Operation Yurok to deter illegal marijuana growing*
- *CA inclusion of cultural use in Marine Life Protection Zones*



All along the river and hills...we gathered berries, apples, sticks, and black ferns, fished and then we went down to the beach and fished at Orick for surfish...

Every gathering was a family outing. We all went and gathered all together out in the hills.

Fern Bates

Research Questions:

What are potential risks to tribal members' health from climate change to water and food resources?

What if no salmon, eels, or sturgeon...



Chronicle / Michael Maloney



KEY' WEEN
Lamprey eel



KAH-KAH Sturgeon

Hewecheck –
I live,
I am healthy,
I get well,
I survive...



Deliverable include:
Yurok Tribe Climate Change
Tribal Health Analysis Report



What are potential risks to Tribal Members' health from climate change to water and food resources?

CHALLENGES INCLUDE:

- *Aging private water systems*
- *Staff demands to operate Public Utility District's where no power, no internet, minimal training*
- *Isolating bacteria (E.coli) source*

STRATEGIES INCLUDE:

- *Building community trust and responding to their concerns*
- *Strengthening network with Indian Health Services*
- *EPA regional networking and technical assistance with laboratory analysis (HAB toxin testing)*



I think there was such an abundance of fish that native people could fish for maybe 1 or 2 days and get what they needed for a year and be busy with smoking and canning... they didn't have a need to fish everyday. I think now days people fish every day to maybe claim a fishing spot but also because you might not catch fish in the number that they might back in the day. But they have to fish more to get that winter supply.

-Robert McConnell Sr.



Questions?