

The Yurok  
Tribe's  
Approach to  
Klamath River  
Restoration

Securing the Future of Salmon






# History and TEK of the Yurok Tribe

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- Yurok have been here since creation. Their rights are inherent, not granted by any government.
- Yurok Tribe formed its modern government in 1993 and that is when the Tribe began to actively manage its fishery and conduct science
- Over time, the Tribe has integrated TEK into its approach
- TEK is more of an approach, but it also includes specific knowledge, but it may be in different form than scientific data (stories, oral history)

Photo art credit: Louisa McCovey




## Yurok TEK and Science Integration

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- The Yurok Tribe, by being focused on restoration, can singularly focus on what it takes to restore the Klamath
- The Fisheries Department of the Tribe is the largest department in the Tribe, reflecting the critical importance of this effort
- Yurok Scientists have begun the work of this integration
  - Barry McCovey Jr.
  - Keith Parker
  - Tiana Williams
  - And so many more

Photo credit: Mike Belchik





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  - And so many more
- This integration is marked by a “think big” approach. Use TEK and Science to identify limiting factors and address those factors head on.
  - Dam removal
  - Flow management
  - Large-scale fish restoration
  - Mining tailings restoration

Photo credit: Mike Belchik



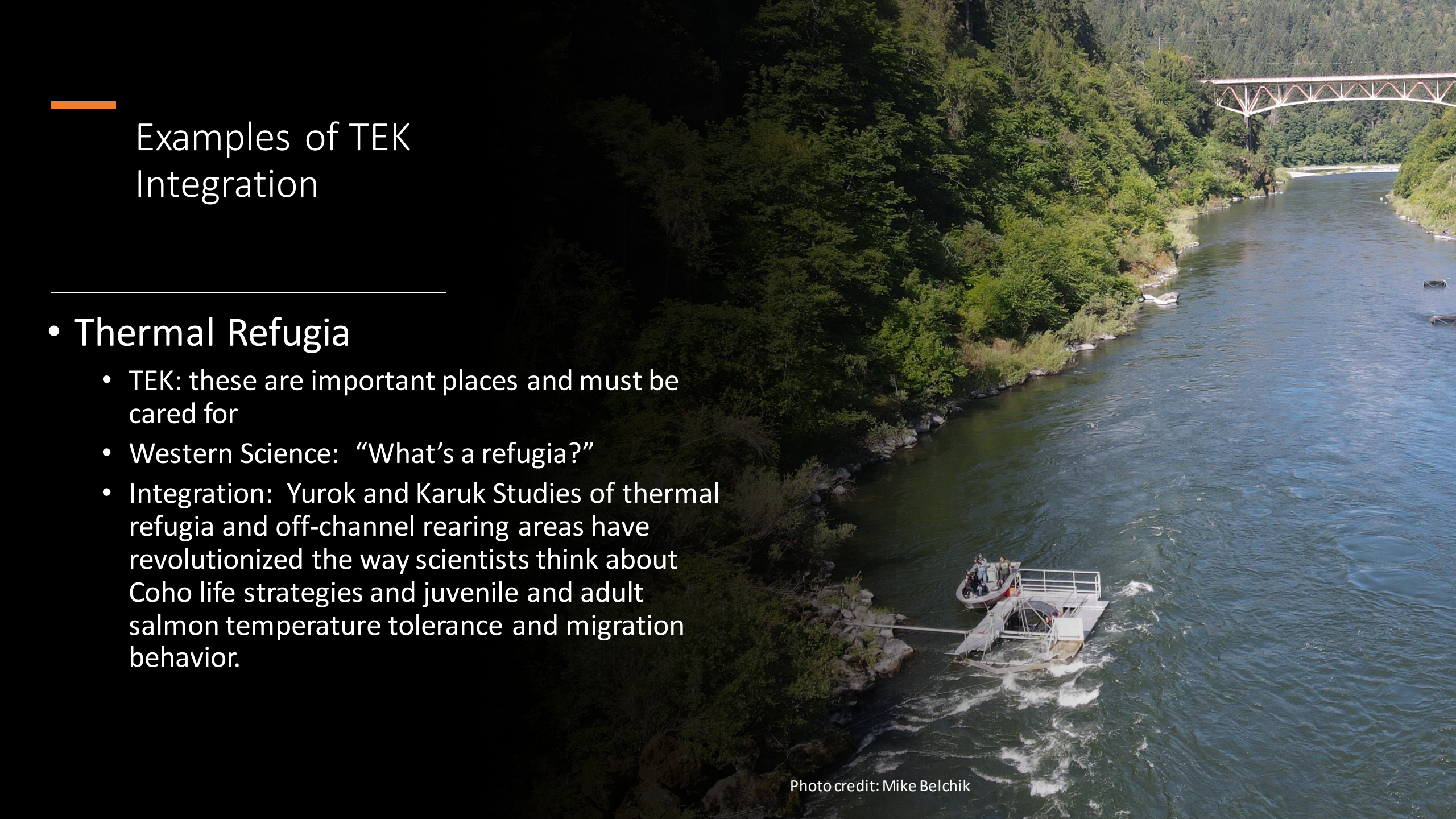
## Examples of TEK Integration


- Lamprey Run Differentiation
  - TEK: there are two distinct runs of lamprey
  - Western Science: there's no basis for that
  - Yurok Integration: genetic marker found and second (spring) run of pacific lamprey identified
- Salmon Run differentiation
  - TEK: spring and fall run are distinct
  - Western Science: there's no basis for that
  - Integration: genetic marker found and second (spring) run of Chinook salmon identified.

## Examples of TEK Integration

- Thermal Refugia

- TEK: these are important places and must be cared for
- Western Science: “What’s a refugia?”
- Integration: Yurok and Karuk Studies of thermal refugia and off-channel rearing areas have revolutionized the way scientists think about Coho life strategies and juvenile and adult salmon temperature tolerance and migration behavior.





## Examples of TEK Integration

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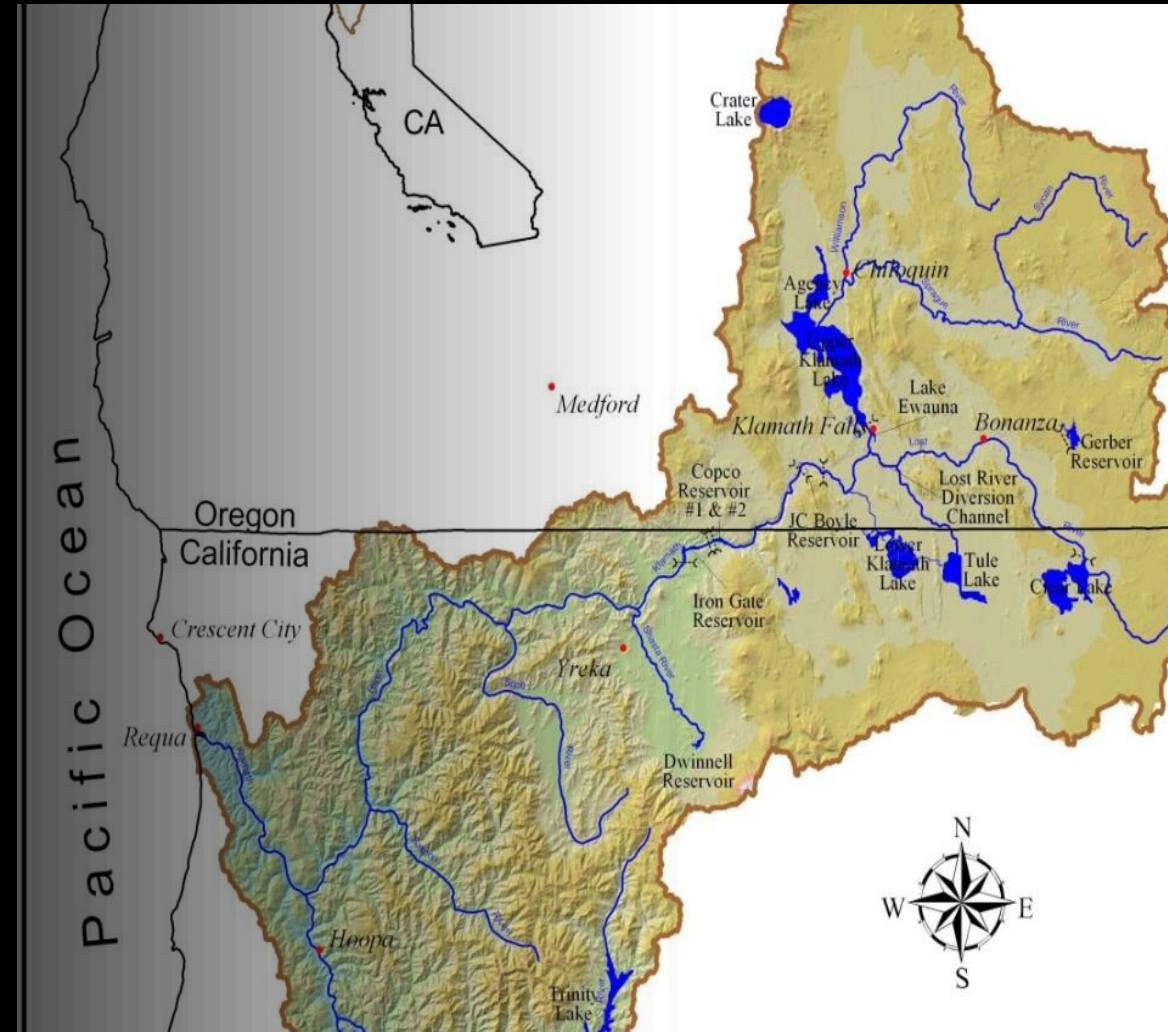
### • Flow Management

- TEK: Flows are important at all times of year because the river itself is a living entity and can be harmed.
- Western Science: The water is warm in summer, so higher flows are not necessary
- Integration: 78,000 fish died as a result of flow cuts in 2002 after the Yurok Tribe repeatedly warned of disaster.
- TEK and Science together tell the story that the further the departure from the river's natural hydrograph, the greater the risk of catastrophic change.

Photo art credit: Louisa McCovey

## TEK-Based Integrated Approach to Klamath Basin Water Management

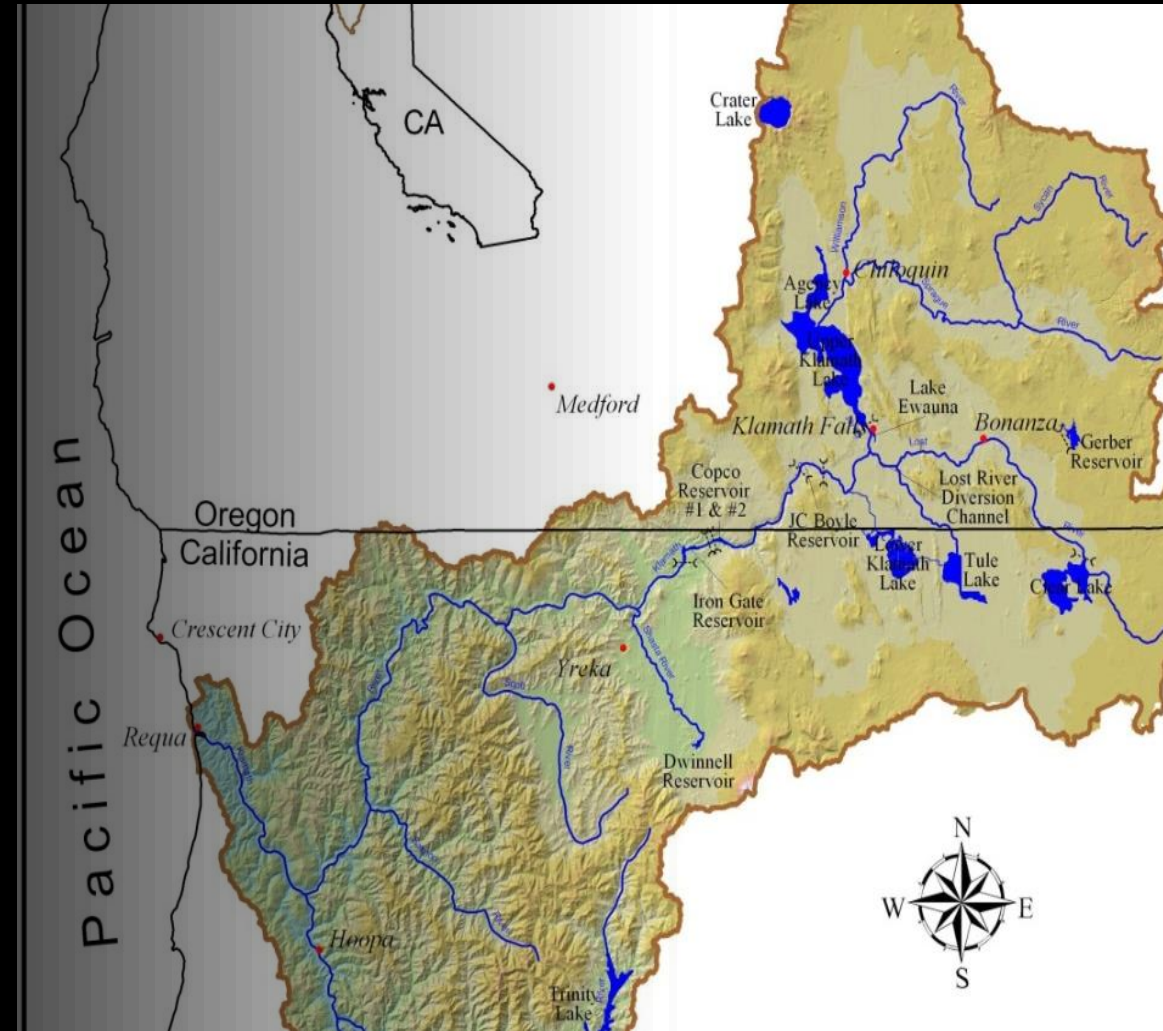
- TEK: The Klamath Basin functions as an integrated system and salmon, suckers, sturgeon, lamprey and eulachon can all thrive
- Western Science: we must narrowly consider the needs of endangered species and manage each species individually.





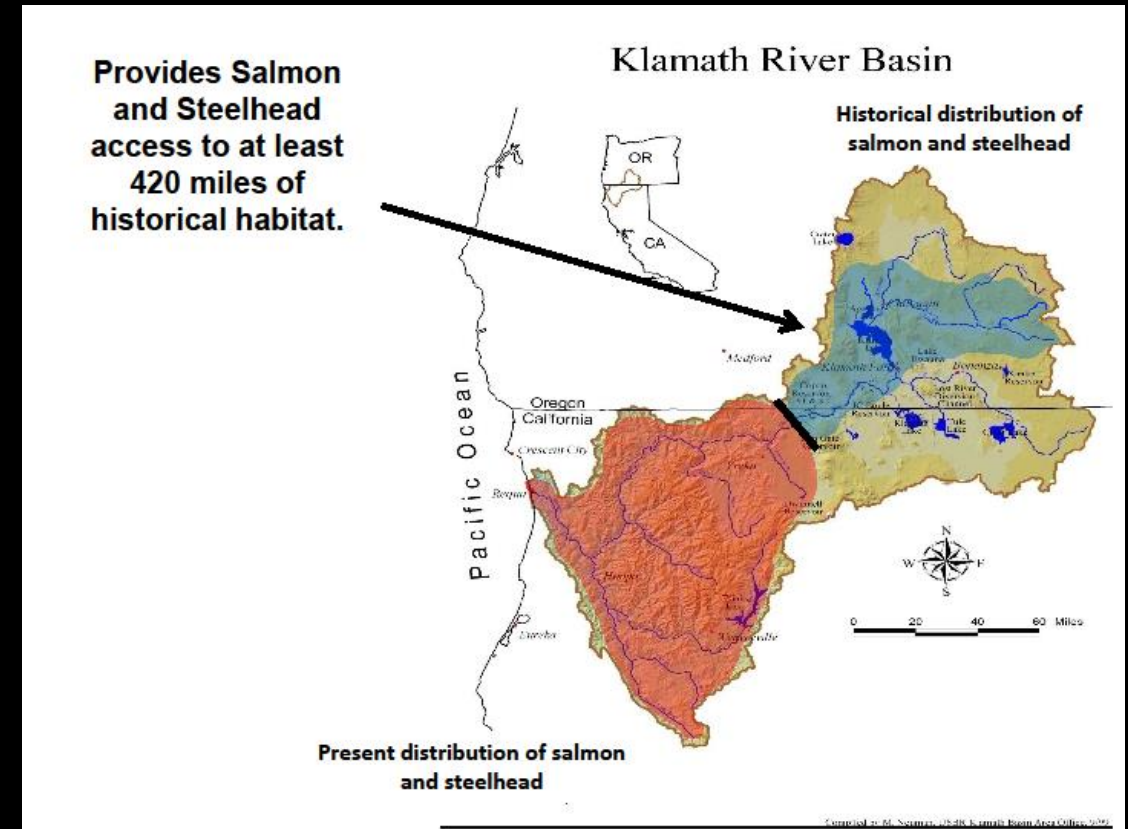
# TEK-Based Integrated Approach to Klamath Basin Water Management

- Integration: In 2006, the Yurok Tribe, working with our partners, the Klamath Tribes, offered a radical idea: drastically cut winter flows on the Klamath River in order to provide for system stability, high spring lake levels and higher river flows during juvenile rearing.
- This alternative was known as “Alt-X Yurok” at the time.
- This is the origin of the 1000 and 950 cfs minimum flows that have been implemented ever since.
- Trepidation: we were concerned about implications to disease, unknown effects to the ecosystem, sedimentation, etc. All of these things came to pass. All of them.



# Example of TEK Integration: Dam Removal

- TEK: putting up a concrete dam in a river will cut the river in two, and every living thing in the river will suffer consequence
- Western Science: Wow, you're absolutely right.
- Integration: the Klamath Tribes and the Yurok Tribe worked together to develop western science that could verify the TEK about impacts of dams to rivers and cultures.
- The development of this information led to us being on the cusp of dam removal in the next two years.





## TEK Defines a Role and a Responsibility

- Yurok Tribe is using western science (e.g. lidar, remote sensing, large-scale restoration design) to begin to heal the river
- Karuk and Yurok Tribes are using western science and TEK together to bring fire back to the landscape in a good way
- Food sovereignty and salmon science will begin to intersect more and more as landscape and water is integrated into a salmonscape.

Photo art credit: Louisa McCovey