



## YUROK TRIBE CLIMATE CHANGE ADAPTATION PLAN FOR WATER AND AQUATIC RESOURCES

Adults, elders, and subsistence/commercial fishers  
have an increased risk of **diabetes**.

### DIABETES

### TRIBAL POPULATION GROUPS



Infants and Children



Pregnant Women



Adults



Elders



Subsistence / Commercial Fishers



Gatherers



Ceremonial Participants



### ENVIRONMENTAL & INSTITUTIONAL FACTORS

Impacts to traditional aquatic foods:

Less access caused by changes in harvesting time differing from traditional knowledge, results in loss of places to harvest.

As species move with changing climate conditions Tribal members may be unable to move with them due to legal constraints on their fishing and gathering rights.

Less availability because of loss of species' habitats resulting in population declines.

Lower quality from existing environmental toxins being released into waterways and from overfishing resulting in less mature stocks.

### CLIMATE CHANGE IMPACTS

Warming air temperatures  
Warming stream, river, and ocean temperatures  
Ocean acidification  
More intense period of droughts

### EXPOSURE PATHWAY

Less access, availability, and quality of traditional aquatic foods.

Less healthy diet due to shift away from traditional aquatic foods.

Decrease in physical activity will occur over time as species populations and practices decline.

### HEALTH OUTCOME

Climate change may increase risk of diabetes contributing to higher rates of illness and death.

### INDIVIDUAL & SOCIAL CONTEXT

Existing health conditions among Yurok Tribal members show high rates of diabetes and its risk factors:

Diabetes rates ~3 times the national average.

Proteinuria rates ~2 times the national average.

High blood pressure, high cholesterol, and obesity rates are growing health problems.

Existing social trends increase diabetes risk, including low income, low education and high unemployment resulting in less access to healthy foods.

Limited access to or distrust of the healthcare system to provide diabetes screening and prevention results in less access to necessary preventive care.



## DIABETES

Diabetes is a disease that makes it difficult for your body to make or use insulin, a hormone which takes the energy from the food you eat to your body's cells. If you do not have enough insulin, glucose (sugar) builds up in your blood stream. One reason for Kidney Disease is having too much glucose in your blood stream over time due to diabetes. This will result in a protein build up in urine, known as proteinuria.



### ADAPTATION STRATEGIES

Listed below are strategies that can be implemented to reduce the risk of diabetes among Tribal members.

#### Institutional

Invest in opportunities for "food sovereignty" to return to sustainable food harvesting and replace need for commodity foods.

Provide opportunities for physical activity.

Continue and enhance opportunities for fish sharing, including provision of fish for single or pregnant moms and elders.

Consider reporting to health and social services of proteinuria, diabetes and kidney disease to understand the problem and obtain funds to target prevention of these illnesses.

Work to increase healthcare funding to expand access for Tribal members including in-home care and testing for those without access to transportation.

Consider designing and implementing culturally grounded diabetes-prevention education including lessons on the benefits of eating traditional foods modeled after the Centers for Disease Control and Prevention's "Native Diabetes Wellness Program."

Conduct education about and implementation of healthy foods and healthy eating habits in Head Start programs and schools.

#### Individual

Consider eating more traditional foods when available, particularly fish, as a high quality protein, low fat option with excellent health-protective components (e.g., Omega 3).

Consider seeing a health professional regularly when possible (to catch health problems early).

Consider increasing physical activity to maintain a healthy body weight.

*"The Yurok Tribe has experienced an increase in obesity, diabetes and heart disease rates that coincided with the declining availability of traditional foods, particularly salmon, and that has contributed to higher disability and mortality rates."*

*-YTEP Staff*

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