

Swinomish's 3 initiative on climate change impacts within the Skagit Watershed and Salish Sea

Seeking collaboration with Washington State Senators and Representatives in the next steps for US Climate Change Legislation

Swinomish's partnerships in science, policy, and culture provides a model for climate change planning for our Northwest communities.

Our goal is to sustain Washington's prestigious way of life for seven generations and beyond.

**Excellence in Governance for
Climate Change**

***Partnership
Science
Policy
Culture***



Let Talk!
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3 Approaches

Skagit Climate Science Consortium

Partnership of scientists and policy analysts from tribal, federal, state and local governments, industry, and local citizens who manage and conduct climate change research on the Skagit River

Tribal Journey Water Quality Project

Partnership between the Coast Salish Nation (44 western Washington Tribes and BC First Nations and USGS to conduct the largest marine water quality project and provide baseline information on the quality of changes in the Salish Sea and surrounding ecosystem.

Swinomish Climate Change Impact Plan

Partnership with local governments and scientists to develop the climate change impacts plan upon infrastructure, economy and treaty rights.



Partnership in the Skagit to address Climate Change Impacts for Sustainable Communities

Washington State Senators and Representatives can call upon Swinomish to share our story the results on only federally funding tribal climate change plan for 2009 out of 571 Tribes.

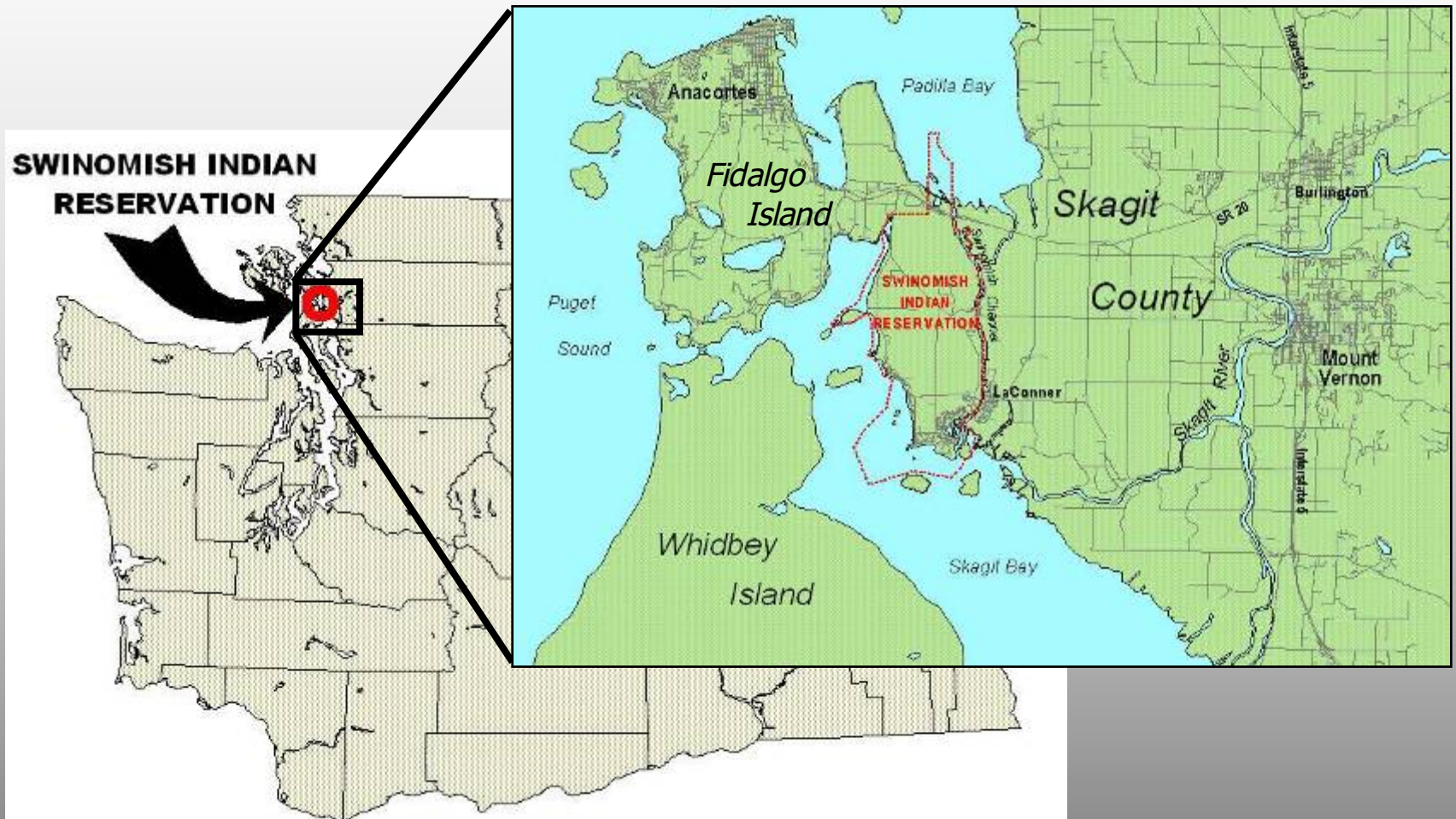
Points:

- Swinomish is a place based society, meaning to us;
 - we reside on our ancestral homelands and way of life depend upon the health of our Skagit and Salish Sea Ecosystem.
 - Our environmental responsibilities stretch from the mountains to the ocean and to ensure our life ways reside for seven generations and beyond,
 - We realized it will take not only transboundary tribal partnership, but first and foremost, partnerships at home

Responding to Climate Change: Swinomish Case Study



Location of Swinomish Indian Reservation



The challenge of climate change

- ★ Climate change is global ~ impacts are local & vary greatly
- ★ Best coordinated action will not stop it
- ★ Response will span Generations
- ★ Uncertainty in climate models & projections
- ★ Change occurring faster than projected

The challenge for Swinomish+

- ★ Connection to Reservation homeland requires response & limits options
 - Place-based
 - Sustenance
 - Cultural practices/traditions
- ★ Need for preparation and adaptation is great
- ★ **Mitigation** requires effort well beyond Tribe's contribution

Motivation for Swinomish

- ★ Change in Sea Level Rise
- ★ Change in weather extremes
- ★ Impacts on Infrastructure
- ★ Loss of tidelands
- ★ Shrinking reservation
- ★ Loss of natural resources and impacts on treaty rights
- ★ Impacts on culture

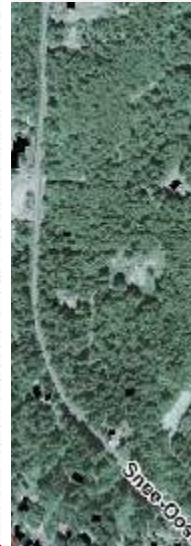
Responding to Climate Change: A Tribal Planning Case Study

Storm/tidal surge, February 2006



Responding to Climate Change: A Tribal Planning Case Study

Storm/tidal surge, west shore, February 2006



Swinomish Proclamation, Oct. 2007

PROCLAMATION OF THE SWINOMISH INDIAN SENATE ON A SWINOMISH CLIMATE CHANGE INITIATIVE

WHEREAS, there is overwhelming evidence of climate change occurring both globally and regionally, as supported by scientific documentation of the effects of climate change and global warming; and

WHEREAS, the effects of climate change, while evident globally and regionally, have the potential for significant impacts on the local community, including the Swinomish Indian Tribal Community, the Swinomish Indian Reservation, and Swinomish Usual and Accustomed areas, due to projected impacts from rising temperatures, rising sea level, and other associated effects on the local environment, natural resources, water supplies, fish and wildlife, and critical infrastructure on which the Swinomish Indian Tribal Community has traditionally relied; and

WHEREAS, the projected impacts of climate change may include loss of tidelands and habitat, reduced viability of fish and wildlife species, damage to shoreline property and forest resources, damage to infrastructure and facilities, and associated risks to public health and welfare; and

WHEREAS, it is the duty and responsibility of the Swinomish Indian Senate to provide for the well-being of the Swinomish Indian Tribal Community, as well as attend to the well-being of those resources, natural systems, and human systems which provide crucial support to the Swinomish Indian Tribal Community and the Swinomish Indian Reservation; and

WHEREAS, the Senate has considered the potential effects and impacts of climate change on the Swinomish Indian Tribal Community, the Swinomish Indian Reservation, and attendant resources, natural systems, and human systems sustaining the community, and has registered concern for such effects and impacts;

NOW THEREFORE, THE SENATE HEREBY PROCLAIMS support for a Swinomish Climate Change Initiative and declares the intent and commitment of the Senate to address the potential effects of climate change, and also hereby declares and directs the following actions to be taken under this initiative:

To undertake efforts as possible to determine the potential local effects of climate change as may affect the Swinomish Indian Tribal Community and the Swinomish Indian Reservation, including effects and projected impacts on the local environment, forestry resources, agriculture, fish and wildlife, water resources, and shorelines, as well as critical infrastructure and public health;

To develop appropriate policies and strategies for addressing effects and projected impacts of climate change on the Tribe and the Swinomish Indian Reservation and for contributing to reduction of the causes of climate change and global warming;

To develop appropriate goals for addressing effects of climate change and for contributing to reduction of the causes of climate change;

To develop potential programmatic and/or regulatory actions and changes consistent with said policies, strategies, and goals as appropriate to addressing the effects of climate change and contributing to reduction of the causes;

To communicate and coordinate with local, state, regional, and national entities and jurisdictions on addressing projected impacts of climate change, including government-to-government cooperation and identification of funding sources and opportunities as possible and available; and

To communicate to and with the local community about issues and concerns regarding the effects and projected impacts of climate change; and

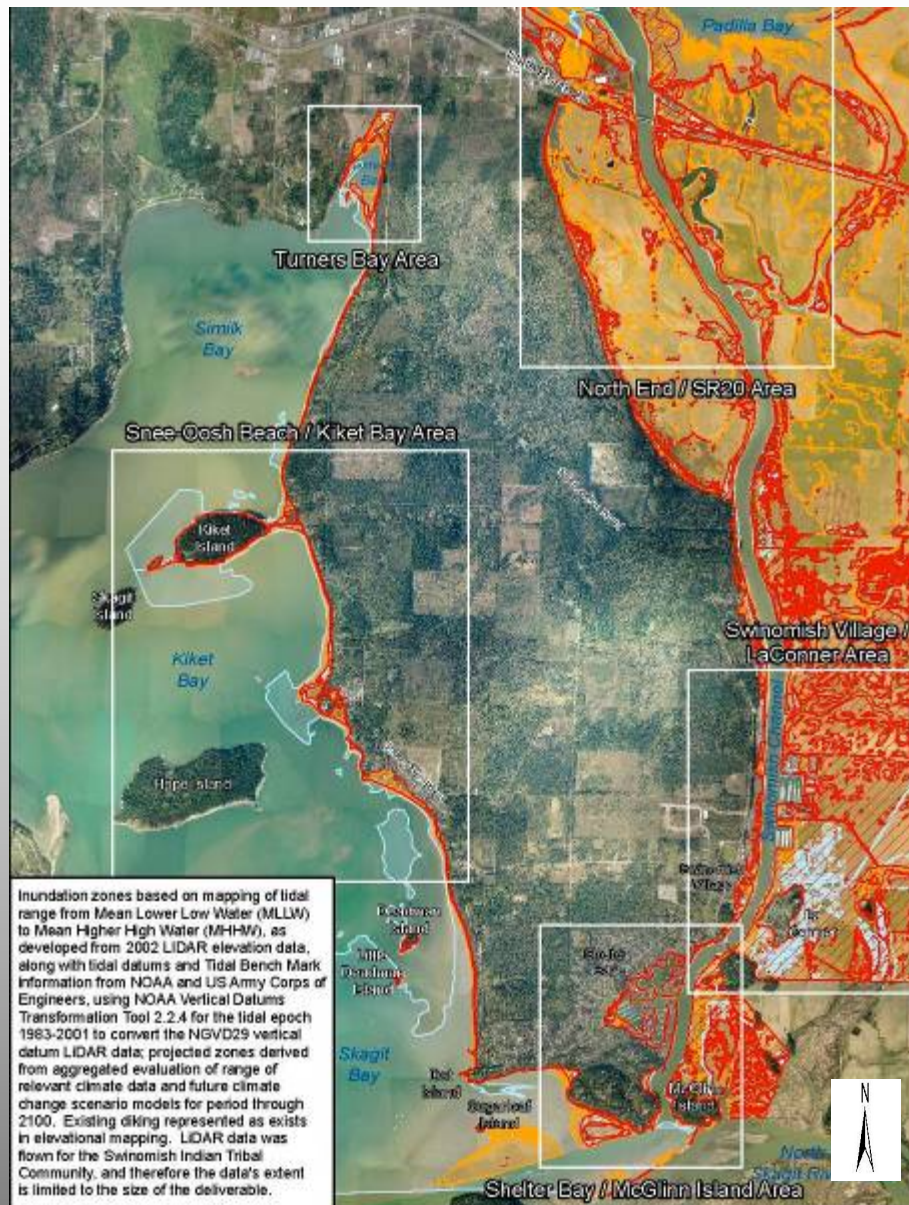
BE IT FURTHER PROCLAIMED that all Swinomish governmental committees and departments shall assess how best to implement the actions under this initiative as specified above, how best to incorporate such actions into ongoing programs and activities or into such new activities as may be proposed, and that the Senate hereby designates a Swinomish Climate Change Task Force to be comprised of designated representatives of the Swinomish Office of Planning and Swinomish Public Works Department, working in cooperation with the Swinomish Utility Authority and Skagit River System Cooperative, to coordinate implementation of this initiative and to provide support for Swinomish governmental committees and departments in this effort, under the guidance and direction of the Senate.

By the authority vested in the Swinomish Indian Senate, this Proclamation is made this 2nd day of October, 2007.


M. Brian Cladoosby, Chairman
Swinomish Indian Senate

Local Response to Climate Change: Swinomish Case Study

Inundation Risk Zones - Sea Level Rise & Tidal Surge



Impacts on tribal culture & traditions



Beach seining



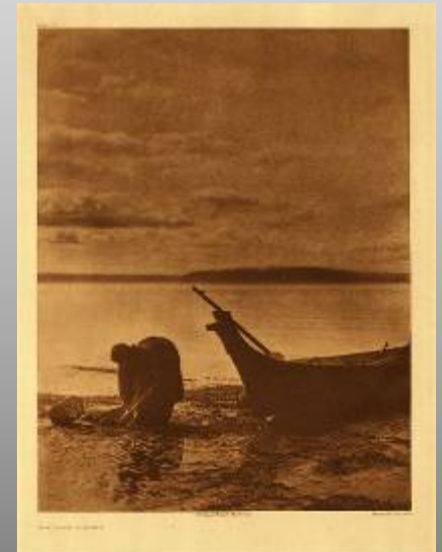
Fishing



Native plants



Shellfish harvesting



Cultural sites

Other projected impacts

- Stressed **fish** populations
- **Forest**, habitat conversion/migration
- **Species** relocation/migration
- Increase in **pests**, disease vectors
- Public/**human health** (heat, diseases, place pathology - “Solastalgia”) Solastalgia definition: <http://www.worldchanging.com/archives/008782.html>

Property ~ within wildfire zone (Urban/Forest Interface)

Property Type	Number	Acres	Approximate Value
Residential	1,368	1,995	\$ 493,688,000
Non-Residential	9	143	\$ 4,806,000
Buildable Lots	183	80	\$ 19,918,000
TOTAL	1,560	2,218	\$ 518,412,000

First Steps – Organizational Response

- **Organizational education/buy-in**
- **Develop overall response approach; identify challenges, barriers**
- **Assess key players, capacity, needs**
- **Internal coordination & strategy –
How will key players work together?
Who will lead/coordinate?**

Adaptation – Action Strategy

- **Impact Analysis**: identify at-risk areas, type and degree of impacts, timeframes
- **Vulnerability Assessment**: inventory assets & resources at risk, degree of vulnerability
- **Risk Analysis**: extent and probability of risk, value of at-risk assets and resources
- **Action Plan**: identify strategies, timing, costs for protection for at-risk assets and resources
- **Institutionalize Response**: incorporate into planning, evaluate risk to new activities

Adaptation Strategy – Policy Issues

- **Relocation/replacement**
- **Infrastructure/facility planning**
- **Engineering for loss prevention**
- **Intergovernmental coordination**
- **Establishing funding, priorities**

Adaptation – Regulatory Tools

- **Building codes**
- **Zoning/development controls**
- **Shoreline zone management**
- **Sensitive/critical area controls**
- **Environmental review criteria**

Mitigation – Programmatic Actions

- **Emissions inventory, reduction targets**
- **Commute trip reduction/ride sharing**
- **Fuel conversion for public vehicles**
- **Energy efficiency/conservation measures**
- **“Green” energy usage**
- **“Green” building practices and standards**
- **Alternative agricultural/timber practices**

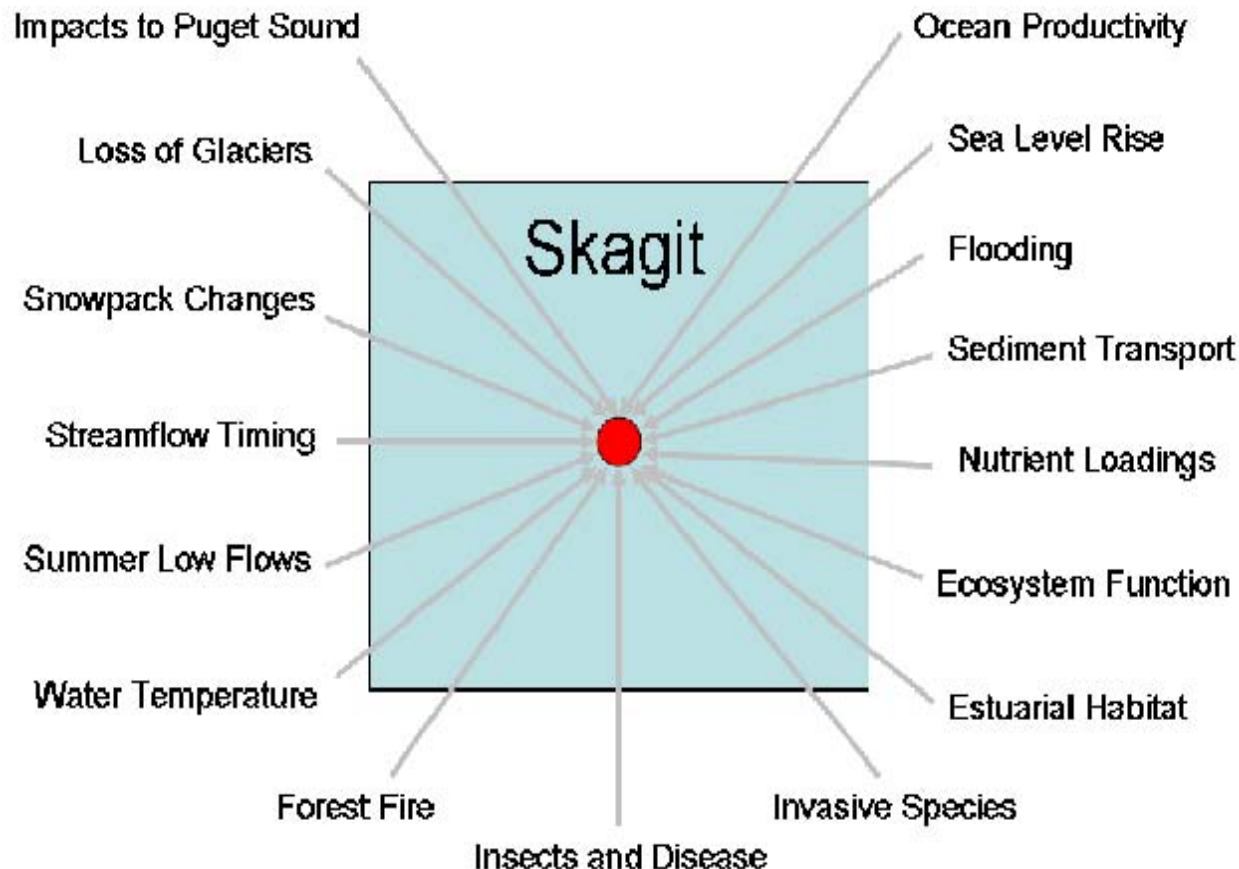
Project participants

- UW Climate Impacts Group
- Skagit River System Cooperative
- Town of LaConner
- Skagit County
- Shelter Bay Community
- Tribal staff
- **CEAG** - Community Interest Group

SC₂: Developing Salmon Management Responses to Climate Change at the Watershed Scale

- **Seeking collaboration with Washington State Senators and Representatives for endorsement and funding opportunities for Climate Change Initiative for the Skagit Watershed**
- **Future next steps include**
 - **Policy Outreach: Developing Workshop for elected officials and public on emerging issues**
 - **Funding and Collaboration for new and ongoing research**
 - **Continue routine meetings between Skagit Climate Scientists to further develop Consortium concept**

Anticipated Climate Changes Affecting Watersheds

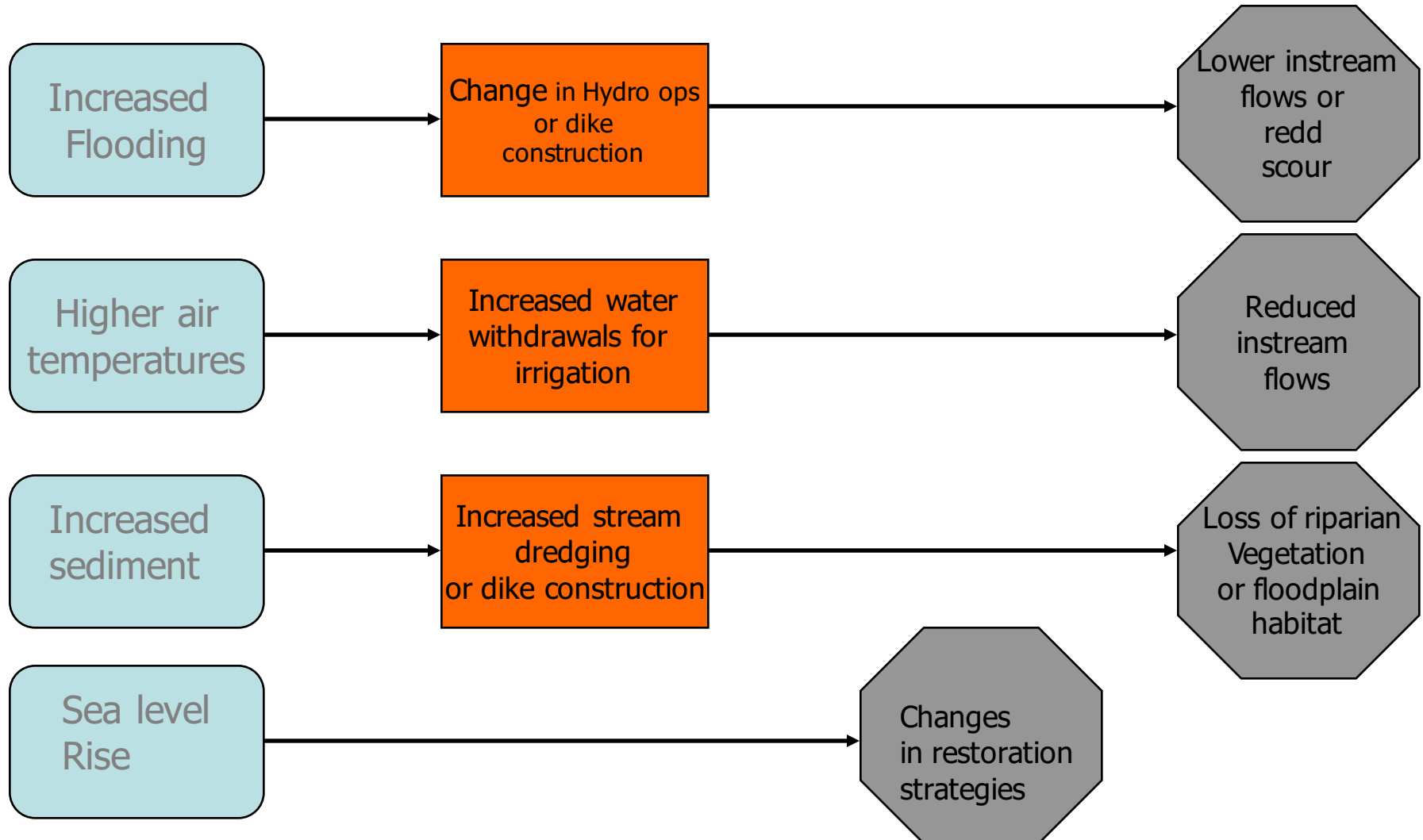


Land Use Decisions that may Affect Salmon

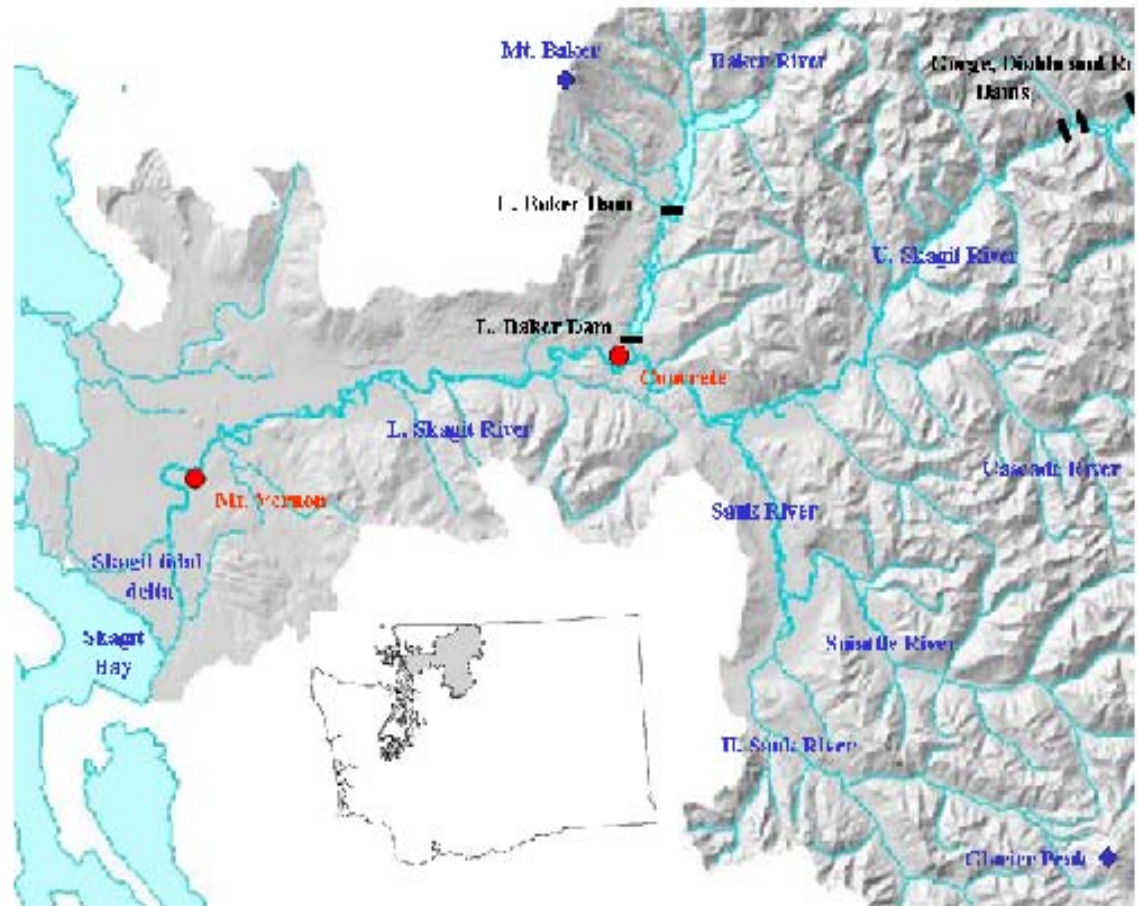
Climate Effects

Land Use Decisions

Potential Salmon
Impacts



The Skagit Experience: The Skagit Climate Science Consortium (SC²)



- Skagit is the 3rd largest river in Western US
- Only River system in lower 48 to spawn six species of wild salmon
- 1/3 fresh water to Puget Sound
- Two major hydroelectric complexes
- Spans three counties and US/Canada

Swinomish ancestral homelands reside in the Skagit Watershed

- **Reservation are homelands**
 - Our Tribes have occupied area for over 9000 years, Swinomish resides in our ancestral homelands
 - Tribes in the Northwest are known as the shoreline and salmon people
 - Tribal fishing sites have been adjudicated and limit where Tribes can fish
 - Tribes have treaty rights for fish protection



SC²

The Consortium's goals are to:

- Foster collaborative, interdisciplinary research to understand and quantify the diverse impacts of climate change on the Skagit basin
- Serve as an objective and non-politically affiliated source of scientific information, data, and services to support long-term planning and climate change adaptation by stakeholders in the basin
- Identify new scientific products, data, or services that are needed to address climate change impacts in the basin, and generate research funding to address these needs
- Establish and maintain long-term relationships between scientists and stakeholders in the basin in the interest of generating trust, fostering effective collaboration, and sharing of information.
- Develop and maintain a web-based “clearing house” for scientific products and services addressing climate change impacts and adaptation in the basin.

Organizations represented at SC²

- **Swinomish Indian Tribal Community**
- **University of Washington and Western Washington University**
- **US Geological Society**
- **Pacific Northwest Laboratories**
- **National Oceanic and Atmospheric Administration**
- **North Cascades National Park**
- **Seattle City Light**
- **EPA**



Coast Salish

**70-100 Western Washington Tribes
and British Columbia First nations**

Tribal Canoe Journeys (Late July)

**Annual trip along ancestral waters
2010 21th anniversary**





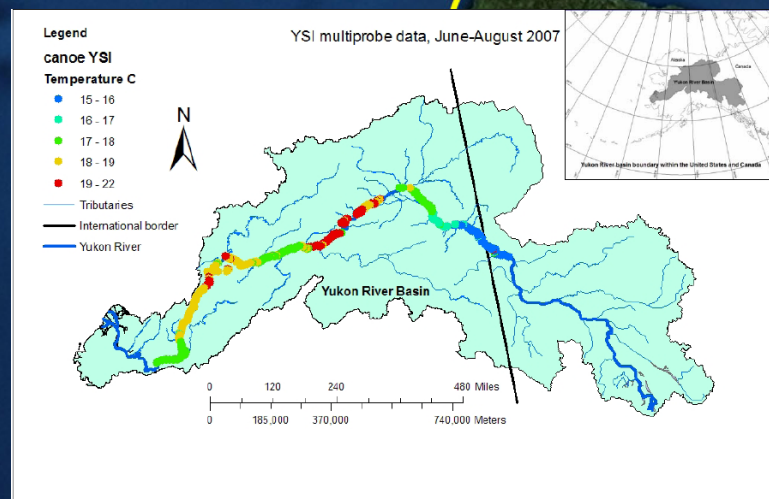


LEGEND

- Moorings
- Nutrients
- CTD
- Canoe_2009
- Canoe_2008

0 10 20 30 40 50 km

- **Coast Salish-USGS Water Quality Study**
 - * A project to monitor water quality
 - * Identify patterns and impairments
 - * Science to guide policy for ecosystem management in the Salish Sea





Tribal Voice



Intimate, cultural link to coastal environment tied to iconic salmon and ceremonies year-round
Rich subsistence & greater longevity on healthier diet



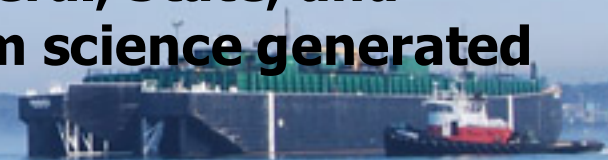
Conclusions

Integration of Coast Salish culture and USGS scientific expertise has proven to be a capable means of collecting large scale trans-boundary environmental data

Results help identify areas of water quality concern, extent of impact, and processes contributing to impairment

Salish Sea influenced by increasing number of stressors, many of which we can not fully predict because of important information gaps

As the Project grows and develops Tribal, Federal, State, and Provincial governing agencies will benefit from science generated from a Coast Salish perspective





Acknowledgements

Partners

- Coast Salish Nation
- Northwest Straits Commission, WA Dept of Ecology
- Potlatch Fund
- Environment Canada
- U.S. Geological Survey
- US EPA

- Coordinator's
 - Swinomish Indian Tribal Community
 - Coast Salish Gathering Steering Committee
 - USGS





**Thank You
Hi'swke**