

Five-Year Report: 2011 - 2015



Photo: © 2011 John H. Scurlock

www.skagitclimatescience.org



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Members

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UNIVERSITY

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BOARD MEMBER

Eric Grossman
BOARD MEMBER

Alan Hamlet
BOARD MEMBER

SC² members are individuals who conduct Skagit-based climate related research and who bring diverse expertise to the group.

The views in this report are not endorsed by the agencies or institutions that support SC² scientists.



Anacortes Water Treatment Plant redesigned for climate resiliency

The Skagit Climate Science Consortium (SC²) at its very heart is about relationships: relationships in our environment, relationships between scientists, and relationships with the Skagit community. These relationships have resulted in a powerful scientific learning community, an engaged Skagit adaptation community, and usable science built from the strength of our science and community engagement.

SC² scientists pay close attention to relationships in our environment: ice and rock, water and stream channels, salmon and water temperature, waves and shorelines but also flood frequency and road infrastructure, changing sea levels and agricultural drainage, dam operations and stream inputs, and sediment and water supply.

SC² has built foundational relationships within the scientific community over the last five years by regularly bringing together twelve diversely skilled scientists who work on climate related issues in the same place, the Skagit watershed. Through conversation, research, and conceptual linkages, various pieces of understanding have been knit together to create a fuller picture of how climate change is affecting this particular place.

Just as important as the scientific relationships are the relationships we have developed within the Skagit community. Working with Tribes, water purveyors, agricultural producers, local and state government staff, the watershed council, elected officials, the local environmental reporter and others, our scientists have built relationships of mutual learning. As the scientists have learned more about what specific information people need and how to better communicate their findings, the community has learned about possible changes directly affecting things they care about and means of addressing or planning for these changes.

While climate change as a national political issue has been polarizing, our work in the Skagit has not. Indeed, when we present locally-specific and relevant information provided by the person doing the research, we have found a concerned public. As a largely rural area, local people frequently see and feel changes and see the implications of continued or increasing trends because they directly affect them. That is not to say change comes easily. Many issues faced by the community, such as significantly increased flood risk, do not come with easy or inexpensive answers.

This is where SC² 's long-term commitment makes a difference. Climate change is a significant challenge being faced across our country and the world. Individuals and communities take time to face into such challenges. SC² is committed to providing the very best science during this time of transition. SC² is also committed to taking the time to get to know the people struggling to grasp the magnitude of the changes and explore other alternatives. Because in the end, as scientists, we know relationships matter.

Sincerely,

Jon Riedel, Ph.D
Chair, SC²



OUR MISSION

To support Skagit communities as they adapt to climate change, SC²:

Fosters Collaborative Scientific Research

to understand the diverse and interrelated impacts of climate change from the Skagit's headwaters to Puget Sound.

Produces Relevant Climate-Related Products

closely integrated with the Skagit community's needs and concerns.

Serves as a Conduit between Skagit Communities &
SC² Scientists

to assist in the development of adaptation strategies.

OUR 2015-2020 STRATEGIC FOCUS

Powerful Scientific Learning Community

Engaged Skagit Adaptation Community

Usable Science

Governance

Fundraising/Development

See our Strategic Plan at <http://www.skagitclimatescience.org/about-us/sc2-non-profit-status/>

THE CHALLENGE BEFORE US

**Climate Change
Drivers**

**System Changes
and Impacts**

**Human and
Local Challenges**



More infographics can be found at:
<http://www.skagitclimatescience.org/events/educational-resources/>

THEORY OF CHANGE

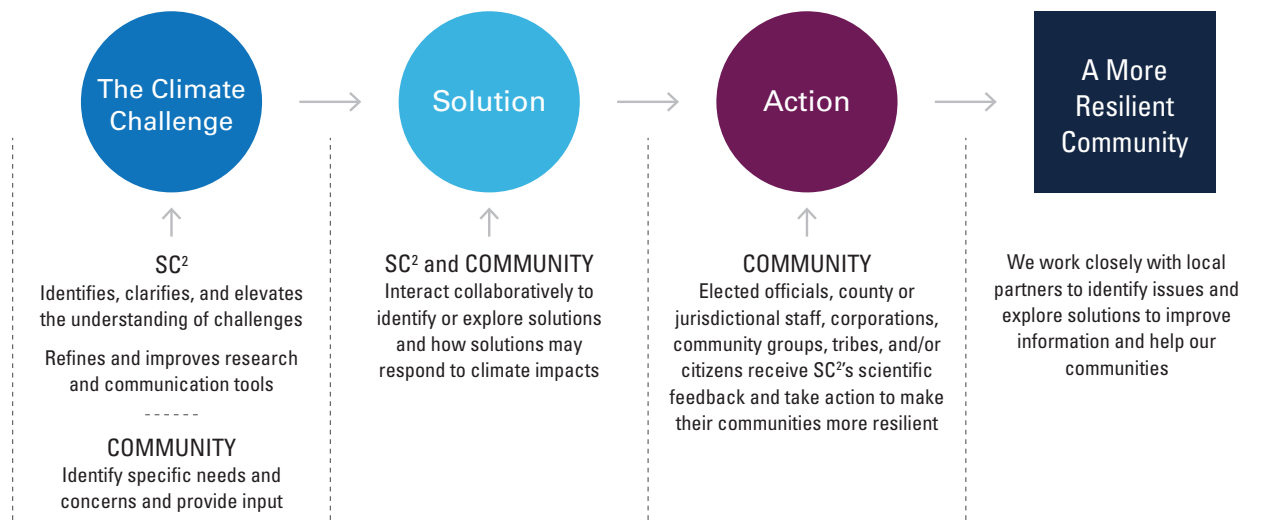


Our Vision

Reduce vulnerability of human communities and ecosystems in the Skagit River basin to the impacts of a changing climate

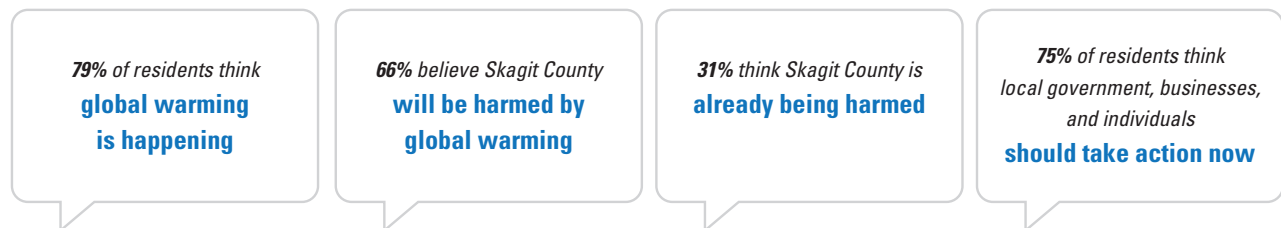
A Pathway to Resiliency

SC²'s theory of change is that quality, credible, integrated locally-based, decision-maker ready climate science information—partnered with those focused on action or motivated to act—will increase both the level of action, but also the quality of actions, resulting in a more resilient community.



A Community Primed for Action

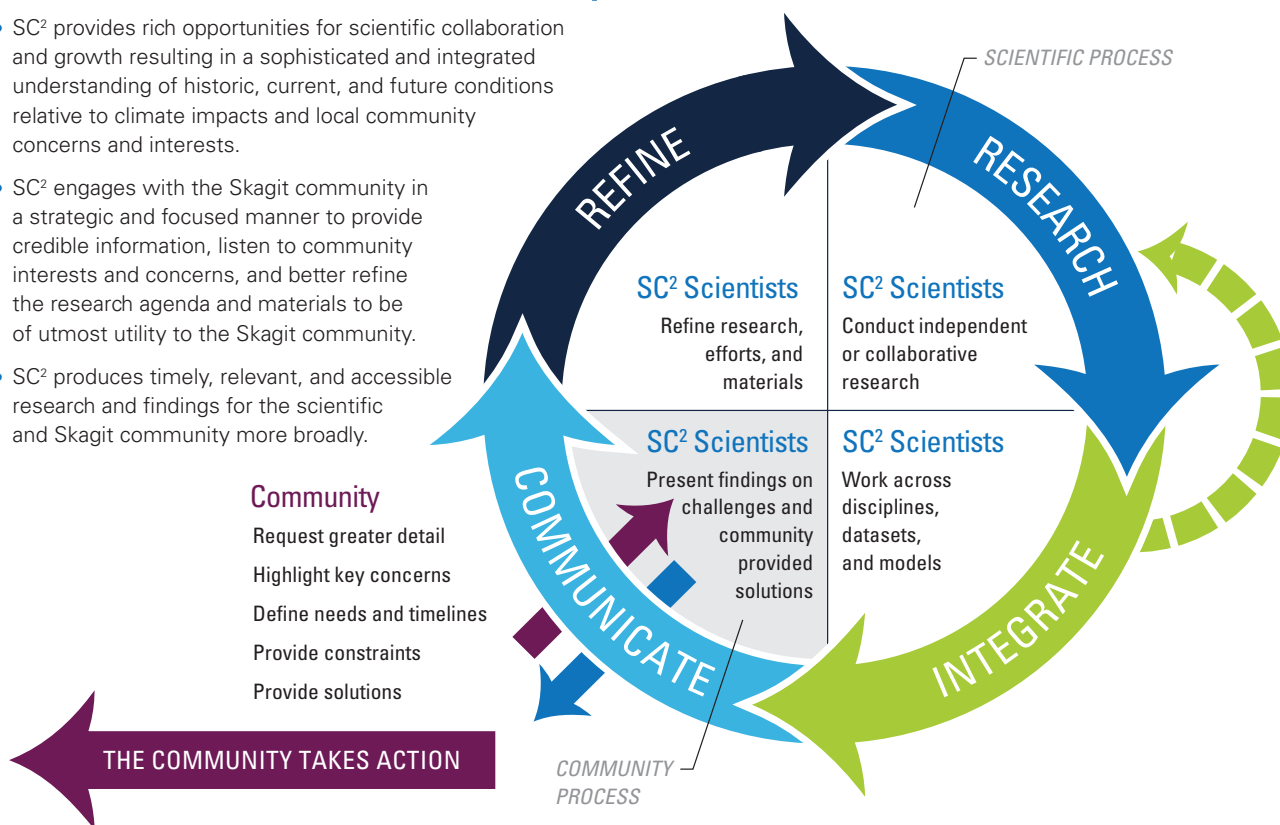
SC² believes that given the high level of mistrust and partisan perspectives surrounding the topic of climate change it is imperative that SC² remain focused on providing credible, locally-focused scientific information in support of and in response to those motivated to act. Indeed, 2015 polling of Skagit County residents by SC² and the Yale Project on Climate Communications shows:



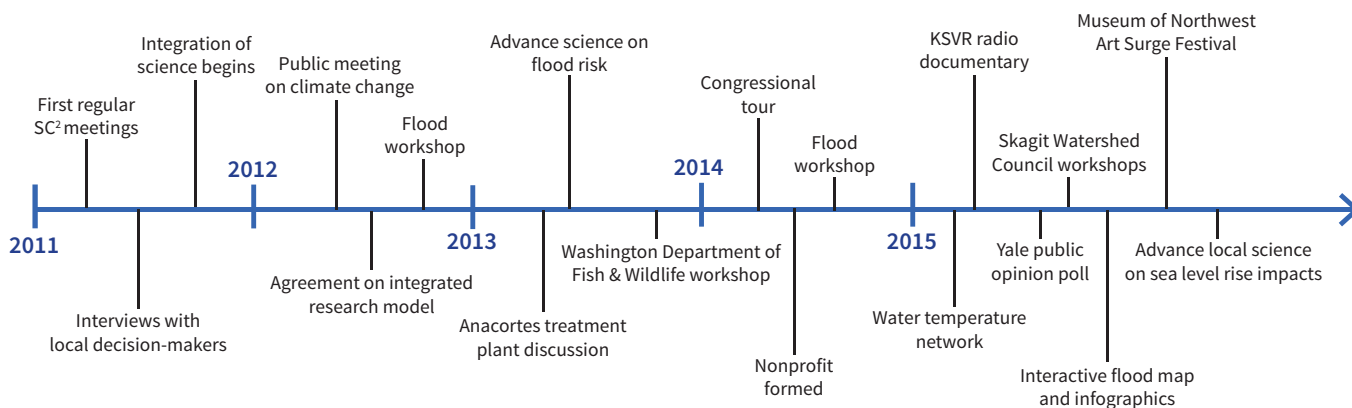
Statistics above are from the Yale Project on Climate Communications, Yale School of Forestry and Environmental Studies.

A Scientific and Community Collaboration

- SC² provides rich opportunities for scientific collaboration and growth resulting in a sophisticated and integrated understanding of historic, current, and future conditions relative to climate impacts and local community concerns and interests.
- SC² engages with the Skagit community in a strategic and focused manner to provide credible information, listen to community interests and concerns, and better refine the research agenda and materials to be of utmost utility to the Skagit community.
- SC² produces timely, relevant, and accessible research and findings for the scientific and Skagit community more broadly.



Timeline of Some Key Points in SC² History



POWERFUL SCIENTIFIC LEARNING COMMUNITY

We will provide rich opportunities for scientific collaboration and growth resulting in a sophisticated and integrated understanding of historic, current and future conditions relative to climate impacts and local community concerns and interests.

Water Temperature Monitoring



“Splash!” The park staffer’s arm dives into the cold waters of the creek to retrieve a water temperature monitor. When the National Park Service was searching to find support for staff positions and Seattle City Light was balking at high consultant fees required to get water temperature data from remote locations, SC² partners saw an opportunity.

For three years, SC² had been working to develop a collaborative water temperature monitoring network for the freshwater portion of the Skagit Watershed. The data collected would be used to improve the ability to project changes in stream temperature over time. Many people need this information to meet local, state and federal regulations; to plan for where to protect and restore habitat; and to relicense two hydroelectric projects - to name but a few of the needs expressed by local partners. SC² convened those conducting water temperature monitoring in the Skagit for the first time ever. With their input on current, desired and redundant locations a more efficient network was built out adding 30 new locations within the first year. During the build out of the system, Seattle City Light realized they consistently get high quality data from people trained and experienced in remote mountain travel who frequently visit these sites. A powerful scientific learning community can accomplish saving taxpayers money, preserving key government functions, getting the data necessary for critical projective modeling, and increasing collections sites for less money – SC² is proud of what it has helped accomplish.

36 papers &
reports written

About 35 collaborative
research efforts
undertaken, including:

- ▶ Tributary flow modeling
- ▶ Establishment of a water temperature network
- ▶ Special Issue of Northwest Science – 6 linked research papers
- ▶ A more resilient Anacortes Water Treatment Plant
- ▶ Research plan for advancing sediment model



ENGAGED SKAGIT ADAPTATION COMMUNITY

We will engage with the Skagit community in a strategic and focused manner to provide credible information, listen to community interests and concerns, and to better refine the research agenda and materials to be of utmost utility to the Skagit community.

Public Engagement



“No Junk Science” read some of the placards held by members of the audience in a Skagit County conference room packed to the gills with well over 100 local people. Dr. Alan Hamlet turned this potentially rife situation into a meaningful interaction through two main qualities: scientific excellence and genuine respect. Not a single placard was ever raised – as people asked questions and Alan respectfully and attentively answered their important questions.

Anyone who has ever worked with statistics, modeling and climate science understands their complexity and nuance. It should be expected that people doubt, have questions, and don’t understand, especially when understanding means coming face-to-face with challenging and sometimes daunting choices. Linking climate science with community engagement requires humanity, patience and persistence alongside scientific excellence.

But humans are also changing right alongside the environment. In 2015, SC² partnered with the world renowned Yale Project on Climate Change Communication to conduct a Skagit County poll on climate change perceptions. The results were striking. 79 percent of people in Skagit County think global warming is happening and substantial majorities believe governments, individuals and businesses should be acting.

Indeed, people are acting. With support from the SC² scientists, the City of Anacortes built a new more resilient \$70 million water treatment plant responding to new findings about sediment, flood risk and sea level rise.



644 people
reached in 2015
alone

1,000 people
telephone polled by
SC² and Yale Project
on Climate Change
Communication

250 to 350 unique
website visitors
per month

16 community
events
attended and/
or hosted

112 community
members at Surge
Festival panel
discussion about
climate change

1,235 people
reached with
direct outreach

USABLE SCIENCE

We will produce timely, relevant and accessible research and findings for both the scientific and Skagit community.

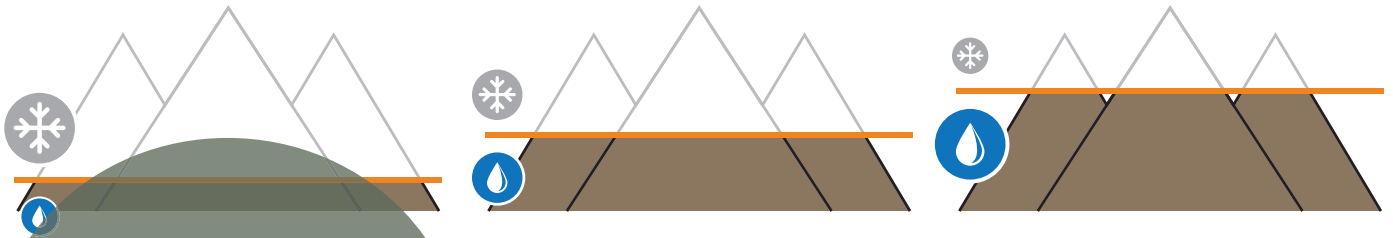
Usable Flood Information



“Really, how much more can it rain?” The hand of the Public Works Director of a small city that lies entirely within the floodplain of the Skagit River had shot up. SC²’s projections of increased flood risk in the Skagit Valley were daunting with the **current** 100-year flood projected to occur on a 22-year recurrence interval by the 2040s. Particularly daunting, given that the US Army Corps of Engineers projects that the current 100-year flood would cause more than 1 billion dollars in damages. This single question led SC² on a three-year effort to engage the public and decision-makers in a discussion about flood risk in the Skagit Valley and to create and improve materials that break basic assumptions about how the past relates to the future – a very different future.

“Indeed, it can, and likely will, rain in much more intense bursts. But more importantly, the size of your flood-generating basin is growing significantly larger as what used to be in snow is now coming as rain.” SC² produced a video, an interactive flood map, and a series of infographics to help people understand how the landscape is indeed changing and how the increasing flood risk is a combination of many climate-related factors including more intense storms, rising freezing elevations, increased sediment filling in river channels, and rising sea levels.

Ultimately, these products became the basis for a collaborative effort with the Museum of Northwest Art in La Conner where artists and SC² scientists partnered to host a joint event focused on flood issues. With over 300 people visiting over one weekend, it was a huge success and is now a regular and growing event.



HISTORIC

CURRENT

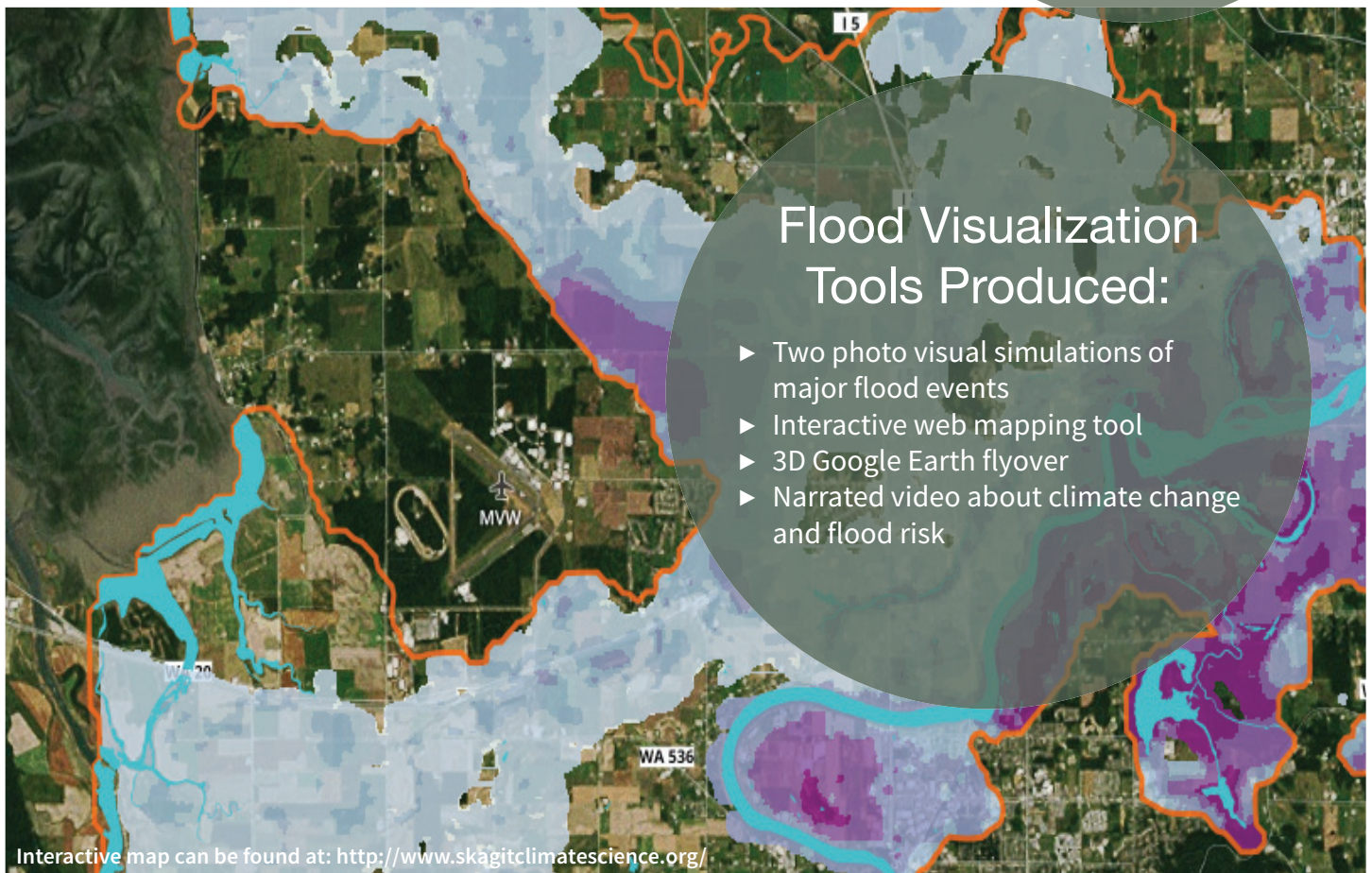
PREDICTED

9 infographics
& case studies
produced

Infographics can be found at: <http://www.skagitclimatescience.org/events/educational-resources/>



Participated
in Surge Art &
Science Festival



Flood Visualization Tools Produced:

- ▶ Two photo visual simulations of major flood events
- ▶ Interactive web mapping tool
- ▶ 3D Google Earth flyover
- ▶ Narrated video about climate change and flood risk

Interactive map can be found at: <http://www.skagitclimatescience.org/>



FINANCE AND GOVERNANCE

Fundraising & Development Strategic Focus

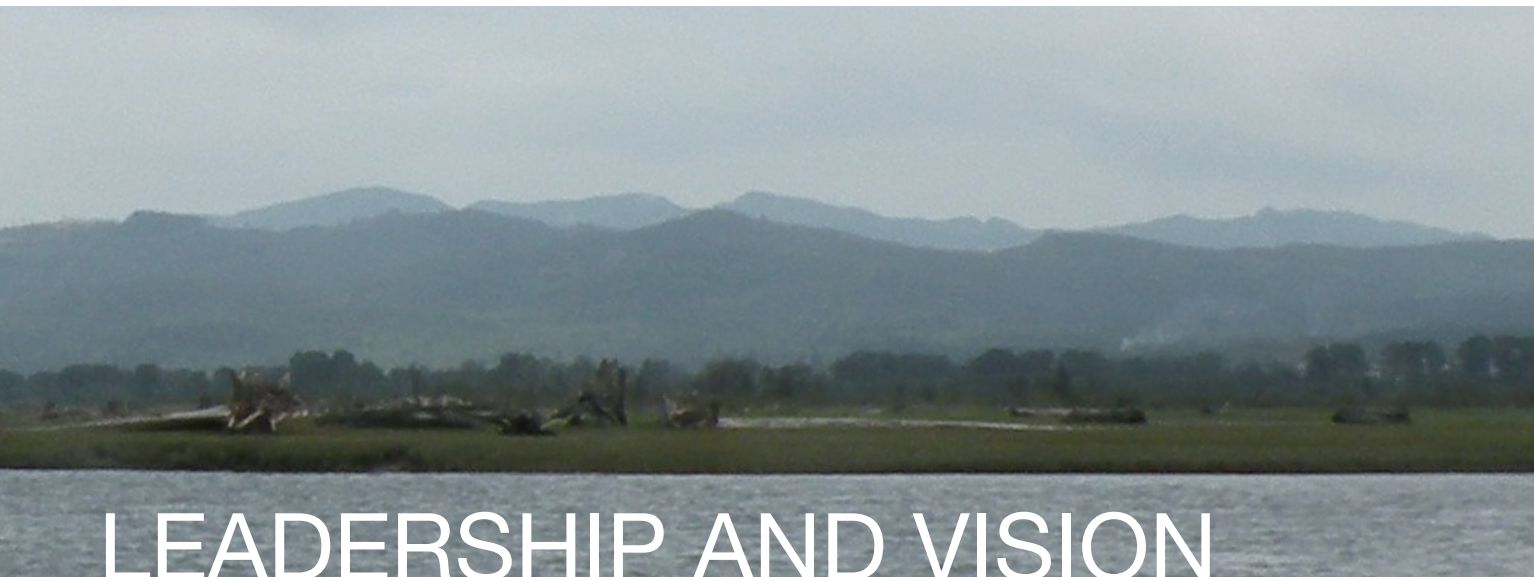
SC² was formed in 2011 as a group of scientists working with local people to assess, plan, and adapt to climate related impacts. When it was formed, SC² activities were funded by an Environmental Protection Agency (EPA) grant administered through the Swinomish Indian Tribal Community and grants from the City of Anacortes and Seattle City Light. SC² became a 501c(3) nonprofit in 2014 and began funding limited activities directly through the nonprofit in 2015, while still relying heavily on most activities being administered through the Tribe.

Income and expenses for the time period from 2011-2015 were \$662,312.33. These costs are focused across all the mission areas of scientific integration, community engagement, usable science, and governance.

Income for the nonprofit in 2015 was \$169,580.86 and expenses were \$122,205.72. This income and associated expenses are predominately a contract for integrated science research on river flows. Seattle City Light also contributed \$20,000 for general activities across the mission areas.

Governance Strategic Focus

SC² is a small organization devoted to putting its “money to work”. With no full time staff and only contract support as needed, SC² is lithe and functional, small and efficient, and leverages available resources fully. By not hiring staff, SC² is able to hire the very best support to accomplish its needs without having to regularly raise significant funds for overhead. SC² works with various consulting firms both large and small to facilitate meetings, manage the website, and develop communication products.



LEADERSHIP AND VISION

The Skagit Climate Science Consortium is the result of early leadership and vision from the Swinomish Indian Tribal Community, University of Washington Climate Impacts Group, and Seattle City Light.

The Swinomish Indian Tribal Community has long had a commitment to ensuring that the Tribe and the broader community have access to the best available science. The Tribe views science as critical to helping the community as they consider how to shape a future they want in Skagit County. As a result of this commitment, the Tribe has dedicated significant staff and financial resources to SC². Seen as a national leader in adaptation, the Tribe has generously extended their efforts beyond the reservation to create an organization that includes the broader ecosystem and welcomes and is responsive to interested local people and communities.

Similarly, University of Washington Climate Impacts Group and Seattle City Light are long-standing leaders in climate science and its use in adaptation. As a result of in kind and financial support from these organizations, SC² was able to build momentum and early results.



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www.skagitclimatescience.org

Visit our website to learn more about who we are, what we do, and the various resources we can provide.

or contact Carol MacIlroy:
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