Engaging Communities in Aquatic Monitoring and Climate Change Discussions in the Southwestern Crown of the Continent

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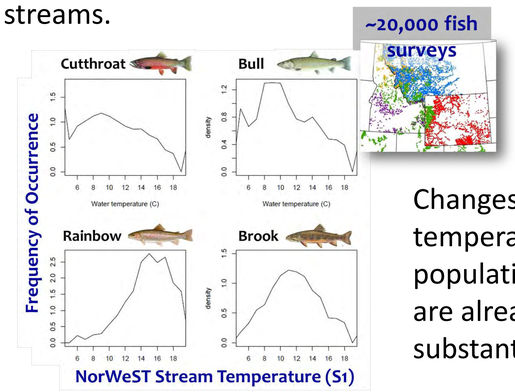
BLACKFOOT CHALLENGE

Overview

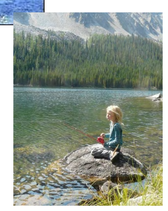
Changing climate conditions can have direct and immediate effects on streams. The amount and timing of flows, water temperature, and associated water quality variables can be particularly vulnerable to change in mountain snowmelt streams.



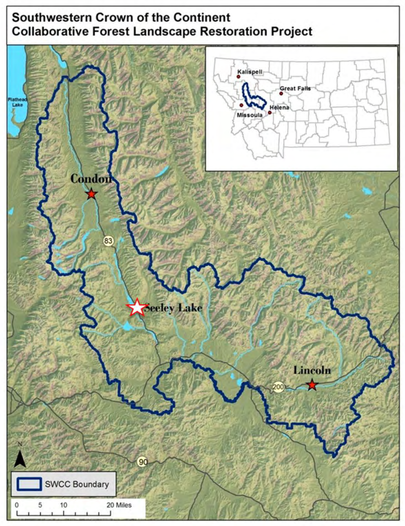
Changes in stream flows and temperatures affect fish populations, many of which are already subject to other substantial stressors.

Changes in amounts and timing of flows can have significant impacts on water available for fish and other wildlife as well as human uses such as household, agricultural, and recreational uses.

Communities in the Southwestern Crown of the Continent depend on streams and the lakes they feed for natural, recreational, economic, and aesthetic values key to community vitality, sense of place, and way of life.



There is limited information available to communities in the Southwestern Crown on the amount and quality of the water in their streams and of any trends in water supply.



We have developed a network of citizen science stream monitoring sites in and around three of the largest communities in the Southwestern Crown.

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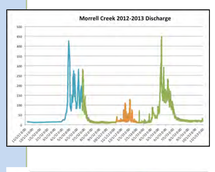
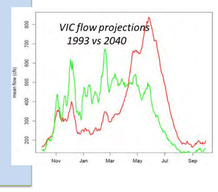
Project Goals

- Engage people in assessing natural resources in their communities
- Collect long term data that can be useful in making decisions about water use, fisheries management, and land use and restoration
- Promote awareness of potential impacts of climate change in the region.





Partners

- Seeley Swan High School
- Seeley Elementary School
- Lincoln School
- Swan Valley Elementary School
- Swan Ecosystem Center
- Northwest Connections
- The Wilderness Society
- Montana Fish, Wildlife, and Parks
- US Forest Service
- Helena National Forest Youth Forest Monitoring Program

The project is truly a collaborative effort with partners in each community.

Core Data Collection

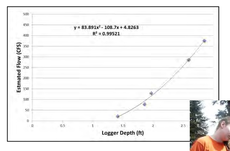
Students and teachers from local schools work with community members to collect intensive, high quality data on streamflow, temperature, and turbidity in important streams in their area.

Primary Steps

1. Install permanent gage and stilling well with pressure and temperature data loggers.

2. Measure flow using top-setting rod with flow meter, 8-10 times/year.

3. Create rating curve to estimate flow based on depth.



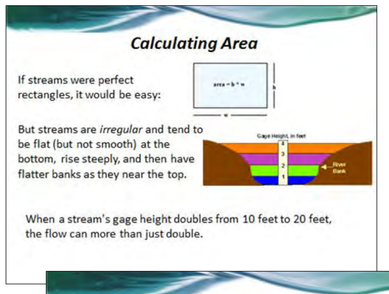
4. Collect samples and measure turbidity at various levels of flow.

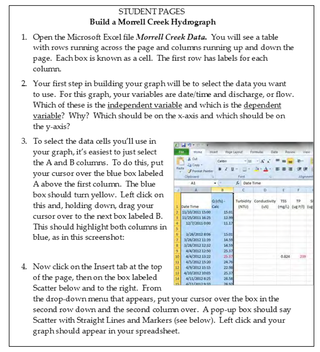
Other Topics of Interest

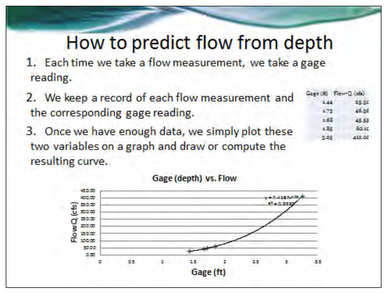
We support educators and students in collecting additional information that enhances their understanding of stream ecology, especially about organisms and conditions that will respond directly to flow, temperature and a changing climate.

Supportive Curriculum

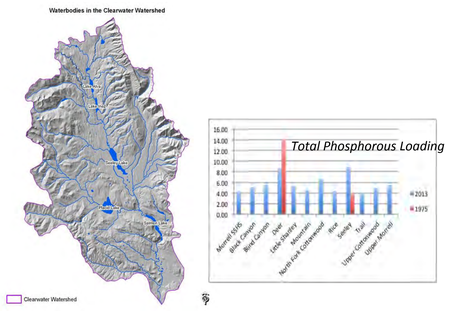
We've developed a series of lessons to help students understand why and how to collect data, how to analyze them, and how to make sense of the information.







Volunteer Water Quality Monitoring



Community volunteers also collected nutrient and turbidity data on 11 additional streams.

Community Discussions

We are integrating this information into a series of ongoing community discussions on climate change:

- Pure Montana Tales: Seeley Lake Elementary Students
- Blackfoot Challenge Community Listening Sessions
- Swan Ecosystem Center Educational Programs
- Student Presentations

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- The Kresge Foundation
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- Southwestern Crown of the Continent Collaborative
- Bonneville Environmental Foundation
- Seeley Lake Community Foundation