

Welcome to *PolarConnect*

With Lauren Watel and Microbial
Changes in Arctic Freshwater
PolarTREC Expedition

Friday 27 June 2014

Blackboard collaborate

Slides will be shown here

Exit the presentation

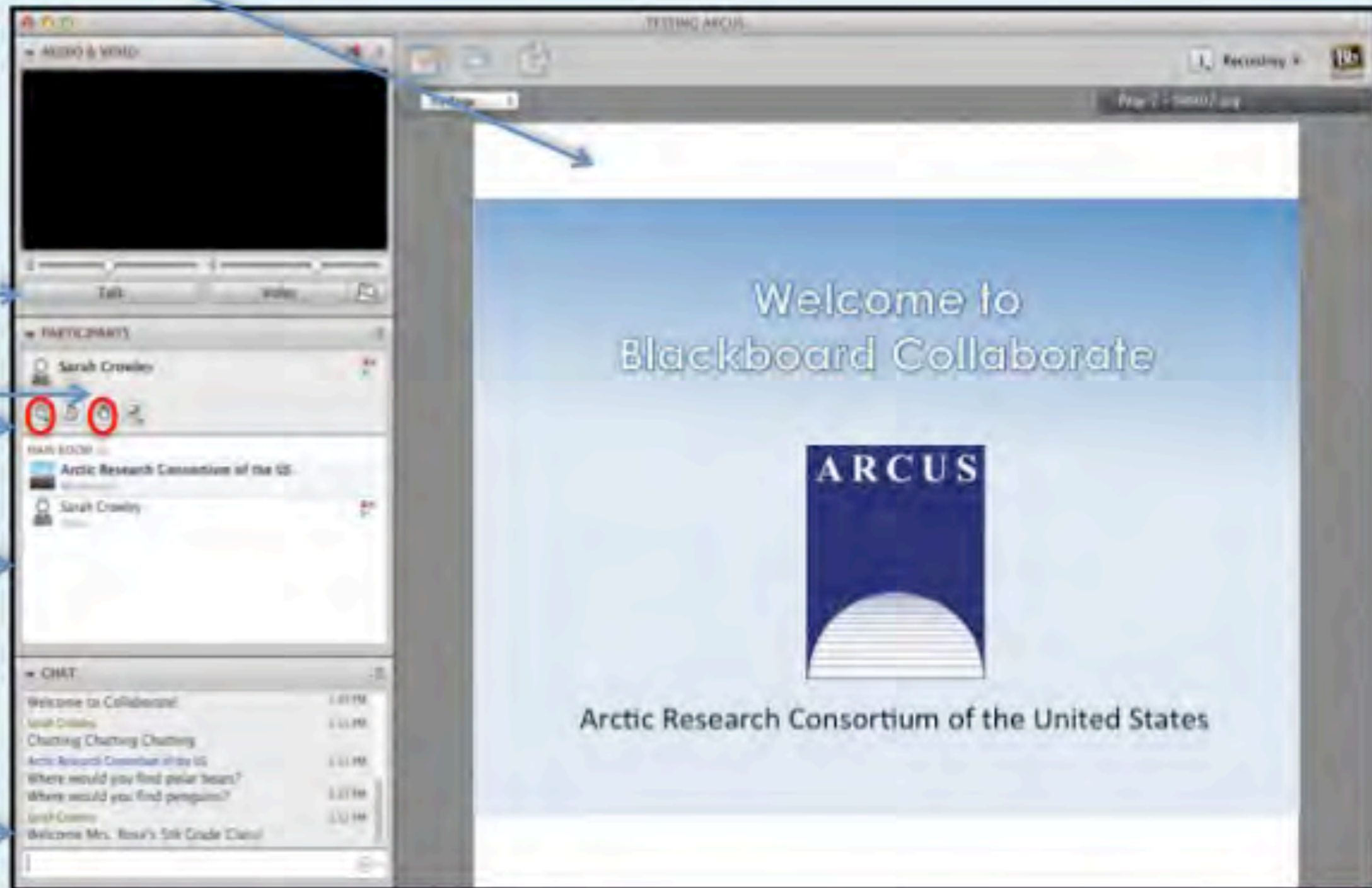
Click to Talk,
Unclick to finish talking

Raise your hand to ask a question

Share with emoticons

List of all participants

Chat with one person or the entire group



The screenshot displays the Blackboard Collaborate interface. On the right, a presentation slide titled "Welcome to Blackboard Collaborate" is shown, featuring the ARCUS logo and the text "Arctic Research Consortium of the United States". On the left, a control panel is visible with several sections: "AUDIO & VIDEO" (currently blacked out), "PARTICIPANTS" (listing Sarah Crowley with icons for mute, video, and hand raise), "MAIN ROOM" (containing a list of participants and a chat window), and "CHAT" (showing a list of chat messages). Blue arrows point from the text labels on the left to the corresponding elements in the interface.

Please Note:

- Participants using the telephone can mute/unmute by **pressing *6** on the phone.
- Today's event will be recorded and archived.

Participant Introductions

In the chat box, please share your:

- ✓ Name
- ✓ School / Institution
- ✓ The number of students and adults participating with you in the same location

What is PolarTREC?

PolarTREC is a professional development experience in which K-12 teachers are paired with researchers for 2-6 week research experiences in the polar regions.

From 2010-2014, nearly 60 teachers from around the United States will join scientists in the Arctic and Antarctica to learn about science, the polar regions, and to share what they have learned with their students and communities.

Questions

During the Presentation:

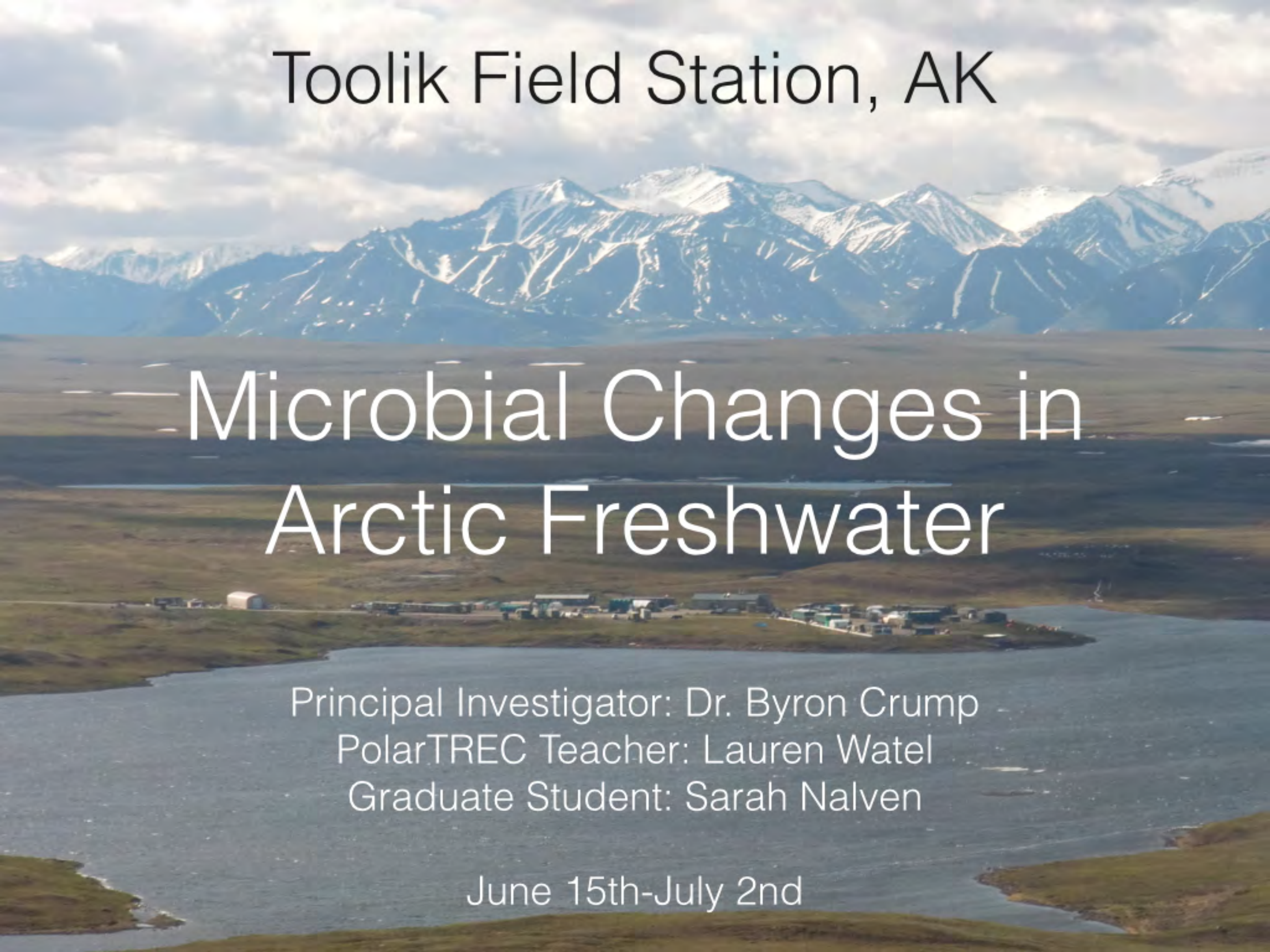
- Type your question in the text chat box

At the End of the Presentation:

- Raise your hand with the “hand button”.
- PolarTREC staff will call on you.
- Speak loud and clear and directly into the phone to ask your question.

Click on the Talk button to speak.

Unclick when you are done.



Toolik Field Station, AK

Microbial Changes in Arctic Freshwater

Principal Investigator: Dr. Byron Crump

PolarTREC Teacher: Lauren Watel

Graduate Student: Sarah Nalven

June 15th-July 2nd

Meet the Team!



Dr. Byron Crump
Oregon State University

Sarah Nalven
Graduate Student,
OSU



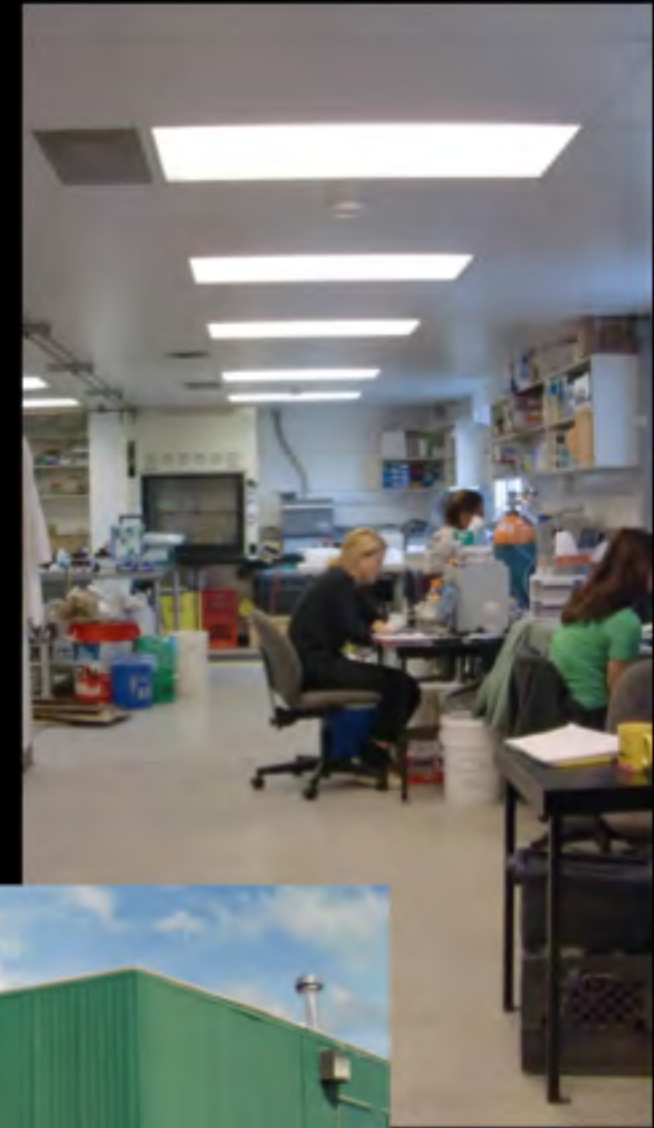
Lauren Watel
St. Mary's Academy

Where are we?

- Toolik Field Station, 68° 38' N



Life at Toolik



Arctic Tundra



LTREB: What Controls Long-Term Changes in Freshwater Microbial Community Composition

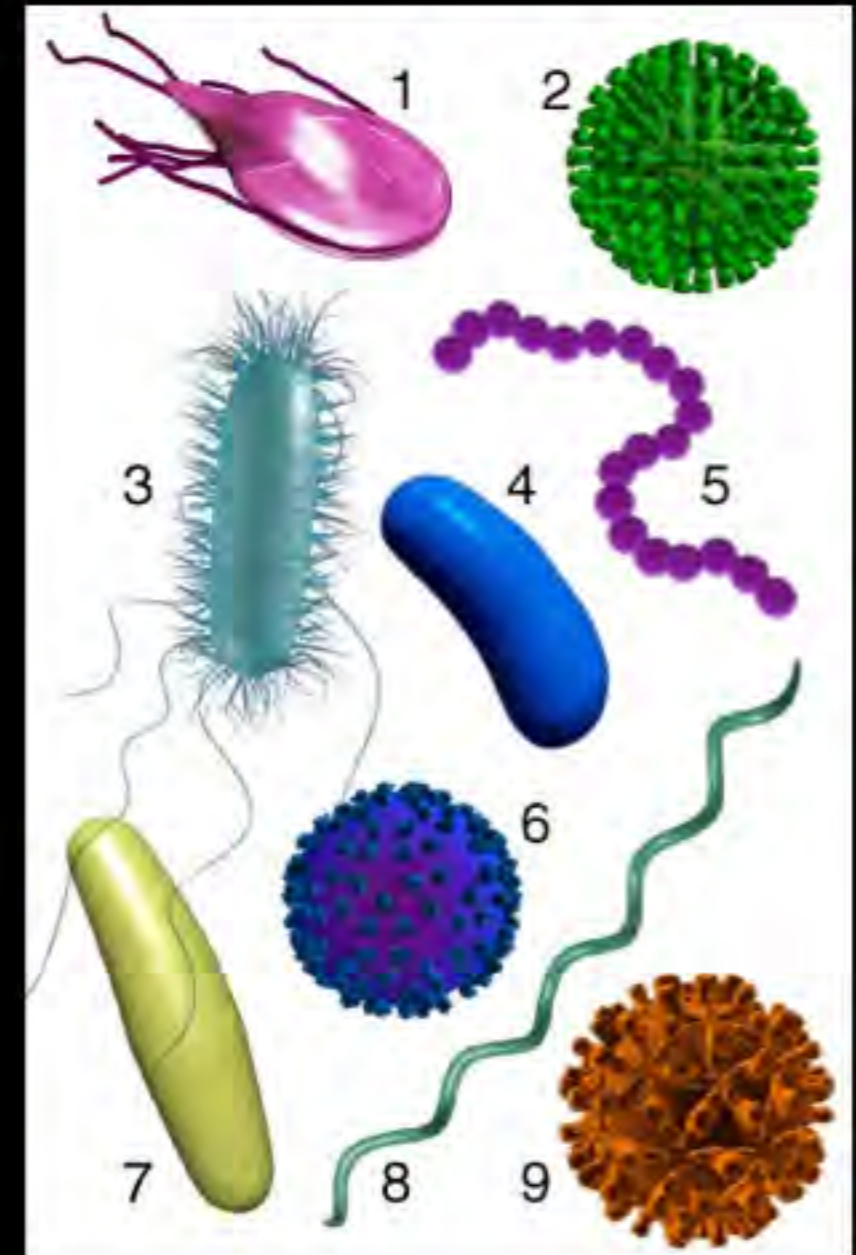


- 8th summer of 10
- Ecosystem changes as climate changes
- Microbes are a biological responder



Microbes

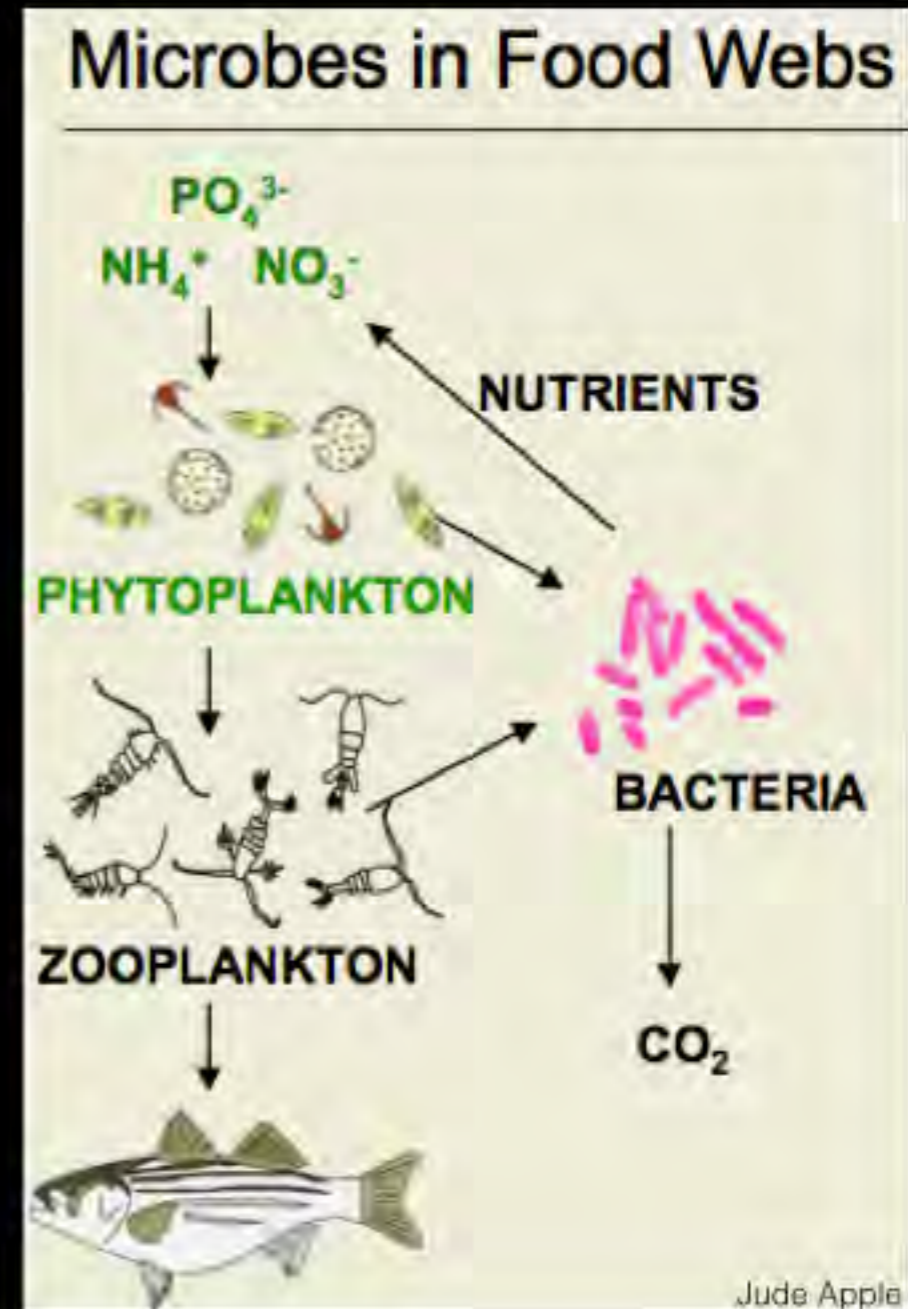
- Why microbes?
 - Diversity
 - Role in ecosystems
- 4,000,000 bacteria in 1tsp of water



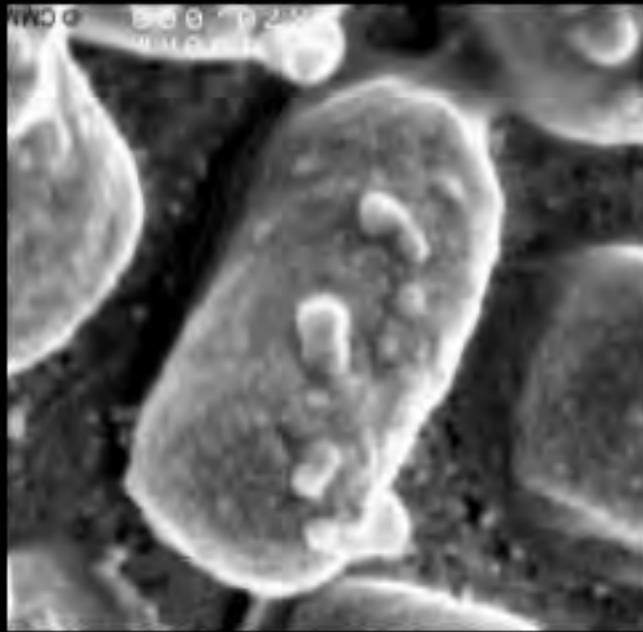
<http://www.sdnhm.org/exhibits/epidemic/teachers/museum-microbe.html>

Microbes in Ecosystems

- Recycle nutrients
- Breakdown dead organisms and waste
- Produce carbon dioxide



Let's Get Microscopic



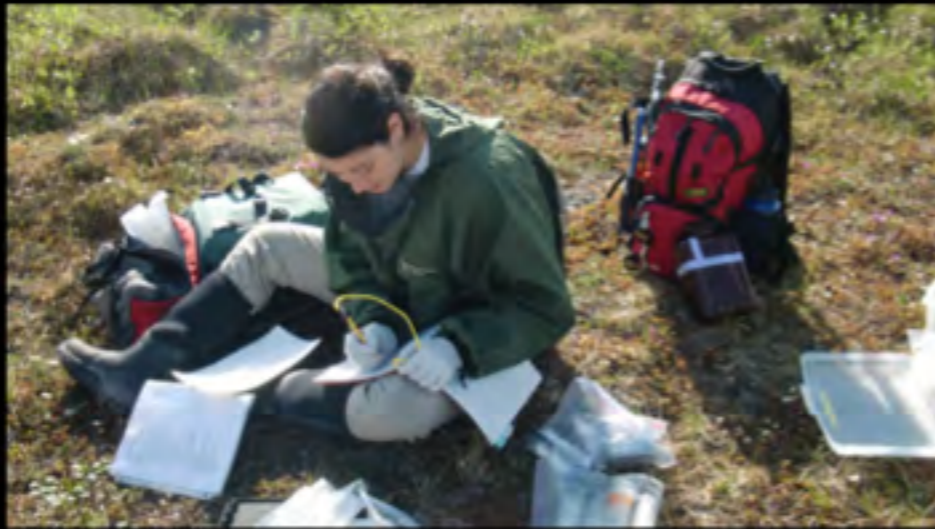
1 micron bacteria x
400,000,000,000,000 = ???



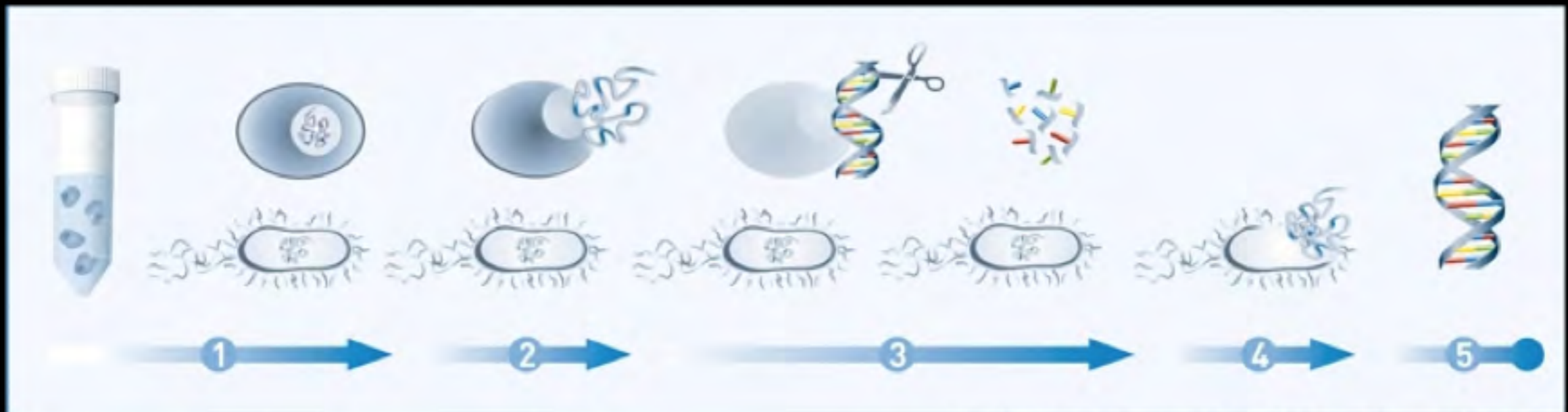
Bacteria on skin and a hair follicle

<http://pro.corbis.com/search/Enlargement.aspx?CID=isg&mediaid=%7BE0C5B6AD-F0E6-4AAB-928F-683DFADE3BF2%7D>

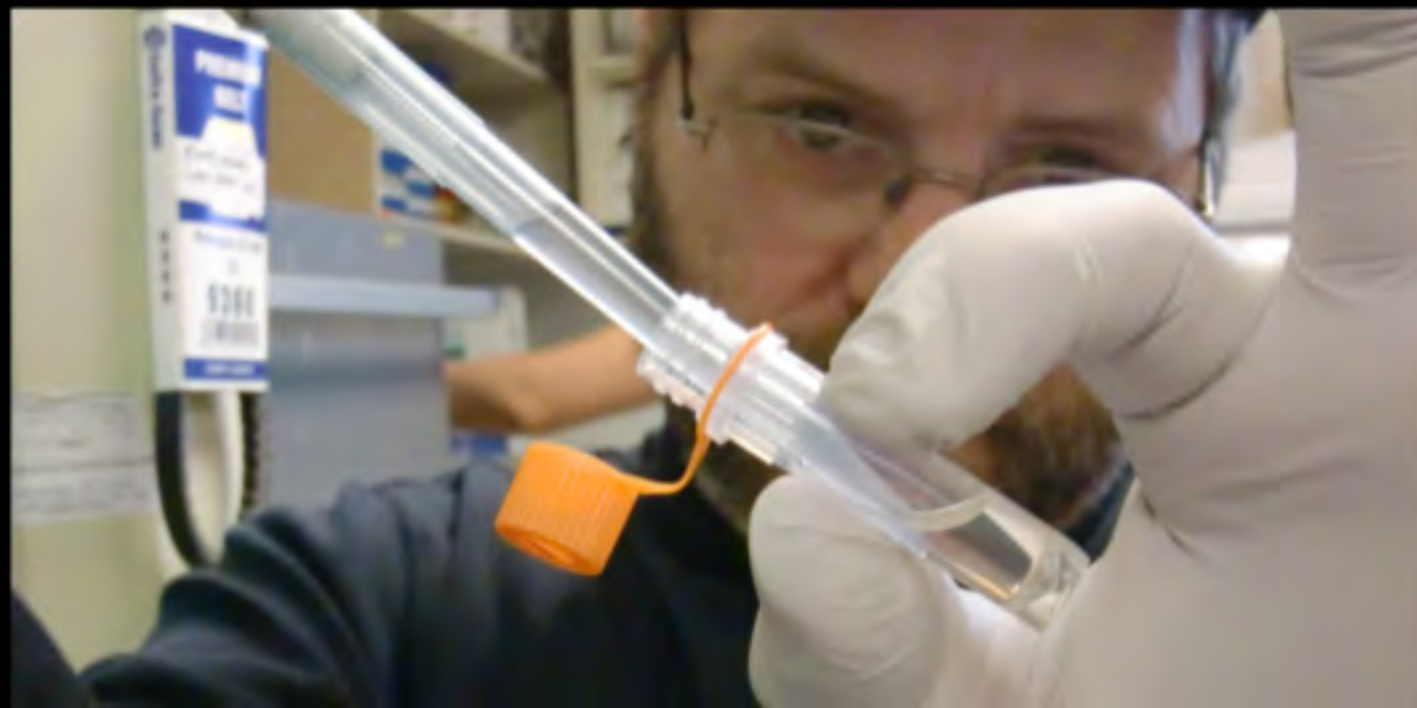
Field Work



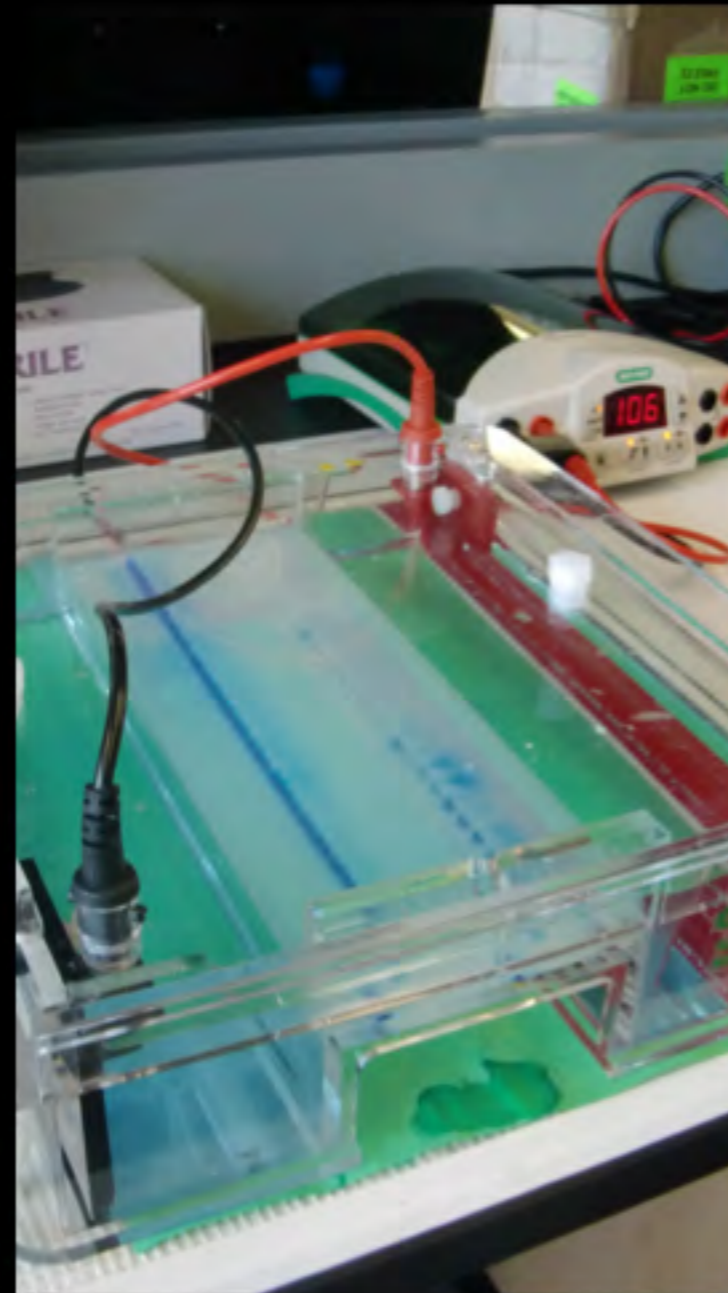
Bring them back to the lab



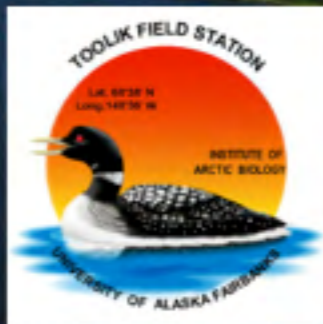
DNA Extraction



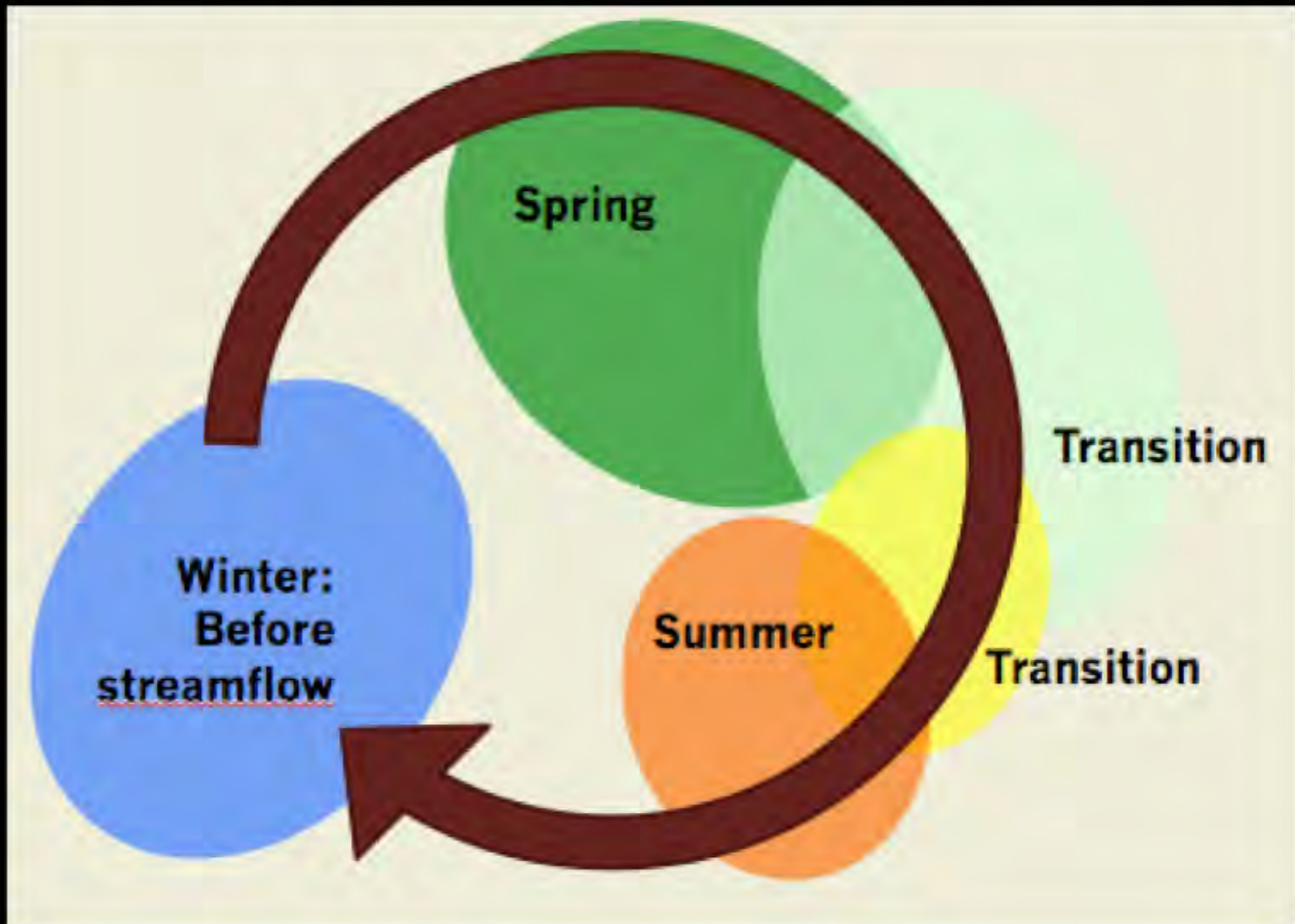
OSU Analysis



Toolik Lake



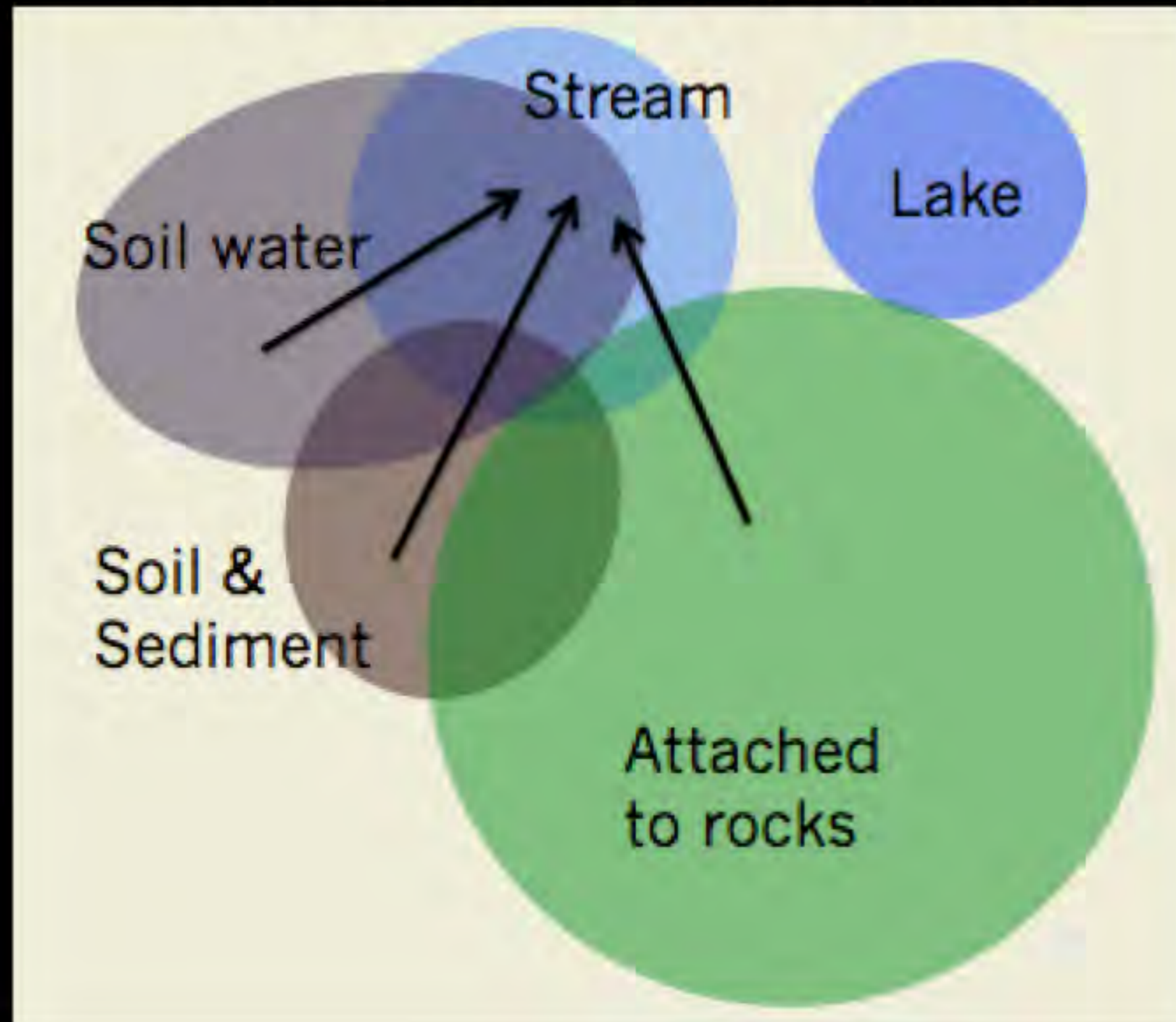
Bacterial Communities Change with the Seasons



I-6 Headwater Stream



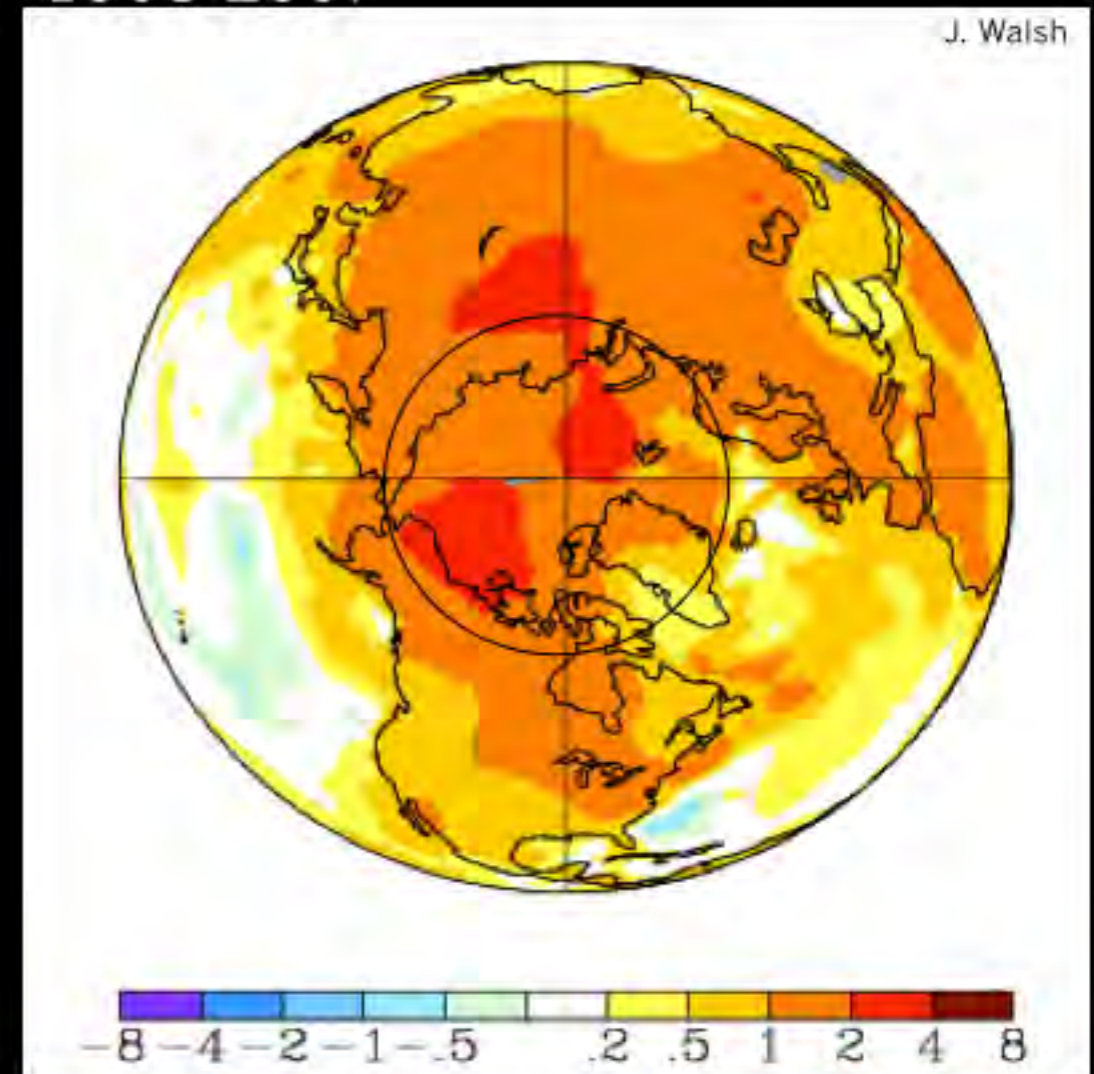
Bacterial Communities Differ from One Another



Why the Arctic?

- Climate Change
 - Warming temperatures
 - Increase in precipitation
 - Change in season length

Total change in annual mean surface air temperature (°C) in the Arctic, 1958-2007



Thermokarsts



Questions?



Upcoming Events

Watch for and register for upcoming events at www.polartrec.com!

Thank You!

An archive of the event will be available shortly.

<http://www.polartrec.com/polar-connect/archive>

