

Climate Change and My Community Workshop - Water and Fish



University of Alaska Fairbanks Troth Yeddha' Campus
International Arctic Research Center
Akasofu Building, Room 501, 2160 Koyukuk Drive

Irving I Building Covered Patio on the side, 2140 Koyukuk Drive
Margaret Murie Building, 2090 Koyukuk Drive

Chena River Wilderness Pavilion Site, at Pioneer Park off of Peger Road (Thursday Only)
Fairbanks, Alaska

June 12-14, 2024
June 15, 2024 (optional)

[Link to Syllabus with Workshop Goals and Student Learning Outcomes](#)

Wednesday, June 12, 2024	
Values of the Day: Learning from Elders, Sharing Stories	
Big idea: The Arctic is changing land, water and fish and it has personal to global Implications	
Inquiry emphasis: Making Observations and Learning From Elders	
8:00 AM Akasofu 501	Check-in, Continental Breakfast Confirm email address for GLOBE account
8:30 AM	Welcome Opening Prayer Land Acknowledgement & Workshop Agreements
9:00 AM	Introductions Guidelines for conduct, setting tone of respect, secret scientists Framing of the Workshop, Course expectations (one or more per team)

10:15 AM	BREAK Draw Secret Scientists
10:30 AM	Elder Reflections on Changes in Alaska - changes to the channel of the Chena River (Sam Dementieff) Questions for Elder Sam
11:15	Mapping Personal Observations of Change
12:15 PM	Working Lunch - catered
1:00 PM	Split into two groups for two stations Transition to Irving (outdoors) and Murie 309
1:15 - 2:00 15 min rotation	Station outside of Irving I - Geomorphology Table - exploring themes from personal observations of change (land and water)
2:15 - 3:00 Rotation with teams	Station Murie 309 - Knowledge of Place - How to find data of your place
3:00 PM	BREAK - Walk back to Akasofu 501
3:15 PM	Impacts and feedbacks of a warming Arctic - Impacts on Water and Fish (Katie Spellman and Brooke Woods)
4:15 PM	Why is monitoring important for students and communities Introduction to GLOBE, thermometer activity - Elena Sparrow
4:45 PM Murie Floor 3 lounge	Reflection - square circle triangle
5:00 PM	End of Day
6:00 PM	Dinner on your own You are Welcome to join some of the USA's leading ecologists for dinner at the Alaska Salmon Bake. This is an excellent chance to eat local salmon (on your per diem), and talk with Long Term Ecological Research scientists and National Science Foundation funders. UAF Wood Center Cafeteria is open until 6 pm
Homework	1) Log into your GLOBE Account and set your password 2) Download the GLOBE Observer App 3) Do one observation (landcover, trees or clouds)

Thursday, June 13, 2024 Value of the Day: Cooperation Big ideas: Water and Fish Indicators from Elders' knowledge, eDNA, macroinvertebrates, and water chemistry
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Inquiry Emphasis: Intergenerational Learning	
8:00 AM Akasofu 501	Breakfast
8:30 AM	Addressing Questions for Elders Review circle square triangle
8:40 AM	Elder Reflections on Growing up fishing on the Yukon River (Mary Walker)
9:00 AM	Intergenerational eDNA - finding waters with salmon relatives (Brandi Kamermans and Kristen Reece)
9:45 AM	BREAK
10:00 AM	Temperature and Dissolved Oxygen in the Yukon River Watershed Overview of Learning Activities and GLOBE Hydrosphere Monitoring for the Field Trip to the Chena River
10:45 AM	Get Box Lunch Figure out carpooling Travel to Chena River, Wilderness Pavilion at Pioneer Park, 1101 Pagar Road, park in Canoe Alaska parking lot
11:15 AM	Welcome <i>Youth for Habitat</i> Participants Picnic Lunch Read " <i>When will the Salmon Come?</i> " books in small group
12:15 PM	Intergenerational Activity " <i>When will the Salmon Come?</i> " kits (Mary Walker)
1:00 PM	Indicators of habitat for juvenile salmon Macroinvertebrates of Cripple Creek after restoration (Maggie House)
1:45 PM	Indicators of salmon migration eDNA data collection demonstration (Brandi Kamermans and Kristen Reece)
2:30 PM	GLOBE cloud observations Get GLOBE Observer app started for clouds and hydrosphere protocols
2:45 PM Chena River	GLOBE Hydrosphere protocols at the Chena River (bold = required, not bold = optional if time) - clouds - water temperature - pH - transparency - dissolved oxygen - alkalinity - conductivity

3:15 PM	Enter data in the field using the GLOBE Observer App, Data Entry tool
3:30 PM	Load vehicles and drive back to campus - Akasofu Building
4:00 PM	Making Sense of the Data. Review Dissolved oxygen and temperature requirements of fish. How do our data compare? Questions and ideas for intergenerational implementation.
4:45 PM	Reflection - Circle, Square, Triangle
5:00 PM	End of day
	Dinner on your own
6:00 PM and 7:30 PM	OPTIONAL: Music in the Garden - Free Concert at Georgeson Botanical Garden
Georgeson Botanical Garden, a short walk from Akasofu	6 PM - UAF Summer Music Academy 7:30 PM - Red Hackle Pipe Band

Friday, June 14, 2024 Value of the Day: Relationships Big ideas: Water and Fish Habitats are Changing, from Monitoring to ACTION Inquiry emphasis: Bring it all together and plan for the future, with youth		
8:00 AM Akasofu 501	Continental Breakfast	
8:30 AM	Addressing Questions for Elders from Thursday Elder thoughts for the day	
9:00 AM	Actionable Science: Alaska Tribal Resilience Learning Network - Planning: Educators - how do you get to the planning part with your community? (Lori Petruski)	
9:15 AM	Three project examples: -Salcha Elementary School (Tori Brannan) -Knik Charter School (Faith Lussow) -Kwethluk (Elena Sparrow)	
10:00 AM	BREAK Walk to Murie and grab a snack (no food allowed in computer lab, Murie 309)	
10:15 AM Murie 309 and 3rd floor Lounge	Station in Murie 309: <u>Geospatial Tools</u> Sharing stories with Story Maps	Station in Murie 301: <u>Project Planning</u> (snack) Project development work session

11:15 AM	Transition Box Lunch- catered (food allowed in lounge, not in	
11:30 PM Murie 309 and 3rd floor Lounge	Station in Murie 309: <u>Geospatial Tools</u> Sharing stories with Story Maps	Station in Murie 301: <u>Project Planning</u> (box lunch) Project development work session
12:30 PM	Box LUNCH available in Murie 301 Eat outside, Walk back to Akasofu	
1:15 PM	Return to Personal Map	
1:30 PM	Arctic Congress poster: “Recognizing and Normalizing Citizen Science in the Social Studies Classroom” (Roben Itchoak)	
2:00 PM	The process of doing a GLOBE inquiry investigation with youth - Knik Charter School examples (Faith Lussow) Schedule follow-up - focus on <u>Water Temperature</u>	
2:45 PM	Share-out: Resources for issues that matter to water and fish in your community	
3:00 PM	BREAK	
3:15 PM	Graduation Award Ceremony- GLOBE certificate Secret scientists	
4:30 PM	Final Evaluation	
5:00 PM	End of Day	

Saturday, June 15, 2024

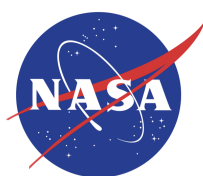
Optional eDNA Workshop with Dr. Brandi Kamermans and Kristen Reece

TIME	ACTIVITY
8:00 – 8:15 am	Introduction to miniPCR equipment and protocol
8:15 – 8:30 am	Download the minPCR application on phone or tablet
8:30 – 8:45 am	Add/edit protocol in miniPCR app
8:45 - 9:00 am	How to use a pipette
9:00 – 9:15 am	Mix reagents and load PCR reaction
9:15-10:00 am	Cast gel
10:00 – 10:15 am	Break

10:15-10:30 am	Prepare BlueGel apparatus for PCR product
10:30 – 11:00 am	Load PCR product into gel
11:30 – 11:45 am	Image gel with miniPCR app
11:45 – NOON	Discussion of workshop

Partnership Acknowledgement

This workshop is brought to you by the Arctic and Earth STEM integrating GLOBE and NASA (SIGNs) Program of the University of Alaska Fairbanks International Arctic Research Center, the Association of Interior Native Educators, and NASA Science Activation.



Partner



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Key program partners and supporters for this workshop include:

Fairbanks Soil and Water Conservation District, Youth for Habitat Program

Brandi Kamermans, PhD and Kristen Reece

Bonanza Creek Long Term Ecological Research Program

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Workshop Attendees

Elder Instructors:

Sam Demientieff, Mary Walker

Project Principal Investigators, Lead Instructors:

Elena Sparrow, Katie Spellman

Project Manager, Project Coordinator, Lead Instructors:

Christi Buffington, Tori Brannan

Geospatial Education Specialist, Lead Instructor:

Emily Sousa

eDNA Lead Instructors:

Brandi Kamermans, Kristen Reece

Instructors:

Brooke Woods, Maggie House, Scott Faulkner, Lori Petruski, Faith Lussow, Roben Itchoak

Logistics Lead:

Tohru Saito

Association of Interior Native Educators Photographer and Set-up:

Sheila Vent

Special Guest:

Lin Chambers, NASA Langley Research Center, Deputy Director, Science Activation
Javier Fochesatto, University of Alaska Fairbanks

Evaluator:

Kelly Kealy

Community teams:

- **Pilot Point Tribal School - Pilot Point, AK** - Gregory Kingsley, Damien Matson
- **Native Village of Gakona, Native Village of Kluti Kaah, Copper River Watershed Project, Copper River School - Copper Center, AK** - Colleen Merrick, Lishaw Lincoln, Ronald Lincoln-Ewan
- **Shishmaref School - Shishmaref, AK** - Roben Itchoak, Bessi Sinnok
- **Sipayik Elementary School, Gulf of Maine Research Institute, Learning Ecosystems Northeast - Perry, Portland and Pleasant Point, Maine** - Plansowes Dana, Rebecca Meggie Harvey, Seana Mackeldey, Amy Francis
- **Knik Charter School - Palmer and Wasilla, AK** - Faith Lussow, Yvette Cross, Lori Giauque, Lulu Chamblee, Rebekah Granger

- **Fairbanks Soil and Water Conservation District and T3 Alaska - Fairbanks, AK** - Scott Faulkner, Adam Low
- **Bering Sea Research Center - Anchorage, AK** - Veronica Padula
- **Native American Fish and Wildlife Society and Alaska Tribal Resilience Learning Network - Fairbanks, AK** - Lori Petruski

Special Thanks

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Thanks to Fairbanks Soil and Water Conservation District for loaning the EmRiver Stream Table and to Dakota Keller and Dr. Jeff Muehlbaer for help transporting, storing and setting it up