Native and Other Ways of Knowing: Integrating Community Perspectives in LTER Education Outreach

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Acknowledgement

Sidney Stephens, Leslie Gordon, Martha Kopplin and Terry Chapin

University of Alaska Fairbanks
Why is integration of community perspectives important in education outreach?

How do we do this in K-12 and postsecondary student levels and the general public?

• Examples of projects
Why is integration of community perspectives important in education outreach?

- We acknowledge that there are different ways of knowing & learning
- We need to recognize and validate the knowledge people bring
How do we integrate Native knowledge and science and keep them both whole?
Culturally Responsive

- Identifies a topic of local interest
- Builds on what students know
- Taps local expertise
- Uses appropriate teaching strategies
- Goal of enhancing the cultural well-being and the science and cultural skills and knowledge of students
Global Change Education Using Western Science and Native Observations/Knowledge

Program at the University of Alaska Fairbanks
Three strands of the program

• Native knowledge and observations to scaffold and enhance studies on the local environment
• GLOBE and other global change research relevant to Alaska
• Best teacher practices
Overall Program Goals

• To provide Alaska teachers and students opportunities to engage in global change research based on local observations and western science
• To translate such research into meaningful classroom activities and student learning
Methodology

- OLCG Summer Institutes
- Follow-up workshops
- Year-long support
  - Visits from program staff, Native elders and scientists
  - Scientific equipment, supplies and educational materials
  - Emails, phone calls, mail
  - Website: www.uaf.edu/olcg
  - Project Jukebox – interviews on climate change
OLCG
Summer Institute

- Sam Demientieff, Howard Luke, and Wes Alexander
- Long-term observations
- Earth as a system
- Changes over time
OLCG Summer Institute

Teaching and Learning inside and outside the classroom
Investigating Local Change
S. Stephens@ www.uaf.edu/native/investigating.html
Interview elders for signs of change
And make their own observations
Precipitation

- None
- Drizzle, Snow/Rain
- Light Snow/Rain
- Snow/Rain
- Heavy Snow/Rain

Water Equivalent of snow:

Temperature

Degrees Celsius: max min

ICE

- open
- Some ice floating
- Overflow
- Thin
- Frozen

SEA

- open
- Ice 100 – 200 yds
- Ice - 400 yds, 1/2 mile
- Ice 1/2 mile – mile
- Ice 1 – 5 miles
- Ice edge invisible

Compared to Yesterday

- Same
- Colder
- Much colder
- Warmer
- Much warmer

Weather change predicted:
http://uaf-db.uaf.edu/jukebox/ClimateChange/opening.htm or www.uaf.edu/olcg

Digitized climate change interviews
Sea Ice

Less ice, more open water in winter

Weaker, thinner

Change ice distribution

Fewer butchering sites

Can’t get out to whale

Can’t get out to whale

Spring north winds open leads

Winds

Spring south winds closed leads

People

Can’t get out to hunt seals

Slide Courtesy of Sidney Stephens
Findings

• Significant effect on student attitude toward science
• Significant effect on content knowledge on both Native knowledge and science
• Classroom Implementation

“I have a new realization. It is to affirm my students and their culture and the things they know and observe outside. The project is a great way to connect the things we learn from each other.”

- Teacher journal entry
Integration of knowledge systems in a climate change study by students in White Mountain

GLOBE
Seasons and Biomes Project
Resilience and Adaptation Program

The Integrative Graduate Education and Research Traineeship (IGERT) at UAF

- Student participation in IPY through exchanges and research
- Research focus on global-local interactions in a rapidly changing North
- Support of indigenous Alaskans in PhD studies
Integrating Other Ways of Knowing

• Long Term Ecological Reflections at HJ Andrews Forest LTER
• Effects of Climate change at North Temperate Lakes LTER
• Effects of Boreal Wildfires at Bonanza Creek LTER
LTER’s Writer’s workshop - Collaboration of artists, writers and scientists

- Cross-site collaboration with HJ Andrews Forest LTER on similar themes of disturbance and recovery
Northern Temperate Lakes LTER
http://www.wisc.edu/cbe/K12/paradiselost.html

Saving Our Spruce by JD Slack

Moose Running by Joyce Koskenmaki

Ice Messengers by Diane Randolph
LTER Humanities Public Outreach Event

- Public presentation at the Pioneer Park Theater on March 21, 2008
Outcomes of Integrating Science and the Humanities

• Increased public understanding of the world and science
• Clearer understanding about natural resource management issues
• Improved relationships between scientists and the general public