

Community engagement and environmental outreach: no shortcuts, big effort, big rewards



Heidi Swanson

Post-Doctoral Fellow, Fisheries and Oceans

Who am I?

- Fisheries biologist
- Ph.D. research on Arctic char in West Kitikmeot
- Industry partnership with Miramar (now Newmont)
- Involved in an International Polar Year project (outreach)
- Experience in industry, government, and academia
- Committed to ensuring that my research results and training benefit northern communities
 - Achieve this through education partnerships with communities, industry, and schools



Arctic charr from Hovaktok Lake, Summer 2008

Outreach objectives and ethics

- Train northerners in environmental sampling and regulations (fish and water)
- Partner with local knowledge holders (IQ)
- Focus on ***practical skills*** with theory background
- Target high school students that are not in pre-trades
- Approach: “Learning by seeing and doing”



Learning to use a GPS, January 2009

Successful programs

- Two programs to date:
 - 1) Kugluktuk Career and Technology Studies Course, January 2009
 - 2) Kitikmeot Trade Show Workshop, February 2010



Kugluktuk High School, January 2009

Kugluktuk Training Program



*Learning to use water quality meters,
January 2009*

- Originally scheduled as a field program
- One week CTS course for grade 10-12 students
- 3 volunteer instructors for western science program, 3 local elders and one youth mentor for IQ program
- IPY Char Project outreach
- Capacity-building for community
 - Building block for community-based monitoring
 - Legacy included field and training equipment, trained personnel
- \$15,000 grant from Nasivvik, additional support from KAA, ANL-Golder, and KHS

Kugluktuk Training Program



Student learning how to age fish

- 30 hours of hands-on curriculum and activities
- 12 students
- Students learned
 - Fish tagging and dissections, climate change, industrial development, pollution biology, water quality, GPS use, nutrition of country foods, ageing fish, identify bugs, monitoring fish populations, setting nets
 - Local history of Arctic char declines, management practices, cutting fish for cooking and drying, youth mentor examples of education and career choices

What did we learn?



Student learning how to collect a fish sample for pollution analysis

- Local community liaison (Natalie Griller) was essential for elder participation
- Flexible and adaptable curriculum: changing student numbers, levels of education, logistics, etc.
- Promote the workshop within the community (e.g., by local radio)
- Multiple media (e.g., art, videos), hands-on
- Passionate instructors – it's a lot of work!

Cambridge Bay Workshop

- 2 days, 8 students
 - Cambridge Bay, Kugaaruk, Taloyoak, Kugluktuk, and Gjoa Haven
- Invited to instruct the workshop by KTS (Brenda Mercer)
- Students learned:
 - Water quality sampling, fish tagging and dissection, fish ageing, bug identification, climate change, Japanese painting (of fish)
- I learned:
 - This gets easier (curriculum already developed and logistics arranged – I just instructed!)
 - Combining art and science was really effective
 - Flexibility and adaptability were key



Students learning Japanese painting techniques

Feedback

“ I never learned so much so fast – my brain hurts!”

“It smells bad, but it’s really interesting.”



Students learning to cut fish for drying

“One of the most successful CTS courses we have had.”



Personalized lab coat

“ Come to Gjoa Haven and teach my school.”

“My favourite part was learning about ear bones [of fish].”

Keys to success

- Partnerships between community, industry, government, and academia
- Make sure that you have the right students, and the right instructors
 - No “talking head” scientists
- Make sure that all parties benefit
- Be creative
- Listen to what the community wants



Learning mark-recapture

Keys to success

- Working within a formal institution or event is really helpful
- Keep it affordable (minimum of \$5,000) and limit scope to start
- Partnerships
 - Humour
 - Humility
 - History
 - Honesty
- No shortcuts



Learning how to set a fyke net

Where can this go?

- Guide motivated high school students into post-secondary enviro. programs
- Trained northerners
 - Compliance monitoring, field technicians, consultants
- Partner with southern consultants
- Better integration of IQ and western science in baseline studies and effects monitoring
- Increased ability for northerners to be effective environmental stewards at industrial sites



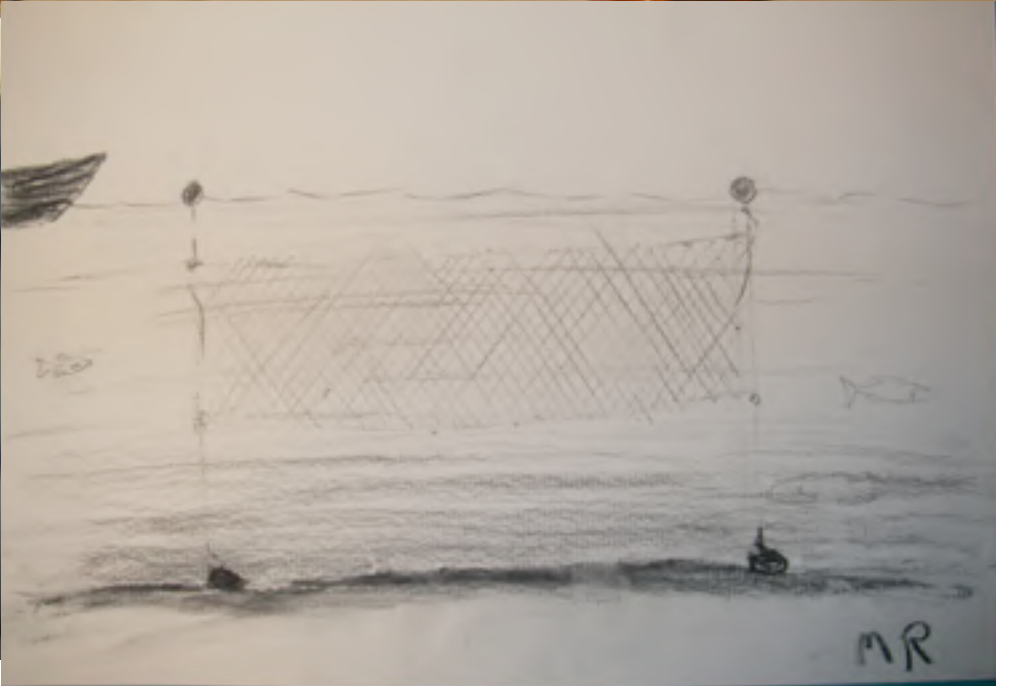
Playing with fish guts, Cambridge Bay

Acknowledgements



Drawing of fish otolith by Kugluktuk Student

- Natalie Griller, Jim O'Neil, Peter Taptuna, Stella Swanson, Kent Kristensen, Maurice Randell, Colin Adjun, Jack Ayaligak, Gerry Atahahak, Lena Adjun
- Kugluktuk High School
- KAA
- ANL-Golder Associates Ltd
- International Polar Year
- First Air and Canadian North
- Kitikmeot Trade Show
- Nunavut Economic Development & Transportation
- Brenda Mercer
- Garfield Weston Foundation
- Fisheries and Oceans Canada
- All of the students!



Future plans

- More high school workshops (field)
 - Also expose interested students to existing college programs, scholarship opportunities, etc.
- Combination of IQ, science, visual art, and multimedia technology
 - Goal: expose students to as many employment/interest areas as possible (right person for the right job!)
- Pending funding and more partnerships (as usual)
- Continue informal and opportunistic outreach as part of post-doctoral research



Informal outreach at Windy Camp