

# 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



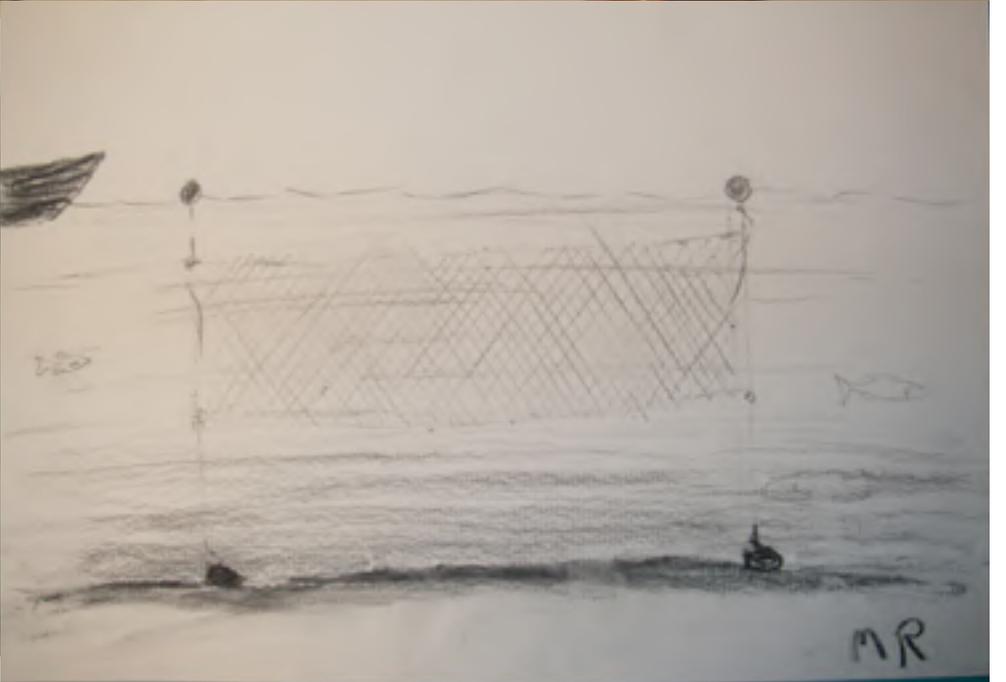
*Playing with fish guts, Cambridge Bay*

# Acknowledgements



*Drawing of fish otolith by Kugluktuk Student*

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- KAA
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- 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*