

Evaluating Contaminants Learning:

The experience of the Nunavut Arctic College Environmental Technology Program's wildlife, contaminants and health workshop

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Background

- Frontline contaminant workers in the North are often the first points of contact for residents with questions and concerns regarding contaminants and country foods.
- The Northern Contaminants Program (NCP) has identified communication of contaminants related science to students and the public as a priority.
- Developing strong contaminants communication skills and capacity among frontline workers includes incorporating training into existing northern education programs for future frontline workers.

About the Workshop

- The Wildlife, Contaminants and Health workshop is a one-week workshop delivered annually to Nunavut Arctic College's (NAC) Environmental Technology Program (ETP) students.
- A group of educators, scientists, hunters, community representatives, and decision makers deliver this contaminants communication and research training program to prepare students for their future role as critical frontline contaminant workers and communicators.
- This workshop, a collaboration between the NCP and Nunavut Arctic College, is a unique platform for students to interact with NCP researchers and actively participate in contaminants research through skill-building and interactive lab activities and group discussions.



Evaluation

- The workshop has grown in scale and scope over the last nine years.
- To support continued growth and improvement in delivery, assess the impact of this approach to northern capacity enhancement in this area and document and share lessons learned, a systematic evaluation of the workshop was conducted.

Methods

- Development of the evaluative framework to guide assessment of learning outcomes.
- Conduct of pre- and post- module student surveys and follow-up semi-directed student interviews.
- Conduct of semi-directed interviews with workshop instructors and program managers.
- Conduct of classroom observation and review of curriculum material.

Evaluation Framework

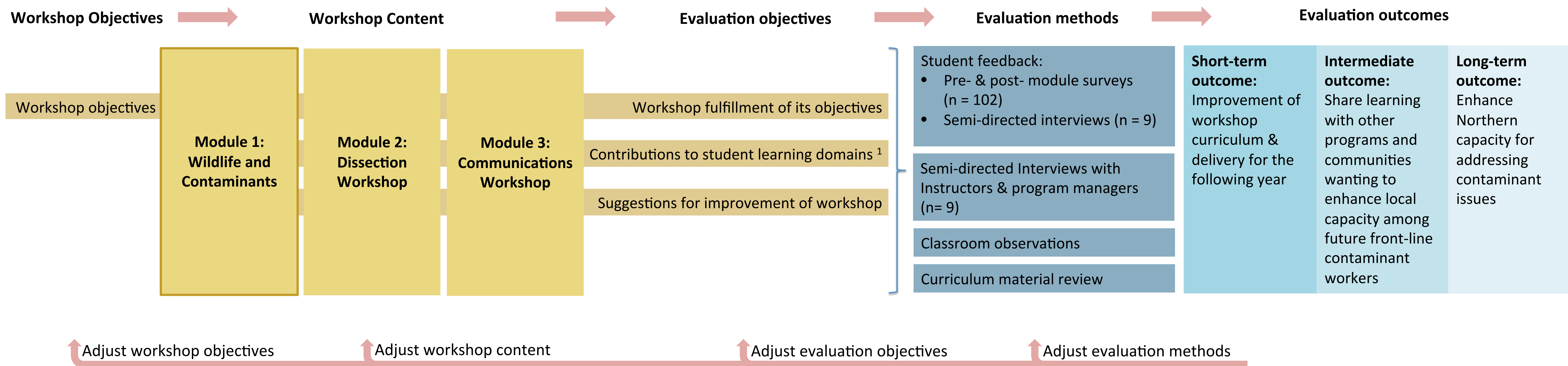


Figure 1. Evaluation framework

¹ Standard learning domains used in educational program evaluation : depths and breadth of knowledge, application of knowledge, communication skills, knowledge of methodologies, awareness of limits of knowledge, autonomy and professional capacity

Preliminary Results

Preliminary results for Module 1 give insight to the impact of the workshop module delivery on student knowledge and understanding of contaminant sources and pathways.

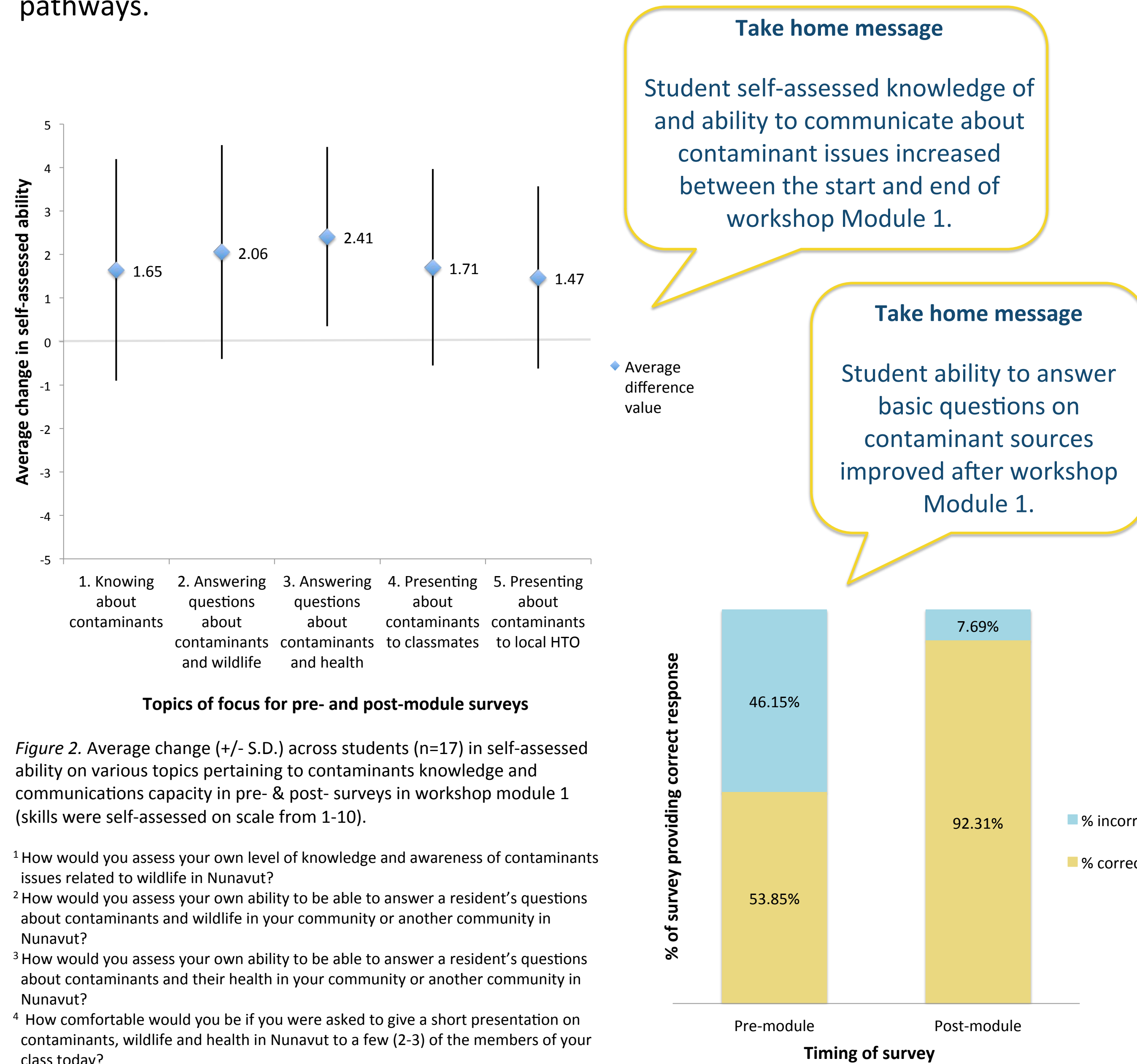


Figure 2. Average change (+/- S.D.) across students (n=17) in self-assessed ability on various topics pertaining to contaminants knowledge and communications capacity in pre- & post- surveys in workshop module 1 (skills were self-assessed on scale from 1-10).

¹ How would you assess your own level of knowledge and awareness of contaminants issues related to wildlife in Nunavut?

² How would you assess your own ability to be able to answer a resident's questions about contaminants and wildlife in your community or another community in Nunavut?

³ How would you assess your own ability to be able to answer a resident's questions about contaminants and their health in your community or another community in Nunavut?

⁴ How comfortable would you be if you were asked to give a short presentation on contaminants, wildlife and health in Nunavut to a few (2-3) of the members of your class today?

⁵ How comfortable would you be if you were asked to give a short presentation on contaminants, wildlife and health in Nunavut to a few (2-3) of the residents from your local HTO (or other organization) today?

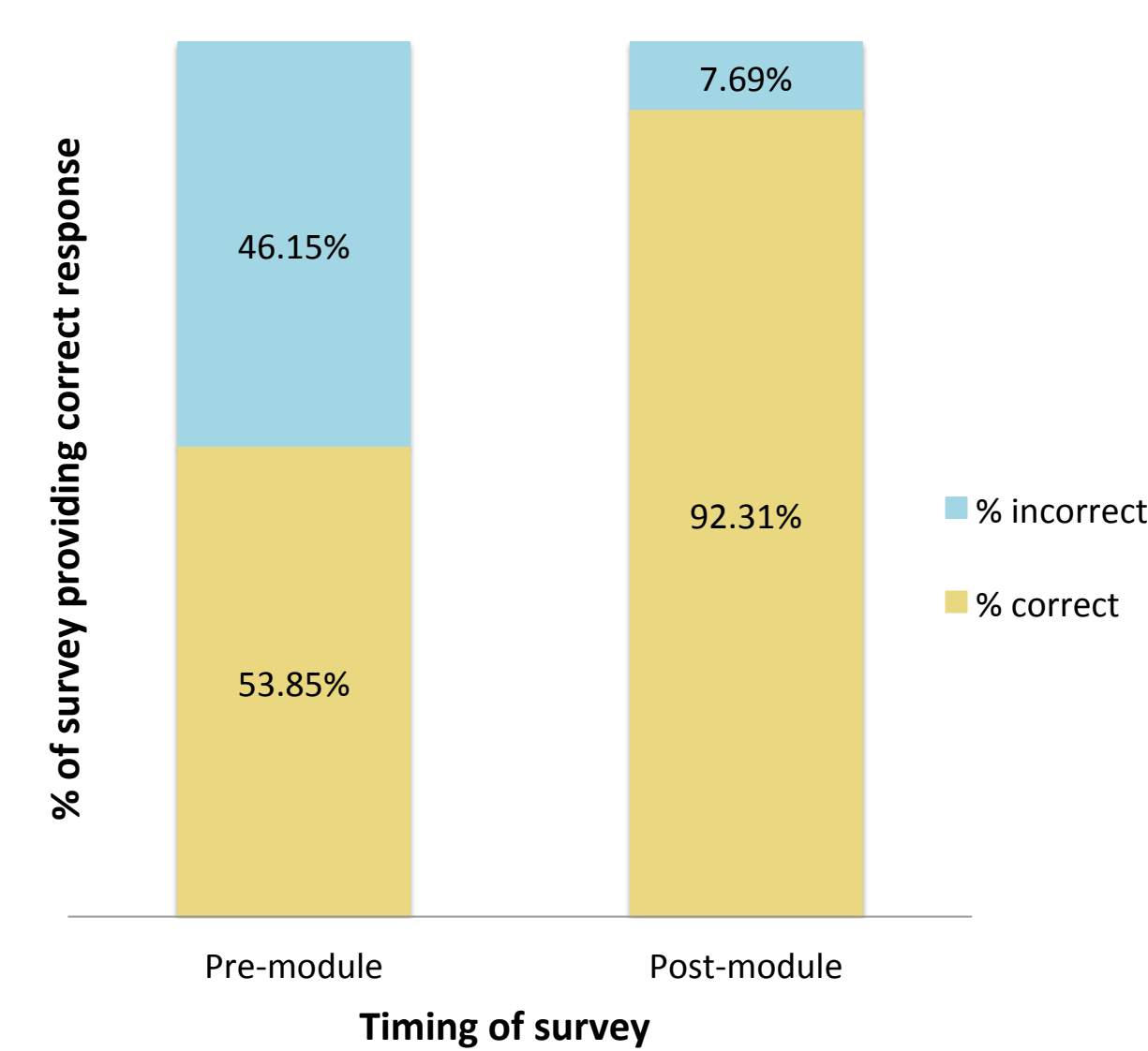


Figure 3. Percentage of students answering multiple choice question "What is the main (most important) way that people in Nunavut are exposed to contaminants like mercury and PCBs?" Before and after workshop module 1 (n = 13).



- Classroom observations indicated that student confidence and the nature of questions greatly improved during each module.
- Curriculum materials delivered key content and made space for classroom discussions and complementary activities to reinforce concepts.

I think we do depth and breadth of knowledge in a fairly good way. We try to give them a background of contaminants research. We try to give them background in, you know, what is a contaminant? How does a contaminant get to the north? Why is it important to study? And, more and more, what I hope that we're incorporating is also IQ.... So, hopefully, both through the interactions with myself and the other instructors and the guest speakers, as well as the community speakers... they're getting this depth of knowledge at many different levels but they're also getting breadth. They're getting it from a variety of sources.

(Workshop instructor)

[I will remember most] learning about the contaminants cause I had no idea that some of them were dangerous, like not dangerous but they had more contaminants that could... damage your nervous system. Especially for us women and children. And I think I'm going to try and inform people about it so that they'll be more healthy, I guess. Like I didn't know what portion we had to eat in order to not damage our nervous system.

(ETP student)

I think the whole point of the contaminants training module is it builds skills and understanding of core research concepts and processes that apply to other areas like limnology, wildlife management, fisheries biology, earth science and atmospheric science, all the other ETP courses. The students have built some really core knowledge in the contaminants module because of the breadth of the contaminants issue – it's in air, land, water, wildlife, people – that they could apply to those other courses.

(ETP Program Manager)

Next Steps

- Further data analysis and report writing.
- Share findings and recommendations with workshop coordinators and instructors and students as well as the scientific and education communities.
- Submit applications for funds to support 2016/17 workshop and extend program evaluation component.