

Wetland Education Network Pilot

Public and Education Action Group Summary Report

By: Liliun Consulting

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We wish to extend a special thanks to the following individuals who participated in the Public and Education Action Group, providing their feedback and engaging in the collaborative sessions:

Dale Awasis, Craig Bishop, Kevin Cantelon, Emily Drystek, Silvie Forest, Glenn Gustafson, Judy Kim-Meneen, Naomi Krogman, Steve McIsaac, Dave Mussell, Nathalie Olson and Tracy Scott.

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1.0 Introduction

The Government of Alberta (GoA) has implemented a province-wide Wetland Policy in order to address the great deal of wetland loss that has been occurring across Alberta for decades. The policy, which has a goal to “*conserve, restore, protect and manage Alberta’s wetlands to sustain the benefits they provide to the environment, society, and the economy*”, includes both regulatory and non-regulatory means. While the emphasis of the Wetland Policy is on the regulatory aspects of wetland management, there is also an acknowledgement of the role that wetland education and outreach will play for the policy to reach its goal successfully.

There are numerous wetland educators throughout Alberta, however education and outreach efforts have been occurring in an independent and non-coordinated fashion. The Alberta North American Waterfowl Management Plan (NAWMP) Partnership recognized the value in having wetland educators work collaboratively, and created the multi-stakeholder Wetland Education and Outreach Working Group in order to create a conceptual framework for a coordinated wetland education and outreach program.

The conceptual framework created by the Wetland Education and Outreach Working Group included an annual meeting for the wetland education community, a steering committee for future collaborations, and sector working groups (hereby referred to as Action Groups). The purpose of these meetings and groups being to identify wetland education needs, tools and products to improve the wetland education and outreach efforts in Alberta.

In order to follow through with the conceptual framework designed by the Wetland Education and Outreach Working Group, a pilot was created to gather each of the four Action Groups together for two half-day meetings a piece, to examine the wetland education and outreach needs of the particular sectors. In order to focus the meeting content and provide the opportunity to find synergies across the Action Groups, the members of each group were asked to concentrate on basic wetland education (i.e. basic wetland identification and function), and avoid some of the other topics of wetland education (e.g. understanding the Wetland Policy, roles and responsibility of specific groups, technical wetland topics, etc.).

The groups were populated and the process was facilitated by Liliium Consulting. Individual proceeding reports for each Action Group as well as a report outlining the state of wetland education and outreach in Alberta across the Action Group sectors were also performed.

This Public and Education Action Group report provides a summary of the discussions at the Industry Action Group meetings. The content represents the

opinions of the workshop participants and experts, and not those of Liliium Consulting.

2.0 Public and Education Action Group Background

The Public and Education Action Group was assembled for the Wetland Education Network pilot in order to gain a balanced view of the current state of wetland education and outreach in various public and education sectors across Alberta. This group was tasked with establishing the key wetland education and outreach needs for their chosen key audiences. The group included public educators, individuals involved with teaching wetland programs to school aged children, individuals from post-secondary schools and individuals involved with Indigenous education. These individuals were selected by Alberta NAWMP based on their ability to speak about the state of wetland education in their sub-sectors, as well as the wetland education and outreach needs of their associated networks. This group was an excellent cross section of diverse education groups that have been involved with wetland education, and was not intended to represent every group that could be associated with wetland education for public and school-based programs in Alberta. Due to the nature of the meetings being held over a short time frame and in-person, the choices of who to include were recognized as representational but not inclusive.

3.0 Meeting Objectives

In order to create a collaborative atmosphere, all Action Group Members were asked to attend meetings in person. Time was allotted in the first meeting for Public and Education Action Group Members to explain who they were, the organization they were with and the programs and resources they had created or presented. The Public and Education Action Group had the most programs and resources to share with one another, as most of the Action Group members were directly involved in creating or delivering wetland education programs as part of their positions.

The intended outcomes of the Public and Education Action Group meetings were as follows:

Meeting #1:

- get to know other individuals working on wetland education and outreach in Alberta and learn about the programs they are delivering; and
- gain clarity on the key audiences, products (tools/messaging) and engagement strategies to develop effective wetland education and outreach materials for the public and education sectors.

Meeting #2:

- gain more detailed ideas on the wetland education and outreach strategy for the public and education sectors (who, what and how);
- link wetland education programs with Indigenous perspectives; and
- discuss the opportunities to measure benefits of wetland education programs using social science methodologies.

4.0 Meeting Discussion Summaries

Members of the Public and Education Action Group were given an overview presentation on the Wetland Education Network, with an explanation of the Wetland Education Working Group, the Wetland Education Network Framework they had created and the purpose of the Wetland Education Network pilot. While Action Group members understood that their role was to attend two, three-hour meetings over the course of the pilot, the Alberta NAWMP Coordinator, Michael Barr, explained that with ideal circumstances and funding, there was a desire to continue with the work of the Wetland Education Network and Action Groups.

Given most of the Public and Education Action Group members were actively involved in creating or teaching wetland education programs, the group spent quite a bit of time outlining the different programs and resources they were involved with and shared the perceived effectiveness of each of the programs. The group members noted that wetland education programs were not in fact being measured in terms of their effectiveness after the programs were delivered.

The Public and Education Action Group members also identified where they felt their sector fit on the Public and Youth Literacy Ladder created by the NAWMP Wetland Education and Outreach Working Group (Figure 1) in order to establish context early in the process.

Figure 1. Public and Youth Literacy Ladder

Ladder Steps	Outcome
Action	I am actively involved in conserving wetlands.
Skills	I know what I can do to conserve wetlands.
Attitudes	We need to conserve wetlands.
Knowledge	Wetlands have value and are important.
Awareness	Wetlands are cool!

(NAWMP Wetland Education and Outreach Working Group 2016)

The Public and Education Action Group was then asked to move on to address the ‘who’, ‘what’ and ‘how’ for the creation of a wetland education and outreach program for the public and education sectors.

The outcomes of these discussions are summarized below.

4.1 Current Situation

When the group discussed where they felt their sector fit on the Literacy Ladder, the various subgroups agreed that they all had program participants at each level of the ladder (Figure 2). There were audience members that needed to be engaged at the level of creating awareness around wetlands and wetland education resources, all the way up through to audience members that were already considered wetland stewards. It was therefore not possible to pinpoint a specific level to represent the Public and Education Action Group key audiences, but rather it needed to be recognized that any chosen key audiences would need to be engaged at the level of literacy with which they entered into a program. Some individuals noted that parts of their programs were designed to ask questions that determined the level of wetland literacy for particular audiences.

Figure 2. Literacy Ladder Focus Areas for Public and Education Action Group

Ladder Steps	
Action	←
Skills	←
Attitudes	←
Knowledge	←
Awareness	←

The Public and Education Action Group was the most diverse group of the Wetland Education Network pilot, and therefore needed to be split into its various sub-groups (kindergarten to grade 12, post-secondary, public and Indigenous) when addressing topics such as key audiences, products, tools and program delivery.

4.1.1 Existing Programs

The Public and Education Action Group had by far the largest volume of existing wetland education programs and tools. The sub-groups noted the following current wetland education programs and resources:

Kindergarten-Grade 12 Education

- Webbed Feet Not Required (Grade 5 program)
- Water Quest (Grade 8 program)
- Project Webfoot (Ducks Unlimited Canada program)
- Project WET
- WOW (The Wonder of Wetlands)
- Inside Education Wetland Studies

A few programs that were not focused on wetlands, but were noted as excellent education programs that could be applied to wetland education were as follows:

- Wild BC (community-based facilitators are paid and provided kits for teaching about local environmental topics)
- Garden School (University of Alberta [UofA] Botanical Gardens)

- Museum School (students choose what to learn and are therefore more engaged)

Post-secondary Education

The post-secondary education representatives felt that overall, wetland topics were well covered in relevant courses at the Northern Alberta Institute of Technology (NAIT) and the UofA. Some specific examples of programs in the post-secondary realm that Public and Education Action Group Members were aware of included:

- NAIT lectures (bring in professional associations to speak to students on pertinent topics)
- Bus Project (UofA initiative where perceptions about wetlands were gathered before and after wetland experiences and education)
- NAIT design competition
- Grant MacEwan University wetland courses

Public Education

- Alberta Parks Wetland Discovery
- Watershed Planning and Advisory Council (WPAC) hands-on, outdoor focused wetland programming and watershed plans
- Caring for our Watersheds (connects community to watershed)
- Citizen Science projects (e.g. Frog Watch, Plant Watch)
- Learn to Camp (refugee/immigrant program)
- Marshkeepers (DUC program where volunteers inspect wetlands and become more aware of wetlands of value in their communities)

Indigenous Education

- Wetland education curriculum mandated by the Board of Education (Grade 5 program)
- Big Stone project (DUC- high school land-based education course that integrated Indigenous knowledge)
- First Nations Alberta Technical Advisory Group (TSAG) source water protection education resources

A successful program that was noted as having the ability to overcome some of the barriers in Indigenous education (not wetlands related) that could be used as a framework was:

- Medicine Box Program (traveling box with key materials for a specific program that is shared across schools)

4.2 Key Audiences

The Public and Education Action Group noted that their sectors could include a vast array of potential audiences for wetland education and outreach. The following audiences were considered the key audiences for each sub-group:

Kindergarten-Grade 12 Education

- Teachers (in-service and pre-service, i.e. individuals studying to become teachers)
- Environmental Educators
- Specialist councils (including their support organizations)

Post-secondary Education

The post-secondary education representatives noted that there were vast differences in the approaches in the Universities vs. the Polytechnic schools. Therefore the two types of post-secondary groups identified separate key audiences:

Polytechnics:

- Advisory committees for key topics (have wetland experts sit on these committees to ensure that wetland content is incorporated)

Universities:

- Teachers, particularly those who are teaching large introductory courses for students entering different fields
- Teachers involved with courses where graduates are working in professions that could negatively impact wetlands

It was noted that individual teachers would likely need to be approached at the University level due to the competitive nature of individual post-secondary institutions.

Public Education

- Recreationalists (particularly urban recreational users)
- Recreational groups (e.g. all-terrain vehicle groups)
- Naturalist groups

Indigenous Education

- Employees of the *Indigenous Knowledge Wisdom Centre*
- Elders and Hunting and Trapping Associations (as givers of information and advocates for encouraging the program uptake)

- Educators in Indigenous schools

4.3 Product and Tool Ideas

Public and Education Action Group members contributed ideas of potential wetland education products and tools for each of the sub-groups. Some of the ideas were more general, while others were very specific. The product and tool ideas brought forward were as follows:

Kindergarten-Grade 12 Education

The Alberta education curriculum is currently being evaluated and ideas are moving forward to make changes. While decisions have not been made as to what the curriculum changes will entail, the grade 5 wetland unit may or may not remain as a mandatory component of elementary school learning in Alberta. The potential wetland education products and tools for this sub-group reflect that a shift in curriculum could occur. While some individuals have worried that the loss of the wetland unit in mandatory curriculum could be detrimental to wetland education, others view it as an opportunity to allow teachers and curriculum specialists to incorporate components of wetland learning in other areas.

The wetland products and tools for the Kindergarten-Grade 12 education program would ideally be succinct ideas of where wetlands could be put into different aspects of course learning at various age levels. A directory of wetland learning and activities that could help teachers 'check-off' key concepts they are required to teach would be ideal, and the idea of exploring the seasonality of wetlands was brought forward. Public and Education Action Group members felt it was important to provide knowledge on what actions could be done for students to help wetlands (conservation and restoration) as well as provide Indigenous knowledge around wetlands where available.

Post-secondary Education

The Public and Education Action Group members involved in the post-secondary school systems wanted products and tools that would allow students to engage critical thinking skills around wetland solutions. It was noted that students would require more information on what types of practices are destroying wetlands and allow students to connect the wetland challenges with actions that could be taken to mobilize the protection of wetlands (through physical means or by influencing policies pertaining to wetlands).

Public Education

General themes were brought forward for products and tools for the public education sub-group. Any potential products or tools could provide information

about local wetlands in order to better engage a public audience, and citizen science projects were felt to be a good means of doing that. Bringing in a concept of seasonality and discussing the concept of winter wetlands was also thought to be engaging. Public and Education Action Group members felt that having the public understand the pressures effecting wetlands was important, and that products created for individuals in this audience should link to historical wetland loss, as there was agreement that there tends to be a 'generational amnesia' as to what was historically on the landscape as it pertains to wetlands.

Indigenous Education

Due to funding restraints and lack of current programming, a product that was thought to be a good fit for Indigenous schools was a wetland learning kit with interactive activities (dip nets, magnifying glasses etc.) that could be circulated around to various schools.

Overall

In general, the Public and Education Action Group members felt that many of the products and tools for the various sub-groups should incorporate as much local and Indigenous knowledge as possible in order to be more engaging for the various public and education key audiences.

4.4 Key Messages

The Public and Education Action Group was able to come up with a key message to guide all of the products and tools that could be potentially created for their sector:

“Why wetlands?”

This guiding message would allow groups creating products and tools to have outcomes in mind that would establish the relevance of wetlands to specific groups of people. This could also guide individuals to explore why local wetlands are important, the role they play in society, the ecosystem services they provide and the Indigenous knowledge linked to the different types of wetlands.

If key audiences could understand “why wetlands?” then it could create lasting relationships between individuals and their local wetland resources.

Another key theme that was brought forward by the group, was the concept of resiliency, and allowing the theme to permeate through wetland education by linking what wetlands do on the landscape to encourage resiliency and how wetlands can be incorporated into smart development.

4.5 Best means of delivering programs

The Public and Education Action Group agreed that the methodology of delivering wetland education and outreach programs was critical to program success. Each sub-group came up with some key points that would make program or tool delivery more effective for their chosen key audiences.

Kindergarten-Grade 12 Education

In order to engage teachers, environmental educators and specialist councils, the Public and Education Action Group members emphasized a hands-on approach to learning for students. They also felt that working directly with teachers to show them specifically where wetlands could be integrated into their curriculum was important and to demonstrate how wetland education can grow with students, from early education to later years in high school. Group members recognized that incorporating wetlands into school learning would have greater uptake if core resources were developed ahead of time. Ideas for program delivery included professional development sessions with a kit available for teachers to take with them afterward.

Post-secondary Education

The specific idea that was brought forward by group members for the post-secondary sub-group, was to engage post-secondary students with real-life case studies of wetland challenges, and have the students come up with solutions as project work in their credit-based coursework.

Offering 'boots on the ground' components for students to acquire wetland field skills was also noted as being important.

Public Education

In order to appeal to recreationists and naturalist groups, the Public and Education Working Group members came up with various ideas for delivering wetland information (with a focus on local wetland resources). The ideas included the creation of a wetland app, positive wetland signage and brochures in outdoor recreational areas and using social media avenues to encourage dialogue around wetlands.

Indigenous Programs

Public and Education Working Group members did not have any particular means of delivery in mind for Indigenous wetland education programs, but did note that it was important that any wetland programs introduced into Indigenous schools

would need to be cost effective, and it would be important for those programs to incorporate Indigenous wetland terms.

Overall

For all of the key audiences chosen for the Public and Education Action Group, it was noted that the need to focus on solutions-based discussions was important, as dwelling on wetland problems does not inspire people to become wetland stewards. The need to ensure that individuals gain a personal connection with wetlands was a common theme throughout the group's discussions and allowing audiences to have a hands-on experience with wetlands was identified as being of utmost importance. Storytelling and mentorship were also noted as powerful means of delivering wetland education and outreach.

5.0 Additional Topics

The Public and Education Action Group members chose to focus on topics that were outside of the general “who, what and how” questions posed to all of the Action Groups during the pilot. The group had a particular interest in the incorporation of Indigenous Knowledge and storytelling methods into wetland education programs and also how to effectively measure the success of wetland education programs. The following sections reflect the presentations and conversations that occurred around the two topics.

5.1 Incorporating Indigenous Knowledge into Wetland Education Programs

The Public and Education Action Group included members who shared their experiences of the Indigenous education system. According to the experts who spoke at the Wetland Education Network pilot meetings, Indigenous education in Alberta is unique in its approach and in the challenges that are faced by those involved. The Public and Education Action Group members were very interested in Indigenous education and how it related to wetland education and outreach, as well as how Indigenous knowledge and storytelling methods could be incorporated into their own programs and tools for non-Indigenous audiences.

One of the key points brought forward by various group members, was the lack of funding in Indigenous schools, and how this often precluded Indigenous students from special learning opportunities that were available to other students in the Alberta school system. Minimal education standards in many Indigenous schools were noted, despite the use of standardized provincial curriculum. A Public and Education Action Group member noted that while special programs have been started for Indigenous students in the past, a lack of continual funding and contact had caused the programs to be unsuccessful.

An Indigenous Elder was brought in to speak to the group in the second Wetland Education Network pilot meeting. The Elder had an extensive background in Indigenous education and shared his experiences openly with the group. He spoke not only of the challenges and opportunities for sharing wetland education programs and tools with Indigenous schools, but also to the potential involvement of Elders and Indigenous groups in local wetland education and outreach programs.

The Elder brought in cultural aspects of co-existing with nature which included concepts of co-existence, interdependency and the importance of thinking in terms of what our impacts will be 7 generations from now, in order to leave a natural legacy for those who come after us. These concepts were brought forward to apply broadly in terms of environmental stewardship, but also toward how we view our role as stewards of wetlands.

He noted the individual cultural protocol of each Treaty Area as well as each First Nation, and the opportunities and challenges that presents. He also noted the overall aspiration of First Nation individuals wanting to incorporate their relationship with the land back into their education system, and the ways in which wetlands could be incorporated.

The key message of the Elder was that of **“we need to know this”** in reference to the fact that Elders are insisting that the youth in their communities need to have a relationship with the land and understand traditional knowledge being passed on to them.

In terms of collaboration between Indigenous educators and a potential Wetland Education Network, the Elder noted that a point of contact could be a newly formalized *Indigenous Knowledge and Wisdom Centre* that will focus on maintaining, formalizing and distributing Indigenous knowledge across Alberta.

In closing he noted that many of the key pieces of environmental (and wetland) stewardship are not Indigenous issues, but rather human issues and need to be communicated as such.

5.2 Measuring Success

As noted above in section 4.0, the Public and Education Action Group members discussed that wetland education programs are not being tracked in terms of their success. It was agreed that measuring success is important in order to know what programs or program components are working well, which are not working effectively and to be able to report the successes that are occurring. This was noted as important in order to keep wetland education program funders happy, as well as to encourage further funding of wetland education programs.

One of the Public and Education Action Group members representing the post-secondary sub-sector provided a knowledgeable overview on evaluating

educational programs. She described the evaluation of wetland education programs as a means of increasing accountability and a way to allow educators to become clear on how they can communicate the intended activities and outcomes of their programs.

The wetland education program evaluation overview was provided in detail to the Public and Education Action Group members and included:

Examples of changes that wetland educators may want to see as a result of their program:

- Increased awareness;
- Participant curiosity; and
- A shift in attitudes (formed by factors such as experience, social factors, learning, experience, observation, beliefs, knowledge, skills etc.).

The methodology behind designing a study to evaluate the change a wetland education program could produce was also presented. The different types of evaluation were mentioned (formative and summative evaluation) and ways of performing these different types of evaluations were described.

Finally, the way of creating a study design was covered. The important take-away points that were described by the Public and Education Action Group member were that:

- Quantity and quality data that is collected using an evaluation study is an invaluable tool to aid in multiple reporting requirements to funders and key stakeholders;
- Ensuring that information is requested in the same format from all people involved using the same basic format is important in order to keep the process of tracking manageable;
- Is imperative to collect data early and often; and
- Using technology to the greatest extent possible is key to save paper and time.

Participants in the Public and Education Action Group considered the information provided in the presentation very useful, and it was noted that the group would have liked more time to pursue the topic in more detail.

6.0 Conclusion

The Public and Education Action Group had a large number of current wetland education products and tools that were currently being delivered in their sector. There was agreement among group members that conversations sharing the current

wetland education content and delivery mechanisms were useful, as were discussing some of the overarching themes of interest. The Public and Education Action Group was composed of many different types of educators, and the diversity of the group made it hard to come up with key audiences, wetland programs, tools and delivery mechanisms as a whole. Therefore a decision was made to separate the conversation into sub-groups, and have the group contribute ideas to each sub-group.

In the case of the Wetland Education Network pilot meetings, the group was able to discuss strategy in terms of some key outcomes that each sub-group felt it was important to focus on, but also to have some broader discussions on topics of interest. The topics that were covered in the Wetland Education Network pilot were incorporating Indigenous aspects into wetland education materials and delivery methodologies, and evaluating wetland education programs. These topics were dealt with superficially due to time constraints, but represent some of the specialized learning that could take place in Wetland Education Network Action Groups once basic programs and delivery methods are established.

Overall, many wetland education ideas for various key audiences came from the two short meetings, and the Public and Education Action Group saw value in the potential to participate in a Wetland Education Network.

7.0 References

NAWMP Wetland Education and Outreach Working Group. 2016. Draft Recommendations to Improve Wetlands Literacy in Alberta via a Wetland Education and Outreach Collaborative Framework.

Appendix A

Wetland Education Network Pilot Meeting Agendas

Public and Education Action Group



Wetland Education Network – Public/Education Action Group
Meeting #1 – Draft Agenda
Friday November 25, 2016

Location: Royal Executive Inn, 8450 Sparrow Drive
 Leduc, Alberta

Time: 9:00am – 12:00pm

Meeting Purpose:

- Introduce concept of Wetland Education Network and get to know team members on the Public and Education Action Group
- Gain clarity on the key audiences, products (tools/messaging) and engagement strategies required to develop effective wetland education and outreach materials in the public, k-12 and post-secondary focus areas

Time	Agenda Item	Lead
9:00	1.0 Administration 1.1 Health and Safety 1.2 Welcome & Introductions 1.3 Review and Approve Agenda	Terra
9:30	2.0 Wetland Education Network 2.1 Explanation of the Wetland Education Network, history and path forward	Terra
9:45	3.0 Wetland Education needs of industry audiences: 3.1 Establish key audiences and level of literacy (who?) 3.2 What would some key products or messages be (what?) 3.2 Best means to convey/connect (how?)	Terra All
10:30	Break	
10:45	4.0 Review currently available wetland education products: 4.1 Compile list of current wetland education products and tools available in the public, k-12 and post secondary focus areas 4.2 Evaluate success of current wetland education products and tools	Terra All
12:00	4.0 Wrap Up	Terra



Wetland Education Network – Public/Education Action Group

Meeting #2 – Draft Agenda

Friday January 13, 2017

Location: Royal Executive Inn, 8450 Sparrow Drive
Leduc, Alberta, Spitfire Boardroom

Time: 9:00am – 12:00pm

Meeting Outcomes:

- Gain more detailed ideas on the wetland education and outreach strategy for the public and education sectors (Who, What and How)
- Link wetland education programs with indigenous perspectives
- Discuss the opportunities to measure benefits of wetland education programs

Time	Agenda Item	Lead
9:00	1.0 Administration 1.4 Health and Safety 1.5 Welcome & Introductions 1.6 Review and Approve Agenda	Terra
9:15	2.0 Review 2.1 Quick review of last meeting	Terra
9:30	3.0 The Indigenous Perspective 3.1. Introduction to the First Nations school system 3.2 Ideas on how to connect wetland education programs with First Nations schools 3.3 Discussion on how indigenous knowledge could be linked with wetland education programs	Dale Awasis
10:30	Break	
10:45	4.0 Wetland Education Needs of Education/Public Audiences: 4.1 Establish key audiences and level of literacy (who?) 4.2 Identify key products and messages be (what?) 4.3 Best means to convey/connect (how?) 4.4 Ability to coordinate on key products for multiple audiences	Terra All
11:45	5.0 Measuring Success 5.1. Measuring progress and benefits of wetland education programs	Naomi Krogman All
12:00	6.0 Wrap Up	Terra