



Wetland Conservation in Eastern Vancouver Island: A workshop for municipal and regional stakeholders

Thursday January 29th, 2015

Report



This project was financially supported by:



Wetland Conservation in Eastern Vancouver Island

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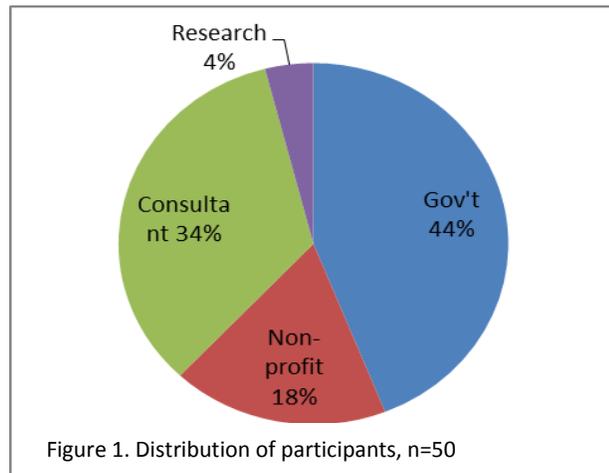
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Purpose of Workshop

On January 29th 2015, the Wetlands Education Team traveled to Nanaimo to host a workshop designed to bring together stakeholders involved with wetland conservation on Vancouver Island. The workshop offered networking opportunities for participants to learn about projects happening on eastern Vancouver Island. “It was great to see so many participants and hear from different jurisdictions” said one engaged participant.

Along with building new connections, the purpose of this workshop was to enable key stakeholders by hosting a workshop that was put together based on their needs. In November, we spoke with municipal and regional staff and lead conservation groups about priorities and challenges they face regarding wetlands. From these conversations, we selected the following learning outcomes for the workshop to support local government and stakeholders: 1) municipal and regional tools and requirements for protecting wetlands, 2) storm water management and wetlands, and 3) prioritization of wetland assets and prioritization of restoration opportunities.

The workshop brought together 50 professionals from the following backgrounds (42 in person and 8 remotely). A detailed list of attendees is attached in Appendix 2.



Presentation Summary

Introduction and overview of the workshop

Neil Fletcher- BC Wildlife Federation

[Click here](#) to view the presentation

Key points of the presentation included:

- Scope of Wetlands Education Program to enhance local capacity to conserve wetlands
- Wetland value ecosystem benefits \$3000 - \$378,500 per hectare/year
- Estuaries on the East Coast of Vancouver Island 34% loss since 1900s largely due to agriculture and dyking.
- Typical 70-%95 loss in developed parts of Canada
- Who is responsible? Federal to local groups. Agencies to individuals.
- Wetland Action Plan for BC is a guiding document released by the Wetland Stewardship Partnership (collaboration among provincial and federal agencies and stakeholders).
- A Resource Allocation survey during several local government and stakeholder workshop identified the following initiatives as priorities for advancing wetland conservation 1) mapping, 2) public awareness, 3) staff, and 4) engaged council.
- Okanagan wetland strategy is a recent initiative that is working with multiple groups to conserve wetlands and prioritize their protection.
- Strengthening stewardship will require leaders and gate keepers in every agency and multiple scales, political support capacity, broad base of support from the public, knowledge/information sharing, need more support for volunteers.

Overview of the initiative on Convening for Action on Vancouver Island (CAVI) for water sustainability

Peter Law- Partnership for Water Sustainability in BC

[Click here](#) to view presentation and [Click here](#) for a link to CAVI

Key points of the presentation included:

Overview: Convening for action is a provincial initiative through the Partnership for Water Sustainability that promotes sustainable rainwater management among key sectors and agencies. CAVI's mission is to develop tools, develop talent, and focus on outcomes through tools and products, networking and outreach, capacity building, and education and training.

- Water is the vital link. Urban settlement and agriculture are key focal areas. Settlement change needs to occur in balance with ecology. CAVI facilitates relationship building within and between four regional districts representing ~90% of the island population (Capital Regional District, Cowichan Valley Regional District, Nanaimo Regional District, and Comox Valley Regional District).
- Collaboration via the 'Inter-Regional Education Initiative' will result in alignment and a consistent approach to 'Rainwater Management in a Watershed Sustainability Context'. This will help everyone to go farther, more efficiently and effectively

Laws and policy

Deborah Curran- UVic Environmental Law Centre

Laws and policy: Municipal and regional tools and requirements for protecting wetlands. This topic also provided an overview of some of the new content from the 2nd edition of the Green Bylaws Toolkit.

Key points of the presentation included:

- Legal strategies and policies: Provincial and local governments are responsible for safe guarding water flows into wetlands. Protecting and enhancing water flow is important because flow impacts the health of wetlands, wetlands are always changing, and wetlands are buffer/transitional zones between terrestrial and aquatic life. Wetlands are important to local governments because given climate change, they add value for flood protection and municipalities are responsible for water course protection to maintain water quality. Kelowna recognizes connectivity and maintaining groundwater flows because 20,000 people who rely on groundwater for drinking water, which resulted in set of guidelines for groundwater protection in Kelowna.
- New examples in Green Bylaws Toolkit: 1) Denman Island was added as a case study because of their interesting approach to find an appropriate level of development. A large portion of the island (1000 acres) was logged then tried to be turned into a subdivision, but was rejected because their official community plan (OCP) indicated no new growth. The result was settling with 54 rural residential units and a provincial park. 2) City of Kelowna's Mission Creek is a highly urbanized watershed that flooded more than envisioned in 2012. The city's solution in response to the flooding was to create a habitat mitigation bank and set aside riparian land. Instead of planting trees, money or land is contributed to the Mission Creek mitigation bank to build resilience for future extreme storm events.
- The New Water Sustainability Act will offer future protections for ecological protection and riparian health. The Act passed April 2014 and will begin to be phased in by 2016. The new changes will now recognize that surface and ground water are connected. The following changes relate to wetlands: 1) Instream flow regulations: The new Act will be able to review and change licenses on a 30 year basis to allow for adaptation. It will take into account environmental flows into stream. 2) Water objectives: Local governments may be required to consider water objectives for regional growth strategies. The intent is more connectivity across landscapes. 3) Water sustainability plans: Ability to create regionally based water sustainability plans that allow various stakeholders to solve place based issues.

Questions:

- When restructuring licenses after 30 years, is there compensation available for the agricultural community if farmers lose their right (presumed during drought) to run irrigation?
 - The agricultural community very understanding when need to restrict water use and it is rare that the most senior license will take all of it. Water Sustainability Plans are enabled and recognized as a tool in the Water Sustainability Act. The agricultural community would take issue if agriculture water use is restricted but residential is not and people are still watering their lawns. The agricultural community would advocate for an Agricultural Water Reserve within these plans. Only compensation is owed if there is a regulation that directs the circumstances for compensation to be owed OR if a water sustainability plan contemplates specific users cutting back, you would have to account

for that within the plan and show how that would be paid for. The law allows for first in time, first in right, but in a drought situation, this would not be accepted politically.

- What is your thought on implications of the Water Sustainability Act on mining activity near wetlands?
 - It will depend on what the water objectives say, but no water objective regulations are set at this time. Forestry objectives for ecosystem protection are not well implemented. It is unknown how well water objectives will be implemented to protect wetlands (section 43, WSA). Water act and water sustainability act primarily deal with allocation oppose to larger scale integrated planning

Wetland prioritization

Laura Brophy- Institute for Applied Ecology

Prioritization of wetland restoration opportunities: Laura presented the Oregon method for prioritizing which wetlands to restore and protect, given limited resources. She described how to get the information needed for prioritization, and case studies of how the results are used. The presentation focused on estuaries and prioritization for achieving ecological benefits.

[Click here](#) to view the presentation.

Key points of the presentation included:

- Prioritizing wetlands is important because in Oregon, there have been extensive losses ~70% for tidal wetlands and there is an urgent need for action due to limited funding and grant requirements.
- Key elements of the method:
 1. The focus is on enhancing and securing ecological functions (landscape ecology approach, indicators of multiple wetland functions, focus on controlling factors ("drivers"), and potential functions evaluated using remote data and field reconnaissance)
 2. Community-based (local watershed group involvement, GIS or paper maps, simple method, clear linkages between inputs and results)
 3. Intended for active use (dynamic estuary database, provides a basis for immediate action, improves chances of funding projects)
 4. Non-regulatory (results provide strategic direction, willing landowners, no wetland is excluded, 1999-2010: used existing wetland mapping, 2011-present: elevation and water level data used to define wetland extent, and does not delineate wetlands)
 5. Combination of field and remote data
- Prioritization protocol: should indicate level/quantity of multiple wetland functions; should effectively discriminate among sites; interpretation of levels should be clear; data should be quantitative and accurate; and coverage throughout study area should be complete and consistent
- Prioritization criteria: site size, tidal channel condition, wetland connectivity, historic wetland type, diversity of vegetation classes, and number of salmon stocks (motivated by funding)

Stormwater pond and management: A review for non-engineers and engineers

Jim Dumont- Senior Water Infrastructure Engineer

The presentation covered the principals of integrating stormwater ponds, considerations for design, maintenance, and landscape level planning. [Click here](#) to view the presentation.

Key points of the presentation included:

- Principles of integrating stormwater ponds: Stormwater management is important for discharge rate control, water quality improvement, volume reduction, aquatic habitat as a social amenity, and as a recreation opportunity. To understand implications, it is key to ask if a wetland is part of the drainage system. If discharge is TO the wetland, it is not part of the engineered system and may receive treated water from pipes or attenuated flows and environmental standards apply. If discharge is FROM the wetland, it is part of the drainage system, used for storage and treatment, use typical engineering standards, and environmental values will be IMPARED.
- Considerations for design: Key questions around what kind of structure (exposed or submerged) you want to have based on local conditions, local rules, safety, and redundancy. Assumptions of Engineers that need to be challenged: **1. Standards**- Engineering standards apply to all projects, design standards applied to pipes will be applied to wetlands, design standards are created to assure similar results for each analysis and sizing for every project. **2. Runoff**- All discharges are from surface runoff. **3. Design Storm**- Use a “Design Storm” rather than real rain. Only last from 30 minutes to 24 hours. Just last week we had one longer than 24 hours. Rely on choices (rainfall duration, volume, moisture conditions, etc.). **4. Frequency**- Return Period of the Design Storm is equal to the Return Period of the flood event. Won’t address environmental issues. **5. Operation**- Pond is empty before the storm and pond empties before next storm. Solution to assumptions: Use continuous simulation and use the [Water Balance Methodology](#)
- Maintenance: Is important. Top concerns (permanent pool of water, dredge out muck, clogging, access problems, pipe repairs, mechanical components, vegetation management, and nuisance issues). Sediment is a natural process, but sediment from urban construction is a huge problem.
- Example: Frank Lake/High River. Dry in 1980’s so discharge sewage into wetland to treat the water, but discharge from wetland to river must be controlled. After 5, years too much nutrients downstream, so blocked off discharge. Some biologists liked this, while others do not because when overflows, it violates water licenses.
- Landscape level planning: Different results dependent if designed by developers or engineers.

Questions:

- What would be the ideal size of a storm pond to do this effectively?
→ 10% of the detention area is a typical size recommended. Engineers often squeeze the size to 1.5% - 2%.
- Have you ever seen a stormwater pond that actually worked?
→ Yes, dependent on criteria used to evaluate it. They don’t always work for all criteria, so need to be clear about desired outcomes.
- Are there any examples of successful stormwater pond involving agriculture?
→ In northern areas where innodate in spring near lakes with northern pike need grasses to spawn and drain out agricultural land. Effective because multiple purposes.
- What should the maintenance period be on these structures?
→ Want to extend maintenance period ~2-3 years dependent on vegetation growth). Should include biological community in design.

Stormwater pond and amphibians: If you build it, they will come

Elke Wind- Biologist, E Wind Consulting

Stormwater Management Considerations for Aquatic Species: Risks, benefits, and design considerations for stormwater ponds and ditches for wildlife. [Click here](#) to view the presentation

Key points of the presentation included:

- Amphibian overview: Amphibian declines are a serious issue for native species on the south coast (Vancouver Island has 9 native species and 2 non-native). Unfortunately, 1/3 of amphibians are at risk of extinction globally and we do not know a lot about them. Amphibians have semi-permeable skin that makes them vulnerable to disease, drying out, chemicals in the air, and fertilizers in the water that can change sexes of amphibians. Habitat loss also puts them at risk because they need moist microsites, they are dependent on aquatic AND terrestrial sites, and they don't move around very much, so they can't escape impacts. Amphibians need water and humans like to alter water. Flooding can move amphibians and non-natives around. Artificial waterbodies attract amphibians; however, those features often are close to roads, have contaminants, non-native plants, and are subject to mowing and dredging. The issue to municipalities and developers is that it is illegal to harm amphibians under the provincial Wildlife Act and to avoid a violation a salvage operation for amphibians is needed when doing maintenance.
- Case study: Stormwater Ponds Study in King County, WA. The study explored the connection between stormwater ponds and amphibians. Results were that stormwater ponds attract almost the same number of amphibians as natural wetlands. Breeding amphibians take advantage of new ponds quickly. More forest cover leads to more amphibians.
- Design considerations: Measures can be taken to mitigate the negative effects of stormwater ponds, and improve the habitat conditions of amphibians. Fencing all around the water body is the easiest way to include or exclude amphibians. Work around hydroperiod and design ponds that drain quickly as semi-permanent are best for native species. Avoid over engineered designs and avoid steep slopes and over planting. Avoid critical times for amphibians (March-August) and (March-June) for turtles ([refer to the following study](#)). Challenge around sediment control (eg housing development on Van Island bankrupt and rain flushes sediment downstream). Need to take a watershed approach. Issues around rip rap because unnatural and difficult for vegetation growth. Some solutions are bioengineering, avoid critical timing, use native plant species, and vegetation buffers. All in all, the greatest conservation strategy is the protection of natural wetland habitats.

Questions:

- Where can we access salvage guidelines?
 - Not available to the public yet. Being reviewed right now. You need a wildlife permit to do a salvage operation.
- Do amphibians prefer forest cover for breeding?
 - Bullfrogs like warm water, but if water is too cool amphibians won't breed. In urban environments a 100 meter buffer minimum is recommended but difficult to achieve, buffers are less critical in forests.

The National Wetland Conservation Fund and opportunities

Ivy Whitehorne- Canadian Wildlife Service

[Click here for more details on the fund](#)

Key points of the presentation included:

- Overview: New funding program around less than 1 year. Aimed at wetland restoration and enhancement projects. 5 year program. Call for proposals once a year ~October next year for projects 2016-2017. \$50 million \$2million/year for BC and Yukon. Objectives: restore, enhance degraded wetlands, wetland science around restoration efforts. Limited support for land securement. Aimed at larger scale projects \$20,00 - \$500,000/year. Competitive fund. Up to 3 year projects. Priorities for regions with high wetland loss (East Coast Van Island priority region). Projects with long term benefits.
- Requirements: A maximum of 50% of the total project cost can be derived from the NWCF, with non-federal contributions (cash and/or in-kind resources) required to obtain NWCF funding. Minimum of 1:1 matching contributions (from non-federal sources) is required (\$1 match for \$1 NWCF funding).

Please visit the following website for further information on the NWCF:

https://www.ec.gc.ca/financement-funding/default.asp?lang=En&n=56914323-1#_11

Summary and Results of Resource Prioritization Activity

As an interactive component of the workshop, we asked participants “if you have 10 resources units, where would you allocate the needs for conserving wetlands?” Each participant checked off 10 resource units within areas they thought were most important under categories including: information, political will, instruments, and other. On the form in Appendix 3, participants were encouraged to elaborate with comments regarding each category in the space “swamp bubble” provided. Refer to Appendix 3 for a sample.

This activity was designed to help agencies determine where to allocate time and resources towards wetland conservation based on the following options: Information (mapping, statistics and trends); Political will (valuation of services, staff, engaged council, public- local champions, and public awareness); Instruments (regulatory tools, voluntary tools, policy); and Other.

Based on the 29 completed forms, mapping (20%) was ranked as the highest priority at among this group, followed by public awareness (13%) and engaged council and staff (both 12%).

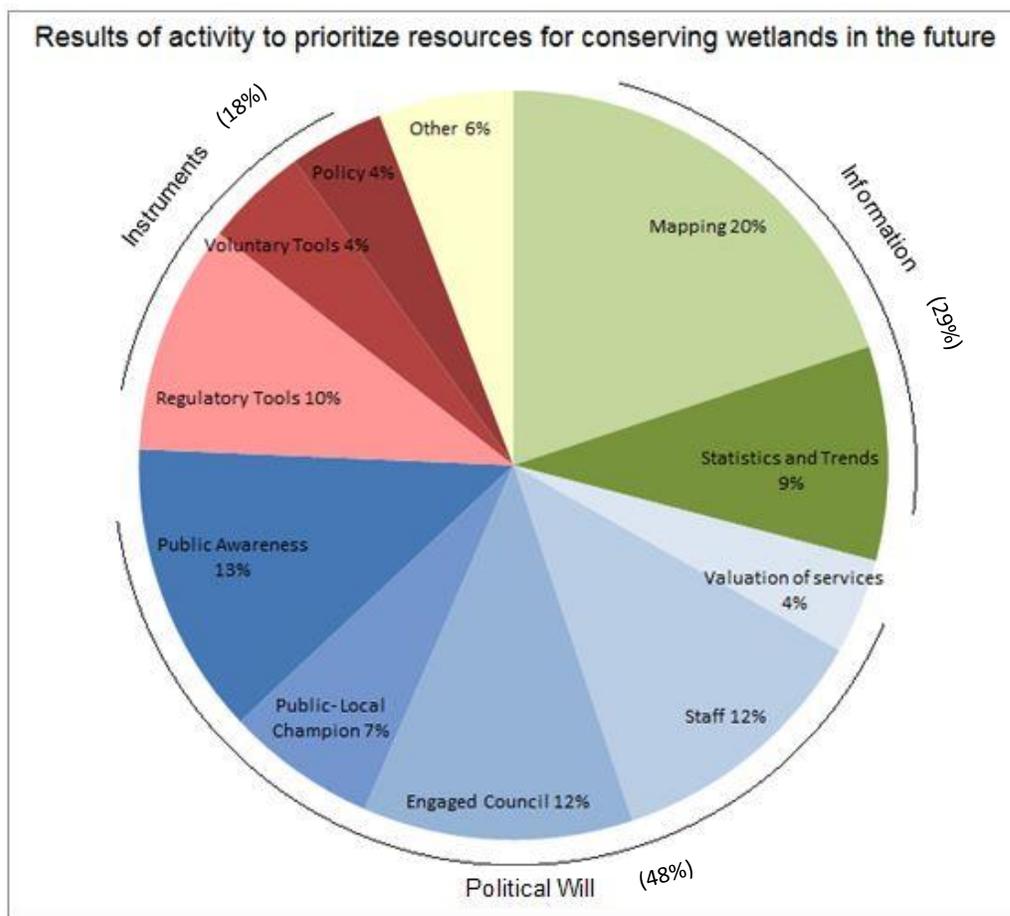


Figure 2. Results of activity to prioritize resources for conserving wetlands in the future. n=29

Summary of Breakout Activity

In the afternoon, the breakout activity allowed participants to learn more about a certain topic and had to opportunity to ask the presenters questions. Participants divided themselves into the following groups: 1) stormwater wetlands, 2) funding opportunities, and 3) barriers and opportunities. Notes were taken on flip chart paper. The transcription of the flip chart papers can be found in Appendix 4.

Stormwater Wetlands-

- Designing effective stormwater ponds pose different challenges depending on who is designing them. Planners and city workers deal with regulations that are out of date, do not vary per area of stream (ex: regulations for headwater and non-headwater are the same), and are set at 2-year, pre-development storm rates. Rates should a) be for larger storms and b) be set for post development (pre-and-post-development permeability is very different, even though the regulations argue they are not). Biologists are often brought in after much of the planning is already completed when they should be on site during the entire process. Biologists also face challenges following the regulations because they differ depending on what region they are in. (ex. in one city, you are able to attach a stormwater pond to and existing waterbody, in another you would not be able to). This discussion also looked at the [Colwood RFP](#) as a good example.

National Wetland Conservation Fund

- This group was given the opportunity to ask Ivy Whitehorne questions on the National Wetland Conservation Fund. Examples of large projects currently being funded is a dyke breach project at Cowichan Estuary and restoring Squamish Estuary due to historic industrial impacts. Applications for the next round of funding will likely be September or October so there is still a lot of time to plan proposals. The federal government's perspective to prioritize projects is based on regions and small projects with amphibians or estuary projects. There is opportunity for \$500,000 per project/year but must match \$ for \$ (can be in-kind and no other federal \$). Some regions do not use all their funding so it's possible BC could get more \$. The fund can also pay for planning based projects for multi-year projects. Group asked about Mill Road dyke in Parksville Estuary, there is some support but risk and liability would need to be considered.

Barriers and Opportunities

- Some barriers first identified included:
 1. Lack of mid to long term enforcement and monitoring of development projects.
 2. Available incentives are not sufficient to landowners.
 3. Municipalities should account for wetlands as an asset and plan to conserve them at a watershed scale, this currently does not occur.
- An incentive first discussed included: A water tax incentive that offsets the farm tax. Incentives could be an opportunity to remove disincentives of restoring non-productive agricultural lands back to wetlands. A conditional tax would be most appropriate.

- The development of a PES (payment ecosystem services) system was proposed as an opportunity to overcome lack of incentive from private landowners, as financial support would be transferred from beneficiaries to the agent who retains the wetland on their property. Accountants should be at the table to explore how municipalities and regions could include wetlands (and other ecosystem assets) into their accounting structure. Developers and insurance companies could also provide information to develop the value and appropriate business plan.
- The final discussion revolved around the issue that many small communities can't afford a QEP to review development proposals and help develop green bylaws. The project proponents provide their own QEP which is a conflict of interest. CRD and Parksville could use an ecological planner/support person. Another model proposed was to enable a stewardship organization an opportunity to review projects and recommend actions required by the proponent's QEP and the proponent to satisfy environmental concerns (a model exists in the Fraser Valley with the Fraser Valley Conservancy).

Summary of Emerging Themes/Opportunities/Gaps

As you can imagine, with 50 people in the room, a lot of dialogue occurred throughout the day. We tried to synthesize the key themes/opportunities/gaps that were identified by the participants that should be pursued to further wetland conservation in the Lower Mainland. To accomplish this, we sifted through some of the survey questions we asked the participants throughout the day. We found that learning about regulations and policy was important to participants as well as learning more information about wetland conservation. After reviewing the evaluations at the end of the day, a lot of people benefited from the opportunity to network and connect with others to collaborate on future wetland projects.

Below are the associated questions we based the above assessment on.

- a) "What are your main goals of attending today's workshop?" (Pre-questionnaire)
- | | |
|---------------------------------------|-----|
| Learn about regulations and policy | 19% |
| Learn more information about wetlands | 19% |
| Networking opportunities | 13% |
- b) "If you have 10 resource unites, where would you allocate the needs for conserving wetlands?" (Appendix 3 and page 10)
- | | |
|------------------|-----|
| Mapping | 20% |
| Public awareness | 13% |
| Engaged council | 12% |
| Staff | 12% |

Outcomes of Workshop

The World Wetland Days Workshop had a lot of positive feedback from the workshop and based on the evaluations at the end of the day, 91% (n=11) of the participants plan to take action on what they learned. Overall, this workshop was successful in accomplishing the main outcomes which were:

1. **Networking and collaboration:** Prior to the workshop, many participants noted that networking was one of their goals of attending the workshop. In the post-questionnaire (Appendix 6), 85% (n=13) said that they networked. One participant said “networking was a really important part of this event for me [and] good connections were made.” While another participant said that networking helped “exchange innovative design ideas and solutions to regulatory barriers.”
2. **Knowledge exchange:** In the pre-questionnaire, many participants said they wanted to learn more information about wetlands. By the end of the day, the post-questionnaire highlighted that 77% (n=13) gained insight into barriers and opportunities for wetland protection/conservation. One participant said that this workshop was “helpful in reminding me of the value of wetlands and will make an effort to implement”. There was positive feedback about the presentations that sparked some ideas.

Next workshop:

- Continue to include planners, engineers, and municipal staff. Seek to also involve council, board members, and senior staff.
- Speak about working together with municipalities and NGOs and a successful group story
- Other suggestions were to review current wetland conservation practices, have a panel discussion or debate, and explore ways to support smaller communities.
- Longer session with Jim Dumont and Elke Wind on stormwater design
- Take municipal staff to wetland sites as part of workshop and to reinforce presentations
- Rolling out the second edition of Green Bylaws Toolkit with Deborah Curran, including the use of webinars

Appendix 1- Agenda

Target audience: Municipal and regional staff/stakeholders on Eastern Vancouver Island

Date: Thursday, January 29th, 2015

Time: 9:00 am to 3:30 pm

Location: Beban Park Social Centre (Lounge C), 2300 Bowen Rd, Nanaimo BC. V9T3K7

Rationale: Wetlands can provide a number of benefits to society, including: flood control, water treatment, and carbon storage. In addition, approximately 50% of wildlife species require wetlands for part of their lifecycle, and 35% of all rare threatened or endangered species rely on wetland habitat (Wetland Stewardship Partnership, 2010). Despite their importance, wetlands on East Vancouver Island have been lost and degraded from dams, agriculture, urban development and other impacts. Unfortunately, they are still threatened as approximately 2% of natural wetlands were lost between 1995 and 2005 on East Vancouver Island (AXYS Environmental Consulting, 2005).

This workshop will explore relevant themes and issues to help build capacity on how we can protect and conserve wetlands and work towards healthier watersheds. The following speakers and topics were selected based on communications with key municipal and regional staff and lead conservation groups who are working on Vancouver Island.

Agenda:

9:00 – 9:15 Sign in – Coffee/Muffins

9:15 – 9:30	Neil Fletcher Wetland coordinator & chair of the Wetlands Stewardship Partnership, BC Wildlife Federation	Introduction and overview of the workshop
9:30 - 9:45	Peter Law Director, Partnership for water sustainability in BC	Partnership: Overview of the initiative on Convening for Action on Vancouver Island (CAVI) for water sustainability.
9:45 – 10:30	Deborah Curran UVic Hakai Professor in Environmental Law and Sustainability & Program Director, Environmental Law Centre	Laws and policy: Municipal and regional tools and requirements for protecting wetlands. This topic will also provide an overview of new content from the 2 nd edition of the Green by-laws toolkit.
10:30 – 10:45	<i>Break</i>	
10:45 – 11:30	Laura Brophy Wetland scientist, Institute for Applied Ecology	Wetland prioritization: Prioritization of wetland restoration opportunities. Laura will present the Oregon method for prioritizing which wetlands to restore and protect, given limited resources. She will describe how to

		get the information needed for the prioritization, and case studies of how the results are used.
11:30 – 12:15	Jim Dumont Senior Water Infrastructure Engineer	Stormwater pond and management: Stormwater management and wetlands. The presentation will cover principals of integrating stormwater ponds, considerations for design, maintenance, and landscape level planning.
12:15 – 1:00	<i>Lunch</i>	
1:00 – 1:30	Elke Wind Biologist, E Wind Consulting	Stormwater pond and amphibians: If you build it, they will come. Intentional or unintentional attraction of amphibians and best management practices.
1:30 – 1:50	Ivy Whitehorne Coordinator of National Conservation Fund, Canadian Wildlife Service	The National Wetland Conservation Fund and opportunities to access \$50million over 5 years.
1:50 – 2:00	<i>Break</i>	
2:00 – 3:15	Targeted discussion	Overview of the projects planners are working on. Explore the barriers to wetland conservation and restoration in their communities. Strategies to address these barriers.
3:15 – 3:30	Final thoughts and workshop evaluation	

This workshop would not be possible without the generous financial support of the following contributors:



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Appendix 2- List of Attendees

<u>Name</u>	<u>Organization/job title</u>
Robin Annschild	AAO Ecological Services, Wetland Restoration Consultant
Tyler Palov	Alianza por el Agua (Water Alliance), Water Resources Manager
Lynne Brookes	Arrowsmith Naturalists, President
Patrick Lucey	Aqua-Tex Scientific Consulting Ltd, Sr. Aquatic Ecologist
Tracy Motyer	Aqua-Tex Scientific Consulting Ltd, Environmental Technician
Sydney Bryce	Aqua-Tex Scientific Consulting Ltd, Intern
Sarah Karkanis	Aqua-Tex Scientific Consulting Ltd, Watershed assessment coordinator
Ryan McKay	Aqua-Tex Scientific Consulting Ltd, Intern
John Finnie	CAVI, Past president
Christopher Stephens	Christopher M. Stephens Consulting & Writing Services, Consultant
Jon Isfeld	City of Campbell River, Roads and Drainage Supervisor
Nancy Hofer	City of Courtenay, Environmental Planner
Rob Lawrance	City of Nanaimo, Environmental Planner
Dean Robinson	City of Nanaimo, General foreman
Scott Newland	City of Nanaimo, Drainage subforeman
Steve Ricketts	City of Nanaimo, Manager of Construction
Michael Strain	City of Nanaimo, Project Manager
Doris Fournier	City of Nanaimo, Municipal Infrastructure Engineer
Kevin Brydges	City of Nanaimo, Environmental Bylaw Enforcement Officer
Gary Noble	City of Nanaimo, Development Approvals Planner
Rosa Telegus	City of Parksville, Development Engineer
William Neufeld	City of Parksville, Formerly a City Councillor
Robyn Holme	Comox Valley Regional District, Long range planner
Kai Rietzel	Cowichan Land Trust, Executive Director
Meghan Loop	Cowichan Land Trust, Project Coordinator
Keith Lawrence	Cowichan Valley Regional District, Senior Environmental Analyst
Keilih Gates	CRD Parks, Parks Interpreter
Ian Moul	Foul Bay Ecological Research, RPBio
Kristina Tkachuk	Friends of Whiskey Creek Wetlands, President
Todd Carnahan	Habitat Acquisition Trust, Land care coordinator
Shari Willmott	Island GIS Services, Biologist/GIS Tech
Ken Epps	Island Timberlands, Strategic Planning Forester
Barry Gates	Malahat Ecoforest Consultants Ltd, Director
Maggie Henigman	Min of Forests Lands and Natural, Sr Ecosystems Biologist Resources
Brigid Reynolds	Municipality of North Cowichan, Senior Planner
Katy Fulton	Nature Conservancy of Canada, Stewardship Coordinator- West Coast
Larry Barr	Province of BC, Director of Resource Management.
Julie Pisani	Regional District of Nanaimo, Drinking Water and Watershed Protection Program
Alec McPherson	Regional District of Nanaimo, Director
Elizabeth Bailey	Somenos Marsh Wildlife Society, Program Coordinator
Linda Brooymans	Vancouver Island University, Research Coordinator
Nicole Vagle	Westbrook Consulting Ltd., Engineer-In-Training

Appendix 3- Resource Allocation Activity: Swamp Bubble Summary

Participant	INFORMATION		POLITICAL WILL					INSTRUMENTS			OTHER
	Mapping	Statistics & Trends	Valuation of services	Staff	Engaged Council	Local Champion	Public Awareness	Regulatory Tools	Voluntary Tools	Policy	Other
1	1	1	1	1	2	1	1	1	2		
2		1		3	3		3				
3	4			3			3				
4	3	3		3			1				
5	1			1	1	1	3	1	1	1	
6	1	1			2	2	1	1	1	1	
7				1	4	2		3			
8							5			4	
9	2		3	1					3		
10	3	1	1	1	1		2	1			
11	2	2		1	1	1	1	1		1	
12	1	2	2		2	1	2				
13	4	1					1		3	1	
14	2	2	2		1	1	1	1	1		
15				4	3			3			
16	1	1		2	1		2	2		1	
17	2		1	1	3						3
18	6	1					1	2			
19					3		2	2	1	1	1
20	2	2			1		1				5
21	5		2				1	2			
22	4	2			1	1	1	1			
23	2	1		1	1		2	2	1		
24				3	3	3		1			
25				2		3					5
26	5			2							3
27	2	1		1	1			4		1	
28	2	2		1		2	2	1		1	
29	3	3		2		1	1				
Total	58	27	12	34	34	19	37	29	13	12	17
	20%	9%	4%	12%	12%	7%	13%	10%	4%	4%	6%

OTHER

- 17 (Positive financial incentives to retain/restore wetlands. Tax breaks, compensation for land, 'leasing land' from owners for wetlands)
- 19 (Better legal interpretations)
- 20 4 (research) AND 1 (funding)
- 25 2(Provincial support. Province is not helping local government especially MOTI) AND 3(Funding. Securing lands not subject to development is a challenge. Landowners need financial incentives)
- 26 (Practical methods to undertake projects or encourage land owners to take on conservation ->maybe this is voluntary tools???! Practical tools to meet conservation goals that are effective and not overly onerous on landowners)

Appendix 4- Breakout Session

Stormwater Wetlands

Challenges for planners/city workers:

- Regulations are out of date
- Regulations do not vary per area of stream (ex: regulations for headwater and non-headwater are the same)
- Regulations are set at 2-year, pre-development storm rates. Rates should a) be for larger storms and b) be set for post development (pre-and-post-development permeability is very different, even though the regulations argue they are not)

Challenges for biologists:

- Often, Biologists are brought in after much planning is already completed
- Biologists need to be on site during entire process as many workers don't know what is obvious to biologists
- Regulations differ depending on what region you are in. (ex. in one city, you are able to attach a stormwater pond to an existing waterbody, in another you would not be able to)

Other Notes:

- Look to the Colwood RFP for good example. [Possibly this one?](#)

National Wetland Conservation Fund

- What kind of big projects are currently being funded?
 - o Estuary (Cowichan) dyke breach
 - o Squamish industrial site
- Lots of time to plan this round. Applications sept/oct
- Mill Road dyke owned by nature trust. Parksville Estuary. Some support. Risk and liability issue.
- What is the federal gov's perspective to prioritize projects?
 - o Some regions don't use all the funding so possible more \$ for BC
 - o Small projects with amphibians and estuaries.
- Up to \$500,000 per project/year but must match (can be in-kind). Be clear on the application and no other federal \$
- Can pay for planning based projects for multi-year projects
- Why is mapping so hard to fund?
 - o Possible in priority regions
 - o National level, not regional. Different data sets.

Barriers and Opportunities

Barriers:

1. Post construction monitoring not happening
 - Bottom line (\$/land). No political will/economic incentive. Reverse incentive.
2. Local gov don't have enabling mechanism (except SSI)
 - Property tax relief not big incentive
 - Municipalities afraid to lose tax base
3. Wetlands viewed as encumbrment to property owner
 - Ignores downstream benefits
4. Municipalities don't account for watershed/ecosystem assets/services
 - Need to change perspective
5. Watershed approach to add value to wetlands
 - Habitat mitigation
6. Water tax status which is the same as farm tax status could help with current disincentives on agricultural land to protect wetlands.
 - Must be lease, not one time purchase so that ecological benefits are retained over time (eg. Shell fisheries leasing ecosystem services)

PES (Payment for ecosystem services)

- Can we afford it? → Needs to connect with watershed level benefits and services
- Accountants should be at table
 - o Ask to discuss how wetlands (and other ecosystems assets) can be brought into the municipal/ regional sheet
 - o Frameworks exist (eg. work in Australia)
 - o Full lifecycle costs accounting
 - o Developers and insurance companies (Katrina etc) should be around the table.

Small communities

- Need ecological planner that is shared among municipalities (eg SOSCP, SCCP)
- Need identified by CRD, Parksville (ROSA)
 - o Currently only depend on developers QEP
 - o Huge failing
 - o Need checks and balances
 - o FVC- Public receives information for clearing house (can view application and recommend actions)
 - o RAR reports are not public
 - o Need municipal ecologists
 - o Mt. Waddington, Port Hardy, Port McNeil share a QEP
 - o Most municipalities are reactive to proposals instead of proactive
 - o Section 921D- RAR right local

Appendix 5- Post Questionnaire

- 1) Did you gain insight into barriers and opportunities for advancing wetland conservation in our municipal/ regional jurisdiction? Please explain

Total= yes: 10 no: 2 unclear: 1

- a) Each of the prime speakers Deborah Curran, Laura Brophy, Jim Dumont were excellent
- b) Yes, the challenge of adopting by-laws/expropriation regulations to change land use is not watershed or systematic based.
- c) Helpful in reminding me of the value of wetlands. Will make an effort to implement
- d) Yes, interesting to learn how far we still have to go to address, protect and ameliorate wetlands. The need to do so and all the reasons why nearly the same as I learned 45 years ago.
- e) .
- f) Tried my best to highlight some of the barriers and opportunities I deal with in my job as ecosystem bto.
- g) Yes, Deborah made several good points
- h) Not enough of the players here with me (need senior staff, engineering/ops staff)
- i) Good insight into how various BC local gov'ts are integrating wetland conservation into policy
- j) Not as much as some because I'm not working on that level of planning in my position.
- k) Yes, it was great to see so many participants and hear from different jurisdictions.
- l) Yes, understanding how to implement and enforce. Basis of what is causing barriers
- m) I learnt about the projects going on in other regions of the island and how the design process is being approached.

- 2) How has this session helped in your watershed/wetland conservation planning? Do you plan to take action on what you learned today? If yes, please explain.

Total= yes: 10 no: 0 unclear: 1

- a) Will work with other networks and groups
- b) Yes to seek to implement the water balance wetland to model urban rain water management at a watershed scale.
- c) Ditch in at will be piped will try and get it enhanced instead
- d) Resources and contacts made were very helpful. I plan to bring the information and handouts to groups that I belong to.
- e) I really appreciated the presentation by Elke → making sure you address what functional habitat that wetland is performing or providing. The overview of the Water Sustainability Act was useful.
- f) Great info on legal mechanisms and amphibians!
- g) Yes, mainly in regard to what Elke recommended to promote amphibian use
- h) Made it more a priority in my mind. Thinking of ways to advocate for a few wetland needs in my jurisdiction will make effort to debrief with others upon my return
- i) Looking into federal funding. Design ideas for treatment wetlands
- j) Yes, wetlands design for amphibians and stormwater treatment. Currently working on stormwater wetland project, will integrate info
- k) It gave me some good ideas- especially Deborah Curran and Laura Brophy's presentation

- l) The importance of connections though mapping
- m) It was very helpful to hear the important characteristics from other stakeholders. Designing wetlands must be a group project.

3) Did you network with others whom you expect to collaborate with in the future? If yes, please explain

Total= yes: 11 no: 0 unclear: 2

- a) Yes, met many people who were very helpful
- b) Yes, Jim Dumont
- c) Yes, very much so
- d) Yes, both with members of my areas community with whom I've had little contact and with participants that may be helpful contacts.
- e) It was good to re-connect with the attendees at the wetland institute and meet more island people involved.
- f) Yes, Deborah Currans and planners
- g) .
- h) Range of contacts made. Always good!
- i) Exchanging innovative design ideas, solutions to regulatory barriers.
- j) Yes, networking was a really important part of this event for me. Good connections made.
- k) Yes
- l) Yes
- m) .

4) Are you willing to provide updates on your progress to BC Wildlife Federation?

- a) Not appropriate
- b) Yes if you wish
- c) Yes
- d) Yes, for 40 years individuals and organizations have been trying to secure and preserve a 260 ha wetlands, Hamilton Marsh (RDN area F and G) just outside of Qualicum Beach, VI. A new logging effort is being made and there is a concern and action to try and address this issue.
- e) Yes
- f) ?
- g) .
- h) Yes
- i) Yes, we usually keep in touch with BCWF
- j) Yes
- k) Yes
- l) ?
- m) .

5) What could be added or deleted from this workshop? If you were to attend another workshop for conserving wetlands, what training/speakers/resources would you like?

- a) (spelling) discussion (spelling) feels was (spelling) (spelling) (spelling) and not equipped

- b) The absence of developers, bankers, insurance folks and the economic valuation for why the regeneration of wetlands is socially valuable. The role that wetlands, as aquatic habitats play in the global carbon balance model.
 - c) Sediment control. More oriented to a small municipality where wetlands have been significantly impacted.
 - d) Someone to speak about forming/working with partners to protect and restore wetland habitat. A successful group story and perhaps one faced with blockage.
 - e) I would have liked a review of current wetland conservation practices.
 - f) Have to think about it.... How to move the conversation to changing our economic/social models to putting real value on ecosystem services.
 - g) Oregon research
 - h) Nice mix of skills/perspectives. Wouldn't cut anything (make longer!) More practical case studies are great. Make more engineering specific so I can entice my eng dept.
 - i) Panel discussion/debate between experts over challenging and hot button issues.
 - j) More focus on NGO's and munis etc. Working together would be good.
 - k) It could have been good to have a breakout session earlier in the day, I got a bit sleepy in the room.
 - l) Invite more people who have an effect on the economic side
 - m) .
- 6) Is there anything else about the workshop you would like to know?
- a) The (spelling) of this type of workshop is that if you obtained 3 kernels of knowledge, then it was worthwhile. In this case, it worked.
 - b) No, another fine day. Appreciate the effort. BCWF takes to keep that value of wetlands and riparian landscape features at the core of a social conversation.
 - c) .
 - d) Good registration process. Move of venue caused a problem (for me) I was not aware of the change and went downtown. Friendly competent staff at conference. Good variety of topics.
 - e) .
 - f) Need more involvement by planners, council, board members
 - g) Thanks for coming to the island. Management tips for wetlands most helpful. Looking for more tips on dealing with invasives.
 - h) .
 - i) Check computers and logistics before start. Troubleshooting computers is distracting.
 - j) Good job and thank you!
 - k) I really enjoyed Laura Brophy's presentation- though it was slightly hard to hear and the slides were hard to see! I didn't know about CAVI- great to hear Peter Law on this, and the resources provided in the folder will be really useful.
 - l) .
 - m) .