



Wetland Workshop for Municipalities

Tuesday November 19th, 2013

Report



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Wetland Workshop for Municipalities

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Purpose of Workshop

The Wetland Workshop for Municipalities targeted municipal and regional staff in Metro Vancouver to strengthen the region's capacity to secure wetlands as green infrastructure for the benefit of ecological and human health. Working from watersheds and focusing down to sites, this one-day workshop explored ways to integrate wetland conservation through a variety of tools from policies to design considerations for built-infrastructure. With 17 participants representing 7 municipalities and districts, participants explored challenges and opportunities facing wetlands. The expansive local, municipal and regional knowledge and expertise shared through this workshop will help advance the future of wetland conservation in the region.

This workshop builds upon and supports a number of other workshops and initiatives that relate to wetland conservation in the region, including:

Workshops

- 1 - Wetland Workshop for Planners, BC Wildlife Federation - July 2012
- 2 - Wetland Leadership Workshop, David Suzuki Foundation - June 2012
- 3 - Local Government and Species and Ecosystems at Risk (4 workshops in Lower Mainland's Regional Districts), South Coast Conservation Program - Fall 2013

Initiatives

- 1 - Wetlands Declaration developed by South Coast Conservation Program, David Suzuki Foundation, Ducks Unlimited, World Wildlife Fund, and BC Wildlife Federation - released May 2013: Goal to strengthen information to decision makers
(<http://www.davidsuzuki.org/publications/downloads/wetlandsdeclaration.pdf>)
- 2 - Wetlands Action Plan for BC, 2010. Local government and regional coordination
(http://bcwetlands.ca/wp-content/uploads/BCWetlandActionPlan_WSP_2010.pdf)
- 3 - Lower Mainland Health Action Plan 2012: Protect all wetlands by 2021
(http://www.metrovancouver.org/about/publications/Publications/ActionPlan_2012March.pdf)
- 4 - Regional Green Infrastructure Network (RGIN) Initiative of Metro Vancouver
- 5 - Integrated Liquid Waste Management Plan (ILWMP) initiative of Metro Vancouver

Wetland Workshop for Municipalities

Schedule of Workshop

Tuesday November 19th, 2013



A workshop targeting key agencies involved in wetland conservation.

Get connected with a variety of tools from policy to built-infrastructure, exploring challenges and opportunities facing future wetland conservation.

8:45 - 9:00	Sign-in	
9:00 - 9:20	Neil Fletcher BC Wildlife Federation	Introduction and overview of the workshop
9:20 - 9:50	Pamela Zevit South Coast Conservation Program	Overview of regional tools to protect species and communities at risk including SARnet and SARitc
9:50 - 10:30	Kim Stephens The Partnership for Water Sustainability in BC	Wetland conservation through the lens of integrated stormwater management, Water Balance Model and how this translates to Metro Vancouver
10:30 - 10:40	Break	
10:40 - 11:20	Elke Wind E. Wind Consulting	Risks, benefits and design considerations of stormwater ponds and ditches for amphibian species and other wildlife
11:20 - 12:00	Robyn Worcester Stanley Park Ecology Society Alan Duncan City of Vancouver Chis Lee Aquaterra Katy Amon Lees + Associates	<i>Beaver Lake</i> restoration project visioning: discussion on the issues and controversy facing urban wetlands, including presentation of concept designs.
12:00 - 1:00	Lunch	Optional walk to the Beaver Lake
1:00 - 1:40	Deborah Carlson West Coast Environmental Law	Overview of municipal/regional policy & regulatory options, including Green Bylaws Toolkit and current work with green infrastructure, stormwater management and climate change
1:40 - 2:20	Targeted Discussion	Resource Prioritization Exercise
2:20 - 2:30	Break	
2:30 - 4:30	Targeted Discussion	Opportunities for strategic direction



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Presentation Summary

Introduction and overview of the workshop

Neil Fletcher - BC Wildlife Federation Wetland Education Coordinator, Chair of Wetland Stewardship Partnership

The BC Wildlife Federation's Wetlands Education Program aims to foster wetland conservation through education and stewardship. The presentation provided an overview of initiatives in the Lower Mainland and set the context for the workshop.

Key points of the presentation included:

- Wetlands are biologically diverse, productive habitat types with high habitat values. They provide economic, cultural, recreational and ecological ecosystem services. Despite their high value, wetlands have historically and are currently being lost and degraded due to a number of different causes (e.g. development, invasive species, climate change).
- British Columbians are working together to conserve wetlands.
- The Wetland Stewardship Partnership (WSP) is a multi-agency group dedicated to the conservation of wetlands and other sensitive ecosystems in British Columbia. They provide tools and support to ensure BC conserves and restores wetlands and watersheds for present and future generations. Resources including Primer for Local Government, Interim Guidelines for Wetland Protection and Conservation and Green Bylaws Toolkit are available at: bcwetlands.ca/tools/
- Municipalities need to shift from reacting at site specific matters towards comprehensive planning. Regional initiatives that support wetland conservation in the Lower Mainland include the Ecological Health Action Plan 2012, Wetlands Declaration, and Regional Green Infrastructure Network. Instead of planning development around service infrastructure, sustainable communities are those which plan with and incorporate green infrastructure of natural areas.
- If local governments do not have a lot of money, they should consider partnering with non-profits who can access new funding streams and provide additional support for achieving wetland conservation objectives.

Link to Presentation: http://bcwfbogblog.com/?attachment_id=6254

The South Coast Conservation Program - Overview of Regional Tools to Protect Species and Communities

Pamela Zevit - South Coast Conservation Program

The South Coast Conservation Program (SCCP) is a multi partner conservation program established in 2005 to help facilitate projects and activities to restore and protect species and ecological communities at risk. The SCCP works at a landscape ('ego-regional') level across the South Coast of BC.

Key points of the presentation included:

- Of the species provincially listed as threatened/endangered in the South Coast, less than 25% were federally listed as species at risk. Habitat loss is a primary threat to species, especially the loss of wetlands which support a high diversity of wildlife and plant species.
- SCCP started the Landholder Contact Program in 2012 to protect critical habitat for the Pacific Water Shrew and other associated Species at Risk (SAR) in the Lower Mainland and Fraser Valley
- Diversity by Design is a guide for those engaging in any type of habitat restoration or management activity on BC's South Coast to effectively plan their project considering the habitat needs and potential for impacts to species and ecological communities at risk.
- SARnet (Species at Risk Network) is a data hub designed to provide up-to-date information and improve communication and collaboration between researchers, practitioners and the public around species at risk conservation for the South Coast of BC. Users can search the database using various search terms and receive records. Potential contributors are encouraged to add SARnet records so that all users can know what work is occurring or has occurred for a particular species: <http://www.sccp.ca/search-sarnet>
- Species & Ecosystems at Risk and Local Governments Working Group (SEAR LGWG) prepared a discussion in January 2011 to bring together local government interests to overcome barriers and challenges to integrating SEAR conservation into day-to-day land use decision making. (<http://www.env.gov.bc.ca/wld/documents/SAR%20Paper%20January%202011%20FINAL.pdf>).
- SCCP hosted 4 regional workshops on SEAR. Report scheduled for Spring 2014. Further information can be found at: <http://sccp.ca/projects/species-risk-local-governments-south-coast-pilot>
- Additional programs include SARitc (Species at Risk in the classroom) and the Coastal Sand summer celebration (focuses on ecological communities instead of just species).
- Gaps in legal protection and policy between federal and provincial government puts ecological communities at risk.
- SCCP aims to foster a strong stewardship culture around endangered species and spaces to maintain long-term, effective conservation efforts.

Link to Presentation: http://bcwfbogblog.com/?attachment_id=6252

Wetland Conservation in a Watershed Health Context: Watershed Blueprints Will Help Municipalities Integrate & Better Deliver on Regulatory Compliance

Kim Stephens - The Partnership for Water Sustainability in BC

The Partnership for Water Sustainability focuses on encouraging communities in BC to develop green infrastructure for watershed and community health. In his presentation, Stephens advocated that municipalities need to “Design with Nature” by mimicking the water balance when land is developed to improve watershed health.

Key points of the presentation included:

- With the release of *Stormwater Planning: A Guidebook for British Columbia* in 2002, the Province of British Columbia actively promoted the Water Balance Methodology - a performance target approach to capture rain where it falls and initiate changes in the ways rainwater runoff is returned to streams. An inter-governmental partnership developed the Water Balance Model in 2003 as an extension to the Guidebook as a scenario comparison and decision support tool. They launched the scenario comparison at the Annual UBCM Convention in September 2003.
 - In May 2010, the Board of Metro Vancouver adopted the Integrated Liquid Waste and Resource Management (ILWRM): A Liquid Waste Management Plan (<http://www.metrovancouver.org/services/wastewater/resources/Pages/default.aspx>) which includes action-oriented language (i.e. wills instead of shoulds) regarding a movement towards a water balance methodology. The Plan complements other regulatory requirements that provide a driver for local governments to protect/restore watersheds (e.g., Riparian Area Regulations). A functioning plan includes a watershed vision to reduce the ‘water footprint’ by creating a watershed blueprint (i.e. mind-map to achieve the vision). Stephens argued that the majority of rainfall events are light showers (approx 75%) which can be managed differently than with impermeable surfaces and pipes.
- The status quo of stormwater management leads to extremes in water quantity and flow, whereby too much water causes liabilities downstream (i.e. increased erosion and flooding) and too little water negatively impacts fish and wildlife habitat.
- “Why would you take on another debt?” Municipalities are burdened with financial liability and sustainability consequences from 20 years ago, now having trouble maintaining stormwater and sewer infrastructure originally installed.
 - The Partnership for Water Sustainability in BC’s mission is to build a collaborative model with local government and communities. Inter-regional collaboration helps facilitate designing with nature, implementing green infrastructure and mimicking the water balance. It also helps local governments reduce risk, restore stream/watershed health and comply with regulatory objectives. They aim to deliver the Water Sustainability Action Plan through networking & outreach; education & training; capacity building and products & tools.
 - “Every municipality in Metro Van has to manage the raindrops that fall on it”
 - Apply the “Retain, detain, convey” strategy for managing water.
 - How will you turn cumulative impacts into cumulative benefits?

Wetland Conservation in a Watershed Health Context con't

Case Studies: for good examples of integrated stormwater management refer to: Bowker Creek, City of Surrey, District of North Vancouver (Hastings Creek blueprint), City of Coquitlam.

- Instead of worrying about cumulative impacts, Kim advocates for the culmination of positive change through community-scale development activities and projects that enhance green infrastructure within the built environment

Q&A Period

Q: Does the Water Balance Model have surficial geology layers at local level for better modeling?

A: No, but North Vancouver has Geo Web System.

Q: Is there specific info for a site?

A: Have to start with basics in all municipalities, North Vancouver can go by property.

Link to Presentation: http://bcwfbogblog.com/?attachment_id=6253

Stormwater Management Considerations for Aquatic Species:

Risks, benefits, and design considerations for stormwater ponds and ditches for wildlife

Elke Wind - E. Wind Consulting

Elke Wind revealed methods to consider other animal species in urban design, focusing on amphibians and stormwater ponds.

Key points of the presentation included:

- Globally, 32% of amphibian species are threatened with extinction (Stuart et al. 2004). They are particularly vulnerable due to their semi-permeable skin, need for aquatic and terrestrial habitat, low vagility (do not move very far) and high philopatry (faithful to sites). These specific conditions make them particularly good indicators of wetland health and habitat value.
- Amphibians are attracted to any area where water is collecting. The variety of artificial water features in the developed environment can endanger amphibians by becoming death traps. Stormwater ponds typically contain contaminants & non-native species, and are surrounded by impervious surface area, rendering the aquatic and terrestrial habitat inadequate for amphibians.
- According to the BC Wildlife Act, you cannot knowingly kill any wildlife in BC, therefore if any amphibians are in the water body you plan on contaminating/destroying you are required to do a salvage according to the Provincial Salvage Best Management Protocols. Critical life stages of amphibians occur in water between March and August, therefore if pond maintenance timing is not flexible than salvage operations are necessary. Other aquatic species such as turtles could require salvage operations year round.
- Erosion of sediments can clog gills, affects nutrient uptake and lowers oxygen levels. Chronic and acute erosion contributes to the degradation of water quality. Bioengineering through 'natural' approaches using vegetation to reduce erosion provides improved habitat as opposed to rip rap (which limits new vegetation growth).
- Other water contamination sources include chemical insecticides and herbicides, which cause direct mortality and malformations in amphibians and other species. If stormwater ponds and other aquatic features are designed properly, we can reduce need of insecticides by creating healthy functioning wetlands which naturally control mosquito populations due to the increase of predators such as predatory invertebrates, insectivorous birds and amphibians. Using biocontrol, manual brushing, and increasing education can help reduce harmful herbicide use to control invasive plant species and other weeds.
- If required, then exclusion techniques can be employed to prevent non-natives or all amphibians from accessing a site (e.g. poor water quality). Fencing is a common exclusion method, but it requires annual maintenance and some species can still climb over. Designing quick draining ponds such as raingardens is another method to exclude amphibians from accessing contaminated water features. Non-permanent water bodies that dry after July 30th, either from controlled or natural systems, is an effective exclusion technique for evicting non-native species such as bullfrogs (that require year-round water for their lifecycle), while encouraging most native amphibian species to successfully breed at sites.
- Incorporation of habitat features is important to improve habitat quality for native species if this is an objective of the site. Sites should mimic natural habitat as much as possible (do not over engineer). Elke suggests thinking like an amphibian in how it would move through the landscape (i.e. avoiding predators, satisfying it's resource needs). Shallow water, along south-facing areas with minimal groundcover for egg laying in the sun and maintaining sufficient riparian vegetation connection to upland habitat are two design components that encourage amphibian populations. If possible, it is better to create biologically informed riparian buffers and

Stormwater Management Considerations for Aquatic Species con't

corridors rather than a strip of wind-prone trees around the water. Other design consideration include limiting woody debris and native vegetation <10%. Avoiding steep sides and overuse of riprap to ensure amphibians can transition between aquatic and terrestrial habitats.

- Build it and they will come: amphibians are attracted to water for egg laying, food, hydration, cover, and overwintering. Therefore, when creating a water feature make sure to consider amphibians and other species.
- The setback (15m to 30m) and buffer requirements from aquatic environments in BC to protect fish may not satisfy needs of other species. Wider buffers for amphibians and other wildlife species may be required. One study (Semlitsch and Bodie 2003, *Biological Criteria for Buffer Zones around Wetlands and Riparian Habitats for Amphibians and Reptiles*) recommends a broad range of buffers required for various wildlife species. Currently, BC regulations are likely not providing sufficient habitat setbacks for other species.
- Ultimately, the best way to protect native amphibian populations is through the conservation of natural wetland habitat, but exclusion and inclusion techniques are of key importance for artificial water features.

Case Study (Ostergaard et al 2008, *Amphibian Use of Stormwater Ponds in Puget Lowlands of Washington, USA*): Seattle stormwater and amphibian pond study found up to 6 species in stormwater ponds. Determined stormwater ponds are highly used by amphibians, therefore the quality of the habitat must be maintained otherwise exclusion techniques are recommended

Q&A Period

Q: What are the impacts to amphibians from oil and gas development.

A: Studies have been on fish to test containments, however amphibians are 1000 times more sensitive.

Q: Appropriate pH range?

A: Depends on species, but they are not as sensitive as you would think

Q: Are beavers good or bad?

A: Beavers created wetlands, with no beavers no new wetlands are being created

Beaver Lake Project Background and Enhancement Plan

Robyn Worcester - Stanley Park Ecology Society

Alan Duncan - City of Vancouver

Chris Lee - Aquaterra

Katy Amon - Lees + Associates

The team presented on the history and current issues of Beaver Lake, an urban wetland in the heart of Stanley Park. Four concept designs were presented, but potential options were not limited to these designs as other competing enhancement strategies were also presented.

Key points of the presentation included:

- As one of the few remaining urban wetlands in Vancouver, Beaver Lake has important ecological, cultural and recreational ecosystem services. Beaver Lake has undergone a series of human alterations, including the introduction of invasive fragrant water lilies. It is rapidly infilling due to sedimentation from logging & roads and accumulation of plant biomass. The lake is projected to disappear as soon as 2020.
- Under the 2011 Stanley Park Ecological Action Plan, the Vancouver Board of Parks and Recreation and the Stanley Park Ecology Society have concluded that doing nothing for Beaver Lake is not an acceptable option because of the loss of biodiversity and the aesthetic amenity. Therefore, a team of consultants are developing options for a public visioning process to ensure its long-term viability.
- The goal of the enhancement plan is to create a diverse and healthy ecosystem that provides passive recreation opportunities for the public, maximizes native biodiversity, respects cultural significance and requires minimal ongoing interventions to maintain its integrity.
- Four concepts were developed to help the public visualize and comment on possible options. Some of the key features guiding the designs include: increasing open water, including a habitat mosaic to support species at risk, improving stream health of creeks, preventing the spread of invasives/reintroducing extirpated species, minimizing maintenance, controlling beaver damming activity, supporting salmon species, etc. The public consultation process is currently underway to gain input from the wide variety of stakeholders. To provide input or learn more, please go to <http://vancouver.ca/parks-recreation-culture/beaver-lake-restoration.aspx>
- The partnership between the Stanley Park Ecological Society and City of Vancouver has offered a great case study of a non-profit providing the city with support for the park restoration by supplementing them with stewardship led activities and helping to garner public support for the public.

Q&A Period

Q: Would the dredging occur all at once?

A: Probably not. The consultants expect a phased approach, that is probably how funding would come in as well.

Q: Adding fish could decrease biodiversity. Are you going to use this as a case study and monitor after?

A: Yes there is an opportunity to monitor wildlife populations before and after the restoration project. Salmon are expected to stick to dredged area due to thermoclimate.

Link to Presentations: http://bcwfbogblog.com/?attachment_id=6251

http://bcwfbogblog.com/?attachment_id=6255

Legal Tools for Protecting Wetlands and Supporting Resilient Communities

Deborah Carlson - West Coast Environmental Law

West Coast Environmental Law's mission is to empower communities and citizens to protect the natural systems we all depend on with good law and policy. Carlson outlined tools at multiple scales to support a watershed approach for wetland protection.

Key points of the presentation included:

- For protection to be effective we should use a watershed approach, which considers the larger natural system that the wetland is part of. However, laws were created with the mindset of protecting private property rights and facilitating human occupation of land. Therefore, difficulties with the legal system arise beyond riparian setbacks for area connecting upstream terrestrial habitat with wetlands.
- There are several planning and regulatory tools operating at different scales (watershed down to site) available to promote wetland conservation. Land use planning can provide a framework for watershed planning through regional growth strategies, regional biodiversity strategies, official community plans (OCP) and urban containment boundaries. Local governments can use a holistic approach for wetlands in creating land use plans that manage the cumulative effects of development while protecting natural ecosystems within their boundaries. OCPs are a forward-looking approach that can provide a buffer against electoral cycles and help forecast a long-term watershed plan.
- Liquid Waste Management Plan focuses on infrastructure as opposed to land. Developed through a process of consultation for final approval by the Minister of the Environment, it establishes long-term integrated strategies for sewage, rainwater management and protection of natural watercourses.
- Neighbourhood scale tools include zoning for riparian setbacks and development servicing requirements and criteria. Tools at the site level include Development Permits (DPs), which protect watercourses but will only address upland issues that are covered in the DP Area (DPA). DPAs also increase costs/time for developers as they require staff expertise or Qualified Environmental Professionals (QEPs). A weakness in this process is that the developer is hiring the QEP so there is pressure on QEP to satisfy client's interest.
- Language in the Federal Fisheries Act was recently watered down from habitat protection for all fish species to protecting only species of economic importance, using wording such as prohibit 'serious harm' and the complete deletion of the term 'fish habitat'. The revised wording reduces the ability for legislation to effectively protect aquatic systems and fish (refer to article: Gutting Canada's Fisheries Act: No Fishery, No Fish Habitat Protection available at http://fisheries.org/docs/fisheries_magazine_archive/fisheries_current.pdf)
- Trying to incorporate climate change adaptation into planning and regulation by employing precautionary approach to 'leave a little room for nature'. WECL recommends addressing climate change adaptation and mitigation by involving all levels of government and incorporating considerations for climate change impacts among existing and future policies. Wetlands, in terms of ecosystem services to deal with climate change, can help provide flood protection (refer to Climate Change Adaptation Guide for more information: www.wcel.org/adaptation Direct link at: http://wcel.org/sites/default/files/WCEL_climate_change_FINAL.pdf).

Legal Tools for Protecting Wetlands and Supporting Resilient Communities con't

Case Studies: The City of Vernon is integrating DPs with an overlay of an Environmental Management Areas (EMA) Study to provide basis for incorporating environmental protection into all types of land use planning. In addition, they are streamlining the permitting process associated with development so that the level of information required is related to sensitivity of the area according to EMA Study.

Surrey provides another good land use example which takes into account both developed and undeveloped lands. It is planning to accommodate a functioning network of ecological processes within the municipality via a Green Infrastructure Network consisting of hubs, sites, corridors and enhancements within the urban matrix. The project is part of Surrey's Biodiversity Strategy.

Bowker Creek could address climate change and flooding issues through Low Impact Development and green infrastructure projects such as rain gardens, green roofs and enhanced topsoil (A recent study suggests that inclusion of green infrastructure into the watershed could effectively address a 22% increase in precipitation).

- Good environmental law needs to be informed by good science. Environmental law and policy is more likely to be successful (have an enduring impact) if it is transparent and democratic, if it has engaged and engages the community.

- Land use planning is the backbone of environmental protection.

- Green Bylaws Toolkit provides insight into land use regulatory tools to promote conservation of sensitive ecosystems and green infrastructure, providing examples of how varying communities in BC are addressing the need for healthy ecosystems: www.greenbylaws.ca

- A revision of the Green Bylaws Toolkit is currently occurring and feedback is welcome on what to include as resources for municipalities in the next edition.

- One of the participants mentioned that we need a sediment & erosion bylaw with teeth or it wont happen

Q&A Period

Q: Acquiring DPs via QEP process can be undesirable. Richmond looking at creating standards for streams to get DPs without going through a QEP. How can we make it more desirable for municipalities to follow regulations? Can we find a way to keep the process in house instead of going the QEP route?

A: Unsure, but North Vancouver offers as an exemption as opposed to a DP.

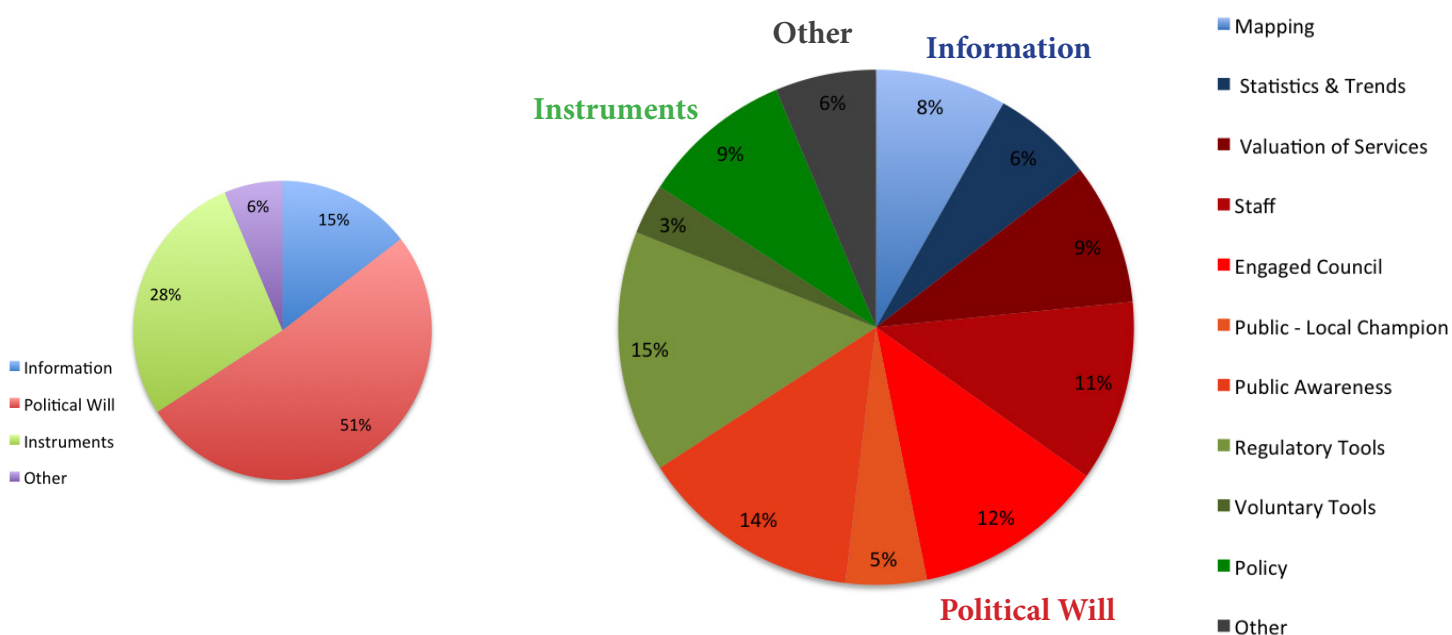
Link to Presentation: http://bcwfbogblog.com/?attachment_id=6256

Resource Prioritization Activity and Results

Numerous agencies have spent decades allocating time and resources towards wetland conservation (e.g. Ducks Unlimited). As an interactive component of the workshop, the question asked for was “If you had 10 resource units, where would you allocate the needs for conserving wetlands?” Each participant was given 10 resource units (stickers) to place within areas they thought were most important under categories including: Information, Political Will, Instruments and Other. On the form, participants were encouraged to elaborate with comments regarding each category in the space “swamp bubbles” provided. Refer to Appendix 3 for a sample.

Results/Key Points

Just over half of the groups resources were allocated to Political Will (51%), however it is important to note that this category had the greatest number of options. Looking more closely at the results, resources were distributed relatively evenly between categories, with Regulatory Tools (15%) and Public Awareness (14%) receiving the most resources, and Voluntary Tools (3%) and Public - Local Champion (5%) receiving the least resources.



Comments for the Information category ranged from there being enough mapping already to the notion that we need more extensive mapping including small wetlands trend analysis.

Participants found Political Will to be of utmost importance at the local, regional, provincial and federal level. The high resource allocation to Public Awareness was centered on the idea that increased education and awareness could reduce direct impacts to wetlands and help influence politicians by showing a broad base of support. Many participants also commented on the importance of Staff (11%) for public education, monitoring and enforcement. Finally, Engaged Council (12%) received attention for its importance to support policy change.

For the Instruments category, Regulatory Tools were allocated the most resources. Both participant 5 and 11 stated regulatory tools were important to have ‘teeth’ in an argument. The focus on Regulatory Tools and Policy were expressed by most participants, but some felt regulations are well developed and the problem remains with political will and enforcement.

Summary of Emerging Themes/Opportunities/Gaps

A major theme which emerged from this workshop was that wetland conservation in Metro Vancouver cannot be achieved by putting all resources to one area, but rather it is an issue that requires multiple areas of focus, including Regulatory Tools, Staff, Public Awareness and Engaged Council. Issues and challenges facing wetland conservation are highly dependent on municipalities, however the general consensus was a need for more resource allocation to Regulatory Tools so that municipalities can achieve change more successfully with regulations and policies to back up their decisions.

Before the workshop, Pre Questionnaires suggested the largest interest was in Developing Integrated Stormwater Management Plans (ISMPs), while during the discussion period, the largest number of participants were interested in Policy and Regulatory Development (which received the lowest interest in the Pre Questionnaire, which was half that of the ISMPs).

Outcomes from Workshop

The main outcomes from the Wetland Workshop for Municipalities were:

- a) The workshop provided an opportunity for Stanley Park Ecology Society and the Vancouver Parks Board to showcase enhancement plans for Beaver Lake and receive feedback from local and regional municipalities for their public consultation process. Discussing urban wetland issues and having the opportunity to visit the wetland in question provided an invaluable opportunity to connect the issues to the place.
- b) The ability to bring together participants from a range of jurisdictions and municipalities to share challenges, solutions and opportunities is very key to promote wetland conservation in Metro Vancouver.
- c) Feedback from participants helps direct future workshops and actions for wetland conservation. For future workshops, participants have expressed an interest in more technical information on wetland design and application as Best Management Practices, provincial staff speak on enforcement, information on how to engage with businesses and other members of the public, and even more focus to on the ground lessons (similar to Elke's detailed design principles for amphibians).

Appendix 1 - List of Attendees

Wetland Workshop for Municipalities

Tuesday November 19th, 2013



Name	Municipality/Company	Job Title
Amon, Katy	Lees & Associates Landscape Architects	Landscape Designer, Associate
Ayach, Liana	City of Surrey	Environmental Technologist
Barnes, Debra	Vancouver Park Board	Project manager, Park Development
Claus, Berni	Bowen Island Fish and Wildlife Club	Professional Engineer/Streamkeeper
Deppiesse, Dwayne	City of Port Coquitlam	Foreman
Dykstra, Mike	City of Port Coquitlam	Foreman
Hislop, David	City of Surrey	Drainage engineer
Hum, Baldwin	Quadra Architecture	Architect
Kazmierowski, Kaitlin	City of Richmond	Environmental Coordinator
Ko, Julia	Consultant	Consultant
Lee, Chris	AquaTerra Environmental Ltd.	Principal / Senior Biologist
Lee, Meghan	Township of Langley	Water Resources Engineer
Nassichuk, Erika	District of North Vancouver	Environmental Control Technician
Paris, Gregory	Metro Vancouver - Regional Parks	Park Planner, West Area Parks
Savage, Brian	City of Port Coquitlam	Foreman
Stott, Rod	District Maple Ridge	Environmental Planner
Titaro, Brian	Stanley Park Ecology Society	Conservation Technician

Appendix 2 - Pre Questionnaire

A2

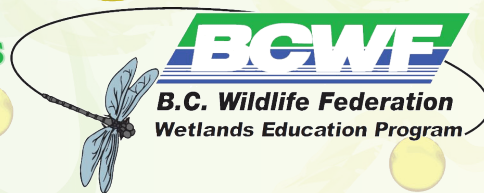
Prefix	Last Name	First Name	Job Title	Company	Are you currently, or have you recently been, involved in a wetland project? Please explain?	What are your main goals in attending today's workshop?	What are some challenges you are facing in conserving wetlands?	Please select the top two topics that interest you for the afternoon session.
Ms.	Barnes	Debra	project manager, park development	Vancouver Park Board	trout lake master plan - currently in initial site inventory/planning stage	increased education and awareness	on-going maintenance needs vs funds available	Urban wetlands: community input and management Developing Integrated Stormwater Management Plans (ISMP's) with green infrastructure with considerations
Mr.	Lee	Chris	Principal / Senior Biologist	AquaTerra Environmental Ltd.	Yes - wetland design and construction	presenter	development	Urban wetlands: community input and management Developing Integrated Stormwater Management Plans (ISMP's) with green infrastructure with considerations Integrating wildlife-friendly wetland management practices into urban planning
Mr.	Hum	Baldwin	Architect	Quadra Architecture	No	To learn best practices for development on or adjacent to wetland environments	Pushback from developers and landowners on if/how to preserve wetland environments	Integrating wildlife-friendly wetland management practices into urban planning
Mr.	Savage	Brian	foreman	city of port coquitlam	yes	info	pollution	Developing Integrated Stormwater Management Plans (ISMP's) with green infrastructure with considerations Policy and regulatory development Integrating wildlife-friendly wetland management practices into urban planning
Mr.	Dykstra	Mike	foreman	city of port coquitlam	yes	info	pollution	Developing Integrated Stormwater Management Plans (ISMP's) with green infrastructure with considerations Policy and regulatory development Integrating wildlife-friendly wetland management practices into urban planning
Mr.	Deplesse	Dwayne	foreman	city of port coquitlam	yes	info	pollution	Developing Integrated Stormwater Management Plans (ISMP's) with green infrastructure with considerations Policy and regulatory development Integrating wildlife-friendly wetland management practices into urban planning
Mr.	Flanders	David	Land use planner	DPI Territorial	Yes, as part of urban forest restoration work in Guadalupe, Mexico	A better understanding of the benefits of urban wetlands to water quality, quantity, forest health. Also, identify helpful conservation policies. Also some of the limitations of urban wetlands- what kind of performance can we really expect?	competing land uses	Urban wetlands: community input and management Developing Integrated Stormwater Management Plans (ISMP's) with green infrastructure with considerations Integrating wildlife-friendly wetland management practices into urban planning
Mr.	Sobering	Craig	Park System Planner	Metro Vancouver	Surrey Bend Regional Park Management Plan	Gain information about tools and processes.	Planning for wetland protection and management in regional parks	Urban wetlands: community input and management Integrating wildlife-friendly wetland management practices into urban planning
Mr.	Paris	Gregory	Park Planner, West Area Parks	Metro Vancouver - Regional Parks	Yes; primarily management planning	To gain a better understanding of ISMP's, water balance modelling. Green Bylaws Toolkit	adjoining development, water quality regulatory development	Developing Integrated Stormwater Management Plans (ISMP's) with green infrastructure with considerations Policy and regulatory development
Ms.	Amon	Katy	Landscape Designer, Associate	Lees&Associates	currently - Beaver Lake Restoration	presenting re: Beaver Lake Restoration project	public support	Urban wetlands: community input and management Integrating wildlife-friendly wetland management practices into urban planning
Mrs.	Nassichuk	Erika	Environmental Control Technician	District of North Vancouver	Creek restoration projects, environmental consulting	Learning from subject matter experts	Conflict with developers	Policy and regulatory development Integrating wildlife-friendly wetland management practices into urban planning
Mr.	Stott	Rod	Environmental Planner	Dist Maple Ridge	Yes, protection, enhancement, construction	new info techniques or tools	restoration of marginal value wetlands	Urban wetlands: community input and management Developing Integrated Stormwater Management Plans (ISMP's) with green infrastructure with considerations
Ms.	Kazmierowski	Kaitlin	Environmental Coordinator	City of Richmond	I am developing an Ecological Network for the City that seeks to incorporate existing and new urban wetlands into the development	To figure out how to better incorporate wetlands into the development process	Very few remain in Richmond, and there is little departmental knowledge/ uptake of their use in storm water management	Urban wetlands: community input and management Integrating wildlife-friendly wetland management practices into urban planning
Mr.	Barrett	Dave	President	Davlin Pacific Inc.	pond re-development	Broader exposure to a variety of projects	changing regulations re discharge as well as retention time vs. water quality standards	Urban wetlands: community input and management Policy and regulatory development
Mrs.	Ayach	Liana	Environmental Technologist	City of Surrey	Yes, small scale wetland restoration projects in agricultural lowlying areas.	To learn more of the initiatives ongoing with respect to wetland development and strategies.	For my role it isn't so much conserving wetlands but more to do with advocating wetland habitat creation.	Urban wetlands: community input and management Developing Integrated Stormwater Management Plans (ISMP's) with green infrastructure with considerations
Ms.	Lee	Meghan	Water Resources Engineer	Township of Langley	n/a	Learn more about the effective management of wetlands within municipal constraints	Private property management, ALR, development	Urban wetlands: community input and management Developing Integrated Stormwater Management Plans (ISMP's) with green infrastructure with considerations
Ms.	mawdsley	angela	Project Engineer	DNV	No	ISMP integration	Baseline data	Developing Integrated Stormwater Management Plans (ISMP's) with green infrastructure with considerations
Ms.	Ko	Julia	Consultant	Julia Ko	I have worked on the Alberta Wetlands Policy	Examine barriers and opportunities in wetland integration for municipalities	Obtuse regulations	Developing Integrated Stormwater Management Plans (ISMP's) with green infrastructure with considerations Policy and regulatory development
Mr.	Hislop	David	Drainage engineer	City of Surrey	Requirements for land development projects.	Awareness of current practices and benefits.	Land development pressures, justification for costs.	Developing Integrated Stormwater Management Plans (ISMP's) with green infrastructure with considerations Integrating wildlife-friendly wetland management practices into urban planning
Ms.	Bedore	Jenna	Conservation Planner	SCCP	part of wetlands declaration via SCCP	Learning more about LG challenges and opportunities wrt wetland protection	development pressures on wetlands	Developing Integrated Stormwater Management Plans (ISMP's) with green infrastructure with considerations Integrating wildlife-friendly wetland management practices into urban planning
Mr.	Claus	Berni	Professional Engineer / Streamkeeper	Bowen Island Fish and Wildlife Club	Yes. Trying to implement the Federal Policy on Wetland Conservation, as part of environmental assessment reviews.	See what others are doing.	Integrating ocean/stream/fishes/bugs/water supply/habitat/wetland/vegetation/a mphibian/bird/people issues, in a hostile political climate.	Developing Integrated Stormwater Management Plans (ISMP's) with green infrastructure with considerations Integrating wildlife-friendly wetland management practices into urban planning

Appendix 3 - Resource Allocation Activity: Template

Wetland Workshop for Municipalities

Breakout Session Activity 1: 1:40 - 2:20

Tuesday November 19th, 2013



If you had 10 resource units, where would you allocate the needs?

Swamp Bubbles

INFORMATION

Mapping

☐☐☐☐☐☐☐☐☐☐

Statistics & Trends

☐☐☐☐☐☐☐☐☐☐

POLITICAL WILL

Valuation of Services

☐☐☐☐☐☐☐☐☐☐

Staff

☐☐☐☐☐☐☐☐☐☐

Engaged Council

☐☐☐☐☐☐☐☐☐☐

Public - Local Champion

☐☐☐☐☐☐☐☐☐☐

Public Awareness

☐☐☐☐☐☐☐☐☐☐

INSTRUMENTS

Regulatory Tools

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Voluntary Tools

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Policy

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OTHER

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Appendix 3 - Resource Allocation Activity: Swamp Bubble Summary

Participant	INFORMATION		POLITICAL WILL				INSTRUMENTS			OTHER	
	Mapping ^a	Statistics & Trends ^b	Valuation of Services ^c	Staff	Engaged Council	Public - Local Champion	Public Awareness	Regulatory Tools	Voluntary Tools	Policy	
1	3		2		1			3	1		
2	1	1	2		2						1 ¹ 1 ²
3		1		2	1		1	3	2		
4	2	1	1	1			1	2	1	1	
5	2		1				2	2		3	
6			2	1	2		2	1		2	
7				2	3	2	3				
8				2	3		2	3			
9		1		2	1		1	3		2	
10	2		2		1	2	2			1	
11			1	1	1	3		1			3 ³
12	2			2			2	2		2	
13	1	1			1		3	2		2	
14				4	1	1	1	1	1	1	
15		3	2								5 ⁴
16		2	1	1	2		2	1		1	
Totals	13	10	14	18	19	8	22	24	5	15	10

1 ^aAmended 'Mapping' to 'Science and Mapping'

15 ^bAmended Statistics & Trends to include 'Monitoring'

4 ^cAmended Valuation of Services by adding 'Economic Incentives'

OTHER

2 ¹ Education persuasion of targeted stakeholders eg. Developers + professional associations

² 'Other' governance arrangements/processes eg. Watershed scale/regional

11 ³ Enforcement

15 ⁴ New models of land ownership and use

Participant

ID	Comments on INFORMATION
1	Policy and legislation must be grounded in good science and engineering
3	Mapping: Already Reasonable Mapping. Statistics & Trends: Support for Policy
5	Need to figure out what we have in order to know how to protect it.
7	Have invested enough in this already (but it is still important)
9	Mapping: We have done mapping work but there is now a need to focus on trends
12	Need to map small wetlands
13	Ongoing data collection necessary
16	Data showing consequences of poor regulatory processes and examples of good processes

Appendix 3 - Resource Allocation Activity: Swamp Bubble Summary con't

Participant

ID	Comments on POLITICAL WILL
1	Political will needed at local, regional, (+ provincial and federal) level to enforce environmental DPs, and regulations, and legislation, and not to look the other way when inconvenient
3	Staff: monitoring and enforcement Engaged Council: support for policy change and enforcement Public Awareness: public education on practices to protect private property - How and Why
4	Increased public awareness of science and existing regulations and the current limitations of the regulations needed
5	Public awareness key to minimize pushback!
6	I think it's important to have tools to speak to the economic value of wetlands (along with other values) and relay that to local government staff and council. There is some info, but more would be better especially with local examples. Public awareness is also key to influence who is in political positions to make change.
7	If you address the issues of political will and instill a sense of connection in the public mind much of the rest will follow.
8	Public and council awareness of values and benefits - drives staff - staff needs information to support details and report to council
9	Staff are the front line people, most of the time and are a valuable resource
11	Richmond has few to no local environment champions. There are no loud public voices lobbying council. Most staff are not engaged with environmental process/regulation and see these things as impediments to their portfolios
12	Staff: need staff for public education, enforcement, research, etc. Public Awareness: Political change only comes from public pressure
13	Changing cultural values with climate and other environmental change could be a key component in changing political policies
14	Inform and educate Staff: Develop talent, focus on outcomes Engaged Council: Starts with conversations Public (local champion): Leads to dialogue Public Awareness: consensus
16	Educated and aware public that can demand/elect political staff/council members to make informed decisions based on info gathered from statistics and trends. *an educated public and an engaged council staff that want to do the right thing for community!*

Appendix 3 - Resource Allocation Activity: Swamp Bubble Summary con't

Participant

ID	Comments on INSTRUMENTS
1	Professional bodies need to ensure their members follow the code of ethics of their organization regarding environmental issues.
3	Clear rules and enforcement tools for protection in conjunction with action from provincial & federal bodies
4	Competing values and trade offs need to be understood and presented in community consultation processes
5	Regulatory tools and policy are key to have teeth in an argument, otherwise competing viewpoints may destroy potential
6	Giving municipalities regulatory tools and having better policies in place will aid them in making changes they support in 'theory'. Will also help in the longevity of positive changes
7	Already well developed - problem is lack of political will to enforce and implement effectively
8	Regulatory tools support staff in directing council in policy
9	My experience is that developers do not value voluntary requests
11	Provincially and federally supported regulatory tools with real teeth. Currently we are shaking an invisible stick
12	Public support often only comes when people are forced to change (eg. recycling)
13	Voluntary tools useless without incentives, positive or negative
16	Hard policy and regulatory tools approved by council to make sound decisions from gathered info.

Appendix 4 - Breakout Session

The following notes are direct transcriptions of notes taken during the afternoon breakout session on select topics (in bold).

Developing ISMP's with Green Infrastructure with Considerations

Discussion led by Kim Stephens, with participants from the City of Vancouver and the City of Vancouver

- Trout Lake
 - drain into it? Green infrastructure
 - multi-stakeholder project
 - trade off between recreation and green infrastructure
 - importance of community consultation to tease out values
- Richmond
 - require grassroots support
 - large ALR house % coverage --> pave after inspection
- ISMP Integration
 - developers drive agenda
 - need staff/team driven
 - not consultants
 - what does public want? long term vision

Instead of calling ISMP: Interested Rainwater Resource Management Plan --> covers watershed

Policy and Regulatory Development

Discussion led by Deborah Carlson, with participants from a number of municipalities

- how to protect Local Government parkland?
- lack of technical capacity for smaller local governments with relatively large land areas to manage
 - inadequate staff resources (capacity + expertise) to implement regs eg. DPAs
- RAR vs DPA requirements
- ability to compel local government to enforce law
- how to overcome ad hoc approaches to development (a positive development!)
- incentives to promote greener development practices
- integration ISMPs with OCP
- QP issues - idea - pool of qualified profs
 - professional complaints?

Appendix 4 - Breakout Session con't

Urban Wetlands: Community Input and Management

** Robyn Worcester and Brian Titaro were the only speakers/participants in this group, so the discussion became focused on non-profits opportunities and hardships**

- Is there a line?
- Municipal vs. non-profit roles, expectations
- Non-permanent resources - great funding vs. tax base
- Increased reliance on 'free labour'
- Reliance on citizen science
- non-profit = varying levels of funding/staffing
- reliability of data, volunteer incentives
- long-term monitoring: how do you know for sure
- clear division of tasks: gaps need to be filled
- union negotiations: which roles are under staffed?

Non-profits are quicker, more flexible, and less bound to political constraints...with minimal money and support we can get a lot done but over reliance is tenuous. Internal staff are not replaceable.

Integrating Wildlife-Friendly Wetland Management Practices into Urban Planning

Both Elke Wind and Pamela Zevit had to leave the workshop during this discussion period, so this discussion group never fully came to fruition as participants went to other groups

- "ALUS" - Alternative Land use Services (pilot program - Ontario, Manitoba, PEI)

Appendix 5 - Post Questionnaire

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

Summary of responses to Q1: 12/13 = Yes
1/13 = No Response

Full responses to Q1:

- a) I gained insights into the barriers of provincial & federal laws to the realities for municipalities
 - b) Yes, I gained insight into the importance of restoration of wetlands and the need to act quickly
 - c) Yes
 - d) Yes, lots of new resources/contact info
 - e) Some. Good biological/ecological information but still difficult to align to existing cultural/financial values.
 - f) No response
 - g) Yes. A barrier is the lack of staff at a municipal level
 - h) Yes great insight on the varieties of species that require protection through habitat conservation
 - i) No/yes. The only information lacking is knowledge of where significant wetlands are located.
 - j) Yes –especially Elke’s presentation on artificial wetland/stormwater pond creation + maintenance
 - k) Yes. It was interesting to have a range of topics covered ie. a higher level planning (Kim Stephens) through to more detailed presentation (Elke Wind)
 - l) On a positive note, Maple Ridge is currently protecting its wetlands through its OCP policies, Streamside Protection Regulations SPR setbacks. We are also engaged in enhancement related works on wetlands with every new development application where a wetland has been identified and/or through municipal projects. Good to see how other jurisdictions are working on preserving, enhancing, and managing their own wetland areas including Beaver lake. Also good to see how natural resources such as wetlands are being recognized by NGO’s, the province, and professionals as part of the cost effective solutions for stormwater and rainwater management.
- What is currently missing from the picture from Maple Ridge’s perspective is the federal and provincial support in terms of legislation that helps protect these valuable and unique ecosystems, staff resources, along with technical and financial support for municipalities that wish to continue preserving, enhancing or constructing wetland habitat.
- Council members continue to wonder why municipalities are being left with the burden of regulating these environmental features and enhancing them without any real support from other senior environmental agencies? There is a risk that municipalities will begin to push back and completely abandon these responsibilities until all key players show up at the table to participate. The current legislation that focuses on protection of endangered species and/or specific wildlife also needs to be converted into language that protects the habitat which supports these species.
- m) We need to respect more than just fish, like frogs and other amphibians when we work in and around water

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.*

Summary of responses to Q2: 12/13 = Yes
1/13 = No

Full responses to Q2:

- a) Not applicable
- b) Yes, plan to continue educating myself of the benefits of general infrastructure. Will be able to work and simplified messaging for staff + public.

Appendix 5 - Post Questionnaire con't

- c) Yes
- d) Yes, more consideration for amphibians!
- e) Better ecological information for basis for action/planning. No plans at moment.
- f) Useful to talk about values other than fish- our environmental design is almost 100% fisheries driven
- g) I didn't know about the use of detention ponds by amphibians – very interesting talk, I will keep this info in mind when we have these ponds on site.
- h) Interesting discussions of stewardship examples and current research relating to the importance of wetlands
- i) Yes. Awareness of importance of amphibians in ISMP development. Requires additional awareness by city planners.
- j) Yes – will help enhance existing knowledge base
- k) Useful design lessons in some presentations, especially Elke Wind. Was very sorry to miss the afternoon sessions
- l) Maple Ridge has received assistance from MV in the past with respect to partnership and acquisition of significant wetland areas i.e. Blaney Bog and Codd Island wetlands. We have also been able to utilize some of the technology, information and mapping that MV has completed over the last decade to help us understand or monitor advances/losses associated with wetlands over the years. Access to this important body of work and understanding how it can be applied on the ground by the province, municipalities and stewardship groups for wetland conservation is important.

At this time, it is really important work that MV and David Suzuki Foundation is doing with respect to outreach on the subject of Green Infrastructure and Natural Capital. More outreach to municipal Council members and administration officials with respect to how municipalities can benefit from an economic, social, and ecological services natural environment provides us with is an important message. More emphasis and outreach on this work needs to be shared with municipal decision makers.

One observation on my part about potential opportunities in the future. There is very little information currently available with respect to design standards for stormwater detention ponds or bio-filtration ponds which can support aquatic species such as amphibians. If municipalities are going to promote better integration of SMP's and rainwater management controls with wetland or aquatic ecosystems, then there should be some better information available for municipalities to share with engineering consultants.

- m) Yes by doing more research before we start

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

Summary of responses to Q3: 11/13 = Yes
 2/13 = No

Full responses to Q3:

- a) Yes, Debra Barnes on the Trout Lake Master Plan
- b) Yes, will utilize the web based resources mentioned + will now be aware of the organizational resources
- c) Yes
- d) Yes, using wcel as a collaborator/resource for our ecological policy projects
- e) Not yet
- f) Useful to discuss the different issues & solutions with deferent jurisdictions

Appendix 5 - Post Questionnaire con't

- g) Yes, I will be speaking to Deborah in the near future regarding RAR vs DPA requirements.
- h) Yes further discussions on stewardship examples and current research relating to the importance of wetlands.
- i) Yes. Several items presented were useful.
- j) Great government staff that our organization can collaborate with further in complimentary projects
- k) Yes – good mix of on the ground + planning/strategic level professionals
- l) Yes. Hope to do some more collaboration with West Coast Law and Kim Stephens
- m) NO

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

Summary of responses to Q4: 10/13 = Yes

Full responses to Q4:

- a) Yes
- b) Perhaps
- c) Yes
- d) Sure
- e) No response
- f) Sure
- g) Yes
- h) Yes
- i) Yes
- j) Yes-we are happy to keep playing in the sandbox with BCWF
- k) Project updates to be provided by VPB/SPES. Would like to receive updates on other projects.
- l) Yes if possible.
- m) Not at this time

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) Maybe start with strategic conservations to identify needs by municipalities for collaboration to conserve wetlands.
- b) All good presentations + information
- c) No response
- d) While I liked the breakout model, I felt like I was missing other people's questions.
- e) - Maybe some more information on how to engage with businesses + other members of the public, Especially from a values and cultural perspective.
 - Performance-based guidelines? Ecological certification to help incentivize developers?
- f) It would be useful to have someone from the province to speak about their role in regulation/enforcement and when (given limited resources) they actually get involved.
- g) I thought that the workshop was very relevant. I wouldn't delete anything, potentially add someone to speak about invasive species management / removal?
- h) Further discussion on the current state of wetland protection issues with respect to the current government situations and current initiatives underway that we can participate in.
- i) Brief technical info on wetland design and application as BMPs.
- j) Getting outside was great! Maybe reduce time for discussion in breakouts and have more extensive time outside for respective case study.

Appendix 5 - Post Questionnaire con't

k) More sessions with on the ground lessons – ie. Elke Wind's presentation. For managers, consultants (Planning + design) + on the ground staff to be aware of.

l) No response

m) Thought that it would have more to do with stormwater management (stream designs, how to improve our in stream works to improve fish habitat etc). We do instream work every year and learnt that we have to work with more than just fish and will in the future.

6) *Is there anything else about the workshop you would like us to know?*

a) No response

b) - Nice size (in terms of #'s)

- Great venue (Stanley Park)

- Good to hear from municipal example (Beaver Lake)

- Excellent Presentation for Kim Stephens + WCEL

c) No response

d) No response

e) No response

f) No response

g) No response

h) Great selection on discussions today. Would be good to hear from Ducks Unlimited, Suzuki Foundation or conservation programs (Nature conservancy, Habitat Conservation Trust , etc)

i) The contact with the presenters is very interesting. There may be an argument in favour of having a nominal charge to encourage additional attendance.

j) Great session diverse + informative.

k) No response

l) No response

m) Don't think so

Appendix 6 - Avenues for Advertising

Many avenues were pursued to advertise for this workshop.

Municipal/regional staff contacted within the Metro Vancouver Regional District included: Metro Vancouver, District of West Vancouver, District of North Vancouver, City of North Vancouver, City of Vancouver, City of Burnaby, City of Surrey, White Rock, City of Langley, Township of Langley, District of Maple Ridge, City of Coquitlam, City of Port Coquitlam, City of Richmond, City of Port Moody, Corporation of Delta, City of Pitt Meadows and Village of Lions Bay.

Municipal/regional staff contacted from other Regional Districts included: Powell River Regional District, Regional District Okanagan-Similkameen, Fraser Valley Regional District, District of Squamish, Gibsons, Fraser Valley Regional District.

Engineers, environmental scientists and planners were contacted from departments including parks, engineering, sustainability and planning - depending on the departmental framework of the municipality/regional district. Department head contacts were primarily found using the Civic Info BC organizations page (www.civicinfo.bc.ca/11.asp). Each department head was called to advertise and workshop, asking them to distribute workshop details within their department and inquiring which staff it would be most relevant for. In addition, participants from the previous wetlands workshop were contacted to gain feedback on continued struggles and insight into how to build from the previous workshops.

Other avenues pursued included advertising on the Waterbucket (waterbucket.ca), Spacing Vancouver (spacing.ca/vancouver) and the Planning Institute of BC (www.pibc.bc.ca/).