Okanagan Wetland Strategy, phase I & II

working together to protect & restore Okanagan wetlands

Nelson R. Jatel M.A., P.Ag.
Water Stewardship Director, OBWB

"Losing or degrading wetlands can lead to serous consequences, such as increased flooding, extinction of species, and decline in water quality.

We can avoid these consequences by maintaining the valuable wetlands we have and restoring wetlands where possible."

Environmental Protection Agency

Shallow Open Water, BC Interior. Photo: B. Harrison

Values

- Valley-wide approach
- Benefits the basin as a whole
- Equity

Guiding Principles

- Think regionally and think long-term
- Protect nature for the benefit of all
- Anticipate change – Plan accordingly
- Balance multiple priorities
- Clear communication

Ten Key Wetland Values

1. *Wetlands ease freshwater shortages and drought* by storing excess moisture during wet seasons and gradually releasing it to streams and underground aquifers during dry periods.
2. *Wetlands maintain and improve water quality* by filtering out pollutants and thus protecting the purity of lakes, rivers, streams, and community water supplies.
3. *Wetlands help mitigate flooding and erosion* by absorbing precipitation, runoff, and high water.
4. *Wetlands provide protection against the impacts of climate change* by acting as carbon sinks that absorb and hold carbon dioxide instead of releasing it into the atmosphere.
5. *Wetlands provide critically important habitat* for up to half of BC's fish, bird, mammal, and plant species.
6. *Wetlands provide popular recreational opportunities* for activities such as fishing and hunting, as well as "non-consumptive" recreation such as bird-watching, photography, canoeing, and hiking that connects people with nature through active living.
7. *Wetlands provide educational, cultural, and scientific opportunities* by serving as outdoor classrooms for school and college students and labs in the field for scientists studying hydrology and complex ecological processes, as well as providing lifelong learning opportunities for older learners and creative inspiration for artists and musicians.
8. *Wetlands create ideal growing conditions for diverse food and agricultural products* such as wild-harvested cranberries, blueberries, shellfish, hay, and forage.
9. *Wetlands provide open space within the landscape mosaic* and the diversity and beauty of wetland habitats are unmatched and contribute to human satisfaction.
10. *Wetlands are the third most important life-support system on the planet* after forests and farmlands, according to the World Conservation Strategy.

A Wetland Action Plan for British Columbia
Wetland Stewardship Partnership (2010)

The economic value of wetlands

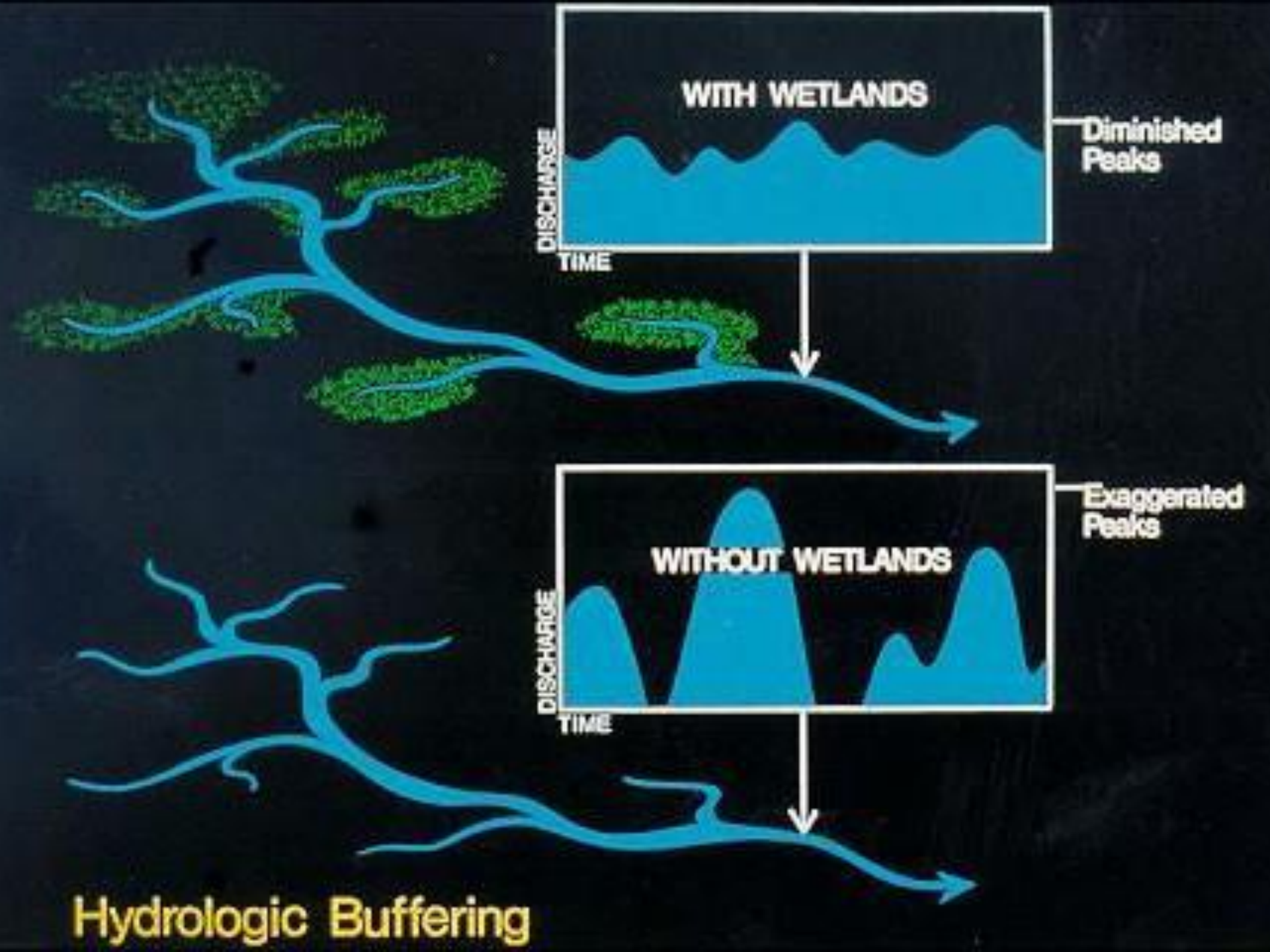
Costanza *et al*. (1997)

$22,000 (CDN) per hectare per year in 1994.

About **80 percent of this figure was attributable to flood control, water supply and treatment costs**, making these the most valuable services.

The remaining roughly 20 percent represented the value of services such as cultural and recreational pursuits and the provision of habitat and refugia for species at risk.

A Wetland Action Plan for British Columbia
Wetland Stewardship Partnership (2010)


WITH WETLANDS
DISCHARGE
TIME
Diminished Peaks
WITHOUT WETLANDS
DISCHARGE
TIME
Exaggerated Peaks
Hydrologic Buffering

Benefits of Wetlands

Water in the Okanagan: Planning for the future

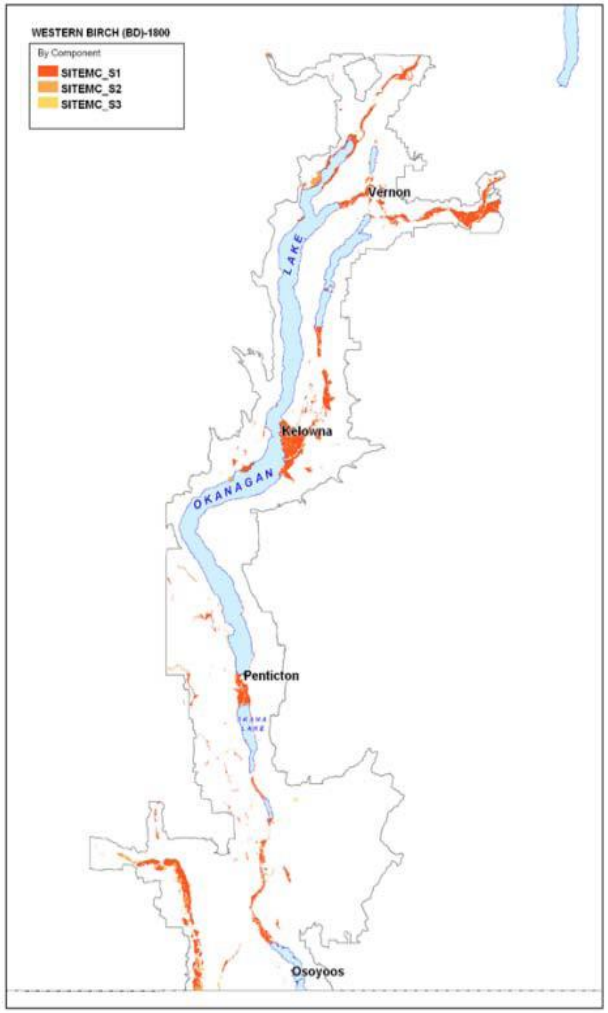
Wetlands

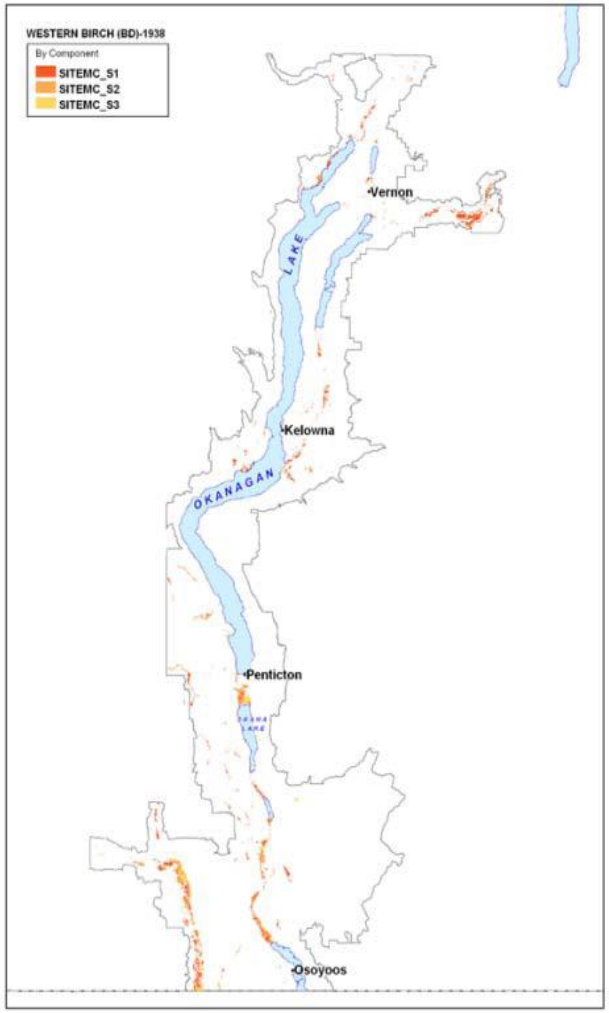
Wetland loss in the Okanagan

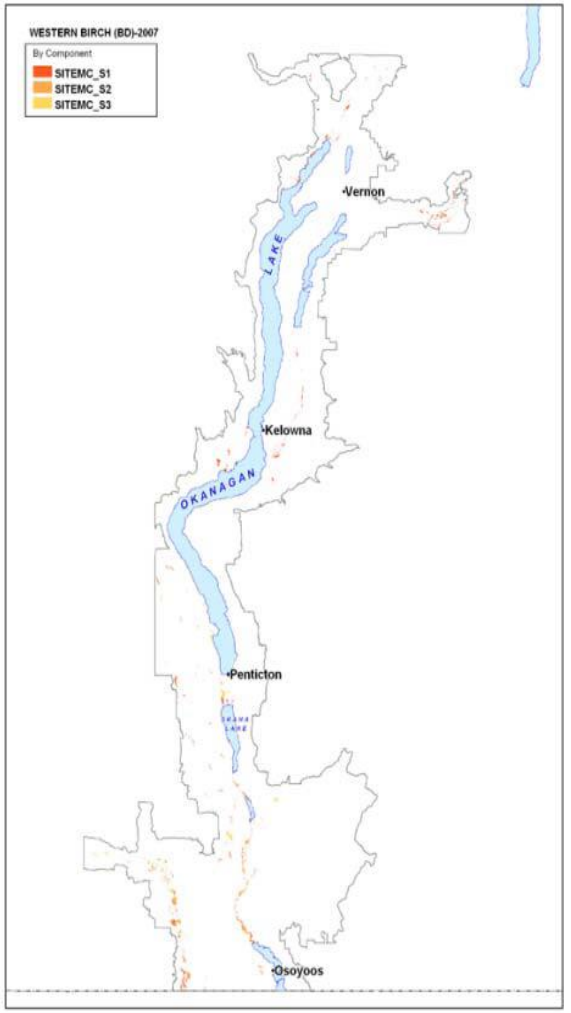
- 84% of low elevation wetlands
- 93% of Okanagan River wetlands
- 38% conversion of Okanagan Wetlands from the 1980's to 2010

BC Wetland Trends: Okanagan Valley Assessment
Harrison and Moore (2013)

Maps showing changes in the water birch – red-osier dogwood riparian shrub swamp wetland (BD) ecosystem between 1800 and 2005. (Source: Lea 2008)







BC Wetland Trends: Okanagan Valley Assessment
Harrison and Moore (2013)

Wetlands and the OBWB

- Improving access to data
- Filling information gaps
- Facilitating information sharing and partnerships
- Water quality and quantity
- Climate change resilience
- Protect, restore, enhance
- Complete mapping

Land Development will require landowner cooperation, sensitive environmental planning, and inter-agency coordination to protect this marsh wetland. Photo: Ducks Unlimited Canada

A Wetland Action Plan for British Columbia
Wetland Stewardship Partnership (2010)

Figure 14. Wetland threats in Okanagan (Source: Veridian Ecological Consulting 2004).

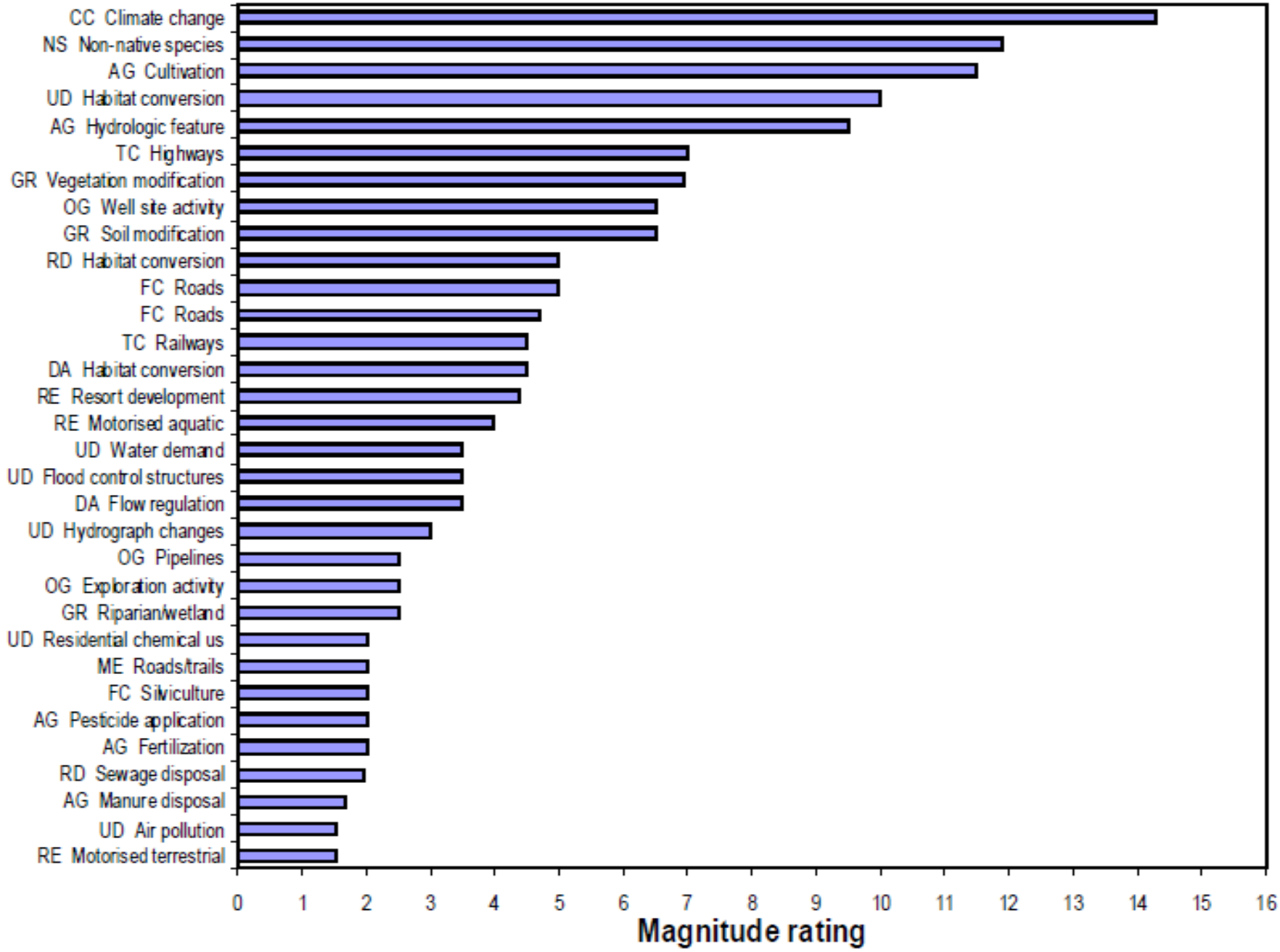


Figure 16a. Wetland converted to intensive agriculture (annual cropping).

BC Wetland Trends: Okanagan Valley Assessment
Harrison and Moore (2013)

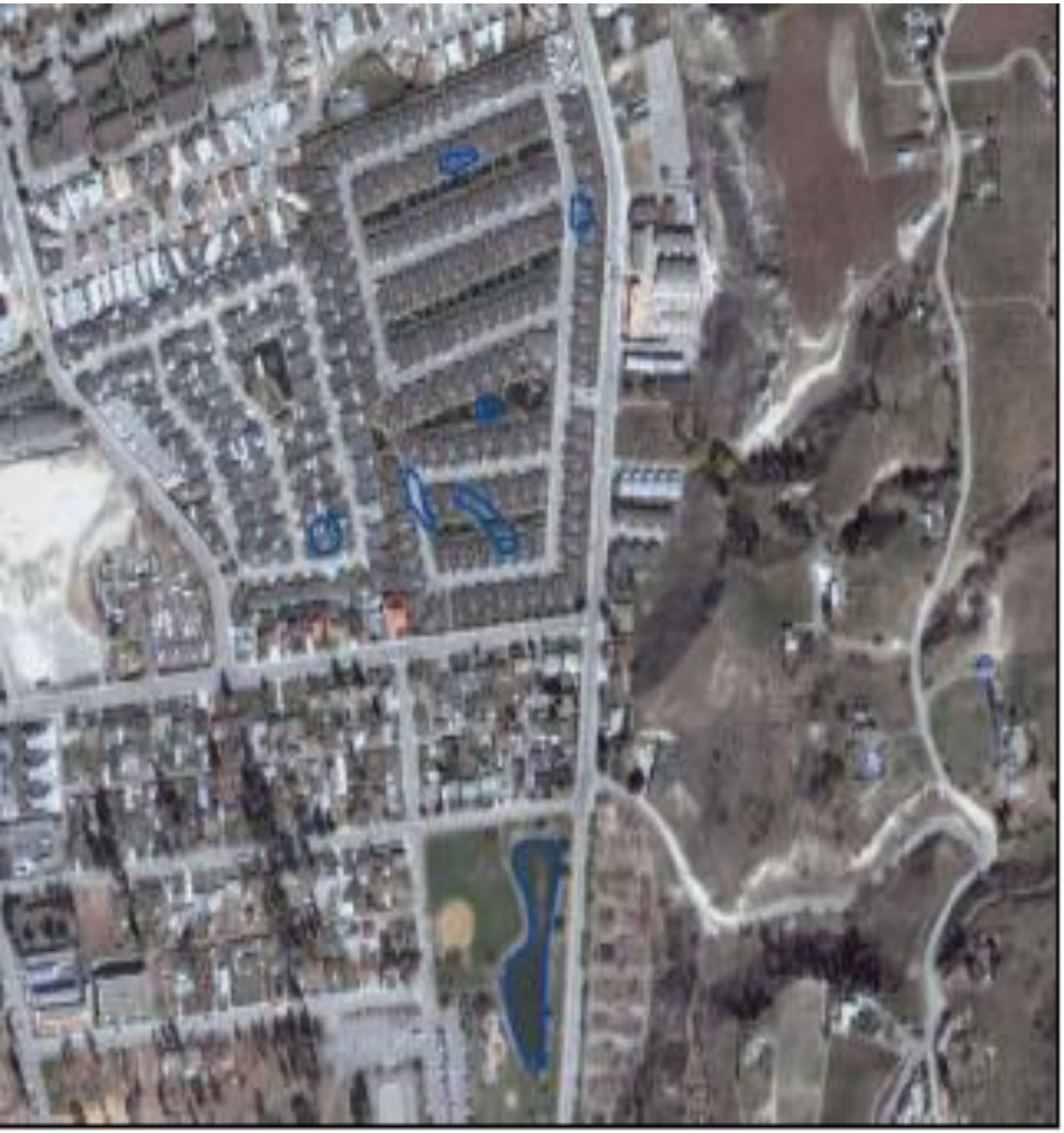


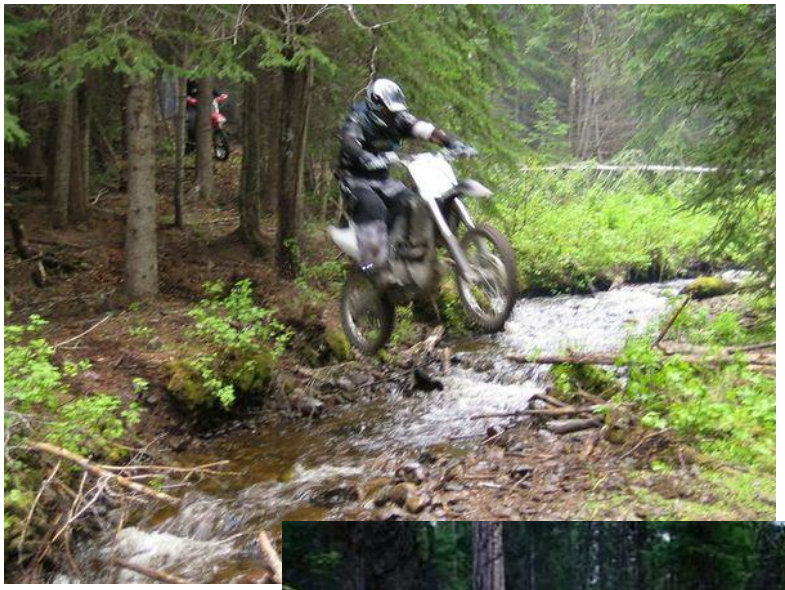
Figure 16b. Wetlands lost to urban development.

BC Wetland Trends: Okanagan Valley Assessment
Harrison and Moore (2013)

Figure 16c. Wetland mostly drained for hay production.

BC Wetland Trends: Okanagan Valley Assessmen
Harrison and Moore (2013)

Threats - Recreation

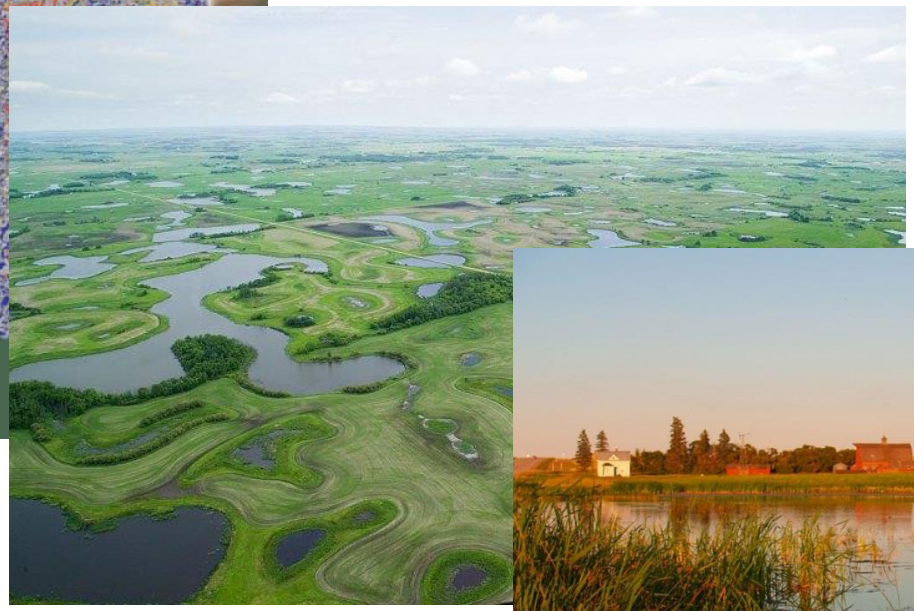


Threats – Storm Drains /Outfalls

Communication & Outreach


FAIL
SEVERE DROUGHT
Mandatory
Water Restrictions
Are in Effect
failblog.org

What's to blame for Manitoba flood? Loss of wetlands, for one



[Healthier wetlands, smaller floods]

Global News, July 9, 2014
Nicole Mortillaro

INTRODUCTION

Okanagan Wetlands Strategy Phase 1

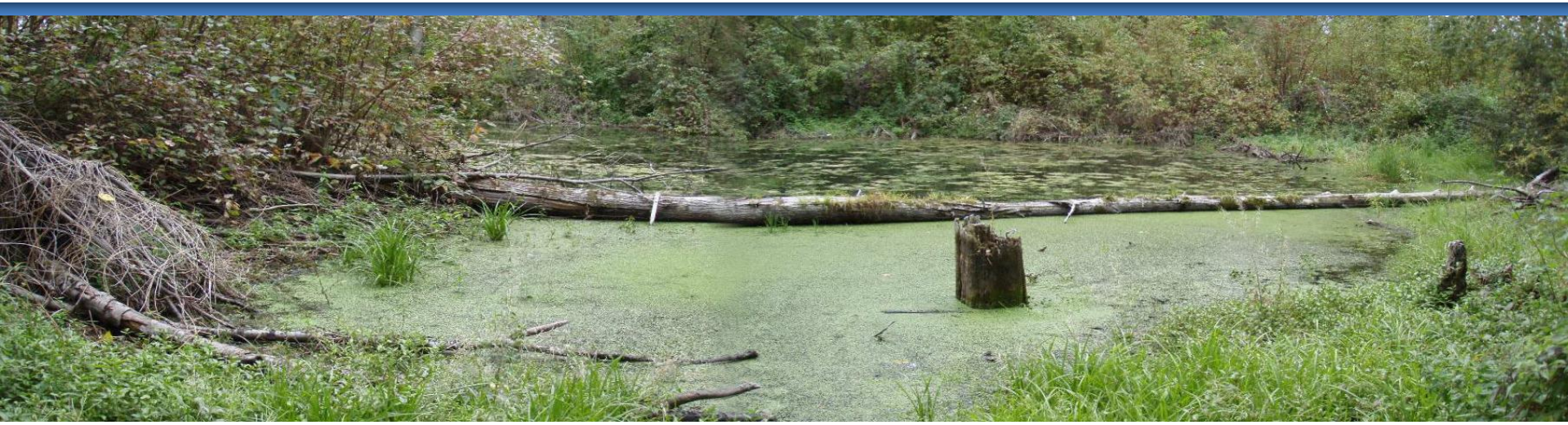
- Project leads - Okanagan Basin Water Board, Regional District Central Okanagan, and BC Wildlife Federation.
- Phase 1 – Outreach, Data Collection, Prioritization and Mapping.
- Provide foundation for immediate and long-term conservation and restoration efforts on Okanagan wetlands
- Consultant - Ecoscape Environmental Consultants Ltd.

REGIONAL DISTRICT of CENTRAL OKANAGAN

Okanagan Basin WATER BOARD

B.C. Wildlife Federation

PROJECT OBJECTIVE

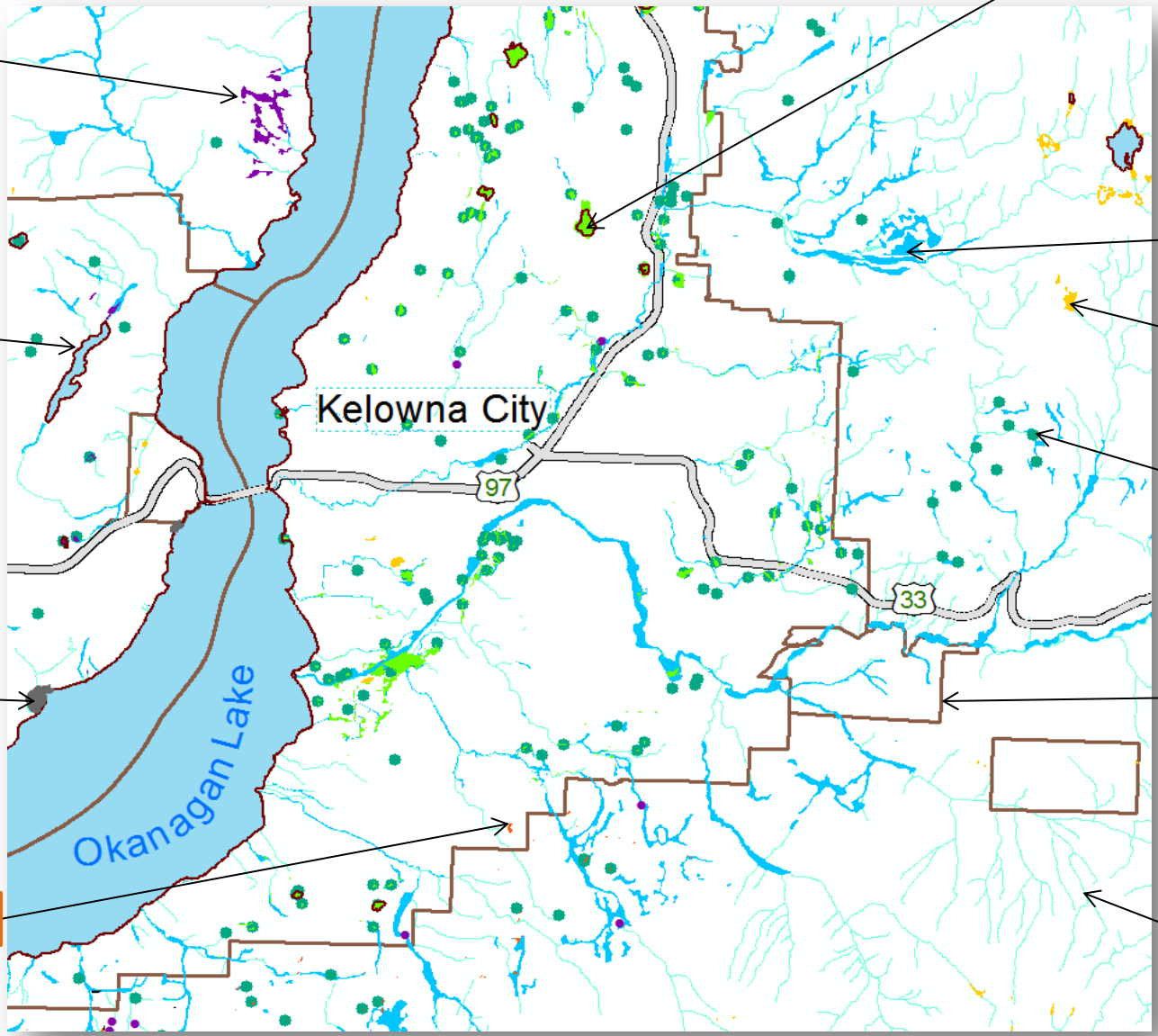


- Summarize existing wetland information.
- Gather input from stakeholder groups.
- Conduct assessment and mapping, to classify and rank wetland habitats for conservation and restoration priorities.
- Summarize in a report with recommendations for management strategies, governance framework, and steps to be taken in future phases of the wetland strategy project.

Study Area

Three Regional Districts with a focus on the Okanagan Basin

Kelowna Area Zoom In



SHIM Data

WIM Data

Riparian Buffer around Lakes

SEI Data

Freshwater Atlas Data

Potentially Alkali Saltgrass Wetlands

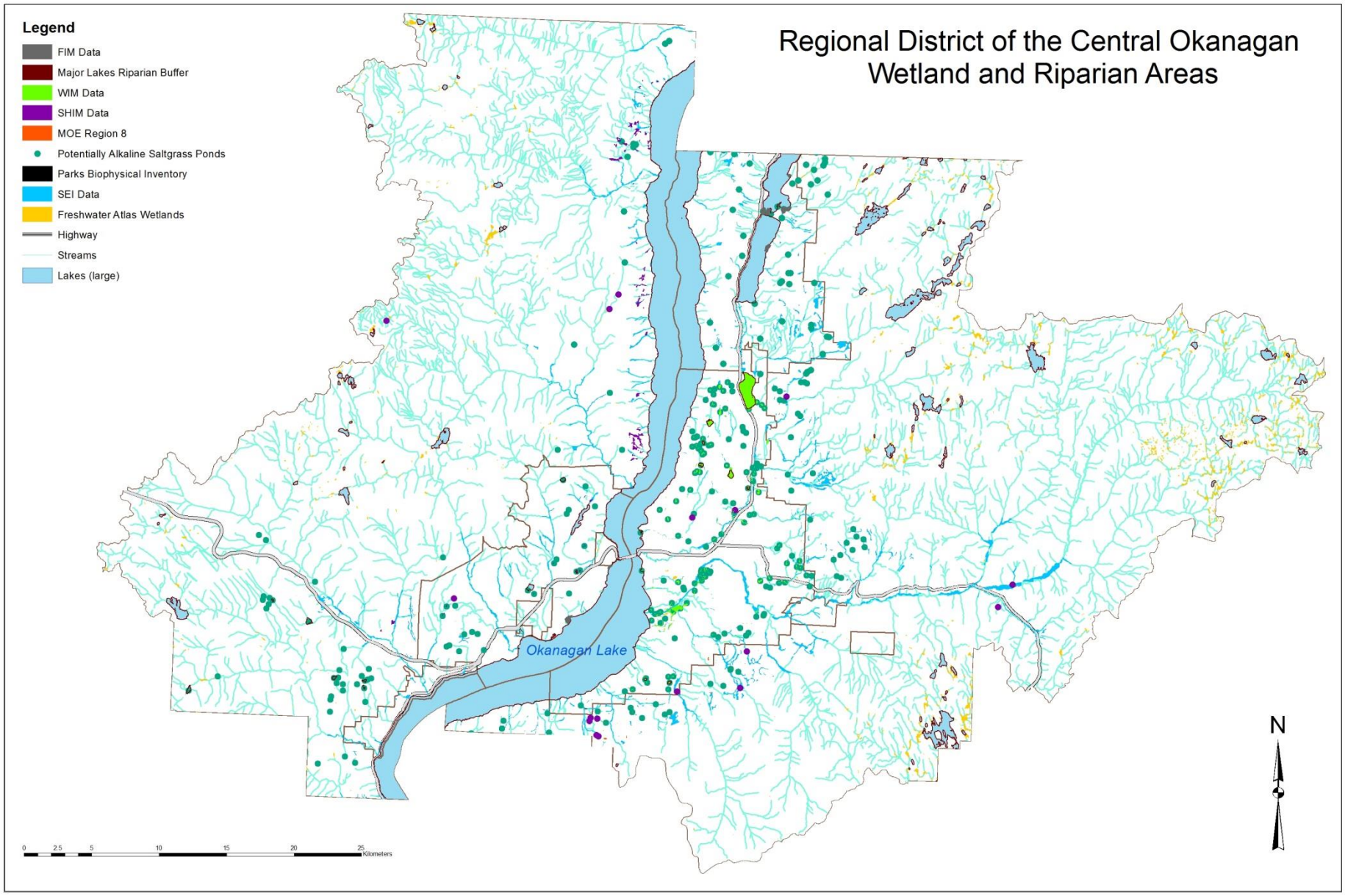
FIM/AHI Data

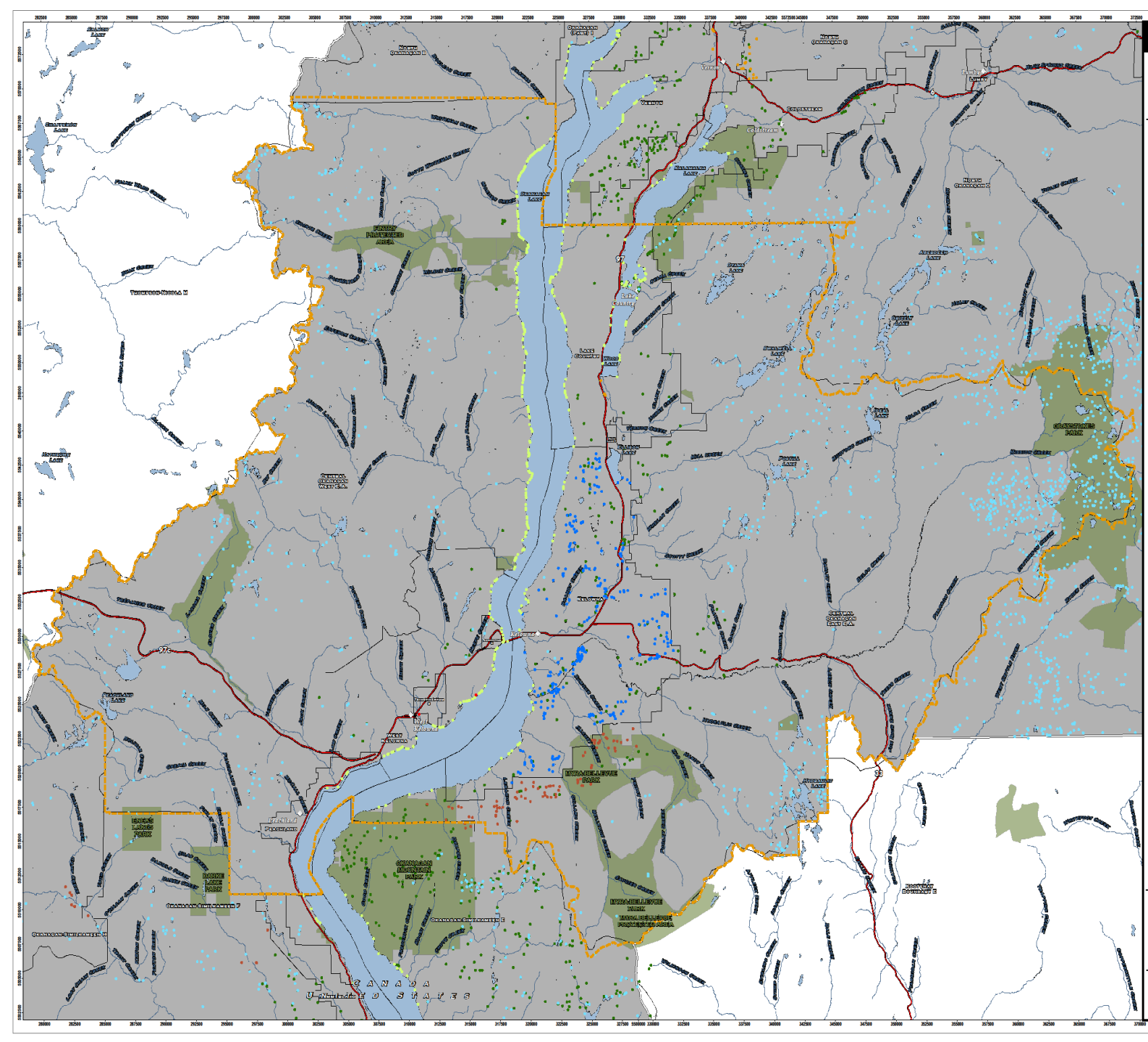
Municipal Boundaries

MOE Region 8 Data

Streams

Baseline Map





Okanagan Wetlands Strategy

Wetland Polygon Distribution within the Regional District of Central Okanagan

Legend

- City
- Major Highway
- Study Area
- Municipal Boundary
- Regional District of Central Okanagan
- Park
- Lakes and Rivers
- Streams

Wetland Distribution by Source Data

- Foreshore Inventory and Mapping
- Fresh Water Atlas
- MoE Alkaline Saltgrass Ponds
- River Inventory and Mapping
- Sensitive Habitat Inventory and Mapping (SHIM)
- Wetland Inventory and Mapping (WIM)
- Digitized
- Terrestrial Ecosystem Mapping (TEM)/ Sensitive Ecosystem Inventory (SEI)

N

Okanagan Basin Water Board

ECOSCAPE Environmental Consultants Ltd.

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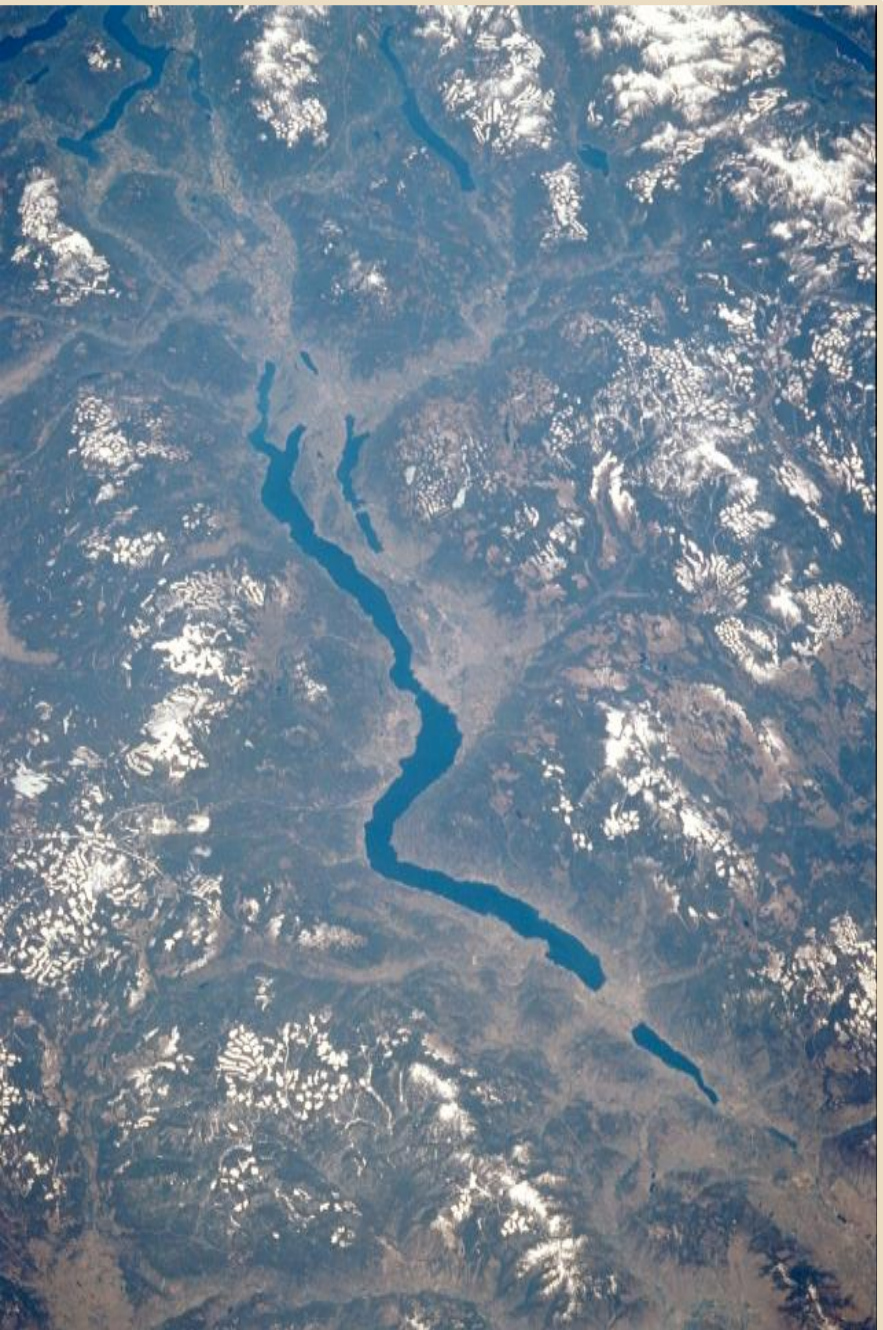
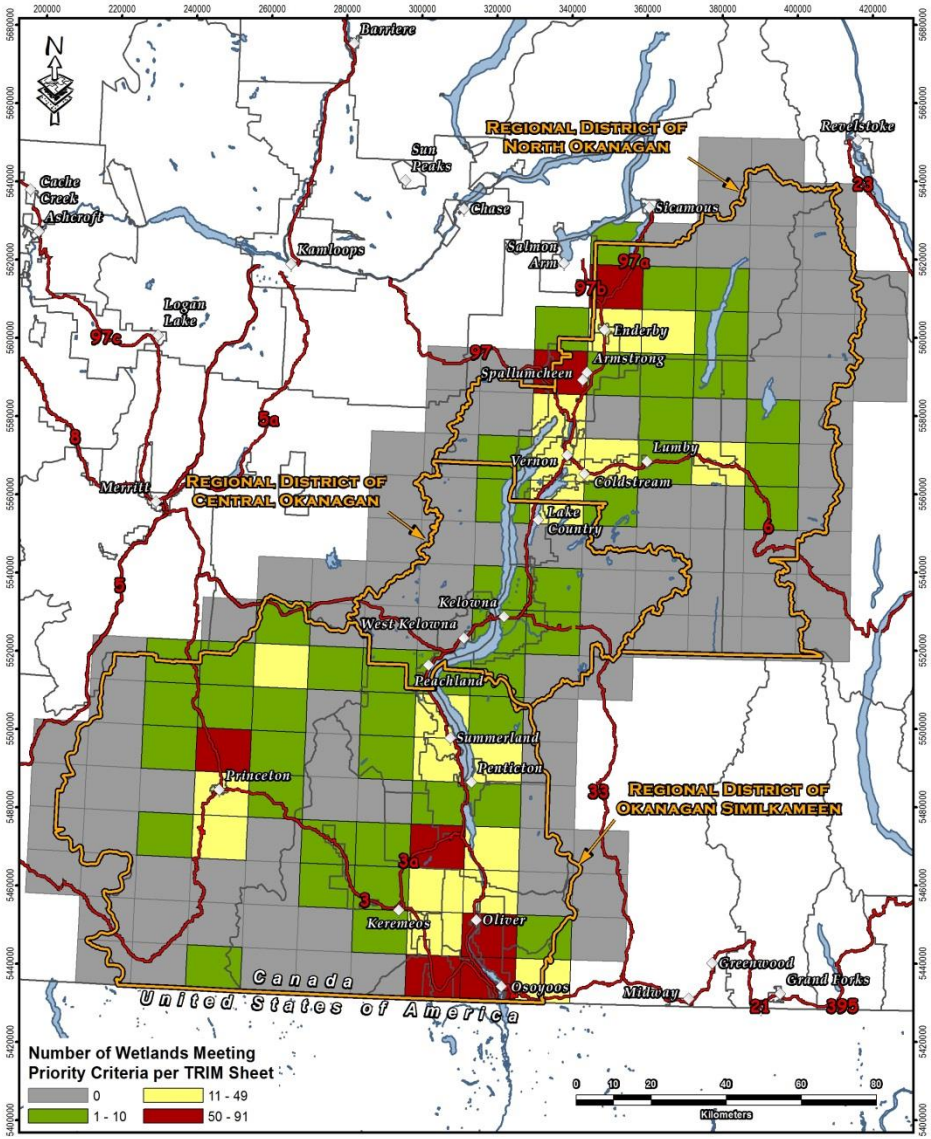
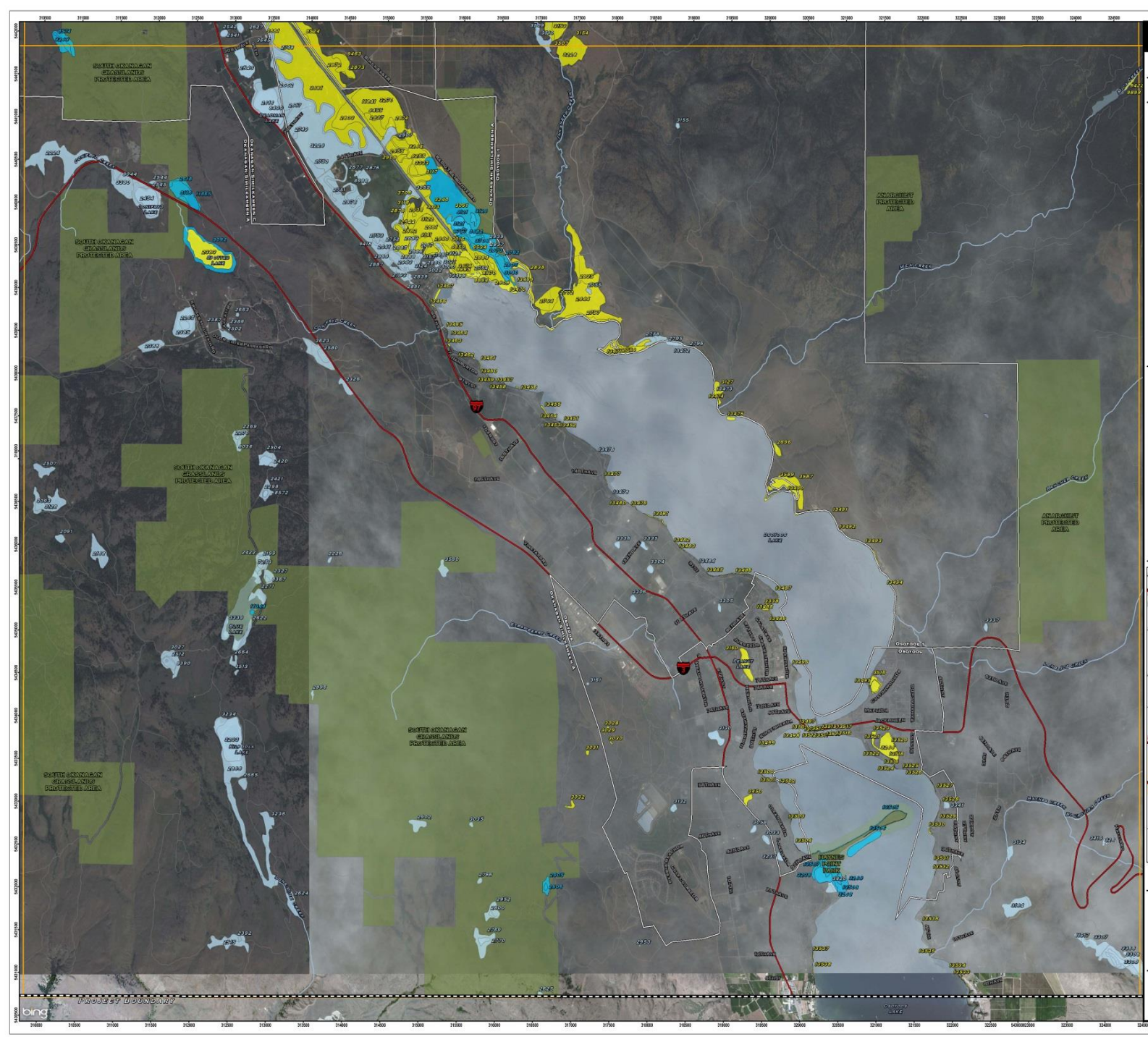
Okanagan wetland mapping: enabling collaboration







Okanagan Wetlands Strategy

Ecological Lens

Map Sheet - 82E.003

Legend

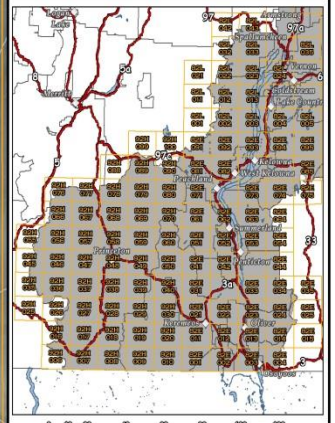
- Municipal Boundary
- Park
- Major Highway
- Road
- Streams
- Lakes and Rivers
- Wetland (Not Captured by Lens Criteria)

Ecological Priority Wetland

- Protected Wetland within a Park
- Unprotected Wetland on Public Lands

Priority Wetland Criteria for Provincial Ecologist Lens

- Wetlands occurring on Crown Land or other public lands
- Wetlands associated with other management areas
  - Important Bird Areas (IBA)
  - Wildlife Habitat Management Areas (WHMA)
  - Okanagan Biodiversity Conservation Areas (Very High Rank).
- Wetlands with at least one Red/Blue listed CDC occurrence (i.e., plant or animal).
- Wetlands that are part of a complex (i.e., occurring within 750 m of another wetland).
- Wetlands with a calculated Shoreline Development score of over 1.53 (Used as a measure of biodiversity; more complex shorelines are considered to have higher potential for biodiversity. The 1.53 value is the mean Shoreline Development score for all wetlands within the study area).
- Wetlands with at least one of the following identified threats:
  - Grazing Activity
  - Agricultural Activity
  - Forestry Activity
  - Recreation Site
  - Road Proximity
  - Invasive Species



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Kilometers

Okanagan Basin WATER BOARD

ECOSCAPE Environmental Consultants Ltd.

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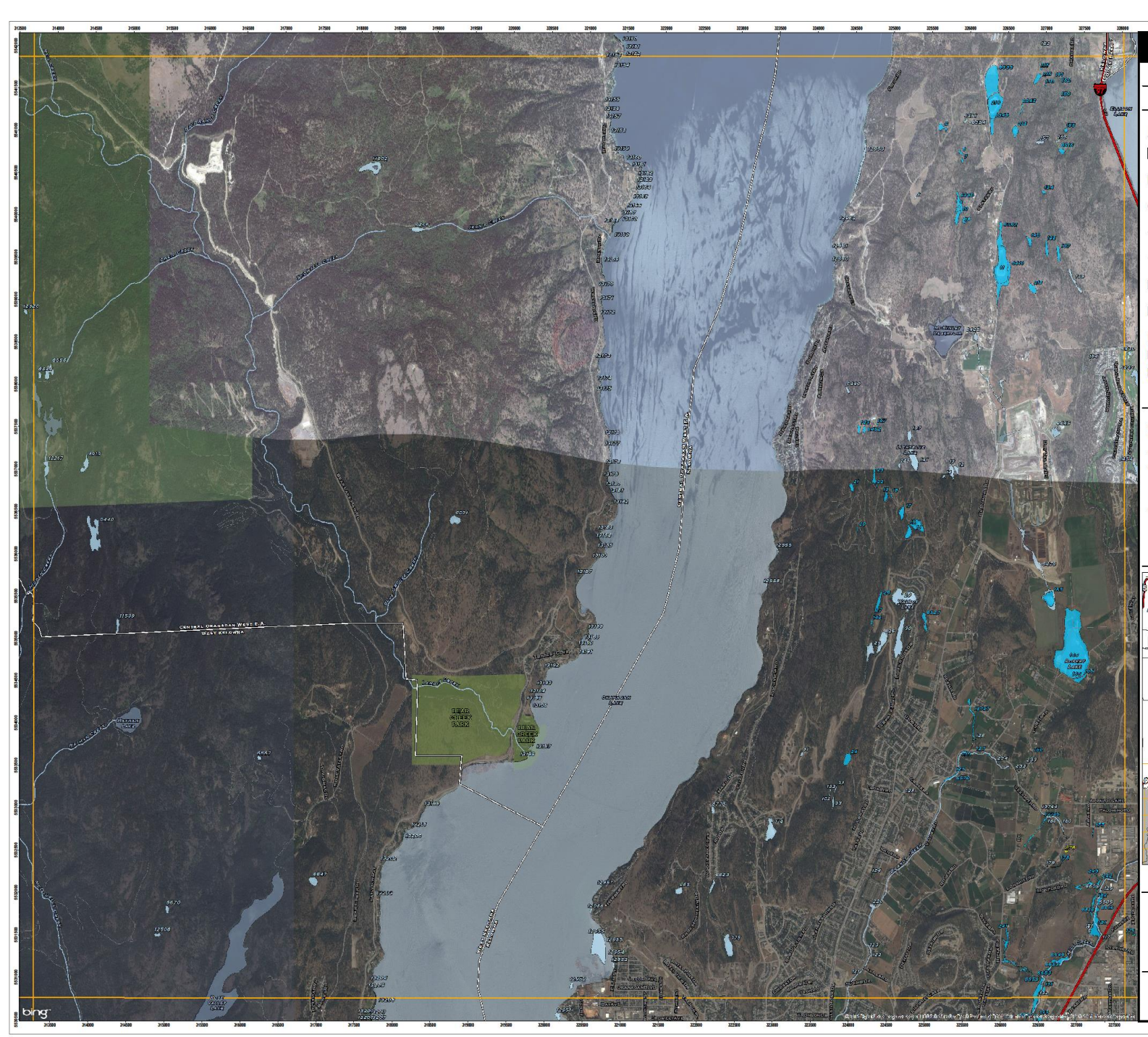


Okanagan Wetlands Strategy

Local Government Lens

Map Sheet - 82E.093

Legend

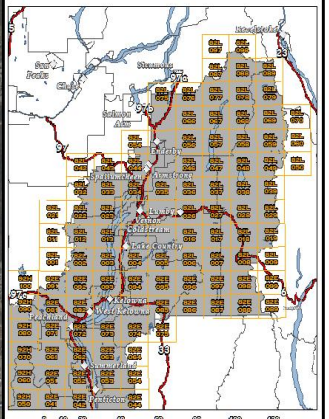
- Municipal Boundary
- Park
- Major Highway
- Road
- Streams
- Lakes and Rivers
- Wetland (Not Captured by Lens Criteria)

Local Government Priority Wetland

- Wetland Within a Development Permit Area
- Wetland Outside a Development Permit Area

Priority Wetland Criteria for Local Government Lens

- Wetlands occurring on Private Land.
- Wetlands with at least one Red/Blue listed CDC occurrence (i.e., plant or animal).
- Wetlands that are part of a complex (i.e., occurring within 750 m of another wetland).
- Wetlands with a calculated Shoreline Development score of over 1.53 (Used as a measure of biodiversity; more complex shorelines are considered to have higher potential for biodiversity. The 1.53 value is the mean Shoreline Development score for all wetlands within the study area).
- Wetlands with at least one of the following identified threats:
  - Grazing Activity
  - Agricultural Activity
  - Forestry Activity
  - Recreation Site
  - Road Proximity
  - Invasive Species



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Okanagan Basin Water Board

ECOSCAPE Environmental Consultants Ltd.

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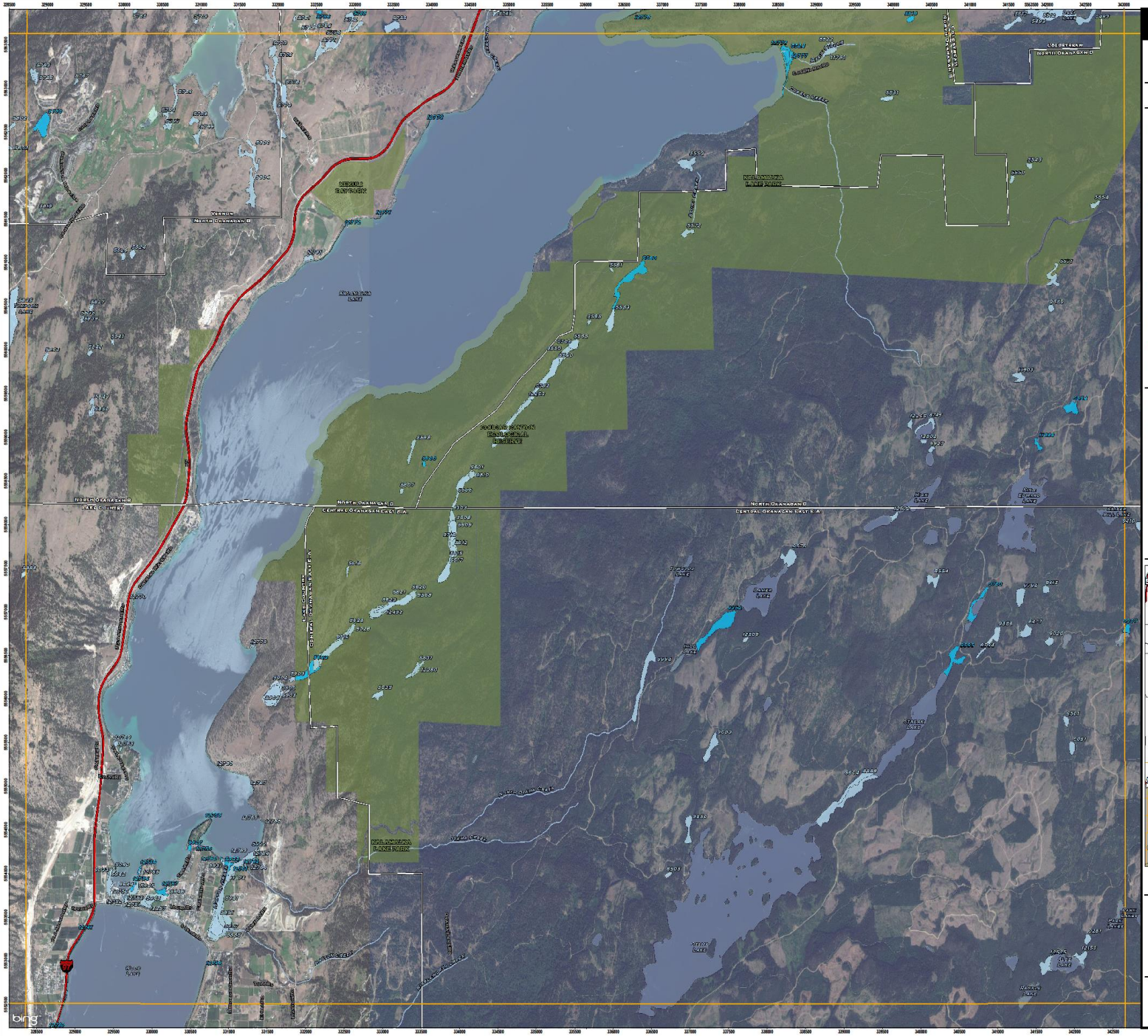


Okanagan Wetlands Strategy

Fish and Game Club Member Lens

Map Sheet - 82L.014

Legend

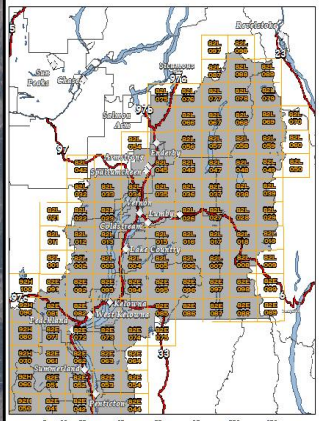
- Municipal Boundary
- Park
- Major Highway
- Road
- Streams
- Lakes and Rivers

Priority Wetland Identified by the Fish and Game Club Member Lens

- Yes
- No

Priority Wetland Criteria for Fish and Game Club Lens

- Wetlands occurring on Crown Land or other public lands (i.e., not private land).
- Wetlands within close proximity of a road (i.e., < 100 m).
- Wetlands that are part of a complex (i.e., occurring within 750 m of another wetland).
- Wetlands with a calculated Shoreline Development score of over 1.53 (Used as a measure of biodiversity; more complex shorelines are considered to have higher potential for biodiversity. The 1.53 value is the mean Shoreline Development score for all wetlands within the study area).
- Wetlands adjacent to (i.e., within 10 m) lakes or other open waterbodies.
- Wetlands with at least one of the following identified threats:
  - Grazing Activity
  - Agricultural Activity
  - Forestry Activity
  - Recreation Site
  - Road Proximity
  - Invasive Species



Okanagan Basin Water Board

ECOSCAPE

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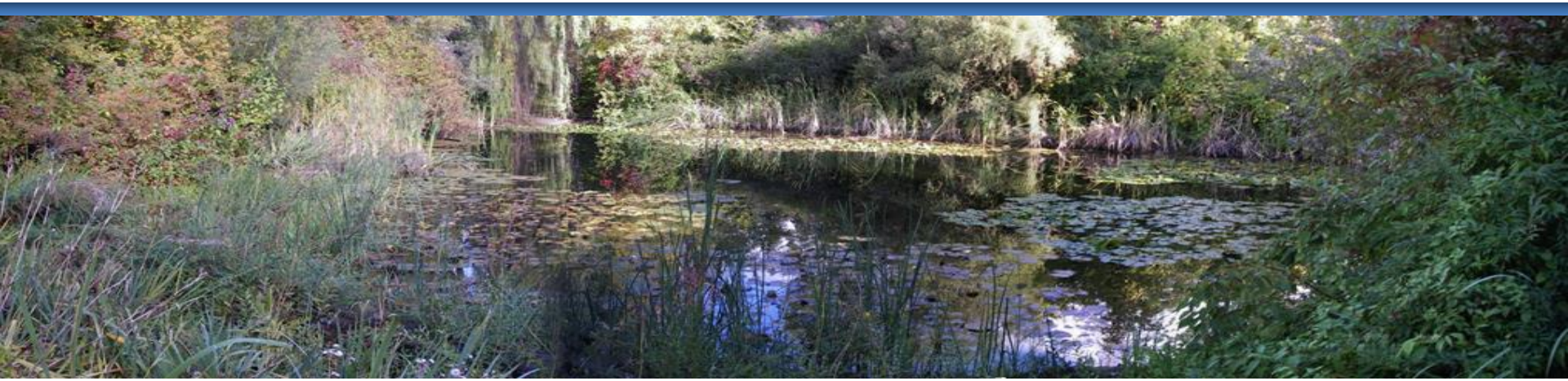
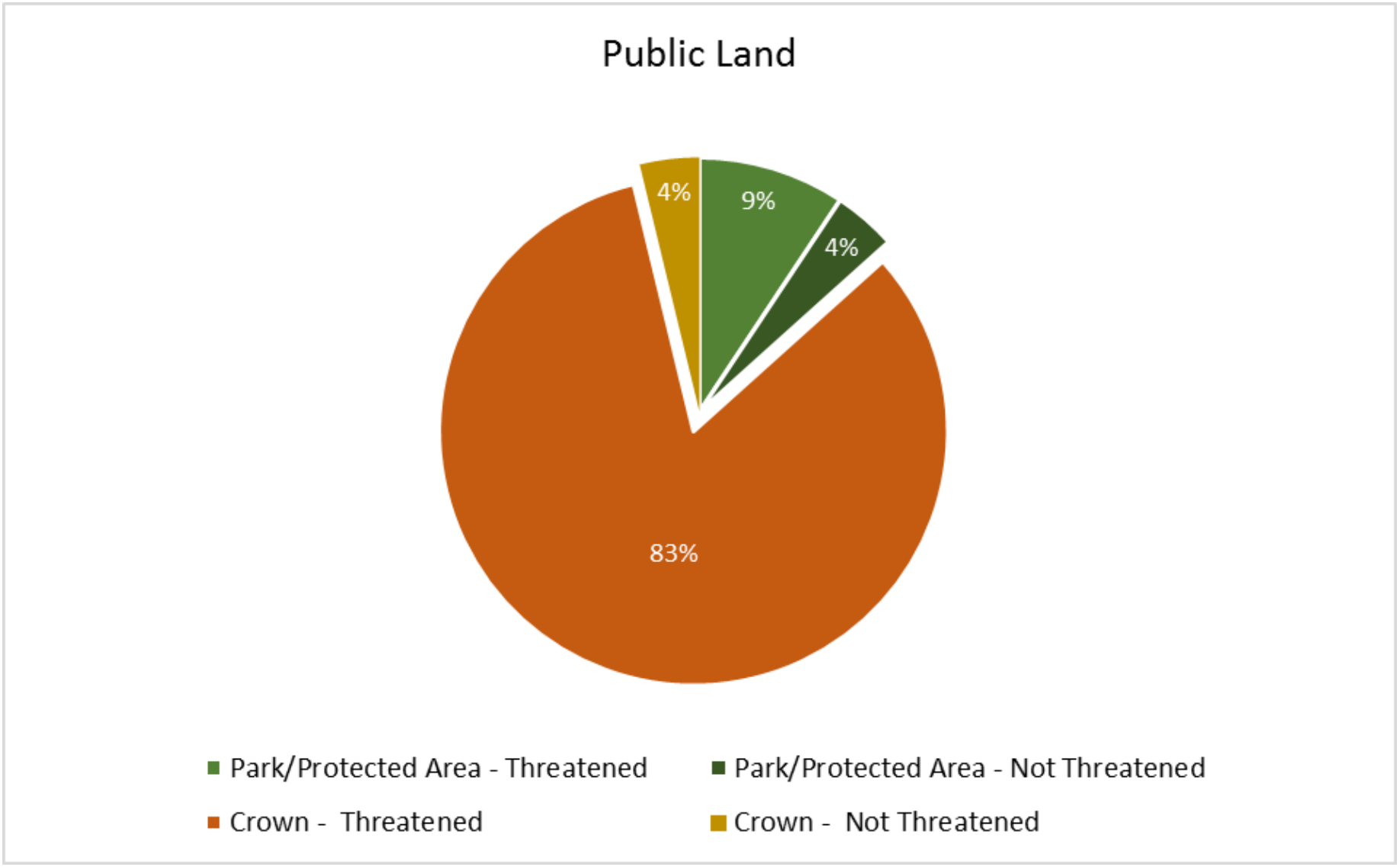
STRATEGIC APPROACH



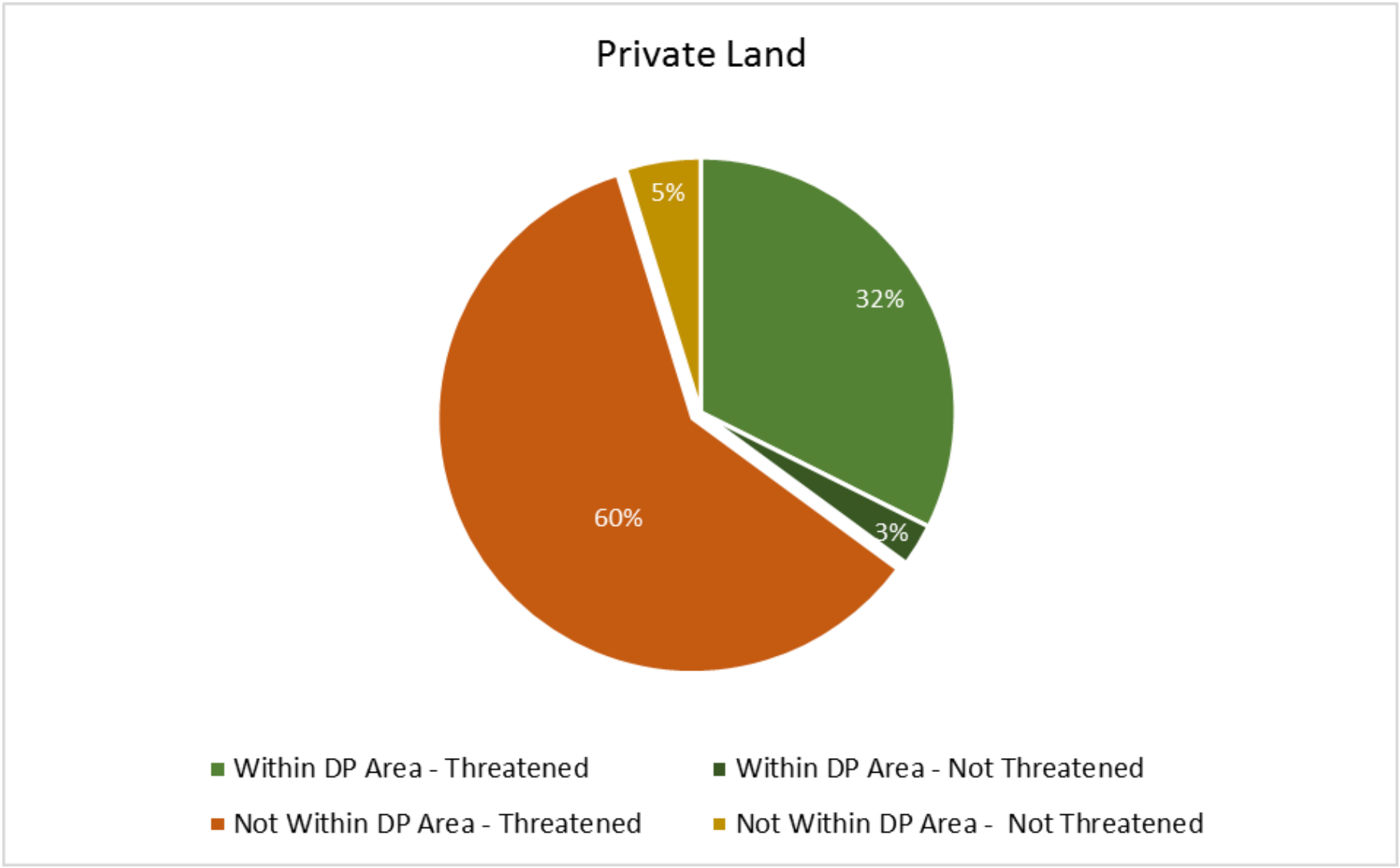
Wetlands of greatest importance include those that provide critical functions such as rare wildlife habitat, regulate flooding, provide clean water and nutrients to downstream habitats, and provide important recreational activities or cultural importance.

ANALYSIS OF EXISTING WETLAND DATA

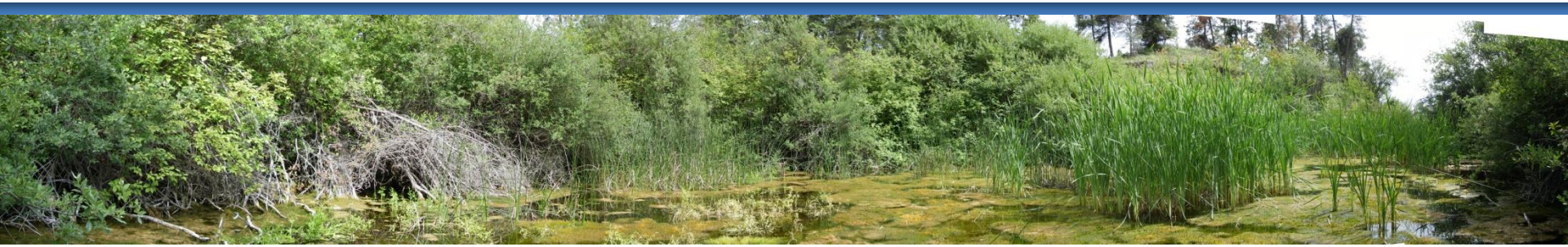
CURRENT PROTECTION AND THREAT



CURRENT PROTECTION AND THREAT



REGIONAL DISTRIBUTION OF WETLANDS



Summary of wetland polygon classification within each Regional District.												
	Alkaline Pond	Flood Low Bench	Flood Mid Bench	Golf Course Pond	Marsh	Pond/ Lake	Reservoir	Saline Meadow	Shallow Open Water	Swamp	Unknown	Total
RDNO	2	1		2	1373	18	21		92	529	643	2681
RDCO		14	13		882	7		19	167	266	624	1992
RDOS	46	7	1	1	1757	90	9		143	925	1804	4783
Total	**48**	**22**	**14**	**3**	**4011**	**115**	**30**	**19**	**402**	**1720**	**3049**	**9456**

Recommendations

- **Outreach** remains a critical component of this project, and the partners should commit resources to these efforts to enable broad communication of the results. Outreach activities should be coordinated through the Wetland Stewardship Partnership (WSP), and information should be delivered with the appropriate level of detail to a variety of targets, including the general public and other potential partners, as well as the wider scientific community.

Local government planning makes a difference!

- Baseline information for monitoring
- Environment into development decisions
- Supporting valley wide projects
- Restoring habitats
- Protecting sensitive ecosystem

Okanagan Wetland Strategy: Phase II.

Wetland Restoration. Photo: C. de la Salle

Phase II Objectives

- Action!
- Communication and outreach
- Data management
- Collaboration

McLachlan Lake

- October, 2014

HUNTERS BUILD A FENCE TO PROTECT WETLAND FROM CATTLE AND MUD-BOGGERS

Posted by *Diane Kiss* on October 30, 2014 · *Leave a Comment*

Some of these hunters may be retired, but they continue to work hard to preserve their local wetland. Part of the crew: Dave Carleton, Ray Paulsen, Bryn White, and Jillian Tamblyn.

McLachlan Lake (unofficially named) is located in the Garnet Valley, not far west of Peachland, BC. This site was put on the radar by Bryn White (*South Okanagan-Similkameen Conservation Program*) as she watched this wetland change year after year while riding her horses through the valley. There are two major threats to this wetland, year round over grazing by up to 200 cattle head and off road vehicles. I was disappointed I didn't get to see any "forest cows", but I saw evidence of them. Neil and I surveyed the site and recorded lots chewed down vegetation, soil compaction, recent cattle paddies, and

Habitat Protection For McLachlan "Lake"

It was during the work to implement the Garnet Valley Motor Vehicle Closure project that we noticed an area that had obviously been a wetland in a previous life. Hard-hit by cattle and mud-boggers, the area was struggling to hold a small amount of water and was being punished for doing so by off-road vehicle vandals. A bit of local research confirmed that this was a wetland in the past known as McLachlan Lake. Judging from the remnants of barbed wire and old posts it had once been been fenced off. Perhaps with some luck and a fence to exclude cattle and off-road vehicles, this wetland could come back. Inspired by the success of the Ritchie Lake project, SOSCP approached the local rancher Dave Casorso, FLNRO Range Officers Charles Oduro and Rob Dinwoodie, and the District Manager Ray Crampton to get permission to re-establish a fence around it. At the same time, conservation partners were working towards an Okanagan Wetland Strategy and were looking for a project that they could sink their teeth into.

SOSCP with partners, funders and helpers got the project off the ground and completed within a couple of weeks. Led by Bryn White with funds and staff help from the BC Wildlife Federation, Okanagan Basin Water Board and Central Okanagan Regional District, the fence was completed in four long, tiring days thanks to Meadow Valley Construction, the Summerland Sportsmen's Association and other community volunteers. What a dedicated crew! Although trying to stop off road vehicle damage in the Okanagan sometimes seems a losing battle, it is inspiring to finish a project with people who want to make a difference, go the extra mile and show up to work hard, with a smile, in the mud and rain. A very special thank you to Dave Carleton, Ray Paulsen, Dave McClellan, Doug and Kathi Penny from Meadow Valley Construction, Lorraine Bennest, Sue George, Murray Rooney, Neil Fletcher, Diane Kiss, Lia McKinnon and Jillian Tamblyn.

Vernon

- December, 2014

BCWF Bog Blog
*wetlandsforlife

THE BOG BLOG ABOUT WETLAND STEWARDS OTHER RESOURCES 2014 WORKSHOPS & COURSES

VERNON COMMUNITY SCHOOL LEARNS HOW TO MAP IN THEIR OWN BACKYARD WETLANDS

Posted by *Diane Kiss* on November 28, 2014 · *Leave a Comment*

The BCWF Wetlands Education Program team traveled to Vernon to deliver a Map our Marshes workshop to 50 excited grade 7-9 students at the *Vernon Community School*. Students had no problem keeping up to the workshop despite that we usually deliver Map Our Marshes to university and adults groups.

This workshop fit Vernon Community School's philosophy that "encourages students to pursue their talents and passions with hands-on, project-based, community partnerships". Although we don't typically run this workshop for such a young crowd, this school was recommended through a partnership with the *Allan Brooks Nature Centre* in Vernon. A quick search on the sites revealed that the school's wetland is recognized as *The Clarence Fulton Wetlands Centre of Excellence*. This is a national initiative supported by *Ducks Unlimited* where

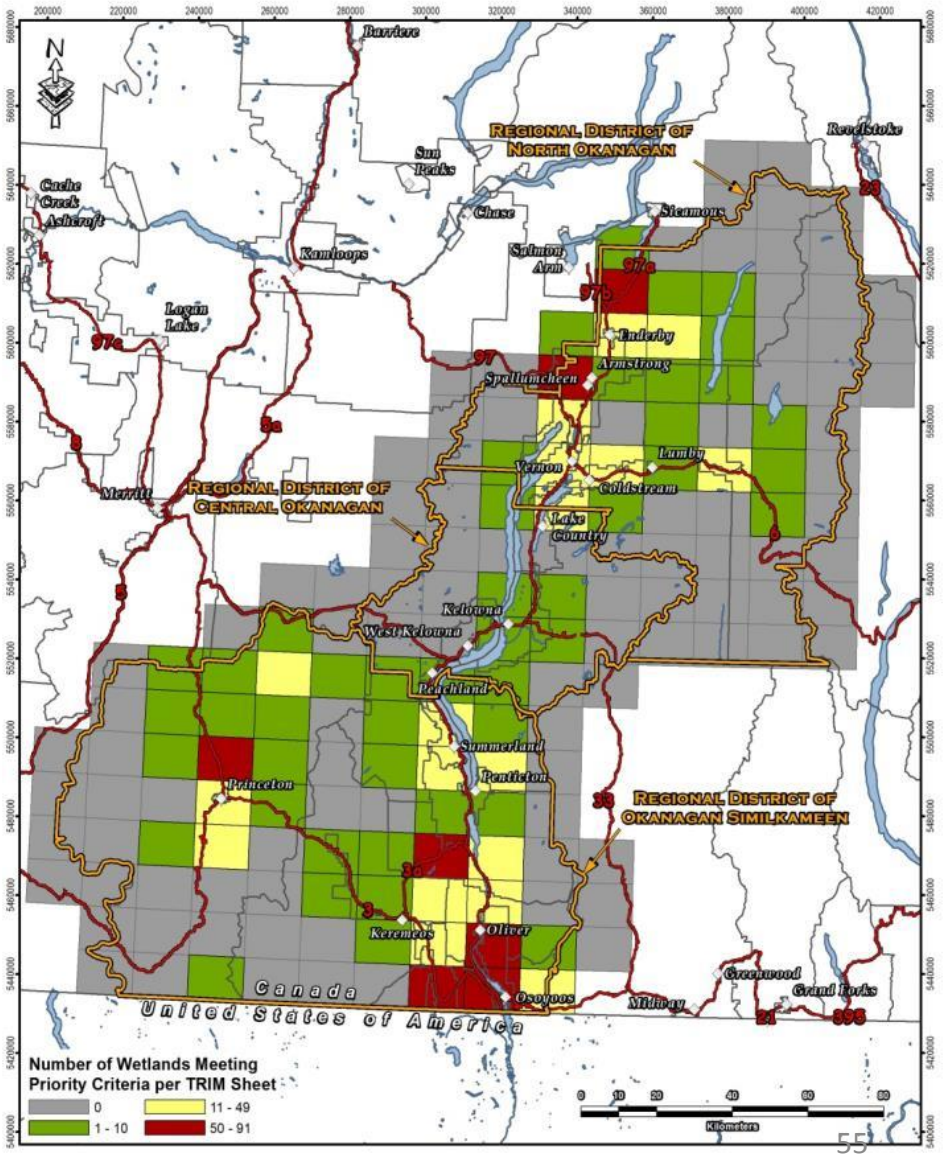
South Okanagan Grasslands Protected Area - Stink Lake

Ritchie Lake

Wetlandkeepers Workshop

Data Management

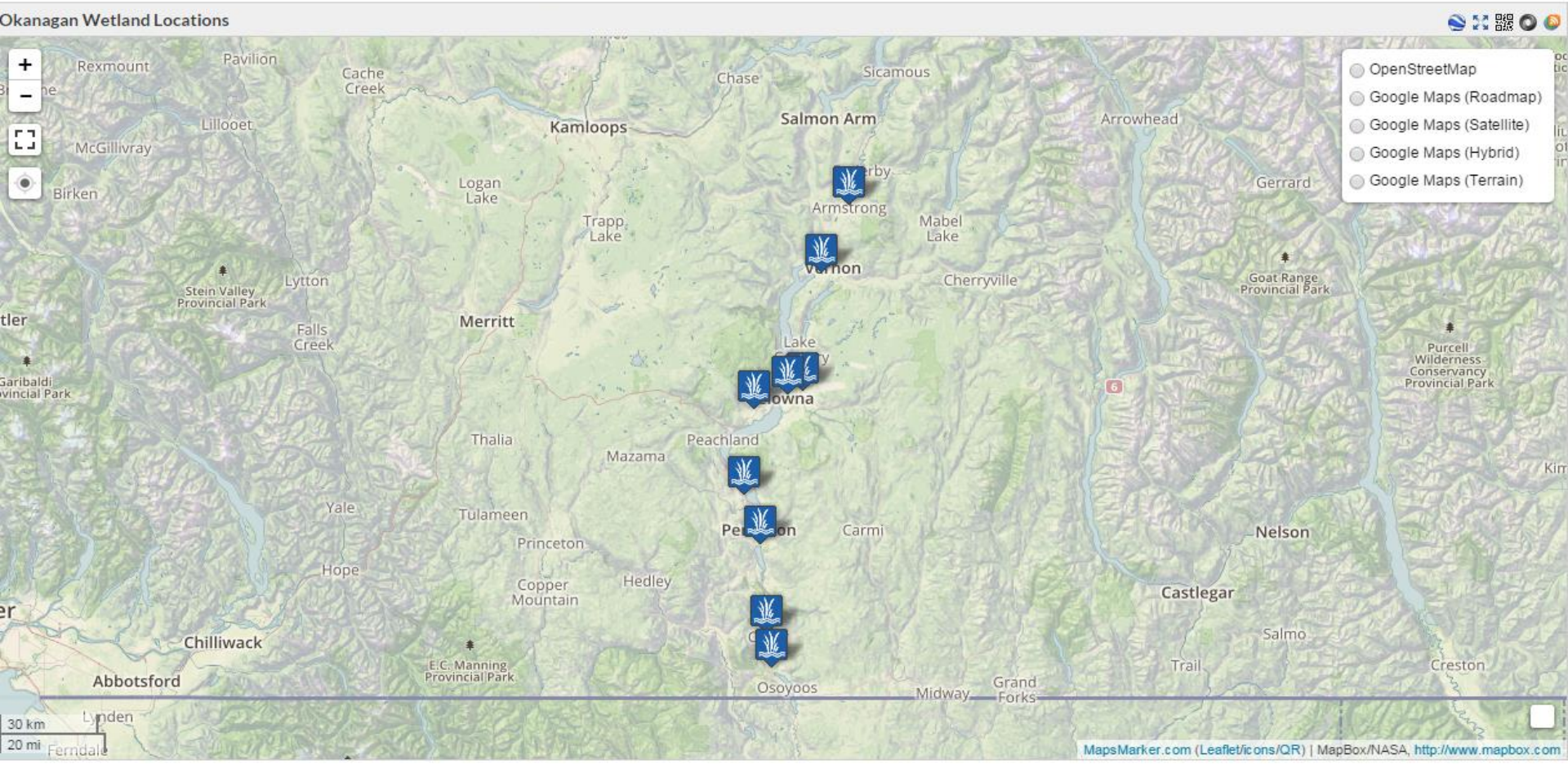
- Refine database
- Hosting database
- Can’t protect what we don’t know
- Adding and sharing information
- Prioritizing



www.okanaganwetlands.ca

Map of Okanagan Wetlands

Zoom in to explore. Click a marker for more information



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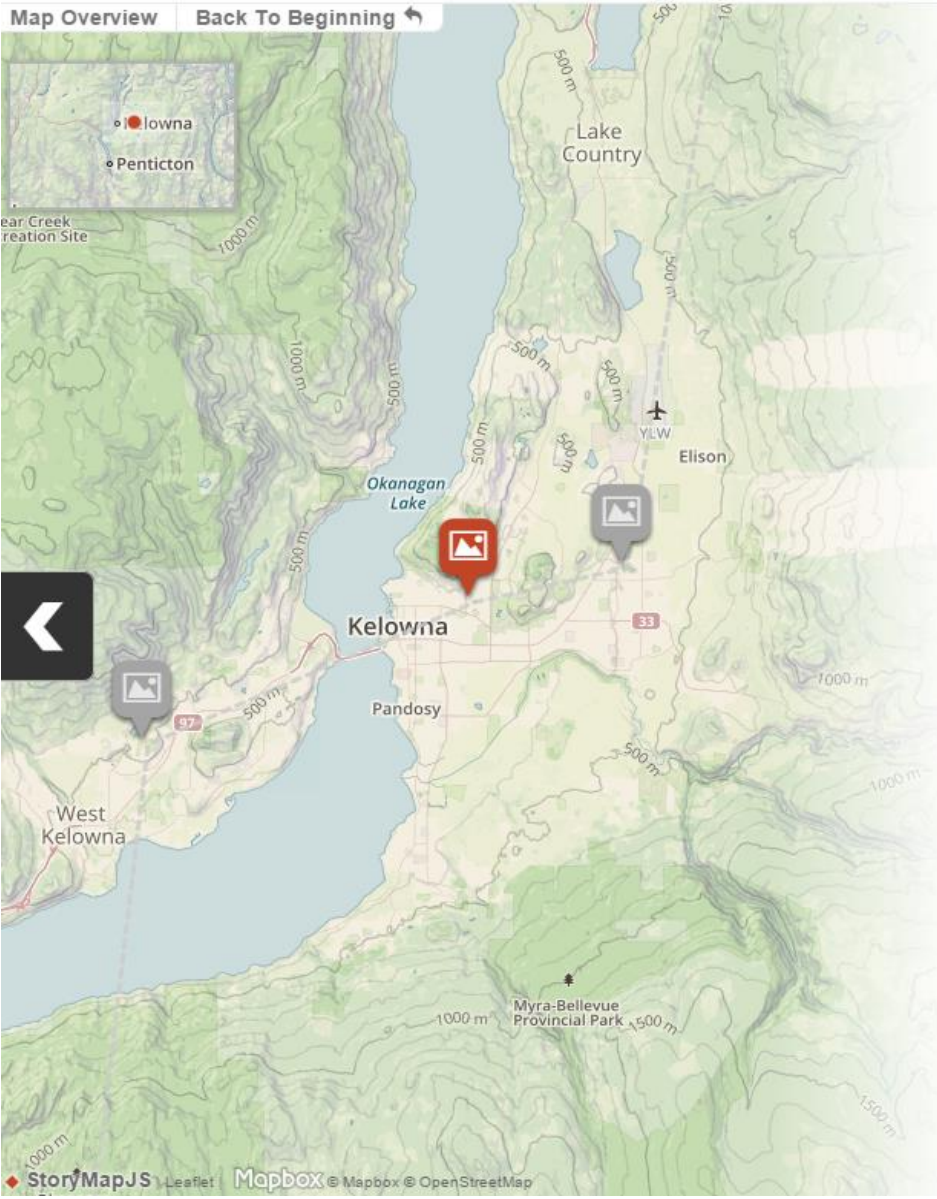

Redlich Pond

Western Painted Turtles are ancient and remarkable creatures. Found only at low elevations in southern British Columbia, they require very specific habitats like this one: deep ponds with loose soil near the shoreline, where they can bury their eggs. We should look after our turtle habitat. Some cultures think a turtle holds up the world. They might be right.

Tortues peintes de l'ouest sont des créatures anciennes et remarquables. Trouvée seulement à basse altitude dans le sud de la Colombie-Britannique, ils ont besoin des habitats très spécifiques comme celle-ci : étangs profonds avec la terre meuble près du bord, où elles peuvent enterrer leurs œufs. Nous devrions prendre soin de cet habitat de la tortue. Certaines cultures croyant qu'une tortue soutient le monde. Ils pourraient avoir raison

www.okanaganwetlands.ca

Okanagan Wetlands Photo Gallery

Photo Gallery

What is next?

- Formalize data management approach
- Refine data
- More on the ground projects
- Policy projects
- Story web site
- Phase III – Strategy Development

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Thank you