



Okanagan Large Lakes Foreshore Protocol

Presented by:

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Ministry of Forests, Lands and Natural Resource Operations and Rural Development

Ecosystems Section | Resource management

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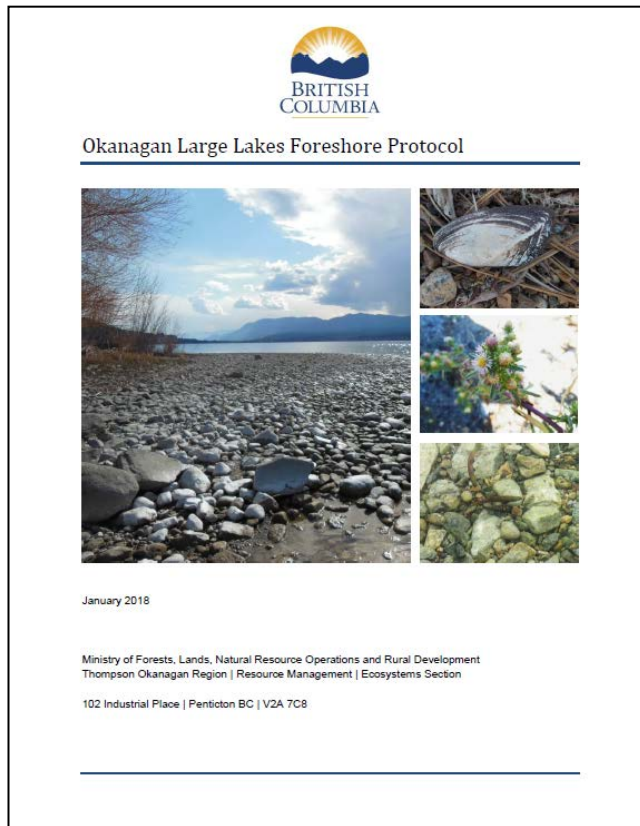
Presented for:

2018 QP Workshop

Penticton, B.C.

Okanagan Large Lakes Foreshore Protocol

Purpose



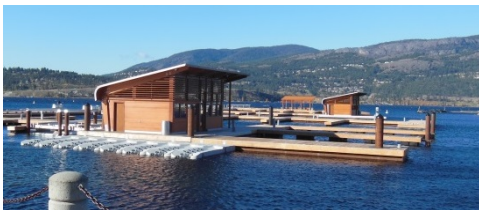
- Provides direction to proponents and QPs on requirements for **provincial natural resource applications**
- Based on the environmental sensitivity of the site and the risk of the proposed foreshore development
- Originally released in 2009
- 2018 Protocol based on current management priorities, best available science and up-to-date mapping

Okanagan Large Lakes Foreshore Protocol

The Steps



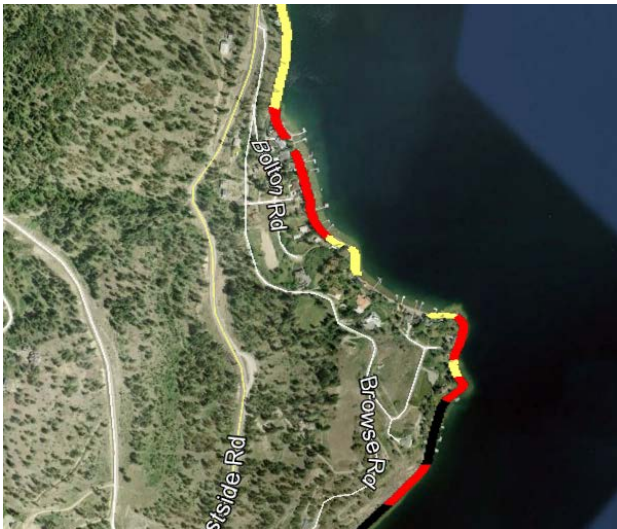
1. Determine the **Foreshore Sensitivity Zones**
2. Determine the **Activity Risk** associated with the proposed development
3. Determine the **Application/Submission Requirements** and when to engage a QP
4. Determine required species-specific **Guidance Documents**



1. Determine the Foreshore Sensitivity Zone

Look at Available Mapping

- Mapping available for three values: Shore Spawning Kokanee, Freshwater Mussels, Foreshore Plants
- Mapping currently available via Protocol website and soon to be available via iMapBC and Data BC



BLACK

RED

YELLOW

NO COLOUR

Critical Habitat

High Habitat Value

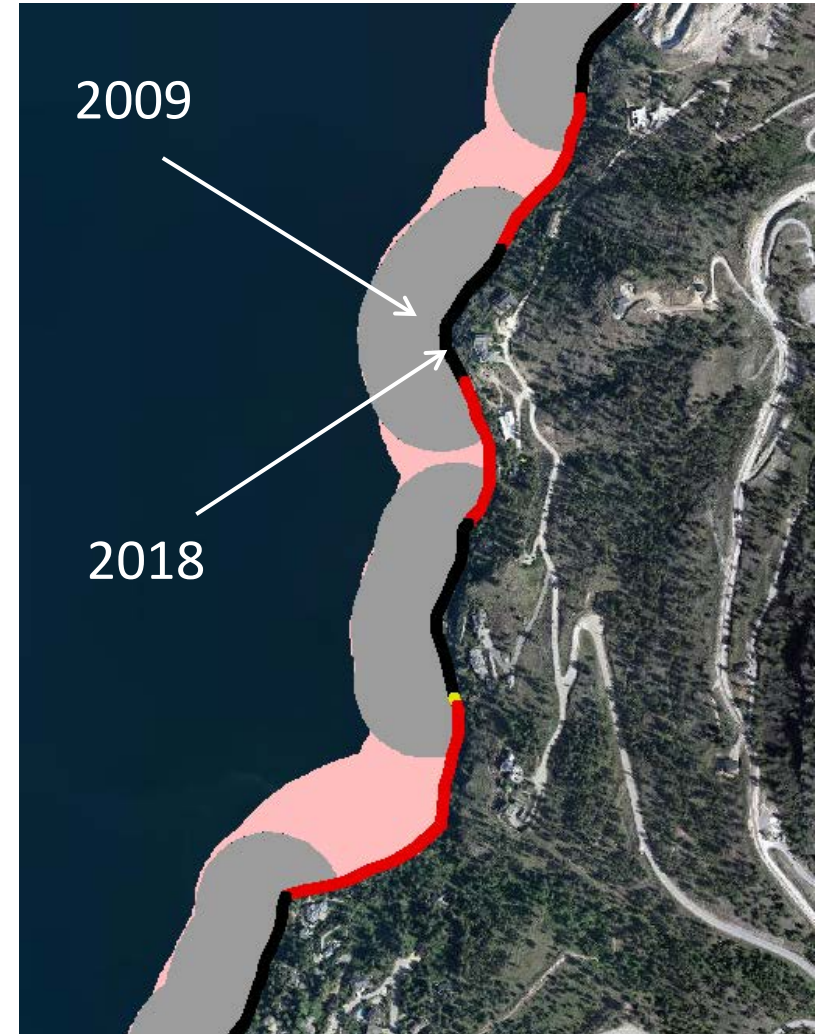
Moderate Habitat Value

Low or Unknown Habitat Value

1. Determine the Foreshore Sensitivity Zone

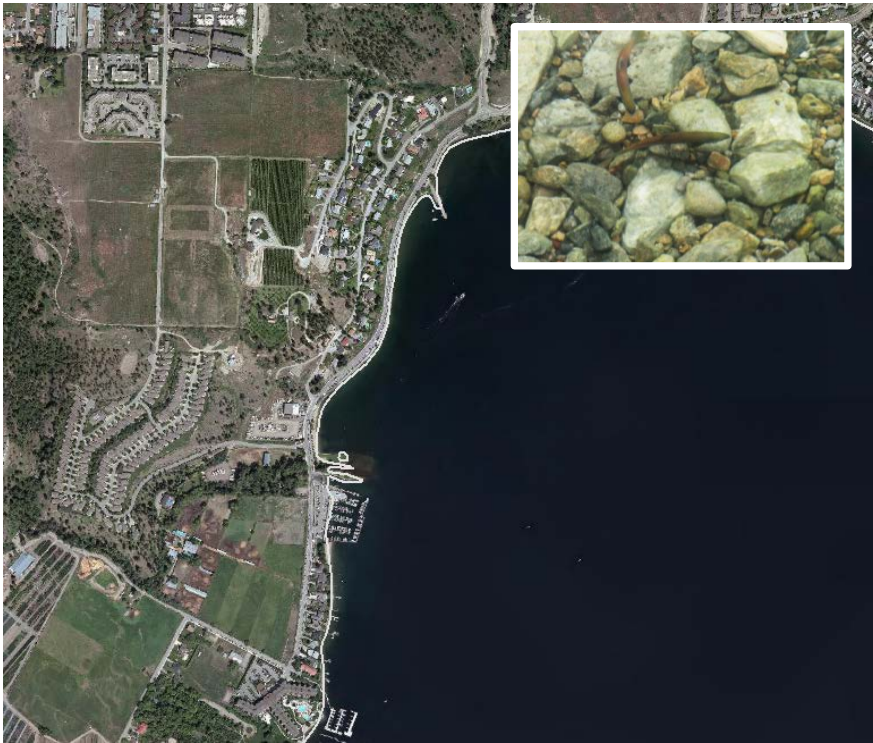
Shore Spawning Kokanee

- Additional survey data (2009-2014)
- Mapping now displays highest value zone along shoreline (instead of polygons)
- Cleaned up data
 - Removed single occurrences
 - Removed long data lines (>1 km)
 - Removed errors
- Reduced buffers: 25 m for all Zones



1. Determine the Foreshore Sensitivity Zone

Stream Spawning Kokanee



Example: Powers/Smith Creeks @ West Kelowna

- Stream mouths no longer mapped as zone (i.e., No Colour Zone)
- Separate work window for 50 m buffer on either side of stream, more consistent between lakes (e.g., Okanagan/Wood/Kalamalka = November 1 to April 1)


2009



1. Determine the Foreshore Sensitivity Zone

Freshwater Mussels



Example: Mussel Red Zone @ Summerland

- Includes Rocky Mountain Ridged Mussel records
 - Red Zone = Live records
 - Yellow Zone = Shells
- Updated mapping based on addition surveys (partnership with UBCO)
- “No Colour” Zones indicate data gap

1. Determine the Foreshore Sensitivity Zone

Foreshore Plants



- Includes foreshore plant species at risk records
 - Black Zone = Critical Habitat
 - Red Zone = Known occurrences
 - Yellow Zone = Potential habitat
- Updated mapping based on additional surveys
- “No Colour” Zones indicate data gap

Example: Plant Black Zone @ Ok Falls

2. Determine the Activity Risk

Appendix 1: Risk Assessment for Development Activities

Activity	Colour Zone			
	Black	Red	Yellow	No colour
Dock	VH	H	H	L
Marina *	VH	VH	H	M
Boat launch upgrade	H	H	H	M
New boat launch	VH	VH	H	M
Waterline drilled	M	M	M	L
Dredging	VH	VH	H	M
Waterline trenched	VH	VH	H	M
Geothermal loops	VH	VH	H	L
Infill	VH	VH	VH	H
Piled structure	VH	VH	H	H
Erosion protection (soft-bioengineered)	M	M	L	L
Erosion protection hard-joint planted	H	H	H	M
Erosion protection vertical wall or retaining wall	VH	VH	VH	H
Permanent rail launch system	VH	H	H	M
Removable rail launch system	H	M	M	L
Beach Creation below HWM	VH	VH	VH	VH
Milfoil & Invasive weed removal	H	H	M	L
Aquatic vegetation removal**	VH	VH	H	H
Boardwalk below HWM	VH	VH	H	H
Mooring buoy	H	M	M	L

* Marina threshold = Commercial Moorage Threshold = strata, marina or commercial wharf

** Some mapping is available for aquatic vegetation - See [MoE](#) regional website

Table 1 Risk Rating by Activity Type

Risk	Activity Type	
High	Marina – New	
	Boat Launch – New	
	Erosion Protection – New (Hard)	
	Dredging – Foreshore	
	Infill – Foreshore	
	Beach Creation	
	Waterline (Trenched) – New	
	Aquatic Invasive Vegetation Removal – Rototilling, Harvesting	
	Moderate	Dock/Piled Structure – New
		Dock – Removable
Stormwater Outfall – New		
Erosion Protection – New (Riprap)		
Debris Removal – Large / By Machine*		
Aquatic Invasive Vegetation Removal – By Hand		
Restoration Works*		
Recreation – Beach Maintenance		
Low	Dock/Piled Structure – Repair/Upgrade*	
	Rail Launch – Permanent, Removable	
	Marina – Repair/Upgrade*	
	Boat Launch – Repair/Upgrade*	
	Waterline (Drilled) – New	
	Waterline – Repair/Upgrade*	
	Stormwater Outfall – Repair*	
	Erosion Protection – New (Soft)	
	Erosion Protection – Repair (all types)*	
	Debris Removal – Small / By Hand*	
	Vegetation Removal – By Hand*	
	Mooring Buoy	

*Assumes no significant terrestrial disturbance or change to site hydrology; if not valid, increase risk by one level

2009 = Zone Based

2018 = Activity Based

2. Determine the Activity Risk

2018 = Risk is Activity Based (vs Zone Based)

Table 1 Risk Rating by Activity Type

Risk	Activity Type
High	Marina – New
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	Beach Creation
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	Dock – Removable
	Stormwater Outfall – New
	Erosion Protection – New (Riprap)
	Debris Removal – Large / By Machine*
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	Debris Removal – Small / By Hand*
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	Mooring Buoy

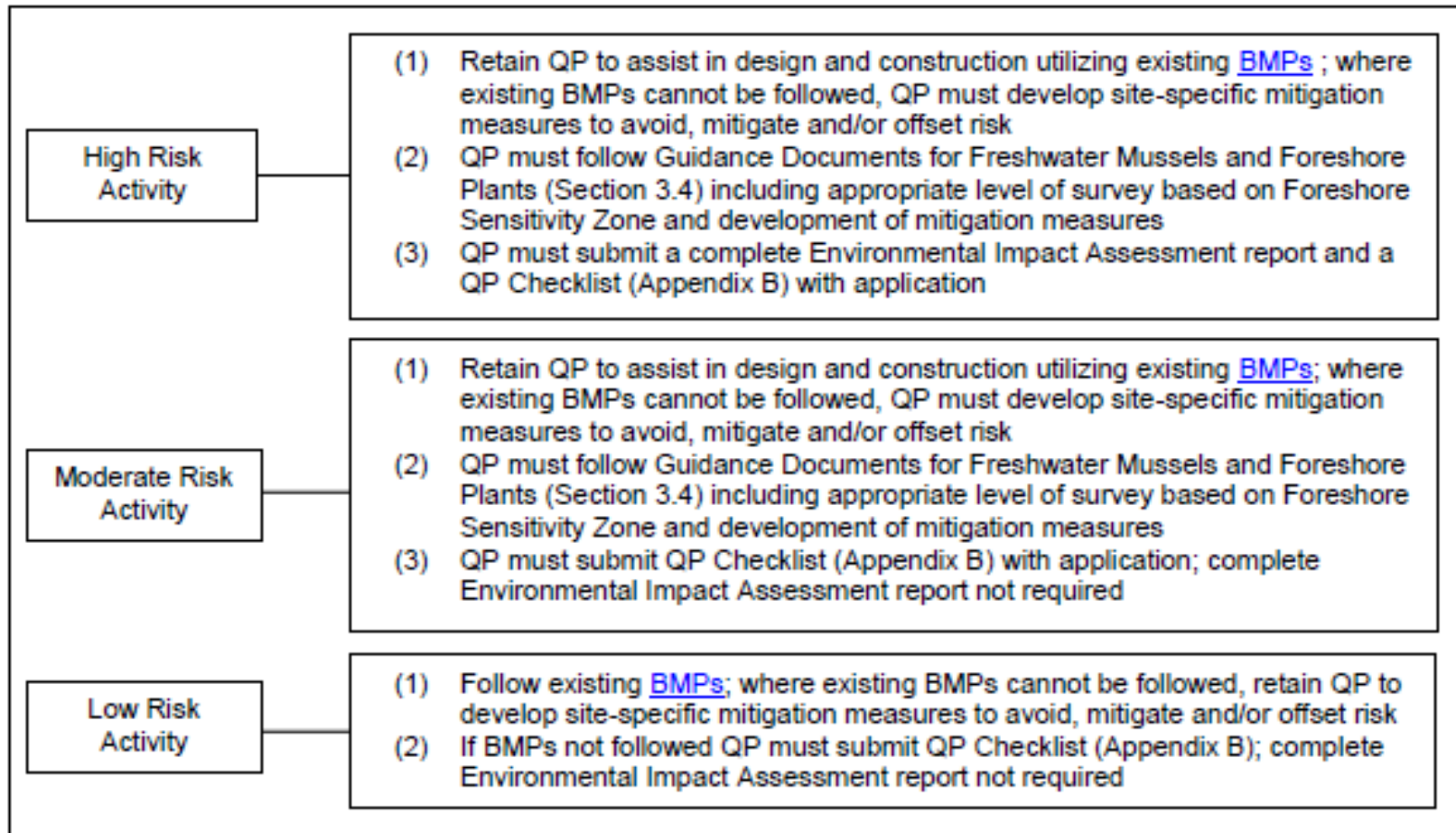
High = large footprints and/or associated habitat disturbance

Moderate = new works with some associated habitat disturbance

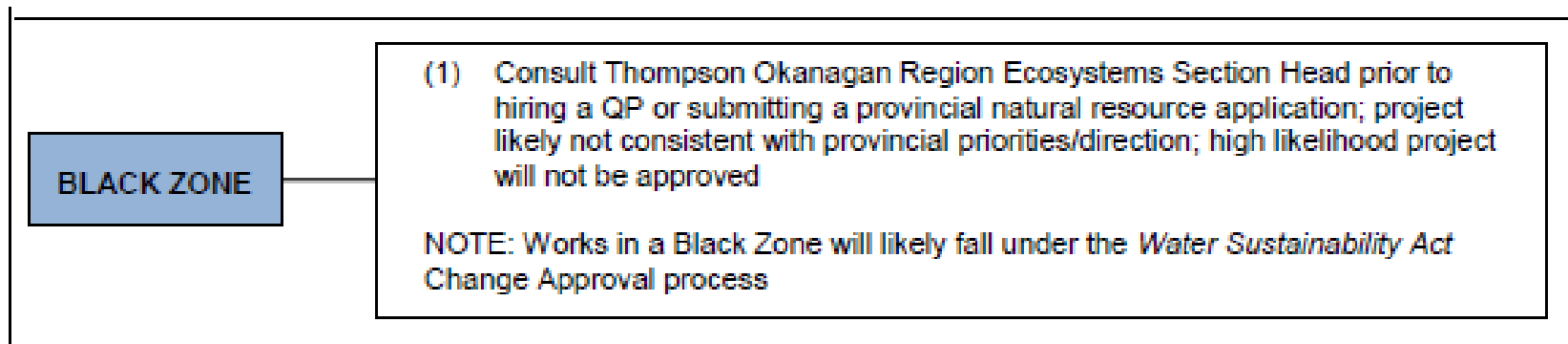
Low = repairs and other projects with small footprints/disturbance

*Assumes no significant terrestrial disturbance or change to site hydrology; if not valid, increase risk by one level

3. Determine Application Requirements



3. Determine Application Requirements



Note: Application requirements for Private Moorage and Docks do not follow this flow chart and are addressed under separate guidance. Docks are the most common foreshore development activity type on Okanagan large lakes. Consequently, a significant effort has been put in to develop specific guidance to reduce impacts through design and mitigation practices. If you propose to construct a dock you must follow the Dock Design Criteria for Okanagan Large Lakes.

4. Determine Need for Guidance Documents



Guidance for Freshwater Mussels in the Okanagan



January 2018

Ministry of Forests, Lands, Natural Resource Operations and Rural Development
Thompson Okanagan Region | Resource Management | Ecosystems Section

102 Industrial Place | Penticton BC | V2A 7C8



Guidance for Foreshore Plants in the Okanagan



January 2018

Ministry of Forests, Lands, Natural Resource Operations and Rural Development
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Freshwater Mussels Guidance

Intent

- Provide advice to QPs undertaking freshwater mussel surveys and relocations within the Thompson Okanagan Region
- Focus on survey methods (consistency) and mitigation (increase success and make cost effective)



Why the Extra Effort

- Freshwater mussels are among the most imperiled groups of organisms in the world
- There is currently one mussel species, *Gonidea angulata*, in the Thompson Okanagan Region listed as at-risk by the federal government.

Foreshore Plants Guidance

Why include Foreshore Plants?



Red-rooted cyperus



Small-flowered lipocarpa

- Foreshore plant species at risk have received little attention in the past
- FLNRORD has conducted numerous surveys since 2009 (have better data now)
- We have developed tools to assist in ID (fact sheets, training, guidance, etc.)
- Critical Habitat now federally defined for three species (more to come)

Foreshore Plants Guidance

What is in the Guidance?

- When surveys are required
- Surveyor qualifications and methods
- Mitigation measures

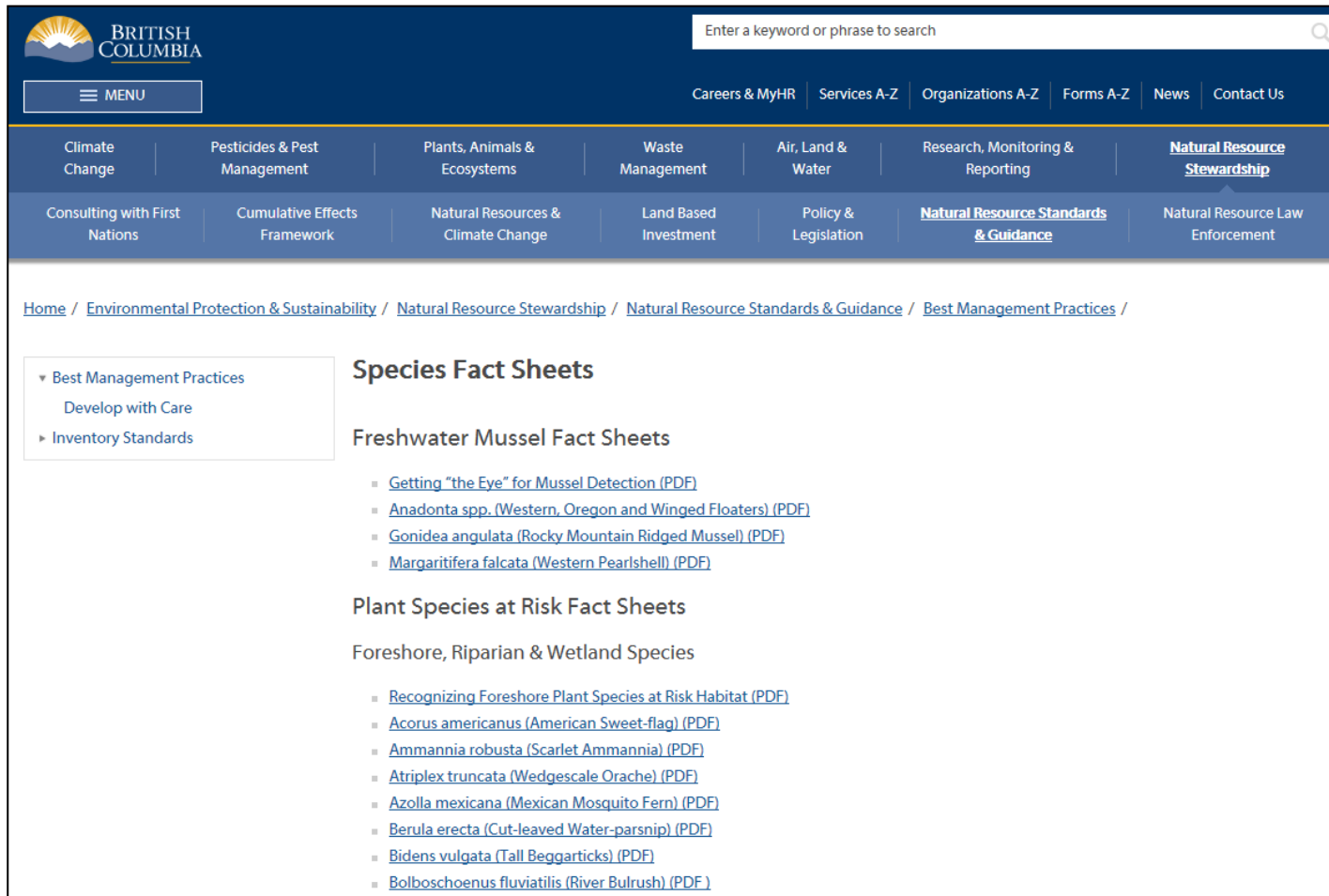


Blue vervain

Table 1 Foreshore Plant SAR Survey Requirements by Activity Risk and Zone

Activity Risk	Foreshore Sensitivity Zone			
	No Colour	Yellow	Red	Black
Low Risk (follows BMPs)	N/A	N/A	N/A	
Low Risk (does not follow BMPs)	Preliminary Assessment	Detailed Survey	Detailed Survey	Contact Ecosystems Section Head before proceeding
Moderate Risk	Preliminary Assessment	Detailed Survey	Detailed Survey	
High Risk	Preliminary Assessment	Detailed Survey	Detailed Survey	

Fact Sheets



The screenshot shows the British Columbia government website. At the top left is the logo and name 'BRITISH COLUMBIA'. To the right is a search bar with the placeholder text 'Enter a keyword or phrase to search'. Below the search bar is a navigation menu with links for 'Careers & MyHR', 'Services A-Z', 'Organizations A-Z', 'Forms A-Z', 'News', and 'Contact Us'. A secondary navigation bar contains various environmental topics: 'Climate Change', 'Pesticides & Pest Management', 'Plants, Animals & Ecosystems', 'Waste Management', 'Air, Land & Water', 'Research, Monitoring & Reporting', 'Natural Resource Stewardship', 'Consulting with First Nations', 'Cumulative Effects Framework', 'Natural Resources & Climate Change', 'Land Based Investment', 'Policy & Legislation', 'Natural Resource Standards & Guidance', and 'Natural Resource Law Enforcement'. The breadcrumb trail reads: 'Home / Environmental Protection & Sustainability / Natural Resource Stewardship / Natural Resource Standards & Guidance / Best Management Practices /'. On the left, a sidebar menu shows 'Best Management Practices' expanded with sub-items 'Develop with Care' and 'Inventory Standards'. The main content area is titled 'Species Fact Sheets' and lists three categories: 'Freshwater Mussel Fact Sheets', 'Plant Species at Risk Fact Sheets', and 'Foreshore, Riparian & Wetland Species'. Each category contains a list of links to PDF documents.

BRITISH COLUMBIA

Enter a keyword or phrase to search

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Consulting with First Nations | Cumulative Effects Framework | Natural Resources & Climate Change | Land Based Investment | Policy & Legislation | **Natural Resource Standards & Guidance** | Natural Resource Law Enforcement

Home / Environmental Protection & Sustainability / Natural Resource Stewardship / Natural Resource Standards & Guidance / Best Management Practices /

▼ Best Management Practices
Develop with Care
► Inventory Standards

Species Fact Sheets

Freshwater Mussel Fact Sheets

- [Getting "the Eye" for Mussel Detection \(PDF\)](#)
- [Anadonta spp. \(Western, Oregon and Winged Floaters\) \(PDF\)](#)
- [Gonidea angulata \(Rocky Mountain Ridged Mussel\) \(PDF\)](#)
- [Margaritifera falcata \(Western Pearlshell\) \(PDF\)](#)

Plant Species at Risk Fact Sheets

Foreshore, Riparian & Wetland Species

- [Recognizing Foreshore Plant Species at Risk Habitat \(PDF\)](#)
- [Acorus americanus \(American Sweet-flag\) \(PDF\)](#)
- [Ammannia robusta \(Scarlet Ammannia\) \(PDF\)](#)
- [Atriplex truncata \(Wedgescale Orache\) \(PDF\)](#)
- [Azolla mexicana \(Mexican Mosquito Fern\) \(PDF\)](#)
- [Berula erecta \(Cut-leaved Water-parsnip\) \(PDF\)](#)
- [Bidens vulgata \(Tall Beggarticks\) \(PDF\)](#)
- [Bolboschoenus fluviatilis \(River Bulrush\) \(PDF\)](#)

<https://www2.gov.bc.ca/gov/content/environment/natural-resource-stewardship/natural-resource-standards-and-guidance/best-management-practices/species-factsheets>

Questions?

