
Forest Watershed Values

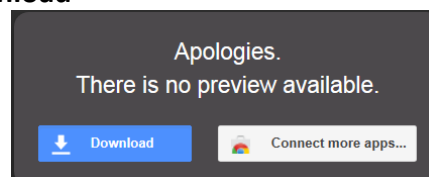
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2015 Fall Study Session for the CAPF Professional Exam

| Topic | Learning Module | Audio (See instructions below) | Speaker |
|---|-----------------|--------------------------------|--|
| Forest Hydrology <ul style="list-style-type: none">• Water Act• Water for Life• Code of Practice for Watercourse Crossings• Federal Legislation• Albert Wetland Policy• Forest management planning policies (AFMPS, OGRs) | HWM | WMA Audio | Axel Anderson, RPF fRI Water Program Tel: (780) 221 7050 Axel.Anderson@gov.ab.ca |

NOTE: To listen to the presentations in Windows Media Audio format:

1. Click on [WMA Audio](#)
2. Click **Download**



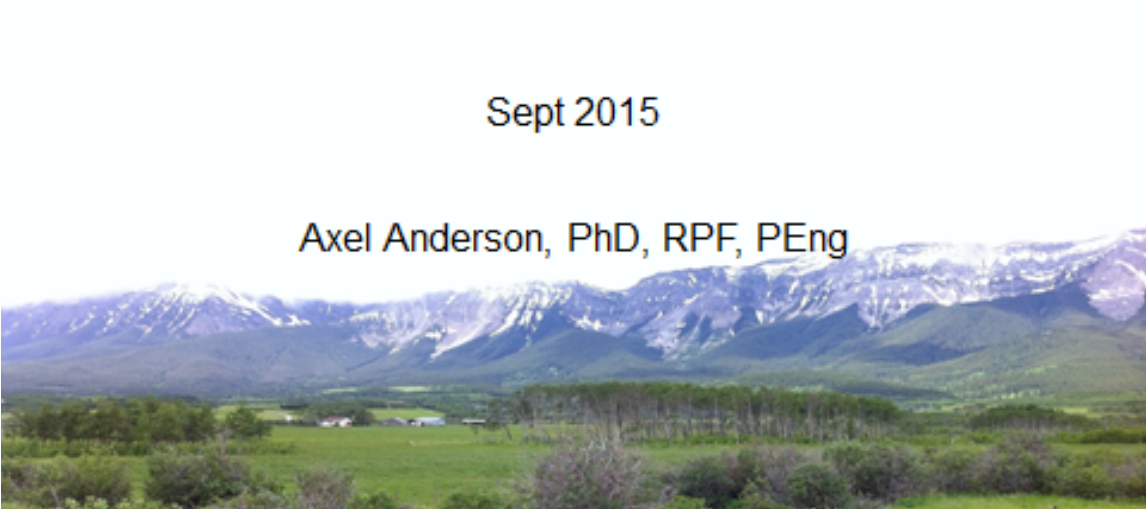
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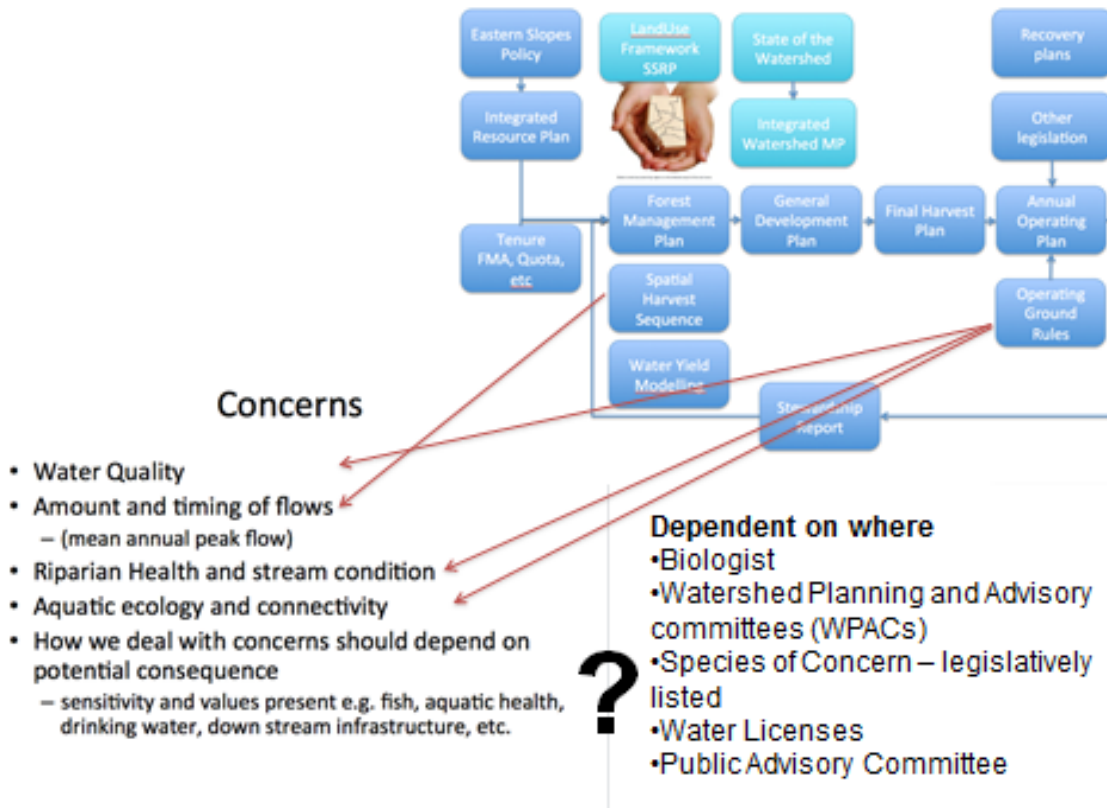


CAPF Study Session Forest Watershed values

Sept 2015

Axel Anderson, PhD, RPF, PEng





Policies and Legislation

- Provincial Policies and Legislation
 - Alberta Forest Planning Standard
 - Alberta Timber Harvest Planning and Operating Ground Rules
 - Water Act, Regulations, Code of Practice for Water Course Crossings, Guide to the Code
 - Eastern Slopes Policy
 - Land Use Framework, Water For Life, Wetland Policy
- Federal legislation
 - Fisheries Act
 - Navigable Waters Protection Act
 - Canadian Environmental Assessment Act
 - SARA

Alberta Forest Management Planning Standard

- **References to water and related values**
 - Section 5.7 Spatial Harvest Sequence
 - Select SHS to protect watershed and riparian values
 - Section 5.9.13 Predictions of water yield
 - The impacts on water yield must be predicted
 - Watershed modeling and analysis will determine an acceptable target for water yield increase following harvesting of 3rd and 4th order watercourses

Alberta Timber Harvest Planning and Operating Ground Rules

- Implements policy/legislation-required with disposition approval (Forests Act, Timber Management Regulation)
- Forest Management Agreements negotiate individualized ground rules

Alberta Timber Harvest Planning and Operating Ground Rules Framework for Renewal

Table 2. Standards and Guidelines for Operating Beside Watercourses

| Watercourse Classification | Roads, Landings, and Bared Areas | Watercourse Protection Areas | Operating Conditions Within Riparian Areas and Water Source Areas Where Operations are Approved | |
|------------------------------|--|--|---|--|
| | | | Tree Felling | Equipment Operation |
| Class "A" Waterbodies | Not permitted within 100 m of high water mark. Any existing roads may be maintained at present classification standards. Any proposed watercourse crossings within 2 km upstream must be specifically approved in the ACP and must be a temporary crossing as defined in the Code of Practice. | No disturbance or removal of timber within the appropriate riparian area specified by stream type (e); No duff disturbance of intermittent (min 10 m vegetated buffer) or ephemeral drainages (minimum 5 m vegetated buffer) within 2 km upstream of Class A waterbody. | Not permitted without specific Alberta approval. | Not allowed without specific Alberta approval. |
| Class "B" Waterbodies | Not permitted within 60 m of high water mark. Any existing roads may be maintained at present classification standards. Any watercourse crossings within 2 km upstream must be specifically approved in the ACP. | No disturbance or removal of timber within the appropriate riparian area specified by stream type unless specifically approved in the ACP. No duff disturbance of intermittent (minimum 10 m vegetated buffer) or ephemeral drainages (minimum 5 m vegetated buffer) within 500 m upstream of Class B waterbody. | Trees shall be felled so that they do not enter watercourse. Should slash or debris enter the watercourse immediate removal is required without a machine entering the watercourse. | Where removal of timber within 60 m is approved, no machinery is permitted within 30 m of the high water mark. |
| Large Permanent | Not permitted within 100 m of the high water mark or water source areas within the riparian management zone unless specifically approved in the ACP. | No disturbance or removal of timber within 60 m of high water mark unless specifically approved in the ACP. No removal of timber shall be approved within 10 m of the high water mark. Watercourses with deeply incised unvegetated banks shall have the buffer start from the top of the incised valley and not the high water mark. | Trees shall be felled so that they do not enter watercourse. Should slash or debris enter the watercourse immediate removal is required without a machine entering the watercourse. | Where removal of timber within 60 m is approved, no machinery is permitted within 20 m of the high water mark. |
| Small Permanent | Not permitted within 30 m of the high water mark or water source areas within the riparian management zone unless specifically approved in the ACP. | No disturbance or removal of timber within 30 m of high water mark unless specifically approved in the ACP. No removal of timber shall be approved within 10 m of the high water mark. Watercourses with deeply incised unvegetated banks require discussion prior to submission of the FHP to determine appropriate protection requirements. | Trees shall be felled so that they do not enter watercourse. Should slash or debris enter the watercourse immediate removal is required without a machine entering the watercourse. | Where removal of timber within 30 m is approved, no machinery is permitted within 20 m of the high water mark. |

Alberta Legislation

- **Water Act**
 - Code of Practice for Water Course Crossings
 - Requires that notice of activity be filed with the Province prior to construction of any watercourse crossing
- **Environmental Protection and Enhancement Act**
 - Prohibits delivery of any deleterious substance into a water body

Code of Practice for Watercourse Crossings

Made under the Water Act and the
Water (Ministerial) Regulation

Consolidated to include amendments in force as of June 24, 2013

Bound by Code of Practice

- 2(1) An owner and any person who carries out a works shall comply with the requirements set out in this Code of Practice.

- (2) This Code of Practice does not apply to those watercourse crossings that are exempt from the requirement for an approval under the *Water (Ministerial) Regulation*.



Province of Alberta

WATER ACT

WATER (MINISTERIAL) REGULATION

Alberta Regulation 205/1998

With amendments up to and including Alberta Regulation 62/2013

2(1) In this section, "crossing" includes but is not limited to a watercourse crossing, single span bridge crossing, culvert crossing or ford, but does not include an ice or snow bridge, pipeline crossing, telecommunication line crossing or a bridge crossing with more than one span.

(2) An approval is not required for placing, constructing, installing, maintaining, replacing or removing a crossing in a water body in the Green Area where

- (a) the hydraulic, hydrologic or hydrogeological characteristics of the water body are not altered at flood events below the one in 25 year flood event,
- (b) the size of the culvert used in constructing the crossing, if applicable, is 1.5 metres or less in diameter,
- (c) there is no diversion of water from the water body, and
- (d) the installation of the crossing is not part of a causeway through a lake, slough, wetland or other similar water body.

AR 205/98 Sched 2-200/99

Eastern Slopes Policy

- Watershed Management Objectives
 - Maintain or increase the volume of water yield and the natural timing of surface and sub-surface discharge
 - Manage headwaters in the region to maintain recharge capabilities and protect critical fisheries habitat
 - Intensively manage the South Saskatchewan River Basin for stable water supply
 - Manage the North Saskatchewan and Athabasca River Basins to maintain natural flows and provide the option for future increases in water yield through intensive management



Alberta Environment and Parks

Land-use Framework Home > Regional Plans

Plan for Alberta Governance Property Rights Regional Plans Cumulative Effects Conservation Stewardship Results and Resources Newsroom

Lower Athabasca Region
Lower Peace Region
North Saskatchewan Region
Red Deer Region
South Saskatchewan Region
Upper Athabasca Region
Upper Peace Region

Feedback
Questions and Comments? Website Feedback

Regional Plans

Lower Athabasca Region
Status: Regional Plan Approved
Lower Athabasca Region covers an area from the south edge of the M.D. of Bonnyville to Alberta's northern border and includes Fort McMurray, Cold Lake and Lac La Biche. It has experienced rapid development, particularly during the past decade. The Lower Athabasca Region comprises a large section of northwestern Alberta, covering about 8,521,180 hectares.

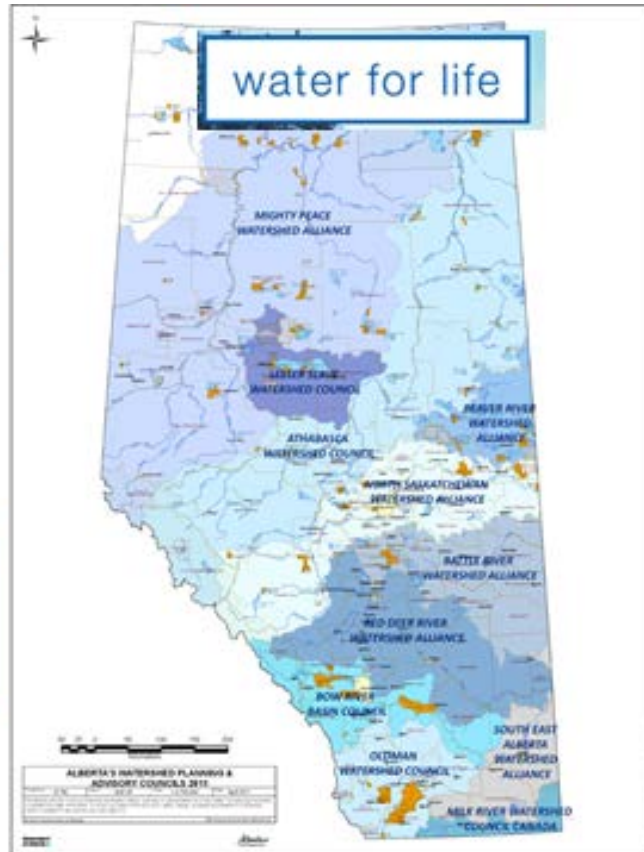
Lower Peace Region
Status: Not Started
Lower Peace Region covers an area from the Alberta-British Columbia border to the west, includes Head Buffalo National Park to the east, goes north to the Alberta-North West Territories border, and dips south to the Carling Lake Provincial Park to the south boundary of the M.D. of Opportunity. In total, the Lower Peace Region is 18,218,165 hectares, making it the largest of the seven regions.

Alberta

Goals

- Safe, Secure Drinking Water Supply
- Healthy Aquatic Ecosystems
- Reliable, Quality Water Supplies for a Sustainable Development

WPACS



Alberta Environment and Parks

Alberta.ca > Environment and Parks > Water for Life > Partnerships > Watershed Planning and Advisory Councils > Watershed Management Planning

Strategy Drinking Water Aquatic Ecosystems Water Supply Knowledge / Research **Partnerships** Water Conservation

Site Content (alphabetical)

- Action Plan for Partnerships
- Partnership Event Calendar
- Alberta Water Council
- Watershed Planning and Advisory Councils
 - Education and Outreach
 - Environmental Stewardship
 - Watershed Evaluation and Reporting
 - Watershed Management Planning**
 - Watershed Stewardship Groups
 - Watershed Support Material and Publications
 - Transboundary Water

Watershed Management Planning

Integrated Watershed Management Plans (IWMPs)

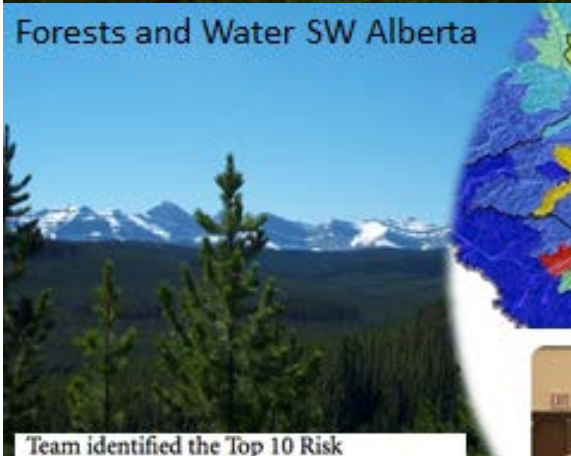
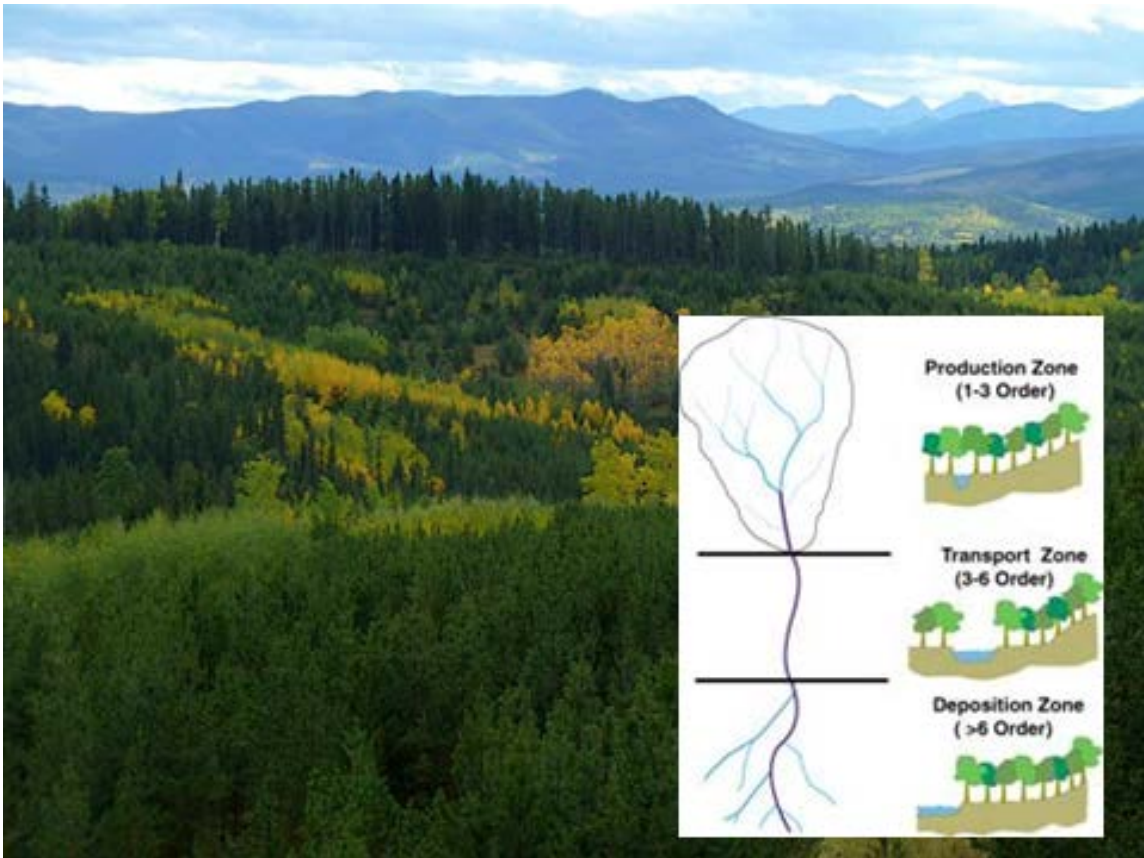
IWMPs are the second key deliverable produced by Watershed Planning and Advisory Councils (WPACs). These plans provide advice to governments and agencies that have policy and regulatory decision-making authority for land and resource management. Collaboration is central to the development of IWMPs, which are based on consensus agreement and inclusive participation of stakeholders and community representatives from within the watershed.

Finalized in 2015, the *Guide to Watershed Management Planning in Alberta* provides advice on the steps to develop and implement a watershed management plan. The guide is based on the iterative process of adaptive management, from planning through to implementation and evaluation, and back to planning.

- [Guide to Watershed Management Planning in Alberta](#) - Jan 2015 (59 pages, 4.5 MB)

Water management plans and watershed management plans: what is the difference?

Unlike watershed management plans, water management plans are statutory plans developed under the *Water Act*. They provide guidance for regulatory decisions made under the *Water Act*, including the establishment of minimum in-stream flows, conditions on



- Team identified the Top 10 Risk Statements in most need of action:
1. Lack of understanding and management of cumulative effects
 2. Degradation and loss of aquatic and terrestrial habitat
 3. Headwater degradation
 4. Financial incentive structure do not match out environment objectives
 5. Insufficient understanding/knowledge of watershed
 6. Impaired water quality
 7. Lack of conservation/inefficient use



Front Row (L to R) – Ian Gaulty, Ron Axelson, Paulette Fox, Doug Knapp, Adam Judd
 2nd Row (L to R) – Cheryl Fujikawa, Cheryl Bradley, Brian Laycraft, Sean Robison, Norine Ambrose, Maggie Remold, Barry Adams, Tom Lynch-Staunton
 3rd Row (L to R) – Martin VanDiemen, Brent Peterson, Brian Hills, Ron Lagerman, Rick Ross, Dennis Maxwell
 4th Row (L to R) – John Leahy, Rodney Cyt, Brian Miller, Bill Dolan
 Back Row (L to R) – Phil Edmondson, Tom Crooks, Andy Hurly, John Kirk, Elliot Fox, Axel Anderson
 Absent – Ron McMullin, Lenae Kuiper, Ian Dyeon, Bunny Mah, Sarah Elmeligi, Kevin France, Kimberly Lyall, Marc Sabourin

Alberta Wetland Policy

Wetland Ownership

Wetland ownership is governed by the permanence of the wetland. The province does not claim ownership to the bed of wetlands that are not reasonably permanent (i.e., ephemeral, temporary and seasonal wetlands).

The responsibility for asserting the Crown's ownership claim to a wetland rests with Alberta Environment and Sustainable Resource Development. Assessments of ownership can take considerable time. Requests for confirmation of wetland ownership may come from throughout the settled area, and it may be advantageous for a municipality, land developer, or landowner or their agents to undertake the primary assessment of wetland permanence, and request the Crown confirm the assessment, and a wetland's claimability.

For further information, see:

- [Guide for Assessing Permanence of Wetland Basins](#)

For reference, the 1971 Stewart and Kantrud Classification of Natural Ponds and Lakes in the Glaciated Prairie Region is available for download in two (2) parts:

- [Classification of Natural Ponds and Lakes in the Glaciated Prairie Region – Part 1](#)  - (31 pages, 1.2 MB)
- [Classification of Natural Ponds and Lakes in the Glaciated Prairie Region – Part 2](#)  - (32 pages, 4.2 MB)

Although the province does not claim all wetland beds, it does own all the water in wetlands through the Water Act and regulates any activity that may affect them (e.g., drainage and infilling).

Visit the Alberta Queen's Printer website at:

- [Water Act](#) 

Alberta Wetland Policy

Alberta Wetland Policy

In response to the growing loss of wetlands on the landscape and the effect this may have on surface water management in Alberta, Cabinet in 1993 approved the Interim Policy for "Wetland Management in the Settled Area of Alberta."

The policy identified as its goal that "the Government of Alberta is to sustain the social, economic and environmental benefits that functioning wetlands provide, now and in the future".

The intent of the policy is further defined as follows, in descending order of preference:

- a. To conserve slough/marsh wetlands in a natural state.
- b. To mitigate degradation or loss of slough/marsh wetland benefits as near to the site of disturbance as possible.
- c. To enhance, restore or create slough/marsh wetlands in areas where wetlands have been depleted or degraded.

Federal Legislation

- Federal Fisheries Act

- Concerned with protection of fish and fish habitat

- Recent Changes:

- <http://www.dfo-mpo.gc.ca/pnw-ppe/changes-changements/index-eng.html#c2>

- SARA

- On June 1, 2004, it became illegal to kill, harm, harass, capture, or take any endangered or threatened species protected under the *Species at Risk Act* (SARA). However, the Minister of Fisheries and Oceans may authorize activities which could affect an aquatic species protected under the Act if he believes these activities will not jeopardize the survival or recovery of species at risk.

- <http://www.dfo-mpo.gc.ca/species-especes/permits-pemis/permits-eng.htm>

The screenshot shows the official website of Fisheries and Oceans Canada. The header includes the Canadian flag, the text 'Government of Canada / Gouvernement du Canada', and navigation links for 'Canada.ca', 'Services', 'Departments', and 'Français'. The main navigation bar lists 'On the water', 'Fisheries', 'Science and Research', 'Ecosystems', 'Species', 'Aquaculture', and 'Regions'. The 'Projects Near Water' section is highlighted, featuring a sidebar with links like 'Does my project need a review?', 'Request a project review', and 'Guidance Documents'. The main content area provides detailed information about the Fisheries Act, including a self-assessment tool to determine if a project requires a review by DFO. It lists criteria for when a review is not required, such as for certain types of waterbodies and project activities. The page is dated 'Date modified: 2014-12-01'.

Government of Canada / Gouvernement du Canada | Canada.ca | Services | Departments | Français

Fisheries and Oceans Canada

On the water | Fisheries | Science and Research | Ecosystems | Species | Aquaculture | Regions

Home > Species > Aquatic Species at Risk

Aquatic Species at Risk

Aquatic Species at Risk

Search Aquatic Species at Risk
SARA and You
Public Consultations
Recovery Planning
Habitat Stewardship
Education Centre
Permit Application
Frequently Asked Questions
Regional Information
Contact SARA
Partners

Aquatic Species at Risk (SARA) was created to protect wildlife species at risk, including fish, reptiles, marine mammals and molluscs. Find out what it means for you, especially if you are a commercial fisher, aquaculturist, recreational fisher, recreational boater, Aboriginal, scientist, researcher or involved in an activity that might impact the habitat of aquatic species at risk.

Featured Species

Lake Sturgeon

Protecting Canada's Lake Sturgeon



The Lake Sturgeon (*Acipenser fulvescens*) is a member of the Sturgeon (*Acipenseridae*) family. As a group, sturgeons are considered living fossils, and have changed little from their ancestors of the Devonian Period. The Lake Sturgeon is the only freshwater species of sturgeon in Canadian waters and is the largest freshwater fish in Canada.

Across Canada, the Lake Sturgeon has been dramatically impacted by human activities. Separated into eight units, they have been assessed at various levels of risk by the Committee on the Status of Endangered Species in Canada (COSEWIC). Each unit is currently under consideration for listing under the Species at Risk Act.

[More about the Lake Sturgeon and other species.](#)

In Focus

- Species at Risk Act Listing Policy and Directive for "Do Not List" Advice
- Recovering Aquatic Species at Risk
- Wavy-rayed Lampmussels make a comeback
- Public Consultations

Regional Information



Atlantic | Central and Arctic | Eastern | Gulf | Newfoundland and Labrador

Related Sites

- SARA Public Registry
- Glossary
- Habitat Stewardship Program
- Partners Canada Species at Risk Website

Date modified: 2014-09-29

Government of Canada / Gouvernement du Canada | Canada.ca | Services | Departments | Français

Species at Risk Public Registry

Our Approach | SARA Components | Get Involved | Advanced Search | A to Z Species Index

Home > Species List > Species Profile (Westslope Cutthroat Trout)

Species Profile

Westslope Cutthroat Trout Alberta population

Scientific Name: *Oncorhynchus clarki lewisi*
Taxonomy Group: Fishes
Range: Alberta
Last COSEWIC Assessment: November 2006
Last COSEWIC Designation: Threatened
SARA Status: Schedule 1, Threatened

[Go to advanced search](#)

Quick Links: | Description | Habitat | Biology | Threats | Protection | Other Protection or Status | Recovery Initiatives | National Recovery Program | Documents

Image of Westslope Cutthroat Trout

Description

The Westslope Cutthroat Trout (*Oncorhynchus clarki lewisi*) is a subspecies of the Cutthroat Trout (*Oncorhynchus clarki*). This subspecies has been further divided into two populations, the Alberta and British Columbia populations. The Westslope Cutthroat Trout is a member of the Salmonidae family and has the following characteristics: Streamlined body shape; generally trout-like in appearance with small, irregularly shaped dark spots, which form an arc from the anal fin to the pectoral fin; series of small basibranchial teeth at the back of the throat; colouration ranges from silver to yellow green with red on the front and sides of the head; spawning fish often develop a bright red colouration over the entire body; and typically small in size at 150 to 230 millimeters (28 to 142 grams); larger individuals rarely exceed 460 millimeters (1400 grams).

[Top](#)

Distribution and Population

The Westslope Cutthroat Trout has a disjunct distribution on both sides of the Rocky Mountains. In the United States, it occurs in drainages in Montana, Idaho, Washington, Oregon and Wyoming. In Canada, it is restricted to the upper Kootenay, upper Columbia and South Thompson drainages in British Columbia. The native Alberta population occurs in the Bow and Oldman drainages of the South Saskatchewan River. Although it has been recorded in the Milk River (upper Missouri River drainage), its current status there is unknown. The Westslope Cutthroat Trout has also been widely introduced in many naturally fishless lakes and rivers.

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Habitat

Westslope Cutthroat Trout are found in a wide range of habitats, but do best in cold, clean, moving water with various forms of cover such as undercut banks, pool-riffle habitat and riparian vegetation.

[Top](#)



COSEWIC
Committee on the
Status of Endangered
Wildlife in Canada

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Species Search**

About COSEWIC

**Candidate
Wildlife Species**

Status Reports

**Wildlife Species
Assessment**

Wildlife Species Search

[Return to the search results](#)

Fishes (freshwater)

Trout, Westslope Cutthroat | *Oncorhynchus clarkii lewisii* | Alberta population

Status: Threatened

Last Examination and Change: November 2006 ([No Change](#))

Canadian Occurrence: AB

Status Criteria: B1ab(i,ii,iii,iv,v)+2ab(i,ii,iii,iv,v); C2a(i)

Reason for Designation: Native populations have been reduced by almost 80% through over-exploitation, habitat degradation, and hybridization / competition with introduced, non-native trout. Remaining, genetically pure, individuals persist as mainly severely fragmented, remnant headwater populations. It should be noted that this assessment includes only genetically pure, native populations of the species occurring within their historical range. Any populations known either to be hybridized significantly (i.e. >1%) with other trout species, or to have been introduced into a system previously free of native populations, were not assessed.

Status History: Designated Threatened in May 2005 and in November 2006.

Find out more about this species on the [Species at Risk Act Public Registry](#) (note that by selecting this link you are leaving the COSEWIC Web site)

[Return to the search results](#)



COSEWIC
Committee on the
Status of Endangered
Wildlife in Canada

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Wildlife Species Search

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Fishes (freshwater)

Trout, Rainbow | *Oncorhynchus mykiss* | Athabasca River populations

Status: Endangered

Last Examination and Change: May 2014 ([New](#))

Canadian Occurrence: AB

Status Criteria: A4bce

Reason for Designation: This fish is an obligate resident of clear, cold flowing water in the upper Athabasca River drainage of Alberta. Quantitative sampling over the last two decades demonstrates that the majority of sites are declining in abundance with an estimate of >90% decline over three generations (15 years). Threats are assessed as severe due to habitat degradation associated with resource extraction and agricultural practices. Additionally, ongoing climatic change and associated altered thermal regimes and hydrology, habitat fragmentation, introgression from non-native Rainbow Trout, and fishing threaten the species. Potential impact of invasive Brook Trout is a concern.

Status History: Designated Endangered in May 2014.

Find out more about this species on the [Species at Risk Act Public Registry](#) (note that by selecting this link you are leaving the COSEWIC Web site)

[Return to the search results](#)

