

Watercourse Crossings Management Directive

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Watercourse Crossing Management Directive

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Watercourse Crossings Management Directive

Purpose

Alberta Environment and Parks along in coordination with other resource regulators such as the Alberta Energy Regulator (known henceforth as the “Regulator”) are responsible for the issuance of authorizations within the province that may impact the management and health of fish species. Alberta has listed several fish species in significant population decline such as: Athabasca Rainbow Trout, Arctic Grayling, Bull Trout, and Westslope Cutthroat Trout. These fish species are listed as ‘threatened’ and are under consideration for ‘endangered’ status by Environment Canada under the *Species at Risk Act*. Based on the best available science, these species are currently limited by three key threats: mortality from poaching, habitat fragmentation, and reduced water quality. The goal of the Watercourse Crossing Program (WCP) is to address threats to fish survival stemming from poorly constructed and maintained watercourse crossings that cause habitat fragmentation, erosion and sedimentation.

As stated within legislation, specifically the *Public Lands Act* and the *Water Act*:

Public Lands Act, Section 54(1) - No person shall cause, permit or suffer:

- a) the accumulation of waste material, debris, refuse or garbage on public land,
- a.1) loss or damage to public land,
- a.2) activities on, or the use of, public land that is likely to result in loss or damage to public land,
- b) the existence on public land of any structure or excavation of any kind that is undesirable or otherwise in contravention of this Act or the regulations,
- c) the existence on public land of any condition that may cause loss or damage to the public land,
- d) the doing of any act on public land that may injuriously affect watershed capacity,
- e) the disturbance of any public land in any manner that results or is likely to result in injury to the bed or shore of any river, stream, watercourse, lake or other body of water or land in the vicinity of that public land, or
- f) the creation of any condition on public land which is likely to result in soil erosion.

Public Lands Act, Section 69.1 - The Minister may establish programs to promote the reporting of:

- a) acts or omissions that are causing or may cause loss or damage on public land, and
- b) offences under this Act and the regulations.

The Water Act defines an “activity” as:

- (i) Placing, constructing, operating, maintaining, removing or disturbing works, maintaining, removing or disturbing ground, vegetation or other material, or carrying out any undertaking, ... in or on any land, water or waterbody, that
 - a) alters, may alter or may become capable of altering the flow or level of water, whether temporarily or permanently, including but not limited to water in a water body...,
 - c) causes, may cause or may become capable of causing the siltation of water or the erosion of any bed or shore of a waterbody, or
 - d) causes, may cause or may become capable of causing an effect on the aquatic environment

Water (Ministerial) Regulations, Section 3(3) – Requirement for an activity to follow an approval or the code of practice

The placing, constructing, installing, maintaining, replacing or removing of a watercourse crossing is designated as an activity that does not require an approval, but the activity must be

- commenced
- continued, and
- carried out

in accordance with the *Code of Practice for Watercourse Crossings...*

Water Act, Section 167 – providing information:

- (1) An approval holder, preliminary certificate holder, licensee or traditional agriculture user or the holder's, licensee's or user's administrator, receiver, receiver-manager or trustee shall, to the Director on the request of the Director, forthwith submit information, data, records, reports and documents with respect to the approval, preliminary certificate, licence or registration or a related matter, as required by the Director.
- (2) Subsection (1) applies whether or not there are terms and conditions in the approval, preliminary certificate, licence or registration with respect to submitting information, data, records, reports and documents.

This Directive provides a regulatory strategy for:

- the establishment of bridge or bridge like watercourse crossing structures on Class A, B or C watercourses within High Risk Watersheds, that will not proliferate habitat fragmentation and contribute to reduced water quality in areas where fish species are listed as threatened or endangered,
- the establishment of a defined monitoring and reporting system to collect data and information around watershed health, connectivity and inform priority remediation work, and
- provides a watershed-based approach to identify and remediate watercourse crossings to restore fisheries habitat, based on ecological risk and priority order.

Background

There are hundreds of thousands of watercourse crossings in the Alberta, spanning multiple industrial sectors and regulatory authorities. Numerous watercourse crossings in Alberta do not permit fish passage. Although not the only driver of declines, the fragmentation of aquatic habitat resulting from problem crossings, particularly culverts, is a substantial risk to sustainable fish populations in flowing waters in Alberta. A number of fish species are in peril and are either federally or provincially listed, triggering the development of recovery plans.

The magnitude of the fish habitat connectivity restoration challenge is considerable, with hundreds of thousands of crossings across the province, spanning multiple industrial sectors and regulatory authorities. The re-establishment of fish passage, and the achievement of regulatory assurance, is an extensive and complex undertaking, under multiple Acts, Regulations, and Codes of Practice, and requiring the commitment and cooperation of the regulators, crossing owners across multiple industries, provincial highways, municipal roads, and railway. The program's improved compliance approach is connected to an integrated provincial Fisheries Management approach, and linked to native trout recovery plans and initiatives, addressing our accountability for Indigenous rights, meeting fish sustainability and recreational angling goals, whirling disease and invasive species management.

The re-establishment of fish passage and remediation of habitat at watershed levels is an extensive and complex undertaking. Participation from crossing owners in this new regulatory strategy creates a cooperative approach to identifying remediation priorities between crossing owners and the Regulators. The new strategy will optimize fiscal management, compliance performance and enhance environmental stewardship by prioritizing the order and rate at which watercourse crossings are restored within a watershed.

A number of crossing owners have been working with the Regulators to assess crossings and develop plans for remediation. This collaboration has been valuable in highlighting the need for additional clarity and a more streamlined approach so participants, Regulators, crossing owners, and service providers can work effectively to address fish passage and habitat fragmentation at a rate that supports improved fish outcomes.

Watercourse crossings are regulated under several jurisdictions, multiple Acts, Regulations, and Codes of Practice, and are present on private land, provincial highways, municipal roads, and railways. Successfully re-establishing fish passage and habitat requires the commitment and cooperation of Regulators and crossing owners across multiple industries.

Alberta reports on fish sustainability at a watershed level using the Fish Sustainability Index (FSI). For more information on the Fish Sustainability Index, and the status of various fish species in Alberta, please see <https://www.alberta.ca>.

Directive Update

Since the original release of the Directive in 2015, fish populations have continued to decline and fragmentation continues to increase. Species at Risk recovery planning and implementation continue to highlight watercourse and habitat fragmentation as an issue to be resolved. There is an urgent need to repair fragmentation and sedimentation created by problem watercourse crossings.

A number of crossing owners have been working with the Regulators to assess crossings and plan for remediation. This collaboration has been valuable in highlighting the need for additional clarity and a more streamlined approach so all participants, regulators, crossing owners, and service providers, can work efficiently to re-establish fish passage at a rate that supports improved fish outcomes.

The 2020 revision of this Directive outlines a lifecycle approach for new and existing watercourse crossings within High Risk Watersheds that include Regulators transitioning to an audit role, while clarifying reporting and performance expectations of the crossing owner.

Note, in alignment with the *Forests Act*, Forestry Temporary Roads administered under the Operating Ground Rules are out of scope of this Directive.

High Risk Watersheds

While managing fragmentation in all provincial watersheds is important, there are watersheds where fish populations have declined to a point where federal and provincial legal listing has occurred (e.g., Bull Trout, Athabasca Rainbow Trout, Westslope Cutthroat Trout). As a result, the Department has collated this information to identify High Risk Watersheds within the province where defined requirements will become an expectation of stipulated activities that fall within these areas.

A High Risk Watershed may be comprised of one particular watershed or can be a combination of multiple watersheds to manage a common objection. A High Risk Watershed can be established for regulatory management as defined within this Directive with the following attributes:

- Containing sensitive lotic fish species; and
- Using stream crossing densities (#/km²) on stream orders 1-4 for HUC8 watersheds.

Based on the criteria above, High Risk watershed boundaries will be established spatially and provided to land users to inform them of requirements where existing or new activities are being planned or operated. High Risk Watersheds will be incorporated into business processes and systems where required to drive these requirements.

Watersheds will be reviewed periodically as appropriate subject to fish species status changes, fisheries sampling and population estimates, and other factors that may affect fish population sustainability to assess whether those watersheds should be added or removed from High Risk Watersheds. Any changes will be communicated through the posting of new spatial layers and data.

These spatial boundaries can be located for viewing at <https://www.alberta.ca/watercourse-crossing-program.aspx>

The Watercourse Crossing Lifecycle Approach

Effective support for the recovery of fisheries through reduction of habitat fragmentation requires a lifecycle approach to the management of watercourse crossings. This includes the planning of access to minimize construction and development within High Risk Watersheds to reduce potential impacts to watercourses, and constructing watercourse structures to a higher standard.

In addition, there will be a required need for reporting on crossings that fall within these High Risk Watersheds. This reporting will provide the following benefits:

- Provide industry reported data regarding the status of crossings within High Risk Watersheds,
- Data will be able to be mapped to inform the Regulator of potential fragmentation areas within identified watersheds,
- Data will be utilized to coordinating remediation efforts by crossing owners,
- Data will be utilized to inform remediation plans and strategies to reduce fragmentation and fish passage barriers within High Risk Watersheds as they support the recovery of threatened or endangered fish species.

The lifecycle approach will address watercourse crossings that currently exist and those that will be approved under new regulatory disposition or authorization. Based on this, watercourse crossings will be managed accordingly.

Existing watercourse crossings

Existing Watercourse Crossings that currently exist within a High Risk Watershed as defined within this Directive, notwithstanding their prior approval under the *Water Act* or as associated with a *Public Lands Act* disposition will be subject to the following conditions:

- The crossing owner must ensure all watercourse crossings maintain fish passage and are compliant with the departments *Code of Practice for Watercourse Crossings* under the *Water Act* and the *Water (Ministerial) Regulation*.
- When repairing or replacement of a crossing occurs, the crossing owner must install a Type I or Type II structure that maintains the channel for all Class A, B and C watercourses. Unless an exemption is provided in writing by the Director.
- The crossing owner must keep watercourse* crossings free of accumulated debris* or ice that impedes the flow of water.

- Where crossings have been removed, the crossing owner must immediately stabilize the bank* or shoreline of all affected waterbodies and restore to native vegetative species.
- The crossing owner must monitor all watercourse crossings and report all findings by as per the *Roadway Watercourse Crossing Inspection Manual* as amended from time-to-time.
- The crossing owner must report all watercourse crossing remediation or maintenance efforts at time of work being commenced and at completion of work.

New applications

New crossings subject to approval as related to required access or disposition will be contingent to conditions that ensure fish passage is maintained and fragmentation of watersheds is minimized through the installation of appropriate crossing structures. These conditions will form part of the activity authority as administered through the appropriate application processes.

Amendments/Renewals/Assignments

Activities subject to amendment, renewal or assignment should already be under an approved disposition or authorization, and where crossings already exist, these crossings would already be governed under this Directive as an existing crossing and therefore subject to the protocols and conditions as defined above. However, during the amendment, renewal and assignment process, the Regulator has the option to condition as required to meet the intent of the activity and to achieve required management outcomes. In these situations, conditions will be applied to the disposition or authorization that mirrors the intent of this Directive in respects to existing crossings.

Temporary crossings

Authorized temporary crossings that occur on public land by their very nature will be constructed utilizing a number of crossing types, however will be removed at the end of their use. Their removal addresses the majority of the objectives identified within this Directive, however installation and removal can contribute to adverse effects to water quality. To mitigate this, crossing owners will be required to meet specific reporting requirements for temporary crossings that focus on date of removal.

Watercourse crossings located outside of a High Risk Watershed

Through the creation of this Directive, the Regulator is prescribing actions to crossing owners to alleviate any further degradation to watersheds and promote the recovery of fish species. Although not required, for watercourse crossings that occur on public land outside of identified High Risk Watershed areas, crossing owners can be voluntarily inspect these watercourse crossings to:

- Provide information to the crossing owner regarding the functionality of crossings under their responsibility and to inform the crossing owner of potential crossing failures or items to address to meet condition or legislative requirements,
- Where remediation activities occur, remove fragmentation, improve water quality and habitat for all fish species,
- Develop and continually grow the stream crossing database.

As this Directive institutes an inspection and reporting program within High Risk Watersheds to inform remediation and restoration planning, a crossing owner is required by legislation to maintain or remediate any contraventions under the *Water Act*, *Water Act Code of Practice*, and the *Public Lands Act* throughout the province.

Watershed Remediation Prioritization

Current watersheds are fragmented due to existing access activity on the landscape where crossing structures are required to be installed. Over time, many of these crossings have not been maintained or were installed to minimum standards which is creating unnatural barriers to fish species and can lead to water quality issues.

To re-establish natural flows and habitat to grow healthy fish populations, remediation work has to be coordinated and prioritized at a Watershed level. While remediation work is required in all watersheds when a watercourse crossing fails, the above criteria directs effort for remediating non-compliant crossings in areas of greatest need for fish recovery. Remediation work within High Risk Watersheds will be assessed and prioritized based on multiple factors, which include:

- the risk to fish population,

- overall remediation benefit to the watershed,
- coordination of remediation works amongst multiple crossing owners.

Based on the above criteria, a Watercourse Crossing priority remediation sites will be available for reference by crossing owners to assist in their selection of where watercourse crossings should be replaced and would have the best value for achieving fish management outcomes. The Watercourse Crossing Priority Remediation Index will be a spatial tool that illustrates what areas within specific watersheds are a priority for watercourse crossing maintenance or replacement.

Depending on how many watercourse crossings are in non-compliance that may mean multiple crossings replacements could occur in any one year by one crossing owner or multiple crossing owner and coordination of work amongst crossing owners should occur.

Decontamination:

Should remediation efforts take place, for use of equipment within the bed of a waterbody, the crossing owner must, prior to operations, reference and follow the “Decontamination Protocol for Work in or Near Water”, as amended from time to time.

The Decontamination Protocol, Risk Map, HUC 6 Shape File and Record of Decontamination can be found by searching the Alberta Environment and Parks - Stop the Spread website.

Inspection Data and Reporting

It is the responsibility of the authorization holder to comply with the authorization and the legislated requirements. To ensure short and long-term management objectives are met, established parameters to monitor progress to ensure crossing owners meet their regulatory responsibilities in a voluntarily and risk-informed manner.

Watercourse crossing inspection data must be submitted to the applicable regulator to report on crossing status within High Risk Watersheds. Annual watercourse crossing inspections within High Risk Watersheds capture information such as:

- crossing location and crossing type,
- structure sizing,
- fish passage,
- water quality (erosion or sedimentation),
- if barriers are present, and to

- identify any structural issues of the crossing itself that contribute to the potential failure of the crossing.

Watercourse crossing inspection information provides the foundation of the Watercourse Crossing Program, and as collected, it will formulate a response by:

- Crossing Owners – it will provide them information as to which crossings are not meeting *Water Act* or *Public Lands Act* legislation and should be replaced as described within this directive.
- Regulator – it will provide information regarding the status of crossings within watersheds that will inform inspection audit programs, remediation strategies on High Risk Watersheds and required fish survey programs to assess if identified fish species are recovering.

The reporting of inspection information will be the responsibility of the crossing owner through a designed program application (app) for mobile devices that will allow crossing owners the ability to collect and submit this data to the Regulator. All inspection information for watercourse crossings within High Risk Watersheds must be submitted to the regulator by November 30 of every year.

Inspections must be carried out as per the '*Watercourse Crossing Inspection Guide*' as amended from time to time and captured within the associated inspection form as made available within the Alberta Watercourse Inventory Application.

Roles and Responsibilities

Crossing Owners

It is the responsibility of crossing owners to ensure compliance of applicable legislation, policy, and operating conditions. In respects to the Watercourse Crossing Program, this means crossing owners are required to inspect watercourse crossings within High Risk Watersheds and maintain or replace crossings that are failing or have potential to fail as defined within this directive.

Reporting: The crossing owner must provide inspection information that is credible and accurate to ensure watercourse crossing management objectives can be realized. When poor data or information is provided, improper decisions or direction may be provided. In addition, the crossing owner must report to the regulator when watercourse crossing replacement or remediation activities occur.

To ensure data quality and integrity, the Regulator may audit data submitted and perform follow-up audit inspections as required. Crossing owners may wish to utilize a third-party service provider to support self-inspection programs.

Remediation: Crossing owners are required to take proactive measures to remediate crossings when they are failing or have potential to fail throughout the province. In respects to the Watercourse Crossing Program, the regulator encourages those efforts to be prioritized to crossings within High Risk Watersheds to meet fish recovery objectives, understanding that all crossings will need to be remediated.

Understanding the investment and effort required to replace watercourse crossings, crossing owners are particularly encouraged to prioritize their remediation requirements using the Watercourse Crossing Priority Remediation Index as it will inform where crossing replacement has greater benefits for fish species within High Risk Watersheds.

Regulators

Multiple regulators exist within the province that manage multiple sectors that have authorized to them, the installation of watercourse crossings. To achieve management objectives, regulators must establish open and maintain ongoing communication occurs amongst regulators. Furthermore, the inspection and remediation data shared by all regulators informs the overall management outcomes.

For the purpose of this Directive, the regulators will:

- Synchronize watercourse crossing program efforts and data across regulators to ensure efforts implemented by crossing owners are coordinated, strategic and align with fish management and habitat outcomes.
- Identify areas of highest risk to fish populations, assign a fish population risk to watersheds provincially, and establish target timeframes and priority for remediation as illustrated through the Watercourse Crossing Priority Remediation Index.
- Receive inspection data for all crossings provincially.
- Conduct audits on crossing owner inspection data.
- Perform audits on crossings where remedial actions have taken place to verify the watercourse crossing has been restored.

Compliance and Enforcement

It is the responsibility of crossing owners to ensure compliance of watercourse crossings, as per applicable legislation, policy and operating conditions.

Interruption of fish passage, or roadway sediment entering a stream, as defined by authority is a reportable event within legislation. Crossing owners who discover a reportable event, are required to report it to the regulator immediately through the environmental report line 1-800-222-6514.

Efforts of crossings owners to replace and remediate watercourse crossings needs to be reflective and representative of the amount of watercourse crossings in non-compliance. Voluntary compliance by crossing owners will be monitored by regulators to ensure appropriate actions are taken. Failure to take appropriate action by the crossing owners may result in enforcement action by the regulator to ensure appropriate actions are taken to address the non-compliance.

Review and Revision

The Directive is a living document, subject to review and modification to reflect emerging priorities, technological advancements, process refinements, and other changes that reflect the evolution of the Directive over time.

Contact Information

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Authorities

Environmental Protection and Enhancement Act

Public Lands Act

Public Lands Administration Regulation

*Responsible Energy Development Act, and Specified Enactments
(Jurisdiction) Regulation*

Water Act

Water (Ministerial) Regulation

Code of Practice for Watercourse Crossings

EAP Integrated Standards and Guidelines, Approval Standards

Fisheries Act

Approved



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