



Isolating In-Water Works





Presentation Discussion

- Overview of relevant Legislation, Regulations and Policies
- Tips on Strategic Design and Implementation
- Review BMP's to Effectively Isolate work area & Minimize Ecological Impacts





What are In-Water Works?

All works within a stream channel, wetland, pond or lake which may include new construction or maintenance of:

- Temporary and Permanent Stream Crossings – culverts, bridges, etc.
- Infrastructure (pipelines/conduits);
- Stormwater Outfalls;
- Water Intakes;
- Spill Clean-up;
- Erosion Protection Works;
- Stabilization of Streambanks /Shorelines;
- Habitat Enhancement and Restoration;
- Dredging;
- Docks, Piers;
- Dams; etc.





Isolating Your Work Area & Working in the Dry – What does that mean?

- Install a physical, water-proof barrier between work area and water feature
- The barrier is installed to completely isolate the work area within the water feature
- Water is removed from work area and treated prior to release
- In a watercourse, clean water is ***diverted*** from upstream to downstream of the work area





Why are Approvals Necessary?

- Approvals are geared to protect fish and wildlife habitat.
- Minimize potential ecological impacts - in-water works are very intrusive to aquatic habitats - considered high risk.
- Works may negatively alter water quality/quantity.
- Disrupt corridor function, and linkages, temporary or permanent impairment or loss of aquatic and riparian habitat.
- In-water works should be avoided if possible, and may be viewed as a last resort.





Relevant Legislation, Regulations & Policies

FEDERAL LEGISLATION

- Fisheries Act (*to be updated shortly*)
- Species at Risk Act
- Navigable Waters Protection Act (*to be updated shortly*)

PROVINCIAL LEGISLATION

- Ontario Water Resources Act
- Environmental Protection Act
- Environmental Assessment Act
- Conservation Authorities Act
- Endangered Species Act
- Lakes and Rivers Improvement Act
- Planning Act
- Municipal Act, etc.





Federal Legislation – Fisheries Act

(to be updated shortly)

Administered by Fisheries and Oceans Canada (DFO)

Legislates fish and fish habitat protection

‘No person shall kill fish by any means other than fishing’ (s. 32)

Applicable provisions } fish habitat protection;
pollution prevention

Applies to all Canadian waters (public & private), that provides direct fish habitat or indirectly supports fish habitat at any life stage

Includes all permanent & intermittent surface water features





Federal Legislation – Fisheries Act

Fish Habitat (s. 34) is defined as:

- Spawning grounds, nursery, rearing, food supply and migration areas
- Can be areas fish rely on directly or indirectly





Federal Legislation – Fisheries Act

Habitat Protection Provision:

- Prohibits the Harmful Alteration, Disruption or Destruction of fish habitat ('HADD') s.35(1)
- A 'HADD' needs to be authorized by the Minister of Fisheries and Oceans Canada s.35(2)
- Authorizations are provided for projects that have appropriate mitigation and compensation



Federal Legislation – Fisheries Act

Pollution Prevention Provision:

- Prohibits the entry of a harmful substance into waters used by fish s.36(3)
- Includes intentional or unintentional releases
- Sediment is considered a deleterious substance (s.34)





Federal Legislation – Species at Risk Act (SARA)

- Administered by Environment Canada
- Fisheries and Oceans Canada is responsible for aquatic species at risk
- Prohibits the destruction of critical habitat of any extirpated, endangered or threatened listed species





Federal Legislation – Navigable Waters Protection Act *(to be updated shortly)*

- Administered by Transport Canada
- Protects the public right of navigation in Canadian waters
- Reinforces the historic right to navigation and creates the legal process for interfering with this right
- Includes any body of water capable of being navigated by any type of floating vessel for the purpose of transportation, recreation, or commerce.







PROVINCIAL LEGISLATION

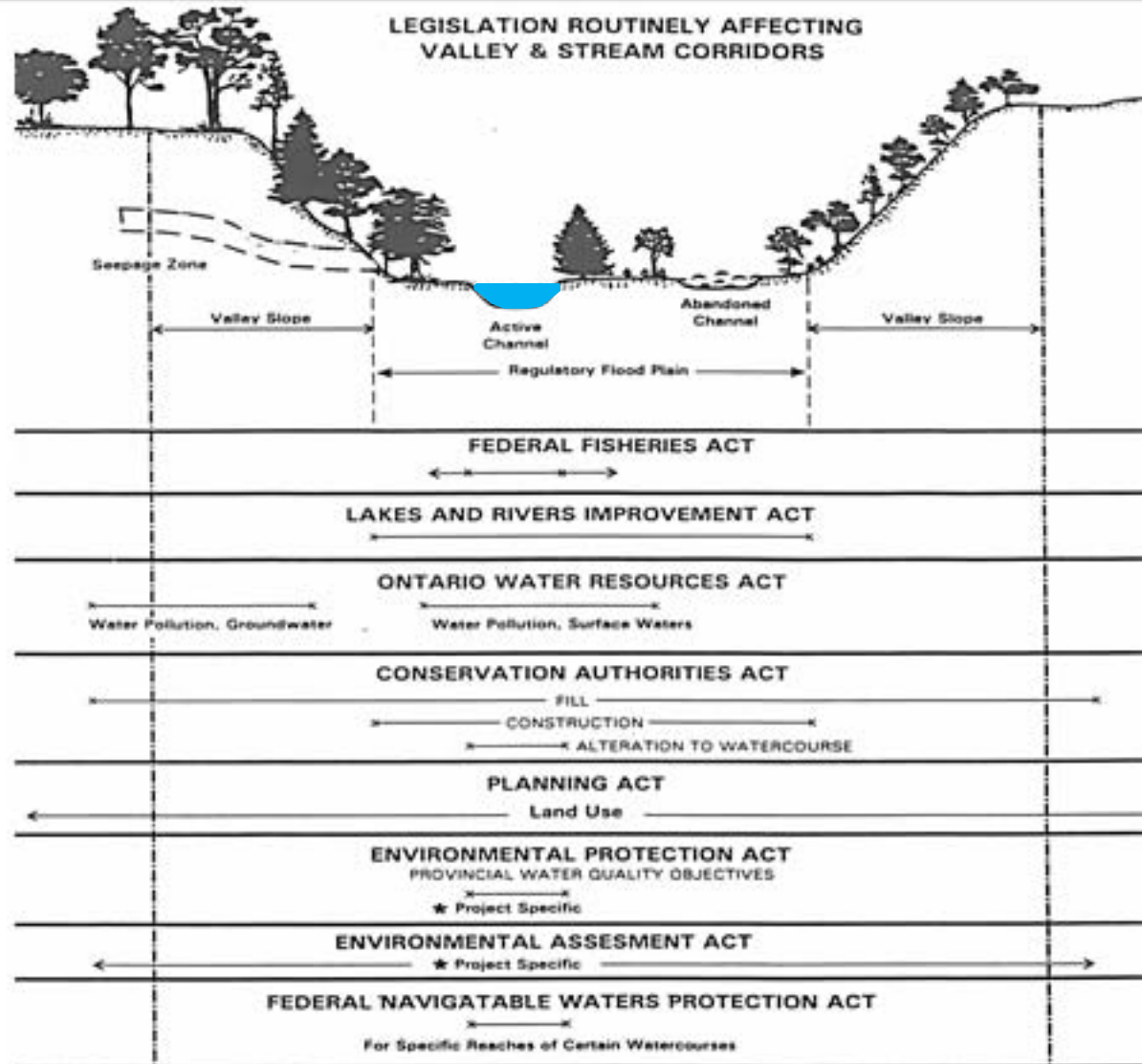
- Ontario Water Resources Act
- Environmental Protection Act
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- Lakes & Rivers Improvement Act
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REGULATORY AGENCIES

Ministry of the Environment (MOE)
Conservation Authorities (CA's)
Ministry of Natural Resources (MNR)
Municipal Governments



What applies
to your in-
water work?





Both Federal and Provincial Legislation, Regulations & Policies are geared towards:

- Protection, maintenance and stewardship of fish and wildlife, their habitats, ecosystem diversity, health, and ecosystem function.
- Understanding the legal obligations and what they are meant to protect will assist proponents in choosing the 'best management practices' (BMP's) for the implementation of projects.



Tips on Strategic Design & Implementation

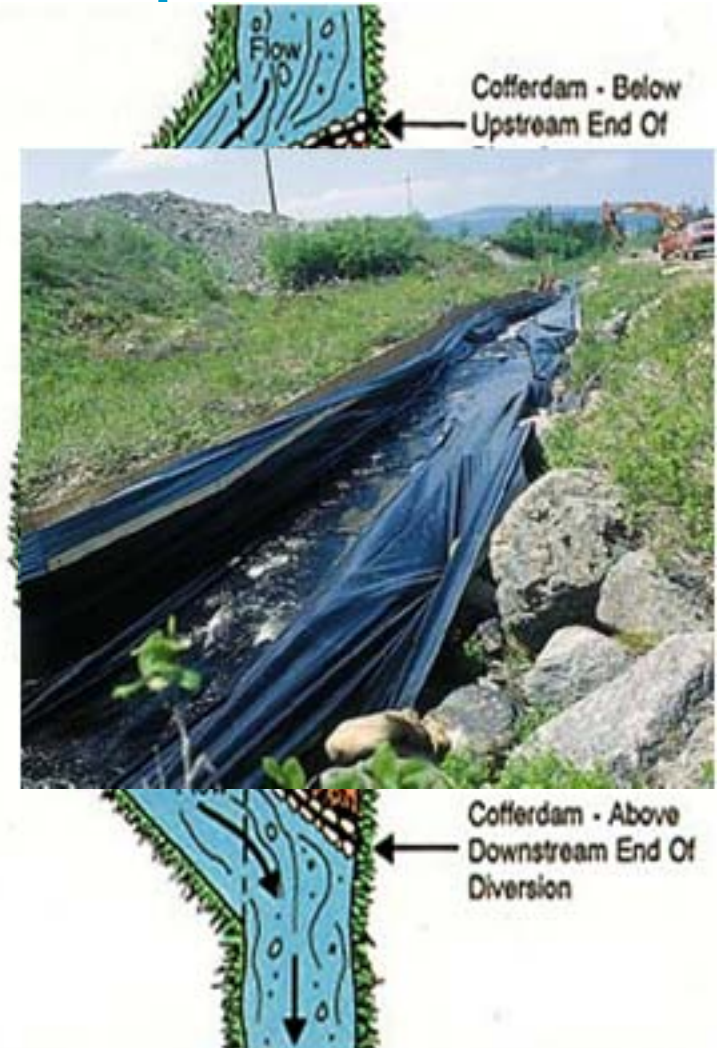
- Minimize work area footprint – reduce encroachment into floodplain or surface water feature – maintain stream capacity and floodplain processes, minimize habitat destruction.
- Prevent the release of deleterious substances (keep the water body, stream clean).
- Completely isolate work area from the influence of surface water (water proof barrier).





Tips on Strategic Design & Implementation

- When water proof barrier completely obstructs creek flow, flows are **diverted** from upstream to downstream of the work area.
- By-pass pumping required screens over pump intake in accordance with *Fisheries and Oceans Canada Freshwater Intake End-of-Pipe Fish Screen Guideline, 1995*.
- By-pass pumping should only be used for short term projects (days). For longer term projects, other by-pass options should be used.
- Ensure fish and wildlife passage, if possible.
- Fish/wildlife salvage for any unwatered areas. This requires a *Scientific Collector's Permit (MNR)*





Tips on Strategic Design & Implementation

- Define construction methods to be used, schedule of in-water works, and **contingency plans**.
- Site stabilization and restoration.



- Work efficiently to minimize time in the water.
- Complete the work within the specified MNR fisheries timing window.



Isolating your work area.....

Good



BAD



Due Diligence

- Ensure that you know which legislation applies to your project – if you don't, then find out. It's your responsibility
- Obtain all required approvals and authorizations before you begin construction
- Understand and address any potential impacts to fish and wildlife habitat, water quality and stream corridor function
- Try to avoid, minimize or mitigate these impacts
- Ensure the protection of fish and wildlife and their habitat, including Species at Risk
- Implement your project in a safe manner that complies with the legislation and avoids, minimizes and mitigates potential ecological impacts



Stream Isolation Techniques - Flume





Stream Isolation Techniques - Diversion





Stream Isolation Techniques – Pump By-Pass





Stream Isolation – Pump By-pass







Stream Isolation Techniques – Bank Isolation





Stream Isolation Techniques – Bank Isolation





Stream Isolation Techniques – Aqua Barrier





Stream Isolation Techniques – Aqua Barrier





Stream Isolation – Fish Rescue/Relocation





Misconceptions – Turbidity Curtains





Misconceptions – Work By Hand?!?!





Misconceptions – Work By Hand ?!?!





Stream Isolation Techniques – Creative?!?!





Stream Isolation Techniques – How it was done in 1932...





Stream Isolation Techniques - 1932

