Installation, maintenance, replacement and removal of Fixed-Anchor-Point Moorings in Ontario

Standing Guidance

Objective: This Standing Guidance will ensure that installation, maintenance, replacement and removal of fixed-anchor-point moorings at existing facilities within Ontario are conducted with appropriate measures to protect fish and fish habitat against death of fish or harmful alteration, disruption or destruction (HADD) of fish habitat.

Context: The Fish and Fish Habitat Protection Program ensures compliance with relevant provisions under the *Fisheries Act* and the *Species at Risk Act* (*SARA*). Proponents undertaking activities in or near water are responsible for understanding the impacts those activities could have on fish and fish habitat and for taking measures to avoid and mitigate these impacts. **This Standing Guidance is intended to provide advice so that the submission of a Request for Review to DFO is not required when the associated conditions can be fully met.** Proponents who can meet this guidance are requested to submit the attached Notification Form (pdf). Proponents who are uncertain as to the application of this guidance to a specific project or who propose a different installation method than described herein, are advised to submit their project plans to DFO to review.

There is a duty to notify if the death of fish or HADD to fish habitat occur that has not been authorized under the Act or where there is a serious and imminent danger of such an occurrence by notifying DFO by email: fisheriesprotection@dfo.mpo.gc.ca or phone: 1-855-852-8320. This obligation extends beyond notification and require the proponent to take corrective action.

DFO's Existing Facilities Policy (2009) clarifies that the fish and fish habitat protection provisions of the Fisheries Act apply to the ongoing operation, modification, maintenance or other works, undertakings and activities associated with the dam, generating station, spillways, dykes, ancillary structures, etc.

Description of Activity: Hydropower operators and other similar facilities routinely require the installation, maintenance, replacement and removal of fixed anchor point moorings which are attached to marker buoys and safety booms. These buoys and booms act as navigational aids and public safety barriers for the other users of the waterbody. **This Guidance applies to the installation, maintenance, replacement and removal of fixed anchor point moorings in freshwater systems.** These are typically installed along the shoreline (below or above the high-water mark) or on the bed of the waterbody using one of the methods listed below. The Guidance is applicable to situations where this work is completed from shore, by diver, or by barge, and assumes that the in-water activities will take place over a short timeframe. The installation, replacement or removal of the buoys and booms themselves does not require either a Request for Review or Notification to DFO under this Standing Guidance.

Fixed moorings can be installed using the following methods.

1. Embedded-Concrete Anchor – Concrete embedded into the substrate or shoreline (may include underwater drilling and grouting[1] to install concrete).
2. Embedded-Metal Anchor – A metal device driven or screwed into the substrate.
3. Bolted Anchor – A metal anchor bolted into bedrock or existing large boulders.

[1] This does not include the use of products that contain Bisphenol A (BPA) such as two-part epoxies (ex. Hilti RE500) as they are a potential deleterious substance.

Potential impacts of the activity(s) on fish and fish habitat:

In most instances the installation, maintenance, replacement or removal of fixed-anchored moorings are unlikely to negatively impact fish or fish habitat. Potential impacts depend on the location, size, and methods used for these activities and could include the removal of aquatic vegetation, dredging, excavation, placement of material or structures in water, use of industrial equipment and/or vegetation clearing, among others. All potential impacts can be assessed using the Pathways of Effects Activities

Potential impacts could include but are not limited to:

- Disturbance to fish (e.g., noise, vibration, encroachment of equipment into the water) and associated potential impacts on life history processes (e.g., spawning, nursery, foraging);
- Direct damage to substrates;
- Indirect changes to food supply;
- Loss of cover;
- Alteration/damage of riparian habitat;
- Release or re-suspension of sediments or deleterious substances

Proponents may use a Notification Form rather than a Request for Review if the following apply:

- There are no SARA-listed threatened or endangered Schedule 1 mussels or critical habitat or residences at the work zone. Consult the aquatic species at risk maps to determine where at-risk populations occur in Canada and where their critical habitat is located. Additional information can be obtained by referring to species recovery strategies at www.sararegistry.gc.ca
- In water works, undertakings or activities respect timing windows to protect fish including their eggs, juveniles, spawning adults and/or the organisms upon which they feed.
- Work can be done without de-watering the work zone.
- Sediment is contained to the work site.
- Anchor material used is clean and stable.
- When the use of equipment (e.g., drill rig) operated from a barge is required, suitable secondary containment is provided around the equipment or around the barge itself.
- A filter system is used to collect drill spoils if the work methodology requires drilling into the bed of the waterbody.
- When using grout all wash water and slurry water from grouting operations must be collected and contained (e.g., in 45-gallon drums) and disposed on-land in accordance with applicable waste disposal regulations. No wash water or slurry water can be returned to the waterbody.
- When the use of underwater grout is required, it must remain isolated from the surrounding water (e.g. contained drill casing) for 60-90 minutes while top layer of grout sets.

NOTES:

- This guidance does not alter the need to consider provincially protected species. If a species protected by the *Endangered Species Act* is present, or potentially present, consultations with provincial agencies may be required.
- Proponents of projects on or near federal waterways are required to contact Parks Canada in addition to submitting a Notification Form to DFO.
- Impacts can be reduced through the use of avoidance and mitigation measures such as those listed in Appendices A and B. These measures should be considered and implemented as

appropriate, but application of all the measures is not mandatory. The determination of the most appropriate measures to implement will be made site specifically using professional judgement.

Notification:

- Obtaining data on how many works/undertakings/activities are completed using this guidance will enable the evaluation of the effectiveness of the document from both DFO and the proponent's perspectives and identify if changes need to be made. To support this, proponents applying this guidance are expected to notify DFO of each project at which they are used. The Notification Form is provided in Appendix D.
- This document does not authorize the death of fish or the harmful alteration, disruption or destruction (HADD) of fish habitat, deposit of a deleterious substance in waters frequented by fish release a proponent from the responsibility for obtaining any other approvals that may be required under federal, provincial, or municipal legislation.

Appendix A

Avoidance and Mitigation Best Practices to protect fish and fish habitat

Location

- Locate moorings at depths that will allow vessels used during installation, maintenance replacement or removal of the moorings to remain afloat at the lowest possible water levels to prevent propellers from disturbing the bed of the water body.

Timing

- Weather conditions should be reviewed before proceeding with the works and in-water work should be completed under calm conditions and when the potential for precipitation is low to minimize the potential for sediment to migrate from the site.
- Minimize the total duration of works taking place within or adjacent to a waterbody.

Waterbody bed

- Take care to minimize the disturbance of the substrate.
- Activities should be done by hand where possible.
- Experienced specialists (divers and equipment operators) should be used where appropriate to ensure that installation procedures have minimal impact.
- Minimize disturbance to submerged aquatic vegetation when installing mooring structures on the bed of the waterbody.

Riparian Vegetation

- Travel paths and staging areas, within the vicinity of the work should be pre-planned to consider and minimize potential impacts by using existing routes where feasible.
- Use existing access routes/vessel launches or install from a barge.
- Removal of riparian vegetation should be kept to a minimum and access designed to be perpendicular to the waterbody to minimize shoreline erosion. When possible, prune the shoreline vegetation instead of uprooting.
- Re-vegetate the disturbed areas with native species suitable for the site.

Erosion and Sediment Control

- If banks or shoreline areas are to be disturbed, develop and implement an effective erosion and sediment control plan. The installation of erosion and sediment control measures must be timed to occur before starting work to prevent entry of sediment into the waterbody. Inspect them regularly during the course of installation and make all necessary repairs.
- Use biodegradable erosion and sediment control materials whenever possible.
- Remove all exposed non-biodegradable erosion and sediment control materials once work is complete and site is stabilized.
- Monitor the watercourse to observe signs of sedimentation during all phases of the work, undertaking or activity and take corrective action if required.
- Operate machinery on land in stable dry areas.

Waste Storage and Equipment Operations to prevent entry of deleterious substances in water

- Areas for washing refueling and servicing machinery and for fuel storage should be located away from the water (15-30 m from shore, where possible) to prevent deleterious substances from entering the water.
- Plan activities near water and take measures to ensure that materials and chemicals don't enter the watercourse, including grout, paint, primers, degreasers, rust solvents, poured concrete, blasting abrasives, oil, grease, antifreeze, concrete or other chemicals.
- Placement of waste storage areas should also take into account the location of other watercourses, ditches, drains, stormwater receptors etc. which may provide a path for deleterious substances to leave the work area.
- Have a response plan to be implemented immediately in the event of a spill of a deleterious substance.
- Maintain an emergency spill kit on site in case of fluid leaks or spills from machinery.
- Stop work if any deleterious substances (including turbid water) enters or is at risk of entering a waterbody. Take appropriate measures to reduce and clean-up the spill. Report the spill of any material harmful to the environment (e.g. fuel, fluids, silt, etc.) in waters to the MECP Spills Action Centre at 1-800-268-6060 and take corrective measures.
- Maintain all machinery on site in a clean condition and free of fluid leaks.

Prevention of movement of aquatic invasive species

- Aquatic invasive species are introduced and spread through using contaminated construction equipment. To prevent aquatic invasive species transfer during construction in aquatic environments:
    - clean, drain, and dry any equipment used in the water
    - never move organisms or water from one body of water to another
- Vessels arriving from other watersheds should be in a clean state and empty their bilges prior to entering the new watershed to minimize the spread of invasive species.

Appendix B – Additional Resources

Ontario Waterpower Association (OWA), 2012. *Best Management Practices for the Mitigation of Impacts of Waterpower Facility Construction. June 2012 Version 1.*

- BMP 023 In Water Work
- BMP 034 Spill Response
- DFO 236 Installation of Fixed-Anchor-Point Moorings

Appendix C – Sample Installation Protocol

The following is a sample installation protocol involving installing concrete/grout into a drilled hole on the bottom of the waterbody. The concrete is allowed to cure within the sealed drill casing so as not to release deleterious substances to the aquatic environment. This is not a prescribed installation methodology for the use of this Standing Guidance, but is being provided as an example to demonstrate how the guidance can be used through application of mitigation to minimize potential for negative impacts on fish and fish habitat.

- Use Spud barge to support drill rig and equipment in open water.
- Place drill bit within a fully contained casing affixed to the bed.
- Put in place filter system to collect all tailings and filter water to minimize risk of sediment entering waterbody.
- Continuously monitor and replace filter cloth to maintain system.
- Drillers to set casing into bedrock.
- Drill hole 2m into firm bedrock extracting cores for inspection.
- Leave drill casing in place and flush hole.
- Grout is added to the bottom of hole while the drill casing is maintained in place to contain the anchor point in isolation from the surrounding water.
- Pump grout while slowly raising hose to fill in the hole.
- Clean grouting hose and pump in containment area and collect wash water in drums.
- Contain all pumped wash water and slurry water within drums and dispose on shore as hazardous waste.
- No wash water or slurry water is to be returned to the water course.
- Install anchor and chain into hole.
- Connect rock anchors with mid-channel anchor float.
- Contained drill casing to remain in place for 60-90 minutes while grout and anchor sets**.**
- Pull casing and thread off anchor chain.
- Install anchor float or temporary marker float.
- Ensure concrete is fully set before loading anchor (approximately 24 hours).