

1 REFERENCE: Volume: Response to EIS Guidelines; Section: 7.0
 2 Cumulative Effects Assessment; Page No.: N/A

PROJECT NUMBER: KHEL-054
 File Name: Keeyask

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(Commissioner Secretary)

3 CEC Rd 1 CAC-0008

4 **PREAMBLE:**

5 EIS Chapter 7, Table 7-3, identifies the potential Conawapa GS as a project that overlaps
 6 with the proposed Keeyask project, having a potential to cumulatively affect water
 7 quality. No other activities or disturbances in the area are identified as acting
 8 cumulatively with the Project's impacts to water quality.

9 Sedimentation (an impact to water quality) is identified in the EIS (Chapter 6, sec. 6.4)
 10 and in the Aquatic Environment Supporting Volume (sec 2) as "large for all aspects of
 11 shoreline erosion." The cumulative effects analysis is focused on in-stream and shoreline
 12 disturbance. Sedimentation caused by terrestrial disturbances receives limited (if any)
 13 attention in the cumulative effects analysis.

14 The cumulative effects of land uses/clearing (e.g. forestry, access roads, transmission
 15 lines) can significantly increase the cumulative amount of sediment loading to that
 16 expected from natural processes. Sediment loading can have adverse effects on
 17 spawning areas and food production for fish. Active stream crossings are often a key
 18 source of sediments and in-stream and riparian habitat changes. This can be either
 19 directly from the crossing construction, or indirectly from delivery of sediments along
 20 the right-of-way.

21 **QUESTION:**

- 22 • What are the predicted or modeled cumulative impacts to water quality
 23 (sedimentation) in the regional study area caused by the Project in combination
 24 with other terrestrial disturbances caused by: i) forestry; ii) stream crossings (e.g.
 25 Bipole III); access roads and trails?

26 Some of these disturbances are outside the study area but affect the same aquatic
 27 processes.

28 **RESPONSE:**

29 To clarify, Table 7-3 identifies overlap of Keeyask Project effects on water quality with
 30 other past/current projects or activities, including CRD, LWR, and hydroelectric stations
 31 on the Nelson and Burntwood rivers (Response to EIS Guidelines, Table 7-3 and Section
 32 7.5.1.1.1). The cumulative effects of the Project in combination with these other
 33 projects are assessed in Chapter 6. The reference to the potential Conawapa GS is in the

34 context of potential overlap of Keeyask effects with future projects - and, in this context,
 35 no other future activities or disturbances in the area are identified as acting
 36 cumulatively with the Project's impacts to water quality.

37 Potential cumulative effects of the Project in combination with the future Conawapa GS
 38 were identified with respect to suspended sediment (a component of the water quality
 39 VEC) due to potential concurrent in-stream construction activity in the Nelson River at
 40 both sites at certain times (Response to EIS Guidelines, Table 7-3 and Section 7.5.1.3.1).
 41 Aside from this potential cumulative effect, no other detectable likely cumulative
 42 adverse effects are predicted to water quality in the regional study area discussed. This
 43 response is elaborated on below.

44 The Keeyask Project will include comprehensive erosion and sediment control measures
 45 to minimize the erosion of terrestrial areas where Project activities occur (e.g., roads,
 46 borrow areas) and to minimize and prevent sediment laden runoff from entering
 47 watercourses. The draft Environmental Protection Plans for the construction of the
 48 generating station and south access road specifically address erosion and sediment
 49 control (Sec. 5.11 in each). This includes regular inspection and maintenance of control
 50 measures. Depending on site-specific conditions, erosion and sediment control may
 51 include measures such as silt fences, erosion control blankets, seeding exposed areas,
 52 rip-rap at stream crossings, buffer strips adjacent to streams, etc. With the
 53 implementation of erosion and sediment control measures, the impacts of land-based
 54 Project activities are not anticipated to affect sedimentation in the Nelson River in
 55 addition to the predicted construction and operation effects discussed in the Response
 56 to EIS Guidelines regarding in-stream work and reservoir creation (Sec. 6.3.8).

57 The Keeyask Infrastructure¹, Keeyask Transmission², Bipole III³ and Conawapa GS
 58 projects identified in the Response to EIS Guidelines are current or future activities that
 59 would be most likely, in the absence of mitigation, to have a cumulative effect on
 60 sedimentation with Keeyask due to land-based activities. Past and current water quality
 61 conditions are discussed in the Response to EIS Guidelines (Sec. 7.5.1.1.1) and the
 62 Aquatic Environment Supporting Volume (AE SV, Sec. 2.4), while discussion related to
 63 past sedimentation is discussed in the Physical Environment Supporting Volume (PE SV,
 64 Sec. 7.3). The Response to EIS Guidelines discusses the overlap of the Project with past
 65 and current projects on water quality in Section 7.5.1.1.1, and with future projects in
 66 Section 7.5.1.3.1.

67 Environmental impact statements for the Keeyask Infrastructure, Keeyask Transmission,
 68 and Bipole III projects are publicly available. While specifics of those environmental

¹ <http://keeyask.com/wp/the-project/keeyask-infrastructure-project-kip>

² <http://www.ceaa.gc.ca/050/document-eng.cfm?document=83658>

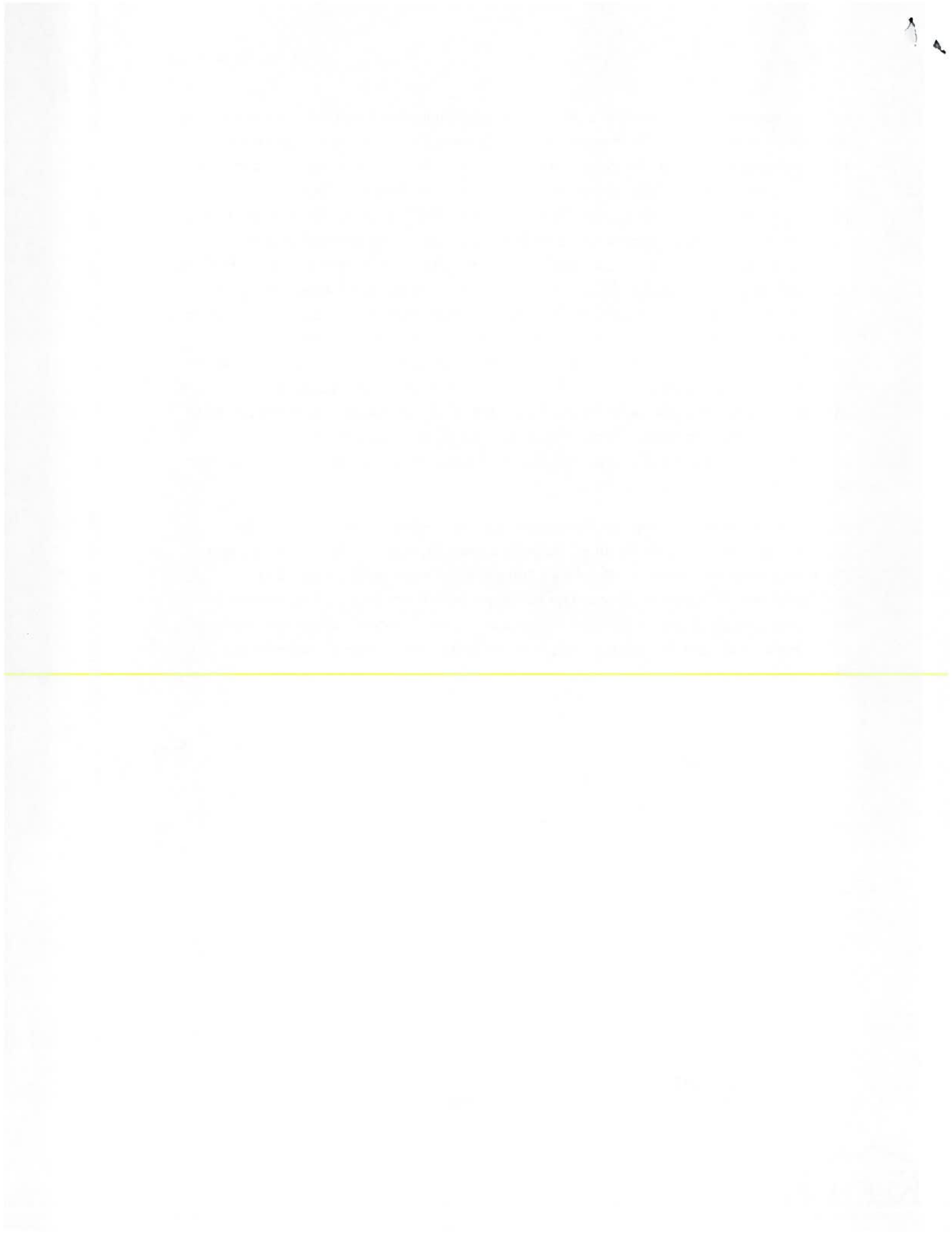
³ http://www.hydro.mb.ca/projects/bipoleIII/index.shtml?WT.mc_id=2605

69 assessments are beyond the scope of consideration for the Keeyask EIS, it is noted that
70 these other EISs indicate that comprehensive erosion and sediment control measures
71 will be implemented, similar to that which is noted above for Keeyask. In addition, the
72 *Environment Act* Licence for the Keeyask Infrastructure Project includes a requirement
73 for erosion and sediment control (EA Licence No. 2952⁴). Although an EIS is not available
74 for the Conawapa Project, as a Manitoba Hydro project it is expected to include
75 comprehensive erosion and sediment control measures in the same manner as Keeyask
76 and the other projects noted above. It is reasonable to assume that environmental
77 licences for the three projects not yet licensed would include requirements for erosion
78 and sediment control. It is also noted that these projects primarily affect areas
79 downstream of the area in which Keeyask effects on sediment occur during operation:
80 i.e., in the upstream open-water hydraulic zone of influence, and the area about 10-12
81 km downstream into Stephens Lake where sediment concentrations are reduced with
82 the Project. Cumulative effects with Keeyask are not anticipated as erosion and
83 sediment control measures are expected to prevent effects to water quality (Response
84 to EIS Guidelines, Sec. 7.5.1.3.1).

85 Forestry is not indicated as a likely future activity overlapping with effects of the
86 Keeyask Project (Response to EIS Guidelines, Chap.7). However, to the extent that it
87 does occur elsewhere, the Province's Forestry Branch promotes forest practice
88 guidelines that provide direction for forestry activity in Manitoba⁵. These include
89 guidelines on measures to minimize and prevent erosion and sediment resulting from
90 forestry activities that are the same as or similar to measures noted above for the
91 Keeyask Project.

⁴ <http://keeyask.com/wp/wp-content/uploads/EAct-Licence-2011.pdf>

⁵ <http://www.gov.mb.ca/conservation/forestry/practices/guidelines.html>





OVERHEAD LINE CONSTRUCTION

Fisheries and Oceans Canada
Manitoba Operational Statement

Version 3.0

Overhead lines are constructed for electrical or tele-communication transmission across many watercourses that range in size from small streams and ponds to large rivers, lakes and reservoirs. This Operational Statement applies to selective removal of vegetation along the right-of-way to provide for installation and safe operation of overhead lines, and passage of equipment and materials across the water body.

Although fish habitat occurs throughout a water system, it is the riparian habitat that is most sensitive to overhead line construction. Riparian vegetation occurs adjacent to the watercourse and directly contributes to fish habitat by providing shade, cover, and spawning and food production areas. It is important to design and build your overhead line project to meet your needs while also protecting riparian areas. Potential impacts to fish and fish habitat include excessive loss of riparian vegetation, erosion and sedimentation resulting from bank disturbance and loss of plant root systems, rutting and compaction of stream substrate at crossing sites, and disruption of sensitive fish life stages.

Fisheries and Oceans Canada (DFO) is responsible for protecting fish and fish habitat across Canada. Under the *Fisheries Act* no one may carry out a work or undertaking that will cause the harmful alteration, disruption or destruction (HADD) of fish habitat unless it has been authorized by DFO. By following the conditions and measures set out below you will be in compliance with subsection 35(1) of the *Fisheries Act*.

The purpose of this Operational Statement is to describe the conditions under which it is applicable to your project and the measures to incorporate into your project in order to avoid negative impacts to fish habitat. You may proceed with your overhead line project without a DFO review when you meet the following conditions:

- it does not require the construction or placement of any temporary or permanent structures (e.g. islands, poles, crib works, etc.) below the ordinary high water mark (HWM) (see definition below), and
- you incorporate the *Measures to Protect Fish and Fish Habitat when Constructing Overhead Lines* listed below in this Operational Statement.

If you cannot meet all of the conditions listed above and cannot incorporate all of the measures listed below then your project may result in a violation of subsection 35(1) of the *Fisheries Act* and you could be subject to enforcement action. In this case, you should contact the DFO office in your area if you wish to obtain DFO's opinion on the possible options you should consider to avoid contravention of the *Fisheries Act*.

You are required to respect all municipal, provincial or federal legislation that applies to the work being carried out

in relation to this Operational Statement. The activities undertaken in this Operational Statement must also comply with the *Species at Risk Act* (www.sararegistry.gc.ca). If you have questions regarding this Operational Statement, please contact the DFO office in your area (see Manitoba DFO office list).

We ask that you notify DFO, preferably 10 working days before starting your work by filling out and sending the Manitoba Operational Statement notification form (www.dfo-mpo.gc.ca/regions/central/habitat/os-ao/prov-terr/index_e.htm) to the DFO office in your area. This information is requested in order to evaluate the effectiveness of the work carried out in relation to this Operational Statement.

Measures to Protect Fish and Fish Habitat when Constructing Overhead Lines

1. Installing overhead lines under frozen conditions is preferable in all situations. On wet terrains (e.g., bogs), lines should be installed under frozen conditions, where possible, or using aerial methods (i.e., helicopter).
2. Design and construct approaches so that they are perpendicular to the watercourse wherever possible to minimize loss or disturbance to riparian vegetation.
3. Avoid building structures on meander bends, braided streams, alluvial fans, active floodplains or any other area that is inherently unstable and may result in erosion and scouring of the stream bed or overhead line structures.
 - 3.1. Wherever possible, locate all temporary or permanent structures, such as poles, sufficiently above the HWM to prevent erosion.
4. While this Operational Statement does not cover the clearing of riparian vegetation, the removal of select plants may be necessary to accommodate the overhead line. This removal should be kept to a minimum and within the road or utility right-of-way.
5. Machinery fording the watercourse to bring equipment required for construction to the opposite side is limited to a one-time event (over and back) and should occur only if an existing crossing at another location is not available or practical to use. A *Temporary Stream Crossing Operational Statement* is also available.
 - 5.1. If minor rutting is likely to occur, stream bank and bed protection methods (e.g., swamp mats, pads)

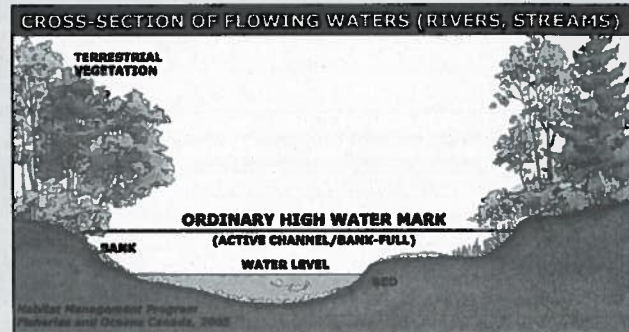
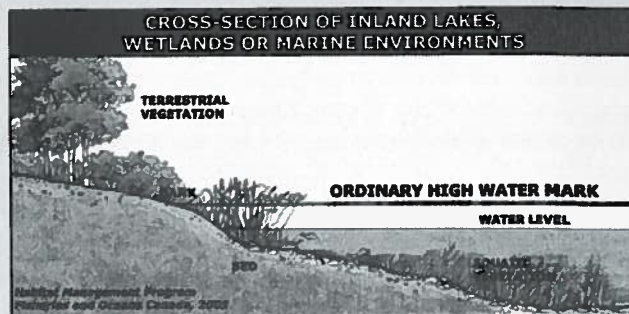
should be used provided they do not constrict flows or block fish passage.

- 5.2. Grading of the stream banks for the approaches should not occur.
 - 5.3. If the stream bed and banks are steep and highly erodible (e.g., dominated by organic materials and silts) and erosion and degradation is likely to occur as a result of equipment fording, then a temporary crossing structure or other practice should be used to protect these areas.
 - 5.4. Time the one-time fording to prevent disruption to sensitive fish life stages by adhering to appropriate fisheries timing windows (see the *Manitoba In-Water Construction Timing Windows*).
 - 5.5. Fording should occur under low flow conditions and not when flows are elevated due to local rain events or seasonal flooding.
6. Operate machinery on land and in a manner that minimizes disturbance to the banks of the watercourse.
- 6.1. Machinery is to arrive on site in a clean condition and is to be maintained free of fluid leaks.
 - 6.2. Wash, refuel and service machinery and store fuel and other materials for the machinery away from the water to prevent any deleterious substance from entering the water.
 - 6.3. Keep an emergency spill kit on site in case of fluid leaks or spills from machinery.
 - 6.4. Restore banks to original condition if any disturbance occurs.
7. Install effective sediment and erosion control measures before starting work to prevent entry of sediment into the watercourse. Inspect them regularly during the course of construction and make all necessary repairs if any damage occurs.
- 7.1. Avoid work during wet, rainy conditions or use alternative techniques such as aerial methods (i.e., helicopter) to install overhead lines.
8. Stabilize any waste materials removed from the work site to prevent them from entering the watercourse. This could include covering spoil piles with biodegradable mats or tarps or planting them with grass or shrubs.
9. Vegetate any disturbed areas by planting and seeding preferably with native trees, shrubs or grasses and cover such areas with mulch to prevent erosion and to help seeds germinate. If there is insufficient time remaining in the growing season, the site should be stabilized (e.g., cover exposed areas with erosion control blankets to keep the soil in place and prevent erosion) and vegetated the following spring.
- 9.1. Maintain effective sediment and erosion control measures until re-vegetation of disturbed areas is achieved.

Definition:

Ordinary high water mark (HWM) – The usual or average level to which a body of water rises at its highest point and remains for sufficient time so as to change the characteristics of the land. In flowing waters (rivers, streams) this refers to the “active

channel/bank-full level” which is often the 1:2 year flood flow return level. In inland lakes, wetlands or marine environments it refers to those parts of the water body bed and banks that are frequently flooded by water so as to leave a mark on the land and where the natural vegetation changes from predominately aquatic vegetation to terrestrial vegetation (excepting water tolerant species). For reservoirs this refers to normal high operating levels (Full Supply Level).



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Aussi disponible en français

http://www.dfo-mpo.gc.ca/oceans-habitat/habitat/modernizing-moderniser/epmp-pmpe/index_f.asp

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