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### SECTION 1: [Decision-Making](#)

#### **Q 1.1: *What is the IJC and why does it regulate water levels and flows?***

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A: The International Joint Commission was established under the Boundary Waters Treaty of 1909 to help the United States and Canada prevent and resolve disputes over the use of the waters they share. Under the Treaty, the IJC approves certain projects that affect the natural levels and flows of boundary waters, such as the international seaway and power project at Massena, NY and Cornwall, ON.

#### **Q 1.2: *What are the Orders of Approval?***

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A: When it approves a project, the IJC issues Orders of Approval, which may require that flows through the project meet certain conditions to protect interests in both countries. The Orders of Approval for the seaway and power project were issued in 1952 and amended in 1956.

#### **Q1.3 *Will the Orders of Approval be updated?***

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A: In December 2000, the IJC appointed a Lake Ontario-St. Lawrence Study Board to (a) review the current regulation of levels and flows in the Lake Ontario-St. Lawrence River System, taking into account the impact of regulation on affected interests, (b) develop an improved understanding of the system by all concerned, and (c) provide all the relevant technical and other information needed for the review. After the review, which is expected to take five years, the Study Board may recommend that the IJC further amend its Orders of Approval.

#### **Q 1.4: *What is the ISLRBC?***

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A: When it approved the seaway and power project, the IJC appointed the International St. Lawrence River Board of Control (ISLRBC) to oversee the regulation of water levels and flows and ensure that the Orders of Approval are followed. One assignment carried out by the ISLRBC was to develop a regulation plan to determine flows through the project that are consistent with the Orders of Approval.

**Q 1.5: *Who is on the ISLRBC?***

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A: The ISLRBC has 10 members, five from each country. Current membership can be found on the Board's website at [www.islrbc.org](http://www.islrbc.org). Members are appointed by the IJC and serve in their personal and professional capacities rather than as representatives of their countries or organizations.

**Q 1.6: *How are members of the ISLRBC appointed?***

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A: Members of the ISLRBC are appointed by the International Joint Commission. Appointments are based on their technical background, technical support from their home institutions, and their knowledge of the Lake Ontario-St. Lawrence River system.

**Q 1.7: *Why aren't all the affected interests represented on the ISLRBC? Given the fact that its decisions affect many people, why do the navigation and hydropower interests have access to the ISLRBC?***

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A: Board members are appointed to serve in their personal and professional capacities, not as representatives of particular interests or geographic regions. Collectively, the Board knows a great deal about the impacts of levels and flows on all affected interests. There are no members from the Seaway entities or commercial navigation interest on the Board. Two Board members come from the power entities because they bring operational knowledge of the project. The Board also invites technical experts to its meetings to answer operational questions. In addition, the Board relies on navigation and other experts in its sub-groups to provide input for its decision-making.

**Q 1.8: *What steps are being taken to ensure that the public has input into ISLRBC decisions?***

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A: Steps taken to insure adequate communication include public meetings (at least one per year), periodic meetings with elected officials, special meetings with stakeholders, the Discussion Room found on the Board's website ([www.islrbc.org](http://www.islrbc.org)), and semi-annual teleconferences linking multiple sites around the basin. The Board also receives and responds to numerous phone calls, letters and email messages.

**Q 1.9: *Why are ISLRBC meetings, agendas and minutes not accessible to the public?***

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A: The ISLRBC reaches its decisions by consensus based on what is in the best interest of both countries and all interests rather than by negotiating from national positions or the positions of particular interests. Opening the meetings would inhibit the free discussion among ISLRBC members needed to reach consensus, force them into inflexible positions, and impair their ability to take timely action on sensitive international issues. The ISLRBC makes efforts to obtain information from those within the basin through meetings, conference calls, and use of its website ([www.islrbc.org](http://www.islrbc.org)). It also notifies the public of its flow strategy decisions, including the rationale for reaching these decisions.

**Q1.10: *Why doesn't the ISLRBC take formal votes on its decisions?***

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A: Formal votes are part of a representational process. The IJC believes that the smooth operation of the system would soon break down if ISLRBC members represented specific interests or geographic regions. The ISLRBC discusses concerns raised by its members until consensus is achieved or the IJC has to intervene, which has never occurred. The IJC believes that this is the best way to operate the system for the common good.

**Q1.11: *What is criterion (k) and what triggers criterion (k) operations during high or low water conditions?***

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A: Criterion (k), included as part of the St. Lawrence project Orders of Approval, provides the Board with flexibility to release flows above or below those specified by the regulation plan to provide relief to specific interests in the event that extreme supplies, unanticipated at the time of project approval, are encountered. Historically, the Board has considered several factors when recommending that the IJC invoke Criterion (k). The Board does not wait until water levels have exceeded the upper or lower limits, but instead seeks to preclude this from happening, if possible. The primary factors it examines are:

Based upon these factors, the Board may recommend to the IJC that Criterion (k) be invoked. Once invoked by the IJC, operations under Criterion (k) commence. Under high supplies, Criterion (k) provides that all possible relief be given to riparians upstream and downstream of the project. Under low supplies, Criterion (k) provides that all possible relief be given to hydropower and navigation interests.

**Q1.12: *Why doesn't the IJC include a criterion in its Orders of Approval to protect recreational boating and/or the environment?***

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A: Studies are currently being conducted by the IJC's Lake Ontario-St. Lawrence Study Board to review regulation of the system and determine whether and how recreational boating and environmental interests could be included in the Orders of Approval and the project plan of operation.

**Q 1.13: *What is the relationship between the ISLRBC and the Study Board?***

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A: The IJC directed the Lake Ontario-St. Lawrence Study Board to carry out its work independent of the work of the ISLRBC. Information and findings generated by the study process will be made available to the ISLRBC as they become available, [Conseil international de controle du Fleuve Saint-Laurent ---](#)but the mandate of the ISLRBC will remain unchanged unless amended by the IJC.

## **SECTION 2: *High Lake Ontario Water Levels***

**Q 2.1: *What were Lake Ontario's levels prior to regulation, and since regulation?***  
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A: Regulation began in 1960. From 1918 to 1959, the long-term mean Lake Ontario level was 74.70 m (245.1ft), with a maximum monthly mean of 75.76 m (248.6 ft) and a minimum monthly mean of 73.74 m (241.9 ft) making the total range 2.02 m (6.6 ft).

From 1960 to 1999, the long-term mean level was 74.81 m (245.4 ft), with a maximum monthly mean of 75.73 m (248.5 ft) and a minimum monthly mean of 73.83 m (242.2 ft) making the total range 1.90 m (6.2 ft).

The higher long-term mean level since 1960 is attributable to higher water supplies received in this period than received in the period before regulation. Had regulation not been in place, these increased supplies would have resulted in a long term mean from 1960 to 1999 of 75.13 m (246.5 ft), with a maximum monthly mean of 76.07 m (249.6 ft) in June 1973 and a minimum monthly mean of 73.78 in (242.0 ft) in December 1964, yielding a total range of 2.29 m (7.6 ft).

**Q 2.2: *Has regulation made conditions worse on the Lake Ontario shoreline?***  
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A: No. Shoreline damages have been reduced by regulation. Regulation has significantly reduced the duration and magnitude of extreme high water levels on Lake Ontario. When the project was built, portions of the St. Lawrence River were excavated, increasing the outlet capacity from Lake Ontario. This increased capacity has been used during times of high water supplies with the result that extreme high Lake Ontario water levels have been reduced by as much as two to three feet.

**Q 2.3: *Have water levels been higher since regulation began and why?***  
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A: Yes. This is due to the fact that water supplies to Lake Ontario have been greater since regulation. Without regulation, Lake Ontario would have set new record high water levels several times. While regulation has actually reduced the impact of these supplies, it has not completely eliminated it.

**Q 2.4 *Do the hydropower and navigation interests benefit from high Lake Ontario water levels?***

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A: While high water levels on Lake Ontario can produce benefits for hydropower and navigation, they often mean higher flows in the St. Lawrence River, which can have negative impacts. For example, higher flows through the seaway and power project reduce the level of Lake St. Lawrence, which is immediately upstream of the project. These low levels can be hazardous to navigation and possibly result in ship groundings. In addition, high flows can produce cross-currents that cause difficulty controlling the vessels. For hydropower, more electricity can be generated when there is a greater volume of water passing the stations; however, the consequent lowering of Lake St. Lawrence decreases the head on the hydropower stations and decreases the amount of electricity generated for each cubic foot of water.

**Q 2.5: *Does the Boundary Waters Treaty require the IJC to require financial compensation when property has been damaged as a result of regulation?***

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A: No. When a project raises the elevation of the natural level of waters on one side of the boundary, the Boundary Waters Treaty requires the IJC to make suitable and adequate provision for the protection and indemnity of all interests on the other side of the boundary that may be injured. The IJC found that suitable and adequate provision is made by the laws in Canada and by the Constitution and laws of the United States for such protection and indemnity for the construction, maintenance and operation of the project in the St. Lawrence River.

**Q 2.6: *What is criterion (i) and why is it needed?***

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A: Criterion (i) expresses the IJC intention that monthly mean levels above elevation 75.07 meters (246.3 feet- IGLD 1985) not occur more frequently with regulation than would have occurred prior to the project with the same water supplies. This has, in fact, occurred. Criterion (i) keeps water levels from being maintained near the top of the regulation range.

**Q 2.7: *Why doesn't the Commission use criterion (i) as the upper limit for water level regulation on Lake Ontario?***

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A: Criteria (a) through (k) were developed as a total package that is workable given water supplies within the range of those experienced before the project was built. This set of criteria includes criterion (i), which specifies that the frequency of monthly mean elevations of approximately 75.07 m (246.3 ft) or higher shall be reduced. The target upper limit for Lake Ontario water levels is specified in criterion (h) and is 75.37 m (247.3 ft). Treating the criterion (i) level as an upper limit would be equivalent to narrowing the target range of levels by one foot. This would be a significant change to the Orders of Approval that would make the other criteria more difficult, and perhaps impossible, to achieve.

**Q 2.8: *What factors affect shoreline erosion?***

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A: The major factors affecting long-term erosion rates include wave action, shoreline materials and structure, and long-term patterns of sediment transport along the shore. None of these primary factors are directly related to water level fluctuations. The lake level does, however, have an effect on where wave energy is dissipated on the beach or bluff profile and, consequently, affects shore erosion and bluff recession rates over short time periods.

When water levels are high, wind-driven waves can trigger significant short-term erosion events that would otherwise occur later or more gradually. They may also direct wave energy against existing erosion protection structures, sometimes resulting in damage. Long-term recession rates appear to be independent of water level fluctuations for many Great Lakes shoreline areas. For other areas, water level fluctuations may play a role in determining long-term recession rates.

**Q. 2.9: *Are there ways to address flooding and erosion problems other than through regulating water levels?***

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A: While shoreline protection may be effective in some instances, the best way to address flooding and erosion problems is through effective shoreline management. This is primarily a local, state or provincial government function. The New York State Department of Environmental Conservation regulations pursuant to the NYS Coastal Erosion Hazard Act implement several actions to reduce flooding and erosion losses along the Lake Ontario shoreline. The Province of Ontario ... Actions that have been found to be effective include:

- For new structures, flood and erosion setbacks that consider the long-term recession rates;
- Relocation of structures at risk;
- Real estate disclosure requirements;
- Acquisition of high-risk undeveloped land;
- Limiting construction in flood plains; and
- Purchase of flood easements within flood plains.

**Q 2.10: *Why can't Lake Ontario water levels be reduced in the fall of each year to provide a buffer against high water supplies the next spring?***

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A: It is not always possible to reduce water levels in the fall. To do so may require

extremely high outflows which, if implemented, might violate one or more of the Criteria in the Orders of Approval or result in significant harm to other affected interests. In addition, reducing water levels in the fall would allow no cushion for possible occurrence of low supplies in the spring.

**Q 2.11: *Why doesn't the navigation season between Lake Ontario and Montreal close earlier so more water can be let out of Lake Ontario?***

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A: The Commission does not specify either the start or the end of the navigation season. Its regulation of outflows in accordance with the Boundary Waters Treaty and its Order of Approval, however, affects navigation.

**Q2.12: *At what Lake Ontario level do adverse impacts from high water occur?***

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A. Although it is true that Lake Ontario is to be regulated below 75.37 m (247.3 ft), there is no single critical level at which it can be said that "adverse impacts" occur in the system. The level of harm suffered by a user of the system greatly depends on the location and the usage. The IJC and the Board are aware that various sectors in the system may be impacted as levels in Lake Ontario and the St. Lawrence River vary, even within their prescribed ranges.

### **SECTION 3: High Water Levels and Flows in the St. Lawrence River**

**Q 3.1: *Does regulation of Lake Ontario outflows make spring flooding conditions worse in the Montreal area?***

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A: No. The Order requires no less protection for riparian interests downstream than would have occurred under pre-project conditions. Regulation of Lake Ontario outflows has actually reduced spring flooding in the Montreal area. Montreal is threatened by flooding since it is located at the confluence of the Ottawa and St. Lawrence Rivers. The spring runoff from the Ottawa River basin is largely uncontrolled and can be very significant. Timely adjustment of the Lake Ontario outflow has repeatedly helped avoid serious flooding in the Montreal and Lake St. Louis areas during Ottawa River floods. Lake Ontario outflow reductions are typically offset by higher flows prior to the Ottawa River flood, or shortly following it.

**Q 3.2: *Since completion of the project, have water supplies been more extreme than***

*those used in its design?*

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A: Yes, several times. As a result, on a number of occasions, the water levels and flows in the Lake Ontario - St. Lawrence River system exceeded the criteria limits as specified by the IJC. When designing the project, the recorded water supplies to Lake Ontario for the period 1860-1954 were tested to determine the required dredging and operations that would meet these Criteria and requirements. With supplies more extreme than this test period, some of the Criteria limits have been exceeded.

**Q 3.3: *What have been the benefits to St. Lawrence riparians as a result of Lake Ontario regulation?***

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A. Timely management of the Lake Ontario outflows have consistently prevented extremely high water levels and flooding in the Montreal region. Lake Ontario regulation has also greatly reduced the incidence of ice jams in the river, both upstream and downstream of the Cornwall/Massena area, and thus has reduced the flooding and shoreline damage often associated with these events. Finally, the construction of the St. Lawrence seaway and power project created conditions enabling the establishment and growth of recreational boating on many areas of the St. Lawrence River through the elimination of rapids, the creation of Lake St. Lawrence and the stabilization of river flows and water levels.

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#### **SECTION 4: Low Lake Ontario and St. Lawrence River Water Levels**

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**Q 4.1: *What actions do the IJC and ISLRBC take to react to low water supplies and avert extreme low water levels in Lake Ontario or the St. Lawrence River?***

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A: The criteria and regulation plan aim to maintain Lake Ontario levels above 74.15 m (243.3 ft.) from 1 April through 30 November, even under very dry conditions. The operating plan was designed to reduce outflows as conditions become drier. When conditions permit, the board may deviate from the plan in order to reduce outflows even further (store water for even drier times) or increase outflows (release water to meet a specific short-term need.) Under the most extreme dry conditions, all possible relief is provided to navigation and power as specified by the Orders of Approval.

**Q 4.2: *At what Lake Ontario level do adverse impacts from low water occur?***

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A. Although it is true that Lake Ontario is to be regulated above 74.15 m (243.3 ft), there is no single critical level at which it can be said that "adverse impacts" occur in the system. The level of harm experienced by a user of the system greatly depends on the location and the usage. The IJC and the Board are aware that various sectors in the system may be impacted as levels in Lake Ontario and the St. Lawrence River vary, even within their prescribed ranges. For example, not all docks and harbors have been designed to accommodate the full range of Lake Ontario water levels prescribed in the IJC Orders of

Approval or those that have occurred on the St. Lawrence River.

**Q 4.3: *Other than water level regulation, are there any actions that could benefit recreational boaters?***

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A. Recreational boating interests indicate the occurrence of adverse impacts at various points in the system even when levels and flows are within their prescribed ranges. Therefore, one action to alleviate this is to site and design new recreational boating facilities taking the full range of water levels and flows into account, at minimum as defined in the Orders of Approval for Lake Ontario and as have occurred along the St. Lawrence River. This may necessitate the use of longer launch ramps, floating (rather than fixed) docking systems, and the financial commitment to perform periodic maintenance dredging as needed to accommodate the planned use. Finally, it must be recognized that some areas are shallow and cannot accommodate dockage for large recreational vessels. In addition, boaters should pay particular attention to navigation charts during low water periods, even in waters they may be familiar with.

**Q 4.4: *What have been the impacts of regulation on Lake St. Lawrence compared to pre-project conditions?***

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A: Lake St. Lawrence did not exist prior to the construction of the project. It was created by the construction of the Moses-Saunders hydropower dam, the Long Sault Dam and associated protection dykes. Prior to the seaway and power project, this part of the river was much narrower and contained fast-moving water and rapids. The area was also subject to ice jams and associated flooding. The seaway and power project has allowed for the growth of recreational boating and associated businesses in this area.

**Q 4.5: *Why can't sufficient water be stored on Lake Ontario to provide a buffer against low water conditions in the Thousand Islands and/or Montreal?***

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A: Should Lake Ontario be regulated for the single purpose of maintaining water levels in the Thousand Islands and/or Montreal, a greater proportion of low water conditions could be avoided. However the regulation of Lake Ontario must take into account and balance many interests in addition to those concerns. In such a system, no one interest can be perfectly satisfied all the time to the detriment of all other interests.

**Q 4.6 *How can low water levels affect domestic and sanitary uses in the St. Lawrence River?***

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A: Very low water level conditions may affect shore wells as well as municipal and industrial water intakes on the St. Lawrence River and along the entire Lake Ontario shoreline. Such impacts can be avoided through proper design of such facilities with anticipation of the entire range of Lake Ontario levels and flows prescribed by the Orders of Approval and those that occur on the St. Lawrence River.

## **SECTION 5: Environmental Impacts**

**Q 5.1: *Since regulation has reduced the occurrence of extreme high and low water levels on Lake Ontario, has this had an adverse impact on wetlands?***

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A: Yes. The wetlands of the Great Lakes-St. Lawrence River Basin and the habitats that they support are dependent on water level fluctuations. While each wetland is unique, narrowing the range of water level fluctuations is thought to result in less wetland acreage and less diversity within the wetland plant communities. The Commission's Levels Reference Study Board concluded in 1993 that the reduction in the range of water level fluctuations resulting from regulation has adversely affected the extent and diversity of Lake Ontario's wetlands. It also concluded that altering natural water level conditions on Lake Ontario resulted in the appearance of undesirable plant species in its wetland habitats. There is also concern regarding the environmental impact of outflow regulation on wetland and fishery habitats in downstream areas of the River. More definitive data regarding all these impacts should be provided by on-going studies being conducted by the IJC.

**Q 5.2: *How has regulation impacted the environment near the project at Massena and Cornwall?***

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A: The construction of the dam at Massena and Cornwall created Lake St. Lawrence upstream, thus changing the nature of that environment from a river to a lake environment. That change has brought about physical, chemical, as well as biological modifications. There are also concerns regarding impacts from the use of the shipping channel.

**Q 5.3: *How has regulation impacted the environment downstream of the project?***

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A: Regulation has reduced the number and, perhaps more critically, the timing and duration of extreme high and low levels on the river downstream. These may have impacted both wetland and fishery habitats. More definitive data regarding all these impacts should be provided by on-going studies being conducted by the IJC.

## **SECTION 6: Other Interests**

**Q 6.1: *How can the regulation of Lake Ontario outflows impact commercial navigation?***

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A: The construction of the seaway and power project opened the Great Lakes to ocean-going navigation.

Outflows exceeding design limits in the regulation plan can result in severe water

velocities and cross currents in the river, including at key points such as at entrances to navigation locks. In addition, very high flows at the Moses-Saunders hydropower dam reduce the available draft on Lake St. Lawrence due to a drawdown effect at the dam and immediately upstream.

By contrast, very low outflows can result in extremely low levels in downstream areas of the Seaway and at Montreal Harbour, limiting the ability of vessels to transit the channels and/or approach docks.

**Q 6.2: *What authority does the ISLRBC have to consider recreational boating and other interests when setting Lake Ontario outflows?***

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A: In 1961, the IJC gave discretionary authority to the ISLRBC to depart temporarily from the regulation plan flow when a deviation would provide relief from adverse impacts to any interest without appreciable adverse effects to any of the other interests. At various times, this authority is used to assist shoreline property owners, navigation, hydropower and other interests, as well as recreational boating.

**Q6.3: *How can high or low Lake Ontario water levels affect domestic and sanitary uses?***

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A: Lake Ontario water levels above the upper limit of the regulation range have resulted in threats to domestic supplies and sanitary uses. These consist of flooding and back-up of sanitary sewer lines, flooding and contamination of freshwater storage wells and, under very high levels or during storm events, possible flooding of freshwater intake pumping facilities. Low levels can impair the functioning of intakes, reducing their capacity.

**Q6.4: *Does the Boundary Waters Treaty give precedence to domestic and sanitary uses over other uses?***

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A: Yes. Article VIII of the Boundary Waters Treaty states that no use shall be permitted which tends materially to conflict with, or restrain, any other use with higher precedent. The order of precedence is stated as: (1) uses for domestic and sanitary purposes, (2) uses for navigation and (3) uses for power and irrigation purposes. "Domestic and sanitary purposes" include municipal water supply and wastewater treatment.

**Q 6.5: *What was the purpose of the hydropower and seaway project?***

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A: Dependable water for hydropower generation, sufficient water levels and flows for Seaway navigation, and flood reduction both upstream and downstream of the projects were the main objectives. These are reflected in a series of Criteria and requirements in the IJC's Orders of Approval allowing for the construction and operation of the project.



