



**ONTARIO  
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Josh Annett  
Policy Officer  
Ministry of Natural Resources and Forestry  
Policy Division  
Crown Forests and Lands Policy Branch  
Crown Lands Section  
300 Water Street  
Peterborough Ontario  
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By Email: [Josh.Annett@Ontario.ca](mailto:Josh.Annett@Ontario.ca)

Re: EBR: 012-5093 – Lakes and Rivers Improvement Act  
Administration of Section 16: Alterations, Improvements and Repairs to Existing  
Dams Technical Bulletin

Dear Mr. Annett:

Ontario Rivers Alliance (ORA) is a Not-for-Profit grassroots organization acting as a voice for several stewardships, associations, and private and First Nations citizens who have come together to protect, conserve and restore healthy river ecosystems.

ORA is very pleased to offer our comments on this EBR posting regarding the administration of Section 16 of the Lakes and Rivers Improvement Act (LRIA). However, to our knowledge, no decision has yet been made on the comments ORA submitted in January of 2014, regarding EBR 012-0562, the Technical Bulletins designed to provide guidance for dam location, operation, maintenance, amendments, reporting and approval under the Lakes and Rivers Improvement Act (LRIA). Effective LRIA guidelines and policies are essential to regulating dams and maintaining healthy rivers.

## **1. Memorandum of Understanding**

ORA is strongly opposed to Section 4.3 of this draft technical bulletin which makes provision to consider a memorandum of understanding (MOU) from proponents who have a portfolio of dams. The stated purpose of this provision is to streamline the Section 16 application and review process of similar proposed alteration, improvement or repair works at dams.

The significant and often highly cumulative and ongoing impacts associated with waterpower have been known for decades; however, it is ORA's observation that there are many instances of significant and ongoing negative impacts from waterpower



facilities that have never been properly identified, much less adequately assessed and mitigated.

It is important to note that the environmental effects of waterpower are neither routine or predictable. In fact, their effects are often highly site specific.

ORA therefore recommends that all new and existing dam alterations, improvements or repair works must be addressed by MNR on an individual basis.

## **2. Common Works Not Requiring LRIA Approval**

Within the list of those proposed works that have been predetermined to not affect the dam's structural integrity or safety, the waters or natural resources, and would not require LRIA approval, are Flash Boards and Stop Logs.

It has been ORA's observation that the replacement of wooden stop logs by concrete or steel can result in the significant loss of environmental flow. Many older dams at least provide some environmental flow from between the stop logs and/or flashboards, and changes to these structures could severely impact on the downstream riverine ecosystem.

ORA recommends that this category instead trigger a re-assessment or review of the operating strategy and that a LRIA approval must be required.

## **3. Public and First Nation Consultation**

Currently permitting under the LRIA does not require a formal public consultation process, even though the LRIA Administrative Guidelines recognize riparian and non-riparian interests and public rights, as well as "the additional rights afforded to the public in general related to waterbodies and waterways."<sup>1</sup> Consequently, crucial decisions are being made regarding waterbodies and works that can cause serious damage to aquatic environments and waterfront property owner's interests, without any formal mechanism for the public to express their concerns and provide input.

The government and proponent's Duty to Consult with First Nations is limited "*to the extent that the traditions of First Nations and Aboriginal communities offer ways of understanding the environment*"<sup>2</sup>, and is required to be respected and considered in the review of applications.

ORA strongly recommends that all new works, alterations, improvements or repairs to existing works, which could result in a negative impact on water quality or water quantity, fisheries or the riverine ecosystem, undertake a full public and First Nation consultation process. This would provide an opportunity for meaningful input into the proposed project, such as effective mitigation measures (fish passage, fish friendly turbines, river flows and water levels), and to ultimately reject the project if it is not acceptable.

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<sup>1</sup> Lakes and Rivers Improvement Act, Administrative Guide, Ontario Ministry of Natural Resources, August 2011, 1.4.3, P-8.

<sup>2</sup> Ibid, .



#### 4. Licensing, Re-licensing and Permitting

In the US, the re-licensing process involves a substantial Environmental Impact Statement, which considers the project's impacts, which are then weighed against the value of the power it generates, as well as the projected ecological value of its removal. Based on these findings, the regulator may decide not to re-license a project, or apply a conditional approval, and maintains the ability to terminate or modify a project's license if they perceive it has been violated.<sup>3</sup>

ORA strongly recommends that the MNRF use a similar process.

Ontario is rushing forward with dozens of new waterpower developments that would impact upon many rivers and communities, and successful proponents will secure a 40-year contract. If the government is going to engage in new or upgraded hydro projects, then it should also look at removing outdated and unsafe dams and facilities at the same pace.

Additionally, many of Ontario's older run-of-river waterpower facilities are now using peaking and cycling strategies in response to increases in electricity prices, and "Demand Response" program incentives offered by the provincial government to produce power during peak demand. Seasonal operating bands are now conveniently being used for daily peaking operations, even though these frequent swings in water levels and flow velocities can have devastating consequences on riverine ecosystems. Furthermore, these operating strategies are being changed without the benefit of an environmental impact assessment to determine what the environmental and socio-economic consequences could be. Many Water Management Plans (WMP) are left in draft form after many years of haggling; and therefore there is no agreed upon operating plan. When there is no agreed-upon WMP in which to comply, fisheries and riverine health are compromised.

The World Economic Forum in its "Global Risks 2015" report lists "water crises" as its number one global risk in terms of impact – beating out the rapid spread of infectious disease, weapons of mass destruction, and failure of climate-change adaptation.

ORA therefore recommends that when MNRF issues a permit, license, or license renewal, to carry out work at a facility, including those considered exempt under the Electricity Projects Regulation, that an Environmental Impact Assessment is required, and effective mitigation measures are required, before any license or permit is issued.

#### 5. Fish Passage

Under Section 17(4) of the LRIA, MNR may order the provisions of free and unobstructed upstream and downstream passage of fish; however, this is very rarely a requirement of approval for a waterpower facility.

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<sup>3</sup> Federal Energy Regulatory Commission, *Applications for New Licenses (Relicenses)*. Online: <http://www.ferc.gov/industries/hydropower/gen-info/licensing/app-new.asp>



Dams alter connectivity and can significantly change a river's physical and biological processes. Large and small dam structures can fragment and isolate biological communities by reducing or eliminating connectivity between reaches unless effective upstream and downstream fish passage has been included.

Impeding the passage of migratory fish species was found to be the most significant ecosystem impact at over 60% of the projects in a world commission on dams survey. In 36% of these cases, the impact of the dam on migratory fish was not anticipated during project planning.<sup>4</sup>

One of the most significant reasons for the decline in many species of fish in Ontario is the almost total lack of fish passage at most hydroelectric and water control dams. Without the provision of safe and suitable passage, fish are unable to move upstream in order to access critical habit and spawning beds; and during downstream migrations many fish pass through the turbines and are killed or maimed.

The situation becomes even more critical for species such as the American Eel and Lake Sturgeon that attempt to migrate over long distances past numerous dams in Ontario. The need for passage and for research into more effective passageways is recognized in recently released Recovery Strategies in Ontario for both of these species. For instance, with respect to the American Eel, it was noted that

*The cumulative effects of eel mortality during downstream migration due to hydro-electric turbines, reduced access to habitat imposed by man-made barriers to upstream migration, commercial harvesting in jurisdictions other than Ontario, contaminants, and habitat destruction, alteration and disruption are among the most significant threats to the survival and recovery of the American Eel in Ontario.*<sup>5</sup>

In the case of Lake Sturgeon, non-fragmented habitats are critical, as adults migrate considerable distances. Downstream passage through waterpower facilities and dams can cause injury or direct mortality to all life history stages of Lake Sturgeon from exposure to extreme changes in water pressure, cavitation, shear, turbulence or mechanical injuries, entrainment and impingement<sup>6,7</sup>. As a result, it has been concluded that,

*the historical loss of habitat through impoundment and fragmentation and the failure to mitigate these losses is likely the greatest ongoing impediment slowing the recovery of sub-populations of Lake Sturgeon inhabiting highly developed systems such as the Ottawa River. Lake Sturgeon in fragmented reaches of the*

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<sup>4</sup> World Commission on Dams. 2000.

<sup>5</sup> MacGregor, R., Casselman, J., Greig, L., Dettmers, J., Allen, W.A., McDermott, L., and Haxton, T. 2013. *Recovery Strategy for the American Eel (Anguilla rostrata) in Ontario. Ontario Recovery Strategy Series. Prepared for Ontario Ministry of Natural Resources, Peterborough, Ontario. x + 119 pp. P-45.*

<sup>6</sup> Cada, G.F. 1998. *Better science supports fish-friendly turbine designs. Hydro Review. November 1998: 52-61.*

<sup>7</sup> Golder Associates Ltd. 2011. *Recovery Strategy for Lake Sturgeon (Acipenser fulvescens) – Northwestern Ontario, Great Lakes-Upper St. Lawrence River and Southern Hudson Bay-James Bay populations in Ontario*



*Ottawa River exist in reduced numbers and have size distributions consisting predominately of larger individuals, indicating recruitment failure<sup>8,9,10,11</sup>.*

Indeed, it has been recommended that management strategies should allow Lake Sturgeon access along unobstructed corridors to move between feeding, overwintering and spawning habitat.<sup>12</sup>

The Environmental Commissioner for Ontario (ECO) stated in the 2009/2010 Annual Report that

*the MNRF should require, through approvals issued under the [Lakes and Rivers Improvement Act (LRIA)], that all new dams facilitate natural passage of fish by installing fish ladders or other similar structures. In addition, [the Ministry of Natural Resources and Forestry (MNRF)] should require all existing dams to be retrofitted with fish ladders or other similar structures to facilitate safe and natural migration along the course of all Ontario's streams and rivers, through LRIA approvals for improvement or repair to dams.<sup>13</sup> Five years later, the MNRF has not acted on this.<sup>14,15</sup>*

The ECO further stated in the 2014/2015 Annual Report Supplement,

*...ignoring the necessity for fish passage can create ecological costs for Ontario's fish species and river ecosystems. The ECO urges the MNRF to fix this long-standing and significant ecological problem for existing and future projects.<sup>16</sup>*

Unfortunately, the obvious need for provision of safe and effective fish passage at many waterpower facilities has been largely ignored in Ontario by both the federal and provincial governments **Error! Bookmark not defined..**

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<sup>8</sup> Haxton, T.J. 2002. An assessment of lake sturgeon (*Acipenser fulvescens*) in various reaches of the Ottawa River. *Journal of Applied Ichthyology* 18: 449-454.

<sup>9</sup> Haxton, T.J., and Findlay, C.S. 2008. Variation in lake sturgeon (*Acipenser fulvescens*) abundance and growth among river reaches in a large regulated river. *Canadian Journal of Fisheries and Aquatic Sciences*. 65: 645-657.

<sup>10</sup> Haxton, T.J. and Findlay, C.S. 2009. Variation in large-bodied fish community structure and abundance in relation to water management regime in a large regulated river. *Journal of Fish Biology*. 74: 2216-2238.

<sup>11</sup> Golder Associates Ltd. 2011. *Recovery Strategy for Lake Sturgeon (Acipenser fulvescens) – Northwestern Ontario, Great Lakes-Upper St. Lawrence River and Southern Hudson Bay-James Bay populations in Ontario*

<sup>12</sup> Auer, N.A. 1996b. Response of lake sturgeon to change in hydroelectric facility operation. *Trans. Am. Fish. Soc.* 125: 66-77.

<sup>13</sup> *Environmental Commissioner of Ontario (2010). Redefining Conservation: Annual Report 2009/2010, P-50.*

<sup>14</sup> *Of the 12 new dams the MNRF approved since January 2010, none were required to install a fishway. (Ontario Ministry of Natural Resources and Forestry (March 9, 2015). Information provided to the ECO in response to ECO inquiry.)*

<sup>15</sup> *Environmental Commissioner of Ontario, Small Things Matter: Annual Report Supplement 2014/2015, P-262-274.*

<sup>16</sup> *Environmental Commissioner of Ontario, Small Things Matter: Annual Report Supplement 2014/2015, P-262-274.*



Consequently, ORA recommends that all new works or alterations, improvements or repairs to existing works are required to determine existing and potential impacts on fisheries and endangered species, and if negative effects are determined,

- a. The dam owner is required to ensure that effective upstream and downstream fish passage and other mitigation techniques are strategically and effectively provided.
- b. Given the lack of understanding of fish bypass technologies in the industry, proponents are required to demonstrate the effectiveness of their proposed fish bypass solutions before a permanent dam or similar structure is built or altered.

Additionally, all existing works must be reviewed in order to determine their impacts on fisheries and endangered species, and where migratory fish species exist(ed), the owner is required to install effective upstream and downstream fish passage to ensure habitat access, and to use turbines and/or effective bypasses that minimize fish mortality. Fish passage should be incorporated into other types of dams as well.

## 6. Cumulative Effects Assessment

A very high environmental and socio-economic price has been paid in the past in terms of losses to other valued natural resources due to the installation of dams and waterpower facilities. The socio-economic costs of these losses are generally ignored<sup>17,18</sup>, and rarely reported to the public.

ORA therefore recommends a comprehensive and meaningful cumulative effects assessment is required of all new or altered works to ensure it would not create an unacceptable incremental impact in consideration of the effects of all other waterpower projects, water diversions, mining and wastewater effluent, agriculture or other development, at the watershed or appropriate regional scale.

Thank you for this opportunity to comment.

Respectfully,

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Chair, Ontario Rivers Alliance  
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<sup>17</sup> Wang, G., Fang, Q., Zhang, L., Chen, W., Chen, Z., Hong, H. 2010. *Valuing the effects of hydropower development on watershed ecosystem services: Case studies in the Jiulong River Watershed, Fujian Province, China*, *Estuarine Coastal and Shelf Science*. 86.3:363-368.

<sup>18</sup> *Institute for Fisheries Resources. 1996. Cost of Doing Nothing: The economic burden of salmon declines in the Columbia River basin. Report No. 1 of 3.*