ONTARIO RIVERS ALLIANCE

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Fisheries and Oceans Canada, Gulf Region
Species at Risk Program
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Transmission by Email: glf-sara-lep@dfo-mpo.gc.ca

Re: American Eel, proposed listing under federal Species at Risk Act

Dear Sirs:

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

The American eel have been declining at an alarming rate over significant parts of their range and have exhibited declines in many parts of their North American range (COSEWIC 2012, MacGregor et al. 2013). As a unique and valued component of aquatic ecosystems, the species certainly merits protection under SARA. Further, as a panmictic species, the high economic value of eel fisheries across Canada clearly justifies its protection under the Fisheries Act in all areas of the Country. There is a need to act quickly before eels are lost entirely from significant parts of their range.

SUMMARY

Although once abundant over a substantial portion of eastern Canada, the American Eel has recently been designated by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) as a threatened species because of "dramatic declines over a significant portion of its distribution (e.g., Lake Ontario and the upper St. Lawrence River)" (COSEWIC 2012). In Ontario, the American Eel has been extirpated from much of its former range and has been listed as endangered (MacGregor et al. 2013). Elsewhere in the species' range in eastern Canada "trends in abundance … are highly variable" and "strong declines are apparent in several indices" (COSEWIC 2012). ***Given the plight of this important species in large portions of its range and the need for a co-ordinated response across eastern Canada, we strongly urge the federal government to list the American Eel as a threatened species under the Species at Risk Act (SARA) and to prepare and implement a comprehensive national Recovery Plan to assist in the species' recovery***.

AMERICA EEL and CAUSES OF POPULATION DECLINE

The American Eel is a keystone species in aquatic ecosystems because of its great abundance and its role as a top predator (MacGregor et al. 2013). The species is migratory, spawning in the Sargasso Sea and inhabits an unusually broad range of ecosystems in its geographical range (Daverat et al. 2006). Historically the species inhabited all of the freshwater, estuaries, and coastal marine waters that are accessible from the Atlantic Ocean as far north as central Labrador, reaching as far inland as Ontario and western Quebec (i.e. the upper St. Lawrence, Lake Ontario and Ottawa River watersheds) (COSEWIC 2012). Those that migrate to these farthest reaches are almost all large females of high fecundity (MacGregor et al. 2015). They form a unique sub-population of eels that may be genetically distinct from a functional standpoint and hence, may be irreplaceable (Bernatchez et al. 2011).

The American Eel has been of great importance to First Nations for millennia, both culturally and as a food source (e.g. MacGregor et al. 2009, 2011). Until recently the species supported a robust fishery over much of its range. For example, the commercial eel catch in Lake Ontario in some years represented >50% of the value of the entire commercial catch for all species (MacGregor et al. 2015).

Unfortunately, over the past several decades the American Eel population has declined precipitously in large portions of its range as the result of human development. The decline has been most dramatic in Ontario and western Quebec, where the species has been extirpated from much of its former range (MacGregor et al. 2013, COSEWIC 2012). Overall, the American Eel faces many threats throughout its range (COSEWIC 2012, MacGregor et al. 2013, Chaput et al. 2014).

***Dams and reservoirs*:** Dams and other barriers restrict access to critical eel habitat. Almost no dams provide eel passageways (e.g., MacGregor et al. 2015). In the St. Lawrence River watershed, more than 8000 dams prevent free access to >12,000 km^2 of potential freshwater eel habitat (Verreault et al. 2004). Winter drawdowns of hydro reservoirs can eliminate all available food for juveniles (Chaput et al. 2014).

***Hydro-electric turbines*:** When migrating downstream a significant portion of eels are killed or maimed in hydro turbines. For example, the probability of an eel surviving a migration from the Mississippi River in Ontario past 6 hydro dams to the Lower St. Lawrence River has been calculated as between 2.8 and 40% (MacGregor et al. 2015). This figure does not take account of additional threats such as the commercial fishery on the lower St. Lawrence River or predation in the Gulf of St. Lawrence.

***Fisheries*:** The commercial and recreational eel fisheries have been closed in Ontario for more than a decade because of the collapse in the eel population. However, fisheries still exist in Quebec and the Atlantic provinces. These fisheries pose a threat to local eels, as well as those from farther inland in Ontario as they migrate to the Atlantic Ocean (Chaput et al. 2014, MacGregor et al. 2015).

***Various sources of pollution*:** There are many sources of pollution that can affect eels, including pesticides which drain into waterways from agricultural lands, heavy metals in highly industrialized regions and pollution associated with ship and boat traffic in the St. Lawrence

River and Gulf of St. Lawrence (Chaput et al. 2014). Bioaccumulation of contaminants is an important source of concern (COSEWIC 2012).

***Exotic swim bladder parasite*:** An exotic swim bladder nematode parasite (Anguillicola crassus) which has been found in several widely scattered regions of eastern Canada is thought to have a negative effect on eels (COSEWIC 2012).

***Cumulative threats*:** Much of the decline in the American eel numbers can be attributed to the cumulative effects of the various threats outlined above (e.g., MacGregor et al. 2015). Threats are compounded for eels that migrate the longest distances, such as those that in Ontario and western Quebec. Hence, it is not surprising that this sub-population has seen the steepest decline.

CURRENT MEASURES TO ADDRESS THREATS

Steps have been taken mainly at the provincial and in some cases at a regional level in an attempt to address the declining eel populations. For example, in Ontario the American eel has been listed as endangered, a Recovery Strategy has been released (MacGregor et al. 2013) and, as noted above, the eel fishery has been closed. In Quebec some fishing licenses have been bought back (COSEWIC 2012). Newfoundland and Labrador have listed the species as vulnerable and a Recovery Strategy has been developed (Wildlife Division, Newfoundland and Labrador 2011). Such measures are helpful, but not sufficient, to reverse the downward trend in the eel population.

ORA RECOMMENDATIONS FOR MEASURES TO ENABLE RECOVERY

Because of the migratory nature of the American Eel, the very wide diversity of ecosystems utilized by the species (Daverat et al. 2006), and the numerous threats across its range in eastern Canada (COSEWIC 2012, MacGregor et al 2013), there is an urgent need for co-ordinated protection/recovery efforts at the federal, provincial and regional level (MacGregor et al. 2008). It is essential to address the numerous threats identified if we are to halt the decline in the population and ensure its long-term recovery. The protection and recovery of the American Eel is of paramount importance to aquatic ecosystems and to Canadians (including First Nations).

Critical steps in this process are:

1. Accept the COSEWIC scientific assessment and list the American Eel under the federal Species at Risk Act, and include the designation of Endangered for the remaining eels in Ontario.
2. Develop and adopt a National American Eel Recovery Strategy under SARA. This Strategy would include the appropriate recommendations contained within Ontario's American Eel Recovery Strategy under Ontario's ESA, as well as other additional work pertaining to eels in Ontario (MacGregor et al. 2011, 2013, 2015) relevant to this important part of the range. A national strategy should also contain recovery information from other jurisdictions within the species range (e.g. Wildlife Division, Newfoundland and Labrador, 2011).

3. Strategically implement without delay a national recovery strategy across the historical range in Canada.

We, therefore, urge the federal government to proceed without delay in listing the American Eel and implementing a Recovery Plan.

Respectfully,

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