

Translation of parts of the April 2017 CERFO report entitled “Le potentiel d’amélioration de la migration de l’anguille d’Amérique (*Anguilla rostrata*) dans le ruisseau de la Brasserie (Gatineau)”

A study of the potential for improving the migration of the American Eel (*Anguilla rostrata*) in Brewery Creek (Gatineau)

## Summary

The principle goal of this project was to document the work done in Québec on eel migration and to examine ways of improving migratory conditions in Brewery Creek in the City of Gatineau. A review of the scientific and technical literature was undertaken to document the situation of eels in the St. Lawrence River basin and to put into context efforts to re-establish eels in the Ottawa River sub-basin. This report provides an overview of the state of the American Eel population and discusses the governance of this complex file, which involves a number of jurisdictions. Proposals for the development of activities to foster the re-establishment of eels in the Ottawa River and Brewery Creek are also presented.

## Introduction

Since the 1990s, the condition of the American Eel population has caused growing concern among scientists and aquatic resource managers. Studies have documented the declining state of the eel population, and research has been undertaken to identify potential factors responsible for this decline, with the aim of restoring eel stocks in the Atlantic Ocean’s tributary watersheds.

Historically, habitats in the headwaters of the St. Lawrence River watershed – including the Ottawa River sub-watershed – that are accessible to the American Eel have produced larger females that are the most fertile in the species’ range. As well, these females may have contributed in a significant way to the reproduction of the species in the Sargasso Sea.

A number of governments, energy-producing industries and research institutions have formulated and implemented action plans for the conservation and restoration of these reproductive stocks, but greater synergy and integration among the various actors is required to reach the desired objectives. Environmental organizations such as Ottawa Riverkeeper are continuing these initiatives. Ottawa Riverkeeper is concerned in particular with the ecological health of the Ottawa River, its tributaries and its resources.

Ottawa Riverkeeper has been involved in activities to re-establish the American Eel in the Ottawa River for several years. Through these programs, which contribute to the re-establishment of the eel stock in the Ottawa River watershed, Ottawa Riverkeeper hopes to continue acquiring and sharing knowledge in order to fill the gaps in our understanding of the condition of the American Eel population.

To that end, CERFO was mandated by Ottawa Riverkeeper to synthesize current information on the American Eel and on the re-establishment activities undertaken mainly in Québec and on the Ottawa

River to improve the migratory potential of the American Eel, particularly in Brewery Creek in the City of Gatineau.

This report begins with an overview of the situation of the American Eel in the St. Lawrence watershed. It then presents a summary of the governance of this complex issue to date and discusses possible future initiatives for the Ottawa River and Brewery Creek. The report concludes with recommendations on activities that would permit the acquisition of more information about increasing the potential for eel migration in Brewery Creek.

## Recommendations

The telemetry projects planned by the Canadian Wildlife Federation in the Chaudiere Falls area and the likely continuing transfer of eels from Beauharnois to upstream of the dam at Carillon creates an opportunity to pursue monitoring in Brewery Creek, a potential migratory route for eels in the Ottawa River.

It is recommended, therefore, that the following activities be undertaken to gain a better understanding of possible options for improving the migratory potential of the American Eel.

1. Verify with the City of Gatineau that the clean-up of Brewery Creek will be undertaken before May 15, 2017.
2. During the clean-up, take advantage of the significantly reduced flow to recover the portion of the eel trap that was lost in the plunge pool downstream from the dam below Montcalm Street during the autumn of 2016.
3. Obtain agreement from the City of Gatineau to experiment with an increase in the flow of Brewery Creek to 1.5 – 2 m<sup>3</sup>/s between June 1 and September 30 to make Brewery Creek more attractive to American Eel and other fish species.
4. Calculate the current in Brewery Creek between the dam below Montcalm Street and the creek's mouth at the Ottawa River.
5. Analyse the potential of the American Eel to climb the rapids.
6. Confirm the presence of a beaver dam at the top of boulevard Fournier and, if there is a dam, determine whether or not it should be dismantled and the beavers captured. If it is necessary, obtain permits from the Ministère des Forêts, de la Faune et des Parcs (the Québec Ministry of Forests, Wildlife and Parks) and the agreement of the owners of the shoreline in question in order to complete this work.
7. Re-install an eel trap at the foot of the dam below Montcalm Street and ensure that it is checked regularly.

8. Try out a new location for the installation of the eel trap and/or verify the effectiveness of installing concrete blocks on the dam to facilitate access to the eel trap (see the photos in the appendix to the full report, “Le potentiel d’amélioration de la migration de l’anguille d’Amérique (*Anguilla rostrata*) dans le ruisseau de la Brasserie (Gatineau)”).
9. Install at least one electronic receiver in Brewery Creek to monitor eels equipped with a passive integrated transponder (PIT tag).
10. Repeat the survey for eels by conducting electrofishing operations downstream of the dam below Montcalm Street, principally in June, July and August.
11. Document, as required, the morphometric data of the captured eels.
12. Before considering the installation of a permanent eel ladder at the dam below Montcalm Street, document the movement of ice at the site in the spring to ensure that the structure can withstand the spring thaw.
13. Confirm the effectiveness of installing eel ladders in the upper reach of Brewery Creek where the two control structures are located: one under Taché Boulevard and the second where the inflow from the Ottawa River forms Brewery Creek.
14. In a technical report, document all activities undertaken to re-establish the American Eel population in the Ottawa River in order to provide a useful and accessible reference for all organizations that work on this issue.

## Conclusion

Given the dire situation of the American Eel in the Ottawa River watershed, all options must be considered to reverse the current decline in this eel stock, which produces among the biggest and most fertile females in all their range. In the circumstances, even minor gains would be important.

As eels have historically used the habitats in Brewery Creek, improvement of the hydrologic conditions of this potential migratory route are worth considering. However, work needs to be done to acquire further information before planning specific activities. The recommendations presented in this report are a step in that direction.