

# *Algonquins of Ontario*

## RETURNING KICHISIPPI PIMISI - THE AMERICAN EEL - TO THE OTTAWA RIVER BASIN



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American Eel remediation is a rapidly evolving area of practice. Literature and practical guidance continue to be published with new and innovative approaches and tools. This 'living' document will be revised as new information and practices become available.

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# Returning Kichissippi Pimisi, the American Eel, to the Ottawa River Basin

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December 2012

## The American Eel Is Sacred

The American Eel (*Anguilla rostrata*) is considered sacred to the Algonquin people and has been an essential part of Algonquin culture for thousands of years. Recently the number of eels in the St. Lawrence Basin has been reduced significantly, falling approximately 99% from local populations in the 1980s, a span of only 30 years, until we are left with only a remnant population in Ontario. Recently it has become apparent that the American Eel may be close to being extirpated from huge areas of Ontario (MacGregor et. al 2010) and consequently traditional Algonquin territory.

In this paper, where there is reference to the Algonquin Traditional Territory, only the Ontario side of the ancestral territory of the Algonquin Nation is included. As you may know, Algonquins also used and occupied territory in the watershed of the Ottawa River in what is now Quebec. Nothing in this paper should be construed as being on behalf of the Algonquin First Nations that are based in Quebec.

**It is vital to the Algonquins of Ontario that viable populations of the American Eel be restored to its historical range in Ontario and specifically to traditional waters throughout the Ottawa River Basin including the traditional waters of the Mississippi, Bonnechere, Petawawa, Mattawa, Madawaska and South Nation Rivers and other tributaries.**

## The Significance of the Ottawa River's American Eel to the Algonquin Community

The American Eel of the Ottawa River is referred to as Kichissippi Pimisi, Kichissippi meaning 'big river' (Kirby Whiteduck, First Nation Algonquin Negotiation Representative and Chief of Algonquins of Pikwàkanagàn pers. comm. October 18, 2011) and being the original name given to the Ottawa River by the Algonquins and Pimisi being the Algonquin name for eel. Kichissippi Pimisi is a source of spirituality and is considered sacred by the Algonquin people. Historically the Algonquins were a people who were skilled at adapting to changing environments and conditions and they identify strongly with the eel's characteristics. The eel is a prayer-carrier of the waters because it travels farthest, through salt and fresh waters, and can travel in wetlands according to Aboriginal Traditional Knowledge (ATK). It connects all of Mother Earth (Katherine Cannon, Algonquin Negotiation Representative and Chief of Algonquin Nation Kijicho Manito Madaouskarini pers. comm. September 23, 2011).

Elder Dr. William Commanda states in A Circle of All Nations Note titled *Manoshkadosh: The American Eel*:

“I believe that Eel spirit is intrinsic to the Sacred Seven Fire Prophecy Wampum Belt. This unique and mysterious ancient creature was of tremendous significance to the original peoples of the eastern coast of North America, and in the stories of my ancestors, it was plentiful beyond imagination; the Eel was of great spiritual, nutritional and material importance to the people from time immemorial.” (Elder Dr. W. Commanda undated)

The Sharing and Welcome Belt reflects the ancient wisdom embodied in the understanding of Ginowaydaganuc, or the interconnectedness of all things animate and inanimate, and the sacred responsibility to the quality of relationships within that interconnectedness. Further, the belt articulates our gratefulness to the Creator and Mother Earth for providing us with our lives within Ginowaydaganuc and recognizes our knowledge of the love our Creator shares with us. We must share this love for all of creation and Mother Earth’s capacity to support life on Earth by accepting the responsibility to care for her if we take from her. The belt holds the Algonquin as the centre figure with the French and English on each side, agreeing to “share the grand resources of the land” conditional under natural law, to the full commitment to the sacred responsibility to care for the land as guided by the ancient wisdom of the Algonquin (Larry McDermott, Plenty Canada Executive Director written communication November 2011).

The Algonquins are connected to other First Nations such as Anishnaabeg and Haudenosaunee neighbours who to this day have Eel clans and rivers named after our ancient and mutual friend. We are also united with Indigenous peoples as far away as Brazil and northern Labrador through the Eel. Mic Mac Warrior Donald Marshall and Mic Mac Elder Albert Marshall attended a 2008 conference at the Odawa Friendship Centre, where they expressed the need to eliminate the elver industry and reduce east coast harvesting levels including, as Donald Marshall said “if I have to suspend my hard fought right to fishing Eels to help them return to Algonquin waters, I will” (Larry McDermott, written communication November 2011). An outcome of this gathering was the Aboriginal Peoples American Eel Resolution, which includes the recognition that “all development and fisheries management decisions must be guided by the precautionary principle and cumulative impacts must be assessed both on a watershed basis and on the basis that the American Eel, *Anguilla rostrata*, comes from one genetic stock” (Aboriginal Peoples’ American Eel Resolution 2008). It further states “we also reaffirm our responsibilities to our Aboriginal brothers and sisters whose strong relationship with the American Eel is impacted by decisions made in our respective territories” (Aboriginal Peoples’ American Eel Resolution 2008).

Chief Doreen Davis in her 2009 paper to the Federal Minister of Fisheries and Oceans referred to “seven endorsements by the people of Shabot Obaadjiwan First Nation.” They include in detail the following headings: “1. SARA Listing, 2. Precautionary Principle, 3. Cumulative effects, 4. National Management Plan, 5. Biological Feasibility, 6. Reversibility, and 7. Litigation Risk”.

Chief Davis went on to share with the Minister a Shabot Obaadjiwan council resolution endorsing the resolution from the November 2008 conference at the Odawa Friendship Centre:

“Our Council has endorsed the resolution (at our council meeting of January 12, 2009) because of the importance of the American Eel to our cultural traditions and our sacred responsibility to care for the gifts given to us by the Creator.” (Larry McDermott, written communication November 2011).

Kichissippi Pimisi is an ancient fish which was abundant in the Ottawa River basin for millennia, making up approximately 50% of the total freshwater biomass prior to the 1900s. It has been hunted and consumed by Algonquins in the Ottawa Valley in a sustainable way for over 4000 years (Whiteduck 2002, Allen 2007). This is confirmed by archaeological evidence at Allumette and Morrison Islands, located in the Pembroke area. ATK tells us the eel was a prime source of nutrition for the Algonquins during their travels and kept them from starvation during harsh winters. Its importance as a food source to the newcomers is also well documented and the eel was used for trade with settlers or given as a gift (K. Whiteduck pers. comm. October 18, 2011). Records from early Jesuits, as far back as 1642, comment on how the eel was found in “prodigious abundance” and describe how both the Algonquins and the French prepared eel and fish for winter (Whiteduck 2002). None of the animal was wasted. The eel provided many non-food uses such as medicines and its skin had a range of uses, from medicine bags to bandages for sores and broken bones. The lining of the bladder was used in making paint. Pimisi bones were formed into tools such as needles and arrowheads and some parts of the eel were used for sacred ceremonies (K. Cannon pers. comm. September 23, 2011).

The importance of the American Eel to the Algonquin people cannot be overstated and must be respected. The Algonquins consider the eel to be a model of strength and adaptability, living in harmony with its surroundings. William Allen observes, in his 2007 paper to the Ottawa River Eel Management Group titled *American eel of the Ottawa River*:

“Failure to preserve the species in the homeland of these people is akin to an assault on the identity of the Algonquin people themselves.”

For this reason, the Algonquins of Ontario consider it vitally important to be the voice of the eel in mankind’s efforts to ensure the survival of the species.

## **The Life Cycle of the American Eel**

The eel is catadromous, living most of its life in fresh water but migrating to salt water to breed. Eels begin life thousands of kilometres away from the Ottawa River basin in the Sargasso Sea and the very young glass eels are distributed on ocean currents with some traveling northward until they eventually work their way upstream. They travel through the St. Lawrence River to the Ottawa River as juveniles, referred to as elvers and later as yellow eels. The eels spend years maturing in the Ottawa River and its tributaries. Eels are long lived with a mean age of 19.3 years and a maximum age of 42 years (Canadian Eel Working Group 2008).

The mature silver eels again travel thousands of kilometres, this time back to the breeding areas in the Sargasso Sea. All eels in Ontario are females, the largest and most fecund (egg laden) for the entire species, so eels which mature in Ontario are disproportionately important to the species as a whole

(COSEWIC 2006, Tremblay 2009, MacGregor et al. in press). This highlights the importance of Ontario's subpopulation and underscores the critical need to ensure remediation plans for the species in Ontario include restoration of the species throughout its historical range, with the long term goal of sustaining a healthy subpopulation in Ontario. Restoring access to the diversity of habitats within the historical range in Ontario will have huge benefits to recovery of the species and provision of fish passage at man-made barriers, including all waterpower facilities, should be a standard requirement as it is now in many jurisdictions throughout the world.

In 2008 the American Eel was listed as Endangered under the Ontario Species at Risk program due to sharp declines in its populations. Casselman (2003) attributed the loss of 99% of the population to a number of contributing factors:

- Dams and other physical barriers
- Turbine mortality and injury
- Harvesting practices at all life stages
- Habitat contamination and destruction
- Parasites
- Ocean current changes
- Seaweed harvesting in the Sargasso Sea

Some factors have had a greater influence on the species' decline than others, but combined have resulted in a devastating cumulative effect by the end of the 20<sup>th</sup> century. Though at some point all of these factors have contributed to the population declines in the past century, waterpower facilities are currently of the greatest concern in Ontario (MacGregor et al. 2010, MacGregor et al. in press).

### **Hydro-electric Dams and Turbines are the Main Contributors to Recent Population Declines of Kichissippi Pimisi**

One of the primary causes of the current decline in population of the American Eel in Ontario is due to man-made barriers, primarily hydro-electric dams which have been in place for decades and in some instances for a century or more (MacGregor et al. 2010, MacGregor et al. in press). Ontario eels migrate twice in their lives, first from the Sargasso Sea as young eels, then as mature eels on their return to the Sargasso Sea to breed. During both these migrations the eels must negotiate a gauntlet of man-made barriers, including hydro-electric facilities. In fact, hydro-electric facilities are the first and only barriers encountered by eels on the main stems of the two major migratory pathways into Ontario, the Ottawa River and the St. Lawrence River. No other man-made barriers occur on the main stem of the St. Lawrence River and there are no other man-made barriers on the main stem of the Ottawa River until the mouth of Lake Temiskaming, more than 500 km upstream from the river's confluence with the St. Lawrence River. Six hydro-electric dams block eel migration on the main stem of the Ottawa River, and none of these massive structures currently have structures in place to provide eel passage, as noted by the Environmental Commissioner of Ontario in its 2009/10 Annual Report to the Legislature.

Young eels are tough. They can often climb barriers up to three metres high during their upstream migration and can travel small distances on land (MacGregor et al. 2010) but the size of most hydro-electric dams in the Ottawa River Basin far exceed their capabilities. The effect of these hydro-electric dams is to cut off huge areas of upstream habitat to all but a very few eels which might discover a way

by, so when there is a series of dams in the watershed the cumulative effect can be extirpation in large areas. Dams also hamper seasonal movement up and down the river, an important issue where over-wintering areas must be accessible for survival. Prior to the installation of multiple dams in the Ottawa River basin (there are currently about 50 hydro-electric facilities) the watershed is estimated to have had the capacity to produce 255,000 mature eels a year (Verreault et al. 2004 in MacGregor et al. in press). The numerous waterpower facilities in the watershed prevent free access to approximately 12,140 km<sup>2</sup> of suitable habitat.

Downstream migration is an even greater challenge for eels as has been witnessed by those carrying out tail waters surveys downstream of hydro-electric dams in the Mississippi and Ottawa Rivers. The Community Stewardship Council of Lanark located 26 dead American eels in their 2009 tail waters survey, 24 in the Ottawa River and two in the Mississippi River. All but one were “either cleanly severed and/or fatally injured internally to such an extent that large amounts of bruising and even pinched/crushed sections could be seen externally” (CSC of Lanark 2010).

Multiple hydro-electric dams in the Ottawa River and its tributaries have a cumulative effect of killing most of those few eels that are left to attempt it. Risk of injury increases with increased size and the silver eels in the Ottawa River are large females, often more than a metre in length. If they are drawn through the turbines of the power stations they are likely to be injured or killed, especially in the faster turbines found on smaller rivers. Where water flows over spillways, some may be fortunate enough to choose that route past the dam. Even if they successfully negotiate one set of turbines, there is a series of dams on its route, all of which take a toll. To illustrate the level of risk, the probability of an eel in the Mississippi River surviving out-migration down the Ottawa River to the St. Lawrence falls in the range of 2.8% to 40% (MacGregor et al. in press) and survival of the large females likely falls at the low end of the range.

This is not news. There are stories in the early twentieth century of mature eels clogging mill operations and other facilities to the point that operations needed to shut down to clear them out. We have known for decades that turbines cause fish mortality, and especially eel mortality. We have had decades to develop a local solution to eel passage issues in Ontario, and specifically in the Ottawa River watershed. Regulatory tools such as the federal Fisheries Act, and later the provincial Lake and Rivers Improvement Act (LRIA) have been in place in some cases since confederation. However, these Acts are discretionary, and were not implemented in Ontario for waterpower facilities, resulting in a century of accrued impacts on the ability of Ontario’s very important large females to contribute to spawning and recruitment. The global population and recruitment back to Ontario has suffered considerably (Casselman 2003, MacGregor et al. 2009).

Only 1% (or less) of the population of American Eel remains in Ontario. Waterpower facilities have now been identified as the key anthropogenic source of eel mortality since closure of the eel fishery and the Algonquins of Ontario are concerned that waterpower may now have an exemption under O. Reg 242/08 of Ontario’s new ESA. Prior to 2007 designation of the eel under the ESA eel populations could have been protected and fish passage required under the Federal Fisheries Act and LRIA but neither upstream or downstream passage issues in the Ottawa River watershed, including in Quebec, have been addressed. This carries through to the rest of the province, with the exception of the Saunders GS. Even

under the Endangered Species Act (ESA), “Ontario Regulation 242/08 exempts hydro-electric generating stations from prohibitions against killing and habitat destruction if an agreement is entered into with the Ministry of Natural Resources” (Environment Commissioner of Ontario 2010). Therefore, waterpower agreements must be the vehicle to ensure effective mitigation measures are taken which are essential to the survival and recovery of the eel in Ontario, otherwise they will not meet the legal tests of O. Reg 242/08 and beyond that any tests of ecosystem sustainability, conservation of biodiversity, or biological ethics.

## **Eel Recovery in the Ottawa River Watershed Is Viable and Essential to the Algonquins of Ontario**

We must work together to guarantee recovery of the eel through ensuring safe and timely passage, protecting habitat, and through protection of remnant populations as well and ensuring the passage and protection of the recovering population to a sustainable level in the future. Though providing passage in Ontario waters is an important part of returning Kichissippi Pimisi to the Ottawa River and its tributaries, we must look beyond provincial boundaries and be willing to identify and rectify issues throughout its journey to and from the Sargasso Sea.

A number of important considerations must be included in eel recovery plans within and beyond Ontario’s boundaries, some of which fall outside current proposed legislation or Ontario’s jurisdiction and seven key considerations follow.

### **1. There are solutions to the barrier and mortality issues created by hydro-electric dams and we must provide safe passage for the eel – both upstream *and* downstream.**

Eel ladders and “natural” passageways have been successfully used for upstream migration in many waterways throughout North America for decades. On the St. Lawrence River the Moses-Saunders Power Dam has had an eel ladder in place since 1974, the only eel ladder in Ontario waters. Upstream passage throughout the Ottawa River basin must be re-established in the very near future to begin the recovery process.

Downstream passage, while a greater technical challenge, has also been addressed at facilities outside of Ontario and there are feasible approaches to increasing downstream passage success rates. There are many efforts underway in numerous other jurisdictions to learn from and adaptive management will further inform continuous improvement, so there is no reason to delay addressing downstream passage. We must be ever vigilant to try more intensive efforts in the future to assist eel recovery with higher standards of mitigation through the adaptive management process. Examples include such work as that being done through the Coast of Maine Initiative (of which Environment Canada is a member) where significant investments and comprehensive efforts have resulted in reducing barriers. This and other good news stories have closely and fully involved Indigenous Peoples and their special knowledge and wisdom (Larry McDermott, Plenty Canada Executive Director written communication November 2011).

While development of “natural” passageways or bypass channels may be the best long term solution for eels and other fish species, short term actions are needed to protect the remnant eel population. Currently remnant eel populations in the Ottawa River basin must be protected during



outward migration as these remaining valuable silver eels, all large fecund females, are disproportionately important to increasing populations as a whole.

**2. Safe passage for the eel must extend beyond the political boundaries of Ontario.**

The Carillon hydro-electric dam, a large structure owned by Hydro Quebec, is located near the mouth of the Ottawa River where it flows into the St. Lawrence River. It is the first dam eels encounter on their upstream migration in the Ottawa River (though there may be some obstructions in the Montreal area) so it is absolutely necessary to ensure passage past this barrier and any others which are identified, even though they fall outside Ontario's jurisdiction.

**3. We must continue to effectively fill the knowledge gaps.**

While we know quite a bit about the eel, there are some gaps in understanding the density of eel, age classes, and the specific times that local movement occurs. A coordinated, rigorous monitoring plan must be put in place immediately and continued over the long term to collect useful, quality data which will help us better understand local behaviours and provide us with a complete, accurate picture of what shape remediation efforts should take and provide us with the ability to do an analysis on a systems basis. Proper monitoring protocols will also provide us with the ability to monitor results, both short term and long term, of individual and collective remediation efforts (Casselman and Marcogliese 2011). Piecemeal data collection efforts will not provide accurate enough information in many cases to allow us to move forward with confidence and could result in delays in recovery efforts.

**4. There must be eels available to populate the waterways and so we must appeal to others to provide safe passage of the eel beyond Ontario waters, to the waters of the St. Lawrence River and international waters through which the eel migrates.**

Halting harvesting throughout the life of the eel, whether commercial harvesting elvers or silver eels, is essential to supporting population increases which should restore its distribution back to the Ottawa River and its tributaries.

At a meeting of the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) in May 2012 American Eel population trends were assessed and it was determined that due to strong declines, coupled with the continuing degradation of habitat attributed to dams and pollution, the American Eel is to be designated as Threatened (COSEWIC 2012). The Algonquins of Ontario applaud COSEWIC for the recognition of the precipitous decline in American Eel populations and for identifying the need for federal protection of the species throughout its range. It is now important to ensure that this assessment moves forward in a timely fashion to ensure inclusion of the American Eel under the federal Species at Risk Act as soon as possible and from there quickly initiate a recovery program as timing is important.

**5. The merit of short term assisted upstream passage to provide access to suitable habitats throughout the watershed should be considered.**

To ensure the continuation of migration into the Ottawa River and its tributaries we must work with others to increase the overall population of the eel throughout North America. This should serve to

expand distribution of the species back into the furthest reaches of its range over time. In the short term, assisting this population expansion through assisting upstream passage past barriers may help to increase the number of eels in the Ottawa River and its tributaries. As permanent passages into the watershed are re-established they would replace the need for short term assisted passage.

## **6. Eel habitat in the Ottawa River basin must have long term protection from degradation.**

The historical existence of such large numbers of eels in the Ottawa River and its tributaries is indicative of the existence of good quality habitat and importance of the river to the overall Ontario population. Primary habitat in the watershed must be identified and protected.

## **7. We must all learn from our mistakes.**

Experience has shown that waterpower dams have contributed to declines in eel and other aquatic species' populations as we have drawn on the "natural equity" of our ecological systems to meet our needs. Our ability to mitigate these effects is limited and costly, making 'green' energy less than environmentally (or economically) sustainable. The result has been precipitous declines in the population of aquatic species (such as, but not limited to, the eel) which migrate seasonally to winter or summer habitats, and to spawning beds once or more in their lifetimes.

This makes a strong case for protecting current and remaining historic eel habitat where there are few or no barriers present, such as the Petawawa River. The Petawawa River has been, and continues to be, of significant historical, cultural, and spiritual significance and the Algonquins of Ontario do not support development of any structures which will impact historical eel habitat or passageways in this river.

Having a population distributed widely through its historic range is good management. It instils resilience into Ontario's subpopulation by reducing the risks of environmental perturbations in one area causing disproportionate stress on Ontario's entire subpopulation, whether naturally occurring such as disease or anthropogenic causes such as contamination. It provides greater resilience to future anthropogenic stress and can add stability for the provincial subpopulation and species as a whole, a good long term investment.

Ignoring or dismissing the vast, diverse areas of the Ottawa River in favour of other highly stressed habitats such as Lake Ontario is very unwise management and runs counter to much scientific advice in the literature. Moreover, it would be inconsistent with Aboriginal rights and obligations under the Canadian constitution and international law.

A draft recovery strategy for the American Eel in Ontario has been developed. The first goal stated in the draft strategy is to "...re-establish the American Eel throughout its native Ontario range, at population levels that...restore the full cultural relationship with eel in Aboriginal communities and for Ontario residents..." The draft strategy (MacGregor et al. 2010) has a large number of recovery objectives, some which follow:

- ensuring adequate and safe upstream and downstream passage in Ontario waters
- restoring access to all immediate tributaries of the Ottawa River by 2050, as well as Lake Ontario and the upper St. Lawrence River

- increasing access to habitat by 10% every 5 years
- protection of primary habitat
- reducing cumulative mortality rates by 50% at the watershed level by 2050
- addressing other contributing stress and mortality factors
- the evaluation of the effectiveness of recovery efforts

Algonquins of Ontario believe that only interim permits or agreements under O. Reg 242/08 should be entered into until the province has released its response to the American Eel Recovery Strategy. AOO must be consulted on final agreements. Once final permits are issued and agreements are finalized the Ontario government must continue to be proactive in ensuring effective action is being taken to abide by those agreements. AOO expects to be consulted, and directly involved where appropriate, in development of interim and final agreements. AOO further expects to be involved on an ongoing basis in reassessing the efficiency of these agreements as well as working with parties where necessary to ensure timely and effective plans are in place to meeting recovery goals.

The Algonquins of Ontario are the indigenous occupants of Algonquin Traditional Territory and assert a full range of Aboriginal rights, including Aboriginal title, in that Territory and that assertion is the basis of ongoing Treaty negotiations with Ontario and Canada. The AOO rely on these rights to support full and meaningful consultation as described by the Supreme Court of Canada in Haida Nation and subsequent cases. Superficial meetings on matters of process may be adequate for groups lacking section 35 Aboriginal rights in our Territory but do not begin to satisfy the requirements of deep consultation required in the case of the AOO.

In particular, the Algonquins of Ontario have a direct and fundamental interest in the protection and recovery efforts of the American Eel within Algonquin Traditional Territory, both in terms of the potential impact of any recommended projects on Aboriginal rights and interests.

### **Mitigation of the Effects of Waterpower Facilities is Fundamental to Recovery of Kichissippi Pimisi in the Ottawa River Basin**

Because improvements in upstream and downstream passage are two fundamentals of eel recovery in Ontario and waterpower is the first and biggest threat to recovery (MacGregor et al. 2010; Pratt and Mathers 2011), waterpower agreements are tightly linked (indeed are impossible to separate from) the successful recovery of the species in Ontario.

Implementation of the final recovery strategy and any complementary efforts to enhance the recovery of this endangered species must include strong and continued efforts to correct the most serious threats to survival and recovery to be successful.

Provision of upstream and safe downstream passage at these facilities is a first priority to successful recovery of the species and while complete mitigation may not currently be feasible and some mortality will continue to occur, there is considerable room for improving the provision of safe passage. It is important that provision of upstream and downstream passage is carried out strategically and in a timely manner. There is no legitimate reason to delay development and implementation of passage plans any longer and dates associated with objectives should be considered to be final end dates while

striving to complete the tasks sooner. Hydro-electric dams are normally in place for long periods and are not often modified so waiting for dam modification work to occur so as to include passageways is not feasible. Although theoretically it would be useful to introduce passage and access to increased habitat in an incremental manner beginning with dams at the furthest point downstream, it will be important to develop passages whenever mitigation opportunities present themselves. When considering downstream passage and the cumulative effects of exposure to multiple turbines, reducing exposure anywhere along downstream migration routes will increase the odds of a successful outward passage.

## **An Opportunity to Repair the Damage**

For thousands of years Pimisi travelled up and down the Ottawa River unimpeded. The American Eel was plentiful during that time and was an important source of spirituality, food, and medicine for the Algonquin people. In the past century this has changed: Kichissippi Pimisi is now rarely seen and since 2007 is listed as Endangered under the Ontario Species at Risk program.

The American Eel Draft Recovery Strategy (MacGregor et al. 2010) includes this important paragraph in its Acknowledgements:

“The partnering efforts by Aboriginal and non-Aboriginal people in writing this recovery strategy, and the likelihood of continuing long-term work together, has strengthened our relationships with one another and with American Eel. Collective efforts among government, stakeholders and Aboriginal people to recover this species will not only aid in the restoration of lost ecological services, and restore biodiversity, cultural and natural heritage values, but will be a significant milestone in recovering and strengthening relationships among our cultures.”

Returning Kichissippi Pimisi to its home in the Ottawa River basin must involve the Algonquins. The eel has historical and cultural significance in the Ottawa Valley and remains of great importance to the Algonquins today as it will in the future. We cannot, and should not, depend solely on legislative measures to address the issue, but rather ensure that a comprehensive, integrated plan is put in place. Cooperative measures within the community, beyond legislation, are needed and the Algonquins of Ontario are committed to developing partnerships and working with those partners to do all that is necessary to return the eel to local waters. This challenge provides us all with an opportunity to work together to restore eel populations to a sustainable level and ensure it remains there, to reach beyond politics and vested interests.

In Grandfather William Commanda’s words:

“The plight of the American Eel is finally obliging us to re-examine our relationship with the natural world, and to take concrete steps to entrench survival and coexistence for all life forms, and governments are now implementing legislation to address these crucial concerns.”

**Returning Kichissippi Pimisi to its traditional place is crucially important to the Algonquin people. Many have not seen the eel in their lifetime and the connection between our people and this sacred animal is being lost. We as a community must not allow this to happen.**

The problem has been identified and feasible solutions are available to diminish anthropogenic impacts. As our knowledge and available technology improves more can, and will, be done in the future. We will

build our plans on the best available information we have and following adaptive management strategies we will assess our progress and align our goals as needed. All that is needed is the determination to carry it through.

Kichissippi Pimisi was there for our ancestors in the Ottawa Valley for centuries, for the Algonquin people and more recently European settlers, providing economic, material sustenance and medicines, inspiring us to be strong and to live sustainably on the land. Now it is our turn to be there for the eel.

***“Today, the plight of the Eel must awaken us to the crucial need to transform our relationship with Mother Earth and All Our Relations, and to awaken us to the pivotal role of Indigenous Peoples in this process.”***

**(Elder Dr. W. Commanda undated)**

## Acknowledgments

*We thank everyone who made important contributions to this paper through taking the time to review an earlier draft and provide valuable information as well as comments on ways to improve it.*

### *Personal Communications*

*The following individuals made special contributions to this report through taking the time to personally sharing their knowledge, and we thank them:*

Allen, William A. Heritage One. Written communication November 24, 2011 and February 7, 2012.

Cannon, Katherine. Algonquin Negotiation Representative and Chief of Algonquin Nation Kijicho Manito Madaouskarini. Telephone interview September 23, 2011.

Casselmann, Dr. John. Adjunct Professor, Department of Biology, Queen's University. Written communication November 24, 2011 and February 5 & 13, 2012.

McDermott, Larry. Plenty Canada Executive Director. Written communication November 25, 2011 and February 7 & 13, 2012.

MacGregor, Robert. American Eel Recovery Team. Written communication November 24, 2011.

Whiteduck, Kirby. First Nation Algonquin Negotiation Representative and Chief of Algonquins of Pikwàkanagàn. Telephone interview October 18, 2011.

Members of the Algonquins of Ontario Energy and Water Resources Working Groups.

*AOO is also very fortunate to have a good working rapport with Pembroke MNR and we thank staff for the assistance they have provided us on this issue. AOO holds this up as an example of the value of developing partnerships to address critical issues such as restoration of the eel to local waterways.*

## References

Allen, William A. 2010. Archaeology Comes to the Rescue of Species at Risk.

Allen, William A. 2008. The American eel: Driving a Shift in Power. Presentation at A.D. Latornell Conservation Symposium, Nottawasaga Inn, Alliston, Ontario.

Allen, William A. 2007. Kichissippi Pimizi, Ottawa River's American eel (*Anguilla rostrata*): A Depleted Species in a Degraded Watershed.

Canadian Eel Working Group. Draft American Eel Management Plan. October 9, 2008. Fisheries and Oceans Canada, Ontario Ministry of Natural Resources, and Ministère des Ressources naturelles et de la Faune du Québec.

Casselman, John M., and Lucian A. Marcogliese. 2011. Abundance and Distribution of the American Eel (*Anguilla rostrata*) and Other Fish in the Lower Ottawa River System and Tributaries, 2010, as Determined by Quantitative Electrofishing.

Casselman, J. M. 2003. Dynamics of resources of the American eel, *Anguilla rostrata*: declining abundance in the 1990s, pp. 255-274, Chapter 18. In *Eel Biology*, K. Aida et al., Springer-Verlag, Tokyo.

Commanda, Dr. William. Undated. Manoshkadosh: The American Eel. A Circle of All Nations Note.

Community Stewardship Council of Lanark County (CSC of Lanark County). 2010. American Eel Hydro Dam Tail Waters Monitoring Project 2009: Assessment of Mortalities on the Ottawa and Mississippi Rivers.

COSEWIC 2012. COSEWIC Wildlife Species Assessments (detailed version), May 2012. Committee on the Status of Endangered Wildlife in Canada. Ottawa. Available: [http://www.cosewic.gc.ca/rpts/Detailed\\_Species\\_Assessments\\_e.pdf](http://www.cosewic.gc.ca/rpts/Detailed_Species_Assessments_e.pdf)

COSEWIC 2006. COSEWIC assessment and status report on the American eel *Anguilla rostrata* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. x + 71 pp. Available: <http://dsp-psd.pwgsc.gc.ca/Collection/CW69-14-458-2006E.pdf>

Environmental Commissioner of Ontario (ECO). 2010. "Dam the American Eels." Redefining Conservation, ECO Annual Report, 2009/10. Toronto, ON : Environmental Commissioner of Ontario. 50.

MacGregor, Rob, Tim Haxton, Lorne Greig, John M. Casselman, John M. Dettmers, William A. Allen, David G. Oliver, Larry McDermott. In press. The Demise of American Eel in the Upper St. Lawrence River, Lake Ontario, Ottawa River and Associated Watersheds: implications of regional cumulative effects.

MacGregor, R., J. Casselman, L. Greig, W. A. Allen, L. McDermott, and T. Haxton. 2010. DRAFT Recovery Strategy for the American Eel (*Anguilla rostrata*) in Ontario. Ontario Recovery Strategy Series. Prepared for Ontario Ministry of Natural Resources, Peterborough, Ontario. vii+ 78 pp.

MacGregor, Rob, John M. Casselman, William A. Allen, Tim Haxton, John M. Dettmers, Alastair Mathers, Steve, LaPan, Thomas C. Pratt, Peter Thompson, Max Stanfield, Lucian Marcogliese, Jean-Denis Dutil. 2009. Natural Heritage, Anthropogenic Impacts, and Biopolitical Issues Related to the Status and Sustainable Management of American Eel: A Retrospective Analysis and Management Perspective at the Population Level. American Fisheries Society Symposium 69:713-740, 2009.

MacGregor, R.B., A. Mathers, P. Thompson, J. M. Casselman, J. M. Dettmers, S. LaPan, T. C. Pratt and W.A. Allen. 2008. Declines of American eel in North America: Complexities associated with bi-national management. Pages 357-381 in M. G. Schechter, W. W. Taylor, and N. J. Leonard, editors. International governance of fisheries ecosystems: learning from the past, finding solutions for the future. American Fisheries Society, Bethesda, MD.

Oblak, J.A. 2009. Passage of the American Eel (*Anguilla rostrata*) in the Mississippi River, Ontario: Feasibility and Recommendations.

Pratt, T.C. and A. Mathers. 2011. Update on the status of American Eel (*Anguilla rostrata*) in Ontario. Canadian Science Advisory Secretariat. Research Document 2011/050, Department of Fisheries and Oceans Canada, Central and Arctic Region. 18 p. Available: [http://www.dfo-mpo.gc.ca/Csas-sccs/publications/resdocs-docrech/2011/2011\\_050-eng.pdf](http://www.dfo-mpo.gc.ca/Csas-sccs/publications/resdocs-docrech/2011/2011_050-eng.pdf)

Plenty Canada, Department of Fisheries and Oceans. Aboriginal Engagement Conference. 2008. Aboriginal Peoples' American Eel Resolution.

Tremblay, V. 2009. Reproductive strategy of female American Eels among five subpopulations in the St. Lawrence River watershed. Pp. 85-102, in J.M. Casselman and D.K. Cairns (eds.). Eels at the edge: science, status and conservation concerns. American Fisheries Society, Symposium 58, Bethesda, Maryland.

Verreault, Guy, Willy Dargere, and Rémi Tardif. 2009. American Eel Movements, Growth, and Sex Ratio Following Translocation. Ministère des Ressources naturelles et de la faune du Québec. American Fisheries Society Symposium 58:129-136, 2009.

Whiteduck, Kirby J. 2002. Algonquin Traditional Culture.