

Otonabee Pimizi, American eel (*Anguilla rostrata*) on the Journey to “The Land Between”

“Land Between” Research Forum

Peterborough, Ontario

June 7, 2007

William Arthur Allen

(P1: Title Page: Ancestor Reflection, Algonquin Park)

Kwey, Ahniin, Boozhoo, Bonjour, Good Day:

- Greetings to the Elders, Grandmothers and Grandfathers here today, and to all our relations, the Seen and the Unseen.
- I acknowledge Elder Murray Whetung, holder of eel knowledge at Curve Lake First Nation.
- I acknowledge all those people from times past, the Ancient Ones who were custodians of the eels, land, water and air in this Otonabee Watershed where we meet.
- I acknowledge the spirit of Peter Alley motivating us yet to learn and tell the story of The Land Between.
- I dedicate today’s presentation to Chief Eels of Eels Creek near Kinomagewapkong, The Teaching Rocks **(P2:Eel)**. Eels were still running in Eels Creek as of 1957 (Guillet 1957:li) and perhaps as recently as 1972.

I have a story. By tying together eel science, geography, archaeology and Traditional Aboriginal Knowledge, the story is woven with four themes:

1. the American eel, *Pimizi or Bimisi* in Anishinaabemowin, traditional language (Appendix 1; McGregor 2004:99; Baraga 1878:85; Baraga 1880:83),
2. The Land Between, a strip of special landscape arcing around the western and southern rim of the Algonquin Dome, a landscape known as an ecotone where high levels of biodiversity (*Debisiwin*) are supported, biodiversity symbolically providing traditional eel habitat at the extremity of eel range in the Lake Ontario Basin (Alley 2006; Berman 2006; Bright 1978),
3. the Otonabee River, including Rice Lake and the Trent River downstream from Rice Lake, the access route to much of The Land Between eel habitat for both eels and people and

4. the traditional Aboriginal use of eels for food and multiple non-food purposes and the important Aboriginal use of The Land Between for travel corridors, for medicine and berry collection, as a buffer from southern villages and, especially, for its role at Kinomagewapkong, the Teaching Rocks at Peterborough Petroglyphs.

I call my story *Otonabee Pimizi, American eel (Anguilla rostrata): on the Journey to The Land Between*. Otonabee is the Anishinaabemowin name for the river running through Peterborough and flowing on to Lake Ontario along a stretch of the watershed that we now call the Trent River. The word *Otonabee* has been interpreted to mean “Waters running swiftly, flashing brightly” (Guillet 1957:139) although this interpretation bears scrutiny by those fluent in Anishinaabemowin, traditional language of the Anishinaabeg¹. The modern pronunciation, OtONabee, may indicate an Irish influence which differs from traditional pronunciation, OtonAbee, in which a different syllable has the main accent (M. Whetung to Allen, pers. comm. 2007). *Pimizi* is the Anishinaabemowin word for the eel. It needs to be understood within the context of words for the structures used traditionally to harvest eels (**P3: Spearing**) eg. *Nishigans, Michigan, Michikan, Mitchikan, Mitchikanibikok, Mnjikaning and M’Chigeeng* (Appendix 1), including one such structure just north of this place where we meet today (Stevens 2004). That submerged wooden stake structure is near the mouth of Eels Creek at Lovesick Lake, home of Richard Fawn, the Anishinaabe man stricken with unrequited love, the man whose lonely experience left its name on the lake (Strickland 1853:2:233-4). Weirs were described in 1634 by the Jesuits as ingeniously made, long and broad and capable of holding five or six hundred eels and having collected stones extending out on either side like a chain or little wall to direct to eels (Thwaites 1896-1901:6:309). A sketch of tidal weir technology was featured in a 1917 Ontario archaeological report on ancient fishing implements recovered in Ontario (**P4: Weir**) (Orr 1917:37). A river weir was documented in 1817 at some distance above the mouth of the River Trent where new residents of Sidney Township complained that the weirs used for catching eels and whitefish were restricting the movements of salmon (Fraser 1912:403). A stone eel weir survives and is in use in use in a rocky shallow-water stream in Nova Scotia (**P5: Weir: Prosper**) (Prosper and Paulette, 2002:5). A similar feature is located at Eels Creek draining Eels Lake in northern Peterborough County, a creek and lake named after local Chippewa Chief Eels, the brother of “Handsome Jack” Cow who was a major 19th century Chief of the region (Guillet 1957:li-note; 24). (**P6: Weir: Allen**). The combination of a natural bedrock ridge and stream cobble placed strategically by the fishers to channel the movements of the eels enhanced the success rate of spearing the fish at such places. Specialized eel harpoons were in the inventory of Royal Fort Frontenac in 1684 (Preston 1958:152).

¹ The word *Anishinaabeg* is the plural form. When used as an adjective or in the singular the form is *Anishinaabe*. Woman is *Anishinaabe-kwe*. *Anishinaabemowin* is the language of the Anishinaabeg. The number of Anishinaabemowin speakers is growing now that detrimental residential school influence has ended and formal language training is present in community schools and language immersion programs such as the one at Sault College where courses include *Odibaajimotaadwin* (Storytelling), *Zhibiigewin* (Writing), *Namewin* (Cultural Identity) and *Nigamowin* (Singing) (Sault College 2007). The Anishinaabeg are the largest Aboriginal group in Ontario and in Canada and have been known by more than 100 names over the past 500 years (Buggey and Smith 2003:3; Parks Canada 2003).

Sometimes a net was set in the path of the diverted stream flow to capture the eels. Not surprisingly, most Ontario archaeological sites with eel remains are along small creeks (Appendix 2). But Eels Creek is no longer used for traditional eel fishery. Eels have been extirpated from the Otonabee Watershed for the last few decades (NatureServe 2006 in Bell 2007:4982). The last eel reported at Curve Lake First Nation was in 1972 (G. Williams to Allen pers. comm., 2007). The last known eel at Rice Lake was documented in 1985 (R. MacGregor to Allen pers. comm. 2007). The last eel documented at Campbellford was in 1994 (J. Chamberlain to Allen pers. comm. 2007). Since the 1930's eels also have been extirpated in Algonquin Park **(P7: AP E map)** (Mandrak and Crossman 2003:7). The eels there had access via tributaries of the Ottawa River, including this eel caught on the upper Madawaka **(P8: Eel)**. Use of weirs was outlawed by the Canadian Government in 1868 (Pulla 2003; Canada 1868). However, since Canadian Confederation most water control and hydro electric dams have been built without consideration of the American eel and its need, unlike most other fish, to be able to pass successfully to reach its spawning grounds in the Sargasso Sea. This raises the question, "Who speaks for the eels" (Allen 2006a)? For example, in forest lands which are adjacent to traditional eels habitat we need to hold forest managers to account in fulfilling their responsibility to document the former presence of the eels in accordance with new cultural heritage management guidelines about Aboriginal values **(P9: Cover)** (OMNR 2007a:42).

All American eels start life south of Bermuda in the Sargasso Sea where scientific eel investigation continues in 2007 under study by Henrik Sparholt of the ICES Secretariat (ICES 2006). Large numbers of the eels traditionally migrated to the Mississippi and St. Lawrence Watersheds and smaller rivers of the east coast of North America, climbing out of the water to pass more difficult waterfalls and rapids. Eels are not able to pass Niagara Falls so have long been known to be absent from the Upper Great Lakes (Talbot 1824:1:268). Eels were so plentiful in centuries past that they probably comprised a substantial portion of the overall inshore fish biomass (Casselman 2003:260). When eels mass in large numbers they push to the extremities of their range **(P10: Eels)**. An early documenter of Otonabee eels was Charles Fothergill, King's Printer of Upper Canada from 1822 to 1826, and Representative of Durham in the Legislative Assembly from 1825 to 1831. Fothergill had a hunting lodge at the mouth of the Otonabee River at Rice Lake and from that vantage point he not only recorded information about Aboriginal people, in 1821 in his manuscript *Canadian Researches* he described the eels as "innumerable and delicious" (Delaney 1983:17). Statistics on 19th century eel harvests in Ontario are difficult to find to support the observations of high eel abundance by people like Fothergill but in 1877 Members of Parliament were asked to give an accounting of the common fish in their constituencies. Some members were more forthcoming than others. Abundant eels were reported in Hastings County by Mr. Ray, in Victoria County by Mr. Staples and in Haliburton County by Mr. Langdon (Canada 1877). Also in 1877 statistics for the Quebec fisheries on the Ottawa River indicated that 8000 eels were harvested commercially that year, including 3000 on the upper Ottawa River (Canada 1879). But now, 185 years after Fothergill's report about Otonabee eel abundance, the eel is considered

endangered in Ontario (**P11: Eel killed**) (Ontario 2007b; MacGregor to Allen pers. comm. 2007). In 2006 the American eel was identified as a species of Special Concern by COSEWIC, the Committee on Status of Endangered Wildlife in Canada, (COSEWIC 2006). The eel currently is under formal consideration nationally under federal legislation as a species of Special Concern (CEWG 2007; SARA Registry 2007) The Land Between is part of the 84% of the historic eel habitat that is no longer accessible (Casselman 2003:270). Until the advent of habitat loss and turbine mortality at hydroelectric dams (**P12: Eel killed by turbine**) eels settled in lakes and rivers for up to 20 or even 30 years before migrating back to the Sargasso Sea to spawn (Verreault et al:2004). Declines in eel stocks clearly were evident in the St. Lawrence River by the early 1990's (Castonguay et al 1994). These declines paralleled records on the upper Mississippi River a century earlier (Coker 1929:171). By 2003, after exhaustive study, John Casselman, world renowned eels scientist of Queen's University, reported extreme declines in eel abundance in the St. Lawrence/Lake Ontario watershed at the extremity of traditional eel range (Casselman 2003:271). This was a scientifically based assessment unlike observations as early as 1823 when eel decline was attributed in the Gaspé region to Aboriginal people clubbing the fish with sticks (CGJ 1823:225, 226). We no longer hear of reports such as the 1634 Jesuit documentation of the people of the St. Lawrence, during the months of September and October, living for the most part on fresh eels (Thwaites 1896-1901:6:277) or smoking the eels, cut with slits so that the smoke may thoroughly penetrate them, thereby making them available for later use (Thwaites 1896-1901:6:313) in November, December and as far into January as possible before supplies ran out (Champlain 1922-1936:2:45; Thwaites 1896-1901:6:277) and the less productive ice fishing began. We no longer see commercial fisheries reports such as the 1878 report in which eels dominated the total harvest in one region of Québec (Canada 1878) (**P13: Report**).

Today eels are so depleted in all but the lower reaches of the Otonabee/Trent Watershed that they are considered extirpated, wholly absent, by Fisheries and Oceans Canada (Mandrak to Allen 2007.) The oldest eels I know of in the watershed are the ones excavated by Bob Pearce at an archaeological site in a creek near Percy Reach in 1977 and carbon dated to be over 1000 years old (Pearce 1977). This is not an isolated find. Two eel bearing sites on the Ottawa River date to over 4000 years old (Clermont and Chapdelaine 1998; Clermont et al 2003). The eel remains were so extensive there that the researcher concluded that such abundance seems to exclude their on-site consumption (Clermont 1999:48). The eels were used as traveling food (Casselman 2003:258). Citing Atwater 1892, Casselman points out the reason for eel being a favourite traveling food, namely that the nutritional value of eel is much higher than that of any other freshwater fish (Atwater 1892; Casselman 2003:258). Of course, the eel was used for many other purposes as well. Seven other Ontario archaeological sites (four in the Lake Ontario Basin, two in the Upper St. Lawrence and one along a tributary creek of the Ottawa River) have recorded eel remains from pre European contact times (Appendix 2; Ballantine 1982; D'Andrea et al 1984; Finlayson 1998; Fitzgerald 1990; Junker-Andersen 1988; Reed 1993:35). Many more eel sites are suspected but faunal analyses

have not been undertaken at most sites. Whatever the reason for the recent eel decline, the precautionary principle espoused by the Government of Canada (Canada 2003) has not been followed to ensure protection of the eel before 2007 and the eel stands as a bellwether species about the health of overall fish populations (Hoag 2007, Zettler 2007). As a society we have not honoured the natural right of eels to live in their traditional habitat in accordance with the principles of the growing Rights of Nature movement (CELDF 2007).

There may be more promise for eels toward the eastern end of The Land Between at Charleston Lake where 177 eels were caught in 202 trapnet lifts in a program designed to survey other fish on alternate years between 1981 and 1989 (MacGregor to Allen, May 24, 2007). However, the identification of The Land Between as traditional eels habitat, including habitat at Balsam Lake on the swim toward the Gull River **(P14: Balsam Lake silhouette)**, may bring The Land Between roaring into national and continental consciousness because the eel is “at risk” as a species and because the eel, as an indicator species, signals the vulnerability of other species in this biologically diverse but fragile ecotone. I chose this slide for several reasons. Firstly, Balsam Lake is prominent in the Peter Alley map of The Land Between **(P15:Alley Figure #1)**. I will come back to this map. Secondly, the Gull River has an archaeological site from which a pipe was excavated before 1890. The pipe stem has a serpentine shape that some people think may represent an eel **(P16:pipe)**. Thirdly, Balsam Lake was reported in a 1914 publication by Jonas George of Rama First Nation, now Rama-Mnjikaning, as the dwelling place of a monster that was half fish and half snake². He even sketched the creature **(P17: 1914 Sketch)** (Laidlaw 1914:78). In the 20th century fisheries officials reported catching a very large eel at this lake (MacGregor to Allen, pers. comm. 2007).

Efforts at protecting the American eel suddenly have come to the public consciousness. Part of the reason for that is the work of NACOSAR, the National Aboriginal Committee on Species at Risk as provided in federal legislation. We also can be particularly hopeful about the Otonabee eels since the river is part of the Trent Severn Waterway, a National Historic Site administered by Parks Canada, an agency with an excellent record of sensitivity toward eel study and conservation (Parks Canada 2007a, b, c, d, e, f; Appendix 3). One such study might be a focus on Eels Lake in particular **(P18: Eels Lake)**, not only because of the extent of its controversial drawdowns as a reservoir lake, but because it stands as an outstanding example of a deepwater trout lake where eels and trout cohabited, a fact that needs publication in the face of frequent faulty public perception that eels

² Where Aboriginal people live outside traditional eel range and have less experience with the food value of eels, the word for eel derives partly from the word *kinebik* meaning “snake”. To the northern Cree the eel is *kinebikoinkosew*, literally “snake fish” (Chamberlain 1901:672). The western Ojibway for “eel” also features the *kinebik* component in *Ke-na-beek gwum-maig* (James 1956:311). Along the southern Mississippi where snakes are more common, the concepts are inverted so the Choctaw word *nanni-saint*, later spelled *iasinti* and *yasinti*, meaning “eel” literally translates as “fish-snake” (Read 1940:547). In the eastern woodland when eels (*Pimizi*) have grown part way to maturity and are the size and colour of a water snake, they are called *minàshkadjosh* (McGregor 2004:99) and at this stage in the eel’s growth the Algonquin people shun harvesting them (Commanda to Allen, pers. comm. 2007; Decontie to Allen, pers. comm. 2007). That practice enhances the development of mature eels ready for the downstream migration to the sea and their spawning grounds.

harm trout populations. We have known otherwise since at least 1899 when Halifax barrister Gerald Ternan recorded that “eels are not so destructive to the (trout) fry as is supposed” (Canada 1899:825). We also can be hopeful because the traditional importance of eels to Aboriginal people has more chance of consideration in the apparent current public mood of acknowledging the community impact of residential school issues and unresolved Land Claims issues, not just on individuals, but on entire Aboriginal communities.

Since eels push to the extremities of their range, and since Aboriginal people harvested eels in The Land Between, it is important to look at The Land Between from an Aboriginal perspective. For starters, all of The Land Between fell within the area designated as “Indian Country” in the 1763 Royal Proclamation so the treaty history of the land is a key Aboriginal reference point **(P19 1763 Map)**. It also is important to understand the traditional multiple non-food uses of eel. Because of time limits I have prepared a sample as Appendix 4 in your written copy of this presentation. It is particularly important to understand and practice the labour intensive and time consuming process in the relationship building required to understand Aboriginal perspectives (Allen 2007a).

From the Aboriginal perspective The Land Between is a region that has been used for millennia as a destination for travelers headed to certain sacred, healing and teaching sites or to specific medicine gathering locations on the biologically diverse land. **(P20: Chert map)** The southern part of The Land Between in the region between Balsam Lake and Curve Lake also was a rich source of tool grade chert that was used for stone tool making (Eley and von Bitter 1989:4). The Land Between was familiar to early Anishinaabeg during annual seasonal migration of families to the interior lakes of the Algonquin Dome. In the 1630’s the Kinouchepirini and other Algonquin groups of the Ottawa Valley wintered in Wendake (Huronion) (Thwaites 1896-1901:24:269) **(P21: Algonquin Nations map)**, sometimes passing overland via sections of The Land Between as did François Marguerie and four Algonquins in 1636 on a 40 day snowshoe trek over ice and snow and through the forests between present day Pembroke and Midland (Thwaites 1896-1901:10:73-75), probably via the Gull or Burnt River and Balsam Lake. To understand these movements of the people we need a very high flying eagle-eye view and maps, lots of maps **(P22: Algonquin Dome, Alley Fig. 3)**. A starting point is an understanding of The Land Between in relation to the Algonquin Dome. In this map Peter Alley selected some of the areas of granite barrens and limestone plains on part of the fringe of the dome. The Land Between is not the only place where we find baldness and fringes. In my own case this photograph shows a film crew at Muskoka’s Muldrew Lake, applying powder to my head just prior to filming my comments about The Land Between at this place **(P23: Powder)**. In a second Alley map **(P24 Alley Fig.1)** we see that the area of the granite barren extends up the coast of Georgian Bay to current day Parry Sound District. Some people in modern day southern Ontario truncate the northwestern part of the map so that it can fit on a square page or for other reasons unrelated to the features of the landscape. When the elevations are added to the map we see that The Land Between actually is arc-shaped **(P25: Alley Fig.3)** forming a narrow apron

rimming the Algonquin Dome. A watershed map shows the rivers spilling off the Algonquin Dome in all directions **(P26: Rivers)**. It is these rivers that offered the main passage for Anishinaabe canoe travel and, in the Kawarthas, offered the eels access well into the traditional eels habitat within The Land Between. It was the rivers that offered the Aboriginal people access to the medicine gathering sites, chert quarrying sites and sacred sites of The Land Between along easily walked barrens from the canoe access points. A cross section of the surficial geology shows the general land form across which the rivers pass **(P27: Alley Fig. 2, Cross section)**. The entire region is underlain with Canadian Shield foundation of variable elevation. In the higher elevations of the Algonquin Dome mineral till is trapped in the depressions and great forests grow here. At lower elevations the granite barrens of The Land Between are exposed. At still lower elevations limestone fills depressions in the Shield or forms islands in lakes, in some places with Shield showings at the surface and in some places with glacial erratics of granite on the surface. In other places deep deposits of glacial tills dominate the landscape. This graphic erroneously uses “north” and “south” as labels. These labels are accurate for a cross section radiating from the Algonquin Dome to the Peterborough area which is on a generally north/south axis. However, a cross section radiating from the Algonquin Dome to the barrens and plains near the Georgian Bay coast is on a more east/west axis. The Limestone plains and granite barrens of Parry Sound District have the same characteristics as the limestone plains and granite barrens of the southern counties including the transitional nature of the ecotone or, zone where two different forms of vegetative life contend for dominance. In Parry Sound the limestone plains are on islands north of the Town of Parry Sound, here at an ancient house pit **(P 28: Limestone Islands)** and here at a tiered limestone cobble beach **(P29: Cobble)**. The Land Between should not be described as a linear band with north and south edges. In reality it is an arc around the western and southern base of the Algonquin Dome. The perimeter is defined by elevation, vegetation type and the geological mix, not direction. **(P30: Alley Fig.4)** The arc shape is not just in The Land Between perimeter, but also in its plant hardiness zones. It is important to have a concept of the Algonquin Dome in defining The Land Between **(P31: Algonquin Dome, Alley Fig. 3)**. The Van Sleuen slide from The Land Between CD shows the ecotone in the same arc shape **(P32: Van Sleuen)** (Berman 2006). Throughout the ecotone, whether on a north/south axis in the south or an east/west axis in the northwest, a view from above **(P33:Alley Fig.5 Mosaic)** shows that the geological surface is a mosaic of elements, the proportions of those elements differing from locale to locale but the predominance of Types 3 and 4 providing the foundation for the ecotone’s diversity. The colouring in LandSat images shows nuances of this mosaic. Let me illustrate this with four slides, one for the western half of The Land Between from Sturgeon Lake westward **(P34: LandSat #1)** and a series of closer views centred on the Georgian Bay Coast, the Severn River and the area east of Lake Couchiching **(P35, 36, 37: LandSat #2, 3, 4)**. A fifth LandSat slide is a thermal mapper displaying the spatial pattern of land cover diversity **(P38: Alley Fig.7)**. There are “scale of analysis” issues with such an image, but, again the arc-shaped pattern is apparent with blue representing the greatest biodiversity, followed by red.

In the Land Between and points north the nomadic Aboriginal people of past centuries had small gardens and they crushed nuts in depressions in the rocks such as this one at Sparrow lake **(P39: Cupstone)** and this one at on the Georgian Bay Coast **(P40: Misho Stone)**. Because The Land Between does not support sustainable agricultural development Aboriginal cultures with an agricultural focus avoided establishing villages within the ecotone. In this sense The Land Between served as a buffer between Algonquian hunter/gatherer groups in the north and the more sedentary Aboriginal villages that developed in the south. Those villages developed in stages starting in the east about 1700 years ago but gradually moving to the west about 700 years ago. Using archaeological data Gary Warrick of Waterloo University has tracked the location of village sites along the southern perimeter of The Land Between. By the 14th century these villages were predominantly agriculture based but it is important to not apply that fact to earlier times when a fishing economy largely affected settlement patterns. If migrating fish came to the people the people did not have to be as mobile or to require increased territory as populations increased. Brumbach, citing Hardesty 1977, shows that the natural energy from inland migrating fish could reasonably provide the material basis for population aggregations and seasonal sedentism (Brumbach 1986:37). It is the American eel that may well have contributed to village development along the Otonabee/Trent Waterway long ago, the occupants harvesting eels returning from The Land Between to the sea **(P41: 1867 River Map)**.

About 1700 to 1500 years ago Village sites were numerous near the mouth of the Trent River and the mouth of the Otonabee River at Rice Lake and isolated villages had extended as far west as Thorah Island in Lake Simcoe **(P42: Warrick Map A)** (Warrick 1990:325). It is not clear how much the eels were prominent for these Otonabee people but the existence of artificially created so called “Serpent Mounds” on the north shore of the lake may indicate that interest in eels was not confined to other parts of the watershed. The mounds may well represent the river of life in which eels swim, not snakes **(P43: Serpent Mounds)**. Based on carbon dating of burnt wood from the site we know that the site is at least 2000 years old (Wilmeth 1969:109). From 900 to 1300 CE (common era) early Nadouek (Iroquoian) villages appeared near the Lake Ontario shore and in isolated parts of the watershed downstream from Rice Lake **(P44: Warrick Map B)** (Warrick 1990:338). This is the period of deposition of the eel remains found by Bob Pearce (Pearce 1977). By 1300 to 1330 village development began to appear on the west side of Lake Simcoe at current day Barrie **(P45: Warrick Map C)** (Warrick 1990:349). Between 1330 and 1420 huge village development occurred as far west as Nottawasaga Bay **(P46: Warrick Map D)** (Warrick 1990:355). By 1500 the villages of Wendake (Huronian) were larger and sites redeveloped in the Kawarthas in the region of Eels Creek and Kinomagewapkong **(P47: Warrick Map E)** (Warrick 1990:373). By 1600 the Balsam Lake area has villages **(P48: Warrick Map F)** (Warrick 1990:375). By the time of European Contact from 1615 to 1650 the villages were concentrated in Wendake and at the extremities of the upper Otonabee watershed at Lake Scugog, Balsam Lake and up into the Gull River area **(P49: Warrick Map G)** (Warrick 1990:382). There is lots of archaeological evidence from earlier periods than 2000 year ago prior to

village development in the Lake Ontario Basin. In the earlier periods eels no doubt were present in the Otonabee Watershed since they were the most abundant species present and much of the archaeological evidence indicates a fishing economy. However, special archaeological techniques are required to retrieve fine bones at archaeological sites and these techniques are seldom used. In the acidic soils of the Canadian Shield bones deteriorate and may not be found even if careful technique is employed. The purpose in showing the Warrick maps is to indicate how The Land Between served as a buffer between people of the villages of the periods mentioned and their nomadic neighbours of the Canadian Shield just to the north.

I close with perhaps the most significant feature of The Land Between for Aboriginal people, especially those Anishinaabeg whose ancestry provides memory of a time when the land was still healthy. That feature is the existence of important sacred sites on the barren rocky surface of the land. In the western part of The Land Between the best known site is the Great Sacred Turtle in Parry Sound District **(P50: Turtle)** (Allen 2006b:65; Jameson 1990:530; Jones 1861:255; Thwaites 1896-1901). Here Anishinaabe ceremony and teaching continue in the tradition of the ancestors. Gifts have long been left here to appease the wind much in the style of Jesus' rebuking the wind to calm the storm on the Sea of Galilee (Mark 4:39). The Great Sacred Turtle was a launching point for canoe travel across the open expanse of Georgian Bay out of sight of all land where the people used their astronomical knowledge for guidance. In 1764, explorer and fur trader Alexander Henry, while traveling with the Anishinaabeg described the practice of setting a course across open water, in his words, "saving by this course a distance of thirty miles which would be lost in keeping the shore" (Henry 1809:177).

Within the seasonal range of the Anishinaabeg who frequented The Land Between the vertical bare rocks themselves became the palette for recording, in centuries-old pictographs, stories of spirits including those in the form of serpentine or eel-shaped spirits. Increasingly, institutions such as the Canadian Conservation Institute, which is doing exemplary work and is sponsoring a thoughtful upcoming conference, are recognizing the importance of the spiritual and healing elements of these special places on the land (Allen et al 2007; CCI 2007).

At the highly significant, pre European contact, Kinomagewapkong (Teaching Rocks of the Peterborough Petroglyphs), immediately adjacent to Eels Creek, **(P51: Map)** on The Land Between four serpentine shapes are carved in the rock, one in each of the east, south, west and north (Sheridan – Appendix 5). These may portray the eel-shaped path on the journey of life to this place of healing, teaching and ceremony **(P52: Petroglyphs)** (Sweetman 1955: opp.120). Should we be surprised that Elder William Commanda has declared that he believes eel spirit is in the 600 year old wampum belt that he holds? (Commanda 2007; Appendix 6)

The Anishinaabeg traditionally were nomadic people who adapted cleverly to various environments. For this reason they revered nomadic species. In the eel they found a species that ranged widely the same as the people did and also was highly adaptable wherever it went, a model for the nomadic people. The traditional value of eels in this case had nothing to do with food and everything to do with Anishinaabeg identity as a nomadic and proudly adaptable people living in harmony with the land. Failure to preserve eels in the homeland of these people is akin to an assault on the identity of the Anishinaabeg themselves.

Modern disruption of the supply of eels is seen in Aboriginal communities as interference with the natural sacred order, a warning, a symbol of a looming potential broader environmental collapse and a symbol of modern society's willingness to endorse policies which lead to genocide of the eels. Some Aboriginal people see in the policies that marginalize the American eel a parallel to their own circumstances of increasing marginalization by the consumer society population now occupying their traditional land. Aboriginal people consider that we are living in a time of choice **(P53: Circle)**. That choice is, on the one hand, continued exploitation of the land and people and, on the other, renewed respect for the environment and reconciliation between Indigenous people and the "newcomers" (Thumbadoo 2005:52). The American eel symbolizes the choice **(P54:Elders Watching)**. Fragile and biologically diverse as it is, The Land Between, the Land of Abundance or "Debisiwin" to the Anishinaabeg, may well become a model and a focal point for the values that will prevail as Canada determines the future of vulnerable environments, vulnerable species, vulnerable people and, ultimately, our own vulnerability as citizens of this planet.

Acknowledgments: Special thanks to Elder Murray Whetung, Elder William Commanda, Firekeeper Peter Decontie, Henry Lickers, Bob Stevenson, Gary Williams, Dan Whetung, Ian Attridge, Bob Pearce, Tom Ballantine, Pat Reed, Rob MacGregor, Joan Chamberlain, Claudine Giroux and Rob von Bitter for help with this work in progress.

Appendix 1: The role of Aboriginal Languages in Understanding the American eel.

Pimizi derives from the word *pimiy* meaning "grease" (Baraga 1878:120), recognition of the high fat food value of the eel. Mamiwinimowin provides for nuances in understanding the eel species with specialized words: *minàshkadjosh*, *mizay*, *agakanàgwe* and *sakàdeboye* (McGregor 2004:99). If we know that *kinebig* means "snake" (McGregor 2004:305) and *kigonz* means "fish" (McGregor 2004:118) we can understand the logic of why the plural Cree word for eels, *kinebikoinkosew* (Chamberlain 1901:674), literally "snake-fish", has a focus on the shape of the eel rather than the food value, an understandable choice since the Cree live north of the Ottawa River Watershed outside eel range. The various Indigenous words for "eel" and for "stone eel harvesting fence", and their cognomens, survive in multiple locations on the map and identify favourite traditional locations for harvesting eels. In the absence of fisheries survey data from the pre industrial period, Indigenous languages provide a clear source of information about traditional range of the American eel.

Appendix 1 continued

The word *Nishigans* has several *Anishinaabemowin* variations but means "barrier" on a large scale on the landscape. If you are at Detroit and want to canoe to Chicago there is a big barrier in the way, a "Michigan". If you are at West Bay, Manitoulin Island there is a huge escarpment at your back door, a barrier to movement, so the community there is called M'Chigeeng First Nation (<http://www.manitoulin-island.com/communities/westbay.html>). In recent centuries the word has come to mean smaller barriers so the Algonquin (*Anishinaabemowin*) word for "fence", a type of barrier, is "michikan" (McGregor 2004:115). Further west the Ojibway word for fence is "mitchikan" (Baraga 1878:99).

Fences were not common on the land in pre-contact times but one type was the fish fence that was used to channel or trap fish. Multiple cases of fish fences have been documented. One example from a tidal flats environment in Virginia in 1590 was recorded by the artist De Bry (Orr 1917:37). Mnjikaning First Nation is near Orillia, Ontario at the narrows between Lakes Couchiching (meaning "narrows") and Lake Simcoe. "Mnjikaning" there came to mean "place of the fish fence" or even "people of the fish fence" (<http://www.bconnex.net/~ojibway/minj.htm>). The submerged stakes found at a lake near the mouth of Eels Creek in the Kawartha Lakes of Central Ontario were discovered recently (Stevens 2004) so there is no known Aboriginal name for those. Eels ran in Eels Creek (Guillet 1957:li) and further downstream one archaeological site yielded eel remains that were carbon dated to over 1000 years old (Pearce 1977:Table 16). Stone weirs were so important to the people of Barriere Lake in the Ottawa River watershed that the traditional name for that community is "Mitchikanibikok Inik" which means "People of the stone fish weir". (http://www.taigaescue.org/index.php?view=taiga_news&tn_ID=189). Naming a community after a stone fishing weir is highly significant.

Further east the word *michigan* is pronounced "nishigan". The most famous *nishigans* were on the Moisie River flowing to the lower St. Lawrence River. On the Moisie the *nishigans*, or submerged fish fences, were employed as the traditional way of catching fish until the Canadian government, bowing to pressure from sport fisherman made the *nishigans* illegal in 1868 (Pulla 2003:135; Canada 1868:183).

It is not clear how extensive the eels were on the Moisie River since the sport fishermen were interested only in the salmon. As with so many things influenced by the European mind, only the story of the species of non-Indigenous self interest, in this case salmon, was told and the importance of the eel was relegated to a place of not being mentioned in the public record.

The Pulla article is important because it documents how the sport fishing lobby was so powerful at the time of Confederation that traditional Aboriginal ways of providing basic sustenance were outlawed by Canadian statute even though those traditional practices were necessary for the Aboriginal people to support themselves. In 2007 the sport fishing industry still has the ear of government, no matter how negative an impact that voice has on Aboriginal fishing rights or the survival of the American eel, a species whose future is at risk. It should be no surprise that the *nishigan* stands as an Aboriginal symbol of fishing technology and Canadian injustice toward those practising Aboriginal fishing technology. Every fisheries biologist, game warden and sport fisherman in Canada should be thoroughly familiar with the importance of the *nishigans* in Canada's tragic and morally corrupt early fishing history, including the traditional Aboriginal eel fishery.

For more on the topic of *Anishinaabemowin* see Blackbird 1887, Day 1972:226 and Mahr 1959:365.

Appendix 2: Ten Eel Archaeological Sites Confirmed in the Upper St. Lawrence Watershed as of June 1, 2007: (Ottawa River Watershed – 3 sites; Upper St. Lawrence River – 2 sites; Lake Ontario Basin – 5 sites)

(MNI = Minimum Number of Individual eels; many bones found but some bones are from same eel)

(Sites listed south to north with Borden Number and name as registered with Ontario or Québec governments)

1. H&R site (AiGx-91), Bronte Creek, Wellington County, Uren substage village circa 1390 A.D., MNI 1 eel (3.6%) in sample of 28 identified bones; habitat is small creek (Finlayson 1998:593, Table II.3.132).
2. Winking Bull site (AiHa-20), Bronte Creek, Wellington County, Middleport substage village circa 1470 A.D. Identified fish remains: MNI 2 eel in sample of 77 identified bones; habitat is small creek (Finlayson 1998:685, Table II.4.37).
3. Ivan-Elliot site (AiHa-16), Bronte Creek, Wellington County, precontact Neutral village circa 1540 A.D. Identified fish remains: MNI 10 eel in sample of 44 identified bones; habitat is small creek (Finlayson 1998:755, Table II.4.105, based on report published by Bill Fitzgerald (1990:8, Table 1).
4. MacLeod site (AlGr-1) MNI 2 eels, (Pat Reed Masters thesis); habitat is east side of Goodman Creek, a small creek in Oshawa (P. Reed to Allen pers. comm. 2007)
5. Richardson site (BbGl-4), 1977 study and Masters Thesis by Bob Pearce, MNI 13 eel bones, two radiocarbon dates, 850 plus/minus 105 and 1120 plus/minus 80, both calibrated to circa 900 A.D., habitat is small creek.
6. Driver's site (BeFu-2), 1982, Edwardsburgh Tp, Leeds-Grenville on Hwy 2 near Prescott. MNI 38 eel in a sample of 76 identified bones, number of eel bones found in each of 12 excavation units ranges from 1 to 12 bones per unit, habitat is small creek just upstream from its mouth near Prescott; (Tom Ballantine licence report and T. Ballantine to Allen pers. comm. 2007).
7. Beckstead site (BfFt-1), Stormont-Dundas-Glengarry, Williamsburgh Tp, north of Morrisburg, large inland village occupied on a year-round basis, MNI of 5 eels represents 5.4% of identified fish remains; Over 90% of 9000+ faunal elements analysed and reported (D' Andrea et al); habitat is Fritz Markle Creek, a small tributary creek of the South Nation River which flows to the Ottawa River; site is inland and about 20 km northwest of Steward site (Junken-Andersen 1988).
8. Steward site (BfFt-2), small seasonal fishing encampment, MNI 56 eel is the single most abundant (16.4%) vertebrate species in the analyzed portion of the faunal assemblage; 52.5% of faunal remains are fish – suckers, redhorse and bass in spring and eels in late summer and fall; abundant evidence of use of leisters (fishing spear of 3 or more prongs); habitat near mouth of Stata's Creek, Morrisburg about 180 metres north of the St. Lawrence River; peaks of occupational activity at about AD 1150, 1385 and 1550; one of few locations not flooded by St. Lawrence Seaway which undoubtedly flooded large numbers of eel fishing sites (Junken-Andersen 1988).
9. Morrison Island 6 (BkGg-11), one of several sites on island in Ottawa River opposite Pembroke; located in Québec; MNI 520 eels represents the largest known eel harvesting site in North America, almost 10 times the size of celebrated Steward site, 53.7% of total faunal assemblage at site is eel – a rarity; site has majority of sum of all eel remains from all 10 sites listed; site habitat is riverside on the major pre-contact canoe route to both the centre of the continent (Upper Great Lakes and upper Mississippi River) and to the Arctic Watershed (via Lake Timiskaming, Lake Abitibi, James Bay), site age Archaic (4200 to 5500 years).
10. Allumette Island (BkGg-12), 362 eel bones, MNI undetermined, 9.8% of faunal assemblage, large island adjacent to Morrison Island opposite Pembroke; located in Québec; Mixed component site includes Archaic (5500 to 4200 years old), Component #2 (2400 to 1000 years old) and Component #3 (1500 to 1899 AD).

Appendix #3: Parks Canada Involvement in Eel Research and Protection

Parks Canada Agency has an exemplary record in protecting the American eel and in collaborating with Aboriginal people as planning for Aboriginal cultural landscapes is undertaken (Parks Canada 2007a). Near the mouth of Eels Creek within The Lands Between is a submerged set of 63 stakes. A Parks Canada professional dive team has mapped them and determined radiocarbons dates ranging from 200 years old to 6650 years old \pm 50 years. Much more investigation remains to confirm confidently the extent and function of this rare feature but preliminary results suggest a multiple period use fish weir (Stevens 2004; W. Stevens to Allen, March 16, 2004). If fish were being trapped here it is not clear what species was being taken but an ancient fishing economy is evident. Because of its proximity (within one kilometer) to a Paleo-Indian site reportedly dating to 12,500 years ago and the proximity also to the mouth of Eels Creek certainly further investigation is warranted (Stevens 2004). Parks Canada Agency shares responsibility for supporting species at risk legislation along the Trent-Severn Waterway National Historic Site of Canada (Parks Canada 2007b). Parks Canada has experience in building a special fishway to accommodate the needs of the American eel at Vianney-Legendre Fishway at the Saint-Ours Canal National Historic Site of Canada (Parks Canada 2007c) and has experience with finding non-native invasive species with American eel in Gros Morne National Park (Parks Canada 2007d). Parks Canada also has experience in acquiring properties where rare species habitat needs protection, such as the nearly 10 square kilometers added to St. Lawrence Islands National Park where there are eel feeding grounds in the surrounding waters (Parks Canada 2007e) and has further experience with eels and yellow perch being the only two species surviving in the highly acidic waters of Kejimikujik National Park and Historic Site of Canada (Parks Canada 2007f).

Appendix #4: Aboriginal Non-food uses of eel (Allen 2007b, 2007c):

Aboriginal people traditionally had a lot of non-food uses for eels. Eel skin is thick and durable and has the property of tightening so it was used for many purposes: binding sleds, moccasins, clothing, tying spears and harpoons on sticks and so on (Prosper and Paulette 2002:2). Because of its durability it was used as a ball in games of lacrosse (H. Lickers to Allen, pers. comm 2007). It was used as a covering for bow grips as recently as the late 1920's at Curve Lake in the personal bow of Elder Murray Whetung (M. Whetung to Allen, pers. comm 2007). A sleeve of eel skin was slid over the bow and the eel skin grip tightened firmly once it was in place and dried. Eel skin was the original support hose, enabling a type of garter to relieve sprains and was worn next to the skin for relief from cramps and rheumatism, a technology that was copied in Britain by 1590 (Porter 1958). The tightening quality of drying eel skin made the eel valuable when splints for broken bones were needed (D. Whetung to Allen, pers. comm 2007).

Appendix #4 continued ...

Eel was used for decorative purposes such as hair strings and was found in the medicine pouches of the people (Prosper and Paulette 2002:2). Charles Mann reports that many years ago the skin and hair of Aboriginal people shone with animal fat to ward off sun, wind and insects (Mann 2006:48). Bear and eel both provided such fat but eels were much more accessible. Because the eel was sacred all of it was used. The heart, liver and heads were buried, as offerings for a successful hunting or fishing expedition and sometimes were offered along with tobacco (Prosper and Paulette 2002:3), but also were used as bait. In times of famine smoked eel skin was the food that offered final hope of surviving starvation. The old story of starving Aboriginal people eating their mocassins was only partly correct. Fresh eel flesh was applied to clothing to waterproof it, especially on footwear and outer clothing. Buckskin fringes evolved as a practical design so that more surface area was available to absorb the eel fat. In time of starvation the buckskin offered a few calories of fat (D. Whetung to Allen pers. comm 2007). Seventeenth century French newcomers to the continent made many references to Aboriginal use of eels, including the practice of frightened people throwing eels on the fire to appease the devil (Thwaites 1896-1901:7:87).

Aboriginal people have long viewed the eel as a source of spirituality and medicine as well as an object of special ceremony. At least three of the New York State Six Nations had, at one time or another, an Eel Clan - the Cayuga, Onondaga and Tuscarora (Morgan 1877:70). On one maple cane 50 Chief's titles were recorded including three of the 14 Onondagas titles indicating eel clan (Tooker 1978:427). Before 1800 the Mahican had a Yellow eel clan (*Wesawmaun*) (Barton 1797). Few animals are singled out for clan names. Clans named after fish are rare, so the eel clan designations are a further indicator of the significance of the species to Indigenous people. In Indiana an entire book has been written about the Eel River Tribe, a Wabash Confederacy (Floyd 2007). Indigenous surnames include Chief Eel of the Chippewas in the Kawarthas of Ontario (Guillet 1957: li-note, 24) and Chief Swimming Eel (Speck 1939, 1940) among the Scaghticoke on the New York/Connecticut border. The name *Algonquin* itself has been described as possibly relating to eels (Day 1972:226).

The Algonquin people traditionally were nomadic people who adapted cleverly to various environments. For this reason they revered nomadic species. In the eel they found a species that ranged widely the same as the people did and also was highly adaptable wherever it went, a model for the nomadic people. The traditional value of eels in this case had nothing to do with food and everything to do with Algonquin identity as a nomadic and proudly adaptable people living in harmony with the land. Failure to preserve the species in the homeland of these people is akin to an assault on the identity of the Anishinaabe people themselves.

Recently, as Elder Commanda has pointed out to Fisheries and Oceans Canada, the eel has played a role in a landmark Supreme Court of Canada decision in the struggle for the recognition of Indigenous fishing rights (Commanda 2007 – Appendix 6; SCC 1999). The Supreme Court determined that eel had indeed been used traditionally by Indigenous people as an object of trade, a fact that governments previously fought tooth and nail to discredit. In the 1620's Champlain reported the Indigenous people to be very skilled at fishing eels and hard bargainers in trade, his hungry men giving their coats and other possessions for the fish and he, himself, buying 1200 eels with goods from the storehouse at the rate of ten eels for one beaver (Champlain 1922-1936:5:297, 298). Lest anyone thinks that trade in eels is only a maritime or Québec story, it should be noted that English records in current day Ontario document trade in eels as early as 1770 (Schmalz 1991:96). Indeed the eel has taken on major symbolic significance about the gaps in values between Indigenous concern for the land on the one hand, and, on the other hand, the attitude of resignation to accepting degraded environments. In this sense the eel takes on a super species role, adaptable as it is, now succumbing to degraded and blocked river environments.

Appendix #5 : *Kinomagewapkong: Teaching Rocks and Sacred Duties*

Joe Sheridan, Faculty of Environmental Studies, York University

Available online at <http://www.usask.ca/nativestudies/cinsa/sheridan.htm>

The literature on Paleolithic art located within art history literature makes glancing mention of the importance of place and the specific characteristics of location. The Vastokas research on the Peterborough Petroglyphs, in the context of art history literature, misses the significance of the Anishinaabe Creation Story journey from landscapes of sedimentary to igneous rock and the place where food grows on water. This research also misses the significance of the location of the Peterborough Petroglyphs both in relation to the completion of that journey and in relation to the geological division represented by this rock formation between Canadian Shield granite and area limestone. Measurements of radioactivity and magnetic field strength have not yet been calibrated and the rationale for the location has yet to be determined. As well, Vastokas' study neglects the possibility of accompanying human memory about the petroglyphs. More precisely, the Vastokas study assumes that Neolithic minds are unable to be comprehended by contemporary Homo Sapien Sapiens. An approach that recognizes the ancestors suggests that not only can ancestral minds be understood, but that they are well understood in cultures with oral traditions. This is especially important given that Anishinaabe Fourth Fire (coming of light skinned race) prophecy required that the site be buried (not neglected) and Seventh Fire prophecy (spiritual paths combining Anishinaabe and light skinned race making a mighty nation of natural peoples) require that these teachings be understood and shared in the making of peace and ecological balance. That is the spirit behind this research. We believe that humanity needs to know these teachings in view of unfolding cultural and ecological threats. We further understand there to be symmetry between stone and oral media that makes one the perfect embodiment of the other. Rock and oral tradition are especially well suited to one another when dealing with memories through and across millennia. Academic literature on rock art has assumed that preliterate culture had no idea of time in the dimensions held by the Anishinaabe through the Nimki calendar. In fact, the Nimki calendar and oral tradition deals with geological and solar/lunar time in increments that make the permanence of rock and oral tradition the ideal media for thinking with.

Appendix #6: Elder Dr. William Commanda letter to Fisheries and Oceans Canada, March 31, 2007

Dear Pooi-Leng Wong:

I wish to add my name to the list of people petitioning for the designation of the American Eel as a Species at Risk.

I am a 93 year old Algonquin of the Ottawa River Watershed, and I currently also serve as Honorary Chair on the Ottawa River Heritage Designation Committee. I have been deeply concerned with the devastating transformation of this watershed and areas beyond throughout the course of my lifetime, and I have been increasingly actively engaged in efforts to promote respect for Mother Earth and all that inhabit her, over the past twenty years. This effort was in part recognized by the Canadian Heritage Rivers System, when, in 2004, I was presented with the Bill Mason Conservation Award.

Over the past ten years, I have also been involved in developing an integrated vision for an international environmentally focussed healing and peace building centre at the sacred meeting place of my ancestors, *Asinabka*, site of the Chaudière Falls in Ottawa, a centre to advance respect for Mother Earth, Indigenous Peoples and all others, and in my mind, these are interrelated matters of grave concern for the world. Last November, I organized a Water Life Workshop, in part to advance this effort, but also to encourage better stewardship of the the Ottawa River. This led me to an effort to dissuade Domtar Inc. from expanding the Hydro Electric Plant at the Chaudière Falls. Amongst other concerns, I have been upset by evidence of the destructive impact of turbines on eels in some graphic photographs.

I believe it is of crucial importance that we all reexamine our invasive and destructive relationship with Mother Earth and all her creatures, and many are beginning to hear this cry. Every day, it seems we hear of the desperate state of yet another species, and the current focus on sharks highlights the interrelated ramifications of the destruction of individual species.

At this point I am raising my voice concerning the plight of the American Eel. The eel has been of spiritual, nutritional and material importance to the Indigenous Peoples of the eastern seaboard, and to my ancestors of the Ottawa River Watershed, since time immemorial, has played a role in the Donald Marshall Junior struggle for the recognition of indigenous fishing rights, and I believe eel spirit is intrinsic to the sacred Seven Fire Prophecy Wampum Belt that I have carried for the people for over thirty six years. It is this prophecy that tells us that humanity is now at a cross roads, and that we need to regenerate our relationship with Mother Earth and each other, and it is a message I delivered at the December 2006 Minster's Round Table on Species at Risk; a short few months later, we all are alert to the issues of global environmental and human crisis.

I am taking the liberty of attaching a paper prepared by Archeaologist Bill Allen, who is currently undertaking studies in support of my effort to advance a vision for the Chaudière site, for a more specific review of critical concerns on this matter.

I look forward to being apprised of development on this file.

Sincerely,

William Commanda
Algonquin Elder
www.circleofallnations.ca

References Cited

- Allen, William A. 2006a. *Who Speaks for the Eels?* Indigenous Co-operative for the Environment. Eganville, Ontario. http://www.icenetwork.ca/about_us/
- Allen, William A. 2006b. Summary of 2001 Research. In *13th Annual Archaeological Report (New Series)*, Edited by Dena Doroszenko, pp. 58-79. Ontario Heritage Trust, Toronto.
- Allen, William A. 2007a. *Dbajmowin: Dialogue with the Elders*. Presentation at George Wright Society biennial conference, St. Paul, Minnesota, April 17, 2007. Conference proceedings in press. George Wright Society.
- Allen, William A. 2007b. *Valuing the Environment as Sacred: How Indigenous Environmental Values Shaped Ancient Science And How Indigenous Environmental Values Offer Hope for the Future*. Presentation at Remembering Our Sacred Connections, Ottawa, Ontario, February 5, 2007. Indigenous Co-operative on the Environment Annual Conference.
- Allen, William A. 2007c. *Kichissippi Pimizi, Ottawa River's American eel (Anguilla rostrata): a Depleted Species in a Degraded Watershed*. Presentation at Ottawa River Eel Management Group. Pembroke, Ontario. May 16, 2007.
- Allen, William A., Liam Brady and Peter Decontie. 2007. *Manaadjyindj iyaa manidoo nayaagadjitoodj kije-asin mazinaakobiihiganan* - Honouring the Spirits of Sacred Pictograph Sites. Abstract of presentation at Preserving Aboriginal Heritage: Technical and Traditional Approaches. Symposium 2007. Canadian Conservation Institute. September 24 -28, 2007. http://www.cci-icc.gc.ca/symposium/index_e.aspx
- Alley, Peter. 2006. An Ecological Overview – The Land Between. Belfountain, Ontario.
- Atwater, W.O. 1892. *The chemical composition and nutritive values of food fishes and aquatic vertebrates*. Rep US Comm Fish 1888:679-868.
- Ballantine, Tom. 1982. *The Driver's site (BeFu-2)*. Report on file with the author.
- Baraga, Frederic. 1878. *A Dictionary of the Otchipwe Language Explained in English, Part 1 English-Otchipwe*, Beauchemin & Valois, Montreal.
- Baraga, Frederic. 1880. *A Dictionary of the Otchipwe Language Explained in English, Part 2 Otchipwe- English*, Beauchemin & Valois, Montreal.
- Barton, Benjamin S. 1797. *New Views of the Origin of the Tribes and Nations of America*. Philadelphia.
- Bell, Heather. 2007. *Endangered and Threatened Wildlife and Plants: 12-Month Finding on a Petition to List the American Eel as Threatened or Endangered*, 50 CFR Part 17, Department of the Interior, Fish and Wildlife Service. Federal Register 72:22:4967-4997, February 2, 2007. <http://www.fws.gov/policy/library/07-429.pdf>
- Berman, Leora. 2006. The Land Between Collaborative Technical Report. Haliburton, Ontario.
- Blackbird, Andrew J. 1887. *History of the Ottawa and Chippewa Indians of Michigan: A Grammar of their Language and Personal History of the Author*. Ypsilantian Job Printing House, Ypsilanti, Michigan. <http://www.canadiana.org>

Bright, E.G. 1980. Eels Lake Area, southern Ontario. Map P2205. Ontario Geological Survey. Toronto.

Brumbach, Hetty Jo. 1986. Anadromous Fish and Fishing: A Synthesis of Data from the Hudson River Drainage. In *Man in the Northeast 32, Fall 1986*. Institute for Northeast Anthropology, State University of New York, Albany.

Buggey, S. and S. Smith. 2003. *Baamidoonegog (Beausoleil Island)*. Ms. on file, Parks Canada, Midland, Ontario.

Canada. 1868. *Statutes of Canada 31 Victoria*. c60:183

Canada. 1877. *Appendice au Onzième Volume des Journaux de la Chambre Des Communes du Canada du 8 Février au 28 Avril, 1877, Inclusivement, Etant la 4me session du 3me Parlement du Canada*. Ottawa.

<http://www.canadiana.org>

Canada. 1878. Quebec and Montmorency Divisions Comparative Statement of the Fisheries. In *Sessional Papers of the Dominion of Canada, Volume 1, fifth session of the third Parliament*. Ottawa. <http://www.canadiana.org>

Canada. 1879. Return of Number and Value of Fishing Boats and Nets, together with the Yield, Value and Kinds of Fish &c, in the Districts above Quebec, during the Year 1877. In *Sessional Papers of the Dominion of Canada, Volume 4, first session of the fourth Parliament*. Ottawa..

<http://www.canadiana.org>

Canada. 1899. *Sessional Papers of the Dominion of Canada, Volume 9, Fourth Session of the Eighth Parliament*. Ottawa. <http://www.canadiana.org>

Canada. 2003. *A Framework for the Application of Precaution in Science-based Decision Making about Risk*. 13 pp. http://www.pco-bcp.gc.ca/docs/Publications/precaution/precaution_e.pdf.

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

Castonguay, M., P.V. Hodson, C. Couillard, M.J. Eckersley, J.D. Dutuil and G. Verrault. 1994. *Why is recruitment of the American eel declining in the St. Lawrence River and Gulf?* Can. J. Fish. Aquat. Sci. 51:479-488.

CCI. 2007. *Preserving Aboriginal Heritage: Technical and Traditional Approaches*. Canadian Conservation Institute. Ottawa. http://www.cci-icc.gc.ca/symposium/index_e.aspx

CELDF. 2007. *Pennsylvania Borough Strips Sludge Corporations of "Rights" Becomes First Municipality in the United States to Recognize the Rights of Nature*, The Community Environmental Legal Defense Fund, Chambersburg, Pennsylvania.

<http://www.celdf.org/PressReleases/TamaquaLawRecognizesRightsofNature/tabid/367/Default.aspx>

CEWG. 2006. *American Eel Management Plan Draft: January 15, 2007*. Canadian Eel Working Group. www.aquaticspeciesatrisk.gc.ca.

CGT. 1823. *Appendix to the 32nd volume of the Journals of the House of Assembly of the province of Lower Canada, third session, eleventh provincial Parliament*. Journal Volume CIHM 9_00938_33. Colonial Government Journals. National Library of Canada. www.canadiana.org

- Chamberlain, Alexander F. 1901. Significations of Certain Algonquian Animal-Names. In *American Anthropologist* 3:4:669-683.
- Champlain, Samuel de. 1922-1936. *The Works of Samuel de Champlain*. Six volumes, edited by Henry Percival Biggar. Champlain Society, Toronto.
- Clermont, Norman. 1999. The Archaic Occupation of the Ottawa Valley. In *Ottawa Valley Prehistory* edited by Jean-Luc Pilon, Outaouais Historical Society, Hull, 43-53.
- Clermont, Norman and Claude Chapdelaine. 1998. *Île Morrison, Lieu sacré et atelier de l'Archaique dans l'Outaouais*, Paléo-Québec 28, Musée Canadien Des Civilisations et Recherches amérindiennes au Québec, Montréal.
- Clermont, Norman, Claude Chapdelaine and Jacques Cinq-Mars. 2003. *Île aux Allumettes, L'Archaique supérieur dans l'Outaouais*, Paléo-Québec 30, Musée Canadien Des Civilisations et Recherches amérindiennes au Québec, Montréal.
- Coker, Robert E. 1929. Studies of Common Fishes of the Mississippi River at Keokuk. In *Bulletin of the Bureau of Fisheries* 45, Bureau of Fisheries Document 1072. U.S. Department of Commerce. Washington.
- 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.
www.sararegistry.gc.ca/status/status_e.cfm
- Commanda, William. 2007. Correspondence from William Commanda, Algonquin Elder to Pooi-Leng Wong, Fisheries and Oceans Canada, March 31, 2007.
- D'Andrea, A.C., J. Procopio, J.D. Ackerman and A. Clements. 1984. Faunal Analysis of the Beckstead Site (BfFt-1). In *The Beckstead Site – 1977* by J.F. Pendergast. *National Museum of Man Mercury Series, Archaeological Survey of Canada, Paper No. 123*. pp 202-204. National Museums of Canada, Ottawa.
- Day, Gordon M. 1972. The Name 'Algonquin'. In *International Journal of American Linguistics* 38:4:226-228, October, 1972.
- Delaney, Lloyd. 1983. *Rice Lake Story Gore's Landing, Ontario*. Dymont-Stubley. Orillia.
- Eley, Betty E. and Peter H. von Bitter. 1989. *Cherts of Southern Ontario*. Royal Ontario Museum. Toronto.
- Finlayson, William D. 1998. *Iroquoian Peoples of the Land of Rocks and Water, A.D. 1000-1650: A Study in Settlement Archaeology*. London Museum of Archaeology Special Publication 1, 4 volumes. London.
- Fitzgerald, William. 1990. *Preliminary Observations on the Ivan-Elliot (AiHa-16) Village and the Raymond Reid (AiHa-4) Hamlet, Wellington County, Ontario*. In *KEWA* 90:6:2-16, Ontario Archaeological Society, London Chapter.
- Floyd, Mike. 2007. *The Eel River Tribe of Indiana... a Wabash Confederacy*. PageFree Publishing. Otsego, Michigan.
- Fraser, Alexander. 1912. *Ninth Report of the Bureau of Archives for the Province of Ontario*. Legislative Assembly of Ontario. Toronto.

Guillet, Edwin Clarence. 1957. *The Valley of the Trent*. Champlain Society, Toronto.

Henry, Alexander. 1809. *Travels and Adventures in Canada and the Indian Territories Between The Year 1760 and 1770*. I. Riley, New York.

Hoag, Hannah. 2007. *A slippery slope*. The Globe and Mail p.F7, Saturday, March 31, 2007.

ICES. 2006. Overview of Working Group on eel (WGEEL) and eel issues. In Report of the Diadromous Fish Committee (DFC). In *ICES Annual Report 2006*. International Council for the Exploration of the Sea. Copenhagen, Denmark. <http://www.ices.dk/reports/dfc/2006/DFC06.pdf>

James, Edwin. 1956. *Thirty Years Indian Captivity of John Tanner*. Ross and Haines. Minneapolis.

Jameson, Anna Bromwell. 1990. *Winter Studies and Summer Rambles in Canada*. McClelland and Stewart, Toronto. Originally published 1838, Saunders and Otley, London, England.

Jones, Peter (Kahkewaquonaby). 1861. *History of the Ojebway Indians with especial reference to their conversion to Christianity*. A.W. Bennett, London.

Junker-Andersen, C. J. 1988. Eel Fisheries of the St. Lawrence Iroquoians. In *North American Archaeologist* 9:2: 97-121.

Laidlaw, George. 1914. Certain Ojibway Myths. In *26th Annual Archaeological Report 1914 Being Part of Appendix to the Report of the Minister of Education Ontario* edited by R.B. Orr, pp. 77-79. Printed by Order of The Legislative Assembly of Ontario, Toronto.

Mahr, August C. 1959. *Practical Reasons for Algonkian Indian Stream and Place Names*. Ohio Journal of Science 59(6), November 1959. 365-375.

Mandrak, Nicholas E. and E. J. Crossman. 2003. *Fishes of Algonquin Provincial Park*, Friends of Algonquin Park, Whitney.

Mann, Charles C. 2005. *1491: New Revelations of The Americas Before Columbus*. Vintage Books. New York.

Mark. Und. The Gospel According to St. Mark. In *The Holy Bible*.

McGregor, Ernest. 2004. *Algonquin Lexicon*, Kitigan Zibi Education Council, Maniwaki, Québec.

Morgan, Lewis Henry. 1877. *Ancient Society or Researches in the Lines of Human Progress from Savagery Through Barbarism to Civilization*. Henry Holt and Company, New York. [Reprinted, 1963, World Publishing Company, Cleveland, and 1976, Gordon Press, New York.]

NatureServe. 2006. Watershed Distribution of American eel (*Anguilla rostrata*) in the U.S. and Canada (map). In Bell, Heather. 2007. *Endangered and Threatened Wildlife and Plants: 12-Month Finding on a Petition to List the American Eel as Threatened or Endangered*, 50 CFR Part 17, Department of the Interior, Fish and Wildlife Service. Federal Register 72:22:4967-4997, February 2, 2007. <http://www.fws.gov/policy/library/07-429.pdf>

OMNR. 2007a. Forest Management Guide for Cultural Heritage Values. Ontario Ministry of Natural Resources. Queen's Printer for Ontario. Toronto, 84 p. <http://onrarioforests.mnr.gov.on.ca/>

- OMNR. 2007b. *American eel in Ontario*, Status of Resource Report, Ontario Ministry of Natural Resources. http://www.mnr.gov.on.ca/MNR/sorr/pdf/SORR_AmericanEel.pdf.
- Ontario. 2007. Endangered Species Act 2007. Toronto. http://www.ontla.on.ca/web/bills/bills_detail.do?locale=en&BillID=1498&detailPage=bills_detail_the_bill
- Orr, Rowland B. 1917. Ontario Indians: Their Fish, Fisheries and Fishing Appliances. In *Twenty-Ninth Annual Archaeological Report Ontario*, King's Printer, Toronto.
- Parks Canada Agency. 2003. Georgian Bay Islands National Park Cultural Advisory Committee Minutes, Feb.12, 2003. On file, Georgian Bay Islands National Park, Midland, Ontario.
- Parks Canada Agency. 2007a. *An Approach to Aboriginal Cultural Landscapes*. http://www.pc.gc.ca/docs/r/pca-acl/index_e.asp
- Parks Canada Agency. 2007b. *Trent-Severn Waterway National Historic Site of Canada*. http://www.pc.gc.ca/lhn-nhs/on/trentsevern/index_e.asp
- Parks Canada Agency. 2007c. *Vianney-Legendre Fishway at the Saint-Ours Canal National Historic Site of Canada*. http://www.pc.gc.ca/nature/eep-sar/itm3-/eep-sar3p2_e.asp
- Parks Canada Agency. 2007d. *Gros Morne National Park of Canada*. http://www.pc.gc.ca/pn-np/nl/grosmorne/plan/plan4b_E.asp
- Parks Canada Agency. 2007e. *New Land Acquisitions for St. Lawrence Islands National Park of Canada*. http://www.pc.gc.ca/pn-np/on/lawren/natcul/natcul1a_E.asp
- Parks Canada Agency. 2007f. *Kejimikujik National Park and National Historic Site of Canada*. http://www.pc.gc.ca/pn-np/ns/kejimikujik/natcul/natcul4a_E.asp
- Pearce, Robert. 1977. *An Eastern Regional Expression of the Pickering Branch*. Unpublished MA Thesis, Department of Anthropology, Trent University, Peterborough.
- Porter, Enid M. 1958. Some Folk Beliefs of the Fens. In *Folklore* 69:2, June, 1958, 112-122.
- Preston, Richard A. 1958. *Royal Fort Frontenac*. Champlain Society, Toronto. <http://link.library.utoronto.ca/champlain/DigObj.cfm>
- Prosper, Kerry and Mary Jane Paulette. 2002. *The Mi'kmaq Relationship With Kat (American Eel) Scientific Name: Anguilla rostrata*, Paqtnkek Fish and Wildlife Commission, Afton First Nation, Antigonish, Nova Scotia.
- Pulla, Siomonn P. 2003. Frank Speck and the Moise River Incident: Anthropological Advocacy and the Question of Aboriginal Fishing Rights in Quebec. In *Anthropologica* 45: 129-145.
- Read, William A. 1940. Notes on an Opelousas Manuscript of 1862. In *American Anthropologist*, New Series, Vol. 42, No.3, Part 1 (July-Sept., 1940), 546-548.
- Reed, Pat. 1993. The MacLeod Site and a Preliminary Delineation of the Lake Ontario Iroquois" In *North and South: Two Views of the Black Creek*. Occasional Papers in Northeastern Archaeology No.7. Lalonde Period edited by Peter Ramsden. Copetown Press. Dundas, Ontario.

- SARA Registry. 2007. *Species at Risk Act – Legal Listing Consultation Workbook, American eel (2007)*, Fisheries and Oceans Canada, Ottawa. http://www.sararegistry.gc.ca/public/showDocument_e.cfm?id=1269
- Sault College. 2007. *Anishinaabemowin Immersion*. <http://www.saultc.on.ca/Programs/1033.asp>
- SCC. 1999. *R. v. Marshall*. Docket Number 26014. Supreme Court of Canada. <http://scc.lexum.umontreal.ca/en/index.html>
- Schmalz, Peter S. 1991. *The Ojibwa of Southern Ontario*, University of Toronto Press, Toronto.
- Speck, Frank G. 1939-1940. *Miscellaneous notes, Scatticook, Two letters of Chief Swimming Eel to Speck, August 16, 1939 and August 5, 1940, concerning Indigenous social activities*. American Philosophical Society Library [170(14:d90)]. <http://www.amphilsoc.org/library/guides/indians/info/s.htm>, File 3229.
- Stevens, E. Willis. 2004. *First Nations Underwater Archaeology of the Trent-Severn Waterway*, paper presented at the annual meeting of the Society of American Archaeology, Montreal, 2004. Copy on file, Parks Canada, Ottawa.
- Strickland, Samuel. 1853. *Twenty-seven years in Canada West, or, The experience of an early settler*. Richard Bentley. London.
- Sweetman, Paul W. 1955. A Preliminary Report on the Peterborough Petroglyphs. In *Ontario History* 47:3:101-121.
- Talbot, Edwin Allen. 1824. *Five Years' Residence in the Canadas including a tour through part of The United States of America in the year 1823*. 2 volumes. Longman, Hurst, Rees, Orme, Brown and Green, London.
- Thumbadoo, Romola Vasantha. 2005. *Learning from a kindergarten dropout, William Commanda – Ojigkwanong, Cultural Sharings and Reflections*. Circle of All Nations, Kanata.
- Thwaites, R.G. (editor). 1896-1901. *The Jesuit Relations and Allied Documents, Travels and Explorations of the Jesuit Missionaries in New France 1610-1791*. 73 vols. The Burrows Brothers, Cleveland.
- Tooker, Elisabeth. 1978. The League of the Iroquois: Its History, Politics, and Ritual. In *Handbook of North American Indians* 15. Smithsonian Institution. Washington. 418-441.
- Verreault, Guy, Pierre Dumont and Yves Mailhot. 2004. *Habitat losses and anthropogenic barriers as a cause of population decline for American eel (Anguilla rostrata) in the St. Lawrence watershed, Canada*. International Council for the Exploration of the Sea. CM Document 2004/S:04, Copenhagen, Denmark. <http://www.ices.dk/products/CMdocs/2004/CM2004.pdf>
- Warrick, Gary A. 1990. *A Population History of the Huron-Petun, A..D. 900-1650*. PhD. Dissertation, McGill University. Montreal.
- Wilmeth, Roscoe. 1969. *Canadian Archaeological Carbon Dates, Paper No.3*. National Museums of Canada Bulletin 232, Contributions to Anthropology 7: Archaeology. Ottawa.
- Zettler, Marie. 2007. Algonquin elder seeks 'at risk' status for the American eel. In *Pembroke Daily Observer*, May 15, 2007, pages 3 & 14. <http://www.thedailyobserver.ca/webapp/sitepages/printable.asp?paper=www.thedailyobserver.ca&contentid=529336&annewspapername=Pembroke+Daily+Observer>