The American eel: Driving a Shift in Power

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Abstract:
Barriers erected on a waterway for a specific function such as electric power generation may create highly negative side effects, especially if a succession of barriers creates cumulative negative impacts. No species of fish has brought this problem more into focus than the migratory American eel. Traditional use of American eel by Indigenous peoples provides an opportunity to understand the historic importance and range of the species and the wide gap in perspectives and assumptions that, until now, have characterized discussion about full natural movement of the species. The eel, now endangered in Ontario, provides us with an opportunity to re-examine long held assumptions about barriers and provides a wake-up call for the need to enact a more balanced approach to barrier design and management. This presentation will show how the endangered American eel in Ontario’s Endangered Species Act is driving a shift in power.

Boozhoo

- Nanda-kikenindjige nind ijinikas (Baraga 1880:273, 149; Baraga 1878:152, 177; McGregor 2004:171). My spirit name means “Seeker of Knowledge, Researcher or Investigator”.
- Greetings to the Elders, Grandmothers and Grandfathers present here today, the Seen and the Unseen.
- I acknowledge all those from times past, those distant ancestors who were custodians of this traditional Anishinaabe land and water, before the coming of Haudenosaune and Wendat peoples.
- I acknowledge special friends and teachers, especially Elder Dr. William Commanda whose leadership has kept the plight of the American eel in sharp focus (Allen 2007a:20; Commanda 2007, 2008a, 2008b; Zettler 2007)
- I acknowledge Pimzi, the Eel (P2: Eels), who taught the people long ago about migration from the ocean in the East to the Lake Ontario and Ottawa River Watersheds. The people listened, understood and undertook the Chibimoodaywin, the Great Migration from the Atlantic coast to the Great Lakes region (Benton Benai 1988:94). It is Pimizi (McGregor 2004:99), the Eel, who has been extirpated from the majority of its Ontario habitat including 100% of Algonquin Park (Mandrak & Crossman, 2003). For this reason I dedicate this presentation to Ontario’s few surviving eels with thanks for your great struggle in the face of overwhelming odds against the callous, self-interested decisions of modern society.
Introduction:
I have a story. It is about society’s focus on maximizing growth, the limits on the environment’s carrying capacity, society’s current undervaluing of cumulative effects on species at risk (Duinker and Greig 2006:153-161) and the need for warning systems about coming major disruptions to environmental and social equilibrium. To illustrate this story I will use the example of the American eel, now listed as endangered in Ontario (ESA 2007). I will focus on the cumulative negative effect that a series of hydroelectric dams has had on the species over the past century (P3: Dead eel, dam). I will show that the greatest barrier to protecting the eel is the intransigence, spin and lack of co-ordination within the corporate and government world in facing the reality of the eel’s plight. Current environmental legislation and environmental impact assessments are largely ineffective. I will make the case that society’s maltreatment of the American eel serves as a wake up call about the consequences of short-sighted policies in general and the way that the underlying attitudes will lead, if unrevised, to serious environmental and social disruption on a broad scale in a large number of issues in our future. (P4: Float). The eel, currently powerless in modern Ontario society’s overall considerations, stands as the species of reference, the bellwether species that dramatically shows us the error of our ways. As awareness of the plight of the eel grows the infrastructure of governmental decision-making will need to change. The eel can drive a shift in power away from hydroelectric dams that generate billions of dollars worth of energy without planning for eel mitigation strategies, toward a day when eels will be valued sufficiently to require all such facilities to participate in major fish passage strategies so that the species can survive in its natural habitat and recover its population to more natural levels. In the process the eel increasingly will become a symbol of the need for serious planning to counteract cumulative effects that otherwise will occur in a wide range of environmental issues.

So what is this animal, Anguilla rostrata, the American eel (OMNR 2007)? Its natural life cycle begins and ends in the Sargasso Sea near Bermuda (P5: Map). Some eels stay in the ocean but most migrate to the freshwater watersheds of eastern North America and push to the extremities of the watersheds where they spend most of their lives, growing to a metre or more in length (P6: Algonquin eel) before heading back to the Sargasso to spawn. During their upstream migration as young eels they are able to leave the water for short periods of time and to climb around all but the most precipitous waterfalls (P7: Upstream migration). In Ontario, until the building of modern canal systems, they could not get past Niagara Falls, so they populated Lake Ontario, the Trent River Watershed and Kawartha Lakes. In the Ottawa River they populated all of the tributaries right up to the land north of New Liskeard in Northern Ontario (P8: Ottawa Watershed Map). The Anishinaabemowin name Pimisi remains as a place name on modern maps of the Mattawa River (P9: Pimisi Bay map) (Steer 1997) and north of Lake Temiskaming, (P.10: Pim-missi map) (Macdonald 1985), reminders of the day long ago when these places abounded in eels. And oh how the eels abounded! Before the industrial era eels comprised 50% of all of the fish biomass in these watersheds, 50% (Casselman 2003)! Because of that abundance eels were the most accessible...
fish species to Indigenous people in a largely fish-based economy (P11: Weirs). Because of that abundance, the archaeological record indicates that centuries before agriculture supported aggregations of population on the land, the eels supported larger populations of Indigenous people than would have been present without the eels.

Seventeenth century French newcomers to Canada made many references to Aboriginal use of eels (Thwaites 1896-1901:7:87). American eel skin is thick and durable and has the property of tightening so it was used for binding sleds, for tying spears and harpoons on sticks, (Prosper and Paulette 2002:2) (P12: eel mass), for tool and bow grips and for securing splints to broken bones (D. Whetung to Allen, pers. comm). 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. Because of its durability it was used as a ball in games of lacrosse (Lickers to Allen, pers. comm ).

Eel was used for decoration in hair strings and as a medicine (Prosper and Paulette 2002:2). Eel oil was used for relief of ear aches (A. Jacques to Allen, 2007). The skin and hair of Aboriginal people shone with animal fat to ward off sun, wind and insects (Mann 2006:48). Eel provided an accessible supply. Because the eel was sacred all of it was used. The heart, liver and heads were buried, as offerings after successful hunting or fishing (Prosper and Paulette 2002:3), but also were used as bait and plant fertilizer. Fresh eel flesh was applied to clothing to waterproof it, especially on footwear and outer clothing. (P13: Buckskin) Buckskin fringes evolved as a practical design so that more surface area was available to absorb the eel fat, as well as to discourage insects. In time of starvation chewing the eel-soaked buckskin offered a few calories of fat (D. Whetung to Allen pers. comm 2007).

(P14: Pipe) Aboriginal people have long viewed the eel as a source of spirituality and medicine as well as an object of special ceremony (Allen 2006a, 2006b, 2006c). 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 maple condolence canes 50 Chief’s titles were recorded, including three of the 14 Onondagas titles indicating eel clan (Tooker 1978:427) (P15: Cane). 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 location of Eel Lake, near the source of the Madawaska River in Algonquin Park, signals the eel’s determination to push to the extremity of its range in the Ottawa River Watershed. (P16: Eel Lake map). 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 spiritual value of eels and identification with eels is not about food. The eel’s traditional spiritual value has everything to do with Algonquin identity as a nomadic and proudly adaptable people living in harmony with the land.
So how is the eel affected by my story’s four elements? Well, let’s look at Part #1, our Focus on Maximizing Growth. We live in a system dominated by the economic paradigm. Recently we have seen, at a global level, how vulnerable we are when we depend on the capital of the future. (P17: Economist cartoon). We live with the prevailing myth of inexhaustible resources. Our society places a lot of importance on supplying ever increasing demand for goods and energy, including power from hydroelectric sources. We largely are willing to ignore long term consequences. We look on the land as a consumable resource. We use exploitative language to label Ontario’s Ministry of Natural Resources. We have become used to our extractive economy, our excessively consumptive society. We ignore the lessons of history about past empires that overextended themselves. We are in mass denial. This constellation of values leaves us caught in an old and destructive mindset. The eel is a side show in this focus on growth, a nuisance. In the Ottawa River Watershed alone there are almost 50 dams, none of them with any structures to facilitate eel passage on their migration toward the sea (P18: Map). We have a new Endangered Species Act whose major protection for eels was removed days before the legislation was enacted by enacting a separate exclusion regulation, O.Reg 242/08, which allows hydroelectric generating facilities to continue to kill eels at alarming rates (R. 242). Few schoolchildren know about the significance of eels in the pre European contact history of Canada because the story is not a priority in school curricula. The public is unaware of the historic Indigenous use of eels (Wolfe 1853) or the centrality of the eel in Algonquin identity (P19: Noganosh). Algonquin land claim negotiations have stretched on with federal and provincial governments for over 15 years. Most Ontario Algonquins come from communities where eels have been completely extirpated for decades. Questions increasingly are being asked about the responsibility and Honour of the Crown to ensure the continuing viability of a species which was a traditional Indigenous harvest and trade item (SCC 1999) and to ensure higher standards of accounting of the implications of development proposals (P20: Dead Eel). In 2001, under the title “Should Fisheries and Oceans intervene to protect American eel in the basin?” the federal Commissioner of the Environment and Sustainable Development declared that Fisheries and Oceans Canada had “taken no action in the Great Lakes and has no plans to do so. This is in direct contradiction to its stated objective of conserving the fishery resource for its sustainable use.” (Auditor General, 2001). But public understanding and proclamations by an Environment Commissioner do not generate current income in a society bent on economic growth, so evidence of progress as of 2008 is thin. The God of unfettered public demand driven by the lure of mass advertising and attractive packaging is the power in our current system, built as it is, on maximizing growth.

An anecdote will illustrate Part 2 of my story, the Carrying Capacity of our watersheds. The river flowing through our national capital is contaminated (P21: Sewage headline) (Rupert 2006a & b). A 2006 newspaper reports, “Ottawa’s got a dirty little secret: The city dumps raw sewage into waterways each time there’s a big rainfall.” There were 22 separate discharge dates in 2005 alone. (P22: Sewage map). The accompanying map shows a huge area of the city where untreated sewage and storm water regularly are mixed and dumped into the Ottawa River.
In 2008 Ottawa’s raw sewage story rages on. How could such an outrage happen in our capital? Whatever the reason, the Canadian government’s commitment to the precautionary principle (Government of Canada 2003) has not been followed. The carrying capacity of the river has been assumed to be inexhaustible. Not only are the odds stacked heavily against the eels (Verrault et al 2004), our unwillingness to stem our consumption and waste, our unwillingness to enter a blue covenant, threatens to destroy the very water that supports us (Barlow 2007; Barmak 2008).

But it is the third part of my story, the institutionalized lip service about cumulative effects, which is most sinister. (P23: Gauntlet chart). The cumulative effect on eels of having to pass a series of turbines in a river system that offers no alternative eel passage, is almost certain death, a major factor in the species becoming endangered in Ontario. In most of Ontario’s traditional eel habitat the eel is now completely extirpated. If new technology decreases the mortality rate from, say 90% to 50%, at a given generating facility, the power suppliers celebrate what they call “eel friendly turbines”. The improvement still leaves a lot of dead eels. If the eels have to pass a sequence of four such facilities their population is severely reduced (P24: Gauntlet sketch). If the eels have to pass 6 to 10 such facilities the survival of any eels at the final barrier before reaching sea level is truly miraculous. Despite knowing this mathematical certainty the Cumulative Effects Assessment process in Canada is powerless, impotent (Duinker & Greig, 2006:153-161). The Canadian Environmental Assessment Act is not well suited for inclusion in project level Environmental Impact Assessment (Antoniuk 2002; D&G 2006:155; Kennett 2002). Despite EIA theory, practice has a focus on project approval (D&G 2006:155). Project-based reviews tend to proceed on the assumption that no threshold has been compromised, that cumulative stress is simply linear (D&G 2006:156). (P25: Dead eels) However, Environmental Impact Assessments at hydroelectric power plants should be dominated by a cumulative effects approach and acknowledgment that eels’ turbine mortality rates are exacerbated by other stressors. Currently in Ontario formal assessment of impacts of proposed new power generating facilities on eel sustainability is fragmented, prone to gaps, inconsistencies and limiting regional perspectives, and influenced by serious federal-provincial rifts about protecting species with fishing resource value. Co-ordination, accountability and transparency are lacking. The extent of cumulative effects is not addressed so that, in the end, approval decisions about new hydroelectric proposals do not protect the eels. The administrative system fails to protect the eels that the system has a legal responsibility and mandate to protect.

Herein lies the fourth element of my story, the need for warning systems. We live in a world of weather forecasts and public polls, usually about issues with a very short term focus. At the scientific level we have predictive analysis techniques and advanced mathematical models to assess developing trends. Indigenous leaders have an even longer time frame, using notions of prophecy and impacts seven generations hence (P 26: Commanda, wampum). We have reached a time of looming environmental crises, the prospect of living with fewer physical
resources from the environment (P27: Doomsday Clock) (Ward 2005), and the practice of implementing large scale projects without assessing effects, including cumulative effects across regions (eg. Broström 2008). I believe that the eel stands as a warning symbol for Ontario and beyond. Already the eel graces a coin in Poland (P28: Coin) and has been chosen Austria’s 2009 Fish of the Year. In September, 2006 Tamaqua (Wikipedia 2008), a borough in Pennsylvania, became the first municipality in the United States to recognize the Rights of Nature. The Tamaqua Law recognizes that ecosystems possess enforceable rights against corporations. It establishes that residents can bring lawsuits to vindicate not only their own civil rights, but also the newly-mandated rights of Nature (CELDF 2007; Idealog 2007). The Tamaqua law recognizes the need to change human behaviour and to use respect for the natural environment as the basis for decision making. The eel, given its maltreatment in modern industrial society, provides an outstanding warning symbol of the need to widen the grip of the Rights of Nature movement and to rethink completely the way we consider proposals for hydroelectric facilities. In the December, 2008 issue of The Walrus Magazine, David Lees tells of the broken bodies of hundreds of eels floating on the surface downstream from a hydroelectric generating station on the St. Lawrence River (P29: Saunders Dam), their bodies half a metre deep in downstream coves and bays (Lees 2008:44). He describes how turbine shafts are designed to pressurize the water hitting the turbines, and the rapid change affecting the fish’s swim bladder, the internal organ that helps maintain buoyancy. Lees quotes one Hydro official who described the need to clean out the chopper of massive amounts of dead eel. “It was like the whole system was full of hamburger, and it took days to scoop it out” (Lees 2008:44). (P30: Dead eel, dam) If hydro electric energy is “Green” Energy it is green with the stain of the bile of thousands of eels killed by the turbines. Our false notions of the importance of growth and cheap energy, our false notions of the myth of inexhaustible carrying capacity of environmental systems, our undervaluing of cumulative effects can be symbolized in the eel.

So we need to change dramatically and quickly (Allen 2006d, 2007b; Hoag 2007). (P31: Q. mark eel) Each of us needs to take the symbol of the eel to ask what we can do each day in our job, in our positive influencing of decision-makers, in our support for exemplary work of environmental heroes like Environmental Commissioners, Aboriginal leaders and investigative reporters from the media. Our own species is feeling the draw of the quickening current toward broader environmental crises (Chossudovsky 2008). In our decision-making the eel symbol reveals society’s need to increase our valuing of biodiversity, ecosystem perspectives and the inherent value of the natural environment (Ontario 1993). As a symbol the eel shows that ignoring cumulative effects will be disastrous. As a symbol it is the eel that reminds us of the risk of the human species going down the tubes ourselves. As a symbol, the American eel can offer the hope of driving a shift in power.
References Cited in November 20, 2008 Presentation by W.A. Allen, Latornell Conservation Symposium


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Post Scripts:

2. See http://www.eco.on.ca/eng/uploads/eng_pdfs/2008/ar2007.pdf, pages 80 & 81 for statements by the Environmental Commissioner Ontario, “It also seems that the Ontario government does not appear to see or appreciate the bigger picture, as set forth so cogently in the UN’s 2010 Biodiversity Target. Consequently, Ontario is missing its opportunity to be a global leader in conserving Biodiversity,.........The ECO is profoundly concerned about the lack of deliberate, systematic, and coordinated government action to conserve Ontario’s biological diversity. All too often, ministries such as MNR are seemingly forced into a conflicted role, having to advocate for the very resource extraction and utilization undertakings that can jeopardize biodiversity. Instead, their roles should be cast as champions of biodiversity in order to effectively stave off this environmental crisis and to uphold the public interest.”
In my world D (Drive) covers everything from dead stop to highway speeds, so I'm really struggling to follow what is meant by "shift my automatic transmission"? Unless we're talking some kind of Manumatic in which case I'd need help understanding the 1,2,3 part... As for OP's question... based on my dubious understanding of the question (see above) I know that its manufacturer specific. E.g. The BMW Steptronics will give you manual control over the shifting but it'll override you if the onboard computer reckons you're screwing up. Global power shifts happen rarely and are even less often peaceful. Washington must take heed: Asia is rising fast, with its growing economic power translating into political and military strength. The West must adapt -- or be left behind. China has become the engine driving the recovery of other Asian economies from the setbacks of the 1990s. Japan, for example, has become the largest beneficiary of China's economic growth, and its leading economic indicators, including consumer spending, have improved as a result. Even worse, from the American perspective, would be if China and Japan were to seek a strategic alliance between themselves rather than parallel relations with the United States. Driving stick is not. It's not just learning the dance of releasing the clutch and pushing the gas pedal at the exact right time -- a delicate maneuver that's so elusive that, on my drive home from Texas, I pulled into a Denny's parking lot in Virginia and sobbed -- but it's physical work, too. In those first weeks of Wrangler ownership, my legs and ankles and feet ached everyday. Making the transmission automatic took a step out of the driving process, and in exchange, drivers lost touch with the reality of what driving is: shoving a 4,000lb brick through space with consequences. Driving while doing something else isn't like letting go of your handlebars while riding a bike. It's like operating a missile without paying attention to where it's going.