

Chairman Scott and members of the Board,

There are currently no upstream or downstream eel passage facilities at any of the Androscoggin dams, yet today I have no bodies to show you as a result of turbine mortality there. As the eminent astronomer, astrophysicist, educator and author Carl Sagan has said however, "Absence of proof is not proof of absence." Dam owners will belittle this statement but we live our lives everyday by Sagan's words. Without having seen the proof, but often based on past experience, we evaluate, assume, infer and conclude; whether having to do with such things as seasonal water temperatures, road conditions, or what would happen if we attempted to walk through spinning turbine blades. For those of you on the Board who are Maine Guides I say; if it looks like a duck and it acts like a duck it probably is a duck. At least one of you on the Board is used to dealing with those incapacitated in our society, I ask you to please try and apply those same ideas to our native fishery and imagine the scope of incapacitation, mutilation and decapitation as eels and other fish attempt to surmount these dam barriers to migration. This is, as I said last time, not only about enforcing existing laws but about common sense and values.

We have previously and today will, present you with overwhelming evidence in the form of photographs of turbine killed eels at an assortment of dams and data from Maine Department of Inland Fisheries & Wildlife, Maine Department of Marine Resources and the US Fish & Wildlife Service showing eels present above all of the dams listed in our petition. They must migrate downstream to spawn. We also present photos of the dams in question to help you visualize the impermeable barriers that they present. I present you again with the results of contaminant analyses from turbine-killed eels last year on the Sebasticook River. PCB levels tend to be in the 500ppb range. The Maine Bureau of Health issues Fish Consumption Advisories at 11ppb. Commissioner LaPointe attempted to slough this off last time with a comment about how contaminants may all end up in the Sargasso Sea. That's not the point. We don't know the reproductive effects of these contaminants or what the Sargasso is like but we do know that when eels are killed here, these long sequestered toxins are promptly reintroduced into high end predators like the bald eagle, osprey and otter living in a relatively confined environment. Based on the presence of pulp mills and other industry on the Kennebec and particularly the Androscoggin I would fully expect levels of dioxins, PCBs and other persistent organic pollutants to be far higher in the fatty tissue of eels found here. Has anyone contemplated the beneficial role that eels may indeed play in cleaning toxins from our rivers?

International eel expert from UMO Professor Jim McCleave notes in his comments to us on the problem: "...Dams adversely affect the upstream migration of glass eels, pigmented elvers, and juveniles. Upstream migrants congregate below dams, and even if some passage facilities are provided, the majority probably do not pass.

Several general conclusions may be reached:

- The majority of upstream migrants probably do not pass dams, even when some passage structure is provided.
- Congregations below dams probably lead to increased mortality from predation or starvation.
- Dams have restricted access to large amounts of habitat, which once was inhabited by eels.
- Lower population density in restricted habitats alters sex ratios in ways not fully understood."

He goes on to say: “Dams adversely affect the downstream seaward migration of silver (adult) eels. The first effect is a delay of migration, with eels circling in the forebay and making multiple approaches to a dam. Few studies of this aspect have been done.

Mortality and injury when eels pass through turbines or over spillways is well documented for several species of *Anguilla*, including the American eel, the European eel, and two New Zealand species. Mortality rates from passage through Kaplan turbines ranged from 50-100% in 19 experiments with European eels of mean size 73 cm. In three other experiments, severe injury rates were 63-81% for eels of mean size 57 cm. Another study gave mortality rates of 15-50% depending on Kaplan blade angle. Yet another study, gave 6%, 10%, and 23% mortality in a large Kaplan turbine. In one study of a small Francis turbine, injury rate was 9%, 65%, and 100% depending on operating conditions.... Ten of twelve telemetered New Zealand eels that passed through Francis turbines were killed.”

On August 14, 2003 eel biologists from 18 countries at the American Fisheries Society Annual Meeting, meeting in Quebec, Canada, drafted and unanimously approved a declaration titled: *The Quebec Declaration of Concern: Worldwide Decline of Eels Necessitates Immediate Action*. It begins: "The steep decline in populations of eels endangers the future of these legendary fish. With less than 1 percent of major juvenile resources remaining, precautionary efforts must be taken immediately to sustain these stocks." And it continues: “Research is underway to develop a comprehensive and effective restoration plan. This, however, will require time. The urgent concern is that the rate of decline necessitates swifter protective measures... We unanimously agree that we must raise an urgent alarm now... Precautionary action (e.g., curtailing exploitation, safeguarding migration routes and wetlands, improving access to lost habitats) can and must be taken immediately by all parties involved and, if necessary, independently of each other...”

Again, I have no Androscoggin bodies to show you today. Eels and their body parts sink when mutilated by turbines. As you heard at the Kennebec hearing from Mr. Watts, it is generally impossible to recover bodies at most of these dams due to access, flows, depth and or temperatures and turbidity. You can however use the circumstantial and parallel evidence presented to acknowledge the urgency of the problem and to take action where natural resource agencies have for the most part failed dismally to do so.

Friends of Merrymeeting Bay requests that you grant a full adjudicated hearing on the Androscoggin dam petitions and combine these with the Kennebec into one session. The issues are indeed the same and we ask nothing more than a reasonable person would infer and conclude from the evidence presented.

Thank you for your consideration.

Ed Friedman, Chair, Friends of Merrymeeting Bay. BEP Hearing 2/2/06