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January 24, 2002

David Policanski, PhD.
NRC
Room HA354
2001 Wisconsin Ave NW
Washington DC 2007

Dear Dr. Policanski,

I am writing this letter as a follow up to my testimony on January 7, 2002 in front of the Maine Atlantic Salmon Committee in Boston. There seems to be some confusion resulting from my testimony, which I would like to clear up.

First of all, The Penobscot Nation Tribal Council did vote in favor of placing salmon on the endangered species list. The Council also recognized the Penobscot River Salmon as a distinct population to the Penobscot River.

Secondly, as a tribal representative to the State Legislature I have the opportunity to speak with and consult with experts and scientist in the field. The statements I made on genetic purity and fish diseases were a result of my own personal research and not the official opinion of the Penobscot Nation. I believe the salmon in the Penobscot River are indeed a distinct population.

Thirdly, The concern that I expressed in front of the committee was the need for good science to be applied particularly during the restoration phase.

Lastly, It is essential that the Tribes, the State of Maine, the Aquaculture Industry, environmental NGOs, US Fish and Wildlife Services and Scientists work together to restore Maine's Wild Atlantic Salmon to their rivers.

If you have further questions please feel free to contact me directly.

Sincerely,

Donna M. Loring
Penobscot Nation Representative



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Testimony before the Committee on Atlantic Salmon in Maine

January 7, 2002

Good Morning Committee members on Atlantic salmon in Maine. I am Donna M Loring and I am the Penobscot Nations representative to the Maine state Legislature.

Thank you for inviting me to speak to you about the Native view of the Salmon issue.

For thousands of years, native peoples managed our earth's resources with respect. We were one with nature. We were an integral part of the land physically and spiritually. We had communities throughout the eastern seaboard. Our numbers have been estimated to be anywhere from fifteen to thirty thousand. We had territories that we hunted and fished seasonally. The boundaries of these were usually rivers. We knew the land, and everything about it in intimate detail from the location of rivers, lakes, ponds and streams as well as where we could find specific animals, fish, fowl, plants, trees and herbs at certain times of the year. We were one spiritually with all our surroundings. Our very lives depended on the treatment of this sacred environment.

Atlantic salmon, Atlantic and short nose sturgeon, striped bass, American shad, alewives, blue back herring, rainbow smelt and American eels were plentiful. In 1611 a French priest, Father Biard wrote about the Wabanaki in his narrative he states "Their food is whatever they can get from the chase and from fishing: for they do

not till the soil at all” Rivers played an essential role in our culture. Former Penobscot Chief James Sappier once said “My grandfather used to tell us of the time when the river would literally boil from bank to bank as the numbers of salmon were so great in running the Penobscot each spring. The Island would be a haven for them as they tired in their journey up river.” The Penobscot River is the life’s blood of our culture. It is sacred to us as is every living creature in it. Our name is derived from the description of the land here in this region and the river that flows through it bears our name or we bear its name. When the Europeans landed and started to take our lands and treaty with us we always negotiated for hunting and fishing rights, as it was our sole means of survival. Hunting and fishing rights were always our number one priority. Our culture, history and traditions are intrinsically connected to the river and to the animals and fish that it sustains. The first and only treaty we made with the State of Maine The Maine Indian Land Claims Settlement Act specifies our exclusive jurisdiction over hunting and fishing rights within our trust lands and territory. The Maine Implementing Act specifically states MRSA 30 6207 (8)

8. Fish and wildlife on non-Indian lands. The commission shall undertake appropriate studies, consult with the Passamaquoddy Tribe and the Penobscot Nation and landowners and state officials, and make recommendations to the commissioner and the legislature with respect to implementation of fish and wildlife management policies on non-Indian lands in order to protect fish and wildlife stocks on lands and water subject to regulations by the Passamaquoddy and the Penobscot Nation or the commission. The protection of the stocks of fish and wildlife were so important to the tribes that we made sure that we would have input into whatever plans were implemented statewide that would effect these populations. With this legal and historic background in mind I would like to address the Atlantic salmon issues.

The issues surrounding the status of Atlantic salmon in Maine are not only scientific ones. As Penobscot Nation representative to the Maine Legislature, I need to also consider the politics, economics

and cultural elements associated with the Atlantic salmon situation in Maine as it developed over the past decade or more. The Penobscot Nation recognizes the importance of a clean environment but also recognizes the importance of the economics of the situation especially in light of the recession the country and the State of Maine are in. We do not wish the termination of any Maine industry.

I am not a scientist, but as a legislator I have many professional contacts in the scientific community in Maine such as Dr. Peter Merrill DVM, Aquatic Animal Veterinarian and Deborah A. Bouchard, microbiologist, who has worked with fish diseases for almost twenty years and is recognized as an expert in fish diagnostics both nationally and internationally. I have asked these experts to provide me with technical expertise on the pathogens and diseases faced by both farmed and wild Atlantic salmon populations in Maine.

I do have some concerns with the science or lack thereof behind the issues we will be discussing today.

Before the Endangered Species Listing in early 2001, the debates and public comments that preceded the listing generated a large amount of information and disinformation, much of which found its way uncensored into the media or onto the Internet.

This was expected, since there is much at stake (besides the recovery of the species itself) in listing these Atlantic salmon as an endangered species: politics, money, reputations, and directly or indirectly, many people's livelihoods. The real and potential impacts from the Endangered Species listing (which I will refer to hereafter as ESL for short) on many other sectors of Maine's economy, including agriculture, aquaculture, forestry, sport fishing, etc., will be significant, even if only because many people believe they will be.

In other words, a lot rides on the implementation of the ESL for Atlantic salmon, and that implementation should reflect the latest

and most accurate information possible. However there are several points in the rationale used by the Services who sponsored this listing that bear comment. In general, I would like to caution not only the media and the public, but special interest groups and the listing Services alike, not to put too much faith in what has been offered by way of documentation for the various factors attributed to the decline of returning "wild" Atlantic salmon to their specific rivers of origin. We all know that the numbers of salmon in the rivers are continuing to drop to alarmingly low levels. We also know that statistics are notorious for being able to conform to the purpose at hand.

There are probably many causes for concern for the decline of wild Atlantic salmon populations. Those concerns are not necessarily, or solely related to factors that were proposed by the ESL agencies as justification to change the species' status-factors such as genetic purity, disease spread from escaped farmed fish, river water withdrawal for alternative usage, etc. The historical and current low returns of sea-run salmon may be due as much to failure to sufficiently imprint the 100 million or so salmon stocked over the past century as they might be to predator prey interactions, which have also been postulated as causes. Over-fishing (both sport and commercial bycatch)...acid rain influence on habitat...global warming...heavy metal pollution...unexplained cyclical phenomena, and many other possible reasons may also be involved in the gradual degradation of the Atlantic salmon's survival abilities. Without better proof of what factor, or confirmation of factors, is to blame, it is irresponsible to curtail whole industries as a shotgun approach to conservation. Good science is all about proof. It is essential that evidence being attributed to 'scientific studies' be offered as proof for anyone, proponent or challenger, to review. The information may not be wrong or wholly wrong; but it may not be right or completely right either.

The issue of genetics was and is a central one for both proponents and opponents of the listing. Escaped cultured salmon have been identified, particularly by special interest groups (but also in the proposal for listing) as being a factor of negative influence on Maine's wild Atlantic salmon, both through dilution of the gene pool by interbreeding and as a vector for disease transmission.

I strongly urge discretion here, because almost all of the 'popular' information generated on these issues is not scientifically robust enough to withstand the typical peer-review process crucial to scientific inquiry. I have seen many articles of speculation, innuendo, and supposition surrounding these topics, all presented as though they were established and documented fact. In cases where independently verifiable data are available to support hypotheses or theories, additional conclusions are often piggybacked with no justification. This is not good science. Virtually every citation in the Services' proposal (Which eventually became the ESL) that has to do with genetic concerns was phrased "may", "could", and so on.

In fact, given the historical stocking record, and the state of the art genetic marker technology, it would certainly be possible to scientifically defend the fact that the DPS Atlantic salmon are in actuality no more "wild" than their cultured counterparts in netpens. It is a matter of public record that the eight rivers mentioned in the ESL (other bodies of water) have been stocked by the federal government since the 1800's with salmon of a variety of genetic origins. There is no genetic validity to the statement used as a justification for the ESL that escaped aquaculture salmon would dilute the gene pool through interbreeding with wild stock and passing along "maladaptive" traits...only supposition.

I can tell you from experiences related to actual incidents involving cages of farmed salmon in Maine, as well as from published data that escaped farmed fish are not very well equipped to feed, let

alone navigate or breed on their own. A recent monograph on escaped netpen Atlantic salmon indicated that survival was unlikely for more than 50 days. Wild salmon typically spawn in October or November; unless a farm-raised salmon escaped in September, it likely wouldn't be around to contribute at spawning time, assuming of course, it could even find its way up any particular river to do so.

I want to bring up some additional information about the specific diseases in the listing proposal that should be taken into account to balance the almost hysterical publicity that has been generated.

First, Infectious Salmon Anemia (ISA): ISA is an epidemic disease that has affected salmon farms in Maine for almost a year now. The complicated nature of ISA transmission probably involves many factors, and is only partly understood at the present, despite the extensive research that has been undertaken over the past 15 years or so since its first emergence in European farms. The farmed-salmon industry in Maine and New Brunswick is well aware of the threats posed by ISA, mainly because of the importance to the bottom line. The state of Maine and the USDA have been instrumental in developing an active surveillance program to detect the first appearance of the virus that causes ISA at salmon farms: but more importantly, individual salmon-producing companies, faced with the reality of economic adversity, have implemented a rigorous, industry-wide biosecurity effort designed to help minimize exposure to, and detrimental effects from, infected or diseased fish. Between the public and the private sectors, efforts are aggressively being made to eradicate infected or diseased farmed salmon stocks and to test all sites on a continuous basis for the appearance or re-appearance of the ISA virus.

Although the evidence points to wild fish as carriers or transmitters of the ISA virus, there is no corroborated evidence to date that any wild salmon in Maine have been infected by the pathogen. The

recent discovery of ISA virus in wild fish in New Brunswick that was trumpeted by special interest groups as being spread from aquaculture fish actually involved wild fish that had previously cohabited with ISA-positive aquaculture escapees at a holding facility, which represents a different mode of transmission from natural infectivity. One salmon returning to the Penobscot River tested positive for the virus once, but subsequently was found to be negative. But much more testing, and more extensive testing, is necessary before any conclusions can be made.

The recent USDA involvement in salmon aquaculture has resulted in the dedication of more than \$16 million in funds for disease testing and eradication, and private companies in Maine are coordinating their monitoring programs through their service veterinarians and diagnostic laboratories to comply with the USDA program. The state continues to earmark funds for disease testing until the USDA program has been implemented. A comprehensive ISA action plan, developed through the Industry Fish Health Committee, has been sent to the Maine Fish Health Technical Committee and reviewed by the Commissioners of Inland Fish and Wildlife and the Department of Marine Resources. This plan is proactive in nature, and encompasses the latest scientific information disseminated about ISA.

In addition, vaccines against the disease are continuing to be developed and tested in field trials. Waste management has been identified as a cause for particular concern over how ISA is spread, and efforts are under way to propose a wide variety of options to deal with this vector. Many other areas of fish husbandry and health management have benefited from these state-private sector collaborations. Virtually all of these developments were initially undertaken at the corporate or state level without federal-level involvement or financial support. The successful elements of these programs have been incorporated into a Bay Area Management agreement entered into by companies doing farming on both sides

of the US-New Brunswick border, which will serve as a model for bilateral cooperation to lessen disease outbreaks of many types.

Secondly, Salmon swimbladder sarcoma virus (SSSV): the facts surrounding SSSV do not currently support the position that the listing Services took by including the syndrome as one of three specific disease concerns that in their minds justified the ESL. As for any disease, the basic requirements needed to formulate a Best Management Plan are 1) what agent causes the disease; 2) how prevalent the pathogen or disease is in a given population; and 3) an understanding of the epidemiology involved—how the disease is transmitted, establishing the level of resulting mortality, and identification of resulting mortality, and identification of possible co-factors like age, seasonality, stress, underlying diseases, etc. that may influence the severity of the disease. The listing Services to date has sponsored none of this research.

In fact, the postulates that characterize the SSSV as a true disease have not yet been satisfied. The research behind SSSV is so far from complete that even the tests used for its detection have not yet been validated. No SSSV-associated pathology has ever been noted in actual wild fish.

No attempts have been undertaken by either listing agency to determine the distribution of this disease in wild Atlantic salmon.

Indeed, because of the difficulty in interpreting even the limited testing results available, USF&W itself recently proposed suspending additional research funding for SSSV as far as its own disease management plan. SSSV may in fact prove to be a serious concern for Maine's Atlantic salmon. Because of the currently speculative nature of SSSV's effects, however, more research should be conducted before any rational assessment can be made of the potential impact on the DPS Atlantic salmon. The implied justification in the Services' proposal for inclusion as a factor in the ESL was premature.

Lastly, **Bacterial Cold Water Disease** (BCWD): the proposal for the Atlantic salmon ESL cited supposedly “new information” from 1999 that reflected on the potential impact of Bacterial Coldwater Disease on salmon. The disease is caused by a bacterial species that is considered by fish health experts to be normally present in many freshwater aquatic systems, and the disease has been adequately managed in both public and private facilities for the past 25 years or more through standard Best Management Practices utilizing good husbandry and treatment options. Research is ongoing into the development of a vaccine for Cold Water Disease. The statement used for ESL justification that the disease is vertically transmitted through eggs and is responsible for subsequent mortality in juvenile Atlantic salmon appeared to be based on one study presented at a US Fish & Wildlife-sponsored workshop nearly four years ago, but which was not published in a peer-review journal. In the opinion of many who deal with Atlantic salmon issues, Coldwater disease has not been, and is not now, a cause for concern at any salmon-raising facility, public or private, in New England, and it was not appropriate to refer to it as such in the listing proposal.

In conclusion, I hope I have been successful in pointing out the insufficiently documented, almost casual references to several of the issues that the listing Services had identified as contributing to the listing. Scientific policy, (which is what an ESL boils down to) should not be developed exclusively by bureaucrats and administrators. Good science is necessary to insure the health and survival of Maine’s Atlantic salmon.

Whatever the outcome of this controversy there should be state and tribal consultation at every step. There should also be veterinary and fisheries biologist input, especially when disease and environmental concerns are involved.

The Penobscot Nation desires to have the river restored to an eco system that will once more maintain Atlantic salmon, Atlantic and short nosed sturgeon, striped bass, American shad, alewives, blue back herring, rainbow smelt and American eels . We need good science to accomplish this.

The Penobscot River historically held the state's largest populations of Atlantic salmon, with annual salmon runs estimated at 50,000 – 70,000 adults prior to construction of the river's first main-stem dam in 1830. Today, the Penobscot is the only river in the entire United States where there is a reasonable expectation of restoring a robust population of wild Atlantic salmon. The annual salmon run sizes on the Penobscot have declined to approximately 1000 adults in the past decade. Last year, fewer than 600 salmon were counted at the river's first dam at Veazie, the lowest number recorded in 20 years. The Penobscot and tributaries (excluding the West Branch) contains seven times more salmon spawning and rearing habitat than is contained in all of the mid-coast and Downeast rivers combined that were recently listed by the USFWS.

However, because "state of the art" fishways are not able to effectively pass safely (upstream and downstream) all salmon, and multiple fishways compound these fish passage inefficiencies, the location the vast majority of this spawning and rearing habitat in the Penobscot—upstream of numerous dams—becomes a critical consideration in effective salmon restoration. 86% of this habitat is found above (upstream of) three or more dams, and 55% of this habitat is found above four or more dams. Only 3% of the spawning habitat is located below all dams on the Penobscot.

Capturing this situation, May 24, 2001 edition of the Ellsworth American ^{News Paper} contained the following statements:

“Despite its low rate of return, the Penobscot is a very important part of Maine's Atlantic salmon population. Scientists estimate that 60 to 70 percent of all adult Atlantic salmon in the United States calls the Penobscot home...

“Last year a thirty year low of only 532 adults returned to the Penobscot,” said Russell Brown, who is heading up the study for the Nation’s Oceanic Atmospheric Administration. That is less than 10 percent of the number required for a healthy population, according to NOAA’s figures. The returns have dropped steadily over the past 12 years.”

The Penobscot Nation is working on a restoration initiative along with the State of Maine, environmental NGO’s, in conjunction with the US Fish and Wildlife Service. This restoration initiative would constitute the single most significant river restoration effort in the Northeast coastal U.S., and possibly north of the Everglades.

It is essential that the Tribes, the State of Maine, the Aquaculture Industry, the NGO’s and the US Fish and Wildlife Service work together in partnership to restore the Atlantic salmon to Maine waters. When we work at cross-purposes no one wins.

Finally, It is not just the Atlantic salmon, which are endangered. From their positions at the top of their food web, salmon are only a small but highly visible symptom of an eco system in trouble. It is the Penobscot River watershed and ultimately the Atlantic Ocean, which are also endangered. Salmon are telling us that the mountains, valleys, streams, rivers and ocean, which play a role in their world, need equal attention. Salmon have been a source of sustenance and a foundation of culture for our people since time immemorial. Their existence is historically vital and linked to our world, as are the fates of many of our resources. If it were entirely up to native peoples, we would not have allowed the situation to come to this, nor would we continue to allow Atlantic salmon to become extinct. But we are only part of the solution. I ask that we be included as equal partners in all steps leading to the successful recovery of Atlantic salmon in Maine.

Thank you