

Low Impact Hydropower Institute
34 Providence Street
Portland, ME 04103

Re: Low Impact Certification for the North Umpqua Hydroelectric Project
(NUHP), North Umpqua River, Oregon.

Dear Low Impact Hydropower Institute:

The undersigned respectfully request that you consider the reasons we believe that the North Umpqua Hydroelectric Project is anything but a low impact project. We strongly urge that NUHP that certification by the Low Impact Hydropower Institute (LIHI) be denied.

Indeed, we advocate decommissioning of the entire project, allowing the river to free flow and thereby beginning the restoration of the river's unique natural attributes, rich biodiversity, notably the native salmonids, summer and winter run steelhead, resident rainbow trout, Spring Chinook, Coastal Cutthroat, and Oregon Coast Coho. Prior to the project these fishes were abundant and key to the well being of people living along the river. Runs of wild steelhead, Chinook and cutthroat are substantially depressed and coho are listed threatened per the Endangered Species Act. In addition to salmonids, the North Umpqua is also home to Pacific Lamprey, whose numbers have been declining over time. Of course the project is not the only negative influence on salmon, steelhead and lamprey, but it is a major one, primarily because the project cut off key spawning areas and growth of juvenile fishes is compromised by the regulated flows for hydropower peaking. These influences are clearly documented in a professional paper we are currently completing. Moreover, the economic importance of these fishes is underscored by the robust tourist industry on the river and they remain vitally important to native people of the Umpqua region.

To be more specific, Soda Springs dam currently blocks migration of Steelhead, Spring Chinook, coastal cutthroat trout and Pacific lamprey to access four miles of critically important mainstem habitat, and Fish Creek, a tributary to the North Umpqua. Fish Creek is the main gravel source for the mainstem North Umpqua. Fish Creek gravel historically washed downstream and was used for spawning and rearing by salmonids and lamprey and is now completely cut off. Owing to loss of gravel the main stem river is gradually losing its utility as salmonid habitat. Fish Creek also historically provided high quality spawning habitat for Steelhead, and the four miles of mainstem habitat that is currently inaccessible was used for spawning by Spring Chinook.

The proposed fish ladder on Soda Springs Dam (which was included in the hydropower re-licensing settlement agreement in 2003, and is intoned to mitigate for damage to salmonids) will have very little positive impact on salmonid

sustainability. The fish ladder was intended to open up passage for steelhead and Spring Chinook, which it will, but once the fish make it up the ladder they will land in a reservoir that has been colonized by non-native brown trout. The reservoir has inundated what was once high quality Chinook, coho and steelhead spawning and rearing habitat. A fish ladder will not mitigate for the loss of this habitat. The brown trout colonization extends upstream of the reservoir and encompasses the four miles of mainstem river intended for Spring Chinook. As a result of this colonization the native anadromous fishes will have to fight the brown trout for spawning habitat, and if spawning occurs, the eggs and subsequent juveniles and smolts will have little chance of making it through a reservoir of voracious brown trout to swim out to sea. Therefore, the fish ladder certainly is not effective mitigation for lost habitat and likely is entirely a waste of money. The bottom line is that removal of Soda Springs dam is the only way to mitigate for historic damages to the native salmonid and lamprey populations.

In summary, the negative impacts to native wild salmonids, including the Coastal Coho Salmon which is listed as threatened under the Endangered Species Act and Pacific lamprey as a result of Soda Springs Dam disqualify the entire North Umpqua Hydroelectric project from being certified as a low impact hydroelectric project.

Thank you for your consideration of these comments in your evaluation of the application for certification of the North Umpqua Hydroelectric Project.

Sincerely,

Kelly Crispen
Jack Stanford

Crispen is a graduate student at the University of Montana working with Professor Stanford on a study of restoration options on the Umpqua River system. We have determined that the Soda Springs Dam is a primary problem for restoration and should be decommissioned and removed. Crispen also is a member of the Cow Creek Band of the Umpqua Nation.

Umpqua Watersheds Inc. P.O. Box 101, 539 SE Main St. Roseburg, OR 97470

Low Impact Hydropower Institute
34 Providence Street
Portland, ME 04103

Re: Low Impact Certification for the North Umpqua Hydroelectric Project

Dear LIHI:

We respectfully request that you consider the multiple reasons we believe that the North Umpqua Hydroelectric Project should not receive certification by the Low Impact Hydropower Institute (LIHI). For over 10 years a number of our staff and organization members were deeply involved with the company and agencies during the re-licensing process. This includes our Executive Director who worked on this Project from 1994-2003 and at that time was the Umpqua National Forest, Forest Wildlife Biologist. We worked in earnest to support the continuance of the Project while ensuring that the most significant issues were addressed. However, a settlement agreement was made only between the public agencies and the company excluding critical stakeholders. We witnessed first hand how unethical, irresponsible and dangerously powerful a large corporation and pressured public agencies can be.

Unique to only a few hydroelectric projects, the North Umpqua Project is not a single dam structure on one spot on a river. Rather, it is an expansive, highly disruptive footprint that includes 32 miles of open cement canals and flumes that function as complete barriers and death traps to wildlife and run through all three headwater and main stem watershed riparian reserves, late successional reserves, unique wetland habitats, and upslope habitats. The Project also has an extensive road network (100 miles of project related roads) that the USFS has to keep to provide access to the Project. There are 117.5 miles of transmission lines all occupying key habitat in riparian corridors (that this summer caused a major fire and loss of old growth in an otherwise roadless area). There are 8 dams spanning the entire headwaters. These expansive facilities are kept in highly impacted conditions, with regular human disturbance and continued loss of suitable natural habitat. Further, the Project diverts 95% of the in stream flows that are shunted from the rivers into forbays over and over effectively removing most of the flow for many miles on all three headwater tributaries until reaching Soda Springs Dam. With these many miles of low flow conditions, riparian, wetland, and aquatic habitat is adversely affected. Nonnative invasive aquatic species are present in facility structures and at a high risk of more introductions due to impacted conditions and human accessibility created by the Project.

Alteration of ecosystem functions has been substantial and widespread both in terrestrial and aquatic ecosystems. In addition to the above, the Project causes fluctuating flows and reservoir elevations, blocks upstream passage for both anadromous and resident fish, amphibians, muscels, and other species. Fish, amphibians, and terrestrial animals are entrained and killed at unscreened diversions if not killed before hand by non-native fish in the reservoirs. Downstream transport of gravel and large woody material is prevented. Major erosion and sedimentation continue to be a problem from construction and maintenance of Project facilities and roads. While stranding and killing of fish downstream of the Project has lessened there are still issues due to rapid changes in the river levels from Project flow management adversely affecting salmon and critically impacting species such as pacific lamprey. Water quality is significantly impacted by the water diversions and loss of key habitats such as stream riparian and wetlands that filter the water maintaining the highly pristine and world renown waters of the North Umpqua.

1. It is a biological fact the Project impacts thousands of acres of terrestrial and riparian habitat in the Upper North Umpqua threatening species viability and biological diversity and that the current mitigation is ineffective in addressing these issues.

The ecosystem of the North Umpqua is of critical importance for the conservation of biological diversity. Given that this Project lies completely on National Forest public lands the company should have to make every effort to meet, not obstruct or preclude management expectations and legal requirements on these lands under the National Forest Management Act and all other laws and regulations. This Project, still in its 1950s condition, does not meet many of the wildlife habitat, wetland, stream, and riparian requirements as outlined in the Umpqua Forest Plan as amended by the Northwest Forest plan. Bringing this Project up to today's standards should have been the primary driver of the re-licensing process.

The headwater watersheds of the North Umpqua are unique in the habitat conditions they provide both on the forest and in relation to the major north-south Cascades corridor connecting Idaho and Washington through the cascades to California.

This area has always been identified for many species historic ranges compared to the rest of the forest. The upper North Umpqua is the only area on the Forest influenced by major snow accumulation and east side/west side transition. There are biologically rich and productive wetlands, meadows and low gradient riparian corridor systems such as the segment on the North Umpqua River from Diamond Lake to Lemolo Reservoir occurring no where else on the forest. Lemolo Reservoir, the result of the first dam on the North Umpqua River, has already a major portion of these unique high elevation low gradient wetland, riparian/aquatic conditions. These kinds of

wetlands, meadows, and riparian aquatic conditions are very important for many wildlife species and ecosystem function.

The Forest's largest wilderness and roadless areas occur in the upper North Umpqua. Both these wilderness and roadless areas and the area occupied by the Project, are necessary habitat for the endangered wolverine. Wolverines are adversely affected by the Project due to the large expanse the Project occupies, the key habitats it adversely impacts, the characteristics of the old facility design that make it a major barrier to movement and the highly disturbed condition the Project causes in relation to amount of habitat they collectively need. Spanning all three of the headwater tributaries, the North Umpqua River, the Clearwater River, Fish Creek, plus down the main stem North Umpqua, the Project cuts off large areas making them ineffective in providing habitat and connectivity. Therefore, the Project has a significant impact upon current wolverine habitat and wolverine recovery. It also makes the Northwest Forest plan strategy ineffective for insuring species viability for a host of species whose viability assumed that riparian reserves would function for habitat and movement corridors. This is of particular concern given global climate change since species are known to be moving up in elevation to find refuge habitat that is currently impacted by the Project.

To address the most egregious habitat and connectivity issues, it was recommended that the company put the 37 miles of water diversion structures into buried pipelines, like what is being done for new projects in other areas. In doing so, there would be far less maintenance, human disturbance, and greater habitat connectivity. This would reconnect large areas of habitat making it available to recover or at least allow greater movement between habitats for the wolverine and many hundreds of other species intended to be conserved through forest plan requirements.

In addition to the wolverine, two other forest carnivores remain of particular concern in regard to the Project. The endangered fisher and declining pine marten are also adversely affected. The many miles of the canals and diversion facilities occupying both key riparian reserve habitat that are to function as corridors of connectivity and upslope area, are a barrier to movement, cause high levels of human disturbance, and cause drowning of unsuspecting juvenile dispersers that try to swim across. The structures convey water at very high flow rates and the slick sides of the canals or the cement land dams of the flumes prevent effective movement and use of the habitats in the area. Because these facilities are high maintenance, there is much disturbance impact, vegetation management, snow plowing, and human use associated with road maintenance and transmission line corridors.

2. It is a fact that due to the design, juxtaposition, and extent on the landscape, the North Umpqua Hydroelectric Project precludes the function and natural condition of many acres of public land far beyond the actual location of the facilities.

In addition, most first and second order headwater streams are completely intercepted by the canals such that they do not flow below and into the main tributaries like they once did or they flow through a constricted culvert that blocks connectivity of species and ecosystem processes. Therefore terrestrial, riparian, wetland and stream habitats above, within and below are cut off from others due to the occupancy of the facilities.

3. Converting the open canals and flumes into buried pipes is necessary in order to support a low impact certification. This is needed to meet minimum species, habitat and riparian reserve functions, and to restore stream, riparian and upslope connectivity of all the intercepted streams under the Forest Plan.

The current mitigation of bridge additions on top of open canals is a costly and ineffective band aid that will not restore the ecological function of landscape connectivity. Given the dynamic nature of wild landscapes, this needs to be in place across National Forest Lands in order to support all species habitat and viability conditions including movement needs from amphibians to forest carnivores. The existing human disturbance in and of itself is very high from having to maintain the canals and flumes and will preclude wolverine, fisher and marten and many other species from effective use of the National Forest Land affected by the project area. The size of area impacted for roads, canals, flumes and maintenance is significantly reduced when buried in a pipeline. The level of human disturbance is as well.

4. It is a fact, that the Project's impacts native fishes and their historic spawning ground, and will remain so even with current mitigation measures.

Below the Project's lowermost Soda Springs Dam is a world-renowned anadromous fish resource that is adversely affected by the North Umpqua Hydroelectric Project. The North Umpqua drains about 1,350 square miles before joining the South Umpqua River west of Roseburg. The North Umpqua is one of only 2 productive summer steelhead streams on the entire west coast from Alaska to Mexico and revered world wide for this value. It is also home to one of the largest remaining populations of wild spring Chinook salmon in the lower 48 states.

Below the hydroelectric Project, the North Umpqua is designated as a Wild and Scenic River for its outstanding water quality and quantity, recreational opportunities,

and fisheries.

5. The Project has a significant cumulative impact on the continuing observed degradation of these remarkable conditions and that the current settlement agreement has not effectively addressed any of the key elements that are the cause of the damage even if all promised mitigation is implemented.

As described above, the North Umpqua project, which occupies over 3,000 acres of mostly Forest Service land on the North Umpqua and two of its tributaries, Fish Creek and the Clearwater River, has an extensive footprint in the watershed. The project actually encompasses eight "Facilities" as defined by LIHI: a system of eight dams and associated powerhouses, three reservoirs, more than 30 miles of diversion flumes and canals, six miles of penstocks and tunnels, and approximately 100 miles of project-related roads.

The original project design gave little forethought to impact to terrestrial, riparian and aquatic ecosystem processes. As a result, the project significantly harms sensitive aquatic and terrestrial species and habitats. In addition to Oregon coast Coho salmon, which have severely declined and are listed under the ESA, the project impacts steelhead (a regionally significant strong population), Chinook salmon (also a regionally significant strong population) and sea-run cutthroat trout (a run in severe decline) and Pacific lamprey, wolverine (endangered), fisher (proposed endangered), pine marten (in severe decline), amphibians (in severe decline) small riparian dependent mammals at risk from global climate change, and many more species..

6. Specifically, this project should not be considered potentially certifiable as "low impact" without 1) Converting all of the extensive open canals and flumes to buried pipe and 2) The removal of Soda Springs Dam. As these have severe limitations on ecosystem function.

It is understandable that LIHI criteria place emphasis on the terms, conditions, and recommendations developed and submitted by the resource agencies in the re-licensing process. However, as a the Forest Wildlife Biologist representing the USFS at that time it is a fact that the resulting terms, conditions, and recommendations are not an accurate or sound reflection of what the agencies initially deemed necessary to address the resource impacts of the hydropower project. Nor did the Company in good faith, provide truthful information about the conditions and impacts in many cases. LIHI should consider that the final Settlement Agreement and subsequent terms, conditions, and recommendations, does not comport with the original

recommendations of Forest Service, Oregon Department of Fish and Wildlife, and UFWs scientists. The Agreement is viewed by many community leaders as resting on a blatantly political decision to change position on the dam in response to PacifiCorp's withdrawal from negotiations. The final agreement was forged after the Forest Service changed its position as to putting the diversions into buried canals and removing Soda Springs dam because Pacific Corp left negotiations. None of the mitigation currently constructed would independently be considered in compliance with direction under the Northwest Forest Plan. As noted below, all NGO community and conservation stakeholders that were party to the negotiations subsequently withdrew from negotiations rather than support an agreement that locked in place for 35 years inadequate environmental measures.

In addition, in consideration of our economic and local employment situation, if stimulus funding for example by the federal government had gone toward these 2 mitigation measures a buried pipeline for diverted waters, and removal of Soda Springs Dam, our community would have benefited from well over 200 long term (20-30 year career) family wage jobs. Not to mention that economic information subsequent to the re-licensing of the project reinforces the argument as the real current day cost for the ineffective mitigation outlined in the plan far exceeds the original estimates due to the cost of concrete and long term high maintenance.

In sum, the current licensing agreement should not provide the basis for a low impact certification because: 1) it reflects agency terms, conditions, and recommendations that were weakened under political pressure from the company and ignores the best science, that was initially identified as necessary for re-licensing by the agencies, (2) the terms and conditions do not meet the USFS own Forest plan requirements as it should when a project comes up for re-licensing, 3) it obligates the expenditure of a very large sum of money on a fish ladder of novel design and other ineffective mitigation that to not address the key issues of terrestrial, riparian and aquatic habitat and connectivity eliminated by the project but rather "pays off" the agencies to do window dressing activities such as running several truck loads of rock from fish creek to below Soda Spring dam and conducting elk habitat enhancement by over treatment of highly disturbed areas and other unnecessary measures while the real issues of biological diversity and species at risk continue to be adversely affected.

7. The Settlement Agreement does not include key community stakeholders.

We urge the LIHI to look outside the fallacy of the Settlement Agreement and the narrow question of whether PacifiCorp truly complies with the requirements of the agencies involved. While the criteria do not explicitly consider the views of stakeholders other than federal, and state, we urge LIHI to consider the lack of support for the settlement by the extensive number of key stakeholders in its

evaluation of the certification application.

Many environmental organizations were actively involved throughout the re-licensing process, starting with the initial study phase and continuing through the negotiation process. Many of the original agency biologists would attest to the inappropriateness (if they feel safe to speak out). Those that are no longer with the agency like myself can attest to what transpired. The key stakeholders represented a range of interests in the basin from anadromous fish to river health and terrestrial species, and brought a wealth of critical knowledge to the process. Umpqua Watersheds, Umpqua Valley Audubon Society, Steamboaters, Oregon Trout, Pacific Rivers Council, American Rivers, WaterWatch of Oregon and Oregon Natural Resources Council all committed significant resources for 10 years to the licensing process in an effort to ensure that the Project's impact were adequately addressed.

The settlement discussions went through several phases and were ultimately supported by only a small subset of parties involved in the relicensing. As noted above, the Agreement does not comport with the original recommendations of Forest Service and UFWs scientists regarding Soda Springs Dam. All NGO community and conservation stakeholders that were party to the negotiations subsequently withdrew from negotiations, and the agreement was challenged in court by of seven conservation groups. When reviewing PacifiCorp's application for low impact certification, the LIHI should consider this lack of support by the conservation community and the original scientist to which I was one. It was the experience with PacificCorp and it's influence on the USFS that affected both mine and another dedicated scientist to leave the agency saddened by the reality of corporate power and politics and the manipulation of good science.

Thank you for your thoughtful consideration.

Sincerely,

Cindy Haws
Executive Director
Umpqua Watersheds
cindy@umpqua-watersheds.org
541-672-6075

**▪American Rivers ▪Pacific Rivers Council▪
▪Native Fish Society▪The Steamboaters▪**

8 February 2010

Low Impact Hydropower Institute
34 Providence Street
Portland, ME 04103

Sent via email: info@lowimpacthydro.org

Re: Low Impact Certification for the North Umpqua Hydroelectric Project

Dear LIHI:

On December 7, 2009, the Low Impact Hydropower Institute (LIHI) announced receipt of an application for low impact certification from PacifiCorp for the North Umpqua Hydropower Project and established Sunday, February 7, 2010 as the deadline for receipt of comments. Telephone communications with LIHI staff have since established that comments will be received thru Monday, February 8.

The undersigned have reviewed the application and respectfully request that LIHI deny low impact certification for the North Umpqua Hydroelectric Project. In sum, the project should not be certified because even if it complies with the terms of the governing settlement agreement, the adverse impacts of Soda Springs dam and its reservoir will remain ecologically significant.

Ecological Significance of the North Umpqua

The North Umpqua's riverine ecosystem is of exceedingly high natural value and is world-renowned for its anadromous fish resources, which are adversely affected by the North Umpqua Hydroelectric Project. Any impact that degrades these values is likely to be ecologically significant. Further, because the river's fishery and associated water quality is highly valued by local communities, including Native Americans, these values have profound economic and social significance.

Originating on the western slope of the central Cascade Mountains in southwest Oregon, the North Umpqua drains about 1,350 square miles before joining the South Umpqua River west of Roseburg. The North Umpqua is one of the most revered steelhead trout streams in the world, and home to one of the largest remaining populations of wild spring Chinook salmon in the lower 48 states. Below the hydroelectric project, it is designated as a Wild and Scenic River for its outstanding water quality and quantity, recreational opportunities, and fisheries.

The North Umpqua Hydroelectric Project

The North Umpqua Hydroelectric Project was constructed between 1947 and 1956 near the headwaters of the North Umpqua River. The project is located almost entirely within the Umpqua National Forest on the North Umpqua River, Fish Creek, and the Clearwater River. The 185-megawatt hydroelectric project consists of eight hydroelectric developments – Lemolo No.1, Lemolo No.2, Clearwater No.1, Clearwater No.2, Toketee, Fish Creek, Slide Creek, and Soda Springs – each of which consist of a dam, penstock, and powerhouse. Additionally, the Project has created three reservoirs (Lemolo, Toketee and Soda Springs), an impoundment at Stump Lake, four forebays (Lemolo No.2, Clearwater Nos.1 and 2, and Fish Creek), 21.7 miles of open canal, 9.8 miles of flume, and 5.8 miles of penstock and tunnels (total waterway length of 37.3 miles), 117.5 miles of transmission lines and 100 miles of project-related roads. The Project is operated to maximize peak power production.

Due to the extent of project features across the landscape, for more than 50 years the North Umpqua Hydroelectric Project has adversely affected a variety of aquatic and terrestrial ecosystems. Alteration of ecosystem functions has been substantial. Impacts to the ecosystem include:

- 1) Drastically reduced streamflows in bypassed reaches of streams;
- 2) Fluctuating flows and reservoir elevations;
- 3) Blockage of upstream passage for both anadromous and resident fish;
- 4) Entrainment of fish, amphibians, and terrestrial animals at unscreened diversions;
- 5) Interruption of downstream transport of gravel and large woody material;
- 6) Increased erosion and sedimentation from construction, Project facilities, and roads;
- 7) Stranding and killing of fish downstream of the Project due to rapid changes in the river levels during low summer flows;
- 8) Disruption of terrestrial habitat connectivity;
- 9) Disruption of aquatic and riparian habitat and connectivity in small tributaries and headwater streams;
- 10) Inundation of unique stillwater, wetland, and riverine riparian habitats by reservoirs and forebays;
- 11) Reduction in water quality and progressive eutrophication of the North Umpqua River.

During the relicensing process, a settlement agreement was reached among PacifiCorp and federal and state agencies that formed the basis of the agencies' terms, conditions, and recommendations, and the subsequent license issued by the Federal Energy Regulatory Commission. The settlement agreement resulted in some minor improvements to project operations and impacts, but it falls far short in addressing the most significant impact of the project – the Soda Springs dam and reservoir.

Moreover, the settlement agreement does not include critical stakeholders that participated in the relicensing for approximately 10 years.

The key reasons the Project should not be certified as low impact are:

- (1) The project's impacts are not adequately addressed by the agency terms, conditions, and recommendations, in particular the impact of Soda Springs dam and its reservoir which stands as the single greatest barrier to restoration of the native salmon and steelhead of the North Umpqua basin;
- (2) The settlement agreement was not supported by critical stakeholders in the relicensing process;
- (3) The extensive impacts of the Project on the entire watershed, including terrestrial resources, are not adequately considered by the LIHI criteria. While we support comprehensive settlement agreements for the relicensing of hydropower projects -- American Rivers is party to many of them -- the agreement for the North Umpqua Hydroelectric Project does not reflect what is ultimately needed to protect the unique resources of the North Umpqua river, and, as such, does not merit LIHI certification.

Impacts from Soda Springs dam not adequately addressed: As a matter of demonstrable biological fact, the Project's impact on native fishes and their historic spawning ground is currently high, and will remain so even if all promised mitigation measures are taken.

As described above, the North Umpqua project, which occupies over 3,000 acres of mostly Forest Service land on the North Umpqua and two of its tributaries, Fish Creek and the Clearwater River, has an extensive footprint in the watershed. The project actually encompasses eight "facilities" as defined by LIHI: a system of eight dams and associated powerhouses, three reservoirs, more than 30 miles of diversion flumes and canals, six miles of penstocks and tunnels, and approximately 100 miles of project-related roads.

The original project design gave little forethought to maintaining natural river processes such as sediment and large woody debris transport, or to minimizing impacts from project operations such as flow fluctuations. As a result, the project significantly harms sensitive aquatic and terrestrial species and habitats. In addition to Oregon coast coho salmon, which have severely declined and are listed under the ESA, the project impacts steelhead (a regionally significant strong population), Chinook salmon (also a regionally significant strong population) and sea-run cutthroat trout (a run in severe decline) and Pacific lamprey.

Specifically, this project should not be considered potentially certifiable as "low

impact” without the removal of Soda Springs Dam. This dam is the lowermost of eight project dams. At 77 feet, it is the second highest dam in the system, but generates only around 6% percent of the project’s total power output. It is primarily used for reregulation, i.e. to maintain a relatively steady flow in the North Umpqua River below the project.

Soda Springs dam significantly degrades one of the most important salmonid spawning areas in the world. It inundates over four miles of the most historically productive main river salmon and steelhead spawning areas, blocks upstream and downstream passage of fish, blocks steelhead access to a major tributary, Fish Creek, reduces the supply of sediment and gravels crucial for spawning to downstream habitat, harms downstream water quality and clarity, and provides artificial habitat for a large number of brown trout, an introduced species that preys upon native fish.

The watershed analysis prepared in connection with the relicensing of the North Umpqua Hydroelectric Project, and the more recent findings of an independent council of science and economic advisors convened by Pacific Rivers and The North Umpqua Foundation¹, conclude that removing the Soda Springs dam is the highest priority action to improve the inter-connection of fish habitat and restore the natural hydrological integrity of the North Umpqua River. This is the same conclusion that led the Forest Service, the U.S. Fish and Wildlife Service (USFWS), and the conservation groups involved in the relicensing initially to recommend that the dam be removed as a condition of relicensing the project.

Understandably, the LIHI criteria emphasize the terms, conditions, and recommendations developed and submitted by the resource agencies in the relicensing process. In this case, however, the terms, conditions, and recommendations related to Soda Springs dam do not reflect what several agencies initially deemed the preferred alternative after intensive scientific analysis. LIHI should consider that the final Settlement Agreement and subsequent terms, conditions, and recommendations for Soda Springs do not comport with the original recommendations of Forest Service and USFWS scientists. The Agreement is viewed by many community leaders as resting on a blatantly political decision to change position on the dam in response to PacifiCorp's

¹ The PRC and TNUF Independent Science Council for the North Umpqua consists of well-known, seasoned fishery experts and economists including: Dr. Jack Stanford, Dr. Robert Wissmar, Dr. Terry Roelofs, Dr. Wayne Minshall, and economist John Duffield, who first convened in summer of 2009 on the North Umpqua. Jim Lichatowich and Dr. Gordie Reeves have since been added to the Council. See www.pacificrivers.org.

withdrawal from negotiations. The final agreement was forged after the Forest Service changed its position as to the dam's potential compliance with its aquatic conservation direction under the Northwest Forest Plan. U.S. Fish and Wildlife Service Briefing Statement (June 2, 2000). As noted below, all NGO community and conservation stakeholders that were party to the negotiations subsequently withdrew from negotiations rather than support an agreement that locked in place for 35 years inadequate environmental measures.

Analysis conducted subsequent to the relicensing of the Project confirms the importance of removing Soda Springs dam and undermines the premise that the North Umpqua Hydro Project is having a low impact on the North Umpqua watershed. Pacific Rivers Council and The North Umpqua Foundation convened an expert science panel to consider the benefits of removal Soda Springs dam, and the consensus is that this habitat would recover quickly after dam removal, and would with high certainty be rapidly colonized by fish that presently spawn in less desirable habitat downstream of the project. Benefits would be expressed as substantial expansion in fishery and recreational use of the river, improved biological status of native fish species of concern that currently limit other uses in the river, greatly reduced likelihood of undesirable brown trout taking over the river ecosystem in the future, and improved water clarity and quality for downstream users. Removal of Soda Springs dam would not only benefit the North Umpqua environment and public trust values, but would also alleviate a large (and growing) financial responsibility for PacifiCorp. Fish passage, operations and maintenance, and other downstream mitigation costs could be dramatically reduced.

Economic information that has emerged subsequent to the relicensing of the project also reinforces the argument for removal of Soda Springs dam. Rather than remove the dams, the agencies and the FERC license ultimately called for PacifiCorp to implement fish passage at Soda Springs. At relicensing, the estimated cost for this structure was \$20 million. Since then, the cost of passage has risen dramatically (in part because of dramatic inflation in the cost of concrete and other materials since initial cost estimates were made) and it is rumored to have grown to nearly \$100 million, making the 3-5% projected return highly questionable today.

Even if LIHI were to consider only the agency terms, conditions, and recommendations regarding fish passage at Soda Springs dam, recent activities undermine PacifiCorp's request for low impact certification because the company seems to be looking for ways to avoid implementing even this inadequate mitigation requirement. In the summer of 2008, PacifiCorp hosted two public meeting purportedly to discuss the question of "whether fish passage at Soda Springs Dam is the most effective means of mitigating for salmonids and ecological values in the North Umpqua." See e.g. PacifiCorp "Proposed Workshop," (July 14, 2008). The consensus of the Resource Coordinating Committee and the many community members who attended the meetings was that there is inadequate new information to

justify consideration of alternatives to the fish ladder unless dam removal is being offered as an alternative to passage. No further public meetings on the subject of alternatives to fish passage have been held.

Even under the best scenario, fish passage at Soda Springs cannot begin to mitigate for the impacts of the dam on spawning habitat availability and the gravel regime, and will be far more beneficial to steelhead than to Chinook salmon. It is widely believed that the habitat inundated by the reservoir was among the most valuable spawning habitat for Chinook salmon in the world, but passage will do nothing to restore this reach. Further, uncertainties exist about the workability of the design for the fish ladder: the proposed design is quite unique and “nontraditional,” which reflects engineering challenges posed by the shifting, unstable geology, the constrained reach and the fluctuating water flows. (Mary Scurlock, PRC, Personal Communication with Monte Garrett and Rich Grost, PacifiCorp, July 28, 2009).

In sum, the current licensing agreement for Soda Springs dam should not provide the basis for a low impact certification because: 1) it reflects agency terms, conditions, and recommendations that are weaker than what was initially identified as necessary for relicensing and is not based on the best available science, (2) it obligates the expenditure of a very large sum on a fish ladder of novel design that has not yet been built and is not certain to have the desired results; 3) it fails to restore key river habitat that lies dormant under Soda Springs pool, leaving little habitat for salmon and steelhead to find even if they do negotiate the ladder.

2. The Settlement Agreement, which endorses fish passage over removal of Soda Springs Dam, is not supported by key community stakeholders.

We urge the LIHI to look outside the four corners of the Settlement Agreement and the narrow question of whether PacifiCorp colorably complies with its terms. While the criteria do not explicitly consider the views of stakeholders other than federal, state, and tribal resource agencies, we urge LIHI to consider the lack of support for the settlement by the extensive number of key stakeholders in its evaluation of the certification application.

Many environmental organizations were actively involved throughout the relicensing process, starting with the initial study phase and continuing through the negotiation process. The key stakeholders represented a range of interests in the basin from anadromous fish to river health and terrestrial species, and brought a wealth of critical knowledge to the process. Umpqua Watersheds, Umpqua Valley Audubon Society, Steamboaters, Oregon Trout, Pacific Rivers Council, American Rivers, WaterWatch of Oregon and Oregon Natural Resources Council (now Oregon Wild) all committed significant resources to the licensing process in an effort to ensure that the Project's impact were adequately addressed.

The settlement discussions went through several phases, with the final settlement

ultimately supported by only a subset of parties involved in the relicensing. As noted above, the Agreement does not comport with the original recommendations of Forest Service and USFWS scientists regarding Soda Springs Dam. All NGO community and conservation stakeholders that were party to the negotiations subsequently withdrew from negotiations, and the seven conservation groups challenged the final agreement in court. LIHI should consider this lack of support by the conservation community when reviewing PacifiCorp's application for low impact certification.

For further details about the settlement negotiations, see: Dose, J. The Osprey, Issue No. 41, pp. 14-15, "Recovery or Status Quo? The North Umpqua Settlement (January 2002); J. Dose, "North Umpqua Hydropower Relicensing: Rhetoric or Reality?" Unpublished manuscript, 6 pp. (available upon request).

3. The watershed-level impacts of the Project are not adequately addressed in the new license.

As described above, the North Umpqua Hydroelectric Project has an extensive footprint in the watershed. In addition to eight dams, the Project includes three reservoirs (Lemolo, Toketee and Soda Springs), an impoundment at Stump Lake, four forebays (Lemolo No.2, Clearwater Nos.1 and 2, and Fish Creek), 21.7 miles of canal, 9.8 miles of flume, 5.8 miles of penstock and tunnels (total waterway length of 37.3 miles), 117.5 miles of transmission lines and 100 miles of project-related roads, all of which have significant adverse impacts on terrestrial habitat connectivity and habitat fragmentation in the Project area. This habitat fragmentation affects a number of at risk species. Species such as amphibians and small mammals that have patchy population structures are affected to the greatest degree. Terrestrial species also are subject to entrapment and resulting mortality in project waterways. Although the effect of entrapment on population viability is not clear, species with long generation times, limited dispersal abilities, and patchy distributions are adversely impacted and are likely to have decreased wildlife population persistence and reduced biological diversity when considering cumulative effects of all activities in the upper North Umpqua watershed. During the relicensing process, a range of alternatives to minimize the impact of the canals was discussed, but ultimately, the license fails to include measures that adequately address them.

The LIHI criteria focus on either the establishment of a riparian buffer or a mitigation fund as adequate to ensure that a Project's impacts on fish and wildlife habitat, water quality, and aesthetics, are minimal. Given the unique and extensive characteristics of the North Umpqua Hydro project, any analysis of whether it is low impact must include a rigorous analysis of how well the impacts are addressed and not just whether there are minimal buffers or a fund. For example, have any projects been implemented that are designed to ensure that the canals do not pose problems for habitat connectivity? Only 621 of the 3000 acres occupied by the project are contained in a 200 foot buffer of water and marsh around the impoundments.

Thank you for your consideration of these comments in your evaluation of the application for certification of the North Umpqua Hydroelectric Project.

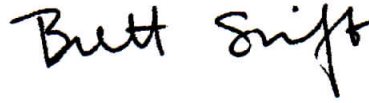
Sincerely,



John Kober
Executive Director
Pacific Rivers Council
john@pacificrivers.org

Bill Bakke
Executive Director
Native Fish Society
bmbakke@gmail.com

Joe Ferguson
Executive Director
The Steamboaters
JoeAnnFerg@comcast.net



Brett Swift
Northwest Regional Director
American Rivers
bswift@americanrivers.org

Rob Bowler
North Umpqua River Steward for Native
Fish Society &
Smith Springs Homeowner
bowlernz@aol.com

:

OREGON WILD

PO Box 11648 | Eugene OR 97440 | 541-344-0675 | fax 541-343-0996

dh@oregonwild.org | <http://www.oregonwild.org/>

9 Feb 2010

TO: Low Impact Hydropower Institute

C/O: info@lowimpacthydro.org

Subject: Low Impact Certification for the North Umpqua Hydroelectric Project

Dear Low Impact Hydro Institute

Please accept the following comments from Oregon Wild concerning the Low Impact Certification for the North Umpqua Hydroelectric Project. Oregon Wild represents about 7,000 members and supporters who share our mission to protect and restore Oregon's wildlands, wildlife, and water as an enduring legacy. Our goal is to protect areas that remain intact while striving to restore areas that have been degraded.

I apologize if these comments are a day late, but we just learned of this process. As active participants in the North Umpqua Hydro Relicensing, it is surprising that no one reached out to us to solicit our comments on this proposal.

We agree with the well-considered comments submitted by American Rivers, Pacific Rivers Council, Native Fish Society, and The Steamboaters. We cannot agree that the operation of the North Umpqua Hydro Project is an example of low impact power generation.

During relicensing, there was overwhelming evidence that Soda Springs Dam, the lowest dam in the system that blocks access to some important tributaries, should be removed. Unfortunately, PacifiCorp shuffled their negotiating team and refused to consider the reasonable option of removing just one of many dams in the system, so the conservation groups chose not to waste any further time in negotiations. The remaining parties quickly regrouped and settled the relicensing without the representation of conservation interests. The resulting settlement was not balanced and did not represent all interests. Artificial passage (i.e. fish ladder) at Soda Springs is a flawed compromise, because it will not allow natural patterns of movement of fish, gravel, and wood. See the summary of evidence attached.

The habitat blocked by Soda Springs dam and Slide Creek dams has reduced wild fish populations in the entire North Umpqua River. These dams have eliminated many areas that are extremely valuable to the viability and production of the anadromous fish populations (e.g. Chinook salmon, steelhead, Coho salmon, cutthroat trout, and Pacific lamprey). Not only have these barriers to fish passage reduced populations of these important fish, but it has also disturbed the nutrient cycling of the riparian forests. These fish bring nutrients from the ocean when they return to spawn and die in their natal streams. This "nutrient pump" is extremely important to the health of the riparian ecosystem, and hundreds of species are dependent--everything from tiny insects, to fish and birds, and large mammals.

Even if Soda Springs was not an issue, this complex hydro project is far from benign. There are 8 diversions/impoundments and many miles of mid-slope canals and pipelines that block or intercept tributaries and fragment both terrestrial and aquatic habitat in the watershed. This is a problem for wildlife large and small, not to mention the hydrologic impairment of the watershed. We should not play favorites with species and focus on anadromous fish when many other species of wildlife and non-anadromous fish are detrimentally affected by this project.

The North Umpqua Project does not meet the 9 objectives of the Northwest Forest Plan's Aquatic

Conservation Strategy. In essence the project was grandfathered but remains in continuous violation. Soda Springs dam and reservoir make it impossible to attain certain Aquatic Conservation Strategy objectives, including: ACSO 1 (restore watershed features which species are uniquely adapted to), ACSO 2 (provide physically unobstructed connectivity), ACSO 3 (physical integrity of stream banks and bottom), ACSO 4 (water quality), ACSO 5 (natural sediment regime), ACSO 6 (instream flows in the bypass reach), ACSO 7 (floodplain function in the reservoir reach), ACSO 8 (species composition and structure). See pasted below a opinion piece written by a Forest Service hydrologist who was involved with the relicensing.

Please protect the integrity of your certification system and deny the low-impact certification for the North Umpqua Hydroelectric Project.

Sincerely,
/s/

Doug Heiken, Oregon Wild
PO Box 11648, Eugene OR 97440
dh@oregonwild.org, 541.344.0675

attached:

Things to remember when reconsidering the working model

Why dam removal is better than engineered fish passage at Soda Springs Dam

1. Engineered fish passage and gravel supplementation treat symptoms, rather than causes.
2. The Aquatic Conservation Strategy is still very compromised in the upper watershed. By removing Soda Springs Dam and allowing ecosystem processes to re-establish in the lower watershed, we are doing the right thing in at least a part of the watershed.
3. Engineered fish passage is too narrowly focussed on anadromous fish, while ignoring the needs of the whole ecosystem, including non-anadromous fish, connectivity for other aquatic and terrestrial species, and the natural sediment and large wood regimes.
4. Leaving the reservoir behind Soda Springs dam represents an unacceptable loss of locally rare low-gradient depositional riverine habitat. Restoration of the inundated area by itself could increase steelhead by 1.6% and chinook by 2.4% within the basin. Both the quantity and quality of habitat will be reduced if the dam is not removed. Soda Springs also has a dewatered bypass reach that can only be fully restored if the dam is removed. The reservoir also represents a more favorable environment for predators than a restored natural river, so juvenile survival will be reduced.
5. The efficacy of other restoration efforts are related to removing the dam. The benefits derived from reconnecting the Clearwater River and increasing instream flows in Fish Creek are devalued if the dam is not removed. To mitigate for leaving the dam in place, instream flows should be increased in upstream areas such as Fish Creek and Slide Creek bypass.
6. Dam removal offers greater certainty of long-term compliance with the Endangered Species Act in terms of both recovery of listed species and avoiding trends toward listing candidate species.
7. The effectiveness of engineered fish passage is uncertain and imperfect. Fish moving upstream will face several delays and mortality risks that they will not experience if the dam is removed. The fish will experience these delays at a critical time in their life cycle. They

need to conserve energy reserves. These delays will be aggravated unless ramping is curtailed during periods of upriver migration. Direct mortality of fish moving downstream is a certainty.

8. Engineered sediment supplementation will not comply with the Aquatic Conservation Strategy which calls for restoration of the sediment regime under which species evolved, including the "timing, volume, rate, and character of sediment input, storage, and transport." Gravel supplementation will also require operation of heavy machinery in the river and the use of toxic fuels, and will require adverse modifications of existing habitat to store, sort, load, and unload materials.
9. Engineered fish passage and sediment supplementation will require ongoing operations and maintenance costs. Adaptive management will require expensive monitoring of the success of dam removal and may require future expensive modifications of the engineered "solutions." Dam removal is a permanent act of restoration.
10. Water quality will be adversely affected if Soda Springs remains in place. The reservoir causes problems with nutrient cycling and pH.
11. Retaining the dam and reservoir make it impossible to attain certain Aquatic Conservation Strategy objectives, including: ACSO 1 (restore features which species are uniquely adapted to), ACSO 2 (provide physically unobstructed connectivity), ACSO 3 (physical integrity of stream banks and bottom), ACSO 4 (water quality), ACSO 5 (natural sediment regime), ACSO 6 (instream flows in the bypass reach), ACSO 7 (floodplain inundation in the reservoir reach), ACSO 8 (species composition and structure).

Doug Heiken
ONRC
16 Dec 98

Soda Springs – the Invisible Dam

December 2, 1999

Soda Springs is the invisible dam on the North Umpqua River. Not many people see the dam just above Copeland Creek, where the North Umpqua Highway leaves the river. That's where the world-famous North Umpqua salmon and steelhead stop at Soda Springs Dam, and PacifiCorp sends the entire river through a pipe.

PacifiCorp is the corporation that runs the hydroelectric dams on the Umpqua National Forest. They've had a federal power license there for 50 years. In November, PacifiCorp quit negotiating a new license, partly because the Forest Service found that taking out Soda Springs Dam was the only way to put back some of what the river lost in 1951. It's one of eight dams that divert water to generate electricity on the North Umpqua, Fish Creek, and the Clearwater River. Soda Springs Powerhouse generates about six percent of the power from PacifiCorp's North Umpqua project, and they're not happy the Umpqua National Forest wants to take out the dam.

I'm a Forest Service hydrologist, and I was surprised to find that I'm one of the professionals whose judgment PacifiCorp said they don't trust in their news release about the dam. It would be a lot easier to leave Soda Springs dam where it is if (as PacifiCorp said) there was no scientific reason to remove it and I could just change my personal opinion. Instead, the laws that protect National Forests require me to pay attention to the scientific reasons in PacifiCorp's North Umpqua Watershed Analysis. That document clearly shows that the most important thing PacifiCorp can do to benefit the river and its tributaries is to take out Soda Springs Dam.

Salmon and steelhead once swam up the North Umpqua River to Toketee Falls, and at least three miles up Fish Creek. No one disputes that Fish Creek is high quality fish habitat, and Soda reservoir floods a mile of river gravel that chinook once used. But Soda Springs Dam does more than stop fish and crayfish from going upriver. There is a lot more in the North Umpqua and along its banks than trophy fish.

Soda Springs dam has kept 50 years of gravel from reaching the Wild and Scenic River and the Pacific Ocean. People who fish the river know that there is less spawning gravel below the dam than there used to be. Fish Creek, just upstream from the dam, is the North Umpqua's biggest source of gravel and cobble from above Soda Springs. Each year, storms carry more gravel, wood, bark, insects, and countless forms of forest and stream life downstream. They wind up trapped behind the dam, instead of in the river as food and habitat for salmon and steelhead. The U.S. Geological Survey found evidence that needles, bark and twigs trapped in each of the reservoirs dissolve into harmful nutrients, instead of washing whole to the ocean. These nutrients grow algae and change water quality below the dams.

Instead of removing the 77-foot concrete dam at Soda Springs, PacifiCorp wants to build a fish ladder. Screens would keep fish from getting sucked into the turbine as they migrate to the ocean. Scientists will spend years trying to measure how well these engineered structures work, when we already know fish will use a natural river best.

When Soda Springs dam is gone, and minor changes are made to Toketee and Stump Lake dams, a rock that rolls into Bear Creek above Old Man Camp will start a journey down the North Umpqua River that will end years later in the Pacific Ocean. Removing the dam is a modest step that leaves 90 percent of PacifiCorp's generating capacity, but lets the most important parts of the river work the way they did before we put it in a pipe. The Northwest Forest Plan tells us that we can't measure every environmental effect, but we can tell what natural rivers look like and imitate them where we can. I think linking up the North Umpqua's most important tributaries to their parent river makes a lot of sense.

Soda Springs dam may be invisible to tourists on the North Umpqua Highway, but salmon and steelhead know it's there. The dam keeps them from going upstream, and affects their habitat downstream. We have a once-in-a-lifetime chance to make the North Umpqua more like it was before we came here.

Mikeal Jones has been a hydrologist on the Umpqua National Forest for twenty years, and one of the Forest Service professionals working on a new North Umpqua hydropower license since 1992.