



American Fisheries Society

Western Division

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March 5, 2015

Kimberly D. Rose, Secretary
Federal Energy Regulatory Commission
888 First Street, NE
Washington, D.C. 20426

RE: Western Division of the American Fisheries Society Statement on the Proposed Susitna-Watana Hydropower Project, FERC Project P-14241

The American Fisheries Society (Society) is the world's oldest and largest "scientific and professional" organization whose mission is to advance sound science, promote professional development, and disseminate science-based fisheries information for the global protection, conservation, and sustainability of fishery resources and aquatic ecosystems.

The Western Division (Division) is the largest of four geographic subdivisions of the Society within North America, representing a tremendous array of 3,500 fisheries professionals involved in all aspects of fisheries. The collective diversity and expertise of our members is the basis of an intimate and unparalleled familiarity with fisheries resources and issues within our geographic region, which includes the State of Alaska.

The Division and Society have a long history with hydropower projects, dams, and their environmental consequences. Members of both groups had formal discussions in the 1950s opposing the construction of proposed dams in the Columbia River Basin.^{1,2} More than 60 years later and post-construction of those same dams, the Division adopted a resolution based on the best scientific information available, indicating that the four lower Snake River dams and reservoirs are a significant threat to the continued existence of remaining Snake River salmon, Steelhead, Pacific Lamprey, and White Sturgeon. For over a half-century, the Division and Society have developed multiple policies predicting that hydropower projects and dams will adversely affect native, wild fisheries and their associated habitats.³⁻⁵ The cumulative knowledge of these policies confirms the difficulty of designing an environmentally-benign hydropower dam.

The State of Alaska submitted an application to the Federal Energy Regulatory Commission (FERC) in the early 1980s seeking a federal license to construct a hydroelectric dam on the Susitna River. Because Alaska's budget is dependent on oil, the project proposed in the 1980s ultimately was not economical. It is the Division's understanding that the Alaska Energy Authority (AEA) has proposed to revive the Susitna-Watana Hydropower project. The Division has substantial biological and economical concerns regarding this project, and plans to provide more formal, technical comments in response to the pre-project assessment studies (i.e., AEA Initial Study Report). At this time, we respectfully request the FERC and Alaska Legislature consider the comprehensive and cumulative impacts this project will create for the fishery resources and aquatic ecosystems of the Susitna River Basin. Impacts to these important resources cannot be mitigated for a project of this scale. Additional concerns include possible threats to the social and economic well-being of the local communities that rely heavily on such resources and ecosystems.

Provided below are just a few of the many considerations the Division requests that the FERC and Alaska Legislature contemplate prior to project approval and expenditure of additional state funds.

- The project proposed by the Alaska Energy Authority would involve constructing the largest dam in Alaska at 735 feet tall, and the second tallest dam in the United States.⁶ Currently, the Susitna River flows

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unobstructed for 300 miles, is the 6th largest drainage in Alaska, and the 15th largest drainage by volume in the United States.^{7,8} The proposed project is expected to "create a reservoir that is 42 miles long with an average width of 1 mile,"⁹ an 8,000 foot long airstrip, construction camps, a railroad spur, and extensive gravel mining in the area, all resulting in large-scale transformation of the biological, chemical, and physical conditions to which fishes and other aquatic organisms resident in the Susitna River Basin have adapted over millennia.

- The Susitna River Basin is home to all five species of Pacific salmon (Chinook, Chum, Coho, Pink, and Sockeye), Rainbow Trout, Dolly Varden, Arctic Grayling, Burbot, Arctic Char, and Lake Trout.¹⁰ Other resident species are also present, including the Eulachon (Smelt), a member of the Southern Distinct Population Segment which was listed by the National Marine Fisheries Service in 2010 as Threatened under the Endangered Species Act.¹¹
 - Chinook Salmon - The Susitna River is Alaska's 4th largest Chinook Salmon population and 2nd largest recreational Chinook Salmon fishery.¹² This population has been documented to migrate more than 100 miles upstream of the proposed dam site.¹³ Former Alaska Governor Parnell's Chinook Salmon Research Initiative was prompted by the global decline of Chinook Salmon, even in waters relatively unaffected by anthropogenic changes, and includes the Susitna River Chinook Salmon as an "indicator stock."¹⁴
 - Sockeye Salmon - The most commercially important salmon population of the Susitna River is the Sockeye.¹⁵ One of the top 10 remaining Sockeye Salmon populations in the world can be found in the Matanuska-Susitna Basin.¹⁶ Sockeye Salmon populations in the Matanuska-Susitna Basin support commercial, sport, personal use, and subsistence fisheries throughout the area
- The Susitna River Basin is vital to the economics of the State of Alaska. A reduction in the salmon populations of this watershed as a result of a large-scale hydropower project would reduce tourism and jobs, "illustrating the importance of keeping ecosystems healthy in order to provide services which are economically important."¹⁷ A 2009 study completed for the Matanuska-Susitna Borough determined that sport fishing related expenditures for both residents and visitors generated 900 to 1,900 local jobs, and contributed \$31 million to \$64 million of personal income to people of the region.¹⁸ Residents and nonresident anglers fish nearly 300,000 days in the Matanuska-Susitna Borough and spend \$63 million to \$163 million in sport fishing gear and services. This equates to spending \$126 to \$602 per angler day.¹⁸
- The environmental consequences of hydropower projects on aquatic systems are numerous and varied, and documented throughout the scientific literature. Some of the direct and indirect influences to the biological, chemical, and physical properties of rivers and riparian area are included below.
 - Inadequate passage upstream and downstream for fish migration despite numerous modern passage technologies, such as costly and sometimes ineffective fish ladders and, barge and truck transportation for salmon around dams;¹⁹
 - Direct fish mortality;¹⁹
 - Elimination of essential life history processes for aquatic organisms;¹⁹⁻²⁷
 - Disruption and modification of the natural hydrograph²⁶ with changes in water depth and velocity, as well as channel width;²⁷
 - Rapid changes in available in-channel and riparian habitats,^{26,27} and fragmentation of spawning and rearing habitat for fishes;^{19,28,29}
 - Extreme fluctuations in water temperature, dissolved gases, dissolved and suspended solids, and nutrient concentrations among other water quality parameters;²⁷
 - Undesirable changes in algal and aquatic vegetation production;^{27,30}
 - Degraded aquatic insect diversity, abundance, and biomass;^{19,30,31}
 - Simplified river channel morphology and riverbed substrate composition;^{19,27}

- Markedly poorer physical habitat structure in reservoirs than in natural lakes or the pre-existing natural river channel;³²
 - Substantial declines in fish assemblage richness and abundance as a result of altered flow regimes, degraded water quality and physical habitat structure, migration barriers, depleted food webs, and disrupted biotic interactions;^{33,34}
 - Capture of sediments and organic matter upstream of dams reducing transport downstream to maintain existing physical habitats as well as benefits for aquatic communities;³⁵⁻³⁷
 - Alteration of flow regimes and reservoir habitat upstream of dams, proving more beneficial to non-native and invasive piscivorous fishes such as Northern Pike.^{30,34,38}
- Efforts to mitigate the detrimental effects of hydropower projects on aquatic ecosystems in the Lower 48 have been largely unsuccessful. For example, from 1998-2011, eleven federal agencies (excluding states, tribes, and local governments) spent more than \$3 billion attempting to recover Pacific salmon in the Columbia River Basin,³⁹ which was previously the world's largest king salmon producer.⁴⁰ These endeavors have yet to result in the recovery of a single salmon stock in this basin or elsewhere.³⁹

The Division's review of the scientific literature and the breadth of the Society's policies confirm the organization's standing in the broad field of dam construction and the associated impacts. The Susitna-Watana Hydropower project will have detrimental effects to the fisheries and aquatic ecosystems of the Susitna River Basin, and subsequently damaging influences to the area's economy and quality of life. Further, the scientific literature confirms the enormous difficulty of mitigating for impacts that convert a free-flowing river into a system with significant, hydrological modifications. In addition, the Division is concerned about the further adverse consequences that this project could have on the global status of salmon, given the degraded status of these unique fish outside of Alaska.

With the recent decline in the price of fossil fuels, and the increased value of fish and other ecosystem services provided by the Susitna River, the proposed Susitna-Watana Hydropower project is both economically and environmentally untenable. The Division hopes that the FERC and Alaska Legislature consider the consequences that this project will create for the fishery resources and aquatic ecosystems of the Susitna River Basin. Additionally, the Division recommends that carefully designed, robust, and statistically defensible sampling be conducted and critically reviewed by subject matter experts, should further studies be completed prior to project approval. Following this protocol will ensure the validity of data collected, allowing for precise analysis and modeling of the environmental consequences. The Division intends to provide more formal, technical comments in response to the AEA Initial Study Report. For now, the Division appreciates the opportunity to provide sound scientific information regarding our environmental concerns.

Sincerely,

Hilda Sexauer, President
Western Division American Fisheries Society

Cc: Governor Bill Walker
Lieutenant Governor Byron Mallott
Senator Lisa Murkowski
Senator Dan Sullivan
Congressman Don Young
Larry Hartig, Commissioner, Alaska Department of Environmental Conservation
Mark Myers, Commissioner, Alaska Department of Natural Resources
Marty Rutherford, Deputy Commissioner, Alaska Department of Natural Resources
Sam Cotten, Commissioner, Alaska Department of Fish and Game
Tony DeGange, Director of Habitat, Alaska Department of Fish and Game
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Representative Geran Tarr, House Resources Committee Member

¹Western Division of the American Fisheries Society. 1950. Resolution RE: Ice Harbor and three other proposed dams in the lower Snake River. <http://wdafs.org/meetings/archives/resolutions/>

²American Fisheries Society. 1959. Resolution #7 and discussion on the opposition to construction of the proposed Nez Perce dam in the Columbia River Basin. http://fisheries.org/docs/policy_resolutions/policy_1959.pdf

³American Fisheries Society. AFS Policy #1 on North American Fisheries Policy (1939). Provides a broad focus on the economic and ecological value of healthy fish populations. http://fisheries.org/docs/policy_statements/policy_1f.pdf

⁴American Fisheries Society. AFS Policy #2 on Overview Policy on Man-Induced Ecological Problems. Provides information on how technology can affect fish populations and related societal value. http://fisheries.org/docs/policy_statements/policy_2f.pdf

⁵American Fisheries Society. AFS Policy #4 on Sedimentation. Expresses concern about human activities that change movement of silt, sand, and gravel through a watershed and the unintended impacts to valued fishes. http://fisheries.org/docs/policy_statements/policy_2f.pdf

⁶U.S. Society on Dams. Dam, hydropower, and reservoir statistics. http://www.usdams.org/uscold_s.html

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