

APPROPRIATION AND LICENSE

MOUNTAIN SHIELD ELECTRIC CO.
RIVER POWER CO.
BY PACIFIC POWER & LIGHT CO.

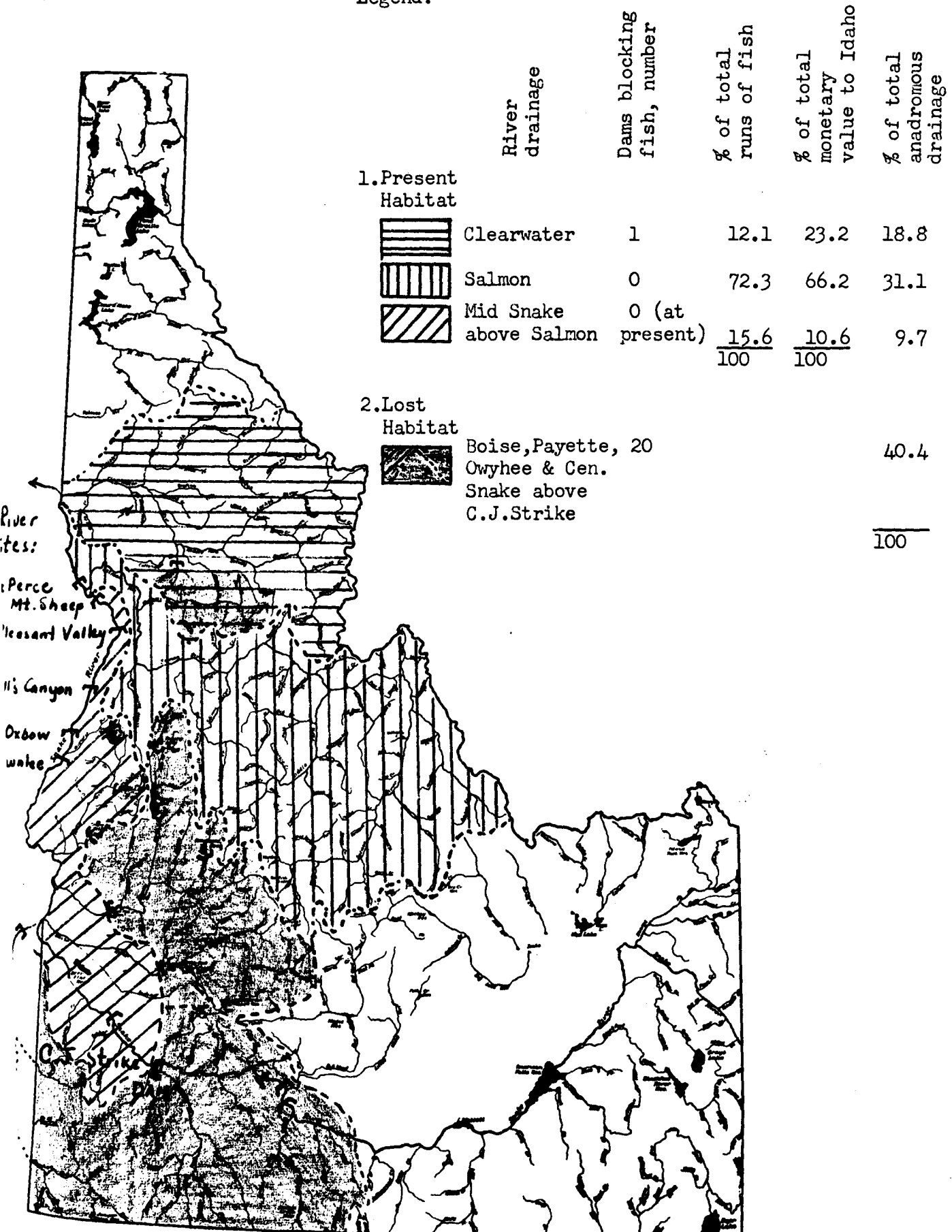
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THE ANADROMOUS FISHERY OF IDAHO

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BEFORE THE FEDERAL POWER COMMISSION

In the Matter of PACIFIC
NORTHWEST POWER COMPANY

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Project No. 2173

STATEMENT OF INTERVENOR'S CASE

At the commencement of this brief, it might be well to explain why the State of Idaho for the Idaho Fish and Game Commission became a party to this proceeding at the later stages of the matter.

When the applicant herein, Pacific Northwest Power Company, applied for a license for the construction of the Mountain Sheep-Pleasant Valley Hydroelectric Project on the middle Snake River in the States of Idaho and Oregon, your intervenor was already faced with the tremendous problem of attempting to successfully pass the upper Snake River run of anadromous fish over the future sites of the three previously licensed dams of the Idaho Power Company (license No. 1971) located in the middle Snake River canyon above the proposed Mountain Sheep-Pleasant Valley sites.

"The anadromous fish runs in the Snake River have great monetary and intangible value and should be conserved in the public interest. The Mountain Sheep-Pleasant Valley Dams would impair these runs only by adding slightly to an already existing problem. However, the Nez Perce Dam would present an obstacle to fish passage

"of the major part of the Snake River run of anadromous fish. These fish are of such value that their very existence should not be jeopardized by placing reliance upon undesignated and untried fish facilities. The only sound conclusion from the standpoint of the conservation of the fishery resource is that the Mountain Sheep-Pleasant Valley Dams would be far less detrimental than the Nez Perce Dam." (Ex. 105, p. 18, Emphasis supplied)

"These two projects, Mayfield project on the Cowlitz and Brownlee on the Snake, have been licensed. Fishery agencies are faced with the problem of providing a facility. In other words we are under the gun there. ... " (Tr. p. 3482)

Thus, it was apparent that the addition of two more dams in this same stretch of the Snake River above the mouth of the Salmon River would not greatly add to your intervenor's fish passage problem and for that reason your intervenor declined to take an active part in the proceedings at that time.

Furthermore, your intervenor felt that the anadromous fish runs up the Salmon River, below these aforementioned licensed and applied for sites, was in no way threatened by this proceeding, due to the fact that the construction of the so-called "alternative project", the proposed high Nez Perce Dam below the confluence of the Snake and Salmon Rivers, had been abandoned by the Corps of Engineers as part of its Main Control Plan for the control of floods on the Columbia River. The reason for the Corps of Engineers abandoning this project, the fact that it would destroy the anadromous fish runs in the Salmon River, had been stated and reiterated a number of times in recent years.

"However, the project is not recommended in this report because it would block major runs of anadromous fish which spawn in the Salmon River and tributaries." (H.D. 531, Vol. 1, p. 219, Ex. 17)

"The major obstacle to its accomplishment is the present lack of proven facilities for downstream fish passage over a dam of this height. Under these conditions the Nez Perce project must be considered infeasible at the present time." (S.D. 51, p. 113, Ex. 209)

Not only had the Corps of Engineers concluded that the Nez Perce project was infeasible because there was no solution to the problem of preserving the runs of anadromous fish, but they also joined with the Bureau of Reclamation in a proposed recommendation that the potential Nez Perce project should not be allowed to block the reasonable and timely development of the Mountain Sheep-Pleasant Valley project.

"Further consideration has been given the relationship of the proposed Mountain Sheep-Pleasant Valley projects to the potential Nez Perce project, just below the junction of the Salmon and main Snake Rivers as described in H.D. 531. In view of the importance of maintaining salmon spawning conditions on the Salmon and Imnaha Rivers and the probable elapse of a number of years before further research enables passage of fingerlings downstream past such a high dam, it is considered that the potentialities of the Nez Perce project should not be allowed to block the feasible developments at the Mountain Sheep-Pleasant Valley sites, if they can be developed in a reasonable period of time." (S.D. 51, p. 33, Ex. 18)

Relying on the reports and recommendations of the governmental agencies primarily responsible for federal dam construction, the fact that these agencies had never undertaken the necessary engineering

and geological studies at the Nez Perce site, and the knowledge that Nez Perce had never been considered by Congress, your intervenor felt assured that insofar as this proceeding was concerned, the Nez Perce project would never receive serious consideration as an alternative to the Mountain Sheep-Pleasant Valley project.

Presuming that the applicant's license would be granted and that it would impair the upper Snake River anadromous fish runs by only adding slightly to an already existing problem presented by the licensing of the Idaho Power Company's project above the applicant's requested sites, this intervenor declined to enter these proceedings. However, when it became readily apparent that the Nez Perce Dam proposal was being actively urged as an alternative project in these proceedings on the basis that the downstream passage of fish over high dams had been "solved" by the City of Tacoma, Washington, by reason of the proposal to install a "skimmer device" at its Mayfield Dam on the Cowlitz River, (Tr. p. 343), your intervenor realized that it would have to actively participate in these proceedings in order to oppose the threat of Nez Perce Dam to the Salmon River anadromous fish runs. Your intervenor thereupon entered these proceedings at the express demand of the Idaho Fish and Game Commission with the direction to actively oppose consideration of the substitute Nez Perce project on the grounds that the "skimmer device" was truly an unproven and untried laboratory experiment for downstream fish passage; that it was by no means a solution to the obstacle stated in House Document 531, supra, and Senate

document 51, supra, and furthermore, that this intervenor opposed the construction of any dams that would block the Salmon River runs of anadromous fish until tried and proven methods of safe downstream passage of fish past high dams has been demonstrated beyond all question.

When knowledge of your intervenor's stand in this proceeding became a matter of public record the people most interested in the preservation of the Salmon River fishery, the sportsmen of Idaho, comprising ninety sports clubs in the State of Idaho with over 20,000 active members, gave your intervenor their wholehearted backing. On December 9, 1956, the Idaho Wildlife Federation, in its annual meeting, demonstrated its support by unanimously passing a resolution opposing consideration of Nez Perce Dam and requesting that this Commission grant a license to the applicant authorizing the construction of the Mountain Sheep-Pleasant Valley project. The resolution, as adopted, was forwarded to the Secretary of the Federal Power Commission to be entered in the record of this proceeding, and is attached as Appendix A to this brief.

ARGUMENT

I.

VALUE OF THE RESOURCE INVOLVED

A. Contribution of the Salmon River to the downstream commercial and sports fishery:

Part A of Exhibit 105 prepared by Mr. Zell E. Parkhurst of the U. S. Fish and Wildlife Service, one of the numerous fishery biologists to testify in this proceeding, contains data on the abundance

and value of the Columbia River runs of salmon and steelhead and the contribution made by the Snake River Basin. Table 3 of this Exhibit demonstrates that the Snake River is estimated to produce some 33%, or 3,344,000 (nine million, three hundred forty-four thousand) pounds, of the entire Columbia River salmon and steelhead production. Table 4 of this Exhibit gives a dollar breakdown of the contribution to the run and therein it estimated that the segment from the mouth of the Snake River to, but not including, the Salmon River (essentially to Nez Perce Dam site) produces 25% of the total, or about 2,336,000 (two million three hundred and thirty-six thousand) pounds, valued at \$1,750,000.00 (One Million Seven Hundred and Fifty-Thousand Dollars); that the segment of the river including the Salmon and Imnaha Rivers (essentially from Nez Perce Dam site to Mountain Sheep Dam site), produces 60% of the total, or about 5,606,000 (five million six hundred and six thousand) pounds, valued at \$4,200,000.00 (Four Million Two Hundred Thousand Dollars); and that the segment upstream from the Imnaha River (essentially above Mountain Sheep Dam site), produces 15%, or 1,402,000 (one million four hundred and two thousand) pounds, valued at \$1,050,000.00 (One Million Fifty Thousand Dollars). We are thus given a basic contribution of \$4,200,000.00 (Four Million Two Hundred Thousand Dollars) as the estimate contributed by the Salmon River and the Imnaha River to the total Columbia River Fishery. Witness Hauck (Tr. p. 4172) stated that studies have shown that in excess of 80% of this \$4,200,000.00 is contributed solely by the

Salmon River. It should also be noted that the value tables, as compiled by witness Parkhurst, did not include the estimated values of the salmon and steelhead sports fishery in Idaho as determined by the studies of the Idaho Fish and Game Department. In the years 1954 and 1955 a statewide creel census was compiled from information received from salmon and steelhead anglers on the Salmon River. These studies reveal that the value of approximately one and one-half million dollars per year should be placed on the Salmon River salmon and steelhead trout sport fishery in Idaho (Tr. p. 4172); and as witness Hauck stated (Tr. p. 4172), if this value of one and one-half million dollars per annum is added to the estimated 80% that is contributed by the Salmon River to the total value of \$4,200,000.00 placed as the contribution of the Salmon and Imnaha Rivers to the Columbia River fishery, an annual value is arrived at somewhere in the vicinity of \$5,000,000.00 as being the Salmon River's contribution to the total Columbia River commercial and sports fishery.

B. The Salmon River offers a vast recreational area:

The Salmon River drains approximately fourteen thousand square miles of central Idaho. The river itself is around 400 miles long and has the reputation of being the longest river, wholly within the boundaries of one state, in the United States. Along with its major tributaries, the Salmon River provides approximately 1,200 miles of streams. It rises in the Sawtooth Mountains of central Idaho at elevations in excess of 7,000 feet, some of them running as high as 12,000 feet.

Many of its tributaries traverse mountain meadows lying at elevations of from five to seven thousand feet. These areas are the stream sections that the chinook, salmon and steelhead trout seek out for spawning. The only known area used for spawning in the Snake River drainage by sockeye or "blueback" salmon is in Redfish Lake, which is one of the lakes in the headwaters of the Salmon River. Practically all of this vast drainage basin lies in wilderness or primitive areas, unused or little used by man, except for hunting, fishing and other recreational activities. An example of the widespread use of this area for recreational purposes is the fact that approximately 75,000 trips are made annually to the Salmon River by resident and non-resident salmon and steelhead anglers alone. It should also be noted that this statistic does not take into consideration the uncounted thousands of trips that are made by anglers seeking trout, rather than salmon and steelhead. (Tr. p. 4173)

It is evident that the proven recreational resource of the Salmon River drainage cannot be measured by dollar values alone. These 14,000 square miles of watershed stretch from Montana to Oregon, drain a vast area larger than the whole country of Switzerland, and are available for recreational use to all of the residents of Idaho, as well as to large numbers of people from many other states, who take advantage of them. As witness Hauck stated: "Idaho treasures the Salmon River very highly indeed." (Tr. p. 4173)

C. Comparison of Salmon River anadromous fish runs to the
Upper Snake and Clearwater runs within the State of Idaho:

Witness Hauck stated (Tr. p. 4165) that of the anadromous species of fish running into Idaho tributaries of the Snake River above the confluence of the Snake and the Salmon Rivers, approximately 10% to 15% of Idaho's anadromous fishes were concerned. Below the confluence of the Salmon and the Snake Rivers, he testified that approximately 80% of Idaho's anadromous fishes are concerned, and of these about 10% to 15% use the Clearwater River. Thus, simple arithmetic can credit the three streams involved here with the following numbers of anadromous fishes: the Snake River, above the confluence of the Salmon and the Snake, is to be attributed with 15% of the total anadromous fish runs of the State of Idaho; the Salmon River is to be attributed with 70% to 80% of the total anadromous fish runs of the State of Idaho, and the Clearwater is to be attributed with the balance of some 10% to 15% of the total anadromous fish runs of the State of Idaho. (See accompanying plate.) There is no question but what the recognized commercial and recreational value of the Salmon River as a natural resource is far in excess of any value that can be attributed to both the upper Snake River and the Clearwater River drainage areas.

II.

UPSTREAM PASSAGE OF FISH

A. Times of upstream passage of fish at the sites of the
Nez Perce Dam and the Mountain Sheep and Pleasant Valley dams in the
Snake River:

As is well known, all the anadromous fishes of the Pacific Ocean spawn in fresh water, and after varying periods of time the young migrate downstream to the sea, where they remain before returning as adults to the same stream where they were initially spawned, there to carry out the reproductive process and then die. The salmon cycle is four or five years, depending on the particular species of salmon involved. While the steelhead also follows the mysterious homing instinct common to all salmonoid fishes, spawning in fresh water and returning to the spawning area as adults, unlike the salmon, however, some adult steelhead will survive the spawning cycle to return to the sea, and perhaps come back later for successive spawning trips. The anadromous fish that travel the area of the Snake River pass the sites of the Nez Perce Dam and the Mountain Sheep-Pleasant Valley Dam sites are the chinook, the blueback salmon and the steelhead trout. The chinook are divided into two races, known as the spring chinook and the fall chinook.

In general the spring chinook salmon enter the lower Snake River in Idaho in May, June and July and pass on upstream. The peak of the spring runs would pass the mouth of the Clearwater somewhere in the latter half of June, and they would then pass the mouth of the Salmon River between June 17th and July 2nd. (Tr. p. 4286)

The fall chinooks enter the lower Snake River in Idaho in their greatest numbers during the months of late August and September. These fish pass on up the Snake River and spawn in the Snake River

itself between Swan Falls and Marsing, Idaho, arriving in that location during late September and early October and spawning in that area in late October and early November. (Tr. p. 4286)

The sockeye or "blueback" Salmon enter the lower Snake River in July and towards the latter part of this month the peak of the blueback run is at the mouth of the Salmon River, at which point they ascend some 400 miles up the Salmon River, going into Redfish Lake during the month of August. The blueback then spawn in Redfish Lake approximately during late October. (Tr. p. 4287)

The steelhead migrate up the Columbia River during the months of July, August and September, and pass into the lower Snake River and travel upstream past the sites of Nez Perce, Mountain Sheep, Pleasant Valley Dams, primarily during the months of February, March and April of the following year. However, some steelhead pass beyond the Snake River dam sites during the late summer months.

B. Probable methods of collecting upstream migrants at

Mountain Sheep Dam:

Studies and tests definitely demonstrate that the fisheries agencies are much further along in solving the problem of collection of upstream migrants than they are with solving the problem of the downstream migrants. (Tr. p. 3502) In fact, all of the fisheries' biologists testifying in this proceeding have indicated that it is technically feasible to lift or transport the adult upstream migrants around high dams. The adult upstream migrant can be blocked, it is

assumed, by use of an overflow barrier dam, or a picket barrier, either electrical or non-electrical, that would be so placed in the stream so as to guide the fish to one side or to the other into a pen, from where it would be transported over the dam by use of ladders, lifts, locks, trucking, barging or some other type of conveyance, which would enable the collectors to carry the fish on upstream.

(Tr. pp. 3503, 3509, 4168) While any one or a combination of these proposed devices might successfully take care of the upstream passage of fish over high dams, it should be remembered that passage and transportation by means other than fish ladders is recognized to increase the risk of injury to the adult migrants. (Tr. p. 3566)

It must be recognized that the stretch of the Snake River between the mouth of the Imnaha River, below the Mountain Sheep site, and the backwaters of the Brownlee Dam site, is nothing more or less than a mere passageway for the anadromous fish running up the middle Snake River canyon (Tr. p. 3480). Since there are no substantial spawning tributaries in that entire stretch of the stream (Tr. p. 3480), and since the main spawning grounds used by the anadromous fish running this stretch of the river lie at a considerable distance above the Brownlee Dam site (Tr. p. 3515), it is quite obvious that the proposal to collect the fish migrating upstream at a point below the lowermost dam, Mountain Sheep, and then truck the fish from that point to a point on up the Snake above the uppermost dam, Brownlee Dam, is the most satisfactory solution for handling of the upstream migrants traveling through the aforementioned stretch of the

river (Tr. p. 3512). In view of the fact that the upstream migrants passing these dam sites spawn in areas considerably above the furthest upstream dam, Brownlee, the fish would be released at a point sufficiently above the Brownlee forebay so that they would not be endangered by the water being drawn down into the turbines at Brownlee. Therefore, the fish technicians will be free to select a point far enough upstream from this dam so that any possibility of injury to the fish at the dam site can easily be avoided. (Tr. p. 3515)

C. The major problem to be solved in handling upstream migrants at Nez Perce Dam:

As this intervenor sees it, the situation posed with regard to upstream fish passage at the applicant's dam sites and the already licensed dam sites of the Idaho Power Company, is vastly different and considerably more simple in solution from that which would be imposed at the proposed alternative Nez Perce Dam site. The proposed Nez Perce Dam would be located some two and one-half miles downstream from the mouth of the Salmon River. This dam would impound water up the Snake River a distance of some sixty-four miles, and would also inundate sixty-three miles of the Salmon River and ten miles of the Imnaha River. Obviously, the collection and transportation problems with respect to the upstream migrants would be considerably greater than at the Mountain Sheep site, if for no other reason than due to the far greater volume of fish that would have to be handled. However, your intervenor does not feel that this would be the major

drawback with respect to upstream passage at the Nez Perce site. As can be seen, the migrants that pass upstream over the Nez Perce site would be native to three different streams; that is, the Salmon, the Imnaha and the Snake. Obviously, all of these fish must be released or transported to a point sufficiently far enough above the Nez Perce site, so that they would not be endangered by the waters being drawn down into the Nez Perce turbines. It is apparent that in the Nez Perce reservoir there would be a considerable mixing of the waters of the three streams tributary to the said reservoir.

The record at no place demonstrated the effect of the mixing of the attraction flows of various streams in one pool upon the highly developed homing instinct of the upstream migrant fish. It is readily apparent that the furthest point at which the upstream migrants could be released would be in the slack backwaters of the Nez Perce pool, at a point no further upstream than the mouth of the Salmon River, or some two and one-half miles upstream from the face of the dam. While the dumping of the migrants at this spot in the reservoir might entail no dangers from turbine draw down, it could well be disastrous in view of what we can assume to be existant therein at that point in the reservoir; that is, the mixture of the attraction flows of the three contributing streams, the Imnaha, Salmon and Snake Rivers. If the result were to be the complete upsetting of the homing instinct of the upstream migrants, the only possible and practical solution based upon saving the largest number of fish involved, would be to transport all

of the later upstream migrants sufficiently far enough up the Salmon River, so as to place them at a point wherein the attraction flow of the Salmon would be all-controlling. Naturally, this would result in the total annihilation of the Imnaha and upper Snake River runs inasmuch as the fish of those two rivers would be unable to "home" on the attraction flow of the Salmon River and would be completely lost.

III.

DOWNSTREAM PASSAGE OF FISH

A. Approximate times of downstream migration and size of migrants:

Once the spawning cycle is completed and the fertilized eggs of the salmon and steelhead hatch, the fresh water activities and times of downstream migration to the sea vary greatly depending upon the particular race of fish involved. All Pacific salmon leave the stream by the time they are a year old, some of them after only 90 days. But the young steelhead remains in the stream for two years before developing the physiological need for salt water which drives it and all salmonoid fishes down to the sea.

In dealing with the salmon and steelhead running in the Snake River past the Nez Perce dam site the record reveals the following approximate times of downstream migration and the varying sizes of the migrants. (It should be remembered that three species of Pacific salmon, the pink, the chum, and the silver are not found in the Snake River).

Sockeye salmon, known as "bluebacks" on the Columbia and Salmon Rivers, will remain in the lake near their spawning area after they emerge from the spawning bed gravels for approximately one year before proceeding on down to the sea as yearlings. Since they are approximately one year old at the time of downstream migration their size at migration is fairly large and will average about four inches in length. (Tr. p. 4073)

Fall chinook salmon migrate to the sea as fish of about three to six months of age which may vary slightly depending on the time it takes for the absorption of their yolk sac from the time of birth to their time of migration. It is quite obvious that since they migrate to the sea at an early age their size at migration is small, being approximately one to three inches in length. Spring chinook salmon, on the other hand, generally remain in the stream for an additional year, migrating to the sea as yearlings at about four inches in length. (Tr. p. 4073)

As stated before, the steelhead stays in the stream until two years old and then goes seaward during the months of March, April or May at a size of six to eight inches in length. (Tr. p. 4073) In addition to the two-year old steelhead migrants, those adults of the steelhead race which have survived the spawning cycle also return during the spring of the year to the sea as large adult fish running in size up to three feet long and weighing anywhere from six to thirty pounds.

Witness Johnson stated that in general the primary period of downstream migration of salmon is in the spring of the year, from March through June. Although the record does not indicate the primary period of downstream migration of steelhead, it is known to occur during the same period of time. It should be noted, as witness Johnson additionally stated, that there is some downstream migration at other times of the year and that it cannot be said that there is any period of the year at which there is no migration whatsoever. (Tr. p. 4074)

Studies conducted on timing of migration at Central Ferry on the Snake River some 120 miles downstream from the mouth of the Salmon River clearly reveal that the bulk of the downstream chinook migration was from April 5 to June 5. (Tr. p. 4233) Studies conducted on downstream migration past the Pleasant Valley and Mountain Sheep dam sites in the Snake River reveal that the largest numbers of chinook salmon fingerlings passed those sites during the month of May. (Tr. p. 4287) No studies on downstream migration have been conducted on the Salmon River proper so the exact times of downstream migration on the Salmon is an unknown factor. However, it is evident that the time of migration on the Salmon River reaches the greatest peak somewhere between the months of March through June. In passing, it should be recalled that the peak of migration on the Snake River occurs during the proposed periods of maximum drawdown on the Nez Perce Dam (Tr. p. 5947), the dams of the applicant, and also those licensed dams of the Idaho Power Company.

B. The present downstream passage of fish over low dams in the Columbia River:

The exact speed of downstream travel of the migrant fish is not completely known; however, as witness Johnson stated, there is evidence that it is rapid unless interrupted by unnatural conditions. He referred to an experiment in the Columbia River which revealed that migrant chinook fingerlings travel downstream at the approximate speed of 50 miles per day or slightly in excess of two miles per hour. (Tr. p. 4074)

At the existing low-level dams on the main Columbia River such as Bonneville, Rock Island and McNary, provisions for downstream passage of fingerlings and adult steelhead were not made, mainly because as to date no feasible method of providing adequate protection to downstream migrants is known. As there is an appreciable amount of surface current through the forebays of these three low-level dams, the fingerlings are swept along to the face of the dam and find passage past it by going over the spillways at times of spill, going through the power units, down the fish ladders or passing down through any place that provides passage beyond the dam. (Tr. p. 4157) There is no question but what some mortality occurs to the fingerlings at these existing dams; however, the exact rate of mortality is unknown. (Tr. p. 3511) The record fails to reveal the method of passing adopted by adult steelhead in getting down beyond these dams or the mortality rate that they suffer in taking passageways which might be

lethal; however, it must be assumed that the surviving adult steelhead apparently pass over the spillways or down the fish ladders in traveling past these dams.

The record indicates that as the height of a dam rises the routes taken by the fingerlings and adult steelhead in passing low-level dams have generally been demonstrated to be more lethal to fish in attempting to adopt similar routes in passing dams of 100 feet or higher. (Tr. p. 4141)

The Nez Perce Dam, the dams of the applicant, and the three licensed dams of the Idaho Power Company must be considered as "high dams" since they are considerably higher than 100 feet which has been assumed to be the breaking point at which downstream migrants may be passed without any downstream passage facilities. (Tr. pp. 4140, 4141) Dams of this height necessarily create artificial lakes by virtue of their backwaters. There is no question but what migrating salmon do find their way through natural lakes to the natural outlets, possibly by virtue of minute surface flow created by the outlet, but witness Johnson in testifying on this particular point stated that this assumption was nothing more than a hypothesis. (Tr. p. 4158) An artificial lake created by dams of the size of the aforementioned varies greatly from a natural lake inasmuch as all or a substantial part of the discharge will leave the dam below the surface and exit through the power units. The flow of water through the power unit will obviously create a subsurface current not present in a natural lake, a gradually upward

sloping bottom terminating at the outlet of a natural lake will not be found inasmuch as the artificial lake will abruptly terminate at the forebay wall of the dam, and the level of the artificial lake will vary greatly depending upon times of high water or maximum drawdown, whereas the level of a natural lake is constant or nearly so the year around.

In order to overcome the lethal exits of a high dam and the possible environmental results upon the downstream migrants coming into the relatively slack body of water instead of having a current carrying them on down to the sea, one or a combination of possible systems of downstream fish passage must be tried in an attempt to preserve the runs of anadromous fishes. Suggested methods might be the use of free fall or "ski jump" spillways, trapping the migrants in the upper backwaters of the forebays, or even further upstream in the spawning tributaries, or the use of the so-called skimmer device in the backwaters of the forebays or at the forebays of the dams themselves. (Tr. p. 4168). Of these various proposals, the skimmer device has received wide publicity as the "probable" solution to downstream passage past high dams.

IV.

THE SKIMMER DEVICE

A. An untried and unproven laboratory experiment for fish passage:

As the applicant's brief so very ably demonstrates (pp. 17-18), the "skimmer" is an hydraulic experiment designed with the object of attracting and trapping downstream migrants in the forebay or reservoir behind high dams by simulating the effect of a natural spill but saving most of the water for power generation. (Tr. p. 5057). At the present time nothing more can be said in its behalf than that the hydraulic engineering tests conducted in the laboratory have been successful.

B. The biological and engineering problems that the "skimmer" device must solve in order to be considered as an effective means of fish passage:

We know that the "skimmer" device is untried and unproven biologically (Tr. pp. 3468, 4072), that some of the biological problems that it must successfully solve before it can be considered a solution to the passing of downstream migrants are: (1) It must be placed so that the fish are willing to use it (Tr. p. 4085); (2) It must attract and collect virtually all of the downstream migrants (Tr. p. 4084) by establishing a pattern of stream flow that will attract the fish and encourage them to use it by overcoming the counter-attractions of--first, subsurface turbine flows (Tr. pp. 4085, 4123, 4184) which might cause the fish (especially in the case of chinook salmon) to sound and follow the turbine counter flows down into the lethal draft tubes of the dam (Tr. pp. 4068, 4069, 4151), particularly at times of maximum drawdown, or, second, the surface flows at times of spill

which could prevent the fish from finding the "skimmer" and would sweep them on down over the spillways, and, third, the different and varying flow patterns existing in reservoirs due to their individual depth, shape, size and contours or configurations; (3) It must provide conditions which will not inhibit the movements of fish into the facility such as changing water velocities (Tr. p. 4092), vibration, turbidity, light, shadows, sound and man's activity which might cause the fish to refuse to enter the "skimmer" (Tr. p. 4093) rather than encourage them to enter it (Tr. p. 4085); and (4) It must provide for the safe delivery of the fish to points below the dams without delay (Tr. p. 4085).

Additionally, there are some engineering problems that the "skimmer" must overcome in order to assure successful and constant operation at all dams, such as the operational factors of ice and debris in the forebay (Tr. p. 4131), wave action, and variations in reservoir water depth, depending upon times of high water or maximum drawdown, to which the skimmer must be sensitively "geared" so that it is immediately responsive and thus maintains the proper, constant and unvaried "attraction flow" at all times regardless of reservoir elevation changes. These engineering problems can be expected to be encountered behind almost all high dams in the Pacific Northwest, but would probably be of far greater magnitude at Nez Perce because of the large and unhampered flow of ice and debris coming down the Salmon River during spring runoffs, more severe wave action encountered

in a reservoir of this size (over 60 miles long in two directions), and the fact that its maximum drawdown is 215 feet.

C. Concurrence with the applicant's position regarding the possible success or failure of the skimmer device as a fish passage system:

Rather than reiterate and needlessly repeat the arguments advanced by the applicant in proving that the "skimmer" must first pass a rigorous and successful field test at Mayfield Dam on the Cowlitz River in Washington by passing the downstream migrants at that dam, a test which will of necessity take at least six years (Tr. p. 4142) after the "skimmer" is installed before the results as to its success can be conclusive; and rather than be completely redundant by "parroting" the arguments advanced by the applicant's brief which demonstrate that the proven successful use of the "skimmer" at Mayfield Dam may be only a "local success story" as it still might not work at Nez Perce or any other dam, your intervenor would prefer to adopt in its entirety that portion of the applicant's brief from page 17 to 34 inclusive as the clearest expression of its thoughts on the skimmer device also. In other words, your intervenor completely concurs with the applicant's stand on the possible success or failure of the "skimmer".

CONCLUSION

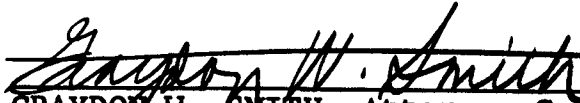
The construction of Mountain Sheep-Pleasant Valley dams will only add slightly to the existing problem your intervenor is already

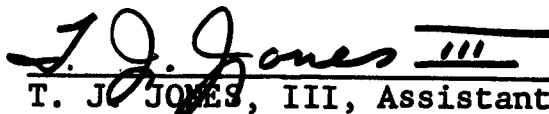
confronted with, that is, preservation of the anadromous fish runs of the upper Snake River passing the licensed dam sites of Hells Canyon, Oxbow and Brownlee. If these fish are forever lost despite efforts to provide them with safe and effective passage, the loss of this segment of Idaho's total anadromous fish run would have to be charged against the Hells Canyon-Oxbow-Brownlee Dams and not the Mountain Sheep-Pleasant Valley project.

On the other hand, an entirely new and most assuredly far greater danger to our fisheries resources would be presented by the construction of Nez Perce Dam. The record clearly demonstrates the tremendous annual contribution that the Salmon River makes to the downstream commercial and sports fishery of the Columbia River, aside from its value to the State of Idaho for sports fishing alone. Construction of Nez Perce Dam within the near future would completely block the Salmon River runs of anadromous fish when at this date there is no known method for the safe passage of downstream migrants. The continued existence of the fisheries resource of the Salmon River is too valuable to jeopardize by approving construction of Nez Perce, relying upon unproven and untried methods of fish passage as the salvation of the Salmon River runs. Nor could such approval be justified upon the patently infeasible grounds that the loss of these runs can be compensated for by relocation in other streams or rehabilitation of streams wherein anadromous fish runs have already been destroyed.

WHEREFORE, Your intervenor respectfully urges that the only sound conclusion from the viewpoint of conserving the Salmon River fishery resource is for this Commission to refuse consideration of the construction of Nez Perce Dam or any dam that would block the Salmon River runs of anadromous fish as an alternative to the applicant's proposed project. Planning of any project that would block the Salmon River runs must of necessity be delayed until a tried and proven method of safe downstream fish passage is provided.

Respectfully submitted,


GRAYDON W. SMITH, Attorney General,
State of Idaho


T. J. JONES, III, Assistant Attorney
General

COUNSEL FOR INTERVENOR
Capitol Building
Boise, Idaho

APPENDIX A

IDAHO WILDLIFE FEDERATION

R E S O L U T I O N

WHEREAS, The Idaho Wildlife Federation is composed of 90 sports clubs in the State of Idaho with over 20,000 members who are representative of the 200,000 fishing and hunting license holders in the State of Idaho; and

WHEREAS, the Pacific Northwest Power Company has applied to the Federal Power Commission for a license to construct a million kilowatt power project with dams at the Pleasant Valley and Mountain Sheep sites on the Snake River above the mouths of the Imnaha and Salmon Rivers; and

WHEREAS, the opposing intervenors in the hearing before the Federal Power Commission to consider licensing the Pacific Northwest Power Company to construct these dams propose as a substitute a 600-foot high dam to be constructed on the Snake River below the mouth of the Salmon River at the Nez Perce site; and

WHEREAS, the mighty Chinook seeks out the Salmon River for its spawning beds, over 85% of total salmon and steelhead entering the Snake using the Salmon; so that the wild and virgin Salmon River is the most valuable and vital area, and is our finest fishing and recreational stream; and

WHEREAS, for these reasons the Salmon River with its anadromous fish must be considered one of the great natural resources of the West; and

WHEREAS, with present imperfectly developed fish passage systems, a Nez Perce dam would probably destroy the salmon and steelhead runs in the Salmon River, and no prospect in the reasonably near future that such systems would be proven; and

WHEREAS, for these reasons, those who propose Nez Perce propose the destruction of the natural resource of the Salmon River; and

WHEREAS, the power which would be developed at the Mountain Sheep-Pleasant Valley sites will be badly needed by 1960 or 1961 in the Pacific Northwest and such construction will not interfere to a serious degree with the fish resources of the Snake River; and

WHEREAS, the construction of such dams will fill a badly needed source of power promptly and other projects can be built in the area as soon as the fish migration problem is satisfactorily and surely settled so that there will be no ultimate loss of development of the area resources; and

WHEREAS, reckless disregard for wildlife resources shown by advocates of Nez Perce is a matter of concern to all wildlife groups of the West;

NOW, THEREFORE, BE IT RESOLVED, by the Idaho Wildlife Federation, in convention in McCall, Idaho, on December 7, 8, and 9, 1956, as follows:

1. Sound development of water resources cannot be had at the price of reckless disregard of wildlife.
2. The Federal Power Commission is hereby urged to grant, at the earliest possible time, a license to the Pacific Northwest Power Company authorizing the construction of the Mountain Sheep and Pleasant Valley dams.
3. State and Federal fish and wildlife agencies, the United States Corps of Engineers, electric power producers and all others interested in the equitable development of the power resources of the Northwest are urged to continue their cooperative research programs seeking a solution of the problem of the construction of high dams without loss to fishery resources.
4. Construction of any dams blocking the important Salmon River runs of anadromous fish SHALL NOT BE CONSIDERED UNTIL TRIED AND PROVEN METHODS OF PASSING FISH AROUND HIGH DAMS HAVE BEEN DEMONSTRATED BEYOND ALL QUESTION.
5. The Secretary is directed to forward copies of this resolution to the Secretary of the Federal Power Commission, to be entered in the record of proceedings there pending, to Members of Congress from the State of Idaho, the Governor of Idaho and members of the Idaho Fish and Game Commission, to the National Wildlife Federation, and to wildlife groups in the States of Oregon, Washington and Montana.

The Secretary is instructed to forward copies of this resolution to all constituent clubs of this Federation.

CERTIFICATE OF SERVICE

I hereby certify that I have this day served the foregoing
Intervenor's Brief by mailing a copy thereof, properly addressed, to:

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DATED at Boise, Idaho, this 13th day of March, 1957.

J. J. Jones III

COUNSEL FOR INTERVENOR