V UNAVOIDABLE ADVERSE IMPACTS

During the construction phase of the proposed hatcheries, heavy machinery working in or near the water and runoff from excavations and exposed soils can be expected to increase the turbidity and silt loads of nearby waters. The greatest increase would probably occur when the water intake is constructed. It may be that some fill would be placed on the edge of the river or that a part of a stream will have to be diverted with a cofferdam. Increases in the silt load in the river will have several deleterious effects on aquatic biota. Reduced light penetration will reduce primary productivity (plant growth) in the stream. The silt could smother some bottom organisms.

The construction phase of each of the hatcheries is expected to have only a small permanent adverse impact on the environment. As construction is completed, siltation will cease. Construction activities at the hatchery would result in some noise and air pollution. Construction would also eliminate some wildlife habitat.

During the operational phase of the hatcheries, wastewater leaving the hatchery-rearing facilities will cause increases in the nutrient level as well as the level of solids and the BOD in the receiving waters. Although elevated nutrient levels are expected to enhance primary production in the river immediately downstream from the hatchery, this should not have any significant effect on the odor or taste of the water. Wastewater leaving the hatchery would also contain dilute quantities of drug residues used in fish cultural operations. The exposure of resident fish species and the stream organisms to these residues is not expected to be a problem.

The increased human activity in the hatchery areas would have some adverse effect on wildlife.

Primarily, the increase in human use of areas for hunting and fishing would probably lead to increased problems with litter and vandalism which would not be completely preventable. Increased use of these areas would also lead to trampling of vegetation in the easement and acquisition areas, although the magnitude of this

will not be great. Increased harvest of game animals and sport fish would occur, but due to increased management of wildlife and fish populations, the sport species populations should not decline as a result of the harvest.

The acquisition of lands in fee may remove these lands from the local property tax process. The Washington State Department of Game would pay either property taxes on their lands or supply the county with one-half of the fines collected in the county for game violations.

The acquisition of lands (easement or fee) for wildlife habitat and hunting or streambank fishing access would be on a willing seller and/or condemnation basis. If condemned, the landowners required to sell probably would feel a personal loss, especially concerning inherited land.

Hunters traveling to the habitat development sites may increase traffic on local highways.

Some of the development operations (such as field plowing, pump construction) would damage local areas of existing vegetation and disturb wildlife now in the area. The development would also create dust and noise. All of the adverse impacts related to the construction activities would be temporary.

Littering

VI ALTERNATIVES

This discussion of alternatives is basically divided into three general categories:

a. No Action would let the present condition continue with no mitigation. With this the Corps of Engineers would continue to provide multiple purpose management for the existing project lands, and would continue to operate the fish passage facilities. The proposed program of a much larger scope would not be undertaken.

b. Removal of the Dams is a conceptual alternative which would eventually allow the river canyon to return to somewhat near its former state. The practicality of such an alternative is open to question.

c. Compensation or Management Alternatives include a wide range of alternative possibilities for either fish or wildlife. This would include implementing only part of the list of items from the proposed compensation program, as well as a number of differing items or management variations.

Each of the three general categories of alternatives is further discussed on the following pages.

a. No Action.

One alternative is to let the present situation continue without compensation. This no-action alternative would eliminate the adverse environmental effects associated with the compensation activities. Conversely, it would eliminate the expected benefits associated with the compensation measures and therefore the adverse impacts to fish and wildlife resources occasioned by Lower Snake River dam construction would remain.

The no-action alternative would release energy, manpower, funds, and material that otherwise would be used for hatchery construction and operation to other uses. Pollution produced during the construction and operation of the hatcheries would

not occur. Disruption or alterations of local ecosystems* would not result from the construction and operation of hatcheries. Hatchery-reared fish would not compete with the wild type for the available food supply.

However, the no-action alternative would not increase the population of fish species to the levels estimated to be normal. Fish survival would not increase and may continue to decline. This high-protein food measure (salmon and steelhead fishery) would be limited to the natural variations of abundance, decreased by the losses resulting from passing through the dams. Similarly, the number of fish available to the sport fishery would also follow such variations.

The no-action alternative would not increase the population of game and non-game species to their previous levels estimated to be normal, therefore the full human use of the region's wildlife potential would not be realized.

b. Dam Removal.

The removal of the dams would gradually result in the return of fish runs to previous levels. Removal of the dams would result in a current loss of $65 million of electrical power which would increase to $89 million with completion of the initial 3 generating units at Lower Granite Dam. This loss would be even greater after the installation of three additional generating units in each of the 4 Lower Snake River Dam powerhouses. Navigation benefits would also be lost from the area.

Removal of these dams would mean the loss of a major portion of the investment still remaining to accrue over the project life. To maintain the present status of production as well as the standard of living for the region's citizens, the electrical power production would have to be supplied by alternative sources. If not, removal of the dam would result in lost production in both agriculture and manufacturing, and part of the regional populace would have to either reduce their standard of living or relocate.

c. Compensation or Management Alternatives.

Plans for alteration of the dams are underway. Such dam alteration could also aid the fish runs by negating several adverse

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* A community and its (living and non-living) environment considered collectively; the fundamental unit of ecology. It may be quite small, as the ecosystem of one-celled plants in a drop of water, or indefinitely large, as in the grassland ecosystem.

effects. Two methods for reducing adverse effects are traveling screens and flip lips.

A method of reducing the fishery loss is to place traveling screens in all dams which would divert the smolts into a system for bypassing the turbines for return to the river below each dam or to place traveling screens at strategic upstream dams, such as Lower Granite Dam, and then capture the smolts in the bypass system, transport them by tanker truck downstream to Bonneville Dam, and release them. This method requires the use of trucks and personnel. Pilot studies are currently being carried out by the National Marine Fisheries Service to determine the effectiveness of the program. This method eliminates most of the hazards of dam passage for migratory smolts.

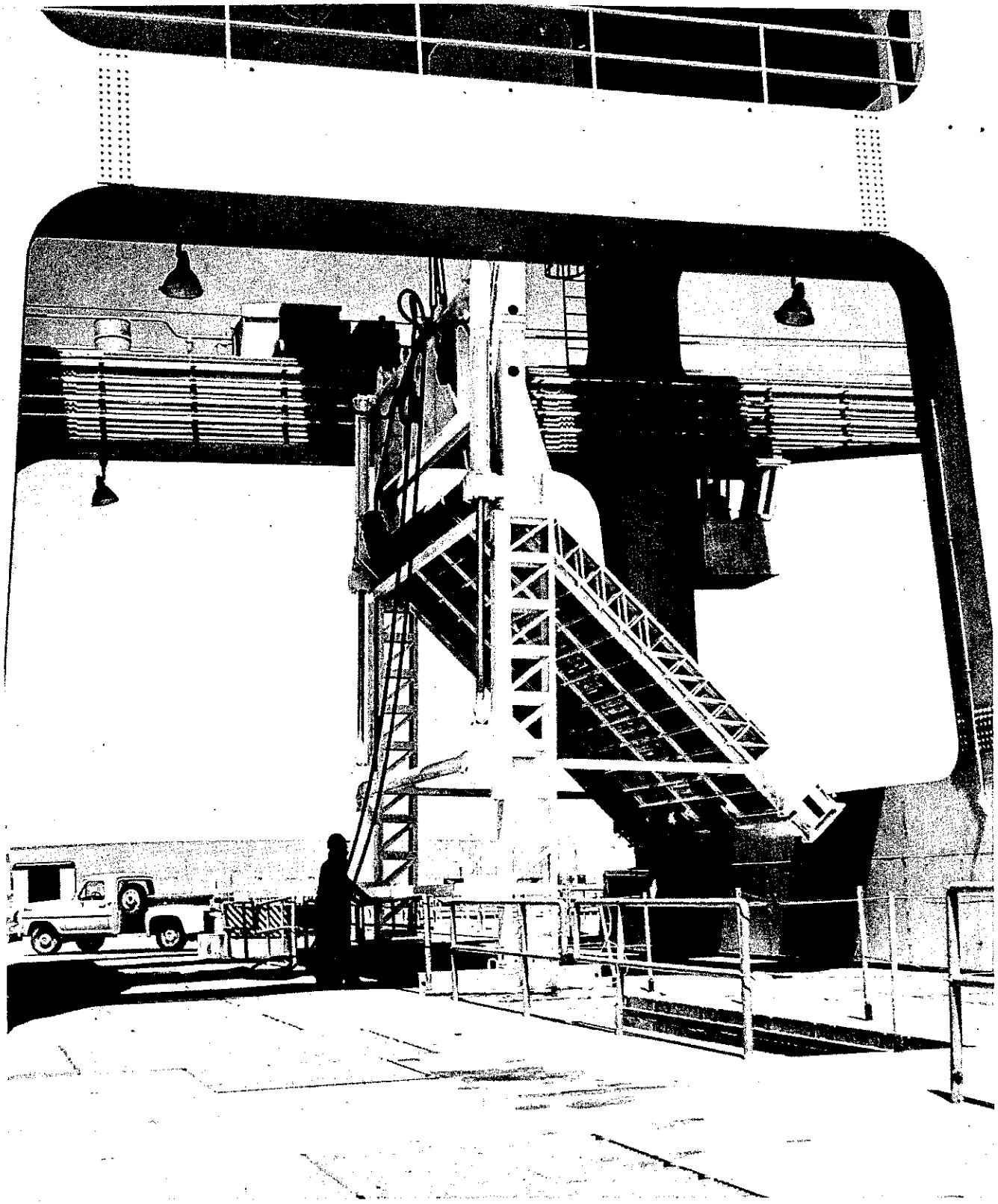
(1) Traveling screens direct downstream migrating salmonids away from the turbine. Fish enter the turbine intake gatewells and eventually move through the fingerling bypass system to the tailrace. In 1970, the U.S. Bureau of Commercial Fisheries (now the National Marine Fisheries Service) published a study on fingerling bypass systems for low-head dams (see Reference 16). This study indicated that the traveling screens with modifications could direct possibly many of the fish away from the turbines. Steelhead smolt were not as easily directed through the bypass system. (See Plate 11.)

In a recent report entitled, Snake River Runs of Salmon and Steelhead Trout: Collection and Transportation Experiments at Little Goose Dam, 1971-74, prepared by the National Marine Fisheries Service, it was indicated that sufficient data exist to recommend mass transport of steelhead from Little Goose Dam. Chinook salmon would need additional study before implementing a transport program. It does appear from the report that dam bypass by truck transportation is one method of possibly insuring steelhead survival. In 1975, the Corps is funding a program to haul approximately 40 percent of the steelhead around the dams.

(2) Flip lips are additions to the spillway of the dam. They are designed to direct waters in a horizontal direction over the upper surface of the stilling basin. This redirection of water significantly reduces the occurrence of nitrogen supersaturation during average flow years. Nitrogen supersaturation results when air is entrained in the water that falls over the apron into the deeper portions of the stilling basin. The flip lips should reduce the number of fish lost to predation or disease as a result of nitrogen embolism. The Corps plans to put flip lips on the spillways of all the Lower Snake River dams.

Fish Hauling Transport

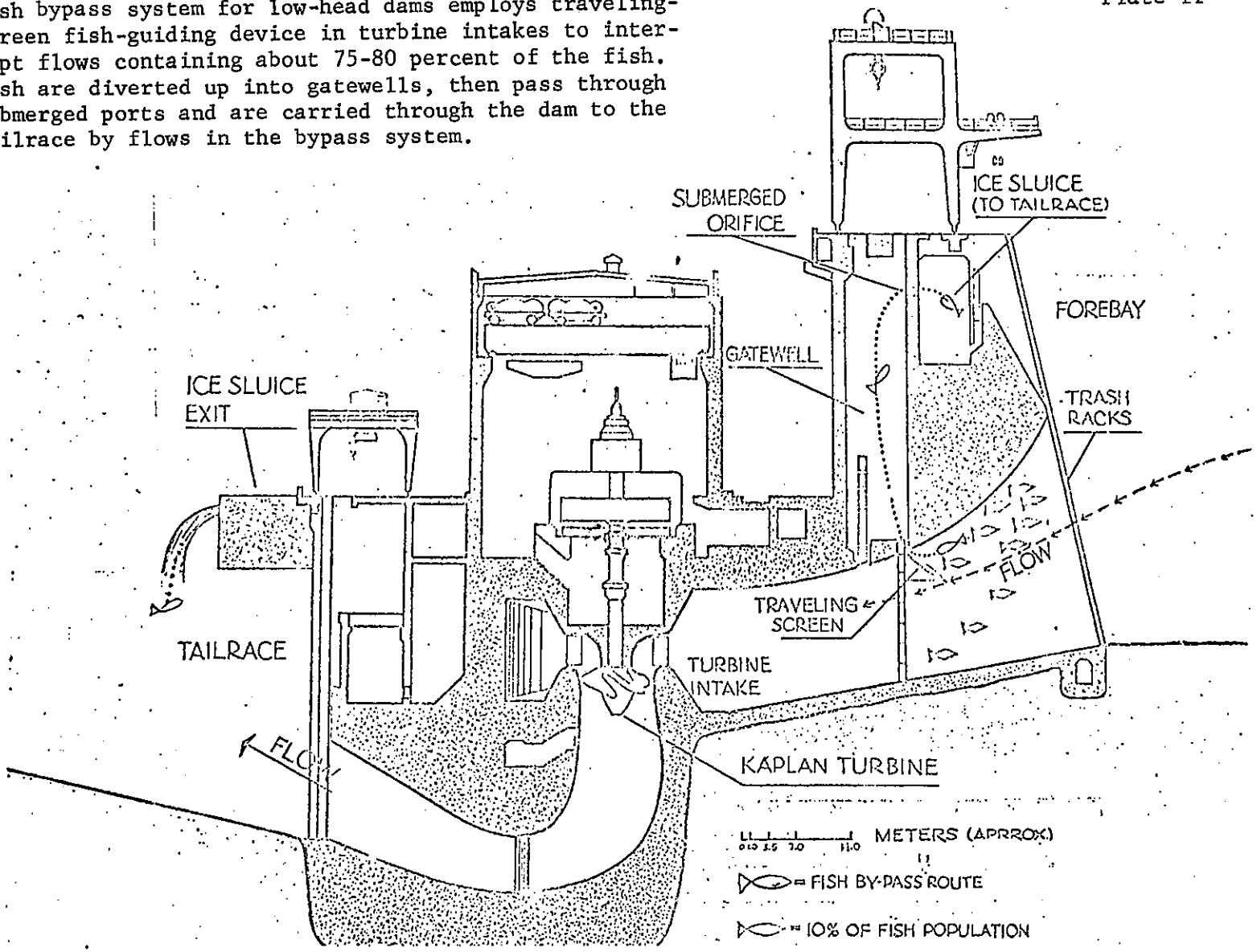
(3) The Corps could locate new hatcheries nearer the mouth of the Columbia River. This would be a more efficient operation from the standpoint of obtaining adult spawning stock and reducing project-caused losses to both adult and juvenile fish. It would not, however, replace the loss in the upper river area where it occurred, nor would the fish be available to the sport, commercial, or Indian fishery from which they had been lost. Moreover, the increased density of salmonid fish holding in the Lower Columbia may result in higher incidence of disease, and the salmonid's contributions to the ecological balance of the Snake River and Tributaries would be greatly eliminated.

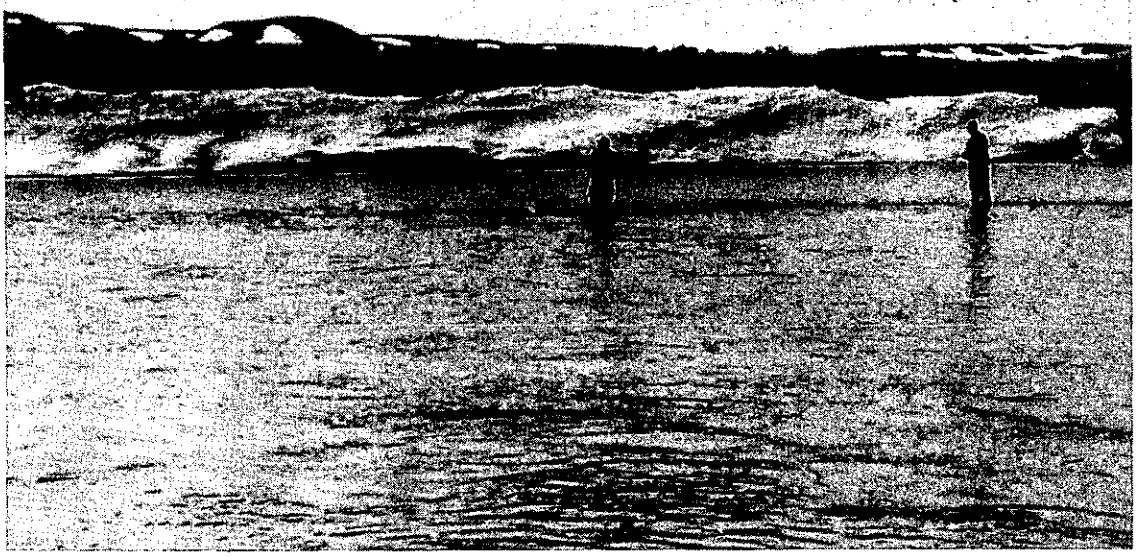


AFTER THE TRAVELING SCREEN HAS BEEN LOWERED INTO THE TURBINE INTAKE 100 FEET BELOW THE DECK, HYDRAULIC PISTONS PUSH THE SCREEN INTO POSITION FOR GUIDING FISH. A HYDRAULIC DRIVE SYSTEM MOVES THE SCREEN, A STANDARD BALANCED -SPIRAL - WEAVE USED BY INDUSTRY FOR CONVEYORS

Plate 11

Fish bypass system for low-head dams employs traveling-screen fish-guiding device in turbine intakes to intercept flows containing about 75-80 percent of the fish. Fish are diverted up into gatewells, then pass through submerged ports and are carried through the dam to the tailrace by flows in the bypass system.





Management Methods

a. Fish Management.

Another method of returning the fish population to higher numbers is to alter the present fish management program. Reducing the commercial and sport fishermens' harvest will increase the number of returning fish. Regulating agencies can reduce to a greater extent the already limited harvest; however, past reductions have not stopped the declining trend in the anadromous fishery. Summer chinook have little to no harvest, but they have continued to decline.

Many Indian tribes also have fishing rights to the Columbia River and/or its tributaries. Indian treaty rights concerning fishing are an important aspect of fishery management. The jurisdiction of state regulating agencies to manage the Indian fishery is currently under litigation. Management programs must consider the effect of the Indian harvest on the anadromous fishery.

The restriction of the fishery harvest would reduce the number of fish available as food in the region. As a regional activity, restricting the fish harvest could reduce the number of man-days spent on sport fishing. Likewise, a proportionate drop in the amount of tourist-based income to the region may occur. Some commercial fishermen may have to find other livelihoods.

b. Expansion of Existing Hatcheries.

With expansion and increased production, existing fish hatcheries may fulfill some of the proposed compensation efforts regarding

additional fish production. From available information, there are ten hatcheries within the general region. Table 8 lists these hatcheries. Six hatcheries involve trout culture (including steelhead), six involve chinook salmon culture, and one involves coho salmon culture. Some hatcheries breed more than one type of fish.

Some of the existing hatcheries may be unusable for expansion. However, there is a possibility that some of the hatcheries, by expansion, may contribute to the compensation program.

TABLE 8

Existing Hatcheries Within the Project Area

IDAHO

1. Decker Flat Rearing Pond.
   a. Location: Stanley, Idaho: Idaho Fish and Game Department.
   b. Species: Chinook salmon.
   c. Capacity: Unknown.

2. Dworshak National Fish Hatchery.
   a. Location: Ahsahka, Idaho: U.S. Fish and Wildlife Service.
   b. Species: Steelhead, Kokanee, Rainbow, Cutthroat.
   c. Capacity: 3.36 million Steelhead smolt; 192,000 Rainbow @ 3/lb; 1 million Rainbow @ 1,000/lb; 1 million Rainbow @ 100/lb; 100,000 Cutthroat @ 20/lb; and 4 million Kokanee @ 800/lb.

3. Kooskia National Fish Hatchery.
   a. Location: Kooskia, Idaho: U.S. Fish and Wildlife Service.
   b. Species: Spring Chinook, Steelhead.
   c. Capacity: 177,070 Chinook; 215,625 Steelhead.

4. Niagara Spring Hatchery.
   a. Location: Snake River, Hagerman Valley, Idaho Fish and Game Department.
   b. Species: Steelhead.
   c. Capacity: 3.3 million eggs, 1.6 million smolt.

5. Oxbow Salmon Hatchery.
   a. Location: Snake River, below Oxbow Dam: Idaho Fish and Game Department.
   b. Species: Fall Chinook.
   c. Capacity: 5 million eggs, 600,000 rearing, 60-day-release fingerling.

TABLE 8 (Continued)

IDAHO (Cont'd)

6. Rapid River Hatchery.
   a. Location: Rapid River, six miles south of Riggins, Idaho.
   b. Species: Spring Chinook.
   c. Capacity: 600,000 Spring Chinook to migrant size.

7. Sweetwater Eyeing Station.
   a. Location: Sweetwater Creek, 21 miles south of Lewiston, Idaho: Idaho Fish and Game Department.
   b. Species: Chinook, Steelhead.
   c. Capacity: 1,250,000 eggs.

OREGON

Wallowa Fish Hatchery.
   a. Location: Enterprise, Oregon: Oregon State Wildlife Commission.
   b. Species: Rainbow.
   c. Capacity: Unknown.

WASHINGTON

1. Tucannon Fish Hatchery.
   a. Location: Tucannon River, about 23 miles south from Pomeroy: Washington State Department of Game.
   b. Species: Rainbow, Eastern brook, German brown, Steelhead.
   c. Capacity: 200,000 Rainbow, Eastern brook, German brown; 50,000 Steelhead.

2. Tucannon Ponds (Russell Springs).
   a. Location: Columbia County, tributary to Tucannon River in Section 16, Township 10N, Range 41E: Washington Department of Fisheries.
   b. Species: Coho and Chinook salmon.
   c. Capacity: Believed inactive.

c. Genetic Alteration of the Fish.

A program could be established to breed salmonid fish with the capability to reproduce in the reservoirs. Fish already using the area will contribute by natural processes of evolution to develop a genetic combination which would enable the species to cope with the stress being produced by dam-induced alteration of the environment. Under natural environmental alteration, change occurs over thousands and even millions of years. This allows for

a natural selection process to gradually adapt fish to the change. The rapid changes in the environment caused by dam construction over a decade or so have not provided adequate time for natural selection to produce suitable anadromous fish for this new environment. Fish culture could be a means to breed strains of fish that will flourish under the conditions of the series of reservoirs. This alternative would be more in the nature of research, rather than a management action at this time.

d. Artificial Spawning or Incubation Channels.

Artificial spawning or egg incubation channels could be built in lieu of a hatchery. Adult fish would be allowed to spawn naturally in these channels or the eggs would be implanted into the gravels. The young fish would then be left to grow and survive under natural conditions with no application of intensive culture or management by man.

Artificial channels have been used for salmon and steelhead but they are not believed to be feasible for rearing rainbow trout. If one or more artificial spawning channels were built in lieu of hatcheries, some other means would have to be found for providing fish for the trout stocking programs.

Construction of channels would require more excavation work than that required for a hatchery. This could result in a higher

deposition of silt and a more severe impact on the associated stream for the short period of construction of the channel.

Fish production from spawning or egg incubation channels can be erratic. Flood condition and accompanying high silt loads can smother eggs and kill young fish. Fish diseases can be a very serious problem, and the total production of many channels has been lost in some years due to diseases.

Large numbers of fish residing in a channel would be releasing solid and liquid metabolic waste products directly into the water. This would enrich the stream more than hatchery effluent (on a per-fish basis) since most of the solids of hatchery effluent would be removed in settling basins.

A spawning channel could be some adverse influence on wildlife if it were to be located where habitat would be removed for construction. Compared to a hatchery site, however, a spawning channel would have less adverse impact. There would be less human activity in the area. Brush and trees may grow along the channel and would provide some habitat.

Substantial amounts of water would have to be used in the channels during the spawning and incubation. This water would probably be diverted from an adjacent stream and it would not be available for other uses during this period. There may be additional land required for channel development.

e. Improve the Warm-water Fishery.

More effort could be undertaken to improve the resident fishery in the four Lower Snake River impoundments. The plan recommended by the fish and wildlife agencies does not include any provisions for improving the spiny-ray (bass, crappie, perch) fishery in the project waters. For example, measures to improve spawning and rearing habitat for warm-water fish could be undertaken. The concept of spiny-ray fishery improvement is very much compatible with the biological conditions of the impoundments. The Corps of Engineers proposes to investigate this alternative more fully prior to proceeding with a trout hatchery for resident fishery compensation.

f. Land Acquisition.

The proposed compensation plan has been formulated in an attempt to provide a balance between compensation for losses occurring in fish and wildlife resources and the effects or concern to private landowners. Basic alternatives for the land acquisition section of the plan revolve around either more or less land acquisition.

Except for the general requirements for hatchery sites, it is not possible at this time to define separable elements of the proposed land acquisition program to allow detailed discussion of the environmental effects of lesser acquisition plans. Generally, though, it is possible to envision some possible impacts of a lesser program. Primarily, these effects would revolve around not replacing both lost outdoor fishing and hunting opportunities and wildlife habitat. Estimates of lost hunter and fisherman days caused by the Lower Snake River Project total approximately 818,000 (see Tables 5 and 7 for a breakdown of this loss). While this does not represent the total loss associated with project construction, it is a measure of one segment of loss that has occurred. By not providing replacement resources to satisfy this type of activity demand, the displaced fish and wildlife oriented people are more heavily using other areas in the region. Loss of quality in hunting and fishing experience can be a result of this crowding. Although recreation development has been and is taking place on the Lower Snake River Project, it is of a different segment of the population.

With a lesser program of land acquisition for wildlife habitat development and easement hunter access, the loss of wildlife and associated wildlife resources probably would not be fully replaced.

Reduced land acquisition for the hatcheries would result in deletion of one or more hatcheries, except as it might be possible to locate or expand hatcheries on existing public land somewhere in the region.

Reduced land acquisition at points along streams for fisherman access would proportionately reduce the amount of public fishing area provided.

Reduced (or no) land acquisition for the fish and wildlife purposes would be responsive to expressed concerns of private landowners and would reduce or avoid changes in local socioeconomic patterns as a result of the proposed compensation plan.

g. Game Bird Production.

There are three methods of meeting the recommended pheasant requirement for upland game bird hunting. One method is to establish a game bird farm. The second method is to purchase the birds for stocking from a commercial farm. The third method is to provide good habitat management to bring pheasant populations back. The construction and operation of a game bird farm is estimated to cost about $360,000 each year over a 20-year operation period compared to a cost of about $5.00 each for purchasing pheasants.

Differing views have been expressed on the desirability of using domestically grown birds for release in the wild to offset hunting demand. Under the proposed plan the Corps would furnish

funds to the Washington Department of Game to provide birds either by purchase, enlarging an existing bird farm, or constructing a new one.

The Corps has studied more, intensive development of wildlife habitat on project land. If possible, this would reduce the amount of off-project land required for compensation of wildlife losses. The amount of developable land remaining along the shoreline has been severely reduced after project construction because of extensive reaches of riprapped railroad and highway relocations and vertical, barren cliffs. Those areas which can be developed are not capable of replacing the amount and kind of habitat and wildlife numbers existing along the open river. Present plans for development of habitat on project lands, as developed by independent consultants, demonstrate the maximum improvements obtainable which are economically feasible.

VII THE RELATIONSHIP BETWEEN LOCAL SHORT-TERM USES OF MAN'S ENVIRONMENT AND MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY

Optimum fish populations cannot be maintained under present conditions without implementation of compensation action.

Long-term use of the environment by the hatcheries would increase trout, steelhead, and salmon populations in local waters. An additional 233,000 trout, 18,300 fall chinook, 58,700 spring and summer chinook, and 55,100 summer steelhead would help insure high fish survival.

With construction of the hatcheries, the undisturbed habitat at each local hatchery site would not continue to provide a suitable environment for forms of wildlife indigenous to the area, including deer, foxes, jackrabbits, and other small mammals. However, the trade-off in favor of improved fishery is considered to be the more significant long-term objective.

Long-term use of the environment by the hatcheries would result in an annual discharge of ammonia, BOD, nitrates, phosphates, and solids into the receiving waters. The flora and fauna in the river could be expected to increase up to a level commensurate with the amount of nutrients available in the hatcheries' discharges. Once this level has been achieved, there should be no further increase. The long-term cumulative effects would be an initial increase in primary and secondary productivity in the receiving waters, followed by a static production of aquatic life at this new level.

The hatchery waste would be discharged into receiving waters which ultimately flow into the Columbia River and then the ocean. Salmon and steelhead population would increase in the forage range along the Pacific Coast. Such increases would result in adjustment in the predator-prey relationships of salmon and steelhead in the ocean.

Development of the hatcheries would increase the long-term productivity of the fishery. However, it would also reduce the amount of localized terrestrial production. At the end of their project life, the hatcheries could be removed from the environment.

With the development of the lands proposed for wildlife habitat, the land would provide a suitable environment for many forms of wildlife indigenous to the area, including deer, foxes, jackrabbits, and other species. Optimum wildlife populations cannot be maintained under present conditions without additional habitat. Hunting success along the rivers would not be restored to preproject levels without a development program.

Long-term use of the environment for wildlife habitat would restore pheasant, deer, and other game populations in local areas. The goal is to add 600 goslings, 1,800 deer, 13,400 furbearers, and 120,800 small birds and mammals. Development of wildlife habitat would greatly increase the long-term productivity of the land for wildlife purposes. The habitat area would provide wild game for hunters and study areas for naturalists.

Long-term use of the environment as wildlife habitat would result in the scattered discharge of nutrients to the land and into the local waters. Biological processes related to animal life cycles would occur.

The proposed land acquisition programs are intended to provide for long-term outdoor activities and for wildlife habitat development and preservation. The easement acquisition programs do not impair the primary use of land for agricultural production, while they would provide for replacement of lost outdoor activities. This, in a sense, is an embodiment of the multiple-use concept and, as such, provides a long-term benefit.

Fee title acquisition of the proposed 400 acres of land would probably preclude some commerical agricultural production on that land in favor of wildlife production.

In summary, the commitment of funds for easement and limited fee title acquisition would be a long-term public investment. The proposed program will provide for long-term availability of wildlife and outdoor resources which are generally in decreasing supply.

In the philosophical sense, the construction of hatcheries and game bird farms increases the dependency of the affected species upon the human management operation. In other words, natural processes are forced into a level of survival that is dependent on continued operation by human overt action. In a sense there is merit in devising compensation measures that can eventually become self-sufficient over the long term in order that natural systems do not become so increasingly man dependent. With hatchery operation for fish, it would appear that this goal would not suffice due to the pressures of use and the complexities involved. A goal of self-sufficiency for much of the wildlife habitat is more realistic, and the program of bird stocking is proposed only for a 20-year period until habitat is replaced.

The need for intensive manipulation of the natural systems as proposed in the fish and wildlife compensation program stems from the already high level of human impact caused by construction of the four lower Snake River projects. Establishment of hatcheries and wildlife habitat areas will require long-term commitments of energy, manpower, and money.

VIII ANY IRREVERSIBLE OR IRRETRIEVABLE COMMITMENT WHICH WOULD BE INVOLVED IN THE PROPOSED ACTION SHOULD IT BE IMPLEMENTED

The construction and operation of the hatcheries is expected to change the water quality of the receiving waters in that area immediately downstream from the hatchery through the release of wastewater from fish-rearing facilities and detention ponds. An increase in numbers of benthic organisms and algae growth is also expected in this area. This is only considered irreversible to the extent that complete waste treatment may be infeasible. If a "no discharge" program were someday adopted for the hatcheries (such as land disposal by sprinkler irrigation), then the water quality aspect would not be an impact factor. Once the source of stream enrichment is stopped, the level of algae growth and numbers of benthic organisms would decrease to a level dictated by the amount of nutrients occurring naturally in the river.

Modifications of land use patterns by wildlife populations as a result of increased human activities can be expected to occur in each of the local hatchery areas. However, all these effects perhaps could be reversible. If at some time in the future the hatcheries were no longer needed, the structures could be removed and the land regraded to its original contours. Original plant species could be replanted. Wildlife could be expected to use the area again after human activities stopped.

Since the hatchery sites have not been determined and surveyed, it is not known if they would have historical importance. The sites may contain some archaeological interest. Aborigines could have used the sites because they may be at a level-area, near water. Prior to construction of any hatchery, the site would be checked by archaeologists to ascertain archaeological significance. Any archaeological relics salvaged and removed or damaged during construction would be an irreversible impact to the on-site archaeological resources.

Development of the hatchery program would require the commitment of manpower, equipment, construction materials, energy, water, land, and monetary resources. These resources would not be available for any alternative use while needed for the project. Lands required for the anadromous fish hatcheries may be removed from the tax roles.

The irrigation system for waterfowl and game bird habitat areas would use pumps which would be an irreversible use of power. A certain number of seeds and plants would be required for habitat development.

Development of the habitat program would also require the commitment of manpower, equipment, construction materials, energy, water, land, and monetary resources. These resources would not be available for other uses.

There will be no irreversible commitment of environmental resources as a result of the proposed land acquisition. Financial resources will be committed which will not be recoverable in kind, although there will be definite returns in terms of outdoor use. Land use and ownership will change for those lands which may be acquired in fee.

The compensation program in general would not be an irreversible action in that hatchery fish production could be terminated and wildlife habitat areas could be converted to other uses.

IX COORDINATION

The preparation of the report of the Federal fish and wildlife agencies was a coordinated effort between the National Marine Fisheries Service and the U.S. Fish and Wildlife Service. Their work was reviewed by the various State fish and wildlife agencies.

The report, with recommendations of the fish and wildlife agencies, was then incorporated into a draft report by the Walla Walla District, Corps of Engineers. Public meetings were held by the Corps of Engineers to obtain views and comments. The draft report was made available to the public prior to the meetings.

Four meetings were held:

Richland, Washington	22 May 1973
Lewiston, Idaho	24 May 1973
Dayton, Washington	24 July 1973
Colfax, Washington	26 July 1973

A transcript of the public meetings has been prepared and published as a separate volume. Copies of the transcript are available from the Walla Walla District, Corps of Engineers, Building 602, City-County Airport, Walla Walla, Washington.

As a result of the public meetings, several varying views were expressed. Four such views are noted here as being the most commonly heard.

(1) Concurrence with the recommendations of the fish and wildlife agencies' report.

(2) Opposition to acquisition of private lands for wildlife habitat and public access.

(3) Opposition to the "bird farm" concept on the basis of ecological and economic reasons.

(4) Expression that more should be done specifically for nongame species.

Subsequent to the public meetings, two noted fish and wildlife authorities were engaged to review the plans and the comments obtained from the meetings. These men, Dr. Ernest O. Salo (fish) and Dr. W. L. Pengally (wildlife) in general concurred with the recommendations of the fish and wildlife agencies.

Coordination between the Corps of Engineers and the Federal and State fish and wildlife agencies has occurred in review of the consultants' reports. Additional coordination with the Washington Department of Game has also occurred as a result of the views expressed by private landowners in opposition to wildlife and acquisition.

The draft environmental impact statement was made available for review by agencies, organizations, and the public. Letters of comment which were received are included in the back of Appendix A of this statement. Responses to the comments received are also included in Appendix A.

The following agencies, organizations, and private citizens received a copy of the draft environmental impact statement but did not provide comments:

Honorable Warren G. Magnuson
Honorable Daniel J. Evans
Honorable Robert Straub
Honorable Cecil D. Andrus
Honorable Thomas S. Foley
Honorable Charles D. Kilbury
Federal Energy Administration
Regional Federal Highway Administrator
Adams County Commissioners, Washington
Asotin County Commissioners, Washington
Baker County Commissioners, Oregon
Clearwater County Commissioners, Idaho
Custer County Commissioners, Idaho
Franklin County Commissioners, Washington
Garfield County Commissioners, Washington
Gooding County Commissioners, Idaho
Grant County Commissioners, Oregon
Grant County Commissioners, Washington
Idaho County Commissioners, Idaho
Latah County Commissioners, Idaho
Lewis County Commissioners, Idaho
Nez Perce County Commissioners, Idaho
Umatilla County Commissioners, Oregon
Valley County Commissioners,
Walla Walla County Commissioners, Washington

Wallowa County Commissioners, Oregon
Whitman County Commissioners, Washington
Whitman County Pomona Conservation Committee, Washington
Mr. John Brewer, President, Whitman Cty. Woolgrowers Assoc.
Mr. Stephen G. Blankenship, Olympia, Washington
Mr. Ronald E. Bosley, Dayton, Washington
Mr. Lester Boyd, Moscow, Idaho
Mr. J. A. Broughton, Dayton, Washington
Mr. N. Valdez, Moscow, Idaho
Mr. Charles Raines, Bellevue, Washington
Mr. William J. Larson, Clarkston, Washington
Mr. E. C. Yarwood, Spokane, Washington
Mr. George I. Remington, Lewiston, Idaho
Tri-City Herald, Pasco, Washington
Walla Walla Union Bulletin, Walla Walla, Washington
(The) Oregonian, Portland, Oregon
Mr. David H. Chambers, Columbia Basin Bass Club, Washington
Mr. Hugh Jackson, Dayton, Washington
Dr. Irven O. and Mrs. Catherin G. Buss, Pullman, Washington
Dr. Daniel P. Chisholm, Walla Walla, Washington
Mr. William L. Davis, Dayton, Washington
Mr. Maurice Vial, Spokane, Washington
Mr. Clifford Worden, Walla Walla, Washington
Dr. W. L. Pengelly, University of Montana, Missoula, Montana
Mr. Thomas H. Rogers, Spokane, Washington
Dr. Ernest O. Salo, Univ. of Washington, Seattle, Washington
Ms. Alice Schroeder, Pullman, Washington
Mr. Dean C. Smith, U.S. Dept. of Justice, Spokane, Washington
Mr. Lawrence Cary Smith, Spokane, Washington
Mrs. Frances R. Spoonemore, Dayton, Washington
Mr. George C. Strickland, Walla Walla, Washington
Mr. H. S. Telford, Washington State Univ., Pullman, Washington
Mrs. H. P. Grosshans, Pullman, Washington
Mr. Arthur W. Hastings, Pomeroy, Washington
Mr. Clifford Haynes, Moscow, Idaho
Mr. Darin R. Heady, Waitsburg, Washington
Mr. Donald and Ms. Janet Howard, Pomeroy, Washington
Mr. Gerald Howard, Pomeroy, Washington
Mr. George and Ms. Bessie Hudson, Pullman, Washington
Mr. Gary and Mr. Sydney Jenkins, Colfax, Washington
Mr. Richard E. Johnson, Washington St. Univ., Pullman, Washington
Mr. Loring Jones, Moscow, Idaho
Mr. John and Ms. Leslie Lemaster, Colfax, Washington
Mr. John B. Lord, Sr., Pullman, Washington
Mr. Lawrence C. Dickmann, Pullman, Washington
Dr. Herbert L. Eastlick, Pullman, Washington
Mr. Dale Dewards, Walla Walla, Washington
Mr. J. H. and Leona Elder, Pullman, Washington
Mr. Samuel W. Francher, Tacoma, Washington
Mr. Paul C. Farrens, Walla Walla, Washington

Mr. Alton N. Filan, Waitsburg, Washington
Mr. William B. Garnett, Pullman, Washington
Mr. George and Ms. Dorothea Gault, Colfax, Washington
Mr. Donald W. George, Pullman, Washington
Pacific Northwest Waterways Assoc., Walla Walla, Washington
St. Joe Valley Assoc., Avery, Idaho
Sierra Club, Coeur d'Alene, Idaho
Tri-State Steelheaders, Inc., Walla Walla, Washington
Union County Farm Bureau, Island City, Oregon
Walla Walla County Farm Bureau, Washington
Washington Assoc. of Wheat Growers, Ritzville, Washington
Washington Environmental Council, Seattle, Washington
Whitman County Cattlemen's Assoc., Colfax, Washington
Idaho Environmental Council, Idaho Falls, Idaho
Izaak Walton League of America, Roseburg, Oregon
League of Women Voters of Washington, Seattle, Washington
National Audubon Society, Walla Walla, Washington
National Audubon Society, Kennewick, Washington
National Audubon Society, Seattle, Washington
National Wildlife Federation, Portland, Oregon
Native American Rights Fund, Boulder, Colorado
Northwest Steelheaders Council of Trout Unltd., Spokane, WA
Oregon Environmental Council, Portland, Oregon
Asotin County Cattlemen's Assoc., Washington
Clearwater Fly Casters, Pullman, Washington
Columbia County Cattlemen's Assoc., Pomeroy, Washington
Columbia County Sportsmen's Assoc., Starbuck, Washington
Columbia River Fishermen's Protective Union, Astoria, Oregon
Cooperative Fishery Unit, Univ., of Idaho, Moscow, Idaho
Garfield County Cattlemen's Assoc., Pomeroy, Washington
Mr. Richard D. Allen, Spokane, Washington
Mr. A. Dale Hutchens, Dayton, Washington
Environmental Policy Center, Washington, D.C.
T & M Contracting, Inc., Winlock, Washington
Mr. Robert McDonald, Pullman, Washington
Trout Unlimited, Woodland, Washington
Pacific Northwest Power Company, Washington, D.C.
Mr. High Smith, Rives-Bonyhaidi-Drummond, Portland, Oregon
Port of Whitman County, Colfax, Washington
Mr. John Heuley, Jr., Hay, Washington
Pacific Northwest Regional Commission, Vancouver, Washington
Mr. Paul B. Kannowski, Univ. of North Dakota, Grand Forks, ND
Ms. Liz Greenhagen, Raymond, Washington
Sales Insurance Agency, Pullman, Washington
Mr. Sol J. Freeman, Richland, Washington
Mr. Bob Phillips, Forest Service, Portland, Oregon

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Credit is given to High Country News, 140 North Seventh Street, Lander Wyoming 82520, from which most of the wildlife sketches were taken.