# THE INITIAL AND ANNUAL COST OF MIGRATORY FISH PROTECTION IN THE COLUMBIA RIVER SYSTEM

The costs listed in the table for the 5 different types of projects under the heading "Projects Completed or in Progress" do not represent all of the costs involved in these projects. In some cases records were not kept of the expenditures made for the projects and in others it was not possible to separate the expenditures by projects. The costs of the projects are all listed as estimates. This is not true for all of them, some were based on actual expenditures but it would have made the table too complicated to list them as actual and estimated costs. The estimates we received were based upon comparable actual costs and we believe they are sufficiently accurate for the purpose of this program.

The value of the different types of projects for fish protection cannot be measured in terms of the initial investment in them nor in the annual cost of their operation. The fishways in power dams are necessary to pass the fish upstream to their spawning grounds. The fish ladders in irrigation dams and over falls in the streams are just as necessary to enable the fish to reach their spawning grounds. The fish screens in the irrigation canals not only protect the young during their sojourn in the streams but also keep them from straying from the streams on their seaward migration.

The fish hatcheries are likewise of equal importance in that they replace natural spawning areas that are lost when the streams are used for other purposes. These also function very effectively in the building up of fish popu-



| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| I to V | TOTAL | All | A | B | C | | A | B | C |
| ilities and Protection | | rivate | 452,000 | | | | $77,900,000 | 3,116,000 | 710,000 |
| | $127,075,879 | | | 5,083,035 | 3,046,210 | 8,129,245 | | | 3,826,000 |

lations in newly developed spawning areas and streams.

With the greater use of the Columbia River system for power and irrigation new methods and facilities for protecting the fish populations in the river must be developed. The research projects on methods and facilities are fulfilling this need and are becoming more and more important. In other words, the initial and annual cost of migratory fish protection in the river system must be measured by the costs of all the projects combined. This amounts to an initial investment of $127,075,879 and an annual cost of operation and maintenance of $3,046,210.

The initial cost of these projects is a capital investment for fish protection and may be computed on the annual basis as 4 percent per annum, the interest the money invested in the projects could bring if placed in other investments. This, together with the annual costs for operation and maintenance, is $8,129,245 or the total sum that is being spent for migratory fish protection in the river each year.

The table also includes estimates of the initial cost and annual operation of fishways in dams proposed for future construction in the river system. There are 17 dams proposed for the river system that will affect the migratory fish runs in it. Of this total number 13 will be built by the Federal Government and 4 by private power companies. The cost estimates in the table include only 7 of these dams.

Continued improvement of the streams for fish life is also planned for the future. The project listed in this category in the table is for the general

improvement of the Yakima River system. As the proposed power dams are completed there will have to be accompanying construction of hatcheries and other facilities to compensate for the effect the dams will have upon the fish runs. Therefore, the total annual cost of $3,826,000 estimated for the 7 dams is only a small part of that which will be added to the annual cost of fish protection in the Columbia river system. Within the next 15 years the annual cost of migratory fish protection in the river system will, within all probability, reach a total of $15,000,000.

The public has a very definite interest in these annual expenditures for fish protection in the river system. Most of the federal power dams have been and will be built by the Corps of Engineers, U.S. Army, which plans to pay for at least 90 percent of the costs of construction and operation of fishways in their future dams on the river out of power revenues. All of the costs of construction and operation of fishways in private dams on the river will have to be paid for out of power revenues. In other words, the public is in reality paying for this protection.

With the above cost figures for fish protection in mind we would like to call attention to the next table which lists the production and value of the salmon and steelhead fisheries in the river and coastal waters.

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| Item of Cost | I Fishways and Facilities in Power Dams | | II Fish Hatcheries for Salmon and Steelhead | | III Fish Ladders and Screens in Irrigation Dams and Canals and Ladders over Falls | | | IV Transplantation of Fish Runs and Improvement of Streams for Fish Life | | V Research on Facilities and Methods for Fish Protection | | I to V TOTAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Federal | Private | Federal | State | Federal | State | Private and Other | Federal | State | Federal | Private | All |
| Projects Completed or in Progress | | | | | | | | | | | | A |
| Estimated Initial Cost | $67,737,000 | $39,622,200 | $ 9,883,000 | $ 866,679 | $ 1,827,000 | $ 129,000 | $ 500,000 | $ 3,559,000 | | $ 2,500,000 | $ 452,000 | $127,075,879 |
| Interest on Initial Cost at 4% per Annum | | | | | | | | | | | | B 5,083,035 |
| Estimated Annual Cost of Operation and Maintenance | 562,000 | 573,000 | 1,336,000 | 225,850 | 195,000 | 104,360 | 50,000 | | | | | C 3,046,210 |
| TOTAL ANNUAL COST (B and C) | | | | | | | | | | | | 8,129,245 |
| | | | | | | | | | | | | |
| Future Projects | | | | | | | | | | | | A |
| Estimated Initial Cost | $63,273,000 1/ | $12,500,000 1/ | | | | | | $ 2,127,000 2/ | | | | $77,900,000 |
| Interest on Initial Cost at 4% per Annum | | | | | | | | | | | | B 3,116,000 |
| Estimated Annual Cost of Operation and Maintenance | 510,000 | 200,000 | | | | | | | | | | C 710,000 |
| TOTAL ANNUAL COST (B and C) | | | | | | | | | | | | 3,826,000 |

1/ Estimated costs of seven of the seventeen additional power dams proposed for the river system

2/ Yakima River System improvement project