CLOSING REPORT
for the
COASTAL STREAM IMPROVEMENT
and
REHABILITATION PROGRAM

Authorized by
CHAPTER 527, OREGON LAWS, 1961

Virgil C. Summers
and
Edward K. Neubauer

Fish Commission of Oregon
Portland, Oregon
MARCH 15, 1965
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<td>Upper Drift Creek Falls in Operation, January 20, 1965.</td>
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COASTAL STREAM IMPROVEMENT

AND

REHABILITATION PROGRAM

Authorized by

Chapter 527, Oregon Laws, 1961

INTRODUCTION

The natural production of anadromous fish in many coastal streams has been seriously reduced by pollution, dams, timber harvesting, siltation, and other such forces. Many miles of streams that could be in production are not available to anadromous fish because access is blocked by log jams or natural barriers such as falls. The Fish Commission of Oregon and the Oregon State Game Commission have continuing programs to rehabilitate streams, but much needed work has not been done because of insufficient funds. The importance of anadromous fish resources and their maintenance have caused local industry, resource-oriented groups, and individuals, as well as other state and federal government agencies, to actively support increased effort in stream improvement work. Legislative action reflected this support in 1961 when the House Committee on Fish and Game introduced a bill at the request of the Oregon Coast Association asking for $1,000,000 of general fund money to help anadromous fish runs in coastal streams south of the Columbia River. The bill was modified during the legislative session by an amendment which reduced the proposed sum to $120,000 and required a matching contribution from an outside source of at least 40 per cent of each project's cost. The amended bill (House Bill 1738) was passed into law in May 1961 and authorized the Fish Commission of Oregon to administer the program. It became known as the "Coastal 60-40 Program" because of the ratio requirement of general fund appropriation to contribution fund.

The law that established the program, and the significant aspects of program accomplishment, including solicitation of contributions, execution of agreements, construction, benefits derived, and suggestions for guiding those who may be involved in similar programs in the future, are summarized in the text that follows.

AUTHORITY

House Bill 1738, establishing the Coastal 60-40 Program, was signed into law by the Governor and filed with the Secretary of State on May 23, 1961. The bill was recorded in Chapter 527, 1961 Oregon Laws, and it provided for a program life span of 2 years beginning on July 1, 1961. The specific terms of the act are as follows:

Be It Enacted by the People of the State of Oregon:

Section 1. (1) For the biennium beginning July 1, 1961, the Fish Commission of the State of Oregon may carry out projects for the maintenance and rehabilitation of the
anadromous fish resource of this state through the preservation or improvement of natural production areas, such as coastal stream rehabilitation; but no such project shall deal with stream clearance other than in the coastal streams south of the mouth of the Columbia River.

(2) The fish commission shall determine the projects to be undertaken under subsection (1) of this section; but no such project shall be undertaken unless at least 40 per cent of the cost thereof is made available from a source other than that provided for in section 2 of this Act.

Section 2. There hereby is appropriated to the Fish Commission of the State of Oregon, for the biennium beginning July 1, 1961, out of the General Fund, the sum of $120,000 for the purpose of carrying out the provisions of section 1 of this Act.

Section 3. This Act being necessary for the immediate preservation of the public peace, health and safety, an emergency is declared to exist, and this Act shall take effect on July 1, 1961.

Implementation and administration of the act necessitated legal interpretations of (1) what constitutes a project, (2) what forms other than cash might the contributions consist of, and (3) to what extent must the contribution be assured before releasing the general fund appropriation for use.

An agreement was defined as a written contract between a responsible contributor and the fish commission for the express purpose of maintaining and rehabilitating the anadromous fish resource. The contributor was any individual, group, or agency who could make available at least 40 per cent of the actual total project cost in cash or equivalent. Constructing a fishway or rearing pond, removing log jams or other obstructions, improving fish habitat, and similar work was defined as "stream improvement." One or more stream improvements covered under a single agreement was defined as a "project." Cash, labor, materials, and other services directly relating to project development were determined to be acceptable forms of contribution provided they could be assigned a cash value. Contributors were required to give written assurance that their share of the project would be paid for by the time the project was completed. This assurance became binding upon execution of an agreement.

The fish commission disqualified itself as a contributor. Although the department had a general fund appropriation for stream improvement, it did not appear that the legislature intended these funds to be used as a contributor share in the Coastal 60-40 Program.

The act did not establish administrative funds for activating the program. The fish commission therefore found it necessary to use its regular funds for this purpose. Once an agreement was made, it was possible for the department to charge related expenses to the project.

Geographical distribution of projects was considered to be less important than the value of the projects to the resource.
PROGRAMMING

Administration of the Coastal 60-40 Program was added to the existing work assignments within the fish commission without increasing the staff. The responsibility of project coordination was assigned to the Division of Engineering. A civil engineer from this division became program coordinator for the duration of the program. The coordinator worked closely with staff personnel in the Divisions of Research, Administration, and Fish Culture in the formulation of procedures, execution of agreements, and the completion of projects. In general, the Research Division provided project investigations and justifications; the Administration Division handled fiscal and business matters; the Engineering Division made surveys, prepared plans and cost estimates, and performed the work; and the Fish Culture Division provided fish for rehabilitation projects when appropriate. The State Fisheries Director made the final determination in all matters.

Four general meetings were held in larger coastal cities during 1961 to inform the public about the act and to seek contributions. The State Fisheries Director presented the department’s plans and requested comments, suggestions, and active support from the public. Additional meetings with groups who requested more information or expressed a desire to participate were conducted by the program coordinator. The attendance shown in Table 1 was less than anticipated but proved a stimulant to ultimate activation of project work.

Table 1. Summary of Attendance at Public Meetings to Explain the Coastal 60-40 Program, 1961-1962.

<table>
<thead>
<tr>
<th>Date</th>
<th>Location</th>
<th>Public</th>
<th>Fish Comm.</th>
<th>Other Gov't.</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>November 27, 1961</td>
<td>City Hall, Astoria</td>
<td>6</td>
<td>8</td>
<td>5</td>
<td>19</td>
</tr>
<tr>
<td>November 29, 1961</td>
<td>Courthouse, Tillamook</td>
<td>30</td>
<td>6</td>
<td>5</td>
<td>41</td>
</tr>
<tr>
<td>December 4, 1961</td>
<td>Sam Case School, Newport</td>
<td>65</td>
<td>8</td>
<td>3</td>
<td>76</td>
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<tr>
<td>December 7, 1961</td>
<td>City Hall, Coos Bay</td>
<td>19</td>
<td>10</td>
<td>3</td>
<td>32</td>
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<tr>
<td>January 26, 1962</td>
<td>Grange Hall, Scottsberg</td>
<td>33</td>
<td>1</td>
<td>1</td>
<td>35</td>
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<tr>
<td>February 26, 1962</td>
<td>Courthouse, Gold Beach</td>
<td>17</td>
<td>1</td>
<td>3</td>
<td>21</td>
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<tr>
<td>March 9, 1962</td>
<td>Masonic Building, Taft</td>
<td>26</td>
<td>1</td>
<td>3</td>
<td>30</td>
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<tr>
<td>April 10, 1962</td>
<td>Coquille Hotel, Coquille</td>
<td>13</td>
<td>2</td>
<td>5</td>
<td>20</td>
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<tr>
<td>May 16, 1962</td>
<td>Community Building, Brookings</td>
<td>8</td>
<td>1</td>
<td>0</td>
<td>9</td>
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<tr>
<td>December 20, 1962</td>
<td>I.W.L.A. Club, Waldport</td>
<td>7</td>
<td>2</td>
<td>1</td>
<td>10</td>
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Separate discussions also were held with county officials, owners and managers of industry, quasi-public bodies, individuals, and sportsmen groups in an attempt to develop contributor participation. Many indicated a desire to contribute, but a general slump in the coastal economy prevented immediate
participation. The U. S. Forest Service and U. S. Bureau of Land Management on the other hand had begun stream rehabilitation programs on their lands and were interested in contributing to the Coastal 60-40 Program. Agreements were negotiated with these federal agencies on several stream improvement projects.

PROJECTS DEVELOPED

Fourteen projects covering 25 separate stream improvements were activated under the program. Thirteen projects had 1 contributor each, and 1 project had 22 contributors. Lengthy negotiations were required to consummate many of the project requirements. Figure 1 shows the general location of stream improvement work. The project contributor, location and type of work, justification, construction methods employed, and costs are summarized in Table 2.

Both contract and force account methods were used in constructing stream improvements. Force account construction involved the utilization of the fish commission's regular work force, or that of the U. S. Forest Service in some cases, supplemented by temporary help. Contract work was done by constructors who entered into a contract with the fish commission to perform all the work for a predetermined price, usually determined by bidding.

Each of the stream improvements accomplished are described in the text that follows.
Figure 1. GENERAL LOCATION OF STREAM IMPROVEMENTS
ACCOMPLISHED UNDER THE COASTAL 60-40 PROGRAM

1. Mill Creek Fishway
2. Sloop Creek Fishway
3. Little Elk Creek Fishway
4. Axtel Creek Fishway
5. Trout Creek Fishway
6. Sunshine Creek Fishway
7. Schooner Creek Stream Clearance
8. Bull Run Creek Stream Clearance
9. Cedar Creek Stream Clearance
10. N. F. Necanicum River Fishway
11. Five Rivers Fishway
12. Cherry Creek Spawning Channel
13. Phillips Creek Stream Clearance
14. Camp Creek Rearing Pond
15. Fall Creek Fishway
16. Middle Creek Fishway
17. Tioga Creek Stream Clearance
18. Nehalem River Rock Removal
20. Red Cedar Creek Stream Clearance
21. Siskiyou National Forest Stream Clearance
22. Chetco River Stream Clearance
23. Hubbard Creek Stream Clearance
24. Drift Creek Fishways No. 1 and No. 2
25. Siuslaw National Forest Stream Clearance
Table 2. Summary of Project Contributors and the Location, Type, Justification, Construction Methods, and Costs for Coastal "60-40" Stream Improvements. 1/

<table>
<thead>
<tr>
<th>Project Contributor</th>
<th>Location &amp; Type of Stream Improvement</th>
<th>Justification</th>
<th>Cost Estimate by State</th>
<th>Force Account</th>
<th>Bidders (Underlined bidder awarded contract.)</th>
<th>Bid Amount</th>
<th>Final Cost</th>
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<tr>
<td>Port of Toledo</td>
<td>Mill Cr., Siletz R., near Logsden, Sec. 33, T.98., R.9W.--Fishway (7½' falls)</td>
<td>10 mi. of habitat for estimated 14,350 coho and chinook fingerlings</td>
<td>$3,500</td>
<td>X Smith Transfer Co. Plank Const. Co.</td>
<td>$3,400 $3,483</td>
<td></td>
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<tr>
<td></td>
<td>Sloop Cr., Yaquina R., 3 mi. above Elk City, Sec. 36, T.103., R.10W.--Fishway (6' falls)</td>
<td>Rearing for 750 coho smolts</td>
<td>2,000</td>
<td>X Smith Transfer Co. Plank Const. Co.</td>
<td>1,900 1,909</td>
<td></td>
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</tr>
<tr>
<td></td>
<td>Little Elk Cr., Yaquina R., at milepost 28.2, Highway 20, Sec. 18, T.11S., R.8W.--Fishway (9' falls)</td>
<td>3 mi. of good spawning gravel for coho</td>
<td>2,750</td>
<td>X2/ Smith Transfer Co. Plank Const. Co.</td>
<td>3,548 3,536</td>
<td></td>
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<tr>
<td>Port of Alsea</td>
<td>Axtel Cr., Yachats R., 6 mi. above Yachats, Sec. 34, T.14S., R.11W.--Fishway (6' falls)</td>
<td>2 mi. of excellent spawning area for coho</td>
<td>2,000</td>
<td>X2/ Smith Transfer Co.</td>
<td>3,050 2,538</td>
<td></td>
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<tr>
<td>Lincoln County</td>
<td>Trout Cr., Salmon R. 1½ mi. above Slick Rock Cr., Sec. 12, T.7S., R.10W.--Fishway (14½' falls)</td>
<td>2.75 mi. of good habitat for coho and steelhead</td>
<td>4,700</td>
<td>X Smith Transfer Co. Du Ritte Co. L. Kauffman Co.</td>
<td>4,650 4,669 4,682</td>
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<td></td>
<td>Sunshine Cr., Siletz R., 8 mi. above Camp Gorge, Sec. 2, T.98., R.9W.--Fishway (6' falls)</td>
<td>7 mi. of good habitat for chinook and steelhead</td>
<td>3,500</td>
<td>X Smith Transfer Co. L. Kauffman Co.</td>
<td>3,450 3,470 3,460</td>
<td></td>
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</table>
Table 2. Summary of Project Contributors and the Location, Type, Justification, Construction Methods, and Costs for Coastal "60-40" Stream Improvements (Continued).

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<th>Project Contributor</th>
<th>Location &amp; Type of Stream Improvement</th>
<th>Justification</th>
<th>Cost Estimate by State</th>
<th>Force Account Contract</th>
<th>Bidders (Underlined bidder awarded contract.)</th>
<th>Bid Amount</th>
<th>Final Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Schooner Cr., Siletz Bay, 6 mi. above Taft, Sec. 21, T.7S., R.10W.</td>
<td>Stream Clearance (5 log jams)</td>
<td>1 mi. of good habitat for coho and steelhead</td>
<td>$3,822</td>
<td>X Stocker Logging Co.</td>
<td>2,533</td>
<td>3,287</td>
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<tr>
<td>Bull Run Cr., Alsea R., 3 mi. above OFC Fish Hatchery, Sec. 2, 10, 11 &amp; 15, T.13S., R.9W.</td>
<td>Stream clearance (boulders &amp; 5 log jams)</td>
<td>2 mi. of good habitat for coho and steelhead</td>
<td>3,800</td>
<td>X Stouder Logging Co.</td>
<td>2,910</td>
<td>3,354</td>
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</tr>
<tr>
<td>Cedar Cr., Siletz R., 6 mi. above mouth, Sec. 22, 23, 28 &amp; 33, T.8S., R.10W.</td>
<td>Stream clearance (8 log jams)</td>
<td>4 mi. of good habitat for steelhead &amp; coho</td>
<td>7,390</td>
<td>X Stocker Logging Co.</td>
<td>6,750</td>
<td>9,960</td>
<td></td>
</tr>
<tr>
<td>Coast Theaters, Inc.</td>
<td>N. F. Necanicum R., 400' off Sunset Highway at Sunset Trout Farm, Sec. 21, T.5N., R.9W.</td>
<td>Fishway (8' diversion dam)</td>
<td>Several miles of good habitat for steelhead and coho</td>
<td>2,000</td>
<td>X --</td>
<td>--</td>
<td>2,179</td>
</tr>
<tr>
<td>U.S. Forest Service (Agreement No. 1)</td>
<td>Five Rivers, Alsea R., 1 mi. above Paris, Sec. 27, T.15S., R.9W.</td>
<td>Fishway (16' falls)</td>
<td>2.2 mi. of excellent habitat for coho, chinook, and steelhead</td>
<td>13,250</td>
<td>X2/ --</td>
<td>--</td>
<td>13,620</td>
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</tbody>
</table>
Table 2. Summary of Project Contributors and the Location, Type, Justification, Construction Methods, and Costs for Coastal "60-40" Stream Improvements (Continued).

<table>
<thead>
<tr>
<th>Project Contributor</th>
<th>Location &amp; Type of Stream Improvement</th>
<th>Justification</th>
<th>Cost Estimate by State</th>
<th>Force Account Contract</th>
<th>Bid Amount</th>
<th>Final Cost</th>
</tr>
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<tbody>
<tr>
<td>Cherry Cr., Alsea R., 1 mi. below Fisher, Sec. 36, T.14S., R.10W.--Spawning channel</td>
<td>Replace lost spawning area and add new rearing area for coho</td>
<td>$5,000</td>
<td>X</td>
<td>--</td>
<td>--</td>
<td>$4,583</td>
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<tr>
<td>Phillips Cr., Alsea R., 5 mi. east of Fisher, Sec. 28, T.14S., R.9W.--Stream clearance (1 log jam)</td>
<td>2 mi. of good habitat for coho</td>
<td>500</td>
<td>X</td>
<td>--</td>
<td>--</td>
<td>676</td>
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<tr>
<td>U. S. Bureau of Land Management</td>
<td>Camp Cr., Umpqua R., 21 mi. east of Reedsport, Sec. 31, T.22S., R.9W. and Sec. 36, T.22S., R.10W.--Rearing pond (experimental)</td>
<td>Natural rearing for 25,000 coho fingerlings</td>
<td>6,168</td>
<td>X</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Oregon State Highway Department</td>
<td>Fall Cr., Wilson R., 13½ mi. east of Tillamook, Sec. 7, T.1S., R.7W.--Fishway (16' falls below culvert)</td>
<td>3 mi. of good habitat for chinook, coho, and steelhead</td>
<td>15,278</td>
<td>X</td>
<td>Smith Transfer Co. 14,680</td>
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<td></td>
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<td></td>
<td></td>
<td></td>
<td>R. E. Holmes Co. 14,765</td>
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<td></td>
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<td></td>
<td></td>
<td></td>
<td>Riverside Const. Co. 17,925</td>
<td>17,925</td>
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<td></td>
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<td></td>
<td></td>
<td></td>
<td>Barnhardt &amp; Platt 19,500</td>
<td>19,500</td>
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<td></td>
<td></td>
<td></td>
<td>Coast Const., Inc. 20,700</td>
<td>20,700</td>
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<td></td>
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<td></td>
<td></td>
<td>Clackamas Const. Co. 27,990</td>
<td>27,990</td>
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<td>Project Contributor</td>
<td>Location &amp; Type of Stream Improvement</td>
<td>Justification</td>
<td>Cost Estimate by State</td>
<td>Force Account Bidder</td>
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<td>Bid Amount</td>
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</tr>
<tr>
<td>Coos County</td>
<td>Middle Cr., Coquille R., 18 mi. east of Coquille, Sec. 15, T.27S., R.11W. -- Fishway (21' falls)</td>
<td>15 mi. of good habitat for chinook, steelhead, and coho</td>
<td>340,360</td>
<td>X5/ J. B. Bryan Co.</td>
<td>D. W. Thompson Co.</td>
<td>34,150</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Drake Const. Co.</td>
<td></td>
</tr>
<tr>
<td>Menasha Corporation 6/</td>
<td>Tioga Cr., Coos R., 50 mi. east of Coos Bay, Sec. 16, 17, 21, 22 &amp; 27, T.27S., R.9W. -- Stream clearance (5 log jams)</td>
<td>Several miles of excellent habitat for coho, steelhead, and planted chinook</td>
<td>5,180</td>
<td>X Menasha Corp.</td>
<td>--</td>
<td>3,457</td>
</tr>
<tr>
<td>Nehalem Bay Expansion</td>
<td>Nehalem R., l mi. above Batterson, Sec. 22, T.3N., R.9W. -- Remove rock outcrop near existing fishway</td>
<td>Improve access to fishway</td>
<td>313</td>
<td>X</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>U. S. Forest Service (Agreement No. 2)</td>
<td>Hunter Cr., Pacific Ocean; Cole &amp; Rock Creeks, S.F. Coquille R.; (Involved 1,246 man-hours and equipment use)</td>
<td>Many miles of fair to excellent habitat for coho, chinook, and steelhead</td>
<td>10,059</td>
<td>X3/</td>
<td>--</td>
<td>10,059</td>
</tr>
<tr>
<td></td>
<td>Bald Mtn. Cr., Elk R., 13 mi. east of Port Orford, Sec. 17, T.33S., R.14W. -- Stream clearance (eliminate 6' falls by blasting)</td>
<td>3-5 mi. excellent habitat for coho, steelhead, and chinook</td>
<td>14,000</td>
<td>X X Enco, Inc.</td>
<td>Coast Const., Inc.</td>
<td>14,850</td>
</tr>
</tbody>
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</tr>
</thead>
<tbody>
<tr>
<td>U.S. Forest Service (Agreement No. 2)</td>
<td>Red Cedar Cr., Elk R., 2 mi. above Bald Mtn. Cr., Sec. 13, T.33S., R.14W.--Stream clearance (5 log jams)</td>
<td>2 mi. good habitat for coho, steelhead, and chinook</td>
<td>-1,000</td>
<td>X</td>
<td>Fort Orford Junior Chamber of Commerce</td>
<td>X</td>
<td>$1,056</td>
</tr>
<tr>
<td>Curry County</td>
<td>Chetco R., 26 mi. above Brookings, Sec. 13, T.38S., R.12W.--Stream clearance (eliminate 6' rock dam by blasting)</td>
<td>Easy access to several miles of good habitat for coho and steelhead</td>
<td>2,800</td>
<td>X</td>
<td>--</td>
<td>1,000</td>
<td></td>
</tr>
<tr>
<td>Port Orford Junior Chamber of Commerce 6/</td>
<td>Hubbard Cr., Pacific Ocean, 1 mi. south of Port Orford, Sec. 9, T.33S., R.15W.--Stream clearance (1 log jam)</td>
<td>Removal of jam at mouth opened entire stream (about 3.5 mi.) to all salmon and trout</td>
<td>1,000</td>
<td>X</td>
<td>Fort Orford Junior Chamber of Commerce</td>
<td>--</td>
<td>1,000</td>
</tr>
<tr>
<td>U.S. Forest Service (Agreement No. 3)</td>
<td>Drift Cr., Alsea R., 15 mi. south of Toledo, Sec. 29 &amp; 32, T.12S., R.9W.--Two fishways (each falls about 12' high)</td>
<td>6 mi. of good habitat for coho and steelhead</td>
<td>14,500</td>
<td>X</td>
<td>Alpine Gunite Const. Co.</td>
<td>7,830</td>
<td>14,500</td>
</tr>
</tbody>
</table>

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</tr>
</thead>
<tbody>
<tr>
<td>U.S. Forest Service</td>
<td>14 tributaries of Alsea R., Siuslaw National Forest--Stream clearance (1-4 log jams removed on each tributary)</td>
<td>Many miles of excellent habitat added to a major production stream system</td>
<td>12,000</td>
<td>3/</td>
<td>--</td>
<td>--</td>
<td>$12,000</td>
</tr>
</tbody>
</table>

1/ All cost figures are rounded to nearest dollar.
2/ Bids rejected and force account employed.
3/ Force account work by U. S. Forest Service crews.
4/ This agreement was formalized with Coos County, which assumed legal responsibility for matching fund requirements from 22 separate contributors.
5/ Labor contract only; materials furnished by contributors and Fish Commission.
6/ Acted both as contributor and contractor.
7/ Accomplished by combined contract and force account work.
8/ Final cost includes labor valued at $412 donated by contractor.
Mill Creek Fishway (Figures 2 and 3) - Siletz River System

Mill Creek Falls is a 7½-foot high sandstone formation impassable to anadromous fish at most water stages. Passage was provided by making a stepped cut through the sandstone along the left bank to form four 8-foot by 12-foot pools. The average rise between pools was 18 inches. A 30-inch high concrete deflection wall was constructed along the streamside to provide controlled flow through the fishway. The contract work was begun in August 1962 and completed in 3½ weeks. The total expenditure of $3,483 shown in Table 2 included $3,400 paid to the contractor and $83 expended for engineering inspection.

Sloop Creek Fishway (Figures 4 and 5) - Yaquina River System

Sloop Creek Falls is a 6-foot high sandstone cascade that restricted fish passage. The fishway was constructed similarly to the one on Mill Creek except that no deflection wall was provided. The contractor required 2 weeks to complete the work, which was done in August 1962. Contract payments, totalling $1,900 plus $9 in engineering expenses, comprised the final cost of $1,909 as shown in Table 2.

A 1964 seining survey above the fishway resulted in the collection of 510 naturally produced juvenile coho and an estimated population of 660.

Little Elk Creek Fishway (Figures 6 and 7) - Yaquina River System

Little Elk Creek Falls, known locally as Quarry Falls, is a 9-foot high basalt formation. The creek is 28 feet wide at this point and the normal high flow is estimated to be 250 c.f.s. A fishway was provided by step-cutting the upper part of the falls and constructing 2 concrete weirs that span the creek below the falls. Approximately 625 man-hours were required to excavate 56 cubic yards of rock and form, place, and finish 35 cubic yards of concrete. The force account construction began in August 1962 and was completed a month later. Latent foundation conditions required weir footings to be constructed deeper and wider than anticipated in the design. The landowner reluctantly executed a permit that allowed construction, but restricted the use of explosives so that most of the excavation had to be done with rock hammers. Bids were substantially above the engineer's estimate and were therefore rejected. Force account work also exceeded the estimate due to the changed conditions. The final cost, shown in Table 2, was $3,536 and includes necessary engineering surveys and plan revisions. Contract costs also would have been about $500 higher than the bid amount because of the necessary construction changes. Original design of the Little Elk Creek Fishway was accomplished with regular supervision and general expense funds of the Fish Commission and not 60-40 funds since the available matching contribution was insufficient to meet the contingencies involved.

Intensive sampling with a seine in the first 6,000 feet of stream above the fishway subsequent to its construction resulted in the collection of 3,048 coho fingerlings and a population estimate of 5,083 fish. None was found during sampling efforts and observations before the fishway was constructed.

Axtel Creek Fishway (Figures 8 and 9) - Yachats River System

Axtel Creek, at its confluence with the Yachats River, flows through a 42-inch road culvert and spills over a 6-foot sandstone ledge. Dense brush
and a soil mantle obscured much of the site which made it necessary to design the fishway as construction progressed. The completed fishway consists of 5 concrete weirs forming 5 pools, a concrete retaining wall along the left bank, with rock utilized for floors and right bank side. Approximately 52 cubic yards of rock and soil were excavated and 21 cubic yards of concrete placed during the 7-week construction period beginning in July 1963. The pools are approximately 9 feet wide by 8 feet long. The short pool length was made necessary by the short distance between the culvert and the river. The fishway will operate through moderate water stages. Operation at high stages will be restricted by high water velocity through the culvert. The one bid received for this work was rejected because it was more than $1,000 above the engineer's estimate. The final cost to construct the fishway by force account was $538 higher than the engineer's estimate but $512 below the one bid received. A survey made 100 yards above the fishway in 1964 revealed good numbers of coho present.

Trout Creek Fishway (Figures 10 and 11) - Salmon River System

Approximately 135 cubic yards of sandstone were excavated from the 11½-foot falls on Trout Creek in constructing the rock-cut, 6-pool fishway. The pools are approximately 15 feet long and span the creek from bank to bank. Flows through the fishway are not regulated. High water delayed construction but once started the contractor completed the work in 3 weeks. Work was done in June 1963. A total of $4,650 was paid to the contractor for this work. An additional $19 was charged to the project to cover engineering inspection. The engineer's estimate proved low by $99 as shown in Table 2. Coho fry were observed a half mile above the fishway in 1964 by department biologists.

Sunshine Creek Fishway (Figures 12 and 13) - Siletz River System

Sunshine Creek Falls is approximately 6 feet high. The fishway was constructed similarly to the fishway on Trout Creek except that there are 3 pools averaging 12 feet in length. Contract work was accomplished during August 1963. The total cost was $3,470 which included $3,450 for contract work and $20 for engineering inspection. The final cost was $30 below the engineer's estimate.

Fisheries biologists have observed spawning chinook above the falls since construction was completed. None had been observed during several years of stream survey and spawning ground observations prior to fishway construction.

Schooner Creek Stream Clearance - Siletz Bay

Five log jams were removed from Schooner Creek, some of which had formed many years ago. The contractor also removed 3 smaller jams caused by the 1962 Columbus Day storm. These smaller jams were passable but constituted potential blockage. Work was started in April 1963 and completed in June 1963. The work was estimated to cost $3,822; however, the final cost was only $3,287 (Table 2) and included a contract cost of $3,032 and engineering inspection and supervision costs of $255. The contract price included a $500 change order to cover the removal of the 3 additional jams.

County road crews have reported observing steelhead in the stream for the first time in several years.
Bull Run Creek Stream Clearance - Alsea River System

Upper Bull Run Creek was blocked to anadromous fish by 5 log jams, 1 of which contained boulders and earth as well as logs and debris. This 1 major jam spanned the creek at a height of 10 feet. The contractor, beginning work in March 1963, required 2 months to complete the contract. High water delayed early completion.

In conjunction with this work, the U. S. Forest Service removed additional jams located downstream on their lands.

This work cost $3,354. The contract price was $2,910 and engineering inspection and supervision was $444. The engineer's estimate of $3,800 was about $450 higher than the final cost.

Cedar Creek Stream Clearance - Siletz River System

The original project included the removal of 7 log jams, 6 of which were located in Cedar Creek and the other 1 in a small tributary immediately above the department's Cedar Creek fishway. During the removal of these jams, a "gully-washer" formed another jam of major proportions within the work area. This was a mud and log jam 300 yards long that spanned the creek. Funds were insufficient to cover its removal, but they were sufficient to allow removal of key logs and the bulldozing of 2 by-pass channels around the jam.

The contractor was severely challenged by weather, water, and terrain. It was necessary to ford the creek in 5 places to reach the upper jam. The contractor purchased an old GI truck for this purpose and wore it out on the job. Time was extended to offset the delays caused by storms and high water. Waste areas were so restricted by terrain that the contractor found it necessary to clear special disposal areas. The contract lasted from June until the middle of September 1963. The $7,390 cost estimate was realistic insofar as the original work was concerned as indicated by the $6,750 bid price. The additional work required to remove the eighth jam increased the final contract cost to $9,625. Engineering expenses amounting to $335 made the total cost $9,960.

North Fork Necanicum River Fishway (Figures 16, 17, and 18) - Necanicum River System

The privately owned Sunset Trout Farm, formerly a state fish hatchery, has an 8-foot high concrete diversion dam located on North Fork Necanicum River. This diversion dam included a fishway that had become inoperative and impassable to anadromous fish. Repair of the fishway was impractical due to advanced decay. The old fishway was removed and a new timber fishway having seven 6-foot by 8-foot pools and intake regulation was constructed around the right abutment of the dam.

Fishway construction required an earth cofferdam at the upstream end. On February 2, 1963 while construction was underway, heavy rains and melting snow caused the cofferdam to "blow out" which displaced much of the completed work. It was necessary to reconstruct the cofferdam and realign the structure before the fishway could be completed. This caused the final cost to exceed the engineer's estimate by approximately 9 per cent. The final cost was $2,179. A department crew started the work in January and completed it in mid-February.
The hatchery operator has reported observing adult coho passing through the new fishway on their way upstream to spawn.

**Five Rivers Fishway (Figures 19 through 23) - Alsea River System**

A soapstone falls rising approximately 16 feet in 3 steps, the largest step being 9 feet high, blocked upper Five Rivers to anadromous fish. The U. S. Forest Service proposed to construct a fishway around the falls rather than over the falls in order to reduce rock excavation and gain better access. Under a Coastal 60-40 Program agreement, the Forest Service constructed this fishway, which consists of a 250-foot canal with concrete weirs placed 12 feet apart over the lower 130 feet. A concrete headwall with a controlled orifice was constructed at the fishway exit and banks were riprapped to prevent erosion. The fishway is further controlled by a concrete leveling sill constructed across Five Rivers near the fishway exit.

The fishway was designed by the U. S. Forest Service and approved by the Fish and Game Commissions. The Forest Service estimated that the work would cost $13,250, but the final cost amounted to $13,620 (Table 2). The Fish Commission provided $5,750 from Coastal 60-40 Program appropriations. The Forest Service engineered and supervised the project and provided the $7,870 required for its completion.

The Forest Service crew started work in May 1963 and, after experiencing several delays caused by storms and floods, completed the work in September 1963. Two coho salmon and 5 cutthroat trout were observed in the fishway when final inspection of the facility was made on October 29, 1963. Juvenile coho were recovered by seining at 2 points above the fishway in 1964.

**Cherry Creek Spawning Channel (Figures 24 and 25) - Alsea River System**

An experimental stream bed spawning improvement was constructed in the lower reaches of Cherry Creek by placing 5 log sills from 100 to 300 feet apart across the channel and filling in between with 584 cubic yards of gravel. The gravel was obtained from other streams in the area. Chicken wire was installed in the stream bed immediately above the sills to prevent washouts under the sills. The work was completed by the department's crew in June 1963 without delay or change at a total cost of $4,583, which was $417 under the engineer's estimate.

One adult chinook, 1 chinook jack, 3 adult coho, and 1 coho jack were observed utilizing the spawning channel during spawning ground surveys conducted by department biologists in 1964.

**Phillips Creek Stream Clearance (Figures 26 and 27) - Alsea River System**

Stream clearance on Phillips Creek consisted of removing 1 log jam that was 150 feet long, 50 feet wide, and 8 feet high. Large logs were removed from the stream and deposited in an adjacent area designated by the landowner. Smaller logs and debris were deposited above the high-water mark along the stream banks. The department's stream clearance crew did this work in June and July 1963 at a total cost of $676 (Table 2).
Camp Creek Rearing Pond (Figures 28, 29, and 30) - Umpqua River System

Reconstruction of the Camp Creek timber access road by the U. S. Bureau of Land Management, completed in mid-1963, cut off a 2,500-foot oxbow channel in the creek. The bureau installed road culverts at upstream and downstream ends of the oxbow and constructed an impervious road fill at the time the channel change was made, anticipating use of the area as a rearing pond. Fisheries biologists felt that such a project had merit but the pond should be considered experimental because of a sparsity of data for making predictions in the adequacy of biological capabilities.

Construction consisted of clearing the oxbow area and erecting inlet and outlet controls. The outlet structure is a 20-foot high, half-round pipe 6 feet in diameter, equipped with stop logs and screens, set on a concrete base, and attached to the downstream road culvert. The pond can be drained or operated at any depth up to 18 feet at the downstream end by manipulating the stop logs in this structure. The intake structure attached to the upstream road culvert consists of a base and screens. This road culvert was found to be vertically misaligned which required the addition of a rock and boulder dam of about 1½ feet in height to raise the elevation of Camp Creek.

The oxbow was heavily wooded and bushy. Volunteer labor and equipment provided by the Umpqua Grange District cleared the area and made a worthy contribution to the program. The Port of Umpqua Courier romantically described the Grange's effort as follows:

Operation Salmon Off to a Good Start

Phil Swanson's call for volunteer workers met with good response. The day started out a little misty but soon the sun was shining and the men were shedding their rainwear. As the saws and axes rang out, the alders fell with a steady rhythm. Trees and brush felled all the way around the oxbow attested to a job well done by willing workers. A canteen was set up under a wickiup and soon the odor of boiling coffee made from Camp Creek water was floating on the breezes.

Storms and floods caused considerable delay in completing construction. Stream bed erosion made it necessary to extend the inlet pipe and reconstruct the rock sill to provide water at low flow.

The total cost of this work was $6,168. The U. S. Bureau of Land Management spent $3,468 to provide an impervious core in the road fill and the inlet and outlet culverts. The Fish Commission spent $2,672 to make the facility operational. The labor provided by the Umpqua Grange District was not charged to the facility, but it had real value without which the department's expenditure would have been much higher. On March 11, 1964 25,000 swim-up coho from the Alsea River Salmon Hatchery were placed in the pond. The impoundment was dewatered during the 1964 Labor Day weekend either by stoplog failure or vandalism, resulting in a large number of planted coho fingerlings being prematurely released. A sufficient number remained after repairs were made to provide preliminary information on the ability of the pond to sustain fish life. Further study will be required.
Fall Creek Fishway (Figures 31, 32, and 33) - Wilson River System

Fall Creek is channeled through a 10-foot-square box culvert under the Wilson River Highway and, prior to fish passage improvements, cascaded approximately 16 feet to the Wilson River. The culvert was equipped with baffles several years ago but the cascading entrance condition was not compatible with fish passage. A 10-pool fishway was designed by the department and constructed under contract to correct the bad condition. The upper 3 pools are each 9 feet long and 19 feet wide. Connected to the lower end of this section are 7 more pools, each 6 feet wide and 8 feet long. This plan allows good control at the fishway entrance and moderate control on the culvert approach.

The entire fishway is constructed of reinforced concrete. Rock excavation and construction were made difficult by flows through the culvert. It was not possible to divert these flows clear of the work. High water delayed the construction start, and winter flows delayed completion until early in 1964. Local people have reported seeing fish in the fishway since it was placed in operation. Contract work cost $14,680 (Table 2). Additional expense approximating $500 for contract administration and inspection was absorbed by the department.

Middle Creek Fishway (Figures 34 through 39) - Coquille River System

The fishway constructed at Middle Creek Falls is by far the largest single undertaking under the Coastal 60-40 Program. The falls plunge 21 feet over a vertical basalt, sandstone, and shale ledge into a gorge not readily accessible to construction equipment. A small cabin which overlooks the falls made it necessary to closely control the use of explosives for rock excavation. The difficulties and expense of constructing a fishway at this site were justified by the stream’s large amount of apparent spawning and rearing capability and the local desire to contribute. In addition to a cash contribution from Coos County, the timber industry, port commissions, materials dealers, etc. — 22 in all — contributed cash and materials to the project.

A reinforced concrete fishway was constructed along the left bank of the stream. It has twenty 6-foot by 8-foot pools. Weirs between pools are made of wood stop logs to provide for maximum adjustment and cleaning. Excavation was minimized by constructing nearly all of the ladder on the downstream side of the falls crest. This necessitated a switchback in the fishway in order to locate the entrance near the base of the falls.

The original plan did not call for concrete floors or concrete walls over the entire length. Subsurface conditions, revealed through excavation, made it necessary to redesign the structure using reinforced concrete throughout. The contractor lost his forms during 1 freshet. The structure required the excavation of 400 cubic yards of rock and the placement of 150 cubic yards of concrete.

The fishway was dedicated on November 4, 1963. A highlight of the dedication was the observance of 2 salmon entering the fishway.

The engineer's estimate of $40,360 included $3,500 for contingencies such as the required change described above.
The accepted bid price was $25,410. Change orders covering foundation and design changes made the final contract $26,635. Contract work included labor, equipment, and performance of all work. All lumber was furnished by the contributors. Other materials such as concrete and reinforcing steel were purchased by the Fish Commission with general appropriation and contribution funds. The total expenditure was $39,695 and did not include any of the department's engineering or administrative expenses.

Twenty-six coho salmon were observed spawning above the fishway during spawning ground surveys conducted in 1964. Most of these were spawning in Alder Creek located about 4.5 miles above the Middle Creek fishway.

***Tioga Creek Stream Clearance - Coos River System***

Stream clearance work on Tioga Creek was accomplished during May and June of 1963 and consisted of removing 5 log jams, the largest being 150 feet long by 6 feet high. Menasha Corporation, the contractor-contributor, also removed 5 boulders that contributed to the formation of these jams. The largest boulder measured over 10 feet high and 15 feet wide. Cost of the project totaled $3,457 (Table 2).

The rehabilitation of Tioga Creek has involved other stream improvements in addition to the 60-40 work, plus the following associated introductions of salmon: approximately 400,000 fall chinook eggs planted in the gravel in 1962 and coho plants in the approximate amounts of 222,000 fry and 41,000 fingerlings in 1962; 99,000 fry and 8,000 fingerlings in 1963; and 99,000 fry in 1964. Wild coho salmon were seen spawning in an area about 5 miles upstream from the stream clearance site in the fall of 1963, the first season of unobstructed access. Juvenile coho salmon were again observed above the improved area in the summer of 1964. Steelhead also are expected to benefit from the stream improvement work.

***Nehalem River Rock Removal - Nehalem River System***

This work consisted of removing a rock outcrop that caused a false attraction near the entrance of the Nehalem River Falls fishway which was constructed by the Fish Commission several years ago. This work cost $283.

***Siskiyou National Forest Stream Clearance***

The U. S. Forest Service and the Fish Commission mutually determined that certain log jams in streams within the Siskiyou National Forest constituted barriers to anadromous fish passage. The two agencies entered into a Coastal 60-40 Program agreement which provided that the U. S. Forest Service would remove log jams on Hunter Creek, a tributary of the Pacific Ocean, Cole and Rock Creeks, tributaries of South Fork Coquille River, and Chetco River and do miscellaneous stream restoration work which included bank stabilization. This agreement also provided that the Fish Commission would improve Bald Mountain and Red Cedar Creeks.

The Forest Service performed their work in accordance with their own standards and policy which were considered compatible with Fish Commission requirements. The Forest Service expended $5,596 on Hunter Creek, $1,352 on Cole Creek, $3,537 on Rock Creek, $1,764 on Chetco River, and $810 for miscellaneous bank protection. Their total expenditure for stream improvement within the forest amounted to $10,059 and it included 1,246 man-hours of labor.
Bald Mountain Creek Stream Clearance - Elk River System

A series of cascades formed by an old boulder slide, located approximately 200 yards above the confluence of Bald Mountain Creek and Elk River, restricted anadromous fish passage. Although the area is unstable and cluttered with debris, it was decided that a by-pass could be cut through the boulder strewn channel and a portable aluminum denil type fishway installed to provide easy passage over a 6-foot high barrier. The contractor completed the channel clearance and excavation and constructed the concrete sills upon which the fishway rests. The denil units were fabricated under separate contract for installation by the department.

Before the denil units were installed, heavy rains and rolling boulders damaged one of the concrete sills. While awaiting repairs, several large slides and washouts occurred upstream due in part to new logging operations. The fishway site was completely torn up by large boulders, logs, and drift. It was then determined that fish passage could best be accomplished by breaking up the boulders and cascades with explosives which was done early in 1964. Additional work will be required periodically to maintain passage.

The portable denil fishway is an Alaskan design yet untried in Oregon. This fishway will be installed in another location at a later time.

The total cost was $14,280 which exceeded the engineer's estimate by $280. The total cost included $2,858 for contract fabrication of fishway units, $9,507 for contract stream clearance and concrete work, and $1,996 for force account stream clearance work. The final contract price of $9,507 was $90 less than the bid price because of design modifications that were made as the work progressed.

Adult chinook were observed spawning above the improved area in 1963. Game Commission surveys conducted early in 1965 disclosed 21 chinook, 2 coho, and 36 redds in the creek.

Red Cedar Creek Stream Clearance - Elk River System

This project involved the removal of 5 log jams, ranging from 8 feet high, 20 feet wide, and 8 feet long to 20 feet high, 50 feet wide, and 50 feet long, located near the mouth of Red Cedar Creek. The Fort Orford Junior Chamber of Commerce performed the work under a contract with the Fish Commission. All work was completed early in December 1964. Expenditures totaled $1,088 of which $676 was paid from the 60-40 appropriation and the remainder contributed by the Junior Chamber of Commerce. U. S. Forest Service personnel reported seeing fish in Red Cedar Creek after stream clearance was completed.

Chetco River Stream Clearance (Figures 40 and 41) - Chetco River System

Stream clearance work on the Chetco River consisted of removing a 6-foot high natural rock dam that spanned the river. The site is about a mile beyond the road. This necessitated packing all drilling and blasting equipment and explosives to the site. Approximately 30 cubic yards of rock were removed, which in turn released gravel deposits that lay behind the dam. Plans to remove a second obstruction were abandoned after high water removed some of
the large boulders and improved passage conditions. Work was accomplished during July and August 1963 by a crew composed of Fish Commission and county personnel. The county also furnished much of the material and some transportation.

The total expenditure was $1,056. The engineer's estimate of $2,800 shown in Table 2 included the work that was not undertaken.

Hubbard Creek Stream Clearance (Figures 42 and 43) - Pacific Ocean

Members of the Port Orford Junior Chamber of Commerce and their families worked evenings and weekends to remove a log jam in Hubbard Creek between the Coast Highway and the Pacific Ocean. This jam measured roughly 10 feet high, 120 feet long, and 45 feet wide. Sixty per cent of their effort was paid for in cash from the general fund appropriation. The total cost of the project was $1,000 (Table 2).

Siuslaw National Forest Stream Clearance

The third agreement with the U. S. Forest Service provided for 2 fishways on Drift Creek and specified that the U. S. Forest Service would do stream improvement work in Siuslaw National Forest. The agreement did not describe the stream improvements that the Forest Service would undertake, but it did specify that the service would expend $29,892 for such work. The total expenditure was to cover a 3-year period as follows: $4,001 in fiscal year 1961, $11,841 in fiscal year 1962, and $14,050 in fiscal year 1963.

The U. S. Forest Service reported on August 15, 1963, after the Coastal 60-40 Program had expired, and fiscal year 1963 had ended, that they had expended $18,000, $34,000, and $40,000, respectively, during the 3-year period. Some of the items covered by these expenditures included boat ramp construction which is not considered Coastal 60-40 Program work. The service removed from 1 to 4 jams in each of 14 tributaries of the Alsea River during fiscal year 1962 at an estimated total cost of $12,000. This $12,000, which exceeds the 40 per cent requirement, was used as the Forest Service share in this project.

Drift Creek Fishways (Figures 44 through 47) - Alsea River System

Lower Drift Creek Falls, locally known as Bohannon Falls, is a dense sandstone formation about 12 feet high. The site is readily accessible from the old Bohannon homestead. Upper Drift Creek Falls is located about a mile upstream from the lower falls and is very similar in every respect to the lower falls except that access had to be provided by "punching" a road down steep banks.

Bids for constructing the 2 fishways were called for in October 1963 in anticipation of receiving an easement from the landowner, Georgia-Pacific Corporation. Two bids were received, 1 being 20 per cent below the engineer's estimate and the other being 250 per cent over. Both bids were rejected because the landowner wanted the easement held up until their logging work was completed. They felt that logging debris in the stream bed could damage the fishways and they did not wish to assume liability for such damage. The easement was finally consummated in April 1964. Foundation conditions were
further investigated while waiting for the easement. This investigation indicated that subsurface conditions were unstable and that a better plan would be to make excavations with force account labor and redesign the fishways to fit final conditions. Excavation and design were completed early in August 1964 and new bids were called for which specified pneumatically-placed concrete to form a complete fishway at the lower site and to provide 1 sill and rock stabilization at the upper site. One bid was received and accepted. Contract work was completed early in October. The lower fishway has 8 pools and the upper fishway 3 pools.

The final cost of the Drift Creek fishways included $6,370 for force account work and $8,130 for contract work. Contract work included a $300 change order for extra concrete.

Shortly after completion of construction, a department biologist observed 2 adult coho salmon entering the lower fishway, 1 above the second fishway and 1 spawning upstream.

SUMMARY AND CONCLUSIONS

Stream improvement to provide spawning and rearing areas for anadromous fish production has long been one of the duties of the Fish Commission. The 1961 legislature supplemented this activity by enacting an emergency program by which the Fish Commission could do additional needed work of this kind on coastal streams south of the Columbia River. This program became known as the Coastal 60-40 Program because of a requirement that at least 40 per cent of the total cost of a project be provided by a source other than the legislative appropriation. The program completion date was June 30, 1963, coinciding with the end of the 1961 biennium. Subsequent legal and administrative interpretations provided program guidelines that were not specifically spelled out in the act. Carrying out the program became a major part of the department's stream improvement work during the biennium.

Other fund sources were unknown when the program was launched. It was necessary to seek out these sources through public meetings, correspondence, and meetings with individuals and special groups. The act appropriated $120,000, representing up to 60 per cent, thus establishing the total 40 per cent minimum contribution at $80,000. Potential contributors generally agreed with the intent and purpose of the program, but the $80,000 needed to improve streams was not nearly as available as local good will. Before the program terminated, however, the Fish Commission had received cash and material contributions totaling $74,126 in value which in turn released $101,354 of the general fund appropriation, making a grand total of $175,480 available for coastal stream rehabilitation and maintenance work under the program. The unexpended amount of $18,646 was returned to the general fund. Table 3 is a summary of program expenditures by project.
Table 3. Summary of Coastal 60-40 Stream Improvement Expenditures by Project.

<table>
<thead>
<tr>
<th>Contributor</th>
<th>Contribution Expenditure</th>
<th>General Fund Expenditure</th>
<th>Total Expenditure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Port of Toledo</td>
<td>$3,572</td>
<td>$5,356</td>
<td>$8,928</td>
</tr>
<tr>
<td>Port of Alsea</td>
<td>1,015</td>
<td>1,523</td>
<td>2,538</td>
</tr>
<tr>
<td>Lincoln County</td>
<td>9,896</td>
<td>14,844</td>
<td>24,740</td>
</tr>
<tr>
<td>Coast Theaters, Inc.</td>
<td>871</td>
<td>1,308</td>
<td>2,179</td>
</tr>
<tr>
<td>U. S. Forest Service (Agreement No. 1)</td>
<td>$7,870</td>
<td>$10,976</td>
<td>$18,846</td>
</tr>
<tr>
<td>U. S. Bureau of Land Management</td>
<td>3,468</td>
<td>2,672</td>
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<tr>
<td>Oregon State Highway Department</td>
<td>5,872</td>
<td>8,808</td>
<td>14,680</td>
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<td>Coos County</td>
<td>16,144</td>
<td>23,551</td>
<td>39,695</td>
</tr>
<tr>
<td>Menasha Corporation</td>
<td>2,072</td>
<td>1,385</td>
<td>3,457</td>
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<tr>
<td>Nehalem Bay Expansion, Inc.</td>
<td>125</td>
<td>158</td>
<td>283</td>
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<td>U. S. Forest Service (Agreement No. 2)</td>
<td>$10,472&lt;sup&gt;1/&lt;/sup&gt;</td>
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<td>Curry County</td>
<td>350</td>
<td>706</td>
<td>1,056</td>
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<tr>
<td>Port Orford Junior Chamber of Commerce</td>
<td>400</td>
<td>600</td>
<td>1,000</td>
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<tr>
<td>U. S. Forest Service (Agreement No. 3)</td>
<td>$12,000</td>
<td>$14,430</td>
<td>$26,430</td>
</tr>
</tbody>
</table>

Total | $74,126 | $101,354<sup>1/</sup> | $175,480 |

Per Cent | 42.2 | 57.8 | 100 |

<sup>1/</sup> 84.4 per cent of available funds.

<sup>2/</sup> Includes Port Orford Junior Chamber of Commerce donation labor valued at $412 not covered by formal agreement.
Had it been possible to extend the Coastal 60-40 Program another 6 months, all of the appropriated funds could have been obligated since work under Agreement No. 3 with the U. S. Forest Service would have been expanded to include the construction of a fishway on Cascade Creek on Five Rivers in the Alsea River drainage.

Fourteen agreements were negotiated under the 60-40 program. These covered 25 separate stream improvements involving 12 fishways of various types, 1 spawning channel, 1 rearing pond, and removal of more than 34 log jams and rock obstructions. These totals do not include jams removed by the U. S. Forest Service in Siskiyou and Siuslaw Forests because the work record was kept in terms of man-hours of labor, equipment operation, and related measures of expense rather than number of jams. Costwise, the stream improvements varied from $313 for removing a rock outcrop on the Nehalem River to $40,360 for constructing a fishway over the 21-foot high falls on Middle Creek, tributary to the Coquille River. Fishway construction varied as some were of concrete, others of natural rock and concrete, and finally those constructed by cutting a stepped channel through the rock.

Twelve of the stream improvements were contracted to the lowest bidder. Eleven were accomplished by Fish Commission stream improvement crews and 2 by Forest Service crews. Fish Commission crews were usually comprised of an experienced foreman permanently employed by the department and temporary help hired in the project area. Both contract and force account methods of doing work were satisfactory. Stream improvement work by department crews was carried out whenever contractors were not available, bids were considered too high, or in the department's judgment their work would be more satisfactory than contract work.

Not unlike most new programs, this one came equipped with ready-made problems. The more important of these are as follows:

1. A program which requires 40 per cent or more in matching money cannot be developed rapidly or efficiently in a depressed economy. Competition for available local funds is too keen when the economy is down.

2. City, county, and federal governments are required to budget their funds in advance as is the state government. This places their programing a year behind the state program unless advanced planning can be coordinated. The Coastal 60-40 Program expired before some funds from other sources could be made available.

3. The Game Commission was operating a somewhat similar program simultaneously with the Coastal 60-40 Program, but it was not mandatory that 40 per cent be contributed to their program. Stream improvement needs were coordinated between the two agencies, however both programs were competing for funds and this probably made it more difficult in some instances to obtain a full 40 per cent contribution.
4. The Fish Commission was not given additional funds with which to operate the program. No administrative expenses were charged to this program and less than the usual charge was made for engineering planning, contracting, and inspection. Such a program should have 10 per cent of the total set up for project activation, administration, and preliminary engineering. Engineering expense could then be prorated to the project if it is activated.

5. Meetings, follow-ups, and paper work are necessarily slow and sometimes inefficient procedures in program activation. Pre-planning should be given all possible attention. An informational brochure could be circulated to all potential contributors.

6. The contribution amount requirement should be given the greatest consideration in a matching program. It appears at this time that a 25 per cent minimum contribution would be appropriate for stream improvement work.

Special programs of this kind, designed to augment a continuing but inadequate program of stream improvement, are to be encouraged. Future programs, if enacted, will have a better basis upon which to build because of the Coastal 60-40 Program. This program was equivalent to 6 years of regular stream improvement work accomplishment by the Fish Commission under general fund appropriations.

The program has promoted local interest in and awareness of stream improvement needs. Local efforts will continue to be exerted to improve stream habitat.

In some small measure, the program helped local economy through employment, construction material purchases, and funds expended for meals and lodging. Increased anadromous fish production and harvest over the coming years will be the true evaluation and such is expected to occur, based on initial observations of fish use in rehabilitated areas.

The program was a success from a number of standpoints. It provided a challenge to the people of the coastal communities to demonstrate in a tangible way -- in the pocketbook where it hurts -- that they were interested in maintaining salmon and steelhead runs in their streams. They met the challenge. They were given the choice to fish or cut bait and they chose to fish.

It offered a rallying point for the communities, agencies, organizations, and individuals to work even more closely together on something of mutual interest and benefit.

It showed that a cost-sharing program which benefits an area can be made to work despite the numerous pitfalls and problems.

It is obvious that this work did not solve all the salmon and steelhead production problems on the coastal streams. It was neither intended nor expected to do that. However, the natural environment on many streams has an increased production potential as a result of the program. The benefits cannot be measured precisely now or in the future. Fish have already been observed in many of the heretofore inaccessible areas.
Undoubtedly, greater utilization will follow, and an encouraging aspect is that nature will bear the spawning and rearing responsibilities and costs rather than man with hatcheries.

The Fish Commission expresses its sincere appreciation to the uncounted citizens from all walks of life who contributed in such a significant way to making the Coastal 60-40 Program successful. Without their effort it would have failed.
PHOTOGRAPHS

OF

COASTAL STREAM IMPROVEMENT AND

REHABILITATION PROJECTS ACCOMPLISHED

UNDER CHAPTER 527, OREGON LAWS 1961
Figure 2. Mill Creek Falls -- High Water Conditions Prior to Fishway Construction, November 21, 1961.

Figure 3. Mill Creek Fishway in Operation, October 23, 1963.
Figure 4. Sloop Creek Falls Prior to Fishway Construction, August 14, 1956.

Figure 5. Sloop Creek Fishway in Operation, August 22, 1962.
Figure 6. Little Elk Creek (Quarry) Falls Prior to Fishway Construction, August 9, 1961.

Figure 7. Little Elk Creek Fishway in Operation, December 4, 1963.
Figure 8. Axtel Creek Falls and Culvert Prior to Fishway Construction, June 3, 1963.

Figure 9. Axtel Creek Fishway in Operation, July 30, 1963.
Figure 10. Trout Creek Fishway Under Construction, July 2, 1963.

Figure 11. Trout Creek Fishway in Operation Looking Upstream, December 13, 1963.
Figure 12. Sunshine Creek Falls Prior to Fishway Construction, September 18, 1960.

Figure 13. Sunshine Creek Fishway in Operation, August 28, 1963.
Figure 14. Cedar Creek Stream Clearance Project

Figure 15. Cedar Creek Stream Clearance Project
Showing the Log Jam in Figure 14 Removed,
September 12, 1963.
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Figure 17. Flood That Caused Damage to Partially Constructed New North Fork Necanicum River Fishway, February 2, 1963.

Figure 18. New North Fork Necanicum River Fishway in Operation, February 12, 1963.
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Figure 20. Five Rivers Falls Fishway Entrance, October 10, 1963.

Figure 21. Five Rivers Falls Fishway Center Section, October 10, 1963.
Figure 22. Five Rivers Falls Fishway Upper Section, October 10, 1963.

Figure 23. Five Rivers Falls Fishway Entrance Control Shown on River Side, October 10, 1963.
Figure 24. Cherry Creek Spawning Channel Showing Log Sill Installation, June 12, 1963.

Figure 25. Workers Spreading Gravel Between Sills of Cherry Creek Spawning Channel, June 12, 1963.
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Figure 27. Phillips Creek Stream Clearance Showing Piled Large Logs Removed from The Jam, July 30, 1963.
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Figure 29. Camp Creek Rearing Pond Outlet Structure Being Assembled, May 21, 1963.

Figure 30. Screened Intake for Camp Creek Rearing Pond, May 28, 1963.
Figure 31. Fall Creek Highway Culvert and Cascade Prior to Fishway Construction, February 6, 1952.

Figure 32. Fall Creek Fishway Showing Culvert in Background and Fishway in Operation, October 24, 1963.

Figure 33. Fall Creek Fishway Showing Upper Section in Operation, October 24, 1963.
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Figure 35. Excavation in Upper Fishway Area at Middle Creek Falls, July 16, 1963.

Figure 36. Flume for Diverting Low Flows at Middle Creek Falls Fishway Site, July 16, 1963.
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Figure 38. Forms Shown in Figure 37 Being Damaged During Unexpected Freshet, September 14, 1963.

Figure 39. Middle Creek Falls Fishway Showing Completed Work at Downstream End, November 4, 1963.
Figure 40. Chetco River Stream Clearance Project Prior to Removal of Rock Obstruction, July 25, 1963.

Figure 41. Chetco River Project After Removal of Rock Obstruction, October 9, 1963.
Figure 42. Hubbard Creek Log Jam (Log Jam is Located is Right Center of Picture. Brush is Growing Out of Jam, Which is Approximately 100 Yards Long by 60 Feet Wide), July 25, 1963.

Figure 43. Hubbard Creek Following Removal of Log Jam, August 22, 1963.
Figure 44. Lower Drift Creek Falls (Bohannon Falls) Prior to Fishway Construction, May 26, 1963.

Figure 45. Lower Drift Creek Falls Fishway After Construction and in Operation, January 20, 1965.
Figure 46. Upper Drift Creek Falls Prior to Fishway Construction, May 26, 1965.

Figure 47. Upper Drift Creek Falls in Operation, January 20, 1965.