Information Bulletin

FOR PUBLIC HEARING

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SKAGIT RIVER

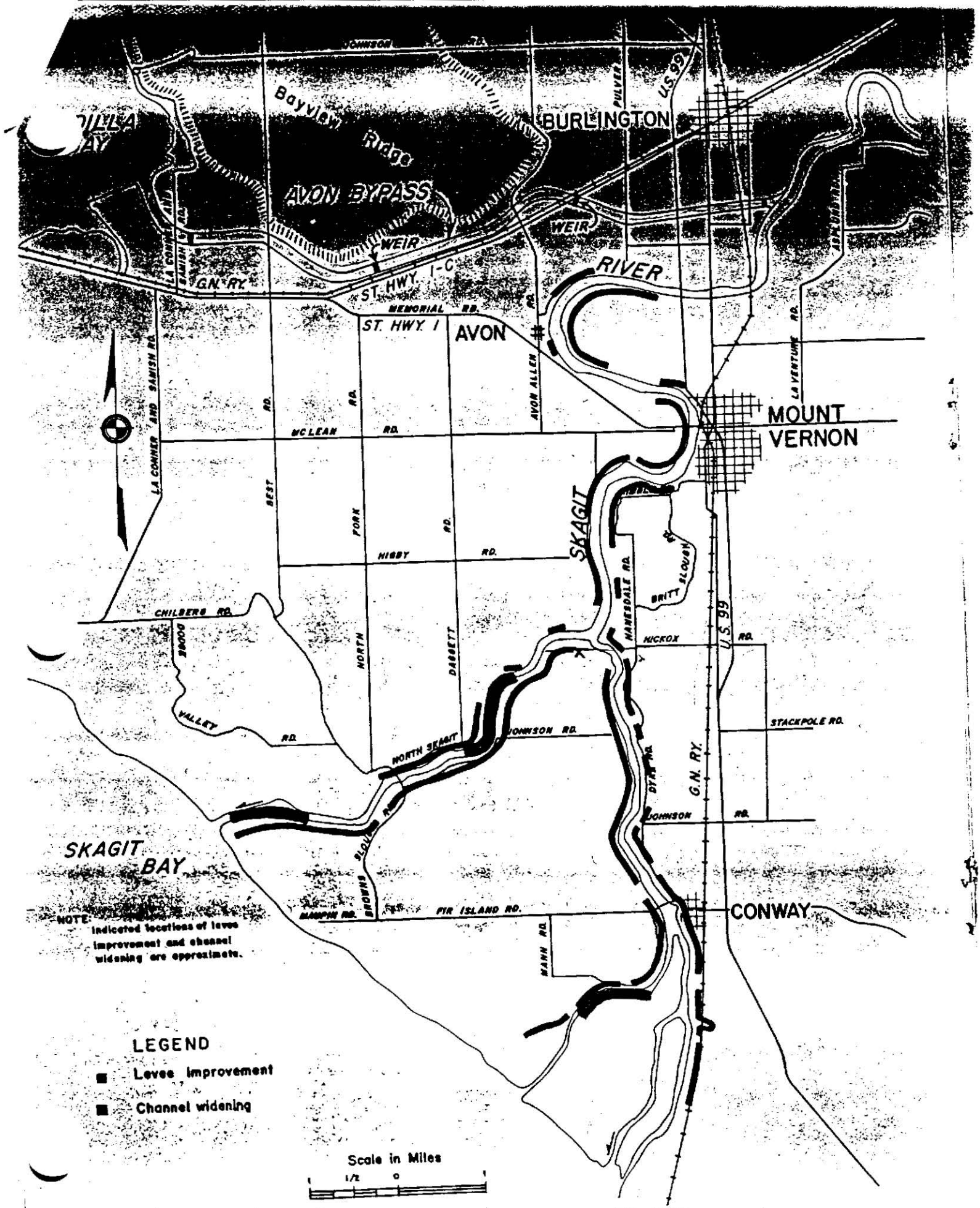
WASHINGTON

Plans for Flood Control and Recreation Improvements Including Fisheries as added purposes for Avon Bypass.

CORPS OF ENGINEERS

U.S ARMY ENGINEER DISTRICT SEATTLE

SEATTLE, WASHINGTON • 1519 ALASKAN WAY SOUTH



GENERAL LOCATION PLAN

P 003616

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1 - INTRODUCTION

Following occurrence of flood flows in the Skagit River basin in November 1959, Congress directed the Corps of Engineers to review the needs for flood control in the basin. The basin study was authorized by resolutions adopted 4 January 1960 by the Committee of Public Works of the U.S. Senate and 9 June 1960 by the Committee of Public Works of the House of Representatives. These resolutions requested that a review be made of reports of the Chief of Engineers on Skagit River, Washington transmitted to Washington on 14 September 1933 and other reports with a view to determining whether any modification of the recommendations contained therein, is desirable at the present time, with particular reference to provision of flood control and allied improvements in the basin. The present study of flood control and allied improvements is being made to include full comprehensive planning for water and related land resource development in the basin in accordance with the recommendations of the report of the Senate Select Committee on Water Resource Planning (Senate Document No. 97, 87th Congress 1962).

The report described in this bulletin is an interim or first phase report of the basin study. The studies to date have shown that improvement of flood protection in the delta area downstream from Burlington is the most immediate need in the basin. A brief description of the flood problem is given in Section 3.

To clarify the relationship of other studies being made by the Corps of Engineers in the Skagit River Basin with the public hearing discussions on 22 November, a summary of other studies in progress is set forth below.

a. Reactivation of Avon Bypass for flood control only. The Avon Bypass was authorized for construction in 1936. However, pending ability of local interests to provide necessary bridges, to furnish lands and rights-of-way and agree to operate and maintain, the project was inactive. A reexamination of the Avon Bypass in terms of present day development has shown the project highly feasible. Assurances of ability to satisfy local cooperation requirements have been received from Skagit County. The Seattle District Engineer has forwarded a report to the North Pacific Division Engineer and the Chief of Engineers recommending that the project be reactivated. The Avon Bypass Project is not intended for discussion at the 22 November hearing, but if there are any outstanding comments on this project, they will be heard.

b. Navigation Skagit River, Concrete to mouth. This study is completely separate from the flood control and allied water resource improvement study described in the opening paragraph. The navigation study is based on a separate authorizing action and will be the subject of a separate hearing.

c. Upstream storage, Sauk River and other tributaries. Full water resource development of the basin will require consideration of upstream storage for long range water supply, low flow augmentation, ultimate flood protection, hydropower and other purposes. This aspect of the basin study is in a preliminary stage and is not ready for discussion at the 22 November hearing.

2 - PURPOSE OF HEARING

The Corps of Engineers is considering plans in the reach of Skagit River from Mt. Vernon to the mouth to uniform the degree of levee protection; to strengthen the levee system; and to improve the channel by widening to remove major channel restrictions in the river. Plans are also being considered to modify structures in the Avon Bypass to permit addition of fisheries and recreation as additional purposes of the Bypass. The foregoing plans are being considered for recommendation to the Congress. This hearing is intended to obtain the views of all interested parties in these plans.

3 - FLOOD PROBLEM IN SKAGIT RIVER DELTA

The most recent floods in the Skagit River basin occurred in 1959 and corresponded to flows of only a little more than 90,000 c.f.s. (cubic feet per second) at Sedro Woolley. In terms of past flood flows, this is less than half of several floods which have occurred in the last hundred years. A summary of floods of record is given in the following table. Because major floods have not occurred in recent years, two pictures of previous major flood conditions are shown on the following page.

Date of flood	Discharge at Sedro Woolley (c.f.s.)	Date of flood	
16 Nov. 1896	185,000	13 Nov. 1932	125,000
19 Nov. 1897	190,000	22 Dec. 1933	110,000
16 Nov. 1906	180,000	25 Jan. 1935	131,000 (At Concrete)
30 Nov. 1909	220,000	27 Nov. 1949	140,000
30 30 Dec. 1917	195,000	10 Feb. 1951	150,000
12-13 Dec. 1921	210,000	24 Nov. 1959	93,000
27 Feb. 1932	157,000		

An examination of existing levee construction in the basin shows that dependable flood protection varies for a range of flows from about 90,000 to 140,000 c.f.s. In terms of long-time flood frequencies, most diking districts have protection ranging from 3 to 8 year frequencies. The potential overall annual flood damages in the basin are estimated to exceed $3,000,000 per year at 1963 prices and taking into account forecasted future growth over the next 100-year period.

December 1921 flood water flowing over road between Burlington and Bayview Ridge. The photo faces eastward toward Burlington. (Courtesy Mrs. Melvin Bell)

Historic photograph of flooding in Conway during the December 1921 flood. Flood waters were reportedly two feet higher on the buildings before this photograph was taken. (Courtesy of Mrs. Ragena Moore)

4 - LEVEE AND CHANNEL IMPROVEMENT PLAN

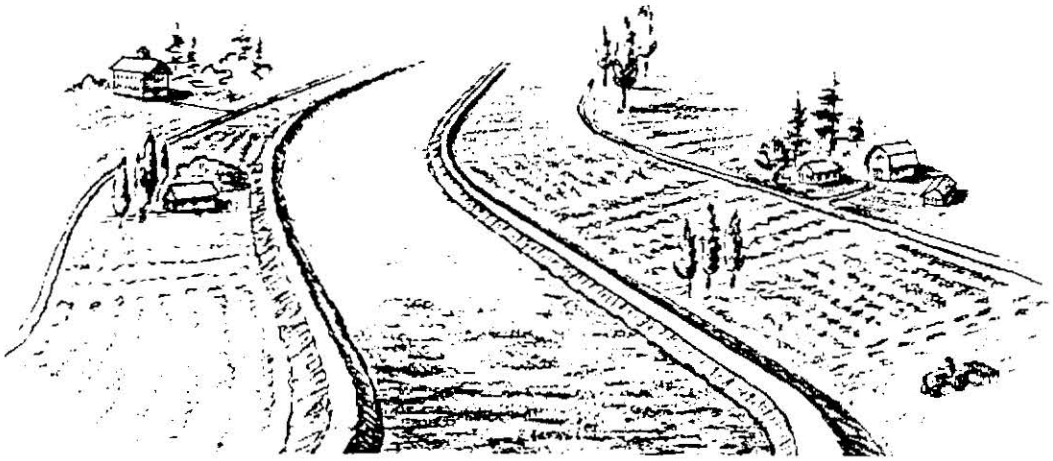
The levee and channel improvement plans described herein in combination with Avon Bypass would make possible control of flood flows of up to 180,000 c.f.s. magnitude from Burlington downstream, and would increase the level of flood protection in presently diked areas to 30-year frequency. In this plan, flood flows of up to 100,000 c.f.s. would be carried by the Skagit River. Thereafter as flood flows increased, the flows would be increased uniformly in the main river system and in the Bypas until the main river system was carrying 120,000 c.f.s. and the Bypass 60,000 c.f.s. to make a combined capacity of 180,000 c.f.s upstream from the Bypass. The Bypass plan also includes about 4 miles of levee improvement and new construction extending from the intake to 3 miles upstream from Burlington to protect that community and the Samish River valley from flooding.

The existing levee system on the Skagit River downstream of Mt. Vernon, Washington, provides widely varying degrees of flood protection. These levees at some locations have enough freeboard to protect against flows of 120,000 c.f.s.. Other levee sections are only adequate to protect against flows of about 90,000 c.f.s.. At several reaches in both the North and South Forks of Skagit River the channel has been constricted by uncoordinated levee construction. During flood periods, these reaches cause serious obstruction to the river flows, resulting in higher channel velocities through the narrow sections and damaging backwater effects upstream. The plans being considered would provide a levee system capable of withstanding

flows of 120,000 c.f.s. with at least two feet of freeboard by minor raising of low points in the existing levees, by providing a minimum standard top width, and by removal of the more serious constricted channel reaches. The general location of these improvements are shown on the frontpiece map.

Preliminary estimates indicate the total cost of the proposed levee and channel improvements would be about $6,500,000. Average annual cost of the project based on a 100-year project life is $225,000. The estimated value of annual benefits that would result from the increased flood protection provided by the planned improvement is $807,000 and would yield a benefit to cost ratio of 3.6.

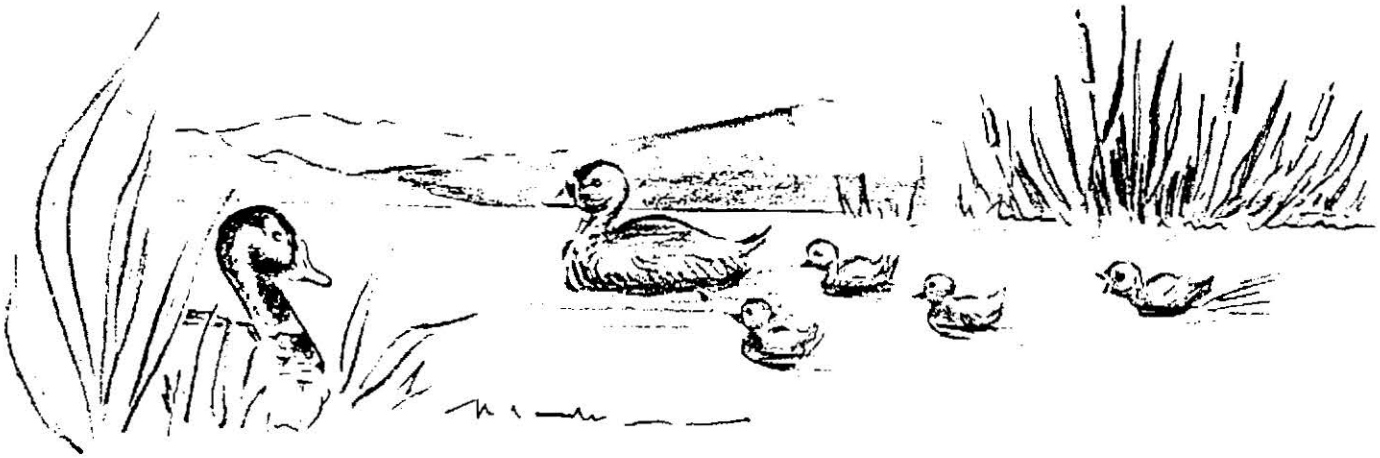
The Federal Government would construct the necessary levee and channel improvements. The required local cooperation or non-federal requirements for the proposed improvements would include: provision of all lands and rights-of-way, accomplishment of necessary utility relocations, maintenance of the project after completion, and to hold and save the Federal Government free from damages or claims that may result from the construction. Cost of local cooperation requirements for rights-of-way and relocation of roads, utilities, buildings and fences is approximately $370,000, including existing levee right-of-way.



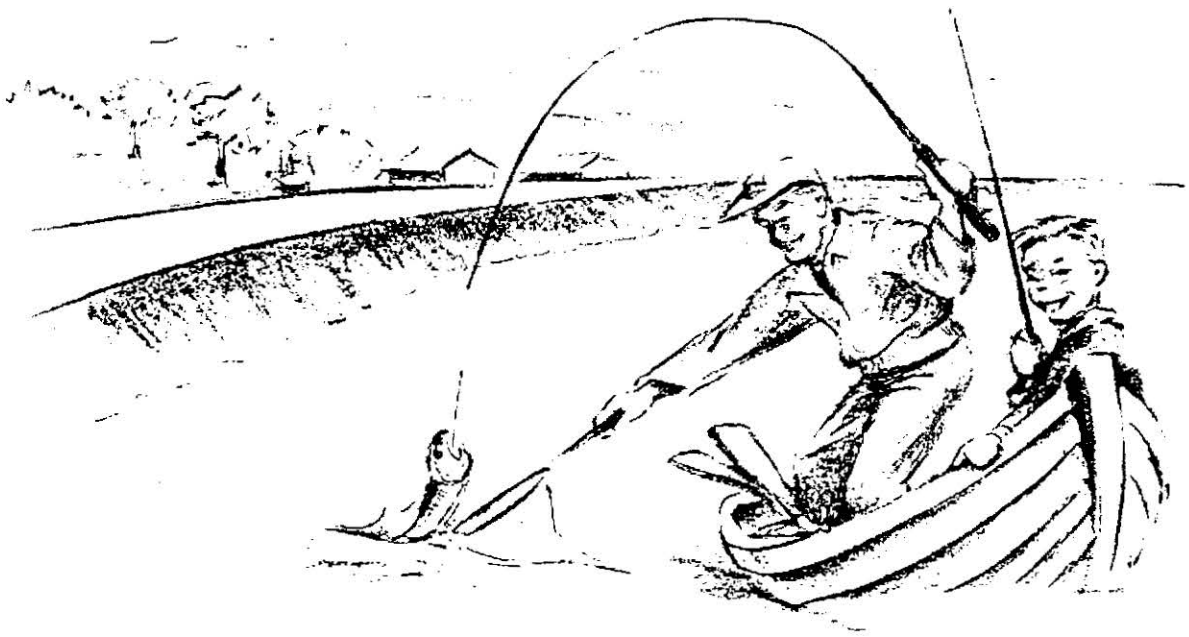
5 - RECREATION AND FISHERIES AS ADDED PURPOSES OF THE AVON BYPASS

Principal structures of the Avon Bypass include a gated intake structure at the upper end, an overflow control structure at the lower end to keep out tidal waters, an intermediate control weir in the channel to maintain water depth and ten bridge crossings. The channel would have a bottom width of about 360 feet. Dikes along the sides of the channel would be 50 to 100 feet wide in many locations to accommodate earthwork disposal.

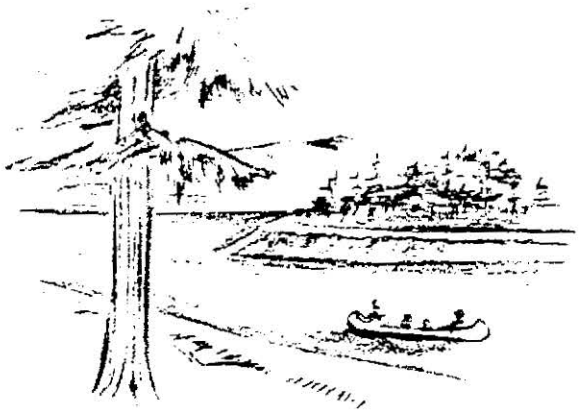
The Avon Bypass project would provide a clear, cold lake about 8 miles long just 60 miles north of the heavily populated Seattle-Metropolitan area. The communities of Mt. Vernon and Burlington are within 2 miles of the project. U. S. Highway 99, the principal north-south route west of the Cascades and numerous State and County highways would provide convenient access to the entire shoreline of the Bypass. The accessibility of the Avon Bypass waters, coupled with the potential for excellent trout fishing, hunting and general recreation provide an outstanding attraction for recreational use.



The U. S. Fish and Wildlife Service and Washington Department of Game have developed plans for a resident trout fishery within the Bypass. The project would be adapted for a fishery by construction of an additional intermediate collapsible weir to maintain a water level of about 10 feet throughout the channel. Inlet and outlet works would be screened to exclude non-game and migratory fish. A minimum flow of perhaps 100 c.f.s. would be required to maintain water quality and a water right for this flow would have to be obtained. Boat access could be provided to each section of the Bypass. The Corps of Engineers could assume the cost of the intermediate collapsible weir, fish screens and boat ramps. The responsibility for parking facilities, stocking, and operation costs and for obtaining water rights would have to be assumed by others. The Fish and Wildlife Service estimates usage at 159,000 fisherman days annually if this program were established

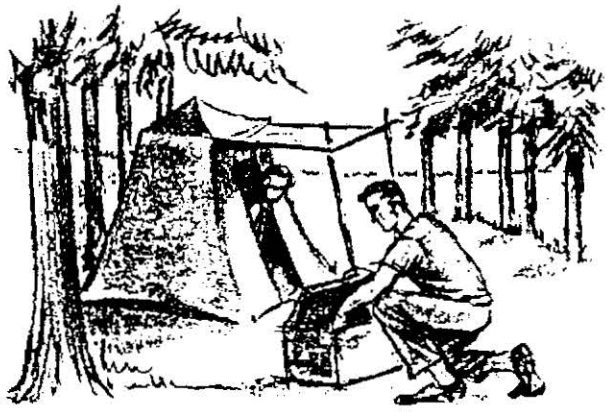


In addition to the resident trout fishery, the Federal and State fishery agencies are studying the effect of the Avon Bypass on migratory fish. Consideration is being given to the use of the lower section of the channel for a controlled natural rearing area for migratory fish. Contingent upon sufficient justification, facilities could be constructed to pass adult fish upstream through the bypass.



The Avon Bypass lies within the Pacific Flyway for migratory waterfowl and the area is already a productive duck hunting ground. Project plans include boat access to Padilla Bay which could give the public further access to waterfowl hunting. The U. S. Fish and Wildlife Service has estimated that this facility would increase usage by 6,760 hunter-days annually. The State Department of Game has proposed stocking the right-of-way with pheasants which would provide an additional 2,500 hunter-days annually.

The project would create about 340 acres of water surface and 440 acres of adjacent land available to the public for recreational pursuits. Forested lands near the midpoint of the channel have excellent potential for all-purpose recreational development. The State Parks and Recreation Commission and Skagit County are studying the possibility of developing this recreational potential. A comparison with similar existing parks indicates that with recreational development, the Bypass would initially attract about 60,000 persons annually. Annual attendance could well reach 750,000 within 50 years.



6 - OTHER AGENCIES OR GOVERNMENTAL ORGANIZATIONS PARTICIPATING IN THE STUDY

The following organizations have contributed to the plans set forth in this bulletin. The listing of these organizations does not constitute either a concurrence or a non-concurrence on their part in the plans proposed.

Skagit County	State of Washington	Federal Agencies
County Engineers Office	Dept. of Conservation (Flood Control Div.)	U.S. Fish & Wildlife Service
County Commissioners	Department of Game	Bureau of Outdoor Recreation
County Planning Commission	Department of Fisheries	
	Parks & Recreation Commission	