

OWYHEE RIVER SYSTEM

No inventory stream surveys were made by OFC biologists under the CRFDP Project Appraisal Program in 1958-59. However, data of a very general nature concerning the drainage have been extracted from other reports and are presented.

The Owyhee River originates in Nevada and flows in a northerly direction for approximately 280 miles to join the Snake River a short distance above Nyssa, Oregon (USFWS, 1957). The drainage area, which exceeds 11,000 square miles, comprises portions of Nevada, Idaho, and Oregon. Three of the major tributaries, Middle Fork, South Fork, and North Fork, combine near the Oregon-Idaho border to flow through a deep, rugged canyon which widens into a valley near the vicinity of Rome, Oregon (refer to Figure 1). In this area two other large tributaries, Crooked and Jordan Creeks, join the main stem. Below Rome basin, the river trends northward through a relatively shallow canyon for about 35 miles to Owyhee Reservoir. This 50-mile-long impoundment (maximum pool) was built by the Bureau of Reclamation in 1933 for the storage of irrigation water. It has a capacity of approximately 1,121,000 acre-feet. Owyhee Dam, which forms the reservoir, is 330 feet in height and is a complete barrier to the upstream migration of fish. From Owyhee Dam, the river extends for approximately 25 miles to the mouth.

The Owyhee River system is located primarily on an elevated, sagebrush-covered plateau in which deep canyons have been eroded by stream action. In Nevada, the watershed rises to an altitude of 10,000 feet while elevation at the stream mouth is 2,200 feet. There are no high mountains in the Oregon portion of the drainage, where much of the plateau varies from 3,500 to 4,500 feet in altitude (Bryan, 1929). From 12 to 25 miles above the mouth the river has formed a gorge which is some 2,000 feet in depth.

The principal means of livelihood in the Owyhee basin are livestock raising and agriculture. The climate is semi-arid with about 10 inches of annual precipitation at Nyssa and 8 inches near Rome.

As indicated by Parkhurst (1950-c), the Owyhee River at one time had a run of chinook salmon which became depleted prior to the construction of Owyhee Dam. In its present state, the stream is considered of little or no value to anadromous fish, except for its contribution to the discharge of the Snake River. An important sport fishery for trout and warm water fishes exists in the Owyhee Reservoir.

In July 1942, personnel of the USFWS conducted surveys on the Owyhee River from the mouth to Owyhee Dam. This section of the stream consists of irrigated farmland in the lower 12 miles and a deep gorge in the upper 14 miles to the dam. A summary of the survey is as follows: (1) gradient was slight in the valley and slight to moderate in the gorge; (2) a considerable amount of heavily-silted gravel was present in the gorge section; (3) bank cover was scarce; (4) water temperatures ranged from 76°F. near the mouth to 67.5°F. at the lower end of the gorge to 47°F. at Owyhee Dam; (5) 1 large (capacity of 235 c.f.s.) and several small unscreened diversions were noted; and (6) flow at the mouth was 15 c.f.s. In the report of this survey, Parkhurst (loc. cit.) states that the flow in the lower 12 miles of the stream below the large diversion canal is usually inadequate for fish. Also, USGS records indicate that flow conditions are critical below Owyhee Dam during the winter storage season of October through March. 1/

1/ USGS Water Supply Papers, Part 13, Snake River Basin.

Other reports indicate the prevalence of unfavorable conditions for salmonids in the river above Owyhee Reservoir. An excerpt from a report by the Bureau of Sport Fisheries and Wildlife (USFWS, loc. cit.) concerning fish and wildlife resources affected by proposed storage developments above Owyhee Reservoir is as follows:

"The 30 miles of the Owyhee River in the Duncan Ferry Reservoir site (located 35 miles above Owyhee Reservoir) supports fish populations of carp, suckers, squawfish, chiselmouth and other non-game species. Attempts to establish trout in this reach by stocking have yielded unsatisfactory results. High temperatures, turbidity, competition from non-game fishes, and extreme variation in flow are probable factors limiting the suitability of this habitat for game fishes."

This report further states that Jordan and Crooked Creeks support small local fisheries comprised almost entirely of non-game species. In the same report Jordan Creek is described as follows: Jordan Creek originates in the Owyhee Mountains of Idaho and flows rapidly over a narrow channel of gravel, rubble, and boulders. The gradient within the Jordan Creek Reservoir site (50 miles above the mouth) is reduced and the stream becomes meandering from here to the mouth. In this area, discharge is greatly increased by tributary inflow and the channel broadens, meanders, and becomes less stable because of bank erosion and the shifting of the sand and mud bottom. Jordan Creek has a total length of approximately 70 miles.

Obviously there are many serious drawbacks to the development of an anadromous fishery resource in the Owyhee drainage. Not only does one extensive storage project for irrigation purposes exist, but others may be in the offing. In addition to unfavorable local conditions, the location of the stream above the several existing and proposed major dams on the Snake River must be considered. At this time, with a lack of observations in the headwater areas, the production potential of anadromous fishes in the Owyhee system is unknown. However, even if this potential were great, the surmounting of existing obstacles with the present conservation methods and fisheries management techniques seems unlikely.