

# **SALMON AND STEELHEAD RUNS BEFORE 1900**

## **INTRODUCTION**

Before the 1800s, Sandy River anadromous and resident fish populations flourished in a pristine environment full of shallow gravel beds, deep pools, and cool mountain streamflows. Winter steelhead and coho spawned and reared in most accessible reaches of the basin and spring chinook were abundant in the main Sandy, Salmon, Zigzag and Bull Run rivers. Fall chinook ranged through the lower Sandy and tributaries such as Gordon and Trout creeks and the Bull Run River, and into the upper Sandy and large tributaries including the Salmon River. A small number of chum also returned to the lower Sandy River (Mattson 1955).

As discussed previously, salmon and steelhead runs to the Sandy River and other Columbia River tributaries began to drop by the early 1870s — most likely because of overfishing on the Columbia River. Developments within the Sandy River Basin also began to affect fish production. By the late 1800s, widespread timber harvest and other developments in the lower basin had already damaged some habitat areas. Human activities also hindered salmon and steelhead migration to traditional spawning and rearing grounds. Hatchery egg-take operations on the Salmon and Sandy rivers began to impede salmon and steelhead access to upper basin spawning grounds in the late 1880s. In addition, the City of Portland's first diversion dam on the Bull Run River (RM 6), built in 1895, may have restricted some upstream fish migration to spawning and rearing grounds in the upper Bull Run system.

## **FISH PRODUCTION**

Historically, salmon and steelhead ranged throughout most of the Sandy River Basin. Reports by Mattson, a specialist on the Sandy River system in the 1950s, estimate that runs as high as 15,000 coho, 20,000 winter steelhead, 10,000 fall chinook and 8,000-10,000 spring chinook once returned each year to spawn in the Sandy and tributaries (Mattson 1955). The river system may have also supported a small native summer steelhead run. Large populations of cutthroat trout, rainbow trout, mountain whitefish and other resident fish also resided in the basin.

The decline in salmon returns to the Columbia River led to the development of fish culture operations in the late 1800s. Hatchery production in the Sandy River Basin dates from 1887 when fish propagators built temporary egg-taking stations on the Sandy and Salmon rivers (Oregon Dept. of Fisheries c1990). Their efforts focused on spring chinook, the preferred fish at the time. Fish propagators knew little about

spawning, hatching and growing fish and generally learned by doing. To gather brood stock, they placed racks, or fences, with long pickets across streams. The rack, placed in the stream before the fish arrived, kept the adults from passing above that point. As the fish neared the spawning period, they were driven downstream into collection traps. This method was an adaption of Indian fishing methods. Gill nets were also used to catch fish at the racks or in deep holes, such as at the base of dams.

Once caught, the female and male salmon were stripped for eggs and milt. The fish propagators then fertilized the eggs and incubated them until they hatched. However, unlike today, early hatchery operators generally hatched millions of fry and then released the unfed fry soon after they hatched. This practice resulted in high mortality. Problems with disease, water supplies, and food sources also reduced hatchery successes.

In 1892, fish propagators established a field station in the drainage with an obstruction rack and water supply for egg development. They started taking eggs in October 1893 and continued for 30 days, collecting 1,179,000 eggs from 253 fish. The eggs were transferred to a station on the Clackamas River. Egg-takes at the Sandy site intensified in 1894 when hatchery personnel stopped egg collections at the Clackamas station because of poor supply and became more dependent on eggs from the Sandy (U.S. Commission of Fish and Fisheries 1895).

Records from 1895 describe some difficulties that early propagators experienced when trying to collect eggs. In 1895 they built a rack, 400 feet long, across the Sandy River to capture migrating chinook salmon. However, operating the rack was difficult because of the large amount of wood in the river. The propagators tried to resolve the problem by constructing a gate in the rack for logs and other wood to pass through. They also built a boom 600 feet above the rack directing the logs to the gate. Once the gate was working, they built a small temporary hatchery and hatching troughs for salmon production. Their problems returned in early September when heavy rains brought down a large amount of wood and logs. The material broke the boom and carried away a large part of the rack, permitting the salmon to escape. The propagators repaired the rack and collected 23,000 eggs from six salmon in mid-September, but more rain on October 1 carried the rack away again. They suspended their egg-taking operations after all the salmon below the rack escaped and left the 23,000 eggs to hatch in a small brook that emptied into the Sandy River (U.S. Commission of Fish and Fisheries 1895).

In 1896, propagators built a more permanent facility, a small hatchery station at the mouth of Boulder Creek on the Salmon River. They collected about 2,600,000 eggs that fall from 492 females. About

1,066,600 eggs were collected at the station in September 1897 and sent to the Clackamas Hatchery. Such egg-taking operations at the hatchery often blocked migration of chinook and coho salmon and steelhead to major spawning areas in the upper Salmon River drainage.

**Table 1.** Egg Collection at Salmon River Hatchery (ODFW 1997)

Year <sup>3</sup>	Spring Chinook <sup>4</sup>	Winter Steelhead
1896	2,600,000	
1897	1,216,000	
1898	745,200	22,000
1899	600,000	

Success in their egg collection efforts led propagators to establish the Salmon River Hatchery in 1898. For several years this hatchery was considered one of the best in the state because of the large amount of spawn secured. It was also regarded as one of two places where chinook salmon eggs could be collected as early as July (the other site was on the upper Clackamas River). Winter steelhead eggs were also collected in 1898.

## SUMMARY

Salmon and steelhead runs to the Sandy River dropped below historical levels during the 1800s. While this decline has been largely attributed to overfishing in the Columbia River, activities in the basin during the middle to late 1800s probably contributed to reduced fish production. Escalating timber harvest and related activities after 1850, such as the driving of logs downriver to mills, degraded naturally pristine habitat conditions along parts of the lower Sandy River and tributaries. In addition, many would-be spawners were captured by fishing parties and egg-take operations in the basin. Nevertheless, while below historic levels, the success of egg-takes at a station on one Sandy River tributary, the Salmon River, in the late 1890s — 2,600,000 spring chinook eggs from 492 females in 1896 — suggests that the runs remained strong.

Many key events and developments that occurred in and outside the basin before 1900 are recapped below. Together these events provide a snapshot of activities that likely caused salmon and steelhead runs in the Sandy River Basin to enter a period of decline.

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3 Records of egg takes before 1896 are incomplete.

4 Some mixing of spring and fall chinook is possible.

### Key Events and Developments Before 1900

- 1700 Explorations and settlement by Indians.
- 1805 Lewis and Clark explore lower Columbia River and tributaries. Other Euroamerican explorers soon begin scouting Sandy River Basin.
- 1838 Daniel Lee drives cattle over Lolo Pass.
- 1840 First wagons arrive over Cascade Mountains.
- 1845 Joel Palmer reaches top of Mt. Hood.
- 1846 Barlow Road opens, bringing emigrants across mountains.
- 1858 First sawmill built in lower basin on Cedar Creek. Other mills built soon after as timber harvest in area increases.
- 1870 Concern grows that overfishing on Columbia River may deplete salmon runs.
- 1873 Commercial spring chinook harvest on Columbia River peaks at 43 million pounds.
- 1877 More than 1,000 drift nets in Columbia River, each net about 1,200 feet long.
- 1887 Fish propagators build temporary egg-taking stations on Sandy and Salmon rivers.
- 1890 Sawdust and other mill waste common pollutants in many streams.
- 1890 Harvest of steelhead on Columbia River increases as spring chinook run declines.
- 1891 City of Portland begins efforts to secure water from Bull Run River.
- 1892 President Harrison establishes Bull Run Reserve to protect high-quality drinking water supply for Portland.
- 1892 Fish propagators build field station for egg-taking and development.
- 1894 Egg-taking in Sandy drainage intensifies when fish propagators at Clackamas Hatchery stop egg-takes on Clackamas and depend more on Sandy for supply.
- 1895 Fish propagators build 400-foot-long rack across Sandy River. Egg-take operations hindered by floating logs and high streamflows.
- 1895 City of Portland completes diversion bringing Bull Run water to the city.
- 1896 Fish propagators build small hatchery at the mouth of Boulder Creek on Salmon River. They collect 2.6 million eggs that fall from 492 females.
- 1898 Salmon River Hatchery established.