Passage of Adult Salmon and Trout through an Inclined Pipe

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Abstract

This research was designed to determine if migrating adult salmon and trout at Bonneville Dam on the Columbia River would use as a passageway an inclined pipe that required them to make a descent and an ascent before they reached the upstream end of the pipe. Chinook salmon (Oncorhynchus tshawytscha), sockeye salmon (O. nerka), coho salmon (O. kisutch), and steelhead trout (Salmo gairdneri) were tested with water velocities of about 0.30, 0.76, and 1.22 m/sec in a pipe that was 0.61 m in diameter and 31.4 m long. From 64 to 100% of the fish passed through the inclined pipe during a 45-min period. Median passage times ranged from 3 to 23 min. Chinook salmon passed through the pipe most rapidly at the 0.76 m/sec flow; coho salmon and steelhead trout passed through in the least time at 1.22 m/sec. Sockeye salmon passed through equally well at flows of 0.76 and 1.22 m/sec.