

**Pelton Round Butte Fish Committee**

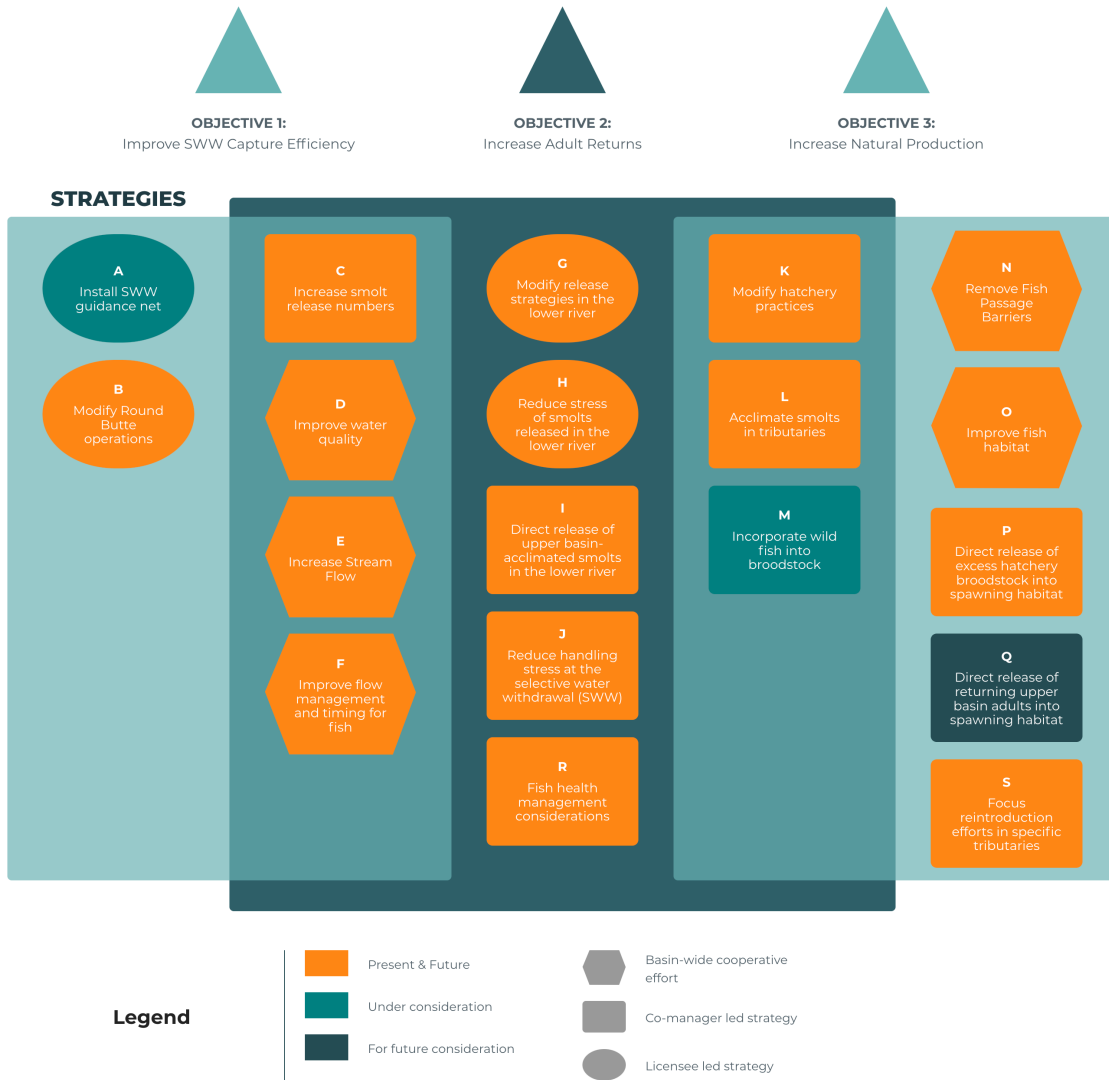
# **Reintroduction Road Map**

The reintroduction road map is a high level guide to strategies current and future, to impact the goal of returning self-sustaining and harvestable runs of spring Chinook, sockeye and summer steelhead to the Upper Deschutes Basin. Learn more about the history and purpose of our work in the [Executive Summary](#).

The road map is organized by objectives with each strategy represented by a shape that indicates who is responsible and a color to illustrate whether strategies are current or planned.

# Overview of Reintroduction Road Map

Goal: self-sustaining and harvestable runs of Chinook, sockeye, and steelhead.



J  
Reduce Handling  
Stress at the  
SWW

## STRATEGY

# J: Reduce Handling Stress at the Selective Water Withdrawal (SWW)

**Description:** Migrating smolts are captured at the Selective Water Withdrawal (SWW), crowded into raceways, raised by an elevator into a fish sorting building where fish are given a maxillary fin clip to identify it as upper Deschutes Basin origin. Once clipped, the fish are placed in a raceway to recover before they are loaded into a transport truck and hauled to the Stress Relief Pond (SRP), prior to their release into the Deschutes River below the Project. Each time a fish is crowded, handled, or marked, there is stress on the fish. The cumulative effect of these stressors can cause short-term increases in susceptibility to predation and disease, as well as changes in behavioral and physiological responses to the environment. Handling/transport stress can continue to affect post-release survival and reduce performance of smolts, the effects of which may persist through adult life. This strategy entails continuing to evaluate the SWW fish processing procedure to identify where reasonable changes could be made to reduce handling/marking stress.

**Anticipated Outcome:** As we reduce fish handling stress, mortality of smolts during their out-migration in the lower river will decrease and a higher number of adults will return.

**Evaluation Method:** Many of these improvements are based on a significant body of literature documenting the positive benefits of reducing handling stress and would likely not need independent evaluation. For larger scale changes, like not marking sockeye, comparative analysis of years before and after the treatment could be used to help control for the varying natural factors, such as ocean conditions. For example, smolt-to-adult returns from marking years

(2012-2013, 2016-2018) could be compared to smolt-to-adult returns from non-marking years.

**Timeline:** Present and Future – Ongoing effort to reduce handling stress.

**Lead organization/Agency:** Licensees.

**Fish Committee Role:** Information is brought to the Fish Committee for input.

**Related Studies/Actions/Decisions:**

**2018** – Decision by Co-managers (Oregon Department of Fish and Wildlife (ODFW) and The Confederated Tribes of the Warm Springs Reservation of Oregon (CTWSRO)) to cease marking sockeye at the SWW in 2019.

**2014 - 2015** – Sockeye not marked at the SWW.

**2010 - present** – Annual evaluation of a subset of fish for descaling and injury. Mortalities taken to ODFW pathologist to determine if cause of death was facility induced.

**2010 - present** – Fish handling improvements identified and implemented, including: adding stress coat to fish totes and transport trucks, reducing crowding in lift baskets, netting raceways, electric predator exclusion fencing, fish handling training for technicians by ODFW pathologists, debris barrier net, and night shifts when debris loading is high.

**2010 - 2015** – Comparison of sockeye smolt-to-adult returns between marked and unmarked smolts. Average smolt-to-adult returns of marked sockeye smolts (2010-2013; 0.082) was significantly worse than the average smolt-to-adult returns (0.204) in the two years (2014 and 2015) they weren't marked. This suggests that stress associated with handling/markings reduced post-release performance.

**2010 - 2011** – Facility Evaluation Report test and verification study. Initial SWW studies to evaluate fish survival and injury.