ABSTRACT: The concept of the Cle Elum Supplementation and Research Facility (CESRF) was developed in the early 1990's in an attempt to improve the performance of hatchery produced salmon. This design is similar to the current integrated hatchery concept of the Hatchery Science Reform Group, with the hatchery fish intended to be similar to and a part of the overall natural population. The intent is to have the natural origin fish driving the adaptation and fitness of the overall population by using only naturally produced adults for hatchery brood stock. Other genetic guidelines include collecting broodstock over the entire adult return timing, and allowing at least half the returning adults to spawn in the wild. All juveniles were reared at low densities and cool temperatures (<55F).
Research included comparing the survival of semi-naturally (SNT) fish reared with overhead and instream cover, underwater feeders, and camouflaged raceways to optimum conventionally reared juveniles (OCT) in standard concrete raceways. No difference in survival of outmigrating smolts or returning adults was detected between the two groups. Further research compared the effect of moderation of growth on survival vs. rate of precocialism. Reproductive success of hatchery and naturally produced spawners was also evaluated. An evaluation of domestication is currently occurring by using the returning hatchery adults as broodstock to determine if, when, and how domestication could occur in a traditional hatchery population compared to the supplementated population and a control population in an unsupplemented stream. Numerous juvenile and adult traits are being monitored for all three populations to evaluate the effects of domestication on the supplemented and traditional hatchery populations. The operation of the CERSF produced enough fish to benefit harvest by allowing the first sport fishery for Spring Chinook salmon in the Yakima in fifty years. Sportsmen are allowed to keep only hatchery fish while tribal fishers can keep both hatchery and naturally produced fish. Results of the research efforts and how we plan to utilize this information in the reform of the Klickitat Hatchery will be discussed.