



**United States Department of the Interior
Fish and Wildlife Service
Mid-Columbia Fish and Wildlife Conservation Office**

7501 Icicle Road
Leavenworth, WA 98826
Ph 509-548-7573 Fax 509-548-5743



MEMORANDUM

TO: Interested Parties
FROM: Hayley Potter & Matt Cooper
DATE: February 2018
RE: Leavenworth Complex Historical Release Summary, 1941 - 2017

Over 75 years ago, Leavenworth Fisheries Complex began operation to mitigate for loss of natural fish production in the Columbia River basin upstream of Grand Coulee Dam (river mile 597). The dam blocked anadromous fish passage to over 1,140 river miles of the main-stem, tributary, and headwater habitat used for spawning and rearing. It also blocked fish access to important Native American tribal fishing grounds, such as Kettle Falls. The Grand Coulee Fish Maintenance Project (GCFMP) initially mitigated for these losses by: 1) propagation of salmon and steelhead at three fish hatcheries, 2) re-introduction/supplementation of salmon and steelhead in the Wenatchee, Entiat, Methow, and Okanogan rivers, 3) monitoring and evaluating the effectiveness and impacts of mitigation actions.

The Leavenworth Fisheries Complex consists of three national fish hatcheries (NFH): Leavenworth, Entiat, and Winthrop. Construction began on these facilities at roughly the same time (1939-1942) and production soon followed. The majority of production over the years has focused on Chinook salmon, sockeye, and steelhead; however, other trout and salmon were reared and released periodically. Hatchery locations were chosen because they historically produced large numbers of salmon and steelhead and because of water accessibility.

In addition to hatchery propagation, salmon and steelhead were trapped from 1939-1943 at Rock Island and planted in the Wenatchee, Entiat, Methow, and Okanogan rivers to restore natural production. Spring and summer Chinook salmon and steelhead were translocated from Rock Island Dam to the Wenatchee River, Entiat River, and Nason Creek (a tributary to the Wenatchee River). Sockeye salmon were translocated from Rock Island Dam to Lake Wenatchee and Lake Osoyoos.

This memo seeks to chronologically document and summarize the fish stocks propagated at the Leavenworth, Entiat, and Winthrop National Fish Hatcheries (NFH) since their inception. Additionally, this summary includes primarily those fish stocked to the basin in which the hatchery resided (ie. Wenatchee, Entiat or Methow sub-basins). However, some transfers and stocking by other entities is also referenced. Unless otherwise noted all years are release year. It is hoped that this document will serve as succinct general reference to an otherwise dynamic time in the history of hatchery production in the upper Columbia region.

Leavenworth NFH Timeline

- 1941-1948 Leavenworth NFH reared and released a mix of species including 3 runs of Chinook Salmon (Spring, Summer, and Fall), Sockeye Salmon, and “Kokanee”.
 - The original egg source for Chinook and Sockeye Salmon was Rock Island Dam.
- 1941 -1970 Sockeye Salmon were the primary species produced at LNFH, with low numbers of spring Chinook consistently released (spring Chinook were produced in all years with the exception of BY’s 67 and 68)
 - Sockeye Salmon (mostly sub yearling) releases into Lake Wenatchee: 37,000-5M
 - Spring Chinook releases into the Wenatchee River basin: 3,700-5M. Early years 1941-1963 mostly sub-yearlings produced: average 245,000
- 1963-1972 Production switched from Sockeye to Coho Salmon
 - Yearling releases ranged from 445,000-1.46M
 - Sub-yearling releases ranged from 233,000-4.4M
- 1974 BY - Spring Chinook became the primary species produced with a growing yearling release focus (fry and sub-yearling releases occurred in 1984, 1984-1992. Release numbers ranged from 500,000 -2.5million).
- 1980-1995 BY - summer steelhead were produced at LNFH. Average release was 82k (34k – 122k).
- 1984 – First spring Chinook sport fishery opened in Icicle Creek
- 1989 BY – spring Chinook production peaks at 4.6M (2.3M yearlings + 2.3M subyearlings and fry)
- 1991 BY – production goal lowered to 1.625M yearlings
- 2000 BY– LNFH begins 100% adipose clip rate to maximize selective harvest
- 2008 BY- production goal lowered to 1.2M yearlings
- 2009 – Begin stray management removal of adipose clipped/CWT absent spring Chinook adults (~80% of LNFH adults are marked in this manner) at Tumwater dam.

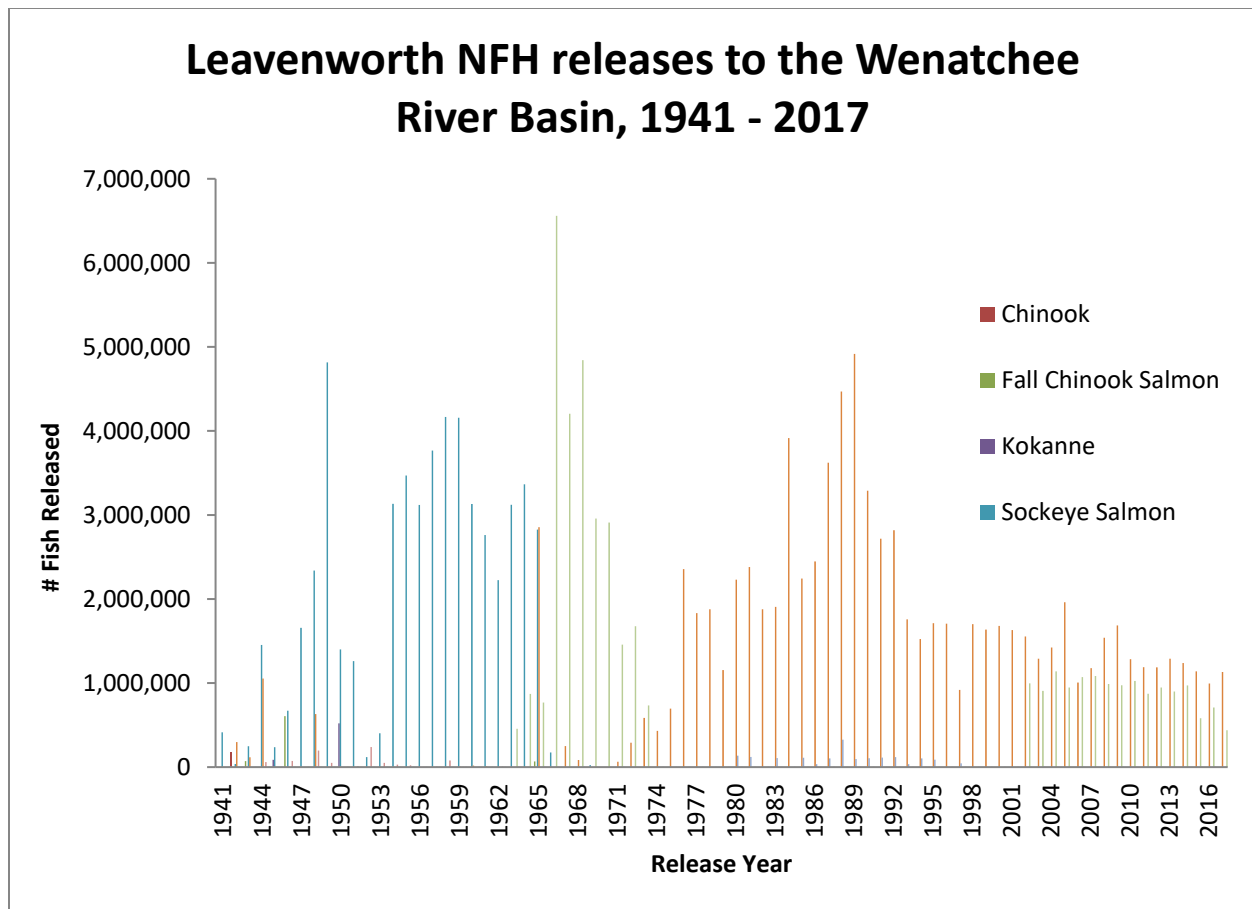


Figure 1. Leavenworth National Fish Hatchery releases to the Wenatchee River basin by release year and stock, 1941 – 2017.

Entiat NFH Timeline

- 1943 – 1944 initially reared and released a mix of species including steelhead, sockeye, coho and spring Chinook (mixed Rock Island stocks, McKenzie River SFH and Leavenworth NFH origin)
- 1945 – 1965 primarily reared and release summer Chinook sub-yearlings (average release 269k, range 8k – 457k) of mixed upriver stock collected at RI (1939-1943), Methow River & Carson NFH (1944), Entiat River (1946-1965), and Spring Creek NFH (1964).
- 1966 – 1969 primarily reared coho (Little White NFH brood –average release 632k range 275k – 1.7M)
- 1970-1975 primarily stocked rainbow trout (variety of sources and states including Ennis NFH (MT), Hot Creek SFH (CA), Paint Bank NFH (VA), Oak Springs SFH (OR) and Tacoma SFH (WA))
- 1982 – 1998 Summer steelhead from Chelan PUD Hatchery, Eastbank Hatchery and Turtle Rock Hatchery stock an average of 49k (range: 37k – 90k) smolts to the Entiat River
- 1976-2007 primarily reared and stocked spring Chinook initially sourced from a variety of hatcheries including Carson NFH, Cowlitz SFH, Leavenworth NFH, Little White NFH

and Winthrop NFH. Yearling and sub-yearling release strategies (subs discontinued in 2002) averaging 381k annually (range: 39k – 925k)

- 2007 spring Chinook program discontinued per Hatchery Review Team (HRT) recommendations
- 2010 last Entiat NFH spring Chinook adult recovered in the Entiat River
- 2011 – present ENFH begins rearing and releasing yearling summer Chinook (Wells stock, 2009-2013, Entiat River 2014 - present)

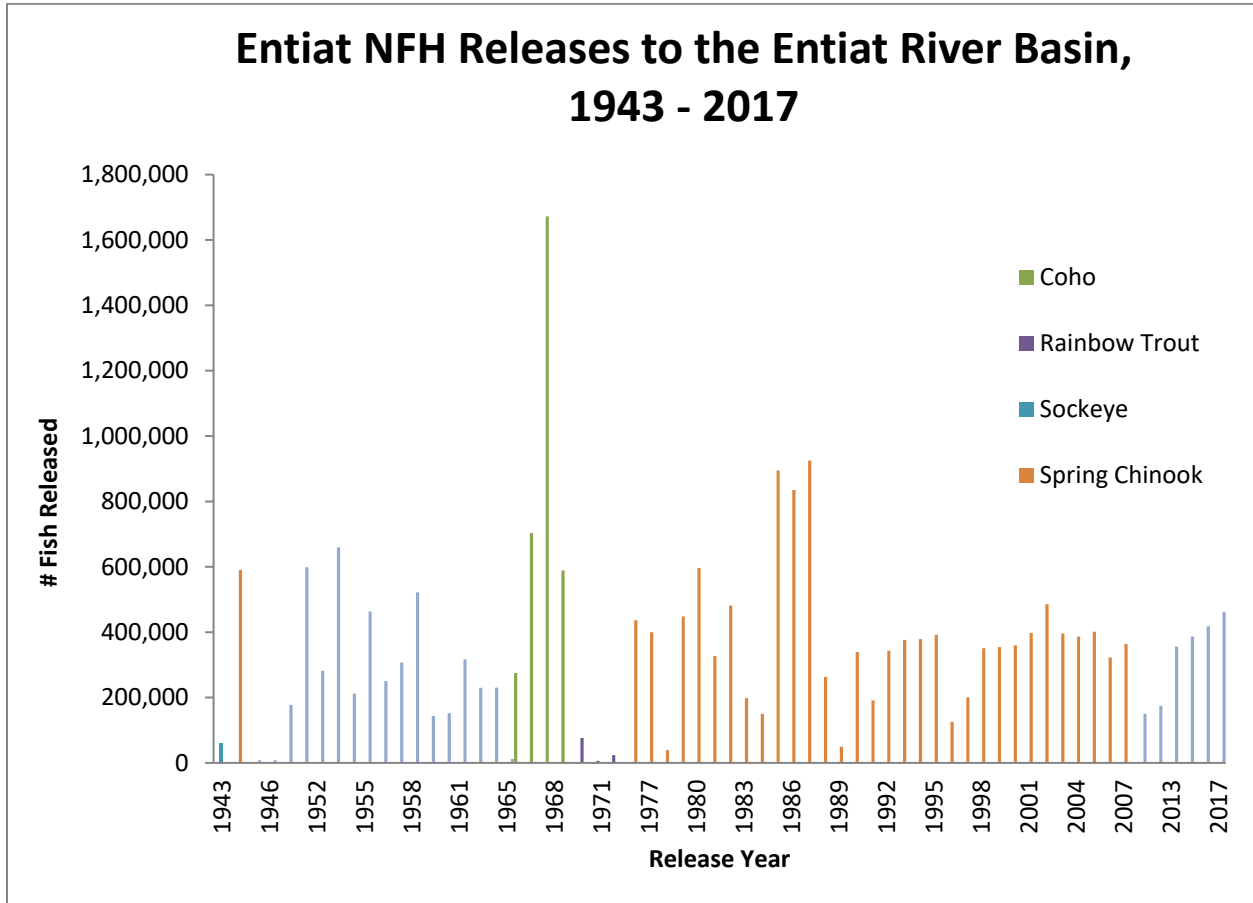


Figure 2. Entiat National Fish Hatchery releases to the Entiat River basin by release year and stock, 1943 – 2017.

Winthrop NFH Timeline

- 1945-1957 Sockeye Salmon was primary species produced at WNFH
- 1959-1969 Coho Salmon was primary species produced
- 1969-1976 Production switched to Rainbow Trout. Fish were primarily released into lakes. An average of 100K/ year were released into the Methow River and tributaries.
- 1976 - WNFH begins releasing spring Chinook (BY1974; Carson stock) into Methow River
- 1994 BY - Reduction of spring Chinook program from 1M to 600K smolt release goal (still using Carson stock at this point).

- 2000 - Carson stock phase out begins (last year that pure Carson stock releases occur; BY1998)
- 2007 - Hatchery Review Team published recommendations for WNFH salmon and steelhead programs. HSRG recommendations soon followed. Both reviews included similar commendations. Many of the review teams recommendations resulted in changes described below.
- 2007 - Carson stock phase out complete (last year where smolts with known Carson parent released; (BY2005) (note; these were the those MetComp2 release groups)
- 2008 - A "stepping stone" program for the spring chinook program was established where adult salmon originating from the Methow FH conservation program are included in the WNFH program at a rate of >20%,however this was already happening as a result of MFH adults tracking into the WNFH fish ladder. Inclusion of MFH origin adults should increase significantly since the change in marking noted in 2013 below.
- 2010 - Adult management at WNFH with intent to reduce hatchery spawners on spawning grounds (note: this has continued every year since and has resulted in the removal of more than 11,000 excess hatchery spring Chinook).
- 2013 (Release Year) - Approved through US v OR the adipose clipping of all spring Chinook released from WNFH in order to better manage returning adults (removal by fishery, surplus, broodstock management ,etc.).
- 2014 - Concerted, inter-agency adult management (WNFH & MFH) with specific pHOS goals begins.
- 2014 (fall) - 10j permit issued to transfer 200K spring Chinook to the Okanogan Basin, resulting in a reduction from 600K to 400K spring Chinook smolts to the Methow beginning in release year 2015.

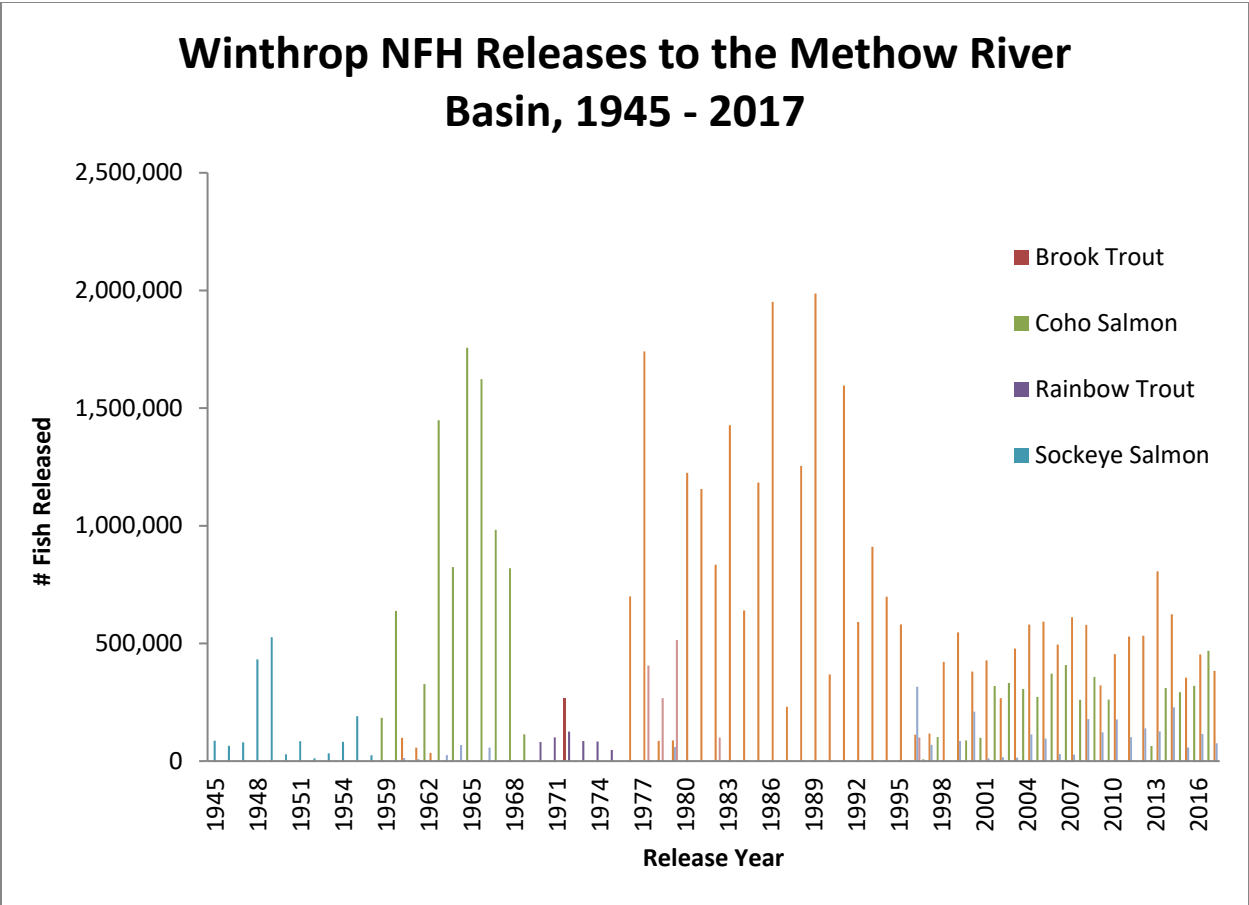


Figure 3. Winthrop National Fish Hatchery releases to the Methow River basin by release year and stock, 1945 – 2017.