

CHINOOK INTRODUCTION TO THE UPPER ADAMS RIVER

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Abstract

In an attempt to establish a chinook population in the Upper Adams River, transplants of Lower Shuswap River stock were conducted for five consecutive years. Although returns in the F₁ generation were roughly two-fold in magnitude those estimated in the F₂ generation, the presence of second generation returns indicates that enhanced origin adults were successful in spawning and producing offspring that survived to return as adults. The true test of success will be the long-term status of this stock.

Introduction

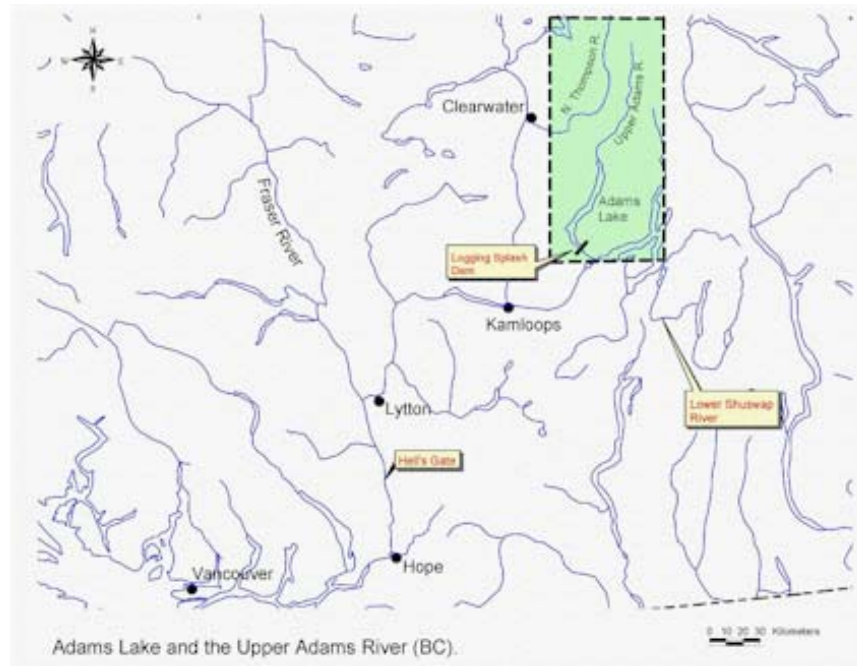
In the mid-eighties, staff from DFO's Salmonid Enhancement Program began discussing the possibility of establishing a chinook population in the Upper Adams River. Upper Adams flows into 70 kilometer long Adams Lake which discharges via the Adams River into Shuswap Lake and then to the south Thompson River.

It has been well documented that the presence of two man-made barriers contributed to the elimination of the Upper Adams sockeye population. While the railway construction induced Hell's Gate slide of 1914 (see map) was a temporary obstacle, a splash dam operated near



Confluence of Upper Adams River and Adams Lake

the outlet of Adams Lake from 1908 to 1922 was considered to be more damaging.



A review of historical escapement files back to 1938 showed no record of chinook being in the system, it is nevertheless possible that the earlier operation of the splash dam may have eliminated any chinook populations.

A review of watershed conditions identified a number of factors conducive to establishment of a chinook population. Extensive quantities of low gradient spawning grounds exist, many bearing chinook-sized spawning gravel, with river discharge being somewhat moderated by the presence of Tum Tum Lake in the headwaters.

Of a suite of stocks being enhanced at that time, Lower Shuswap River chinook was the stock selected for transplant. Like Upper Adams, Lower Shuswap is a tributary of the South Thompson River, is a “large” system with similar river morphology, and drains into a series of large lakes. In addition, of all the

interior Fraser River chinook stocks, Lower Shuswap is the only one in which the vast majority of smolts are produced as underyearlings.

Methods

Over five consecutive brood years (1989 to 1993), a total of 520 thousand Lower Shuswap origin juvenile chinook were released into the Upper Adams River. The average size at release in May of each year was 6.3 grams.

Releases by Brood Year of Lower Shuswap chinook into Upper Adams River:

| Brood Year | Release Date | Release # (K) | Ave. Weight (g.) |
|------------|--------------|---------------|------------------|
| 1989 | May 21/90 | 86.7 | 5.5 |
| 1990 | May 15/91 | 103.6 | 6.6 |
| 1991 | May 20/92 | 105.8 | 6.0 |
| 1992 | May 21/93 | 102.0 | 7.1 |
| 1993 | May 27/94 | 122.0 | 6.4 |

Starting in the fall of 1995, chinook carcass recovery programs were carried out on the Upper Adams River. For the period 1995 to 1999, Shuswap Nation Fisheries technicians performed frequent “river floats” throughout the spawning period (early to late October). Documentation of both “live” and “dead” allowed for the estimation of total return. For the fall of 2000 and 2001, adult numbers are “area under the curve” estimates made by DFO Stock Assessment staff.

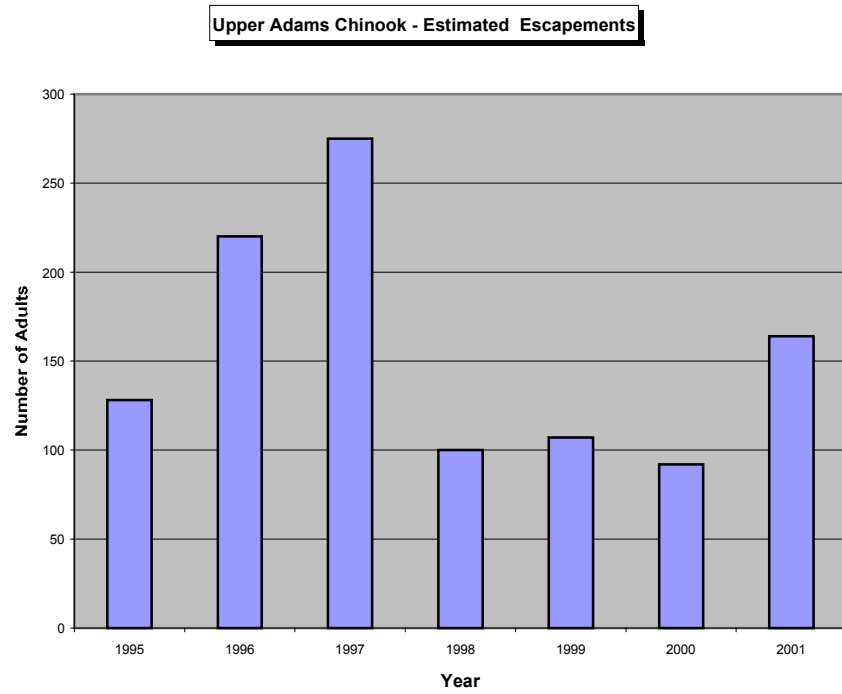
Shuswap Nation
Fisheries
technicians
preparing for
river float
(Photograph
courtesy of
M. Galesloot,
SNFC)



Results

For the period of initial enhanced return years, estimated escapements ranged from a high of 275 adults (1997) to a low of 100 adults (1998).

Yearly F_2 generation return estimates have ranged from a high of 164 adults (2001) to a low of 92 adults (2000).



Conclusions

While not as substantial as the F_1 generation returns, the presence of F_2 generation returns indicates that enhanced origin adults were successful in spawning and producing offspring that survived to return as adults.

The presence of “wild” returns indicates that the stock selected for the re-introduction (Lower Shuswap) was a satisfactory choice in terms of its genotypic and phenotypic characteristics.

F_2 generation spawning abundance should be adequate for continued persistence in the face of losses from natural selection that should increase the adaptedness of the F_3 generation

The true test of success will be the long-term status of this stock.

