

WANNOCK CHUM ENHANCEMENT and ASSESSMENT PROGRAM PLANNING NOTES

Original Prepared by S.J. MacLaurin Sept. 20, 2006 with update Sept.4,2007

RATIONALE

The chum assessment and enhancement program was initiated by the Wuikinuxv to address:

- conservation concern over low numbers of chum observed in the Wannock River over the past decade
- augment numbers through enhancement while investigating possible bottlenecks to survival in freshwater phase

BACKGROUND

The project was initiated in 2005 by the Wuikinuxv Fisheries Program. Funded through AFS agreement. Stock = Wannock River & Flats chum. Located in Area 9-6, Rivers Inlet (Central Coast BC). Watershed Code: 91-1282, Topographic Map 92M/11.

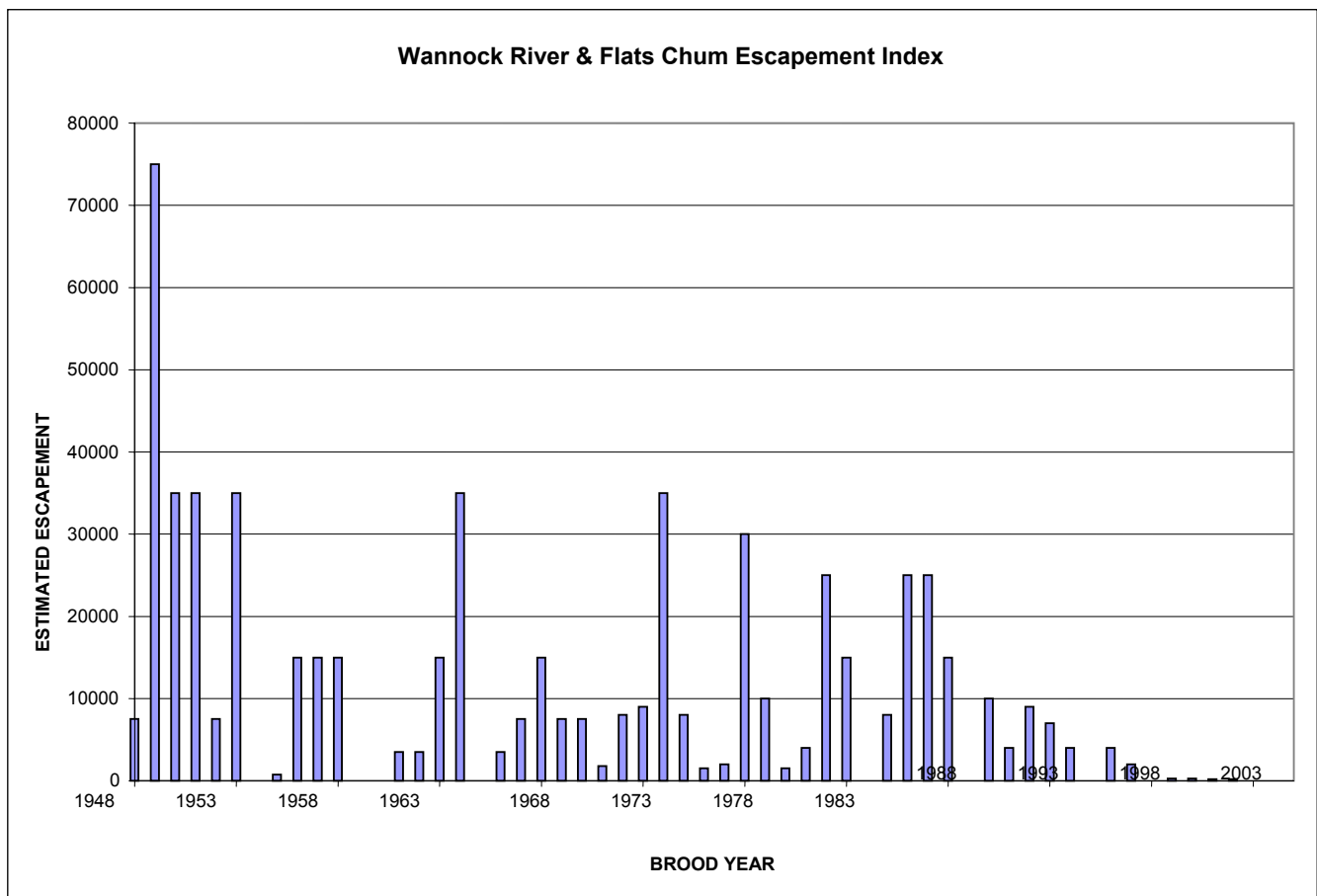
The Wannock River drains Owikeno Lake into the head of Rivers Inlet. It is 6.5 km long with the first 2.5 km within tidal influence.

1. Escapement Information

Historic Target escapement figure = 40,000.

Average annual escapements (detailed esc#'s in Appendix I):

- ➔ 1948-1989 = ~15,500
- ➔ 1990-1999 = ~5,000.
- ➔ 2000 to 2005 = there are no escapement estimates in the Post Season Review document. The observations from the Wannock chinook deadpitch indicate numbers of 250 or below for 2000-2003 and no estimates are given for 2004-2006.
- ➔ 2003-2006 deadpitch data indicates there were less than 10 chum observed (live and dead combined)



2. Adult Distribution and Spawning

Notes from the FISS and Britton & Marshall document indicate that historically chum spawned in the lower to mid portions of the Wannock River (both banks) and in the small tributaries. In the last several years the chinook deadpitch report notes that chum were only observed on the North bank of the river, upstream of the village.

Spawning has been observed from September to early December with the peak usually occurring in mid November. Chum salmon are caught during chinook broodstock capture in the Spring Pool and live & dead chum have been observed during the Wannock chinook deadpitch program that usually occurs between the third week of October and the end of November.

In the early 1980's the Wuikinuxv fisheries crew used a seine net at and below the tributary on the north side of the river upstream of the old floating dock to capture chum for the purpose of taking eggs. Anecdotal information about the broodstock efforts indicated high number of males to females.

In 2005 and 2006 Wuikinuxv fisheries crew used periodic gillnet sets (fixed location, not drift) to try and capture adult chum. No adults were observed or captured by this crew. A 51/2" gillnet of approximately 100' length was set at various locations from Oobees (just above upper access road) to the lower Spring Pool. As well, sites from the Spring Pool to the pilot hatchery creek in the village were monitored for chum presence.

Historic broodstock data was reviewed for recorded chum catch but no consistent info about chum found.

3. Habitat

The only major documented change relates to the early November 1989 flood and associated mud slides. These resulted in significant changes to the tributary on the north bank and downstream river section where many chum were historically seen.

INITIAL OPERATIONAL STRATEGY

1. Assessment

- Request specific adult chum information (location of live fish observed) from chinook deadpitch crew.
- Use seine net and drift gillnet sets at several locations over longer period of time to identify holding and spawning locations for adult chum.
- Record detailed habitat information from areas where chum spawning occurs.
- Mark chum spawning sites so there is option to note egg to eyed egg and or fry by use of hydraulic sampling equipment.
- Review estuary seining and other historic information that provides chum juvenile data

2. Enhancement

- Follow SEP and transplant guidelines to achieve egg target of 100,000 eggs (enough to mark and track). It is estimated that 25-30 females and males would be necessary. Technical assistance will be provided by S. MacLaurin and Snootli Hatchery staff.
- Unfertilized eggs and sperm will be transported to Snootli Hatchery where fertilization will be done in a secure location and eggs surface disinfected at plant.
- Ponding and rearing/marking will occur at Snootli Hatchery
- Marked fry to be transported back to the Wannock River for release in April/May of 2007

UPDATED OPERATIONAL STRATEGY

1. Assessment (same as 2006 with the following additions)

- gather more information on candidate chum transplant stocks in Rivers Inlet (see Table and comments on next page under Preparatory Work)

2. Enhancement

- Maintain transplant application for Wannock chum **but also apply for transplant approval for another stock of chum**. Follow SEP and transplant guidelines to achieve egg target of 100,000

eggs (enough to mark and track). It is estimated that 25-30 females and males would be necessary. Technical assistance will be provided by S. MacLaurin and Snootli Hatchery staff.

- ➔ Unfertilized eggs and sperm will be transported to Snootli Hatchery where fertilization will be done in a secure location and eggs surface disinfected at plant.
- ➔ Eyed eggs to be transferred to Wannock River cassette type incubators
- ➔ Ponding and rearing/marking will occur in netpens in the Wannock River (mouth of Owikeno Lake)

PREPARATORY WORK

- ➔ Transplant application completed for Wannock
- ➔ Fisheries managers and stock assessment approval/input – original document + cover FAX - sent Sept. 20, 2006
- ➔ This document with revisions sent Sept.4, 2007
- ➔ List of candidate stocks to be developed

I'll go first, concentrating on stocks from Rivers and Smiths (as advised by Brian Anderson today)

DEVELOPMENT OF CANDIDATE TRANSPLANT STOCK LIST FOR WANNOCK RIVER CHUM RE-BUILDING (started Sept.4, 2007)						
STOCK	RUN TIMING			ESCAPEMENT		COMMENTS
	EARLY	PEAK	END	TARGET	2006	
RIVERS INLET - AREA 9						
WANNOCK	early-mid October	late Oct.-mid Nov.	late Nov. - early Dec.	40000	N/A	
NICKNAQUEET	mid-late Sept.	October	early Nov.	400	N/A	
CLYACK	late July-early Aug	August	early Sept.	40000	2,700 combined	
YOUNG	N/A			N/A		
NIEL	N/A			N/A		
MCNAIR	late Aug.	September	early-mid October	4500	N/A	1500 in 2005
SMITHS INLET - AREA 10						
NEKITE RIVER AND CHANNEL	mid-late August	early-mid Sept.	early October	76000		13,350 in 2005
TAKUSH	September	October	early-mid November	15000		2,000 in 2005
WALKUM	late August	September	early-mid October	7500		1,350 in 2005

I would place temperature data loggers in all the candidate systems so we can match spawn and developmental timing with what we know about the Wannock River. We can then figure out how long we may have to rear chum so can release during "normal" out-migration timing (whatever stock we choose will likely be ponded much earlier than normal due to incubation on well water at Snootli and in the Wannock cassettes).

Next, I would find out what disease testing has been done on the chum adults from candidate systems (I have already made an inquiry).

I would recommend getting better escapement numbers in the Nicknaqueet (the nearest and probably best candidate from a transplant standpoint) to determine if numbers sufficient for escapement needs plus ~50 adults for eggtake.

For the Young, Niel systems – need timing info and feasibility for capturing broodstock.

For MacNair Creek – do not have escapement info for 2006 and would want to check as to feasibility for capturing broodstock.

APPENDIX I (pg 1 of 2)

WANNOCK CHUM OBSERVATIONS - TARGET = 40000 (1986 RMS)					
YEAR	RMS	BRITTON & MARSHALL	OBS/EST FROM CN DEADPITCH	COMMENTS FROM DEADPITCH	BROODSTOCK PROGRAMS
1947		unk			
1948	7500	7500			
1949	75000	75000			
1950	35000	35000			
1951	35000	35000			
1952	7500	7500			
1953	35000	35000			
1954	unk	unk			
1955	750	750			
1956	15000	15000			
1957	15000	15000			
1958	15000	15000			
1959	unk	unk			
1960	unk	unk			
1961	3500	3500			
1962	3500	3500			
1963	15000	15000			
1964	35000	35000			
1965	unk	unk			
1966	3500	3500			
1967	7500	7500			
1968	15000	15000			
1969	7500	7500			
1970	7500	7500			
1971	1800	1800			
1972	8000	8000			
1973	9000	9000			
1974	35000	35000			
1975	8000	8000			
1976	1500	1500			
1977	2000	2000			
1978	30000	30000			
1979	10000	10000			
1980	1500	1500			
1981	4000				
1982	25000				
1983	15000				
1984	n/a				

APPENDIX I (pg 2 of 2)

WANNOCK CHUM OBSERVATIONS - TARGET = 40000 (1986 RMS)					
YEAR	RMS	BRITTON & MARSHALL	OBS/EST FROM CN DEADPITCH	COMMENTS FROM DEADPITCH	BROODSTOCK PROGRAMS
1985	8000		8000	early indication - not complete, total cm looks below target for inlet	
1986	25000		unk	no mention of chum - Vern Sampson start	
1987	25000		25000	spawning complete by end of 3rd wk of Nov. earlier than 1986	
1988	15000		10000-15000	approx. 6000 carcasses on banks of Wannock, spawning to end of Nov.	
1989	unk		8000-10000	Nov.flood and mudslide in lower tribs to Wannock noted. approx 1000 chum spawning downstream on opposite bank	
1990	10000		10000	reasonably good showing, spawning from inter-tidal to spring pool along banks	
1991	4000		4000	even though poorer viewing conditions, noticeably less chum seen	
1992	9000		9000	spawning into end of Nov-1st wk of Dec.	
1993	7000		7000	n/a	
1994	4000		3000	n/a	
1995	unk		15000	Nov.1&2 live count=3550, dead=470, estimated live 7000	
1996	4000		4000	obs. that spawning seemed end two weeks earlier, few carcasses seen	
1997	2000		2000	there seemed to be no "second wave" this year, no live and very few carcasses were observed after Nov. 15	
1998	unk		unk	only 3 live and 1 carcass seen during DP program	1 chum caught Oct.28
1999	unk		unk	no live and no carcasses observed	released during CN and 1 during sockeye broodstock program - gillnet sets
2000	unk		250	highest number at one time=12, few obs of 3-4 - all on North bank from village above, none at usual places on South bank. total of 25 live and 8 dead observed	
2001	unk		250	same general comments as last year with total of 22 live and 23 dead	
2002	unk		200	same general comments with total obs of 70 live & 35 dead	
2003	unk		200	same general comments, highest number of chum observed at one time = 2, no carcasses found	
2004	unk		unk	same general comments, highest number of chum observed at one time = 4, 8 carcasses found	
2005	unk		unk	no live chum observed, 1 dead	1 male caught in 88 large mesh gillnet sets in Spring Pool Oct.21
2006	unk				2 males caught in 27 double length large mesh gillnet sets in Spring Pool Oct.22-24