



Preterminal Fishery Impacts on Fraser River Chinook stocks

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Fraser River Stock Organization

Genetic Group	CTC/FRAM Model Stocks	CWT Indicator Stocks (years)	CWT Preterminal Fishery Distribution Stocks
Upper Fraser	Fraser Early	Dome (95-06)	10
Mid Fraser		None	15
North Thompson		None	5
South Thompson		Lower Shuswap (95-10)	4
Lower Thompson		Nicola (95-10)	4
Lower Fraser Spring/summer		None	4
Lower Fraser Fall	Fraser Late	Chilliwack (85-10)	3



Fraser Early Stock Representation in CTC Model

	Middle Fraser	South Thompson
CWT stock	Chilko	Lower Shuswap
Life history	Stream-type	Ocean-type
Smolts	Yearling	Subyearling
Return migration timing	Summer	Summer
CWT brood years	1978	1978 & 1979
Observed CWT recoveries in fisheries	18	105 & 35



Fraser Early Stock Representation in CTC Model

- Chilko wild fry reared in net pens until large enough to tag
 - Poor survival → few CWT recoveries from fisheries & spawning escapement
 - Early smoltification & maturation patterns
- Stock representation limited by data available at time of analysis
 - Borrowed maturation rates from Upper Georgia Strait & Columbia Upriver Brights with trial & error fitting
 - Model Chilko is ocean-type
 - Combined both stocks
- Better information available now
 - CWT statistics available for more Fraser stocks & brood years
 - Escapement & terminal fishery data reviewed & revised

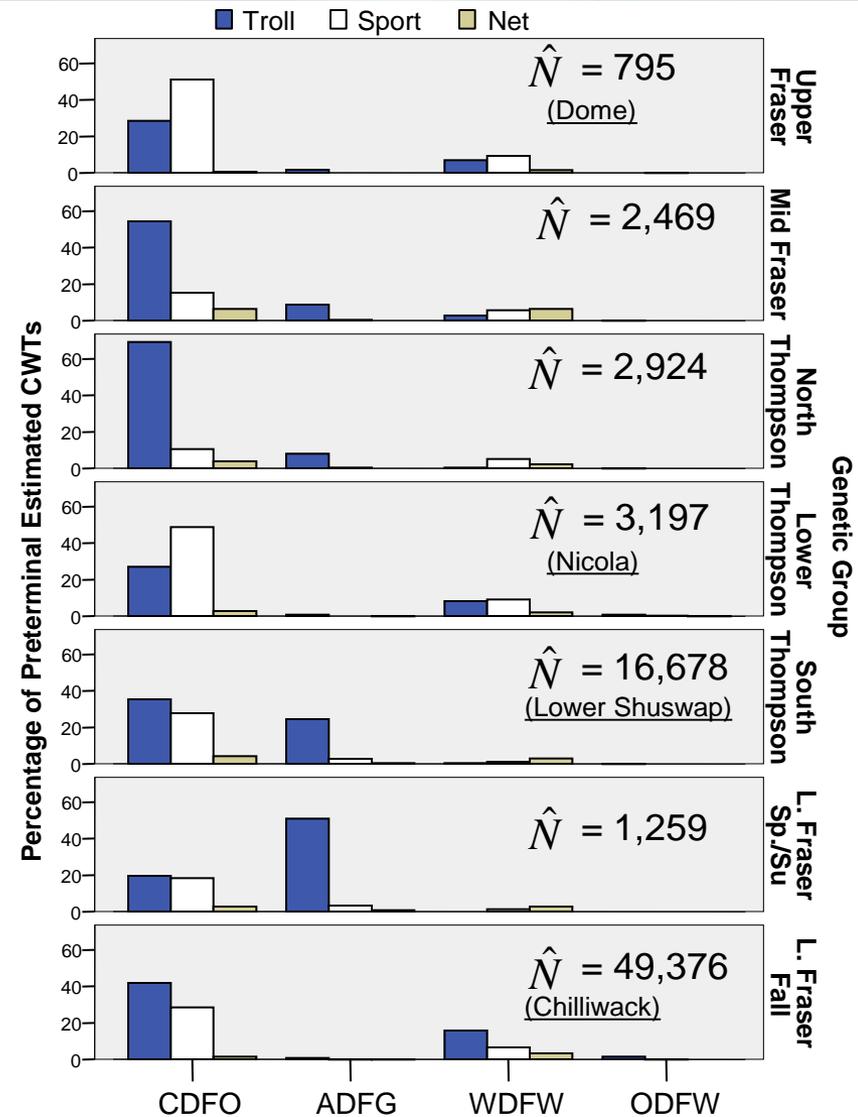
Preterminal Fishery Distribution (average 05-10; age 3+)

	Lower Fraser Fall	South Thompson	Lower Thompson	Upper Fraser
	Chilliwack	Lower Shuswap	Nicola	Dome
Terminal (S N Esc)	81%	60%	91%	85%
Total Preterminal	19%	40%	9%	15%
<i>SEAK T</i>	<i>0%</i>	<i><u>10%</u></i>	<i>0%</i>	<i>0%</i>
<i>SEAK S</i>	<i>0%</i>	<i>2%</i>	<i>0%</i>	<i>0%</i>
<i>SEAK N</i>	<i>0%</i>	<i>0%</i>	<i>0%</i>	<i>0%</i>
NBC T	0%	9%	1%	2%
NCBC S	0%	<u>10%</u>	0%	0%
WCVI T	<u>7%</u>	0%	2%	<u>6%</u>
WCVI S	3%	2%	0%	0%
Strait of Georgia S	2%	4%	1%	2%
Juan de Fuca S	1%	3%	<u>3%</u>	4%
Other Canadian T, S, N	0%	0%	0%	0%
<i>Southern US T</i>	<i>3%</i>	<i>0%</i>	<i>1%</i>	<i>1%</i>
<i>Southern US S</i>	<i>2%</i>	<i>0%</i>	<i>0%</i>	<i>0%</i>
<i>Southern US N</i>	<i>1%</i>	<i>0%</i>	<i>0%</i>	<i>0%</i>



Preterminal CWT Distribution (all available years; age 3+)

- Genetic Groups without CWT indicator stocks
 - Mid Fraser, North Thompson, Lower Fraser Sp./Su
 - Preterminal fishery distribution varies relative to other genetic groups
- NMFS Alaska ground fish fishery CWT data
 - CWTs not estimated prior to ~2005
 - 1-6% of observed recoveries for Fraser stream-type stocks





Summary

- Fraser early stock representation in CTC model opportunistically-based on the data available
- Recent preterminal exploitation:
 - Low for spring & fall stocks (~10-20%)
 - Moderate for summer stock (40%)
- Preterminal fishery distribution varies among genetic groups
 - Some rely on surrogate indicator stocks

