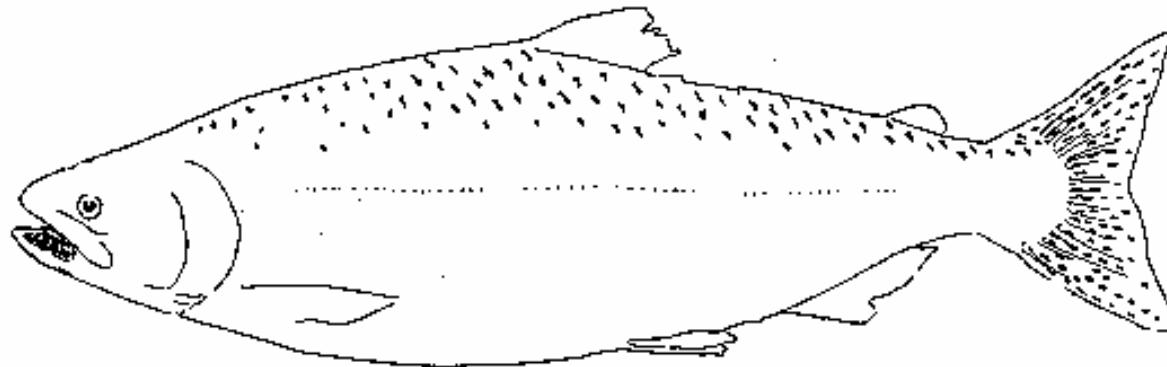




Fisheries and Oceans  
Canada

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Canada

# PRE-SEASON PLANNING FOR FRASER SALMON and STOCKS OF CONCERN



Forum on Conservation and Harvest Planning for  
Fraser Salmon  
January 22, 2010



Canada



# Outline

- South Coast Chinook
  - Status
  - Management Actions
  - Recovery Planning
  - 2010 Approach
- Overview: 2010 Outlook and Fishing Season Considerations
  - Fraser Sockeye
  - South Coast Coho
- Discussion



## South Coast Chinook: Overview

- A number of South Coast chinook populations continue to decline or are depressed
- Department preparing recovery plan for South Coast chinook and will be consulting with First Nations and other stakeholders on its development
- A range of management measures have been taken in recent years to reduce exploitation rates
- Discussion of additional management actions that can be taken for 2010



# South Coast Chinook

- Common challenges facing a number of South Coast Chinook populations including:
  - WCVI wild populations
  - Fraser stream rearing populations (Spring 4<sub>2</sub>, Spring 5<sub>2</sub> and Summer 5<sub>2</sub>)
  - Lower Georgia Strait (Cowichan)
- These populations are facing:
  - depressed and/or declining spawner abundance,
  - reduced and variable marine (and freshwater) survival rates
  - high uncertainty about future marine production regimes
  - Other factors may include: pressures on freshwater habitat, increased predation, ecosystem effects from climate changes...
- As productivity declines, management measures to reduce exploitation rates are required.

# Fraser Chinook

Spring Run 4<sub>2</sub> includes 2 CU's : Outlook status 1, stock of concern (last year = 1)

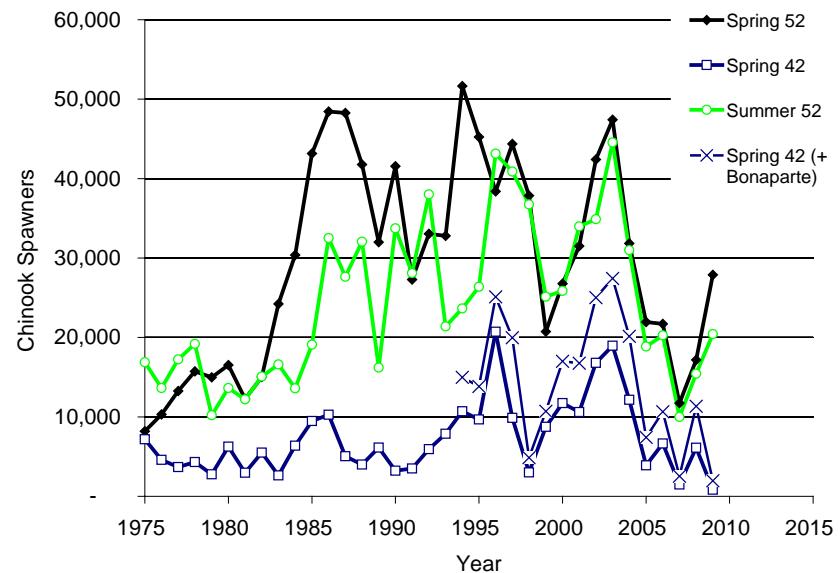
- Record low spawner abundance in 2009 (figure)
- 2010 projected return of approx. 6,600 based on avg. return last 4 years.

Spring Run 5<sub>2</sub> includes 6 Cu's : Outlook status 1, stock of concern (last year = 1)

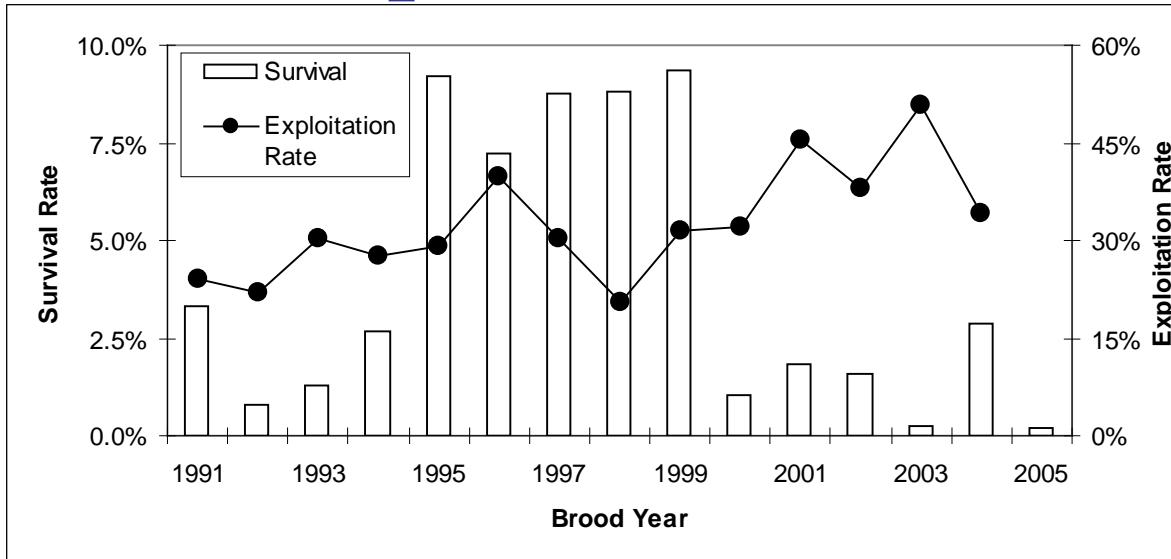
Summer Run 5<sub>2</sub> includes 5 CU's : Outlook status 1, stock of concern (last year = 1)

- Very low returns projected if recent low survivals continue. Management reference point of 40K identified in 2009 IFMP not likely to be met

- These 3 Fraser Chinook management units (MU's) contain 13 of 17 Fraser chinook CU's
- Early timed chinook are a sub-set stocks in 3 CU's contained in Spring 4<sub>2</sub> and 5<sub>2</sub> MU's



# Fraser Spring 4<sub>2</sub> Survival and Exploitation

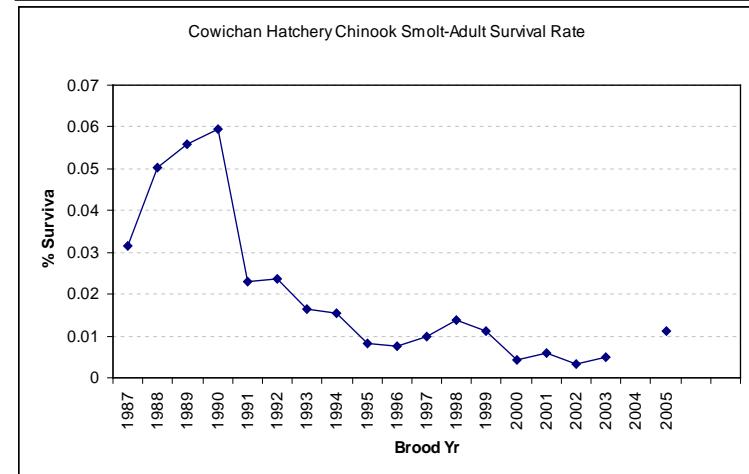
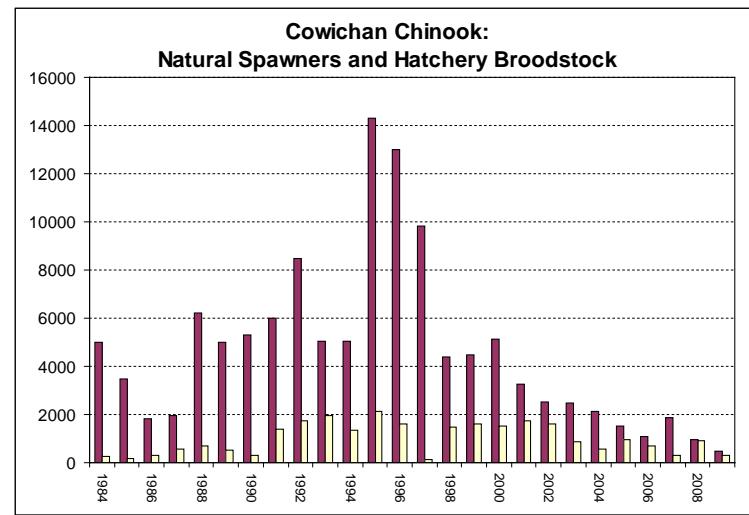


- Survival rate time series developed from Nicola CWT data in 2009
- Brood Year exploitation rates have been variable but increasing trend
  - Ranging 21% to 51%, averaging 33%
  - Reduction in 2004 BY associated with increased management actions in 2008
  - sustainable exploitation rates estimated at 63-65% for average productivity conditions
- Exploitation rates post BY 1999 need to decrease in response to low survival
- Sustainable exploitation rates currently estimated in 8-11% range for low survival period; populations declining at current exploitation rates.

# Cowichan Chinook

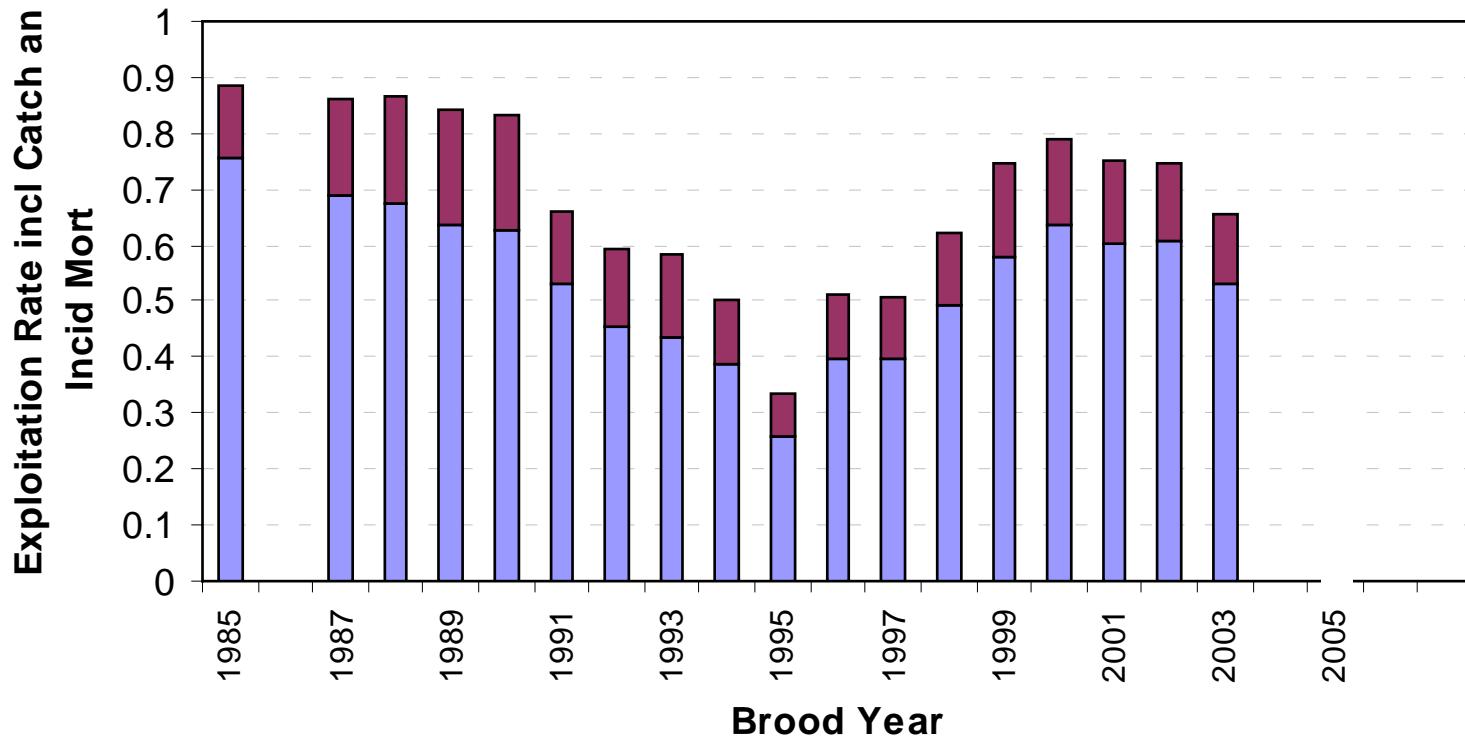
Outlook status 1, stock of concern (last year = 1)

- 2009 natural spawners lowest on record adults (top panel)
- Marine survival (smolt to adult) of Cowichan Hatchery is <1% (bottom panel)



# Cowichan Exploitation Rates

**Cowichan Hatchery Chinook: Total fishing mortality by brood**

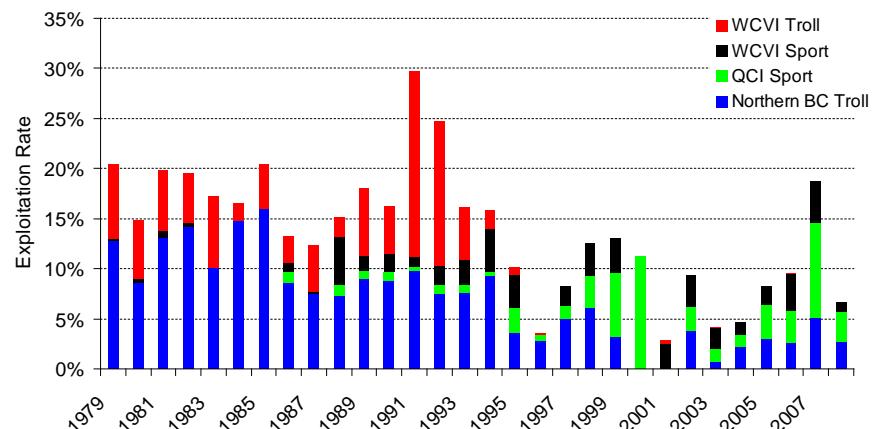
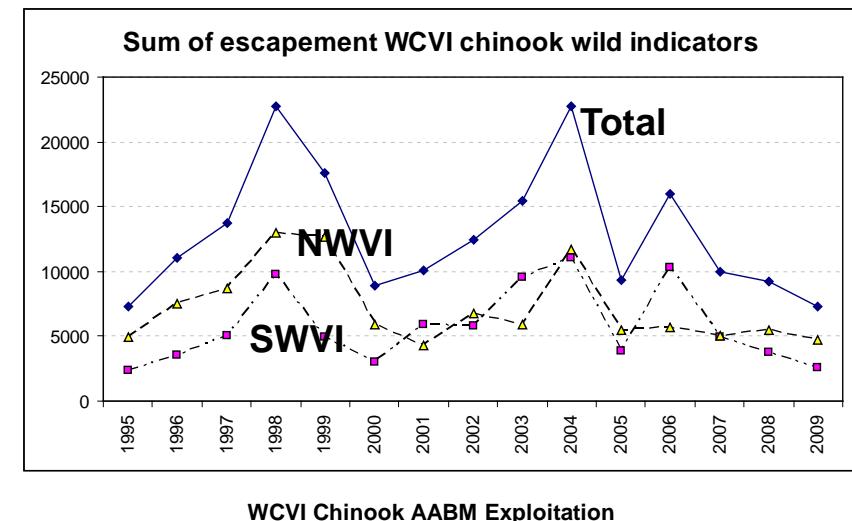


- Exploitation rate appears to be declining from recent highs, but not enough years to be confident.
- Note: no info from 2004 brood year – age 3 in 2007 catch and age4 in 2008 catch. 2005 incomplete.

# WCVI wild Chinook

## Outlook status 1, *stock of concern* (last year = 1)

- Lowest wild spawner abundance since 1995 (top panel)
- Exploitation rates in major ocean fisheries (bottom panel) consistent with IFMP objective (<10% in marine fisheries) in most recent years.



## Chinook Management Actions

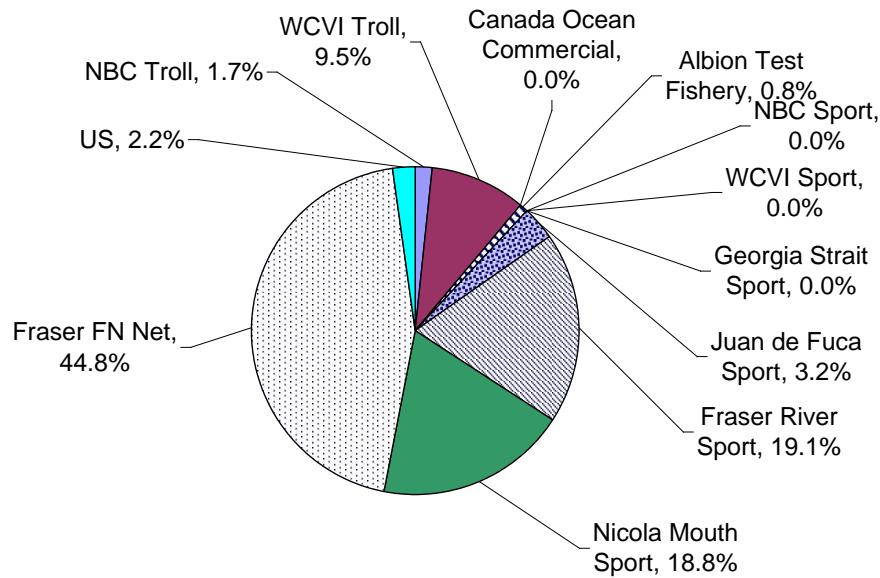
- Conservation concerns have resulted in a number of management actions
- Renegotiated Pacific Salmon Treaty chapters with specific focus on chinook:
  - Significant fishery reductions in the Southeast Alaska (15% reduction) and West coast of Vancouver Island (30% reduction) fishery areas
  - Guidelines for North Coast harvest reductions based on status of key stocks (also applies to Alaska), however, domestic conservation objectives (e.g. WCVI chinook) may constrain harvest
  - Effects of new Pacific Salmon Treaty harvest reductions implemented in 2009 season will not be assessed until April 2010.
- A range of *stock specific* management actions also implemented.

# Fraser Chinook Management Actions

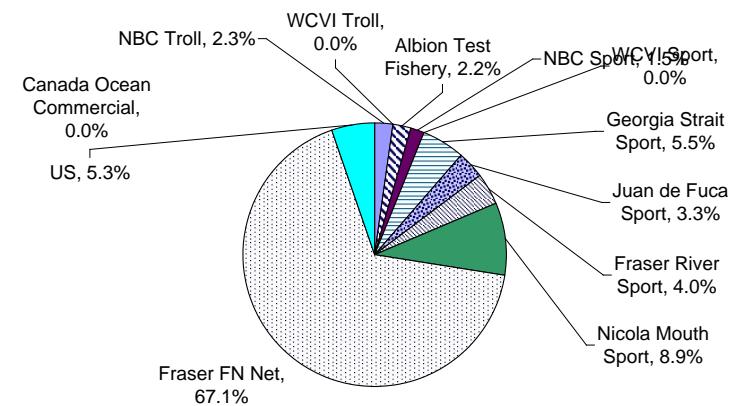
- 2008 and 2009 measures to reduce exploitation rates on Early timed Chinook by approximately 50%
  - ***First Nation***: opportunity for FSC harvest at reduced levels, delayed start to the season and voluntary closures in some areas.
  - ***Recreational***: size restrictions and partial mark-selective fishery (e.g. hatchery) in Juan de Fuca, non-retention of Chinook off the mouth and inside the Fraser.
  - ***Area G troll***: two month closure in south-west Vancouver Island (area 123/124) and cap on overall effort levels in SWVI and NWVI. No Spring 4<sub>2</sub> CWT's encountered in 2008.
- In season abundance assessment of Spring and Summer 5<sub>2</sub> chinook with management actions to maintain spawner abundance above 30,000
  - Methodology has been reviewed and approved by PSARC.
- Additional management actions for WCVI wild and Cowichan chinook.

# Distribution of Spring 4<sub>2</sub> (Nicola) Fishing Mortality

## 2006-07 Average



## 2008



Overall pie shape illustrative only. Not scaled to exploitation rate

- Overall reduction in exploitation rate by approximately 20% in 2008. Reduced from average of 44.2% (2006-07) to 35.8% (2008).
- No information for 2009 yet
- No current CWT indicator stocks for Spring 5<sub>2</sub> and Summer 5<sub>2</sub> MU's. However, substantial timing overlaps with Spring 4<sub>2</sub> chinook.



## South Coast Chinook Recovery Planning

- Harvest reductions alone likely insufficient for rebuilding if poor survival persists.
- Department developing comprehensive, longer term recovery plan to rebuild depressed Fraser River and other South Coast populations. Primarily harvest actions to date.
- Recovery planning will need to address:
  - Conservation objectives and harvest measures consistent with the Wild Salmon Policy (including development of benchmarks, etc...)
  - Habitat status and threats (including water use)
  - Role of enhancement activities (e.g. hatchery production)
  - Assessment and research
- Department will consult with First Nations and other stakeholders on development of recovery plan.



## 2010 Fishery Planning

- Department is committed to providing priority for First Nations fishing for FSC purposes. Commercial and recreational fisheries take brunt of conservation measures.
- Last year's IFMP (2009/10) identified continued management actions for Fraser chinook likely required in 2010 for commercial and recreational fisheries; additional consultations with First Nations on 2010 fishing plans.
- Discussion of approaches for further exploitation rate reductions and potential additional management actions required to address low chinook returns:
  - Options for Spring 42 chinook required beginning March 2010.
  - Options for other Fraser and South Coast chinook to be included in draft Integrated Fisheries Management Plans (IFMPs)

## Overview: 2010 Outlook and fishery planning considerations by time period

### **March to July:**

- Fraser chinook **Spring 4<sub>2</sub>, Spring 5<sub>2</sub> and Summer 5<sub>2</sub>** stocks of concern migrating; peak in Fraser River in June for Spring groups and July for Summer (**stocks of concern**)
  - In season run size assessment of Spring 5<sub>2</sub> and Summer 5<sub>2</sub> chinook at Albion test fishery in late May
- Fraser River sockeye in season assessment of abundance, escapement objectives and environmental conditions.
  - Early July peak migration of **Early Stuart sockeye**; window closure in recent years (**stock of concern**)
  - Late July-August **Early Summer sockeye** (range: low to near target)

### **August to September:**

- Early August **Summer sockeye** (range: low to abundant)
- Mid to late August **Late run** (range: stock of concern to abundant)



# Overview (continued)

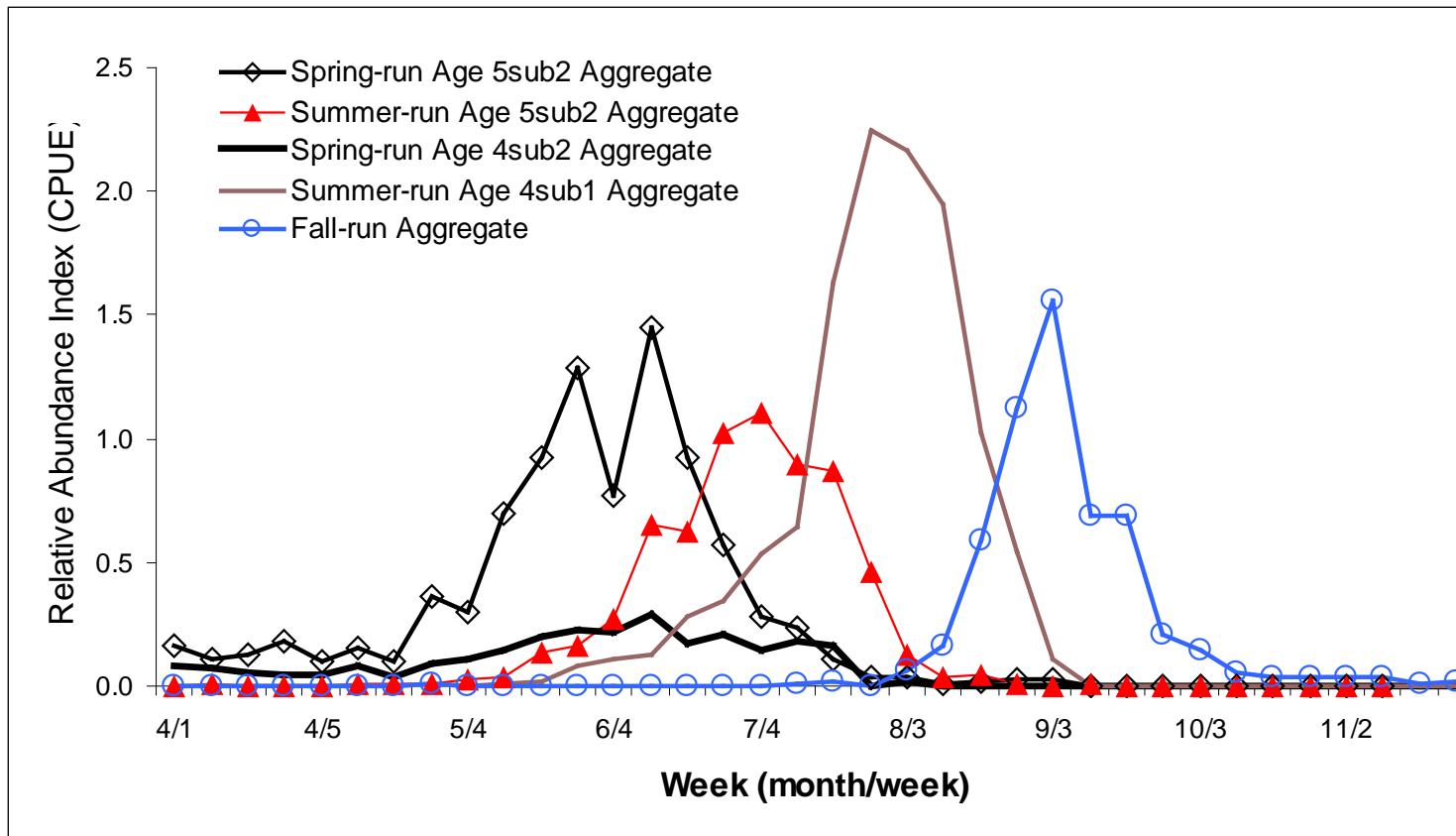
## August to September (cont.)

- **Summer 4<sub>1</sub> chinook** (Shuswap/South Thompson) chinook peak migration into Fraser in late August (**near target / abundant**)
- **Fraser Late chinook** (e.g. Harrison) peak migration into Fraser in late September (**low**)
- Window closure early September to October to conserve **Interior Fraser Coho**; selective fisheries. (**stock of concern / low**)

## October to November:

- **Fraser chum** returns beginning in October. In season run size assessment at Albion test fishery after mid-October. (**low / near target**)
- **Interior Fraser steelhead** conservation measures during chum fisheries (**stock of concern**).

# Fraser Chinook Migration Timing



- Broad timing overlaps for Spring 4<sub>2</sub> and Spring 5<sub>2</sub>; also large portion summer 5<sub>2</sub> MU's.
- Data based on DNA samples from the Albion test fishery in 2000-2001

## Fraser River Sockeye

- The 2010 Fraser Sockeye pre-season forecast will be released following the March 9, 2010 PSARC meeting.
- 2010 historically the dominant cycle line for Late run (e.g. Adams)
- Escapement plan options for each management unit to be developed as part of Fraser Sockeye Spawning Initiative (FRSSI) process for inclusion in draft SC IFMP.
- Need to account for a range of abundance scenarios given recent survival rates.
- PSARC Review in May 2010 of FRSSI model and WSP benchmarks papers
- Actual fishing opportunities will depend on assessments of in-season information including test fisheries, hydroacoustics, and stock identification sampling.



# Cohen Commission

- Commission of Inquiry into the Decline of Sockeye Salmon in the Fraser River
- 2 Phases:
  - i) review and assess of previous examinations, investigations or reports relevant to Inquiry and Government's responses
  - ii) investigation and findings of fact on:
    - Causes of decline...
    - Current state and long term projections of Fraser sockeye
    - Recommendations to improve future sustainability
- Terms of Reference and other information available at:
  - <http://www.cohencommission.ca/>



# MSC Process: BC Salmon

## BC Sockeye Salmon

- Marine Stewardship Certification process for Nass, Skeena, Somass and Fraser sockeye
- Determination of Certification body that fishery should be certified in accordance with MSC Standard (subject to objections)
- 15 day objection period until Feb. 10, 2010

## BC Pink and Chum Salmon

- 7 fisheries in assessment process (stage 4: client and peer review)
- Pink (North/Central, Mainland Inlets, Fraser); Chum (North/Central, Inside, WCVI, Fraser)
- Further information: <http://www.msc.org/track-a-fishery/in-assessment/pacific>



## South Coast Coho

- Interior Fraser, Georgia Strait and Lower Fraser coho continue to be stocks of concern or low abundance (Outlook Status 1/2)
- Plan for a similar management approach to recent years – Canadian fishery exploitation rates not to exceed 3%
- Window closure to protect coho starting in September. Selective fishing techniques required.



# Post-season Reviews

## **Plans to finalize 2008 Early-timed chinook post-season review**

- Incorporation of CWT data for 2007 and 2008
- Documentation of model assumptions and limitations
- Post-season review of Early-timed chinook to be discontinued.

## **Future post-season reviews**

- PST aggregates to be used for post-season reviews in subsequent years.
- Annual post-season reports completed by the PST Chinook Technical Committee (CTC).
  - Catch and escapement data through 2009 (January 2010)
  - Total fishing mortalities and CWT analysis through 2009. (April 2010)
- Post-season review schedule means there is a 2 year lag for assessing any new management actions to allow exploitation rates to be assessed based on CWT data (e.g. analysis of CWT data for 2009 fisheries will be available in April 2010, plans adjusted for 2011 fisheries)

**South Coast post-season report available on 2009 fisheries.**



## 2010 Planning Process

Item	Date
1. Development of Fishery Management Actions	Jan-Feb 2010 (Spring 4 <sub>2</sub> ) March 2010 (other Chinook)
2. Circulation of Fraser River Chinook Information Document	February 2010
3. Begin Implementation Spring 4 <sub>2</sub> Management Approach	March 2010
4. Implement Management Approaches for Other Chinook	Beginning May 2010



## IFMP Timelines:

- 1<sup>st</sup> Draft released: March 17<sup>th</sup>, 2010
- Comments until: April 20, 2010
- 2<sup>nd</sup> Draft released: April 30, 2010
- IHPC Meeting: May 6-7, 2010



## Discussion

- Approaches for further exploitation rate reductions and potential additional management actions required to address low chinook returns
- Sharing of chinook harvests among First Nations