



## 2015 Interior Fraser Coho Management



Background, Science Update and 2015 Fisheries Planning

Forum on Conservation and Harvest Planning

Vancouver, B.C.

March 2015



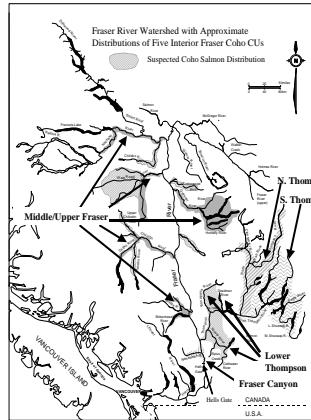
## Interior Fraser River Coho Background

- In response to significant stock declines through the 1990's, fishery restrictions (<3% exploitation rate) implemented starting in 1998.
- COSEWIC designation as endangered in 2002.
- Interior Fraser Coho Recovery Team was established and a comprehensive recovery strategy developed in 2006
- While spawning escapements have improved somewhat in recent years, overall returns remain well below levels observed since the significant declines in the 1990's .
- Escapement ~ 20,000 in 2014.



## Interior Fraser Coho Conservation Unit Description

Conservation Unit (CU)	Subpopulation
South Thompson	Adams River Middle/Lower Shuswap Shuswap Lake Total
North Thompson	Lower North Thompson Middle North Thompson Upper North Thompson Total
Lower Thompson	Lower Thompson Nicola Total
Middle/Upper Fraser	Middle Fraser Upper Fraser Total
Fraser Canyon	Fraser Canyon



## Interior Fraser River Coho Recovery Objectives

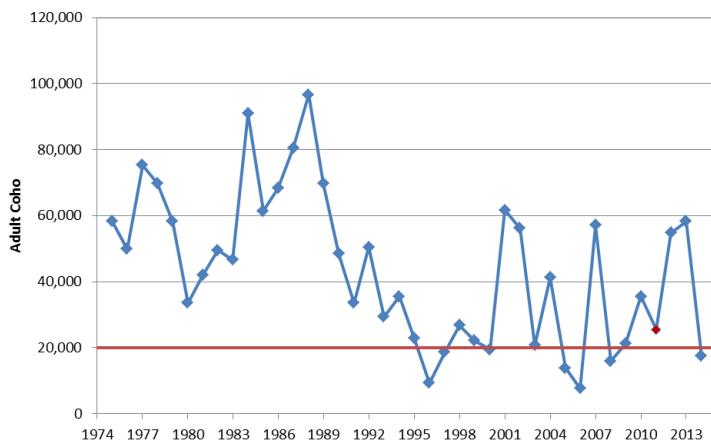
- Short Term Objective: 3 year geometric mean escapement in at least half of the subpopulations within each of the 5 CUs to exceed 1000 natural spawners, excluding hatchery fish spawning in the wild; approximately 20,000 wild spawners; and
- Longer Term Objective: 3 year geometric mean escapement in all of the subpopulations within each of the 5 CUs to exceed 1000 natural spawners, excluding hatchery fish spawning in the wild; approximately 40,000 wild spawners

*(adapted from 2006 IFC Recovery Team Objectives 1 and 2)*



## Escapement - Interior Fraser River Coho

(2014 estimate is preliminary)

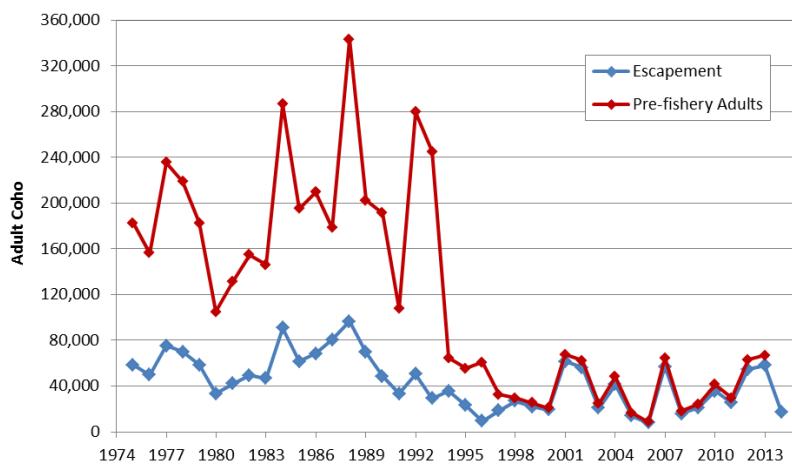


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## Pre-fishery Abundance - Interior Fraser River Coho



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## Recent Science Work

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## Recent IFR Coho Assessments

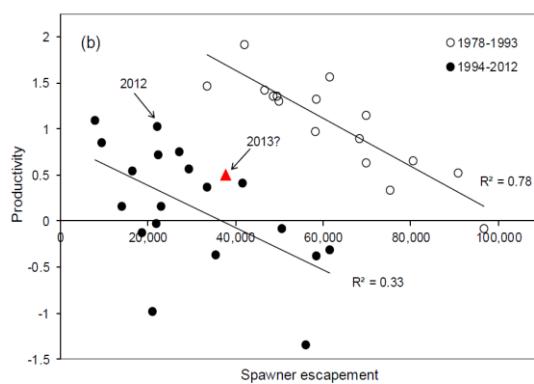
1. Decker and Irvine. 2013. Pre-COSEWIC Assessment of IFR Coho Salmon **CSAS Res. Doc. 2013/121**
2. Decker et al. 2014. Assessment of IFR MUs relative to 2006 conservation strategy recovery objectives. **CSAS Sci. Advis. Rep 2014/032**
3. Parken et al. 2015. WSP Biological Status Assessment for CUs of IFR Coho Salmon. **CSAS Sci. Advis. Rep. In press.**
4. Evaluation of Marine Recreational Coho Mark Selective Fisheries in British Columbia, including an evaluation of the Canadian marine fishery exploitation model for Interior Fraser Coho (***under development***)

## Decker et al. 2014: Assessment of IFR Coho MUs against recovery objectives

### Productivity Trend:

- Despite modest improvements in productivity (returns per spawner) in some recent years, the future is uncertain since there is no evidence that we have departed from the ‘low’ productivity period that has persisted since the 1994 return year.
- Current productivity is still well below that in the relatively high productivity period of 1978-1993. (See next slide)

### Trends in productivity





## Parken et al. 2015 (in press) WSP Biological Status Assessment (IFR Coho CUs)

### Low productivity regime

- No evidence that these CUs have moved above the current low productivity regime (persistent since 1991)
- Similar to finding of Decker et al. 2014

### WSP status assessment

WSP status	Conservation Unit
Amber / Green	<ul style="list-style-type: none"><li>• Lower Thompson</li><li>• North Thompson</li></ul>
Amber	<ul style="list-style-type: none"><li>• Middle Fraser</li><li>• Fraser Canyon</li><li>• South Thompson</li></ul>

- CU status was Amber or Amber/Green under conditions of low ER (<13%) over the last 13 years.



## 2014 Fishery Post-season Review Status



## 2014 Fisheries Management Plan

- Changes from previous years' plans included:
  - Retention of wild and marked coho encountered in FSC fisheries targeting other species
  - Expansion of fisheries targeting IFR coho in some terminal locations (subject to sufficient terminal abundance)
  - Shortened of IFR window closure in Fraser River (commercial / recreational / FSC)
  - Retention of one wild coho / day in a number of marine recreational fisheries areas in Southern BC
  - In commercial net fisheries, continuation of requirement to release all coho, but some increase in allowable mortalities to enable access to more abundant species (e.g. Fraser sockeye). Troll retention of coho permitted in areas and times where IFR coho not prevalent (September WCVI).



## 2014 post-season assessment

- Current IFR coho escapement estimate is 20,000
- Escapement was lower than expected based on:
  - Pre-season forecast range was 31,000 to 78,000 with a mid-point of 50,000
  - Final in-season modelled estimate of fisheries impacts was 10.9 %
- Low escapement suggests that either total returns were well below the lower end of the forecast range and / or fisheries impact models underestimated fisheries impacts.
- DFO is completing our review of fisheries impacts to better understand factors contributing to low escapement.



## Updated Geometric Mean Calculations

	Forecast Abundance			Actual Spawner Abundance	3yr Avg Spawners	3yr Geomean Spawners
	low	mean	high	mean	mean	mean
2014	31,477	49,472	77,754	20,000	44,242	39,886
2013				58,361	45,839	42,846
2012				54,365	38,240	36,325
2011				24,791	26,946	26,236
2010				35,563		
2009				20,483		



## 2014 post-season assessment cont'd

- DNA analysis project
  - DNA samples from 2014 fisheries have now been read
  - Majority from marine areas (GST, JDF, JS, WCVI in shore / offshore); limited number of samples from Fraser in-river
  - Results will support an improved understanding of stock composition and IFR coho distribution for post-season analysis and pre-season planning
- Results of this DNA work and post-season fisheries impact analysis to be distributed later this month.
- Given limited # of in-river samples, alternative methods being evaluated to estimate IFR coho mortalities.



## 2015 Fishery Planning

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## 2015 Fisheries Planning

- The draft 2015 IFMP objective for Interior Fraser River coho (including Thompson River coho) is to manage Canadian fisheries to an exploitation rate of 10% or less.
- This exploitation rate level is consistent with a “low” status under the Pacific Salmon Treaty.
- DFO will continue to advance fisheries management measures that minimize impacts on IFR coho stocks.

*Pacific Salmon Treaty abundance-based exploitation rate limits on coho salmon stocks in fisheries encountering southern BC coho*

Management Unit	Status	US ER caps	Total Exploitation Rate
	Low	10%	Up to 20%
	Moderate	12%	>20 to 40%
	Abundant	15%	>41 to 65%

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## 2015 Coho Management Approach

- Specific fisheries management measures for 2015 will be developed based on input from First Nations and stakeholders, and informed by the following considerations:
  - Relevant science advice and analysis on conservation objectives, stock productivity, fisheries impacts and uncertainties (e.g. impact of high water temperatures in 2014 marine entry year for coho smolts);
  - 2015 outlook and pre-season forecast information;
  - Pacific Salmon Treaty requirements (principally Annex IV - Chapter 5);
  - Potential configuration of fisheries targeting more abundant co-migrating stocks or species



## 2015 Coho Management Approach

- Other specific fisheries planning considerations:
  - Stock and fishery monitoring capacity (resources required to monitor fisheries) within DFO, and among external partners;
  - The timing of the coho window closure in a particular area;
  - The use of selective fishing techniques during times when IFC are prevalent, and
  - Potential mitigation measures to address uncertainties in stock and fishery assessment



## 2015 Coho Management Approach

- General fisheries characteristics associated with an ER < 10% (based on 2014 analysis):
  - FSC: retention of wild and hatchery coho bycatch in fisheries targeting other species; increased tributary harvests where abundances identified
  - Economic Opportunity / In-river Demo Fisheries: Non-retention of wild coho; additional fishing effort / time relative to 3 % ER
  - Commercial - non-retention of wild coho; additional fishing effort / time relative to 3 % ER
  - Recreational - some increased impacts (relative to 3 % ER) in areas and times when Interior Fraser Coho are present in low levels



## Next steps

- DFO seeking feedback on the proposed general management approach in 2015
- DFO to distribute updated discussion document including analysis of specific fisheries scenarios (March)
- Final 2014 post season analysis (March)



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## Discussion

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