Chinook FRAM Base Period Update

Pacific Fishery Management Council Meeting
Garden Grove, 16 November 2016

The FRAM Base Period Work Group
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Project Overview

Fisheries Regulation and Assessment Model (FRAM) used to account for fisheries mortalities on a stock specific basis

- Pacific Fishery Management Council: Evaluate ocean fisheries

- "North of Falcon Process": state and tribal co-managers for "inside waters" (e.g. Puget Sound and Columbia River)

CWT recoveries and stock, fishery information

- Current Base Period: late 70s to early 80s

Catches, size limits, encounters, growth functions, and abundances to calculate CWT based exploitation rates by stock, age, fishery and time period.

- New Base Period: 2007-2013

Does the same as above with contemporary CWT, fishery, and stock data with additional modification for accounting for mark selective fisheries.

Tasks

Use current stock (+ MOC) and fishery structure. Maintain FRAM algorithms with modifications approved at the 2015 Methodology Review for growth functions and sublegal encounters

Compile Basedata

- Select and summarize CWT recoveries (PSC-CTC)
- Compile datasets (1988 – 2014) of stock abundances and escapements and fisheries statistics (landed catch, encounters, size limits, incidental mortality rates, number released, etc.))

Update Database Programs

- "FRAMbuilder"
  - CWT recovery mapping program for stocks and fisheries

- Recode old calibration programs
  - QBasic to Visual Studio.NET
  - Consolidate half a dozen programs
  - Go from multiple text files to Access database
  - Export output directly into FRAM data structure

- New programs ("R" code) to assist QA/QC, graphing, convenient multi-year loading of data into Access

New Methods

- Data "holes": insufficient stock or fishery recoveries (surrogate fisheries, surrogate stocks, out-of-base stocks)

- Address mark-selective fisheries (marked only base period)

- Use new methods approved at 2015 Methodology Review for size-at-age (growth function) and sublegal encounters

Outreach/Regional Review

- Distribute draft data sets and FRAM output for regional staff review.

- Solicit comments/corrections/questions from regional staff regarding review package.

- Address regional staff comments, corrections as appropriate.

Where are we now?

- In process of producing the 3rd round of calibration output (1992-2014)
- Compared old versus new FRAM estimates of exploitation rates and stock composition (also compared to GSI and CTC estimates when available)
  - Exploitation Rate Tables
  - Fishery Stock Composition Graphs
  - Stock Fishery Composition Graphs
- Shared output with co-manager and regional experts

- ## QA-QC process
  - – Review programs, data input, data output
  - – Compare output to other data sources (GSI, CTC)
  - – Recruit experts
  - – Look for implausible values (very high ERs, unlikely stock composition)
  - – Investigate and find solutions to identified problems

- ## Documentation
  - – Document data sources
  - – Methods
  - – Programs
 - – Output
  - – Exceptions
  - – Fixes

Results

Lower Columbia Natural Adult Equivalent (AEQ) Exploitation Rates

Year	Old Base Period	New Base Period
2005	0.52	0.48
2006	0.47	0.42
2007	0.51	0.44
2008	0.35	0.35
2009	0.38	0.35
2010	0.32	0.34
2011	0.39	0.39
2012	0.40	0.39
2013	0.32	0.31
2014	0.42	0.40
Average	**0.41**	**0.39**

Average 2005-14 Lower Columbia AEQ Impact Distribution by Fishery

Fishery	Old Base Period	New Base Period
SEAK	5.2%	6.7%
BC	41.6%	39.3%
PS&JDF	1.0%	0.8%
NoF		
Treaty Troll	10.6%	4.7%
Recreational	3.2%	7.0%
Non-Indian Troll	13.5%	10.9%
SoF		
Recreational:	0.2%	0.5%
Troll:	2.7%	6.5%
River	21.7%	23.8%
TOTAL	**100.0%**	**100.0%**

FRAM Old Vs. New BP Council Fishery ERs By Stock (2005-2014 Average)
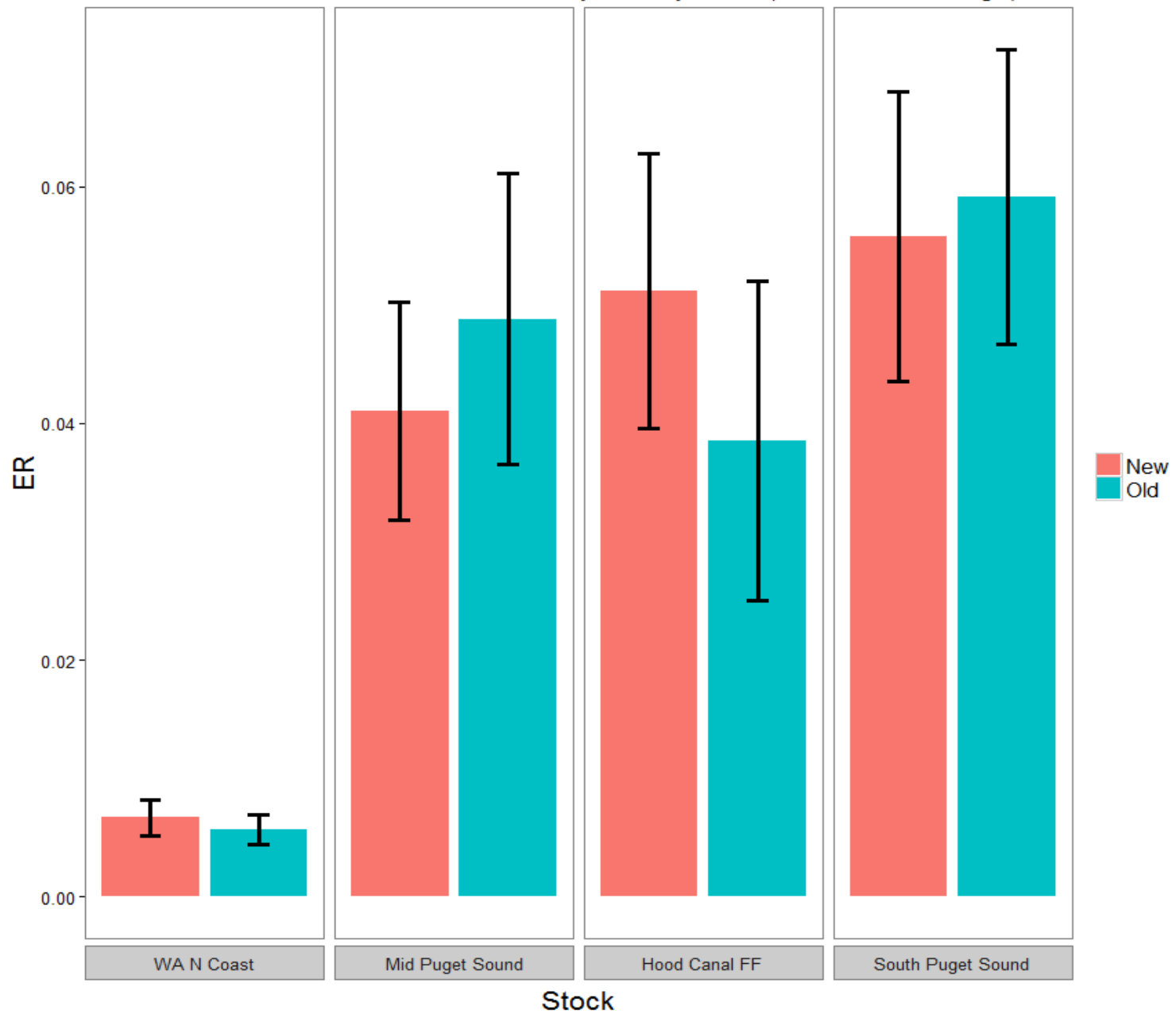
16 - NT Area 3-4-4B Troll; Time Step 2
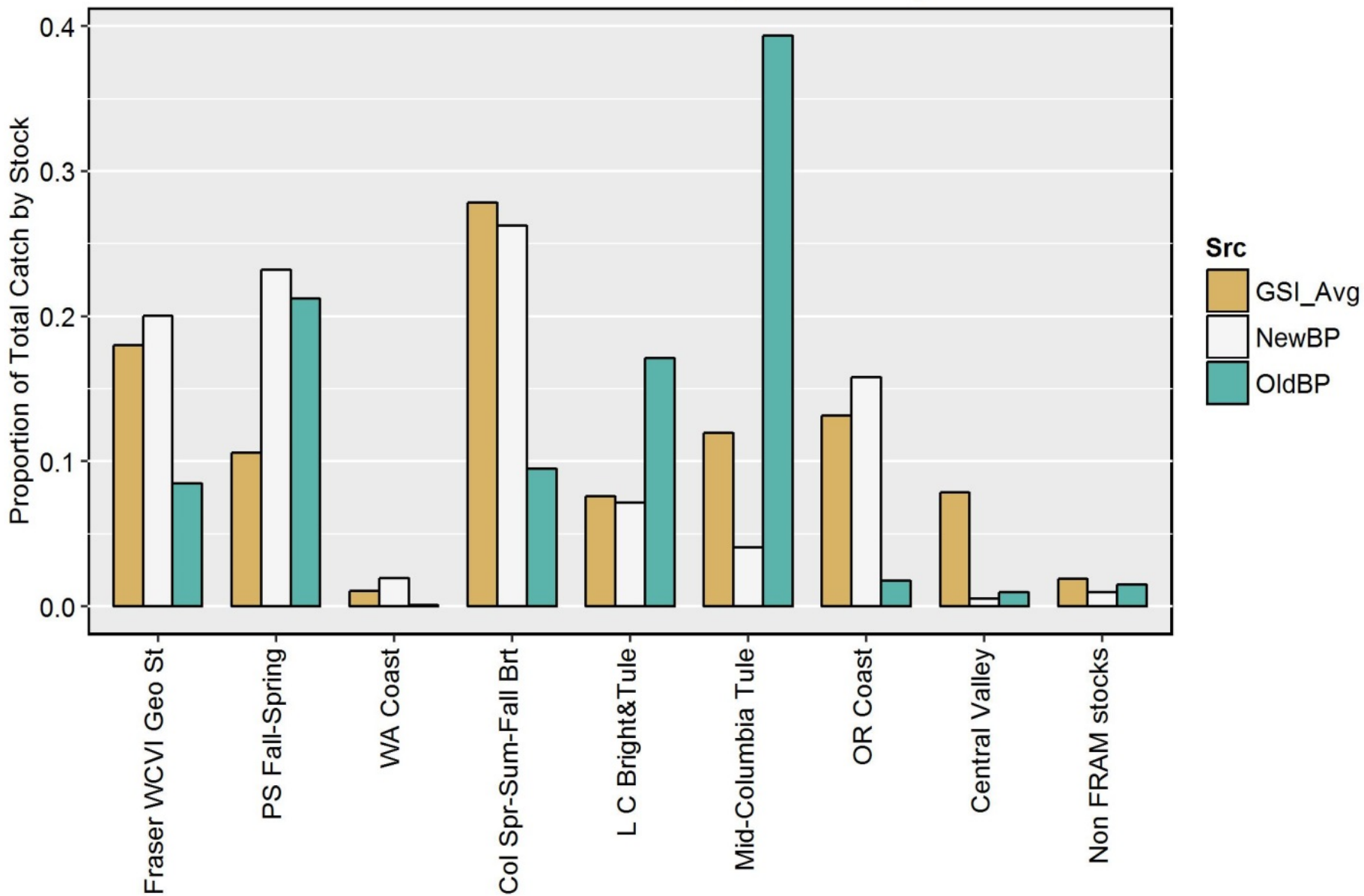
Schedule

- Co-manager review and QAQC – **November 2016**

- Review and potential revision of FRAM-based management objectives by co-managers and NOAA – **January 2017**

- Final co-manager decision on base period adoption – **January/February 2017**

Summary Thoughts

- The base period dataset uses contemporary CWT data reflecting current stock distribution and abundances as well as fishery seasons.

- The source and derivation of other data pieces such as sublegal encounters, sublegal/legal ratios, and growth parameters are known.

- Thorough Documentation

- QAQC process in place.

- Process improvements facilitate updating the base data set on a periodic basis