



Photo: Holly Fearnbach, NOAA

# Southern Resident Killer Whale Workgroup

Update on Draft Salmon Fishery Risk Assessment

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# Overview

- In April 2019 the Council tasked an Ad-Hoc Workgroup with reassessing the effects of Council-area ocean salmon fisheries on Southern Resident Killer Whales and potentially recommend conservation measure(s) or management tool(s), that limit Council fishery impacts on Chinook salmon prey availability for SRKW.
  - The Workgroup includes representatives from West Coast tribes; the states of California, Oregon, Washington, and Idaho; the PFMC; and NMFS' West Coast Region, Northwest Fisheries Science Center, and Southwest Fisheries Science Center.
- The Workgroup gave its last update at the Council's September 2019 meeting

# Ad-Hoc Workgroup Schedule

Progress to date

2019 Ad-Hoc SRKW Workgroup Schedule for Completing Assigned Tasks		
Date	Task	Comment
May 23-24	Meeting in PDX	Workgroup purpose, review Orca status, past fishery evaluations, framework/criteria for past risk assessment (RA). Identify current data gaps, list potential framework/criteria for current RA. Assign tasks to WG members.
June 5	Distribute a compiled pre-fishery ocean abundance	WDFW (Derek Dapp)
June 8	Distribute PFMC specific fishery exploitation rates	WDFW (Derek Dapp)
June 5-7	will reach out to O. Shelton about potential new model availability	SWFSC / WDFW (Will Satterthwaite & Derek Dapp)
June 7	Distribute spatial / sighting data for coastal temporal mapping purposes	NMFS (Eric Ward/Teresa Mongillo) no later than June 14
June 10	Submit Progress Report	June Supplemental Briefing Book deadline
June 20	SAS/STT briefing	At June Council meeting
June 21	Present Progress Report	June 19-23 (Council meeting). No SRKW workgroup mtg
June 21	Review the priority stock list and provide comments	WDFW / ODFW / CDFW - (Derek Dapp, Chris Kern, Brett Kormos)
July 2	Webinar	Review Council direction/comments from June Mtg, assign tasks, finalize agenda for next mtg.
July 5	Scope and provide a metric index evaluation recommendation for South of Falcon fisheries	SWFSC / CDFW (Will Satterthwaite & Brett Kormos)
July 23-24	Meeting in Vancouver, WA	Update on Orca status, address data gaps, and identify framework/criteria for RA. Assign tasks for RA. Identify fishery evaluation criteria, assign tasks. Begin scoping possible conservation measure(s) or management tool(s) to propose based on the evaluation criteria developed for the risk analysis, consider including draft, or example Alternatives to help illustrate model sensitivity, provide context/sideboards.
August 5	Risk Analysis draft sections due	Intro, Status, Fisheries, FMP (NMFS staff)
August 6	Workgroup webinar	Discuss topics related to completing the risk analysis.
August 15	Submit SRKW Progress Report	Advanced Briefing Book deadline
August 20	Risk Analysis draft sections due	Model outputs (WDFW/NWFSC/SWFSC)
September 4	Webinar SAS/SRKW	If RA identifies a risk, then solicit SAS input to help develop alternatives (conservation objectives/management tools) for Council consideration at the September meeting.
September 4	Supplemental documents due.	September supplemental Briefing Book deadline.
September X	Submit draft Risk Analysis Report	
September 14	Present draft Risk Analysis Report	September 11-18 Council meeting in Boise ID.
September 24	Workgroup webinar	Sept Council de-briefing, prep for finalizing RA
October 8-9	Meeting in PDX (Sheraton Airport Hotel)	Discuss Council direction. Solicit input from SAS to help shape alternatives if needed. NMFS begins NEPA process.
October 17	Submit Report w PPA's	Advanced Briefing Book deadline.
October 29?	Webinar SAS/SRKW	As needed.
November 16-ish	Present Report w PPA's	November 13-20 Council meeting in Costa Mesa. SRKW/SAS may attend. Council to adopt FPA as needed.

Updated 08/06/19

Since the September Council meeting the Workgroup has held an additional two-day meeting and two webinars to address the Council's questions from the September meeting, further its analysis, and progress towards finalizing its risk assessment and recommendations.

Supporting materials have been posted online for public dissemination.

<https://www.fisheries.noaa.gov/west-coast/southern-resident-killer-whales-and-fisheries-interaction-workgroup>

Each workgroup meeting thus far, including webinars, has allowed for multiple public input opportunities.

Agenda Item E.4.a  
Supplemental SRKW Workgroup Report 2 (**Electronic Only**)  
November 2019

**Pacific Fishery Management Council  
Salmon Fishery Management Plan Impacts to  
Southern Resident Killer Whales**

**Draft Risk Assessment**

**November 2019**

**Updated Risk  
Assessment**

# Components reviewed at September meeting

- ✓ Section 1: Introduction
- ✓ Section 2: Status of the SRKW
- ✓ Section 3: SRKW and Chinook Salmon Fisheries
- ✓ Section 4: PFMCC Salmon Fisheries description
- ✓ Section 5: Risk Assessment

Link to September Council meeting presentation:

[https://www.pcouncil.org/wp-content/uploads/2019/09/F3a\\_Sup\\_NMFS\\_SRKW\\_PPT1\\_SEPT2019BB.pdf](https://www.pcouncil.org/wp-content/uploads/2019/09/F3a_Sup_NMFS_SRKW_PPT1_SEPT2019BB.pdf)

# Added Components



## Chapter 3: SRKW AND CHINOOK SALMON FISHERIES

Reordered Chapter 3 to now include the summary description of NMFS' 2009 biological opinion and 2019 assessment of fisheries impacts on SRKW.

## Chapter 4: PFMC Salmon Fisheries Description

Chapter 4 now has elements capturing past performance of the Salmon FMP from 1992 through 2016, including graphs of Chinook salmon abundance and harvest.

## Chapter 5: Risk Assessment

Chapter 5 has a full description of methodology, along with appendices which:

- Estimate reductions in Chinook salmon abundance by time and area that are attributable to Council-area ocean salmon fisheries.
- Estimate the changes in predicted vital SRKW rates using the fitted statistical relationships predict for Chinook salmon abundances with and without the reductions in abundance estimated from Council-area ocean salmon fisheries

# Added Components



## Chapter 5: Risk Assessment

- An additional 'lag-time' component of Chinook abundance was added to the evaluation of SRKW survival, as had previously been done only for fecundity. The decision to consider this temporal lag was based on linking food supply to future performance, and was also added to account for some uncertainty in the timing of SRKW mortality events. This approach is consistent with the methods used and reviewed during bilateral NMFS – DFO workshops in 2011-2012.
- A clustering analysis which grouped years of similar SRKW demographic performance was also performed. This clustering was done independent of Chinook salmon abundance, and may be useful in identifying past periods of greater or lesser risk for the SRKW population.
- We also began exploring qualitative components to incorporate into the assessment, and began assessing fishery effects by the same stratifications developed and described above.
- The Workgroup submitted our methodology and materials used to date for review by the Scientific and Statistical Committee (SSC). This will allow the SSC time to consider our approach and provide comments to the Council here at the November meeting.

# Added Components



*Photo by J. Koeppen F/V Lulu*

- Appendix A: in September Draft
  - Chinook salmon stocks excluded from the Assessment
- Appendix B: in September Draft
  - Abundance models for southern stocks
- Appendix C: **new**
  - Regression model output figures for all 126 relationships
- Appendix D: **new**
  - Clustering Analysis details
- Appendix E: **new**
  - Fishery Reduction details



# Still left to do

## During the last 6 months

Workgroup has:

- Documented the current status of the SRKW DPS
- Described and reviewed prior evaluations of SRKW and Chinook salmon fishery interactions
- Captured the process by which the Salmon FMP operates
- Developed methodology to examine abundance aggregates of Chinook salmon in specific areas of the ocean based on distributions inferred from the most recent modeling efforts (Shelton et al. 2019), across three time steps to examine potential relationships to SRKW demographic criteria
- Examine SRKW demographic performance to identify past periods of greater or lesser risk for the SRKW population



Photo by R. Leubert

## Left to do

- Describe current fishery management of Council fisheries and provide a general description of Council ocean salmon fisheries.
- Integrate and synthesize the information into likely possible effects from Council salmon fisheries on SRKW and how that might affect current status (along with incorporating possible recommendations from the SSC).
- Provide potential recommendations for FMP management measures based on the Integration and Synthesis outcome as needed.

[These sections are described as 'Pending' in current risk assessment draft]

# Current Workgroup recommendation

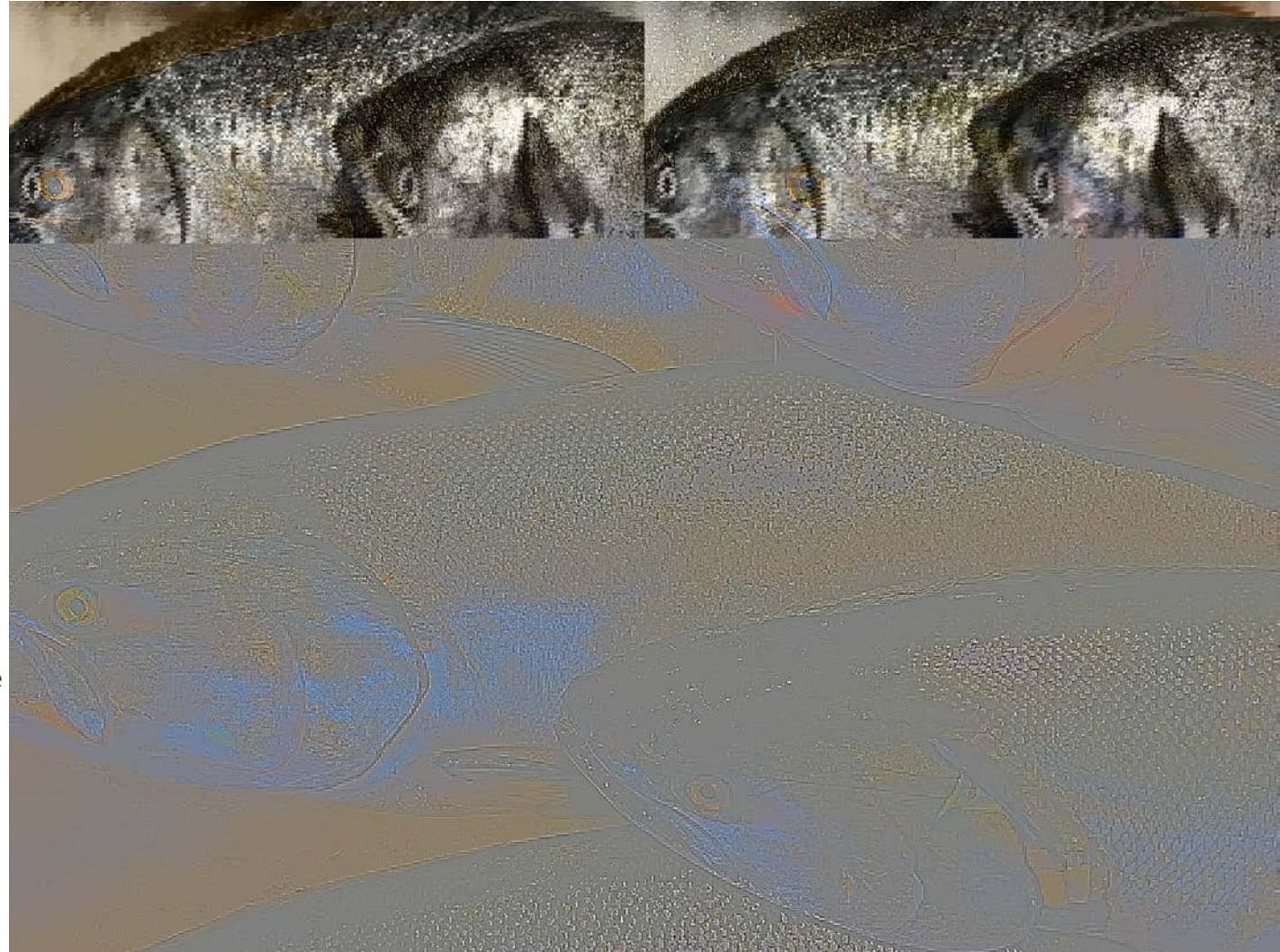
## Continue our work

The Workgroup recommends continuing its work post the 2019 November meeting, to complete its task to inform NMFS on the effects of Council-area ocean salmon fisheries on the Chinook salmon prey base of SRKW in both quantitative and qualitative manners, and to potentially recommend conservation measure(s) or management tool(s), that limit the fishery's impacts on prey availability for SRKW.

To do so, the Workgroup identified three dates after the November Council meeting, with the intent to complete the assigned task and allow time for submitting its final report for consideration at the March 2020 Council meeting.

The dates are:

- December 10, 2019
- January 8-9, 2020
- February 4, 2020



*Photo by Jill /Blue Moonbeam Studio*

A photograph of a boat's deck at sunset. In the foreground, the silhouettes of fishing equipment, including a rod and reel, are visible. The background shows a calm sea with a low sun on the horizon, creating a warm orange glow. Distant land is visible on the right side of the horizon.

QUESTIONS?

THANK YOU