2019 Salmon Fishery Management: Accounting for the needs of endangered orca?

Ben Enticknap

Photo: Holly Fearnbach, NOAA
Southern Resident Killer Whale Population (J,K,L pods)

- Fecundity rates have declined
- Only one orca baby has lived since the beginning of 2016 (L124, B 2019)
- Estimated extinction risk of 49% in 25 years, and an expected minimum abundance of 15 individuals during a 100-year period

Center for Whale Research, NMFS 2019, Valez-Espino et al. 2014
Ecology: Foraging Selectivity

**DIET COMPOSITION**

- 80% Chinook salmon
- 15% coho salmon
- 1% other salmonids including steelhead
- 4% other fish including flatfish, halibut, and herring
Seasonal Diet Composition


doi:10.1371/journal.pone.0144956
Ecology: Range

Source: NMFS 2008, SRKW Recovery Plan

Photo: Miles Ritter / Creative Commons

Southern Resident Killer Whale Range

Major Chinook Salmon Rivers

Pacific Ocean
Threats

• Lack of prey
• Vessel interactions and noise
• Contamination
• Small population size

Last summer, 3-year old Scarlet, or J50, was so emaciated that she lost the fat at the base of her head - what scientists call "peanut head." Declared dead September 13, 2018.

Photo: Katy Foster/NOAA Fisheries Permit No. 18786-03
A Critical Biomass Threshold?

SRKW Mortalities

Chinook Salmon Returns to the Columbia River Mouth (thousands)
Orca Need More Salmon Now

- SRKW U.S. recovery goal of 2.3% annual population growth over 28 years implies a 75% increase in energetic requirements. (Williams et al. 2011)

- Reducing salmon fisheries should be considered as a precautionary and temporary mitigation measure to allow time for longer-term management actions to improve salmon productivity to take effect.
## PFMC 2019 Chinook and coho quotas

<table>
<thead>
<tr>
<th></th>
<th>Chinook Alternative</th>
<th></th>
<th>Coho Alternative</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>I</td>
<td>II</td>
<td>III</td>
<td>I</td>
</tr>
<tr>
<td>North of Falcon</td>
<td>110,000</td>
<td>90,000</td>
<td>70,000</td>
<td>270,000</td>
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<tr>
<td>South of Falcon</td>
<td>13,700</td>
<td>14,500</td>
<td>21,500</td>
<td>105,000</td>
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<tr>
<td>West Coast Total</td>
<td>123,700</td>
<td>104,500</td>
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<thead>
<tr>
<th></th>
<th>West Coast Total</th>
<th>Recreational Fishery: % change in income impacts from 2018</th>
<th>Commercial Fishery: % change in income impacts from 2018</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>I</td>
<td>+75%</td>
<td>+117%</td>
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<tr>
<td></td>
<td>II</td>
<td>+67%</td>
<td>+89%</td>
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<tr>
<td></td>
<td>III</td>
<td>+35%</td>
<td>+65%</td>
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</tbody>
</table>

PFMC 2019
Preseason Report
II, Tables 4, 9, 10
Future fishery management considerations:

• Update the Salmon Fishery Management Plan with an objective of managing and regulating salmon fisheries in a manner that accounts for the foraging needs of Southern Resident Killer Whales and ensures their protection.

• Develop and incorporate fishery ecosystem models that evaluate the effects of salmon management alternatives on Southern Resident Killer Whales.