Review of Susitna River Sockeye Salmon Stock Status

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Outline

• Description of the area
• Historical overview of stock assessments and escapement goals
• Stock of Concern
• Current stock status
• Factors contributing to reduced yield
• Management actions taken
• Summary
Yentna sonar camp
Historical Timeline

1979  BEG of 200,000 established for Susitna River sockeye salmon

1981  Bendix Sonar installed on the Yentna River

2002  SEG of 90,000-160,000 for Yentna River
      • 4-tier percentile approach
      • Assumed 50% of Susitna total production was non-Yentna.

2006-2008  Bendix-DIDSON-mark/recapture estimates
      • Bendix estimates ~ 50-70 % of DIDSON-based estimates
      • Bendix estimates ~ 30% of mark-recapture estimates
      • Species apportionment was problematic for both sonars
      • Bendix estimates were not good indices of sockeye abundance

2008  Susitna sockeye salmon declared a stock of yield concern
-timeline continued-

2009  SEG for Yentna River sockeye discontinued

2009  Established SEGs for Judd, Chelatna, and Larson Lakes sockeye salmon stocks
      • weir-based assessments
      • 4-tier percentile approach
      • post season assessments

2009-2015  Continued to estimate run size for Yentna River via fish wheels and genetics

2016  Yentna River “sonar camp” discontinued
      • No longer able to estimate abundance via genetic mark-recapture

2016  Judd Lake weir not operated
      • 1 weir on Yentna River (Chelatna Lake) and 1 weir on mainstem Susitna River (Larson Lake)
Stock of Concern

• In 2008, Susitna River sockeye salmon were designated a stock of yield concern.

• “Yield Concern” means a concern arising from chronic inability, despite the use of specific management measures, to maintain expected yields, or harvestable surpluses, above a stock’s escapement needs.
Why was Susitna sockeye designated a stock of yield concern in 2008?

• Missed SEG (90,000-160,000 for Yentna River) 5 years 2000-2007

• Reduced harvest in the Northern District
<table>
<thead>
<tr>
<th>Year</th>
<th>Inriver Abundance Estimates</th>
<th>CF Harvest</th>
<th>SF Harvest</th>
<th>Total Harvest</th>
<th>Total Run</th>
<th>Harvest Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yentna</td>
<td>Susitna</td>
<td>Total</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2006</td>
<td>311,197</td>
<td>107,000</td>
<td>418,197</td>
<td>56,218</td>
<td>2,308</td>
<td>58,526</td>
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<tr>
<td>2007</td>
<td>239,849</td>
<td>87,883</td>
<td>327,732</td>
<td>262,623</td>
<td>4,647</td>
<td>267,544</td>
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<tr>
<td>2008</td>
<td>233,677</td>
<td>70,772</td>
<td>304,449</td>
<td>153,041</td>
<td>4,403</td>
<td>157,730</td>
</tr>
<tr>
<td>2009</td>
<td>139,168</td>
<td>79,873</td>
<td>219,041</td>
<td>103,455</td>
<td>9,682</td>
<td>113,238</td>
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<tr>
<td>2010</td>
<td>151,744</td>
<td>38,716</td>
<td>190,460</td>
<td>116,932</td>
<td>5,449</td>
<td>120,805</td>
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<tr>
<td>2011</td>
<td>290,801</td>
<td>23,646</td>
<td>314,447</td>
<td>227,957</td>
<td>5,872</td>
<td>234,352</td>
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<tr>
<td>2012</td>
<td>109,981</td>
<td>31,823</td>
<td>141,804</td>
<td>180,143</td>
<td>5,395</td>
<td>185,346</td>
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<tr>
<td>2013</td>
<td>186,972</td>
<td>41,564</td>
<td>228,536</td>
<td>192,783</td>
<td>9,360</td>
<td>198,111</td>
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<tr>
<td>2014</td>
<td>144,441</td>
<td>22,933</td>
<td>167,374</td>
<td>122,887</td>
<td>6,084</td>
<td>128,215</td>
</tr>
<tr>
<td>2015</td>
<td>266,290</td>
<td>44,217</td>
<td>310,507</td>
<td>122,395</td>
<td>5,411</td>
<td>127,723</td>
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<tr>
<td>Mean</td>
<td>207,412</td>
<td>54,843</td>
<td>262,255</td>
<td>153,843</td>
<td>5,861</td>
<td>159,705</td>
</tr>
</tbody>
</table>
How do these 3 weirs represent production for the Susitna watershed?

- Judd and Chelatna (~44.1% of total Yentna escapement)
- Larson Lake (~52.5% of total mainstem Susitna escapement)
Potential Factors Contributing to Reduced Yield

• Reduced marine survival
  – Natural mortality
  – Harvest in fisheries (commercial, subsistence)

• Reduced freshwater survival
  – Harvest in fisheries (sport, subsistence)
  – Loss or alteration of habitat (natural and anthropogenic)
  – Introduction of invasive species (Northern pike)
  – Changes in water quality and quantity
  – Pathogens
Management and Regulatory Actions

2008 – 2016 (Northern District set gillnet)

• Reduced gear from 3 to 1 or 2 set gillnets per permit in the Northern District from July 21 through August 6

2014 – present (Central District drift gillnet)

• From July 9–5 both regular periods are currently restricted to Drift Gillnet Area 1 (waters south of Kalgin Island)
• From July 16–31 there are drift gill net restrictions for sockeye that are dependent on the run tier for Kenai sockeye salmon
Management and Regulatory Actions

2014 – 2016 (Larson Creek)

EO authority utilized inseason to make the escapement goal.
Summary

• Remain a **Stock of Yield Concern**
• The board and the department have taken action to reduce harvest
• Harvest for Northern District has not rebounded to pre-1998 levels
• The department will reevaluate in 3 years
Questions?