Preliminary Results
WRLCM RocOn
COS and PA Analysis

28 March 2019
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RocOn with Newman

Using equations from Newman (2003) to incorporate the following effects on smolt survival:

• Smolt Size
• Log flow at Hood
• Exports
• DCC Gate Position
• Sacramento Indicator
Abundance and CRR Metrics

### Abundance

<table>
<thead>
<tr>
<th>Probability PA &gt; COS in final Year (Year 79)</th>
<th>Percent difference in abundance of PA relative to COS in final year (Year 79)</th>
<th>Probability PA &gt; COS across all years</th>
<th>Percent difference in abundance of PA relative to COS across all years</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.998</td>
<td>3.33%</td>
<td>0.03</td>
<td>-3.03%</td>
</tr>
</tbody>
</table>

### Cohort replacement rate

<table>
<thead>
<tr>
<th>Probability that CRR PA &gt; COS</th>
<th>Percent difference in CRR of PA relative to CRR of COS</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.028</td>
<td>-0.326%</td>
</tr>
</tbody>
</table>
Annual Percent difference in abundance 100% \((PA – COS)/COS\)
Annual Percent difference in CRR
100% \((PA - COS)/COS\)
Probability of higher CRR in PA relative to COS by WYT
Freshwater productivity
Survival rates by stage
Egg to fry survival

Egg Survival for Spawning in Apr

Egg Survival for Spawning in May

Egg Survival for Spawning in Jun

Egg Survival for Spawning in Jul

Egg Survival for Spawning in Aug
Upper River smolt survival

Upper River Smolt Survival (origin to Chipps) in Jan

Upper River Smolt Survival (origin to Chipps) in Feb

Upper River Smolt Survival (origin to Chipps) in Mar

Upper River Smolt Survival (origin to Chipps) in Apr

Upper River Smolt Survival (origin to Chipps) in May
Lower River smolt survival

Lower River Smolt Survival (origin to Chipps) in Jan

Lower River Smolt Survival (origin to Chipps) in Feb

Lower River Smolt Survival (origin to Chipps) in Mar

Lower River Smolt Survival (origin to Chipps) in Apr

Lower River Smolt Survival (origin to Chipps) in May
Yolo survival

Yolo Smolt Survival (origin to Chipps) in Jan

Yolo Smolt Survival (origin to Chipps) in Feb

Yolo Smolt Survival (origin to Chipps) in Mar

Yolo Smolt Survival (origin to Chipps) in Apr

Yolo Smolt Survival (origin to Chipps) in May
Delta smolt survival

Delta Smolt Survival (origin to Chipps) in Jan

Delta Smolt Survival (origin to Chipps) in Feb

Delta Smolt Survival (origin to Chipps) in Mar

Delta Smolt Survival (origin to Chipps) in Apr

Delta Smolt Survival (origin to Chipps) in May
Physical Drivers
Keswick Temperature (PA-COS)

Keswick Temp, Absolute Difference (PA-COS)
Exports (PA – COS)

WY Type W

WY Type AN

WY Type BN

WY Type D

WY Type C

Exports,
Absolute Difference
(PA–COS)
Freeport flow (PA – COS)

Freeport Flows,
Absolute Difference
(PA–COS)
Wilkins Slough (PA – COS)

Wilkins Slough Flows, Absolute Difference (PA–COS)
Verona Flow (PA – COS)

- WY Type W
- WY Type AN
- WY Type BN
- WY Type D
- WY Type C

Verona Flow, Absolute Difference (PA–COS)