Hatchery Reform in Washington State

Brian Missildine Natural Resource Scientist
Hatchery Evaluation and Assessment Team Lead
Washington-British Columbia
Annual General Meeting
Kelowna, BC
March 19-22
Key Points

1. Commission policy
2. HSRG Standards
3. Hatchery Statistics
4. Accomplishments
5. Future Actions
6. Questions
“...to advance the conservation and recovery of wild salmon and steelhead by promoting and guiding the implementation of hatchery reform.”
Hatchery and Fishery Reform
Policy C-3619

• “...work toward a goal of achieving the HSRG broodstock standards for 100% of the hatchery programs by 2015.”

• “Secure necessary funding to ensure that Department-operated hatchery facilities comply with environmental regulations...”

• “Establish a network of Wild Salmonid Management Zones”
Terminology

• **pHOS** – Proportion of Hatchery-Origin Spawners on the spawning grounds

• **PNI** – Proportionate Natural Influence

• **pNOB** – Proportion of Natural-Origin Broodstock used in an integrated hatchery program
Segregated Hatchery Population

Hatchery and natural populations are genetically isolated.
## Segregated Program Goals

<table>
<thead>
<tr>
<th>Associated Natural Populations &amp; pHOS GOALS</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Primary</strong> (highly significant for recovery)</td>
<td>5%</td>
</tr>
<tr>
<td><strong>Contributing</strong> (moderately significant for recovery)</td>
<td>10%</td>
</tr>
<tr>
<td><strong>Stabilizing</strong> (less significant for recovery)</td>
<td>Current</td>
</tr>
</tbody>
</table>

---

**Primary**
- Significance: Highly significant for recovery
- Target: 5%

**Contributing**
- Significance: Moderately significant for recovery
- Target: 10%

**Stabilizing**
- Significance: Less significant for recovery
- Current
Integrated Hatchery Population
Hatchery and natural spawning populations are genetically connected

Hatchery

Natural

More

Less
### Integrated Program Goals

<table>
<thead>
<tr>
<th>Associated Natural Populations</th>
<th>PNI</th>
<th>pNOB &amp; pHOS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary (highly significant for recovery)</td>
<td>&gt; 67%</td>
<td>pNOB 70%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>pHOS 30%</td>
</tr>
<tr>
<td>Contributing (moderately significant for recovery)</td>
<td>&gt;50%</td>
<td>pNOB 50%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>pHOS 30%</td>
</tr>
<tr>
<td>Stabilizing (less significant for recovery)</td>
<td>Current</td>
<td>pNOB = minimum 10% to avoid divergence from the natural population pHOS = current levels</td>
</tr>
</tbody>
</table>
Hatcheries in Washington
Hatchery Stats

- ~60 Salmon and steelhead hatcheries
- ~168 Programs
- 138M Fish produced (2017)
  - 66M Chinook
  - 19M coho
  - 34.5M chum
  - 491.5K pink
  - 11.9M sockeye
  - 6M steelhead
Current HGMP Permit Status

- 94 percent statewide have been submitted
- ~40 percent NOAA review complete
- 6 percent have not been submitted
  - 4 percent under comanager review
  - 2 percent on hold
- ~53 HGMPs statewide fully permitted
WA Dept. of Fish and Wildlife, Information subject to changes and amendments over time

December 14–15, 2012 Commission Presentation
Where are we

WDFW Statewide Hatchery Broodstock Management Implementation
Per FWC Pol C-3619

- WDFW programs not meeting HSRG standards
- WDFW programs needing monitoring data
- WDFW programs meeting or projected to meet HSRG standards
Accomplishments

- Modifications to hatchery programs
  - Reduced or eliminated programs
  - Eliminated off station plants in some areas
  - Installed weirs to capture HOS and NOB
- Secured capital funds
  - Facility limitations
- Finalized and submitted 109 HGMPs statewide
Accomplishments Con’t.

• 80% of programs meeting HSRG goals

• Secured approximately 37M in funding to upgrade facilities

• Established Wild Salmonid Management Zones
  • Wind, EF Lewis, Green (Toutle)-Lower Columbia DPS
  • Grays River-SW Washington DPS
  • Sol Duc-Olympic DPS
Future Actions

- Develop biologically based and measureable ‘triggers’ for the phases of recovery
  - Preservation, recolonization, local adaptation, full recovery
- Continue to prioritize capital budget requests
- Continue working with Science Division to develop sound M&E protocols
- Collect samples to refine gene flow/introgression/PBT data
- Establish WSMZs in Puget Sound
- Complete and submit remaining HGMPs