

OPSW Assessment 2004 - Oregon Coast Coho ESU

Hatchery Effects

Report to Coastal Coho Project
Stakeholder Team

September 27, 2004

ODFW Fish Propagation Staff



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Hatcheries as a Factor for Decline

- **Federal Register and Oregon Plan (1997)**
 - Hatcheries, along with harvest and habitat degradation are the predominant Factors for Decline for coho salmon
- **Oregon Plan Assessment (2004)**
 - Preliminary assessment
 - Likely not a significant limit on sustainability of the ESU;
 - 1) changes in hatchery management,
 - 2) reduced release numbers, and
 - 3) reduced proportion of hatchery adults spawning in the wild.
 - Effects limited to a few populations (Salmon R.) and localized reaches.

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OPSW Hatchery Assessment

- Hatchery data uploaded to OPSW Web Site

(<https://rainbow.dfw.state.or.us/metadatawarehouse/default.aspx>)

1. Hatchery Coho Juvenile Release Numbers
 2. Coho Adult Hatchery Return Numbers
 3. Hatchery Coho Marine Survival Rates
 4. Passage Barriers at Hatcheries
 5. Hatchery Coho Stray Data (OPSW Monitoring Staff)
- Results on Implementation of OPSW measures and IMST Recommendations *in Preparation*
 - Hatchery Chapter *in Preparation*

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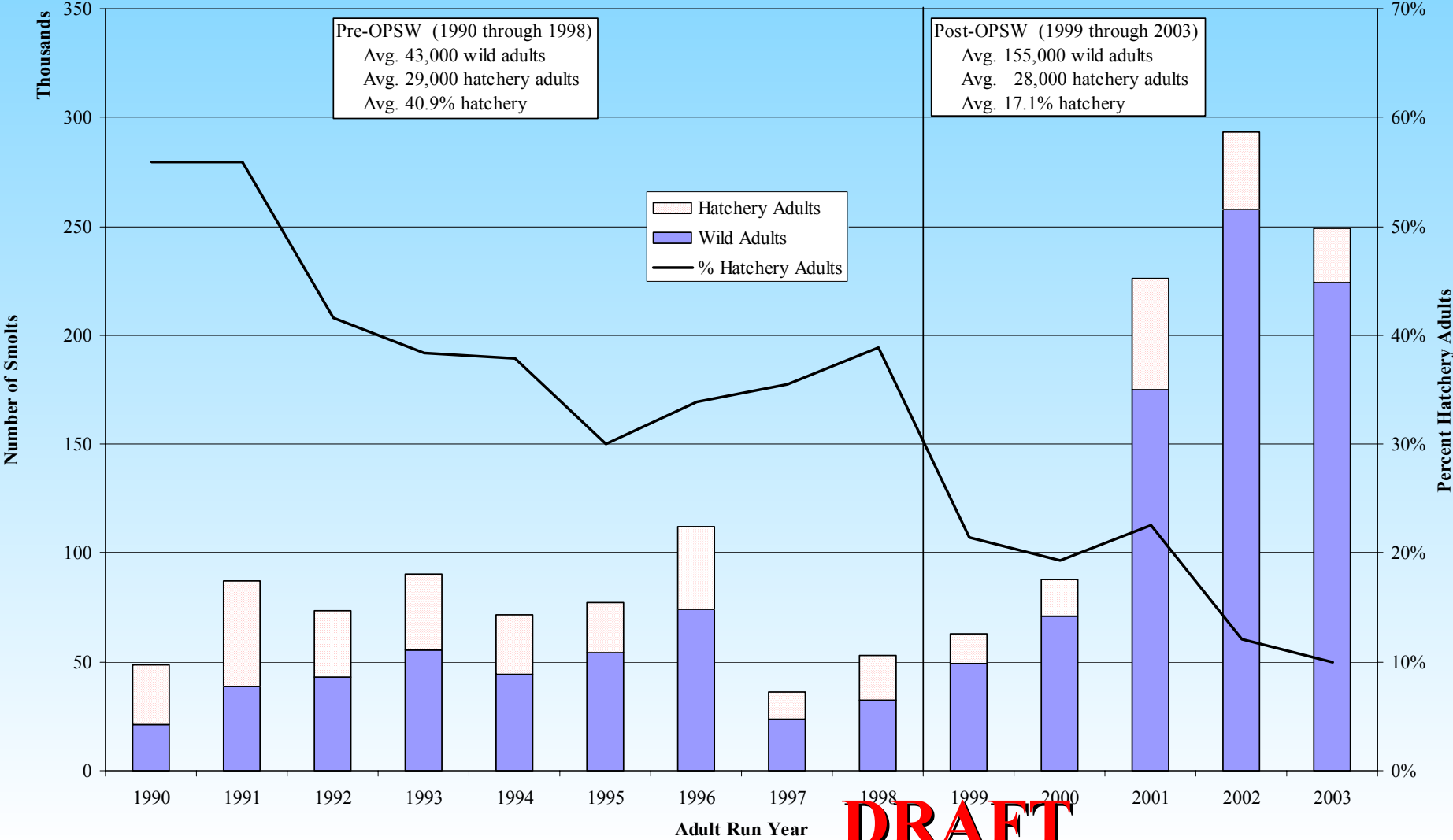
ODFW Effects Assessment - Impact / Risk Categories

- **Genetic**
- Ecological
- Operational
- Management

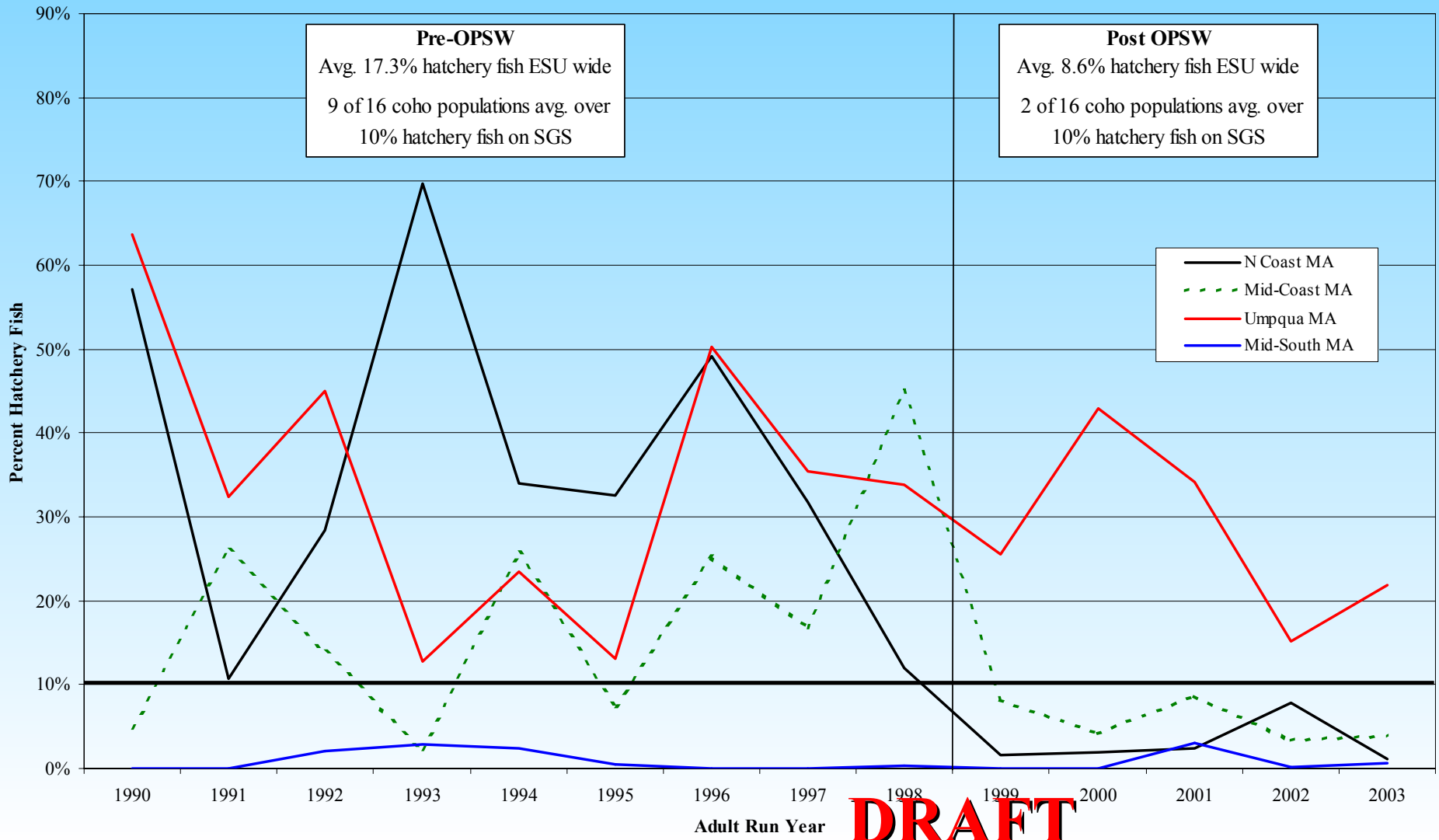


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Freshwater Escapement (to hatcheries and spawning grounds) of Adult Coho in the Oregon Coast ESU

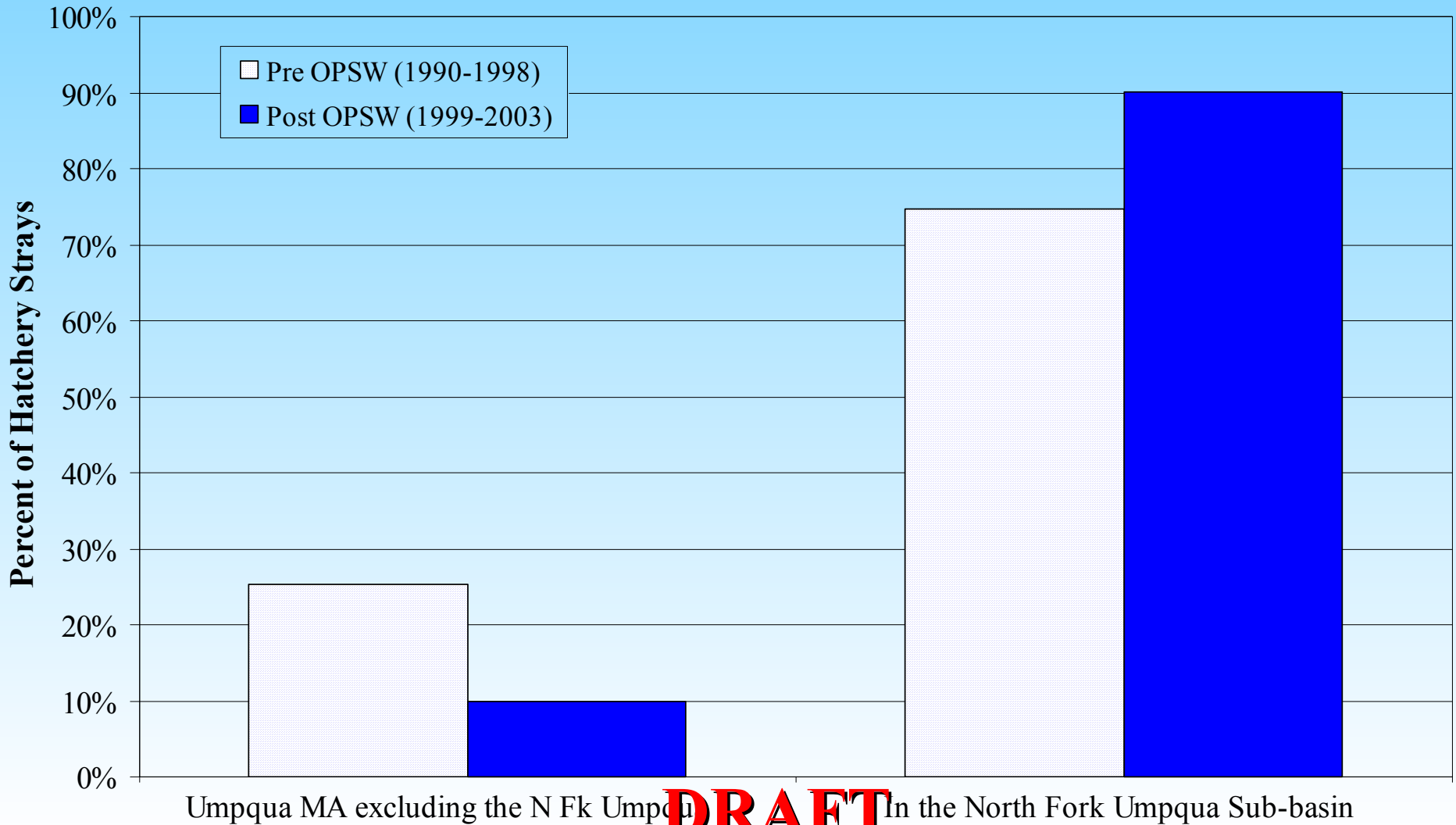


Percentage of adult hatchery coho on natural spawning grounds in the Oregon Coast Coho ESU



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Distribution of adult hatchery coho on natural spawning grounds in the Umpqua Monitoring Area



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Genetic Impact / Risk

- Prior to OPSW - Focus on adult straying
- Implementation of OPSW and WFMP resulted in:
 - Reduced % hatchery fish on SGS (17.3% to 8.6%)
 - Reduced from 9 to 2 wild populations with over 10% hatchery fish
 - Some level of spatial and temporal separation of H and W coho
- Current focus shifting to ecological impacts / risks
(Nickelson 2003)

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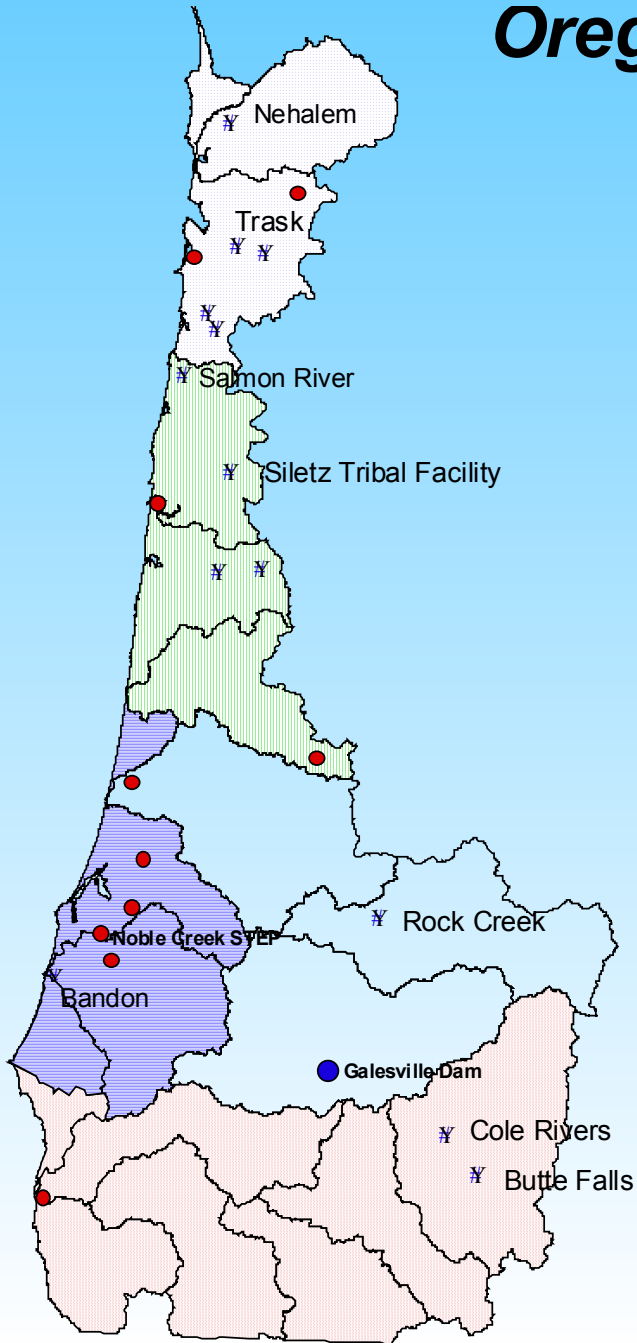
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Oregon Coastal Coho Salmon



Oregon Coast ESU

North Coast MA



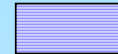
Mid Coast MA



Umpqua Basin MA



Mid-South Coast MA



Southern Oregon/Northern California Coast ESU

South Coast MA



ODFW Facility



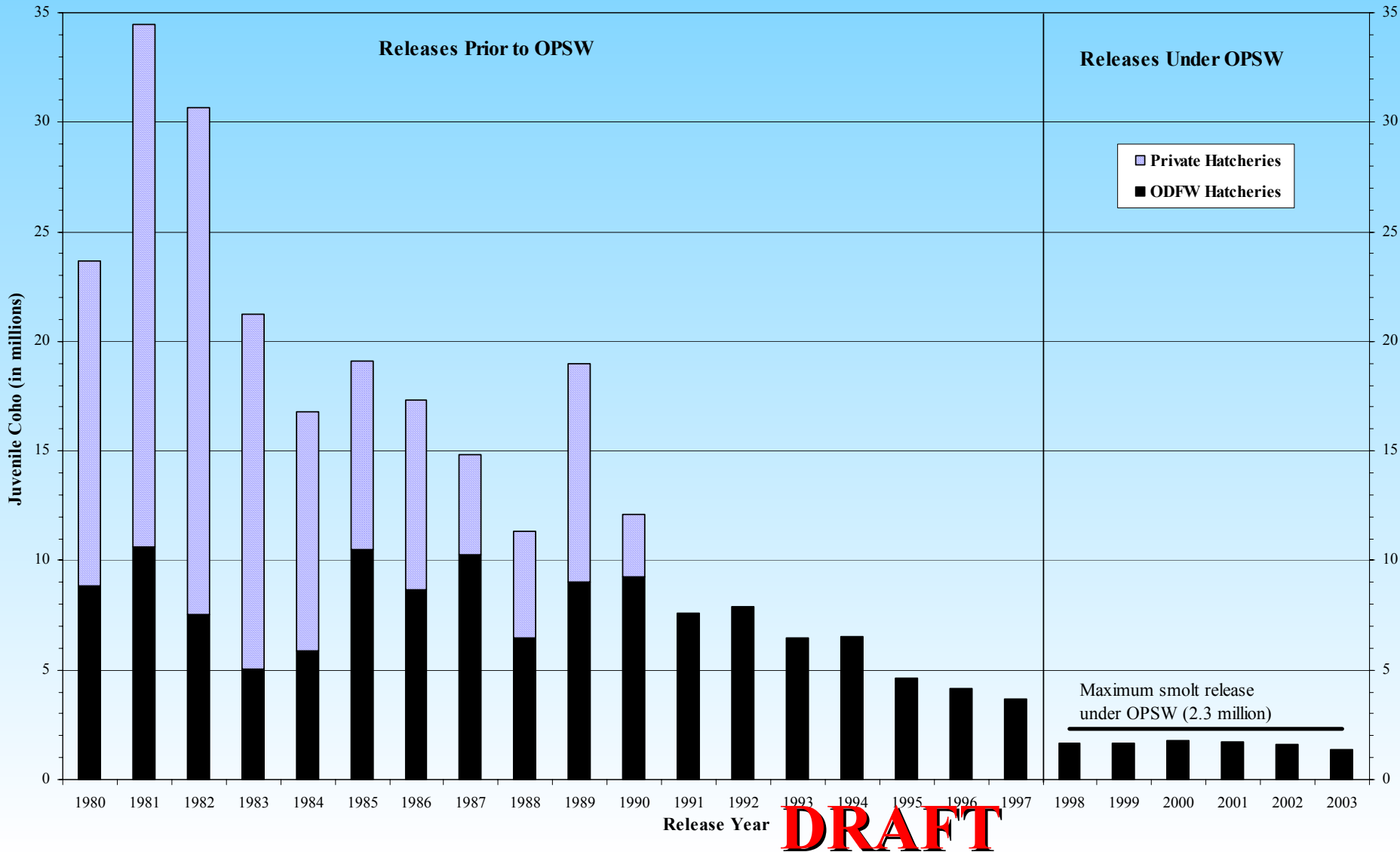
STEP Facility



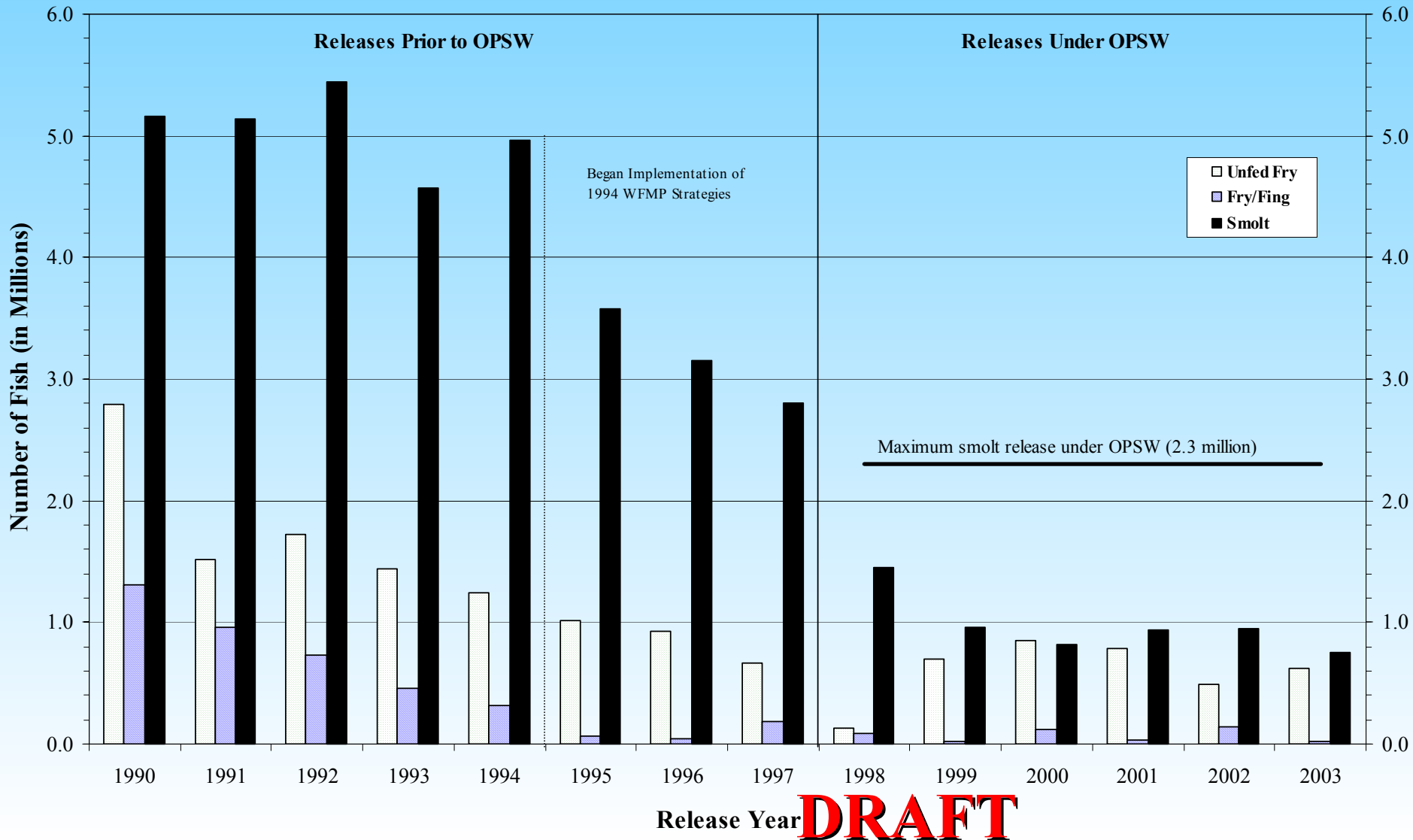
Current Coho Facilities Labeled

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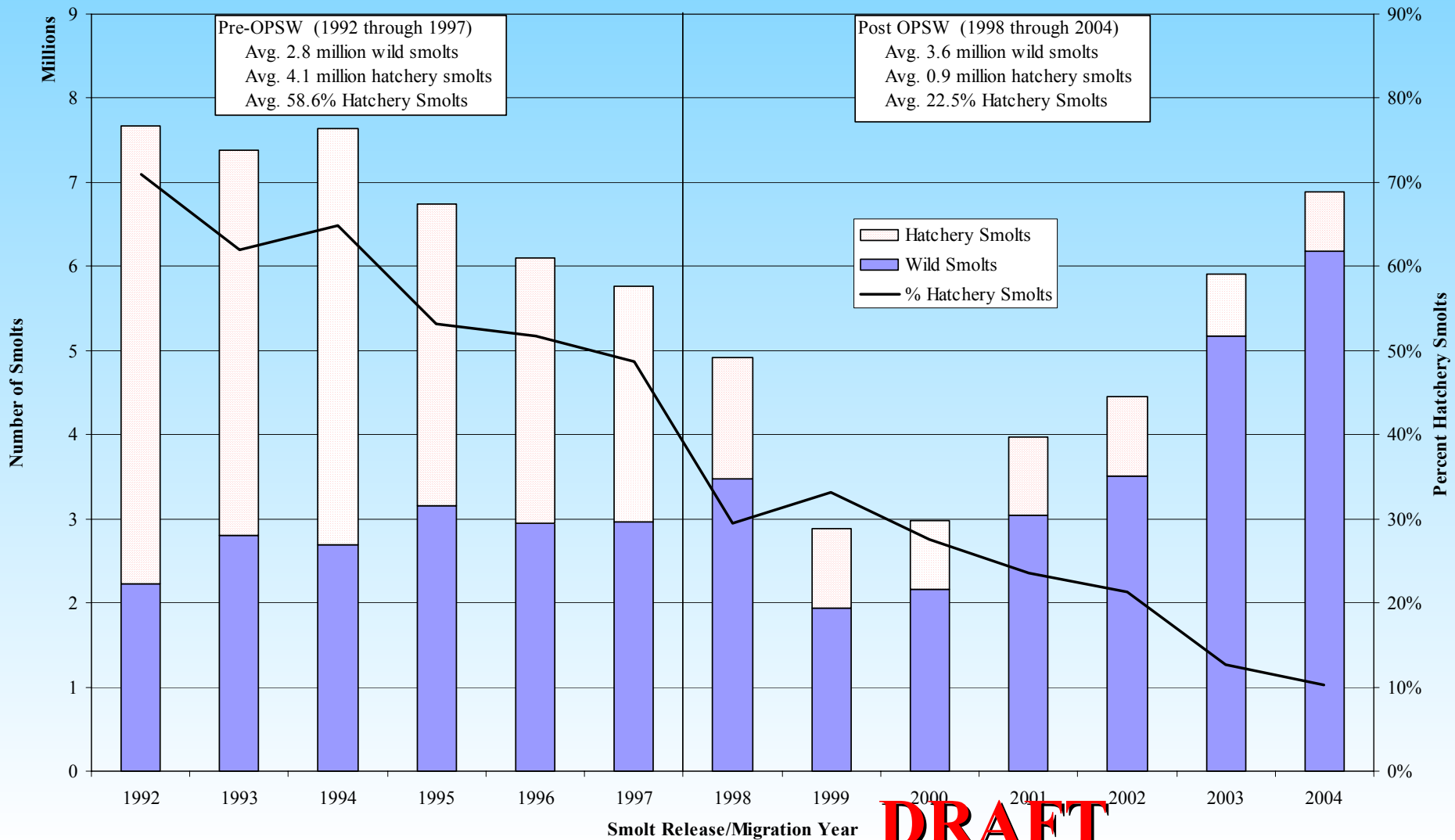
Total releases of juvenile hatchery coho in the Oregon Coast Coho ESU (1980-84 missing unfed fry)



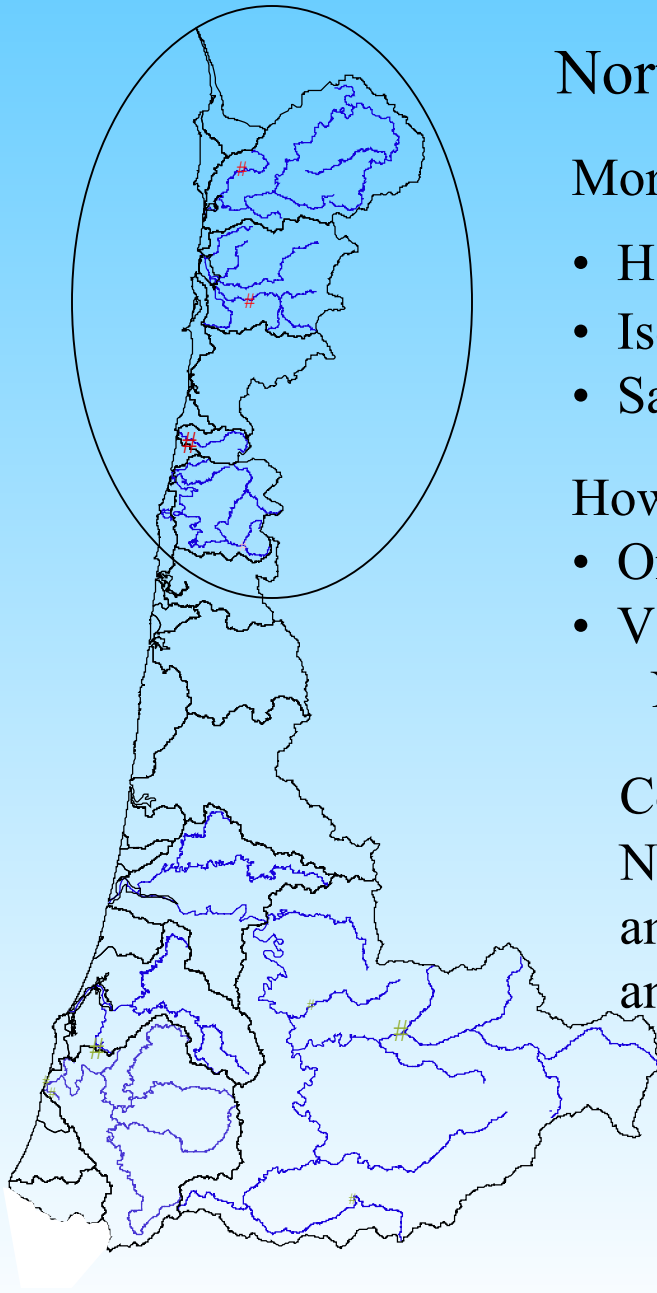
ODFW releases of juvenile hatchery coho in the Oregon Coast Coho ESU



Hatchery coho smolts released and estimated wild coho smolts in the Oregon Coast Coho ESU



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Northern Hatchery Coho Programs

More like “Traditional” Hatchery Programs

- Harvest Augmentation – Smolt Releases
- Isolated Broodstock – No wild fish inclusion
- Satellite Type Population

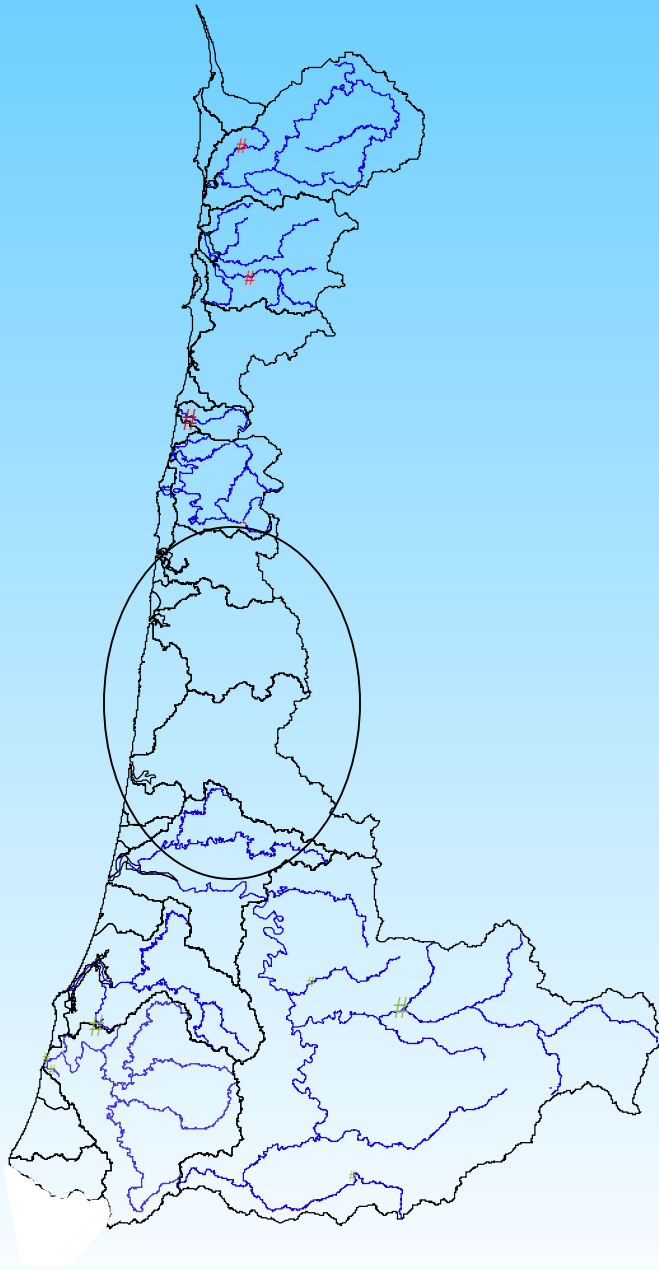
However,

- On-site Volitional Releases
- Very little coho habitat below 2 release sites, Nehalem (1.1%) and Trask (4.9%)

Concerns with Salmon River –

Non-local stock (Siletz R.) relatively high amount of habitat below release site (10.5%) and relatively large release (200,000).

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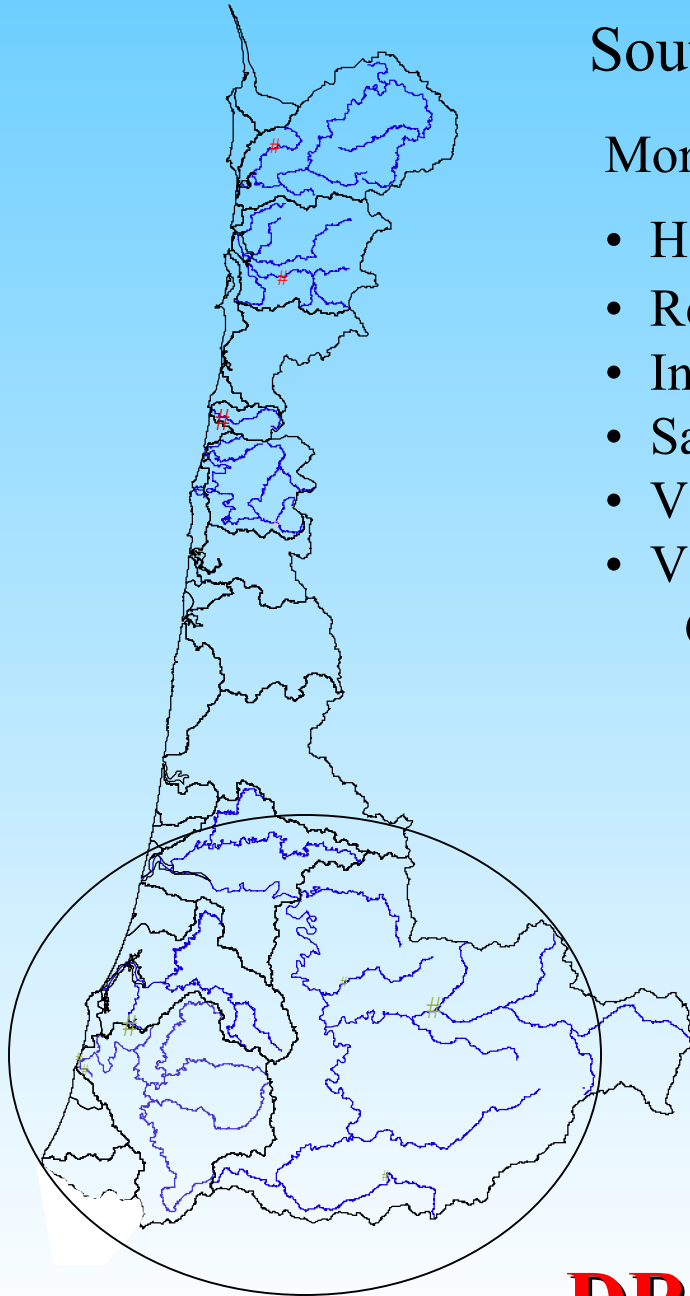
Central Coast
No Hatchery Coho Programs

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Southern Hatchery Coho Programs

More like “New” Hatchery Programs

- Harvest Augmentation – Smolt Releases
- Restoration/Supplementation – Unfed Fry
- Integrated Broodstock – Wild fish inclusion
- Satellite Type Population
- Volitional Releases
- Very little coho habitat below 2 release sites, Coos (2.9%) and Coquille (1.2%)



Concerns with Upper Umpqua – Mixed Stock (Smith/N. Umpqua/S. Umpqua) relatively high amount of coho habitat below release site (10.2%), and relatively large releases (530,000 unfed fry and 142,500 smolts).

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Operational Impact / Risks

- Total of 155 miles (3.5%) of coho spawning habitat impacted by hatchery barriers in the ESU.
 - 4.3 miles above Complete Barriers. Less than 2% of any population.
 - 50 miles above Selective Barriers, mostly in Alsea
 - 100 miles above Limited Barriers, 30 in Nehalem, 25 in Upper Umpqua, and 30 in Salmon River (73% of spawning habitat in basin).
- Water Quality.
 - Have had violations, both exceeding limits and reporting.
 - No violations in at least the last year.

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Management Impact / Risks

- Policy Review and Development.
 - New NFCP adopted in 2002. Implementation in process through development of Conservation Plans.
 - New FHMP adopted in 2003. Directs use of hatchery tool. Implementation through Conservation plans, and hatchery plans.
- HGMPs
 - Oregon Coast Coho ESU - Need 7 coho, 7 fall chinook, 4 spring chinook, 3 summer steelhead, and 12 winter steelhead HGMPs.
 - To date 7 coho, 1 Chf, and 4 Stw HGMPs submitted to NOAA Fisheries.
 - Drafts of all others prepared and in ODFW review, except 1 STW.
 - Current HGMPs for ESA. Will need to be reviewed under NFCP.

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Preliminary Conclusion

Implementation of the OPSW and other management actions have greatly reduced the impacts of Oregon's coastal coho hatchery program on the Oregon Coast coho ESU, and the current hatchery program is likely not a significant limit on the sustainability of the ESU.

- Reduced coastal hatchery coho smolt releases from over 30 million to less than 1 million.
- ESU has switched from predominately hatchery coho smolts to predominately wild coho smolts.
- Reduced percentage of hatchery fish on spawning grounds.
- ESU has switched from predominately hatchery coho adults to predominately wild coho adults.
- Improved effluent water quality compliance.
- Improved policies and operations plans.

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