Oregon Plan Coastal Coho Assessment

Science Assumptions and Assessment Framework

Assessment Framework

1. What are the primary factors that limit the sustainability of coastal coho?
   - Past, present and future limits
2. What does the monitoring data tell us about the primary limiting factors?
3. Are Oregon Plan measures focused on the primary limiting factors?
4. Are there any big issues that the State is missing?
5. What corrective measures need to be taken based on the Assessment?

Limiting Factors

- Defined as human-influenced factors that create the life cycle bottlenecks.
- Based on a thorough exam of available data.
- Two lenses:
  - Past, present, and future perspectives on limits to sustainability.
  - Biological needs of coho.

Factors for Decline (Past)

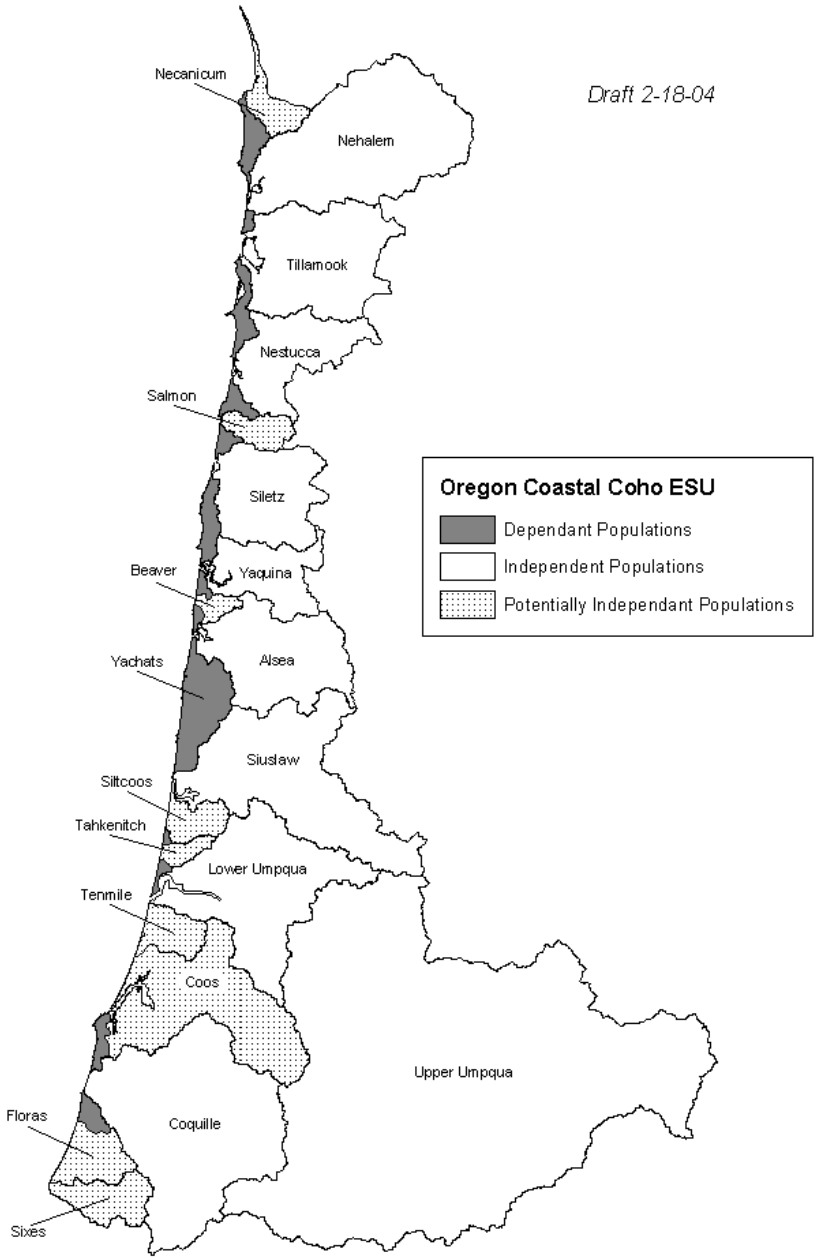
- Coastal Salmon Restoration Initiative (1997) and ESA Listing (1998):
  - Poor freshwater habitat conditions, over-harvest, and the influence of hatchery fish considered the primary causes.
  - Habitat recognized as the most complex limiting factor.
  - Extended periods of poor ocean productivity the backdrop management must work with.

NOAA ESA Listing (1998)

Habitat	Harvest	Disease & Predation	Regulatory Mechanisms	Other Natural or Human
Channel form	Marine	Disease	NW Forest Plan	Drought
Substrate	Recreational	Predation	Forest Practices	Floods
Roughness	Scientific		Dredge and Fill	Ocean Conditions
Estuaries			Water Quality	Artificial Propagation
Wetlands			Ag Practices	
Riparian Areas			Urban Growth	
Water Quality				
Streamflows				
Passage				
Habitat Elimination				

Factors for Decline (Present)

- Coastal Coho Assessment (2004)
- Evaluate and Rank Limiting Factors
  - Emphasis on what currently limits sustainability
  - Incorporates results from major initiatives under the Oregon Plan (e.g., harvest and hatcheries)
  - New data from intensified monitoring
  - Utilize TRT population structure



Draft TRT Populations for Oregon Coast Coho ESU

- **Assessment focused on independent/potentially independent populations**
- **Information on dependent as available**

Factors for Decline (Future)

- NOAA's Proposed Listing (2004)
  - Increased abundance encouraging, long-term trends in productivity still negative.
  - Increases due to good ocean and reduced harvest.
  - Concern: can freshwater habitat support and sustain high #'s of natural spawners, resolving uncertainties about sustainability under less favorable ocean?

Limiting Factors Summary

- Must consider:
  - Have we addressed past limits adequately?
  - What limiting factors need additional focus?
    - Recovery criteria essential
  - Limits on persistence?
    - Trends over next 100 years (CLAMS)

Addressing the PECE Policy

1. The certainty of that the conservation effort will be implemented:
   - Infrastructure
   - Funding
   - Legal framework
2. The certainty that the conservation effort will be effective:
   - Addressing limiting factors
   - Performance measures
   - Monitoring and reporting

PECE (cont'd)

2. **Explicit incremental objectives for the conservation effort and dates for achieving them.**
   - *What are the current Plan objectives to address egg-to-smolt survival?*
3. **The steps necessary to implement the conservation effort are identified in detail.**
   - *What are actual and potential changes to the Plan since its inception?*

PECE (cont'd)

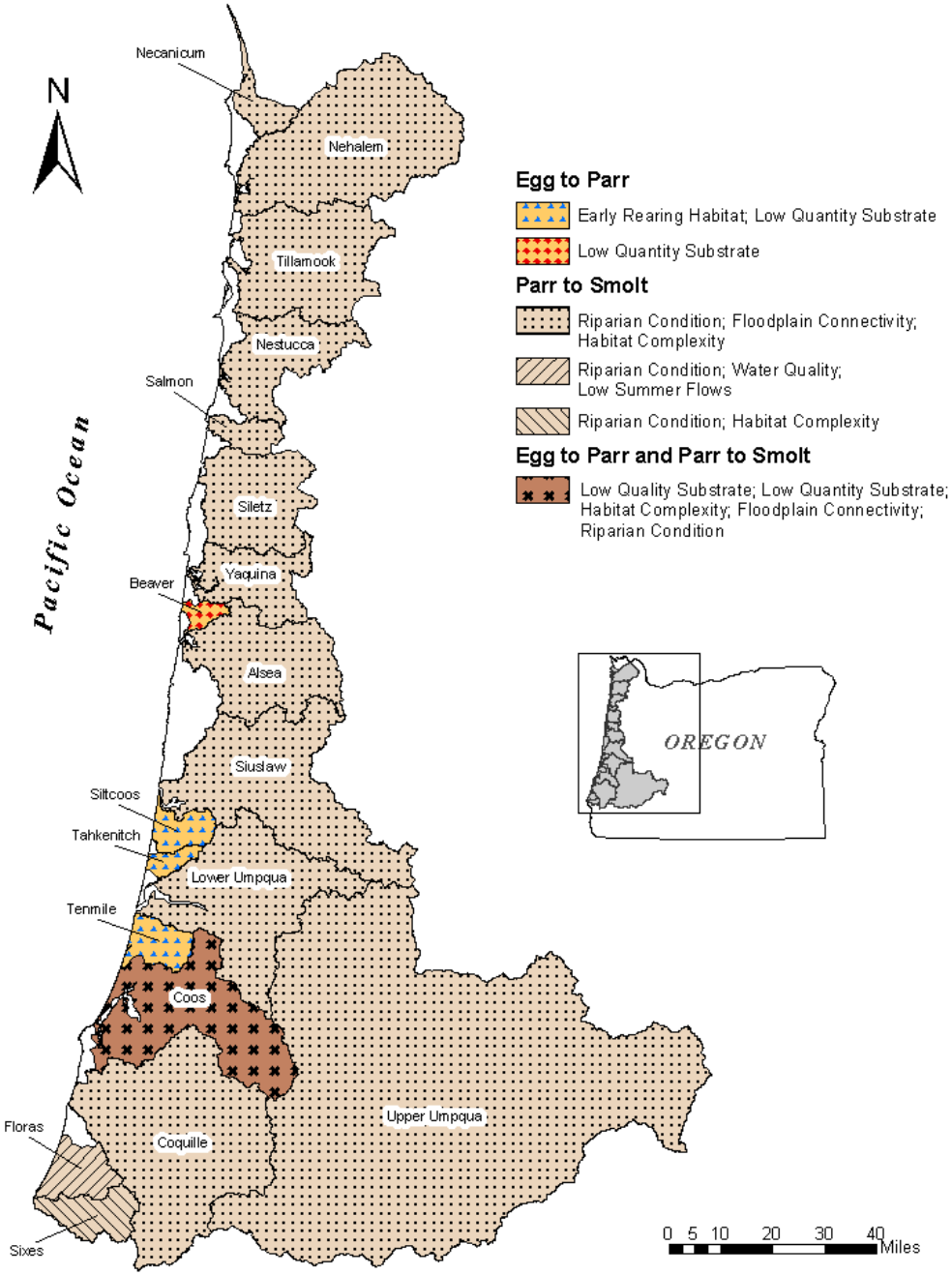
4. **Quantifiable, scientifically valid parameters that will demonstrate achievement of objectives, and standards for these parameters by which progress will be measured, are identified.**
   - *How well is the Plan achieving its habitat objectives?*
   - *How can habitat protection measures be quantified?*
   - *What is the level of compliance with habitat protection rules?*

PECE (cont'd)

5. **Provisions for monitoring and reporting progress on implementation (based on compliance with the implementation schedule) and effectiveness (based on evaluation of quantifiable parameters) of the conservation effort are provided.**
   - *What is the available information on habitat status and trends?*
   - *To what extent are the plan protection and restoration measures being implemented?*
   - *Is there any information on effectiveness of habitat protection and restoration measures?*

PECE cont'd

6. **Principles of adaptive management are incorporated.**
   - *What changes have been made since the Plan was implemented and why?*
   - *How is the Plan addressing the concerns of IMST and NOAA Fisheries with Plan protective measures?*



Limiting Factors

- "gravel-to-gravel" perspective
- Harvest and hatcheries not a significant limit to sustainability
- Streams - over-winter rearing habitat appears to be limiting
- Lakes - early-rearing habitat appears to be limiting

Limiting Factors Details

Monitoring Area	North Coast	North Coast	North Coast	North Coast	Mid-Coast	Mid-Coast	Mid-Coast	Mid-Coast	Mid-Coast	Mid-Coast	Umpqua	Umpqua	Mid-South Coast	Mid-South Coast	Mid-South Coast	Mid-South Coast	Mid-South Coast	Mid-South Coast	Mid-South Coast
Population	Necanicum	Nehalem	Tillamook	Nestucca	Salmon	Siletz	Yaquina	Beaver	Alsea	Siuslaw	Lower Umpqua	Upper Umpqua	Siltcoos	Tahkenitch	Tenmile	Coos	Coquille	Floras	Sixes
Limiting Factors by Life Stage																			
Egg to Parr	1	2	2	1	1	1	1	2	1	2	2	2	2	2	2	2	1	2	2
substrate																			
low quality (fines)	1	3	3	1	1	1	1	2	1	3	3	3	2	2	2	3	1	2	2
low quantity (spawning gravels)	1	2	2	1	1	1	1	3	1	2	3	1	3	3	3	3	1	2	1
low stability	1	1	2	1	1	1	1	1	1	1	2	2	1	1	1	2	1	3	3
peak flows	1	2	2	1	1	1	1	1	1	2	2	1	1	1	1	2	1	1	3
early rearing habitat (channel margins, backwater habitats)	1	1	3	1	1	1	1	1	1	1	2	3	3	3	3	1	1	1	2
Parr to Smolt	2	2	3	3	2	2	2	1	2	2	2	3	1	1	1	2	2	2	3
habitat complexity (off or in-channel)	3	3	3	3	3	3	3	1	3	3	3	3	1	1	1	3	3	2	3
Fish Passage	unknown	1	2	unknown	unknown	unknown	unknown	unknown	unknown	unknown	1	unknown	unknown	unknown	unknown	unknown	unknown	unknown	unknown
floodplain connectivity (winter habitat)	3	3	3	3	3	3	3	1	3	3	3	3	1	1	1	3	3	2	3
Riparian condition	3	3	3	3	3	3	3	1	3	3	3	3	1	1	1	3	3	3	3
Peak flows	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2
water quality (temperature)	1	2	2	1	1	2	2	1	2	2	2	3	1	1	1	2	2	3	2
low summer flows	1	1	1	1	1	1	1	1	1	2	2	2	1	1	1	2	2	3	2
Smolt to Adult	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
estuaries																			
habitat	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
predation	1	2	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1
hatchery influence	1	2	1	1	3	1	1	1	1	1	1	2	1	1	1	1	1	1	1
Adult Migration	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Spawning	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

1 = low effect, 2 = moderate effect, 3 = high effect

NOAA's Proposed Listing (cont'd)

- Harvest – severe reduction has increased abundance of natural spawners
- Hatcheries - substantial changes to limit adverse effects to natural populations.
- Hatchery and Harvest Reform effective mgmt tools that can yield quick results
  - However, once implemented, limited ability to respond to future declines if caused by poor ocean or freshwater habitat
- Habitat - Additional data demonstrating that freshwater habitat can support high abundances of natural spawners and sustain recent abundance levels would help resolve uncertainties re: resilience under poor ocean.

Oregon Plan Assessment

- **Assess legal and policy landscape:**
  - shortcomings in prior Oregon Plan effort (adaptive mgmt)
  - federal requirements and standards (e.g., PECE)
  - legal vehicles for participant assurances.
- **Assess current Oregon Plan activities:**
  - harvest, hatcheries, habitat, hydro, predators, competitors, pathogens.
- **Link to State/Federal science products:**
  - Are Oregon Plan activities addressing primary bottlenecks?
  - What is the future outlook?
- **Identify additional activities and commitments, if necessary.**