

An underwater photograph of several salmon swimming in a river. The water is clear and blue, with sunlight filtering through from above, creating a shimmering effect. The salmon are in various stages of movement, with one large salmon in the foreground being the most prominent. The background shows other salmon swimming further away.

# *Coastal Multi-Species Conservation and Management Plan*

## Habitat Technical Work Group Meetings

November 26, 2012 – Roseburg

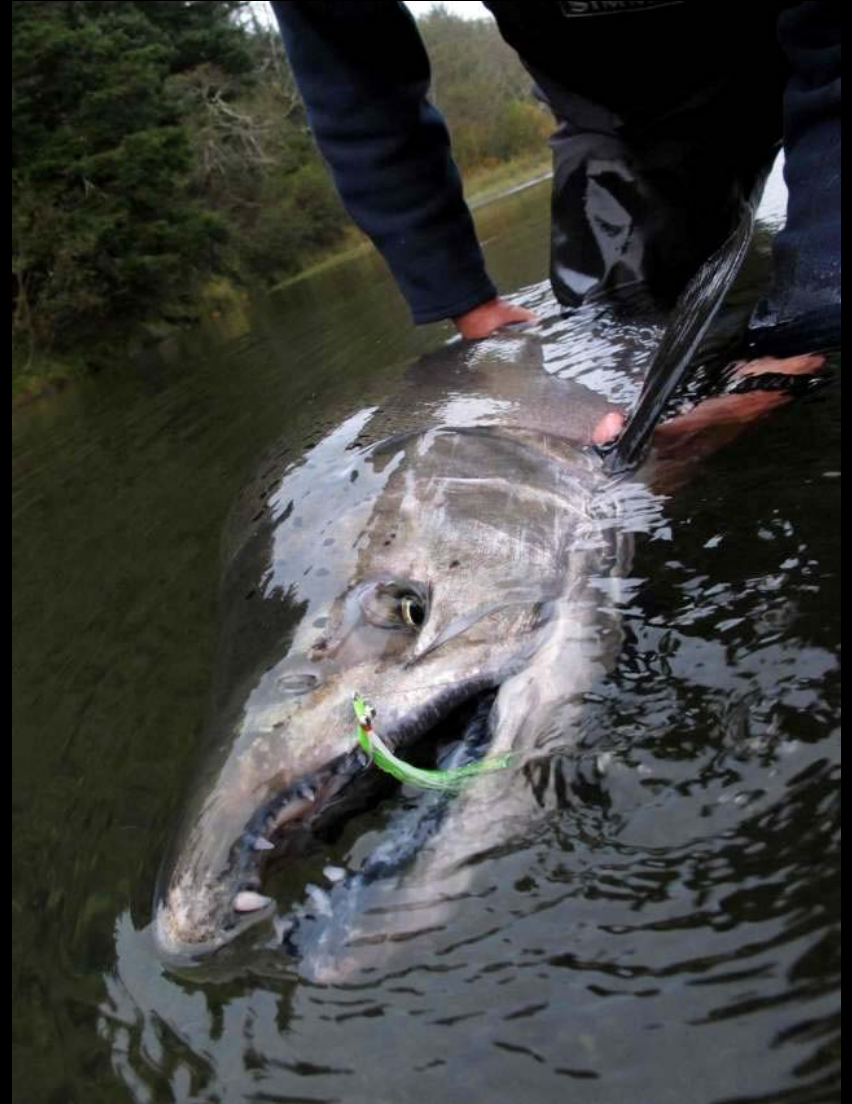
November 27, 2012 – Newport

# Outline

- Overview of Plan and Major Habitat Components
- Overview of Habitat Assessment
- Description of Criteria, Data, Scoring
  - Discussion/Feedback x 3
- **Preliminary** Results and Next Steps

# *Coastal Plan*

- Six SMUs
- Cape Blanco north



# Plan Content

- Current Status Assessment (*where are we?*)
  - *fish metrics (VSP)*
- Desired Status Development (*where do we want to go?*)
  - Actions (“Portfolio”)
    - Hatchery Fish
    - Fisheries
    - Other Species (i.e., Predation)
    - Habitat (*including habitat assessment*)
    - Monitoring and Research \*
    - *limiting factors* \*
  - Targets \*

# Current Status Results

	Fall Chinook	Spring Chinook	Chum	Winter Steelhead	Summer Steelhead	Cutthroat
Necanicum	critical		unknown	critical		critical
Nehalem						critical
Tillamook			critical	critical		critical
Nestucca			unknown	critical		critical
Salmon			unknown	critical		critical
Siletz			unknown	critical		critical
Yaquina				critical		critical
Alsea			unknown	critical		critical
Yachats Aggregate	critical			critical		critical
Siuslaw			unknown	critical		critical
Lower Umpqua	critical		unknown	critical		critical
Middle Umpqua	critical			critical		critical
North Umpqua						critical
South Umpqua		critical		critical		critical
Tenmile				critical		critical
Coos			unknown	critical		critical
Coquille			unknown	critical		critical
Floras				critical		critical
Sixes				critical		critical
Elk	out of SMU			out of SMU		out of SMU

critical  
↑  
strong

- almost all populations are healthy and viable (≠ historic levels)

# *Objectives – Habitat Components*

- support, without duplicating, on-going efforts
- focus on-the-ground work based on fish needs (*12HUC scale*)
- encourage an ecosystem approach
  - full sub-watershed (*12HUC*)
  - water quality and quantity
  - mainstem/estuary
  - multi-species
- maintain and improve populations
- buffer future threats

# Overview – Habitat Components

## Coastal Plan

- Actions
  - **Sub-Watershed Assessment/Priorities**
  - Limiting Life Stages
  - General Threat Pathways/Strategies
  - Limiting Factors (esp. non-viable populations)
- Targets (minimum, uniform)
  - *climate change*

## Guidance Tool

*Where – 12HUC scale*

*What*

*How Much*

*SMU, population scale*

## Implementation

- Feasibility Considerations
  - \$
  - cooperation
  - timing
  - etc...
- Watershed Assessments/Action Plans
- Other Plans (e.g., TMDLs)

## Details

*Who*

*When*

*How*

*Where*

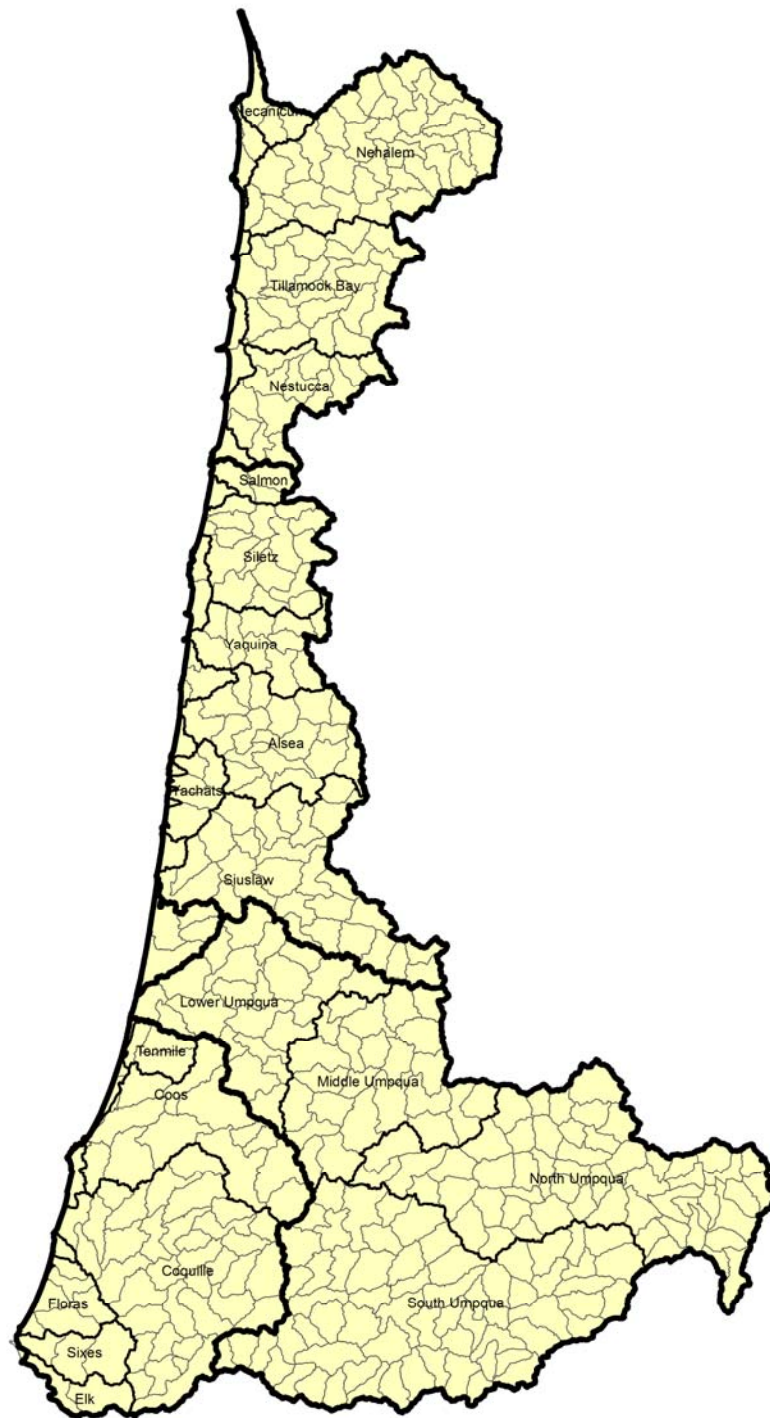
*What*

*How Much*

*reach/project scale*

- Projects
  - Restoration
  - Protection
- *inform land use*







# Habitat Assessment Objective

- Guide habitat restoration and protection focus
- Habitat Plan must consider several species, run-time races, and life stages
- Therefore adopt a watershed-scale perspective for characterizing salmonid habitat potential and current conditions
- 12 digit HUC: chosen scale
  - Large enough to address watershed processes affecting smaller scale habitat attributes
  - Small enough to set measurable goals, ID area priorities, and implement actions

# HUC GIS Data Layer Description and Scoring

- “Salmonid Ecosystem Value” criteria layers (SEV)
  - Describe the SEV criteria
  - Describe the SEV-HUC scoring
- Degradation/Vulnerability criteria layers (DV)
  - Describe the DV criteria
  - Describe the DV scoring

# GIS Layers as SEV Criteria

## A. Magnitude of Salmonid Habitat

- kms of current fish distribution (ODFW GIS data) per HUC
  - Chinook (fall, summer, spring)
  - Coho
  - Steelhead (winter, summer)
  - chum

## B. Intrinsic Potential

- Metric: % IP x kms
  - Coho (CLAMS), steelhead (ODFW), Chinook (ODFW)

## C. Current Salmonid Diversity

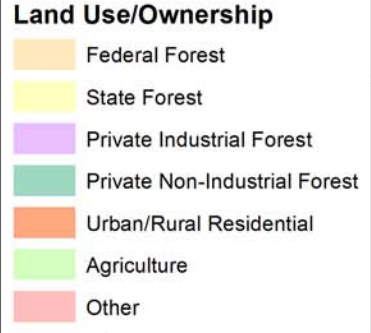
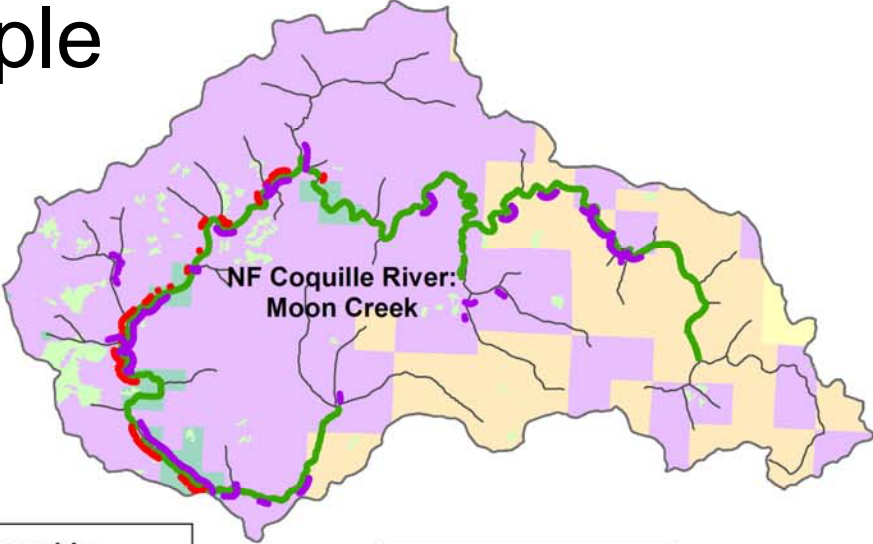
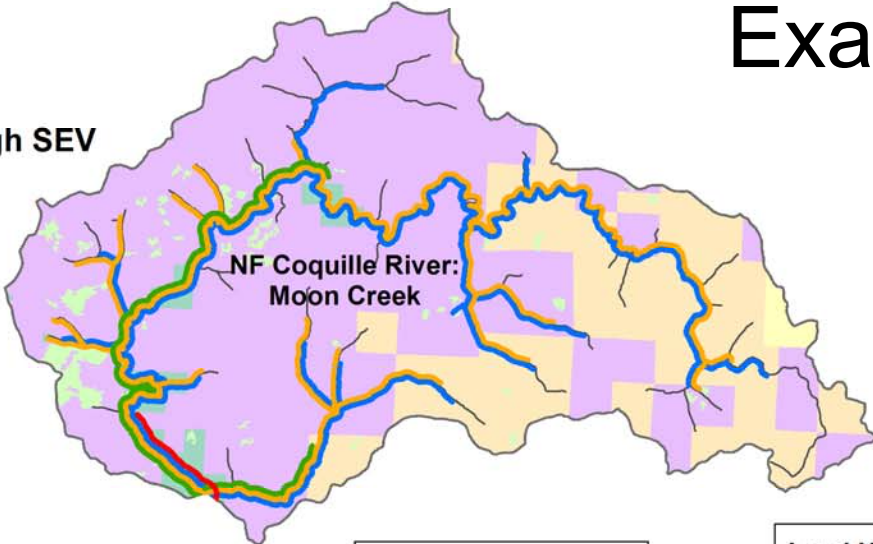
- # of salmonid species and variants per HUC
  - Chinook (fall, summer, spring)
  - Coho
  - Steelhead (winter, summer)
  - Chum
  - Cutthroat (ubiquitous)

# Example

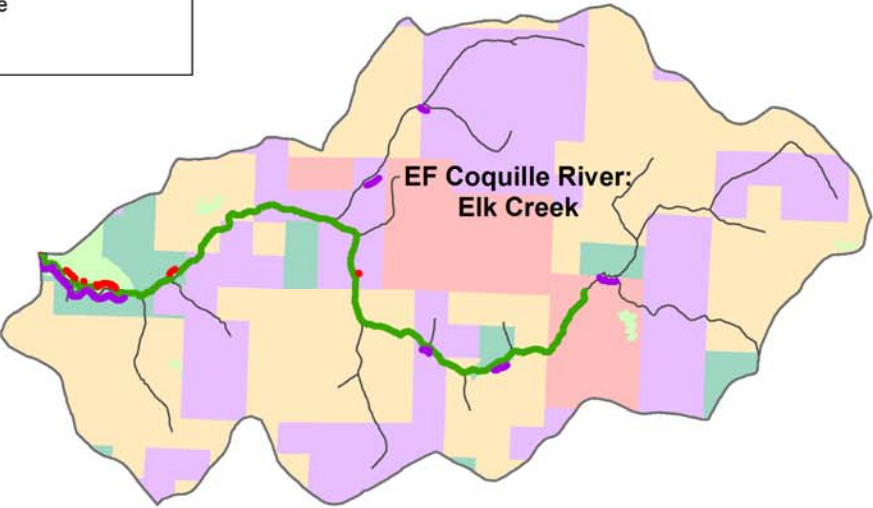
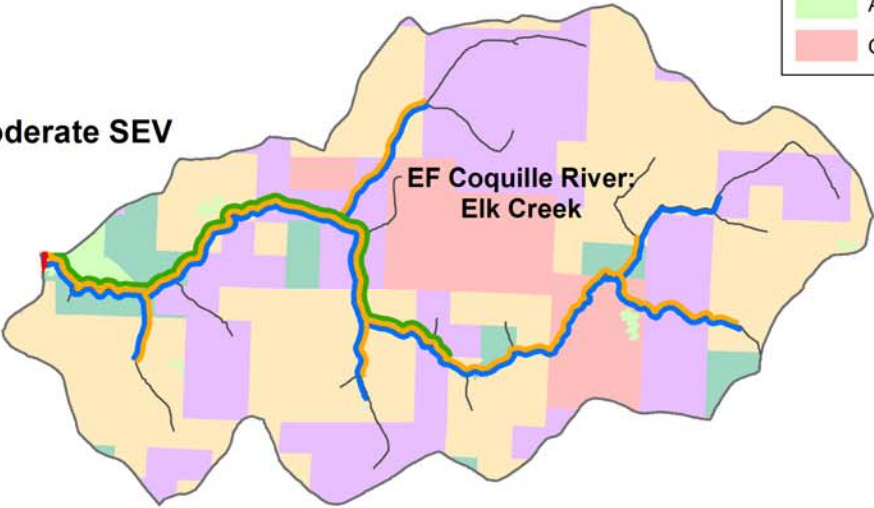
Current Fish Distribution

High Intrinsic Potential (>0.8)

High SEV



Moderate SEV



# Scoring HUC's for SEV Criteria: Step 1

## A. Criterion 1: Magnitude of Salmonid Habitat (kilometers)

- 0 kms = score 0
- ≤ 20 kms = score 1
- ≤ 40 kms = score 2
- ≤ 60 kms = score 3
- ≤ 80 kms = score 4
- > 80 kms = score 5

## B. Criterion 2: Modeled Intrinsic Potential as % IPKM

- 0% = score 0
- < 40% = score 1
- < 50% = score 2
- < 60% = score 3
- < 70% = score 4
- > 70% = score 5

## Roll up SEV scores

- Step 2: *Sum* Criteria 1 and 2 scores for coho, Chinook, steelhead

Maximum score = 10 for each species; **30 total each HUC**

- C. **Criterion 3: Salmonid Diversity.** *Add* spring Chinook, summer steelhead, and chum diversity scores

Absence of fish distribution kms = 0

Presence of fish distribution kms = 5

- Step 3: *Add* all scores for each HUC

= **Maximum Cumulative SEV-HUC<sub>c</sub>** score = 45

## Scoring Classes for SEV-HUC<sub>c</sub>: Step 4

Maximum Cumulative SEV-HUC<sub>c</sub> score = 45

**> 30 = score 1 (higher SEV)**

**≤ 30 = score 2**

**≤ 20 = score 3**

**≤ 10 = score 4**

**0 = score 5 (lower SEV)**

*relative* SEV-HUC<sub>c</sub> score (intervals based on rank percentile analysis)

- HUC's adjacent to estuary scored "1"



## Adjustment to SEV-HUC<sub>c</sub> Scoring

- If any HUC scored in highest category for Criterion B (IPKM/total IP kms > 70%) for any species, that HUC got a score = 1 (higher SEV)

Discussion/Feedback on SEV criteria, data layers, and scoring methodology

# GIS Layers as DV Criteria

## A. Instream Habitat Structure

- Habitat Rating Scores from ODFW Aquatic Inventory Program

## B. Water Temperature

- % of HUC as 303(d) listed for temperature

## C. Water Quantity

- % of HUC in “highest flow restoration” category, in summer

See description at:

<http://www.oregon.gov/owrd/pubs/docs/reports/summary.pdf>

# Scoring HUC's for DV Criteria: Step 1

- A. Criterion 1: Instream Habitat Structure. Sum Hab Rate scores (1-3) for coho (3 life stages), Chinook (3 life stages), and steelhead (5 life stages); *intervals based on rank percentile analysis*

> 16 = score 1 (good physical habitat)

≤ 16 = score 2

≤ 15 = score 3

≤ 14 = score 4

≤ 12 = score 5 (poor physical habitat)

- B. Criterion 2: Water Quality. % of HUC listed as 303(d) for temperature

0% = score 1 (good water quality-temperature)

< 25% = score 2

< 50% = score 3

< 75% = score 4

> 75% = score 5 (poor water quality-temperature)

## Scoring HUC's for DV Criteria: Step 1 *continued*

C. Criterion 3: Water Quantity. % of HUC in highest “flow restoration need” category, for summer months

0% = score 1 (adequate stream flows)

< 25% = score 2

< 50% = score 3

< 75% = score 4

> 75% = score 5 (inadequate stream flows)

# Scoring Classes for DV Criteria

- Step 2: Average the 3 DV criteria scores to get aggregate habitat condition score for each HUC  
(maximum score = 5)
  - Step 3: Scoring classes for DV-HUC<sub>mean</sub>
    - ≤ 1.3 = score 1 (lower Degradation/Vulnerability)
    - ≤ 2.0 = score 2
    - ≤ 2.5 = score 3
    - ≤ 3.0 = score 4
    - > 3.0 = score 5 (higher Degradation/Vulnerability)
- relative DV score (intervals based on rank percentile analysis)*

Discussion/Feedback on DV criteria, data layers, and scoring methodology



# Conservation Axes

Higher Priority Protection

Higher Priority Restoration

Higher Salmonid Ecosystem Value (SEV)

Higher Degradation/Vulnerability (DV)

1

3

4

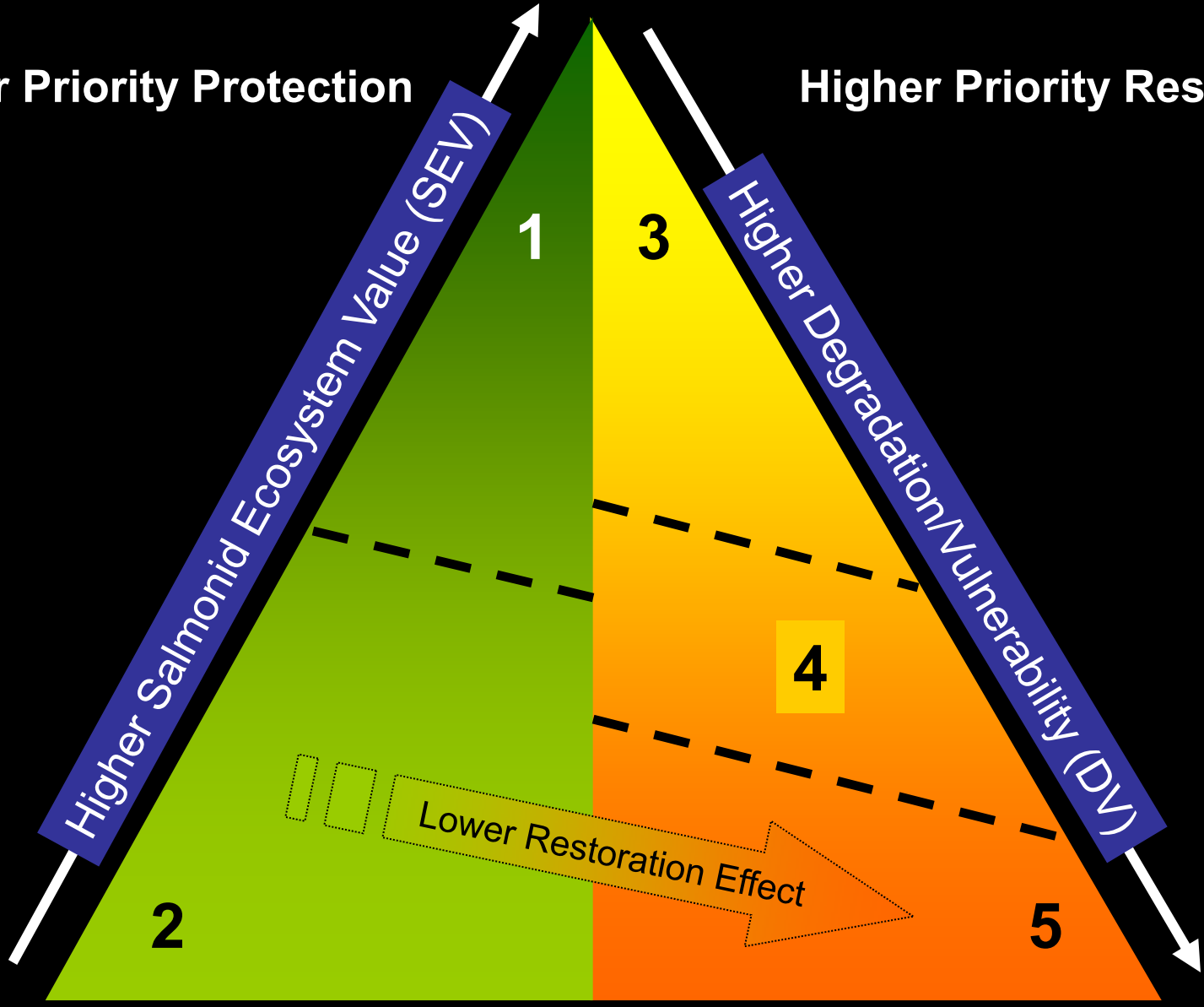
2

5

Lower Priority Protection

Lower Priority Restoration

Lower Restoration Effect



**Class 1: Higher Priority Protection:  $SEV-HUC_c \leq 2$  and  $DV-HUC_{mean} \leq 2$ ; upper left zone on Conservation Axes**

**Class 2: Lower Priority Protection:  $SEV-HUC_c \geq 3$  and  $DV-HUC_{mean} = 1$ ; lower left zone on Conservation Axes**

**Class 3: Higher Priority Restoration:  $SEV-HUC_c \leq 2$  and  $DV-HUC_{mean} \geq 3$ ; upper right zone on Conservation Axes**

**Class 4: Moderate Priority Restoration:  $SEV-HUC_c \geq 3$  and  $DV-HUC_{mean} = 2-3$ ; middle right zone on Conservation Axes**

**Class 5: Lower Priority Restoration:  $SEV-HUC_c \geq 3$  and  $DV-HUC_{mean} = 4-5$ ; lower right zone on Conservation Axes**

	DV-HUC <sub>mean</sub>				
SEV-HUC <sub>c</sub>	1	2	3	4	5
1	Higher Priority Protection		Higher Priority Restoration		
2					
3	Lower Priority Protection	Moderate Priority Restoration		Lower Priority Restoration	
4					
5					

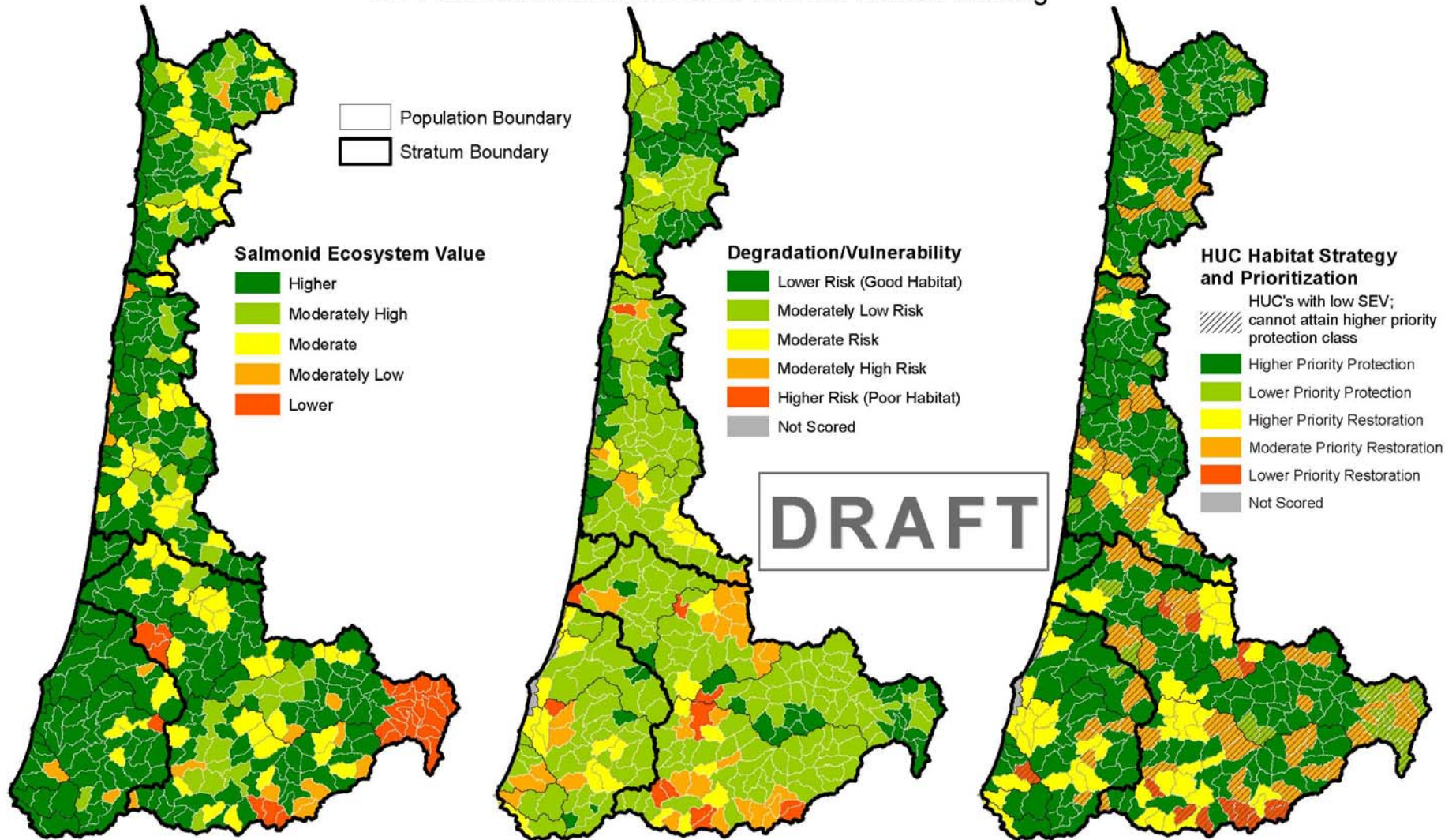
# Discussion/Feedback on combined SEV-DV methodology

## Preliminary Results

- Handouts of preliminary results (maps)
- Poster of preliminary results (maps)

# Preliminary Results

6th-Field HUC Assessment of Current Habitat Scoring



## Next Steps

- Revise data layers and scoring/methods based on feedback at meeting (~2 weeks)
- Send revisions (map results) to HTWG for review/ground-truth (~ mid-December)
  - HTWG members review results based on their local knowledge (~ mid-January)
- Revise for draft plan (TBD)