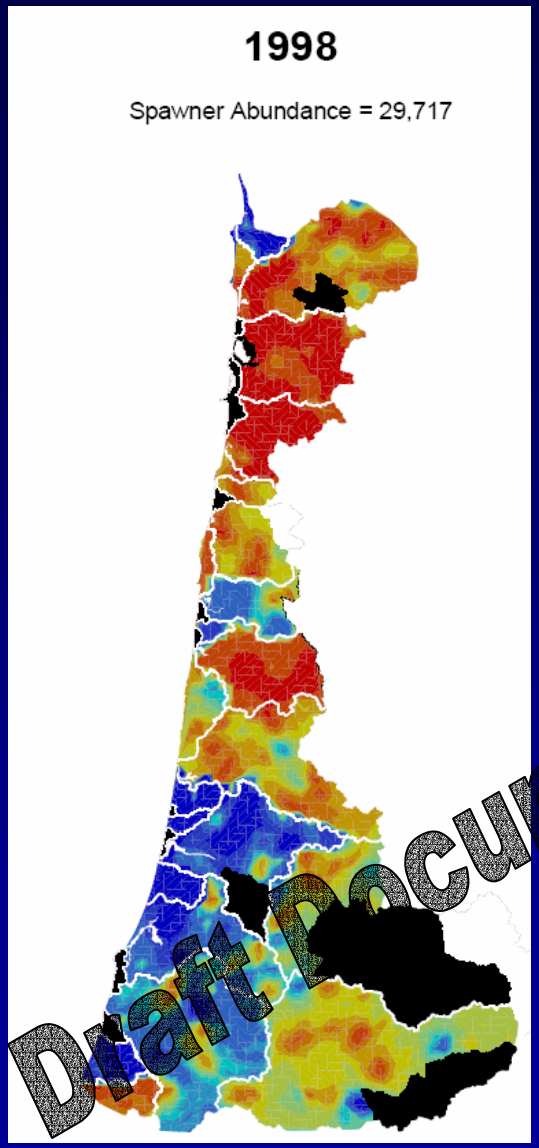
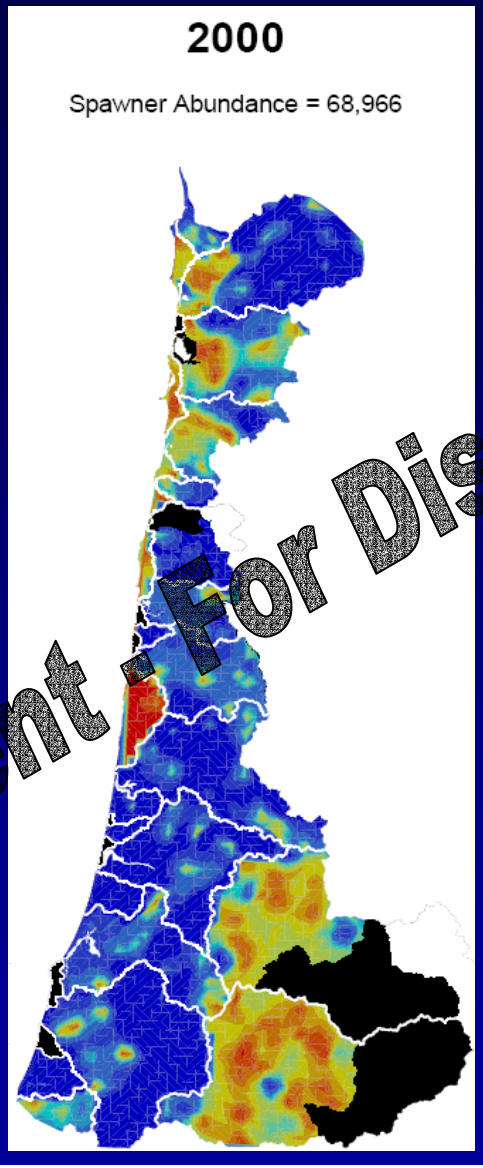
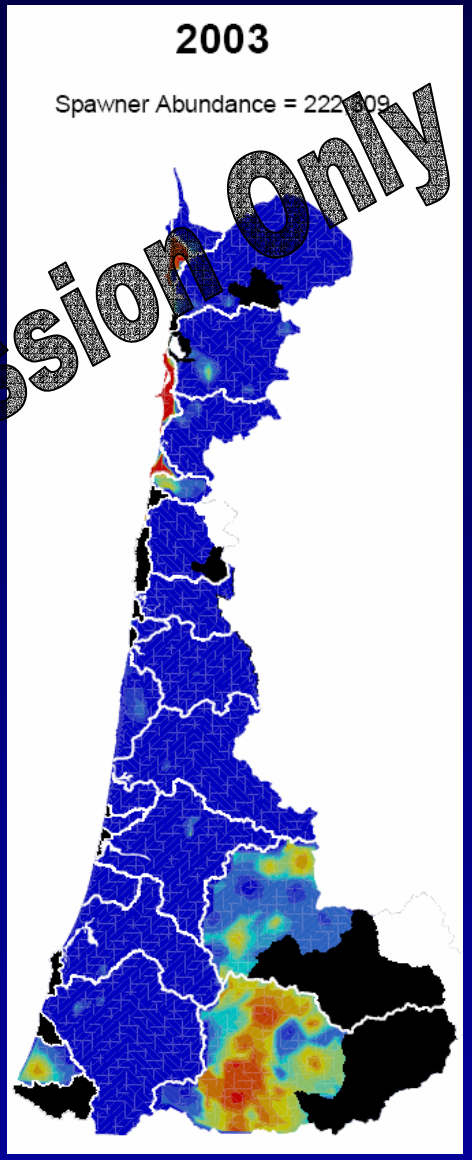
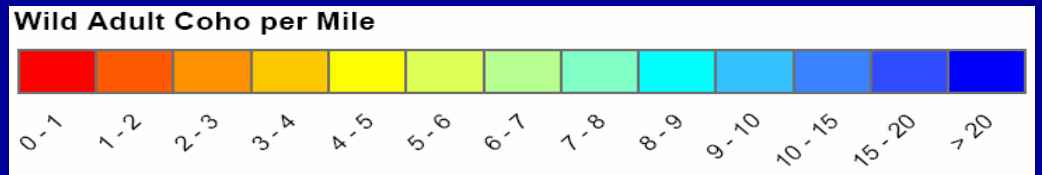
Adult Coho Distribution and Abundance 1998-2002









Diversity - Abundance - Productivity

1. Average spawner densities across the geographic area of a population are appropriate for developing Abundance and Productivity Criteria.

2. The spatial pattern of higher than average spawner densities within a population are appropriate for developing Diversity Criteria.

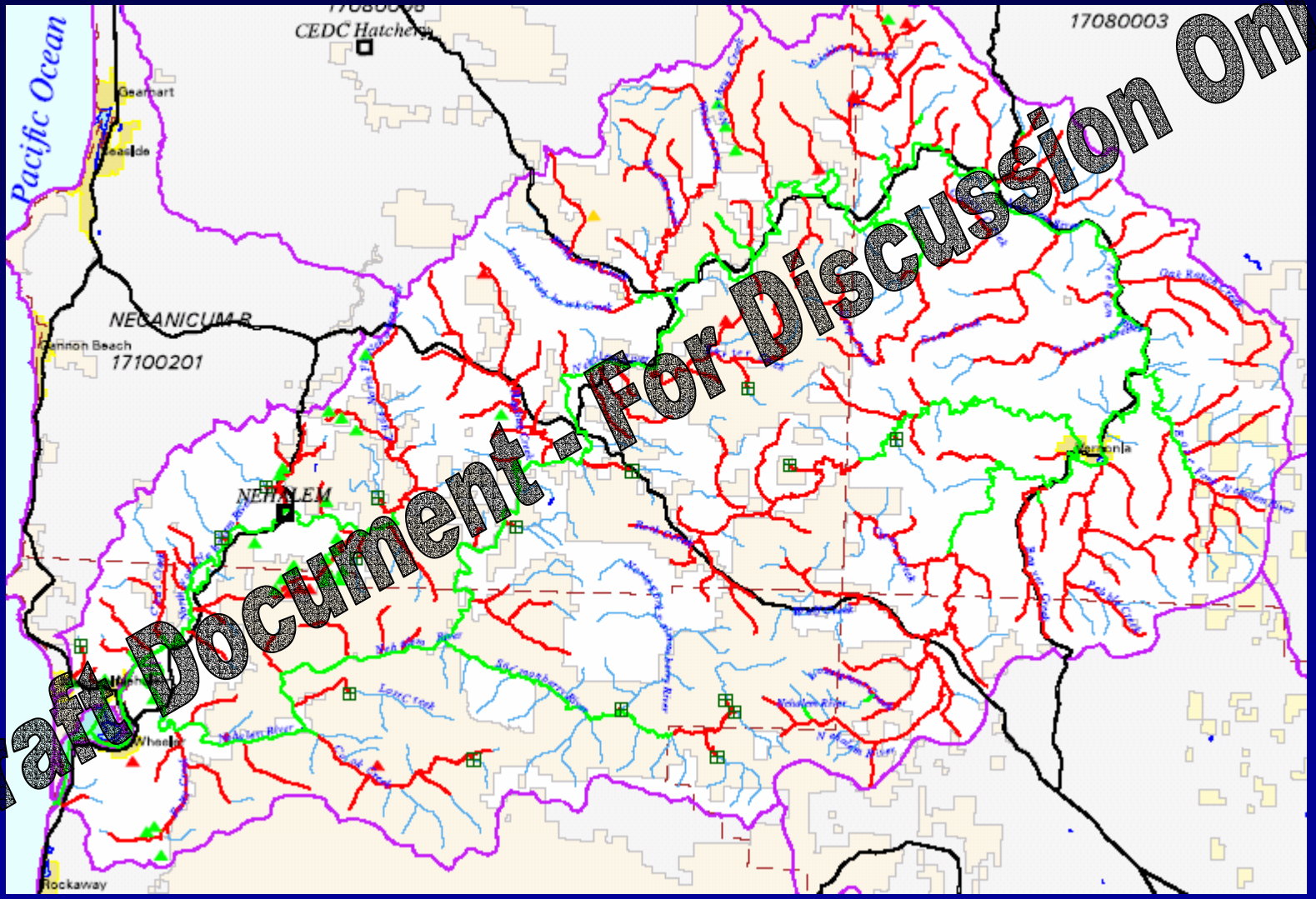
3. Population Diversity is largely dependent upon viable Population Productivity and Abundance

ESU Biological Viability: Population Diversity, Spatial Structure, and Connectivity

Indicator: Coho Population Distribution

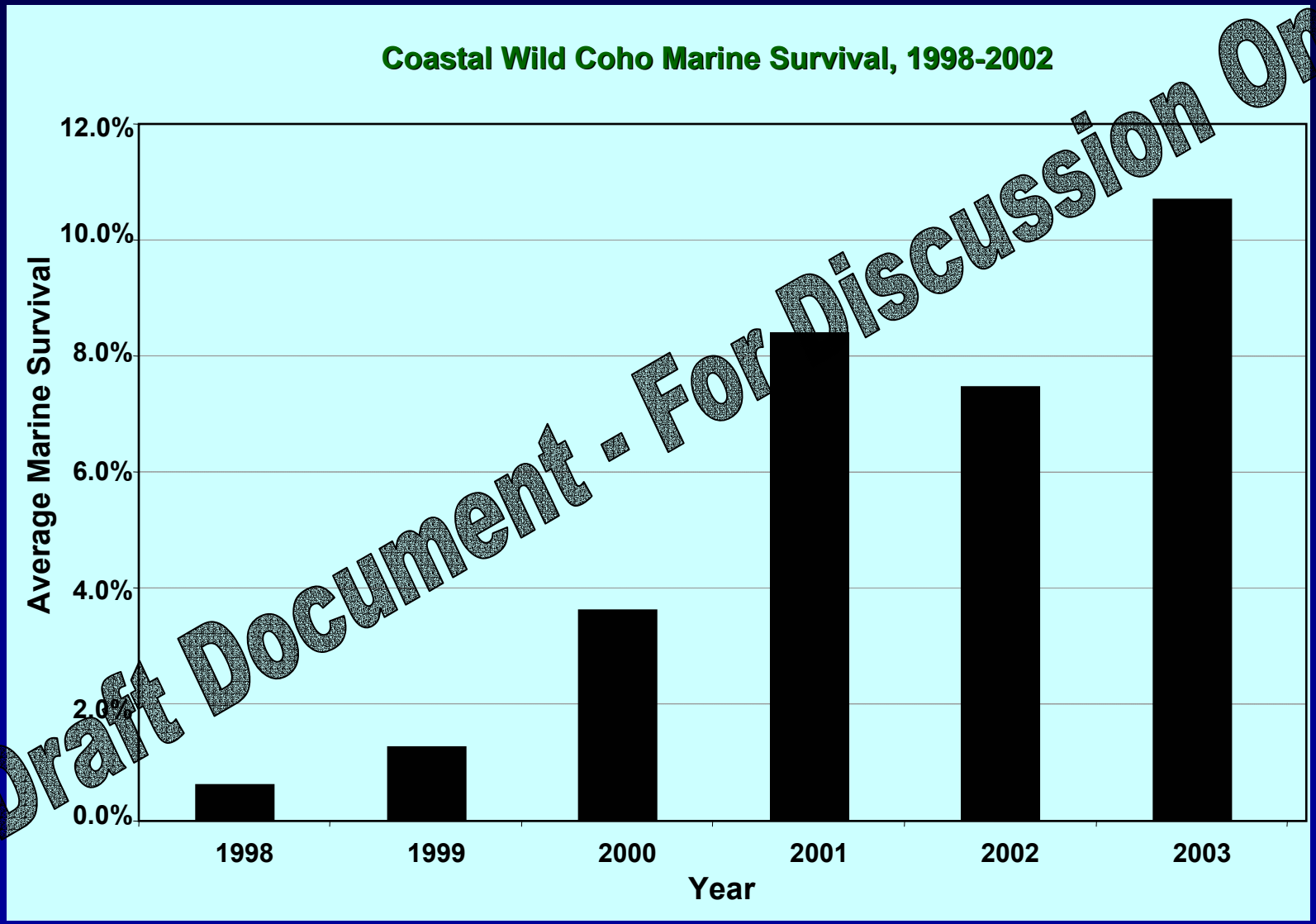
Distribution Criteria: Each functionally independent and potentially independent population must meet or exceed the watershed-scale diversity index in four of the last six years and never fail in 3 consecutive years.

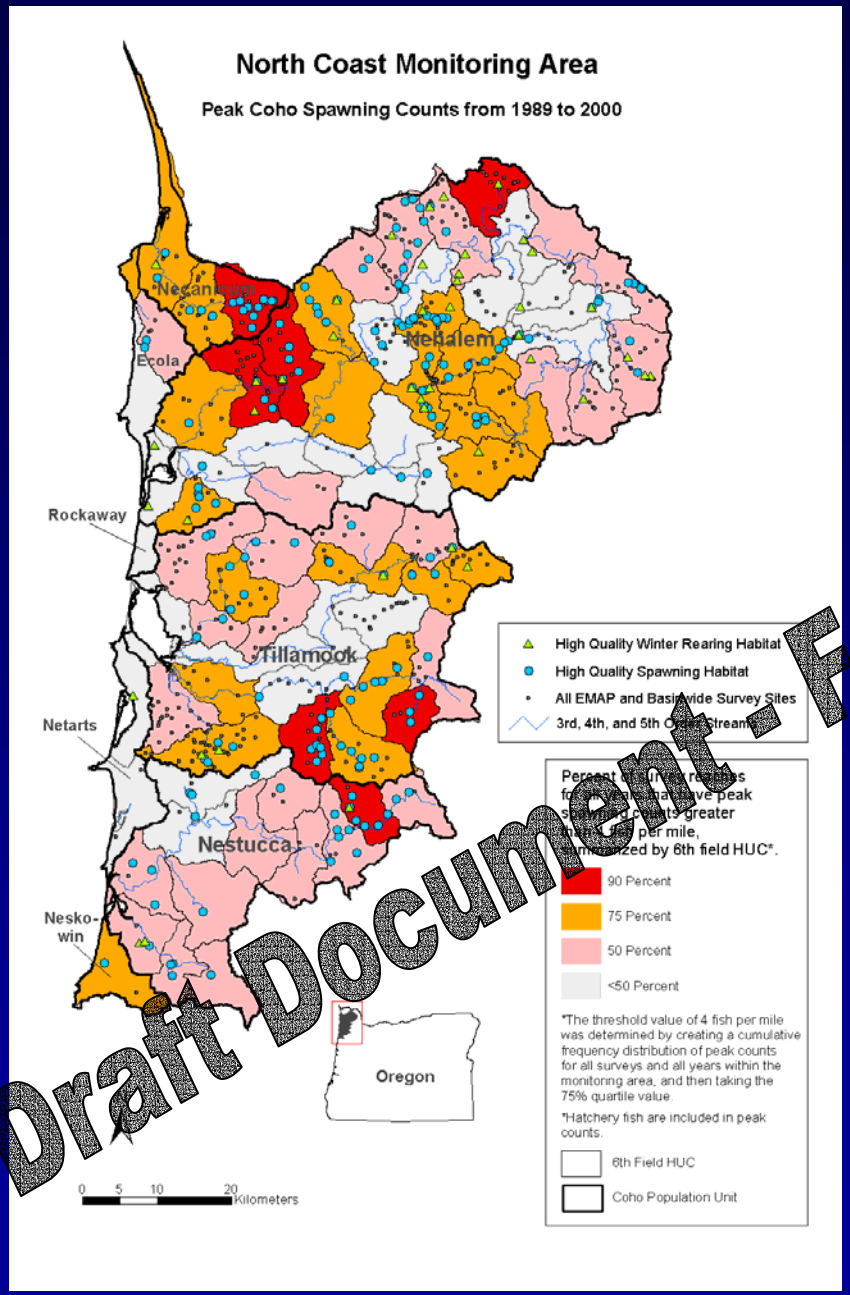
Nehalem River Coho Distribution



Native Coho Marine Survival

ODFW "Life-cycle" Monitoring Watersheds





Low Run Years Areas with 4+ Coho Spawners/Mile

Peak Counts 1989 - 2000

Andrew Talabere and Kim Jones. 2001. Identifying Candidate Watersheds for Coho Anchor Habitats. Progress Report. ODFW, Corvallis.

Watershed-Scale Diversity Index

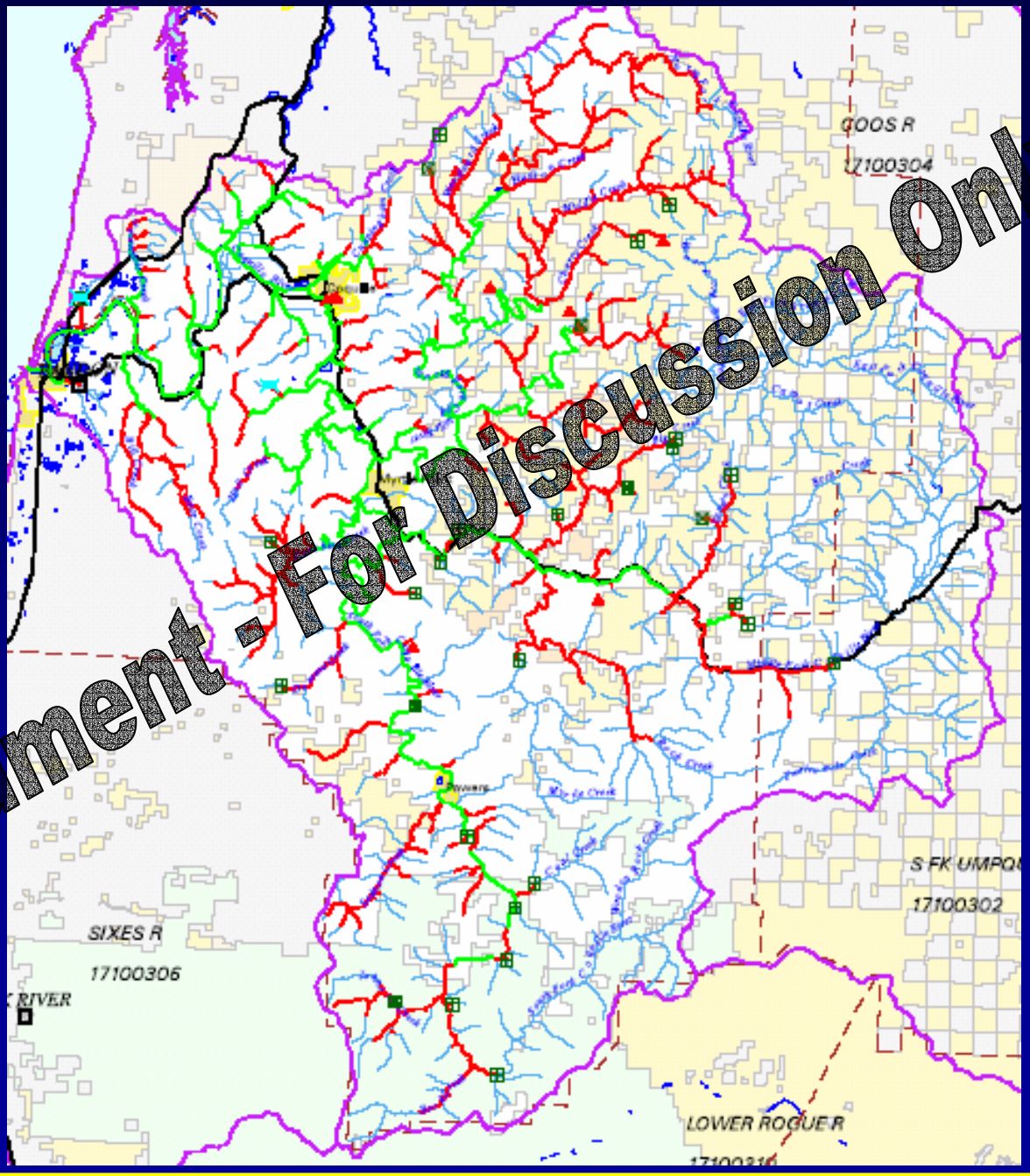
At least 50 percent of the sample reaches within at least 50% of watersheds with spawning habitat support 4 or more spawners/mile.

(Watersheds defined by 5th Field USGS Hydrologic Unit Code – spawners/mile from ODWF AUC or equivalent)

Indicator Development

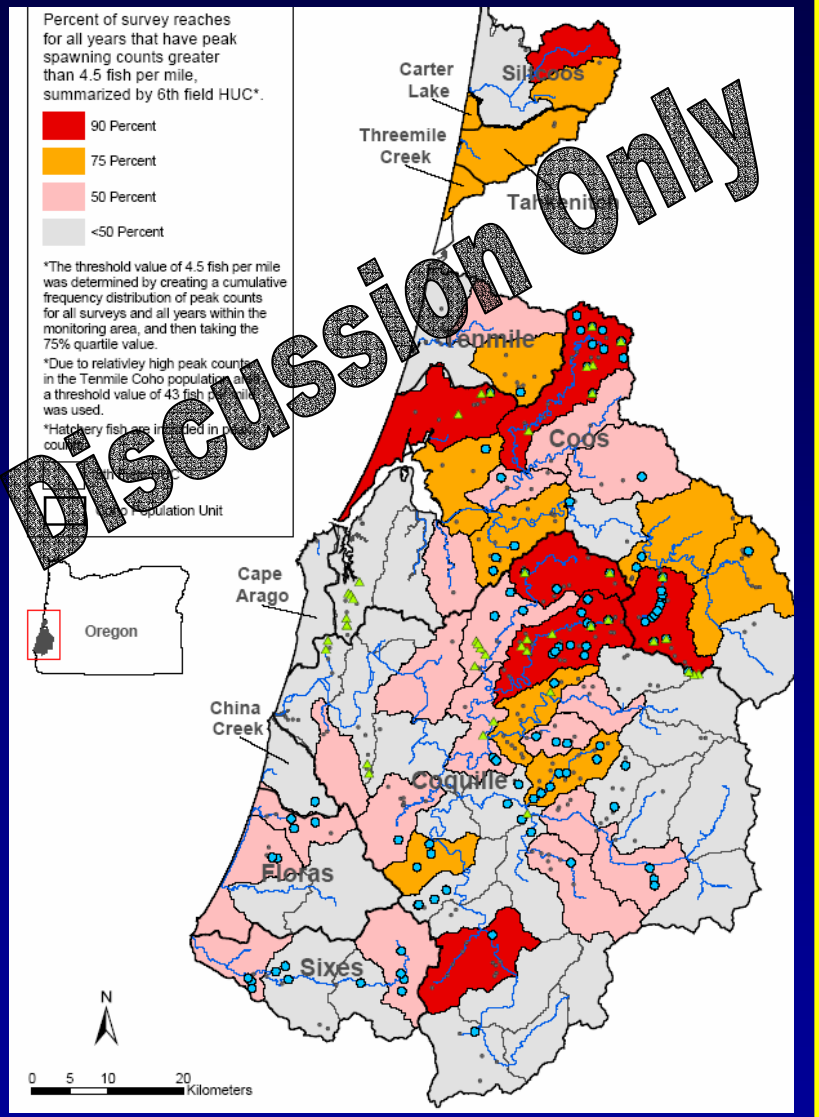
- Analysis of coho distribution during the 1989-2000 low abundance cycle established that a threshold level of 4 fish/mile in 50% of watersheds did not represents a low risk to the population.
- Uncertainty regarding the abundance of hatchery-reared spawners within specific watersheds was considered in indicator development.
- The Watershed Scale Diversity Index provides a sensitive indicator of annual spawner distribution, however adjustments to the sampling design are needed to focus more directly on the spatial distribution within populations.
- Distribution Indicators and Viability Criteria will be adjusted to be consistent with coho Abundance and Productivity Criteria.

Coquille Coho Population Distribution



Spatial Distribution & Diversity

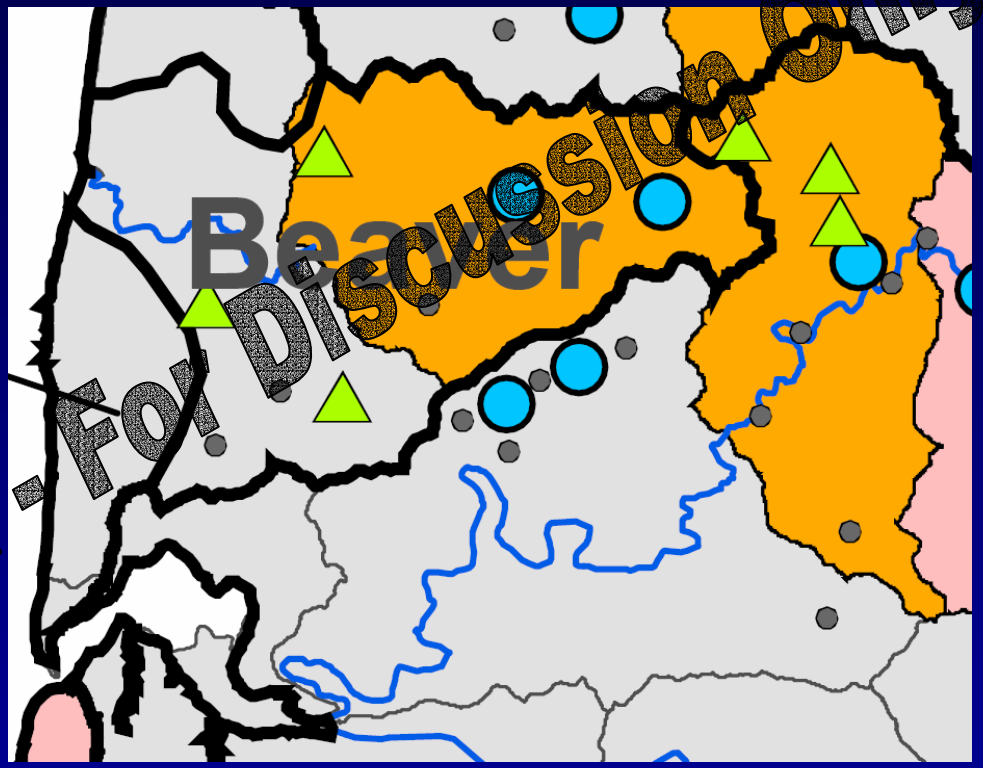
1. Viable Coho Populations are distributed across most available habitat.
2. Results from coho spawner monitoring are good indicators of Population Diversity - Distribution, Spatial Structure, & Connectivity.
3. Spatial distribution and abundance data is being used to help assess coho life history diversity, habitat productivity, and to evaluate genetic diversity.



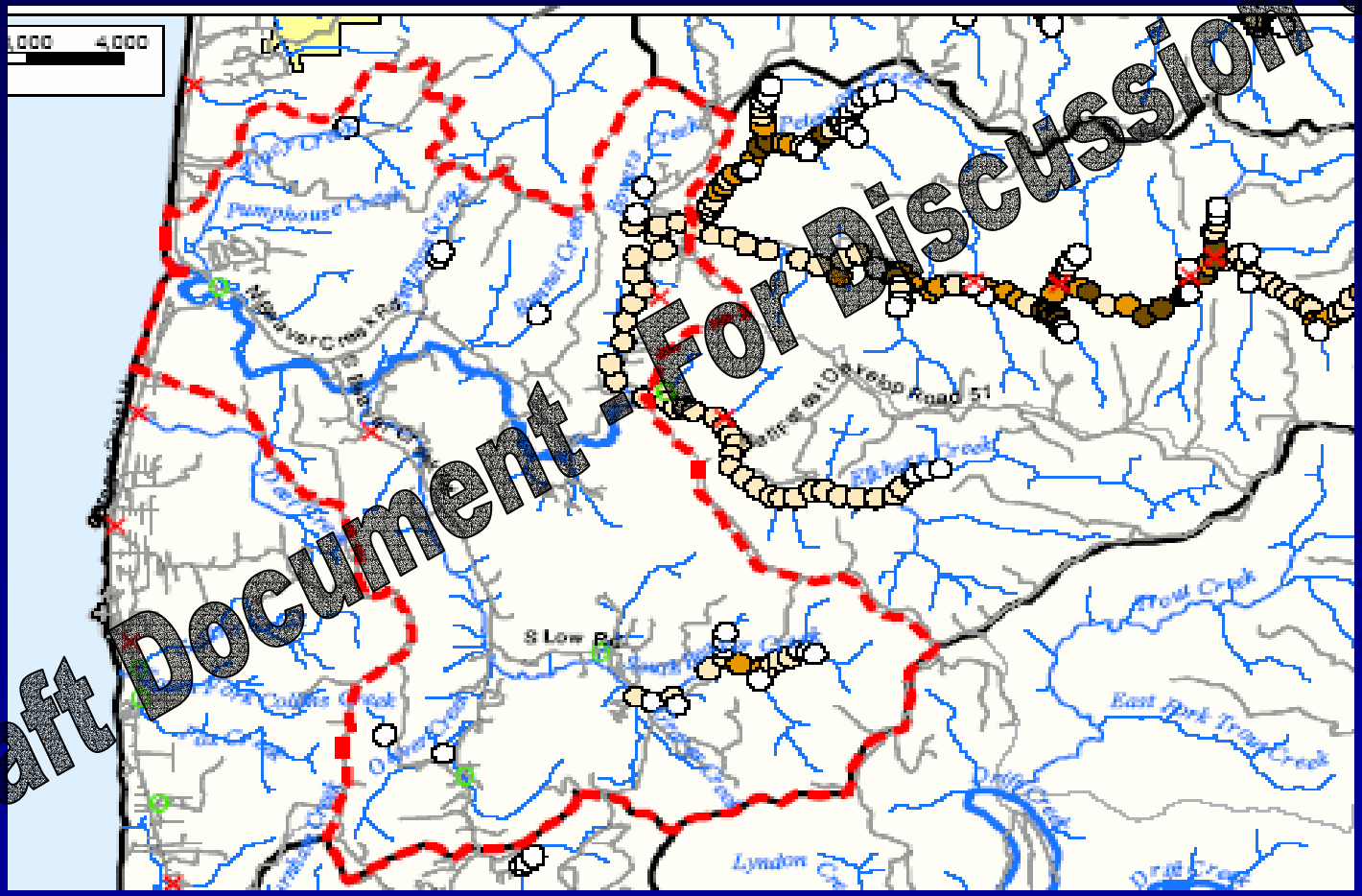
Beaver Creek Coho Populations 1989 -2000

Upper 6th Field HUC
> 4 spawners/mile
75% sample period

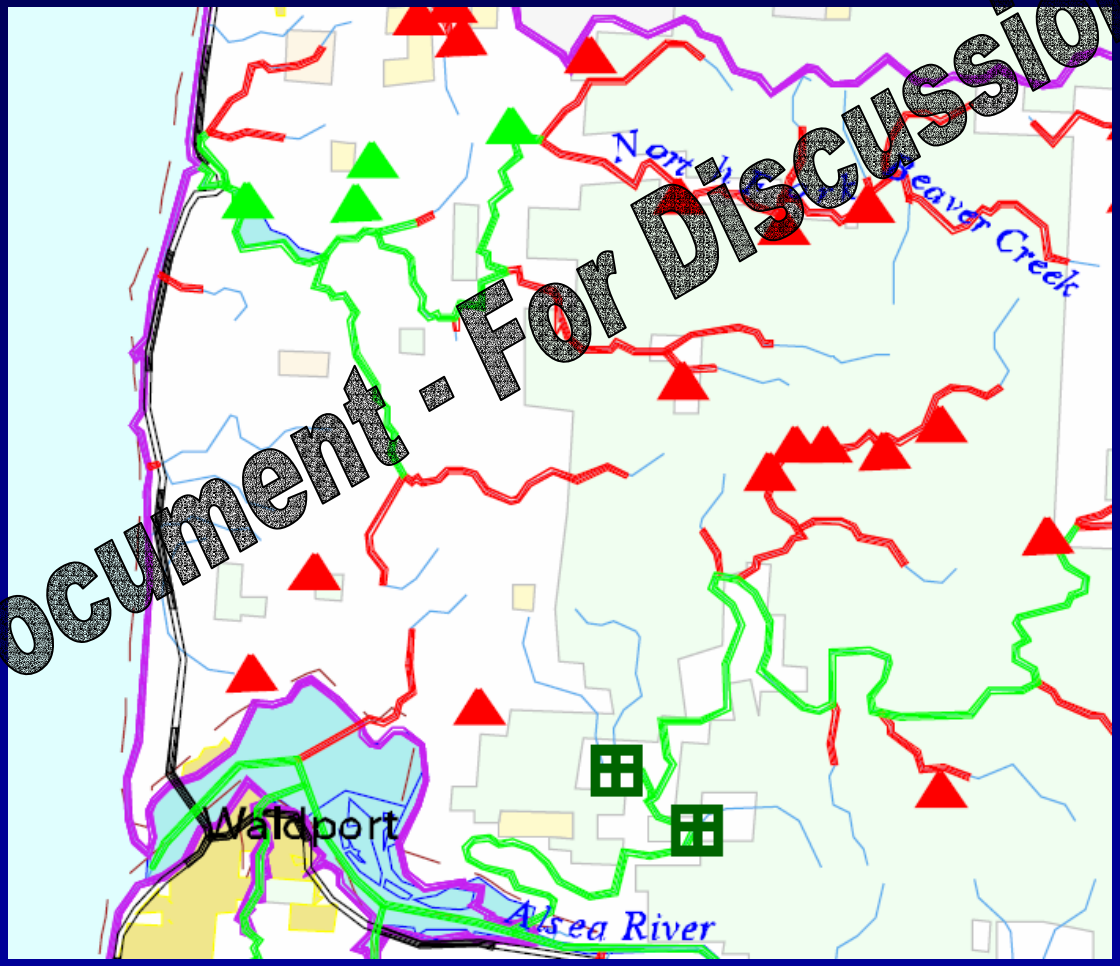
Lower 6th Field HUC
< 4 spawners/mile
>50% of sample period



Mid-Coast Watershed Council: North Fork Beaver Creek Watershed Assessment



ODFW – Oregon Plan 1:24K Fish Distribution Project



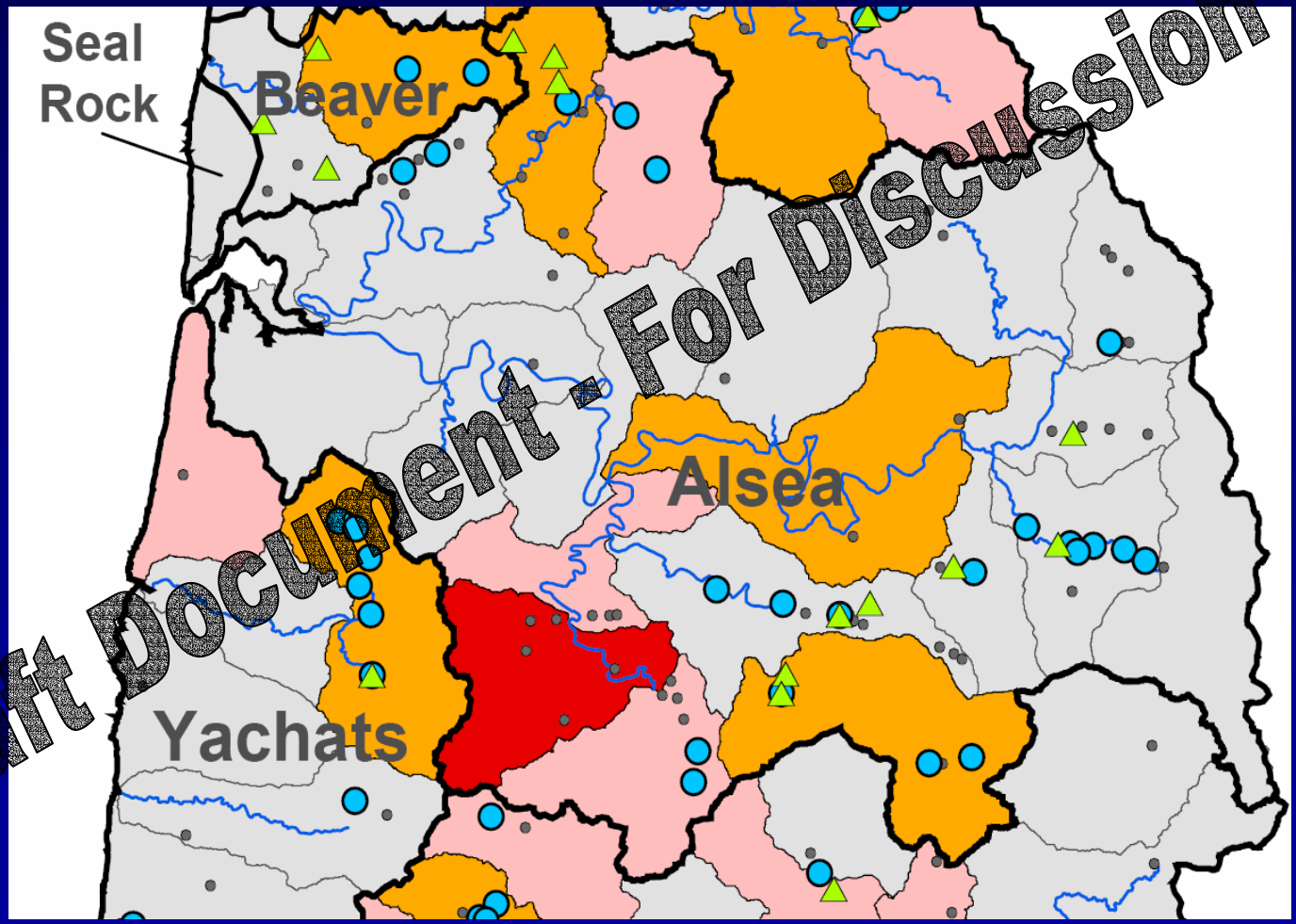
Spawner Distribution Criteria 1989-2000

Strata	Population		Watersheds Meeting Distribution Criteria	Pass/Fail
North Coast	Necanicum		100%	Pass
	Nehalem		73%	Pass
	Tillamook Bay		83%	Pass
	Nestucca		85%	Pass
Mid Coast	Salmon		0%	FAIL
	Siletz		67%	Pass
	Yaquina		80%	Pass
	Beaver		50%	Pass
	Alsea		50%	Pass *
	Siuslaw		65%	Pass
Umpqua	Lower Umpqua		56%	Pass
	Upper Umpqua		47%	Pass **
Mid South Coast	Coos		73%	Pass
	Coquille		60%	Pass
	Floras		50%	Pass
	Sixes		60%	Pass
Lakes	Siltcoos, Tenmile, Tahkenitch		100%	Pass

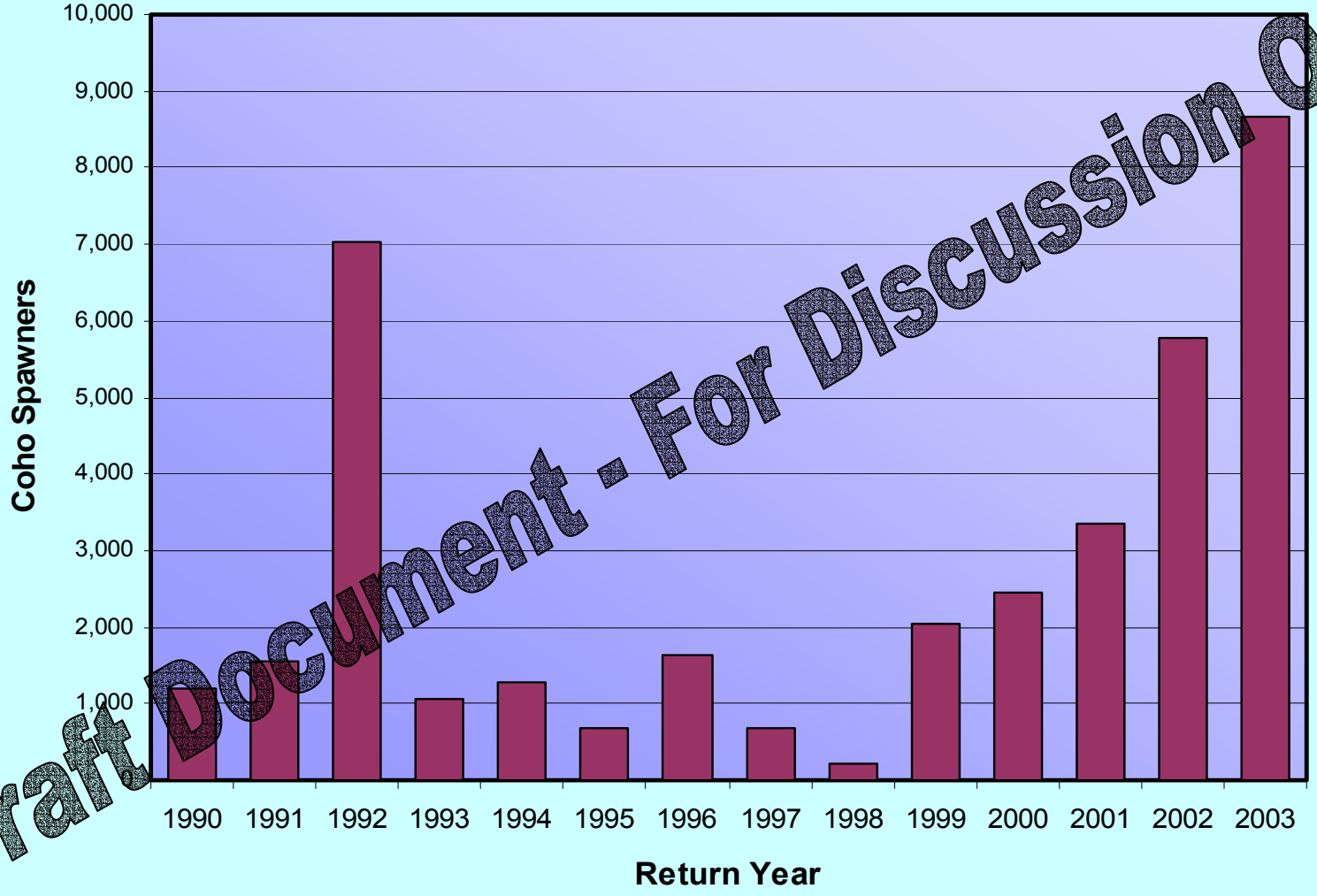
Alsea Basin – Passes

Strong Response to Improved Ocean Survival

Reduced Risk due to ODFW's Oregon Plan Hatchery Measures



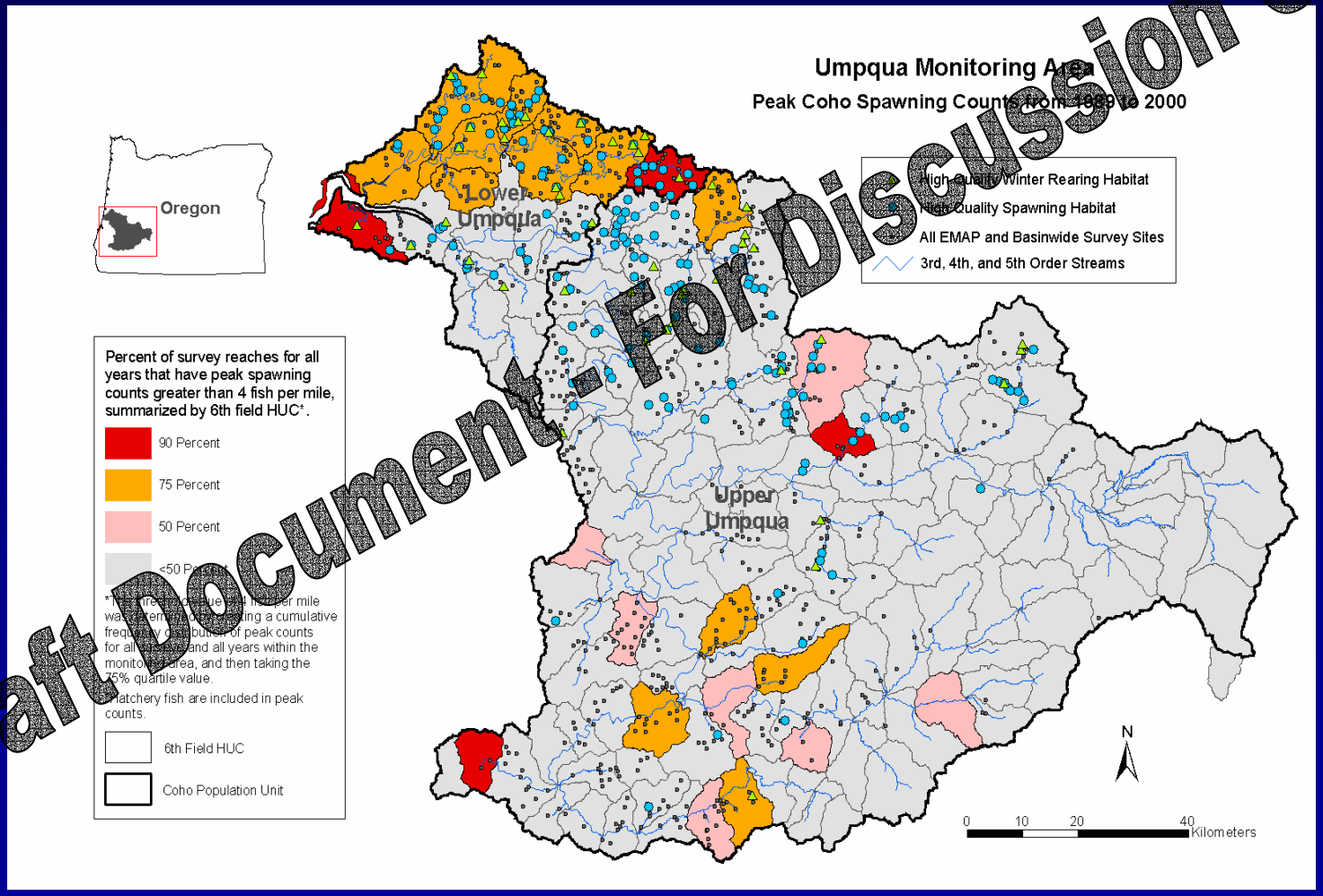
Alsea Basin Coho Abundance



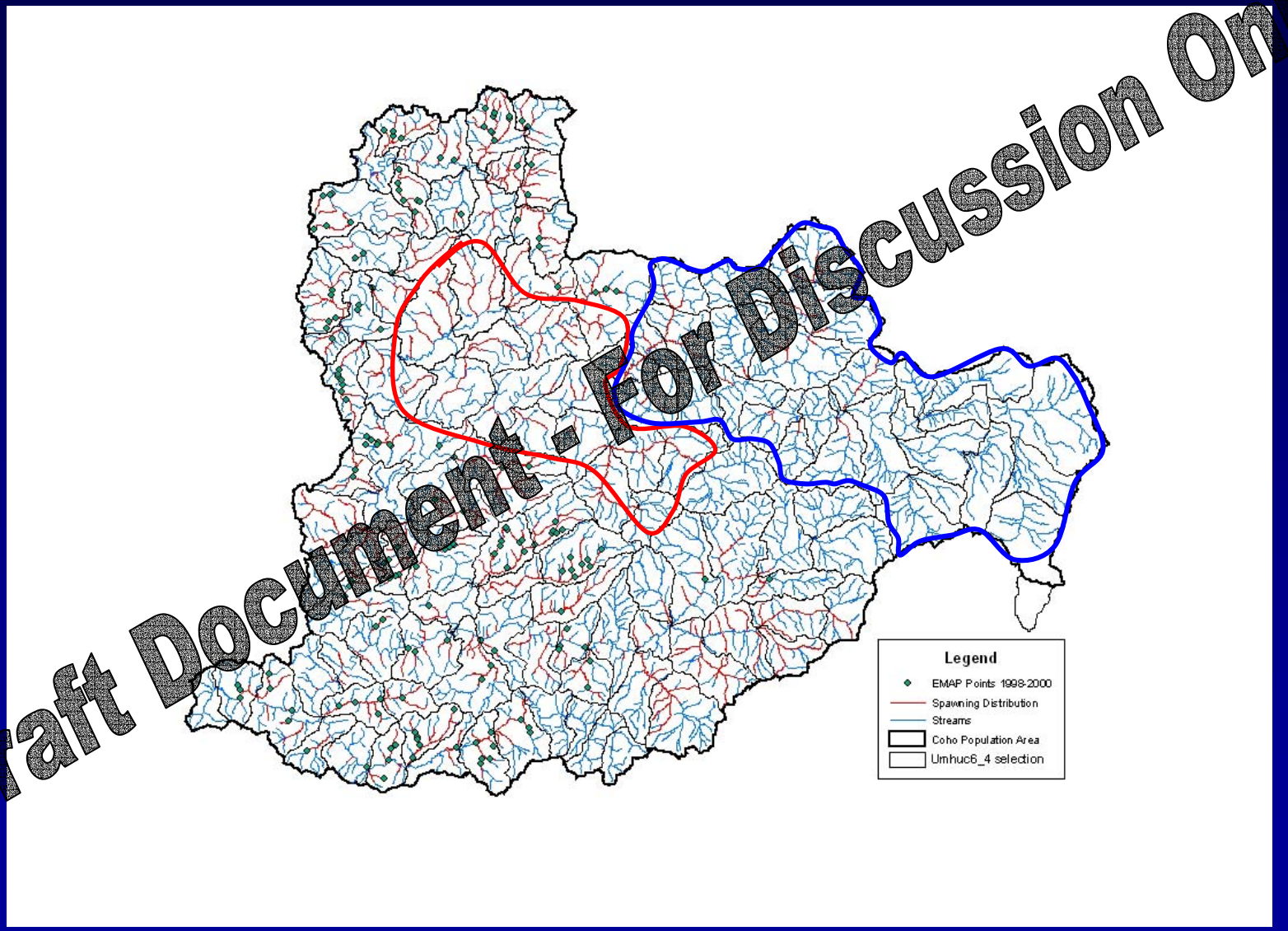
Upper Umpqua – Passes

Distribution Influenced by Climate & Geomorphic Conditions

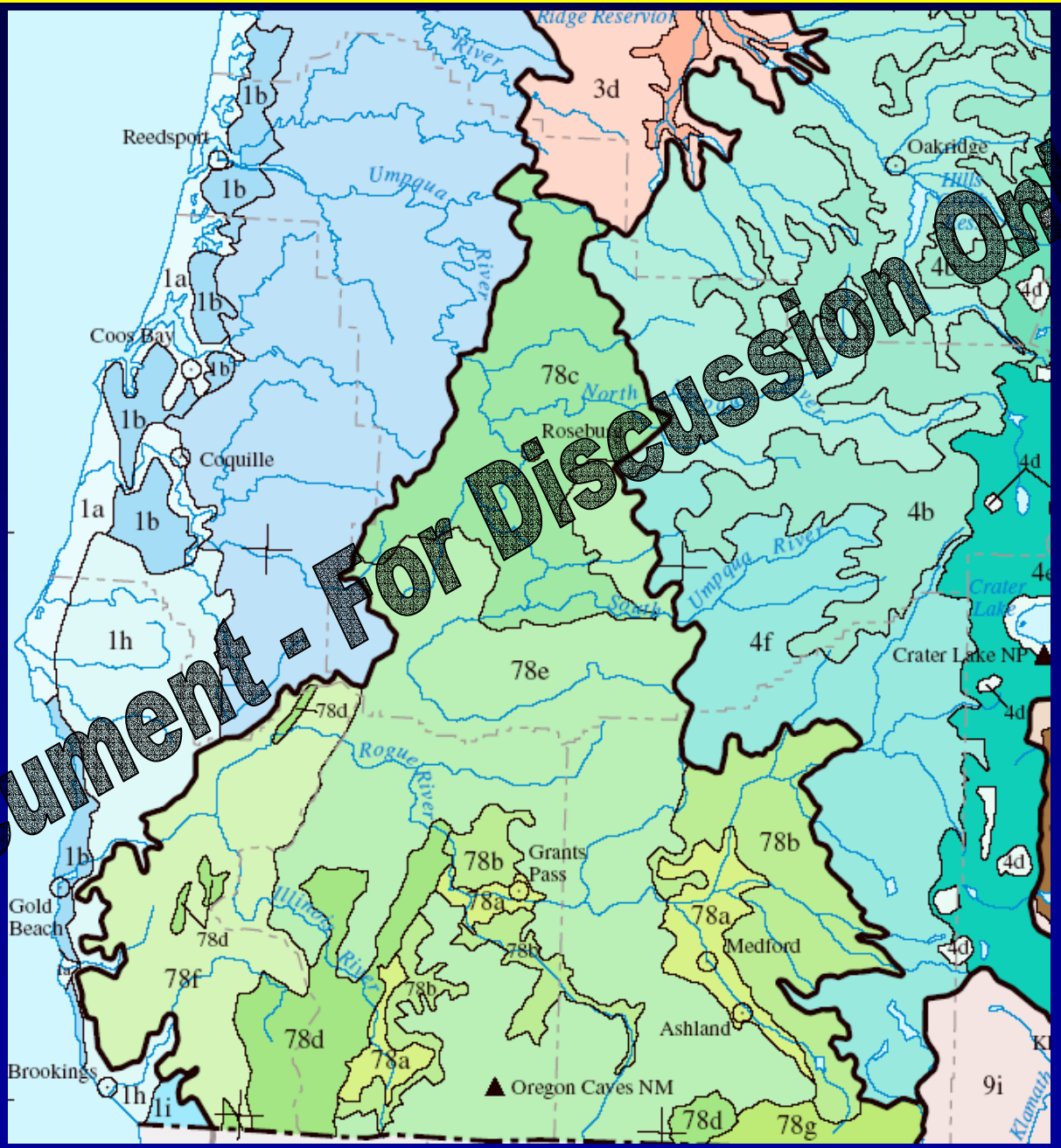
Population Structure Under Review



Upper Umpqua Coho Distribution
Coho Monitoring Sites 1998-2000



Southwest Oregon Ecoregions



Conclusions

1. Populations that met this distribution threshold demonstrate a high capacity to reestablish threshold levels in previously unoccupied sample reaches and watersheds during periods of improved ocean conditions.

2. Watersheds that do not meet Distribution Criteria should be evaluated for their potential response to focused recovery efforts.

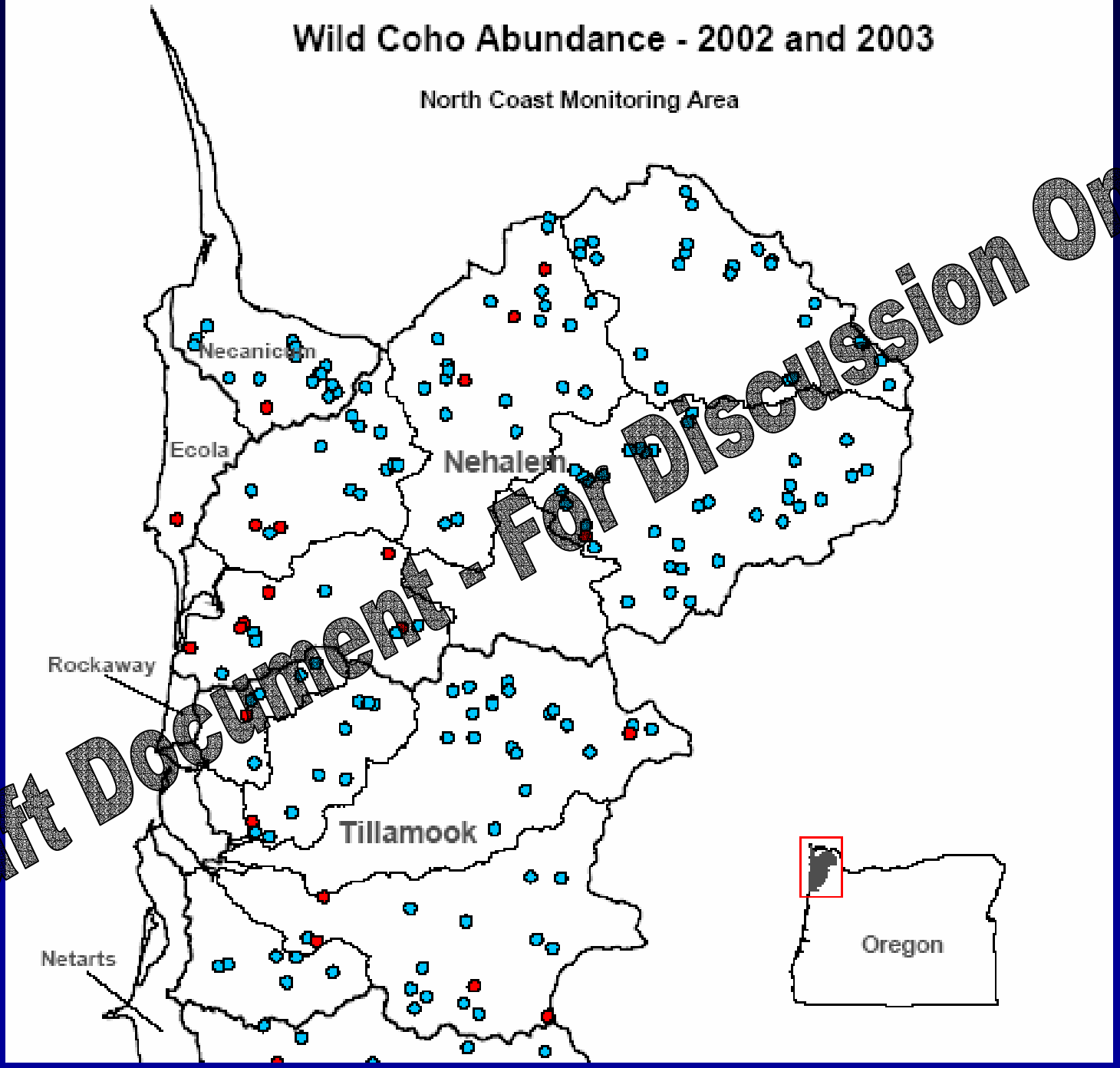
3. Overall, Oregon Coast Coho Populations meet the proposed Distribution Criteria.

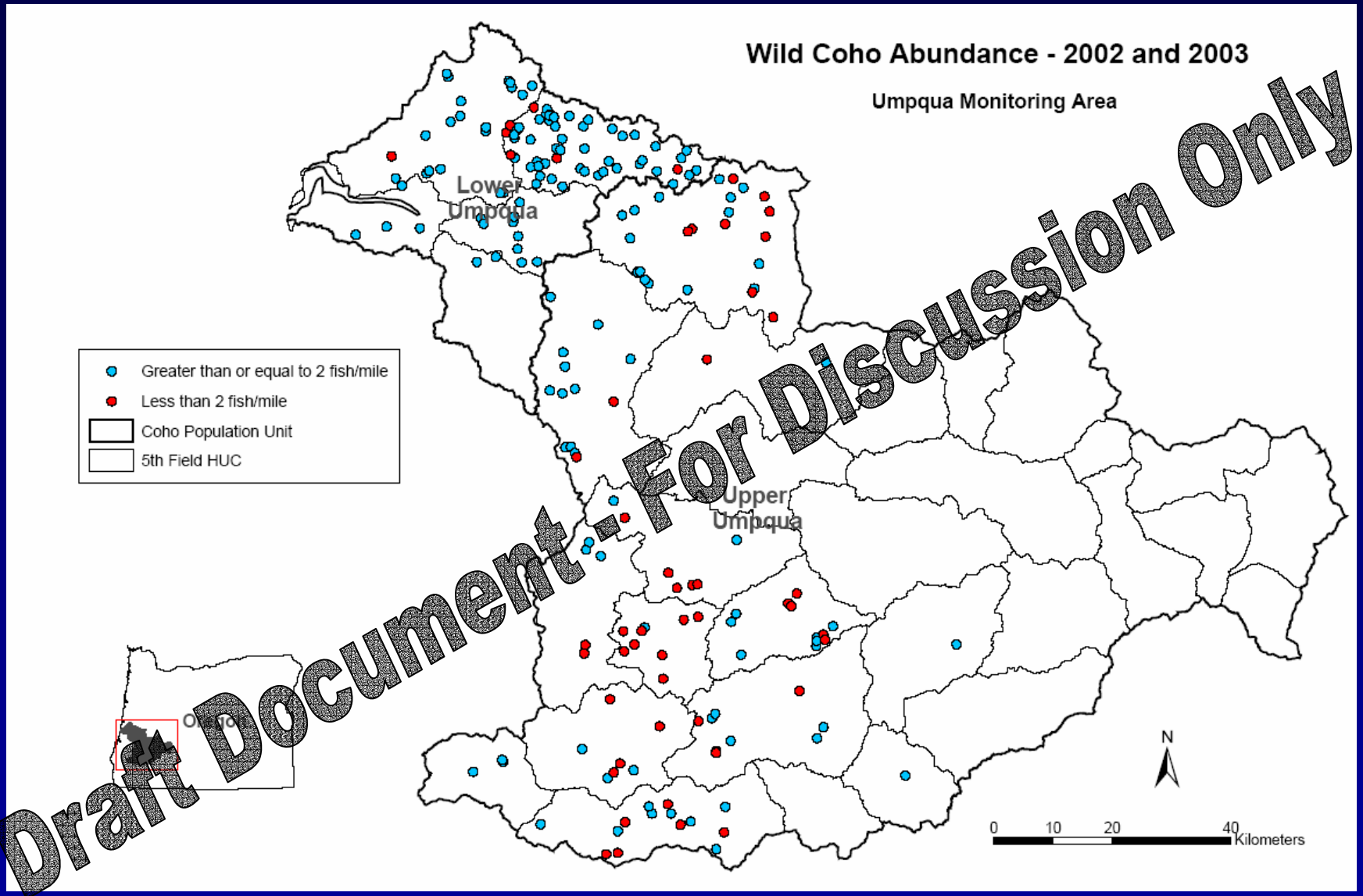
Resilient Coho Populations

(N = Number of stream reaches w/ EMAP surveys ~ 470/year)

Reach Indicator	1999	2002
<5 Spawners/Mile	80%	15%
Zero Spawners	50%	10%
Absence to Presence	No Spawners Observed (~235 reaches)	69% w/ Spawner Observations

Oregon Coho ESU Abundance	1989 -2000 ~40,000	2001 -2003 ~214,000

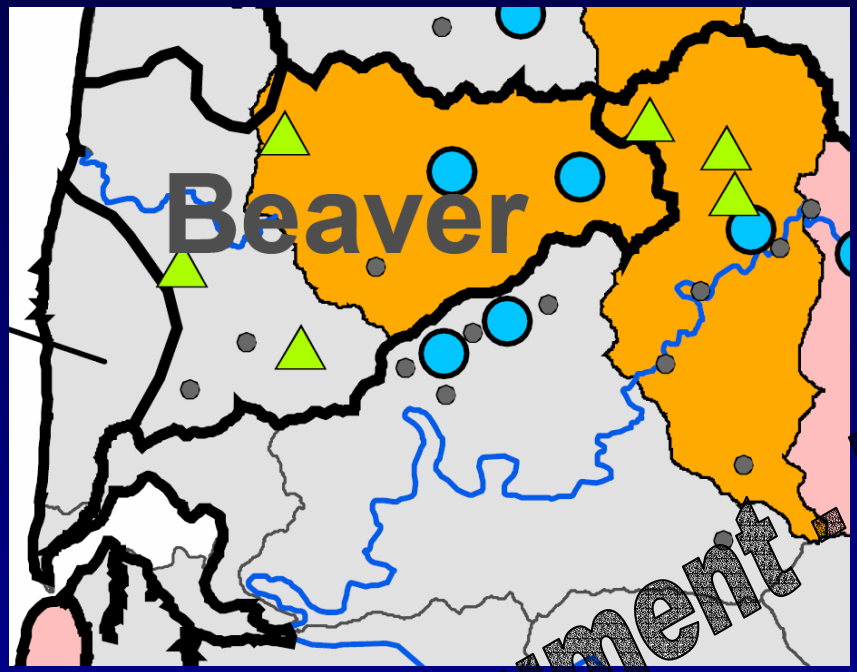

Wild Coho Abundance - 2002 and 2003
North Coast Monitoring Area
Necanicum
Ecola
Nehalem
Rockaway
Tillamook
Netarts
Oregon
Draft Document - For Discussion Only

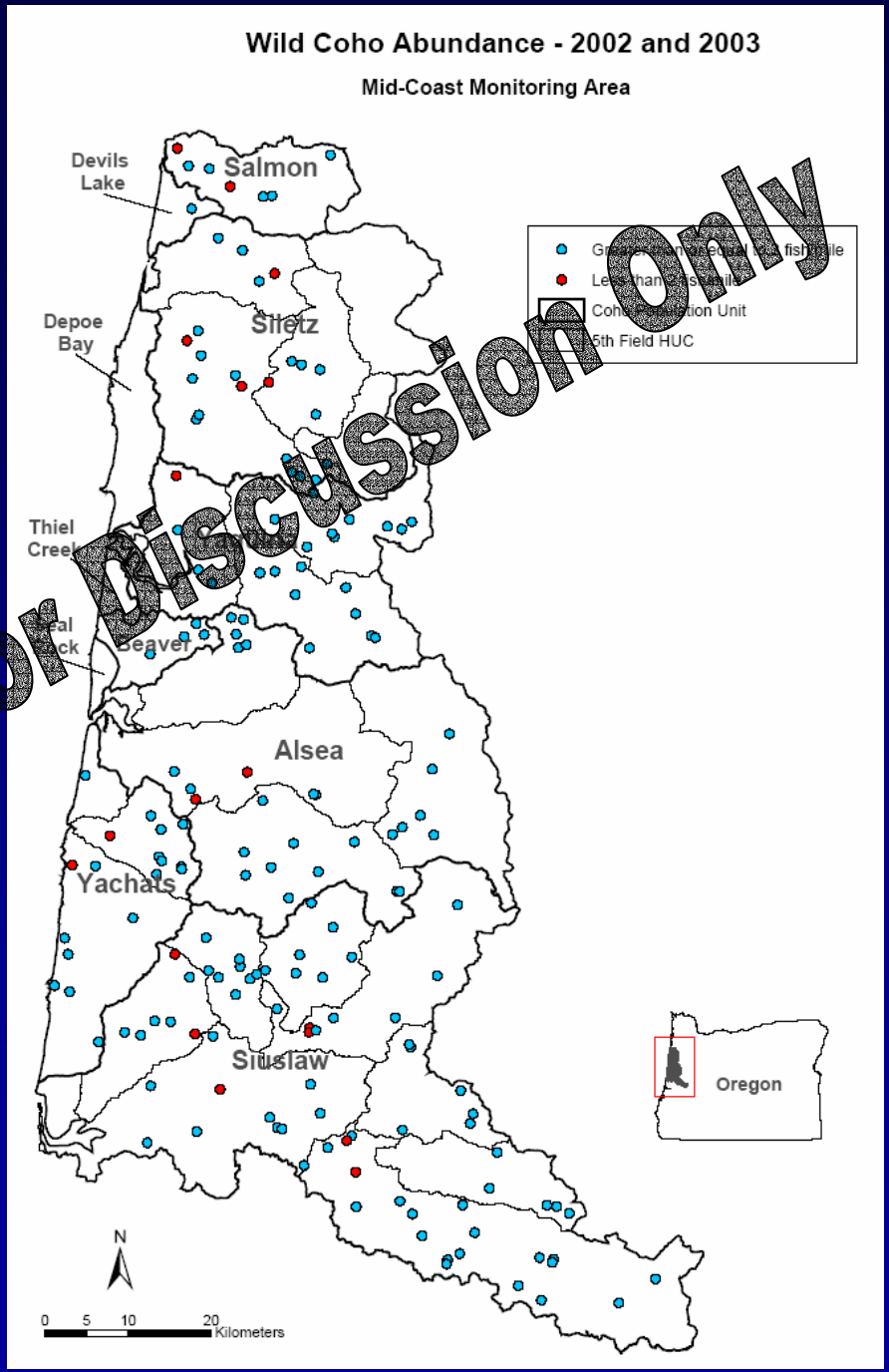

Wild Coho Abundance - 2002 and 2003
Umpqua Monitoring Area
Lower Umpqua
Upper Umpqua
Greater than or equal to 2 fish/mile
Less than 2 fish/mile
Coho Population Unit
5th Field HUC
N
0 10 20 40
Kilometers
Draft Document - For Discussion Only

Spawner Distribution Criteria 1989-2000

Strata	Population		Watersheds Meeting Distribution Criteria	Pass/Fail
North Coast	Necanicum		100%	Pass
	Nehalem		73%	Pass
	Tillamook Bay		83%	Pass
	Nestucca		85%	Pass
Mid Coast	Salmon		0%	FAIL
	Siletz		67%	Pass
	Yaquina		80%	Pass
	Beaver		50%	Pass
	Alsea		50%	Pass *
	Siuslaw		65%	Pass
Umpqua	Lower Umpqua		56%	Pass
	Upper Umpqua		47%	Pass **
Mid South Coast	Coos		73%	Pass
	Coquille		60%	Pass
	Floras		50%	Pass
	Sixes		60%	Pass
Lakes	Siltcoos, Tenmile, Tahkenitch		100%	Pass

End





- Calibrate Oregon Plan Indicator to TRT Viability Criteria
- Plan for Ongoing Monitoring of Distribution Indicators
- Develop Metrics for Spatial Structure
- Consider Splitting Upper Umpqua into 2-3 Populations (at least 2 Independent)