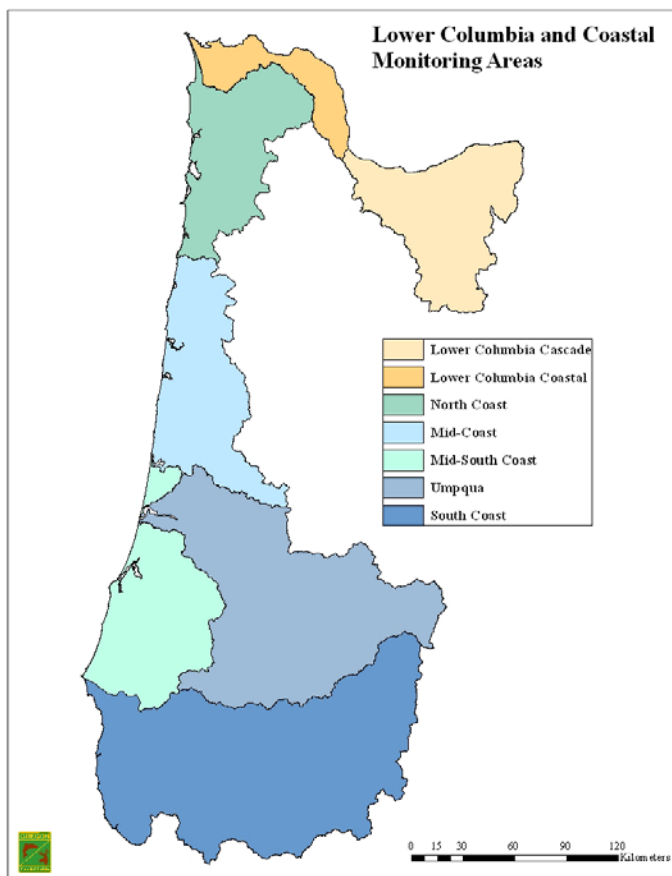




Oregon Plan Summer and Winter Habitat Assessments

Monitoring Area Assessment

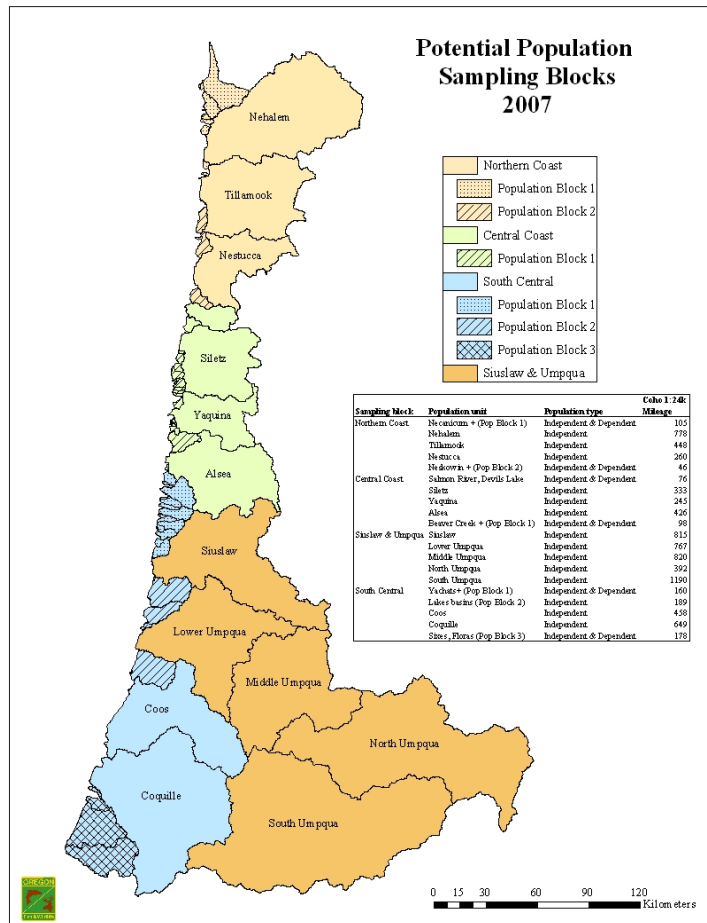
Stream surveys are designed to describe status and trends in habitat conditions in seven monitoring areas in coastal and lower Columbia River basins. The sample sites in coastal basins are distributed throughout all streams that have a basin size larger than 0.6km²; in the monitoring areas in the lower Columbia River, the sample sites are placed within the spatial distribution of coho salmon and steelhead. The sites are randomly selected and spatially balanced across all sampling frames.



Samples are selected independently between monitoring areas from a 1:24,000 stream map and will incorporate a rotating panel design structure enabling site visitations on an annual and cyclical basis. For more information about the rotating panel design and sampling structure, please visit the EPA Aquatic Resource Monitoring website (<http://www.epa.gov/nheerl/arm/>). Fifty habitat sites are visited in five coastal monitoring areas (North Coast, Mid-Coast, Mid-South, Umpqua, and South Coast) and two Lower Columbia strata (coastal and cascade). Fifty sites are visited in each of the coastal monitoring areas and in each of the two Lower Columbia strata. Approximately 25% of the sites are visited annually, 25% visited every 3 years, 25% every 9 years, and 25% visited one time only to balance our ability to measure trends and describe conditions across each geographic area. Surveys are conducted from mid-June through late September.

Population Area Assessment

The goal of population level assessment is to determine the quality of habitat within the spawning and rearing distribution of each coho salmon population in the Oregon Coast ESU. Coastal coho salmon populations are subdivided into independent and dependent populations based on population dynamics, genetic information, geographic distribution, species life history, and morphological traits (Wainright et al. 2006). In general the large basins contain one or more independent populations, and the very small coastal basins depend on periodic influx of adult fish from adjacent larger basins.



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The objective of the survey design is to determine the status of selected habitat variables within a 30% precision, to permit trend detection over 5 year increments. We will determine the status and trend in habitat conditions for each of 21 independent populations and in aggregate for dependent populations within each of 4 monitoring areas.

We will sample each of the independent populations once during every 5 year period. Sampling order will be randomly determined for each 5 year period starting in winter 2007-2008. Dependent populations will be treated similarly, but will be grouped together spatially and sampled in aggregate. Some of the small independent population units will have the adjacent dependent populations as part of their sample frame. Table 1 displays the 20 population sample frames, referred to as population blocks.

A sampling frame was developed from the rearing and spawning distribution at the 1:24,000 scale for each independent and dependent population unit. A total of 25 sites will be selected in each sampling frame. Selected sites are visited during winter base flows (December – mid-March) and revisited during summer low flow period (mid-June - September). The site selection and timing will maximize overlap with spawning and juvenile rearing surveys and allow us to describe summer and winter juvenile rearing conditions, and spawning habitat. We will sample 40% of the sites during every 5-year period, and 60% only once to maximize trend detection and status.

Additional sites will be sampled within the population units annually because some of the sites sampled at the monitoring scale overlap with the distribution of coho salmon. The number in each

population unit will vary in proportion to its size. Larger units will contain more sites from the monitoring area surveys.

Five year analyses will aggregate the total number of sites sampled within each of 21 populations and 4 groups of dependent populations. Sample size in each population block will be adjusted for the second 5-year period based on sensitivity analysis of the habitat variables.

Table 1. Population units within each sampling block. A “+” indicates addition of adjacent dependent populations to small independent population.

Sampling block	Population block	Type
Northern Coast	Necanicum +	Independent & Dependent
	Nehalem	Independent
	Tillamook	Independent
	Nestucca	Independent
	Neskowin +	Independent & Dependent
Central Coast	Salmon River, Devils Lake	Independent & Dependent
	Siletz	Independent
	Yaquina	Independent
	Alsea	Independent
	Beaver Creek +	Independent & Dependent
Siuslaw & Umpqua	Siuslaw	Independent
	Lower Umpqua	Independent
	Main Umpqua	Independent
	North Umpqua	Independent
	South Umpqua	Independent
South Central	Yachats +	Dependent
	Lakes basins	Independent
	Coos	Independent
	Coquille	Independent
	Sixes, Floras	Independent & Dependent