

Potential Reference Sites in the PSSB
June 7, 2012 by Jo Wilhelm, King County

Questions about how many reference sites there were in the Puget Sound Stream Benthos (PSSB) data management system were raised during the May 8th advisory board meeting. I looked at the landcover data generated by Peter Leinenbach of the EPA from 2006 National Landcover Dataset (NLCD) for 1,016 sampling locations¹ within the Puget Sound basin that have both landcover and benthic macroinvertebrate data.

I combined forest, wetland, shrub, and grassland categories into a “natural” landcover category and looked at the percent natural landcover for the contributing watershed for each sampling location. Figure 1 shows a histogram of these values where 189 sampling locations are in basins with at least 95% natural landcover.

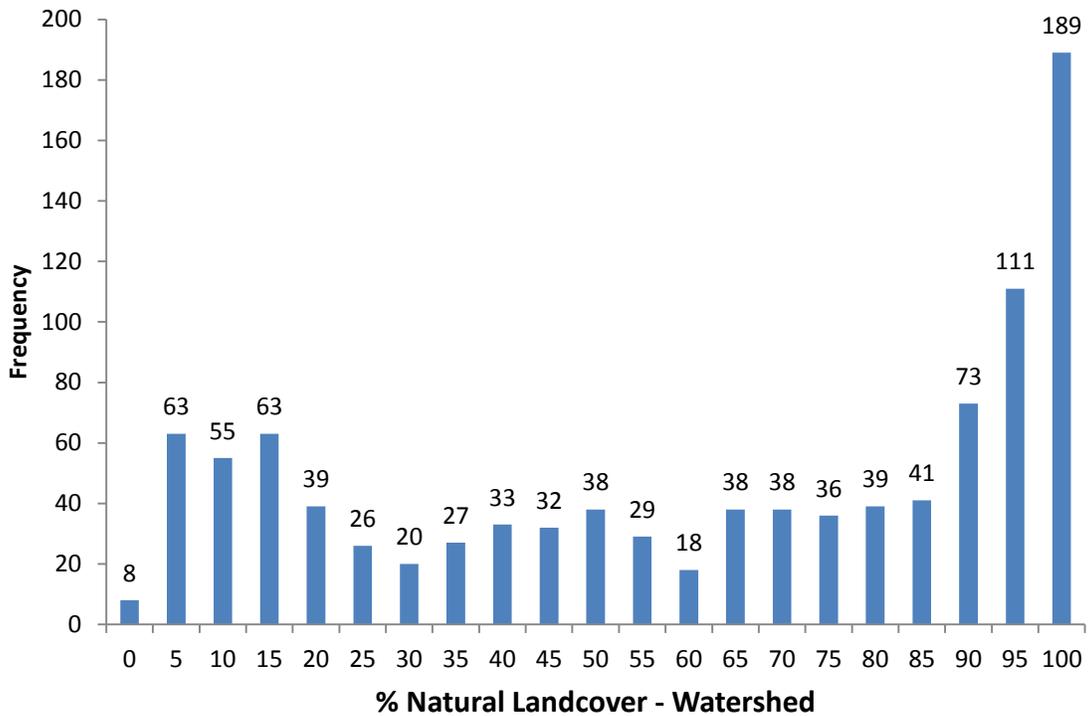


Figure 1. Histogram of percent natural landcover in the contributing watershed. Natural is the combination of forest, wetland, shrub and grassland categories.

Watersheds with greater than 95% natural landcover are found throughout the Puget Sound basin (Figure 2) and benthic macroinvertebrate data for these watersheds are collected by several different agencies (Table 1).

¹ NOAA sites on the Elwha River were omitted. Some ‘river’ locations may still be part of the analysis data set, however jurisdictions sampling these (e.g., Ecology, Snohomish County) are doing so as part of their wadeable protocols.

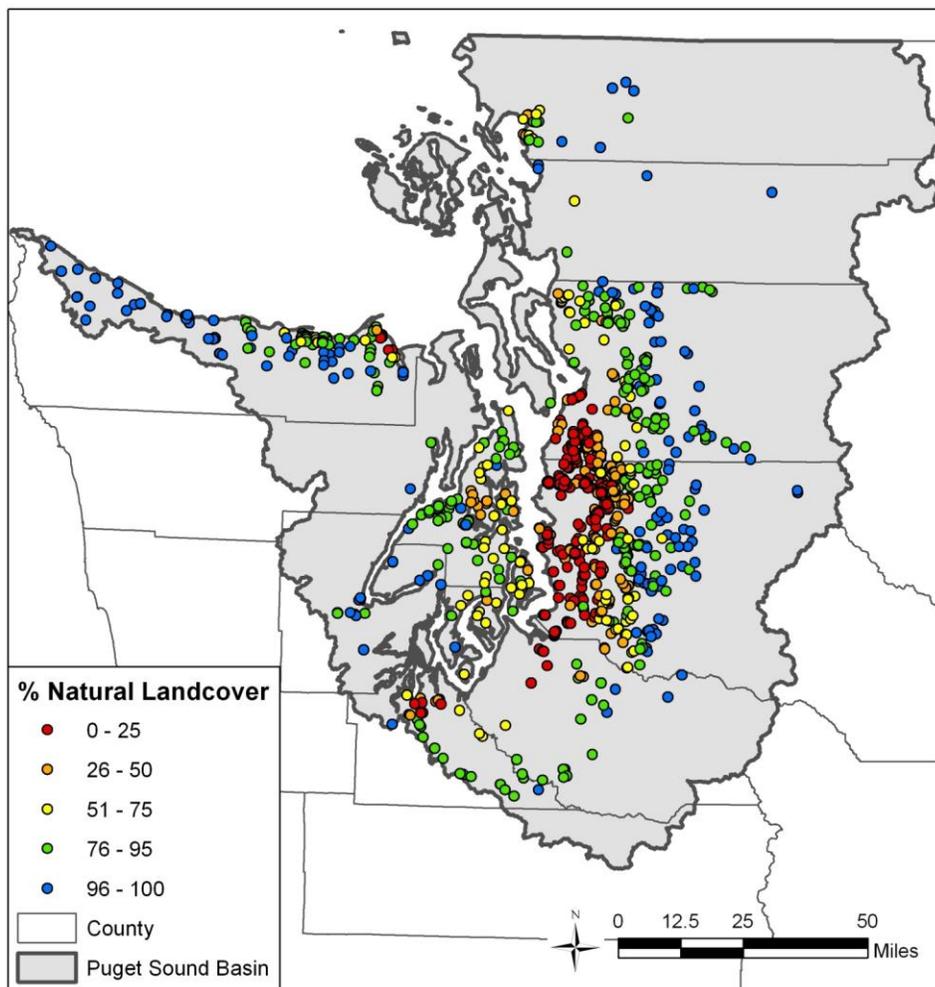


Figure 2. Distribution of benthic macroinvertebrate sampling locations throughout the Puget Sound basin. The color of each point represents the percent natural landcover in the contributing watershed. Natural is the combination of forest, wetland, shrub and grassland categories.

Table 1. Origin of benthic macroinvertebrate data collection for sites with greater than 95% natural landcover in the contributing watershed.

Agency	# sites >95% natural landcover
Adopt-A-Stream	7
Clallam Co.	48
Ecology	44
Issaquah	2
King Co. - DNRP	35
King Co. - Roads	15
Kitsap Co.	4
Pierce Co.	2
Skokomish Tribe	6
Snohomish Co.	25
Thurston Co.	1
Total	189

Another assumption that is often made is that most of the reference sites that we do have are in high elevation areas and that low elevation reference sites are lacking. While a larger proportion of high elevation sites do have greater than 95% natural landcover, there are reference sites across the elevation continuum (Figure 3). Sites in the elevation range of 25-50 m have the most reference sites of any twenty-five meter range with 37. Elevation for all the sites and for just sites with greater than 95% natural land cover ranges from a minimum of 1.7 m to 1,015.0 m. The mean elevation of all the sites is 79.8 m; the mean elevation of the sites with natural landcover greater than 95% is 164 m.

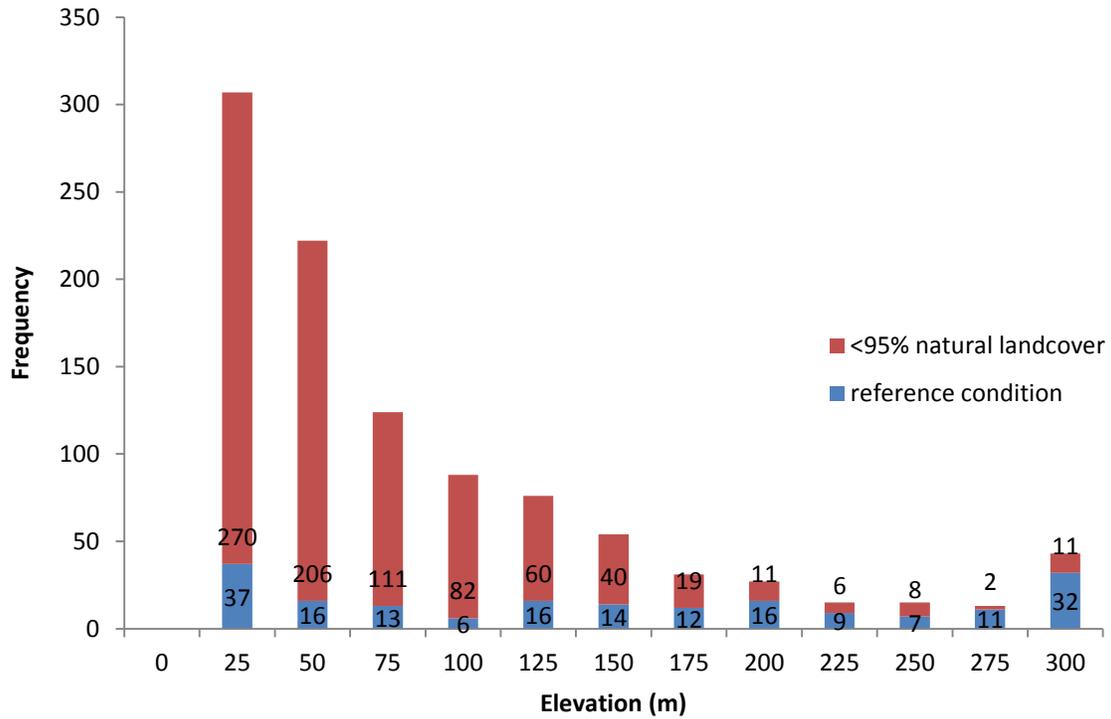


Figure 3. Distribution of sites with >95% natural landcover (reference condition, blue) and all other sites (red) across an elevation continuum.