

Benthic macroinvertebrates are monitored and used as an indicator of the biological health of streams and nearshore Salmon habitats. This dataset created by the Puget Sound Stream Benthos Partnership specifically uses the Puget Sound Lowlands [Benthic Index of Biotic Integrity](#) (B-IBI). This is a composite index of 10 metrics. Each individual metric is given a score of 1 through 5, with higher numbers given to conditions representative of streams unaltered by anthropogenic influence.

Pandas was used to generate an average B-IBI score over the last ten years per site. This average is included in addition to year-by-year scores at each site.

This chart breaks down the final B-IBI score.

## B-IBI Biological Condition Categories

Modified from Karr et al. (1986) by Morley (2000).

Biological Condition	Description	10-50 B-IBI	0-100 B-IBI
Excellent	Comparable to least disturbed reference condition; overall high taxa diversity, particularly of mayflies, stoneflies, caddis flies, long-lived, clinger, and intolerant taxa. Relative abundance of predators high.	[46, 50]	[80, 100]
Excellent/Good	.....	(44, 46)	
Good	Slightly divergent from least disturbed condition; absence of some long-lived and intolerant taxa; slight decline in richness of mayflies, stoneflies, and caddis flies; proportion of tolerant taxa increases	[38, 44]	[60, 80]
Good/Fair	.....	(36, 38)	
Fair	Total taxa richness reduced - particularly intolerant, long-lived, stonefly, and clinger taxa; relative abundance of predators declines; proportion of tolerant taxa continues to increase	[28, 36]	[40, 60]
Fair/Poor	.....	(26, 28)	
Poor	Overall taxa diversity depressed; proportion of predators greatly reduced as is long-lived taxa richness; few stoneflies or intolerant taxa present; dominance by three most abundant taxa often very high	[18, 26]	[20, 40]
Poor/Very Poor	.....	(16, 18)	
Very Poor	Overall taxa diversity very low and dominated by a few highly tolerant taxa; mayfly, stonefly, caddis fly, clinger, long-lived, and intolerant taxa largely absent; relative abundance of predators very low	[10, 16]	[0, 20]

The 'benthicPandas.gpkg' file only contains a single layer of sites that the Partnership monitors. This vector point layer contains the following attributes:

- index: this is leftover from pandas and can be disregarded.
- Site ID: an ID used by the Partnership for identification of sample sites.
- WRIA: Washington is divided into 62 Water Resource Inventory Areas (WRIsAs) based on natural watersheds. This denotes which WRIA the site belongs too.
- Basin: The lake basin/watershed or the river basin that the sample site belongs to.
- Subbasin: The sub-basin the sample site belongs to.
- Stream: The stream the sample site belongs to.
- Agency: The agency that monitors the sample site.
- Project: The research or agency project the sample site is associated with.
- Site Code: an site identifier used internally (can be a string or number)
- Latitude: Leftover latitude from the initial file download, this is not the latitude the file uses and can be disregarded.
- Longitude: Leftover longitude from the initial file download, this is not the longitude the file uses and can be disregarded.
- 2010 through 2020: B-IBI score calculated for each site, separated by year. Most sample sites are not monitored every year, this means there are a lot of NaN/NULL values. Some sites will go several years between being sampled.
- average\_score: An average score for each sample site over the previous 10 years generated by pandas, disregards any NULL values.