Examining and Comparing Sediments of Baker River and Baker Lake

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Introduction

Mount Baker is the youngest volcano of a volcanic field that has been active for the past 1.3 million years (Hildreth and others, 2003; Hildreth 2007). The volcanic field is made up mostly of marine volcanic and associated sedimentary rocks (Scott et al.,2020). Being that the Nooksack and Baker rivers are both fed from Mount Baker, you might expect the sediments to be similar. I believe they will be distinct and the differences can be attributed to the eastern side of the mountain being more geologically active.

Methods

Location & Process

- Traveled to the northern most section of Baker Lake where it meets the Baker River. [Fig. (a)]
- I collected sediments along the lake and river to compare. Fig. (a)
- I used a small shovel and sample cups to collect my samples.
- The samples were then sifted through sieves to determine composition by size *Table 1.*
- Compared against earlier samples taken along Nooksack river (Nico,2025) (Bhanot, Falcone, Smith, Wade, 2024).

Sediments Collected across Nooksack and Baker locations

	2000µm	850µm	250µm	150µ	75µm
Squalicum Beach	80	15	3	1	1
Hovander Park	35	54	7	3	1
Vander Yacht Park	0	0	88	10	2
Marietta Veterans Park	21	3	32	26	18
Nooksack River Mouth	0	1.8	6.4	41.2	38
Everson	58.7	3.1	16.2	12.9	6.8
Glacier	32.5	30.5	32.5	3.5	0.6
Site A	1.1	15.8	66.5	12	3.3
Site B	0	0.1	43.7	35.7	13.8
Site C	0.3	0.2	60.8	22.3	10.7
Site D	46.5	15.9	25.2	8.2	2.6
Site E	36.9	14.4	35.6	6.2	4.1
Site F	60.8	16.5	17.4	3.5	1.1

Table 1. Sediment size composition data collected from research projects (newest data in red)

Map of Baker Lake / Baker River

Figure a. Map of Baker Lake and Baker River with collection locations highlighted.

Sediment Composition at Nooksack locations

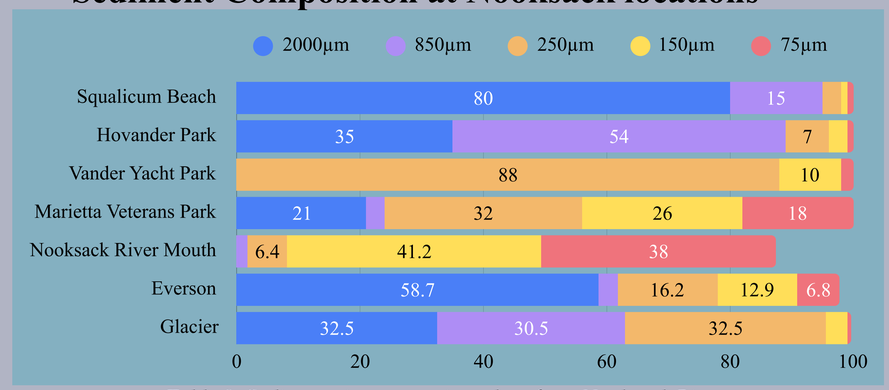

Table 2. Sediment size comparison data from Nooksack River.

Sediment Composition at Baker Lake and Baker River

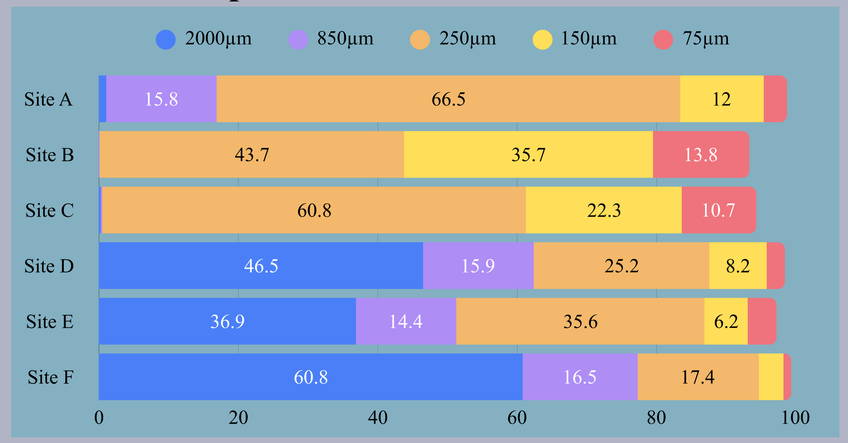

Table 3. Sediment size comparison data from Baker aLake and Baker River.

Discussion

My expectation was to see a distinct difference in the sediments collected on each side of the mountain. This was not the case, and more data would need to be collected and analyzed to see a real difference. Looking at just sediment size doesn't really give us enough insight to make a distinction. We may see differences in size/shape of sediments collected but I did not have access to magnified images of previously collected sediments. It is interesting that the samples collected at Glacier were dominated by larger sediments and evenly split among them *Table 2*. One thing that stands out to me in the sediments I collected is the locations in the lake are dominated by larger sediment sizes, whereas the samples from the river are all much finer sediment *Table 3.* I would assume this is due to the river being a more energetic environment breaking the minerals down more. In summary, while I do believe there is a distinct difference in the sediments from each side of the mountain. We would need more rigorous analysis to attribute those differences to the geologic activity respective to each side.

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Work Cited

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