Sunset Bay Soil Profile Worksheet.

Locate the Sunset Bay soil samples in the lab. These samples were collected by soil auger to a depth of 170 centimers on a flat surface that lies approximately 50 ft above the beach (and sea level). For each sample-depth interval, use your soil observation skills / tools to describe the soil samples. Fill in the table below.

Depth Interval (cm)	Color (moist)	Consistency (moist)	Texture	Other Observations

Table 2 below is a summary of soils data collected for marine surfaces throughout the southern Oregon region. By comparing your soils observations to Table 2, what is your best approximation of soil development stage for the Sunset Bay surface soil?

TABLE 2. DEVELOPMENT STAGES OF SOILS ON ELEVATED MARINE TERRACES ALONG THE CENTRAL AND SOUTHERN OREGON COAST

Development stage	Depth to Cox (m)	B horizon hue	Bt thickness (cm)	Maximum B horizon texture* (% clay)‡	Maximum clay films†
1	0.8–1.4	7.5–10YR	0	sil, l, sl (<30)	1–3zpfpo
2	1.0–1.4	7.5YR	<50	sicl, cl, scl (30–40)	2–3n-mkpfpo
3	1.0–1.7	7.5YR	<50	sicl, cl, scl (30–40)	2–3mkpfpo
4	1.4–1.8	5–7.5YR	50–100	sicl, sic, cl, c (35–42)	3–4mkpfpo
5	1.9–2.8	5–7.5YR	100–200	sic, c (40–58)	3–4mk-kpfpo
6	2.6–4.5	5YR	>200	sic, c (40–65)	3–4mk-kpfpo
7	3.2–>4.5	2.5YR	>200	sic, c (45–65)	3–4mk-kpfpo

*l, loam; sl, sandy loam; sil, silt loam; sicl, silty clay loam; sic, silty clay; cl, clay loam; scl, sandy clay loam; c, clay. Abbreviations follow Soil Survey Staff (1951).

†Notations for clay films; number denotes extent of ped faces covered by film: v1, <5%; 1, 5%–25%; 2, 25%–50%; 3, 50%–90%; >90%; n, thin; mk, moderately thick; k, thick; pf, film on ped face; po, film lines the pores. Abbreviations follow Soil Survey Staff (1951).

‡We estimated percent clay for each horizon at each soil locality during field work. We have confidence in our ability to estimate clay content in the field because we obtained a significant correlation ($r^2 = 0.66$; $p \leq 0.01$) between percent clay estimated in the field and percent clay measured in the laboratory (28 samples).

As it turns out, this 50-ft surface represents the "Whiskey Run" marine terrace level in southern Oregon. This surface was dated at 80,000 years old. It represents an old wave-cut surface that is now elevated above modern sea level. Questions:

1. Is the Oregon coast at Sunset Bay uplifting or subsiding over time? What forces may be driving this phenomena?

2. Calculate rate of surface elevation change in mm/yr. Calculate again in meters / thousand years. Show all of your work.