

THE FOSSIL RECORD

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Field Trips:
THE HISTORY OF THE NORTHWEST

NW Oregon Coast

Tsunamis & Coastal Geology

Date: Saturday, October 22nd.

Cost: \$15 for non-members (families \$25), Free for members.

Call: (503) 358-9030 or
e-mail blitz124@comcast.net

Trip leader: Dave Taylor

This Saturday trip takes us to the Oregon Coast near Seaside. Our excursion will have two parts, one to review the tsunami record near Seaside over the past few thousand years, and the second to look at older rocks about 15 million years old (Miocene age) south of Cannon Beach.

The Clatsop Plain is made up of a series of north-south oriented sand ridges up to about 60 feet high that built outward from the base of the Coast Range over a period of about 4,000 years. During that time there have been about eight tsunamis that swept through the area. It is interesting to note, however, that the sand ridges remain essentially intact. Thus, while each tsunami likely eroded the leading edge of the first dune it encountered, the tsunamis were not high or strong enough to materially erode the older dune ridges.

The frequency of the last four tsunamis suggests that we may not be far off in time from the next event – geologically speaking (maybe tomorrow – maybe in a few hundred years). The tsunami pattern over the past 10,000 years also reveals that are a few exceptionally large events – that might send an exceptional flood across the Clatsop Plain. We'll review this record, and take a look at some of the evidence left behind from the last tsunami.

The second part of our trip takes us to the Cannon Beach area and back in time to the Miocene epoch. At that time, flows from the massive outpourings of the Columbia River flood basalt reached the coast, where they intruded into soft muds and sands under the ocean floor. We will see evidence of how these lavas pushed violently through those sediments – perhaps deposited near the mouth of the ancient Columbia River. Our tour will give us an understanding of the basalt headlands, isolated blocks such as Haystack Rock and how they came to look as they do today.

We will also touch on Native American history, the first white settlers, and perhaps identify some of the seabirds that thrive in the area.

A great resource on tsunamis is the recently published book by Bonnie Henderson (2014).- *The Next Tsunami – Living on a Restless Coast*. Oregon State University Press, 322 p. In her fascinating book, Bonnie gives recognition to local geologist Tom Horning - his recollections of the tsunami wave from the 1964 Alaska earthquake that affected his home at Seaside, and his excellent work in the area.

Meeting time: 9:30 a.m., Saturday at McMenamins in Gearhart.

Note: Bring your binoculars for wildlife viewing. Also, bring rain gear in case the forecast calls for a wet day. We will also plan to have lunch in a restaurant at Cannon Beach.