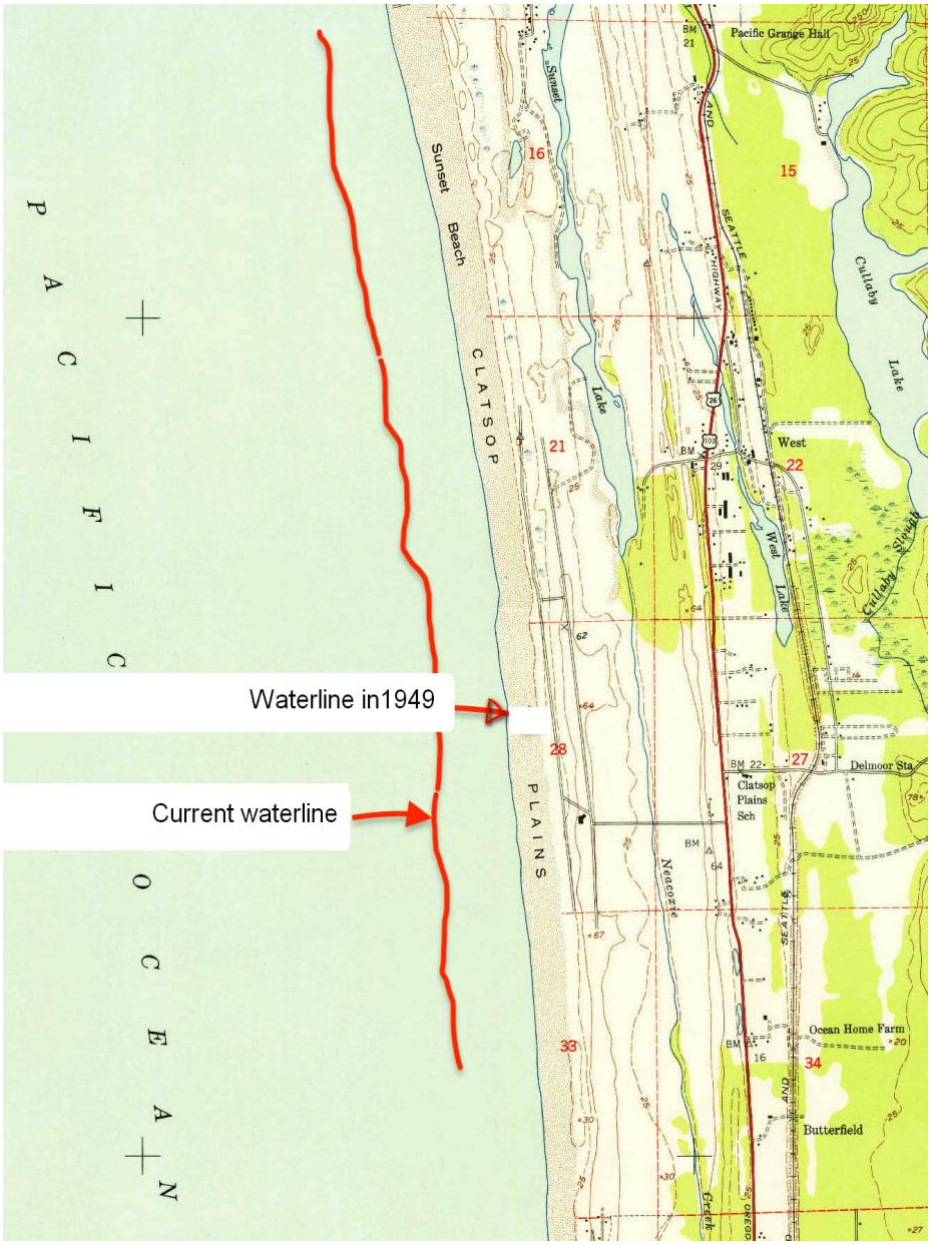
Changes to Sunset Beach over the last 70 years.

By Tom Smith and Edited by Susan Swanby

Many people on the North Coast of Oregon do not realize the major changes that Sunset Beach has experienced since the jetties were added and efforts were made in the 30's and 40's to control dune erosion through planting of Shore Pine, beach grass and Scotch Broom. This has become most evident for the properties along the beach south of the south jetty. Surf Pines, a community of 407 properties and the largest gated community on the Oregon Coast, has experienced many of these changes as a result.

For example, most of Sunset Beach has accreted over 1,200 feet of additional beach west of the original property lines since 1949. This has changed ocean views and may affect the consequences of natural disasters such as tsunamis. The dune plantings also affected the area, which went from an open coastal view to a more forested and protected view.

The following are two credible articles written by local residents that detail Surf Pine shoreline observations and the history behind these changes.



This 1949 map shows the Clatsop Plains shoreline in the Surf Pines area. Note how much

John Yerke's article regarding changes to the Surf Pine dunes, published in the January 2021 Surf Pines newsletter, *The Breeze:*

Many members of Surf Pines (SP) have expressed concern about the height of the trees that are blocking both ocean and dune views. This is a situation like in any other neighborhood where, after years of growth, one's view is blocked by someone else's large tree canopy. The only solution is for the neighbors to reach a compromise to the benefit of each other. Trees located on SP property are a different situation and can be removed with BOD approval**.** Our governing documents stipulate little on this issue. Considering this, I would like to offer some history on the landscape of SP from 1950 to the present.

Figure 1: This 1958 picture is taken near the corner of Surf Pines Lane and Manion Drive. Of note is the lack of population density, the view of the beach, and the few Coast pines. There are no Scotch Broom

Jetties, Trees, Dunes and Views:

Other than population density, how did we get all the vegetation and dune growth? Many of you know, but I will recount regardless.

The 2008 article in the Oregon Coast Beach Connection provides a good history of the North Oregon coast dunes. (*History of North Oregon Coast Dunes Reads Like an Alien Movie, Published October 2008 https://www.beachconnection.net/news/dunes102008_1127.php)* Seaside geologist Tom Harding describes the impact that the addition of Jetties had on Sunset Beach.

Another 2010 article by Peter Ruggiero of OSU also states that the construction of the jetties has dramatically changed the Pacific Ocean shoreline for long distances to the north and south in ways so profound that the land has yet to reach a stable equilibrium after a century!

The primary point is, in 1804 at the time of the Lewis & Clark Expedition and Clatsop Indians, the shore lands north and south of the Columbia River were grassy prairie lands. The second point is that between 1885 and 1939, the north and south jetties were built to make the mouth of the Columbia River a safer and more stable shipping channel. Point three is that sand accumulates where the Columbia meets the Pacific Ocean and must be regularly maintained, i.e., dredged.

The jetties decreased the mouth of the Columbia River by 80% to less than two miles. Per Horning, "This increased the ebb-tide flow of the river. The increased currents swept sand into deeper water, keeping the shipping channel considerably deeper than it had been." On the north side of the mouth of the Columbia, a large ebb-tide delta area called Peacock Spit formed with its size augmented by the Army Corps of Engineer's dredging spoils. With the cessation of dredge spoils, Peacock jetty has mostly disappeared. Incidentally, the spit was named after the USS Peacock that ran aground there in 1841. She broke up without loss of life.

Figure 2: The following US Army Corps of Engineers picture puts the jetties and spits in perspective

The 6.5-mile south jetty helps contain and trap the shifting sand deposits at the mouth of the river. It was instrumental in the formation of Clatsop Spit, which was a partially submerged shoal before the construction of the jetty. It is located north of the beginning of the south jetty.

The jetties forced the growth of the spits that forced more sand north and south, increasing the sizes of the beaches. The net result was the elimination of the prairie lands witnessed by Lewis & Clark and the Clatsop Indians.

The Great Depression, coupled with massive dust storms that swept the country's southern Plains the 1930's, compelled the Federal Government under FDR to address depressed agricultural economy and mismanagement of the nation's natural resources. The result was the formation of the Soil Conservation Service, which applied agricultural approaches to the impact of the Columbia jetties on the Clatsop prairies.

Figure 3: This is SP today from same spot shown above in the 1953 photo.

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To stabilize the dunes, they planted Coastal Pines, Scotch Broom and European Beachgrass.

Coast Pines and dune growth have significantly impaired our views and continue to change our landscape. "It's not unusual for construction of a jetty to cause some changes in the beaches and shoreline near it," said Peter Ruggiero, an Assistant Professor of Geosciences at OSU. "But the impacts of the Columbia River jetties have just been amazing, the spatial scales of their influence are monstrous. I doubt when they were built anyone had a clue how significant their effect would be." Obviously, our landscape is continuing to change.

Jim O'Connor long time Surf Pines resident response to John's article, originally published in the April 2021 edition of the Breeze:

I read your comments on the changing views in Surf Pines with interest in the January 2021 Breeze. I would like to add some perspective as a long-time Surf Pines owner and as a professional geologist who has studied aspects of the Columbia River for more than 30 years. First, I've been monitoring the changing view since I was nine years old when my parents bought our home on Ocean Drive in 1968. In fact, I'm pretty sure our house, built in 1949 or 1950, is visible in the far distance in the 1953 photo that you shared. Since then, the view has indeed changed dramatically—we could see the water through the living room windows in the late 1960s and early 1970s. But then the view of the water was lost, replaced by the widening expanse of beach grass and the growing foredune—just like "Kansas" as my mother described it. Now thickening shore pines and a couple of Sitka Spruce add interest to westward view. As the view has changed, the walk to the water has grown further. It's now nearly 1200 feet from house to unvegetated sand, including a pretty good drop down off the foredune. In 1994, it was 1025 feet; in 1969 about the time of my family's purchase, it was just 300 feet, and at the 1949 platting of Surf Pines Beach Addition Block 1, the high tide line was less than 150 feet from the house, like what is shown on the 1951 photograph. To summarize, the beach is more than 1000 feet further away than when the house was built.

Those are the local changes, much of it witnessed by myself and my family. As pointed out in the newsletter (and the linked article by geologist Tom Horning), the causes are many, but most importantly has been the construction of the Columbia River jetties in the late 1800s. Soon after construction, beaches of the Clatsop Plains started migrating west, first and fastest near the jetties around Fort Stevens, but soon south, all the way to the cove nestled against Tillamook Head. The peak rate in Surf Pines was between 1926 and 1954 at about 40 feet per year according to a 2010 analysis by George M. Kaminsky and others that appeared in the scientific journal Marine Geology. Rates have slowed since then. Our trail to the beach has lengthened by an average of 6 feet per year for the last 25 years. But as Horning notes, some places in the Columbia River littoral cell (the segment of coast affected by sand derived from the Columbia River), especially on the southern Washington coast, have recently begun to erode.

Photographs more than 50 years apart from very closely matched positions from immediately in front of our Ocean Drive house. The ocean was in view in 1969 but that view is long gone, obscured by the growing dunes and trees.

What next? My prediction is that soon, within a very few years, the tide will turn, and the beaches of Surf Pines will stop their westward march and will start to erode. Many factors point this direction: Foremost, our beaches are fed sand by the Columbia River, delivered from the mountains of the Pacific Northwest and southern British Columbia. The recent rapid growth was the response to the jetties moving sediment around, but that factor is now diminishing. Much of the sand that used to come down the Columbia River, almost certainly more than half, is now filling the 100s of reservoirs in the Columbia basin. And those same dams have reduced Columbia River flood peaks such that less sand is now transported to the mouth of the river where it can be moved by waves and wind up and down the coast and build beaches and dunes. Also, global warming (it's real, no matter the cause) enhances coastal erosion by raising sea level and increasing storm

intensity. Additionally, these gradual processes of erosion will be exacerbated in a huge way during and after the next Cascadia Subduction Zone earthquake, partly from the famous tsunamis that will almost certainly sweep over all the houses along Ocean Drive, including ours, but even more profoundly by the concurrent land subsidence and ensuing coastal erosion. After the last such earthquake at ~9 p.m. on January 26, 1700, the northern Oregon Coastline dropped by about 3 feet relative to sea level, and a 2010 study by Curt Peterson and others, also in Marine Geology, shows that soon after the quake there was rapid coastline erosion, creating 15–30 feet tall cliffs 100s of feet inland. Along the Sunset Beach access road, this cliff was about 1900 feet back from the present high-tide line, and at the Del Ray beach access road, 1100 feet, a strong hint of what will happen next time.

So, to me, the changing view is golden. The sand and dunes and extra thousand feet will be a critical buffer from erosion sure to come, and a little more distance could possibly blunt the force of the certain-to-arrive tsunami. More than just being a buffer, the changing view is also more forage and space for the deer and elk, and productive terrain for the swooping patrols of the Northern Harriers. No ocean view for me!

For more information on coastal earthquake, tsunami, and other coastal hazards, consult the Oregon Department of Geology and Minerals Industry website at: https://www.oregongeology.org/

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About Featured Authors and Their Nearby Residents

John Yerke, current President of the Surf Pines Association, recently published his overview of shoreline changes in the January 2021 edition of our local Surf Pines newsletter called the Breeze. His article explains how the beach area has changed since the South Jetty was built.

John's comments came from being a long time Surf Pines resident. His father Fred Yerke, a Portland attorney, purchased their home at the south end of Surf Pines on the high road (now known as Manion Dr.) in 1972. This was three years after the Surf Pines Association was formed and they continue to own this home. The Yerke home was originally built by the Mitchell family and was the fifth home built in Surf Pines.

Jim O'Connor's response gives his observations of the changes since 1968 (when he was only nine years old). He included his experience as a geologist here in Oregon. This was published in April of 2021 edition of the Breeze.

Barney Lucas originally sold this property, where Jim's home currently is located, to his banker Ralph Williams. The William's built their home shortly after the home at 89088 was built, so it is the third home built in Surf Pines. William's home included the last four lots of the 24 lots located on Surf Pines Beach Addition (lots 21,22,23, and 24).; Apparently there was one more owner before Jim's parents bought their home in 1968. It is now owned by Jim and his two brothers.

Figure 1 of John Yerke's article (above) is a photo of four homes. The O'Connor home is the furthest of the four homes shown. The nearest home (89088) was owned by the Lucas family until they sold it and moved into the home that Rolf Klep, one of the founders of the Maritime Museum, eventually purchased. It is also the fourth home built by Lucas in

Surf Pines. Rolf Klep's home was two homes North of the Schroder home which is the first home built in Surf Pines by Lucas. It is situated at the point where the Lower Road (Ocean Drive) and the High Road (Manion Dr.) merge at the south end of Surf Pines.

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Figure 5. To further illustrate how much the beach has accreted in the last 70 years here are pictures of another home located a quarter mile north of O'Connor's home. The first picture shows Barney Lucas, and family in 1958. It shows how close the ocean was to this home. The next picture shows how it appears today (2021) along with a panorama of the dunes.