

COASTWISE

RESILIENCE COLLABORATION

Crystal Dingler, Mayor 2011-2019

City of Ocean Shores

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HISTORY

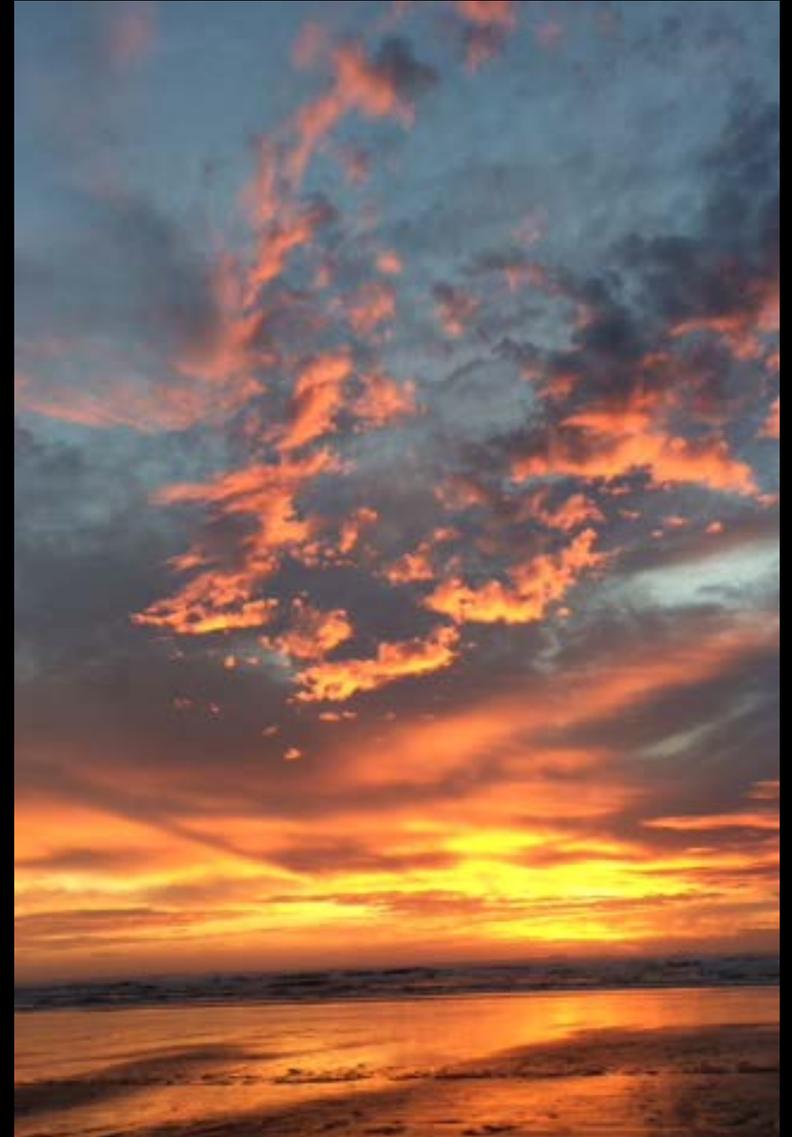
Ocean Shores – a microcosm of coastal issues
Westport, WeCAN Pacific County, QIN, Queets

North Jetty Built early 1900's

Sand accreted North of the jetty forming 20% of the City

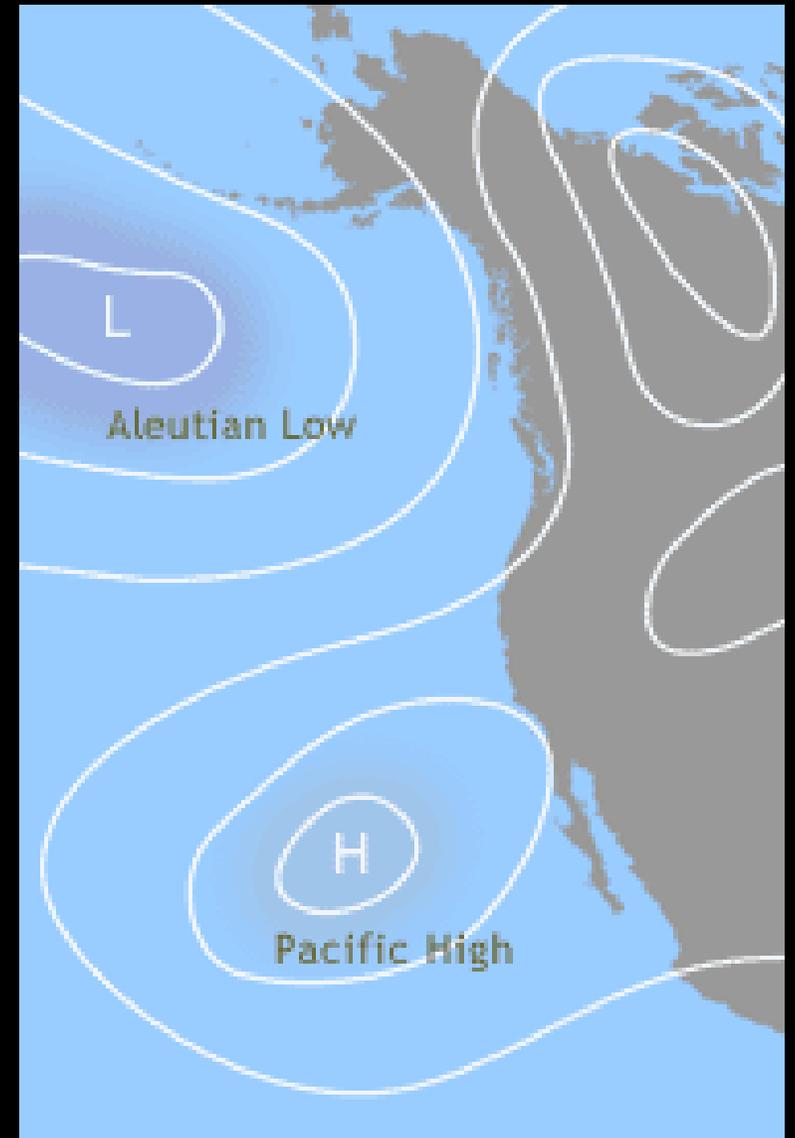
Repairs & Maintenance every 20-25 yrs

Incorporation of Ocean Shores 1970



THE ALEUTIAN LOW STORM FACTORY

Large cyclonic systems sweep down from the Alaska panhandle, bringing storms to Washington's coast. Cyclonic systems sometimes line up, one after the other, causing stormy weather on Washington's coast for weeks. Storms spawned off the coasts of Japan and Siberia circle around the Pacific High into the Aleutian Low, rekindling old storms and starting new ones. (Ecology website)



WIND IS A MAJOR FACTOR ON THE COAST

- **WA coast winds exceed**
 - 55 mph every year
 - 76 mph every 5 years
 - 83 mph every 10 years
 - 92 mph every 25 years
 - 100 mph every 50 years
 - 108 mph every 100 years
- (Ecology website)
- **Recent wind storms:**
 - 150 mph, North Head, January, 1941
 - 94 mph, Tatoosh Island, November, 1942
 - 150 mph gusts at Naselle, 1962
 - 147 mph at Naselle Ridge, Dec 2007



Winds push water into shore

Low atmospheric pressure raises sea level

1999 storm surge

On March 3, 1999, a storm surge of 4.6 feet, **49.7 mph winds**, widespread coastal flooding. Two more events prior to 2010. Wave heights +29.5 feet for over 5 hours, peaking at 34.8 feet (photo at Damon Pt.)



**COMBINE NATURE WITH A FAILURE TO REPAIR THE N JETTY,
LAST SEAWARD REPAIRS IN 1975,
IN THE 1990'S THE N JETTY BEGAN TO DETERIORATE**



1997-1999 EROSION (EL NINO & SEVERE LA NINA YEARS)

Ocean Shores Lost 30 ft of dune in one weekend

Breaching of the dunes & loss of infrastructure became a real possibility

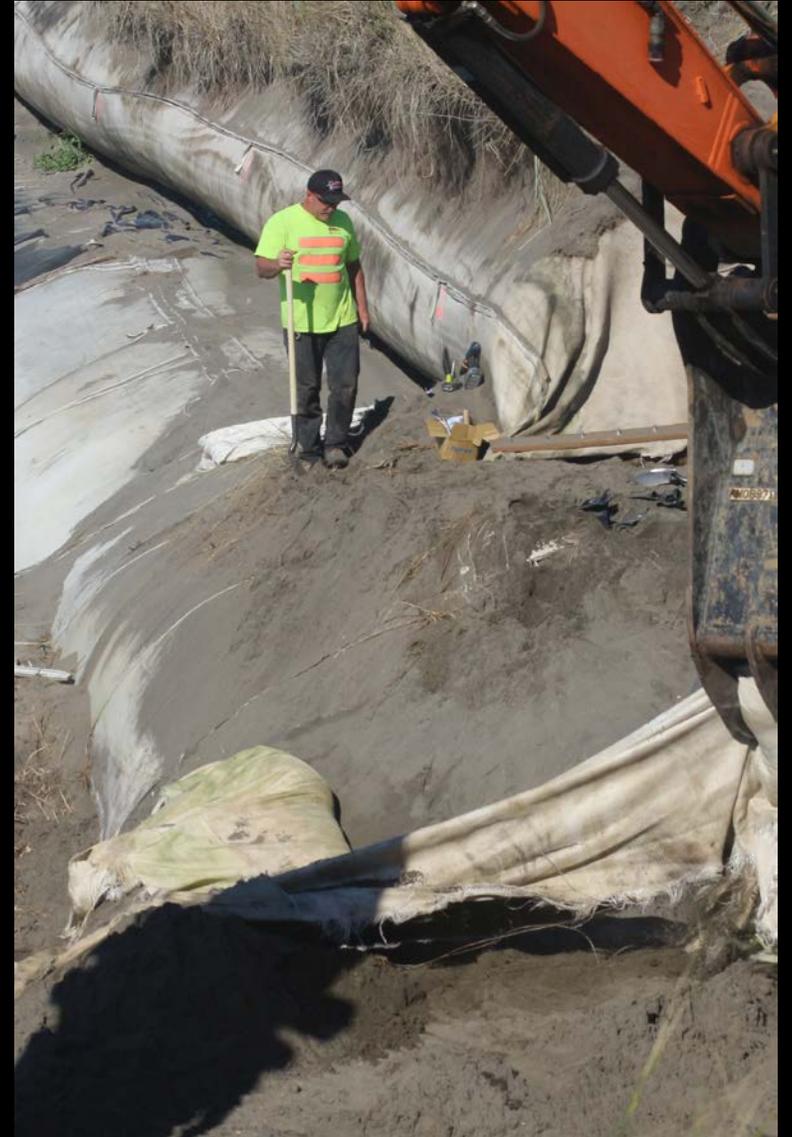


1990'S - 3 IMPORTANT THINGS HAPPENED OS COASTWISE

- 1995-2006 Grays Harbor and Pacific County Coastal Partnership funded by the Legislature
- 1998 OCEAN SHORES INSTALLED GEOTUBES - sand-filled geofabric) (\$100,000)
- George Kaminski (Department of Ecology) began profiling the beach quarterly at the geotubes and continues to the present

STEPS TAKEN

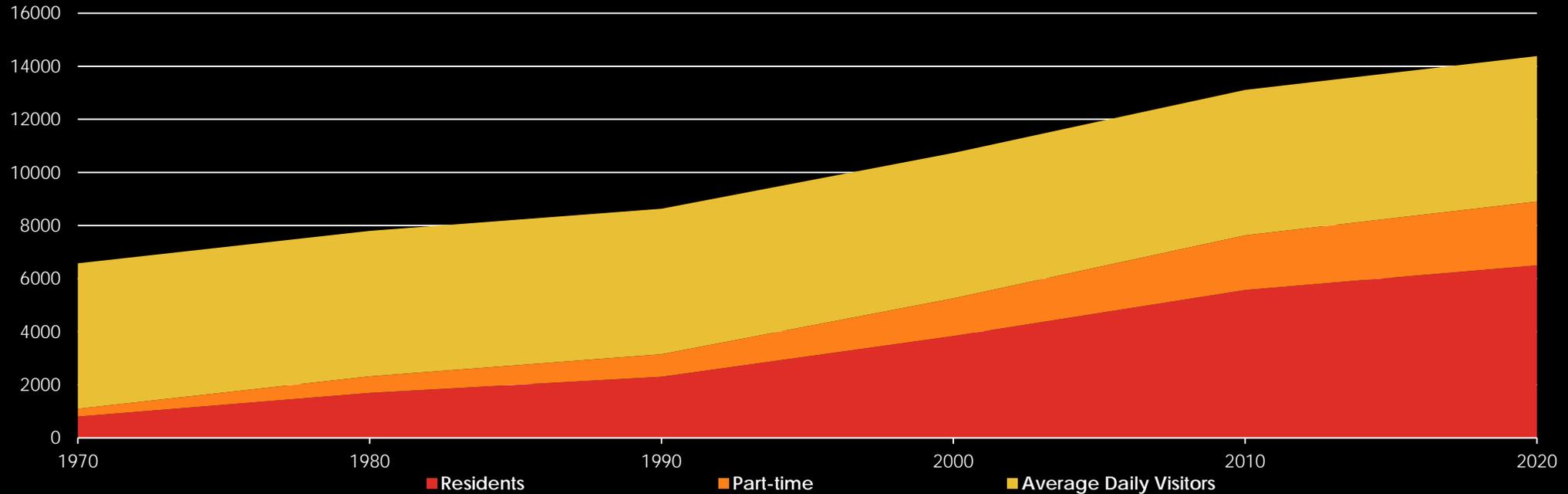
- 1995-2006 Grays Harbor and Pacific County Coastal Partnership funded by the Legislature went into high gear
- Property owners north of the jetty joined together with the help of US Rep Norm Dicks and built wave bumpers (rock face)
- The City installed geotubes





- 2001-2002 USACE PERFORMED MAINTENANCE ON 5000 FT OF THE N. JETTY ON THE LANDWARD SIDE RAISING THE JETTY TO 23 FT
- ACCRETION COVERED THE GEOTUBES AND BUILT-UP THE DUNE.

Average Daily Population



IN THE MEANTIME, AS OCEAN SHORES GREW,
BUILDING CONTINUED WITH LITTLE THOUGHT TO EROSION



INWARD FOCUS

- 2006 Legislature dropped funding of the GH/Pacific County Coalition
- 2008 - 2013 Severe recession hits Ocean Shores and the coast, and we turn our thoughts inward to economic survival
- 2010 series of storms expose the geotubes



2014-2016 EL NINO SLAMMED BACK

The seaward end of the jetty has not been repaired or maintained since 1975

DECEMBER 2014

- December 21, 2014

Geotubes undermined

Fabric split

Sand pumped out with each wave



- DEC 22, 2014 WE HAND-SEWED THE SPLIT
- DEC 24, GEOTUBES FAILED
- GOLIATH HAD OVERTAKEN PUNY DAVID'S EFFORTS



EARLY 2015, GH PORT CONVENED THE N JETTY TECHNICAL COMMITTEE

TEAM: ECOLOGY, WA SEA GRANT, CORPS OF ENGINEERS, COAST & HARBOR ENGINEERING, US REP DEREK KILMER OFFICE, STATE PARKS, FISH & WILDLIFE



**SEPTEMBER 2015 GEOBAGS INSTALLED (\$80 K)
(FABRIC SHIPPING BAGS COVERED TO PROTECT THEM
FROM UV RAYS)**



**EARLY OCTOBER 2015
SOME CALLED IT "THE WALL" BUT WAVES TOPPED IT
6 LAYERS OF BAGS, 80 FT LONG, 20 FT HIGH
TWO LAYERS BELOW SAND LEVEL**

2015 SAND PLACEMENT

- October 31, 2015 geobags undermined
- Corps placed 20 tons of sand in front of the geotubes and geobags
- December 5, 2015 City Council authorized the PW to replace sand, which had washed away - largely gone overnight (\$20 k)



SUMMER 2016

- January-Feb 2016 Corps placed rock at geobags and geotubes
- Feb-March Erosion south of the wave bumpers and north of the geotube rock (plan was to place 4-9 inch cobble dynamic revetment but the cobble was not available on short notice)



CONTINUED COASTAL THREATS

Climate Change

Increasing # of

Wind Events,

Seriously Low Pressure Events

El Nino Events

Ocean Acidification

Earthquakes and Tsunami

Uncertain Economic Future

Collaboration is Key



OUR RESPONSE

- Jan 2016 GH COASTAL Resiliency Coalition forms
- Persistence pays-off
\$200k from the Legislature to Ecology (House Contingency Fund) for add'l research and Coalition support



SUMMER-FALL 2016

- WA Sea Grant installs sand fencing
- Homes and Condos join to protect their shoreline but ultimately drop the effort
- Coast and Harbor Engineering develops a plan to rebuild the N Jetty (plan paid for by Port of GH, City of Ocean Shores and WA Sea Grant)



2017 (COHORT) COASTAL HAZARDS ORGANIZATIONAL RESILIENCE TEAM

Ecology secured a grant for the Ruckleshaus Center to interview scientists and activists throughout the coast to determine the need and desire for a coast-wide coalition

Supported by Ecology, Rep. Derek Kilmer, WA Sea Grant, coastal cities and counties

Unfunded to date -

5 Ocean Lake Way NE, Ocean Shores, WA 985

G: 154°SE (T) POS: 46.929817°, -124.173584° ±16.



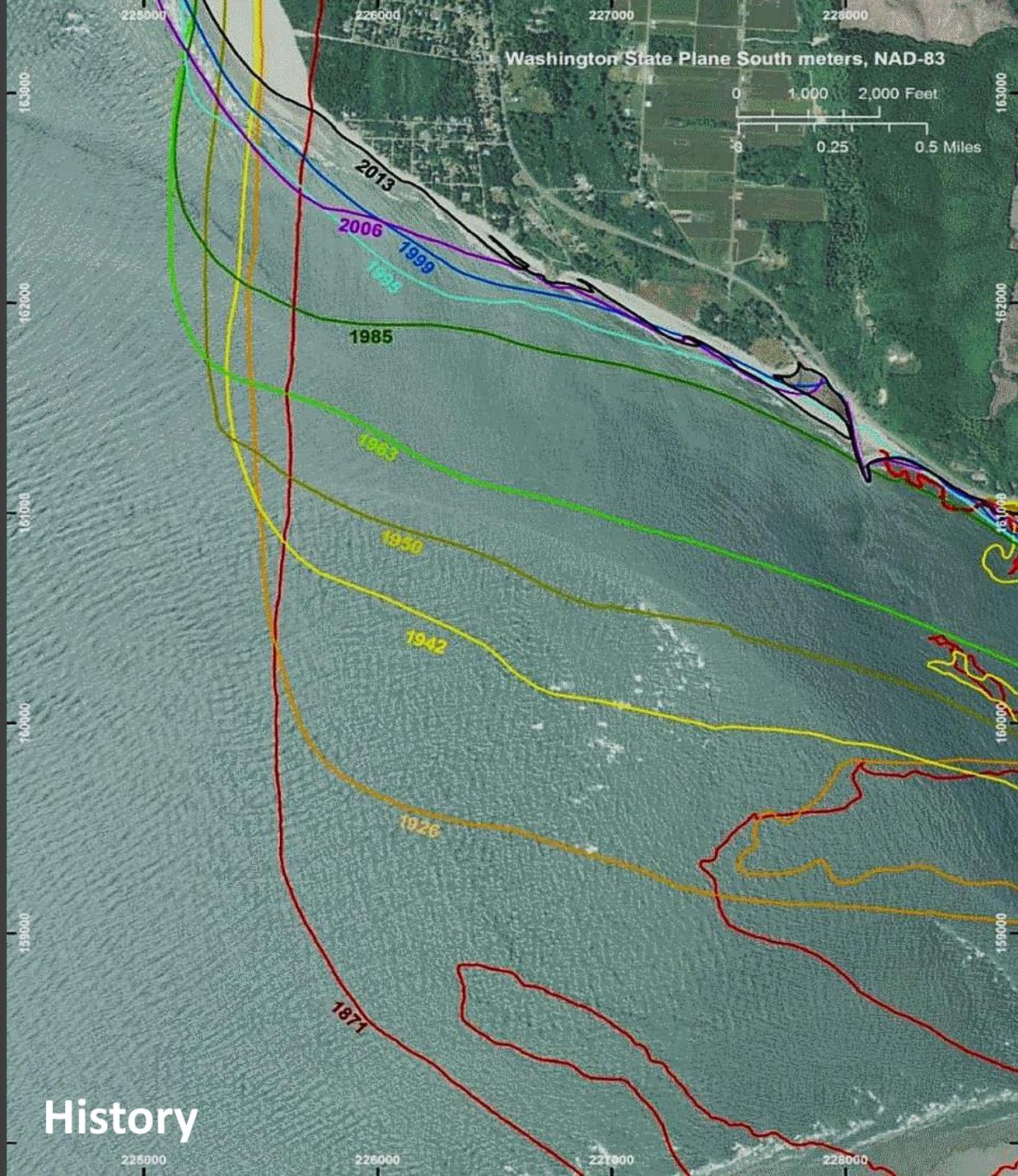
HOW CAN WCMAC HELP?

- ▶ Listen to coastal resilience needs
- ▶ Coordinate coastwide CoastWise communications
- ▶ Prioritize efforts and develop policy
- ▶ Keep State agencies and government informed
- ▶ Seek State budget line-item funding
- ▶ Grow awareness and support
- ▶ Help make our coast a priority



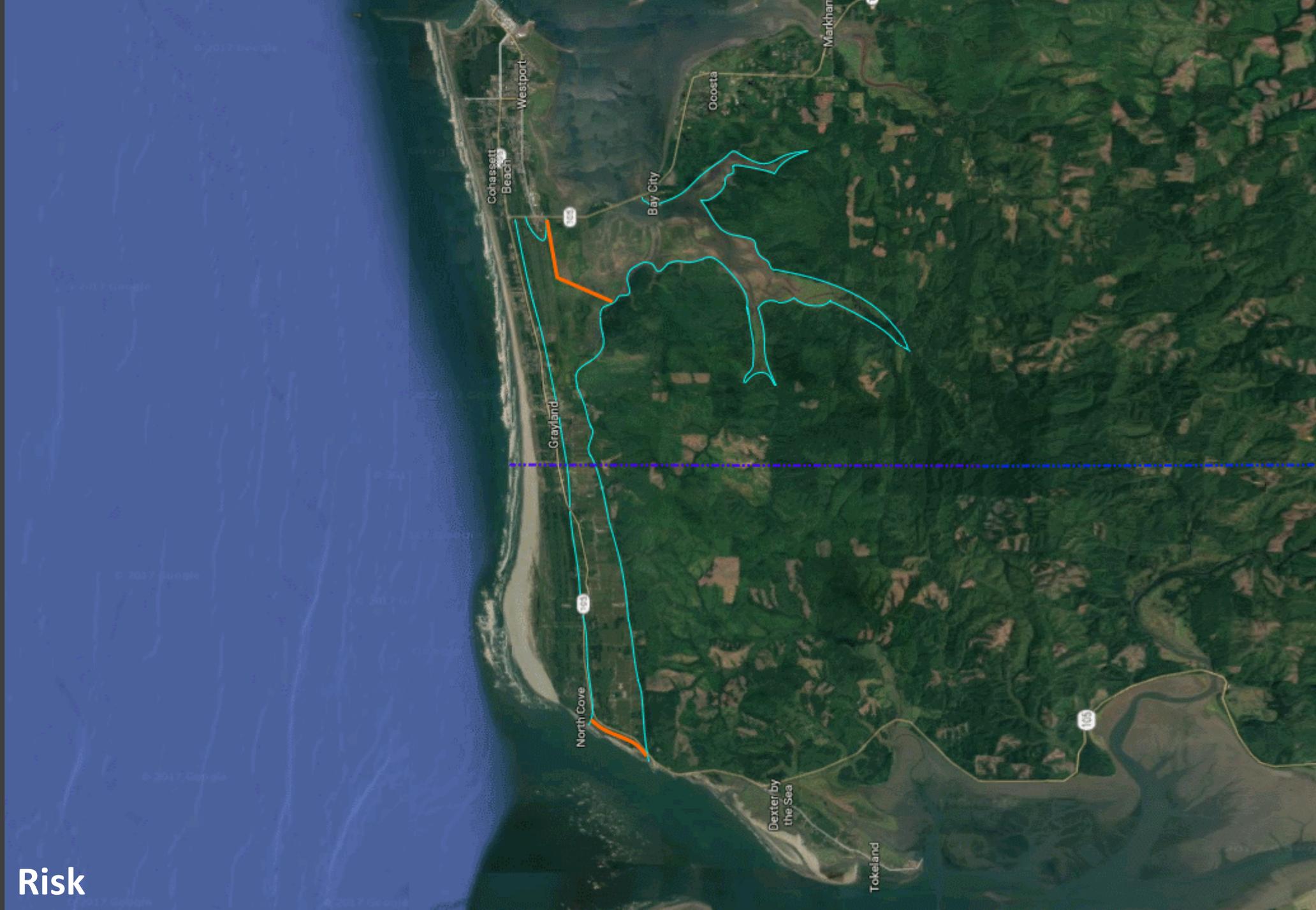
OUR THANKS TO

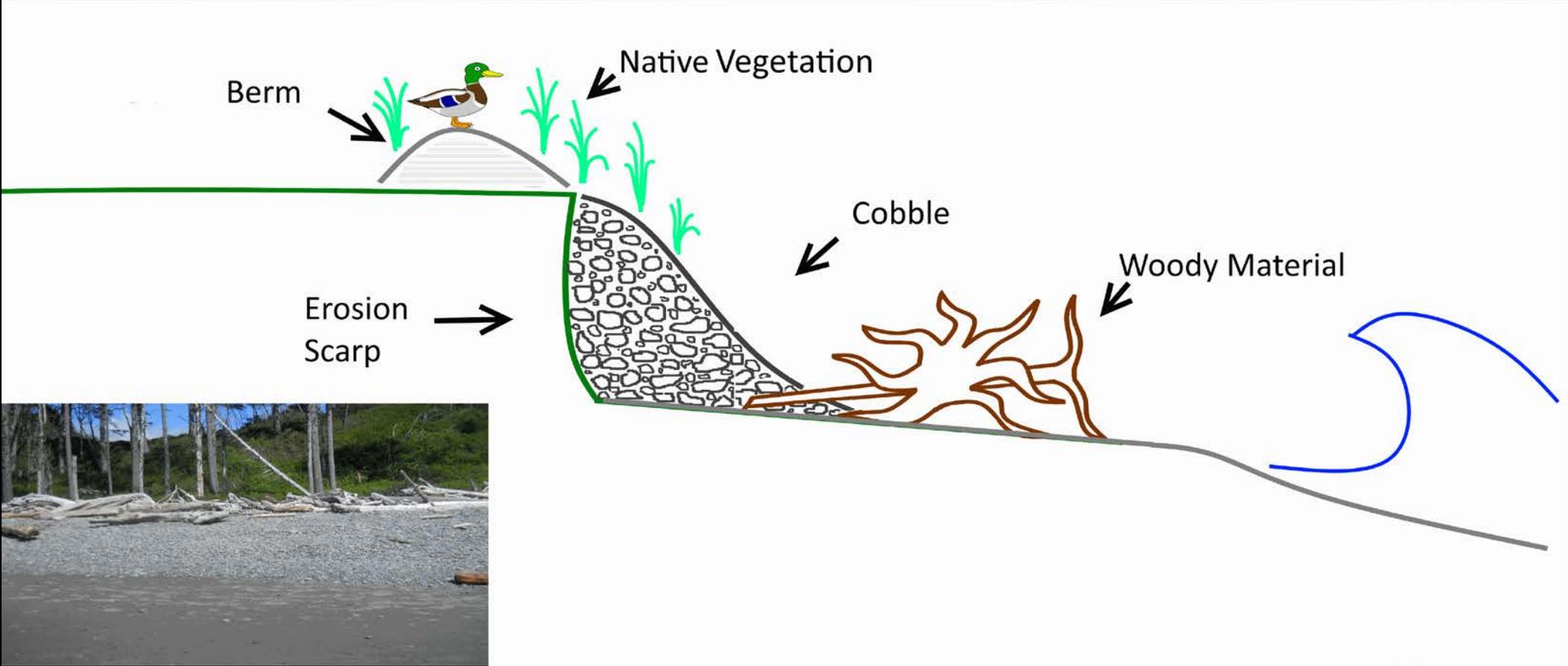
WA Dept of Ecology, Port of GH, WA Sea Grant, Derek Kilmer, USACE, QIN, Legislature, Parks, Fish & Wildlife



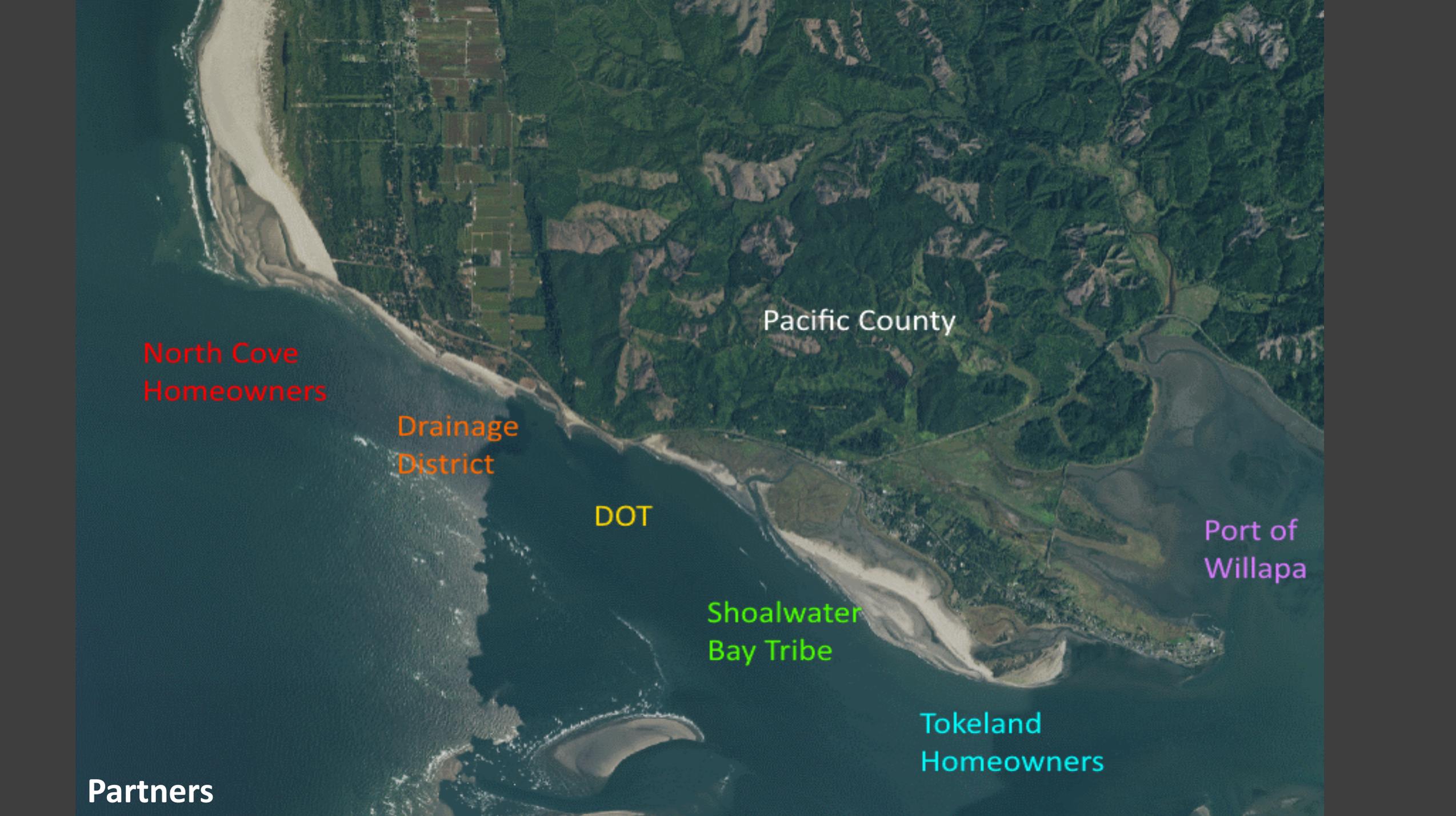
History

Risk





Efforts



Pacific County

North Cove
Homeowners

Drainage
District

DOT

Port of
Willapa

Shoalwater
Bay Tribe

Tokeland
Homeowners

Partners



Awareness

Regulations

Funding

Barriers



Outcome

