

Goat Rock Beach Jetty Feasibility Study

Matt Brennan, PhD, PE

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Monte Rio Community Center

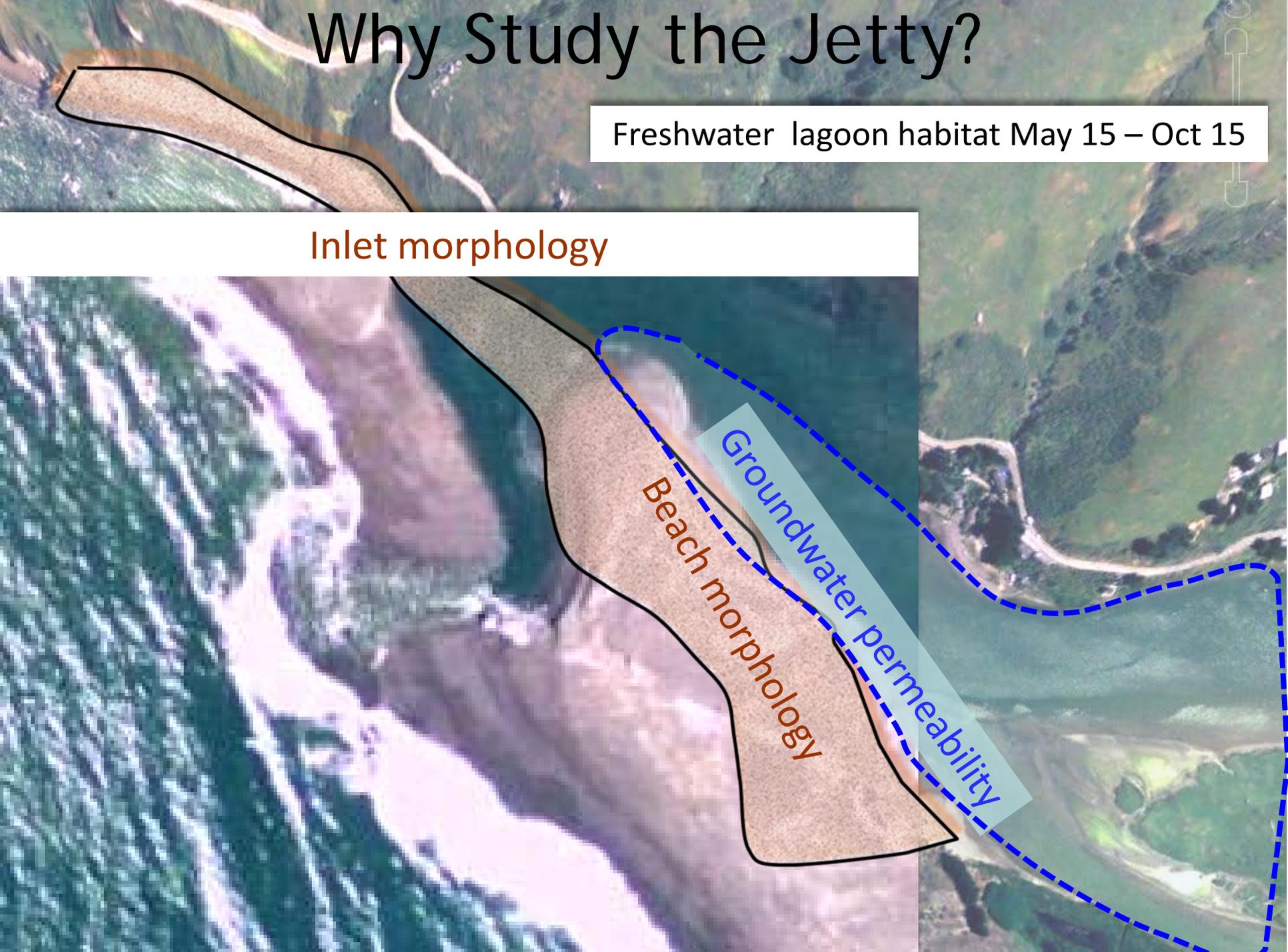
Why Study the Jetty?

Freshwater lagoon habitat May 15 – Oct 15

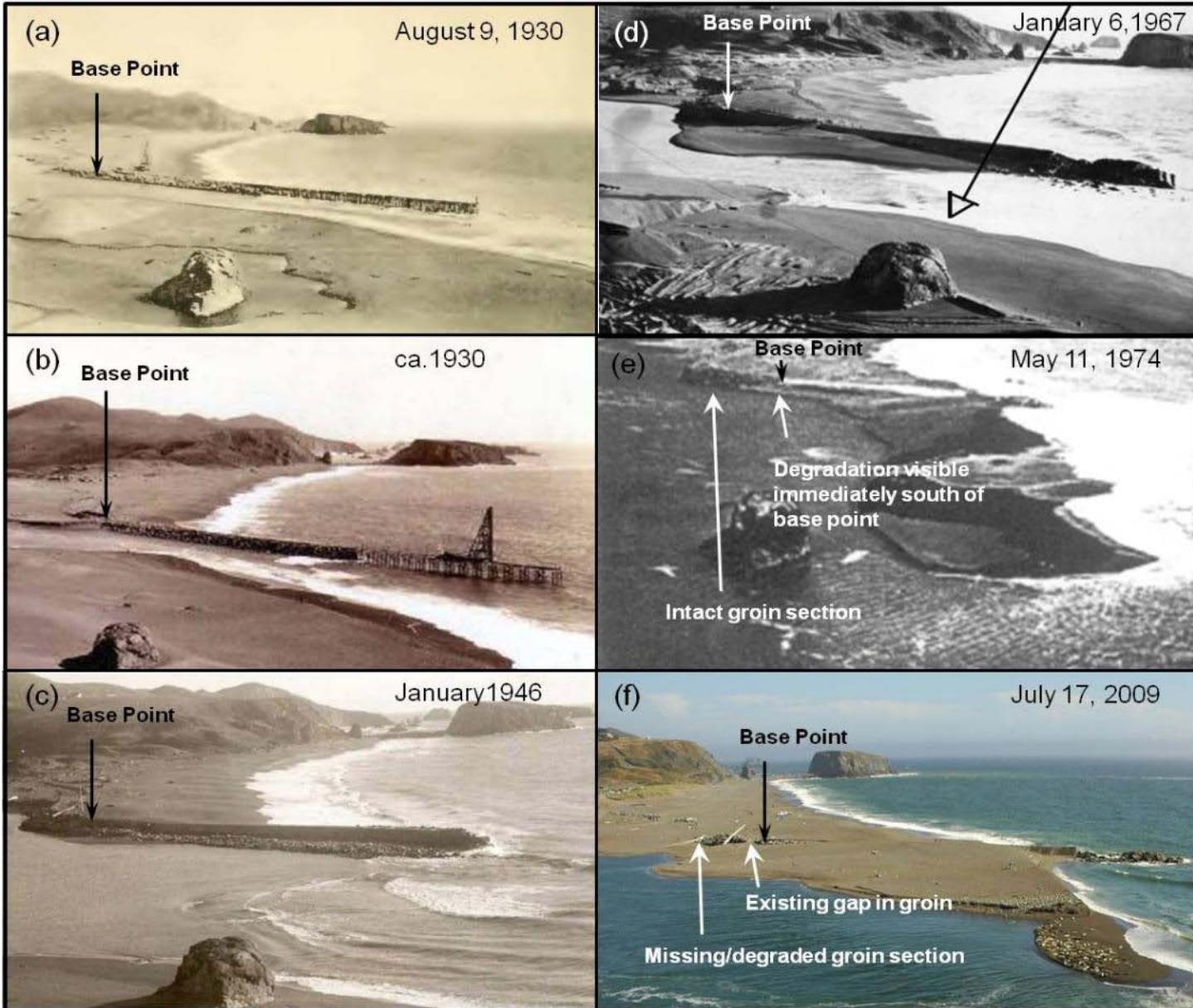
Inlet morphology

Groundwater permeability

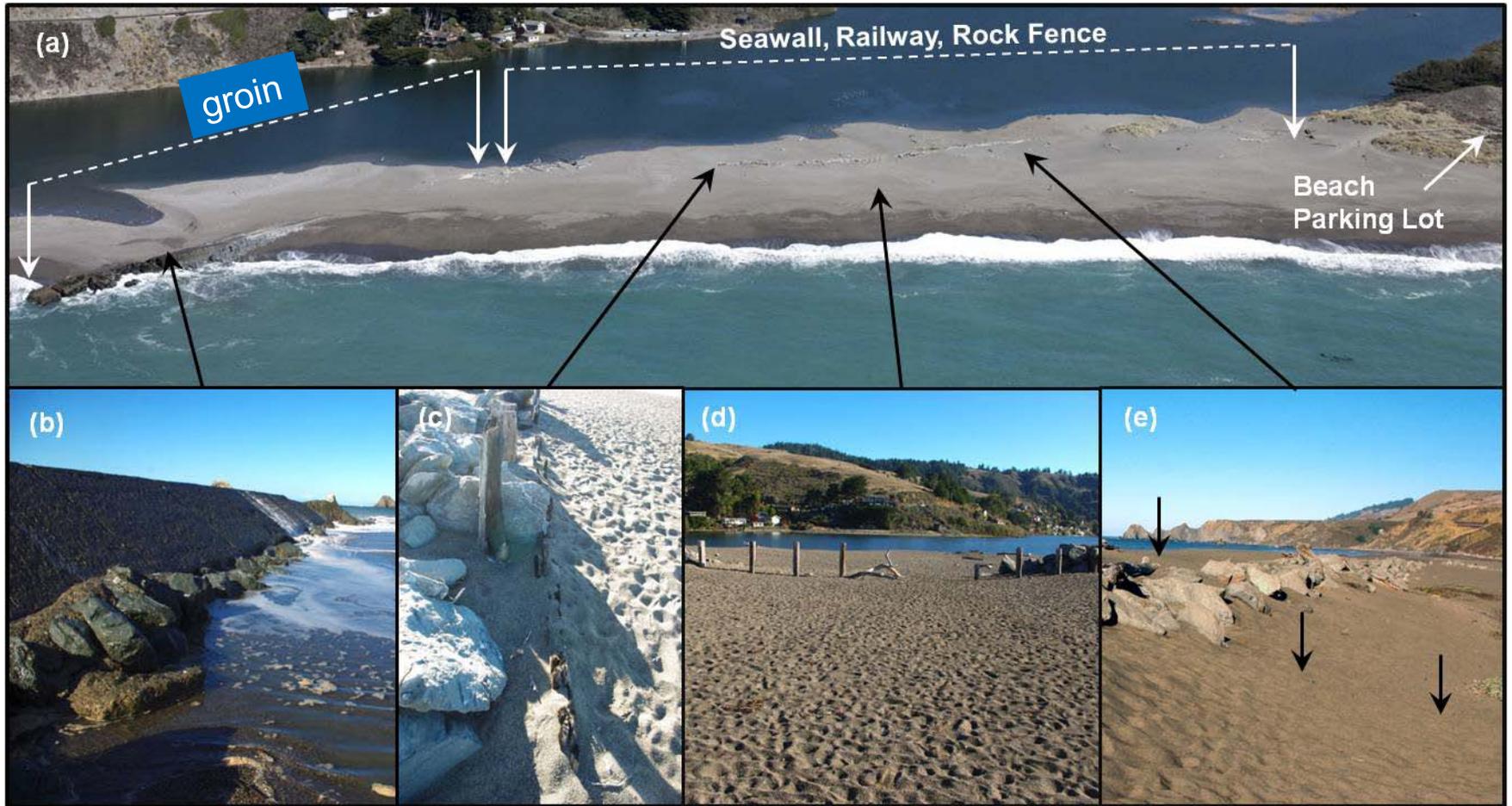
Beach morphology

An aerial photograph of a coastal inlet. A black outline highlights the inlet's boundary. A blue dashed line outlines a larger area including the inlet and surrounding land. Two labels are overlaid on the image: 'Groundwater permeability' in a light blue box and 'Beach morphology' in a light brown box, both oriented diagonally.

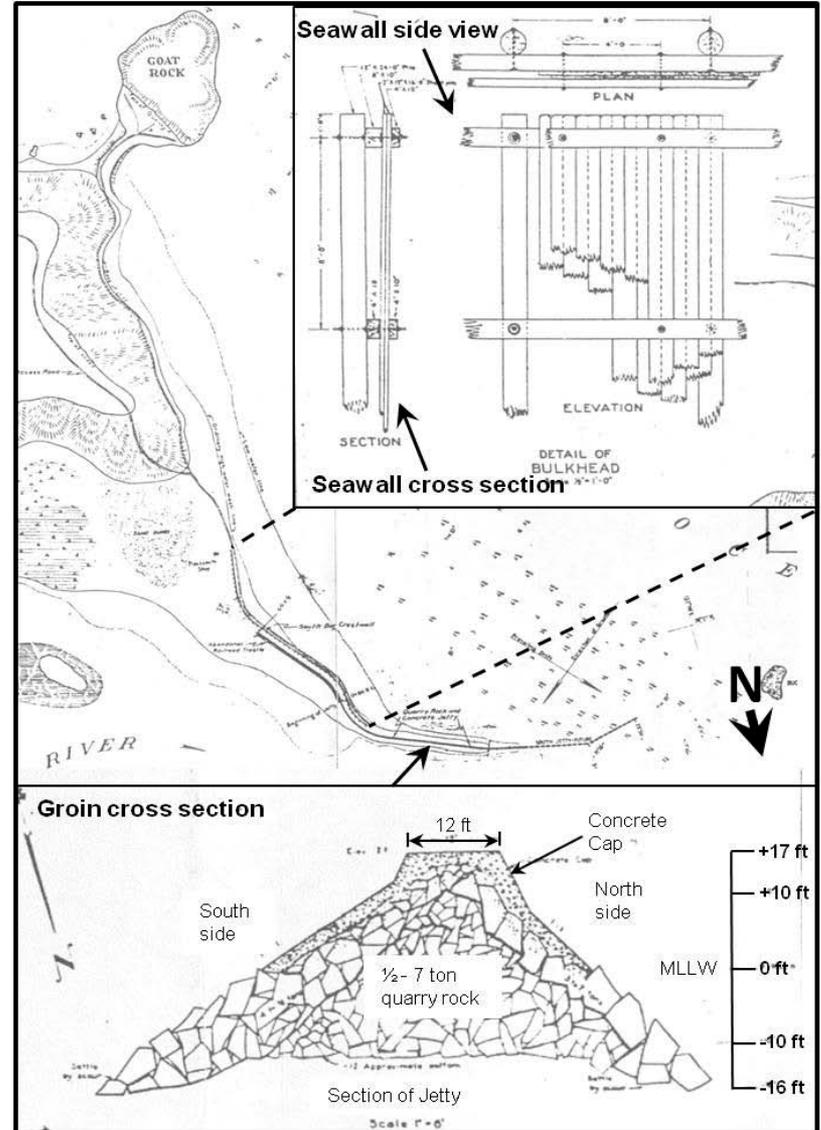
Evolution of the Jetty



Jetty Components

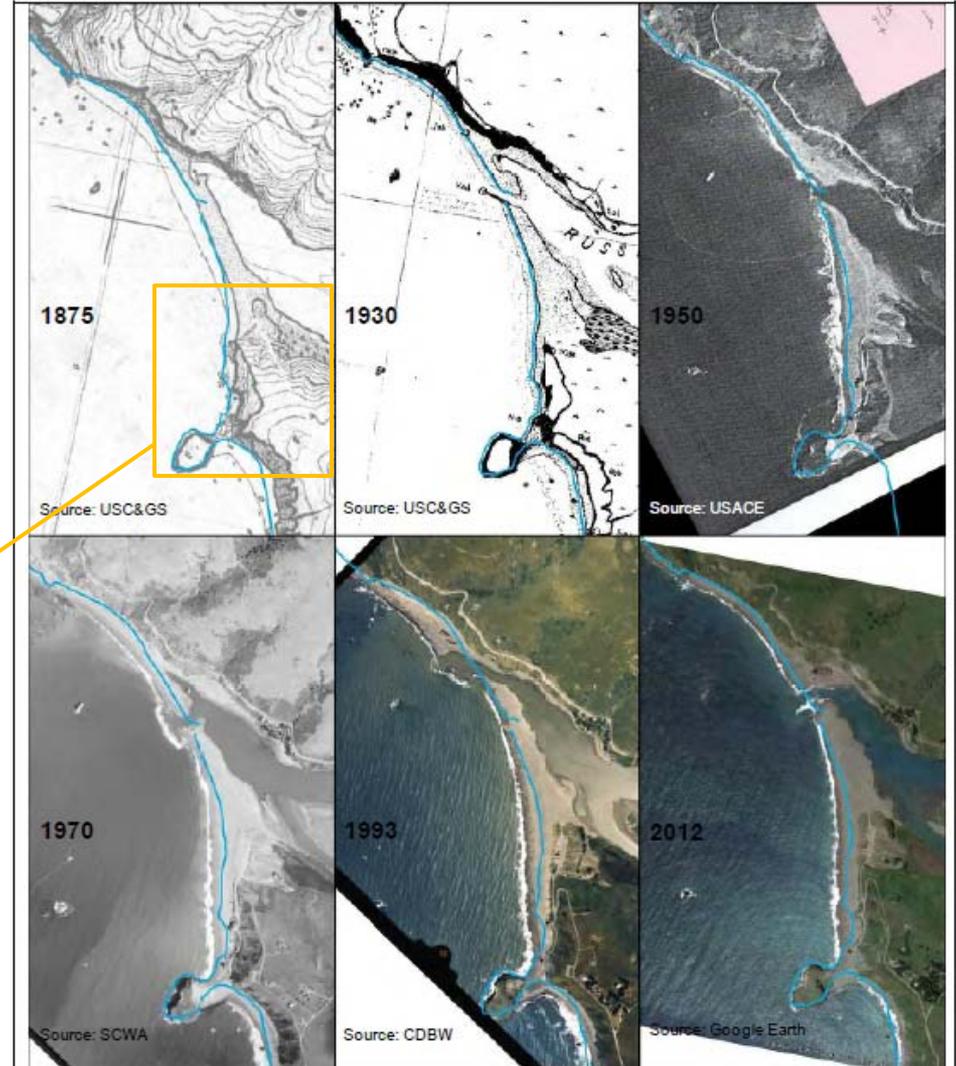


Jetty Components



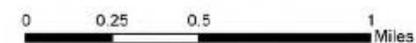
Beach Morphology: Influence of Construction Adjacent to Goat Rock

- Historic maps indicate that Goat Rock was only connected to the shore by a tombolo (low-lying sand spit) prior to jetty construction.
- Shoreline **accretion** of 1.5 ft/yr on GRSB since 1930.
- Shoreline **erosion** of 0.8 ft/yr at neighboring beach to the south since 1930.

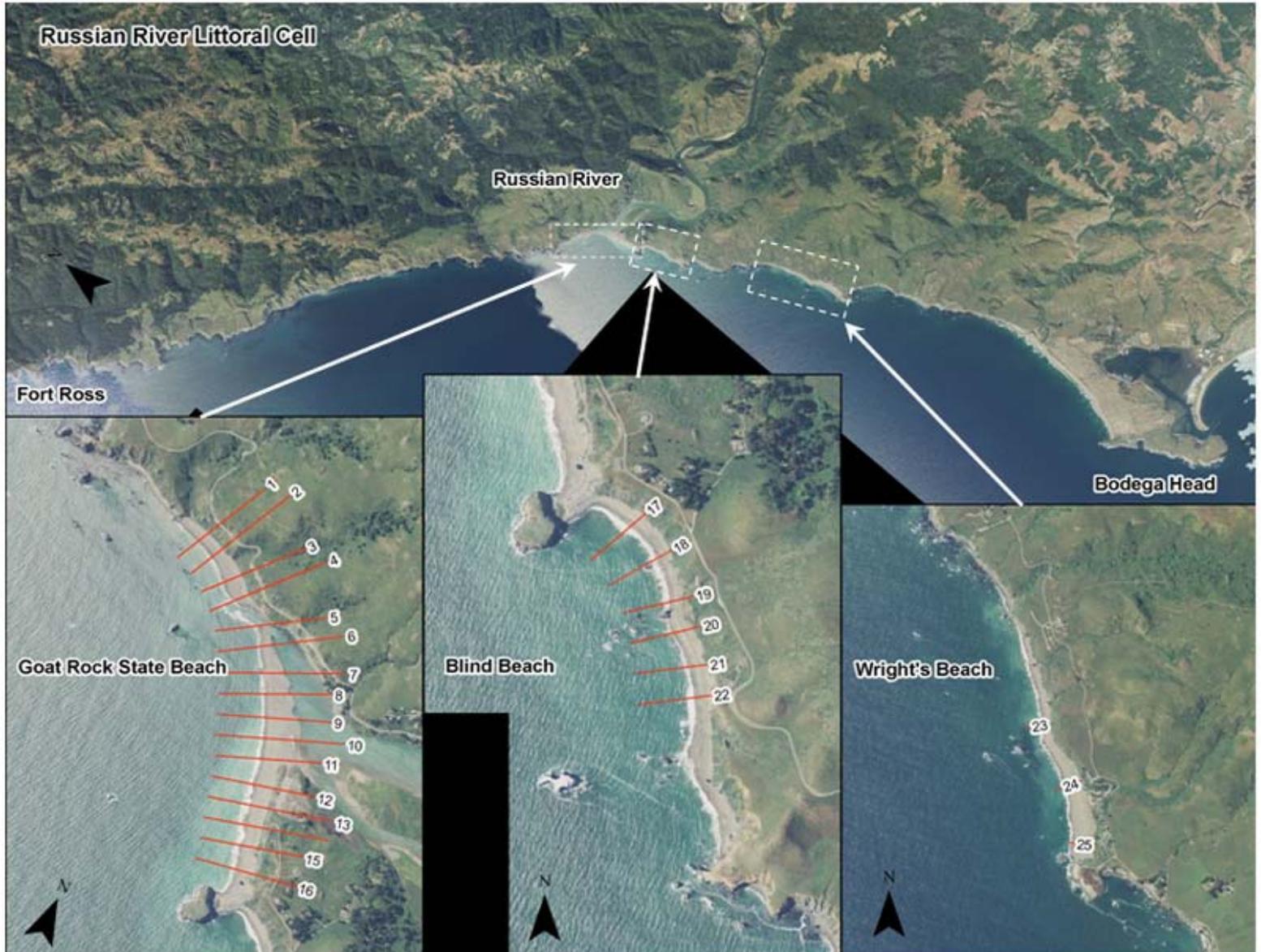


Legend

— 1930 shoreline

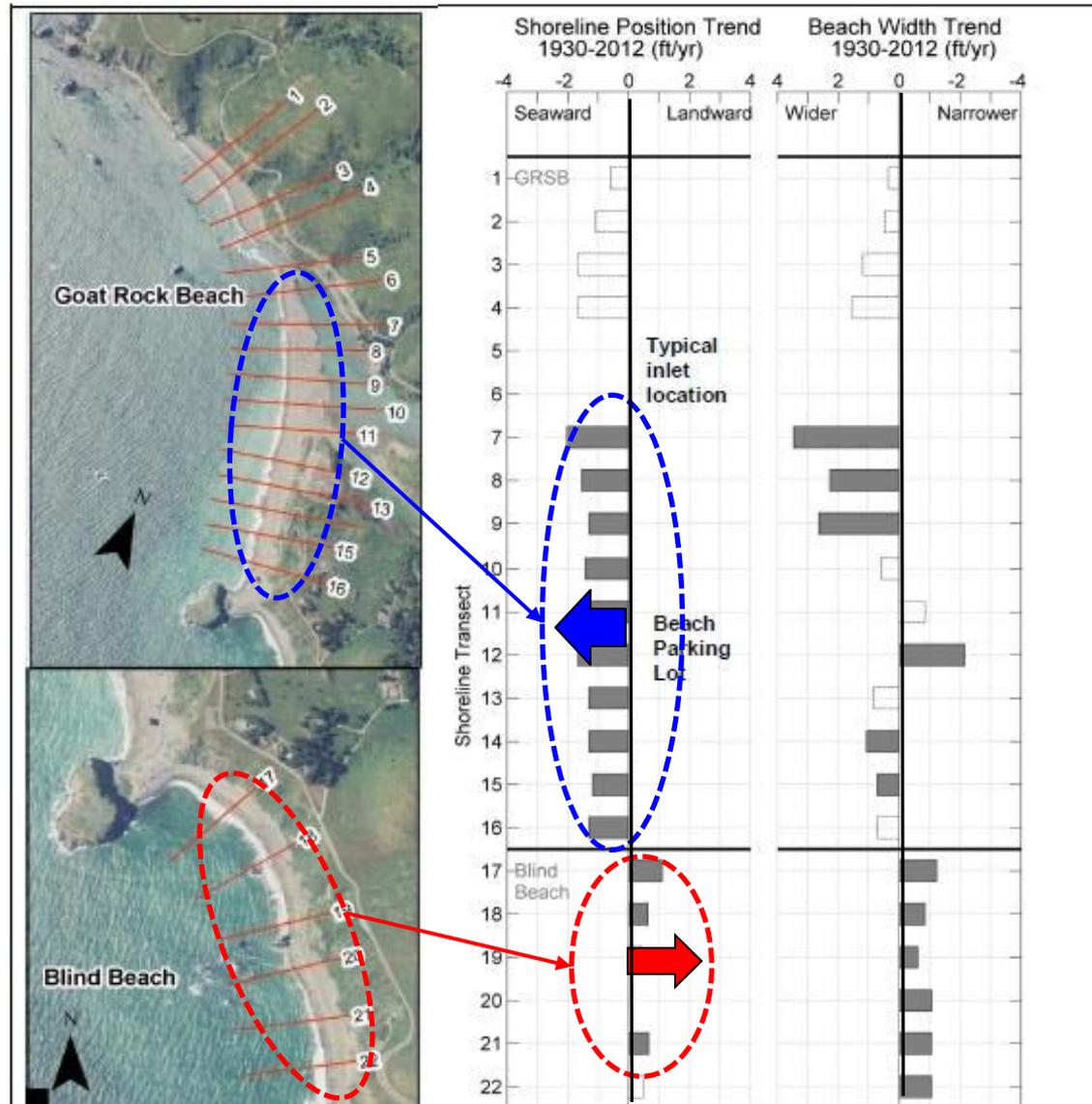


Beach Morphology: Comparing Nearby Beaches

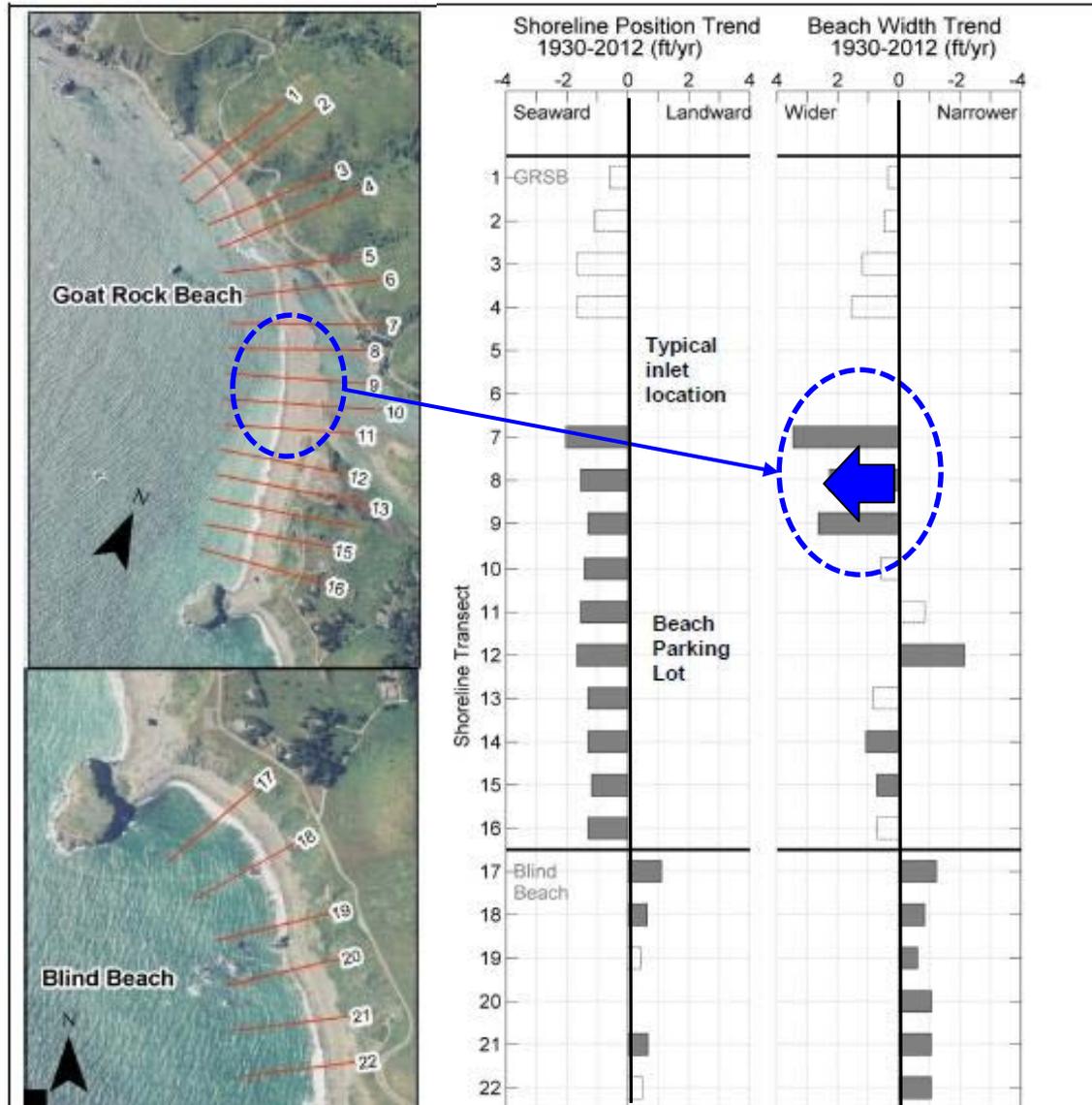


Beach Morphology:

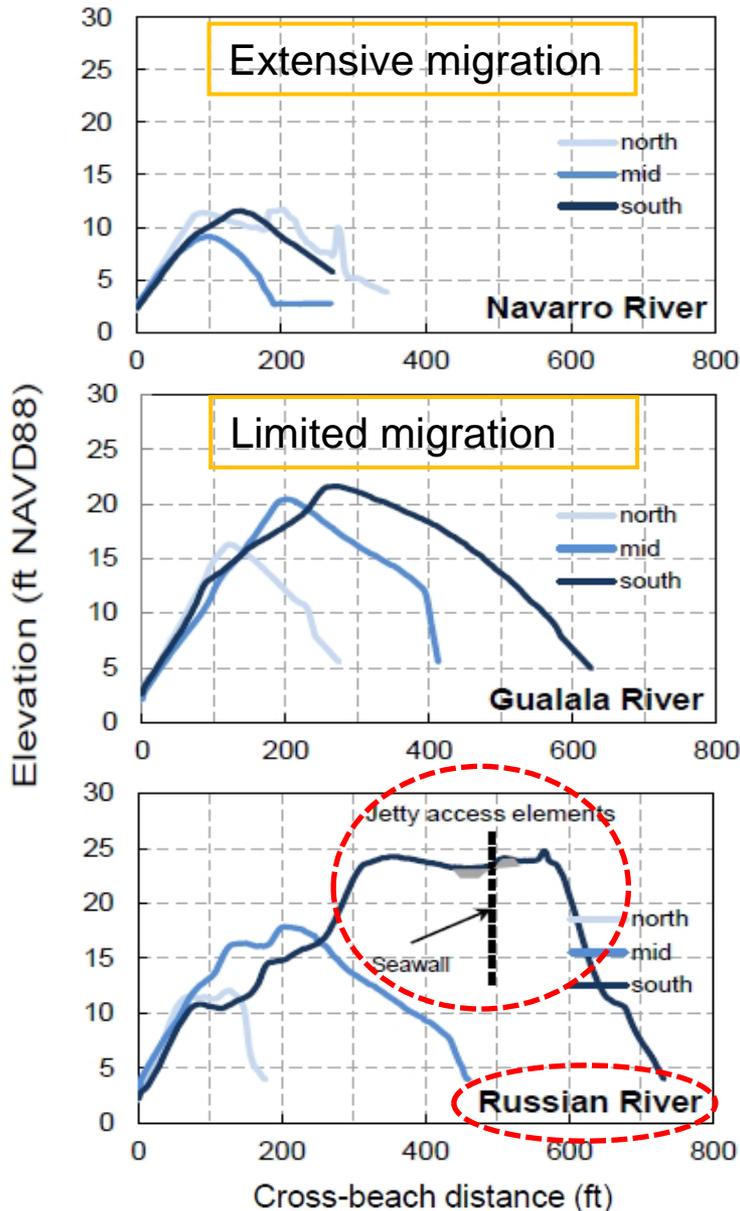
Influence of Construction Adjacent to Goat Rock



Beach Morphology: Influence of Jetty Access Elements



Beach Morphology: Influence of Jetty Access Elements

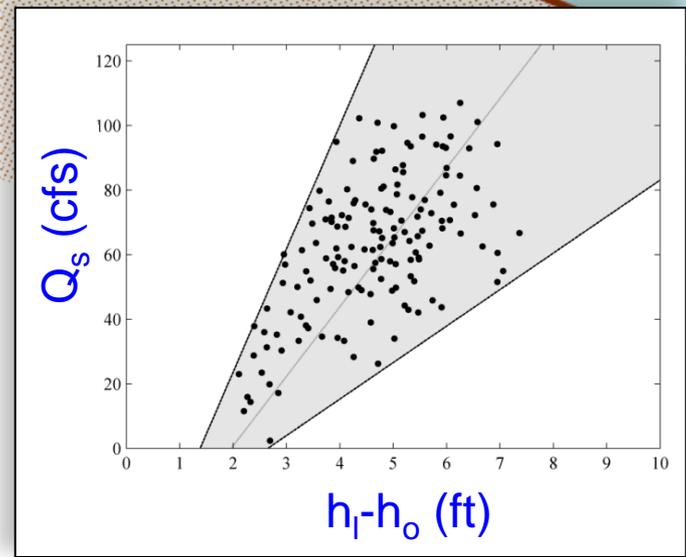
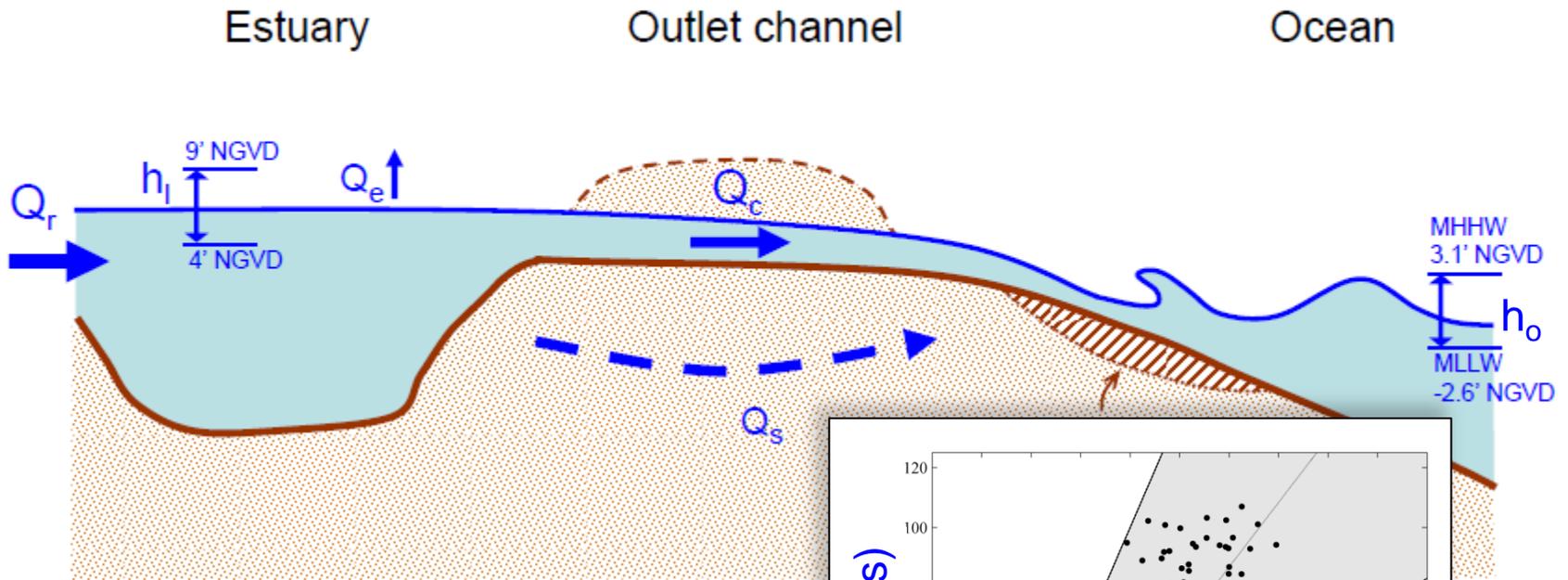


- Sites with extensive inlet migration have lower, nearly uniform beach spits
- Sites with less frequent inlet migration or movement have higher, less uniform beach crests
- Jetty access elements likely widened and maintained high beach south of the groin

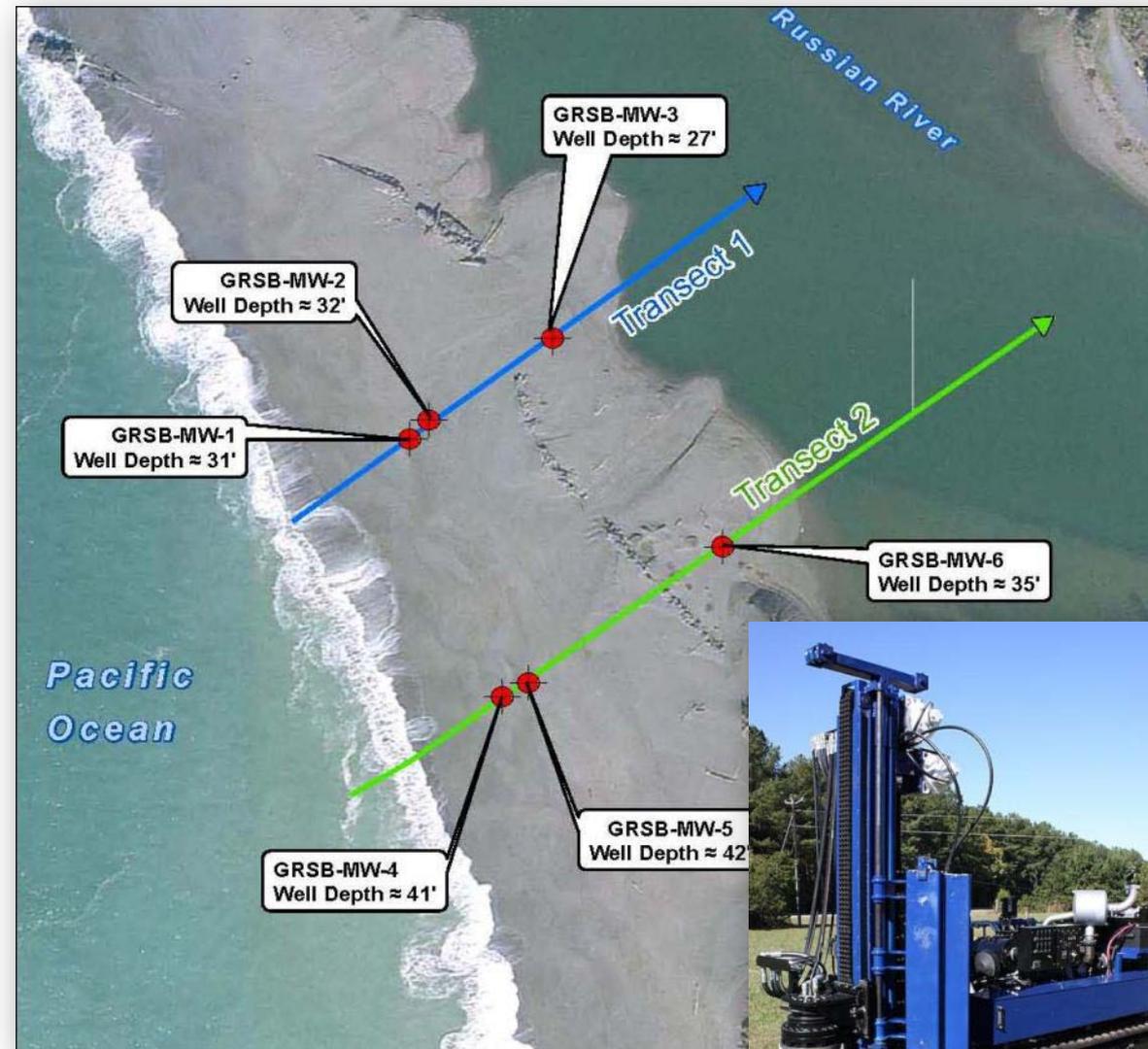
Inlet Morphology



Groundwater Seepage



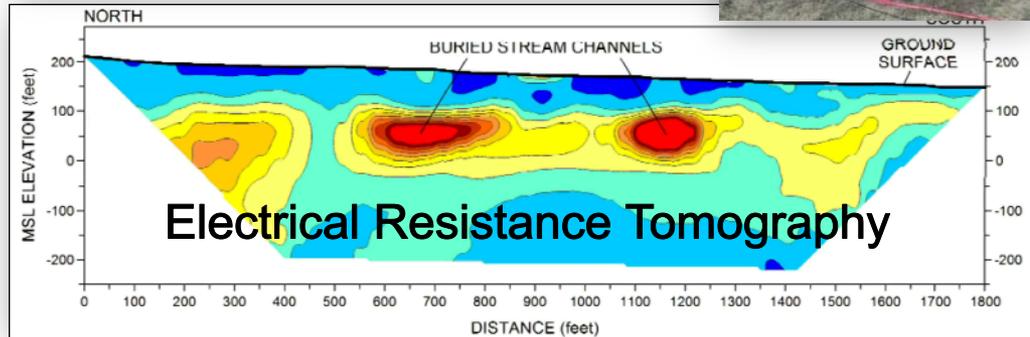
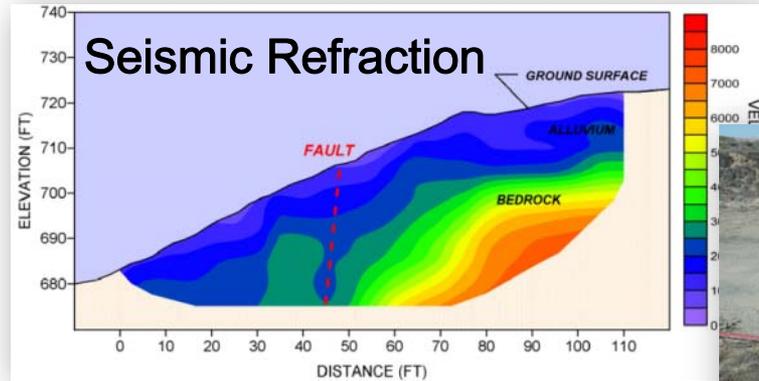
Future Work – Beach & Jetty Monitoring



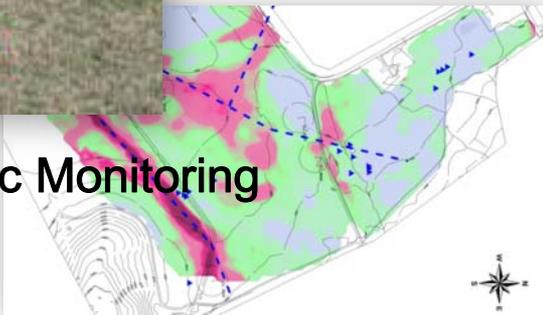
- Why? To better understand:
 - Size & composition of buried jetty sections
 - Thickness of sand & bedrock
 - Groundwater seepage through beach
- How? Monitoring Wells:
 - Up to 6 monitoring wells
 - 2" well casing
 - Top of well buried in sand
 - Wells to be instrumented
 - Monitored/maintained once per month
 - Public will have access to beach during construction
 - Restricted access in immediate vicinity of well construction
 - 2 to 4 days

Future Work – Beach & Jetty Monitoring

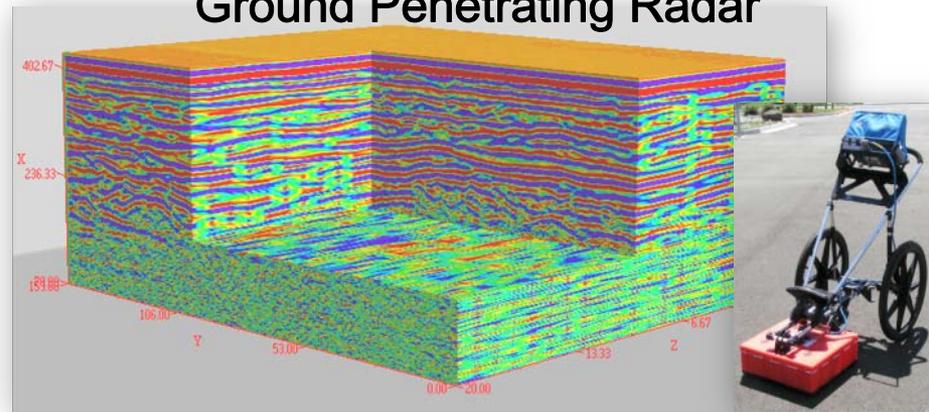
- How? Geophysical Surveys
 - Portable Equipment: No permanent installation required
 - Public will have access to beach
 - Restricted access in immediate vicinity of survey activity
 - 1 to 2 days per survey
 - Researchers:
 - Lawrence Berkeley National Lab
 - NorCal Geophysical



Electromagnetic Monitoring



Ground Penetrating Radar



Jetty Feasibility Study – Next steps

- Permits
- Complete beach & jetty monitoring, technical studies
 - LBNL, NorCal Geophysical, BML, ESA PWA
- Develop alternatives descriptions
- Alternatives evaluation
- Draft feasibility study report
- Final feasibility study report (est. Dec. 2013)