

VEGETATION LINE BUILDING SETBACK EXAMPLES IN THE PROPOSED INLET HAZARD AREAS

Spencer Rogers

UNC-Wilmington Coastal Engineering Program



Vegetation Line As a Building Setback Reference Feature

Proven to work well in NC:

- **Storm-induced erosion**
- **Long-term erosion**

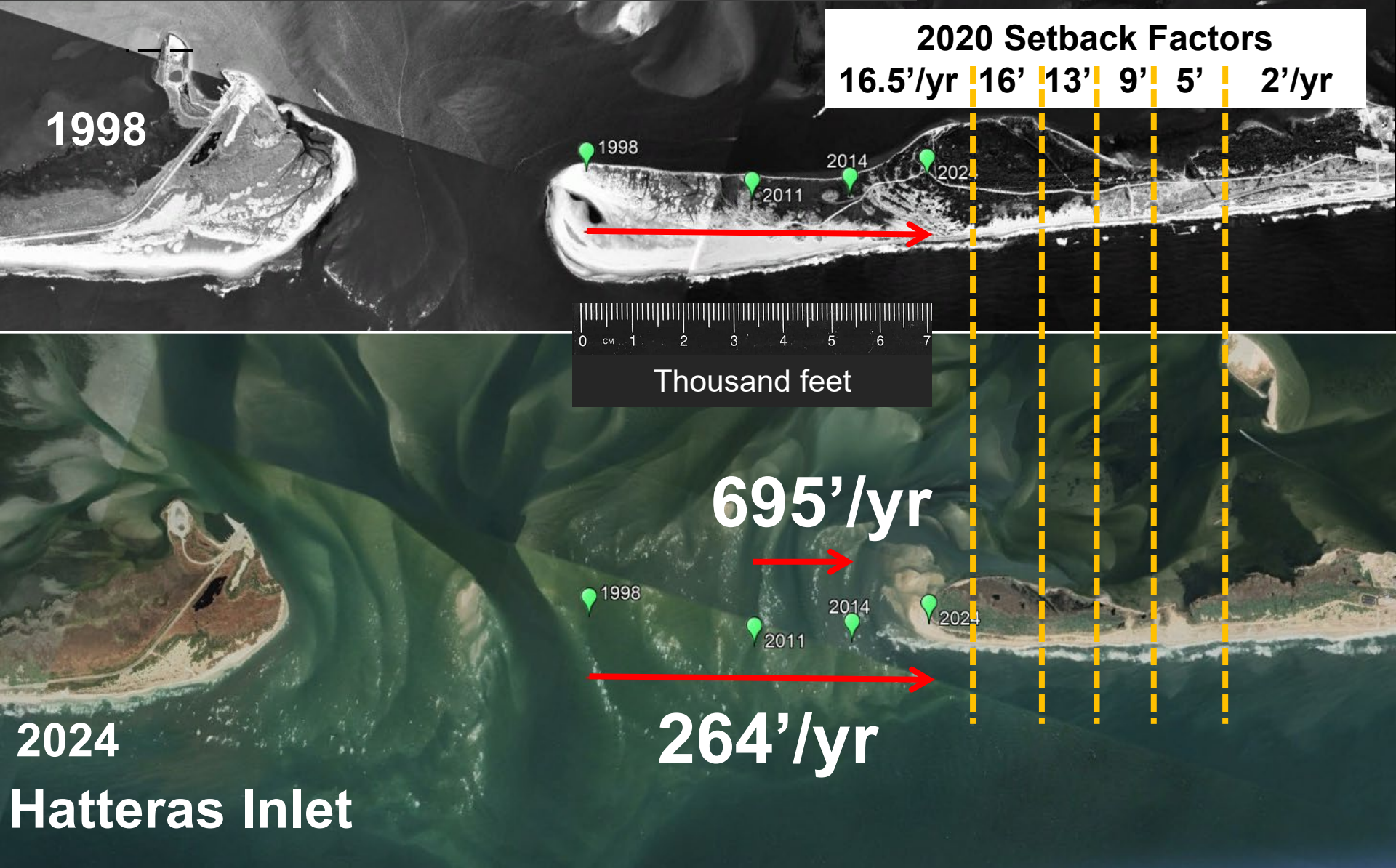
Does not work well:

- **Beachfill (pre-project Veg Line, in use)**
- **Near Inlets (Hybrid Veg Line,
recommended)**

Why are shorelines near inlets different from other ocean shorelines?

- **Volatile balance between tidal currents & waves moving sand**
- **Higher shoreline variability
(~10 to 100 times)**
- **Long-term cycles (5 to 50+yr)**

VEGETATION LINE BUILDING SETBACK EXAMPLES INLET SHORELINE CHANGE



VEGETATION LINE BUILDING SETBACK EXAMPLES

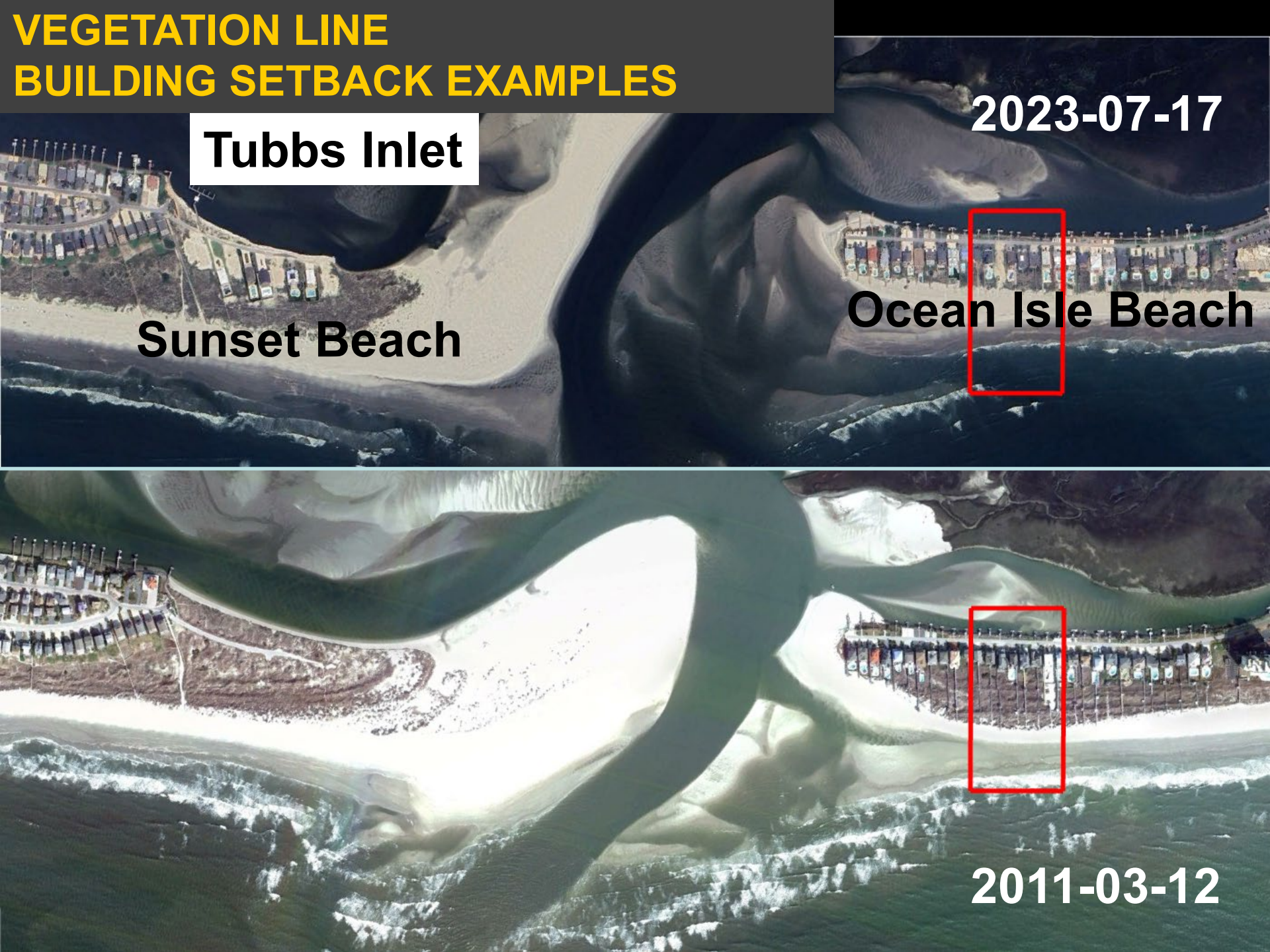
Tubbs Inlet

Sunset Beach

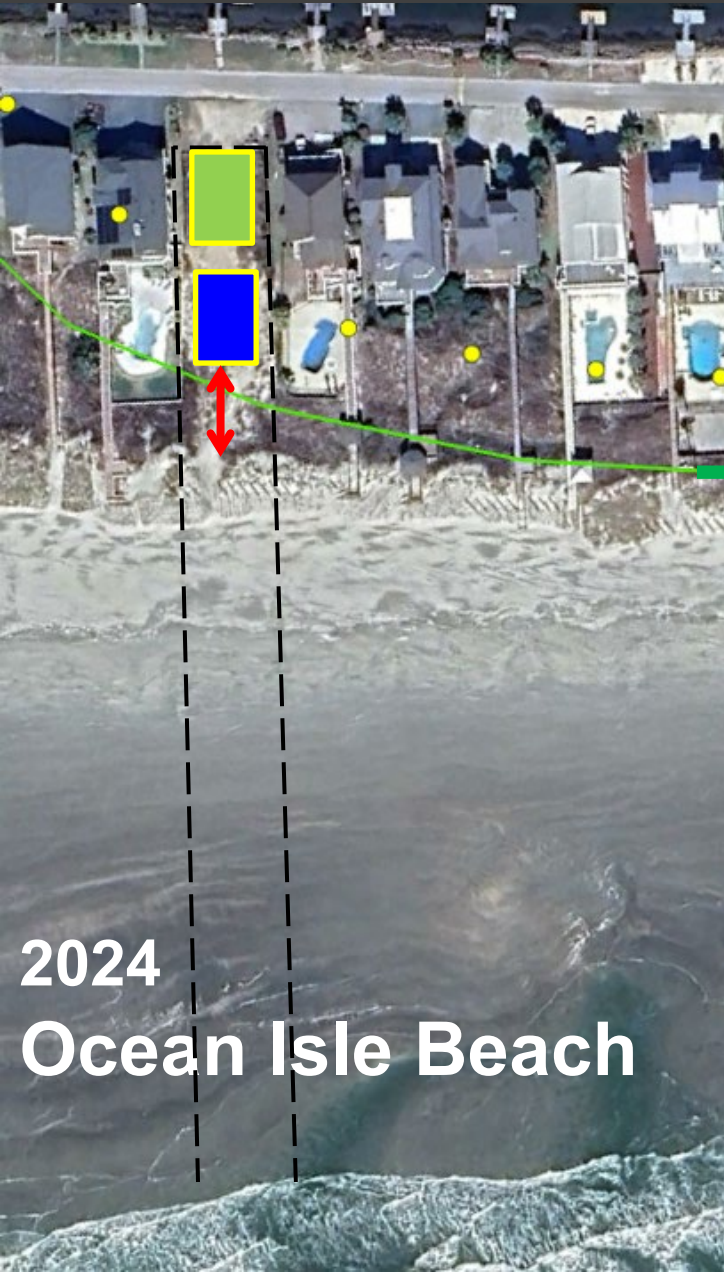
2023-07-17

Ocean Isle Beach

2011-03-12



VEGETATION LINE BUILDING SETBACK EXAMPLES



- **30-Year Risk Line**
— **Hybrid Vegetation Line**

Single Family House

2-Story, 5000 sf

Setback Factor = -2'/yr (erosion)

60' setback

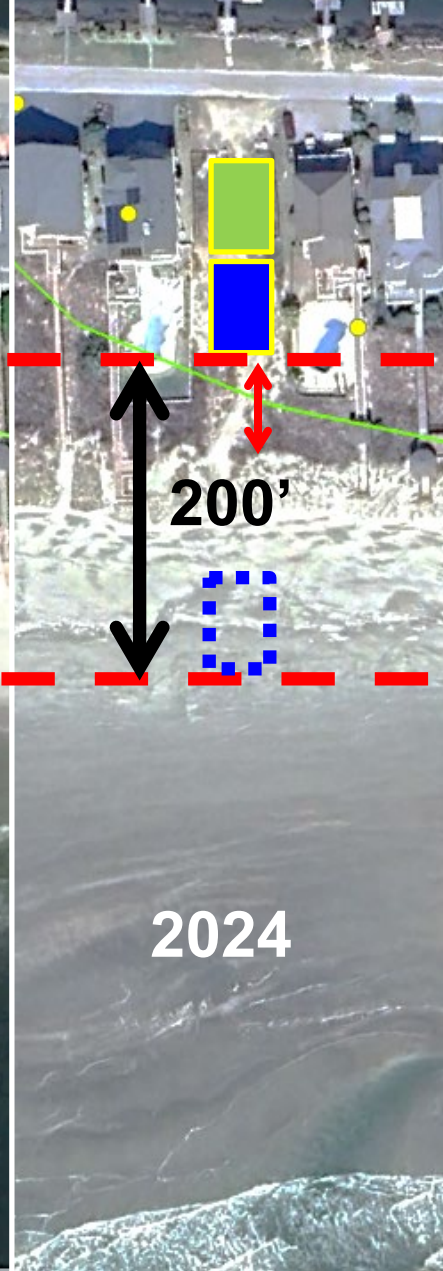
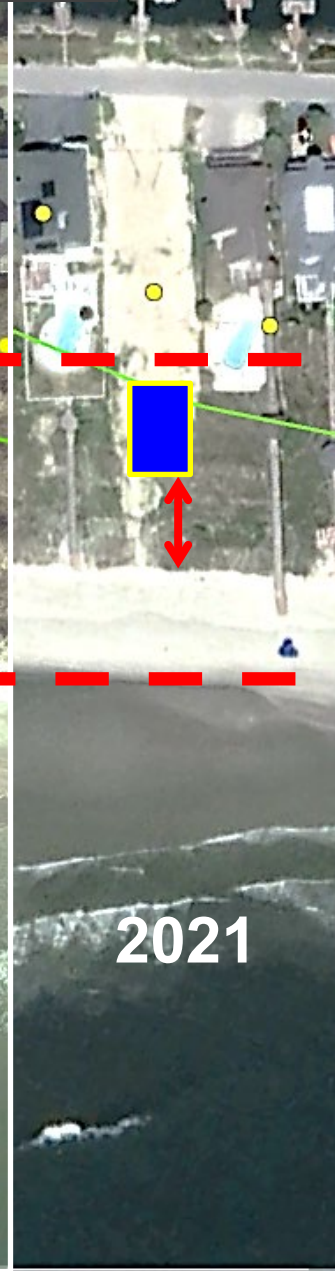
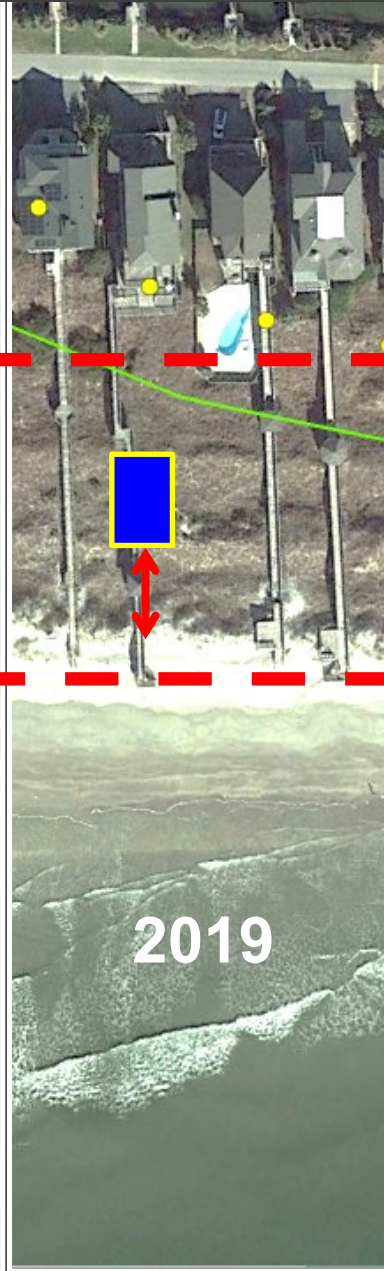
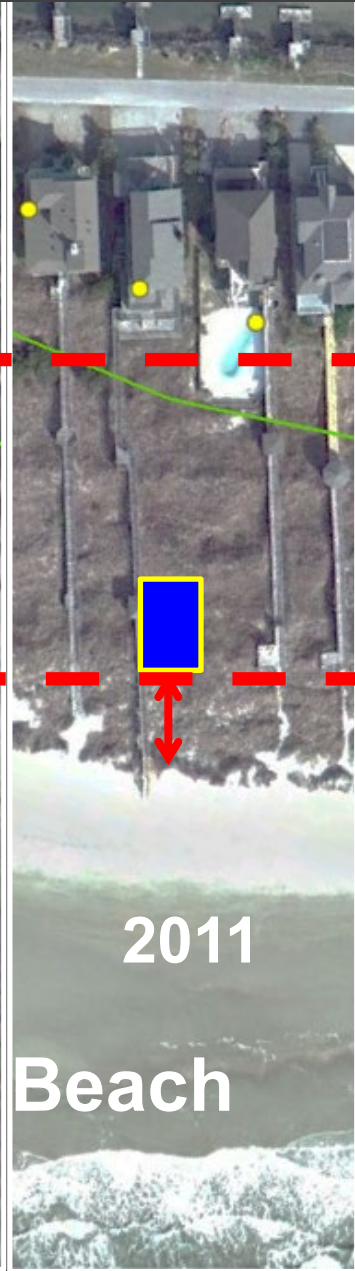
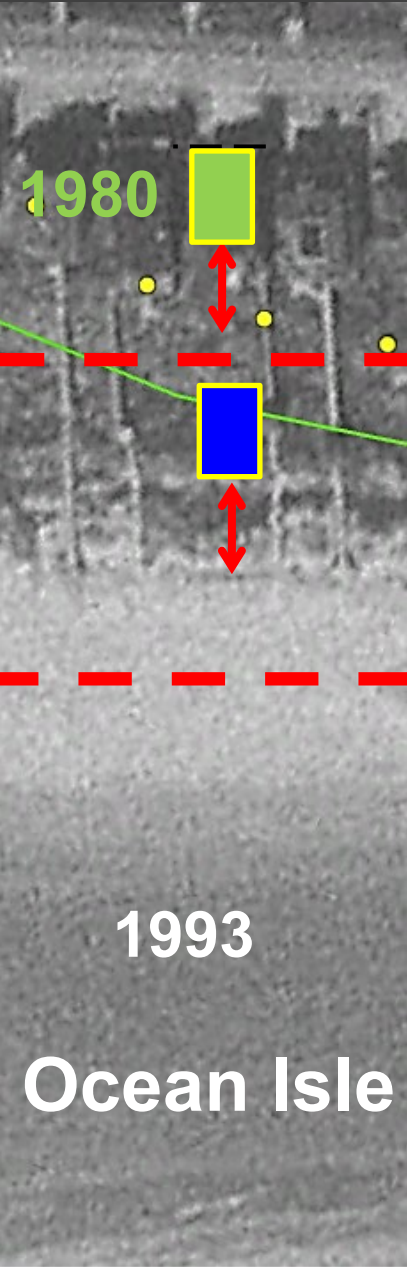
Erosion Rates:

1944 → 2016 = +1.8'/yr (accretion)

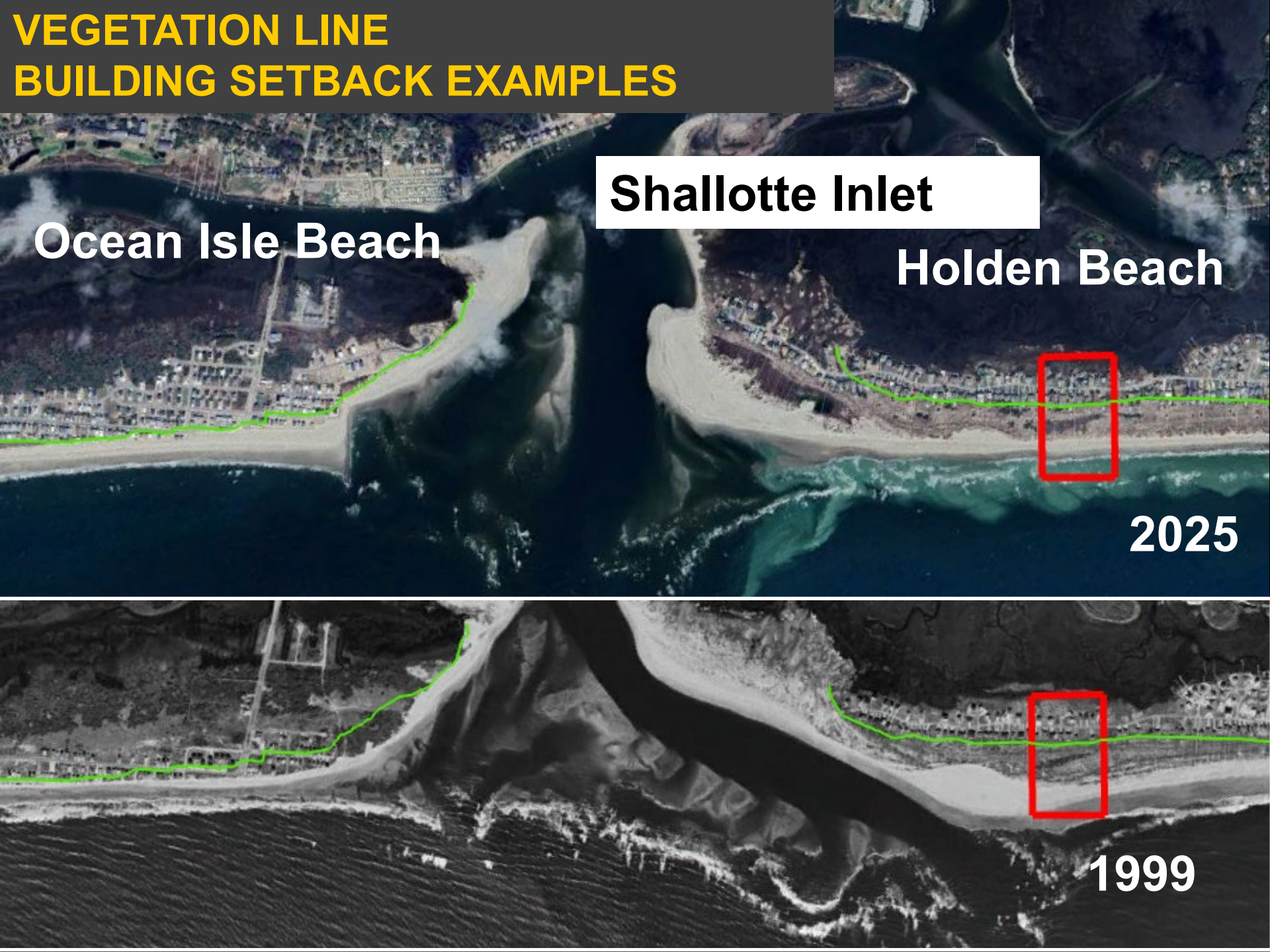
2011 → 2024 = -15'/yr

2024
Ocean Isle Beach

VEGETATION LINE BUILDING SETBACK EXAMPLES



**VEGETATION LINE
BUILDING SETBACK EXAMPLES**

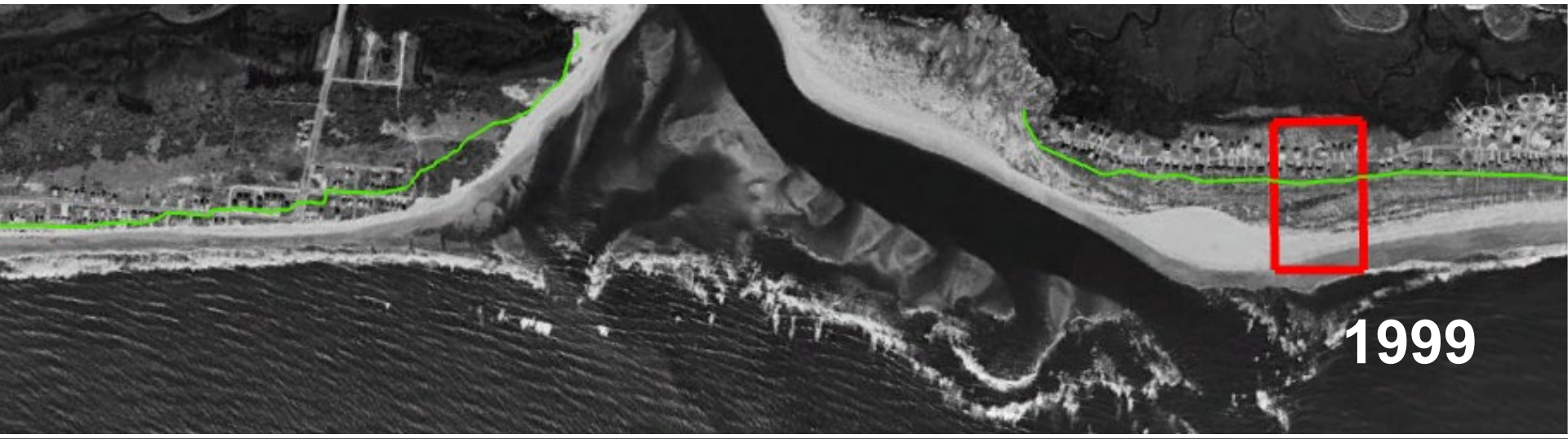


Shallotte Inlet

Ocean Isle Beach

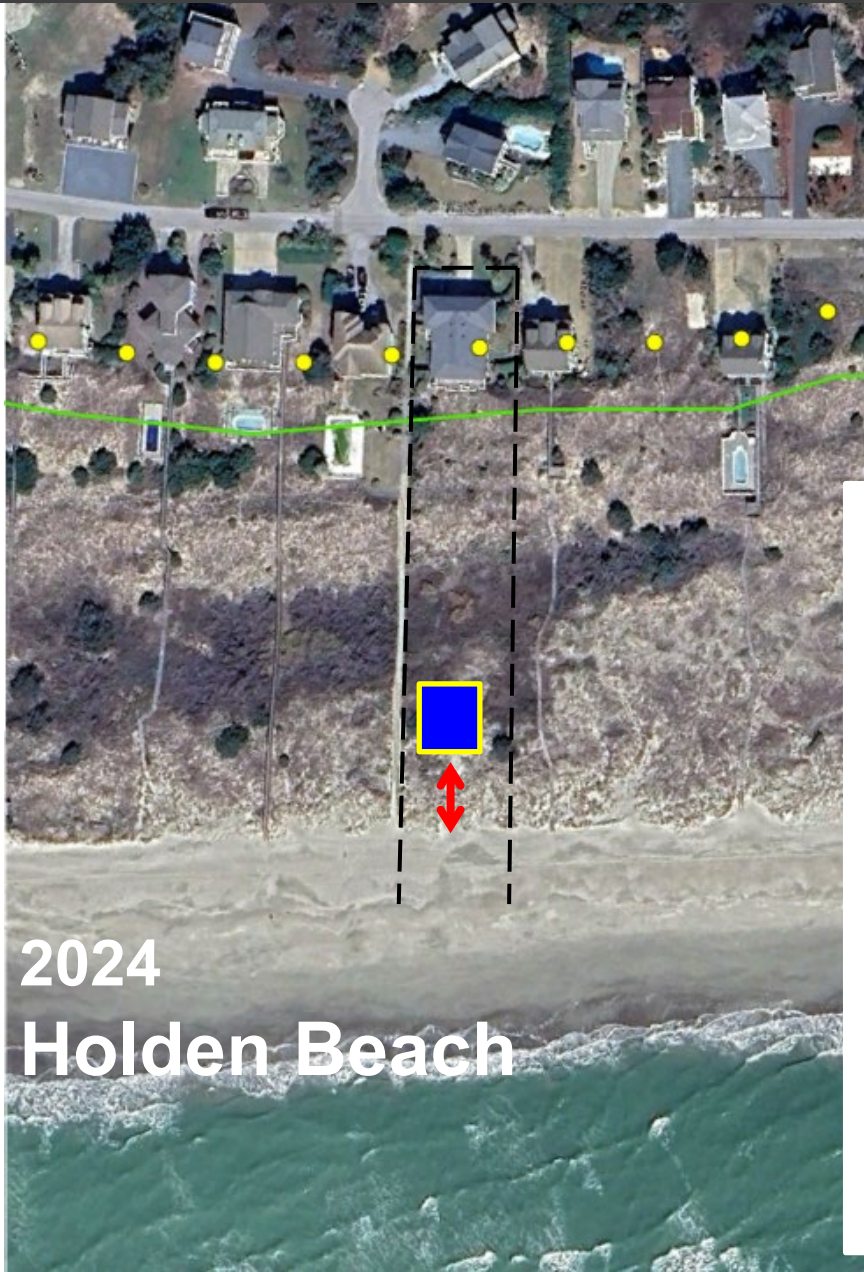
Holden Beach

2025



1999

VEGETATION LINE BUILDING SETBACK EXAMPLES



- 30-Year Risk Line
- Hybrid Vegetation Line

Single Family House

2-Story, 5000 sf

Setback Factor = -2'/yr (erosion)

60' setback



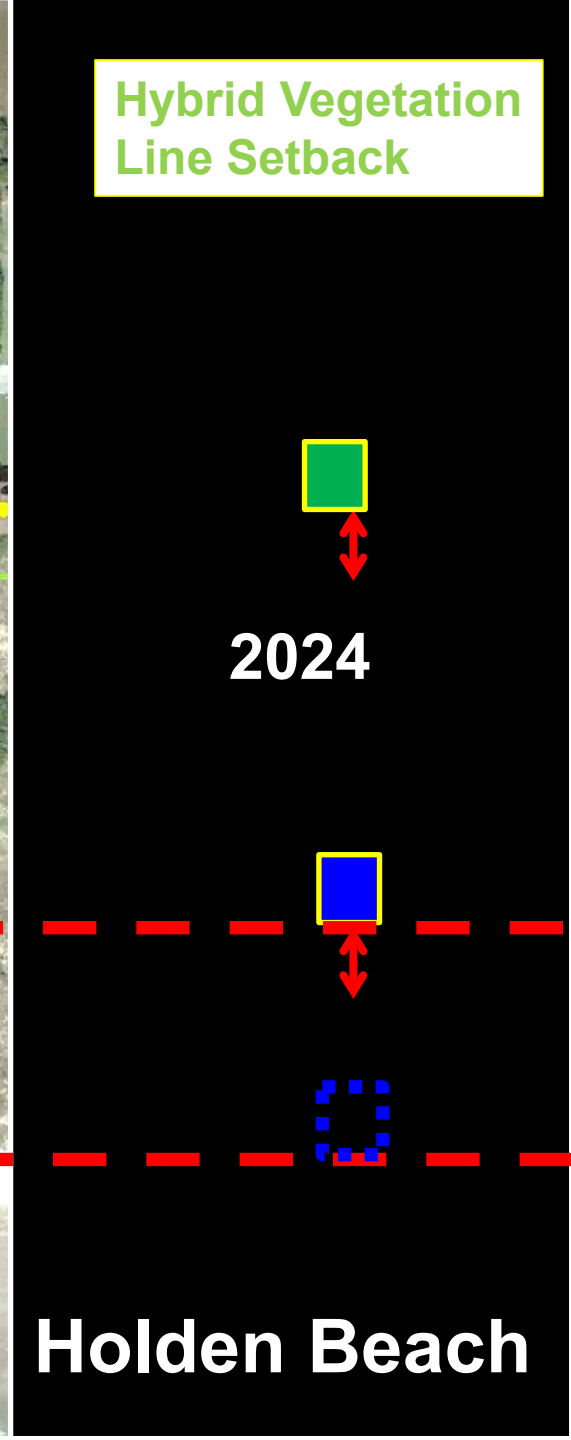
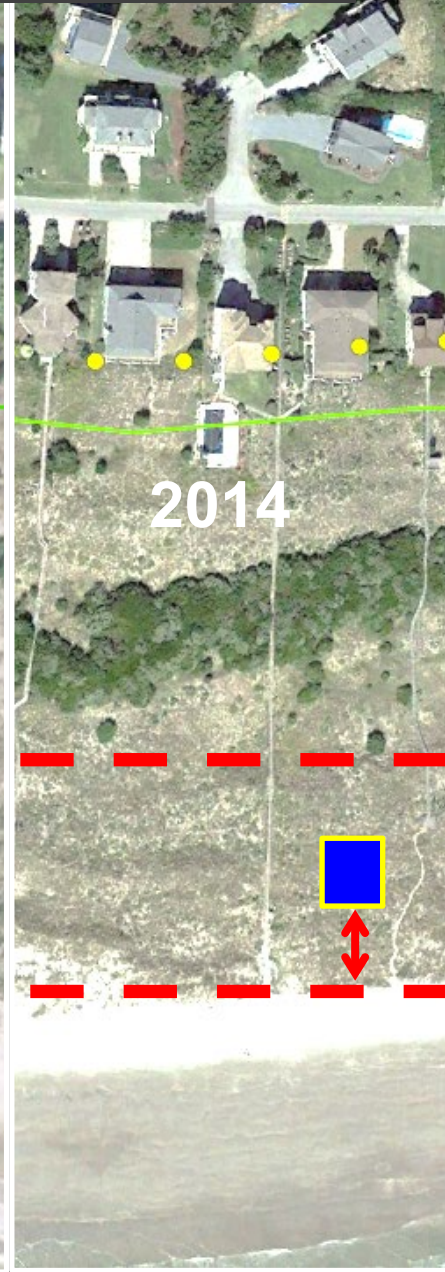
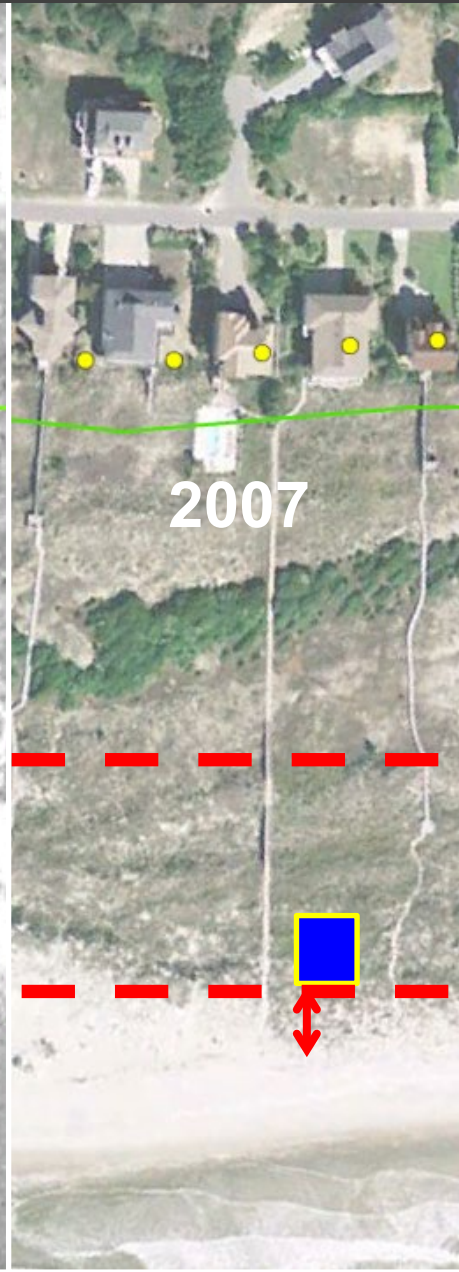
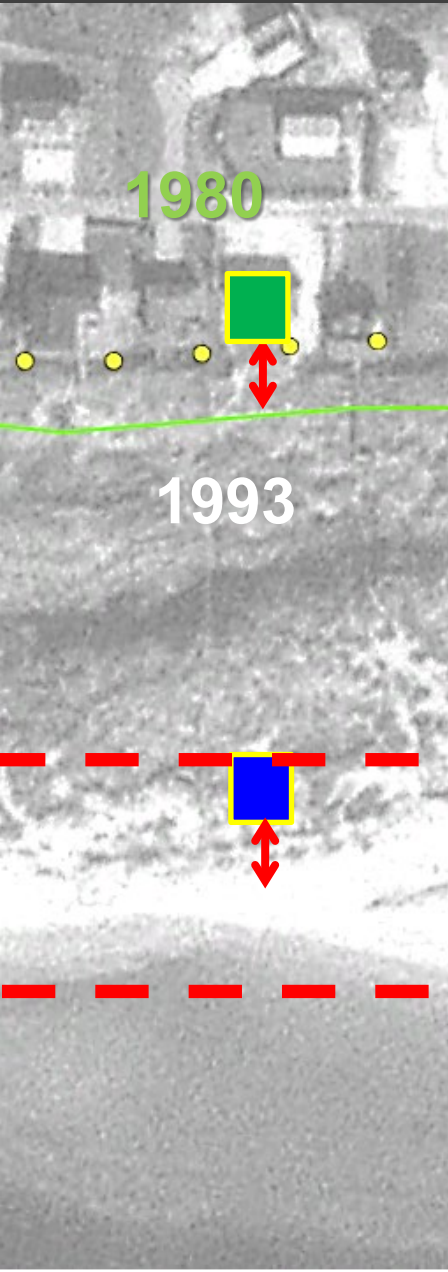
Erosion Rates:

1944→2016 = +7.4'/yr accretion

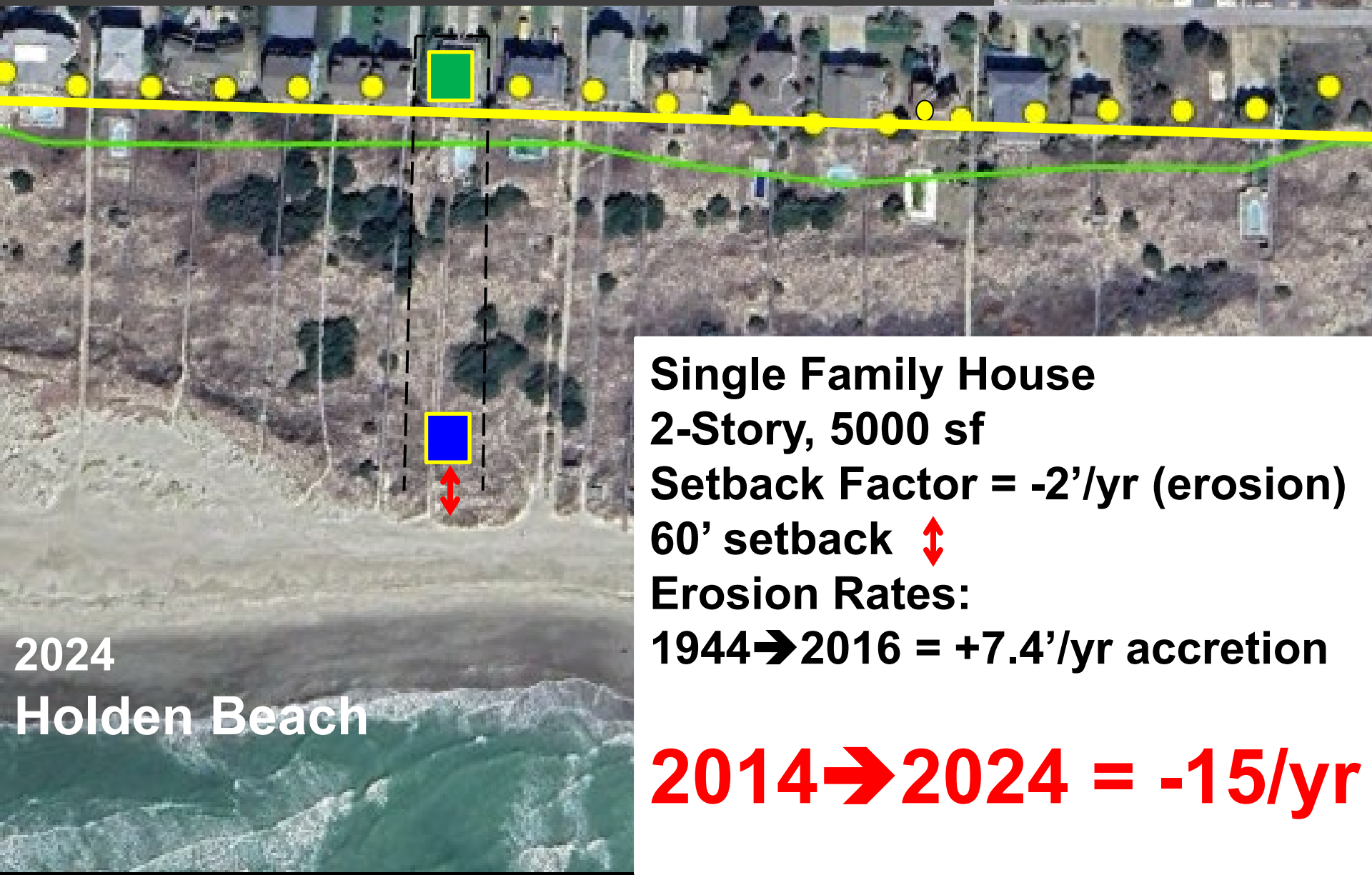
2014→2024 -15'/yr

2024
Holden Beach

VEGETATION LINE BUILDING SETBACK EXAMPLES



● 30-Year Risk Line Adjustment
--- Hybrid Vegetation Line



Single Family House
2-Story, 5000 sf
Setback Factor = -2'/yr (erosion)
60' setback $\updownarrow$
Erosion Rates:
1944 $\rightarrow$ 2016 = +7.4'/yr accretion

2014 $\rightarrow$ 2024 = -15/yr

2024
Holden Beach

