

A Brief Evaluation of the Benefits and Impacts Of Terminal Groins

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PROGRAM FOR
THE STUDY OF
DEVELOPED
SHORELINES

What is a terminal groin

1. Shore perpendicular structure on one side of an inlet
2. Designed to stabilize the island, not the inlet
3. Most structures identified as terminal groins were originally called jetties, and served both functions



Oregon Inlet

Groins

The United States Army Corps of Engineers' Coastal Engineering Manual describes groins as: "...probably the most misused and improperly designed of all coastal structures...Over the course of some time interval, accretion causes a positive increase in beach width updrift of the groin. Conservation of sand mass therefore produces erosion and a decrease in beach width on the downdrift side of the groin" (USACE, 2002).



Groins are shore perpendicular structures designed to
Trap sand that is moving alongshore



Interrupting longshore transport can have disastrous results

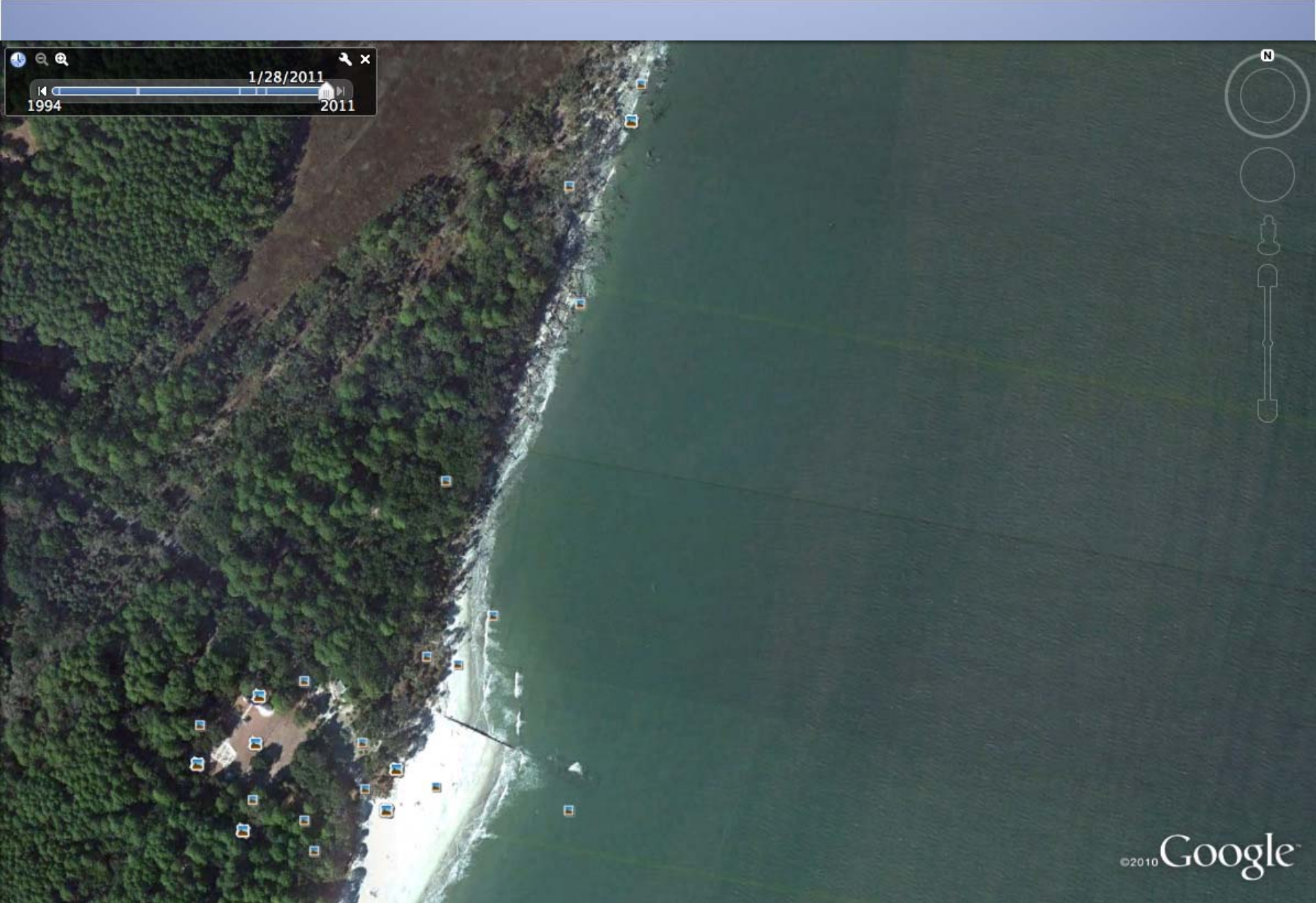
Groin compartments will not remain full!

- Storms, high tides, will remove sand offshore
- Groins will trap sand moving alongshore
- Downdrift beaches will be deprived of sand



1/28/2011
1994 2011

N



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Imagery Date: 1/28/2011 1994

32°22'37.61" N 80°26'03.14" W elev 0 m

Eye alt 902 m

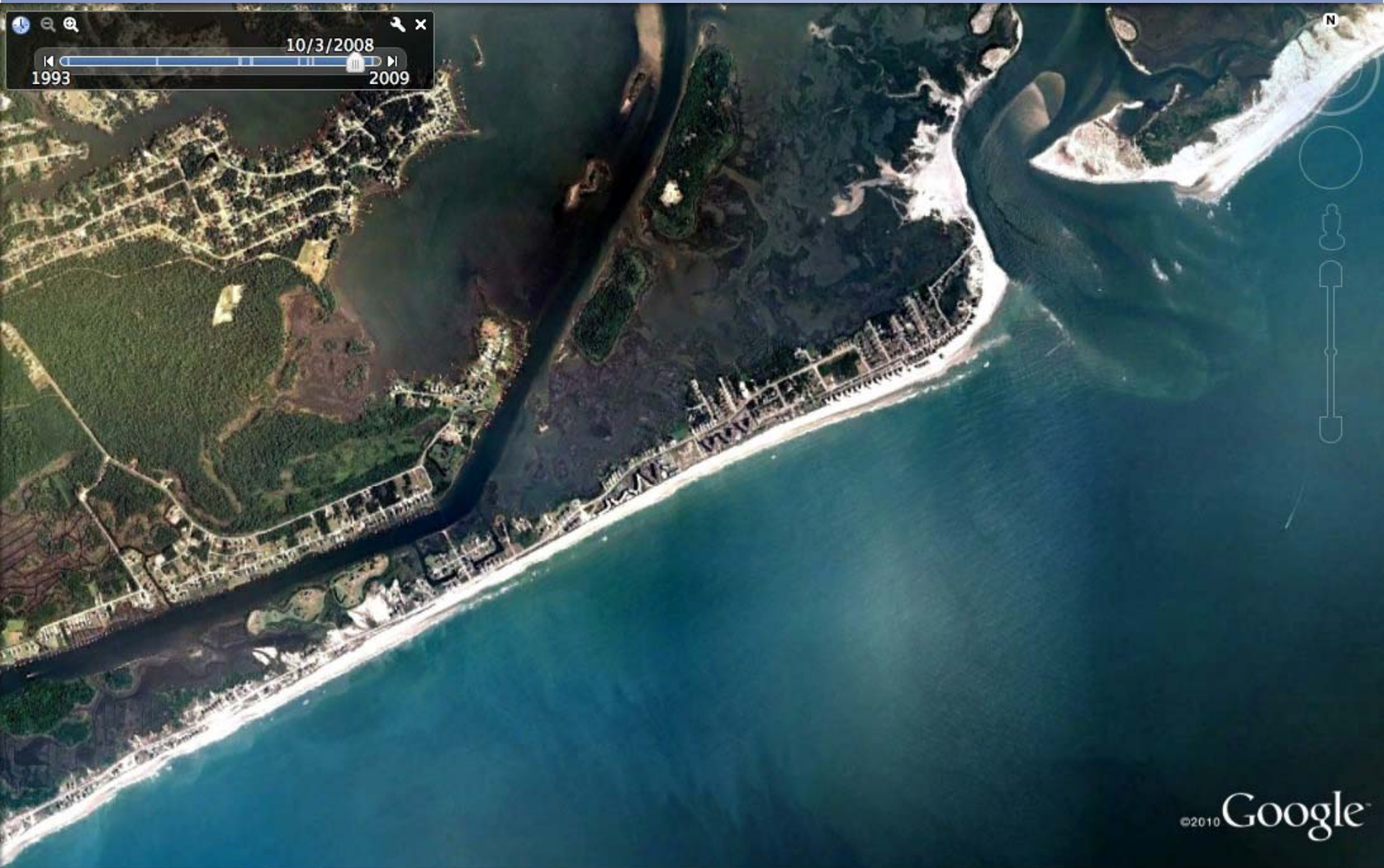
What the terminal groin study did not show

- Decrease in the need for beach nourishment associated with the construction of a groin
- Reduction in the cost of shoreline management for a community that builds a groin
- That terminal groins are being used “everywhere” with great success

What the terminal groin study did show

- Stabilize the tip of the island
- Environmental impacts
- Changes to inlet configuration
- Winners and losers downdrift
- All sites still needed large scale beach nourishment

10/3/2008
1993 2009



Not considered by the terminal groin study

- The impact of the structure on sand bypassing the inlet, and therefore, the impact on properties down the island
- Structure will change inlet configuration. What impact does this have.



10/3/2008
1993 2009

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Imagery Date: 6/25/2008 1993

34°31'42.39" N 77°20'26.67" W elev 0 m

Eye alt 2.00 km

What to ask the consultants who are recommending a terminal groin

- Will the structure decrease the need for beach nourishment along NTB?
 - Reduced frequency?
 - Reduced Volume?
 - How did you determine this?
- Exactly which properties will benefit from the structure and to what degree? How did you determine this
- How might the structure impact sand moving across the inlet from north to south?

Final Caution

- NC coastal management has been the best in the country
- Building groins will bring lawsuits
- Sebastian Inlet case in FL