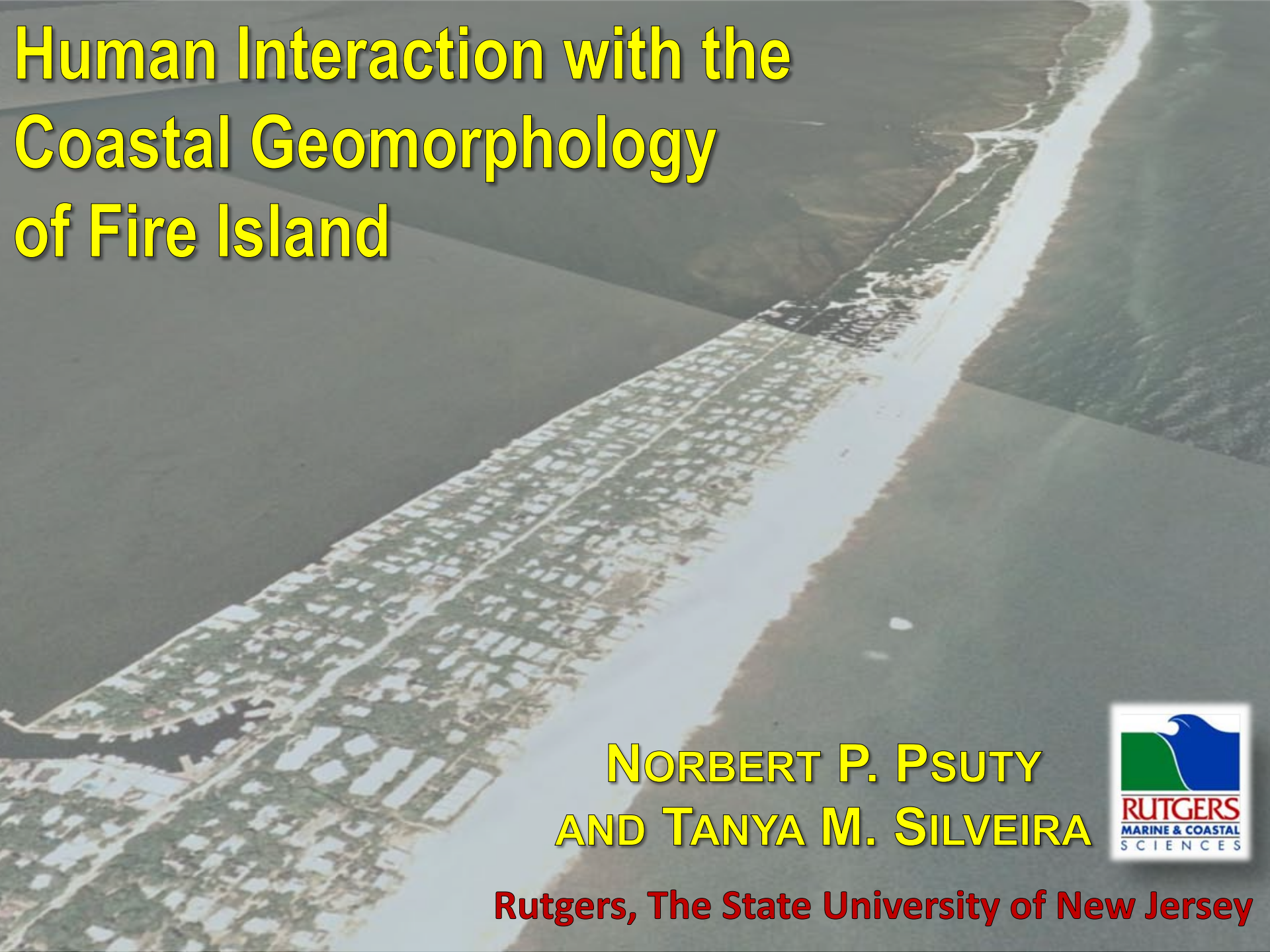
Human Interaction with the Coastal Geomorphology of Fire Island



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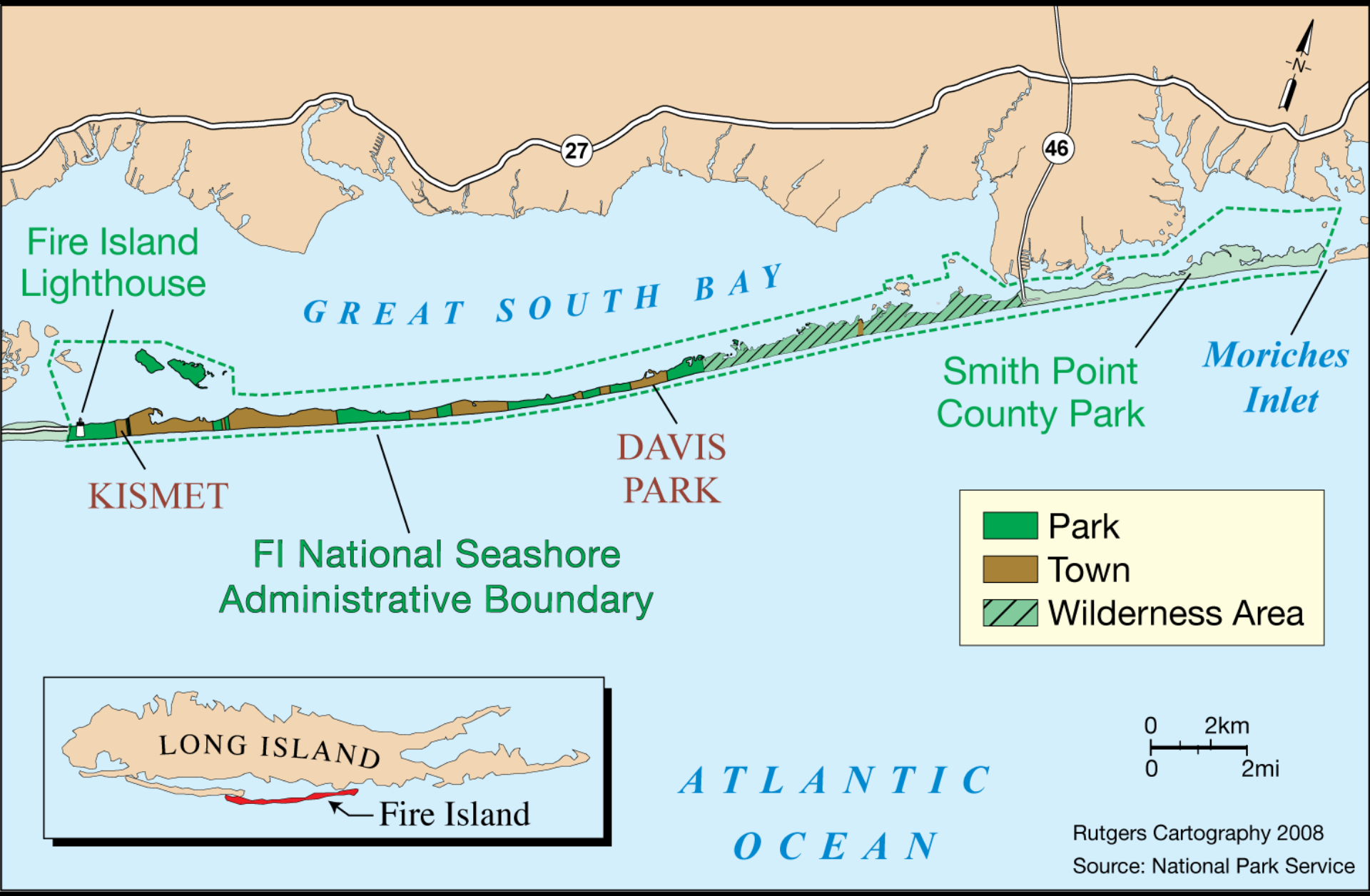
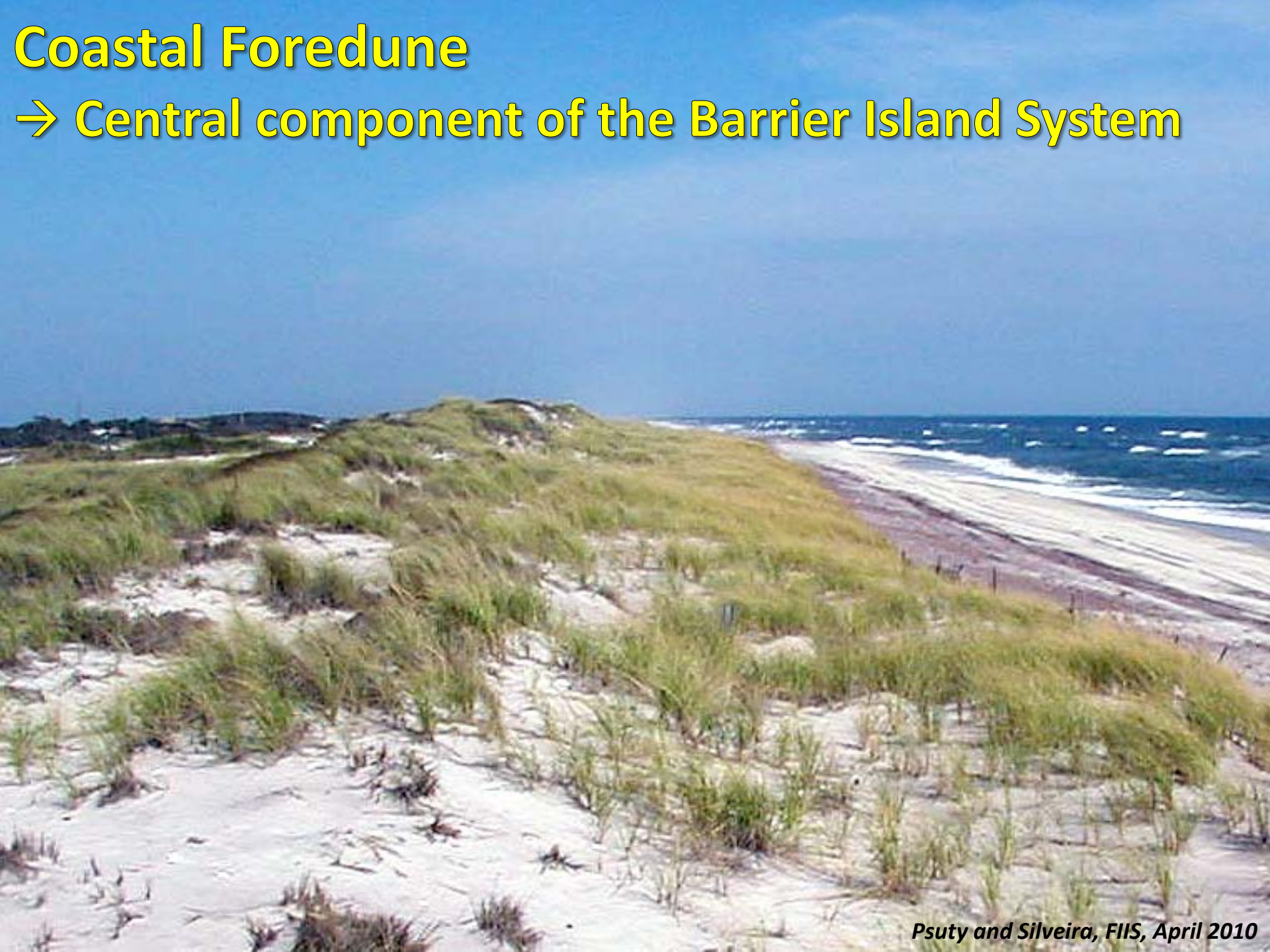


Psuty and Silveira, FIIS, April 2010

Coastal Foredune

→ Central component of the Barrier Island System



Psuty and Silveira, FIIS, April 2010

Modification of natural processes and forms

Psuty and Silveira, FIIS, April 2010

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National Park Service
U.S. Department of the Interior

Northeast Region
Boston, Massachusetts

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National Park Service
Northeast Region
Boston, Massachusetts

www.nps.gov/nero/science/FINAL/FIIS_humans&coastalgeomorphology/FIIS_humans&coastalgeomorphology.htm

Six Types of Modification/Impacts:

- **Foredune building and enhancement**
- **Beach scraping**
- **ORV traffic**
- **Houses and walkways in foredune**
- **Hard structures**
- **Beach nourishment → alters sediment supply**

Foredune natural process

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→ Sand fences diminish flow,
cause sedimentation to lee
→ Inland of wave activity
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Stabilization

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→ Constructed foredune

→ Fencing

→ Vegetation

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ORVs
Geomorphology
Ecology
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Vegetation stabilization - roots and rhizomes

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Beach scraping
- sediment transfer

Photo by Erika Lentz

Psuty and Silveira, FIIS, April 2010

Enhance foredune

Psuty and Silveira, FIIS, April 2010

Beach nourishment - new sand

Photo courtesy of Coastal Planning Associates

Psuty and Silveira, FIIS, April 2010

Photo courtesy of Coastal Planning Associates

Psuty and Silveira, FIIS, April 2010

Six Modifications

Most are directed toward enhancing or re-establishing the foredune

Only beach nourishment adds sediment

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