CLIMATE CHANGE RESPONSE PROGRAM

Enhancing Resiliency in the Wake of Hurricane Sandy

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U.S. National Park Service

1st Asia Parks Congress
Sendai City, Japan
November 14, 2013

October 29, 2012 – Hurricane Sandy

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Estimated $65B in damage, including many units of the US National Parks System

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Hurricane Sandy Rebuilding Task Force

- National Park Service Director Jon Jarvis designated lead for U.S. Department of Interior (DOI)
- Use latest data (*Advisory Based Flood Elevation or Best Available Flood Hazard Data)* versus published FIRM (*Flood Insurance Rate Maps*)
- Build above 100-year (1%) floodplain by at least 1', 2' for critical
- Goal is <u>resiliency</u> – don't want to go back to Congress for money in the next storm

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Hurricane Sandy National Park Service Response

While meeting public demand to rebuild facilities, open parks, and restore access, the NPS is committed to ensuring response to Sandy incorporates resiliency to climate change.

- *Sea level rise and increased storms are part of planning for the future.*
- *Habitat restoration promotes long term resiliency → protected natural areas are part of the solution.*

Major Components Include

- *Incident Response (e.g., tree cutting, cleanup, hazard evaluation, project scoping)*
- *Hurricane Sandy Rebuilding Task Force (Interagency)*
- *NPS Rapid Review Team:*

Phase I Projects: Parks reopened Memorial Day – 4th of July

Phase II Projects: Park fully functional - Ongoing

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Example of Resilient Rebuild: Liberty Island, New York

How to protect primary electric and heating plants in park facilities?

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Boilers & Electric Switchgear: Choices for Resiliency

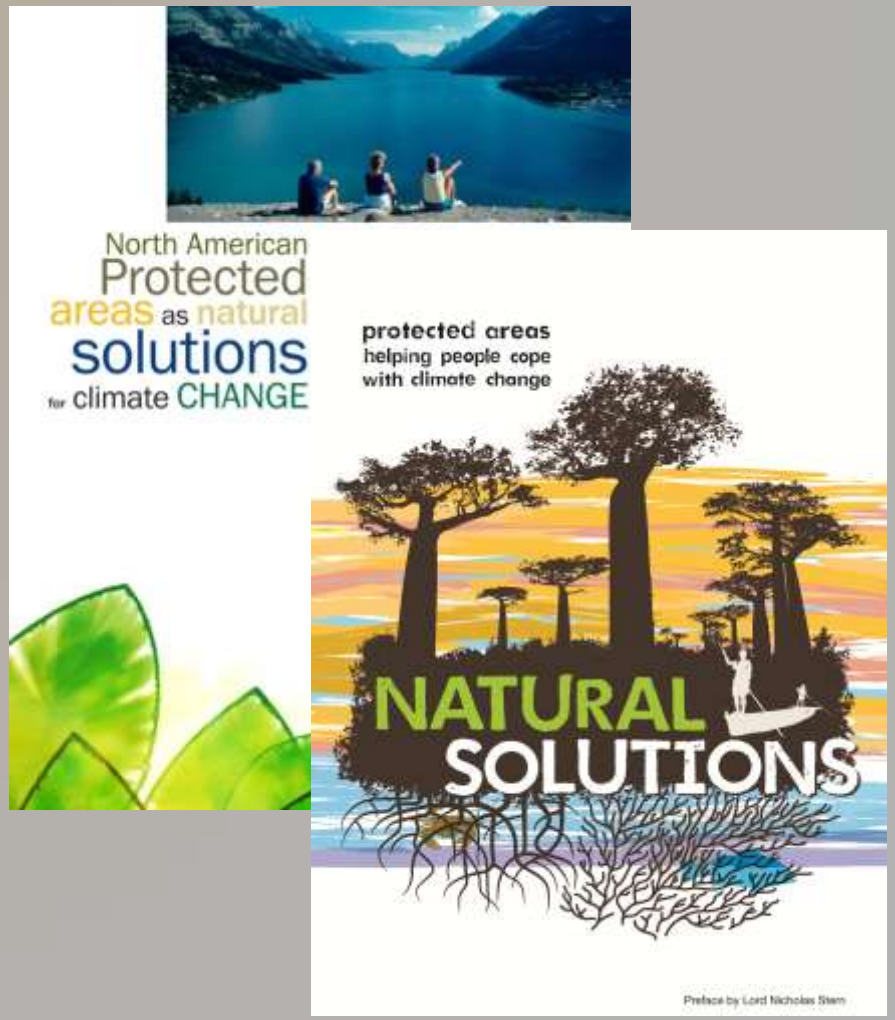
- Elevate in each building – not practical
- Water proof equipment or basements – not practical
- Elevate in central location

Liberty Island Incinerator Building now with Mezzanine

Heating Plant & Electrical Switchgear previously in Basement

Protected Areas Provide Natural Resiliency

- Protected areas provide natural solutions.
- NPS and its partners adopt strategies to restore natural areas & enhance natural resiliency.
- Events like Sandy offer opportunities to demonstrate the benefits of protected areas to surrounding communities.



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Jamaica Bay West Pond Breach

The ecosystem adapted by shifting its structure. This raises important questions about how to best manage for change.

Jamaica Bay Saltmarsh

The restored saltmarsh was resilient to the storm.

Yellow Bar Hassock, GATE, November 11, 2012

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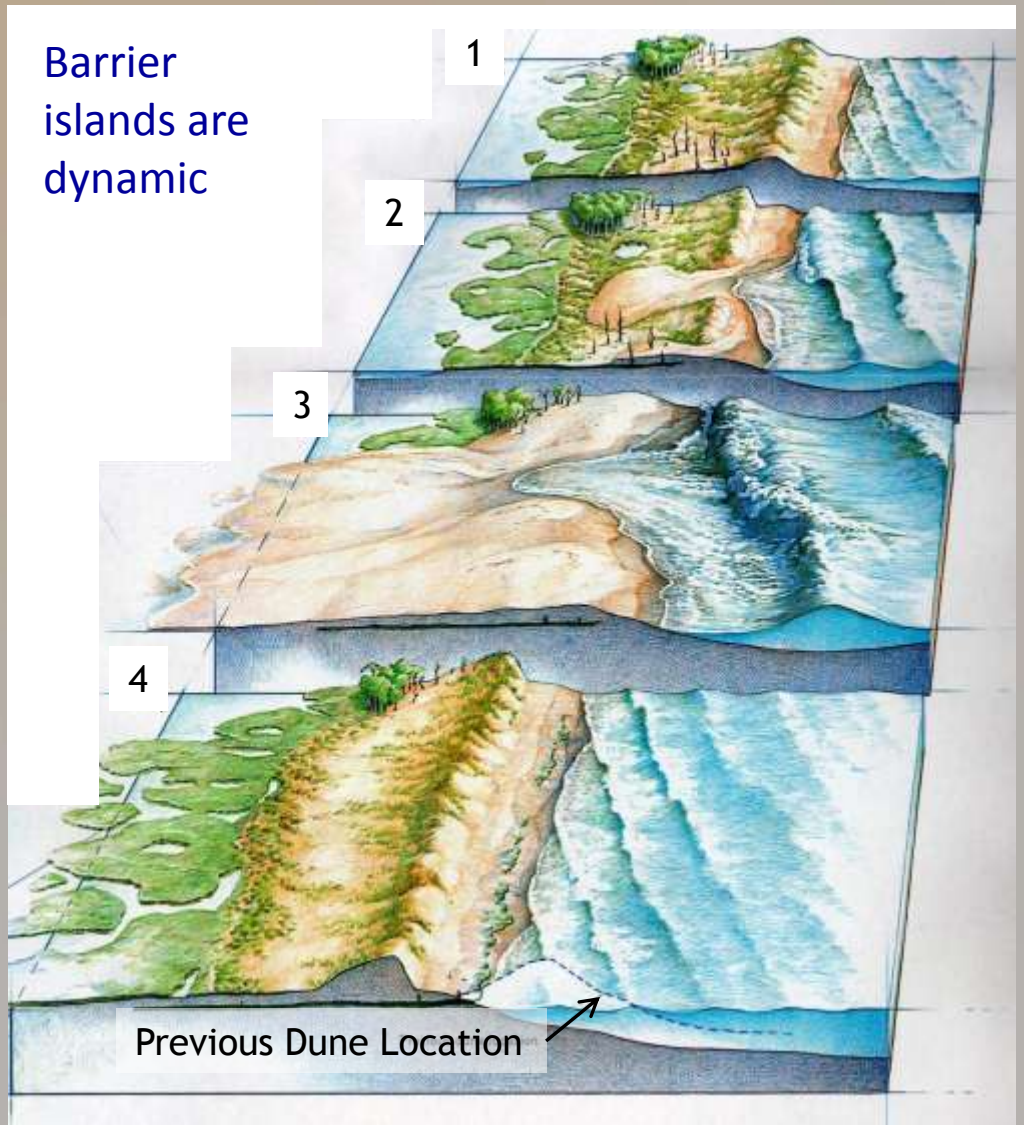
Assessing Impacts & Long-term Monitoring of Wildlife

Little evidence of serious direct impact on breeding or wintering birds.

Fire Island National Seashore is a Barrier Island



1. Sediment transported onshore and along the shore builds up island beaches and dunes
2. Island overwashed by storm waves
3. Sediment transported through overwash buries vegetation providing sediment for marsh development
4. Saltmarsh habitat forms reducing flooding, serves as a nursery ground for fish and shellfish. Island migrates landward

Fire Island Wilderness Breach

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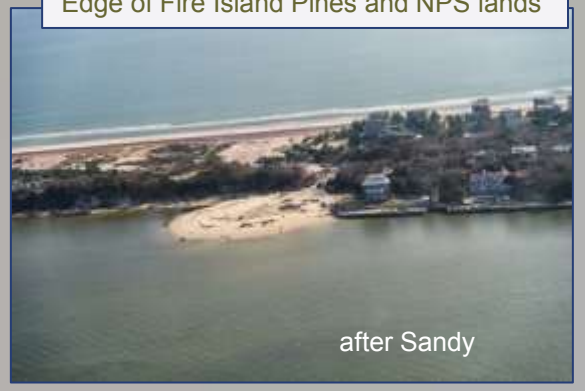
The island is behaving as it should.

Legend – breach position
- March 27-28, 2013
- April 3-4, 2013
- April 10-11, 2013



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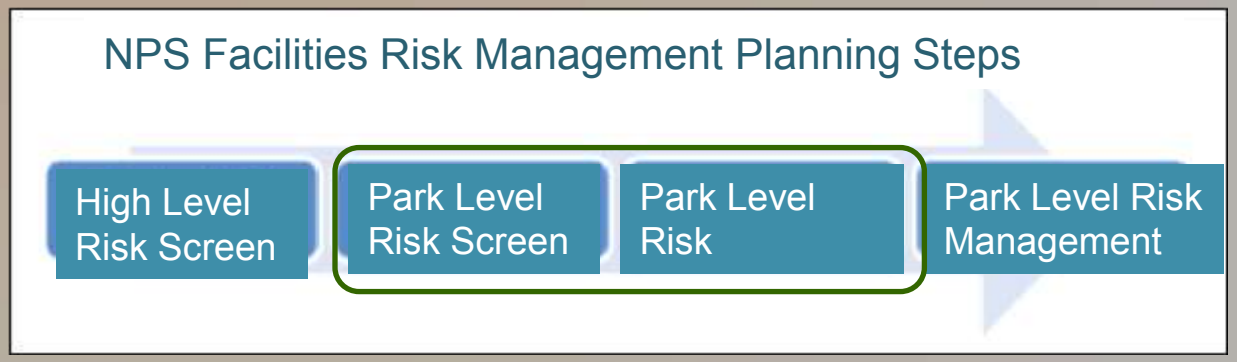
Regional Scale Efforts for Risk Assessment & Resiliency Planning



Adaptation options handbook for coastal parks – 2013/14

Dr. Robert Young – Director of WCU/Duke University Program for the Study of Developed Shorelines.

Conclusions

- Protected areas provide natural resilience to storms such as Sandy.
- Resilient systems are dynamic.
- These events are opportunities to demonstrate and communicate the role natural areas play to enhance the resiliency of the landscape and surrounding communities.
- It is important that parks reduce the risks from natural disasters by planning ahead for future change.

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INVITATION:

Best Practices for Responding to Climate Change:
Natural Solutions for Parks, People, the Planet

November 14, 18:30-19:30 , Meeting Room 2


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Thank You!
ありがとうございます！
Questions?
しつもんがありますか。