



Naval Air Station Key West



Management Approaches & Issues To Sea Level Rise

Presented to:

Florida Keys Sea Level Rise

Adaptation Workshop

Hawks Cay Resort, Duck Key

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Environmental Director
May 10, 2011**



NAS Key West Mission Statement



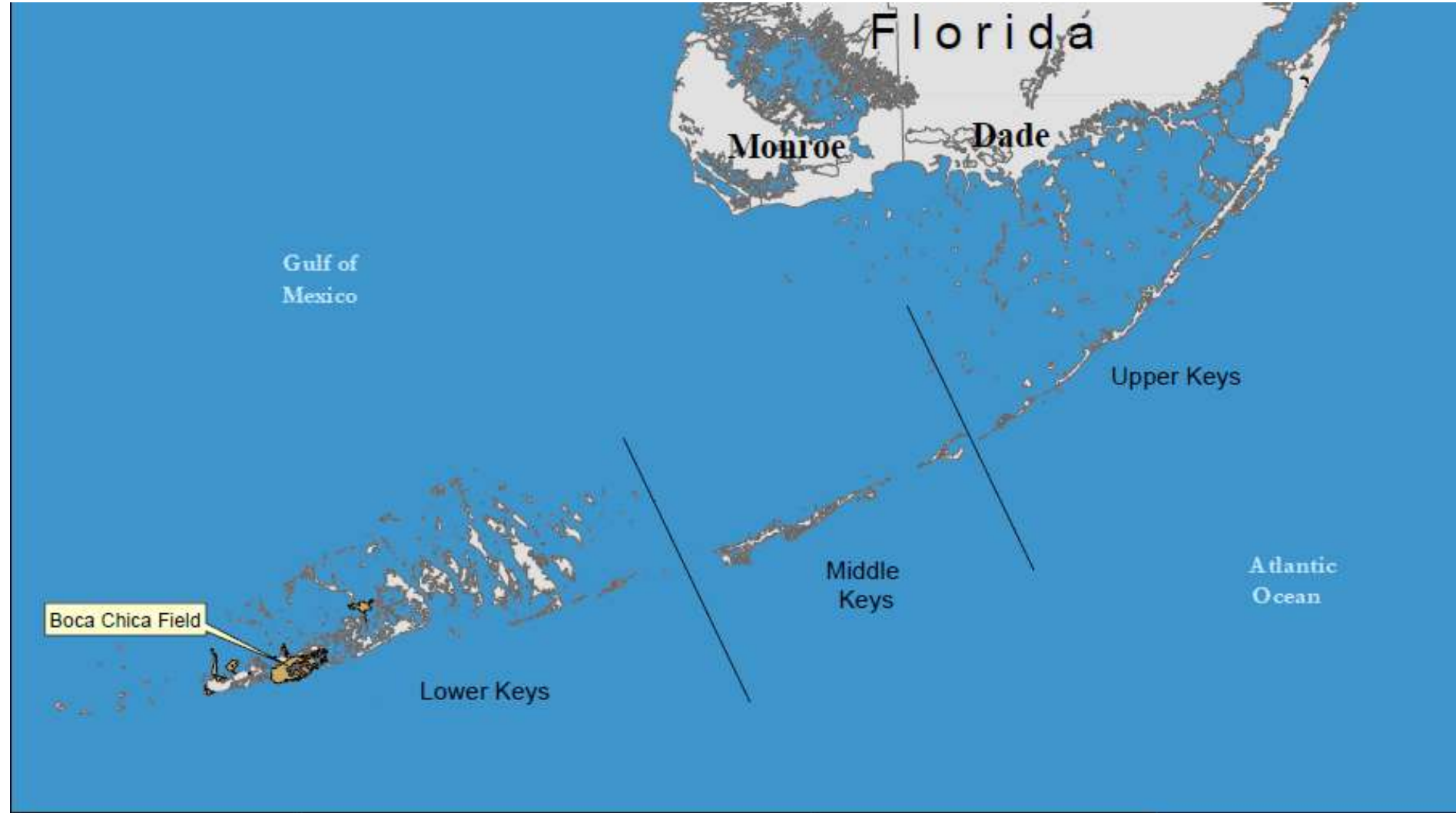
We Exist to Support Operational and Readiness Requirements for Department of Defense, Department of Homeland Security, National Guard, Federal Agencies and Allied Forces



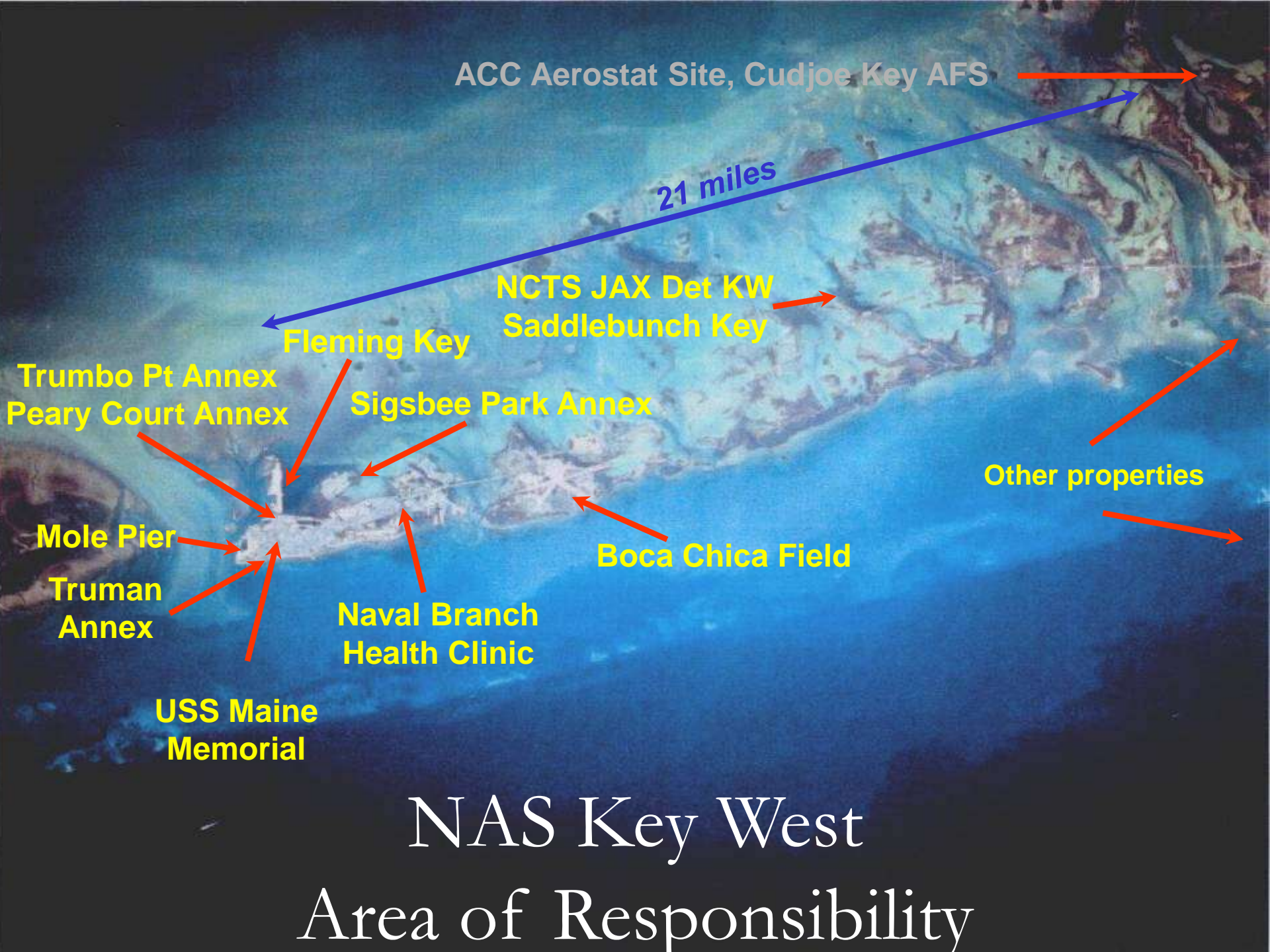
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Where Are We



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ACC Aerostat Site, Cudjoe Key AFS

21 miles

NCTS JAX Det KW
Saddlebunch Key

Fleming Key

Sigsbee Park Annex

Other properties

Boca Chica Field

Naval Branch
Health Clinic

USS Maine
Memorial

NAS Key West Area of Responsibility

Trumbo Pt Annex
Peary Court Annex

Mole Pier

Truman
Annex



Boca Chica Field



Department of Defense's Crown Jewel
for Training
Tactical Aviation Squadrons



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Federal Response to Sea Level Rise



- Executive Order (E.O.) 13514, Federal Leadership in Environmental, Energy, and Economic Performance
 - Requires each Federal agency **evaluate** agency **climate change risks and vulnerabilities** to manage both the short- and long-term effects of climate change on the agency's mission and operations.



US Navy Climate Change Roadmap



- **Climate change is affecting**, and will continue to affect, U.S. **military installations** worldwide.
- The first roadmap addressed the **Arctic Region** (2009)
- The current roadmap is **global** (April 2010)
 - Outlines the Navy's approach to observing, predicting and adapting to climate change
 - Identifies projected effects of climate change on Navy installations
 - Assessment of the effects of projected sea level rise on natural habitats within Navy installations.



Naval Facilities Engineering Command



GI&S Support to ESC Technical Projects

Asset Management Summit

15 April 2010

Sea Level Rise & US Navy Waterfront

Robert F. Zueck, PhD, PE
Waterfront Structures Division
NAVFAC-ESC, Port Hueneme, CA

July 2009, Galveston, TX

Waterfront IPT Brief
July 2009

Sea Level Rise Impact Assessment for Naval Installations

- ESC has proposed expansion of analysis to include examination of facilities, infrastructure and environment which would be affected by each increment of sea level rise or storm surge
- Affected facilities would be linked to their Mission Dependency Index values to indicate the severity of mission impact
- An example analysis has been performed at Naval Base Ventura County

Point Mugu Sea Level Rise / Storm Surge Facilities Affect Analysis

Sea Level Rise/Storm Surge	Number Facilities Affected	Number with MDI	Average MDI	Max MDI	Number MDI >80
1/2 meter	3	0			
1 meter	30	9	43.11	97	4
1.5 meter	133	37	43.27	97	11
2 meter	717	176	52.56	97	52
2.5 meter	1303	285	54.51	98	63
3 meter	1380	300	54.69	98	98
3.5 meter	1424	303	54.92	98	100
4 meter	1439	306	55.27	98	103
	1530		Total Number of Facilities		
	308		Total Number of Facilities with an MDI		
	104		Total Number of Facilities with an MDI >80		

Sea Level Rise Impact Assessment for Naval Installations Pt. Mugu

MDI & Sea Level Rise Point Mugu

Legend

- MDI & MDI
- No MDI
- MDI < 80
- MDI > 80
- Sea Level Rise
- 6.5m Rise
- 1m Rise
- 1.5m Rise
- 2m Rise
- 2.5m Rise
- 3m Rise
- 3.5m Rise
- 4m Rise
- Along 4m Rise

Scale 1:25,000

NAVFAC ESC
Port Hueneme, CA

Prepared: Date: 1/10
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NAS Key West



What are we doing at the Installation level?

- The average land elevation of Boca Chica Field is five feet above sea level.
- Larger interior land pockets are as low as 0 to 2 feet below sea level.
- No current or future plans to address sea level rise.
- Recent projects that may provide temporary relief from tidal surge & sea level rise.



Projects Related to Sea Level Rise



Shoreline Restoration

During Hurricane Wilma, the NASKW shoreline was severely eroded by the storm surge. This project was developed to strengthen the weakened areas at the various NASKW annexes.





Projects Related to Sea Level Rise



Airfield Clear Zone Restoration



Converting mangrove wetlands into salt marsh wetlands



Raising elevations approx. 1 ft.



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Hurricane Wilma Storm Surge



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Environmental Management



- NAS Key West publishes its intentions and principles in relation to its overall environmental performance through its Environmental Policy.
- Our Environmental Policy highlights:
 - Our commitment to continual improvement
 - Our commitment to comply with environmental regulations
 - Our commitment to preserving our natural & cultural resources
 - Our commitment to communicate to the public that we care about the environment



Environmentally Sensitive Areas



“Listed” Species

	Animal	Plant	Total
Federal	14	2	16
State	3	32	35
Total	17	34	51

Most significant Mission Impact

- Mangroves
- Least Tern
- Lower Keys Marsh Rabbit



Environmentally Sensitive Areas





Environmental Stewardship



Integration of mission management with ecological stewardship and installation restoration are key to sustainability.



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