Sea Level Rise Map Projections

Prepared by Peter Harlem

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PWH 2008

Kilometers 0   4   8   16

SLR = 0 Ft.

DATE = 2004

Current Conditions

- Raster elevation map of area covered by combined LiDAR data sets.

- Brown areas are high ground, dark green are near sea level.

- Main limestone ridge, barrier islands are IHRC data.

- Area from Turkey Point south and NW lake region from USACE-CSOP data.

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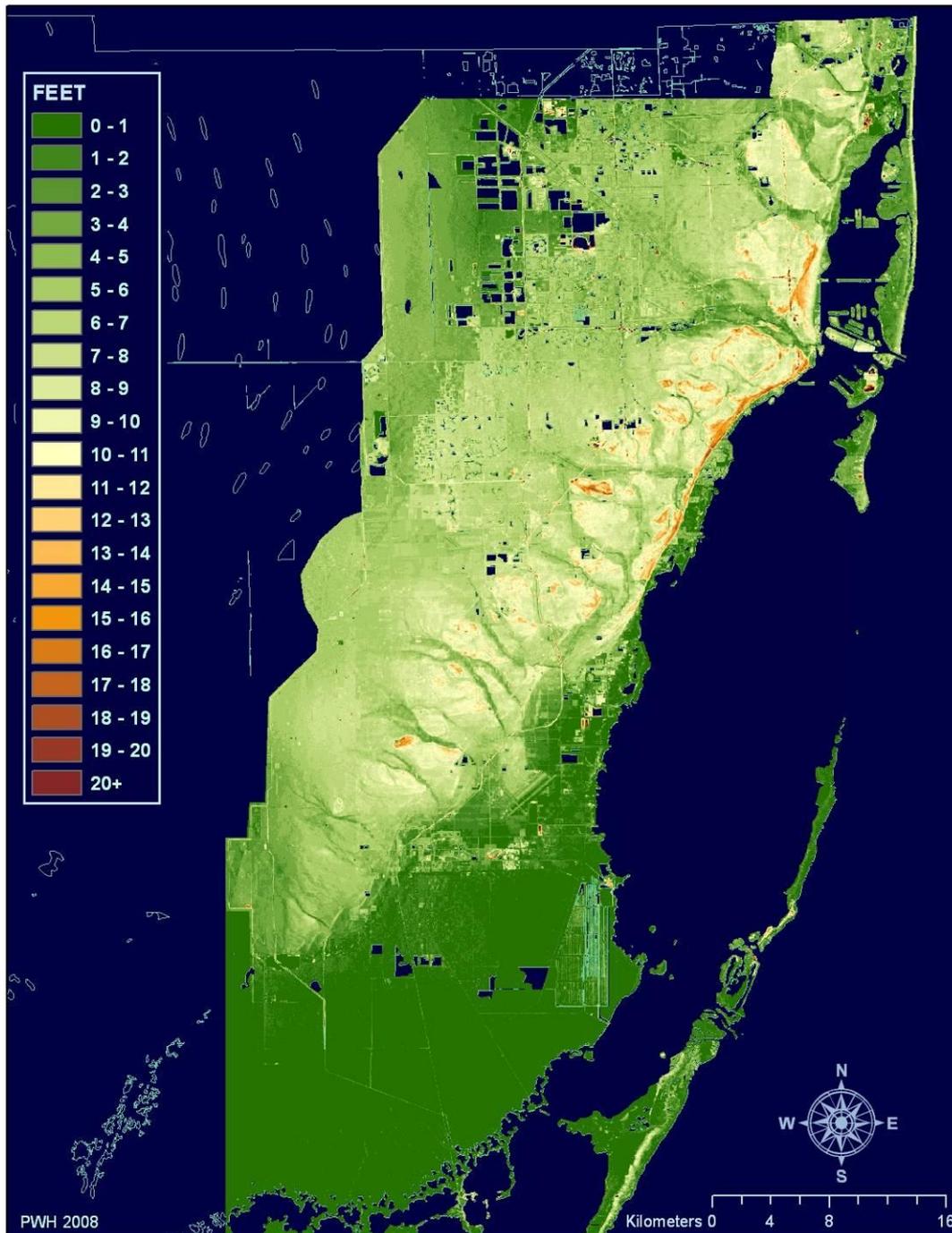
+ 1 Ft.

DATE = 2042

- 83% of land surface remains above mean high tide.

- Coastal plain and marshes inundated at high tides.

- Mangrove swamps deepen, coastal vegetation migrates upslope.

- Beach erosion increases.

- Levees like the L-31E expected to restrict encroachment - delaying salt water intrusion in south Miami-Dade.

- Southern Everglades not protected by equivalent structure.

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PWH 2008

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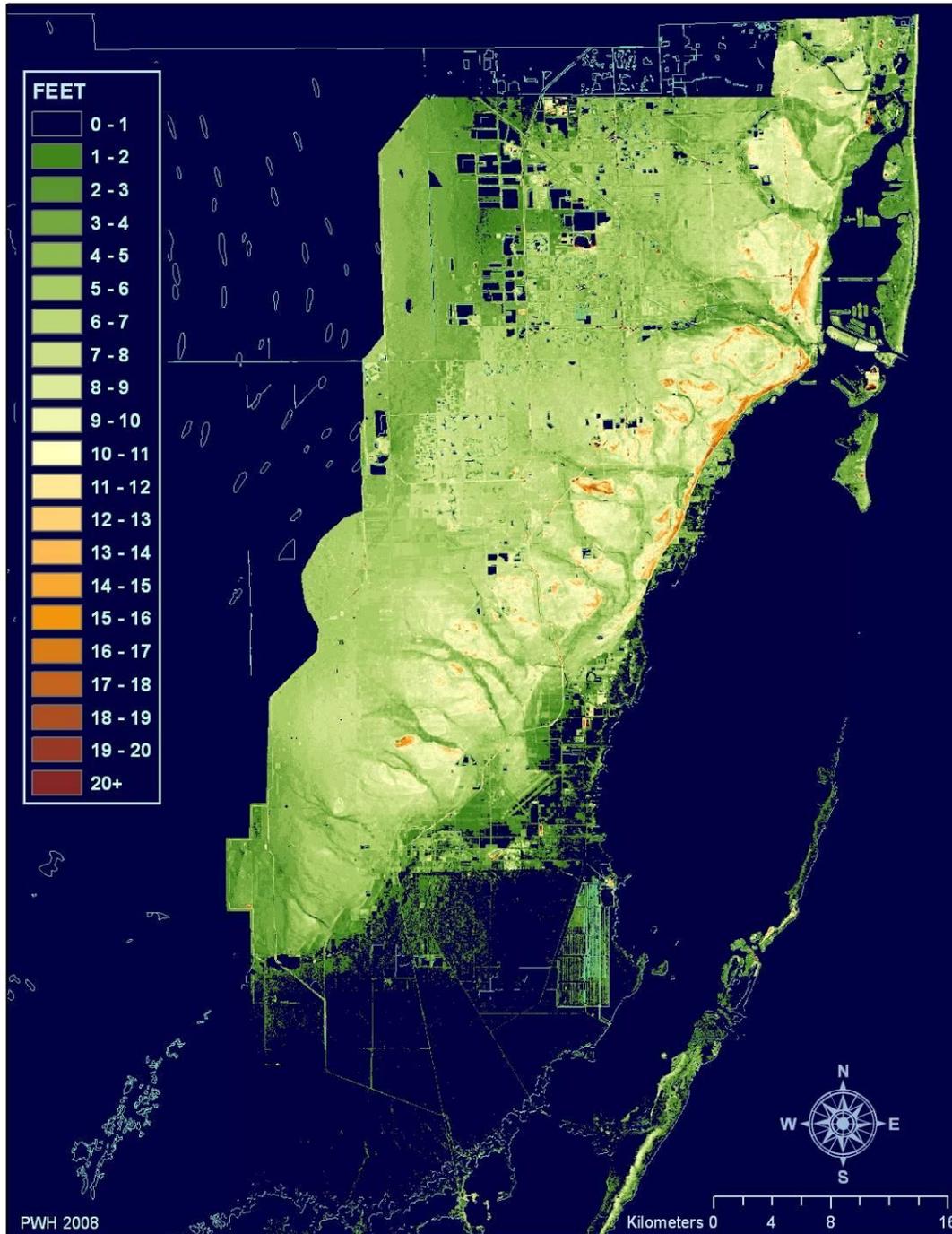
+ 2 Ft.

DATE = 2066

- 72% of land surface remains.

- Sandy barrier islands challenging to live on: fill areas eroding; beach front rapidly eroding; storm channeling.

- Existing mangrove swamps collapse; inundation and collapse of lower freshwater marshes.

- Much of upper and lower Keys inundated.

- Coastal levees under wave attack.

- Access to barrier islands and publics works becomes difficult – Turkey Point, South Dade landfill.

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Kilometers 0   4   8   16

+ 3 Ft.
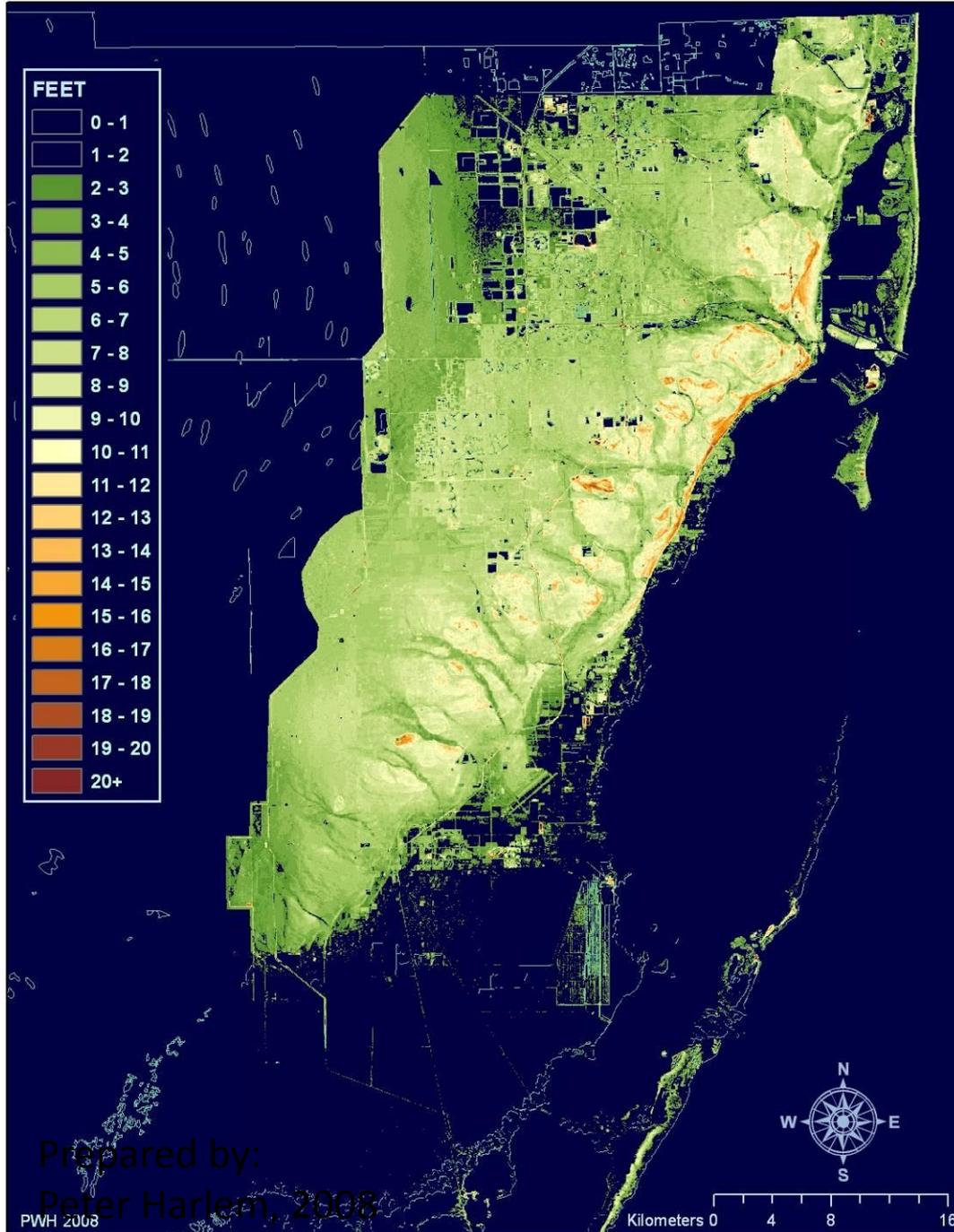
- 67% of land surface remains.

- Sandy barrier islands essentially gone.

- Massive amounts of mud and organics clogging coastal bays and inner coasts.

- Potable water supply threatened by salt water encroachment.

- Flooding and saline intrusion through paleo channels through coastal ridge (transverse glades) – threat to major economic engine and county water quality.

- Causeways inundated.

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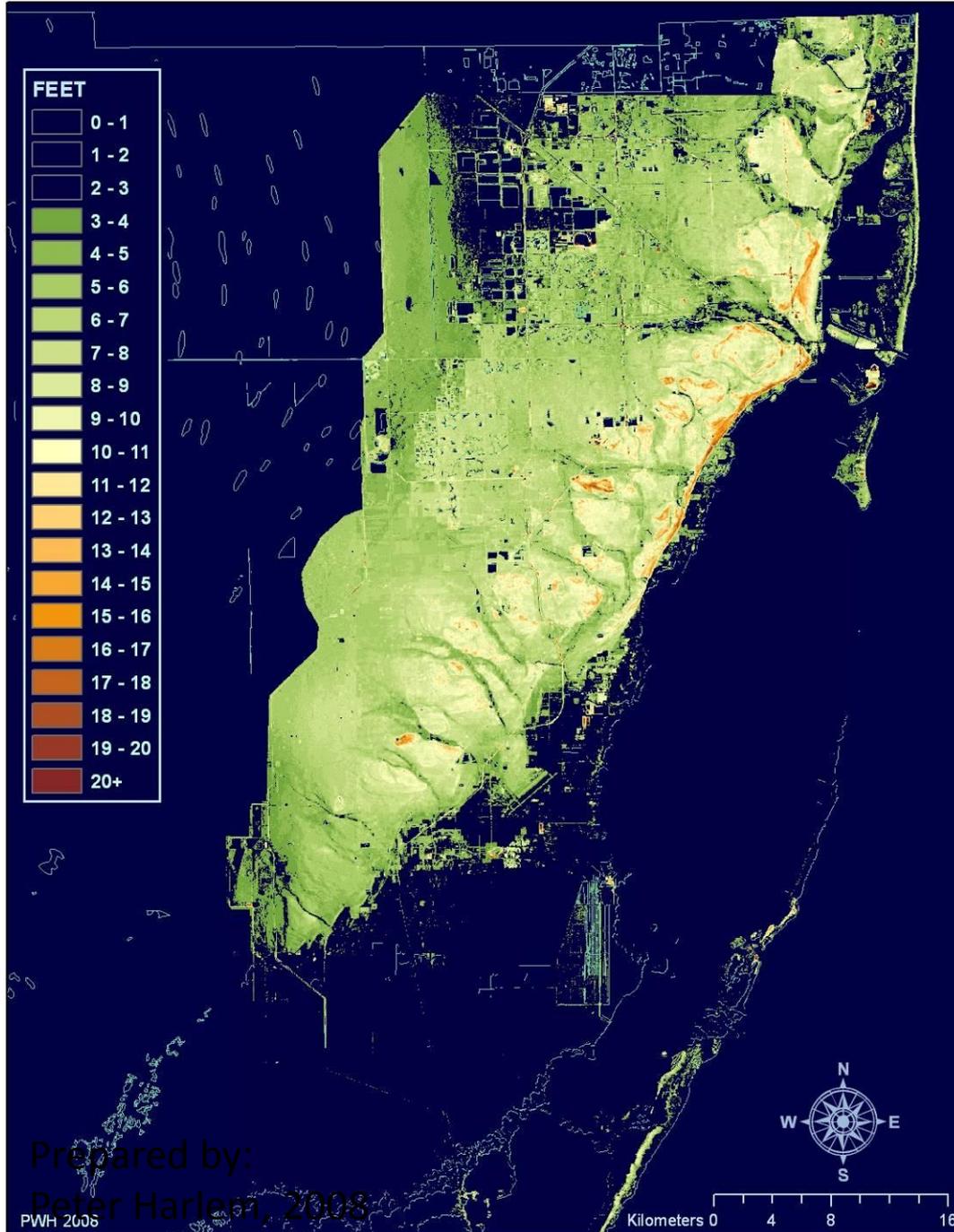
+ 4 Ft.

DATE = 2098

- 62% of land surface remains.

- Northern rivers tidal dominated producing interior flooding.

- Only highest portions of barrier and man made islands remain above tide.

- Increased coastal wave energy.

- Everglades inundated west of Miami-Dade County. Groundwater flow to bays ends causing total collapse of estuaries.

- Much of remaining low upland in west Miami-Dade County becoming wetland habitat.

FEET

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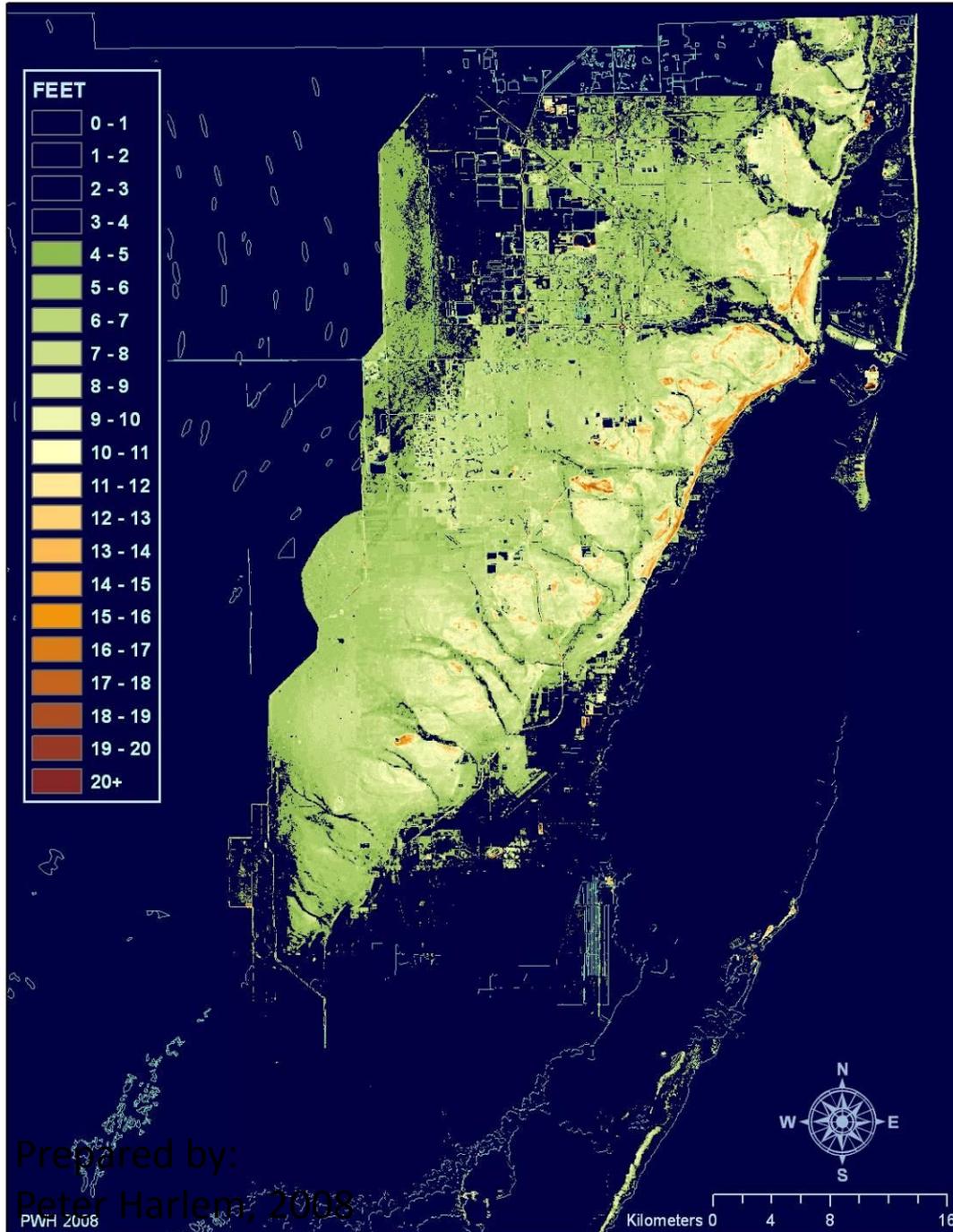
+ 5 Ft.

DATE = 2110

- 54% of land surface remains.

- Most transverse glades flooded at high tide.

- Coastal ridge now divided by tidal channels into a series of independent islands.

- Everglades inundated to north of Broward County with major tidal channels through ridge in north Miami-Dade and Broward.

- Rainfall greatly reduced.

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PWH 2008

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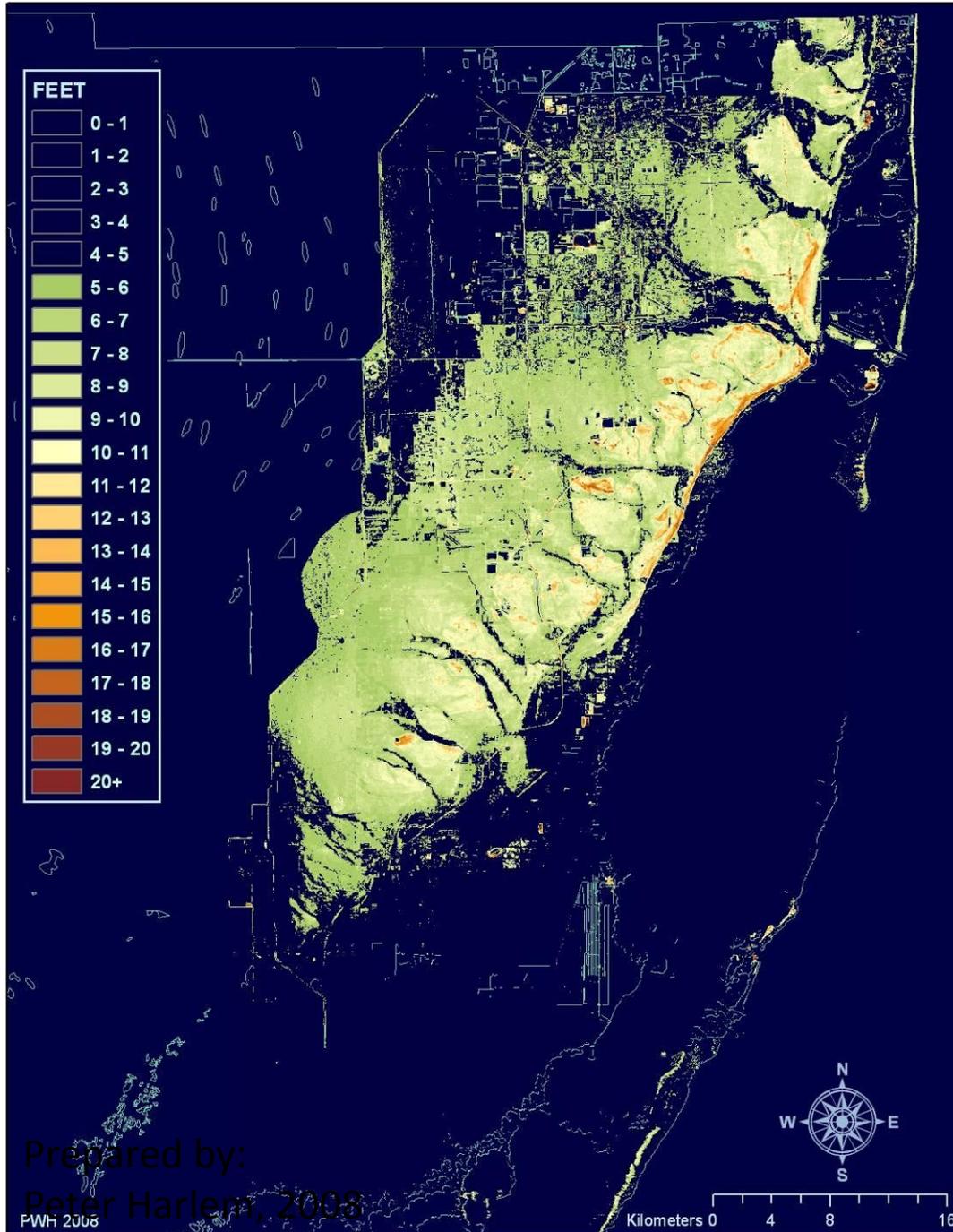
+ 6 Ft.

DATE = 2120

- 44% of land surface remains.

- Dry climate prevails as land for convection diminishes - onset of Florida Keys-like environment.

- SW portion of ridge inundated.

- Waste disposal sites inundated and releasing to the sea.

- Storm surges moving up Everglades estuary compound risk.

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PWH 2008

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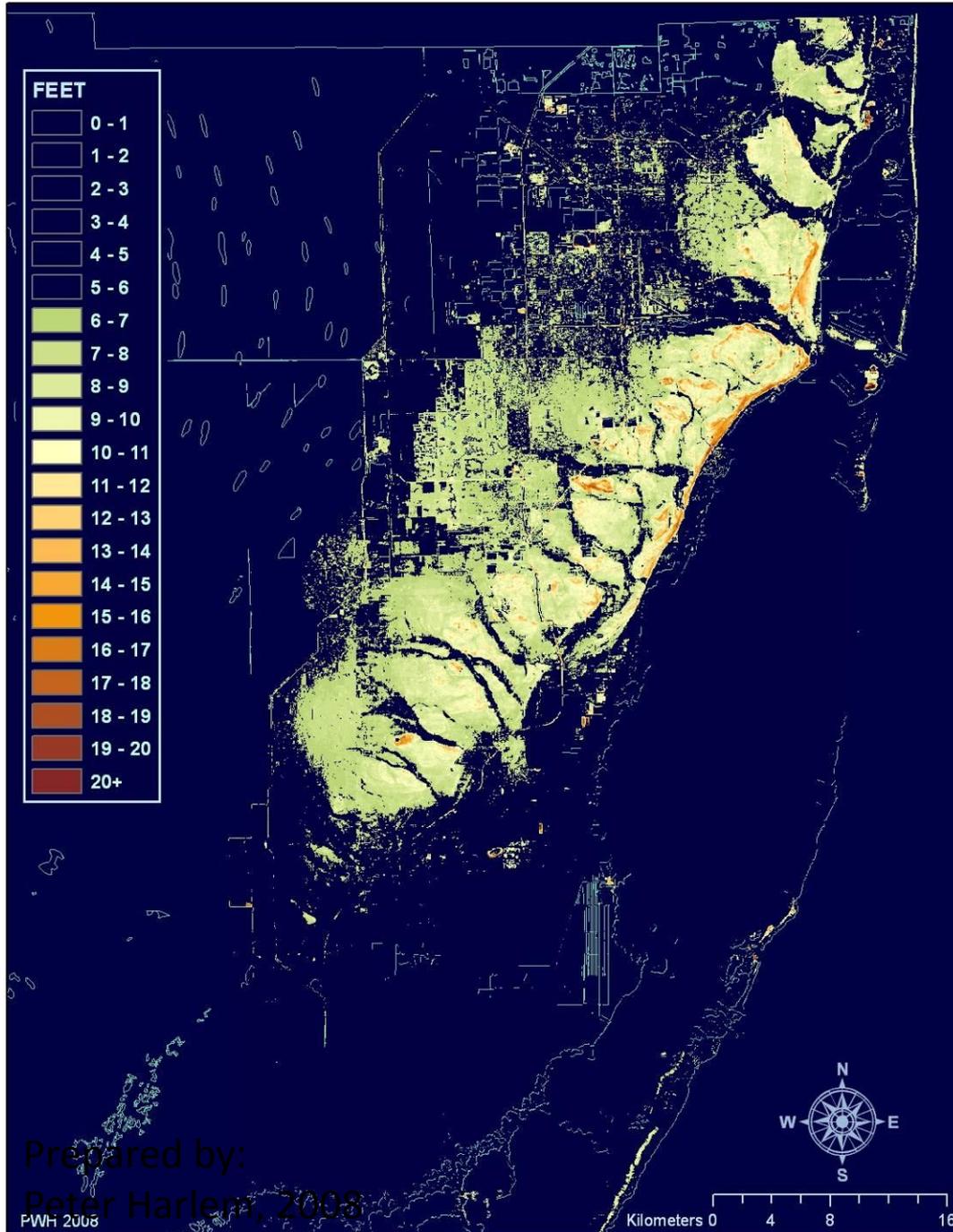
+ 7 Ft.

DATE = 2128

- 33% land surface remaining.

- Total loss of mainland climate.

- Storm surges have reduced much of historical development below 10 feet to rubble.

- Vast mud flat attempting to form on west side of coastal ridge
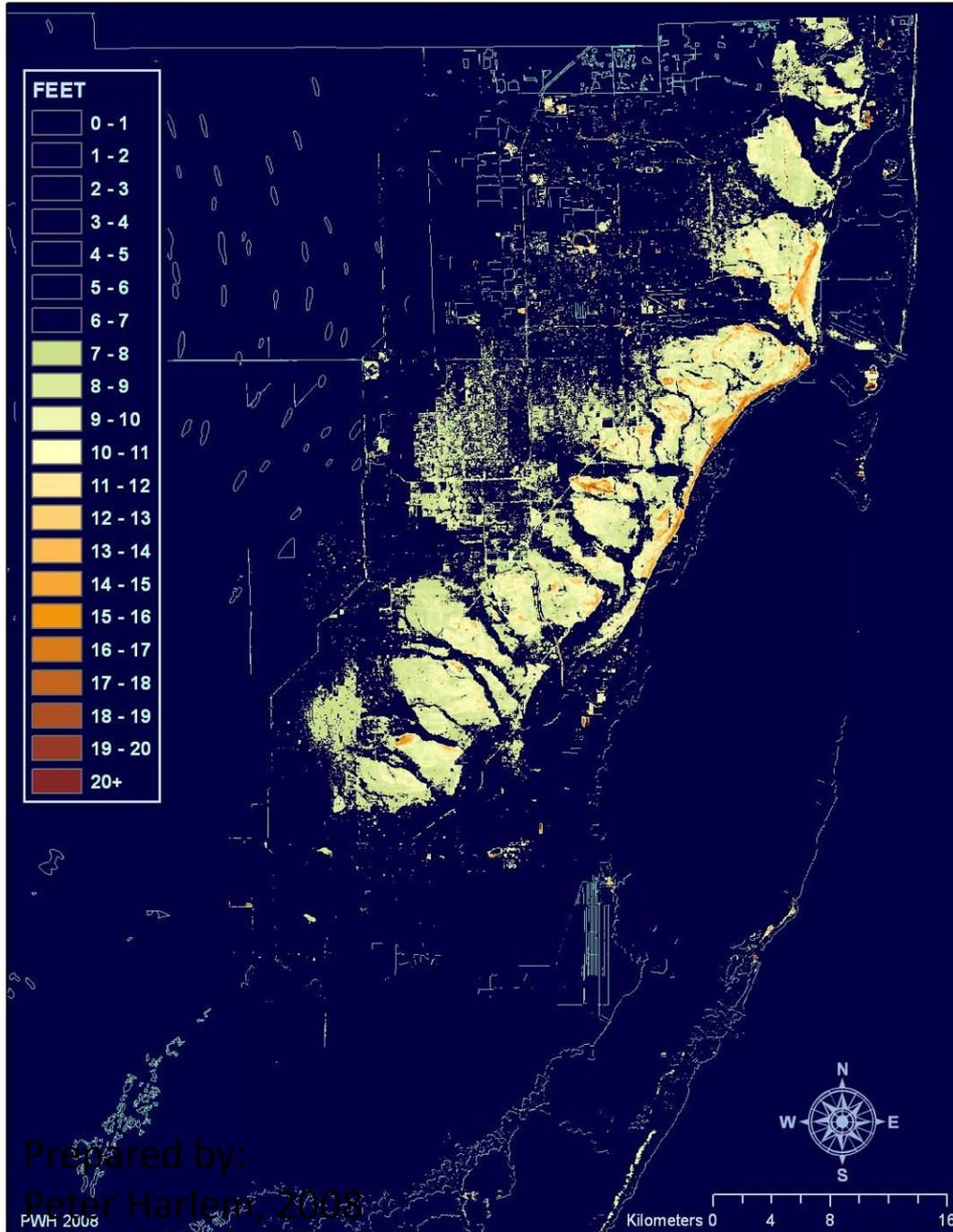
+ 8 Ft.

DATE = 2135

- 12% land surface remaining.

- Rate of rise accelerating - ~1 ft. every 6-7 years.

- Everglades now extension of Florida Bay.

- Shoreline energy increased considerably – large surf common.

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PWH 2008

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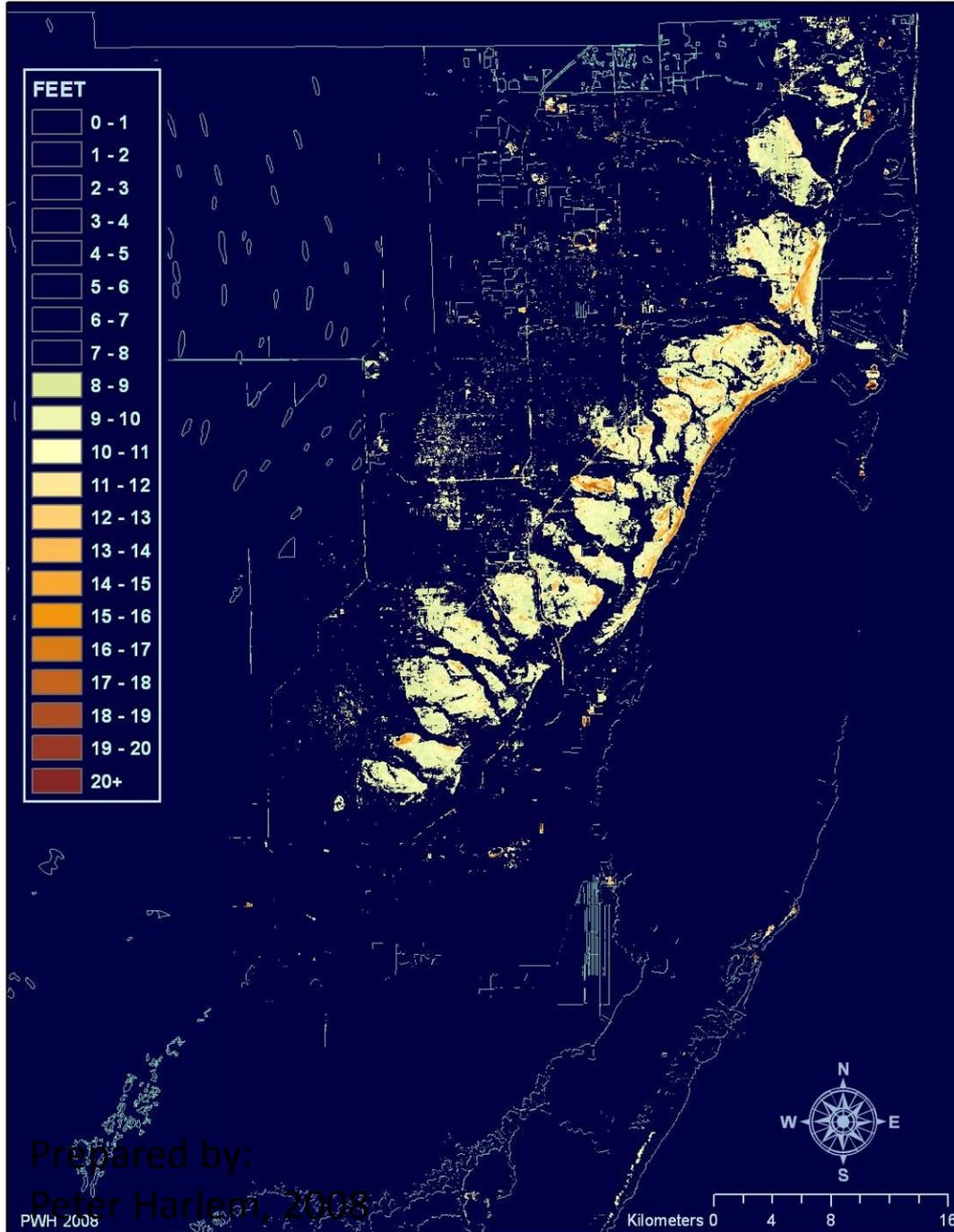
+ 9 Ft.

DATE = 2144

- 14% land surface remaining.

- Transverse glades now passes between many small islands.

- Creation of extensive nearshore shelf ecosystems.

- Transportation restricted to boat or helicopter.
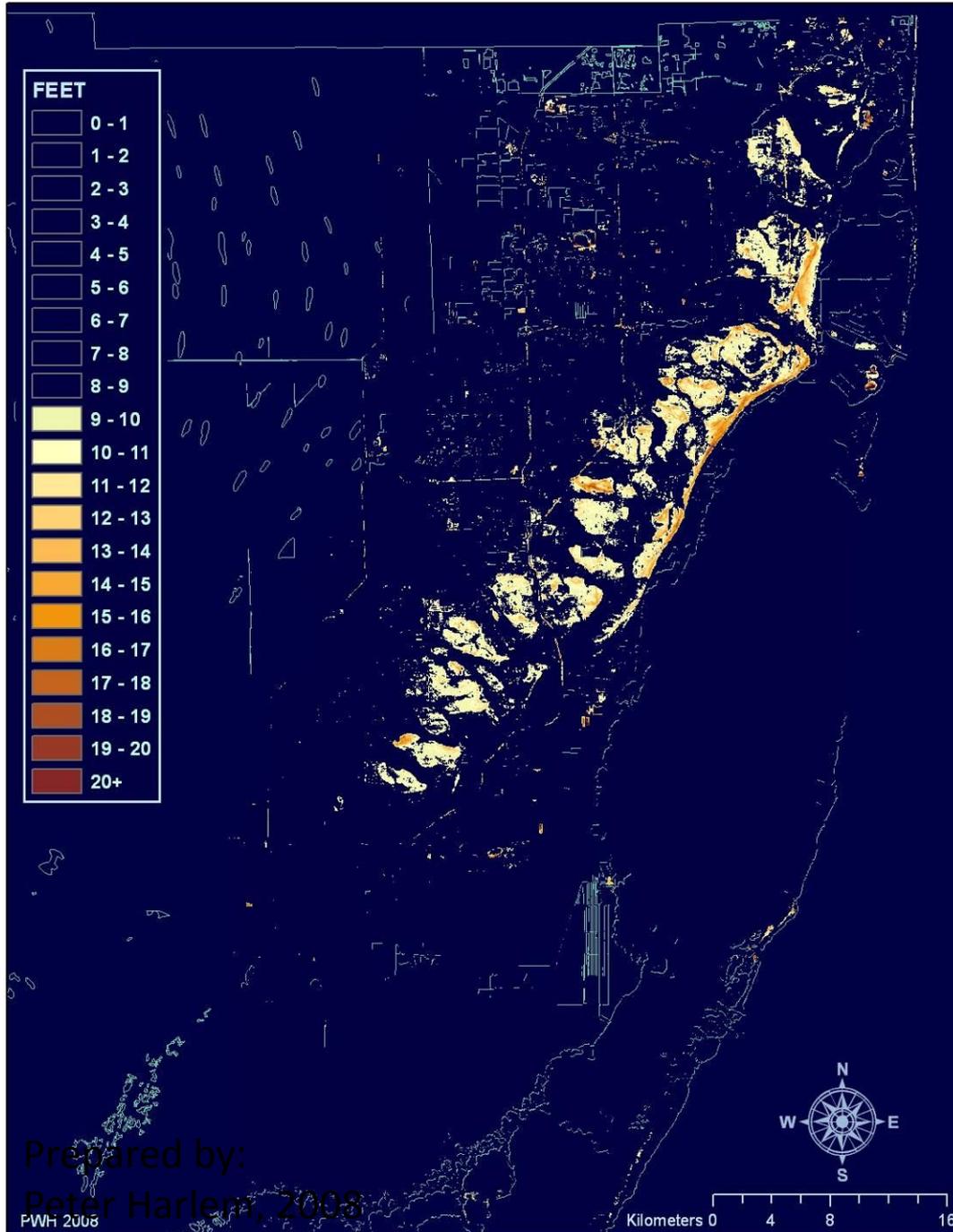
+ 10 Ft.

DATE = 2150

- 9% of land surface remaining.
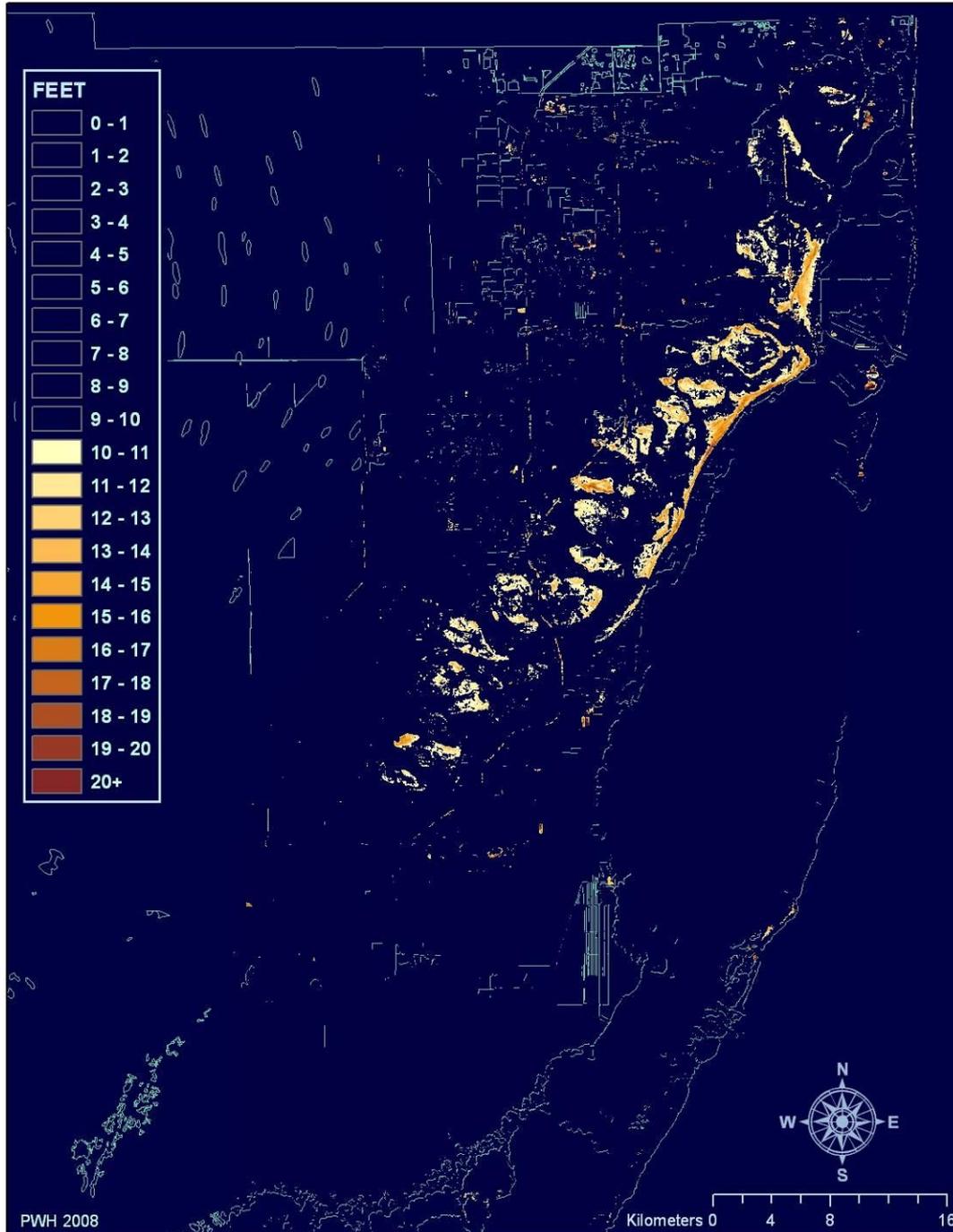
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+ 11 Ft.

DATE = 2155

- 5% of land surface remaining.
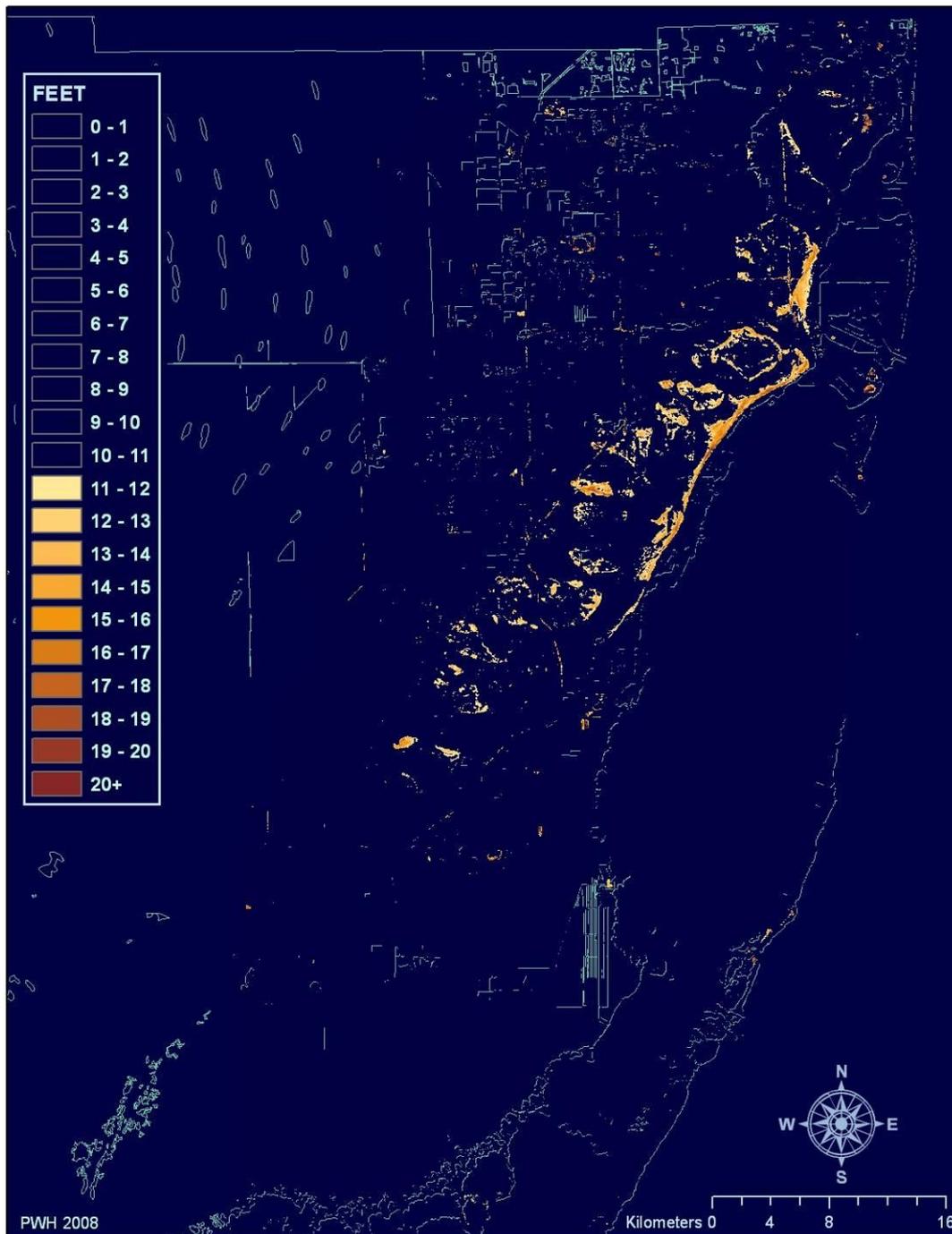
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+ 12 Ft.

DATE = 2159

- 3% of land surface remaining.

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