Impacts of Hurricane Irma on Florida Bay Islands, Everglades National Park
Estuaries and Coasts

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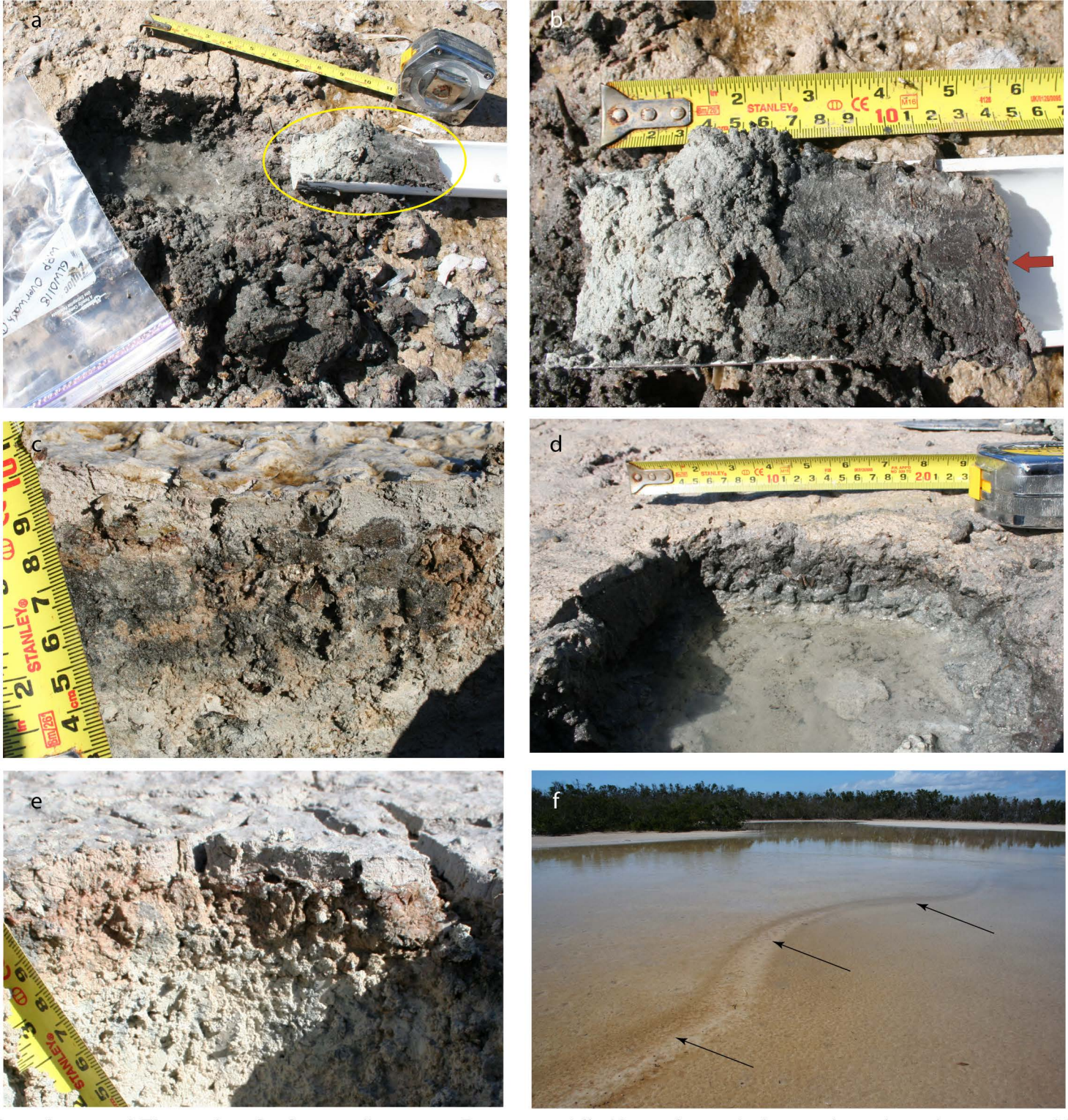
Figures S32 to S36 supplement in text figures, illustrating depositional features noted on the islands in January 2018 and providing additional descriptive details of the sediments.


**Supplemental Figure 32.** Comparison of mudflat surfaces at Bob Allen Key in 2014 and 2018: a) overview of mudflat in 2014; algal mat is visible at surface; b) overview of mudflat in 2018; c) algal mat at surface in 2014; d) recently deposited mud near southwest perimeter of island beginning to dry up and crack in 2018; mud is resting on algal mat below; e) close up of algal mat in 2014; grid is 25 cm X 25 cm; f) block of recently deposited mud (3.4 cm thick) has been removed in 2018 to reveal surface of algal mat below, presumably same algal layer visible in 2014 photos.


**Supplemental Figure 33.** Recent deposition on southwest corner of Jim Foot Key: a) overview of open area; b) close up of deposit with relatively fresh blades of *Thalassia* visible in deep mudcracks; c) trench dug to reveal layers – top 1-2 cm is a dried fine-grained carbonate crust, underlying 4-6 cm is a dark gray carbonate mud with fresh *Thalassia* blades intermixed with no apparent orientation, followed by 1-1.5 cm of a reddish algal layer, and at the bottom a shelly, crumbly carbonate mud; d) close up of image in c showing matted *Thalassia*; e) bottom of one of blocks showing red algal material and *Thalassia* blades.


**Supplemental Figure 34.** Example of post-2014 deposition at Russell Key: a) overview of sample area, with trench in foreground, pneumatophores of black mangroves in background, *Polymesoda floridana* shells scattered on surface; b) and c) side walls of trench showing contact between overlying dark gray to greenish black mud and underlying tan carbonate mud. Underlying sediment surface is uneven, so thickness of upper layer ranges from 1.8 to 3.2 cm.




**Supplemental Figure 35.** Surface sediments at Buttonwood #7 Key: a) trench dug to show deposits on west side of island along shoreline of Whipray Basin, yellow circle shows sample removed in pvc half-tube; b) sample circled in yellow in a; note that top of sample is at red arrow; dark gray mud is approximately 6.5 to 7.5 cm thick overlying light gray carbonate mud; c) side view of trench in southern tip of island (satellite image in Fig. 5), in open area surrounded by black mangroves; upper 1.5 to 2 cm is a fine grained cohesive mud, with little debris embedded in mud; algal film is beginning to form in depressions formed by bird tracks on surface; middle layer is ~3.5 to 4 cm of mottled greenish black to reddish-brown organic-rich sediment with a spongey texture; relatively fresh *Thalassia* and mangrove leaves are concentrated between the upper two layers; the lowest layer is a light tan carbonate mud; d) trench on northwest corner of island; 1 to 1.5 cm of flocculated material overlies ~3 to 4 cm of dark greenish gray mud with interbedded *Thalassia* and mangrove leaves, on top of a cohesive firm light gray carbonate mud; e) sediments on northern tip of island; a thin 1 to 1.5 cm layer of fine-grained mud is forming a crust overlying a dried reddish-brown layer, and below that is a firm cohesive carbonate mud; f) leading edge of mud deposit (indicated by arrows) along western and northwestern shoreline (looking north, island interior to right).


**Supplemental Figure 36.** Faunal and floral deposits, most likely from Hurricane Irma storm surge and/or wind: a) large mats of primarily *Thalassia* draped over mangroves on Russell Key, ~150 m east of shoreline and extending 80 cm up in tree branches; b) thick mat of primarily *Thalassia* covering open surface between mangroves on Russell Key; c) imbricated mangrove leaves on surface of mudflat on Russell Key; d) dense concentration of dead fish (primarily pupfish (*Cyprinodon* sp.), pinfish (*Lagodon rhomboides*), and killifish (*Lucania parva* and *Floridichthys carpio*)); band running from top of picture to lower right) in low area of Russell Key; e) dense concentration of live *Batillaria minima* (gastropod, 1025 live/25 cm2) on Bob Allen Key; f) close up of dead fish shown in e.