Meeting Summary

Biscayne Bay Regional Restoration Coordination Team (BBRRCT)

JULY 18, 2018; 10:00 AM – 3:00 PM

NOAA FISHERIES 75 Virginia Beach Dr. Miami FL 33149

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Effect of Anthropocene Sea-Level Rise on Sedimentation, Plant Communities, and Carbon Dynamics Southeast Saline Everglades, Florida, USA

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https://evergladesrestoration.gov/content/bbrrct/minutes/2018_meetings/071818/Effect%20of%20Anthropocene%20Sea-Level%20Rise%20on%20Sedimentation.pdf

This investigation was designed to answer the following question: How is accelerating rate of Anthropocene sea-level rise (SLR) changing the northern reach of the Southeast Saline Everglades (NRSESE)? The study area consists of an oligotrophic micro-tidal wetland located on a stable carbonate platform with extremely low topographic relief and which receives only trace allochthonous sediment input. Therefore, many of the variables which hamper analogous investigations are absent and the interpretation of our results are more likely to be accurate.

The rate of global eustatic SLR has steadily accelerated since the onset of Anthropocene epoch (~1900) and will very likely exceed 10 mm/yr by 2100 (Sweet et al., 2017).

The project area included: The ACR = Atlantic Coastal Ridge; the SESE = Southeast Saline Everglades; and the RFT = Florida Reef Tract. The study area is 2 km wide and 800 m deep.

Historical landscape analysis was undertaken to document changes in NRSESE plant communities and other significant landscape features using aerial photography (1938, 1952, 1968, and 2009)

7 deep (2 – 3 meters) and 320 shallow (30 cm) cores were collected in the NRSESE to document sedimentology and stratigraphy of geological and historical landscape features.

Sedimentologic data (texture, composition, color), Salinity Index (SI), stratigraphic correlations, and Pb210 accumulation rates were generated using standard methods to quantify the soil characteristics associated with each NRSESE plant community or landscape feature.

These data, in tandem with knowledge of regional SLR, were used to quantify the historical evolution of NRSESE plant communities, soils, and carbon dynamics.

Historical changes in NRSESE landscape features were quantified using aerial photography obtained in 1938, 1952, 1968, 2006.

NRSESE historical landward drift of fringing- and dwarf-red mangrove was observed.

Extant plant community sediments show a decrease to zero of the marl an increase then a decline in in Mangrove peat and marl.

The historical sediment succession of NRSESE is transgressive and generated in response to Anthropocene SLR. This initially resulted in a net increase in OC storage as the organicrich fringe- and dwarf-red mangrove plant communities migrated landward into less carbon-rich environs. By 1968, the entire study area had converted to red mangrove. Additional landward migration was blocked by the L31E levee. Thereafter, OC storage was reduced by inundation ponding (prevailing) and event-driven coastal erosion (Hurricane Andrew 1992).

Accelerating SLR and more frequent landfall of larger storm events are forecast to accompany climate change. Therefore, OC storage in NRSESE is forecast to diminish over time. More frequent landfall of event-driven erosional events into the NRSESE will likely be accompanied by pulses of OC-rich shoreline soils into proximal marine waters (Florida Bay, Florida Reef Tract). The environmental and economic consequences of these pulses are poorly constrained at present but will likely be substantial. Based upon this study and others in the region, accelerating SLR will initially generate a transgressive soil sequence until a tipping point is reach. Thereafter, the replacement of south Florida natural environs by open water is most probable. This will be accompanied by decreased OC storage until the entire region is converted to a shallow, subtropical estuary

An Update on NOAA Marine Debris Program (MDP) activities

Charles Grisafi *Florida and Caribbean Regional Coordinator NOAA Marine Debris Program*

https://evergladesrestoration.gov/content/bbrrct/minutes/2018_meetings/071818/NOAA%20Marine%20Debris%20Program.pdf

NOAA Marine Debris Program was established in 2006 by Congress as the federal lead for marine debris, amended in 2012 through the Marine Debris Act.

Legislative Mandates are to: Identify, determine sources of, assess, prevent, reduce, and remove marine debris; provide national and regional coordination; reduce adverse impacts of lost and discarded fishing gear; conduct outreach and education; address “severe marine debris events”

Program Pillars are: REMOVAL, PREVENTION, RESEARCH, EMERGENCY RESPONSE, and REGIONAL COORDINATION. 10-12 projects on removal and prevention are funded eachyear as well as competitive research grants. Each coastal state has an emergency response plan to improve preparedness and recovery operations following acute waterway debris release incidents.

The Bipartisan Budget Act of 2018 authorizes NOAA to allocate $18 million for “marine debris assessment and removal” related to the consequences of Hurricanes Harvey, Irma, and Maria. 2 direct grants for Irma were given to the state of Florida 1 to FWC and 1 to DEP. The DEP grant will focus on marine debris removal in Biscayne Bay Aquatic Preserve and Rookery Bay NERR. The FWC grant will focus on 4 different projects:

1. Statewide vessel database upgrade and removal of 225 vessels displaced by Hurricane Irma

2. Removal of derelict fishing gear within the Florida Keys National Marine Sanctuary

3. Assess and map marine debris hot spots throughout the state that were impacted by Hurricane Irma
4.FDACS, Division of Aquaculture to assess, remove, and dispose marine debris in and around Aquacultu re Use Zones

Learn more:

Website: www.marinedebris.noaa.gov /noaamarinedebris @noaadebris

Blog: https://blog.marinedebris.noaa.gov/

Florida Resident's Willingness to Pay for Everglades Restoration

Andrew Stainback, PhD, JD, Ecological Economist, The Everglades Foundation and Chloe Vorset , M.S. Student, Florida International University

https://evergladesrestoration.gov/content/bbrrct/minutes/2018_meetings/071818/Florida%C2%A0Resident's%C2%A0Willingness%C2%A0to%C2%A0Pay%C2%A0for%C2%A0Everglades%C2%A0Restoration.pdf

Everglades Restoration as envisioned by CERP is expected to cost over $16 billion.
Restoration costs are relatively easy to assess. Restoration benefits are more difficult
to quantify and are rarely expressed in economic terms Marginal v. Total Value.

To quantify the benefits of ecological restoration there are several things that can be used.

- Observe markets
  - Commercial fishing catch from species dependent on Florida Bay is worth at least $12 mi llion per year, (*Florida Bay study*). Note: it is
    easy and accurate but not possible with many benefits
- How much people spent to enjoy environmental amenities.
  - Recreational anglers spend more than $400 million per year to fish in Florida Bay – *Florida Bay study*
- How environmental quality impact goods in other markets
  - Improved water quality can increase residential real estate in Lee and Martin counties
  - by about $1 billion – *Florida Realtors study*
- Avoided costs associated with environmental improvement
  - Everglades restoration can save over $13 billion over 50 years in reduced desalinization costs – *Mather study*
- Ask people in simulated market conditions how much people are willing to pay for the benefits of restoration
  - **Focus of this survey work**

Marginal value of ecological attributes that will be influenced by restoration including
Wading Birds, Polluted discharges from Lake Okeechobee, etc.

What motivates people to want to restore the Everglades? A Survey of Florida Households included:

- Willingness to Pay (WTP) for changes in ecological attributes
- Environmental Attitudes
- Demographic Information

Attributes for WTP oWading Birds in Everglades National Park

- American Alligators in Everglades National Park
- Endangered Everglades Snail Kite in the Greater Everglades
- Spotted Seatrout in Florida Bay, Everglades National Park
- Reduced Discharges from Lake Okeechobee to the St. Lucie and Caloosahatchee Rivers

After survey modifications the survey was administered from November 2017 to December 2017 on an additional 2,000 Florida residents.

Follow up Discussion on Annual Report Discussion/creating Letter of Support of HFA Continuation

Phil Everingham., Chair of BBRRCT . This was discussed to be included in the annual report.

Please note there will be an opportunity offered for public comment after each agenda item. The times provided for agenda items are flexible and will be adjusted during the meeting if necessary.