Florida Bay 2015 seagrass die-off Extent and characteristics.

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Rapid salinity increase (May-Jun 2015)

July 2015
- Yellow haze in bottom waters among seagrass in Rankin Lake
- Fish kills around Palm Key and in Rankin Lake (toadfish)

Aug 2015
- Rains finally start!
- Large mats of dead seagrass floating in Rankin Lake and Tin Can channel
- Patchy yellow haze in Whipray bottom waters

Sep-Nov 2015
- Water parameters return to normal levels
- Massive amounts of dead seagrass standing in place and littering bottom of basins and shorelines of keys and bights
- Waters remain clear to the bottom

Waters remain clear to the bottom
Record rainfalls in South Florida in dry season. Lake Okeechobee fills.

Dec 2015
Jan 2016

Waters become turbid with wind events. Large amounts of unconsolidated sediment

Jan-Jun 2016

Seagrass decomposes and disintegrates in basins.

Sep 2016

Hyper-eutrophic algal bloom begins in central Florida Bay
CONTRIBUTING FACTORS:
• High *Thalassia* Biomass
• Diminished freshwater input
• Delay in seasonal rainfall
• Calm windless days
• High water temperature
• Exceptional Hypersalinity
• Low dissolved oxygen
• High sediment sulfide concentrations
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![Map of Florida Bay with stars indicating key locations.]

![Graph showing 365 day moving sum of 5 creek flow for 2012 to 2015.]

Legend:
- 365d moving sum 5 creek flow
- Flow below MFL threshold
- WY01-13 Average
- MFL threshold

2012: Increase in 365d moving sum 5 creek flow from January to March, then a decrease until December.
2013: Similar pattern to 2012, with an increase in March and a decrease through December.
2014: Overall decrease in 365d moving sum 5 creek flow from January to December.
2015: Further decrease, with a significant drop in December.

North Key Largo
Key Largo
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Buoy Key Station
Water Temperature

Garfield Bight Station
Water Temperature
Monthly Average Salinity
2012 to 2017

Salinity (psu)

Time (Months)


Salinity (psu)

JUL 2015 SEP 2015

72

BK GB
Rankin Lake Dissolved Oxygen

Rankin July 30, 2015

Site

DO mg/L

Surface

Bottom

Temp = 33°C
Buoy Key Station 2015 Hypoxia through time

- **APR 1 - 5**: 8 h/d
- **JUL 1 - 5**: 11 h/d
- **JUL 31 - Aug 4**: 20 h/d
- **AUG 5 - 11**: 22 h/d
Thanks to Liz Johnsey and Carol Cheatham Rhodes of FWRI, St. Petersburg for imagery analysis.
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Chl-α (µg/L)

- 0-5
- 6-15
- 16-30
- 31-45
- >45

Johnson
SDD = 25cm

Algal Bloom
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Chl-α (µg/L)

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Whipray