# Alligator Harbor Aquatic Preserve

## Water Column

### Nutrients

#### Total Nitrogen

Monthly average total nitrogen increased by 0.01 mg/L per year.

#### Total Phosphorus

Monthly average total phosphorus increased by less than 0.01 mg/L per year.

### Water Quality

#### Dissolved Oxygen - Discrete

Monthly average dissolved oxygen decreased by 0.03 mg/L per year.

#### Dissolved Oxygen - Continuous

No detectable change in monthly average dissolved oxygen was observed at one location. There was insufficient data to fit a model for two locations.

#### Dissolved Oxygen Saturation - Discrete

There was insufficient data to fit a model for dissolved oxygen saturation.

#### Dissolved Oxygen Saturation - Continuous

No detectable change in monthly average dissolved oxygen saturation was observed at one location. There was insufficient data to fit a model for two locations.

#### Salinity - Discrete

Monthly average salinity decreased by 0.04 ppt per year.

#### Salinity - Continuous

No detectable change in monthly average salinity was observed at one location. There was insufficient data to fit a model for two locations.

#### Water Temperature - Discrete

Water temperature showed no detectable trend between 1996 and 2024.

#### Water Temperature - Continuous

No detectable change in monthly average water temperature was observed at one location. There was insufficient data to fit a model for two locations.

#### pH - Discrete

Monthly average pH decreased by 0.01 pH units per year.

#### pH - Continuous

At one program location, monthly average pH decreased by 0.03 pH units per year. There was insufficient data to fit a model for two locations.

### Water Clarity

#### Turbidity - Discrete

Monthly average turbidity decreased by 0.11 NTU per year, indicating an increase in water clarity.

#### Turbidity - Continuous

No detectable change in monthly average turbidity was observed at one location. There was insufficient data to fit a model for two locations.

#### Total Suspended Solids - Discrete

There was insufficient data to fit a model for total suspended solids.

#### Chlorophyll a, Uncorrected for Pheophytin - Discrete

Monthly average chlorophyll a, uncorrected for pheophytin increased by 0.15 µg/L per year, indicating a decrease in water clarity.

#### Chlorophyll a, Corrected for Pheophytin - Discrete

There was insufficient data to fit a model for chlorophyll a, corrected for pheophytin.

#### Secchi Depth - Discrete

Secchi depth showed no detectable trend between 1998 and 2024.

#### Colored Dissolved Organic Matter - Discrete

Colored dissolved organic matter showed no detectable trend between 2001 and 2024.

## Submerged Aquatic Vegetation

### Percent Cover

#### Percent Cover

Annual decreases in percent cover were observed for manatee grass (-1.2%) and drift algae (-2.4%). No detectable change in percent cover was observed for shoal grass and turtle grass. Trends in percent cover could not be evaluated for star grass and widgeon grass due to insufficient data.

# Apalachicola Bay Aquatic Preserve

## Water Column

### Nutrients

#### Total Nitrogen

Monthly average total nitrogen increased by less than 0.01 mg/L per year.

#### Total Phosphorus

Total phosphorus showed no detectable trend between 1992 and 2024.

### Water Quality

#### Dissolved Oxygen - Discrete

Monthly average dissolved oxygen decreased by 0.02 mg/L per year.

#### Dissolved Oxygen - Continuous

At four program locations, monthly average dissolved oxygen decreased between 0.02 and 0.06 mg/L per year. No detectable change in monthly average dissolved oxygen was observed at one location.

#### Dissolved Oxygen Saturation - Discrete

Monthly average dissolved oxygen saturation increased by 0.35% per year.

#### Dissolved Oxygen Saturation - Continuous

At four program locations, monthly average dissolved oxygen saturation decreased between 0.15 and 0.75% per year. No detectable change in monthly average dissolved oxygen saturation was observed at one location.

#### Salinity - Discrete

Monthly average salinity decreased by 0.09 ppt per year.

#### Salinity - Continuous

At one program location, monthly average salinity increased by 0.01 ppt per year. No detectable change in monthly average salinity was observed at four locations.

#### Water Temperature - Discrete

Monthly average water temperature increased by 0.02°C per year.

#### Water Temperature - Continuous

At three program locations, monthly average water temperature increased between 0.02 and 0.04°C per year. No detectable change in monthly average water temperature was observed at two locations.

#### pH - Discrete

Monthly average pH decreased by 0.01 pH units per year.

#### pH - Continuous

At four program locations, monthly average pH decreased between 0.00 and 0.01 pH units per year. No detectable change in monthly average pH was observed at one location.

### Water Clarity

#### Turbidity - Discrete

Turbidity showed no detectable trend between 1992 and 2024.

#### Turbidity - Continuous

At one program location, monthly average turbidity increased by 0.70 NTU per year. At two program locations, monthly average turbidity decreased between 0.11 and 0.19 NTU per year. No detectable change in monthly average turbidity was observed at two locations.

#### Total Suspended Solids - Discrete

Total suspended solids showed no detectable trend between 1992 and 2024.

#### Chlorophyll a, Uncorrected for Pheophytin - Discrete

Monthly average chlorophyll a, uncorrected for pheophytin increased by 0.25 µg/L per year, indicating a decrease in water clarity.

#### Chlorophyll a, Corrected for Pheophytin - Discrete

Monthly average chlorophyll a, corrected for pheophytin increased by 0.29 µg/L per year, indicating a decrease in water clarity.

#### Secchi Depth - Discrete

Monthly average Secchi depth became shallower by less than 0.01 m per year, indicating a decrease in water clarity.

#### Colored Dissolved Organic Matter - Discrete

There was insufficient data to fit a model for colored dissolved organic matter.

### Nekton

#### Presence/Absence

The median annual number of taxa was 0.74 based on 4,967 observations collected by 4.8-meter trawl between 2000 and 2024.

## Coastal Wetlands

### Species Composition

#### Total/Canopy Percent Cover

Between 2022 and 2023, the median annual number of species for mangroves and associates was 1 based on 4 observations. Between 2014 and 2023, the median annual number of species for marsh was 1.5 based on 144 observations. Between 2014 and 2023, the median annual number of species for marsh succulents was 3 based on 56 observations.

## Oyster/Oyster Reef

### Density

#### Density

For natural reefs, density decreased by an average of 7m-2 per year. For restored reefs, density decreased by an average of 6.01m-2 per year.

### Percent Live

#### Percent Live

For natural reefs, percent live cover increased by an average of 0.75% per year. For restored reefs, percent live cover decreased by an average of 2.12% per year.

### Size Class

#### Shell Height

For natural reefs, there was insufficient data to calculate a trend for live oysters in either the 25-75mm or the ≥75mm size class. For restored reefs, a model could not be fitted for live oysters in either the 25-75mm or the ≥75mm size class. Models are not run on dead oyster shell measurements.

## Submerged Aquatic Vegetation

### Percent Cover

#### Percent Cover

An annual decrease in percent cover was observed for drift algae (-2.6%). No detectable change in percent cover was observed for shoal grass. Trends in percent cover could not be evaluated for widgeon grass due to insufficient data.

# Big Bend Seagrasses Aquatic Preserve

## Water Column

### Nutrients

#### Total Nitrogen

Monthly average total nitrogen increased by 0.01 mg/L per year.

#### Total Phosphorus

Monthly average total phosphorus increased by less than 0.01 mg/L per year.

### Water Quality

#### Dissolved Oxygen - Discrete

Dissolved oxygen showed no detectable trend between 1985 and 2024.

#### Dissolved Oxygen - Continuous

At two program locations, monthly average dissolved oxygen increased between 0.05 and 0.09 mg/L per year. At one program location, monthly average dissolved oxygen decreased by 0.06 mg/L per year. No detectable change in monthly average dissolved oxygen was observed at five locations. There was insufficient data to fit a model for one location.

#### Dissolved Oxygen Saturation - Discrete

Dissolved oxygen saturation showed no detectable trend between 1999 and 2024.

#### Dissolved Oxygen Saturation - Continuous

At one program location, monthly average dissolved oxygen saturation decreased by 0.81% per year. No detectable change in monthly average dissolved oxygen saturation was observed at three locations. There was insufficient data to fit a model for one location.

#### Salinity - Discrete

Monthly average salinity decreased by 0.04 ppt per year.

#### Salinity - Continuous

At two program locations, monthly average salinity increased between 0.53 and 0.76 ppt per year. At four program locations, monthly average salinity decreased between 0.00 and 0.75 ppt per year. No detectable change in monthly average salinity was observed at one location. There was insufficient data to fit a model for three locations.

#### Water Temperature - Discrete

Monthly average water temperature increased by 0.04°C per year.

#### Water Temperature - Continuous

At four program locations, monthly average water temperature increased between 0.02 and 0.30°C per year. At one program location, monthly average water temperature decreased by 0.37°C per year. No detectable change in monthly average water temperature was observed at six locations. There was insufficient data to fit a model for four locations.

#### pH - Discrete

pH showed no detectable trend between 1964 and 2024.

#### pH - Continuous

At two program locations, monthly average pH increased between 0.01 and 0.02 pH units per year. At four program locations, monthly average pH decreased between 0.00 and 0.06 pH units per year. No detectable change in monthly average pH was observed at two locations. There was insufficient data to fit a model for one location.

### Water Clarity

#### Turbidity - Discrete

Monthly average turbidity decreased by 0.04 NTU per year, indicating an increase in water clarity.

#### Turbidity - Continuous

At one program location, monthly average turbidity increased by 1.22 NTU per year. At two program locations, monthly average turbidity decreased between 0.55 and 0.99 NTU per year. No detectable change in monthly average turbidity was observed at one location. There was insufficient data to fit a model for one location.

#### Total Suspended Solids - Discrete

Monthly average total suspended solids decreased by 0.07 mg/L per year, indicating an increase in water clarity.

#### Chlorophyll a, Uncorrected for Pheophytin - Discrete

Monthly average chlorophyll a, uncorrected for pheophytin increased by 0.06 µg/L per year, indicating a decrease in water clarity.

#### Chlorophyll a, Corrected for Pheophytin - Discrete

Monthly average chlorophyll a, corrected for pheophytin increased by 0.06 µg/L per year, indicating a decrease in water clarity.

#### Secchi Depth - Discrete

Secchi depth showed no detectable trend between 1991 and 2024.

#### Colored Dissolved Organic Matter - Discrete

Monthly average colored dissolved organic matter increased by 1.63 PCU per year, indicating a decrease in water clarity.

## Coastal Wetlands

### Species Composition

#### Total/Canopy Percent Cover

Between 2013 and 2016, the median annual number of species for marsh was 2 based on 6 observations.

## Oyster/Oyster Reef

### Density

#### Density

### Percent Live

#### Percent Live

### Size Class

#### Shell Height

For natural reefs, there was insufficient data to calculate a trend for live oysters in either the 25-75mm or the ≥75mm size class. Models are not run on dead oyster shell measurements.

## Submerged Aquatic Vegetation

### Percent Cover

#### Percent Cover

An annual increase in percent cover was observed for drift algae (0.8%). Annual decreases in percent cover were observed for manatee grass (-0.4%), shoal grass (-0.4%), and turtle grass (-0.5%). No detectable change in percent cover was observed for star grass and widgeon grass.

# Pinellas County Aquatic Preserve

## Water Column

### Nutrients

#### Total Nitrogen

Monthly average total nitrogen decreased by 0.01 mg/L per year.

#### Total Phosphorus

Monthly average total phosphorus decreased by less than 0.01 mg/L per year.

### Water Quality

#### Dissolved Oxygen - Discrete

Dissolved oxygen showed no detectable trend between 1974 and 2024.

#### Dissolved Oxygen - Continuous

#### Dissolved Oxygen Saturation - Discrete

Monthly average dissolved oxygen saturation increased by 0.12% per year.

#### Dissolved Oxygen Saturation - Continuous

#### Salinity - Discrete

Monthly average salinity decreased by 0.1 ppt per year.

#### Salinity - Continuous

#### Water Temperature - Discrete

Monthly average water temperature increased by 0.01°C per year.

#### Water Temperature - Continuous

At one program location, monthly average water temperature increased by 0.06°C per year. There was insufficient data to fit a model for three locations.

#### pH - Discrete

Monthly average pH decreased by less than 0.01 pH units per year.

#### pH - Continuous

### Water Clarity

#### Turbidity - Discrete

Turbidity showed no detectable trend between 1995 and 2024.

#### Turbidity - Continuous

#### Total Suspended Solids - Discrete

Monthly average total suspended solids decreased by 0.39 mg/L per year, indicating an increase in water clarity.

#### Chlorophyll a, Uncorrected for Pheophytin - Discrete

Monthly average chlorophyll a, uncorrected for pheophytin increased by 0.15 µg/L per year, indicating a decrease in water clarity.

#### Chlorophyll a, Corrected for Pheophytin - Discrete

Chlorophyll a, corrected for pheophytin showed no detectable trend between 2000 and 2024.

#### Secchi Depth - Discrete

Monthly average Secchi depth became deeper by 0.02 m per year, indicating an increase in water clarity.

#### Colored Dissolved Organic Matter - Discrete

Monthly average colored dissolved organic matter increased by 0.25 PCU per year, indicating a decrease in water clarity.

### Nekton

#### Presence/Absence

The median annual number of taxa was 0.10 based on 4,407 observations collected by 183-meter seine between 1996 and 2022, and the median annual number of taxa was 0.30 based on 5,254 observations collected by 6.1-meter trawl between 1989 and 2022.

## Coastal Wetlands

### Species Composition

#### Total/Canopy Percent Cover

In the year 2014, 3 species were observed for mangroves and associates based on 1 observation. In the year 2014, 5 species were observed for marsh based on 1 observation. In the year 2014, 3 species were observed for marsh succulents based on 1 observation.

## Oyster/Oyster Reef

### Density

#### Density

For natural reefs, there was insufficient data to calculate a trend for density.

### Percent Live

#### Percent Live

For natural reefs, there was insufficient data to calculate a trend for percent live cover.

### Size Class

#### Shell Height

For natural reefs, there was insufficient data to calculate a trend for live oysters in either the 25-75mm or the ≥75mm size class.

## Submerged Aquatic Vegetation

### Percent Cover

#### Percent Cover

Annual increases in percent cover were observed for shoal grass (0.3%) and drift algae (2.8%). Total SAV, unknown Halophila, manatee grass, turtle grass, widgeon grass, and attached algae showed no detectable change in percent cover. Trends in percent cover could not be evaluated for star grass due to insufficient data.

# Southeast Florida Coral Reef Ecosystem Conservation Area

## Water Column

### Nutrients

#### Total Nitrogen

#### Total Phosphorus

### Water Quality

#### Dissolved Oxygen - Discrete

#### Dissolved Oxygen - Continuous

#### Dissolved Oxygen Saturation - Discrete

#### Dissolved Oxygen Saturation - Continuous

#### Salinity - Discrete

#### Salinity - Continuous

#### Water Temperature - Discrete

#### Water Temperature - Continuous

#### pH - Discrete

#### pH - Continuous

### Water Clarity

#### Turbidity - Discrete

#### Turbidity - Continuous

#### Total Suspended Solids - Discrete

#### Chlorophyll a, Uncorrected for Pheophytin - Discrete

#### Chlorophyll a, Corrected for Pheophytin - Discrete

#### Secchi Depth - Discrete

#### Colored Dissolved Organic Matter - Discrete

## Coral/Coral Reef

### Percent Cover

#### Percent Cover

### Grazers and Reef Dependent Species

#### Presence/Absence