# Alligator Harbor Aquatic Preserve

## Chlorophyll a, Uncorrected for Pheophytin

This table outlines a key observation related to Chlorophyll a, Uncorrected for Pheophytin levels in the Alligator Harbor Aquatic Preserve. High levels of chlorophyll a can indicate nutrient enrichment and potential algal blooms. The data indicate a significantly increasing trend in Chlorophyll a, Uncorrected for Pheophytin from 2001 - 2023, based on the analysis of 1,052 samples.

## Colored Dissolved Organic Matter

This table outlines a key observation related to Colored Dissolved Organic Matter levels in the Alligator Harbor Aquatic Preserve. High levels of CDOM can indicate organic pollution or runoff from terrestrial sources, impacting water quality. The data indicate no significant trend in Colored Dissolved Organic Matter from 2001 - 2023, based on the analysis of 319 samples.

## Dissolved Oxygen

The preserve is a sanctuary for threatened species like the loggerhead sea turtle, with vital nesting and foraging habitats that sustain local marine life populations. Presented here is the result for Dissolved Oxygen trends at the Alligator Harbor Aquatic Preserve. Dissolved oxygen is a direct indicator of the water’s capacity to sustain life and support ecosystem functions. A significantly decreasing trend in Dissolved Oxygen was observed from 1998 - 2023, according to data from 7,608 samples.

## Salinity

Presented here is the result for Salinity trends at the Alligator Harbor Aquatic Preserve. Sudden changes in salinity can stress aquatic species, disrupting their bodily functions and reducing biodiversity in coastal areas. Over the course of 1996 - 2023, a significantly decreasing trend was detected in Salinity, supported by 8,844 samples.

## Secchi Depth

The analysis here tests for changes in Secchi Depth in the Alligator Harbor Aquatic Preserve over the study period. Changes in Secchi depth can signal pollution or nutrient overload, which can degrade water quality. The data indicate no significant trend in Secchi Depth from 1998 - 2023, based on the analysis of 2,344 samples.

## Total Nitrogen

Ongoing conservation efforts at Alligator Harbor Aquatic Preserve focus on water quality monitoring and habitat protection to preserve its rich marine biodiversity. The analysis here tests for changes in Total Nitrogen in the Alligator Harbor Aquatic Preserve over the study period. Elevated total nitrogen levels can fuel harmful algal blooms, disrupting aquatic ecosystems. The data indicate no significant trend in Total Nitrogen from 2001 - 2023, based on the analysis of 1,370 samples.

## Total Phosphorus

This table outlines a key observation related to Total Phosphorus levels in the Alligator Harbor Aquatic Preserve. Elevated phosphorus levels often lead to oxygen-depleted zones, harming aquatic life. Over the course of 2001 - 2023, a significantly increasing trend was detected in Total Phosphorus, supported by 990 samples.

## Turbidity

Alligator Harbor Aquatic Preserve’s extensive seagrass beds are crucial for providing habitat and nursery grounds for a diverse range of marine species, supporting the ecological health of the Gulf of Mexico. The following table highlights trends in Turbidity within the Alligator Harbor Aquatic Preserve. High turbidity can reduce light penetration, impacting photosynthesis and aquatic plant health. The data indicate a significantly decreasing trend in Turbidity from 1998 - 2022, based on the analysis of 3,543 samples.

## Water Temperature

The analysis here tests for changes in Water Temperature in the Alligator Harbor Aquatic Preserve over the study period. Temperature changes can affect species composition, breeding cycles, and habitat suitability. Over the course of 1996 - 2023, no significant trend was detected in Water Temperature, supported by 9,103 samples.

## pH

The analysis here tests for changes in pH in the Alligator Harbor Aquatic Preserve over the study period. pH levels determine the chemical composition of water and the health of aquatic organisms. The data indicate a significantly decreasing trend in pH from 1998 - 2023, based on the analysis of 4,735 samples.

# Apalachicola Bay Aquatic Preserve

## Chlorophyll a, Corrected for Pheophytin

This table outlines a key observation related to Chlorophyll a, Corrected for Pheophytin levels in the Apalachicola Bay Aquatic Preserve. Corrected chlorophyll a levels help distinguish between productive and potentially harmful algal blooms. The data indicate a significantly increasing trend in Chlorophyll a, Corrected for Pheophytin from 2000 - 2023, based on the analysis of 493 samples.

## Chlorophyll a, Uncorrected for Pheophytin

Presented here is the result for Chlorophyll a, Uncorrected for Pheophytin trends at the Apalachicola Bay Aquatic Preserve. Chlorophyll a measures the total biomass of phytoplankton, a key indicator of primary productivity. A significantly increasing trend in Chlorophyll a, Uncorrected for Pheophytin was observed from 2002 - 2023, according to data from 135 samples.

## Dissolved Oxygen

Apalachicola Bay Aquatic Preserve is one of the most productive estuarine systems in the northern hemisphere, providing crucial nursery habitats for species that support the Gulf of Mexico’s commercial and recreational fisheries. The analysis here tests for changes in Dissolved Oxygen in the Apalachicola Bay Aquatic Preserve over the study period. Adequate dissolved oxygen is critical for the survival of fish and other aquatic organisms. A significantly decreasing trend in Dissolved Oxygen was observed from 1992 - 2023, according to data from 46,230 samples.

## Dissolved Oxygen Saturation

The analysis here tests for changes in Dissolved Oxygen Saturation in the Apalachicola Bay Aquatic Preserve over the study period. Saturation levels provide insights into how thoroughly water is mixing and its ability to support aerobic organisms. A significantly increasing trend in Dissolved Oxygen Saturation was observed from 2000 - 2023, according to data from 4,454 samples.

## Salinity

Presented here is the result for Salinity trends at the Apalachicola Bay Aquatic Preserve. Sudden changes in salinity can stress aquatic species, disrupting their bodily functions and reducing biodiversity in coastal areas. The data indicate no significant trend in Salinity from 1964 - 2023, based on the analysis of 56,237 samples.

## Secchi Depth

This table outlines a key observation related to Secchi Depth levels in the Apalachicola Bay Aquatic Preserve. Changes in Secchi depth can signal pollution or nutrient overload, which can degrade water quality. There was no significant trend in Secchi Depth from 1992 - 2023, according to data from 21,885 samples.

## Total Nitrogen

Conservation efforts in Apalachicola Bay Aquatic Preserve focus on maintaining the bay’s exceptional water quality, which is essential for sustaining its rich biodiversity and supporting important fish populations. This table outlines a key observation related to Total Nitrogen levels in the Apalachicola Bay Aquatic Preserve. Elevated total nitrogen levels can fuel harmful algal blooms, disrupting aquatic ecosystems. The data indicate no significant trend in Total Nitrogen from 1992 - 2023, based on the analysis of 487 samples.

## Total Phosphorus

This table outlines a key observation related to Total Phosphorus levels in the Apalachicola Bay Aquatic Preserve. Phosphorus is essential for aquatic life, but too much can lead to excessive algal growth and oxygen depletion. An analysis over 1992 - 2023 revealed a significantly decreasing trend in Total Phosphorus levels, with 551 samples contributing to this finding.

## Total Suspended Solids

Presented here is the result for Total Suspended Solids trends at the Apalachicola Bay Aquatic Preserve. Total suspended solids can clog fish gills and smother the seafloor, disrupting aquatic ecosystems. Over the course of 1992 - 2023, no significant trend was detected in Total Suspended Solids, supported by 112 samples.

## Turbidity

The preserve is vital for the survival of many marine species, with more than 95% of commercially harvested species and 85% of recreationally harvested species spending part of their lifecycle in its estuarine waters. This table outlines a key observation related to Turbidity levels in the Apalachicola Bay Aquatic Preserve. High turbidity can reduce light penetration, impacting photosynthesis and aquatic plant health. The data indicate no significant trend in Turbidity from 1992 - 2023, based on the analysis of 15,514 samples.

## Water Temperature

The analysis here tests for changes in Water Temperature in the Apalachicola Bay Aquatic Preserve over the study period. Understanding temperature trends is crucial for predicting the impacts of thermal pollution on aquatic life. There was no significant trend in Water Temperature from 1964 - 2023, according to data from 55,058 samples.

## pH

Presented here is the result for pH trends at the Apalachicola Bay Aquatic Preserve. Maintaining stable pH levels is essential for the health of coral reefs and other sensitive habitats. An analysis over 1964 - 2023 revealed a significantly decreasing trend in pH levels, with 35,507 samples contributing to this finding.

# Big Bend Seagrasses Aquatic Preserve

## Chlorophyll a, Corrected for Pheophytin

Presented here is the result for Chlorophyll a, Corrected for Pheophytin trends at the Big Bend Seagrasses Aquatic Preserve. This parameter helps distinguish between healthy phytoplankton and degraded organic matter, offering clearer water quality insights. Over the course of 1995 - 2023, a significantly increasing trend was detected in Chlorophyll a, Corrected for Pheophytin, supported by 4,414 samples.

## Chlorophyll a, Uncorrected for Pheophytin

The analysis here tests for changes in Chlorophyll a, Uncorrected for Pheophytin in the Big Bend Seagrasses Aquatic Preserve over the study period. Elevated chlorophyll a levels can signal nutrient overload, leading to hypoxic conditions harmful to marine life. The data indicate a significantly increasing trend in Chlorophyll a, Uncorrected for Pheophytin from 1990 - 2023, based on the analysis of 5,925 samples.

## Colored Dissolved Organic Matter

This table outlines a key observation related to Colored Dissolved Organic Matter levels in the Big Bend Seagrasses Aquatic Preserve. High levels of CDOM can indicate organic pollution or runoff from terrestrial sources, impacting water quality. A significantly increasing trend in Colored Dissolved Organic Matter was observed from 2001 - 2023, according to data from 2,444 samples.

## Dissolved Oxygen

Conservation efforts at Big Bend Seagrasses Aquatic Preserve include comprehensive water quality monitoring and seagrass restoration, essential for maintaining the ecological health of its diverse marine and estuarine habitats. The analysis here tests for changes in Dissolved Oxygen in the Big Bend Seagrasses Aquatic Preserve over the study period. Adequate dissolved oxygen is critical for the survival of fish and other aquatic organisms. Over the course of 1985 - 2023, a significantly decreasing trend was detected in Dissolved Oxygen, supported by 137,502 samples.

## Dissolved Oxygen Saturation

This table outlines a key observation related to Dissolved Oxygen Saturation levels in the Big Bend Seagrasses Aquatic Preserve. Saturation levels provide insights into how thoroughly water is mixing and its ability to support aerobic organisms. An analysis over 1999 - 2023 revealed no significant trend in Dissolved Oxygen Saturation levels, with 1,239 samples contributing to this finding.

## Salinity

The analysis here tests for changes in Salinity in the Big Bend Seagrasses Aquatic Preserve over the study period. Changes in salinity can alter which species thrive by affecting the salt concentration in water, which impacts nutrient availability and ecosystem health. Over the course of 1964 - 2023, a significantly decreasing trend was detected in Salinity, supported by 142,979 samples.

## Secchi Depth

The following table highlights trends in Secchi Depth within the Big Bend Seagrasses Aquatic Preserve. Changes in Secchi depth can signal pollution or nutrient overload, which can degrade water quality. A significantly increasing trend in Secchi Depth was observed from 1991 - 2023, according to data from 47,287 samples.

## Total Nitrogen

Big Bend Seagrasses Aquatic Preserve spans over 984,000 acres, making it the largest aquatic preserve in Florida and a critical habitat for sea and shore birds, seagrasses, and commercially important species like clams and oysters. Presented here is the result for Total Nitrogen trends at the Big Bend Seagrasses Aquatic Preserve. Nitrogen is a key nutrient that supports plant growth but can cause eutrophication when in excess. An analysis over 1990 - 2023 revealed a significantly increasing trend in Total Nitrogen levels, with 7,766 samples contributing to this finding.

## Total Phosphorus

This table outlines a key observation related to Total Phosphorus levels in the Big Bend Seagrasses Aquatic Preserve. Controlling total phosphorus is vital to prevent harmful algal blooms and maintain ecosystem balance. Over the course of 1992 - 2023, a significantly increasing trend was detected in Total Phosphorus, supported by 6,019 samples.

## Total Suspended Solids

This table outlines a key observation related to Total Suspended Solids levels in the Big Bend Seagrasses Aquatic Preserve. Monitoring suspended solids helps protect water clarity and the habitats that depend on it. The data indicate a significantly decreasing trend in Total Suspended Solids from 1990 - 2023, based on the analysis of 2,831 samples.

## Turbidity

The preserve plays a vital role in the local economy by supporting a significant shellfish industry and offering recreational activities such as scalloping, boating, and wildlife viewing along its 150 miles of pristine coastline. The analysis here tests for changes in Turbidity in the Big Bend Seagrasses Aquatic Preserve over the study period. Monitoring turbidity helps assess sediment runoff and its ecological impacts on aquatic environments. Over the course of 1990 - 2023, a significantly decreasing trend was detected in Turbidity, supported by 42,434 samples.

## Water Temperature

This table outlines a key observation related to Water Temperature levels in the Big Bend Seagrasses Aquatic Preserve. Temperature changes can affect species composition, breeding cycles, and habitat suitability. A significantly increasing trend in Water Temperature was observed from 1964 - 2023, according to data from 144,311 samples.

## pH

This table outlines a key observation related to pH levels in the Big Bend Seagrasses Aquatic Preserve. Maintaining stable pH levels is essential for the health of coral reefs and other sensitive habitats. A significantly decreasing trend in pH was observed from 1964 - 2023, according to data from 95,264 samples.