CHNEP Conservation Grant FY2021 – Final Report

Project Title: A Bird’s Eye View of Caloosahatchee Conditions: A Weekly Collection of the Effects of Lake Okeechobee Regulatory Releases

In order to visually document the effects of regulatory releases and watershed flows 360° aerial photographs were taken weekly at Lighthouse Beach Park on Sanibel Island since April 2021 under a variety of conditions ranging from optimal to damaging flows at S-79 on the Caloosahatchee. During this time period, regulatory releases from Lake Okeechobee were minimal with the exception of a short period of time in May. However, watershed runoff did result in visual changes in water clarity, highlighting water storage needs within the watershed. The aerial photography is displayed as an interactive, virtual tour online and is regularly provided to policy makers and the public via the “Caloosahatchee & Estuary Conditions Report” and our new “Weekly Water Conditions Update”. The drone was also able to document other events such runoff from the Sanibel River after Tropical Storm Elsa, macroalgae blooms at Bunche Beach, cyanobacteria blooms at S-79 on the Caloosahatchee, and other small localized bloom events. In addition to documenting events, our drone images have been used by the news media to show current conditions during high flows and has given SCCF and CHNEP media coverage of the products we have produced with the drone.

Project Results

- Weekly “little planet” images in the “Caloosahatchee & Estuary Conditions Report” which is a collaboration between SCCF, the City of Sanibel, J.N. “Ding” National Wildlife Refuge, the City of Cape Coral, and Lee County to provide current water quality assessments of the estuary and management recommendations to the US Army Corps of Engineers (USACE) and other state and federal agencies. (Fig. 1). [http://sccf.org/water-quality/caloosahatchee-condition-reports](http://sccf.org/water-quality/caloosahatchee-condition-reports) (Drone images included in reports starting April 27, 2021.)
- 360° virtual tour website that allows policy makers and the public to interact with images from Lighthouse Beach park. The website displays metadata including the date, time, tide, and 14-day average flow at S-79. [http://sccf.org/water-quality/aerialwq](http://sccf.org/water-quality/aerialwq)
- Included in the new “Weekly Water Conditions Update” which is used to provide conditions to the general public, residents, visitors, and the news media. This update distils the scientific “Caloosahatchee & Estuary Conditions Reports” in a simple and easy to understand way. This report reaches an audience of over 6,600 people who are signed up for SCCF newsletters and generates approximately 1,000 views to the 360° virtual tour website per month. (Fig. 2). [http://sccf.org/water-quality/weekly-water-conditions-tracker](http://sccf.org/water-quality/weekly-water-conditions-tracker)
- Documentation of cyanobacterial blooms at S-79 on the Caloosahatchee in May 2021 after high volume release from Lake Okeechobee that resulted in stressful 14-day average flows (2100-2600 cfs) for 5 days from May 10 – 14, 2021. (Fig. 3).
- Documentation of drift algae accumulation at Blind Pass in May 2021. (Fig 4).
- Documentation of macroalgal blooms on Bunche Beach in Fort Myers in June 2021. (Fig. 5).
- Documentation of the Sanibel River Plume after Tropical Storm Elsa in July 2021 (Fig. 6).
- Collaboration with the City of Sanibel to monitor progress on the Jordan Marsh plant removal. Jordan Marsh is a filter marsh used to remove nutrients from the Sanibel River. The mature plants are less effective at filtering nutrients and need to be removed periodically to restore the benefits of the marsh to the Sanibel River. (Fig. 7).
Fig 1: The “Caloosahatchee & Estuary Conditions Report” featuring a little planet view of Lighthouse Beach Park.
Figure 2: The “Weekly Water Conditions Update” featuring a view of Lighthouse Beach Park.

Figure 3: Cyanobacteria Blooms on the Caloosahatchee at S-79 on May 19, 2021.

Figure 4: Drift macroalgae accumulation at Blind Pass on May 24, 2021.
Figure 5: Macroalgae bloom at Bunche Beach on June 15, 2021

Figure 6: Brown water plume from the Sanibel River after the Beach Road weir was opened after Tropical Storm Elsa on July 8, 2021

Figure 7: Monitoring of the plant removal project at Jordan Marsh for the City of Sanibel.