Audubon FLORIDA

Wading Birds: Indicators of Everglades Restoration Progress

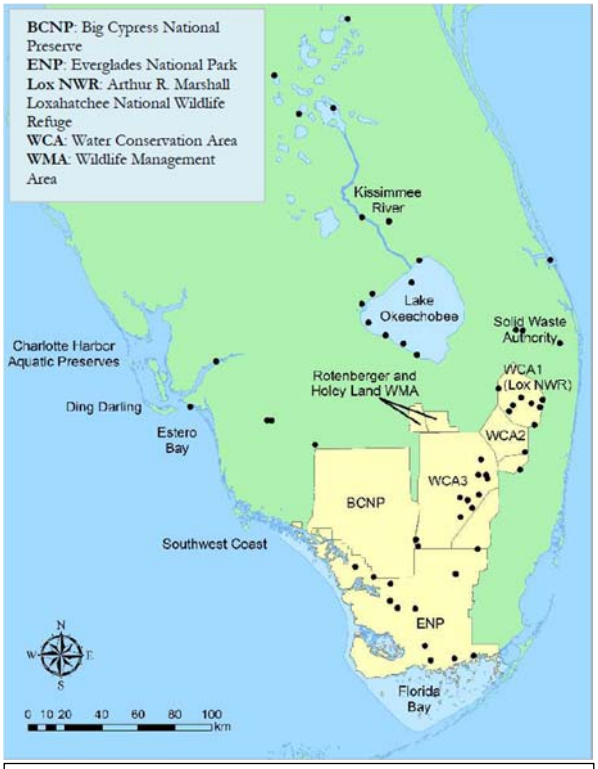
Analysis of the 2015 SFWMD Wading Bird Report

Introduction

Wading birds are important ecological indicators because their health reflects the health of the Greater Everglades. The South Florida Water Management District (SFWMD) uses wading birds as indicators of restoration progress, releasing the South Florida Wading Bird Report each year.

The success of wading bird nesting is closely tied to the way water is managed during wet and dry seasons. From June through October, South Florida's rainy season brings higher water levels to the Everglades. Populations of small fish and other prey organisms increase as water levels rise. In the dry season, from November to May, water levels begin to slowly recede. This leaves prey trapped in increasingly shallow water, making it easier for wading birds to find food to feed their growing chicks.

This natural rhythm was altered by canals and levees built to accommodate early 20th Century developers. As a result, wading bird populations declined significantly. The future of wading birds in the Everglades depends on restoration efforts and water management decisions meant to replicate the natural high and low water patterns.



Locations of significant wading bird colonies in South Florida, 2015. Map courtesy of SFWMD.

In the SFWMD report, an estimated 43,896 nests were recorded in South Florida. This year's overall nesting effort is close to the 10-year average. White Ibis nested successfully with 28,139 recorded in South Florida, 32% more than the 10-year average. However, other species nested at alarmingly low levels. Compared to the 10 year average, Wood Stork nesting was down 36%, Snowy Egret nesting was down by 51%, and Little Blue Heron nesting was down 70%.

Some wading bird species prefer to feed on small forage fish while others, like White Ibis, prefer to feed on crayfish. Crayfish populations often increase in a year following dry conditions. Historically, natural occasional dry periods would lead to increased crayfish populations that would result in years of much higher than average White Ibis nesting. The nesting season in 2015 was preceded by drier conditions in 2014. White Ibis were able to take advantage of the higher numbers of crayfish as a result.

"This year's lackluster nesting efforts show that Everglades restoration cannot wait. Species like Roseate Spoonbills and Wood Storks will continue to suffer until steady funding is secured to restore their vital habitat."

- Dr. Tabitha Cale, Everglades Policy Associate

Other species did not fare so well. Nest counts of Snowy Egrets and Little Blue Herons across the Everglades fell by 51% and 70%, respectively, compared to their 10-year average. Tricolored Heron nesting continues to be low with a total of 1,148 nests recorded in 2015. Exact causes of the low counts remain unclear. Additional funding for monitoring is needed so researchers can more thoroughly count the numbers of these species, solve the mystery of each of their declines, and most importantly, to be able to make recommendations on how to increase their populations.

Northern Everglades

Kissimmee River and Chain of Lakes

⇒ In 2015, 2,521 wading bird nests were recorded in this region, 402 fewer nests than in 2014.

The Kissimmee River Restoration project is within three years of completion. To date, over 7,700 acres of riverine wetland habitats have been restored. Until the restoration project is completed, water managers cannot fully mimic the natural patterns of yearly rainfall. Yet, large numbers of birds use the floodplain for feeding when conditions allow.

Lake Okeechobee

⇒ An estimated 3,457 nests were produced in 2015, which is 22% less than the 10-year average.

⇒ Lake Okeechobee supported 10% of all wading bird nesting recorded in South Florida in 2015.

⇒ Great Egret, Snowy Egret, and White Ibis were the most common species found nesting on Lake Okeechobee.

⇒ The first successful Roseate Spoonbill nest since 1874 was documented this year. The nest produced 3 chicks.

In 2015, numbers of nests initiated peaked early in the season. However, due to unusually high rainfall in mid-April, Lake water levels increased. This created poor conditions for nesting, decreasing the rate of new nest initiation significantly.

Recommendations

- Complete the Kissimmee River Restoration project and implement the Headwaters Revitalization schedule to maximize the restoration benefits by better controlling water levels in the Kissimmee floodplain.
- Expand the Everglades Headwaters National Wildlife Refuge and other cooperative programs by working with landowners to acquire land and conservation easements.
- Keep Lake Okeechobee water levels between 12.5 and 15.5 feet to maintain the health of the Lake's marshes. If water levels rise above 16 feet the water is too deep for wading birds to forage, plant communities drown, and habitat conditions decline. It is also important that Lake levels do not drop below 12 feet. When the Lake goes below that mark, it becomes too shallow for nesting and the Lake's marshes become dry.

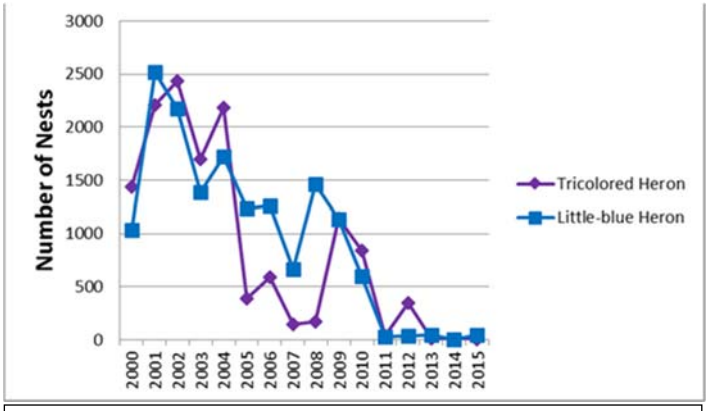
Central Everglades

⇒ A total of 27,064 wading bird nests were recorded across the Water Conservation Areas (WCAs).

⇒ Nesting in the WCAs was 8% higher than the average of nesting over the last 10 years, and 51% higher than the average of the last 5 years. White Ibis nested in much higher numbers than average, accounting for most of the overall increase in nesting numbers for this region.

⇒ Little Blue Herons and Tricolored Herons nested at remarkably low levels.

In 2015, the WCAs received lower than average rainfall. Water managers were able to send more water south from Lake Okeechobee towards the Southern Everglades. However, even with this increase in water flows, the Central Everglades remained drier than average. Conditions were poor for producing large populations of fish but provided good conditions for increasing crayfish populations.



Since 2000, nesting of Tricolored and Little Blue Herons has sharply declined in the Water Conservation Areas and Everglades National Park. Graph courtesy of SFWMD.

Recommendations

- Congressionally authorize the Central Everglades Planning Project in 2016, and begin construction as soon as possible.
- In 2016, initiate a planning process to identify locations for additional water storage in the Everglades Agricultural Area, and in the Lake Okeechobee watershed. This will allow for better management of Lake Okeechobee's water levels, reduce damaging releases to the Caloosahatchee and St. Lucie Estuaries and capture the additional water needed to rehydrate the Central Everglades and Florida Bay.
- Continue sending more Lake Okeechobee water to the Everglades through existing storage and treatment features.

Tricolored Heron by Tabitha Cale

Western Everglades

⇒ Audubon scientists monitor wading bird nesting efforts in 5 different nesting colonies in this region. A total of 357 nests were recorded in 2015.

⇒ Monitoring efforts in 2015 focused mainly on Wood Stork nesting efforts which have been declining in this region.

⇒ No Wood Storks nested in Corkscrew Swamp Sanctuary in 2015.

Audubon's Corkscrew Swamp Sanctuary is an old-growth bald cypress forest that historically supported large numbers of nesting Wood Storks. In the late 1950s and early 1960s, when Audubon first began monitoring Wood Stork populations in Corkscrew, an average of over 5,000 chicks fledged from this area each year. In the past 8 years, Wood Storks have nested in this important historical colony only twice. Audubon scientists are concerned about the dramatic decline of this iconic Everglades bird. To have a successful nesting season, Wood Storks need access to healthy wetland habitats where they can find forage fish and other prey. Unfortunately, large areas of wetland habitats in the Western Everglades have been degraded or destroyed.

Recommendations

- Strengthen protection of existing shallow, seasonal wetland habitats by revising state Environmental Resource Permitting practices by the spring of 2016.
- Implement the recent EPA Waters of the US Rule clarifying what wetlands are protected under the federal Clean Water Act as soon as possible.
- In 2016, fund shovel-ready projects of the Big Cypress Swamp Master Restoration Plan and accelerate planning and approval of its other components to improve hydrologic conditions and habitat quality in this region.

Southern Everglades

Everglades National Park

⇒ In 2015, a total of 6,076 wading bird nests were recorded in Everglades National Park.

⇒ Wood Storks, Snowy Egrets, and Great Egrets all nested in lower levels than were recorded in 2014. White Ibis nesting increased by 10% compared to 2014.

Everglades National Park supported 18% of the total number of wading bird nests recorded in the Greater Everglades in 2015. This is much lower than the historical percentage of nesting in this region. Conditions were dry in the Park in the beginning of the wet season. When wetland areas are too dry in the wet season, it reduces the amount of forage fish available to birds when they begin to nest later in the year.

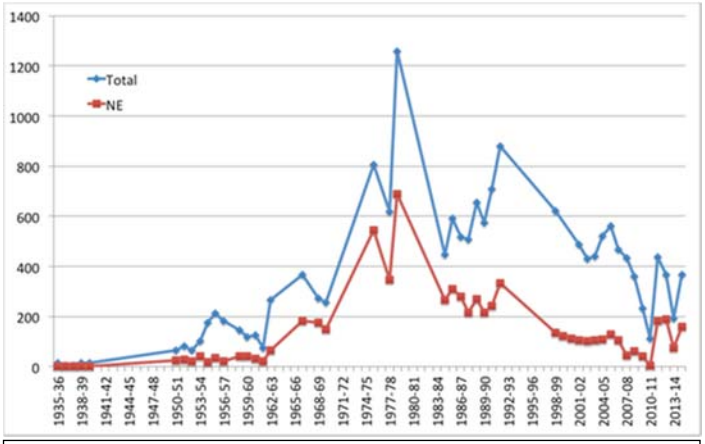
In order to meet restoration targets and support larger numbers of nesting wading birds, increased freshwater flows are needed to rehydrate the wetlands of Everglades National Park.

Florida Bay

⇒ This year, a total of 365 Roseate Spoonbill nests were recorded in Florida Bay. This is almost triple the number of nests recorded in 2014, but still dramatically lower than historic nesting levels in Florida Bay.

⇒ Roseate Spoonbills nested later than usual in 2015 and nesting occurred over several months. Nesting normally occurs in a shorter period of time.

⇒ 718 Tricolored Herons were recorded around Florida Bay in 2015. In 2014, only 50 were recorded. Roseate Spoonbills nested later in the year than usual, and it is unclear if Tricolored Herons nest in this area later on average. The increased number of Tricolored Herons reported may be the result of monitoring Spoonbills at different times when more Tricoloreds were present.



Roseate Spoonbill nesting in Florida Bay since 1935.
Graph courtesy SFWMD.

The seasonal water level patterns in the Southern Everglades are directly affected by decisions made by water managers upstream. Under historic conditions, more freshwater flowed through the Everglades and into Florida Bay. The lack of freshwater has reduced the quality of Roseate Spoonbill foraging habitat. Sea level rise is also starting to put extra pressure on the quality of habitat in the Southern Everglades. As habitat quality has declined, some Spoonbills have started to nest in other areas, including Paurotis Pond and Madeira Hammock in Everglades National Park.

In the summer of 2015, Audubon scientists documented seagrass die-offs and fish kills in Florida Bay. The Bay was impacted by high salinity levels caused by lower than normal rainfall and too little freshwater flow from the Central Everglades. Drought combined with too little water flowing through the Everglades and into Florida Bay, starving the bay of freshwater.

These conditions happened after the nesting season had already ended for wading birds in the Bay. Seagrasses are home to some of the small prey wading birds feed on. Any impacts on nesting related to the salinity crisis will not be seen until the following nesting season.

Audubon scientists continue to monitor the health of seagrasses and wading birds in Florida Bay and are documenting any changes that may be related to the salinity crisis. Speeding up efforts that increase freshwater flow into the Southern Everglades is increasingly critical for Spoonbills and other wading birds.

Recommendations

- Complete construction of the North Detention Area (Contract 8) component of the C-111 South Dade Project by fall 2017. This will keep more water in the Everglades by preventing seepage into urban areas.
- By 2019, develop and implement the Combined Operating Plan for the C-111 South Dade, Modified Water Deliveries, and C-111 Spreader Canal Western projects with a focus on achieving ecological benefits.
- In 2016, start funding the full implementation and enforcement of the Everglades National Park General Management Plan, which will increase protection around wading bird rookeries and foraging areas.

The health of Greater Everglades continues to decline. There are plans in place to repair this important ecosystem, but they are not moving fast enough. For wading bird nesting to increase beyond the mediocre averages seen in recent years, restoration projects must be completed so more freshwater can be sent south to restore Everglades habitat.