



Colonial Nesting Bird Monitoring in Biscayne National Park

2019

Importance: *Trends add insight into the status of Biscayne Bay*

Biscayne National Park is home to a number of colonial nesting birds including Double-crested Cormorants, Great Blue Herons, Great Egrets, Great White Herons, Roseate Spoonbills, and White Ibis. Many of these colonial nesting birds have previously experienced declines and some are state-listed species. The presence of colonial nesting birds, the size and distribution of their nesting colonies, and the reproductive success of their nesting efforts are indications that the surrounding habitat is able to support these energy intensive activities. These birds must acquire large quantities of high quality food during the nesting season as they select mates, build nests, lay eggs, and rear chicks. Colonies are also susceptible to disturbance and predation pressures. Nesting effort is an important component of ecosystem functionality, and an indicator of the health of Biscayne National Park.

Objectives and Approach: *Monitoring nine island colonies*

The objective of this protocol is to track the status and trends in colony size, distribution, and active nests of specific colonial nesting bird species. The monitoring process involves monthly helicopter flights over known island colonies in and near Biscayne National Park (BISC) and an annual search for new colonies (Figure 2). During flights, South Florida/Caribbean Network (SFCN) staff gather photographic data on nests and make observations of non-nesting birds at the colonies. Each flight results in approximately 450 photos. The photos are processed back in the office and active nests are counted (Figure 3). Results are reported by nesting year (e.g., July 2018–June 2019).

Table 1. Comparison of peak nest numbers of six focal species for the 2018-2019 nesting season to previously monitored years (summer 2010–summer 2018).

DCCO—Double-crested Cormorants; GBHE—Great Blue Heron; GREG—Great Egret; GWHE—Great White Heron; ROSP—Roseate Spoonbill; and WHIB—White Ibis.

Species	2018-2019	mean	% change	max	min
DCCO	940	1039	-9%	1336	792
GBHE	13	12	9%	16	6
GREG	4	16	-75%	29	4
GWHE	40	29	37%	46	18
ROSP	3	5	-40%	12	0
WHIB	33	52	-37%	95	24

Table 2. Comparison of nesting index of six focal species for the 2018-2019 nesting season to previously monitored years (summer 2010–summer 2018).

Species	2018-2019	mean	% change	max	min
DCCO	5909	5980	-1%	7553	4958
GBHE	48	35	39%	49	12
GREG	4	47	-91%	85	4
GWHE	181	119	53%	192	69
ROSP	7	12	-40%	25	0
WHIB	41	87	-53%	206	27

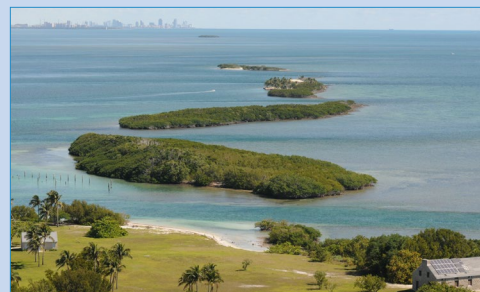


Figure 1. A view of the Ragged Keys in Biscayne National Park. Beyond the foreground island are Ragged Key 5 and Ragged Key 4, both of which have active bird colonies.

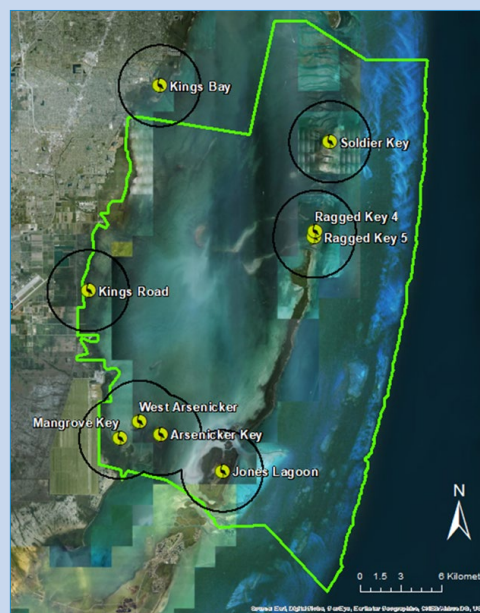


Figure 2. Locations of the nine nesting colonies. The black circles represent an estimated three-mile-radius foraging area. The park boundary is in green.

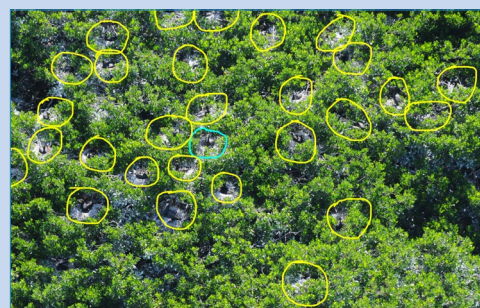


Figure 3. A photo of colonial birds (circled in yellow) on Ragged Key 5.



Status and Trends: *Ninth full year of monitoring*

This was the ninth full season that the South Florida/Caribbean Network monitored colonial nesting birds in Biscayne National Park. The overall number of nests was lower than average for four of the six focal species. However, with the exception of Great Egrets, peak nest counts and nesting indices fell within the range seen in previous years. Two months (January and March 2019) were not surveyed due to a lack of helicopter availability.

Double-crested Cormorants (DCCO) were once again the most abundant colonial nesting bird in the park. The peak nest count was 940, which was 9% below the mean of previous years, but within the observed range of 792–1336 nests (Table 1). While they continue to nest year round, the peak month was August. The annual nesting index of 5,909 was very similar to past years (Table 2).

Great White Herons were the second most abundant colonial nesting bird in the park. The peak nest count was 40, which was 37% above the mean, but within the previously observed range of 18–46 (Table 1). Both December and April were tied for the peak month, and for the first time they were recorded nesting at all nine colonies. The annual nesting index of 181 was 53% above past years (Table 2).



Figure 4. A group of Double-crested Cormorants (*Phalacrocorax auritus*) resting on pilings near Ragged Key 5.

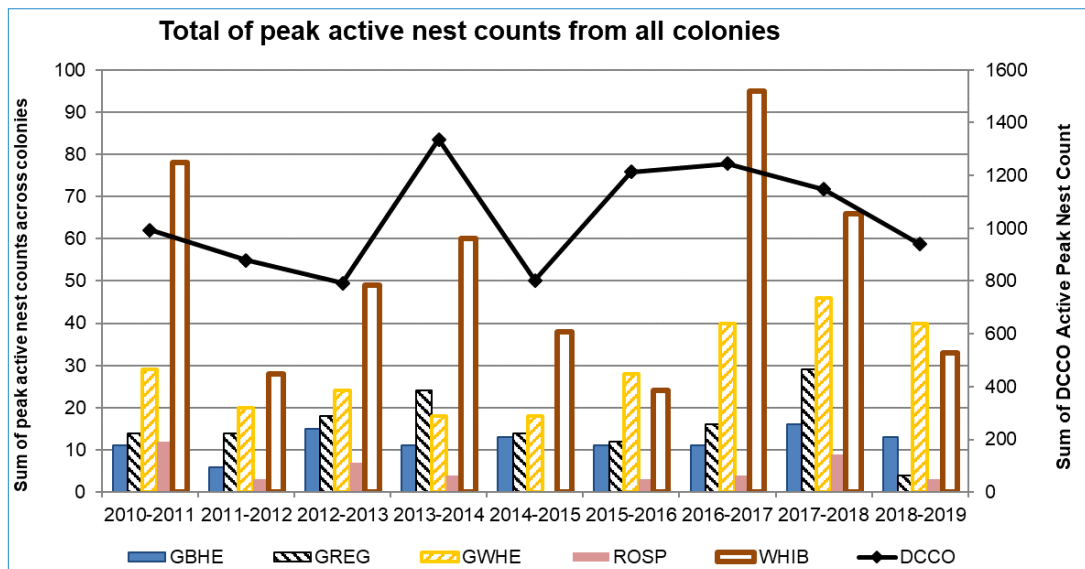


Figure 5. (left) Peak nest counts by species are created by taking the maximum nest count at each colony (from any month during the nesting year) and summing across the park.

Key:

DCCO—Double-crested Cormorant
GBHE—Great Blue Heron
GREG—Great Egret
GWHE—Great White Heron
ROSP—Roseate Spoonbill
WHIB—White Ibis

