



Colonial Nesting Bird Monitoring in Biscayne National Park

2021

Importance: Trends in Nesting Birds add Insight to Biscayne Bay's Status

Colonial nesting birds such as great egrets, great blue herons, white ibis, snowy egrets, roseate spoonbills, and double-crested cormorants are important indicators of the health of Biscayne National Park (BISC). Many of these species have previously experienced declines and some are state listed species. 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. The presence of colonial nesting birds, the size and distribution of their nesting colonies, and the reproductive success of their nesting effort indicate the surrounding habitat can support these energy intensive activities. Colonies are susceptible to disturbance and predation pressure. Thus, nesting effort should indicate the ecosystem functionality.

Objective and Approach: Monitoring Nine Island Colonies

The objective of this vital sign is to track the status and trends in colony size, distribution, and active nests of specific colonial nesting bird species. During monthly helicopter flights, South Florida/Caribbean Network (SFCN) personnel gather photographic data of nests. The monitoring flights occur over known nesting colonies inside Biscayne National Park (Figure 1). The nine colonies monitored are: Kings Road, Mangrove Key, West Arsenicker, Arsenicker Key, Jones Lagoon, Ragged Key 5 (Figure 2), Ragged Key 4 (Figure 2), Soldier Key, and Kings Bay. All the colonies are within the park except Kings Bay which is just outside the park's northwest boundary (Figure 1). These islands are mostly in the park nature observation management zones where preservation and restoration are the main goals. The photo data are processed, and the number of active nests counted (Figure 3). Results are reported by nesting year (July 2020–June 2021).

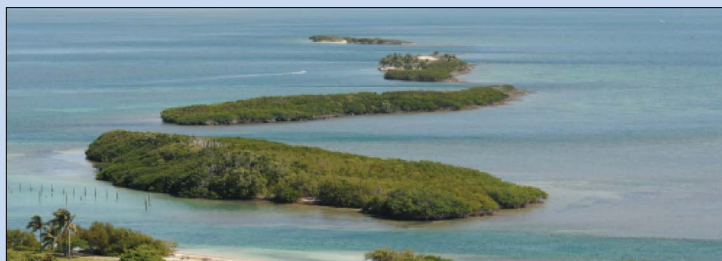


Figure 2. A view of the Ragged Keys in Biscayne National Park. Beyond the foreground island are Ragged Key 5 and Ragged Key 4, both of which have active bird colonies.



Figure 1. Locations of the nine nesting colonies. The black circles represent an estimated three-mile radius foraging area. The park boundary is in green.



A group of double-crested cormorants (*Phalacrocorax auritus*) resting on pilings near Ragged Key 5.





Figure 3. A photo of normal nesting activity from a past year (left) and reduced nesting activity observed more recently (right). Nests with birds are circled in yellow, the cyan circle represents a nest with eggs, and the navy blue circles represent active nests (nest being maintained but no birds, fledglings, or eggs present at the moment).

Status and Trends: 2021, Eleven Years of Monitoring

The SFCN 2020–2021 monitoring season was cut short so only seven months were surveyed. Surveys did not take place in July, August, and September of 2020 because of COVID restrictions. Colony surveys were conducted monthly from October 2020 through April 2021. May and June surveys for 2021 were not conducted because of helicopter training expirations.

The monthly active nests for double-crested cormorants (*Phalacrocorax auritus*; DCCO) since 2009 is shown in Figure 4. There appears to have been a substantial recovery in DCCO nesting after the bay wide reduction from December 2019 to March 2020. The active nest count across all colonies for double-crested cormorants was 796 which was an increase from the previous bird year of 657 and the annual nesting index also showed an increase to 3,408 nests compared to the 2,083 from the previous year. Both values were affected by the inability to survey across all months.

Double-crested cormorants (*P. auritus*), great egrets (*Ardea alba*), great blue herons (*Ardea herodias*), great white herons (*Ardea herodias*), and roseate spoonbills (*Platalea ajaja*) all showed an increase in active nest and annual nesting index in the 2020–2021 bird year compared to the previous year. Roseate spoonbills had the highest number of active nests since 2011. Only white ibis (*Eudocimus albus*) reported a reduction in the active nest counts and in the annual nest index, but this was due to not being able to sample in the months of July or August, when the Ibis traditionally nest.

Number of Double-crested Cormorant active nests per month and peak nesting periods.

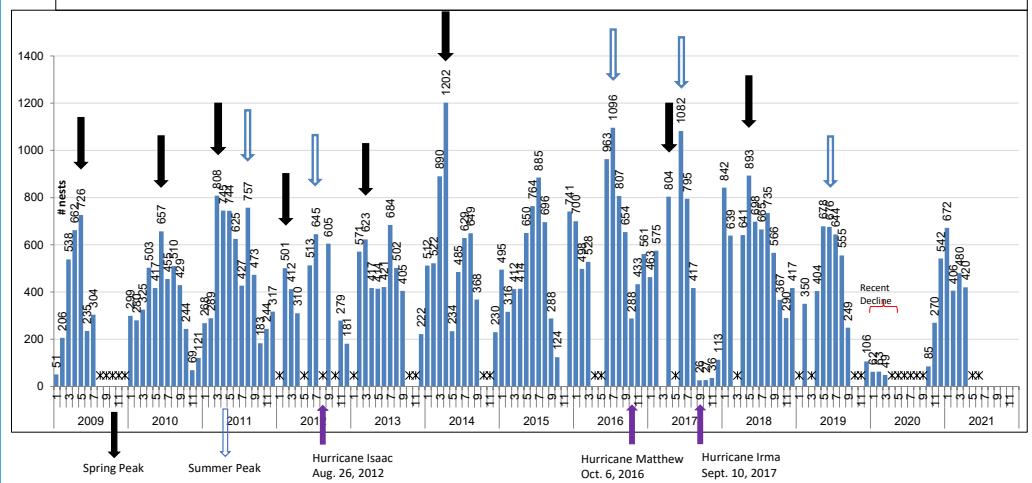


Figure 4. Total number of double-crested cormorant (*Phalacrocorax auritus*) active nests per month in Biscayne National Park. Spring peak nestings are marked with a black arrow and summer peak nestings are marked with white arrows. Hurricanes are marked by purple arrows. * indicate no flight occurred.

