



Colonial Nesting Bird Monitoring in Biscayne National Park

2022

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 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 2021–June 2022).

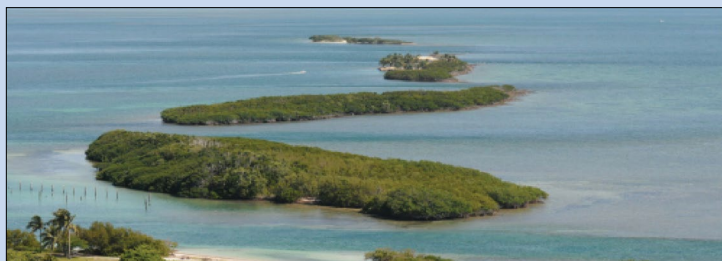


Figure 2. A view of the Ragged Keys in Biscayne National Park. Beyond the foreground island are Ragged Key 5 and Ragged Key 4, both of which have active bird colonies.

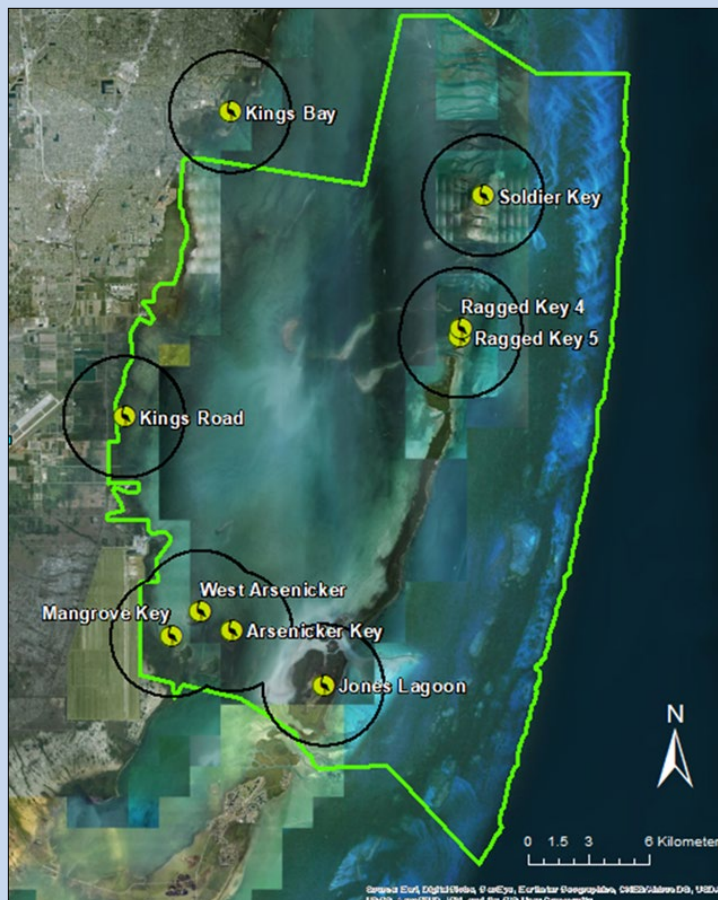
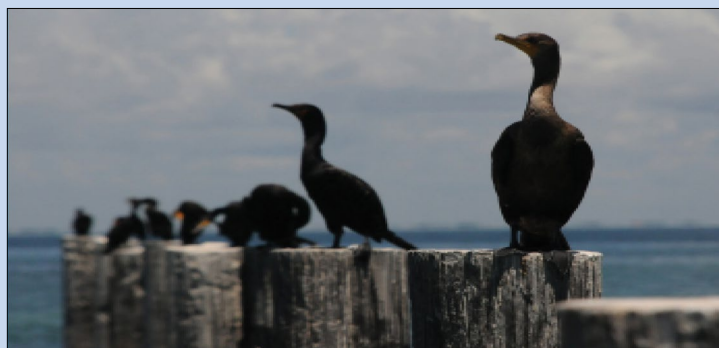


Figure 1. Locations of the nine nesting colonies. The black circles represent an estimated three-mile radius foraging area. The park boundary is in green.



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





Figure 3. 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 is a nest with eggs, and navy blue circles represent active nests (nest being maintained but not birds, fledglings, or eggs present at the moment).

Status and Trends: 2022, Twelve Years of Monitoring

The SFCN 2021–2022 monitoring season was cut short so only eight months were surveyed. Surveys did not take place from December through February, and May of 2022 because of authorization of use restrictions. Otherwise, surveys were conducted monthly from October 2021 through July 2022. The monthly active nests for double-crested cormorants (*Nannopterum auritum*; DCCO) since 2009 is shown in Figure 4. There appears to be 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 736, a slight decrease from the previous bird year of 796, and the annual nesting index showed an increase to 4,414 nests compared to the 3,844 from the previous year. Both values were below the 10-year mean we have reported and were probably affected by the inability to survey across all months. Only double-crested cormorants (*Nannopterum auritum*) showed an increase in active nest and annual nesting index in the 2021–2022 bird year compared to the previous year. The other species: great egrets (*Ardea alba*), great blue herons (*Ardea herodias*), great white herons (*Ardea herodias*), and roseate spoonbills (*Platalea ajaja*) reported a decrease. Roseate spoonbills had one of the lowest numbers of active nests since 2011. Only white ibis (*Eudocimus albus*) reported an increase in the active nest counts and in the annual nest index, but this is probably related to the timing of the sampling survey.

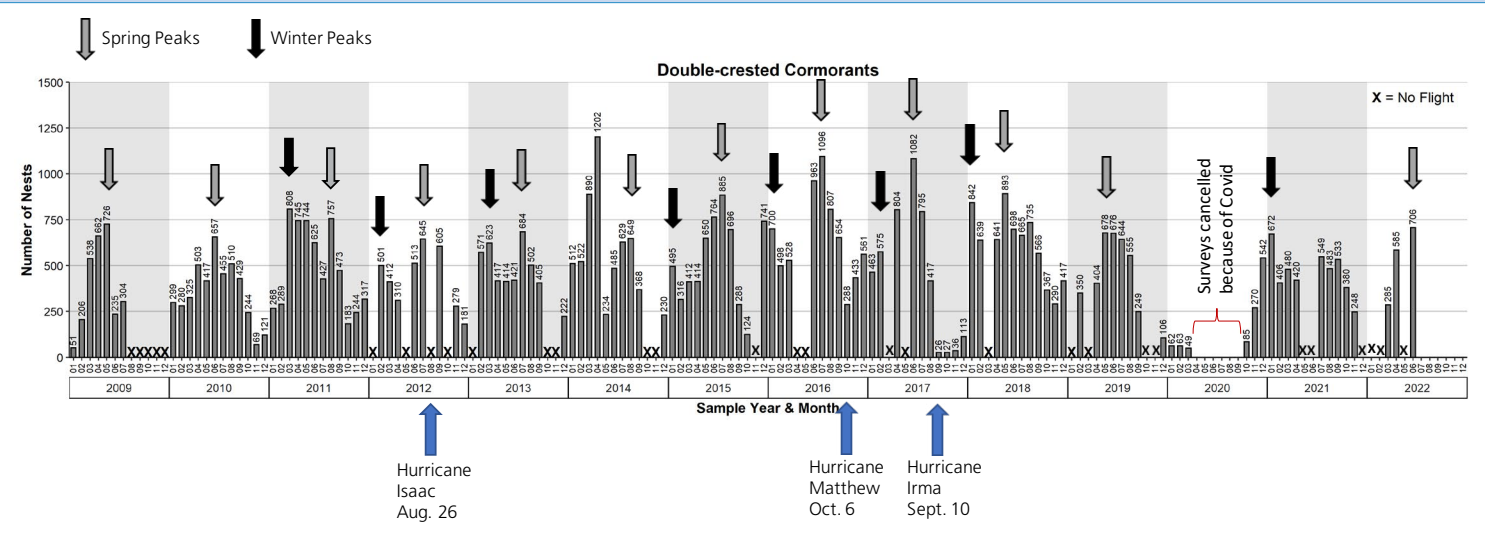


Figure 4. Total number of double-crested cormorant (*Nannopterum auritum*) active nests per month in Biscayne National Park. Spring peak nestings are marked with a white arrows and winter peak nesting are marked with black arrows. Hurricanes are marked by Blue arrows. X indicates no flight occurred.

