

Depredation Impact of Double-Crested Cormorants (*Phalacrocorax auritus*) on Commercial Catfish Production in the Mississippi Delta

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ABSTRACT: Double-crested Cormorants (*Phalacrocorax auritus*) impact United States commercial aquaculture and are considered the greatest avian predators on catfish (*Ictalurus spp.*) aquaculture facilities. Cormorants are especially problematic in the Delta region in western Mississippi, where catfish production is concentrated providing ideal wintering and foraging areas. Although cormorant/aquaculture dynamics have been studied, recent changes in aquaculture practices, regulatory policies, and decreased overall hectares in production merit contemporary research. Therefore, we estimated abundance and distribution of cormorants at their night roosts and assessed diet related to catfish consumption. Aerial surveys of cormorant night roosts were flown from October through April, 2016-2018. Following each survey, three active night roosts were randomly selected for harvesting cormorants for later necropsy and stomach contents assessment. We completed 25 total surveys and counted an average of 23,379 cormorants (range 5,026 to 40,535) pooled over years (corrected for observer and method bias). A total of 728 cormorants from 27 different night roosts were collected across years. Survey count models estimated 4.2 and 5 million cormorant forage days in the Delta during winters 2016-2017 and 2017-2018, respectively. Throughout the study, catfish comprised 33% of the prey biomass detected; shad (*Dorosoma spp.*) also were dominant (58%) prey. Evidence suggests that the area of catfish aquaculture surrounding a night roost within a 30.6-km forage buffer is an important predictor for a bird's relative amount of catfish consumption. These results will inform wildlife managers regarding relationships between cormorant night roost locations in the Delta and disproportionate consumption of catfish, enhancing techniques to reduce fish losses on aquaculture facilities.

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