Presence of Mammalian Predators in Seabird Colonies Located on Restored Barrier Islands of Louisiana

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Introduction

Background

- Louisiana's coastal barrier islands have decreased more than 40% in the last century
- Due to erosion, subsidence and hurricanes
- Dredged sediments used to restore barrier islands

Seabirds

- Colonial nesting seabirds like Brown Pelicans require isolated, predator-free islands for nesting
- We investigate the presence or absence of mammalian species on barrier islands in order to determine predation pressure seabirds

Methods

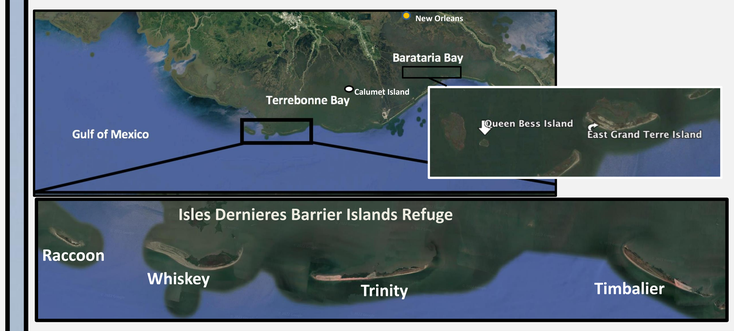
Surveys

- Summers of 2018, 2019, and 2022
- Moultrie Infrared game cameras were set up in line transects: three cameras spaced at least 200m apart
- Transects placed in each habitat type across eight barrier islands for 2-4 weeks
- In 2022 alone over 64,000 photographs analyzed for mammal presence

Island Characteristics

- Habitat types: restored or unrestored dune and restored or unrestored marsh

Study Site



Barataria Basin

- seabird colony on Queen Bess

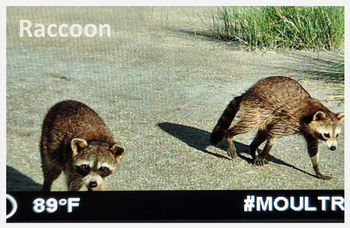
Terrebonne Basin

- Large seabird colony on Raccoon and small colony on Calumet

Results

Island	2018	2019	2022
Whiskey (n=12,22,12)	-	.05%	42%
Raccoon* (n=9,63,8)	44%	-	50%
Trinity (n=5,6,6)	100%	50%	100%
Timbalier (n=8,8,5)	50%	63%	80%
Calumet* (n=11,9,6)	36%	56%	-
E. Grand Terre (n=6,5,6)	33%	-	17%
Queen Bess* (n=2)	NA	NA	-
Cheniere Ronquille (n=5,12,8)	40%	17%	50%

Table 1: Mammal occurrence by island, Barataria and Terrebonne Basins, LA, June-August 2018,2019,2022. N= number of camera traps per island with no malfunction in 2018, 2019, and 2022, respectively. Dashes indicate no detection; percentages indicate percent of camera traps that captured at least one photo of a mammal species. NA indicates no data was collected; * indicates active seabird breeding colony.



Discussion

- We set out to investigate why colonial seabirds nest in high concentrations on 3 of Louisiana barrier islands and not on the others
- Mammal presence of even one individual deters nesting

Future Research

- Continue to monitor mammal presence in 2023 at same sites and analyze relationships with island characteristics such as island size or distance to mainland
- Analyze nest success for Brown Pelicans in 2022 and 2023

References

- Leberg, P. (2017). 2017 Coastal Master Plan: Attachment C3-9: Brown Pelican, Pelecanus occidentalis, Habitat Suitability Index Model. (pp. 1-20). Baton Rouge, Louisiana: Coastal Protection and Restoration Authority.
- Walter, S, Carloss, M; Hess, T, and Leberg, P.(2013). Hurricane, habitat degradation, and land loss effects on Brown Pelican nesting colonies. Journal of Coastal Research, 29(6A), 187–195. Coconut Creek (Florida), ISSN 0749-0208.
- Coastal Protection and Restoration Authority (CPRA), 2022. Barrier Island Status Report: Draft Fiscal Year 2023 Annual Plan. Coastal Protection and Restoration Authority of Louisiana (CPRA), Baton Rouge, LA, 53p.

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