Effects of Human Activity on American Oystercatchers Breeding at Cape Lookout National Seashore, North Carolina

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Photo: Eli Rose

Study Area



Background



Human Activity



Habitat



- Atlantic barrier island
 - open beach backed by dunes or sand flats

American Oystercatcher (Haematopus palliatus)



- Species of High Concern US Shorebird Conservation Plan
- Bird of Conservation Concern US Fish and Wildlife Service
- Species of Special Concern North Carolina Wildlife Resources Commission

Target Metrics

- 1) Behavior Changes
- 2) Physiology Changes
- 3) Reproductive Success

Objectives

- 1) To assess if low-altitude military overflights affect behavior, physiology, and reproductive success.
- 2) To assess if other human activities affect behavior, physiology, and reproductive success.



- Breeding Productivity
 - Nest and brood surveying and monitoring



Breeding Productivity

Nest and brood surveying and monitoring

Nest Environment Monitoring

- Audio monitoring of ambient sound and noise events
- Video monitoring of nest surroundings



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Behavioral Response

Video monitoring of incubation behavior



Breeding Productivity

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Nest Environment Monitoring

- Audio monitoring of ambient sound and noise events
- Video monitoring of nest surroundings
- Behavioral Response
 - Video monitoring of incubation behavior
- Physiological Response
 - Heart rate monitoring





								Productivity
	Breeding		Nests	Chicks		Chicks		(Chicks
	Pairs	Nests	Hatched	Hatched	Nest Survival	Fledged	Chick Survival	Fledged/Pair)
NCB 2011	32	54	18	37	0.333	24	0.649	0.750
NCB 2010	31	58	15	30	0.259	15	0.500	0.484
NC Summary (1995-2010)	,				0.318		0.424	0.376



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American Oystercatcher Nest Locations





Video and Audio Monitoring



62 nests monitored (55%)

Nesting Environment

Human Activity Observed Around Nests



Nesting Environment







			Event Length		Behavior 20
Event Type	Altitude (ft)	Speed (kts)	(sec)	SEL (dBA)	min before
Target Flight	8,100	320	71	78.1	On Nest



Incubation Behavior



Heart Rate Monitoring

42 nests monitored (38% of nests)



Physiological Response



Physiological Response



Physiological Response



2011/06/21 16:11:17

Event Type	Altitude (ft)	Speed (kts)	Event Length (sec)	SEL (dBA)	Behavior 20 min. Before
Target Flight	3,000	300	36	87.0	On Nest

Summary



- Reproductive success has not been low in study breeding seasons
- We are not currently finding a behavioral response to aircraft events
- Current data suggest a behavioral response to off-road vehicles and pedestrians
- We are not currently finding a physiological response to human activity

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Nesting Environment

Sound Exposure Levels for Human Activity

