Title

Behavior and Habitat Use of Roseate Terns (Sterna dougallii) Before and After Construction of an Erosion Control Revetment

Authors

Corey Grinnell, *University of Massachusetts Amherst* Follow

Document Type

Open Access

Degree Program

Wildlife & Fisheries Conservation

Degree Type

Master of Science (M.S.)

Year Degree Awarded

2010

Month Degree Awarded

February

Keywords

Roseate Tern, Sterna dougalli, revetment, habitat use, behvaior, endangered species

Abstract

An erosion control revetment was constructed at the Falkner Island Unit of the Stewart B. McKinney National Wildlife Refuge, Connecticut during the winter of 2000–2001. At the time, Falkner Island was the fifth largest breeding colony site for the federally endangered Roseate Tern. This study measures and describes some baseline information regarding Roseate Tern nesting, behavior, and habitat use at Falkner Island during the three breeding seasons prior to revetment construction (1998–2000). This baseline information is then compared to similar information from the first breeding season following revetment construction (2001).

For Roseate Tern adults, this study examined changes in pre-nesting habitat use, nest site distributions, and pre-nesting behavioral time allocation. Changes in habitat availability and habitat use by Roseate Terns are compared as a result of the revetment construction. Roseate Terns used rocky beach in a greater proportion than other habitats before revetment construction, and used revetment boulders in a greater proportion than all other habitats after revetment construction. Roseate Terns nested more often in artificial sites (nest boxes and tires) than in natural sites in all years of the study. The mean date for the first eggs in each nest did not differ between years. We observed more Roseate Terns prospecting artificial nest sites (n = 66 times) than natural sites (n = 21 times) for three years of this study. Prospecting behavior occurred later in the season in some subcolonies, but this difference did not appear to be related to the construction.

For Roseate Tern chicks, this study investigated the use of crevices as hiding places from before (1999–2000) and after (2001) the construction of an erosion control revetment. In all years, Roseate Tern chicks used crevices found under artificial nest sites more frequently than expected by chance when compared to crevices found in other microhabitats. Chicks also used crevices formed in various microhabitat types at different stages of development. The erosion control revetment created crevices that had larger openings, steeper floors, and deeper lengths than those previously used by chicks before construction. In the year after revetment construction, the openings of crevices used by chicks that died were wider than crevices used by chicks that survived. We discuss our findings in the context of the potential consequences that the revetment construction had on Roseate Tern chick survival.

First Advisor

Peter D. Vickery

Second Advisor

Ian T. Nisbet