Project Highlight – SD State Wildlife Grant

Project Type  Research and monitoring

Title  Exploration of factors that influence productivity of American white pelicans at Bitter Lake in northeastern South Dakota

In a nutshell  In 2002 and 2003, four American white pelican nesting colonies at Chase Lake in North Dakota experienced large dieoffs of young birds. During 2004, researchers and federal refuge personnel observed complete abandonment of eggs and chicks by adult pelicans at Chase Lake, partial abandonment at Medicine Lake in Montana, and reduced productivity at Bitter Lake in South Dakota. Nearly half of the American white pelican population nests at 4 colonies in the northern Great Plains. State Wildlife Grants funding allowed monitoring of the Bitter Lake white pelican population to improve understanding of this species’ ecology and provide sound science for management decisions.

Relevant Species of Greatest Conservation Need
• American white pelican (Pelecanus erythrorhynchos)

Relevant Habitats  permanent wetland

Cooperators  Northern Prairie Wildlife Research Center, U.S. Geological Survey (Marsha Sovada and Pam Pietz)

Purpose  At the Bitter Lake nesting colony in South Dakota:
• Determine nest-attendance schedules and chick-feeding rates during the pre-crèche stages of breeding
• Determine distances to foraging sites
• Determine locations and attributes of foraging sites
• Document sources of disturbance at nesting areas
• Monitor colony productivity

Timeframe  2005 - 2011

Location  Bitter Lake (Day County) South Dakota

Summary or Important Findings
• Field techniques included direct observations of colony activities, nest and chick counts, remote camera monitoring to collect behavioral information, use of satellite transmitters on adult pelicans to assess wetland use, chick banding, and blood sampling to detect prevalence of West Nile virus and antibodies to the disease.
• Nest estimates at Bitter Lake were nearly 15,000 in 2007 and nearly 13,000 in 2008.
• Mortality causes included severe weather events, disturbance, West Nile Virus, and siblicide.
West Nile Virus was a particularly serious cause of chick loss during the later portion of the breeding seasons. This virus appears to be an additive mortality factor.

**Best contact person**  
Marsha Sovada (retired), NPWRC

**More Information**


**Scientific publications resulting from this research:**
