

Least Tern & Piping Plover Research Highlights

Northern Prairie Wildlife Research Center's Least Tern and Piping Plover Research Team consists of 6 Principal Investigators, 4 support staff, and 34 seasonal biological technicians. The team is conducting field studies of tern and plover ecology on 3 primary Missouri River study areas during 2006. These studies will provide a scientific basis for implementation of management practices, such as creation and management of emergent sandbar habitat, for the benefit of both Federally listed species. This is the first in a series of newsletters that will provide updates from the field on the team's current research activities. Below we highlight the methods that are in use on each study area to address key science needs for management of the Missouri River.

Gavins Point Reach

This study area begins at Gavins Point Dam, near Yankton, South Dakota, and ends 59 river miles to the southeast near Ponca State Park, Nebraska. It contains 3 emergent sandbar habitat complexes that were created by the U.S. Army Corps of Engineers to provide nesting habitat for least terns and piping plovers. The USGS crew at Gavins Point has been monitoring fate of



Bow nets are being used to trap incubating least terns.

least tern nests on the 3 created sandbars and 3 natural sandbars. We are deploying radio transmitters on adults from each sandbar, and using the data to assess colony attendance patterns, movement distances, and use of foraging areas. These data are obtained by 24-hour monitoring of sandbars using dataloggers in fixed blinds, and extensive twice-weekly searches by boat. To date, transmitters have been deployed on 42 adult birds.

We are assessing fish abundance biweekly throughout the study area using shallow-water hand trawls where water depth is <1.5 meter, and surface trawls pushed by an 18' jon boat in water >2 meters. We are sampling fish communities at random points near used, unused, and recently used nesting habitat. Collectively, these data will show how least tern productivity and foraging habitat use varies between natural and created sandbars.



Shallow-water hand trawls are used to assess fish abundance in tern foraging areas.

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Garrison Reach

The 88-mile Garrison Reach study area begins at Garrison Dam, near Riverdale, North Dakota, and ends at the headwaters of Lake Oahe south of Bismarck. The USGS crew on this study area is using double-sampling techniques to evaluate the accuracy of procedures used in annual monitoring of these birds by the U.S. Army Corps of Engineers. This involves an independent assessment of nest numbers and fate for terns and plovers, which will be compared to results obtained for the same area by Corps crews using their standard procedures. USGS crews are also conducting weekly counts of terns and plovers to assess intra-seasonal variation in use of the study area. Because detectability may affect validity of productivity estimates, we are color-banding tern chicks at hatch and using resighting data to evaluate tern fledge ratios. Banded birds will enable us to determine whether fledglings sighted on weekly surveys are locally produced, increasing the accuracy



Weekly counts of adults and chicks are being conducted on the entire Garrison Reach.

of site- and reach-specific fledge ratios. Because monitoring data are used to make decisions about river management to prevent nest

loss and to assess variation in productivity, our results will be an important contribution to Missouri River management for terns and plovers.



Least tern chicks are marked with unique color band combinations at hatch.

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Lake Sakakawea

Lake Sakakawea is a large reservoir on the Missouri River in central and northwestern North Dakota. Its shoreline is irregular, dissected, and varies in slope, substrate, and aspect. The extent and distribution of these features vary annually with fluctuating lake levels. Declining water levels have provided



Piping plover nest on the Lake Sakakawea shoreline.

an abundance of habitat that has been used extensively by nesting piping plovers in the last 6 years. We are examining piping plover habitat selection by intensively monitoring nest numbers and fate on segments of the lake shoreline. Because the segments were selected to be representative of the lake as a whole, we will be able to estimate nest numbers and habitat acreage for the entire lake system. We will use satellite imagery, LIDAR data, and on-the-ground habitat data to describe quality nesting habitats. In 2007, Lake Sakakawea will be included in the double-sampling study currently being conducted on the Garrison Reach.

Declining lake levels produce abundant nesting habitat.



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For more information, contact:
Mark H. Sherfy, Team Leader
U.S. Geological Survey
Northern Prairie Wildlife Research Center
8711 37th Street SE
Jamestown, ND 58401
701-253-5504; msherfy@usgs.gov