

U. S. Fish and Wildlife Service

Title: Trends and Ecology of Birds on the Salton Sea

Introduction: The Salton Sea has become the center of avian biodiversity in the American Southwest, supporting over 1.5 million birds annually--it is a world-renowned site. The avian species diversity represents one of the greatest in the United States. The Sea is an integral part of the Pacific Flyway, providing essential habitat for both resident and migrant species. The breeding bird communities on the Salton Sea are unique to the United States. In addition, numerous species of migratory waterfowl, including four federally-listed Endangered Species, depend upon Salton Sea habitats. Continued habitat degradation would create an ecological catastrophe to migrant and resident birds. Avian dieoffs coupled with continued habitat degradation have become critical management problems on the lake. Recently, three large dieoffs involved almost 200,000 birds representing about 66 species. The most recent event included over 1,400 endangered California brown pelicans and approximately 10-12% of the western population of American white pelicans. Many of the disease processes involved in these mortality events remain to be explained; yet, even without this issue, a basic understanding of avian ecology will be required to further protect and enhance avian biodiversity at the Salton Sea. Given the fact that some 95% of California's wetlands have already been destroyed, including the loss of suitable habitat in the Rio Colorado Delta area, the Salton Sea has become increasingly important. Its loss would represent a national disgrace.

Justification: An understanding of the causes of recent mortalities, as well as basic ecology and population dynamics, requires detailed data on trends and variations. Also, an understanding of ecological interactions in the avian community utilizing the Salton Sea is necessary. Without this information, management considerations for improvement of the Salton Sea for birds may not be effective and deterioration of the ecosystem will continue.

Objectives: (1) to determine past and present conditions and trends of the avifauna and its relationships to the area.

(2) to provide data to assist in decisions concerning future attempts to improve the system.

In particular, the following areas of research need to be conducted, to include both breeding and non-breeding elements of the avifauna:

- (1) conduct systematic avian surveys(including rare,threatened and endangered species:
- review and summarize all available literature;
 - conduct avian population surveys, including local movements and habitat use patterns;
 - identify the uses of sensitive feeding and nesting areas and define temporal changes in them;

- (2) conduct detailed ecological studies of selected key indicator species ;
- document reproductive success of local breeders;
 - determine condition factors and food-web relationships in key fish-eating species and migratory waterfowl;
 - determine activity and habitat use patterns through radio-telemetry
- (3) determine sources of migrant bird species and interconnections between avifauna of the Salton Sea and other areas:
- summarize existing band recovery data;
collaborate with researchers in Mexico and other parts of the Pacific Flyway;
 - establish monitoring program with collaborators;
 - conduct an analysis to determine the overall importance of the Salton Sea and associated habitats to birds of the Pacific Flyway;
- (4) implement a systematic reporting and response protocol for bird dieoffs;
- standardize data collection;
 - participate in recovery efforts;
 - maintain reporting network;
- (5) coordinate and relate all these findings to other elements of the Salton Sea research effort.

- Products:**
- Year 1--a report summarizing the historical population trends**
- a report summarizing band recovery patterns from bandings on and off the Salton Sea
 - a report summarizing the first year of detailed data and its relationship to the historical data base
 - a detailed summary of reproductive performance of colonial birds in Year I
 - the establishment of a radio-telemetry monitoring system for the Salton Sea and summary of the first year's movement and habitat-use data from selected species
- Year 2--a report summarizing the continuing data collection effort on items listed above**
- an evaluation of new data needs
 - initial management recommendations based on available data summary
 - a summary of first two year's data on condition factors and food webs and an evaluation of year-to-year variations
- Year 3--final, internal reports to the management agencies summarizing all findings and detailed final management recommendations (including further needs for research on specific hypotheses derived from this work)**

Anticipated focus of recommendations: Specifically sensitive habitat-use areas on the Salton

Sea will be identified and described to managers; a flyway perspective will be provided to further justify the ecosystem as a critical resource; a list of new habitat-acquisition and protection areas for avifauna will be provided managers and funders.

<u>Budget (3 years):</u>	ITEM	YEAR 1	YEAR 2	YEAR 3
	Personnel	\$300,000	\$350,000	\$350,000
	Equipment/Supplies	140,000	40,000	40,000
	Transportation	42,000	42,000	42,000
	Miscellaneous	15,000	15,000	15,000
	Totals	\$ 497,000	\$447,000	\$447,000

GRAND TOTAL = \$1.8 million

Recommended Entities to Perform Work: We recommend that the study be awarded to the U. S. Fish and Wildlife Service or Biological Resources Division (California Science Center) with subcontracts awarded to specific, most-qualified researchers. We recommend that the personnel of this project be assigned to the Salton Sea National Wildlife Refuge and work in close coordination with the biologists at the refuge. If possible, the refuge should seek 2-3 surplus house trailers, with adequate air-conditioning, to house the project staff near the refuge headquarters.

Submitted By: Biological Resources Team