

**MISSISSIPPI RIVER-GULF OUTLET
NEW LOCK AND CONNECTING CHANNELS
LOUISIANA, RE-EVALUATION STUDY**

APPENDIX A

HABITAT EVALUATION PROCEDURES ANALYSIS AND RESULTS

The Fish and Wildlife Service (Service) developed the Habitat Evaluation Procedures (HEP) to document the quality and quantity of available habitat for fish and wildlife species within a given area. Using HEP, habitat quality and quantity can be measured for baseline conditions, and can be predicted for future without-project and future with-project habitat conditions. This standardized, species-based method numerically compares future with-project and future without-project conditions to provide an estimate of project impacts on fish and wildlife resources. We used the 1980 version of HEP (USFWS 1980), which has become a widely accepted technique for assessing wildlife impacts, to evaluate the impacts of the proposed marsh creation and graving site construction.

For this project, Service biologists collected field measurements in the proposed spoil disposal area in March 1994 and at the graving site in August 1996 to determine baseline conditions. (Details regarding field data are on file in the Service's Lafayette, Louisiana, Field Office.) Using HEP species models, those measurements were mathematically combined to obtain a value between 0.0 and 1.0. This value is termed the habitat suitability index (HSI); 0.0 represents no habitat value for an evaluation species and 1.0 represents optimum habitat value. The HSI is a linear index, with the degree of difference between 0.0 and 0.1 being the same as the degree of difference between 0.9 and 1.0.

Habitat units are the product of the evaluation species' HSI and the acreage of available habitat at a given target year. The habitat unit is the basic unit of HEP to measure project effects on wildlife. Changes in habitat units reflect changes in habitat quality (HSI) and quantity (acres); those changes are predicted for selected target years over the period of analysis, under future without-project and future with-project conditions. These values are then annualized over the project life to determine the average annual habitat units (AAHUs) available for each species. The difference (increase or decrease) in AAHUs under the future with-project condition versus the future without-project condition provides a quantitative measure of expected project impacts. An increase in average annual habitat units indicates that the project will benefit the evaluation species; a decrease in average annual habitat units indicates that the project will harm the evaluation species.

At the marsh creation site, spoil disposal will occur during construction year 2. Therefore, the period of analysis for that site includes 12 years of construction and a 50-year project life. The proposed graving site will be excavated in the first year of project construction. Therefore, the period of analysis at that site will include 13 years of construction and a 50-year project life.

Quantifiable impacts of this project are directly related to the acreage of marsh created using "clear" spoil disposal, and the acreage needed to construct and operate the graving site and associated staging areas. The Corps provided acreage estimates for both. We based future without-project conditions on historic land uses and development patterns in the project area, as well as historic marsh loss rates.

Corps and Service biologists agreed to use great egret and mink to evaluate shallow open water, scrub/shrub wetland, and forested spoil banks habitat at both sites. The great egret model (Chapman and Howard 1984) measures the extent of shallow open water and emergent, submergent or floating vegetation. The mink model (Allen 1986) was used to

measure shoreline cover (vegetation and debris), as well as scrub/shrub and forested canopy cover. We calculated habitat conditions in the marsh creation site for TY 0 (baseline), 1, 3, and 62, for the great egret model, and added a TY 12 for the mink model to reflect increasing tree canopy cover. Habitat conditions in the impoundment were calculated for target years (TY) 0 (baseline), 1, 25, and 63.

Under the future-without project scenario, we predicted habitat conditions in the marsh creation area would not change over the period of analysis. Under future-with project conditions, spoil deposition would occur in TY 1, decreasing the depth of the receiving area. By TY 3, spoil above mean low tide would be covered with emergent and scrub/shrub vegetation. The containment levee would show the same pattern. Over the remaining period of analysis, acres of emergent vegetation would slowly decrease because of encroachment by woody vegetation and local subsidence. Comparing habitat values for the marsh creation site under future without-project and future with-project conditions, the HEP analysis predicts an increase of 45.33 AAHUs for the mink, and 30.46 AAHUs for the great egret (Table A-1).

Under the future-without project scenario, we predicted the impoundment at the graving site would undergo further eutrophication. By TY 25, coverage of both floating and emergent vegetation will increase and organic accumulations will slowly decrease the depth of the shallow water areas. Scrub/shrub and forested canopy cover would also increase, although the size of the spoil banks would limit that increase. Under the future-with project scenario, we assumed that the wildlife habitat value of the graving site would be eliminated in year 1, during graving site construction. Although the area immediately surrounding the graving site would retain some habitat value for mink, we discounted the mink HSI to reflect the minimal acreage and prey availability, as well as increased human disturbance (e.g., construction work, truck traffic, etc.). Comparing habitat values for the graving site under future without-project and future with-project conditions, the HEP analysis predicts a decrease of 16.99 AAHUs for the mink, and 13.98 AAHUs for the great egret (Table A-2).

LITERATURE CITED

- Allen, A.W. 1986. Habitat suitability index models: Mink, revised. U.S. Fish and Wildlife Service, Biological Report 82 (10.127). 28pp.
- Chapman, B.R. and R. Howard. 1984. Habitat suitability index models: Great egret. U.S. Fish and Wildlife Service, Biological Report 82(10.78). 23pp.
- U.S. Fish and Wildlife Service. 1980. Habitat evaluation procedures. U.S. Fish and Wildlife Service, Division of Ecological Services, Washington, D.C. Ecological Services Manual 102.

State of Louisiana



James H. Jenkins, Jr.
Secretary

Department of Wildlife and Fisheries
Post Office Box 98000
Baton Rouge, LA 70898-9000
(504)765-2800
October 31, 1996

M.J. "Mike" Foster
Governor

Mr. David W. Fruge
Field Supervisor
U. S. Fish and Wildlife Service
825 Kaliste Saloom Road
Brandywine Bldg. II, Suite 102
Lafayette, Louisiana 70508

Re: Mississippi River-Gulf Outlet, New Lock and
Connecting Channels, Louisiana, Re-
evaluation Study

Dear Mr. Fruge:

The Louisiana Department of Wildlife and Fisheries have reviewed the document for the above referenced project and have found that we concur with the findings of the U.S. Fish and Wildlife Service.

we appreciate the opportunity to review this report.

Sincerely,

A handwritten signature in dark ink, appearing to read "J.H. Jenkins Jr.", written over a horizontal line.

James H. Jenkins Jr.
Secretary

JHJ:fod



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Habitat Conservation Division
c/o Louisiana State University
Baton Rouge, Louisiana 70803-7535

October 31, 1996 F/SE024/TJ:jk
504/389-0508

Mr. Dave Frugé, Field Supervisor
U.S. Fish & Wildlife Service
825 Kaliste Saloom II, Suite 102
Lafayette, Louisiana 70508

Dear Mr. Frugé:

The National Marine Fisheries Service has received the revised draft Fish and Wildlife Coordination Report on the Mississippi River-Gulf Outlet, New Lock and Connecting Channels, Louisiana, transmitted by your letter of October 17, 1996. We have reviewed the report and concur with your project analysis and assessment. Furthermore, we strongly support your recommendations that brackish marsh creation be implemented to mitigate adverse project impacts, construction impacts be minimized, and contaminated spoil be isolated from wetlands.

Thank you for this review opportunity.

Sincerely,

A handwritten signature in cursive script that reads "Rickey N. Ruebsamen".

Rickey N. Ruebsamen
Branch Chief