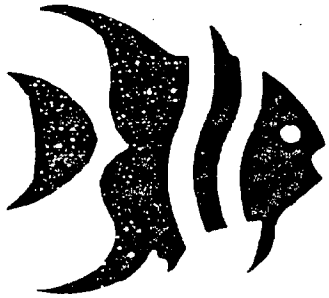
DAUPHIN ISLAND SEA LAB

SPECIAL REPORT



REPORT No.

AN INVENTORY OF LAND USE WITHIN THE MOBILE-TENSAW RIVER DELTA, 1981-1982.

(With Map Appendices)

PREPARED BY

Judy P. Stout
and
Hugh M. Dowling

MARINE ENVIRONMENTAL SCIENCES CONSORTIUM

Dauphin Island Sea Lab
Dauphin Island, Alabama 36528

The preparation of this document was financed in part by a Federal grant from the office of Coastal Zone Management, National Oceanic and Atmospheric Administration as authorized by the Coastal Zone Management Act of 1972; Administered by the Alabama Coastal Area Board.

AN INVENTORY OF LAND USE WITHIN THE MOBILE-TENSAW RIVER DELTA, 1981-1982.

(With Map Appendices)

PREPARED BY

Judy P. Stout
and
Hugh M. Dowling

Marine Environmental Sciences Consortium

FOR

Alabama Coastal Area Board

CAB Technical Report 81-49B
Dauphin Island Sea Lab Technical Report 82-004

DECEMBER, 1982

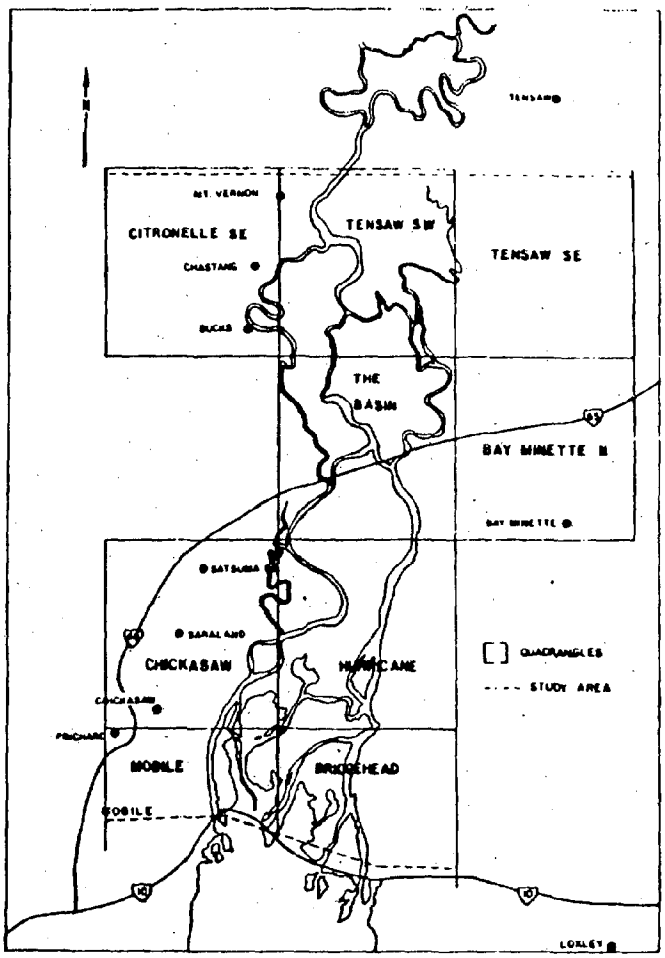


Figure 1. Location of Study Site and Boundaries of Atlas Quadrangle Maps.

AN INVENTORY OF LAND USE WITHIN THE MOBILE-TENSAW RIVER DELTA, 1981-1982.

INTRODUCTION

The Mobile-Tensaw River Delta comprises approximately 115,000 acres of wetland habitats bisecting the northern third of Mobile and Baldwin Counties Alabama. Though unsuited for many land use categories, the Delta has hosted a lengthy history of human habitation which may date back as early as 10,000 B.C. Earliest Indian utilization was for campsites, hunting, fishing and transportation.

French colonization of coastal Alabama in the early 1700's represents the first European use of the Delta. Bluffs, particularly along the western margins, were the sites of several French settlements. Individual farmsteads were probably located throughout the Delta on higher areas.

Following admission of Alabama as a state, in 1918, activities around the margins of the Delta increased with the expanding port use of both Mobile, to the west, and Blakeley, to the east. Subsequent history of land use in the Delta is tied to dock expansions, lumbering, recreation, hydrocarbon exploration activities, and energy and utility corridors.

The current inventory surveys all 1981-82 land uses in the Delta. The inventory is limited to Delta lands at or below the 10-foot contour as far north as the Alabama River cutoff (Figure 1).

METHODOLOGY

Land use data was collected coincident with wetland habitat mapping of the same area. All areas were surveyed by boat between January 1981 and December 1982. Additional information was obtained through two aerial survey missions. Locations of land use units were recorded on color infra-red photographs 1:15,000 (NASA Mission JSC project 0839, October, 1979). Where extensive, acreage of impact was determined from aerial photographs using a K & E Polar Planimeter (Model 62002, 99% accuracy).

RESULTS

A total of 22 land use categories were identified for the Delta. These are summarized in Table 1 with the number of units of each tabulated. Acreage impacted by the major land use categories is detailed in Table 2.

The most frequently encountered land use was private camps, represented by 234 units. These are located along the margins of the rivers, creeks and bays throughout the Delta (See Figure 1). Camps consist of both floating and raised wood-frame structures; boating docks or piers are often associated with the camps. Most camps use less than 0.25 acres each. Camps are rarely permanently occupied, but

are used seasonally for fishing and hunting. Camps which showed extensive damage and disrepair were considered to be abandoned and were not included in the inventory.

Industrial/business land use units were the second most abundant category and because of their individual sizes cover the greatest area. This category includes businesses and industries as diverse as truck stops, lounges, tank farms, paper companies, and large port and warehouse areas. These units are concentrated along U.S. Highway 90 and the east bank of the Mobile River. Water use and water quality are the less apparent, but possibly more significant impacts of these land use units.

The Mobile-Tensaw River Delta acts as an extensive barrier to access between northern Mobile and Baldwin Counties. For this reason, it has been necessary to establish a number of corridors through the Delta. These are utilized for transportation (L & N Railroad), utilities (Alabama Power), and petroleum pipelines (United Gas), as examples. A total of 20 corridors are summarized in Table 1 and their descriptions and land use impact are noted in Table 2.

Five oil exploration sites are currently located within the surveyed area. Rig sites usually appear as T or L-shaped canals dredged from navigable waterways into wetlands. Dredged material is side-cast into clear-cut wetlands on one or both canal banks. The earliest site (Exxon) was dredged in 1963 and the most recent (Superior) was initiated in 1981 during this inventory. Four sites have been abandoned; none have been reclaimed. Major oil reserves were found at the Mobile River Superior site and production permits for this site will be sought in the future. Currently, there are permit requests for two additional exploration projects in the Delta. Their locations have been indicated on the land use map. Acreage impacted to date by exploration efforts is summarized in Table 3. This land use category will probably increase in the future due to critical energy demands and the potential of the area.

Within the Delta the land use with the most extensive impact is logging efforts. The 1981-82 survey revealed over 7,400 acres which had obviously been recently logged (See Table 4). This estimate, however, falls far short of the actual acreage impacted since man began to exploit the abundant timber resources available. Mohr (1878) discusses the gigantic cypress of the Delta, up to forty feet in circumference, and their utilization as shingles, planks, cabinetry and increasing use as rot-resistent posts and pilings. By 1928, Harper reports for cypress...

> "it does not constitute a large proportion of the forest of any region except the Mobile Delta, ... (probably most to the original supply there has been cut out). It grows so slowly in the swamps that it does not have much chance to restore itself after logging operations." p. 65

Evidence of historical logging efforts is apparent in large stumps and, from the air, trails along which logs were dragged to the

navigable rivers are still visible. However, it is not possible to assess the extent of the historical impact of this activity on Delta wetlands. Particularly impacted by recent logging are the easily accessible natural levees of the upper Delta.

REFERENCES CITED

Harper, R. M. 1928. Economic Botany of Alabama. Part II. Geological Survey of Ala., Monogr. No. 9. 357 p.

Mohr, C. 1878. The forests of Alabama and their products. Part II, pp. 221-235. IN: S. Birney (ed.). Handbook of Alabama: A complete index to the state; with a geological map and an appendix of useful tables. Mobile Register Print, Mobile, Alabama.

RELATED DOCUMENTS

Stout, J. P., H. M. Dowling, M. T. Powers and M. J. Lelong. 1982. Inventory of wetland habitats of the Lower Mobile-Tensaw River Delta, 1981. Interim Report, Ala. Coastal Area Board, Contract No. CAB-81-49.

U.S. Department of the Interior, 1979(?). Study of Alternatives: Mobile-Tensaw River Bottomlands/Alabama. U.S.D.I., National Park Service, 109 p.

Table 1. Summary of Land Use in the Mobile River Delta, 1981-82 by Categories of Use.

CATEGORY	NUMBER OF UNITS
CAMPS	234
COMMERCIAL MARINA/LANDING	17
TRANSPORTATION	3
DOCK/ANCHORAGE	13
SPOIL DISPOSAL	25
UTILITY CORRIDORS	4
PETRO. & GAS POWER	7
OIL DRILLING SITES	5
INDUSTRIAL/BUSINESS	40
SEWAGE TREATMENT	1
ALCOA SETTLING PONDS	1
BARRY STEAM PLANT FLY ASH POND	1
PIPE & CABLE CROSSINGS	2
DISCHARGE PIPES	9
DREDGED CANALS	4
RESIDENTIAL	1
MOTEL	1
BRIDGE	1
GAME PLOTS	3
CULTIVATION	1
LOGGING	17
SAND AND GRAVEL (IDEAL CEMENT)	1

Table 2. Acreage of Wetlands Impacted by Various Land Uses Within the Mobile River Delta, 1981-82. (Note: Not Inclusive of all Land Uses in Table 1).

TYPE	WETLAND ACRES IMPACTED/DISTURBED
A. TRANSPORTATION CORRIDORS	TOTAL = 322
(1) L & N Railroad	149
Comments: (a) Calculated distance Hurricane to Scott Paper. (b) Impacted area mostly consisted of railbed with fill ditch beside track. (c) Power line along road bed. (d) Twelve bridges, 4 with turn house.	
(2) INTERSTATE 65	164
(a) Includes canal, spoil areas and petroleum pipeline alongside canal. (b) From Mobile River at Dead Lake to Tensaw River north of Mifflin Lake Landing. (c) 5 bridges.	
(3) INTERSTATE-10 WORK CANAL	9
(a) Cuts thru small section of low Marsh southeast of Chacaloochee Bay. (b) Work Canal navigable all the way across.	
B. UTILITIES	TOTAL = 801
(1) ALABAMA POWER & NATURAL GAS LINES	62
(a) Runs north-south Bayou Sara to Alabama Power Canal Mobile River.	
(2) ALABAMA POWER RIGHT OF WAY	66
(a) Byrnes Lake - Grand Bay. (b) Approximately 70 m wide. (c) Clear-cut and sprayed. (d) Vegetation consists of shrubby low-intermediate marsh (Baccharis; Saggitaria spp). (e) Spray often drifts to adjacent areas.	

(3) ALABAMA POWER CANAL 30

(a) Runs from Mobile River (below 12 mile Island to Chickasaw (North of Halter Marine).
(b) Canal locked at both ends.
(c) Exxon Petroleum Pipeline runs along canal near Mobile River.
(d) Spoil on canal banks.

(4) BARRY STEAM PLANT PONDS 642

(a) Mobile River at Bucks
(b) Diked ponds, all natural vegetation dead.

C. PETROLEUM TRANSPORTATION TOTAL = 151

(1) EXXON PETROLEUM PIPELINE 80

(a) Runs from Cloverleaf Landing on Tensaw to I-65 Chickasaw.
(b) Clear cut, pipe subterranean
(c) Mostly through Tupelo swamp forest, not maintained, swamp species (woody) returning.

(2) UNITED GAS PIPELINE CANAL 71

(a) Runs from Hurricane to Chickasaw Creek.
(b) Canal dredged to 5-6 feet deep.
(c) Pipe adjacent to canal.
(d) Canal navigable all the way across except log jams near Alligator Bayou.
(e) Spoil deposited on canal bank, creating weedy habitat. (Ipomea).

D. PETROLEUM EXPLORATION TOTAL = 42

(1) EXXON 1963 (RAFT RIVER) 6

(2) CHEVRON 1975 (MOBILE RIVER) 6

(3) AMOCO 1977 (NEGRO LAKE) 5

(4) AMOCO 1979 (SHIEPS CANAL) 11

(5) SUPERIOR 1981 (MOBILE RIVER) 14

E. RECENT LOGGING TOTAL = 7,488
(See Table 3).

F.	SPOIL DISPOSAL	TOTAL =	529
G.	INDUSTRIAL/BUSINESS (U.S. Hwy. 90 and Lower Mobile River)	TOTAL =	2,243
H.	OTHER	TOTAL =	950
(1)	IDEAL CEMENT (Twenty-four mile Bluff-Mobile River)		208
(2)	CAMPS @ 0.25 ACRE EACH		59
(3)	ALCOA SETTLING PONDS		595
(4)	SEWAGE TREATMENT		88
TABLE TOTAL			12,526

Table 3. Location and Acreage of Petroleum Exploration Sites in the Mobile-Tensaw River Delta as of November 1, 1982.

COMPANY	INITIATION DATE	LOCATION	ACREAGE	COMMENT
EXXON	1963	Raft River-Crab Creek.	6	Tree stumps sprouting on edge; interior of weedy vines.
CHEVRON	1975	Mobile River-Twelve Mile Island.	6	Revegetation patchy from stumps; open sand.
AMOCO	1977	Negro Lake	5	Willow/weed patch.
AMOCO	1979	Mobile River-Shieps Canal.	11	Weed patch of vines.
SUPERIOR	1981	Mobile River-Mt. Vernon.	14	Oil production planned.

Table 4. Impact of Recent Logging Activities on the Mobile-Tensaw River Delta with Acreage by Site.

LOCATION	ACREAGE
NORTH OF GUMBO LAKE	1,744
WEST OF BEAR CREEK	842
NORTHEAST STIGGINS LAKE	498
CANAL ISLAND AND BELOW	255
WEST UPPER BRYANT'S LANDING	804
FORK OF MOBILE AND TENSAW RIVERS	82
BAYOU TALLAPOOSA	406
SANDY HOOK	68
BOTTLE CREEK - MIDDLE RIVER	1,396
EAST OF LITTLE CHIPPEWA	598
JOSE CREB BAYOU	40
NORTH OF BARRY STEAM PLANT	275
EAST LOWER FISHER LAKE	283
EAST FISHER LAKE	14
NORTHEAST OF IDEAL CEMENT PITS	14
JUNCTION OF TENSAW RIVER AND MIFFLIN LAKE	52
WEST ALLIGATOR LAKE	119
TOTAL	7,488