

Grand Bay NERR Oyster Inventory Survey

Project Objectives

- I. Spatially describe and define current intertidal oyster resources in the Grand Bay NERR through “in situ”/desktop mapping and GIS database management.
- II. Describe and define abiotic and biotic parameters of the physical environment that produce a productive and stable oyster resource.
- III. Maintain the current oyster resource at the Grand Bay NERR by implementing best management practices that ensure protection of the physical environment required for the recruitment and growth of oysters.
- IV. To restore, if possible, oyster beds in areas where they historically occurred at Grand Bay NERR.

Phase I – Oyster Mapping

Methodology

The primary objective of Phase I of the Oyster Inventory Survey Project is to map existing intertidal oyster reefs, dead and alive, along the intertidal zones of bays, bayous, and lakes located within the boundary of the Grand Bay National Estuarine Research Reserve. Areas containing oyster shells will be mapped according to a percent cover classification scheme that will ultimately improve the management strategy for oyster reef protection and restoration. Oyster reefs will be observed during low-tide events at all locations to obtain the maximum extent of oyster shell coverage and plotted by hand using six inch high-resolution, true-color orthoimagery obtained from the state of Mississippi. Two test runs at the North Rigolets Bayou and Crooked Bayou proved that the six inch resolution imagery provides accurate detail to map oyster reefs “in situ” by boat and will provide enhanced spatial resolution for areas of critical interest (e.g. restoration reefs). Upon completion of data collection, oyster reefs classifications and extents will be mapped using heads up digitizing in ArcView 9.3. Database attributes will be attached to the shape (polygon/point) to describe information pertaining to the oyster resources. Ancillary data will consist of Trimble GeoXH GPS points and USGS quadrangle topographic maps.

Classification Scheme

Each polygon will contain a segment of a distribution of oyster reef existing within the intertidal shoreline zone. Points will represent isolated clumps of oyster that **do not** form a consistent distribution over an area of shoreline. Cover classes will be assigned using the following classifications:

- 0 = no shell present
- 1 = 1-30% coverage by oyster shell
- 2 = 31-70% coverage by oyster shell
- 3 = 71-100% coverage by oyster shell
- 4 = isolated oyster shell clump (point)
- 5 = area (polygon) with several small clumps (<20 oysters) that form a patch

Database

Fields in the mapping database will include:

Date, Observer(s), Bayou, Object ID, Unique ID, Coverage Class, Area, Comments

Codes selected for the Unique ID field include:

WATERBODY

BB = Bangs Bayou
BC = Bayou Cumbest
BH = Bayou Heron
BI = Bangs Island
BL = Bangs Lake
CB = Crooked Bayou
CYB = Clay Bayou
JB = Jose Bay
JBy = Jose Bayou
LBB = L'Isle Chaude Bay
MB = Middle Bay
MCB = Mattie Clark Bayou
NB = North Bayou
NR = North Rigolets
SR = South Rigolets
SW = Southwest Bayou

SHORELINE COMPASS DIRECTION

n = north
s = south
e = east
w = west







SHAPE FEATURES

001 = polyline (percent oyster coverage)
002 = point (oyster clump)
 1 = small clump
 2 = large clump
003 = polyline (no oysters present)

Map Symbology

Each coverage class is represented by a unique symbol and color in order to differentiate class types on a map. Color and symbols include:

Blue line with connecting dots: **Class 0**
Orange single line: **Class 1**
Yellow double line: **Class 2**
Red triple line: **Class 3**
Green circle with dot in middle: **Class 4**
Light blue/yellow diagonally striped polygon: **Class 5**

Oyster Resource Classification	
	Class 0 <1% or no shell presence
	Class 1 1-30% shell coverage
	Class 2 31-70% shell coverage
	Class 3 71-100% shell coverage
	Class 4 isolated shell clump
	Class 5 patch with several small clumps

Bayou Heron Oyster Resource Data

Class Coverage

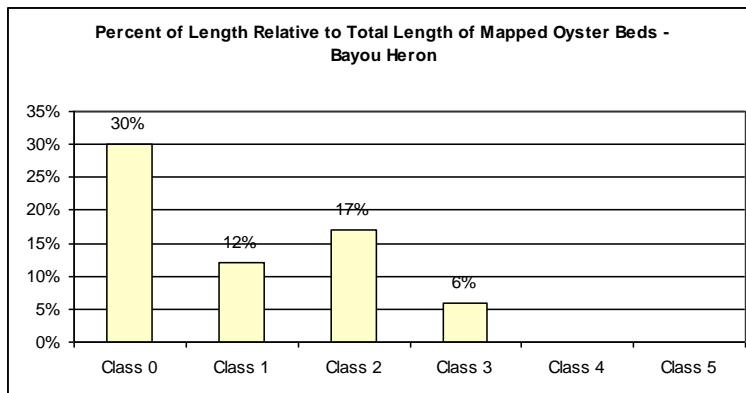
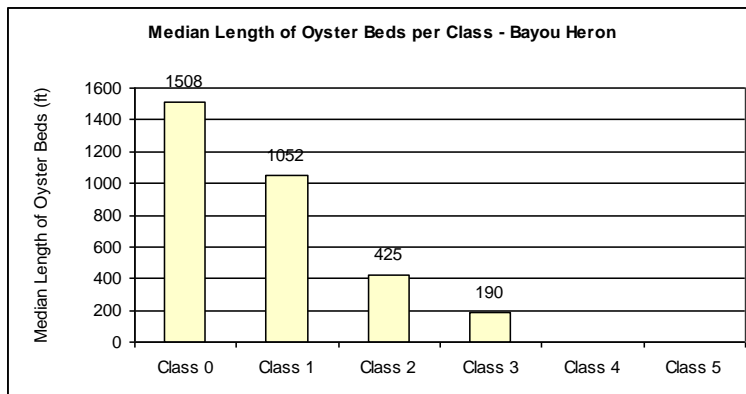
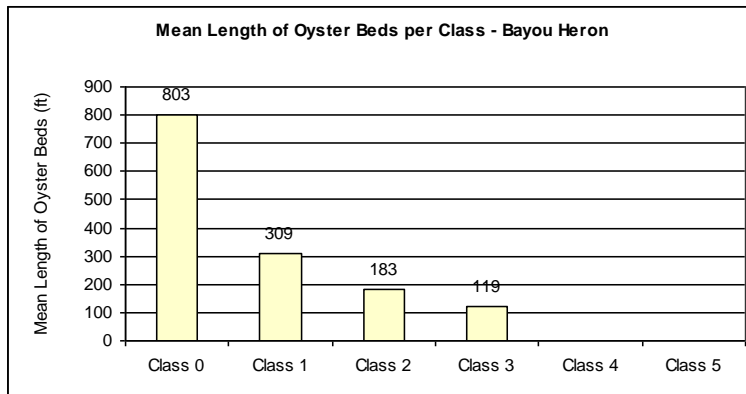
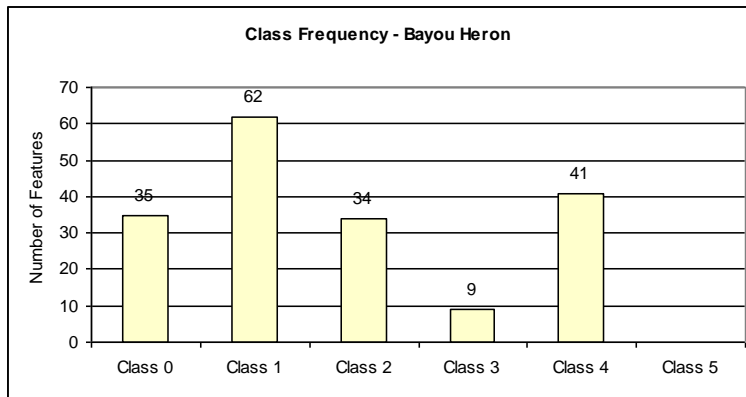
C0 19%

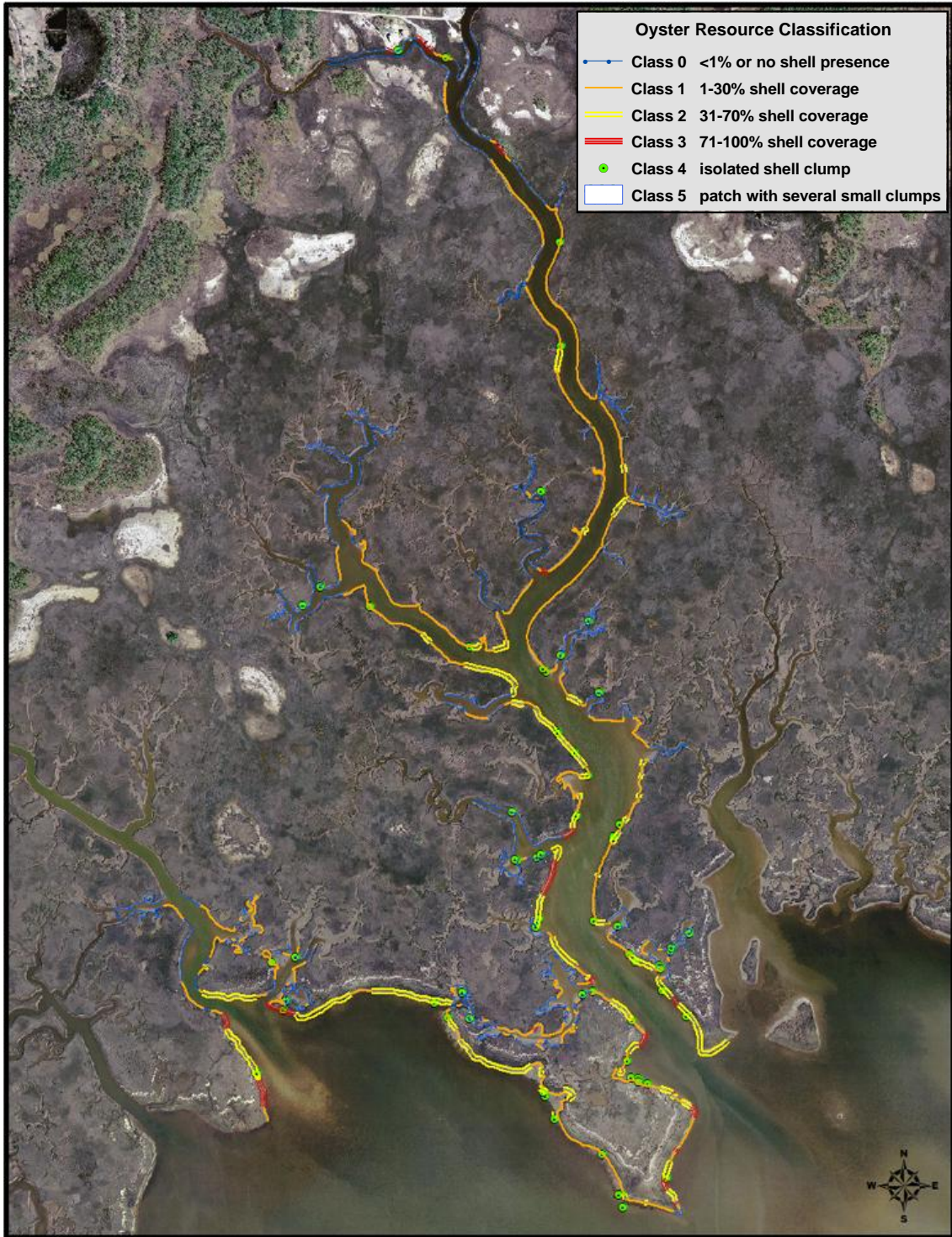
C1 34%

C2 19%

C3 5%

C4 23%

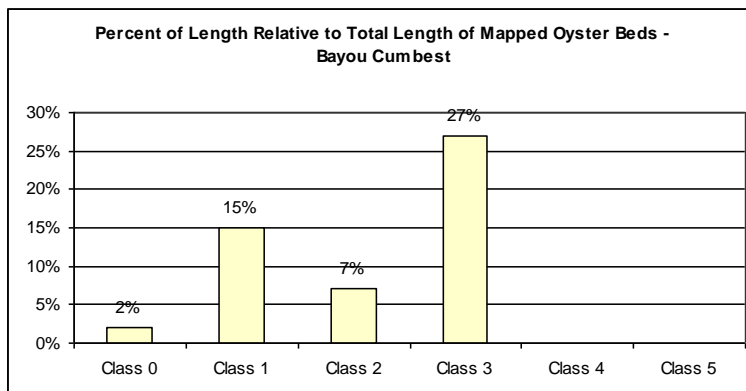
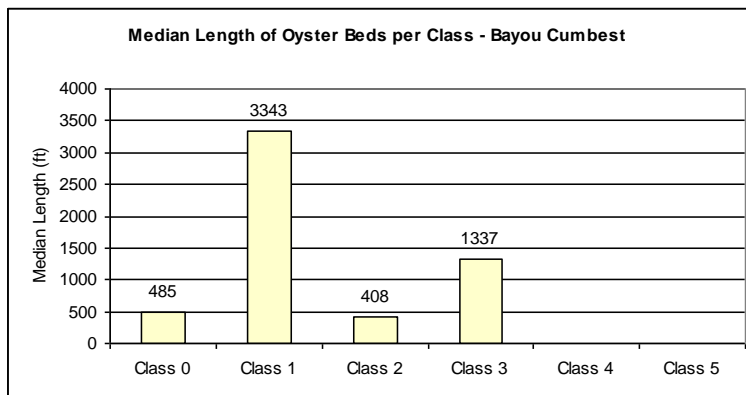
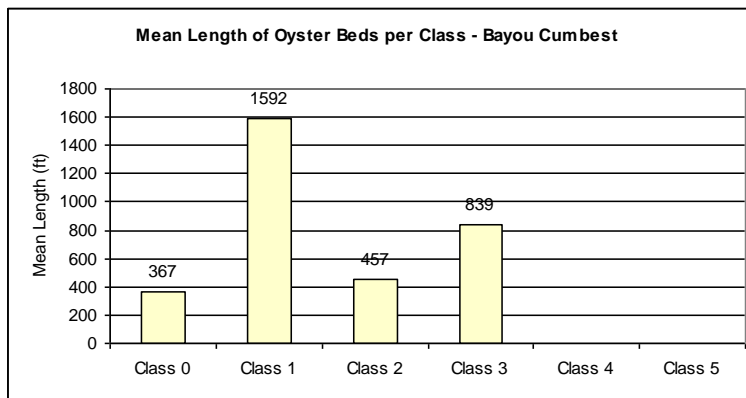
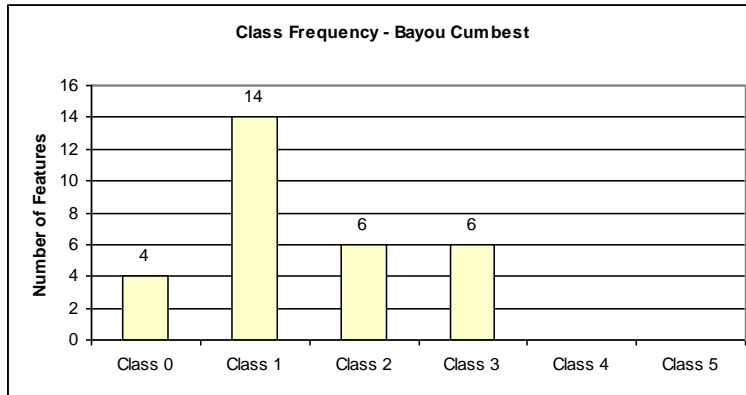


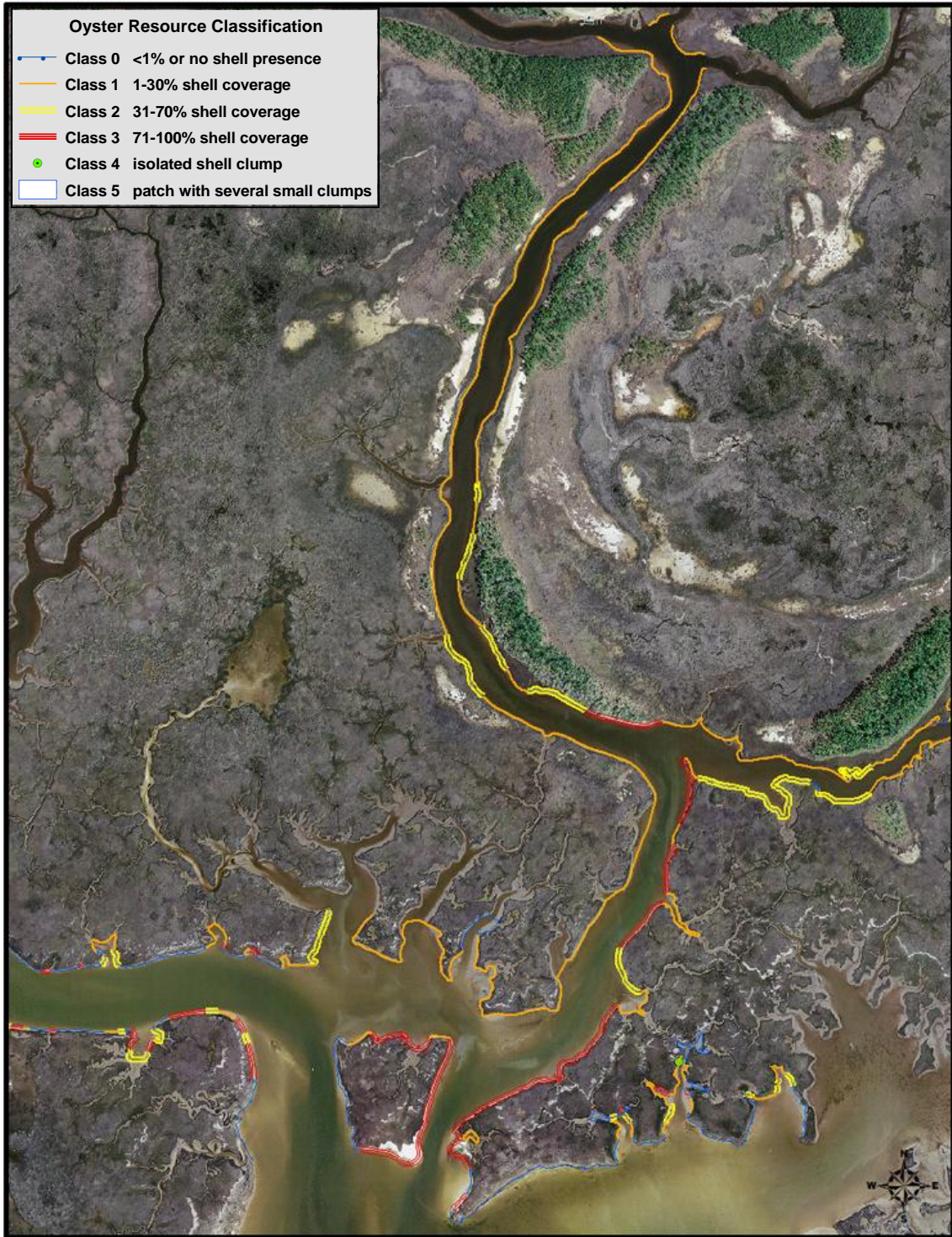


Bayou Heron

Bayou Cumbest Oyster Resource Data

Class Coverage
 C0 13%
 C1 47%
 C2 2%
 C3 2%



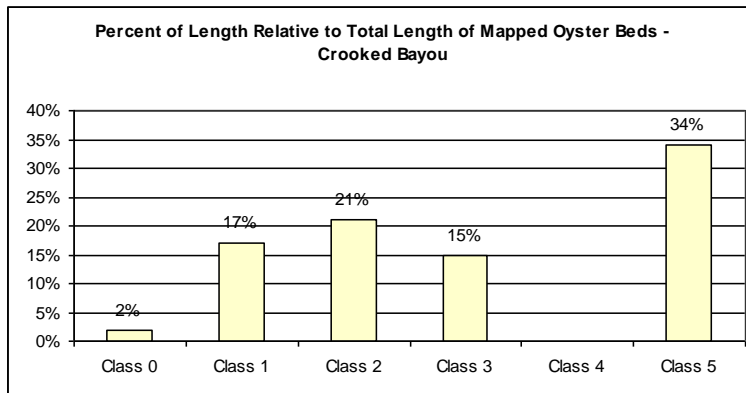
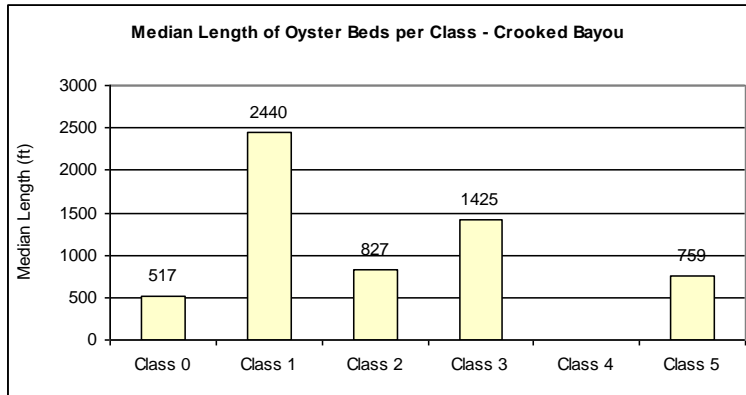
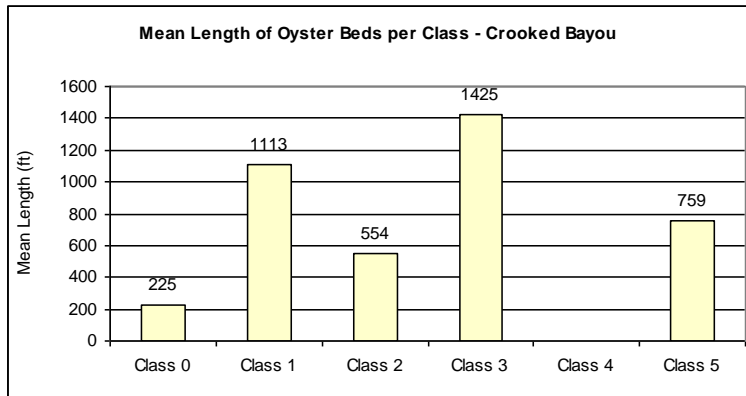
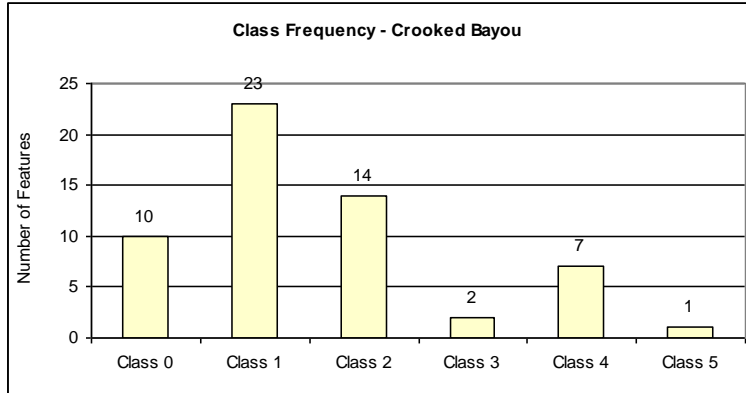


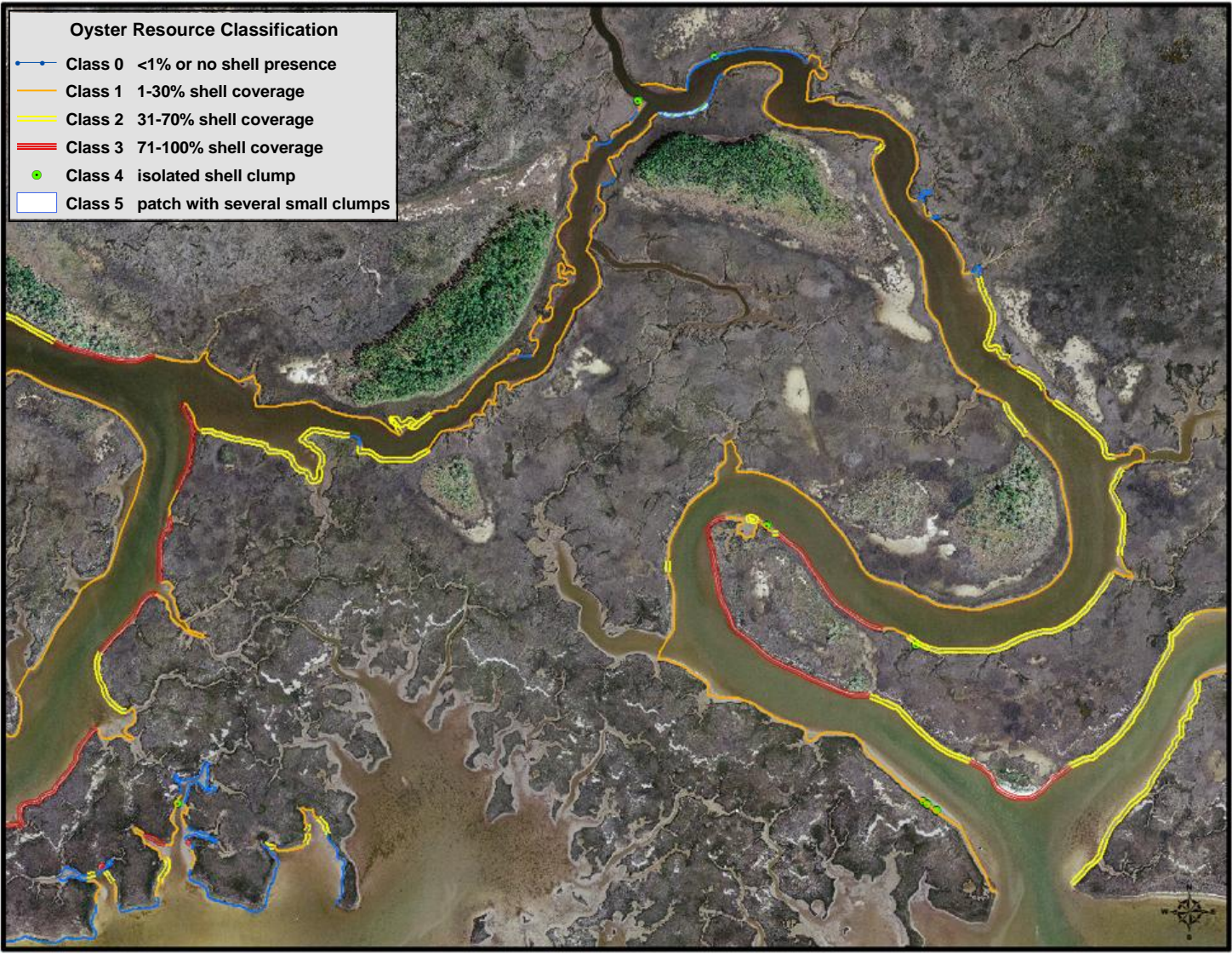
Bayou Cumbest

Crooked Bayou Oyster Resource Data

Class Coverage

C0 18%
 C1 40%
 C2 24%
 C3 4%
 C4 12%
 C5 2%





Crooked Bayou

North Rigolets Oyster Resource Data

Class Coverage

C0 12%

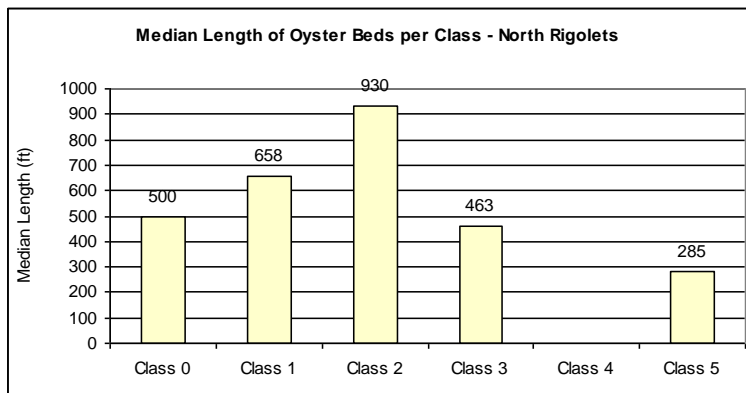
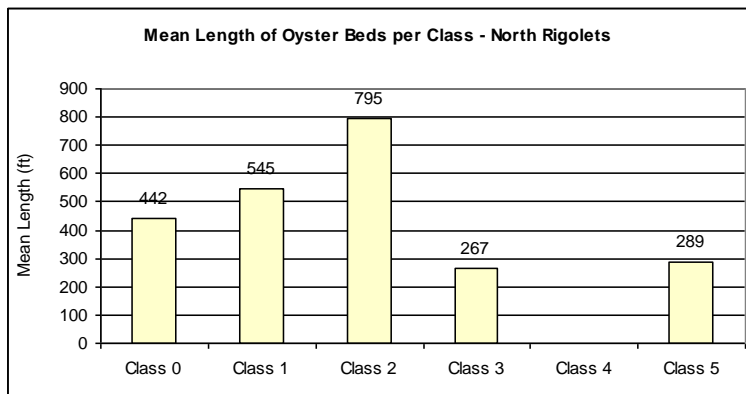
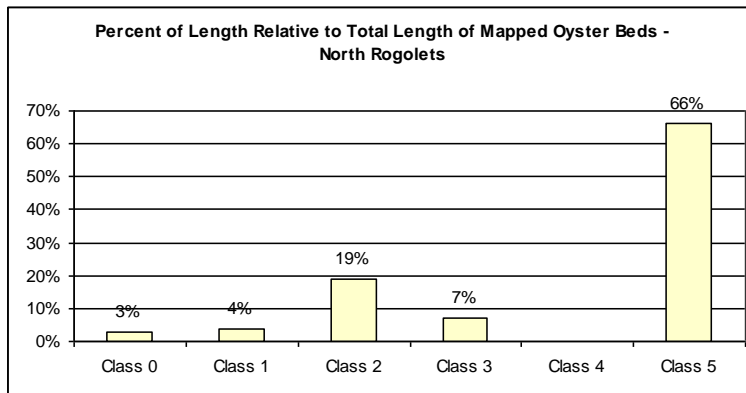
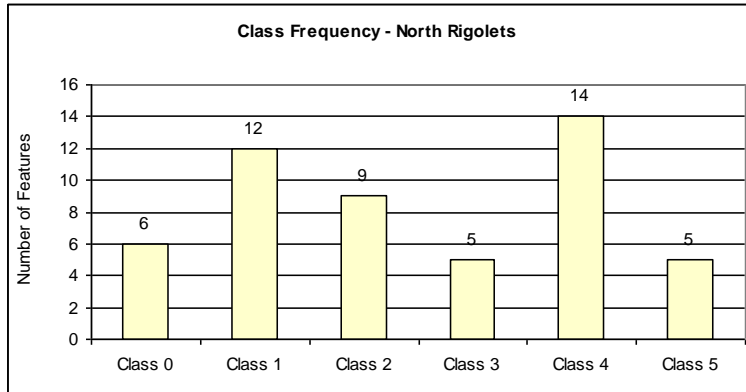
C1 24%

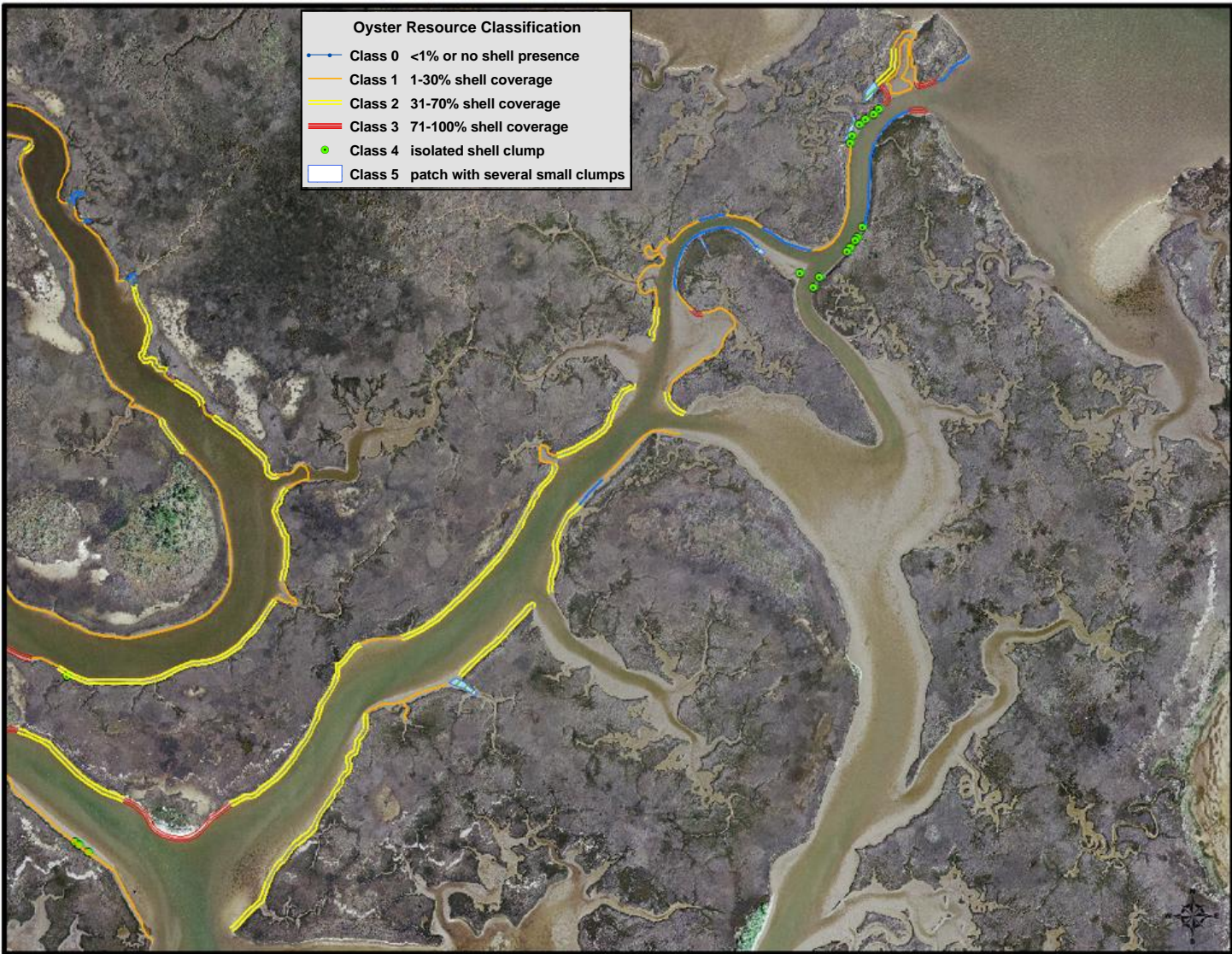
C2 18%

C3 10%

C4 27%

C5 10%

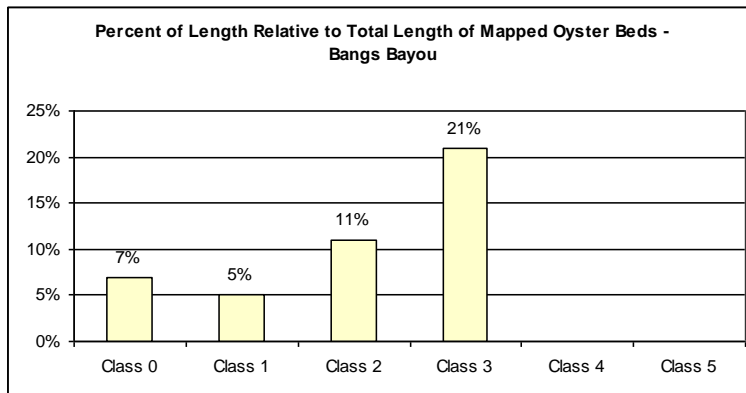
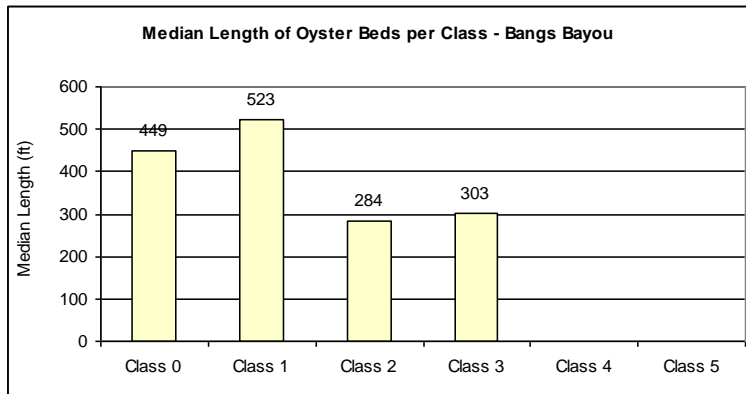
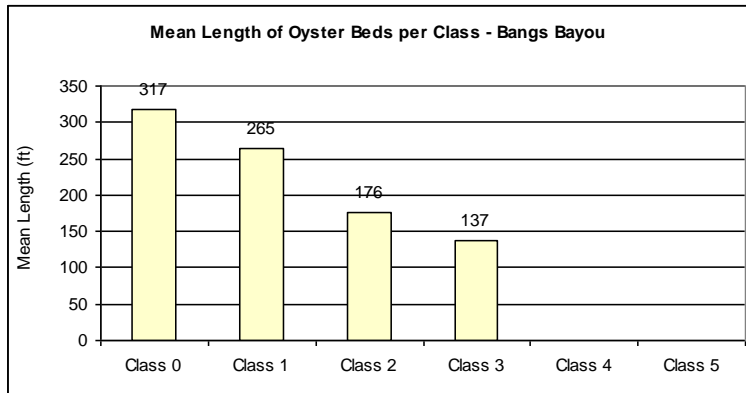
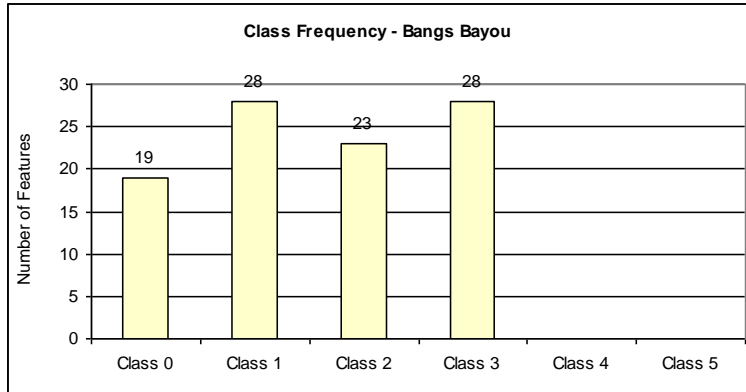


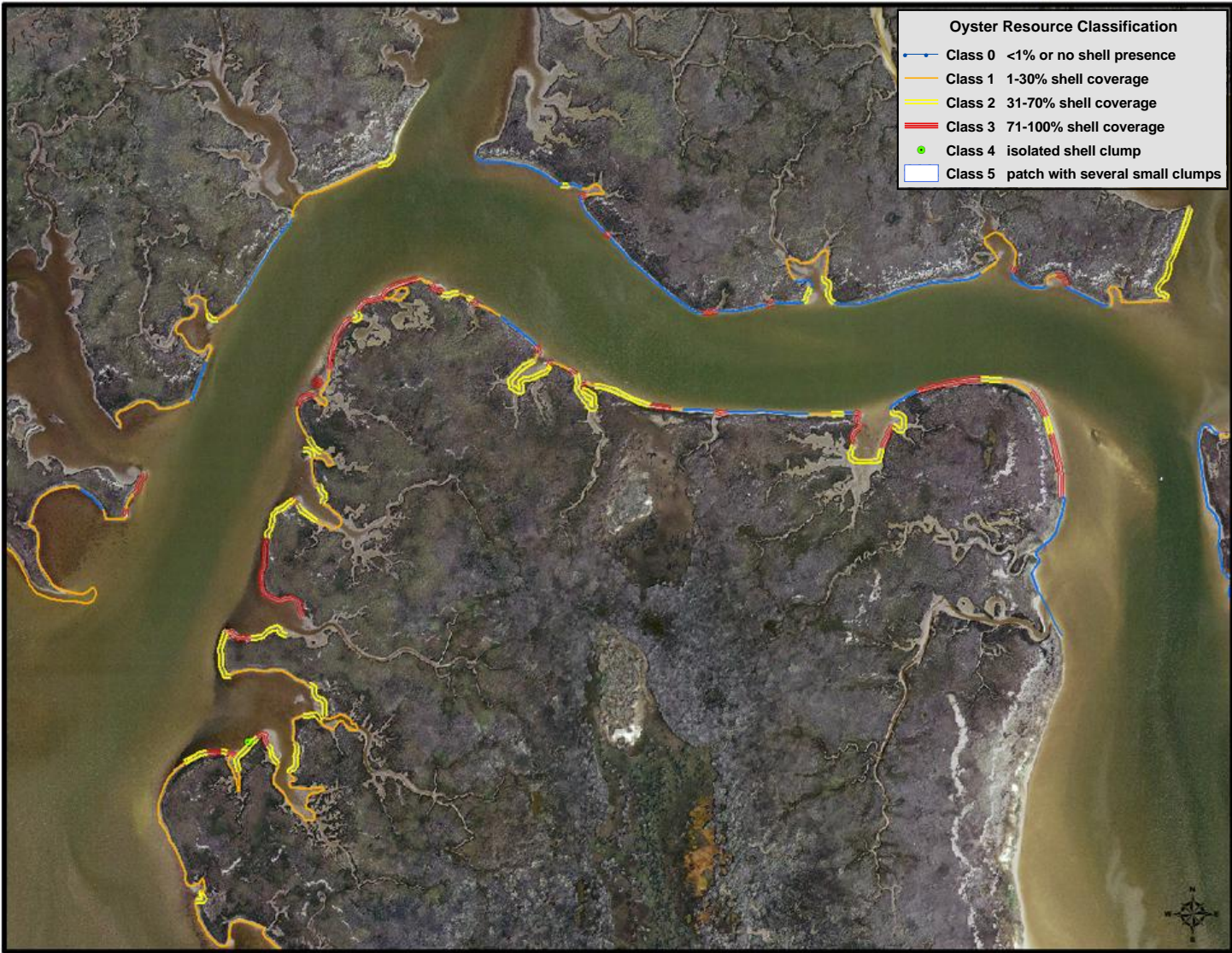


North Rigolets

Bangs Bayou Oyster Resource Data

Class Coverage
 C0 19%
 C1 29%
 C2 23%
 C3 29%

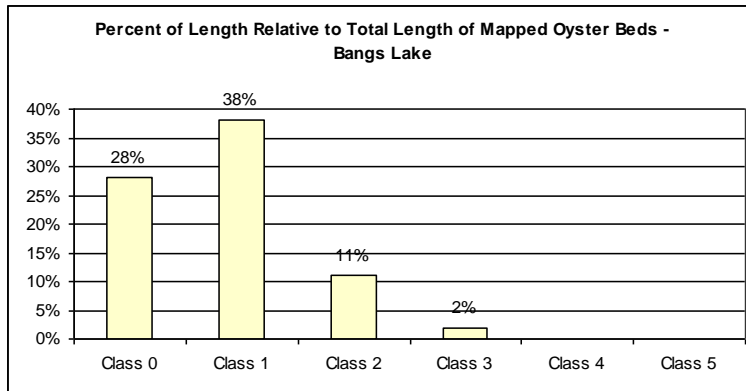
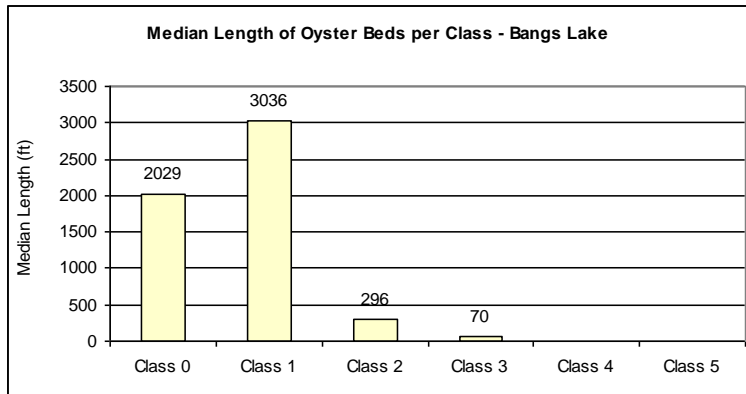
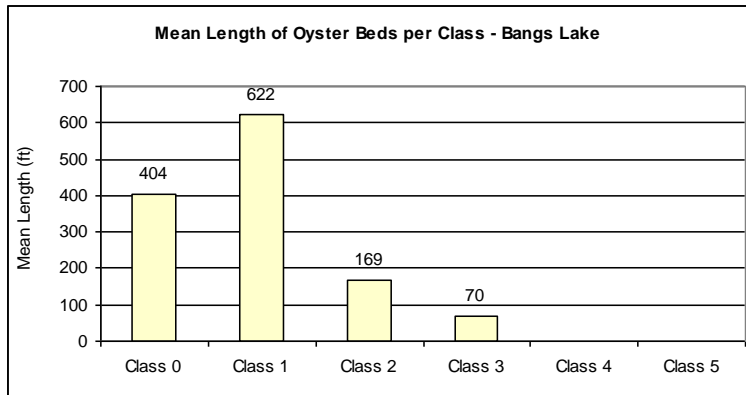
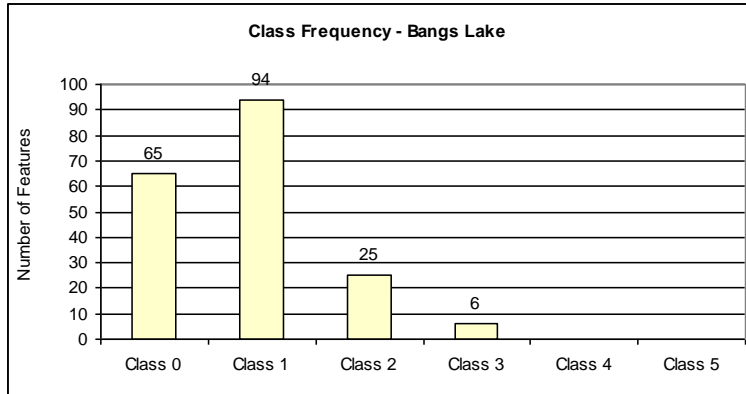


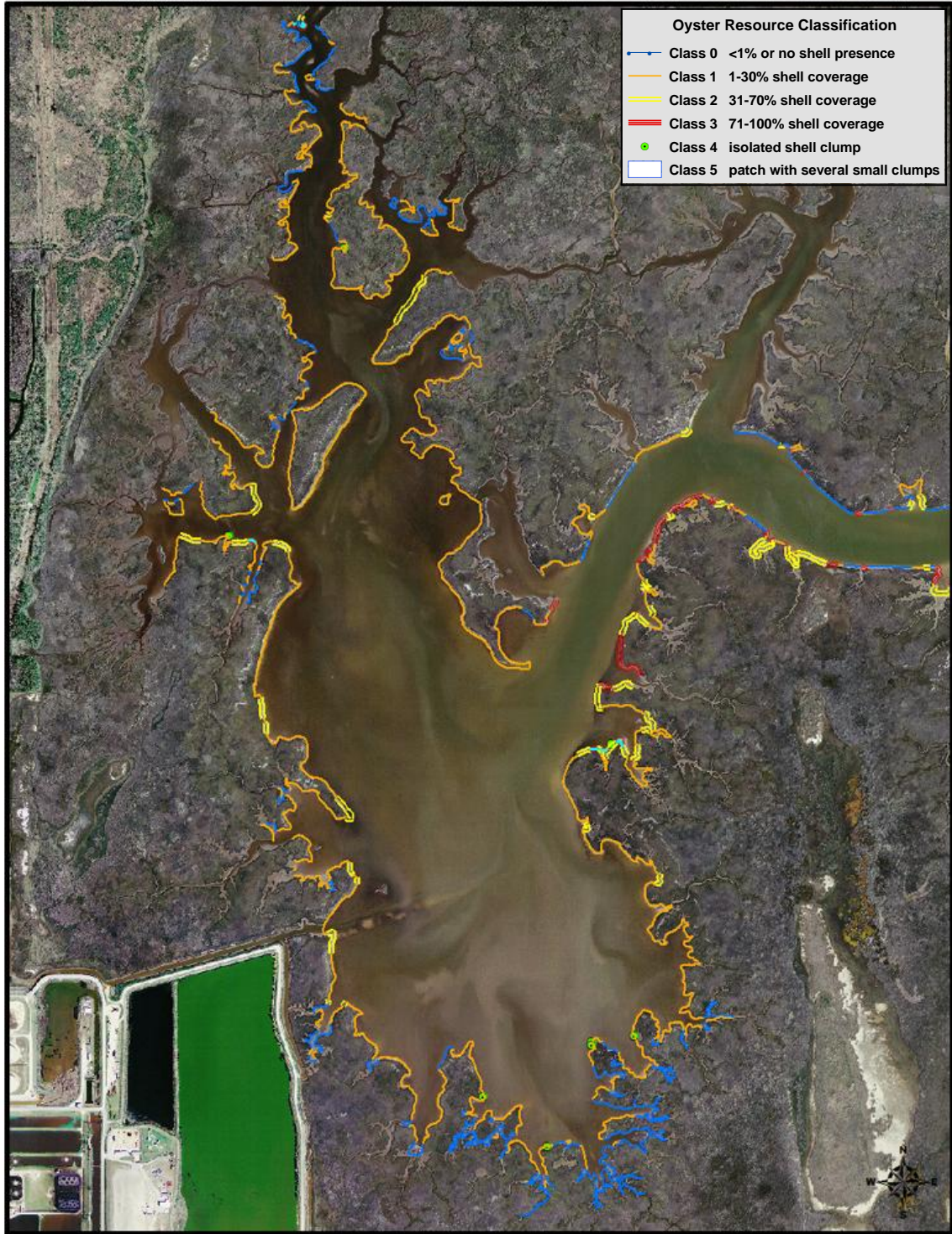


Bangs Bayou

Bangs Lake Oyster Resource Data

Class Coverage
 C0 35%
 C1 49%
 C2 11%
 C3 3%





Bangs Lake