

**A Field Guide to Aquatic Habitats and Common
Fauna of the Northern Gulf of Mexico:
Point Aux Pins, Alabama to Port St. Joe, Florida**

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I. Dauphin Island Sea Lab Information

a) History

The Marine Environmental Sciences Consortium (MESC) is Alabama's marine research and educational institution. MESC was founded in 1972 by the Alabama legislature as a result of the decision by the presidents of Alabama's largest colleges and universities to limit duplication of facilities and programs related to marine sciences and to maximize the marine research capabilities of several Alabama institutions of higher learning. MESC has grown to include 22 Alabama colleges and universities and is commonly referred to as the Dauphin Island Sea Lab (DISL). DISL is recognized regionally and nationally as a marine sciences institution of growing academic and research distinction. The administrative and operational base for DISL is located on 36 acres of the eastern end of Dauphin Island, a barrier island approximately 40 miles south of Mobile, Alabama. The island is connected to the mainland by a 3-mile, high-rise bridge and is easily accessible by way of Interstate 10 and Interstate 65.

This facility is uniquely situated in one of two localities in the world where diurnal tidal regimes prevail, and mixed diurnal and mixed semidiurnal tidal regimes are located nearby. The location allows quick direct access to the Gulf of Mexico, Mississippi Sound, Mobile Bay and their contiguous bays, beaches, and marshes, which, by comparison, are less anthropogenically impacted than comparable systems on the eastern seaboard.

From its founding in 1972 through the early 1980's, the research staff (5 PhD's) worked mainly on descriptive biology and oceanography studies funded by NASA, the Minerals Management Service (formerly the Bureau of Land Management), the National Oceanographic and Atmospheric Agency (CZM and Sea Grant), and the U.S. Army Corps of Engineers. The valuable data files and research collections produced were developed into baseline reports and refereed articles of biogeographic, hydrographic and systematic interest. These data form the basis of a growing program which includes thirteen faculty with emphasis on talented undergraduate/graduate education and field and laboratory experimentation in both basic and applied marine research.

The presently established research goals of DISL are (a) to develop new theory and improved understanding of the mechanisms structuring nearshore ecosystems, and (b) to apply this knowledge to the management of the nation's coastal resources through interdisciplinary studies of coastal waters and adjoining landscapes. The present programmatic emphasis, an outgrowth of our historical research efforts, is on (1) the dynamics of production in coastal environments particularly on submerged aquatic vegetation (SAV) and open water ecosystems, and (2) the dynamics of coastal beach, embayments, and shelf processes, specifically biotic, chemical, and physical coupling between the estuary and the shelf and the effects of these

processes on (a) nutrient dynamics, (b) recruitment and reproduction, and (c) sediment transport in coastal habitats.

In the area of estuarine productivity, we are concentrating on studies which will elucidate the processing and transference of primary production through the dominant types of nearshore habitats. This involves measurements of (a) both primary and secondary production, (b) biogeochemical nutrient regeneration, and (c) transport dynamics of planktonic and sessile species, and (d) water circulation and sediment transport in a variety of locations (Alabama, Florida, New Jersey and Central America). The ultimate goal of this work is to understand the consequences of the variability of chemical, geological, and physical processes on the net productivity of coastal ecosystems.

On the continental shelf, environmental investigations are focused on current patterns, sediment transport, submarine topography, and the petrography of various hardbottom communities. Biological investigations are focused on the interrelationships of these factors with nutrient availability as related to recruitment, reproductive periodicity and secondary production of invertebrates and fishes of various substrates associated with Alabama's continental shelf. The ultimate goal of this work is to understand what influences the success and time frame of recruitment events and the chemical-geological-physical factors which may affect species transported onto the shelf.

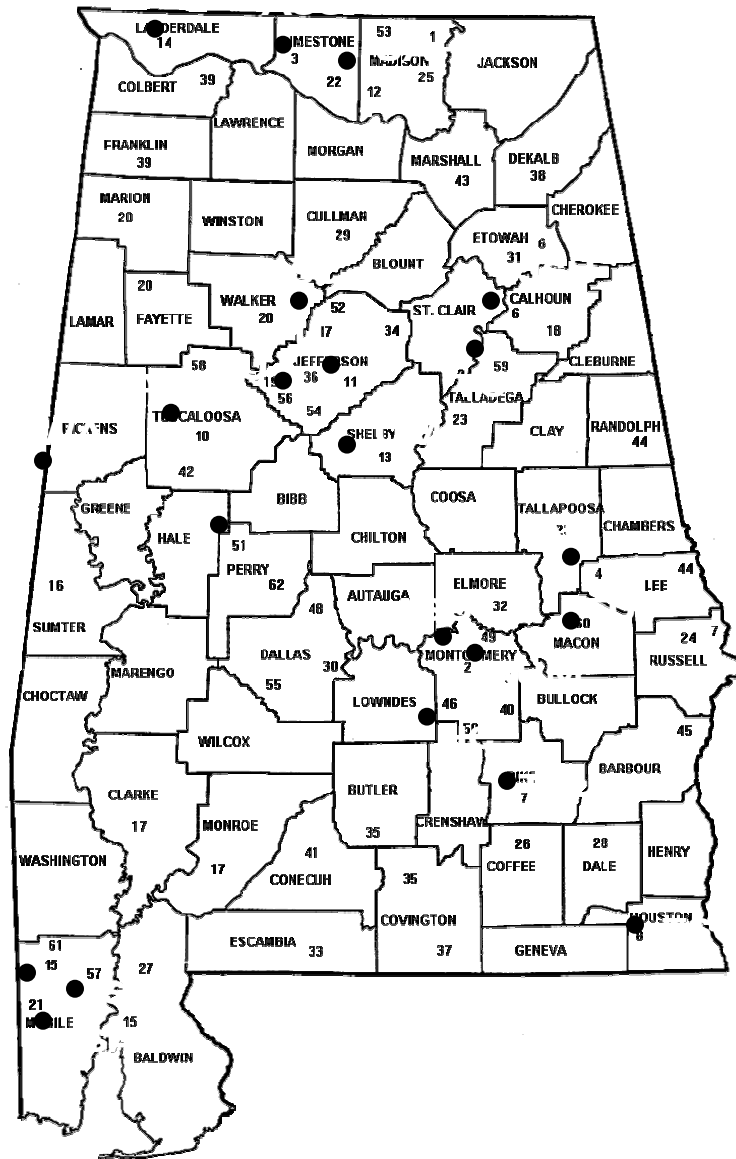
b) Educational Opportunities

At the DISL, year-round undergraduate and graduate education and basic and applied research are carried out through the University Programs, while K-12 education, teacher training and educational outreach activities are directed through the Discovery Hall Programs.

The DISL Undergraduate Program focuses on offering students learning opportunities that combine rigorous classroom studies with diverse 'hands on' field and laboratory experiences. The centerpiece for undergraduate studies is the Summer Program which offers over 20 courses during a two-week May Term, a five-week First Summer Session, followed by another five-week Second Summer Session, each year. Typically, over 100 students are enrolled in the Summer Program each year, with a large percentage living on campus.

In addition to formal coursework, the DISL offers several opportunities for undergraduate students to gain research experience as part of their undergraduate education. Since 1997, the DISL has served as a site for the National Science Foundation's Research Experience for Undergraduates (REU) Program. This program is a nationally competitive fellowship program that brings up to seven under-graduates to the DISL for twelve weeks each fall. In addition to the REU Program, University Programs faculty at DISL frequently offer undergraduate

internship opportunities during the summer where students can gain valuable research experience working on faculty research projects.



Map 1. Map of the locations of the 22 affiliate colleges and universities. Listing of colleges and universities can be found in Appendix A.

The Discovery Hall Programs at DISL offer a variety of learning experiences for all ages. The Discovery Hall Program was named for the early research vessel, "Discovery" and began in 1975, opening the field of marine science to Alabama secondary school students through hands-on field and laboratory experience. Elementary school students through senior citizens participate in field activities ranging from the measurement of coastal waves and currents to the exploration of salt marshes. Schools receive special lectures on marine careers and habitats, and

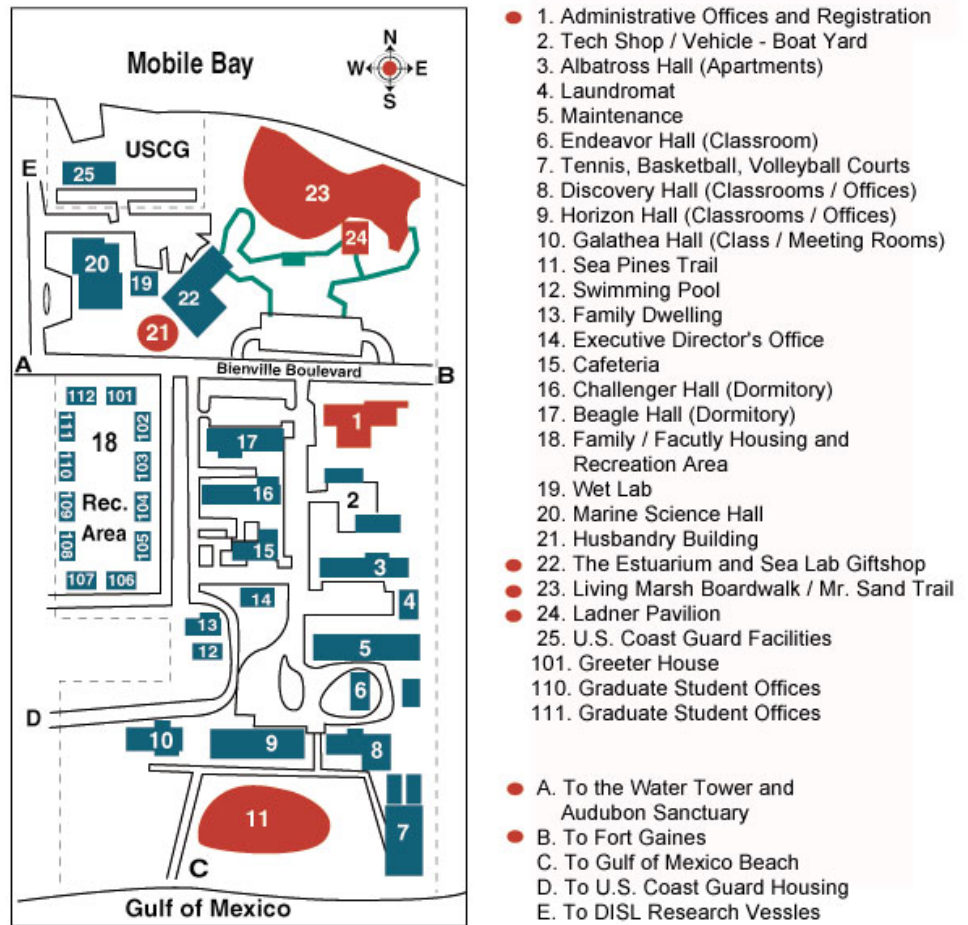
training workshops equip teachers to “carry the oceans” into their classrooms. A primary focus is the delivery of fundamental principles of science and mathematics through the medium of the marine environment. All Discovery Hall Programs are intended to increase understanding and appreciation for science and the marine environment by directly involving participants in that environment with dynamic, hands-on activities. It is through the Discovery Hall Programs that DISL reaches beyond the scientific and higher education communities to promote responsible stewardship of the world’s oceans. Today over 15,000 students a year participate in Discovery Hall Programs.

c) Facilities

The Dauphin Island Sea Lab is housed in 27 buildings located on a 36-acre campus on the east end of Dauphin Island, 35 miles south of Mobile, Alabama. The facilities can accommodate over 200 persons in residence.

Support facilities include a two-story efficiency apartment complex (with 12 units) for graduate students, 2 dormitories (84 person capacity each), a full service cafeteria, 8 three-bedroom houses for faculty, and a laundromat. Recreational facilities on campus include volleyball and basketball courts, and a swimming pool (Map 2).

Map 2. Layout of the buildings at the Dauphin Island Sea Lab.



Teaching facilities include 4 classroom/laboratory buildings. The library, housed in the Administration building, is equipped with holdings that include more than 6,200 book titles and subscriptions to 600 periodicals dealing with marine sciences. Numerous electronic bibliographic databases are available. The library is also equipped with IBM compatible PCs for student use. A variety of Windows based programs are available for word-processing, database management, statistical analysis, communications, and graphic presentation. Internet access is also available.

The graduate and research programs are housed in the Marine Science Hall, which contains 14,000 square feet of research labs and office space. Available instrumentation includes a carbon/nitrogen/sulfur analyzer, TOC, nutrient and lipid analyzers, several HPLCs and gas chromatographs, a scintillation counter, UV/VIS fluorometers and spectrophotometers. Support equipment includes balances, a refrigerated centrifuge, a lyophilizer, muffle furnaces and ovens, research grade deionized water, computer equipment and the usual complement of laboratory materials. Field gear includes high resolution CTD's and current meters, oxygen meters, plankton nets, corers, data buoys, transmissometers, water quality monitors, a variety of trawls and other nets for collecting, bottom grabs, photometers, refractometers, pH meters and a variety of water samplers.

In addition, there is a fully equipped research oriented scientific diving support facility and a herbarium containing over 500 marine algal and maritime plant species.

Research vessels available for class and research activities include: the R/V A.E. Verrill, a 65-foot, diesel-powered steel hull vessel; the R/V Osprey, a 23-foot, center-console fiberglass outboard; plus additional outboards and skiffs (14 to 23 feet).

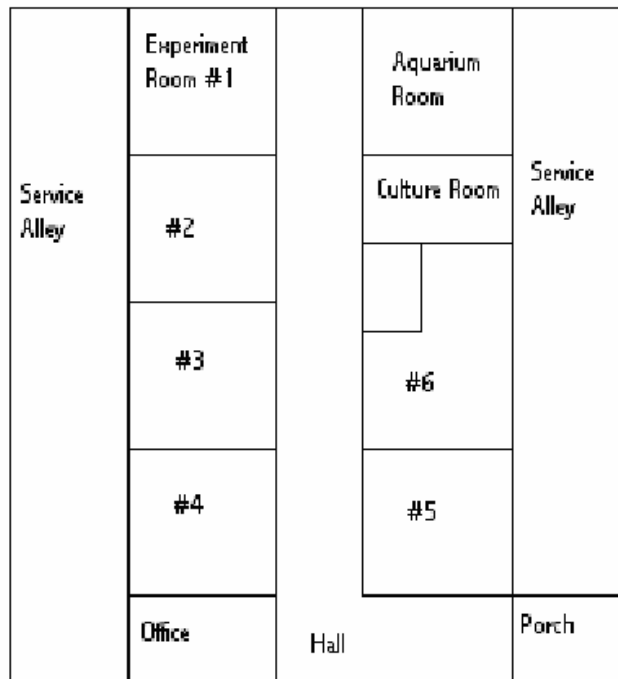


R/V A. E. Verrill



R/V Osprey

We have a 3600 sq ft wet lab plumbed for recirculating sea water. The wet lab currently houses six separate rooms with independent life support systems in each. In addition to the six experimental modules which can be assigned to individual researchers and students for their experiments, separate rooms for culturing algae and maintaining small aquaria are available. Seawater is obtained from Mobile Bay via the Estuarium's intake pump and stored in outdoor storage tanks until needed. When water is needed for a particular system, it is brought into the building; the salinity adjusted as needed, and placed in a head tank. Each head tank gravity feeds an experimental system before draining to a sump where the water is returned to the head tank via a filtration circuit.



Map 3. Layout of wet lab facilities at DISL.

The Estuarium is an exciting educational facility highlighting the four key habitats of coastal Alabama: the Mobile Tensaw River Delta, Mobile Bay, the Barrier Islands and the Northern Gulf of Mexico. It includes the 10,000 square foot Exhibit Hall and Living Marsh Boardwalk. This facility is a showcase of the plants, animals, and other natural resources found in the Estuary and its surrounding marine habitats.

Through beautiful visual exhibits and engaging interactive exhibits, the Estuarium will leave you with a broader understanding of the interactions that take place in Mobile Bay, the fourth largest estuary system in the United States.

The Auburn University Shellfish Lab (AUSL) located on Dauphin Island, is a unit of the Auburn University College of Agriculture's Department of Fisheries and Allied Aquaculture and is located on land leased from the Dauphin Island Sea Lab. The facility includes 3452-square-feet of office and laboratory space and 4151-square-

feet of hatchery space under the building. Incorporated into the office and laboratory space are a microbiology laboratory, water quality laboratory, self-contained algae laboratory, large conference room, student offices, and visiting scientist offices. The hatchery features experimental and production tanks ranging in size from 30 gallons to 250 gallons.

In addition to the Dauphin Island campus, the University of Alabama owns 253 acres of undisturbed marsh on Point aux Pins on the north side of the Mississippi Sound. The west side of the point is bounded by Grand Bay, which is one of the least polluted bodies of water on the Gulf Coast, and a rich habitat for avifauna.

d) Instructional Faculty

The majority of instructors come from the Department of Marine Sciences faculty or the DISL scientific or education staff.

Resident Faculty- University Programs	Summer Program Faculty- University Programs (Home Institution)
Richard B. Aronson, Ph.D.	Yolanda J. Brady, Ph.D. (Auburn University)
Just Cebrian, Ph.D.	Paul D. Gamlin, Ph.D. (University of Alabama - Birmingham)
George F. Crozier, Ph.D.	Tracey S. Jones, Ph.D. (Univ. of Tennessee - Chattanooga)
Michael R. Dardeau, M.S.	Kent T. Keyser, Ph.D. (University of Alabama – Birmingham)
John J. Dindo, Ph.D.	Tina Miller-Way, Ph.D. (University of Mobile)
William M. Graham, Ph.D.	Jack J. O’Brien, Jr., Ph.D. (University of South Alabama)
Kenneth L. Heck, Jr., Ph.D.	James Rayburn, Ph.D. (Jacksonville State University)
Ronald P. Kiene, Ph.D.	Gerald T. Regan, Ph.D. (Springhill College – Retired)
Hugh MacIntyre, Ph.D.	Timothy M. Rice, Ph.D. (University of South Alabama)
Keong Park, Ph. D.	Terry D. Richardson, Ph.D. (University of North Alabama)
Sean P. Powers, Ph.D.	Robert L. Shipp, Ph.D. (University of South Alabama)
William W. Schroeder, Ph.D.	LaDon Swann, Ph.D. (Auburn University)
John F. Valentine, Ph.D.	

Resident Faculty- Discovery Hall Programs
Jenny Cook, M.S.
Greg Graeber
Mendel Graeber
David Nadeau, M.S.
Joan Turner
Hazel Wilson

e) Summer Courses

Course Title	Credit Hours	When Offered
Advanced Anatomy & Evolution of Marine Fishes	3	Second Session
Coastal Birds of Alabama	2	May Term
Coastal Geomorphology	2	First Session
Coral Reef Ecology	4	May Term
Coastal Zone Management	2	May Term
Dolphins and Whales	2	May Term
Introduction to Neurobiology	4	Second Session
Introduction to Oceanography	4	First Session
Marine Aquaculture	2	First Session
Marine Behavioral Ecology	4	Second Session
Marine Biology	4	First & Second Session
Marine Botany	4	First Session
Marine Ecology	4	First Session
Marine Fish Diseases	4	First Session
Marine Geology	4	Second Session
Marine Invertebrate Zoology	4	First Session
Marine Technical Methods	2	First & Second Session
Marine Toxicology	4	First Session
Marine Vertebrate Zoology	4	Second Session
Marsh Conservation	4	Second Session
Tropical Marine Ecosystems	4	First Session
Directed Studies	Variable	All Sessions
Exploring the Florida Keys - Teacher Workshop	4*	End of May
Beaches, Birds & Barrier Islands - Teacher Workshop	3*	Mid July
Coastal Connections-Linking Watersheds to the Gulf of Mexico - Teacher Workshop	3*	Mid July
Grasses, Groupers & Gastropods - Teacher Workshop	3*	End of July
Centers for Ocean Science Excellence in Education (COSEE) - Teacher Workshop	4*	End of February
Marine Application of Science and Technology - Teacher Workshop	3*	Early & Mid June

(*) Workshops can be attended for graduate credit for a small fee. May Session usually held middle to end of May; First session usually early June- early July; Second session usually early July – early August.

II. Maps and Driving Directions

a) Directions to Dauphin Island Sea Lab and the Estuarium-

The Dauphin Island Sea Lab is located 35 miles south of Mobile at 101 Bienville Boulevard, Dauphin Island, Alabama. If you are traveling East or West on I-10, take Exit #17A to Dauphin Island. This will take you onto Route 193 South, also known as "Rangeline Road." Follow Rt. 193 South all the way down to Dauphin Island. Once you're on the island, take a left at the Water Tower onto Bienville Boulevard. The Sea Lab is located two miles from there. Parking facilities are available.



Map 4. Dauphin Island Sea Lab, Dauphin Island in relation to I-10.

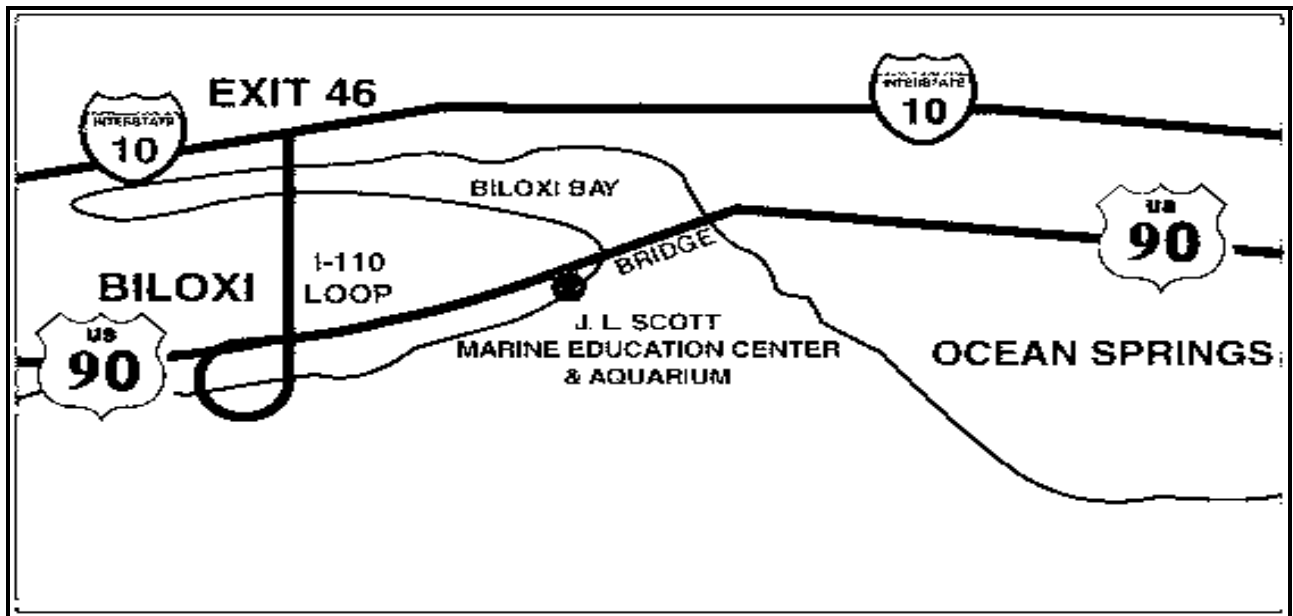
Map 5. Enlargement of east portion of Dauphin Island.



The Estuarium	
Hours of Operation: Open 7 days a week.	
Summer hours March 1 - August 31 Monday - Saturday: 9:00 am to 6:00 pm Sunday: 12:00 pm to 6:00 pm	Winter hours September 1 - February 28/29 Monday - Saturday: 9:00 am to 5:00 pm Sunday: 1:00 pm to 5:00 pm
Admission - Group rates available. For group scheduling contact: Denise Keaton (dkeaton@disl.org); 251-861-7515	

b) Directions to J. L. Scott Marine Education Center and Aquarium

The J. L. Scott Marine Education Center and Aquarium is located at 115 Beach Boulevard (U.S. Highway 90) in Biloxi, Mississippi at the western end of the Biloxi Bay Bridge. From I-10 take the I-110 Exit (#46). From I-110, take the Ocean Springs exit to U.S. Highway 90 and travel east 2 miles. Use the Isle of Capri entrance and go east at the traffic circle.

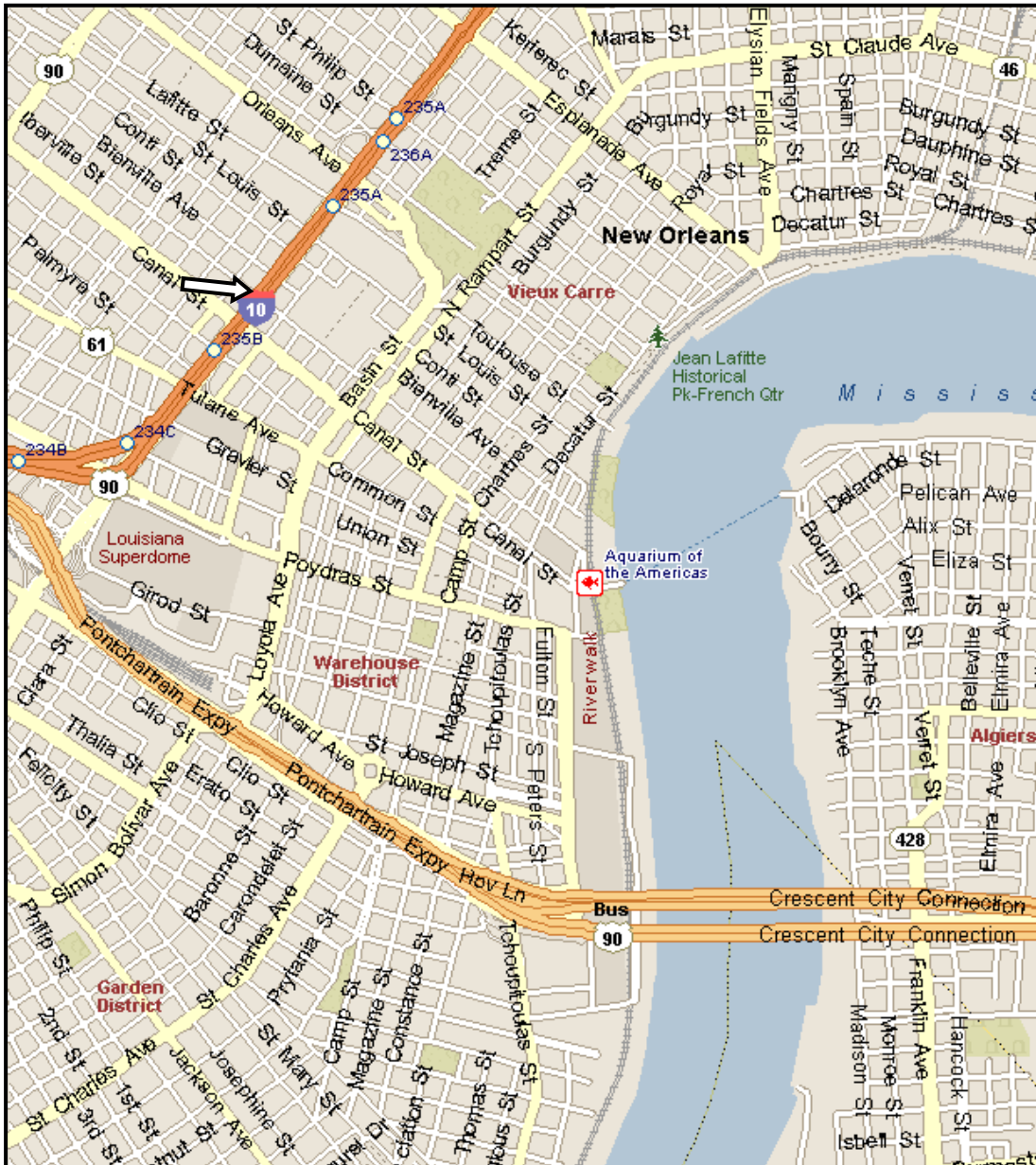


Map 6. Location of J. L. Scott Marine Education Center & Aquarium in relation to I-10, I-110 and Hwy 90.

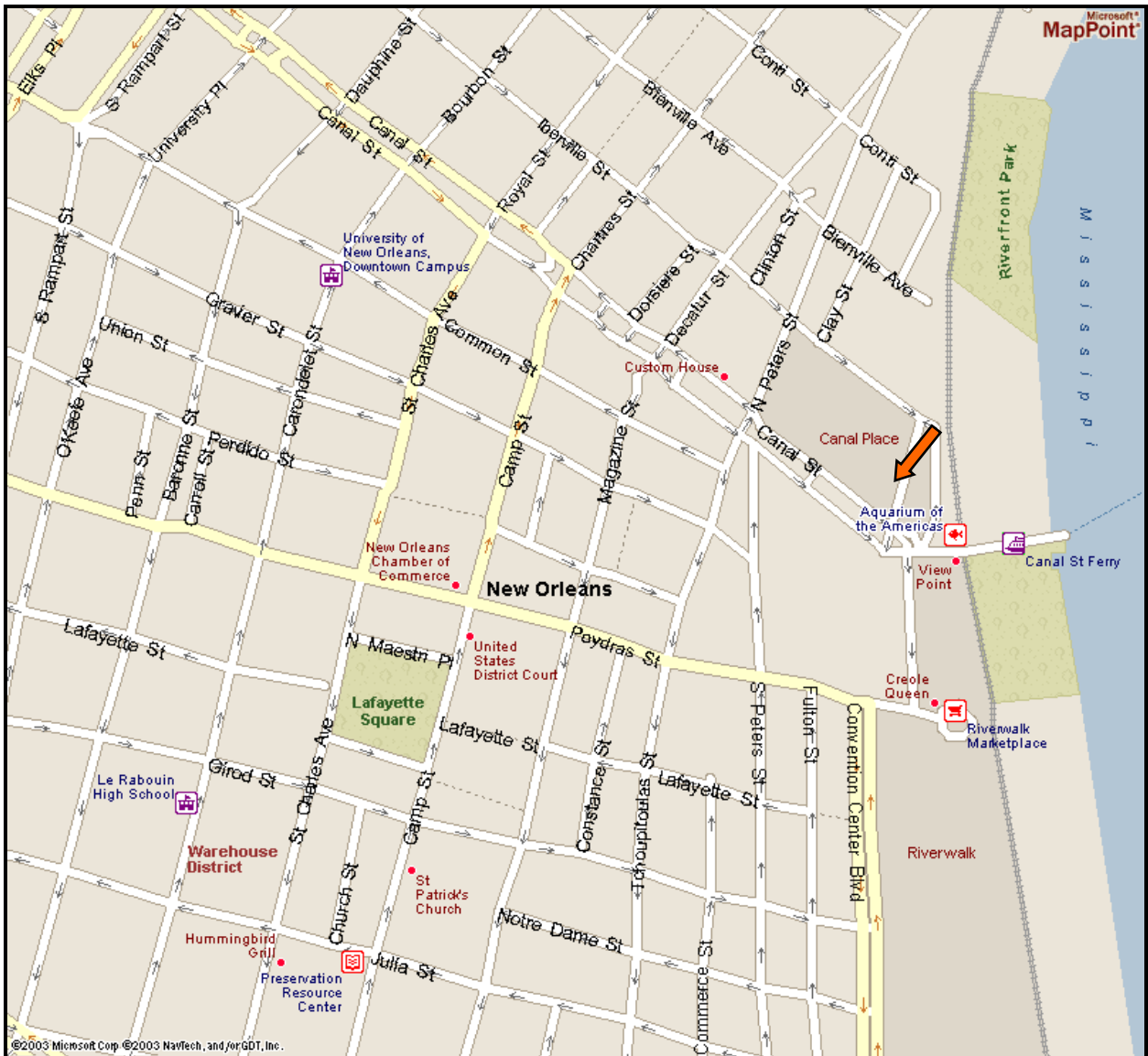
Hours of Operation: Open daily from 9:00 am to 4:00 pm Closed Sundays.	Admission: Group rates available For Group Scheduling call 228-374-5550.
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c) Directions to the Audubon Aquarium of the Americas, New Orleans

Via Interstate 10 West: Take I-10 west to New Orleans. Exit at the Canal/Superdome (exit 235B), turning right onto Canal. The Aquarium/IMAX® is located at the foot of Canal Street at the Mississippi River.



Map 7. Route to Aquarium of the Americas from I-10 (exit 235B) in New Orleans.



Map 8. Enlargement of Canal Street, Aquarium and surrounding area.

Hours:

Sunday through Thursday:
9:30 am to 6 pm
Friday and Saturday:
9:30 am to 7 pm

Ticket Prices:

Group reservations at (504) 581-4629 or
1-800-774-7394
50% non refundable deposit is due 2 weeks
before visit

III. Species lists, habitat descriptions, and sampling gear-

a) Muddy/Sandy Bottoms - Unvegetated bottoms of sounds, lagoons, estuaries and river mouths. Exposed at low tide, usually submerged at high tide. Sometimes associated with tide pools.

Inshore

Fish

Atlantic stingray	<i>Dasyatis sabina</i>
bay anchovy	<i>Anchoa mitchilli</i>
inland silverside	<i>Menidia beryllina</i>
Gulf menhaden	<i>Brevoortia patronus</i>
threadfin shad	<i>Dorosoma petenense</i>
scaled sardine	<i>Harengula jaguana</i>
sand seatrout	<i>Cynoscion arenarius</i>
spotted seatrout	<i>Cynoscion nebulosus</i>
Atlantic croaker	<i>Micropogonias undulatus</i>
silver perch	<i>Bairdiella chrysoura</i>
southern kingfish (ground mullet)	<i>Menticirrhus americanus</i>
southern flounder	<i>Paralichthys lethostigma</i>
bay whiff	<i>Citharichthys spilopterus</i>
fringed flounder	<i>Etropus crossotus</i>
hogchoker	<i>Trinectes maculatus</i>
lined sole	<i>Achirus lineatus</i>
blackcheek tonguefish	<i>Symphurus plagiusa</i>
offshore tonguefish	<i>Symphurus civitatus</i>
Atlantic cutlass fish	<i>Trichiurus lepturus</i>
pinfish	<i>Lagodon rhomboides</i>
sheepshead	<i>Archosargus probatocephalus</i>
pigfish	<i>Orthopristis chrysoptera</i>
inshore lizard fish	<i>Synodus foetens</i>
longnose killifish	<i>Fundulus similis</i>
gulf killifish	<i>Fundulus grandis</i>
sheepshead minnow	<i>Cyprinidon variegatus</i>
sailfin molly	<i>Poecilia latipinna</i>
hardhead catfish	<i>Arius felis</i>
Atlantic needlefish	<i>Strongylura marina</i>
planehead filefish (juvenile)	<i>Monochanthus hispidus</i>
lookdown (juvenile)	<i>Selene vomer</i>
leatherjacket	<i>Oligoplites saurus</i>
Spanish mackerel (juvenile)	<i>Scomberomorus maculatus</i>
northern sennet (juvenile)	<i>Sphyraena borealis</i>
white mullet	<i>Mugil curema</i>
striped mullet	<i>Mugil cephalus</i>
Atlantic cutlassfish	<i>Trichiurus lepturus</i>
Gulf butterfish	<i>Peprilus burti</i>
harvestfish	<i>Peprilus alepidotus</i>
striped burrfish	<i>Chilomycterus schoepfi</i>

Invertebrates

mantis shrimp
white shrimp
brown shrimp
grass shrimp
ghost shrimp
brief squid
blue crab
horseshoe crab
striped hermit crab
long-wristed hermit crab
grey sea star

Squilla empusa
Litopenaeus setiferus
Farfantepenaeus aztecus
Palaemonetes spp.
Callinassa biformis
Lolliguncula brevis
Callinectes sapidus
Limulus polyphemus
Clibanarius vittatus
Pagurus longicarpus
Luidia clathrata

Offshore**Fish**

southern kingfish
silver seatrout
white seatrout
Atlantic croaker
spot
pinfish
dwarf sand perch
rock sea bass
Gulf menhaden
scaled sardine
striped anchovy
dusky anchovy
bay anchovy
Gulf butterfish
harvestfish
inshore lizardfish
offshore lizardfish
Longspined porgy
bigeye searobin
bigheaded searobin
shoal flounder
fringed flounder
southern flounder
bay whiff
blackcheek tonguefish
offshore tonguefish
lookdown (juvenile)
Atlantic moonfish
blue runner (hardtail)
Atlantic bumper
hardhead catfish
gafftopsail catfish
blackedged cusk-eel
shrimp eel
least puffer
planehead filefish

Menticirrhus americanus
Cynoscion nothus
Cynoscion arenarius
Micropogonias undulatus
Leiostomus xanthurus
Lagodon rhomboides
Diplectrum bivittatum
Centropristis philadelphica
Brevoortia patronus
Harengula jaguana
Anchoa hepsetus
Anchoa lyolepis
Anchoa mitchilli
Peprilus burti
Peprilus aepidodus
Saurida brasiliensis
Synodus fotens
Stenotomus caprinus
Prinotus longispinosus
Prinotus tribulus
Syacium gunteri
Etropus crossotus
Paralichthys lethostigma
Citharichthys spilopterus
Symphurus plagiusa
Symphurus civitatus
Selene vomer
Selene setapinnis
Caranx crysos
Chloroscombrus chrysurus
Arius felis
Bagre marinus
Lepophidium brevibarbe
Ophichthus gomesi
Sphoeroides parvus
Monochanthus hispidus

Invertebrates

lesser blue crab
 blue crab
 spider crab
 purse crab
 flat-clawed hermit crab
 box crab
 white shrimp
 brown shrimp
 leanback shrimp
 rock shrimp
 slender inshore squid
 longfinned squid
 spiny-beaded sea star
 grey sea star

Callinectes similis
Callinectes sapidus
Libinia dubia
Persephona mediterranea
Pagurus pollicaris
Calappa spp.
Litopenaeus setiferus
Farfantepenaeus aztecus
Trachypenaeus similis
Sicyonia dorsalis
Loligo plei
Loligo pealeii
Astropecten duplicatus
Luidia clathrata

b) Seagrass - submerged aquatic vegetation on shallow, quiet nearshore bottoms. Species dependant on salinity. High faunal abundance and diversity. *Thalassia testudinum*, *Halodule wrightii* and *Ruppia maritima* predominate.

Fish

silver perch
 bay anchovy
 least puffer
 inland silverside
 pinfish
 pipefish
 seahorse
 southern kingfish (ground mullet)
 Atlantic croaker
 pigfish
 speckled seatrout
 inshore lizard fish
 spot
 bighead searobin
 silver jenny
 striped burrfish
 Gulf toadfish
 white mullet
 striped mullet

Bairdiella chrysoura
Anchoa mitchilli
Sphoeroides parvus
Menidia beryllina
Lagodon rhomboides
Syngnathus spp.
Hippocampus spp.
Menticirrhus americanus
Micropogonias undulatus
Orthopristis chrysoptera
Cynoscion nebulosus
Synodus foetens
Leiostomus xanthurus
Prinotus tribulus
Eucinostomus gula
Chilomycterus schoepfi
Opsanus beta
Mugil curema
Mugil cephalus

Invertebrates

blue crab
 striped hermit crab
 long-wristed hermit crab
 grass shrimp
 arrow shrimp
 brown shrimp
 white shrimp
 pen shells
 quahog (hard clam)
 Giant Atlantic cockle

Callinectes sapidus
Clibanarius vittatus
Pagurus longicarpus
Palaemonetes spp.
Tozeuma carolinense
Farfantepenaeus aztecus
Litopenaeus setiferus
Atrina spp.
Mercenaria mercenaria
Dinocardium robustum

c) Oyster Reefs - intertidal and subtidal structures composed of live oysters, oyster shell and distinct invertebrate communities. The only naturally occurring hard substrate in coastal Alabama.

Fish

Gulf toadfish	<i>Opsanus beta</i>
skilletfish	<i>Gobiosox strunosus</i>
naked goby	<i>Gobiosoma bosc</i>
code goby	<i>Gobiosoma robustum</i>
darter goby	<i>Gobionellus boleosoma</i>
striped blenny	<i>Chasmodes bosquianus</i>
spadefish	<i>Chaetodipterus faber</i>
bighead searobin	<i>Prinotus tribulus</i>
pinfish	<i>Lagodon rhomboides</i>
sheepshead	<i>Archosargus probatocephalus</i>

Invertebrates

grass shrimp	<i>Palaemonetes spp.</i>
snapping shrimp	<i>Alpheus heterochaelis</i>
striped hermit crab	<i>Clibanarius vittatus</i>
blue crab	<i>Callinectes sapidus</i>
flat-backed mud crab	<i>Eurypanopeus depressus</i>
Atlantic mud crab	<i>Panopeus herbstii</i>
stone crab	<i>Menippe adinia</i>
oysters	<i>Crassostrea virginica</i>
oyster drill	<i>Stramonita haemastoma</i>

d) Salt Marsh - regularly flooded, low-energy shoreline vegetated by salt-tolerant herbaceous plants. Zonation due to influence of tidal patterns. *Juncus*, *Spartina alterniflora* and *Distichlis spicata*.

Fish

naked goby	<i>Gobiosoma bosc</i>
code goby	<i>Gobiosoma robustum</i>
darter goby	<i>Gobionellus boleosoma</i>
striped blenny	<i>Chasmodes bosquianus</i>
pinfish	<i>Lagodon rhomboides</i>
killifish	<i>Fundulus spp.</i>
sheepshead minnow	<i>Cyprinidon variegatus</i>
sailfin molly	<i>Poecilia latipinna</i>
spot	<i>Leiostomus xanthurus</i>
silversides	<i>Menidia spp.</i>
mullet	<i>Mugil spp.</i>

Invertebrates

fiddler crabs
 grass shrimp
 snapping shrimp
 white shrimp
 striped hermit crab
 blue crab
 flat-backed mud crab
 Atlantic mud crab
 stone crab
 oysters
 oyster drill
 ribbed mussel
 marsh periwinkle
 olive nerite
 mud snail

Uca spp.
Palaemonetes spp.
Alpheus heterochaelis
Penaeus setiferus
Clibanarius vittatus
Callinectes sapidus
Eurypanopeus depressus
Panopeus herbstii
Menippe adinia
Crassostrea virginica
Stramonita haemastoma
Geukensia demissa
Littoraria irrorata
Neritina virginea
Nassarius vibex

e) Rock Jetties - Rocky intertidal habitats limited to man-made jetties, groins and sea walls. Encrusting organisms (oysters, barnacles) can be found. The crevices offer sanctuary for numerous crab and fish species.

Fish

blennies
 spadefish
 pinfish
 spottail pinfish
 sheepshead
 grey snapper
 cocoa damsels
 slippery richard
 mullet
 belted sandfish
 sergeant majors

Hypleurochilus spp.
Chaetodipterus faber
Lagodon rhomboides
Diplodus holbrooki
Archosargus probatocephalus
Lutjanus griseus
Pomacentrus variabilis
Halichoeres bivittatus
Mugil spp
Serranus subligarius
Abudefduf saxatilis

Invertebrates

barnacles
 black urchin
 spider crabs
 hermit crabs
 blue crab
 stone crab
 oyster drill
 sea whips
 sea hares
 hard corals
 sponges

Balanus spp; Chthamalus spp.
Arbacia punctulata
Mithrax spp.
Clibanarius vittatus; Pagurus spp.
Callinectes sapidus
Menippe adinia
Stramonita haemastoma
Leptogorgia spp.
Aplysia brasiliana
Astrangia spp; Oculina diffusa

f) Surf Zone - beaches where wave and current action produce erosion patterns (high energy); beaches within estuaries where fine sediment is deposited (low energy)

Fish

striped anchovy	<i>Anchoa hepsetus</i>
dusky anchovy	<i>Anchoa lyolepis</i>
bay anchovy	<i>Anchoa mitchilli</i>
inland silverside	<i>Menidia beryllina</i>
scaled sardine	<i>Harengula jaguana</i>
Gulf menhaden	<i>Brevoortia patronus</i>
permit (juvenile)	<i>Trachinotus falcatus</i>
Florida pompano (juvenile)	<i>Trachinotus carolinus</i>
Spot	<i>Leiostomus xanthurus</i>
Gulf kingfish	<i>Menticirrhus saxatilis</i>
southern kingfish	<i>Menticirrhus americanus</i>
striped mullet	<i>Mugil cephalus</i>
white mullet	<i>Mugil curema</i>
Atlantic stingray	<i>Dasyatis sabina</i>

Invertebrates

common mole crab	<i>Emerita talpoida</i>
square-eyed mole crab	<i>Lepidopa websteri</i>
long-wristed hermit crab	<i>Pagurus longicarpus</i>
lady crab	<i>Ovalipes ocellatus</i>
blue crab	<i>Callinectes sapidus</i>
sand dollar	<i>Mellita quinquiesperforata</i>
coquina clam	<i>Donax variabilis</i>
giant cockle	<i>Dinocardium robustum</i>
knobbed welk	<i>Busycon carica</i>
lightning welk	<i>Busycon contarium</i>

g) List of commonly caught recreational fish species in Alabama waters

Inshore Species		Offshore Species	
White seatrout	<i>Cynoscion arenarius</i>	Cobia	<i>Rachycentron canadum</i>
Spotted seatrout	<i>Cynoscion nebulosus</i>	Spanish mackerel	<i>Scomberomorus maculatus</i>
Atlantic croaker	<i>Micropogonias undulatus</i>	Red snapper	<i>Lutjanus campechanus</i>
Spot	<i>Leiostomus xanthurus</i>	Dolphinfish	<i>Coryphaena hippurus</i>
Black drum	<i>Pogonias cromis</i>	Gag grouper	<i>Mycteroperca microlepis</i>
Red drum	<i>Sciaenops ocellatus</i>	Blue runner (hardtail)	<i>Caranx crysos</i>
Southern flounder	<i>Paralichthys lethostigma</i>	Black tip shark	<i>Carcharhinus limbatus</i>
Sheepshead	<i>Archosargus probatocephalus</i>	Spinner shark	<i>Carcharhinus brevipinna</i>
Hardhead catfish	<i>Arius felis</i>	Tripletail	<i>Lobotes surinamensis</i>

h) Sampling gear in various habitat types

Habitat Type	Gear Type	Availability
Sea grass	Trawl, Seine net, Dip net, Snorkel & mask, Cast net, Hook and line	All are available for summer classes
Muddy/sandy bottom Inshore and Offshore	Trawl, Seine net, Dip net, Yabby pump, Hook and line, Cast net	All are available for summer classes
Oyster reefs	Trawl, Hook and line, Cast net	All are available for summer classes
Salt Marsh	Seine, quadrats	All are available for summer classes
Rock Jetties	Snorkel & mask, personal observation	
Surf zone	Seine net, Dip net, Cast net, Hook and line, Yabby pump	All are available for summer classes

i) Study Sites for various habitat types

Habitat Type	Study Site
Seagrass	Point aux Pins - <i>Halodule wrightii</i> ; <i>Ruppia maritima</i> Perdido Key (Big Lagoon) - <i>Thalassia testudinum</i> ; <i>Haldoule wrightii</i> St. Joseph's Bay (Port St. Joe) - <i>Thalassia testudinum</i> ; <i>Haldoule wrightii</i>
Muddy/Sandy Bottom Inshore and Offshore	Point aux Pins Perdido Key (Big Lagoon) St. Joseph's Bay (Port St. Joe) Dauphin Island (Airport and Little Dauphin Island)
Oyster Reefs	Point aux Pins Dauphin Island (Airport)
Salt Marsh	Point aux Pins - <i>Spartina alterniflora</i> and <i>Juncus roemerianus</i> Dauphin Island (Airport) - <i>Spartina alterniflora</i> and <i>Juncus roemerianus</i>
Rock Jetties (Hard Substrate)	East end Dauphin Island- intertidal St Andrew's State Park- intertidal and subtidal
Surf Zone	Dauphin Island- south side Sand Island Perdido Key- south side



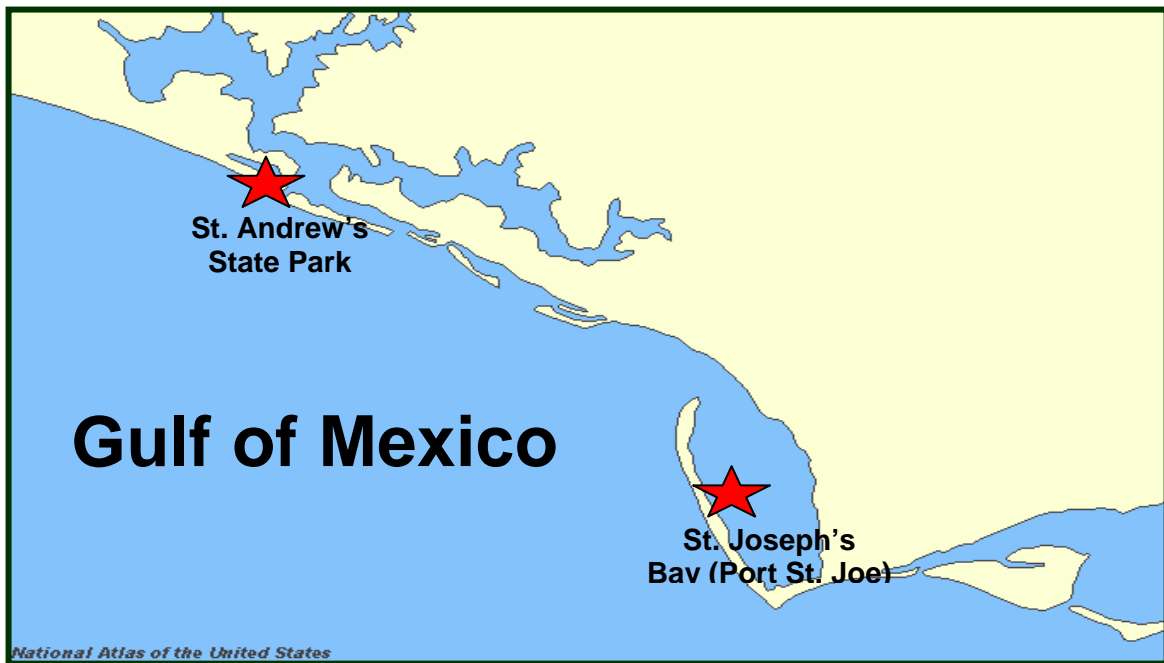
Map 9. Location of Study Sites



Map 9a. Detailed map of western most study sites



Map 9b. Detailed Map of Perdido Key Study Site



Map 9c. Detailed Map of eastern most study sites

IV. Scientific collection permit information-

Louisiana

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V. Regional literature-

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VI. Appendices-

Appendix A. Dauphin Island Sea Lab Summer Program Affiliate Listing

Alabama State University, Montgomery, AL
Athens State University, Athens, AL
Auburn University, Auburn, AL
Auburn University at Montgomery, Montgomery, AL
Birmingham Southern College, Birmingham, AL
Huntingdon College, Montgomery, AL
Jacksonville State University, Jacksonville, AL
Judson College, Marion, AL
Samford University, Birmingham, AL
Spring Hill College, Mobile, AL
Talladega College, Talladega, AL
Troy State University, Troy, AL
Troy State University at Dothan, Dothan, AL
Tuskegee University, Tuskegee, AL
University of Alabama, Tuscaloosa, AL
University of Alabama at Birmingham, Birmingham, AL
University of Alabama in Huntsville, Huntsville, AL
University of Mobile, Mobile, AL
University of Montevallo, Montevallo, AL
University of North Alabama, Florence, AL
University of South Alabama, Mobile, AL
University of West Alabama, Livingston, AL

Appendix B. Common organism photographs



Grey Snapper, *Lutjanus griseus*



Red grouper, *Epinephelus morio*



Tripletail, *Lobotes surinamensis*



Red snapper, *Lutjanus campechanus*



Silver perch, *Bairdiella chrysoura*



Dolphinfish, *Coryphaena hippurus*



Cobia, *Rachycentron canadum*



Greater amberjack, *Seriola dumerilli*



Red drum, *Sciaenops ocellatus*



Gulf sturgeon, *Acipenser oxyrinchus desoti*



Southern flounder, *Paralichthys lethostigma*



Gulf butterfish, *Peprilus burti*



Atlantic spadefish, *Chaetodipterus faber*



Sheepshead, *Archosargus probatocephalus*



Atlantic croaker, *Micropogonias undulatus*



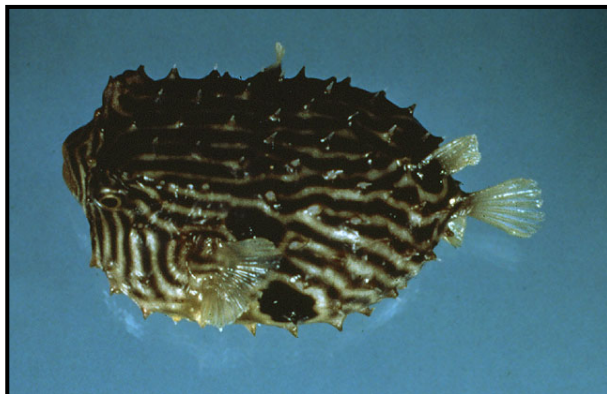
Spot, *Leiostomus xanthurus*



Southern kingfish, *Menticirrhus americanus*



Spotted seatrout, *Cynoscion nebulosus*



Striped burrfish, *Chilomycterus schoepfii*



Atlantic cutlassfish, *Trichiurus lepturus*



White shrimp, *Litopenaeus setiferus*



Brown shrimp, *Farfantepenaeus aztecus*



Pink shrimp, *Farfantepenaeus duorarum*



Blue crab, *Callinectes sapidus*



Box crab, *Calappa* sp.

Appendix C. Seagrass coverage maps based on 1992 data from the Point aux Pins, Alabama through St. Joseph's Bay, Florida. Image 1 is a detailed view of Mobile Bay, Alabama and associated islands. Image 2 is a detailed view of Perdido Bay and Pensacola Bay, Florida. Image 3 is a detailed view of St Andrew's bay, Florida through St. Joseph's Bay Florida.

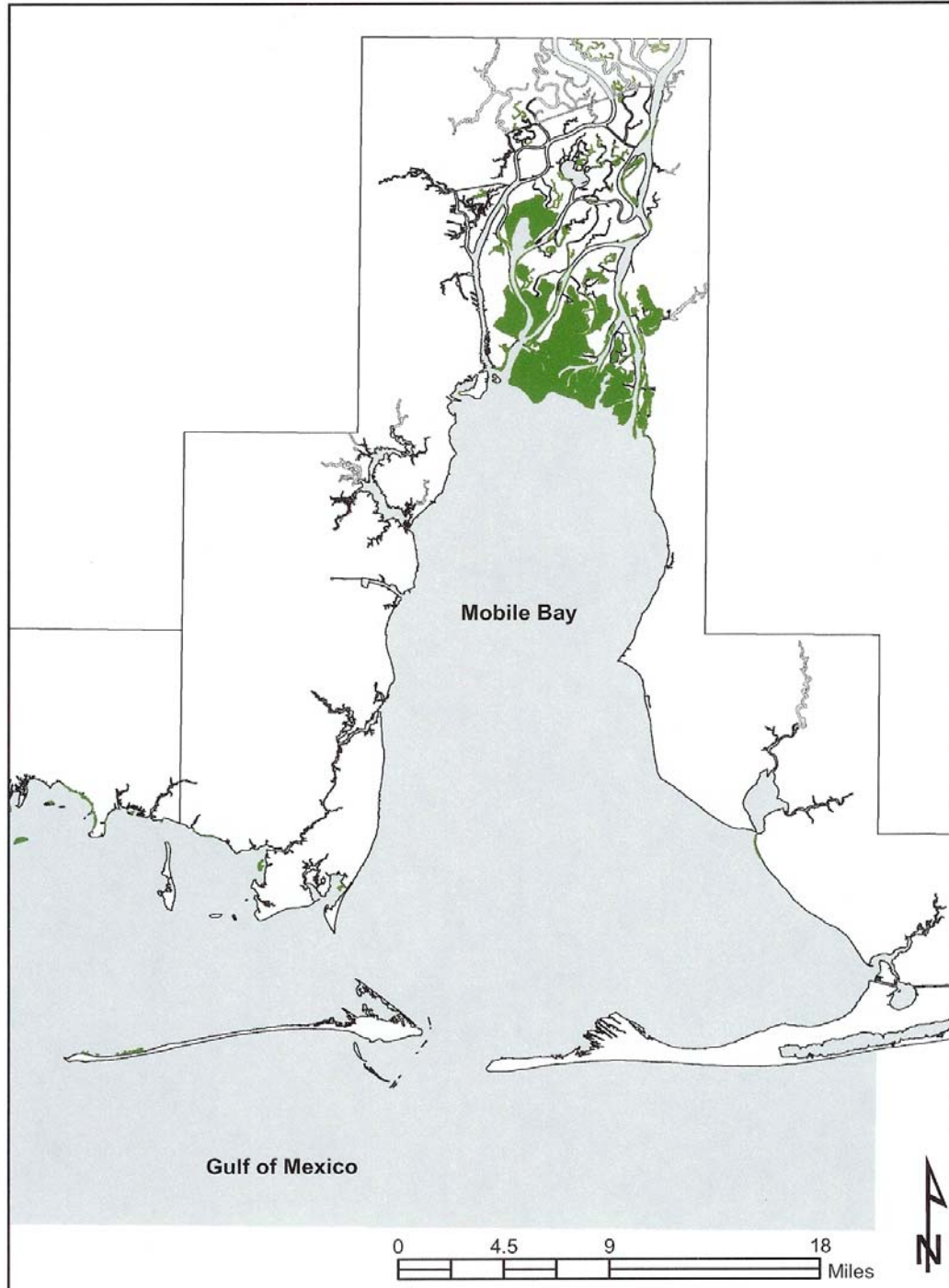


Image 1.

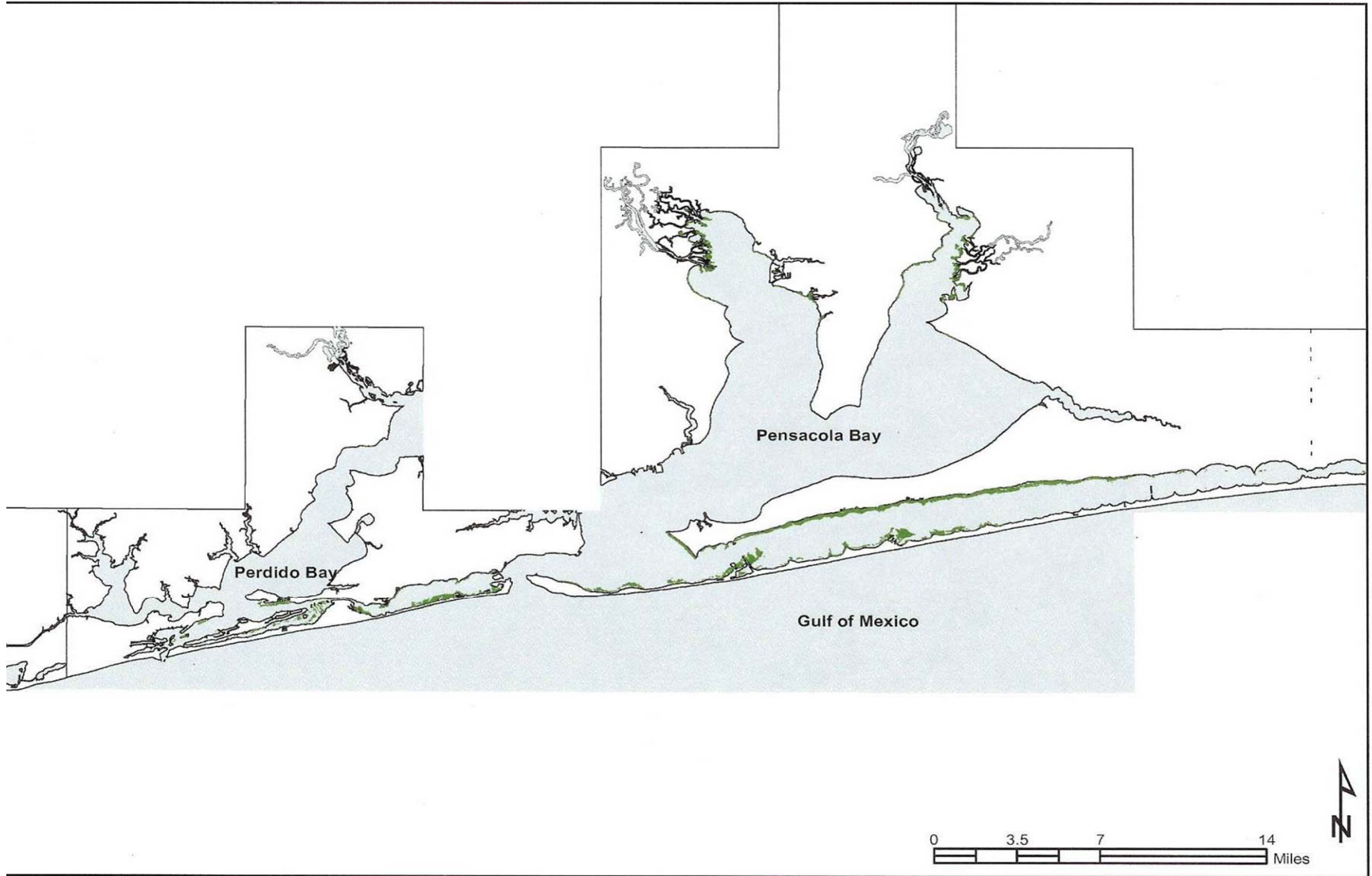


Image 2.

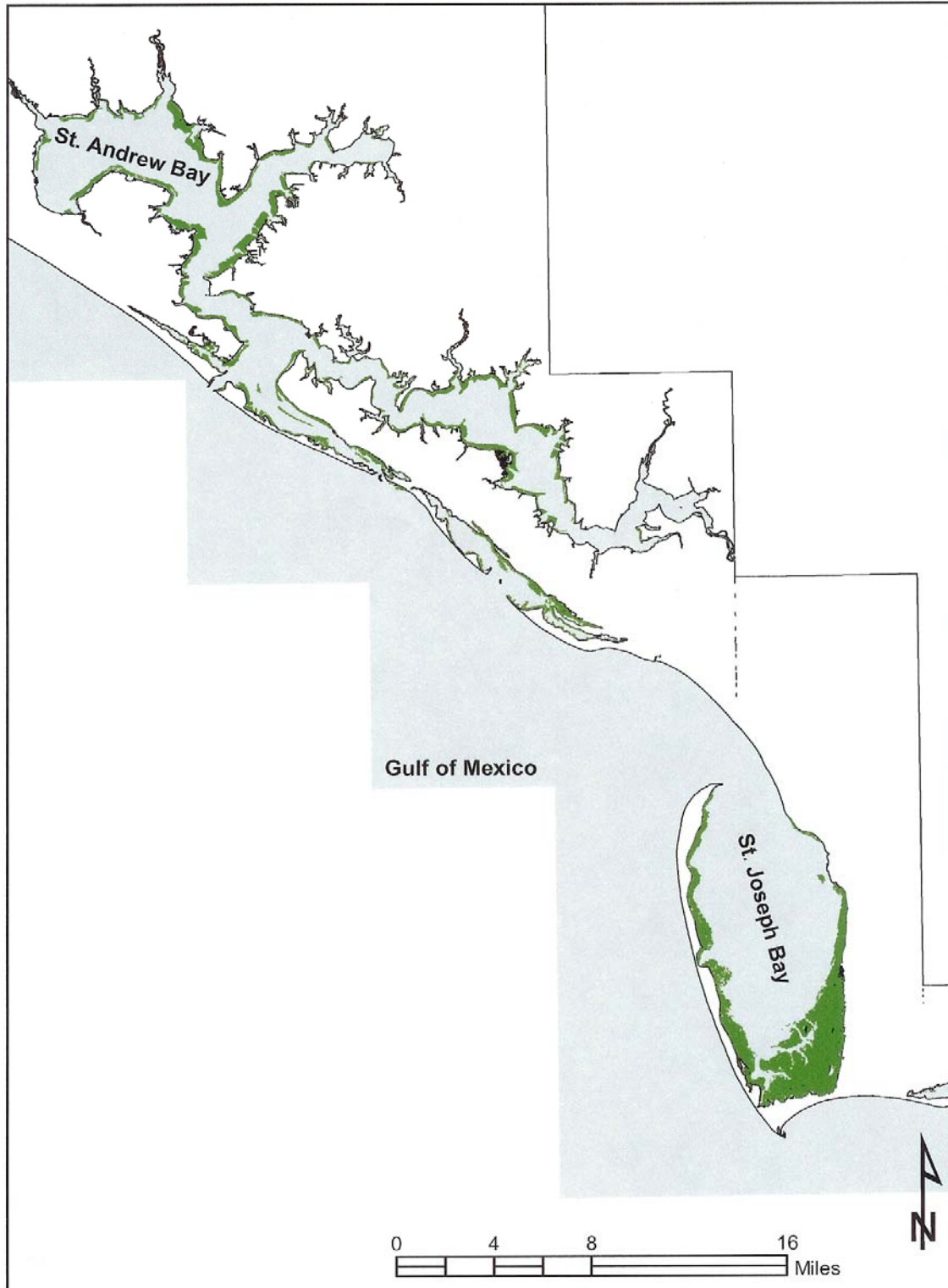


Image 3.