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## ABSTRACT

As part of the Professional Development Workshop at Calhoun Community College, the Department of Natural Sciences conducted the third annual Spring Wilderness Pilgrimage in March 1989, a week-long environmental awareness field trip for faculty and staff. Designed as a study of the plants and animals on a barrier island off the coast of Florida, the trip included nature hikes, a shrimp feast, photomicroscopy of marine life, mollusk identification, seashell collecting, and leisure time on the beach. This guidebook, for use by field trip participants, provides information on the flora and fauna studied during the trip, and includes background information, maps, tide charts, and other reference materials. The guide includes the following components: an article describing typical encounters and experiences on Dog Island; a map outlining the travel route of the group; a detail map of the island; an itinerary of activities; a list of group participants; tide tables and geographical coordinates; and lists of visible astronomical phenomenon, birds, mollusks, and plants. The section on mollusks discusses shell identification, classification keys for shell families, shell tips, live clam observation, and mussel (clam) dissection. An extensive section on plants, provides a key to Dog Island plants, a checklist of common plants on the island, and divisions of plants by species, type, distinctive features, flowering season, and habitat. The guide concludes with references and a passage from Oliver Wendell Holmes's poem "The Chambered Nautilus."  
 (JMC)

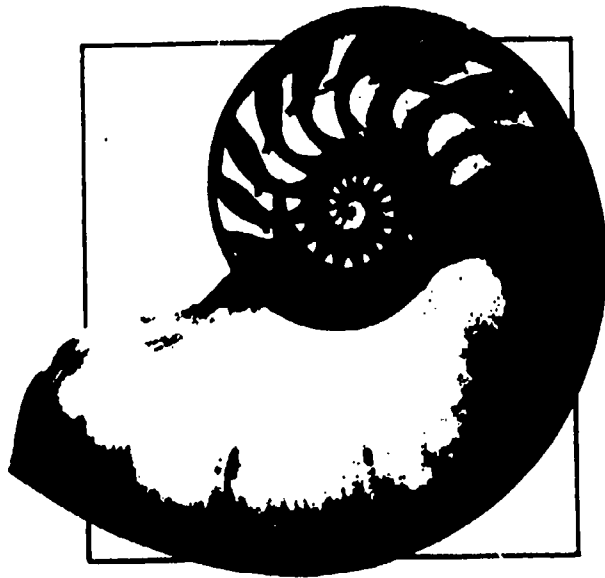
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# Barrier Island Ecology

A Professional Development  
activity for faculty and staff  
of  
Calhoun Community College

March 7-12, 1989  
on  
Dog Island, Florida

## Field Trip Reference Booklet



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## FORWARD

As each of you join this spring pilgrimage you are stepping from your everyday world onto the sand of the beach on Dog Island. May you find there rest and a renewed appreciation for the complex balance of our natural surroundings.

Included in the following pages is useful information for references on the local flora and fauna. Maps, time and tide charts are also included for your convenience. Use this information only as a base for new discoveries during this time of professional development.

Man was given responsibility for dominion over Nature. His place in the hierarchy of creation is referred to again and again in the Old Testament, but nowhere in more expressive terms than by David in the 8th Psalm:

"Thou madest him to have dominion over the works of thy hands; thou has put all things under his feet: All sheep and oxen, yea, and the beasts of the field; The fowl of the air, and the fish of the sea, and whatsoever passeth through the paths of the seas!

Only by increased knowledge and awareness can we better accept this Divine responsibility.

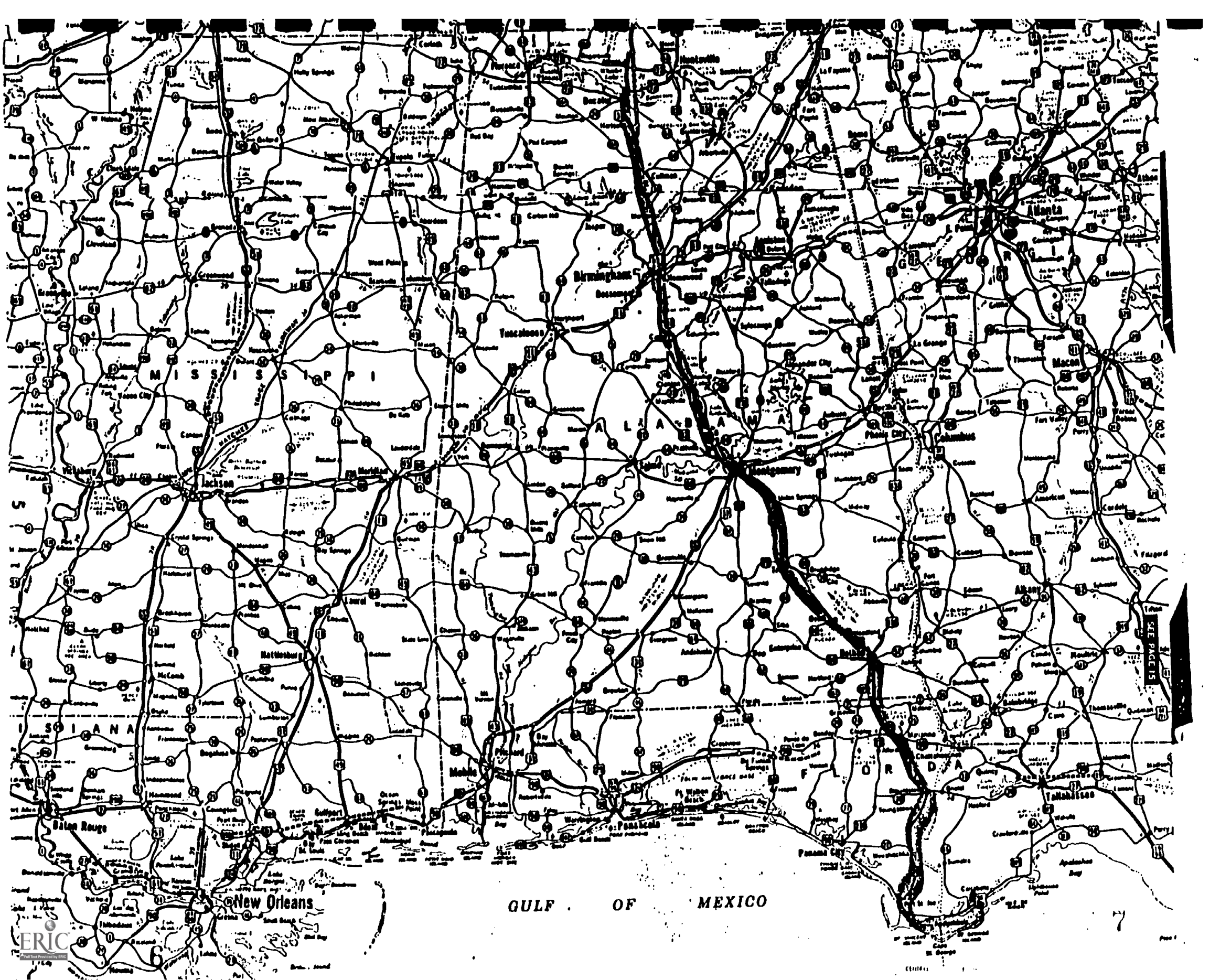
## Table of Contents

Forward.....	1
Table of Contents.....	2
"The Long, Peaceful Days of Dog Island".....(REMOVED)	3
Travel Map.....	5
Map of Dog Island.....	6
Itinerary.....	7
List of Participants.....	8
Tide Tables and Geographical Coordinates.....	9
Astronomy.....	10
Birds.....	12
Mollusks.....	14
Plants.....	24
References.....	41
"The Chambered Nautilus".....	45

Article Titled

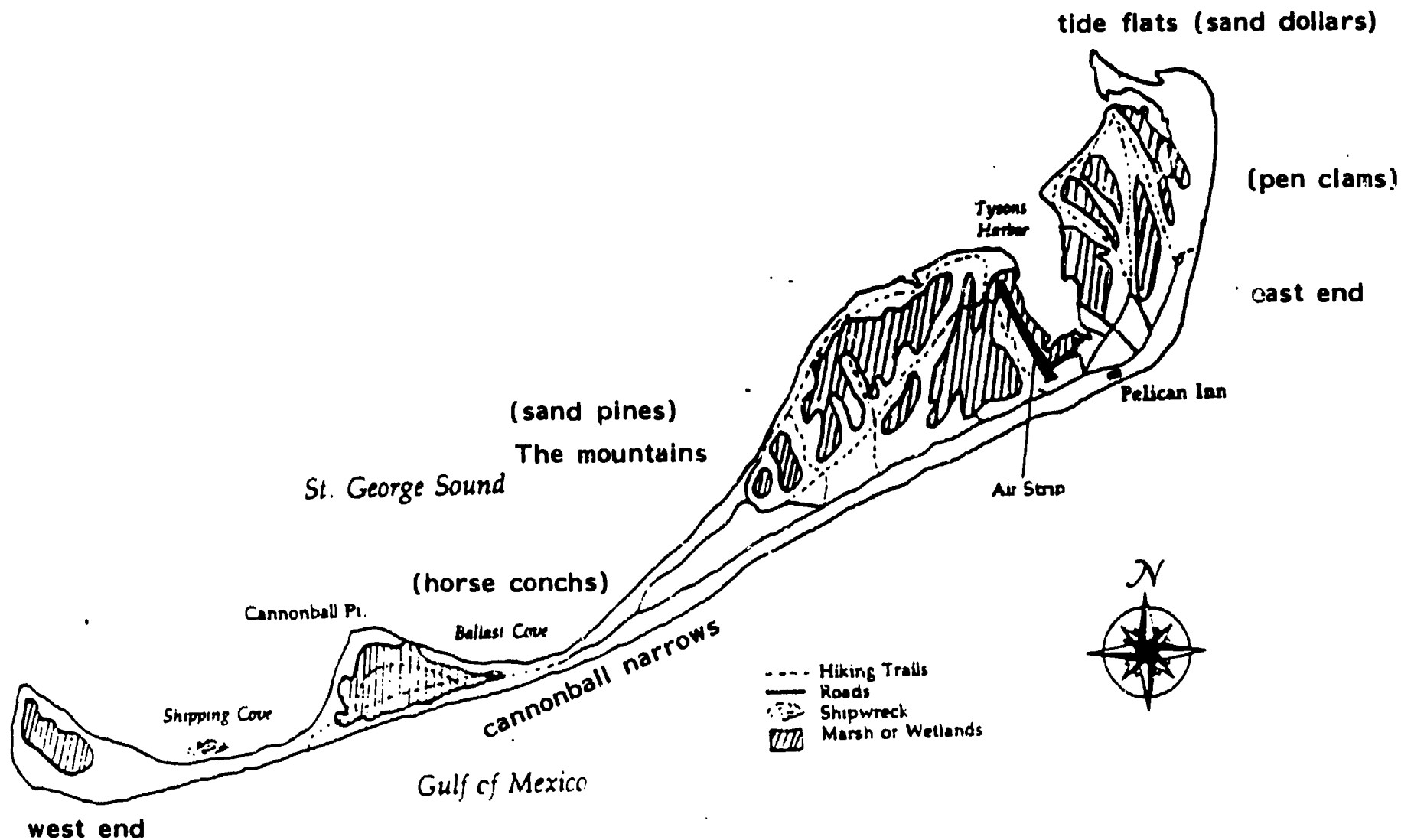
" The Long, Peaceful Days of Dog Island"

published by Southern Living, Inc., March, 1985, has been  
removed due to copyright restrictions.



## Shell Collecting Tips

1. Have a large porous bag available for easy transport of lots of shells.
2. Carry a day pack with drinking water, camera, insect repellents, and reference book for long strolls.
3. **DO NOT COLLECT LIVE SHELLS.**
4. Nesting smaller shells in a large cockle protects the delicate treasures.
5. Later, place shells in zip lock bags for storage to avoid odor before further cleaning.
6. To preserve shells:
  - wash and boil univalves to remove microorganisms
  - remove barnicles after a short vinegar soak (muratic acid may also be used but use caution)
  - spray with polyurethane, if desired



**ITINERARY, 1989**

**Professional Development Workshop**

**BARRIER ISLAND ECOLOGY**

<b>Tues., March 7</b>	<b>9:00 p.m.</b>	<b>leave Calhoun</b>
<b>Wed., March 8</b>	<b>6:15 a.m.</b>	<b>breakfast in Panacea</b>
	<b>7:30 a.m.</b>	<b>buy groceries</b>
	<b>8:15 a.m.</b>	<b>tour Gulf Specimen facilities</b>
	<b>10:00 a.m.</b>	<b>board ferry for island</b>
	<b>Afternoon</b>	<b>free time</b>
<b>Thurs., March 9</b>	<b>8:00 p.m.</b>	<b>orientation</b>
	<b>8:00 a.m.</b>	<b>shell identification and mollusk dissection</b>
	<b>Afternoon</b>	<b>individual projects</b>
<b>Fri., March 10</b>	<b>6:00 p.m.</b>	<b>bring your steak and plate</b>
	<b>Morning and Afternoon</b>	<b>activities to be announced</b>
	<b>6:00 p.m.</b>	<b>shrimp feast photo developing</b>
<b>Sat., March 11</b>	<b>Morning</b>	<b>free time</b>
	<b>12:00 noon</b>	<b>gear in rooms 3 and 4</b>
	<b>3:00 p.m.</b>	<b>leave for ferry ride</b>
	<b>8:30 p.m.</b>	<b>dinner in Marianna</b>
<b>Sun., March 12</b>	<b>2:00 a.m.</b>	<b>arrive at Calhoun Community College</b>



## List of Participants 1989

Lauri Burgreen  
Charles Gober  
Elaine Lauderdale  
Phillip Parker  
Renee Wales

Sandra Caudle  
Chris Hamilton  
Mary Luna  
Melvie Taylor  
Patsy Bruce  
Billie May

### Staff:

Don Collier  
Bettye Gregg  
Donna Lee  
Phillip Parker  
George Williams

### Emergency Phone Numbers;

- (a) Preferred  
Pelican Inn Office (daytime)  
1-800-451-5294
- (b) Alternate  
Franklin County Sheriff  
(904) 697-2113  
(Specify Pelican Inn, Dog Island)

### Staff checklist:

Walkie-talkie  
Dissection Equipment  
Photographic Equipment  
Microscope  
Telescope  
Plant Press  
Newspaper  
Metric ruler  
glass rod  
small pipette  
small aquarium  
carousel projector  
reference books  
charcoal and lighter  
seafood feast

The Pelican Inn co-ordinates  
are:

29 degrees, 48 min. N. - Latitude  
84 degrees, 34 min. W. - Longitude

DOG  
ISLAND

HI add 7 min. & 0.4 ft.  
LO add 6 min. & 0.2 ft.

DOG  
ISLAND

PLACE	POSITION		DIFFERENCES			
	Lat.	Long.	Time		Height	
			High Water	Lo Water	High Water	Lo Water
	M	W	h. m.	h. m.	ft	ft
St. George Sound	29 47	84 40	+0 07	+0 06	+0.4	+0.2
Dog Island, West end.....	29 51	84 40	+0 35	+0 31	+0.5	+0.3
Carrabelle, Carrabelle River.....	29 41	84 47	-0 15	+0 06	-0.2	0.0
St. George Island, East End.....	29 42	84 48	+0 47	+1 19	+0.1	+0.1
St. George Island, Rattlesnake Cove.	29 39	84 54	- - -	- - -	+0.96	+0.96
St. George I., 12th St. W (Bayside).	29 37	84 58	+0 49	+1 32	+0.70	+0.70
St. George Island, Sikes Cut.....						
Apalachicola Bay	29 43	84 53	+1 20	+1 27	+0.1	+0.2
Cat Point.....	29 43	84 59	+2 00	+2 44	+0.74	+0.74
Apalachicola.....	29 36	85 03	+1 43	+2 09	+0.65	+0.65
Lower Anchorage.....	29 38	85 06	+1 33	+2 17	+0.61	+0.61
West Pass.....						

Tide Tables  
HIGH AND LOW WATER

March 7 - 11, 1989

## Basic Optical Astronomy for Dog Island Field Trip

### I. Identification of Constellations with selected Stars:

1. Ursa major
2. Ursa minor, Polaris
3. Cassiopeia
4. Pegasus
5. Pisces
6. Andromeda
7. Taurus, Aldebaran
8. Auriga
9. Gemini, Castor and Pollux
10. Cancer
11. Orion, Betelgeuse, Bellatrix, Rigel, Saiph
12. Lepus
13. Canis Major, Sirius
14. Leo
15. Virgo, Spica
16. Bootes, Arcturus

### II. Observation of Selected Messier Objects:

1. M31 Andromeda Galaxy
2. M42 Great Nebula in Orion
3. M44 Praesepe ("Beehive") Star Cluster in Cancer
4. M45 Pleiades Star Cluster

### III. Observation of Planets:

1. Jupiter, Io, Europa, Ganymede, Callisto
2. Mars, Conjunction with Jupiter
3. Saturn
4. Uranus
5. Neptune
6. Venus

### IV. Lunar Topography:

#### A. Lunar Maria

1. Grimaldi
2. Mare Nubium
3. Mare Imbrium
4. Mare Frigoris
5. Mare Serenitatis
6. Mare Tranquillitatis
7. Mare Nectaris
8. Mare Foecunditatis
9. Mare Crisium

**B. Mountain ranges:**

1. Carpathian Mts.
2. Apennines
3. Alps
4. Caucasus
5. Haemus Mts.
6. Altai Mts.

**C. Selected Lunar Craters:**

- |               |                |
|---------------|----------------|
| 1. Tycho      | 6. Aristarchus |
| 2. Schickard  | 7. Archimedes  |
| 3. Ptolemy    | 8. Aristillus  |
| 4. Kepler     | 9. Aristoteles |
| 5. Copernicus | 10. Petavius   |

**V. Astrophotography:**

1. Lunar photo
2. Jupiter with Gallilean Satelites
3. Saturn

DOG ISLAND BIRDS: A CHECKLIST

WR=Winter RESIDENT                   MIG=MIGRANT  
 SR=SUMMER RESIDENT                 TR=TRANSIENT  
 YR=YEAR-ROUND RESIDENT            I=INCOMPLETE DATA

1. Common Loon	WR	47. Osprey	YR
2. Pied-Billed Grebe	WR	48. Kestrel	WR
3. Horned Grebe	WR	49. Morlin	WR/MIG
4. Double-Crested Cormorant	WR	50. Peregrine Falcon	MIG/WR
5. White Pelican	MIG	51. Caracara	TR
6. Brown Pelican	YR	52. Virginia Rail	WR
7. Mag. Frigate Bird	TR	53. Clapper Rail	YR
8. Great Blue Heron	YR	54. Sora	WR
9. Little Blue Heron	SR (YR?)	55. Black Rail	TR (?)
10. Louisiana Heron	YR	56. American Coot	WR (YR?)
11. Cattle Egret	YR	57. Common Gallinula	MIG
12. Reddish Egret	WR (SR?)	58. American Oystercatcher	YR (?)
13. Great Egret	YR	59. Sn Plover	YR (?)
14. Snowy Egret	YR	60. Pippin Plover	WR
15. Black-Crowned Night Heron	WR	61. Semipalmated Plover	YR
16. Yellow-Crowned Night Heron	WR	62. Wilson's Plover	SR
17. Green Heron	SR (Spring)	63. Killdeer	WR
18. Least Bittern	SR (Spring)	64. Black-Bellied Plover	YR
19. American Bittern	MIG/WR	65. Ruddy Turnstone	YR
20. White Ibis	TR	66. Red Knot	WR/MIG
21. Mallard	MIG	67. Sanderling	YR
22. Black Duck	MIG	68. Dunlin	WR
23. Pintail	WR/MIG	69. Western Sandpiper	MIG/TR
24. American Widgeon	WR	70. Least Sandpiper	WR
25. Northern Shoveler	MIG	71. Semipalmated Sandpiper	MIG (YR?)
26. Blue-Winged Teal	MIG/WR	72. Greater Yellowlegs	WR
27. Green-Winged Teal	MIG	73. Lesser Yellowlegs	WR
28. Gadwall	MIG	74. Spotted Sandpiper	MIG/ (WR?)
29. Wood Duck	MIG/TR	75. Common Snipe	MIG/WR
30. Redhead	WR	76. Short-Billed Dowitcher	
31. Greater Scaup	WR	77. Marbled Godwit	YR (?)
32. Lesser Scaup	WR	78. Whimbrel	SR
33. Bufflehead	WR	79. Willet	YR
34. Hooded Merganser	WR	80. Parasitic Jaeger	TR
35. Red-Breasted Merganser	WR	81. Herring Gull	YR
36. Turkey Vulture	TR/YR	82. Ring-Billed Gull	YR
37. Swallow-Tailed Kite	TR	83. Laughing Gull	YR
38. Sharp-Skinned Hawk	MIG/WR	84. Bonaparte's Gull	WR
39. Cooper's Hawk	MIG/TR	85. Royal Tern	YR/MIG
40. Marsh Hawk	MIG/WR	86. Sandwich Tern	SR
41. Red-Tailed Hawk	WR	87. Caspian Tern	YR (?)
42. Rough-Legged Hawk	MIG	88. Black Tern	MIG
43. Red-Shouldered Hawk	WR	89. Least Tern	SR
44. Broad-Winged Hawk	MIG/ (WR?)	90. Common Tern	MIG
45. Short-Tailed Hawk	MIG	91. Forster's Tern	YR
46. Bald Eagle	TR	92. Black Skimmer	YR (?)
		93. Mourning Dove	SR
		94. White-Winged Dove	MIG
		95. Ground Dove	YR

96.	Yellow-Billed Cuckoo	MIG	143.	Wood Thrush	MIG
97.	Chuck-Will's-Widow	SR	144.	Cedar Waxwing	MIG
98.	Whip-Poor-Will	WR	145.	Philadelphia Vireo	MIG
99.	Common Nighthawk	SR	146.	Yellow-Throated Vireo	MIG
100.	Chimney Swift	MIG	147.	Red-Eyed Vireo	MIG
101.	Ruby-Throated Hummingbird	MIG	148.	White-Eyed Vireo	SR (YR?)
102.	Belted Kingfisher	WR	149.	Solitary Vireo	WR
103.	Common Flicker	WR	150.	Black-and-White Warbler	TR/MIG
104.	Red-Bellied Woodpecker	TR	151.	Prothonotary Warbler	MIG
105.	Red-Headed Woodpecker	TR	152.	Northern Parula Warbler	MIG
106.	Yellow-Bellied Sapsucker	WR	153.	Yellow Warbler	MIG
107.	Ladder-Backed Woodpecker	TR	154.	Golden-Winged Warbler	MIG
108.	Scissor-Tailed Flycatcher	TR/MIG	155.	Palm Warbler	WR
109.	Eastern Kingbird	SR	156.	Pine Warbler	YR
110.	Western Kingbird	TR	157.	Magnolia Warbler	MIG
111.	Gray Kingbird	SR	158.	Yellow-Rump Warbler	WR
112.	Great Crested Flycatcher	SR	159.	Cape May Warbler	MIG
113.	Eastern Phoebe	WR	160.	Bay-Breasted Warbler	MIG
114.	Eastern Wood Pewee	MIG	161.	Yellow-Throated Warbler	MIG
115.	Purple Martin	MIG	162.	Prairie Warbler	MIG
116.	Cliff Swallow	MIG	163.	American Redstart	MIG
117.	Barn Swallow	MIG	164.	Orange-Crowned Warbler	WR
118.	Tree Swallow	MIG	165.	Hooded Warbler	MIG
119.	Rough-Winged Swallow	MIG	166.	Common Yellowthroat	YR (?)
120.	Common Crow	SR/TR	167.	Louisiana Waterthrush	MIG
121.	Fish Crow	SR	168.	Northern Waterthrush	MIG
122.	Blue Jay	TR	169.	Red-Winged Blackbird	YR
123.	Brown-Headed Nuthatch	TR	170.	Brown-Headed Cowbird	SR
124.	House Wren	WR	171.	Brewer's Blackbird	TR
125.	Winter Wren	WR	172.	Boat-Tailed Grackle	YR
126.	Carolina Wren	YR	173.	Common Cracked	TR (SR?)
127.	Sedge Wren	WR	174.	Bobolink	MIG
128.	Marsh Wren	WR	175.	Eastern Meadowlark	WR
129.	Mockingbird	YR	176.	Orchard Oriole	MIG
130.	Brown Thrasher	WR	177.	Northern Oriole	MIG
131.	Grey Catbird	WR	178.	Summer Tanager	SR
132.	American Robin	MIG/WR	179.	Western Tanager	TR/MIG
133.	Gray-Cheeked Thrush	MIG	180.	Scarlet Tanager	MIG
134.	Swainson's Thrush	MIG	181.	Northern Cardinal	WR (YR?)
135.	Hermit Thrush	MR/MIG	182.	American Goldfinch	MIG
136.	Veery	MIG	183.	Blue Grosbeak	MIG
137.	Eastern Bluebird	WR	184.	Indigo Bunting	MIG
138.	Ruby-Crowned Kinglet	WR	185.	Painted Bunting	MIG
139.	Blue-Gray Gnatcatcher	YR (?)	186.	Rose-Breasted Grosbeak	MIG
140.	Golden-Crowned Kinglet	WR	187.	Rufous-Sided Towhee	YR
141.	Water Pipit	TR	188.	Northern Junco	TR
142.	Loggerhead Shrike	TR	189.	White-Throated Sparrow	WR
			190.	Chipping Sparrow	MIG
			191.	Field Sparrow	WR
			192.	Swamp Sparrow	WR
			193.	Song Sparrow	WR
			194.	Savannah Sparrow	WR
			195.	Sharptailed Sparrow	WR
			196.	Seaside Sparrow	WR

## Fifty most likely Wetland and Shore Birds on Dog Island

1. Common loon (1)
2. Pied-Billed Grebe (2)
3. Double-Crested Cormorant (4)
4. Brown Pelican (6)
5. Gt. Blue Heron (8)
6. Little Blue Heron (9)
7. Louisiana Heron (10)
8. Cattle Egret (11)
9. Reddish Egret (12)
10. Great Egret (13)
11. Snowy Egret (14)
12. Black-Crowned Night Heron (15)
13. Yellow-Crowned Night Heron (16)
14. Green Heron (17)
15. American Bittern (19)
16. American Widgeon (24)
17. Greater Scaup (31)
18. Hooded Merganser (34)
19. Red-breasted Merganser (35)
20. Turkey Vulture (36)
21. Marsh Hawk (40)
22. Red-tailed Hawk (41)
23. Bald Eagle (46)
24. Osprey (47)
25. Clapper Rail (53)
26. Sora Rail (54)
27. American Coot (56)
28. American Oystercatcher (58)
29. Semipalmated Plover (61)
30. Killdeer (63)
31. Black-Bellied Plover (64)
32. Ruddy Turnstone (65)
33. Sanderling (67)
34. Dunlin (68)
35. Least Sandpiper (70)
36. Semipalmated Sandpiper (71)
37. Greater Yellowlegs (72)
38. Lesser Yellowlegs (73)
39. Spotted Sandpiper (74)
40. Common Snipe (75)
41. Short-Billed Dowitcher (76)
42. Willet (79)
43. Herring Gull (81)
44. Ring-Billed Gull (82)
45. Laughing Gull (83)
46. Royal Tern (85)
47. Caspian Tern (87)
48. Least Tern (89)
49. Forster's Tern (91)
50. Black Skimmer (92)

TWENTY-FIVE MOST LIKELY DOG ISLAND SHELL FAMILIES

BIVALVES (PELECYPODS)

ARK shells: Family ARCIDAE

TURKEY WING: *Arca zebra*

BONDEROUS ARK: *Noetia ponderosa*

RED-BROWN ARK: *Barbatia cancellaria*

INCONGRUOUS ARK: *Anadara brasiliiana*

CUT-RIBBED ARK: *A. floridana*

TRANSVERSE ARK: *A. transversa*

CARDITA shells: Family CARDITIDAE

BROAD-RIBBED CARDITA: *Carditamera floridana*

COCKLE shells: Family CARDIIDAE

GIANT ATLANTIC COCKLE: *Dinocardium robustum*

ATLANTIC STRAWBERRY COCKLE: *Americardia media*

COMMON EGG COCKLE: *Laevicardium laevigatum*

PRICKLY COCKLE: *Trachycardium egmontianum*

COQUINA shells: Family DONACIDAE

FLORIDA COQUINA: *Donax variabilis*

JINGLE shells: Family ANOMIIDAE

ATLANTIC JINGLE: *Anomia simplex*

KITTEN'S PAW shells: Family PLICATULIDAE

KITTEN'S PAW: *Plicatula gibbosa*

LUCINE shells: Family LUCINIDAE

PENNSYLVANIA LUCINE: *Lucina pennsylvanica* (Linga, Phacoides)

THICK LUCINE: *Phacoides pectinata* (Linga, Lucina)

TIGER LUCINE: *Codakia orbicularis*

DENTATE LUCINE: *Divaricella dentata*

MUSSEL shells: Family MYTILIDAE

TULIP MUSSEL: *Modiolus americanus*

YELLOW MUSSEL: *Brachiodontes citrinus*

SCORCHED MUSSEL: *B. exustus*

OYSTER shells: Family OSTREIDAE

EASTERN OYSTER: *Crassostrea virginica*

HORSE OYSTER: *Ostrea equestris*

PEN shells: Family PINNIDAE

RIGID PEN SHELL: *Atrina rigida*

AMBER PEN SHELL: *Pinna carnea*

SCALLOP shells: Family PECTINIDAE

CALICO SCALLOP: *Aequipecten gibbus* (*Argopecten*)

ATLANTIC BAY SCALLOP: *A. irradians*

SURF CLAM shells: Family MACTRIDAE

ATLANTIC SURF CLAM: *Spisula solidissima*

TELLIN shells: Family TELLINIDAE

SPECKLED TELLIN: *Tellina listeri*

ALTERNATE TELLIN: *T. alternata*

VENUS CLAM shells: Family VENERIDAE

SUNRAY VENUS: *Macrocallista nimbosa*

SOUTHERN QUAHOG: *Mercenaria campechiensis*

LISTER'S VENUS: *Periglypta listeri*

KING VENUS: *Chione paphia*

CROSS-BARRED VENUS: *C. cancellata*

LIGHTNING VENUS: *Pitar fulminata*

DISK DOSINIA: *Dosinia discus*



UNIVALVES (GASTROPODS)

AUGER shells: Family TEREBRIDAE

ATLANTIC AUGER: *Terebra dislocata*

NERITE shells: Family NERITIDAE

TESSELLATE NERITE: *Merita tessellata*

CONCH shells: Family STROMBIDAE (see also WHELK and TULIP) OLIVE shells: Family OLIVIDAE

FLORIDA FIGHTING CONCH: *Strombus alatus*

QUEEN CONCH: *S. gigas*

LETTERED OLIVE: *Oliva sayana*

KEYHOLE LIMPET shells: Family FISSURELLIDAE

LISTER'S KEYHOLE LIMPET: *Diodora listeri*

CAYENNE KEYHOLE LIMPET: *D. cayenensis*

KNOBBY KEYHOLE LIMPET: *Fissurella nodosa*

BARBADOS KEYHOLE LIMPET: *F. barbadensis*

SOWERBY'S KEYHOLE LIMPET: *Lucapina sowerbii*

PERIWINKLE shells: Family LITTORINIDAE

COMMON PERIWINKLE: *Modiolittorina tuberculata*

SLIPPER shells: Family CALYPTRAEIDAE

EASTERN WHITE SLIPPER: *Crepidula plana*

COMMON ATLANTIC SLIPPER: *C. fornicata*

WEST INDIAN CUP-AND-SAUCER: *Crucibulum auricula*

MOON SNAIL shells: Family NATICIDAE

ATLANTIC MOON SNAIL or SHARK EYE: *Polinices duplicatus*

COMMON BABY'S EAR: *Sinum perspectivum*

TULIP and HORSE CONCH shells: Family FASCIOLARIIDAE

FLORIDA HORSE CONCH: *Pleuroploca gigantea*

TRUE TULIP: *Fasciolaria tulipa*

BANDED TULIP: *F. hunteria*

MUREX shells: Family MURICIDAE

GIANT ATLANTIC MUREX: *Murex fluvescens*

APPLE MUREX: *M. Pomum*

PITTED MUREX: *Favartia cellulosa*

ATLANTIC OYSTER DRILL: *Urosalpinx cinerea*

FLORIDA DOGWINKLE or ROCK SNAIL: *Thais floridana*

WHELK shells: Family MELONGENIDAE

LIGHTNING WHELK: *Busycon contrarium*

CHANNELED WHELK: *B. canaliculatum*

PEAR WHELK: *B. spiratum*

FLORIDA CROWN CONCH: *Melongena corona*

ALPHABETIC LISTING OF FAMILIES

Anomiidae (JINGLE)  
Arcidae (ARK)  
Calyptraeidae (SLIPPER)  
Cardiidae (COCKLE)  
Carditidae (CARDITA)  
Donacidae (COQUINA)  
Fasciolaridae (HORSE CONCH and TULIP)  
Fissurellidae (KEYHOLE LIMPET)  
Littorinidae (PERIWINKLE)  
Lucinidae (LUCINE)  
Mactridae (SURF CLAM)  
Melongenidae (WHELK and CROWN CONCH)

Muricidae (MUREX)  
Mytilidae (MUSSEL)  
Naticidae (MOON SNAIL)  
Neritidae (NERITE)  
Olividae (OLIVE)  
Ostreidae (OYSTER)  
Pectinidae (SCALLOP)  
Pinnidae (PEN)  
Plicatulidae (KITTEN'S PAW)  
Strombidae (CONCH)  
Tellinidae (TELLIN)  
Terebridae (AUGER)  
Veneridae (VENUS CLAM/QUAHOG/DISK)

## General Notes on Shell Identification

MOLLUSK means "soft bodied." Most have bony a exoskeleton called a "valve(s)." Some, such as octupi and nudibranchs do not. The soft parts of many mollusks (e.g. conchs, scallops, oysters, etc.) are edible. There are seven major groups of mollusks.

1. GASTROPODA. ("stomach-footed") 80% of all living mollusks are found in this group. They are univalves (having only one shell). The prettiest of these live in marine environments, but some of their cousins live in your backyard as snails or garden slugs.
2. PELECYPODS. ("hatchet-footed") This is the second largest group of mollusks. They are bivalves (having two parts to their shell). Some of the cousins to the marine bivalves live in your local rivers and ponds as mussels and freshwater clams.
3. POLYPLACOPHORA. ("many-plated") These mollusks have eight bony plates. E.g. chitons.
4. CEPHALOPODA. ("head-foot") E.g. octopi, squid.
5. SCAPHOPODA. ("boat-foot") E.g. tusk shells.
6. APLACAPHORA. ("no-plate bearers") E.g. deep sea worms.
7. MONOPLACOPHORA. ("one plate bearer") E.g. deep sea "living fossil" limpets.

16 Valves are formed by secretions from the mantle, so they often show concentric growth rings and/or ribs; but these are not necessarily annual. Note that some species have a very different juvenile form from the adult (e.g. the juvenile Queen Conch has no stromboid notch.) The adductor muscles leave scars inside the shell. The mantle leaves a pallial line where it was attached to the inside of the valve (sometimes with a depression or sinus.) The siphon may leave a canal where it extended from the valve(s). There may be evidence of the ligament that was used to open the valves. There may be teeth in the bivalve hinge. There may be remnants of the periostricum the byssus. Note should be made of coloration. Shapes may vary (e.g. oblong, globose, orbicular, bubble-shaped, screw-shaped, fan-shaped.) There may be important structures such as an umbo, umbilicus, internal accessory plate, parietal shield, lanule, escutcheon, or beaks. Shells may be flattened or inflated. Lines may be concentric, radiating, vertical to axis, or cancellate. The shell may have spines, knobs, shoulders, beads, pits, or specs. Most of these descriptive terms have logical applications, and all may be significant in the discrimination of one species from another. It is not, however, necessary to memorize them. Most good shell references will have illustrated examples that can be easily referred to as you shell. Happy collecting!

CLASSIFICATION KEY TO BIVALVE (PELECYPOD) FAMILIES

1. Shell has hinge teeth that are numerous (taxodont) or absent (cryptodont)
  2. Hinge teeth numerous, fine (ARK/ARCIDAE)
  2. Hinge teeth absent
    3. Shell somewhat translucent, irridescent
      4. Shell long and pointed like Japanese fan (PEN/PINNIDAE)
      4. Shell not long and pointed
        5. Shell elliptical, elongate
          6. Beak on end of oval (MUSSEL/MYTILIDAE)
          6. Beak slightly off-center of oval (COQUINA/DONICIDAE)
        5. Shell globose
          6. Shell fragile, transparent (JINGLE/ANOMIADAE)
          6. Shell not fragile, transparent (DISK/VENERIDAE)
    3. Shell not translucent
      4. Shell shaped like Shell Oil sign (globose, strongly ribbed) (SCALLOP/PECTINIDAE)
      4. Shell not shaped like Shell Oil sign (OYSTER/OSTREIDAE)
1. Shell with hinge teeth numbering 2-3 and clearly differentiated (heterodont)
  2. Shell 1½" or smaller
    3. Shell shaped like a kitten's paw (KITTEN'S PAW/PLICATULIDAE)
    3. Shell not shaped like a kitten's paw
      4. Shell cancellate (ribs and concentric lines equally strong) (VENUS/VENERIDAE)
      4. Shell not cancellate
        5. Shell ribbed
          6. Shell strongly ribbed (CARDITA/CARDITIDAE)
          6. Shell weakly ribbed (THIN LUCINE/LUCINIDAE)
        5. Shell with concentric lines (PENNSYLVANIA LUCINE/LUCINIDAE)
    2. Shell 1½" or larger
      3. Shell fragile with two tiny cardinal teeth (TELLIN/TELLINIDAE)
      3. Shell not fragile
        4. Shell strongly ribbed (COCKLE/C DIIDAE)
        4. Shell not strongly ribbed
          5. Shell with spoon-shaped depression in hinge (chondrophore) (SURF CLAM/MACRIDAE)
          5. Shell without chondrophore
            6. Shell with deep posterior furrow on outside (THICK LUCINE/LUCINIDAE)
            6. Shell without deep posterior furrow
              7. Shell elongate (SUNRAY VENUS/VENERIDAE)
              7. Shell globose (QUAHOG/VENERIDAE)

CLASSIFICATION KEY TO UNIVALVE (GASTROPOD) FAMILIES

1. Shell with top and bottom end both pointed
  2. Shell 1" or less (top to bottom)
    3. Shell long, slender, screw-shaped (AUGER/TEREBRIDAE)
    3. Shell rounded
      4. Mouth rounded, untoothed (PERIWINKLE/LITTORINIDAE)
      4. Mouth oblong, toothed (OYSTER DRILL/MURICIDAE)
  2. Shell 1" or more (top to bottom)
    3. Shell pickle-shaped (OLIVE/OLIVIDAE)
    3. Shell NOT pickle-shaped
      4. Shell with spines or 5-7 ribs
        5. Stromboid notch **\*\*absent in juvenile\*\*** (CONCH/STROMBIDAE)
        5. No stromboid notch
          6. Spines or ribs scattered from top to bottom of shell (MUREX/MURICIDAE)
          6. Spines just on shoulders (CROWN CONCH/MELONGENIDAE)
      4. Shell with no long spines or prominent ribs
        5. Mouth pink or pinkish brown
          6. Shell grayish (DOGWINKLE/MURICIDAE)
          6. Shell reddish brown (HORSE CONCH/FASCIOLARIIDAE)
        5. Mouth tan, brown, or gray
          6. Shell without squared shoulders (TULIP/FASCIOLARIIDAE)
          6. Shell with squared shoulders (WHELK/MELONGENIDAE)
1. Shell with only top or neither end pointed
  2. Shell coiled like a garden snail
    3. Umbilicus present (MOON SNAIL/NATICIDAE)
    3. Umbilicus NOT present (NERITE/NERITIDAE)
  2. Shell NOT coiled like a garden snail
    3. Internal shelly structures absent-shell coolie-hat shaped (KEYHOLE LIMPET/FISSURELLIDAE)
    3. Internal shelly structure present (SLIPPER/CALYPTRAEIDAE)

## SHELL TIPS

1. **Ponderus Ark**
  - black periostracum
  - straight line of teeth
3. **Tellin**
  - Double teeth
5. **Surf Clam**
  - depression (chondrophore)
7. **Cardita**
  - small valves with pronounced ribs
9. **Oyster Drill**
  - drills holes in oyster shell with teeth
11. **Whelks**
  - carnivorous
  - will feed on cockles
13. **Tun**
  - parietal shield not stipuled
2. **Small Venus Clam**
  - flat side of valve (escutcheon)
  - scoop (lanule)
4. **Sun Ray Venus**
  - show sun's rays
6. **Thick lucine**
  - one groove
8. **Quahog**
  - heavy bivalve
  - Indian money
  - Used for clam chowder
10. **Cockle**
  - algae eater
12. **Bonnet**
  - goose pimpled (stipuled) parietal shield
14. **True Conch**
  - stromboid notch (may not be developed in juveniles.)

## Live Clam Observation

### Location

Clams are located in both fresh and salt water. They routinely exist partially or completely buried in the sand or mud. Freshwater clams have been found in rivers, lakes and streams in the Mississippi River valley, but pollution and acid rain are severely decreasing population counts. Marine species are also sensitive to chemical changes in their environment.

### Ethology (Behavior)

Some mussels lie half buried in sand. Their reactions are slow and sluggish and therefore are available for ready observation. As the mollusk poses half buried at rest, the valves of the hard exoskeleton are slightly agape ventrally. One can observe the fringed edges of the mantle which line the valve. The posterior edges of the mantle form two openings, the incurrent and excurrent siphon, which allow for water movement into and out of the soft internal body parts as the organisms filter feeds. (See Fig. 1)

### Observation Technique

Pipette a small amount of carmine dye near the siphons of a living clam. Note the movement of the dye into and out of the siphons. Gently touch the mantle of the mollusk with a glass rod. Note the organism's sensitivity not only to chemical stimulus but also to touch.

Some marine species have siphons drawn into a long tubular structure. When the organism is burrowed into the sand the siphon extends to the surface to bring water into the mantle cavity.

The foot is another observable structure of the mollusk. It is a soft, flexible and very sensitive organ covered with mucus glands for protection. If possible lift a clam from the sand to watch the quick withdrawal of the foot. Upon returning the clam on its side to the sand observe its efforts to right itself with the muscular foot.

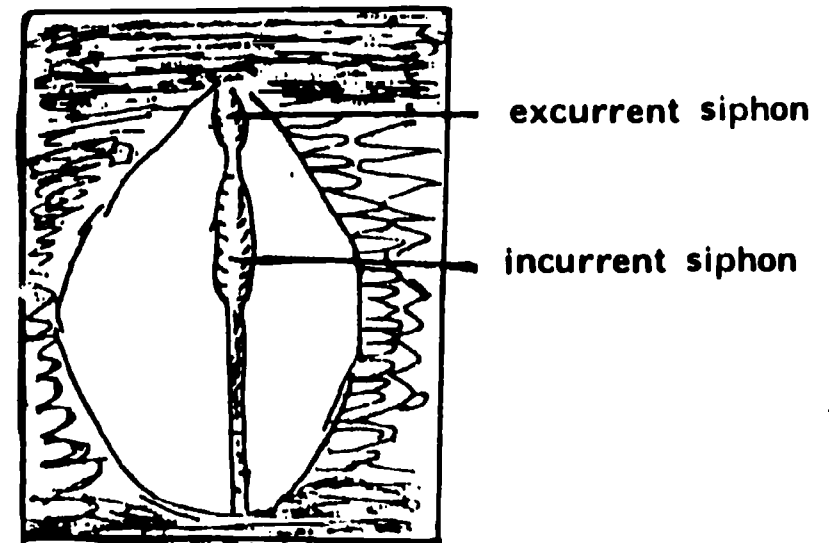


Fig. 1

A half-buried bivalve with exposed filtering siphons

## Mussel (Clam) Dissection

The molluskan body is characterized by a ventral, muscular foot and a visceral mass enclosed in a thin tissue layer called the mantle, which usually secretes a calcareous shell. Modification of this basic organization has produced extreme variability among the mollusks. This phylum includes the chitons, tooth shells, snails, slugs, clams, mussels, octopi, and squids.

### Exercise 2 Shell Features

#### A. External Figure 2

1. Examine the mussel in the dissecting pan and note the bivalve or 2-part shell.
2. Note the umbo or elevation toward the anterior end.
3. Determine the posterior and anterior ends. The more pointed end of the valves is the posterior or back end.
4. Determine the dorsal and ventral regions of your clam. The hinge ligament fastens the 2 shells together along the dorsal surface.
5. Feel the concentric growth rings radiating from the umbo.

#### B. Internal Shell Features Figure 3

1. Note the smooth pearly lining, the nacre.
2. Observe the mantle line. This is the point of attachment of the mantle to the valve.
3. The valves are held together by strong muscles. Note the large anterior adductor scar and posterior adductor scar.
4. Some mollusks are identified by characteristic "teeth" on the shell. Note the large cardinal teeth and smaller lateral teeth along the hinge.

The following vocabulary will prove useful in further mollusk identification.

- a. heterodont = teeth varied in appearance
- b. taxodont = numerous small teeth on the hinge. E.g., Ark shells
- c. cryptodont = "hidden teeth", teeth very small or nonexistent

Which term best describes the mussel? \_\_\_\_\_



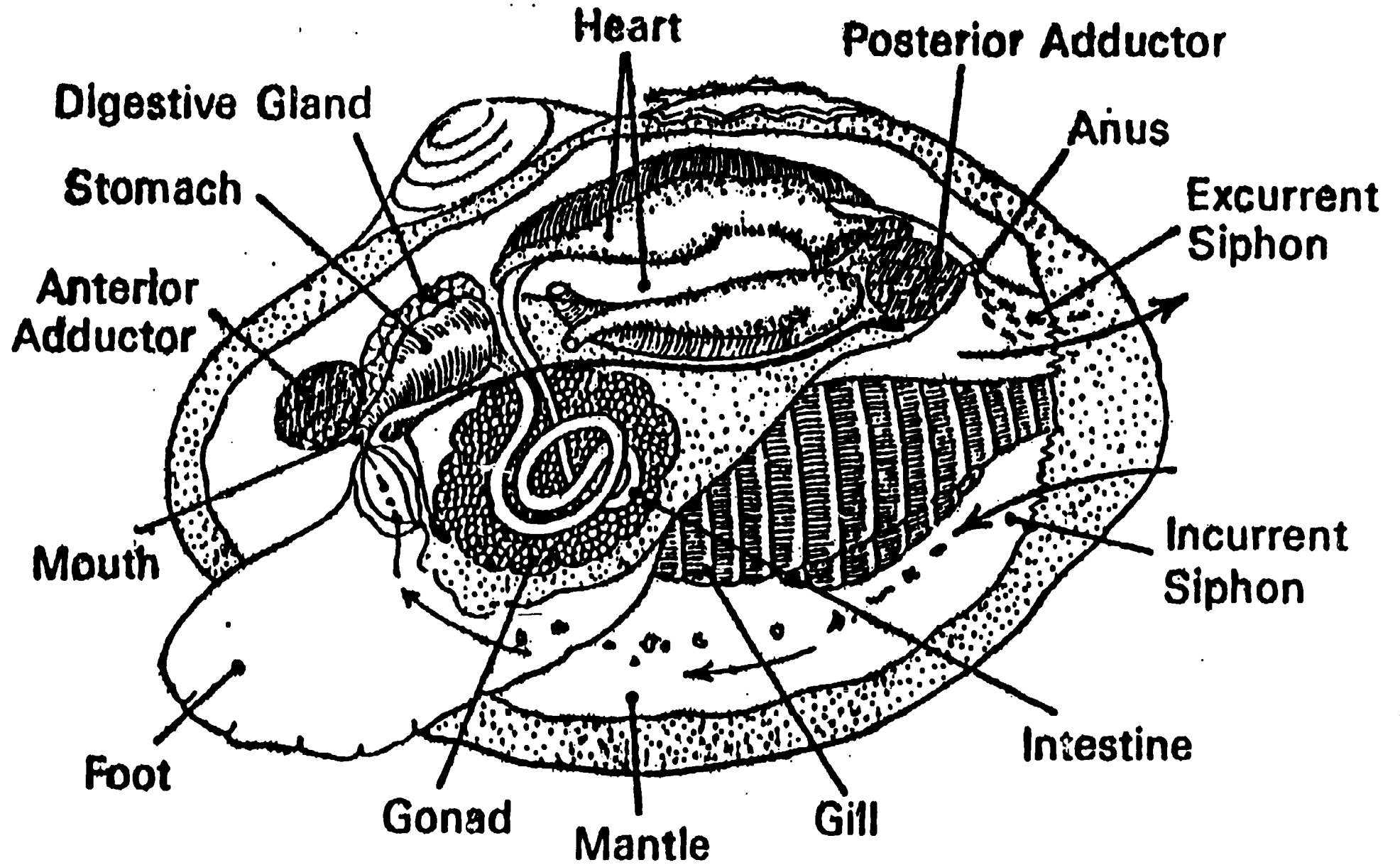
### Exercise 3 Internal Anatomy Figure 4

1. Keeping the scapel blade as close to the shell as possible, separate the valves carefully by cutting the anterior and posterior adductor muscles.
2. Identify the mantle as the thin tissue covering the visceral mass and the foot.
3. Bring 2 halves of the mantle together. Note the larger, ventral incurrent siphon and the smaller, dorsal excurrent siphon. These animals breathe and are nourished by filtering water in and out the siphons, trapping food particles.
4. Identify gills by folding away the mantle. If the gills appear puffy they may contain larvae, young mussels.
5. Note the large, tough, muscular foot used for locomotion.
6. Identify the labial palps as the limp flaps of tissue that channel food toward the mouth.
7. The main fleshy body is called the visceral mass. This contains the following internal organs:

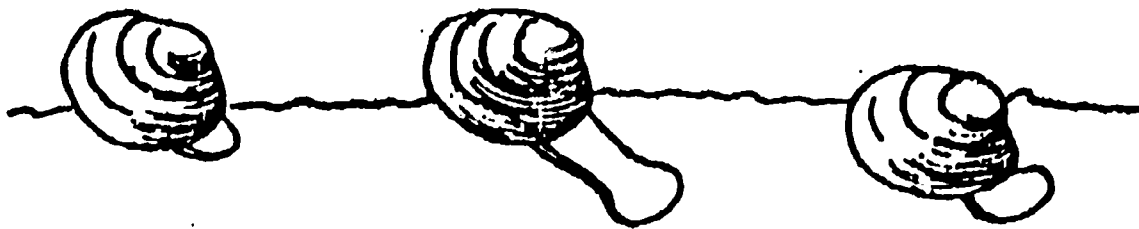
mouth	anus
stomach	intestine
digestive gland	heart and pericardium
gonads	kidney



# CLAM



23



## Simplified Key to Dog Island Plants

### 1. Beach Vegetation

#### 2. Grasses

##### 3. Upright, over 2'

4. blade width under  $\frac{1}{2}$ "-----Sea Oats

4. blade width over  $\frac{1}{2}$ "-----Beach Grass

##### 3. Trailing, under 2'-----Sand Spur

#### 2. Broadleaved Plants

5. Leaves not fleshy-----Seaside Primrose

##### 5. Leaves fleshy and.....

6. rounded----- Seaside Pennywort

6. lobed----- Beach Morning Glory

6. narrow----- Sea Purslane

6. toothed----- Sea Rocket



Seaside Pennywort



Beach Morning Glory



Sea Purslane



Sea Rocket

1. Dune-Swale Vegetation

7. Pine trees

8. Needles over 5" long----- Slash Pine

8. Needles under 5" long----- Sand Pine

7. Other shrubs or trees

9. Leaves needle-like

10. Green leaves----- Florida Rosemary

10. Gray leaves----- Convadina

9. Leaves broad

11. Leaves 1" or less

12. twigs gray----- Youpon Holly

12. twigs green----- Inkberry

11. Leaves more than 1"

13. oblong----- live oak

13. elliptic----- myrtle oak



live oak



myrtle oak

# CHECKLIST OF COMMON PLANTS OF DOG ISLAND

## LICHENS

Raindeer Moss

Cladonia sp.

## FLOWERING PLANTS

### Pinaceae

Sand Pine      Pinus clausa      (P. glabra?)

Slash Pine      P. elliotti

### Typhaceae

Cattail      Typha latifolia

### Alismataceae

Arrowhead      Sagittaria graminea

### Poaceae

Sea Oats      Uniola paniculata

Cordgrass      Spartina patens

Sandspur      Cenchrus echinatus

### Cyperaceae

Sawgrass      Cladium jamaicense

### Arecaceae

Saw Palmetto      Sevenoa repens

### Juncaceae

Black Rush      Juncus roemerianus

### Liliaceae

Yucca      Yucca aloifolia

Yucca      Yucca filamentosa

### Amaryllidaceae

Rain Lilly      Zephranthes simpsonii

### Iridaceae

Blue-eyed Grass      Sisyrinchium

DOG ISLAND FLOWERING PLANTS Continued

Caryophyllaceae

Square Flower

Paronychia erecta

Orchidaceae

Rose Pogonia

Pogonia ophioglossoides

Saururaceae

Lizards tail

Saururus cernuus

Fagaceae

Live Oak

Quercus germinata

Polygonaceae

Sheep Sorrel

Rumex hastatulus

Jointweed

Polygonella gracillis

Aizoaceae

Sea Purslane

Sesuvium portulacastrum

Brassicaceae

Sea rocket

Cakile constricta

Droseraceae

Sundew

Drosera brevifolia

Rosaceae

Dewberry

Rubus trivialis

Fabaceae (Bean)

Bladder pod

Sesbania vesicaria

Fabaceae (Pea)

Beach Pea

Galactia

Aguiifoliaceae

Yaupon Holley

Ilex vomitoria

Malvaceae

Salt Marsh Mallow

Kosteletzkyia virginica

Hypericaceae

Saint John's Wort

Hypericum reductum

DOG ISLAND FLOWERING PLANTS Continued

Cistaceae

Rockrose

Helianthemum arenicoli

Cactaceae

Opuntia humifusa

O. pusilla

Melastomataceae

Meadow Beauty

Rhexia mariana

Onagraceae

Evening primrose

Oenothera humifusa

Apiaceae

Seaside Pennywort

Hydrocotyle bonariensis

Empetraceae

Florida Rosemary

Ceratiola ericoides

Loganiaceae

Rustweed

Polypremum procumbens

Gentianaceae

Sea Pink

Sabatia

Asclepiadaceae

Sandhill Milkweed

Asclepias humistrata

Convolvulaceae

Beach Morning Glory

Ipomoea stolonifera

Arrowleaf Morning Glory

Ipomoea sagittata

Polemoniaceae

Standing Cypress

Impomopsis rubra

Verbenaceae

Lantana

Lantana camara

Lentibulariaceae

Bladderwort

Utricularia subulata

DOG ISLAND FLOWERING PLANTS Continued

Asteraceae

Beach Elder            Iva imbricata

Groundsel Tree      Baccharis halimifolia

Coreopsis            Coreopsis sp.

Baldwins             Baldwina agustifolia

Woody Goldenrod                    Chrysoma pauciflosculosa

Spanish Needles                    Bidens sp.

## MOST COMMON PLANTS OF DOG ISLAND

Arrowhead <i>Sagittaria lancifolia</i>	Henbit <i>Lamium aplexicaule</i>
Arrowleaf Morning Glory <i>Ipomoea sagittata</i>	Hop Clover <i>Trifolium dubium</i>
Beach Morning Glory <i>Ipomoea stolonifera</i>	Jointweed <i>Polygonella polygama</i>
Bedstraw <i>Galium hispidulum</i>	Lily-turf <i>Liriope muscari</i>
Black Rush <i>Juncus roemerianus</i>	Lizard's Tail <i>Saururus cernuus</i>
Bladderwort <i>Utricularia biflora</i>	Marsh Elder <i>Iva frutescens</i>
Blazing Star <i>Liatris chapmanii</i>	Meadow Beauty <i>Rhexia cubensis</i>
Blueberry <i>Vaccinium darrowii</i>	Muscadine <i>Vitis rotundifolia</i>
Blue-eyed Grass <i>Sisyrinchium atlanticum</i>	Narrowleaf Ground Cherry <i>Physalis angustifolia</i>
Boneset <i>Eupatorium anomalum</i>	Peppergrass <i>Lepidium virginicum</i>
Button Bush <i>Cephalanthus occidentalis</i>	Pigweed <i>Amaranthus viridis</i>
Chickweed <i>Stellaria media</i>	Poison Ivy <i>Toxicodendron radicans</i>
Cattail <i>Typha latifolia</i>	Pokeweed <i>Phytolacca americana</i>
Conradina <i>Conradina canesens</i>	Pony-foot <i>Dichondra carolinesis</i>
Cordgrass <i>Spartina patens</i>	Prickly Pear Cactus <i>Opuntia humifusa</i>
Cranesbill Geranium <i>Geranium carolinianum</i>	Rain Lily <i>Zephranthes simpsonii</i>
Dewberry <i>Rubus trivialis</i>	Rockrose <i>Helianthum arenicola</i>
Dog Fennel <i>Eupatorium capillifolium</i>	Rustweed <i>Ploypreum procumbens</i>
Elderberry <i>Sambucus canadensis</i>	Saint John's Wort <i>Hypericum reductum</i>
Evening Primrose <i>Oenothera humifusa</i>	Salt Marsh Mallow <i>Kosteletzkya virginica</i>
Florida Rosemary <i>Ceratiola ericoides</i>	Sand Live Oak <i>Quercus geminata</i>
Frog Fruit <i>Phyla nodiflora</i>	Sandhill Milkweed <i>Asclepias pedicillata</i>
Glasswort <i>Salicornia virginica</i>	Sand Pine <i>Pinus clausa</i>
Greenbrier <i>Smilax auriculata</i>	Sandspur <i>Cenchrus echinatus</i>
Groundsel Tree <i>Baccharis glomeruliflora</i>	Sand Vetch <i>Vicia acutifolia</i>
Hat Pins <i>Ericaulon compressum</i>	Sandvine Milkweed <i>Cynanchum angustifolium</i>



Saw Grass  
*Cladium jamicense*

Saw Palmetto  
*Serenoa repens*

Sea Oats  
*Uniola paniculata*

Sea Ox-eye or Sea Daisy  
*Borrichia frutescens*

Seaside Pennywort  
*Hydrocotyle bonariensis*

Sea Pink  
*Sabatia grandiflora*

Sea Purslane  
*Susuvium portulacastrum*

Sea Rocket  
*Cakile constricta*

Sheep Sorrel  
*Rumex hastatulus*

Slash Pine  
*Pinus elliotti*

Smartweed  
*Polygonum punctatum*

Sourgrass  
*Cxalis dillenii*

Spiderwort  
*Tradescantia ohiensis*

Spiny Sow Thistle  
*Sonchus asper*

Spurge Nettle or Tread Softly  
*Cnidocolus stimulosus*

Spanish Bayonet  
*Yucca alinifolia*

Spanish Needles  
*Bidens bipinnata*

Square Flower  
*Paronychia erecta*

Sundew  
*Drosera capillaris*

Sweetbroom  
*Scoparia dulcis*

Toadflax  
*Linaria canadensis*

Venus Looking-glass  
*Triodanis perfoliata*

Vervain  
*Verbena bonariensis*

Water Primrose  
*Ludwigia repens*

White-top Sedge  
*Dichromena colorata*

Winged Sumac  
*Rhus copallina*

Woody Goldenrod  
*Chrysoma pauciflosculosa*

Yaupon Holly  
*Ilex vomitoria*

Yucca  
*Yucca filamintosa*

BEACH-DUNE HABITAT

Species	Type	Distinctive Features	Flowering Season
Beach Morning Glory	Perennial Vine	<u>Glabrous</u> , trailing and rooted at nodes <u>Leaves</u> alternate, leathery, notched at tip <u>Corolla</u> white	Summer
Sea Rocket	Annual herb	<u>Upright</u> growth <u>Leaves</u> alternate, very thick <u>Pedals</u> notched at tip, pedicels thick	Spring, Summer
Beach Elder	Small Shrub	<u>Glabrous</u> , decumbent, and branched at base <u>Leaves</u> alternate, oblanceolate	Fall
32 Seaside Pennywort (1)	perennial "creeper"	<u>Glabrous</u> , rooting from nodes <u>Leaves</u> basal, rounded and scalloped <u>Flowers</u> whorled on branches, small	Spring Summer Fall
Beach Pea	perennial vine	<u>Leaves</u> 3-foliate (usually), entire <u>Flowers</u> one or two at a node	Summer
Sea Purslane	perennial herb	<u>Fleshy</u> , creeping + rooted at nodes <u>Leaves</u> opposite <u>Flowers</u> solitary, pink within and green externally	Spring Summer Fall

1 Found in several other habitats

Species	Type	Distinctive Features	Flower/Season
Sea Oats (1)	perennial grass	<u>Rhizomatous</u> <u>Leaves</u> basal or stemmed, and glabrous <u>Grain</u> , dark red	Summer Fall
(1) Also found in Dune-Swale Habitat. DUNE-SWALE HABITAT			
Florida Rosemary	medium shrub	<u>Much-branched</u> , bark on older wood shreddy + gray, young twigs tomentose <u>Leaves</u> alternate or whorled, <u>linear</u> , revolute and sessile <u>Flowers</u> small, plants dioecious	Summer Fall
33 Square Flower	herb	<u>Leaves</u> opposite, entire <u>Seed</u> red or dark red	Spring Summer
Groundsel tree (1)	shrub	<u>Glabrous</u> stems <u>Leaves</u> grayish, alternate, fleshy, serrate toward apex <u>Flowers</u> yellowish, discoid, plants dioecious	Summer Fall
Jointweed (1)	perennial woody at base	<u>Branches</u> internodally <u>Leaves</u> linear, glabrous	Fall

(1) Also found in forest habitat.

Distinctive Features

Species

Type

Baldwina (1)

perennial  
herb

Erect, Stems ribbed, pubescent and usually not branching  
Leaves alternate, entire with tapering base  
Petals toothed at apex

Fall

Woody Goldenrod (1)

shrub  
.5-1.5m

Glabrous, viscid on young growth; trunk short, stocky and freely branched  
Leaves stemmed

Fall

Rockrose (1)

perennial

Leaves stellate - pubescent  
Flowers of two types, showy yellow with long pedicels, and those with shorter pedicels and no petals

Spring  
Summer

34

Saint John's Wort

shrub  
1-5 d m

Glabrous, stems angled, matted and decumbent  
Leaves opposite, entire with dots

Spring  
Summer

Evening Primrose

perennial

Prostrate, hoary  
Leaves tipped with a spur  
Petals yellowish

Spring  
Summer  
Fall

Prickly Pears (1)

cactus

Woody succulents, spines apically, barbed

Spring  
Summer

(1) Also found in forest habitat

Species	Type	Distinctive Features	Flower/Season
Bladderwort <sup>(1)</sup>	Herbaceous	<u>Stems</u> underground in moist sand <u>Leaves</u> dissected with small bladders or linear without bladders	<u>Summer</u>
Rustweed (1)	perennial herb	<u>Glabrous</u> , branches from central crown <u>Leaves</u> opposite, linear, rusty colored <u>Flowers</u> white	Spring <u>Summer</u> Fall
Sheep Sorrel	Winter annual	<u>Stems</u> erect <u>Leaves</u> hastate	Spring
35 Rose Pogonia	perennial herb	<u>Plant</u> glabrous <u>Leaf</u> solitary, half way up stem <u>Flowers</u> (1-3) terminate the stem, fragrant	Spring
Sandhill Milkweed	perennial herb	<u>Stem</u> stout, glabrous <u>Leaves</u> opposite, sessile with pink to lavender veins	<u>Summer</u>
Sundew	Herb	<u>No Stem</u> , rosette form <u>Leaves</u> with tentacle-like bristles and a sticky secretion	Spring

(1) Also occurs in forest habitat.

DUNE-SWALE HABITAT, Continued

Species	Type	Distinctive Features	Flowering Season
Arrowleaf (1) Morning Glory	perennial vine	<u>Stem</u> glabrous <u>Leaves</u> narrowly sagittate	Summer
Meadow Beauty	perennial herb	<u>Stem</u> with coarse bristles, often colonial from horizontal roots <u>Leaves</u> opposite <u>Flowers</u> purplish to white, 1 - 2" wide	Spring <u>Summer</u>
Sea Pink (1)	herb	<u>Stem</u> glabrous <u>Leaves</u> opposite, entire and sessile <u>Flowers</u> white or pink with a yellow eye	<u>Summer</u> Fall
36 Blue-eyed Grass (1)	herb	<u>No Stem</u> , leaves arising from roots <u>Leaves</u> linear, erect + spreading	Spring

(1) Also occurs in forest habitat.

FOREST HABITAT

Raindeer (2) Moss	lichen	<u>No true leaves</u> , roots or flowers <u>Low growing</u> , light green color, interbranched <u>Spore bearing</u> tips pigmented brightly	
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(2) Also found in Dune-Swale Habitat.

FOREST HABITAT, Continued

Species	Type	Distinctive Features	Flowering Season
Sand Pine (1)	coniferous tree	<p>Medium tree, dark bark and dropping branches</p> <p><u>Leaves</u> In 2's, 2-6 inches, deep green, twisted</p> <p><u>Cones</u> 1-3 inches long, minute prickles</p>	Spring
Slash Pine (1)	coniferous tree	<p><u>Large tree</u>, bark purplish brown, peeling in thin, paper-like plate</p> <p><u>Leaves</u> 7-10 inches long, in 3's and 2's</p> <p><u>Cones</u> 3-7 inches long, slender prickles</p>	Spring
Sand Live Oak (1)	tree	<p><u>Branches</u> wide spreading</p> <p><u>Leaves</u> glabrous above, tawny sellate pubescence below</p>	Spring
37 Saw Palmetto (1)	armed shrub	<p><u>Stems</u> horizontal, branched</p> <p><u>Leaves</u> palmately divided, up to 1 m across</p>	Spring Summer
Yucca	shubby perennial	<p><u>Trunk</u> very short or absent</p> <p><u>Leaves</u> 2-6 dm, edges fraying into fibers</p>	Summer
Dewberry (1)	Woody Vine	<p><u>Stems</u> trailing, slender with gland-tipped bristles</p> <p><u>Leaves</u> usually 5-foliate, purplish</p> <p><u>Flowers</u> solitary or in 3 flowered cymes</p>	Spring Summer

(1) Also found in the Dune-Swale Habitat and disturbed areas.

FOREST HABITAT, Continued

Species	Type	Distinctive Features	Flowering Season
Youpon (1) Holly	Evergreen shrub	<u>Twigs</u> puberulent <u>Leaves</u> elliptic, lustrous above <u>Fruit</u> a red drupe, bb size	Spring

(1) Also found in the Dune-Swale Habitat.

WETLAND HABITAT

Black (1) Rush	Grass- herb	<u>Stems</u> glabrous, tufted, .5-1.5m tall <u>Leaves</u> round, stiff and pungent	Spring Summer Fall
38 Cord (1)	perennial grass	<u>Stems</u> glabrous, tufted <u>Leaves</u> (blades) to 6 dm long, sandpapery above, glabrous beneath	Summer
Arrow- (2) head	Aquatic herb	<u>Leaves</u> basal Emerged leaves linear to oval submersed leaves phylloidial	Summer Fall
Lizards (2) tail	Aquatic Herb	<u>Stem</u> pubescent <u>Leaves</u> alternate, lanceolate-cordate <u>Flowers</u> opposite leaves, aroinded in a narrow plume	Spring

(1) Salt Marsh only.

(2) Fresh Marsh only.



Species	Type	Distinctive Features	FlowerIn Season
Sawgrass (1)	sedge (grass-like perennial)	<u>Flowering stems</u> glabrous, plants tufted to 3m tall <u>Leaf blades</u> to 1 m tall, 8-12 mm wide with rough saw-like margins	Summer
Cattail (1)	grass-like perennial	<u>Leaves</u> erect, sheathing stem base and higher than flowering stem	Spring Summer
Salt Marsh (1) Mallow	perennial herb	<u>Stems</u> stellately pubescent, several arising from root crown <u>Leaves</u> alternate, simple, triangular lanceolate	Summer

(1) Both fresh and Salt Marsh.

39

DISTURBED HABITAT

Sandspur (1)	Annual grass	<u>Stems</u> tufted, culms 2-10 dm tall <u>Blades</u> rough above, smooth below <u>Fruit</u> with sharp spines	Spring Summer Fall
Spanish Bayonet	Shrub	<u>Trunk</u> stocky, usually more than 3 dm high <u>Leaves</u> spiney along margins	Summer

(1) Also found in other habitats.

DISTURBED HABITAT, Continued

Species	Type	Distinctive Features	Flowering Season
Spanish Needles	herb	<u>Stems</u> usually glabrous, solid <u>Leaves</u> opposite, usually serrate <u>Fruit</u> , "beggars tick"	Fall
Coreopsis	herb	<u>Flowers</u> both ray and disk <u>Involucre</u> with 2 series of bracts, the inner wider than the outer or the outer foliaceous	Spring
Bladderpod	Annual herb	<u>Stem</u> glabrous, 1-2 m tall <u>Leaves</u> even pinnate, entire with 20 or more leaflets <u>Fruit</u> a conspicuous, inflated pod	Summer
<sup>40</sup> Standing (1) Cypress	biennial herb	<u>Stem</u> erect, pubescent to 1 m tall <u>Leaves</u> pinnately divided into numerous, thin segments tipped with a spur <u>Flowers</u> red with long tube	Summer
Rain Lilly	bulbous herb	<u>Scape</u> glabrous <u>Leaves</u> linear, sheathing at base <u>Flowers</u> pink, solitary, terminal, subtended by a tubular, membranous bract which splits on 1 side for about 1/2 its length	Spring Summer Fall
Latana	herb, woody at base	<u>Stems</u> angular, pubescent <u>Leaves</u> aromatic, opposite, crenate <u>Flowers</u> clustered and trumpet shaped	Spring Summer Fall

(1) Also found in other habitats

## References

### Marine Life (Shells, etc.)

- Abbott, R. Tucker and Dance, Peter. COMPENDIUM OF SEASHELLS. E.P. Dutton: New York. 1983.
- Abbott, R. Tucker. AMERICAN SEASHELLS. American Malacologists, Inc. 1972 (2nd ed.).
- Abbott, R. Tucker, Zim, Herbert S., and Sandstrom, George and Marita. SEASHELLS OF THE WORLD. Golden Press, NY. 1962.
- Abbott, R. Tucker. SEASHELLS. Bantam Books, NY. 57.
- Abbott, R. Tucker. AMERICAN SEASHELLS. New York, 1974, 2nd ed.
- Abbott, R. Tucker, Zim, H. S., and Sandstrom, G. F. A GUIDE TO FIELD IDENTIFICATION OF SEASHELLS OF NORTH AMERICA. Golden Press, NY. 1968.
- Abbott, R. Tucker. KINGDOM OF THE SEASHELL. Bonanza Books: NY. 1982.
- Aldridge, and Schnider, FLORIDA SEASHELLS. (132pp.)
- Amos and Amos. Audubon Society Nature Guide to the Atlantic and Gulf Coasts.
- Berrill, N. J. and Berrill, J. 1001 QUESTIONS ANSWERED ABOUT THE SEASHORE. Dover Publications, NY. 1957.
- Cousteau. Jacques Cousteau: The Ocean World.
- Emerson, W. K. and Jacobson, M.K. GUIDE TO SHELLS. (American Museum of Natural History) Knopf, Inc. N.Y. 1976.
- Emerson, William K. GUIDE TO SHELLS. American Museum of Natural History.
- Harris, Cricket. SEASHORE LIFE. Great Outdoors Publishing Co., ST. Petersburg, FL. 33714. 1961.
- Helms, Doris R. Biology in the Laboratory, Worth Publishers, New York, New York.
- Hickman, Frances M. and Cleveland P. Hickman, Laboratory studies in Integrated zoology, Times Mirror/Mosby College Publishing, St. Louis.
- MacGinitie, G. E. and N. NATURAL HISTORY OF MARINE ANIMALS. McGraw-Hill: 1949.
- Meinkoth, Norman A. THE AUDUBON SOCIETY FIELD GUIDE TO NORTH AMERICAN SEASHORE CREATURES. Alfred A. Knopf: New York. 1981.
- Morris, Percy A. A FIELD GUIDE TO SHELLS OF THE ATLANTIC AND GULF COASTS. Houghton-Mifflin. 1951.
- Morton, J. E. MOLLUSCS: AN INTRODUCTION TO THEIR FORM AND FUNCTION. Harper Torchbooks, no. TB 529, NY. 1960.
- Perry, L. M. and Schwengel, J.S. MARINE SHELLS OF THE WESTERN COAST OF FLORIDA. Paleontological Research Institute, Ithaca, NY. 1955.
- Romashko, Sandra. SHELLS AND SHELLING. Windward Publishing Co.: Miami, FL. 33137. 1984.

## References

Page 2

Siekman, Lula. HANDBOOK OF SHELLS. Great Outdoors Publishing Co.:  
St. Petersburg, FL. 33714. 1981.

Voss, Gilbert L. SEASHORE LIFE OF FLORIDA AND THE CARIBBEAN. Miami. 1976.

Wagner, R. J. L. and Abbott, R. T. (Eds.) VAN NOSTRAND'S STANDARD  
CATALOG OF SHELLS (2nd ed.) D. Van Nostrand, Princeton, NJ. 1967.

## Plants

Anderson, Loran C. and Lawrence L. Alexander. The Vegetation of Dog Island,  
Florida Scientist. Vol. 48, No. 4, Autumn, 1985.

Bell, C. Ritchie and Taylor, Bryan J. FLORIDA WOLDFLOWERS AND ROADSIDE  
PLANTS. Laurel Hill Press, Chapel Hill, NC.

Bell and Taylor. Florida Wild Flowers and Roadside Plants.

Clewell, Andre F. A GUIDE TO THE VASCULAR PLANTS OF THE FLORIDA  
PANHANDLE. University of Florida Press, Gainesville, FL (Good key).

Duncan. Wildflowers of the Southeastern United States.

Kurz, H. and Godfrey, R. K. TREES OF NORTHERN FLORIDA. University  
of Florida Press: Gainesville. 1962.

Long, Robert W. and Lakela, Olga. A FLORA OF TROPICAL FLORIDA. Univ.  
of Miami Press, Coral Gables, FL. 1971. (Rev. 1976). Banyan Books, 1976.

West, E. and Arnold, L. THE NATIVE TREES OF FLORIDA. University of  
Florida Press: Gainesville, 1956.

## Birds

Harrison. Seabirds: An Identification Guide.

Hayman. Shorebirds: An Identification Guide.

### Additional References

- Ayensu, Edward S. Endangered and Threatened Plants of the United States. Smithsonian Inst. and World Wildlife Fund, Wash., D. C., 1978.
- Bent, Arthur Cleveland. Life Histories of North American Petrels and Pelicans and their Allies. Dover, N.Y.
- Bent, Arthur Cleveland, Life Histories of North American Shore Birds. Cover, NY.
- Campbell, George R. Nature of Things on Sanibel Pineapple Pr. Sarasota, Fl. 1988.
- Chiasson, Robert B. Laboratory Anatomy of the Perch. William C. Brown, Dubuque, IA. 3rd. ed.
- Dawes, Clinton J. Marine algae of the West Coast of Florida. Un. of Miami Press. 1974.
- Dawson, Elmer Yale. The Seaweeds. William C. Brown, Dubuque, IA. 2nd ed.
- Dawson, Elmer Yale. How to Know the Seaweeds. William C. Brown/Wire Coll. Dubuque, IA. 1978, 2nd ed.
- Douglas, Marjory Stoneman. The Everglades: River of Grass. Pineapple Press, Sarasota, FL. 1988. rev. ed.
- Godfrey, Robert K. Aquatic and Wetland Plants of Southeastern United States: Dicotyledons. Un. of Georgia Pr., Athens, Al. 1981.
- Godfrey, Robert K. Aquatic and Wetland Plants of Southeastern United States: Monocotyledons. Un. of Georgia, Athens, GA. 1979.
- Hay, Roy. The Color Dictionary of Flowers and Plants for Home and Garden. Crown Pubs., NY. 1982.
- Hitchcock, Albert Spear. Manual of the Grasses of the United States. Dover, NY. 1971.
- Hotchkiss, Neil. Common Marsh, Underwater and Floating-leaved Plants of the U. S. and Canada. Dover, NY. 1972.
- Herman Kurz and Robert K. Godfrey. Trees of Northern Florida.
- Little, Elbert L. The Audubon Field Guide to North American Trees. Alfred A. Knopf. NY. 1980.
- Little, Elbert L. Checklist of United States Trees (Native and Naturalized). GPO, Wash., D. C. 1979.
- Morris, Perry A. A Field Guide to the Shells of the Atlantic and Gulf Coasts. Houghton Mifflin, Boston, Ma. 1984.
- Neiring, William A. The Audubon Society Field Guide to North American Wildflowers: Eastern Region. Alfred A. Knopf, New York. 1979.
- Nybakken, James. Marine Biology, An Ecological Approach. Harper & Row, NY. 1982.

Rehder, Harold A. The Audubon Society Field Guide to North American Seashells.  
Knopf/Random House, NY. 1981.

Rheinheimer, G. Aquatic Microbiology. John Wiley, NY. 1986 3rd ed.

Sargent, William. The Year of the Crab: Marine Animals in Modern Medicine.  
W. W. Norton, NY. 1987.

USDA. Common Weeds of the United States. Dover, N.Y.

Vilas, Curtis N. Florida Marine Shells. C. E. Tuttle. P. O. Box 410, Rutland, VT.  
1970.

Voss, Gilbert L. Coral Reefs of Florida. Pineapple Press. Sarasota, FL.  
1988.

Webb. Handbook for Shell Collectors.

Winn and Olla. Behavior of Marine Animals. Vols. 1,2,3, and 4.

Perry and Schwengel. Marine Shells of the Western Coast of Florida.

Year after year beheld the silent toil  
That spread his lustrous coil;  
Still, as the spiral grew,  
He left the past year's dwelling for  
the new,  
Stole with soft step its shining  
archway through,  
Built up its idle door,  
Stretched in his last-found home,  
and knew the old no more.

Thanks for the heavenly message  
brought by thee,  
Child of the wandering sea,  
Cast from her lap, forlorn!  
From thy dead lips a clearer note is  
born  
Than ever Triton blew from  
wreathed horn!  
While on mine ear it rings,  
Through the deep caves of thought  
I hear a voice that sings;

Build thee more stately mansions, O  
my soul,  
As the swift seasons roll!  
Leave thy low-vaulted past!  
Let each new temple, nobler than  
the last,  
Shut thee from heaven with a dome  
more vast,  
Till thou at length art free,  
Leaving thine outgrown shell by  
life's unresting sea!

Oliver Wendell Holmes  
from  
The Chambered Nautilus



## Welcome

WELCOME to the third annual Calhoun Spring Wilderness Pilgrimage! As an indication of the physical beauty and spiritual renewal offered by a seashore pilgrimage, we would like to share these lines written in 1858:

*Year after year beheld the silent toil  
That spread his lustrous coil;  
Still, as the spiral grew,  
He left the past year's dwelling for  
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Shut thee from heaven with a dome  
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*Till thou at length art free,  
Leaving thine outgrown shell by  
life's unresting sea!*

*Oliver Wendell Holmes  
from  
The Chambered Nautilus*

## Barrier Island Ecology



March 7-12, 1989  
on  
Dog Island, Florida

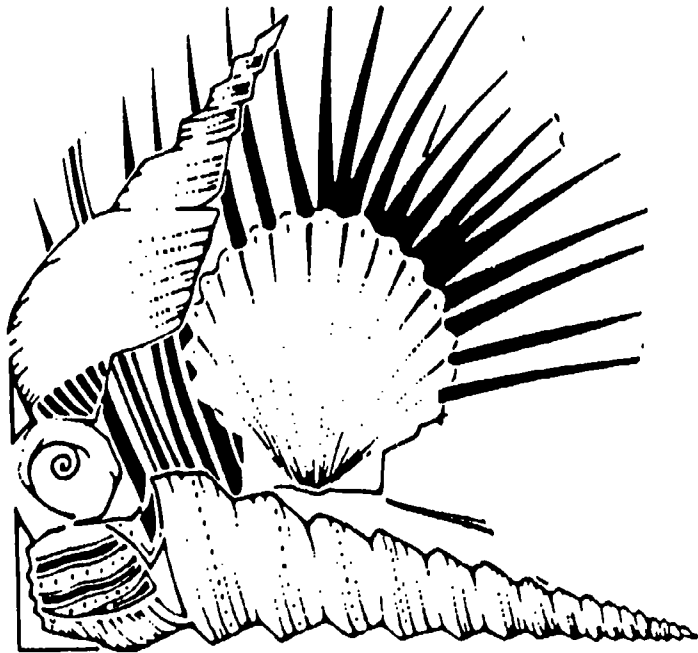
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A Professional Development  
activity for faculty and staff  
of  
Calhoun Community College

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# Department of Natural Sciences Field Trip for Professional Development



## Information

**What:** An environmental awareness field study of the plants and animals of a barrier island.

**Where:** Dog Island, Florida

**When:** During the Professional Development Workshop, March, 1989

**Instructors:** Dr. Don Collier, Dr. Bettye Gregg, Ms. Donna Lee, and Mr. George Williams

**Fee:** \$185.00 per person

## Fees Include:

- accommodations at the Pelican Inn -- one double bed per individual (room shared with another participant).
- transportation -- vehicles will leave Calhoun Community College Tuesday evening, March 7 and return on Sunday morning, March 12.
- ferry to and from the Island
- shrimp feast

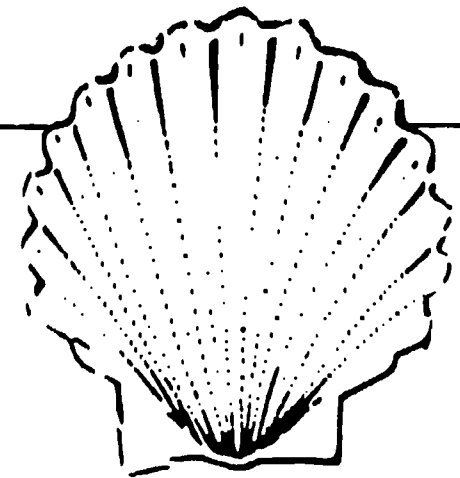
## Fees will NOT include the following:

- meals while traveling and 8 meals on the island. Estimated cost, \$50.00.
- phone calls, or traveling incidentals

## Payment of fees:

- \$85.00 deposit for accommodations, due by January 19.
- \$100.00 balance due by February 28

*Reservations will be made on a first-come, first-served basis, pending payment of deposit. Deposits will be accepted beginning 8:00 a.m., Thursday, January 12 through 12:00 noon, Thursday, January 19. Enrollment will be strictly limited to 14 participants. For information and trip registration forms, contact Patricia Lambert, Natural Sciences secretary, extension 444.*



## Planned Activities:

- ferry ride to a barrier island in the Gulf of Mexico
- nature hikes to observe coastal vegetation, and marine life on tidal flats....
- shrimp feast on the island....
- photomicroscopy of marine life
- identification of mollusks
- collection of seashells....
- leisure time on the beach....

