APALACHICOLA
CONSERVATION ELEMENT
Revised October - 2004

List of Tables

CONSERVATION ELEMENT

I. INTRODUCTION

A. Purpose

The purpose o£ the conservation element is to promote the conservation, and protection of natural resources within the City of Apalachicola.

The element will also analyze the current and future demand for natural resources such as water, minerals, soils and fisheries. As a guide to local decision-makers, this element will serve as means of protecting these natural resources as growth occurs throughout the City. Policies \.o conserve and enhance these resources as well as shape growth patterns are included.

B. Environmental Setting

Apalachicola comprises an area of approximately two square miles and is relatively flat with low-lying marsh areas especially along the Apalachicola River and its tributaries. The City is bounded by the Apalachicola River in the northwest and St. Vincent Sound and the Apalachicola Bay on the south. - The elevation ranges from six feet above sea-level near the shoreline areas to approximately sixteen (IS) feet above sea level in the western section of the City.

The area contains one large estuary, East Bay. This shallow estuary serves Apalachicola in a multitude of ways. It acts as an energy absorber in storms, climate modifiers, sources of recreation and, most of all, it acts as a nursery area for many forms of aquatic life, which is of utmost importance for the area commercial fishing.

The coastal zones of Apalachicola is somewhat protected by two of the three barrier islands; St. Vincent and St. George Island. Besides acting as barrier zones to the mainland during bad weather they also contain some of the most attractive beaches in Florida.
Because of the effects of relatively high annual rainfall, the low lying topography, and the proximity of the City to River and Bay systems, surface drainage is a very important consideration.

C. Current. Situation

The 1986 population of Apalachicola is estimated by the : U.S. Bureau of the Census to be 2,586 The 190O population was 2,565. negligible growth has occurred in : Apalachicola. It is. anticipated that, the year-round population growth will remain small or possible decrease to the year 2000. However, the seasonal population because of the aesthetic and recreational appeal of Apalachicola will continue to expand.

It is expected that most of the development activity will occur in the Greater Apalachicola area due to the scarcity of land in the historic district and riverfront area district. Development in Old Apalachicola will most likely occur along the waterfront, thereby increasing the volume of stormwater runoff and pollutants that will enter the natural waterbodies. Without proper land use planning to mitigate these adverse actions, both environmental and economic degradation will occur.

II. INVENTORY AND ANALYSIS

A. Water Resources

1. Surface Water

The City of Apalachicola because of its proximity to a number of major waterbodies will have an effect on the water quality and thus the future economic and recreational value of the surrounding surface waters.

Scipio Creek and the Apalachicola river from the northern and eastern boundaries of the City of Apalachicola while Apalachicola Bay comprises the southern boundary. Farther east, numerous bayous, sloughs and rivers empty into East Bay. Apalachicola Bay is surrounded by East Bay; St. George Sound; the barrier islands of Dog, Saint George and Saint Vincent, and areas of freshwater marsh which are drained by Pine Log Creek and Huckleberry Creek.

The State of Florida has designated the water adjacent to the City of Apalachicola as Class III Waters (see Map 6 in the Coastal Management Element). Policies toward stormwater management, seafood processing and commercial fishing should be formulated to maintain that standard as a minimum. The Class III status is established to protect recreation and the propagation and maintenance o; a healthy, well balanced population of fish and wildlife.

The Apalachicola River is unique in Florida. Its geological history far surpasses other rivers of the Coastal Plains, with formations dating back approximately eighteen (18)' million years. Its continuous history has contributed to an ecological diversity which includes 116 noteworthy species of plant. The Apalachicola is Florida's largest river in terms of area and volume. Recorded discharge rates in the Apalachicola River range from about 200,000 cfs with an average flow of about 23,500 cfs. This tremendous volume of water provides nutrients that drive the biological machine of the estuarine system.

The Apalachicola Bay Estuary provides a brackish environment that supports a wide range of fish and wildlife. It functions as a protective habitat with an abundance of nutrients; and most importantly, both in an ecological and economic sense, it acts as nursery ground for juveniles of marine species.

The importance of the Apalachicola River and Bay system to the local economy of the City of Apalachicola in terms of economic development-is quite evident. The seafood it produces is the economic mainstay of the region. In an effort to pristine nature of the system, the U. S. Department of Commerce, Office of Coastal Zone Management designated portions of the bay and adjacent uplands a National Estuarine Research Reserve. The Apalachicola National. Estuarine Research Reserve encompasses approximately 193,753 acres, most (135,680 acres) of which are State-owned Submerged lands.

Uses within the Reserve include recreational activities such as camping, hiking, recreational fishing, hunting and nature appreciation as well as commercial activities such as fishing, waterborn navigation and apiaries. The estuarine reserve designation will enhance protection of the natural resources by integrating research and education programs into decision making-that may influence the Apalachicola River and Bay System.

2. Floodplains

Apalachicola lies within the Apalachicola River floodplain with a drainage pattern comprised of numerous creeks, rivers and streams. The area of floodplain in Apalachicola comprises 125 acres. Because of the effects of relatively high annual rainfall, extensiveness of low topography and the proximity of the City to the River systems, surface drainage is an important consideration for development along the Apalachicola

Shore Zone. The Future Land Use Element contains a map of the floodplain. Alteration of the natural drainage patterns within these zones can create serious flood or water hazards if not properly planned. City leaders should continue to ensure that local floodplain -management regulations .conform .to the latest State and Federal standards.

Groundwater Resources

Groundwater is a key asset to rural communities such as Apalachicola, in that it is the principle source of water for residential, commercial and industrial uses. Aquifers, which are/water bearing zones under the earth's surface that are capable of receiving, storing, and transmitting water, are the primary source of ground .water in Florida.

The two most common types of aquifers are artesian, which occur where water is confined under sufficient pressure to rise above the soil formation containing it and non-artesian, which occur in unconfined or water table conditions in which the water surface is free to rise and fall.
The Florida Aquifer is the dominant aquifer in the Apalachicola area. A shallow non-artesian aquifer is also found in the area. It is used primarily in rural areas where water demand is low. Water for the aquifer comes mainly from local rain water. Saline intrusion can be a problem for areas in coastal areas which utilize this aquifer, in that salt water is in constant contact with the sandy upper layer of the water table.

Groundwater withdrawn from the Florida aquifer in Apalachicola is highly mineralized. Total dissolved solids exceed 700 milligrams per liter. The water can be characterized as very hard, with hardness exceeding 400 milligrams per liter. The chloride content is approximately 120 milligrams per liter. No softening processes are added at the treatment plant. The northwest Florida Water Management District has no data at this time to determine the overall effects of saltwater intrusion at this time.

Essentially all development within the City limits are served by the water system which has approximately 1,430 connection as of July 1989. The average flow of treated water per day is 657 thousand gallons. The capacity of the system is adequate to meet population demands through the year 2000 and is analyzed in further detail in the Public Facilities Element.

The City currently uses two wells which make use of the ground water available within the Floridan aquifer These wells are currently producing 241.6 million gallons annually to meet the needs of the City. The large quantities of both surface and groundwater resources are a not her valuable asset for the City. The water wells are identified on a map within the Future Land Use Element.

As a result, care must be taken to avoid pollution of rivers and streams which not only serve as a direct source of fresh water, but also recharge the aquifer. A study , conducted by the Army Corps of Engineers entitled Apalachicola River Basin indicated that projected peak demand for Franklin County in the 202O is 3.0 mgd (1.5 mgd average demand). The existing facilities capacities in the county are 2.O3 mgd. The maximum safe yield of ground water in the Franklin County are is 13 mgd. And thus it appears that Franklin County could continue to meet future public water demands by utilizing ground water resources.

In reviewing the existing facility capabilities for Apalachicola it is apparent that nominal expenses would be needed to meet the projected demand in the year 2020. Presently, the public water supply system in Apalachicola has the capability of meeting current and future demand. The system includes two 500 gpd wells with two 100,000 gallon storage tanks. In addition, a 400,000 gallon storage tank has been considered in the future plans of expanding this public water system.

Cost to develop a regional water supply source would be prohibitive in comparison to existing supply systems.

Soils

Based on the soil survey of Apalachicola, prepared by the USDA, Soil Conservation Service, the predominate soil associations are The Rutledge and Leon Sand and Mandarin and Scranton Series. The predominate soils are all somewhat poorly-drained sandy coils that pose problems for building development, water management and sanitary facilities. (See Soils Map in Future Land Use Element)

Along the Apalachicola Bay side of the City, the Scranton and Tidal Marsh Series predominate. Areas • covered by either the Scranton or Tidal Marsh Soils have severely limited development potential due to the tidal effects on lower coastal plains. Although a limiting factor in terms of land development, proper planning of sanitary sewer facilities, and stormwater management can alleviate many problems associated with these soil types.

Mineral

The United States Geological Survey sheet for Franklin County Indicates there are localized pockets of peat, shell and clay sand suitable for road fill, these mineral are not available in significant amounts, particularly in Apalachicola. Because mining of such mineral would be environmentally damaging no mining activities are eligible for permitting within the City of Apalachicola.

Flora and Fauna

The pine tree is the predominant feature cf Apalachicola. However, the coastal floodplains, swamps and marsh areas within Apalachicola offer a variety of flora and fauna. Within the Tidal Marsh areas exist submerged and emergent vegetation with the cordgrasses being the most predominant species. The swampy areas of the City are inhabited by cypress, willows, cottonwoods, and sweetgum trees. The dry, sandy uplands are covered with differing varieties of pine and oak. Table 1 shows the threatened and endangered plants found the lower Apalachicola River and Bay System. Because of its proximity to an estuarine system, the undisturbed areas of Apalachicola are inhabited by a wide variety of fish and wildlife.

Of the 116 fish species identified within the system, three are endemic to the river system while a fourth originated in the system. The Apalachicola system provides spawning areas for anadromous fish. It supports an abundant striped bass population and contains such fish as the Atlantic sturgeon, the Alabama shad, skipjack, herring, and the Atlantic needlefish. The hog choker lives in the river but migrates to the sea to breed. Striped mullet and gulf flounder swim upriver

TABLE 1 THREATENED AND ENDANGERED PLANTS OF FRANKLIN COUNTY

Actaea pachypoda	Baneberry	T	bluffs
Adianturo capillus-veneris	Venus-hair fern	E	bluffs/ sinks bluffs
Aneroonella thalictroides	Rue anemone	T	Bluffs
Aristolochia tomentosa	Wooly dutchman's pipe	T	
Aquilegia cnaadensis	Columbine	E	calcareous woods
Asclepias viridula	Southern milkweed or Green milkweed	T	flatwoods
Aspleniuin platyneuron	Ebony spleenwort	T	hammocks
Asplenium resiliens	Blackstem spleenwort	T	hammocks
Aster spinulosus	Pinewoods aater	T	flatwoods
Azolla carolinians	Mosquito fern,Water fern	T	swamps
Baptisia megacarpa	Apalachicola wild indigo	T	Bluffs
Botrychium biternatum	Southern grapefern	T	Hammocks
Bumelia lycioides	Buckthorn	T	Hammocks
Callirhoe papaver	Poppy mallow	T	pine-oak-hickory woods
Callopogon barbatus	Bearded grass pink	T	Flatwoods, bogs
Calopogon pallidus	Pale grass pink	T	Flatwoods, bogs
Calopogon tuberosus	Grass Pink	T	Flatwoods, bogs, marshes around cypress ponds
Cleistes divaricate	Rosebud orchid or spreading pogonia	T	Flatwoods
Conradina glabra	Apalachicola rosemary or panhandle rosemary	T	sandhills
Cornus alternifolia	Pagoda dogwood	T	Bluffs
Croomia pauciflora	Few-flowered croomia	E	Bluffs
Cryptotaenia Canadensis	Honewort	T	
Epidendruro Conopseum	Greenfly orchid	T	hammocks, sinks, gum, swamps
Epigaea repens	Trailing arbutus	E	dry hammocks
Erthronium umbilicatum	Dogtooth lily or dimpled dogtooth violet	T	Bluffs, hammocks

Gentiana pennellians	Wiregrass gentian	E	flatwocds
Habenaria repens	Water spider orchid or creeping orchid	T	marshes, cypress swamps
Harperocallis flava	Harper's beauty	E	Bogs
Hedeomagraveolens	Mockpennyroyal	E	sandhills, flatwoods
Hepatica nobilis	Liverleaf	E	Bluffs
Hexastylis arifolia	Heartleaf	T	Bluffs, hammocks
Hydranges arborescens	Wild hydrangea	T	Bluffs
Hypericum lissoploeus	Smooth-barked St. John's-Wort	E	sinks, pond margins
Ilex ambigus	Carolina holly, Sand holly	T	sandhills, scrub
Ilex deciduas	Possum haw	T	dry upland forests
Illicium floridanum	Purple anise	T	creek swamps, seepages on bluffs
Isoetes flaccida	Florida quillwort	T	swamps, ponds
Kalmia latifolia	Mountain laurel	T	Bluffs, creek swamps
Leitneria floridana	Florida corkwood	T	coastal hammocks
Liatris provincialis	Godfrey's blazing star or Godfrey's gayfeather	E	dunes, sandhills
Lilium catesbaei	Catesby lily	T	flatwoods, bogs
Linum westii	West's flax	T	bogsr cypress, pond margins
Lobelia cardinalis	Cardinal flower	T	coastal hammocks
Lupinus westianus	Gulfcoast lupine	T	sandhills, scrubs
Lycopodium appressum	Southern clubmoss	T	bogs, moist flatwoods
Macbridea alba	White birds-in-a-nest	E	bogs, flatwoods
Magnolia ashei	Ashe's magnolia	E	bluffs, bayheads, hammocks
Magnolia pyramidata	Pyramid magnolia	E	bluffs
Malaxis unifolia	Green adder's mouth	T	bluffs, sinks
Malus angustifolia	Crab apple	T	bluffs, hammocks
Matelea alabamensis	Alabama spiny-pod	E	bluffs
Matelea floridana	Florida milkweed	E	bluffs, pine-oak-hickory woods
Medeola virginiana	Indian cucumber-root	T	bluffs
Nolina atopocarpa	Florida beargrass	E	flatwoods
Onoclea sensibilis	Sensitive fern	T	moist hammocks
Cphioglossum petiolatum	Stalked Adder's-tongue	T	moist roadsides
Cpuntia stricta	Prickly pear	T	disturbed sands near coast
Oxypolis greenmanii	Giant water-dropwort gaint water cowbane	E	acid swamps
Parnassia grandifolia	Grass-of-parnassus	E	Boggy cypress strands
Phlebodium aureum	Golden polypody	T	epiphytic in cabbage palms
Pinckneya bracteata	Hairy fevertree	T	Creeks swamps, titi,

			swamps, bog
Pityopsis flexuosa	Panhandle golden aster	E	sandhills
Platanthera blephariglottis	White fringed orchid	T	marshes
Platanthera cristata	Crested fringed orchid or Southern rein-orchid	T	cypress swanps
Platanthera flava	Southern rein-orchid	T	spring-fed river
Platanthera Integra	Orange rein orchid	T	flatwoods
Platanthera nivea	Snowy orchid	T	bogs
Pogonia ophioglossoides	Pone pogoriia	T	flatwoods, bogs
Polygonelia macrophylla	Large-leaved jointweed	T	dunes/ scrub
Rhexia lutes	Meadow beauty	T	flatwoods, bogs
Rhexia parviflora	Small-flowered meadow-beauty or Apalachicola meadowbeauty	E	margins of cypress swamps
Rhododendron sustrinum	Florida flame azalea	T	flatwoods, titi and bay swamps
Rhododendron serrulatum	Swanp honeysuckle	T	bogs, coastal flatwoods
Ruellia noctiflora	Night-flowering ruellia	T	bogs, coastal flatwoods
Sabal minor	Dwarf palnetto or bluestem	T	wet hammocks, bluffs
Sarracenia Leucophylla	White-top pitcher-plant	E	bogs, creek swomps
Sarracenia psittacina	Parrot pitcher-plant	T	flatwoods/ bogs
Sarracenia apoda	Meadow spikemoss	T	stream banks
Selaginella arenicola	Sand spikemoss	T	sandhills, dunes, scrub
Spiranthes cernua var. odorata	Nodding Ladies’ Tresses	T	river swamps, bogs
Spiranthes gracilis	Slender ladies' tresses	T	flatwood, sandhills
Spiranthes ovalis	Lesser ladies' tresses	T	bogs, moist hamnocks
Spiranthes praecox	Grass-leaved ladies' tresses	T	flatwoods, pinelands
Spiranthes vernalis	Spring ladies' tresses	T	flatwoods, cypress swamps
Staphylea trifolia	Bladdernut	T	moist bluffs, creek bottoms
Stewartia malachodendron	Sikly camellia	T	bluffs, steapheads, bayheads
Taxus Floridana	Florida yew	E	hammocks, cedar swanps of Apalachicola River
Thelypteris Denata	Downy shield	T	
Thelypteris hexagonoptera	Beech fern	T	bluffs, hammocks
Thelypteris interrupta			coastal hammocks
Thelypteris kunthii	Southern shield fern	T	calcareous woods
Thelypteris palustris	Marsh fern	T	stream banks
Thelypteris quadrangularis	Aspidium fern (unnamed)	T	ravines
Tillandsia bartramii	Wild pine, air plant	T	moist woods
Torreya taxifolia	Florida torreya	E	hammocks near

			Apalachicola River
Trillium lancifolium	Lance-leaved wake-robin	E	bluffs
Veratrum woodii	False hellebores	E,	bluffs
Verbesina chapmanii	Chapman's crownbeard	T	savannahs, bogs, flatwoods
Viola hastata	Halberd-leaved yellow violet	T	bluffs
Woodsia obtuse	Cliff fern	T	bluffs
Woodwardia areolata	Netted chain-fern	T	acid swamps, lime sinks
Xyris longisepala	Karst pond yellow-eyed grass	E	margins of sandhills
Xyris scabrifolia	Harper's yellow-eyed grass	T	bogs

from the marina areas in the bay. Sports fishing in the river is supported by sunfish, striped bass, white bass, catfish, and sturgeon. Commercial species include channel and white catfish and bullheads (Yerger, 1976).

The major economic activity conducted within the proposed sanctuary is commercial fishing. A combination of beneficial* physical and biological circumstances allows Apalachicola Bay to be one of the most productive fishery areas in the country. The bay supports major fisheries for oyster, shrimp, crab, arid finfish; it is also the major breeding grounds for blue crab for the eastern Gulf of Mexico. Table 2 and Table 3 summarize recent commercial shellfish. A finfish landing in F. C.A x city breakdown is not available.

Although Apalachicola does not have any large public or private areas of undisturbed woodlands or swamp, only a short distance north of the. City is the Apalachicola National Forest. This area and the large expanse of forested woodlands surrounding the City are inhabited by black bear, whitetail deer, fox, possum, raccoon, skunk, otter, beaver and hogs. At any one tine some 283 species of resident and migrating birds can be observed in Apalachicola.

Waters adjacent to the City are teaming with game fish such as Largemouth Pass, Redfish, Speckled Trout, Sunshine Base, Flounder and Bream. No commercial fishing takes place within the City limits of Apalachicola.

An important issue in dealing with the conservation and protection of wildlife and vegetation, is the plan for protection of threatened and endangered species. As Table 4 shows, fifteen species of fauna (fish, birds, reptiles, amphibians and mammals) that may occur in Apalachicola are threatened or endangered.

Table 2: Summary of Selected Franklin County Shellfish Landings (1974-1985)

	Blue Crabs	Oysters	Shrimp	Total Shellfish
1974 Quantity 1	1,444	2,454	3,964	7,874
Value2	180	1,371	2,681	4,235
1975 Quantity1	1,659	2,033	4,486	9,000
Value2	224	1,107	4,300	6,061
1976 Quantity1	1,742	2,503	3,160	9,679
Value2	300	1,591	4,570	7,837
1977 Quantity1	1,106	3,894	4,420	9,822
Value2	214	2,820	5,051	8,305

1978 . Quantity1 Value2	888 189	5,566 4,222	4,931 5,786	11,885 10,441
1979 Quantity1 Value2	1,219 243	5,810, 4,869	2,714 5,260	9,883 10,464
1980 Quantity1 Value2	1,313 280	6,410 5,739	2,890 4,690	11,163 11,077
1981 Quantity1 Value2	1,640 374	6,617 6,463	4,788 7,983	13,764 15,307
1982 Quantity1 Value2	1,011 275	4,153 4,150	3,047 6,399	8,319 10,933
1983 Quantity1 Value2	984 343	3,936 4,158	3,621 7,956	8,541 12,466
1984 Quantity1 Value2	1,287 372	6,199 6,803	4,164 7,985	11,650 15,160
1985 Quantity1 Value2	1,433 527	3,786 4,311	3,873 7,154	9,092 11,992

Source: Florida Department of Commercial Natural Resources, Summary of Florida Commercial Marine Landings. Quantity: in 1,000s of pounds. Value: in 1000's of dollars.

TABLE 3: Summary of Selected Franklin County Finfish, Landings (1971-1985)

	Mullet	Flounder	Spotted Seatrout	Redfish	Croaker	Spot	Total Estuarine Finfish	Total Finfish
1971 Quantity1 Value2	916 92	91 26	107 32	21 3	27 3	42 3	1,204 159	2,156 252
1972 Quantity1 Value2	1,146 115	97 29	124 39	20 3	6 1	29 2	1,422 189	2,054 257
1973 Quantity1 Value2	1,214 158	79 27	96 34	26 4	6 1	25 2	1,446 226	2,216 376
1974 Quantity1 Value2	645 91	55 19	76 28	28 6	11 1	19 2	834 147	1,413 343
1975 Quantity1 Value2	984 154	71 23	74 29	36 8	14 <	13 1	1,192 215	1,679 400
1976 Quantity1 Value2	745 132	66 23	101 43	40 9	4 1	4 <	960 208	1,472 431
1977 Quantity1 Value2	539 103	59 25	48 22	22 5	1 <	4 <	673 155	878 268
1978	670	40	49	10 3	10	3	782	1,060

Quantity1 Value2	134	6	25		1	<	184	327
1979 Quantity1 Value2	645 118	56 29	53 32	11 4	2 <	7 1	774 184	1,331 634
1980 Quantity1 Value2	722 140	90 47	29 18	9 3	3 1	6 1	859 210	1,642 954
1981 Quantity1 Value2	659 144	68 37	51 33	10 4	6 1	4 1	798 220	1,663 1,164
1982 Quantity1 Value2	653 151	95 50	55 38	7 3	4 1	10 2	820 245	1,907 1,414
1983 Quantity1 Value2	920 210	88 47	55 40	14 6	3 1	13 3	1,093 307	2,120 1,508
1984 Quantity1 Value2	896 209	86 49	51 39	9 4	1	17 3	1,060 305	1,585 961
1985 Quantity1 Value2	482 116	78 49	47 38	6	3 1	4 1	622 209	1,103 816

Source: Florida Department of Natural Resources, Summary of Florida Commercial Marine Landings. 1. Quantity: in 1,000s of pounds. 2. Value: in 1,000s of dollars.

TABLE A
Threationod (T), Endangered (E), and Species of Special Concern (SSC), Found within Franklin County

Scientific Name	Common Name	Status	Coastal Area Location
Amphibians and Reptiles			
Rana Areolata	Gopher Frog	SSC	Upland
Caretta Caretta Caretta	Atlantic Loggerhead Turtle	T	Marine
Gopherus polyphemus	Gropher Tortoise	SSC	Upland
Graptemys barbouri	Barbour's Map Turtle	SSC	River
Lepidochelys kcmpi	Atlantic Ridley	E	Marine
Maccroclemyt; temminckii	Alligator Snapping Turtle	SSC	River
Pseudomys concinna suwanninsis	Suwannee Cooter	SSC	River
Alligator Mississipienis	Alligator snapping turtle	SSC	River/Wetland
Amphibians and Reptiles			
Drymarchon c. cooperi	Eastern Indigo snake	T	UPLAND
Pituophis melanoleucus	Pine Snake	SSC	UPLAND
Mammals			
Felis concolor cosyi	Florida Panther	E	Upland
Ursus americanus floridanus	Florida Black Bear	T	Upland
Trichechus manatus latirostris	West Indian Manatee	E	Marine
Birds			
Pelecans occidentalis	Brown Pelican	SSC	Marsh,Bay
Egretta thula	Snowy Egret	SSC	Marsh, Bay
Egretta caervca	Little Blue Heron	SSC	Floodplain, Marsh, Bay
Egretta-tricolor	Tricolored Heron	SSC	Floodplain, Marsh, Bay
Egretta rufescens	Reddish Egret	SSC	X
Mycteria Americana	Woodstork	E	Wetlands
Falco sparverius paulus	Southeastern Kestrel	T	Coastal
Halineetus levcocephaKis	Bald Eagle	T	Coastal
Falcoi peregrinus	Peregrine Falcon	E	Coastal
Aramus quaravina	Limpkin	SSC	Floodplain
Charadrius a. tenuirostris	Southeastern Snowy Plover	T	Coastal
Grus canadensis pratensis	Florida Sandhill Crane	T	X
Charadrius meJodus	Piping Plover	T	Barrier Island
Haematopus palliates	Oyster catcher	SSC	Barrier Island
Sterna antillarum	Least Tern	T	Coastal/Barrier Island
Picoides borealis	Red-cockaded woodpecker	T	Upland
Cistotherus palustris marianae	Marian's Marsh Wren	SSC	Wetlands
Ammodramus m. junciolus	Wakulla Seaside Sparrow	SSC	Coastal
Acipenser Oxyrhynchus desotoi	Gulf of Mexico Sturgeon	SSC	River
Notropis Callitaenia	Bluestripe shiner	SSC	River

Source: Resource Inventory of the Apalachicola River and Bay Drainage Basin, 1987.

AIR QUALITY

The City of Apalachicola's airshed is basically free from any air pollution. Any air quality policy imposed in the City should therefore be aimed at maintenance of present air quality. The closest sampling station is located in Panama City, Florida. Data from this station cannot be considered relevant to the study area and will not be listed.
The closest stationary sources of air pollution permitted by the Florida Department of Environmental Regulation are located some 25 miles west in Port St. Joe. They are the Port St Joe Paper company and Sylvachem, Inc. Considering the local land development regulations and the interest in developing the local economic base along the terms of light industry compatible with the seafood industry, it is unlikely that any major contributors of air pollution will exist in the area within the next 20 years.

C. SOIL EROSION

Soil erosion in the upland areas of Apalachicola is not a problem due to limited areas of cleared, undeveloped land. Along the Apalachicola Bay and River soil erosion, most likely due to tidal action, is evident.

D. COMMERCIAL USES OF NATURAL RESOURCES

Commercial uses of natural resources in and around Apalachicola center on the seafood industry. Efforts should be made to maintain the water quality in the Apalachicola River and Bay. Dockside value of finfish landed in Franklin county fluctuates from year to year, depending on availability and market demand. The top 10 species landed in 1985 (The Franklin County Fisheries Options Report. T.A. Herbert & Associates) were:

1.	Grouper	6.	Red Snapper
2.	Scamp	7.	Tuna
3.	Black Mullet	8.	Amberjack
4.	Spotted Seatrout	9.	King Whiting
5.	Red Fish	10.	Menhaden

E. CONSERVATION AND RECREATIONAL USES OF NATURAL RESOURCES
National Estuarine Research Reserve

The Apalachicola National Estuarine Research Reserve (ANERR) has its headquarters on 7th Street near Scipio Creek in the City of Apalachicola. The facility was dedicated in April, 1984. The Reserve Encompassed approximately 193, 758 acres, most (135,680 acres) of which are stateowned submerged lands.

That portion of the Apalachicola River within the City limits is a part of ANERR and are also classified as Class III Waters suitable for shellfish propagation and harvesting, The Apalachicola River and Bay are also designated an Outstanding Florida Water which are subject to the rules of the Department of Environmental Regulation, Chapter 17-3 and 17-4, Florida Administrative Code.

The Apalachicola National Estuarine Research Reserve is on of the more complex reserved in the national system, with reference to management and protection activities. The Reserve consists of several independently managed subunits, supports a variety of recreational and commercial activities, and is potentially affected by land and water use policies in three states.

One of the unique features of this Reserve is the extensive multiple agency involvement in the area. Various upland regions within the Reserve boundaries were previously acquired by federal and a state agencies for a variety of different purposes. St. Vincent Island (12,358 acres) is a National Wildlife Refuge; of Cape. George Island (2,300 acres) is a state Reserve; the eastern tip of St. George Island (1,883) is a state park; and 28,685 acres of Apalachicola River floodplain were purchased under the State's Environmentally Endangered Lands acquisition program for preservation purposes.

Uses within the Reserve include recreational pursuits such as camping, recreational fishing, hunting and nature appreciation as well as commercial activities such as fishing, waterborne navigation and apiaries.

The Estuarine Reserve designation will enhance research and education activities, the integration of research and e3ducation, programs and the integration of research information into resource management decisions. The designation, however, does not afford any additional protection to the resources or any direct management capability.

F. DEVELOPMENT PRESSURES AND POLLUTION

The natural areas in or around Apalachicola are not facing an imminent threat from development pressures. Building activity over the last five years has been slight. If building trends mirror the population projections in the Future Land Use Element the period from 1986-2000 will experience only a slight amount of building activity in Apalachicola.
Certain natural areas in Apalachicola, however, may be subject to more extreme developmental pressures. Lots along the river and bay may experience residential building activity as the demand for waterfront property increases.

In particular, the potential for development along the riverfront will pose some serious problems for public facilities and stormwater management. The small lots, normally 70-ft wide by 100-ft. long, allow little area for retention ponds or natural buffer zones. Development should be guided so that stormwater runoff into the river is prevented and utilization of natural vegetation is maximized. Techniques such as setbacks away from the river bank can minimize or possibly abate pollution from stormwater runoff. Reducing the side setback allowance when natural vegetation is used could provide incentives to developers to opt for natural barriers as opposed to man-made barriers.

E. POLLUTION

Surface Waters

The surface waters around Apalachicola are of good water quality. As mentioned previously, the Apalachicola River and Bay area surrounding the City are designated as Class III Shellfish Harvesting Waters. Primary sources of pollution in these waters are wash water from seafood houses

and docks, bilge wastes and stormwater/sewer interconnection within the City's central sewer system.

Groundwater Areas

Groundwater is the sole-source of potable water in Apalachicola. The present the groundwater resources are of good water quality. Probably the most pressing planning issue with reference to groundwater quality and quantity is the need to maintain select recharge areas. Recharge is the process of rainfall infiltrating to an aquifer. The potential for recharge is based on the type of soils, the thickness of confining layers, the character of the sediment sequence and the occurrence of solution features.

The Apalachicola area has virtually no recharge potential due
the fact that the confining layer is thick throughout the region - generally 50 feet or greater. The continuous, silty characteristics of the overlying sediment layer further diminish the recharge potential.

The greatest threat to groundwater resources in Apalachicola as development pressures arise is the increased usage and decreased volume due, to increases in population and decreased volume due to development. The Future Land Use Element projects that population increases in Apalachicola will be minimal. Findings indicate that the continued use of ground water is the most appropriate way to meet public water demand in the Apalachicola River Basin subarea through the year 20OO (See Table 5). Increasing usage of the aquifer will also enhance the possibilities of saltwater intrusion. The City should make every effort to monitor future changes in the position of the saltwater interface.

Hazardous Wastes

Apalachicola is fortunate in that it does not have any large quantity generators of hazardous waste. Small quantities of wastes are generated by local businesses such as dry cleaners, ~~ • to service stations and seafood processors. In all, the volume spent solvents and used oils and grease is not a significant problem unless improperly stored or disposed.

The City of Apalachicola has three abandoned waste sites within the City limits. The sites were used illegally by residents to dump household trash and garbage. Three abandoned sites are Highland Park & Bluff Road, Market Street (Botanical Gardens) and a site located near the new cemetery on Bluff Road. All have been closed according to DER specifications.

TABLE 5
WATER FACILITIES
APALACHICOLA

DESIGN CAPACITY	2,.088,000 .gpd
NWFWMD CONSUMPTIVE-USE'ALLOCATION	1,150,000 gpd
CURRENT AVERAGE DEMAND	600,000 gpd
AVERAGE DAILY USE	240 gpcd
POPULATION	2,700

CITY OF APALACHICOLA

Planning Period	**1986**	**1990**	**1995**	**2000**
Population Projections	2,613	2,700	2,923	2,986
Design capacity	2,088,000	2,088,000	2,088,000	2,088,000
Gallons per day	229,000	648,000	701,520	716.,640
Residual capacity	1,859,000	1,440,000	1,386,480	1,371,360

SOURCE: 1986 BEBR Bulletin No. 80 and DCA Planning Projections 1989.

6: WATER USE SUMMARY, CITY OF APALACHICOLA, 1985.

Year	Annual Treatment (MGD)	Per Capita (Gal/Day)	Population Served
1985	.582	222	2,613
1990(Proj)	.657	234	2,799
2000(Proj)	.698	234	2,986

Source: Apalachicola Planning Department, 1989.

Table 5 indicates the demand through the year 2000. Table 6 projects the Gross Industrial Water Requirements. Based on this data, it can be assumed there will be sufficient groundwater supply to meet the increased population demand through the year 2000.

Water Conservation

The primary means to implementing an effective water conservation program is education. The City needs to adopt a program that teaches consumers water conservation measures, especially during periods of drought. Table 6 indicates there will be sufficient water supply through the year 2000.

The City's Public Works Department should adopt a rationing plan requiring decreased rate of usage for customers during drought periods. Also, a leak detection program should be Implemented by the Public Works Department. The rate structure should be reviewed to reward conservation.

Conservation Element
Goals, Objectives and Policies

GOAL: Conserve and protect environmental resources such as scenic areas, wildlife, clean air and water to maintain a desirable quality of life.

OBJECTIVE 1: Apalachicola shall maintain through the year 2000, ambient air quality standards which are equal to or more stringent than the State and Federal National ambient air quality standards (NAAQs). 9J-5.013(2)(b)1

Policy 1.1: The City shall condition all commercial new construction development approval to implement best management practices for reduction of erosion, fugitive dust, and air emissions related to the construction of the development

OBJECTIVE 2: The City shall protect the quality of water on the Apalachicola River and Bay to the extent that all water maintains existing classification for water quality as established by the Florida Department of Environmental Regulation. 9J-5.013(2)(b)2

Policy 2.1: By 1995, the City shall establish and maintain adequate docking facilities complete with bilge pumpout facilities at Scipio Creek, Battery Park and all other public and private marinas.

Policy 2.2.: By 1991, the City shall adopt and implement a comprehensive stormwater management ordinance which provides for: (1) buffer zones between the Apalachicola Bay/River and upland development so that stormwater discharge is diverted away from surface waters; (2) post-development runoff rates, volumes and pollutant loads do not exceed pre-development conditions.

Policy 2.3: By 1995, all waterfront properties will be serviced by an adequate central sewer system.

OBJECTIVE 3: Through the year 2000, the City shall, through its land development regulations prohibit development which would result in the water quality of Apalachicola Bay, River and aquifers being degraded below the current classification of "good." 9J-5.013(2)(b)(2)

Policy 3.1: No new untreated point sources shall be permitted to discharge into Apalachicola Bay, River, St. Vincent Sound or into ditches or canals that flow into the above names waterbodies.

POLICY 3.2: In order to protect water supplies and the quality of estuarine waters, the city shall by 1991 identify and begin enforcement action to correct faulty onsite sewer treatment systems. 9J5.013 (2)(c)(1)

OBJECTIVE 4: The City shall, by 1995, adopt mechanisms to conserve current and projected water sources within Apalachicola. In the interim, beginning in 1990, conservation steps will be taken through educational and stop-loss means. 9J5.013(2)(b)(2)

POLICY 4.1: Proposed development which requires large water withdrawals from the aquifers will be submitted to the NWFWMD for review prior to development approval.

POLICY 4.2: The City shall coordinate with the NWFWMD to cap abandoned, free-flowing wells.

POLICY 4.3: The City shall encourage water conservation by educating potable water customers through pamphlets explaining water conservation measures delivered with the monthly water bills.
POLICY 4.4: The city planning and the water departments shall review water usage on an annual basis and plan for elimination of preventable losses from breakages, insufficient uses, etc.

OBJECTIVE 5: The City shall adopt and enforce aquifer protection measures to ensure the protection of the City's potable water source and to safeguard public health. This action will be a part of the revised land development code to be adopted in accordance with S.163.3202(1) F. S. and 9J5.013(2)(b)(2)

POLICY 5.1: The City shall adopt a water conservation plan which shall be consistent with the emergency water shortage contingency plans developed by the NWFWMD and which shall apply to all water system users.

POLICY 5.2: The City shall coordinate with the NWFWMD to initiate a study of the cost/benefits associated with the installation of a water reuse system.

POLICY 5.3: The City shall encourage the use of private well systems or reused water for the purpose of irrigation.

POLICY 5.4: The City shall encourage the use of native vegetation over the use of exotic vegetation.

POLICY 5.5: The City shall continue to protect its quantity and quality of water by allowing only low density/intensity uses to be developed within the City's cones of influence areas. 9J5.013 (2) (c) (1)

OBJECTIVE 6: The City shall, through its land use regulations, protect and conserve soil resources by controlling the encroachment of urbanization on land poorly suited for structural development. 9J5.013 (2) (c) (3)

6.1: The City's site plan review process shall be amended take into consideration natural constraints such as flood hazard, wetlands, soil suitability and aquifer recharge potential, and shall be restricted depending upon the severity of those constraints.

OBJECTIVE 7: The wetlands of Apalachicola shall be conserved and protected such that no net loss (after mitigation) shall occur through the year 2000. 9J5.013 (2)(b)(3)

POLICY 7.1: The City will prohibit dredge and fill of the wetlands without prior approval of State and Federal officials and then only after a mitigation agreement is finalized.

POLICY 7.2: By 1992, Apalachicola shall complete its review and, if necessary, revision of City Land Development Regulations to ensure that:
a) site plans for new development identify the location and extent of wetlands located on and adjacent to the property;
b) subdivision and commercial site plans provide measures to guarantee that normal flows and quality of water will be assured to maintain wetlands development;

c) where alterations of wetlands are necessary in order to allow reasonable use of property, either the restoration of the disturbed wetlands will be provided or additional wetlands will be created at a 4:1 ratio to mitigate any wetland destruction. All approved mitigation shall be required to demonstrate, through appropriate monitoring and reporting by the project's developer, at least an 85% planting survival rate for wetland areas created/augmented during mitigation, for a period of at least two years for herbaceous wetland communities, and for at least five years for forested wetland communities.

POLICY 7.3: Apalachicola shall oppose through formal resolution further depositing of dredge material in the floodplain of the Apalachicola River, other than those already approved spoil sites.

POLICY 7.4: Upland areas of native vegetation larger than 40 acres and all wetlands impoundments are designated either the lowest density residential,' conservation or low intensity commercial on the Future Land Use map, and all marine wetlands are designated as such on the map series.

POLICY 7.5: No new subdivision will be approved unless all of the lots proposed for development contain uplands large enough to contain the proposed activity and all required buffers and preservation areas.

POLICY 7.6: No habitable development shall occur within 20 feet of the waters or wetlands of the State unless located within the riverfront district and then only after a stormwater management plan has been submitted and approved by the State Department of Environmental Regulation, If applicable, and the-local planning board. Docks, pervious walkways, and elevated walkways may be permitted to allow access to the water.

POLICY 7.7: Pilings, not fill, shall be used to elevate structures In native vegetation-areas.

OBJECTIVE 8: The City will support the conservation and protection of native vegetation, ecological communities, fish and wildlife habitat to the extent that between 1990 and 2000, the City will prohibit development which can be proved to damage the City's natural resources. 9J5.013(2)(b)(4)

POLICY 8.1: The City will cooperate, whenever possible, with the Apalachicola National Estuarine Research Reserve in their efforts to maintain a comprehensive inventory of ecological communities which includes species, population, habitat conditions, occurrences and alterations. The City shall reference the Apalachicola Bay Management Plan, and all subsequent updates, as the City’s official natural resource inventory.

POLICY 8.2: The City's land use regulations shall prohibit high density development adjacent to sensitive wetlands areas, and shall prohibit destruction of wetlands vegetation without mitigation.

POLICY 8.3: City land development regulations shall prohibit the development and disturbance of the nesting areas of endangered species, threatened species, and species of special concern, including the nesting areas of turtles.

POLICY 8.4: The City shall, through Its land use regulations, encourage the use of natural vegetation erosion control structures along the coastal area by reducing the side boundary setback when natural vegetation is used.

POLICY 8.5: The City shall prohibit the use of habitat destroying vertical seawalls without rip rap reinforcement along natural water body shorelines. The City will encourage the removal of existing seawalls when the opportunity presents itself. Restoration will be accomplished by replacing existing, deteriorating seawalls with sloped shorelines or rip rap which will be vegetated where technically feasible. When properly done, such vegetated areas will recreate habitat and also provide greater storm protection to upland areas.

POLICY 8.6: Deleted

POLICY 8.7: The City shall prohibit the alteration, other than approved maintenance, of mosquito ditches.

POLICE 8.8: The City shall protect manatees by imposing speed limits, within the City's Jurisdiction, on boats in areas frequented by manatees and by posting signs indicating the presence of manatees.

OBJECTIVE 9: The City shall maintain the estuarine water quality surrounding Apalachicola's coastal resources such that there shall be no loss of any approved shellfish harvesting classifications through the year 2000. 9J5.O13 (2) (b)(4)

POLICY 9.1: By 1991, the City shall develop a program designed to correct any onsite sewage treatment systems that might endanger the water quality of Apalachicola Bay.

POLICY 9.2: The City shall require all owners and users of onsite sewage disposal systems in Apalachicola to connect to a central sewerage system when it is available for use pursuant to s.38O.O555 (11) (h), F. S.

POLICY 9.3: The City shall, through its land development regulations, require developers of new subdivisions with lots of less than one acre to connect to a public wastewater system and provide sewers to each lot in the subdivision.

POLICY 9.4: The City shall, through its land development regulations, require all new construction within the coastal area boundary to install a stormwater management system that will provide for the treatment of runoff to applicable state standards.

OBJECTIVE 10: The City, in conjunction with Franklin County will develop and implement a hazardous waste management program by 1998.

POLICY 10.1: The City, in conjunction with the County, shall have Amnesty Days to collect hazardous waste.

POLICY 10.2: The City shall identify all unauthorized dumps and, in cooperation with DER, develop closure plans for such dumps.

POLICY 10.3: The City shall enforce those local ordinances which prohibit the discharge of petroleum and lead-based fuels and solvents from boat maintenance with the Apalachicola River adjacent to the City limits.