

FWS/OBS-81/24
January 1982
Reprinted September 1985

THE ECOLOGY OF THE MANGROVES OF SOUTH FLORIDA:
A COMMUNITY PROFILE

by

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Performed for
National Coastal Ecosystems Team
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Fish and Wildlife Service
U.S. Department of the Interior
Washington, D.C. 20240

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New Orleans, Louisiana 70130

APPENDIX B. Fishes of mangrove areas of Florida tabulated by habitat type. Key to numbered references appears at the end of the table. Diet items listed in order of decreasing importance.

Family and Species	Habitat Type			Reference	Diet	Diet Reference	Comments
	Fjord	Saltmarsh	Oceanic Bay				
Orectolobidae - carpet sharks							
<i>Ginglymostoma cirratum</i> - nurse shark	+	+	+	1, 5, 7	Fish, cephalopods, molluscs, shrimp, sea urchins	Randall 1967 Clark & von Schmidt 1965 Bohlke & Chaplin 1968	
Carcharhinidae - requiem sharks							
<i>Carcharhinus leucas</i> - bull shark	+			8	Juveniles: fish (<i>Arius felis</i> , <i>Lophogobius</i> , <i>Mugil cephalus</i> , <i>Brevoortia patronus</i> , <i>Micropanchax undulatus</i>). crustaceans including penaeid shrimp, blue crabs	Odum 1971 ^a	
<i>Carcharhinus limbatus</i> - blacktip shark	+		11		Fish (<i>Caranx</i> sp., <i>Centropomus undecimalis</i> , <i>Chilomycterus schoepfi</i> , <i>Arius felis</i> , <i>Lachnolaimus trigonus</i> , <i>Lagodon rhomboides</i>), mussels	Clark & von Schmidt 1965	
<i>Negaprion brevirostris</i> - lemon shark	+	+	4, 5, 7		Young: crustaceans, fish Adults: fish, crustaceans	Randall 1967 Clark & Von Schmidt 1968	
Sphyrnidae - hammerhead sharks							
<i>Sphyrna tiburo</i> - hammerhead	+	+	2, 5		Mantis shrimp, shrimp, isopods, Bohlke & barnacles, bivalve molluscs, cephalopods, fish	Bohlke & Chaplin 1968	
Pristidae - sawfishes							
<i>Pristis pectinata</i> - smalltooth sawfish	+	+	8, 15		Fish, benthic crustaceans	Bohlke & Chaplin 1968	
Rhinobatidae - guitarfishes							
<i>Rhinobatos lentiginosus</i> - Atlantic guitarfish	+		1				
Torpedinidae - electric rays							
<i>Narcine brasiliensis</i> - lesser electric ray	+	+	1, 17, 18				
Rajidae - skates							
<i>Raja texana</i> - roundtail skate	+		1		Crustaceans, fish, annelids	Reid 1954	
Dasyatidae - stingrays							
<i>Dasyatis americana</i> - southern stingray	+	+	2, 4, 5, 7		Fishes, stipunculid and polychaete worms, crabs, bivalves, shrimp, mantis shrimp	Randall 1967	
<i>Dasyatis sabina</i> - Atlantic stingray	+	+	2, 8, 13, 17		Benthic invertebrates including bivalves, xanthid and portunid crabs, shrimps, amphipods, annelids, chironomid larvae	Darnell 1958	
<i>Gymnurida</i> - smooth butterfly ray	+		17		Fish, molluscs, annelids, shrimp, other small crustaceans	Peterson & Peterson 1979	
<i>Urolophus jamaicensis</i> - yellow stingray	+		1		Probably small burrowing invertebrates	Bohlke & Chaplin 1968	

^aThis and all subsequent Odum 1971 citations refer to W.E. Odum 1971.

Family and Species	Habitat Type			Reference	Diet	Diet Reference	Comments
	Tidal Stream	Estuarine Bay	Oceanic Bay				
Myliobatidae - eagle rays							
<i>Aetobatus narinari</i> - spotted eagle ray	+			2	Clams, oysters	Bohlke & Chaplin 1968	
Lepisosteidae -gars							
<i>Lepisosteus platyrhincus</i> - Florida gar		+		3, 7, 13, 15	Fish (poeciliids, cyprinodonts, small centrarchids), crustaceans (caridean shrimp), insect larvae	Odum 1971	
Elopidae - tarpons							
<i>Elops saurus</i> - ladyfish	+	+	+	2, 3, 7, 8, 13, 15	< 45 mm: zooplankton, chaetognaths, polychaete worms > 45 mm: caridean & penaeid shrimp, various small fish	Odum 1971 Austin & Austin 1971	
Mugilidae atlantica - tarpon	+	+	+	7, 8, 13, 15	< 45 mm: plankton (copepods) juvenile: fish (<i>Gambusia</i> , <i>Fundulus heteroclitus</i> , <i>Mugil cephalus</i>), crustaceans (ostracodes, caridean shrimp) adults: wide variety of fish, crabs, shrimp, ctenophores, insects	Odum 1971 Austin & Austin 1971	Obligate air breathers. Juveniles inhabit shallow brackish pools low in oxygen, often containing H ₂ S (Madd 1962)
Albulidae - bone fishes							
<i>Albula vulpes</i> - bonefish	+			4, 5	Clams, snails, shrimp, small fish	Bohlke & Chaplin 1968	
Anguillidae - eels							
<i>Anguilla rostrata</i> - American eel	+			8, 13	50-200 mm: amphipods, isopods 190-472 mm: xanthid crabs, caridean shrimp, fish (<i>Lophogobius cyprinoides</i>)	Odum 1971	
Ophichthidae - snake eels							
<i>Myrophis punctatus</i> - speckled worm eel	+	+		2, 3, 17, 18	Polychaetes, <i>Branchiostoma caribaeum</i> , sand crabs	Springer & Woodburn 1960, Reid 1954	Members of this family burrow in mud or sand, undersampled by most methods (Bohlke & Chaplin 1968)
Schistacanthus acuticaudis - whip eels	+			3			
Ophichthus gomesi - shrimp eel	+			3, 17			
Clupeidae - herrings							
<i>Brevoortia smithi</i> - yellowfin sardine	+	+		2, 5, 17			
<i>Brevoortia patronus</i> - Gulf menhaden	+			12	38-48 mm: phytoplankton, zooplankton, plant fragments, detritus 85-103 mm: organic matter, silt, diatoms, foraminiferans, copepods	Barnell 1958	

Family and Species	Habitat Type				Reference	Diet	Diet Reference	Comments
	Tidal Stream	Estuarine Bay	Oceanic Bay					
<u>Harengula pensacolae</u> - scaled sardine	+	+	+		2, 3, 8, 13	30 mm: planktonic copepods, zoea, nauplii, larval fish 64-96 mm: amphipods, harpacticoid copepods, isopods, mysids, chironomid larvae	Odum 1971	
<u>Opisthonema oglinum</u> - Atlantic thread herring	+	+	+		2, 3, 5, 13, 17	Copepods, polychaetes, shrimp, fishes, crab larvae, mysids	Odum 1971	
<u>Sardinella anchovia</u> - Spanish sardine		+			17			
Engraulidae - anchovies								
<u>Anchoa cubana</u> - Cuban anchovy		+			2, 16	Ostracods, copepods	Springer & Woodburn 1960	
<u>Anchoa hepsetus</u> - striped anchovy	+	+			2, 3, 13, 16, 17	32-114 mm: copepods, isopods, mysids, caridean shrimp, small bivalves	Springer & Woodburn 1960	
<u>Anchoa lamprotaenia</u> - bigeye anchovy			+		5			
<u>Anchoa mitchilli</u> - bay anchovy	+	+	+		1, 2, 3, 5, 7, 8, 13, 16-18	<25 mm: microzooplankton 31-62 mm: amphipods, zooplankton, mysids, ostracods, plant detritus, copepods, small molluscs, chironomid larvae	Odum 1971	
Synodontidae - lizardfishes								
<u>Synodus foetens</u> - inshore lizardfish	+	+	+		1-3, 5, 8, 17, 18	Small fish, crabs, shrimp, polychaete worms	Odum 1971	
Catostomidae - suckers								
<u>Kymyzzon suetta</u> - lake chubsucker		+			6			A freshwater stray
Ictaluridae - freshwater catfish								
<u>Ictalurus natalis</u> - yellow bullhead		+			14			A freshwater stray
<u>Noturus gyrinus</u> - tadpole madtom		+			14			A freshwater stray
Arriidae - sea catfishes								
<u>Arius felis</u> - sea catfish	+	+	+		2, 3, 5, 7, 8, 13, 17	100 mm: copepods, zooplankton amphipods, mysids, chironomid larvae, isopods, small crabs 100-200 mm: benthic invertebrates 200-330 mm: crabs, amphipods, mysids, fishes, bark, crayfish, caridean and penaeid shrimp	Odum 1971	
<u>Bagre marinus</u> - gafftopsail catfish	+	+			2, 8, 17	262-445 mm: blue crabs, small fishes	Odum 1971	
Batrachoididae - toadfishes								
<u>Opsanus beta</u> - Gulf toadfish	+	+	+		1-3, 5, 7, 12, 13, 15, 17, 18	18-60 mm: amphipods, chironomid larvae, mysids, isopods, few fish >60 mm: caridean shrimp, xanthid crabs, snapping shrimp, mussels, fish, mangrove bark	Odum 1971	Salinities 10 o/oo > (Odum 1971)

Family and Species	Habitat Type			Reference	Diet	Diet Reference	Comments
	Tidal Stream	Estuarine Bay	Oceanic Bay				
<u>Porichthys porosissimus</u> Atlantic midshipman	+			3, 18			
Gobiesocidae - clingfishes <u>Gobiesox strumosus</u> skilletfish	+	+	+	2, 3, 5, 8	10-32 mm: amphipods, isopods, chironomid larvae	Odum 1971	
Ogcocephalidae - batfishes <u>Ogcocephalus nasutus</u> shortnose batfish	+	+		18	Small bivalves, gastropods, polychaetes	Reid 1954	
<u>Ogcocephalus radiatus</u> polka-dot batfish	+			2, 11, 17, 18			
Gadidae - codfishes <u>Urophycis floridanus</u> Southern hake	+			12	Amphipods, isopods, mysids, decapod shrimp, polychaetes, insect larvae, fishes (<u>Lagodon rhomboides</u> , <u>Paralichthys albigutta</u>)	Springer & Woodburn 1960	A species more common at more northerly latitudes
Ophidiidae - cusk-eels, brotulas <u>Gunterichthys longipenis</u> gold brotula	+			17			
<u>Ogilbia cayorum</u> key brotula	+	+		1, 3			
<u>Ophidion holbrookii</u> bank cusk-eel	+			3			
Exocoetidae - flying-fishes, halfbeaks <u>Chriodus atherinoides</u> hardhead halfbeak	+			5			
<u>Hyporhamphus unifasciatus</u> halfbeak	+	+	2, 3, 5	juveniles: zooplankton including crab megalops, veligers, copepods 130-199 mm: epiphytic algae, detritus, seagrass	Carr & Adams 1973		
Belonidae - needlefishes <u>Strongylura marina</u> Atlantic needlefish	+	+	2, 7, 15	357-475 mm: small fishes, insects, shrimp, small amounts of vascular plant material and algae	Darnall 1958		
<u>Strongylura notata</u> redfin needlefish	+	+	2, 3, 5, 8, 13	In grassbeds = Juveniles: polychaete worms, cumaceans, fish Adults: fish, primarily atherinids	Brook 1975		
<u>Strongylura timucu</u> timucu	+	+	2, 3, 11	159-378 mm: anchovies, shrimp	Randall 1967	Primarily inshore species, freely enters freshwater (Randall 1967)	
<u>Tylosurus crocodilus</u> - houndfish	+		11	250-1320 mm: fishes, shrimp	Randall 1967	Open water and inshore surface water inhabitant (Voss et al. 1969)	

Family and Species	Habitat Type				Reference	Diet	Diet Reference	Comments
	Tidal Stream	Saltwater Estuarine Bay	Oceanic Bay					
Cyprinodontidae - killifishes								
<i>Adinia xenica</i> - diamond killifish	+				2, 6, 13-15	Plant detritus, diatoms, amphipods, harpacticoid copepods, insects	Odum 1971	
<i>Cyprinodon variegatus</i> sheepshead minnow	+	+	+		2, 7, 8, 13-15	Plant detritus, algae, nematodes, small crustaceans	Odum 1971	
<i>Floridichthys carpio</i> goldspotted killifish	+	*			2, 3, 8, 13	Amphipods, ostracods, isopods, copepods, chironomid larvae, nematodes, plant detritus, algae	Odum 1971	
<i>Fundulus confluentus</i> marsh killifish	+				2, 8, 13-15	Caridean shrimp, small fish, (<i>Gambusia affinis</i>), amphipods, isopods, adult & larval insects, copepods, mysids, ostracods, algal filaments	Odum 1971	
<i>Fundulus chrysotus</i> golden topminnow	+				14, 15			Rare in mangrove zone, headwater pools only
<i>Fundulus grandis</i> Gulf killifish	+				2, 8, 13-15	Amphipoda, isopoda, xanthid crabs, chironomid larvae, terrestrial insects, snails, algae, small fish (poeciliids)	Odum 1971	
<i>Fundulus heteroclitus</i> Mummichog	+				?	Small crustaceans (amphipods, isopods, ostracods, tanagrids, copepods), detritus, polychaete worms, insects, snails, invertebrate eggs	Peterson & Peterson 1979	
<i>Fundulus seminolis</i> Seminole killifish	+				14-15			Primarily a freshwater form, headwater pools only
<i>Jordanella floridae</i> flagfish	+				13-15			Primarily freshwater, common in pools in headwater regions
<i>Lucania goodei</i> bluefin killifish	+				2, 8, 13-15	Small crustaceans (copepods, cladocerans, ostracodes), insect larvae	Odum 1971	Headwater pools and channel
<i>Lucania parva</i> rainwater killifish	+	+	+		1-3, 5, 8, 13-15, 17	<20 mm: planktonic copepods 21-37 mm: amphipods, mysids, chironomid larvae, ostracods, molluscs, plant detritus	Odum 1971	
<i>Rivulus marmoratus</i> rivulus	+				3, 8, 13, 15			
Poeciliidae - livebearers								
<i>Gambusia affinis</i> mosquitofish	+				2, 3, 7, 13-15	A versatile feeder: amphipoda, chironomid larvae, hydracarina, harpacticoid copepods, snails, ants, adult insects, polychaete worms, ostracods, mosquito pupae, algae	Odum 1971	
<i>Gambusia rhizophorae</i> mangrove gambusia	+				6, 9			Fresh and brackish water in <i>Rhizophora</i> swamps, northern Cuba, southeastern Florida

Family and Species	Habitat Type			Reference	Diet	Diet Reference	Comments
	Tidal Stream	Estuarine Bay	Oceanic Bay				
<i>Heterandria formosa</i> least killifish	+			8, 14, 15	Chironomid larvae, harpacticoid and planktonic copepods, cladocerans, terrestrial insects, algae, diatoms	Odum 1971	
<i>Poecilia latipinna</i> sailfin molly	+	+		5, 7, 8, 13-15	Plant detritus, algae, diatoms	Odum 1971	
Atherinidae - silversides <i>Allanetta harringtonensis</i> reef silverside		+		5	39-60 mm: copepods, fish larvae, Randall polychaete larvae	1967	
<i>Menbras martinica</i> rough silverside	+	+		2, 5, 11	Small zooplankton crustaceans, juvenile & larval fishes, insects, detritus, snails	Peterson & Peterson 1979	
<i>Menidia beryllina</i> tidewater silverside	+	+	-	2, 3, 8, 11, 12, 13, 17, 18	Insects, copepods, chironomid larvae, mysids, amphipods	Odum 1971	
Syngnathidae - pipefishes, seahorses <i>Corythoichthys</i> <i>albirostris</i> whitenoose pipefish		+		1, 11			
<i>Hippocampus erectus</i> lined seahorse	+	+		1, 2, 3, 11, 17		Associated with vegetated areas (Tabb & Manning 1961)	
<i>Hippocampus zosterae</i> dwarf seahorse	+	+		1, 2, 3, 5, 11, 16, 17, 18		Intimately associated with unattached algae (Tabb & Manning 1961), or grassy areas (Springer & Woodburn 1960)	
<i>Micronemathus crinitigerus</i> fringed pipefish	+	+		1, 5, 13	52-82 mm: copepods, microcrustaceans	Reid 1954	
<i>Syngnathus floridae</i> dusty pipefish	-	+		1-3, 5, 11	Caridean shrimp, amphipods, tanaids, isopods	Brook 1975	
<i>Syngnathus louisianae</i> chain pipefish	+	+		1-3, 11, 16-18	Copepods, amphipods, small shrimp	Reid 1954	Inhabit grassy flats (Springer & Woodburn 1960)
<i>Syngnathus scovelli</i> Gulf pipefish	+	+	+	1-3, 5, 11, 16-18	Amphipods, isopods, tanaids, copepods, tiny caridean shrimp, gastropods (<u>Bittium</u> , <u>Mitrella</u>)	Brook 1975 Springer & Woodburn 1960 Reid 1954	
<i>Syngnathus springeri</i> bull pipefish	+			2, 17			
<i>Syngnathus dunckeri</i> Pugnose pipefish		+		11		Associated with vegetated areas (Tabb & Manning 1961)	
<i>Syngnathus pelagicus</i> sargassum pipefish		+		1			
Centropomidae - snooks <i>Centropomus parallelus</i> fat snook	+			7		Family as a whole shows preference for estuarine mangrove habitat (Rivas 1962)	
<i>Centropomus pectinatus</i> tarpon snook	*			7, 8, 13			

Family and Species	Habitat Type				Reference	Diet	Diet Reference	Comments
	Tidal Stream	Istuarine Bay	Freshwater	Oceanic				
<i>Centropomus undecimalis</i> snook	+	+	+		2, 5, 7, 8, 11, 13, 14	Juveniles: caridean shrimp, small cyprinodont fishes, gobies, mojarra Adults: fish, crabs, penaeid shrimp, crayfish, snapping shrimp	Odum 1971 Austin & Austin 1971	By far most abundant of three species (Rivas 1962)
Serranidae - sea basses								
<i>Centropristes striata</i> black seabass		+			11	Family in general carnivorous on fish, crustaceans	Randall 1967	
<i>Diplectrum formosum</i> sand perch	+	+	2, 3, 11, 16-18			Caridean & penaeid shrimp, copepods, crabs, fish	Reid 1954	
<i>Epinephelus itajara</i> jewfish	+	+	2, 5, 7, 8, 11, 13, 15			Juveniles: penaeid shrimp, xanthid crabs	Odum 1971	The most abundant of the seabasses in mangrove habitats
<i>Epinephelus morio</i> red grouper		+			11	228-340 mm: crustaceans, crabs, fishes	Randall 1967	
<i>Epinephelus striatus</i> Nassau grouper		+	4, 11			170-686 mm: fish, crabs, stomatopods, cephalopods, shrimp, spiny lobsters, gastropods, bivalves, isopods	Randall 1967	
<i>Hoplolepterus puella</i> barred hamlet		+			11	54-98 mm: snapping shrimp, crabs, fish, mysids, stomato- pods, isopods	Randall 1967	
<i>Mycteroperca microlepis</i> gag	+	+	1, 2, 5, 11, 17, 18			71-100 mm: penaeid shrimp, fish	Reid 1954	
Centrarchidae - sunfishes								
<i>Elaeotoma evergladei</i> Everglades pygmy sunfish	+				14			Family is primarily freshwater, fish occasionally enter headwater area of mangrove- fringed stream
<i>Lepomis auritus</i> redbreast sunfish	+				14			
<i>Lepomis gulosus</i> warmouth	+		2, 13, 15			Shrimp (<i>Palaeomonetes</i>), fish (<i>Gobiosoma boscii</i> , <i>Lepomis</i> <i>macrochirus</i>), detritus, <i>Vallisneria</i> , amphipods, xan- thid crabs, blue crabs	Desselle et al. 1978	Diet from Lake Pontchartrain salinities 1.6- 4.1 o/oo
<i>Lepomis macrochirus</i> bluegill	+		2, 15			Amphipods, blue crab (<i>Cal-</i> <i>linectes sapidus</i>), xanthid crabs, detritus, <i>Vallisneria</i> , clams (<i>Rangia cuneata</i>), sponge (<i>Ephydatia fluviatilis</i>), barnacles, insect larvae	Desselle et al. 1978	Diet from Lake Pontchartrain salinities 1.6- 4.1 o/oo
<i>Lepomis microlophus</i> redear sunfish	+		2, 13-15			Chironomid larvae, amphipods, xanthid crabs, clam (<i>Rangia</i> <i>cuneata</i>), sponge (<i>Ephydatia</i> <i>fluviatilis</i>), detritus	Desselle et al. 1978	Diet from Lake Pontchartrain salinities 1.6- 4.1 o/oo
<i>Lepomis punctatus</i> spotted sunfish	+		8, 14, 15			Cladocerans, small crabs, mysids, chironomids, amphipods, insects, molluscs, isopods, fish, algae	Odum 1971 (Odum 1971)	Salinities < 15 o/oo

Family and Species	Habitat Type				Reference	Diet	Diet Reference	Comments
	Tidal Stream	Estuarine Bay	Savay	Oceanic				
<u><i>Micropterus salmoides</i></u> largemouth bass	+				13-15	Caridean shrimp, small blue crabs, crayfish, xanthid crabs, 25 species of fish, <u>Vallisneria</u> , <u>Cladophora</u>	Darnell 1958	
Apogonidae - cardinalfishes <u><i>Astrapogon alutus</i></u> bronze cardinalfish	+	+	+		1, 3			
<u><i>Astrapogon stellatus</i></u> conchfish		+			1			
Pomatomidae - bluefishes <u><i>Pomatomus saltatrix</i></u> bluefish	+			11	Young: mainly fishes (anchovies, silversides, killifishes, menhaden, shad, spotted seatrout), shrimp, crabs, other small crustaceans, annelids, snails	Peterson & Peterson 1979		
Rachycentridae - cobias <u><i>Rachycentron canadum</i></u> cobia	+	+	+	5, 7, 11	Fish, crabs		Randall 1967	
Echeneidae - remoras <u><i>Echeneis neucratoides</i></u> whitefin sharksucker	+	+	+	2, 11	Fish, isopods, other crustacea	Randall 1967	Members of this family attach to sharks and large bony fishes (Randall 1967)	
<u><i>Remora remora</i></u> remora	+			7	58-175 mm: copepods, isopods, vertebrate muscle tissue, crab larvae, fish remains, crustaceans, amphipods	Randall 1967		
Carangidae - jacks, pompanos <u><i>Caranx cryos</i></u> - blue runner	+	+	+	2, 4, 5, 7, 11				Family of swift-swimming, carnivorous fishes, often running in schools, wide-ranging (Randall 1967)
<u><i>Caranx hippos</i></u> crevalle jack	+	+	+	2, 5, 7, 8, 11, 13	Fishes, crustaceans	Odum 1971		
<u><i>Caranx ruber</i></u> bar jack		+		4, 11	160-547 mm: fish, shrimp, mysids, stomatopods, gastropods	Randall 1967		
<u><i>Chloroscombrus chrysurus</i></u> Atlantic bumper	+	+	+	2, 11, 17, 18				
<u><i>Oligoplites saurus</i></u> leatherjacket	+	+	+	2, 3, 5, 8, 11, 13	Snapping shrimp, penaeid shrimp, larval anchovies, ladyfish, harpacticoid copepods	Tabb & Manning 1961		
<u><i>Trachinotus carolinus</i></u> Florida pompano	+		11		sardines (<u>Harengula</u> sp.), mole crabs (<u>Hippa</u> sp.), bivalves (<u>Donax</u> sp.)	Springer & Woodburn 1960	Common over mud bottoms (Randall 1967)	
<u><i>Trachinotus falcatus</i></u> permit	+		+	7, 11	15-70 mm: mysids, shrimp, anchovies, silversides, crabs, snails	Carr & Adams 1973	More apt to occur over sandy bottoms than <u>T. carolinus</u> (Randall 1967)	
<u><i>Selene vomer</i></u> lockdown	+	+	+	2, 3, 7, 11	Young: shrimp and other crustaceans, small molluscs	Peterson & Peterson 1979		

Family and Species	Habitat Type			Reference	Diet	Diet Reference	Comments
	Tidal Stream	Estuarine Bay	Oceanic Bay				
<i>Hemicaranx amblyrhynchus</i> - bluntnose jack	+			17			
<i>Caranx latus</i> horse-eye jack	+			12	Predaceous on other fishes	Darnell 1958	Considered by Gunter (1956) to be euryhaline
Lutjanidae - snappers							
<i>Lutjanus analis</i> mutton snapper	+	1, 4, 11		204-620 mm: crabs, fish, gastropods, octopods, hermit crabs, penaeid shrimp, spiny lobster, stomatopods		Randall 1967	Commonly found over sand, seagrass, rubble, coral reefs (Randall 1967)
<i>Lutjanus apodus</i> schoolmaster	+	+	1, 4, 5, 7, 11	Crustaceans (shrimp, snapping shrimp, blue crabs, xanthid crabs, grapsid crabs), fish		Nugent 1970	
<i>Lutjanus griseus</i> gray snapper	+	+	1-5, 7, 8, 11-13, 15-18	<50 mm: reside in grassbeds feeding on small crustaceans, insect larvae 95-254 mm: reside in mangrove creeks feeding on crustaceans (snapping shrimp, xanthid crabs, penaeid shrimp, crayfish, caridean shrimp), fish including gobies, anchovies, poeciliids, eels, killifishes		Odum 1971	By far the most abundant snapper in mangrove habitats
<i>Lutjanus jocu</i> dog snapper	+		1	190-630 mm: fish, crabs, octopods, spiny lobster, gastropods		Randall 1967	
<i>Lutjanus synagris</i> lane snapper	+	+	1, 2, 3, 5, 7, 11, 16-18	Snapping shrimp, crabs, anchovies, annelids, molluscs		Stark & Schroeder 1970	Known from brackish water to depths of 220 fathoms (Randall 1967)
Gerreidae - mojarras							
<i>Diapterus olithostomus</i> Irish pompano	+		2	110-116 mm: green algae (<i>Enteromorpha flexuosa</i> , <i>Cladophora</i>), <i>Ruppia maritima</i> , blue-green algae (<i>Lyngba majuscula</i>)		Austin & Austin 1971	
<i>Diapterus plumieri</i> striped mojarra	+	+	2, 7, 8, 11-13, 15, 18	36-172 mm: mysids, amphipods, harpacticoid copepods, chironomid larvae, ostracods, bivalves, plant detritus		Odum 1971	A permanent resident (Odum 1971)
<i>Eucinostomus argenteus</i> spotfin mojarra	+	+	1-5, 7, 8, 11-13, 16-18	19-63 mm: amphipods, chironomids, harpacticoid copepods, ostracods, mysids, molluscs, plant detritus		Odum 1971	
<i>Eucinostomus gula</i> silver jenny	+	+	1-3, 5, 7, 8, 11-13, 16-18	19-70 mm: amphipods, chironomid larvae, harpacticoid copepods, molluscs, mysids, ostracods, plant detritus		Odum 1971	
<i>Eucinostomus lefroyi</i> mottled mojarra	+	+	10				
<i>Gerres cinereus</i> yellowfin mojarra	+	+	2, 7, 11	Crabs, bivalves, gastropods, polychaete worms, shrimp, ostracods		Randall 1967, Austin & Austin 1971	
Pomadasysidae - grunts				Family carnivorous though rarely piscivorous		Randall 1967	Most shelter on coral reef by day, feed on grassy flats by night (Randall 1967)

Family and Species	Habitat Type			Reference	Diet	Diet Reference	Comments
	Tidal Stream	Estuarine Bay	Oceanic				
<u>Anisotremus virginicus</u> porkfish	+		11	112-264 mm: brittle stars, crabs, Randall shrimp, polychaetes, isopods, 1967 bivalves, stomatopods, gastropods			
<u>Haemulon aurolineatum</u> tomtate	+	1, 4, 11		97-170 mm: shrimp & shrimp lar- vae, polychaetes, hermit crabs, 1967 amphipods, copepods, gastropods, bivalves		Randall 1967	
<u>Haemulon carbonarium</u> Caesax grunt	+	1		156-273 mm: crabs, gastropods, sea urchins, chitons, poly- chaetes, brittle stars, sipunculid worms, shrimp		Randall 1967	
<u>Haemulon flavolineatum</u> French grunt	+	4		113-228 mm: polychaetes, crabs, sipunculid worms, chitons, holothurians, isopods, shrimp, bivalves		Randall 1967	
<u>Haemulon parrae</u> sailor's choice	+	+	1, 7	Benthic invertebrates including shrimp, crabs, amphipods, gas- tropods, polychaete worms, bivalves		Randall 1967	
<u>Haemulon plumieri</u> white grunt	+	+	1, 2, 11, 18	130-279 mm: crabs, polychaetes worms, sea urchins, sipunculid worms, gastropods, shrimp, brittle stars; juveniles: copepods, mysids	Randall 1967 Reid 1954		
<u>Haemulon album</u> margate	+		?	Benthic invertebrates including crabs, shrimp, polychaete worms, amphipods, copepods, snails, bivalves		Randall 1967	
<u>Haemulon sciurus</u> bluestriped grunt	+	+	1, 3, 5, 7, 11	Benthic invertebrates including crustaceans, molluscs, annelid worms		Randall 1967	
<u>Orthopristis chrysoptera</u> pigfish	+	+	1-3, 5, 11, 16-18	Juveniles: 16-30 mm: plankton including copepods, mysids, postlarval shrimp 30 mm: polychaetes, shrimp, amphipods	Carr & Adams 1973		Strong preference for vegetated sub- strate in bay areas (Weinstein et al. 1977)
Sparidae - porches							
<u>Archosargus probatocephalus</u> sheepshead	+	+	2, 3, 5, 7, 8, 11-13, 17-18	<40 mm: in grassbeds - copepods, amphipods, chironomid larvae, mysids, algae, molluscs >40 mm: in mangrove creeks - mussels, false mussels, crabs, snapping shrimp, crayfish, hydrazoans, algae, plant detritus 32-85 mm: in Puerto Rico man- groves - 100% blue-green algae (<u>Lynghya mucosula</u>)	Odum 1971 Austin & Austin 1971		
<u>Archosargus rhomboidalis</u> sea bream	+	5, 11		105-220 mm: seagrasses <u>Cymodocea</u> & <u>Thalassia</u> , algae, crabs, gas- tropods, invertebrate eggs, bivalves	Randall 1967		Usually seen in mangrove sloughs, rare on reefs (Randall 1967)
<u>Calamus arctifrons</u> grass porgy	+	+	11, 17	Copepods, amphipods, mysids, shrimp, bivalves, gastropods (<u>Miltrella</u> , <u>Bittium</u>), polychaetes	Reid 1954		Associated with grassy flats (Rabb & Manning 1961)
<u>Calamus calamus</u> saucereye porgy	+	1		190-250 mm: polychaetes, brittle stars, bivalves, hermit crabs, sea urchins, gastropods, chitons	Randall 1967		

Family and Species	Habitat Type				Reference	Diet	Diet Reference	Comments
	Tidal Stream	Estuarine Bay	Oceanic Bay					
<u>Lagodon rhomboides</u> pinfish	+	+	+	1-3, 5, 7, 8, 11, 12, 16- 18	In mangrove creek - scorched mussel, mysids, amphipods, false mussel In Whitewater Bay - 100% plant material	Odum 1971 Reid 1954	1971 1954	Strong preference for vegetated sub- strate in bay areas (Weinstein et al. 1977)
Sciaenidae - drums								
<u>Bairdiella batabana</u> blue croaker		+	+	3, 11				
<u>Bairdiella chrysura</u> silver perch	+	+	+	1-3, 8, 11- 13, 16-18	Larvae: copepods, larval fish (Menidia beryllina) 127-181 mm: fish (<u>Anchoa</u> <u>mitchilli</u>), mysids	Odum 1971	1971	
<u>Cynoscion arenarius</u> sand seatrout	+	+		2, 12, 17, 18	Mostly fish, caridean shrimp, mysids, amphipods, crab zoea	Springer & Woodburn 1960	1960	
<u>Cynoscion nebulosus</u> spotted seatrout	+	+	+	1-3, 5, 7, 8, 11-13, 15, 17, 18	<50 mm: copepods, planktonic crustacea 50-275 mm: fish (<u>Mugil</u> <u>cephalus</u> , <u>Lagodon rhomboides</u> , <u>Eucino-</u> <u>atomus</u> <u>gula</u> , <u>E. argenteus</u> , <u>Cyprinodon variegatus</u> , <u>Gobiosoma robustum</u> , <u>Anchoa</u> <u>mitchilli</u>)	Odum 1971	1971	
<u>Leiostomus xanthurus</u> spot	+	+		2, 7, 12, 17-18	<40 mm: planktonic organisms >40 mm: filamentous algae, desmids, forams, amphipods, mysids, copepods, ostracods, isopods, chaetognaths, bi- valves, snails, polychaete worms	Springer & Woodburn 1960	1960	
<u>Menticirrhus americanus</u> Southern kingfish	+	+	+	2, 11-12, 17-18	Fish, benthic crustaceans	Springer & Woodburn 1960	1960	
<u>Menticirrhus littoralis</u> Gulf kingfish	+	+		2, 11	Polychaetes, bivalves (<u>Donax</u>), sand crab (<u>Emerita</u>), razor clam	Springer & Woodburn 1960	1960	Most common off sandy beaches (Springer & Woodburn 1960)
<u>Micropogon undulatus</u> Atlantic croaker	+		+	11, 12	Juveniles: copepods, mysids, caridean shrimp, polychaete worms, insect larvae, iso- pods, small bivalves	Springer & Woodburn 1960	1960	
<u>Dogonias cromis</u> black drum	+	+	+	2, 7, 11, 12, 15	<100 mm: molluscs, xanthid crabs >100 mm: bivalves, amphipods, blue crabs, penaeid shrimp, caridean shrimp	Darnell 1958	1958	
<u>Sciaenops ocellatus</u> red drum	+	+	+	2, 3, 5, 8, 11-13, 15, 17	<10 mm: planktonic organisms (copepods, crab zoea, larval fish) 34-42 mm: mysids, amphipods, caridean shrimp >50 mm: xanthid & portunid crabs, penaeid shrimp, small fish 308-403 mm: xanthid crabs	Odum 1971	1971	
<u>Equetus acuminatus</u> high-hat		+		11	68-152 mm: shrimp & shrimp larvae, isopods, stomatopod larvae, copepods, amphipods	Randall 1967	1967	Characteristic of coral reefs (Randall 1967)

Family and Species	Habitat Type			Reference	Diet	Diet Reference	Comments
	Tidal Stream	Estuarine Bay	Oceanic Bay				
Ephippidae - spadefishes							
<u>Chaetodipterus faber</u> Atlantic spadefish	+	+		2, 3, 5, 11, 16-18	Worms, crustaceans, debris	Darnell 1961	Juveniles (7-12 mm) inhabit very shallow nearshore sandy beaches. Bear a deceptive resemblance to infertile red mangrove seed pods (Breder 1946)
Pomacentridae - damselfishes							
<u>Abudefduf saxatilis</u> sergeant major	+		5	101-135 mm: copepods, algae, fish eggs, fish, shrimp larvae, polychaetes	Randall 1967	Characteristic family of coral reefs (Randall 1967)	
A habitat generalist: reefs, grassbeds, rock piles, wharfs (Bohlke & Chaplin 1968)							
Iabridae - wrasses							
<u>Halichoeres bivittatus</u> slippery dick	+		5	67-153 mm: crabs, sea urchins, polychaetes, gastropods, brittle stars, bivalves, shrimp, fish, hermit crabs	Randall 1967	Shallow water patch reefs, sand bottoms, grassbeds (Randall 1967)	
Scaridae - parrotfishes							
<u>Nicholsina usta</u> emerald parrotfish	+	+	1, 2, 11, 18	Family herbivorous, feeding primarily on algae growing on hard substrates, secondarily on seagrasses	Randall 1967	Family characteris- tic of coral reefs, ranging into grass- beds	
<u>Scarus coeruleus</u> blue parrotfish	+		1				
<u>Scarus groicensis</u> striped parrotfish	+		4				
<u>Sparisoma chrysopterum</u> redtail parrotfish	+		11				
<u>Sparisoma rubripinne</u> redfin parrotfish	+		1				Requires near marine salinities (Tabb & Manning 1961)
<u>Sparisoma viride</u> stoplight parrotfish	+		11				
Mugilidae - mullets							
<u>Mugil cephalus</u> striped mullet	+	+	2, 3, 5, 7, 8, 11-13, 15	Inorganic sediments, fine detritus, micro-algae	Odum 1971		
<u>Mugil curema</u> white mullet	+	+	2, 5, 7, 11-12	25-73 mm: plant detritus, blue- green algae (<u>Lyngbya majuscula</u>)	Austin & Austin 1971		
<u>Mugil trichodon</u> fan-tail mullet	+	+	2, 7, 11, 12				
Sphyraenidae - barracudas	+	+	1-5, 7, 8, 11, 13	135-369 mm: fish (<u>Eucinostomus</u> <u>gula</u> , <u>Menidia beryllina</u> , <u>Archo-</u> <u>sargus probatocephalus</u>)	Odum 1971	Salinities >10 o/oo (Odum 1971)	
<u>Sphyraena barracuda</u> great barracuda							
Cyprinodontidae - jawfishes							
<u>Cyprinodon maculatus</u> mottled jawfish	+		1	53-110 mm: shrimp, isopods, fishes, polychaetes, mysids, copepods	Randall 1967	Family lives in burrows in sediment, often in vicinity of reefs (Randall 1967)	

Family and Species	Habitat Type				Reference	Diet	Diet Reference	Comments
	Tidal Stream	Estuarine Bay	Bay	Oceanic				
Clinidae - clinids					6	Family appears to be carnivorous on benthic invertebrates	Randall 1967	Inshore on rock, coral or rubble substrates (Randall 1967)
<u>Chaenopsis ocellata</u> bluethroat pikeblenny		+						
<u>Pareclinus marmoratus</u> marbled blenny	+		1, 6, 11					
<u>Paraclinus fasciatus</u> banded blenny	+		1					
<u>Stathmonotus hemphilli</u> blackbelly blenny	+		1					
Bleenniidae - combtooth blennies								
<u>Chasmodes saururus</u> Florida blenny	+	+	1-3, 11, 17, 18	21-25 mm: amphipods 25-60 mm: amphipods, detritus, polychaetes, snails	Clark & Adams 1973	Common brackish water blenny (Tubb & Manning 1961)		
<u>Blennius marmoratus</u> seaweed blenny	+		3	Algae, organic detritus, brittle stars, polychaetes, hydroids	Randall 1967			
<u>Blennius nicholsi</u> highfin blenny	+		2					
Callionymidae - dragonets								
<u>Callionymus pauciradiatus</u> spotted dragonet	+		1, 5, 11					
Eleotridae - sleepers								
<u>Dormitator maculatus</u> fat sleeper	+			13, 15				Freshwater and low salinity areas (Darneil 1961)
Gobiidae - gobies								
<u>Bathygobius soporator</u> frillfin goby	+	+	2, 3, 8, 11, 17	Caridean shrimp, chironomid larvae, amphipoda	Odum 1971			
<u>Gobionellus hastatus</u> shartail goby	+		12	Filamentous algae (Enteromorpha), ostracods, copepods, insect larvae	Springer & Woodburn 1960			
<u>Gobionellus shufeldti</u> freshwater goby	+	+	2, 17, 18					
<u>Gobionellus smaragdus</u> emerald goby	+	+	3, 6, 10, 11, 15					
<u>Gobiosoma boscii</u> naked goby	+	+	2, 12	Small crustaceans including amphipods, annelids, fish, fish eggs	Peterson & Peterson 1979			
<u>Gobiosoma longipala</u> twoscale goby	+		17					
<u>Gobiosoma macropodus</u> tiger goby		+	1					
<u>Gobiosoma robustum</u> code goby	+	+	1-3, 5, 8, 11, 16-18	Amphipods, mysids, chironomid larvae	Odum 1971			
<u>Lophogobius cyprinoides</u> crested goby	+	+	1-3, 7, 8, 13	A versatile feeder: amphipods, mangrove detritus, filamentous algae, mysids, caridean & penaeid shrimp, polychaete worms, ostracods, bivalves, chironomid larvae, harpacticoid copepods, isopods, xanthid crabs, snails	Odum 1971			

Family and Species	Habitat Type			Reference	Diet	Diet Reference	Comments
	Tidal Stream	Estuarine Bay	Oceanic Bay				
<i>Microgobius gulosus</i> clown goby	+	+		2, 5, 8, 11-13, 15, 17, 18	Amphipods, copepods, chironomid larvae	Odum 1971	
<i>Microgobius microlepis</i> banner goby		+		5	Planktonic organisms	Birdsong 1981	
<i>Microgobius thalassinus</i> green goby	+	+		2, 3, 12	Small crustaceans including amphipods, other invertebrates	Peterson & Peterson 1979	
Scombridae - mackerels, tunas							
<i>Scomberomorus maculatus</i> Spanish mackerel	+	+	+	2, 11, 12, 15	Adults feeding on penaeid shrimp migrating from tidal stream	Tabb & Manning 1961	
<i>Scomberomorus cavalla</i> king mackerel		+		13	350-1022 mm: fish	Randall 1967	
Scorpaenidae - scorpion-fishes							
<i>Scorpaena brasiliensis</i> barbfish	+	+		7, 11	Shrimp, other crustaceans, fish	Randall 1967	
<i>Scorpaena grandicornis</i> plumed scorpionfish		-		1	37-102 mm: shrimp, fish, unidentified crustaceans	Randall 1967	Most often found in seagrass
Triglidae - searobins							
<i>Prionotus salmonicolor</i> blackwing searobin		+		5			
<i>Prionotus seitzulus</i> leopard searobin	+	+	+	1-3, 11, 16-18	Small molluscs, shrimp, crabs, fish, small crustaceans (ostracods, cumaceans)	Peterson & Peterson 1979	
<i>Prionotus tribulus</i> bighead searobin	+	+	+	1-3, 11-13, 17, 18	Shrimp, crabs, fishes, amphipods, copepods, annelids, bivalves, sea urchins	Peterson & Peterson 1979	
Bethidae - lefteye flounders							
<i>Bothus ocellatus</i> eyed flounder		+		1, 11	68-130 mm: fish, crabs, shrimp, amphipods	Randall 1967	
<i>Citharichthys macrops</i> spotted whiff		+		1			
<i>Citharichthys spilopterus</i> bay whiff		+	+	1, 17, 18	Mainly mysids, also shrimp, crabs, copepods, amphipods, fishes, annelids	Peterson & Peterson 1979	Recorded from salinity range 2.5-36.7 o/oo (Darnell 1961)
<i>Etropus crossotus</i> fringed flounder	+	+	3, 11, 16		Calanoid copepods, cumaceans, amphipods, mysids, shrimp, crabs, isopods, annelids, molluscs, fishes	Peterson & Peterson 1979	
<i>Paralichthys albigutta</i> Gulf flounder	+	+	+	1-3, 7, 11, 12, 17, 18	<45 mm: small crustaceans, including amphipods, small fish >45 mm: fish (pigfish, pinfish, lizardfish, bay anchovy, labrids), crustaceans	Springer & Woodburn 1960; Reid 1954	
<i>Paralichthys lethostigma</i> - Southern flounder		+		2	Mainly fishes (mullet, menhaden, shad, anchovies, pinfish, mojarras, croakers), crabs, mysids, molluscs, penaeid shrimp, amphipods	Peterson & Peterson 1979	

Family and Species	Habitat Type				Reference	Diet	Diet Reference	Comments
	Tidal Stream	Estuarine Bay	Oceanic Bay	Reference				
<u>Syacium papillosum</u> dusky flounder		+		1				
Soleidae - soles								
<u>Achirus lineatus</u> lined sole	+	+	+	1-3, 5, 8, 11-13, 17- 18	32-74 mm: chironomid larvae, polychaete worms, foraminiferans		Odum 1971	
<u>Trinectes inscriptus</u> scrawled sole			+	1				
<u>Trinectes maculatus</u> hogchoker	+	+	-	2, 3, 8, 11-13, 17, 18	14-110 mm: amphipods, mysids		Odum 1971	
Cynoglossidae - tongue-fishes								
<u>Syphurus plagiusa</u> blackcheek tonguefish	+	-	-	1, 3, 11, 12, 16-18	35-102 mm: polychaete worms, ostracods, portunid crabs, <u>Ruppia</u> and <u>Halodule</u> plant tips		Austin & Austin 1971	
Balistidae - triggerfishes & filefishes								
<u>Aluterus scriptus</u> orange filefish		+	1, 11		Seagrasses, algae, hermit crabs, gastropods		Randall 1967	Associated with grassbeds, sponge/sea fan habitats (Randall 1967, Voss et al. 1969)
<u>Balistes vetula</u> queen triggerfish		+	11		130-480 mm: sea urchins, crabs, bivalves, brittle stars, poly- chaetes, hermit crabs, gastro- pods, algae		Randall 1967	Solitary reef fish ranging into grass- beds
<u>Monacanthus ciliatus</u> fringed filefish		+	+	1, 11, 17	47-97 mm: Algae, organic detri- tus, seagrass, copepods, shrimp & shrimp larvae, amphipods, tanaids, polychaetes, molluscs		Randall, 1967 Springer & Woodburn 1960	Closely associated with vegetated areas (Tabb & Manning 1961)
<u>Monacanthus hispidus</u> planehead filefish		+	+	1-3, 11, 16-18	Detritus, bryozoans, annelids, harpacticoid copepoda, amphipods, hermit crabs, molluscs, algae, sea urchins		Peterson & Peterson 1979	Associated with vegetated areas (Tabb & Manning 1961)
<u>Balistes capricornus</u> gray triggerfish	+			7				
Ostraciidae - boxfishes								
<u>Lactophrys quadrangularis</u> scrawled cowfish	+	+	+	1, 2, 5, 7, 11, 16-18	Vegetation, algae, bivalves		Reid 1954	Young mimic sea- grass blades (Bohlke & Chaplin 1968)
<u>Lactophrys trigonus</u> trunkfish		+	1, 4, 11		109-395 mm: crabs, bivalves, polychaetes, sea urchins, algae, seagrass, gastropods, amphipods		Randall 1967	Primarily a resident of seagrass (Randall 1967)
<u>Lactophrys triqueter</u> smooth trunkfish		+	1		93-250 mm: polychaetes, sipunculid worms, crabs, shrimp, gastropods, hermit crabs, sea urchins, bivalves		Randall 1967	Primarily a reef species (Randall 1967)
Tetraodontidae - puffers								
<u>Sphoeroides nephelus</u> southern puffer	+	+	+	1-3, 5, 11, 16-18	Juveniles: detritus, fecal pellets, zooplankton, poly- chaetes, gastropods, crabs, shrimp Adults: small crabs, bivalves		Carr & Adams 1973	

Family and Species	Habitat Type			Reference	Diet	Diet Reference	Comments
	Tidal Stream	Estuarine Bay	Oceanic Bay				
<i>Sphoeroides spengleri</i> bandtail puffer	+	+		1, 7, 11	Crabs, bivalves, snails, polychaetes, amphipods, shrimp	Randall 1967	Inhabits sea-grass, reef, rubble, mangroves (Randall 1967; Voss et al. 1969)
<i>Sphoeroides testudineus</i> checkered puffer	+	+		1, 7	85-92 mm: portunid megalops larvae, gastropods	Austin & Austin 1971	
Diodontidae - porcupine-fishes							
<i>Chilomycterus antennatus</i> bridled burrfish	+		11		Gastropods, hermit crabs, isopods, crabs, shrimp	Randall 1967	Reefs and grassbeds (Voss et al. 1969)
<i>Chilomycterus antillarum</i> web burrfish	+		2				
<i>Chilomycterus schoepfi</i> striped burrfish	+	+	1-3, 5, 11, 16-18	Gastropods, barnacles, crabs, amphipods	Springer & Woodburn 1960	Associated with grassbeds (Voss et al. 1969) Salinities >25 o/oo (Springer & Woodburn 1960)	

Reference Numbers Key

1. Bader & Roessler 1971
2. Carter et al. 1973
3. Clark 1970
4. Holm 1977
5. Hudson et al. 1970
6. Kushlan & Lodge 1974
7. Nugent 1970
8. Odum 1971
9. Rivas 1969
10. Seaman et al. 1973
11. Schmidt 1979
12. Springer & Woodburn 1960
13. Tabb 1966
14. Tabb, Dubrow & Manning 1962
15. Tabb & Manning 1961
16. Weinstein et al. 1977
17. Yokel 1975a
18. Yokel 1975b