

FINAL REPORT

SUMMARY INVENTORY OF MARINE AND FRESH WATER FISH OF
PADRE ISLAND NATIONAL SEASHORE

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by

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Abstract

Padre Island National Seashore (PAIS) comprises approximately 133,000 acres of undeveloped barrier island habitat. The National Seashore is approximately 70 miles-in-length and ranges from ½ to three miles-in-width. The park is bordered on the west by the hypersaline Laguna Madre and on the east by the Gulf of Mexico. A diversity of fish habitats occur within PAIS boundaries including: surf zone along the Gulf shoreline, ephemeral freshwater ponds within the barrier island interior, and seagrass meadows in the hypersaline waters of Laguna Madre.

The purpose of this report was to provide a comprehensive summary of reports pertaining to marine and freshwater fish species, including their distribution and relative abundance, throughout PAIS. A search for all literature pertaining to any studies occurring in the park and involving any marine or freshwater fish resulted in several reports and checklists that were summarized and evaluated for inclusion in a new checklist. Two checklists were identified in NPSpecies queries, but no vouchers or datasets associated with the lists were located.

Species checklists were generated for freshwater ponds (two sources), seagrass meadows (two sources) and surf zone (four sources). A species checklist of 100 species from 48 families was generated from all studies conducted within the PAIS boundary with respect to habitat type. No species were listed on federal or state endangered species list. The checklist was compared to previous lists and appeared to be more comprehensive in species coverage. However, when compared to long-term monitoring datasets from Texas Parks and Wildlife, species richness was much lower in the seagrass habitat in Laguna Madre. No abundance rankings could be generated from these limited datasets. No vouchers were linked to any of these reports.

Previous inventory work and museum collections were also reviewed to determine what fish species had been documented within the park or adjacent to the park. A total of 53 voucher specimens were located that were collected within PAIS, 51 vouchers from PAIS collection from John E. Connor Museum and warehoused in Kingsville, Texas, and two vouchers from American Museum of Natural History (1 voucher) and Texas Memorial Museum (1 voucher). None of these vouchers were linked to any studies conducted within the PAIS. Species accounts were generated for all species within the species checklist with associated habitat designations from studies conducted within PAIS boundaries.

Introduction

This report provides a narrative summary of all marine and freshwater fish documented within and adjacent to the Padre Island National Seashore. A survey of previous studies done in the park and any other pertinent literature, along with a survey of museum collections and associated voucher specimens was used to compile an updated checklist of all fish.

Padre Island National Seashore (PAIS) comprises approximately 133,000 acres of undeveloped barrier island habitat. The National Seashore is approximately 70 miles-in-length and ranges from ½ to three miles-in-width. The park is bordered on the west by the hypersaline Laguna Madre and on the east by the Gulf of Mexico (Figure 1). Park habitats generally include grasslands (13,235 acres), emergent wetlands (25,444 acres), wind-tidal flats (27,918 acres), and sparsely vegetated dunes (5,835 acres) (Laine and Ramsey, 1998). The seashore's landscape changes from broad sandy beaches, to ridges of fore-island dunes, then to grassy flats separated by smaller dunes, ephemeral ponds, and wetlands. Back-island dunes and wind tidal flats that merge with the waters of the Laguna Madre define the western portion of the Seashore. Park topography is relatively flat with elevations rarely exceeding 30 feet. Few improved roads exist and accessing the majority of the park requires the use of a four-wheel drive vehicle.

The climate on Padre Island is characterized as subtropical with humid, hot summers and mild dry winters. The average temperature ranges from 72° -74°F. Freezing temperatures are rare. Average annual rainfall ranges from 26 to 29 inches (Weise and White, 1980). Evaporation rates can exceed precipitation, producing a net water loss (Armstrong, 1987). Winds are mostly from the southeast from May to September and fluctuate between northerly and southeasterly from December to February. Tropical storms and hurricanes are not uncommon along the Texas coast in the summer and fall, striking as many times as twice in a three year period (Weise and White, 1980).

Description of fish habitats

The easternmost boundary of PAIS includes a narrow fringe of Gulf of Mexico along the length of Padre Island. This fishery habitat includes nearshore waters described as the surf zone (Shaver 1984). This high-energy area is characterized by sandy bottoms with an increasing bathymetric gradient eastward. Bar and trough topography provide habitat for resident and migratory fish. To the west of the National Seashore between the barrier island and the mainland lies the Laguna Madre. Few inlets along the lagoon for water exchange with the Gulf, limited freshwater input from the mainland, and high evaporation rates have produced a high salinity environment. Depths are shallow, 8 feet or less, and support a variety of seagrasses, mainly shoalgrass (*Halodule beaudettei*). Other grasses include widgeongrass (*Ruppia maritima*), turtlegrass (*Thalassia testudinum*), clovergrass (*Halophila engelmannii*) and manatee grass (*Cymodocea*

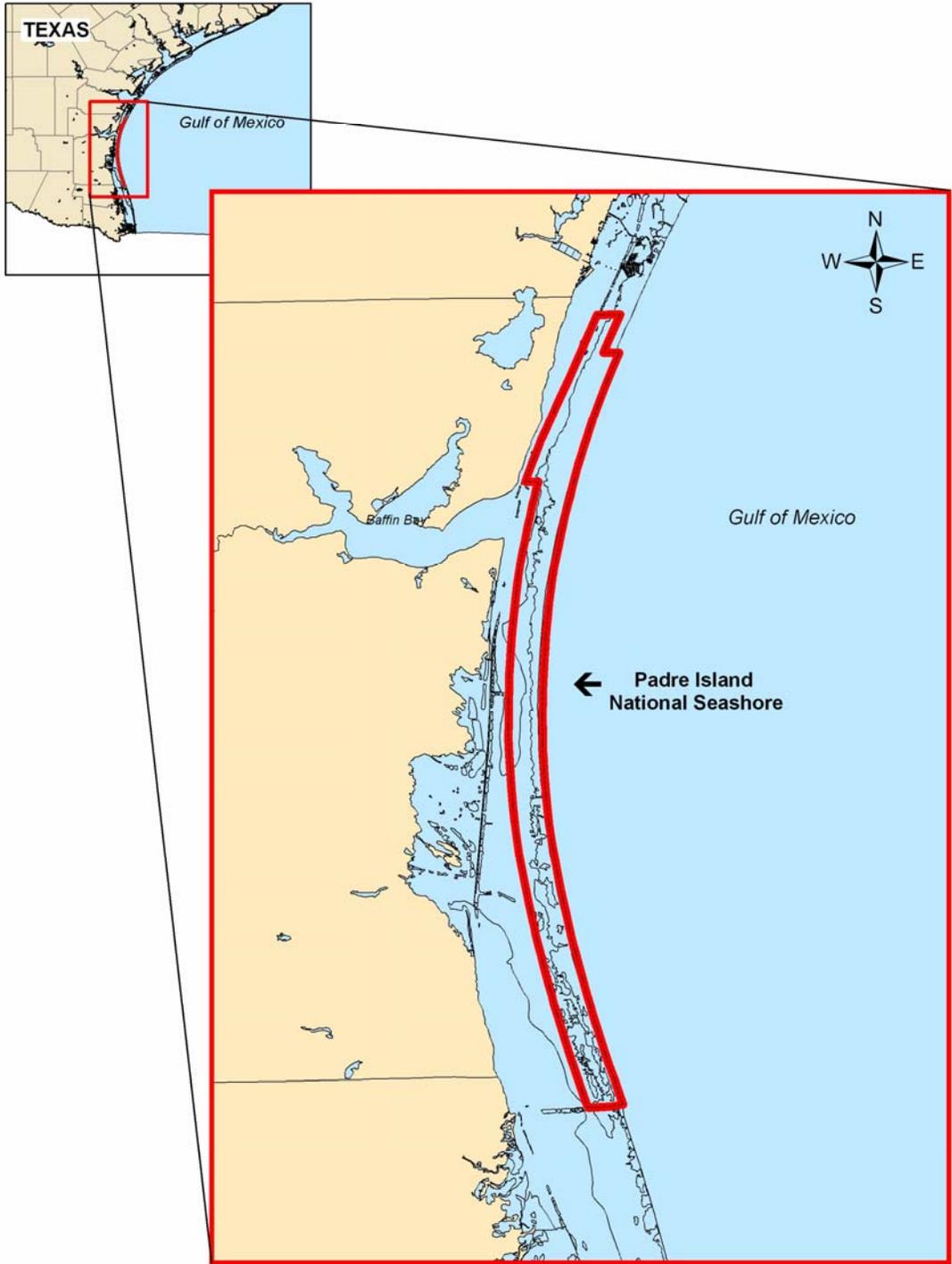


Fig. 1: Location of Padre Island National Seashore on the Texas coast.

filiformis). The grass beds are areas of high biological productivity, serving as spawning grounds or nurseries for many fish and providing food for grazing fish (Weise and White, 1980). Freshwater is limited on Padre Island and is restricted to ephemeral ponds occasionally replenished by rain. These depressional habitats are located within the ridge and swale topography along the interior of the island. Depth is dependent upon rainfall events and time of year (i.e., evapotranspiration rates), and is extremely variable during the drought/wet cycles of the region (Weise and White, 1980).

Project Objectives

The purpose of this report was to provide a comprehensive summary of reports pertaining to marine and freshwater fish species, including their distribution and relative abundance, throughout PAIS. The following approach was defined in the Scope of Work:

- A narrative summarization of reports pertaining to marine and freshwater fisheries specific to fish species, their distribution, and relative abundance of fishes documented throughout the park boundaries.
- From past studies done on and adjacent to the park, provide updated checklists of marine and freshwater fish species. This checklist should identify/describe park habitats, seasonal occurrence, and frequency of species occurring within the park.
- The lists shall also include those species that are federally and state listed as well as those known to be rare, potentially rare or unusual, and/or worthy of special management consideration. Any legal status should be noted.
- Review previous inventory work and museum collections to determine what fish have been documented and confirmed with voucher specimens. Provide documentation of at least one voucher specimen, and its location, for each species that has been documented present in the parks.
- Develop a GIS-compatible electronic file indicating documented GPS locations of species of management concern, sampling sites, and the location where and when each voucher specimen was collected. Metadata must be compliant with FGDC standards.
- Update NPSpecies and NRBib databases by adding all new species data and bibliographic information and certify the fish species list using the NPSpecies Access Database.

This effort will provide Park managers with comprehensive, scientifically based information about the nature and status of the fisheries communities within GUIS and PAIS. This information will be used for management decision regarding park resources and protection, as well as education and outreach to the public. Further, this is an important part of the groundwork necessary for Park managers to develop effective monitoring programs designed to ensure the continued long-term health of Park natural resources.

Methods

The project began with a search for all literature pertaining to any studies occurring in the park and involving any marine or freshwater fish. Results were compiled into a list to be used as an updated checklist. Previous inventory work and museum collections were also reviewed to determine what fish species had been documented within the park or adjacent to the park.

Literature Search

NPSpecies was first queried to identify any known studies and any existing checklists. After logging on, the list was located in PAIS → Evidence → References → By category → Linked references → Fish. NPBib was then queried for any additional references using “fish” and also “animal studies” as the keyword.

The libraries of Texas A&M University-Corpus Christi (TAMUCC), Texas A&M University-Kingsville (TAMUK), Texas A&M University-College Station, University of Texas at Austin, University of Texas Pan American were utilized on-line. Keywords used were “Padre Island”, “Padre Island National Seashore”, “national parks”, and “fish”.

The bibliography *The Natural Resources of the Padre Island National Seashore* (Miller et al., 1993) was searched for any pertinent studies not already identified. Any possible references listed were located and evaluated for relevancy.

The Padre Island National Seashore library, located in the Visitor’s Center of the park, was searched for any appropriate materials. Many references identified by NPBib were located in the library. All materials are archived within boxes in the library. Each box was numerically labeled and a general description of the contents. All boxes relating to fish, water, or studies were searched.

Online databases for peer-reviewed journals were accessed through Texas A&M University-Corpus Christi Bell library (<http://rattler.tamucc.edu>). *BioOne*, *Biosis*, *Cambridge Scientific Abstracts*, *Science Direct*, and *Web of Science* were queried for any research carried out in or near the park. Keywords used were “Padre Island National Seashore”, “Padre Island and fish”, and “Texas and fish”.

Voucher Specimens

Voucher specimens were identified using on-line databases, personal contact by mail and e-mail, and by personally examining two museum collections. Latitude and longitude criteria for the park ranged from 27°30' to 26°34' N and 97°15' to 97°22' W (designated as “park”). Coordinates for areas within ten miles of the park ranged from 27°24' to 26°40' N and 97°13' to 97°23' (designated as “adjacent”). Most studies and voucher specimen documentation do not report latitude and longitude, only a description of location. Each of these studies and vouchers were evaluated individually.

Museum organizations were accessed online to locate any museums which might have collections that contain voucher specimens of fish documented in the park. A list of possible museums was produced and each museum searched online when possible. Search criteria included “Texas”, “Nueces County”, “Kleberg County”, “Gulf of Mexico”, “Padre Island”, and “Padre Island National Seashore”. If a collection was not available online, curators were contacted by mail or e-mail. Collections located within the South Texas region were examined in person. Universities located in the vicinity of Padre Island without museums were also queried for collections.

Global Biodiversity Information Facility (GBIF) is a non-profit organization dedicated to providing free and universal access to data regarding the world’s biodiversity. A wide range of countries and organizations participate in GBIF and have made their data available. Two types of data are electronically accessible: taxonomic names and specimens and observations. GBIF was queried for any specimens documented on the Texas coast and restricted to those specimens located within or adjacent to the park. A preliminary list was e-mailed to Whitney Granger, NPS project manager, in mid-August 2006.

All scientific names used in this report were updated and standardized using the Integrated Taxonomic Information System (ITIS). Access to ITIS can be found at <http://www.itis.gov/>.

Results

All taxonomic names within the results have been updated to the current phylogenetic names. A list of those changes is included in Appendix A.

Literature Search

The following two references were identified through the NPSpecies query in checklist format: *Marine fishes of Padre Island National Seashore* (Bibkey ID 141159) and *Checklist of marine fish for Padre Island National Seashore-Food and Game Fish* (Bibkey ID 23113). Authors are not listed and are designated as “Unknown”. The checklists contained a combined total of 113 species of fish. None of the scientific and common names were certified. There were no vouchers, observations or data sets associated with any species on the checklists. The Checklist of marine fish is located in Box 26 of the PINS library. The marine fishes of PINS checklist identified in NPSpecies was not located in hard copy form.

Another reference located by NPSpecies query was labeled as a published report. *A baseline study of three ponds within the Padre Island National Seashore* (Bibkey ID 13643) written by S. L. Sissom, R. D. Keohn, and D. Lemke (Sissom et al., 1990). A copy is located in the PAIS library, box 88b. There were no voucher specimens located for this report. The study was designed to create baseline data for the ecosystem which includes three freshwater ponds. At each of the ponds data was collected monthly for a one year plus five additional trips. The chemical and physical characteristics were

defined, plants and animals around the pond observed, and specimens of pond life were collected and included in the report. A list of three fish species documented in the report is located in Table 1.

Table 1: Fish species documented in Caudle (1992) and Sissom et al. (1990) from freshwater pond habitat at Padre Island National Seashore.

Family	Scientific Name	Common Name
Poeciliidae	<i>Gambusia affinis</i>	Mosquitofish
Cyprinodontidae	<i>Cyprinodon variegatus</i>	Sheepshead minnow
Fundulidae	<i>Fundulus grandis</i>	Gulf killifish

A related study was identified through NPBib query: *Population dynamics of fish fauna found in three earthen ponds on North Padre Island, Texas* written by Christopher Caudle for his master's thesis (Caudle, 1992).

From November 1989 to October 1990 a study was performed to characterize the physiochemistry and fish faunal population dynamics of three earthen ponds on North Padre Island. All ponds had similar chemistry except for alkalinity, salinity, and turbidity. The smallest freshwater pond (pond A) was more alkaline than the other ponds. The larger freshwater pond (pond B) was significantly more turbid than ponds A and C. The largest pond (pond C) was significantly more saline than the other two ponds. Sheepshead minnow (*Cyprinodon variegatus*) was the most abundant of the three fish species and was found to occur in all three ponds. Gulf killifish (*Fundulus grandis*) was found only in ponds A and C. Mosquitofish (*Gambusia affinis*) was the second most abundant species though it was found to occur primarily in pond B. Recruitment of the sheepshead minnow was detected in pond C from April through November, in June only in pond A, and never detected in pond B. The Gulf killifish was captured sporadically in such low numbers that the data are somewhat inconclusive. Growth appears to occur in the summer. The breeding season of the Gulf killifish is believed to resemble that described for the sheepshead minnow in ponds A and C. A copy is located in the PAIS library. See Table 1 for a list of three fish species documented in this study.

A hard copy form of *Rare plant and animal species on National Park Service Lands in Texas* (Bibkey ID 141160) authored by William Carr, John Karges and Mark Gallyoun was identified through NPSpecies query but never located. The publication is listed as 57 pages in length, however, no other information is known. No holdings were listed in NPBib, and the publication was not located in the PAIS, TAMUCC, or the TAMUK libraries.

A search of NPBib produced three additional references to previous studies in the park: *Surf zone fish fauna of Padre Island National Seashore* written by Donna Shaver for her Master's thesis (Shaver, 1984).

Seine and plankton samples were taken from the surf at Padre Island National Seashore between June 1982 and October 1983. Samples were taken day and night and during

high, low, incoming and outgoing tides. Greatest numbers were taken during the day, and at outgoing and high tide. Larvae and small juveniles of a few species, scaled sardine (*Harengula jaguana*), Atlantic croaker (*Micropogonias undulates*), dusky anchovy (*Anchoa lyolepis*), Atlantic thread herring (*Oposthonema oglinum*), striped mullet (*Mugil cephalus*), striped anchovy (*Anchoa hepsetus*), Atlantic threadfin (*Polydactylus octonemus*), Florida pompano (*Trachinotus carolinus*), White mullet (*Mugil curema*), and Gulf menhaden (*Brevoortia patronus*) were the most abundant (Fig. 2) 89.6% of the total. Most were temperate in origin. Six species had not been reported during other studies of inshore Gulf of Mexico waters off Texas. A copy is located in the TAMUK library and the Center for Coastal Studies library at TAMUCC. See Table 2 for a complete list of the 76 fish documented in the study.

The effects of a red tide on surf zone fish and plankton of the Padre Island National Seashore written by Donna Shaver (Shaver, 1989).

Seine and plankton samples were taken from the surf at Padre Island National Seashore, Texas between October 1986 and October 1987. Results were compared to those from a similar study in 1982-1983. The study was conducted to evaluate the effects of a red tide that began along the Texas coast in August 1986. The red tide caused no apparent long-term impacts to fish and plankton populations. Similar species and numbers of individuals were collected during the two studies and the rankings of species abundance were also quite similar. More fish were caught during the day in the summer and fall. Scaled sardine, Atlantic threadfin, striped mullet, Florida pompano, Gulf menhaden, Atlantic croaker, and white mullet were the most abundant species in both studies. Eight species or types of organisms were caught in relatively high numbers and had similar trends of abundance during the two studies and could be used as indicator species or groups. A copy is located in the PAIS library. See Table 2 for a list of 76 fish species documented in this study.

Table 2: Fish species documented in Shaver (1984) and Shaver (1989) from surf zone habitat at Padre Island National Seashore.

	Scientific Name	Common Name	
Dasyatidae	<i>Dasyatis Sabina</i>	Atlantic stingray	
Elopidae	<i>Elops saurus</i> Linne	Ladyfish	
Ophichthidae	<i>Myrophis punctatus</i>	Speckled worm eel	
Clupeidae	<i>Brevoortia patronus</i>	Gulf menhaden	
	<i>Harengula jaguana</i>	Scaled herring	
	<i>Opisthonema oglinum</i>	Atlantic thread herring	
	<i>Sardinella aurita</i>	Spanish sardine	
Engraulidae	<i>Anchoa hepsetus</i>	Broad-striped anchovy	
	<i>Anchoa mitchilli</i>	Bay anchovy	
	<i>Anchoa lyolepis</i>	Dusky anchovy	
	<i>Anchoviella perfasciata</i>	Flat anchovy	
Ariidae	<i>Ariopsis felis</i>	Hardhead catfish	
Atherinopsidae	<i>Membras martinica</i>	Rough silversides	
	<i>Menidia peninsulae</i>	Tidewater silverside	
Syngnathidae	<i>Syngnathus floridae</i>	Dusky pipefish	
	<i>Syngnathus fuscus</i>	Northern pipefish	
	<i>Syngnathus louisianae</i>	Chain pipefish	
Triglidae	<i>Prionotus tribulus</i>	Bighead searobin	
Pomatomidae	<i>Pomatomus saltatrix</i>	Bluefish	
Rachycentridae	<i>Rachycentron canadum</i>	Cobia	
Carangidae	<i>Caranx hippos</i>	Crevalle jack	
	<i>Caranx latus</i>	Horse-eye jack	
	<i>Chloroscombrus chrysurus</i>	Atlantic bumper	
	<i>Hemicaranx</i>	Bluntnose jack	
	<i>amblyrhynchus</i>		
	<i>Oligoplites saurus</i>	Leatherjack	
	<i>Selene vomer</i>	Lookdown	
	<i>Trachinotus carolinus</i>	Florida pompano	
	<i>Trachinotus falcatus</i>	Permit	
	<i>Trachinotus goodei</i>	Palometa	
	Coryphaenidae	<i>Coryphaena hippurus</i>	Dolphin
	Lutjanidae	<i>Lutjanus griseus</i>	Gray snapper
		<i>Lutjanus synagris</i>	Lane snapper
<i>Lobotes surinamensis</i>		Tripletail	
Gerreidae	<i>Ulaema lefroyi</i>	Mottled mojarra	
Haemulidae	<i>Conodon nobilis</i>	Barred grunt	
	<i>Pomadasys crocro</i>	Burro grunt	
Sparidae	<i>Archosargus</i>	Sheepshead	
	<i>probatocephalus</i>		
Sciaenidae	<i>Lagodon rhomboides</i>	Pinfish	
	<i>Bairdiella chrysoura</i>	Silver perch	
Sciaenidae	<i>Cynoscion arenarius</i>	Sand seatrout	
	<i>Cynoscion nebulosus</i>	Spotted seatrout	

Table 2: (continued).

	Scientific Name	Common Name
	<i>Leiostomus xanthurus</i>	Spot
	<i>Menticirrhus americanus</i>	Southern kingfish
	<i>Menticirrhus littoralis</i>	Gulf kingfish
	<i>Micropogonias undulates</i>	Atlantic croaker
	<i>Pogonias cromis</i>	Black drum
	<i>Sciaenops ocellatus</i>	Red drum
Pomacentridae	<i>Abudefduf saxatilis</i>	Sergeant major
Mugilidae	<i>Mugil cephalus</i>	Striped mullet
	<i>Mugil curema</i>	Silver or white mullet
Sphyraenidae	<i>Sphyraena borealis</i>	Northern sennet
Polynemidae	<i>Polydactylus octonemus</i>	Atlantic threadfin
Uranoscopidae	<i>Astroscopus y-graecum</i>	Southern stargazer
Gobiidae	<i>Ctenogobius boleosoma</i>	Darter goby
	<i>Ctenogobius smaragdus</i>	Emerald goby
	<i>Gobionellus hastatus</i>	Sharptail goby
Trichiuridae	<i>Trichiurus lepturus</i>	Atlantic cutlassfish
Scombridae	<i>Scomberomorus maculatus</i>	Atlantic Spanish mackerel
	<i>Scomberomorus regalis</i>	Cero
Stromateidae	<i>Peprilus burti</i>	Gulf butterfish
Paralichthyidae	<i>Citharichthys spilopterus</i>	Bay whiff
	<i>Etropus crossotus</i>	Fringed flounder
	<i>Paralichthys lethostigma</i>	Southern flounder
	<i>Paralichthys squamilentus</i>	Broad flounder
Achiridae	<i>Achirus lineatus</i>	Lined sole
Cynoglossidae	<i>Symphurus plagiusa</i>	Blackcheek tonguefish
Tetraodontidae	<i>Sphoeroides parvus</i>	Least puffer
	<i>Chaetodipterus faber</i>	Atlantic spadefish
Balistidae	<i>Blaistes capriscus</i>	Gray triggerfish
Monacanthidae	<i>Stephanolepis hispida</i>	Planehead filefish
Synodontidae	<i>Synodus foetens</i>	Inshore lizardfish
Belonidae	<i>Strongylura marina</i>	Atlantic needlefish
Hemiramphidae	<i>Hyporhamphus unifasciatus</i>	Atlantic silverstripe halfbeak
Cyprinodontidae	<i>Cyprinodon variegatus</i>	Sheepshead minnow
Fundulidae	<i>Fundulus grandis</i>	Gulf killifish
Ophidiidae	<i>Ophidion josephi</i>	Crested cusk-eel

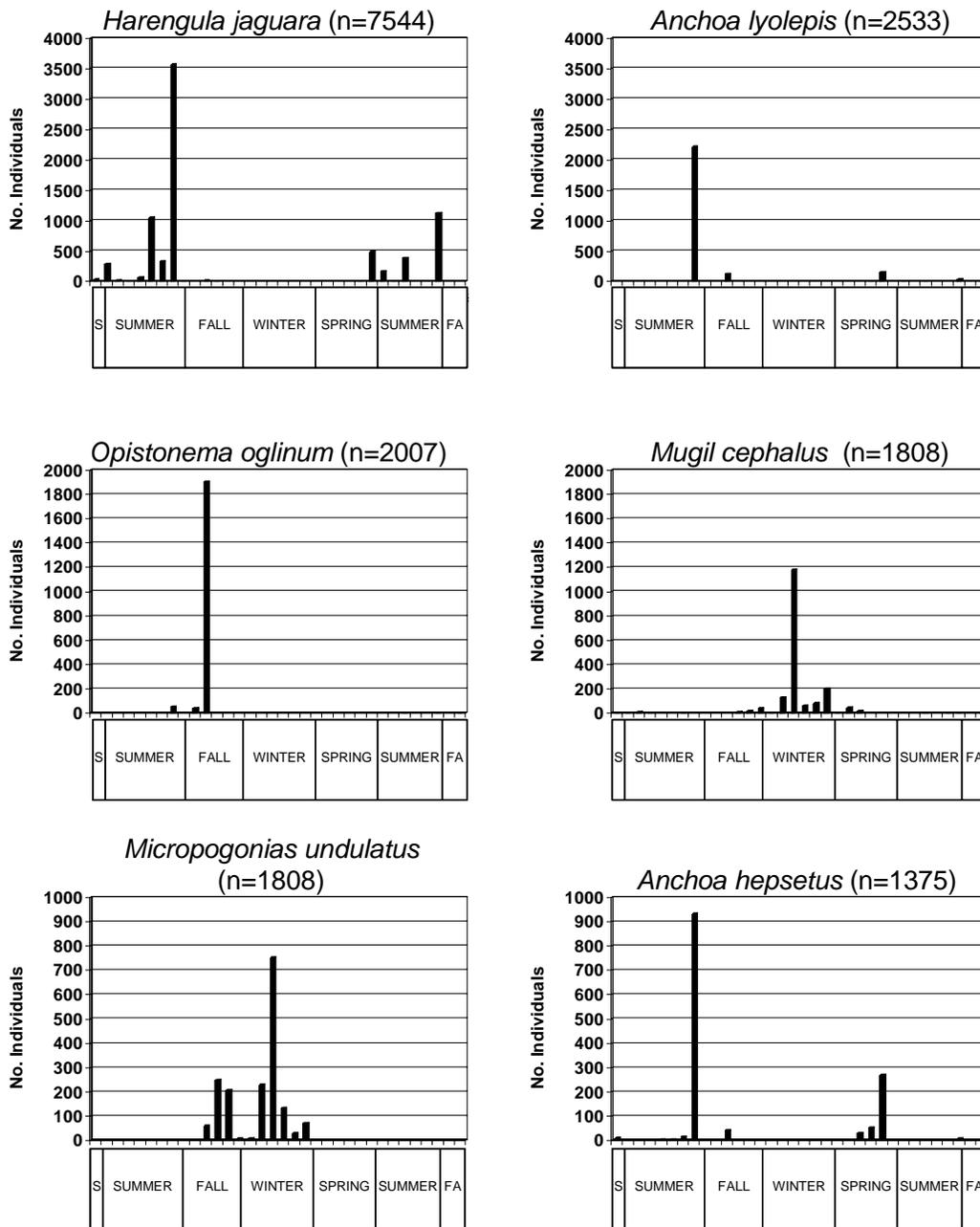


Fig. 2: Seasonal abundance of fish documented in Shaver (1984) and Shaver (1989) from surf zone habitat at Padre Island National Seashore.

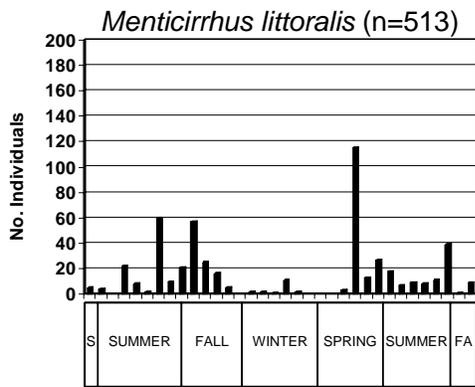
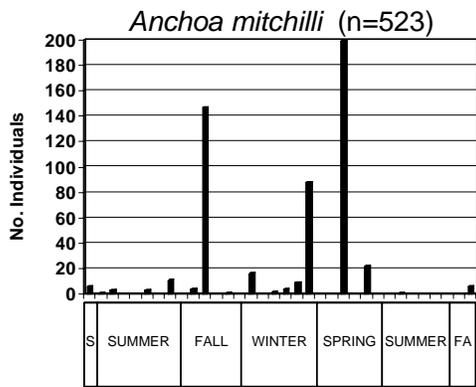
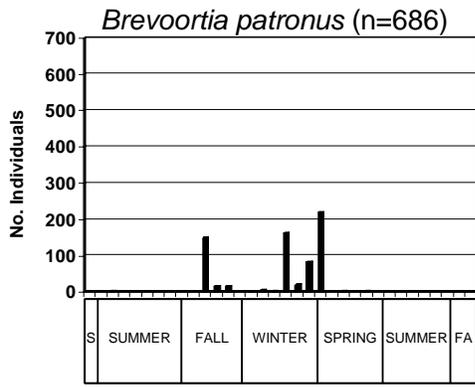
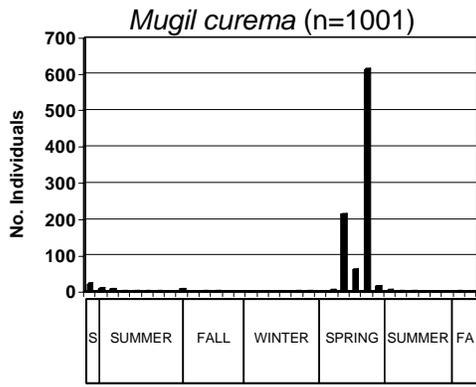
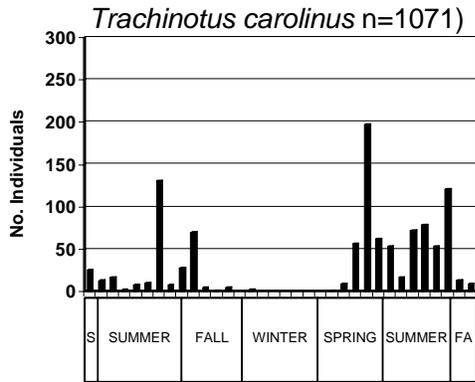
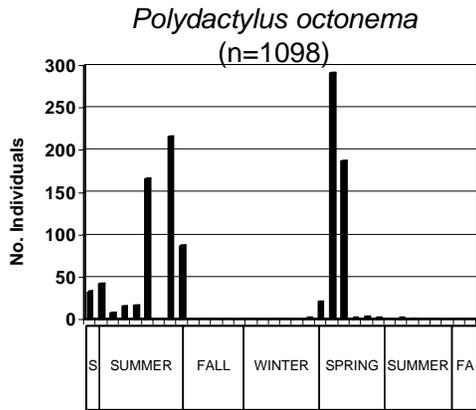


Fig. 2: (continued).

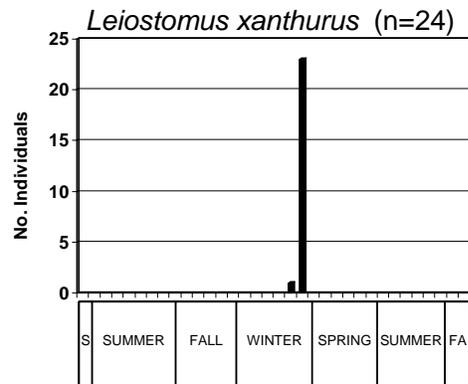
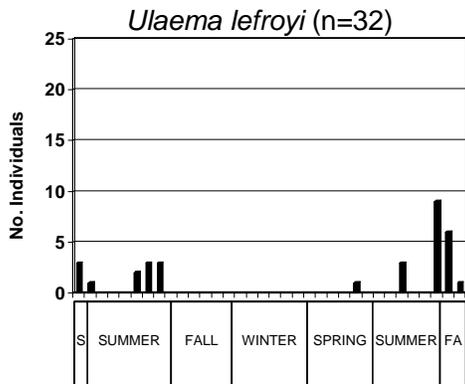
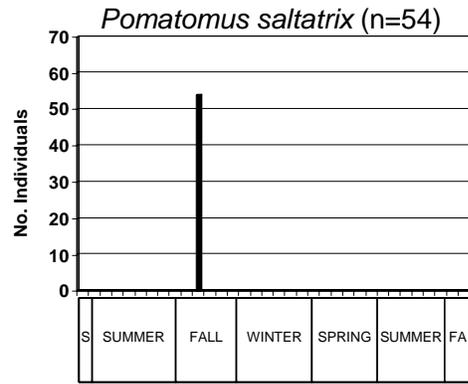
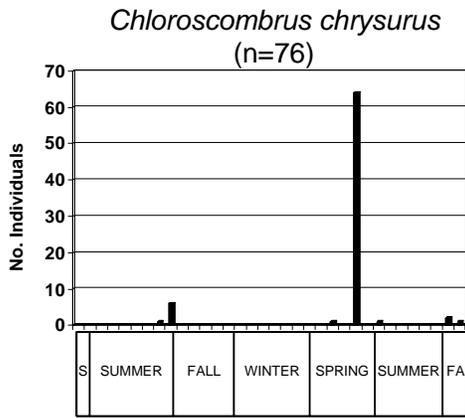
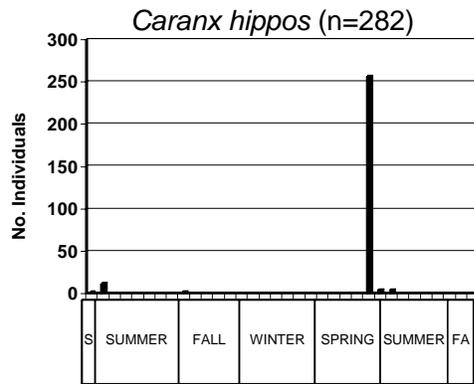
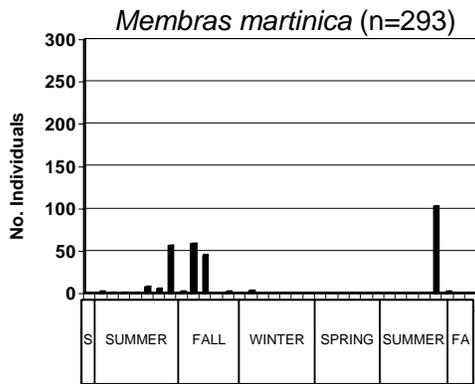


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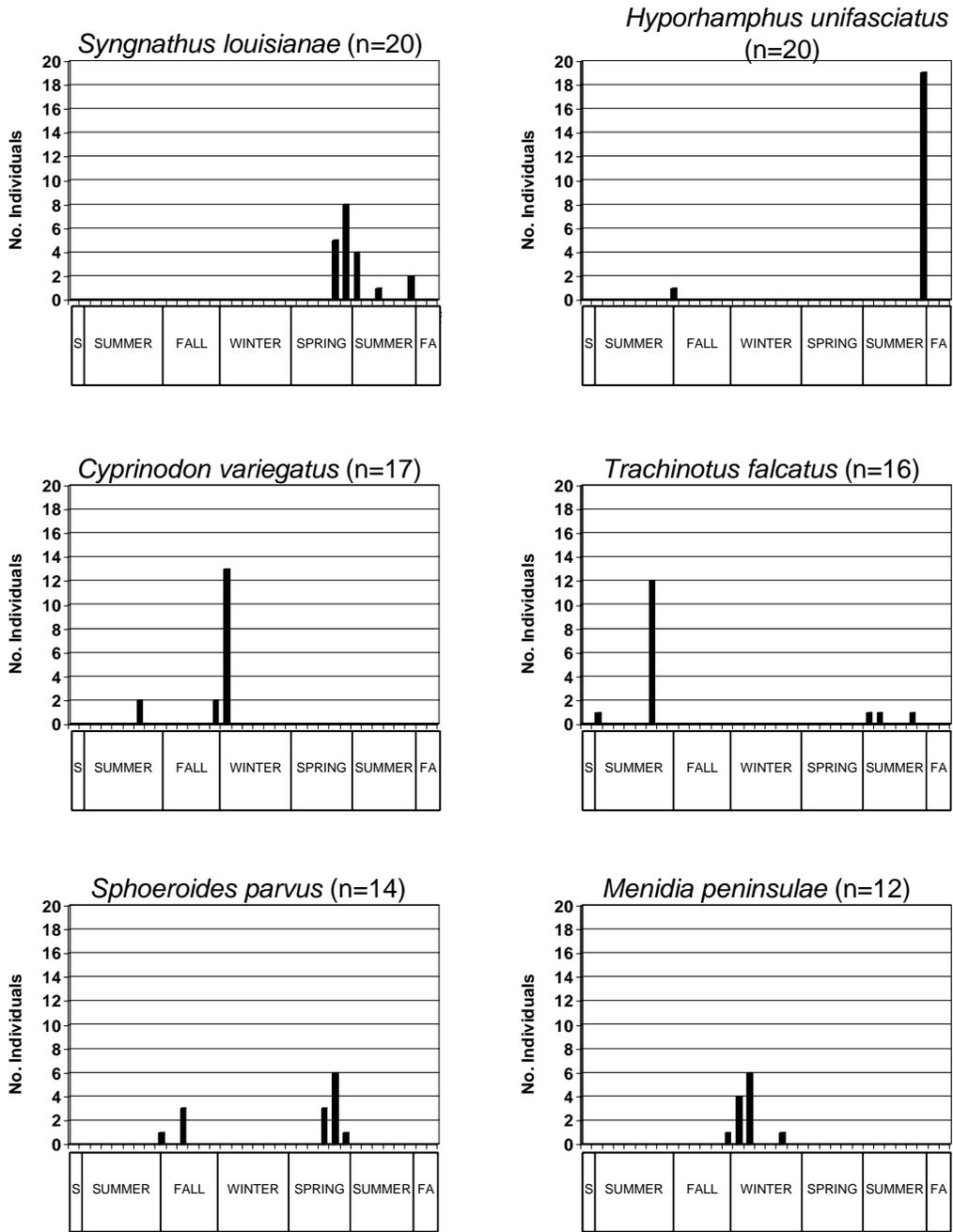


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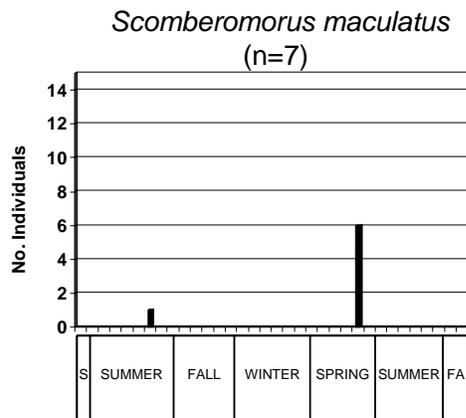
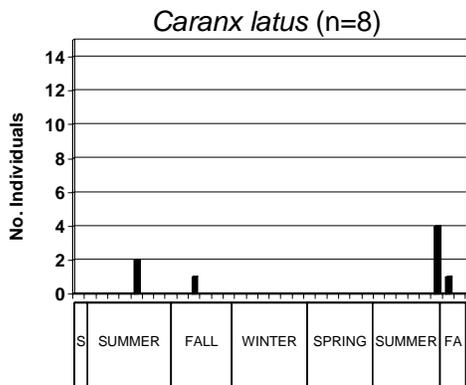
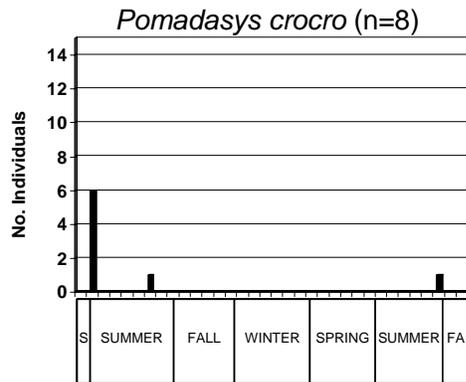
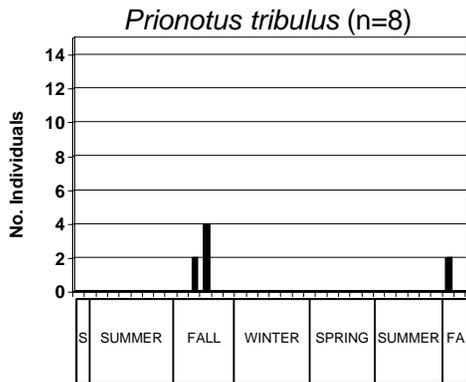
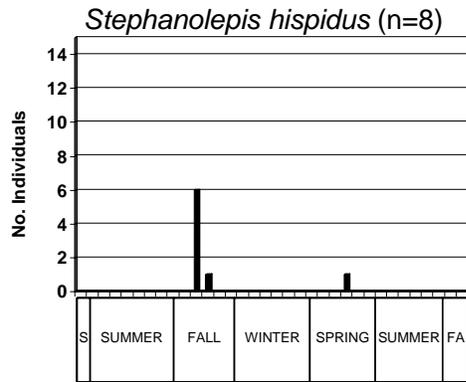
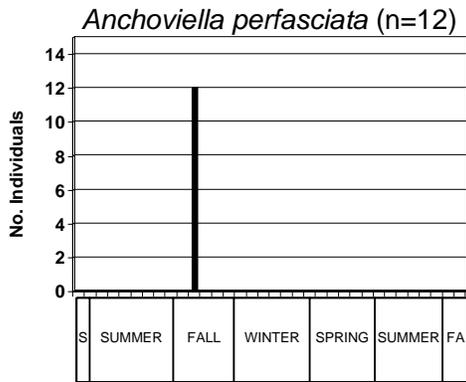


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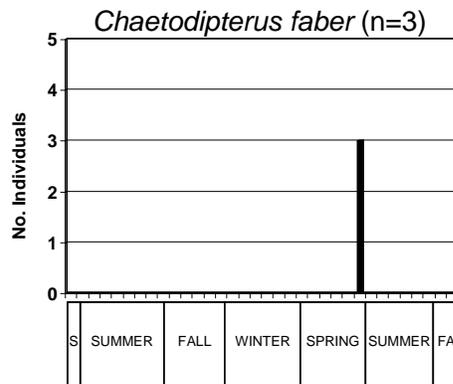
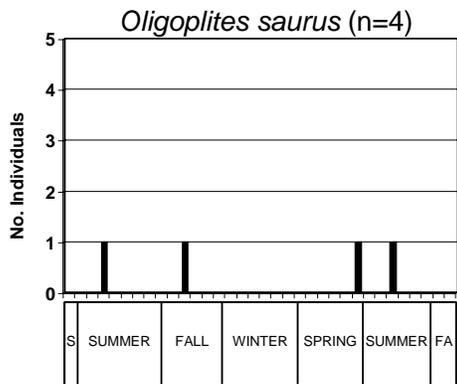
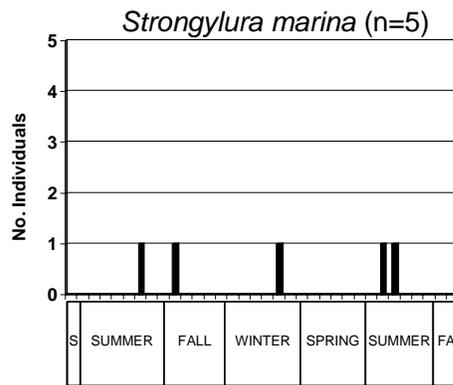
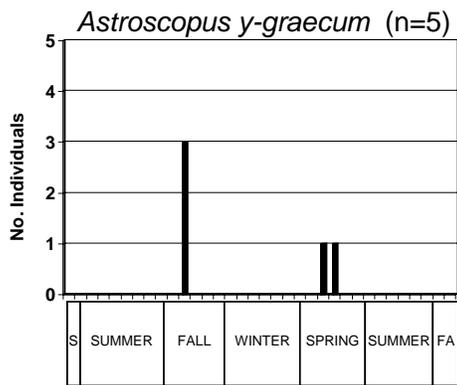
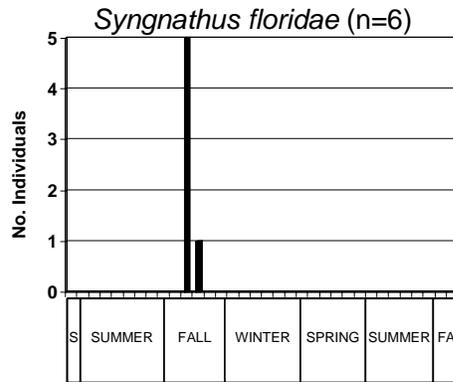
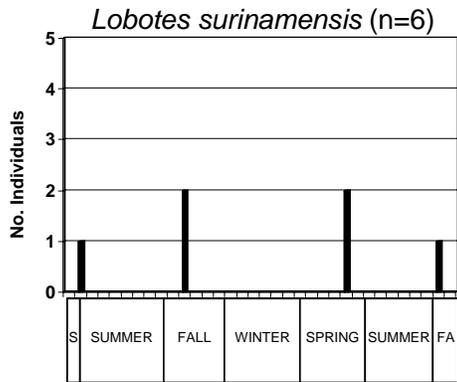


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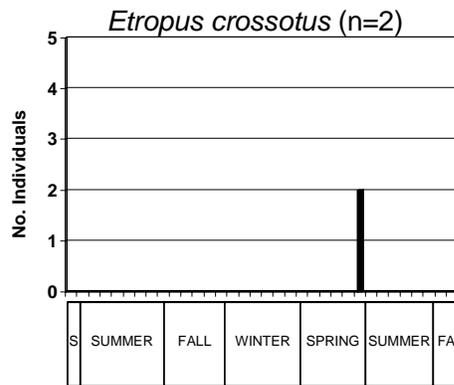
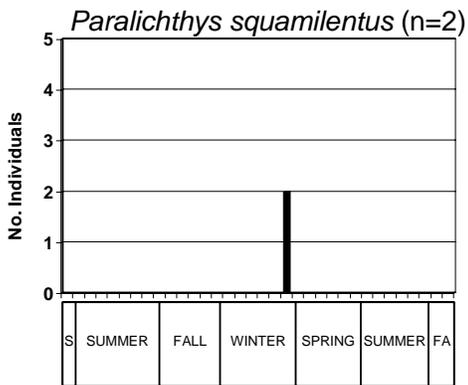
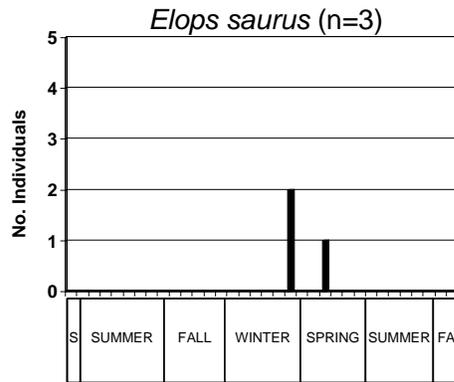
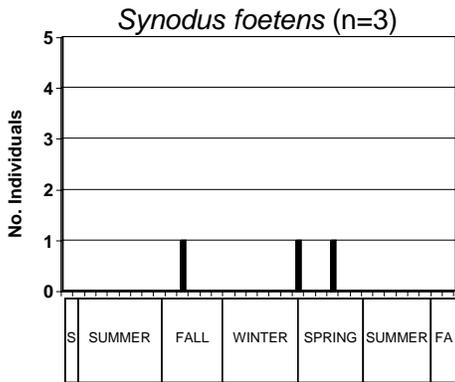
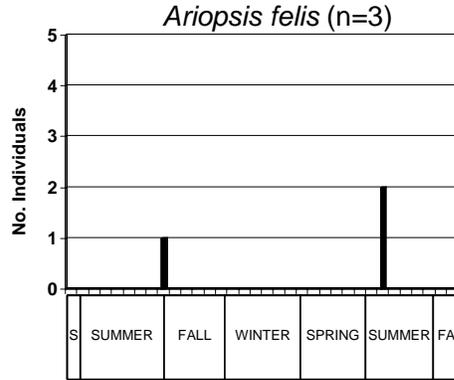
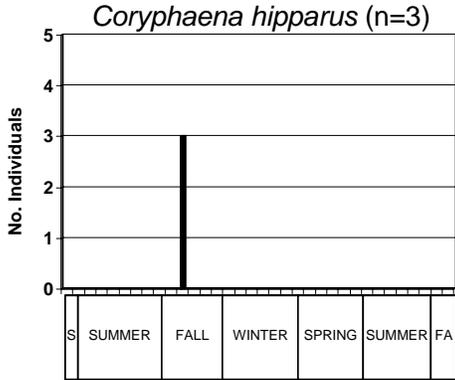


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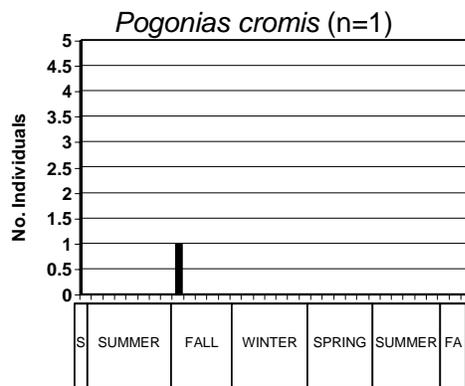
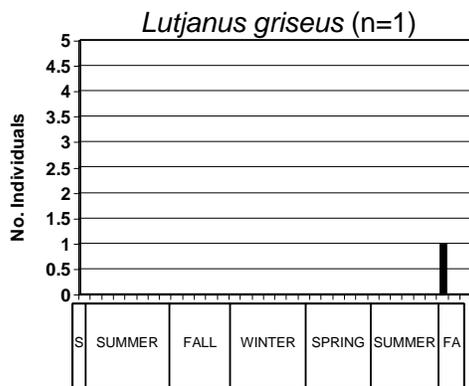
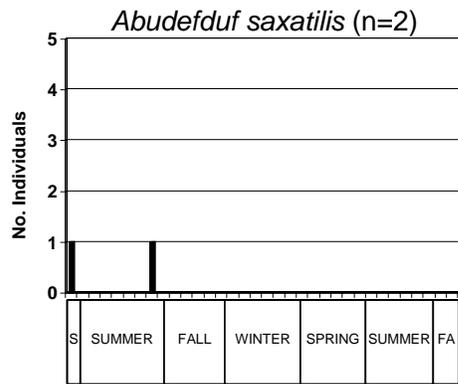
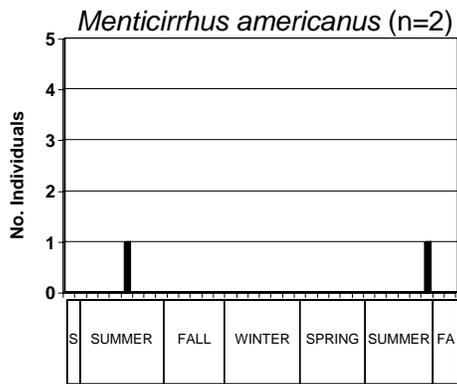
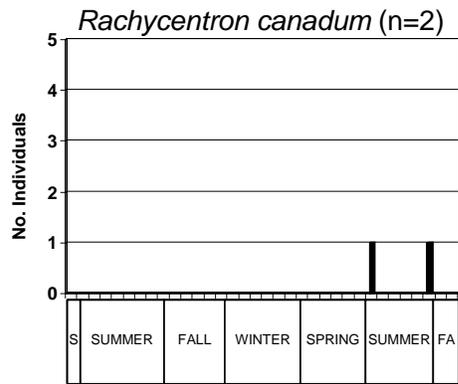
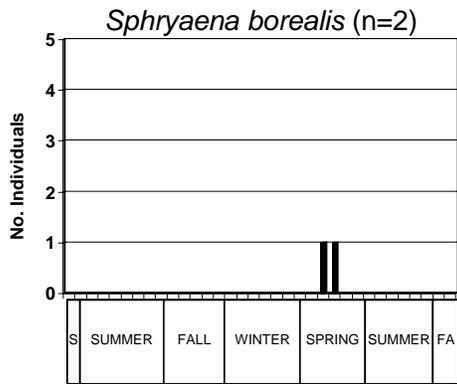


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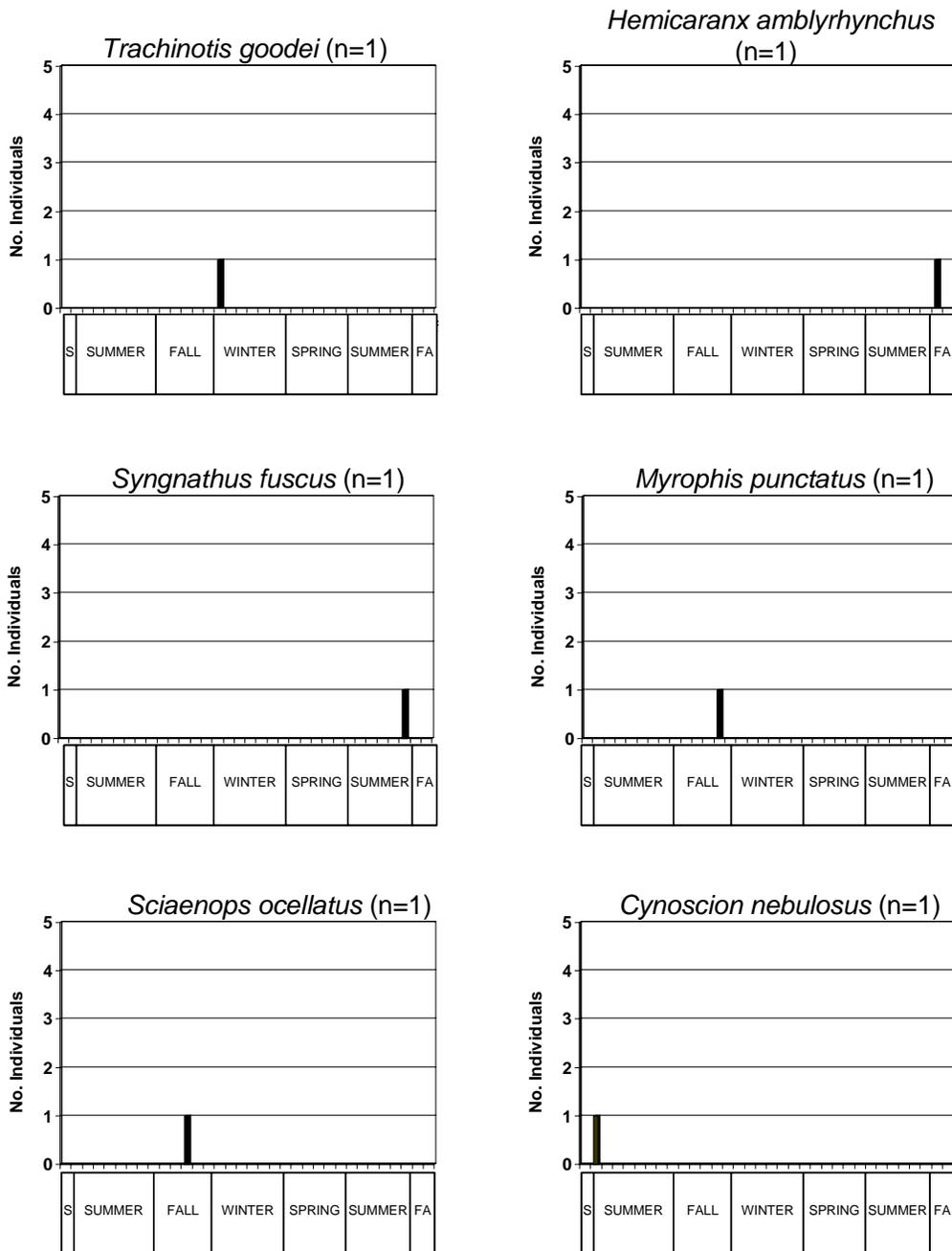


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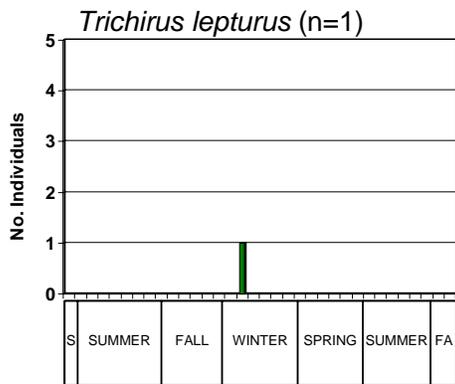
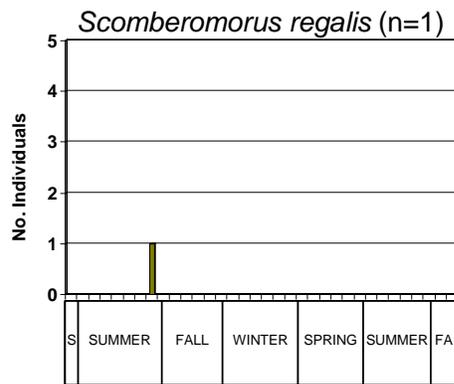
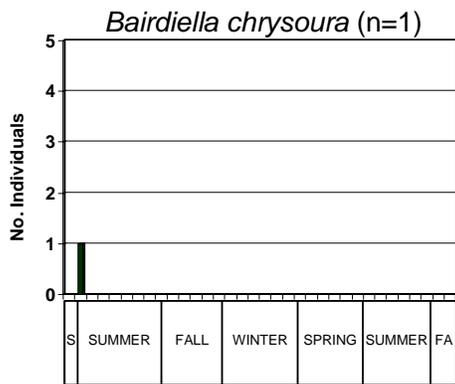


Fig. 2: (continued).

An analysis of the nekton and plankton around a shoalgrass bed in the Laguna Madre of Texas written by Allan Chaney (Chaney, 1988).

Seine and plankton samples were taken on a weekly basis around a shoalgrass bed in the upper Laguna Madre of Texas from November 1986 through October 1987. Standard length measurements were taken on all fish species. Plankton counts were made at general taxonomic levels. The occurrence, size, and numbers of certain species have provided additional information pertaining to their life history. A total number of 45,627,986 organisms were present, 29,941 in the seine and 45,598,045 estimated in the plankton net. Data was collected under 'normal' physical parameters and should provide a base for future studies concerned with life histories of organism, natural environmental changes through time, or the results of catastrophic events. A copy is located in the PAIS library. See Table 3 for a list of the 24 fish species documented in this study.

Table 3: Fish species documented in Chaney (1988) from seagrass habitat at Padre Island National Seashore.

Family	Scientific Name	Common Name
Clupeidae	<i>Brevoortia patronus</i>	Gulf menhaden
Engraulidae	<i>Anchoa hepsetus</i>	Broad-striped anchovy
	<i>Anchoa mitchilli</i>	Bay anchovy
Batrachoididae	<i>Opsanus beta</i>	Gulf toadfish
Atherinopsidae	<i>Menidia peninsulae</i>	Tidewater silverside
Syngnathidae	<i>Hippocampus zosterae</i>	Dwarf seahorse
	<i>Syngnathus floridae</i>	Dusky pipefish
	<i>Syngnathus scovelli</i>	Gulf pipefish
Gerreidae	<i>Gerres cinereus</i>	Yellowfin mojarra
Haemulidae	<i>Orthopristis chrysoptera</i>	Pigfish
Sparidae	<i>Lagodon rhomboides</i>	Pinfish
Sciaenidae	<i>Bairdiella chrysoura</i>	Silver perch
	<i>Cynoscion nebulosus</i>	Spotted seatrout
	<i>Leiostomus xanthurus</i>	Spot
	<i>Sciaenops ocellatus</i>	Red drum
Mugilidae	<i>Mugil cephalus</i>	Striped mullet
Gobiidae	<i>Gobiosoma robustum</i>	Code goby
Belonidae	<i>Strongylura marina</i>	Atlantic needlefish
Hemiramphidae	<i>Hyporhamphus unifasciatus</i>	Atlantic silverstripe halfbeak
Cyprinodontidae	<i>Cyprinodon variegatus</i>	Sheepshead minnow
Fundulidae	<i>Fundulus grandis</i>	Gulf killifish
	<i>Fundulus similis</i>	Longnose killifish
	<i>Lucania parva</i>	Rainwater killifish
Ophidiidae	<i>Ophidion josephi</i>	Crested cusk-eel

Of all university libraries searched, only the Texas A&M University-Corpus Christi Bell library contained a previous study not yet identified.

Relationship of larval and juvenile fish abundance, community structure, and growth rates in Laguna Madre, Texas to distance from Gulf Passes by Jeffery Landgraf for his master's thesis (Landgraf, 2005).

The objectives of this research were to characterize larval fish distribution and assemblage structure within the Laguna Madre and to examine its association with distance from passes, habitat structure, and physiochemical parameters. Growth rates of pinfish (*Lagodon rhomboids*) were also determined to assess environmental factors that may influence growth rates and distribution. There was little significant correlation between ichthyoplankton distribution and distance from gulf connections (passes). Significant temporal trends were found showing a peak larval migration between March and June. Data also indicated a strong affinity of ichthyoplankton to lower salinity levels found within the southern portions of Laguna Madre. Otolith examination revealed significant differences in marginal growth rates between the upper and lower Laguna Madre Bays with lower rates found in the lower Laguna Madre, particularly at the Port Isabel location. See Table 4 for a list of fish species documented at Bird Island Basin in this study.

Table 4: Fish species documented in Landgraf (2005) from seagrass habitat in Laguna Madre at Padre Island National Seashore.

Family	Scientific Name	Common Name
Engraulidae	<i>Anchoa mitchilli</i>	Bay anchovy
	<i>Anchoa</i> sp.	Anchovies
Atherinopsidae	<i>Menidia beryllina</i>	Inland silverside
Syngnathidae	<i>Hippocampus zosterae</i>	Dwarf seahorse
	<i>Syngnathus floridae</i>	Dusky pipefish
	<i>Syngnathus louisianae</i>	Chain pipefish
	<i>Syngnathus scovelli</i>	Gulf pipefish
	<i>Syngnathus</i> spp.	Pipefish
Sparidae	<i>Lagodon rhomboides</i>	Pinfish
Sciaenidae	<i>Bairdiella chrysoura</i>	Silver perch
	<i>Cynoscion nebulosus</i>	Spotted seatrout
Blenniidae	Blenniidae	Blennies
Gobiidae	Gobiidae	Gobies
Stromateidae	<i>Peprilus burti</i>	Gulf butterfish
		Butterfishes, Harvestfishes,
	<i>Stromateidae</i>	Rudderfishes
Bothidae	Bothidae	Lefteye flounders
Achiridae	Achiridae	American soles
Cyprinodontidae	<i>Fundulus grandis</i>	Gulf killifish

No new studies occurring within the park were identified from *Bibliography: Research on the Natural Resources of the Padre Island National Seashore* (Miller et al., 1993).

A search of the PAIS library revealed no new references. One hardcopy of the checklist, *Checklist of marine fish for Padre Island National Seashore – food and game fish*, was located. Hardcopies of *A baseline study of three ponds within the Padre Island National Seashore* (Sissom et al, 1990), *An analysis of the nekton and plankton around a shoalgrass bed in the Laguna Madre of Texas* (Chaney 1988), *The effects of a red tide on surf zone fish and plankton of the Padre Island National Seashore* (Shaver 1989), and *Population dynamics of fish fauna found in three earthen ponds on North Padre Island, Texas* (Caudle 1992) were also found in the library.

No new studies occurring within the park were identified from the on-line databases of peer-reviewed journals.

There are four additional references that should be mentioned. The first reference documents fish found directly offshore from the park. Since the species are not noted in the park, they were not included in the checklist. Data were included in this report as potential species that may occur at hard substrate (jetty) habitat within Padre Island National Seashore following the suggestion by Darrell Echols, PAIS.

The fish of seven and one-half fathom reef written by Billy Causey for his master's thesis (Causey, 1969).

SCUBA, self-contained underwater breathing apparatus, was utilized to study fish populations of a reef located on the continental shelf 3.2k offshore from Padre Island National Seashore. Objectives included a checklist of all fish seen or collected in the immediate vicinity of the reef, the relative density of each species, the general spatial distribution of each species, and seasonal and spatial variation of populations, correlated with changes in hydrography.

Transects, systematic passes through the transect areas, and random observations made outside the transects were used to document fish. Fish were collected for identification and deposited in the Texas A&I University collection. Hydrographic and physiographic data were collected during each of the 50 trips made to the site. Thirteen species were unrecorded and nine species seldom reported species for the Northwestern Gulf. Systematic counts and random observations were utilized to determine resident or occasional status, relative population density, and spatial distribution for many species. Temperature variations influenced seasonal fish population numbers. Turbidity and changes in barometric pressure influenced some populations, although salinity had no noticeable effect. Table 6 lists the 83 fish observed or collected in this study.

Belted sandfish (*Serranus subligarius*) was the most abundant resident benthic species and the greater soapfish (*Rypticus saponaceus*), the second most abundant (Fig.3). The most abundant resident nekton fish was the Northern red snapper (*Lutjanus*

champechanus) and the tomatae (*Haemulon aurolineatum*) the second most abundant (Fig. 4). The most abundant occasional benthic fish was the pigfish (*Orthopristis chrysoptera*) The second most was the bandtail puffer (*Sphoeroides spengleri*) (Fig. 5). The second most abundant occasional nekton fish was the crevalle jack (*Caranx hippos*) and the most abundant, the blue runner (*Caranx crysos*) (Fig. 6). Most species were distributed according to reef surface and topography.

Table 5: Fish species documented in Causey (1969) from offshore reef habitat at Seven and One-half Fathom Reef. Data were included in this report as potential species that may occur at hard substrate (jetty) habitat within Padre Island National Seashore.

Family	Scientific Name	Common Name	
Dasyatidae	<i>Dasyatis americana</i> ^a	Southern stingray	
Mobulidae	<i>Manta birostris</i> ^a	Atlantic manta	
Carcharhinidae	<i>Carcharhinus obscurus</i> ^a	Dusky shark	
Scorpaenidae	<i>Scorpaena dispar</i> ^a	Hunchback scorpionfish	
Muraenidae	<i>Gymnothorax vicinus</i> ^a	Purplemouth moray	
Ophichthidae	<i>Bascanichthys scuticaris</i>	Whip eel	
	<i>Myrophis punctatus</i>	Speckled worm eel	
	<i>Ahlia egmontis</i> ^a	Key worm eel	
Clupeidae	<i>Harengula jaguana</i>	Scaled herring	
Ariidae	<i>Ariopsis felis</i>	Hardhead catfish	
Batrachoididae	<i>Opsanus pardus</i>	Leopard toadfish	
	<i>Porichthys porosissimus</i>	Atlantic midshipman	
Syngnathidae	<i>Hippocampus reidi</i> ^a	Longsnout seahorse	
Serranidae	<i>Diplectrum bivittatum</i> ^a	Dwarf sand perch	
	<i>Epinephelus nigritus</i>	Warsaw grouper	
	<i>Epinephelus adscensionis</i> ^a	Rock hind	
	<i>Epinephelus itajara</i> ^a	Jewfish	
	<i>Mycteroperca bonaci</i> ^a	Black grouper	
	<i>Mycteroperca rubra</i> ^a	Comb grouper	
	<i>Serranus subligarius</i> ^a	Belted sandfish	
	<i>Rypticus saponaceus</i> ^a	Greater soapfish	
	Apogonidae	<i>Phaeoptyx conklini</i> ^a	Freckled cardinalfish
		<i>Apogon maculatus</i> ^a	Flamefish
Rachycentridae	<i>Rachycentron canadum</i>	Cobia	
Echeneidae	<i>Echeneis naucrates</i> ^a	Sharksucker	
Carangidae	<i>Caranx crysos</i> ^a	Blue runner	
	<i>Caranx hippos</i>	Crevalle jack	
	<i>Caranx latus</i>	Horse-eye jack	
	<i>Carangoides ruber</i> ^a	Bar jack	
	<i>Chloroscombrum chrysurus</i>	Bumper	
	<i>Selene vomer</i>	Lookdown	
	<i>Seriola dumerili</i> ^a	Greater amberjack	
	<i>Seriola rivoliana</i> ^a	Almaco jack	
	Coryphaenidae	<i>Coryphaena hippurus</i>	Dolphin
	Lutjanidae	<i>Lutjanus campechanus</i>	Northern red snapper
<i>Lutjanus cyanopterus</i>		Cubera snapper	
<i>Lutjanus griseus</i>		Gray snapper	
<i>Lutjanus synagris</i>		Lane snapper	
Lobotidae	<i>Lobotes surinamensis</i>	Tripletail	
Haemulidae	<i>Orthopristis chrysoptera</i>	Pigfish	
	<i>Anisotremus surinamensis</i> ^a	Black margate	
	<i>Anisotremus virginicus</i> ^a	Porkfish	

Table 5: (continued).

Family	Scientific Name	Common Name
	<i>Haemulon aurolineatum</i> ^a	Tomtate
Sparidae	<i>Archosargus probatocephalus</i>	Sheepshead
	<i>Diplodus holbrooki</i> ^a	Spottail pinfish
	<i>Lagodon rhomboides</i>	Pinfish
Sciaenidae	<i>Cynoscion arenarius</i>	Sand seatrout
	<i>Odontoscion dentex</i> ^a	Reef croaker
	<i>Cynoscion nebulosus</i>	Spotted seatrout
Sciaenidae	<i>Pareques acuminatus</i> ^a	High-hat
Mullidae	<i>Pseudupeneus maculatus</i> ^a	Spotted goatfish
Kyphosidae	<i>Kyphosus sectator</i> ^a	Bermuda chub, rudderfishes
Chaetodontidae	<i>Chaetodon sedentarius</i> ^a	Reef butterflyfish
	<i>Chaetodon ocellatus</i> ^a	Spotfin butterflyfish
	<i>Holacanthus bermudensis</i> ^a	Blue angelfish
Pomacentridae	<i>Abudefduf saxatilis</i>	Sergeant Major
	<i>Stegastes fuscus</i> ^a	Dusky damselfish
	<i>Stegastes variabilis</i> ^a	Cocoa damselfish
	<i>Microspathodon chrysurus</i> ^a	Yellowtail damselfish
Labridae	<i>Halichoeres bivittatus</i> ^a	Slippery dick
	<i>Halichoeres caudalis</i> ^a	Painted wrasse
Sphyraenidae	<i>Sphyraena barracuda</i> ^a	Great barracuda
Labrisomidae	<i>Labrisomus nuchipinnis</i> ^a	Hairy blenny
Blenniidae	<i>Parablennius marmoratus</i> ^a	Seaweed blenny
	<i>Hypoleurochilus geminatus</i> ^a	Crested blenny
Gobiidae	<i>Ptereleotris calliura</i> ^a	Blue goby
	<i>Coryphopterus punctipectophorus</i> ^a	Spotted goby
Scombridae	<i>Scomberomorus maculatus</i>	Spanish mackerel
Scombridae	<i>Euthynnus alletteratus</i> ^a	Little tuna
	<i>Scomberomorus cavalla</i> ^a	King mackerel
Stromateidae	<i>Peprilus paru</i> ^a	Harvestfish
Paralichthyidae	<i>Paralichthys lethostigma</i>	Southern flounder
Tetraodontidae	<i>Canthigaster rostrata</i> ^a	Sharpnose puffer
	<i>Sphoeroides nephelus</i> ^a	Southern puffer
	<i>Sphoeroides spengleri</i> ^a	Bandtail puffer
Ephippidae	<i>Chaetodipterus faber</i>	Atlantic spadefish
Monacanthidae	<i>Aluterus scriptus</i> ^a	Scrawled filefish
	<i>Stephanolepis hispidus</i> ^a	Planehead filefish
Balistidae	<i>Balistes capriscus</i> ^a	Gray triggerfish
Ostraciidae	<i>Acanthostracion quadricornis</i> ^a	Scrawled cowfish
Ophidiidae	<i>Brotula barbata</i> ^a	Bearded brotula
	<i>Ophiodon holbrookii</i>	bank cusk-eel
Molidae	<i>Mola mola</i> ^a	Ocean sunfish

^a Species not documented from other reports within Padre Island National Seashore

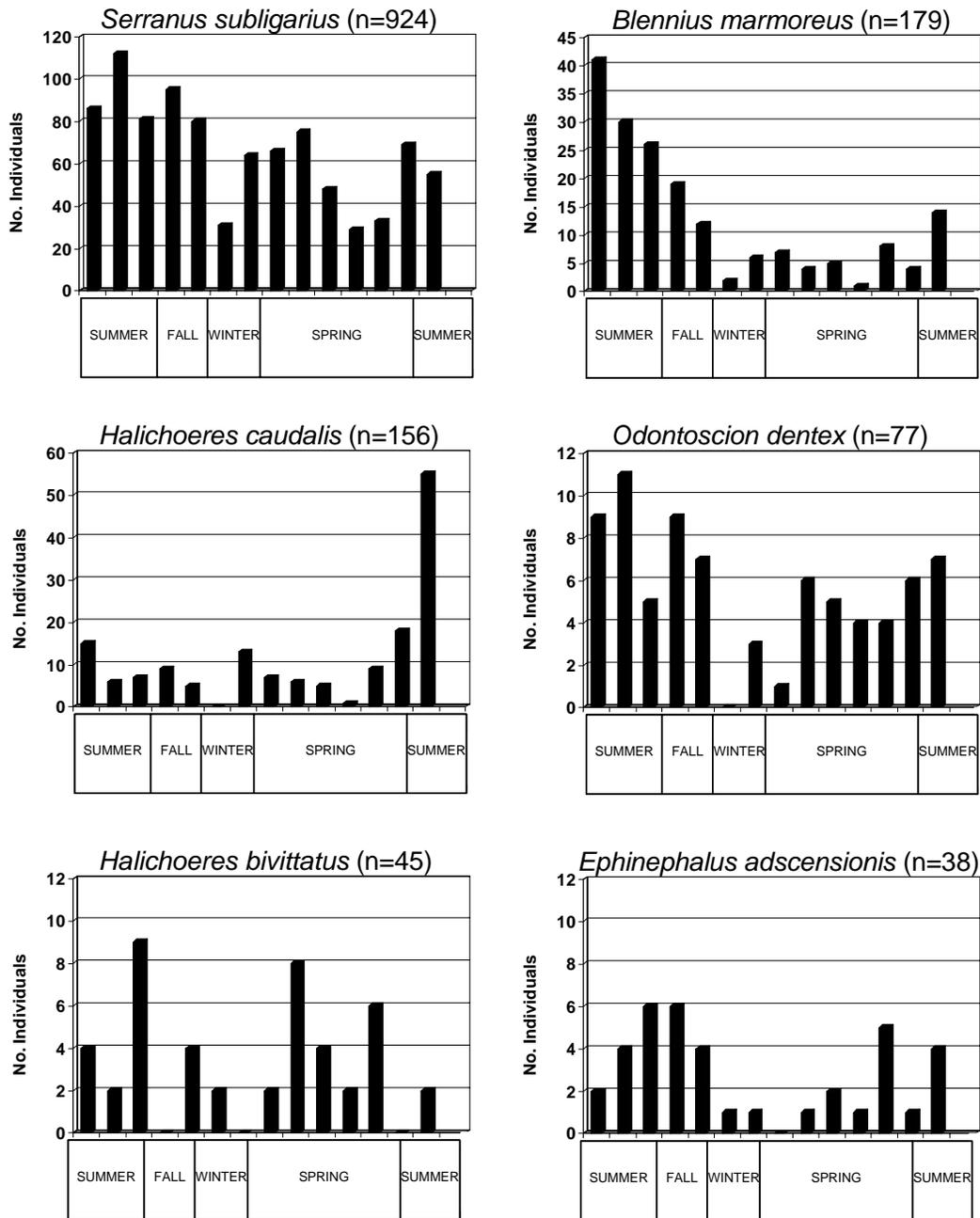


Fig. 3: Abundance by season of resident benthic fish documented by Causey (1969) at 7 1/2 Fathom reef.

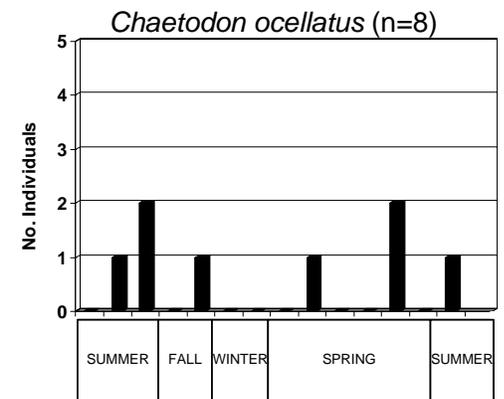
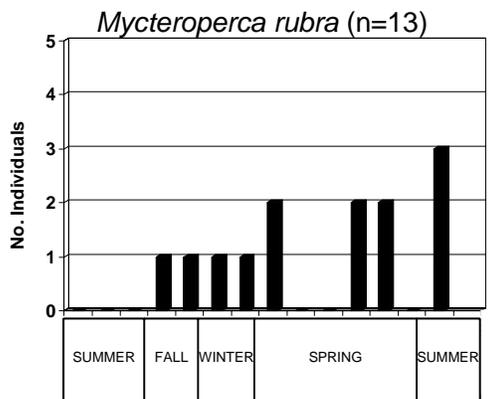
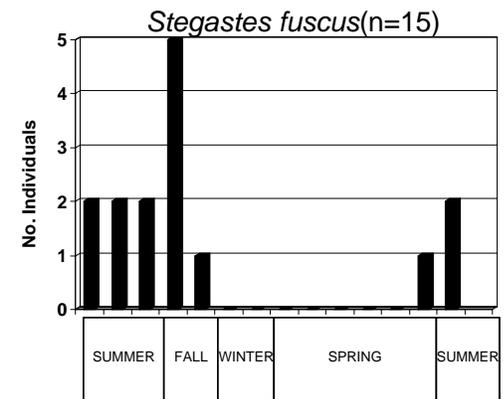
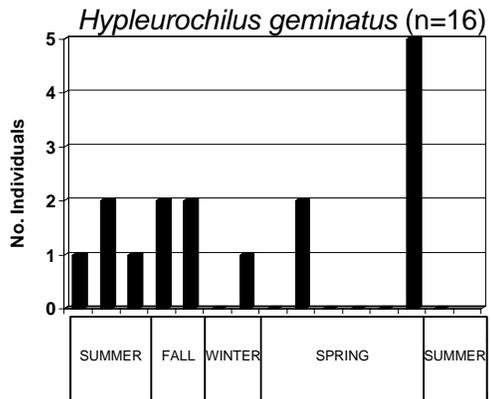
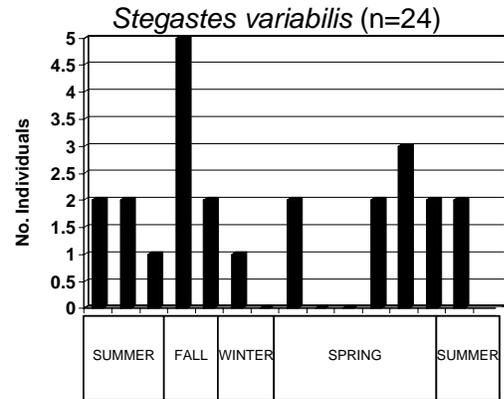
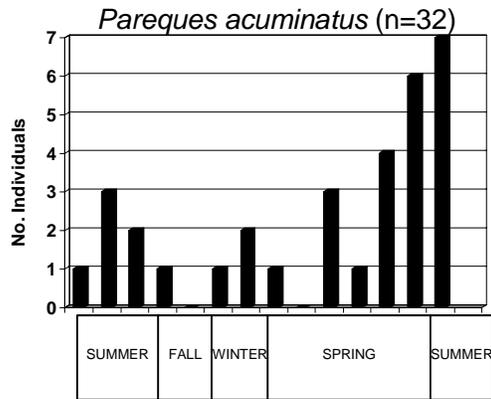


Fig. 3: (continued).

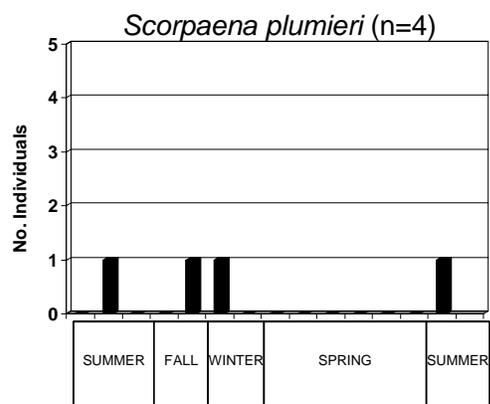
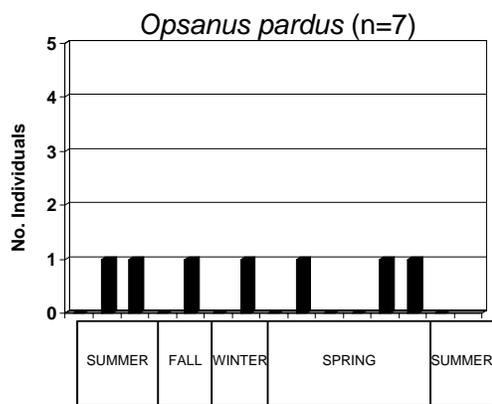


Fig. 3: (continued).

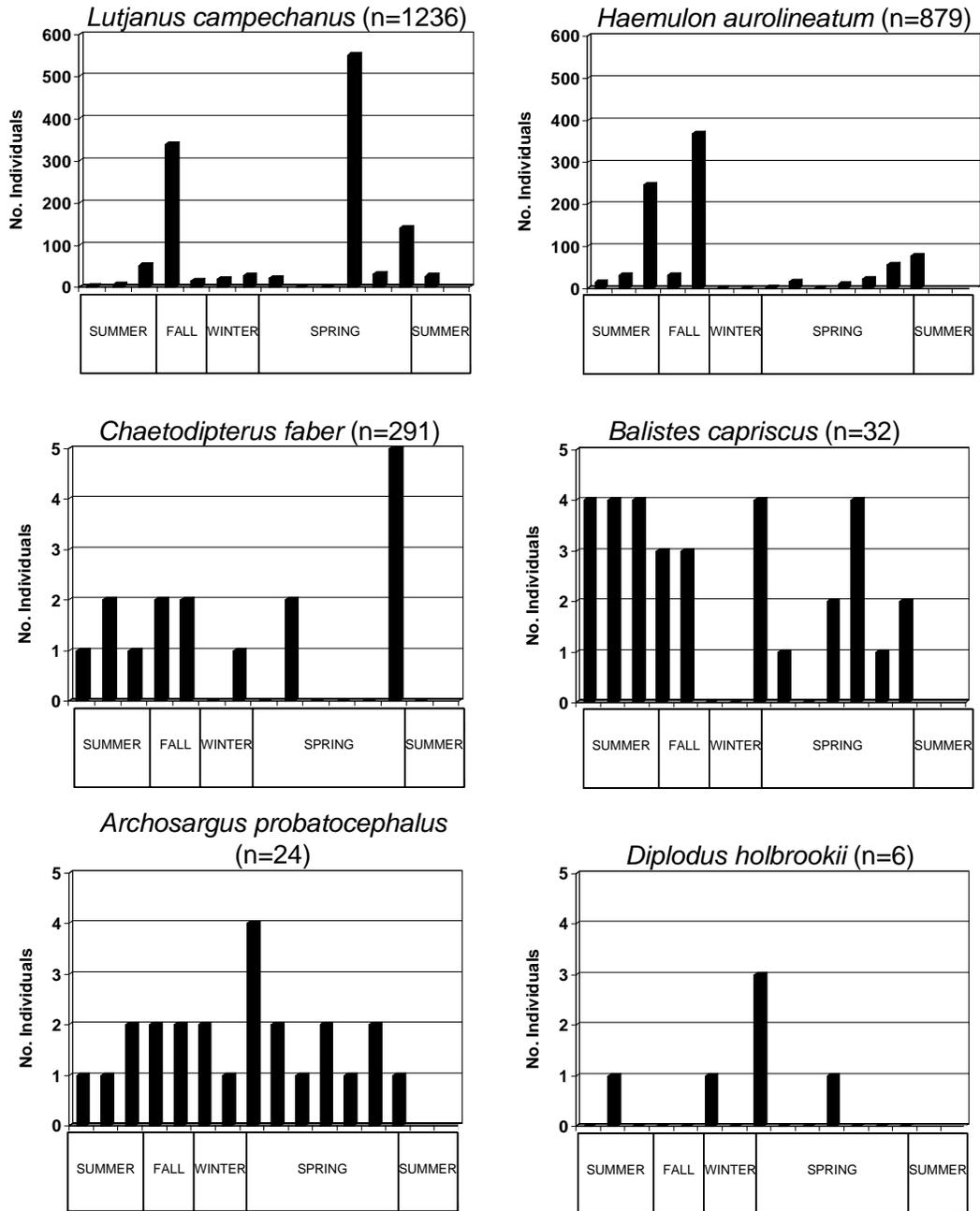


Fig. 4: Abundance by season of resident nektonic fish documented by Causey (1969) at 7 ½ Fathom reef.

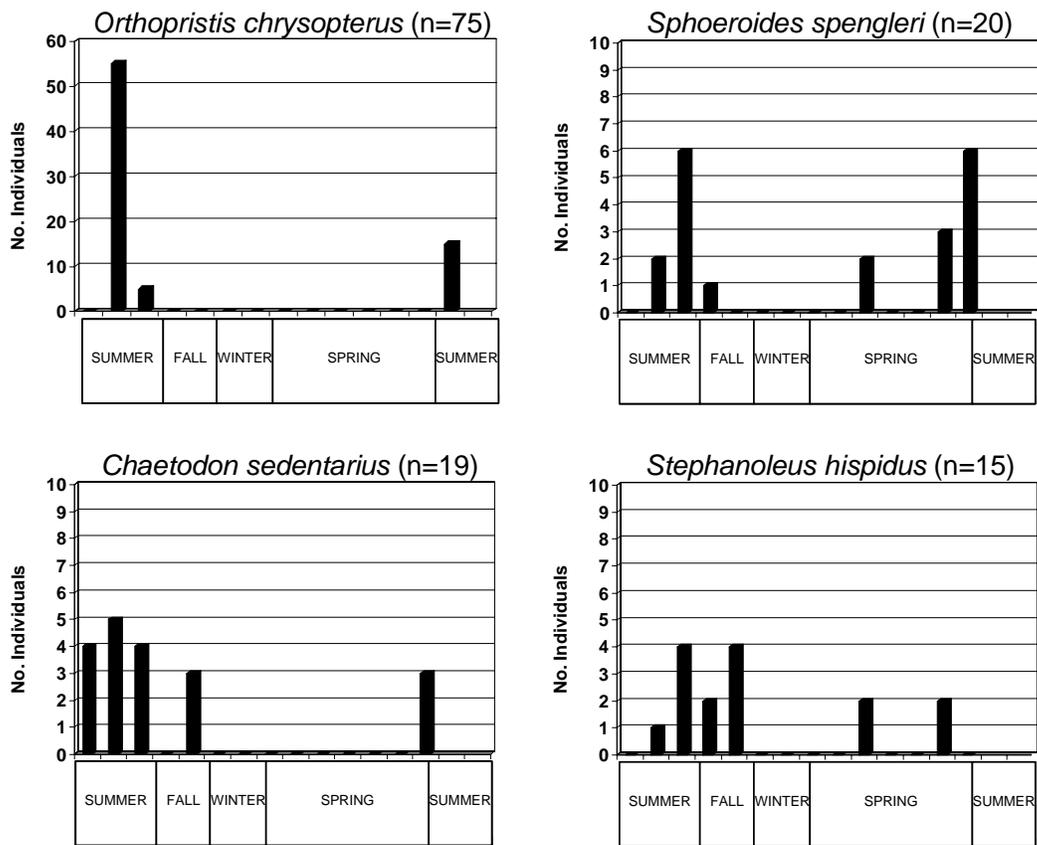


Fig. 5: Abundance by season of occasional benthic fish documented by Causey (1969) at 7 ½ Fathom reef.

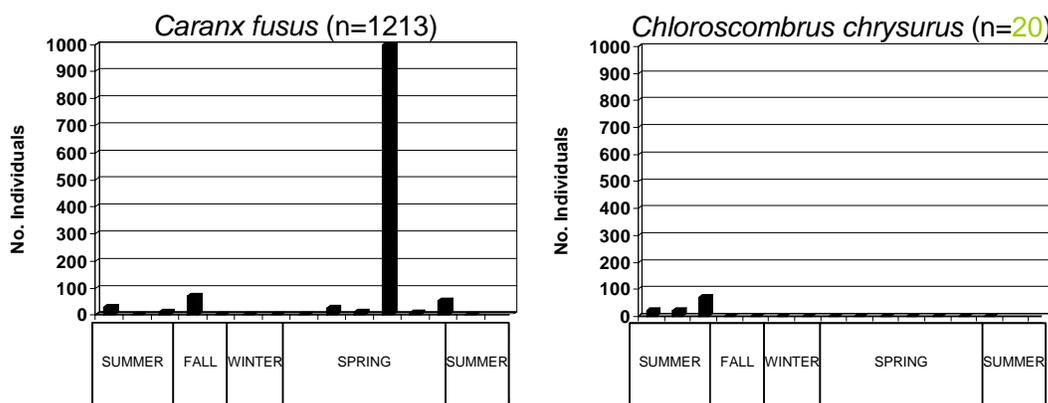


Fig. 6: Abundance by season of occasional nektonic fish documented by Causey (1969) at 7 ½ Fathom reef.

A portion of the next study occurred along Padre Island including an area within the park. However, it would be very difficult to distinguish between fish documented in and out of the park and therefore will not be included in the checklist.

Species composition and annual, seasonal, and spatial variability of vertebrate and invertebrate assemblages in the Texas surf zone by Trial, P. F., K. Spiller, R. Blankinship, and K Meador (Trial et al., 2006).

Beach seine and bag seine samples were collected May through November, 1988 – 1995 in a study conducted by Texas Parks and Wildlife Department. Samples were taken along the Texas Gulf coast from seven beach areas. One sample area encompassed Padre Island from the Port Aransas south jetty to Yarbrough Pass. Only that data was extracted and evaluated. Fish data were summarized by annual catch rates and mean size for most abundant species (Table 7). Although these values do not directly relate to abundance values, it is useful as another literature source for species (and their relative size) expected to frequently occur in surf zone habitat on the gulf shore of Padre Island National Seashore.

Checklist of species within Corpus Christi Bay National Estuary Program Study Area: References, Habitats, Distribution, and Abundance by Tunnell, J. W. and S. A. Alvarado (1996).

This checklist was an initial effort to assemble a complete list of species occupying the Corpus Christi Bay National Estuary Program (CCBNEP) study area. It is meant to be a reference and hopefully will aid in future studies that help to fill in any gaps of information. Identifying lack of information was an important objective of CCBNEP. The list includes a phylogenetic and taxonomic list of all species, their habitat distribution, the bay system occupied, abundance in each bay system, and references. Common names of fish were not used. Unidentified species were noted with a generic or familial name and missing information was documented as symbols. An electronic database of this resource is archived at Texas A&M University at Corpus Christi (TAMU-CC), Center for Coastal Studies. See Table 8 for a list of fish species and their relative abundance that were listed within the Baffin Bay-Laguna Madre system.

Distribution and Abundance of Fishes and Invertebrates in Gulf of Mexico Estuaries Volume II: Species Life History Summaries by Pattillo, M. E., T. E. Czaplá, D. M. Nelson, and M. E. Monaco (Pattillo et al. 1997).

This volume provides life history summaries of 44 fish and invertebrate species found in estuaries along the Gulf of Mexico. Only fish species for Baffin Bay-Laguna Madre estuary (Table 9) were included in this report. Each summary includes descriptions of the species' occurrence and the physical and biological parameters that affect those occurrences in the estuaries. Factors included are value, range, life mode, habitat, reproduction, growth and development, food and feeding, biological interactions, any personal communications, and references. Supplemental physical and biological

information is condensed into three life history tables: habitat associations, biological attributes, and reproduction.

Table 6: Annual catch rates (CPU) and mean size (MS) of the most abundant fish species sampled with beach and bag seines Within the gulf shore of the Padre Island sample site (modified from Trial et al., 2006).

Species	Seine Type	Data Type	Month						
			May	June	July	August	September	October	November
<i>Anchoa hepsetus</i>	Beach	CPUE	27.23	0	0	0.45	5.9	0	0
		MS	44			35	33		
<i>Arius felis</i>	Beach	CPUE	0.6	0.05	0.2	0.2	0.05	0.1	0
		MS	321	322	315	313	334	304	
<i>Cynoscion nebulosus</i>	Beach	CPUE	0.05	1.52	4.02	1.09	1.19	0.05	0.2
		MS	538	431	412	392	438	445	561
<i>Mugil cephalus</i>	Beach	CPUE	15.43	21.47	35.42	8.23	7.09	14.19	11.61
		MS	341	334	351	370	357	374	367
Other	Beach	CPUE	52.51	2.25	6.35	10.42	29.41	2.56	2.78
		MS	179	265	245	227	223	203	243
<i>Pogonias cromis</i>	Beach	CPUE	1.29	3.33	1.84	1.64	11.9	1.25	0.55
		MS	295	387	362	284	254	284	248
<i>Trachinotus carolinus</i>	Beach	CPUE	0.51	0.51	0.41	0.5	0.55	2.02	2.42
		MS	186	124	161	175	170	191	205
<i>Anchoa hepsetus</i>	Bag	CPUE	2.08	11.81	100	2156.25	1081.25	2.78	0
		MS	35	37	51	51	39	59	
<i>Anchoa mitchilli</i>	Bag	CPUE	0.69	53.47	0	288.89	0	0.69	1.39
		MS	70	35		49		27	51
<i>Harengula jaguana</i>	Bag	CPUE	0	134.72	783.33	1459.03	13787.5	56.25	0
		MS		36	36	37	42	41	6.25
<i>Menticirrhus littoralis</i>	Bag	CPUE	236.81	620.14	755.56	899.31	1412.5	865.97	218.06
		MS	65	45	55	53	61	48	55
Other	Bag	CPUE	461.81	829.86	761.11	743.06	157.64	70.83	53.47
		MS	34	35	44	49	62	78	56
<i>Polydactylus octonemus</i>	Bag	CPUE	7152.08	965.97	145.14	7.64	10.42	0	0
		MS	79	95	100	80	113		

Table 7: Fish species and relative abundance with associated reference of documented species in the Baffin Bay-Laguna Madre system (modified from Tunnell and Alvarado 1996). References are not included in this report; Rr – Rare, U – Uncommon, Co – Common, A – Abundant, # - listed, no abundance given.

Family	Scientific Name	CBBEP 06D Reference	Bay (Abundance)
Carcharhinidae	<i>Carcharhinus limbatus</i>	Simmons (1957)	BBLM (U)
	<i>Carcharhinus isodon</i>	Simmons (1957)	BBLM (Rr)
Sphyrnidae	<i>Sphyrna tiburo</i>	Hubbs et al. (1994)	BBLM (Rr)
Rajidae	<i>Raja texana</i>	TAMU-CC	BBLM (U)
Dasyatidae	<i>Dasyatis americana</i>	TAMU-CC	BBLM (Co)
	<i>Dasyatis sabina</i>	TAMU-CC	BBLM (Co)
Rhinopterae	<i>Rhinoptera bonasus</i>	Simmons (1957)	BBLM (U)
Lepisosteidae	<i>Atractosteus spatula</i>	Breuer (1957), Simmons (1957)	BBLM (U)
Elopidae	<i>Elops saurus</i>	Hellier (1962), Simmons (1957)	BBLM (Co)
	<i>Megalops atlanticus</i>	Breuer (1957), Simmons (1957)	BBLM (Rr,U)
Anguillidae	<i>Anguilla rostrata</i>	Simmons (1957)	BBLM (Rr)
Ophichthidae	<i>Ophichthus puncticeps</i>	Hubbs et al. (1994)	BBLM (U)
Clupeidae	<i>Brevoortia gunteri</i>	Hellier (1962), Simmons (1957)	BBLM (Co,A)
	<i>Brevoortia patronus</i>	Simmons (1957)	BBLM (A)
	<i>Dorosoma cepedianum</i>	Breuer (1957)	BBLM (Rr)
	<i>Dorosoma petenense</i>	Simmons (1957)	BBLM (Rr)
	<i>Opisthonema oglinum</i>	Simmons (1957)	BBLM (U)
Synodontidae	<i>Synodus foetens</i>	Breuer (1957), Simmons (1957)	BBLM (A)
Ariidae	<i>Bagre marinus</i>	Simmons (1957)	BBLM (Co)
	<i>Ariopsis felis</i>	Hellier (1962, Simmons (1957)	BBLM (A)
Batrachoididae	<i>Opsanus beta</i>	Simmons (1957)	BBLM (Co)
Gadidae	<i>Urophycis floridana</i>	Hildebrand & King (1977), Simmons (1957)	BBLM (Rr)
Exocoetidae	<i>Hemiramphus unifasciatus</i>	Simmons (1957)	BBLM (U)
Belonidae	<i>Strongylura marina</i>	Simmons (1957)	BBLM (U)
Cyprinodontidae	<i>Cyprinodon variegatus</i>	Hellier (1962), Simmons (1957)	BBLM (Co)
	<i>Fundulus grandis</i>	Simmons 91957)	BBLM (A)
	<i>Fundulus similis</i>	Simmons (1957)	BBLM (A)
Syngnathidae	<i>Syngnathus louisianae</i>	Simmons (1957)	BBLM (Rr)
	<i>Syngnathus scovelli</i>	Simmons (1957)	BBLM (Co)

Table 7: (continued)

Family	Scientific Name	CBBEP 06D Reference	Bay (Abundance)
	<i>Anarchopterus criniger</i>	Hubbs et al. (1994)	BBLM (U)
Triglidae	<i>Prionotus martis</i>	Hubbs et al. (1994)	BBLM
	<i>Prionotus scitulus</i>	Simmons (1957)	BBLM (Rr)
	<i>Prionotus tribulus</i>	Simmons (1957)	BBLM (#)
	<i>Peristedion gracile</i>	Simmons (1957)	BBLM (Rr)
Centropomidae	<i>Centropomus undecimalis</i>	Breuer (1957), Simmons (1957)	BBLM (Rr)
Centrarchidae	<i>Lepomis macrochirus</i>	Hubbs et al. (1994)	BBLM (Rr)
	<i>Lepomis megalotis</i>	Hubbs et al. (1994)	BBLM (Rr)
	<i>Lepomis microlophus</i>	Hubbs et al. (1994)	BBLM (Rr)
	<i>Micropterus salmoides</i>	Hubbs et al. (1994)	BBLM (Rr)
	<i>Pomoxis annularis</i>	Hubbs et al. (1994)	BBLM (Rr)
Pomatomidae	<i>Pomatomus saltatrix</i>	Simmons (1957)	BBLM (#)
Rachycentridae	<i>Rachycentron canadum</i>	Hubbs et al. (1994)	BBLM (Rr)
Carangidae	<i>Trachurus lathami</i>	Hubbs et al. (1994)	BBLM (U)
	<i>Caranx hippos</i>	Simmons (1957)	BBLM (U)
	<i>Chloroscombrus chrysurus</i>	Simmons (1957)	BBLM (Co)
	<i>Selene vomer</i>	Simmons	BBLM (Co)
	<i>Trachinotus carolinus</i>	Simmons (1957)	BBLM (Co)
Lobotidae	<i>Lobotes surinamensis</i>	Simmons (1957)	BBLM (Rr)
Gerreidae	<i>Eucinostomus gula</i>	Hellier (1962)	BBLM (Co)
	<i>Gerres cinereus</i>	Hubbs et al. (1994)	BBLM (Co)
Haemulidae	<i>Conodon nobilis</i>	Moore (1975)	BBLM (Co)
Sparidae	<i>Lagodon rhomboides</i>	Hellier (1962), Breuer (1957, Simmons (1957))	BBLM (A,Co,Co)
	<i>Archosargus probatocephalus</i>	Hildebrand & King (1977)	BBLM (Co)
Sciaenidae	<i>Cynoscion nebulosus</i>	Hellier (1962), Breuer (1957, Simmons (1957))	BBLM (A,Co,Co)
	<i>Cynoscion arenarius</i>	Breuer (1957), Simmons (1957)	BBLM (U)
	<i>Bairdiella chrysoura</i>	Simmons (1957)	BBLM (Co)
	<i>Leiostomus xanthurus</i>	Hellier (1962), Breuer (1957, Simmons (1957))	BBLM (A,U,C)
	<i>Larimus fasciatus</i>	Hubbs et al. (1994)	BBLM (Rr)
	<i>Menticirrhus littoralis</i>	Hubbs et al. (1994)	BBLM (Co)
	<i>Menticirrhus saxatilis</i>	Hubbs et al. (1994)	BBLM (Rr)

Table 7: (continued)

Family	Scientific Name	CBBEP 06D Reference	Bay (Abundance)
	<i>Micropogonias undulatus</i>	Hildebrand & King (1978), Hellier (1962), Breuer (1957)	BBLM (A,Co,Co)
	<i>Sciaenops ocellatus</i>	Hellier (1962), Simmons & Breuer (1962), Breuer (1957), Simmons (1957)	BBLM (Co)
Mugilidae	<i>Mugil cephalus</i>	Hellier (1962), Simmons (1957)	BBLM (Co)
Uranoscopidae	<i>Astroscopus y-graecum</i>	Simmons (1957)	BBLM (Rr)
Blenniidae	<i>Chasmodes bosquianus</i>	Hubbs et al. (1994)	BBLM (Co)
Gobiidae	<i>Gobionellus oceanicus</i>	Simmons (1957)	BBLM (Rr)
Engraulidae	<i>Anchoa mitchilli</i>	Hellier (1962), Simmons (1957)	BBLM (Co,A)
Paralichthyidae	<i>Citharichthys macrops</i>	Hubbs et al. (1994)	BBLM (Rr)
	<i>Citharichthys spilopterus</i>	Simmons (1957)	BBLM (Co)
Trichiuridae	<i>Trichiurus lepturus</i>	Hellier (1962)	BBLM (#)
Stromateidae	<i>Peprilus burti</i>	Simmons (1957)	BBLM (Rr)
Cynoglossidae	<i>Symphurus plagiusa</i>	Simmons (1957)	BBLM (#)
Tetraodontidae	<i>Lagocephalus laevigatus</i>	Hubbs et al. (1994)	BBLM (U)
	<i>Sphoeroides nephelus</i>	Simmons (1957)	BBLM (Rr)
Achiridae	<i>Achirus lineatus</i>	TAMU-CC	BBLM
Monacanthidae	<i>Aluterus schoepfii</i>	Hubbs et al. (1994)	BBLM (Rr)
Engraulidae	<i>Anchoa hepsetus</i>	Simmons (1957)	BBLM (Co)
Paralichthyidae	<i>Etropus crossotus</i>	Simmons (1957)	BBLM (#)
	<i>Paralichthys albigutta</i>	Hellier (1962), Simmons (1957)	BBLM (#)
	<i>Paralichthys lethostigma</i>	Hellier (1962), Simmons (1957)	BBLM (Co)
	<i>Ancylopsetta ommata</i>	Simmons (1957)	BBLM (Co)
Atherinopsidae	<i>Menidia beryllina</i>	Hellier 91962)	BBLM (A)
	<i>Menidia peninsulae</i>	Simmons (1957), Breuer (1957)	BBLM (A,Co)
Sciaenidae	<i>Pogonias cromis</i>	Hellier (1962), Breuer (1957), Simmons (1957)	BBLM (U,Co,Co)
Gobiidae	<i>Gobiosoma bosc</i>	Hellier (1962), Simmons (1957)	BBLM (Co)

Table 8: Fish species and relative abundance in the Baffin Bay-Laguna Madre system (modified from Pattillo et al. 1997). Rr – Rare, Co – Common, Ab – Abundant, Ha – Highly abundant.

Family	Sci Name	Species	Laguna Madre	Baffin Bay
Megalopidae	<i>Megalops atlanticus</i>	Tarpon	Rr	Rr
Clupeidae	<i>Alosa alabamae</i>	Alabama shad		
	<i>Brevoortia patronus</i>	Gulf menhaden	Ab	Ha
	<i>Brevoortia smithii</i>	Yellowfin menhaden		
	<i>Dorosoma cepedianum</i>	American gizzard shad	Rr	Ab
Engraulidae	<i>Anchoa mitchilli</i>	Bay anchovy	Ha	Ha
Ariidae	<i>Ariopsis felis</i>	Hardhead catfish	Ha	Ha
Centropomidae	<i>Centropomus undecimalis</i>	Common Snook	Co	
Pomatomidae	<i>Pomatomus saltatrix</i>	Bluefish		
Carangidae	<i>Caranx crysos</i>	Blue runner		
	<i>Caranx hippos</i>	Crevalle jack	Ab	Co
	<i>Trachinotus carolinus</i>	Florida pompano	Ab	Rr
Lutjanidae	<i>Lutjanus griseus</i>	Gray snapper	Co	Rr
Sparidae	<i>Archosargus probatocephalus</i>	Sheepshead	Ab	Co
	<i>Lagodon rhomboides</i>	Pinfish	Ha	Ab
Sciaenidae	<i>Bairdiella chrysoura</i>	Silver perch	Ab	Ab
	<i>Cynoscion arenarius</i>	Sand seatrout	Rr	Co
	<i>Cynoscion nebulosus</i>	Spotted seatrout	Co	Co
	<i>Leiostomus xanthurus</i>	Spot	Ha	Ha
	<i>Micropogonias undulatus</i>	Atlantic croaker	Ab	Ab
	<i>Pogonias cromis</i>	Black drum	Co	Ab
	<i>Sciaenops ocellatus</i>	Red drum	Co	Co
Gobiidae	<i>Gobiosoma robustum</i>	Code goby	Ab	Ab
Scombridae	<i>Scomberomorus maculatus</i>	Spanish mackerel	Rr	
	<i>Paralichthys albigutta</i>	Gulf flounder	Rr	Rr
Paralichthyidae	<i>Paralichthys lethostigma</i>	Southern flounder	Ab	Co
Carcharhinidae	<i>Carcharhinus leucas</i>	Bull shark	Rr	Rr
Cyprinodontidae	<i>Cyprinodon variegatus</i>	Sheepshead minnow	Ha	Ha
	<i>Fundulus grandis</i>	Gulf killifish	Ab	Ab
Mugilidae	<i>Mugil cephalus</i>	Striped mullet	Ab	Ab

Species Checklist

A total of 100 species from 49 families were identified from research conducted within PAIS boundaries (Table 10). Only three species were listed within freshwater pond habitat, whereas 92 species were documented from Gulf surf zone. Two species were documented in all three habitats: Sheepshead minnow (*Cyprinodon variegates*) and Gulf killifish (*Fundulus grandis*). Twenty fish species documented in seagrass meadows in Laguna Madre were also documented in Gulf surf zone, although seven species were found only in seagrass habitat.

Table 9: Fish species checklist generated from published literature of research conducted within Padre Island National Seashore.

Family	Scientific Name	Common Name	FW Pond ^a	Laguna Madre Seagrass ^b	Gulf Surf Zone ^c
Dasyatidae	<i>Dasyatis sabina</i>	Atlantic stingray			X
Elopidae	<i>Elops saurus</i>	Ladyfish			X
Moringuidae	<i>Neoconger mucronatus</i>	Ridged eel			X
Ophichthidae	<i>Bascanichthys scuticaris</i>	Whip eel			X
	<i>Echiophis mordax</i>	Snapper eel			X
	<i>Myrophis punctatus</i>	Speckled worm eel			X
Clupeidae	<i>Ophichthus gomesii</i>	Shrimp eel			X
	<i>Brevoortia patronus</i>	Gulf menhaden		X	X
	<i>Harengula jaguana</i>	Scaled herring			X
	<i>Opisthonema oglinum</i>	Atlantic thread herring			X
Engraulidae	<i>Sardinella aurita</i>	Spanish sardine			X
	<i>Anchoa hepsetus</i>	Broad-striped anchovy		X	X
	<i>Anchoa mitchilli</i>	Bay anchovy		X	X
	<i>Anchoa lyolepis</i>	Dusky anchovy			X
	<i>Anchoviella perfasciata</i>	Flat anchovy			X
Ariidae	<i>Ariopsis felis</i>	Hardhead catfish			X
Batrachoididae	<i>Opsanus beta</i>	Gulf toadfish		X	
	<i>Opsanus pardus</i>	Leopard toadfish			X
	<i>Porichthys porosissimus</i>	Atlantic midshipman			X
Atherinopsidae	<i>Membras martinica</i>	Rough silversides			X

Table 9: (continued)

Family	Scientific Name	Common Name	FW Pond ^a	Laguna Madre Seagrass ^b	Gulf Surf Zone ^c
	<i>Menidia beryllina</i>	Inland silverside		X	
	<i>Menidia peninsulae</i>	Tidewater silverside		X	X
Syngnathidae	<i>Hippocampus zosterae</i>	Dwarf seahorse		X	
	<i>Syngnathus floridae</i>	Dusky pipefish		X	X
	<i>Syngnathus fuscus</i>	Northern pipefish			X
	<i>Syngnathus louisiana</i>	Chain pipefish		X	X
	<i>Syngnathus scovelli</i>	Gulf pipefish		X	
Scorpaenidae	<i>Scorpaena plumieri</i>	Spotted scorpionfish			X
Triglidae	<i>Prionotus tribulus</i>	Bighead searobin			X
Serranidae	<i>Epinephelus nigritus</i>	Warsaw grouper			X
Pomatomidae	<i>Pomatomus saltatrix</i>	Bluefish			X
Rachycentridae	<i>Rachycentron canadum</i>	Cobia			X
Carangidae	<i>Caranx hippos</i>	Crevalle jack			X
	<i>Caranx latus</i>	Horse-eye jack			X
	<i>Chloroscombrus chrysurus</i>	Atlantic bumper			X
	<i>Hemicaranx amblyrhynchus</i>	Bluntnose jack			X
	<i>Oligoplites saurus</i>	Leatherjack			X
	<i>Selene vomer</i>	Lookdown			X
	<i>Trachinotus carolinus</i>	Florida pompano			X
	<i>Trachinotus falcatus</i>	Permit			X
	<i>Trachinotus goodei</i>	Palometa			X
Coryphaenidae	<i>Coryphaena hippurus</i>	Dolphin			X
Lutjanidae	<i>Lutjanus campechanus</i>	Northern red snapper			X
Lutjanidae	<i>Lutjanus griseus</i>	Gray snapper			X
	<i>Lutjanus synagris</i>	Lane snapper			X
Lobotidae	<i>Lobotes surinamensis</i>	Tripletail			X
Gerreidae	<i>Eucinostomus argenteus</i>	Spotfin mojarra			X

Table 9: (continued)

Family	Scientific Name	Common Name	FW Pond ^a	Laguna Madre Seagrass ^b	Gulf Surf Zone ^c
	<i>Gerres cinereus</i>	Yellowfin mojarra		X	X
Haemulidae	<i>Ulaema lefroyi</i>	Mottled mojarra			X
	<i>Conodon nobilis</i>	Barred grunt			X
	<i>Orthopristis chrysoptera</i>	Pigfish		X	X
Sparidae	<i>Pomadasys crocro</i>	Burro grunt			X
	<i>Archosargus probatocephalus</i>	Sheepshead			X
	<i>Lagodon rhomboides</i>	Pinfish		X	X
Sciaenidae	<i>Bairdiella chrysoura</i>	Silver perch		X	X
	<i>Cynoscion arenarius</i>	Sand seatrout			X
	<i>Cynoscion nebulosus</i>	Spotted seatrout		X	X
	<i>Leiostomus xanthurus</i>	Spot		X	X
	<i>Menticirrhus americanus</i>	Southern kingfish			X
	<i>Menticirrhus littoralis</i>	Gulf kingfish			X
	<i>Micropogonias undulatus</i>	Atlantic croaker			X
	<i>Pogonias cromis</i>	Black drum			X
Pomacentridae	<i>Sciaenops ocellatus</i>	Red drum		X	X
	<i>Abudefduf saxatilis</i>	Sergeant Major			X
Mugilidae	<i>Mugil cephalus</i>	Striped mullet		X	X
	<i>Mugil curema</i>	Silver or white mullet			X
Sphyraenidae	<i>Sphyraena borealis</i>	Northern sennet			X
Polynemidae	<i>Polydactylus octonemus</i>	Atlantic threadfin			X
	<i>Astroscopus y-graecum</i>	Southern stargazer			X
Gobiidae	<i>Ctenogobius boleosoma</i>	Darter goby			X
	<i>Ctenogobius smaragdus</i>	Emerald goby			X
	<i>Gobionellus hastatus</i>	Sharptail goby			X
Trichiuridae	<i>Gobiosoma robustum</i>	Code goby		X	
	<i>Trichiurus lepturus</i>	Atlantic cutlassfish			X
Scombridae	<i>Scomberomorus maculatus</i>	Atlantic Spanish mackerel			X

Table 9: (continued)

Family	Scientific Name	Common Name	FW Pond ^a	Laguna Madre Seagrass ^b	Gulf Surf Zone ^c
	<i>Scomberomorus regalis</i>	Cero			X
Stromateidae	<i>Peprilus burti</i>	Gulf butterfish		X	X
Paralichthyidae	<i>Citharichthys spilopterus</i>	Bay whiff			X
Paralichthyidae	<i>Etropus crossotus</i>	Fringed flounder			X
	<i>Paralichthys lethostigma</i>	Southern flounder			X
	<i>Paralichthys squamilentus</i>	Broad flounder			X
Achiridae	<i>Achirus lineatus</i>	Lined sole			X
Cynoglossidae	<i>Symphurus diomedeanus</i>	Spottedfin tonguefish			X
	<i>Symphurus plagiusa</i>	Blackcheek tonguefish			X
Tetraodontidae	<i>Sphoeroides parvus</i>	Least puffer			X
Diodontidae	<i>Chilomycterus schoepfii</i>	Striped burrfish			X
Ephippidae	<i>Chaetodipterus faber</i>	Atlantic spadefish			X
Monacanthidae	<i>Aluterus schoepfii</i>	Orange filefish			X
	<i>Stephanolepis hispida</i>	Planehead filefish			X
Balistidae	<i>Balistes capriscus</i>	Gray triggerfish			X
Ostraciidae	<i>Acanthostracion quadricornis</i>	Scrawled cowfish			X
Synodontidae	<i>Synodus foetens</i>	Inshore lizardfish			X
Belonidae	<i>Strongylura marina</i>	Atlantic needlefish		X	X
Poeciliidae	<i>Gambusia affinis</i>	Mosquitofish	X		
Hemiramphidae	<i>Hyporhamphus unifasciatus</i>	Atlantic silverstripe halfbeak		X	X
Cyprinodontidae	<i>Cyprinodon variegatus</i>	Sheepshead minnow	X	X	X
	<i>Fundulus grandis</i>	Gulf killifish	X	X	X
	<i>Fundulus similis</i>	Longnose killifish		X	
Fundulidae	<i>Lucania parva</i>	Rainwater killifish		X	

Table 9: (continued)

Family	Scientific Name	Common Name	FW Pond ^a	Laguna Madre Seagrass ^b	Gulf Surf Zone ^c
Ophidiidae	<i>Ophidion josephi</i>	Crested cusk-eel		X	X

^a Caudle 1992, Sissom et al. 1992

^b Chaney 1988, Landgraf 2005

^c Shaver 1984, Shaver data in Chaney 1988, Shaver 1989, Trial et al. 2006

The checklist generated from literature sources above was compared with the two previous checklists that were located through NPSpecies and a list generated from a query of the NPSpecies database for all scientific names for fish from PAIS (Table 10). The *Marine Fishes of Padre Island National Seashore* checklist contained 77 fish species, although only 46 species were substantiated in the checklist generated from literature in this report. In the *Checklist of marine fish for Padre Island National Seashore-Food and Game Fish* checklist 80 species were listed; however, only 47 species were in the current checklist. All species listed in these previous checklists should be included in the results (68 species) generated from the query of the NPSpecies database. However, three species were not included in the list of scientific names. No species were listed on federal or state endangered species list.

Table 10: Fish species summarized from list of scientific names of fish species from NPSpecies for PAIS, *Marine fishes of Padre Island National Seashore* and *Checklist of marine fish for Padre Island National Seashore-Food and Game Fish* that are also were documented in studies conducted with PAIS.

Family	Scientific Name	Common Name	NPSpecies Scientific Names PAIS	Bibkey ID 141159	Bibkey ID 23113
Rajidae	<i>Raja texana</i>	Roundel skate	x	x	x
Dasyatidae	<i>Dasyatis sabina</i>	Atlantic stingray	x	x	x
Elopidae	<i>Elops saurus</i>	Ladyfish	x	x	x
Ophichthidae	<i>Myrophis punctatus</i>	Speckled worm eel	x		x
Clupeidae	<i>Brevoortia patronus</i>	Gulf menhaden	x	x	
	<i>Opisthonema oglinum</i>	Atlantic thread herring	x	x	
Engraulidae	<i>Anchoa hepsetus</i>	Broad-striped anchovy	x	x	
	<i>Anchoa mitchilli</i>	Bay anchovy	x	x	
Ariidae	<i>Ariopsis felis</i>	Hardhead catfish	x	x	
Batrachoididae	<i>Opsanus beta</i>	Gulf toadfish	x		x
Atherinopsidae	<i>Membras martinica</i>	Rough silversides	x	x	
	<i>Menidia beryllina</i>	Inland silverside	x	x	
	<i>Hippocampus zosterae</i>	Dwarf seahorse	x	x	
Syngnathidae	<i>Hippocampus reidi</i>	Longsnout seahorse		x	
	<i>Syngnathus louisianae</i>	Chain pipefish	x	x	x
	<i>Syngnathus scovelli</i>	Gulf pipefish	x		x
Triglidae	<i>Prionotus tribulus</i>	Bighead searobin	x		x
Serranidae	<i>Epinephelus adscensionis</i>	Rock hind	x	x	x
	<i>Mycteroperca bonaci</i>	black grouper	x	x	
Pomatomidae	<i>Pomatomus saltatrix</i>	Bluefish	x	x	x
Rachycentridae	<i>Rachycentron canadum</i>	Cobia	x		x
Carangidae	<i>Caranx crysos</i>	Blue runner	x		
	<i>Caranx hippos</i>	Crevalle jack	x		x

Table 10: (continued).

Family	Scientific Name	Common Name	NPSpecies Scientific Names PAIS	Bibkey ID 141159	Bibkey ID 23113
	<i>Caranx latus</i>	Horse-eye jack	x		x
	<i>Chloroscombrus chrysurus</i>	Atlantic bumper	x	x	
	<i>Seriola dumerili</i>	Greater amberjack	x		x
	<i>Trachinotus carolinus</i>	Florida pompano	x		x
Coryphaenidae	<i>Coryphaena hippurus</i>	Dolphin	x		x
Lutjanidae	<i>Lutjanus campechanus</i>	Northern red snapper	x	x	
	<i>Lutjanus griseus</i>	Gray snapper	x	x	x
	<i>Lutjanus synagris</i>	Lane snapper	x	x	x
	<i>Rhomboplites aurorubens</i>	Vermillion snapper	x		x
Lobotidae	<i>Lobotes surinamensis</i>	Tripletail	x	x	x
Gerreidae	<i>Eucinostomus gula</i>	Silver jenny	x	x	
Haemulidae	<i>Conodon nobilis</i>	Barred grunt	x	x	
	<i>Orthopristis chrysoptera</i>	Pigfish	x	x	x
Sparidae	<i>Archosargus probatocephalus</i>	Sheepshead	x	x	x
	<i>Lagodon rhomboides</i>	Pinfish	x	x	x
Sciaenidae	<i>Bairdiella chrysoura</i>	Silver perch	x	x	
Sciaenidae	<i>Cynoscion arenarius</i>	Sand seatrout	x	x	x
	<i>Cynoscion nebulosus</i>	Spotted seatrout	x	x	x
	<i>Cynoscion nothus</i>	Silver seatrout	x	x	x
	<i>Leiostomus xanthurus</i>	Spot	x	x	
	<i>Menticirrhus americanus</i>	Southern kingfish	x	x	x
	<i>Menticirrhus littoralis</i>	Gulf kingfish	x	x	x

Table 10: (continued).

Family	Scientific Name	Common Name	NPSpecies Scientific Names PAIS	Bibkey ID 141159	Bibkey ID 23113
	<i>Micropogonias undulatus</i>	Atlantic croaker	x	x	x
	<i>Pareques acuminatus</i>	High-hat	x		x
	<i>Pogonias cromis</i>	Black drum	x	x	x
	<i>Sciaenops ocellatus</i>	Red drum	x	x	x
Kyphosidae	<i>Kyphosus sectator</i>	Bermuda chub, rudderfishes	x		x
Mugilidae	<i>Mugil cephalus</i>	Striped mullet		x	x
Mugilidae	<i>Mugil curema</i>	Silver or white mullet		x	
Sphyraenidae	<i>Sphyraena barracuda</i>	Great barracuda	x	x	x
	<i>Sphyraena guachancho</i>	Guaguanche	x		x
Polynemidae	<i>Polydactylus octonemus</i>	Atlantic threadfin	x	x	
Scombridae	<i>Scomberomorus maculatus</i>	Atlantic Spanish mackerel	x		x
	<i>Scomberomorus regalis</i>	Cero	x		x
	<i>Euthynnus alletteratus</i>	Little tuna	x		x
	<i>Scomberomorus cavalla</i>	King mackerel	x		x
Paralichthyidae	<i>Paralichthys albigutta</i>	Gulf flounder	x	x	
	<i>Paralichthys lethostigma</i>	Southern flounder	x	x	x
Diodontidae	<i>Chilomycterus schoepfii</i>	Striped burrfish	x		x
Ephippidae	<i>Chaetodipterus faber</i>	Atlantic spadefish	x		x
Belonidae	<i>Strongylura marina</i>	Atlantic needlefish	x	x	x
Poeciliidae	<i>Gambusia affinis</i>	Mosquitofish	x		
Cyprinodontidae	<i>Cyprinodon variegatus</i>	Sheepshead minnow	x	x	x

Table 10: (continued).

Family	Scientific Name	Common Name	NPSpecies Scientific Names PAIS	Bibkey ID 141159	Bibkey ID 23113
	<i>Fundulus grandis</i>	Gulf killifish	x	x	x
	<i>Fundulus similis</i>	Longnose killifish	x	x	x

A non-traditional data source was used to assist in the development of a comprehensive inventory of park fish species that included data provided by Billy Sandifer of Padre Island Safaris (<http://www.billysandifer.com/>). Mr. Sandifer is a local fisherman that is well respected and knowledgeable about park fish species. He has fished Padre Island National Seashore for over 40 years and is considered an expert in western Gulf of Mexico fish. Mr. Sandifer has identified 19 shark species and ranked by overall size, which are provided in Appendix B.

A final assessment was conducted to determine if the current checklist (see Table 10) was representative of fish species composition of the Laguna Madre system. A summary of data collected by Texas Parks and Wildlife Department (TPWD), Coastal Fisheries Division, for the Baffin Bay-Laguna Madre ecosystem was provided to compare with fish species richness generated in this report (Kyle Spiller, Laguna Madre Ecosystem team leader, Corpus Christi, Texas). Fish species that had the highest total sample number (>5,000) over the 32-year survey period from the upper Laguna Madre were also on the current PAIS checklist, with the exception of *Dorosoma cepedianum* (Table 11). A visual inspection of ranked data illuminated data gaps in the current PAIS checklist. While the PAIS checklist included 33 species in Laguna Madre, TPWD data documented over 130 species. While no reports have been generated within the PAIS boundaries, it would be advantageous to collaborate with this state agency and utilize their long-term fishery datasets for park habitat with PAIS.

Table 11: Fish species with highest total abundance (1975-2006) documented for the Upper Laguna Madre from Texas Parks and Wildlife, Coastal Fisheries Division, database.

Scientific Name	Common Name	# Years	Total Sampled	Gill Net	Bay	
					Trawl	Bag Seine
	Sheepshead					
<i>Cyprinodon variegatus</i>	minnow	31	161215			X
<i>Pogonias cromis</i>	Black drum	32	84851	X		
	Tidewater					
<i>Menidia peninsulae</i>	silverside	18	47574			X
<i>Lagodon rhomboides</i>	Pinfish	31	41313			X
<i>Leiostomus xanthurus</i>	Spot	30	34831			X
<i>Arius felis</i>	Hardhead catfish	32	24590	X		
<i>Lagodon rhomboides</i>	Pinfish	25	21247		X	
<i>Fundulus similis</i>	Longnose killifish	31	19800			X
<i>Anchoa mitchilli</i>	Bay anchovy	30	18336			X
<i>Sciaenops ocellatus</i>	Red drum	32	17781	X		
<i>Cynoscion nebulosus</i>	Spotted seatrout	32	16748	X		
<i>Menidia beryllina</i>	Inland silverside	17	16528			X
<i>Mugil cephalus</i>	Striped mullet	31	13931			X
<i>Pogonias cromis</i>	Black drum	29	13444			X
<i>Fundulus grandis</i>	Gulf killifish	31	11539			X
<i>Mugil cephalus</i>	Striped mullet	32	10515	X		
<i>Brevoortia patronus</i>	Gulf menhaden	29	9949			X
<i>Lucania parva</i>	Rainwater killifish	30	9285			X
<i>Mugil curema</i>	White mullet	29	8449			X
<i>Leiostomus xanthurus</i>	Spot	25	6656		X	
<i>Anchoa mitchilli</i>	Bay anchovy	25	6606		X	
<i>Dorosoma cepedianum</i>	Gizzard shad	32	5076	X		

Voucher Specimens

No voucher specimens were identified through the NPSpecies query.

Six organizations were accessed online to locate museums with ichthyology collections and potential voucher specimens (Table 12).

Table 12: Organizations accessed online for museums with collections.

Organizations	Web Address
American Zoo & Aquarium Association	www.aam-us.org/index.cfm
Association of Science-Technology Centers	www.aza.org/
Texas Association of Museums	www.astc.org/
Natural History Museums and Collections	www.lib.washington.edu/sla/natmus.html
National Biological Information Infrastructure	www.nbio.gov/
American Association of Museums	www.aam-us.org/index.cfm

Museums in Texas accessed with no collections are found in Table 13.

Table 13: Museums in Texas accessed with no ichthyology collections

Museum	Web Address
Amon Carter Museum	www.cartermuseum.org
Museum of Nature and Science	www.natureandscience.org
Fort Worth Museum of Science and History	www.fwmuseum.org
Museum of the Southwest	www.museumsw.org
Natural Science Research Laboratory	www.nsrl.ttu.edu
Texas Maritime Museum	www.texasmaritimemuseum.org

The Museum of Natural Science in Houston and the International Museum of Art and Science in McAllen, Texas did not have online databases and did not respond either by mail or e-mail.

Museums accessed with collections but no voucher specimens are found in Table 14.

Table 14: Museums accessed with collections but no appropriate voucher specimens

Name of Organization	Method of Contact
Corpus Christi Museum of Science and History	In person
Florida Museum of Natural History	www.flmnh.ufl.edu/databases/
Gulf Coast Research Laboratory	www.usm.edu/gcrl/museum/index.php
Inter-Institutional Database of Fish Biodiversity in the Neotropics	www.neodat.org/
Louisiana State University Museum of Natural History	museum@lsu.edu
Museum of Comparative Zoology, Harvard University	http://collections.oeb.harvard.edu/Fish/FishSearch.htm
Sam Houston State Vertebrate Museum	bio_jlc@shsu.edu
Scripps Institution of Oceanography	http://collections.ucsd.edu/mv/index.cfm
Texas Cooperative Wildlife Collection	http://wfscnet.tamu.edu/twc/twc.htm
The Field Museum	www.fieldmuseum.org/
Tulane University Museum of Natural History	www.museum.tulane.edu/museum/guestsearch.asp
Yale Peabody Museum	www.peabody.yale.edu/collections/vz/ich.html

Universities accessed online or contacted by e-mail or in person are found in Table 15.

Table 15: Universities accessed online or contacted by e-mail or in person

University	
Texas A&M University-Corpus Christi	Collection for educational use only, no data
Texas A&M University-Kingsville	No collection
University of Texas Brownsville	No collection
University of Texas Pan American	Collection sent to Texas Memorial Museum

Two museums were identified to have vouchers, American Museum of Natural History (1 voucher) and Texas Memorial Museum (3 vouchers). Two vouchers were located within the park and two adjacent. Two species, Atlantic guitarfish (*Rhinobatos lentiginosus*) collected from within PAIS boundaries was not documented by either Gulf surf zone study (Shaver 1984, Shaver 1989, Trial et al. 2006). The other species collected within the park, White mullet (*Mugil curema*) was referenced within these studies. Of the two species collected adjacent to the park, scaled herring (*Harengula jaguana*) was also documented within the Gulf surf zone, whereas lemon shark (*Negaprion brevirostris*) was not recorded by either study.

Latin name: *Rhinobatos lentiginosus*
Common name: Atlantic guitarfish
Location collected: North Padre Island, 0.25 mile south of 4-wheel drive sign
Area collected: Park
Latitude: Unknown
Longitude: Unknown
Date Collected: 7-IV-1984
Collector: L. Hunt
Specimen ID: AMNH 98243
Specimen location: American Museum of Natural History

Latin name: *Mugil curema*
Common name: White mullet
Location collected: Padre Island beach, 2 miles S of Nicaragua, tidal pool
Area collected: Park
Latitude: Unknown
Longitude: Unknown
Date Collected: 8-12-1954
Collector: H. Hildebrand
Specimen ID: THNC19476
Specimen location: Texas Memorial Museum

Latin name: *Harengula jaguana* [*Harengula pensacolae*]
Common name: Scaled sardine
Location collected: 5 miles S of Bob Hall Pier in a minnow seine
Area collected: Adjacent
Latitude: Unknown
Longitude: Unknown
Date Collected: 10-12-1968
Collector: H. Hildebrand
Specimen ID: TNHC18647
Specimen location: Texas Memorial Museum

Latin name: *Negaprion brevirostris*
Common name: Lemon shark
Location collected: Padre Island, Bob Hall Pier
Area collected: Adjacent
Latitude: Unknown
Longitude: Unknown
Date Collected: 4-22-1963
Collector: J. C. Briggs
Specimen ID: THNC21277
Specimen location: Texas Memorial Museum

Eighty-two possible voucher specimens were identified from museum collections, that were not included in the voucher list (Table 16). Each location description was too vague and the specimens were collected offshore and not in the park. The Padre Island National Seashore ichthyology collection, part of the John E. Connor Museum and warehoused in Kingsville, Texas was physically reviewed twice. The collection contains 64 specimens. Thirteen were not within the boundary of the park or their location of capture was not documented (Table 17). 51 voucher specimens were within acceptable limits (Table 18). All specimens were included in the species checklist generated for this report, with the exception of five specimens within three species: Bermuda chub, Lined seahorse, and Blunt-nosed sting ray. A total of 32 species were documented. A comprehensive list of all voucher specimens documented either within the PAIS or adjacent to PAIS boundary are located in Appendix C.

Global Biodiversity Information Facility

The preliminary list compiled from all GBIF data sources and e-mailed to Whitney Granger in August, 2006 contained 56 possible voucher specimens. Using the latitude and longitude criteria described in the methods section, all specimens with coordinates were eliminated. All vouchers without coordinates were also eliminated. Location descriptions were very general or occurred in areas near but outside the park.

Table 16: List of possible voucher specimens collected outside of park boundaries.

Collection #	Scientific Name	Common Name	Location	Museum
155006	<i>Ophichthus gomesii</i>	shrimp eel	27°03.30'N 97°15.30'W	Smithsonian Dept of Vertebrate Zoology
18528	<i>Raja texana</i>	roundel skate	off Padre Island, 60-70 mi S of Port Aransas	Texas Memorial Museum
18552	<i>Gymnothorax nigromarginatus</i>	blackedge moray	off Padre Island, 50-60 mi S of Port Aransas	Texas Memorial Museum
18583	<i>Congrina flava</i>	yellow conger	off Padre Island, 60 mi S of Port Aransas	Texas Memorial Museum
18693	<i>Anchoa mitchilli diaphana</i>	bay anchovy	40 mi S Port Aransas	Texas Memorial Museum
18703	<i>Anchoa hepsetus</i>	broad-striped anchovy	40 mi S Port Aransas	Texas Memorial Museum
18727	<i>Synodus foetens</i>	inshore lizardfish	off Padre Island, 30 mi N of Port Isabel	Texas Memorial Museum
18743	<i>Synodus poeyi</i>	offshore lizardfish	off Padre Island, 50-70 mi S of Port Aransas	Texas Memorial Museum
18804	<i>Antennarius striatus</i>	striated frogfish	off Padre Island, 30 mi N of Port Isabel	Texas Memorial Museum
18810	<i>Antennarius radiosus</i>	big-eyed frogfish	off Padre Island, 50-70 mi S of Port Aransas	Texas Memorial Museum
18826	<i>Ogcocephalus parvus</i>	roughback batfish	off Padre Island, 50-70 mi S of Port Aransas	Texas Memorial Museum
18844	<i>Halieutichthys aculeatus</i>	pancake batfish	off Padre Island, 30 mi N of Port Isabel	Texas Memorial Museum
18856	<i>Urophycis floridana</i>	southern hake	off Padre Island, 50-70 mi S of Port Aransas	Texas Memorial Museum
18867	<i>Brotula barbata</i>	bearded brotula	off Padre Island, 50-60 mi S of Port Aransas	Texas Memorial Museum
18989	<i>Syngnathus louisianae</i>	chain pipefish	off Padre Island, 50-60 mi S of Port Aransas	Texas Memorial Museum
19062	<i>Citharichthys spilopterus</i>	bay whiff	off Padre Island 70 mi S of Port Aransas	Texas Memorial Museum
19068	<i>Citharichthys spilopterus</i>	bay whiff	off Padre Island, 30 mi N of Port Isabel	Texas Memorial Museum
19070	<i>Citharichthys spilopterus</i>	bay whiff	off Padre Island, 40-60 mi S. of Port Aransas	Texas Memorial Museum
19090	<i>Cyclopsetta chittendeni</i>	Mexican flounder	off Padre Island, 50-70 mi S of Port Aransas	Texas Memorial Museum
19095	<i>Cyclopsetta chittendeni</i>	Mexican flounder	off Padre Island, 30 mi N of Port Isabel	Texas Memorial Museum

Table 16: (continued).

Collection #	Scientific Name	Common Name	Location	Museum
19099	<i>Etropus crossotus</i>	fringed flounder	off Padre Island, 40-60 mi S. of Port Aransas	Texas Memorial Museum
19100	<i>Etropus crossotus</i>	fringed flounder	off Padre Island, 50-70 mi S of Port Aransas	Texas Memorial Museum
19109	<i>Engyophrys senta</i>	spiny flounder	off Padre Island, 50-70 mi S of Port Aransas	Texas Memorial Museum
19113	<i>Paralichthys albigutta</i>	Gulf flounder	off Padre Island, 50-60 mi S of Port Aransas	Texas Memorial Museum
19139	<i>Syacium gunteri</i>	shoal flounder	off Padre Island, 30 mi N of Port Isabel	Texas Memorial Museum
19160	<i>Trichopsetta ventralis</i>	sash flounder	off Padre Island, 50-70 mi S of Port Aransas	Texas Memorial Museum
19190	<i>Symphurus civitatus</i>	offshore tonguefish	off Padre Island, 50-60 mi S of Port Aransas	Texas Memorial Museum
19191	<i>Symphurus civitatus</i>	offshore tonguefish	off Padre Island, 50-70 mi S of Port Aransas	Texas Memorial Museum
19240	<i>Balistes capriscus</i>	gray triggerfish	off Padre Island, 30 mi N of Port Isabel	Texas Memorial Museum
19254	<i>Stephanolepis hispidus</i>	planehead filefish	off Padre Island, 30 mi N of Port Isabel	Texas Memorial Museum
19269	<i>Lagocephalus laevigatus</i>	smooth puffer	off Padre Island, 30 mi N of Port Isabel	Texas Memorial Museum
19272	<i>Poronotus triacanthus</i>	butterfish	off Padre Island, 60-70 mi S of Port Aransas	Texas Memorial Museum
19291	<i>Sphoeroides parvus</i>	least puffer	off Padre Island, 50-70 mi S of Port Aransas	Texas Memorial Museum
19325	<i>Eucinostomus argenteus</i>	spotfin mojarra	off Padre Island, 50-70 mi S of Port Aransas	Texas Memorial Museum
19338	<i>Eucinostomus gula</i>	silver jenny	off Padre Island, 30 mi N of Port Isabel	Texas Memorial Museum
19340	<i>Eucinostomus gula</i>	silver jenny	off Padre Island, 50-70 mi S of Port Aransas	Texas Memorial Museum
19517	<i>Diplectrum arcuarium</i>	dwarf sand perch	off Padre Island, 30 mi N of Port Isabel	Texas Memorial Museum
19568	<i>Serraniculus pumilio</i>	pygmy sea bass	off Padre Island, 60 mi S of Port Aransas	Texas Memorial Museum
19589	<i>Caulolatilus intermedius</i>	anchor tilefish	off Padre Island, 60 mi S of Port Aransas	Texas Memorial Museum
19615	<i>Seriola dumerili</i>	greater amberjack	off Padre Island, 50 mi S. of Port Aransas	Texas Memorial Museum

Table 16: (continued).

Collection #	Scientific Name	Common Name	Location	Museum
19674	<i>Selene vomer</i>	lookdown	off Padre Island, 30 mi N of Port Isabel	Texas Memorial Museum
19683	<i>Vomer setapinnis</i>	Atlantic moonfish	off Padre Island, 50-60 mi S of Port Aransas	Texas Memorial Museum
19752	<i>Lutjanus aya</i>	southern red snapper	off Padre Island, 30 mi N of Port Isabel	Texas Memorial Museum
19762	<i>Lutjanus synagris</i>	lane snapper	off Padre Island, 30 mi N of Port Isabel	Texas Memorial Museum
19782	<i>Pristipomoides aquilonaris</i>	wenchman	off Padre Island, 60-70 mi S of Port Aransas	Texas Memorial Museum
19787	<i>Rhomboplites aurorubens</i>	vermilion snapper	off Padre Island, 60-70 mi S of Port Aransas	Texas Memorial Museum
19911	<i>Bollmannia communis</i>	ragged goby	off Padre Island, 30 mi N of Port Isabel	Texas Memorial Museum
19989	<i>Poronotus triacanthus</i>	butterfish	off Padre Island, 60-70 mi S of Port Aransas	Texas Memorial Museum
20006	<i>Scorpaena calcarata</i>	smoothhead scorpionfish	off Padre Island, 30 mi N of Port Isabel	Texas Memorial Museum
20028	<i>Prionotus ophryas</i>	bandtail searobin	off Padre Island, 30 mi N of Port Isabel	Texas Memorial Museum
20029	<i>Prionotus ophryas</i>	bandtail searobin	off Padre Island, 50 mi S. of Port Aransas	Texas Memorial Museum
20044	<i>Prionotus paralatus</i>	Mexican searobin	off Padre Island, 50-60 mi S of Port Aransas	Texas Memorial Museum
20045	<i>Prionotus paralatus</i>	Mexican searobin	off Padre Island, 50-70 mi S of Port Aransas	Texas Memorial Museum
20047	<i>Prionotus pectoralis</i>	blackfin searobin	off Padre Island, 30 mi N of Port Isabel	Texas Memorial Museum
20048	<i>Prionotus pectoralis</i>	blackfin searobin	off Padre Island, 50-70 mi S of Port Aransas	Texas Memorial Museum
20049	<i>Prionotus pectoralis</i>	blackfin searobin	off Padre Island, 50-60 mi S of Port Aransas	Texas Memorial Museum
20071	<i>Prionotus rubio</i>	blackfin searobin	off Padre Island, 30 mi N of Port Isabel	Texas Memorial Museum
20074	<i>Prionotus rubio</i>	blackfin searobin	off Padre Island, 50-60 mi S of Port Aransas	Texas Memorial Museum
20076	<i>Prionotus rubio</i>	blackfin searobin	off Padre Island, 50-70 mi S of Port Aransas	Texas Memorial Museum
20103	<i>Cynoscion arenarius</i>	sand seatrout	off Padre Island, 30 mi N of Port Isabel	Texas Memorial Museum

Table 16: (continued).

Collection #	Scientific Name	Common Name	Location	Museum
20105	<i>Prionotus tribulus crassiceps</i>	bighead searobin	off Padre Island, 60 mi S. of Port Aransas	Texas Memorial Museum
20157	<i>Cynoscion nothus</i>	silver seatrout	off Padre Island, 60-70 mi S of Port Aransas	Texas Memorial Museum
20160	<i>Cynoscion nothus</i>	silver seatrout	off Padre Island, 30 mi N of Port Isabel	Texas Memorial Museum
20292	<i>Menticirrhus americanus</i>	southern kingfish	off Padre Island, 30 mi N of Port Isabel	Texas Memorial Museum
20318	<i>Upeneus parvus</i>	dwarf goatfish	off Padre Island, 30 mi N of Port Isabel	Texas Memorial Museum
20333	<i>Chaetodipterus faber</i>	Atlantic spadefish	off Padre Island, 30 mi N of Port Isabel	Texas Memorial Museum
20427	<i>Congrina flava</i>	yellow conger	off Padre Island, 30 mi N of Port Isabel	Texas Memorial Museum
20497	<i>Ancylosetta quadrocellata</i>	ocellated flounder	off Padre Island, 40-60 mi S. of Port Aransas	Texas Memorial Museum
20642	<i>Prionotus sternsi</i>	searobin	off Padre Island, 50-70 mi S of Port Aransas	Texas Memorial Museum
20649	<i>Sphoeroides parvus</i>	least puffer	off Padre Island, 30 mi N of Port Isabel	Texas Memorial Museum
20647	<i>Lagocephalus laevigatus</i>	smooth puffer	off Padre Island, 50-70 mi S of Port Aransas	Texas Memorial Museum
20765	<i>Fistularia tabacaria</i>	bluespotted cornetfish	off Padre Island, 50 mi N of Port Isabel	Texas Memorial Museum
20768	<i>Synodus foetens</i>	inshore lizardfish	off Padre Island, 50-70 mi S of Port Aransas	Texas Memorial Museum
20776	<i>Sphyræna guachancho</i>	guaganche	off Padre Island, 50 mi S. of Port Aransas	Texas Memorial Museum
20797	<i>Priacanthus arenatus</i>	bigeye	off Padre Island, 30 mi N of Port Isabel	Texas Memorial Museum
20798	<i>Priacanthus arenatus</i>	bigeye	off Padre Island, 30 mi N of Port Isabel	Texas Memorial Museum
20815	<i>Lutjanus aya</i>	southern red snapper	off Padre Island, 30 mi N of Port Isabel	Texas Memorial Museum
20816	<i>Lutjanus aya</i>	southern red snapper	off Padre Island, 30 mi N of Port Isabel	Texas Memorial Museum
21270	<i>Echeneis naucrates</i>	sharksucker	off Padre Island, 30 mi N of Port Isabel	Texas Memorial Museum
21272	<i>Echeneis naucrates</i>	sharksucker	off Padre Island, 30 mi N of Port Isabel	Texas Memorial Museum
21274	<i>Lutjanus aya</i>	southern red snapper	off Padre Island, 30 mi N of Port Isabel	Texas Memorial Museum

Table 17: Voucher specimens from the John E. Connor Museum whose location of collections falls outside the boundary of Padre Island National Seashore or is unknown.

Collection #	Scientific Name	Common Name	Location
1023	<i>Equetus acuminatus</i>	High hat	offshore oil rigs ? Chevron Rig B off
1791	<i>Chaetodon sedentarius</i>	Reef butterfly fish	Malaquite beach
		Hard head catfish	1 mi N of Malaquite
2109	<i>Arius felis (eggs)</i>	eggs	?
2141	<i>Trachinotus falcatus</i>	Permit	Unknown
2146	<i>Menidia beryllina</i>	Tidewater silverside	Unknown
2161	<i>Gobiosoma longipala</i>	Two-scale goby	Unknown
2287	<i>Oligoplites saurus</i>	Leatherjacket	Unknown
2592	<i>Prionotus tribulus</i>	Bighead searobin	Trawl off padre island
2593	<i>Prionotus tribulus</i>	Bighead searobin	Trawl off padre island
2594	<i>Rachycentron canadum</i>	Cobia/ling	Trawl off padre island
2595	<i>Synodus foetens</i>	Inshore lizardfish	Trawl off padre island
	<i>Chloroscombrus</i>		Trawl off padre
2596	<i>chrysurus</i>	Atlantic bumper	island
	<i>Chloroscombrus</i>		Trawl off padre
2597	<i>chrysurus</i>	Atlantic bumper	island

Table 18: Voucher specimens from the John E. Connor Museum whose locations of collections falls within the boundary of Padre Island National Seashore.

Collection #	Scientific name	Common name	Location
1783	<i>Chilomycterus schoepfii</i>	Striped burrfish	Malaquite Beach
1784	<i>Hyporhamphus unifasciatus</i>	Halfbeak fish	Malaquite campground
1785	<i>Arius felis</i>	Hard head catfish	Behind ranger station
1787	<i>Harengula jaguana</i>	Scaled sardine	Surf near ranger station
1788	<i>Menticirrhus littoralis</i>	Gulf kingfish	Surf near ranger station
1789	<i>Chaetodipterus faber</i>	Atlantic spadefish	Surf near ranger station
1790	<i>Lobotes surinamensis</i>	Tripletail fish	6 mi. south of four-wheel drive sign
1792	<i>Monocanthus hispidus</i>	Planehead filefish	surf 6 mi. south of four-wheel drive sign
1796	<i>Syngnathus floridae</i>	Dusky Pipefish	L.M. @ permian tank
1798	<i>Kyphosus sectatrix</i>	Bermuda chub	Behind ranger station
1799	<i>Abudefduf saxatilis</i>	Sergeant major	Behind ranger station
1800	<i>Trachinotus carolinus</i>	Florida pompano	Near ranger station
1801	<i>Caranx latus</i>	Horse eye jack	Behind ranger station
1802	<i>Oligoplites saurus</i>	Leatherjacket fish	Behind ranger station
1803	<i>Selene vomer</i>	Lookdown fish	Behind ranger station
1804	<i>Chloroscombrus chrysurus</i>	Atlantic bumper	Behind ranger station
1805	<i>Anchoa hepsetus</i>	Striped anchovy	Behind ranger station
1806	<i>Pogonias chromis</i>	Black Drum	Behind ranger station
1807	<i>Elops saurus</i>	Ladyfish	Behind ranger station
1808	<i>Menidia beryllina</i>	Silverside	Bird Island Basin L. M.
1809	<i>Fundulus similis</i>	Longnose killifish	L.M. @ Permian tank Rd
1810	<i>Cyprinodon variegatus</i>	Sheepshead minnow	Laguna Madre at end of road

Table 18: (continued).

Collection #	Scientific name	Common name	Location
1902	<i>Mugil curema</i>	White mullet	2 mi S of end of pavement of S beach
2034	<i>Hippocampus erectus</i>	Lined Seahorse	closed beach 1/2 mi N of Malaquite
2035	<i>Dasyatis say</i>	Bluntnose stingray	closed beach
2036	<i>Dasyatis say</i>	Bluntnose stingray	closed beach
2051	<i>Cyprinodon variegatus</i>	Sheepshead minnow	Freshwater pond
2052	<i>Cyprinodon variegatus</i>	Sheepshead minnow	Freshwater pond
2053	<i>Cyprinodon variegatus</i>	Sheepshead minnow	Freshwater pond
2054	<i>Cyprinodon variegatus</i>	Sheepshead minnow	Freshwater pond
2055	<i>Cyprinodon variegatus</i>	Sheepshead minnow	Freshwater pond
2056	<i>Fundulus grandis</i>	Gulf killifish	Gulf surf water
2057	<i>Fundulus grandis</i>	Gulf killifish	Gulf surf water
2058	<i>Fundulus grandis</i>	Gulf killifish	Gulf surf water
2148	<i>Fundulus grandis</i>	Gulf killifish	Freshwater pond
2149	<i>Cyprinodon variegatus</i>	Sheepshead minnow	Freshwater pond
2150	<i>Gambusia affinis</i>	Mosquitofish	Freshwater pond
2157	<i>Fundulus grandis</i>	Gulf killifish	Freshwater pond
2158	<i>Cyprinodon variegatus</i>	Sheepshead minnow	Freshwater pond
2159	<i>Fundulus similis</i>	Longnose killifish	Freshwater pond
2160	<i>Gambusia affinis</i>	Mosquitofish	Freshwater pond
2177	<i>Cyprinodon variegatus</i>	Sheepshead minnow	Pond water flowing across beach
2202	<i>Aluterus schoepfii</i>	Orange filefish	South beach
2272	<i>Dasyatis say</i>	Bluntnose stingray	Surf
2281	<i>Strongylura marina</i>	Atlantic needlefish	Bird Island Basin L. M.
2282	<i>Cynoscion arenarius</i>	Sand seatrout	Bird Island Basin L. M.
2283	<i>Selene vomer</i>	Lookdown	Bird Island Basin L. M.
2284	<i>Chilomycterus schoepfii</i>	Striped burrfish	Collected on beach
2285	<i>Polydactylus octonemus</i>	Atlantic threadfin	50 yds S of Malaquite pavilion
2288	<i>Balistes capriscus</i>	Grey triggerfish	beach @ malaquite
2313	<i>Aluterus schoepfii</i>	Orange filefish	Off Malaquite beach

Species Accounts

A new checklist was generated from NPSpecies based on historical and data entered from this report (Appendix D). Any information on park status, residency, and nativity are included within the checklist. Sufficient quantitative data that adequately represented information to generate seasonality and abundance was not available.

Ecological information was summarized for all species below that were included the Species Checklist in Table 10. Habitats (FW: freshwater, SG: seagrass, SURF: Gulf surf zone) defined from the reports conducted within the PAIS are given for each species.

Dasyatidae *Dasyatis sabina* Atlantic stingray SURF

The Atlantic stingray is a common inshore stingray species. It can be found in a range of salinities, from fresh to marine. During winter, the species leaves the bays and enters the inshore shelf. The range is Chesapeake Bay to southern Mexico (Hoese and Moore 1998). The Atlantic stingray is common in the bays and rare in waters exceeding a few fathoms (Walls 1975).

Elopidae *Elops saurus* Ladyfish SURF

The ladyfish, tenpounder or skipjack can be found from Massachusetts to Bermuda and throughout the Caribbean to Brazil. The larval stage of this species occurs in great abundance during the late spring and early summer months (Hoese and Moore 1998). The ladyfish is commonly found in bays, along the shoreline, and in open shallow waters (Walls 1975).

Ophichthidae *Bascanichthys scuticaris* Whip eel SURF

The rare whip eel is found from the shoreline to moderate depths in created burrows (Walls 1975). Range unknown.

Ophichthidae *Echiophis mordax* Snapper eel SURF

The stippled spoon-nose eel are found from inshore to middle shelf, sometimes entering high salinity bays. Little is known about the specific habitats of this common snake eel. The range extends from Mississippi to Mexico through the Caribbean to Brazil (Hoese and Moore 1998).

Ophichthidae *Myrophis punctatus* Speckled worm eel SURF

Commonly known as the speckled eel and white eel, they can be found on mud bottoms inshore and in the bays, occasionally entering fresh water. Juveniles coming from offshore spawning areas during December to May have been noted to carry the leptocephalus larvae. Their range is from North Carolina to Brazil (Hoese and Moore 1998). Rarely found offshore the burrowing eel is common to the bays and shallow water (Walls 1975).

Ophichthidae *Ophichthus gomesii* Shrimp eel SURF

A common inshore eel usually found in muddy habitats in the Gulf of Mexico and in hypersaline bays. The shrimp eel are found from Massachusetts to Brazil (Hoese and Moore 1998). This eel may be found in water up to fifteen fathoms deep (Walls 1975).

Clupeidae *Brevoortia patronus* Gulf menhaden SG SURF

The gulf menhaden is an important commercial species commonly known as the pogey. Adults are rare offshore, while the juveniles are common in low salinity marshes. The range is predominantly the northern Gulf of Mexico, from Caloosahatchee River, Florida to Yucatan (Hoese and Moore 1998). The gulf menhaden is abundant in shallow Gulf waters, where it is important commercial species (Walls 1975).

Clupeidae *Harengula jaguana* Scaled herring SURF

The scaled sardine is a common species on the continental shelf. It has been known to travel into high salinity estuaries. The species can be found on the east coast of Florida and throughout the Gulf of Mexico, as well as in the Caribbean and Brazil (Hoese and Moore 1998). The scaled sardine is commonly found in shallow waters with high salinity (Walls 1975).

Clupeidae *Opisthonema oglinum* Atlantic thread herring SURF

This species is commonly known as the Atlantic thread herring and hairyback. It occurs in saltier waters and could possibly represent an unexploited fishery. Sometime taken singly inshore, the thread herring generally occurs in large schools. It's range is from the Gulf of Maine to Bermuda through southeast Brazil (Hoese and Moore 1998). The Atlantic thread herring can be found in high salinity water, usually near shore (Walls 1975).

Clupeidae *Sardinella aurita* Spanish sardine SURF

Spanish sardines are primarily a tropical species but have been reported from Galveston Bay and Caminada Pass. This species is found in the Atlantic west from Massachusetts to Argentina and is not rare to the northeastern Gulf (Hoese and Moore 1998). Rare to the northern Gulf the Spanish sardine can usually be found in moderate depths with high salinities (Walls 1975).

Engraulidae *Anchoa hepsetus* Broad-striped anchovy SG SURF

The striped anchovy can be commonly found offshore, farther than the bay anchovy. This species is found in saltier, clearer waters, from the beach to the middle shelf. The striped anchovy ranges from Nova Scotia through the Caribbean to Uruguay (Hoese and Moore 1998). This abundant species is found in high salinity waters from shallow to moderate depths, rarely inshore (Walls 1975).

Engraulidae *Anchoa mitchilli* Bay anchovy SG SURF

The bay anchovy is a common species of the bays and nearby inshore waters. The species ranges from Maine to Florida, also occurring throughout the Gulf of Mexico, but it is rarely taken from the Florida Keys or Yucatan (Hoese and Moore 1998). The bay anchovy is commonly abundant in low salinity bays and shallow waters (Walls 1975).

Engraulidae *Anchoa lyolepis* Dusky anchovy SURF

The dusky anchovy is found throughout the continental shelf, generally in schools in deeper water with few individuals occasionally found inshore. Very little is known about this species' ecology and the taxonomy is not well established (Hoese and Moore 1998).

Engraulidae *Anchoviella perfasciata* Flat anchovy SURF

The flat anchovy is present inshore, but the current status is uncertain. This species has few reports throughout the northeastern Gulf of Mexico. Due to the lack of information available, the projected extent of this species includes a majority of the continental shelf. The range includes North Carolina to Florida, West Indies, northeastern and southern Gulf of Mexico (Hoese and Moore 1998). The flat anchovy can be found in high salinity, offshore waters, but is rare in the northern Gulf (Walls 1975).

Ariidae *Ariopsis felis* Hardhead catfish SURF

The hardhead catfish or tourist trout can be found in high numbers throughout the bays and shallow Gulf. The range is Massachusetts to southern Mexico (Hoese and Moore 1998). The sea catfish is very common in all bays and shallow water, some found in waters of 15 fathoms (Walls 1975).

Batrachoididae *Opsanus beta* Gulf toadfish SG

The Gulf toadfish also referred to as oyster dog, dogfish, or mudfish are common to bays, oyster reefs, and around jetties. Small individuals have entered sunken cans or jars and grown to fill them by trapping and consuming other organisms that have also sought shelter in the containers. *O. beta* has a range from Cape Sable, Florida and in the Gulf of Mexico to Yuca West Indies (Hoese and Moore 1998).

Batrachoididae *Opsanus pardus* Leopard toadfish SURF

The leopard toadfish occurs offshore on reefs and rocky areas in the Gulf of Mexico and possibly throughout the Caribbean (Hoese and Moore 1998). This toadfish is generally found on offshore hard bottom in the northern Gulf, usually in 15 or more fathoms (Walls 1975).

Batrachoididae *Porichthys porosissimus* Atlantic midshipman SURF

Members of this genus are the only North American shore fish that possess photophores that occur in rows resembling the buttons on a nineteenth-century naval midshipman's uniform. They range from Virginia to Brazil (Hoese and Moore 1998).

Atherinopsidae *Membras martinica* Rough silversides SURF

Found generally in the deeper, more saline portions of bays and as far as 15 miles into the Gulf. The rough silverside can range from New York to southern Mexico (Hoese and Moore 1998). This species is common to bays and shallow salt water (Walls 1975).

Atherinopsidae *Menidia beryllina* Inland silverside SG

Generally limited to the shorelines, in low salinities, the inland or tidewater silverside ranges from Massachusetts to Vera Cruz, Mexico (Hoese and Moore 1998). This species is common to shallow salt water and bays (Walls 1975).

Atherinopsidae *Menidia peninsulae* Tidewater silverside SG SURF
Typically found in higher salinities, the tidewater silverside is predominant near the ocean (Hoese and Moore 1998).

Syngnathidae *Hippocampus zosterae* Dwarf seahorse SG
The dwarf seahorse is a smaller seahorse species, commonly found in seagrass flats with higher salinities. The species has been found in Bermuda, the Bahamas, northeast Florida, and the entire Gulf of Mexico (Hoese and Moore 1998). The dwarf seahorse is limited to shallow seagrass beds (Walls 1975).

Syngnathidae *Syngnathus floridae* Dusky pipefish SG SURF
The dusky pipefish is abundant in the summer in high-salinity grass flats. This species occurs in Bermuda, the Bahamas and Chesapeake Bay to Panama (Hoese and Moore 1998). The dusky pipefish is commonly found in both inshore and offshore waters (Walls 1975).

Syngnathidae *Syngnathus fuscus* Northern pipefish SURF
A rare pipefish species in the northern Gulf. Few specimens of the northern pipefish are known, most from the offshore waters of Texas and Louisiana (Walls 1975).

Syngnathidae *Syngnathus louisianae* Chain pipefish SG SURF
This is the most common pipefish in the area, especially in the bays. In rare cases the chain pipefish may appear offshore. It ranges from Maine south to Jamaica and the whole Gulf of Mexico (Hoese and Moore 1977).

Syngnathidae *Syngnathus scovelli* Gulf pipefish SG
In many areas this is a common pipefish. The Gulf pipefish has been reported from fresh waters in both Louisiana and Texas and peninsular Florida. It ranges from Georgia through the northern Gulf to southeast Brazil (Hoese and Moore 1998). The Gulf pipefish has been recorded in freshwater and is a common inshore pipefish in shallow or brackish water (Walls 1975).

Scorpaenidae *Scorpaena plumieri* Spotted scorpionfish SURF
The spotted scorpionfish is the more common scorpionfish in inshore areas and is not very poisonous. This species is usually found near jetties, oil platforms and reefs out to 30 fathoms. The range is from Massachusetts through the Caribbean to Rio de Janeiro, Brazil (Hoese and Moore 1998). This species of scorpionfish is uncommon in the northern Gulf of Mexico and prefers rocky bottoms out to a few fathoms (Walls 1975).

Triglidae *Prionotus tribulus* Bighead searobin SURF
A common inshore shelf and bay searobin the bighead is the only searobin eith young in low salinities. It occurs in North Carolina to Florida and throughout the Gulf (Hoese and Moore 1998). The young of this species is common and, at times, abundant in estuaries and shallow waters of the northern Gulf. The largest specimens of bighead searobin can range out to 15 fathoms; the young are generally found in estuaries (Walls 1975).

Serranidae *Epinephelus nigritus* Warsaw grouper SURF

The Warsaw grouper or black jewfish prefers cool, deep waters, but travels towards shore during the winter months. Juveniles are common inshore and in grass flats. Small adults are found along jetties and offshore oil rigs. The range extends from Massachusetts to Texas, with rare occurrences in Brazil and the West Indies (Hoese and Moore 1998). The Warsaw grouper is a common grouper species found along the northern Gulf of Mexico (Walls 1975).

Pomatomidae *Pomatomus saltatrix* Bluefish SURF

Generally found in moderate depths, the bluefish is a common schooling game fish (Walls 1975). Found worldwide but less common on the Texas coast.

Rachycentridae *Rachycentron canadum* Cobia SURF

This species is commonly known as cobia or ling. During the summer small ling are found in saltier bays. The larger members of the species congregate around stationary or drifting objects in the Gulf of Mexico. Ling are cosmopolitan, in the western Atlantic from Massachusetts through the Caribbean to Argentina (Hoese and Moore 1998). Cobias are common near oil rigs and congregating over hard bottoms (Walls 1975).

Carangidae *Caranx hippos* Crevalle jack SURF

The crevalle or common jack is found within inshore waters. This species is found worldwide in both tropical and temperate waters. The range is the western Atlantic from Nova Scotia to Uruguay (Hoese and Moore 1998).

Carangidae *Caranx latus* Horse-eye jack SURF

The horse-eye jack can be found within the bays. The range is New Jersey to Bermuda, and throughout the Caribbean to Brazil (Hoese and Moore 1998).

Carangidae *Chloroscombrus chrysurus* Atlantic bumper SURF

The Atlantic bumper is common throughout the saltier bays and Gulf of Mexico. The range is Massachusetts to Uruguay (Hoese and Moore 1998). This species is found anywhere from shallow to moderately deeper waters. The large adults are strictly found offshore (Walls 1975).

Carangidae *Hemicaranx amblyrhynchus* Bluntnose jack SURF

The bluntnose jack is a smaller member of this family. Juveniles are often associated with jellyfish. The range extends from North Carolina to southern Brazil (Hoese and Moore 1998). Although little is known about this uncommon jack species, it is often associated with floating debris and jellyfish (Walls 1975).

Carangidae *Oligoplites saurus* Leatherjack SURF

Commonly known as the leatherjack and leatherjacket this uncommon and beautiful species is known in our area from only a few specimens. It can occur from New England through the Caribbean to northeastern Brazil (Hoese and Moore 1998). The leatherjacket is usually found in shallow to moderate water with larger specimens coming from deepest water (Walls 1975).

- Carangidae *Selene vomer* Lookdown SURF
A cosmopolitan species found worldwide (Hoese and Moore 1998).
- Carangidae *Trachinotus carolinus* Florida pompano SURF
The small Florida pompano is abundant in the surf during the summer months. It can be found in the waters of Massachusetts to southern Brazil (Hoese and Moore 1998).
- Carangidae *Trachinotus falcatus* Permit SURF
Relatively little is known about the uncommon permit. It's young occur in the surf and the range is from New England through the Caribbean to southern Brazil (Hoese and Moore 1998). This is a rare fish found in clear offshore water (Walls 1975).
- Carangidae *Trachinotus goodei* Palometa SURF
Known by the commons names of palometa and longfinned pompano, this uncommon species is regarded as a stray from more tropical waters. It has been noted in Massachusetts through the Caribbean to Argentina (Hoese and Moore). This species is not uncommon in the clear waters of the northern Gulf (Walls 1975).
- Coryphaenidae *Coryphaena hippurus* Dolphin SURF
The dolphin or mahi-mahi can be found inshore, while ranging into waters of cooler temperatures. Juveniles are known to enter high salinity bays. The species is circumtropical. The range includes the western Atlantic from Nova Scotia to Bermuda and throughout the Caribbean to southeastern Brazil (Hoese and Moore 1998).
- Lutjanidae *Lutjanus campechanus* Northern red snapper SURF
This is a commercial red snapper species in the Gulf of Mexico. Its range extends from Massachusetts through the Gulf of Yucatan (Hoese and Moore 1998). This snapper species is commonly found over hard bottom that may extend to 80 fathoms in a preferred habitat known as snapper banks (Walls 1975).
- Lutjanidae *Lutjanus griseus* Gray snapper SURF
This is a common inshore species. Young and adults, commonly known as gray snapper, black snapper, and mangrove snapper, regularly occur in saltier bays. This species frequents mangrove swamps in the southern Gulf. They range from Bermuda to North Carolina, are rare to Massachusetts, and from the Caribbean to southeast Brazil (Hoese and Moore 1998). The gray snapper is common to both inshore and over deeper hard bottoms (Walls 1975).
- Lutjanidae *Lutjanus synagris* Lane snapper SURF
This fish, commonly known as the lane snapper or candy snapper, is found frequently on snapper banks with the young moving regularly inshore where they are frequently caught in shrimp trawls. This species can be found from North Carolina through the western Caribbean to Brazil (Hoese and Moore 1998). Lane Snapper are a common and colorful snapper on shallow, usually hard, bottoms (Walls 1975).

Lobotidae *Lobotes surinamensis* Tripletail SURF
 The tripletail is rare in the bays and shallow waters of the Gulf during warm months. Juveniles are found offshore, as well as near pilings and bulkheads. This species is circumtropical, but the range extends from Cape Cod through the Caribbean to Argentina (Hoese and Moore 1998).

Gerreidae *Eucinostomus argenteus* Spotfin mojarra SURF
 The spotfin mojarra is found in bays and inland waters. The range is New Jersey to Bermuda, throughout the Caribbean to Brazil, as well as both coasts of Central America (Hoese and Moore 1998). The spotfin mojarra is a fairly common inshore species (Walls 1975).

Gerreidae *Gerres cinereus* Yellowfin mojarra SG SURF
 The yellowfin mojarra is located in the bays and shallow Gulf waters during the fall months. The species range includes both the eastern Pacific and western Atlantic, as well as from Florida to Bermuda and throughout the Caribbean to southern Brazil (Hoese and Moore 1998).

Gerreidae *Ulaema lefroyi* Mottled mojarra SURF
 The mottled mojarra is a rarely reported form not known from Louisiana. It can range from Bermuda and North Carolina through the Caribbean to southern Brazil (Hoese and Moore 1977, 1998).

Haemulidae *Conodon nobilis* Barred grunt SURF
 The barred grunt can be found on the South Texas coast in the spring and summer, but not as abundant on the northern Gulf coastline. The range is Northern Gulf of Mexico through the Caribbean to Brazil (Hoese and Moore 1998). The barred grunt is a tropical species found along wharves, jetties and associated with hard bottoms of the southern Texas coast. It is somewhat rare in the eastern Gulf, but this species has been recorded in deep waters exceeding 10 fathoms off the Mississippi Delta (Walls 1975).

Haemulidae *Orthopristis chrysoptera* Pigfish SG SURF
 This is a common fish in the saltier bays and shallow Gulf. The pigfish young live in grass beds. The species is found from Massachusetts to Bermuda and Florida and throughout the Gulf (Hoese and Moore 1998). The pigfish is a common species in bays and shallow waters (Walls 1975).

Haemulidae *Pomadasys crocro* Burro grunt SURF
 The burro grunt has been reported from Texas, including young specimen from the Port Aransas jetties. This species range is from South Florida to South Texas through the Caribbean to Brazil (Hoese and Moore 1998). This is a tropical species that is rare in the northern Gulf of Mexico (Walls 1975).

Sciaenidae *Menticirrhus littoralis* Gulf kingfish SURF
Almost entirely a surf species, the Gulf kingfish or Gulf whiting young can sometimes be found in bays and shallow water. They occur from Virginia to Florida and throughout the Gulf (Hoese and Moore 1998). The Gulf kingfish appears to occur mainly in the sandy surf areas (Walls 1975).

Sciaenidae *Micropogonias undulatus* Atlantic croaker SURF
This is the most common bottom-dwelling estuarine species. The Atlantic croaker young occur in the deeper part of the bays in summer and depart in the fall. Very large croaker were formerly found off the mouth of the Mississippi but are less common today as only a few live past their first year (Hoese and Moore 1998). The Atlantic croaker is commonly found in estuarine waters out to 20 or 30 fathoms (Walls 1975).

Sciaenidae *Pogonias cromis* Black drum SURF
Found mainly in bays, the black drum range is Massachusetts to Argentina (Hoese and Moore 1998). A fish commonly found in shallow bays and moderately deep water (Walls 1975).

Sciaenidae *Sciaenops ocellatus* Red drum SG SURF
Commonly called red drum, channel bass and redfish this is one of the largest of the sciaenids and is historically the most important commercially. It is considered by the sports fisheries as the most highly prized croakers. The young are common around the mouths of passes in the spring and early summer; subadults tend to be solitary, living in shallow water in the bays where they may be noted swimming with their dorsal fins protruding from the water. Large migrations of redfish to the Gulf begin in the fall returning in the spring. During this migration anglers catch the largest fish. The largest, mature fish known as bull reds stay offshore occurring in large schools during the late summer - early fall spawning. This species can live over 2 decades with males maturing at 3 years and females at 5 years. They range from Massachusetts to northern Mexico (Hoese and Moore 1998). The red drum is a popular sports fish; it's young are sometimes common in the bays (Walls 1975).

Pomacentridae *Abudefduf saxatilis* Sergeant major SURF
Juvenile sergeant majors can be found in high numbers around the jetties of South Texas. This species is known to reside on reefs, including 7 1/2 Fathom Reef. The range includes both sides of the Atlantic and may be conspecific with Pacific varieties; Bermuda to Rhode Island and throughout the Caribbean to Uruguay (Hoese and Moore 1998). The sergeant major may be locally common on the Texas coast with rare accounts (Walls 1975).

Mugilidae *Mugil cephalus* Striped mullet SG SURF

The striped mullet are found in large schools and are cosmopolitan to all environments from fresh to hypersaline waters. One of our most abundant fish, mullet are taken from many rivers in Texas and Louisiana, as far inland as Lake Texoma and the Colorado River near Austin, Texas, and up to 200 miles inland. They can occur in hypersaline Baffin Bay where salinities can reach 15 parts per thousand. Being a fall spawner large schools of striped mullet leave the bays during the autumn months and smaller schools return over about a six-month period. The striped mullet appears to exist in all tropical and temperate waters around the world except for the tropical Atlantic. They can be found in the western Atlantic from Nova Scotia to Bermuda and Brazil (Hoese and Moore 1998). *M. cephalus* is abundant in bays to moderately deep waters and can move many miles into freshwater (Walls 1975).

Mugilidae *Mugil curema* Silver or white mullet SURF

The white mullet is absent during most of the colder months in the northwestern Gulf. Compared to *M. cephalus* it is more abundant in saltier waters. During the spring it spawns offshore. It ranges in the Eastern Pacific and Atlantic; from Massachusetts, in the western Atlantic, through the Caribbean to Brazil (Hoese and Moore 1977). *M. curema* and *M. cephalus* overlap broadly in ecology but the white mullet prefers a higher salinity (Walls 1975).

Sphyraenidae *Sphyraena borealis* Northern sennet SURF

Larvae and postjuveniles of the northern sennet are apparently common in spring in the northwestern Gulf. Their range is Massachusetts through the Caribbean to Uruguay (Hoese and Moore 1998). The northern sennet can be found throughout the northern Gulf of Mexico but is not common (Walls 1975).

Polynemidae *Polydactylus octonemus* Atlantic threadfin SURF

he species common name includes Atlantic threadfin and eight-fingered threadfin. Abundant in the surf zone during the summer this species never occurs further out than the inner shelf. The threadfin ranges from New York to southern Florida, possibly into the South Atlantic and across the Gulf to at least South Texas (Hoese and Moore 1998). Small representatives of this species are common in estuaries and shallow water in spring and summer. Adults are less common in estuaries and are found in deeper water (Walls 1975).

Uranoscopidae *Astroscopus y-graecum* Southern stargazer SURF

The southern stargazer is found North Carolina to Brazil, found inside 100 fathoms. They are burrowing fish with electric organs on the top of their head, capable of delivering a mild shock (Hoese and Moore 1998). The southern stargazer is a common fish in shallow and moderate depths; especially in sandy bottoms where they are known to burrow. Juveniles up to two inches are commonly found during the spring in estuaries (Walls 1975).

Gobiidae *Ctenogobius* Darter goby SURF
 boleosoma

The darter goby is the most widespread goby in the northwestern Gulf, occurring in virtually all bay and shallow Gulf habitats. The range is Chesapeake Bay to Brazil (Hoese and Moore 1998).

Gobiidae *Ctenogobius* Emerald goby SURF
 smaragdus

The emerald goby was not included in northwestern Gulf of Mexico accounts, although reports of their presence warrant confirmation (Hoese and Moore 1998).

Gobiidae *Gobionellus hastatus* Sharptail goby SURF
 The sharptail goby is commonly found in estuaries and salty, shallow waters. Records indicate that it can also be found offshore (Walls 1975).

Gobiidae *Gobiosoma robustum* Code goby SG
 This is a common species usually found in grass beds, particularly turtle grass. Can be found in Chesapeake Bay to Florida, through the Gulf to Yucatan (Hoese and Moore 1998).

Trichiuridae *Trichiurus lepturus* Atlantic cutlassfish SURF
 This species is known by the common names of Atlantic cutlassfish and ribbonfish and are common in the inshore Gulf and bays during the warmer months. They are common in Texas but more abundant in Louisiana. Their range is circum-tropical to temperate, in the western Atlantic from Massachusetts to south Brazil and in the Pacific from Panama to Mexico (Hoese and Moore 1975). The ribbonfish prefers higher salinities from the shallow bays out to deeper waters (Walls 1975).

Scombridae *Scomberomorus* Atlantic Spanish mackerel SURF
 maculatus

The Spanish mackerel is a popular sport fish commonly found in the surf zone and even in low-salinity bays. They are commercially fished in Florida. They range on both sides of the Atlantic, from the Gulf of Maine to Bermuda down to Brazil (Hoese and Moore 1998). In the northern Gulf the Spanish mackerel is a common sport fish. The young can be abundant in shallow, near-shore waters (Walls 1975).

Scombridae *Scomberomorus regalis* Cero SURF
 The cero is the least commonly found mackerel in the northwestern Gulf. They are common throughout the Caribbean and range from Massachusetts to Brazil (Hoese and Moore 1998). More tropical in nature the cero is uncommon or rare in the northern Gulf of Mexico (Walls 1975).

Stromateidae *Peprilus burti* Gulf butterfish SG SURF
 The gulf butterfish ranges from the west coast of Florida to the Yucatán and is more common in Louisiana (Hoese and Moore 1998).

Cynoglossidae *Symphurus plagiusa* Blackcheek tonguefish SURF

This species is the most common *Symphurus* found inshore. The blackcheek tonguefish is rarely found deeper than 20 fathoms and has been reported in brackish water. It ranges from Long Island to Yucatan (Hoese and Moore 1998). The most common tonguefish found in the the Gulf out to 10 fathoms, rarely to 20 fathoms. It can be found in estuarine and shallow coastal waters (Walls 1975).

Tetraodontidae *Sphoeroides parvus* Least puffer SURF

This is the most common bay and inshore puffer off the Louisiana and Texas coasts. The least puffer ranges from Apalachicola Bay, Florida, westward to Texas tan (Hoese and Moore and south of Yuca 1998). The least puffer is common to the bays and on occasion out to 35 fathoms (Walls 1975).

Diodontidae *Chilomycterus schoepfii* Striped burrfish SURF

The striped burrfish is common during the summer months in the high salinity bays and shallow Gulf of Mexico waters. The range is New England through the Caribbean to Brazil, although it has a rare occurrence in the tropics (Hoese and Moore 1998). The striped burrfish is common from the shore to a water depth of 15 fathoms throughout the northern Gulf (Walls 1975).

Ephippidae *Chaetodipterus faber* Atlantic spadefish SURF

The Atlantic spadefish or angelfish ranges from Cape Cod through the Caribbean to Brazil. Small adults can be found inshore on jetties or wharves, as well as open water. Large adults are commonly found in open water around structures including reefs, wrecks, and oil rigs (Hoese and Moore 1998). The Atlantic spadefish is found from bays to deep waters (Walls 1975).

Monacanthidae *Aluterus schoepfii* Orange filefish SURF

The orange filefish utilizes a variety of habitats with the young found inshore and adults common on offshore reefs. The range is Nova Scotia to Bermuda, including the Caribbean to Brazil (Hoese and Moore 1998). Juveniles can be found inshore with Sargassum, while adults are more common in deep water exceeding 20 fathoms (Walls 1975).

Monacanthidae *Stephanolepis hispida* Planehead filefish SURF

The planehead filefish is a common inshore filefish over most of the shelf. It's young often move into the bays. Found in the Atlantic Ocean From Nova Scotia and Bermuda to Brazil (Hoese and Moore 1998).

Balistidae *Balistes caprisus* Gray triggerfish SURF

The common gray triggerfish is associated with the hard substrate of oil rigs and jetties, as well as reefs. Juveniles are commonly found inshore. The range includes the Atlantic Ocean, from Nova Scotia to Bermuda and throughout the Caribbean to Argentina (Hoese and Moore 1998). The gray triggerfish is known as the only resident, common triggerfish of the northern Gulf. It is rarely found in bays or other shallow waters, more commonly found on hard bottoms of deep waters (Walls 1975).

Ostraciidae *Acanthostracion* Scrawled cowfish SURF
quadricornis

The scrawled cowfish is a common inhabitant of the continental shelf and bays with higher salinities. The species ranges throughout the western Atlantic Ocean from Massachusetts to Brazil (Hoese and Moore 1998).

Synodontidae *Synodus foetens* Inshore lizardfish SURF

The lizardfish occurs regularly inshore and in the bays. The inshore lizardfish is the only lizardfish which commonly enters brackish waters. The larger representatives of this species can occur offshore in depths out to one hundred fathoms (Hoese and Moore 1977). The inshore lizardfish is common to all shallow northern Gulf waters and the only species found inshore. It can range into moderate depths (Walls 1975). Atlantic coast through Caribbean to Brazil.

Belonidae *Strongylura marina* Atlantic needlefish SG SURF

The atlantic needlefish is the most common needlefish over the entire northern Gulf of Mexico (Walls 1975). This is a common species near jetties, but is found throughout the higher salinity portions of bays and mangrove areas (Britton and Morton 1989). Atlantic coast through Caribbean to Brazil.

Poeciliidae *Gambusia affinis* Mosquitofish FW SURF

The mosquitofish is found in marshes with low salinity. It has been introduced to control mosquitoes. The range extends from New Jersey to central Mexico (Hoese and Moore 1998).

Hemiramphidae *Hyporhamphus* Atlantic silverstripe SG SURF
unifasciatus

The American halfbeak is common throughout the northwestern Gulf, including the bays. The range extends from New Brunswick southward to Miami, as well as the entire Gulf of Mexico (Hoese and Moore 1998). This species is commonly found inshore and in shallow, high salinity waters (Walls 1975).

Cyprinodontidae *Cyprinodon variegatus* Sheepshead minnow FW SG SURF

The sheepshead minnow is a common shore fish with the greatest known salinity tolerance. It inhabits bay margins and marsh ponds, enduring both extreme hot and high salinity habitats where no other species can survive. The range is from Maine through the Caribbean to Venezuela (Hoese and Moore 1998). The sheepshead minnow is abundantly found in brackish waters throughout the northern Gulf of Mexico (Walls 1975). This species can tolerate salt, brackish or freshwater habitats and is usually associated with vegetation (Page and Burr 1991).

Cyprinodontidae *Fundulus grandis* Gulf killifish FW SG SURF

The gulf killifish is a common shore species which is commonly used as a bait fish. The species can be found in Cuba, eastern Mexico, throughout the Gulf of Mexico, and on the eastern coast of Florida (Hoese and Moore 1998).

Cyprinodontidae *Fundulus similis* Longnose killifish SG SURF
The longnose killifish is thought by some to be identical to *F. majalis* (striped killifish), occurring in higher salinity waters in the western Gulf. The range extends from Maine through Florida and into the Gulf of Mexico from the northern areas to Tampico (Hoese and Moore 1998).

Fundulidae *Lucania parva* Rainwater killifish SG SURF
The rainwater killifish is generally limited to vegetated areas and algal communities. It can also occur in coastal, freshwater vegetation. It's range is from Massachusetts to Tampico (Hoese and Moore 1998).

Ophidiidae *Ophidion josephi* Crested cusk-eel SG SURF
Originally described as *Otophidium welshi* it's presence in the Gulf of Mexico, New Jersey or North Carolina has not been verified (Hoese and Moore 1998). Burrows in mud.

Summary

Padre Island National Seashore (PAIS) comprises approximately 133,000 acres of undeveloped barrier island habitat. The National Seashore is approximately 70 miles-in-length and ranges from ½ to three miles-in-width. The park is bordered on the west by the hypersaline Laguna Madre and on the east by the Gulf of Mexico. A diversity of fish habitats occur within PAIS boundaries including: surf zone along the Gulf shoreline, ephemeral freshwater ponds within the barrier island interior, and seagrass meadows in the hypersaline waters of Laguna Madre.

The purpose of this report was to provide a comprehensive summary of reports pertaining to marine and freshwater fish species, including their distribution and relative abundance, throughout PAIS. The project began with a search for all literature pertaining to any studies occurring in the park and involving any marine or freshwater fish. Results were compiled into a list to be used as an updated checklist. Previous inventory work and museum collections were also reviewed to determine what fish species had been documented within the park or adjacent to the park.

The literature search task generated several reports and checklists that were evaluated for use in the inventory. Two checklists were identified in NPSpecies queries, but no vouchers, or datasets associated with the lists were located. Two published reports were also identified from the NPSpecies queries that provided fish species information for freshwater ponds. Another report was identified for rare plants and animals, but was not located in any library searches. Queries in NPBib produced four additional references to previous studies conducted within PAIS boundaries that provided species lists for surf zone (two studies), seagrass, and freshwater pond habitat. University library searches resulted in one additional study for seagrass habitat. Information search within the PAIS library did not add any new reports to the literature review. Four additional reports were included in the report following an internal review of the document. One study was conducted adjacent to the park on an offshore reef. The results were added to the database as potential species that may inhabit hard substrate habitat (jetties) at Mansfield Pass within PAIS. Another study conducted by Texas Parks and Wildlife Department (TPWD) included a section of PAIS in a monitoring project of fishes in surf zone habitat. In an effort to generate information of relative abundance, limited information from two reports were included that summarized Baffin Bay-Laguna Madre estuary.

A species checklist of 100 species from 48 families was generated from all studies conducted within the PAIS boundary with respect to habitat type. No species were listed on federal or state endangered species list. These results were compared to previous checklists listed above, and concurrence was limited to about 60% overlap. The species checklist was also compared to TPWD fishery monitoring data for Baffin-Bay/Laguna Madre system. Their species richness in estuarine habitat exceeded 130 species over a 32-year period, compared to 33 species in PAIS checklist. Abundance values could not be generated from the limited studies that have been conducted within park waters.

A variety of methods were used to locate voucher species that were collected within or adjacent to PAIS. No voucher specimens were located using NPSpecies queries. Limited success was achieved in accessing or contacting several museums and universities. A total of 53 voucher specimens were located that were collected within PAIS. Two museums were identified to have vouchers, American Museum of Natural History (1 voucher) and Texas Memorial Museum (3 vouchers). Two vouchers were located within the park and two adjacent to the park boundaries. The Atlantic guitarfish (*Rhinobatos lentiginosus*) collected from within PAIS boundaries was not documented by either Gulf surf zone study. The other species collected within the park, White mullet (*Mugil curema*) was referenced within these studies. Of the two species collected adjacent to the park, scaled herring (*Harengula jaguana*) was also documented within the Gulf surf zone, whereas lemon shark (*Negaprion brevirostris*) was not recorded by either study. These vouchers were not included in the overall voucher list for PAIS. The Padre Island National Seashore ichthyology collection, part of the John E. Connor Museum and warehoused in Kingsville, Texas, was physically reviewed twice. The collection contains 64 specimens encompassing 32 species, although 13 specimens were not within the boundary of the park or their location of capture was not documented. Fifty-one voucher specimens were within acceptable limits. All specimens were included in the species checklist generated for this report, with the exception of five specimens within three species: Bermuda chub (*Kyphosis sectatrix*), Lined seahorse (*Hippocampus erectus*), and Blunt-nosed sting ray (*Dasyatis say*). Eighty-two possible voucher specimens were identified from other museums, the majority from the Texas Memorial Museum, but not included in the voucher list. Each location description was too vague and the specimens were collected offshore and not in the park. Species accounts were generated for all species within the species checklist with associated habitat designations from studies conducted within PAIS boundaries.

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Appendix A: List of species with valid taxonomy (<http://www.itis.gov>, 30 April 2007) with associated invalid synonyms (table listed in this order) used in literature within this report.

Family	Scientific Name	Common Name	Invalid Synonym
Monacanthidae	<i>Aluterus schoepfii</i>	Orange filefish	<i>Aluterus schoepfi</i>
Engraulidae	<i>Anchoa lyolepis</i>	Dusky anchovy	<i>Anchoa nasuta</i>
Paralichthyidae	<i>Ancylopsetta ommata</i>	Ocellated flounder	<i>Ancylopsetta quadrocellata</i>
Apogonidae	<i>Phaeoptyx conklini</i>	Freckled cardinalfish	<i>Apogon conklini</i>
Ariidae	<i>Ariopsis felis</i>	Hardhead catfish	<i>Arius felis</i> , <i>Galeichthys felis</i>
Monacanthidae	<i>Aluterus scriptus</i>	Scrawled filefish	<i>Balistidae</i> , <i>Aluterus scripta</i>
Ophichthidae	<i>Bascanichthys scuticaris</i>	Whip eel	<i>Bascanichthys teres</i>
Blenniidae	<i>Parablennius marmoreus</i>	seaweed blenny	<i>Blennius marmoreus</i>
Paralichthyidae	<i>Paralichthys lethostigma</i>	Southern flounder	<i>Bothidae</i>
Bythitidae	<i>Ogilbia</i> sp.	Brotula	Brotulidae
Carangidae	<i>Caranx crysos</i>	Blue runner	<i>Caranx fusus</i>
Carangidae	<i>Carangoides ruber</i>	Bar jack	<i>Caranx ruber</i>
Dasyatidae	<i>Dasyatis americana</i>	Southern stingray	<i>Carchariidae</i>
Carcharhinidae	<i>Carcharhinus obscurus</i>	Dusky shark	<i>Carchariidae</i> , <i>Carcharias taurus</i>
Diodontidae	<i>Chilomycterus schoepfii</i>	Striped burrfish	<i>Chilomycterus schoepfi</i>
Congridae	<i>Rhynchoconger flavus</i>	Yellow conger	<i>Congrina flava</i>
Serranidae	<i>Diplectrum bivittatum</i>	Dwarf sand perch	<i>Diplectrum arcuarium</i>
Gobiidae	<i>Ptereleotris calliura</i>	Blue goby	<i>Eleotridae</i> , <i>Ioglossus calliurus</i>
Sciaenidae	<i>Pareques acuminatus</i>	High-hat	<i>Equetus acuminatus</i>
Gerreidae	<i>Ulaema lefroyi</i>	Mottled mojarra	<i>Eucinostomus lefroyi</i>
Pomacentridae	<i>Stegastes fuscus</i>	Dusky damselfish	<i>Eupomacentrus dorsopunicans</i> , <i>Pomacentrus fuscus</i>
Pomacentridae	<i>Stegastes variabilis</i>	Cocoa damselfish	<i>Eupomacentrus variabilis</i> , <i>Pomacentrus variabilis</i>
Gobiidae	<i>Ctenogobius boleosoma</i>	Darter goby	<i>Gobionellus boleosoma</i>
Gobiidae	<i>Ctenogobius smaragdus</i>	Emerald goby	<i>Gobionellus smaragdus</i>
Serranidae	<i>Rypticus saponaceus</i>	greater soapfish	<i>Grammistidae</i>
Clupeidae	<i>Harengula jaguana</i>	Scaled herring	<i>Harengula pensacolae</i>
Syngnathidae	<i>Hippocampus reidi</i>	longsnout seahorse	<i>Hippocampus obtusus</i> , <i>offshore seahorse</i>
Kyphosidae	<i>Kyphosus sectator</i>	Bermuda chub, rudderfishes	<i>Kyphosus sectatrix</i>
Lutjanidae	<i>Lutjanus purpureus</i>	Caribbean or southern red snapper	<i>Lutjanus aya</i>
Mobulidae	<i>Manta birostris</i>	Atlantic manta	<i>Mobulidae</i>
Monacanthidae	<i>Stephanolepis hispida</i>	Planehead filefish	<i>Monacanthus hispidus</i> , <i>Stephanolepis hispidus</i>
Ophidiidae	<i>Ophidion josephi</i>	Crested cusk-eel	<i>Ophidion welshi</i>
Ophidiidae	<i>Ophiodon holbrookii</i>	bank cusk-eel	<i>Ophiodon holbrookii</i>
Haemulidae	<i>Orthopristis chrysoptera</i>	Pigfish	<i>Orthopristis chrysopterus</i>
Stromateidae	<i>Peprilus paru</i>	Harvestfish	<i>Peprilus alepidotus</i>
Antennariidae	<i>Antennarius striatus</i>	Striated frogfish	<i>Phrynelox scaber</i>
Haemulidae	<i>Anisotremus surinamensis</i>	Black margate	<i>Pomadasyidae</i>
Haemulidae	<i>Anisotremus virginicus</i>	Porkfish	<i>Pomadasyidae</i>

Appendix A: (continued).

Family	Scientific Name	Common Name	Invalid Synonym
Haemulidae	<i>Haemulon aurolineatum</i>	Tomtate	<i>Pomadasyidae</i>
Stromateidae	<i>Peprilus triacanthus</i>	Butterfish	<i>Poronotus triacanthus</i>
Triglidae	<i>Prionotus rubio</i>	Blackfin searobin	<i>Prionotus pectoralis</i>
Triglidae	<i>Prionotus tribulus</i>	Bighead searobin	<i>Prionotus tribulus crassiceps</i>
Clupeidae	<i>Sardinella aurita</i>	Spanish sardine	<i>Sardinella anchovia</i>
Carangidae	<i>Seriola rivoliana</i>	Almaco jack	<i>Seriola falcata</i>
Serranidae	<i>Serraniculus pumilio</i>	Pygmy sea bass	<i>Serramoculus pumilio</i> (misspelling)
Serranidae	<i>Serranus subligarius</i>	belted sandfish	<i>Serranellus subligarius</i> , <i>Centropristis subligarius</i>
Carangidae	<i>Selene setapinnis</i>	Atlantic moonfish	<i>Vomer setapinnis</i>

Appendix B: List of shark species (information provided by Mr. Darrell Echols, PAIS).

A non-traditional data source was used to assist in the development of a comprehensive inventory of park fish species that included data provided by Billy Sandifer of Padre Island Safaris (<http://www.billysandifer.com/>). Mr. Sandifer is a local fisherman that is well respected and knowledgeable about park fish species. He has fished Padre Island National Seashore for over 40 years and is considered an expert in western Gulf of Mexico fish. Mr. Sandifer has identified 19 shark species, which are provided below and ranked by overall size.

1. Bonnetnose
2. Atlantic sharpnose
3. Bignose
4. Blacknose
5. Fine-toothed
6. Lesser blacktip
7. Greater blacktip
8. Night shark
9. Sandbar
10. Lemon
11. Nurse
12. Bull
13. Scalloped hammerhead
14. Dusky
15. Short-fin mako
16. Greater Hammerhead
17. Tiger
18. Sand tiger
19. Great white

Also, Billy identified the following fish species not presently accounted for within park scientific surveys.

1. Almaco jack
2. Irish pompano
3. Sharptail mola
4. Roughtail stingray
5. Spotted eagle ray
6. Ballyhoo

Appendix C: Comprehensive list of fish species with vouchers in museums that were documented in the PAIS as well as vouchers collected adjacent to PAIS that may occur in PAIS.

Collection #	Scientific Name	Common Name	Location	Museum
<u>Voucher specimens collected within PAIS (by museum, by collection #)</u>				
98243	<i>Rhinobatos lentiginosus</i>	Atlantic guitarfish	North Padre Island, 0.25 mile south of 4-wheel drive sign	American Museum of Natural History
19476	<i>Mugil curema</i>	White mullet	Padre Island beach, 2 miles S of Nicaragua, tidal pool	Texas Memorial Museum
1783	<i>Chilomycterus schoepfii</i>	Striped burrfish	Malaquite Beach	John E. Connor Musuem
1784	<i>Hyporhamphus unifasciatus</i>	Halfbeak fish	Malaquite campground	John E. Connor Musuem
1785	<i>Arius felis</i>	Hard head catfish	Behind ranger station	John E. Connor Musuem
1787	<i>Harengula jaguana</i>	Scaled sardine	Surf near ranger station	John E. Connor Musuem
1788	<i>Menticirrhus littoralis</i>	Gulf kingfish	Surf near ranger station	John E. Connor Musuem
1789	<i>Chaetodipterus faber</i>	Atlantic spadefish	Surf near ranger station	John E. Connor Musuem
1790	<i>Lobotes surinamensis</i>	Tripletail fish	6 mi. south of four-wheel drive sign	John E. Connor Musuem
1792	<i>Monocanthus hispidus</i>	Planehead filefish	surf 6 mi. south of four-wheel drive sign	John E. Connor Musuem
1796	<i>Syngnathus floridae</i>	Dusky Pipefish	L.M. @ permian tank	John E. Connor Musuem
1798	<i>Kyphosus sectatrix</i>	Bermuda chub	Behind ranger station	John E. Connor Musuem
1799	<i>Abudefduf saxatilis</i>	Sergeant major	Behind ranger station	John E. Connor Musuem
1800	<i>Trachinotus carolinus</i>	Florida pompano	Near ranger station	John E. Connor Musuem
1801	<i>Caranx latus</i>	Horse eye jack	Behind ranger station	John E. Connor Musuem
1802	<i>Oligoplites saurus</i>	Leatherjacket fish	Behind ranger station	John E. Connor Musuem
1803	<i>Selene vomer</i>	Lookdown fish	Behind ranger station	John E. Connor Musuem
1804	<i>Chloroscombrus chrysurus</i>	Atlantic bumper	Behind ranger station	John E. Connor Musuem
1805	<i>Anchoa hepsetus</i>	Striped anchovy	Behind ranger station	John E. Connor Musuem
1806	<i>Pogonias chromis</i>	Black Drum	Behind ranger station	John E. Connor Musuem
1807	<i>Elops saurus</i>	Ladyfish	Behind ranger station	John E. Connor Musuem
1808	<i>Menidia beryllina</i>	Silverside	Bird Island Basin L. M.	John E. Connor Musuem
1809	<i>Fundulus similis</i>	Longnose killifish	L.M. @ Permian tank Rd	John E. Connor Musuem
1810	<i>Cyprinodon variegatus</i>	Sheepshead minnow	Laguna Madre at end of road	John E. Connor Musuem
1902	<i>Mugil curema</i>	White mullet	2 mi S of end of pavement of S beach	John E. Connor Musuem
2034	<i>Hippocampus erectus</i>	Lined Seahorse	closed beach 1/2 mi N of Malaquite	John E. Connor Musuem
2035	<i>Dasyatis say</i>	Bluntnose stingray	closed beach	John E. Connor Musuem

Appendix C: (continued).

Collection #	Scientific Name	Common Name	Location	Museum
2036	<i>Dasyatis say</i>	Bluntnose stingray	closed beach	John E. Connor Musuem
2051	<i>Cyprinodon variegatus</i>	Sheepshead minnow	Freshwater pond	John E. Connor Musuem
2052	<i>Cyprinodon variegatus</i>	Sheepshead minnow	Freshwater pond	John E. Connor Musuem
2053	<i>Cyprinodon variegatus</i>	Sheepshead minnow	Freshwater pond	John E. Connor Musuem
2054	<i>Cyprinodon variegatus</i>	Sheepshead minnow	Freshwater pond	John E. Connor Musuem
2055	<i>Cyprinodon variegatus</i>	Sheepshead minnow	Freshwater pond	John E. Connor Musuem
2056	<i>Fundulus grandis</i>	Gulf killifish	Gulf surf water	John E. Connor Musuem
2057	<i>Fundulus grandis</i>	Gulf killifish	Gulf surf water	John E. Connor Musuem
2058	<i>Fundulus grandis</i>	Gulf killifish	Gulf surf water	John E. Connor Musuem
2148	<i>Fundulus grandis</i>	Gulf killifish	Freshwater pond	John E. Connor Musuem
2149	<i>Cyprinodon variegatus</i>	Sheepshead minnow	Freshwater pond	John E. Connor Musuem
2150	<i>Gambusia affinis</i>	Mosquitofish	Freshwater pond	John E. Connor Musuem
2157	<i>Fundulus grandis</i>	Gulf killifish	Freshwater pond	John E. Connor Musuem
2158	<i>Cyprinodon variegatus</i>	Sheepshead minnow	Freshwater pond	John E. Connor Musuem
2159	<i>Fundulus similis</i>	Longnose killifish	Freshwater pond	John E. Connor Musuem
2160	<i>Gambusia affinis</i>	Mosquitofish	Freshwater pond	John E. Connor Musuem
2177	<i>Cyprinodon variegatus</i>	Sheepshead minnow	Pond water flowing across beach	John E. Connor Musuem
2202	<i>Aluterus schoepfii</i>	Orange filefish	South beach	John E. Connor Musuem
2272	<i>Dasyatis say</i>	Bluntnose stingray	Surf	John E. Connor Musuem
2281	<i>Strongylura marina</i>	Atlantic needlefish	Bird Island Basin L. M.	John E. Connor Musuem
2282	<i>Cynoscion arenarius</i>	Sand seatrout	Bird Island Basin L. M.	John E. Connor Musuem
2283	<i>Selene vomer</i>	Lookdown	Bird Island Basin L. M.	John E. Connor Musuem
2284	<i>Chilomycterus schoepfii</i>	Striped burrfish	Collected on beach	John E. Connor Musuem
2285	<i>Polydactylus octonemus</i>	Atlantic threadfin	50 yds S of Malaquite pavilion	John E. Connor Musuem
2288	<i>Balistes capriscus</i>	Grey triggerfish	beach @ malaquite	John E. Connor Musuem

Voucher specimens that may occur in PAIS (by museum, by collection #)

21277	<i>Negaprion brevirostris</i>	Lemon shark	Padre Island, Bob Hall Pier	Texas Memorial Museum
18528	<i>Raja texana</i>	roundel skate	off Padre Island, 60-70 mi S of Port Aransas	Texas Memorial Museum

Appendix C: (continued).

Collection #	Scientific Name	Common Name	Location	Museum
18528	<i>Raja texana</i>	roundel skate	off Padre Island, 60-70 mi S of Port Aransas	Texas Memorial Museum
18552	<i>Gymnothorax nigromarginatus</i>	blackedge moray	off Padre Island, 50-60 mi S of Port Aransas	Texas Memorial Museum
18583	<i>Congrina flava</i>	yellow conger	off Padre Island, 60 mi S of Port Aransas	Texas Memorial Museum
18552	<i>Gymnothorax nigromarginatus</i>	blackedge moray	off Padre Island, 50-60 mi S of Port Aransas	Texas Memorial Museum
18583	<i>Congrina flava</i>	yellow conger	off Padre Island, 60 mi S of Port Aransas	Texas Memorial Museum
18693	<i>Anchoa mitchilli diaphana</i>	bay anchovy	40 mi S Port Aransas	Texas Memorial Museum
18703	<i>Anchoa hepsetus</i>	broad-striped anchovy	40 mi S Port Aransas	Texas Memorial Museum
18647	<i>Harengula jaguana</i> [<i>Harengula pensacolae</i>]	Scaled sardine	5 miles S of Bob Hall Pier in a minnow seine	Texas Memorial Museum
18727	<i>Synodus foetens</i>	inshore lizardfish	off Padre Island, 30 mi N of Port Isabel	Texas Memorial Museum
18743	<i>Synodus poeyi</i>	offshore lizardfish	off Padre Island, 50-70 mi S of Port Aransas	Texas Memorial Museum
18804	<i>Antennarius striatus</i>	striated frogfish	off Padre Island, 30 mi N of Port Isabel	Texas Memorial Museum
18810	<i>Antennarius radiosus</i>	big-eyed frogfish	off Padre Island, 50-70 mi S of Port Aransas	Texas Memorial Museum
18826	<i>Ogcocephalus parvus</i>	roughback batfish	off Padre Island, 50-70 mi S of Port Aransas	Texas Memorial Museum
18844	<i>Halieutichthys aculeatus</i>	pancake batfish	off Padre Island, 30 mi N of Port Isabel	Texas Memorial Museum
18856	<i>Urophycis floridana</i>	southern hake	off Padre Island, 50-70 mi S of Port Aransas	Texas Memorial Museum
18867	<i>Brotula barbata</i>	bearded brotula	off Padre Island, 50-60 mi S of Port Aransas	Texas Memorial Museum
18989	<i>Syngnathus louisianae</i>	chain pipefish	off Padre Island, 50-60 mi S of Port Aransas	Texas Memorial Museum
19062	<i>Citharichthys spilopterus</i>	bay whiff	off Padre Island 70 mi S of Port Aransas	Texas Memorial Museum
19068	<i>Citharichthys spilopterus</i>	bay whiff	off Padre Island, 30 mi N of Port Isabel	Texas Memorial Museum
19070	<i>Citharichthys spilopterus</i>	bay whiff	off Padre Island, 40-60 mi S. of Port Aransas	Texas Memorial Museum

Appendix C: (continued).

Collection #	Scientific Name	Common Name	Location	Museum
19090	<i>Cyclopsetta chittendeni</i>	Mexican flounder	off Padre Island, 50-70 mi S of Port Aransas	Texas Memorial Museum
19095	<i>Cyclopsetta chittendeni</i>	Mexican flounder	off Padre Island, 30 mi N of Port Isabel	Texas Memorial Museum
19099	<i>Etropus crossotus</i>	fringed flounder	off Padre Island, 40-60 mi S. of Port Aransas	Texas Memorial Museum
19100	<i>Etropus crossotus</i>	fringed flounder	off Padre Island, 50-70 mi S of Port Aransas	Texas Memorial Museum
19109	<i>Engyophrys senta</i>	spiny flounder	off Padre Island, 50-70 mi S of Port Aransas	Texas Memorial Museum
19113	<i>Paralichthys albigutta</i>	Gulf flounder	off Padre Island, 50-60 mi S of Port Aransas	Texas Memorial Museum
19139	<i>Syacium gunteri</i>	shoal flounder	off Padre Island, 30 mi N of Port Isabel	Texas Memorial Museum
19160	<i>Trichopsetta ventralis</i>	sash flounder	off Padre Island, 50-70 mi S of Port Aransas	Texas Memorial Museum
19190	<i>Symphurus civitatus</i>	offshore tonguefish	off Padre Island, 50-60 mi S of Port Aransas	Texas Memorial Museum
19191	<i>Symphurus civitatus</i>	offshore tonguefish	off Padre Island, 50-70 mi S of Port Aransas	Texas Memorial Museum
19240	<i>Balistes capriscus</i>	gray triggerfish	off Padre Island, 30 mi N of Port Isabel	Texas Memorial Museum
19254	<i>Stephanolepis hispidus</i>	planehead filefish	off Padre Island, 30 mi N of Port Isabel	Texas Memorial Museum
19269	<i>Lagocephalus laevigatus</i>	smooth puffer	off Padre Island, 30 mi N of Port Isabel	Texas Memorial Museum
19272	<i>Poronotus triacanthus</i>	butterfish	off Padre Island, 60-70 mi S of Port Aransas	Texas Memorial Museum
19291	<i>Sphoeroides parvus</i>	least puffer	off Padre Island, 50-70 mi S of Port Aransas	Texas Memorial Museum
19325	<i>Eucinostomus argenteus</i>	spotfin mojarra	off Padre Island, 50-70 mi S of Port Aransas	Texas Memorial Museum
19338	<i>Eucinostomus gula</i>	silver jenny	off Padre Island, 30 mi N of Port Isabel	Texas Memorial Museum
19340	<i>Eucinostomus gula</i>	silver jenny	off Padre Island, 50-70 mi S of Port Aransas	Texas Memorial Museum
19517	<i>Diplectrum arcuarium</i>	dwarf sand perch	off Padre Island, 30 mi N of Port Isabel	Texas Memorial Museum

Appendix C: (continued).

Collection #	Scientific Name	Common Name	Location	Museum
19568	<i>Serraniculus pumilio</i>	pygmy sea bass	off Padre Island, 60 mi S of Port Aransas	Texas Memorial Museum
19589	<i>Caulolatilus intermedius</i>	anchor tilefish	off Padre Island, 60 mi S of Port Aransas	Texas Memorial Museum
19615	<i>Seriola dumerili</i>	greater amberjack	off Padre Island, 50 mi S. of Port Aransas	Texas Memorial Museum
19674	<i>Selene vomer</i>	lookdown	off Padre Island, 30 mi N of Port Isabel	Texas Memorial Museum
19683	<i>Vomer setapinnis</i>	Atlantic moonfish	off Padre Island, 50-60 mi S of Port Aransas	Texas Memorial Museum
19752	<i>Lutjanus aya</i>	southern red snapper	off Padre Island, 30 mi N of Port Isabel	Texas Memorial Museum
19762	<i>Lutjanus synagris</i>	lane snapper	off Padre Island, 30 mi N of Port Isabel	Texas Memorial Museum
19782	<i>Pristipomoides aquilonaris</i>	wenchman	off Padre Island, 60-70 mi S of Port Aransas	Texas Memorial Museum
19787	<i>Rhomboplites aurorubens</i>	vermilion snapper	off Padre Island, 60-70 mi S of Port Aransas	Texas Memorial Museum
19911	<i>Bollmannia communis</i>	ragged goby	off Padre Island, 30 mi N of Port Isabel	Texas Memorial Museum
19989	<i>Poronotus triacanthus</i>	butterfish	off Padre Island, 60-70 mi S of Port Aransas	Texas Memorial Museum
20006	<i>Scorpaena calcarata</i>	smoothhead scorpionfish	off Padre Island, 30 mi N of Port Isabel	Texas Memorial Museum
20028	<i>Prionotus ophryas</i>	bandtail searobin	off Padre Island, 30 mi N of Port Isabel	Texas Memorial Museum
20029	<i>Prionotus ophryas</i>	bandtail searobin	off Padre Island, 50 mi S. of Port Aransas	Texas Memorial Museum
20044	<i>Prionotus paralatus</i>	Mexican searobin	off Padre Island, 50-60 mi S of Port Aransas	Texas Memorial Museum
20045	<i>Prionotus paralatus</i>	Mexican searobin	off Padre Island, 50-70 mi S of Port Aransas	Texas Memorial Museum
20047	<i>Prionotus pectoralis</i>	blackfin searobin	off Padre Island, 30 mi N of Port Isabel	Texas Memorial Museum
20048	<i>Prionotus pectoralis</i>	blackfin searobin	off Padre Island, 50-70 mi S of Port Aransas	Texas Memorial Museum
20049	<i>Prionotus pectoralis</i>	blackfin searobin	off Padre Island, 50-60 mi S of Port Aransas	Texas Memorial Museum
20071	<i>Prionotus rubio</i>	blackfin searobin	off Padre Island, 30 mi N of Port Isabel	Texas Memorial Museum
20074	<i>Prionotus rubio</i>	blackfin searobin	off Padre Island, 50-60 mi S of Port Aransas	Texas Memorial Museum

Appendix C: (continued).

Collection #	Scientific Name	Common Name	Location	Museum
20076	<i>Prionotus rubio</i>	blackfin searobin	off Padre Island, 50-70 mi S of Port Aransas	Texas Memorial Museum
20103	<i>Cynoscion arenarius</i>	sand seatrout	off Padre Island, 30 mi N of Port Isabel	Texas Memorial Museum
20105	<i>Prionotus tribulus crassiceps</i>	bighead searobin	off Padre Island, 60 mi S. of Port Aransas	Texas Memorial Museum
20157	<i>Cynoscion nothus</i>	silver seatrout	off Padre Island, 60-70 mi S of Port Aransas	Texas Memorial Museum
20160	<i>Cynoscion nothus</i>	silver seatrout	off Padre Island, 30 mi N of Port Isabel	Texas Memorial Museum
20292	<i>Menticirrhus americanus</i>	southern kingfish	off Padre Island, 30 mi N of Port Isabel	Texas Memorial Museum
20318	<i>Upeneus parvus</i>	dwarf goatfish	off Padre Island, 30 mi N of Port Isabel	Texas Memorial Museum
20333	<i>Chaetodipterus faber</i>	Atlantic spadefish	off Padre Island, 30 mi N of Port Isabel	Texas Memorial Museum
20427	<i>Congrina flava</i>	yellow conger	off Padre Island, 30 mi N of Port Isabel	Texas Memorial Museum
20497	<i>Ancylosetta quadrocellata</i>	ocellated flounder	off Padre Island, 40-60 mi S. of Port Aransas	Texas Memorial Museum
20642	<i>Prionotus sternsi</i>	searobin	off Padre Island, 50-70 mi S of Port Aransas	Texas Memorial Museum
20649	<i>Sphoeroides parvus</i>	least puffer	off Padre Island, 30 mi N of Port Isabel	Texas Memorial Museum
20647	<i>Lagocephalus laevigatus</i>	smooth puffer	off Padre Island, 50-70 mi S of Port Aransas	Texas Memorial Museum
20765	<i>Fistularia tabacaria</i>	bluespotted cornetfish	off Padre Island, 50 mi N of Port Isabel	Texas Memorial Museum
20768	<i>Synodus foetens</i>	inshore lizardfish	off Padre Island, 50-70 mi S of Port Aransas	Texas Memorial Museum
20776	<i>Sphyraena guachancho</i>	guaganche	off Padre Island, 50 mi S. of Port Aransas	Texas Memorial Museum
20797	<i>Priacanthus arenatus</i>	bigeye	off Padre Island, 30 mi N of Port Isabel	Texas Memorial Museum
20798	<i>Priacanthus arenatus</i>	bigeye	off Padre Island, 30 mi N of Port Isabel	Texas Memorial Museum
20815	<i>Lutjanus aya</i>	southern red snapper	off Padre Island, 30 mi N of Port Isabel	Texas Memorial Museum
20816	<i>Lutjanus aya</i>	southern red snapper	off Padre Island, 30 mi N of Port Isabel	Texas Memorial Museum
21270	<i>Echeneis naucrates</i>	sharksucker	off Padre Island, 30 mi N of Port Isabel	Texas Memorial Museum
21272	<i>Echeneis naucrates</i>	sharksucker	off Padre Island, 30 mi N of Port Isabel	Texas Memorial Museum
21274	<i>Lutjanus aya</i>	southern red snapper	off Padre Island, 30 mi N of Port Isabel	Texas Memorial Museum

Appendix C: (continued).

Collection #	Scientific Name	Common Name	Location	Museum
155006	<i>Ophichthus gomesii</i>	shrimp eel	27°03.30"N 97°15.30W	Smithsonian Dept of Vertebrate Zoology
1023	<i>Equetus acuminatus</i>	high hat	Offshore oil rigs?	John E. Conner Museum
1791	<i>Chaetodon sedentarius</i>	reef butterfly fish	Malaquite Beach	John E. Conner Museum
2109	<i>Arius felis</i> (eggs)	Hard head catfish eggs	1 mi N of Malaquite ?	John E. Conner Museum
2141	<i>Trachinotus falcatus</i>	Permit	Unknown	John E. Conner Museum
2146	<i>Menidia beryllina</i>	Tidewater silverside	Unknown	John E. Conner Museum
2161	<i>Gobiosoma longipala</i>	Two-scale goby	Unknown	John E. Conner Museum
2287	<i>Oligoplites saurus</i>	Leatherjacket	Unknown	John E. Conner Museum
2592	<i>Prionotus tribulus</i>	Bighead searobin	Trawl off padre island	John E. Conner Museum
2593	<i>Prionotus tribulus</i>	Bighead searobin	Trawl off padre island	John E. Conner Museum
2594	<i>Rachycentron canadum</i>	Cobia/ling	Trawl off padre island	John E. Conner Museum
2595	<i>Synodus foetens</i>	Inshore lizardfish	Trawl off padre island	John E. Conner Museum
2596	<i>Chloroscombrus chrysurus</i>	Atlantic bumper	Trawl off padre island	John E. Conner Museum
2597	<i>Chloroscombrus chrysurus</i>	Atlantic bumper	Trawl off padre island	John E. Conner Museum

Appendix D: Checklist of species and associated information from NPSpecies.

Order Name	Family Name	Latin Name	Common Name(s)	Park Status	Abundance	Residency	Nativity
Albuliformes	Albulidae	<i>Albula vulpes</i>	bonefish	Unconfirmed	NA	NA	Non-Native
Anguilliformes	Congridae	<i>Rhynchoconger flavus</i>	yellow conger	Unconfirmed	NA	NA	Non-Native
Anguilliformes	Muraenidae	<i>Gymnothorax nigromarginatus</i>	blackedge moray	Probably Present	NA	NA	Native
Anguilliformes	Ophichthidae	<i>Myrophis punctatus</i>	speckled worm eel	Present in Park	Unknown	Resident	Native
Atheriniformes	Atherinopsidae	<i>Membras martinica</i>	rough silverside	Present in Park	Unknown	Resident	Native
Atheriniformes	Atherinopsidae	<i>Menidia beryllina</i>	inland silverside, tidewater silverside	Present in Park	Unknown	Resident	Native
Atheriniformes	Atherinopsidae	<i>Menidia peninsulae</i>	tidewater silverside	Present in Park	Unknown	Resident	Native
Aulopiformes	Synodontidae	<i>Synodus foetens</i>	inshore lizardfish	Present in Park	Unknown	Resident	Native
Batrachoidiformes	Batrachoididae	<i>Opsanus beta</i>	Gulf toadfish	Present in Park	Unknown	Resident	Native
Beloniformes	Belonidae	<i>Strongylura marina</i>	Atlantic needlefish, silver gar	Present in Park	Unknown	Resident	Native
Beloniformes	Hemiramphidae	<i>Hemiramphus brasiliensis</i>	ballyhoo	Present in Park	Unknown	Resident	Native

Appendix D: (continued).

Order Name	Family Name	Latin Name	Common Name(s)	Park Status	Abundance	Residency	Nativity
Beloniformes	Hemiramphidae	<i>Hyporhamphus unifasciatus</i>	Atlantic silverstripe halfbeak, halfbeak, silverstripe halfbeak	Present in Park	Unknown	Resident	Native
Carcharhiniiformes	Carcharhinidae	<i>Carcharhinus acronotus</i>	blacknose shark	Present in Park	Unknown	Resident	Native
Carcharhiniiformes	Carcharhinidae	<i>Carcharhinus altimus</i>	bignose shark	Present in Park	Unknown	Resident	Native
Carcharhiniiformes	Carcharhinidae	<i>Carcharhinus brevipinna</i>	spinner shark	Unconfirmed	NA	NA	Native
Carcharhiniiformes	Carcharhinidae	<i>Carcharhinus isodon</i>	finetooth shark	Present in Park	Unknown	Resident	Native
Carcharhiniiformes	Carcharhinidae	<i>Carcharhinus leucas</i>	bull shark	Present in Park	Unknown	Unknown	Native
Carcharhiniiformes	Carcharhinidae	<i>Carcharhinus limbatus</i>	blacktip shark	Present in Park	Unknown	Unknown	Native
Carcharhiniiformes	Carcharhinidae	<i>Carcharhinus obscurus</i>	dusky shark	Present in Park	Unknown	Unknown	Native
Carcharhiniiformes	Carcharhinidae	<i>Carcharhinus plumbeus</i>	sandbar shark	Present in Park	Unknown	Resident	Native
Carcharhiniiformes	Carcharhinidae	<i>Carcharhinus signatus</i>	night shark	Present in Park	Unknown	Resident	Native
Carcharhiniiformes	Carcharhinidae	<i>Galeocerdo cuvier</i>	tiger shark	Present in Park	Unknown	Resident	Native
Carcharhiniiformes	Carcharhinidae	<i>Negaprion brevirostris</i>	lemon shark	Present in Park	Unknown	Unknown	Native

Appendix D: (continued).							
Order Name	Family Name	Latin Name	Common Name(s)	Park Status	Abundance	Residency	Nativity
Carcharhiniiformes	Carcharhinidae	<i>Rhizoprionodon terraenovae</i>	Atlantic sharpnose shark	Present in Park	Unknown	Unknown	Native
Carcharhiniiformes	Sphyrnidae	<i>Sphyrna lewini</i>	scalloped hammerhead	Present in Park	Unknown	Unknown	Native
Carcharhiniiformes	Sphyrnidae	<i>Sphyrna tiburo</i>	bonnethead, shovelhead	Present in Park	Unknown	Unknown	Unknown
Clupeiformes	Clupeidae	<i>Brevoortia patronus</i>	Gulf menhaden, largescale menhaden	Present in Park	Unknown	Resident	Native
Clupeiformes	Clupeidae	<i>Dorosoma cepedianum</i>	American gizzard shad, eastern gizzard shad, gizzard shad, hickory shad, mud shad, skipjack	Unconfirmed	NA	NA	Native
Clupeiformes	Clupeidae	<i>Dorosoma petenense</i>	threadfin shad	Unconfirmed	NA	NA	Native
Clupeiformes	Clupeidae	<i>Harengula jaguana</i>	scaled herring, scaled sardine	Present in Park	Unknown	Resident	Native
Clupeiformes	Clupeidae	<i>Opisthonema oglinum</i>	Atlantic thread herring	Present in Park	Unknown	Resident	Native
Clupeiformes	Clupeidae	<i>Sardinella aurita</i>	round sardinella, Spanish sardine	Present in Park	Unknown	Unknown	Native

Appendix D: (continued).							
Order Name	Family Name	Latin Name	Common Name(s)	Park Status	Abundance	Residency	Nativity
Clupeiformes	Engraulidae	<i>Anchoa hepsetus</i>	broad-striped anchovy, striped anchovy	Present in Park	Unknown	Resident	Native
Clupeiformes	Engraulidae	<i>Anchoa lyolepis</i>	dusky anchovy, shortfinger anchovy	Present in Park	Unknown	Vagrant	Non-Native
Clupeiformes	Engraulidae	<i>Anchoa mitchilli</i>	bay anchovy	Present in Park	Unknown	Resident	Native
Clupeiformes	Engraulidae	<i>Anchoviella perfasciata</i>	flat anchovy, Poey's anchovy	Present in Park	Unknown	Unknown	Native
Cyprinodontiformes	Cyprinodontidae	<i>Cyprinodon variegatus</i>	sheepshead minnow, sheepshead pupfish	Present in Park	Unknown	Resident	Native
Cyprinodontiformes	Fundulidae	<i>Fundulus grandis</i>	Gulf killifish	Present in Park	Unknown	Resident	Native
Cyprinodontiformes	Fundulidae	<i>Fundulus similis</i>	longnose killifish	Present in Park	Unknown	Resident	Native
Cyprinodontiformes	Fundulidae	<i>Lucania parva</i>	rainwater killifish	Present in Park	Unknown	Resident	Native
Cyprinodontiformes	Poeciliidae	<i>Gambusia affinis</i>	mosquitofish, western mosquitofish	Present in Park	Unknown	Resident	Native
Elopiformes	Elopidae	<i>Elops saurus</i>	ladyfish	Present in Park	Unknown	Breeder	Native
Elopiformes	Megalopidae	<i>Megalops atlanticus</i>	tarpon	Present in Park	Unknown	Unknown	Native

Appendix D: (continued).							
Order Name	Family Name	Latin Name	Common Name(s)	Park Status	Abundance	Residency	Nativity
Gasterosteiformes	Fistulariidae	<i>Fistularia tabacaria</i>	bluespotted cornetfish, tobacco trumpetfish	Encroaching	NA	NA	Native
Gasterosteiformes	Syngnathidae	<i>Hippocampus erectus</i>	lined seahorse, spotted seahorse	Present in Park	Unknown	Resident	Native
Gasterosteiformes	Syngnathidae	<i>Hippocampus zosterae</i>	dwarf seahorse, little seahorse, pygmy seahorse	Present in Park	Unknown	Resident	Native
Gasterosteiformes	Syngnathidae	<i>Syngnathus affinis</i>	Texas pipefish	Present in Park	Unknown	Unknown	Native
Gasterosteiformes	Syngnathidae	<i>Syngnathus floridae</i>	dusky pipefish	Present in Park	Unknown	Resident	Native
Gasterosteiformes	Syngnathidae	<i>Syngnathus fuscus</i>	northern pipefish	Present in Park	Unknown	Vagrant	Native
Gasterosteiformes	Syngnathidae	<i>Syngnathus louisianae</i>	chain pipefish	Present in Park	Unknown	Resident	Native
Gasterosteiformes	Syngnathidae	<i>Syngnathus pelagicus</i>	sargassum pipefish	Present in Park	Unknown	Unknown	Native
Gasterosteiformes	Syngnathidae	<i>Syngnathus scovelli</i>	Gulf pipefish	Present in Park	Unknown	Resident	Native
Lamniformes	Lamnidae	<i>Carcharodon carcharias</i>	great white shark, white shark	Present in Park	Unknown	Unknown	Native
Lamniformes	Lamnidae	<i>Isurus oxyrinchus</i>	shortfin mako	Present in Park	Unknown	Unknown	Native

Appendix D: (continued).

Order Name	Family Name	Latin Name	Common Name(s)	Park Status	Abundance	Residency	Nativity
Lamniformes	Odontaspidae	<i>Carcharias taurus</i>	sand tiger, sand tiger shark	Present in Park	Unknown	Unknown	Native
Lophiiformes	Ogcocephalidae	<i>Halieutichthys aculeatus</i>	pancake batfish	Encroaching	NA	NA	Native
Mugiliformes	Mugilidae	<i>Mugil cephalus</i>	black mullet, gray mullet, striped mullet	Present in Park	Unknown	Resident	Native
Mugiliformes	Mugilidae	<i>Mugil curema</i>	silver mullet, white mullet	Present in Park	Unknown	Resident	Native
Myliobatiformes	Dasyatidae	<i>Dasyatis centroura</i>	clam cracker, rougthead stingray, stingaree	Present in Park	Unknown	Resident	Native
Myliobatiformes	Dasyatidae	<i>Dasyatis sabina</i>	Atlantic stingray	Present in Park	Unknown	Resident	Native
Myliobatiformes	Dasyatidae	<i>Dasyatis say</i>	bluntnose stingray	Present in Park	Unknown	Resident	Native
Myliobatiformes	Myliobatidae	<i>Myliobatis aquila</i>	spotted eagle ray	Present in Park	Unknown	Resident	Native
Myliobatiformes	Rhinopteraidae	<i>Rhinoptera bonasus</i>	cownose ray	Present in Park	Unknown	Unknown	Unknown
Ophidiiformes	Ophidiidae	<i>Brotula barbata</i>	Atlantic bearded brotula, bearded brotula	Probably Present	NA	NA	Native
Ophidiiformes	Ophidiidae	<i>Ophidion josephi</i>	crested cusk- eel	Present in Park	Unknown	Unknown	Native

Appendix D: (continued).

Order Name	Family Name	Latin Name	Common Name(s)	Park Status	Abundance	Residency	Nativity
Orectolobiformes	Ginglymostomatidae	<i>Ginglymostoma cirratum</i>	nurse shark	Present in Park	Unknown	Resident	Native
Perciformes	Carangidae	<i>Caranx crysos</i>	blue runner	Present in Park	Unknown	Unknown	Unknown
Perciformes	Carangidae	<i>Caranx hippos</i>	crevalle jack	Present in Park	Unknown	Resident	Native
Perciformes	Carangidae	<i>Caranx latus</i>	horse-eye jack	Present in Park	Unknown	Resident	Native
Perciformes	Carangidae	<i>Chloroscombrus chrysurus</i>	Atlantic bumper	Present in Park	Unknown	Resident	Native
Perciformes	Carangidae	<i>Elagatis bipinnulata</i>	rainbow runner	Present in Park	Unknown	Unknown	Unknown
Perciformes	Carangidae	<i>Hemicaranx amblyrhynchus</i>	bluntnose jack	Present in Park	Unknown	Resident	Native
Perciformes	Carangidae	<i>Oligoplites saurus</i>	leatherjack, leatherjacket	Present in Park	Unknown	Resident	Native
Perciformes	Carangidae	<i>Selene setapinnis</i>	Atlantic moonfish	Probably Present	NA	NA	Native
Perciformes	Carangidae	<i>Selene vomer</i>	lookdown	Present in Park	Unknown	Resident	Native
Perciformes	Carangidae	<i>Seriola dumerili</i>	greater amberjack	Unconfirmed	NA	NA	Unknown
Perciformes	Carangidae	<i>Seriola rivoliana</i>	almaco jack, Pacific amberjack	Present in Park	Unknown	Resident	Native
Perciformes	Carangidae	<i>Trachinotus carolinus</i>	Florida pompano	Present in Park	Unknown	Resident	Native
Perciformes	Carangidae	<i>Trachinotus falcatus</i>	permit	Present in Park	Unknown	Unknown	Native

Appendix D: (continued).

Order Name	Family Name	Latin Name	Common Name(s)	Park Status	Abundance	Residency	Nativity
Perciformes	Carangidae	<i>Trachinotus goodei</i>	palometa	Present in Park	Unknown	Resident	Native
Perciformes	Centropomidae	<i>Centropomus undecimalis</i>	common snook, snook	Unconfirmed	NA	NA	Unknown
Perciformes	Chaetodontidae	<i>Chaetodon sedentarius</i>	reef butterflyfish	Encroaching	NA	NA	Native
Perciformes	Coryphaenidae	<i>Coryphaena hippurus</i>	dolphin, dolphinfish	Present in Park	Unknown	Resident	Native
Perciformes	Echeneidae	<i>Echeneis naucrates</i>	sharksucker	Probably Present	NA	NA	Native
Perciformes	Ephippidae	<i>Chaetodipterus faber</i>	Atlantic spadefish	Present in Park	Unknown	Resident	Native
Perciformes	Gerreidae	<i>Diapterus auratus</i>	Irish pompano	Present in Park	Unknown	Resident	Native
Perciformes	Gerreidae	<i>Eucinostomus argenteus</i>	spotfin mojarra	Present in Park	Unknown	Unknown	Native
Perciformes	Gerreidae	<i>Eucinostomus gula</i>	silver jenny	Unconfirmed	NA	NA	Unknown
Perciformes	Gerreidae	<i>Gerres cinereus</i>	yellowfin mojarra	Present in Park	Unknown	Resident	Native
Perciformes	Gerreidae	<i>Ulaema lefroyi</i>	longfinned silverbidy, longfinned silverbidy, mottled mojarra, mottled mojarra	Present in Park	Unknown	Unknown	Native
Perciformes	Gobiidae	<i>Bollmannia communis</i>	ragged goby	Probably Present	NA	NA	Native

Appendix D: (continued).							
Order Name	Family Name	Latin Name	Common Name(s)	Park Status	Abundance	Residency	Nativity
Perciformes	Gobiidae	<i>Ctenogobius boleosoma</i>	darther goby	Present in Park	Unknown	Resident	Native
Perciformes	Gobiidae	<i>Ctenogobius smaragdus</i>	emerald goby	Present in Park	Unknown	Unknown	Native
Perciformes	Gobiidae	<i>Gobionellus hastatus</i>		Present in Park	Unknown	Unknown	Native
Perciformes	Gobiidae	<i>Gobiosoma longipala</i>	twoscale goby	Present in Park	Unknown	Unknown	Native
Perciformes	Gobiidae	<i>Gobiosoma robustum</i>	code goby	Present in Park	Unknown	Resident	Native
Perciformes	Haemulidae	<i>Conodon nobilis</i>	barred grunt	Present in Park	Unknown	Resident	Native
Perciformes	Haemulidae	<i>Orthopristis chrysoptera</i>	pigfish	Present in Park	Unknown	Resident	Native
Perciformes	Haemulidae	<i>Pomadasys crocro</i>	burro grunt	Present in Park	Unknown	Vagrant	Unknown
Perciformes	Istiophoridae	<i>Istiophorus albicans</i>	Atlantic sailfish	Unconfirmed	NA	NA	Unknown
Perciformes	Istiophoridae	<i>Istiophorus platypterus</i>	Atlantic sailfish, bayonet fish, Indo-Pacific sailfish, sailfish	Unconfirmed	NA	NA	Unknown
Perciformes	Istiophoridae	<i>Makaira nigricans</i>	Atlantic blue marlin, blue marlin, Cuban black marlin	Unconfirmed	NA	NA	Unknown
Perciformes	Kyphosidae	<i>Kyphosus sectator</i>		Present in Park	Unknown	Unknown	Native

Appendix D: (continued).

Order Name	Family Name	Latin Name	Common Name(s)	Park Status	Abundance	Residency	Nativity
Perciformes	Lobotidae	<i>Lobotes surinamensis</i>	Atlantic tripletail, tripletail	Present in Park	Unknown	Vagrant	Unknown
Perciformes	Lutjanidae	<i>Lutjanus analis</i>	mutton snapper	Unconfirmed	NA	NA	Unknown
Perciformes	Lutjanidae	<i>Lutjanus apodus</i>	schoolmaster, schoolmaster snapper	Present in Park	Unknown	Resident	Native
Perciformes	Lutjanidae	<i>Lutjanus campechanus</i>	northern red snapper, red snapper	Unconfirmed	NA	NA	Unknown
Perciformes	Lutjanidae	<i>Lutjanus griseus</i>	gray snapper, grey snapper	Present in Park	Unknown	Resident	Native
Perciformes	Lutjanidae	<i>Lutjanus jocu</i>	dog snapper	Present in Park	Unknown	Unknown	Unknown
Perciformes	Lutjanidae	<i>Lutjanus purpureus</i>	Caribbean red snapper, southern red snapper	Encroaching	NA	NA	Unknown
Perciformes	Lutjanidae	<i>Lutjanus synagris</i>	lane snapper	Present in Park	Unknown	Resident	Native
Perciformes	Lutjanidae	<i>Ocyurus chrysurus</i>	yellowtail snapper	Unconfirmed	NA	NA	Unknown
Perciformes	Lutjanidae	<i>Rhomboplites aurorubens</i>	vermillion snapper	Unconfirmed	NA	NA	Unknown
Perciformes	Polynemidae	<i>Polydactylus octonemus</i>	Atlantic threadfin	Present in Park	Unknown	Resident	Native
Perciformes	Pomacanthidae	<i>Pomacanthus paru</i>	French angelfish	Present in Park	Unknown	Resident	Native
Perciformes	Pomacentridae	<i>Abudefduf saxatilis</i>	sergeant major	Present in Park	Unknown	Vagrant	Unknown

Appendix D: (continued).

Order Name	Family Name	Latin Name	Common Name(s)	Park Status	Abundance	Residency	Nativity
Perciformes	Pomatomidae	<i>Pomatomus saltatrix</i>	bluefish	Present in Park	Unknown	Vagrant	Unknown
Perciformes	Rachycentridae	<i>Rachycentron canadum</i>	cobia	Present in Park	Unknown	Vagrant	Unknown
Perciformes	Sciaenidae	<i>Bairdiella chrysoura</i>	silver perch	Present in Park	Unknown	Resident	Native
Perciformes	Sciaenidae	<i>Cynoscion arenarius</i>	sand seatrout	Present in Park	Unknown	Resident	Native
Perciformes	Sciaenidae	<i>Cynoscion nebulosus</i>	spotted seatrout	Present in Park	Unknown	Resident	Native
Perciformes	Sciaenidae	<i>Cynoscion nothus</i>	silver seatrout	Present in Park	Unknown	Unknown	Unknown
Perciformes	Sciaenidae	<i>Leiostomus xanthurus</i>	spot	Present in Park	Unknown	Resident	Native
Perciformes	Sciaenidae	<i>Menticirrhus americanus</i>	jewsharp drummer, southern kingfish	Present in Park	Unknown	Migratory	Native
Perciformes	Sciaenidae	<i>Menticirrhus littoralis</i>	Gulf kingfish	Present in Park	Unknown	Resident	Native
Perciformes	Sciaenidae	<i>Menticirrhus saxatilis</i>	Gulf minkfish, northern kingfish	Present in Park	Unknown	Unknown	Unknown
Perciformes	Sciaenidae	<i>Micropogonias undulatus</i>	Atlantic croaker	Present in Park	Unknown	Resident	Native
Perciformes	Sciaenidae	<i>Pareques acuminatus</i>	high-hat	Encroaching	NA	NA	Non-Native
Perciformes	Sciaenidae	<i>Pogonias cromis</i>	black drum	Present in Park	Unknown	Resident	Native

Appendix D: (continued).

Order Name	Family Name	Latin Name	Common Name(s)	Park Status	Abundance	Residency	Nativity
Perciformes	Sciaenidae	<i>Sciaenops ocellatus</i>	red drum	Present in Park	Unknown	Resident	Native
Perciformes	Sciaenidae	<i>Stellifer lanceolatus</i>	star drum	Unconfirmed	NA	NA	Unknown
Perciformes	Sciaenidae	<i>Umbrina coroides</i>	sand drum	Present in Park	Unknown	Unknown	Unknown
Perciformes	Scombridae	<i>Acanthocybium solandri</i>	wahoo	Unconfirmed	NA	NA	Unknown
Perciformes	Scombridae	<i>Euthynnus alletteratus</i>	false albacore, little tuna, little tunny	Unconfirmed	NA	NA	Unknown
Perciformes	Scombridae	<i>Katsuwonus pelamis</i>	Arctic bonito, mushmouth, oceanic bonito, skipjack, skipjack tuna, striped tuna, victor fish	Unconfirmed	NA	NA	Native
Perciformes	Scombridae	<i>Sarda sarda</i>	Atlantic bonito, bloater, bone jack, Boston mackerel, common bonito	Unconfirmed	NA	NA	Native
Perciformes	Scombridae	<i>Scomberomorus cavalla</i>	king mackerel	Unconfirmed	NA	NA	Unknown

Appendix D: (continued).

Order Name	Family Name	Latin Name	Common Name(s)	Park Status	Abundance	Residency	Nativity
Perciformes	Scombridae	<i>Scomberomorus maculatus</i>	Atlantic Spanish mackerel, Spanish mackerel	Present in Park	Unknown	Resident	Native
Perciformes	Scombridae	<i>Scomberomorus regalis</i>	cero, painted mackerel	Present in Park	Unknown	Resident	Native
Perciformes	Scombridae	<i>Thunnus albacares</i>	yellowfin tuna	Unconfirmed	NA	NA	Unknown
Perciformes	Scombridae	<i>Thunnus atlanticus</i>	blackfin tuna	Unconfirmed	NA	NA	Unknown
Perciformes	Scombridae	<i>Thunnus thynnus</i>	Atlantic bluefin tuna, bluefin tuna, horse mackerel, northern bluefin tuna	Unconfirmed	NA	NA	Unknown
Perciformes	Serranidae	<i>Epinephelus adscensionis</i>	rock hind	Unconfirmed	NA	NA	Unknown
Perciformes	Serranidae	<i>Epinephelus striatus</i>	Nassau grouper	Unconfirmed	NA	NA	Unknown
Perciformes	Serranidae	<i>Mycteroperca bonaci</i>	black grouper	Unconfirmed	NA	NA	Unknown
Perciformes	Serranidae	<i>Mycteroperca interstitialis</i>	yellowmouth grouper	Unconfirmed	NA	NA	Native

Appendix D: (continued).

Order Name	Family Name	Latin Name	Common Name(s)	Park Status	Abundance	Residency	Nativity
Perciformes	Serranidae	<i>Mycteroperca microlepis</i>	charcoal belly, gag	Unconfirmed	NA	NA	Unknown
Perciformes	Sparidae	<i>Archosargus probatocephalus</i>	sheepshead	Present in Park	Unknown	Resident	Native
Perciformes	Sparidae	<i>Lagodon rhomboides</i>	pinfish	Present in Park	Unknown	Resident	Native
Perciformes	Sphyraenidae	<i>Sphyraena barracuda</i>	great barracuda	Unconfirmed	NA	NA	Native
Perciformes	Sphyraenidae	<i>Sphyraena borealis</i>	northern sennet	Present in Park	Unknown	Resident	Native
Perciformes	Sphyraenidae	<i>Sphyraena guachancho</i>	guaguanche	Present in Park	Unknown	Unknown	Unknown
Perciformes	Stromateidae	<i>Peprilus burti</i>	Gulf butterfish	Present in Park	Unknown	Resident	Native
Perciformes	Stromateidae	<i>Peprilus triacanthus</i>	butterfish	Encroaching	NA	NA	Native
Perciformes	Trichiuridae	<i>Trichiurus lepturus</i>	Atlantic cutlassfish, Australian hairtail, largehead hairtail	Present in Park	Unknown	Resident	Native
Perciformes	Uranoscopidae	<i>Astroscopus y-graecum</i>	southern stargazer	Present in Park	Unknown	Unknown	Native
Perciformes	Xiphiidae	<i>Xiphias gladius</i>	broadbill, swordfish	Unconfirmed	NA	NA	Unknown
Pleuronectiformes	Achiridae	<i>Achirus lineatus</i>	lined sole	Present in Park	Unknown	Resident	Native
Pleuronectiformes	Cynoglossidae	<i>Symphurus civitatum</i>	offshore tonguefish	Encroaching	NA	NA	Native

Appendix D: (continued).

Order Name	Family Name	Latin Name	Common Name(s)	Park Status	Abundance	Residency	Nativity
Pleuronectiformes	Cynoglossidae	<i>Symphurus plagiusa</i>	blackcheek tonguefish	Present in Park	Unknown	Unknown	Native
Pleuronectiformes	Paralichthyidae	<i>Ancylosetta ommata</i>		Encroaching	NA	NA	Native
Pleuronectiformes	Paralichthyidae	<i>Citharichthys spilopterus</i>	bay whiff	Present in Park	Unknown	Resident	Native
Pleuronectiformes	Paralichthyidae	<i>Etropus crossotus</i>	fringed flounder	Present in Park	Unknown	Resident	Native
Pleuronectiformes	Paralichthyidae	<i>Paralichthys albigutta</i>	Gulf flounder	Unconfirmed	NA	NA	Unknown
Pleuronectiformes	Paralichthyidae	<i>Paralichthys lethostigma</i>	southern flounder	Present in Park	Unknown	Resident	Native
Pleuronectiformes	Paralichthyidae	<i>Paralichthys squamilentus</i>	broad flounder	Present in Park	Unknown	Resident	Native
Pristiformes	Pristidae	<i>Pristis pristis</i>	common sawfish, largetooth sawfish, sawfish	Present in Park	Unknown	Resident	Native
Rajiformes	Rajidae	<i>Raja texana</i>	roundel skate	Unconfirmed	NA	NA	Unknown
Rhinobatiformes	Rhinobatidae	<i>Rhinobatos lentiginosus</i>	Atlantic guitarfish	Present in Park	Unknown	Unknown	Native
Scorpaeniformes	Scorpaenidae	<i>Scorpaena calcarata</i>	smoothhead scorpionfish	Encroaching	NA	NA	Native
Scorpaeniformes	Triglidae	<i>Prionotus paralatus</i>	Mexican searobin	Encroaching	NA	NA	Native
Scorpaeniformes	Triglidae	<i>Prionotus pectoralis</i>		Encroaching	NA	NA	Native

Appendix D: (continued).

Order Name	Family Name	Latin Name	Common Name(s)	Park Status	Abundance	Residency	Nativity
Scorpaeniformes	Triglidae	<i>Prionotus rubio</i>	blackfin searobin, blackwing searobin	Encroaching	NA	NA	Native
Scorpaeniformes	Triglidae	<i>Prionotus tribulus</i>	bighead searobin	Present in Park	Unknown	Resident	Native
Siluriformes	Ariidae	<i>Ariopsis felis</i>		Present in Park	Unknown	Resident	Native
Siluriformes	Ariidae	<i>Bagre marinus</i>	gafftopsail catfish	Present in Park	Unknown	Unknown	Unknown
Tetraodontiformes	Balistidae	<i>Balistes caprisucus</i>	gray triggerfish	Present in Park	Unknown	Resident	Native
Tetraodontiformes	Diodontidae	<i>Chilomycterus schoepfii</i>	burrfish, porcupinefish, striped burrfish	Present in Park	Unknown	Resident	Native
Tetraodontiformes	Molidae	<i>Masturus lanceolatus</i>	sharptail mola, sharptail sunfish	Present in Park	Unknown	Resident	Native
Tetraodontiformes	Monacanthidae	<i>Aluterus schoepfii</i>	orange filefish	Present in Park	Unknown	Resident	Native
Tetraodontiformes	Monacanthidae	<i>Stephanolepis hispida</i>	planehead filefish	Present in Park	Unknown	Resident	Native
Tetraodontiformes	Tetraodontidae	<i>Lagocephalus laevigatus</i>	smooth puffer	Encroaching	NA	NA	Native
Tetraodontiformes	Tetraodontidae	<i>Sphoeroides parvus</i>	least puffer	Present in Park	Unknown	Resident	Native
Torpediniformes	Narcinidae	<i>Narcine brasiliensis</i>	lesser electric ray	Unconfirmed	NA	NA	Unknown