
Florida Fish and Wildlife Conservation Commission

Fish & Wildlife Research Institute



**Fisheries-Independent
Monitoring Program
2024 Annual
Data Summary Report**

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Preface

Changes from previous reports

Starting with the 2022 version of this report, several changes were made from previous versions, including:

- Addition of Santa Rosa Sound, Choctawhatchee Bay, and Sarasota Bay to data summaries
- Order of estuaries in data summaries was changed to reflect a more logical geographical order (i.e., west to east, north to south)
- Species profiles were amended to include a more quantitative, objective interpretation of Indices of Abundance figures
- Addition of section detailing annual monitoring of Gulf of America (formerly Gulf of Mexico) polyhaline seagrass habitats
- Included more species in our list of selected species to account for reef-associated juvenile stages

Overview

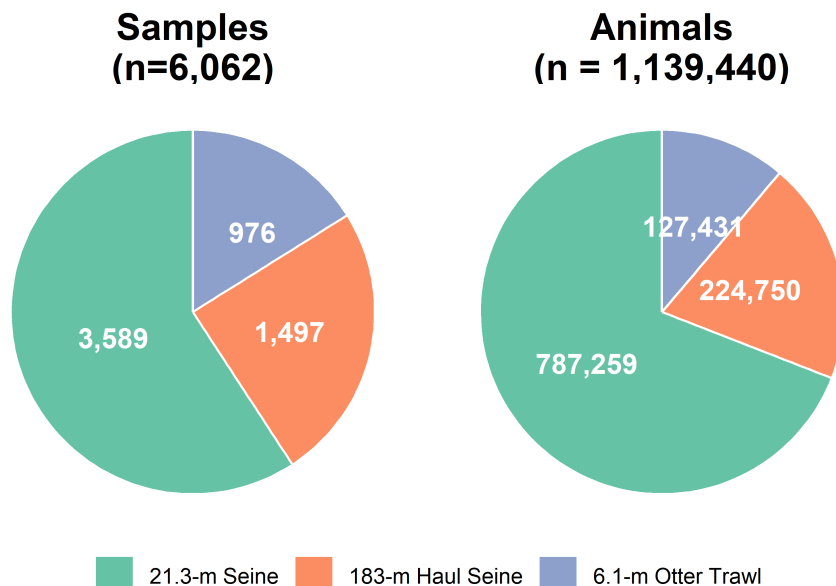
This report provides a summary of the data collected in 2024 by the Florida Fish and Wildlife Conservation Commission (FWC) Fish and Wildlife Research Institute's (FWRI) Fisheries-Independent Monitoring (FIM) program. Monitoring was conducted following a stratified-random sampling (SRS) design in Fort Walton including the Santa Rosa Sound and Choctawhatchee Bay (monthly, June to December), Apalachicola Bay (monthly, January to December), Cedar Key (monthly, January to December), Tampa Bay (monthly, January to December), Sarasota Bay (bimonthly, January to December), Charlotte Harbor (monthly, January to December), northeast Florida (monthly, January to December), and the northern and southern portions of the Indian River Lagoon (IRL; monthly, January to December). Gears used for routine monitoring in the various areas included 21.3-m seines set in bays and rivers, 6.1-m otter trawls, and 183-m haul seines (Table 1). See Chapter 2 for more details on these gears.

Table 1: Gear usage by estuary for FIM program stratified-random-sampling, 2024.

Study Area	21.3-m Seine		183-m Haul Seine	6.1-m Otter Trawl
	Bay	River		
Santa Rosa Sound	–	–	X	–
Choctawhatchee Bay	–	–	X	–
Apalachicola Bay	X	X	X	X
Cedar Key	X	X	X	X
Tampa Bay	X	X	X	X
Sarasota Bay	X	–	X	–
Charlotte Harbor	X	X	X	X
Northeast Florida	–	X	X	X
Northern Indian River Lagoon	X	X	X	–
Southern Indian River Lagoon	–	X	X	–

There were 1,139,440 animals collected in 6,062 samples from all estuaries (Figure 1). The most samples were collected with 21.3-m seines (n=3,589), followed by 183-m haul seines (n=1,497), and 6.1-m otter trawls (n=976). Total sampling effort in each estuary ranged from 28 hauls made in Santa Rosa Sound to 1,356 hauls made in Northeast Florida (Table 2). The total number of animals

collected ranged from 4,649 in Santa Rosa Sound to 235,266 in Tampa Bay (Table 2). The majority of animals were collected in 21.3-m seines (n=787,259; 69.1% of the total catch; Table 2).



'Samples' and 'Animals' are the total number of deployments and collected animals by gear type, respectively.

Figure 1: Summary of 2024 FIM program catch and effort data.

The top five dominant taxa were *Anchoa mitchilli*, *Lagodon rhomboides*, *Eucinostomus* spp., *Menidia* spp., and *Lucania parva*. Recreationally and commercially important animals (i.e., Selected Taxa; see Table 8) accounted for 17.5% (n=199,645) of the overall catch and comprised between 3.4% (Sarasota Bay) and 43% (Northeast Florida) of the total SRS catches from each estuary. The number of selected taxa appearing in the top ten abundant taxa for each estuary ranged from 0 (Tampa Bay, Charlotte Harbor) to 5 (Santa Rosa Sound, Choctawhatchee Bay, Apalachicola Bay, Northeast Florida; Table 9).

A total of 859 fish and selected invertebrates were culled for fish health analyses of gross external abnormalities (including external parasites). Numbers of reported abnormalities from each estuary ranged from 0 (Santa Rosa Sound) to 679 (Northern Indian River Lagoon; see Chapter 6).

Species profiles, including indices of young-of-the-year relative abundance, were generated for many species of commercial, recreational, or ecological importance: *Centropomus undecimalis* (Common Snook), *Sciaenops ocellatus* (Red Drum), *Cynoscion nebulosus* (Spotted Seatrout), *Archosargus probatocephalus* (Sheepshead), *Lagodon rhomboides* (Pinfish), *Mugil cephalus* (Striped Mullet), and *Callinectes sapidus* (Blue Crab; see Section 5.1).

Table 2: Summary of catch and effort data by estuary for FIM program stratified-random sampling, 2024.

Field Lab	21.3-m Seine		183-m Haul Seine		6.1-m Otter Trawl		Total	
	Hauls	Animals	Hauls	Animals	Hauls	Animals	Hauls	Animals
Santa Rosa Sound			28	4,649			28	4,649
Choctawhatchee Bay			35	8,663			35	8,663
Apalachicola Bay	324	67,266	198	29,882	72	47,538	594	144,686
Cedar Key	420	31,387	192	13,712	40	4,634	652	49,733
Tampa Bay	732	166,156	240	57,356	144	11,754	1,116	235,266
Sarasota Bay	118	65,394	36	11,908			154	77,302
Charlotte Harbor	786	152,725	204	41,854	132	13,764	1,122	208,343
Northeast Florida	576	110,230	192	6,271	588	49,741	1,356	166,242
Northern Indian River Lagoon	426	144,755	228	34,812			654	179,567
Southern Indian River Lagoon	207	49,346	144	15,643			351	64,989

'Hauls' are the total number of net deployments by each gear type and 'Animals' are the total number of animals collected by each gear type.

Table 3: Top 10 numerically dominant taxa collected in Santa Rosa Sound and Choctawhatchee Bay during FIM program stratified-random sampling, 2024.

Bay	Scientific Name	Number
Santa Rosa Sound	<i>Lagodon rhomboides</i>	2,766
	<i>Orthopristis chrysoptera</i>	397
	<i>Leiostomus xanthurus</i>	370
	<i>Eucinostomus harengulus</i>	176
	<i>Mugil cephalus</i>	174
	<i>Elops saurus</i>	150
	<i>Eucinostomus gula</i>	106
	<i>Mugil curema</i>	88
	<i>Sciaenops ocellatus</i>	64
	<i>Bairdiella chrysoura</i>	43
Total (Top Ten)		4,334
Total (Selected Taxa)		990
Grand Total of Animals Collected		4,649
Choctawhatchee Bay	<i>Lagodon rhomboides</i>	4,269
	<i>Leiostomus xanthurus</i>	1,288
	<i>Orthopristis chrysoptera</i>	473
	<i>Eucinostomus harengulus</i>	428
	<i>Eucinostomus gula</i>	376
	<i>Mugil cephalus</i>	347
	<i>Bairdiella chrysoura</i>	327
	<i>Sciaenops ocellatus</i>	190
	<i>Elops saurus</i>	134
	<i>Micropogonias undulatus</i>	126
Total (Top Ten)		7,958
Total (Selected Taxa)		2,406
Grand Total of Animals Collected		8,663

Table 4: Top 10 numerically dominant taxa collected in Apalachicola Bay and Cedar Key during FIM program stratified-random sampling, 2024.

Bay	Scientific Name	Number
Apalachicola Bay	<i>Anchoa mitchilli</i>	53,356
	<i>Lagodon rhomboides</i>	19,144
	<i>Litopenaeus setiferus</i>	11,762
	<i>Leiostomus xanthurus</i>	6,798
	<i>Brevoortia</i> spp.	6,750
	<i>Mugil cephalus</i>	6,063
	<i>Micropogonias undulatus</i>	5,240
	<i>Orthopristis chrysoptera</i>	4,616
	<i>Eucinostomus</i> spp.	3,556
	<i>Bairdiella chrysoura</i>	3,438
Total (Top Ten)		120,723
Total (Selected Taxa)		43,665
Grand Total of Animals Collected		144,686
Cedar Key	<i>Anchoa mitchilli</i>	9,732
	<i>Leiostomus xanthurus</i>	6,749
	<i>Mugil cephalus</i>	3,714
	<i>Menidia</i> spp.	2,536
	<i>Lagodon rhomboides</i>	2,472
	<i>Litopenaeus setiferus</i>	2,307
	<i>Ariopsis felis</i>	2,237
	<i>Hypanus sabinus</i>	1,987
	<i>Bairdiella chrysoura</i>	1,885
	<i>Membras martinica</i>	1,478
Total (Top Ten)		35,097
Total (Selected Taxa)		18,380
Grand Total of Animals Collected		49,733

Table 5: Top 10 numerically dominant taxa collected in Tampa and Sarasota Bays during FIM program stratified-random sampling, 2024.

Bay	Scientific Name	Number
Tampa Bay	<i>Anchoa mitchilli</i>	63,092
	<i>Lagodon rhomboides</i>	37,985
	<i>Eucinostomus</i> spp.	33,237
	<i>Eucinostomus gula</i>	22,045
	<i>Menidia</i> spp.	16,039
	<i>Lucania parva</i>	10,978
	<i>Opisthonema oglinum</i>	7,164
	<i>Eucinostomus harengulus</i>	6,053
	<i>Harengula jaguana</i>	3,432
	<i>Microgobius gulosus</i>	3,080
Total (Top Ten)		203,105
Total (Selected Taxa)		9,012
Grand Total of Animals Collected		235,266
Sarasota Bay	<i>Lagodon rhomboides</i>	22,045
	<i>Eucinostomus</i> spp.	16,174
	<i>Anchoa mitchilli</i>	14,083
	<i>Lucania parva</i>	8,979
	<i>Harengula jaguana</i>	6,915
	<i>Eucinostomus gula</i>	2,384
	<i>Orthopristis chrysoptera</i>	1,331
	<i>Opisthonema oglinum</i>	479
	<i>Farfantepenaeus duorarum</i>	466
	<i>Mugil curema</i>	359
Total (Top Ten)		73,215
Total (Selected Taxa)		2,643
Grand Total of Animals Collected		77,302

Table 6: Top 10 numerically dominant taxa collected in Charlotte Harbor and Northeast Florida during FIM program stratified-random sampling, 2024.

Bay	Scientific Name	Number
Charlotte Harbor	<i>Lagodon rhomboides</i>	41,994
	<i>Eucinostomus</i> spp.	39,868
	<i>Anchoa mitchilli</i>	37,262
	<i>Lucania parva</i>	14,749
	<i>Harengula jaguana</i>	13,337
	<i>Eucinostomus gula</i>	7,941
	<i>Menidia</i> spp.	7,747
	<i>Opisthonema oglinum</i>	6,806
	<i>Eucinostomus harengulus</i>	5,345
	<i>Bairdiella chrysoura</i>	3,353
Total (Top Ten)		178,402
Total (Selected Taxa)		10,388
Grand Total of Animals Collected		208,343
Northeast Florida	<i>Anchoa mitchilli</i>	30,362
	<i>Menidia menidia</i>	17,823
	<i>Litopenaeus setiferus</i>	17,018
	<i>Micropogonias undulatus</i>	16,693
	<i>Mugil cephalus</i>	15,107
	<i>Leiostomus xanthurus</i>	9,215
	<i>Menidia</i> spp.	8,089
	<i>Anchoa hepsetus</i>	4,492
	<i>Fundulus heteroclitus</i>	4,126
	<i>Brevoortia</i> spp.	3,811
Total (Top Ten)		126,736
Total (Selected Taxa)		71,500
Grand Total of Animals Collected		166,242

Table 7: Top 10 numerically dominant taxa collected in Northern and Southern Indian River Lagoon during FIM program stratified-random sampling, 2024.

Bay	Scientific Name	Number
Northern Indian River Lagoon	<i>Anchoa mitchilli</i>	89,371
	<i>Eucinostomus</i> spp.	10,541
	<i>Diapterus auratus</i>	9,844
	<i>Harengula jaguana</i>	6,852
	<i>Leiostomus xanthurus</i>	5,125
	<i>Bairdiella chrysoura</i>	4,734
	<i>Micropogonias undulatus</i>	4,244
	<i>Mugil curema</i>	4,232
	<i>Brevoortia</i> spp.	3,691
	<i>Menidia</i> spp.	3,515
Total (Top Ten)		142,149
Total (Selected Taxa)		26,672
Grand Total of Animals Collected		179,567
Southern Indian River Lagoon	<i>Anchoa mitchilli</i>	24,461
	<i>Diapterus auratus</i>	8,148
	<i>Mugil cephalus</i>	6,851
	<i>Eucinostomus</i> spp.	6,749
	<i>Mugil curema</i>	1,302
	<i>Brevoortia</i> spp.	1,227
	<i>Lagodon rhomboides</i>	1,225
	<i>Leiostomus xanthurus</i>	1,214
	<i>Eucinostomus gula</i>	956
	<i>Menidia</i> spp.	845
Total (Top Ten)		52,978
Total (Selected Taxa)		13,989
Grand Total of Animals Collected		64,989

Table 8: Number of recreational or commercially important species (Selected Taxa) collected in FIM program stratified-random sampling, 2024.

Species	SR	CB	AP	CK	TB	SB	CH	JX	IR	TQ
<i>Albula</i> spp.	.	.	.	.	3	1	4	9	51	63
<i>Archosargus probatocephalus</i>	2	3	129	49	766	245	1,179	172	788	338
<i>Argopecten gibbus</i>	.	.	.	.	.	.	3	.	.	.
<i>Argopecten irradians</i>	.	.	8	.	9	1	.	.	.	.
<i>Brevoortia</i> spp.	3	52	6,750	1,121	16	.	6	3,811	3,691	1,227
<i>Calamus penna</i>	.	.	.	.	4	2	54	.	.	.
<i>Calamus</i> spp.	.	.	.	.	5	4	5	.	.	.
<i>Callinectes sapidus</i>	30	9	930	944	583	133	857	1,613	436	336
<i>Caranx crysos</i>	.	2	2	.	9	2	.	.	.	13
<i>Caranx hippos</i>	9	6	26	9	21	26	132	55	183	180
<i>Carcharhinus leucas</i>	.	.	1	2	6	.	3	.	2	4
<i>Carcharhinus limbatus</i>	.	.	.	.	4	.	1	.	.	.
<i>Centropomus ensiferus</i>	.	.	.	.	.	.	.	.	.	1
<i>Centropomus parallelus</i>	.	.	.	.	.	.	.	2	2	14
<i>Centropomus pectinatus</i>	.	.	.	.	.	.	.	.	2	.
<i>Centropomus undecimalis</i>	.	.	.	85	869	141	1,381	20	1,084	525
<i>Centropristis philadelphica</i>	.	.	1	.	.	.	.	41	.	.
<i>Centropristis striata</i>	.	.	24	21	1	4	.	3	.	.
<i>Cynoscion arenarius</i>	1	.	1,655	660	285	1	339	.	.	.
<i>Cynoscion complex</i>	.	.	.	.	.	.	.	981	275	7
<i>Cynoscion nebulosus</i>	17	65	520	274	554	184	434	179	320	6
<i>Cynoscion nothus</i>	.	.	.	.	.	.	.	67	.	.
<i>Diplectrum formosum</i>	.	.	9	1	24	.	32	.	.	.
<i>Elops saurus</i>	150	134	209	261	753	158	597	434	812	297
<i>Elops smithi</i>	.	.	1	.	.	.	.	.	7	.
<i>Epinephelus itajara</i>	.	.	.	.	.	.	1	.	.	.
<i>Epinephelus morio</i>	.	.	.	.	.	.	2	.	.	.
<i>Farfantepenaeus aztecus</i>	.	1	4	.	.	.	.	143	26	4
<i>Farfantepenaeus duorarum</i>	1	1	135	69	1,251	466	1,868	21	13	.

Species	SR	CB	AP	CK	TB	SB	CH	JX	IR	TQ
<i>Farfantepenaeus</i> spp.	.	.	849	121	.	.	.	1,170	846	472
<i>Ginglymostoma cirratum</i>	.	.	.	1	.	.	.	.	1	.
<i>Haemulon aurolineatum</i>	.	.	.	.	1	.	3	.	.	3
<i>Haemulon parra</i>	.	.	.	.	.	.	.	.	49	2
<i>Haemulon plumierii</i>	.	.	13	10	190	89	203	.	8	.
<i>Haemulon sciurus</i>	.	.	.	.	.	.	.	.	2	.
<i>Leiostomus xanthurus</i>	370	1,288	6,798	6,749	122	3	11	9,215	5,125	1,214
<i>Litopenaeus setiferus</i>	.	1	11,762	2,307	.	.	.	17,018	142	10
<i>Lobotes surinamensis</i>	.	.	2	2	.	.	.	3	1	1
<i>Lutjanus analis</i>	.	.	.	.	.	.	16	2	14	108
<i>Lutjanus apodus</i>	.	.	.	.	.	.	.	.	2	.
<i>Lutjanus griseus</i>	1	13	61	23	86	226	429	33	182	70
<i>Lutjanus jocu</i>	.	.	.	.	.	.	.	.	1	1
<i>Lutjanus synagris</i>	.	.	32	18	105	41	180	22	1	48
<i>Megalops atlanticus</i>	.	.	1	1	1	.	48	.	33	2
<i>Menippe</i> spp.	.	.	44	47	48	2	75	12	.	.
<i>Menticirrhus americanus</i>	.	8	339	490	79	.	122	472	120	1
<i>Menticirrhus littoralis</i>	.	.	.	.	2	.	1	10	.	.
<i>Menticirrhus saxatilis</i>	1	.	38	60	4	.	17	3	.	.
<i>Micropogonias undulatus</i>	29	126	5,240	69	.	.	.	16,693	4,244	520
<i>Mugil cephalus</i>	174	347	6,063	3,714	905	162	742	15,107	3,017	6,851
<i>Mugil curema</i>	88	89	618	190	239	359	72	3,154	4,232	1,302
<i>Mugil rubrioculus</i>	.	.	.	.	.	.	.	.	24	2
<i>Mugil trichodon</i>	.	.	6	106	537	155	266	.	2	1
<i>Mycteroperca bonaci</i>	.	.	.	.	.	.	.	.	.	1
<i>Mycteroperca microlepis</i>	.	.	2	.	10	4	19	.	.	.
<i>Negaprion brevirostris</i>	.	.	.	1	.	.	11	1	.	.
<i>Ocyurus chrysurus</i>	.	.	.	.	.	.	49	.	.	.
<i>Panulirus argus</i>	.	.	.	.	.	.	.	.	.	1
<i>Paralichthys albigutta</i>	16	25	329	215	109	68	124	27	15	2
<i>Paralichthys dentatus</i>	.	.	.	.	.	.	.	7	.	.

Species	SR	CB	AP	CK	TB	SB	CH	JX	IR	TQ
<i>Paralichthys lethostigma</i>	.	.	89	3	.	.	.	351	.	.
<i>Paralichthys squamilentus</i>	.	.	.	.	.	.	.	5	.	.
<i>Pogonias cromis</i>	.	7	140	239	143	7	36	95	217	22
<i>Pomatomus saltatrix</i>	6	1	11	1	17	18	.	10	7	3
<i>Rachycentron canadum</i>	.	.	.	.	.	1	.	.	.	1
<i>Sciaenops ocellatus</i>	64	190	794	437	1,113	57	933	238	550	15
<i>Scomberomorus maculatus</i>	11	2	1	7	8	14	1	13	4	7
<i>Sphyraena barracuda</i>	7	2	.	.	38	58	58	1	35	252
<i>Sphyrna tiburo</i>	.	.	4	5	59	3	17	7	.	1
<i>Trachinotus carolinus</i>	2	5	4	.	6	4	20	251	4	13
<i>Trachinotus falcatus</i>	8	29	21	68	27	4	37	29	102	48
Total	990	2,406	43,665	18,380	9,012	2,643	10,388	71,500	26,672	13,989

Field laboratories are labeled as follows: SR (Santa Rosa Sound), CB (Choctawhatchee Bay), AP (Apalachicola Bay), CK (Cedar Key), TB (Tampa Bay), SB (Sarasota Bay), CH (Charlotte Harbor), JX (Northeast Florida), IR (Northern Indian River Lagoon), and TQ (Southern Indian River Lagoon).

Table 9: Selected taxa among the 10 most abundant taxa in FIM program stratified-random estuaries, 2024.

Estuary	Selected taxa among the 10 most abundant taxa:
Santa Rosa Sound	<i>Leiostomus xanthurus</i> , <i>Mugil cephalus</i> , <i>Elops saurus</i> , <i>Mugil curema</i> , <i>Sciaenops ocellatus</i>
Choctawhatchee Bay	<i>Leiostomus xanthurus</i> , <i>Mugil cephalus</i> , <i>Sciaenops ocellatus</i> , <i>Elops saurus</i> , <i>Micropogonias undulatus</i>
Apalachicola Bay	<i>Litopenaeus setiferus</i> , <i>Leiostomus xanthurus</i> , <i>Brevoortia</i> spp., <i>Mugil cephalus</i> , <i>Micropogonias undulatus</i>
Cedar Key	<i>Leiostomus xanthurus</i> , <i>Mugil cephalus</i> , <i>Litopenaeus setiferus</i>
Tampa Bay	–
Sarasota Bay	<i>Farfantepenaeus duorarum</i> , <i>Mugil curema</i>
Charlotte Harbor	–
Northeast Florida	<i>Litopenaeus setiferus</i> , <i>Micropogonias undulatus</i> , <i>Mugil cephalus</i> , <i>Leiostomus xanthurus</i> , <i>Brevoortia</i> spp.
Northern Indian River Lagoon	<i>Leiostomus xanthurus</i> , <i>Micropogonias undulatus</i> , <i>Mugil curema</i> , <i>Brevoortia</i> spp.
Southern Indian River Lagoon	<i>Mugil cephalus</i> , <i>Mugil curema</i> , <i>Brevoortia</i> spp., <i>Leiostomus xanthurus</i>

Part I

Fisheries-Independent Monitoring: Core Sampling

1 Introduction

The Florida Fish and Wildlife Conservation Commission (FWC) Fish and Wildlife Research Institute's (FWRI) Fisheries-Independent Monitoring (FIM) program is a long-term program designed to monitor the relative abundance of fishery resources in Florida's major estuarine, coastal, and offshore habitats. The program was developed to: 1) address the critical need for effective assessment techniques for an array of species and sizes of fishes and selected invertebrates; 2) provide timely information for use in management plans; and 3) monitor trends in the relative abundance of taxa in a variety of estuarine and marine systems throughout Florida.

Proper management of Florida's marine fisheries resources requires information from a number of sources. Traditional methods of monitoring changes in fish stocks have used catch-per-unit-effort (CPUE) data derived directly from commercial and recreational fisheries. Analysis of these fisheries-dependent data can provide some information on the status of fish stocks; however, there are inherent problems in using data from these sources. Changes in vessel types, fleet size, fishing gear, or methods of operation can make fisheries-dependent data difficult to interpret (Ulltang 1977). Additionally, closed seasons, changes in size or bag limits, and fluctuations in market values can further bias catch data and subsequent analyses. Fisheries-independent sampling, which targets juvenile and sub-adult fishes that have not been subjected to fishing pressure, can provide less biased estimates of trends in fish stocks than fisheries-dependent sampling (Myers and Cadigan 1993). Changes in juvenile abundance within a season can be attributed to natural mortality, immigration, emigration, or recruitment. Shifts in juvenile abundance can also be used to forecast changes in the adult stock, allowing necessary modifications to harvest regulations to be implemented before the fish have fully recruited to the fishery (Goodyear 1985). The FIM program was established to provide this type of timely information for use in management plans.

The Fish and Wildlife Research Institute initiated the FIM program in 1985 with funding provided by a Federal Sport Fish Restoration (SFR) grant. In 1988, additional funding became available from special appropriations. The FIM program is also supported, in part, by funds from the sale of Florida saltwater fishing licenses. Fisheries-Independent Monitoring program sampling began in Tampa Bay and Charlotte Harbor during 1989, in Northern Indian River Lagoon (IRL) during 1990, in Cedar Key during 1996, in Southern IRL during 1997, in Apalachicola Bay during 1998, in Northeast Florida during 2001, and in Fort Walton during 2021 (Figure 1.1). Sampling was also conducted in Santa Rosa Sound/Choctawhatchee Bay between 1992-1997 and 2017-2019; in Florida Bay between 1993-1997; and in Florida Keys National Marine Sanctuary between 1998-2004. A 2013 increase in Florida saltwater fishing licenses (i.e., Snook Stamp funding) allowed the FIM program to enhance current research efforts in several bay systems (Tampa Bay, Charlotte Harbor, Northern IRL, and Southern IRL). In 2016, these enhancements became a permanent part of the sampling design in each of the systems.

Florida's coastline extends from temperate to subtropical regions and includes habitats such as seagrass beds, salt marshes, and mangroves. These habitats provide critical nursery areas for

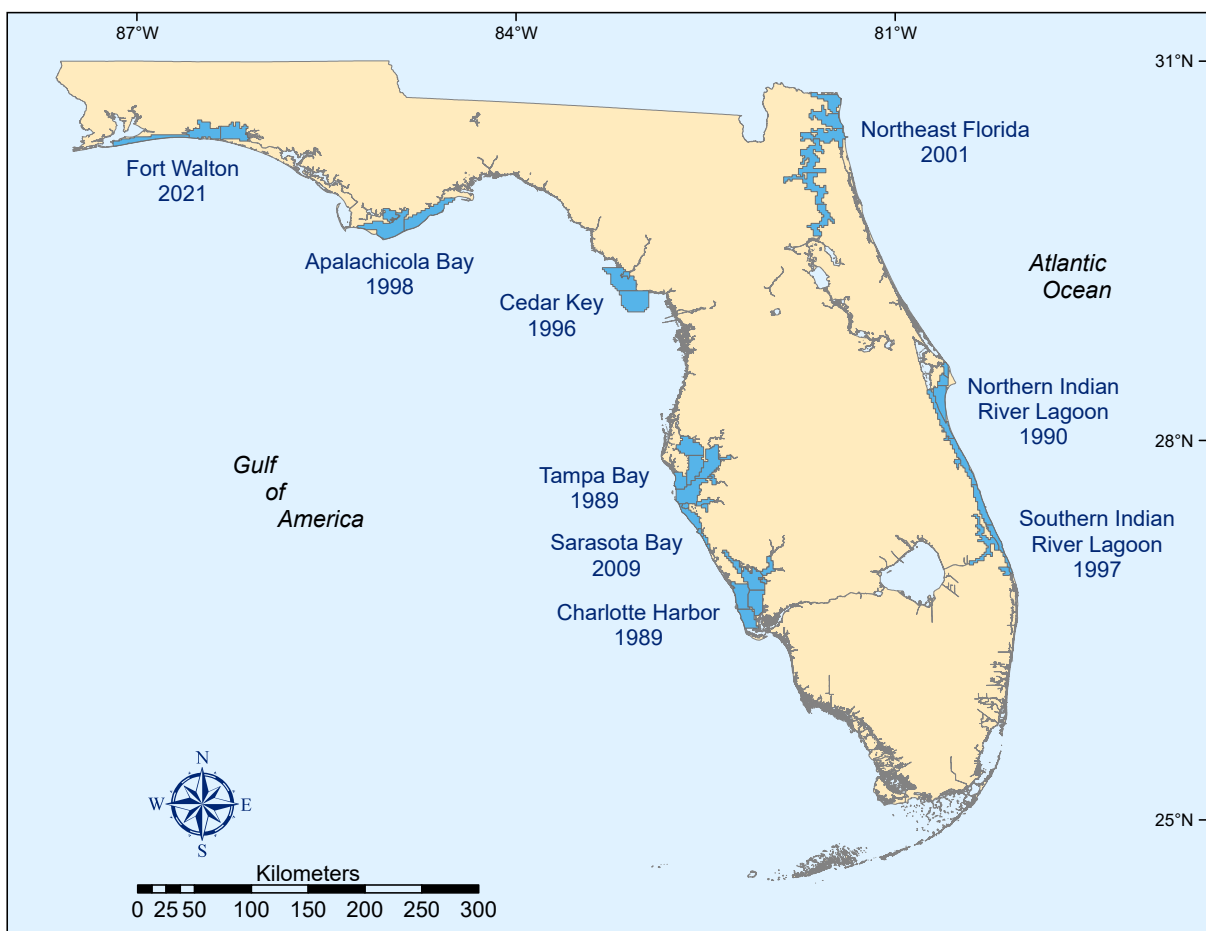


Figure 1.1: Locations of Fisheries-Independent Monitoring program field laboratories. Years indicate initiation of long-term sampling. Fort Walton includes Santa Rosa Sound and Choctawhatchee Bay.

many fish and invertebrate species. It is estimated that more than 70% of the recreationally-important species and more than 90% of the commercially-important species in the Gulf of America (formerly Gulf of Mexico; hereafter “Gulf”) are estuarine-dependent during at least one stage of their life histories (Lindall and Saloman 1977). The FIM program data are summarized and analyzed for all fish and selected invertebrate species collected, yielding information on the relative abundance, recruitment, habitat use, and distribution of hundreds of estuarine and marine species. This approach provides a unique source of information on economically valuable species as well as on many poorly understood non-game species that may influence fisheries or may be important ecological indicators. This type of multi-species, multi-habitat, long-term monitoring program is extremely valuable for documenting ecosystem changes, evaluating the effects of natural and anthropogenic disturbances, and making management decisions (Coull 1985; Wolfe et al. 1987).

Although the FIM program has always used a suite of gears (e.g., seines, trawls, trammel nets) capable of capturing a broad range of fish species and sizes from a variety of habitats, initial program efforts focused primarily on collecting young-of-the-year (YOY) fishes that could be used to develop recruitment indices. The program expanded its efforts to monitor larger-sized fishes in Tampa Bay by developing 183-m haul seines (fixed stations sampled between 1993 and 1995; year-round stratified-random sampling [SRS] implemented in 1996), 183-m purse seines (implemented in 1997; discontinued in 2004), and by developing a visual sampling program for reef fishes in the Florida Keys (implemented in 1998; transferred from FIM program in 2004). The 183-m haul seine was implemented as part of the SRS component of the program in Charlotte Harbor during 1996, in Northern and Southern IRL and Cedar Key during 1997, in Apalachicola Bay during 1998, and in Northeast Florida during 2001. The purse seine was implemented for SRS in Charlotte Harbor and Tampa Bay in 1998 and was used on a trial basis in Apalachicola Bay during 2000 and 2001, but was no longer used in any sampling area after 2004. The FIM program initiated a visual survey in the Florida Keys in 1998 to obtain important fisheries data in this unique area of Florida. In 2004, the oversight and implementation of these ongoing surveys were assigned to other FWRI work groups and are therefore no longer included in the FIM program annual summaries after 2004. The FIM program also implemented a seasonal directed sampling program for Striped Mullet (*Mugil cephalus*) in Tampa Bay and Charlotte Harbor in 1993. Directed sampling for the Striped Mullet program used a 366-m trammel net. After the 2008-2009 sampling season the seasonal directed sampling program was discontinued in both areas and transitioned into a year-round monthly sampling survey completed every five years but was discontinued in 2020. In 1993, the FIM program implemented a seasonal directed sampling program in Tampa Bay for Red Drum (*Sciaenops ocellatus*) and further initiated a seasonal directed sampling program for Red Drum in Northern IRL during 1995. The Red Drum sampling program used a 547-m trammel net. Directed Red Drum sampling was discontinued in 1999 for Northern IRL and in 2018 for Tampa Bay.

The entire suite of gears and methods used by the FIM program captures fishes at various stages of development, from initial recruitment into the estuary through harvestable sizes, thereby providing a continuous gauge of a particular stock’s relative abundance, age and size composition, and reproductive potential. This chapter summarizes FIM program SRS data collected during 2024. Results from the sampling efforts in each estuary are presented separately. This chapter also summarizes results from fish health monitoring of samples collected by the FIM program. Profiles of several species that are of particular interest, because of their recreational or commercial value in Florida, are also presented, providing critical information for these species while also describing some of the ways the FIM program data are used to assess the status of important Florida fisheries.

2 Methods

The FIM program uses a stratified-random sampling design in all study areas. Each study area was divided into sampling zones based upon geographic and logistical criteria, and each zone was further subdivided into 1-nm² grids that were randomly selected for sampling. Sampling grids were stratified by habitat and depth, thereby identifying the gear types that could be used in those areas. A single sample was collected at each randomly selected site. In most cases, the number of monthly samples collected in each zone with each gear was proportional to the number of grids in the zone that could be sampled with a particular gear.

The FIM program uses a multi-gear approach to collect data on various life history stages of fishes and selected invertebrates from a wide variety of habitats (Table 2.1). A 21.3-m center bag seine targeted YOY and juvenile fishes in shallow water (≤ 1.8 m); a 6.1-m otter trawl targeted YOY, juvenile, and adult fish in deep water (1.0–7.6 m); a 183-m haul seine targeted sub-adult and adult fish along shorelines in water depths ≤ 2.5 m. Several different techniques were used, depending upon habitat, to stratify the samples collected with the various gears. The 21.3-m center bag seine was used in Apalachicola Bay, Cedar Key, Tampa Bay, Sarasota Bay, Charlotte Harbor, Northeast Florida, and the Northern IRL. In 2016, 21.3-m seine sampling was also initiated in the Southern IRL system within the Loxahatchee and St. Lucie Rivers, and in tidal creeks in Charlotte Harbor. Two deployment techniques were used. The 21.3-m bay seine technique was used in all estuaries except Santa Rosa Sound, Choctawhatchee Bay, Northeast Florida, and the Southern IRL to sample shallow areas, and was pre-stratified by the presence or absence of bottom vegetation (except in the Cedar Key area) or the presence of a shoreline. The 21.3-m river seine technique was used in all estuaries except Santa Rosa Sound, Choctawhatchee Bay, and Sarasota Bay to sample the shorelines of creeks and rivers. River seine deployments in Tampa Bay and Charlotte Harbor's rivers were pre-stratified by the presence or absence of overhanging shoreline vegetation. River seine deployments in the northern IRL, Cedar Key, Apalachicola Bay, Northeast Florida, the Southern IRL, and Charlotte Harbor's tidal creeks were not pre-stratified by habitat type. Samples collected with 183-m haul seines in Tampa Bay and Charlotte Harbor were pre-stratified by the presence or absence of overhanging shoreline vegetation. Samples collected with 183-m haul seines in Santa Rosa Sound, Choctawhatchee Bay, Sarasota Bay, and the northern and southern portions of IRL were post-stratified by the presence or absence of overhanging shoreline vegetation. Samples collected with this gear were not stratified by habitat type in Apalachicola Bay, Cedar Key, and Northeast Florida. All sampling was conducted during daytime hours (one hour after sunrise to one hour before sunset). Additional sampling details are described in the FIM program's Procedure Manual (FWC-FWRI 2023).

Table 2.1: Description of sampling gears used in 2024.

Gear	Deployment	Mesh size (mm)	Area sampled (m ²)	Description of use
21.3-m Seine (center bag)	Bay	3.2	140	used in near-shore and shoreline areas ≤ 1.5 m
	River	3.2	68	used along river shorelines ≤ 1.8 m
183-m Haul Seine (center bag)	Boat	38.1	4,120	used along shorelines and exposed sandbars ≤ 2.5 m
6.1-m Otter Trawl	Straight Tow	38.1 (3.2-mm liner)	1,130-2,259	used in areas from 1.8 m to 7.6 m deep
	Arc Tow	38.1 (3.2-mm liner)	1,130-2,259	used in areas from 1.0 m to 1.7 m deep

A more detailed description of each gear can be found in the FIM program's Procedure Manual

The sample work-up technique was similar for all samples, regardless of gear type or sampling regime. Environmental data consisting of water chemistry, habitat characteristics, and physical parameters, such as current and tidal conditions, were recorded for each sample. All fish and selected invertebrate species captured were identified to the lowest practical taxonomic level, counted, and a random sample of at least 10 individuals were measured (standard length for teleosts, precaudal length for sharks, disc width for rays, carapace width for crabs, and post-orbital head length for shrimp). A detailed explanation of the standard sample work-up for data collection is described in the FIM program's Procedure Manual (FWC-FWRI 2023).

Certain taxa were not identified to species because of the possibility of hybridization (e.g., *Brevoortia* spp., *Menidia* spp.) (Dahlberg 1970; Middaugh et al. 1986), or because they were morphologically or meristically indistinguishable at small juvenile sizes (e.g., *Eucinostomus* spp. <40 mm SL) (Matheson Jr. 1983). Beginning in 2017 specimens of the genus *Albula* were tested for genetic identification; however, due to the lag between sampling and testing, all specimens will be referred to as *Albula* spp. in this report. In Northern and Southern IRL and Northeast Florida sections, species accounts of *Cynoscion regalis* (Weakfish) and *Cynoscion arenarius* (Sand Seatrout) will be referred to collectively as *Cynoscion* complex. These two species mix and hybridize along the Atlantic coast of Florida and identification can only be determined with certainty by genetic testing (Tringali et al. 2004). Animals were released except for representative samples of each taxon (for laboratory confirmation of field identifications) and samples required for specific research projects. The taxonomic nomenclature in this report follows the American Fisheries Society's Common and Scientific Names of Fishes (Page et al. 2023). Starting in 2003, shrimp belonging to the genus *Farfantepenaeus* collected in Apalachicola Bay, Cedar Key, Indian River Lagoon and Northeast Florida were left at the genus level if the postorbital head length is less than 15mm due to the difficulty in separating the species at small sizes. A detailed explanation of the standard sample work-up for data collection is described in the FIM program's Procedure Manual (FWC-FWRI 2023). Data for this report were summarized separately for each estuarine system and for each gear type.

Data were also summarized separately for all taxa and for taxa of recreational or commercial importance ('Selected Taxa'; Table 2.2). Abundance estimates were calculated for 21.3-m seines and 6.1-m trawls as the number of animals/100 m² of area sampled. Catch-per-unit-effort (CPUE) was calculated for 183-m haul seine samples as the number of animals/set. The appendices for each study area describe the catch by month, gear, stratum, and zone.

Table 2.2: Animals designated as Selected Taxa by the Fisheries Independent Monitoring program because of their commercial or recreational importance.

Scientific Name	Common Name
<i>Acanthocybium solandri</i>	Wahoo
<i>Albula goreensis</i>	Senegalese Bonefish
<i>Albula</i> sp. cf. <i>vulpes</i>	bonefishes
<i>Albula</i> spp.	bonefishes
<i>Albula vulpes</i>	Bonefish
<i>Alectis ciliaris</i>	African Pompano
<i>Alopias vulpinus</i>	Common Thresher Shark
<i>Alphistes afer</i>	Mutton Hamlet
<i>Apsilus dentatus</i>	Black Snapper
<i>Archosargus probatocephalus</i>	Sheepshead
<i>Argopecten gibbus</i>	Atlantic Calico Scallop
<i>Argopecten irradians</i>	Bay Scallop
<i>Balistes capriscus</i>	Gray Triggerfish
<i>Brevoortia</i> spp.	Menhadens
<i>Calamus arctifrons</i>	Grass Porgy
<i>Calamus bajonado</i>	Jolthead Porgy
<i>Calamus calamus</i>	Saucereye Porgy
<i>Calamus leucosteus</i>	Whitebone Porgy
<i>Calamus nodosus</i>	Knobbed Porgy
<i>Calamus penna</i>	Sheepshead Porgy
<i>Calamus proridens</i>	Littlehead Porgy
<i>Calamus</i> spp.	porgies
<i>Callinectes sapidus</i>	Blue Crab
<i>Caranx crysos</i>	Blue Runner
<i>Caranx hippos</i>	Creville Jack

Scientific Name	Common Name
<i>Carcharhinus acronotus</i>	Blacknose Shark
<i>Carcharhinus brevipinna</i>	Spinner Shark
<i>Carcharhinus falciformis</i>	Silky Shark
<i>Carcharhinus isodon</i>	Finetooth Shark
<i>Carcharhinus leucas</i>	Bull Shark
<i>Carcharhinus limbatus</i>	Blacktip Shark
<i>Carcharhinus longimanus</i>	Oceanic Whitetip Shark
<i>Carcharhinus obscurus</i>	Dusky Shark
<i>Carcharhinus plumbeus</i>	Sandbar Shark
<i>Caulolatilus chrysops</i>	Goldface Tilefish
<i>Caulolatilus cyanops</i>	Blackline Tilefish
<i>Caulolatilus intermedius</i>	Anchor Tilefish
<i>Caulolatilus microps</i>	Blueline Tilefish
<i>Centropomus ensiferus</i>	Swordspine Snook
<i>Centropomus mexicanus</i>	Largescale Fat Snook
<i>Centropomus parallelus</i>	Smallscale Fat Snook
<i>Centropomus pectinatus</i>	Tarpon Snook
<i>Centropomus undecimalis</i>	Common Snook
<i>Centropristis ocyurus</i>	Bank Sea Bass
<i>Centropristis philadelphica</i>	Rock Sea Bass
<i>Centropristis striata</i>	Black Sea Bass
<i>Cephalopholis cruentata</i>	Graysby
<i>Cephalopholis fulva</i>	Coney
<i>Cephalopholis furcifer</i>	Creole-fish
<i>Coryphaena equiselis</i>	Pompano Dolphinfinh
<i>Coryphaena hippurus</i>	Dolphinfinh
<i>Cynoscion arenarius</i>	Sand Seatrout
<i>Cynoscion complex</i>	C. regalis x C. arenarius
<i>Cynoscion nebulosus</i>	Spotted Seatrout
<i>Cynoscion nothus</i>	Silver Seatrout
<i>Cynoscion regalis</i>	Atlantic Weakfish

Scientific Name	Common Name
<i>Dermatolepis inermis</i>	Marbled Grouper
<i>Diplectrum formosum</i>	Sand Perch
<i>Elops saurus</i>	Ladyfish
<i>Elops smithi</i>	Malacho
<i>Epinephelus adscensionis</i>	Rock Hind
<i>Epinephelus guttatus</i>	Red Hind
<i>Epinephelus itajara</i>	Goliath Grouper
<i>Epinephelus morio</i>	Red Grouper
<i>Epinephelus striatus</i>	Nassau Grouper
<i>Etelis oculatus</i>	Queen Snapper
<i>Euthynnus alletteratus</i>	Little Tunny
<i>Farfantepenaeus aztecus</i>	Brown Shrimp
<i>Farfantepenaeus brasiliensis</i>	Caribbean Brown Shrimp
<i>Farfantepenaeus duorarum</i>	Pink Shrimp
<i>Farfantepenaeus</i> spp.	Commercial Shrimps
<i>Galeocerdo cuvier</i>	Tiger Shark
<i>Ginglymostoma cirratum</i>	Nurse Shark
<i>Haemulon album</i>	Margate
<i>Haemulon aurolineatum</i>	Tomtate
<i>Haemulon flavolineatum</i>	French Grunt
<i>Haemulon macrostoma</i>	Spanish Grunt
<i>Haemulon melanurum</i>	Cottonwick
<i>Haemulon parra</i>	Sailors Choice
<i>Haemulon plumieri</i>	White Grunt
<i>Haemulon sciurus</i>	Bluestriped Grunt
<i>Hyporthodus drummondhayi</i>	Speckled Hind
<i>Hyporthodus flavolimbatus</i>	Yellowedge Grouper
<i>Hyporthodus mystacinus</i>	Misty Grouper
<i>Hyporthodus nigrinus</i>	Warsaw Grouper
<i>Hyporthodus niveatus</i>	Snowy Grouper
<i>Istiophorus platypterus</i>	Sailfish

Scientific Name	Common Name
<i>Isurus oxyrinchus</i>	Shortfin Mako
<i>Katsuwonus pelamis</i>	Skipjack Tuna
<i>Lachnolaimus maximus</i>	Hogfish
<i>Lamna nasus</i>	Porbeagle
<i>Leiostomus xanthurus</i>	Spot
<i>Litopenaeus setiferus</i>	White Shrimp
<i>Lobotes surinamensis</i>	Atlantic Tripletail
<i>Lopholatilus chamaeleonticeps</i>	Tilefish
<i>Lutjanus analis</i>	Mutton Snapper
<i>Lutjanus apodus</i>	Schoolmaster
<i>Lutjanus buccanella</i>	Blackfin Snapper
<i>Lutjanus campechanus</i>	Red Snapper
<i>Lutjanus cyanopterus</i>	Cubera Snapper
<i>Lutjanus griseus</i>	Gray Snapper
<i>Lutjanus jocu</i>	Dog Snapper
<i>Lutjanus mahogoni</i>	Mahogany Snapper
<i>Lutjanus synagris</i>	Lane Snapper
<i>Lutjanus vivanus</i>	Silk Snapper
<i>Malacanthus plumieri</i>	Sand Tilefish
<i>Megalops atlanticus</i>	Tarpon
<i>Menippe</i> spp.	Stone Crab
<i>Menticirrhus americanus</i>	Southern Kingfish
<i>Menticirrhus littoralis</i>	Gulf Kingfish
<i>Menticirrhus saxatilis</i>	Northern Kingfish
<i>Micropogonias undulatus</i>	Atlantic Croaker
<i>Mugil cephalus</i>	Striped Mullet
<i>Mugil curema</i>	White Mullet
<i>Mugil liza</i>	Liza
<i>Mugil rubrioculus</i>	Redeye Mullet
<i>Mugil trichodon</i>	Fantail Mullet
<i>Mulloidichthys martinicus</i>	Yellow Goatfish

Scientific Name	Common Name
<i>Mullus auratus</i>	Red Goatfish
<i>Mustelus</i> spp.	hound sharks
<i>Mycteroperca bonaci</i>	Black Grouper
<i>Mycteroperca interstitialis</i>	Yellowmouth Grouper
<i>Mycteroperca microlepis</i>	Gag
<i>Mycteroperca phenax</i>	Scamp
<i>Mycteroperca tigris</i>	Tiger Grouper
<i>Mycteroperca venenosa</i>	Yellowfin Grouper
<i>Negaprion brevirostris</i>	Lemon Shark
<i>Ocyurus chrysurus</i>	Yellowtail Snapper
<i>Pagrus pagrus</i>	Red Porgy
<i>Panulirus argus</i>	Spiny Lobster
<i>Paralichthys albigutta</i>	Gulf Flounder
<i>Paralichthys dentatus</i>	Summer Flounder
<i>Paralichthys lethostigma</i>	Southern Flounder
<i>Paralichthys oblongus</i>	Fourspot Flounder
<i>Paralichthys squamilentus</i>	Broad Flounder
<i>Pogonias cromis</i>	Black Drum
<i>Pomatomus saltatrix</i>	Bluefish
<i>Prionace glauca</i>	Blue Shark
<i>Pristipomoides aquilonaris</i>	Wenchman
<i>Pseudupeneus maculatus</i>	Spotted Goatfish
<i>Pterois</i> spp.	Lionfishes
<i>Rachycentron canadum</i>	Cobia
<i>Rhizoprionodon terraenovae</i>	Atlantic Sharpnose Shark
<i>Rhomboplites aurorubens</i>	Vermilion Snapper
<i>Sciaenops ocellatus</i>	Red Drum
<i>Scomberomorus cavalla</i>	King Mackerel
<i>Scomberomorus maculatus</i>	Spanish Mackerel
<i>Scomberomorus regalis</i>	Cero
<i>Seriola dumerili</i>	Greater Amberjack

Scientific Name	Common Name
<i>Seriola fasciata</i>	Lesser Amberjack
<i>Seriola rivoliana</i>	Almaco Jack
<i>Seriola zonata</i>	Banded Rudderfish
<i>Sphyrna barracuda</i>	Great Barracuda
<i>Sphyrna tiburo</i>	Bonnethead
<i>Thunnus albacares</i>	Yellowfin Tuna
<i>Thunnus atlanticus</i>	Blackfin Tuna
<i>Thunnus obesus</i>	Bigeye Tuna
<i>Thunnus thynnus</i>	Bluefin Tuna
<i>Trachinotus carolinus</i>	Florida Pompano
<i>Trachinotus falcatus</i>	Permit
<i>Trachinotus goodei</i>	Palometa
<i>Upeneus parvus</i>	Dwarf Goatfish

3 Study Areas

The FIM program conducted sampling in the following estuarine areas: Fort Walton including Santa Rosa Sound and Choctawhatchee Bay, Apalachicola Bay, Cedar Key, Tampa Bay, Sarasota Bay, Charlotte Harbor, Northeast Florida, and the northern and southern portions of the Indian River Lagoon (Figure 1.1). Sampling was conducted over a wide range of habitats encompassing different bottom types, shoreline types, and offshore areas. In addition to sampling in major estuaries, tidally-influenced portions of rivers that flow into Tampa Bay (Alafia, Braden, Little Manatee, and Manatee Rivers), Charlotte Harbor (Peace and Myakka rivers, Alligator Creek), the Indian River Lagoon (Turkey Creek, St. Sebastian, Loxahatchee, and St. Lucie rivers), the Cedar Key area (Suwannee River), Apalachicola Bay (Apalachicola River), and Northeast Florida (St. Marys, Nassau, and St. Johns rivers) were also sampled. The Tampa Bay, Charlotte Harbor, and Northern IRL study areas were described in the FIM Program 1994 Annual Data Summary Report (FDEP-FMRI 1995). The Cedar Key study area was described in the FIM Program 1996 Annual Data Summary Report (FDEP-FMRI 1997); the Southern IRL study area was described in the FIM Program 1997 Annual Data Summary Report (FDEP-FMRI 1998); the Apalachicola Bay study area and updates to the Southern IRL study area were described in the FIM Program 1998 Annual Data Summary Report (FDEP-FMRI 1999); the Northeast Florida study area was described in the FIM Program 2001 Annual Data Summary Report (FDEP-FMRI 2002); and expansion of 21.3-m seines in the Southern IRL study area is described later in this report (Section 4.10).

4 Data Summary by Estuary

4.1 Santa Rosa Sound

Santa Rosa Sound is a 109-km² lagoon connecting Pensacola Bay to the west and Choctawhatchee Bay to the east (Northwest Florida Water Management District 2017a). The lagoon has no tidal tributaries for direct freshwater input but is connected to the Gulf by a deep pass west of Santa Rosa Island. Shoreline vegetation consists primarily of the marsh grasses *Spartina alterniflora* and *Panicum hemitomon* (Miller et al. 2001). Bottom substrate is mostly sand (Miller et al. 2001) and bottom vegetation consists primarily of seagrasses such as *Halodule wrightii* and *Thalassia testudinum* (Bradley and Houser 2009). Seagrass beds covered nearly 25% of the lagoon in 1960, but by 1992 less than half remained because of wastewater discharge, dredging, and beach modifications (Handley et al. 2007). By 2010, seagrass coverage declined by an additional 5% (Yarbro and Carlson 2016).

The Santa Rosa Sound sampling universe consists of a single bay zone (Zone A; Figure 4.1). Monthly stratified-random sampling (SRS) occurred in Santa Rosa Sound from June to December using 183-m haul seines. All methods were the same as those described in Chapter 2. Below is a summary of fisheries-independent monitoring effort and catch in Santa Rosa Sound during 2024.

Stratified-Random Sampling

A total of 4,649 animals, which included 42 taxa of fishes and 2 taxa of selected invertebrates, were collected from 28 Santa Rosa Sound SRS samples in 2024 (Table 4.1, Table A.1, Table A.2, Table A.3). *Lagodon rhomboides* (n=2,766) was the most numerous taxon collected, representing 59.5% of the total catch. *Orthopristis chrysoptera* (n=397) and *Leiostomus xanthurus* (n=370) were the next most abundant taxa collected, accounting for an additional 16.5% of the total catch. A total of 21 selected taxa (n=990 animals) composed 21.3% of the total catch. *Leiostomus xanthurus* (n=370) was the most abundant Selected Taxon, representing 8% of the total catch. *Mugil cephalus* (n=174), *Elops saurus* (n=150), *Mugil curema* (n=88), and *Sciaenops ocellatus* (n=64) were the next most abundant selected taxa, comprising 10.2% of the total catch. Collections in 2024 included 0 species new to the Santa Rosa FIM collection.

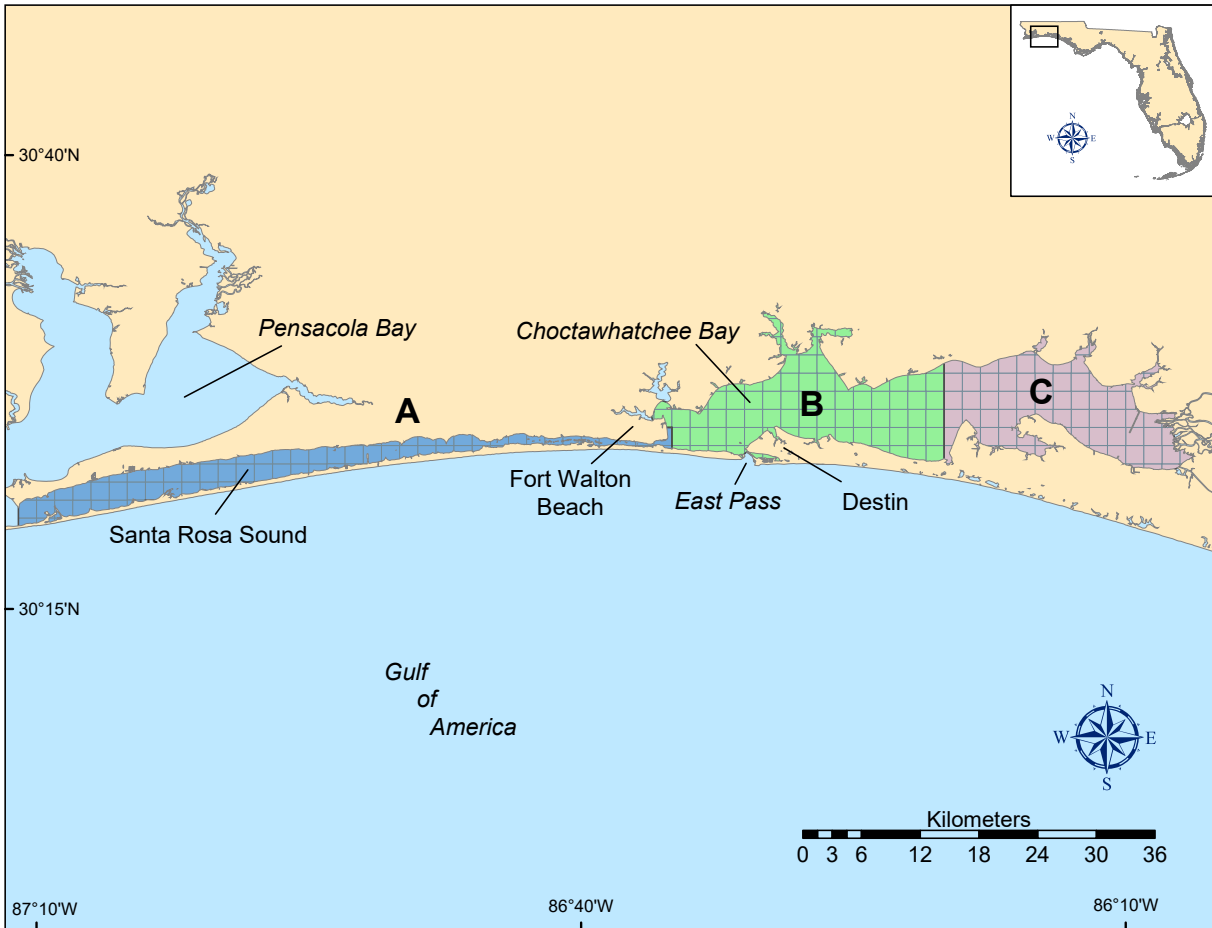


Figure 4.1: Map of Fort Walton sampling area, including Santa Rosa Sound. Zones are labeled A-C. Santa Rosa Sound consists only of Zone A.

Table 4.1: Summary of catch and effort data for Santa Rosa Sound stratified-random sampling, 2024.

Zone	183-m haul seine		Total	
	Hauls	Animals	Hauls	Animals
A	28	4,649	28	4,649
Total	28	4,649	28	4,649

Bay Sampling

183-m Haul Seine

A total of 4,649 animals were collected in 28 183-m haul seines, representing 100% of the overall SRS catch (Table 4.1). *Lagodon rhomboides* (n = 2,766) and *Orthopristis chrysoptera* (n = 397) were the most abundant taxa, accounting for 68% of the haul seine catch (Table 4.2). The taxa most frequently caught in 183-m haul seines were *Lagodon rhomboides* (96.4% occurrence) and *Mugil cephalus* (75.0% occurrence).

A total of 990 animals from 21 selected taxa were collected, representing 21.3% of the entire 183-m haul seine catch (Table 4.3). *Leiostomus xanthurus* (n=370) was the most abundant Selected Taxon, accounting for 37.4% of the selected taxa collected by this gear. The selected taxa most frequently caught in 183-m haul seines were *Mugil cephalus* (75.0% occurrence) and *Leiostomus xanthurus* (64.3% occurrence).

Table 4.2: Catch statistics for 10 dominant taxa collected in 28 183-m haul seine samples during Santa Rosa Sound stratified-random sampling, 2024.

Species	Number			Density Estimate (animals/set)				Standard Length (mm)			
	No.	%	% Occur	Mean	Stderr	CV	Max	Mean	Stderr	Min	Max
<i>Lagodon rhomboides</i>	2,766	59.5	96.4	98.79	17.82	95.47	365	113	0.51	22	193
<i>Orthopristis chrysoptera</i>	397	8.5	57.1	14.18	5.72	213.41	141	128	1.66	65	197
<i>Leiostomus xanthurus</i>	370	8.0	64.3	13.21	5.98	239.41	163	135	1.59	68	180
<i>Eucinostomus harengulus</i>	176	3.8	46.4	6.29	3.52	296.05	93	101	0.71	80	115
<i>Mugil cephalus</i>	174	3.7	75.0	6.21	2.11	179.27	44	222	6.36	101	400
<i>Elops saurus</i>	150	3.2	7.1	5.36	5.18	511.16	145	244	1.92	220	405
<i>Eucinostomus gula</i>	106	2.3	21.4	3.79	3.28	457.99	92	94	0.75	75	105
<i>Mugil curema</i>	88	1.9	57.1	3.14	0.79	133.52	15	150	3.90	93	263
<i>Sciaenops ocellatus</i>	64	1.4	50.0	2.29	0.79	183.25	16	330	14.51	139	641
<i>Bairdiella chrysoura</i>	43	0.9	21.4	1.54	1.08	372.80	30	124	1.70	99	148
Subtotal	4,334	93.2	.	.	.	.	.	.	.	22	641
Total	4,649	100.0	.	166.04	33.11	105.51	751	.	.	22	1,110

Percent (%) is the percent of the total catch represented by that taxon; percent occurrence (% Occur) is the percentage of samples in which that taxon was collected; CV is the coefficient of variation of the mean. Taxa are ranked in order of decreasing mean density.

Table 4.3: Catch statistics for selected taxa collected in 28 183-m haul seine samples during Santa Rosa Sound stratified-random sampling, 2024.

Species	Number			Density Estimate (animals/set)				Standard Length (mm)			
	No.	%	% Occur	Mean	Stderr	CV	Max	Mean	Stderr	Min	Max
<i>Leiostomus xanthurus</i>	370	8.0	64.3	13.21	5.98	239.41	163	135	1.59	68	180
<i>Mugil cephalus</i>	174	3.7	75.0	6.21	2.11	179.27	44	222	6.36	101	400
<i>Elops saurus</i>	150	3.2	7.1	5.36	5.18	511.16	145	244	1.92	220	405
<i>Mugil curema</i>	88	1.9	57.1	3.14	0.79	133.52	15	150	3.90	93	263
<i>Sciaenops ocellatus</i>	64	1.4	50.0	2.29	0.79	183.25	16	330	14.51	139	641
<i>Callinectes sapidus</i>	30	0.6	32.1	1.07	0.39	195.00	8	100	7.12	31	160
<i>Micropogonias undulatus</i>	29	0.6	17.9	1.04	0.52	264.72	10	171	3.46	133	223
<i>Cynoscion nebulosus</i>	17	0.4	14.3	0.61	0.35	305.15	7	211	23.85	122	500
<i>Paralichthys albigutta</i>	16	0.3	39.3	0.57	0.17	153.81	3	162	18.24	77	311
<i>Scomberomorus maculatus</i>	11	0.2	10.7	0.39	0.32	434.52	9	158	6.12	137	197
<i>Caranx hippos</i>	9	0.2	7.1	0.32	0.29	471.85	8	157	1.88	152	166
<i>Trachinotus falcatus</i>	8	0.2	10.7	0.29	0.18	328.01	4	110	8.65	74	153
<i>Sphyraena barracuda</i>	7	0.2	10.7	0.25	0.15	319.72	3	247	24.41	192	342
<i>Pomatomus saltatrix</i>	6	0.1	3.6	0.21	0.21	529.15	6	408	9.46	375	442
<i>Brevoortia</i> spp.	3	0.1	3.6	0.11	0.11	529.15	3	198	8.50	185	214
<i>Archosargus probatocephalus</i>	2	<0.1	3.6	0.07	0.07	529.15	2	486	15.00	471	501
<i>Trachinotus carolinus</i>	2	<0.1	7.1	0.07	0.05	367.17	1	160	35.50	124	195
<i>Cynoscion arenarius</i>	1	<0.1	3.6	0.04	0.04	529.15	1	191	.	191	191
<i>Farfantepenaeus duorarum</i>	1	<0.1	3.6	0.04	0.04	529.15	1	22	.	22	22
<i>Lutjanus griseus</i>	1	<0.1	3.6	0.04	0.04	529.15	1	87	.	87	87

Species	Number			Density Estimate (animals/set)				Standard Length (mm)			
	No.	%	% Occur	Mean	Stderr	CV	Max	Mean	Stderr	Min	Max
<i>Menticirrhus saxatilis</i>	1	<0.1	3.6	0.04	0.04	529.15	1	144	.	144	144
Total	990	21.3	.	35.36	10.35	154.89	233	.	.	22	641

Percent (%) is the percent of the total catch represented by that taxon; percent occurrence (% Occur) is the percentage of samples in which that taxon was collected; CV is the coefficient of variation of the mean. Taxa are ranked in order of decreasing mean density.

4.2 Choctawhatchee Bay

Choctawhatchee Bay is a 334-km² estuary located in the central Florida Panhandle that is connected to the Gulf by a shallow man-made channel, East Pass, near the city of Destin (Handley et al. 2007; Northwest Florida Water Management District 2017b). Tidal influence is minimal and tidal ranges are small, from 0.15 to 0.5 meters (Huguenard et al. 2016). Major habitat types in Choctawhatchee Bay include tidal marshes, seagrass beds, bayous, and oyster beds (Northwest Florida Water Management District 2017b). Shoreline vegetation consists mostly of the marsh grasses *Juncus roemerianus*, *Spartina alterniflora*, and *Scirpus* spp. (Northwest Florida Water Management District 2017b). Choctawhatchee Bay is moderately deep with depths ranging from 3 to 13 meters and bottom substrate that is mostly sand, mud, and shell (Handley et al. 2007; Northwest Florida Water Management District 2017b). Bottom vegetation is predominantly *Halodule wrightii* with patches of *Ruppia maritima* and *Thalassia testudinum* (Handley et al. 2007; Northwest Florida Water Management District 2017b). Choctawhatchee Bay seagrass beds covered 17.2 km² in 1992 but had declined by 55% by 2007 (Yarbro and Carlson 2016). Seagrass losses observed in Choctawhatchee Bay are a result of urbanization, especially the construction of seawalls, which reduces the size of intertidal areas and impedes seagrass growth (Handley et al. 2007).

Choctawhatchee Bay is highly stratified, and its salinity is driven primarily by freshwater inflow from the Choctawhatchee River (Brown and Hemming 2004; Northwest Florida Water Management District 2017b). Major habitat types in the Choctawhatchee River include shoreline snags, tributary valley lakes, spring runs, and tidal marshes. The river is bordered by hardwood swamps in its upper reaches and stands of *Spartina cynosuroides* in its lower reaches (Northwest Florida Water Management District 2017b).

The Choctawhatchee Bay sampling universe consists of two bay zones (B and C; Figure 4.2). Monthly stratified-random sampling (SRS) occurred from June to December in bay zones B and C using 183-m haul seines. All methods were the same as those described in Chapter 2. Below is a summary of fisheries-independent monitoring effort and catch in Choctawhatchee Bay during 2024.

Stratified-Random Sampling

A total of 8,663 animals, which included 45 taxa of fishes and 4 taxa of selected invertebrates, were collected from 35 Choctawhatchee Bay SRS samples in 2024 (Table 4.4, Table A.4, Table A.5, Table A.6). *Lagodon rhomboides* (n=4,269) was the most numerous taxon collected, representing 49.3% of the total catch. *Leiostomus xanthurus* (n=1,288) and *Orthopristis chrysoptera* (n=473) were the next most abundant taxa collected, accounting for an additional 20.3% of the total catch. A total of 24 selected taxa (n=2,406 animals) composed 27.8% of the total catch. *Leiostomus xanthurus* (n=1,288) was the most abundant Selected Taxon, representing 14.9% of the total catch. *Mugil cephalus* (n=347), *Sciaenops ocellatus* (n=190), *Elops saurus* (n=134), and *Micropogonias undulatus* (n=126) were the next most abundant selected taxa, comprising 9.2% of the total catch. Collections in 2024 included 0 species new to the Choctawhatchee Bay FIM collection.

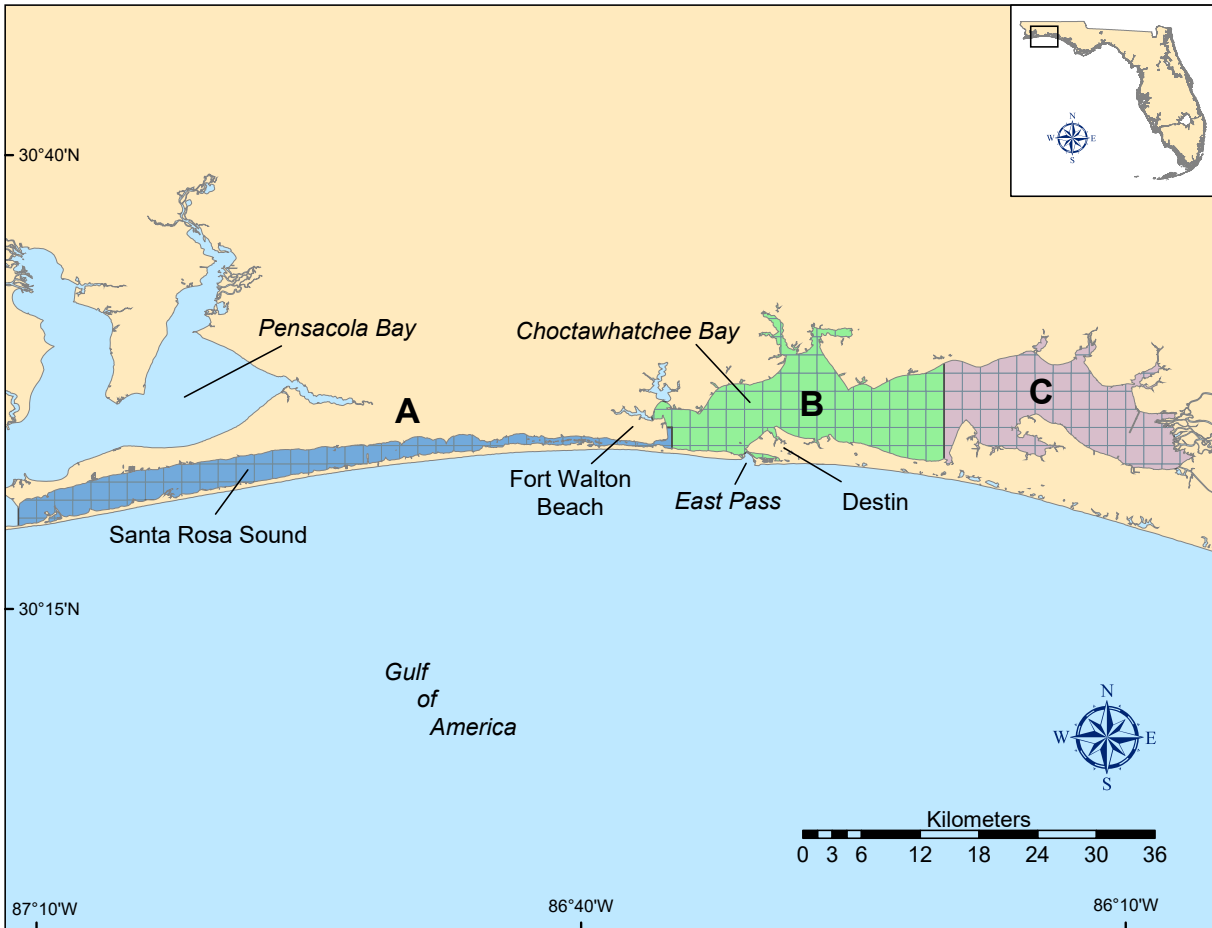


Figure 4.2: Map of Fort Walton sampling area, including Choctawhatchee Bay. Zones are labeled A-C. Choctawhatchee Bay comprises zones B and C.

Table 4.4: Summary of catch and effort data for Choctawhatchee Bay stratified-random sampling, 2024.

Zone	183-m haul seine		Total	
	Hauls	Animals	Hauls	Animals
B	21	5,199	21	5,199
C	14	3,464	14	3,464
Total	35	8,663	35	8,663

Bay Sampling

183-m Haul Seine

A total of 8,663 animals were collected in 35 183-m haul seines, representing 100% of the overall SRS catch (Table 4.4). *Lagodon rhomboides* (n = 4,269) and *Leiostomus xanthurus* (n = 1,288) were the most abundant taxa, accounting for 64.1% of the haul seine catch (Table 4.5). The taxa most frequently caught in 183-m haul seines were *Lagodon rhomboides* (91.4% occurrence) and *Leiostomus xanthurus* (80.0% occurrence).

A total of 2,406 animals from 24 selected taxa were collected, representing 27.8% of the entire 183-m haul seine catch (Table 4.6). *Leiostomus xanthurus* (n=1,288) was the most abundant Selected Taxon, accounting for 53.5% of the selected taxa collected by this gear. The selected taxa most frequently caught in 183-m bay seines were *Leiostomus xanthurus* (80.0% occurrence) and *Mugil cephalus* (74.3% occurrence).

Table 4.5: Catch statistics for 10 dominant taxa collected in 35 183-m haul seine samples during Choctawhatchee Bay stratified-random sampling, 2024.

Species	Number			Density Estimate (animals/set)				Standard Length (mm)			
	No.	%	% Occur	Mean	Stderr	CV	Max	Mean	Stderr	Min	Max
<i>Lagodon rhomboides</i>	4,269	49.3	91.4	121.97	19.95	96.79	407	114	0.40	63	190
<i>Leiostomus xanthurus</i>	1,288	14.9	80.0	36.80	12.59	202.48	431	114	0.66	74	206
<i>Orthopristis chrysoptera</i>	473	5.5	45.7	13.51	6.98	305.54	239	141	1.17	65	211
<i>Eucinostomus harengulus</i>	428	4.9	37.1	12.23	5.85	283.25	179	97	0.36	80	125
<i>Eucinostomus gula</i>	376	4.3	20.0	10.74	9.96	548.30	349	98	0.29	70	106
<i>Mugil cephalus</i>	347	4.0	74.3	9.91	1.91	113.84	52	208	4.04	101	378
<i>Bairdiella chrysoura</i>	327	3.8	31.4	9.34	5.33	337.74	176	128	1.00	61	171
<i>Sciaenops ocellatus</i>	190	2.2	71.4	5.43	1.11	120.65	27	281	8.16	122	756
<i>Elops saurus</i>	134	1.5	37.1	3.83	2.78	429.16	97	238	2.78	130	423
<i>Micropogonias undulatus</i>	126	1.5	40.0	3.60	1.40	230.56	38	146	1.67	106	235
Subtotal	7,958	91.9	.	.	.	.	.	.	.	61	756
Total	8,663	100.0	.	247.51	46.41	110.94	1,273	.	.	20	756

Percent (%) is the percent of the total catch represented by that taxon; percent occurrence (% Occur) is the percentage of samples in which that taxon was collected; CV is the coefficient of variation of the mean. Taxa are ranked in order of decreasing mean density.

Table 4.6: Catch statistics for selected taxa collected in 35 183-m haul seine samples during Choctawhatchee Bay stratified-random sampling, 2024.

Species	Number			Density Estimate (animals/set)				Standard Length (mm)			
	No.	%	% Occur	Mean	Stderr	CV	Max	Mean	Stderr	Min	Max
<i>Leiostomus xanthurus</i>	1,288	14.9	80.0	36.80	12.59	202.48	431	114	0.66	74	206
<i>Mugil cephalus</i>	347	4.0	74.3	9.91	1.91	113.84	52	208	4.04	101	378
<i>Sciaenops ocellatus</i>	190	2.2	71.4	5.43	1.11	120.65	27	281	8.16	122	756
<i>Elops saurus</i>	134	1.5	37.1	3.83	2.78	429.16	97	238	2.78	130	423
<i>Micropogonias undulatus</i>	126	1.5	40.0	3.60	1.40	230.56	38	146	1.67	106	235
<i>Mugil curema</i>	89	1.0	54.3	2.54	0.66	153.01	16	189	4.11	100	254
<i>Cynoscion nebulosus</i>	65	0.8	45.7	1.86	0.61	195.08	16	201	7.74	131	451
<i>Brevoortia</i> spp.	52	0.6	14.3	1.49	1.23	491.19	43	61	2.23	50	106
<i>Trachinotus falcatus</i>	29	0.3	8.6	0.83	0.54	386.66	15	143	3.46	111	191
<i>Paralichthys albigutta</i>	25	0.3	34.3	0.71	0.30	248.53	10	141	11.66	75	290
<i>Lutjanus griseus</i>	13	0.2	22.9	0.37	0.14	227.01	4	149	10.92	81	203
<i>Callinectes sapidus</i>	9	0.1	20.0	0.26	0.09	218.02	2	142	14.26	37	186
<i>Menticirrhus americanus</i>	8	0.1	8.6	0.23	0.14	368.88	4	158	5.04	138	183
<i>Pogonias cromis</i>	7	0.1	8.6	0.20	0.15	433.86	5	331	16.10	294	395
<i>Caranx hippos</i>	6	0.1	8.6	0.17	0.10	360.31	3	106	12.51	70	139
<i>Trachinotus carolinus</i>	5	0.1	14.3	0.14	0.06	248.53	1	216	47.21	122	356
<i>Archosargus probatocephalus</i>	3	<0.1	8.6	0.09	0.05	331.37	1	268	87.96	95	381
<i>Caranx crysos</i>	2	<0.1	5.7	0.06	0.04	412.13	1	119	10.00	109	129
<i>Scomberomorus maculatus</i>	2	<0.1	2.9	0.06	0.06	591.61	2	154	6.50	147	160
<i>Sphyraena barracuda</i>	2	<0.1	5.7	0.06	0.04	412.13	1	278	53.00	225	331
<i>Farfantepenaeus aztecus</i>	1	<0.1	2.9	0.03	0.03	591.61	1	20	.	20	20
<i>Farfantepenaeus duorarum</i>	1	<0.1	2.9	0.03	0.03	591.61	1	21	.	21	21

Species	Number			Density Estimate (animals/set)				Standard Length (mm)			
	No.	%	% Occur	Mean	Stderr	CV	Max	Mean	Stderr	Min	Max
<i>Litopenaeus setiferus</i>	1	<0.1	2.9	0.03	0.03	591.61	1	26	.	26	26
<i>Pomatomus saltatrix</i>	1	<0.1	2.9	0.03	0.03	591.61	1	200	.	200	200
Total	2,406	27.8	.	68.74	14.06	121.03	479	.	.	20	756

Percent (%) is the percent of the total catch represented by that taxon; percent occurrence (% Occur) is the percentage of samples in which that taxon was collected; CV is the coefficient of variation of the mean. Taxa are ranked in order of decreasing mean density.

4.3 Apalachicola Bay

Apalachicola Bay is a shallow, semi-enclosed estuary, located on the northwestern coast of Florida. The estuary, bounded by a barrier island complex (St. Vincent Island, Little St. George Island, St. George Island, and Dog Island), is connected to the Gulf through four passes (Indian Pass, West Pass, Sikes Cut, and East Pass). East of Dog Island, St. George Sound is open to the Gulf (Figure 4.3). Freshwater inflow to Apalachicola Bay primarily comes from the Apalachicola River and to a lesser extent the Carrabelle River (Livingston 1983). Shoreline vegetation consists largely of marsh grasses and bottom substrates are typically characterized as sand or mud with oyster beds scattered throughout the bay (Ingle and Dawson 1953). Less than 7% of the substrate is covered by seagrass (Continental Shelf Associates, Inc. 1985a).

The Fisheries-Independent Monitoring (FIM) program has conducted intensive sampling of fish and selected invertebrates in Apalachicola Bay since 1998. The area sampled was divided into two geographically defined bay zones (A and B) and one riverine zone (C; Figure 4.3). Stratified-random sampling (SRS) was conducted in Zones A and B monthly using 21.3-m bay seines and 183-m haul seines and quarterly using 6.1-m bay otter trawls. SRS was conducted in Zone C monthly with 21.3-m river seines and bimonthly with 6.1-m river otter trawls. All methods were the same as those described in Chapter 2. This section summarizes data collected by the FIM program during 2024 in Apalachicola Bay.

Stratified-Random Sampling

A total of 144,686 animals, which included 180 taxa of fishes and 19 taxa of selected invertebrates, were collected from 594 Apalachicola Bay SRS samples in 2024 (Table 4.7, Table A.7, Table A.8, Table A.9). *Anchoa mitchilli* (n=53,356) was the most numerous taxon collected, representing 36.9% of the total catch. *Lagodon rhomboides* (n=19,144) and *Litopenaeus setiferus* (n=11,762) were the next most abundant taxa collected, accounting for an additional 21.4% of the total catch. A total of 41 selected taxa (n=43,665 animals) composed 30.2% of the total catch. *Litopenaeus setiferus* (n=11,762) was the most abundant Selected Taxon, representing 8.1% of the total catch. *Leiostomus xanthurus* (n=6,798) and *Brevoortia* spp. (n=6,750) were the next most abundant selected taxa, comprising 9.4% of the total catch. Collections in 2024 included 1 species new to the Apalachicola Bay FIM collection: *Caranx bartholomaei*.



Figure 4.3: Map of Apalachicola Bay sampling area. Zones are labeled A-C. Zones A and B are bay zones, while zone C is a riverine zone.

Table 4.7: Summary of catch and effort data for Apalachicola Bay stratified-random sampling, 2024.

Zone	21.3-m bay seine		21.3-m river seine		183-m haul seine		6.1-m otter trawl		Total	
	Hauls	Animals	Hauls	Animals	Hauls	Animals	Hauls	Animals	Hauls	Animals
A	120	42,129	.	.	99	12,988	24	19,449	243	74,566
B	120	18,403	.	.	99	16,894	24	2,663	243	37,960
C	.	.	84	6,734	.	.	24	25,426	108	32,160
Total	240	60,532	84	6,734	198	29,882	72	47,538	594	144,686

Bay Sampling

21.3-m Bay Seine

A total of 60,532 animals were collected in 240 21.3-m bay seines, representing 41.8% of the overall SRS catch (Table 4.7). *Anchoa mitchilli* (n=17,621) and *Lagodon rhomboides* (n=6,301) were the most abundant taxa, accounting for 39.5% of the bay seine catch (Table 4.8). The taxa most frequently caught in 21.3-m bay seines were *Lagodon rhomboides* (53.8% occurrence) and *Anchoa mitchilli* (35.8% occurrence).

A total of 22,180 animals from 31 selected taxa were collected, representing 36.6% of the entire 21.3-m bay seine catch (Table 4.9). *Litopenaeus setiferus* (n=5,601) was the most abundant Selected Taxon, accounting for 25.3% of the selected taxa collected by this gear. The selected taxa most frequently caught in 21.3-m bay seines were *Farfantepenaeus* spp. (38.3% occurrence) and *Leiostomus xanthurus* (35.8% occurrence).

Table 4.8: Catch statistics for 10 dominant taxa collected in 240 21.3-m bay seine samples during Apalachicola Bay stratified-random sampling, 2024.

Species	Number			Density Estimate (animals/100m ²)				Standard Length (mm)			
	No.	%	% Occur	Mean	Stderr	CV	Max	Mean	Stderr	Min	Max
<i>Anchoa mitchilli</i>	17,621	29.1	35.8	52.23	27.92	829.92	6,534.29	33	0.05	16	73
<i>Lagodon rhomboides</i>	6,301	10.4	53.8	17.86	4.02	356.90	533.57	36	0.22	12	165
<i>Litopenaeus setiferus</i>	5,601	9.3	23.3	16.67	5.58	518.96	817.86	9	0.06	3	29
<i>Leiostomus xanthurus</i>	4,388	7.2	35.8	13.06	3.04	360.39	392.86	25	0.17	10	176
<i>Mugil cephalus</i>	3,502	5.8	15.4	10.42	3.50	520.94	492.86	26	0.14	17	305
<i>Orthopristis chrysoptera</i>	3,446	5.7	22.9	10.17	4.09	624.88	890.71	32	0.21	10	184
<i>Micropogonias undulatus</i>	3,359	5.5	17.9	10.00	5.64	874.64	1,230.71	20	0.10	10	69
<i>Eucinostomus</i> spp.	3,125	5.2	27.9	9.30	3.37	562.17	647.86	24	0.11	9	39
<i>Brevoortia</i> spp.	2,914	4.8	11.2	8.67	3.53	631.22	652.14	28	0.10	19	46
<i>Menidia</i> spp.	1,439	2.4	25.4	4.26	1.40	510.47	205.00	46	0.35	21	100
Subtotal	51,696	85.4	.	.	.	.	.	.	.	3	305
Total	60,532	100.0	.	180.15	30.80	264.84	6,535.00	.	.	3	515

Percent (%) is the percent of the total catch represented by that taxon; percent occurrence (% Occur) is the percentage of samples in which that taxon was collected; CV is the coefficient of variation of the mean. Taxa are ranked in order of decreasing mean density.

Table 4.9: Catch statistics for selected taxa collected in 240 21.3-m bay seine samples during Apalachicola Bay stratified-random sampling, 2024.

Species	Number			Density Estimate (animals/100m ²)				Standard Length (mm)			
	No.	%	% Occur	Mean	Stderr	CV	Max	Mean	Stderr	Min	Max
<i>Litopenaeus setiferus</i>	5,601	9.3	23.3	16.67	5.58	518.96	817.86	9	0.06	3	29
<i>Leiostomus xanthurus</i>	4,388	7.2	35.8	13.06	3.04	360.39	392.86	25	0.17	10	176
<i>Mugil cephalus</i>	3,502	5.8	15.4	10.42	3.50	520.94	492.86	26	0.14	17	305
<i>Micropogonias undulatus</i>	3,359	5.5	17.9	10.00	5.64	874.64	1,230.71	20	0.10	10	69
<i>Brevoortia</i> spp.	2,914	4.8	11.2	8.67	3.53	631.22	652.14	28	0.10	19	46
<i>Farfantepenaeus</i> spp.	716	1.2	38.3	2.13	0.40	293.96	52.86	8	0.10	3	14
<i>Callinectes sapidus</i>	441	0.7	33.8	1.31	0.24	285.18	30.00	15	0.94	4	170
<i>Cynoscion arenarius</i>	313	0.5	12.5	0.93	0.24	401.74	32.14	25	0.53	12	61
<i>Sciaenops ocellatus</i>	283	0.5	13.3	0.84	0.39	710.45	70.00	40	3.54	11	491
<i>Menticirrhus americanus</i>	183	0.3	12.5	0.54	0.15	440.27	24.29	33	1.28	14	120
<i>Cynoscion nebulosus</i>	131	0.2	17.1	0.39	0.09	363.24	12.86	41	3.27	10	361
<i>Mugil curema</i>	85	0.1	4.6	0.25	0.13	773.77	24.29	27	2.33	20	180
<i>Paralichthys albigutta</i>	63	0.1	15.8	0.19	0.05	378.92	9.29	47	5.95	10	277
<i>Lutjanus griseus</i>	49	0.1	5.4	0.15	0.06	672.83	12.14	34	1.99	15	70
<i>Menticirrhus saxatilis</i>	33	0.1	4.6	0.10	0.04	662.73	8.57	31	2.23	12	60
<i>Paralichthys lethostigma</i>	27	<0.1	4.6	0.08	0.03	591.87	5.00	34	11.84	11	335
<i>Farfantepenaeus duorarum</i>	13	<0.1	3.8	0.04	0.01	563.87	2.14	17	0.54	15	22
<i>Haemulon plumieri</i>	13	<0.1	0.8	0.04	0.03	1,171.85	6.43	36	1.49	28	45
<i>Lutjanus synagris</i>	13	<0.1	3.3	0.04	0.02	612.37	2.14	37	5.27	19	82
<i>Centropristis striata</i>	11	<0.1	1.7	0.03	0.02	962.34	4.29	58	10.10	36	155
<i>Archosargus probatocephalus</i>	8	<0.1	2.5	0.02	0.01	664.71	1.43	33	5.11	15	58
<i>Argopecten irradians</i>	6	<0.1	2.1	0.02	0.01	724.93	1.43	19	10.27	5	70

Species	Number			Density Estimate (animals/100m ²)				Standard Length (mm)			
	No.	%	% Occur	Mean	Stderr	CV	Max	Mean	Stderr	Min	Max
<i>Mugil trichodon</i>	6	<0.1	0.8	0.02	0.02	1,315.50	3.57	26	1.00	21	27
<i>Trachinotus falcatus</i>	6	<0.1	0.8	0.02	0.02	1,315.50	3.57	23	2.21	13	28
<i>Pogonias cromis</i>	5	<0.1	2.1	0.01	0.01	687.00	0.71	198	23.57	142	260
<i>Elops saurus</i>	3	<0.1	1.2	0.01	0.01	890.68	0.71	38	0.33	38	39
<i>Farfantepenaeus aztecus</i>	3	<0.1	1.2	0.01	0.01	890.68	0.71	19	1.67	17	22
<i>Menippe</i> spp.	2	<0.1	0.8	0.01	<0.01	1,093.15	0.71	11	1.00	10	12
<i>Caranx hippos</i>	1	<0.1	0.4	<0.01	<0.01	1,549.19	0.71	36	.	36	36
<i>Diplectrum formosum</i>	1	<0.1	0.4	<0.01	<0.01	1,549.19	0.71	45	.	45	45
<i>Elops smithi</i>	1	<0.1	0.4	<0.01	<0.01	1,549.19	0.71	38	.	38	38
Total	22,180	36.6	.	66.01	10.58	248.32	1,256.43	.	.	3	491

Percent (%) is the percent of the total catch represented by that taxon; percent occurrence (% Occur) is the percentage of samples in which that taxon was collected; CV is the coefficient of variation of the mean. Taxa are ranked in order of decreasing mean density.

183-m Haul Seine

A total of 29,882 animals were collected in 198 183-m haul seines, representing 20.7% of the overall SRS catch (Table 4.7). *Lagodon rhomboides* (n=12,481) was the most abundant taxon, accounting for 41.8% of the 183-m haul seine catch (Table 4.10). The taxa most frequently caught in 183-m haul seines were *Mugil cephalus* (83.3% occurrence), *Lagodon rhomboides* (77.3% occurrence), and *Hypanus sabinus* (70.2% occurrence).

A total of 11,461 animals from 33 selected taxa were collected, representing 38.4% of the entire 183-m haul seine catch (Table 4.11). *Brevoortia* spp. (n=2,892) and *Mugil cephalus* (n=2,555) were the most abundant selected taxa, accounting for 47.5% of the selected taxa collected by this gear. The selected taxa most frequently caught in 183-m haul seines were *Mugil cephalus* (83.3% occurrence) and *Sciaenops ocellatus* (60.6% occurrence).

Table 4.10: Catch statistics for 10 dominant taxa collected in 198 183-m haul seine samples during Apalachicola Bay stratified-random sampling, 2024.

Species	Number			Density Estimate (animals/set)				Standard Length (mm)			
	No.	%	% Occur	Mean	Stderr	CV	Max	Mean	Stderr	Min	Max
<i>Lagodon rhomboides</i>	12,481	41.8	77.3	62.41	9.14	207.12	1,292	110	0.24	39	234
<i>Brevoortia</i> spp.	2,892	9.7	10.1	14.61	7.86	757.27	1,269	116	0.76	62	218
<i>Mugil cephalus</i>	2,555	8.6	83.3	12.90	1.55	169.48	157	249	1.44	96	520
<i>Leiostomus xanthurus</i>	2,010	6.7	57.1	10.15	1.71	236.60	225	144	0.72	43	235
<i>Bairdiella chrysoura</i>	2,008	6.7	31.8	10.14	2.52	350.00	293	134	0.29	85	170
<i>Micropogonias undulatus</i>	1,012	3.4	27.3	5.11	1.32	363.61	154	165	0.74	100	288
<i>Orthopristis chrysoptera</i>	921	3.1	37.9	4.61	0.74	227.97	79	134	1.14	40	212
<i>Hypanus sabinus</i>	859	2.9	70.2	4.34	0.60	193.47	94	216	1.33	110	373
<i>Harengula jaguana</i>	602	2.0	7.6	3.04	2.32	1,075.10	451	110	0.50	55	140
<i>Litopenaeus setiferus</i>	541	1.8	15.7	2.73	1.35	694.10	248	20	0.14	8	34
Subtotal	25,881	86.7	.	.	.	.	.	.	.	8	520
Total	29,882	100.0	.	150.92	16.40	152.89	1,635	.	.	6	952

Percent (%) is the percent of the total catch represented by that taxon; percent occurrence (% Occur) is the percentage of samples in which that taxon was collected; CV is the coefficient of variation of the mean. Taxa are ranked in order of decreasing mean density.

Table 4.11: Catch statistics for selected taxa collected in 198 183-m haul seine samples during Apalachicola Bay stratified-random sampling, 2024.

Species	Number			Density Estimate (animals/set)				Standard Length (mm)			
	No.	%	% Occur	Mean	Stderr	CV	Max	Mean	Stderr	Min	Max
<i>Brevoortia</i> spp.	2,892	9.7	10.1	14.61	7.86	757.27	1,269	116	0.76	62	218
<i>Mugil cephalus</i>	2,555	8.6	83.3	12.90	1.55	169.48	157	249	1.44	96	520
<i>Leiostomus xanthurus</i>	2,010	6.7	57.1	10.15	1.71	236.60	225	144	0.72	43	235
<i>Micropogonias undulatus</i>	1,012	3.4	27.3	5.11	1.32	363.61	154	165	0.74	100	288
<i>Litopenaeus setiferus</i>	541	1.8	15.7	2.73	1.35	694.10	248	20	0.14	8	34
<i>Mugil curema</i>	533	1.8	35.4	2.69	0.69	358.61	80	202	2.07	108	340
<i>Sciaenops ocellatus</i>	497	1.7	60.6	2.51	0.27	151.46	19	334	5.11	91	705
<i>Cynoscion nebulosus</i>	365	1.2	47.0	1.84	0.25	193.79	25	201	4.62	53	558
<i>Paralichthys albigutta</i>	243	0.8	39.9	1.23	0.17	194.87	13	159	3.78	46	420
<i>Elops saurus</i>	206	0.7	26.8	1.04	0.18	247.07	21	269	3.39	128	375
<i>Pogonias cromis</i>	135	0.5	21.2	0.68	0.18	364.53	29	217	5.25	126	444
<i>Callinectes sapidus</i>	133	0.4	27.8	0.67	0.12	242.72	13	118	3.76	23	193
<i>Archosargus probatocephalus</i>	111	0.4	26.8	0.56	0.10	246.75	10	304	6.35	156	424
<i>Farfantepenaeus duorarum</i>	44	0.1	6.6	0.22	0.13	818.80	25	20	0.48	15	28
<i>Paralichthys lethostigma</i>	34	0.1	11.6	0.17	0.04	332.35	5	273	15.57	77	473
<i>Caranx hippos</i>	24	0.1	5.6	0.12	0.04	481.45	4	175	19.30	74	405
<i>Farfantepenaeus</i> spp.	24	0.1	4.5	0.12	0.06	662.64	10	11	0.46	6	14
<i>Menticirrhus americanus</i>	23	0.1	8.1	0.12	0.04	452.08	6	144	5.00	115	197
<i>Cynoscion arenarius</i>	16	0.1	4.0	0.08	0.03	589.52	5	177	15.63	64	268
<i>Trachinotus falcatus</i>	15	0.1	3.0	0.08	0.05	881.55	9	115	3.65	87	133
<i>Pomatomus saltatrix</i>	11	<0.1	2.0	0.06	0.03	873.47	6	113	2.09	102	127
<i>Centropristis striata</i>	8	<0.1	1.5	0.04	0.02	820.99	3	145	16.67	84	227

Species	Number			Density Estimate (animals/set)				Standard Length (mm)			
	No.	%	% Occur	Mean	Stderr	CV	Max	Mean	Stderr	Min	Max
<i>Lutjanus griseus</i>	5	<0.1	2.5	0.03	0.01	622.86	1	121	27.03	55	180
<i>Menticirrhus saxatilis</i>	5	<0.1	1.0	0.03	0.02	1,158.96	4	146	14.68	125	204
<i>Sphyrna tiburo</i>	4	<0.1	1.0	0.02	0.01	992.46	2	554	28.85	472	605
<i>Trachinotus carolinus</i>	4	<0.1	1.5	0.02	0.01	858.03	2	201	73.85	48	360
<i>Argopecten irradians</i>	2	<0.1	1.0	0.01	0.01	992.46	1	60	4.50	55	64
<i>Caranx crysos</i>	2	<0.1	0.5	0.01	0.01	1,407.12	2	117	5.00	112	122
<i>Lobotes surinamensis</i>	2	<0.1	1.0	0.01	0.01	992.46	1	358	4.50	354	363
<i>Mycteroperca microlepis</i>	2	<0.1	1.0	0.01	0.01	992.46	1	170	20.00	150	190
<i>Carcharhinus leucas</i>	1	<0.1	0.5	0.01	0.01	1,407.12	1	587	.	587	587
<i>Megalops atlanticus</i>	1	<0.1	0.5	0.01	0.01	1,407.12	1	890	.	890	890
<i>Scomberomorus maculatus</i>	1	<0.1	0.5	0.01	0.01	1,407.12	1	250	.	250	250
Total	11,461	38.4	.	57.88	9.37	227.70	1,434	.	.	6	890

Percent (%) is the percent of the total catch represented by that taxon; percent occurrence (% Occur) is the percentage of samples in which that taxon was collected; CV is the coefficient of variation of the mean. Taxa are ranked in order of decreasing mean density.

6.1-m Bay Otter Trawl

A total of 22,112 animals were collected in 48 6.1-m bay otter trawls, representing 15.3% of the overall SRS catch (Table 4.7). *Anchoa mitchilli* (n=16,944), *Litopenaeus setiferus* (n=996), *Ariopsis felis* (n=503), and *Etropus crossotus* (n=468) were the most abundant taxa, accounting for 85.5% of the 6.1-m bay otter trawl catch (Table 4.12). The taxa most frequently caught in 6.1-m bay otter trawls were *Etropus crossotus* (83.3% occurrence), *Anchoa mitchilli* (68.8% occurrence), and *Micropogonias undulatus* (60.4% occurrence).

A total of 2,246 animals from 18 selected taxa were collected, representing 10.2% of the entire 6.1-m bay otter trawl catch (Table 4.13). *Litopenaeus setiferus* (n=996), *Micropogonias undulatus* (n=366), and *Cynoscion arenarius* (n=312) were the most abundant selected taxa, accounting for 74.5% of the selected taxa collected by this gear. The selected taxa most frequently caught in 6.1-m bay otter trawls were *Micropogonias undulatus* (60.4% occurrence), *Farfantepenaeus duorarum* (56.2% occurrence), and *Litopenaeus setiferus* (47.9% occurrence).

Table 4.12: Catch statistics for 10 dominant taxa collected in 48 6.1-m bay otter trawl samples during Apalachicola Bay stratified-random sampling, 2024.

Species	Number			Density Estimate (animals/100m ²)				Standard Length (mm)			
	No.	%	% Occur	Mean	Stderr	CV	Max	Mean	Stderr	Min	Max
<i>Anchoa mitchilli</i>	16,944	76.6	68.8	21.55	10.13	332.52	418.00	26	0.11	12	77
<i>Litopenaeus setiferus</i>	996	4.5	47.9	1.38	0.44	224.25	16.53	22	0.19	4	42
<i>Ariopsis felis</i>	503	2.3	54.2	0.68	0.21	216.47	7.52	84	1.58	41	310
<i>Etropus crossotus</i>	468	2.1	83.3	0.61	0.10	118.31	3.37	72	0.81	12	110
<i>Micropogonias undulatus</i>	366	1.7	60.4	0.51	0.15	201.03	5.46	58	1.98	8	189
<i>Cynoscion arenarius</i>	312	1.4	35.4	0.42	0.20	341.40	9.71	42	2.17	8	210
<i>Lagodon rhomboides</i>	307	1.4	39.6	0.42	0.19	316.85	7.62	76	0.96	12	133
<i>Orthopristis chrysoptera</i>	249	1.1	37.5	0.33	0.09	189.82	2.76	91	1.43	41	156
<i>Bairdiella chrysoura</i>	222	1.0	29.2	0.29	0.11	259.29	2.82	117	0.73	38	135
<i>Stellifer lanceolatus</i>	158	0.7	6.2	0.22	0.18	558.11	8.36	46	2.67	6	133
Subtotal	20,525	92.8	.	.	.	.	.	.	.	4	310
Total	22,112	100.0	.	29.56	13.93	326.45	607.86	.	.	3	621

Percent (%) is the percent of the total catch represented by that taxon; percent occurrence (% Occur) is the percentage of samples in which that taxon was collected; CV is the coefficient of variation of the mean. Taxa are ranked in order of decreasing mean density.

Table 4.13: Catch statistics for selected taxa collected in 48 6.1-m bay otter trawl samples during Apalachicola Bay stratified-random sampling, 2024.

Species	Number			Density Estimate (animals/100m ²)				Standard Length (mm)			
	No.	%	% Occur	Mean	Stderr	CV	Max	Mean	Stderr	Min	Max
<i>Litopenaeus setiferus</i>	996	4.5	47.9	1.38	0.44	224.25	16.53	22	0.19	4	42
<i>Micropogonias undulatus</i>	366	1.7	60.4	0.51	0.15	201.03	5.46	58	1.98	8	189
<i>Cynoscion arenarius</i>	312	1.4	35.4	0.42	0.20	341.40	9.71	42	2.17	8	210
<i>Menticirrhus americanus</i>	131	0.6	37.5	0.18	0.08	317.46	3.78	50	2.95	17	207
<i>Leiostomus xanthurus</i>	107	0.5	43.8	0.14	0.07	337.78	3.19	84	3.38	11	162
<i>Farfantepenaeus</i> spp.	92	0.4	33.3	0.12	0.07	381.64	3.24	9	0.31	4	14
<i>Farfantepenaeus duorarum</i>	78	0.4	56.2	0.11	0.02	145.39	0.74	20	0.48	15	33
<i>Callinectes sapidus</i>	58	0.3	39.6	0.08	0.02	161.45	0.54	57	6.89	8	174
<i>Menippe</i> spp.	42	0.2	29.2	0.06	0.03	324.25	1.16	17	2.55	3	83
<i>Paralichthys albigutta</i>	23	0.1	22.9	0.03	0.01	222.72	0.31	133	7.89	88	241
<i>Lutjanus synagris</i>	19	0.1	14.6	0.03	0.01	354.12	0.58	42	6.63	17	101
<i>Diplectrum formosum</i>	8	<0.1	8.3	0.01	0.01	394.89	0.26	57	11.36	23	120
<i>Centropristis striata</i>	5	<0.1	6.2	0.01	<0.01	455.72	0.19	80	21.01	41	150
<i>Cynoscion nebulosus</i>	3	<0.1	2.1	<0.01	<0.01	692.82	0.19	81	5.81	70	90
<i>Paralichthys lethostigma</i>	3	<0.1	4.2	<0.01	<0.01	515.70	0.14	161	56.76	54	247
<i>Caranx hippos</i>	1	<0.1	2.1	<0.01	<0.01	692.82	0.07	29	.	29	29
<i>Centropristis philadelphica</i>	1	<0.1	2.1	<0.01	<0.01	692.82	0.06	131	.	131	131
<i>Farfantepenaeus aztecus</i>	1	<0.1	2.1	<0.01	<0.01	692.82	0.07	25	.	25	25
Total	2,246	10.2	.	3.13	0.73	160.80	25.50	.	.	3	247

Percent (%) is the percent of the total catch represented by that taxon; percent occurrence (% Occur) is the percentage of samples in which that taxon was collected; CV is the coefficient of variation of the mean. Taxa are ranked in order of decreasing mean density.

River Sampling

21.3-m River Seine

A total of 6,734 animals were collected in 84 21.3-m river seines, representing 4.7% of the overall SRS catch (Table 4.7). *Gambusia holbrooki* (n=1,163) was the most abundant taxon collected, accounting for 17.3% of the 21.3-m river seine catch (Table 4.14). *Brevoortia* spp. (n=925) and *Alburnops petersoni* (n=781) were the next most abundant taxa, accounting for an additional 25.3% of the 21.3-m river seine catch. The taxa most frequently caught in 21.3-m river seines were *Micropterus salmoides* (61.9% occurrence), *Callinectes sapidus* (56.0% occurrence), and *Lucania parva* (50.0% occurrence).

A total of 1,442 animals from 11 selected taxa were collected, representing 21.4% of the entire 21.3-m river seine catch (Table 4.15). *Brevoortia* spp. (n=925), and *Callinectes sapidus* (n=229) were the most abundant selected taxa, accounting for 80% of the selected taxa collected by this gear. The selected taxa most frequently caught in 21.3-m river seines were *Callinectes sapidus* (56.0% occurrence) and *Brevoortia* spp. (15.5% occurrence).

Table 4.14: Catch statistics for 10 dominant taxa collected in 84 21.3-m river seine samples during Apalachicola Bay stratified-random sampling, 2024.

Species	Number			Density Estimate (animals/100m ²)				Standard Length (mm)			
	No.	%	% Occur	Mean	Stderr	CV	Max	Mean	Stderr	Min	Max
<i>Gambusia holbrooki</i>	1,163	17.3	26.2	20.36	13.92	626.80	1,155.88	21	0.13	9	41
<i>Brevoortia</i> spp.	925	13.7	15.5	16.19	13.12	742.58	1,097.06	23	0.05	20	27
<i>Alburnops petersoni</i>	781	11.6	33.3	13.67	5.62	376.50	379.41	32	0.22	16	56
<i>Lucania parva</i>	505	7.5	50.0	8.84	4.50	466.26	373.53	23	0.20	10	39
<i>Anchoa mitchilli</i>	476	7.1	25.0	8.33	3.26	358.27	175.00	27	0.24	19	43
<i>Menidia</i> spp.	429	6.4	22.6	7.51	3.34	407.22	202.94	45	0.33	22	60
<i>Callinectes sapidus</i>	229	3.4	56.0	4.01	0.73	166.14	39.71	18	1.24	4	145
<i>Micropterus salmoides</i>	210	3.1	61.9	3.63	0.68	171.79	33.82	77	5.40	16	365
<i>Notemigonus crysoleucas</i>	207	3.1	25.0	3.62	1.13	284.68	70.59	45	1.35	22	127
<i>Leiostomus xanthurus</i>	195	2.9	7.1	3.41	1.96	527.25	150.00	17	0.19	11	25
Subtotal	5,120	76.1	.	.	.	.	.	.	.	4	365
Total	6,734	100.0	.	117.89	26.35	204.84	1,800.00	.	.	3	570

Percent (%) is the percent of the total catch represented by that taxon; percent occurrence (% Occur) is the percentage of samples in which that taxon was collected; CV is the coefficient of variation of the mean. Taxa are ranked in order of decreasing mean density.

Table 4.15: Catch statistics for selected taxa collected in 84 21.3-m river seine samples during Apalachicola Bay stratified-random sampling, 2024.

Species	Number			Density Estimate (animals/100m ²)				Standard Length (mm)			
	No.	%	% Occur	Mean	Stderr	CV	Max	Mean	Stderr	Min	Max
<i>Brevoortia</i> spp.	925	13.7	15.5	16.19	13.12	742.58	1,097.06	23	0.05	20	27
<i>Callinectes sapidus</i>	229	3.4	56.0	4.01	0.73	166.14	39.71	18	1.24	4	145
<i>Leiostomus xanthurus</i>	195	2.9	7.1	3.41	1.96	527.25	150.00	17	0.19	11	25
<i>Micropogonias undulatus</i>	28	0.4	2.4	0.49	0.44	823.01	36.76	21	0.80	13	30
<i>Litopenaeus setiferus</i>	18	0.3	4.8	0.32	0.19	556.76	14.71	5	0.61	3	12
<i>Sciaenops ocellatus</i>	12	0.2	1.2	0.21	0.21	916.52	17.65	28	1.32	21	37
<i>Paralichthys lethostigma</i>	9	0.1	7.1	0.16	0.07	410.24	4.41	93	42.65	11	340
<i>Farfantepenaeus</i> spp.	8	0.1	1.2	0.14	0.14	916.52	11.76	6	0.30	5	7
<i>Lutjanus griseus</i>	7	0.1	4.8	0.12	0.07	500.12	4.41	53	4.67	30	67
<i>Cynoscion nebulosus</i>	6	0.1	6.0	0.11	0.05	422.84	2.94	43	4.25	29	57
<i>Mugil cephalus</i>	5	0.1	3.6	0.09	0.06	603.27	4.41	27	2.06	21	34
Total	1,442	21.4	.	25.25	13.28	482.26	1,104.41	.	.	3	340

Percent (%) is the percent of the total catch represented by that taxon; percent occurrence (% Occur) is the percentage of samples in which that taxon was collected; CV is the coefficient of variation of the mean. Taxa are ranked in order of decreasing mean density.

6.1-m River Otter Trawl

A total of 25,426 animals were collected in 24 6.1-m river otter trawls, representing 17.6% of the overall SRS catch (Table 4.7). *Anchoa mitchilli* (n=18,302) was the most abundant taxon collected, accounting for 72% of the 6.1-m river otter trawl catch (Table 4.16). The taxa most frequently caught in 6.1-m river otter trawls were *Anchoa mitchilli* (66.7% occurrence), *Callinectes sapidus* (62.5% occurrence), and *Cynoscion arenarius* (58.3% occurrence).

A total of 6,336 animals from 13 selected taxa were collected, representing 24.9% of the entire 6.1-m river otter trawl catch (Table 4.17). *Litopenaeus setiferus* (n=4,606), *Cynoscion arenarius* (n=1,014), and *Micropogonias undulatus* (n=475) were the most abundant selected taxa, accounting for 96.2% of the selected taxa collected by this gear. The selected taxa most frequently caught in the 6.1-m river otter trawls were *Callinectes sapidus* (62.5% occurrence) and *Cynoscion arenarius* (58.3% occurrence).

Table 4.16: Catch statistics for 10 dominant taxa collected in 24 6.1-m river otter trawl samples during Apalachicola Bay stratified-random sampling, 2024.

Species	Number			Density Estimate (animals/100m ²)				Standard Length (mm)			
	No.	%	% Occur	Mean	Stderr	CV	Max	Mean	Stderr	Min	Max
<i>Anchoa mitchilli</i>	18,302	72.0	66.7	83.38	30.04	187.22	584.31	27	0.04	15	51
<i>Litopenaeus setiferus</i>	4,606	18.1	45.8	20.43	11.68	291.53	290.52	14	0.08	4	24
<i>Cynoscion arenarius</i>	1,014	4.0	58.3	4.46	2.06	240.21	50.37	31	0.38	11	95
<i>Micropogonias undulatus</i>	475	1.9	54.2	2.61	1.38	258.28	26.71	16	0.50	9	186
<i>Eucinostomus</i> spp.	303	1.2	45.8	1.45	0.68	239.30	16.19	23	0.37	12	39
<i>Symphurus plagiusa</i>	219	0.9	16.7	1.05	0.82	390.50	20.11	40	0.74	19	58
<i>Leiostomus xanthurus</i>	98	0.4	20.8	0.67	0.62	449.74	14.84	31	2.05	14	156
<i>Callinectes sapidus</i>	69	0.3	62.5	0.38	0.17	223.85	4.18	45	6.40	5	177
<i>Gobiosoma</i> spp.	44	0.2	25.0	0.21	0.14	349.61	3.60	15	0.44	10	19
<i>Eucinostomus harengulus</i>	39	0.2	33.3	0.20	0.09	236.52	2.16	51	1.33	41	72
Subtotal	25,169	99.2	.	.	.	.	.	.	.	4	186
Total	25,426	100.0	.	129.14	42.64	161.75	694.93	.	.	4	414

Percent (%) is the percent of the total catch represented by that taxon; percent occurrence (% Occur) is the percentage of samples in which that taxon was collected; CV is the coefficient of variation of the mean. Taxa are ranked in order of decreasing mean density.

Table 4.17: Catch statistics for selected taxa collected in 24 6.1-m river otter trawl samples during Apalachicola Bay stratified-random sampling, 2024.

Species	Number			Density Estimate (animals/100m ²)				Standard Length (mm)			
	No.	%	% Occur	Mean	Stderr	CV	Max	Mean	Stderr	Min	Max
<i>Litopenaeus setiferus</i>	4,606	18.1	45.8	20.43	11.68	291.53	290.52	14	0.08	4	24
<i>Cynoscion arenarius</i>	1,014	4.0	58.3	4.46	2.06	240.21	50.37	31	0.38	11	95
<i>Micropogonias undulatus</i>	475	1.9	54.2	2.61	1.38	258.28	26.71	16	0.50	9	186
<i>Leiostomus xanthurus</i>	98	0.4	20.8	0.67	0.62	449.74	14.84	31	2.05	14	156
<i>Callinectes sapidus</i>	69	0.3	62.5	0.38	0.17	223.85	4.18	45	6.40	5	177
<i>Brevoortia</i> spp.	19	0.1	4.2	0.13	0.13	489.90	3.20	23	0.28	20	25
<i>Paralichthys lethostigma</i>	16	0.1	25.0	0.09	0.05	284.52	1.21	177	15.32	43	329
<i>Cynoscion nebulosus</i>	15	0.1	12.5	0.07	0.06	388.02	1.35	85	5.92	38	133
<i>Archosargus probatocephalus</i>	10	<0.1	20.8	0.05	0.02	195.42	0.40	231	35.26	97	414
<i>Farfantepenaeus</i> spp.	9	<0.1	8.3	0.04	0.04	432.56	0.90	8	0.22	6	8
<i>Menticirrhus americanus</i>	2	<0.1	4.2	0.01	0.01	489.90	0.25	40	4.50	36	45
<i>Sciaenops ocellatus</i>	2	<0.1	8.3	0.01	0.01	339.21	0.13	196	179.00	17	375
<i>Mugil cephalus</i>	1	<0.1	4.2	0.01	0.01	489.90	0.12	44	.	44	44
Total	6,336	24.9	.	31.24	18.76	294.24	454.22	.	.	4	414

Percent (%) is the percent of the total catch represented by that taxon; percent occurrence (% Occur) is the percentage of samples in which that taxon was collected; CV is the coefficient of variation of the mean. Taxa are ranked in order of decreasing mean density.

4.4 Cedar Key

Cedar Key is in the Suwannee River estuary, an open system located along the Gulf Coast of Florida within the area known as the Big Bend. Freshwater inflow into the estuary comes primarily from the Suwannee River with additional input from many fringing marsh tidal creeks (Lindberg et al. 1992). The shoreline consists largely of marsh grasses, oyster bars, and mud flats. Seagrass meadows primarily occur in the southern portions of the estuary (Tuckey and Dehaven 2006).

The Fisheries-Independent Monitoring (FIM) program has conducted intensive sampling in the Cedar Key area since 1996. The area sampled was divided into two geographically-defined bay zones (B and C) and one riverine zone (F; Figure 4.4). Stratified-random sampling (SRS) was conducted in Zones B and C monthly using 21.3-m bay seines and 183-m haul seines and quarterly using 6.1-m bay otter trawls. Tidal creeks in Zone B were sampled using 21.3-m river seines. Monthly SRS was conducted in Zone F with 21.3-m river seines and 6.1-m river otter trawls. All methods were the same as those described in the Methods section of this report. This section summarizes data collected by the FIM program during 2024 in the Cedar Key area.

Stratified-Random Sampling

A total of 49,733 animals, which included 139 taxa of fishes and 9 taxa of selected invertebrates, were collected from 652 Cedar Key SRS samples in 2024 (Table 4.18, Table A.10, Table A.11, Table A.12). *Anchoa mitchilli* (n=9,732) was the most numerous taxon collected, representing 19.6% of the total catch. *Leiostomus xanthurus* (n=6,749) and *Mugil cephalus* (n=3,714) were the next most abundant taxa collected, accounting for an additional 21% of the total catch. A total of 37 Selected Taxa (n=18,380 animals) composed 37% of the total catch. *Leiostomus xanthurus* (n=6,749) was the most abundant Selected Taxon, representing 13.6% of the total catch. *Mugil cephalus* (n=3,714), *Litopenaeus setiferus* (n=2,307), *Brevoortia* spp. (n=1,121), and *Callinectes sapidus* (n=944) were the next most abundant Selected Taxa, comprising 16.3% of the total catch. Collections in 2024 included 2 species new to the CK FIM collection: *Ginglymostoma cirratum*, *Pteronotropis harperi*.

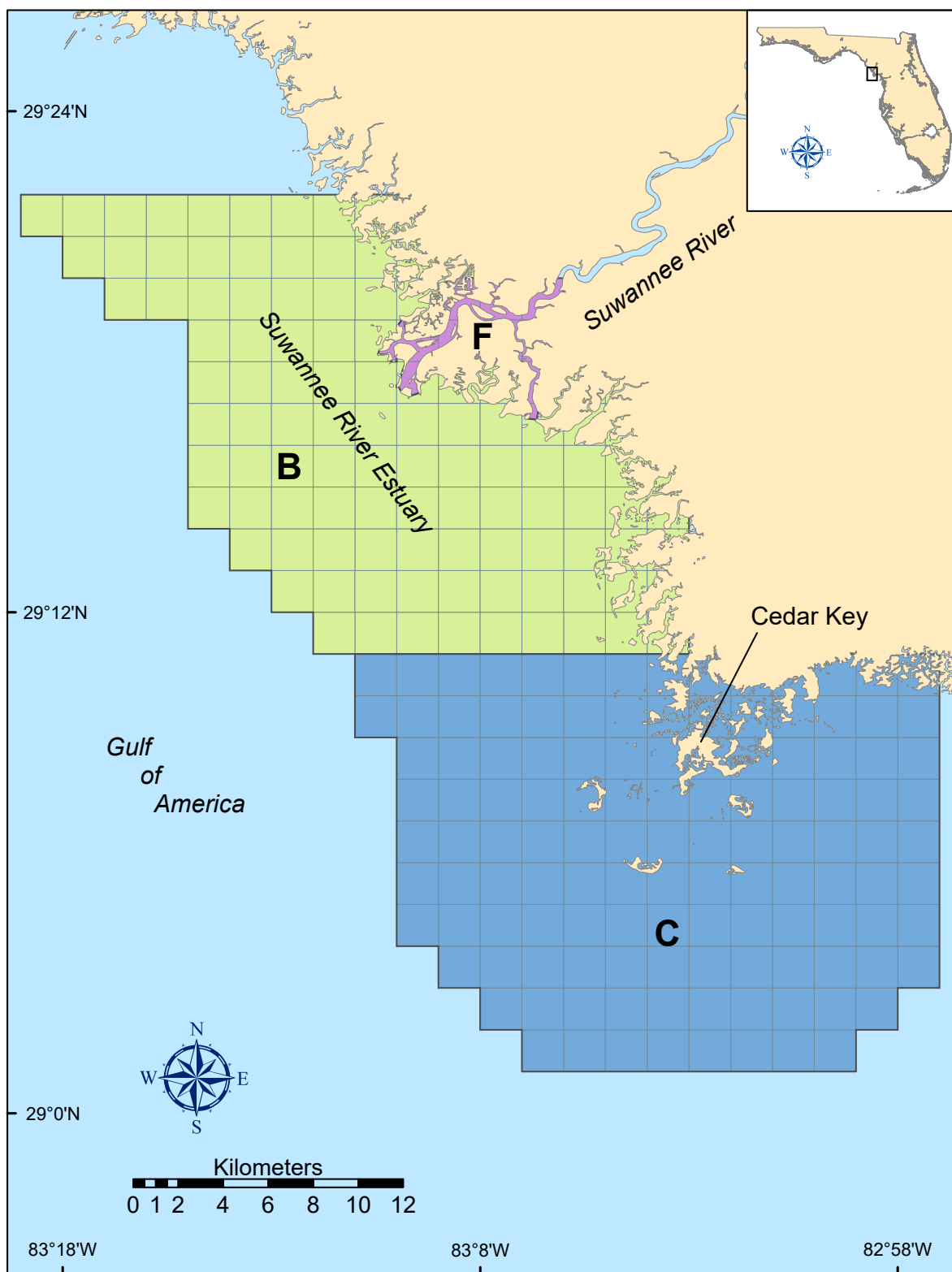


Figure 4.4: Map of Cedar Key sampling area. Zones are labeled B, C, and F.

Table 4.18: Summary of catch and effort data for Cedar Key stratified-random sampling, 2024.

Zone	21.3-m bay seine		21.3-m river seine		183-m haul seine		6.1-m otter trawl		Total	
	Hauls	Animals	Hauls	Animals	Hauls	Animals	Hauls	Animals	Hauls	Animals
B	120	10,610	108	10,390	96	5,622	20	3,566	344	30,188
C	132	7,297	.	.	96	8,090	20	1,068	248	16,455
F	.	.	60	3,090	.	.	.	.	60	3,090
Total	252	17,907	168	13,480	192	13,712	40	4,634	652	49,733

Bay Sampling

21.3-m Bay Seine

A total of 17,907 animals were collected in 252 21.3-m bay seines, representing 36% of the overall SRS catch (Table 4.18). *Anchoa mitchilli* (n = 3,914) and *Leiostomus xanthurus* (n = 3,275) were the most abundant taxa, accounting for 40.1% of the bay seine catch (Table 4.19). The taxa most frequently caught in 21.3-m bay seines were *Anchoa mitchilli* (35.3% occurrence) and *Leiostomus xanthurus* (29.8% occurrence).

A total of 7,241 animals from 25 Selected Taxa were collected, representing 40.4% of the entire 21.3-m bay seine catch (Table 4.20). *Leiostomus xanthurus* (n=3,275) was the most abundant Selected Taxon, accounting for 45.2% of the Selected Taxa collected by this gear. The Selected Taxa most frequently caught in 21.3-m bay seines were *Leiostomus xanthurus* (29.8% occurrence) and *Callinectes sapidus* (23.4% occurrence).

Table 4.19: Catch statistics for 10 dominant taxa collected in 252 21.3-m bay seine samples during Cedar Key stratified-random sampling, 2024.

Species	Number			Density Estimate (animals/100m ²)				Standard Length (mm)			
	No.	%	% Occur	Mean	Stderr	CV	Max	Mean	Stderr	Min	Max
<i>Anchoa mitchilli</i>	3,914	21.9	35.3	11.09	3.22	460.60	657.86	43	0.18	16	72
<i>Leiostomus xanthurus</i>	3,275	18.3	29.8	9.28	2.73	466.61	402.14	23	0.24	12	173
<i>Mugil cephalus</i>	1,704	9.5	15.9	4.83	2.39	786.15	438.57	32	0.95	16	321
<i>Membras martinica</i>	1,378	7.7	15.5	3.91	2.06	837.94	432.86	51	0.40	21	104
<i>Ariopsis felis</i>	1,173	6.6	19.4	3.29	1.47	716.22	329.29	94	1.66	46	314
<i>Menidia</i> spp.	884	4.9	28.2	2.51	0.66	420.09	111.43	65	0.48	28	94
<i>Brevoortia</i> spp.	722	4.0	8.7	2.05	1.05	813.43	217.14	36	0.54	17	122
<i>Eucinostomus</i> spp.	613	3.4	18.3	1.74	0.49	448.34	91.43	28	0.26	12	39
<i>Lagodon rhomboides</i>	425	2.4	27.0	1.20	0.26	349.17	34.29	60	1.33	12	152
<i>Bairdiella chrysoura</i>	423	2.4	10.3	1.20	0.50	661.76	99.29	48	1.45	11	150
Subtotal	14,511	81.1	.	.	.	.	.	.	.	11	321
Total	17,907	100.0	.	50.76	6.52	203.76	710.71	.	.	3	595

Percent (%) is the percent of the total catch represented by that taxon; percent occurrence (% Occur) is the percentage of samples in which that taxon was collected; CV is the coefficient of variation of the mean. Taxa are ranked in order of decreasing mean density.

Table 4.20: Catch statistics for Selected Taxa collected in 252 21.3-m bay seine samples during Cedar Key stratified-random sampling, 2024.

Species	Number			Density Estimate (animals/100m ²)				Standard Length (mm)			
	No.	%	% Occur	Mean	Stderr	CV	Max	Mean	Stderr	Min	Max
<i>Leiostomus xanthurus</i>	3,275	18.3	29.8	9.28	2.73	466.61	402.14	23	0.24	12	173
<i>Mugil cephalus</i>	1,704	9.5	15.9	4.83	2.39	786.15	438.57	32	0.95	16	321
<i>Brevoortia</i> spp.	722	4.0	8.7	2.05	1.05	813.43	217.14	36	0.54	17	122
<i>Cynoscion arenarius</i>	416	2.3	15.5	1.18	0.64	863.53	158.57	35	0.60	13	88
<i>Callinectes sapidus</i>	265	1.5	23.4	0.75	0.18	376.97	30.00	28	2.12	5	155
<i>Menticirrhus americanus</i>	217	1.2	19.0	0.62	0.15	399.21	31.43	43	2.05	15	224
<i>Litopenaeus setiferus</i>	129	0.7	10.7	0.37	0.12	501.61	21.43	16	0.63	3	34
<i>Paralichthys albigutta</i>	91	0.5	9.1	0.26	0.11	648.89	22.14	35	3.72	14	219
<i>Sciaenops ocellatus</i>	82	0.5	10.3	0.23	0.07	507.06	11.43	88	11.12	14	557
<i>Farfantepenaeus</i> spp.	73	0.4	14.3	0.21	0.04	314.14	4.29	8	0.32	3	14
<i>Cynoscion nebulosus</i>	64	0.4	7.5	0.18	0.06	521.18	9.29	54	4.77	20	257
<i>Trachinotus falcatus</i>	62	0.3	4.0	0.18	0.09	809.96	20.00	36	1.10	20	61
<i>Menticirrhus saxatilis</i>	53	0.3	5.2	0.15	0.05	580.28	10.00	40	2.04	15	76
<i>Mugil trichodon</i>	21	0.1	2.8	0.06	0.03	785.98	6.43	40	8.55	16	175
<i>Micropogonias undulatus</i>	16	0.1	2.0	0.05	0.03	1,120.26	7.86	21	1.45	15	39
<i>Mugil curema</i>	16	0.1	1.2	0.05	0.04	1,395.27	10.00	61	6.07	24	143
<i>Haemulon plumierii</i>	10	0.1	1.2	0.03	0.02	1,050.32	4.29	34	1.42	28	42
<i>Pogonias cromis</i>	8	<0.1	2.4	0.02	0.01	681.43	1.43	190	23.85	93	278
<i>Lutjanus synagris</i>	5	<0.1	2.0	0.01	0.01	704.25	0.71	53	11.36	16	87
<i>Centropristis striata</i>	3	<0.1	0.8	0.01	0.01	1,181.33	1.43	66	8.25	54	82
<i>Lutjanus griseus</i>	3	<0.1	1.2	0.01	<0.01	912.86	0.71	115	37.13	47	175
<i>Elops saurus</i>	2	<0.1	0.8	0.01	<0.01	1,120.26	0.71	317	18.00	299	335

Species	Number			Density Estimate (animals/100m ²)				Standard Length (mm)			
	No.	%	% Occur	Mean	Stderr	CV	Max	Mean	Stderr	Min	Max
<i>Farfantepenaeus duorarum</i>	2	<0.1	0.8	0.01	<0.01	1,120.26	0.71	18	0.50	17	18
<i>Archosargus probatocephalus</i>	1	<0.1	0.4	<0.01	<0.01	1,587.45	0.71	383	.	383	383
<i>Menippe</i> spp.	1	<0.1	0.4	<0.01	<0.01	1,587.45	0.71	34	.	34	34
Total	7,241	40.4	.	20.52	4.10	316.76	554.29	.	.	3	557

Percent (%) is the percent of the total catch represented by that taxon; percent occurrence (% Occur) is the percentage of samples in which that taxon was collected; CV is the coefficient of variation of the mean. Taxa are ranked in order of decreasing mean density.

183-m Haul Seine

A total of 13,712 animals were collected in 192 183-m haul seines, representing 27.6% of the overall SRS catch (Table 4.18). *Mugil cephalus* (n = 1,820) was the most abundant taxon, accounting for 13.3% of the 183-m haul seine catch (Table 4.21). The taxa most frequently caught in 183-m haul seines were *Hypanus sabinus* (73.4% occurrence), *Mugil cephalus* (70.3% occurrence), and *Ariopsis felis* (54.7% occurrence).

A total of 5,885 animals from 30 Selected Taxa were collected, representing 42.9% of the entire 183-m haul seine catch (Table 4.22). *Mugil cephalus* (n=1,820) and *Litopenaeus setiferus* (n=1,321) were the most abundant Selected Taxa, accounting for 53.4% of the Selected Taxa collected by this gear. The Selected Taxa most frequently caught in 183-m haul seines were *Mugil cephalus* (70.3% occurrence) and *Leiostomus xanthurus* (43.8% occurrence).

Table 4.21: Catch statistics for 10 dominant taxa collected in 192 183-m haul seine samples during Cedar Key stratified-random sampling, 2024.

Species	Number			Density Estimate (animals/set)				Standard Length (mm)			
	No.	%	% Occur	Mean	Stderr	CV	Max	Mean	Stderr	Min	Max
<i>Mugil cephalus</i>	1,820	13.3	70.3	9.48	1.47	215.39	151	209	1.55	81	393
<i>Hypanus sabinus</i>	1,724	12.6	73.4	8.98	1.38	213.61	192	224	0.82	105	355
<i>Lagodon rhomboides</i>	1,644	12.0	48.4	8.47	1.95	319.87	220	106	0.53	53	228
<i>Litopenaeus setiferus</i>	1,321	9.6	20.8	6.88	2.90	583.32	449	27	0.12	16	39
<i>Bairdiella chrysoura</i>	1,249	9.1	32.8	6.51	1.86	396.80	272	137	0.39	84	185
<i>Ariopsis felis</i>	913	6.7	54.7	4.76	0.62	179.43	50	238	1.51	91	338
<i>Leiostomus xanthurus</i>	751	5.5	43.8	3.91	0.89	316.07	106	114	1.01	60	200
<i>Harengula jaguana</i>	620	4.5	22.4	3.23	0.92	393.34	101	107	0.64	56	218
<i>Hypanus say</i>	343	2.5	22.9	1.79	0.50	384.30	56	478	5.36	125	910
<i>Ogcocephalus cubifrons</i>	325	2.4	31.8	1.69	0.42	345.93	64	158	1.68	35	259
Subtotal	10,710	78.2	.	.	.	.	.	.	.	16	910
Total	13,712	100.0	.	71.42	5.59	108.41	598	.	.	16	1,560

Percent (%) is the percent of the total catch represented by that taxon; percent occurrence (% Occur) is the percentage of samples in which that taxon was collected; CV is the coefficient of variation of the mean. Taxa are ranked in order of decreasing mean density.

Table 4.22: Catch statistics for Selected Taxa collected in 192 183-m haul seine samples during Cedar Key stratified-random sampling, 2024.

Species	Number			Density Estimate (animals/set)				Standard Length (mm)			
	No.	%	% Occur	Mean	Stderr	CV	Max	Mean	Stderr	Min	Max
<i>Mugil cephalus</i>	1,820	13.3	70.3	9.48	1.47	215.39	151	209	1.55	81	393
<i>Litopenaeus setiferus</i>	1,321	9.6	20.8	6.88	2.90	583.32	449	27	0.12	16	39
<i>Leiostomus xanthurus</i>	751	5.5	43.8	3.91	0.89	316.07	106	114	1.01	60	200
<i>Sciaenops ocellatus</i>	282	2.1	43.8	1.47	0.23	221.52	22	269	6.59	93	746
<i>Elops saurus</i>	259	1.9	42.2	1.35	0.18	185.47	16	265	2.70	125	415
<i>Pogonias cromis</i>	229	1.7	30.7	1.19	0.22	253.49	23	324	13.29	107	868
<i>Brevoortia</i> spp.	210	1.5	17.7	1.09	0.31	394.74	43	108	1.82	53	249
<i>Cynoscion nebulosus</i>	193	1.4	34.9	1.01	0.17	239.50	18	213	5.79	112	432
<i>Mugil curema</i>	172	1.3	13.0	0.90	0.40	621.67	69	184	3.06	105	281
<i>Callinectes sapidus</i>	128	0.9	28.1	0.67	0.12	244.31	12	110	3.81	31	252
<i>Paralichthys albigutta</i>	114	0.8	27.1	0.59	0.12	281.69	18	149	6.19	52	432
<i>Menticirrhus americanus</i>	88	0.6	19.8	0.46	0.09	269.62	9	180	5.43	103	284
<i>Centropomus undecimalis</i>	85	0.6	21.4	0.44	0.08	259.13	8	624	15.39	131	847
<i>Mugil trichodon</i>	83	0.6	13.0	0.43	0.14	462.38	22	149	4.43	93	300
<i>Archosargus probatocephalus</i>	48	0.4	14.1	0.25	0.06	317.05	6	253	12.53	124	415
<i>Cynoscion arenarius</i>	31	0.2	3.1	0.16	0.13	1,123.05	25	155	5.79	119	272
<i>Micropogonias undulatus</i>	18	0.1	3.1	0.09	0.06	825.20	10	218	6.43	176	273
<i>Farfantepenaeus duorarum</i>	11	0.1	2.1	0.06	0.03	761.66	4	22	0.81	18	27
<i>Caranx hippos</i>	9	0.1	3.6	0.05	0.02	589.38	3	134	16.52	64	235
<i>Scomberomorus maculatus</i>	7	0.1	3.1	0.04	0.02	586.90	2	286	50.61	136	504
<i>Trachinotus falcatus</i>	6	<0.1	2.6	0.03	0.01	647.18	2	112	39.52	48	287
<i>Lutjanus griseus</i>	5	<0.1	2.1	0.03	0.01	728.26	2	140	27.19	74	223

Species	Number			Density Estimate (animals/set)				Standard Length (mm)			
	No.	%	% Occur	Mean	Stderr	CV	Max	Mean	Stderr	Min	Max
<i>Sphyrna tiburo</i>	5	<0.1	2.6	0.03	0.01	613.15	1	630	41.65	507	762
<i>Carcharhinus leucas</i>	2	<0.1	1.0	0.01	0.01	977.23	1	615	53.00	562	668
<i>Lobotes surinamensis</i>	2	<0.1	1.0	0.01	0.01	977.23	1	328	4.50	324	333
<i>Paralichthys lethostigma</i>	2	<0.1	1.0	0.01	0.01	977.23	1	346	11.50	335	358
<i>Ginglymostoma cirratum</i>	1	<0.1	0.5	0.01	0.01	1,385.64	1	1,560	.	1,560	1,560
<i>Megalops atlanticus</i>	1	<0.1	0.5	0.01	0.01	1,385.64	1	736	.	736	736
<i>Negaprion brevirostris</i>	1	<0.1	0.5	0.01	0.01	1,385.64	1	603	.	603	603
<i>Pomatomus saltatrix</i>	1	<0.1	0.5	0.01	0.01	1,385.64	1	124	.	124	124
Total	5,885	42.9	.	30.65	3.55	160.52	469	.	.	16	1,560

Percent (%) is the percent of the total catch represented by that taxon; percent occurrence (% Occur) is the percentage of samples in which that taxon was collected; CV is the coefficient of variation of the mean. Taxa are ranked in order of decreasing mean density.

6.1-m Bay Otter Trawl

A total of 4,634 animals were collected in 40 6.1-m bay otter trawls, representing 9.3% of the overall SRS catch (Table 4.18). *Leiostomus xanthurus* (n = 879), *Anchoa mitchilli* (n = 795), *Anchoa hepsetus* (n = 678), and *Etropus crossotus* (n = 364) were the most abundant taxa, accounting for 58.6% of the 6.1-m bay otter trawl catch (Table 4.23). The taxa most frequently caught in 6.1-m bay otter trawls were *Etropus crossotus* (82.5% occurrence), *Lagodon rhomboides* (50.0% occurrence), and *Menticirrhus americanus* (47.5% occurrence).

A total of 1,375 animals from 15 Selected Taxa were collected, representing 29.7% of the entire 6.1-m bay otter trawl catch (Table 4.24). *Leiostomus xanthurus* (n=879), *Menticirrhus americanus* (n=172), and *Cynoscion arenarius* (n=89) were the most abundant Selected Taxa, accounting for 82.9% of the Selected Taxa collected by this gear. The Selected Taxa most frequently caught in 6.1-m bay otter trawls were *Menticirrhus americanus* (47.5% occurrence), *Farfantepenaeus duorarum* (42.5% occurrence), and *Menippe* spp. (35.0% occurrence).

Table 4.23: Catch statistics for 10 dominant taxa collected in 40 6.1-m bay otter trawl samples during Cedar Key stratified-random sampling, 2024.

Species	Number			Density Estimate (animals/100m ²)				Standard Length (mm)			
	No.	%	% Occur	Mean	Stderr	CV	Max	Mean	Stderr	Min	Max
<i>Leiostomus xanthurus</i>	879	19.0	30.0	1.48	0.88	377.10	32.65	17	0.40	13	160
<i>Anchoa mitchilli</i>	795	17.2	30.0	1.27	0.70	361.14	27.39	38	0.49	23	79
<i>Anchoa hepsetus</i>	678	14.6	15.0	1.09	1.05	610.54	42.15	34	0.26	26	114
<i>Etropus crossotus</i>	364	7.9	82.5	0.62	0.10	99.68	2.41	86	0.87	42	125
<i>Hypanus sabinus</i>	218	4.7	35.0	0.37	0.19	333.00	7.49	222	1.89	116	306
<i>Lagodon rhomboides</i>	217	4.7	50.0	0.36	0.11	186.54	2.83	76	1.34	49	124
<i>Bairdiella chrysoura</i>	185	4.0	45.0	0.31	0.10	204.82	2.97	100	1.62	13	142
<i>Menticirrhus americanus</i>	172	3.7	47.5	0.28	0.16	356.24	6.30	88	4.35	10	218
<i>Ariopsis felis</i>	149	3.2	27.5	0.24	0.12	322.32	4.24	121	3.47	72	306
<i>Eucinostomus gula</i>	113	2.4	27.5	0.21	0.11	340.76	3.97	80	0.87	47	131
Subtotal	3,770	81.4	.	.	.	.	.	.	.	10	306
Total	4,634	100.0	.	7.81	2.09	169.04	66.51	.	.	3	1,140

Percent (%) is the percent of the total catch represented by that taxon; percent occurrence (% Occur) is the percentage of samples in which that taxon was collected; CV is the coefficient of variation of the mean. Taxa are ranked in order of decreasing mean density.

Table 4.24: Catch statistics for Selected Taxa collected in 192 183-m haul seine samples during Cedar Key stratified-random sampling, 2024.

Species	Number			Density Estimate (animals/100m ²)				Standard Length (mm)			
	No.	%	% Occur	Mean	Stderr	CV	Max	Mean	Stderr	Min	Max
<i>Leiostomus xanthurus</i>	879	19.0	30.0	1.48	0.88	377.10	32.65	17	0.40	13	160
<i>Menticirrhus americanus</i>	172	3.7	47.5	0.28	0.16	356.24	6.30	88	4.35	10	218
<i>Cynoscion arenarius</i>	89	1.9	32.5	0.15	0.07	308.94	2.70	78	6.03	14	167
<i>Farfantepenaeus duorarum</i>	56	1.2	42.5	0.10	0.03	167.50	0.67	24	0.82	15	49
<i>Menippe</i> spp.	46	1.0	35.0	0.08	0.03	230.12	1.01	19	2.34	3	79
<i>Callinectes sapidus</i>	45	1.0	32.5	0.08	0.02	201.16	0.67	79	7.40	14	171
<i>Farfantepenaeus</i> spp.	21	0.5	25.0	0.04	0.01	236.92	0.40	11	0.58	5	14
<i>Litopenaeus setiferus</i>	19	0.4	12.5	0.03	0.02	469.51	0.94	29	1.56	21	42
<i>Centropristis striata</i>	18	0.4	12.5	0.03	0.02	342.68	0.54	99	3.00	73	117
<i>Lutjanus synagris</i>	13	0.3	15.0	0.02	0.01	287.08	0.26	39	7.71	18	110
<i>Menticirrhus saxatilis</i>	7	0.2	5.0	0.01	0.01	482.23	0.34	39	5.07	17	59
<i>Paralichthys albigutta</i>	7	0.2	12.5	0.01	0.01	315.11	0.20	154	30.98	66	258
<i>Brevoortia</i> spp.	1	<0.1	2.5	<0.01	<0.01	632.46	0.07	23	.	23	23
<i>Cynoscion nebulosus</i>	1	<0.1	2.5	<0.01	<0.01	632.46	0.07	95	.	95	95
<i>Diplectrum formosum</i>	1	<0.1	2.5	<0.01	<0.01	632.46	0.06	47	.	47	47
Total	1,375	29.7	.	2.31	0.92	250.21	33.53	.	.	3	258

Percent (%) is the percent of the total catch represented by that taxon; percent occurrence (% Occur) is the percentage of samples in which that taxon was collected; CV is the coefficient of variation of the mean. Taxa are ranked in order of decreasing mean density.

River Sampling

Tidal Creeks

21.3-m River Seine

A total of 10,390 animals were collected in 108 21.3-m river seines in tidal creeks, representing 20.9% of the overall SRS catch (Table 4.18). *Anchoa mitchilli* (n = 4,730) was the most abundant taxon collected, accounting for 45.5% of the 21.3-m river seine catch in tidal creeks (Table 4.25). *Leiostomus xanthurus* (n=1,757) and *Litopenaeus setiferus* (n=818) were the next most abundant taxa, accounting for an additional 24.8% of the 21.3-m river seine catch in tidal creeks. The taxa most frequently caught in 21.3-m river seines in tidal creeks were *Anchoa mitchilli* (57.4% occurrence), *Menidia* spp. (54.6% occurrence), and *Eucinostomus* spp. (41.7% occurrence).

A total of 3,495 animals from 17 Selected Taxa were collected, representing 33.6% of the entire 21.3-m river seine catch in tidal creeks (Table 4.26). *Leiostomus xanthurus* (n=1,757), and *Litopenaeus setiferus* (n=818) were the most abundant Selected Taxa, accounting for 73.7% of the Selected Taxa collected by this gear. The Selected Taxa most frequently caught in 21.3-m river seines in tidal creeks were *Callinectes sapidus* (41.7% occurrence) and *Leiostomus xanthurus* (34.3% occurrence).

Table 4.25: Catch statistics for 10 dominant taxa collected in 108 21.3-m river seine samples in tidal creeks during Cedar Key stratified-random sampling, 2024.

Species	Number			Density Estimate (animals/100m ²)				Standard Length (mm)			
	No.	%	% Occur	Mean	Stderr	CV	Max	Mean	Stderr	Min	Max
<i>Anchoa mitchilli</i>	4,730	45.5	57.4	64.41	21.92	353.67	2,022.06	42	0.20	11	75
<i>Leiostomus xanthurus</i>	1,757	16.9	34.3	23.92	6.11	265.23	457.35	30	0.29	14	109
<i>Litopenaeus setiferus</i>	818	7.9	26.9	11.14	4.20	391.75	375.00	11	0.08	4	22
<i>Menidia</i> spp.	660	6.4	54.6	8.99	1.70	196.72	89.71	57	0.44	22	85
<i>Eucinostomus</i> spp.	529	5.1	41.7	7.20	2.64	381.56	252.94	28	0.27	10	39
<i>Callinectes sapidus</i>	341	3.3	41.7	4.64	1.28	286.80	77.94	20	0.80	6	114
<i>Mugil cephalus</i>	186	1.8	26.9	2.53	0.81	332.74	60.29	36	2.11	20	191
<i>Lagodon rhomboides</i>	139	1.3	27.8	1.89	0.65	359.61	60.29	29	1.42	15	100
<i>Eucinostomus harengulus</i>	124	1.2	24.1	1.69	0.73	451.05	75.00	53	0.74	41	75
<i>Fundulus grandis</i>	124	1.2	25.0	1.69	0.49	299.07	36.76	62	1.64	22	107
Subtotal	9,408	90.6	.	.	.	.	.	.	.	4	191
Total	10,390	100.0	.	141.48	22.99	168.91	2,039.71	.	.	4	501

Percent (%) is the percent of the total catch represented by that taxon; percent occurrence (% Occur) is the percentage of samples in which that taxon was collected; CV is the coefficient of variation of the mean. Taxa are ranked in order of decreasing mean density.

Table 4.26: Catch statistics for Selected Taxa collected in 108 21.3-m river seine samples in tidal creeks during Cedar Key stratified-random sampling, 2024.

Species	Number			Density Estimate (animals/100m ²)				Standard Length (mm)			
	No.	%	% Occur	Mean	Stderr	CV	Max	Mean	Stderr	Min	Max
<i>Leiostomus xanthurus</i>	1,757	16.9	34.3	23.92	6.11	265.23	457.35	30	0.29	14	109
<i>Litopenaeus setiferus</i>	818	7.9	26.9	11.14	4.20	391.75	375.00	11	0.08	4	22
<i>Callinectes sapidus</i>	341	3.3	41.7	4.64	1.28	286.80	77.94	20	0.80	6	114
<i>Mugil cephalus</i>	186	1.8	26.9	2.53	0.81	332.74	60.29	36	2.11	20	191
<i>Cynoscion arenarius</i>	118	1.1	27.8	1.61	0.49	316.20	45.59	36	1.11	7	79
<i>Brevoortia</i> spp.	107	1.0	7.4	1.46	0.76	542.85	64.71	34	0.60	23	49
<i>Sciaenops ocellatus</i>	60	0.6	23.1	0.82	0.21	265.43	11.76	60	6.49	15	272
<i>Micropogonias undulatus</i>	35	0.3	2.8	0.48	0.42	924.11	45.59	31	0.86	19	38
<i>Farfantepenaeus</i> spp.	27	0.3	5.6	0.37	0.28	777.49	29.41	8	0.35	4	11
<i>Cynoscion nebulosus</i>	15	0.1	10.2	0.20	0.07	347.44	4.41	58	7.87	24	116
<i>Menticirrhus americanus</i>	13	0.1	7.4	0.18	0.08	464.40	7.35	34	3.24	20	53
<i>Lutjanus griseus</i>	8	0.1	4.6	0.11	0.06	574.94	5.88	67	7.46	48	112
<i>Paralichthys albigutta</i>	3	<0.1	1.9	0.04	0.03	771.70	2.94	81	61.18	17	203
<i>Mugil curema</i>	2	<0.1	1.9	0.03	0.02	731.40	1.47	22	3.50	18	25
<i>Mugil trichodon</i>	2	<0.1	1.9	0.03	0.02	731.40	1.47	48	9.00	39	57
<i>Pogonias cromis</i>	2	<0.1	1.9	0.03	0.02	731.40	1.47	164	43.50	121	208
<i>Paralichthys lethostigma</i>	1	<0.1	0.9	0.01	0.01	1,039.23	1.47	389	.	389	389
Total	3,495	33.6	.	47.59	7.83	171.08	532.35	.	.	4	389

Percent (%) is the percent of the total catch represented by that taxon; percent occurrence (% Occur) is the percentage of samples in which that taxon was collected; CV is the coefficient of variation of the mean. Taxa are ranked in order of decreasing mean density.

Lower Suwannee River

21.3-m River Seine

A total of 3,090 animals were collected in 60 21.3-m river seines conducted in the Lower Suwannee River (LSR), representing 6.2% of the overall SRS catch (Table 4.18). *Menidia* spp. (n=988) was the most abundant taxon collected, accounting for 32% of the 21.3-m river seine catch in the LSR (Table 4.27). *Gambusia holbrooki* (n=344) and *Anchoa mitchilli* (n=293) were the next most abundant taxa, accounting for an additional 20.6% of the 21.3-m river seine catch in the LSR. The taxa most frequently caught in 21.3-m river seines in the LSR were *Callinectes sapidus* (55.0% occurrence), *Menidia* spp. (40.0% occurrence), and *Trinectes maculatus* (35.0% occurrence).

A total of 384 animals from 9 Selected Taxa were collected, representing 12.4% of the entire 21.3-m river seine catch in the LSR (Table 4.28). *Callinectes sapidus* (n=165) and *Leiostomus xanthurus* (n=87) were the most abundant Selected Taxa, accounting for 65.6% of the Selected Taxa collected by this gear. The Selected Taxa most frequently caught in 21.3-m river seines in the LSR were *Callinectes sapidus* (55.0% occurrence) and *Leiostomus xanthurus* (18.3% occurrence).

Table 4.27: Catch statistics for 10 dominant taxa collected in 60 21.3-m river seine samples during Cedar Key stratified-random sampling, 2024.

Species	Number			Density Estimate (animals/100m ²)				Standard Length (mm)			
	No.	%	% Occur	Mean	Stderr	CV	Max	Mean	Stderr	Min	Max
<i>Menidia</i> spp.	988	32.0	40.0	24.22	19.01	608.22	1,139.71	65	0.26	28	85
<i>Gambusia holbrooki</i>	344	11.1	31.7	8.43	3.07	281.90	119.12	29	0.35	12	62
<i>Anchoa mitchilli</i>	293	9.5	25.0	7.18	2.70	290.70	110.29	25	0.17	17	35
<i>Fundulus seminolis</i>	189	6.1	26.7	4.63	1.50	250.98	60.29	46	1.12	16	75
<i>Eucinostomus</i> spp.	175	5.7	33.3	4.29	1.49	268.66	63.24	27	0.51	13	39
<i>Callinectes sapidus</i>	165	5.3	55.0	4.04	1.19	228.09	63.24	25	1.60	8	137
<i>Trinectes maculatus</i>	138	4.5	35.0	3.38	1.12	256.70	44.12	20	0.53	11	48
<i>Alburnops petersoni</i>	134	4.3	20.0	3.28	1.59	374.20	83.82	34	0.46	22	50
<i>Leiostomus xanthurus</i>	87	2.8	18.3	2.13	1.17	425.59	67.65	32	1.68	19	79
<i>Brevoortia</i> spp.	81	2.6	5.0	1.99	1.94	755.27	116.18	30	0.46	23	40
Subtotal	2,594	83.9	.	.	.	.	.	.	.	8	137
Total	3,090	100.0	.	75.74	19.32	197.62	1,139.71	.	.	7	265

Percent (%) is the percent of the total catch represented by that taxon; percent occurrence (% Occur) is the percentage of samples in which that taxon was collected; CV is the coefficient of variation of the mean. Taxa are ranked in order of decreasing mean density.

Table 4.28: Catch statistics for Selected Taxa collected in 60 21.3-m river seine samples during Cedar Key stratified-random sampling, 2024.

Species	Number			Density Estimate (animals/100m ²)				Standard Length (mm)			
	No.	%	% Occur	Mean	Stderr	CV	Max	Mean	Stderr	Min	Max
<i>Callinectes sapidus</i>	165	5.3	55.0	4.04	1.19	228.09	63.24	25	1.60	8	137
<i>Leiostomus xanthurus</i>	87	2.8	18.3	2.13	1.17	425.59	67.65	32	1.68	19	79
<i>Brevoortia</i> spp.	81	2.6	5.0	1.99	1.94	755.27	116.18	30	0.46	23	40
<i>Litopenaeus setiferus</i>	20	0.6	8.3	0.49	0.26	404.63	11.76	11	0.82	7	19
<i>Sciaenops ocellatus</i>	13	0.4	8.3	0.32	0.18	434.06	8.82	55	13.40	22	185
<i>Lutjanus griseus</i>	7	0.2	5.0	0.17	0.11	501.33	5.88	60	5.03	48	86
<i>Cynoscion arenarius</i>	6	0.2	6.7	0.15	0.08	439.57	4.41	32	3.24	21	44
<i>Mugil cephalus</i>	4	0.1	5.0	0.10	0.06	467.59	2.94	57	20.87	21	106
<i>Cynoscion nebulosus</i>	1	<0.1	1.7	0.02	0.02	774.60	1.47	37	.	37	37
Total	384	12.4	.	9.41	2.53	208.59	122.06	.	.	7	185

Percent (%) is the percent of the total catch represented by that taxon; percent occurrence (% Occur) is the percentage of samples in which that taxon was collected; CV is the coefficient of variation of the mean. Taxa are ranked in order of decreasing mean density.

4.5 Tampa Bay

Tampa Bay is a drowned river estuary located on the central Gulf coast of Florida. The bay is connected to the Gulf through two main channels and several smaller passes and channels. Freshwater inflow comes from over 100 tributaries, although more than 80% enters from four main rivers: Hillsborough, Alafia, Manatee, and Little Manatee (Schmidt and Luther 2002). Shoreline vegetation consists largely of mangroves and marsh grasses, and bottom substrates are typically characterized as sand, mud, oysters, or a combination thereof (Flannery 1989). Submerged seagrass meadows are the dominant vegetative cover in Tampa Bay and are widely distributed throughout the bay (Haddad 1989).

The Fisheries-Independent Monitoring (FIM) program has conducted intensive sampling of fish and selected invertebrates in Tampa Bay since 1989. The area sampled was divided into five geographically-defined bay zones (A–E) and four riverine zones (K–N; Figure 4.5). The riverine zones were defined as the Alafia (K), Little Manatee (L), Manatee (M), and Braden (N) rivers. Stratified-random sampling (SRS) was conducted in Zones A–E monthly using 21.3-m bay seines and 183-m haul seines and quarterly using 6.1-m bay otter trawls. SRS was conducted in Zones K–N in all months except March, May, and July with 21.3-m river seines and bimonthly with 6.1-m river otter trawls. All methods were the same as those described in Chapter 2. This section summarizes data collected by the FIM program during 2024 in Tampa Bay.

Stratified-Random Sampling

A total of 235,266 animals, which included 168 taxa of fishes and 8 taxa of selected invertebrates, were collected from 1,116 Tampa Bay SRS samples in 2024 (Table 4.29, Table A.13, Table A.14, Table A.15). *Anchoa mitchilli* (n=63,092) was the most numerous taxon collected, representing 26.8% of the total catch. *Lagodon rhomboides* (n=37,985) and *Eucinostomus* spp. (n=33,237) were the next most abundant taxa collected, accounting for an additional 30.3% of the total catch. A total of 41 selected taxa (n=9,012 animals) composed 3.8% of the total catch. *Farfantepenaeus duorarum* (n=1,251) was the most abundant Selected Taxon, representing 0.5% of the total catch. *Sciaenops ocellatus* (n=1,113), *Mugil cephalus* (n=905), *Centropomus undecimalis* (n=869), and *Archosargus probatocephalus* (n=766) were the next most abundant selected taxa, comprising 1.6% of the total catch. Collections in 2024 included 3 species new to the TB FIM collection: *Cichlasoma dimerus*, *Syacium papillosum*, *Thorichthys meeki*.

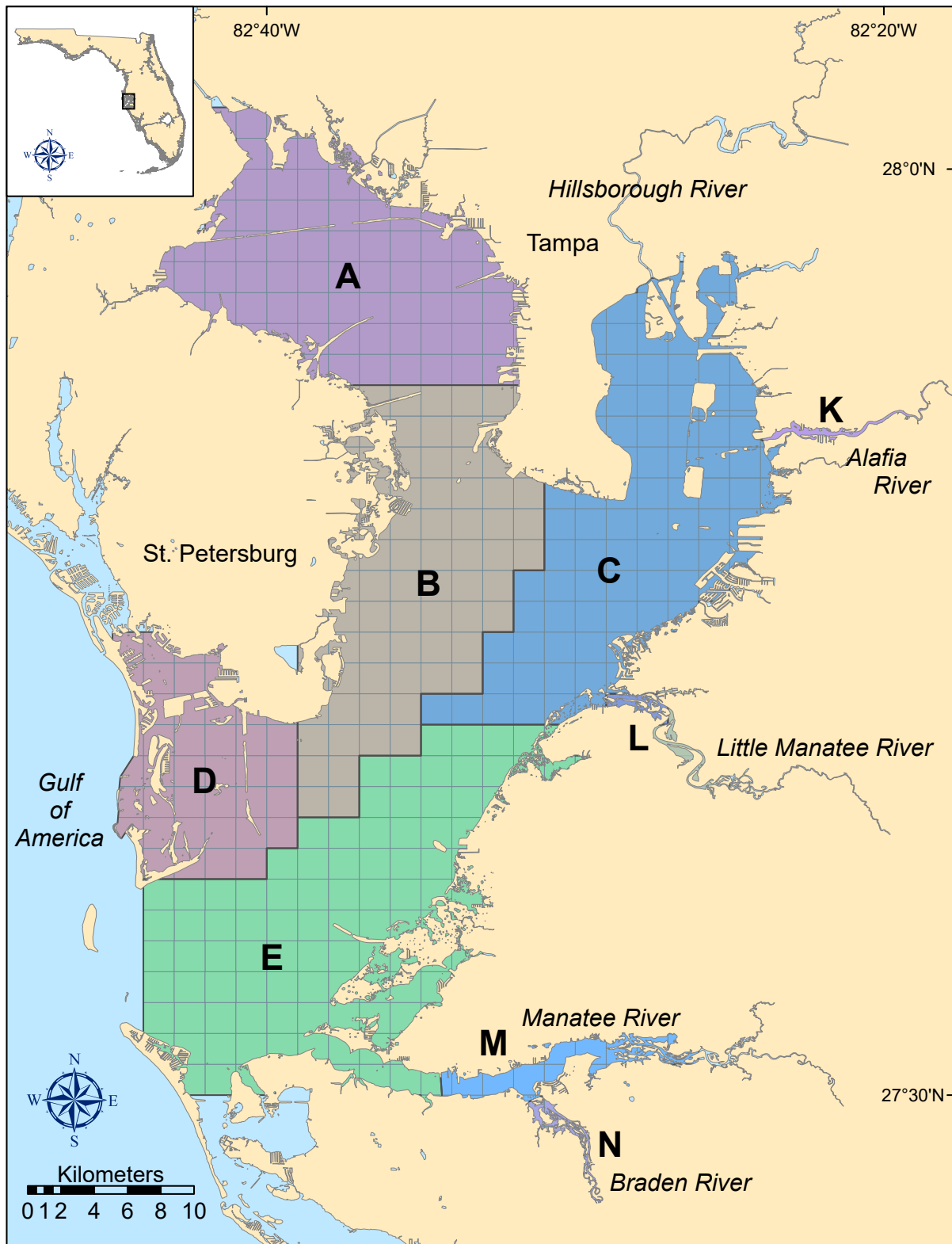


Figure 4.5: Map of Tampa Bay sampling area. Zones are labeled A-E (bay zones) and K-N (riverine zones).

Table 4.29: Summary of catch and effort data for Tampa Bay stratified-random sampling, 2024.

Zone	21.3-m bay seine		21.3-m river seine		183-m haul seine		6.1-m otter trawl		Total	
	Hauls	Animals	Hauls	Animals	Hauls	Animals	Hauls	Animals	Hauls	Animals
A	84	12,456	.	.	48	9,906	12	618	144	22,980
B	72	9,131	.	.	48	8,792	12	1,108	132	19,031
C	108	13,835	.	.	48	11,297	16	680	172	25,812
D	60	23,817	.	.	36	13,048	8	1,153	104	38,018
E	84	18,177	.	.	60	14,313	12	438	156	32,928
K	.	.	117	32,596	.	.	12	670	129	33,266
L	.	.	81	18,316	.	.	36	3,125	117	21,441
M	.	.	72	16,566	.	.	24	822	96	17,388
N	.	.	54	21,262	.	.	12	3,140	66	24,402
Total	408	77,416	324	88,740	240	57,356	144	11,754	1,116	235,266

Bay Sampling

21.3-m Bay Seine

A total of 77,416 animals were collected in 408 21.3-m bay seines, representing 32.9% of the overall SRS catch (Table 4.29). *Eucinostomus* spp. (n=18,947) and *Lagodon rhomboides* (n=11,288) were the most abundant taxa, accounting for 39.1% of the bay seine catch (Table 4.30). The taxa most frequently caught in 21.3-m bay seines were *Eucinostomus* spp. (59.3% occurrence) and *Eucinostomus gula* (49.8% occurrence).

A total of 2,476 animals from 31 selected taxa were collected, representing 3.2% of the entire 21.3-m bay seine catch (Table 4.31). *Farfantepenaeus duorarum* (n=905) was the most abundant Selected Taxon, accounting for 36.6% of the selected taxa collected by this gear. The selected taxa most frequently caught in 21.3-m bay seines were *Farfantepenaeus duorarum* (28.4% occurrence) and *Cynoscion nebulosus* (20.8% occurrence).

Table 4.30: Catch statistics for 10 dominant taxa collected in 408 21.3-m bay seine samples during Tampa Bay stratified-random sampling, 2024.

Species	Number			Density Estimate (animals/100m ²)				Standard Length (mm)			
	No.	%	% Occur	Mean	Stderr	CV	Max	Mean	Stderr	Min	Max
<i>Eucinostomus</i> spp.	18,947	24.5	59.3	33.09	3.50	214.10	474.29	27	0.05	9	39
<i>Lagodon rhomboides</i>	11,288	14.6	41.2	19.24	5.09	541.65	1,776.43	36	0.17	10	158
<i>Anchoa mitchilli</i>	10,524	13.6	11.5	18.42	6.74	738.54	2,087.86	34	0.09	16	56
<i>Lucania parva</i>	9,134	11.8	25.2	15.99	3.98	502.73	765.71	24	0.05	11	38
<i>Eucinostomus gula</i>	5,227	6.8	49.8	9.15	1.02	225.98	222.86	57	0.18	40	128
<i>Menidia</i> spp.	4,989	6.4	13.5	8.69	3.72	867.56	1,385.00	35	0.15	17	89
<i>Harengula jaguana</i>	2,753	3.6	10.8	4.82	1.07	450.16	186.43	53	0.23	20	110
<i>Floridichthys carpio</i>	2,549	3.3	17.9	4.46	1.04	468.64	266.43	32	0.21	9	55
<i>Opisthonema oglinum</i>	2,212	2.9	4.7	3.86	2.87	1,500.55	1,147.14	54	0.14	29	156
<i>Microgobius gulosus</i>	1,916	2.5	35.8	3.35	0.53	317.63	103.57	29	0.14	9	51
Subtotal	69,539	90.0	.	.	.	.	.	.	.	9	158
Total	77,416	100.0	.	135.53	12.91	192.36	2,486.43	.	.	2	667

Percent (%) is the percent of the total catch represented by that taxon; percent occurrence (% Occur) is the percentage of samples in which that taxon was collected; CV is the coefficient of variation of the mean. Taxa are ranked in order of decreasing mean density.

Table 4.31: Catch statistics for selected taxa collected in 408 21.3-m bay seine samples during Tampa Bay stratified-random sampling, 2024.

Species	Number			Density Estimate (animals/100m ²)				Standard Length (mm)			
	No.	%	% Occur	Mean	Stderr	CV	Max	Mean	Stderr	Min	Max
<i>Farfantepenaeus duorarum</i>	905	1.2	28.4	1.58	0.33	416.76	102.86	9	0.13	2	25
<i>Sciaenops ocellatus</i>	515	0.7	8.6	0.90	0.52	1,161.25	207.86	33	2.63	9	539
<i>Cynoscion nebulosus</i>	371	0.5	20.8	0.65	0.10	297.36	15.71	39	1.01	13	126
<i>Haemulon plumierii</i>	160	0.2	3.9	0.28	0.19	1,359.90	75.71	44	0.91	20	85
<i>Callinectes sapidus</i>	98	0.1	13.2	0.17	0.03	300.80	4.29	51	4.84	8	162
<i>Mugil cephalus</i>	97	0.1	3.7	0.17	0.09	1,121.59	37.14	26	0.71	19	84
<i>Archosargus probatocephalus</i>	95	0.1	10.3	0.17	0.04	450.02	9.29	70	8.09	12	528
<i>Lutjanus synagris</i>	44	0.1	2.9	0.08	0.03	800.41	10.00	41	2.98	16	108
<i>Mugil trichodon</i>	32	<0.1	2.9	0.06	0.03	969.84	10.00	44	7.93	13	160
<i>Lutjanus griseus</i>	31	<0.1	3.9	0.05	0.01	540.51	2.14	49	4.40	14	107
<i>Paralichthys albigutta</i>	30	<0.1	4.2	0.05	0.03	976.42	10.00	68	12.17	18	318
<i>Leiostomus xanthurus</i>	23	<0.1	1.7	0.04	0.03	1,349.95	10.71	22	2.95	11	70
<i>Cynoscion arenarius</i>	15	<0.1	1.0	0.03	0.02	1,310.30	6.43	37	1.92	29	56
<i>Menticirrhus americanus</i>	15	<0.1	2.0	0.03	0.01	813.98	2.86	30	4.24	13	75
<i>Centropomus undecimalis</i>	7	<0.1	1.7	0.01	<0.01	757.80	0.71	274	50.27	82	412
<i>Pogonias cromis</i>	6	<0.1	0.7	0.01	0.01	1,426.53	2.86	377	45.64	276	457
<i>Calamus</i> spp.	5	<0.1	0.7	0.01	0.01	1,337.75	2.14	20	2.44	13	28
<i>Elops saurus</i>	5	<0.1	0.5	0.01	0.01	1,664.69	2.86	243	8.05	216	257
<i>Caranx hippos</i>	3	<0.1	0.2	0.01	0.01	2,019.90	2.14	161	63.04	35	228
<i>Menticirrhus saxatilis</i>	3	<0.1	0.7	0.01	<0.01	1,163.32	0.71	25	5.17	15	31
<i>Mugil curema</i>	3	<0.1	0.2	0.01	0.01	2,019.90	2.14	28	1.15	26	30
<i>Sphyraena barracuda</i>	3	<0.1	0.7	0.01	<0.01	1,163.32	0.71	186	12.66	161	202

Species	Number			Density Estimate (animals/100m ²)				Standard Length (mm)			
	No.	%	% Occur	Mean	Stderr	CV	Max	Mean	Stderr	Min	Max
<i>Scomberomorus maculatus</i>	2	<0.1	0.2	<0.01	<0.01	2,019.90	1.43	96	0.50	96	97
<i>Albula</i> spp.	1	<0.1	0.2	<0.01	<0.01	2,019.90	0.71	60	.	60	60
<i>Argopecten irradians</i>	1	<0.1	0.2	<0.01	<0.01	2,019.90	0.71	61	.	61	61
<i>Calamus penna</i>	1	<0.1	0.2	<0.01	<0.01	2,019.90	0.71	38	.	38	38
<i>Haemulon aurolineatum</i>	1	<0.1	0.2	<0.01	<0.01	2,019.90	0.71	47	.	47	47
<i>Menippe</i> spp.	1	<0.1	0.2	<0.01	<0.01	2,019.90	0.71	12	.	12	12
<i>Mycteroperca microlepis</i>	1	<0.1	0.2	<0.01	<0.01	2,019.90	0.71	197	.	197	197
<i>Pomatomus saltatrix</i>	1	<0.1	0.2	<0.01	<0.01	2,019.90	0.71	35	.	35	35
<i>Sphyrna tiburo</i>	1	<0.1	0.2	<0.01	<0.01	2,019.90	0.71	667	.	667	667
Total	2,476	3.2	.	4.33	0.69	320.03	210.00	.	.	2	667

Percent (%) is the percent of the total catch represented by that taxon; percent occurrence (% Occur) is the percentage of samples in which that taxon was collected; CV is the coefficient of variation of the mean. Taxa are ranked in order of decreasing mean density.

183-m Haul Seine

A total of 57,356 animals were collected in 240 183-m haul seines, representing 24.4% of the overall SRS catch (Table 4.29). *Lagodon rhomboides* (n=25,694) was the most abundant taxon, accounting for 44.8% of the 183-m haul seine catch (Table 4.32). The taxa most frequently caught in 183-m haul seines were *Lagodon rhomboides* (63.7% occurrence), *Eucinostomus gula* (59.6% occurrence), and *Hypanus sabinus* (35.8% occurrence).

A total of 4,202 animals from 35 selected taxa were collected, representing 7.3% of the entire 183-m haul seine catch (Table 4.33). *Elops saurus* (n=739) and *Centropomus undecimalis* (n=643) were the most abundant selected taxa, accounting for 32.9% of the selected taxa collected by this gear. The selected taxa most frequently caught in 183-m haul seines were *Archosargus probatocephalus* (38.3% occurrence) and *Mugil cephalus* (35.0% occurrence).

Table 4.32: Catch statistics for 10 dominant taxa collected in 240 183-m haul seine samples during Tampa Bay stratified-random sampling, 2024.

Species	Number			Density Estimate (animals/set)				Standard Length (mm)			
	No.	%	% Occur	Mean	Stderr	CV	Max	Mean	Stderr	Min	Max
<i>Lagodon rhomboides</i>	25,694	44.8	63.7	107.06	13.52	195.58	1,168	112	0.15	46	212
<i>Eucinostomus gula</i>	13,407	23.4	59.6	55.86	19.30	535.19	4,241	91	0.13	42	196
<i>Opisthonema oglinum</i>	4,947	8.6	13.8	20.61	15.20	1,142.30	3,620	141	0.16	56	196
<i>Ariopsis felis</i>	2,453	4.3	35.4	10.22	3.68	557.67	786	261	0.92	50	392
<i>Eucinostomus harengulus</i>	1,800	3.1	27.9	7.50	1.95	403.72	291	99	0.29	53	142
<i>Orthopristis chrysoptera</i>	764	1.3	19.2	3.18	0.88	427.14	117	118	1.09	73	262
<i>Elops saurus</i>	739	1.3	27.9	3.08	1.18	591.54	267	261	1.29	160	437
<i>Centropomus undecimalis</i>	643	1.1	33.3	2.68	0.60	349.66	120	418	3.58	138	865
<i>Bairdiella chrysoura</i>	616	1.1	17.5	2.57	0.79	477.29	124	132	0.70	90	242
<i>Hypanus sabinus</i>	493	0.9	35.8	2.05	0.48	364.79	80	214	2.12	92	338
Subtotal	51,556	89.9	.	.	.	.	.	.	.	42	865
Total	57,356	100.0	.	238.98	31.42	203.70	4,870	.	.	11	1,113

Percent (%) is the percent of the total catch represented by that taxon; percent occurrence (% Occur) is the percentage of samples in which that taxon was collected; CV is the coefficient of variation of the mean. Taxa are ranked in order of decreasing mean density.

Table 4.33: Catch statistics for selected taxa collected in 240 183-m haul seine samples during Tampa Bay stratified-random sampling, 2024.

Species	Number			Density Estimate (animals/set)				Standard Length (mm)			
	No.	%	% Occur	Mean	Stderr	CV	Max	Mean	Stderr	Min	Max
<i>Elops saurus</i>	739	1.3	27.9	3.08	1.18	591.54	267	261	1.29	160	437
<i>Centropomus undecimalis</i>	643	1.1	33.3	2.68	0.60	349.66	120	418	3.58	138	865
<i>Mugil trichodon</i>	476	0.8	20.0	1.98	1.17	913.07	276	201	1.99	91	345
<i>Mugil cephalus</i>	474	0.8	35.0	1.98	0.37	289.96	41	248	3.86	77	486
<i>Archosargus probatocephalus</i>	456	0.8	38.3	1.82	0.28	241.63	32	175	3.83	54	365
<i>Mugil curema</i>	235	0.4	14.6	0.98	0.45	722.01	102	216	2.76	111	375
<i>Sciaenops ocellatus</i>	228	0.4	26.2	0.95	0.20	329.75	25	424	7.07	110	740
<i>Callinectes sapidus</i>	207	0.4	31.2	0.86	0.13	229.75	15	101	2.73	29	179
<i>Pogonias cromis</i>	136	0.2	3.8	0.57	0.52	1,424.21	125	248	5.26	172	716
<i>Cynoscion nebulosus</i>	134	0.2	20.8	0.56	0.14	391.37	24	196	5.86	53	380
<i>Leiostomus xanthurus</i>	84	0.1	7.9	0.35	0.12	526.83	22	149	4.27	77	240
<i>Paralichthys albigutta</i>	58	0.1	11.7	0.24	0.07	419.79	12	133	7.94	68	330
<i>Sphyrna tiburo</i>	58	0.1	13.3	0.24	0.05	346.91	7	550	15.62	313	759
<i>Sphyaena barracuda</i>	35	0.1	9.6	0.15	0.03	370.83	5	284	10.67	205	485
<i>Lutjanus griseus</i>	33	0.1	7.1	0.14	0.04	452.36	5	143	8.66	37	249
<i>Lutjanus synagris</i>	31	0.1	4.6	0.13	0.06	688.46	11	98	2.76	76	131
<i>Trachinotus falcatus</i>	27	<0.1	4.2	0.11	0.05	670.44	8	210	18.95	63	362
<i>Haemulon plumierii</i>	26	<0.1	2.5	0.11	0.06	855.28	13	82	2.95	57	120
<i>Farfantepenaeus duorarum</i>	24	<0.1	5.0	0.10	0.03	539.64	6	18	1.25	11	36
<i>Caranx hippos</i>	16	<0.1	4.6	0.07	0.02	521.91	3	204	21.75	85	407
<i>Pomatomus saltatrix</i>	16	<0.1	0.4	0.07	0.07	1,549.19	16	370	7.42	324	425
<i>Menticirrhus americanus</i>	14	<0.1	4.2	0.06	0.02	556.47	3	233	7.96	182	290

Species	Number			Density Estimate (animals/set)				Standard Length (mm)			
	No.	%	% Occur	Mean	Stderr	CV	Max	Mean	Stderr	Min	Max
<i>Caranx crysos</i>	9	<0.1	1.2	0.04	0.02	923.48	4	135	4.65	116	156
<i>Mycteroperca microlepis</i>	9	<0.1	2.5	0.04	0.02	704.11	3	238	40.80	138	504
<i>Scomberomorus maculatus</i>	6	<0.1	1.7	0.03	0.01	890.68	3	190	19.33	147	260
<i>Trachinotus carolinus</i>	6	<0.1	1.7	0.03	0.01	812.04	2	236	37.46	101	335
<i>Carcharhinus leucas</i>	5	<0.1	1.7	0.02	0.01	815.33	2	628	86.44	465	935
<i>Carcharhinus limbatus</i>	4	<0.1	0.4	0.02	0.02	1,549.19	4	417	10.58	386	431
<i>Brevoortia</i> spp.	3	<0.1	0.4	0.01	0.01	1,549.19	3	203	12.74	182	226
<i>Diplectrum formosum</i>	3	<0.1	0.8	0.01	0.01	1,152.77	2	151	6.98	142	165
<i>Menippe</i> spp.	2	<0.1	0.4	0.01	0.01	1,549.19	2	50	7.50	42	57
<i>Menticirrhus littoralis</i>	2	<0.1	0.8	0.01	0.01	1,093.15	1	166	51.50	115	218
<i>Albula</i> spp.	1	<0.1	0.4	<0.01	<0.01	1,549.19	1	172	.	172	172
<i>Argopecten irradians</i>	1	<0.1	0.4	<0.01	<0.01	1,549.19	1	61	.	61	61
<i>Calamus penna</i>	1	<0.1	0.4	<0.01	<0.01	1,549.19	1	150	.	150	150
Total	4,202	7.3	.	17.51	2.38	210.83	397	.	.	11	935

Percent (%) is the percent of the total catch represented by that taxon; percent occurrence (% Occur) is the percentage of samples in which that taxon was collected; CV is the coefficient of variation of the mean. Taxa are ranked in order of decreasing mean density.

6.1-m Bay Otter Trawl

A total of 3,997 animals were collected in 60 6.1-m bay otter trawls, representing 1.7% of the overall SRS catch (Table 4.29). *Eucinostomus* spp. (n=599), *Eucinostomus gula* (n=662), *Lagodon rhomboides* (n=612), and *Anchoa mitchilli* (n=560) were the most abundant taxa, accounting for 60.9% of the 6.1-m bay otter trawl catch (Table 4.34). The taxa most frequently caught in 6.1-m bay otter trawls were *Prionotus scitulus* (70.0% occurrence), *Eucinostomus gula* (58.3% occurrence), and *Portunus* spp. (51.7% occurrence).

A total of 364 animals from 17 selected taxa were collected, representing 9.1% of the entire 6.1-m bay otter trawl catch (Table 4.35). *Farfantepenaeus duorarum* (n=111), *Cynoscion arenarius* (n=60), and *Menippe* spp. (n=45) were the most abundant selected taxa, accounting for 59.3% of the selected taxa collected by this gear. The selected taxa most frequently caught in 6.1-m bay otter trawls were *Farfantepenaeus duorarum* (38.3% occurrence), *Menippe* spp. (28.3% occurrence), and *Paralichthys albigutta* (20.0% occurrence).

Table 4.34: Catch statistics for 10 dominant taxa collected in 60 6.1-m bay otter trawl samples during Tampa Bay stratified-random sampling, 2024.

Species	Number			Density Estimate (animals/100m ²)				Standard Length (mm)			
	No.	%	% Occur	Mean	Stderr	CV	Max	Mean	Stderr	Min	Max
<i>Eucinostomus</i> spp.	599	15.0	26.7	1.06	0.96	701.21	57.68	24	0.20	11	39
<i>Eucinostomus gula</i>	662	16.6	58.3	0.78	0.27	270.92	12.01	76	0.52	42	114
<i>Lagodon rhomboides</i>	612	15.3	50.0	0.76	0.20	204.56	7.76	78	1.23	14	135
<i>Anchoa mitchilli</i>	560	14.0	3.3	0.66	0.65	762.65	39.13	31	0.12	25	59
<i>Prionotus scitulus</i>	461	11.5	70.0	0.52	0.11	160.21	3.98	105	1.29	10	166
<i>Orthopristis chrysoptera</i>	129	3.2	40.0	0.17	0.06	256.94	2.81	97	2.47	21	173
<i>Portunus</i> spp.	123	3.1	51.7	0.14	0.03	159.59	1.28	44	0.93	14	84
<i>Farfantepenaeus duorarum</i>	111	2.8	38.3	0.13	0.04	228.18	1.62	20	0.73	5	38
<i>Chilomycterus schoepfii</i>	70	1.8	46.7	0.08	0.02	183.18	0.81	131	3.82	63	219
<i>Cynoscion arenarius</i>	60	1.5	11.7	0.07	0.04	423.28	1.82	57	6.27	15	158
Subtotal	3,387	84.8	.	.	.	.	.	.	.	5	219
Total	3,997	100.0	.	5.08	1.42	216.54	72.18	.	.	4	370

Percent (%) is the percent of the total catch represented by that taxon; percent occurrence (% Occur) is the percentage of samples in which that taxon was collected; CV is the coefficient of variation of the mean. Taxa are ranked in order of decreasing mean density.

Table 4.35: Catch statistics for selected taxa collected in 60 6.1-m bay otter trawl samples during Tampa Bay stratified-random sampling, 2024.

Species	Number			Density Estimate (animals/100m ²)				Standard Length (mm)			
	No.	%	% Occur	Mean	Stderr	CV	Max	Mean	Stderr	Min	Max
<i>Farfantepenaeus duorarum</i>	111	2.8	38.3	0.13	0.04	228.18	1.62	20	0.73	5	38
<i>Cynoscion arenarius</i>	60	1.5	11.7	0.07	0.04	423.28	1.82	57	6.27	15	158
<i>Menippe</i> spp.	45	1.1	28.3	0.05	0.02	229.77	0.54	28	2.67	4	101
<i>Lutjanus synagris</i>	30	0.8	16.7	0.04	0.02	386.11	0.97	107	6.65	16	156
<i>Callinectes sapidus</i>	30	0.8	18.3	0.03	0.02	381.02	0.94	90	6.90	32	169
<i>Menticirrhus americanus</i>	23	0.6	5.0	0.03	0.02	708.83	1.42	41	9.99	15	198
<i>Diplectrum formosum</i>	21	0.5	15.0	0.02	0.01	393.24	0.71	101	7.55	46	166
<i>Paralichthys albigutta</i>	17	0.4	20.0	0.02	0.01	245.97	0.28	154	11.17	98	260
<i>Archosargus probatocephalus</i>	7	0.2	8.3	0.01	<0.01	356.49	0.15	78	17.22	25	160
<i>Argopecten irradians</i>	6	0.2	6.7	0.01	<0.01	449.55	0.21	23	5.04	13	46
<i>Cynoscion nebulosus</i>	4	0.1	5.0	0.01	<0.01	520.46	0.22	66	18.05	39	117
<i>Haemulon plumieri</i>	4	0.1	5.0	<0.01	<0.01	472.16	0.15	67	19.83	29	102
<i>Calamus penna</i>	2	0.1	1.7	<0.01	<0.01	774.60	0.14	56	3.00	53	59
<i>Albula</i> spp.	1	<0.1	1.7	<0.01	<0.01	774.60	0.07	60	.	60	60
<i>Centropristis striata</i>	1	<0.1	1.7	<0.01	<0.01	774.60	0.07	58	.	58	58
<i>Leiostomus xanthurus</i>	1	<0.1	1.7	<0.01	<0.01	774.60	0.07	81	.	81	81
<i>Lutjanus griseus</i>	1	<0.1	1.7	<0.01	<0.01	774.60	0.07	99	.	99	99
Total	364	9.1	.	0.42	0.09	160.83	4.18	.	.	4	260

Percent (%) is the percent of the total catch represented by that taxon; percent occurrence (% Occur) is the percentage of samples in which that taxon was collected; CV is the coefficient of variation of the mean. Taxa are ranked in order of decreasing mean density.

River Sampling

21.3-m River Seine

A total of 88,740 animals were collected in 324 21.3-m river seines, representing 37.7% of the overall SRS catch (Table 4.29). *Anchoa mitchilli* (n=47,183) was the most abundant taxon collected, accounting for 53.2% of the 21.3-m river seine catch (Table 4.36). *Eucinostomus* spp. (n=13,342) and *Menidia* spp. (n=11,049) were the next most abundant taxa, accounting for an additional 27.5% of the 21.3-m river seine catch. The taxa most frequently caught in 21.3-m river seines were *Eucinostomus* spp. (84.0% occurrence), *Menidia* spp. (75.9% occurrence), and *Eucinostomus harengulus* (67.6% occurrence).

A total of 1,470 animals from 17 selected taxa were collected, representing 1.7% of the entire 21.3-m river seine catch (Table 4.37). *Sciaenops ocellatus* (n=358), and *Mugil cephalus* (n=334) were the most abundant selected taxa, accounting for 47.1% of the selected taxa collected by this gear. The selected taxa most frequently caught in 21.3-m river seines were *Centropomus undecimalis* (27.5% occurrence) and *Callinectes sapidus* (19.1% occurrence).

Table 4.36: Catch statistics for 10 dominant taxa collected in 324 21.3-m river seine samples during Tampa Bay stratified-random sampling, 2024.

Species	Number			Density Estimate (animals/100m ²)				Standard Length (mm)			
	No.	%	% Occur	Mean	Stderr	CV	Max	Mean	Stderr	Min	Max
<i>Anchoa mitchilli</i>	47,183	53.2	48.8	212.19	46.84	399.14	10,729.41	31	0.03	15	83
<i>Eucinostomus</i> spp.	13,342	15.0	84.0	60.37	7.89	235.53	1,439.71	27	0.05	9	43
<i>Menidia</i> spp.	11,049	12.5	75.9	50.00	6.84	246.82	1,210.29	38	0.09	11	77
<i>Eucinostomus harengulus</i>	3,000	3.4	67.6	13.62	1.42	187.73	183.82	55	0.22	40	111
<i>Eucinostomus gula</i>	1,998	2.3	39.2	9.07	1.82	360.42	397.06	55	0.33	40	134
<i>Lucania parva</i>	1,740	2.0	24.7	7.90	2.41	549.59	636.76	24	0.10	12	41
<i>Gambusia holbrooki</i>	1,294	1.5	8.6	5.87	2.69	824.00	767.65	23	0.12	15	37
<i>Trinectes maculatus</i>	1,085	1.2	38.6	4.92	0.87	318.58	154.41	22	0.28	8	64
<i>Microgobius gulosus</i>	1,060	1.2	49.1	4.81	0.79	297.28	185.29	28	0.19	10	57
<i>Dorosoma petenense</i>	963	1.1	3.4	4.37	4.12	1,696.09	1,333.82	31	0.18	23	80
Subtotal	82,714	93.4	.	.	.	.	.	.	.	8	134
Total	88,740	100.0	.	402.78	50.78	226.95	10,810.29	.	.	3	611

Percent (%) is the percent of the total catch represented by that taxon; percent occurrence (% Occur) is the percentage of samples in which that taxon was collected; CV is the coefficient of variation of the mean. Taxa are ranked in order of decreasing mean density.

Table 4.37: Catch statistics for selected taxa collected in 324 21.3-m river seine samples during Tampa Bay stratified-random sampling, 2024.

Species	Number			Density Estimate (animals/100m ²)				Standard Length (mm)			
	No.	%	% Occur	Mean	Stderr	CV	Max	Mean	Stderr	Min	Max
<i>Sciaenops ocellatus</i>	358	0.4	16.7	1.62	0.41	457.07	83.82	35	2.82	11	611
<i>Mugil cephalus</i>	334	0.4	9.3	1.52	0.57	676.87	123.53	36	1.16	10	125
<i>Centropomus undecimalis</i>	219	0.2	27.5	0.95	0.11	217.47	16.18	130	7.36	16	556
<i>Archosargus probatocephalus</i>	128	0.1	15.4	0.58	0.12	367.66	22.06	76	4.28	11	342
<i>Callinectes sapidus</i>	127	0.1	19.1	0.58	0.11	336.88	22.06	35	3.40	6	187
<i>Cynoscion arenarius</i>	107	0.1	8.6	0.49	0.15	549.49	33.82	33	1.61	11	96
<i>Farfantepenaeus duorarum</i>	68	0.1	12.3	0.31	0.06	324.40	7.35	9	0.45	3	19
<i>Cynoscion nebulosus</i>	39	<0.1	6.2	0.18	0.07	667.16	17.65	50	4.35	15	112
<i>Mugil trichodon</i>	29	<0.1	0.9	0.13	0.09	1,228.30	25.00	31	2.05	19	67
<i>Lutjanus griseus</i>	21	<0.1	4.3	0.10	0.03	526.68	4.41	74	6.57	28	175
<i>Brevoortia</i> spp.	13	<0.1	1.5	0.06	0.03	1,060.47	10.29	33	1.84	22	43
<i>Leiostomus xanthurus</i>	13	<0.1	1.9	0.06	0.03	860.22	7.35	23	3.88	13	56
<i>Elops saurus</i>	9	<0.1	0.9	0.04	0.03	1,146.32	7.35	66	20.69	32	186
<i>Caranx hippos</i>	2	<0.1	0.6	0.01	0.01	1,270.82	1.47	112	36.50	76	149
<i>Megalops atlanticus</i>	1	<0.1	0.3	<0.01	<0.01	1,800.00	1.47	187	.	187	187
<i>Menticirrhus saxatilis</i>	1	<0.1	0.3	<0.01	<0.01	1,800.00	1.47	29	.	29	29
<i>Mugil curema</i>	1	<0.1	0.3	<0.01	<0.01	1,800.00	1.47	55	.	55	55
Total	1,470	1.7	.	6.67	0.76	205.43	123.53	.	.	3	611

Percent (%) is the percent of the total catch represented by that taxon; percent occurrence (% Occur) is the percentage of samples in which that taxon was collected; CV is the coefficient of variation of the mean. Taxa are ranked in order of decreasing mean density.

6.1-m River Otter Trawl

A total of 7,757 animals were collected in 84 6.1-m river otter trawls, representing 3.3% of the overall SRS catch (Table 4.29). *Anchoa mitchilli* (n=4,825) was the most abundant taxon collected, accounting for 62.2% of the 6.1-m river otter trawl catch (Table 4.38). The taxa most frequently caught in 6.1-m river otter trawls were *Callinectes sapidus* (61.9% occurrence), *Eucinostomus harengulus* (46.4% occurrence), and *Eucinostomus gula* (42.9% occurrence).

A total of 500 animals from 12 selected taxa were collected, representing 6.4% of the entire 6.1-m river otter trawl catch (Table 4.39). *Farfantepenaeus duorarum* (n=143), *Callinectes sapidus* (n=121), and *Cynoscion arenarius* (n=103) were the most abundant selected taxa, accounting for 73.4% of the selected taxa collected by this gear. The selected taxa most frequently caught in the 6.1-m river otter trawls were *Callinectes sapidus* (61.9% occurrence) and *Farfantepenaeus duorarum* (39.3% occurrence).

Table 4.38: Catch statistics for 10 dominant taxa collected in 84 6.1-m river otter trawl samples during Tampa Bay stratified-random sampling, 2024.

Species	Number			Density Estimate (animals/100m ²)				Standard Length (mm)			
	No.	%	% Occur	Mean	Stderr	CV	Max	Mean	Stderr	Min	Max
<i>Anchoa mitchilli</i>	4,825	62.2	27.4	8.18	3.64	407.40	217.96	26	0.10	17	55
<i>Eucinostomus gula</i>	751	9.7	42.9	1.26	0.30	217.63	16.06	70	0.61	40	106
<i>Eucinostomus</i> spp.	349	4.5	40.5	0.59	0.16	245.58	7.96	30	0.34	11	39
<i>Eucinostomus harengulus</i>	299	3.9	46.4	0.50	0.10	184.47	5.55	58	0.87	40	125
<i>Lagodon rhomboides</i>	180	2.3	22.6	0.34	0.20	552.10	16.86	33	1.51	11	103
<i>Trinectes maculatus</i>	169	2.2	35.7	0.29	0.11	352.95	7.50	46	1.52	10	91
<i>Farfantepenaeus duorarum</i>	143	1.8	39.3	0.24	0.06	228.39	3.78	12	0.39	3	23
<i>Callinectes sapidus</i>	121	1.6	61.9	0.21	0.03	116.44	1.20	108	4.79	13	284
<i>Lucania parva</i>	103	1.3	4.8	0.20	0.13	616.44	8.60	18	0.41	12	27
<i>Ariopsis felis</i>	114	1.5	28.6	0.19	0.06	270.40	3.43	177	7.77	50	335
Subtotal	7,054	91.0	.	.	.	.	.	.	.	3	335
Total	7,757	100.0	.	13.19	3.81	264.71	234.90	.	.	3	995

Percent (%) is the percent of the total catch represented by that taxon; percent occurrence (% Occur) is the percentage of samples in which that taxon was collected; CV is the coefficient of variation of the mean. Taxa are ranked in order of decreasing mean density.

Table 4.39: Catch statistics for selected taxa collected in 84 6.1-m river otter trawl samples during Tampa Bay stratified-random sampling, 2024.

Species	Number			Density Estimate (animals/100m ²)				Standard Length (mm)			
	No.	%	% Occur	Mean	Stderr	CV	Max	Mean	Stderr	Min	Max
<i>Farfantepenaeus duorarum</i>	143	1.8	39.3	0.24	0.06	228.39	3.78	12	0.39	3	23
<i>Callinectes sapidus</i>	121	1.6	61.9	0.21	0.03	116.44	1.20	108	4.79	13	284
<i>Cynoscion arenarius</i>	103	1.3	19.0	0.16	0.07	367.98	4.18	44	2.80	11	153
<i>Archosargus probatocephalus</i>	80	1.0	22.6	0.13	0.05	332.92	3.10	82	3.32	13	180
<i>Menticirrhus americanus</i>	27	0.3	9.5	0.04	0.03	580.01	2.21	52	14.44	15	286
<i>Sciaenops ocellatus</i>	12	0.2	4.8	0.02	0.01	630.89	1.20	40	10.24	14	110
<i>Cynoscion nebulosus</i>	6	0.1	6.0	0.01	<0.01	424.99	0.30	90	23.72	28	162
<i>Paralichthys albigutta</i>	4	0.1	3.6	0.01	<0.01	560.90	0.30	145	17.71	98	184
<i>Argopecten irradians</i>	1	<0.1	1.2	<0.01	<0.01	916.52	0.15	15	.	15	15
<i>Carcharhinus leucas</i>	1	<0.1	1.2	<0.01	<0.01	916.52	0.13	670	.	670	670
<i>Leiostomus xanthurus</i>	1	<0.1	1.2	<0.01	<0.01	916.52	0.13	87	.	87	87
<i>Pogonias cromis</i>	1	<0.1	1.2	<0.01	<0.01	916.52	0.15	203	.	203	203
Total	500	6.4	.	0.84	0.12	136.71	6.21	.	.	3	670

Percent (%) is the percent of the total catch represented by that taxon; percent occurrence (% Occur) is the percentage of samples in which that taxon was collected; CV is the coefficient of variation of the mean. Taxa are ranked in order of decreasing mean density.

4.6 Sarasota Bay

Sarasota Bay, located on the southwest coast of Florida, is a coastal lagoon that extends from Anna Maria Sound south to Venice Inlet. The bay comprises five embayments (Palma Sola, Sarasota, Little Sarasota, Roberts, and Blackburn Bays), which were formed behind a barrier island complex. This system is connected to the Gulf through five inlets: Anna Maria Sound, Longboat Pass, New Pass, Big Sarasota Pass, and Venice Inlet. Freshwater inflow enters the estuary through a series of creeks, bayous, and unnamed drainage ditches (Roat and McKeon 2010). Shoreline vegetation consists largely of mangroves and marsh grasses, and bottom substrates are typically characterized as sand, mud, oysters, or a combination thereof (Flannery 1989). Seagrass meadows are the dominant, submerged vegetative cover in Sarasota Bay and are widely distributed throughout the estuary (Haddad 1989).

The Fisheries-Independent Monitoring (FIM) program has conducted intensive sampling of fish and selected invertebrates in Sarasota Bay since 2009. The area sampled was divided into zones representing the five embayments designated by the Sarasota Bay Estuary Program (Zone A - Palma Sola Bay, Zone B - Sarasota Bay proper, Zone C - Roberts Bay, Zone D - Little Sarasota Bay, and Zone E - Blackburn Bay; Figure 4.6). Bi-monthly stratified-random sampling (SRS) was conducted in Zones A-E using 21.3-m bay seines and 183-m haul seines. All methods were the same as those described in Chapter 2. This section summarizes data collected by the FIM program during 2024 in Sarasota Bay.

Stratified-Random Sampling

A total of 77,302 animals, which included 94 taxa of fishes and 8 taxa of selected invertebrates, were collected from 154 Sarasota Bay SRS samples in 2024 (Table 4.40, Table A.16, Table A.17, Table A.18). *Lagodon rhomboides* (n=22,045) was the most numerous taxon collected, representing 28.5% of the total catch. *Eucinostomus* spp. (n=16,174) and *Anchoa mitchilli* (n=14,083) were the next most abundant taxa collected, accounting for an additional 39.1% of the total catch. A total of 33 Selected Taxa (n=2,643 animals) composed 3.4% of the total catch. *Farfantepenaeus duorarum* (n=466) was the most abundant Selected Taxon, representing 0.6% of the total catch. *Mugil curema* (n=359), *Archosargus probatocephalus* (n=245), *Lutjanus griseus* (n=226), and *Cynoscion nebulosus* (n=184) were the next most abundant Selected Taxa, comprising 1.3% of the total catch. Collections in 2024 included 5 species new to the Sarasota Bay FIM collection: *Archosargus rhomboidalis*, *Dorosoma cepedianum*, *Dorosoma petenense*, *Fistularia tabacaria*, *Rachycentron canadum*.



Figure 4.6: Map of Sarasota Bay sampling area. Zones are labeled A-E.

Table 4.40: Summary of catch and effort data for Sarasota Bay stratified-random sampling, 2024.

Zone	21.3-m bay seine		183-m haul seine		Total	
	Hauls	Animals	Hauls	Animals	Hauls	Animals
A	18	21,354	6	1,553	24	22,907
B	36	13,096	12	6,141	48	19,237
C	22	6,380	6	1,414	28	7,794
D	18	15,956	6	1,551	24	17,507
E	24	8,608	6	1,249	30	9,857
Total	118	65,394	36	11,908	154	77,302

Bay Sampling

21.3-m Bay Seine

A total of 65,394 animals were collected in 118 21.3-m bay seines, representing 84.6% of the overall SRS catch (Table 4.40). *Eucinostomus* spp. (n=16,174) and *Anchoa mitchilli* (n=14,083) were the most abundant taxa, accounting for 46.3% of the bay seine catch (Table 4.41). The taxa most frequently caught in 21.3-m bay seines were *Eucinostomus* spp. (91.5% occurrence) and *Eucinostomus gula* (80.5% occurrence).

A total of 1,009 animals from 21 Selected Taxa were collected, representing 1.5% of the entire 21.3-m bay seine catch (Table 4.42). *Farfantepenaeus duorarum* (n=461) was the most abundant Selected Taxon, accounting for 45.7% of the Selected Taxa collected by this gear. The Selected Taxa most frequently caught in 21.3-m bay seines were *Farfantepenaeus duorarum* (49.2% occurrence) and *Callinectes sapidus* (26.3% occurrence).

Table 4.41: Catch statistics for 10 dominant taxa collected in 118 21.3-m bay seine samples during Sarasota Bay stratified-random sampling, 2024.

Species	Number			Density Estimate (animals/100m ²)				Standard Length (mm)			
	No.	%	% Occur	Mean	Stderr	CV	Max	Mean	Stderr	Min	Max
<i>Eucinostomus</i> spp.	16,174	24.7	91.5	97.08	18.69	210.00	1,802.86	26	0.05	11	39
<i>Anchoa mitchilli</i>	14,083	21.5	12.7	84.53	61.62	795.16	7,171.43	32	0.04	21	56
<i>Lagodon rhomboides</i>	13,703	21.0	77.1	77.07	14.25	208.33	802.86	38	0.13	14	165
<i>Lucania parva</i>	8,979	13.7	46.6	54.35	22.23	444.36	2,411.43	23	0.04	14	38
<i>Harengula jaguana</i>	6,905	10.6	18.6	41.80	33.76	877.50	3,977.14	31	0.14	22	73
<i>Eucinostomus gula</i>	1,867	2.9	80.5	11.30	1.45	139.12	83.57	55	0.24	40	95
<i>Orthopristis chrysoptera</i>	537	0.8	32.2	3.25	0.90	302.15	77.14	39	0.69	17	146
<i>Farfantepenaeus duorarum</i>	461	0.7	49.2	2.77	0.72	284.10	67.86	9	0.17	3	19
<i>Opisthonema oglinum</i>	445	0.7	9.3	2.69	1.61	649.75	173.57	39	0.83	22	155
<i>Floridichthys carpio</i>	353	0.5	14.4	2.14	0.87	441.02	81.43	33	0.59	14	60
Subtotal	63,507	97.1	.	.	.	.	.	.	.	3	165
Total	65,394	100.0	.	395.85	90.82	249.23	7,512.14	.	.	3	580

Percent (%) is the percent of the total catch represented by that taxon; percent occurrence (% Occur) is the percentage of samples in which that taxon was collected; CV is the coefficient of variation of the mean. Taxa are ranked in order of decreasing mean density.

Table 4.42: Catch statistics for Selected Taxa collected in 118 21.3-m bay seine samples during Sarasota Bay stratified-random sampling, 2024.

Species	Number			Density Estimate (animals/100m ²)				Standard Length (mm)			
	No.	%	% Occur	Mean	Stderr	CV	Max	Mean	Stderr	Min	Max
<i>Farfantepenaeus duorarum</i>	461	0.7	49.2	2.77	0.72	284.10	67.86	9	0.17	3	19
<i>Cynoscion nebulosus</i>	142	0.2	18.6	0.86	0.29	369.97	25.00	37	1.69	12	163
<i>Lutjanus griseus</i>	106	0.2	24.6	0.64	0.17	283.33	14.29	61	4.82	15	224
<i>Haemulon plumieri</i>	83	0.1	5.1	0.50	0.30	649.59	32.14	38	1.24	21	63
<i>Callinectes sapidus</i>	65	0.1	26.3	0.39	0.09	261.73	7.86	43	5.03	7	157
<i>Lutjanus synagris</i>	38	0.1	9.3	0.23	0.11	513.36	11.43	26	1.49	19	62
<i>Mugil cephalus</i>	33	0.1	4.2	0.20	0.16	894.26	19.29	22	0.81	17	44
<i>Sciaenops ocellatus</i>	26	<0.1	7.6	0.16	0.07	489.80	7.14	26	2.92	15	92
<i>Archosargus probatocephalus</i>	20	<0.1	11.0	0.12	0.04	330.03	2.86	49	9.70	16	177
<i>Elops saurus</i>	8	<0.1	5.1	0.05	0.02	461.58	1.43	175	40.03	36	287
<i>Paralichthys albigutta</i>	8	<0.1	4.2	0.05	0.03	601.51	2.86	27	5.77	17	67
<i>Calamus</i> spp.	4	<0.1	3.4	0.02	0.01	536.13	0.71	24	3.12	15	28
<i>Centropomus undecimalis</i>	3	<0.1	2.5	0.02	0.01	621.78	0.71	224	97.58	54	392
<i>Scomberomorus maculatus</i>	3	<0.1	1.7	0.02	0.01	806.89	1.43	39	2.52	34	42
<i>Calamus penna</i>	2	<0.1	1.7	0.01	0.01	764.82	0.71	40	4.00	36	44
<i>Leiostomus xanthurus</i>	2	<0.1	1.7	0.01	0.01	764.82	0.71	58	25.00	33	83
<i>Albula</i> spp.	1	<0.1	0.8	0.01	0.01	1,086.28	0.71	46	.	46	46
<i>Argopecten irradians</i>	1	<0.1	0.8	0.01	0.01	1,086.28	0.71	16	.	16	16
<i>Caranx hippos</i>	1	<0.1	0.8	0.01	0.01	1,086.28	0.71	57	.	57	57
<i>Cynoscion arenarius</i>	1	<0.1	0.8	0.01	0.01	1,086.28	0.71	20	.	20	20
<i>Menippe</i> spp.	1	<0.1	0.8	0.01	0.01	1,086.28	0.71	4	.	4	4
Total	1,009	1.5	.	6.11	1.00	178.64	75.71	.	.	3	392

Species	Number			Density Estimate (animals/100m ²)				Standard Length (mm)			
	No.	%	% Occur	Mean	Stderr	CV	Max	Mean	Stderr	Min	Max

Percent (%) is the percent of the total catch represented by that taxon; percent occurrence (% Occur) is the percentage of samples in which that taxon was collected; CV is the coefficient of variation of the mean. Taxa are ranked in order of decreasing mean density.

183-m Haul Seine

A total of 11,908 animals were collected in 36 183-m haul seines, representing 15.4% of the overall SRS catch (Table 4.40). *Lagodon rhomboides* (n=8,342) was the most abundant taxon, accounting for 70.1% of the 183-m haul seine catch (Table 4.43). The taxa most frequently caught in 183-m haul seines were *Lagodon rhomboides* (88.9% occurrence), *Archosargus probatocephalus* (69.4% occurrence), and *Eucinostomus gula* (55.6% occurrence).

A total of 1,634 animals from 28 Selected Taxa were collected, representing 13.7% of the entire 183-m haul seine catch (Table 4.44). *Mugil curema* (n=359) and *Archosargus probatocephalus* (n=225) were the most abundant Selected Taxa, accounting for 35.7% of the Selected Taxa collected by this gear. The Selected Taxa most frequently caught in 183-m haul seines were *Archosargus probatocephalus* (69.4% occurrence) and *Lutjanus griseus* (52.8% occurrence).

Table 4.43: Catch statistics for 10 dominant taxa collected in 36 183-m haul seine samples during Sarasota Bay stratified-random sampling, 2024.

Species	Number			Density Estimate (animals/set)				Standard Length (mm)			
	No.	%	% Occur	Mean	Stderr	CV	Max	Mean	Stderr	Min	Max
<i>Lagodon rhomboides</i>	8,342	70.1	88.9	231.72	43.17	111.77	1,073	118	0.28	55	200
<i>Orthopristis chrysoptera</i>	794	6.7	47.2	22.06	12.83	348.99	427	127	1.05	72	179
<i>Eucinostomus gula</i>	517	4.3	55.6	14.36	5.18	216.51	160	83	0.40	49	150
<i>Mugil curema</i>	359	3.0	25.0	9.97	6.31	379.85	210	251	2.03	121	315
<i>Archosargus probatocephalus</i>	225	1.9	69.4	5.92	1.21	126.10	30	205	5.32	60	385
<i>Mugil trichodon</i>	155	1.3	41.7	4.31	2.14	298.67	66	208	3.70	96	310
<i>Elops saurus</i>	150	1.3	30.6	4.17	3.23	464.51	116	265	2.20	219	409
<i>Chaetodipterus faber</i>	142	1.2	22.2	3.94	3.33	506.86	120	215	4.06	95	342
<i>Centropomus undecimalis</i>	138	1.2	41.7	3.83	1.62	252.88	42	397	7.86	166	780
<i>Mugil cephalus</i>	129	1.1	41.7	3.58	2.10	350.81	71	283	5.28	119	425
Subtotal	10,951	92.1	.	.	.	.	.	.	.	49	780
Total	11,908	100.0	.	330.78	54.37	98.62	1,647	.	.	13	840

Percent (%) is the percent of the total catch represented by that taxon; percent occurrence (% Occur) is the percentage of samples in which that taxon was collected; CV is the coefficient of variation of the mean. Taxa are ranked in order of decreasing mean density.

Table 4.44: Catch statistics for Selected Taxa collected in 36 183-m haul seine samples during Sarasota Bay stratified-random sampling, 2024.

Species	Number			Density Estimate (animals/set)				Standard Length (mm)			
	No.	%	% Occur	Mean	Stderr	CV	Max	Mean	Stderr	Min	Max
<i>Mugil curema</i>	359	3.0	25.0	9.97	6.31	379.85	210	251	2.03	121	315
<i>Archosargus probatocephalus</i>	225	1.9	69.4	5.92	1.21	126.10	30	205	5.32	60	385
<i>Mugil trichodon</i>	155	1.3	41.7	4.31	2.14	298.67	66	208	3.70	96	310
<i>Elops saurus</i>	150	1.3	30.6	4.17	3.23	464.51	116	265	2.20	219	409
<i>Centropomus undecimalis</i>	138	1.2	41.7	3.83	1.62	252.88	42	397	7.86	166	780
<i>Mugil cephalus</i>	129	1.1	41.7	3.58	2.10	350.81	71	283	5.28	119	425
<i>Lutjanus griseus</i>	120	1.0	52.8	3.33	0.94	169.86	24	140	3.45	81	352
<i>Callinectes sapidus</i>	68	0.6	50.0	1.89	0.51	160.47	15	101	3.11	49	156
<i>Paralichthys albigutta</i>	60	0.5	36.1	1.67	0.62	221.73	14	155	5.82	72	260
<i>Sphyræna barracuda</i>	58	0.5	47.2	1.61	0.44	164.74	11	300	8.64	125	456
<i>Cynoscion nebulosus</i>	42	0.4	27.8	1.17	0.44	223.98	9	253	12.88	135	475
<i>Sciaenops ocellatus</i>	31	0.3	36.1	0.86	0.27	188.59	6	451	15.03	245	594
<i>Caranx hippos</i>	25	0.2	19.4	0.69	0.35	299.73	10	126	7.94	81	201
<i>Pomatomus saltatrix</i>	18	0.2	2.8	0.50	0.50	600.00	18	451	9.65	390	520
<i>Scomberomorus maculatus</i>	11	0.1	5.6	0.31	0.21	419.98	6	174	8.64	134	221
<i>Pogonias cromis</i>	7	0.1	13.9	0.19	0.09	269.89	2	322	21.57	210	378
<i>Haemulon plumieri</i>	6	0.1	5.6	0.17	0.12	442.07	4	130	20.28	54	182
<i>Farfantepenaeus duorarum</i>	5	<0.1	8.3	0.14	0.09	390.69	3	18	1.52	13	22
<i>Centropristis striata</i>	4	<0.1	2.8	0.11	0.11	600.00	4	110	4.15	103	121
<i>Mycteroperca microlepis</i>	4	<0.1	8.3	0.11	0.07	358.57	2	220	34.63	161	313
<i>Trachinotus carolinus</i>	4	<0.1	5.6	0.11	0.09	470.26	3	341	12.47	310	371
<i>Trachinotus falcatus</i>	4	<0.1	2.8	0.11	0.11	600.00	4	263	8.90	246	287

Species	Number			Density Estimate (animals/set)				Standard Length (mm)			
	No.	%	% Occur	Mean	Stderr	CV	Max	Mean	Stderr	Min	Max
<i>Lutjanus synagris</i>	3	<0.1	5.6	0.08	0.06	442.07	2	96	7.31	85	110
<i>Sphyrna tiburo</i>	3	<0.1	5.6	0.08	0.06	442.07	2	575	142.00	291	719
<i>Caranx crysos</i>	2	<0.1	2.8	0.06	0.06	600.00	2	156	9.50	147	166
<i>Leiostomus xanthurus</i>	1	<0.1	2.8	0.03	0.03	600.00	1	82	.	82	82
<i>Menippe</i> spp.	1	<0.1	2.8	0.03	0.03	600.00	1	55	.	55	55
<i>Rachycentron canadum</i>	1	<0.1	2.8	0.03	0.03	600.00	1	139	.	139	139
Total	1,634	13.7	.	45.39	12.17	160.93	355	.	.	13	780

Percent (%) is the percent of the total catch represented by that taxon; percent occurrence (% Occur) is the percentage of samples in which that taxon was collected; CV is the coefficient of variation of the mean. Taxa are ranked in order of decreasing mean density.

4.7 Charlotte Harbor

Charlotte Harbor is a drowned river estuary located on the southwestern coast of Florida (Charlotte Harbor National Estuary program 2000). The bay is connected to the Gulf by passes at Boca Grande, San Carlos, and several smaller inlets. Freshwater inflow principally comes from the Peace, Caloosahatchee, and Myakka rivers. Shoreline vegetation consists largely of fringing mangroves, and seagrasses are the dominant bottom vegetation in shallow waters.

The Fisheries-Independent Monitoring (FIM) program has conducted intensive sampling of fish and selected invertebrates in Charlotte Harbor since 1989. The area sampled was divided into four geographically-defined bay zones (A–D) and three riverine zones (K, M, and P; Figure 4.7). Stratified-random sampling (SRS) was conducted in Zones A–D monthly using 21.3-m bay seines and 183-m haul seines and quarterly using 6.1-m bay otter trawls. SRS was conducted in Zones M and P in every month except March, May, and July with 21.3-m river seines and quarterly with 6.1-m river otter trawls. SRS was conducted in every month except March, May, and July in Zone K with 21.3-m river seines (starting in 2016). Beginning in 2016, tidal creeks in Zones A, B, and C were sampled monthly using 21.3-m river seines. All methods were the same as those described in Chapter 2. This section summarizes data collected by the FIM program during 2024 in Charlotte Harbor.

Stratified-Random Sampling

A total of 208,343 animals, which included 151 taxa of fishes and 11 taxa of selected invertebrates, were collected from 1,122 Charlotte Harbor SRS samples in 2024 (Table 4.45, Table A.19, Table A.20, Table A.21). *Lagodon rhomboides* (n=41,994) was the most numerous taxon collected, representing 20.2% of the total catch. *Eucinostomus* spp. (n=39,868) and *Anchoa mitchilli* (n=37,262) were the next most abundant taxa collected, accounting for an additional 37% of the total catch. A total of 43 selected taxa (n=10,388 animals) composed 5% of the total catch. *Farfantepenaeus duorarum* (n=1,868) was the most abundant Selected Taxon, representing 0.9% of the total catch. *Centropomus undecimalis* (n=1,381), *Archosargus probatocephalus* (n=1,179), *Sciaenops ocellatus* (n=933), and *Callinectes sapidus* (n=857) were the next most abundant selected taxa, comprising 2.1% of the total catch. Collections in 2024 included 1 species new to the Charlotte Harbor FIM collection: *Kyphosus sectatrix*.

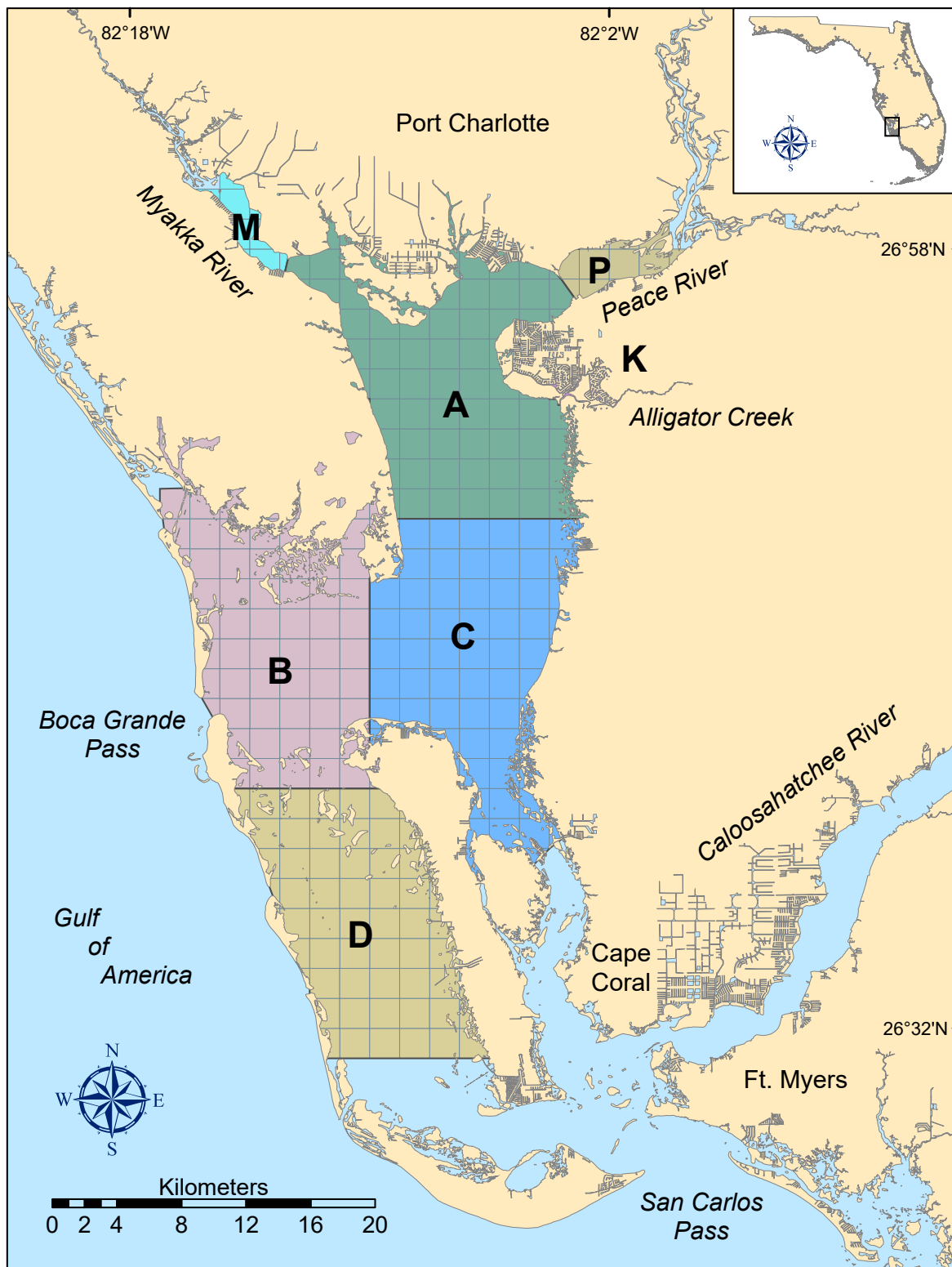


Figure 4.7: Map of Charlotte Harbor sampling area. Zones are labeled A–D (bay zones) and K, M, and P (riverine zones).

Table 4.45: Summary of catch and effort data for Charlotte Harbor stratified-random sampling, 2024.

Zone	21.3-m bay seine		21.3-m river seine		183-m haul seine		6.1-m otter trawl		Total	
	Hauls	Animals	Hauls	Animals	Hauls	Animals	Hauls	Animals	Hauls	Animals
A	120	10,317	90	13,648	60	2,270	28	2,472	298	28,707
B	96	31,883	90	28,361	48	17,802	24	890	258	78,936
C	96	21,596	90	10,383	48	9,285	24	2,114	258	43,378
D	96	24,268	.	.	48	12,497	20	3,500	164	40,265
K	.	.	36	3,828	.	.	.	.	36	3,828
M	.	.	36	4,156	.	.	18	1,982	54	6,138
P	.	.	36	4,285	.	.	18	2,806	54	7,091
Total	408	88,064	378	64,661	204	41,854	132	13,764	1,122	208,343

Bay Sampling

21.3-m Bay Seine

A total of 88,064 animals were collected in 408 21.3-m bay seines, representing 42.3% of the overall SRS catch (Table 4.45). *Eucinostomus* spp. (n=23,359) and *Anchoa mitchilli* (n=18,464) were the most abundant taxa, accounting for 47.5% of the bay seine catch (Table 4.46). The taxa most frequently caught in 21.3-m bay seines were *Eucinostomus* spp. (73.5% occurrence) and *Eucinostomus gula* (52.5% occurrence).

A total of 2,934 animals from 30 selected taxa were collected, representing 3.3% of the entire 21.3-m bay seine catch (Table 4.47). *Farfantepenaeus duorarum* (n=1,231) was the most abundant Selected Taxon, accounting for 42% of the selected taxa collected by this gear. The selected taxa most frequently caught in 21.3-m bay seines were *Farfantepenaeus duorarum* (40.4% occurrence) and *Callinectes sapidus* (19.1% occurrence).

Table 4.46: Catch statistics for 10 dominant taxa collected in 408 21.3-m bay seine samples during Charlotte Harbor stratified-random sampling, 2024.

Species	Number			Density Estimate (animals/100m ²)				Standard Length (mm)			
	No.	%	% Occur	Mean	Stderr	CV	Max	Mean	Stderr	Min	Max
<i>Eucinostomus</i> spp.	23,359	26.5	73.5	40.79	3.86	191.53	650.00	27	0.04	10	39
<i>Anchoa mitchilli</i>	18,464	21.0	12.5	32.32	10.71	669.48	2,582.86	33	0.06	19	72
<i>Lagodon rhomboides</i>	15,554	17.7	47.1	27.10	4.38	327.49	756.43	42	0.14	12	176
<i>Lucania parva</i>	7,638	8.7	34.8	13.37	3.09	466.67	947.86	23	0.05	7	40
<i>Harengula jaguana</i>	6,214	7.1	9.1	10.88	4.33	804.03	1,135.00	46	0.19	20	145
<i>Eucinostomus gula</i>	3,677	4.2	52.5	6.44	0.62	196.04	83.57	53	0.15	40	116
<i>Microgobius gulosus</i>	1,480	1.7	40.4	2.59	0.43	336.74	122.86	28	0.18	8	55
<i>Eucinostomus harengulus</i>	1,332	1.5	28.2	2.33	0.36	310.76	74.29	53	0.34	40	112
<i>Farfantepenaeus duorarum</i>	1,231	1.4	40.4	2.16	0.54	504.53	183.57	8	0.09	3	32
<i>Menidia</i> spp.	1,164	1.3	16.9	2.04	0.45	447.06	115.00	41	0.38	14	84
Subtotal	80,113	91.1	.	.	.	.	.	.	.	3	176
Total	88,064	100.0	.	154.17	14.74	193.14	2,797.86	.	.	3	869

Percent (%) is the percent of the total catch represented by that taxon; percent occurrence (% Occur) is the percentage of samples in which that taxon was collected; CV is the coefficient of variation of the mean. Taxa are ranked in order of decreasing mean density.

Table 4.47: Catch statistics for selected taxa collected in 408 21.3-m bay seine samples during Charlotte Harbor stratified-random sampling, 2024.

Species	Number			Density Estimate (animals/100m ²)				Standard Length (mm)			
	No.	%	% Occur	Mean	Stderr	CV	Max	Mean	Stderr	Min	Max
<i>Farfantepenaeus duorarum</i>	1,231	1.4	40.4	2.16	0.54	504.53	183.57	8	0.09	3	32
<i>Sciaenops ocellatus</i>	410	0.5	9.3	0.72	0.23	659.76	58.57	24	1.69	9	381
<i>Cynoscion nebulosus</i>	289	0.3	17.2	0.51	0.12	478.03	40.71	38	1.01	16	167
<i>Callinectes sapidus</i>	233	0.3	19.1	0.41	0.07	346.10	14.29	40	2.89	3	182
<i>Mugil cephalus</i>	168	0.2	3.2	0.29	0.19	1,303.82	63.57	33	3.79	19	325
<i>Archosargus probatocephalus</i>	155	0.2	13.7	0.27	0.06	474.78	18.57	61	5.57	13	320
<i>Lutjanus griseus</i>	125	0.1	12.0	0.22	0.05	446.23	14.29	92	4.91	12	282
<i>Haemulon plumieri</i>	96	0.1	4.7	0.17	0.07	805.34	24.29	48	1.81	21	102
<i>Cynoscion arenarius</i>	44	<0.1	3.2	0.08	0.03	902.16	12.86	29	1.34	16	56
<i>Menticirrhus americanus</i>	37	<0.1	2.7	0.06	0.03	853.18	9.29	30	1.07	14	39
<i>Lutjanus synagris</i>	35	<0.1	3.4	0.06	0.02	668.87	5.00	43	2.03	22	69
<i>Centropomus undecimalis</i>	32	<0.1	4.7	0.06	0.02	667.32	6.43	214	23.26	24	503
<i>Menticirrhus saxatilis</i>	15	<0.1	2.0	0.03	0.01	938.45	4.29	30	3.90	13	69
<i>Mugil trichodon</i>	15	<0.1	2.9	0.03	0.01	638.80	2.14	49	7.78	16	88
<i>Trachinotus falcatus</i>	8	<0.1	0.5	0.01	0.01	1,784.74	5.00	43	2.76	32	52
<i>Paralichthys albigutta</i>	7	<0.1	1.2	0.01	0.01	1,036.86	2.14	53	18.82	29	165
<i>Calamus penna</i>	6	<0.1	0.7	0.01	0.01	1,163.32	1.43	45	5.52	30	62
<i>Calamus</i> spp.	5	<0.1	0.7	0.01	0.01	1,209.29	1.43	24	3.01	12	29
<i>Leiostomus xanthurus</i>	5	<0.1	0.5	0.01	0.01	1,664.69	2.86	24	1.29	19	26
<i>Menippe</i> spp.	4	<0.1	0.7	0.01	<0.01	1,234.40	1.43	22	8.86	9	47
<i>Albula</i> spp.	2	<0.1	0.5	<0.01	<0.01	1,426.53	0.71	57	1.00	56	58
<i>Elops saurus</i>	2	<0.1	0.5	<0.01	<0.01	1,426.53	0.71	176	61.00	115	237

Species	Number			Density Estimate (animals/100m ²)				Standard Length (mm)			
	No.	%	% Occur	Mean	Stderr	CV	Max	Mean	Stderr	Min	Max
<i>Haemulon aurolineatum</i>	2	<0.1	0.2	<0.01	<0.01	2,019.90	1.43	48	5.00	43	53
<i>Sphyraena barracuda</i>	2	<0.1	0.5	<0.01	<0.01	1,426.53	0.71	228	96.50	132	325
<i>Caranx hippos</i>	1	<0.1	0.2	<0.01	<0.01	2,019.90	0.71	39	.	39	39
<i>Epinephelus itajara</i>	1	<0.1	0.2	<0.01	<0.01	2,019.90	0.71	127	.	127	127
<i>Megalops atlanticus</i>	1	<0.1	0.2	<0.01	<0.01	2,019.90	0.71	196	.	196	196
<i>Mugil curema</i>	1	<0.1	0.2	<0.01	<0.01	2,019.90	0.71	175	.	175	175
<i>Ocyurus chrysurus</i>	1	<0.1	0.2	<0.01	<0.01	2,019.90	0.71	90	.	90	90
<i>Trachinotus carolinus</i>	1	<0.1	0.2	<0.01	<0.01	2,019.90	0.71	44	.	44	44
Total	2,934	3.3	.	5.14	0.69	271.92	192.86	.	.	3	503

Percent (%) is the percent of the total catch represented by that taxon; percent occurrence (% Occur) is the percentage of samples in which that taxon was collected; CV is the coefficient of variation of the mean. Taxa are ranked in order of decreasing mean density.

183-m Haul Seine

A total of 41,854 animals were collected in 204 183-m haul seines, representing 20.1% of the overall SRS catch (Table 4.45). *Lagodon rhomboides* (n=22,823) was the most abundant taxon, accounting for 54.5% of the 183-m haul seine catch (Table 4.48). The taxa most frequently caught in 183-m haul seines were *Lagodon rhomboides* (59.8% occurrence), *Archosargus probatocephalus* (54.4% occurrence), and *Centropomus undecimalis* (51.0% occurrence).

A total of 4,620 animals from 34 selected taxa were collected, representing 11% of the entire 183-m haul seine catch (Table 4.49). *Centropomus undecimalis* (n=916) and *Archosargus probatocephalus* (n=892) were the most abundant selected taxa, accounting for 39.1% of the selected taxa collected by this gear. The selected taxa most frequently caught in 183-m haul seines were *Archosargus probatocephalus* (54.4% occurrence) and *Centropomus undecimalis* (51.0% occurrence).

Table 4.48: Catch statistics for 10 dominant taxa collected in 204 183-m haul seine samples during Charlotte Harbor stratified-random sampling, 2024.

Species	Number			Density Estimate (animals/set)				Standard Length (mm)			
	No.	%	% Occur	Mean	Stderr	CV	Max	Mean	Stderr	Min	Max
<i>Lagodon rhomboides</i>	22,823	54.5	59.8	111.88	15.13	193.10	1,559	114	0.19	32	219
<i>Eucinostomus gula</i>	2,605	6.2	41.2	12.77	2.87	320.69	349	86	0.22	43	163
<i>Opisthonema oglinum</i>	2,404	5.7	9.3	11.78	10.75	1,302.94	2,192	98	0.25	81	169
<i>Bairdiella chrysoura</i>	1,727	4.1	15.2	8.47	3.72	627.27	669	131	0.36	43	223
<i>Eucinostomus harengulus</i>	1,656	4.0	26.5	8.12	3.90	685.54	765	101	0.27	42	162
<i>Ariopsis felis</i>	1,564	3.7	45.6	7.67	2.73	508.37	533	224	1.79	110	432
<i>Centropomus undecimalis</i>	916	2.2	51.0	4.49	0.77	243.63	84	403	3.20	155	890
<i>Archosargus probatocephalus</i>	892	2.1	54.4	4.37	0.56	183.87	49	177	2.37	25	405
<i>Diapterus auratus</i>	759	1.8	14.7	3.72	2.32	890.66	456	169	0.85	123	280
<i>Harengula jaguana</i>	597	1.4	14.2	2.93	1.77	863.42	355	100	0.53	72	191
Subtotal	35,943	85.7	.	.	.	.	.	.	.	25	890
Total	41,854	100.0	.	205.17	21.56	150.12	2,558	.	.	17	1,822

Percent (%) is the percent of the total catch represented by that taxon; percent occurrence (% Occur) is the percentage of samples in which that taxon was collected; CV is the coefficient of variation of the mean. Taxa are ranked in order of decreasing mean density.

Table 4.49: Catch statistics for selected taxa collected in 204 183-m haul seine samples during Charlotte Harbor stratified-random sampling, 2024.

Species	Number			Density Estimate (animals/set)				Standard Length (mm)			
	No.	%	% Occur	Mean	Stderr	CV	Max	Mean	Stderr	Min	Max
<i>Centropomus undecimalis</i>	916	2.2	51.0	4.49	0.77	243.63	84	403	3.20	155	890
<i>Archosargus probatocephalus</i>	892	2.1	54.4	4.37	0.56	183.87	49	177	2.37	25	405
<i>Elops saurus</i>	588	1.4	25.5	2.88	0.83	410.61	108	265	1.48	124	493
<i>Mugil cephalus</i>	435	1.0	40.2	2.12	0.44	296.92	63	288	3.12	80	458
<i>Callinectes sapidus</i>	259	0.6	43.1	1.27	0.19	211.24	26	123	2.17	43	220
<i>Mugil trichodon</i>	213	0.5	21.6	1.04	0.22	295.21	23	185	2.59	96	304
<i>Lutjanus griseus</i>	210	0.5	31.9	1.03	0.17	242.77	23	152	2.36	60	248
<i>Sciaenops ocellatus</i>	174	0.4	31.4	0.85	0.15	259.38	20	384	7.19	98	635
<i>Caranx hippos</i>	130	0.3	13.7	0.64	0.24	527.42	39	221	7.58	73	435
<i>Cynoscion nebulosus</i>	116	0.3	20.1	0.57	0.12	306.36	12	249	8.25	61	475
<i>Paralichthys albigutta</i>	98	0.2	20.1	0.48	0.11	312.99	13	180	6.54	65	415
<i>Haemulon plumieri</i>	94	0.2	7.4	0.46	0.20	621.84	34	108	2.59	67	182
<i>Lutjanus synagris</i>	88	0.2	7.4	0.43	0.20	670.86	32	120	2.18	49	155
<i>Mugil curema</i>	70	0.2	13.2	0.34	0.10	415.17	15	215	4.97	96	280
<i>Sphyrna barracuda</i>	54	0.1	11.8	0.26	0.08	432.20	13	307	7.76	183	457
<i>Calamus penna</i>	48	0.1	4.4	0.24	0.10	600.08	14	134	4.47	60	173
<i>Ocyurus chrysurus</i>	48	0.1	1.0	0.24	0.23	1,398.70	47	149	1.61	106	162
<i>Pogonias cromis</i>	36	0.1	5.9	0.18	0.10	816.68	20	243	14.63	166	538
<i>Trachinotus falcatus</i>	29	0.1	6.4	0.14	0.05	515.17	6	231	10.52	163	372
<i>Trachinotus carolinus</i>	19	<0.1	4.4	0.09	0.04	549.80	4	330	7.25	288	403
<i>Mycteroperca microlepis</i>	17	<0.1	4.4	0.08	0.04	604.91	6	249	19.29	124	387
<i>Sphyrna tiburo</i>	17	<0.1	7.4	0.08	0.02	372.71	2	641	22.75	466	800

Species	Number			Density Estimate (animals/set)				Standard Length (mm)			
	No.	%	% Occur	Mean	Stderr	CV	Max	Mean	Stderr	Min	Max
<i>Lutjanus analis</i>	16	<0.1	2.9	0.08	0.05	999.48	11	164	14.69	83	287
<i>Menticirrhus americanus</i>	11	<0.1	2.0	0.05	0.04	1,060.71	8	257	7.64	195	293
<i>Negaprion brevirostris</i>	11	<0.1	2.5	0.05	0.03	785.38	5	666	35.97	557	1,000
<i>Farfantepenaeus duorarum</i>	8	<0.1	2.0	0.04	0.02	833.46	4	23	1.48	17	29
<i>Megalops atlanticus</i>	7	<0.1	2.5	0.03	0.02	730.64	3	645	57.77	522	900
<i>Diplectrum formosum</i>	6	<0.1	2.0	0.03	0.02	747.94	2	135	3.11	121	141
<i>Carcharhinus leucas</i>	3	<0.1	1.5	0.01	0.01	820.55	1	705	2.91	700	710
<i>Brevoortia</i> spp.	2	<0.1	1.0	0.01	0.01	1,007.46	1	218	13.50	205	232
<i>Leiostomus xanthurus</i>	2	<0.1	1.0	0.01	0.01	1,007.46	1	182	9.50	173	192
<i>Carcharhinus limbatus</i>	1	<0.1	0.5	<0.01	<0.01	1,428.29	1	413	.	413	413
<i>Menticirrhus littoralis</i>	1	<0.1	0.5	<0.01	<0.01	1,428.29	1	147	.	147	147
<i>Scomberomorus maculatus</i>	1	<0.1	0.5	<0.01	<0.01	1,428.29	1	225	.	225	225
Total	4,620	11.0	.	22.65	2.11	132.84	207	.	.	17	1,000

Percent (%) is the percent of the total catch represented by that taxon; percent occurrence (% Occur) is the percentage of samples in which that taxon was collected; CV is the coefficient of variation of the mean. Taxa are ranked in order of decreasing mean density.

6.1-m Bay Otter Trawl

A total of 8,976 animals were collected in 96 6.1-m bay otter trawls, representing 4.3% of the overall SRS catch (Table 4.45). *Lagodon rhomboides* (n=3,339), *Anchoa mitchilli* (n=1,250), *Eucinostomus gula* (n=817), and *Eucinostomus* spp. (n=476) were the most abundant taxa, accounting for 65.5% of the 6.1-m bay otter trawl catch (Table 4.50). The taxa most frequently caught in 6.1-m bay otter trawls were *Eucinostomus gula* (55.2% occurrence), *Prionotus scitulus* (46.9% occurrence), and *Lagodon rhomboides* (45.8% occurrence).

A total of 715 animals from 18 selected taxa were collected, representing 8% of the entire 6.1-m bay otter trawl catch (Table 4.51). *Farfantepenaeus duorarum* (n=218), *Cynoscion arenarius* (n=105), and *Callinectes sapidus* (n=94) were the most abundant selected taxa, accounting for 58.3% of the selected taxa collected by this gear. The selected taxa most frequently caught in 6.1-m bay otter trawls were *Farfantepenaeus duorarum* (38.5% occurrence), *Lutjanus synagris* (27.1% occurrence), and *Menippe* spp. (25.0% occurrence).

Table 4.50: Catch statistics for 10 dominant taxa collected in 96 6.1-m bay otter trawl samples during Charlotte Harbor stratified-random sampling, 2024.

Species	Number			Density Estimate (animals/100m ²)				Standard Length (mm)			
	No.	%	% Occur	Mean	Stderr	CV	Max	Mean	Stderr	Min	Max
<i>Lagodon rhomboides</i>	3,339	37.2	45.8	2.28	0.85	369.45	68.47	70	0.51	17	163
<i>Anchoa mitchilli</i>	1,250	13.9	15.6	0.88	0.42	466.43	27.19	34	0.19	20	57
<i>Eucinostomus gula</i>	817	9.1	55.2	0.58	0.16	270.47	13.83	63	0.56	40	122
<i>Eucinostomus</i> spp.	476	5.3	26.0	0.33	0.12	343.94	7.83	31	0.30	14	39
<i>Orthopristis chrysoptera</i>	383	4.3	25.0	0.27	0.08	301.20	5.53	78	1.83	15	199
<i>Bairdiella chrysoura</i>	358	4.0	15.6	0.25	0.15	591.04	14.03	86	1.90	16	161
<i>Prionotus scitulus</i>	307	3.4	46.9	0.21	0.06	251.07	3.98	94	1.74	20	184
<i>Trinectes maculatus</i>	271	3.0	25.0	0.18	0.07	370.69	5.21	60	0.60	34	83
<i>Farfantepenaeus duorarum</i>	218	2.4	38.5	0.15	0.05	318.09	4.11	15	0.35	4	30
<i>Portunus</i> spp.	189	2.1	45.8	0.13	0.03	185.86	1.28	45	0.90	11	88
Subtotal	7,608	84.7	.	.	.	.	.	.	.	4	199
Total	8,976	100.0	.	6.34	1.18	182.13	75.15	.	.	3	987

Percent (%) is the percent of the total catch represented by that taxon; percent occurrence (% Occur) is the percentage of samples in which that taxon was collected; CV is the coefficient of variation of the mean. Taxa are ranked in order of decreasing mean density.

Table 4.51: Catch statistics for selected taxa collected in 96 6.1-m bay otter trawl samples during Charlotte Harbor stratified-random sampling, 2024.

Species	Number			Density Estimate (animals/100m ²)				Standard Length (mm)			
	No.	%	% Occur	Mean	Stderr	CV	Max	Mean	Stderr	Min	Max
<i>Farfantepenaeus duorarum</i>	218	2.4	38.5	0.15	0.05	318.09	4.11	15	0.35	4	30
<i>Cynoscion arenarius</i>	105	1.2	9.4	0.07	0.05	611.25	4.25	33	1.14	10	69
<i>Callinectes sapidus</i>	94	1.0	22.9	0.07	0.02	306.20	1.28	78	4.60	7	166
<i>Menippe</i> spp.	71	0.8	25.0	0.06	0.02	305.98	1.28	26	2.75	3	147
<i>Lutjanus synagris</i>	57	0.6	27.1	0.04	0.01	238.65	0.56	58	3.14	17	125
<i>Menticirrhus americanus</i>	53	0.6	11.5	0.04	0.02	434.93	1.35	44	5.91	16	201
<i>Diplectrum formosum</i>	26	0.3	15.6	0.02	0.01	309.98	0.40	127	6.48	58	171
<i>Lutjanus griseus</i>	21	0.2	6.2	0.01	0.01	445.95	0.47	142	4.00	95	167
<i>Archosargus probatocephalus</i>	18	0.2	5.2	0.01	0.01	485.20	0.47	118	6.95	44	185
<i>Paralichthys albigutta</i>	18	0.2	13.5	0.01	<0.01	281.63	0.20	175	7.00	116	247
<i>Haemulon plumieri</i>	13	0.1	3.1	0.01	0.01	602.50	0.40	77	9.73	28	142
<i>Cynoscion nebulosus</i>	10	0.1	6.2	0.01	<0.01	471.93	0.27	69	18.48	19	216
<i>Argopecten gibbus</i>	3	<0.1	1.0	<0.01	<0.01	979.80	0.20	34	0.88	32	35
<i>Epinephelus morio</i>	2	<0.1	2.1	<0.01	<0.01	689.16	0.07	84	20.50	64	105
<i>Menticirrhus saxatilis</i>	2	<0.1	2.1	<0.01	<0.01	689.16	0.07	42	27.50	15	70
<i>Mycteroperca microlepis</i>	2	<0.1	2.1	<0.01	<0.01	689.16	0.07	128	4.00	124	132
<i>Haemulon aurolineatum</i>	1	<0.1	1.0	<0.01	<0.01	979.80	0.07	49	.	49	49
<i>Sciaenops ocellatus</i>	1	<0.1	1.0	<0.01	<0.01	979.80	0.07	19	.	19	19
Total	715	8.0	.	0.51	0.11	209.35	9.11	.	.	3	247

Percent (%) is the percent of the total catch represented by that taxon; percent occurrence (% Occur) is the percentage of samples in which that taxon was collected; CV is the coefficient of variation of the mean. Taxa are ranked in order of decreasing mean density.

River Sampling

Tidal Creeks

21.3-m River Seine

A total of 52,392 animals were collected in 270 21.3-m river seines in tidal creeks, representing 25.1% of the overall SRS catch (Table 4.45). *Eucinostomus* spp. (n=12,590) was the most abundant taxon collected, accounting for 24% of the 21.3-m river seine catch in tidal creeks (Table 4.52). *Anchoa mitchilli* (n=10,333) and *Lucania parva* (n=6,897) were the next most abundant taxa, accounting for an additional 32.9% of the 21.3-m river seine catch in tidal creeks. The taxa most frequently caught in 21.3-m river seines in tidal creeks were *Eucinostomus* spp. (74.1% occurrence), *Eucinostomus harengulus* (57.4% occurrence), and *Menidia* spp. (51.5% occurrence).

A total of 1,458 animals from 18 selected taxa were collected, representing 2.8% of the entire 21.3-m river seine catch in tidal creeks (Table 4.53). *Centropomus undecimalis* (n=417) and *Farfantepenaeus duorarum* (n=318) were the most abundant selected taxa, accounting for 50.4% of the selected taxa collected by this gear. The selected taxa most frequently caught in 21.3-m river seines in tidal creeks were *Centropomus undecimalis* (32.6% occurrence) and *Farfantepenaeus duorarum* (28.5% occurrence).

Table 4.52: Catch statistics for 10 dominant taxa collected in 270 21.3-m river seine samples in tidal creeks during Charlotte Harbor stratified-random sampling, 2024.

Species	Number			Density Estimate (animals/100m ²)				Standard Length (mm)			
	No.	%	% Occur	Mean	Stderr	CV	Max	Mean	Stderr	Min	Max
<i>Eucinostomus</i> spp.	12,590	24.0	74.1	68.32	7.82	188.49	1,008.82	26	0.06	11	39
<i>Anchoa mitchilli</i>	10,333	19.7	19.3	56.28	16.20	472.87	2,729.41	36	0.08	16	56
<i>Lucania parva</i>	6,897	13.2	39.3	37.57	9.30	406.67	1,416.18	23	0.05	11	36
<i>Harengula jaguana</i>	6,518	12.4	3.3	35.50	32.33	1,496.44	8,705.88	29	0.05	15	89
<i>Menidia</i> spp.	5,232	10.0	51.5	28.50	4.68	269.58	702.94	36	0.12	9	96
<i>Opisthonema oglinum</i>	3,154	6.0	1.1	17.18	17.08	1,633.78	4,611.76	36	0.03	22	50
<i>Eucinostomus harengulus</i>	1,506	2.9	57.4	8.20	0.86	171.32	86.76	54	0.33	40	119
<i>Eugerres plumieri</i>	1,263	2.4	40.4	6.88	1.47	351.76	244.12	45	1.08	10	238
<i>Eucinostomus gula</i>	631	1.2	21.9	3.44	1.01	483.90	211.76	59	0.60	40	87
<i>Microgobius gulosus</i>	518	1.0	42.6	2.82	0.52	304.30	88.24	25	0.30	10	46
Subtotal	48,642	92.8	.	.	.	.	.	.	.	9	238
Total	52,392	100.0	.	285.36	61.50	354.13	15,886.76	.	.	2	585

Percent (%) is the percent of the total catch represented by that taxon; percent occurrence (% Occur) is the percentage of samples in which that taxon was collected; CV is the coefficient of variation of the mean. Taxa are ranked in order of decreasing mean density.

Table 4.53: Catch statistics for selected taxa collected in 270 21.3-m river seine samples in tidal creeks during Charlotte Harbor stratified-random sampling, 2024.

Species	Number			Density Estimate (animals/100m ²)				Standard Length (mm)			
	No.	%	% Occur	Mean	Stderr	CV	Max	Mean	Stderr	Min	Max
<i>Centropomus undecimalis</i>	417	0.8	32.6	2.27	0.87	631.21	225.00	165	5.43	16	585
<i>Farfantepenaeus duorarum</i>	318	0.6	28.5	1.73	0.44	413.48	66.18	8	0.20	2	18
<i>Sciaenops ocellatus</i>	246	0.5	20.4	1.34	0.27	332.84	41.18	46	4.87	12	471
<i>Mugil cephalus</i>	127	0.2	4.1	0.69	0.54	1,294.24	145.59	39	6.34	20	420
<i>Callinectes sapidus</i>	117	0.2	16.3	0.64	0.17	436.47	29.41	25	3.23	4	159
<i>Archosargus probatocephalus</i>	84	0.2	13.3	0.46	0.10	374.86	17.65	110	8.42	18	461
<i>Megalops atlanticus</i>	40	0.1	2.2	0.22	0.12	896.09	23.53	50	15.93	17	481
<i>Lutjanus griseus</i>	37	0.1	5.6	0.20	0.07	569.66	11.76	145	8.33	30	231
<i>Mugil trichodon</i>	35	0.1	1.5	0.19	0.17	1,503.98	47.06	39	3.24	16	136
<i>Cynoscion arenarius</i>	17	<0.1	3.3	0.09	0.04	697.82	8.82	27	1.85	16	45
<i>Cynoscion nebulosus</i>	5	<0.1	1.5	0.03	0.01	865.32	2.94	25	1.05	21	27
<i>Leiostomus xanthurus</i>	4	<0.1	1.5	0.02	0.01	816.99	1.47	32	9.04	16	51
<i>Brevoortia</i> spp.	3	<0.1	0.7	0.02	0.01	1,222.92	2.94	21	1.45	18	23
<i>Elops saurus</i>	3	<0.1	1.1	0.02	0.01	945.15	1.47	81	48.22	23	177
<i>Sphyraena barracuda</i>	2	<0.1	0.7	0.01	0.01	1,159.73	1.47	334	26.50	308	361
<i>Caranx hippos</i>	1	<0.1	0.4	0.01	0.01	1,643.17	1.47	148	.	148	148
<i>Mugil curema</i>	1	<0.1	0.4	0.01	0.01	1,643.17	1.47	27	.	27	27
<i>Paralichthys albigutta</i>	1	<0.1	0.4	0.01	0.01	1,643.17	1.47	102	.	102	102
Total	1,458	2.8	.	7.94	1.18	243.83	225.00	.	.	2	585

Percent (%) is the percent of the total catch represented by that taxon; percent occurrence (% Occur) is the percentage of samples in which that taxon was collected; CV is the coefficient of variation of the mean. Taxa are ranked in order of decreasing mean density.

Rivers

21.3-m River Seine

A total of 12,269 animals were collected in 108 21.3-m river seines, representing 5.9% of the overall SRS catch (Table 4.45). *Eucinostomus* spp. (n=3,434) was the most abundant taxon collected, accounting for 28% of the 21.3-m river seine catch (Table 4.54). *Anchoa mitchilli* (n=3,379) and *Menidia* spp. (n=1,351) were the next most abundant taxa, accounting for an additional 38.6% of the 21.3-m river seine catch. The taxa most frequently caught in 21.3-m river seines were *Eucinostomus* spp. (70.4% occurrence), *Menidia* spp. (59.3% occurrence), and *Eucinostomus harengulus* (56.5% occurrence).

A total of 315 animals from 14 selected taxa were collected, representing 2.6% of the entire 21.3-m river seine catch (Table 4.55). *Sciaenops ocellatus* (n=102), and *Callinectes sapidus* (n=76) were the most abundant selected taxa, accounting for 56.5% of the selected taxa collected by this gear. The selected taxa most frequently caught in 21.3-m river seines were *Sciaenops ocellatus* (21.3% occurrence) and *Callinectes sapidus* (15.7% occurrence).

Table 4.54: Catch statistics for 10 dominant taxa collected in 108 21.3-m river seine samples during Charlotte Harbor stratified-random sampling, 2024.

Species	Number			Density Estimate (animals/100m ²)				Standard Length (mm)			
	No.	%	% Occur	Mean	Stderr	CV	Max	Mean	Stderr	Min	Max
<i>Eucinostomus</i> spp.	3,434	28.0	70.4	46.76	8.21	182.53	580.88	26	0.10	7	39
<i>Anchoa mitchilli</i>	3,379	27.5	32.4	46.01	17.10	386.34	1,514.71	36	0.13	18	58
<i>Menidia</i> spp.	1,351	11.0	59.3	18.40	4.62	261.13	366.18	35	0.20	14	70
<i>Eucinostomus harengulus</i>	821	6.7	56.5	11.18	2.48	230.95	183.82	59	0.50	40	99
<i>Opisthonema oglinum</i>	579	4.7	0.9	7.88	7.88	1,039.23	851.47	26	0.06	25	30
<i>Gambusia holbrooki</i>	399	3.3	10.2	5.43	3.07	587.76	242.65	22	0.19	12	35
<i>Eugerres plumieri</i>	378	3.1	36.1	5.15	1.43	288.20	105.88	48	2.12	12	254
<i>Lophogobius cyprinoides</i>	291	2.4	28.7	3.96	1.82	477.94	170.59	28	0.44	14	46
<i>Lucania parva</i>	213	1.7	14.8	2.90	1.62	580.42	170.59	22	0.23	8	39
<i>Eucinostomus gula</i>	177	1.4	18.5	2.41	0.94	404.78	67.65	53	0.70	40	80
Subtotal	11,022	89.8	.	.	.	.	.	.	.	7	254
Total	12,269	100.0	.	167.06	22.80	141.80	1,557.35	.	.	4	431

Percent (%) is the percent of the total catch represented by that taxon; percent occurrence (% Occur) is the percentage of samples in which that taxon was collected; CV is the coefficient of variation of the mean. Taxa are ranked in order of decreasing mean density.

Table 4.55: Catch statistics for selected taxa collected in 108 21.3-m river seine samples during Charlotte Harbor stratified-random sampling, 2024.

Species	Number			Density Estimate (animals/100m ²)				Standard Length (mm)			
	No.	%	% Occur	Mean	Stderr	CV	Max	Mean	Stderr	Min	Max
<i>Sciaenops ocellatus</i>	102	0.8	21.3	1.39	0.53	395.87	41.18	50	5.24	12	361
<i>Callinectes sapidus</i>	76	0.6	15.7	1.03	0.48	485.81	48.53	16	2.12	4	167
<i>Lutjanus griseus</i>	30	0.2	15.7	0.41	0.12	302.74	8.82	117	10.41	32	205
<i>Farfantepenaeus duorarum</i>	29	0.2	13.0	0.39	0.13	343.84	8.82	8	0.64	4	19
<i>Archosargus probatocephalus</i>	26	0.2	15.7	0.35	0.09	271.59	5.88	104	8.44	25	211
<i>Centropomus undecimalis</i>	16	0.1	9.3	0.22	0.07	343.00	4.41	222	39.44	19	431
<i>Cynoscion arenarius</i>	12	0.1	6.5	0.16	0.07	465.84	5.88	24	0.90	20	30
<i>Mugil cephalus</i>	12	0.1	6.5	0.16	0.07	432.12	4.41	36	6.49	20	81
<i>Elops saurus</i>	4	<0.1	1.9	0.05	0.04	731.40	2.94	78	20.29	46	132
<i>Mugil trichodon</i>	3	<0.1	1.9	0.04	0.03	771.70	2.94	52	18.22	16	73
<i>Albula</i> spp.	2	<0.1	1.9	0.03	0.02	731.40	1.47	50	6.50	43	56
<i>Brevoortia</i> spp.	1	<0.1	0.9	0.01	0.01	1,039.23	1.47	29	.	29	29
<i>Cynoscion nebulosus</i>	1	<0.1	0.9	0.01	0.01	1,039.23	1.47	17	.	17	17
<i>Menticirrhus americanus</i>	1	<0.1	0.9	0.01	0.01	1,039.23	1.47	52	.	52	52
Total	315	2.6	.	4.29	0.85	206.25	55.88	.	.	4	431

Percent (%) is the percent of the total catch represented by that taxon; percent occurrence (% Occur) is the percentage of samples in which that taxon was collected; CV is the coefficient of variation of the mean. Taxa are ranked in order of decreasing mean density.

6.1-m River Otter Trawls

A total of 4,788 animals were collected in 36 6.1-m river otter trawls, representing 2.3% of the overall SRS catch (Table 4.45). *Anchoa mitchilli* (n=3,836) was the most abundant taxon collected, accounting for 80.1% of the 6.1-m river otter trawl catch (Table 4.56). The taxa most frequently caught in 6.1-m river otter trawls were *Callinectes sapidus* (63.9% occurrence), *Anchoa mitchilli* (55.6% occurrence), and *Farfantepenaeus duorarum* (47.2% occurrence).

A total of 346 animals from 7 selected taxa were collected, representing 7.2% of the entire 6.1-m river otter trawl catch (Table 4.57). *Cynoscion arenarius* (n=161), *Callinectes sapidus* (n=78), and *Farfantepenaeus duorarum* (n=64) were the most abundant selected taxa, accounting for 87.6% of the selected taxa collected by this gear. The selected taxa most frequently caught in the 6.1-m river otter trawls were *Callinectes sapidus* (63.9% occurrence) and *Farfantepenaeus duorarum* (47.2% occurrence).

Table 4.56: Catch statistics for 10 dominant taxa collected in 36 6.1-m river otter trawl samples during Charlotte Harbor stratified-random sampling, 2024.

Species	Number			Density Estimate (animals/100m ²)				Standard Length (mm)			
	No.	%	% Occur	Mean	Stderr	CV	Max	Mean	Stderr	Min	Max
<i>Anchoa mitchilli</i>	3,836	80.1	55.6	14.38	6.70	279.68	228.01	39	0.10	15	53
<i>Bairdiella chrysoura</i>	187	3.9	36.1	0.70	0.27	227.12	7.83	75	1.74	24	156
<i>Cynoscion arenarius</i>	161	3.4	36.1	0.60	0.32	316.60	11.20	48	1.84	13	114
<i>Trinectes maculatus</i>	123	2.6	27.8	0.46	0.33	429.32	11.87	51	0.95	31	87
<i>Ariopsis felis</i>	96	2.0	19.4	0.36	0.29	488.61	10.52	91	6.70	55	324
<i>Callinectes sapidus</i>	78	1.6	63.9	0.29	0.06	132.62	1.35	89	6.67	8	220
<i>Farfantepenaeus duorarum</i>	64	1.3	47.2	0.24	0.09	220.99	2.97	13	0.58	5	28
<i>Microgobius gulosus</i>	48	1.0	38.9	0.18	0.06	198.84	1.48	25	1.35	10	50
<i>Eucinostomus gula</i>	34	0.7	13.9	0.13	0.06	287.41	1.62	51	1.09	40	64
<i>Syngnathus scovelli</i>	34	0.7	30.6	0.13	0.05	253.04	1.48	73	2.35	46	104
Subtotal	4,661	97.3	.	.	.	.	.	.	.	5	324
Total	4,788	100.0	.	17.94	6.66	222.86	230.44	.	.	5	471

Percent (%) is the percent of the total catch represented by that taxon; percent occurrence (% Occur) is the percentage of samples in which that taxon was collected; CV is the coefficient of variation of the mean. Taxa are ranked in order of decreasing mean density.

Table 4.57: Catch statistics for selected taxa collected in 36 6.1-m river otter trawl samples during Charlotte Harbor stratified-random sampling, 2024.

Species	Number			Density Estimate (animals/100m ²)				Standard Length (mm)			
	No.	%	% Occur	Mean	Stderr	CV	Max	Mean	Stderr	Min	Max
<i>Cynoscion arenarius</i>	161	3.4	36.1	0.60	0.32	316.60	11.20	48	1.84	13	114
<i>Callinectes sapidus</i>	78	1.6	63.9	0.29	0.06	132.62	1.35	89	6.67	8	220
<i>Farfantepenaeus duorarum</i>	64	1.3	47.2	0.24	0.09	220.99	2.97	13	0.58	5	28
<i>Menticirrhus americanus</i>	20	0.4	33.3	0.07	0.02	169.10	0.54	115	20.80	19	255
<i>Cynoscion nebulosus</i>	13	0.3	16.7	0.05	0.02	257.68	0.54	68	12.00	22	172
<i>Lutjanus griseus</i>	6	0.1	13.9	0.02	0.01	268.33	0.27	134	14.22	74	171
<i>Archosargus probatocephalus</i>	4	0.1	11.1	0.01	0.01	286.85	0.13	87	19.85	29	116
Total	346	7.2	.	1.30	0.34	156.82	11.87	.	.	5	255

Percent (%) is the percent of the total catch represented by that taxon; percent occurrence (% Occur) is the percentage of samples in which that taxon was collected; CV is the coefficient of variation of the mean. Taxa are ranked in order of decreasing mean density.

4.8 Northeast Florida

Northeast Florida encompasses three coastal plain estuaries, each defined by their respective lower river basins (St. Marys River, Nassau River, and St. Johns River) and interconnected via the Intracoastal Waterway (ICW; Figure 4.8). Shoreline vegetation in the lower St. Marys and Nassau rivers is characterized by an expansive saltmarsh system, while the lower St. Johns River is characterized by marshes, hardwood forests, and hardwood swamps (St. Johns River Water Management District 1993, 2000). Bottom substrates are typically characterized as mud, sand, and occasional oysters (Solomon et al. 2006). Bottom vegetation is only present in the oligohaline reaches of the St. Johns River upriver of downtown Jacksonville (Burns et al. 1997).

The Fisheries-Independent Monitoring (FIM) program has conducted intensive sampling of fish and selected invertebrates in Northeast Florida since 2001. The area sampled was divided into six geographically-defined riverine zones (A–F; Figure 4.8). Monthly stratified-random sampling (SRS) was conducted in Zones A–D using 21.3-m river seines, 183-m haul seines, and 6.1-m river otter trawls. Monthly SRS was conducted in Zones E and F with only 21.3-m river seines and 6.1-m river otter trawls. All methods were the same as those described in Chapter 2. This section summarizes data collected by the FIM program during 2024 in Northeast Florida.

Stratified-Random Sampling

A total of 166,242 animals, which included 165 taxa of fishes and 16 taxa of selected invertebrates, were collected from 1,356 Northeast Florida SRS samples in 2024 (Table 4.58, Table A.22, Table A.23, Table A.24). *Anchoa mitchilli* (n=30,362) was the most numerous taxon collected, representing 18.3% of the total catch. *Menidia menidia* (n=17,823) and *Litopenaeus setiferus* (n=17,018) were the next most abundant taxa collected, accounting for an additional 21% of the total catch. A total of 42 selected taxa (n=71,500 animals) composed 43% of the total catch. *Litopenaeus setiferus* (n=17,018) was the most abundant Selected Taxon, representing 10.2% of the total catch. *Micropogonias undulatus* (n=16,693), *Mugil cephalus* (n=15,107), *Leiostomus xanthurus* (n=9,215), and *Brevoortia* spp. (n=3,811) were the next most abundant selected taxa, comprising 27% of the total catch. Collections in 2024 included 0 species new to the Northeast Florida FIM collection.

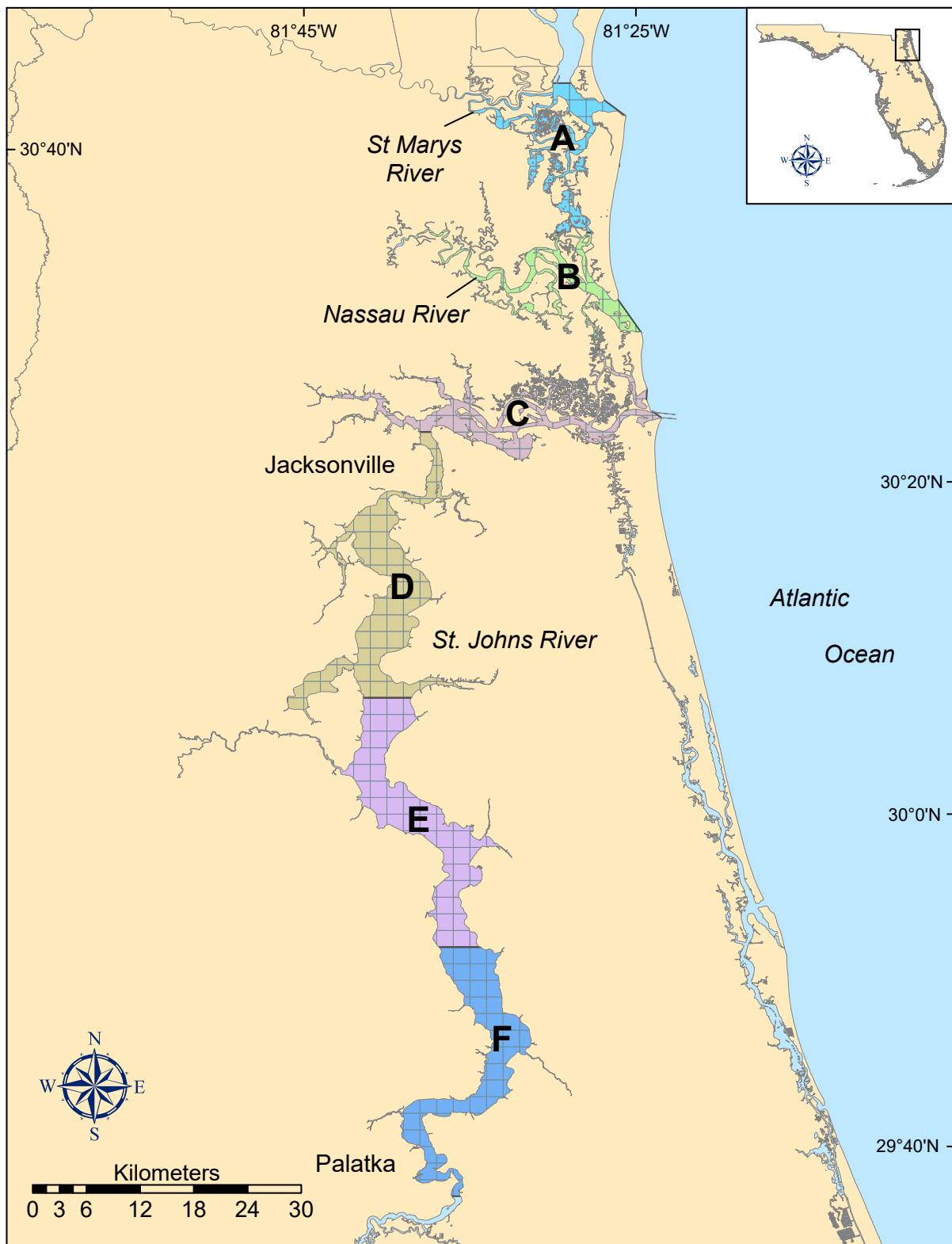


Figure 4.8: Map of Northeast Florida sampling area. Zones are labeled A–F.

Table 4.58: Summary of catch and effort data for Northeast Florida stratified-random sampling, 2024.

Zone	21.3-m river seine		183-m haul seine		6.1-m otter trawl		Total	
	Hauls	Animals	Hauls	Animals	Hauls	Animals	Hauls	Animals
A	84	17,245	36	1,620	84	12,300	204	31,165
B	84	19,574	36	1,173	84	11,558	204	32,305
C	108	43,346	60	2,170	108	6,036	276	51,552
D	108	13,918	60	1,308	120	7,423	288	22,649
E	96	4,876	.	.	96	5,577	192	10,453
F	96	11,271	.	.	96	6,847	192	18,118
Total	576	110,230	192	6,271	588	49,741	1,356	166,242

21.3-m River Seine

A total of 110,230 animals were collected in 576 21.3-m river seines, representing 66.3% of the overall SRS catch (Table 4.58). *Anchoa mitchilli* (n=23,254) was the most abundant taxon collected, accounting for 21.1% of the 21.3-m river seine catch (Table 4.59). *Menidia menidia* (n=17,817) and *Mugil cephalus* (n=13,765) were the next most abundant taxa, accounting for an additional 28.7% of the 21.3-m river seine catch. The taxa most frequently caught in 21.3-m river seines were *Menidia* spp. (42.4% occurrence), *Anchoa mitchilli* (34.7% occurrence), and *Leiostomus xanthurus* (32.3% occurrence).

A total of 36,873 animals from 35 selected taxa were collected, representing 33.5% of the entire 21.3-m river seine catch (Table 4.60). *Mugil cephalus* (n=13,765), and *Litopenaeus setiferus* (n=8,341) were the most abundant selected taxa, accounting for 60% of the selected taxa collected by this gear. The selected taxa most frequently caught in 21.3-m river seines were *Leiostomus xanthurus* (32.3% occurrence) and *Mugil cephalus* (26.6% occurrence).

Table 4.59: Catch statistics for 10 dominant taxa collected in 576 21.3-m river seine samples during Northeast Florida stratified-random sampling, 2024.

Species	Number			Density Estimate (animals/100m ²)				Standard Length (mm)			
	No.	%	% Occur	Mean	Stderr	CV	Max	Mean	Stderr	Min	Max
<i>Anchoa mitchilli</i>	23,254	21.1	34.7	58.96	11.78	481.05	3,630.88	34	0.06	15	72
<i>Menidia menidia</i>	17,817	16.2	28.3	45.17	18.40	980.94	8,752.94	38	0.08	20	87
<i>Mugil cephalus</i>	13,765	12.5	26.6	35.14	19.70	1,345.66	11,061.76	27	0.15	16	331
<i>Litopenaeus setiferus</i>	8,341	7.6	24.1	21.08	6.10	698.52	3,023.53	11	0.04	3	25
<i>Menidia</i> spp.	8,089	7.3	42.4	20.65	3.41	395.99	1,432.35	36	0.09	14	71
<i>Leiostomus xanthurus</i>	6,410	5.8	32.3	16.31	3.33	490.75	1,141.18	30	0.22	8	164
<i>Fundulus heteroclitus</i>	4,121	3.7	15.1	10.45	4.09	942.66	1,623.53	32	0.17	16	113
<i>Brevoortia</i> spp.	3,698	3.4	7.5	9.43	4.30	1,095.05	1,592.65	30	0.14	19	116
<i>Eucinostomus</i> spp.	3,203	2.9	26.2	8.15	3.39	1,000.62	1,889.71	25	0.11	9	39
<i>Anchoa hepsetus</i>	3,046	2.8	14.9	7.78	2.64	813.38	1,070.59	38	0.15	21	112
Subtotal	91,744	83.3	.	.	.	.	.	.	.	3	331
Total	110,230	100.0	.	281.43	33.76	287.93	11,183.82	.	.	3	930

Percent (%) is the percent of the total catch represented by that taxon; percent occurrence (% Occur) is the percentage of samples in which that taxon was collected; CV is the coefficient of variation of the mean. Taxa are ranked in order of decreasing mean density.

Table 4.60: Catch statistics for selected taxa collected in 576 21.3-m river seine samples during Northeast Florida stratified-random sampling, 2024.

Species	Number			Density Estimate (animals/100m ²)				Standard Length (mm)			
	No.	%	% Occur	Mean	Stderr	CV	Max	Mean	Stderr	Min	Max
<i>Mugil cephalus</i>	13,765	12.5	26.6	35.14	19.70	1,345.66	11,061.76	27	0.15	16	331
<i>Litopenaeus setiferus</i>	8,341	7.6	24.1	21.08	6.10	698.52	3,023.53	11	0.04	3	25
<i>Leiostomus xanthurus</i>	6,410	5.8	32.3	16.31	3.33	490.75	1,141.18	30	0.22	8	164
<i>Brevoortia</i> spp.	3,698	3.4	7.5	9.43	4.30	1,095.05	1,592.65	30	0.14	19	116
<i>Mugil curema</i>	2,060	1.9	14.8	5.26	2.86	1,304.46	1,436.76	38	0.44	18	164
<i>Micropogonias undulatus</i>	862	0.8	18.2	2.20	0.42	459.79	135.29	27	0.59	8	174
<i>Farfantepenaeus</i> spp.	498	0.5	13.5	1.27	0.26	495.04	89.71	10	0.12	3	14
<i>Callinectes sapidus</i>	352	0.3	26.4	0.90	0.10	276.03	26.47	40	1.92	4	152
<i>Trachinotus carolinus</i>	246	0.2	2.4	0.63	0.36	1,389.08	201.47	40	1.12	9	75
<i>Menticirrhus americanus</i>	129	0.1	4.2	0.33	0.15	1,063.53	77.94	35	1.27	15	105
<i>Paralichthys lethostigma</i>	100	0.1	10.6	0.26	0.04	350.28	8.82	75	7.84	12	380
<i>Cynoscion nebulosus</i>	98	0.1	7.1	0.25	0.06	563.37	23.53	54	4.92	13	261
<i>Sciaenops ocellatus</i>	53	<0.1	5.7	0.14	0.03	484.17	8.82	104	12.90	14	395
<i>Elops saurus</i>	43	<0.1	4.9	0.11	0.02	511.35	5.88	91	10.94	26	247
<i>Cynoscion complex</i>	38	<0.1	2.6	0.10	0.04	879.30	13.24	33	2.86	15	85
<i>Farfantepenaeus aztecus</i>	30	<0.1	2.6	0.08	0.02	709.14	7.35	16	0.22	15	19
<i>Archosargus probatocephalus</i>	20	<0.1	1.9	0.05	0.02	790.37	4.41	72	14.53	35	305
<i>Caranx hippos</i>	19	<0.1	2.1	0.05	0.02	783.16	4.41	33	3.15	21	82
<i>Trachinotus falcatus</i>	19	<0.1	1.2	0.05	0.02	1,133.42	10.29	19	1.13	12	29
<i>Lutjanus griseus</i>	18	<0.1	2.1	0.05	0.01	748.24	4.41	30	8.36	10	166
<i>Paralichthys albigutta</i>	16	<0.1	1.4	0.04	0.02	967.79	5.88	47	5.81	19	106
<i>Menticirrhus littoralis</i>	10	<0.1	0.5	0.03	0.02	1,477.36	7.35	61	6.16	40	100

Species	Number			Density Estimate (animals/100m ²)				Standard Length (mm)			
	No.	%	% Occur	Mean	Stderr	CV	Max	Mean	Stderr	Min	Max
<i>Lutjanus synagris</i>	7	<0.1	0.7	0.02	0.01	1,492.43	5.88	41	6.14	20	69
<i>Centropomus undecimalis</i>	6	<0.1	0.9	0.02	0.01	1,127.92	2.94	127	56.73	33	407
<i>Albula</i> spp.	5	<0.1	0.5	0.01	0.01	1,590.22	4.41	46	5.96	31	62
<i>Paralichthys dentatus</i>	5	<0.1	0.7	0.01	0.01	1,267.12	2.94	74	12.79	38	111
<i>Paralichthys squamilentus</i>	5	<0.1	0.7	0.01	0.01	1,267.12	2.94	50	11.73	15	80
<i>Pogonias cromis</i>	4	<0.1	0.7	0.01	0.01	1,196.87	1.47	266	45.05	191	395
<i>Pomatomus saltatrix</i>	4	<0.1	0.5	0.01	0.01	1,467.56	2.94	48	3.37	40	56
<i>Centropristis philadelphica</i>	3	<0.1	0.5	0.01	<0.01	1,383.23	1.47	53	15.38	22	70
<i>Menticirrhus saxatilis</i>	3	<0.1	0.3	0.01	0.01	1,787.61	2.94	69	17.35	38	98
<i>Lutjanus analis</i>	2	<0.1	0.3	0.01	<0.01	1,695.58	1.47	25	7.00	18	32
<i>Scomberomorus maculatus</i>	2	<0.1	0.3	0.01	<0.01	1,695.58	1.47	33	6.00	27	39
<i>Centropomus parallelus</i>	1	<0.1	0.2	<0.01	<0.01	2,400.00	1.47	54	.	54	54
<i>Sphyræna barracuda</i>	1	<0.1	0.2	<0.01	<0.01	2,400.00	1.47	68	.	68	68
Total	36,873	33.5	.	94.14	22.10	563.41	11,061.76	.	.	3	407

Percent (%) is the percent of the total catch represented by that taxon; percent occurrence (% Occur) is the percentage of samples in which that taxon was collected; CV is the coefficient of variation of the mean. Taxa are ranked in order of decreasing mean density.

183-m Haul Seine

A total of 6,271 animals were collected in 192 183-m haul seines, representing 3.8% of the overall SRS catch (Table 4.58). *Mugil cephalus* (n=1,339) was the most abundant taxon, accounting for 21.4% of the 183-m haul seine catch (Table 4.61). The taxa most frequently caught in 183-m haul seines were *Mugil cephalus* (62.0% occurrence), *Mugil curema* (43.2% occurrence), and *Leiostomus xanthurus* (37.0% occurrence).

A total of 4,549 animals from 31 selected taxa were collected, representing 72.5% of the entire 183-m haul seine catch (Table 4.62). *Mugil cephalus* (n=1,339) and *Mugil curema* (n=1,093) were the most abundant selected taxa, accounting for 53.5% of the selected taxa collected by this gear. The selected taxa most frequently caught in 183-m haul seines were *Mugil cephalus* (62.0% occurrence) and *Mugil curema* (43.2% occurrence).

Table 4.61: Catch statistics for 10 dominant taxa collected in 192 183-m haul seine samples during Northeast Florida stratified-random sampling, 2024.

Species	Number			Density Estimate (animals/set)				Standard Length (mm)			
	No.	%	% Occur	Mean	Stderr	CV	Max	Mean	Stderr	Min	Max
<i>Mugil cephalus</i>	1,339	21.4	62.0	6.97	1.07	212.82	104	192	1.33	80	410
<i>Mugil curema</i>	1,093	17.4	43.2	5.69	1.25	303.32	149	122	0.89	74	257
<i>Leiostomus xanthurus</i>	676	10.8	37.0	3.52	1.11	436.71	153	111	1.25	41	270
<i>Bairdiella chrysoura</i>	432	6.9	15.1	2.25	0.97	598.12	173	119	0.82	89	172
<i>Litopenaeus setiferus</i>	277	4.4	9.9	1.44	0.91	871.05	171	16	0.24	9	27
<i>Callinectes sapidus</i>	193	3.1	25.5	1.01	0.50	695.70	96	95	3.13	33	185
<i>Hypanus sabinus</i>	193	3.1	34.9	1.01	0.18	249.04	24	215	3.49	113	470
<i>Sciaenops ocellatus</i>	177	2.8	25.5	0.92	0.24	367.63	39	330	10.93	62	716
<i>Archosargus probatocephalus</i>	134	2.1	14.1	0.70	0.33	648.99	56	251	4.99	67	436
<i>Diapterus auratus</i>	132	2.1	15.6	0.69	0.18	359.27	21	86	2.26	47	198
Subtotal	4,646	74.1	.	.	.	.	.	.	.	9	716
Total	6,271	100.0	.	32.66	3.12	132.57	246	.	.	9	1,160

Percent (%) is the percent of the total catch represented by that taxon; percent occurrence (% Occur) is the percentage of samples in which that taxon was collected; CV is the coefficient of variation of the mean. Taxa are ranked in order of decreasing mean density.

Table 4.62: Catch statistics for selected taxa collected in 192 183-m haul seine samples during Northeast Florida stratified-random sampling, 2024.

Species	Number			Density Estimate (animals/set)				Standard Length (mm)			
	No.	%	% Occur	Mean	Stderr	CV	Max	Mean	Stderr	Min	Max
<i>Mugil cephalus</i>	1,339	21.4	62.0	6.97	1.07	212.82	104	192	1.33	80	410
<i>Mugil curema</i>	1,093	17.4	43.2	5.69	1.25	303.32	149	122	0.89	74	257
<i>Leiostomus xanthurus</i>	676	10.8	37.0	3.52	1.11	436.71	153	111	1.25	41	270
<i>Litopenaeus setiferus</i>	277	4.4	9.9	1.44	0.91	871.05	171	16	0.24	9	27
<i>Callinectes sapidus</i>	193	3.1	25.5	1.01	0.50	695.70	96	95	3.13	33	185
<i>Sciaenops ocellatus</i>	177	2.8	25.5	0.92	0.24	367.63	39	330	10.93	62	716
<i>Archosargus probatocephalus</i>	134	2.1	14.1	0.70	0.33	648.99	56	251	4.99	67	436
<i>Micropogonias undulatus</i>	122	1.9	11.5	0.64	0.32	700.35	59	117	3.71	64	247
<i>Elops saurus</i>	116	1.8	14.1	0.60	0.18	422.06	28	250	3.26	171	362
<i>Pogonias cromis</i>	83	1.3	10.9	0.43	0.17	529.60	27	251	7.46	129	443
<i>Brevoortia</i> spp.	78	1.2	7.3	0.41	0.21	702.65	36	91	2.79	58	185
<i>Paralichthys lethostigma</i>	78	1.2	20.8	0.41	0.09	300.32	12	205	10.94	60	434
<i>Cynoscion nebulosus</i>	58	0.9	15.6	0.30	0.06	289.90	6	256	11.33	105	476
<i>Caranx hippos</i>	36	0.6	12.5	0.19	0.05	339.18	6	142	15.10	58	427
<i>Centropomus undecimalis</i>	14	0.2	1.6	0.07	0.06	1,194.84	12	464	23.49	310	632
<i>Scomberomorus maculatus</i>	11	0.2	2.6	0.06	0.03	822.09	6	260	23.57	97	340
<i>Farfantepenaeus aztecus</i>	9	0.1	1.6	0.05	0.03	907.70	5	19	0.91	15	23
<i>Farfantepenaeus</i> spp.	8	0.1	3.1	0.04	0.02	641.99	3	13	0.40	11	14
<i>Sphyrna tiburo</i>	7	0.1	2.6	0.04	0.02	650.56	2	549	101.59	227	870
<i>Trachinotus falcatus</i>	7	0.1	0.5	0.04	0.04	1,385.64	7	177	6.75	146	197
<i>Pomatomus saltatrix</i>	6	0.1	2.6	0.03	0.01	647.18	2	227	32.81	126	331
<i>Trachinotus carolinus</i>	5	0.1	2.1	0.03	0.01	728.26	2	124	39.73	59	268

Species	Number			Density Estimate (animals/set)				Standard Length (mm)			
	No.	%	% Occur	Mean	Stderr	CV	Max	Mean	Stderr	Min	Max
<i>Cynoscion complex</i>	4	0.1	1.6	0.02	0.01	844.82	2	200	14.10	178	241
<i>Menticirrhus americanus</i>	4	0.1	2.1	0.02	0.01	687.36	1	252	13.35	215	272
<i>Lutjanus synagris</i>	3	<0.1	1.6	0.02	0.01	795.80	1	107	9.91	89	123
<i>Paralichthys albigutta</i>	3	<0.1	1.0	0.02	0.01	1,030.63	2	118	30.05	60	160
<i>Farfantepenaeus duorarum</i>	2	<0.1	0.5	0.01	0.01	1,385.64	2	24	1.50	22	25
<i>Lobotes surinamensis</i>	2	<0.1	1.0	0.01	0.01	977.23	1	169	50.00	119	219
<i>Lutjanus griseus</i>	2	<0.1	1.0	0.01	0.01	977.23	1	156	53.50	103	210
<i>Menippe</i> spp.	1	<0.1	0.5	0.01	0.01	1,385.64	1	54	.	54	54
<i>Negaprion brevirostris</i>	1	<0.1	0.5	0.01	0.01	1,385.64	1	755	.	755	755
Total	4,549	72.5	.	23.69	2.63	153.67	221	.	.	9	870

Percent (%) is the percent of the total catch represented by that taxon; percent occurrence (% Occur) is the percentage of samples in which that taxon was collected; CV is the coefficient of variation of the mean. Taxa are ranked in order of decreasing mean density.

6.1-m River Otter Trawl

A total of 49,741 animals were collected in 588 6.1-m river otter trawls, representing 29.9% of the overall SRS catch (Table 4.58). *Micropogonias undulatus* (n=15,709) was the most abundant taxon collected, accounting for 31.6% of the 6.1-m river otter trawl catch (Table 4.63). The taxa most frequently caught in 6.1-m river otter trawls were *Micropogonias undulatus* (62.8% occurrence), *Litopenaeus setiferus* (49.5% occurrence), and *Callinectes sapidus* (46.3% occurrence).

A total of 30,078 animals from 30 selected taxa were collected, representing 60.5% of the entire 6.1-m river otter trawl catch (Table 4.64). *Micropogonias undulatus* (n=15,709), *Litopenaeus setiferus* (n=8,400), and *Leiostomus xanthurus* (n=2,129) were the most abundant selected taxa, accounting for 87.2% of the selected taxa collected by this gear. The selected taxa most frequently caught in the 6.1-m river otter trawls were *Micropogonias undulatus* (62.8% occurrence) and *Litopenaeus setiferus* (49.5% occurrence).

Table 4.63: Catch statistics for 10 dominant taxa collected in 588 6.1-m river otter trawl samples during Northeast Florida stratified-random sampling, 2024.

Species	Number			Density Estimate (animals/100m ²)				Standard Length (mm)			
	No.	%	% Occur	Mean	Stderr	CV	Max	Mean	Stderr	Min	Max
<i>Micropogonias undulatus</i>	15,709	31.6	62.8	3.56	0.60	413.53	306.26	32	0.18	5	227
<i>Litopenaeus setiferus</i>	8,400	16.9	49.5	2.00	0.34	417.41	129.01	16	0.06	3	36
<i>Anchoa mitchilli</i>	7,108	14.3	40.3	1.67	0.25	357.43	72.05	38	0.17	12	75
<i>Stellifer lanceolatus</i>	2,334	4.7	8.2	0.59	0.27	1,092.93	114.85	37	0.31	7	91
<i>Leiostomus xanthurus</i>	2,129	4.3	21.9	0.50	0.16	761.29	59.36	29	0.73	7	175
<i>Anchoa hepsetus</i>	1,446	2.9	6.5	0.33	0.22	1,600.02	126.28	34	0.23	14	92
<i>Trinectes maculatus</i>	1,105	2.2	32.0	0.25	0.04	344.38	11.33	50	0.63	8	145
<i>Callinectes sapidus</i>	1,068	2.1	46.3	0.25	0.02	231.65	7.02	82	1.61	6	215
<i>Rimapenaeus</i> spp.	1,005	2.0	7.5	0.25	0.18	1,689.78	102.99	5	0.05	3	11
<i>Cynoscion complex</i>	939	1.9	28.9	0.22	0.03	344.84	10.79	46	1.08	6	231
Subtotal	41,243	82.9	.	.	.	.	.	.	.	3	231
Total	49,741	100.0	.	11.73	1.08	223.48	353.62	.	.	3	838

Percent (%) is the percent of the total catch represented by that taxon; percent occurrence (% Occur) is the percentage of samples in which that taxon was collected; CV is the coefficient of variation of the mean. Taxa are ranked in order of decreasing mean density.

Table 4.64: Catch statistics for selected taxa collected in 588 6.1-m river otter trawl samples during Northeast Florida stratified-random sampling, 2024.

Species	Number			Density Estimate (animals/100m ²)				Standard Length (mm)			
	No.	%	% Occur	Mean	Stderr	CV	Max	Mean	Stderr	Min	Max
<i>Micropogonias undulatus</i>	15,709	31.6	62.8	3.56	0.60	413.53	306.26	32	0.18	5	227
<i>Litopenaeus setiferus</i>	8,400	16.9	49.5	2.00	0.34	417.41	129.01	16	0.06	3	36
<i>Leiostomus xanthurus</i>	2,129	4.3	21.9	0.50	0.16	761.29	59.36	29	0.73	7	175
<i>Callinectes sapidus</i>	1,068	2.1	46.3	0.25	0.02	231.65	7.02	82	1.61	6	215
<i>Cynoscion complex</i>	939	1.9	28.9	0.22	0.03	344.84	10.79	46	1.08	6	231
<i>Farfantepenaeus</i> spp.	664	1.3	18.0	0.15	0.03	532.54	13.90	9	0.11	3	14
<i>Menticirrhus americanus</i>	339	0.7	11.1	0.08	0.02	544.47	5.80	31	1.21	9	222
<i>Elops saurus</i>	275	0.6	7.1	0.06	0.03	1,079.73	15.52	42	1.27	21	347
<i>Paralichthys lethostigma</i>	173	0.3	19.9	0.04	<0.01	269.86	1.21	131	5.44	10	362
<i>Farfantepenaeus aztecus</i>	104	0.2	7.5	0.02	<0.01	492.67	1.35	18	0.26	15	31
<i>Cynoscion nothus</i>	67	0.1	0.3	0.02	0.01	2,336.63	8.77	13	1.29	7	59
<i>Centropristis philadelphica</i>	38	0.1	3.9	0.01	<0.01	630.93	0.90	62	7.09	17	173
<i>Brevoortia</i> spp.	35	0.1	2.2	0.01	<0.01	995.56	1.80	32	4.91	21	142
<i>Cynoscion nebulosus</i>	23	<0.1	3.1	0.01	<0.01	612.58	0.40	81	10.58	10	171
<i>Farfantepenaeus duorarum</i>	19	<0.1	1.7	<0.01	<0.01	975.56	0.81	20	0.93	15	30
<i>Archosargus probatocephalus</i>	18	<0.1	1.5	<0.01	<0.01	968.09	0.67	197	11.86	111	342
<i>Lutjanus griseus</i>	13	<0.1	1.7	<0.01	<0.01	832.39	0.34	90	15.34	31	184
<i>Lutjanus synagris</i>	12	<0.1	1.9	<0.01	<0.01	758.75	0.30	42	9.39	17	110
<i>Menippe</i> spp.	11	<0.1	1.0	<0.01	<0.01	1,142.05	0.54	43	9.93	13	109
<i>Paralichthys albigutta</i>	8	<0.1	1.2	<0.01	<0.01	953.94	0.27	106	25.56	9	205
<i>Pogonias cromis</i>	8	<0.1	0.5	<0.01	<0.01	1,738.73	0.84	166	8.99	111	193
<i>Sciaenops ocellatus</i>	8	<0.1	1.4	<0.01	<0.01	855.05	0.17	120	41.04	14	346

Species	Number			Density Estimate (animals/100m ²)				Standard Length (mm)			
	No.	%	% Occur	Mean	Stderr	CV	Max	Mean	Stderr	Min	Max
<i>Albula</i> spp.	4	<0.1	0.5	<0.01	<0.01	1,482.81	0.27	53	4.46	40	59
<i>Centropristis striata</i>	3	<0.1	0.5	<0.01	<0.01	1,398.98	0.13	127	26.50	78	169
<i>Mugil cephalus</i>	3	<0.1	0.3	<0.01	<0.01	1,806.16	0.27	78	26.50	29	120
<i>Trachinotus falcatus</i>	3	<0.1	0.3	<0.01	<0.01	1,781.97	0.27	102	6.12	92	113
<i>Paralichthys dentatus</i>	2	<0.1	0.3	<0.01	<0.01	1,730.63	0.15	270	9.00	261	279
<i>Centropomus parallelus</i>	1	<0.1	0.2	<0.01	<0.01	2,424.87	0.13	102	.	102	102
<i>Lobotes surinamensis</i>	1	<0.1	0.2	<0.01	<0.01	2,424.87	0.17	514	.	514	514
<i>Mugil curema</i>	1	<0.1	0.2	<0.01	<0.01	2,424.87	0.15	117	.	117	117
Total	30,078	60.5	.	7.08	0.79	272.28	332.30	.	.	3	514

Percent (%) is the percent of the total catch represented by that taxon; percent occurrence (% Occur) is the percentage of samples in which that taxon was collected; CV is the coefficient of variation of the mean. Taxa are ranked in order of decreasing mean density.

4.9 Northern Indian River Lagoon

The sampling area identified as the Northern Indian River Lagoon (IRL) system is a narrow estuary located along the eastern central coast of Florida, which extends from the northern terminus of the Indian River Lagoon proper south to Vero Beach. The Northern IRL is connected to the Atlantic Ocean by one permanent inlet (Sebastian Inlet) and one intermittently open conduit via a set of locks located west of Port Canaveral. Freshwater inflow primarily comes from the St. Sebastian River and from numerous creeks located mainly along the western shoreline (Paperno and Brodie 2004). Shoreline vegetation consists largely of fringing mangrove, Brazilian pepper, and marsh grasses. Bottom substrates are typically characterized as sand or mud mixed with shell hash and occasional oysters. Seagrasses, primarily *Halodule wrightii*, have historically been the dominant vegetative cover in the northern IRL (Steward et al. 2006). However, recent losses of seagrass habitat and the subsequent replacement by the attached macroalgae *Caulerpa* have been observed (Brewton and Lapointe 2023; Adams et al. 2024).

The Fisheries-Independent Monitoring (FIM) program has conducted intensive sampling of fish and selected invertebrates in the Northern IRL since 1990. The area sampled was divided into six geographically-defined bay zones (C–E and H) and one riverine zone that includes Turkey Creek and St. Sebastian River (F; Figure 4.9). Monthly stratified-random sampling (SRS) was conducted in Zones C, D, and H using 21.3-m bay and 183-m haul seines. Monthly SRS was conducted in Zone E with only 183-m haul seines. Zone F was sampled in every month except March, May, and July with 21.3-m river seines. All methods were the same as those described in Chapter 2. This section summarizes data collected by the FIM program during 2024 in the northern IRL.

Stratified-Random Sampling

A total of 179,567 animals, which included 156 taxa of fishes and 10 taxa of selected invertebrates, were collected from 654 Northern Indian River Lagoon SRS samples in 2024 (Table 4.65, Table A.25, Table A.26, Table A.27). *Anchoa mitchilli* (n=89,371) was the most numerous taxon collected, representing 49.8% of the total catch. *Eucinostomus* spp. (n=10,541) and *Diapterus auratus* (n=9,844) were the next most abundant taxa collected, accounting for an additional 11.4% of the total catch. A total of 43 selected taxa (n=26,672 animals) composed 14.9% of the total catch. *Leiostomus xanthurus* (n=5,125) was the most abundant Selected Taxon, representing 2.9% of the total catch. *Micropogonias undulatus* (n=4,244), *Mugil curema* (n=4,232), *Brevoortia* spp. (n=3,691), and *Mugil cephalus* (n=3,017) were the next most abundant selected taxa, comprising 8.5% of the total catch. Collections in 2024 included 1 species new to the Northern Indian River Lagoon FIM collection: *Ginglymostoma cirratum*.



Figure 4.9: Map of Northern Indian River Lagoon sampling area. Zones are labeled C–E and H (bay zones) and F (riverine zone).

Table 4.65: Summary of catch and effort data for Northern Indian River Lagoon stratified-random sampling, 2024.

Zone	21.3-m bay seine		21.3-m river seine		183-m haul seine		Total	
	Hauls	Animals	Hauls	Animals	Hauls	Animals	Hauls	Animals
C	120	38,814	.	.	48	10,797	168	49,611
D	96	31,158	.	.	72	5,566	168	36,724
E	.	.	.	.	48	6,103	48	6,103
F	.	.	90	37,391	.	.	90	37,391
H	120	37,392	.	.	60	12,346	180	49,738
Total	336	107,364	90	37,391	228	34,812	654	179,567

Bay Sampling

21.3-m Bay Seine

A total of 107,364 animals were collected in 336 21.3-m bay seines, representing 59.8% of the overall SRS catch (Table 4.65). *Anchoa mitchilli* (n=66,575) and *Harengula jaguana* (n=6,623) were the most abundant taxa, accounting for 68.2% of the bay seine catch (Table 4.66). The taxa most frequently caught in 21.3-m bay seines were *Eucinostomus* spp. (42.3% occurrence) and *Anchoa mitchilli* (36.6% occurrence).

A total of 8,001 animals from 33 selected taxa were collected, representing 7.5% of the entire 21.3-m bay seine catch (Table 4.67). *Brevoortia* spp. (n=1,884) was the most abundant Selected Taxon, accounting for 23.5% of the selected taxa collected by this gear. The selected taxa most frequently caught in 21.3-m bay seines were *Farfantepenaeus* spp. (25.6% occurrence) and *Cynoscion nebulosus* (18.2% occurrence).

Table 4.66: Catch statistics for 10 dominant taxa collected in 336 21.3-m bay seine samples during Northern Indian River Lagoon stratified-random sampling, 2024.

Species	Number			Density Estimate (animals/100m ²)				Standard Length (mm)			
	No.	%	% Occur	Mean	Stderr	CV	Max	Mean	Stderr	Min	Max
<i>Anchoa mitchilli</i>	66,575	62.0	36.6	134.71	33.47	466.82	6,468.57	37	0.03	17	66
<i>Harengula jaguana</i>	6,623	6.2	10.4	13.71	6.61	894.96	2,062.86	38	0.19	18	109
<i>Eucinostomus</i> spp.	5,129	4.8	42.3	10.84	1.76	298.16	341.43	26	0.10	12	82
<i>Menidia</i> spp.	3,293	3.1	22.9	6.92	1.68	448.46	382.14	39	0.16	21	76
<i>Lucania parva</i>	3,024	2.8	20.5	6.41	2.14	611.83	557.14	25	0.08	10	45
<i>Bairdiella chrysoura</i>	2,976	2.8	22.6	6.09	1.71	524.00	451.43	56	0.44	9	121
<i>Brevoortia</i> spp.	1,884	1.8	9.8	3.95	1.89	883.81	570.71	60	0.70	13	118
<i>Microgobius gulosus</i>	1,695	1.6	35.4	3.60	0.63	319.10	95.71	29	0.13	12	55
<i>Leiostomus xanthurus</i>	1,582	1.5	14.9	3.34	0.97	530.92	228.57	27	0.35	13	161
<i>Opisthonema oglinum</i>	1,550	1.4	9.5	3.21	1.24	719.49	354.29	31	0.22	20	152
Subtotal	94,331	88.0	.	.	.	.	.	.	.	9	161
Total	107,364	100.0	.	228.24	38.21	306.86	6,646.43	.	.	3	573

Percent (%) is the percent of the total catch represented by that taxon; percent occurrence (% Occur) is the percentage of samples in which that taxon was collected; CV is the coefficient of variation of the mean. Taxa are ranked in order of decreasing mean density.

Table 4.67: Catch statistics for selected taxa collected in 336 21.3-m bay seine samples during Northern Indian River Lagoon stratified-random sampling, 2024.

Species	Number			Density Estimate (animals/100m ²)				Standard Length (mm)			
	No.	%	% Occur	Mean	Stderr	CV	Max	Mean	Stderr	Min	Max
<i>Brevoortia</i> spp.	1,884	1.8	9.8	3.95	1.89	883.81	570.71	60	0.70	13	118
<i>Leiostomus xanthurus</i>	1,582	1.5	14.9	3.34	0.97	530.92	228.57	27	0.35	13	161
<i>Mugil cephalus</i>	1,451	1.4	15.5	3.08	1.24	740.33	317.14	27	0.59	16	322
<i>Micropogonias undulatus</i>	828	0.8	7.7	1.74	0.67	710.66	139.29	32	0.38	14	61
<i>Farfantepenaeus</i> spp.	656	0.6	25.6	1.39	0.33	436.80	65.00	7	0.12	3	14
<i>Mugil curema</i>	416	0.4	12.5	0.88	0.39	814.26	119.29	40	1.87	17	182
<i>Archosargus probatocephalus</i>	211	0.2	11.6	0.45	0.19	791.23	60.00	39	3.32	11	332
<i>Callinectes sapidus</i>	183	0.2	13.4	0.39	0.17	823.03	57.14	33	2.98	7	181
<i>Sciaenops ocellatus</i>	166	0.2	8.0	0.35	0.15	757.84	41.43	57	4.42	14	542
<i>Cynoscion nebulosus</i>	165	0.2	18.2	0.35	0.07	347.93	15.71	42	1.95	17	185
<i>Litopenaeus setiferus</i>	61	0.1	5.4	0.13	0.05	692.78	14.29	9	0.57	3	23
<i>Elops saurus</i>	60	0.1	3.6	0.13	0.09	1,329.18	30.71	53	6.74	30	276
<i>Menticirrhus americanus</i>	57	0.1	8.9	0.12	0.04	547.82	8.57	27	2.75	13	140
<i>Centropomus undecimalis</i>	55	0.1	6.0	0.12	0.05	735.82	11.43	100	18.72	14	510
<i>Haemulon parra</i>	48	<0.1	1.2	0.10	0.10	1,719.39	32.14	39	1.10	27	57
<i>Albula</i> spp.	36	<0.1	4.2	0.08	0.02	591.51	5.71	44	2.36	23	64
<i>Lutjanus griseus</i>	34	<0.1	4.2	0.07	0.03	680.91	7.14	52	9.12	12	219
<i>Trachinotus falcatus</i>	21	<0.1	3.3	0.04	0.02	697.63	4.29	34	3.46	12	66
<i>Cynoscion complex</i>	19	<0.1	0.9	0.04	0.03	1,259.48	7.86	28	2.73	18	67
<i>Farfantepenaeus aztecus</i>	9	<0.1	1.8	0.02	0.01	835.02	2.14	16	0.49	15	19
<i>Paralichthys albigutta</i>	9	<0.1	1.8	0.02	0.01	835.02	2.14	88	26.81	16	286
<i>Haemulon plumieri</i>	8	<0.1	0.3	0.02	0.02	1,833.03	5.71	40	4.05	24	62

Species	Number			Density Estimate (animals/100m ²)				Standard Length (mm)			
	No.	%	% Occur	Mean	Stderr	CV	Max	Mean	Stderr	Min	Max
<i>Pogonias cromis</i>	8	<0.1	1.5	0.02	0.01	1,021.32	2.86	240	52.81	13	425
<i>Elops smithi</i>	7	<0.1	1.2	0.01	0.01	1,138.73	2.86	35	1.31	30	38
<i>Sphyræna barracuda</i>	6	<0.1	1.5	0.01	0.01	859.57	1.43	156	45.18	58	348
<i>Farfantepenaeus duorarum</i>	5	<0.1	1.5	0.01	<0.01	814.85	0.71	17	1.11	15	21
<i>Lutjanus analis</i>	4	<0.1	0.9	0.01	0.01	1,119.70	1.43	52	21.34	14	111
<i>Caranx hippos</i>	3	<0.1	0.9	0.01	<0.01	1,055.14	0.71	66	37.51	27	141
<i>Haemulon sciurus</i>	2	<0.1	0.3	<0.01	<0.01	1,833.03	1.43	42	10.50	32	53
<i>Megalops atlanticus</i>	2	<0.1	0.6	<0.01	<0.01	1,294.21	0.71	536	37.50	498	573
<i>Mugil rubrioculus</i>	2	<0.1	0.6	<0.01	<0.01	1,294.21	0.71	52	19.50	32	71
<i>Mugil trichodon</i>	2	<0.1	0.6	<0.01	<0.01	1,294.21	0.71	16	1.00	15	17
<i>Lutjanus apodus</i>	1	<0.1	0.3	<0.01	<0.01	1,833.03	0.71	14	.	14	14
Total	8,001	7.5	.	17.01	3.14	338.72	682.86	.	.	3	573

Percent (%) is the percent of the total catch represented by that taxon; percent occurrence (% Occur) is the percentage of samples in which that taxon was collected; CV is the coefficient of variation of the mean. Taxa are ranked in order of decreasing mean density.

183-m Haul Seine

A total of 34,812 animals were collected in 228 183-m haul seines, representing 19.4% of the overall SRS catch (Table 4.65). *Diapterus auratus* (n=5,339) was the most abundant taxon, accounting for 15.3% of the 183-m haul seine catch (Table 4.68). The taxa most frequently caught in 183-m haul seines were *Mugil curema* (76.8% occurrence), *Ariopsis felis* (65.4% occurrence), and *Mugil cephalus* (60.1% occurrence).

A total of 16,303 animals from 35 selected taxa were collected, representing 46.8% of the entire 183-m haul seine catch (Table 4.69). *Mugil curema* (n=3,788) and *Leiostomus xanthurus* (n=3,308) were the most abundant selected taxa, accounting for 43.5% of the selected taxa collected by this gear. The selected taxa most frequently caught in 183-m haul seines were *Mugil curema* (76.8% occurrence) and *Mugil cephalus* (60.1% occurrence).

Table 4.68: Catch statistics for 10 dominant taxa collected in 228 183-m haul seine samples during Northern Indian River Lagoon stratified-random sampling, 2024.

Species	Number			Density Estimate (animals/set)				Standard Length (mm)			
	No.	%	% Occur	Mean	Stderr	CV	Max	Mean	Stderr	Min	Max
<i>Diapterus auratus</i>	5,339	15.3	49.1	23.31	5.04	327.38	901	105	0.38	54	222
<i>Mugil curema</i>	3,788	10.9	76.8	16.61	2.65	240.94	285	154	0.53	91	358
<i>Leiostomus xanthurus</i>	3,308	9.5	15.8	14.51	8.97	933.59	1,758	127	0.26	80	291
<i>Micropogonias undulatus</i>	2,585	7.4	7.5	11.34	7.48	996.85	1,209	127	0.34	74	318
<i>Eucinostomus harengulus</i>	2,559	7.4	39.5	11.17	2.41	326.87	342	106	0.23	72	199
<i>Ariopsis felis</i>	2,480	7.1	65.4	10.83	1.90	265.03	330	246	0.75	94	384
<i>Bairdiella chrysoura</i>	1,756	5.0	22.4	7.57	3.17	638.03	676	108	0.27	52	144
<i>Brevoortia</i> spp.	1,472	4.2	7.5	6.46	5.75	1,344.00	1,309	206	0.60	75	278
<i>Mugil cephalus</i>	1,412	4.1	60.1	6.19	1.05	256.02	150	233	1.29	80	402
<i>Lagodon rhomboides</i>	1,145	3.3	25.0	5.02	1.36	410.18	213	127	0.60	65	223
Subtotal	25,844	74.2	.	.	.	.	.	.	.	52	402
Total	34,812	100.0	.	152.68	22.93	226.73	3,316	.	.	12	1,027

Percent (%) is the percent of the total catch represented by that taxon; percent occurrence (% Occur) is the percentage of samples in which that taxon was collected; CV is the coefficient of variation of the mean. Taxa are ranked in order of decreasing mean density.

Table 4.69: Catch statistics for selected taxa collected in 228 183-m haul seine samples during Northern Indian River Lagoon stratified-random sampling, 2024.

Species	Number			Density Estimate (animals/set)				Standard Length (mm)			
	No.	%	% Occur	Mean	Stderr	CV	Max	Mean	Stderr	Min	Max
<i>Mugil curema</i>	3,788	10.9	76.8	16.61	2.65	240.94	285	154	0.53	91	358
<i>Leiostomus xanthurus</i>	3,308	9.5	15.8	14.51	8.97	933.59	1,758	127	0.26	80	291
<i>Micropogonias undulatus</i>	2,585	7.4	7.5	11.34	7.48	996.85	1,209	127	0.34	74	318
<i>Brevoortia</i> spp.	1,472	4.2	7.5	6.46	5.75	1,344.00	1,309	206	0.60	75	278
<i>Mugil cephalus</i>	1,412	4.1	60.1	6.19	1.05	256.02	150	233	1.29	80	402
<i>Elops saurus</i>	744	2.1	30.7	3.26	1.17	541.37	237	267	1.64	129	490
<i>Centropomus undecimalis</i>	642	1.8	37.7	2.79	0.82	446.75	161	426	6.34	137	980
<i>Archosargus probatocephalus</i>	534	1.5	45.2	2.23	0.36	252.26	45	179	3.01	50	375
<i>Sciaenops ocellatus</i>	368	1.1	43.4	1.61	0.26	246.53	39	388	8.08	109	1,027
<i>Cynoscion complex</i>	256	0.7	3.5	1.12	0.79	1,057.42	166	194	1.43	52	286
<i>Pogonias cromis</i>	209	0.6	19.3	0.92	0.21	347.51	24	456	8.70	182	749
<i>Callinectes sapidus</i>	183	0.5	23.7	0.80	0.19	348.31	26	113	3.01	31	216
<i>Caranx hippos</i>	179	0.5	21.9	0.79	0.20	392.23	29	244	6.56	71	591
<i>Cynoscion nebulosus</i>	154	0.4	14.5	0.68	0.21	464.24	31	198	6.65	57	514
<i>Lutjanus griseus</i>	127	0.4	11.0	0.56	0.14	390.91	19	184	3.25	106	319
<i>Trachinotus falcatus</i>	81	0.2	8.3	0.36	0.10	439.82	12	105	5.33	43	378
<i>Menticirrhus americanus</i>	63	0.2	9.2	0.28	0.09	508.19	16	166	3.61	120	258
<i>Litopenaeus setiferus</i>	54	0.2	2.6	0.24	0.17	1,064.62	37	22	0.57	12	37
<i>Megalops atlanticus</i>	31	0.1	6.1	0.14	0.05	549.66	9	614	27.73	450	979
<i>Mugil rubrioculus</i>	22	0.1	3.9	0.10	0.05	753.13	10	136	4.82	109	182
<i>Sphyraena barracuda</i>	21	0.1	4.8	0.09	0.03	524.94	5	268	16.49	128	423
<i>Farfantepenaeus aztecus</i>	16	<0.1	3.5	0.07	0.03	589.72	4	23	2.38	16	55

Species	Number			Density Estimate (animals/set)				Standard Length (mm)			
	No.	%	% Occur	Mean	Stderr	CV	Max	Mean	Stderr	Min	Max
<i>Lutjanus analis</i>	10	<0.1	1.3	0.04	0.03	1,107.51	7	175	12.72	105	250
<i>Farfantepenaeus duorarum</i>	8	<0.1	2.2	0.04	0.02	749.98	3	22	1.55	15	28
<i>Pomatomus saltatrix</i>	7	<0.1	1.3	0.03	0.02	1,118.85	5	401	8.52	368	433
<i>Albula</i> spp.	6	<0.1	0.4	0.03	0.03	1,509.97	6	175	2.69	171	187
<i>Paralichthys albigutta</i>	5	<0.1	1.3	0.02	0.01	998.79	3	169	28.59	98	267
<i>Farfantepenaeus</i> spp.	4	<0.1	0.9	0.02	0.01	1,192.15	3	14	0.25	13	14
<i>Scomberomorus maculatus</i>	4	<0.1	0.9	0.02	0.01	1,065.35	2	298	6.18	286	315
<i>Trachinotus carolinus</i>	4	<0.1	1.3	0.02	0.01	921.26	2	354	6.85	337	370
<i>Carcharhinus leucas</i>	2	<0.1	0.9	0.01	0.01	1,065.35	1	517	67.00	450	584
<i>Ginglymostoma cirratum</i>	1	<0.1	0.4	<0.01	<0.01	1,509.97	1	705	.	705	705
<i>Haemulon parra</i>	1	<0.1	0.4	<0.01	<0.01	1,509.97	1	92	.	92	92
<i>Lobotes surinamensis</i>	1	<0.1	0.4	<0.01	<0.01	1,509.97	1	132	.	132	132
<i>Lutjanus synagris</i>	1	<0.1	0.4	<0.01	<0.01	1,509.97	1	128	.	128	128
Total	16,303	46.8	.	71.50	18.57	392.08	3,096	.	.	12	1,027

Percent (%) is the percent of the total catch represented by that taxon; percent occurrence (% Occur) is the percentage of samples in which that taxon was collected; CV is the coefficient of variation of the mean. Taxa are ranked in order of decreasing mean density.

River Sampling

21.3-m River Seine

A total of 37,391 animals were collected in 90 21.3-m river seines, representing 20.8% of the overall SRS catch (Table 4.65). *Anchoa mitchilli* (n=22,796) was the most abundant taxon collected, accounting for 61% of the 21.3-m river seine catch (Table 4.70). *Eucinostomus* spp. (n=5,412) and *Diapterus auratus* (n=3,639) were the next most abundant taxa, accounting for an additional 24.2% of the 21.3-m river seine catch. The taxa most frequently caught in 21.3-m river seines were *Eucinostomus* spp. (77.8% occurrence), *Diapterus auratus* (72.2% occurrence), and *Eucinostomus harengulus* (54.4% occurrence).

A total of 2,368 animals from 23 selected taxa were collected, representing 6.3% of the entire 21.3-m river seine catch (Table 4.71). *Micropogonias undulatus* (n=831), and *Centropomus undecimalis* (n=387) were the most abundant selected taxa, accounting for 51.4% of the selected taxa collected by this gear. The selected taxa most frequently caught in 21.3-m river seines were *Centropomus undecimalis* (50.0% occurrence) and *Farfantepenaeus* spp. (28.9% occurrence).

Table 4.70: Catch statistics for 10 dominant taxa collected in 90 21.3-m river seine samples during Northern Indian River Lagoon stratified-random sampling, 2024.

Species	Number			Density Estimate (animals/100m ²)				Standard Length (mm)			
	No.	%	% Occur	Mean	Stderr	CV	Max	Mean	Stderr	Min	Max
<i>Anchoa mitchilli</i>	22,796	61.0	33.3	356.63	119.84	325.80	6,682.35	30	0.04	16	49
<i>Eucinostomus</i> spp.	5,412	14.5	77.8	82.90	25.71	303.88	1,761.76	23	0.09	10	39
<i>Diapterus auratus</i>	3,639	9.7	72.2	50.97	12.26	246.50	788.24	32	0.19	15	138
<i>Micropogonias undulatus</i>	831	2.2	8.9	13.58	11.59	809.45	1,036.76	20	0.16	10	44
<i>Anchoa hepsetus</i>	777	2.1	1.1	12.70	12.70	948.68	1,142.65	23	0.05	22	26
<i>Eugerres plumieri</i>	620	1.7	46.7	9.50	3.44	354.67	300.00	34	1.21	12	234
<i>Centropomus undecimalis</i>	387	1.0	50.0	5.81	1.14	193.89	82.35	52	2.95	10	418
<i>Eucinostomus harengulus</i>	344	0.9	54.4	5.62	1.22	205.65	63.24	51	0.51	40	94
<i>Brevoortia</i> spp.	335	0.9	10.0	5.47	3.94	683.26	344.12	26	0.18	14	33
<i>Opisthonema oglinum</i>	245	0.7	2.2	3.92	2.43	596.24	188.24	30	0.17	24	35
Subtotal	35,386	94.7	.	.	.	.	.	.	.	10	418
Total	37,391	100.0	.	610.96	132.59	205.87	6,717.65	.	.	2	547

Percent (%) is the percent of the total catch represented by that taxon; percent occurrence (% Occur) is the percentage of samples in which that taxon was collected; CV is the coefficient of variation of the mean. Taxa are ranked in order of decreasing mean density.

Table 4.71: Catch statistics for selected taxa collected in 90 21.3-m river seine samples during Northern Indian River Lagoon stratified-random sampling, 2024.

Species	Number			Density Estimate (animals/100m ²)				Standard Length (mm)			
	No.	%	% Occur	Mean	Stderr	CV	Max	Mean	Stderr	Min	Max
<i>Micropogonias undulatus</i>	831	2.2	8.9	13.58	11.59	809.45	1,036.76	20	0.16	10	44
<i>Centropomus undecimalis</i>	387	1.0	50.0	5.81	1.14	193.89	82.35	52	2.95	10	418
<i>Brevoortia</i> spp.	335	0.9	10.0	5.47	3.94	683.26	344.12	26	0.18	14	33
<i>Leiostomus xanthurus</i>	235	0.6	12.2	3.84	2.87	707.97	255.88	21	0.50	11	55
<i>Farfantepenaeus</i> spp.	186	0.5	28.9	3.04	1.08	335.61	82.35	6	0.20	2	13
<i>Mugil cephalus</i>	154	0.4	10.0	2.52	1.61	606.28	117.65	36	4.03	15	319
<i>Callinectes sapidus</i>	70	0.2	23.3	1.14	0.32	266.21	22.06	23	3.21	6	127
<i>Archosargus probatocephalus</i>	43	0.1	26.7	0.70	0.15	206.29	5.88	104	11.14	14	278
<i>Mugil curema</i>	28	0.1	5.6	0.45	0.22	463.92	13.24	34	9.30	16	284
<i>Litopenaeus setiferus</i>	27	0.1	5.6	0.44	0.29	612.91	22.06	6	0.42	3	10
<i>Lutjanus griseus</i>	21	0.1	8.9	0.34	0.14	385.74	8.82	114	13.02	19	213
<i>Sciaenops ocellatus</i>	16	<0.1	3.3	0.26	0.23	832.95	20.59	19	2.38	14	54
<i>Albula</i> spp.	9	<0.1	2.2	0.15	0.13	848.66	11.76	65	5.90	19	78
<i>Elops saurus</i>	8	<0.1	2.2	0.13	0.12	837.21	10.29	39	3.22	31	56
<i>Sphyrna barracuda</i>	8	<0.1	4.4	0.13	0.08	550.22	5.88	120	30.78	39	254
<i>Centropomus parallelus</i>	2	<0.1	2.2	0.03	0.02	667.04	1.47	112	31.00	81	143
<i>Centropomus pectinatus</i>	2	<0.1	2.2	0.03	0.02	667.04	1.47	26	7.50	19	34
<i>Caranx hippos</i>	1	<0.1	1.1	0.02	0.02	948.68	1.47	34	.	34	34
<i>Cynoscion nebulosus</i>	1	<0.1	1.1	0.02	0.02	948.68	1.47	28	.	28	28
<i>Farfantepenaeus aztecus</i>	1	<0.1	1.1	0.02	0.02	948.68	1.47	17	.	17	17
<i>Lutjanus apodus</i>	1	<0.1	1.1	0.02	0.02	948.68	1.47	91	.	91	91
<i>Lutjanus jocu</i>	1	<0.1	1.1	0.02	0.02	948.68	1.47	180	.	180	180

Species	Number			Density Estimate (animals/100m ²)				Standard Length (mm)			
	No.	%	% Occur	Mean	Stderr	CV	Max	Mean	Stderr	Min	Max
<i>Paralichthys albigutta</i>	1	<0.1	1.1	0.02	0.02	948.68	1.47	68	.	68	68
Total	2,368	6.3	.	38.69	14.01	343.40	1,150.00	.	.	2	418

Percent (%) is the percent of the total catch represented by that taxon; percent occurrence (% Occur) is the percentage of samples in which that taxon was collected; CV is the coefficient of variation of the mean. Taxa are ranked in order of decreasing mean density.

4.10 Southern Indian River Lagoon

Along the eastern central coast of Florida, the sampling area identified as the Southern Indian River Lagoon (IRL) system is a narrow estuary that extends from Vero Beach south to the Jupiter Inlet. The southern IRL is connected to the Atlantic Ocean by three inlets (Ft. Pierce, St. Lucie, and Jupiter). Freshwater inflow comes primarily from the St. Lucie and Loxahatchee rivers. In addition, there is freshwater input from numerous creeks and canals along the western shoreline. Shoreline vegetation consists largely of fringing mangrove, Brazilian Pepper, and marsh grasses. Bottom substrates are typically characterized as sand or mud mixed with shell hash and oysters. Seagrasses, primarily *Halodule wrightii*, are the dominant vegetative cover in the southern IRL (Sime 2005).

The Fisheries-Independent Monitoring (FIM) program has conducted intensive sampling of fish and selected invertebrates in the Southern IRL using 183-m haul seines since 1997. Monthly stratified-random sampling (SRS) has been focused in two geographically-defined bay zones (I and J) and one riverine zone (T; Figure 4.10). Beginning in 2016, in an effort to expand the collection of juvenile fish data in the region, monthly sampling with 21.3-m seines was initiated in the St. Lucie and Loxahatchee Rivers (Zones L and T; Figure 4.10). As a result, the 21.3-m seine sampling universe in Zone T was expanded to include the upstream and backwater areas of the St. Lucie River that were not previously accessible with the 183-m haul seines.

Loxahatchee River (Zone L; Figure 4.10) was also added to the 21.3-m seine sampling universe in 2016. The Loxahatchee River covers an ecosystem of approximately 673 km² in Martin and Palm Beach counties and is one of only two river systems in Florida designated as a “Wild and Scenic River.” The Loxahatchee River includes the North Fork, Northwest Fork, and the Southwest Fork, all of which drain into the Atlantic Ocean through Jupiter Inlet at the terminus of the Southern Indian River Lagoon. Shoreline slopes can be steep along much of the sampling area with many shorelines closer to urbanization characterized by man-made habitats including seawalls, rip-rap, and docks. Much of the sampling area is brackish with shoreline vegetation consisting of a mixture of salt-tolerant overhanging trees and shrubs while upstream habitats include freshwater marsh vegetation (swamp lily, lily pads, leather fern, etc.). Upriver and backwater areas typically have a mud/detritus substrate while the mainstem and areas closer to the Indian River Lagoon are comprised of mainly sand/shell hash due to stronger water flow. Submerged aquatic vegetation is minimal, but can include tapegrass (*Vallisneria* spp.) in low salinity habitats and shoal grass (*Halodule* spp.) in higher salinity habitats closer to the mouth of the river.

All methods were the same as those described in Chapter 2. This section summarizes data collected by the FIM program during 2024 in Southern Indian River Lagoon.

Stratified-Random Sampling

A total of 64,989 animals, which included 150 taxa of fishes and 13 taxa of selected invertebrates, were collected from 351 Southern Indian River Lagoon SRS samples in 2024 (Table 4.72, Table A.28, Table A.29, Table A.30). *Anchoa mitchilli* (n=24,461) was the most numerous taxon collected, representing 37.6% of the total catch. *Diapterus auratus* (n=8,148) and *Mugil cephalus* (n=6,851) were the next most abundant taxa collected, accounting for an additional 23.1% of the total catch. A total of 43 selected taxa (n=13,989 animals) comprised 21.5% of the total catch. *Mugil cephalus* (n=6,851) was the most abundant Selected Taxon, representing 10.5% of the total



Figure 4.10: Map of Southern Indian River Lagoon sampling area, separated into four geographic zones: I, J, L, and T.

catch. *Mugil curema* (n=1,302), *Brevoortia* spp. (n=1,227), *Leiostomus xanthurus* (n=1,214), and *Centropomus undecimalis* (n=525) were the next most abundant selected taxa, comprising 6.6% of the total catch. Collections in 2024 included 1 species new to the southern Indian River Lagoon FIM collection: *Larimus fasciatus*.

Table 4.72: Summary of catch and effort data for Southern Indian River Lagoon stratified-random sampling, 2024.

Zone	21.3-m river seine		183-m haul seine		Total	
	Hauls	Animals	Hauls	Animals	Hauls	Animals
I	.	.	48	6,500	48	6,500
J	.	.	48	7,896	48	7,896
L	45	9,785	.	.	45	9,785
T	162	39,561	48	1,247	210	40,808
Total	207	49,346	144	15,643	351	64,989

Bay Sampling

183-m Haul Seine

A total of 15,643 animals were collected in 144 183-m haul seines, representing 24.1% of the overall SRS catch (Table 4.72). *Diapterus auratus* (n=7,364) was the most abundant taxon, accounting for 47.1% of the 183-m haul seine catch (Table 4.73). The taxa most frequently caught in 183-m haul seines were *Diapterus auratus* (68.1% occurrence), *Ariopsis felis* (56.2% occurrence), and *Mugil curema* (55.6% occurrence).

A total of 3,370 animals from 35 selected taxa were collected, representing 21.5% of the entire 183-m haul seine catch (Table 4.74). *Mugil curema* (n=1,112) and *Mugil cephalus* (n=312) were the most abundant selected taxa, accounting for 42.3% of the selected taxa collected by this gear. The selected taxa most frequently caught in 183-m haul seines were *Mugil curema* (55.6% occurrence) and *Archosargus probatocephalus* (52.8% occurrence).

Table 4.73: Catch statistics for 10 dominant taxa collected in 144 183-m haul seine samples during Southern Indian River Lagoon stratified-random sampling, 2024.

Species	Number			Density Estimate (animals/set)				Standard Length (mm)			
	No.	%	% Occur	Mean	Stderr	CV	Max	Mean	Stderr	Min	Max
<i>Diapterus auratus</i>	7,364	47.1	68.1	51.14	13.64	320.14	1,416	148	0.30	62	256
<i>Mugil curema</i>	1,112	7.1	55.6	7.72	1.46	226.95	128	191	1.01	98	300
<i>Lagodon rhomboides</i>	1,062	6.8	22.9	7.32	3.41	561.30	414	86	0.59	61	217
<i>Ariopsis felis</i>	726	4.6	56.2	5.04	0.99	235.15	113	229	1.53	115	393
<i>Eucinostomus gula</i>	592	3.8	25.0	4.11	1.95	567.77	215	86	0.42	56	125
<i>Selene vomer</i>	385	2.5	28.5	2.67	0.96	432.13	111	156	1.31	40	297
<i>Archosargus rhomboidalis</i>	348	2.2	16.7	2.40	1.31	655.95	181	116	1.56	69	255
<i>Mugil cephalus</i>	312	2.0	39.6	2.17	0.52	288.15	48	238	3.08	96	435
<i>Archosargus probatocephalus</i>	303	1.9	52.8	2.06	0.32	188.26	29	234	4.90	45	390
<i>Sphoeroides testudineus</i>	267	1.7	33.3	1.85	0.58	375.39	73	141	2.07	65	242
Subtotal	12,471	79.7	.	.	.	.	.	.	.	40	435
Total	15,643	100.0	.	108.63	17.21	190.15	1,638	.	.	21	1,400

Percent (%) is the percent of the total catch represented by that taxon; percent occurrence (% Occur) is the percentage of samples in which that taxon was collected; CV is the coefficient of variation of the mean. Taxa are ranked in order of decreasing mean density.

Table 4.74: Catch statistics for selected taxa collected in 144 183-m haul seine samples during Southern Indian River Lagoon stratified-random sampling, 2024.

Species	Number			Density Estimate (animals/set)				Standard Length (mm)			
	No.	%	% Occur	Mean	Stderr	CV	Max	Mean	Stderr	Min	Max
<i>Mugil curema</i>	1,112	7.1	55.6	7.72	1.46	226.95	128	191	1.01	98	300
<i>Mugil cephalus</i>	312	2.0	39.6	2.17	0.52	288.15	48	238	3.08	96	435
<i>Archosargus probatocephalus</i>	303	1.9	52.8	2.06	0.32	188.26	29	234	4.90	45	390
<i>Elops saurus</i>	265	1.7	24.3	1.84	0.64	419.47	72	299	3.76	175	525
<i>Sphyraena barracuda</i>	228	1.5	41.0	1.58	0.37	277.02	43	349	9.31	118	1,190
<i>Micropogonias undulatus</i>	220	1.4	21.5	1.53	0.68	532.48	89	235	3.88	108	368
<i>Centropomus undecimalis</i>	205	1.3	43.8	1.42	0.29	245.95	33	414	11.09	149	972
<i>Caranx hippos</i>	175	1.1	28.5	1.22	0.38	375.78	48	248	9.92	89	1,000
<i>Lutjanus analis</i>	105	0.7	20.8	0.73	0.19	316.25	20	167	4.78	78	290
<i>Leiostomus xanthurus</i>	79	0.5	5.6	0.55	0.31	675.12	35	131	2.15	76	180
<i>Albula</i> spp.	57	0.4	9.7	0.40	0.15	459.19	13	316	10.01	135	410
<i>Callinectes sapidus</i>	53	0.3	20.8	0.37	0.08	254.52	7	108	5.17	39	187
<i>Lutjanus griseus</i>	49	0.3	10.4	0.34	0.12	428.71	13	163	5.66	95	224
<i>Lutjanus synagris</i>	47	0.3	4.9	0.33	0.20	730.83	26	112	2.50	89	148
<i>Brevoortia</i> spp.	37	0.2	8.3	0.26	0.09	428.68	9	183	10.50	72	278
<i>Trachinotus falcatus</i>	28	0.2	7.6	0.19	0.06	390.76	5	157	19.27	44	355
<i>Pogonias cromis</i>	20	0.1	5.6	0.14	0.06	515.21	6	332	22.70	205	505
<i>Caranx crysos</i>	13	0.1	3.5	0.09	0.05	640.60	6	237	12.64	120	279
<i>Trachinotus carolinus</i>	13	0.1	2.8	0.09	0.05	728.35	7	256	18.55	197	370
<i>Sciaenops ocellatus</i>	8	0.1	3.5	0.06	0.03	593.67	3	486	44.27	353	637
<i>Scomberomorus maculatus</i>	7	<0.1	2.8	0.05	0.03	658.66	3	266	45.79	151	473
<i>Cynoscion complex</i>	6	<0.1	1.4	0.04	0.04	1,018.43	5	241	22.72	150	297

Species	Number			Density Estimate (animals/set)				Standard Length (mm)			
	No.	%	% Occur	Mean	Stderr	CV	Max	Mean	Stderr	Min	Max
<i>Cynoscion nebulosus</i>	6	<0.1	2.1	0.04	0.03	845.56	4	250	32.46	130	353
<i>Carcharhinus leucas</i>	4	<0.1	2.8	0.03	0.01	593.67	1	905	168.65	650	1,400
<i>Haemulon aurolineatum</i>	3	<0.1	1.4	0.02	0.02	891.92	2	74	10.82	59	95
<i>Pomatomus saltatrix</i>	3	<0.1	2.1	0.02	0.01	687.96	1	419	15.62	389	442
<i>Megalops atlanticus</i>	2	<0.1	1.4	0.01	0.01	845.56	1	710	146.50	563	856
<i>Mugil rubrioculus</i>	2	<0.1	0.7	0.01	0.01	1,200.00	2	118	0.50	117	118
<i>Paralichthys albigutta</i>	2	<0.1	1.4	0.01	0.01	845.56	1	82	16.50	65	98
<i>Farfantepenaeus aztecus</i>	1	<0.1	0.7	0.01	0.01	1,200.00	1	21	.	21	21
<i>Menticirrhus americanus</i>	1	<0.1	0.7	0.01	0.01	1,200.00	1	155	.	155	155
<i>Mycteroperca bonaci</i>	1	<0.1	0.7	0.01	0.01	1,200.00	1	140	.	140	140
<i>Panulirus argus</i>	1	<0.1	0.7	0.01	0.01	1,200.00	1	69	.	69	69
<i>Rachycentron canadum</i>	1	<0.1	0.7	0.01	0.01	1,200.00	1	193	.	193	193
<i>Sphyrna tiburo</i>	1	<0.1	0.7	0.01	0.01	1,200.00	1	669	.	669	669
Total	3,370	21.5	.	23.40	2.60	133.27	174	.	.	21	1,400

Percent (%) is the percent of the total catch represented by that taxon; percent occurrence (% Occur) is the percentage of samples in which that taxon was collected; CV is the coefficient of variation of the mean. Taxa are ranked in order of decreasing mean density.

River Sampling

21.3-m River Seine

A total of 49,346 animals were collected in 207 21.3-m river seines, representing 75.9% of the overall SRS catch (Table 4.72). *Anchoa mitchilli* (n=24,461) was the most abundant taxon collected, accounting for 49.6% of the 21.3-m river seine catch (Table 4.75). *Eucinostomus* spp. (n=6,749) and *Mugil cephalus* (n=6,539) were the next most abundant taxa, accounting for an additional 26.9% of the 21.3-m river seine catch. The taxa most frequently caught in 21.3-m river seines were *Eucinostomus* spp. (70.0% occurrence), *Diapterus auratus* (44.9% occurrence), and *Menidia* spp. (44.0% occurrence).

A total of 10,619 animals from 28 selected taxa were collected, representing 21.5% of the entire 21.3-m river seine catch (Table 4.76). *Mugil cephalus* (n=6,539), and *Brevoortia* spp. (n=1,190) were the most abundant selected taxa, accounting for 72.8% of the selected taxa collected by this gear. The selected taxa most frequently caught in 21.3-m river seines were *Farfantepenaeus* spp. (39.1% occurrence) and *Centropomus undecimalis* (39.1% occurrence).

Table 4.75: Catch statistics for 10 dominant taxa collected in 207 21.3-m river seine samples during Southern Indian River Lagoon stratified-random sampling, 2024.

Species	Number			Density Estimate (animals/100m ²)				Standard Length (mm)			
	No.	%	% Occur	Mean	Stderr	CV	Max	Mean	Stderr	Min	Max
<i>Anchoa mitchilli</i>	24,461	49.6	31.4	170.48	60.98	519.57	9,600.00	33	0.04	11	53
<i>Eucinostomus</i> spp.	6,749	13.7	70.0	47.26	12.60	386.42	1,788.24	25	0.09	7	39
<i>Mugil cephalus</i>	6,539	13.3	11.1	46.01	35.96	1,129.79	7,335.29	22	0.17	10	391
<i>Brevoortia</i> spp.	1,190	2.4	12.1	8.25	2.85	502.24	405.88	28	0.23	16	67
<i>Leiostomus xanthurus</i>	1,135	2.3	5.3	8.02	4.81	864.23	917.65	24	0.31	10	66
<i>Menidia</i> spp.	845	1.7	44.0	5.95	0.95	231.86	86.76	31	0.25	11	57
<i>Eugerres plumieri</i>	816	1.7	37.2	5.69	2.18	555.88	408.82	51	1.83	8	263
<i>Diapterus auratus</i>	784	1.6	44.9	5.34	0.97	265.85	145.59	44	0.76	12	198
<i>Harengula</i> spp.	735	1.5	0.5	5.20	5.04	1,397.60	1,047.06	28	0.12	20	36
<i>Eucinostomus jonesii</i>	547	1.1	5.3	3.87	2.49	927.41	494.12	50	0.35	40	82
Subtotal	43,801	88.9	.	.	.	.	.	.	.	7	391
Total	49,346	100.0	.	350.57	86.09	353.32	11,347.06	.	.	2	565

Percent (%) is the percent of the total catch represented by that taxon; percent occurrence (% Occur) is the percentage of samples in which that taxon was collected; CV is the coefficient of variation of the mean. Taxa are ranked in order of decreasing mean density.

Table 4.76: Catch statistics for selected taxa collected in 207 21.3-m river seine samples during Southern Indian River Lagoon stratified-random sampling, 2024.

Species	Number			Density Estimate (animals/100m ²)				Standard Length (mm)			
	No.	%	% Occur	Mean	Stderr	CV	Max	Mean	Stderr	Min	Max
<i>Mugil cephalus</i>	6,539	13.3	11.1	46.01	35.96	1,129.79	7,335.29	22	0.17	10	391
<i>Brevoortia</i> spp.	1,190	2.4	12.1	8.25	2.85	502.24	405.88	28	0.23	16	67
<i>Leiostomus xanthurus</i>	1,135	2.3	5.3	8.02	4.81	864.23	917.65	24	0.31	10	66
<i>Farfantepenaeus</i> spp.	472	1.0	39.1	3.35	0.67	286.08	70.59	6	0.12	2	14
<i>Micropogonias undulatus</i>	300	0.6	11.6	2.12	0.98	663.12	151.47	29	0.85	9	177
<i>Centropomus undecimalis</i>	320	0.6	39.1	2.09	0.26	184.53	25.00	77	4.47	12	483
<i>Callinectes sapidus</i>	283	0.6	36.7	2.01	0.42	300.21	66.18	15	0.94	4	141
<i>Mugil curema</i>	190	0.4	10.1	1.34	0.57	611.49	80.88	33	2.92	14	253
<i>Archosargus probatocephalus</i>	35	0.1	10.1	0.25	0.08	442.05	13.24	122	18.45	10	329
<i>Elops saurus</i>	32	0.1	3.9	0.23	0.13	854.02	26.47	82	14.73	31	254
<i>Sphyræna barracuda</i>	24	<0.1	7.2	0.17	0.05	454.56	7.35	143	22.67	21	483
<i>Lutjanus griseus</i>	21	<0.1	8.2	0.15	0.04	356.00	2.94	66	12.76	15	201
<i>Trachinotus falcatus</i>	20	<0.1	2.4	0.14	0.10	1,035.17	20.59	17	0.81	11	24
<i>Centropomus parallelus</i>	14	<0.1	4.8	0.10	0.03	494.62	4.41	175	24.69	39	304
<i>Litopenaeus setiferus</i>	10	<0.1	4.3	0.07	0.02	489.45	2.94	8	0.79	3	11
<i>Sciaenops ocellatus</i>	7	<0.1	1.4	0.05	0.03	843.56	4.41	14	0.64	12	17
<i>Albula</i> spp.	6	<0.1	1.9	0.04	0.02	826.62	4.41	36	3.55	25	45
<i>Caranx hippos</i>	5	<0.1	1.4	0.04	0.02	951.41	4.41	101	19.74	29	140
<i>Farfantepenaeus aztecus</i>	3	<0.1	1.0	0.02	0.02	1,070.30	2.94	17	1.67	15	20
<i>Lutjanus analis</i>	3	<0.1	1.0	0.02	0.02	1,070.30	2.94	99	8.25	87	115
<i>Haemulon parra</i>	2	<0.1	0.5	0.01	0.01	1,438.75	2.94	62	42.00	20	104
<i>Pogonias cromis</i>	2	<0.1	1.0	0.01	0.01	1,014.88	1.47	206	24.00	182	230

Species	Number			Density Estimate (animals/100m ²)				Standard Length (mm)			
	No.	%	% Occur	Mean	Stderr	CV	Max	Mean	Stderr	Min	Max
<i>Centropomus ensiferus</i>	1	<0.1	0.5	0.01	0.01	1,438.75	1.47	142	.	142	142
<i>Cynoscion complex</i>	1	<0.1	0.5	0.01	0.01	1,438.75	1.47	52	.	52	52
<i>Lobotes surinamensis</i>	1	<0.1	0.5	0.01	0.01	1,438.75	1.47	22	.	22	22
<i>Lutjanus jocu</i>	1	<0.1	0.5	0.01	0.01	1,438.75	1.47	24	.	24	24
<i>Lutjanus synagris</i>	1	<0.1	0.5	0.01	0.01	1,438.75	1.47	19	.	19	19
<i>Mugil trichodon</i>	1	<0.1	0.5	0.01	0.01	1,438.75	1.47	68	.	68	68
Total	10,619	21.5	.	75.44	39.02	744.14	7,423.53	.	.	2	483

Percent (%) is the percent of the total catch represented by that taxon; percent occurrence (% Occur) is the percentage of samples in which that taxon was collected; CV is the coefficient of variation of the mean. Taxa are ranked in order of decreasing mean density.

5 Species Profiles

5.1 Introduction

An important use of Fisheries-Independent Monitoring (FIM) program data is to track the relative abundance of fish stocks and provide information for species management plans, including information on the abundance of juvenile fish. Juvenile indices of abundance (IOAs) measure the relative abundance of newly-recruited or young-of-the-year (YOY) fish and may be used to describe recruitment processes and forecast population trends. Similarly, adult IOAs measure the relative abundance of larger, older fish and may be used to describe the sexually mature portion of a population and also help forecast future population trends. When combined, these two pieces of information can provide a comprehensive picture of the relative condition of a fish population within an estuarine system. This section provides profiles of target species that are routinely collected in FIM program sampling and are of recreational or commercial importance in Florida: Common Snook, Red Drum, Spotted Seatrout, Sheepshead, Pinfish, Striped Mullet, and Blue Crab.

Similar analyses were used to develop recruitment indices for each species examined. Data from stratified-random sampling (SRS) were used to create IOAs for YOY, age-1, and adults of target species. Study areas (i.e., estuarine systems) included in the analyses were selected based upon adequate sample sizes of the target species and years of available data, and separate IOAs were calculated for each study area. The specific time periods and sizes of specimens included in the analyses varied among species based upon their individual patterns of recruitment and growth. In general, for each species, only months of peak abundance were included in the analyses. Prior to IOA analyses, length-frequency histograms were examined to determine the size at which the target species fully recruited to the sampling gears.

The annual IOAs representing either juvenile recruitment (YOY and age-1 IOAs) or the sub-adult and adult portion of the population (Adult IOAs) were computed using generalized linear models. The FIM program's SRS design generates count data, the distribution of which is bounded by zero. Often, the frequency distribution of these counts is highly non-normal; therefore, a Poisson or negative binomial distribution was used as appropriate to create IOAs. This report represents a data summary and not an in-depth analysis of factors affecting abundance, therefore, year is the only factor retained in the model runs for the FIM Annual Report Species Profiles. All IOAs were completed in R version 4.5.0 (R Core Team 2022) using the `MASS` (version 7.3.65, Venables and Ripley (2002)) and `stats` (version 4.5.0, R Core Team (2022)) packages.

Relative abundance was calculated as the median annual number of fish per set. Median values were determined from the least-squares adjusted means by multiplying the standard error by a random normal deviate ($m=0$, $s=1$) and adding it to the least-squares mean. These data were then back-transformed (e^x). The process was repeated 500 times for each year to create a sampling distribution of back-transformed values. Summary statistics (median, 25th, and 75th percentiles) were then calculated from this distribution of values to give an unbiased estimate of abundance

and its associated error, and plotted to view annual trends in IOAs (Sokal and Rohlf 1969). The median value of this distribution was used to represent the mean index of abundance, while the 25th and 75th percentiles were used as estimates of the standard error of the mean. A weighted least squares regression was used to determine the strength and direction of IOA trends, where a non-significant slope was indicative of a generally stable trend. Weights were assigned as the inverse of the standard error associated with a particular mean estimate. Changes in abundance from the previous year were calculated based on overlapping 95% confidence intervals (i.e., two standard errors above and below each abundance estimate). If confidence intervals overlapped, the two years were deemed to be similar to each other. Note that the error bars shown in all indices of abundance represent one standard error above and below the abundance estimate, and thus are not equivalent to the 95% confidence intervals used to determine annual changes in abundance.

5.2 Common Snook, *Centropomus undecimalis*

Common Snook, *Centropomus undecimalis*, are found in estuaries, adjacent rivers, and in nearshore waters of the tropical and subtropical western Atlantic and Gulf (Gilmore et al. 1983; Rivas 1986; Winner et al. 2010). In Florida, Common Snook populations from the Atlantic and Gulf coasts have been genetically identified as separate stocks and are managed separately (Taylor et al. 1993; Tringali and Bert 1996). This species supports an important recreational fishery in Florida and is one of the most popular game fish in state waters. There has been no legal commercial harvest of Common Snook in Florida since the State Legislature declared it a game fish in 1957 and prohibited its sale. Fishing effort targeting Common Snook has increased consistently since the early 1980s on both coasts, but more so on Florida's Gulf coast (Munyandorero et al. 2020). While the overall harvest of Common Snook has declined since the mid-1990s, the numbers of fish caught and released has remained consistently high since the early 1980s (Munyandorero et al. 2020). Recent estimates of transitional spawning potential ratios were near the 40% objective on the Atlantic coast and far exceeded the objective (~60%) on the Gulf coast, therefore both stocks are currently meeting agency management objectives. In response to cold weather induced fish kills that occurred statewide during January 2010, the FWC issued executive orders that prohibited the harvest of Common Snook through August 31, 2010, and subsequent executive orders extended the closure through August 31, 2011 ("Temporary modification of regulations for red drum and snook in southwest florida" 2010). At the June 2011 Florida Fish and Wildlife Conservation Commission Meeting, Commissioners concluded that the Atlantic coast stock was less severely impacted by cold weather than the Gulf coast stock. Based on this information, the Commissioners ruled to reopen Common Snook harvest on September 1, 2011, in Atlantic waters, but Gulf coast waters remained closed through August 31, 2013. Following a red tide event that persisted in the Gulf for 16 months in southwest Florida (2017-2019), that area of the fishery was closed in August 2018 and remained closed through May 2022.

Histological evidence shows that Common Snook are protandric hermaphrodites; they begin life as males and some become females after maturation (Taylor et al. 2000). Males typically become sexually mature at ~200 mm standard length (SL) and females at ~680 mm SL. The spawning season for Common Snook extends at least six months; April through September on the Gulf coast and April through October on the Atlantic coast (Taylor et al. 1998).

In 2014 FIM dedicated two years to develop an age-1 Common Snook sampling program in Tampa Bay, Charlotte Harbor, and the northern and southern portions of the Indian River Lagoon (IRL). This effort was funded by Snook Stamp money. In January 2016 the Common Snook age-1 monitoring program officially began, and those data are now used in the Snook stock assessment. Starting in 2024 these age-1 data have been incorporated into the FIM Annual Report's Common Snook indices of abundance (IOAs) as described below.

To monitor year-class strength and to improve the ability to predict future adult Common Snook abundances, the FIM program developed relative IOAs of young-of-the-year (YOY; ≤ 99 mm SL) and age-1 (100-300 mm SL) Common Snook in selected Florida estuaries. Prior to 2024, the IOAs for YOY included abundance data for Common Snook ≤ 50 mm SL and no age-1 IOAs were calculated. Abundance data for YOY and age-1 Common Snook collected in stratified-random 21.3-m seine samples were examined to assess recruitment into three Florida estuaries: Tampa Bay and Charlotte Harbor on the Gulf coast and the northern and southern portions of the IRL on the Atlantic coast. Although months of peak juvenile recruitment for Common Snook vary among

estuaries (August through November in Tampa Bay, August through February in Charlotte Harbor, July through February in the northern portion of the IRL, and August through February in the southern portion of the IRL), a consistent recruitment window of August-February was used for all YOY and age-1 IOAs. Data collected from August through December of each year were combined with data from January and February of the following year to create a biological year. The IOAs for 2024, therefore, only included data from August through December 2024. Only data from this gear and these primary time periods were used in developing IOAs for YOY and age-1 Common Snook.

The FIM program also monitored the relative abundances of large juvenile and adult Common Snook in Florida estuaries within the range of this species. Individuals between 200 mm and 609 mm SL were included in the IOA since they are typically reproductively mature males and serve as a “pre-recruitment” indicator for the fishery. The upper limit of 609 mm SL used in this IOA corresponds to the lower regulatory minimum size of 711 mm total length (TL). Data from stratified-random 183-m haul seines were used to develop IOAs for reproductively mature Common Snook within Cedar Key, Tampa Bay, Sarasota Bay, Charlotte Harbor, Northern IRL, and Southern IRL. These IOAs were derived by including all Common Snook between 200 – 609 mm SL collected between January and December from 1996 – 2024. Due to historical changes in sampling design and available habitat, only consistently sampled zones and habitats (bay or river) in each estuary were included to generate annual IOAs.

Indices of Abundance

The following figures show relative abundance of young-of-the-year (≤ 99 mm SL) and age-1 (100-300 mm SL) Common Snook collected in 21.3-m seines and of pre-fishery subadult and adult Common Snook (200-609 mm SL) collected in 183-m haul seines during stratified-random sampling across all estuaries. Points represent an unbiased estimate of the mean abundance (calculated as the median value of the distribution of model estimates), while the vertical bars represent the standard error of the estimate (calculated as the 25th-75th percentiles of model estimates). Note different scales for estimates from 21.3-m and 183-m seines.

Cedar Key

In the Cedar Key estuary, Common Snook catches were zero or near-zero between 1997 and 2016 (Figure 5.1). These low levels of abundance in Cedar Key waters are consistent with the historical range of this temperature-sensitive species in Florida (Taylor et al. 1993; Winner et al. 2010). However, recent effects of climate change (i.e., increasing water temperatures, more temperate winters) have resulted in an obvious range extension for Common Snook on Florida's Gulf coast (Purtlebaugh et al. 2020). Pre-fishery subadult and adult (200-609 mm SL) Common Snook abundance from Cedar Key in 2024 did not differ significantly from the previous year.

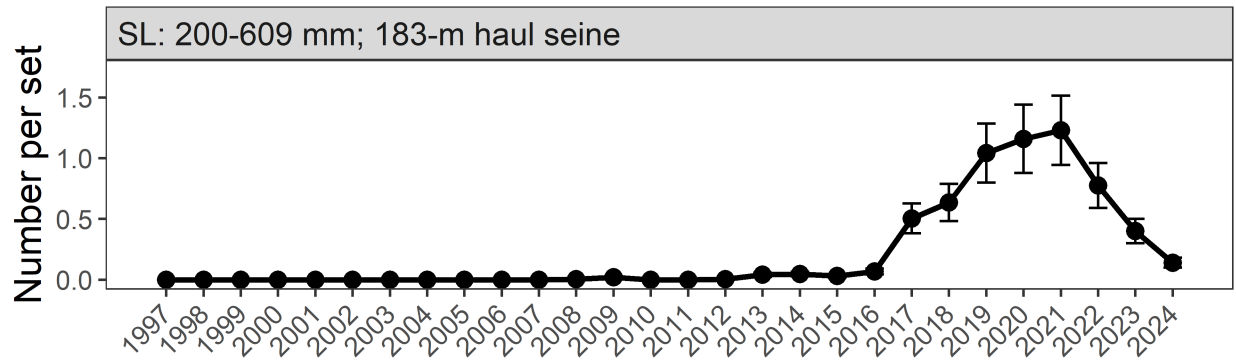


Figure 5.1: Relative abundance (± 1 SE) of subadult/adult (200-609 mm SL) Common Snook collected between 1997 and 2024 during Cedar Key stratified-random sampling.

Tampa Bay

Annual IOAs of YOY (≤ 99 mm SL) Common Snook in river habitats of Tampa Bay did not show a significant trend since 1996 (Figure 5.2). Relative abundance of YOY Common Snook in river habitats in 2024 increased from the previous year.

Annual IOAs of age-1 (100-300 mm SL) Common Snook in river habitats of Tampa Bay did not show a significant trend since 1996 (Figure 5.2). Relative abundance of age-1 Common Snook in river habitats in 2024 increased from the previous year.

Annual IOAs of pre-fishery subadult and adult (200-609 mm SL) Common Snook in Tampa Bay did not show a significant trend since 1996 (Figure 5.2). Relative abundance of pre-fishery subadult and adult Common Snook in 2024 did not differ significantly from the previous year.

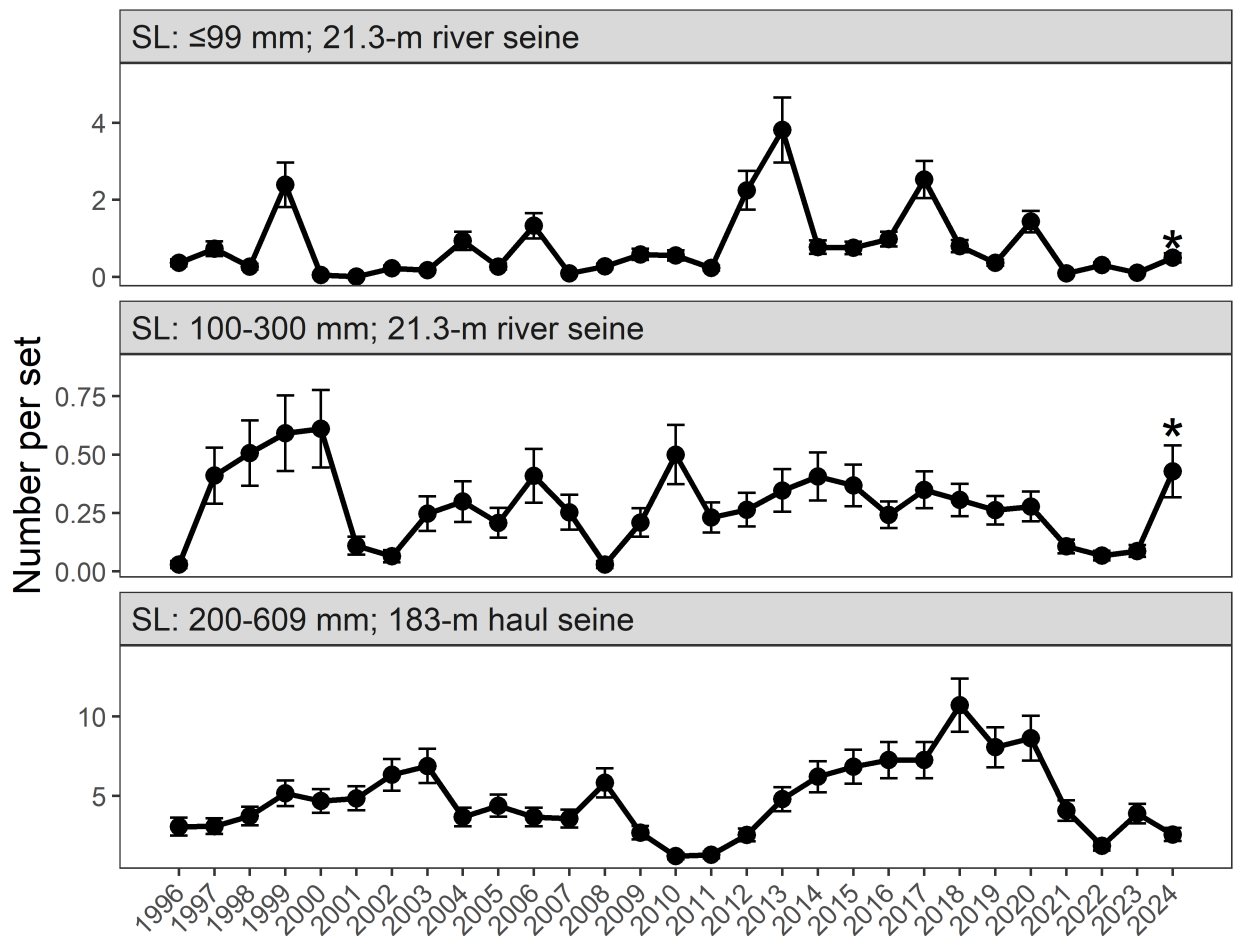


Figure 5.2: Relative abundance (± 1 SE) of young-of-the-year (≤ 99 mm SL), age-1 (100-300 mm SL), and subadult/adult (200-609 mm SL) Common Snook collected between 1996 and 2024 during Tampa Bay stratified-random sampling. *21.3-m seine IOAs for 2024 do not include a complete biological year because data from January-February of 2025 were unavailable at the time the report was prepared.

Sarasota Bay

Annual IOAs of pre-fishery subadult and adult (200-609 mm SL) Common Snook in Sarasota Bay did not show a significant trend since 2010 (Figure 5.3). Relative abundance of pre-fishery subadult and adult Common Snook in 2024 did not differ significantly from the previous year.

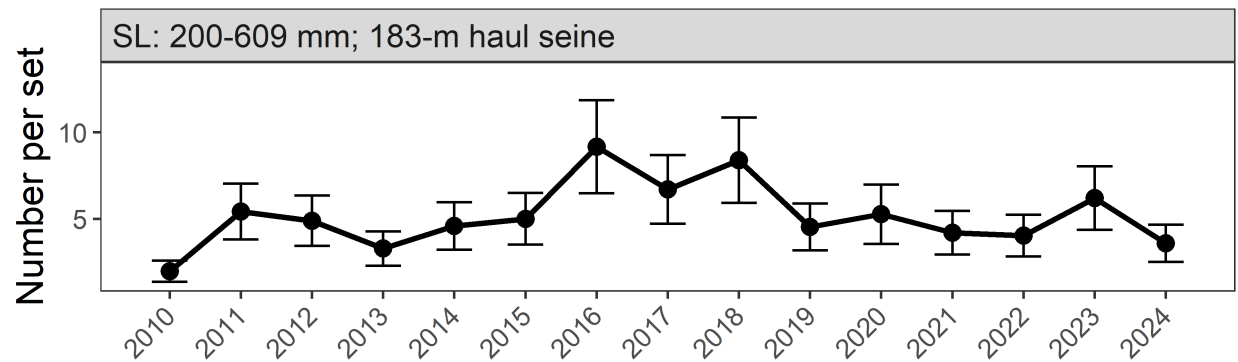


Figure 5.3: Relative abundance (± 1 SE) of subadult/adult (200-609 mm SL) Common Snook collected between 2010 and 2024 during Sarasota Bay bimonthly stratified-random sampling.

Charlotte Harbor

Annual IOAs of YOY (≤ 99 mm SL) Common Snook in river habitats of Charlotte Harbor did not show a significant trend since 2016 (Figure 5.4). Relative abundance of YOY Common Snook in river habitats in 2024 did not differ significantly from the previous year.

Annual IOAs of age-1 (100-300 mm SL) Common Snook in river habitats of Charlotte Harbor did not show a significant trend since 2016 (Figure 5.4). Relative abundance of age-1 Common Snook in 2024 did not differ significantly from the previous year.

Annual IOAs of pre-fishery subadult and adult (200-609 mm SL) Common Snook in Charlotte Harbor did not show a significant trend since 1996 (Figure 5.4). Relative abundance of pre-fishery subadult and adult Common Snook in 2024 did not differ significantly from the previous year.

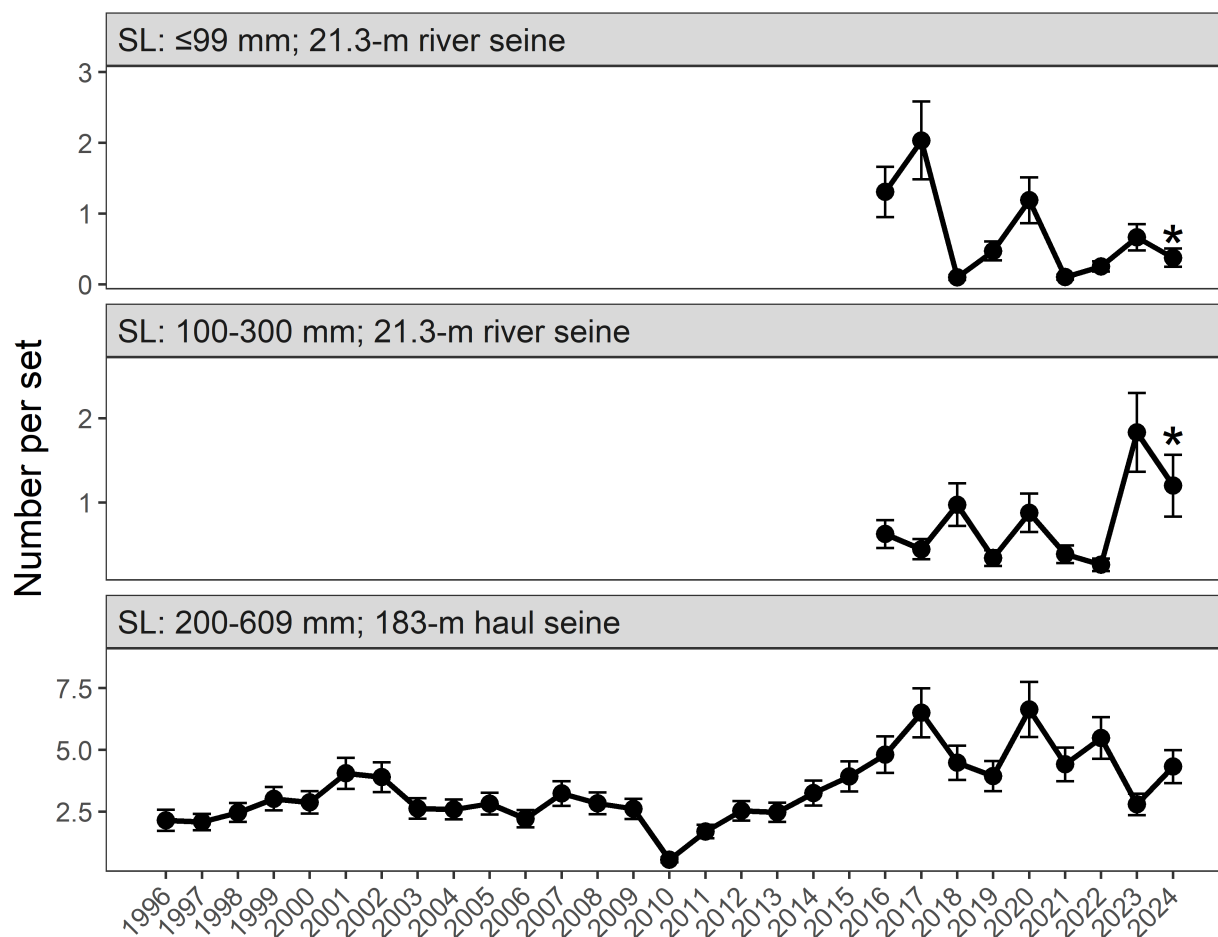


Figure 5.4: Relative abundance (± 1 SE) of young-of-the-year (≤ 99 mm SL), age-1 (100-300 mm SL), and subadult/adult (200-609 mm SL) Common Snook collected between 1996 and 2024 during Charlotte Harbor stratified-random sampling. Note that dedicated juvenile snook sampling in previously underrepresented habitats (i.e., tidal creeks and tributaries) began in 2016. These changes are reflected in the IOA time series where we report IOAs beginning in 2016. **21.3-m seine IOAs for 2024 do not include a complete biological year because data from January-February of 2025 were unavailable at the time the report was prepared.*

Northern Indian River Lagoon

Annual IOAs of YOY (≤ 99 mm SL) Common Snook in river habitats of Northern Indian River Lagoon did not show a significant trend since 1999 (Figure 5.5). Relative abundance of YOY Common Snook in river habitats in 2024 did not differ significantly from the previous year.

Annual IOAs of age-1 (100-300 mm SL) Common Snook in river habitats of Northern Indian River Lagoon have generally decreased since 1999 (Figure 5.5). Relative abundance of age-1 Common Snook in 2024 did not differ significantly from the previous year.

Annual IOAs of pre-fishery subadult and adult (200-609 mm SL) Common Snook in Northern Indian River Lagoon have generally decreased since 1997 (Figure 5.5). Relative abundance of pre-fishery subadult and adult Common Snook in 2024 increased from the previous year.

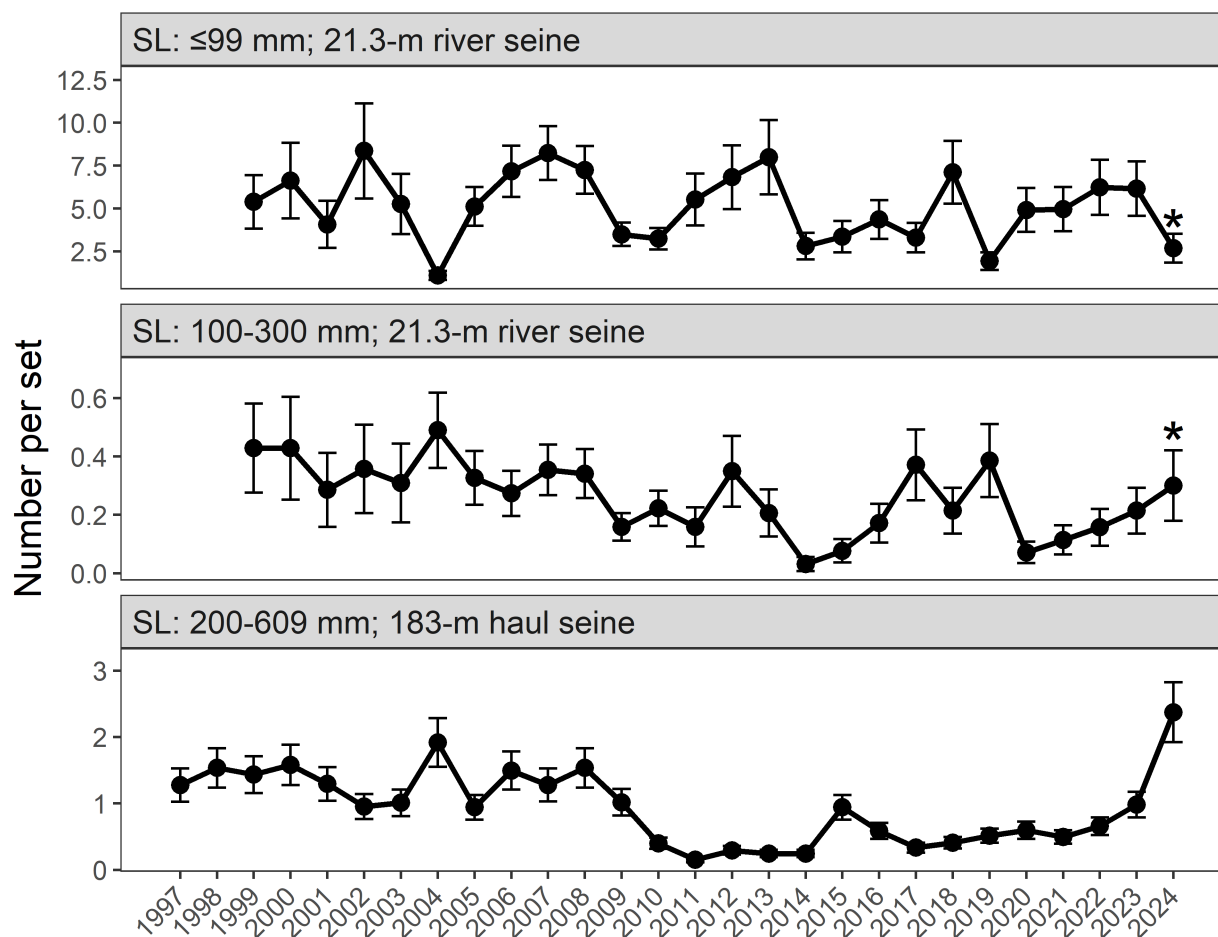


Figure 5.5: Relative abundance (± 1 SE) of young-of-the-year (≤ 99 mm SL), age-1 (100-300 mm SL), and subadult/adult (200-609 mm SL) Common Snook collected between 1997 and 2024 during Northern Indian River Lagoon stratified-random sampling. *21.3-m seine IOAs for 2024 do not include a complete biological year because data from January-February of 2025 were unavailable at the time the report was prepared.

Southern Indian River Lagoon

Annual IOAs of YOY (≤ 99 mm SL) Common Snook in river habitats of Southern Indian River Lagoon did not show a significant trend since 2016 (Figure 5.6). Relative abundance of YOY Common Snook in river habitats in 2024 did not differ significantly from the previous year.

Annual IOAs of age-1 (100-300 mm SL) Common Snook in river habitats of Southern Indian River Lagoon have generally increased since 2016 (Figure 5.6). Relative abundance of age-1 Common Snook in 2024 did not differ significantly from the previous year.

Annual IOAs of pre-fishery subadult and adult (200-609 mm SL) Common Snook in Southern Indian River Lagoon have generally decreased since 1997 (Figure 5.6). Relative abundance of pre-fishery subadult and adult Common Snook in 2024 did not differ significantly from the previous year.

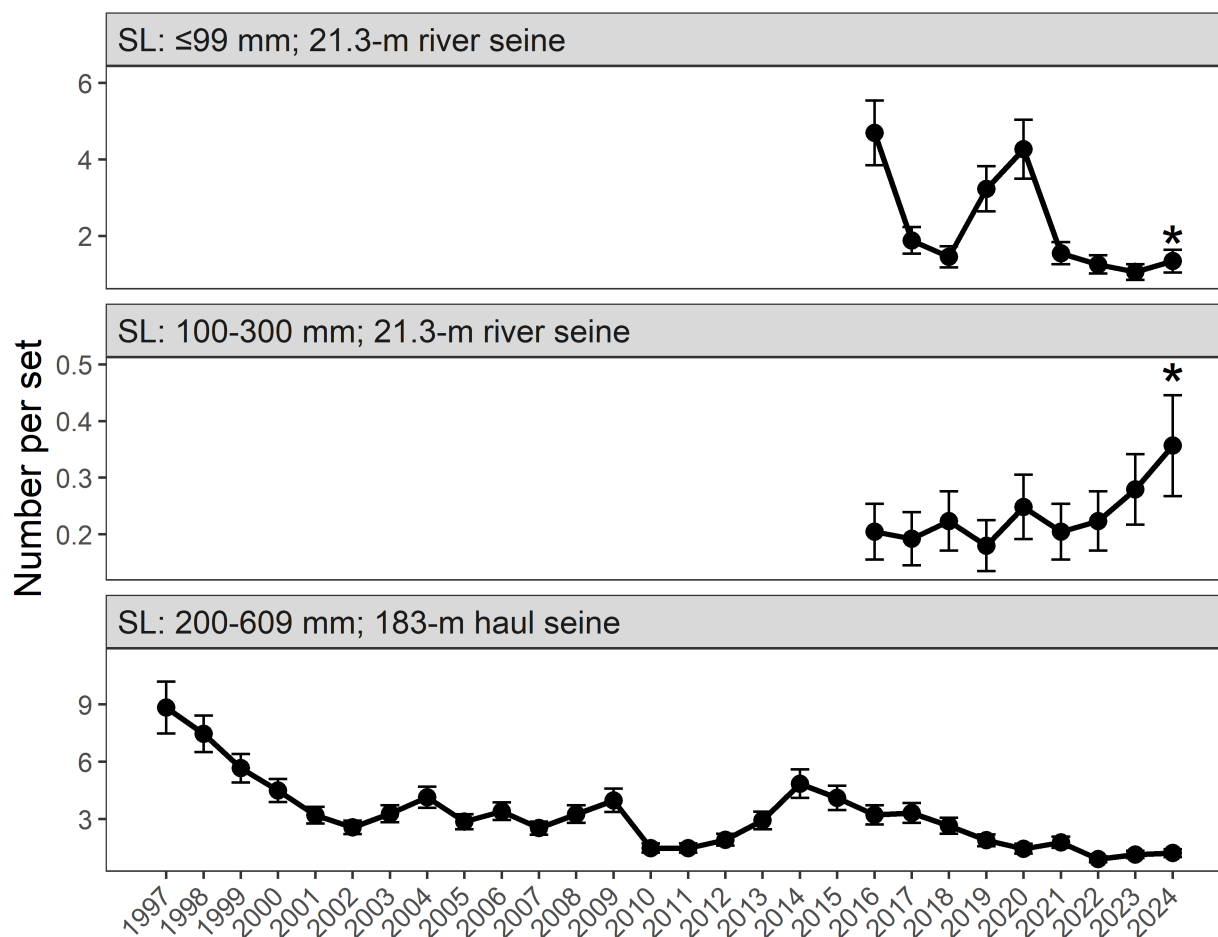


Figure 5.6: Relative abundance (± 1 SE) of young-of-the-year (≤ 99 mm SL), age-1 (100-300 mm SL), and subadult/adult (200-609 mm SL) Common Snook collected between 1997 and 2024 during Southern Indian River Lagoon stratified-random sampling. Note that dedicated juvenile snook sampling in previously underrepresented habitats (i.e., tidal creeks and tributaries) began in 2016. These changes are reflected in the IOA time series where we report IOAs beginning in 2016. *21.3-m seine IOAs for 2024 do not include a complete biological year because data from January-February of 2025 were unavailable at the time the report was prepared.

Length-Frequency Diagrams

The following figure shows length-frequency diagrams of Common Snook collected in 183-m haul seines. All lengths are standard length (SL). Note different scales and years of collection for each estuary. Length-frequency data collected with 183-m haul seines indicate that this gear provides valuable information on larger juvenile and adult Common Snook in Florida estuaries (Figure 5.7). Common Snook length-frequency distributions generally followed a unimodal distribution with modes varying across estuaries.

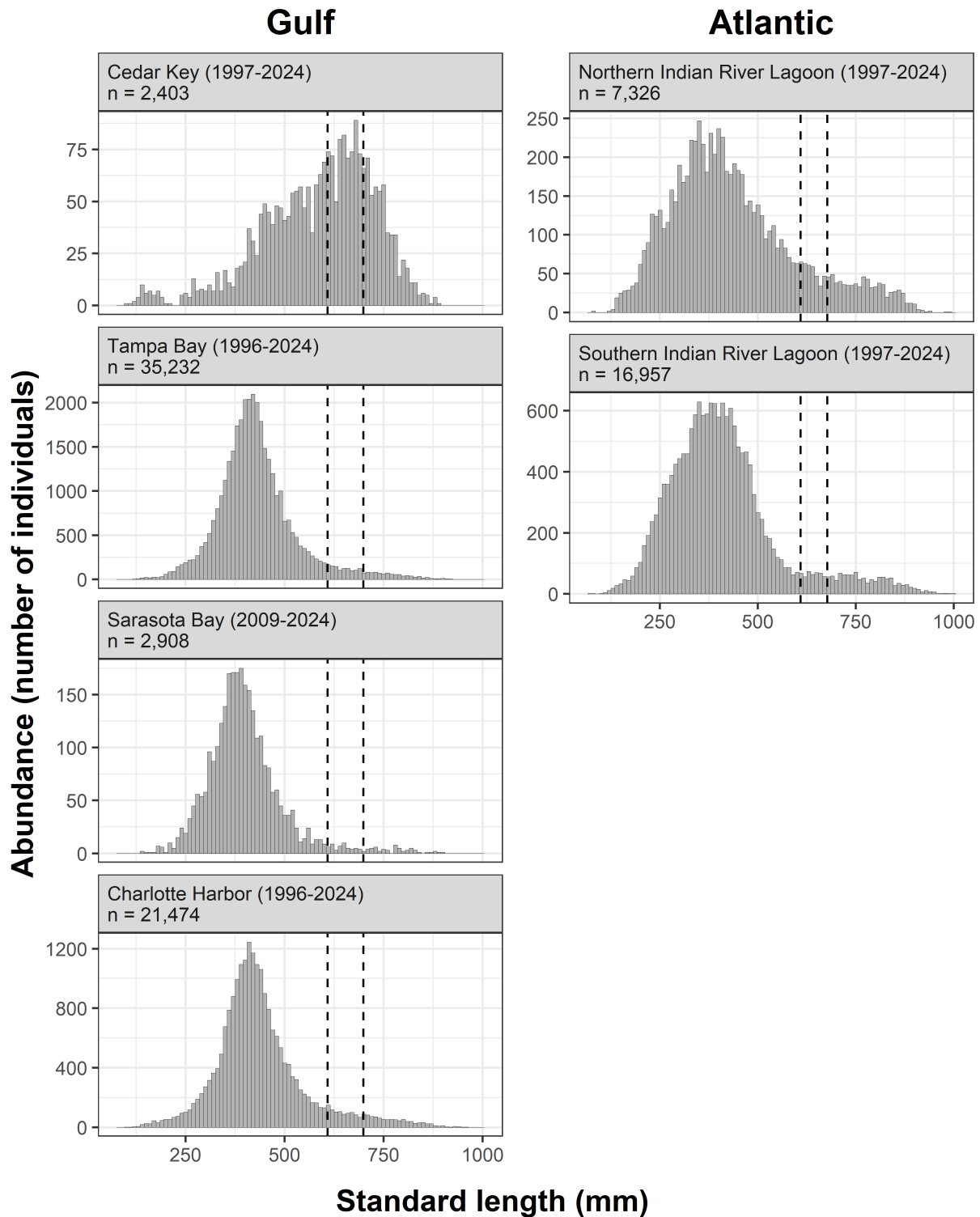


Figure 5.7: Length-frequency diagrams of Common Snook collected in 183-m haul seines. Vertical dashed lines indicate the lower and upper recreational size limits for Common Snook in each estuary.

5.3 Red Drum, *Sciaenops ocellatus*

The Red Drum, *Sciaenops ocellatus*, is an estuarine-dependent species inhabiting coastal waters from Massachusetts to northern Mexico (Yokel 1966; Reagan 1985). This species supports important recreational fisheries throughout the U.S. South Atlantic and Gulf coasts. In Florida, dramatic stock reductions in the mid-1980s resulted in a 1986 moratorium on commercial and recreational Red Drum fisheries. In 1989, the fishery was reopened with strict size and bag limits, as well as a no-sale provision that effectively eliminated the commercial Red Drum fishery in Florida. Since that time, Red Drum stocks have recovered significantly. In the 2020 stock assessment, model predictions for age-specific indices of Red Drum indicated that populations in Florida exceeded the Florida Fish and Wildlife Conservation Commission's (FWC) management target of at least a 40% escapement rate (geometric mean of 2017-2019) in three (NW, SW, NE) of the four statewide assessment regions (Addis 2020). In these three regions, Red Drum are not considered overfished nor undergoing overfishing. The SE region of Florida exceeded the escapement rate management target (55%) in 2019, the terminal year of the assessment, but did not meet the escapement rate management target over the three-year time period analyzed. Current escapement rates for 2017-2019 were 48% in the NW, 72% in the SW, 61% in the NE, and 35% in the SE region (Addis 2020). In addition, continued improvement of escapement rates within the northeast management region of the state led to an increase of the daily bag limit from one to two fish in early 2012 and a renewed interest in opening coastal Red Drum to harvest in the Gulf. However, bag limits within the southern and northwest management areas of the state are at one fish per person per day. Bag limits within the southern management areas of the state have remained at one fish per person per day since 1989.

Following a red tide event that persisted for 16 months in southwest Florida (2017-2019) the Red Drum fishery was closed in state waters of Pasco County south to Gordon Pass (Collier County) through Executive Order (EO), ("Temporary modification of regulations for red drum and snook in southwest florida" 2018) in August 2018. This EO was subsequently modified in 2019 to include Spotted Seatrout ("Temporary modification of regulations for spotted seatrout in southwest florida" 2019), and extended through additional EOs ("Temporary modification of regulations for red drum, snook, and spotted seatrout in southwest florida" 2019, 2020) through May 2021. Based on indicators and stakeholder feedback suggesting that fisheries in the Tampa Bay area had improved since the prolonged 2017-2019 red tide bloom, the Redfish fishery was reopened from Pinellas County south to State Road 64 in Manatee County in October 2021 ("Temporary modification of regulations for red drum, snook, and spotted seatrout in the tampa bay area" 2021). The Red Drum fishery remained closed south of State Road 64 (Manatee County) south through Gordon Pass through August 2022 ("Temporary modification of regulations for red drum, snook, and spotted seatrout in a portion of southwest florida" 2021; "Temporary modification of regulations for red drum, snook, and spotted seatrout in southwest florida" 2022).

In September 2022, the FWC adopted a more holistic management approach for Red Drum focused on smaller management regions, in which management decisions are informed by 6 management metrics: escapement, relative abundance, habitat, harmful algal blooms, fishing effort, and stakeholder feedback. The management plan established 9 smaller regions evaluated yearly for potential changes in Red Drum regulations. The IOAs described here are the "relative abundance" metric used by the FWC in their annual reviews for Red Drum management. Currently, the Indian River Lagoon is the only management region in which Red Drum are closed for recreational harvest.

In Florida, adult Red Drum spawn from mid-August through late November (Yokel 1966). Spawning occurs primarily near bay mouths, inlets, or over nearshore continental shelf waters (Mercer 1984; Murphy and Taylor 1990), and in some locations inside estuaries (Murphy and Taylor 1990; Johnson and Funicelli 1991). In Florida estuaries, recruitment of juveniles begins in September and continues through February, with peaks occurring in October and November (Reagan 1985; Peters and McMichael 1987; Daniel 1988). Settlement of young-of-the-year (YOY) Red Drum typically occurs in the middle to upper reaches of estuaries, away from ocean inlets or passes, and can be strongly influenced by the availability of low to moderate salinity habitats (Bacheler et al. 2008). On both coasts, large juvenile Red Drum enter the fishery at approximately 15-18 months of age, and are fully recruited at the beginning of their third year (age-2, Chagaris et al. 2015). The legal recreational slot limit (457-686 mm total length (TL); 18-27 inches TL) includes predominantly age-1 and age-2 fish. Red Drum greater than 700 mm standard length (SL) are uncommon in the Fisheries-Independent Monitoring (FIM) program samples from west Florida estuaries, but are occasionally collected on the east coast in the Indian River Lagoon (IRL), [FWC-FWRI (2015)].

In an effort to monitor year-class strength and to improve the ability to predict future adult Red Drum abundances, relative indices of abundance (IOAs) were developed to estimate YOY Red Drum recruitment into selected Florida estuaries. Abundance data for YOY Red Drum (≤ 40 mm SL) that were collected in stratified-random 21.3-m seine samples were examined to assess recruitment in eight Florida estuaries: Apalachicola Bay, Cedar Key, Tampa Bay, Sarasota Bay, Charlotte Harbor, Northeast Florida, and the northern and southern portions of the Indian River Lagoon (IRL). Young-of-the-year Red Drum recruited to habitats sampled with 21.3-m seines primarily from September through February. Data collected from September through December of each year were combined with data from January through February of the following year to create a biological year of data. The IOAs for 2024, therefore, only included data from September through December 2024. Separate analyses for river and bay sets were conducted when possible to examine differences in recruitment between the two habitats. Annual IOAs were also developed for legal-size Red Drum that fall within the permitted recreational harvest size range (457-686 mm TL, 374-565 mm SL, (Murphy and Taylor 1990)) in each estuary, including the southern portion of the IRL. These IOAs included all legal-size Red Drum collected in stratified-random 183-m haul seines during each calendar year (January-December). Due to historical changes in sampling design and available habitat, only consistently sampled zones and habitats (bay or river) in each estuary were included to generate annual IOAs.

Indices of Abundance

The following figures show relative abundance of young-of-the-year Red Drum (≤ 40 mm SL) collected in 21.3-m seines and of legal-sized Red Drum (374-565 mm SL) collected in 183-m haul seines during stratified-random sampling across all estuaries. Points represent an unbiased estimate of the mean abundance (calculated as the median value of the distribution of model estimates), while the vertical bars represent the standard error of the estimate (calculated as the 25th-75th percentiles of model estimates). Note different scales for estimates from 21.3-m and 183-m seines.

Apalachicola Bay

Annual IOAs of YOY (≤ 40 mm SL) Red Drum in bay habitats of Apalachicola Bay did not show a significant trend since 1998 (Figure 5.8). Relative abundance of YOY Red Drum in bay habitats in 2024 did not differ significantly from the previous year.

Annual IOAs of legal-sized (374-565 mm SL) Red Drum in Apalachicola Bay have generally increased since 1998 (Figure 5.8). Relative abundance of legal-sized Red Drum in 2024 did not differ significantly from the previous year.

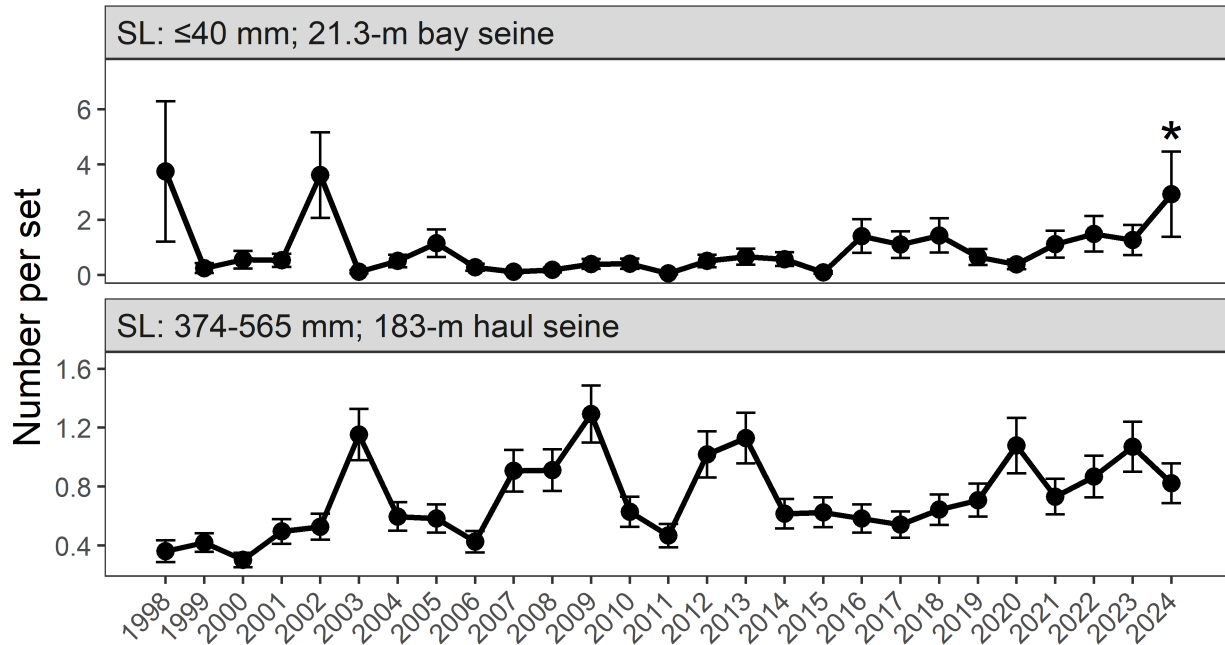


Figure 5.8: Relative abundance (± 1 SE) of young-of-the-year (≤ 40 mm SL) and legal (374-565 mm SL) Red Drum collected between 1998 and 2024 during Apalachicola Bay stratified-random sampling. *21.3-m seine IOAs for 2024 do not include a complete biological year because data from January-February of 2025 were unavailable at the time the report was prepared.

Cedar Key

Annual IOAs of YOY (≤ 40 mm SL) Red Drum in river habitats of Cedar Key did not show a significant trend since 1996 (Figure 5.9). Relative abundance of YOY Red Drum in river habitats in 2024 did not differ significantly from the previous year.

Annual IOAs of YOY (≤ 40 mm SL) Red Drum in bay habitats of Cedar Key have generally increased since 1996 (Figure 5.9). Relative abundance of YOY Red Drum in bay habitats in 2024 did not differ significantly from the previous year.

Annual IOAs of legal-sized (374-565 mm SL) Red Drum in Cedar Key have generally decreased since 1997 (Figure 5.9). Relative abundance of subadult Red Drum in 2024 did not differ significantly from the previous year.

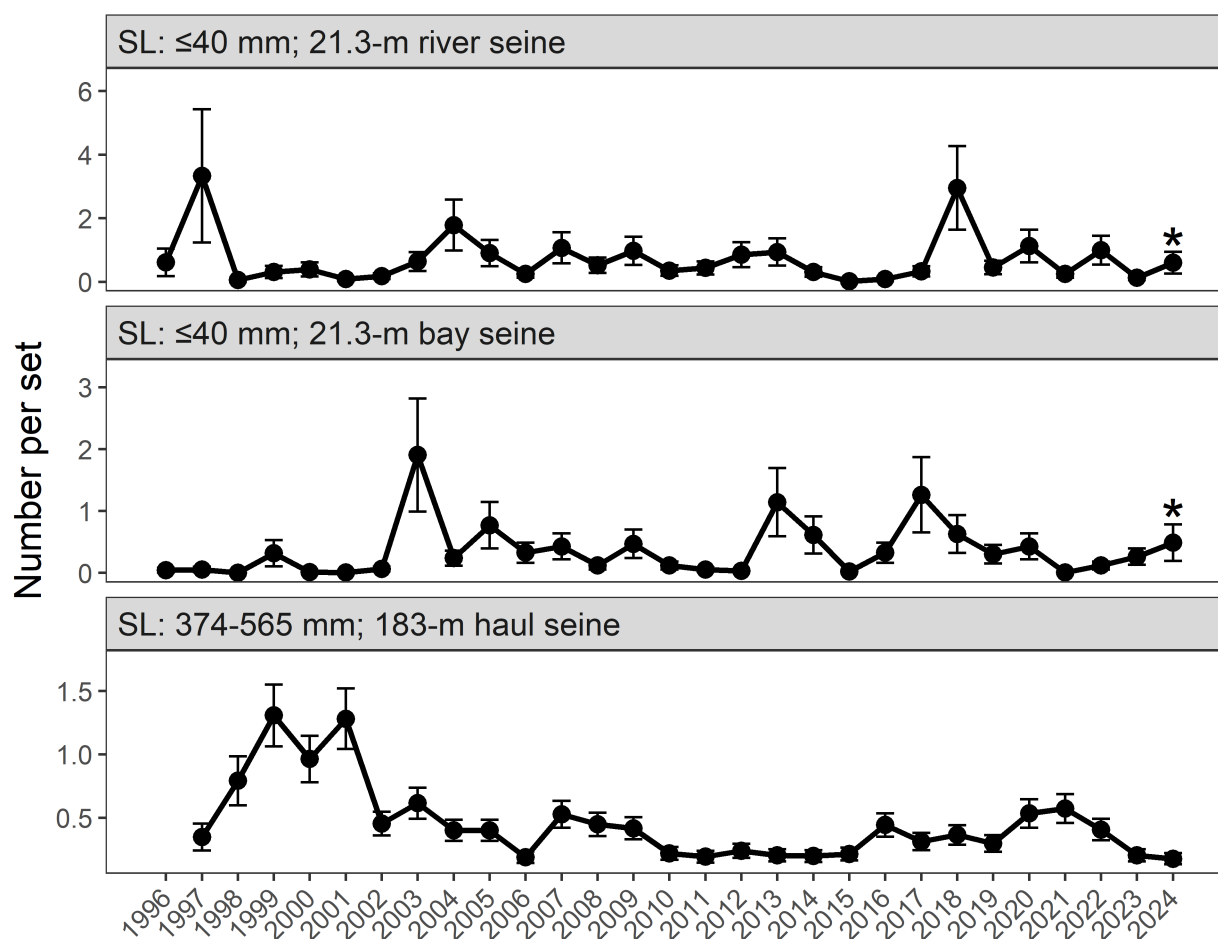


Figure 5.9: Relative abundance (± 1 SE) of young-of-the-year (≤ 40 mm SL) and legal (374-565 mm SL) Red Drum collected between 1996 and 2024 during Cedar Key stratified-random sampling. *21.3-m seine IOAs for 2024 do not include a complete biological year because data from January-February of 2025 were unavailable at the time the report was prepared.

Tampa Bay

Annual IOAs of YOY (≤ 40 mm SL) Red Drum in river habitats of Tampa Bay have generally decreased since 1996 (Figure 5.10). Relative abundance of YOY Red Drum in river habitats in 2024 increased from the previous year.

Annual IOAs of YOY (≤ 40 mm SL) Red Drum in bay habitats of Tampa Bay did not show a significant trend since 1996 (Figure 5.10). Relative abundance of YOY Red Drum in bay habitats in 2024 increased from the previous year.

Annual IOAs of legal-sized (374-565 mm SL) Red Drum in Tampa Bay did not show a significant trend since 1996 (Figure 5.10). Relative Abundance of subadult Red Drum in 2024 increased from the previous year.

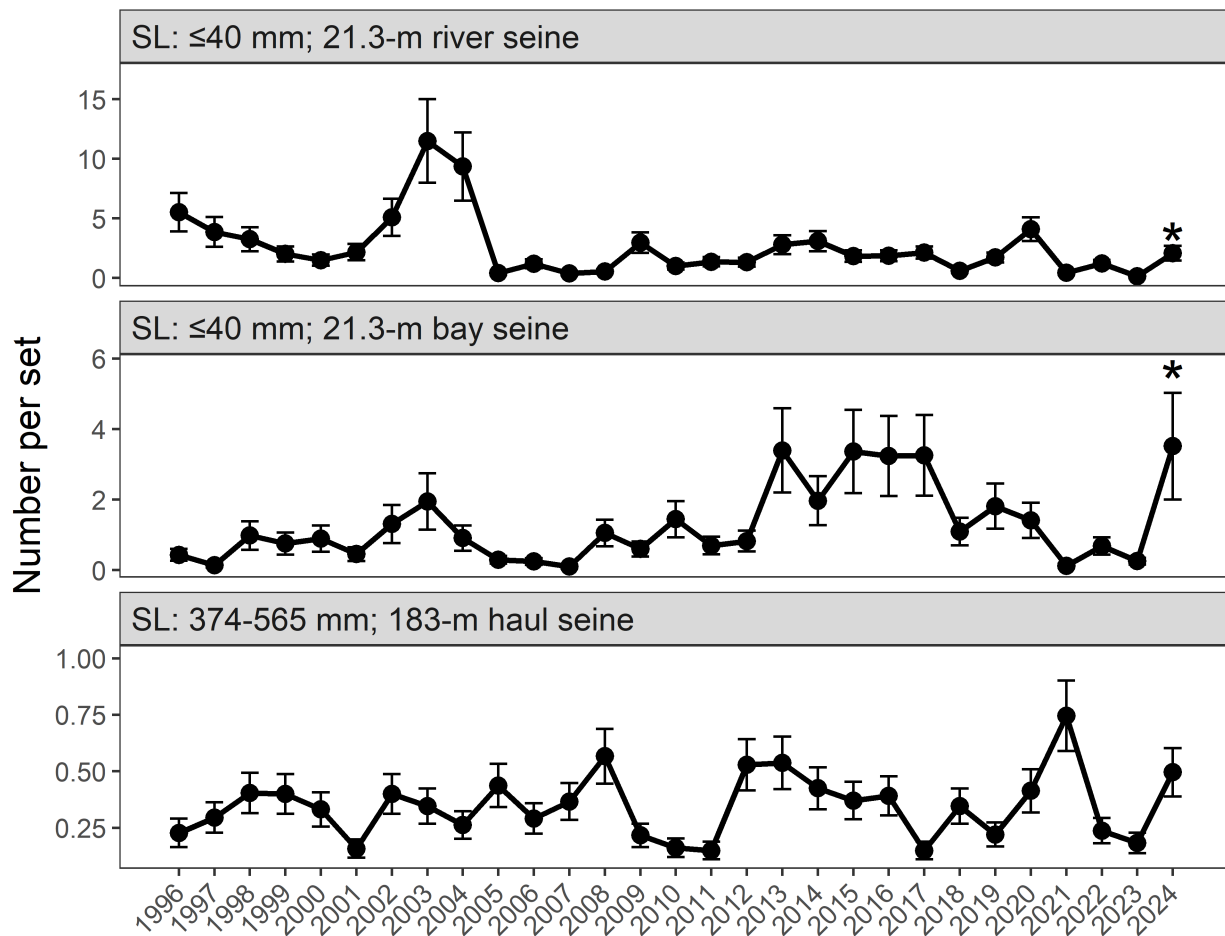


Figure 5.10: Relative abundance (± 1 SE) of young-of-the-year (≤ 40 mm SL) and legal (374-565 mm SL) Red Drum collected between 1996 and 2024 during Tampa Bay stratified-random sampling. *21.3-m seine IOAs for 2024 do not include a complete biological year because data from January-February of 2025 were unavailable at the time the report was prepared.

Sarasota Bay

Annual IOAs of YOY (≤ 40 mm SL) Red Drum in bay habitats of Sarasota Bay did not show a significant trend since 2009 (Figure 5.11). Relative abundance of YOY Red Drum in bay habitats in 2024 did not differ significantly from the previous year.

Annual IOAs of legal-sized (374-565 mm SL) Red Drum in Sarasota Bay did not show a significant trend since 2010 (Figure 5.11). Relative abundance of subadult Red Drum in 2024 did not differ significantly from the previous year.

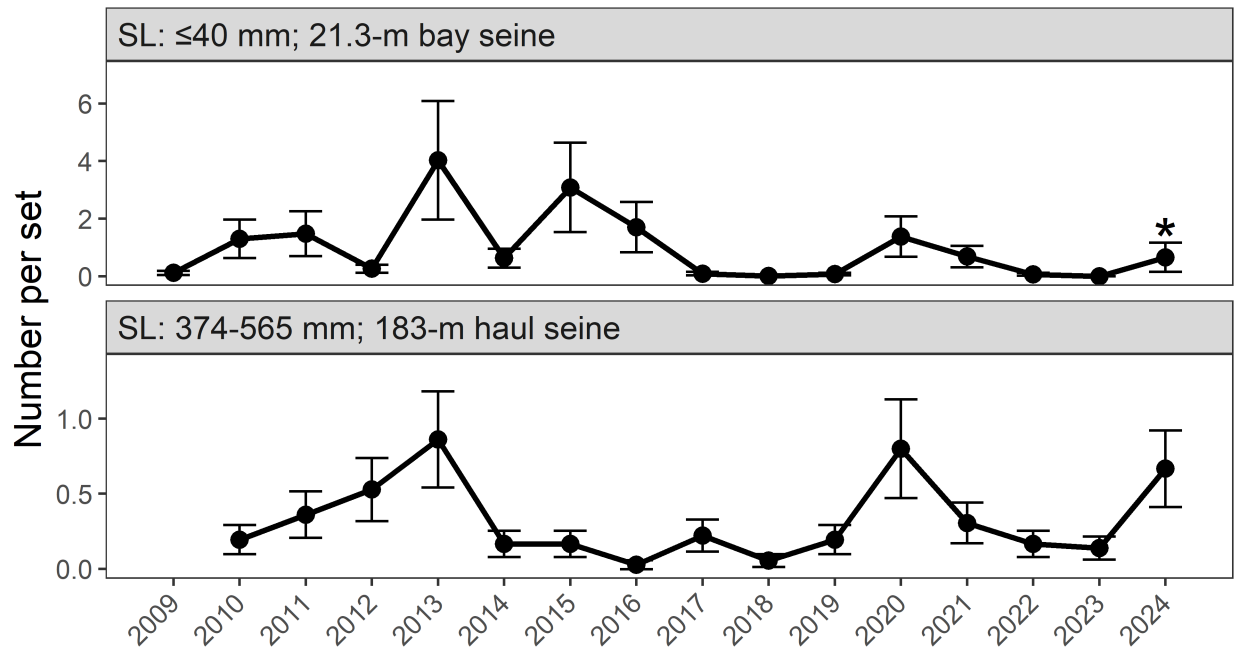


Figure 5.11: Relative abundance (± 1 SE) of young-of-the-year (≤ 40 mm SL) and legal (374-565 mm SL) Red Drum collected between 2009 and 2024 during Sarasota Bay bi-monthly stratified-random sampling. *21.3-m seine IOAs for 2024 do not include a complete biological year because data from January-February of 2025 were unavailable at the time the report was prepared.

Charlotte Harbor

Annual IOAs of YOY (≤ 40 mm SL) Red Drum in river habitats of Charlotte Harbor did not show a significant trend since 1996 (Figure 5.12). Relative abundance of YOY Red Drum in river habitats in 2024 did not differ significantly from the previous year.

Annual IOAs of YOY (≤ 40 mm SL) Red Drum in bay habitats of Charlotte Harbor did not show a significant trend since 1996 (Figure 5.12). Relative abundance of YOY Red Drum in bay habitats in 2024 did not differ significantly from the previous year.

Annual IOAs of legal-sized (374-565 mm SL) Red Drum in Charlotte Harbor have generally increased since 1996 (Figure 5.12). Relative abundance of subadult Red Drum in 2024 did not differ significantly from the previous year.

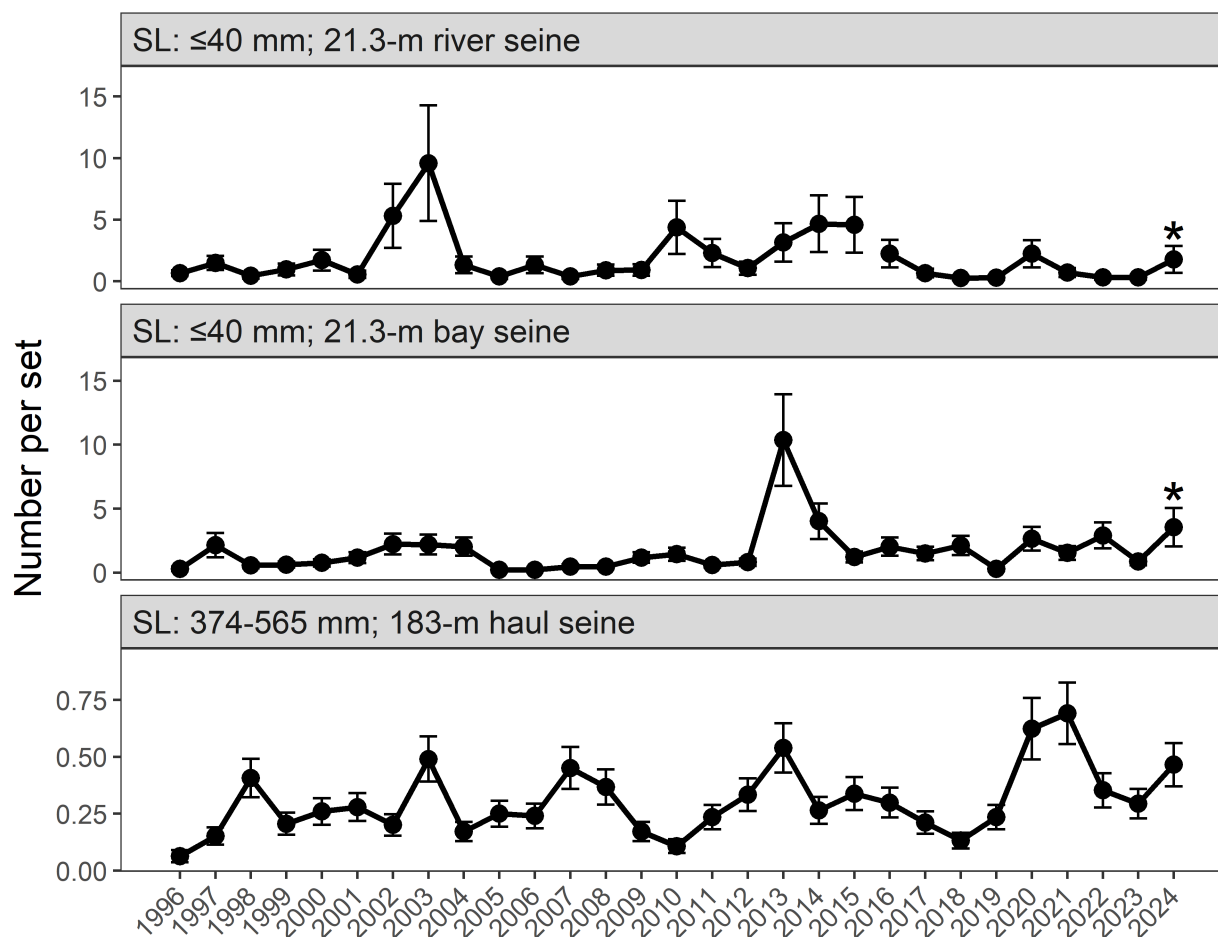


Figure 5.12: Relative abundance (± 1 SE) of young-of-the-year (≤ 40 mm SL) and legal (374-565 mm SL) Red Drum collected between 1996 and 2024 during Charlotte Harbor stratified-random sampling. Note that survey design changes were implemented in 2016 to include sampling of tidal creeks and tributaries. These changes are reflected in the break in the IOA time series between 2015 and 2016. *21.3-m seine IOAs for 2024 do not include a complete biological year because data from January-February of 2025 were unavailable at the time the report was prepared.

Northeast Florida

Annual IOAs of YOY (≤ 40 mm SL) Red Drum in river habitats of Northeast Florida did not show a significant trend since 2001 (Figure 5.13). Relative abundance of YOY Red Drum in river habitats in 2024 did not differ significantly from the previous year.

Annual IOAs of legal-sized (374-565 mm SL) Red Drum in Northeast Florida have generally decreased since 2001 (Figure 5.13). Relative abundance of subadult Red Drum in 2024 did not differ significantly from the previous year.

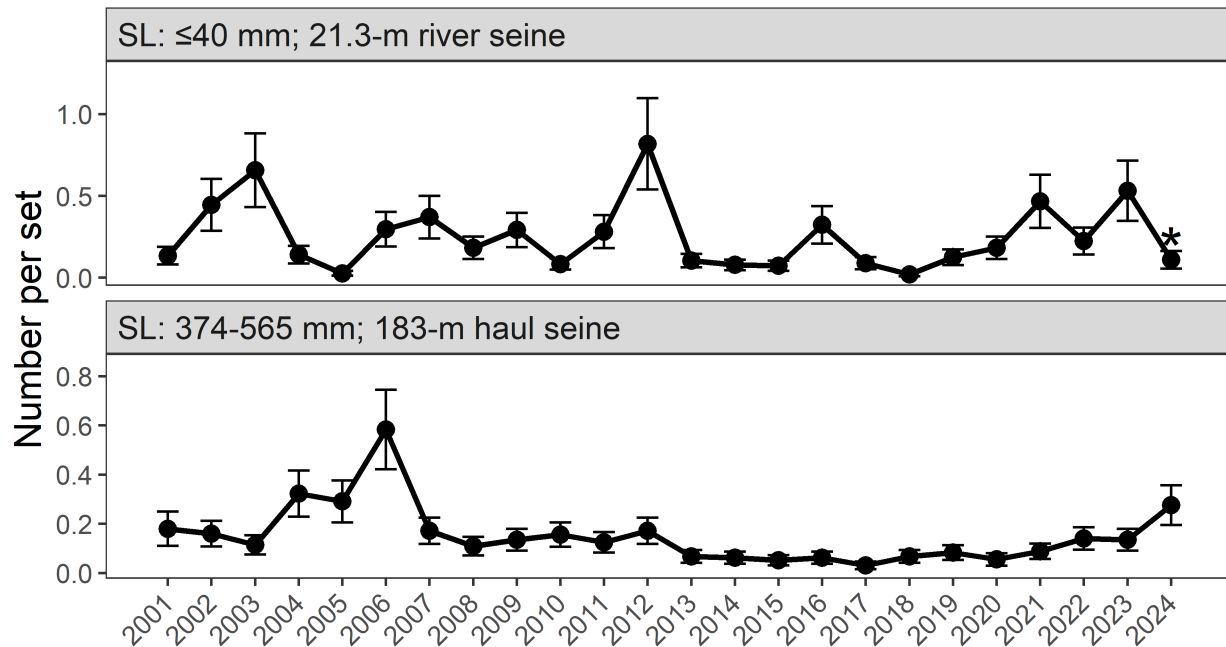


Figure 5.13: Relative abundance (± 1 SE) of young-of-the-year (≤ 40 mm SL) and legal (374-565 mm SL) Red Drum collected between 2001 and 2024 during Northeast Florida stratified-random sampling. *21.3-m seine IOAs for 2024 do not include a complete biological year because data from January-February of 2025 were unavailable at the time the report was prepared.

Northern Indian River Lagoon

Annual IOAs of YOY (≤ 40 mm SL) Red Drum in river habitats of Northern Indian River Lagoon did not show a significant trend since 1999 (Figure 5.14). Relative abundance of YOY Red Drum in river habitats in 2024 did not differ significantly from the previous year.

Annual IOAs of YOY (≤ 40 mm SL) Red Drum in bay habitats of Northern Indian River Lagoon have generally increased since 1996 (Figure 5.14). Relative abundance of YOY Red Drum in bay habitats in 2024 decreased from the previous year.

Annual IOAs of legal-sized (374-565 mm SL) Red Drum in Northern Indian River Lagoon have generally decreased since 1997 (Figure 5.14). Relative abundance of subadult Red Drum in 2024 increased from the previous year.

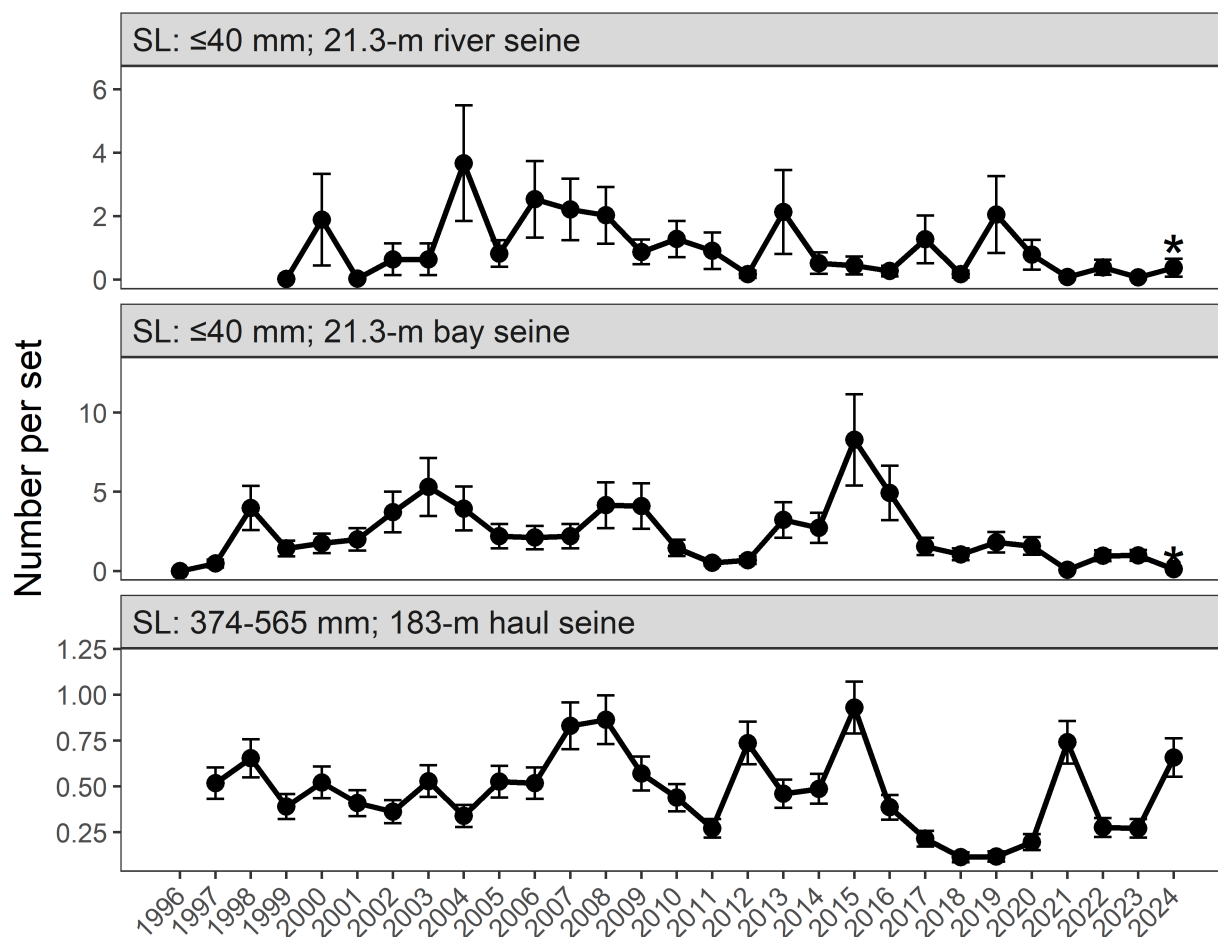


Figure 5.14: Relative abundance (± 1 SE) of young-of-the-year (≤ 40 mm SL) and legal (374-565 mm SL) Red Drum collected between 1996 and 2024 during Northern Indian River Lagoon stratified-random sampling. *21.3-m seine IOAs for 2024 do not include a complete biological year because data from January-February of 2025 were unavailable at the time the report was prepared.

Southern Indian River Lagoon

Annual IOAs of YOY (≤ 40 mm SL) Red Drum in river habitats of Southern Indian River Lagoon did not show a significant trend since 2016 (Figure 5.15). Relative abundance of YOY Red Drum in river habitats in 2024 did not differ significantly from the previous year.

Annual IOAs of legal-sized (374-565 mm SL) Red Drum in Southern Indian River Lagoon did not show a significant trend since 1997 (Figure 5.15). Relative abundance of subadult Red Drum in 2024 did not differ significantly from the previous year.

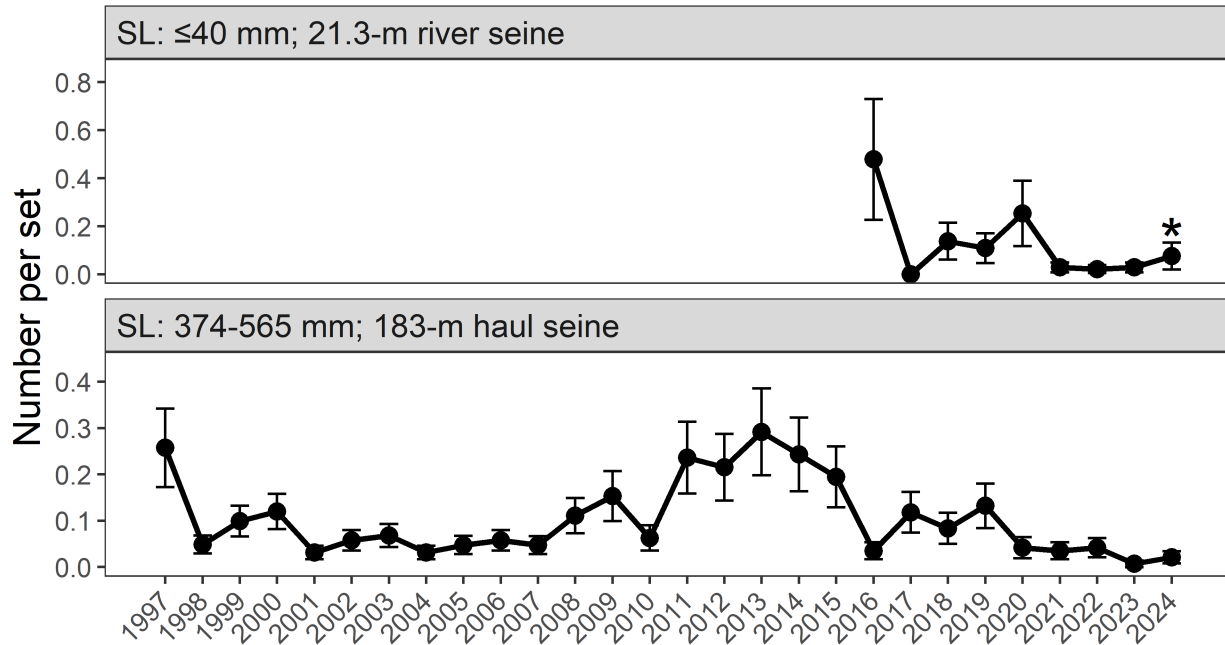


Figure 5.15: Relative abundance (± 1 SE) of young-of-the-year (≤ 40 mm SL) and legal (374-565 mm SL) Red Drum collected between 1997 and 2024 during Southern Indian River Lagoon stratified-random sampling. Note that river sampling began in 2016 to include previously underrepresented habitats (i.e., tidal creeks and tributaries). *21.3-m seine IOAs for 2024 do not include a complete biological year because data from January-February of 2025 were unavailable at the time the report was prepared.

Length-Frequency Diagrams

The following figure shows length-frequency diagrams of Red Drum collected in 183-m haul seines. All lengths are standard length (SL). Note different scales and years of collection for each estuary. Length-frequency data collected with 183-m haul seines indicate that this gear provides valuable information on larger juvenile and adult Red Drum in Florida estuaries (Figure 5.16). Red Drum length-frequency distributions generally followed a polymodal distribution across estuaries. In addition, the length-frequency in all estuaries declined sharply after the upper slot limit. Large Red Drum (age-4 and older) at these sizes are becoming sexually mature, and will leave the estuaries to move to coastal areas to join schools of other reproductively mature individuals, with the exception of a portion of the population in the northern IRL that resides and spawns within the estuary (Johnson and Funicelli 1991; Reyier et al. 2011).

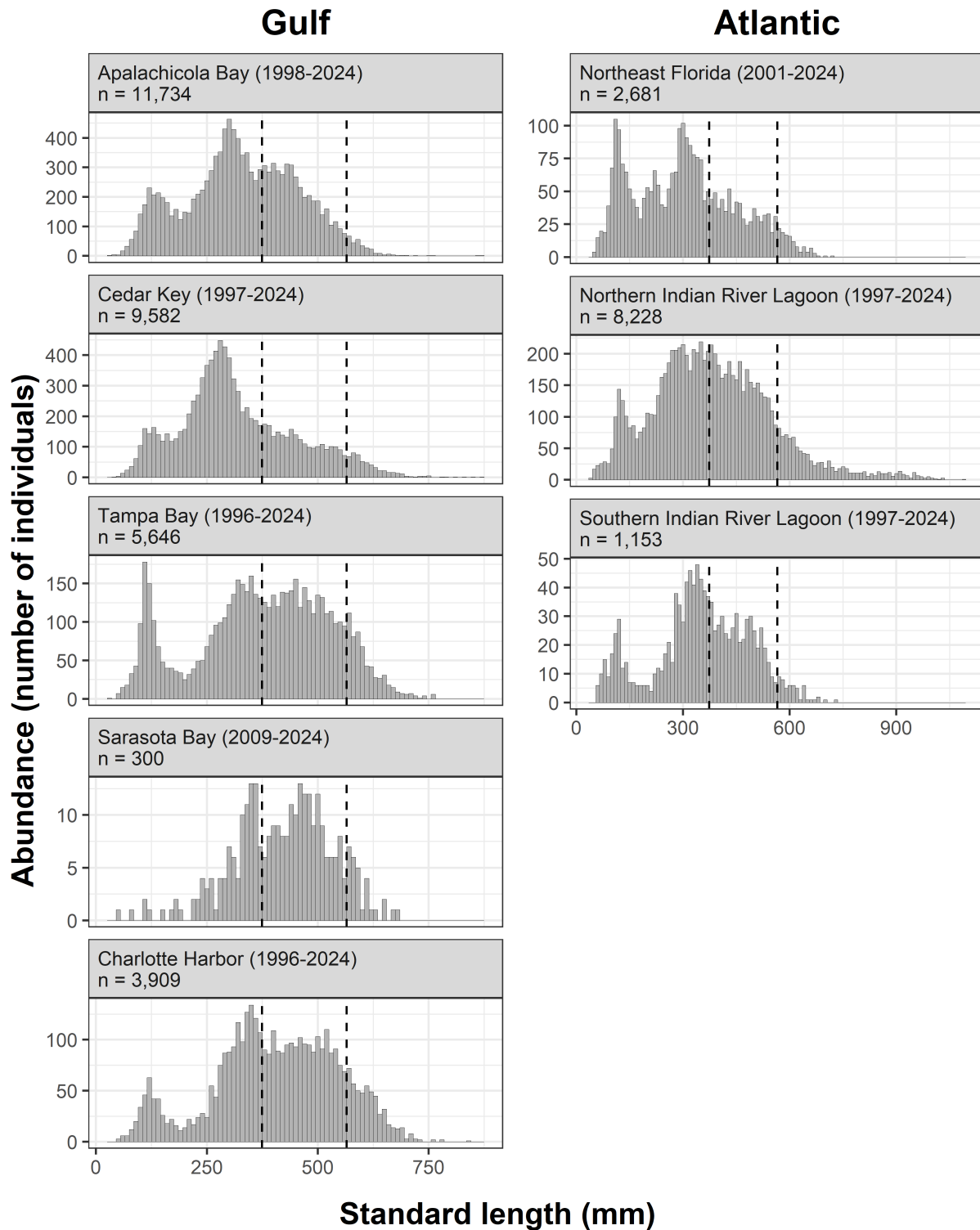


Figure 5.16: Length-frequency diagrams of Red Drum collected in 183-m haul seines. Vertical dashed lines indicate the lower and upper recreational size limits for Red Drum in each estuary.

5.4 Spotted Seatrout, *Cynoscion nebulosus*

Spotted Seatrout, *Cynoscion nebulosus*, occur in temperate to tropical estuarine and coastal waters on the Atlantic and Gulf coasts of the United States (Bortone 2002). In Florida, Spotted Seatrout have historically supported economically important recreational and commercial fisheries. Overall, annual commercial landings of Spotted Seatrout in Florida declined quite slowly during the period 1950 through the 1970s (Murphy et al. 2011). During the early 1990s, statewide commercial landings never exceeded much more than 500,000 fish and dropped drastically to fewer than 50,000 fish after implementation of the constitutional amendment significantly limiting the use of entangling gear in 1995 and the establishment of a 3-month open season in 1996. Declines in the number of commercial trips from the mid-1980s to more recent years were over 90% on the Atlantic coast and nearly 99% on the Gulf coast (Murphy et al. 2011). With these regulatory changes, the Spotted Seatrout fishery has moved from a mixed-sector fishery, to primarily a recreational fishery that makes up more than 99% of the total landings in Florida (13,133,000 fish during 2011-2015, Addis et al. 2018). Between 1990 and 2022 various commercial and recreational fishing regulations have been adopted in an effort to support the rebuilding of Spotted Seatrout stocks (Murphy and Nelson 1999; Addis et al. 2023). In Florida, studies have indicated the presence of Spotted Seatrout stock subdivisions with most of the major estuaries having a separate stock (Iversen and Tabb 1962; Seyoum et al. 2014). Since 2012 the FWC has managed Spotted Seatrout in four different regions, increasing to five regions in 2020, with different regulations in each region (Addis et al. 2023). Over the years, various management regulations have been exercised based upon updated stock assessments and regional responses to environmental perturbations (i.e., red tides), which at various times have resulted in seasonal and emergency closures for each of the management zones. There have also been adjustments to the legal harvest size of Spotted Seatrout, with the most recent change adopted February 1, 2020 which set a recreational slot limit of 325-410 mm SL (15-19 in TL).

Adult Spotted Seatrout begin to spawn in March or April in Tampa Bay and Charlotte Harbor (McMichael and Peters 1989) and in April or May in the northern portion of the Indian River Lagoon (IRL), Cedar Key, Apalachicola (Moody 1949; Tabb 1961; Crabtree and Adams 1998; DeVries et al. 2002), and Northeast Florida (MacDonald et al. 2009). Spotted Seatrout are generally reproductively mature at age 2 (males ≥ 200 mm standard length [SL], females ≥ 235 mm SL, Murphy et al. 2011). Protracted spawning of Spotted Seatrout continues throughout the summer and into late September or October, depending upon location (Murphy and Nelson 1999). Spawning generally occurs during the evening hours in deep channels and depressions near grass flats in estuarine areas with water temperatures $>21^{\circ}\text{C}$ (Tabb 1961; Helser et al. 1993). Estuarine water temperatures below 20°C may reduce hatching success for Spotted Seatrout (Gray et al. 1991).

In an effort to monitor year-class strength and to improve the ability to predict future adult Spotted Seatrout abundances, relative indices of abundance (IOAs) were developed for young-of-the-year (YOY) Spotted Seatrout recruitment into selected Florida estuaries. Abundance data for YOY Spotted Seatrout (≤ 100 mm SL) collected from stratified-random 21.3-m seine samples were examined to assess recruitment in eight Florida estuaries: Apalachicola Bay, Cedar Key, Tampa Bay, Sarasota Bay, Charlotte Harbor, Northeast Florida, and the northern and southern portions of the IRL. Young-of-the-year Spotted Seatrout recruited to habitats sampled with 21.3-m seines primarily from April through October in Tampa Bay, Sarasota Bay, and Charlotte Harbor, and from May through November in Cedar Key, Northeast Florida, and the northern and southern portions of the IRL. In Apalachicola Bay, recruitment of YOY Spotted Seatrout was evident from June through October.

These recruitment periods coincide with published recruitment and spawning periods of Spotted Seatrout throughout Florida (Moody 1949; Nelson and Leffler 2001; DeVries et al. 2002; Walters et al. 2007). Therefore, these bay-specific months were used to define the respective recruitment seasons for each estuary in subsequent analyses. Indices were not calculated for estuaries where 21.3-m seines were not deployed or where limited data were available. Data from stratified-random 183-m haul seines collected within these same Florida estuarine systems (including the southern IRL) were used to develop IOAs for adult Spotted Seatrout (≥ 200 mm SL). Indices for adult fish were derived by including all Spotted Seatrout ≥ 200 mm SL collected between January and December from 1996 to 2024. Due to historical changes in sampling design and available habitat, only consistently sampled zones and habitats (bay or river) in each estuary were included to generate annual IOAs.

Indices of Abundance

The following figures show relative abundance of young-of-the-year Spotted Seatrout (≤ 100 mm SL) collected in 21.3-m seines and of adult Spotted Seatrout (> 200 mm SL) collected in 183-m haul seines during stratified-random sampling across all estuaries. Points represent an unbiased estimate of the mean abundance (calculated as the median value of the distribution of model estimates), while the vertical bars represent the standard error of the estimate (calculated as the 25th-75th percentiles of model estimates). Note different scales for estimates from 21.3-m and 183-m seines.

Apalachicola Bay

Annual IOAs of YOY (≤ 100 mm SL) Spotted Seatrout in bay habitats of Apalachicola Bay did not show a significant trend since 1998 (Figure 5.17). Relative abundance of YOY Spotted Seatrout in bay habitats in 2024 did not differ significantly from the previous year.

Annual IOAs of adult (> 200 mm SL) Spotted Seatrout in Apalachicola Bay did not show a significant trend since 1998 (Figure 5.17). Relative abundance of adult Spotted Seatrout in 2024 did not differ significantly from the previous year.

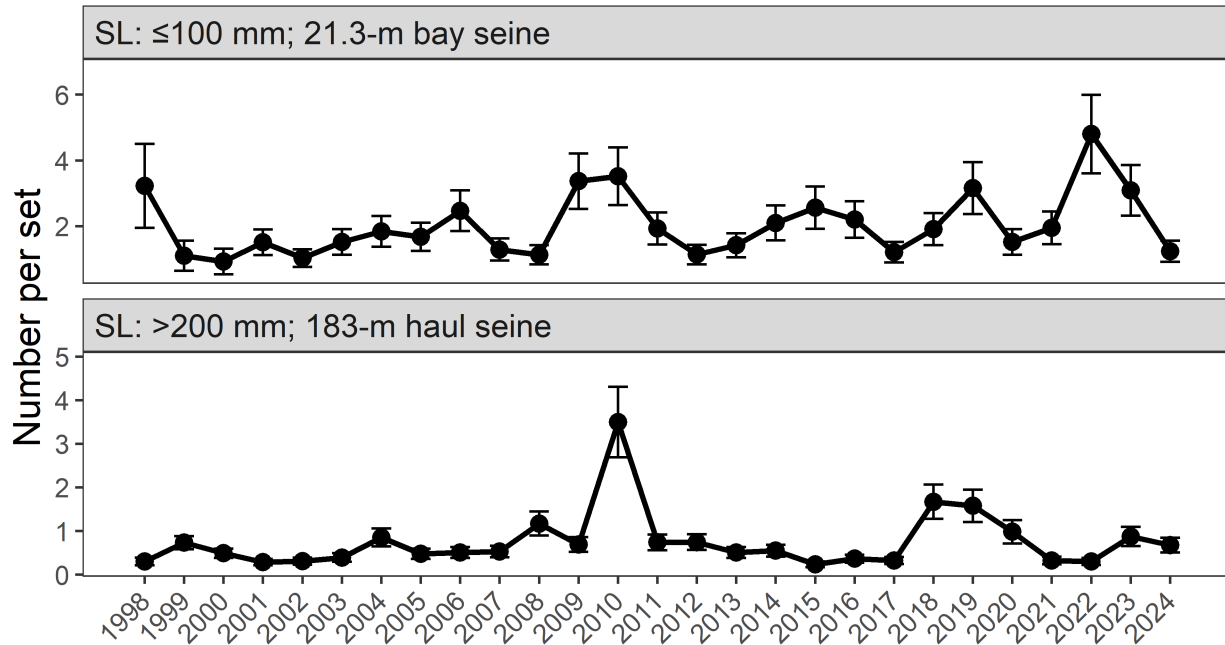


Figure 5.17: Relative abundance (± 1 SE) of young-of-the-year (≤ 100 mm SL) and adult Spotted Seatrout collected between 1998 and 2024 during Apalachicola Bay stratified-random sampling.

Cedar Key

Annual IOAs of YOY (≤ 100 mm SL) Spotted Seatrout in river habitats of Cedar Key have generally decreased since 1996 (Figure 5.18). Relative abundance of YOY Spotted Seatrout in river habitats in 2024 did not differ significantly from the previous year.

Annual IOAs of YOY (≤ 100 mm SL) Spotted Seatrout in bay habitats of Cedar Key did not show a significant trend since 1996 (Figure 5.18). Relative abundance of YOY Spotted Seatrout in bay habitats in 2024 did not differ significantly from the previous year.

Annual IOAs of adult (>200 mm SL) Spotted Seatrout in Cedar Key did not show a significant trend since 1997 (Figure 5.18). Relative abundance of adult Spotted Seatrout in 2024 did not differ significantly from the previous year.

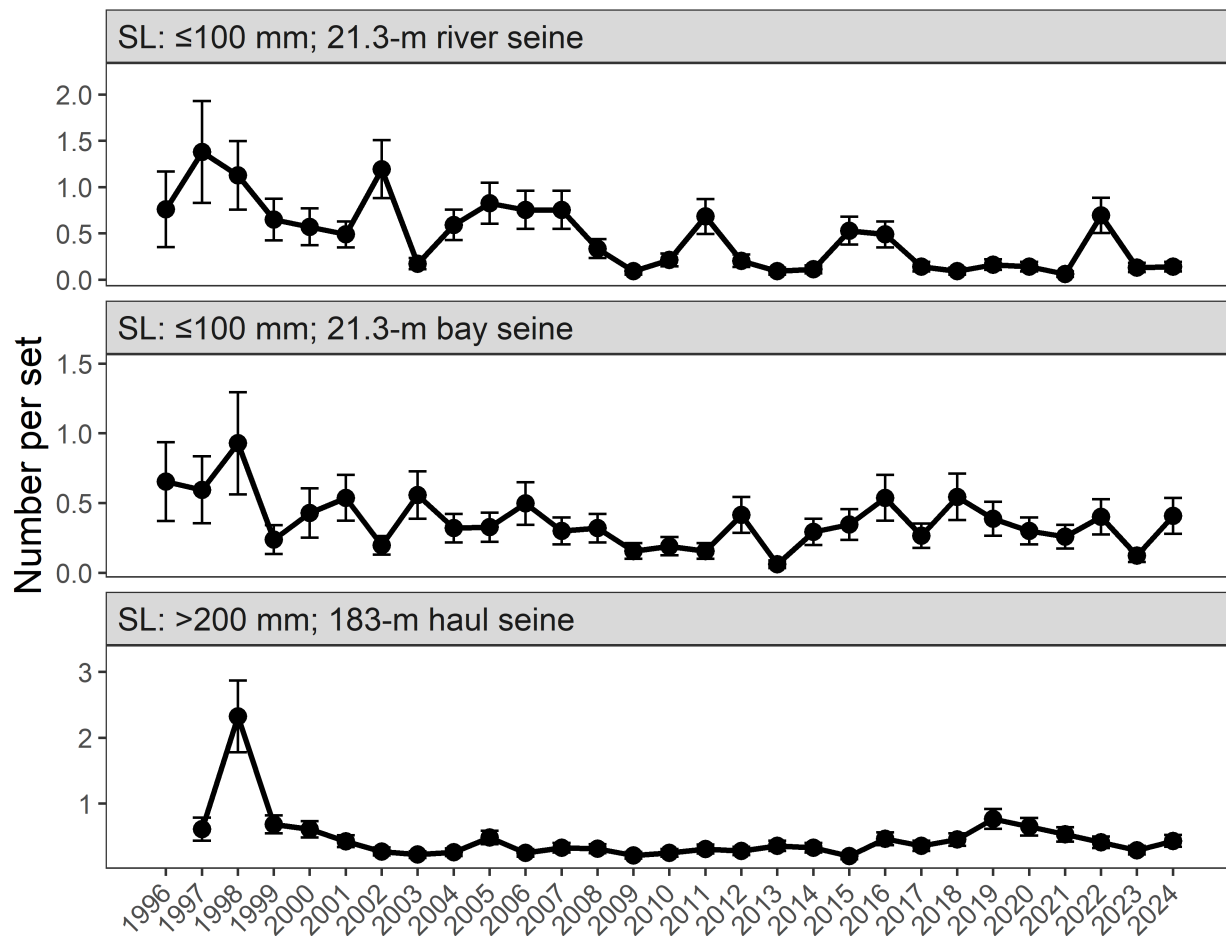


Figure 5.18: Relative abundance (± 1 SE) of young-of-the-year (≤ 100 mm SL) and adult (>200 mm SL) Spotted Seatrout collected between 1996 and 2024 during Cedar Key stratified-random sampling.

Tampa Bay

Annual IOAs of YOY (≤ 100 mm SL) Spotted Seatrout in river habitats of Tampa Bay have generally decreased since 1996 (Figure 5.19). Relative abundance of YOY Spotted Seatrout in river habitats in 2024 did not differ significantly from the previous year.

Annual IOAs of YOY (≤ 100 mm SL) Spotted Seatrout in bay habitats of Tampa Bay have generally decreased since 1996 (Figure 5.19). Relative abundance of YOY Spotted Seatrout in bay habitats in 2024 did not differ significantly from the previous year.

Annual IOAs of adult (>200 mm SL) Spotted Seatrout in Tampa Bay did not show a significant trend since 1996 (Figure 5.19). Relative abundance of adult Spotted Seatrout in 2024 did not differ significantly from the previous year.

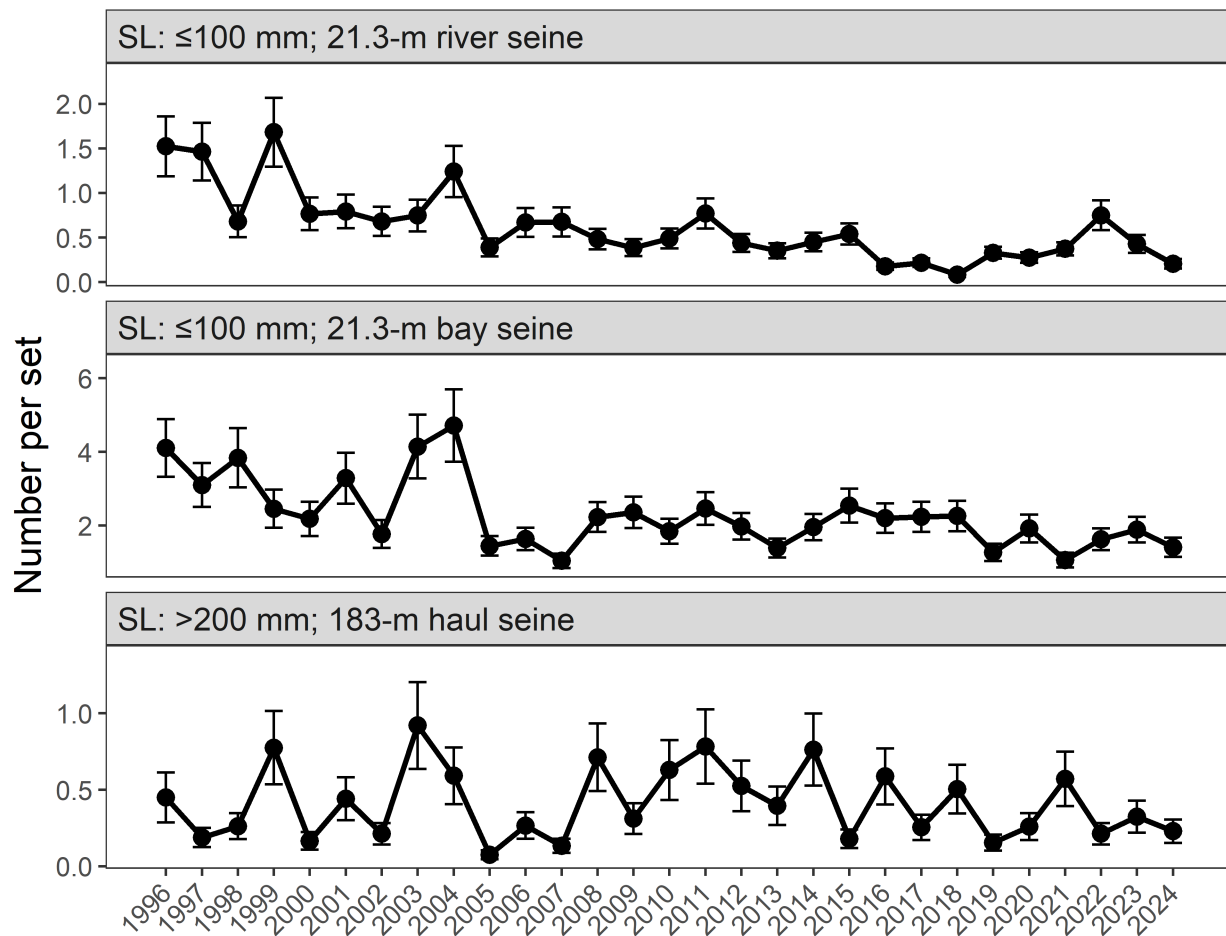


Figure 5.19: Relative abundance (± 1 SE) of young-of-the-year (≤ 100 mm SL) and adult (>200 mm SL) Spotted Seatrout collected between 1996 and 2024 during Tampa Bay stratified-random sampling.

Sarasota Bay

Annual IOAs of YOY (≤ 100 mm SL) Spotted Seatrout in bay habitats of Sarasota Bay did not show a significant trend since 2009 (Figure 5.20). Relative abundance of YOY Spotted Seatrout in bay habitats in 2024 increased from the previous year.

Annual IOAs of adult (>200 mm SL) Spotted Seatrout in Sarasota Bay did not show a significant trend since 2010 (Figure 5.20). Relative abundance of adult Spotted Seatrout in 2024 did not differ significantly from the previous year.

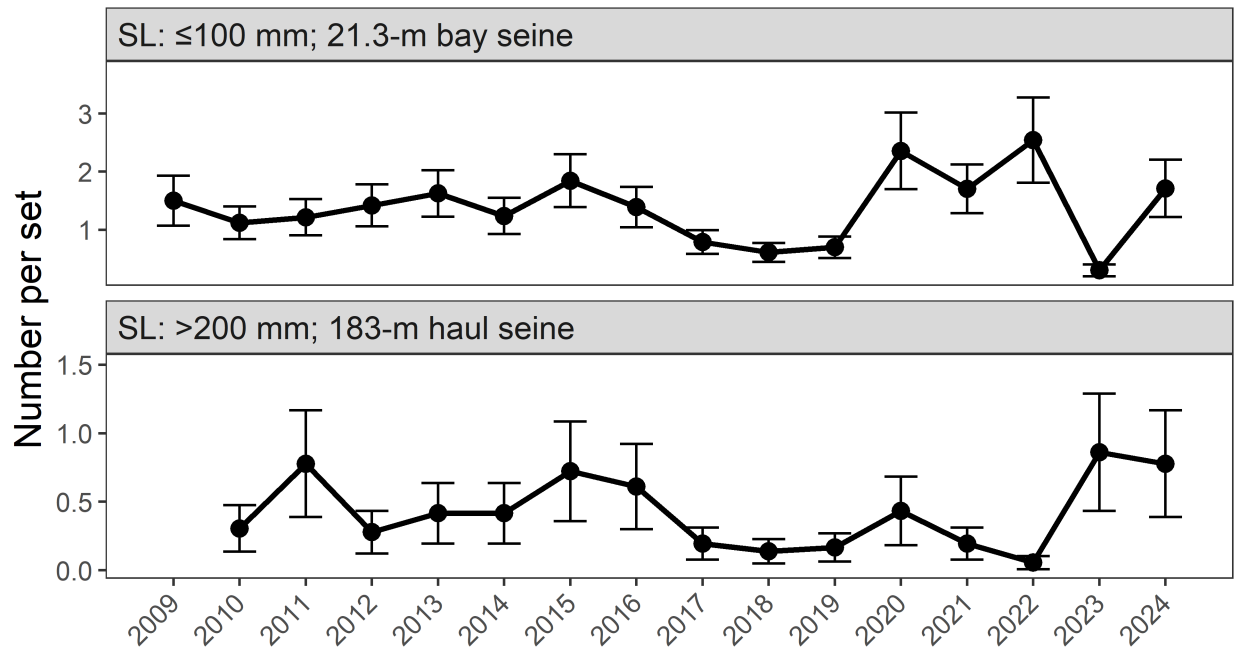


Figure 5.20: Relative abundance (± 1 SE) of young-of-the-year (≤ 100 mm SL) and adult (>200 mm SL) Spotted Seatrout collected between 2009 and 2024 during Sarasota Bay bimonthly stratified-random sampling.

Charlotte Harbor

Annual IOAs of YOY (≤ 100 mm SL) Spotted Seatrout in river habitats of Charlotte Harbor have generally decreased since 1996 (Figure 5.21). Relative abundance of YOY Spotted Seatrout in river habitats in 2024 did not differ significantly from the previous year.

Annual IOAs of YOY (≤ 100 mm SL) Spotted Seatrout in bay habitats of Charlotte Harbor have generally decreased since 1996 (Figure 5.21). Relative abundance of YOY Spotted Seatrout in bay habitats in 2024 did not differ significantly from the previous year.

Annual IOAs of adult (>200 mm SL) Spotted Seatrout in Charlotte Harbor did not show a significant trend since 1996 (Figure 5.21). Relative abundance of adult Spotted Seatrout in 2024 did not differ significantly from the previous year.

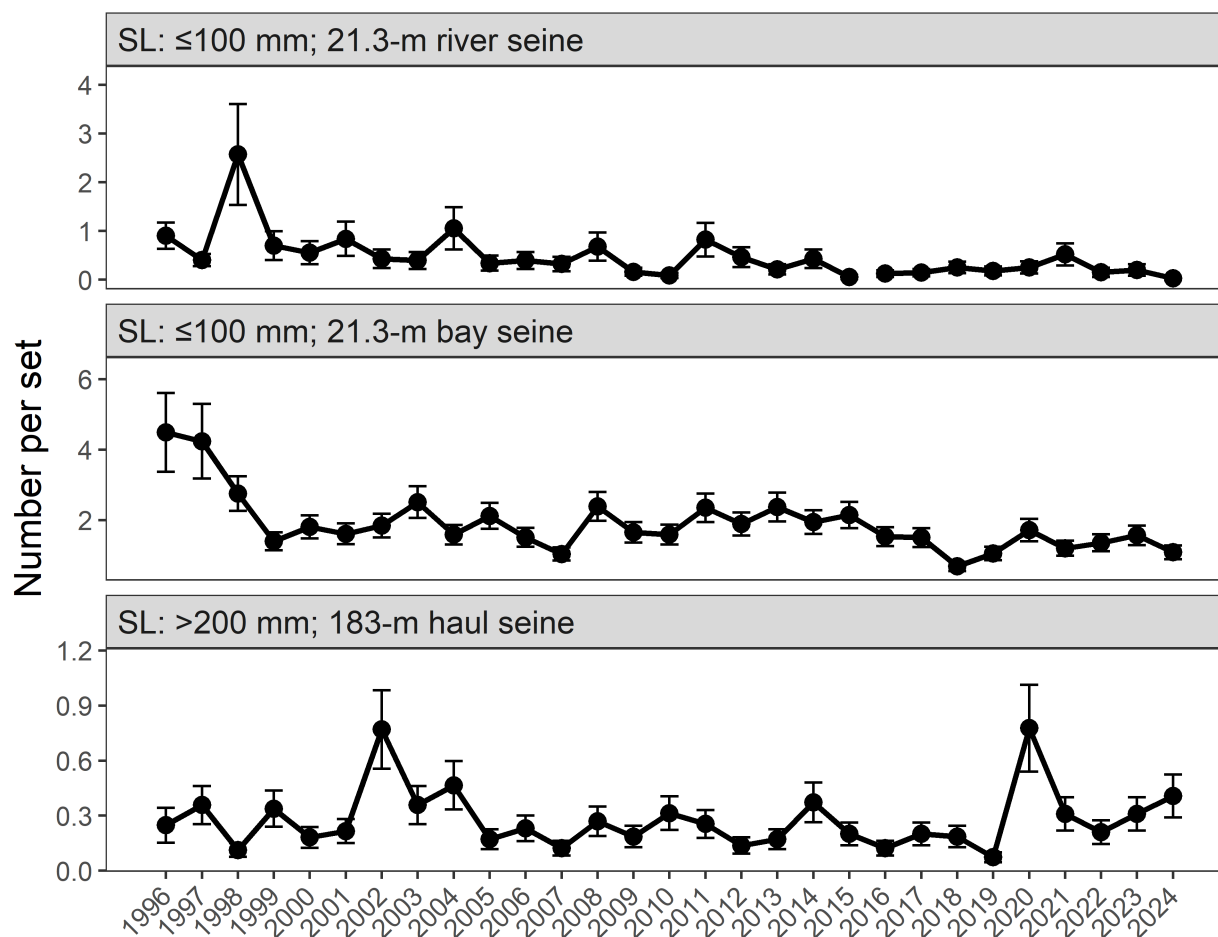


Figure 5.21: Relative abundance (± 1 SE) of young-of-the-year (≤ 100 mm SL) and adult (>200 mm SL) Spotted Seatrout collected between 1996 and 2024 during Charlotte Harbor stratified-random sampling. Note that survey design changes were implemented in 2016 to include sampling of tidal creeks and tributaries. These changes are reflected in the break in the IOA time series between 2015 and 2016.

Northeast Florida

Annual IOAs of YOY (≤ 100 mm SL) Spotted Seatrout in river habitats of Northeast Florida have generally decreased since 2001 (Figure 5.22). Relative abundance of YOY Spotted Seatrout in river habitats in 2024 did not differ significantly from the previous year.

Annual IOAs of adult (>200 mm SL) Spotted Seatrout in Northeast Florida have generally decreased since 2001 (Figure 5.22). Relative abundance of adult Spotted Seatrout in 2024 did not differ significantly from the previous year.

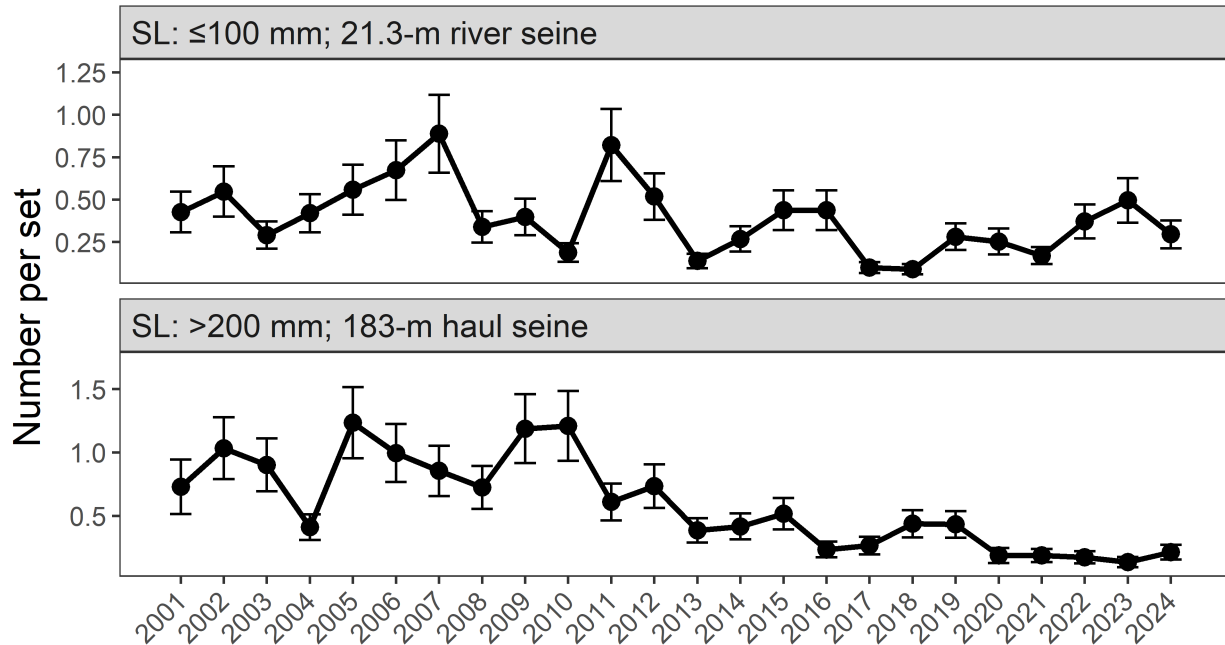


Figure 5.22: Relative abundance (± 1 SE) of young-of-the-year (≤ 100 mm SL) and adult (>200 mm SL) Spotted Seatrout collected between 2001 and 2024 during Northeast Florida stratified-random sampling.

Northern Indian River Lagoon

Annual IOAs of YOY (≤ 100 mm SL) Spotted Seatrout in river habitats of Northern Indian River Lagoon did not show a significant trend since 1999 (Figure 5.23). Relative abundance of YOY Spotted Seatrout in river habitats in 2024 did not differ significantly from the previous year.

Annual IOAs of YOY (≤ 100 mm SL) Spotted Seatrout in bay habitats of Northern Indian River Lagoon have generally decreased since 1996 (Figure 5.23). Relative abundance of YOY Spotted Seatrout in bay habitats in 2024 did not differ significantly from the previous year.

Annual IOAs of adult (>200 mm SL) Spotted Seatrout in Northern Indian River Lagoon did not show a significant trend since 1997 (Figure 5.23). Relative abundance of adult Spotted Seatrout in 2024 did not differ significantly from the previous year.

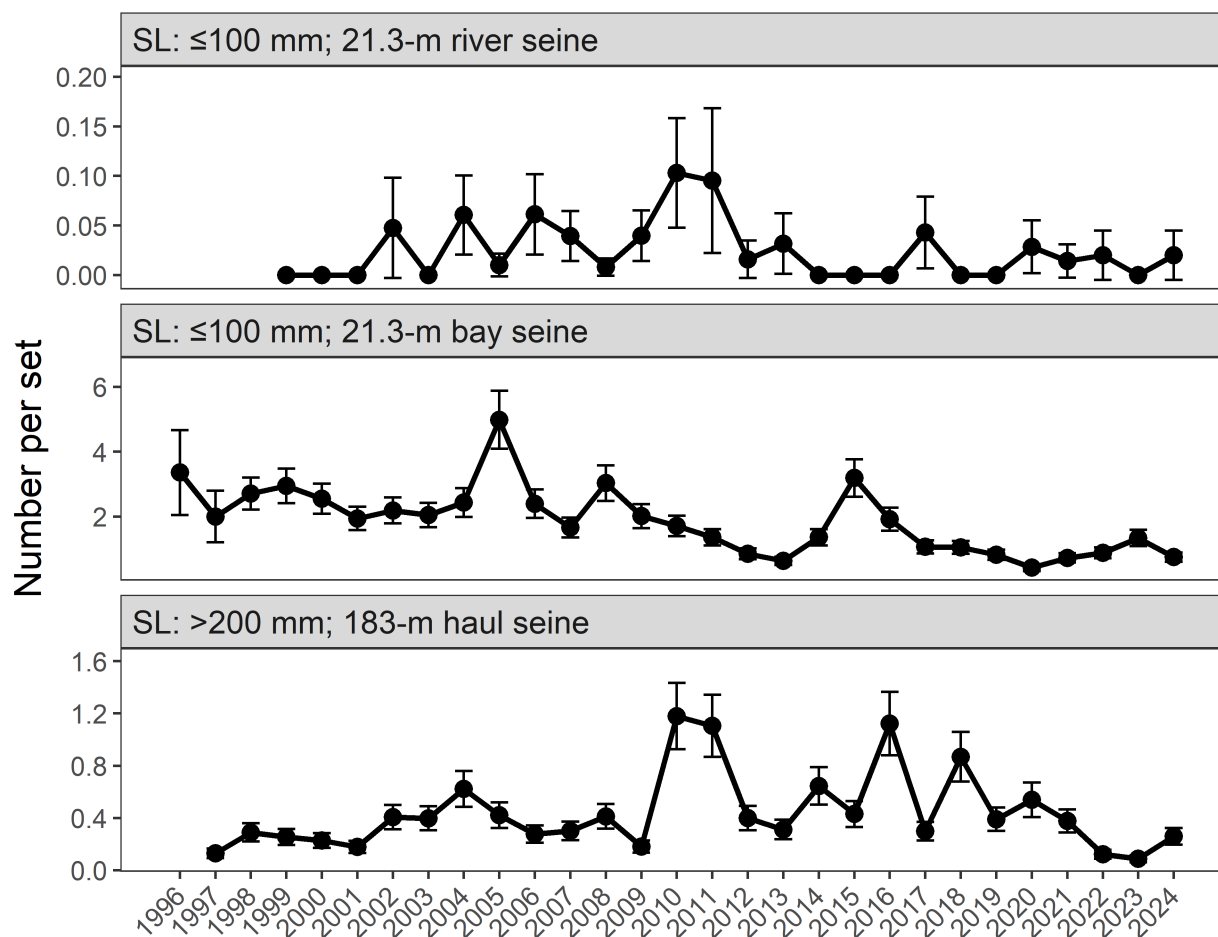


Figure 5.23: Relative abundance (± 1 SE) of young-of-the-year (≤ 100 mm SL) and adult (>200 mm SL) Spotted Seatrout collected between 1996 and 2024 during Northern Indian River Lagoon stratified-random sampling.

Southern Indian River Lagoon

Annual IOAs of YOY (≤ 100 mm SL) Spotted Seatrout in river habitats of the Southern Indian River Lagoon did not show a significant trend since 2016 (Figure 5.24). Relative abundance of YOY Spotted Seatrout in river habitats in 2024 did not differ significantly from the previous year.

Annual IOAs of adult (>200 mm SL) Spotted Seatrout in the Southern Indian River Lagoon did not show a significant trend since 1997 (Figure 5.24). Relative abundance of adult Spotted Seatrout in 2024 did not differ significantly from the previous year.

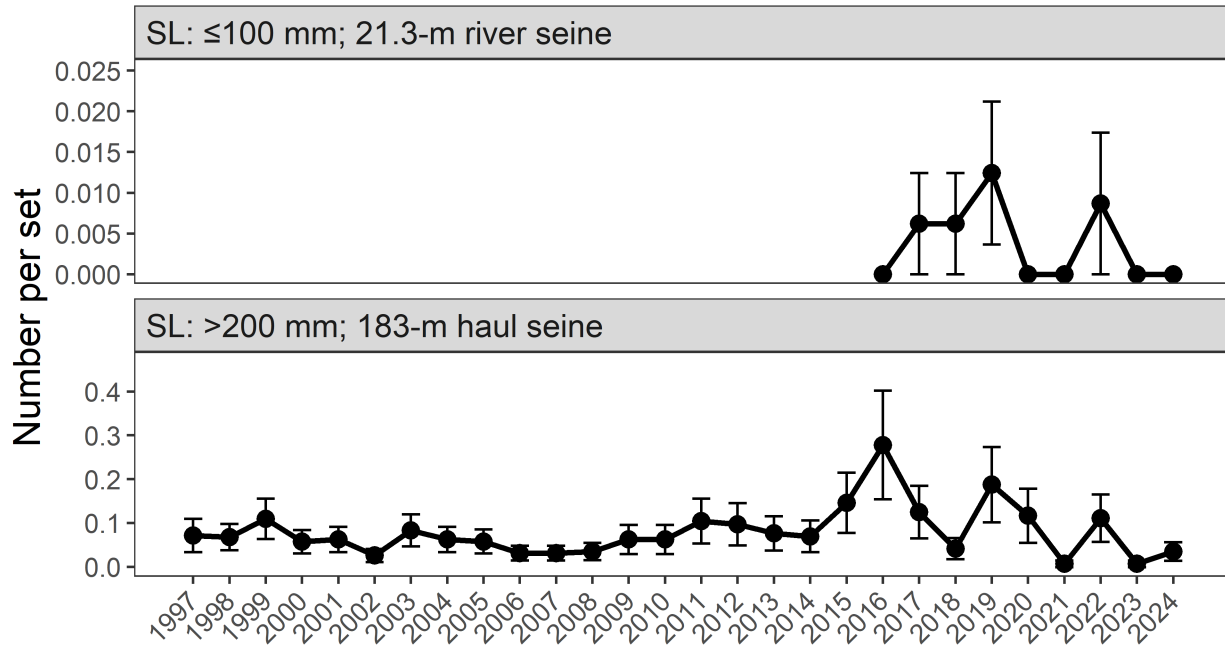


Figure 5.24: Relative abundance (± 1 SE) of young-of-the-year (≤ 100 mm SL) and adult (>200 mm SL) Spotted Seatrout collected between 1997 and 2024 during Southern Indian River Lagoon stratified-random sampling. Note that survey design changes were implemented in 2016 to include sampling of tidal creeks and tributaries. These changes are reflected in the break in the IOA time series between 2015 and 2016.

Length-Frequency Diagrams

The following figure shows length-frequency diagrams of Spotted Seatrout collected in 183-m haul seines. All lengths are standard length (SL). Note different scales and years of collection for each estuary. Length-frequency data collected with 183-m haul seines indicate that this gear provides valuable information on multiple life histories of Spotted Seatrout in Florida estuaries (Figure 5.25). Spotted Seatrout length-frequency distributions generally followed a bimodal or polymodal distribution across estuaries.

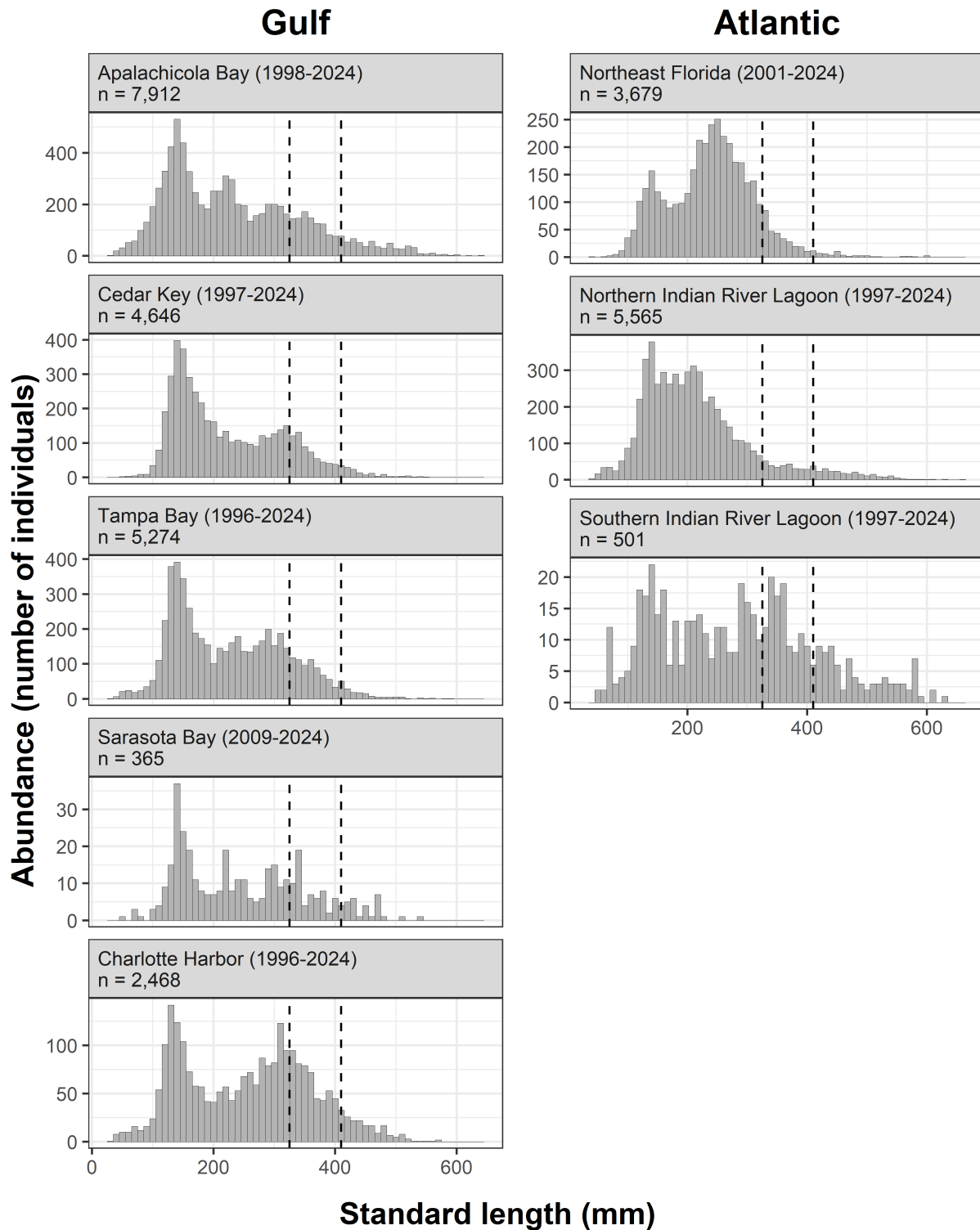


Figure 5.25: Length-frequency diagrams of Spotted Seatrout collected in 183-m haul seines. Vertical dashed lines indicate the lower and upper recreational size limits for Spotted Seatrout in each estuary.

5.5 Sheephead, *Archosargus probatocephalus*

The Sheephead (*Archosargus probatocephalus*) occurs from Nova Scotia (Gilhen et al. 1976) to Brazil (Caldwell 1965) and is common in coastal waters from the Chesapeake Bay to Texas in the United States (Bigelow and Schroeder 1953). Historically, more Sheephead have been landed by recreational fishers than by commercial fishers (82–99% of the combined annual landings during 2000–2015) along Florida’s Gulf coast (Munyandorero et al. 2017). Sheephead in Florida waters are currently regulated by minimum size (305 mm total length) and a bag limit (8 fish/day). The most recent stock assessment for Sheephead used Fisheries-Independent Monitoring (FIM) program data to derive annual indices of abundance (IOAs) during different life history stages to guide coast-specific catch-at-age models (Munyandorero et al. 2017). This stock assessment determined that Sheephead stocks on the Gulf and Atlantic coasts appeared abundant enough to supply adequate numbers of new recruits while maintaining current harvest rates.

The reproductive season for adult Sheephead is February through April in Florida waters and the newly recruited young-of-the-year (YOY) are most abundant in shallow estuarine areas between April and June. Regression analyses conducted by FIM for YOY Sheephead show they reach 40 mm standard length (SL) at approximately 90 days and 130 mm SL at one year of age. Sheephead in Florida waters enter the fishery at 242 mm SL, which typically corresponds to an age of 3 to 6 years (Dutka-Gianelli and Murie 2001).

To monitor year-class strength and improve the ability to predict future adult Sheephead abundance, the FIM program developed annual IOAs for two life history stages: YOY and fully recruited to the fishery. Abundance data for YOY (≤ 40 mm SL) collected in stratified-random 21.3-m seines were examined to assess recruitment in four Florida estuaries: Tampa Bay, Sarasota Bay, Charlotte Harbor, and the northern portion of the Indian River Lagoon (IRL). This life history stage was not examined for Apalachicola Bay, Cedar Key, Northeast Florida, or the southern portion of the IRL due to small sample sizes. Young-of-the-year Sheephead recruited to habitats sampled with 21.3-m seines primarily from April through June. These months were used to define the respective recruitment seasons for each estuary in subsequent analyses. Abundance indices were also calculated for Sheephead fully recruited to the fishery (≥ 242 mm SL) for eight Florida estuarine areas: Apalachicola Bay, Cedar Key, Tampa Bay, Sarasota Bay, Charlotte Harbor, Northeast Florida, and the northern and southern portions of the IRL. Data from stratified-random 183-m haul seines were used to develop IOAs for fully recruited Sheephead from January through December of each year. Due to historical changes in sampling design and available habitat, only consistently sampled zones and habitats (bay or river) in each estuary were included to generate annual IOAs.

Indices of Abundance

The following figures show relative abundance of young-of-the-year Sheephead (≤ 40 mm SL) collected in 21.3-m seines and of legal-sized Sheephead (≥ 242 mm SL) collected in 183-m haul seines during stratified-random sampling across all estuaries. Points represent an unbiased estimate of the mean abundance (calculated as the median value of the distribution of model estimates), while the vertical bars represent the standard error of the estimate (calculated as the 25th–75th percentiles of model estimates). Note different scales for estimates from 21.3-m and 183-m seines.

Apalachicola Bay

Annual IOAs of fully recruited (≥ 242 mm SL) Sheepshead in Apalachicola Bay did not show a significant trend since 1998 (Figure 5.26). Relative of abundance of fully recruited Sheepshead in 2024 did not differ significantly from the previous year.

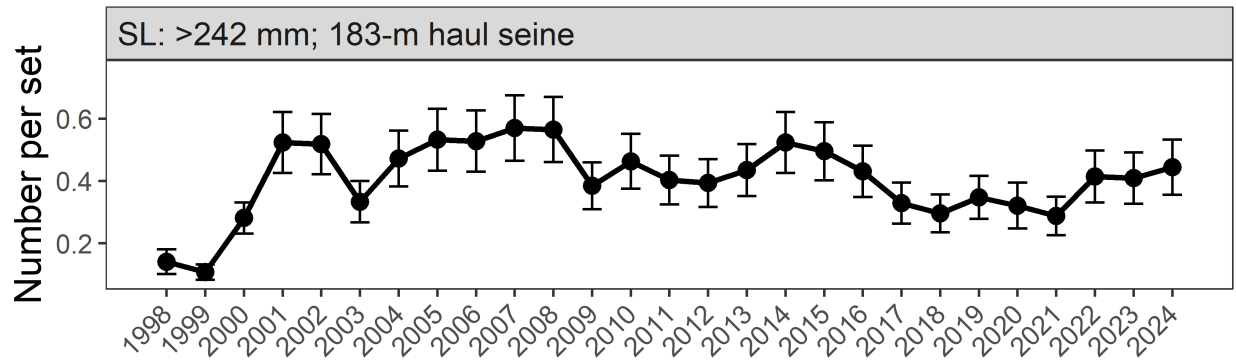


Figure 5.26: Relative abundance (± 1 SE) of legal-sized Sheepshead collected between 1998 and 2024 during Apalachicola Bay stratified-random sampling.

Cedar Key

Annual IOAs of fully recruited (≥ 242 mm SL) Sheepshead in Cedar Key have generally decreased since 1997 (Figure 5.27). Relative abundance of fully recruited Sheepshead in 2024 did not differ significantly from the previous year.

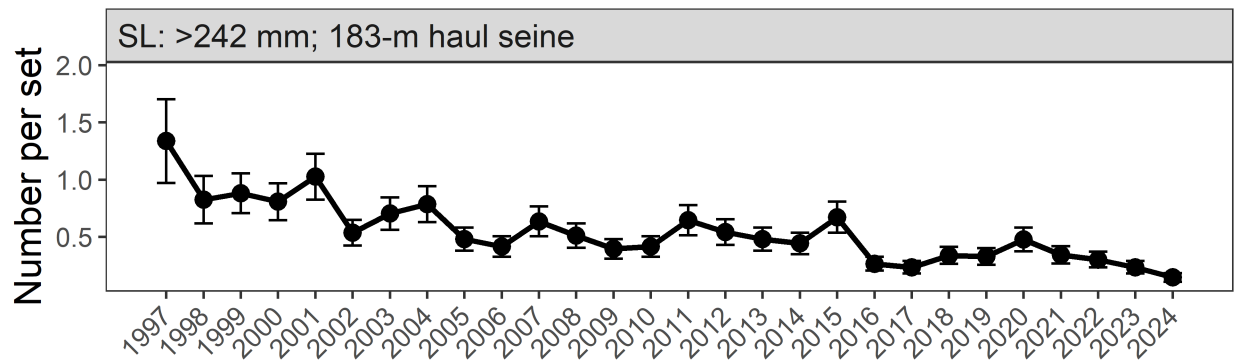


Figure 5.27: Relative abundance (± 1 SE) of legal-sized (≥ 242 mm SL) Sheepshead collected between 1997 and 2024 during Cedar Key stratified-random sampling.

Tampa Bay

Annual IOAs of YOY (≤ 40 mm SL) Sheepshead in river habitats of Tampa Bay have generally decreased since 1996 (Figure 5.28). Relative abundance of YOY Sheepshead in river habitats in 2024 did not differ significantly from the previous year.

Annual IOAs of YOY (≤ 40 mm SL) Sheepshead in bay habitats of Tampa Bay did not show a significant trend since 1996 (Figure 5.28). Relative abundance of YOY Sheepshead in bay habitats in 2024 did not differ significantly from the previous year.

Annual IOAs of fully recruited (≥ 242 mm SL) Sheepshead in Tampa Bay did not show a significant trend since 1996 (Figure 5.28). Relative abundance of fully recruited Sheepshead in 2024 did not differ significantly from the previous year.

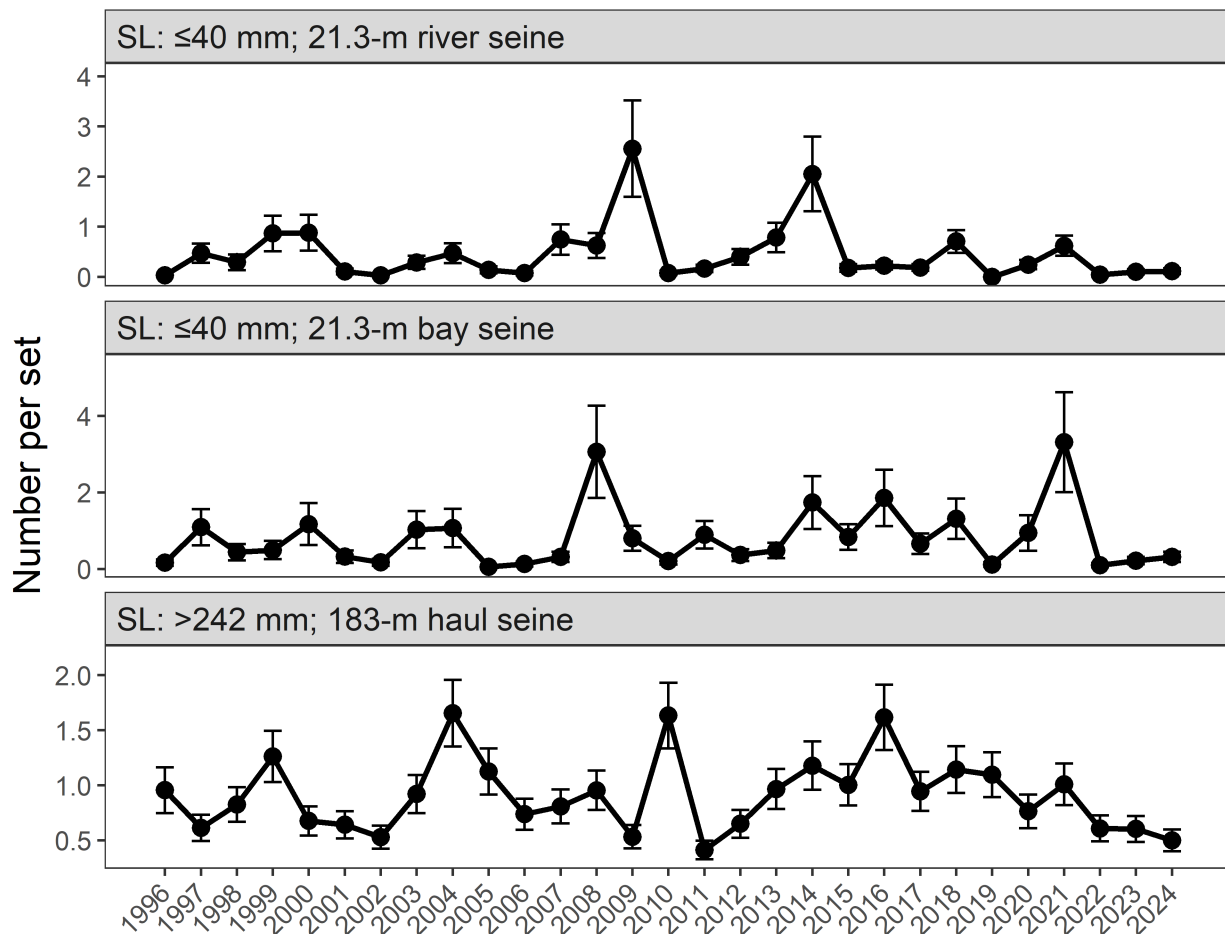


Figure 5.28: Relative abundance (± 1 SE) of young-of-the-year (≤ 40 mm SL) and legal-sized (≥ 242 mm SL) Sheepshead collected between 1996 and 2024 during Tampa Bay stratified-random sampling.

Sarasota Bay

Annual IOAs of YOY (≤ 40 mm SL) Sheepshead in bay habitats of Sarasota Bay did not show a significant trend since 2009 (Figure 5.29). Relative abundance of YOY Sheepshead in bay habitats in 2024 did not differ significantly from the previous year.

Annual IOAs of fully recruited (≥ 242 mm SL) Sheepshead in Sarasota Bay did not show a significant trend since 2010 (Figure 5.29). Relative abundance of fully recruited Sheepshead in 2024 did not differ significantly from the previous year.

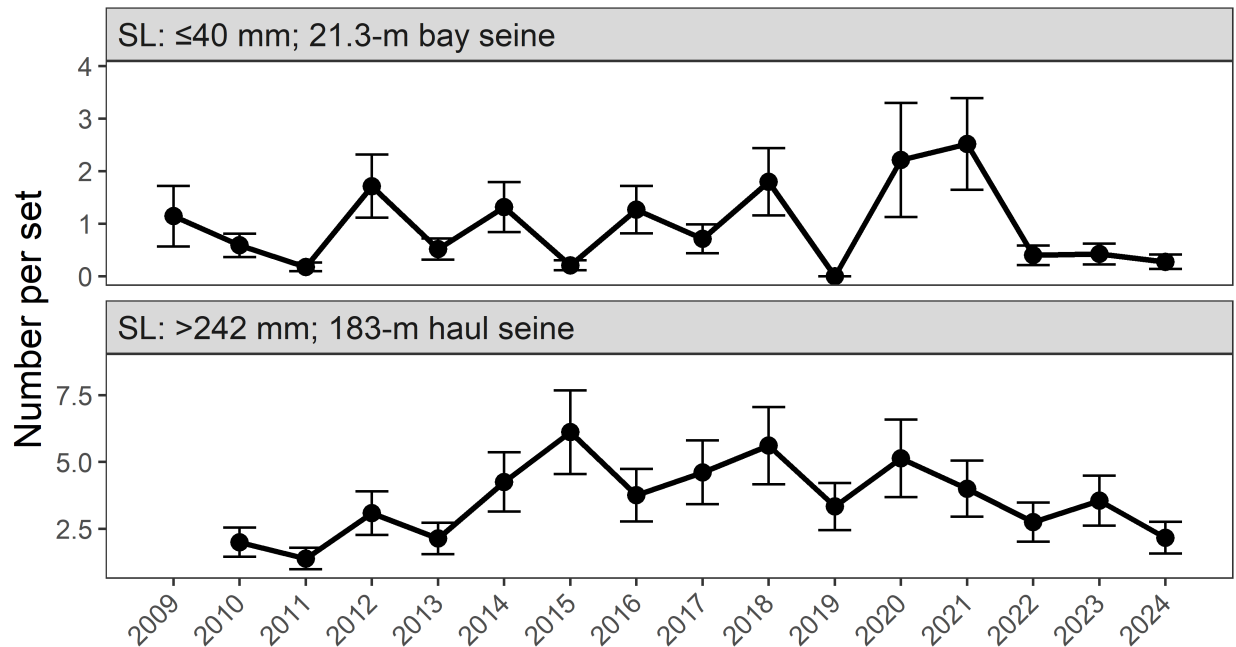


Figure 5.29: Relative abundance (± 1 SE) of young-of-the-year (≤ 40 mm SL) and legal-sized (≥ 242 mm SL) Sheepshead collected between 2010 and 2024 during Sarasota Bay bimonthly stratified-random sampling.

Charlotte Harbor

Annual IOAs of YOY (≤ 40 mm SL) Sheepshead in river habitats of Charlotte Harbor did not show a significant trend since 1996 (Figure 5.30). Relative abundance of YOY Sheepshead in river habitats in 2024 did not differ significantly from the previous year.

Annual IOAs of YOY (≤ 40 mm SL) Sheepshead in bay habitats of Charlotte Harbor did not show a significant trend since 1996 (Figure 5.30). Relative abundance of YOY Sheepshead in bay habitats in 2024 did not differ significantly from the previous year.

Annual IOAs of fully recruited (≥ 242 mm SL) Sheepshead in Charlotte Harbor have generally increased since 1996 (Figure 5.30). Relative abundance of fully recruited Sheepshead in 2024 did not differ significantly from the previous year.

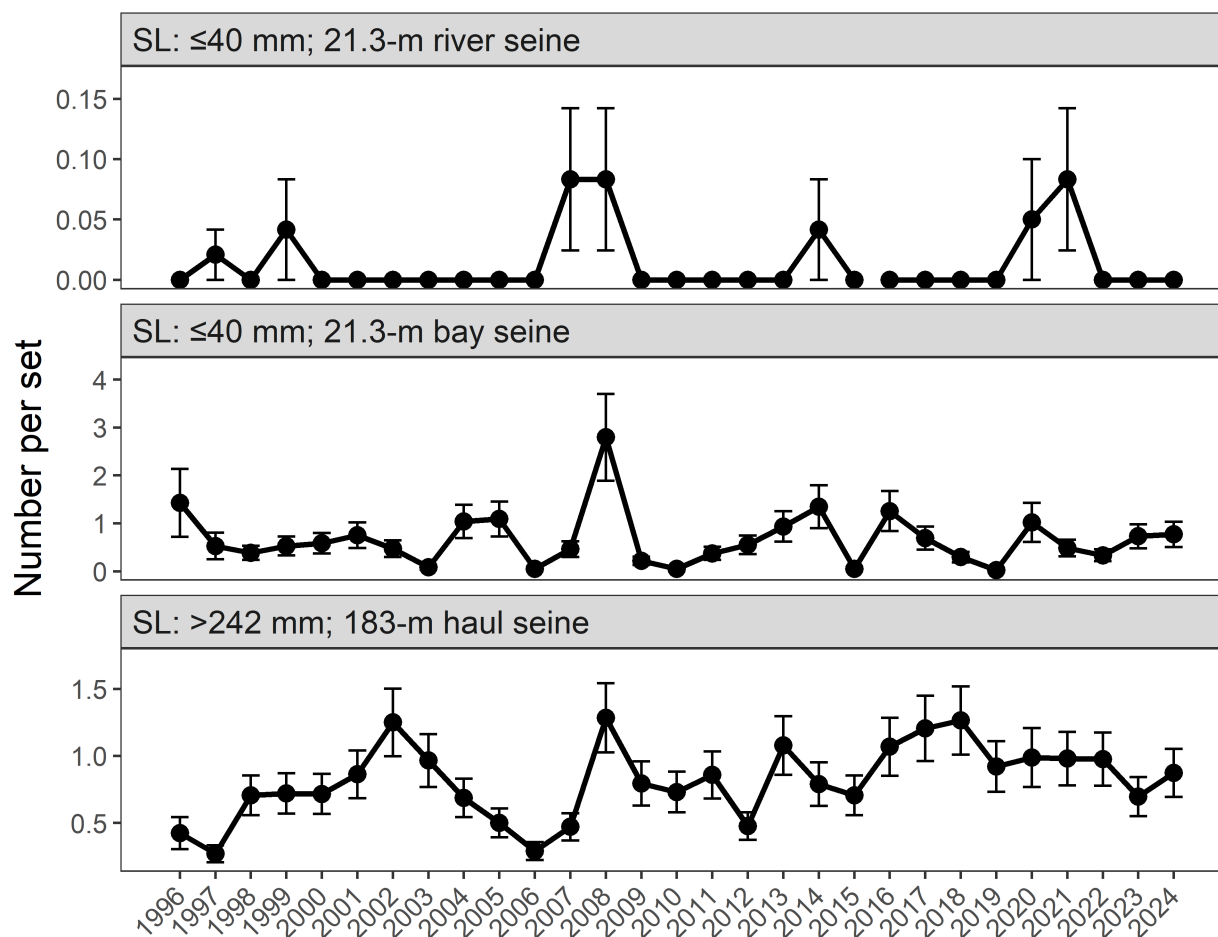


Figure 5.30: Relative abundance (± 1 SE) of young-of-the-year (≤ 40 mm SL) and legal-sized (≥ 242 mm SL) Sheepshead collected between 1996 and 2024 during Charlotte Harbor stratified-random sampling. Note that survey design changes were implemented in 2016 to include sampling of tidal creeks and tributaries. These changes are reflected in the break in the IOA time series between 2015 and 2016.

Northeast Florida

Annual IOAs of fully recruited (≥ 242 mm SL) Sheepshead in Northeast Florida have generally decreased since 2001 (Figure 5.31). Relative abundance of fully recruited Sheepshead in 2024 did not differ significantly from the previous year.

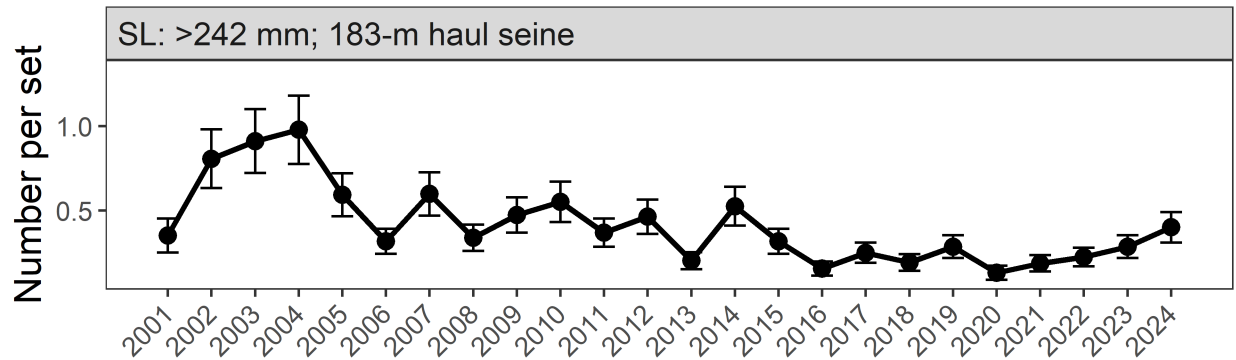


Figure 5.31: Relative abundance (± 1 SE) of legal-sized (≥ 242 mm SL) Sheepshead collected between 2001 and 2024 during Northeast Florida stratified-random sampling.

Northern Indian River Lagoon

Annual IOAs of YOY (≤ 40 mm SL) Sheepshead in river habitats of Northern Indian River Lagoon did not show a significant trend since 1999 (Figure 5.32). Relative abundance of YOY Sheepshead in river habitats in 2024 did not differ significantly from the previous year.

Annual IOAs of YOY (≤ 40 mm SL) Sheepshead in bay habitats of Northern Indian River Lagoon did not show a significant trend since 1996 (Figure 5.32). Relative abundance of YOY Sheepshead in bay habitats in 2024 did not differ significantly from the previous year.

Annual IOAs of fully recruited (≥ 242 mm SL) Sheepshead in Northern Indian River Lagoon have generally decreased since 1997 (Figure 5.32). Relative abundance of fully recruited Sheepshead abundance in 2024 did not differ significantly from the previous year.

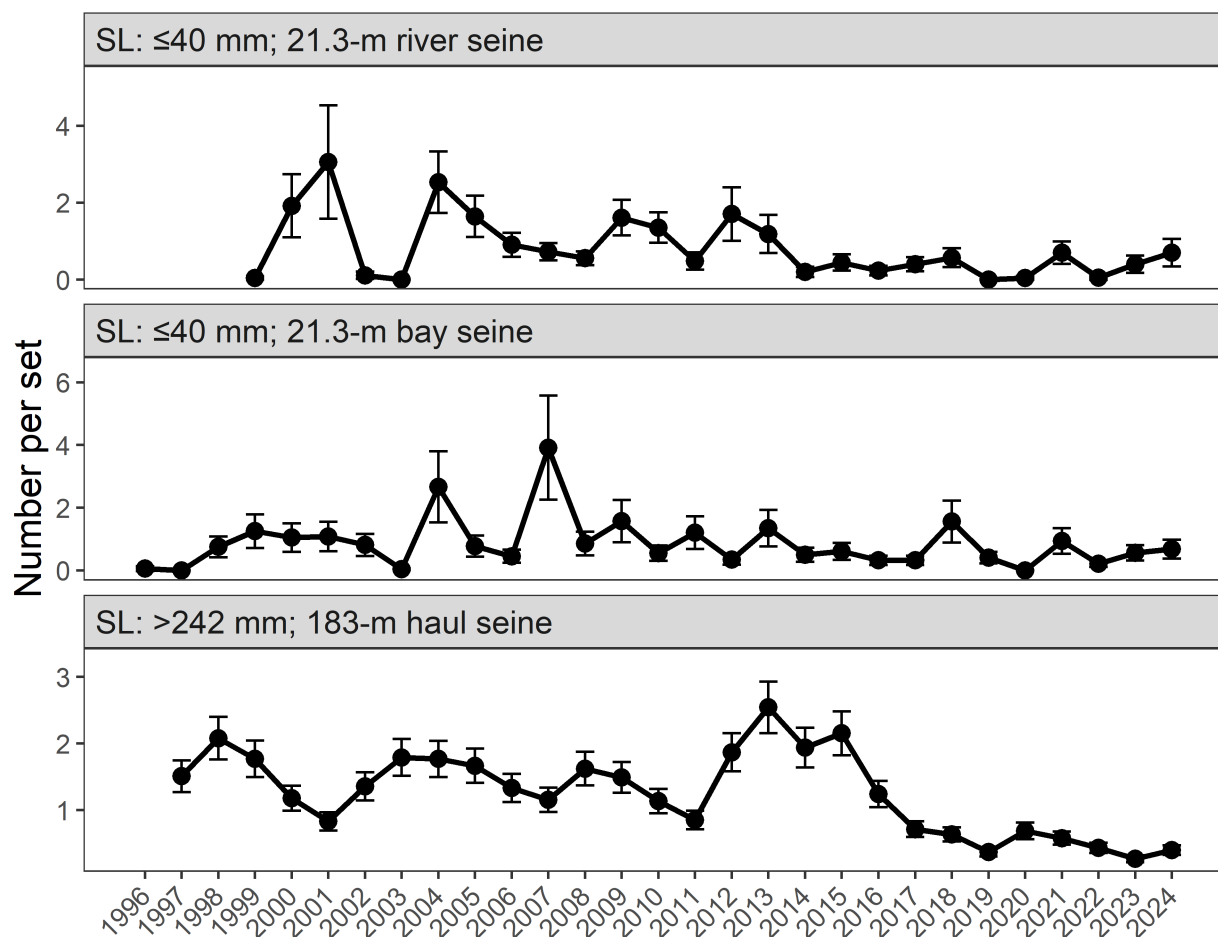


Figure 5.32: Relative abundance (± 1 SE) of young-of-the-year (≤ 40 mm SL) and legal-sized (≥ 242 mm SL) Sheepshead collected between 1996 and 2024 during Northern Indian River Lagoon stratified-random sampling.

Southern Indian River Lagoon

Annual IOAs of fully recruited (≥ 242 mm SL) Sheepshead in Southern Indian River Lagoon have generally decreased since 1997 (Figure 5.33). Relative abundance of fully recruited Sheepshead in 2024 did not differ significantly from the previous year.

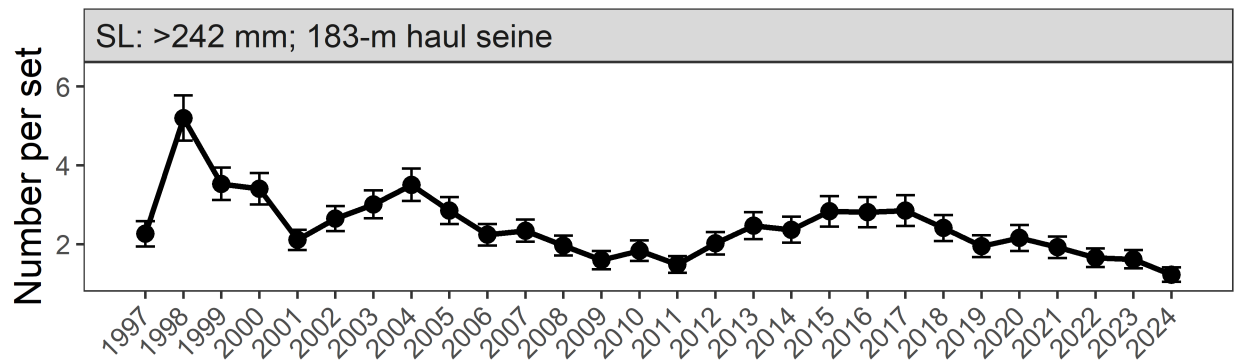


Figure 5.33: Relative abundance (± 1 SE) of legal-sized Sheepshead collected between 1997 and 2024 during Southern Indian River Lagoon stratified-random sampling.

Length-Frequency Diagrams

The following figure shows length-frequency diagrams of Sheepshead collected in 183-m haul seines. All lengths are standard length (SL). Note different scales and years of collection for each estuary. Length-frequency data collected with 183-m haul seines indicate that this gear provides valuable information on multiple life histories of Sheepshead in Florida estuaries (Figure 5.34). Sheepshead length-frequency distributions varied between unimodal and bimodal among estuaries.

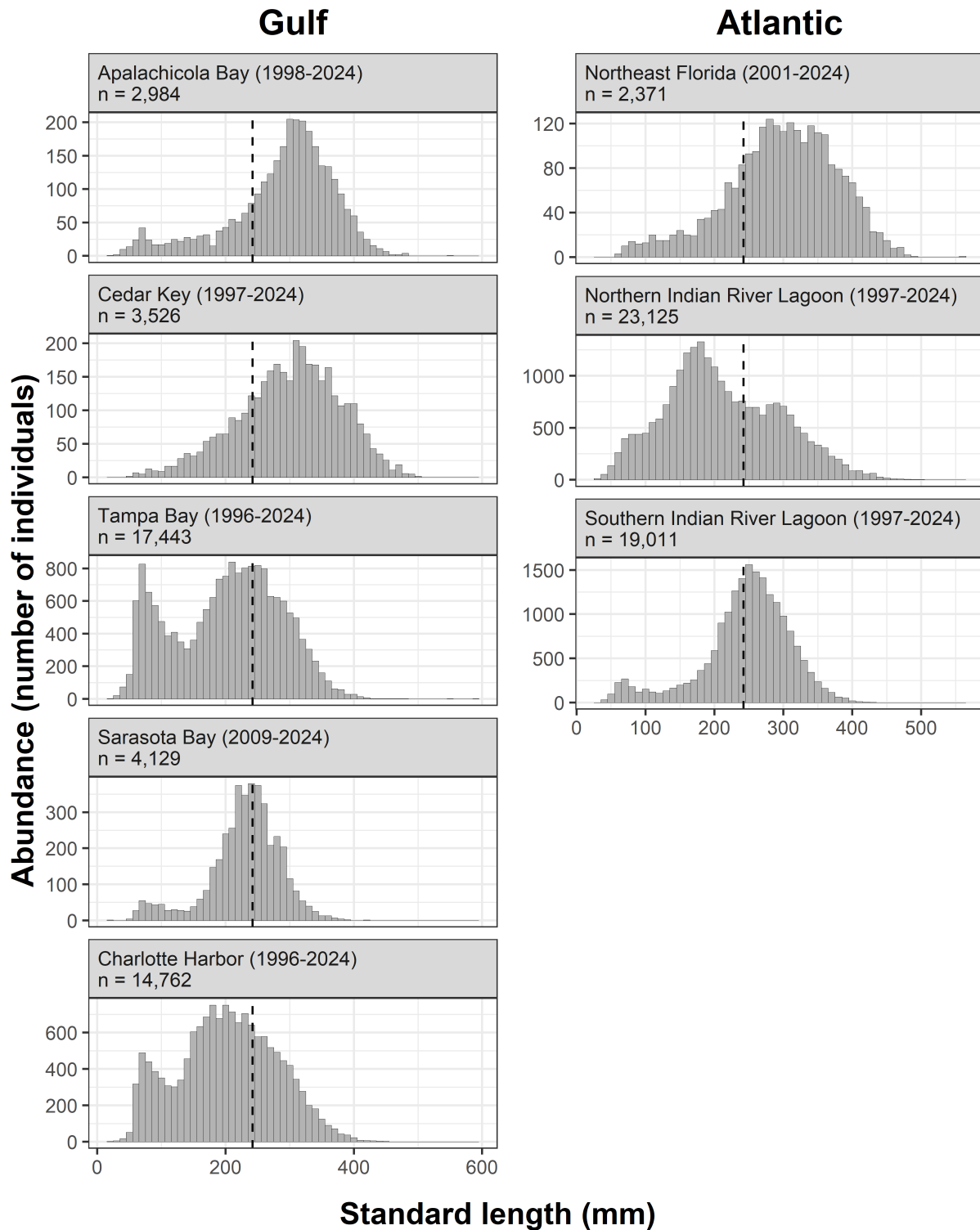


Figure 5.34: Length-frequency diagrams of Sheephead collected in 183-m haul seines. Vertical dashed lines indicate the lower recreational size limits for Sheephead in each estuary

5.6 Pinfish, *Lagodon rhomboides*

Pinfish, *Lagodon rhomboides*, is an ecologically and recreationally important sparid found in marine and estuarine waters from Massachusetts to Texas (Bigelow and Schroeder 1953; Caldwell 1957). It is one of the most abundant resident species in estuaries of the northeastern Gulf (Hoesel and Jones 1963; Hansen 1969; Ogren and Brusher 1977). Densities of Pinfish have been found to be positively correlated to seagrass and drift algae cover (Rydene and Matheson 2003; Faletti et al. 2019). Studies have shown that predation by Pinfish plays a role in the organization of seagrass macro benthic faunal assemblages (Young et al. 1976; Young and Young 1977). Pinfish are a major link between primary and secondary production as individuals >60 mm standard length (SL) consume and digest seagrasses and encrusting epiphytes (Stoner 1980; Weinstein et al. 1982; Montgomery and Targett 1992). Pinfish represent a large percentage of the offshore movement of nearshore nutrients and carbon to reef fish stocks in the Gulf (Nelson et al. 2013). Pinfish of all sizes are commonly targeted by anglers for use as bait for recreationally important species such as Sailfin (*Istiophorus platypterus*), Red Drum (*Sciaenops ocellatus*), Spotted Seatrout (*Cynoscion nebulosus*), Southern Flounder (*Paralichthys lethostigma*), Common Snook (*Centropomus undecimalis*), and Gag Grouper (*Mycteroperca microlepis*).

To monitor year-class strength and improve the ability to predict future Pinfish abundances, indices of relative abundance (IOAs) were developed for young-of-the-year (YOY) Pinfish recruitment into selected Florida estuaries. Abundance data for YOY Pinfish (≤ 80 mm SL) that were collected in stratified-random 21.3-m seine samples were examined to assess recruitment into eight Florida estuaries: Apalachicola Bay, Cedar Key, Tampa Bay, Sarasota Bay, Charlotte Harbor, Northeast Florida, and the northern and southern portions of the Indian River Lagoon (IRL). Young-of-the-year Pinfish recruited to habitats sampled with 21.3-m seines primarily from January through June and IOAs were calculated using catch data from these months only. This time period coincides with the published recruitment period for this species (Nelson 1998). The maximum size that individuals of YOY cohorts attain by June is 80 mm SL (Nelson 1998). Data from stratified-random 183-m haul seines were used to develop IOAs for subadult/adult fish (≥ 100 mm SL) collected throughout the year for eight Florida estuaries: Apalachicola Bay, Cedar Key, Tampa Bay, Sarasota Bay, Charlotte Harbor, Northeast Florida, Northern IRL, and Southern IRL. All IOAs were calculated using data beginning in 1996, however estuaries varied in the specific time period sampled. Due to historical changes in sampling design and available habitat, only consistently sampled zones and habitats (bay or river) in each estuary were included to generate annual IOAs.

Indices of Abundance

The following figures show relative abundance of young-of-the-year Pinfish (≤ 80 mm SL) collected in 21.3-m seines and of subadult and adult Pinfish (> 100 mm SL) collected in 183-m haul seines during stratified-random sampling across all estuaries. Points represent an unbiased estimate of the mean abundance (calculated as the median value of the distribution of model estimates), while the vertical bars represent the standard error of the estimate (calculated as the 25th-75th percentiles of model estimates). Note different scales for estimates from 21.3-m and 183-m seines.

Apalachicola Bay

Annual IOAs of YOY (≤ 80 mm SL) Pinfish in bay habitats of Apalachicola Bay did not show a significant trend since 1998 (Figure 5.35). Relative abundance of YOY Pinfish in bay habitats in 2024 did not differ significantly from the previous year.

Annual IOAs of subadult and adult (>100 mm SL) Pinfish in Apalachicola Bay did not show a significant trend since 1998 (Figure 5.35). Relative abundance of subadult and adult Pinfish in 2024 did not differ significantly from the previous year.

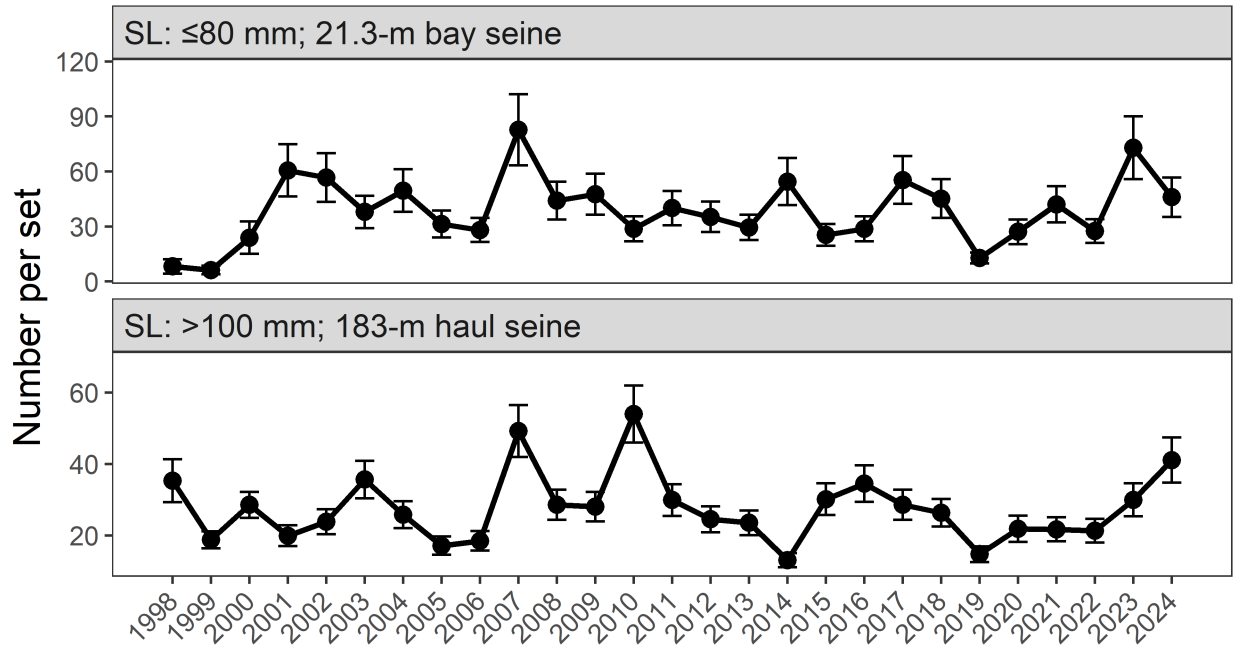


Figure 5.35: Relative abundance (± 1 SE) of young-of-the-year (≤ 80 mm SL) and subadult/adult (>100 mm SL) Pinfish collected between 1998 and 2024 during Apalachicola Bay stratified-random sampling.

Cedar Key

Annual IOAs of YOY (≤ 80 mm SL) Pinfish in river habitats of Cedar Key did not show a significant trend since 1996 (Figure 5.36). Relative abundance of YOY Pinfish in river habitats in 2024 decreased from the previous year.

Annual IOAs of YOY (≤ 80 mm SL) Pinfish in bay habitats of Cedar Key did not show a significant trend since 1996 (Figure 5.36). Relative abundance of YOY Pinfish in bay habitats in 2024 decreased from the previous year.

Annual IOAs of subadult and adult (> 100 mm SL) Pinfish in Cedar Key have generally decreased since 1997 (Figure 5.36). Relative abundance of subadult and adult Pinfish in 2024 did not differ significantly from the previous year.

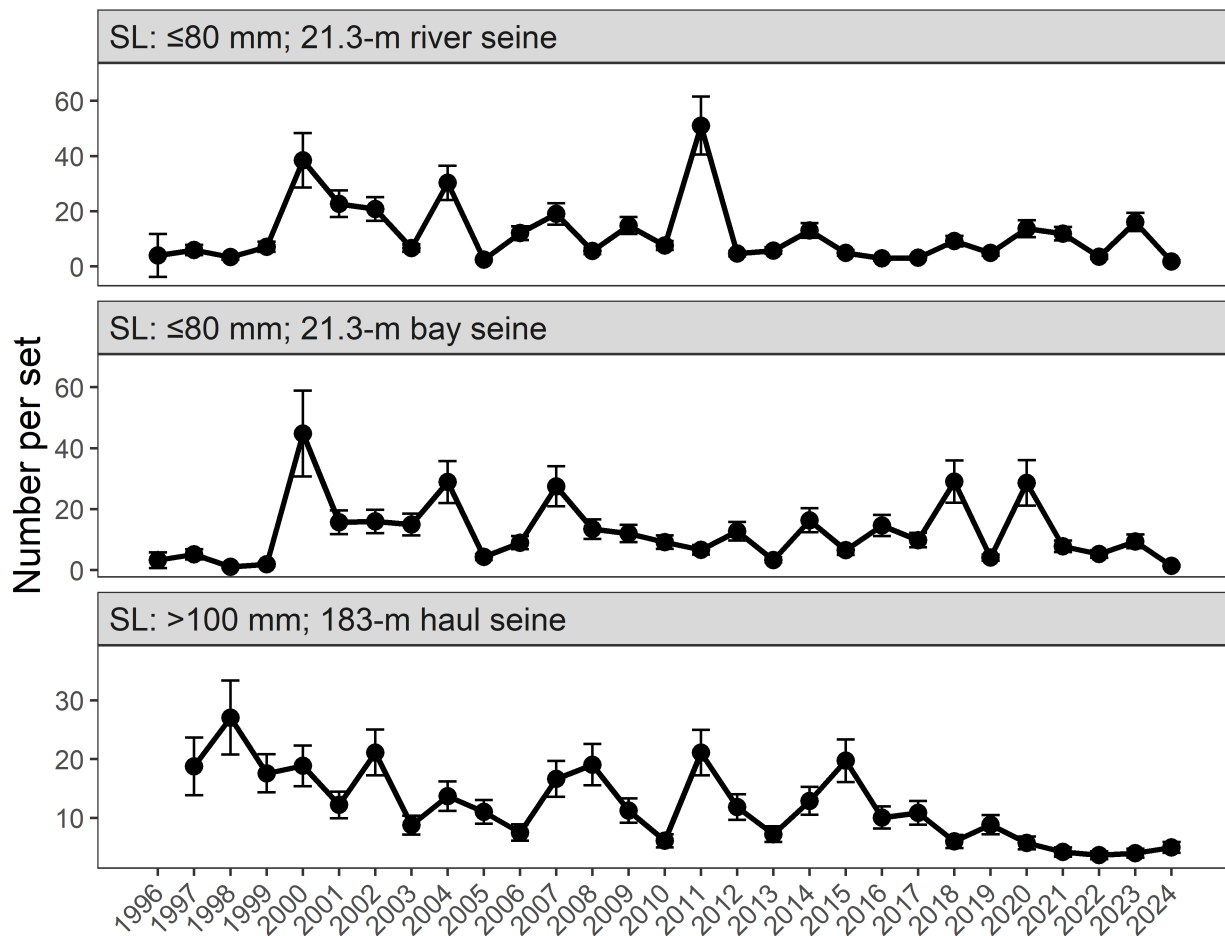


Figure 5.36: Relative abundance (± 1 SE) of young-of-the-year (≤ 80 mm SL) and subadult/adult (> 100 mm SL) Pinfish collected between 1996 and 2024 during Cedar Key stratified-random sampling.

Tampa Bay

Annual IOAs of YOY (≤ 80 mm SL) Pinfish in river habitats of Tampa Bay have generally decreased since 1996 (Figure 5.37). Relative abundance of YOY Pinfish in river habitats in 2024 decreased from the previous year.

Annual IOAs of YOY (≤ 80 mm SL) Pinfish in bay habitats of Tampa Bay did not show a significant trend since 1996 (Figure 5.37). Relative abundance of YOY Pinfish in bay habitats in 2024 did not differ significantly from the previous year.

Annual IOAs of subadult and adult (>100 mm SL) Pinfish in Tampa Bay have generally increased since 1996 (Figure 5.37). Relative abundance of subadult and adult Pinfish in 2024 did not differ significantly from the previous year.

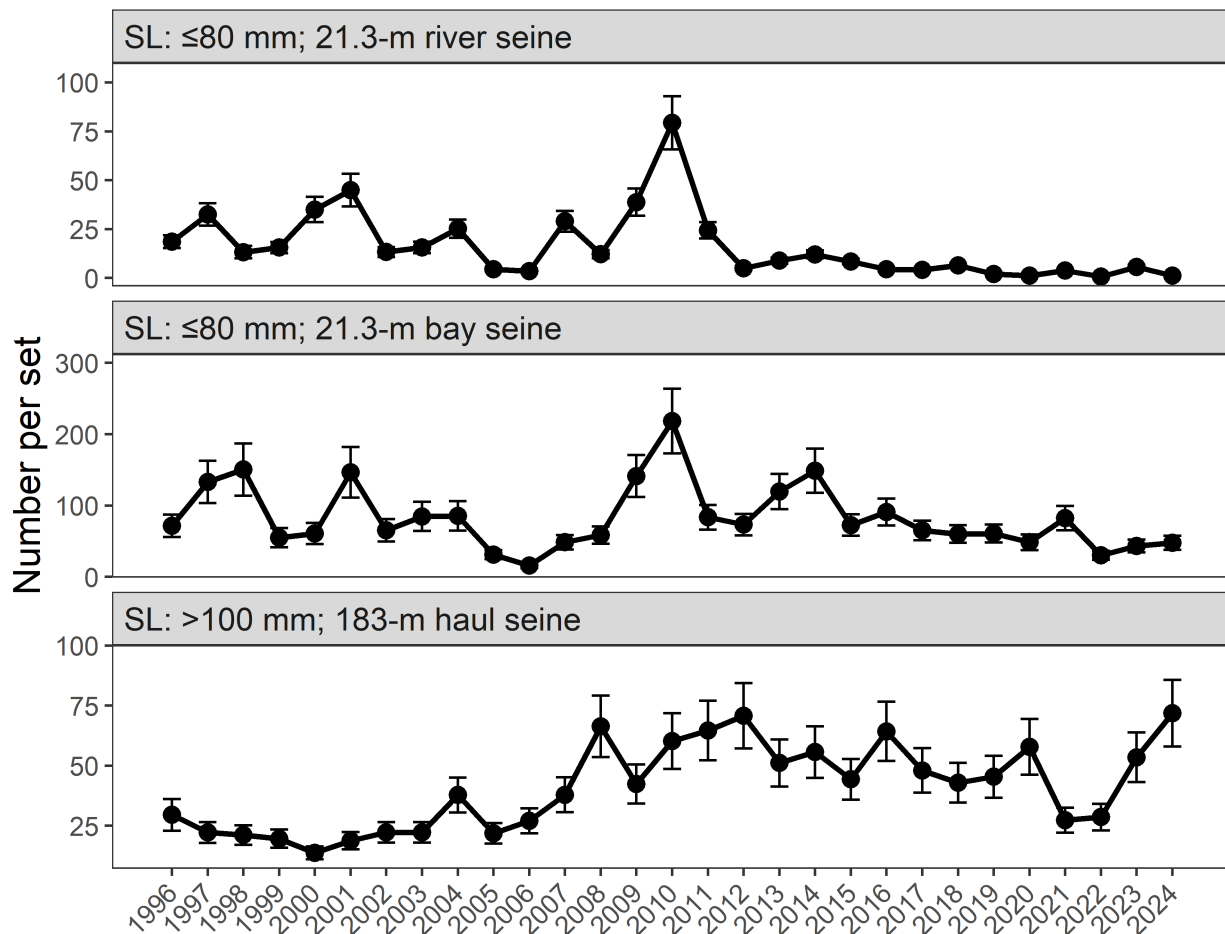


Figure 5.37: Relative abundance (± 1 SE) of young-of-the-year (≤ 80 mm SL) and subadult/adult (>100 mm SL) Pinfish collected between 1996 and 2024 during Tampa Bay stratified-random sampling.

Sarasota Bay

Annual IOAs of YOY (≤ 80 mm SL) Pinfish in bay habitats of Sarasota Bay did not show a significant trend since 2009 (Figure 5.38). Relative abundance of YOY Pinfish in bay habitats in 2024 did not differ significantly from the previous year.

Annual IOAs of subadult and adult (> 100 mm SL) Pinfish in Sarasota Bay did not show a significant trend since 2010 (Figure 5.38). Relative abundance of subadult and adult Pinfish in 2024 did not differ significantly from the previous year.

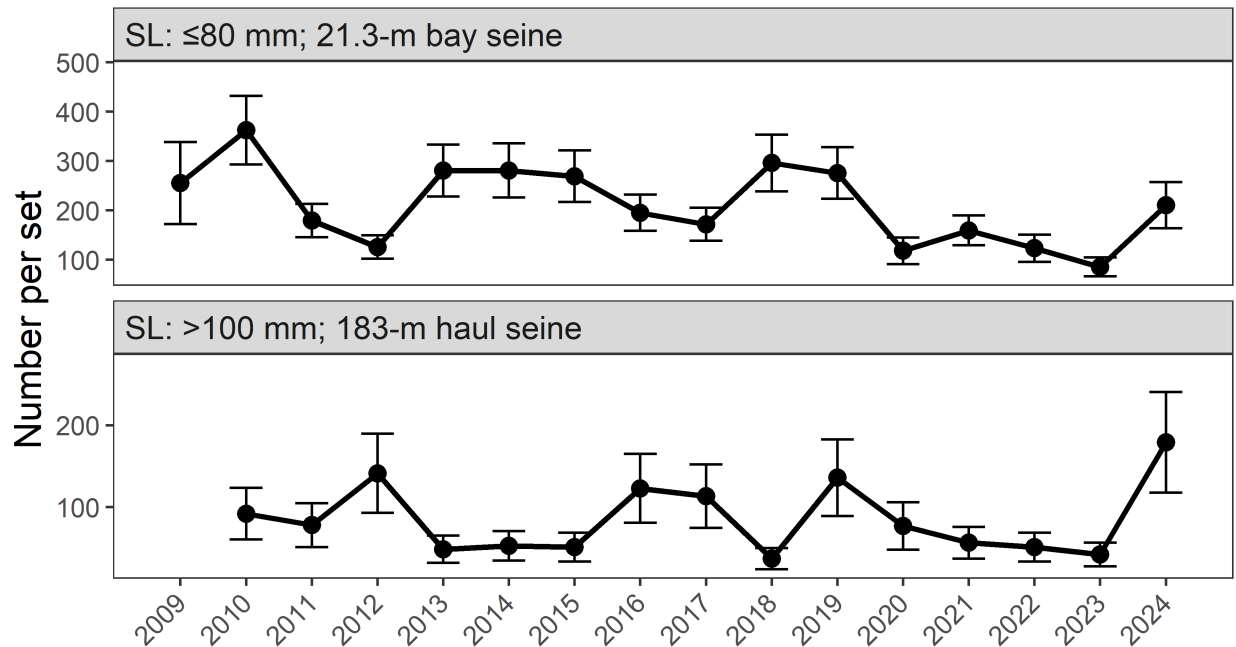


Figure 5.38: Relative abundance (± 1 SE) of young-of-the-year (≤ 80 mm SL) and subadult/adult (> 100 mm SL) Pinfish collected between 2009 and 2024 during Sarasota Bay bimonthly stratified-random sampling.

Charlotte Harbor

Annual IOAs of YOY (≤ 80 mm SL) Pinfish in river habitats of Charlotte Harbor have generally decreased since 1996 (Figure 5.39). Relative abundance of YOY Pinfish in river habitats in 2024 did not differ significantly from the previous year.

Annual IOAs of YOY (≤ 80 mm SL) Pinfish in bay habitats of Charlotte Harbor did not show a significant trend since 1996 (Figure 5.39). Relative abundance of YOY Pinfish in bay habitats in 2024 increased from the previous year.

Annual IOAs of subadult and adult (>100 mm SL) Pinfish in Charlotte Harbor have generally increased since 1996 (Figure 5.39). Relative abundance of subadult and adult Pinfish in 2024 did not differ significantly from the previous year.

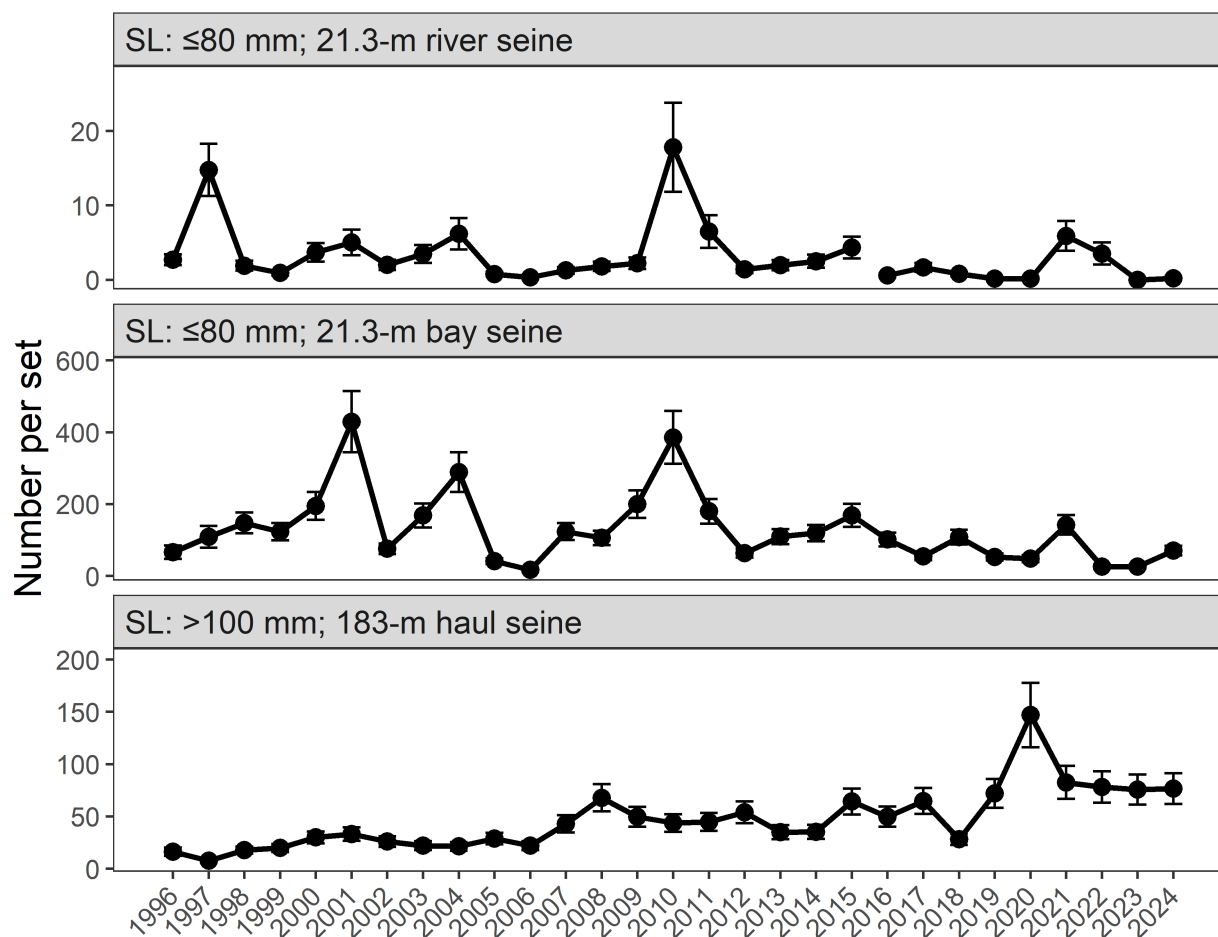


Figure 5.39: Relative abundance (± 1 SE) of young-of-the-year (≤ 80 mm SL) and subadult/adult (>100 mm SL) Pinfish collected between 1996 and 2024 during Charlotte Harbor stratified-random sampling. Note that survey design changes were implemented in 2016 to include sampling of tidal creeks and tributaries. These changes are reflected in the break in the IOA time series between 2015 and 2016.

Northeast Florida

Annual IOAs of YOY (≤ 80 mm SL) Pinfish in river habitats of Northeast Florida did not show a significant trend since 2001 (Figure 5.40). Relative abundance of YOY Pinfish in river habitats in 2024 did not differ significantly from the previous year.

Annual IOAs of subadult and adult (>100 mm SL) Pinfish in Northeast Florida have generally decreased since 2001 (Figure 5.40). Relative abundance of subadult and adult Pinfish in 2024 did not differ significantly from the previous year.

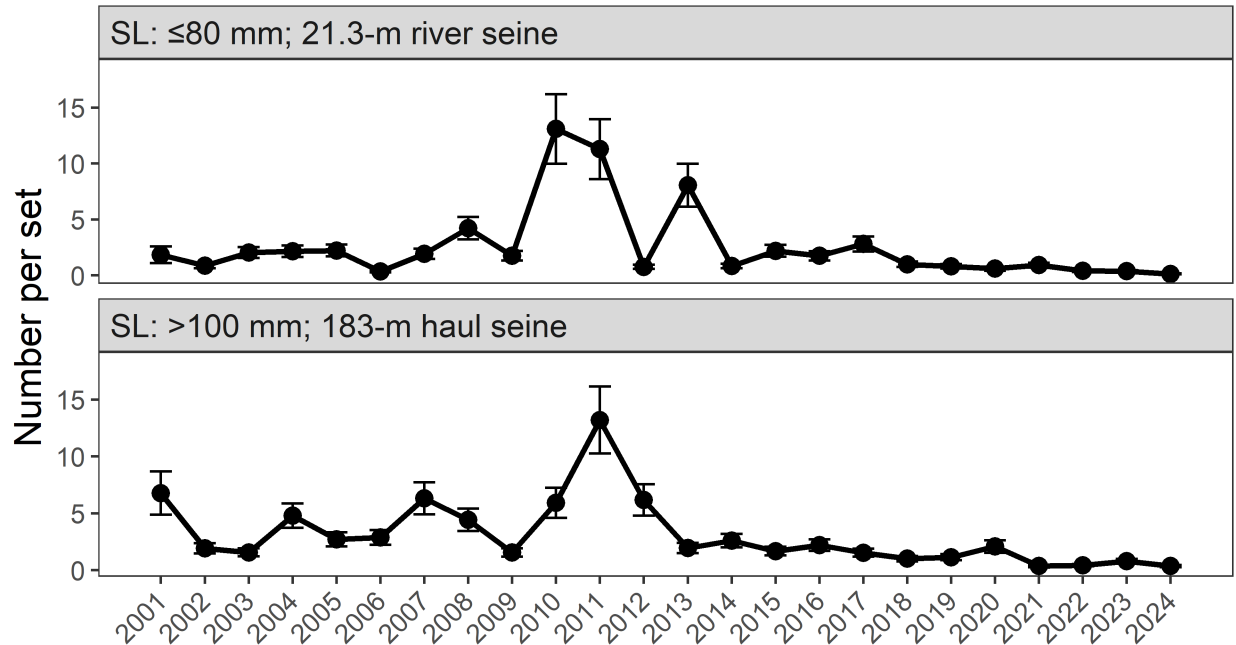


Figure 5.40: Relative abundance (± 1 SE) of young-of-the-year (≤ 80 mm SL) and subadult/adult (>100 mm SL) Pinfish collected between 2001 and 2024 during Northeast Florida stratified-random sampling.

Northern Indian River Lagoon

Annual IOAs of YOY (≤ 80 mm SL) Pinfish in river habitats of Northern Indian River Lagoon did not show a significant trend since 1999 (Figure 5.41). Relative abundance of YOY Pinfish in river habitats in 2024 did not differ significantly from the previous year.

Annual IOAs of YOY (≤ 80 mm SL) Pinfish in bay habitats of Northern Indian River Lagoon did not show a significant trend since 1996 (Figure 5.41). Relative abundance of YOY Pinfish in bay habitats in 2024 increased from the previous year.

Annual IOAs of subadult and adult (>100 mm SL) Pinfish in Northern Indian River Lagoon have generally decreased since 1997 (Figure 5.41). Relative abundance of subadult and adult Pinfish in 2024 did not differ significantly from the previous year.

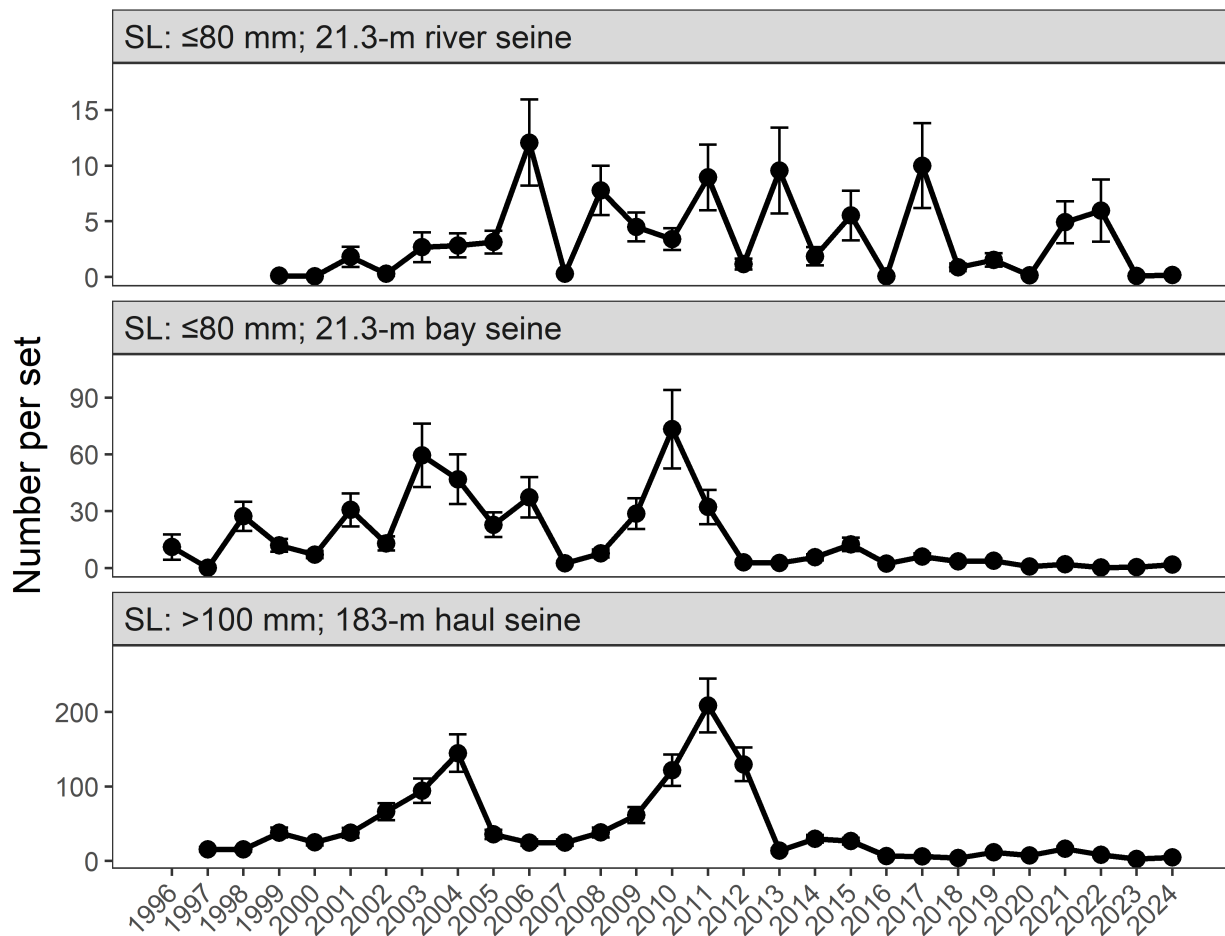


Figure 5.41: Relative abundance (± 1 SE) of young-of-the-year (≤ 80 mm SL) and subadult/adult (>100 mm SL) Pinfish collected between 1996 and 2024 during Northern Indian River Lagoon stratified-random sampling.

Southern Indian River Lagoon

Annual IOAs of YOY (≤ 80 mm SL) Pinfish in river habitats of Southern Indian River Lagoon did not show a significant trend since 2016 (Figure 5.42). Relative abundance of YOY Pinfish in river habitats in 2024 increased from the previous year.

Annual IOAs of subadult and adult (>100 mm SL) Pinfish in Southern Indian River Lagoon have generally decreased since 1997 (Figure 5.42). Relative abundance of subadult and adult Pinfish in 2024 decreased from the previous year.

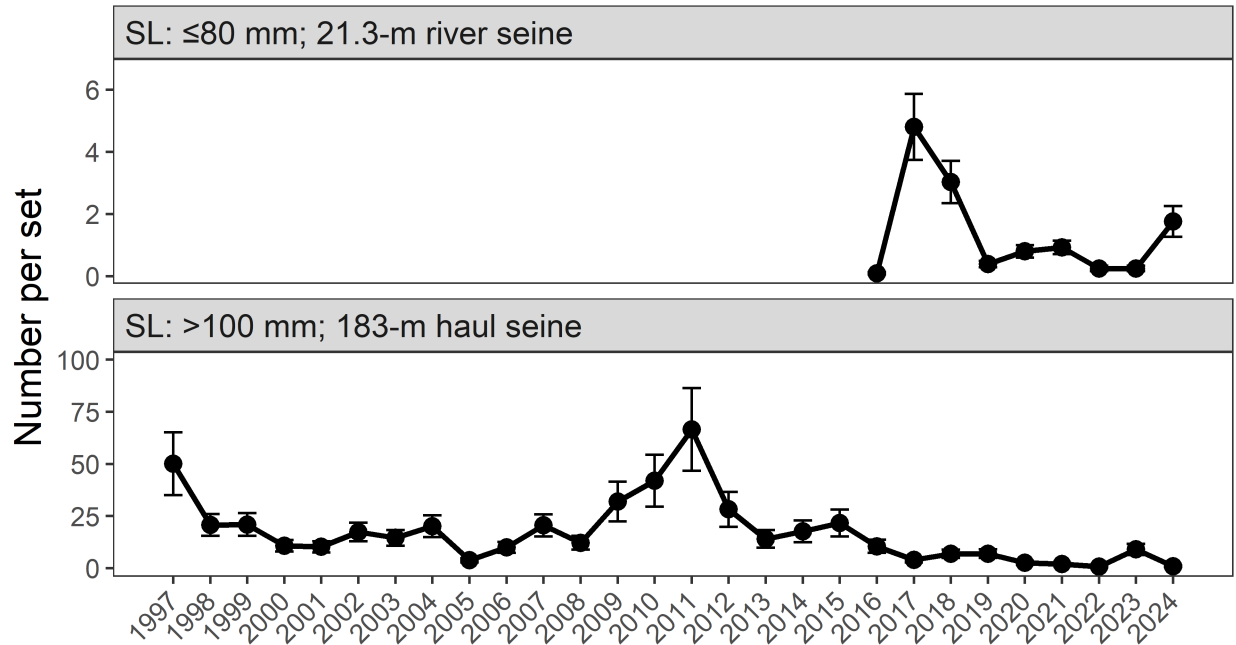


Figure 5.42: Relative abundance (± 1 SE) of young-of-the-year (≤ 80 mm SL) and subadult/adult (>100 mm SL) Pinfish collected between 1997 and 2024 during Southern Indian River Lagoon stratified-random sampling. Note that river sampling began in 2016 to include previously underrepresented habitats (i.e., tidal creeks and tributaries).

Length-Frequency Diagrams

The following figure shows length-frequency diagrams of Pinfish collected in 183-m haul seines. All lengths are standard length (SL). Note different scales and years of collection for each estuary. Length-frequency data collected with 183-m haul seines indicate that this gear provides valuable information on subadult and adult Pinfish in Florida estuaries (Figure [5.43](#)). Pinfish length-frequency distributions generally followed a unimodal-to-bimodal distribution across estuaries.

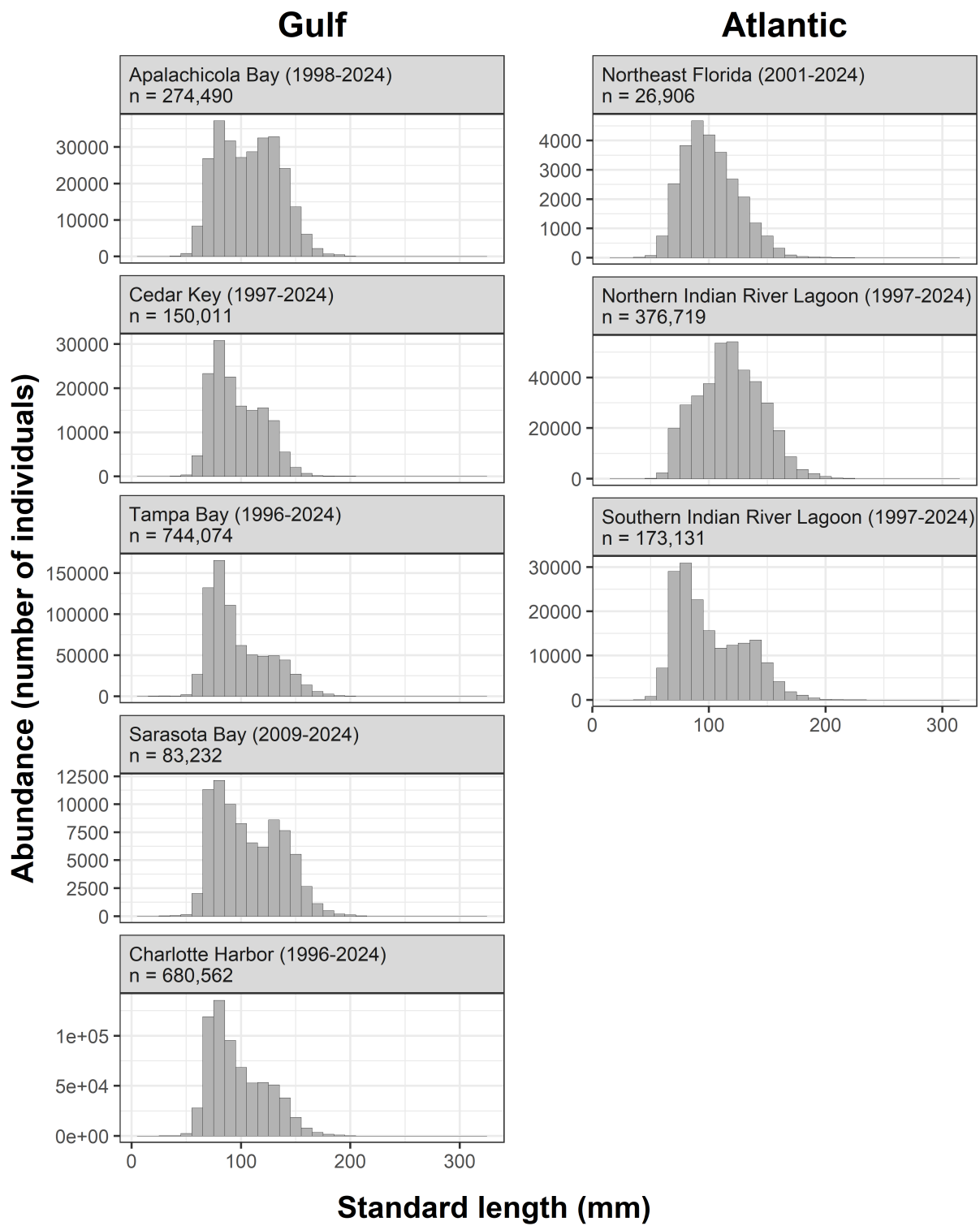


Figure 5.43: Length-frequency diagrams of Pinfish collected in 183-m haul seines.

5.7 Striped Mullet, *Mugil cephalus*

Striped Mullet, *Mugil cephalus*, are one of Florida's most abundant and widespread estuarine-dependent fishes (Odum 1970; Leard et al. 1995). Striped Mullet supported a valuable commercial fishery from the early 1960s through the early 1990s, with approximately 90% of all U.S. landings occurring in the Gulf and over 80% of all commercial landings occurring in Florida waters (Rivas 1980; Leard et al. 1995; Mahmoudi 1997). From 1930 to 1993 Florida Gulf coast landings averaged 26 million pounds annually (Chagaris et al. 2014). Changes were documented from 1991 to 1994 when commercial Striped Mullet landings in Florida severely declined from 79% to 46% of the total Gulf production (Leard et al. 1995). Following the implementation of the Florida net limitation referendum (July 1, 1995), which eliminated the use of entangling nets within three miles of the Atlantic coast and nine miles of the Gulf coast, Striped Mullet commercial landings were further reduced to approximately 5 million pounds (Mahmoudi 2005). After an initial decline in fishing effort and landings following the net limitation referendum, fishing effort and landings in Florida waters have gradually increased to approximately 8 million pounds annually. Due to substantial declines in fishing mortality rates since the net limitation, overall stock size and spawning stock biomass have increased significantly. Stocks throughout the state of Florida are healthy, and current levels of fishing effort appear to be sustainable (Chagaris et al. 2014).

Striped Mullet form large schools in estuarine and nearshore waters from October to December. These schools then migrate to offshore spawning areas over the outer continental shelf and slope during the passage of weather fronts from October through February. Typically, young-of-the-year (YOY) Striped Mullet recruit to Florida's estuaries at 20 to 35 mm standard length (SL, Kilby 1948; Futch 1966). Recruitment usually begins in January and continues through April, with peaks in abundance during February and March; however, previous analyses of length-frequency data indicated that recruitment has occurred in Florida's estuaries as early as the end of December.

To monitor year-class strength and to improve the ability to predict future adult Striped Mullet abundances, relative indices of abundance (IOAs) were developed for YOY Striped Mullet recruitment into selected Florida estuaries. Abundance data for YOY Striped Mullet (≤ 35 mm SL) that were collected in stratified-random 21.3-m seine samples were examined to assess recruitment into seven Florida estuaries: Apalachicola Bay, Cedar Key, Tampa Bay, Charlotte Harbor, Northeast Florida, and the northern and southern portions of the Indian River Lagoon. Young-of-the-year Striped Mullet recruited to habitats sampled with 21.3-m seines primarily from January to March. Therefore, these specific months were used to define the respective recruitment seasons for each estuary in subsequent analyses. Separate analyses for river and bay sets were conducted when possible to examine differences in recruitment between the two habitats. Indices were not calculated for estuaries where 21.3-m seines were not deployed or where limited data were available. Subadult and adult Striped Mullet are occasionally caught in 183-m seines; however, due to the unique behavior of these fish, we do not report IOAs for this life stage here as catches are not indicative of a representative sample. Due to historical changes in sampling design and available habitat, only consistently sampled zones and habitats (bay or river) in each estuary were included to generate annual IOAs.

Indices of Abundance

The following figures show relative abundance of young-of-the-year Striped Mullet (≤ 35 mm SL) collected in 21.3-m seines during stratified-random sampling across all estuaries. Points represent an unbiased estimate of the mean abundance (calculated as the median value of the distribution of model estimates), while the vertical bars represent the standard error of the estimate (calculated as the 25th-75th percentiles of model estimates).

Apalachicola Bay

Annual IOAs of YOY (≤ 35 mm SL) Striped Mullet in bay habitats of Apalachicola Bay have generally increased since 1998 (Figure 5.44). Relative abundance of YOY Striped Mullet in bay habitats in 2024 did not differ significantly from the previous year.

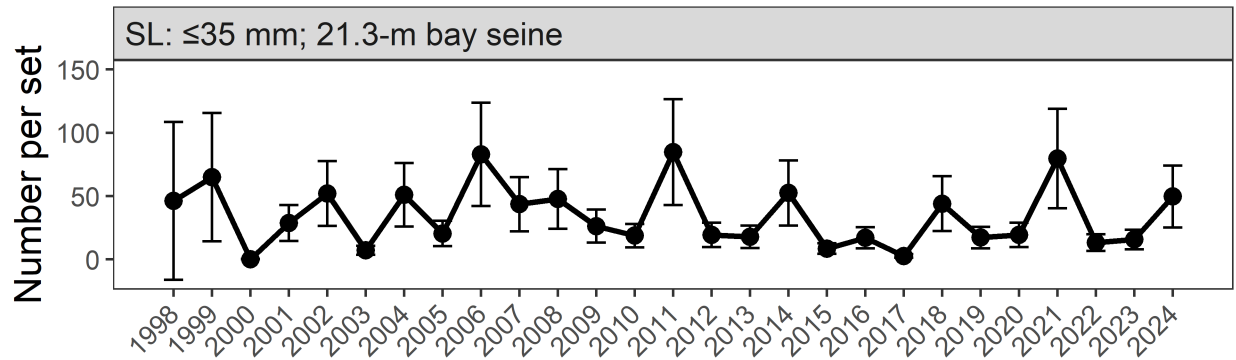


Figure 5.44: Relative abundance (± 1 SE) of young-of-the-year (≤ 35 mm SL) Striped Mullet collected between 1998 and 2024 during Apalachicola Bay stratified-random sampling.

Cedar Key

Annual IOAs of YOY (≤ 35 mm SL) Striped Mullet in river habitats of Cedar Key did not show a significant trend since 1997 (Figure 5.45). Relative abundance of YOY Striped Mullet in river habitats in 2024 did not differ significantly from the previous year.

Annual IOAs of YOY (≤ 35 mm SL) Striped Mullet in bay habitats of Cedar Key did not show a significant trend since 1997 (Figure 5.45). Relative abundance of YOY Striped Mullet in bay habitats in 2024 did not differ significantly from the previous year.

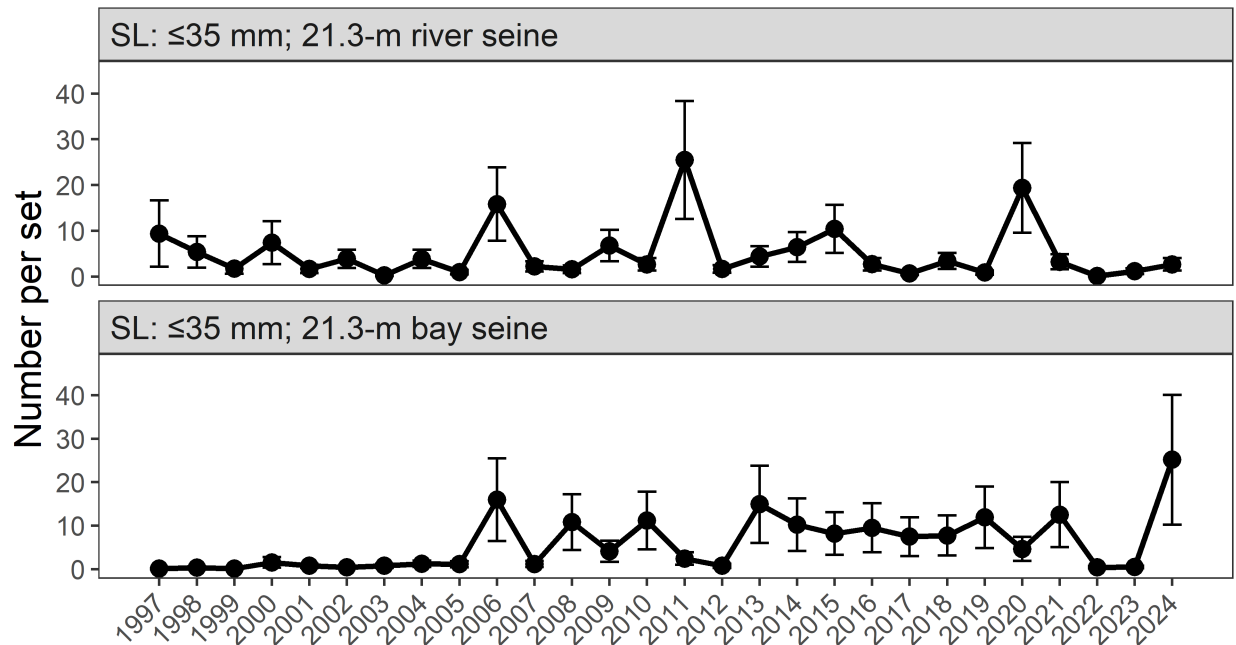


Figure 5.45: Relative abundance (± 1 SE) of young-of-the-year (≤ 35 mm SL) Striped Mullet collected between 1997 and 2024 during Cedar Key stratified-random sampling.

Tampa Bay

Annual IOAs of YOY (≤ 35 mm SL) Striped Mullet in river habitats of Tampa Bay did not show a significant trend since 1996 (Figure 5.46). Relative abundance of YOY Striped Mullet in river habitats in 2024 did not differ significantly from the previous year.

Annual IOAs of YOY (≤ 35 mm SL) Striped Mullet in bay habitats of Tampa Bay did not show a significant trend since 1996 (Figure 5.46). Relative abundance of YOY Striped Mullet in bay habitats in 2024 did not differ significantly from the previous year.

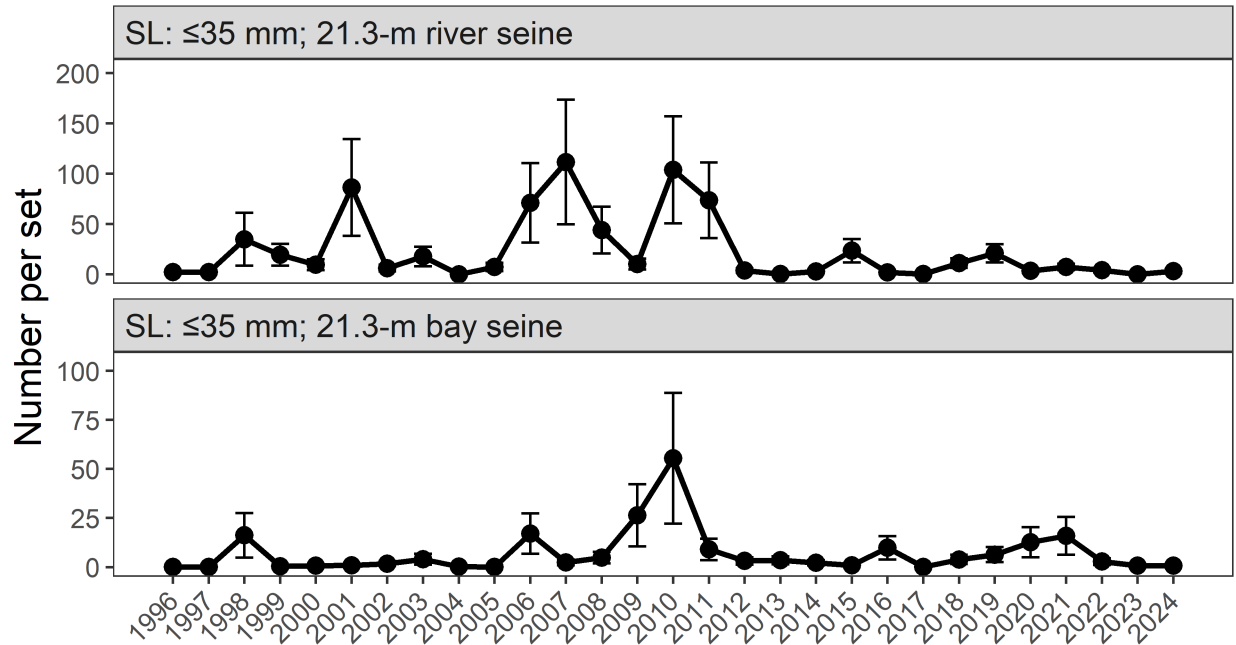


Figure 5.46: Relative abundance (± 1 SE) of young-of-the-year (≤ 35 mm SL) Striped Mullet collected between 1996 and 2024 during Tampa Bay stratified-random sampling.

Charlotte Harbor

Annual IOAs of YOY (≤ 35 mm SL) Striped Mullet in river and tidal creek habitats of Charlotte Harbor did not show a significant trend since 1996 (Figure 5.47). Relative abundance of YOY Striped Mullet in river and tidal creek habitats in 2024 did not differ significantly from the previous year.

Annual IOAs of YOY (≤ 35 mm SL) Striped Mullet in bay habitats of Charlotte Harbor did not show a significant trend since 1996 (Figure 5.47). Relative abundance of YOY Striped Mullet in bay habitats in 2024 did not differ significantly from the previous year.

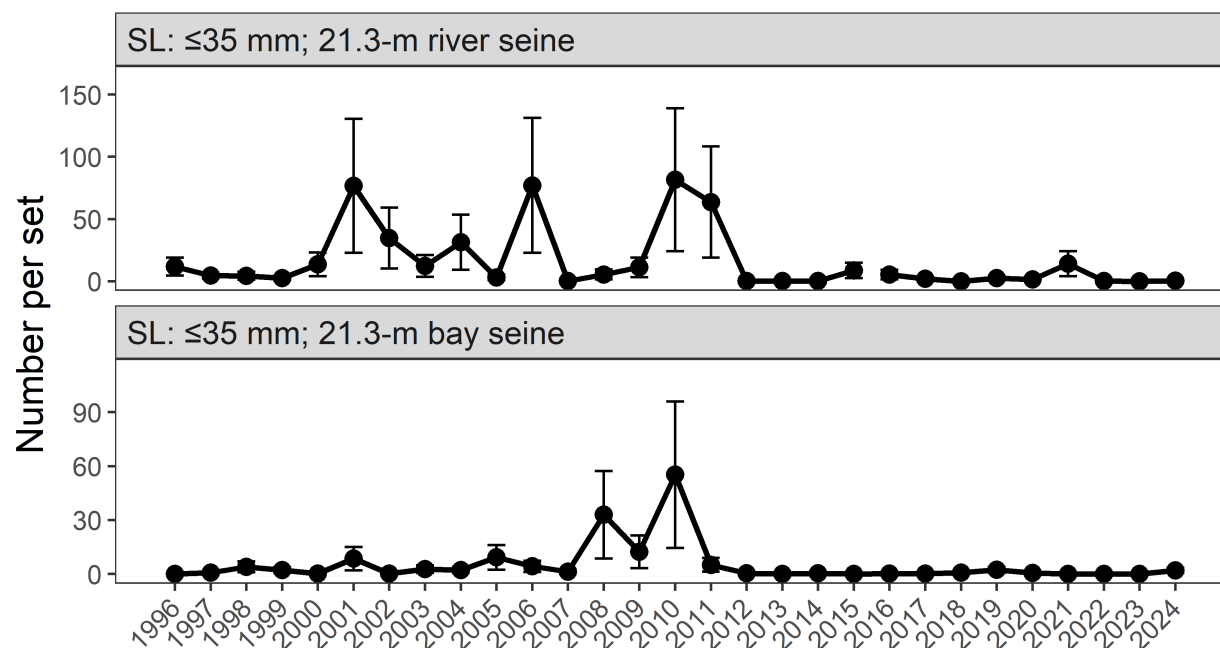


Figure 5.47: Relative abundance (± 1 SE) of young-of-the-year (≤ 35 mm SL) Striped Mullet collected between 1996 and 2024 during Charlotte Harbor stratified-random sampling. Note that survey design changes were implemented in 2016 to include sampling of tidal creeks and tributaries. These changes are reflected in the break in the IOA time series between 2015 and 2016.

Northeast Florida

Annual IOAs of YOY (≤ 35 mm SL) Striped Mullet in river habitats of Northeast Florida did not show a significant trend since 2002 (Figure 5.48). Relative abundance of YOY Striped Mullet in river habitats in 2024 increased from the previous year.

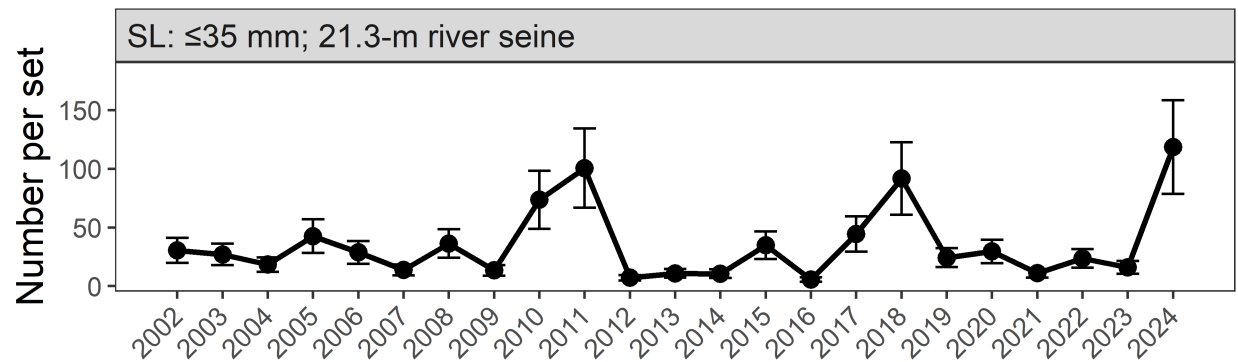


Figure 5.48: Relative abundance (± 1 SE) of young-of-the-year (≤ 35 mm SL) Striped Mullet collected between 2002 and 2024 during Northeast Florida stratified-random sampling.

Northern Indian River Lagoon

Annual IOAs of YOY (≤ 35 mm SL) Striped Mullet in river habitats of Northern Indian River Lagoon did not show a significant trend since 1999 (Figure 5.49). Relative abundance of YOY Striped Mullet in river habitats in 2024 did not differ significantly from the previous year.

Annual IOAs of YOY (≤ 35 mm SL) Striped Mullet in bay habitats of Northern Indian River Lagoon have generally increased since 1996 (Figure 5.49). Relative abundance of YOY Striped Mullet in bay habitats in 2024 did not differ significantly from the previous year.

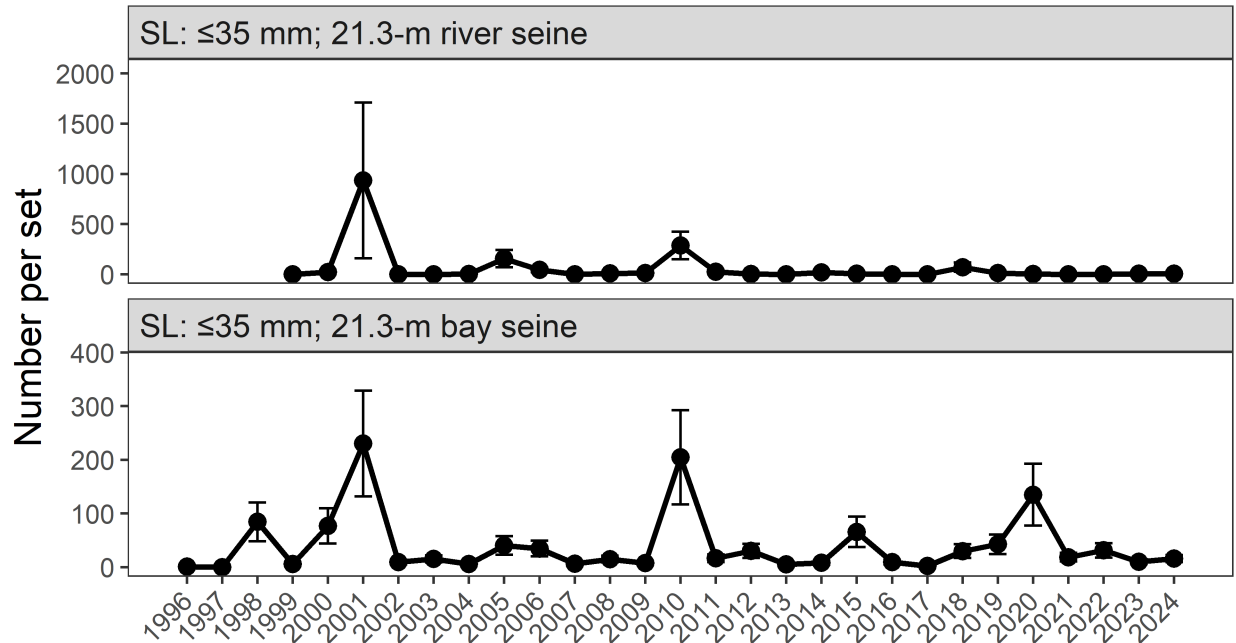


Figure 5.49: Relative abundance (± 1 SE) of young-of-the-year (≤ 35 mm SL) Striped Mullet collected between 1996 and 2024 during Northern Indian River Lagoon stratified-random sampling.

Southern Indian River Lagoon

Annual IOAs of YOY (≤ 35 mm SL) Striped Mullet in river and tidal creek habitats of Southern Indian River Lagoon did not show a significant trend since 2016 (Figure 5.50). Relative abundance of YOY Striped Mullet in river and tidal creek habitats in 2024 did not differ significantly from the previous year.

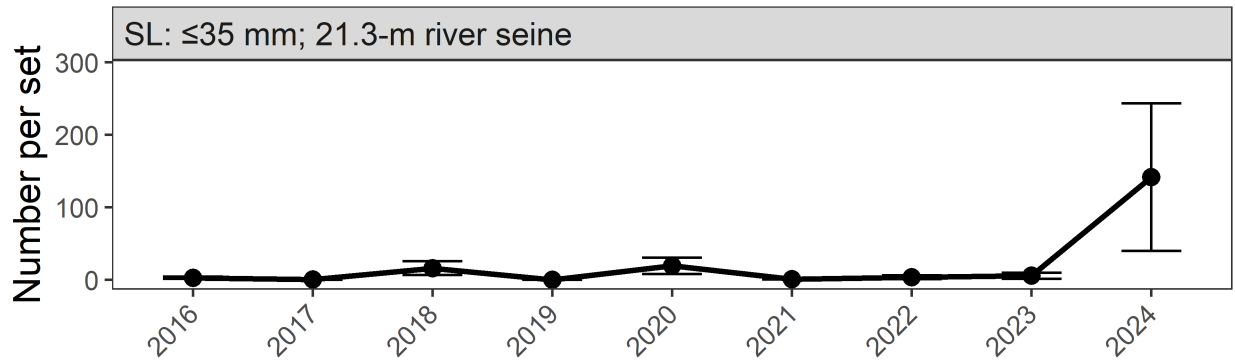


Figure 5.50: Relative abundance (± 1 SE) of young-of-the-year (≤ 35 mm SL) Striped Mullet collected between 2016 and 2024 during Southern Indian River Lagoon stratified-random sampling. Note that river sampling began in 2016 to include previously under-represented habitats (i.e., tidal creeks and tributaries).

5.8 Blue Crab, *Callinectes sapidus*

Blue Crab, *Callinectes sapidus*, support valuable commercial and recreational fisheries along the Gulf and Atlantic coasts of Florida. From 1996 to 2022, commercial landings on Florida's Gulf and Atlantic coasts averaged 6.2 and 3.1 million pounds per year and were worth an estimated 7.0 and 4.1 million dollars, respectively (Florida Fish and Wildlife Conservation Commission 2022). Following the implementation of the Florida net limitation referendum (July 1, 1995), which eliminated the use of entangling nets within three miles of the Atlantic coast and nine miles of the Gulf coast, concerns were raised that Blue Crab populations might experience increased fishing pressure from former net fishers. Even though annual commercial landings in the Gulf peaked in 1998 at almost 13 million pounds, catch-per-unit effort was already beginning to decline (Steele and Bert 1998). Landings have decreased over the years, with the lowest commercial landings of Blue Crab occurring in 2008 for the Gulf coast and 2009 for the Atlantic coast (Florida Fish and Wildlife Conservation Commission 2022; Addis et al. 2023). Commercial fishing effort for Blue Crab has been limited in recent years by restricted species permits although there are no quotas for Blue Crab landings. The annual recreational harvest of Blue Crab is not currently known or surveyed, so the total catch may be much higher than the recorded commercial landings. The two most recent Blue Crab stock assessments for Florida indicate that Blue Crabs are highly resilient to fishing pressure and despite a generally decreasing trend in fishing mortality, abundances have remained relatively stable since the 1990's (Murphy et al. 2007; Cooper et al. 2013).

Blue Crabs are an integral part of estuarine ecosystems in Florida, whether scavenging carrion or preying upon young-of-the-year (YOY) fishes, mollusks, and crustaceans. They play a valuable role in controlling populations of other estuarine species. In areas with depleted Blue Crab populations, mollusks that graze on *Spartina alterniflora* can become overpopulated and contribute to salt marsh die-offs (Silliman and Bertness 2002). Blue Crab are prey for important sportfish species such as Black Drum (Simmons and Breuer 1962), Red Drum (Gunter 1945; Scharf and Schlicht 2000), Common Snook (Blewett et al. 2006), and Cobia (Meyer and Franks 1996). In addition to predation and harvest by humans, Blue Crab populations are affected by a myriad of other factors such as freshwater inflows (Wilber 1994; Flaherty and Guenther 2011), pollution, disease, and habitat alteration. Spawning in Florida generally occurs from March through October with some limited spawning reported during winter months (Steele and Bert 1994).

To monitor year-class strength and improve the ability to predict future adult Blue Crab abundances, indices of relative abundance (IOAs) were developed for YOY Blue Crab in selected Florida estuaries. Abundance data for YOY Blue Crab (≤ 80 mm carapace width [CW], Archambault et al. 1990; Steele and Bert 1994) collected in stratified-random 21.3-m seine samples were examined to assess recruitment into seven Florida estuaries: Apalachicola Bay, Cedar Key, Tampa Bay, Charlotte Harbor, Northeast Florida, and the northern and southern portions of the Indian River Lagoon (IRL). Young-of-the-year Blue Crabs were collected with 21.3-m seines during all months, but length-frequency histograms indicate they were primarily collected from August through March. These months were therefore used to define the recruitment seasons for each estuary in subsequent analyses. Data collected from August through December of each year were combined with data from January through March of the following year to create a biological year of data. The IOA for 2024 therefore only included data from August through December 2024. Separate analyses for river and bay sets were conducted when possible to examine differences in recruitment between the two habitats. Although sampling with 21.3-m seines began earlier in Northern IRL, YOY Blue

Crab IOAs were only calculated for data after 1997 for bay seines and 2000 for river seines, following the addition of spatial zones that yielded adequate numbers of YOY Blue Crab for analyses. Indices were not calculated for estuaries where 21.3-m seines were not deployed or where limited time series data were available.

The FIM program also monitored the abundance of adult Blue Crab (>80 mm CW) within these same Florida estuaries (including Southern IRL) using stratified-random 183-m haul seines. Note, however, that some individuals classified as adults (>80 mm CW) may still have been reproductively immature as a result of individual variation in growth rates and timing of maturity (Archambault et al. 1990; Steele and Bert 1994). Due to historical changes in sampling design and available habitat, only consistently sampled zones and habitats (bay or river) in each estuary were included to generate annual IOAs.

Indices of Abundance

The following figures show relative abundance of young-of-the-year Blue Crab (≤ 80 mm CW) collected in 21.3-m seines and of adult Blue Crab (>80 mm CW) collected in 183-m haul seines during stratified-random sampling across all estuaries. Points represent an unbiased estimate of the mean abundance (calculated as the median value of the distribution of model estimates), while the vertical bars represent the standard error of the estimate (calculated as the 25th-75th percentiles of model estimates). Note different scales for estimates from 21.3-m and 183-m seines.

Apalachicola Bay

Annual IOAs of YOY (≤ 80 mm CW) Blue Crab in bay habitats of Apalachicola Bay have generally increased since 1997 (Figure 5.51). Relative abundance of YOY Blue Crab in bay habitats in 2024 did not differ significantly from the previous year.

Annual IOAs of adult (> 80 mm CW) Blue Crab in Apalachicola Bay did not show a significant trend since 1998 (Figure 5.51). Relative abundance of adult Blue Crab in 2024 did not differ significantly from the previous year.

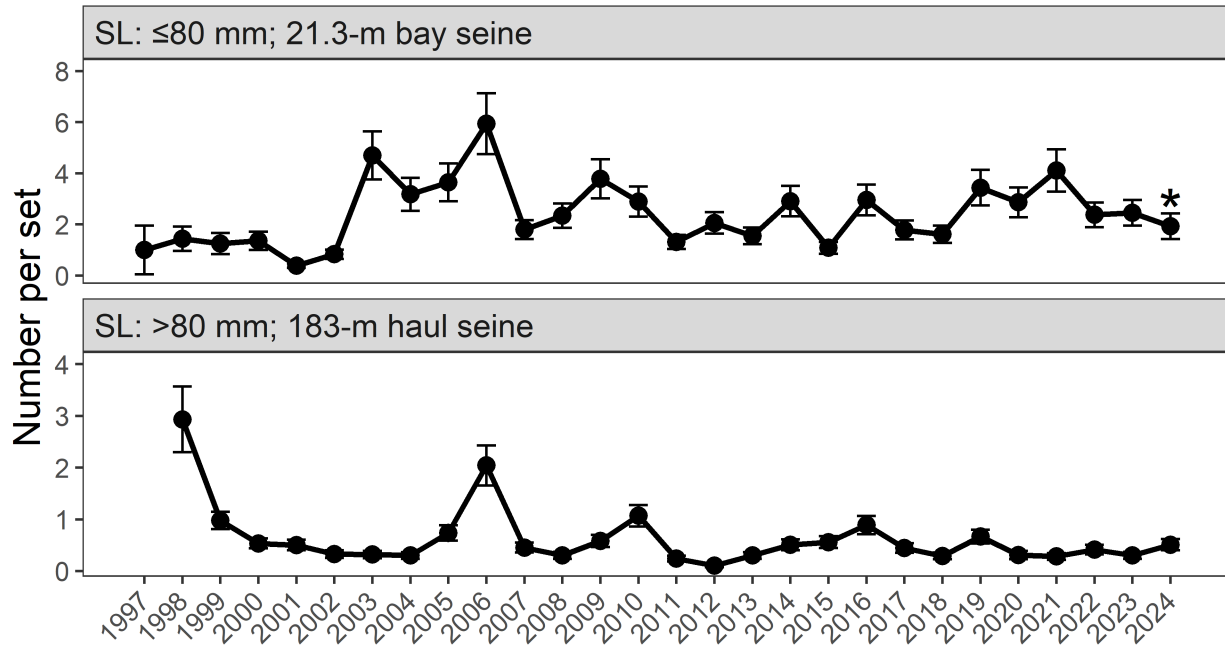


Figure 5.51: Relative abundance (± 1 SE) of young-of-the-year (≤ 80 mm CW) and adult (> 80 mm CW) Blue Crab collected between 1997 and 2024 during Apalachicola Bay stratified-random sampling. *21.3-m seine IOAs for 2024 do not include a complete biological year because data from January-March of 2025 were unavailable at the time the report was prepared.

Cedar Key

Annual IOAs of YOY (≤ 80 mm CW) Blue Crab in river habitats of Cedar Key did not show a significant trend since 1996 (Figure 5.52). Relative abundance of YOY Blue Crab in river habitats in 2024 did not differ significantly from the previous year.

Annual IOAs of YOY (≤ 80 mm CW) Blue Crab in bay habitats of Cedar Key did not show a significant trend since 1996 (Figure 5.52). Relative abundance of YOY Blue Crab in bay habitats in 2024 did not differ significantly from the previous year.

Annual IOAs of adult (> 80 mm CW) Blue Crab in Cedar Key did not show a significant trend since 1997 (Figure 5.52). Relative abundance of adult Blue Crab in 2024 did not differ significantly from the previous year.

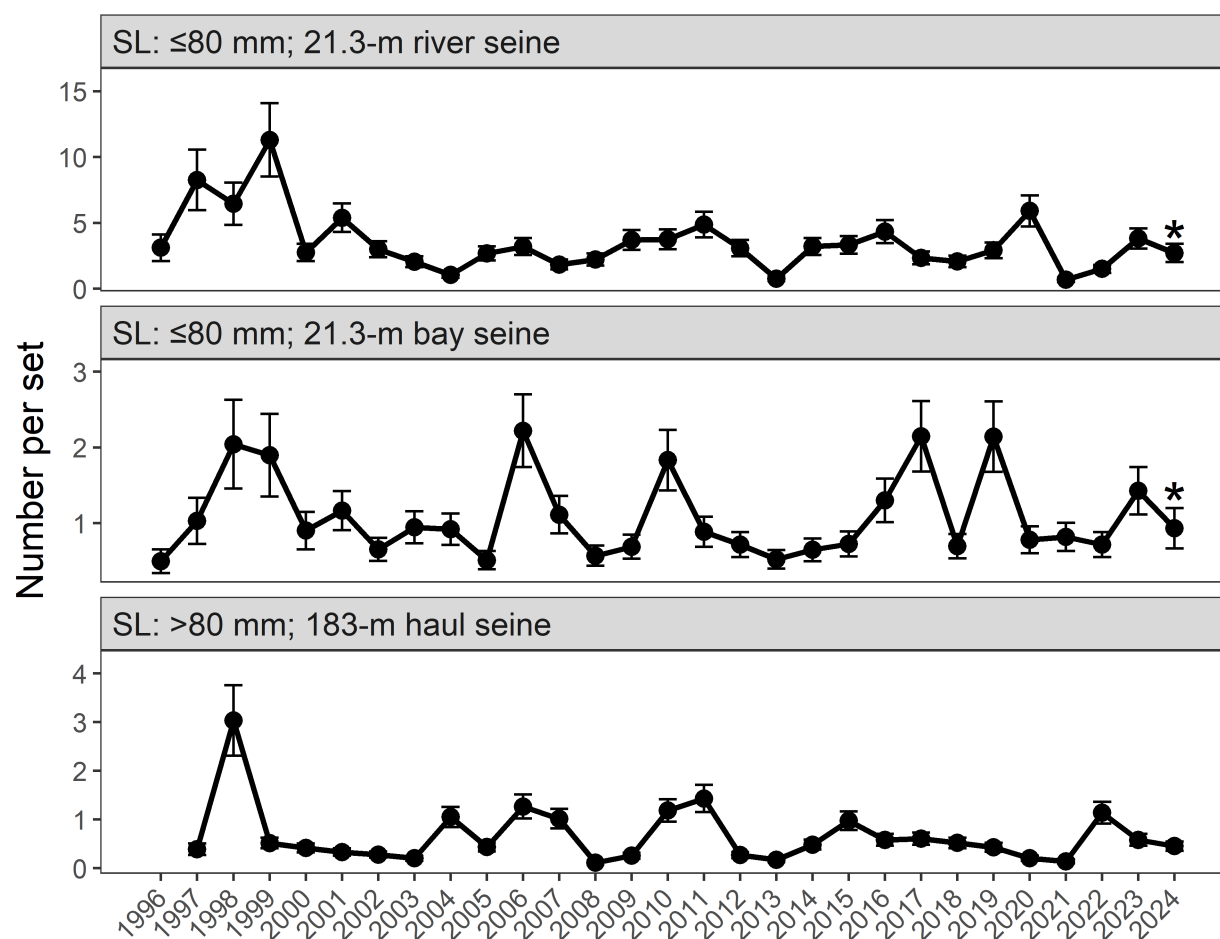


Figure 5.52: Relative abundance (± 1 SE) of young-of-the-year (≤ 80 mm CW) and adult (> 80 mm CW) Blue Crab collected between 1996 and 2024 during Cedar Key stratified-random sampling. *21.3-m seine IOAs for 2024 do not include a complete biological year because data from January-March of 2025 were unavailable at the time the report was prepared..

Tampa Bay

Annual IOAs of YOY (≤ 80 mm CW) Blue Crab in river habitats of Tampa Bay have generally decreased since 1996 (Figure 5.53). Relative abundance of YOY Blue Crab in river habitats in 2024 did not differ significantly from the previous year.

Annual IOAs of YOY (≤ 80 mm CW) Blue Crab in bay habitats of Tampa Bay did not show a significant trend since 1996 (Figure 5.53). Relative abundance of YOY Blue Crab in bay habitats in 2024 did not differ significantly from the previous year.

Annual IOAs of adult (>80 mm CW) Blue Crab in Tampa Bay have generally decreased since 1996 (Figure 5.53). Relative abundance of adult Blue Crab in 2024 did not differ significantly from the previous year.

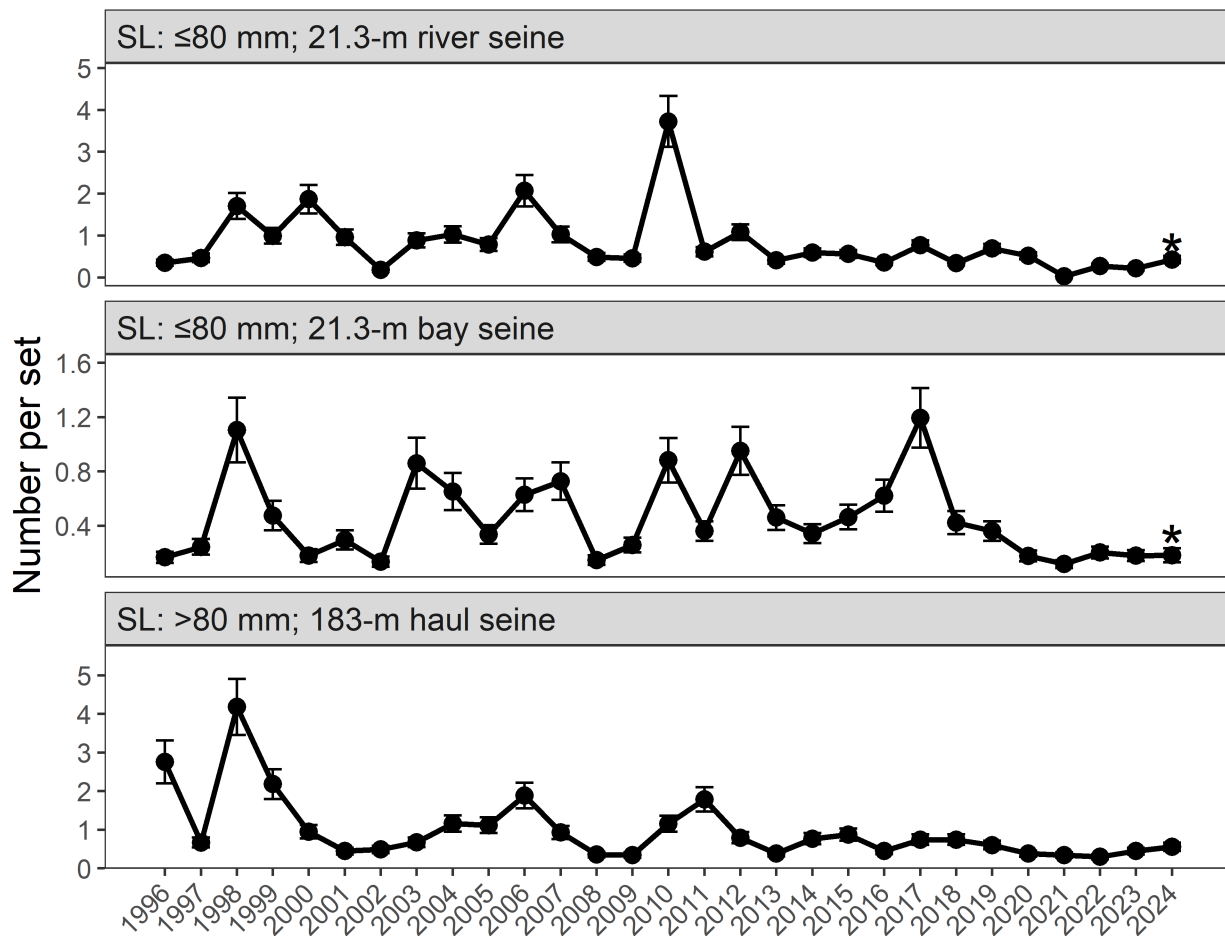


Figure 5.53: Relative abundance (± 1 SE) of young-of-the-year (≤ 80 mm CW) and adult (>80 mm CW) Blue Crab collected between 1996 and 2024 during Tampa Bay stratified-random sampling. *21.3-m seine IOAs for 2024 do not include a complete biological year because data from January-March of 2025 were unavailable at the time the report was prepared..

Charlotte Harbor

Annual IOAs of YOY (≤ 80 mm CW) Blue Crab in river habitats of Charlotte Harbor did not show a significant trend since 1996 (Figure 5.54). Relative abundance of YOY Blue Crab in river habitats in 2024 did not differ significantly from the previous year.

Annual IOAs of YOY (≤ 80 mm CW) Blue Crab in bay habitats of Charlotte Harbor did not show a significant trend since 1996 (Figure 5.54). Relative abundance of YOY Blue Crab in bay habitats in 2024 did not differ significantly from the previous year.

Annual IOAs of adult (>80 mm CW) Blue Crab in Charlotte Harbor did not show a significant trend since 1996 (Figure 5.54). Relative abundance of adult Blue Crab in 2024 did not differ significantly from the previous year.

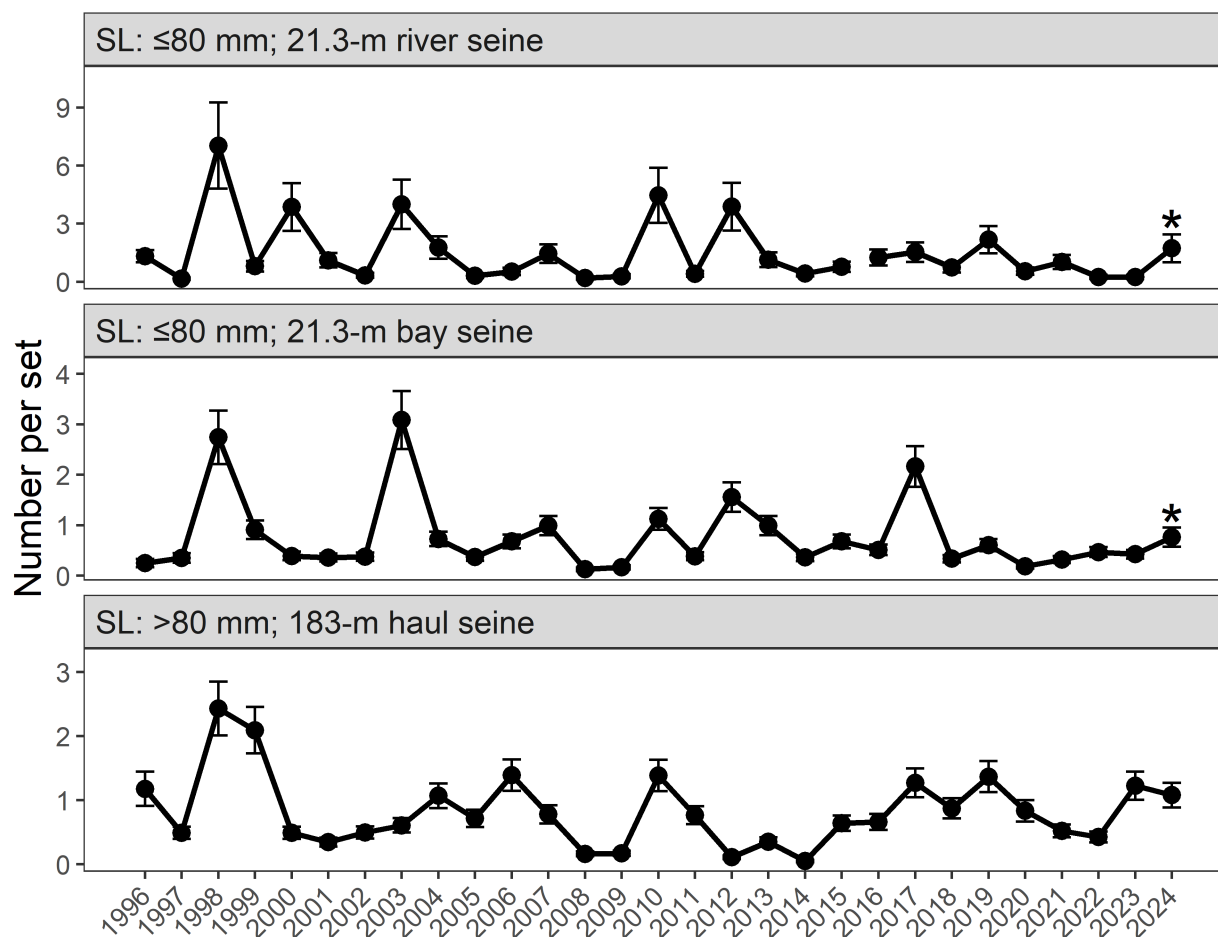


Figure 5.54: Relative abundance (± 1 SE) of young-of-the-year (≤ 80 mm CW) and adult (>80 mm CW) Blue Crab collected between 1996 and 2024 during Charlotta Harbor stratified-random sampling. Note that survey design changes were implemented in 2016 to include sampling of tidal creeks and tributaries. These changes are reflected in the break in the IOA time series between 2015 and 2016. *21.3-m seine IOAs for 2024 do not include a complete biological year because data from January-March of 2025 were unavailable at the time the report was prepared..

Northeast Florida

Annual IOAs of YOY (≤ 80 mm CW) Blue Crab in river habitats of Northeast Florida have generally decreased since 2001 (Figure 5.55). Relative abundance of YOY Blue Crab in river habitats in 2024 did not differ significantly from the previous year.

Annual IOAs of adult (> 80 mm CW) Blue Crab in Northeast Florida have generally decreased since 2001 (Figure 5.55). Relative abundance of adult Blue Crab in 2024 did not differ significantly from the previous year.

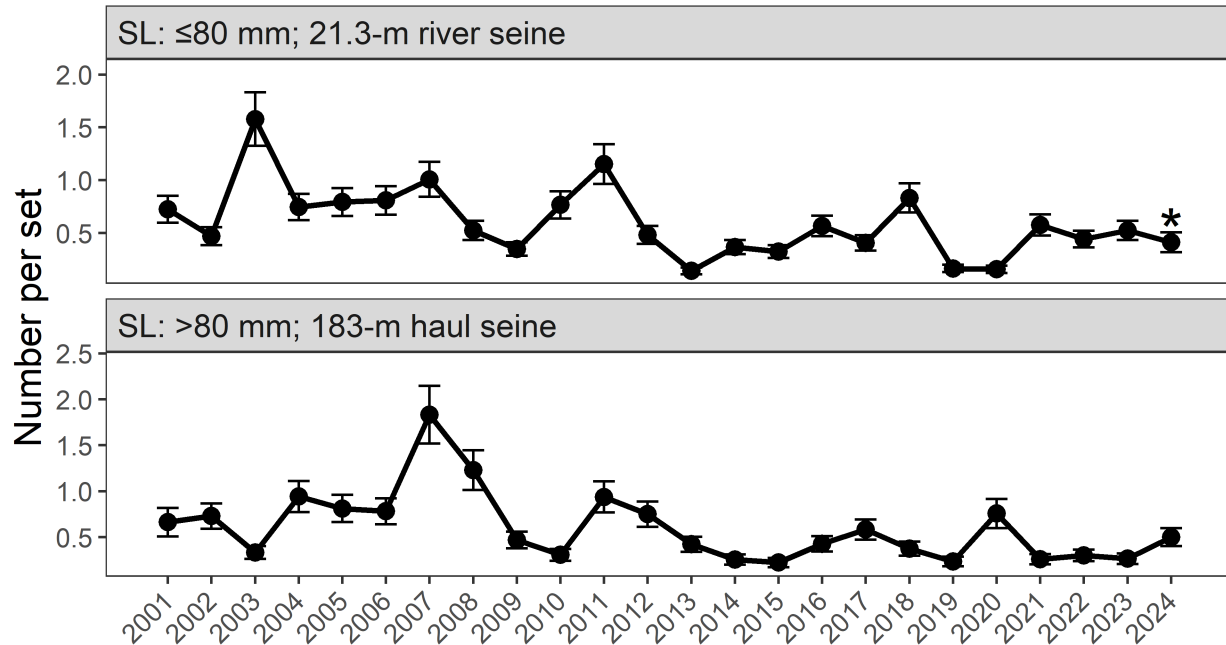


Figure 5.55: Relative abundance (± 1 SE) of young-of-the-year (≤ 80 mm CW) and adult (> 80 mm CW) Blue Crab collected between 2001 and 2024 during Northeast Florida stratified-random sampling. *21.3-m seine IOAs for 2024 do not include a complete biological year because data from January-March of 2025 were unavailable at the time the report was prepared..

Northern Indian River Lagoon

Annual IOAs of YOY (≤ 80 mm CW) Blue Crab in river habitats of Northern Indian River Lagoon have generally increased since 1998 (Figure 5.56). Relative abundance of YOY Blue Crab in river habitats in 2024 did not differ significantly from the previous year.

Annual IOAs of YOY (≤ 80 mm CW) Blue Crab in bay habitats of Northern Indian River Lagoon did not show a significant trend since 1996 (Figure 5.56). Relative abundance of YOY Blue Crab in bay habitats in 2024 did not differ significantly from the previous year.

Annual IOAs of adult (>80 mm CW) Blue Crab in Northern Indian River Lagoon have generally decreased since 1997 (Figure 5.56). Relative abundance of adult Blue Crab abundance in 2024 did not differ significantly from the previous year.

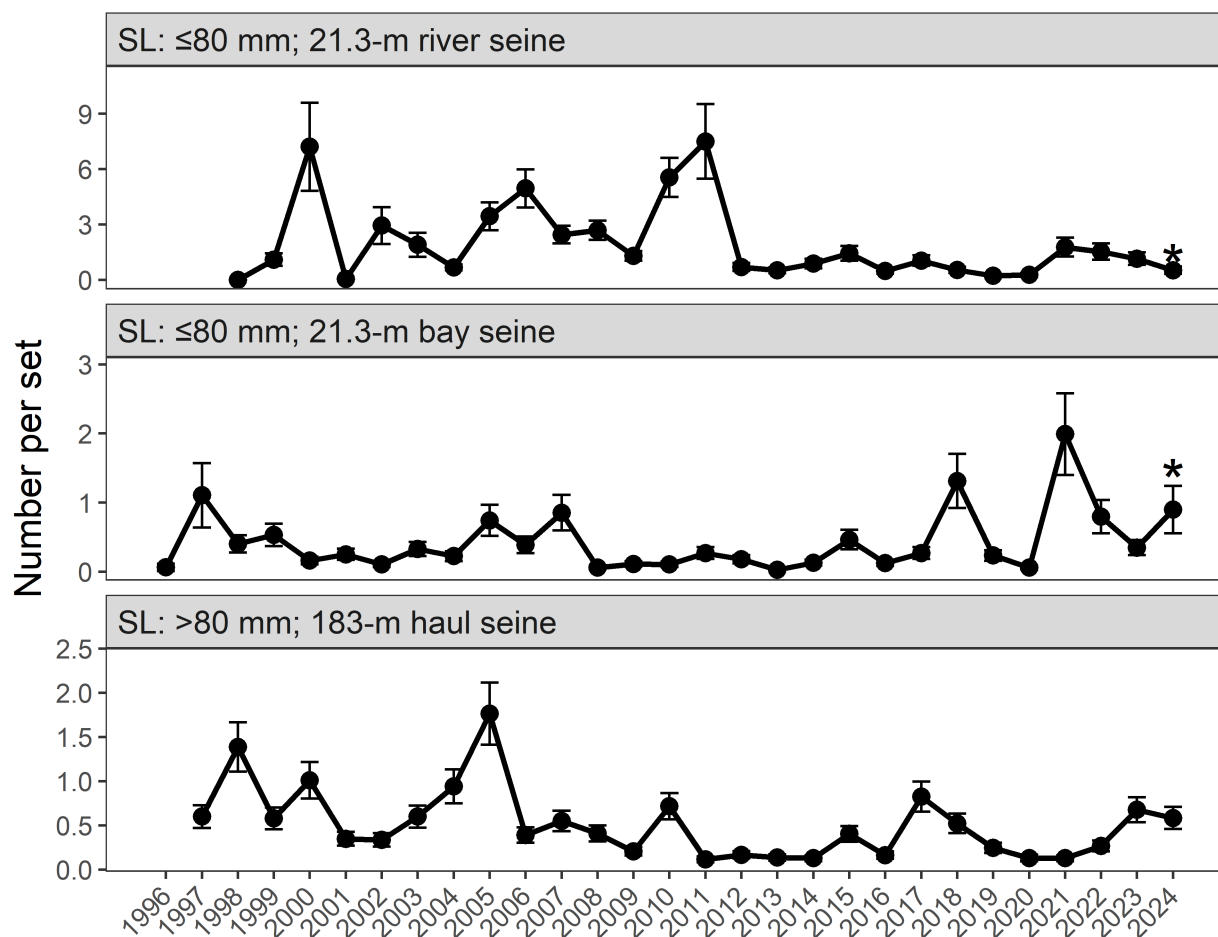


Figure 5.56: Relative abundance (± 1 SE) of young-of-the-year (≤ 80 mm CW) and adult (>80 mm CW) Blue Crab collected between 1996 and 2024 during Northern Indian River Lagoon stratified-random sampling. *21.3-m seine IOAs for 2024 do not include a complete biological year because data from January-March of 2025 were unavailable at the time the report was prepared..

Southern Indian River Lagoon

Annual IOAs of YOY (≤ 80 mm CW) Blue Crab in river habitats of Southern Indian River Lagoon did not show a significant trend since 2016 (Figure 5.57). Relative abundance of YOY Blue Crab in river habitats in 2024 did not differ significantly from the previous year.

Annual IOAs of adult (> 80 mm CW) Blue Crab in Southern Indian River Lagoon have generally decreased since 1997 (Figure 5.57). Relative abundance of adult Blue Crab in 2024 did not differ significantly from the previous year.

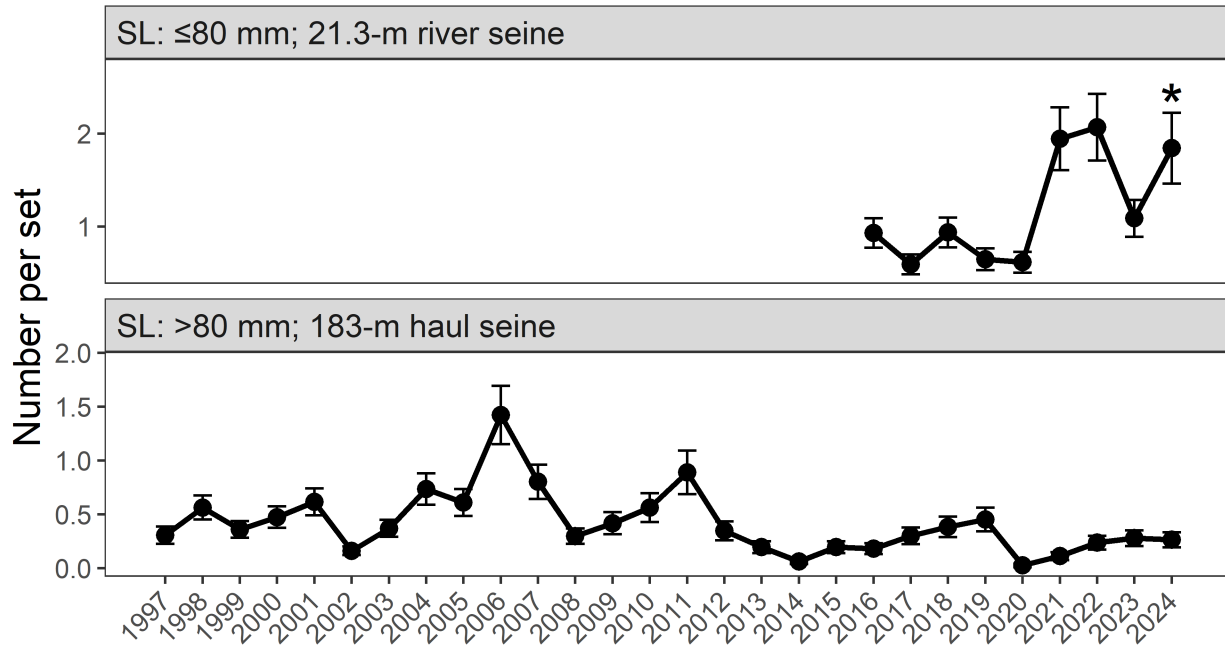


Figure 5.57: Relative abundance (± 1 SE) of young-of-the-year (≤ 80 mm CW) and adult (> 80 mm CW) Blue Crab collected between 1997 and 2024 during Southern Indian River Lagoon stratified-random sampling. Note that survey design changes were implemented in 2016 to include sampling of tidal creeks and tributaries. *21.3-m seine IOAs for 2024 do not include a complete biological year because data from January-March of 2025 were unavailable at the time the report was prepared..

Length-Frequency Diagrams

The following figure shows length-frequency diagrams of Blue Crab collected in 183-m haul seines. All lengths are carapace width (CW). Note different scales and years of collection for each estuary. Length-frequency data collected with 183-m haul seines indicate that this gear provides valuable information on adult Blue Crab in Florida estuaries (Figure [5.58](#)).

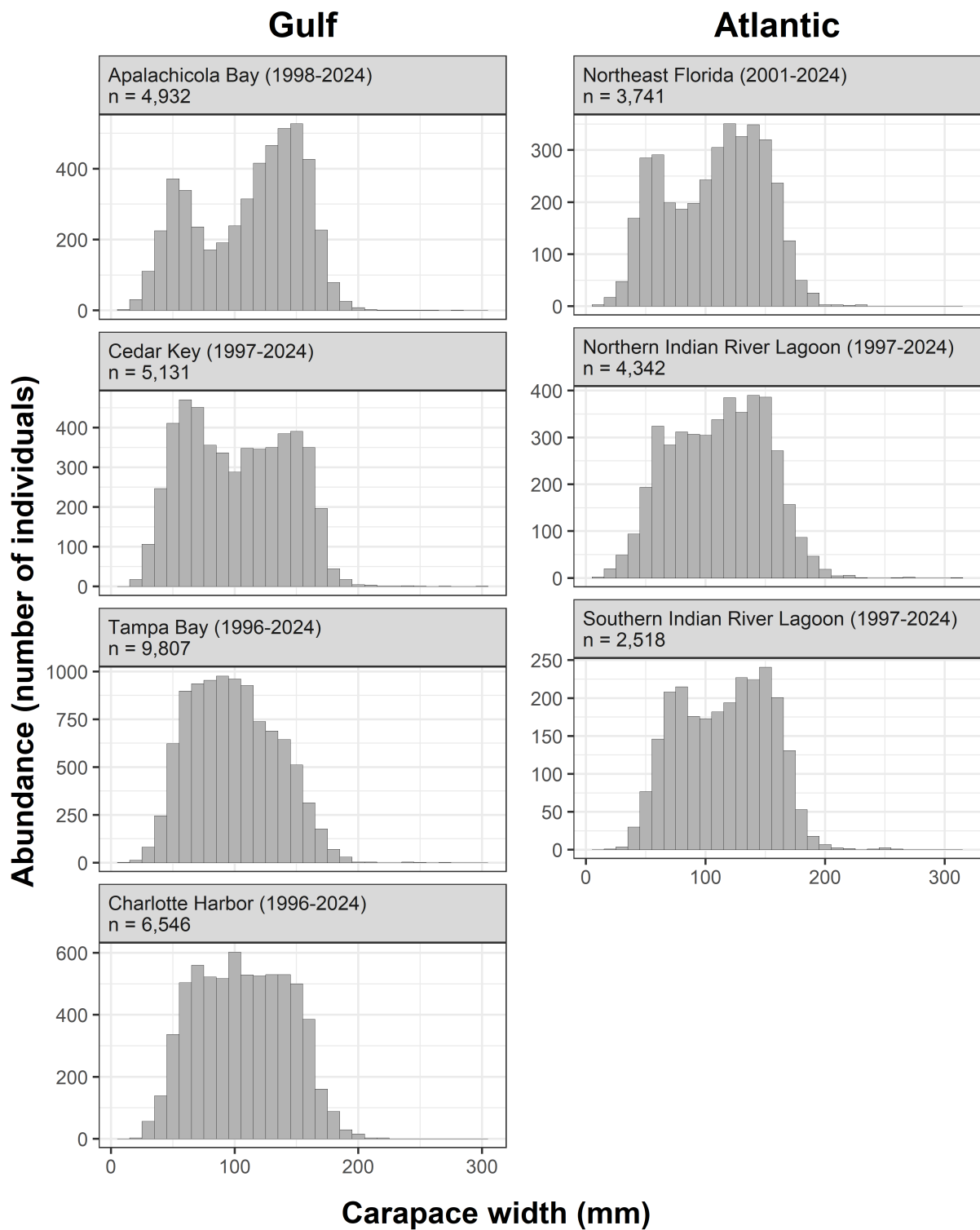


Figure 5.58: Length-frequency diagrams of Blue Crab collected in 183-m haul seines.

6 Fish Health Monitoring

6.1 Introduction

Long-term, multi-gear, and multi-habitat sampling programs, such as the Fisheries-Independent Monitoring (FIM) program, not only provide fish population information to fisheries managers, but also help to document changes and evaluate the effects of natural and anthropogenic disturbances on ecosystems (Wolfe et al. 1987). Increased urban development in coastal areas has made adjacent aquatic ecosystems (estuaries, bays, and tidal rivers) some of the most intensively fertilized environments on earth (Cloern et al. 1995). The influx of nutrients and other materials commonly associated with urban development and industry has led to concerns about the concomitant eutrophication and degradation of water quality in Florida's coastal systems. Evidence of a correlation between environmental degradation and the occurrence of certain fish diseases continues to accumulate (Sindermann 1979). The incidence of gross external abnormalities (GEAs) in marine species, defined as those illnesses or deformations easily observed in the field, provide valuable information on the level of environmental stress placed upon species in estuarine and coastal waters (Fournie et al. 1996). Baseline information on the frequency of occurrence of GEAs is necessary to identify changes in the ecological health of Florida's estuaries.

The Fish and Wildlife Research Institute's (FWRI) FIM program began to document visually observed GEAs (including parasites) on fish and selected invertebrates in Florida's estuaries in April 1998. The main objectives of the fish health monitoring component of the FIM program are to categorize prominent types of GEAs observed, identify which species are most susceptible, and document normal background levels of fish health problems¹. This report summarizes the occurrence of GEAs observed on fish ≥ 75 mm standard length (SL) and selected invertebrates collected during routine stratified-random sampling (SRS) in select Florida estuaries in 2024 (Figure 1.1).

6.2 Methods

Fish health monitoring was conducted in all Florida estuarine areas sampled by the FIM program. All fish (≥ 75 mm SL) and selected invertebrates were visually examined for GEAs. Abnormalities that were opportunistically observed on specimens < 75 mm SL were also recorded; however, they are not presented in this report. Specimens with gross external abnormalities were assigned a Gross External Abnormality (GEA) code in the field by FIM staff, packed on ice, and returned to the lab. These specimens were sent to the FWRI's Fish and Wildlife Health (FWH) group in St. Petersburg, Florida, for detailed diagnosis. Specimens collected from estuaries outside the Tampa Bay region were either fixed in 10% formalin or shipped on ice to the FWH group. After

¹Prior to 2022, FIM's Annual Report incorrectly documented the total number of individuals collected for each species (Table 6.3), resulting in overestimates of the proportion of unhealthy specimens in any given year. This has been rectified in current and future Annual Reports.

evaluating each specimen, the FWH group assigned a GEA code to each specimen. Gross external abnormality codes assigned by fish pathologists in the FWH group took priority over those assigned in the field. Specimens that were assigned a GEA code and released in the field (i.e., fish with scoliosis or gill isopods) retained their original GEA code assigned in the field by FIM program staff. Nine GEA codes were used:

Code	Description
P	Parasitic infestation
B	Red or bloody areas (no scale loss)
F	Fin rot (inflamed or frayed fins)
U	Ulcer or lesion (muscle tissue affected)
E	Erosion or scale loss (only epidermis or dermis involved, muscle tissue not affected)
S	Skeletal abnormalities (vertebral, opercular, or fin deformities)
T	Tumor, cyst (raised area)
O	Other (i.e., emaciated fish, healing wound, eye discoloration, missing parts, and mechanical damage)
D	Dead prior to collection

6.3 Results and Discussion

Of the 240,843 fish (≥ 75 mm SL) and selected invertebrates that were collected statewide during FIM SRS in 2024, 859 (38 taxa, 0.4%) were observed to have a GEA (Table 6.2). Northern Indian River Lagoon had the highest incidence of specimens with GEAs (1.8%). Santa Rosa Sound (0%) had the lowest incidence of specimens with observed GEAs. Statewide, 9 categories of GEAs were observed in 2024. The most often identified GEA was parasitic infection (P; $n=698$; Table 6.3) accounting for 81.3% of all GEAs observed from all estuaries. The next most common GEA observed was other abnormality (O; $n=37$). Of the top 10 taxa observed to have a GEA, 6 were of recreational or commercial importance (i.e., Selected Taxa). *Ariopsis felis* ($n=674$) had the highest incidence of GEAs. The majority of the GEAs for that species were parasitic infection (P; $n=640$). *Ariopsis felis* (6.1%) had the highest prevalence of GEAs.

Table 6.2: Incidence of external abnormalities in fish and selected invertebrates collected during stratified-random sampling in each estuary during 2024.

Estuary	Number Collected	Number Affected	Percent Affected
Santa Rosa Sound	4,373	0	0
Choctawhatchee Bay	8,352	1	<0.1
Apalachicola Bay	30,884	61	0.2
Cedar Key	15,551	4	<0.1
Tampa Bay	60,389	35	<0.1
Sarasota Bay	11,898	10	<0.1
Charlotte Harbor	45,296	7	<0.1
Northeast Florida	11,451	7	<0.1
Northern Indian River Lagoon	36,916	679	1.8
Southern Indian River Lagoon	15,733	55	0.3
Total	240,843	859	0.4

Data are based only on fish ≥ 75 mm SL and include total number collected, number affected by gross external abnormalities, and percentage affected by gross external abnormalities.

Table 6.3: Top 10 taxa having gross external abnormalities, sorted by descending Percent Affected, collected from all estuaries sampled by the Fisheries-Independent Monitoring program during stratified-random sampling, 2024.

Taxa	Number Collected (≥75 mm SL)	Number Affected (≥75 mm SL)	Gross External Abnormality (GEA) code ¹									Percent Affected
			P	B	F	U	E	S	T	O	D	
<i>Ariopsis felis</i>	11,018	674	640	30	.	.	.	1	.	3	.	6.1
<i>Hypanus say</i>	859	12	10	.	.	.	.	2	.	.	.	1.4
<i>Pogonias cromis</i>	896	8	.	.	.	5	.	2	.	1	.	0.9
<i>Callinectes sapidus</i>	1,935	13	12	.	.	.	.	.	.	.	1	0.7
<i>Mugil curema</i>	7,808	37	7	.	7	5	1	.	.	17	.	0.5
<i>Strongylura notata</i>	1,784	8	5	.	.	.	.	3	.	.	.	0.4
<i>Sciaenops ocellatus</i>	2,190	9	2	.	1	3	1	1	.	1	.	0.4
<i>Mugil cephalus</i>	9,538	21	3	1	3	6	.	.	1	7	.	0.2
<i>Hypanus sabinus</i>	5,015	8	4	3	.	.	.	.	.	1	.	0.2
<i>Leiostomus xanthurus</i>	8,986	10	.	.	5	3	1	.	.	1	.	0.1
Subtotal (top 10 taxa with GEAs)	50,029	800	683	34	16	22	3	9	1	31	1	1.6
Total (all taxa)	240,843	859	698	35	27	26	4	21	7	37	4	0.4

¹P = parasitic infestation; B = red or bloody areas; F = fin rot; U = ulcer or lesion; E = erosion or scale loss; S = skeletal abnormalities; T = tumor/cysts; O = other; D = dead.

Number collected = total number of each species collected (≥75 mm SL). Number affected = total number of individuals (≥75 mm SL) observed with abnormalities. The number of fish affected is further broken down by specific GEA Code. Percent affected = (number affected / number collected) * 100. Taxa in bold font are categorized as Selected Taxa by the FIM program.

6.4 Incidence by Bay

For each bay, specimens examined refers to the total number of each species collected (≥ 75 mm SL). Number affected refers to the total number of individuals (≥ 75 mm SL) observed with abnormalities. The number of fish affected is further broken down by specific GEA Code. Percent affected is calculated as (Number affected / Number collected) * 100. Taxa in bold font are categorized as Selected Taxa by the FIM program.

Santa Rosa Sound: Apalachicola Bay staff examined 4,373 specimens for GEAs. No GEAs were reported in this estuary.

Choctawhatchee Bay: Apalachicola Bay staff examined 8,352 specimens for GEAs. There was 1 individual ($<0.1\%$) from 1 taxon that had a GEA (Table 6.4). Erosion or scale loss (E) was the only GEA observed.

Apalachicola Bay: Apalachicola Bay staff examined 30,884 specimens for GEAs. There were 61 individuals (0.2%) from 11 taxa, 7 of which were selected taxa, that had a GEA (Table 6.5). Other abnormality (O; n=25) was the most common GEA observed and accounted for 41% of the affected Apalachicola Bay specimens.

Cedar Key: Cedar Key staff examined 15,551 specimens for GEAs. There were 4 individuals ($<0.1\%$) from 4 taxa, 4 of which were selected taxa, that had a GEA (Table 6.6). No GEA was most common (i.e., each observed GEA accounted for the same percent of affected Cedar Key specimens).

Tampa Bay: Tampa Bay staff examined 60,389 specimens for GEAs. There were 35 individuals ($<0.1\%$) from 21 taxa, 7 of which were selected taxa, that had a GEA (Table 6.7). Parasitic infection (P; n=12) was the most common GEA observed and accounted for 34.3% of the affected Tampa Bay specimens.

Sarasota Bay: Tampa Bay staff examined 11,898 specimens for GEAs. There were 10 individuals ($<0.1\%$) from 2 taxa, 2 of which were selected taxa, that had a GEA (Table 6.8). Parasitic infection (P; n=9) was the most common GEA observed and accounted for 90% of the affected Sarasota Bay specimens.

Charlotte Harbor: Charlotte Harbor staff examined 45,296 specimens for GEAs. There were 7 individuals ($<0.1\%$) from 6 taxa, 2 of which were selected taxa, that had a GEA (Table 6.9). Parasitic infection (P; n=3) was the most common GEA observed and accounted for 42.9% of the affected Charlotte Harbor specimens.

Northeast Florida: Northeast Florida staff examined 11,451 specimens for GEAs. There were 7 individuals ($<0.1\%$) from 5 taxa, 2 of which were selected taxa, that had a GEA (Table 6.10). Ulcer or lesion (U; n=4) was the most common GEA observed and accounted for 57.1% of the affected Northeast Florida specimens.

Northern Indian River Lagoon: Northern Indian River Lagoon staff examined 36,916 specimens for GEAs. There were 679 individuals (1.8%) from 16 taxa, 6 of which were selected taxa, that had a GEA (Table 6.11). Parasitic infection (P; n=620) was the most common GEA observed and accounted for 91.3% of the affected Northern Indian River Lagoon specimens.

Southern Indian River Lagoon: Southern Indian River Lagoon staff examined 15,733 specimens for GEAs. There were 55 individuals (0.3%) from 4 taxa, 2 of which were selected taxa, that

had a GEA (Table [6.12](#)). Parasitic infection (P; n=53) was the most common GEA observed and accounted for 96.4% of the affected Southern Indian River Lagoon specimens.

Table 6.4: List of taxa, sorted by Percent Affected in descending order, having gross external abnormalities collected in Choctawhatchee Bay stratified-random sampling, 2024.

Scientific Name	Number Collected (≥75 mm SL)	Number Affected (≥75 mm SL)	Gross External Abnormality (GEA) code ¹									Percent Affected
			P	B	F	U	E	S	T	O	D	
<i>Lagodon rhomboides</i>	4,085	1	.	.	.	.	1	.	.	.	.	<0.1
Total (all taxa)	8,352	1	.	.	.	.	1	.	.	.	.	<0.1

¹P = parasitic infestation; B = red or bloody areas; F = fin rot; U = ulcer or lesion; E = erosion or scale loss; S = skeletal abnormalities; T = tumor/cysts; O = other; D = dead.

Table 6.5: List of taxa, sorted by Percent Affected in descending order, having gross external abnormalities collected in Apalachicola Bay stratified-random sampling, 2024.

Scientific Name	Number Collected (≥75 mm SL)	Number Affected (≥75 mm SL)	Gross External Abnormality (GEA) code ¹									Percent Affected
			P	B	F	U	E	S	T	O	D	
<i>Ictalurus punctatus</i>	11	1	.	.	.	.	.	.	1	.	.	9.1
<i>Pogonias cromis</i>	140	6	.	.	.	5	.	.	.	1	.	4.3
<i>Mugil curema</i>	540	21	.	.	.	3	1	.	.	17	.	3.9
<i>Archosargus probatocephalus</i>	121	2	.	.	.	1	.	1	.	.	.	1.7
<i>Sciaenops ocellatus</i>	514	6	.	.	1	3	1	.	.	1	.	1.2
<i>Leiostomus xanthurus</i>	2,042	10	.	.	5	3	1	.	.	1	.	0.5
<i>Mugil cephalus</i>	2,582	9	.	.	.	5	.	.	.	4	.	0.3
<i>Cynoscion nebulosus</i>	383	1	.	.	.	.	.	1	.	.	.	0.3
<i>Ariopsis felis</i>	854	2	.	.	.	.	.	1	.	1	.	0.2
<i>Bairdiella chrysoura</i>	2,395	1	.	.	1	.	.	.	.	.	.	<0.1
<i>Lagodon rhomboides</i>	11,540	2	.	.	.	.	.	2	.	.	.	<0.1
Total (all taxa)	30,884	61	.	.	7	20	3	5	1	25	.	0.2

¹P = parasitic infestation; B = red or bloody areas; F = fin rot; U = ulcer or lesion; E = erosion or scale loss; S = skeletal abnormalities; T = tumor/cysts; O = other; D = dead.

Table 6.6: List of taxa, sorted by Percent Affected in descending order, having gross external abnormalities collected in Cedar Key stratified-random sampling, 2024.

Scientific Name	Number Collected (≥75 mm SL)	Number Affected (≥75 mm SL)	Gross External Abnormality (GEA) code ¹									Percent Affected
			P	B	F	U	E	S	T	O	D	
<i>Centropomus undecimalis</i>	85	1	.	1	.	.	.	.	.	.	.	1.2
<i>Callinectes sapidus</i>	157	1	1	.	.	.	.	.	.	.	.	0.6
<i>Mugil curema</i>	177	1	.	.	.	1	.	.	.	.	.	0.6
<i>Elops saurus</i>	261	1	.	.	.	.	.	1	.	.	.	0.4
Total (all taxa)	15,551	4	1	1	.	1	.	1	.	.	.	<0.1

¹P = parasitic infestation; B = red or bloody areas; F = fin rot; U = ulcer or lesion; E = erosion or scale loss; S = skeletal abnormalities; T = tumor/cysts; O = other; D = dead.

Table 6.7: List of taxa, sorted by Percent Affected in descending order, having gross external abnormalities collected in Tampa Bay stratified-random sampling, 2024.

Scientific Name	Number Collected (≥75 mm SL)	Number Affected (≥75 mm SL)	Gross External Abnormality (GEA) code ¹									Percent Affected
			P	B	F	U	E	S	T	O	D	
<i>Hoplosternum littorale</i>	3	3	.	.	.	.	.	.	.	3	.	100
<i>Lepisosteus platyrhincus</i>	2	1	1	.	.	.	.	.	.	.	.	50
<i>Carcharhinus leucas</i>	6	1	.	.	.	.	.	.	.	1	.	16.7
<i>Menticirrhus americanus</i>	23	2	.	.	.	.	.	1	1	.	.	8.7
<i>Lepisosteus osseus</i>	12	1	1	.	.	.	.	.	.	.	.	8.3
<i>Pomatomus saltatrix</i>	16	1	.	.	.	.	.	.	.	1	.	6.2
<i>Trinectes maculatus</i>	28	1	.	.	.	.	.	.	.	1	.	3.6
<i>Sarotherodon melanotheron</i>	51	1	.	.	.	.	.	1	.	.	.	2
<i>Strongylura notata</i>	572	7	5	.	.	.	.	2	.	.	.	1.2
<i>Sciaenops ocellatus</i>	255	2	1	.	.	.	.	1	.	.	.	0.8
<i>Hypanus sabinus</i>	545	3	.	3	.	.	.	.	.	.	.	0.6
<i>Chilomycterus schoepfii</i>	183	1	.	.	1	.	.	.	.	.	.	0.5
<i>Archosargus probatocephalus</i>	520	2	2	.	.	.	.	.	.	.	.	0.4
<i>Callinectes sapidus</i>	282	1	1	.	.	.	.	.	.	.	.	0.4
<i>Centropomus undecimalis</i>	781	2	.	.	1	.	.	.	1	.	.	0.3
<i>Mugil cephalus</i>	498	1	.	.	1	.	.	.	.	.	.	0.2
<i>Eugerres plumieri</i>	755	1	.	.	.	.	.	.	.	.	1	0.1
<i>Orthopristis chrysoptera</i>	873	1	.	.	.	.	.	1	.	.	.	0.1
<i>Opisthonema oglinum</i>	4,956	1	.	.	.	.	.	.	.	.	1	<0.1
<i>Eucinostomus gula</i>	14,165	1	1	.	.	.	.	.	.	.	.	<0.1
<i>Lagodon rhomboides</i>	24,605	1	.	.	.	.	.	.	1	.	.	<0.1
Total (all taxa)	60,389	35	12	3	3	.	.	6	3	6	2	<0.1

Scientific Name	Number Collected (≥75 mm SL)	Number Affected (≥75 mm SL)	Gross External Abnormality (GEA) code ¹								Percent Affected
			P	B	F	U	E	S	T	O	D

¹P = parasitic infestation; B = red or bloody areas; F = fin rot; U = ulcer or lesion; E = erosion or scale loss; S = skeletal abnormalities; T = tumor/cysts; O = other; D = dead.

Table 6.8: List of taxa, sorted by Percent Affected in descending order, having gross external abnormalities collected in Sarasota Bay stratified-random sampling, 2024.

Scientific Name	Number Collected (≥75 mm SL)	Number Affected (≥75 mm SL)	Gross External Abnormality (GEA) code ¹									Percent Affected
			P	B	F	U	E	S	T	O	D	
<i>Callinectes sapidus</i>	66	9	9	.	.	.	.	.	.	.	.	13.6
<i>Archosargus probatocephalus</i>	220	1	.	.	.	.	.	1	.	.	.	0.5
Total (all taxa)	11,898	10	9	.	.	.	.	1	.	.	.	<0.1

¹P = parasitic infestation; B = red or bloody areas; F = fin rot; U = ulcer or lesion; E = erosion or scale loss; S = skeletal abnormalities; T = tumor/cysts; O = other; D = dead.

Table 6.9: List of taxa, sorted by Percent Affected in descending order, having gross external abnormalities collected in Charlotte Harbor stratified-random sampling, 2024.

Scientific Name	Number Collected (≥75 mm SL)	Number Affected (≥75 mm SL)	Gross External Abnormality (GEA) code ¹									Percent Affected
			P	B	F	U	E	S	T	O	D	
<i>Hemiramphus brasiliensis</i>	1	1	1	.	.	.	.	.	.	.	.	100
<i>Opsanus beta</i>	108	1	.	.	.	.	.	.	.	.	1	0.9
<i>Caranx hippos</i>	128	1	.	.	.	.	.	.	1	.	.	0.8
<i>Callinectes sapidus</i>	370	2	1	.	.	.	.	.	.	.	1	0.5
<i>Centropomus undecimalis</i>	1,309	1	.	.	.	.	.	.	1	.	.	<0.1
<i>Bairdiella chrysoura</i>	2,151	1	1	.	.	.	.	.	.	.	.	<0.1
Total (all taxa)	45,296	7	3	.	.	.	.	.	2	.	2	<0.1

¹P = parasitic infestation; B = red or bloody areas; F = fin rot; U = ulcer or lesion; E = erosion or scale loss; S = skeletal abnormalities; T = tumor/cysts; O = other; D = dead.

Table 6.10: List of taxa, sorted by Percent Affected in descending order, having gross external abnormalities collected in Northeast Florida stratified-random sampling, 2024.

Scientific Name	Number Collected (≥75 mm SL)	Number Affected (≥75 mm SL)	Gross External Abnormality (GEA) code ¹									Percent Affected
			P	B	F	U	E	S	T	O	D	
<i>Orthopristis chrysoptera</i>	21	1	.	.	.	1	.	.	.	.	.	4.8
<i>Ameiurus catus</i>	314	1	.	.	.	1	.	.	.	.	.	0.3
<i>Mugil curema</i>	1,269	3	.	.	2	1	.	.	.	.	.	0.2
<i>Bairdiella chrysoura</i>	712	1	.	.	.	.	.	1	.	.	.	0.1
<i>Mugil cephalus</i>	1,658	1	.	.	.	1	.	.	.	.	.	<0.1
Total (all taxa)	11,451	7	.	.	2	4	.	1	.	.	.	<0.1

¹P = parasitic infestation; B = red or bloody areas; F = fin rot; U = ulcer or lesion; E = erosion or scale loss; S = skeletal abnormalities; T = tumor/cysts; O = other; D = dead.

Table 6.11: List of taxa, sorted by Percent Affected in descending order, having gross external abnormalities collected in Northern Indian River Lagoon stratified-random sampling, 2024.

Scientific Name	Number Collected (≥75 mm SL)	Number Affected (≥75 mm SL)	Gross External Abnormality (GEA) code ¹									Percent Affected
			P	B	F	U	E	S	T	O	D	
<i>Ariopsis felis</i>	2,871	623	591	30	.	.	.	.	.	2	.	21.7
<i>Hyporhamphus meeki</i>	32	2	2	.	.	.	.	.	.	.	.	6.2
<i>Hypanus say</i>	225	12	10	.	.	.	.	2	.	.	.	5.3
<i>Sphoeroides nephelus</i>	474	5	1	.	4	.	.	.	.	.	.	1.1
<i>Pogonias cromis</i>	215	2	.	.	.	.	.	2	.	.	.	0.9
<i>Mugil cephalus</i>	1,456	9	3	.	2	.	.	.	1	3	.	0.6
<i>Caranx hippos</i>	172	1	.	.	1	.	.	.	.	.	.	0.6
<i>Hypanus sabinus</i>	903	5	4	.	.	.	.	.	.	1	.	0.6
<i>Strongylura notata</i>	212	1	.	.	.	.	.	1	.	.	.	0.5
<i>Mugil curema</i>	3,870	12	7	.	5	.	.	.	.	.	.	0.3
<i>Sciaenops ocellatus</i>	389	1	1	.	.	.	.	.	.	.	.	0.3
<i>Archosargus probatocephalus</i>	552	1	.	.	.	.	.	1	.	.	.	0.2
<i>Lagodon rhomboides</i>	1,150	2	.	.	1	.	.	1	.	.	.	0.2
<i>Centropomus undecimalis</i>	716	1	.	.	1	.	.	.	.	.	.	0.1
<i>Brevoortia</i> spp.	2,261	1	.	.	1	.	.	.	.	.	.	<0.1
<i>Bairdiella chrysoura</i>	2,425	1	1	.	.	.	.	.	.	.	.	<0.1
Total (all taxa)	36,916	679	620	30	15	.	.	7	1	6	.	1.8

¹P = parasitic infestation; B = red or bloody areas; F = fin rot; U = ulcer or lesion; E = erosion or scale loss; S = skeletal abnormalities; T = tumor/cysts; O = other; D = dead.

Table 6.12: List of taxa, sorted by Percent Affected in descending order, having gross external abnormalities collected in Southern Indian River Lagoon stratified-random sampling, 2024.

Scientific Name	Number Collected (≥75 mm SL)	Number Affected (≥75 mm SL)	Gross External Abnormality (GEA) code ¹									Percent Affected
			P	B	F	U	E	S	T	O	D	
<i>Pomatomus saltatrix</i>	3	1	.	.	.	1	.	.	.	.	.	33.3
<i>Ariopsis felis</i>	740	49	49	.	.	.	.	.	.	.	.	6.6
<i>Sphoeroides testudineus</i>	312	4	4	.	.	.	.	.	.	.	.	1.3
<i>Mugil cephalus</i>	323	1	.	1	.	.	.	.	.	.	.	0.3
Total (all taxa)	15,733	55	53	1	.	1	.	.	.	.	.	0.3

¹P = parasitic infestation; B = red or bloody areas; F = fin rot; U = ulcer or lesion; E = erosion or scale loss; S = skeletal abnormalities; T = tumor/cysts; O = other; D = dead.

Part II

Fisheries-Independent Monitoring: Polyhaline Seagrass Sampling

7 Introduction

The Fisheries-Independent Monitoring (FIM) program has conducted inshore (estuarine) monitoring in various eastern Gulf estuaries as early as 1989, but habitats commonly occupied by juvenile reef fish species (i.e., seagrass beds and shoals) were underrepresented. Indeed, the FIM program captured highly variable numbers of juveniles of estuarine-dependent reef species, resulting in highly variable indices of juvenile abundance (Switzer et al. 2012, 2015; Flaherty-Walia et al. 2015). Researchers and managers recommended improving indices of juvenile abundance for reef species (Switzer et al. 2012; Flaherty-Walia et al. 2015) so in 2008, FIM initiated a complementary sampling survey to fulfill the mission of providing timely and accurate data for fishery management. Results from existing FIM data for the eastern Gulf were used to inform the design of the complementary survey to characterize the abundance of juvenile Gag, *Mycteroperca microlepis* (Casey et al. 2007; Switzer et al. 2015), and other estuarine-dependent and seagrass-associated reef fishes by targeting the preferred polyhaline (salinity > 18 PSU) seagrass habitat. Work in Charlotte Harbor was instrumental in developing the survey, as Casey et al. (2007) documented that juvenile Gag were collected mainly between April and December in habitats with ≥ 50% seagrass cover. In 2008, the FIM program initiated this complementary polyhaline seagrass survey to extend its standard, long-term monitoring survey to deep seagrass habitats found in estuaries already sampled by the FIM program and in adjacent estuaries not sampled by the FIM program. The polyhaline seagrass survey was originally conducted in St. Andrew Bay, Apalachicola Bay, three sub-areas in the Big Bend area (near St. Marks, the Econfinia and Steinhatchee Rivers), Tampa Bay, and Charlotte Harbor. In 2021, polyhaline seagrass survey methodology was adopted in Choctawhatchee Bay and Santa Rosa Sound near Fort Walton to help provide data for Spotted Seatrout, *Cynoscion nebulosus*, management (Figure 7.1). This survey provides necessary data for improving existing single species assessments as well as furthering the development of a multi-species, ecosystem-based approach to fisheries resource assessment on the West Florida shelf and eastern Gulf waters.

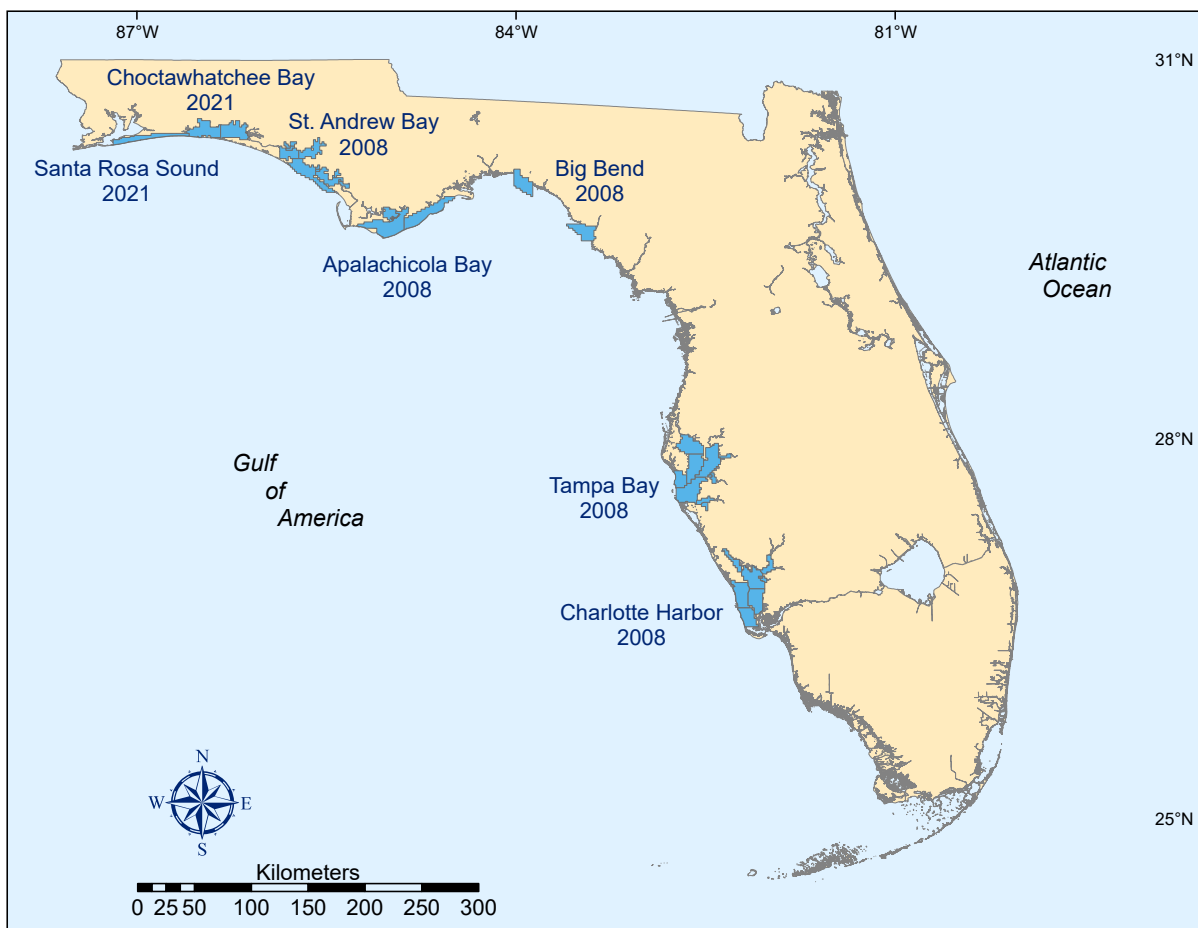


Figure 7.1: Locations of Polyhaline Seagrass Survey study areas sampled by the Fisheries-Independent Monitoring program. Years indicate initiation of sampling.

8 Methods

The polyhaline seagrass survey was conducted along the eastern Gulf between 26° and 31° N latitude within six estuarine systems and the Big Bend area (Figure 7.1). The sampling universe for each area was created using bathymetry and seagrass coverage data from the local water management districts. To ensure sampling effort was allocated spatially within each estuarine system, spatial sampling zones were created. Sampling strata were defined based on bathymetric variability and seagrass coverage: microgrids (0.1-nm²) that were in the appropriate depth range (1.0-7.6m) for the sampling gear and contained known seagrass were included in the universe. The sampling gear was identical to that used in the standard long-term FIM stratified random sampling survey: the 6.1-m otter trawl. All sample work-up methods were the same as those described in Chapter 2.

Monthly (June–November) surveys were conducted following a stratified-random survey design where microgrids were randomly selected. Trawling was conducted over areas with >50% submerged aquatic vegetation coverage and where water depth ranged between 1.0 and 7.6 m. Additional details regarding 6.1-m otter trawl sampling in the WI survey can be found in Switzer et al. (2012), Flaherty-Walia et al. (2015), and Schrandt et al. (2018; 2021, 2023). Sampling of polyhaline seagrass areas was conducted in Santa Rosa Sound, Choctawhatchee Bay, St. Andrew Bay, Apalachicola Bay, the Big Bend region (in proximity to the Econfinia and Steinhatchee Rivers), Tampa Bay, and Charlotte Harbor. This section includes a description of and catch summary from each estuarine system for all taxa sampled as well as for species of interest, which include reef-associated species and managed species (Table 8.1). Several of these species are also included in the list of selected taxa that are highlighted in FIM's core sampling (Table 8). Catch summaries are combined over all zones within each estuarine system.

Table 8.1: Animals designated as species of interest by the Fisheries Independent Monitoring program because of their recreational and commercial importance or association with reef structure.

Scientific Name	Common Name
<i>Archosargus probatocephalus</i>	Sheepshead
<i>Centropomus undecimalis</i>	Common Snook
<i>Centropristis striata</i>	Black Sea Bass
<i>Cynoscion nebulosus</i>	Spotted Seatrout
<i>Epinephelus morio</i>	Red Grouper
<i>Haemulon plumieri</i>	White Grunt
<i>Lachnolaimus maximus</i>	Hogfish
<i>Lutjanus griseus</i>	Gray Snapper
<i>Lutjanus synagris</i>	Lane Snapper
<i>Mycteroperca microlepis</i>	Gag
<i>Sciaenops ocellatus</i>	Red Drum

Table 8.2: Summary of catch and effort data by estuary for polyhaline seagrass sampling, 2024.

Bay	Hauls	Animals
Santa Rosa Sound	48	19,608
Choctawhatchee Bay	54	9,646
St. Andrew Bay	72	28,083
Apalachicola Bay	96	24,666
Big Bend	180	27,120
Tampa Bay	144	43,316
Charlotte Harbor	120	31,349
Total	714	183,788

9 Data Summary by Estuary

9.1 Santa Rosa Sound

Santa Rosa Sound is a 109-km² lagoon connecting Pensacola Bay to the west and Choctawhatchee Bay to the east (Northwest Florida Water Management District 2017a). The lagoon has no tidal tributaries for direct freshwater input but is connected to the Gulf by a deep pass west of Santa Rosa Island (Figure 9.1). Shoreline vegetation consists primarily of the marsh grasses *Spartina alterniflora* and *Panicum hemitomon* (Miller et al. 2001). Bottom substrate is mostly sand (Miller et al. 2001) and bottom vegetation consists primarily of seagrasses such as *Halodule wrightii* and *Thalassia testudinum* (Bradley and Houser 2009). Seagrass beds covered nearly 25% of the lagoon in 1960, but by 1992 less than half remained because of wastewater discharge, dredging, and beach modifications (Handley et al. 2007). By 2010, seagrass coverage declined by an additional 5% (Yarbro and Carlson 2016).

Monthly sampling in Santa Rosa Sound was completed from June through November with a total of 19,608 individuals collected across 48 samples (Table 8.2). The most abundant taxa collected in Santa Rosa Sound polyhaline seagrass sampling were *Lagodon rhomboides* (n=12,043) and *Bairdiella chrysoura* (n=2,572), accounting for 74.5% of the trawl catch (Table 9.1). The taxa most frequently caught in Santa Rosa Sound polyhaline seagrass sampling were *Lagodon rhomboides* (100% occurrence) and *Bairdiella chrysoura* (100% occurrence).

A total of 313 animals from 4 species of interest were collected, representing 1.6% of the entire polyhaline seagrass trawl catch (Table 9.2). *Cynoscion nebulosus* (n=286) was the most abundant species of interest, accounting for 91.4% of the species of interest collected in polyhaline seagrass trawls (Table 9.2). The species of interest most frequently caught in Santa Rosa Sound polyhaline seagrass sampling were *Cynoscion nebulosus* (83.3% occurrence) and *Lutjanus griseus* (25% occurrence).

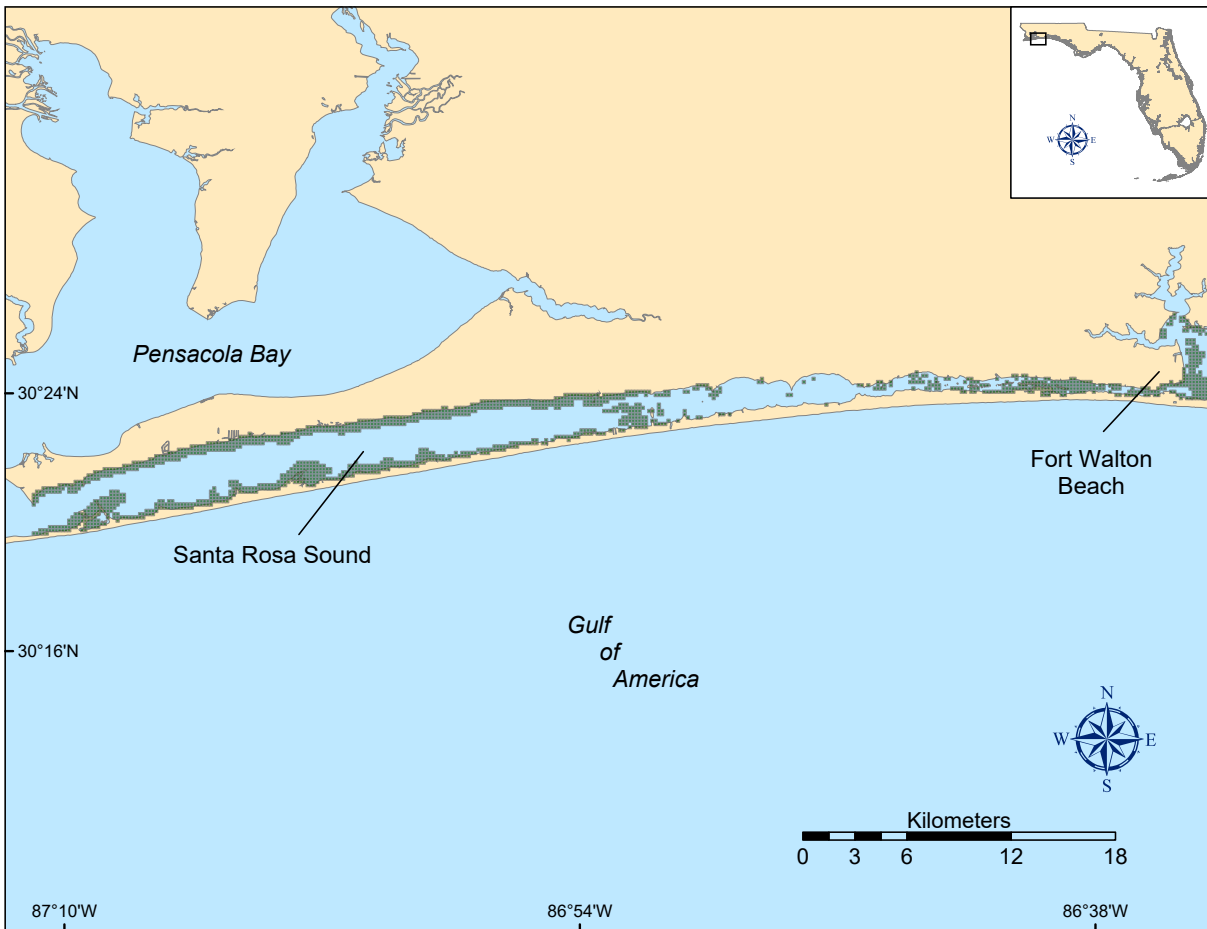


Figure 9.1: Santa Rosa Sound polyhaline seagrass habitat sampling universe. Micro-grids (0.1nm^2) eligible to be sampled are indicated in green. Adjacent areas that met the sampling requirements, but were not necessarily included in the original universe, could be sampled if necessary.

Table 9.1: Catch statistics for 10 dominant taxa collected in 48 6.1-m otter trawl samples during Santa Rosa Sound polyhaline seagrass sampling, June-November, 2024.

Species	Number			Density Estimate (animals/100m ²)				Standard Length (mm)			
	No.	%	% Occur	Mean	Stderr	CV	Max	Mean	Stderr	Min	Max
<i>Lagodon rhomboides</i>	12,043	61.4	100.0	24.67	3.46	114.71	121.56	61	0.22	25	180
<i>Bairdiella chrysoura</i>	2,572	13.1	100.0	6.09	0.94	120.00	32.83	63	0.52	12	155
<i>Orthopristis chrysoptera</i>	1,819	9.3	97.9	3.69	0.64	145.97	28.11	103	1.08	30	201
<i>Farfantepenaeus</i> spp.	491	2.5	72.9	1.50	0.32	147.56	9.61	10	0.12	4	14
<i>Callinectes sapidus</i>	384	2.0	81.2	1.13	0.22	134.35	7.02	66	1.51	9	170
<i>Syngnathus floridae</i>	387	2.0	85.4	1.09	0.19	118.65	6.01	157	1.64	68	223
<i>Syngnathus scovelli</i>	323	1.6	83.3	0.97	0.17	119.82	4.45	94	0.96	53	135
<i>Eucinostomus</i> spp.	285	1.5	47.9	0.83	0.21	173.85	6.34	24	0.34	13	39
<i>Cynoscion nebulosus</i>	286	1.5	83.3	0.75	0.13	125.58	3.88	73	2.68	15	297
<i>Chasmodes saburrae</i>	169	0.9	79.2	0.50	0.09	123.28	1.89	44	0.97	14	71
Subtotal	18,759	95.8	.	.	.	.	.	.	.	4	297
Total	19,608	100.0	.	57.14	5.87	71.17	154.34	.	.	4	358

Percent (%) is the percent of the total catch represented by that taxon; percent occurrence (% Occur) is the percentage of samples in which that taxon was collected; CV is the coefficient of variation of the mean. Taxa are ranked in order of decreasing mean density.

Table 9.2: Catch statistics for species of interest collected in 48 6.1-m otter trawl samples during Santa Rosa Sound polyhaline sea-grass sampling, June-November, 2024.

Species	Number			Density Estimate (animals/100m ²)				Standard Length (mm)			
	No.	%	% Occur	Mean	Stderr	CV	Max	Mean	Stderr	Min	Max
<i>Cynoscion nebulosus</i>	286	1.5	83.3	0.75	0.13	125.58	3.88	73	2.68	15	297
<i>Lutjanus griseus</i>	20	0.1	25.0	0.06	0.02	232.52	0.75	63	4.95	30	120
<i>Lutjanus synagris</i>	4	<0.1	6.2	0.01	0.01	424.94	0.30	86	10.88	55	104
<i>Archosargus probatocephalus</i>	3	<0.1	6.2	0.01	<0.01	391.40	0.13	69	19.00	43	106
Total	313	1.6	.	0.97	0.16	112.88	4.35	.	.	15	297

Percent (%) is the percent of the total catch represented by that taxon; percent occurrence (% Occur) is the percentage of samples in which that taxon was collected; CV is the coefficient of variation of the mean. Taxa are ranked in order of decreasing mean density.

9.2 Choctawhatchee Bay

Choctawhatchee Bay (Figure 9.2) is a 334-km² estuary located in the central Florida Panhandle that is connected to the Gulf by a shallow man-made channel, East Pass, near the city of Destin (Handley et al. 2007; Northwest Florida Water Management District 2017b). Tidal influence is minimal and tidal ranges are small, from 0.15 to 0.5 meters (Huguenard et al. 2016). Major habitat types in Choctawhatchee Bay include tidal marshes, seagrass beds, bayous, and oyster beds (Northwest Florida Water Management District 2017b). Shoreline vegetation consists mostly of the marsh grasses *Juncus roemerianus*, *Spartina alterniflora*, and *Scirpus* spp. (Northwest Florida Water Management District 2017b). Choctawhatchee Bay is moderately deep with depths ranging from 3 to 13 meters and bottom substrate that is mostly sand, mud, and shell (Handley et al. 2007; Northwest Florida Water Management District 2017b). Bottom vegetation is predominantly *Halodule wrightii* with patches of *Ruppia maritima* and *Thalassia testudinum* (Handley et al. 2007; Northwest Florida Water Management District 2017b). Choctawhatchee Bay seagrass beds covered 17.2 km² in 1992 but had declined by 55% by 2007 (Yarbro and Carlson 2016). Seagrass losses observed in Choctawhatchee Bay are a result of urbanization, especially the construction of seawalls, which reduces the size of intertidal areas and impedes seagrass growth (Handley et al. 2007).

Monthly sampling in Choctawhatchee Bay was completed from June through November with a total of 9,646 individuals collected across 54 samples (Table 8.2). The most abundant taxa collected in Choctawhatchee Bay polyhaline seagrass sampling were *Lagodon rhomboides* (n=4,918) and *Bairdiella chrysoura* (n=1,186), accounting for 63.3% of the trawl catch (Table 9.3). The taxa most frequently caught in Choctawhatchee Bay polyhaline seagrass sampling were *Lagodon rhomboides* (98.1% occurrence) and *Eucinostomus* spp. (88.9% occurrence).

A total of 409 animals from 5 species of interest were collected, representing 4.2% of the entire polyhaline seagrass trawl catch (Table 9.4). *Cynoscion nebulosus* (n=244) was the most abundant species of interest, accounting for 59.7% of the species of interest collected in polyhaline seagrass trawls (Table 9.4). The species of interest most frequently caught in Choctawhatchee Bay polyhaline seagrass sampling were *Cynoscion nebulosus* (68.5% occurrence) and *Lutjanus griseus* (40.7% occurrence).



Figure 9.2: Choctawhatchee Bay polyhaline seagrass habitat sampling universe. Microgrids (0.1nm^2) eligible to be sampled are indicated in green. Adjacent areas that met the sampling requirements, but were not necessarily included in the original universe, could be sampled if necessary.

Table 9.3: Catch statistics for 10 dominant taxa collected in 54 6.1-m otter trawl samples during Choctawhatchee Bay polyhaline sea-grass sampling, June-November, 2024.

Species	Number			Density Estimate (animals/100m ²)				Standard Length (mm)			
	No.	%	% Occur	Mean	Stderr	CV	Max	Mean	Stderr	Min	Max
<i>Lagodon rhomboides</i>	4,918	51.0	98.1	10.52	2.43	183.12	117.87	65	0.37	23	170
<i>Bairdiella chrysoura</i>	1,186	12.3	63.0	2.51	0.75	236.20	35.08	49	0.83	12	145
<i>Eucinostomus</i> spp.	928	9.6	88.9	2.37	0.47	145.53	16.64	27	0.24	11	39
<i>Orthopristis chrysoptera</i>	769	8.0	79.6	1.81	0.27	111.29	9.44	87	1.28	22	215
<i>Cynoscion nebulosus</i>	244	2.5	68.5	0.52	0.11	172.56	5.73	71	3.09	15	459
<i>Callinectes sapidus</i>	192	2.0	61.1	0.48	0.10	151.94	3.43	67	3.32	3	201
<i>Eucinostomus gula</i>	182	1.9	66.7	0.46	0.08	125.97	2.25	57	1.14	40	96
<i>Microgobius gulosus</i>	137	1.4	24.1	0.32	0.23	527.07	12.39	30	0.49	13	43
<i>Lutjanus griseus</i>	124	1.3	40.7	0.31	0.12	283.51	5.67	53	1.23	11	108
<i>Syngnathus scovelli</i>	116	1.2	61.1	0.30	0.08	197.88	3.90	80	1.58	34	115
Subtotal	8,796	91.2	.	.	.	.	.	.	.	3	459
Total	9,646	100.0	.	24.13	4.10	124.84	160.31	.	.	3	459

Percent (%) is the percent of the total catch represented by that taxon; percent occurrence (% Occur) is the percentage of samples in which that taxon was collected; CV is the coefficient of variation of the mean. Taxa are ranked in order of decreasing mean density.

Table 9.4: Catch statistics for species of interest collected in 54 6.1-m otter trawl samples during Choctawhatchee Bay polyhaline sea-grass sampling, June-November, 2024.

Species	Number			Density Estimate (animals/100m ²)				Standard Length (mm)			
	No.	%	% Occur	Mean	Stderr	CV	Max	Mean	Stderr	Min	Max
<i>Cynoscion nebulosus</i>	244	2.5	68.5	0.52	0.11	172.56	5.73	71	3.09	15	459
<i>Lutjanus griseus</i>	124	1.3	40.7	0.31	0.12	283.51	5.67	53	1.23	11	108
<i>Lutjanus synagris</i>	32	0.3	22.2	0.08	0.02	214.83	0.60	60	3.28	33	104
<i>Sciaenops ocellatus</i>	8	0.1	9.3	0.02	0.01	356.17	0.37	169	24.97	21	265
<i>Mycteroperca microlepis</i>	1	<0.1	1.9	<0.01	<0.01	734.85	0.12	197	.	197	197
Total	409	4.2	.	1.03	0.19	131.60	6.21	.	.	11	459

Percent (%) is the percent of the total catch represented by that taxon; percent occurrence (% Occur) is the percentage of samples in which that taxon was collected; CV is the coefficient of variation of the mean. Taxa are ranked in order of decreasing mean density.

9.3 St. Andrew Bay

St. Andrew Bay (Figure 9.3) is located adjacent to Panama City, Florida and covers approximately 280 square miles (Keppner and Keppner 2001). The estuary includes several smaller bays and extends almost 50 miles along the Gulf Coast. St. Andrew Bay is unique from other estuaries in the study due to its lack of direct freshwater inflow from a major river system. However, it does receive freshwater flow from numerous creeks, bayous and wastewater treatment plants. This limited amount of freshwater maximizes the influence of Gulf water, which is connected to the bay via West Pass. St. Andrew Bay has the largest stock of seagrass in the Florida panhandle. Tidal flats and salt marshes are also prevalent in the bay system ("GulfBase website" 2023).

Monthly sampling in St. Andrew Bay was completed from June through November with a total of 28,083 individuals collected across 72 samples (Table 8.2). The most abundant taxa collected in St. Andrew Bay polyhaline seagrass sampling were *Lagodon rhomboides* (n=17,292) and *Eucinostomus* spp. (n=3,061), accounting for 72.5% of the trawl catch (Table 9.5). The taxa most frequently caught in St. Andrew Bay polyhaline seagrass sampling were *Lagodon rhomboides* (100% occurrence) and *Orthopristis chrysoptera* (95.8% occurrence).

A total of 262 animals from 6 species of interest were collected, representing 0.9% of the entire polyhaline seagrass trawl catch (Table 9.6). *Lutjanus synagris* (n=93) was the most abundant species of interest, accounting for 35.5% of the species of interest collected in polyhaline seagrass trawls (Table 9.6). The species of interest most frequently caught in St. Andrew Bay polyhaline seagrass sampling were *Cynoscion nebulosus* (41.7% occurrence) and *Lutjanus synagris* (38.9% occurrence).

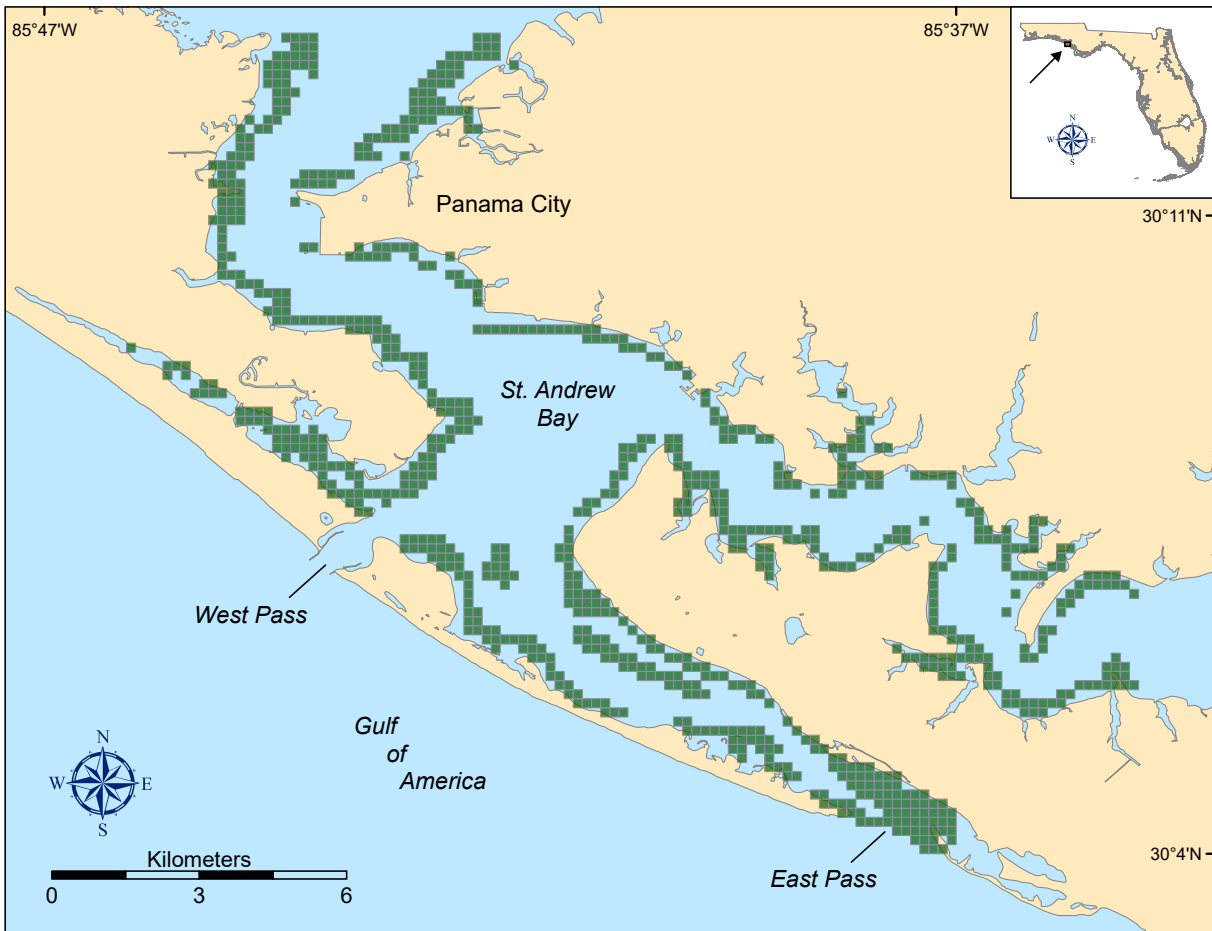


Figure 9.3: St. Andrew Bay polyhaline seagrass habitat sampling universe. Microgrids (0.1nm^2) eligible to be sampled are indicated in green. Adjacent areas that met the sampling requirements, but were not necessarily included in the original universe, could be sampled if necessary.

Table 9.5: Catch statistics for 10 dominant taxa collected in 72 6.1-m otter trawl samples during St. Andrew Bay polyhaline seagrass sampling, June-November, 2024.

Species	Number			Density Estimate (animals/100m ²)				Standard Length (mm)			
	No.	%	% Occur	Mean	Stderr	CV	Max	Mean	Stderr	Min	Max
<i>Lagodon rhomboides</i>	17,292	61.6	100.0	23.58	3.04	128.40	145.84	62	0.20	21	175
<i>Eucinostomus</i> spp.	3,061	10.9	72.2	5.52	2.11	324.08	146.94	24	0.12	9	39
<i>Orthopristis chrysoptera</i>	3,473	12.4	95.8	4.56	0.66	146.61	44.12	70	0.60	18	213
<i>Bairdiella chrysoura</i>	765	2.7	59.7	1.28	0.28	193.98	15.94	57	1.07	14	143
<i>Syngnathus floridae</i>	588	2.1	88.9	1.11	0.13	99.37	4.99	150	1.28	47	284
<i>Eucinostomus gula</i>	477	1.7	56.9	0.88	0.21	199.18	10.39	58	0.71	40	98
<i>Callinectes sapidus</i>	355	1.3	65.3	0.66	0.10	133.47	4.32	91	1.79	10	187
<i>Paralichthys albigutta</i>	241	0.9	84.7	0.44	0.05	101.08	1.96	125	3.51	51	290
<i>Nicholsina usta</i>	209	0.7	48.6	0.40	0.09	193.03	4.05	72	1.54	26	137
<i>Syngnathus scovelli</i>	197	0.7	66.7	0.38	0.07	158.09	3.64	99	1.13	57	131
Subtotal	26,658	95.0	.	.	.	.	.	.	.	9	290
Total	28,083	100.0	.	52.28	4.78	77.53	182.75	.	.	4	376

Percent (%) is the percent of the total catch represented by that taxon; percent occurrence (% Occur) is the percentage of samples in which that taxon was collected; CV is the coefficient of variation of the mean. Taxa are ranked in order of decreasing mean density.

Table 9.6: Catch statistics for species of interest collected in 72 6.1-m otter trawl samples during St. Andrew Bay polyhaline seagrass sampling, June-November, 2024.

Species	Number			Density Estimate (animals/100m ²)				Standard Length (mm)			
	No.	%	% Occur	Mean	Stderr	CV	Max	Mean	Stderr	Min	Max
<i>Lutjanus synagris</i>	93	0.3	38.9	0.17	0.04	204.20	2.16	61	2.25	20	118
<i>Cynoscion nebulosus</i>	93	0.3	41.7	0.15	0.02	133.56	0.81	86	6.18	21	295
<i>Lutjanus griseus</i>	66	0.2	29.2	0.13	0.04	277.17	2.29	51	1.16	32	87
<i>Mycteroperca microlepis</i>	5	<0.1	6.9	0.01	<0.01	369.57	0.13	131	19.85	80	184
<i>Centropristis striata</i>	3	<0.1	4.2	0.01	<0.01	483.44	0.13	97	3.84	93	105
<i>Haemulon plumierii</i>	2	<0.1	2.8	<0.01	<0.01	595.76	0.13	50	4.50	45	54
Total	262	0.9	.	0.49	0.08	131.57	3.37	.	.	20	295

Percent (%) is the percent of the total catch represented by that taxon; percent occurrence (% Occur) is the percentage of samples in which that taxon was collected; CV is the coefficient of variation of the mean. Taxa are ranked in order of decreasing mean density.

9.4 Apalachicola Bay

Apalachicola Bay (Figure 9.4) is a shallow, semi-enclosed estuary, located on the northwestern coast of Florida. The estuary is bounded by a barrier island complex (St. Vincent Island, Little St. George Island, St. George Island, and Dog Island) and connected to the Gulf through four passes (Indian Pass, West Pass, Sikes Cut, and East Pass). East of Dog Island, St. George Sound is open to the Gulf. Freshwater inflow to Apalachicola Bay primarily comes from the Apalachicola River and to a lesser extent the Carrabelle River (Livingston 1983). Shoreline vegetation consists largely of marsh grasses, and bottom substrates are typically characterized as sand or mud with oyster beds scattered throughout the bay (Ingle and Dawson 1953). Less than 7% of the substrate is covered by seagrass (Continental Shelf Associates, Inc. 1985b).

Monthly sampling in Apalachicola Bay was completed from June through November with a total of 24,666 individuals collected across 96 samples (Table 8.2). The most abundant taxa collected in Apalachicola Bay polyhaline seagrass sampling were *Lagodon rhomboides* (n=9,310) and *Orthopristis chrysoptera* (n=5,707), accounting for 60.8% of the trawl catch (Table 9.7). The taxa most frequently caught in Apalachicola Bay polyhaline seagrass sampling were *Orthopristis chrysoptera* (99% occurrence) and *Lagodon rhomboides* (97.9% occurrence).

A total of 627 animals from 8 species of interest were collected, representing 2.5% of the entire polyhaline seagrass trawl catch (Table 9.8). *Centropristis striata* (n=302) was the most abundant species of interest, accounting for 48.2% of the species of interest collected in polyhaline seagrass trawls (Table 9.8). The species of interest most frequently caught in Apalachicola Bay polyhaline seagrass sampling were *Centropristis striata* (60.4% occurrence) and *Cynoscion nebulosus* (42.7% occurrence).



Figure 9.4: Apalachicola Bay polyhaline seagrass habitat sampling universe. Microgrids (0.1nm^2) eligible to be sampled are indicated in green. Adjacent areas that met the sampling requirements, but were not necessarily included in the original universe, could be sampled if necessary.

Table 9.7: Catch statistics for 10 dominant taxa collected in 96 6.1-m otter trawl samples during Apalachicola Bay polyhaline seagrass sampling, June-November, 2024.

Species	Number			Density Estimate (animals/100m ²)				Standard Length (mm)			
	No.	%	% Occur	Mean	Stderr	CV	Max	Mean	Stderr	Min	Max
<i>Lagodon rhomboides</i>	9,310	37.7	97.9	9.84	1.25	145.59	107.18	74	0.28	25	210
<i>Orthopristis chrysoptera</i>	5,707	23.1	99.0	5.65	0.77	160.98	60.86	77	0.57	17	201
<i>Bairdiella chrysoura</i>	2,805	11.4	79.2	3.40	0.52	164.25	30.36	67	0.75	10	176
<i>Anchoa mitchilli</i>	838	3.4	25.0	1.20	0.66	540.17	61.39	20	0.15	10	50
<i>Farfantepenaeus</i> spp.	539	2.2	54.2	0.91	0.32	343.58	26.71	9	0.10	4	14
<i>Stephanolepis hispidus</i>	606	2.5	54.2	0.87	0.15	168.59	7.96	44	0.73	9	115
<i>Eucinostomus</i> spp.	549	2.2	61.5	0.81	0.13	160.93	5.13	26	0.34	8	39
<i>Syngnathus floridae</i>	390	1.6	62.5	0.58	0.11	178.44	4.99	141	1.64	54	210
<i>Opsanus beta</i>	330	1.3	49.0	0.53	0.11	203.44	7.29	111	2.64	9	233
<i>Anchoa hepsetus</i>	338	1.4	15.6	0.47	0.35	713.75	31.44	26	0.34	10	78
Subtotal	21,412	86.8	.	.	.	.	.	.	.	4	233
Total	24,666	100.0	.	35.98	3.12	84.84	152.76	.	.	2	421

Percent (%) is the percent of the total catch represented by that taxon; percent occurrence (% Occur) is the percentage of samples in which that taxon was collected; CV is the coefficient of variation of the mean. Taxa are ranked in order of decreasing mean density.

Table 9.8: Catch statistics for species of interest collected in 96 6.1-m otter trawl samples during Apalachicola Bay polyhaline seagrass sampling, June-November, 2024.

Species	Number			Density Estimate (animals/100m ²)				Standard Length (mm)			
	No.	%	% Occur	Mean	Stderr	CV	Max	Mean	Stderr	Min	Max
<i>Centropristis striata</i>	302	1.2	60.4	0.43	0.08	179.22	5.85	86	2.60	27	216
<i>Cynoscion nebulosus</i>	174	0.7	42.7	0.23	0.04	182.97	2.02	78	5.04	10	310
<i>Lutjanus synagris</i>	99	0.4	42.7	0.15	0.03	213.53	2.40	34	1.60	14	80
<i>Lutjanus griseus</i>	25	0.1	15.6	0.04	0.01	295.95	0.81	47	4.84	14	88
<i>Haemulon plumieri</i>	10	<0.1	6.2	0.01	0.01	451.56	0.45	40	3.29	18	53
<i>Mycteroperca microlepis</i>	7	<0.1	5.2	0.01	0.01	458.43	0.30	153	17.51	86	204
<i>Sciaenops ocellatus</i>	6	<0.1	4.2	0.01	<0.01	559.70	0.40	153	62.47	14	346
<i>Archosargus probatocephalus</i>	4	<0.1	4.2	0.01	<0.01	506.03	0.27	112	50.49	21	225
Total	627	2.5	.	0.91	0.12	128.34	8.39	.	.	10	346

Percent (%) is the percent of the total catch represented by that taxon; percent occurrence (% Occur) is the percentage of samples in which that taxon was collected; CV is the coefficient of variation of the mean. Taxa are ranked in order of decreasing mean density.

9.5 Big Bend

The Big Bend is an area along the Gulf Coast of Florida that is considered an open estuary system (Figure 9.5). Freshwater inflow into the estuary comes primarily from the Suwannee River with additional input from many fringing marsh tidal creeks (Lindberg et al. 1992). The shoreline consists largely of marsh grasses, oyster bars, and mud flats. Seagrass meadows primarily occur in the southern portions of the estuary (Tuckey and Dehaven 2006).

Monthly sampling in the Big Bend was completed from June through November with a total of 27,120 individuals collected across 180 samples (Table 8.2). The most abundant taxa collected in Big Bend polyhaline seagrass sampling were *Lagodon rhomboides* (n=11,423) and *Diplodus holbrookii* (n=2,143), accounting for 50% of the trawl catch (Table 9.9). The taxa most frequently caught in Big Bend polyhaline seagrass sampling were *Lagodon rhomboides* (96.1% occurrence) and *Centropristis striata* (92.8% occurrence).

A total of 2,831 animals from 9 species of interest were collected, representing 10.4% of the entire polyhaline seagrass trawl catch (Table 9.10). *Centropristis striata* (n=1,820) was the most abundant species of interest, accounting for 64.3% of the species of interest collected in polyhaline seagrass trawls (Table 9.10). The species of interest most frequently caught in Big Bend polyhaline seagrass sampling were *Centropristis striata* (92.8% occurrence) and *Haemulon plumieri* (46.1% occurrence).

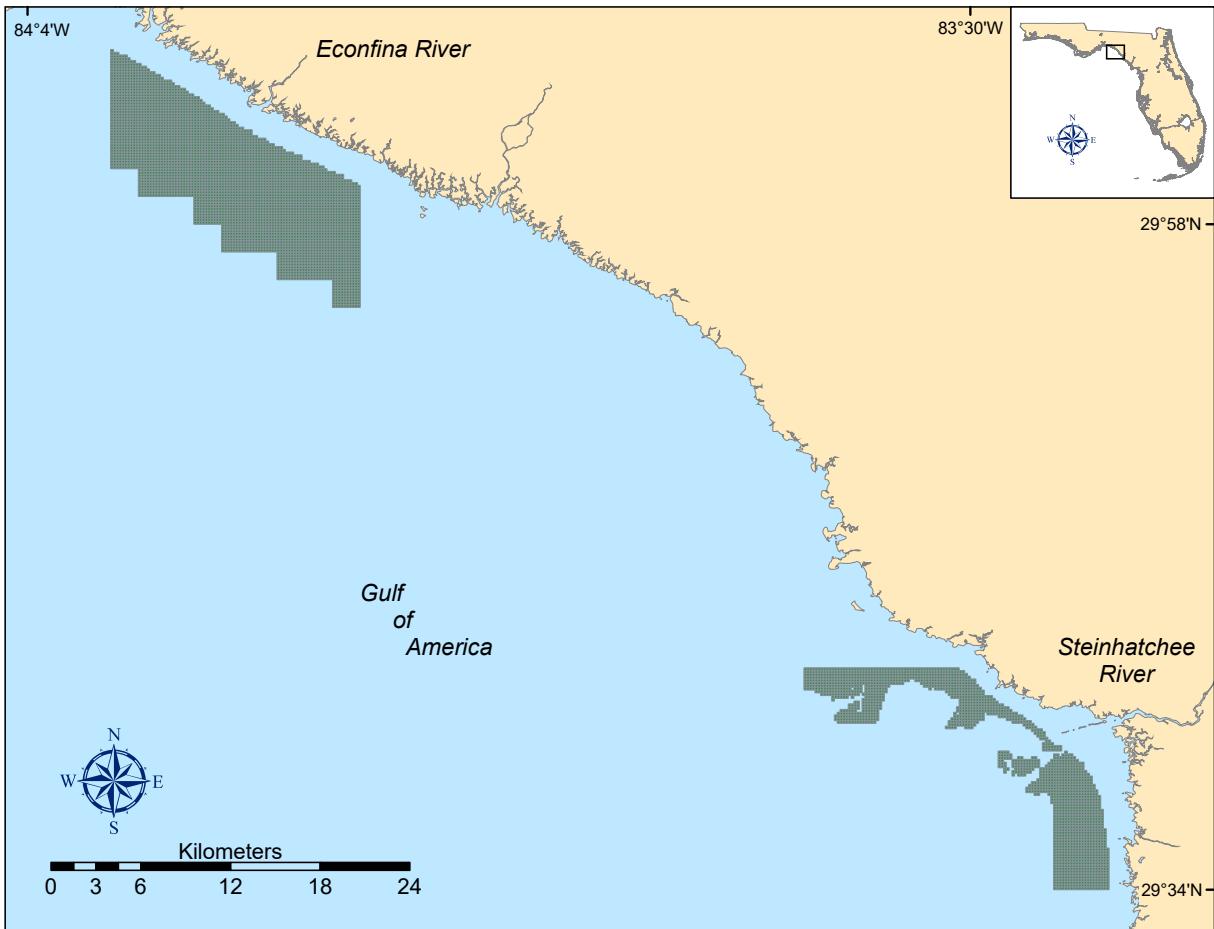


Figure 9.5: Big Bend polyhaline seagrass habitat sampling universe. Microgrids (0.1nm^2) eligible to be sampled are indicated in green. Adjacent areas that met the sampling requirements, but were not necessarily included in the original universe, could be sampled if necessary.

Table 9.9: Catch statistics for 10 dominant taxa collected in 180 6.1-m otter trawl samples during Big Bend polyhaline seagrass sampling, June-November, 2024.

Species	Number			Density Estimate (animals/100m ²)				Standard Length (mm)			
	No.	%	% Occur	Mean	Stderr	CV	Max	Mean	Stderr	Min	Max
<i>Lagodon rhomboides</i>	11,423	42.1	96.1	6.29	0.76	194.79	122.02	70	0.22	17	182
<i>Diplodus holbrookii</i>	2,143	7.9	78.3	1.99	0.44	306.46	56.66	52	0.46	25	159
<i>Orthopristis chrysoptera</i>	2,183	8.0	85.0	1.55	0.19	175.45	24.62	81	0.79	23	200
<i>Centropristis striata</i>	1,820	6.7	92.8	1.48	0.12	106.11	9.28	73	0.82	24	235
<i>Syngnathus floridae</i>	1,615	6.0	88.9	1.28	0.11	119.23	8.63	155	0.65	18	218
<i>Bairdiella chrysoura</i>	1,542	5.7	71.7	1.13	0.12	146.65	10.39	76	0.73	17	176
<i>Farfantepenaeus</i> spp.	792	2.9	13.9	0.67	0.37	740.22	60.56	12	0.07	6	14
<i>Haemulon plumierii</i>	667	2.5	46.1	0.54	0.17	413.76	28.18	37	0.32	15	87
<i>Opsanus beta</i>	618	2.3	66.7	0.53	0.08	196.38	9.98	135	2.80	12	268
<i>Anchoa mitchilli</i>	588	2.2	11.7	0.46	0.18	535.03	25.09	37	0.43	18	58
Subtotal	23,391	86.3	.	.	.	.	.	.	.	6	268
Total	27,120	100.0	.	22.44	2.01	120.21	245.55	.	.	3	362

Percent (%) is the percent of the total catch represented by that taxon; percent occurrence (% Occur) is the percentage of samples in which that taxon was collected; CV is the coefficient of variation of the mean. Taxa are ranked in order of decreasing mean density.

Table 9.10: Catch statistics for species of interest collected in 180 6.1-m otter trawl samples during Big Bend polyhaline seagrass sampling, June-November, 2024.

Species	Number			Density Estimate (animals/100m ²)				Standard Length (mm)			
	No.	%	% Occur	Mean	Stderr	CV	Max	Mean	Stderr	Min	Max
<i>Centropristis striata</i>	1,820	6.7	92.8	1.48	0.12	106.11	9.28	73	0.82	24	235
<i>Haemulon plumieri</i>	667	2.5	46.1	0.54	0.17	413.76	28.18	37	0.32	15	87
<i>Cynoscion nebulosus</i>	182	0.7	43.3	0.14	0.02	161.59	1.50	84	4.74	13	303
<i>Lutjanus synagris</i>	125	0.5	38.3	0.11	0.02	204.80	2.02	58	2.13	19	118
<i>Lachnolaimus maximus</i>	17	0.1	6.7	0.02	0.01	457.21	0.67	68	4.88	36	115
<i>Mycteroperca microlepis</i>	15	0.1	7.8	0.01	<0.01	395.36	0.45	153	9.55	87	206
<i>Archosargus probatocephalus</i>	3	<0.1	1.1	<0.01	<0.01	984.30	0.27	216	71.70	140	359
<i>Lutjanus griseus</i>	1	<0.1	0.6	<0.01	<0.01	1,341.64	0.13	154	.	154	154
<i>Sciaenops ocellatus</i>	1	<0.1	0.6	<0.01	<0.01	1,341.64	0.13	211	.	211	211
Total	2,831	10.4	.	2.31	0.21	122.60	28.33	.	.	13	359

Percent (%) is the percent of the total catch represented by that taxon; percent occurrence (% Occur) is the percentage of samples in which that taxon was collected; CV is the coefficient of variation of the mean. Taxa are ranked in order of decreasing mean density.

9.6 Tampa Bay

Tampa Bay is a drowned river estuary located on the western central coast of Florida (Figure 9.6). The bay is connected to the Gulf through two main channels and several smaller passes and channels. Freshwater inflow into the bay comes from over 100 tributaries, although more than 80% enters from four main rivers (Hillsborough, Alafia, Manatee, and Little Manatee; (Schmidt and Luther 2002)). Shoreline vegetation consists largely of mangroves and marsh grasses, and bottom substrates are typically characterized as sand, mud, oysters, or a combination thereof (Flannery 1989). Seagrass meadows are the dominant vegetative cover in Tampa Bay and are widely distributed throughout the bay (Haddad 1989).

Monthly sampling in Tampa Bay was completed from June through November with a total of 43,316 individuals collected across 144 samples (Table 8.2). The most abundant taxa collected in Tampa Bay polyhaline seagrass sampling were *Lagodon rhomboides* (n=21,360) and *Eucinostomus* spp. (n=8,399), accounting for 68.7% of the trawl catch (Table 9.11). The taxa most frequently caught in Tampa Bay polyhaline seagrass sampling were *Lagodon rhomboides* (93.8% occurrence) and *Eucinostomus* spp. (86.8% occurrence).

A total of 1,538 animals from 8 species of interest were collected, representing 3.6% of the entire polyhaline seagrass trawl catch (Table 9.12). *Haemulon plumieri* (n=455) was the most abundant species of interest, accounting for 29.6% of the species of interest collected in polyhaline seagrass trawls (Table 9.12). The species of interest most frequently caught in Tampa Bay polyhaline seagrass sampling were *Cynoscion nebulosus* (51.4% occurrence) and *Haemulon plumieri* (38.9% occurrence).



Figure 9.6: Tampa Bay polyhaline seagrass habitat sampling universe. Microgrids (0.1nm^2) eligible to be sampled are indicated in green. Adjacent areas that met the sampling requirements, but were not necessarily included in the original universe, could be sampled if necessary.

Table 9.11: Catch statistics for 10 dominant taxa collected in 144 6.1-m otter trawl samples during Tampa Bay polyhaline seagrass sampling, June-November, 2024.

Species	Number			Density Estimate (animals/100m ²)				Standard Length (mm)			
	No.	%	% Occur	Mean	Stderr	CV	Max	Mean	Stderr	Min	Max
<i>Lagodon rhomboides</i>	21,360	49.3	93.8	17.15	1.57	121.05	101.94	82	0.19	20	178
<i>Eucinostomus</i> spp.	8,399	19.4	86.8	8.13	1.14	168.53	83.53	26	0.08	9	39
<i>Eucinostomus gula</i>	2,900	6.7	85.4	2.78	0.38	166.37	27.13	60	0.34	40	147
<i>Bairdiella chrysoura</i>	2,077	4.8	64.6	1.79	0.29	206.73	25.09	59	0.67	12	160
<i>Orthopristis chrysoptera</i>	1,924	4.4	81.9	1.60	0.20	158.35	22.04	93	0.70	33	225
<i>Chilomycterus schoepfii</i>	541	1.2	79.2	0.53	0.05	106.94	2.85	107	1.83	13	242
<i>Syngnathus floridae</i>	539	1.2	55.6	0.53	0.09	208.80	9.59	165	1.18	58	288
<i>Haemulon plumierii</i>	455	1.1	38.9	0.44	0.10	272.20	10.39	55	0.89	17	194
<i>Lucania parva</i>	449	1.0	19.4	0.44	0.14	397.87	10.64	22	0.23	12	35
<i>Anchoa mitchilli</i>	438	1.0	6.9	0.38	0.25	789.85	30.91	23	0.26	18	44
Subtotal	39,082	90.1	.	.	.	.	.	.	.	9	288
Total	43,316	100.0	.	42.15	2.74	77.88	149.31	.	.	3	408

Percent (%) is the percent of the total catch represented by that taxon; percent occurrence (% Occur) is the percentage of samples in which that taxon was collected; CV is the coefficient of variation of the mean. Taxa are ranked in order of decreasing mean density.

Table 9.12: Catch statistics for species of interest collected in 144 6.1-m otter trawl samples during Tampa Bay polyhaline seagrass sampling, June-November, 2024.

Species	Number			Density Estimate (animals/100m ²)				Standard Length (mm)			
	No.	%	% Occur	Mean	Stderr	CV	Max	Mean	Stderr	Min	Max
<i>Haemulon plumierii</i>	455	1.1	38.9	0.44	0.10	272.20	10.39	55	0.89	17	194
<i>Archosargus probatocephalus</i>	336	0.8	37.5	0.33	0.10	356.34	10.79	42	2.31	9	312
<i>Cynoscion nebulosus</i>	302	0.7	51.4	0.29	0.04	167.97	3.00	48	2.27	14	249
<i>Lutjanus synagris</i>	264	0.6	38.9	0.26	0.07	310.32	7.20	46	1.40	15	135
<i>Lutjanus griseus</i>	131	0.3	36.1	0.12	0.02	201.77	1.75	108	4.48	18	244
<i>Mycteroperca microlepis</i>	27	0.1	11.8	0.03	0.01	325.33	0.54	158	8.41	102	300
<i>Centropristis striata</i>	14	<0.1	6.2	0.01	0.01	449.96	0.45	109	5.80	72	142
<i>Lachnolaimus maximus</i>	9	<0.1	4.2	0.01	<0.01	506.66	0.27	80	9.88	35	115
Total	1,538	3.6	.	1.51	0.19	150.74	13.32	.	.	9	312

Percent (%) is the percent of the total catch represented by that taxon; percent occurrence (% Occur) is the percentage of samples in which that taxon was collected; CV is the coefficient of variation of the mean. Taxa are ranked in order of decreasing mean density.

9.7 Charlotte Harbor

Charlotte Harbor (Figure 9.7) is a drowned river estuary located on the southwestern coast of Florida (Charlotte Harbor National Estuary program 2000). The bay is connected to the Gulf by passes at Boca Grande, San Carlos, and several smaller inlets. Freshwater inflow principally comes from the Peace, Caloosahatchee, and Myakka rivers. Shoreline vegetation consists largely of fringing mangroves, and seagrasses are the dominant bottom vegetation in shallow waters.

Monthly sampling in Charlotte Harbor was completed from June through November with a total of 31,349 individuals collected across 120 samples (Table 8.2). The most abundant taxa collected in Charlotte Harbor polyhaline seagrass sampling were *Lagodon rhomboides* (n=17,888) and *Eucinostomus* spp. (n=4,026), accounting for 69.9% of the trawl catch (Table 9.13). The taxa most frequently caught in Charlotte Harbor polyhaline seagrass sampling were *Lagodon rhomboides* (92.5% occurrence) and *Eucinostomus gula* (90.8% occurrence).

A total of 917 animals from 9 species of interest were collected, representing 2.9% of the entire polyhaline seagrass trawl catch (Table 9.14). *Cynoscion nebulosus* (n=230) was the most abundant species of interest, accounting for 25.1% of the species of interest collected in polyhaline seagrass trawls (Table 9.14). The species of interest most frequently caught in Charlotte Harbor polyhaline seagrass sampling were *Lutjanus synagris* (55.8% occurrence) and *Lutjanus griseus* (46.7% occurrence).



Figure 9.7: Charlotte Harbor polyhaline seagrass habitat sampling universe. Microgrids (0.1nm^2) eligible to be sampled are indicated in green. Adjacent areas that met the sampling requirements, but were not necessarily included in the original universe, could be sampled if necessary.

Table 9.13: Catch statistics for 10 dominant taxa collected in 120 6.1-m otter trawl samples during Charlotte Harbor polyhaline seagrass sampling, 2024.

Species	Number			Density Estimate (animals/100m ²)				Standard Length (mm)			
	No.	%	% Occur	Mean	Stderr	CV	Max	Mean	Stderr	Min	Max
<i>Lagodon rhomboides</i>	17,888	57.1	92.5	19.99	3.02	167.12	307.47	79	0.22	24	173
<i>Eucinostomus</i> spp.	4,026	12.8	84.2	4.74	0.82	189.78	55.05	27	0.11	10	39
<i>Orthopristis chrysoptera</i>	1,939	6.2	80.8	2.20	0.46	230.70	48.03	92	0.59	29	208
<i>Bairdiella chrysoura</i>	1,709	5.5	56.7	1.94	0.34	192.10	21.14	65	0.69	15	170
<i>Eucinostomus gula</i>	1,313	4.2	90.8	1.49	0.19	140.31	13.36	59	0.45	40	122
<i>Anchoa mitchilli</i>	426	1.4	7.5	0.48	0.34	782.47	39.80	24	0.21	19	50
<i>Chilomycterus schoepfii</i>	404	1.3	77.5	0.46	0.04	107.23	2.02	111	2.19	14	243
<i>Syngnathus floridae</i>	262	0.8	55.0	0.30	0.05	176.26	2.97	189	2.26	72	294
<i>Syngnathus scovelli</i>	252	0.8	31.7	0.29	0.07	280.83	6.07	96	1.00	52	156
<i>Opsanus beta</i>	242	0.8	59.2	0.28	0.04	159.42	2.56	91	2.82	14	251
Subtotal	28,461	90.9	.	.	.	.	.	.	.	10	294
Total	31,349	100.0	.	35.80	3.80	116.20	324.07	.	.	3	692

Percent (%) is the percent of the total catch represented by that taxon; percent occurrence (% Occur) is the percentage of samples in which that taxon was collected; CV is the coefficient of variation of the mean. Taxa are ranked in order of decreasing mean density.

Table 9.14: Catch statistics for species of interest collected in 120 6.1-m otter trawl samples during Charlotte Harbor polyhaline sea-grass sampling, 2024.

Species	Number			Density Estimate (animals/100m ²)				Standard Length (mm)			
	No.	%	% Occur	Mean	Stderr	CV	Max	Mean	Stderr	Min	Max
<i>Cynoscion nebulosus</i>	230	0.7	43.3	0.26	0.07	311.60	7.96	41	1.89	11	217
<i>Lutjanus griseus</i>	194	0.6	46.7	0.23	0.03	169.60	1.95	125	2.63	28	194
<i>Lutjanus synagris</i>	189	0.6	55.8	0.21	0.03	144.53	1.48	62	2.17	18	147
<i>Haemulon plumierii</i>	158	0.5	40.0	0.18	0.03	197.32	1.89	71	2.17	23	144
<i>Archosargus probatocephalus</i>	109	0.3	38.3	0.12	0.02	196.38	1.35	100	5.34	16	220
<i>Mycteroperca microlepis</i>	25	0.1	12.5	0.03	0.01	310.49	0.54	165	12.23	49	352
<i>Epinephelus morio</i>	9	<0.1	5.8	0.01	<0.01	429.10	0.27	106	16.62	48	228
<i>Centropristis striata</i>	2	<0.1	1.7	<0.01	<0.01	771.34	0.13	133	35.00	98	168
<i>Lachnolaimus maximus</i>	1	<0.1	0.8	<0.01	<0.01	1,095.45	0.13	37	.	37	37
Total	917	2.9	.	1.05	0.11	118.79	8.50	.	.	11	352

Percent (%) is the percent of the total catch represented by that taxon; percent occurrence (% Occur) is the percentage of samples in which that taxon was collected; CV is the coefficient of variation of the mean. Taxa are ranked in order of decreasing mean density.

References

- Adams, D. H., D. D. Edwards, J. E. Schneider, and A. R. Searles. 2024. [Range expansion and population shifts of estuarine fishes in a changing subtropical estuary](#). Marine Ecology Progress Series 728:221–238.
- Addis, D. 2020. [The 2020 stock assessment of red drum, *sciaenops ocellatus*, in florida](#).
- Addis, D., S. Allen, H. Christiansen, R. G. Muller, J. Munyandorero, H. O’Farrell, and C. Swanson. 2023. Florida’s inshore and nearshore species: 2022 status and trends report. St. Petersburg, FL.
- Addis, D., B. Mahmoudi, and J. O’Hop. 2018. The 2016 stock assessment of spotted seatrout, *cynoscion nebulosus*, in florida.
- Archambault, J. A., E. L. Wenner, and J. D. Whitaker. 1990. Life history and abundance of blue crab, *callinectes sapidus* rathbun, at charleston harbor, south carolina. Bulletin of Marine Science 46(1):145–158.
- Bacheler, N. M., L. M. Paramore, J. A. Buckel, and F. S. Scharf. 2008. [Recruitment of juvenile red drum in north carolina: Spatiotemporal patterns of year-class strength and validation of a seine survey](#). North American Journal of Fisheries Management 28(4):1086–1098.
- Bigelow, H. B., and W. C. Schroeder. 1953. Fishes of the Gulf of Maine. U.S. Government Printing Office.
- Blewett, D., R. Hensley, and P. Stevens. 2006. [Feeding habits of common snook, *centropomus undecimalis*, in charlotte harbor, florida](#). Gulf and Caribbean Research 18(1):1–14.
- Bortone, S. A. 2002. [Biology of the spotted seatrout](#). CRC Press, Boca Raton.
- Bradley, K., and C. Houser. 2009. [Relative velocity of seagrass blades: Implications for wave attenuation in low-energy environments](#). Journal of Geophysical Research: Earth Surface 114(F1).
- Brewton, R. A., and B. E. Lapointe. 2023. [The green macroalga *Caulerpa prolifera* replaces seagrass in a nitrogen enriched, phosphorus limited, urbanized estuary](#). Ecological Indicators 156:111035.
- Brown, J. M., and J. M. Hemming. 2004. Sediment analysis in choctawhatchee bay. Panama City, Florida.
- Burns, J. W., A. D. Chapman, E. Messer, and J. Konwinski. 1997. Submerged aquatic vegetation of the lower St. Johns River. Final Report to Florida Department of Environmental Protection. St. Johns River Water Management District, Palatka, Florida.
- Caldwell, D. K. 1957. [The biology and systematics of the Pinfish, *Lagodon rhomboides* \(Linnaeus\)](#).
- Caldwell, D. K. 1965. Systematics and variation in the sparid fish *archosargus probatocephalus*. Bulletin, Southern California Academy of Sciences 64(2):89100.
- Casey, J. P., G. R. Poulakis, and P. W. Stevens. 2007. Habitat use by juvenile gag, *mycteroperca microlepis* (pisces: Serranidae), in subtropical charlotte harbor, florida (USA). Gulf and Caribbean Research 19(1):1–9.
- Chagaris, D., D. Addis, and B. Mahmoudi. 2014. The 2014 stock assessment update for striped mullet, *mugil cephalus*. Fish; Wildlife Research Institute, St. Petersburg, FL.

- Chagaris, D., B. Mahmoudi, and M. D. Murphy. 2015. The 2015 stock assessment of red drum, *sciaenops ocellatus*, in florida.
- Charlotte Harbor National Estuary program. 2000. Comprehensive conservation and management plan. Page 250.
- Cloern, J. E., C. Grenz, and L. Videgar-Lucas. 1995. [An empirical model of the phytoplankton chlorophyll: carbon ratio-the conversion factor between productivity and growth rate](#). Limnology and Oceanography 40(7):1313–1321.
- Continental Shelf Associates, Inc. 1985a. Apalachicola Bay study: submersed vegetation assessment of the Apalachicola Bay system. Prepared for the U.S. Army Corps of Engineers, Mobile District. Sea Grant Publication, No. MASGP 84 020.
- Continental Shelf Associates, Inc. 1985b. Apalachicola bay study: Submersed vegetation assessment of the apalachicola bay system. Prepared for the u.s. Army corps of engineers, mobile district.
- Cooper, W., R. Gandy, and C. Crowley. 2013. A stock assessment for blue crab, *Callinectes sapidus*, in Florida waters through 2012. St. Petersburg, FL.
- Coull, B. C. 1985. The use of long-term biological data to generate testable hypotheses. Estuaries 8(2):84–92.
- Crabtree, R. E., and D. H. Adams. 1998. Investigations into nearshore and estuarine gamefish abundance, ecology, and life history in florida. Pages 526–566.
- Dahlberg, M. D. 1970. Atlantic and Gulf of Mexico menhadens, genus *Brevoortia* (Pisces: Clupeidae). University of Florida.
- Daniel, L. B. 1988. Aspects of the biology of juvenile red drum, *sciaenops ocellatus*, and spotted seatrout, *cynoscion nebulosus* (pisces: Sciaenidae) in south carolina. PhD thesis.
- DeVries, D. A., C. D. Bedee, C. L. Palmer, and S. A. Bortone. 2002. The demographics and reproductive biology of spotted seatrout, *cynoscion nebulosus*, in six northwest florida estuaries. CRC Press.
- Dutka-Gianelli, J., and D. J. Murie. 2001. Age and growth of sheepshead, *archosargus probatocephalus* (pisces: Sparidae), from the northwest coast of florida. Bulletin of Marine Science 68(1):69–83.
- Faletti, M. E., D. H. Chacin, J. A. Peake, T. C. MacDonald, and C. D. Stallings. 2019. [Population dynamics of pinfish in the eastern gulf of mexico \(1998-2016\)](#). PLoS One 14(8):e0221131.
- FDEP-FMRI. 1995. Fisheries-Independent Monitoring program 1994 annual data summary report. Florida Marine Research Institute, St. Petersburg, Florida.
- FDEP-FMRI. 1997. Fisheries-Independent Monitoring program 1996 annual data summary report. Florida Marine Research Institute, St. Petersburg, Florida.
- FDEP-FMRI. 1998. Fisheries-Independent Monitoring program 1997 annual data summary report. Florida Marine Research Institute, St. Petersburg, Florida.
- FDEP-FMRI. 1999. Fisheries-Independent Monitoring program 1998 annual data summary report. Florida Marine Research Institute, St. Petersburg, Florida.
- FDEP-FMRI. 2002. Fisheries-Independent Monitoring program 2001 annual data summary report. Florida Marine Research Institute, St. Petersburg, Florida.
- Flaherty, K., and C. Guenther. 2011. [Seasonal distribution and abundance of blue crabs \(*callinectes sapidus*\) in the tampa bay estuary](#). Gulf of Mexico Science 29(2).
- Flaherty-Walia, K. E., T. S. Switzer, B. L. Winner, A. Tyler-Jedlund, and S. F. Keenan. 2015. Improved ability to characterize recruitment of gray snapper in three florida estuaries along the gulf of mexico through targeted sampling of polyhaline seagrass beds. Transactions of the American Fisheries Society 144(5):911–926. Taylor & Francis.
- Flannery, M. S. 1989. Tampa and Sarasota Bays: watersheds and tributaries. Pages 18–48 in E.

- D. Esteves, editor. Tampa and Sarasota Bays: Issues, Resources, Status, and Management. US Department of Commerce. Washington, DC.
- Florida Fish and Wildlife Conservation Commission. 2022. [Public fisheries-dependent monitoring: Commercial fisheries landings summaries](#).
- Fournie, J. W., J. K. Summers, and S. B. Weisberg. 1996. [Prevalence of gross pathological abnormalities in estuarine fishes](#). Transactions of the American Fisheries Society 125(4):581–590.
- Futch, C. R. 1966. The florida black mullet. Florida Board of Conservation Marine Laboratory, St. Petersburg, FL.
- FWC-FWRI. 2015. Fisheries-independent monitoring program 2015 annual data summary report. St. Petersburg, FL.
- FWC-FWRI. 2023. Fisheries-Independent Monitoring program procedure manual. Florida Fish; Wildlife Research Institute, St. Petersburg, Florida.
- Gilhen, J., C. G. Gruchy, and D. E. McAllister. 1976. The sheepshead, *archosargus probatocephalus*, and the feather blenny, *hypsoblenius hentzi*, two additions to the canadianantic ichthyofauna. Canadian Field Naturalist 90:4246.
- Gilmore, R. G., C. J. Donohoe, and D. W. Cooke. 1983. [Observations on the distribution and biology of east-central florida populations of the common snook, *centropomus undecimalis* \(bloch\)](#). Florida Scientist 46(3/4):313–336.
- Goodyear, C. P. 1985. Relationship between reported commercial landings and abundance of young striped bass in Chesapeake Bay, Maryland. Transactions of the American Fisheries Society 114(1):92–96.
- Gray, J. D., T. L. King, and R. L. Colura. 1991. [Effect of temperature and hypersalinity on hatching success of Spotted Seatrout eggs](#). The Progressive Fish-Culturist 53(2):81–84.
- [GulfBase website](#). 2023.
- Gunter, G. 1945. [Studies on marine fishes of Texas](#). Pages 1–190. University of Texas.
- Haddad, K. D. 1989. Habitat trends and fisheries in Tampa and Sarasota Bays. Pages 113–128 in E. D. Esteves, editor. Tampa and Sarasota Bays: Issues, Resources, Status, and Management. US Department of Commerce. Washington, DC.
- Handley, L., D. Altsman, R. DeMay, Gulf of Mexico program, United States Environmental Protection Agency, and Geological Survey. 2007. Seagrass status and trends in the northern Gulf of Mexico, 1940-2002Version 1.0. U.S. Dept. of the Interior, U.S. Geological Survey, Reston, Va.
- Hansen, D. J. 1969. Food, growth, migration, reproduction, and abundance of Pinfish, *Lagodon rhomboides*, and Atlantic Croaker, *Micropogon undulatus*, near Pensacola, Florida, 1963-65. Fishery Bulletin 68(1).
- Helser, T. E., R. E. Condrey, and J. P. Geaghan. 1993. [Spotted Seatrout distribution in four coastal louisiana estuaries](#). Transactions of the American Fisheries Society 122(1):99–111.
- Hoese, H. D., and R. S. Jones. 1963. [Seasonality of larger animals in a Texas turtle grass community](#).
- Huguenard, K. D., D. J. Bogucki, D. G. Ortiz-Suslow, N. J. M. Laxague, J. H. MacMahan, T. M. Özgökmen, B. K. Haus, A. J. H. M. Reniers, J. Hargrove, A. v. Soloviev, and H. Graber. 2016. [On the nature of the frontal zone of the Choctawhatchee Bay plume in the Gulf of Mexico](#). Journal of Geophysical Research: Oceans 121(2):1322–1345.
- Ingle, R. M., and C. E. Jr. Dawson. 1953. A survey of Apalachicola Bay. Florida State Board of Conservation Marine Laboratory Technical Series, No. 10. 38 pp.
- Iversen, E. S., and D. C. Tabb. 1962. [Subpopulations based on growth and tagging studies of spotted seatrout, *cynoscion nebulosus*, in florida](#). Copeia 1962(3):544–548.
- Johnson, D. R., and N. A. Funicelli. 1991. [Spawning of the red drum in mosquito lagoon, east-](#)

- central florida. *Estuaries* 14(1):74–79.
- Keppner, E., and L. Keppner. 2001. The st. Andrew bay ecosystem: 'A look to the future'. The Friends of St. Andrew Bay, 004.
- Kilby, J. D. 1948. [A preliminary report on the young striped mullet \(*mugil cephalus* linnaeus\) in two gulf coastal areas of florida](#). Quarterly Journal of the Florida Academy of Sciences 11(1):7–23.
- Leard, R., B. Mahmoudi, H. Blanchet, H. Lazauski, K. Spiller, M. Buchanan, C. Dyer, and W. Keithly. 1995. The striped mullet fishery of the gulf of mexico, united states: A regional management plan. Ocean Springs, MS.
- Lindall, W. N. Jr., and C. H. Saloman. 1977. Alteration and destruction of estuaries affecting fishery resources of the Gulf of Mexico. *Marine Fisheries Review* 39(9):1–7.
- Lindberg, W. J., T. M. Bert, and G. P. Genoni. 1992. Alternative hypotheses for low landings in the Cedar Key stone crab (Genus *Menippe*) fishery, 1984-85. Pages 50–57 Proceedings of a workshop on stone crab (Genus *Menippe*) biology and fisheries. Florida Department of Natural Resources. Florida Marine Research Publication Number 50.
- Livingston, R. J. 1983. Resource atlas of the Apalachicola estuary. Florida Sea Grant College program. Report 55. 64 pp.
- MacDonald, T. C., J. J. Solomon, C. Guenther, R. B. Brodie, and R. H. McMichael. 2009. Assessment of relationships between freshwater inflow and populations of fish and selected macroinvertebrates in the lower st. Johns river, florida. Page 137. St. Petersburg, FL.
- Mahmoudi, B. 1997. Status and trends in the florida mullet fishery and an updated stock assessment. St. Petersburg, FL.
- Mahmoudi, B. 2005. The 2005 update of the stock assessment for striped mullet, *mugil cephalus*, in florida. Florida Marine Research Institute, St. Petersburg, FL.
- Matheson Jr., R. E. 1983. Taxonomic studies of the *Eucinostomus argenteus* complex (Pisces: Gerreidae). PhD thesis, Texas A&M University.
- McMichael, R. H., and K. M. Peters. 1989. [Early life history of Spotted Seatrout, *Cynoscion nebulosus* \(Pisces: Sciaenidae\), in Tampa Bay, Florida](#). *Estuaries* 12(2):98–110.
- Mercer, L. P. 1984. A biological and fisheries profile of Red Drum, *Sciaenops ocellatus*. NC Department of Natural Resources; Community Development, Division of Marine Fisheries, Raleigh, NC.
- Meyer, G. H., and J. S. Franks. 1996. [Food of Cobia, *Rachycentron canadum*, from the Northcentral Gulf of Mexico](#). Gulf Research Reports 9.
- Middaugh, D. P., M. J. Hemmer, and Y. Lamadrid-Rose. 1986. Laboratory spawning cues in *Menidia beryllina*, and *M. peninsulae* (Pisces, Atherinidae) with notes on survival and growth of larvae at different salinities. *Environmental Biology of Fishes* 15(2):107–117.
- Miller, D. L., M. Thetford, and L. Yager. 2001. [Evaluation of sand fence and vegetation for dune building following overwash by hurricane opal on santa rosa island, florida](#). *Journal of Coastal Research* 17(4):936–948.
- Montgomery, J. L. M., and T. E. Targett. 1992. [The nutritional role of seagrass in the diet of the omnivorous Pinfish *Lagodon rhomboides* \(L.\)](#). *Journal of Experimental Marine Biology and Ecology* 158(1):37–57.
- Moody, W. D. 1949. [A study of the natural history of the spotted trout *cynoscion nebulosus*, in the cedar key, florida area](#). Quarterly Journal of the Florida Academy of Sciences 12(3):147–171.
- Munyandorero, J., M. Masi, and S. Allen. 2017. An assessment of the status of sheepshead in florida waters through 2015. Page 202. St. Petersburg, FL.
- Munyandorero, J., A. A. Trotter, P. Stevens, and R. G. Muller. 2020. The 2020 stock assessment common snook, *Centropomus undecimalis*. Page 147. Fish; Wildlife Research Institute, St. Petersburg, FL.

- Murphy, M. D., A. L. McMillen-Jackson, and B. Mahmoudi. 2007. A stock assessment for blue crab, *Callinectes sapidus*, in Florida waters. St. Petersburg, FL.
- Murphy, M. D., and R. G. Taylor. 1990. Reproduction, growth, and mortality of Red Drum *Sciaenops ocellatus* in Florida Waters. Fishery Bulletin 88:531–542.
- Murphy, Michael D, D. Chagaris, and D. Addis. 2011. An assessment of the status of spotted seatrout in florida waters through 2009. St. Petersburg, FL.
- Murphy, Michael D., and G. A. Nelson. 1999. An update of the stock assessment of the spotted seatrout, *cynoscion nebulosus*. Page 122.
- Myers, R. A., and N. G. Cadigan. 1993. Is juvenile natural mortality in marine demersal fish variable? Canadian Journal of Fisheries and Aquatic Sciences 50(8):1591–1598.
- Nelson, G. A. 1998. Abundance, growth, and mortality of young-of-the-year pinfish, *lagodon rhomboides*, in three estuaries along the gulf coast of florida. Fishery Bulletin 96(2):315328.
- Nelson, G. A., and D. Leffler. 2001. [Abundance, spatial distribution, and mortality of young-of-the-year spotted seatrout \(*cynoscion nebulosus*\) along the gulf coast of florida](#). Gulf of Mexico Science 19(1).
- Nelson, J. A., C. D. Stallings, W. M. Landing, and J. Chanton. 2013. [Biomass transfer subsidizes nitrogen to offshore food webs](#). Ecosystems 16(6):1130–1138.
- Northwest Florida Water Management District. 2017b. Choctawhatchee river and bay surface water improvement and management plan. Havana, FL.
- Northwest Florida Water Management District. 2017a. Pensacola bay system surface water improvement and management plan. Havana, FL.
- Odum, W. E. 1970. Marine food chains. Pages 222–240 in J. J. Steele, editor. Oliver; Boyd, Ltd., Edinburgh, Scotland.
- Ogren, L., and H. Brusher. 1977. [The distribution and abundance of fishes caught with a trawl in the st. Andrew bay system, florida](#). Gulf of Mexico Science 1(2).
- Page, L., C. Bemis, T. Dowling, H. Espinosa-Pérez, L. Findley, C. Gilbert, K. Hartel, R. Lea, N. Mandrak, M. Neighbors, J. Schmitter-Soto, and H. Walker. 2023. [Common and scientific names of fishes from the united states, canada, and mexico, 8th edition](#).
- Paperno, R., and R. B. Brodie. 2004. Effects of environmental variables upon the spatial and temporal structure of a fish community in a small, freshwater tributary of the Indian River Lagoon, Florida. Estuarine, Coastal and Shelf Science 61(2):229–241.
- Peters, K. M., and R. H. McMichael. 1987. [Early life history of the Red Drum, *Sciaenops ocellatus* \(Pisces: Sciaenidae\), in Tampa Bay, Florida](#). Estuaries 10(2):92–107.
- Purtlebaugh, C. H., C. W. Martin, and M. S. Allen. 2020. Poleward expansion of common snook *centropomus undecimalis* in the northeastern gulf of mexico and future research needs. PLoS one 15(6):e0234083. Public Library of Science San Francisco, CA USA.
- R Core Team. 2022. [R: A language and environment for statistical computing](#). R Foundation for Statistical Computing, Vienna, Austria.
- Reagan, R. E. 1985. [Species profiles. Life histories and environmental requirements of coastal fishes and invertebrates \(Gulf of Mexico\). Red Drum](#).
- Reyier, E. A., R. H. Lowers, D. M. Scheidt, and D. H. Adams. 2011. [Movement patterns of adult Red Drum, *Sciaenops ocellatus*, in shallow Florida lagoons as inferred through autonomous acoustic telemetry](#). Environmental Biology of Fishes 90(4):343–360.
- Rivas, L. R. 1980. Synopsis of knowledge on the taxonomy, biology, distribution, and fishery of the gulf of mexico mullets (pisces: mugilidae). Page 3453. Mississippi-Alabama State Grant Consortium, Ocean Springs, MS.
- Rivas, L. R. 1986. [Systematic review of the perciform fishes of the genus *centropomus*](#). Copeia 1986(3):579–611.

- Roat, P. M., and C. McKeon. 2010. State of the Bay Report. Sarasota Bay Estuary program.
- Rydene, D., and R. Matheson. 2003. [Diurnal fish density in relation to seagrass and drift algae cover in Tampa Bay, Florida](#). Gulf of Mexico Science 21(1).
- Scharf, F. S., and K. K. Schlicht. 2000. [Feeding habits of Red Drum \(*Sciaenops ocellatus*\) in Galveston Bay, Texas: seasonal diet variation and predator-prey size relationships](#). Estuaries 23(1):128.
- Schmidt, N., and M. E. Luther. 2002. ENSO impacts on salinity in Tampa Bay, Florida. Estuaries 25(5):976–984.
- Schrandt, M. N., T. C. Macdonald, B. L. Winner, D. A. Blewett, R. Paperno, G. Onorato, D. A. Gandy, and T. S. Switzer. 2023. Sampling design modifications to a fishery-independent monitoring survey balance the maintenance of long-term data with emerging management needs and funding limitations. Frontiers in Marine Science 10:1199076. Frontiers.
- Schrandt, M. N., C. P. Shea, B. N. Kurth, and T. S. Switzer. 2021. Amending survey design to improve statistical inferences: Monitoring recruitment of juvenile reef fish in the eastern gulf of Mexico. Fisheries Research 241:106015. Elsevier.
- Schrandt, M. N., T. S. Switzer, C. J. Stafford, K. E. Flaherty-Walia, R. Paperno, and R. E. Matheson Jr. 2018. Similar habitats, different communities: Fish and large invertebrate assemblages in eastern gulf of Mexico polyhaline seagrasses relate more to estuary morphology than latitude. Estuarine, Coastal and Shelf Science 213:217–229. Elsevier.
- Seyoum, S., M. D. Tringali, B. L. Barthel, V. Villanova, C. Puchlutegui, M. C. Davis, and A. C. Alvarez. 2014. [Stock boundaries for Spotted Seatrout \(*Cynoscion nebulosus*\) in Florida based on population genetic structure](#).
- Silliman, B. R., and M. D. Bertness. 2002. [A trophic cascade regulates salt marsh primary production](#). Proceedings of the National Academy of Sciences 99(16):10500–10505.
- Sime, P. 2005. St. Lucie Estuary and Indian River Lagoon conceptual ecological model. Wetlands 25(4):898–907.
- Simmons, E. G., and J. P. Breuer. 1962. A study of redfish, *sciaenops ocellata* linnaeus and black drum, *pogonias cromis* linnaeus. Pages 184–211. University of Texas, University of Texas.
- Sindermann, C. J. 1979. [Pollution-associated diseases and abnormalities of fish and shellfish: A review](#). Fish. Bull.; (United States) 76:4.
- Sokal, R. R., and F. J. Rohlf. 1969. Biometry : the principles and practice of statistics in biological research. W.H. Freeman, San Francisco.
- Solomon, J. J., R. B. Brodie, and G. S. Ehlinger. 2006. Distribution and abundance of fish assemblages and select macroinvertebrates from the lower St. Marys River basin in northeast Florida. Florida Scientist 69(1):1–18.
- St. Johns River Water Management District. 1993. Lower St. Johns River basin SWIM plan.
- St. Johns River Water Management District. 2000. St. Marys River basin: overview issues and strategies. Florida Fish; Wildlife Research Institute.
- Steele, P., and T. Bert. 1994. Population ecology of the blue crab, *callinectes sapidus* rathbun, in a subtropical estuary: Population structure, aspects of reproduction, and habitat partitioning:1–24.
- Steele, P., and T. Bert. 1998. The Florida blue crab fishery: History, status, and management. Journal of Shellfish Research 17:441–449.
- Steward, J. S., R. W. Virnstein, M. A. Lasi, L. J. Morris, J. D. Miller, L. M. Hall, and W. A. Tweedale. 2006. The impacts of the 2004 hurricanes on hydrology, water quality, and seagrass in the central Indian River Lagoon, Florida. Estuaries and Coasts 29(6):954–965.
- Stoner, A. W. 1980. Feeding ecology of *lagodon rhomboides* (pisces: Sparidae): Variation and functional responses. Fishery Bulletin 78(2):337.

- Switzer, T. S., S. F. Keenan, P. W. Stevens, R. H. McMichael Jr., and T. C. MacDonald. 2015. Incorporating ecology into survey design: Monitoring the recruitment of age-0 gags in the eastern gulf of mexico. *North American Journal of Fisheries Management* 35(6):1132–1143. Taylor & Francis.
- Switzer, T. S., T. C. MacDonald, R. H. McMichael Jr., and S. F. Keenan. 2012. Recruitment of juvenile gags in the eastern gulf of mexico and factors contributing to observed spatial and temporal patterns of estuarine occupancy. *Transactions of the American Fisheries Society* 141(3):707–719. Taylor & Francis.
- Tabb, D. C. 1961. A contribution to the biology of the spotted seatrout, *cynoscion nebulosus* (cuvier), of east-central florida. Page 24. Florida Board of Conservation, Marine Research Laboratory Technical Series 35.
- Taylor, R. G., H. J. Grier, and J. A. Whittington. 1998. [Spawning rhythms of Common Snook in Florida](#). *Journal of Fish Biology* 53(3):502–520.
- Taylor, R. G., J. A. Whittington, and H. J. Grier. 1993. Biology of common snook from the east and west coasts of florida. Study 3, sect. 1. Page 151 *in* R. E. Crabtree, T. M. Bert, and R. G. Taylor, editors. Florida Department of Natural Resources.
- Taylor, R. G., J. A. Whittington, H. J. Grier, and R. E. Crabtree. 2000. [Age, growth, maturation, and protandric sex reversal in common snook, *centropomus undecimalis*, from the east and west coasts of south florida](#). *Fishery Bulletin* 98(3):612–612.
- [Temporary modification of regulations for red drum and snook in southwest florida](#). 2010, September 15.
- [Temporary modification of regulations for red drum and snook in southwest florida](#). 2018, September 26.
- [Temporary modification of regulations for red drum, snook, and spotted seatrout in a portion of southwest florida](#). 2021, May 26.
- [Temporary modification of regulations for red drum, snook, and spotted seatrout in southwest florida](#). 2019, May 1.
- [Temporary modification of regulations for red drum, snook, and spotted seatrout in southwest florida](#). 2020, February 19.
- [Temporary modification of regulations for red drum, snook, and spotted seatrout in southwest florida](#). 2022, May 6.
- [Temporary modification of regulations for red drum, snook, and spotted seatrout in the tampa bay area](#). 2021, July 16.
- [Temporary modification of regulations for spotted seatrout in southwest florida](#). 2019, February 20.
- Tringali, M. D., and T. M. Bert. 1996. [The genetic stock structure of Common Snook \(*Centropomus undecimalis*\)](#). *Canadian Journal of Fisheries and Aquatic Sciences* 53(5):974–984.
- Tringali, M. D., S. Seyoum, E. Wallace, and M. Higham. 2004. The distribution of weakfish (*Cynoscion regalis*), sand seatrout (*C. arenarius*), and their hybrids in Florida Atlantic waters. A special report to the Florida Fish and Wildlife Conservation Commission. Florida Fish and Wildlife Research Institute, IHR2004-018.
- Tuckey, T. D., and M. Dehaven. 2006. Fish assemblages found in tidal-creek and seagrass habitats in the Suwannee River estuary. *Fishery Bulletin* 104(1):102–117.
- Ulltang, O. 1977. Methods of measuring stock abundance other than by the use of commercial catch and effort data. Documents Techniques FAO sur les Peches (FAO)-Documentos Tecnicos de la FAO sobre la Pesca (FAO).
- Venables, W. N., and B. D. Ripley. 2002. [Modern applied statistics with s](#), 4e edition. Springer, New York.
- Walters, S., S. Lowerre-Barbieri, J. Bickford, L. Crabtree, and D. Mann. 2007. [Preliminary results](#)

- on seasonal and diel periodicities of a resident *cynoscion nebulosus* spawning aggregation in tampa bay, florida. Pages 295–296 Proceedings of the Gulf and Caribbean Fisheries Institute.
- Weinstein, M. P., Jr. , K. L. Heck, P. E. Giebel, and J. E. Gates. 1982. The role of herbivory in pinfish (*lagodon rhomboides*): A preliminary investigation. Bulletin of Marine Science 32(3):791–795.
- Wilber, D. H. 1994. The influence of Apalachicola River flows on Blue Crab, *Callinectes sapidus*, in north Florida. Fishery Bulletin 92:180–188.
- Winner, B. L., D. A. Blewett, R. H. McMichael, and C. B. Guenther. 2010. [Relative abundance and distribution of common snook along shoreline habitats of florida estuaries](#). Transactions of the American Fisheries Society 139(1):62–79.
- Wolfe, D. A., M. A. Champ, D. A. Flemer, and A. J. Mearns. 1987. Long-term biological data sets: their role in research, monitoring, and management of estuarine and coastal marine systems. Estuaries 10(3):181–193.
- Yarbro, L. A., and P. R. Carlson. 2016. [Seagrass Integrated Mapping and Monitoring program Mapping and Monitoring Report No. 2](#). Florida Fish and Wildlife Conservation Commission Fish and Wildlife Research Institute.
- Yokel, B. J. 1966. A contribution to the biology and distribution of the Red Drum, *Sciaenops ocellata*. Master's thesis, University of Miami, Coral Gables, FL.
- Young, D. K., M. Buzas, and M. W. Young. 1976. Species densities of macrobenthos associated with seagrass: A field experimental study of predation. Journal of Marine Research 34.
- Young, D. K., and M. W. Young. 1977. Ecology of marine benthos. Pages 359–381 in B. C. Coull, editor. University of South Carolina Press.

A Fisheries-Independent Monitoring Core Sampling Appendix Tables

A.1 Santa Rosa Sound

Table A.1: Monthly summary of taxa collected during Santa Rosa Sound stratified-random sampling, 2024.

Species	Month							Total
	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
	E=4	E=4	E=4	E=4	E=4	E=4	E=4	E=28
<i>Acanthostracion quadricornis</i>	.	.	1	.	.	.	.	1
<i>Archosargus probatocephalus</i>	2	.	.	.	.	.	.	2
<i>Ariopsis felis</i>	5	10	10	.	.	5	.	30
<i>Bairdiella chrysoura</i>	1	32	9	1	.	.	.	43
<i>Brevoortia</i> spp.	.	.	.	.	.	3	.	3
<i>Callinectes sapidus</i>	1	2	8	15	.	4	.	30
<i>Caranx hippos</i>	.	.	8	1	.	.	.	9
<i>Caranx latus</i>	.	.	.	2	2	1	.	5
<i>Chilomycterus schoepfii</i>	1	10	1	5	.	5	1	23
<i>Cynoscion arenarius</i>	1	.	.	.	.	.	.	1
<i>Cynoscion nebulosus</i>	1	.	7	.	.	9	.	17
<i>Dorosoma petenense</i>	1	.	.	.	.	.	.	1
<i>Elops saurus</i>	.	.	5	145	.	.	.	150
<i>Eucinostomus gula</i>	.	.	6	.	5	95	.	106
<i>Eucinostomus harengulus</i>	5	2	4	8	20	131	6	176
<i>Farfantepenaeus duorarum</i>	.	.	.	.	.	1	.	1
<i>Fundulus similis</i>	.	1	1	1	.	.	.	3
<i>Hypanus sabinus</i>	4	4	4	4	1	6	.	23
<i>Hypanus say</i>	2	.	.	1	.	2	.	5
<i>Hyporhamphus meeki</i>	.	1	5	.	.	.	.	6
<i>Lagodon rhomboides</i>	510	274	670	722	268	270	52	2,766
<i>Leiostomus xanthurus</i>	55	34	166	67	36	12	.	370
<i>Lepisosteus osseus</i>	.	1	14	.	.	.	.	15
<i>Lutjanus griseus</i>	.	.	.	1	.	.	.	1
<i>Menticirrhus saxatilis</i>	.	1	.	.	.	.	.	1

Species	Month							Total
	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
	E=4	E=4	E=4	E=4	E=4	E=4	E=4	
<i>Micropogonias undulatus</i>	12	8	8	.	.	1	.	29
<i>Mugil cephalus</i>	3	10	7	92	28	30	4	174
<i>Mugil curema</i>	2	5	21	22	26	2	10	88
<i>Oligoplites saurus</i>	1	.	2	.	.	.	.	3
<i>Opsanus beta</i>	.	3	.	2	1	2	.	8
<i>Orthopristis chrysoptera</i>	26	35	147	164	7	18	.	397
<i>Paralichthys albigutta</i>	5	3	2	2	2	1	1	16
<i>Pomatomus saltatrix</i>	.	.	6	.	.	.	.	6
<i>Rhinoptera bonasus</i>	.	5	2	1	.	22	.	30
<i>Sciaenops ocellatus</i>	7	9	16	10	1	21	.	64
<i>Scomberomorus maculatus</i>	.	.	9	2	.	.	.	11
<i>Selene vomer</i>	1	.	.	.	.	.	.	1
<i>Sphoeroides nephelus</i>	.	.	.	5	.	1	.	6
<i>Sphyraena barracuda</i>	.	.	3	.	.	4	.	7
<i>Strongylura marina</i>	.	.	.	.	4	.	3	7
<i>Strongylura notata</i>	.	.	.	1	.	1	.	2
<i>Synodus foetens</i>	.	1	.	1	.	.	.	2
<i>Trachinotus carolinus</i>	.	1	1	.	.	.	.	2
<i>Trachinotus falcatus</i>	.	.	.	1	.	7	.	8
Total	646	452	1,143	1,276	401	654	77	4,649

Effort, or total number of hauls, is labeled 'E'. Taxa are arranged alphabetically. Selected taxa are highlighted in bold.

Table A.2: Summary by gear and stratum of taxa collected during Santa Rosa Sound stratified-random sampling, 2024.

Species	Gear and Strata		Total
	183-m haul seine		
	Over	Nonover	
	E=2	E=26	E=28
<i>Acanthostracion quadricornis</i>	.	1	1
<i>Archosargus probatocephalus</i>	2	.	2
<i>Ariopsis felis</i>	3	27	30
<i>Bairdiella chrysoura</i>	.	43	43
<i>Brevoortia</i> spp.	.	3	3
<i>Callinectes sapidus</i>	.	30	30
<i>Caranx hippos</i>	.	9	9
<i>Caranx latus</i>	.	5	5
<i>Chilomycterus schoepfii</i>	.	23	23
<i>Cynoscion arenarius</i>	.	1	1
<i>Cynoscion nebulosus</i>	.	17	17
<i>Dorosoma petenense</i>	.	1	1
<i>Elops saurus</i>	.	150	150
<i>Eucinostomus gula</i>	.	106	106
<i>Eucinostomus harengulus</i>	6	170	176
<i>Farfantepenaeus duorarum</i>	.	1	1
<i>Fundulus similis</i>	.	3	3
<i>Hypanus sabinus</i>	2	21	23
<i>Hypanus say</i>	1	4	5
<i>Hyporhamphus meeki</i>	.	6	6
<i>Lagodon rhomboides</i>	98	2,668	2,766
<i>Leiostomus xanthurus</i>	.	370	370
<i>Lepisosteus osseus</i>	.	15	15
<i>Lutjanus griseus</i>	.	1	1
<i>Menticirrhus saxatilis</i>	.	1	1
<i>Micropogonias undulatus</i>	.	29	29

Species	Gear and Strata		Total
	183-m haul seine		
	Over	Nonover	
	E=2	E=26	E=28
<i>Mugil cephalus</i>	4	170	174
<i>Mugil curema</i>	11	77	88
<i>Oligoplites saurus</i>	1	2	3
<i>Opsanus beta</i>	.	8	8
<i>Orthopristis chrysoptera</i>	.	397	397
<i>Paralichthys albigutta</i>	1	15	16
<i>Pomatomus saltatrix</i>	.	6	6
<i>Rhinoptera bonasus</i>	.	30	30
<i>Sciaenops ocellatus</i>	.	64	64
<i>Scomberomorus maculatus</i>	.	11	11
<i>Selene vomer</i>	.	1	1
<i>Sphoeroides nephelus</i>	.	6	6
<i>Sphyraena barracuda</i>	.	7	7
<i>Strongylura marina</i>	.	7	7
<i>Strongylura notata</i>	.	2	2
<i>Synodus foetens</i>	.	2	2
<i>Trachinotus carolinus</i>	.	2	2
<i>Trachinotus falcatus</i>	.	8	8
Total	129	4,520	4,649

Sampling with 183-m haul seine was stratified by the presence or absence of overhanging vegetation ('Over' or 'Nonover'). Effort, or the total number of hauls, is labeled 'E'. Taxa are arranged alphabetically. Selected taxa are highlighted in bold.

Table A.3: Summary by zone of taxa collected during Santa Rosa Sound stratified-random sampling, 2024.

Species	Zone	Total
	A	
	E=28	E=28
<i>Acanthostracion quadricornis</i>	1	1
<i>Archosargus probatocephalus</i>	2	2
<i>Ariopsis felis</i>	30	30
<i>Bairdiella chrysoura</i>	43	43
<i>Brevoortia</i> spp.	3	3
<i>Callinectes sapidus</i>	30	30
<i>Caranx hippos</i>	9	9
<i>Caranx latus</i>	5	5
<i>Chilomycterus schoepfii</i>	23	23
<i>Cynoscion arenarius</i>	1	1
<i>Cynoscion nebulosus</i>	17	17
<i>Dorosoma petenense</i>	1	1
<i>Elops saurus</i>	150	150
<i>Eucinostomus gula</i>	106	106
<i>Eucinostomus harengulus</i>	176	176
<i>Farfantepenaeus duorarum</i>	1	1
<i>Fundulus similis</i>	3	3
<i>Hypanus sabinus</i>	23	23
<i>Hypanus say</i>	5	5
<i>Hyporhamphus meeki</i>	6	6
<i>Lagodon rhomboides</i>	2,766	2,766
<i>Leiostomus xanthurus</i>	370	370
<i>Lepisosteus osseus</i>	15	15
<i>Lutjanus griseus</i>	1	1
<i>Menticirrhus saxatilis</i>	1	1
<i>Micropogonias undulatus</i>	29	29
<i>Mugil cephalus</i>	174	174

Species	Zone	Total
	A	
	E=28	E=28
<i>Mugil curema</i>	88	88
<i>Oligoplites saurus</i>	3	3
<i>Opsanus beta</i>	8	8
<i>Orthopristis chrysoptera</i>	397	397
<i>Paralichthys albigutta</i>	16	16
<i>Pomatomus saltatrix</i>	6	6
<i>Rhinoptera bonasus</i>	30	30
<i>Sciaenops ocellatus</i>	64	64
<i>Scomberomorus maculatus</i>	11	11
<i>Selene vomer</i>	1	1
<i>Sphoeroides nephelus</i>	6	6
<i>Sphyraena barracuda</i>	7	7
<i>Strongylura marina</i>	7	7
<i>Strongylura notata</i>	2	2
<i>Synodus foetens</i>	2	2
<i>Trachinotus carolinus</i>	2	2
<i>Trachinotus falcatus</i>	8	8
Total	4,649	4,649

Zone A was located in Santa Rosa Sound. Effort, or the total number of hauls, is labeled 'E'. Taxa are arranged alphabetically. Selected taxa are highlighted in bold.

A.2 Choctawhatchee Bay

Table A.4: Monthly summary of taxa collected during Choctawhatchee Bay stratified-random sampling, 2024.

Species	Month							Total
	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
	E=5	E=5	E=5	E=5	E=5	E=5	E=5	E=35
<i>Archosargus probatocephalus</i>	.	.	.	.	1	2	.	3
<i>Ariopsis felis</i>	50	1	12	2	1	10	1	77
<i>Bairdiella chrysoura</i>	1	2	1	69	180	70	4	327
<i>Brevoortia</i> spp.	1	44	1	.	.	6	.	52
<i>Callinectes sapidus</i>	3	2	.	3	.	.	1	9
<i>Caranx crysos</i>	.	.	.	2	.	.	.	2
<i>Caranx hippos</i>	.	2	3	1	.	.	.	6
<i>Caranx latus</i>	.	.	.	2	.	.	.	2
<i>Chilomycterus schoepfii</i>	.	.	.	11	14	11	.	36
<i>Cynoscion nebulosus</i>	3	.	.	23	27	7	5	65
<i>Diapterus auratus</i>	.	.	.	.	1	.	.	1
<i>Dorosoma petenense</i>	.	.	.	.	.	.	10	10
<i>Elops saurus</i>	3	3	2	118	1	3	4	134
<i>Eucinostomus gula</i>	1	.	.	11	3	361	.	376
<i>Eucinostomus harengulus</i>	38	.	3	46	5	296	40	428
<i>Eucinostomus</i> spp.	.	.	.	.	.	64	.	64
<i>Farfantepenaeus aztecus</i>	1	.	.	.	.	.	.	1
<i>Farfantepenaeus duorarum</i>	1	.	.	.	.	.	.	1
<i>Fundulus similis</i>	.	1	.	.	.	.	.	1
<i>Gymnura lessae</i>	1	.	.	.	.	.	.	1
<i>Harengula jaguana</i>	.	.	.	.	2	85	.	87
<i>Hypanus sabinus</i>	10	1	4	7	2	25	5	54
<i>Hyporhamphus meeki</i>	.	.	.	2	.	.	.	2
<i>Lagodon rhomboides</i>	356	669	620	1,048	704	780	92	4,269
<i>Leiostomus xanthurus</i>	218	97	64	234	120	485	70	1,288

Species	Month							Total
	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
	E=5	E=5	E=5	E=5	E=5	E=5	E=5	
<i>Litopenaeus setiferus</i>	.	.	.	.	.	.	1	1
<i>Lutjanus griseus</i>	4	1	3	2	2	1	.	13
<i>Menticirrhus americanus</i>	4	.	.	.	.	4	.	8
<i>Micropogonias undulatus</i>	7	13	40	27	9	30	.	126
<i>Mugil cephalus</i>	66	50	86	23	44	45	33	347
<i>Mugil curema</i>	9	7	2	2	20	29	20	89
<i>Oligoplites saurus</i>	2	.	.	.	.	.	.	2
<i>Opsanus beta</i>	.	.	.	9	2	.	.	11
<i>Orthopristis chrysoptera</i>	.	22	37	111	52	251	.	473
<i>Paralichthys albigutta</i>	12	1	1	4	1	3	3	25
<i>Pogonias cromis</i>	.	.	.	5	1	1	.	7
<i>Pomatomus saltatrix</i>	1	.	.	.	.	.	.	1
<i>Sciaenops ocellatus</i>	14	21	19	39	64	30	3	190
<i>Scomberomorus maculatus</i>	.	.	2	.	.	.	.	2
<i>Selene vomer</i>	.	.	.	.	2	.	.	2
<i>Sphoeroides nephelus</i>	.	.	1	1	1	.	1	4
<i>Sphoeroides parvus</i>	.	.	.	1	.	.	.	1
<i>Sphyraena barracuda</i>	.	.	.	.	1	1	.	2
<i>Strongylura marina</i>	.	.	.	.	1	.	.	1
<i>Strongylura notata</i>	.	1	.	2	4	1	.	8
<i>Synodus foetens</i>	.	.	.	7	4	6	.	17
<i>Trachinotus carolinus</i>	1	.	.	2	1	.	1	5
<i>Trachinotus falcatus</i>	.	.	.	.	2	15	12	29
<i>Trinectes maculatus</i>	.	.	.	.	.	.	3	3
Total	807	938	901	1,814	1,272	2,622	309	8,663

Effort, or total number of hauls, is labeled 'E'. Taxa are arranged alphabetically. Selected taxa are highlighted in bold.

Table A.5: Summary by gear and stratum of taxa collected during Choctawhatchee Bay stratified-random sampling, 2024.

Species	Gear and Strata		Total
	183-m haul seine		
	Over	Nonover	
	E=16	E=19	E=35
<i>Archosargus probatocephalus</i>	2	1	3
<i>Ariopsis felis</i>	55	22	77
<i>Bairdiella chrysoura</i>	200	127	327
<i>Brevoortia</i> spp.	2	50	52
<i>Callinectes sapidus</i>	3	6	9
<i>Caranx crysos</i>	1	1	2
<i>Caranx hippos</i>	2	4	6
<i>Caranx latus</i>	.	2	2
<i>Chilomycterus schoepfii</i>	13	23	36
<i>Cynoscion nebulosus</i>	29	36	65
<i>Diapterus auratus</i>	1	.	1
<i>Dorosoma petenense</i>	.	10	10
<i>Elops saurus</i>	24	110	134
<i>Eucinostomus gula</i>	15	361	376
<i>Eucinostomus harengulus</i>	74	354	428
<i>Eucinostomus</i> spp.	.	64	64
<i>Farfantepenaeus aztecus</i>	.	1	1
<i>Farfantepenaeus duorarum</i>	.	1	1
<i>Fundulus similis</i>	.	1	1
<i>Gymnura lessae</i>	.	1	1
<i>Harengula jaguana</i>	2	85	87
<i>Hypanus sabinus</i>	13	41	54
<i>Hyporhamphus meeki</i>	.	2	2
<i>Lagodon rhomboides</i>	1,742	2,527	4,269
<i>Leiostomus xanthurus</i>	399	889	1,288
<i>Litopenaeus setiferus</i>	.	1	1

Species	Gear and Strata		Total
	183-m haul seine		
	Over	Nonover	
	E=16	E=19	E=35
<i>Lutjanus griseus</i>	10	3	13
<i>Menticirrhus americanus</i>	5	3	8
<i>Micropogonias undulatus</i>	21	105	126
<i>Mugil cephalus</i>	191	156	347
<i>Mugil curema</i>	27	62	89
<i>Oligoplites saurus</i>	2	.	2
<i>Opsanus beta</i>	2	9	11
<i>Orthopristis chrysoptera</i>	114	359	473
<i>Paralichthys albigutta</i>	18	7	25
<i>Pogonias cromis</i>	.	7	7
<i>Pomatomus saltatrix</i>	.	1	1
<i>Sciaenops ocellatus</i>	92	98	190
<i>Scomberomorus maculatus</i>	2	.	2
<i>Selene vomer</i>	2	.	2
<i>Sphoeroides nephelus</i>	2	2	4
<i>Sphoeroides parvus</i>	.	1	1
<i>Sphyraena barracuda</i>	1	1	2
<i>Strongylura marina</i>	.	1	1
<i>Strongylura notata</i>	5	3	8
<i>Synodus foetens</i>	6	11	17
<i>Trachinotus carolinus</i>	2	3	5
<i>Trachinotus falcatus</i>	14	15	29
<i>Trinectes maculatus</i>	3	.	3
Total	3,096	5,567	8,663

Species	Gear and Strata		Total
	183-m haul seine		
	Over	Nonover	
	E=16	E=19	E=35

Sampling with 183-m haul seine was stratified by the presence or absence of overhanging vegetation ('Over' or 'Nonover'). Effort, or the total number of hauls, is labeled 'E'. Taxa are arranged alphabetically. Selected taxa are highlighted in bold.

Table A.6: Summary by zone of taxa collected during Choctawhatchee Bay stratified-random sampling, 2024.

Species	Zone		Total
	B	C	
	E=21	E=14	E=35
<i>Archosargus probatocephalus</i>	3	.	3
<i>Ariopsis felis</i>	66	11	77
<i>Bairdiella chrysoura</i>	241	86	327
<i>Brevoortia</i> spp.	.	52	52
<i>Callinectes sapidus</i>	8	1	9
<i>Caranx crysos</i>	1	1	2
<i>Caranx hippos</i>	.	6	6
<i>Caranx latus</i>	2	.	2
<i>Chilomycterus schoepfii</i>	36	.	36
<i>Cynoscion nebulosus</i>	45	20	65
<i>Diapterus auratus</i>	1	.	1
<i>Dorosoma petenense</i>	.	10	10
<i>Elops saurus</i>	107	27	134
<i>Eucinostomus gula</i>	374	2	376
<i>Eucinostomus harengulus</i>	241	187	428
<i>Eucinostomus</i> spp.	64	.	64
<i>Farfantepenaeus aztecus</i>	.	1	1
<i>Farfantepenaeus duorarum</i>	.	1	1
<i>Fundulus similis</i>	1	.	1
<i>Gymnura lessae</i>	.	1	1
<i>Harengula jaguana</i>	87	.	87
<i>Hypanus sabinus</i>	39	15	54
<i>Hyporhamphus meeki</i>	.	2	2
<i>Lagodon rhomboides</i>	2,682	1,587	4,269
<i>Leiostomus xanthurus</i>	316	972	1,288
<i>Litopenaeus setiferus</i>	.	1	1
<i>Lutjanus griseus</i>	11	2	13

Species	Zone		Total
	B	C	
	E=21	E=14	E=35
<i>Menticirrhus americanus</i>	.	8	8
<i>Micropogonias undulatus</i>	17	109	126
<i>Mugil cephalus</i>	170	177	347
<i>Mugil curema</i>	36	53	89
<i>Oligoplites saurus</i>	2	.	2
<i>Opsanus beta</i>	11	.	11
<i>Orthopristis chrysoptera</i>	436	37	473
<i>Paralichthys albigutta</i>	21	4	25
<i>Pogonias cromis</i>	6	1	7
<i>Pomatomus saltatrix</i>	.	1	1
<i>Sciaenops ocellatus</i>	111	79	190
<i>Scomberomorus maculatus</i>	2	.	2
<i>Selene vomer</i>	2	.	2
<i>Sphoeroides nephelus</i>	4	.	4
<i>Sphoeroides parvus</i>	.	1	1
<i>Sphyraena barracuda</i>	2	.	2
<i>Strongylura marina</i>	.	1	1
<i>Strongylura notata</i>	7	1	8
<i>Synodus foetens</i>	12	5	17
<i>Trachinotus carolinus</i>	3	2	5
<i>Trachinotus falcatus</i>	29	.	29
<i>Trinectes maculatus</i>	3	.	3
Total	5,199	3,464	8,663

Zones B-C were located in Choctawhatchee Bay. Effort, or the total number of hauls, is labeled 'E'. Taxa are arranged alphabetically. Selected taxa are highlighted in bold.

A.3 Apalachicola Bay

Table A.7: Monthly summary of taxa collected during Apalachicola Bay stratified-random sampling, 2024.

Species	Month												Total
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
	E=43	E=45	E=49	E=57	E=49	E=45	E=61	E=45	E=49	E=57	E=49	E=45	E=594
<i>Acanthostracion quadricornis</i>	.	.	.	.	.	3	2	1	.	.	.	.	6
<i>Achirus lineatus</i>	.	.	.	.	1	1	3	.	.	.	.	.	5
<i>Alburnops petersoni</i>	.	7	4	17	61	15	287	338	20	21	10	13	793
<i>Alburnops</i> sp.	.	.	.	.	.	1	.	.	.	.	.	.	1
<i>Alosa chrysochloris</i>	.	.	1	4	2	.	.	.	.	.	1	.	8
<i>Ameiurus catus</i>	.	.	.	.	.	2	.	.	.	.	.	.	2
<i>Ameiurus</i> spp.	.	.	.	.	2	2	.	.	.	.	.	.	4
<i>Amia calva</i>	.	.	.	.	.	.	.	.	.	1	.	.	1
<i>Anchoa hepsetus</i>	.	.	.	2	11	26	30	3	54	357	.	.	483
<i>Anchoa lyolepis</i>	.	.	.	.	.	.	.	.	37	4	.	.	41
<i>Anchoa mitchilli</i>	662	8	2,399	1,610	244	707	21,794	1,778	8,302	1,949	13,721	182	53,356
<i>Anchoa</i> spp.	1	.	.	.	.	.	1	.	.	1	.	.	3
<i>Ancylopsetta quadrocellata</i>	1	2	1	3	.	.	3	.	1	3	1	.	15
<i>Anguilla rostrata</i>	.	.	.	.	.	.	.	2	.	1	.	.	3
<i>Aphredoderus sayanus</i>	.	.	.	8	.	.	.	.	.	.	.	.	8
<i>Archosargus probatocephalus</i>	2	11	15	5	19	8	12	8	19	12	9	9	129
<i>Argopecten irradians</i>	1	2	4	.	.	.	.	1	.	.	.	.	8
<i>Ariopsis felis</i>	17	1	4	76	42	113	191	524	166	402	32	6	1,574
<i>Astroscopus y-graecum</i>	.	.	.	1	.	.	.	.	.	.	2	.	3
<i>Bagre marinus</i>	.	.	.	1	10	13	3	2	2	.	1	.	32

Species	Month												Total
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
	E=43	E=45	E=49	E=57	E=49	E=45	E=61	E=45	E=49	E=57	E=49	E=45	
<i>Bairdiella chrysoura</i>	2	125	38	55	97	552	635	189	989	622	97	37	3,438
<i>Bathygobius soporator</i>	.	.	.	.	.	.	.	.	1	.	3	2	6
Brevoortia spp.	17	531	2,203	812	514	1,336	32	.	1,238	9	38	20	6,750
<i>Callinectes ornatus</i>	.	.	.	.	.	.	1	.	.	.	.	.	1
Callinectes sapidus	140	120	57	55	8	57	100	53	88	77	73	102	930
<i>Callinectes similis</i>	4	.	.	18	.	.	.	1	.	8	.	.	31
<i>Caranx bartholomaei</i>	.	.	.	.	1	.	.	.	.	.	.	.	1
Caranx crysos	.	.	.	.	.	.	.	.	2	.	.	.	2
Caranx hippos	.	.	.	.	.	2	4	2	17	.	1	.	26
<i>Caranx latus</i>	.	.	.	.	.	.	.	2	11	3	5	.	21
Carcharhinus leucas	.	.	.	.	.	.	1	.	.	.	.	.	1
Centropristis philadelphica	.	.	.	1	.	.	.	.	.	.	.	.	1
Centropristis striata	1	3	.	1	.	.	10	1	3	3	.	2	24
<i>Chaetodipterus faber</i>	.	.	.	1	1	23	4	1	5	1	.	.	36
<i>Chasmodes saburrae</i>	.	.	.	.	.	1	1	.	3	.	1	.	6
<i>Chilomycterus schoepfii</i>	1	.	5	1	1	.	2	.	16	13	3	2	44
<i>Chloroscombrus chrysurus</i>	.	.	.	.	.	2	58	42	9	88	1	.	200
<i>Citharichthys macrops</i>	3	.	.	6	.	.	2	.	.	4	.	.	15
<i>Citharichthys spilopterus</i>	2	.	.	4	.	.	.	3	1	.	.	1	11
<i>Citharichthys</i> spp.	2	.	.	.	.	.	.	.	.	.	.	.	2
<i>Clupeiformes</i> sp.	.	.	.	.	.	.	1	.	.	.	.	.	1
<i>Ctenogobius boleosoma</i>	55	20	78	99	10	6	22	16	4	33	44	8	395
Cynoscion arenarius	1	.	.	5	25	14	569	174	713	129	25	.	1,655

Species	Month												Total
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
	E=43	E=45	E=49	E=57	E=49	E=45	E=61	E=45	E=49	E=57	E=49	E=45	
<i>Cynoscion nebulosus</i>	3	13	38	35	29	35	53	77	124	53	22	38	520
<i>Cyprinella venusta</i>	1	.	.	.	.	.	.	.	.	.	.	.	1
<i>Cyprinodon variegatus</i>	5	.	.	1	1	7	.	.	.	.	.	1	15
<i>Cyprinus carpio</i>	1	.	.	.	.	.	.	.	.	.	.	.	1
<i>Diplectrum bivittatum</i>	.	.	.	4	.	.	.	.	.	6	.	.	10
<i>Diplectrum formosum</i>	.	.	.	1	.	.	5	.	.	3	.	.	9
<i>Diplodus holbrookii</i>	.	.	.	.	.	.	.	1	.	.	.	.	1
<i>Dorosoma cepedianum</i>	.	.	.	.	.	.	.	.	.	.	1	32	33
<i>Dorosoma petenense</i>	.	.	.	2	.	380	1	1	104	12	.	.	500
<i>Echeneis neucratoides</i>	.	.	.	.	.	1	.	.	.	.	.	.	1
<i>Elassoma zonatum</i>	.	.	.	18	.	.	6	.	.	1	1	.	26
<i>Elops saurus</i>	.	.	.	3	10	23	32	46	62	26	7	.	209
<i>Elops smithi</i>	.	.	.	.	.	.	.	.	.	1	.	.	1
<i>Elops</i> sp.	.	.	.	1	.	.	.	.	.	.	.	.	1
<i>Enneacanthus gloriosus</i>	.	2	7	.	1	53	6	2	1	16	16	.	104
<i>Erimyzon sucetta</i>	.	.	.	.	.	11	.	.	1	.	.	.	12
<i>Esox niger</i>	.	1	.	2	1	.	1	.	.	.	.	.	5
<i>Etropus crossotus</i>	39	.	5	42	.	.	175	7	42	241	19	9	579
<i>Etropus cyclosquamus</i>	.	.	.	.	.	.	1	.	.	.	.	.	1
<i>Eucinostomus argenteus</i>	.	.	.	.	.	.	1	.	.	.	.	.	1
<i>Eucinostomus gula</i>	.	.	.	2	.	.	41	28	14	38	17	4	144
<i>Eucinostomus harengulus</i>	.	.	.	1	.	.	107	35	16	12	36	1	208
<i>Eucinostomus</i> spp.	.	.	.	.	.	104	2,301	632	271	60	162	26	3,556

Species	Month												Total
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
	E=43	E=45	E=49	E=57	E=49	E=45	E=61	E=45	E=49	E=57	E=49	E=45	
<i>Evorthodus lyricus</i>	.	.	.	.	.	.	.	.	1	.	.	.	1
<i>Farfantepenaeus aztecus</i>	.	.	.	1	.	2	1	.	.	.	.	.	4
<i>Farfantepenaeus duorarum</i>	16	25	8	39	5	2	16	2	2	18	1	1	135
<i>Farfantepenaeus</i> spp.	96	7	12	29	22	73	222	65	139	24	70	90	849
<i>Fundulus chrysotus</i>	.	1	4	.	4	9	33	9	3	42	5	1	111
<i>Fundulus confluentus</i>	.	1	.	.	.	.	.	.	.	.	.	.	1
<i>Fundulus grandis</i>	7	4	6	21	2	.	.	1	.	1	25	1	68
<i>Fundulus similis</i>	91	17	11	16	31	5	4	7	.	.	3	2	187
<i>Fundulus xenicus</i>	1	1	.	.	.	.	.	.	.	1	2	.	5
<i>Gambusia holbrooki</i>	22	113	4	42	.	1	3	.	.	860	2	120	1,167
<i>Gobiesox strumosus</i>	1	.	.	.	.	.	.	.	.	.	.	.	1
<i>Gobiidae</i> sp.	.	.	.	.	.	.	.	.	.	1	.	.	1
<i>Gobionellus oceanicus</i>	2	.	.	8	.	.	.	.	.	.	.	.	10
<i>Gobiosoma bosc</i>	18	3	13	20	1	2	3	1	.	21	10	1	93
<i>Gobiosoma longipala</i>	.	.	.	1	.	.	.	.	.	.	.	.	1
<i>Gobiosoma robustum</i>	3	.	1	10	1	1	4	.	8	1	4	1	34
<i>Gobiosoma</i> spp.	31	5	7	11	.	1	5	1	37	2	3	1	104
<i>Gymnura lessae</i>	.	.	3	3	9	8	2	1	10	6	2	.	44
<i>Haemulon plumierii</i>	.	.	.	.	.	.	.	9	4	.	.	.	13
<i>Halichoeres bivittatus</i>	.	.	.	.	.	.	.	6	1	.	.	.	7
<i>Harengula jaguana</i>	.	.	.	31	.	8	96	6	756	67	41	.	1,005
<i>Hemicaranx amblyrhynchus</i>	.	.	.	.	.	.	.	.	.	3	.	.	3
<i>Hemiramphus brasiliensis</i>	.	.	.	.	.	.	.	.	1	.	.	.	1

Species	Month												Total
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
	E=43	E=45	E=49	E=57	E=49	E=45	E=61	E=45	E=49	E=57	E=49	E=45	
<i>Heterandria formosa</i>	2	7	8	6	4	1	2	4	.	37	1	41	113
<i>Hippocampus erectus</i>	3	.	.	.	.	.	.	.	1	1	1	.	6
<i>Hippocampus zosterae</i>	.	1	.	.	.	.	1	.	.	.	.	.	2
<i>Hypanus americanus</i>	.	.	.	.	.	1	1	.	.	.	.	.	2
<i>Hypanus sabinus</i>	15	31	84	103	84	204	119	56	73	83	87	20	959
<i>Hypanus say</i>	.	.	.	9	9	30	22	6	4	.	4	.	84
<i>Hyleurochilus caudovittatus</i>	1	.	.	.	.	.	3	.	.	.	.	.	4
<i>Hyporhamphus meeki</i>	.	.	.	.	.	1	6	.	18	.	.	1	26
<i>Hyporhamphus</i> spp.	.	.	.	.	.	3	1	.	.	.	.	.	4
<i>Hypsoblennius hentz</i>	.	.	.	.	.	.	.	.	1	2	.	.	3
<i>Ictalurus furcatus</i>	22	.	4	.	2	.	.	.	.	.	.	.	28
<i>Ictalurus punctatus</i>	8	.	2	.	4	.	.	.	.	.	.	.	14
<i>Labidesthes vanhyningi</i>	.	.	4	.	1	.	.	.	.	2	.	.	7
<i>Lagodon rhomboides</i>	208	745	1,587	2,798	2,344	1,800	1,759	1,469	3,628	2,021	499	286	19,144
<i>Larimus fasciatus</i>	.	.	.	.	.	.	.	.	.	.	1	.	1
<i>Leiostomus xanthurus</i>	1,202	1,719	1,028	1,042	448	308	128	104	382	205	219	13	6,798
<i>Lepisosteus oculatus</i>	.	.	.	.	1	2	3	2	.	.	1	.	9
<i>Lepisosteus osseus</i>	1	.	1	1	.	1	4	2	2	7	.	.	19
<i>Lepomis macrochirus</i>	1	.	.	1	21	.	1	.	5	6	2	2	39
<i>Lepomis microlophus</i>	19	6	12	17	2	3	16	10	22	27	32	10	176
<i>Lepomis punctatus</i>	10	2	1	3	9	11	32	7	46	32	14	17	184
<i>Lepomis</i> spp.	1	.	.	1	3	45	6	2	3	5	4	3	73
<i>Limulus polyphemus</i>	.	.	2	1	.	.	.	.	.	1	.	.	4

[illegible]

[illegible]

Species	Month												Total
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
	E=43	E=45	E=49	E=57	E=49	E=45	E=61	E=45	E=49	E=57	E=49	E=45	
<i>Prionotus tribulus</i>	21	4	2	3	.	1	10	.	6	5	18	3	73
<i>Rhinoptera bonasus</i>	.	.	5	2	.	.	5	2	.	.	.	.	14
<i>Rimapenaeus constrictus</i>	.	.	.	1	.	.	.	.	.	.	.	.	1
<i>Rimapenaeus similis</i>	.	.	.	2	.	.	.	.	.	5	.	.	7
<i>Rimapenaeus</i> spp.	14	1	.	1	.	.	4	1	.	36	2	1	60
<i>Rostroraja texana</i>	.	.	.	.	.	.	.	.	.	1	.	.	1
<i>Sciaenidae</i> spp.	5	.	.	1	.	.	.	.	.	1	3	.	10
<i>Sciaenops ocellatus</i>	7	15	78	51	74	83	39	28	49	159	134	77	794
<i>Scomberomorus maculatus</i>	.	.	.	.	.	.	.	.	.	.	1	.	1
<i>Scorpaena brasiliensis</i>	.	.	.	.	.	.	.	.	1	.	.	.	1
<i>Selene setapinnis</i>	.	.	.	.	.	.	.	.	.	1	.	.	1
<i>Selene vomer</i>	.	.	.	.	.	.	1	1	2	.	.	2	6
<i>Serraniculus pumilio</i>	2	.	.	2	.	.	1	.	.	2	.	.	7
<i>Serranus subligarius</i>	.	.	.	.	.	.	1	.	.	.	.	.	1
<i>Sicyonia laevigata</i>	1	.	.	.	.	.	.	.	.	.	.	.	1
<i>Sicyonia parri</i>	.	.	.	1	.	.	.	.	.	.	.	.	1
<i>Sparidae</i> spp.	.	.	.	2	.	.	.	.	.	.	.	.	2
<i>Sphoeroides nephelus</i>	1	.	1	.	8	7	2	1	.	3	2	3	28
<i>Sphoeroides parvus</i>	.	.	.	.	.	.	3	.	.	.	.	.	3
<i>Sphoeroides spengleri</i>	.	.	.	.	.	.	.	.	.	1	.	.	1
<i>Sphoeroides</i> spp.	.	.	.	5	15	7	.	.	.	1	5	1	34
<i>Sphyrna tiburo</i>	.	.	.	.	2	.	.	.	.	2	.	.	4
<i>Stellifer lanceolatus</i>	.	.	.	.	.	.	.	.	.	158	.	.	158

Species	Month												Total
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
	E=43	E=45	E=49	E=57	E=49	E=45	E=61	E=45	E=49	E=57	E=49	E=45	
<i>Stephanolepis hispidus</i>	.	.	.	.	8	16	6	.	.	2	1	1	34
<i>Stomolophus meleagris</i>	.	.	.	.	.	.	2	1	.	8	1	.	12
<i>Strongylura marina</i>	.	1	4	.	1	4	5	.	1	5	5	6	32
<i>Strongylura notata</i>	.	.	.	.	5	2	11	6	6	5	.	1	36
<i>Strongylura</i> spp.	.	.	.	.	1	.	4	1	.	.	.	.	6
<i>Symphurus plagiusa</i>	25	2	1	35	2	6	222	12	62	37	12	9	425
<i>Syngnathus floridae</i>	6	.	3	.	.	2	2	.	3	.	1	2	19
<i>Syngnathus louisianae</i>	4	.	.	1	.	.	13	.	.	3	.	1	22
<i>Syngnathus scovelli</i>	21	8	13	7	6	8	39	42	23	12	3	18	200
<i>Syngnathus</i> sp.	1	.	.	.	.	.	.	.	.	.	.	.	1
<i>Syngnathus springeri</i>	.	.	.	1	.	.	.	.	.	.	.	.	1
<i>Synodus foetens</i>	3	.	.	2	11	7	24	5	9	15	10	3	89
<i>Trachinotus carolinus</i>	.	.	.	.	.	2	.	.	1	.	1	.	4
<i>Trachinotus falcatus</i>	.	.	.	.	.	1	5	.	13	1	1	.	21
<i>Trinectes maculatus</i>	36	8	4	73	11	4	19	12	1	50	34	5	257
<i>Tylosurus crocodilus</i>	.	.	.	.	.	1	.	.	.	.	.	.	1
<i>Urophycis floridana</i>	7	.	1	6	.	.	.	.	.	.	.	.	14
<i>Xiphopenaeus kroyeri</i>	.	.	.	.	.	.	.	.	.	6	.	.	6
Total	4,216	5,424	9,122	9,182	7,413	8,393	35,165	7,845	24,635	10,898	17,821	4,572	144,686

Effort, or total number of hauls, is labeled 'E'. Taxa are arranged alphabetically. Selected taxa are highlighted in bold.

Table A.8: Summary by gear and stratum of taxa collected during Apalachicola Bay stratified-random sampling, 2024.

Species	Gear and Strata						Total
	21.3-m bay seine			21.3-m river seine	183-m haul seine	6.1-m otter trawl	
	Veg	Unveg	Shore				
	E=72	E=60	E=108	E=84	E=198	E=72	
<i>Acanthostracion quadricornis</i>	1	.	.	.	5	.	6
<i>Achirus lineatus</i>	1	1	3	.	.	.	5
<i>Alburnops petersoni</i>	5	.	1	781	.	6	793
<i>Alburnops</i> sp.	.	.	.	1	.	.	1
<i>Alosa chrysochloris</i>	.	.	.	.	8	.	8
<i>Ameiurus catus</i>	.	.	.	2	.	.	2
<i>Ameiurus</i> spp.	1	.	.	2	.	1	4
<i>Amia calva</i>	.	.	.	1	.	.	1
<i>Anchoa hepsetus</i>	264	3	173	.	2	41	483
<i>Anchoa lyolepis</i>	40	.	.	.	.	1	41
<i>Anchoa mitchilli</i>	581	12,755	4,285	476	13	35,246	53,356
<i>Anchoa</i> spp.	.	.	1	.	.	2	3
<i>Ancylopsetta quadrocellata</i>	.	1	1	.	4	9	15
<i>Anguilla rostrata</i>	.	.	.	3	.	.	3
<i>Aphredoderus sayanus</i>	1	.	.	7	.	.	8
<i>Archosargus probatocephalus</i>	5	.	3	.	111	10	129
<i>Argopecten irradians</i>	3	1	2	.	2	.	8
<i>Ariopsis felis</i>	28	627	88	.	303	528	1,574
<i>Astroscopus y-graecum</i>	.	.	3	.	.	.	3
<i>Bagre marinus</i>	.	5	.	.	27	.	32
<i>Bairdiella chrysoura</i>	1,120	3	73	12	2,008	222	3,438
<i>Bathygobius soporator</i>	.	.	4	2	.	.	6
<i>Brevoortia</i> spp.	89	38	2,787	925	2,892	19	6,750
<i>Callinectes ornatus</i>	.	.	.	.	.	1	1
<i>Callinectes sapidus</i>	74	56	311	229	133	127	930
<i>Callinectes similis</i>	.	1	1	.	.	29	31

Species	Gear and Strata						Total
	21.3-m bay seine			21.3-m river seine	183-m haul seine	6.1-m otter trawl	
	Veg	Unveg	Shore				
	E=72	E=60	E=108	E=84	E=198	E=72	E=594
<i>Caranx bartholomaei</i>	.	.	.	.	1	.	1
<i>Caranx crysos</i>	.	.	.	.	2	.	2
<i>Caranx hippos</i>	.	.	1	.	24	1	26
<i>Caranx latus</i>	.	2	.	.	19	.	21
<i>Carcharhinus leucas</i>	.	.	.	.	1	.	1
<i>Centropristis philadelphica</i>	.	.	.	.	.	1	1
<i>Centropristis striata</i>	11	.	.	.	8	5	24
<i>Chaetodipterus faber</i>	.	.	1	.	29	6	36
<i>Chasmodes saburrae</i>	4	.	2	.	.	.	6
<i>Chilomycterus schoepfii</i>	3	1	.	.	36	4	44
<i>Chloroscombrus chrysurus</i>	7	46	.	.	42	105	200
<i>Citharichthys macrops</i>	.	.	1	.	.	14	15
<i>Citharichthys spilopterus</i>	.	.	2	.	4	5	11
<i>Citharichthys</i> spp.	.	.	2	.	.	.	2
<i>Clupeiformes</i> sp.	.	.	.	.	.	1	1
<i>Ctenogobius boleosoma</i>	163	11	151	51	.	19	395
<i>Cynoscion arenarius</i>	4	101	208	.	16	1,326	1,655
<i>Cynoscion nebulosus</i>	66	.	65	6	365	18	520
<i>Cyprinella venusta</i>	.	.	.	1	.	.	1
<i>Cyprinodon variegatus</i>	.	.	15	.	.	.	15
<i>Cyprinus carpio</i>	.	.	.	1	.	.	1
<i>Diplectrum bivittatum</i>	.	.	.	.	.	10	10
<i>Diplectrum formosum</i>	1	.	.	.	.	8	9
<i>Diplodus holbrookii</i>	1	.	.	.	.	.	1
<i>Dorosoma cepedianum</i>	.	.	.	.	33	.	33
<i>Dorosoma petenense</i>	.	3	3	.	491	3	500
<i>Echeneis neucratoides</i>	.	.	.	.	1	.	1
<i>Elassoma zonatum</i>	.	.	.	26	.	.	26

Species	Gear and Strata						Total
	21.3-m bay seine			21.3-m river seine	183-m haul seine	6.1-m otter trawl	
	Veg	Unveg	Shore				
	E=72	E=60	E=108	E=84	E=198	E=72	E=594
<i>Elops saurus</i>	.	.	3	.	206	.	209
<i>Elops smithi</i>	.	.	1	.	.	.	1
<i>Elops</i> sp.	.	.	1	.	.	.	1
<i>Enneacanthus gloriosus</i>	.	.	.	104	.	.	104
<i>Erimyzon sucetta</i>	.	.	.	12	.	.	12
<i>Esox niger</i>	.	1	.	4	.	.	5
<i>Etropus crossotus</i>	.	6	2	.	100	471	579
<i>Etropus cyclosquamus</i>	.	.	.	.	.	1	1
<i>Eucinostomus argenteus</i>	.	1	.	.	.	.	1
<i>Eucinostomus gula</i>	26	1	65	.	20	32	144
<i>Eucinostomus harengulus</i>	.	13	118	11	8	58	208
<i>Eucinostomus</i> spp.	589	32	2,504	99	4	328	3,556
<i>Evorthodus lyricus</i>	1	.	.	.	.	.	1
<i>Farfantepenaeus aztecus</i>	.	1	2	.	.	1	4
<i>Farfantepenaeus duorarum</i>	10	1	2	.	44	78	135
<i>Farfantepenaeus</i> spp.	331	20	365	8	24	101	849
<i>Fundulus chrysotus</i>	.	.	.	111	.	.	111
<i>Fundulus confluentus</i>	.	.	.	1	.	.	1
<i>Fundulus grandis</i>	1	.	46	8	13	.	68
<i>Fundulus similis</i>	.	.	132	.	55	.	187
<i>Fundulus xenicus</i>	.	.	4	1	.	.	5
<i>Gambusia holbrooki</i>	.	.	4	1,163	.	.	1,167
<i>Gobiesox strumosus</i>	.	.	1	.	.	.	1
<i>Gobiidae</i> sp.	.	.	.	.	.	1	1
<i>Gobionellus oceanicus</i>	.	.	.	.	.	10	10
<i>Gobiosoma bosc</i>	29	2	20	34	.	8	93
<i>Gobiosoma longipala</i>	.	.	.	.	.	1	1
<i>Gobiosoma robustum</i>	17	.	9	.	.	8	34

Species	Gear and Strata						Total
	21.3-m bay seine			21.3-m river seine	183-m haul seine	6.1-m otter trawl	
	Veg	Unveg	Shore				
	E=72	E=60	E=108	E=84	E=198	E=72	E=594
<i>Gobiosoma</i> spp.	10	1	12	37	.	44	104
<i>Gymnura lessae</i>	.	1	.	.	40	3	44
<i>Haemulon plumierii</i>	13	.	.	.	.	.	13
<i>Halichoeres bivittatus</i>	7	.	.	.	.	.	7
<i>Harengula jaguana</i>	287	92	22	.	602	2	1,005
<i>Hemicaranx amblyrhynchus</i>	.	.	.	.	.	3	3
<i>Hemiramphus brasiliensis</i>	1	.	.	.	.	.	1
<i>Heterandria formosa</i>	.	1	.	111	.	1	113
<i>Hippocampus erectus</i>	.	1	.	.	1	4	6
<i>Hippocampus zosterae</i>	2	.	.	.	.	.	2
<i>Hypanus americanus</i>	.	.	.	.	2	.	2
<i>Hypanus sabinus</i>	5	10	30	.	859	55	959
<i>Hypanus say</i>	.	1	.	.	83	.	84
<i>Hypleurochilus caudovittatus</i>	1	.	.	.	.	3	4
<i>Hyporhamphus meeki</i>	5	.	.	.	21	.	26
<i>Hyporhamphus</i> spp.	3	1	.	.	.	.	4
<i>Hypsoblennius hentz</i>	3	.	.	.	.	.	3
<i>Ictalurus furcatus</i>	.	.	.	.	.	28	28
<i>Ictalurus punctatus</i>	.	.	.	.	.	14	14
<i>Labidesthes vanhyningi</i>	.	.	.	7	.	.	7
<i>Lagodon rhomboides</i>	5,520	88	693	48	12,481	314	19,144
<i>Larimus fasciatus</i>	.	.	1	.	.	.	1
<i>Leiostomus xanthurus</i>	629	433	3,326	195	2,010	205	6,798
<i>Lepisosteus oculatus</i>	.	.	.	9	.	.	9
<i>Lepisosteus osseus</i>	.	1	.	11	6	1	19
<i>Lepomis macrochirus</i>	.	.	.	39	.	.	39
<i>Lepomis microlophus</i>	2	.	11	148	2	13	176
<i>Lepomis punctatus</i>	.	.	1	177	.	6	184

Species	Gear and Strata						Total
	21.3-m bay seine			21.3-m river seine	183-m haul seine	6.1-m otter trawl	
	Veg	Unveg	Shore				
	E=72	E=60	E=108	E=84	E=198	E=72	E=594
<i>Lepomis</i> spp.	.	.	.	73	.	.	73
<i>Limulus polyphemus</i>	.	.	1	.	3	.	4
<i>Litopenaeus setiferus</i>	251	235	5,115	18	541	5,602	11,762
<i>Lobotes surinamensis</i>	.	.	.	.	2	.	2
<i>Lucania goodei</i>	.	.	.	45	.	.	45
<i>Lucania parva</i>	313	1	671	505	.	2	1,492
<i>Lutjanus griseus</i>	32	.	17	7	5	.	61
<i>Lutjanus synagris</i>	8	.	5	.	.	19	32
<i>Megalops atlanticus</i>	.	.	.	.	1	.	1
<i>Membras martinica</i>	192	37	442	.	.	.	671
<i>Menidia</i> spp.	377	133	929	429	2	.	1,870
<i>Menippe</i> spp.	1	.	1	.	.	42	44
<i>Menticirrhus americanus</i>	1	47	135	.	23	133	339
<i>Menticirrhus saxatilis</i>	4	1	28	.	5	.	38
<i>Microgobius gulosus</i>	33	.	194	15	.	1	243
<i>Microgobius</i> sp.	.	.	.	.	.	1	1
<i>Microgobius thalassinus</i>	1	9	1	.	.	26	37
<i>Micropogonias undulatus</i>	7	313	3,039	28	1,012	841	5,240
<i>Micropterus salmoides</i>	62	.	14	210	.	.	286
<i>Monacanthus ciliatus</i>	3	.	1	.	.	.	4
<i>Mugil cephalus</i>	20	86	3,396	5	2,555	1	6,063
<i>Mugil curema</i>	.	.	85	.	533	.	618
<i>Mugil trichodon</i>	.	.	6	.	.	.	6
<i>Mycteroperca microlepis</i>	.	.	.	.	2	.	2
<i>Myrophis punctatus</i>	1	1	.	.	.	.	2
<i>Notemigonus crysoleucas</i>	.	.	.	207	.	.	207
<i>Ogcocephalus cubifrons</i>	.	.	1	.	21	6	28
<i>Oligoplites saurus</i>	16	12	48	3	20	.	99

Species	Gear and Strata						Total
	21.3-m bay seine			21.3-m river seine	183-m haul seine	6.1-m otter trawl	
	Veg	Unveg	Shore				
	E=72	E=60	E=108	E=84	E=198	E=72	E=594
<i>Ophichthus gomesii</i>	.	.	.	.	.	1	1
<i>Opisthonema oglinum</i>	4	10	4	.	11	.	29
<i>Opsanus beta</i>	3	.	1	.	20	3	27
<i>Orthopristis chrysoptera</i>	3,122	25	299	.	921	249	4,616
<i>Paralichthys albigutta</i>	21	8	34	.	243	23	329
<i>Paralichthys lethostigma</i>	2	9	16	9	34	19	89
<i>Paralichthys</i> sp.	.	.	.	.	1	.	1
<i>Penaeidae</i> sp.	.	.	1	.	.	.	1
<i>Peprilus burti</i>	2	.	.	.	1	13	16
<i>Peprilus paru</i>	.	.	.	.	2	5	7
<i>Pleuronectiformes</i> spp.	.	.	2	.	.	.	2
<i>Poecilia latipinna</i>	.	.	4	93	.	.	97
<i>Pogonias cromis</i>	.	2	3	.	135	.	140
<i>Pomatomus saltatrix</i>	.	.	.	.	11	.	11
<i>Pomoxis nigromaculatus</i>	.	.	.	3	.	.	3
<i>Porichthys plectrodon</i>	.	.	.	.	.	2	2
<i>Portunus</i> spp.	3	1	.	.	.	90	94
<i>Prionotus rubio</i>	.	.	.	.	.	4	4
<i>Prionotus scitulus</i>	.	1	.	.	2	77	80
<i>Prionotus</i> sp.	.	.	1	.	.	.	1
<i>Prionotus tribulus</i>	2	11	15	.	6	39	73
<i>Rhinoptera bonasus</i>	.	.	.	.	14	.	14
<i>Rimapenaeus constrictus</i>	.	.	.	.	.	1	1
<i>Rimapenaeus similis</i>	.	.	.	.	.	7	7
<i>Rimapenaeus</i> spp.	2	1	4	.	.	53	60
<i>Rostroraja texana</i>	.	.	.	.	.	1	1
<i>Sciaenidae</i> spp.	.	.	2	.	.	8	10
<i>Sciaenops ocellatus</i>	25	21	237	12	497	2	794

Species	Gear and Strata						Total
	21.3-m bay seine			21.3-m river seine	183-m haul seine	6.1-m otter trawl	
	Veg	Unveg	Shore				
	E=72	E=60	E=108	E=84	E=198	E=72	E=594
<i>Scomberomorus maculatus</i>	.	.	.	.	1	.	1
<i>Scorpaena brasiliensis</i>	.	.	.	.	1	.	1
<i>Selene setapinnis</i>	.	.	.	.	.	1	1
<i>Selene vomer</i>	.	.	.	.	5	1	6
<i>Serraniculus pumilio</i>	.	.	.	.	.	7	7
<i>Serranus subligarius</i>	1	.	.	.	.	.	1
<i>Sicyonia laevigata</i>	.	.	.	.	.	1	1
<i>Sicyonia parri</i>	.	.	.	.	.	1	1
<i>Sparidae</i> spp.	.	.	.	.	.	2	2
<i>Sphoeroides nephelus</i>	9	1	11	.	5	2	28
<i>Sphoeroides parvus</i>	.	.	.	.	.	3	3
<i>Sphoeroides spengleri</i>	.	.	.	.	.	1	1
<i>Sphoeroides</i> spp.	15	4	13	.	.	2	34
<i>Sphyrna tiburo</i>	.	.	.	.	4	.	4
<i>Stellifer lanceolatus</i>	.	.	.	.	.	158	158
<i>Stephanolepis hispida</i>	27	.	2	.	.	5	34
<i>Stomolophus meleagris</i>	.	.	.	.	3	9	12
<i>Strongylura marina</i>	2	2	7	.	21	.	32
<i>Strongylura notata</i>	1	.	13	.	22	.	36
<i>Strongylura</i> spp.	1	.	5	.	.	.	6
<i>Symphurus plagiusa</i>	3	34	38	1	1	348	425
<i>Syngnathus floridae</i>	16	.	2	.	.	1	19
<i>Syngnathus louisianae</i>	1	.	1	.	.	20	22
<i>Syngnathus scovelli</i>	125	3	14	51	.	7	200
<i>Syngnathus</i> sp.	1	.	.	.	.	.	1
<i>Syngnathus springeri</i>	.	.	.	.	.	1	1
<i>Synodus foetens</i>	18	10	22	.	9	30	89
<i>Trachinotus carolinus</i>	.	.	.	.	4	.	4

Species	Gear and Strata						Total
	21.3-m bay seine			21.3-m river seine	183-m haul seine	6.1-m otter trawl	
	Veg	Unveg	Shore				
	E=72	E=60	E=108	E=84	E=198	E=72	E=594
<i>Trachinotus falcatus</i>	.	.	6	.	15	.	21
<i>Trinectes maculatus</i>	.	5	3	156	6	87	257
<i>Tylosurus crocodilus</i>	.	.	.	.	1	.	1
<i>Urophycis floridana</i>	2	.	.	.	.	12	14
<i>Xiphopenaeus kroyeri</i>	.	.	.	.	.	6	6
Total	14,695	15,386	30,451	6,734	29,882	47,538	144,686

Sampling with 21.3-m bay seine was stratified by the presence or absence of a shoreline ('Shore' or offshore) within 5-m. Offshore sets were further stratified by the presence or absence of bottom vegetation ('Veg' or 'Unveg'). Sampling with 21.3-m river seine, 183-m haul seine, and 6.1-m otter trawl was not stratified. Effort, or the total number of hauls, is labeled 'E'. Taxa are arranged alphabetically. Selected taxa are highlighted in bold.

Table A.9: Summary by zone of taxa collected during Apalachicola Bay stratified-random sampling, 2024.

Species	Zone			Total
	A	B	C	
	E=243	E=243	E=108	E=594
<i>Acanthostracion quadricornis</i>	.	6	.	6
<i>Achirus lineatus</i>	.	5	.	5
<i>Alburnops petersoni</i>	6	.	787	793
<i>Alburnops</i> sp.	.	.	1	1
<i>Alosa chrysochloris</i>	8	.	.	8
<i>Ameiurus catus</i>	.	.	2	2
<i>Ameiurus</i> spp.	1	.	3	4
<i>Amia calva</i>	.	.	1	1
<i>Anchoa hepsetus</i>	80	402	1	483
<i>Anchoa lyolepis</i>	.	41	.	41
<i>Anchoa mitchilli</i>	33,021	1,557	18,778	53,356
<i>Anchoa</i> spp.	3	.	.	3
<i>Ancylopersetta quadrocellata</i>	6	9	.	15
<i>Anguilla rostrata</i>	.	.	3	3
<i>Aphredoderus sayanus</i>	1	.	7	8
<i>Archosargus probatocephalus</i>	44	75	10	129
<i>Argopecten irradians</i>	1	7	.	8
<i>Ariopsis felis</i>	1,164	385	25	1,574
<i>Astroscopus y-graecum</i>	2	1	.	3
<i>Bagre marinus</i>	30	2	.	32
<i>Bairdiella chrysoura</i>	1,326	2,100	12	3,438
<i>Bathygobius soporator</i>	3	1	2	6
<i>Brevoortia</i> spp.	5,190	616	944	6,750
<i>Callinectes ornatus</i>	.	1	.	1
<i>Callinectes sapidus</i>	350	282	298	930
<i>Callinectes similis</i>	13	18	.	31
<i>Caranx bartholomaei</i>	.	1	.	1

Species	Zone			Total
	A	B	C	
	E=243	E=243	E=108	E=594
<i>Caranx crysos</i>	.	2	.	2
<i>Caranx hippos</i>	14	12	.	26
<i>Caranx latus</i>	11	10	.	21
<i>Carcharhinus leucas</i>	1	.	.	1
<i>Centropristis philadelphica</i>	.	1	.	1
<i>Centropristis striata</i>	.	24	.	24
<i>Chaetodipterus faber</i>	29	6	1	36
<i>Chasmodes saburrae</i>	.	6	.	6
<i>Chilomycterus schoepfii</i>	8	36	.	44
<i>Chloroscombrus chrysurus</i>	121	79	.	200
<i>Citharichthys macrops</i>	.	15	.	15
<i>Citharichthys spilopterus</i>	9	2	.	11
<i>Citharichthys</i> spp.	2	.	.	2
<i>Clupeiformes</i> sp.	.	1	.	1
<i>Ctenogobius boleosoma</i>	253	80	62	395
<i>Cynoscion arenarius</i>	598	43	1,014	1,655
<i>Cynoscion nebulosus</i>	270	229	21	520
<i>Cyprinella venusta</i>	.	.	1	1
<i>Cyprinodon variegatus</i>	12	3	.	15
<i>Cyprinus carpio</i>	.	.	1	1
<i>Diplectrum bivittatum</i>	1	9	.	10
<i>Diplectrum formosum</i>	1	8	.	9
<i>Diplodus holbrookii</i>	.	1	.	1
<i>Dorosoma cepedianum</i>	32	1	.	33
<i>Dorosoma petenense</i>	489	10	1	500
<i>Echeneis neucratoides</i>	.	1	.	1
<i>Elassoma zonatum</i>	.	.	26	26
<i>Elops saurus</i>	114	95	.	209
<i>Elops smithi</i>	1	.	.	1

Species	Zone			Total
	A	B	C	
	E=243	E=243	E=108	E=594
<i>Elops</i> sp.	.	1	.	1
<i>Enneacanthus gloriosus</i>	.	.	104	104
<i>Erimyzon sucetta</i>	.	.	12	12
<i>Esox niger</i>	1	.	4	5
<i>Etropus crossotus</i>	324	252	3	579
<i>Etropus cyclosquamus</i>	.	1	.	1
<i>Eucinostomus argenteus</i>	1	.	.	1
<i>Eucinostomus gula</i>	25	119	.	144
<i>Eucinostomus harengulus</i>	64	94	50	208
<i>Eucinostomus</i> spp.	472	2,682	402	3,556
<i>Evorthodus lyricus</i>	1	.	.	1
<i>Farfantepenaeus aztecus</i>	3	1	.	4
<i>Farfantepenaeus duorarum</i>	54	81	.	135
<i>Farfantepenaeus</i> spp.	393	439	17	849
<i>Fundulus chrysotus</i>	.	.	111	111
<i>Fundulus confluentus</i>	.	.	1	1
<i>Fundulus grandis</i>	32	28	8	68
<i>Fundulus similis</i>	39	148	.	187
<i>Fundulus xenicus</i>	4	.	1	5
<i>Gambusia holbrooki</i>	4	.	1,163	1,167
<i>Gobiesox strumosus</i>	1	.	.	1
<i>Gobiidae</i> sp.	1	.	.	1
<i>Gobionellus oceanicus</i>	8	2	.	10
<i>Gobiosoma bosc</i>	49	2	42	93
<i>Gobiosoma longipala</i>	.	1	.	1
<i>Gobiosoma robustum</i>	3	23	8	34
<i>Gobiosoma</i> spp.	16	7	81	104
<i>Gymnura lessae</i>	13	31	.	44
<i>Haemulon plumierii</i>	.	13	.	13

Species	Zone			Total
	A	B	C	
	E=243	E=243	E=108	E=594
<i>Halichoeres bivittatus</i>	.	7	.	7
<i>Harengula jaguana</i>	117	888	.	1,005
<i>Hemicaranx amblyrhynchus</i>	2	1	.	3
<i>Hemiramphus brasiliensis</i>	1	.	.	1
<i>Heterandria formosa</i>	1	.	112	113
<i>Hippocampus erectus</i>	.	6	.	6
<i>Hippocampus zosterae</i>	.	2	.	2
<i>Hypanus americanus</i>	1	1	.	2
<i>Hypanus sabinus</i>	440	516	3	959
<i>Hypanus say</i>	19	65	.	84
<i>Hypoleurochilus caudovittatus</i>	.	4	.	4
<i>Hyporhamphus meeki</i>	.	26	.	26
<i>Hyporhamphus</i> spp.	.	4	.	4
<i>Hypsoblennius hentz</i>	.	3	.	3
<i>Ictalurus furcatus</i>	.	.	28	28
<i>Ictalurus punctatus</i>	.	.	14	14
<i>Labidesthes vanhyningi</i>	.	.	7	7
<i>Lagodon rhomboides</i>	5,327	13,762	55	19,144
<i>Larimus fasciatus</i>	.	1	.	1
<i>Leiostomus xanthurus</i>	3,552	2,953	293	6,798
<i>Lepisosteus oculatus</i>	.	.	9	9
<i>Lepisosteus osseus</i>	7	1	11	19
<i>Lepomis macrochirus</i>	.	.	39	39
<i>Lepomis microlophus</i>	15	.	161	176
<i>Lepomis punctatus</i>	1	.	183	184
<i>Lepomis</i> spp.	.	.	73	73
<i>Limulus polyphemus</i>	2	2	.	4
<i>Litopenaeus setiferus</i>	4,885	2,253	4,624	11,762
<i>Lobotes surinamensis</i>	2	.	.	2

Species	Zone			Total
	A	B	C	
	E=243	E=243	E=108	E=594
<i>Lucania goodei</i>	.	.	45	45
<i>Lucania parva</i>	980	5	507	1,492
<i>Lutjanus griseus</i>	31	23	7	61
<i>Lutjanus synagris</i>	12	20	.	32
<i>Megalops atlanticus</i>	.	1	.	1
<i>Membras martinica</i>	490	181	.	671
<i>Menidia</i> spp.	1,051	390	429	1,870
<i>Menippe</i> spp.	2	42	.	44
<i>Menticirrhus americanus</i>	285	52	2	339
<i>Menticirrhus saxatilis</i>	6	32	.	38
<i>Microgobius gulosus</i>	122	105	16	243
<i>Microgobius</i> sp.	.	.	1	1
<i>Microgobius thalassinus</i>	32	3	2	37
<i>Micropogonias undulatus</i>	4,554	183	503	5,240
<i>Micropterus salmoides</i>	76	.	210	286
<i>Monacanthus ciliatus</i>	1	3	.	4
<i>Mugil cephalus</i>	4,388	1,669	6	6,063
<i>Mugil curema</i>	372	246	.	618
<i>Mugil trichodon</i>	6	.	.	6
<i>Mycteroperca microlepis</i>	2	.	.	2
<i>Myrophis punctatus</i>	.	2	.	2
<i>Notemigonus crysoleucas</i>	.	.	207	207
<i>Ogcocephalus cubifrons</i>	6	22	.	28
<i>Oligoplites saurus</i>	52	44	3	99
<i>Ophichthus gomesii</i>	.	1	.	1
<i>Opisthonema oglinum</i>	9	20	.	29
<i>Opsanus beta</i>	3	24	.	27
<i>Orthopristis chrysoptera</i>	1,602	3,014	.	4,616
<i>Paralichthys albigutta</i>	120	209	.	329

Species	Zone			Total
	A	B	C	
	E=243	E=243	E=108	E=594
<i>Paralichthys lethostigma</i>	62	2	25	89
<i>Paralichthys</i> sp.	1	.	.	1
<i>Penaeidae</i> sp.	1	.	.	1
<i>Peprilus burti</i>	.	16	.	16
<i>Peprilus paru</i>	6	.	1	7
<i>Pleuronectiformes</i> spp.	2	.	.	2
<i>Poecilia latipinna</i>	4	.	93	97
<i>Pogonias cromis</i>	110	30	.	140
<i>Pomatomus saltatrix</i>	4	7	.	11
<i>Pomoxis nigromaculatus</i>	.	.	3	3
<i>Porichthys plectrodon</i>	2	.	.	2
<i>Portunus</i> spp.	10	84	.	94
<i>Prionotus rubio</i>	1	3	.	4
<i>Prionotus scitulus</i>	9	71	.	80
<i>Prionotus</i> sp.	1	.	.	1
<i>Prionotus tribulus</i>	40	28	5	73
<i>Rhinoptera bonasus</i>	8	6	.	14
<i>Rimapenaeus constrictus</i>	.	1	.	1
<i>Rimapenaeus similis</i>	5	2	.	7
<i>Rimapenaeus</i> spp.	36	24	.	60
<i>Rostroraja texana</i>	.	1	.	1
<i>Sciaenidae</i> spp.	4	2	4	10
<i>Sciaenops ocellatus</i>	442	338	14	794
<i>Scomberomorus maculatus</i>	.	1	.	1
<i>Scorpaena brasiliensis</i>	.	1	.	1
<i>Selene setapinnis</i>	1	.	.	1
<i>Selene vomer</i>	6	.	.	6
<i>Serraniculus pumilio</i>	.	7	.	7
<i>Serranus subligarius</i>	.	1	.	1

Species	Zone			Total
	A	B	C	
	E=243	E=243	E=108	E=594
<i>Sicyonia laevigata</i>	.	1	.	1
<i>Sicyonia parri</i>	.	1	.	1
<i>Sparidae</i> spp.	.	2	.	2
<i>Sphoeroides nephelus</i>	10	18	.	28
<i>Sphoeroides parvus</i>	2	1	.	3
<i>Sphoeroides spengleri</i>	.	1	.	1
<i>Sphoeroides</i> spp.	12	22	.	34
<i>Sphyrna tiburo</i>	.	4	.	4
<i>Stellifer lanceolatus</i>	158	.	.	158
<i>Stephanolepis hispidus</i>	7	27	.	34
<i>Stomolophus meleagris</i>	5	7	.	12
<i>Strongylura marina</i>	11	21	.	32
<i>Strongylura notata</i>	21	15	.	36
<i>Strongylura</i> spp.	3	3	.	6
<i>Symphurus plagiusa</i>	143	62	220	425
<i>Syngnathus floridae</i>	1	18	.	19
<i>Syngnathus louisianae</i>	13	9	.	22
<i>Syngnathus scovelli</i>	38	111	51	200
<i>Syngnathus</i> sp.	.	1	.	1
<i>Syngnathus springeri</i>	.	1	.	1
<i>Synodus foetens</i>	23	66	.	89
<i>Trachinotus carolinus</i>	1	3	.	4
<i>Trachinotus falcatus</i>	6	15	.	21
<i>Trinectes maculatus</i>	49	22	186	257
<i>Tylosurus crocodilus</i>	.	1	.	1
<i>Urophycis floridana</i>	5	9	.	14
<i>Xiphopenaeus kroyeri</i>	6	.	.	6
Total	74,566	37,960	32,160	144,686

Species	Zone			Total
	A	B	C	
	E=243	E=243	E=108	E=594

Zones A and B were located in Apalachicola Bay, and Zone C encompassed the lower Apalachicola River. Effort, or the total number of hauls, is labeled 'E'. Taxa are arranged alphabetically. Selected taxa are highlighted in bold.

A.4 Cedar Key

Table A.10: Monthly summary of taxa collected during Cedar Key stratified-random sampling, 2024.

Species	Month												Total
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
	E=61	E=51	E=51	E=61	E=51	E=51	E=61	E=51	E=51	E=61	E=51	E=51	E=652
<i>Acanthostracion quadricornis</i>	1	.	.	2	.	.	.	2	.	7	.	.	12
<i>Achirus lineatus</i>	.	.	.	1	.	3	.	1	.	3	.	.	8
<i>Alburnops petersoni</i>	.	.	.	.	.	20	10	10	60	2	3	30	135
<i>Alosa</i> sp.	.	.	.	.	.	.	1	.	.	.	.	.	1
<i>Ameiurus catus</i>	11	.	.	.	.	4	.	.	1	.	.	.	16
<i>Anchoa hepsetus</i>	.	.	1	6	12	24	28	29	63	657	2	.	822
<i>Anchoa mitchilli</i>	808	15	367	31	198	1,027	979	894	957	705	3,588	163	9,732
<i>Ancylopersetta quadrocellata</i>	.	.	.	1	1	.	.	.	.	.	.	.	2
<i>Archosargus probatocephalus</i>	.	1	2	2	9	6	11	10	6	.	1	1	49
<i>Ariopsis felis</i>	39	.	27	107	160	295	183	886	148	116	202	74	2,237
<i>Bagre marinus</i>	1	.	.	9	2	14	1	50	111	30	20	.	238
<i>Bairdiella chrysoura</i>	210	520	127	78	133	165	221	72	148	80	82	49	1,885
<i>Bathygobius soporator</i>	.	1	.	1	.	.	2	6	47	13	7	2	79
<i>Brevoortia</i> spp.	7	9	362	29	216	307	23	79	27	23	38	1	1,121
<i>Callinectes sapidus</i>	290	109	62	63	16	8	40	26	35	25	23	247	944
<i>Callinectes similis</i>	.	.	.	.	.	1	2	.	.	.	.	.	3
<i>Caranx hippos</i>	.	.	.	.	.	.	1	2	4	1	1	.	9
<i>Carcharhinus leucas</i>	.	.	.	.	.	.	.	1	.	.	1	.	2
<i>Centropomus undecimalis</i>	8	.	9	4	4	2	10	11	9	15	10	3	85
<i>Centropristis striata</i>	16	.	.	1	.	.	.	.	2	1	.	1	21

Species	Month												Total
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
	E=61	E=51	E=51	E=61	E=51	E=51	E=61	E=51	E=51	E=61	E=51	E=51	E=652
<i>Chaetodipterus faber</i>	.	.	.	1	2	3	28	91	51	7	3	.	186
<i>Chasmodes saburrae</i>	.	.	.	.	.	.	.	.	1	.	.	.	1
<i>Chilomycterus schoepfii</i>	2	.	1	1	.	1	6	15	1	8	2	1	38
<i>Chloroscombrus chrysurus</i>	.	.	.	.	.	1	.	1	10	1	.	.	13
<i>Citharichthys macrops</i>	.	.	.	7	.	.	2	.	.	2	.	.	11
<i>Ctenogobius boleosoma</i>	1	1	.	1	.	.	1	.	.	.	1	.	5
<i>Ctenogobius smaragdus</i>	.	.	.	.	.	.	.	.	.	.	.	1	1
<i>Cynoscion arenarius</i>	7	.	.	24	14	59	342	48	69	94	3	.	660
<i>Cynoscion nebulosus</i>	23	32	12	22	6	7	36	33	43	14	15	31	274
<i>Cyprinodon variegatus</i>	.	6	10	.	.	.	.	.	.	.	.	.	16
<i>Decapterus punctatus</i>	.	.	.	2	.	.	1	.	.	.	.	.	3
<i>Diplectrum formosum</i>	1	.	.	.	.	.	.	.	.	.	.	.	1
<i>Diplodus holbrookii</i>	.	.	.	.	.	.	.	.	.	1	.	.	1
<i>Dorosoma cepedianum</i>	.	.	1	.	1	1	1	.	5	26	5	17	57
<i>Dorosoma petenense</i>	1	.	.	1	.	.	2	.	1	2	.	.	7
<i>Echeneis neucratoides</i>	.	1	1	1	.	1	2	.	.	2	.	.	8
<i>Elops saurus</i>	3	.	3	19	8	21	21	39	31	73	39	4	261
<i>Esox niger</i>	.	.	.	.	.	.	.	.	1	1	.	.	2
<i>Etheostoma fusiforme</i>	.	.	.	.	1	.	.	.	.	.	.	.	1
<i>Etropus crossotus</i>	115	12	8	77	.	7	32	15	10	169	5	3	453
<i>Eucinostomus gula</i>	37	2	4	1	1	.	28	26	48	103	34	31	315
<i>Eucinostomus harengulus</i>	36	6	1	1	1	.	141	180	72	19	45	10	512
<i>Eucinostomus</i> spp.	52	.	.	.	.	57	274	607	92	20	103	112	1,317

Species	Month												Total
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
	E=61	E=51	E=51	E=61	E=51	E=51	E=61	E=51	E=51	E=61	E=51	E=51	E=652
<i>Farfantepenaeus duorarum</i>	25	.	5	23	1	.	.	.	.	15	.	.	69
<i>Farfantepenaeus</i> spp.	10	2	3	7	.	5	58	10	8	1	15	2	121
<i>Floridichthys carpio</i>	.	.	1	.	.	.	.	.	.	.	.	.	1
<i>Fundulus confluentus</i>	.	1	.	.	.	.	.	.	.	1	.	21	23
<i>Fundulus grandis</i>	17	53	40	1	2	6	5	23	37	31	.	31	246
<i>Fundulus seminolis</i>	31	41	.	2	2	2	29	43	23	12	25	23	233
<i>Fundulus similis</i>	20	19	177	1	33	2	12	.	8	3	43	11	329
<i>Fundulus xenicus</i>	3	36	37	.	1	.	.	.	13	13	.	1	104
<i>Gambusia holbrooki</i>	64	111	56	9	.	5	.	16	.	23	.	83	367
<i>Ginglymostoma cirratum</i>	.	.	.	.	.	.	1	.	.	.	.	.	1
<i>Gobiesox strumosus</i>	.	.	1	.	.	.	4	.	.	.	.	.	5
<i>Gobiosoma bosc</i>	3	2	6	1	.	5	6	2	2	14	1	4	46
<i>Gobiosoma robustum</i>	.	1	.	1	2	.	.	5	.	.	.	.	9
<i>Gobiosoma</i> spp.	.	1	.	.	.	1	6	7	1	3	.	2	21
<i>Gymnura lessae</i>	.	.	.	1	3	3	.	2	3	2	.	.	14
<i>Haemulon plumieri</i>	.	.	.	.	.	.	.	4	6	.	.	.	10
<i>Halichoeres bivittatus</i>	.	.	.	.	.	.	.	1	.	.	.	.	1
<i>Harengula jaguana</i>	.	.	10	16	130	295	15	42	156	156	103	.	923
<i>Hippocampus erectus</i>	1	.	.	1	.	.	.	.	.	1	.	.	3
<i>Hippocampus zosterae</i>	.	.	.	.	.	.	.	2	.	.	.	.	2
<i>Hoplosternum littorale</i>	.	.	.	.	.	.	.	.	.	1	.	.	1
<i>Hypanus americanus</i>	.	.	.	.	.	3	8	1	2	.	3	.	17
<i>Hypanus sabinus</i>	195	307	301	85	148	108	121	110	268	55	128	161	1,987

Species	Month												Total
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
	E=61	E=51	E=51	E=61	E=51	E=51	E=61	E=51	E=51	E=61	E=51	E=51	E=652
<i>Hypanus say</i>	1	.	24	82	73	73	10	11	54	3	25	.	356
<i>Hypleurochilus caudovittatus</i>	3	.	.	.	.	.	1	.	.	.	.	.	4
<i>Hyporhamphus</i> spp.	.	.	.	.	1	.	.	.	.	.	6	.	7
<i>Hypsoblennius hentz</i>	.	.	.	.	.	.	.	.	1	1	.	.	2
<i>Ictalurus punctatus</i>	.	.	.	.	.	.	.	2	.	.	.	.	2
<i>Labidesthes vanhyningi</i>	.	4	.	.	.	4	1	4	12	8	27	6	66
<i>Lagodon rhomboides</i>	97	30	221	128	90	217	339	394	454	141	358	3	2,472
<i>Leiostomus xanthurus</i>	1,473	2,263	1,741	360	263	185	120	127	118	41	20	38	6,749
<i>Lepisosteus osseus</i>	1	5	1	2	2	2	5	4	.	2	5	.	29
<i>Lepisosteus platyrhincus</i>	.	.	.	1	.	.	.	.	.	.	.	.	1
<i>Lepomis auritus</i>	.	.	.	.	.	.	.	.	.	.	.	1	1
<i>Lepomis macrochirus</i>	.	1	.	.	.	1	.	2	1	.	.	.	5
<i>Lepomis microlophus</i>	.	.	.	.	.	1	.	.	1	1	.	2	5
<i>Lepomis punctatus</i>	.	3	.	2	.	1	.	.	.	.	.	.	6
<i>Lepomis</i> spp.	.	.	.	.	.	10	1	.	.	.	.	.	11
<i>Leuciscidae</i> sp.	.	.	.	.	1	.	.	.	.	.	.	.	1
<i>Limulus polyphemus</i>	8	.	12	5	.	1	1	.	.	1	.	.	28
<i>Litopenaeus setiferus</i>	18	.	30	472	3	4	215	554	130	283	538	60	2,307
<i>Lobotes surinamensis</i>	.	.	.	1	.	.	.	.	.	.	.	1	2
<i>Lucania goodei</i>	.	.	.	.	.	6	.	.	.	.	.	1	7
<i>Lucania parva</i>	14	.	11	4	.	6	3	10	.	1	.	1	50
<i>Lutjanus griseus</i>	3	.	.	.	.	2	2	4	5	6	1	.	23
<i>Lutjanus synagris</i>	2	.	.	.	.	.	10	2	1	2	.	1	18

Species	Month												Total
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
	E=61	E=51	E=51	E=61	E=51	E=51	E=61	E=51	E=51	E=61	E=51	E=51	E=652
<i>Megalops atlanticus</i>	.	.	.	.	.	.	.	1	.	.	.	.	1
<i>Membras martinica</i>	.	.	2	9	555	81	670	122	14	1	24	.	1,478
<i>Menidia</i> spp.	295	202	1,076	135	123	91	77	40	237	57	168	35	2,536
<i>Menippe</i> spp.	12	.	.	20	.	.	3	.	.	12	.	.	47
<i>Menticirrhus americanus</i>	24	3	10	32	15	30	200	44	51	38	37	6	490
<i>Menticirrhus saxatilis</i>	2	.	.	21	33	3	.	.	.	.	1	.	60
<i>Microgobius gulosus</i>	3	.	1	1	1	1	3	8	1	.	.	.	19
<i>Microgobius thalassinus</i>	1	.	.	.	.	.	.	.	.	.	.	1	2
<i>Micropogonias undulatus</i>	.	.	3	3	.	.	1	.	14	.	5	43	69
<i>Micropterus salmoides</i>	2	1	.	2	.	15	1	1	.	.	1	.	23
<i>Monacanthus ciliatus</i>	.	.	.	.	.	.	.	.	2	.	.	.	2
<i>Mugil cephalus</i>	194	906	1,216	297	93	131	65	192	63	110	126	321	3,714
<i>Mugil curema</i>	27	16	100	2	12	2	14	1	1	.	.	15	190
<i>Mugil trichodon</i>	24	2	.	2	22	6	.	6	6	10	7	21	106
<i>Myrophis punctatus</i>	2	.	.	.	.	.	.	.	.	.	.	1	3
<i>Negaprion brevirostris</i>	.	1	.	.	.	.	.	.	.	.	.	.	1
<i>Nicholsina usta</i>	.	.	.	.	.	.	.	.	.	.	.	1	1
<i>Notemigonus crysoleucas</i>	.	.	.	.	1	.	2	.	.	.	.	.	3
<i>Ogcocephalus cubifrons</i>	31	39	98	70	22	7	2	19	17	17	30	6	358
<i>Oligoplites saurus</i>	.	.	.	.	5	12	21	36	26	5	4	.	109
<i>Opisthonema oglinum</i>	.	.	.	.	11	2	.	.	5	2	11	.	31
<i>Opsanus beta</i>	.	1	.	.	.	.	6	1	.	2	.	.	10
<i>Orthopristis chrysoptera</i>	.	.	.	46	5	42	66	35	25	65	7	.	291

Species	Month												Total
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
	E=61	E=51	E=51	E=61	E=51	E=51	E=61	E=51	E=51	E=61	E=51	E=51	E=652
<i>Paralichthys albigutta</i>	7	17	69	16	16	2	10	25	27	8	11	7	215
<i>Paralichthys lethostigma</i>	.	.	.	.	.	1	.	1	1	.	.	.	3
<i>Peprilus burti</i>	1	.	.	.	.	.	.	.	.	.	.	.	1
<i>Peprilus paru</i>	.	.	.	.	.	.	1	.	.	.	.	.	1
<i>Poecilia latipinna</i>	1	.	.	1	.	8	1	1	.	1	.	.	13
<i>Pogonias cromis</i>	9	.	3	11	26	7	18	48	25	19	29	44	239
<i>Pomatomus saltatrix</i>	.	.	.	.	.	1	.	.	.	.	.	.	1
<i>Pomoxis nigromaculatus</i>	.	.	.	.	.	3	.	.	.	.	.	.	3
<i>Portunus</i> spp.	3	.	.	1	1	.	15	1	.	6	.	.	27
<i>Prionotus martis</i>	1	.	.	9	.	.	.	.	.	.	.	.	10
<i>Prionotus scitulus</i>	61	.	.	25	2	1	5	1	1	19	3	1	119
<i>Prionotus tribulus</i>	61	12	6	16	2	1	.	1	3	.	4	5	111
<i>Pteronotropis harperi</i>	.	.	.	.	1	.	.	.	.	.	.	.	1
<i>Rhinoptera bonasus</i>	1	.	.	1	1	9	.	3	.	2	2	104	123
<i>Rimapenaeus</i> sp.	.	.	.	.	.	.	1	.	.	.	.	.	1
<i>Sciaenops ocellatus</i>	25	33	38	33	29	19	40	53	30	33	51	53	437
<i>Scomberomorus maculatus</i>	.	.	.	1	.	1	.	1	2	1	1	.	7
<i>Selene vomer</i>	.	.	.	.	.	9	4	1	4	2	.	.	20
<i>Serraniculus pumilio</i>	5	.	.	.	.	.	.	.	3	.	.	.	8
<i>Serranus subligarius</i>	.	.	.	.	.	.	1	.	.	.	.	.	1
<i>Sphoeroides nephelus</i>	.	.	.	14	14	2	4	2	1	3	3	4	47
<i>Sphoeroides spengleri</i>	.	.	.	.	.	.	.	.	2	.	.	.	2
<i>Sphyrna tiburo</i>	.	.	.	.	.	.	.	1	1	1	2	.	5

Species	Month												Total
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
	E=61	E=51	E=51	E=61	E=51	E=51	E=61	E=51	E=51	E=61	E=51	E=51	E=652
<i>Stephanolepis hispidus</i>	.	.	.	3	.	.	.	3	.	.	.	.	6
<i>Strongylura marina</i>	1	.	14	1	13	10	2	.	7	.	6	.	54
<i>Strongylura notata</i>	.	.	.	.	.	1	1	.	6	1	1	.	10
<i>Strongylura</i> spp.	.	.	.	1	6	1	1	1	1	.	.	.	11
<i>Strongylura timucu</i>	.	.	.	.	.	.	.	2	2	1	1	1	7
<i>Symphurus plagiusa</i>	14	5	4	34	1	.	7	13	.	35	3	23	139
<i>Syngnathus floridae</i>	.	.	.	.	.	.	2	1	18	2	1	4	28
<i>Syngnathus louisianae</i>	.	.	.	.	.	.	6	.	1	1	.	.	8
<i>Syngnathus scovelli</i>	.	1	.	1	1	.	6	5	9	1	.	2	26
<i>Synodus foetens</i>	3	1	.	5	12	6	6	3	1	3	4	1	45
<i>Trachinotus falcatus</i>	.	.	.	.	.	.	35	1	5	20	3	4	68
<i>Trinectes maculatus</i>	4	23	2	15	2	4	3	20	36	33	7	10	159
<i>Urophycis floridana</i>	4	.	.	.	.	.	.	.	.	.	.	.	4
Total	4,476	4,858	6,317	2,526	2,565	3,491	4,702	5,210	4,005	3,552	6,084	1,947	49,733

Effort, or total number of hauls, is labeled 'E'. Taxa are arranged alphabetically. Selected taxa are highlighted in bold.

Table A.11: Summary by gear and stratum of taxa collected during Cedar Key stratified-random sampling, 2024.

Species	Gear and Strata						Total
	21.3-m bay seine			21.3-m river seine	183-m haul seine	6.1-m otter trawl	
	Veg	Unveg	Shore				
	E=14	E=130	E=108	E=168	E=192	E=40	
<i>Acanthostracion quadricornis</i>	.	.	.	.	2	10	12
<i>Achirus lineatus</i>	.	.	3	1	.	4	8
<i>Alburnops petersoni</i>	.	.	1	134	.	.	135
<i>Alosa</i> sp.	.	.	.	.	.	1	1
<i>Ameiurus catus</i>	.	.	.	5	11	.	16
<i>Anchoa hepsetus</i>	28	63	45	8	.	678	822
<i>Anchoa mitchilli</i>	.	2,468	1,446	5,023	.	795	9,732
<i>Ancylosetta quadrocellata</i>	.	.	.	.	1	1	2
<i>Archosargus probatocephalus</i>	.	.	1	.	48	.	49
<i>Ariopsis felis</i>	2	1,103	68	2	913	149	2,237
<i>Bagre marinus</i>	.	69	6	.	158	5	238
<i>Bairdiella chrysoura</i>	114	100	209	28	1,249	185	1,885
<i>Bathygobius soporator</i>	.	1	.	78	.	.	79
<i>Brevoortia</i> spp.	.	382	340	188	210	1	1,121
<i>Callinectes sapidus</i>	.	115	150	506	128	45	944
<i>Callinectes similis</i>	.	1	.	.	.	2	3
<i>Caranx hippos</i>	.	.	.	.	9	.	9
<i>Carcharhinus leucas</i>	.	.	.	.	2	.	2
<i>Centropomus undecimalis</i>	.	.	.	.	85	.	85
<i>Centropristis striata</i>	3	.	.	.	.	18	21
<i>Chaetodipterus faber</i>	1	7	25	4	136	13	186
<i>Chasmodes saburrae</i>	1	.	.	.	.	.	1
<i>Chilomycterus schoepfii</i>	2	1	.	1	20	14	38
<i>Chloroscombrus chrysurus</i>	.	7	.	.	5	1	13
<i>Citharichthys macrops</i>	.	.	.	.	.	11	11
<i>Ctenogobius boleosoma</i>	.	2	.	3	.	.	5

Species	Gear and Strata						Total
	21.3-m bay seine			21.3-m river seine	183-m haul seine	6.1-m otter trawl	
	Veg	Unveg	Shore				
	E=14	E=130	E=108	E=168	E=192	E=40	E=652
<i>Ctenogobius smaragdus</i>	.	.	.	1	.	.	1
<i>Cynoscion arenarius</i>	.	292	124	124	31	89	660
<i>Cynoscion nebulosus</i>	23	4	37	16	193	1	274
<i>Cyprinodon variegatus</i>	.	.	12	4	.	.	16
<i>Decapterus punctatus</i>	.	.	.	.	.	3	3
<i>Diplectrum formosum</i>	.	.	.	.	.	1	1
<i>Diplodus holbrookii</i>	.	.	.	.	1	.	1
<i>Dorosoma cepedianum</i>	.	.	2	.	55	.	57
<i>Dorosoma petenense</i>	.	2	.	3	2	.	7
<i>Echeneis neucratoides</i>	.	.	.	.	8	.	8
<i>Elops saurus</i>	.	1	1	.	259	.	261
<i>Esox niger</i>	.	.	.	2	.	.	2
<i>Etheostoma fusiforme</i>	.	.	.	1	.	.	1
<i>Etropus crossotus</i>	.	11	5	1	72	364	453
<i>Eucinostomus gula</i>	24	24	70	10	74	113	315
<i>Eucinostomus harengulus</i>	1	32	277	154	45	3	512
<i>Eucinostomus</i> spp.	77	37	499	704	.	.	1,317
<i>Farfantepenaeus duorarum</i>	.	2	.	.	11	56	69
<i>Farfantepenaeus</i> spp.	13	35	25	27	.	21	121
<i>Floridichthys carpio</i>	.	.	1	.	.	.	1
<i>Fundulus confluentus</i>	.	.	.	23	.	.	23
<i>Fundulus grandis</i>	.	.	67	176	3	.	246
<i>Fundulus seminolis</i>	.	.	.	233	.	.	233
<i>Fundulus similis</i>	.	2	297	26	4	.	329
<i>Fundulus xenicus</i>	.	.	.	104	.	.	104
<i>Gambusia holbrooki</i>	.	.	.	367	.	.	367
<i>Ginglymostoma cirratum</i>	.	.	.	.	1	.	1
<i>Gobiesox strumosus</i>	.	.	2	3	.	.	5

Species	Gear and Strata						Total
	21.3-m bay seine			21.3-m river seine	183-m haul seine	6.1-m otter trawl	
	Veg	Unveg	Shore				
	E=14	E=130	E=108	E=168	E=192	E=40	E=652
<i>Gobiosoma bosc</i>	.	12	2	32	.	.	46
<i>Gobiosoma robustum</i>	1	.	7	1	.	.	9
<i>Gobiosoma</i> spp.	.	3	4	14	.	.	21
<i>Gymnura lessae</i>	.	.	.	.	12	2	14
<i>Haemulon plumierii</i>	6	2	2	.	.	.	10
<i>Halichoeres bivittatus</i>	.	.	1	.	.	.	1
<i>Harengula jaguana</i>	10	26	170	94	620	3	923
<i>Hippocampus erectus</i>	.	.	.	1	.	2	3
<i>Hippocampus zosterae</i>	.	1	1	.	.	.	2
<i>Hoplosternum littorale</i>	.	.	.	1	.	.	1
<i>Hypanus americanus</i>	.	.	.	.	17	.	17
<i>Hypanus sabinus</i>	3	33	9	.	1,724	218	1,987
<i>Hypanus say</i>	1	4	4	.	343	4	356
<i>Hypleurochilus caudovittatus</i>	.	.	.	.	.	4	4
<i>Hyporhamphus</i> spp.	1	.	.	.	6	.	7
<i>Hypsoblennius hentz</i>	2	.	.	.	.	.	2
<i>Ictalurus punctatus</i>	.	.	.	.	2	.	2
<i>Labidesthes vanhyningi</i>	.	.	.	66	.	.	66
<i>Lagodon rhomboides</i>	116	72	237	186	1,644	217	2,472
<i>Leiostomus xanthurus</i>	5	940	2,330	1,844	751	879	6,749
<i>Lepisosteus osseus</i>	.	.	.	2	25	2	29
<i>Lepisosteus platyrhincus</i>	.	.	.	1	.	.	1
<i>Lepomis auritus</i>	.	.	.	1	.	.	1
<i>Lepomis macrochirus</i>	.	.	.	5	.	.	5
<i>Lepomis microlophus</i>	.	.	.	5	.	.	5
<i>Lepomis punctatus</i>	.	.	.	6	.	.	6
<i>Lepomis</i> spp.	.	.	.	11	.	.	11
<i>Leuciscidae</i> sp.	.	.	.	1	.	.	1

Species	Gear and Strata						Total
	21.3-m bay seine			21.3-m river seine	183-m haul seine	6.1-m otter trawl	
	Veg	Unveg	Shore				
	E=14	E=130	E=108	E=168	E=192	E=40	E=652
<i>Limulus polyphemus</i>	.	1	.	.	19	8	28
<i>Litopenaeus setiferus</i>	4	57	68	838	1,321	19	2,307
<i>Lobotes surinamensis</i>	.	.	.	.	2	.	2
<i>Lucania goodei</i>	.	.	.	7	.	.	7
<i>Lucania parva</i>	.	.	.	50	.	.	50
<i>Lutjanus griseus</i>	.	2	1	15	5	.	23
<i>Lutjanus synagris</i>	2	2	1	.	.	13	18
<i>Megalops atlanticus</i>	.	.	.	.	1	.	1
<i>Membras martinica</i>	.	108	1,270	100	.	.	1,478
<i>Menidia</i> spp.	.	224	660	1,648	3	1	2,536
<i>Menippe</i> spp.	.	.	1	.	.	46	47
<i>Menticirrhus americanus</i>	.	96	121	13	88	172	490
<i>Menticirrhus saxatilis</i>	.	15	38	.	.	7	60
<i>Microgobius gulosus</i>	1	5	6	7	.	.	19
<i>Microgobius thalassinus</i>	.	.	1	1	.	.	2
<i>Micropogonias undulatus</i>	.	15	1	35	18	.	69
<i>Micropterus salmoides</i>	.	.	.	23	.	.	23
<i>Monacanthus ciliatus</i>	2	.	.	.	.	.	2
<i>Mugil cephalus</i>	.	775	929	190	1,820	.	3,714
<i>Mugil curema</i>	.	.	16	2	172	.	190
<i>Mugil trichodon</i>	.	2	19	2	83	.	106
<i>Myrophis punctatus</i>	.	.	1	.	.	2	3
<i>Negaprion brevirostris</i>	.	.	.	.	1	.	1
<i>Nicholsina usta</i>	1	.	.	.	.	.	1
<i>Notemigonus crysoleucas</i>	.	.	.	3	.	.	3
<i>Ogcocephalus cubifrons</i>	.	3	3	.	325	27	358
<i>Oligoplites saurus</i>	3	15	36	37	18	.	109
<i>Opisthonema oglinum</i>	.	5	.	2	24	.	31

Species	Gear and Strata						Total
	21.3-m bay seine			21.3-m river seine	183-m haul seine	6.1-m otter trawl	
	Veg	Unveg	Shore				
	E=14	E=130	E=108	E=168	E=192	E=40	E=652
<i>Opsanus beta</i>	.	.	1	.	3	6	10
<i>Orthopristis chrysoptera</i>	74	12	16	.	73	116	291
<i>Paralichthys albigutta</i>	2	36	53	3	114	7	215
<i>Paralichthys lethostigma</i>	.	.	.	1	2	.	3
<i>Peprilus burti</i>	.	.	.	.	.	1	1
<i>Peprilus paru</i>	.	1	.	.	.	.	1
<i>Poecilia latipinna</i>	.	.	.	13	.	.	13
<i>Pogonias cromis</i>	.	3	5	2	229	.	239
<i>Pomatomus saltatrix</i>	.	.	.	.	1	.	1
<i>Pomoxis nigromaculatus</i>	.	.	.	3	.	.	3
<i>Portunus</i> spp.	.	2	1	.	.	24	27
<i>Prionotus martis</i>	.	.	.	.	.	10	10
<i>Prionotus scitulus</i>	3	14	4	.	.	98	119
<i>Prionotus tribulus</i>	.	5	14	.	28	64	111
<i>Pteronotropis harperi</i>	.	.	.	1	.	.	1
<i>Rhinoptera bonasus</i>	.	.	.	.	122	1	123
<i>Rimapenaeus</i> sp.	.	.	.	.	.	1	1
<i>Sciaenops ocellatus</i>	1	7	74	73	282	.	437
<i>Scomberomorus maculatus</i>	.	.	.	.	7	.	7
<i>Selene vomer</i>	1	.	.	.	19	.	20
<i>Serraniculus pumilio</i>	2	.	1	.	.	5	8
<i>Serranus subligarius</i>	.	.	.	.	.	1	1
<i>Sphoeroides nephelus</i>	8	13	18	.	6	2	47
<i>Sphoeroides spengleri</i>	2	.	.	.	.	.	2
<i>Sphyrna tiburo</i>	.	.	.	.	5	.	5
<i>Stephanolepis hispida</i>	.	2	.	.	3	1	6
<i>Strongylura marina</i>	.	2	21	5	26	.	54
<i>Strongylura notata</i>	1	.	6	3	.	.	10

Species	Gear and Strata						Total
	21.3-m bay seine			21.3-m river seine	183-m haul seine	6.1-m otter trawl	
	Veg	Unveg	Shore				
	E=14	E=130	E=108	E=168	E=192	E=40	E=652
<i>Strongylura</i> spp.	.	.	7	4	.	.	11
<i>Strongylura timucu</i>	.	.	4	1	2	.	7
<i>Symphurus plagiusa</i>	.	37	17	18	.	67	139
<i>Syngnathus floridae</i>	26	1	.	.	.	1	28
<i>Syngnathus louisianae</i>	2	1	2	.	.	3	8
<i>Syngnathus scovelli</i>	15	3	4	2	.	2	26
<i>Synodus foetens</i>	13	12	8	1	3	8	45
<i>Trachinotus falcatus</i>	.	.	62	.	6	.	68
<i>Trinectes maculatus</i>	.	5	5	146	1	2	159
<i>Urophycis floridana</i>	.	.	.	.	.	4	4
Total	597	7,335	9,975	13,480	13,712	4,634	49,733

Sampling with 21.3-m bay seine was stratified by the presence or absence of a shoreline ('Shore' or offshore) within 5-m. Sampling with 21.3-m river seine, 183-m haul seine, and 6.1-m otter trawl was not stratified. Effort, or the total number of hauls, is labeled 'E'. Taxa are arranged alphabetically. Selected taxa are highlighted in bold.

Table A.12: Summary by zone of taxa collected during Cedar Key stratified-random sampling, 2024.

Species	Zone			Total
	B	C	F	
	E=344	E=248	E=60	E=652
<i>Acanthostracion quadricornis</i>	.	12	.	12
<i>Achirus lineatus</i>	.	7	1	8
<i>Alburnops petersoni</i>	1	.	134	135
<i>Alosa</i> sp.	1	.	.	1
<i>Ameiurus catus</i>	12	.	4	16
<i>Anchoa hepsetus</i>	699	123	.	822
<i>Anchoa mitchilli</i>	8,328	1,111	293	9,732
<i>Ancylosetta quadrocellata</i>	.	2	.	2
<i>Archosargus probatocephalus</i>	22	27	.	49
<i>Ariopsis felis</i>	914	1,323	.	2,237
<i>Bagre marinus</i>	55	183	.	238
<i>Bairdiella chrysoura</i>	761	1,123	1	1,885
<i>Bathygobius soporator</i>	14	.	65	79
<i>Brevoortia</i> spp.	872	168	81	1,121
<i>Callinectes sapidus</i>	613	166	165	944
<i>Callinectes similis</i>	.	3	.	3
<i>Caranx hippos</i>	4	5	.	9
<i>Carcharhinus leucas</i>	2	.	.	2
<i>Centropomus undecimalis</i>	53	32	.	85
<i>Centropristis striata</i>	1	20	.	21
<i>Chaetodipterus faber</i>	36	150	.	186
<i>Chasmodes saburrae</i>	.	1	.	1
<i>Chilomycterus schoepfii</i>	5	33	.	38
<i>Chloroscombrus chrysurus</i>	12	1	.	13
<i>Citharichthys macrops</i>	2	9	.	11
<i>Ctenogobius boleosoma</i>	4	.	1	5
<i>Ctenogobius smaragdus</i>	1	.	.	1

Species	Zone			Total
	B	C	F	
	E=344	E=248	E=60	E=652
<i>Cynoscion arenarius</i>	487	167	6	660
<i>Cynoscion nebulosus</i>	136	137	1	274
<i>Cyprinodon variegatus</i>	11	5	.	16
<i>Decapterus punctatus</i>	2	1	.	3
<i>Diplectrum formosum</i>	1	.	.	1
<i>Diplodus holbrookii</i>	.	1	.	1
<i>Dorosoma cepedianum</i>	41	16	.	57
<i>Dorosoma petenense</i>	4	3	.	7
<i>Echeneis neucratoides</i>	1	7	.	8
<i>Elops saurus</i>	122	139	.	261
<i>Esox niger</i>	.	.	2	2
<i>Etheostoma fusiforme</i>	.	.	1	1
<i>Etropus crossotus</i>	235	218	.	453
<i>Eucinostomus gula</i>	53	256	6	315
<i>Eucinostomus harengulus</i>	331	151	30	512
<i>Eucinostomus</i> spp.	643	499	175	1,317
<i>Farfantepenaeus duorarum</i>	36	33	.	69
<i>Farfantepenaeus</i> spp.	78	43	.	121
<i>Floridichthys carpio</i>	.	1	.	1
<i>Fundulus confluentus</i>	.	.	23	23
<i>Fundulus grandis</i>	161	33	52	246
<i>Fundulus seminolis</i>	44	.	189	233
<i>Fundulus similis</i>	179	150	.	329
<i>Fundulus xenicus</i>	104	.	.	104
<i>Gambusia holbrooki</i>	23	.	344	367
<i>Ginglymostoma cirratum</i>	.	1	.	1
<i>Gobiesox strumosus</i>	3	2	.	5
<i>Gobiosoma bosc</i>	17	6	23	46
<i>Gobiosoma robustum</i>	.	8	1	9

Species	Zone			Total
	B	C	F	
	E=344	E=248	E=60	E=652
<i>Gobiosoma</i> spp.	6	5	10	21
<i>Gymnura lessae</i>	1	13	.	14
<i>Haemulon plumieri</i>	.	10	.	10
<i>Halichoeres bivittatus</i>	.	1	.	1
<i>Harengula jaguana</i>	298	625	.	923
<i>Hippocampus erectus</i>	2	1	.	3
<i>Hippocampus zosterae</i>	.	2	.	2
<i>Hoplosternum littorale</i>	.	.	1	1
<i>Hypanus americanus</i>	3	14	.	17
<i>Hypanus sabinus</i>	850	1,137	.	1,987
<i>Hypanus say</i>	28	328	.	356
<i>Hypleurochilus caudovittatus</i>	1	3	.	4
<i>Hyporhamphus</i> spp.	.	7	.	7
<i>Hypsoblennius hentz</i>	.	2	.	2
<i>Ictalurus punctatus</i>	2	.	.	2
<i>Labidesthes vanhyningi</i>	1	.	65	66
<i>Lagodon rhomboides</i>	455	1,970	47	2,472
<i>Leiostomus xanthurus</i>	5,285	1,377	87	6,749
<i>Lepisosteus osseus</i>	22	5	2	29
<i>Lepisosteus platyrhincus</i>	1	.	.	1
<i>Lepomis auritus</i>	.	.	1	1
<i>Lepomis macrochirus</i>	.	.	5	5
<i>Lepomis microlophus</i>	.	.	5	5
<i>Lepomis punctatus</i>	2	.	4	6
<i>Lepomis</i> spp.	.	.	11	11
<i>Leuciscidae</i> sp.	.	.	1	1
<i>Limulus polyphemus</i>	7	21	.	28
<i>Litopenaeus setiferus</i>	1,437	850	20	2,307
<i>Lobotes surinamensis</i>	2	.	.	2

Species	Zone			Total
	B	C	F	
	E=344	E=248	E=60	E=652
<i>Lucania goodei</i>	.	.	7	7
<i>Lucania parva</i>	17	.	33	50
<i>Lutjanus griseus</i>	12	4	7	23
<i>Lutjanus synagris</i>	9	9	.	18
<i>Megalops atlanticus</i>	1	.	.	1
<i>Membras martinica</i>	1,316	158	4	1,478
<i>Menidia</i> spp.	1,320	228	988	2,536
<i>Menippe</i> spp.	7	40	.	47
<i>Menticirrhus americanus</i>	327	163	.	490
<i>Menticirrhus saxatilis</i>	29	31	.	60
<i>Microgobius gulosus</i>	7	6	6	19
<i>Microgobius thalassinus</i>	1	1	.	2
<i>Micropogonias undulatus</i>	55	14	.	69
<i>Micropterus salmoides</i>	1	.	22	23
<i>Monacanthus ciliatus</i>	.	2	.	2
<i>Mugil cephalus</i>	2,162	1,548	4	3,714
<i>Mugil curema</i>	138	52	.	190
<i>Mugil trichodon</i>	31	75	.	106
<i>Myrophis punctatus</i>	3	.	.	3
<i>Negaprion brevirostris</i>	.	1	.	1
<i>Nicholsina usta</i>	.	1	.	1
<i>Notemigonus crysoleucas</i>	.	.	3	3
<i>Ogcocephalus cubifrons</i>	37	321	.	358
<i>Oligoplites saurus</i>	64	45	.	109
<i>Opisthonema oglinum</i>	20	11	.	31
<i>Opsanus beta</i>	1	9	.	10
<i>Orthopristis chrysoptera</i>	40	251	.	291
<i>Paralichthys albigutta</i>	50	165	.	215
<i>Paralichthys lethostigma</i>	3	.	.	3

Species	Zone			Total
	B	C	F	
	E=344	E=248	E=60	E=652
<i>Peprilus burti</i>	1	.	.	1
<i>Peprilus paru</i>	1	.	.	1
<i>Poecilia latipinna</i>	11	.	2	13
<i>Pogonias cromis</i>	177	62	.	239
<i>Pomatomus saltatrix</i>	.	1	.	1
<i>Pomoxis nigromaculatus</i>	.	.	3	3
<i>Portunus</i> spp.	1	26	.	27
<i>Prionotus martis</i>	9	1	.	10
<i>Prionotus scitulus</i>	65	54	.	119
<i>Prionotus tribulus</i>	59	52	.	111
<i>Pteronotropis harperi</i>	.	.	1	1
<i>Rhinoptera bonasus</i>	113	10	.	123
<i>Rimapenaeus</i> sp.	.	1	.	1
<i>Sciaenops ocellatus</i>	320	104	13	437
<i>Scomberomorus maculatus</i>	4	3	.	7
<i>Selene vomer</i>	1	19	.	20
<i>Serraniculus pumilio</i>	.	8	.	8
<i>Serranus subligarius</i>	1	.	.	1
<i>Sphoeroides nephelus</i>	16	31	.	47
<i>Sphoeroides spengleri</i>	.	2	.	2
<i>Sphyrna tiburo</i>	.	5	.	5
<i>Stephanolepis hispidus</i>	3	3	.	6
<i>Strongylura marina</i>	36	18	.	54
<i>Strongylura notata</i>	5	5	.	10
<i>Strongylura</i> spp.	9	2	.	11
<i>Strongylura timucu</i>	5	2	.	7
<i>Symphurus plagiusa</i>	99	40	.	139
<i>Syngnathus floridae</i>	.	28	.	28
<i>Syngnathus louisianae</i>	.	8	.	8

Species	Zone			Total
	B	C	F	
	E=344	E=248	E=60	E=652
<i>Syngnathus scovelli</i>	2	22	2	26
<i>Synodus foetens</i>	9	36	.	45
<i>Trachinotus falcatus</i>	42	26	.	68
<i>Trinectes maculatus</i>	18	3	138	159
<i>Urophycis floridana</i>	3	1	.	4
Total	30,188	16,455	3,090	49,733

Zone B encompassed the northern portion of the universe and included all tidal creeks; Zone C encompassed the southern portion of the universe; Zone F encompassed the lower Suwannee River. Effort, or the total number of hauls, is labeled 'E'. Taxa are arranged alphabetically. Selected taxa are highlighted in bold.

A.5 Tampa Bay

Table A.13: Monthly summary of taxa collected during Tampa Bay stratified-random sampling, 2024.

Species	Month												Total
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
	E=119	E=90	E=68	E=105	E=68	E=90	E=83	E=90	E=104	E=105	E=104	E=90	E=1,116
<i>Acanthostracion quadricornis</i>	26	18	14	12	37	3	9	.	2	24	27	16	188
<i>Achiridae</i> sp.	.	.	.	.	.	.	.	.	.	.	1	.	1
<i>Achirus lineatus</i>	2	11	2	5	1	7	15	61	29	21	15	6	175
<i>Albula</i> spp.	1	.	2	.	.	.	.	.	.	.	.	.	3
<i>Alburnops petersoni</i>	.	47	.	.	.	.	.	1	.	.	.	3	51
<i>Aluterus schoepfii</i>	.	.	.	2	2	.	1	.	.	.	.	.	5
<i>Ameiurus catus</i>	.	.	.	.	.	.	.	.	1	.	.	.	1
<i>Anarchopterus criniger</i>	.	.	.	.	.	.	.	.	.	.	.	1	1
<i>Anchoa cubana</i>	.	.	.	.	.	.	.	3	.	80	374	.	457
<i>Anchoa hepsetus</i>	.	.	.	.	59	.	.	2	.	14	.	.	75
<i>Anchoa mitchilli</i>	13,031	6,355	319	4,969	31	4,528	1,513	3,514	4,814	1,897	16,137	5,984	63,092
<i>Anchoa</i> spp.	.	.	.	.	.	.	.	.	.	25	2	.	27
<i>Ancylosetta quadrocellata</i>	.	.	.	1	.	.	.	.	.	.	.	.	1
<i>Archosargus probatocephalus</i>	27	41	49	57	64	38	41	75	114	116	94	50	766
<i>Argopecten irradians</i>	1	.	1	1	1	.	3	1	.	1	.	.	9
<i>Ariopsis felis</i>	9	1	877	121	660	72	556	212	87	93	54	32	2,774
<i>Bagre marinus</i>	.	.	.	.	8	.	1	.	.	1	.	.	10
<i>Bairdiella chrysoura</i>	9	28	130	44	164	72	303	165	210	332	19	11	1,487
<i>Bathygobius soporator</i>	1	3	.	1	.	.	1	1	.	6	2	1	16
<i>Belonesox belizanus</i>	1	6	.	1	.	.	.	1	2	9	.	.	20

Species	Month												Total
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
	E=119	E=90	E=68	E=105	E=68	E=90	E=83	E=90	E=104	E=105	E=104	E=90	
<i>Diapterus auratus</i>	1	1	1	4	179	3	147	75	3	5	8	6	433
<i>Diodon holocanthus</i>	1	.	.	.	.	.	.	.	.	.	.	.	1
<i>Diplectrum formosum</i>	13	.	2	1	.	.	.	.	.	7	.	1	24
<i>Diplodus holbrookii</i>	.	.	6	3	1	20	3	4	2	1	46	4	90
<i>Dorosoma cepedianum</i>	.	.	.	.	.	.	.	2	.	.	.	.	2
<i>Dorosoma petenense</i>	.	.	.	.	.	.	.	951	7	3	5	2	968
<i>Echeneis neucratoides</i>	.	.	.	1	.	.	.	.	.	.	.	.	1
<i>Elops saurus</i>	4	38	22	14	65	6	9	15	57	124	59	340	753
<i>Etropus crossotus</i>	.	.	.	.	.	.	.	.	.	1	.	.	1
<i>Eucinostomus gula</i>	2,219	866	1,790	1,404	1,207	734	966	777	1,640	1,769	5,884	2,789	22,045
<i>Eucinostomus harengulus</i>	789	353	441	996	464	628	607	255	205	151	581	583	6,053
<i>Eucinostomus</i> spp.	5,496	2,536	667	1,082	486	2,296	3,335	2,535	5,929	4,065	3,180	1,630	33,237
<i>Eugerres plumieri</i>	35	95	1	105	19	49	88	421	313	73	82	301	1,582
<i>Farfantepenaeus duorarum</i>	123	24	22	38	36	81	164	184	221	121	222	15	1,251
<i>Floridichthys carpio</i>	226	238	479	127	388	231	464	63	140	61	149	54	2,620
<i>Fundulus confluentus</i>	.	1	.	.	.	.	.	.	.	.	.	.	1
<i>Fundulus grandis</i>	16	82	8	14	.	53	.	2	46	14	2	.	237
<i>Fundulus seminolis</i>	1	.	.	.	.	1	.	27	7	20	3	21	80
<i>Fundulus similis</i>	7	3	59	29	13	67	20	4	3	16	18	2	241
<i>Fundulus xenicus</i>	.	8	.	.	.	.	.	.	11	1	.	.	20
<i>Gambusia holbrooki</i>	125	606	.	172	.	.	.	17	1	367	2	5	1,295
<i>Gerreidae</i> sp.	.	.	.	.	.	.	.	.	.	.	.	1	1
<i>Gerres cinereus</i>	.	.	1	.	.	.	.	.	.	1	.	.	2

[illegible]

[illegible]

Species	Month												Total
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
	E=119	E=90	E=68	E=105	E=68	E=90	E=83	E=90	E=104	E=105	E=104	E=90	
<i>Menticirrhus saxatilis</i>	2	.	1	.	.	.	.	.	.	.	.	1	4
<i>Microgobius gulosus</i>	144	131	131	77	266	241	344	1,095	257	189	129	76	3,080
<i>Microgobius thalassinus</i>	14	.	3	1	.	.	7	6	.	4	.	.	35
<i>Micropterus salmoides</i>	.	.	.	.	.	.	.	2	.	1	.	.	3
<i>Monacanthus ciliatus</i>	.	.	.	1	.	.	.	.	.	.	.	1	2
<i>Monopterus albus</i>	.	.	.	.	.	.	.	.	.	3	.	.	3
<i>Mugil cephalus</i>	32	356	30	127	20	74	54	49	107	15	15	26	905
<i>Mugil curema</i>	.	32	4	11	4	1	17	5	8	27	10	120	239
<i>Mugil trichodon</i>	35	20	18	32	22	.	7	6	27	54	29	287	537
<i>Mycteroperca microlepis</i>	.	.	.	.	.	.	.	3	3	2	2	.	10
<i>Nicholsina usta</i>	.	.	1	.	.	.	.	.	.	.	.	.	1
<i>Notemigonus crysoleucas</i>	.	.	.	.	.	.	.	.	.	1	.	.	1
<i>Ogcocephalus cubifrons</i>	.	.	.	.	.	.	.	.	.	.	.	1	1
<i>Oligoplites saurus</i>	3	7	4	7	9	49	35	54	50	15	11	2	246
<i>Opisthonema oglinum</i>	3	10	116	95	479	2	517	495	42	1,769	13	3,623	7,164
<i>Opsanus beta</i>	2	2	5	17	22	12	13	11	18	34	1	1	138
<i>Oreochromis aureus</i>	.	.	.	.	.	.	.	4	.	6	1	1	12
<i>Oreochromis niloticus</i>	.	.	.	.	.	.	.	25	.	24	16	.	65
<i>Oreochromis spp.</i>	.	.	.	.	.	.	.	3	21	.	.	.	24
<i>Sarotherodon spp.</i>	6	15	.	.	.	5	4	1	1	3	4	.	39
<i>Orthopristis chrysoptera</i>	12	114	158	145	336	55	123	48	103	266	14	11	1,385
<i>Paraclinus marmoratus</i>	.	.	.	.	.	.	.	.	.	.	.	1	1
<i>Paralichthys albigutta</i>	1	.	21	13	27	5	17	3	3	15	1	3	109

Species	Month												Total
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
	E=119	E=90	E=68	E=105	E=68	E=90	E=83	E=90	E=104	E=105	E=104	E=90	
<i>Pelmatolapia mariae</i>	.	.	.	.	.	.	.	.	.	2	.	.	2
<i>Poecilia latipinna</i>	56	529	.	37	.	6	.	4	71	28	8	1	740
<i>Pogonias cromis</i>	125	.	.	.	1	4	.	4	3	4	2	.	143
<i>Pomatomus saltatrix</i>	16	.	.	1	.	.	.	.	.	.	.	.	17
<i>Portunus</i> spp.	53	1	2	10	.	.	41	.	.	29	.	.	136
<i>Prionotus scitulus</i>	69	5	10	17	17	3	149	3	.	281	9	4	567
<i>Prionotus tribulus</i>	13	3	2	4	.	.	2	.	.	3	5	4	36
<i>Pterygoplichthys disjunctivus</i>	.	.	.	.	.	.	.	1	.	.	2	.	3
<i>Pterygoplichthys</i> spp.	.	.	.	.	.	.	.	7	1	1	.	.	9
<i>Rhinoptera bonasus</i>	.	.	9	14	8	17	.	1	.	23	2	50	124
<i>Rimapenaeus</i> spp.	1	.	.	.	.	.	.	.	.	14	.	.	15
<i>Sardinella aurita</i>	.	.	.	.	.	.	.	4	2	.	.	.	6
<i>Sarotherodon melanotheron</i>	9	6	.	1	.	1	1	35	15	18	8	1	95
<i>Sciaenops ocellatus</i>	29	38	25	19	19	35	12	9	19	161	602	145	1,113
<i>Scomberomorus maculatus</i>	.	.	.	.	.	.	.	.	2	5	.	1	8
<i>Selene vomer</i>	.	3	.	4	13	3	2	.	1	.	.	.	26
<i>Serraniculus pumilio</i>	2	.	.	.	.	.	.	.	.	.	.	.	2
<i>Sphoeroides nephelus</i>	13	4	22	17	48	9	11	6	12	20	9	14	185
<i>Sphoeroides spengleri</i>	.	.	.	.	.	.	.	.	.	1	6	2	9
<i>Sphyraena barracuda</i>	2	1	1	1	1	.	1	2	11	5	8	5	38
<i>Sphyrna tiburo</i>	1	4	2	2	5	2	6	3	14	4	5	11	59
<i>Stephanolepis hispidus</i>	9	.	.	3	1	1	12	.	.	.	.	6	32
<i>Strongylura marina</i>	3	.	1	1	2	22	1	2	.	2	1	3	38

Species	Month												Total
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
	E=119	E=90	E=68	E=105	E=68	E=90	E=83	E=90	E=104	E=105	E=104	E=90	
<i>Strongylura notata</i>	90	13	14	37	55	54	27	66	91	45	41	72	605
<i>Strongylura</i> spp.	.	.	.	8	3	2	.	2	.	.	.	2	17
<i>Strongylura timucu</i>	4	.	1	.	.	.	1	4	1	.	6	4	21
<i>Syacium papillosum</i>	.	.	.	.	.	.	.	.	.	6	.	2	8
<i>Symphurus plagiusa</i>	6	4	1	3	.	.	28	.	8	8	8	3	69
<i>Syngnathus floridae</i>	9	2	7	5	.	5	14	11	3	1	4	12	73
<i>Syngnathus louisianae</i>	10	.	1	2	4	3	6	1	3	7	2	4	43
<i>Syngnathus scovelli</i>	35	24	51	48	22	23	23	42	13	26	18	37	362
<i>Syngnathus</i> sp.	1	.	.	.	.	.	.	.	.	.	.	.	1
<i>Syngnathus springeri</i>	1	.	.	.	.	.	.	.	.	.	.	.	1
<i>Synodus foetens</i>	11	3	3	11	21	17	13	5	6	27	16	4	137
<i>Thorichthys meeki</i>	.	.	.	.	.	.	.	.	.	7	.	.	7
<i>Trachinotus carolinus</i>	2	.	.	1	.	.	1	2	.	.	.	.	6
<i>Trachinotus falcatus</i>	1	.	1	.	4	.	.	3	7	.	2	9	27
<i>Trinectes maculatus</i>	58	75	18	66	3	52	69	164	164	411	130	69	1,279
<i>Tylosurus crocodilus</i>	.	.	.	.	.	.	1	.	2	.	.	.	3
<i>Urophycis floridana</i>	.	.	1	.	.	.	.	.	.	.	.	.	1
<i>Xiphophorus</i> sp.	.	.	.	.	.	.	.	.	.	1	.	.	1
Total	25,985	16,662	13,589	18,051	12,953	16,096	15,950	19,894	23,612	21,272	31,406	19,796	235,266

Effort, or total number of hauls, is labeled 'E'. Taxa are arranged alphabetically. Selected taxa are highlighted in bold.

Table A.14: Summary by gear and stratum of taxa collected during Tampa Bay stratified-random sampling, 2024.

Species	Gear and Strata								Total
	21.3-m bay seine			21.3-m river seine		183-m haul seine		6.1-m otter trawl	
	Veg	Unveg	Shore	Over	Nonover	Over	Nonover		
	E=117	E=123	E=168	E=171	E=153	E=187	E=53		
<i>Acanthostracion quadricornis</i>	10	.	1	.	.	62	72	43	188
<i>Achiridae</i> sp.	.	.	.	1	.	.	.	.	1
<i>Achirus lineatus</i>	14	25	61	25	30	.	5	15	175
<i>Albula</i> spp.	.	1	.	.	.	1	.	1	3
<i>Alburnops petersoni</i>	.	.	.	47	4	.	.	.	51
<i>Aluterus schoepfii</i>	.	.	.	.	.	.	2	3	5
<i>Ameiurus catus</i>	.	.	.	.	.	.	.	1	1
<i>Anarchopterus criniger</i>	.	.	1	.	.	.	.	.	1
<i>Anchoa cubana</i>	80	1	373	.	.	.	.	3	457
<i>Anchoa hepsetus</i>	2	8	65	.	.	.	.	.	75
<i>Anchoa mitchilli</i>	270	426	9,828	29,539	17,644	.	.	5,385	63,092
<i>Anchoa</i> spp.	4	.	.	2	.	.	.	21	27
<i>Ancylosetta quadrocellata</i>	.	.	.	.	.	1	.	.	1
<i>Archosargus probatocephalus</i>	30	4	61	41	87	311	145	87	766
<i>Argopecten irradians</i>	.	1	.	.	.	.	1	7	9
<i>Ariopsis felis</i>	96	38	42	11	10	1,091	1,362	124	2,774
<i>Bagre marinus</i>	.	.	.	.	.	10	.	.	10
<i>Bairdiella chrysoura</i>	447	75	243	13	17	457	159	76	1,487
<i>Bathygobius soporator</i>	.	.	.	2	13	.	.	1	16
<i>Belonesox belizanus</i>	.	.	.	14	6	.	.	.	20
<i>Brevoortia</i> spp.	.	.	.	5	8	.	3	.	16
<i>Calamus penna</i>	.	.	1	.	.	.	1	2	4
<i>Calamus</i> spp.	3	1	1	.	.	.	.	.	5
<i>Callinectes ornatus</i>	.	.	.	.	.	.	3	1	4
<i>Callinectes sapidus</i>	36	20	42	54	73	155	52	151	583
<i>Caranx crysos</i>	.	.	.	.	.	2	7	.	9

Species	Gear and Strata								Total
	21.3-m bay seine			21.3-m river seine		183-m haul seine		6.1-m otter trawl	
	Veg	Unveg	Shore	Over	Nonover	Over	Nonover		
	E=117	E=123	E=168	E=171	E=153	E=187	E=53	E=144	E=1,116
<i>Caranx hippos</i>	.	.	3	1	1	6	10	.	21
<i>Caranx latus</i>	.	1	.	.	1	9	5	.	16
<i>Carcharhinus leucas</i>	.	.	.	.	.	3	2	1	6
<i>Carcharhinus limbatus</i>	.	.	.	.	.	.	4	.	4
<i>Centropomus undecimalis</i>	1	.	6	92	127	521	122	.	869
<i>Centropristis striata</i>	.	.	.	.	.	.	.	1	1
<i>Chaetodipterus faber</i>	3	1	3	.	.	249	148	36	440
<i>Chasmodes saburrae</i>	25	.	10	.	2	.	.	4	41
<i>Chilomycterus schoepfii</i>	24	2	4	.	.	52	68	79	229
<i>Chloroscombrus chrysurus</i>	1	1	2	.	.	83	4	7	98
<i>Cichlasoma dimerus</i>	.	.	.	1	2	.	.	.	3
<i>Citharichthys macrops</i>	.	.	.	.	.	.	.	1	1
<i>Ctenogobius smaragdus</i>	1	1	.	.	.	.	.	.	2
<i>Cynoscion arenarius</i>	2	.	13	67	40	.	.	163	285
<i>Cynoscion nebulosus</i>	225	27	119	10	29	91	43	10	554
<i>Cyprinodon variegatus</i>	16	.	174	62	72	.	.	.	324
<i>Dactyloscopus moorei</i>	.	1	.	.	.	.	.	.	1
<i>Diapterus auratus</i>	.	.	143	4	10	33	243	.	433
<i>Diodon holocanthus</i>	.	.	.	.	.	1	.	.	1
<i>Diplectrum formosum</i>	.	.	.	.	.	.	3	21	24
<i>Diplodus holbrookii</i>	22	2	3	.	.	12	50	1	90
<i>Dorosoma cepedianum</i>	.	.	.	1	1	.	.	.	2
<i>Dorosoma petenense</i>	1	2	.	946	17	2	.	.	968
<i>Echeneis neucratoides</i>	.	.	.	.	.	1	.	.	1
<i>Elops saurus</i>	1	.	4	7	2	402	337	.	753
<i>Etropus crossotus</i>	.	.	.	.	.	.	.	1	1
<i>Eucinostomus gula</i>	1,739	889	2,599	972	1,026	11,172	2,235	1,413	22,045
<i>Eucinostomus harengulus</i>	48	207	692	1,616	1,384	1,640	160	306	6,053

Species	Gear and Strata								Total
	21.3-m bay seine			21.3-m river seine		183-m haul seine		6.1-m otter trawl	
	Veg	Unveg	Shore	Over	Nonover	Over	Nonover		
	E=117	E=123	E=168	E=171	E=153	E=187	E=53	E=144	E=1,116
<i>Eucinostomus</i> spp.	6,441	1,319	11,187	6,861	6,481	.	.	948	33,237
<i>Eugerres plumieri</i>	1	6	264	399	395	416	68	33	1,582
<i>Farfantepenaeus duorarum</i>	412	83	410	28	40	21	3	254	1,251
<i>Floridichthys carpio</i>	435	3	2,111	13	57	1	.	.	2,620
<i>Fundulus confluentus</i>	.	.	.	1	.	.	.	.	1
<i>Fundulus grandis</i>	1	1	89	40	106	.	.	.	237
<i>Fundulus seminolis</i>	.	.	.	47	33	.	.	.	80
<i>Fundulus similis</i>	2	.	187	5	44	1	2	.	241
<i>Fundulus xenicus</i>	.	.	.	1	19	.	.	.	20
<i>Gambusia holbrooki</i>	.	.	1	885	409	.	.	.	1,295
<i>Gerreidae</i> sp.	.	1	.	.	.	.	.	.	1
<i>Gerres cinereus</i>	.	.	.	.	.	1	1	.	2
<i>Gobiesox strumosus</i>	.	.	.	1	.	.	.	.	1
<i>Gobiosoma bosc</i>	.	.	.	147	112	.	.	5	264
<i>Gobiosoma longipala</i>	.	.	.	.	.	.	.	1	1
<i>Gobiosoma robustum</i>	60	12	46	1	3	.	.	10	132
<i>Gobiosoma</i> spp.	23	21	13	74	35	.	.	49	215
<i>Gymnura lessae</i>	.	.	.	.	.	.	1	.	1
<i>Haemulon aurolineatum</i>	1	.	.	.	.	.	.	.	1
<i>Haemulon plumierii</i>	154	.	6	.	.	20	6	4	190
<i>Harengula jaguana</i>	1,353	86	1,314	207	2	256	186	28	3,432
<i>Hemichromis letourneuxi</i>	.	.	.	5	2	.	.	.	7
<i>Hemiramphus brasiliensis</i>	.	.	.	.	.	11	.	.	11
<i>Heterandria formosa</i>	.	.	.	.	1	.	.	.	1
<i>Hippocampus erectus</i>	.	2	.	.	.	2	.	11	15
<i>Hippocampus zosterae</i>	29	3	5	.	.	.	.	.	37
<i>Hypanus americanus</i>	.	.	.	.	.	13	1	.	14
<i>Hypanus sabinus</i>	4	7	7	1	4	298	195	36	552

Species	Gear and Strata								Total
	21.3-m bay seine			21.3-m river seine		183-m haul seine		6.1-m otter trawl	
	Veg	Unveg	Shore	Over	Nonover	Over	Nonover		
	E=117	E=123	E=168	E=171	E=153	E=187	E=53	E=144	E=1,116
<i>Hypanus say</i>	1	.	.	.	.	69	13	2	85
<i>Hypleurochilus caudovittatus</i>	.	.	.	.	.	.	.	1	1
<i>Hyporhamphus meeki</i>	8	1	.	.	.	3	2	.	14
<i>Hyporhamphus</i> spp.	.	8	.	.	.	.	.	.	8
<i>Hypsoblennius hentz</i>	.	.	.	.	.	1	1	.	2
<i>Ictalurus punctatus</i>	.	.	.	.	.	.	.	4	4
<i>Kyphosus</i> sp.	.	.	.	.	.	.	1	.	1
<i>Labidesthes vanhyningi</i>	.	.	.	31	6	.	.	.	37
<i>Lagodon rhomboides</i>	6,200	230	4,858	85	126	17,808	7,886	792	37,985
<i>Leiostomus xanthurus</i>	2	.	21	2	11	34	50	2	122
<i>Lepisosteus osseus</i>	.	.	.	.	1	1	6	5	13
<i>Lepisosteus platyrhincus</i>	.	.	.	1	.	1	.	.	2
<i>Lepomis gulosus</i>	.	.	.	1	.	.	.	.	1
<i>Lepomis macrochirus</i>	.	.	.	194	157	.	.	.	351
<i>Lepomis microlophus</i>	.	.	.	5	.	.	.	.	5
<i>Lepomis punctatus</i>	.	.	.	1	.	.	.	.	1
<i>Lepomis</i> spp.	.	.	.	104	45	.	.	.	149
<i>Limulus polyphemus</i>	1	5	4	.	.	5	3	2	20
<i>Lophogobius cyprinoides</i>	.	.	1	187	119	.	.	25	332
<i>Lucania goodei</i>	.	.	.	25	3	.	.	.	28
<i>Lucania parva</i>	5,717	78	3,339	1,165	575	.	.	104	10,978
<i>Lutjanus griseus</i>	12	2	17	8	13	19	14	1	86
<i>Lutjanus synagris</i>	16	3	25	.	.	13	18	30	105
<i>Mayaheros urophthalmus</i>	1	.	2	34	173	.	1	.	211
<i>Megalops atlanticus</i>	.	.	.	1	.	.	.	.	1
<i>Membras martinica</i>	.	.	.	1	.	.	.	.	1
<i>Menidia</i> spp.	355	45	4,589	6,066	4,983	1	.	.	16,039
<i>Menippe</i> spp.	.	1	.	.	.	.	2	45	48

Species	Gear and Strata								Total
	21.3-m bay seine			21.3-m river seine		183-m haul seine		6.1-m otter trawl	
	Veg	Unveg	Shore	Over	Nonover	Over	Nonover		
	E=117	E=123	E=168	E=171	E=153	E=187	E=53	E=144	E=1,116
<i>Menticirrhus americanus</i>	5	1	9	.	.	8	6	50	79
<i>Menticirrhus littoralis</i>	.	.	.	.	.	.	2	.	2
<i>Menticirrhus saxatilis</i>	.	1	2	.	1	.	.	.	4
<i>Microgobius gulosus</i>	600	632	684	502	558	.	.	104	3,080
<i>Microgobius thalassinus</i>	.	4	.	.	2	.	.	29	35
<i>Micropterus salmoides</i>	.	.	.	2	1	.	.	.	3
<i>Monacanthus ciliatus</i>	.	.	.	.	.	1	.	1	2
<i>Monopterus albus</i>	.	.	1	1	1	.	.	.	3
<i>Mugil cephalus</i>	8	5	84	81	253	391	83	.	905
<i>Mugil curema</i>	3	.	.	.	1	220	15	.	239
<i>Mugil trichodon</i>	1	.	31	.	29	436	40	.	537
<i>Mycteroperca microlepis</i>	1	.	.	.	.	6	3	.	10
<i>Nicholsina usta</i>	.	.	.	.	.	1	.	.	1
<i>Notemigonus crysoleucas</i>	.	.	.	1	.	.	.	.	1
<i>Ogcocephalus cubifrons</i>	.	.	.	.	.	.	1	.	1
<i>Oligoplites saurus</i>	19	17	77	27	36	44	26	.	246
<i>Opisthonema oglinum</i>	89	117	2,006	4	.	735	4,212	1	7,164
<i>Opsanus beta</i>	2	1	2	1	10	65	18	39	138
<i>Oreochromis aureus</i>	.	.	.	8	3	1	.	.	12
<i>Oreochromis niloticus</i>	.	.	.	11	40	2	12	.	65
<i>Oreochromis</i> spp.	.	.	.	.	3	21	.	.	24
<i>Sarotherodon</i> spp.	9	.	1	22	6	1	.	.	39
<i>Orthopristis chrysoptera</i>	381	5	95	5	.	463	301	135	1,385
<i>Paraclinus marmoratus</i>	.	1	.	.	.	.	.	.	1
<i>Paralichthys albigutta</i>	6	5	19	.	.	31	27	21	109
<i>Pelmatolapia mariae</i>	.	.	.	2	.	.	.	.	2
<i>Poecilia latipinna</i>	.	.	6	527	207	.	.	.	740
<i>Pogonias cromis</i>	5	.	1	.	.	9	127	1	143

Species	Gear and Strata								Total
	21.3-m bay seine			21.3-m river seine		183-m haul seine		6.1-m otter trawl	
	Veg	Unveg	Shore	Over	Nonover	Over	Nonover		
	E=117	E=123	E=168	E=171	E=153	E=187	E=53	E=144	E=1,116
<i>Pomatomus saltatrix</i>	.	1	.	.	.	.	16	.	17
<i>Portunus</i> spp.	2	5	2	.	.	1	1	125	136
<i>Prionotus scitulus</i>	9	15	10	.	.	24	21	488	567
<i>Prionotus tribulus</i>	2	1	6	.	1	8	.	18	36
<i>Pterygoplichthys disjunctivus</i>	.	.	.	.	2	.	1	.	3
<i>Pterygoplichthys</i> spp.	.	.	.	3	6	.	.	.	9
<i>Rhinoptera bonasus</i>	.	.	.	.	.	84	37	3	124
<i>Rimapenaeus</i> spp.	.	.	.	.	.	.	.	15	15
<i>Sardinella aurita</i>	2	4	.	.	.	.	.	.	6
<i>Sarotherodon melanotheron</i>	3	.	4	29	38	13	8	.	95
<i>Sciaenops ocellatus</i>	77	36	402	206	152	215	13	12	1,113
<i>Scomberomorus maculatus</i>	.	.	2	.	.	5	1	.	8
<i>Selene vomer</i>	.	.	2	.	.	2	22	.	26
<i>Serraniculus pumilio</i>	.	.	.	.	.	.	.	2	2
<i>Sphoeroides nephelus</i>	34	7	37	.	.	67	29	11	185
<i>Sphoeroides spengleri</i>	5	.	4	.	.	.	.	.	9
<i>Sphyraena barracuda</i>	1	.	2	.	.	29	6	.	38
<i>Sphyrna tiburo</i>	.	1	.	.	.	32	26	.	59
<i>Stephanolepis hispida</i>	17	.	1	.	.	1	.	13	32
<i>Strongylura marina</i>	1	1	2	17	3	9	5	.	38
<i>Strongylura notata</i>	28	15	252	53	27	210	20	.	605
<i>Strongylura</i> spp.	.	.	6	7	4	.	.	.	17
<i>Strongylura timucu</i>	.	.	9	7	2	2	1	.	21
<i>Syacium papillosum</i>	.	.	.	.	.	.	2	6	8
<i>Symphurus plagiusa</i>	2	6	12	1	1	5	.	42	69
<i>Syngnathus floridae</i>	54	.	13	.	1	.	.	5	73
<i>Syngnathus louisianae</i>	16	4	8	.	.	.	.	15	43
<i>Syngnathus scovelli</i>	195	15	95	4	14	.	.	39	362

Species	Gear and Strata								Total
	21.3-m bay seine			21.3-m river seine		183-m haul seine		6.1-m otter trawl	
	Veg	Unveg	Shore	Over	Nonover	Over	Nonover		
	E=117	E=123	E=168	E=171	E=153	E=187	E=53		
<i>Syngnathus</i> sp.	.	.	.	.	.	.	.	1	1
<i>Syngnathus springeri</i>	.	.	.	.	.	.	.	1	1
<i>Synodus foetens</i>	23	19	28	2	1	8	15	41	137
<i>Thorichthys meeki</i>	.	.	.	7	.	.	.	.	7
<i>Trachinotus carolinus</i>	.	.	.	.	.	1	5	.	6
<i>Trachinotus falcatus</i>	.	.	.	.	.	5	22	.	27
<i>Trinectes maculatus</i>	1	1	7	659	426	4	2	179	1,279
<i>Tylosurus crocodilus</i>	.	.	1	.	.	1	1	.	3
<i>Urophycis floridana</i>	1	.	.	.	.	.	.	.	1
<i>Xiphophorus</i> sp.	.	.	.	1	.	.	.	.	1
Total	25,932	4,571	46,913	52,350	36,390	38,523	18,833	11,754	235,266

Sampling with 21.3-m bay seine was stratified by the presence or absence of a shoreline ('Shore' or offshore) within 5-m. Offshore sets were further stratified by the presence or absence of bottom vegetation ('Veg' or 'Unveg'). Sampling with 21.3-m river seine and 183-m haul seine was stratified by the presence or absence of overhanging vegetation ('Over' or 'Nonover'). Sampling with 6.1-m otter trawl was not stratified. Effort, or the total number of hauls, is labeled 'E'. Taxa are arranged alphabetically. Selected taxa are highlighted in bold.

Table A.15: Summary by zone of taxa collected during Tampa Bay stratified-random sampling, 2024.

Species	Zone									Total
	A	B	C	D	E	K	L	M	N	
	E=144	E=132	E=172	E=104	E=156	E=129	E=117	E=96	E=66	
<i>Acanthostracion quadricornis</i>	25	50	4	40	69	.	.	.	.	188
<i>Achiridae</i> sp.	.	.	.	.	.	.	.	1	.	1
<i>Achirus lineatus</i>	45	12	44	1	11	37	4	14	7	175
<i>Albula</i> spp.	2	.	.	.	1	.	.	.	.	3
<i>Alburnops petersoni</i>	.	.	.	.	.	51	.	.	.	51
<i>Aluterus schoepfii</i>	.	.	.	.	5	.	.	.	.	5
<i>Ameiurus catus</i>	.	.	.	.	.	.	.	.	1	1
<i>Anarchopterus criniger</i>	.	.	.	1	.	.	.	.	.	1
<i>Anchoa cubana</i>	4	78	375	.	.	.	.	.	.	457
<i>Anchoa hepsetus</i>	4	2	67	2	.	.	.	.	.	75
<i>Anchoa mitchilli</i>	4,444	667	3,727	632	1,614	14,013	14,282	10,957	12,756	63,092
<i>Anchoa</i> spp.	.	21	.	.	4	2	.	.	.	27
<i>Ancylosetta quadrocellata</i>	.	.	.	.	1	.	.	.	.	1
<i>Archosargus probatocephalus</i>	41	76	99	115	227	48	103	44	13	766
<i>Argopecten irradians</i>	.	1	5	2	.	.	1	.	.	9
<i>Ariopsis felis</i>	1,511	410	329	34	355	64	35	12	24	2,774
<i>Bagre marinus</i>	7	2	.	.	1	.	.	.	.	10
<i>Bairdiella chrysoura</i>	91	114	267	315	615	34	28	20	3	1,487
<i>Bathygobius soporator</i>	.	.	.	.	.	8	2	5	1	16
<i>Belonesox belizanus</i>	.	.	.	.	.	16	.	4	.	20
<i>Brevoortia</i> spp.	3	.	.	.	.	2	7	.	4	16
<i>Calamus penna</i>	.	.	.	3	1	.	.	.	.	4
<i>Calamus</i> spp.	.	.	.	1	4	.	.	.	.	5
<i>Callinectes ornatus</i>	.	3	.	.	.	.	1	.	.	4
<i>Callinectes sapidus</i>	67	23	50	95	100	60	55	72	61	583
<i>Caranx crysos</i>	.	.	.	7	2	.	.	.	.	9
<i>Caranx hippos</i>	3	7	2	1	6	.	1	1	.	21

Species	Zone									Total
	A	B	C	D	E	K	L	M	N	
	E=144	E=132	E=172	E=104	E=156	E=129	E=117	E=96	E=66	
<i>Caranx latus</i>	.	4	.	2	9	.	.	1	.	16
<i>Carcharhinus leucas</i>	5	.	.	.	.	.	1	.	.	6
<i>Carcharhinus limbatus</i>	.	.	4	.	.	.	.	.	.	4
<i>Centropomus undecimalis</i>	19	97	75	46	413	64	61	39	55	869
<i>Centropristis striata</i>	.	.	.	1	.	.	.	.	.	1
<i>Chaetodipterus faber</i>	157	37	88	56	84	9	7	.	2	440
<i>Chasmodes saburrae</i>	4	7	4	14	8	.	.	2	2	41
<i>Chilomycterus schoepfii</i>	67	25	37	33	58	.	2	6	1	229
<i>Chloroscombrus chrysurus</i>	2	.	90	.	4	2	.	.	.	98
<i>Cichlasoma dimerus</i>	.	.	.	.	.	3	.	.	.	3
<i>Citharichthys macrops</i>	.	.	.	.	1	.	.	.	.	1
<i>Ctenogobius smaragdus</i>	.	.	.	.	2	.	.	.	.	2
<i>Cynoscion arenarius</i>	57	2	16	.	.	98	14	84	14	285
<i>Cynoscion nebulosus</i>	125	91	108	79	106	15	16	8	6	554
<i>Cyprinodon variegatus</i>	2	142	2	27	17	4	.	35	95	324
<i>Dactyloscopus moorei</i>	1	.	.	.	.	.	.	.	.	1
<i>Diapterus auratus</i>	148	.	4	121	146	5	1	8	.	433
<i>Diodon holocanthus</i>	.	.	.	1	.	.	.	.	.	1
<i>Diplectrum formosum</i>	.	5	.	3	16	.	.	.	.	24
<i>Diplodus holbrookii</i>	.	2	.	83	5	.	.	.	.	90
<i>Dorosoma cepedianum</i>	.	.	.	.	.	1	.	1	.	2
<i>Dorosoma petenense</i>	4	.	.	.	1	1	.	13	949	968
<i>Echeneis neucratoides</i>	.	.	.	.	1	.	.	.	.	1
<i>Elops saurus</i>	158	294	106	60	126	.	2	.	7	753
<i>Etropus crossotus</i>	.	.	.	.	1	.	.	.	.	1
<i>Eucinostomus gula</i>	2,926	2,970	8,779	2,030	2,591	1,378	578	635	158	22,045
<i>Eucinostomus harengulus</i>	189	146	1,436	192	791	1,190	799	418	892	6,053
<i>Eucinostomus</i> spp.	2,065	3,315	2,812	6,112	5,242	6,472	2,913	2,134	2,172	33,237
<i>Eugerres plumieri</i>	456	25	181	.	93	286	246	126	169	1,582

Species	Zone									Total
	A	B	C	D	E	K	L	M	N	
	E=144	E=132	E=172	E=104	E=156	E=129	E=117	E=96	E=66	
<i>Farfantepenaeus duorarum</i>	166	108	260	172	334	43	55	91	22	1,251
<i>Floridichthys carpio</i>	572	624	191	790	373	67	.	3	.	2,620
<i>Fundulus confluentus</i>	.	.	.	.	.	.	.	.	1	1
<i>Fundulus grandis</i>	16	60	.	.	15	19	11	52	64	237
<i>Fundulus seminolis</i>	.	.	.	.	.	57	19	4	.	80
<i>Fundulus similis</i>	31	122	19	20	.	47	.	2	.	241
<i>Fundulus xenicus</i>	.	.	.	.	.	.	.	12	8	20
<i>Gambusia holbrooki</i>	.	.	.	.	1	31	1	151	1,111	1,295
<i>Gerreidae</i> sp.	.	.	.	.	1	.	.	.	.	1
<i>Gerres cinereus</i>	.	1	.	1	.	.	.	.	.	2
<i>Gobiesox strumosus</i>	.	.	.	.	.	.	.	.	1	1
<i>Gobiosoma bosc</i>	.	.	.	.	.	125	17	73	49	264
<i>Gobiosoma longipala</i>	.	.	.	.	1	.	.	.	.	1
<i>Gobiosoma robustum</i>	35	24	18	27	21	1	2	1	3	132
<i>Gobiosoma</i> spp.	20	22	12	1	2	71	49	21	17	215
<i>Gymnura lessae</i>	.	.	.	.	1	.	.	.	.	1
<i>Haemulon aurolineatum</i>	.	.	.	.	1	.	.	.	.	1
<i>Haemulon plumierii</i>	.	2	1	46	141	.	.	.	.	190
<i>Harengula jaguana</i>	271	163	655	1,013	1,117	4	206	1	2	3,432
<i>Hemichromis letourneuxi</i>	.	.	.	.	.	1	.	.	6	7
<i>Hemiramphus brasiliensis</i>	.	.	.	11	.	.	.	.	.	11
<i>Heterandria formosa</i>	.	.	.	.	.	.	.	.	1	1
<i>Hippocampus erectus</i>	.	5	3	2	5	.	.	.	.	15
<i>Hippocampus zosterae</i>	11	1	8	16	1	.	.	.	.	37
<i>Hypanus americanus</i>	1	4	1	.	8	.	.	.	.	14
<i>Hypanus sabinus</i>	207	90	150	7	78	9	5	3	3	552
<i>Hypanus say</i>	5	8	4	12	56	.	.	.	.	85
<i>Hypleurochilus caudovittatus</i>	.	.	.	1	.	.	.	.	.	1
<i>Hyporhamphus meeki</i>	.	1	1	9	3	.	.	.	.	14

Species	Zone									Total
	A	B	C	D	E	K	L	M	N	
	E=144	E=132	E=172	E=104	E=156	E=129	E=117	E=96	E=66	
<i>Hyporhamphus</i> spp.	.	1	4	3	.	.	.	.	.	8
<i>Hypsoblennius hentz</i>	.	.	.	2	.	.	.	.	.	2
<i>Ictalurus punctatus</i>	.	.	.	.	.	.	.	4	.	4
<i>Kyphosus</i> sp.	.	.	.	1	.	.	.	.	.	1
<i>Labidesthes vanhyningi</i>	.	.	.	.	.	.	.	.	37	37
<i>Lagodon rhomboides</i>	1,648	5,961	1,438	17,449	11,098	55	141	158	37	37,985
<i>Leiostomus xanthurus</i>	3	16	26	48	15	.	4	6	4	122
<i>Lepisosteus osseus</i>	.	.	7	.	.	.	5	.	1	13
<i>Lepisosteus platyrhincus</i>	1	.	.	.	.	.	.	.	1	2
<i>Lepomis gulosus</i>	.	.	.	.	.	1	.	.	.	1
<i>Lepomis macrochirus</i>	.	.	.	.	.	166	9	51	125	351
<i>Lepomis microlophus</i>	.	.	.	.	.	3	.	.	2	5
<i>Lepomis punctatus</i>	.	.	.	.	.	1	.	.	.	1
<i>Lepomis</i> spp.	.	.	.	.	.	125	2	4	18	149
<i>Limulus polyphemus</i>	7	.	8	1	3	1	.	.	.	20
<i>Lophogobius cyprinoides</i>	.	.	1	.	.	238	50	8	35	332
<i>Lucania goodei</i>	.	.	.	.	.	25	.	2	1	28
<i>Lucania parva</i>	789	590	111	5,787	1,858	504	154	190	995	10,978
<i>Lutjanus griseus</i>	3	6	2	22	32	2	9	10	.	86
<i>Lutjanus synagris</i>	4	6	1	57	37	.	.	.	.	105
<i>Mayaheros urophthalmus</i>	2	1	1	.	.	202	5	.	.	211
<i>Megalops atlanticus</i>	.	.	.	.	.	.	.	.	1	1
<i>Membras martinica</i>	.	.	.	.	.	.	1	.	.	1
<i>Menidia</i> spp.	949	491	2,124	399	1,027	6,016	797	1,370	2,866	16,039
<i>Menippe</i> spp.	1	17	7	13	10	.	.	.	.	48
<i>Menticirrhus americanus</i>	33	3	10	2	4	21	2	3	1	79
<i>Menticirrhus littoralis</i>	.	.	.	2	.	.	.	.	.	2
<i>Menticirrhus saxatilis</i>	.	1	.	.	2	1	.	.	.	4
<i>Microgobius gulosus</i>	677	400	476	68	296	283	265	110	505	3,080

Species	Zone									Total
	A	B	C	D	E	K	L	M	N	
	E=144	E=132	E=172	E=104	E=156	E=129	E=117	E=96	E=66	
<i>Microgobius thalassinus</i>	11	4	1	.	.	3	.	16	.	35
<i>Micropterus salmoides</i>	.	.	.	.	.	1	.	1	1	3
<i>Monacanthus ciliatus</i>	.	.	.	1	1	.	.	.	.	2
<i>Monopterus albus</i>	.	.	1	.	.	.	1	.	1	3
<i>Mugil cephalus</i>	108	107	157	92	107	233	2	90	9	905
<i>Mugil curema</i>	14	10	66	19	129	.	.	1	.	239
<i>Mugil trichodon</i>	30	13	61	56	348	.	2	10	17	537
<i>Mycteroperca microlepis</i>	.	.	.	10	.	.	.	.	.	10
<i>Nicholsina usta</i>	.	.	.	1	.	.	.	.	.	1
<i>Notemigonus crysoleucas</i>	.	.	.	.	.	.	.	.	1	1
<i>Ogcocephalus cubifrons</i>	.	.	.	.	1	.	.	.	.	1
<i>Oligoplites saurus</i>	50	26	43	32	32	28	22	13	.	246
<i>Opisthonema oglinum</i>	3,687	396	638	498	1,941	1	3	.	.	7,164
<i>Opsanus beta</i>	15	13	10	48	23	10	10	7	2	138
<i>Oreochromis aureus</i>	.	.	.	1	.	3	.	5	3	12
<i>Oreochromis niloticus</i>	.	.	.	.	14	50	.	1	.	65
<i>Oreochromis</i> spp.	.	.	21	.	.	3	.	.	.	24
<i>Sarotherodon</i> spp.	4	5	.	1	1	8	.	.	20	39
<i>Orthopristis chrysoptera</i>	20	458	24	573	299	2	1	8	.	1,385
<i>Paraclinus marmoratus</i>	.	.	.	.	1	.	.	.	.	1
<i>Paralichthys albigutta</i>	23	7	22	13	40	.	4	.	.	109
<i>Pelmatolapia mariae</i>	.	.	.	.	.	2	.	.	.	2
<i>Poecilia latipinna</i>	.	3	.	.	3	28	28	90	588	740
<i>Pogonias cromis</i>	.	5	6	125	6	.	1	.	.	143
<i>Pomatomus saltatrix</i>	.	.	.	17	.	.	.	.	.	17
<i>Portunus</i> spp.	9	42	41	24	18	1	1	.	.	136
<i>Prionotus scitulus</i>	107	136	112	36	149	14	11	2	.	567
<i>Prionotus tribulus</i>	11	5	5	.	8	1	2	2	2	36
<i>Pterygoplichthys disjunctivus</i>	.	.	1	.	.	2	.	.	.	3

Species	Zone									Total
	A	B	C	D	E	K	L	M	N	
	E=144	E=132	E=172	E=104	E=156	E=129	E=117	E=96	E=66	
<i>Pterygoplichthys</i> spp.	.	.	.	.	.	9	.	.	.	9
<i>Rhinoptera bonasus</i>	100	8	3	.	10	3	.	.	.	124
<i>Rimopenaeus</i> spp.	.	13	.	.	2	.	.	.	.	15
<i>Sardinella aurita</i>	.	.	4	2	.	.	.	.	.	6
<i>Sarotherodon melanotheron</i>	1	3	.	.	24	20	.	30	17	95
<i>Sciaenops ocellatus</i>	364	133	118	65	63	265	40	33	32	1,113
<i>Scomberomorus maculatus</i>	.	1	3	4	.	.	.	.	.	8
<i>Selene vomer</i>	.	2	5	8	11	.	.	.	.	26
<i>Serraniculus pumilio</i>	.	.	.	.	2	.	.	.	.	2
<i>Sphoeroides nephelus</i>	62	35	15	16	50	.	2	3	2	185
<i>Sphoeroides spengleri</i>	.	.	.	3	6	.	.	.	.	9
<i>Sphyraena barracuda</i>	.	2	2	18	16	.	.	.	.	38
<i>Sphyrna tiburo</i>	13	15	12	6	13	.	.	.	.	59
<i>Stephanolepis hispidus</i>	.	.	6	10	16	.	.	.	.	32
<i>Strongylura marina</i>	3	3	5	6	1	19	1	.	.	38
<i>Strongylura notata</i>	113	134	68	60	150	29	31	18	2	605
<i>Strongylura</i> spp.	.	1	.	1	4	8	1	1	1	17
<i>Strongylura timucu</i>	1	2	1	2	6	6	2	1	.	21
<i>Syacium papillosum</i>	.	.	.	2	6	.	.	.	.	8
<i>Symphurus plagiusa</i>	15	13	26	.	2	8	.	3	2	69
<i>Syngnathus floridae</i>	.	12	2	31	27	.	.	1	.	73
<i>Syngnathus louisianae</i>	9	5	6	12	8	.	2	1	.	43
<i>Syngnathus scovelli</i>	95	35	46	87	61	7	11	17	3	362
<i>Syngnathus</i> sp.	.	.	1	.	.	.	.	.	.	1
<i>Syngnathus springeri</i>	.	.	.	1	.	.	.	.	.	1
<i>Synodus foetens</i>	18	28	21	21	42	2	.	4	1	137
<i>Thorichthys meeki</i>	.	.	.	.	.	7	.	.	.	7
<i>Trachinotus carolinus</i>	.	.	1	4	1	.	.	.	.	6
<i>Trachinotus falcatus</i>	.	.	3	18	6	.	.	.	.	27

Species	Zone									Total
	A	B	C	D	E	K	L	M	N	
	E=144	E=132	E=172	E=104	E=156	E=129	E=117	E=96	E=66	
<i>Trinectes maculatus</i>	13	.	4	.	8	511	295	59	389	1,279
<i>Tylosurus crocodilus</i>	.	.	1	2	.	.	.	.	.	3
<i>Urophycis floridana</i>	.	.	.	1	.	.	.	.	.	1
<i>Xiphophorus</i> sp.	.	.	.	.	.	.	.	1	.	1
Total	22,980	19,031	25,812	38,018	32,928	33,266	21,441	17,388	24,402	235,266

Zones A–E were located in Tampa Bay, while Zones K (Alafia River), L (Little Manatee River), M (Manatee River), and N (Braden River) were tributaries of Tampa Bay. Effort, or the total number of hauls, is labeled 'E'. Taxa are arranged alphabetically. Selected taxa are highlighted in bold.

A.6 Sarasota Bay

Table A.16: Monthly summary of taxa collected during Sarasota Bay stratified-random sampling, 2024.

Species	Month						Total
	Feb	Apr	Jun	Aug	Oct	Dec	
	E=26	E=26	E=26	E=26	E=26	E=24	E=154
<i>Acanthostracion quadricornis</i>	.	1	.	3	4	1	9
<i>Achirus lineatus</i>	4	1	.	5	.	.	10
<i>Albula</i> sp.	.	.	.	.	.	1	1
<i>Aluterus schoepfii</i>	.	.	4	.	.	.	4
<i>Anchoa mitchilli</i>	1	.	16	13,175	855	36	14,083
<i>Archosargus probatocephalus</i>	43	28	35	54	46	39	245
<i>Archosargus rhomboidalis</i>	.	1	.	.	.	.	1
<i>Argopecten irradians</i>	.	1	.	.	.	.	1
<i>Ariopsis felis</i>	.	10	29	9	6	4	58
<i>Astroscopus y-graecum</i>	.	1	.	.	.	.	1
<i>Bagre marinus</i>	.	.	.	2	.	.	2
<i>Bairdiella chrysoura</i>	.	2	57	135	57	5	256
<i>Calamus penna</i>	.	2	.	.	.	.	2
<i>Calamus</i> spp.	1	3	.	.	.	.	4
<i>Callinectes ornatus</i>	2	.	.	.	.	.	2
<i>Callinectes sapidus</i>	20	22	27	18	18	28	133
<i>Caranx crysos</i>	2	.	.	.	.	.	2
<i>Caranx hippos</i>	1	4	2	11	8	.	26
<i>Caranx latus</i>	.	2	.	2	4	3	11
<i>Centropomus undecimalis</i>	2	48	4	63	8	16	141
<i>Centropristis striata</i>	.	.	.	.	4	.	4
<i>Chaetodipterus faber</i>	.	1	4	125	12	.	142
<i>Chilomycterus schoepfii</i>	1	4	3	4	22	7	41
<i>Chloroscombrus chrysurus</i>	.	.	.	.	1	.	1
<i>Ctenogobius smaragdus</i>	.	.	.	.	.	3	3

Species	Month						Total
	Feb	Apr	Jun	Aug	Oct	Dec	
	E=26	E=26	E=26	E=26	E=26	E=24	E=154
<i>Cynoscion arenarius</i>	.	.	.	.	1	.	1
<i>Cynoscion nebulosus</i>	9	.	16	57	93	9	184
<i>Cyprinodon variegatus</i>	1	9	.	.	.	1	11
<i>Diapterus auratus</i>	.	.	35	25	25	.	85
<i>Diodon holocanthus</i>	.	1	1	.	.	.	2
<i>Diplodus holbrookii</i>	.	4	2	.	.	.	6
<i>Dorosoma cepedianum</i>	.	.	.	.	6	.	6
<i>Dorosoma petenense</i>	.	.	.	.	22	.	22
<i>Elops saurus</i>	119	1	2	2	25	9	158
<i>Eucinostomus gula</i>	304	599	226	438	526	291	2,384
<i>Eucinostomus harengulus</i>	10	154	47	68	29	33	341
<i>Eucinostomus</i> spp.	866	677	3,261	2,515	4,829	4,026	16,174
<i>Eugerres plumieri</i>	.	1	.	.	.	.	1
<i>Farfantepenaeus duorarum</i>	107	14	28	171	120	26	466
<i>Fistularia tabacaria</i>	1	.	.	.	.	.	1
<i>Floridichthys carpio</i>	39	194	73	1	1	45	353
<i>Fundulus grandis</i>	6	.	.	.	.	5	11
<i>Gerres cinereus</i>	.	10	2	.	.	.	12
<i>Gobiosoma robustum</i>	34	26	.	.	2	.	62
<i>Gobiosoma</i> spp.	4	.	.	.	.	2	6
<i>Gymnura lessae</i>	.	.	.	.	1	.	1
<i>Haemulon plumieri</i>	.	1	.	71	17	.	89
<i>Harengula jaguana</i>	19	1	5,605	469	821	.	6,915
<i>Hippocampus erectus</i>	2	1	.	.	.	.	3
<i>Hippocampus zosterae</i>	5	.	.	2	1	.	8
<i>Hypanus americanus</i>	.	.	.	1	4	.	5
<i>Hypanus sabinus</i>	.	.	1	3	1	2	7
<i>Hypanus say</i>	.	.	1	.	.	.	1
<i>Hyporhamphus meeki</i>	.	.	1	.	.	1	2

Species	Month						Total
	Feb	Apr	Jun	Aug	Oct	Dec	
	E=26	E=26	E=26	E=26	E=26	E=24	E=154
<i>Hyporhamphus</i> sp.	.	.	1	.	.	.	1
<i>Lagodon rhomboides</i>	2,003	7,275	5,622	3,780	2,580	785	22,045
<i>Leiostomus xanthurus</i>	.	3	.	.	.	.	3
<i>Lucania parva</i>	314	1,373	5,404	1,038	713	137	8,979
<i>Lutjanus griseus</i>	2	7	37	96	69	15	226
<i>Lutjanus synagris</i>	1	.	1	5	31	3	41
<i>Menidia</i> spp.	.	8	103	26	3	1	141
<i>Menippe</i> spp.	.	.	1	.	.	1	2
<i>Microgobius gulosus</i>	39	29	26	19	25	17	155
<i>Mugil cephalus</i>	43	34	4	4	3	74	162
<i>Mugil curema</i>	84	3	2	8	.	262	359
<i>Mugil trichodon</i>	71	14	1	10	4	55	155
<i>Mycteroperca microlepis</i>	.	.	.	1	3	.	4
<i>Nicholsina usta</i>	.	.	1	.	.	.	1
<i>Oligoplites saurus</i>	.	.	6	17	12	.	35
<i>Opisthonema oglinum</i>	.	4	11	256	208	.	479
<i>Opsanus beta</i>	1	2	15	7	4	3	32
<i>Orthopristis chrysoptera</i>	63	339	124	499	289	17	1,331
<i>Paralichthys albigutta</i>	6	6	4	25	19	8	68
<i>Pogonias cromis</i>	.	2	1	.	1	3	7
<i>Pomatomus saltatrix</i>	.	.	.	.	.	18	18
<i>Portunus</i> spp.	1	2	.	.	.	.	3
<i>Prionotus scitulus</i>	2	1	.	.	1	.	4
<i>Prionotus tribulus</i>	.	.	.	.	1	.	1
<i>Rachycentron canadum</i>	.	.	.	.	1	.	1
<i>Rimapenaeus</i> spp.	.	.	.	.	.	2	2
<i>Sardinella aurita</i>	.	.	.	5	1	.	6
<i>Sarotherodon melanothron</i>	.	.	.	2	.	.	2
<i>Sciaenops ocellatus</i>	11	2	5	1	10	28	57

Species	Month						Total
	Feb	Apr	Jun	Aug	Oct	Dec	
	E=26	E=26	E=26	E=26	E=26	E=24	E=154
<i>Scomberomorus maculatus</i>	.	.	.	2	12	.	14
<i>Scorpaena brasiliensis</i>	.	.	.	.	1	.	1
<i>Selene vomer</i>	.	.	.	1	3	.	4
<i>Sicyonia typica</i>	.	.	.	.	.	1	1
<i>Sphoeroides nephelus</i>	16	32	9	1	3	10	71
<i>Sphoeroides spengleri</i>	.	.	.	.	1	1	2
<i>Sphyraena barracuda</i>	2	13	16	3	15	9	58
<i>Sphyrna tiburo</i>	.	.	.	3	.	.	3
<i>Stephanolepis hispidus</i>	6	3	7	.	1	.	17
<i>Strongylura notata</i>	5	2	33	11	17	2	70
<i>Strongylura</i> sp.	.	.	1	.	.	.	1
<i>Strongylura timucu</i>	.	.	.	1	.	5	6
<i>Symphurus plagiusa</i>	1	.	.	.	.	1	2
<i>Syngnathus floridae</i>	2	.	1	3	.	9	15
<i>Syngnathus louisianae</i>	1	.	.	.	.	8	9
<i>Syngnathus scovelli</i>	41	33	48	7	6	11	146
<i>Synodus foetens</i>	27	8	3	5	5	6	54
<i>Trachinotus carolinus</i>	4	.	.	.	.	.	4
<i>Trachinotus falcatus</i>	.	.	.	4	.	.	4
Total	4,349	11,019	20,969	23,269	11,611	6,085	77,302

Effort, or total number of hauls, is labeled 'E'. Taxa are arranged alphabetically.
Selected taxa are highlighted in bold.

Table A.17: Summary by gear and stratum of taxa collected during Sarasota Bay stratified-random sampling, 2024.

Species	Gear and Strata					Total
	21.3-m bay seine			183-m haul seine		
	Veg	Unveg	Shore	Over	Nonover	
	E=57	E=25	E=36	E=32	E=4	E=154
<i>Acanthostracion quadricornis</i>	1	.	1	.	7	9
<i>Achirus lineatus</i>	5	1	3	1	.	10
<i>Albula</i> sp.	.	.	1	.	.	1
<i>Aluterus schoepfii</i>	.	.	.	4	.	4
<i>Anchoa mitchilli</i>	3,216	.	10,867	.	.	14,083
<i>Archosargus probatocephalus</i>	5	.	15	162	63	245
<i>Archosargus rhomboidalis</i>	.	.	.	1	.	1
<i>Argopecten irradians</i>	.	.	1	.	.	1
<i>Ariopsis felis</i>	2	.	.	47	9	58
<i>Astroscoptes y-graecum</i>	.	.	1	.	.	1
<i>Bagre marinus</i>	.	.	.	2	.	2
<i>Bairdiella chrysoura</i>	210	.	21	6	19	256
<i>Calamus penna</i>	2	.	.	.	.	2
<i>Calamus</i> spp.	1	3	.	.	.	4
<i>Callinectes ornatus</i>	.	1	.	1	.	2
<i>Callinectes sapidus</i>	27	7	31	64	4	133
<i>Caranx crysos</i>	.	.	.	2	.	2
<i>Caranx hippos</i>	.	1	.	15	10	26
<i>Caranx latus</i>	2	.	.	7	2	11
<i>Centropomus undecimalis</i>	1	.	2	93	45	141
<i>Centropristis striata</i>	.	.	.	.	4	4
<i>Chaetodipterus faber</i>	.	.	.	130	12	142
<i>Chilomycterus schoepfii</i>	3	.	1	21	16	41
<i>Chloroscombrus chrysurus</i>	1	.	.	.	.	1
<i>Ctenogobius smaragdus</i>	1	.	2	.	.	3
<i>Cynoscion arenarius</i>	1	.	.	.	.	1

Species	Gear and Strata					Total
	21.3-m bay seine			183-m haul seine		
	Veg	Unveg	Shore	Over	Nonover	
	E=57	E=25	E=36	E=32	E=4	E=154
<i>Cynoscion nebulosus</i>	93	1	48	28	14	184
<i>Cyprinodon variegatus</i>	.	.	10	1	.	11
<i>Diapterus auratus</i>	1	.	.	84	.	85
<i>Diodon holocanthus</i>	.	.	.	2	.	2
<i>Diplodus holbrookii</i>	1	.	4	1	.	6
<i>Dorosoma cepedianum</i>	.	.	.	6	.	6
<i>Dorosoma petenense</i>	.	.	.	22	.	22
<i>Elops saurus</i>	5	1	2	141	9	158
<i>Eucinostomus gula</i>	788	476	603	485	32	2,384
<i>Eucinostomus harengulus</i>	35	105	165	36	.	341
<i>Eucinostomus</i> spp.	7,545	896	7,733	.	.	16,174
<i>Eugerres plumieri</i>	.	.	.	1	.	1
<i>Farfantepenaeus duorarum</i>	270	20	171	5	.	466
<i>Fistularia tabacaria</i>	1	.	.	.	.	1
<i>Floridichthys carpio</i>	41	.	312	.	.	353
<i>Fundulus grandis</i>	.	.	5	6	.	11
<i>Gerres cinereus</i>	.	.	.	12	.	12
<i>Gobiosoma robustum</i>	35	3	24	.	.	62
<i>Gobiosoma</i> spp.	2	2	2	.	.	6
<i>Gymnura lessae</i>	.	.	.	1	.	1
<i>Haemulon plumierii</i>	63	.	20	.	6	89
<i>Harengula jaguana</i>	1,116	7	5,782	5	5	6,915
<i>Hippocampus erectus</i>	2	1	.	.	.	3
<i>Hippocampus zosterae</i>	4	.	4	.	.	8
<i>Hypanus americanus</i>	1	.	.	2	2	5
<i>Hypanus sabinus</i>	.	.	.	4	3	7
<i>Hypanus say</i>	.	1	.	.	.	1
<i>Hyporhamphus meeki</i>	.	1	.	.	1	2

Species	Gear and Strata					Total
	21.3-m bay seine			183-m haul seine		
	Veg	Unveg	Shore	Over	Nonover	
	E=57	E=25	E=36	E=32	E=4	E=154
<i>Hyporhamphus</i> sp.	.	1	.	.	.	1
<i>Lagodon rhomboides</i>	6,806	338	6,559	6,191	2,151	22,045
<i>Leiostomus xanthurus</i>	.	.	2	1	.	3
<i>Lucania parva</i>	3,134	35	5,810	.	.	8,979
<i>Lutjanus griseus</i>	30	2	74	101	19	226
<i>Lutjanus synagris</i>	34	.	4	1	2	41
<i>Menidia</i> spp.	8	.	133	.	.	141
<i>Menippe</i> spp.	1	.	.	1	.	2
<i>Microgobius gulosus</i>	69	10	76	.	.	155
<i>Mugil cephalus</i>	4	1	28	58	71	162
<i>Mugil curema</i>	.	.	.	143	216	359
<i>Mugil trichodon</i>	.	.	.	106	49	155
<i>Mycteroperca microlepis</i>	.	.	.	2	2	4
<i>Nicholsina usta</i>	.	.	.	1	.	1
<i>Oligoplites saurus</i>	5	1	25	4	.	35
<i>Opisthonema oglinum</i>	425	.	20	34	.	479
<i>Opsanus beta</i>	1	.	1	28	2	32
<i>Orthopristis chrysoptera</i>	383	32	122	337	457	1,331
<i>Paralichthys albigutta</i>	1	7	.	43	17	68
<i>Pogonias cromis</i>	.	.	.	5	2	7
<i>Pomatomus saltatrix</i>	.	.	.	18	.	18
<i>Portunus</i> spp.	1	2	.	.	.	3
<i>Prionotus scitulus</i>	.	3	.	1	.	4
<i>Prionotus tribulus</i>	.	.	1	.	.	1
<i>Rachycentron canadum</i>	.	.	.	1	.	1
<i>Rimapenaeus</i> spp.	.	2	.	.	.	2
<i>Sardinella aurita</i>	1	.	5	.	.	6
<i>Sarotherodon melanotheron</i>	.	.	1	1	.	2

Species	Gear and Strata					Total
	21.3-m bay seine			183-m haul seine		
	Veg	Unveg	Shore	Over	Nonover	
	E=57	E=25	E=36	E=32	E=4	E=154
<i>Sciaenops ocellatus</i>	15	.	11	30	1	57
<i>Scomberomorus maculatus</i>	2	.	1	6	5	14
<i>Scorpaena brasiliensis</i>	.	.	.	.	1	1
<i>Selene vomer</i>	.	.	.	3	1	4
<i>Sicyonia typica</i>	.	1	.	.	.	1
<i>Sphoeroides nephelus</i>	19	5	27	17	3	71
<i>Sphoeroides spengleri</i>	1	.	1	.	.	2
<i>Sphyraena barracuda</i>	.	.	.	56	2	58
<i>Sphyrna tiburo</i>	.	.	.	1	2	3
<i>Stephanolepis hispida</i>	8	1	2	6	.	17
<i>Strongylura notata</i>	8	7	24	26	5	70
<i>Strongylura</i> sp.	.	.	1	.	.	1
<i>Strongylura timucu</i>	.	.	6	.	.	6
<i>Symphurus plagiusa</i>	1	.	1	.	.	2
<i>Syngnathus floridae</i>	13	.	2	.	.	15
<i>Syngnathus louisianae</i>	3	2	4	.	.	9
<i>Syngnathus scovelli</i>	77	4	65	.	.	146
<i>Synodus foetens</i>	27	16	2	4	5	54
<i>Trachinotus carolinus</i>	.	.	.	4	.	4
<i>Trachinotus falcatus</i>	.	.	.	.	4	4
Total	24,558	1,997	38,839	8,628	3,280	77,302

Sampling with 21.3-m bay seine was stratified by the presence or absence of a shoreline ('Shore' or offshore) within 5-m. Offshore sets were further stratified by the presence or absence of bottom vegetation ('Veg' or 'Unveg'). Sampling with 183-m haul seine was stratified by the presence or absence of overhanging vegetation ('Over' or 'Nonover'). Effort, or the total number of hauls, is labeled 'E'. Taxa are arranged alphabetically. Selected taxa are highlighted in bold.

Table A.18: Summary by zone of taxa collected during Sarasota Bay stratified-random sampling, 2024.

Species	Zone					Total
	A	B	C	D	E	
	E=24	E=48	E=28	E=24	E=30	E=154
<i>Acanthostracion quadricornis</i>	.	8	1	.	.	9
<i>Achirus lineatus</i>	3	1	3	1	2	10
<i>Albula</i> sp.	.	1	.	.	.	1
<i>Aluterus schoepfii</i>	.	.	.	.	4	4
<i>Anchoa mitchilli</i>	2,738	1	48	11,239	57	14,083
<i>Archosargus probatocephalus</i>	24	81	26	57	57	245
<i>Archosargus rhomboidalis</i>	.	.	.	.	1	1
<i>Argopecten irradians</i>	1	.	.	.	.	1
<i>Ariopsis felis</i>	3	11	6	30	8	58
<i>Astroscopus y-graecum</i>	.	.	1	.	.	1
<i>Bagre marinus</i>	.	.	.	2	.	2
<i>Bairdiella chrysoura</i>	62	84	39	29	42	256
<i>Calamus penna</i>	.	1	.	1	.	2
<i>Calamus</i> spp.	1	1	1	1	.	4
<i>Callinectes ornatus</i>	1	1	.	.	.	2
<i>Callinectes sapidus</i>	23	48	15	25	22	133
<i>Caranx crysos</i>	.	2	.	.	.	2
<i>Caranx hippos</i>	1	11	2	11	1	26
<i>Caranx latus</i>	.	6	4	1	.	11
<i>Centropomus undecimalis</i>	5	109	9	4	14	141
<i>Centropristis striata</i>	.	4	.	.	.	4
<i>Chaetodipterus faber</i>	4	15	.	.	123	142
<i>Chilomycterus schoepfii</i>	3	16	5	5	12	41
<i>Chloroscombrus chrysurus</i>	.	1	.	.	.	1
<i>Ctenogobius smaragdus</i>	.	.	.	.	3	3
<i>Cynoscion arenarius</i>	.	1	.	.	.	1
<i>Cynoscion nebulosus</i>	70	33	15	30	36	184

Species	Zone					Total
	A	B	C	D	E	
	E=24	E=48	E=28	E=24	E=30	E=154
<i>Cyprinodon variegatus</i>	9	1	.	.	1	11
<i>Diapterus auratus</i>	.	2	2	53	28	85
<i>Diodon holocanthus</i>	.	.	.	.	2	2
<i>Diplodus holbrookii</i>	.	2	3	.	1	6
<i>Dorosoma cepedianum</i>	.	.	.	6	.	6
<i>Dorosoma petenense</i>	22	.	.	.	.	22
<i>Elops saurus</i>	120	2	8	19	9	158
<i>Eucinostomus gula</i>	316	639	568	407	454	2,384
<i>Eucinostomus harengulus</i>	44	116	41	98	42	341
<i>Eucinostomus</i> spp.	3,424	6,163	1,815	1,114	3,658	16,174
<i>Eugerres plumieri</i>	.	.	.	1	.	1
<i>Farfantepenaeus duorarum</i>	149	84	36	22	175	466
<i>Fistularia tabacaria</i>	.	1	.	.	.	1
<i>Floridichthys carpio</i>	189	119	45	.	.	353
<i>Fundulus grandis</i>	6	1	3	1	.	11
<i>Gerres cinereus</i>	.	2	.	9	1	12
<i>Gobiosoma robustum</i>	11	9	36	4	2	62
<i>Gobiosoma</i> spp.	.	3	1	.	2	6
<i>Gymnura lessae</i>	.	.	.	1	.	1
<i>Haemulon plumieri</i>	.	67	7	.	15	89
<i>Harengula jaguana</i>	6,171	616	37	68	23	6,915
<i>Hippocampus erectus</i>	.	1	.	.	2	3
<i>Hippocampus zosterae</i>	4	2	1	.	1	8
<i>Hypanus americanus</i>	1	3	.	.	1	5
<i>Hypanus sabinus</i>	.	3	.	1	3	7
<i>Hypanus say</i>	1	.	.	.	.	1
<i>Hyporhamphus meeki</i>	1	.	.	1	.	2
<i>Hyporhamphus</i> sp.	1	.	.	.	.	1
<i>Lagodon rhomboides</i>	2,761	8,143	4,346	3,407	3,388	22,045

Species	Zone					Total
	A	B	C	D	E	
	E=24	E=48	E=28	E=24	E=30	E=154
<i>Leiostomus xanthurus</i>	.	.	2	1	.	3
<i>Lucania parva</i>	6,092	1,545	92	328	922	8,979
<i>Lutjanus griseus</i>	15	48	29	36	98	226
<i>Lutjanus synagris</i>	1	10	2	.	28	41
<i>Menidia</i> spp.	13	.	84	1	43	141
<i>Menippe</i> spp.	.	1	.	.	1	2
<i>Microgobius gulosus</i>	36	13	42	27	37	155
<i>Mugil cephalus</i>	5	40	27	79	11	162
<i>Mugil curema</i>	84	63	1	211	.	359
<i>Mugil trichodon</i>	66	36	2	46	5	155
<i>Mycteroperca microlepis</i>	.	3	.	.	1	4
<i>Nicholsina usta</i>	.	1	.	.	.	1
<i>Oligoplites saurus</i>	7	24	4	.	.	35
<i>Opisthonema oglinum</i>	277	192	4	6	.	479
<i>Opsanus beta</i>	4	16	.	1	11	32
<i>Orthopristis chrysoptera</i>	29	618	281	57	346	1,331
<i>Paralichthys albigutta</i>	3	20	3	7	35	68
<i>Pogonias cromis</i>	.	1	.	6	.	7
<i>Pomatomus saltatrix</i>	.	18	.	.	.	18
<i>Portunus</i> spp.	.	1	.	.	2	3
<i>Prionotus scitulus</i>	1	1	.	.	2	4
<i>Prionotus tribulus</i>	1	.	.	.	.	1
<i>Rachycentron canadum</i>	1	.	.	.	.	1
<i>Rimapenaeus</i> spp.	.	.	.	.	2	2
<i>Sardinella aurita</i>	.	1	.	.	5	6
<i>Sarotherodon melanotheron</i>	2	.	.	.	.	2
<i>Sciaenops ocellatus</i>	8	16	5	5	23	57
<i>Scomberomorus maculatus</i>	1	5	.	8	.	14
<i>Scorpaena brasiliensis</i>	.	1	.	.	.	1

Species	Zone					Total
	A	B	C	D	E	
	E=24	E=48	E=28	E=24	E=30	E=154
<i>Selene vomer</i>	.	2	.	2	.	4
<i>Sicyonia typica</i>	.	.	.	.	1	1
<i>Sphoeroides nephelus</i>	6	15	37	3	10	71
<i>Sphoeroides spengleri</i>	.	1	.	.	1	2
<i>Sphyraena barracuda</i>	2	39	1	2	14	58
<i>Sphyrna tiburo</i>	1	2	.	.	.	3
<i>Stephanolepis hispidus</i>	.	5	5	1	6	17
<i>Strongylura notata</i>	16	11	7	11	25	70
<i>Strongylura</i> sp.	.	.	1	.	.	1
<i>Strongylura timucu</i>	.	5	1	.	.	6
<i>Symphurus plagiusa</i>	.	.	1	1	.	2
<i>Syngnathus floridae</i>	2	11	1	.	1	15
<i>Syngnathus louisianae</i>	.	4	1	1	3	9
<i>Syngnathus scovelli</i>	57	29	27	10	23	146
<i>Synodus foetens</i>	5	20	10	8	11	54
<i>Trachinotus carolinus</i>	3	.	.	1	.	4
<i>Trachinotus falcatus</i>	.	4	.	.	.	4
Total	22,907	19,237	7,794	17,507	9,857	77,302

Zones A–E are the five embayments designated by the Sarasota Bay Estuary Program. Effort, or the total number of hauls, is labeled 'E'. Taxa are arranged alphabetically. Selected taxa are highlighted in bold.

A.7 Charlotte Harbor

Table A.19: Monthly summary of taxa collected during Charlotte Harbor stratified-random sampling, 2024.

Species	Month												Total
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
	E=123	E=93	E=57	E=117	E=57	E=93	E=81	E=93	E=99	E=117	E=99	E=93	
<i>Acanthostracion quadricornis</i>	24	1	28	23	6	21	14	1	6	20	17	3	164
<i>Achiridae</i> spp.	.	.	.	.	.	.	.	.	.	.	.	2	2
<i>Achirus lineatus</i>	15	13	3	18	2	5	11	9	5	55	21	40	197
<i>Albula</i> spp.	3	.	.	.	.	.	.	.	.	.	.	1	4
<i>Aluterus schoepfii</i>	.	.	1	.	.	.	1	3	.	.	.	.	5
<i>Anarchopterus criniger</i>	2	.	.	4	.	.	4	.	.	.	1	.	11
<i>Anchoa hepsetus</i>	.	.	.	.	.	.	.	.	.	42	.	.	42
<i>Anchoa mitchilli</i>	3,113	2,462	2,938	4,019	1	481	12	186	4,703	10,388	5,158	3,801	37,262
<i>Ancylosetta quadrocellata</i>	1	.	2	.	.	.	.	.	.	1	.	.	4
<i>Archosargus probatocephalus</i>	38	64	89	142	126	84	71	101	93	61	87	223	1,179
<i>Archosargus rhomboidalis</i>	.	.	.	.	.	.	.	.	4	.	.	.	4
<i>Archosargus</i> spp.	1	.	.	.	.	.	.	1	.	.	1	.	3
<i>Argopecten gibbus</i>	.	.	.	.	.	.	3	.	.	.	.	.	3
<i>Ariopsis felis</i>	16	34	105	114	97	688	78	109	183	174	157	122	1,877
<i>Bagre marinus</i>	.	2	22	.	5	10	12	.	9	7	4	.	71
<i>Bairdiella chrysoura</i>	22	463	18	26	1,329	162	589	172	298	164	46	64	3,353
<i>Bathygobius soporator</i>	6	10	.	1	.	.	.	1	.	16	2	35	71
<i>Brevoortia</i> spp.	.	.	.	3	.	.	.	.	.	.	.	3	6
<i>Calamus penna</i>	3	.	26	7	13	4	.	.	1	.	.	.	54
<i>Calamus</i> spp.	2	.	2	.	1	.	.	.	.	.	.	.	5

Species	Month												Total
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
	E=123	E=93	E=57	E=117	E=57	E=93	E=81	E=93	E=99	E=117	E=99	E=93	
<i>Callinectes ornatus</i>	1	2	1	1	.	.	12	.	1	3	.	.	21
<i>Callinectes sapidus</i>	108	47	74	77	69	29	72	36	38	81	85	141	857
<i>Caranx hippos</i>	17	4	3	10	8	2	12	1	5	1	8	61	132
<i>Caranx latus</i>	.	4	1	.	1	.	.	1	2	10	1	.	20
<i>Carcharhinus leucas</i>	.	.	.	.	.	.	.	.	2	1	.	.	3
<i>Carcharhinus limbatus</i>	.	.	.	.	1	.	.	.	.	.	.	.	1
<i>Centropomus undecimalis</i>	21	90	185	80	38	106	52	130	89	144	155	291	1,381
<i>Chaetodipterus faber</i>	1	.	1	3	30	22	72	171	49	72	23	3	447
<i>Chasmodes saburrae</i>	3	7	5	2	9	9	29	2	17	.	1	.	84
<i>Chilomycterus schoepfii</i>	44	16	43	48	16	6	63	18	35	43	86	29	447
<i>Chloroscombrus chrysurus</i>	16	.	.	7	4	.	2	1	3	16	2	.	51
<i>Citharichthys macrops</i>	.	.	.	.	.	1	.	1	.	3	.	1	6
<i>Ctenogobius boleosoma</i>	.	.	1	.	1	.	.	.	.	.	.	1	3
<i>Ctenogobius smaragdus</i>	.	.	.	.	.	.	.	.	.	1	6	8	15
<i>Cynoscion arenarius</i>	3	.	6	.	.	.	2	1	44	119	164	.	339
<i>Cynoscion nebulosus</i>	3	8	10	3	26	14	43	46	137	75	37	32	434
<i>Cyprinodon variegatus</i>	77	93	.	19	3	4	.	.	2	2	.	12	212
<i>Diapterus auratus</i>	6	13	7	20	8	85	24	137	28	7	232	566	1,133
<i>Diodon holocanthus</i>	.	1	.	.	.	.	.	.	.	2	.	.	3
<i>Diplectrum formosum</i>	19	2	.	5	1	.	.	.	.	4	.	1	32
<i>Diplodus holbrookii</i>	.	.	.	1	.	2	.	1	.	1	.	.	5
<i>Dorosoma petenense</i>	.	.	.	.	.	.	.	1	.	.	2	.	3
<i>Echeneis neucratoides</i>	1	.	.	2	.	.	1	.	.	.	.	.	4

Species	Month												Total
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
	E=123	E=93	E=57	E=117	E=57	E=93	E=81	E=93	E=99	E=117	E=99	E=93	
<i>Echeneis</i> sp.	.	.	.	1	.	.	.	.	.	.	.	.	1
<i>Elops saurus</i>	1	12	18	46	3	69	4	4	92	54	160	134	597
<i>Epinephelus itajara</i>	.	.	.	.	1	.	.	.	.	.	.	.	1
<i>Epinephelus morio</i>	.	.	.	.	.	.	1	.	.	1	.	.	2
<i>Etropus crossotus</i>	2	2	.	.	.	.	11	.	.	22	.	1	38
<i>Eucinostomus gula</i>	1,252	858	1,120	1,103	735	167	982	449	383	378	325	189	7,941
<i>Eucinostomus harengulus</i>	477	348	188	1,839	327	591	221	582	274	86	186	226	5,345
<i>Eucinostomus</i> spp.	5,853	4,750	1,000	1,718	786	2,969	1,856	2,338	6,999	4,747	3,253	3,599	39,868
<i>Eugerres plumieri</i>	166	69	15	29	27	145	53	1,066	348	224	78	37	2,257
<i>Farfantepenaeus duorarum</i>	138	89	86	43	9	160	139	167	141	441	398	57	1,868
<i>Floridichthys carpio</i>	72	132	99	304	49	71	77	19	10	18	58	95	1,004
<i>Fundulus confluentus</i>	.	13	.	.	.	.	.	.	.	.	.	.	13
<i>Fundulus grandis</i>	31	21	.	177	.	11	.	.	1	58	.	8	307
<i>Fundulus similis</i>	26	3	1	.	.	.	.	1	.	2	.	1	34
<i>Fundulus xenicus</i>	.	1	.	3	.	.	.	.	.	2	.	1	7
<i>Gambusia holbrooki</i>	7	38	.	.	.	2	.	1	3	574	.	41	666
<i>Gerreidae</i> spp.	.	.	.	.	.	.	.	1	.	.	.	1	2
<i>Gerres cinereus</i>	1	.	.	.	1	1	.	.	.	.	.	9	12
<i>Gobiesox strumosus</i>	1	1	.	.	.	.	.	3	.	.	.	2	7
<i>Gobionellus oceanicus</i>	.	.	.	.	.	.	.	.	.	.	1	1	2
<i>Gobiosoma bosc</i>	5	7	1	2	.	5	.	1	5	4	3	2	35
<i>Gobiosoma longipala</i>	.	.	.	6	.	.	.	.	.	.	.	.	6
<i>Gobiosoma robustum</i>	80	84	48	47	9	60	19	7	2	2	6	45	409

Species	Month												Total
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
	E=123	E=93	E=57	E=117	E=57	E=93	E=81	E=93	E=99	E=117	E=99	E=93	
<i>Gobiosoma</i> spp.	17	11	.	10	.	11	8	6	4	20	14	20	121
<i>Haemulon aurolineatum</i>	.	.	.	.	.	.	2	.	.	1	.	.	3
<i>Haemulon plumierii</i>	1	9	1	8	23	19	50	19	7	48	11	7	203
<i>Harengula jaguana</i>	8	28	29	61	15	109	43	264	8,839	1,725	2,215	1	13,337
<i>Hemiramphus brasiliensis</i>	.	.	.	.	1	.	.	.	.	.	.	.	1
<i>Hippocampus erectus</i>	8	.	2	9	5	.	3	.	.	.	.	1	28
<i>Hippocampus zosterae</i>	3	4	1	1	2	.	1	.	.	.	1	1	14
<i>Hypanus americanus</i>	.	1	5	3	9	1	.	1	.	3	1	1	25
<i>Hypanus sabinus</i>	2	5	8	4	.	10	10	.	23	6	4	46	118
<i>Hypanus say</i>	1	2	2	.	3	5	3	1	1	4	1	.	23
<i>Hyporhamphus meeki</i>	2	1	.	10	.	.	.	.	12	.	2	.	27
<i>Hyporhamphus</i> spp.	.	.	.	.	.	1	.	.	2	.	.	.	3
<i>Hyporhamphus unifasciatus</i>	.	.	.	1	.	.	.	.	.	.	.	4	5
<i>Hypsoblennius hertz</i>	1	.	.	.	.	.	2	.	.	.	.	.	3
<i>Kyphosus sectatrix</i>	.	.	.	.	.	.	.	.	2	.	.	.	2
<i>Lactophrys trigonus</i>	.	.	.	.	.	.	1	1	.	1	.	.	3
<i>Lagodon rhomboides</i>	422	1,100	3,765	8,384	5,451	3,572	4,661	3,869	2,870	5,541	1,254	1,105	41,994
<i>Leiostomus xanthurus</i>	1	2	4	2	.	2	.	.	.	.	.	.	11
<i>Lepisosteus osseus</i>	.	.	.	.	.	.	1	.	.	.	.	.	1
<i>Lepisosteus platyrhincus</i>	.	.	.	.	.	.	.	.	.	4	1	.	5
<i>Lepomis macrochirus</i>	.	.	.	.	.	.	.	1	.	2	.	.	3
<i>Lepomis</i> sp.	.	.	.	.	.	.	.	.	1	.	.	.	1
<i>Limulus polyphemus</i>	.	.	1	.	.	.	1	2	4	4	2	.	14

Species	Month												Total
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
	E=123	E=93	E=57	E=117	E=57	E=93	E=81	E=93	E=99	E=117	E=99	E=93	
<i>Lophogobius cyprinoides</i>	1	17	.	5	.	4	.	9	27	220	14	22	319
<i>Lucania parva</i>	2,169	1,196	321	1,037	1,972	4,290	977	1,477	373	147	657	133	14,749
<i>Luţjanus analis</i>	.	.	.	.	12	.	.	.	1	2	1	.	16
<i>Luţjanus griseus</i>	8	5	10	13	19	56	78	71	59	67	27	16	429
<i>Luţjanus synagris</i>	12	2	.	4	43	25	22	4	17	41	8	2	180
<i>Mayaheros urophthalmus</i>	1	.	.	.	.	2	.	10	3	77	2	7	102
<i>Megalops atlanticus</i>	.	.	1	.	.	.	.	37	1	8	1	.	48
<i>Membras martinica</i>	.	.	.	.	.	2	.	.	139	.	.	.	141
<i>Menidia</i> spp.	749	700	32	977	272	1,122	74	1,966	719	328	483	325	7,747
<i>Menippe</i> spp.	14	.	.	9	1	.	12	.	.	39	.	.	75
<i>Menticirrhus americanus</i>	3	.	14	1	1	1	2	1	7	58	30	4	122
<i>Menticirrhus littoralis</i>	.	1	.	.	.	.	.	.	.	.	.	.	1
<i>Menticirrhus saxatilis</i>	2	3	1	1	.	.	.	.	.	3	6	1	17
<i>Menticirrhus</i> spp.	.	.	.	.	.	.	.	.	.	.	2	.	2
<i>Microgobius gulosus</i>	159	174	69	120	138	490	136	300	130	223	120	123	2,182
<i>Monacanthus ciliatus</i>	3	.	.	.	.	.	4	.	.	.	1	1	9
<i>Monopterus albus</i>	.	.	.	.	.	.	.	.	.	1	.	.	1
<i>Mugil cephalus</i>	139	236	42	35	11	17	2	29	6	24	56	145	742
<i>Mugil curema</i>	23	2	6	3	5	1	.	14	2	.	.	16	72
<i>Mugil trichodon</i>	11	42	30	35	18	8	7	8	9	7	12	79	266
<i>Mycteroperca microlepis</i>	.	.	.	.	1	.	3	6	5	3	.	1	19
<i>Negaprion brevirostris</i>	.	.	.	5	.	.	1	.	3	.	1	1	11
<i>Nicholsina usta</i>	1	.	.	1	14	55	.	.	.	1	.	.	72

Species	Month												Total
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
	E=123	E=93	E=57	E=117	E=57	E=93	E=81	E=93	E=99	E=117	E=99	E=93	
<i>Ocyurus chrysurus</i>	.	1	.	.	47	.	.	.	1	.	.	.	49
<i>Ogcocephalus cubifrons</i>	3	1	.	.	.	.	.	1	.	2	1	2	10
<i>Oligoplites saurus</i>	.	27	1	3	4	27	8	41	66	21	2	1	201
<i>Opisthonema oglinum</i>	.	63	1	3	23	92	64	582	3,464	270	2,243	1	6,806
<i>Opsanus beta</i>	12	6	5	10	12	11	45	10	10	14	3	2	140
<i>Oreochromis aureus</i>	.	.	.	.	.	.	.	.	.	4	.	.	4
<i>Sarotherodon</i> spp.	.	.	.	.	1	6	.	2	.	.	.	.	9
<i>Orthopristis chrysoptera</i>	3	30	99	629	285	105	321	100	184	157	29	10	1,952
<i>Paraclinus marmoratus</i>	.	.	.	.	.	.	.	.	.	1	.	.	1
<i>Paralichthys albigutta</i>	.	3	7	3	19	4	10	6	20	15	25	12	124
<i>Poecilia latipinna</i>	4	412	.	5	.	35	.	6	.	60	.	26	548
<i>Pogonias cromis</i>	.	.	.	.	2	.	.	3	2	1	25	3	36
<i>Portunus</i> spp.	60	7	1	96	.	.	22	.	.	17	.	.	203
<i>Prionotus rubio</i>	.	.	.	.	.	.	.	.	.	1	.	.	1
<i>Prionotus scitulus</i>	68	16	4	26	.	1	170	.	1	48	9	8	351
<i>Prionotus tribulus</i>	10	2	1	1	.	1	1	.	.	2	5	7	30
<i>Pristis pectinata</i>	1	.	.	1	.	.	.	.	.	.	.	.	2
<i>Rhinoptera bonasus</i>	.	.	.	1	.	.	.	.	.	3	.	.	4
<i>Rimapenaeus constrictus</i>	2	.	.	.	.	.	.	.	.	.	.	.	2
<i>Rimapenaeus</i> spp.	1	.	.	.	.	.	1	.	.	11	1	.	14
<i>Sardinella aurita</i>	.	.	.	.	.	.	.	89	180	16	.	.	285
<i>Sarotherodon melanotheron</i>	8	5	.	.	.	.	.	4	1	1	.	.	19
<i>Sciaenops ocellatus</i>	69	31	24	18	16	10	7	9	33	57	529	130	933

Species	Month												Total
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
	E=123	E=93	E=57	E=117	E=57	E=93	E=81	E=93	E=99	E=117	E=99	E=93	
<i>Scomberomorus maculatus</i>	.	.	.	.	.	.	.	.	.	1	.	.	1
<i>Scorpaena brasiliensis</i>	4	.	.	7	.	.	3	1	.	1	.	.	16
<i>Scorpaena calcarata</i>	.	.	.	.	.	.	.	.	.	1	.	.	1
<i>Selene vomer</i>	.	.	.	35	.	.	18	1	1	.	2	1	58
<i>Serraniculus pumilio</i>	7	.	.	.	.	.	.	.	.	2	.	.	9
<i>Serranus subligarius</i>	1	.	.	.	.	.	.	.	.	.	.	.	1
<i>Sicyonia laevigata</i>	.	.	1	.	.	.	2	.	.	.	.	.	3
<i>Sicyonia typica</i>	6	.	.	.	.	.	.	.	.	.	.	.	6
<i>Sphoeroides nephelus</i>	46	31	33	41	21	10	19	22	13	19	39	32	326
<i>Sphoeroides spengleri</i>	5	.	.	.	1	1	8	1	.	2	1	2	21
<i>Sphyraena barracuda</i>	.	15	6	5	3	5	2	2	2	9	1	8	58
<i>Sphyraena borealis</i>	.	.	.	2	1	.	.	.	.	.	.	.	3
<i>Sphyrna tiburo</i>	.	.	2	1	4	1	1	.	2	3	2	1	17
<i>Stephanolepis hispidus</i>	24	2	2	12	6	.	24	2	1	5	1	9	88
<i>Strongylura marina</i>	28	.	4	3	6	10	3	3	6	6	.	18	87
<i>Strongylura notata</i>	31	65	52	141	36	144	70	121	73	35	34	107	909
<i>Strongylura</i> spp.	.	1	.	2	.	.	.	.	.	.	1	1	5
<i>Strongylura timucu</i>	4	1	1	2	1	1	1	1	3	2	3	15	35
<i>Symphurus plagiusa</i>	20	1	7	1	.	.	4	.	1	32	27	87	180
<i>Syngnathus floridae</i>	7	3	.	4	6	1	11	.	2	5	.	2	41
<i>Syngnathus louisianae</i>	10	.	.	6	2	2	7	.	.	2	3	9	41
<i>Syngnathus scovelli</i>	67	54	43	69	52	26	65	1	3	8	7	6	401
<i>Synodus foetens</i>	15	10	15	8	4	1	19	2	1	5	3	13	96

Species	Month												Total
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
	E=123	E=93	E=57	E=117	E=57	E=93	E=81	E=93	E=99	E=117	E=99	E=93	
<i>Trachinotus carolinus</i>	8	.	4	1	.	.	.	.	.	.	2	5	20
<i>Trachinotus falcatus</i>	7	5	.	6	4	1	10	2	.	.	2	.	37
<i>Trinectes maculatus</i>	8	.	8	9	.	1	94	4	126	182	39	43	514
<i>Tylosurus crocodilus</i>	.	.	.	.	.	.	.	3	1	.	2	.	6
Total	15,978	14,097	10,812	21,843	12,314	16,285	11,656	14,884	31,475	27,755	18,732	12,512	208,343

Effort, or total number of hauls, is labeled 'E'. Taxa are arranged alphabetically. Selected taxa are highlighted in bold.

Table A.20: Summary by gear and stratum of taxa collected during Charlotte Harbor stratified-random sampling, 2024.

Species	Gear and Strata								Total
	21.3-m bay seine			21.3-m river seine		183-m haul seine		6.1-m otter trawl	
	Veg	Unveg	Shore	Over	Nonover	Over	Nonover		
	E=135	E=69	E=204	E=315	E=63	E=156	E=48	E=132	
<i>Acanthostracion quadricornis</i>	4	.	1	.	.	22	78	59	164
<i>Achiridae</i> spp.	.	.	.	2	.	.	.	.	2
<i>Achirus lineatus</i>	6	7	40	79	10	4	1	50	197
<i>Albula</i> spp.	.	1	1	.	2	.	.	.	4
<i>Aluterus schoepfii</i>	.	.	.	.	.	1	4	.	5
<i>Anarchopterus criniger</i>	.	.	4	.	.	.	.	7	11
<i>Anchoa hepsetus</i>	1	.	.	.	.	.	.	41	42
<i>Anchoa mitchilli</i>	1,354	691	16,419	11,650	2,062	.	.	5,086	37,262
<i>Ancylosetta quadrocellata</i>	.	.	.	.	.	2	.	2	4
<i>Archosargus probatocephalus</i>	80	4	71	77	33	789	103	22	1,179
<i>Archosargus rhomboidalis</i>	.	.	.	.	.	.	4	.	4
<i>Archosargus</i> spp.	.	.	.	.	.	3	.	.	3
<i>Argopecten gibbus</i>	.	.	.	.	.	.	.	3	3
<i>Ariopsis felis</i>	31	127	43	12	.	1,398	166	100	1,877
<i>Bagre marinus</i>	2	.	.	.	.	47	8	14	71
<i>Bairdiella chrysoura</i>	807	7	252	14	1	1,461	266	545	3,353
<i>Bathygobius soporator</i>	.	.	1	28	42	.	.	.	71
<i>Brevoortia</i> spp.	.	.	.	4	.	2	.	.	6
<i>Calamus penna</i>	4	.	2	.	.	28	20	.	54
<i>Calamus</i> spp.	2	1	2	.	.	.	.	.	5
<i>Callinectes ornatus</i>	2	.	4	.	.	.	.	15	21
<i>Callinectes sapidus</i>	51	41	141	145	48	154	105	172	857
<i>Caranx hippos</i>	.	.	1	1	.	118	12	.	132
<i>Caranx latus</i>	.	.	.	.	.	18	2	.	20
<i>Carcharhinus leucas</i>	.	.	.	.	.	2	1	.	3
<i>Carcharhinus limbatus</i>	.	.	.	.	.	1	.	.	1

Species	Gear and Strata								Total
	21.3-m bay seine			21.3-m river seine		183-m haul seine		6.1-m otter trawl	
	Veg	Unveg	Shore	Over	Nonover	Over	Nonover		
	E=135	E=69	E=204	E=315	E=63	E=156	E=48	E=132	E=1,122
<i>Centropomus undecimalis</i>	1	1	30	425	8	821	95	.	1,381
<i>Chaetodipterus faber</i>	6	.	2	.	.	344	48	47	447
<i>Chasmodes saburrae</i>	25	.	46	1	4	1	.	7	84
<i>Chilomycterus schoepfii</i>	22	.	4	1	.	189	117	114	447
<i>Chloroscombrus chrysurus</i>	5	.	3	.	.	7	7	29	51
<i>Citharichthys macrops</i>	.	1	.	.	.	2	.	3	6
<i>Ctenogobius boleosoma</i>	2	.	.	1	.	.	.	.	3
<i>Ctenogobius smaragdus</i>	.	.	5	10	.	.	.	.	15
<i>Cynoscion arenarius</i>	1	10	33	24	5	.	.	266	339
<i>Cynoscion nebulosus</i>	125	20	144	5	1	96	20	23	434
<i>Cyprinodon variegatus</i>	1	.	72	129	10	.	.	.	212
<i>Diapterus auratus</i>	.	.	15	355	4	728	31	.	1,133
<i>Diodon holocanthus</i>	.	.	.	.	.	1	2	.	3
<i>Diplectrum formosum</i>	.	.	.	.	.	3	3	26	32
<i>Diplodus holbrookii</i>	1	.	.	.	.	.	4	.	5
<i>Dorosoma petenense</i>	.	.	.	1	1	.	.	1	3
<i>Echeneis neucratoides</i>	.	.	.	.	.	4	.	.	4
<i>Echeneis</i> sp.	.	.	.	.	.	.	1	.	1
<i>Elops saurus</i>	.	1	1	5	2	512	76	.	597
<i>Epinephelus itajara</i>	.	.	1	.	.	.	.	.	1
<i>Epinephelus morio</i>	.	.	.	.	.	.	.	2	2
<i>Etropus crossotus</i>	.	.	.	.	.	3	.	35	38
<i>Eucinostomus gula</i>	988	309	2,380	750	58	2,330	275	851	7,941
<i>Eucinostomus harengulus</i>	110	169	1,053	2,011	316	1,619	37	30	5,345
<i>Eucinostomus</i> spp.	6,046	1,611	15,702	14,059	1,965	.	.	485	39,868
<i>Eugerres plumieri</i>	1	36	224	1,434	207	345	1	9	2,257
<i>Farfantepenaeus duorarum</i>	483	106	642	334	13	8	.	282	1,868
<i>Floridichthys carpio</i>	33	.	810	135	26	.	.	.	1,004

Species	Gear and Strata								Total
	21.3-m bay seine			21.3-m river seine		183-m haul seine		6.1-m otter trawl	
	Veg	Unveg	Shore	Over	Nonover	Over	Nonover		
	E=135	E=69	E=204	E=315	E=63	E=156	E=48	E=132	E=1,122
<i>Fundulus confluentus</i>	.	.	.	13	.	.	.	.	13
<i>Fundulus grandis</i>	.	.	53	103	131	20	.	.	307
<i>Fundulus similis</i>	.	.	4	25	4	.	1	.	34
<i>Fundulus xenicus</i>	.	.	1	3	3	.	.	.	7
<i>Gambusia holbrooki</i>	.	.	4	576	86	.	.	.	666
<i>Gerreidae</i> spp.	.	.	.	2	.	.	.	.	2
<i>Gerres cinereus</i>	.	.	.	.	.	11	1	.	12
<i>Gobiesox strumosus</i>	.	.	2	3	2	.	.	.	7
<i>Gobionellus oceanicus</i>	.	.	1	1	.	.	.	.	2
<i>Gobiosoma bosc</i>	.	.	8	20	7	.	.	.	35
<i>Gobiosoma longipala</i>	.	.	.	.	.	.	.	6	6
<i>Gobiosoma robustum</i>	143	4	153	66	26	.	.	17	409
<i>Gobiosoma</i> spp.	25	6	29	48	5	.	.	8	121
<i>Haemulon aurolineatum</i>	2	.	.	.	.	.	.	1	3
<i>Haemulon plumierii</i>	71	2	23	.	.	14	80	13	203
<i>Harengula jaguana</i>	1,584	147	4,483	6,519	.	537	60	7	13,337
<i>Hemiramphus brasiliensis</i>	.	.	.	.	.	.	1	.	1
<i>Hippocampus erectus</i>	4	.	1	.	.	.	4	19	28
<i>Hippocampus zosterae</i>	8	.	5	.	.	.	.	1	14
<i>Hypanus americanus</i>	.	.	.	.	.	18	7	.	25
<i>Hypanus sabinus</i>	.	.	6	.	.	105	4	3	118
<i>Hypanus say</i>	1	.	.	1	.	16	2	3	23
<i>Hyporhamphus meeki</i>	7	.	.	.	.	.	20	.	27
<i>Hyporhamphus</i> spp.	2	.	.	1	.	.	.	.	3
<i>Hyporhamphus unifasciatus</i>	1	.	.	.	.	.	4	.	5
<i>Hypsoblennius hentz</i>	.	.	1	.	.	.	.	2	3
<i>Kyphosus sectatrix</i>	.	.	.	.	.	2	.	.	2
<i>Lactophrys trigonus</i>	.	.	.	.	.	1	1	1	3

Species	Gear and Strata								Total
	21.3-m bay seine			21.3-m river seine		183-m haul seine		6.1-m otter trawl	
	Veg	Unveg	Shore	Over	Nonover	Over	Nonover		
	E=135	E=69	E=204	E=315	E=63	E=156	E=48	E=132	E=1,122
<i>Lagodon rhomboides</i>	9,856	178	5,520	260	15	18,225	4,598	3,342	41,994
<i>Leiostomus xanthurus</i>	.	.	5	4	.	1	1	.	11
<i>Lepisosteus osseus</i>	.	.	.	.	.	.	.	1	1
<i>Lepisosteus platyrhincus</i>	.	.	.	3	.	2	.	.	5
<i>Lepomis macrochirus</i>	.	.	.	2	1	.	.	.	3
<i>Lepomis</i> sp.	.	.	.	.	1	.	.	.	1
<i>Limulus polyphemus</i>	.	1	2	2	.	9	.	.	14
<i>Lophogobius cyprinoides</i>	.	.	3	134	182	.	.	.	319
<i>Lucania parva</i>	3,565	319	3,754	6,919	191	.	.	1	14,749
<i>Lutjanus analis</i>	.	.	.	.	.	12	4	.	16
<i>Lutjanus griseus</i>	39	21	65	44	23	136	74	27	429
<i>Lutjanus synagris</i>	19	2	14	.	.	25	63	57	180
<i>Mayaheros urophthalmus</i>	.	.	2	73	26	1	.	.	102
<i>Megalops atlanticus</i>	.	.	1	40	.	7	.	.	48
<i>Membras martinica</i>	.	1	137	3	.	.	.	.	141
<i>Menidia</i> spp.	19	74	1,071	5,880	703	.	.	.	7,747
<i>Menippe</i> spp.	.	2	2	.	.	.	.	71	75
<i>Menticirrhus americanus</i>	3	11	23	1	.	10	1	73	122
<i>Menticirrhus littoralis</i>	.	.	.	.	.	.	1	.	1
<i>Menticirrhus saxatilis</i>	1	.	14	.	.	.	.	2	17
<i>Menticirrhus</i> spp.	.	.	2	.	.	.	.	.	2
<i>Microgobius gulosus</i>	484	177	819	576	75	.	.	51	2,182
<i>Monacanthus ciliatus</i>	1	.	1	.	.	.	.	7	9
<i>Monopterus albus</i>	.	.	.	1	.	.	.	.	1
<i>Mugil cephalus</i>	4	1	163	132	7	365	70	.	742
<i>Mugil curema</i>	.	.	1	1	.	65	5	.	72
<i>Mugil trichodon</i>	2	.	13	35	3	181	32	.	266
<i>Mycteroperca microlepis</i>	.	.	.	.	.	2	15	2	19

Species	Gear and Strata								Total
	21.3-m bay seine			21.3-m river seine		183-m haul seine		6.1-m otter trawl	
	Veg	Unveg	Shore	Over	Nonover	Over	Nonover		
	E=135	E=69	E=204	E=315	E=63	E=156	E=48	E=132	E=1,122
<i>Negaprion brevirostris</i>	.	.	.	.	.	11	.	.	11
<i>Nicholsina usta</i>	.	.	.	.	.	1	69	2	72
<i>Ocyurus chrysurus</i>	1	.	.	.	.	.	48	.	49
<i>Ogcocephalus cubifrons</i>	.	.	.	.	.	3	2	5	10
<i>Oligoplites saurus</i>	5	14	61	41	23	30	25	2	201
<i>Opisthonema oglinum</i>	271	172	223	3,733	.	2,340	64	3	6,806
<i>Opsanus beta</i>	4	1	12	9	.	56	11	47	140
<i>Oreochromis aureus</i>	.	.	.	4	.	.	.	.	4
<i>Sarotherodon</i> spp.	1	.	1	7	.	.	.	.	9
<i>Orthopristis chrysoptera</i>	753	10	258	6	.	371	171	383	1,952
<i>Paraclinus marmoratus</i>	.	.	.	.	.	.	.	1	1
<i>Paralichthys albigutta</i>	2	.	5	1	.	79	19	18	124
<i>Poecilia latipinna</i>	.	4	42	477	25	.	.	.	548
<i>Pogonias cromis</i>	.	.	.	.	.	32	4	.	36
<i>Portunus</i> spp.	4	1	7	.	.	.	2	189	203
<i>Prionotus rubio</i>	.	.	.	.	.	.	.	1	1
<i>Prionotus scitulus</i>	5	6	5	.	.	9	18	308	351
<i>Prionotus tribulus</i>	2	4	6	4	.	3	.	11	30
<i>Pristis pectinata</i>	.	.	.	.	.	1	1	.	2
<i>Rhinoptera bonasus</i>	.	3	.	.	.	.	1	.	4
<i>Rimapenaeus constrictus</i>	.	.	.	.	.	.	.	2	2
<i>Rimapenaeus</i> spp.	.	.	1	.	.	.	.	13	14
<i>Sardinella aurita</i>	178	14	93	.	.	.	.	.	285
<i>Sarotherodon melanotheron</i>	.	.	2	8	1	8	.	.	19
<i>Sciaenops ocellatus</i>	22	108	280	312	36	142	32	1	933
<i>Scomberomorus maculatus</i>	.	.	.	.	.	.	1	.	1
<i>Scorpaena brasiliensis</i>	.	.	.	.	.	1	.	15	16
<i>Scorpaena calcarata</i>	.	.	.	.	.	.	.	1	1

Species	Gear and Strata								Total
	21.3-m bay seine			21.3-m river seine		183-m haul seine		6.1-m otter trawl	
	Veg	Unveg	Shore	Over	Nonover	Over	Nonover		
	E=135	E=69	E=204	E=315	E=63	E=156	E=48	E=132	E=1,122
<i>Selene vomer</i>	.	.	.	.	.	22	36	.	58
<i>Serraniculus pumilio</i>	.	.	.	.	.	.	.	9	9
<i>Serranus subligarius</i>	.	.	.	.	.	.	.	1	1
<i>Sicyonia laevigata</i>	.	.	1	.	.	.	.	2	3
<i>Sicyonia typica</i>	.	.	.	.	.	.	.	6	6
<i>Sphoeroides nephelus</i>	25	20	36	5	3	114	100	23	326
<i>Sphoeroides spengleri</i>	.	.	2	.	.	4	.	15	21
<i>Sphyraena barracuda</i>	.	.	2	2	.	48	6	.	58
<i>Sphyraena borealis</i>	2	.	.	.	.	.	.	1	3
<i>Sphyrna tiburo</i>	.	.	.	.	.	10	7	.	17
<i>Stephanolepis hispidus</i>	11	3	4	.	.	4	7	59	88
<i>Strongylura marina</i>	.	3	5	11	.	36	32	.	87
<i>Strongylura notata</i>	15	11	184	227	51	373	48	.	909
<i>Strongylura</i> spp.	.	1	3	1	.	.	.	.	5
<i>Strongylura timucu</i>	.	.	3	18	4	9	1	.	35
<i>Symphurus plagiusa</i>	33	8	52	30	15	.	.	42	180
<i>Syngnathus floridae</i>	17	.	3	.	.	.	.	21	41
<i>Syngnathus louisianae</i>	6	1	4	5	.	.	.	25	41
<i>Syngnathus scovelli</i>	205	14	78	14	2	.	.	88	401
<i>Synodus foetens</i>	15	3	21	7	1	10	4	35	96
<i>Trachinotus carolinus</i>	.	.	1	.	.	12	7	.	20
<i>Trachinotus falcatus</i>	.	.	8	.	.	15	14	.	37
<i>Trinectes maculatus</i>	3	.	21	63	23	5	5	394	514
<i>Tylosurus crocodilus</i>	.	.	.	.	.	.	6	.	6
Total	27,615	4,490	55,959	58,168	6,493	34,577	7,277	13,764	208,343

Species	Gear and Strata								Total
	21.3-m bay seine			21.3-m river seine		183-m haul seine		6.1-m otter trawl	
	Veg	Unveg	Shore	Over	Nonover	Over	Nonover		
	E=135	E=69	E=204	E=315	E=63	E=156	E=48	E=132	
									E=1,122

Sampling with 21.3-m bay seine was stratified by the presence or absence of a shoreline ('Shore' or offshore) within 5-m. Offshore sets were further stratified by the presence or absence of bottom vegetation ('Veg' or 'Unveg'). Sampling with 21.3-m river seine and 183-m haul seine was stratified by the presence or absence of overhanging vegetation ('Over' or 'Nonover'). Sampling with 6.1-m otter trawl was not stratified. Effort, or the total number of hauls, is labeled 'E'. Taxa are arranged alphabetically. Selected taxa are highlighted in bold.

Table A.21: Summary by zone of taxa collected during Charlotte Harbor stratified-random sampling, 2024.

Species	Zone							Total
	A	B	C	D	K	M	P	
	E=298	E=258	E=258	E=164	E=36	E=54	E=54	E=1,122
<i>Acanthostracion quadricornis</i>	3	61	39	61	.	.	.	164
<i>Achiridae</i> spp.	.	.	.	.	.	.	2	2
<i>Achirus lineatus</i>	53	48	55	21	8	2	10	197
<i>Albula</i> spp.	2	.	.	.	.	1	1	4
<i>Aluterus schoepfii</i>	.	4	1	.	.	.	.	5
<i>Anarchopterus criniger</i>	.	1	.	10	.	.	.	11
<i>Anchoa hepsetus</i>	.	2	.	40	.	.	.	42
<i>Anchoa mitchilli</i>	6,624	9,846	10,467	3,110	132	2,760	4,323	37,262
<i>Ancylopsetta quadrocellata</i>	.	4	.	.	.	.	.	4
<i>Archosargus probatocephalus</i>	180	360	230	379	10	9	11	1,179
<i>Archosargus rhomboidalis</i>	.	.	.	4	.	.	.	4
<i>Archosargus</i> spp.	.	.	.	3	.	.	.	3
<i>Argopecten gibbus</i>	.	3	.	.	.	.	.	3
<i>Ariopsis felis</i>	167	963	332	315	.	14	86	1,877
<i>Bagre marinus</i>	33	3	13	10	.	6	6	71
<i>Bairdiella chrysoura</i>	573	409	1,277	899	.	41	154	3,353
<i>Bathygobius soporator</i>	.	.	1	.	13	30	27	71
<i>Brevoortia</i> spp.	3	.	.	2	.	1	.	6
<i>Calamus penna</i>	.	14	14	26	.	.	.	54
<i>Calamus</i> spp.	.	2	1	2	.	.	.	5
<i>Callinectes ornatus</i>	.	5	1	15	.	.	.	21
<i>Callinectes sapidus</i>	352	143	81	127	2	44	108	857
<i>Caranx hippos</i>	23	44	14	51	.	.	.	132
<i>Caranx latus</i>	.	7	1	12	.	.	.	20
<i>Carcharhinus leucas</i>	1	.	2	.	.	.	.	3
<i>Carcharhinus limbatus</i>	.	1	.	.	.	.	.	1
<i>Centropomus undecimalis</i>	228	521	393	223	3	2	11	1,381

Species	Zone							Total
	A	B	C	D	K	M	P	
	E=298	E=258	E=258	E=164	E=36	E=54	E=54	E=1,122
<i>Chaetodipterus faber</i>	30	178	188	50	.	.	1	447
<i>Chasmodes saburrae</i>	8	22	12	31	4	6	1	84
<i>Chilomycterus schoepfii</i>	15	242	76	113	.	.	1	447
<i>Chloroscombrus chrysurus</i>	27	17	4	3	.	.	.	51
<i>Citharichthys macrops</i>	.	3	1	2	.	.	.	6
<i>Ctenogobius boleosoma</i>	1	2	.	.	.	.	.	3
<i>Ctenogobius smaragdus</i>	5	5	3	2	.	.	.	15
<i>Cynoscion arenarius</i>	45	17	101	3	.	38	135	339
<i>Cynoscion nebulosus</i>	50	169	103	98	.	4	10	434
<i>Cyprinodon variegatus</i>	59	76	48	19	.	.	10	212
<i>Diapterus auratus</i>	31	158	254	684	3	.	3	1,133
<i>Diodon holocanthus</i>	.	3	.	.	.	.	.	3
<i>Diplectrum formosum</i>	.	13	4	15	.	.	.	32
<i>Diplodus holbrookii</i>	.	5	.	.	.	.	.	5
<i>Dorosoma petenense</i>	.	.	.	.	.	2	1	3
<i>Echeneis neucratoides</i>	1	.	1	2	.	.	.	4
<i>Echeneis</i> sp.	.	1	.	.	.	.	.	1
<i>Elops saurus</i>	101	211	146	135	.	.	4	597
<i>Epinephelus itajara</i>	.	1	.	.	.	.	.	1
<i>Epinephelus morio</i>	.	.	.	2	.	.	.	2
<i>Etropus crossotus</i>	11	15	9	3	.	.	.	38
<i>Eucinostomus gula</i>	1,146	2,768	1,479	2,337	111	28	72	7,941
<i>Eucinostomus harengulus</i>	1,274	908	1,690	641	229	320	283	5,345
<i>Eucinostomus</i> spp.	4,916	12,939	9,134	9,436	2,043	748	652	39,868
<i>Eugerres plumieri</i>	669	395	790	16	131	141	115	2,257
<i>Farfantepenaeus duorarum</i>	258	845	549	123	14	48	31	1,868
<i>Floridichthys carpio</i>	75	176	207	520	26	.	.	1,004
<i>Fundulus confluentus</i>	.	6	7	.	.	.	.	13
<i>Fundulus grandis</i>	71	10	30	64	1	1	130	307

Species	Zone							Total
	A	B	C	D	K	M	P	
	E=298	E=258	E=258	E=164	E=36	E=54	E=54	E=1,122
<i>Fundulus similis</i>	2	2	.	1	.	28	1	34
<i>Fundulus xenicus</i>	1	1	1	.	.	.	4	7
<i>Gambusia holbrooki</i>	225	37	3	2	.	379	20	666
<i>Gerreidae</i> spp.	1	1	.	.	.	.	.	2
<i>Gerres cinereus</i>	.	.	4	8	.	.	.	12
<i>Gobiesox strumosus</i>	2	.	.	.	1	3	1	7
<i>Gobionellus oceanicus</i>	1	1	.	.	.	.	.	2
<i>Gobiosoma bosc</i>	11	1	7	.	2	5	9	35
<i>Gobiosoma longipala</i>	.	3	.	3	.	.	.	6
<i>Gobiosoma robustum</i>	35	175	78	88	25	7	1	409
<i>Gobiosoma</i> spp.	4	40	41	21	4	9	2	121
<i>Haemulon aurolineatum</i>	.	3	.	.	.	.	.	3
<i>Haemulon plumierii</i>	.	151	5	47	.	.	.	203
<i>Harengula jaguana</i>	6	11,024	1,422	884	.	.	1	13,337
<i>Hemiramphus brasiliensis</i>	.	1	.	.	.	.	.	1
<i>Hippocampus erectus</i>	1	11	7	9	.	.	.	28
<i>Hippocampus zosterae</i>	.	5	2	7	.	.	.	14
<i>Hypanus americanus</i>	1	14	1	9	.	.	.	25
<i>Hypanus sabinus</i>	29	14	69	4	.	.	2	118
<i>Hypanus say</i>	5	9	4	4	.	.	1	23
<i>Hyporhamphus meeki</i>	1	2	1	23	.	.	.	27
<i>Hyporhamphus</i> spp.	.	2	.	.	1	.	.	3
<i>Hyporhamphus unifasciatus</i>	1	.	.	4	.	.	.	5
<i>Hypsoblennius hentz</i>	.	1	.	2	.	.	.	3
<i>Kyphosus sectatrix</i>	.	.	.	2	.	.	.	2
<i>Lactophrys trigonus</i>	.	1	1	1	.	.	.	3
<i>Lagodon rhomboides</i>	1,729	20,760	6,204	13,283	9	2	7	41,994
<i>Leiostomus xanthurus</i>	1	7	2	1	.	.	.	11
<i>Lepisosteus osseus</i>	1	.	.	.	.	.	.	1

Species	Zone							Total
	A	B	C	D	K	M	P	
	E=298	E=258	E=258	E=164	E=36	E=54	E=54	E=1,122
<i>Lepisosteus platyrhincus</i>	2	1	.	.	.	2	.	5
<i>Lepomis macrochirus</i>	.	.	.	.	1	2	.	3
<i>Lepomis</i> sp.	.	.	.	.	.	1	.	1
<i>Limulus polyphemus</i>	5	1	6	2	.	.	.	14
<i>Lophogobius cyprinoides</i>	16	8	4	.	29	247	15	319
<i>Lucania parva</i>	3,687	6,063	1,008	3,777	174	7	33	14,749
<i>Lutjanus analis</i>	.	2	.	14	.	.	.	16
<i>Lutjanus griseus</i>	44	164	81	104	3	13	20	429
<i>Lutjanus synagris</i>	4	85	14	77	.	.	.	180
<i>Mayaheros urophthalmus</i>	14	.	.	.	1	70	17	102
<i>Megalops atlanticus</i>	32	4	12	.	.	.	.	48
<i>Membras martinica</i>	2	1	137	.	.	1	.	141
<i>Menidia</i> spp.	3,265	1,785	1,136	210	91	821	439	7,747
<i>Menippe</i> spp.	.	38	7	30	.	.	.	75
<i>Menticirrhus americanus</i>	55	2	40	4	.	5	16	122
<i>Menticirrhus littoralis</i>	.	1	.	.	.	.	.	1
<i>Menticirrhus saxatilis</i>	1	12	2	2	.	.	.	17
<i>Menticirrhus</i> spp.	.	.	2	.	.	.	.	2
<i>Microgobius gulosus</i>	756	601	526	118	40	67	74	2,182
<i>Monacanthus ciliatus</i>	.	1	1	7	.	.	.	9
<i>Monopterus albus</i>	.	.	.	.	.	1	.	1
<i>Mugil cephalus</i>	141	199	220	170	.	4	8	742
<i>Mugil curema</i>	3	38	3	28	.	.	.	72
<i>Mugil trichodon</i>	55	54	40	114	.	1	2	266
<i>Mycteroperca microlepis</i>	.	5	1	13	.	.	.	19
<i>Negaprion brevirostris</i>	.	2	1	8	.	.	.	11
<i>Nicholsina usta</i>	.	23	.	49	.	.	.	72
<i>Ocyurus chrysurus</i>	.	47	.	2	.	.	.	49
<i>Ogcocephalus cubifrons</i>	1	6	1	2	.	.	.	10

Species	Zone							Total
	A	B	C	D	K	M	P	
	E=298	E=258	E=258	E=164	E=36	E=54	E=54	E=1,122
<i>Oligoplites saurus</i>	52	56	26	33	4	.	30	201
<i>Opisthonema oglinum</i>	23	3,309	2,734	161	579	.	.	6,806
<i>Opsanus beta</i>	10	43	15	69	1	1	1	140
<i>Oreochromis aureus</i>	.	.	.	.	.	4	.	4
<i>Sarotherodon</i> spp.	8	.	1	.	.	.	.	9
<i>Orthopristis chrysoptera</i>	212	947	315	478	.	.	.	1,952
<i>Paraclinus marmoratus</i>	.	.	.	1	.	.	.	1
<i>Paralichthys albigutta</i>	5	69	23	27	.	.	.	124
<i>Poecilia latipinna</i>	84	245	138	41	16	19	5	548
<i>Pogonias cromis</i>	.	24	1	11	.	.	.	36
<i>Portunus</i> spp.	8	44	100	51	.	.	.	203
<i>Prionotus rubio</i>	.	1	.	.	.	.	.	1
<i>Prionotus scitulus</i>	84	101	147	18	.	1	.	351
<i>Prionotus tribulus</i>	12	1	4	4	.	3	6	30
<i>Pristis pectinata</i>	2	.	.	.	.	.	.	2
<i>Rhinoptera bonasus</i>	1	.	3	.	.	.	.	4
<i>Rimapenaeus constrictus</i>	1	.	1	.	.	.	.	2
<i>Rimapenaeus</i> spp.	.	6	8	.	.	.	.	14
<i>Sardinella aurita</i>	.	180	103	2	.	.	.	285
<i>Sarotherodon melanotheron</i>	8	.	8	1	2	.	.	19
<i>Sciaenops ocellatus</i>	315	131	319	66	25	41	36	933
<i>Scomberomorus maculatus</i>	.	1	.	.	.	.	.	1
<i>Scorpaena brasiliensis</i>	.	2	1	13	.	.	.	16
<i>Scorpaena calcarata</i>	.	1	.	.	.	.	.	1
<i>Selene vomer</i>	.	38	18	2	.	.	.	58
<i>Serraniculus pumilio</i>	.	3	2	4	.	.	.	9
<i>Serranus subligarius</i>	.	.	.	1	.	.	.	1
<i>Sicyonia laevigata</i>	.	1	2	.	.	.	.	3
<i>Sicyonia typica</i>	1	.	5	.	.	.	.	6

Species	Zone							Total
	A	B	C	D	K	M	P	
	E=298	E=258	E=258	E=164	E=36	E=54	E=54	E=1,122
<i>Sphoeroides nephelus</i>	34	127	104	57	4	.	.	326
<i>Sphoeroides spengleri</i>	.	5	.	16	.	.	.	21
<i>Sphyraena barracuda</i>	1	14	1	42	.	.	.	58
<i>Sphyraena borealis</i>	.	2	1	.	.	.	.	3
<i>Sphyrna tiburo</i>	.	8	3	6	.	.	.	17
<i>Stephanolepis hispidus</i>	1	25	14	48	.	.	.	88
<i>Strongylura marina</i>	23	31	10	14	.	.	9	87
<i>Strongylura notata</i>	166	263	187	191	71	26	5	909
<i>Strongylura</i> spp.	.	.	2	2	.	1	.	5
<i>Strongylura timucu</i>	12	3	8	2	9	1	.	35
<i>Symphurus plagiusa</i>	96	12	34	7	.	2	29	180
<i>Syngnathus floridae</i>	.	10	1	30	.	.	.	41
<i>Syngnathus louisianae</i>	9	9	8	12	.	2	1	41
<i>Syngnathus scovelli</i>	94	104	76	86	4	13	24	401
<i>Synodus foetens</i>	14	35	26	19	1	1	.	96
<i>Trachinotus carolinus</i>	5	2	13	.	.	.	.	20
<i>Trachinotus falcatus</i>	.	28	4	5	.	.	.	37
<i>Trinectes maculatus</i>	251	19	57	.	1	102	84	514
<i>Tylosurus crocodilus</i>	.	1	3	2	.	.	.	6
Total	28,707	78,936	43,378	40,265	3,828	6,138	7,091	208,343

Zones A–D were located in Charlotte Harbor, while Zones K (Alligator Creek), M (Myakka River) and P (Peace River) were tributaries of Charlotte Harbor. Effort, or the total number of hauls, is labeled 'E'. Taxa are arranged alphabetically. Selected taxa are highlighted in bold.

A.8 Northeast Florida

Table A.22: Monthly summary of taxa collected during Northeast Florida stratified-random sampling, 2024.

Species	Month												Total
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
	E=113	E=113	E=113	E=113	E=113	E=113	E=113	E=113	E=113	E=113	E=113	E=113	E=1,356
<i>Achirus lineatus</i>	4	6	2	2	3	4	2	6	2	7	5	1	44
<i>Albula</i> spp.	.	.	.	3	1	3	1	.	.	.	.	1	9
<i>Alosa aestivalis</i>	1	.	.	.	.	.	.	.	.	.	.	.	1
<i>Alosa mediocris</i>	.	.	.	.	.	1	.	.	.	.	.	.	1
<i>Alosa sapidissima</i>	1	.	.	.	24	4	.	.	.	.	2	2	33
<i>Aluterus schoepfii</i>	.	.	.	.	.	2	.	.	.	.	.	.	2
<i>Ameiurus catus</i>	57	17	43	37	27	19	8	40	24	128	53	42	495
<i>Ameiurus nebulosus</i>	1	.	1	1	.	.	.	.	.	.	.	.	3
<i>Amia calva</i>	.	2	.	.	.	.	.	1	.	.	.	.	3
<i>Anchoa hepsetus</i>	.	1	15	109	1,492	1,724	1,074	31	15	6	25	.	4,492
<i>Anchoa lyolepis</i>	.	.	.	22	8	680	22	.	.	.	.	.	732
<i>Anchoa mitchilli</i>	971	787	708	1,261	856	3,024	2,401	900	2,382	5,015	6,893	5,164	30,362
<i>Anchoa</i> sp.	.	.	.	.	.	.	.	1	.	.	.	.	1
<i>Ancylopsetta quadrocellata</i>	.	.	5	11	.	.	.	.	.	.	.	.	16
<i>Anguilla rostrata</i>	.	1	.	2	1	.	.	.	.	.	.	.	4
<i>Archosargus probatocephalus</i>	.	7	4	9	61	5	18	15	31	7	8	7	172
<i>Ariopsis felis</i>	2	126	4	30	33	33	68	72	76	46	19	3	512
<i>Astroscopus y-graecum</i>	.	.	1	.	.	.	.	.	.	.	.	.	1
<i>Bagre marinus</i>	.	1	.	.	.	5	111	6	.	.	.	.	123
<i>Bairdiella chrysoura</i>	136	73	42	30	386	251	853	33	52	216	65	39	2,176

Species	Month												Total
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
	E=113	E=113	E=113	E=113	E=113	E=113	E=113	E=113	E=113	E=113	E=113	E=113	
<i>Bathygobius soporator</i>	7	2	.	.	2	3	16	4	14	2	.	7	57
Brevoortia spp.	4	159	10	2,408	923	177	2	54	3	61	8	2	3,811
<i>Callinectes ornatus</i>	.	.	.	.	.	1	8	1	.	.	.	.	10
<i>Callinectes sapidus</i>	131	154	68	254	88	104	206	164	90	102	83	169	1,613
<i>Callinectes similis</i>	22	21	19	194	100	110	105	24	18	16	18	4	651
<i>Callinectes</i> spp.	1	.	.	.	.	3	.	.	.	.	.	.	4
<i>Caranx hippos</i>	2	.	.	1	.	12	3	8	7	3	16	3	55
<i>Centropomus parallelus</i>	.	.	.	.	.	.	.	.	.	1	1	.	2
<i>Centropomus</i> sp.	.	.	.	.	.	.	.	.	.	.	.	1	1
<i>Centropomus undecimalis</i>	2	.	.	1	.	.	.	.	2	.	14	1	20
<i>Centropristis philadelphica</i>	.	.	.	17	4	3	1	5	.	8	1	2	41
<i>Centropristis striata</i>	.	.	1	.	1	.	.	.	.	1	.	.	3
<i>Chaetodipterus faber</i>	.	1	.	3	18	14	81	13	5	6	3	.	144
<i>Charybdis hellerii</i>	1	.	.	.	.	.	3	1	1	.	.	.	6
<i>Chilomycterus schoepfii</i>	.	.	1	.	3	3	8	5	4	2	.	.	26
<i>Chloroscombrus chrysurus</i>	.	.	.	1	11	672	68	4	11	10	21	.	798
<i>Citharichthys macrops</i>	.	.	.	1	13	.	1	.	1	.	.	.	16
<i>Citharichthys spilopterus</i>	2	2	29	72	55	71	43	31	12	4	.	2	323
<i>Clupeiformes</i> spp.	.	.	.	.	3	.	.	.	1	.	.	.	4
<i>Ctenogobius boleosoma</i>	15	16	28	20	15	35	5	34	13	27	3	47	258
<i>Ctenogobius shufeldti</i>	77	140	119	66	26	5	4	21	7	10	9	6	490
<i>Ctenogobius smaragdus</i>	.	.	.	2	.	.	1	15	4	23	.	6	51
<i>Ctenogobius</i> spp.	1	.	.	.	.	1	.	.	.	.	.	.	2

Species	Month												Total
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
	E=113	E=113	E=113	E=113	E=113	E=113	E=113	E=113	E=113	E=113	E=113	E=113	
<i>Ctenogobius stigmaticus</i>	.	.	.	.	.	.	.	.	.	4	4	.	8
<i>Cynoscion complex</i>	21	12	3	2	93	146	190	166	146	148	32	22	981
<i>Cynoscion nebulosus</i>	8	15	9	6	8	31	49	18	6	12	14	3	179
<i>Cynoscion nothus</i>	.	.	.	.	.	.	.	.	.	67	.	.	67
<i>Cyprinodon variegatus</i>	9	2	2	.	.	.	.	1	.	.	.	23	37
<i>Dajaus monticola</i>	.	.	.	.	.	.	.	.	.	13	3	.	16
<i>Diapterus auratus</i>	21	1	1	1	1	5	12	42	64	60	87	56	351
<i>Dormitator maculatus</i>	.	.	.	.	.	.	.	12	2	.	.	.	14
<i>Dorosoma cepedianum</i>	3	.	5	2	4	6	11	2	.	4	25	1	63
<i>Dorosoma petenense</i>	66	10	5	1	163	24	183	27	44	37	33	51	644
<i>Eleotris amblyopsis</i>	.	.	.	.	.	.	.	.	.	.	.	2	2
<i>Elopiformes</i> sp.	.	.	.	.	.	.	.	.	.	.	1	.	1
<i>Elops saurus</i>	3	15	20	273	10	3	7	30	17	9	45	2	434
<i>Erotelis smaragdus</i>	.	.	.	.	.	.	.	.	.	1	.	.	1
<i>Etheostoma fusiforme</i>	.	2	.	.	.	.	.	.	.	.	.	.	2
<i>Etropus crossotus</i>	54	52	37	29	5	31	49	35	35	27	30	32	416
<i>Eucinostomus gula</i>	30	8	5	17	9	25	30	19	11	15	22	44	235
<i>Eucinostomus harengulus</i>	70	9	7	27	28	44	356	449	104	106	107	103	1,410
<i>Eucinostomus melanopterus</i>	.	.	.	.	.	.	.	.	.	.	.	3	3
<i>Eucinostomus</i> spp.	95	4	4	.	17	165	312	333	230	1,429	292	590	3,471
<i>Evorthodus lyricus</i>	.	.	.	.	.	.	.	.	1	.	.	.	1
<i>Farfantepenaeus aztecus</i>	.	1	.	1	48	78	11	.	2	.	1	1	143
<i>Farfantepenaeus duorarum</i>	1	2	3	12	.	3	.	.	.	.	.	.	21

Species	Month												Total
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
	E=113	E=113	E=113	E=113	E=113	E=113	E=113	E=113	E=113	E=113	E=113	E=113	
<i>Farfantepenaeus</i> spp.	2	4	2	175	488	158	94	19	108	88	5	27	1,170
<i>Fundulus heteroclitus</i>	81	61	42	312	26	35	980	1,893	38	109	4	545	4,126
<i>Fundulus majalis</i>	11	13	2	10	29	42	59	28	1	16	.	30	241
<i>Fundulus seminolis</i>	.	2	23	9	3	9	194	348	3	10	30	30	661
<i>Gambusia holbrooki</i>	4	3	9	1	.	2	9	48	8	1	8	10	103
<i>Gobiesox strumosus</i>	2	.	.	.	.	1	.	.	1	.	.	1	5
<i>Gobioides broussonnetii</i>	1	4	1	9	6	9	5	3	5	.	.	1	44
<i>Gobionellus oceanicus</i>	3	10	3	15	17	5	4	3	1	6	8	43	118
<i>Gobiosoma bosc</i>	2	2	9	11	6	4	13	7	3	5	5	.	67
<i>Gobiosoma ginsburgi</i>	.	.	.	1	.	.	.	.	.	.	.	1	2
<i>Gobiosoma robustum</i>	.	2	.	.	.	.	.	.	.	.	.	.	2
<i>Gobiosoma</i> spp.	37	10	8	2	1	13	105	20	11	6	6	3	222
<i>Gymnura lessae</i>	.	.	.	2	.	.	6	.	2	1	2	.	13
<i>Harengula jaguana</i>	1	1	1	.	121	216	1,303	163	50	10	11	.	1,877
<i>Hoplosternum littorale</i>	.	.	.	.	.	.	.	.	.	1	.	.	1
<i>Hypanus sabinus</i>	28	26	40	60	31	33	33	47	26	31	23	28	406
<i>Hypanus say</i>	.	.	.	.	.	.	.	.	.	.	1	.	1
<i>Hypleurochilus geminatus</i>	.	.	.	.	.	.	.	.	1	.	.	.	1
<i>Hypsoblennius hentz</i>	4	.	.	.	.	.	.	.	1	.	.	.	5
<i>Hypsoblennius ionthas</i>	.	1	.	.	3	.	.	.	.	.	.	.	4
<i>Ictalurus punctatus</i>	8	2	8	11	2	22	5	1	5	15	17	2	98
<i>Labidesthes vanhyningi</i>	6	56	11	44	13	6	10	3	4	2	65	7	227
<i>Labrisomus nuchipinnis</i>	.	.	.	.	.	4	.	.	.	.	.	.	4

Species	Month												Total
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
	E=113	E=113	E=113	E=113	E=113	E=113	E=113	E=113	E=113	E=113	E=113	E=113	
<i>Lagodon rhomboides</i>	1	2	5	18	23	12	31	12	29	5	13	20	171
<i>Larimus fasciatus</i>	.	.	.	.	2	.	.	.	4	.	1	.	7
<i>Leiostomus xanthurus</i>	199	1,274	2,944	2,361	1,142	281	332	475	34	46	61	66	9,215
<i>Lepisosteus osseus</i>	6	4	1	6	3	2	.	5	4	2	2	2	37
<i>Lepisosteus platyrhincus</i>	1	.	1	2	1	1	.	3	1	2	1	6	19
<i>Lepomis auritus</i>	9	3	9	20	2	12	35	32	11	3	13	14	163
<i>Lepomis gulosus</i>	1	.	.	.	.	.	.	.	.	.	.	.	1
<i>Lepomis macrochirus</i>	103	10	11	197	45	38	142	77	25	11	13	17	689
<i>Lepomis microlophus</i>	5	7	2	9	8	1	.	4	6	1	7	3	53
<i>Lepomis</i> spp.	2	.	.	.	7	95	29	6	21	2	9	.	171
<i>Limulus polyphemus</i>	2	.	.	1	.	.	.	1	.	1	.	.	5
<i>Litopenaeus setiferus</i>	238	195	126	124	57	745	3,486	5,854	1,491	1,458	759	2,485	17,018
<i>Lobotes surinamensis</i>	.	.	.	1	.	.	.	.	.	2	.	.	3
<i>Lucania parva</i>	.	.	.	.	.	.	.	33	.	.	.	.	33
<i>Lutjanus analis</i>	.	.	.	.	.	2	.	.	.	.	.	.	2
<i>Lutjanus griseus</i>	5	1	.	1	.	1	4	13	1	5	2	.	33
<i>Lutjanus synagris</i>	1	.	.	.	.	4	5	2	5	3	2	.	22
<i>Membras martinica</i>	.	.	.	.	.	3	1	23	18	1,501	12	9	1,567
<i>Menidia menidia</i>	526	607	122	96	954	1,442	13,055	513	80	156	89	183	17,823
<i>Menidia</i> spp.	1,504	971	676	194	346	323	1,318	569	432	427	434	895	8,089
<i>Menippe</i> spp.	.	.	.	.	7	.	3	1	.	.	1	.	12
<i>Menticirrhus americanus</i>	2	2	1	5	48	141	101	55	101	4	5	7	472
<i>Menticirrhus littoralis</i>	2	.	.	.	.	5	.	.	.	.	3	.	10

Species	Month												Total
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
	E=113	E=113	E=113	E=113	E=113	E=113	E=113	E=113	E=113	E=113	E=113	E=113	
<i>Menticirrhus saxatilis</i>	.	.	.	.	3	.	.	.	.	.	.	.	3
<i>Menticirrhus</i> sp.	.	.	.	.	.	.	.	.	.	.	1	.	1
<i>Microgobius gulosus</i>	18	95	73	34	13	88	102	39	37	51	30	29	609
<i>Microgobius thalassinus</i>	5	1	8	8	.	13	.	18	11	22	14	3	103
<i>Micropogonias undulatus</i>	2,074	2,640	2,260	5,636	900	670	201	84	46	506	1,073	603	16,693
<i>Micropterus salmoides</i>	2	1	2	4	7	28	8	8	.	3	2	.	65
<i>Mugil cephalus</i>	8,177	1,261	2,919	278	1,612	116	230	300	89	21	43	61	15,107
<i>Mugil curema</i>	258	76	54	155	578	1,206	126	249	112	65	64	211	3,154
<i>Mugil</i> sp.	.	1	.	.	.	.	.	.	.	.	.	.	1
<i>Myrophis punctatus</i>	.	.	.	1	.	1	.	.	3	1	.	.	6
<i>Negaprion brevirostris</i>	.	.	.	1	.	.	.	.	.	.	.	.	1
<i>Notemigonus crysoleucas</i>	.	.	.	.	.	.	.	41	1	1	2	1	46
<i>Notropis maculatus</i>	.	.	.	.	.	.	.	.	1	.	2	.	3
<i>Ogcocephalus cubifrons</i>	.	.	.	.	1	.	1	.	.	.	.	.	2
<i>Oligoplites saurus</i>	.	.	.	.	.	10	15	4	7	2	1	.	39
<i>Ophidion marginatum</i>	1	.	.	2	.	.	.	1	.	.	.	.	4
<i>Opisthonema oglinum</i>	.	.	.	97	33	1,400	561	65	.	1	9	.	2,166
<i>Opsanus tau</i>	1	2	.	5	4	7	.	3	6	2	.	3	33
<i>Oreochromis complex</i>	.	.	1	.	.	.	5	2	.	.	4	.	12
<i>Sarotherodon</i> spp.	.	.	.	.	.	.	22	.	.	.	.	.	22
<i>Orthopristis chrysoptera</i>	.	.	.	7	68	21	11	2	6	2	.	.	117
<i>Paralichthys albigutta</i>	1	4	.	4	6	8	2	2	.	.	.	.	27
<i>Paralichthys dentatus</i>	.	1	1	2	1	.	2	.	.	.	.	.	7

Species	Month												Total
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
	E=113	E=113	E=113	E=113	E=113	E=113	E=113	E=113	E=113	E=113	E=113	E=113	
<i>Paralichthys lethostigma</i>	10	29	46	53	38	27	27	39	15	26	20	21	351
<i>Paralichthys squamilentus</i>	.	1	1	.	3	.	.	.	.	.	.	.	5
<i>Peprilus paru</i>	.	.	1	.	.	.	.	.	.	.	.	.	1
<i>Peprilus triacanthus</i>	.	5	6	.	.	.	.	.	.	.	.	1	12
<i>Poecilia latipinna</i>	1	.	4	.	13	.	4	4	2	.	.	24	52
<i>Pogonias cromis</i>	15	11	8	11	.	1	11	3	.	3	32	.	95
<i>Pomatomus saltatrix</i>	2	.	.	4	2	2	.	.	.	.	.	.	10
<i>Pomoxis nigromaculatus</i>	7	13	11	1	2	.	.	1	.	1	8	11	55
<i>Portunus</i> spp.	1	.	.	1	5	6	21	9	.	1	1	3	48
<i>Prionotus carolinus</i>	2	.	.	.	.	.	.	.	.	.	1	.	3
<i>Prionotus evolans</i>	.	1	.	33	6	2	2	.	.	.	.	2	46
<i>Prionotus rubio</i>	.	.	.	.	.	1	.	.	.	.	.	.	1
<i>Prionotus scitulus</i>	3	2	.	1	6	4	15	1	3	.	.	1	36
<i>Prionotus tribulus</i>	5	3	.	4	3	2	2	.	1	.	.	2	22
<i>Pterygoplichthys disjunctivus</i>	.	.	.	1	.	.	.	1	.	1	.	.	3
<i>Rhinoptera bonasus</i>	.	.	.	.	.	.	.	.	.	1	.	.	1
<i>Rimapenaeus constrictus</i>	.	.	.	3	1	1	2	.	.	.	.	.	7
<i>Rimapenaeus</i> spp.	21	1	4	4	3	11	731	45	124	43	10	11	1,008
<i>Sciaenidae</i> sp.	.	.	.	1	.	.	.	.	.	.	.	.	1
<i>Sciaenops ocellatus</i>	12	57	6	28	19	7	35	22	12	13	20	7	238
<i>Scomberomorus maculatus</i>	.	.	.	9	.	2	.	.	.	2	.	.	13
<i>Scorpaena brasiliensis</i>	.	.	.	.	.	.	1	.	.	.	.	.	1
<i>Selene setapinnis</i>	.	.	.	.	.	.	.	.	.	2	.	.	2

Species	Month												Total
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
	E=113	E=113	E=113	E=113	E=113	E=113	E=113	E=113	E=113	E=113	E=113	E=113	
<i>Selene vomer</i>	3	.	.	.	.	5	2	.	4	1	3	.	18
<i>Sphoeroides nephelus</i>	.	5	.	1	6	15	4	2	.	1	.	.	34
<i>Sphyraena barracuda</i>	.	.	.	.	.	1	.	.	.	.	.	.	1
<i>Sphyraena borealis</i>	.	.	.	.	.	1	.	.	.	.	.	.	1
<i>Sphyrna tiburo</i>	1	.	.	.	.	4	.	.	.	2	.	.	7
<i>Stellifer lanceolatus</i>	19	4	82	4	15	6	101	772	640	644	31	16	2,334
<i>Stephanolepis hispidus</i>	.	.	.	.	4	8	1	.	1	1	1	.	16
<i>Stomolophus meleagris</i>	5	72	4	.	.	.	2	.	3	.	1	.	87
<i>Strongylura marina</i>	2	1	.	1	6	5	6	4	5	3	10	.	43
<i>Strongylura</i> spp.	.	.	.	6	9	9	2	.	3	4	.	.	33
<i>Symphurus civitatum</i>	.	.	.	.	.	.	.	.	1	.	.	.	1
<i>Symphurus plagiusa</i>	13	16	15	26	7	21	100	123	64	37	5	23	450
<i>Syngnathus fuscus</i>	.	.	.	.	1	.	.	.	.	.	.	.	1
<i>Syngnathus louisianae</i>	4	1	2	4	2	7	5	2	2	.	.	3	32
<i>Syngnathus scovelli</i>	.	1	1	.	2	6	15	8	2	1	.	.	36
<i>Synodus foetens</i>	2	.	.	2	13	18	27	1	3	1	1	.	68
<i>Trachinotus carolinus</i>	1	.	.	.	35	168	38	.	2	6	1	.	251
<i>Trachinotus falcatus</i>	7	.	.	3	.	8	2	.	.	7	2	.	29
<i>Trichiurus lepturus</i>	.	4	4	4	5	.	.	.	.	.	.	1	18
<i>Trinectes maculatus</i>	97	44	89	27	36	46	191	144	168	111	55	215	1,223
<i>Urophycis floridana</i>	.	2	.	3	.	.	.	.	.	.	.	.	5
<i>Urophycis regia</i>	.	2	.	.	.	.	.	.	.	.	.	.	2
<i>Xiphopenaeus kroyeri</i>	.	.	.	.	.	.	4	.	193	39	1	2	239

Species	Month												Total
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
	E=113	E=113	E=113	E=113	E=113	E=113	E=113	E=113	E=113	E=113	E=113	E=113	
Total	15,386	9,279	10,860	15,094	11,399	15,159	30,322	14,883	7,535	13,191	11,003	12,131	166,242

Effort, or total number of hauls, is labeled 'E'. Taxa are arranged alphabetically. Selected taxa are highlighted in bold.

Table A.23: Summary by gear and stratum of taxa collected during Northeast Florida stratified-random sampling, 2024.

Species	Gear			Total
	21.3-m river seine	183-m haul seine	6.1-m otter trawl	
	E=576	E=192	E=588	E=1,356
<i>Achirus lineatus</i>	6	3	35	44
<i>Albula</i> spp.	5	.	4	9
<i>Alosa aestivalis</i>	1	.	.	1
<i>Alosa mediocris</i>	1	.	.	1
<i>Alosa sapidissima</i>	31	.	2	33
<i>Aluterus schoepfii</i>	1	.	1	2
<i>Ameiurus catus</i>	13	46	436	495
<i>Ameiurus nebulosus</i>	.	.	3	3
<i>Amia calva</i>	3	.	.	3
<i>Anchoa hepsetus</i>	3,046	.	1,446	4,492
<i>Anchoa lyolepis</i>	42	.	690	732
<i>Anchoa mitchilli</i>	23,254	.	7,108	30,362
<i>Anchoa</i> sp.	.	.	1	1
<i>Ancylopussetta quadrocellata</i>	.	4	12	16
<i>Anguilla rostrata</i>	1	1	2	4
<i>Archosargus probatocephalus</i>	20	134	18	172
<i>Ariopsis felis</i>	1	89	422	512
<i>Astroscopus y-graecum</i>	.	.	1	1
<i>Bagre marinus</i>	1	.	122	123
<i>Bairdiella chrysoura</i>	1,374	432	370	2,176
<i>Bathygobius soporator</i>	44	.	13	57
<i>Brevoortia</i> spp.	3,698	78	35	3,811
<i>Callinectes ornatus</i>	.	.	10	10
<i>Callinectes sapidus</i>	352	193	1,068	1,613
<i>Callinectes similis</i>	272	112	267	651
<i>Callinectes</i> spp.	4	.	.	4

Species	Gear			Total
	21.3-m river seine	183-m haul seine	6.1-m otter trawl	
	E=576	E=192	E=588	E=1,356
<i>Caranx hippos</i>	19	36	.	55
<i>Centropomus parallelus</i>	1	.	1	2
<i>Centropomus</i> sp.	.	1	.	1
<i>Centropomus undecimalis</i>	6	14	.	20
<i>Centropristis philadelphica</i>	3	.	38	41
<i>Centropristis striata</i>	.	.	3	3
<i>Chaetodipterus faber</i>	1	22	121	144
<i>Charybdis hellerii</i>	1	.	5	6
<i>Chilomycterus schoepfii</i>	6	9	11	26
<i>Chloroscombrus chrysurus</i>	669	50	79	798
<i>Citharichthys macrops</i>	1	14	1	16
<i>Citharichthys spilopterus</i>	67	31	225	323
<i>Clupeiformes</i> spp.	3	.	1	4
<i>Ctenogobius boleosoma</i>	218	.	40	258
<i>Ctenogobius shufeldti</i>	290	.	200	490
<i>Ctenogobius smaragdus</i>	16	.	35	51
<i>Ctenogobius</i> spp.	1	.	1	2
<i>Ctenogobius stigmaticus</i>	.	.	8	8
<i>Cynoscion complex</i>	38	4	939	981
<i>Cynoscion nebulosus</i>	98	58	23	179
<i>Cynoscion nothus</i>	.	.	67	67
<i>Cyprinodon variegatus</i>	37	.	.	37
<i>Dajaus monticola</i>	16	.	.	16
<i>Diapterus auratus</i>	138	132	81	351
<i>Dormitator maculatus</i>	14	.	.	14
<i>Dorosoma cepedianum</i>	14	40	9	63
<i>Dorosoma petenense</i>	558	10	76	644
<i>Eleotris amblyopsis</i>	.	.	2	2

Species	Gear			Total
	21.3-m river seine	183-m haul seine	6.1-m otter trawl	
	E=576	E=192	E=588	E=1,356
<i>Elopiformes</i> sp.	.	.	1	1
<i>Elops saurus</i>	43	116	275	434
<i>Erotelis smaragdus</i>	.	.	1	1
<i>Etheostoma fusiforme</i>	2	.	.	2
<i>Etropus crossotus</i>	45	36	335	416
<i>Eucinostomus gula</i>	123	67	45	235
<i>Eucinostomus harengulus</i>	1,202	113	95	1,410
<i>Eucinostomus melanopterus</i>	.	3	.	3
<i>Eucinostomus</i> spp.	3,203	.	268	3,471
<i>Evorthodus lyricus</i>	1	.	.	1
<i>Farfantepenaeus aztecus</i>	30	9	104	143
<i>Farfantepenaeus duorarum</i>	.	2	19	21
<i>Farfantepenaeus</i> spp.	498	8	664	1,170
<i>Fundulus heteroclitus</i>	4,121	4	1	4,126
<i>Fundulus majalis</i>	237	4	.	241
<i>Fundulus seminolis</i>	661	.	.	661
<i>Gambusia holbrooki</i>	103	.	.	103
<i>Gobiesox strumosus</i>	4	.	1	5
<i>Gobioides broussonnetii</i>	.	.	44	44
<i>Gobionellus oceanicus</i>	11	.	107	118
<i>Gobiosoma bosc</i>	52	.	15	67
<i>Gobiosoma ginsburgi</i>	2	.	.	2
<i>Gobiosoma robustum</i>	2	.	.	2
<i>Gobiosoma</i> spp.	183	.	39	222
<i>Gymnura lessae</i>	.	6	7	13
<i>Harengula jaguana</i>	1,856	7	14	1,877
<i>Hoplosternum littorale</i>	.	.	1	1
<i>Hypanus sabinus</i>	26	193	187	406

Species	Gear			Total
	21.3-m river seine	183-m haul seine	6.1-m otter trawl	
	E=576	E=192	E=588	E=1,356
<i>Hypanus say</i>	.	1	.	1
<i>Hypleurochilus geminatus</i>	.	.	1	1
<i>Hypsoblennius hentz</i>	.	.	5	5
<i>Hypsoblennius ionthas</i>	.	.	4	4
<i>Ictalurus punctatus</i>	1	4	93	98
<i>Labidesthes vanhyningi</i>	227	.	.	227
<i>Labrisomus nuchipinnis</i>	4	.	.	4
<i>Lagodon rhomboides</i>	50	107	14	171
<i>Larimus fasciatus</i>	1	.	6	7
<i>Leiostomus xanthurus</i>	6,410	676	2,129	9,215
<i>Lepisosteus osseus</i>	3	27	7	37
<i>Lepisosteus platyrhincus</i>	9	7	3	19
<i>Lepomis auritus</i>	152	4	7	163
<i>Lepomis gulosus</i>	.	.	1	1
<i>Lepomis macrochirus</i>	650	9	30	689
<i>Lepomis microlophus</i>	15	4	34	53
<i>Lepomis</i> spp.	169	.	2	171
<i>Limulus polyphemus</i>	.	.	5	5
<i>Litopenaeus setiferus</i>	8,341	277	8,400	17,018
<i>Lobotes surinamensis</i>	.	2	1	3
<i>Lucania parva</i>	33	.	.	33
<i>Lutjanus analis</i>	2	.	.	2
<i>Lutjanus griseus</i>	18	2	13	33
<i>Lutjanus synagris</i>	7	3	12	22
<i>Membras martinica</i>	1,567	.	.	1,567
<i>Menidia menidia</i>	17,817	.	6	17,823
<i>Menidia</i> spp.	8,089	.	.	8,089
<i>Menippe</i> spp.	.	1	11	12

Species	Gear			Total
	21.3-m river seine	183-m haul seine	6.1-m otter trawl	
	E=576	E=192	E=588	E=1,356
<i>Menticirrhus americanus</i>	129	4	339	472
<i>Menticirrhus littoralis</i>	10	.	.	10
<i>Menticirrhus saxatilis</i>	3	.	.	3
<i>Menticirrhus</i> sp.	.	.	1	1
<i>Microgobius gulosus</i>	303	.	306	609
<i>Microgobius thalassinus</i>	2	.	101	103
<i>Micropogonias undulatus</i>	862	122	15,709	16,693
<i>Micropterus salmoides</i>	60	3	2	65
<i>Mugil cephalus</i>	13,765	1,339	3	15,107
<i>Mugil curema</i>	2,060	1,093	1	3,154
<i>Mugil</i> sp.	1	.	.	1
<i>Myrophis punctatus</i>	1	.	5	6
<i>Negaprion brevirostris</i>	.	1	.	1
<i>Notemigonus crysoleucas</i>	46	.	.	46
<i>Notropis maculatus</i>	.	.	3	3
<i>Ogcocephalus cubifrons</i>	.	.	2	2
<i>Oligoplites saurus</i>	37	2	.	39
<i>Ophidion marginatum</i>	.	.	4	4
<i>Opisthonema oglinum</i>	1,530	16	620	2,166
<i>Opsanus tau</i>	2	.	31	33
<i>Oreochromis complex</i>	11	1	.	12
<i>Sarotherodon</i> spp.	22	.	.	22
<i>Orthopristis chrysoptera</i>	37	4	76	117
<i>Paralichthys albigutta</i>	16	3	8	27
<i>Paralichthys dentatus</i>	5	.	2	7
<i>Paralichthys lethostigma</i>	100	78	173	351
<i>Paralichthys squamilentus</i>	5	.	.	5
<i>Peprilus paru</i>	.	.	1	1

Species	Gear			Total
	21.3-m river seine	183-m haul seine	6.1-m otter trawl	
	E=576	E=192	E=588	E=1,356
<i>Peprilus triacanthus</i>	.	.	12	12
<i>Poecilia latipinna</i>	52	.	.	52
<i>Pogonias cromis</i>	4	83	8	95
<i>Pomatomus saltatrix</i>	4	6	.	10
<i>Pomoxis nigromaculatus</i>	.	.	55	55
<i>Portunus</i> spp.	16	1	31	48
<i>Prionotus carolinus</i>	.	.	3	3
<i>Prionotus evolans</i>	5	1	40	46
<i>Prionotus rubio</i>	.	.	1	1
<i>Prionotus scitulus</i>	22	3	11	36
<i>Prionotus tribulus</i>	1	6	15	22
<i>Pterygoplichthys disjunctivus</i>	1	1	1	3
<i>Rhinoptera bonasus</i>	.	1	.	1
<i>Rimapenaeus constrictus</i>	.	.	7	7
<i>Rimapenaeus</i> spp.	3	.	1,005	1,008
<i>Sciaenidae</i> sp.	1	.	.	1
<i>Sciaenops ocellatus</i>	53	177	8	238
<i>Scomberomorus maculatus</i>	2	11	.	13
<i>Scorpaena brasiliensis</i>	.	.	1	1
<i>Selene setapinnis</i>	.	.	2	2
<i>Selene vomer</i>	1	10	7	18
<i>Sphoeroides nephelus</i>	16	3	15	34
<i>Sphyraena barracuda</i>	1	.	.	1
<i>Sphyraena borealis</i>	1	.	.	1
<i>Sphyrna tiburo</i>	.	7	.	7
<i>Stellifer lanceolatus</i>	.	.	2,334	2,334
<i>Stephanolepis hispidus</i>	3	.	13	16
<i>Stomolophus meleagris</i>	2	41	44	87

Species	Gear			Total
	21.3-m river seine	183-m haul seine	6.1-m otter trawl	
	E=576	E=192	E=588	E=1,356
<i>Strongylura marina</i>	13	30	.	43
<i>Strongylura</i> spp.	33	.	.	33
<i>Symphurus civitatum</i>	.	.	1	1
<i>Symphurus plagiusa</i>	170	.	280	450
<i>Syngnathus fuscus</i>	.	.	1	1
<i>Syngnathus louisianae</i>	9	.	23	32
<i>Syngnathus scovelli</i>	30	.	6	36
<i>Synodus foetens</i>	49	.	19	68
<i>Trachinotus carolinus</i>	246	5	.	251
<i>Trachinotus falcatus</i>	19	7	3	29
<i>Trichiurus lepturus</i>	.	.	18	18
<i>Trinectes maculatus</i>	111	7	1,105	1,223
<i>Urophycis floridana</i>	.	.	5	5
<i>Urophycis regia</i>	.	.	2	2
<i>Xiphopenaeus kroyeri</i>	.	.	239	239
Total	110,230	6,271	49,741	166,242

Sampling with 21.3-m bay seine was stratified by the presence or absence of a shoreline ('Shore' or offshore) within 5-m. Offshore sets were further stratified by the presence or absence of bottom vegetation ('Veg' or 'Unveg'). Sampling with 21.3-m river seine, 183-m haul seine, and 6.1-m otter trawl was not stratified. Effort, or the total number of hauls, is labeled 'E'. Taxa are arranged alphabetically. Selected taxa are highlighted in bold.

Table A.24: Summary by zone of taxa collected during Northeast Florida stratified-random sampling, 2024.

Species	Zone						Total
	A	B	C	D	E	F	
	E=204	E=204	E=276	E=288	E=192	E=192	E=1,356
<i>Achirus lineatus</i>	17	7	14	4	1	1	44
<i>Albula</i> spp.	2	3	4	.	.	.	9
<i>Alosa aestivalis</i>	.	.	.	.	.	1	1
<i>Alosa mediocris</i>	.	.	.	.	.	1	1
<i>Alosa sapidissima</i>	.	1	.	.	3	29	33
<i>Aluterus schoepfii</i>	.	2	.	.	.	.	2
<i>Ameiurus catus</i>	50	23	4	73	108	237	495
<i>Ameiurus nebulosus</i>	.	.	.	.	2	1	3
<i>Amia calva</i>	.	.	.	.	3	.	3
<i>Anchoa hepsetus</i>	2,137	1,233	586	174	361	1	4,492
<i>Anchoa lyolepis</i>	677	25	29	1	.	.	732
<i>Anchoa mitchilli</i>	8,606	4,831	4,861	7,895	986	3,183	30,362
<i>Anchoa</i> sp.	.	.	.	1	.	.	1
<i>Ancyloperetta quadrocellata</i>	12	1	3	.	.	.	16
<i>Anguilla rostrata</i>	.	.	.	3	.	1	4
<i>Archosargus probatocephalus</i>	6	6	55	105	.	.	172
<i>Ariopsis felis</i>	75	130	183	109	15	.	512
<i>Astroscopus y-graecum</i>	.	1	.	.	.	.	1
<i>Bagre marinus</i>	12	91	1	18	1	.	123
<i>Bairdiella chrysoura</i>	1,202	234	511	168	59	2	2,176
<i>Bathygobius soporator</i>	21	15	14	7	.	.	57
<i>Brevoortia</i> spp.	247	1,131	2,191	102	13	127	3,811
<i>Callinectes ornatus</i>	5	.	3	2	.	.	10
<i>Callinectes sapidus</i>	366	245	340	325	186	151	1,613
<i>Callinectes similis</i>	334	144	142	31	.	.	651
<i>Callinectes</i> spp.	.	1	.	3	.	.	4
<i>Caranx hippos</i>	10	10	22	12	1	.	55

Species	Zone						Total
	A	B	C	D	E	F	
	E=204	E=204	E=276	E=288	E=192	E=192	
<i>Centropomus parallelus</i>	.	.	1	1	.	.	2
<i>Centropomus</i> sp.	.	.	.	1	.	.	1
<i>Centropomus undecimalis</i>	.	1	.	16	1	2	20
<i>Centropristis philadelphica</i>	29	6	6	.	.	.	41
<i>Centropristis striata</i>	1	.	2	.	.	.	3
<i>Chaetodipterus faber</i>	47	91	4	2	.	.	144
<i>Charybdis hellerii</i>	1	4	1	.	.	.	6
<i>Chilomycterus schoepfii</i>	2	5	14	5	.	.	26
<i>Chloroscombrus chrysurus</i>	24	51	678	45	.	.	798
<i>Citharichthys macrops</i>	1	1	14	.	.	.	16
<i>Citharichthys spilopterus</i>	43	77	120	39	23	21	323
<i>Clupeiformes</i> spp.	.	.	.	4	.	.	4
<i>Ctenogobius boleosoma</i>	28	77	119	34	.	.	258
<i>Ctenogobius shufeldti</i>	27	20	50	262	122	9	490
<i>Ctenogobius smaragdus</i>	2	5	44	.	.	.	51
<i>Ctenogobius</i> spp.	1	.	.	1	.	.	2
<i>Ctenogobius stigmaticus</i>	.	.	8	.	.	.	8
<i>Cynoscion complex</i>	112	319	55	214	162	119	981
<i>Cynoscion nebulosus</i>	41	23	72	22	21	.	179
<i>Cynoscion nothus</i>	65	2	.	.	.	.	67
<i>Cyprinodon variegatus</i>	6	30	1	.	.	.	37
<i>Dajaus monticola</i>	.	1	2	11	2	.	16
<i>Diapterus auratus</i>	21	75	157	86	10	2	351
<i>Dormitator maculatus</i>	.	2	.	12	.	.	14
<i>Dorosoma cepedianum</i>	.	.	29	16	.	18	63
<i>Dorosoma petenense</i>	2	2	8	69	42	521	644
<i>Eleotris amblyopsis</i>	.	.	.	2	.	.	2
<i>Elopiformes</i> sp.	.	.	1	.	.	.	1
<i>Elops saurus</i>	47	185	117	58	5	22	434

Species	Zone						Total
	A	B	C	D	E	F	
	E=204	E=204	E=276	E=288	E=192	E=192	
<i>Erotelis smaragdus</i>	.	.	1	.	.	.	1
<i>Etheostoma fusiforme</i>	.	.	.	2	.	.	2
<i>Etropus crossotus</i>	244	76	72	23	1	.	416
<i>Eucinostomus gula</i>	16	17	197	4	1	.	235
<i>Eucinostomus harengulus</i>	39	88	453	356	231	243	1,410
<i>Eucinostomus melanopterus</i>	.	3	.	.	.	.	3
<i>Eucinostomus</i> spp.	382	140	2,616	181	59	93	3,471
<i>Evorthodus lyricus</i>	.	.	1	.	.	.	1
<i>Farfantepenaeus aztecus</i>	35	37	10	39	22	.	143
<i>Farfantepenaeus duorarum</i>	16	2	1	2	.	.	21
<i>Farfantepenaeus</i> spp.	193	293	344	250	89	1	1,170
<i>Fundulus heteroclitus</i>	366	2,617	1,133	9	.	1	4,126
<i>Fundulus majalis</i>	10	108	123	.	.	.	241
<i>Fundulus seminolis</i>	.	.	.	.	16	645	661
<i>Gambusia holbrooki</i>	9	33	10	4	.	47	103
<i>Gobiesox strumosus</i>	1	3	1	.	.	.	5
<i>Gobioides broussonnetii</i>	.	.	.	39	5	.	44
<i>Gobionellus oceanicus</i>	4	40	26	43	2	3	118
<i>Gobiosoma bosc</i>	1	1	5	24	15	21	67
<i>Gobiosoma ginsburgi</i>	1	1	.	.	.	.	2
<i>Gobiosoma robustum</i>	.	.	.	2	.	.	2
<i>Gobiosoma</i> spp.	18	.	1	48	57	98	222
<i>Gymnura lessae</i>	8	2	3	.	.	.	13
<i>Harengula jaguana</i>	236	1,268	274	99	.	.	1,877
<i>Hoplosternum littorale</i>	.	.	.	.	.	1	1
<i>Hypanus sabinus</i>	60	43	108	119	29	47	406
<i>Hypanus say</i>	1	.	.	.	.	.	1
<i>Hyppleurochilus geminatus</i>	.	.	1	.	.	.	1
<i>Hypsoblennius hentz</i>	.	.	1	4	.	.	5

Species	Zone						Total
	A	B	C	D	E	F	
	E=204	E=204	E=276	E=288	E=192	E=192	
<i>Hypsoblennius ionthas</i>	.	.	4	.	.	.	4
<i>Ictalurus punctatus</i>	.	.	.	9	38	51	98
<i>Labidesthes vanhyningi</i>	.	.	.	136	69	22	227
<i>Labrisomus nuchipinnis</i>	.	4	.	.	.	.	4
<i>Lagodon rhomboides</i>	55	23	42	44	7	.	171
<i>Larimus fasciatus</i>	3	2	2	.	.	.	7
<i>Leiostomus xanthurus</i>	1,328	1,699	4,404	1,259	392	133	9,215
<i>Lepisosteus osseus</i>	13	10	1	12	.	1	37
<i>Lepisosteus platyrhincus</i>	.	.	.	7	4	8	19
<i>Lepomis auritus</i>	3	.	.	19	28	113	163
<i>Lepomis gulosus</i>	.	.	.	1	.	.	1
<i>Lepomis macrochirus</i>	1	3	5	72	368	240	689
<i>Lepomis microlophus</i>	.	.	.	28	5	20	53
<i>Lepomis</i> spp.	.	.	2	14	69	86	171
<i>Limulus polyphemus</i>	3	1	1	.	.	.	5
<i>Litopenaeus setiferus</i>	3,052	7,202	1,191	3,494	1,178	901	17,018
<i>Lobotes surinamensis</i>	1	1	1	.	.	.	3
<i>Lucania parva</i>	.	.	.	.	33	.	33
<i>Lutjanus analis</i>	.	2	.	.	.	.	2
<i>Lutjanus griseus</i>	6	5	12	9	.	1	33
<i>Lutjanus synagris</i>	4	8	10	.	.	.	22
<i>Membras martinica</i>	15	3	16	16	2	1,515	1,567
<i>Menidia menidia</i>	4,189	986	12,591	57	.	.	17,823
<i>Menidia</i> spp.	78	37	60	832	2,017	5,065	8,089
<i>Menippe</i> spp.	4	.	8	.	.	.	12
<i>Menticirrhus americanus</i>	99	262	98	12	1	.	472
<i>Menticirrhus littoralis</i>	2	8	.	.	.	.	10
<i>Menticirrhus saxatilis</i>	.	1	2	.	.	.	3
<i>Menticirrhus</i> sp.	1	.	.	.	.	.	1

Species	Zone						Total
	A	B	C	D	E	F	
	E=204	E=204	E=276	E=288	E=192	E=192	
<i>Microgobius gulosus</i>	3	.	.	186	154	266	609
<i>Microgobius thalassinus</i>	2	.	73	28	.	.	103
<i>Micropogonias undulatus</i>	1,666	4,208	2,093	2,798	2,609	3,319	16,693
<i>Micropterus salmoides</i>	.	.	.	17	33	15	65
<i>Mugil cephalus</i>	801	1,063	11,823	909	126	385	15,107
<i>Mugil curema</i>	152	491	2,283	197	9	22	3,154
<i>Mugil</i> sp.	1	.	.	.	.	.	1
<i>Myrophis punctatus</i>	2	.	.	1	.	3	6
<i>Negaprion brevirostris</i>	1	.	.	.	.	.	1
<i>Notemigonus crysoleucas</i>	1	.	.	.	40	5	46
<i>Notropis maculatus</i>	.	.	.	1	.	2	3
<i>Ogcocephalus cubifrons</i>	2	.	.	.	.	.	2
<i>Oligoplites saurus</i>	1	2	19	11	6	.	39
<i>Ophidion marginatum</i>	2	2	.	.	.	.	4
<i>Opisthonema oglinum</i>	710	659	186	607	4	.	2,166
<i>Opsanus tau</i>	8	8	17	.	.	.	33
<i>Oreochromis complex</i>	.	.	1	1	5	5	12
<i>Sarotherodon</i> spp.	.	.	.	.	2	20	22
<i>Orthopristis chrysoptera</i>	41	14	58	4	.	.	117
<i>Paralichthys albigutta</i>	8	6	13	.	.	.	27
<i>Paralichthys dentatus</i>	3	3	1	.	.	.	7
<i>Paralichthys lethostigma</i>	67	70	62	56	59	37	351
<i>Paralichthys squamilentus</i>	2	1	2	.	.	.	5
<i>Peprilus paru</i>	.	1	.	.	.	.	1
<i>Peprilus triacanthus</i>	1	7	3	1	.	.	12
<i>Poecilia latipinna</i>	1	34	15	.	.	2	52
<i>Pogonias cromis</i>	13	19	55	8	.	.	95
<i>Pomatomus saltatrix</i>	4	1	5	.	.	.	10
<i>Pomoxis nigromaculatus</i>	.	.	.	1	11	43	55

Species	Zone						Total
	A	B	C	D	E	F	
	E=204	E=204	E=276	E=288	E=192	E=192	
<i>Portunus</i> spp.	29	13	6	.	.	.	48
<i>Prionotus carolinus</i>	1	2	.	.	.	.	3
<i>Prionotus evolans</i>	31	7	6	2	.	.	46
<i>Prionotus rubio</i>	.	1	.	.	.	.	1
<i>Prionotus scitulus</i>	16	5	14	1	.	.	36
<i>Prionotus tribulus</i>	13	3	5	1	.	.	22
<i>Pterygoplichthys disjunctivus</i>	.	.	.	1	2	.	3
<i>Rhinoptera bonasus</i>	1	.	.	.	.	.	1
<i>Rimapenaeus constrictus</i>	6	1	.	.	.	.	7
<i>Rimapenaeus</i> spp.	825	91	92	.	.	.	1,008
<i>Sciaenidae</i> sp.	.	.	.	1	.	.	1
<i>Sciaenops ocellatus</i>	55	20	96	61	4	2	238
<i>Scomberomorus maculatus</i>	10	2	1	.	.	.	13
<i>Scorpaena brasiliensis</i>	.	1	.	.	.	.	1
<i>Selene setapinnis</i>	2	.	.	.	.	.	2
<i>Selene vomer</i>	4	6	6	2	.	.	18
<i>Sphoeroides nephelus</i>	4	8	16	6	.	.	34
<i>Sphyrna barracuda</i>	.	1	.	.	.	.	1
<i>Sphyrna borealis</i>	.	.	1	.	.	.	1
<i>Sphyrna tiburo</i>	7	.	.	.	.	.	7
<i>Stellifer lanceolatus</i>	1,216	972	16	130	.	.	2,334
<i>Stephanolepis hispidus</i>	5	7	4	.	.	.	16
<i>Stomolophus meleagris</i>	5	1	79	2	.	.	87
<i>Strongylura marina</i>	1	2	23	9	7	1	43
<i>Strongylura</i> spp.	1	.	5	4	11	12	33
<i>Symphurus civitatum</i>	.	.	.	1	.	.	1
<i>Symphurus plagiusa</i>	208	146	44	52	.	.	450
<i>Syngnathus fuscus</i>	.	.	1	.	.	.	1
<i>Syngnathus louisianae</i>	9	11	5	7	.	.	32

Species	Zone						Total
	A	B	C	D	E	F	
	E=204	E=204	E=276	E=288	E=192	E=192	
<i>Syngnathus scovelli</i>	1	5	6	8	14	2	36
<i>Synodus foetens</i>	25	24	19	.	.	.	68
<i>Trachinotus carolinus</i>	21	167	62	1	.	.	251
<i>Trachinotus falcatus</i>	1	14	14	.	.	.	29
<i>Trichiurus lepturus</i>	7	7	3	1	.	.	18
<i>Trinectes maculatus</i>	165	45	22	327	492	172	1,223
<i>Urophycis floridana</i>	5	.	.	.	.	.	5
<i>Urophycis regia</i>	2	.	.	.	.	.	2
<i>Xiphopenaeus kroyeri</i>	221	14	.	4	.	.	239
Total	31,165	32,305	51,552	22,649	10,453	18,118	166,242

Effort, or the total number of hauls, is labeled 'E'. Taxa are arranged alphabetically. Selected taxa are highlighted in bold.

A.9 Northern Indian River Lagoon

Table A.25: Monthly summary of taxa collected during Northern Indian River Lagoon stratified-random sampling, 2024.

Species	Month												Total
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
	E=57	E=57	E=47	E=57	E=47	E=57	E=47	E=57	E=57	E=57	E=57	E=57	E=654
<i>Achirus lineatus</i>	5	13	5	1	2	11	8	16	13	13	27	22	136
<i>Albula</i> spp.	.	.	.	1	10	12	.	.	1	.	19	8	51
<i>Anchoa cubana</i>	2	.	.	.	.	.	.	.	.	.	.	.	2
<i>Anchoa hepsetus</i>	.	.	1	786	286	6	319	.	1	1	.	.	1,400
<i>Anchoa lamprotaenia</i>	.	1	.	.	.	.	135	.	.	.	.	.	136
<i>Anchoa lyolepis</i>	.	.	.	1	1	.	1	.	.	.	.	.	3
<i>Anchoa mitchilli</i>	3,501	4,222	1,886	1,582	10,509	11,503	3,556	3,641	8,083	18,766	18,229	3,893	89,371
<i>Anchoa</i> spp.	.	.	.	.	.	.	1	1	1	.	.	.	3
<i>Archosargus probatocephalus</i>	11	9	162	35	58	85	146	87	79	52	18	46	788
<i>Archosargus rhomboidalis</i>	2	48	30	3	2	46	20	150	36	43	118	40	538
<i>Archosargus</i> spp.	.	1	.	.	.	.	.	1	1	.	.	.	3
<i>Ariopsis felis</i>	37	100	171	110	429	233	525	345	317	323	267	23	2,880
<i>Astroscopus y-graecum</i>	.	.	.	.	2	.	.	.	.	.	.	.	2
<i>Awaous banana</i>	2	.	.	.	.	.	.	.	.	.	.	.	2
<i>Bagre marinus</i>	3	.	.	3	1	3	5	136	12	15	6	.	184
<i>Bairdiella chrysoura</i>	154	367	260	133	552	1,056	783	168	696	188	319	58	4,734
<i>Bathygobius soporator</i>	.	1	.	1	.	.	2	.	.	.	.	2	6
<i>Brevoortia</i> spp.	78	313	718	34	1,031	38	2	1,331	28	43	.	75	3,691
<i>Callinectes ornatus</i>	5	1	4	.	2	8	4	.	3	1	.	.	28
<i>Callinectes sapidus</i>	46	39	33	67	10	12	9	19	109	61	14	17	436

Species	Month												Total
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
	E=57	E=57	E=47	E=57	E=47	E=57	E=47	E=57	E=57	E=57	E=57	E=57	E=654
<i>Callinectes similis</i>	2	1	1	2	.	3	.	2	.	1	.	.	12
<i>Callinectes</i> spp.	.	.	.	.	2	7	.	.	.	.	.	.	9
<i>Caranx hippos</i>	.	17	35	9	21	6	52	6	4	14	12	7	183
<i>Caranx latus</i>	.	1	.	.	2	.	2	.	.	.	.	2	7
<i>Caranx</i> sp.	.	.	.	.	.	.	.	.	1	.	.	.	1
<i>Carcharhinus leucas</i>	.	.	.	.	1	.	.	1	.	.	.	.	2
<i>Centropomus parallelus</i>	.	1	.	.	.	.	.	.	1	.	.	.	2
<i>Centropomus pectinatus</i>	1	1	.	.	.	.	.	.	.	.	.	.	2
<i>Centropomus undecimalis</i>	98	98	32	141	20	68	29	357	86	81	33	41	1,084
<i>Chaetodipterus faber</i>	.	.	2	.	1	2	3	80	3	2	29	.	122
<i>Chasmodes saburrae</i>	1	2	4	8	8	17	25	19	39	3	14	6	146
<i>Chilomycterus schoepfii</i>	5	8	8	8	3	15	7	10	4	14	7	14	103
<i>Chloroscombrus chrysurus</i>	29	.	.	.	.	.	.	52	1	3	9	.	94
<i>Citharichthys spilopterus</i>	11	15	2	4	2	12	3	2	3	6	1	2	63
<i>Clupeiformes</i> spp.	.	.	.	.	.	.	.	6	.	.	.	.	6
<i>Corvula sanctaeluciae</i>	.	.	.	.	.	.	.	.	.	2	.	.	2
<i>Ctenogobius boleosoma</i>	1	4	8	15	.	2	.	.	.	.	2	.	32
<i>Ctenogobius shufeldti</i>	6	.	.	.	.	.	.	.	.	.	.	.	6
<i>Ctenogobius smaragdus</i>	.	.	3	.	4	1	4	.	2	1	.	9	24
<i>Ctenogobius</i> spp.	.	.	3	.	.	.	.	.	.	.	.	.	3
<i>Cynoscion complex</i>	1	1	.	.	.	166	1	67	14	10	15	.	275
<i>Cynoscion nebulosus</i>	8	6	16	.	.	49	47	38	36	41	56	23	320
<i>Cyprinodon variegatus</i>	.	.	.	.	.	2	25	.	.	.	.	.	27

Species	Month												Total
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
	E=57	E=57	E=47	E=57	E=47	E=57	E=47	E=57	E=57	E=57	E=57	E=57	E=654
<i>Dajaus monticola</i>	1	.	.	.	.	.	.	.	1	6	.	.	8
<i>Diapterus auratus</i>	631	639	62	621	266	1,387	396	1,269	1,141	1,340	943	1,149	9,844
<i>Diapterus rhombeus</i>	3	1	13	.	1	10	79	99	189	86	48	70	599
<i>Diplodus holbrookii</i>	.	.	.	.	.	.	.	1	.	.	.	.	1
<i>Dormitator maculatus</i>	.	1	.	3	.	.	.	.	.	.	.	.	4
<i>Echeneis neucratoides</i>	.	.	.	.	1	.	.	.	.	.	.	.	1
<i>Eleotris amblyopsis</i>	.	.	.	1	.	.	.	.	.	.	.	.	1
<i>Elops saurus</i>	11	56	25	67	10	25	41	13	62	144	358	.	812
<i>Elops smithi</i>	1	2	.	4	.	.	.	.	.	.	.	.	7
<i>Elops</i> spp.	.	1	1	.	.	.	.	.	.	.	.	.	2
<i>Enneacanthus gloriosus</i>	.	2	.	.	.	.	.	.	.	.	.	.	2
<i>Etheostoma fusiforme</i>	.	.	.	.	.	.	.	.	.	.	1	.	1
<i>Eucinostomus argenteus</i>	.	.	.	.	1	.	4	.	1	.	.	.	6
<i>Eucinostomus gula</i>	7	4	73	217	84	89	329	952	199	54	8	450	2,466
<i>Eucinostomus harengulus</i>	394	33	360	311	321	300	379	370	235	264	178	232	3,377
<i>Eucinostomus jonesii</i>	.	.	.	6	3	8	9	57	2	1	.	5	91
<i>Eucinostomus melanopterus</i>	.	.	.	1	.	.	.	.	.	.	.	.	1
<i>Eucinostomus</i> spp.	1,061	1,318	206	1,569	162	2,260	1,424	464	646	367	385	679	10,541
<i>Eugerres plumieri</i>	24	71	12	23	1	384	131	136	123	36	17	38	996
<i>Evorthodus lyricus</i>	4	4	.	3	.	.	3	4	2	1	.	.	21
<i>Farfantepenaeus aztecus</i>	4	3	4	8	3	.	.	.	.	4	.	.	26
<i>Farfantepenaeus duorarum</i>	1	5	1	.	.	.	.	.	.	2	3	1	13
<i>Farfantepenaeus</i> spp.	33	75	151	269	34	28	17	14	126	53	25	21	846

Species	Month												Total
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
	E=57	E=57	E=47	E=57	E=47	E=57	E=47	E=57	E=57	E=57	E=57	E=57	E=654
<i>Floridichthys carpio</i>	51	46	37	48	3	161	233	111	78	26	33	4	831
<i>Fundulus chrysotus</i>	1	.	.	.	.	.	.	.	.	.	.	.	1
<i>Fundulus seminolis</i>	2	.	.	1	.	.	.	.	.	.	.	.	3
<i>Gambusia holbrooki</i>	48	47	.	42	.	5	.	9	.	15	21	31	218
<i>Gerres cinereus</i>	.	7	.	2	3	10	11	35	13	1	5	9	96
<i>Ginglymostoma cirratum</i>	.	.	.	.	.	.	.	1	.	.	.	.	1
<i>Gobiesox strumosus</i>	.	.	.	.	1	.	.	.	.	.	1	1	3
<i>Gobiomorus dormitor</i>	.	.	.	2	.	.	.	.	.	.	.	.	2
<i>Gobionellus oceanicus</i>	2	.	2	6	.	1	.	1	6	3	.	.	21
<i>Gobiosoma bosc</i>	1	2	1	5	.	5	.	1	.	.	.	1	16
<i>Gobiosoma robustum</i>	9	6	55	61	77	82	200	99	40	3	6	16	654
<i>Gobiosoma spp.</i>	10	5	23	13	12	28	245	63	45	35	13	31	523
<i>Gymnura lessae</i>	2	1	1	1	.	10	2	.	.	1	.	1	19
<i>Haemulon parra</i>	.	.	.	.	.	1	45	.	2	.	1	.	49
<i>Haemulon plumierii</i>	.	.	.	.	.	.	8	.	.	.	.	.	8
<i>Haemulon sciurus</i>	.	.	.	.	.	.	2	.	.	.	.	.	2
<i>Harengula jaguana</i>	1	.	.	40	3,280	18	700	516	1,731	178	387	1	6,852
<i>Hemichromis letourmeuxi</i>	5	7	.	.	.	.	.	.	.	.	.	.	12
<i>Heterandria formosa</i>	7	.	.	.	.	.	.	.	.	.	.	.	7
<i>Hippocampus erectus</i>	.	.	.	1	.	.	.	.	.	.	.	1	2
<i>Hypanus americanus</i>	.	.	.	.	.	.	1	.	.	1	.	.	2
<i>Hypanus sabinus</i>	132	95	141	45	68	60	44	43	42	72	115	47	904
<i>Hypanus say</i>	7	12	15	13	9	32	15	22	39	8	38	15	225

Species	Month												Total
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
	E=57	E=57	E=47	E=57	E=47	E=57	E=47	E=57	E=57	E=57	E=57	E=57	E=654
<i>Hyporhamphus meeki</i>	.	.	2	.	.	17	.	.	12	.	1	.	32
<i>Labidesthes vanhyningi</i>	43	28	.	16	.	15	.	.	.	6	10	1	119
<i>Lagodon rhomboides</i>	1	.	115	36	182	75	149	219	190	291	161	49	1,468
<i>Leiostomus xanthurus</i>	171	339	792	435	159	1,021	38	1,781	353	29	5	2	5,125
<i>Lepisosteus platyrhincus</i>	2	.	.	3	.	.	.	.	.	.	.	1	6
<i>Lepomis gulosus</i>	.	.	.	.	.	.	.	.	.	.	4	1	5
<i>Lepomis macrochirus</i>	20	3	.	2	.	.	.	.	.	3	11	21	60
<i>Lepomis microlophus</i>	4	.	.	2	.	.	.	.	.	.	.	2	8
<i>Lepomis punctatus</i>	.	.	.	2	.	.	.	.	.	.	.	.	2
<i>Lepomis</i> spp.	1	.	.	.	.	.	.	.	.	4	.	1	6
<i>Limulus polyphemus</i>	.	10	2	4	1	.	.	.	.	2	.	.	19
<i>Litopenaeus setiferus</i>	16	53	.	.	.	24	4	5	.	28	1	11	142
<i>Lobotes surinamensis</i>	.	.	.	.	.	.	.	1	.	.	.	.	1
<i>Lophogobius cyprinoides</i>	5	21	1	3	.	1	.	6	7	4	1	7	56
<i>Lucania goodei</i>	14	.	.	2	.	.	.	.	.	.	.	1	17
<i>Lucania parva</i>	12	50	56	55	9	676	240	386	982	16	337	207	3,026
<i>Lutjanus analis</i>	.	.	.	.	7	1	3	3	.	.	.	.	14
<i>Lutjanus apodus</i>	.	.	.	.	.	1	1	.	.	.	.	.	2
<i>Lutjanus griseus</i>	.	.	6	2	20	15	44	42	19	21	7	6	182
<i>Lutjanus jocu</i>	.	1	.	.	.	.	.	.	.	.	.	.	1
<i>Lutjanus synagris</i>	.	.	.	.	1	.	.	.	.	.	.	.	1
<i>Mayaheros urophthalmus</i>	5	6	.	.	.	16	35	9	12	3	.	39	125
<i>Megalops atlanticus</i>	.	.	.	.	1	3	9	5	7	6	1	1	33

Species	Month												Total
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
	E=57	E=57	E=47	E=57	E=47	E=57	E=47	E=57	E=57	E=57	E=57	E=57	E=654
<i>Membras martinica</i>	.	.	8	.	21	1	9	.	.	.	.	.	39
<i>Menidia</i> spp.	85	110	195	891	211	1,020	153	553	44	138	92	23	3,515
<i>Menticirrhus americanus</i>	3	1	2	16	11	19	9	12	7	10	26	4	120
<i>Microgobius gulosus</i>	71	69	83	48	54	423	346	283	85	170	43	44	1,719
<i>Microgobius microlepis</i>	.	.	1	.	.	2	.	2	3	.	2	.	10
<i>Microgobius thalassinus</i>	.	.	.	.	.	.	.	.	.	1	.	.	1
<i>Microphis lineatus</i>	1	.	.	3	.	.	.	.	.	.	.	.	4
<i>Micropogonias undulatus</i>	847	444	225	120	22	1,211	9	1,204	146	11	5	.	4,244
<i>Micropterus salmoides</i>	.	.	.	.	.	2	.	.	.	.	.	.	2
<i>Mugil cephalus</i>	175	971	831	122	82	129	111	93	102	81	26	294	3,017
<i>Mugil curema</i>	445	628	487	198	387	182	163	221	167	597	131	626	4,232
<i>Mugil rubrioculus</i>	3	.	4	1	1	.	.	.	1	10	2	2	24
<i>Mugil</i> spp.	2	.	.	.	.	.	.	.	.	.	.	14	16
<i>Mugil trichodon</i>	.	.	.	1	.	.	.	.	.	.	.	1	2
<i>Oligoplites saurus</i>	4	6	3	4	19	50	42	68	60	35	26	7	324
<i>Opisthonema oglinum</i>	.	.	1	8	145	6	912	347	344	214	16	.	1,993
<i>Opsanus tau</i>	.	3	2	3	.	.	.	2	.	1	.	1	12
<i>Oreochromis complex</i>	.	.	.	.	.	.	.	.	1	.	.	.	1
<i>Sarotherodon</i> spp.	.	.	.	1	.	26	5	2	3	.	.	.	37
<i>Orthopristis chrysoptera</i>	.	.	10	30	51	18	54	70	107	93	13	2	448
<i>Paralichthys albigutta</i>	.	.	1	4	4	5	.	.	.	.	1	.	15
<i>Poecilia latipinna</i>	15	.	.	2	5	.	.	.	.	1	2	.	25
<i>Pogonias cromis</i>	15	1	3	6	23	48	8	14	26	33	31	9	217

[illegible]

Species	Month												Total
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
	E=57	E=57	E=47	E=57	E=47	E=57	E=47	E=57	E=57	E=57	E=57	E=57	E=654
<i>Syngnathidae</i> sp.	1	.	.	.	.	.	.	.	.	.	.	.	1
<i>Syngnathus louisianae</i>	1	2	2	1	.	.	6	2	1	2	2	2	21
<i>Syngnathus scovelli</i>	4	18	48	23	25	37	29	63	13	10	17	34	321
<i>Synodus foetens</i>	.	.	.	.	1	.	1	.	.	.	.	.	2
<i>Trachinotus carolinus</i>	.	1	.	2	.	.	.	.	.	.	1	.	4
<i>Trachinotus falcatus</i>	.	.	1	1	2	3	21	22	22	15	5	10	102
<i>Trinectes maculatus</i>	15	8	.	14	.	.	.	5	.	1	4	.	47
<i>Tylosurus crocodilus</i>	.	.	.	.	.	.	.	.	2	.	.	1	3
Total	8,611	10,639	7,511	8,510	18,842	23,415	12,551	16,408	17,132	24,348	22,890	8,710	179,567

Effort, or total number of hauls, is labeled 'E'. Taxa are arranged alphabetically. Selected taxa are highlighted in bold.

Table A.26: Summary by gear and stratum of taxa collected during Northern Indian River Lagoon stratified-random sampling, 2024.

Species	Gear and Strata							Total
	21.3-m bay seine			21.3-m river seine		183-m haul seine		
	Veg	Unveg	Shore	Over	Nonover	Over	Nonover	
	E=87	E=57	E=192	E=80	E=10	E=192	E=36	
<i>Achirus lineatus</i>	35	16	36	7	.	28	14	136
<i>Albula</i> spp.	12	4	20	9	.	6	.	51
<i>Anchoa cubana</i>	.	2	.	.	.	.	.	2
<i>Anchoa hepsetus</i>	5	1	617	777	.	.	.	1,400
<i>Anchoa lamprotaenia</i>	.	.	136	.	.	.	.	136
<i>Anchoa lyolepis</i>	1	.	2	.	.	.	.	3
<i>Anchoa mitchilli</i>	2,282	4,275	60,018	22,713	83	.	.	89,371
<i>Anchoa</i> spp.	2	.	1	.	.	.	.	3
<i>Archosargus probatocephalus</i>	12	2	197	37	6	486	48	788
<i>Archosargus rhomboidalis</i>	6	.	18	.	.	449	65	538
<i>Archosargus</i> spp.	.	.	1	.	.	2	.	3
<i>Ariopsis felis</i>	81	221	92	6	.	2,080	400	2,880
<i>Astroscopus y-graecum</i>	.	.	.	.	.	2	.	2
<i>Awaous banana</i>	.	.	.	2	.	.	.	2
<i>Bagre marinus</i>	1	2	3	.	.	170	8	184
<i>Bairdiella chrysoura</i>	1,912	115	949	2	.	1,021	735	4,734
<i>Bathygobius soporator</i>	.	.	3	3	.	.	.	6
<i>Brevoortia</i> spp.	373	21	1,490	335	.	1,410	62	3,691
<i>Callinectes ornatus</i>	2	.	7	.	.	9	10	28
<i>Callinectes sapidus</i>	8	30	145	66	4	131	52	436
<i>Callinectes similis</i>	1	2	5	.	1	1	2	12
<i>Callinectes</i> spp.	1	.	.	.	.	7	1	9
<i>Caranx hippos</i>	.	1	2	1	.	143	36	183
<i>Caranx latus</i>	.	.	.	1	.	4	2	7
<i>Caranx</i> sp.	.	.	.	.	.	1	.	1
<i>Carcharhinus leucas</i>	.	.	.	.	.	2	.	2

Species	Gear and Strata							Total
	21.3-m bay seine			21.3-m river seine		183-m haul seine		
	Veg	Unveg	Shore	Over	Nonover	Over	Nonover	
	E=87	E=57	E=192	E=80	E=10	E=192	E=36	
<i>Centropomus parallelus</i>	.	.	.	2	.	.	.	2
<i>Centropomus pectinatus</i>	.	.	.	2	.	.	.	2
<i>Centropomus undecimalis</i>	1	5	49	366	21	636	6	1,084
<i>Chaetodipterus faber</i>	2	.	3	.	.	111	6	122
<i>Chasmodes saburrae</i>	56	.	89	.	.	1	.	146
<i>Chilomycterus schoepfii</i>	2	2	5	.	.	72	22	103
<i>Chloroscombrus chrysurus</i>	5	.	.	.	.	87	2	94
<i>Citharichthys spilopterus</i>	4	2	26	13	.	16	2	63
<i>Clupeiformes</i> spp.	.	5	1	.	.	.	.	6
<i>Corvula sanctaeluciae</i>	.	.	.	.	.	2	.	2
<i>Ctenogobius boleosoma</i>	25	.	3	4	.	.	.	32
<i>Ctenogobius shufeldti</i>	.	.	.	6	.	.	.	6
<i>Ctenogobius smaragdus</i>	6	3	15	.	.	.	.	24
<i>Ctenogobius</i> spp.	.	.	3	.	.	.	.	3
<i>Cynoscion complex</i>	.	.	19	.	.	87	169	275
<i>Cynoscion nebulosus</i>	59	13	93	1	.	117	37	320
<i>Cyprinodon variegatus</i>	1	.	26	.	.	.	.	27
<i>Dajaus monticola</i>	.	.	.	8	.	.	.	8
<i>Diapterus auratus</i>	29	20	817	3,482	157	3,198	2,141	9,844
<i>Diapterus rhombeus</i>	2	23	325	1	.	167	81	599
<i>Diplodus holbrookii</i>	.	.	.	.	.	1	.	1
<i>Dormitator maculatus</i>	.	.	.	4	.	.	.	4
<i>Echeneis neucratoides</i>	.	.	.	.	.	.	1	1
<i>Eleotris amblyopsis</i>	.	.	.	1	.	.	.	1
<i>Elops saurus</i>	.	.	60	8	.	664	80	812
<i>Elops smithi</i>	.	1	6	.	.	.	.	7
<i>Elops</i> spp.	.	1	1	.	.	.	.	2
<i>Enneacanthus gloriosus</i>	.	.	.	.	2	.	.	2

Species	Gear and Strata							Total
	21.3-m bay seine			21.3-m river seine		183-m haul seine		
	Veg	Unveg	Shore	Over	Nonover	Over	Nonover	
	E=87	E=57	E=192	E=80	E=10	E=192	E=36	
<i>Etheostoma fusiforme</i>	.	.	.	.	1	.	.	1
<i>Eucinostomus argenteus</i>	2	.	4	.	.	.	.	6
<i>Eucinostomus gula</i>	171	71	1,134	103	1	494	492	2,466
<i>Eucinostomus harengulus</i>	78	7	389	276	68	1,905	654	3,377
<i>Eucinostomus jonesii</i>	51	.	35	1	2	2	.	91
<i>Eucinostomus melanopterus</i>	.	.	.	.	1	.	.	1
<i>Eucinostomus</i> spp.	1,589	373	3,167	5,149	263	.	.	10,541
<i>Eugerres plumieri</i>	14	9	251	567	53	89	13	996
<i>Evorthodus lyricus</i>	.	1	6	14	.	.	.	21
<i>Farfantepenaeus aztecus</i>	1	.	8	1	.	15	1	26
<i>Farfantepenaeus duorarum</i>	1	1	3	.	.	6	2	13
<i>Farfantepenaeus</i> spp.	289	59	308	130	56	4	.	846
<i>Floridichthys carpio</i>	89	33	709	.	.	.	.	831
<i>Fundulus chrysotus</i>	.	.	.	.	1	.	.	1
<i>Fundulus seminolis</i>	.	.	.	1	2	.	.	3
<i>Gambusia holbrooki</i>	1	.	.	161	56	.	.	218
<i>Gerres cinereus</i>	1	.	18	11	1	64	1	96
<i>Ginglymostoma cirratum</i>	.	.	.	.	.	1	.	1
<i>Gobiesox strumosus</i>	1	.	2	.	.	.	.	3
<i>Gobiomorus dormitor</i>	.	.	.	2	.	.	.	2
<i>Gobionellus oceanicus</i>	.	6	2	13	.	.	.	21
<i>Gobiosoma bosc</i>	.	.	4	12	.	.	.	16
<i>Gobiosoma robustum</i>	434	23	193	2	2	.	.	654
<i>Gobiosoma</i> spp.	221	129	150	21	2	.	.	523
<i>Gymnura lessae</i>	.	.	.	.	.	14	5	19
<i>Haemulon parra</i>	2	.	46	.	.	1	.	49
<i>Haemulon plumierii</i>	.	.	8	.	.	.	.	8
<i>Haemulon sciurus</i>	.	.	2	.	.	.	.	2

Species	Gear and Strata							Total
	21.3-m bay seine			21.3-m river seine		183-m haul seine		
	Veg	Unveg	Shore	Over	Nonover	Over	Nonover	
	E=87	E=57	E=192	E=80	E=10	E=192	E=36	
<i>Harengula jaguana</i>	404	4	6,215	.	.	161	68	6,852
<i>Hemichromis letourneuxi</i>	.	.	.	7	5	.	.	12
<i>Heterandria formosa</i>	.	.	.	.	7	.	.	7
<i>Hippocampus erectus</i>	.	.	.	.	.	2	.	2
<i>Hypanus americanus</i>	.	.	.	.	.	1	1	2
<i>Hypanus sabinus</i>	12	6	23	3	.	714	146	904
<i>Hypanus say</i>	3	1	4	.	.	176	41	225
<i>Hyporhamphus meeki</i>	17	.	.	.	.	15	.	32
<i>Labidesthes vanhyningi</i>	.	.	.	86	33	.	.	119
<i>Lagodon rhomboides</i>	66	2	248	7	.	1,047	98	1,468
<i>Leiostomus xanthurus</i>	11	24	1,547	235	.	2,250	1,058	5,125
<i>Lepisosteus platyrhincus</i>	.	.	.	6	.	.	.	6
<i>Lepomis gulosus</i>	.	.	.	1	4	.	.	5
<i>Lepomis macrochirus</i>	.	.	.	43	17	.	.	60
<i>Lepomis microlophus</i>	.	.	.	5	3	.	.	8
<i>Lepomis punctatus</i>	.	.	.	2	.	.	.	2
<i>Lepomis</i> spp.	.	.	.	6	.	.	.	6
<i>Limulus polyphemus</i>	.	.	.	.	.	5	14	19
<i>Litopenaeus setiferus</i>	4	23	34	27	.	40	14	142
<i>Lobotes surinamensis</i>	.	.	.	.	.	1	.	1
<i>Lophogobius cyprinoides</i>	.	.	1	50	5	.	.	56
<i>Lucania goodei</i>	.	.	.	3	14	.	.	17
<i>Lucania parva</i>	812	8	2,204	.	2	.	.	3,026
<i>Lutjanus analis</i>	1	1	2	.	.	9	1	14
<i>Lutjanus apodus</i>	.	.	1	1	.	.	.	2
<i>Lutjanus griseus</i>	5	5	24	18	3	118	9	182
<i>Lutjanus jocu</i>	.	.	.	1	.	.	.	1
<i>Lutjanus synagris</i>	.	.	.	.	.	1	.	1

Species	Gear and Strata							Total
	21.3-m bay seine			21.3-m river seine		183-m haul seine		
	Veg	Unveg	Shore	Over	Nonover	Over	Nonover	
	E=87	E=57	E=192	E=80	E=10	E=192	E=36	
<i>Mayaheros urophthalmus</i>	.	.	59	46	8	12	.	125
<i>Megalops atlanticus</i>	.	.	2	.	.	30	1	33
<i>Membras martinica</i>	.	.	39	.	.	.	.	39
<i>Menidia</i> spp.	128	44	3,121	114	108	.	.	3,515
<i>Menticirrhus americanus</i>	1	10	46	.	.	46	17	120
<i>Microgobius gulosus</i>	794	77	824	10	14	.	.	1,719
<i>Microgobius microlepis</i>	4	2	4	.	.	.	.	10
<i>Microgobius thalassinus</i>	.	.	1	.	.	.	.	1
<i>Microphis lineatus</i>	.	.	.	4	.	.	.	4
<i>Micropogonias undulatus</i>	9	1	818	830	1	1,365	1,220	4,244
<i>Micropterus salmoides</i>	.	.	.	.	2	.	.	2
<i>Mugil cephalus</i>	368	55	1,028	153	1	1,286	126	3,017
<i>Mugil curema</i>	5	2	409	28	.	3,395	393	4,232
<i>Mugil rubrioculus</i>	.	.	2	.	.	12	10	24
<i>Mugil</i> spp.	.	.	2	14	.	.	.	16
<i>Mugil trichodon</i>	.	.	2	.	.	.	.	2
<i>Oligoplites saurus</i>	15	27	95	9	.	150	28	324
<i>Opisthonema oglinum</i>	.	71	1,479	245	.	173	25	1,993
<i>Opsanus tau</i>	2	.	.	.	.	6	4	12
<i>Oreochromis complex</i>	.	.	.	1	.	.	.	1
<i>Sarotherodon</i> spp.	.	.	36	1	.	.	.	37
<i>Orthopristis chrysoptera</i>	68	2	58	.	5	238	77	448
<i>Paralichthys albigutta</i>	5	.	4	.	1	5	.	15
<i>Poecilia latipinna</i>	.	.	7	.	18	.	.	25
<i>Pogonias cromis</i>	1	.	7	.	.	201	8	217
<i>Pomatomus saltatrix</i>	.	.	.	.	.	7	.	7
<i>Portunus</i> spp.	.	.	1	.	2	.	.	3
<i>Prionotus scitulus</i>	.	.	.	.	.	4	.	4

Species	Gear and Strata							Total
	21.3-m bay seine			21.3-m river seine		183-m haul seine		
	Veg	Unveg	Shore	Over	Nonover	Over	Nonover	
	E=87	E=57	E=192	E=80	E=10	E=192	E=36	
<i>Prionotus tribulus</i>	.	.	3	.	.	7	.	10
<i>Rhinoptera bonasus</i>	.	.	.	.	.	1	.	1
<i>Sardinella aurita</i>	.	.	1	.	.	.	.	1
<i>Sarotherodon melanotheron</i>	.	.	5	3	.	5	.	13
<i>Sciaenidae</i> sp.	1	.	.	.	.	.	.	1
<i>Sciaenops ocellatus</i>	2	2	162	16	.	349	19	550
<i>Scomberomorus maculatus</i>	.	.	.	.	.	2	2	4
<i>Scorpaena plumieri</i>	1	.	.	.	.	.	.	1
<i>Selene vomer</i>	.	.	.	.	.	30	.	30
<i>Sparisoma chrysopteron</i>	.	.	2	.	.	.	.	2
<i>Sphoeroides nephelus</i>	12	8	14	.	.	338	131	503
<i>Sphoeroides spengleri</i>	1	.	1	.	.	1	.	3
<i>Sphoeroides</i> sp.	1	.	.	.	.	.	.	1
<i>Sphoeroides testudineus</i>	5	1	23	.	.	87	3	119
<i>Sphyraena barracuda</i>	.	.	6	8	.	21	.	35
<i>Strongylura marina</i>	.	.	.	.	.	5	8	13
<i>Strongylura notata</i>	11	16	198	1	1	20	1	248
<i>Strongylura</i> spp.	.	.	3	2	.	.	.	5
<i>Strongylura timucu</i>	.	.	2	3	1	1	.	7
<i>Symphurus plagiusa</i>	1	.	.	.	.	1	.	2
<i>Syngnathidae</i> sp.	.	1	.	.	.	.	.	1
<i>Syngnathus louisianae</i>	12	3	4	.	.	2	.	21
<i>Syngnathus scovelli</i>	206	18	97	.	.	.	.	321
<i>Synodus foetens</i>	1	.	.	.	.	.	1	2
<i>Trachinotus carolinus</i>	.	.	.	.	.	4	.	4
<i>Trachinotus falcatus</i>	1	.	20	.	.	63	18	102
<i>Trinectes maculatus</i>	.	.	.	31	12	4	.	47
<i>Tylosurus crocodilus</i>	.	.	.	.	.	2	1	3

Species	Gear and Strata							Total
	21.3-m bay seine			21.3-m river seine		183-m haul seine		
	Veg	Unveg	Shore	Over	Nonover	Over	Nonover	
	E=87	E=57	E=192	E=80	E=10	E=192	E=36	
Total	10,861	5,893	90,610	36,341	1,050	26,119	8,693	179,567

Sampling with 21.3-m bay seine was stratified by the presence or absence of a shoreline ('Shore' or offshore) within 5-m. Offshore sets were further stratified by the presence or absence of bottom vegetation ('Veg' or 'Unveg'). Sampling with 21.3-m river seine was not stratified. Sampling with 183-m haul seine was stratified by the presence or absence of overhanging vegetation ('Over' or 'Nonover'). Effort, or the total number of hauls, is labeled 'E'. Taxa are arranged alphabetically. Selected taxa are highlighted in bold.

Table A.27: Summary by zone of taxa collected during Northern Indian River Lagoon stratified-random sampling, 2024.

Species	Zone					Total
	C	D	E	H	F	
	E=168	E=168	E=48	E=180	E=90	E=654
<i>Achirus lineatus</i>	75	23	2	29	7	136
<i>Albula</i> spp.	.	.	6	36	9	51
<i>Anchoa cubana</i>	.	.	.	2	.	2
<i>Anchoa hepsetus</i>	20	2	.	601	777	1,400
<i>Anchoa lamprotaenia</i>	.	.	.	136	.	136
<i>Anchoa lyolepis</i>	.	.	.	3	.	3
<i>Anchoa mitchilli</i>	27,124	21,088	.	18,363	22,796	89,371
<i>Anchoa</i> spp.	.	1	.	2	.	3
<i>Archosargus probatocephalus</i>	64	305	12	364	43	788
<i>Archosargus rhomboidalis</i>	29	17	146	346	.	538
<i>Archosargus</i> spp.	.	.	.	3	.	3
<i>Ariopsis felis</i>	568	890	719	697	6	2,880
<i>Astroscopus y-graecum</i>	.	.	.	2	.	2
<i>Awaous banana</i>	.	.	.	.	2	2
<i>Bagre marinus</i>	24	5	7	148	.	184
<i>Bairdiella chrysoura</i>	3,917	143	311	361	2	4,734
<i>Bathygobius soporator</i>	.	.	.	3	3	6
<i>Brevoortia</i> spp.	1,739	142	1,311	164	335	3,691
<i>Callinectes ornatus</i>	.	.	.	28	.	28
<i>Callinectes sapidus</i>	106	34	7	219	70	436
<i>Callinectes similis</i>	.	.	.	11	1	12
<i>Callinectes</i> spp.	.	.	.	9	.	9
<i>Caranx hippos</i>	12	60	6	104	1	183
<i>Caranx latus</i>	2	.	2	2	1	7
<i>Caranx</i> sp.	.	.	1	.	.	1
<i>Carcharhinus leucas</i>	.	.	2	.	.	2
<i>Centropomus parallelus</i>	.	.	.	.	2	2

Species	Zone					Total
	C	D	E	H	F	
	E=168	E=168	E=48	E=180	E=90	E=654
<i>Centropomus pectinatus</i>	.	.	.	.	2	2
<i>Centropomus undecimalis</i>	63	123	18	493	387	1,084
<i>Chaetodipterus faber</i>	15	27	.	80	.	122
<i>Chasmodes saburrae</i>	75	68	1	2	.	146
<i>Chilomycterus schoepfii</i>	29	18	12	44	.	103
<i>Chloroscombrus chrysurus</i>	59	29	2	4	.	94
<i>Citharichthys spilopterus</i>	10	.	.	40	13	63
<i>Clupeiformes</i> spp.	.	.	.	6	.	6
<i>Corvula sanctaeluciae</i>	.	.	.	2	.	2
<i>Ctenogobius boleosoma</i>	.	.	.	28	4	32
<i>Ctenogobius shufeldti</i>	.	.	.	.	6	6
<i>Ctenogobius smaragdus</i>	.	.	.	24	.	24
<i>Ctenogobius</i> spp.	.	.	.	3	.	3
<i>Cynoscion complex</i>	200	.	.	75	.	275
<i>Cynoscion nebulosus</i>	201	40	8	70	1	320
<i>Cyprinodon variegatus</i>	.	27	.	.	.	27
<i>Dajaus monticola</i>	.	.	.	.	8	8
<i>Diapterus auratus</i>	2,931	382	953	1,939	3,639	9,844
<i>Diapterus rhombeus</i>	315	.	.	283	1	599
<i>Diplodus holbrookii</i>	.	.	.	1	.	1
<i>Dormitator maculatus</i>	.	.	.	.	4	4
<i>Echeneis neucratoides</i>	.	1	.	.	.	1
<i>Eleotris amblyopsis</i>	.	.	.	.	1	1
<i>Elops saurus</i>	228	113	301	162	8	812
<i>Elops smithi</i>	.	2	.	5	.	7
<i>Elops</i> spp.	.	.	.	2	.	2
<i>Enneacanthus gloriosus</i>	.	.	.	.	2	2
<i>Etheostoma fusiforme</i>	.	.	.	.	1	1
<i>Eucinostomus argenteus</i>	.	.	.	6	.	6

Species	Zone					Total
	C	D	E	H	F	
	E=168	E=168	E=48	E=180	E=90	E=654
<i>Eucinostomus gula</i>	879	104	165	1,214	104	2,466
<i>Eucinostomus harengulus</i>	472	875	1,014	672	344	3,377
<i>Eucinostomus jonesii</i>	.	.	.	88	3	91
<i>Eucinostomus melanopterus</i>	.	.	.	.	1	1
<i>Eucinostomus</i> spp.	718	267	.	4,144	5,412	10,541
<i>Eugerres plumieri</i>	156	157	15	48	620	996
<i>Evorthodus lyricus</i>	.	.	.	7	14	21
<i>Farfantepenaeus aztecus</i>	13	4	.	8	1	26
<i>Farfantepenaeus duorarum</i>	10	.	.	3	.	13
<i>Farfantepenaeus</i> spp.	37	.	.	623	186	846
<i>Floridichthys carpio</i>	19	799	.	13	.	831
<i>Fundulus chrysotus</i>	.	.	.	.	1	1
<i>Fundulus seminolis</i>	.	.	.	.	3	3
<i>Gambusia holbrooki</i>	.	1	.	.	217	218
<i>Gerres cinereus</i>	1	7	2	74	12	96
<i>Ginglymostoma cirratum</i>	.	.	.	1	.	1
<i>Gobiesox strumosus</i>	1	2	.	.	.	3
<i>Gobiomorus dormitor</i>	.	.	.	.	2	2
<i>Gobionellus oceanicus</i>	.	.	.	8	13	21
<i>Gobiosoma bosc</i>	1	1	.	2	12	16
<i>Gobiosoma robustum</i>	420	99	.	131	4	654
<i>Gobiosoma</i> spp.	252	56	.	192	23	523
<i>Gymnura lessae</i>	4	.	.	15	.	19
<i>Haemulon parra</i>	.	.	.	49	.	49
<i>Haemulon plumieri</i>	.	.	.	8	.	8
<i>Haemulon sciurus</i>	.	.	.	2	.	2
<i>Harengula jaguana</i>	604	15	7	6,226	.	6,852
<i>Hemichromis letourneuxi</i>	.	.	.	.	12	12
<i>Heterandria formosa</i>	.	.	.	.	7	7

Species	Zone					Total
	C	D	E	H	F	
	E=168	E=168	E=48	E=180	E=90	E=654
<i>Hippocampus erectus</i>	1	.	.	1	.	2
<i>Hypanus americanus</i>	.	.	.	2	.	2
<i>Hypanus sabinus</i>	296	261	127	217	3	904
<i>Hypanus say</i>	80	28	44	73	.	225
<i>Hyporhamphus meeki</i>	9	8	1	14	.	32
<i>Labidesthes vanhyningi</i>	.	.	.	.	119	119
<i>Lagodon rhomboides</i>	40	411	69	941	7	1,468
<i>Leiostomus xanthurus</i>	1,235	135	19	3,501	235	5,125
<i>Lepisosteus platyrhincus</i>	.	.	.	.	6	6
<i>Lepomis gulosus</i>	.	.	.	.	5	5
<i>Lepomis macrochirus</i>	.	.	.	.	60	60
<i>Lepomis microlophus</i>	.	.	.	.	8	8
<i>Lepomis punctatus</i>	.	.	.	.	2	2
<i>Lepomis</i> spp.	.	.	.	.	6	6
<i>Limulus polyphemus</i>	.	6	13	.	.	19
<i>Litopenaeus setiferus</i>	82	1	.	32	27	142
<i>Lobotes surinamensis</i>	.	.	.	1	.	1
<i>Lophogobius cyprinoides</i>	.	.	.	1	55	56
<i>Lucania goodei</i>	.	.	.	.	17	17
<i>Lucania parva</i>	92	2,932	.	.	2	3,026
<i>Lutjanus analis</i>	.	.	.	14	.	14
<i>Lutjanus apodus</i>	.	.	.	1	1	2
<i>Lutjanus griseus</i>	12	7	.	142	21	182
<i>Lutjanus jocu</i>	.	.	.	.	1	1
<i>Lutjanus synagris</i>	.	.	.	1	.	1
<i>Mayaheros urophthalmus</i>	.	71	.	.	54	125
<i>Megalops atlanticus</i>	1	31	.	1	.	33
<i>Membras martinica</i>	39	.	.	.	.	39
<i>Menidia</i> spp.	1,514	1,752	.	27	222	3,515

Species	Zone					Total
	C	D	E	H	F	
	E=168	E=168	E=48	E=180	E=90	E=654
<i>Menticirrhus americanus</i>	64	3	6	47	.	120
<i>Microgobius gulosus</i>	177	1,419	.	99	24	1,719
<i>Microgobius microlepis</i>	.	.	.	10	.	10
<i>Microgobius thalassinus</i>	.	.	.	1	.	1
<i>Microphis lineatus</i>	.	.	.	.	4	4
<i>Micropogonias undulatus</i>	1,489	2	.	1,922	831	4,244
<i>Micropterus salmoides</i>	.	.	.	.	2	2
<i>Mugil cephalus</i>	870	1,075	52	866	154	3,017
<i>Mugil curema</i>	1,345	699	440	1,720	28	4,232
<i>Mugil rubrioculus</i>	12	4	1	7	.	24
<i>Mugil</i> spp.	.	.	.	2	14	16
<i>Mugil trichodon</i>	1	.	.	1	.	2
<i>Oligoplites saurus</i>	115	90	33	77	9	324
<i>Opisthonema oglinum</i>	193	764	148	643	245	1,993
<i>Opsanus tau</i>	8	2	2	.	.	12
<i>Oreochromis complex</i>	.	.	.	.	1	1
<i>Sarotherodon</i> spp.	.	36	.	.	1	37
<i>Orthopristis chrysoptera</i>	97	1	.	345	5	448
<i>Paralichthys albigutta</i>	.	.	.	14	1	15
<i>Poecilia latipinna</i>	.	2	.	5	18	25
<i>Pogonias cromis</i>	39	155	9	14	.	217
<i>Pomatomus saltatrix</i>	.	.	.	7	.	7
<i>Portunus</i> spp.	.	.	.	1	2	3
<i>Prionotus scitulus</i>	.	.	.	4	.	4
<i>Prionotus tribulus</i>	1	.	.	9	.	10
<i>Rhinoptera bonasus</i>	.	1	.	.	.	1
<i>Sardinella aurita</i>	.	.	.	1	.	1
<i>Sarotherodon melanotheron</i>	.	7	.	3	3	13
<i>Sciaenidae</i> sp.	.	.	.	1	.	1

Species	Zone					Total
	C	D	E	H	F	
	E=168	E=168	E=48	E=180	E=90	E=654
<i>Sciaenops ocellatus</i>	55	249	56	174	16	550
<i>Scomberomorus maculatus</i>	4	.	.	.	.	4
<i>Scorpaena plumieri</i>	.	.	.	1	.	1
<i>Selene vomer</i>	1	13	.	16	.	30
<i>Sparisoma chrysopteron</i>	.	.	.	2	.	2
<i>Sphoeroides nephelus</i>	59	376	40	28	.	503
<i>Sphoeroides spengleri</i>	.	.	.	3	.	3
<i>Sphoeroides</i> sp.	.	.	.	1	.	1
<i>Sphoeroides testudineus</i>	5	1	.	113	.	119
<i>Sphyaena barracuda</i>	1	.	.	26	8	35
<i>Strongylura marina</i>	1	1	1	10	.	13
<i>Strongylura notata</i>	48	125	9	64	2	248
<i>Strongylura</i> spp.	.	3	.	.	2	5
<i>Strongylura timucu</i>	.	.	.	3	4	7
<i>Symphurus plagiata</i>	.	.	.	2	.	2
<i>Syngnathidae</i> sp.	.	1	.	.	.	1
<i>Syngnathus louisianae</i>	11	7	.	3	.	21
<i>Syngnathus scovelli</i>	166	117	.	38	.	321
<i>Synodus foetens</i>	.	.	.	2	.	2
<i>Trachinotus carolinus</i>	.	.	3	1	.	4
<i>Trachinotus falcatus</i>	54	1	.	47	.	102
<i>Trinectes maculatus</i>	.	.	.	4	43	47
<i>Tylosurus crocodilus</i>	1	.	.	2	.	3
Total	49,611	36,724	6,103	49,738	37,391	179,567

Zones C and H were located in the Northern Indian River Lagoon; Zones D—E encompassed the Banana River; Zone F encompassed the lower Sebastian River and Turkey Creek. Effort, or the total number of hauls, is labeled 'E'. Taxa are arranged alphabetically. Selected taxa are highlighted in bold.

A.10 Southern Indian River Lagoon

Table A.28: Monthly summary of taxa collected during Southern Indian River Lagoon stratified-random sampling, 2024.

Species	Month												Total
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
	E=35	E=35	E=12	E=35	E=12	E=35	E=12	E=35	E=35	E=35	E=35	E=35	E=351
<i>Acanthostracion quadricornis</i>	.	1	.	.	1	.	1	.	.	.	.	1	4
<i>Achirus lineatus</i>	.	3	.	6	1	13	.	9	.	5	23	9	69
<i>Aetobatus narinari</i>	.	.	.	.	1	.	.	.	.	.	.	.	1
<i>Albula</i> spp.	2	2	.	6	4	1	13	5	13	.	13	4	63
<i>Anchoa cubana</i>	11	.	.	.	.	.	.	.	.	.	.	8	19
<i>Anchoa hepsetus</i>	.	.	.	37	.	.	.	.	.	.	.	1	38
<i>Anchoa lamprotaenia</i>	4	.	.	1	.	.	.	.	.	.	.	.	5
<i>Anchoa lyolepis</i>	44	.	.	.	.	.	.	.	.	.	.	3	47
<i>Anchoa mitchilli</i>	6,861	2,092	.	1,742	.	216	.	152	129	70	1,472	11,727	24,461
<i>Anchoa</i> spp.	2	.	.	3	.	.	.	.	1	.	.	.	6
<i>Antennarius scaber</i>	.	.	.	.	.	.	1	.	.	.	.	.	1
<i>Archosargus probatocephalus</i>	8	23	18	27	17	26	20	29	62	39	23	46	338
<i>Archosargus rhomboidalis</i>	.	1	15	1	4	3	1	9	3	5	206	100	348
<i>Archosargus</i> spp.	.	.	15	.	.	.	.	.	.	.	.	.	15
<i>Ariopsis felis</i>	2	81	18	25	67	26	65	128	74	121	45	88	740
<i>Atherinomorus stipes</i>	.	1	.	.	.	.	.	.	.	.	.	.	1
<i>Bagre marinus</i>	.	.	2	.	3	3	.	.	1	5	1	.	15
<i>Bairdiella chrysoura</i>	.	1	9	1	1	1	.	.	.	.	.	8	21
<i>Bathygobius soporator</i>	4	1	.	1	.	.	.	.	4	.	.	1	11
<i>Brevoortia</i> spp.	85	298	2	743	2	63	.	5	7	.	2	20	1,227

Species	Month												Total
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
	E=35	E=35	E=12	E=35	E=12	E=35	E=12	E=35	E=35	E=35	E=35	E=35	E=351
<i>Callinectes bocourti</i>	.	.	.	1	.	.	.	.	.	.	.	.	1
<i>Callinectes ornatus</i>	.	.	.	.	.	12	6	.	1	1	14	4	38
<i>Callinectes sapidus</i>	18	19	2	28	11	16	5	15	65	70	62	25	336
<i>Callinectes similis</i>	.	1	.	6	.	1	.	.	.	2	.	2	12
<i>Callinectes</i> spp.	.	.	.	5	.	.	.	.	1	.	.	1	7
<i>Caranx bartholomaei</i>	.	1	.	.	.	.	.	.	.	.	.	4	5
<i>Caranx crysos</i>	1	.	.	.	2	.	2	2	.	.	6	.	13
<i>Caranx hippos</i>	7	21	19	6	1	2	1	8	6	15	23	71	180
<i>Caranx latus</i>	.	1	1	.	.	.	.	.	1	.	.	.	3
<i>Carcharhinus leucas</i>	.	.	.	.	1	.	.	1	.	.	1	1	4
<i>Centropomus ensiferus</i>	1	.	.	.	.	.	.	.	.	.	.	.	1
<i>Centropomus parallelus</i>	3	1	.	1	.	1	.	1	2	1	3	1	14
<i>Centropomus undecimalis</i>	42	39	19	76	15	71	7	28	42	72	23	91	525
<i>Chaetodipterus faber</i>	.	.	1	.	.	242	1	.	.	1	4	1	250
<i>Charybdis hellerii</i>	.	.	.	.	.	.	.	.	.	.	.	2	2
<i>Chilomycterus schoepfii</i>	2	2	4	.	3	1	.	1	1	3	.	2	19
<i>Chloroscombrus chrysurus</i>	.	.	.	.	1	.	.	.	.	1	2	.	4
<i>Citharichthys macrops</i>	.	.	.	.	.	.	.	.	.	.	1	.	1
<i>Citharichthys spilopterus</i>	3	1	.	8	.	4	1	3	4	1	8	5	38
<i>Clupeiformes</i> spp.	.	.	.	2	.	.	.	.	.	.	.	2	4
<i>Ctenogobius boleosoma</i>	11	7	.	7	.	.	.	.	.	3	29	9	66
<i>Ctenogobius saepepallens</i>	.	.	.	3	.	.	.	.	.	.	.	.	3
<i>Ctenogobius shufeldti</i>	.	.	.	.	.	.	.	.	1	.	.	.	1

Species	Month												Total
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
	E=35	E=35	E=12	E=35	E=12	E=35	E=12	E=35	E=35	E=35	E=35	E=35	E=351
<i>Ctenogobius smaragdus</i>	5	.	.	1	.	3	.	.	.	3	.	1	13
<i>Ctenogobius</i> spp.	.	.	.	3	.	.	.	.	.	.	.	.	3
<i>Cynoscion complex</i>	.	.	.	.	.	5	.	1	.	.	1	.	7
<i>Cynoscion nebulosus</i>	.	.	.	.	.	.	.	.	1	.	4	1	6
<i>Dajaus monticola</i>	.	.	.	.	.	.	.	.	.	.	5	.	5
<i>Diapterus auratus</i>	406	430	1,340	392	1,460	761	129	286	266	149	1,605	924	8,148
<i>Diapterus rhombeus</i>	2	24	1	1	.	.	.	1	.	.	.	23	52
<i>Dormitator maculatus</i>	.	1	.	.	.	.	.	.	7	1	1	3	13
<i>Dorosoma petenense</i>	.	.	.	.	.	.	.	.	2	52	.	.	54
<i>Echeneis</i> spp.	.	.	.	.	.	.	.	.	1	.	.	1	2
<i>Eleotris amblyopsis</i>	.	.	.	3	.	.	.	.	1	.	.	.	4
<i>Elops saurus</i>	30	5	53	8	74	28	.	8	1	13	9	68	297
<i>Eucinostomus argenteus</i>	76	.	.	.	.	1	.	.	.	.	.	.	77
<i>Eucinostomus gula</i>	457	80	1	304	6	30	7	17	18	20	5	11	956
<i>Eucinostomus harengulus</i>	73	99	36	85	55	80	1	41	17	22	11	42	562
<i>Eucinostomus jonesii</i>	383	18	5	126	.	64	3	.	.	2	.	2	603
<i>Eucinostomus melanopterus</i>	5	.	8	3	4	3	.	.	.	3	3	.	29
<i>Eucinostomus</i> spp.	2,517	915	.	635	.	62	.	150	580	283	165	1,442	6,749
<i>Eugerres plumieri</i>	60	11	.	430	1	134	1	84	20	19	20	56	836
<i>Evorthodus lyricus</i>	.	2	.	1	.	19	.	20	7	4	6	9	68
<i>Farfantepenaeus aztecus</i>	.	.	.	1	.	2	.	.	1	.	.	.	4
<i>Farfantepenaeus</i> spp.	10	29	.	283	.	33	.	20	44	4	28	21	472
<i>Gambusia holbrooki</i>	128	71	.	61	.	3	.	1	12	26	34	126	462

Species	Month												Total
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
	E=35	E=35	E=12	E=35	E=12	E=35	E=12	E=35	E=35	E=35	E=35	E=35	E=351
<i>Gerres cinereus</i>	15	53	23	30	34	8	9	27	17	11	22	44	293
<i>Gobiomorus dormitor</i>	.	1	.	1	.	.	.	.	.	.	1	1	4
<i>Gobionellus oceanicus</i>	6	25	.	60	.	6	.	3	12	57	20	53	242
<i>Gobiosoma bosc</i>	5	10	.	6	.	7	.	4	.	.	1	2	35
<i>Gobiosoma robustum</i>	.	.	.	.	.	.	.	.	.	1	.	.	1
<i>Gobiosoma spp.</i>	3	2	.	15	.	21	.	20	9	5	3	5	83
<i>Gymnura lessae</i>	.	.	.	2	.	.	.	1	1	1	.	1	6
<i>Haemulon aurolineatum</i>	.	.	.	.	.	.	1	.	2	.	.	.	3
<i>Haemulon parra</i>	2	.	.	.	.	.	.	.	.	.	.	.	2
<i>Harengula humeralis</i>	.	1	.	.	.	.	.	.	.	.	.	.	1
<i>Harengula jaguana</i>	2	13	3	5	.	86	.	.	.	22	54	.	185
<i>Harengula spp.</i>	735	.	.	.	.	.	.	.	.	.	.	.	735
<i>Hippocampus erectus</i>	.	.	.	.	.	1	.	.	.	.	.	.	1
<i>Hypanus americanus</i>	.	.	1	.	.	1	.	.	.	.	.	.	2
<i>Hypanus sabinus</i>	3	8	.	3	1	4	5	1	2	4	11	9	51
<i>Hypanus say</i>	1	5	12	4	.	7	4	3	5	4	34	3	82
<i>Labidesthes vanhyningi</i>	9	51	.	37	.	12	.	9	5	2	31	3	159
<i>Lactophrys trigonus</i>	.	6	.	4	9	1	12	1	5	.	1	1	40
<i>Lagodon rhomboides</i>	9	9	3	155	11	107	284	95	430	60	35	27	1,225
<i>Larimus fasciatus</i>	.	.	.	.	.	.	.	.	.	.	1	.	1
<i>Leiostomus xanthurus</i>	8	951	.	179	2	.	.	.	.	25	47	2	1,214
<i>Lepisosteus platyrhincus</i>	1	1	.	1	.	2	.	.	.	.	.	2	7
<i>Lepomis gulosus</i>	.	.	.	.	.	.	.	1	.	.	1	.	2

[illegible]

Species	Month												Total
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
	E=35	E=35	E=12	E=35	E=12	E=35	E=12	E=35	E=35	E=35	E=35	E=35	
<i>Mugil</i> spp.	.	.	.	.	.	.	.	.	.	.	.	15	15
<i>Mugil trichodon</i>	.	.	.	1	.	.	.	.	.	.	.	.	1
<i>Mycteroperca bonaci</i>	.	.	.	.	.	1	.	.	.	.	.	.	1
<i>Narcine bancroftii</i>	.	.	.	.	.	1	.	.	.	.	.	.	1
<i>Oligoplites saurus</i>	35	3	7	1	3	8	1	6	8	7	60	13	152
<i>Opisthonema oglinum</i>	.	.	.	94	.	.	.	.	.	1	1	19	115
<i>Opsanus tau</i>	.	.	.	.	.	.	.	.	.	.	.	1	1
<i>Oreochromis complex</i>	.	.	.	.	.	.	1	1	.	.	1	.	3
<i>Sarotherodon</i> spp.	.	4	.	1	.	1	.	13	.	6	.	2	27
<i>Orthopristis chrysoptera</i>	.	184	.	5	.	38	32	1	13	1	2	.	276
<i>Panulirus argus</i>	.	.	.	.	.	1	.	.	.	.	.	.	1
<i>Paralichthys albigutta</i>	.	.	.	2	.	.	.	.	.	.	.	.	2
<i>Pelmatolapia mariae</i>	7	2	.	.	.	.	.	.	.	.	1	.	10
<i>Penaeus monodon</i>	.	.	.	.	.	.	.	.	.	.	1	.	1
<i>Poecilia latipinna</i>	.	.	.	.	.	.	.	.	.	6	.	.	6
<i>Pogonias cromis</i>	.	4	1	1	.	3	.	.	1	.	6	6	22
<i>Pomatomus saltatrix</i>	.	.	1	1	.	.	.	.	.	.	.	1	3
<i>Pomoxis nigromaculatus</i>	.	.	.	.	.	.	.	.	.	1	.	.	1
<i>Portunus</i> sp.	.	.	.	.	.	1	.	.	.	.	.	.	1
<i>Prionotus scitulus</i>	.	2	.	3	.	.	.	.	.	.	1	.	6
<i>Prionotus tribulus</i>	1	1	.	1	.	.	.	.	1	1	2	2	9
<i>Pterygoplichthys disjunctivus</i>	1	.	.	.	.	.	.	.	.	.	.	.	1
<i>Pterygoplichthys</i> spp.	.	.	.	.	.	.	.	2	.	1	.	.	3

Species	Month												Total
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
	E=35	E=35	E=12	E=35	E=12	E=35	E=12	E=35	E=35	E=35	E=35	E=35	E=351
<i>Rachycentron canadum</i>	.	.	.	.	.	.	.	.	.	1	.	.	1
<i>Sarotherodon melanotheron</i>	2	.	.	.	.	.	.	.	.	.	.	.	2
<i>Sciaenops ocellatus</i>	.	3	.	2	.	.	.	2	.	.	2	6	15
<i>Scomberomorus maculatus</i>	.	.	.	.	.	.	.	.	.	1	6	.	7
<i>Scorpaena grandicornis</i>	.	2	.	1	.	.	.	.	.	.	1	.	4
<i>Scorpaena plumieri</i>	.	1	.	.	.	.	.	.	.	.	.	1	2
<i>Selene setapinnis</i>	.	.	.	.	3	.	.	.	.	.	.	.	3
<i>Selene vomer</i>	7	14	115	4	31	20	7	10	10	18	82	68	386
<i>Sphoeroides nephelus</i>	.	1	.	2	.	.	1	1	.	2	1	2	10
<i>Sphoeroides spengleri</i>	2	.	1	1	.	.	.	.	.	.	.	1	5
<i>Sphoeroides</i> sp.	1	.	.	.	.	.	.	.	.	.	.	.	1
<i>Sphoeroides testudineus</i>	53	44	1	97	9	47	6	7	22	16	30	32	364
<i>Sphyrna barracuda</i>	9	21	13	18	9	11	8	5	20	36	77	25	252
<i>Sphyrna tiburo</i>	.	.	.	.	.	.	.	.	.	.	.	1	1
<i>Stephanolepis hispidus</i>	.	.	.	.	.	.	2	.	.	.	.	.	2
<i>Strongylura marina</i>	.	.	.	.	.	1	.	.	.	.	.	.	1
<i>Strongylura notata</i>	.	3	.	1	.	.	1	.	3	.	7	1	16
<i>Strongylura</i> spp.	.	.	.	2	.	.	.	.	.	.	.	.	2
<i>Strongylura timucu</i>	.	.	.	1	.	.	.	.	.	.	.	.	1
<i>Symphurus plagiusa</i>	.	.	.	.	.	.	.	.	.	.	.	1	1
<i>Syngnathus louisianae</i>	.	.	.	.	.	1	.	.	.	.	.	.	1
<i>Syngnathus scovelli</i>	.	.	.	2	.	.	.	.	.	.	.	.	2
<i>Synodus foetens</i>	2	.	.	14	.	1	.	.	.	.	2	2	21

Species	Month												Total
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
	E=35	E=35	E=12	E=35	E=12	E=35	E=12	E=35	E=35	E=35	E=35	E=35	E=351
<i>Trachinotus carolinus</i>	.	.	.	.	7	.	.	2	.	1	.	3	13
<i>Trachinotus falcatus</i>	.	5	.	3	.	.	8	5	7	5	14	1	48
<i>Trichiurus lepturus</i>	.	.	.	.	1	.	.	.	.	.	.	.	1
<i>Trinectes maculatus</i>	19	12	.	13	.	9	.	2	6	9	7	5	82
<i>Tylosurus crocodilus</i>	.	.	.	.	.	.	.	.	.	2	.	.	2
Total	17,581	7,397	2,021	6,446	1,997	2,782	720	1,503	2,263	1,644	4,778	15,857	64,989

Effort, or total number of hauls, is labeled 'E'. Taxa are arranged alphabetically. Selected taxa are highlighted in bold.

Table A.29: Summary by gear and stratum of taxa collected during Southern Indian River Lagoon stratified-random sampling, 2024.

Species	Gear and Strata				Total
	21.3-m river seine		183-m haul seine		
	Over	Nonover	Over	Nonover	
	E=152	E=55	E=102	E=42	
<i>Acanthostracion quadricornis</i>	.	.	3	1	4
<i>Achirus lineatus</i>	41	8	19	1	69
<i>Aetobatus narinari</i>	.	.	1	.	1
<i>Albula</i> spp.	6	.	26	31	63
<i>Anchoa cubana</i>	14	5	.	.	19
<i>Anchoa hepsetus</i>	.	38	.	.	38
<i>Anchoa lamprotaenia</i>	5	.	.	.	5
<i>Anchoa lyolepis</i>	38	9	.	.	47
<i>Anchoa mitchilli</i>	13,665	10,796	.	.	24,461
<i>Anchoa</i> spp.	1	5	.	.	6
<i>Antennarius scaber</i>	.	.	.	1	1
<i>Archosargus probatocephalus</i>	27	8	247	56	338
<i>Archosargus rhomboidalis</i>	.	.	329	19	348
<i>Archosargus</i> spp.	.	.	15	.	15
<i>Ariopsis felis</i>	6	8	627	99	740
<i>Atherinomorus stipes</i>	1	.	.	.	1
<i>Bagre marinus</i>	.	.	12	3	15
<i>Bairdiella chrysoura</i>	.	1	10	10	21
<i>Bathygobius soporator</i>	9	2	.	.	11
<i>Brevoortia</i> spp.	675	515	24	13	1,227
<i>Callinectes bocourti</i>	1	.	.	.	1
<i>Callinectes ornatus</i>	5	2	28	3	38
<i>Callinectes sapidus</i>	253	30	46	7	336
<i>Callinectes similis</i>	6	2	4	.	12
<i>Callinectes</i> spp.	3	4	.	.	7
<i>Caranx bartholomaei</i>	.	.	5	.	5

Species	Gear and Strata				Total
	21.3-m river seine		183-m haul seine		
	Over	Nonover	Over	Nonover	
	E=152	E=55	E=102	E=42	E=351
<i>Caranx crysos</i>	.	.	9	4	13
<i>Caranx hippos</i>	4	1	161	14	180
<i>Caranx latus</i>	2	.	1	.	3
<i>Carcharhinus leucas</i>	.	.	4	.	4
<i>Centropomus ensiferus</i>	1	.	.	.	1
<i>Centropomus parallelus</i>	12	2	.	.	14
<i>Centropomus undecimalis</i>	243	77	171	34	525
<i>Chaetodipterus faber</i>	.	.	249	1	250
<i>Charybdis hellerii</i>	.	.	2	.	2
<i>Chilomycterus schoepfii</i>	.	1	14	4	19
<i>Chloroscombrus chrysurus</i>	.	.	2	2	4
<i>Citharichthys macrops</i>	1	.	.	.	1
<i>Citharichthys spilopterus</i>	17	11	8	2	38
<i>Clupeiformes</i> spp.	1	3	.	.	4
<i>Ctenogobius boleosoma</i>	51	15	.	.	66
<i>Ctenogobius saepepallens</i>	.	3	.	.	3
<i>Ctenogobius shufeldti</i>	1	.	.	.	1
<i>Ctenogobius smaragdus</i>	11	2	.	.	13
<i>Ctenogobius</i> spp.	.	3	.	.	3
<i>Cynoscion complex</i>	.	1	1	5	7
<i>Cynoscion nebulosus</i>	.	.	6	.	6
<i>Dajaus monticola</i>	.	5	.	.	5
<i>Diapterus auratus</i>	605	179	6,582	782	8,148
<i>Diapterus rhombeus</i>	19	32	1	.	52
<i>Dormitator maculatus</i>	12	1	.	.	13
<i>Dorosoma petenense</i>	2	52	.	.	54
<i>Echeneis</i> spp.	.	.	2	.	2
<i>Eleotris amblyopsis</i>	4	.	.	.	4

Species	Gear and Strata				Total
	21.3-m river seine		183-m haul seine		
	Over	Nonover	Over	Nonover	
	E=152	E=55	E=102	E=42	E=351
<i>Elops saurus</i>	32	.	223	42	297
<i>Eucinostomus argenteus</i>	77	.	.	.	77
<i>Eucinostomus gula</i>	311	53	572	20	956
<i>Eucinostomus harengulus</i>	235	86	199	42	562
<i>Eucinostomus jonesii</i>	478	69	53	3	603
<i>Eucinostomus melanopterus</i>	4	1	22	2	29
<i>Eucinostomus</i> spp.	3,848	2,901	.	.	6,749
<i>Eugerres plumieri</i>	440	376	12	8	836
<i>Evorthodus lyricus</i>	51	17	.	.	68
<i>Farfantepenaeus aztecus</i>	1	2	1	.	4
<i>Farfantepenaeus</i> spp.	294	178	.	.	472
<i>Gambusia holbrooki</i>	367	95	.	.	462
<i>Gerres cinereus</i>	47	5	201	40	293
<i>Gobiomorus dormitor</i>	4	.	.	.	4
<i>Gobionellus oceanicus</i>	209	33	.	.	242
<i>Gobiosoma bosc</i>	29	6	.	.	35
<i>Gobiosoma robustum</i>	1	.	.	.	1
<i>Gobiosoma</i> spp.	73	10	.	.	83
<i>Gymnura lessae</i>	.	.	5	1	6
<i>Haemulon aurolineatum</i>	.	.	3	.	3
<i>Haemulon parra</i>	.	2	.	.	2
<i>Harengula humeralis</i>	.	1	.	.	1
<i>Harengula jaguana</i>	4	107	56	18	185
<i>Harengula</i> spp.	735	.	.	.	735
<i>Hippocampus erectus</i>	1	.	.	.	1
<i>Hypanus americanus</i>	.	.	1	1	2
<i>Hypanus sabinus</i>	2	1	37	11	51
<i>Hypanus say</i>	.	.	68	14	82

Species	Gear and Strata				Total
	21.3-m river seine		183-m haul seine		
	Over	Nonover	Over	Nonover	
	E=152	E=55	E=102	E=42	E=351
<i>Labidesthes vanhyningi</i>	107	52	.	.	159
<i>Lactophrys trigonus</i>	.	.	22	18	40
<i>Lagodon rhomboides</i>	148	15	960	102	1,225
<i>Larimus fasciatus</i>	.	.	1	.	1
<i>Leiostomus xanthurus</i>	403	732	78	1	1,214
<i>Lepisosteus platyrhincus</i>	7	.	.	.	7
<i>Lepomis gulosus</i>	1	1	.	.	2
<i>Lepomis macrochirus</i>	37	3	.	.	40
<i>Lepomis microlophus</i>	1	.	.	.	1
<i>Lepomis</i> spp.	11	6	.	.	17
<i>Limulus polyphemus</i>	.	.	3	1	4
<i>Litopenaeus setiferus</i>	7	3	.	.	10
<i>Lobotes surinamensis</i>	.	1	.	.	1
<i>Lophogobius cyprinoides</i>	214	19	.	.	233
<i>Lutjanus analis</i>	.	3	90	15	108
<i>Lutjanus griseus</i>	12	9	46	3	70
<i>Lutjanus jocu</i>	1	.	.	.	1
<i>Lutjanus synagris</i>	.	1	47	.	48
<i>Mayaheros urophthalmus</i>	22	1	.	.	23
<i>Megalops atlanticus</i>	.	.	2	.	2
<i>Menidia</i> spp.	517	328	.	.	845
<i>Menticirrhus americanus</i>	.	.	.	1	1
<i>Microgobius gulosus</i>	214	21	.	.	235
<i>Microgobius microlepis</i>	.	1	.	.	1
<i>Microgobius thalassinus</i>	.	5	.	.	5
<i>Microphis lineatus</i>	11	1	.	.	12
<i>Micropogonias undulatus</i>	133	167	185	35	520
<i>Mugil cephalus</i>	5,121	1,418	248	64	6,851

Species	Gear and Strata				Total
	21.3-m river seine		183-m haul seine		
	Over	Nonover	Over	Nonover	
	E=152	E=55	E=102	E=42	E=351
<i>Mugil curema</i>	61	129	646	466	1,302
<i>Mugil rubrioculus</i>	.	.	2	.	2
<i>Mugil</i> spp.	5	10	.	.	15
<i>Mugil trichodon</i>	1	.	.	.	1
<i>Mycteroperca bonaci</i>	.	.	1	.	1
<i>Narcine bancroftii</i>	.	.	1	.	1
<i>Oligoplites saurus</i>	7	5	117	23	152
<i>Opisthonema oglinum</i>	17	94	4	.	115
<i>Opsanus tau</i>	.	.	1	.	1
<i>Oreochromis complex</i>	1	1	1	.	3
<i>Sarotherodon</i> spp.	19	8	.	.	27
<i>Orthopristis chrysoptera</i>	5	184	87	.	276
<i>Panulirus argus</i>	.	.	1	.	1
<i>Paralichthys albigutta</i>	.	.	2	.	2
<i>Pelmatolapia mariae</i>	8	2	.	.	10
<i>Penaeus monodon</i>	.	1	.	.	1
<i>Poecilia latipinna</i>	6	.	.	.	6
<i>Pogonias cromis</i>	1	1	20	.	22
<i>Pomatomus saltatrix</i>	.	.	2	1	3
<i>Pomoxis nigromaculatus</i>	1	.	.	.	1
<i>Portunus</i> sp.	.	.	1	.	1
<i>Prionotus scitulus</i>	3	.	3	.	6
<i>Prionotus tribulus</i>	1	4	4	.	9
<i>Pterygoplichthys disjunctivus</i>	1	.	.	.	1
<i>Pterygoplichthys</i> spp.	3	.	.	.	3
<i>Rachycentron canadum</i>	.	.	1	.	1
<i>Sarotherodon melanotheron</i>	2	.	.	.	2
<i>Sciaenops ocellatus</i>	5	2	8	.	15

Species	Gear and Strata				Total
	21.3-m river seine		183-m haul seine		
	Over	Nonover	Over	Nonover	
	E=152	E=55	E=102	E=42	E=351
<i>Scomberomorus maculatus</i>	.	.	5	2	7
<i>Scorpaena grandicornis</i>	1	2	1	.	4
<i>Scorpaena plumieri</i>	.	.	2	.	2
<i>Selene setapinnis</i>	.	.	3	.	3
<i>Selene vomer</i>	.	1	324	61	386
<i>Sphoeroides nephelus</i>	2	1	6	1	10
<i>Sphoeroides spengleri</i>	.	.	5	.	5
<i>Sphoeroides</i> sp.	1	.	.	.	1
<i>Sphoeroides testudineus</i>	64	33	244	23	364
<i>Sphyrna barracuda</i>	15	9	200	28	252
<i>Sphyrna tiburo</i>	.	.	1	.	1
<i>Stephanolepis hispida</i>	.	.	1	1	2
<i>Strongylura marina</i>	.	1	.	.	1
<i>Strongylura notata</i>	2	.	14	.	16
<i>Strongylura</i> spp.	1	1	.	.	2
<i>Strongylura timucu</i>	1	.	.	.	1
<i>Symphurus plagiusa</i>	.	.	1	.	1
<i>Syngnathus louisianae</i>	1	.	.	.	1
<i>Syngnathus scovelli</i>	1	1	.	.	2
<i>Synodus foetens</i>	7	8	4	2	21
<i>Trachinotus carolinus</i>	.	.	13	.	13
<i>Trachinotus falcatus</i>	.	20	14	14	48
<i>Trichiurus lepturus</i>	.	.	1	.	1
<i>Trinectes maculatus</i>	78	4	.	.	82
<i>Tylosurus crocodilus</i>	.	.	2	.	2
Total	30,273	19,073	13,487	2,156	64,989

Species	Gear and Strata				Total
	21.3-m river seine		183-m haul seine		
	Over	Nonover	Over	Nonover	
	E=152	E=55	E=102	E=42	E=351

Sampling with 21.3-m river seine was not stratified. Sampling with 183-m haul seine was stratified by the presence or absence of overhanging vegetation ('Over' or 'Nonover'). Effort, or the total number of hauls, is labeled 'E'. Taxa are arranged alphabetically. Selected taxa are highlighted in bold.

Table A.30: Summary by zone of taxa collected during Southern Indian River Lagoon stratified-random sampling, 2024.

Species	Zone				Total
	I	J	L	T	
	E=48	E=48	E=45	E=210	E=351
<i>Acanthostracion quadricornis</i>	.	4	.	.	4
<i>Achirus lineatus</i>	4	14	21	30	69
<i>Aetobatus narinari</i>	1	.	.	.	1
<i>Albula</i> spp.	3	54	6	.	63
<i>Anchoa cubana</i>	.	.	.	19	19
<i>Anchoa hepsetus</i>	.	.	.	38	38
<i>Anchoa lamprotaenia</i>	.	.	1	4	5
<i>Anchoa lyolepis</i>	.	.	.	47	47
<i>Anchoa mitchilli</i>	.	.	1,456	23,005	24,461
<i>Anchoa</i> spp.	.	.	.	6	6
<i>Antennarius scaber</i>	.	1	.	.	1
<i>Archosargus probatocephalus</i>	154	56	9	119	338
<i>Archosargus rhomboidalis</i>	138	210	.	.	348
<i>Archosargus</i> spp.	.	15	.	.	15
<i>Ariopsis felis</i>	333	288	3	116	740
<i>Atherinomorus stipes</i>	.	.	1	.	1
<i>Bagre marinus</i>	6	3	.	6	15
<i>Bairdiella chrysoura</i>	9	1	1	10	21
<i>Bathygobius soporator</i>	.	.	9	2	11
<i>Brevoortia</i> spp.	15	11	6	1,195	1,227
<i>Callinectes bocourti</i>	.	.	.	1	1
<i>Callinectes ornatus</i>	15	16	1	6	38
<i>Callinectes sapidus</i>	32	9	74	221	336
<i>Callinectes similis</i>	2	2	3	5	12
<i>Callinectes</i> spp.	.	.	4	3	7
<i>Caranx bartholomaei</i>	3	2	.	.	5
<i>Caranx crysos</i>	2	11	.	.	13

Species	Zone				Total
	I	J	L	T	
	E=48	E=48	E=45	E=210	E=351
<i>Caranx hippos</i>	53	55	.	72	180
<i>Caranx latus</i>	.	1	.	2	3
<i>Carcharhinus leucas</i>	2	1	.	1	4
<i>Centropomus ensiferus</i>	.	.	.	1	1
<i>Centropomus parallelus</i>	.	.	.	14	14
<i>Centropomus undecimalis</i>	130	47	35	313	525
<i>Chaetodipterus faber</i>	246	3	.	1	250
<i>Charybdis hellerii</i>	.	2	.	.	2
<i>Chilomycterus schoepfii</i>	7	10	.	2	19
<i>Chloroscombrus chrysurus</i>	.	4	.	.	4
<i>Citharichthys macrops</i>	.	.	.	1	1
<i>Citharichthys spilopterus</i>	7	3	10	18	38
<i>Clupeiformes</i> spp.	.	.	2	2	4
<i>Ctenogobius boleosoma</i>	.	.	38	28	66
<i>Ctenogobius saepepallens</i>	.	.	3	.	3
<i>Ctenogobius shufeldti</i>	.	.	.	1	1
<i>Ctenogobius smaragdus</i>	.	.	10	3	13
<i>Ctenogobius</i> spp.	.	.	3	.	3
<i>Cynoscion complex</i>	.	1	.	6	7
<i>Cynoscion nebulosus</i>	2	4	.	.	6
<i>Dajaus monticola</i>	.	.	.	5	5
<i>Diapterus auratus</i>	1,778	4,972	185	1,213	8,148
<i>Diapterus rhombeus</i>	1	.	28	23	52
<i>Dormitator maculatus</i>	.	.	.	13	13
<i>Dorosoma petenense</i>	.	.	.	54	54
<i>Echeneis</i> spp.	2	.	.	.	2
<i>Eleotris amblyopsis</i>	.	.	.	4	4
<i>Elops saurus</i>	62	184	.	51	297
<i>Eucinostomus argenteus</i>	.	.	1	76	77

Species	Zone				Total
	I	J	L	T	
	E=48	E=48	E=45	E=210	E=351
<i>Eucinostomus gula</i>	552	37	128	239	956
<i>Eucinostomus harengulus</i>	139	101	117	205	562
<i>Eucinostomus jonesii</i>	1	55	123	424	603
<i>Eucinostomus melanopterus</i>	9	14	.	6	29
<i>Eucinostomus</i> spp.	.	.	3,290	3,459	6,749
<i>Eugerres plumieri</i>	8	6	455	367	836
<i>Evorthodus lyricus</i>	.	.	27	41	68
<i>Farfantepenaeus aztecus</i>	1	.	.	3	4
<i>Farfantepenaeus</i> spp.	.	.	269	203	472
<i>Gambusia holbrooki</i>	.	.	.	462	462
<i>Gerres cinereus</i>	81	148	15	49	293
<i>Gobiomorus dormitor</i>	.	.	1	3	4
<i>Gobionellus oceanicus</i>	.	.	54	188	242
<i>Gobiosoma bosc</i>	.	.	.	35	35
<i>Gobiosoma robustum</i>	.	.	.	1	1
<i>Gobiosoma</i> spp.	.	.	10	73	83
<i>Gymnura lessae</i>	2	3	.	1	6
<i>Haemulon aurolineatum</i>	3	.	.	.	3
<i>Haemulon parra</i>	.	.	2	.	2
<i>Harengula humeralis</i>	.	.	1	.	1
<i>Harengula jaguana</i>	60	14	21	90	185
<i>Harengula</i> spp.	.	.	.	735	735
<i>Hippocampus erectus</i>	.	.	.	1	1
<i>Hypanus americanus</i>	.	2	.	.	2
<i>Hypanus sabinus</i>	23	10	.	18	51
<i>Hypanus say</i>	63	16	.	3	82
<i>Labidesthes vanhyningi</i>	.	.	.	159	159
<i>Lactophrys trigonus</i>	1	39	.	.	40
<i>Lagodon rhomboides</i>	1,043	19	68	95	1,225

Species	Zone				Total
	I	J	L	T	
	E=48	E=48	E=45	E=210	E=351
<i>Larimus fasciatus</i>	.	1	.	.	1
<i>Leiostomus xanthurus</i>	18	61	1,082	53	1,214
<i>Lepisosteus platyrhincus</i>	.	.	.	7	7
<i>Lepomis gulosus</i>	.	.	1	1	2
<i>Lepomis macrochirus</i>	.	.	2	38	40
<i>Lepomis microlophus</i>	.	.	.	1	1
<i>Lepomis</i> spp.	.	.	.	17	17
<i>Limulus polyphemus</i>	1	3	.	.	4
<i>Litopenaeus setiferus</i>	.	.	1	9	10
<i>Lobotes surinamensis</i>	.	.	1	.	1
<i>Lophogobius cyprinoides</i>	.	.	166	67	233
<i>Lutjanus analis</i>	26	76	2	4	108
<i>Lutjanus griseus</i>	46	2	11	11	70
<i>Lutjanus jocu</i>	.	.	.	1	1
<i>Lutjanus synagris</i>	2	45	.	1	48
<i>Mayaheros urophthalmus</i>	.	.	.	23	23
<i>Megalops atlanticus</i>	1	.	.	1	2
<i>Menidia</i> spp.	.	.	153	692	845
<i>Menticirrhus americanus</i>	.	.	.	1	1
<i>Microgobius gulosus</i>	.	.	31	204	235
<i>Microgobius microlepis</i>	.	.	1	.	1
<i>Microgobius thalassinus</i>	.	.	1	4	5
<i>Microphis lineatus</i>	.	.	.	12	12
<i>Micropogonias undulatus</i>	7	178	36	299	520
<i>Mugil cephalus</i>	177	87	1,416	5,171	6,851
<i>Mugil curema</i>	624	415	25	238	1,302
<i>Mugil rubrioculus</i>	2	.	.	.	2
<i>Mugil</i> spp.	.	.	.	15	15
<i>Mugil trichodon</i>	.	.	1	.	1

Species	Zone				Total
	I	J	L	T	
	E=48	E=48	E=45	E=210	E=351
<i>Mycteroperca bonaci</i>	.	1	.	.	1
<i>Narcine bancroftii</i>	.	1	.	.	1
<i>Oligoplites saurus</i>	87	50	1	14	152
<i>Opisthonema oglinum</i>	1	3	66	45	115
<i>Opsanus tau</i>	.	1	.	.	1
<i>Oreochromis complex</i>	1	.	.	2	3
<i>Sarotherodon</i> spp.	.	.	17	10	27
<i>Orthopristis chrysoptera</i>	84	3	189	.	276
<i>Panulirus argus</i>	1	.	.	.	1
<i>Paralichthys albigutta</i>	1	1	.	.	2
<i>Pelmatolapia mariae</i>	.	.	1	9	10
<i>Penaeus monodon</i>	.	.	.	1	1
<i>Poecilia latipinna</i>	.	.	.	6	6
<i>Pogonias cromis</i>	8	11	.	3	22
<i>Pomatomus saltatrix</i>	1	2	.	.	3
<i>Pomoxis nigromaculatus</i>	.	.	.	1	1
<i>Portunus</i> sp.	.	1	.	.	1
<i>Prionotus scitulus</i>	2	1	3	.	6
<i>Prionotus tribulus</i>	3	1	.	5	9
<i>Pterygoplichthys disjunctivus</i>	.	.	.	1	1
<i>Pterygoplichthys</i> spp.	.	.	.	3	3
<i>Rachycentron canadum</i>	1	.	.	.	1
<i>Sarotherodon melanotheron</i>	.	.	2	.	2
<i>Sciaenops ocellatus</i>	7	1	3	4	15
<i>Scomberomorus maculatus</i>	2	5	.	.	7
<i>Scorpaena grandicornis</i>	.	1	3	.	4
<i>Scorpaena plumieri</i>	.	2	.	.	2
<i>Selene setapinnis</i>	.	3	.	.	3
<i>Selene vomer</i>	35	332	.	19	386

Species	Zone				Total
	I	J	L	T	
	E=48	E=48	E=45	E=210	E=351
<i>Sphoeroides nephelus</i>	6	1	1	2	10
<i>Sphoeroides spengleri</i>	3	2	.	.	5
<i>Sphoeroides</i> sp.	.	.	1	.	1
<i>Sphoeroides testudineus</i>	215	16	53	80	364
<i>Sphyraena barracuda</i>	113	110	12	17	252
<i>Sphyrna tiburo</i>	.	1	.	.	1
<i>Stephanolepis hispidus</i>	1	1	.	.	2
<i>Strongylura marina</i>	.	.	.	1	1
<i>Strongylura notata</i>	10	4	1	1	16
<i>Strongylura</i> spp.	.	.	.	2	2
<i>Strongylura timucu</i>	.	.	1	.	1
<i>Symphurus plagiusa</i>	.	.	.	1	1
<i>Syngnathus louisianae</i>	.	.	.	1	1
<i>Syngnathus scovelli</i>	.	.	.	2	2
<i>Synodus foetens</i>	5	1	7	8	21
<i>Trachinotus carolinus</i>	5	8	.	.	13
<i>Trachinotus falcatus</i>	10	14	1	23	48
<i>Trichiurus lepturus</i>	.	1	.	.	1
<i>Trinectes maculatus</i>	.	.	2	80	82
<i>Tylosurus crocodilus</i>	1	1	.	.	2
Total	6,500	7,896	9,785	40,808	64,989

Zones I and J were located in the southern portion of the Indian River Lagoon, and Zone L and T encompassed the St. Lucie and Loxahatchee rivers, respectively. Effort, or the total number of hauls, is labeled 'E'. Taxa are arranged alphabetically. Selected taxa are highlighted in bold.

B Fisheries-Independent Monitoring Polyhaline Seagrass Sampling Appendix Tables

Table B.1: Summary of all species collected in 6.1-m otter trawl polyhaline seagrass sampling in all estuaries in June-November, 2024.

Species	6.1-m otter trawl							Total
	SR	CB	SA	AP	BB	TB	CH	
	E=48	E=54	E=72	E=96	E=180	E=144	E=120	
<i>Acanthostracion quadricornis</i>	17	10	52	20	58	371	78	606
<i>Acanthostracion</i> spp.	.	.	.	1	1	.	.	2
<i>Acanthurus chirurgus</i>	.	.	1	.	.	.	.	1
<i>Achirus lineatus</i>	18	13	48	2	5	16	9	111
<i>Aluterus schoepfii</i>	5	.	18	14	34	26	5	102
<i>Anarchopterus criniger</i>	2	.	.	11	66	55	112	246
<i>Anchoa cubana</i>	1	.	.	10	.	.	.	11
<i>Anchoa hepsetus</i>	1	1	36	338	2	2	.	380
<i>Anchoa lyolepis</i>	.	.	.	1	.	.	.	1
<i>Anchoa mitchilli</i>	33	50	.	838	588	438	426	2,373
<i>Anchoa</i> spp.	.	1	.	9	.	25	84	119
<i>Ancylopsetta quadrocellata</i>	.	.	4	4	.	2	1	11
<i>Archosargus probatocephalus</i>	3	.	.	4	3	336	109	455
<i>Archosargus</i> sp.	.	.	.	.	.	.	1	1
<i>Argopecten irradians</i>	1	.	16	43	325	53	4	442
<i>Ariopsis felis</i>	7	7	2	138	40	51	4	249
<i>Bairdiella chrysoura</i>	2,572	1,186	765	2,805	1,542	2,077	1,709	12,656
<i>Brevoortia</i> sp.	.	1	.	.	.	.	.	1
<i>Calamus arctifrons</i>	.	.	.	.	169	4	2	175
<i>Calamus penna</i>	.	.	.	.	.	14	4	18

Species	6.1-m otter trawl							Total
	SR	CB	SA	AP	BB	TB	CH	
	E=48	E=54	E=72	E=96	E=180	E=144	E=120	
<i>Calamus proridens</i>	.	.	.	.	.	1	.	1
<i>Calamus</i> spp.	.	.	.	.	8	.	.	8
<i>Callinectes ornatus</i>	.	.	4	1	.	9	32	46
<i>Callinectes sapidus</i>	384	192	355	301	14	235	119	1,600
<i>Callinectes similis</i>	6	.	1	.	.	.	.	7
<i>Centropristis</i> sp.	.	.	.	1	.	.	.	1
<i>Centropristis striata</i>	.	.	3	302	1,820	14	2	2,141
<i>Chaetodipterus faber</i>	11	.	1	8	10	17	32	79
<i>Chasmodes saburrae</i>	169	27	9	77	2	44	12	340
<i>Chilomycterus schoepfii</i>	81	55	120	148	213	541	404	1,562
<i>Chloroscombrus chrysurus</i>	16	.	.	28	109	.	2	155
<i>Citharichthys macrops</i>	.	.	6	2	5	1	.	14
<i>Clupeiformes</i> spp.	.	.	.	4	.	.	2	6
<i>Corvula batabana</i>	.	.	.	.	.	.	1	1
<i>Cosmocampus albirostris</i>	.	.	2	.	.	.	.	2
<i>Ctenogobius boleosoma</i>	3	.	.	4	.	.	.	7
<i>Cynoscion arenarius</i>	1	.	.	6	3	3	.	13
<i>Cynoscion nebulosus</i>	286	244	93	174	182	302	230	1,511
<i>Diodon holocanthus</i>	.	.	.	.	.	2	.	2
<i>Diplectrum bivittatum</i>	.	1	.	1	.	.	.	2
<i>Diplectrum formosum</i>	.	2	11	25	37	4	5	84
<i>Diplectrum</i> spp.	.	.	.	1	1	.	.	2
<i>Diplodus holbrookii</i>	.	.	.	19	2,143	51	6	2,219
<i>Echeneis neucratoides</i>	.	.	.	.	1	1	.	2
<i>Echiophis intertinctus</i>	.	.	.	.	.	.	1	1
<i>Epinephelus itajara</i>	.	.	.	.	.	1	.	1
<i>Epinephelus morio</i>	.	.	.	.	.	.	9	9
<i>Eques lanceolatus</i>	.	.	.	.	.	.	1	1
<i>Etropus crossotus</i>	.	.	1	63	12	.	5	81

Species	6.1-m otter trawl							Total
	SR	CB	SA	AP	BB	TB	CH	
	E=48	E=54	E=72	E=96	E=180	E=144	E=120	
<i>Etropus cyclosquamus</i>	.	.	3	.	.	.	.	3
<i>Eucinostomus argenteus</i>	1	57	.	1	.	.	.	59
<i>Eucinostomus gula</i>	76	182	477	129	170	2,900	1,313	5,247
<i>Eucinostomus harengulus</i>	.	11	5	9	16	5	10	56
<i>Eucinostomus</i> spp.	285	928	3,061	549	300	8,399	4,026	17,548
<i>Farfantepenaeus aztecus</i>	4	.	.	.	.	.	.	4
<i>Farfantepenaeus duorarum</i>	91	18	28	55	113	313	97	715
<i>Farfantepenaeus</i> spp.	491	110	106	539	792	.	.	2,038
<i>Floridichthys carpio</i>	.	.	.	.	.	1	.	1
<i>Ginglymostoma cirratum</i>	.	.	.	.	.	.	4	4
<i>Gobiosoma longipala</i>	.	.	.	.	.	.	1	1
<i>Gobiosoma robustum</i>	24	17	4	36	15	67	125	288
<i>Gobiosoma</i> spp.	29	20	4	6	11	56	170	296
<i>Gymnothorax saxicola</i>	.	.	.	.	4	.	.	4
<i>Gymnura lessae</i>	.	.	.	2	.	.	2	4
<i>Haemulon aurolineatum</i>	.	.	2	1	.	7	8	18
<i>Haemulon plumieri</i>	.	.	2	10	667	455	158	1,292
<i>Haemulon</i> sp.	.	.	.	1	.	.	.	1
<i>Halichoeres bivittatus</i>	.	.	14	12	3	.	.	29
<i>Harengula jaguana</i>	5	1	8	13	24	43	29	123
<i>Hemicaranx amblyrhynchus</i>	.	.	.	1	.	.	.	1
<i>Hippocampus erectus</i>	1	.	17	.	2	7	26	53
<i>Hippocampus</i> sp.	1	.	.	.	.	.	.	1
<i>Hippocampus zosterae</i>	.	1	1	2	4	12	3	23
<i>Hypanus americanus</i>	.	.	.	.	.	.	2	2
<i>Hypanus sabinus</i>	2	10	16	63	10	12	.	113
<i>Hypanus say</i>	.	.	1	14	1	.	2	18
<i>Hypleurochilus caudovittatus</i>	.	.	.	2	1	.	.	3
<i>Hypsoblennius hentz</i>	5	.	.	25	3	11	1	45

Species	6.1-m otter trawl							Total
	SR	CB	SA	AP	BB	TB	CH	
	E=48	E=54	E=72	E=96	E=180	E=144	E=120	
<i>Lachnolaimus maximus</i>	.	.	.	.	17	9	1	27
<i>Lactophrys trigonus</i>	1	.	7	.	.	3	1	12
<i>Lagodon rhomboides</i>	12,043	4,918	17,292	9,310	11,423	21,360	17,888	94,234
<i>Leiostomus xanthurus</i>	63	110	56	105	11	4	2	351
<i>Limulus polyphemus</i>	.	.	.	.	.	1	.	1
<i>Litopenaeus setiferus</i>	.	1	.	38	1	.	.	40
<i>Lucania parva</i>	1	2	4	1	.	449	180	637
<i>Lutjanus analis</i>	.	.	.	.	.	2	1	3
<i>Lutjanus griseus</i>	20	124	66	25	1	131	194	561
<i>Lutjanus</i> spp.	.	.	2	.	.	.	.	2
<i>Lutjanus synagris</i>	4	32	93	99	125	264	189	806
<i>Menippe</i> spp.	.	.	.	143	70	147	120	480
<i>Menticirrhus americanus</i>	1	.	.	12	.	4	1	18
<i>Menticirrhus saxatilis</i>	.	.	.	2	.	.	.	2
<i>Microgobius gulosus</i>	4	137	27	12	.	26	93	299
<i>Microgobius thalassinus</i>	1	.	.	.	.	.	.	1
<i>Micropogonias undulatus</i>	2	1	2	13	.	.	.	18
<i>Monacanthus ciliatus</i>	.	.	4	36	551	26	35	652
<i>Mycteroperca microlepis</i>	.	1	5	7	15	27	25	80
<i>Myrophis punctatus</i>	1	.	.	.	.	.	.	1
<i>Narcine bancroftii</i>	.	.	.	1	.	.	.	1
<i>Nicholsina usta</i>	.	.	209	.	7	11	21	248
No fish	.	.	.	.	.	.	.	.
<i>Ocyurus chrysurus</i>	.	.	.	.	.	1	1	2
<i>Ogcocephalus cubifrons</i>	.	.	.	8	.	.	2	10
<i>Oligoplites saurus</i>	1	.	.	.	.	.	.	1
<i>Ophidion holbrookii</i>	.	.	.	.	9	.	.	9
<i>Opisthonema oglinum</i>	.	.	.	2	2	30	17	51
<i>Opsanus beta</i>	149	12	131	330	618	323	242	1,805

Species	6.1-m otter trawl							Total
	SR	CB	SA	AP	BB	TB	CH	
	E=48	E=54	E=72	E=96	E=180	E=144	E=120	
<i>Opsanus beta</i> (red morph)	.	.	.	.	3	.	.	3
<i>Orthopristis chrysoptera</i>	1,819	769	3,473	5,707	2,183	1,924	1,939	17,814
<i>Parablennius marmoratus</i>	.	.	.	1	.	.	.	1
<i>Paraclinus fasciatus</i>	.	.	.	.	97	.	.	97
<i>Paraclinus marmoratus</i>	.	.	.	.	3	8	29	40
<i>Paralichthys albigutta</i>	75	113	241	277	109	144	88	1,047
<i>Paralichthys lethostigma</i>	.	.	.	1	1	.	.	2
<i>Peprilus paru</i>	.	.	.	.	1	.	.	1
<i>Portunus</i> spp.	5	2	100	22	9	18	29	185
<i>Prionotus scitulus</i>	4	5	11	27	14	62	41	164
<i>Prionotus</i> spp.	.	.	.	3	.	.	.	3
<i>Prionotus tribulus</i>	.	1	4	.	.	1	1	7
<i>Pterygoplichthys disjunctivus</i>	.	.	.	.	.	1	.	1
<i>Rimapenaeus</i> spp.	1	.	.	22	.	1	2	26
<i>Sardinella aurita</i>	.	.	.	.	1	.	.	1
<i>Scarus</i> sp.	.	.	1	.	.	.	.	1
<i>Sciaenops ocellatus</i>	.	8	.	6	1	.	.	15
<i>Scorpaena brasiliensis</i>	.	.	23	18	17	51	34	143
<i>Scorpaena calcarata</i>	.	.	1	.	.	.	.	1
<i>Selene vomer</i>	.	.	.	.	.	2	.	2
<i>Serraniculus pumilio</i>	.	1	1	46	3	8	2	61
<i>Serranus subligarius</i>	.	.	2	11	.	1	8	22
<i>Sicyonia laevigata</i>	.	.	.	.	1	.	2	3
<i>Sparisoma chrysopteron</i>	.	.	1	.	.	.	.	1
<i>Sparisoma radians</i>	.	1	2	.	.	.	.	3
<i>Sphoeroides nephelus</i>	9	5	16	48	52	71	72	273
<i>Sphoeroides parvus</i>	.	2	.	1	.	.	.	3
<i>Sphoeroides spengleri</i>	.	.	3	5	9	34	15	66
<i>Sphoeroides</i> spp.	.	.	.	9	.	.	.	9

Species	6.1-m otter trawl							Total
	SR	CB	SA	AP	BB	TB	CH	
	E=48	E=54	E=72	E=96	E=180	E=144	E=120	
<i>Sphyraena barracuda</i>	.	.	.	.	.	.	1	1
<i>Sphyraena borealis</i>	3	7	9	.	3	.	.	22
<i>Stellifer lanceolatus</i>	.	.	.	3	.	.	.	3
<i>Stephanolepis hispidus</i>	29	8	149	606	535	307	114	1,748
<i>Stomolophus meleagris</i>	.	.	.	3	.	.	.	3
<i>Syacium papillosum</i>	.	.	.	1	.	.	.	1
<i>Syacium</i> sp.	.	.	1	.	.	.	.	1
<i>Symphurus plagiusa</i>	6	3	1	13	20	6	1	50
<i>Syngnathus floridae</i>	387	58	588	390	1,615	539	262	3,839
<i>Syngnathus louisianae</i>	4	9	11	72	1	33	30	160
<i>Syngnathus scovelli</i>	323	116	197	246	12	234	252	1,380
<i>Syngnathus</i> sp.	1	.	.	.	.	.	.	1
<i>Syngnathus springeri</i>	.	.	3	.	.	.	.	3
<i>Synodus foetens</i>	19	35	48	69	45	61	22	299
<i>Tigriobius macrodon</i>	.	.	.	.	1	.	.	1
<i>Trinectes maculatus</i>	.	20	1	42	5	8	4	80
<i>Xyrichtys novacula</i>	.	.	1	.	.	.	.	1
Total	19,608	9,646	28,083	24,666	27,120	43,316	31,349	183,788

Effort, or total number of hauls, is labeled 'E'. Taxa are arranged alphabetically. Species of interest are highlighted in bold.