SEAMAP-SA Coastal Survey
Cruise Report
Summer 2008

The summer cruise for the SEAMAP-South Atlantic Coastal Survey began on July 15 and was completed on August 5, 2008. A total of one hundred and two stations were sampled in the twenty-four shallow coastal strata in the South Atlantic Bight (Figure 1).

Preliminary analysis on species of primary importance was completed and is as follows:

General Observations:

A total of 123 species or genera were identified in summer trawls (Table 1). *Chloroscombrus chrysurus*, the Atlantic bumper, was the most abundant species, constituting 35% of total abundance, followed by the Atlantic croaker, *Micropogonias undulatus* (18%); the spot, *Leiostomus xanthurus* (8%), the Atlantic moonfish, *Selene setapinnis* (8%); the banded drum, *Larimus fasciatus* (4%);

Abundance of individuals collected (n=185,112 individuals, $\bar{x}$/tow=1815 individuals) in summer 2008 decreased from catches taken in the previous two years (Figure 2). Abundance was greatest in the Raleigh and Onslow Bays, whereas the lowest regional abundance was observed in South Carolina. Miscellaneous invertebrate biomass (n=5802 kg, $\bar{x}$/tow= 56.9 kg) also decreased slightly in summer 2008. The cannonball jelly, *Stomolophus meleagris*, constituted approximately 29% of miscellaneous invertebrate biomass. Toward the end of the summer cruise, an increase in "hot" jellies, including *Drymonema*, was noted. Over 20% of all miscellaneous invertebrate biomass was taken in a single tow which comprised these jellies.

Sciaenids:

With the exception of the Atlantic bumper, the Atlantic croaker and spot were the numerically dominant priority species and together constituted approximately 26% of all abundance (Figure3). The Atlantic croaker, *Micropogonias undulatus*, n=32,861 individuals, $\bar{x}$/tow=322.2 individuals) ranked second in abundance overall, and the spot, *Leiostomus xanthurus,* (n=15,142 individuals, $\bar{x}$/tow=148.5 individuals) was the second most numerous species collected. Other sciaenid species of interest include the southern kingfish, *Menticirrhus americanus,* (n=2294 individuals, $\bar{x}$/tow=22.5 individuals) and the weakfish, *Cynoscion regalis*, (n=881 individuals, $\bar{x}$/tow=8.6 individuals). Abundance of all Atlantic croaker and spot increased in summer 2008, whereas a decrease in abundance was observed for Southern kingfish and weakfish.

Otoliths, gonads, and stomachs were collected from specimens of weakfish (n=80), Atlantic croaker (n=197), and southern kingfish (n=215). Additionally, gonad samples were collected for verification of onboard maturity assessments and stomach contents were taken for gut content analysis.

Mackerel:

The abundance of king mackerel decreased in summer 2008 (n=281, x̄/tow=2.8) (Figure 4). *Scomberomorus cavalla* were taken in all regions, except Raleigh Bay. Abundance was greatest in waters off waters off Florida (n=263, x̄/tow=14.6), where 94% of all king mackerel were taken

The abundance of Spanish mackerel increased slightly in summer 2008 (n=1126, x̄/tow=11.0). *S. maculatus* were taken in all regions, but abundance of was greatest in Onslow Bay (n=231, x̄/tow=15.4) and in waters off Georgia (n=446, x̄/tow=15.9).

Penaeid Shrimp:

The brown shrimp, *Farfantepenaeus aztecus*, was the most abundant commercially important shrimp (n=4357, x̄/tow=42.7) taken in summer collections. Abundance of brown shrimp in summer 2008 continued to decrease from the peak summer catch of 2005 (Figure 5). *F. aztecus* were collected in all regions, except Florida. The greatest mean catch per tow was observed in Raleigh Bay (n=215, x̄/tow=23.9) and Onslow Bay (n=368, x̄/tow=23.0). Approximately 97% of the females had undeveloped ovaries (Figure 6). None of the female *F. aztecus* specimens had ripe ovaries and less than 1% female brown shrimp collected were mated. Approximately 95% of the male brown shrimp had developing spermatophores and 3% had ripe spermatophores.

The white shrimp, *Litopenaeus setiferus*, was the second most abundant commercially important shrimp species (n=15,445, x̄/tow=151.4) collected during the summer cruise. White shrimp abundance decreased in summer 2008 collections. *L. setiferus* were taken from strata in all regions, but the highest mean catch per tow was taken in waters off South Carolina (n=410, x̄/tow=19.5). Approximately 29% of the females sampled had undeveloped gonads . Less than 1% of the female specimens had ripe ovaries were found be mated. Approximately 77% of the male white shrimp had ripe spermatophores.

The abundance of the pink shrimp, *Farfantepenaeus duorarum*, (n=95, x̄/tow=0.9) increased in summer 2008. All pink shrimp were taken in Raleigh and Onslow Bays. More than 73% of the female pink shrimp taken had developing ovaries. None of the females were found to be mated. More than 43% of the male pink shrimp taken had ripe spermatophores.

Other Observations:

The following specimens were retained and transported to SCMRD for cooperating and other investigations:

- Three species of *Menticirrhus* for age and growth research at NCDMF;
- Bonnethead shark specimens for regional life history study;
- Bluefish specimens for age and growth research at MRRI;
- *Cynoscion nothus* specimens taken in Florida waters for species identification and comparison to *Cynoscion arenarius* for FMRI;
- Specimens of Atlantic croaker taken from each region for stock identification based on parasite load;
- *Hippocampus erectus* specimen for study of population genetics and life history at the American Museum of Natural History in NYC;
- *Stenotomus* sp. for morphometric study (Wood's Hole).

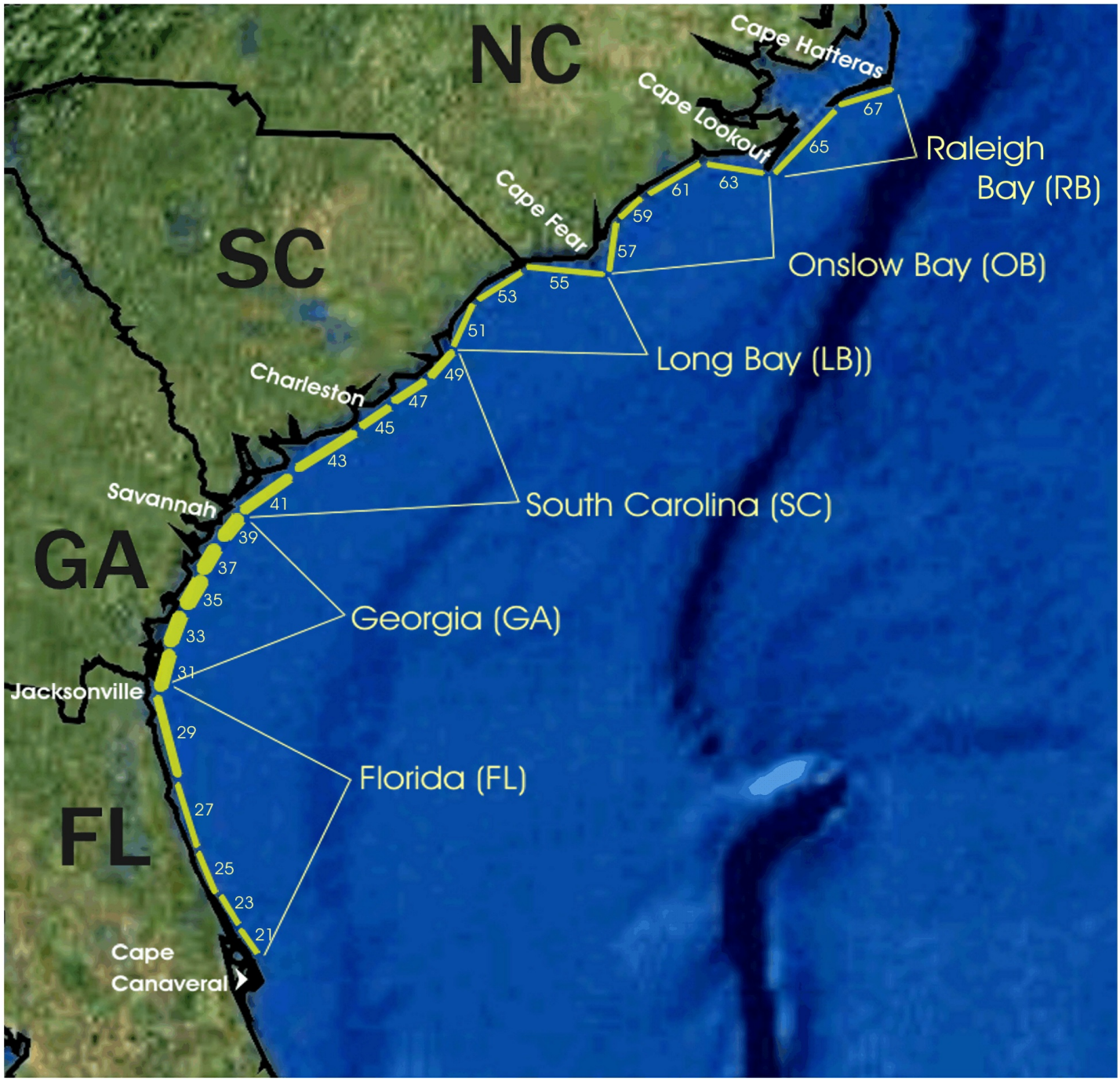

Figure 1. Strata sampled by the SEAMAP-SA Coastal Survey.
(Strata are not drawn to scale)

Table 1. Abundance and biomass of species collected in Summer 2008.

Rank	Species name	Individuals	Weight (kg)
1	Chloroscombrus chrysurus	3937	997.792
2	Micropogonias undulatus	2861	2529.147
3	Leiostomus xanthurus	5142	979.047
4	Selene setapinnis	4865	200.389
5	Larimus fasciatus	6452	548.925
6	Peprilus alepidotus	6226	185.474
7	Trichiurus lepturus	4373	350.905
8	Farfantepenaeus aztecus	4357	64.421
9	Cynoscion nothus	4328	428.196
10	Lagodon rhomboides	3801	220.846
11	Opisthonema oglinum	3272	117.507
12	Lolliguncula brevis	2894	270.250
13	Menticirrhus americanus	2294	251.084
14	Anchoa hepsetus	2014	6.520
15	Stenotomus sp.	1775	64.902
16	Stellifer lanceolatus	1712	30.094
17	Peprilus triacanthus	1301	37.859
18	Litopenaeus setiferus	1204	38.728
19	Scomberomorus maculatus	1126	88.745
20	Rhizoprionodon terraenovae	1077	299.509
21	Libinia dubia	1046	4.274
22	Prionotus carolinus	999	17.026
23	Synodus foetens	882	63.990
24	Cynoscion regalis	881	88.741
25	Orthopristis chrysoptera	823	77.011
26	Bairdiella chrysoura	638	38.015
27	Loligo sp.	555	11.263
28	Trinectes maculatus	317	8.542
29	Scomberomorus cavalla	281	18.401
30	Sphyrna tiburo	265	503.494
31	Ovalipes stephensoni	253	2.626
32	Prionotus scitulus	226	5.968
33	Pomatomus saltatrix	213	17.928
34	Callinectes similis	202	2.823
35	Selene vomer	187	1.710
36	Prionotus evolans	167	5.094
37	Anchoa lyolepis	142	0.123
38	Gymnura micrura	141	81.774
39	Anchoa mitchilli	141	0.220
40	Chaetodipterus faber	128	10.654
41	Decapterus punctatus	128	6.778
42	Etropus crossotus	111	3.247
43	Ancylopsetta quadrocellata	110	7.711
44	Citharichthys macrops	106	1.839
45	Squilla neglecta	105	1.995
46	Farfantepenaeus duorarum	95	1.947
47	Brevoortia tyrannus	81	4.718
48	Paralichthys dentatus	76	14.424
49	Sphyraena guachancho	61	5.152
50	Dasyatis sayi	50	27.462
51	Echeneis naucrates	42	8.073
52	Harengula jaguana	41	0.394
53	Menticirrhus littoralis	38	9.488
54	Caranx crysos	29	1.879
55	Scophthalmus aquosus	28	0.787
56	Centropristis philadelphica	27	1.633
57	Eucinostomus sp.	27	0.681
58	Prionotus tribulus	26	2.042
59	Portunus gibbesii	26	0.206
60	Trachinotus carolinus	19	1.719
61	Sardinella aurita	19	0.074
62	Carcharhinus acronotus	18	164.350
63	Oligoplites saurus	17	2.060
64	Portunus spinimanus	17	0.313
65	Ovalipes ocellatus	17	0.277
66	Persephona mediterranea	17	0.172
67	Syacium papillosum	16	0.513
68	Callinectes ornatus	14	0.169
69	Caretta caretta	12	504.510
70	Arenaeus cribrarius	12	0.233
71	Brevoortia smithi	11	2.667
72	Prionotus salmonicolor	11	0.406
73	Alectis ciliarius	11	0.363
74	Sphoeroides maculatus	10	1.185
75	Caranx bartholomaei	10	0.238
76	Selar crumenophthalmus	10	0.140
77	Etropus cyclosquamus	10	0.129
78	Carcharhinus limbatus	9	90.490
79	Paralichthys albigutta	9	1.879
80	Calappa flammea	9	1.175
81	Centropristis striata	9	0.912
82	Aluterus schoepfi	9	0.051
83	Callinectes sapidus	8	1.381
84	Diplectrum formosum	8	0.333
85	Hypleurochilus geminatus	8	0.016
86	Dasyatis sabina	6	2.655
87	Paralichthys lethostigma	6	2.582
88	Citharichthys spilopterus	6	0.095
89	Stephanolepis hispidus	6	0.031
90	Aetobatus narinari	4	173.200
91	Sphyrna lewini	4	12.691
92	Dasyatis americana	4	9.505
93	Rachycentron canadum	4	3.880
94	Chilomycterus schoepfi	4	1.771
95	Rhinoptera bonasus	3	5.730
96	Seriola dumerili	3	0.298
97	Paralichthys squamilentus	3	0.217
98	Squilla empusa	3	0.102
99	Lepidochelys kempi	2	88.620
100	Carcharhinus brevipinna	2	4.373
101	Myliobatis freminvillei	2	1.255
102	Arius felis	2	0.460
103	Hepatus epheliticus	2	0.026
104	Hippocampus erectus	2	0.022
105	Ginglymostoma cirratum	1	100.000
106	Megalops atlanticus	1	31.500
107	Dasyatis centroura	1	9.120
108	Mobula hypostoma	1	7.400
109	Archosargus probatocephalus	1	3.676
110	Gymnura altavela	1	1.910
111	Mustelus canis	1	0.775
112	Rhinobatos lentiginosus	1	0.434
113	Cynoscion nebulosus	1	0.399
114	Halichoeres caudalis	1	0.111
115	Seriola zonata	1	0.070
116	Balistes capriscus	1	0.050
117	Scorpaena brasiliensis	1	0.044
118	Symphurus plagiusa	1	0.043
119	Pagurus pollicaris	1	0.037
120	Menippe mercenaria	1	0.035
121	Lagocephalus laevigatus	1	0.027
122	Menticirrhus saxatilis	1	0.026
123	Trachurus lathami	1	0.015

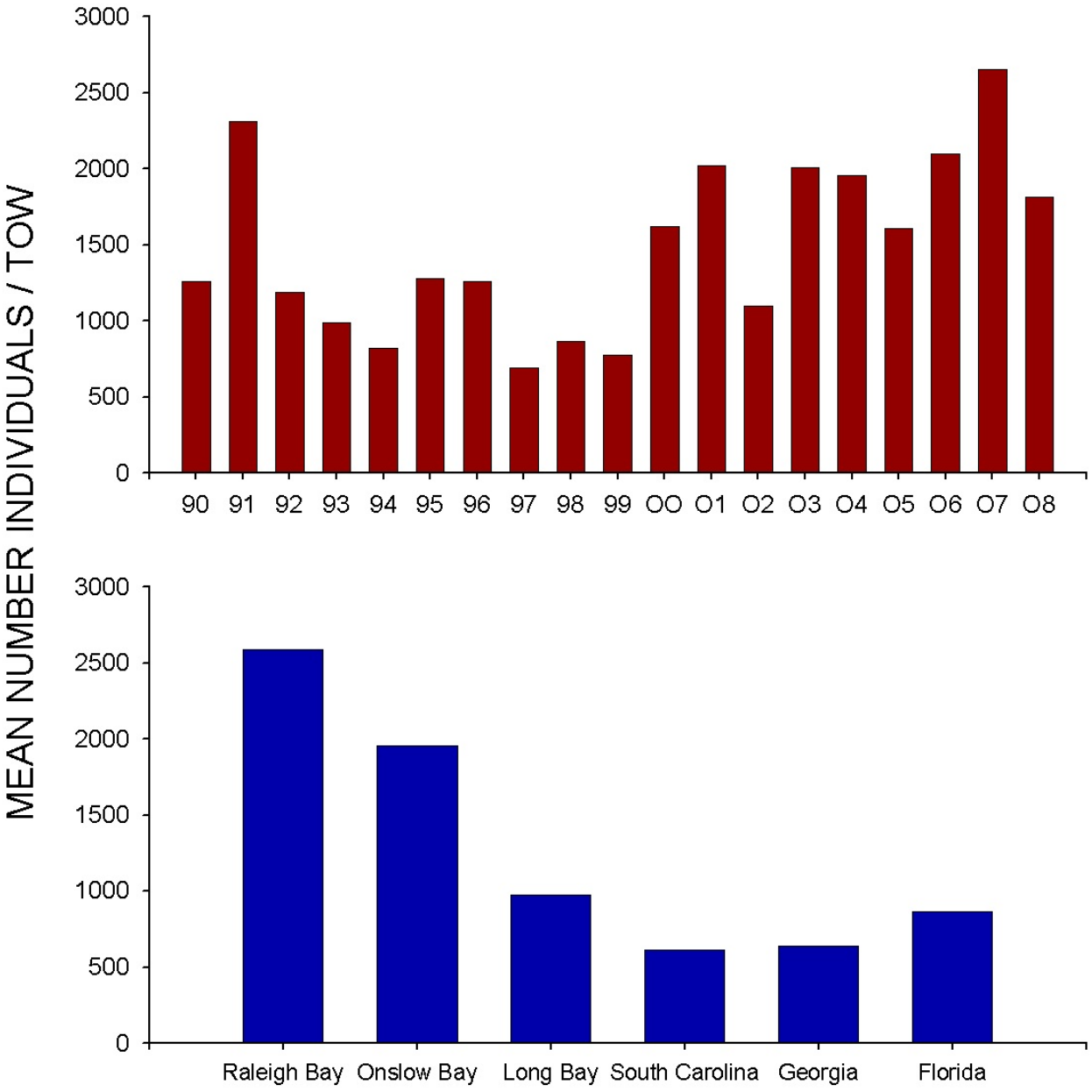

Figure 2. Annual and regional (2008) summer estimates of abundance from inner strata

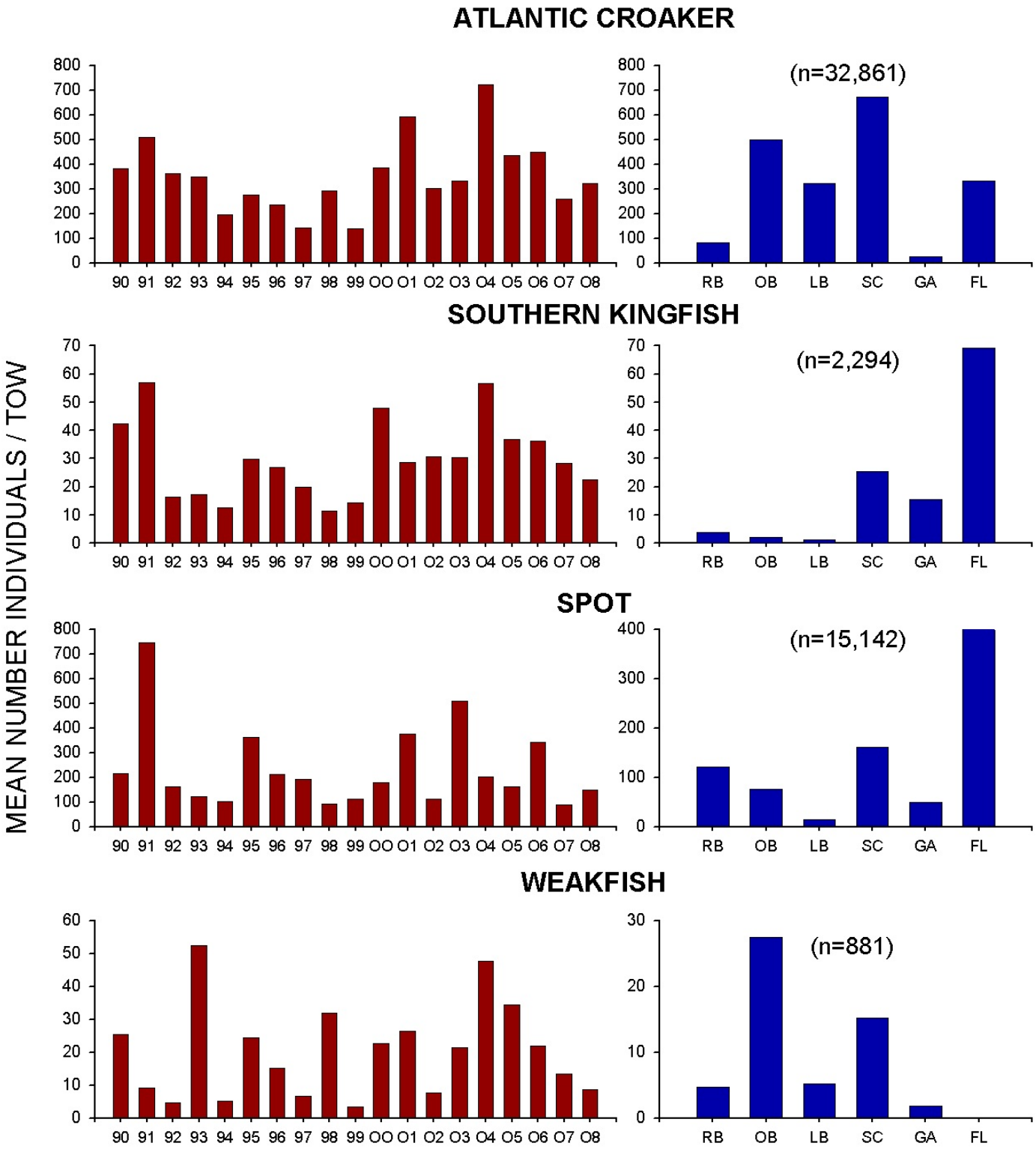

Figure 3. Annual and regional (2008) summer abundances of selected sciaenid species from inner strata

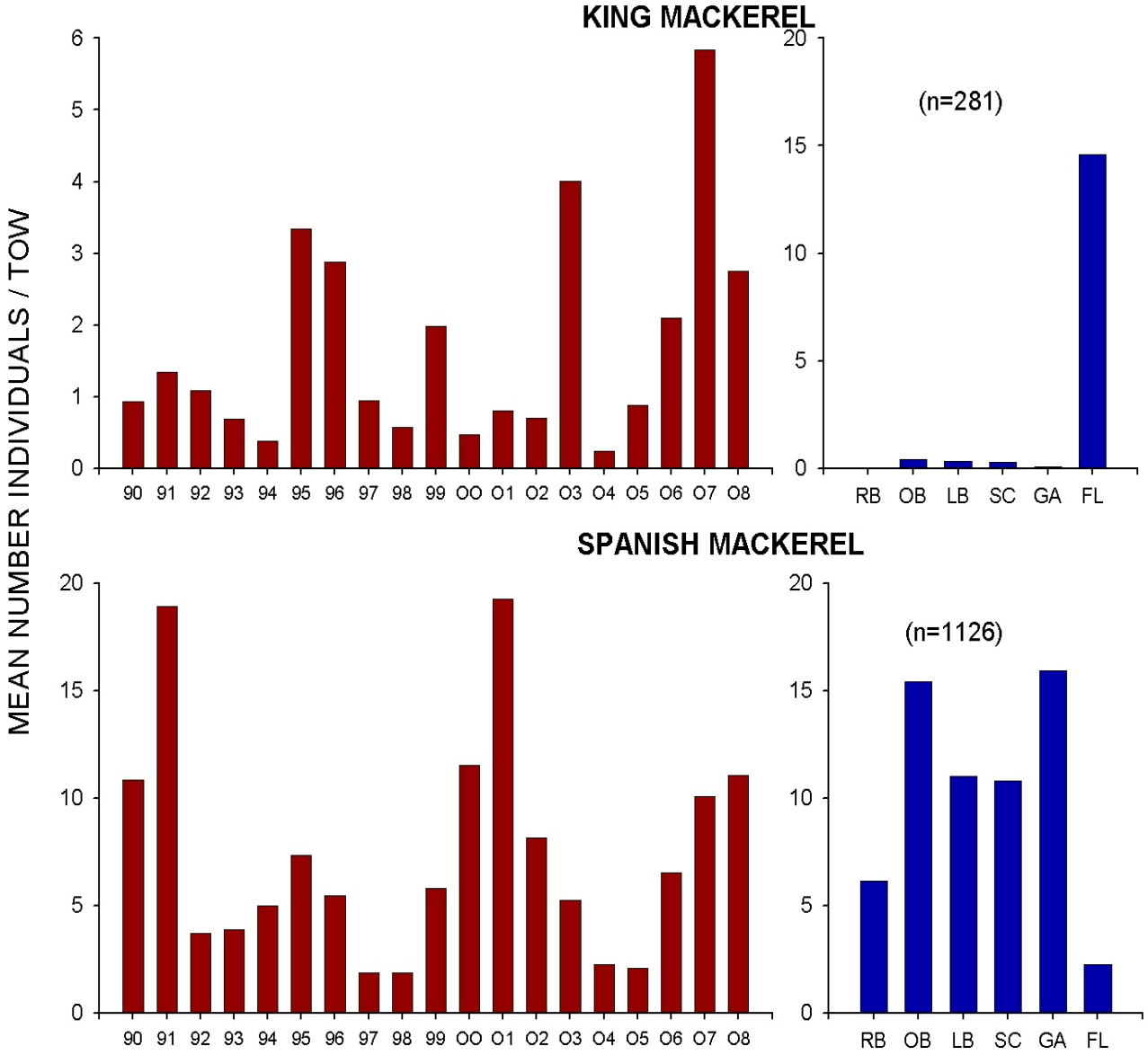

Figure 4. Annual and regional (2008) summer abundances of mackerels from inner strata

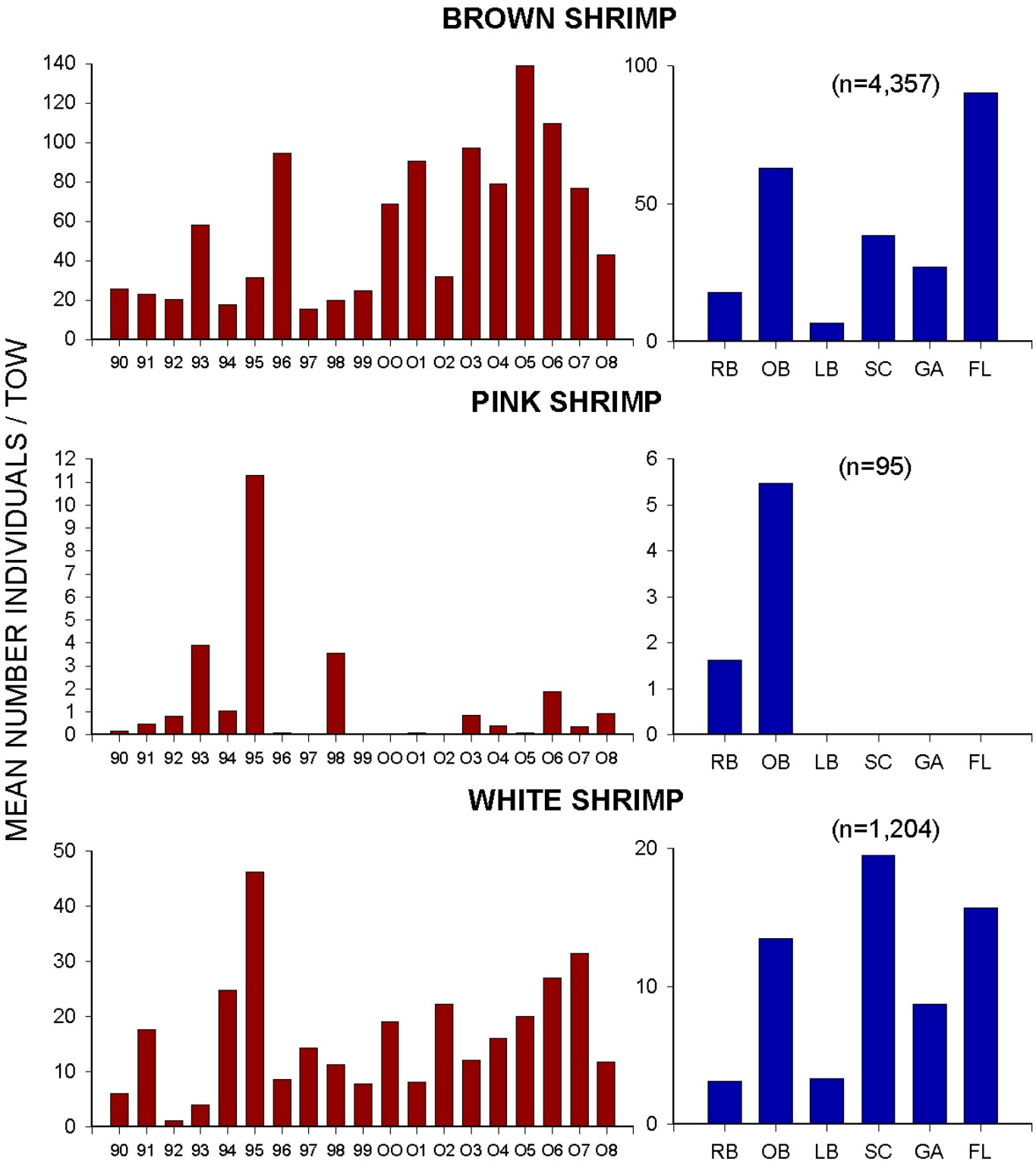

Figure 5. Annual and regional (2008) summer shrimp abundances from inner strata

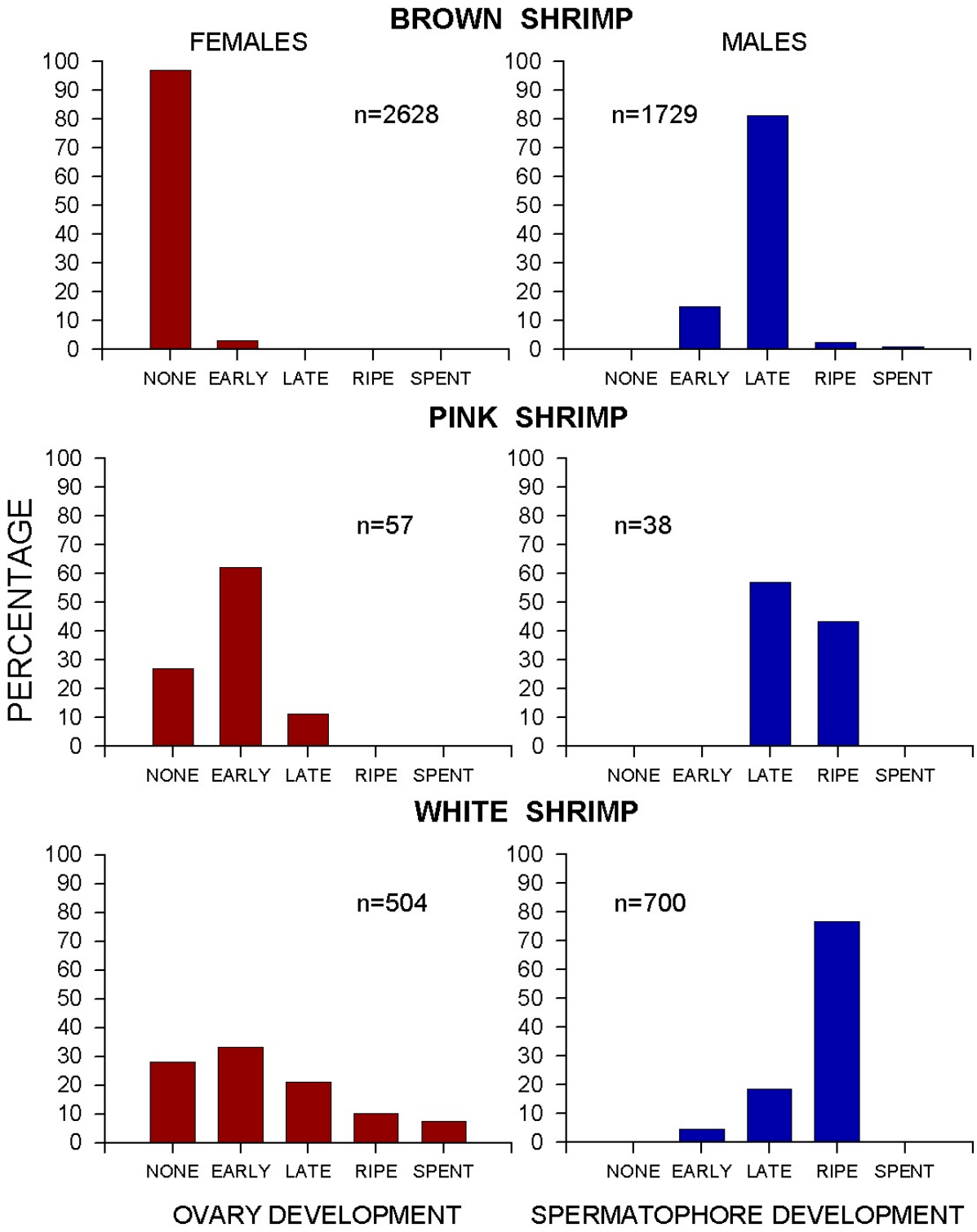

Figure 6. Shrimp gonadal development - Summer 2008