SEAMAP-SA Coastal Survey
Cruise Report
Spring 2008

The spring cruise for the SEAMAP-South Atlantic Coastal Survey began on April 17 and was completed on May 8, 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 129 species or genera were identified in spring trawls (Table 1). *Micropogonias undulatus*, the Atlantic croaker, was the most abundant species, constituting 25% of total abundance, followed by the spot, *Leiostomus xanthurus* (16%); the northern searobin, *Prionotus carolinus* (6%); the white shrimp, *Litopenaeus setiferus* (5%); the butterfish, *Peprilus triacanthus* (5%); and the southern kingfish (5%).

Abundance of individuals collected (n=107,586 individuals, $\bar{x}$/tow=1055 individuals) in spring 2008 decreased slightly from the level of spring abundance observed in 2007 (Figure 2). Miscellaneous invertebrate biomass (n=11145 kg, $\bar{x}$/tow=109.3 kg) increased in 2008. This increase can be attributed to a larger catch of the cannonball jelly, *Stomolophus meleagris*, which constituted more than 94% of miscellaneous invertebrate biomass.

Sciaenids:

Abundance of numerically dominant sciaenids of interest increased in spring 2008 (Figure 3). The Atlantic croaker, *Micropogonias undulatus*, (n=26,379 individuals, $\bar{x}$/tow=258.6 individuals) was the most numerous sciaenid species collected, followed by the spot, *Leiostomus xanthurus,* (n=16,881 individuals, $\bar{x}$/tow=165.5 individuals), the southern kingfish, *Menticirrhus americanus* (n= 4907 individuals, $\bar{x}$/tow=48.1 individuals), and the weakfish, *Cynoscion regalis,* (n=1638 individuals, $\bar{x}$/tow=16.1 individuals).

The collection of otoliths and gonad samples resumed in spring 2008. Additionally, stomachs were removed for assessment of gut contents. Samples were taken from weakfish (otoliths: n=135; gonads: n=91; stomachs: n=91), Atlantic croaker (otoliths: n=104; gonads: n=56; stomachs: n=54), and southern kingfish (otoliths: n=488; gonads: n=262; stomachs: n=263).

Mackerel:

King mackerel, *Scomberomorus cavalla,* (n=3 $\bar{x}$/tow= 0.03) exhibited the lowest spring abundance ever recorded by the survey. King mackerel were taken only in waters off Georgia.

The abundance of Spanish mackerel*, S. maculatus,* (n=281, $\bar{x}$/tow=2.8) decreased in spring 2008 (Figure 4). Spanish mackerel were absent from collections made in Raleigh and Onslow Bays. Abundance of *S. maculatus* was greatest in waters off Georgia (n=146, $\bar{x}$/tow=5.2).

Penaeid Shrimp:

The spring abundance of the brown shrimp, *Farfantepenaeus aztecus*, decreased in 2008 (n= 97, $\bar{x}$/tow=1.0) (Figure 5). *F. aztecus* were absent from trawls in Raleigh and Long Bays. Most of the females had undeveloped ovaries (96%) (Figure 6) and only 4% of the female *F. aztecus* were mated. None of the male brown shrimp had ripe spermatophores, but all were found with developing spermatophores.

The abundance of the pink shrimp, *Farfantepenaeus duorarum*, (n=260, $\bar{x}$/tow=2.6) increased in spring 2008. The greatest mean catch per tow was observed in Onslow Bay (n=230, $\bar{x}$/tow=15.3). All of the female pink shrimp taken had undeveloped or developing ovaries, and no mated females were sampled. All of the males had developing spermatophores, and none were found with ripe spermatophores.

The white shrimp, *Litopenaeus setiferus*, (n=5416, $\bar{x}$/tow=53.1) collected during the spring cruise, decreased slightly in spring 2008. *L. setiferus* were taken from strata in all regions. The highest mean catch per tow was taken off South Carolina (n=3073, $\bar{x}$/tow=146.3). Female white shrimp were found in all stages of development. Approximately 27 % of the females sampled had ripe gonads, and 5% of the female specimens were found to be mated. Approximately 66 % of the male white shrimp had ripe spermatophores.

Other Observations:

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

- Two 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;
- *Balites capriscus* specimen for age and growth research (MARMAP);
- *Mustelus canis* specimens for species standard (NOAA Forensics Program);
- *Stenotomus* sp. For morphometric study (Wood's Hole);
- *Rhinoptera bonasus* for genetics study (Graduate research, USC).

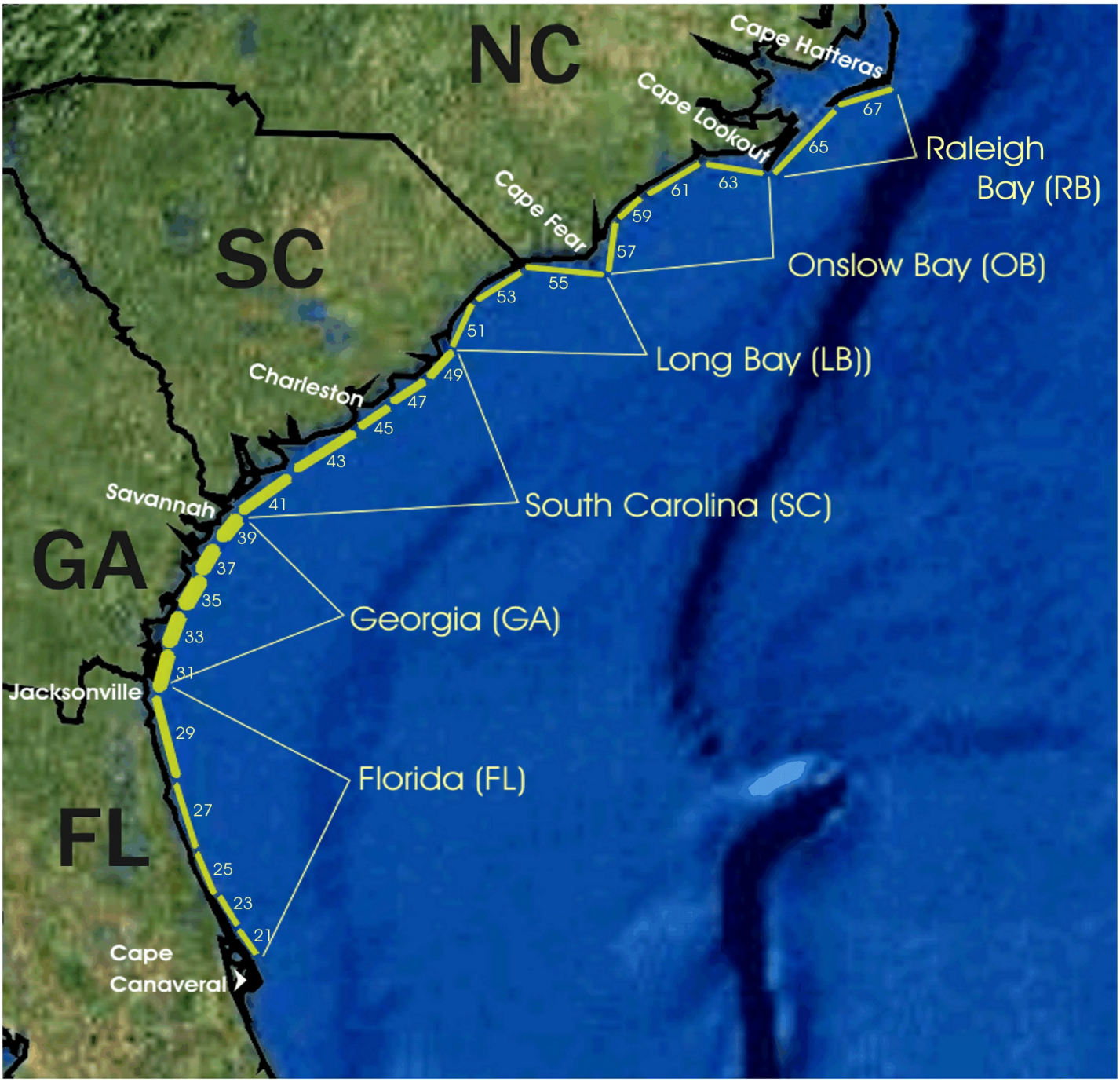

Figure 1. Strata sampled by the SEAMAP-SA Coastal Survey.
(Strata are not drawn to scale)

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

Rank	Species name	Individuals	Weight (kg)
1	Micropogonias undulatus	6379	1086.008
2	Leiostomus xanthurus	6881	679.806
3	Prionotus carolinus	6755	57.431
4	Litopenaeus setiferus	5416	172.205
5	Peprilus triacanthus	5159	72.708
6	Menticirrhus americanus	4907	455.452
7	Opisthonema oglinum	4713	545.952
8	Loligo sp.	3476	49.006
9	Stellifer lanceolatus	3303	68.891
10	Chloroscombrus chrysurus	2326	29.800
11	Lolliguncula brevis	1980	20.057
12	Anchoa hepsetus	1831	15.603
13	Larimus fasciatus	1814	150.612
14	Peprilus alepidotus	1769	113.678
15	Cynoscion regalis	1638	124.738
16	Trichiurus lepturus	1342	26.241
17	Lagodon rhomboides	1335	58.107
18	Libinia dubia	1236	11.576
19	Myliobatis freminvillei	1170	3046.948
20	Selene setapinnis	1025	18.101
21	Ovalipes stephensoni	982	4.984
22	Portunus gibbesii	971	10.702
23	Pomatomus saltatrix	969	92.513
24	Bairdiella chrysoura	844	39.861
25	Cynoscion nothus	835	21.479
26	Synodus foetens	727	65.094
27	Trinectes maculatus	686	20.840
28	Anchoa mitchilli	603	1.630
29	Urophycis regius	519	13.163
30	Dasyatis sayi	479	711.006
31	Stenotomus sp.	445	3.158
32	Brevoortia tyrannus	367	14.697
33	Scophthalmus aquosus	307	4.461
34	Scomberomorus maculatus	281	58.845
35	Raja eglanteria	266	268.699
36	Rhinoptera bonasus	261	3174.247
37	Farfantepenaeus duorarum	260	4.613
38	Callinectes similis	247	2.153
39	Orthopristis chrysoptera	210	10.395
40	Gymnura micrura	191	447.198
41	Etropus crossotus	186	4.198
42	Anchoa lyolepis	166	0.532
43	Ancylopsetta quadrocellata	157	3.813
44	Chilomycterus schoepfi	152	53.951
45	Squilla empusa	141	3.207
46	Prionotus tribulus	123	2.234
47	Libinia emarginata	118	2.028
48	Prionotus evolans	109	1.176
49	Prionotus scitulus	97	2.367
50	Farfantepenaeus aztecus	97	1.723
51	Rhizoprionodon terraenovae	94	216.264
52	Menticirrhus littoralis	93	15.524
53	Ovalipes ocellatus	91	1.168
54	Sphyrna tiburo	80	208.645
55	Chaetodipterus faber	77	3.462
56	Symphurus plagiusa	74	2.593
57	Mustelus canis	62	44.546
58	Citharichthys macrops	61	1.076
59	Squilla neglecta	51	0.715
60	Paralichthys dentatus	47	20.505
61	Portunus spinimanus	42	1.081
62	Paralichthys lethostigma	40	11.742
63	Pagurus pollicaris	39	1.707
64	Harengula jaguana	36	0.795
65	Persephona mediterranea	36	0.475
66	Arenaeus cribrarius	32	0.622
67	Sphoeroides maculatus	26	2.196
68	Hepatus epheliticus	26	0.382
69	Trachurus lathami	26	0.214
70	Upeneus parvus	24	0.124
71	Etrumeus teres	24	0.090
72	Trachinotus carolinus	22	5.667
73	Decapterus punctatus	17	1.413
74	Caretta caretta	15	642.160
75	Urophycis floridanus	15	0.637
76	Callinectes sapidus	14	2.811
77	Centropristis striata	11	0.921
78	Echeneis naucrates	10	0.989
79	Haemulon aurolineatum	9	0.272
80	Carcharhinus acronotus	7	128.780
81	Archosargus probatocephalus	7	26.204
82	Dasyatis centroura	6	135.070
83	Brevoortia smithi	6	1.816
84	Sphyraena guachancho	6	0.261
85	Sardinella aurita	6	0.223
86	Prionotus salmonicolor	6	0.116
87	Xiphopenaeus kroyeri	6	0.058
88	Etropus cyclosquamus	6	0.039
89	Aetobatus narinari	5	232.300
90	Gymnura altavela	5	95.860
91	Dasyatis americana	5	37.924
92	Pilumnus sayi	5	0.028
93	Odontaspis taurus	4	307.950
94	Caranx hippos	4	0.414
95	Rimapenaeus constrictus	4	0.038
96	Carcharhinus limbatus	3	56.710
97	Rachycentron canadum	3	1.317
98	Scomberomorus cavalla	3	0.463
99	Menippe mercenaria	3	0.053
100	Astroscopus y-graecum	3	0.046
101	Stephanolepis hispidus	3	0.008
102	Ginglymostoma cirratum	2	96.300
103	Carcharhinus plumbeus	2	20.090
104	Sphyrna lewini	2	1.880
105	Petrochirus diogenes	2	0.928
106	Caranx crysos	2	0.134
107	Centropristis philadelphica	2	0.102
108	Citharichthys spilopterus	2	0.025
109	Mola mola	1	100.000
110	Lepidochelys kempi	1	79.400
111	Acipenser oxyrhynchus	1	33.460
112	Alopias vulpinus	1	19.690
113	Squatina dumeril	1	4.900
114	Diodon hystrix	1	1.481
115	Rhinobatos lentiginosus	1	0.880
116	Dasyatis sabina	1	0.487
117	Balistes capriscus	1	0.094
118	Oligoplites saurus	1	0.085
119	Diplectrum formosum	1	0.038
120	Achirus lineatus	1	0.027
121	Alosa aestivalis	1	0.016
122	Syngnathus fuscus	1	0.014
123	Paralichthys squamilentus	1	0.011
124	Priacanthus arenatus	1	0.008
125	Syacium papillosum	1	0.005
126	Pagurus longicarpus	1	0.005
127	Ogcocephalus rostellum	1	0.004
128	Porcellana sigsbeiana	1	0.002
129	Polyonyx gibbesi	1	0.001

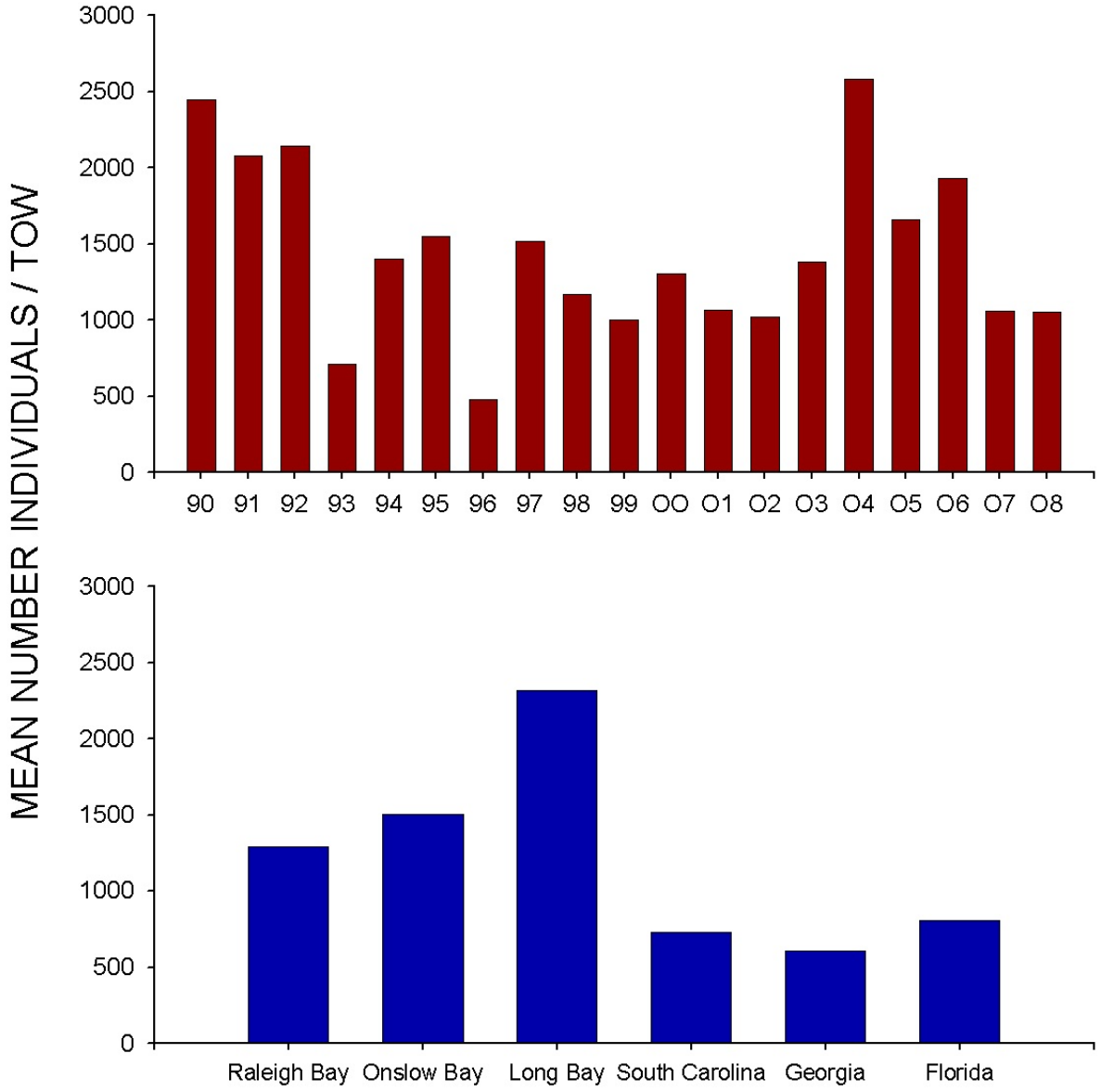

Figure 2. Annual and regional (2008) spring estimates of abundance from inner strata

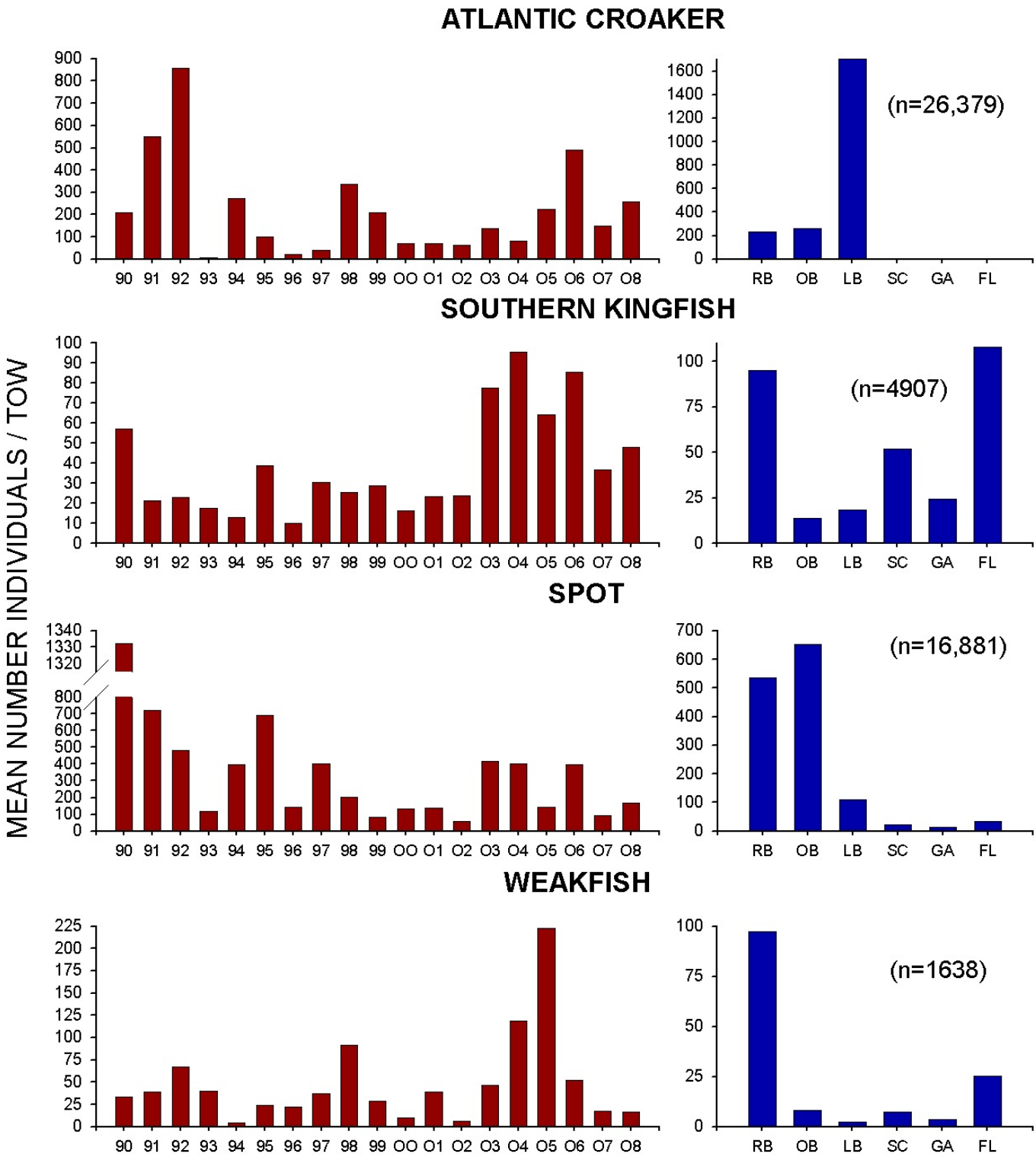

Figure 3. Annual and regional (2008) spring abundances of numerically dominant sciaenids from inner strata

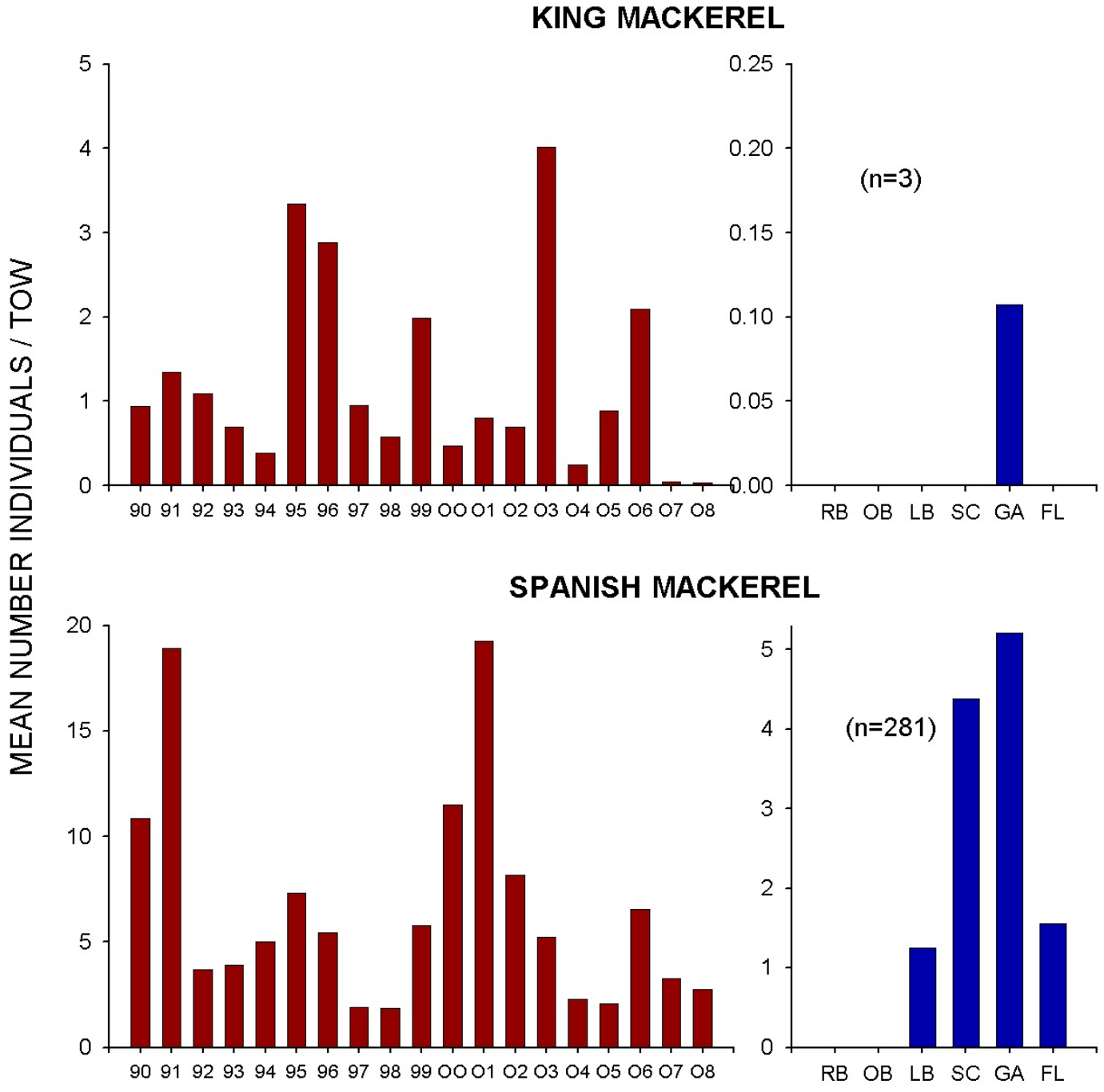

Figure 4. Annual and regional (2008) summer abundances of mackerels from inner strata

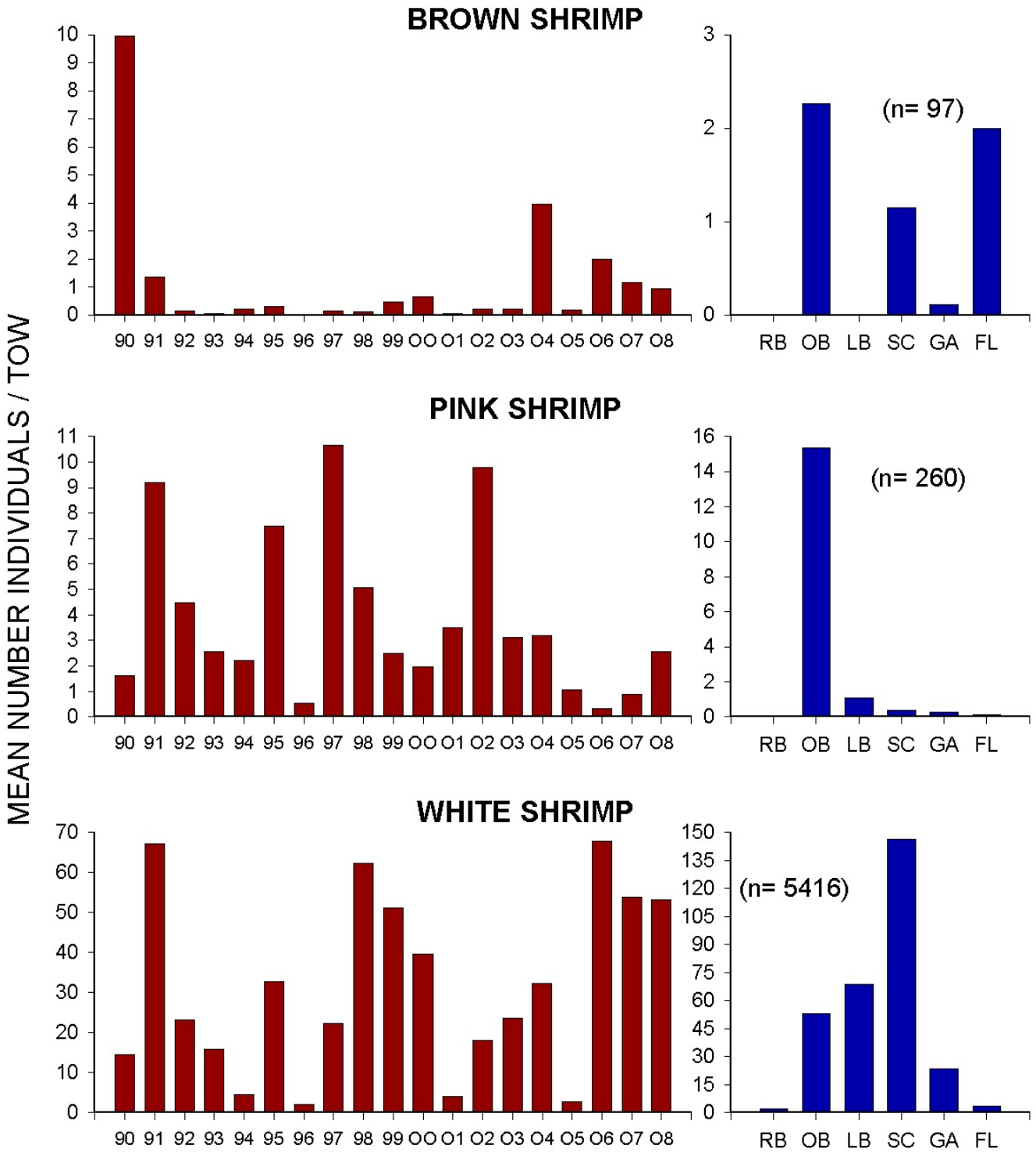

Figure 5. Annual and regional (2008) spring shrimp abundances from inner strata

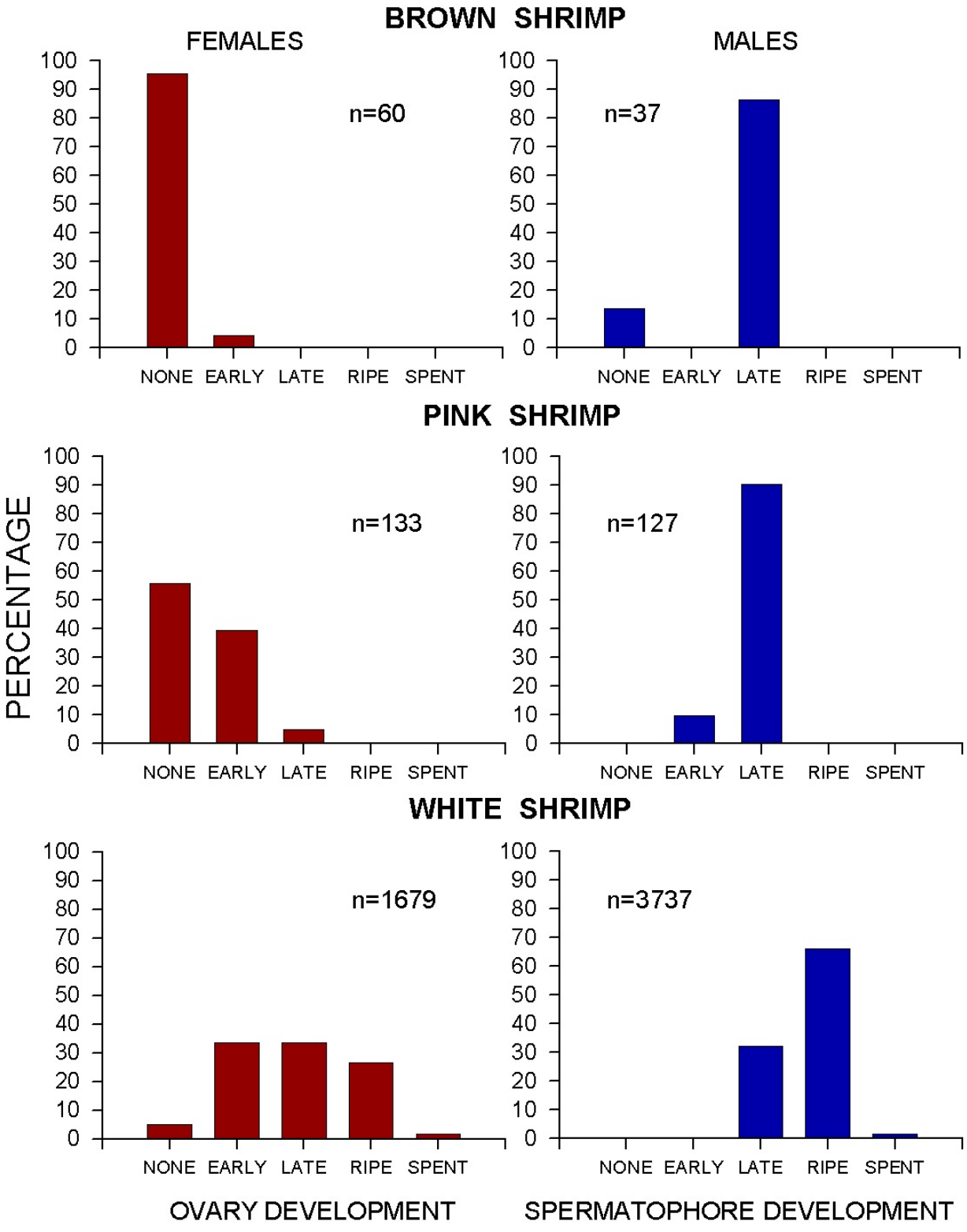

Figure 6. Shrimp gonadal development - Spring 2008