

The following supplement accompanies the article

## Spatial patterns in the species assemblages associated with the northwestern Gulf of Mexico shrimp trawl fishery

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Table S1. Number of tows by year and shrimp statistical zone for the SEAMAP summer trawl survey dataset used for the analyses in this study. Only tows in the depth range of 10-30 fathoms were included.

Year	Zone									Total
	13	14	15	16	17	18	19	20	21	
1982	17	17	3	0	5	22	15	15	22	116
1983	0	2	11	11	17	16	23	19	15	114
1984	4	9	14	18	12	10	20	18	9	114
1985	9	18	5	9	5	5	23	14	42	130
1986		12	11	8	9	4	16	10	25	95
1987	5	21	10	16	14	7	20	14	14	121
1988	5	12	7	12	17	10	22	14	12	111
1989	6	10	8	16	5	8	20	12	17	102
1990	13	18	8	16	12	12	18	17	11	125
1991	11	19	9	11	18	12	15	14	15	124
1992	1	24	16	15	18	3	26	20	8	131
1993	14	18	11	14	17	7	27	15	12	135
1994	10	17	19	17	11	8	20	17	10	129
1995	4	17	16	12	16	7	25	17	10	124
1996	8	25	10	20	16	9	19	9	18	134
1997	2	22	10	18	16	5	24	8	21	126
1998	6	14	16	16	9	7	20	20	9	117
1999	6	23	17	10	23	5	24	16	15	139
2000	6	19	12	11	25	6	28	13	13	133
2001	12	17	17	11	3	5	6	8	14	93
2002	8	24	13	19	14	10	22	16	17	143
2003	6	21	5	2	13	13	18	19	10	107
2004	12	24	12	14	20	12	18	14	13	139
2005	8	6	17	11	16	4	23	11	22	118
2006	6	12	8	17	18	11	20	16	11	119
2007	8	9	15	11	18	3	28	13	17	122
2008	17	11	19	13	20	13	20	12	19	144
Total	204	441	319	348	387	234	560	391	421	3305

Table S2. Number of tows by year and shrimp statistical zone for the SEAMAP fall trawl survey dataset used for the analyses in this study. Only tows in the depth range of 10-30 fathoms were included.

Year	Zone									Total
	13	14	15	16	17	18	19	20	21	
1986	5	16	5	22	15	21	21	10	12	127
1987	10	18	16	13	11	14	10	10	2	104
1988	5	13	19	10	19	11	18	16	13	124
1989	11	18	11	14	14	15	17	12	15	127
1990	12	11	14	15	17	10	22	11	18	130
1991	12	23	11	13	22	15	16	19	10	141
1992	5	11	11	15	17	8	21	22	10	120
1993	8	22	11	20	11	9	22	16	10	129
1994	6	9	14	16	13	8	22	12	12	112
1995	8	8	15	15	14	9	20	17	12	118
1996	6	22	14	12	17	8	20	10	20	129
1997	16	23	10	18	12	17	13	14	14	137
1998	14	36	7	20	6	9	18	14	12	136
1999	4	26	10	25	11	5	29	16	14	140
2000	16	18	17	14	15	9	24	17	13	143
2001	8	24	12	21	15	10	23	16	17	146
2002	4	9	13	11	18	8	28	19	10	120
2003	7	12	9	13	16	19	16	15	13	120
2004	6	14	15	14	19	14	18	13	16	129
2005	16	18	12	33	10	12	22	14	20	157
2006	5	15	6	11	18	14	20	22	9	120
2007	13	14	18	15	16	14	18	16	16	140
Total	197	380	270	360	326	259	438	331	288	2849

Table S3. Life history characteristics for eight select species encountered in the SEAMAP bottomfish trawl survey.

Common name	Size at maturity (mm)	Maximum size (mm)	Time of spawning	Reference
Atlantic croaker	140–170	400	September–March (peaks October)	Diamond et al. (1999), White & Chittenden (1977)
Bigeye searobin	120–140	350	January–August (peaks January–April)	McEachran & Fechhelm (2006)
Gulf butterflyfish	100–160	200	January–May and September–October	Murphy & Chittenden (1991)
Inshore lizardfish	180–210	483	February–October	García-Abad et al. (1999), Froese & Pauly (2011)
Longspine porgy	90–125	200	January–April	Geoghegan & Chittenden (1982)
Red snapper	295–482	1039	May–September (peaks May–July)	Wilson & Nieland (2001), Woods et al. (2003)
Sand seatrout	140–180	573	March–September (peaks March–May and August–September)	Shlossman & Chittenden (1981)
Silver seatrout	140–170	190	May–October (peaks May and August–September)	DeVries & Chittenden (1982)

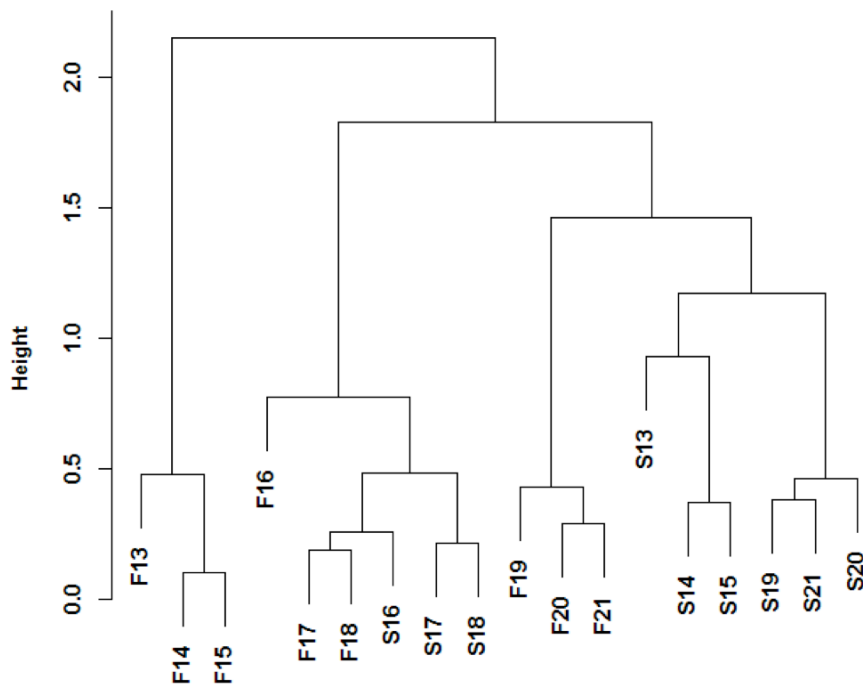


Figure S1. Dendrogram for the cluster analysis using catch pooled across years for each shrimp statistical zone and survey (summer and fall). For zones 13–21, the “S” indicates the summer survey and the “F” indicates the fall survey.

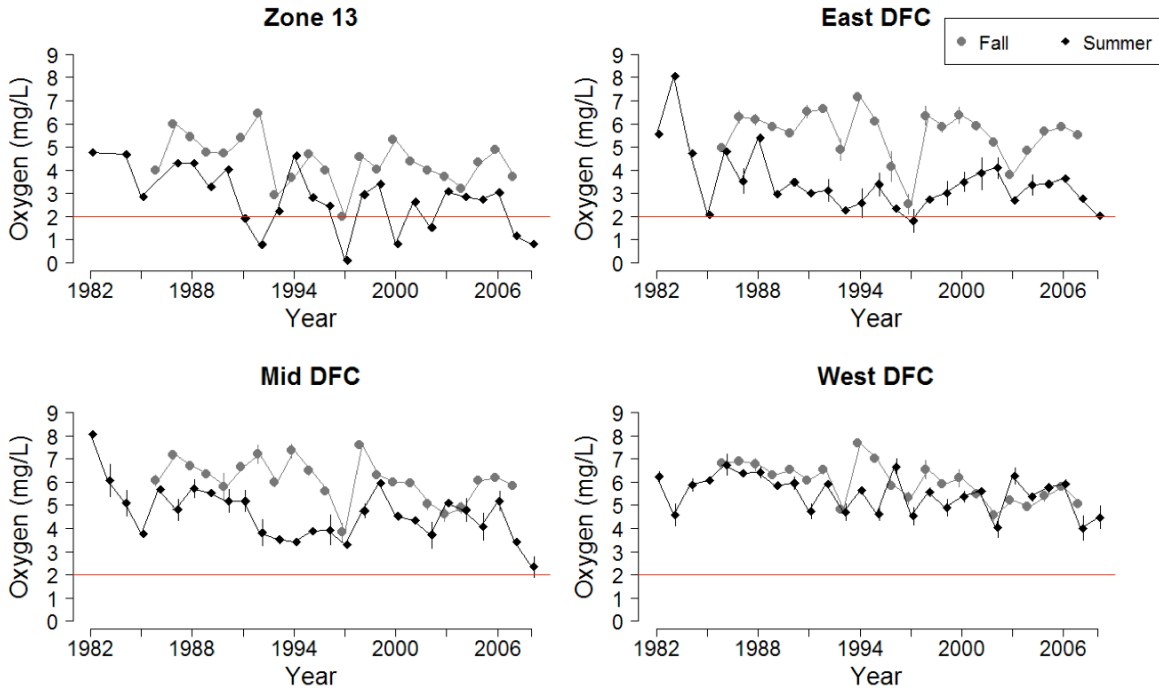


Figure S2. Annual averages (with 95% confidence intervals for samples with at least 30 measurements) of the bottom dissolved oxygen from the SEAMAP bottomfish trawl survey. Zone 13 was separated from the East DFC in the fall survey. The horizontal line at  $2\text{mg}^{-1}$  is the dissolved oxygen concentration below which the water is hypoxic.

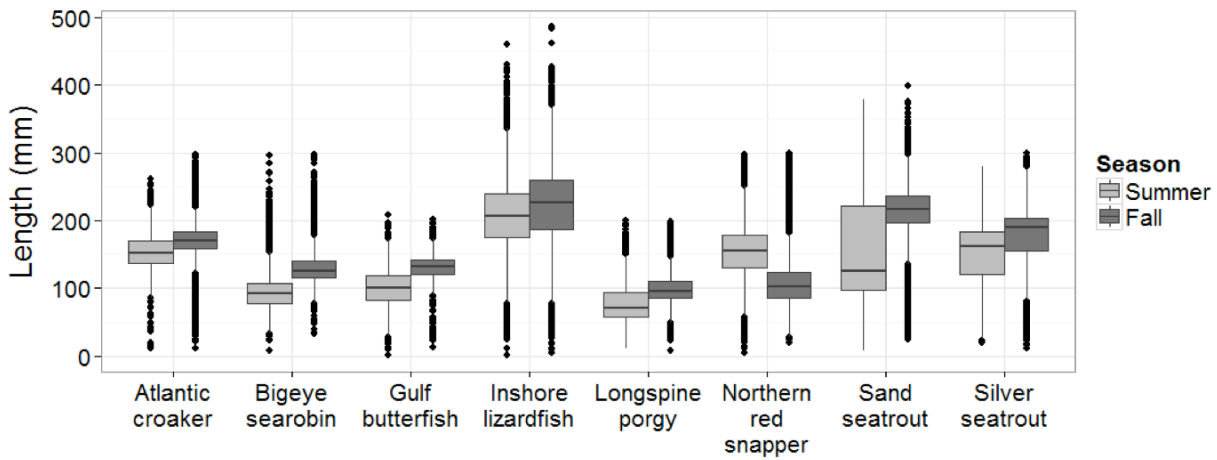


Figure S3. Comparison of lengths for eight species between the summer and fall surveys for eight select species. The Atlantic croaker, northern red snapper, sand seatrout and silver seatrout were measured as total length and the other four species as fork length.

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