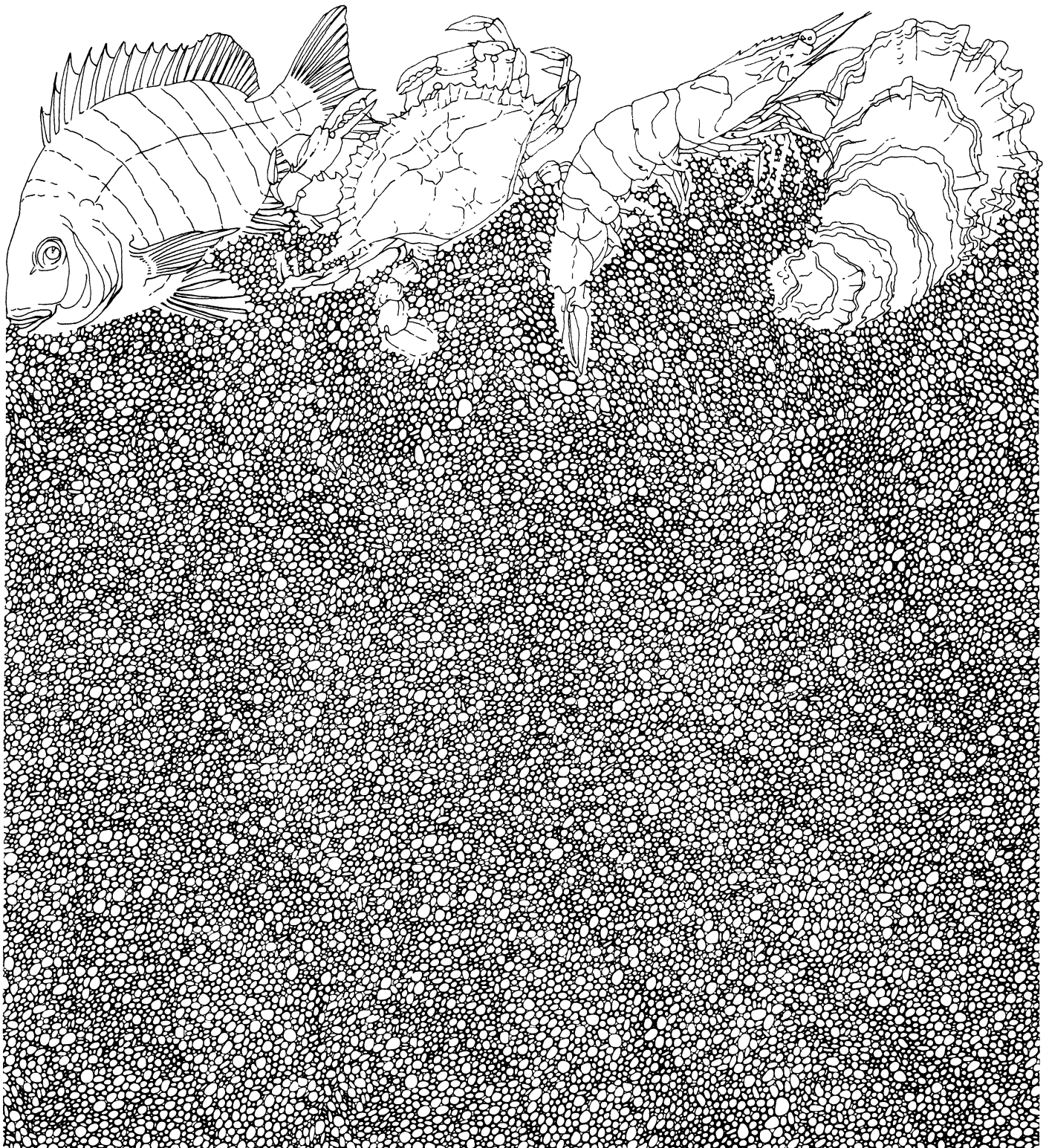


A Description of the Texas Shrimp Fleet, 1979-1983

by Arthur L. Crowe and C. E. Bryan

Management Data Series Number 101
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Texas Parks and Wildlife Department
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ABSTRACT

The number of commercial shrimp boats increased 12% and the number of boats holding multiple shrimp boat licenses increased 41% between 1979-1983. These increases were probably due to increased demand for shrimp and modifications in shrimping regulations. Shrimp boats increased from 6889 in 1979 to 7733 in 1983. Individual bay and Gulf licenses accounted for the majority of licenses sold. Out-of-state boats increased from 279 in 1979 to 709 in 1983 with the greatest increase in vessels ≥ 16.8 m. Part-time commercial boats (≤ 7.6 m) were most numerous in the Beaumont-Nederland, Houston-Pasadena-Baytown and Seabrook-Kemah-San Leon-Texas City areas. Commercial bay shrimp boats (>7.6 m to 16.8 m) were most numerous in the Galveston, Palacios-Port Lavaca-Port O'Connor and Corpus Christi areas. Commercial Gulf shrimp boats (>16.8 m) were most numerous in Galveston, Corpus Christi and Brownsville.

INTRODUCTION

Shrimp constitute the most valuable commercial fishery in Texas. They comprised 78% of the weight and 91% of the total value of Texas landings in 1983 (Hamilton and Saul 1984). From 1979 to 1983 brown shrimp landings fluctuated between 22.9 and 35.7 million kg and white shrimp landings fluctuated between 6.5 and 9.2 million kg. The annual ex-vessel value of all shrimp species combined fluctuated between \$140 million in 1979 and \$176 million in 1982 (Hamilton and Saul 1984).

Commercial shrimp vessels are licensed in one or more of three categories: bay, bait and Gulf, depending on where each shrimps and the use of the catch. An individual must purchase licenses from the Texas Parks and Wildlife Department (TPWD). Hamilton and Saul (1984) presented figures on the total license sales (9560 in 1979 to 11,558 in 1983). However, those figures overestimate the actual number of boats because, for example, if one boat held three different licenses, it was reported three times.

The objectives of this report are to summarize statistics on the:

- 1) trends in numbers, size and license classes of the Texas shrimp fleet,
- 2) home port distribution of the fleet, and
- 3) trend in number of boats with multiple licenses.

These data will help determine harvest capacity and effort which, in turn, can be used in models pertaining to allocation and economic assessments.

MATERIALS AND METHODS

Data were collected from TPWD computer records of commercial license sales during fiscal 1979-1983. The TPWD fiscal year runs from 1 September of 1 year through 31 August of the following year. An individual boat could hold any one or more of three licenses. In this report, a boat was reported only one time no matter how many licenses it held.

The vessel length classes (m) used for this report are the same as presented by Warren and Bryan (1981). These are:

- <7.6 = part-time commercial bay boats
- >7.6-12.2 and >12.2-16.8 = commercial bay boats
- >16.8-21.3 and >21.3 = commercial Gulf vessels

Major shrimp boat ports in Texas were grouped into geographical areas. Ports with $>2\%$ of the licenses issued in any one of the different length classes for 1979 were tabulated individually; all other ports were pooled (Fig. 1).

RESULTS

The total number of shrimp boats increased from 6889 in 1979 to 7733 in 1983 (Table 1). From 1979 to 1983, out-of-state boats increased from 294 to 709, with the greatest increase in vessels >16.8 m. In 1983, out-of-state boats accounted for 28% of the >16.8 m-21.3 m length class and 49% of the >21.3 m length class (Table 1).

Coastal counties had the greatest percentage (49%-95%) of boats in each length class (Table 1). Non-coastal counties accounted for $\sim 12\%$ of the boats in the ≤ 7.6 -m length class and generally $\leq 5\%$ of the boats in all other length classes. The top three port areas for the three commercial vessel length classes remained the same from 1979 to 1983 (Table 2). Part-time commercial shrimp boats (< 7.6 m) were most numerous in the ports of Beaumont-Nederland, Houston-Pasadena-Baytown and Seabrook-Kemah-San Leon-Texas City. Commercial bay shrimp boats (> 7.6 m-16.8 m) were most numerous in Galveston, Palacios-Port Lavaca-Port O'Connor and Corpus Christi. Commercial Gulf shrimp boats (> 16.8 m) were most numerous in Galveston, Corpus Christi and Brownsville.

Individual bay and Gulf licenses accounted for the majority (59-66%) of all licenses sold in any 1 year (Table 3). Individual bay licenses decreased from 2481 in 1979 to 2129 in 1983. Individual Gulf licenses increased from 2086 in 1979 to 2411 in 1983. Individual bait licenses increased from 437 in 1979 to 534 in 1983. Boats with combination licenses increased 41% from 1979 to 1983 while the total number of boats increased only 12%. The increase in combination licenses came mostly in commercial bay boats (> 7.6 m-16.8 m) holding combination bait licenses. The majority of boats >16.8 m were licensed for Gulf or some combination of Gulf shrimping.

DISCUSSION

The increase in the number of shrimp boats and the increase in the number of boats holding multiple licenses was probably due to increased demand for shrimp (U. S. Department of Commerce 1984) and modifications in shrimping regulations. The increase in the number of out-of-state boats may be due in part to the closure, beginning in 1981, of the Fishery Conservation Zone (FCZ) off Texas in conjunction with the traditional closure of the Texas Territorial Sea (Jones et al. 1982). Out-of-state boats may have been attracted to the larger, more valuable shrimp that the closure produced. However,

the 569 out-of-state boats licensed in 1981 was similar to the 485 out-of-state boats (> 15.2 m) licensed in 1976 (TPWD unpublished data). The phasing out of U.S. shrimping in Mexican waters at the end of 1979 may have also contributed to an increase in out-of-state boats (Christmas and Etzold 1977).

It is doubtful that the increase in bait licenses is a reflection of increased demand for bait shrimp since sport fishing remained relatively stable during the period (Osburn and Ferguson 1985). However, modifications in bait shrimp regulations since 1979 may have resulted in more boat owners applying for individual or combination bait licenses. Prior to 1979, bait shrimp boats had to be inspected to assure that a bait box was present which would keep 50% of the daily limit (68 kg) alive year-round (Texas Parks and Wildlife Laws 1979). In 1979, the inspection requirement was repealed and the net size was increased from 7.6 m to 10.4 m (Texas Parks and Wildlife Laws 1979). In 1981, the daily limit increased to 91 kg/day and the requirement that 50% of the shrimp be kept alive was reduced to the period 15 November-15 August (Texas Parks and Wildlife Laws 1981). In addition, by purchasing a \$50 bait license, a boat could increase its spring bag limit from 136 kg/day to 227 kg/day, as well as be allowed to shrimp year-round in the bay with the bait license.

The increase in commercial bay and bait licenses may also have been a result of recreational shrimpers buying commercial licenses. Recreational shrimping is allowed in the bays and Gulf during the open seasons and for bait year-round with the purchase of an individual bait-shrimp trawl license. Individuals with these licenses are allowed 1.9 l of shrimp/day/person or 3.8 l/day/boat all year and 6.8 kg/day/person during the spring and fall bay seasons. Many recreational fishermen may have purchased relatively inexpensive commercial licenses in order to participate in the more liberal commercial limits (Christmas and Etzold 1977).

Other legislation that may have affected the number of licenses issued was the 2-year moratorium (Texas Parks and Wildlife 1981) on the issuance of new bay and bait licenses to those boats that had licenses on 28 February 1981, or to any boat which was at least 50% completed by 1 March 1981. According to Krauthamer et al. (1984), this caused a dramatic increase in the number of bay and bait licenses issued prior to these dates.

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Table 1. Number of licensed Texas commercial shrimp boats by length class (m) and area during fiscal year 1979-1983.

Year	Area	Total	Length class						
			≤7.6	>7.6-12.2	>12.2-16.8	>16.8-21.3	>21.3		
1979									
	Coastal	6118	3157	1290	380	1004	287		
	Non-coastal	477	380	65	11	18	3		
	Out-of-state	294	7	5	28	174	80		
	Total	6889	3544	1360	419	1196	370		
1980									
	Coastal	5821	2853	1372	395	916	285		
	Non-coastal	460	357	69	12	16	6		
	Out-of-state	317	5	7	31	169	105		
	Total	6598	3215	1448	438	1101	396		
1981									
	Coastal	6450	3248	1529	448	981	244		
	Non-coastal	564	444	89	13	12	6		
	Out-of-state	569	7	16	75	271	200		
	Total	7583	3699	1634	536	1264	450		
1982									
	Coastal	6121	2265	2261	400	963	232		
	Non-coastal	514	309	164	17	20	4		
	Out-of-state	668	2	22	49	361	234		
	Total	7303	2576	2447	466	1344	470		
1983									
	Coastal	6487	3107	1687	566	882	245		
	Non-coastal	537	399	94	23	14	7		
	Out-of-state	709	6	19	90	348	246		
	Total	7733	3512	1800	679	1244	498		

Table 2. Number of licensed Texas commercial shrimp boats by length class (m) and selected ports during fiscal year 1979-1983.

Year	Length class	Ports ^a													Total
		1	2	3	4	5	6	7	8	9	10	11	12	13	
1979	<7.6	250	180	713	239	183	56	48	79	25	83	92	11	1585	3544
	>7.6-12.2	12	50	128	144	214	20	38	130	76	112	213	5	218	1360
	>12.2-16.8	2	21	46	8	106	0	5	45	19	8	79	10	70	419
	>16.8-21.3	2	19	20	2	139	13	0	35	0	21	244	308	393	1196
	>21.3	0	2	3	1	38	10	0	28	0	10	49	89	140	370
	Total	266	272	910	394	680	99	91	317	120	234	677	423	2406	6889
1980	<7.6	203	153	593	222	177	49	36	79	22	74	130	6	1471	3215
	>7.6-12.2	11	52	127	165	232	15	40	165	63	113	228	7	230	1448
	>12.2-16.8	0	29	52	8	118	1	4	50	23	1	84	9	59	438
	>16.8-21.3	3	22	16	3	143	7	0	43	1	14	247	299	303	1101
	>21.3	0	4	0	1	70	2	0	25	0	8	46	92	148	396
	Total	217	260	788	399	740	74	80	362	109	210	735	413	2211	6598
1981	<7.6	247	138	635	227	188	65	53	96	46	70	140	10	1784	3699
	>7.6-12.2	12	55	143	183	269	20	42	192	68	127	224	7	292	1634
	>12.2-16.8	0	38	52	14	120	0	6	65	26	7	87	10	111	536
	>16.8-21.3	1	26	14	4	155	16	0	48	1	14	241	292	452	1264
	>21.3	0	4	0	0	35	2	0	26	0	6	52	85	240	450
	Total	260	261	844	428	767	103	101	427	141	224	744	404	2879	7583

Table 2. (Cont'd.).

Year	Length class	Ports ^a													Total		
		1	2	3	4	5	6	7	8	9	10	11	12	13			
1982																	
	<7.6	238	154	536	190	186	61	48	94	29	67	135	10	1630	3378		
	>7.6-12.2	6	59	137	208	272	18	43	186	73	142	229	7	265	1645		
	>12.2-16.8	1	38	51	21	121	4	7	65	25	4	97	9	120	563		
	>16.8-21.3	0	33	17	2	123	10	0	45	1	11	225	295	485	1247		
	>21.3	0	6	3	0	34	3	0	23	0	3	44	81	273	470		
	Total	245	290	744	421	736	96	98	413	128	227	730	402	2773	7303		
1983																	
	<7.6	242	135	524	194	215	58	51	119	28	72	151	11	1712	3512		
	>7.6-12.2	12	72	149	232	277	24	46	228	72	149	237	7	295	1800		
	>12.2-16.8	1	61	55	61	117	3	8	92	29	21	94	8	124	679		
	>16.8-21.3	1	72	16	0	97	12	0	46	1	11	194	284	510	1244		
	>21.3	0	17	2	0	25	1	0	22	0	2	50	83	296	498		
	Total	256	357	746	487	731	98	105	507	130	255	726	393	2942	7733		

^a 1 = Beaumont, Nederland; 2 = Port Arthur, Sabine Pass; 3 = Houston-Pasadena-Baytown; 4 = Seabrook-Kemah-San Leon-Texas City; 5 = Galveston; 6 = Freeport; 7 = Matagorda; 8 = Palacios-Port Lavaca-Port O'Connor; 9 = Seadrift; 10 = Fulton-Rockport-Aransas Pass; 11 = Corpus Christi; 12 = Brownsville; 13 = all other ports pooled.

Table 3. Number of licensed Texas commercial shrimp boats by license class and length (m) during fiscal year 1979-1983.

Year	Length class	License class							
		Total	Bay	Gulf	Bait	Bay and bait	Bay and Gulf	Bay and Gulf and bait	
1979									
	<7.6	3544	2062	427	342	176	428	23	86
	>7.6-12.2	1360	345	66	87	452	103	22	285
	>12.2-16.8	419	66	74	7	58	58	5	151
	>16.8-21.3	1196	7	1152	0	2	22	2	11
	>21.3	370	1	367	1	0	1	0	0
	Total	6889	2481	2086	437	688	612	52	533
1980									
	<7.6	3215	1708	423	395	213	366	33	77
	>7.6-12.2	1448	294	76	116	493	107	45	317
	>12.2-16.8	438	40	73	13	69	51	15	177
	>16.8-21.3	1101	9	1055	0	3	21	2	11
	>21.3	396	0	392	0	0	4	0	0
	Total	6598	2051	2019	524	778	549	95	582
1981									
	<7.6	3699	2140	370	333	280	419	36	121
	>7.6-12.2	1634	344	74	94	579	124	28	391
	>12.2-16.8	536	53	131	8	67	49	16	212
	>16.8-21.3	1264	9	1184	1	2	53	2	13
	>21.3	450	1	434	1	0	13	0	1
	Total	7583	2547	2193	437	928	658	82	738

Table 3. (Cont'd.).

Year	Length class	License class							
		Total	Bay	Gulf	Bait	Bay and bait	Bay and Gulf	Bay and Gulf and bait	
1982									
	<7.6	3378	1733	494	354	283	363	39	112
	>7.6-12.2	1645	301	109	110	521	120	57	427
	>12.2-16.8	563	41	150	16	62	56	19	219
	>16.8-21.3	1247	10	1175	0	2	47	2	11
	>21.3	470	1	458	1	1	8	1	0
	Total	7303	2086	2386	481	869	594	118	769
1983									
	<7.6	3512	1726	485	411	355	330	42	163
	>7.6-12.2	1800	284	101	109	624	91	47	544
	>12.2-16.8	679	106	146	14	75	46	22	270
	>16.8-21.3	1244	12	1184	0	1	31	1	15
	>21.3	498	1	495	0	0	1	0	1
	Total	7733	2129	2411	534	1055	499	112	993

Figure 1. Texas coast illustrating coastal counties, bay systems and major shrimp ports (1 = Beaumont-Nederland; 2 = Port Arthur-Sabine Pass; 3 = Houston-Pasadena-Baytown; 4 = Seabrook-Kemah-San Leon-Texas City; 5 = Galveston; 6 = Freeport; 7 = Matagorda; 8 = Palacios-Port Lavaca-Port O'Connor; 9 = Seadrift; 10 = Fulton-Rockport-Aransas Pass; 11 = Corpus Christi; 12 = Brownsville).

