

Recreational harvest estimates and estimated catch-at-age for the recreational fishery in Florida during 1982-2007.

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### *Estimated landings*

Information on the recreational fishery in Florida comes from the Marine Recreational Fisheries Statistics Survey (MRFSS); since 1998, the angler interview information has been collected by Florida Fish and Conservation Commission (FWC) under contract with the National Marine Fisheries Service. The final estimates of coast-wide catch and all creel interview data were available for the period March 1981 through 2007, though I utilize only the full-years of data, 1982-2007. Significant changes in the survey design for sampling the for-hire charter sector occurred in 2004 on the Atlantic coast. The effects of these changes were evaluated by Sminkey (2008) who provided conversion factors to update earlier effort and thus landings estimates made in the charterboat mode during 1986-2003. During 1981-1985, MRFSS included headboat fishing in the charterboat mode so reconciling these data with the changes seen in the new charterboat methodology required separate conversions. These are available at this time only for the Gulf of Mexico (Diaz and Phares 2004) and are used here.

The total number of angler interviews conducted through the MRFSS in Florida increased abruptly after 1991. This increase in interview effort leveled off in 1999 and the annual number of interviews since then have averaged about 18,500 on the Atlantic coast (Table 1). The number of interviews from anglers 'targeting' red drum (meaning anglers caught or admitted targeting red drum) has shown a general increase since the fishery re-opened as a recreational-only fishery in 1989. The proportion of interviews that found fishers targeting red drum increased from 6% in the mid 1990's to around 13% in recent years.

The total catch estimates were extended back in time to 1950 using the assumption that total red drum catch in Florida would be linearly related to the square of Florida's population size. The predicted estimates from this relation were partitioned between coasts using the average of the 1982-2007 annual coast-specific proportions of the annual statewide catch. These estimates were further divided into the landings and the numbers released alive using the average of the observed 1982-84 ratios of landings to numbers released alive.

The MRFSS provides estimates of the number of red drum caught by anglers and then released alive. A portion of these fish die after release. The estimated portion of red drum that died after release was assumed to be 5% (Murphy 2005).

Two-month-specific estimates of the number of red drum landed or the number of red drum released alive show similar seasonal patterns with catch lowest during the period when water temperatures were coldest (January through June) and highest just as peak water temperatures began to cool, (September and October, Table 2). Higher landings of red drum during the early to mid 1980's were associated with lower release rates than occurred in later years. While the proportion of the total catch released has

remained relatively steady at 83% since 1987, the total catch and thus the landings have steadily increased (t-test of slope,  $P's < 0.05$ ).

The estimated precision of the MRFSS estimates was low (PSE's > 20%) prior to 1991. The proportional standard errors (PSE) have generally dropped to 10% or less since 1998 (Table 2). It is noted that there was some difference between the reported variance estimates in the MRFSS data files ( $PSE = \sqrt{\text{sum}(\text{Var})/\text{sum}(\text{Est})}$ ) and the web-based reports of PSE in 1983 and 1984. Differences between the original estimates of catch and those calculated using the for-hire conversions were generally minor (<3%) except in 1982 and 2003 (Table 2).

Estimates of the number of red drum killed by anglers (landings and 5% of live releases) during the period 1950-2007 (Figure 1, Table 4) showed increases through 1984 when estimates reached a peak. Of course, the early trend strictly reflects the increasing population of Florida used to generate the pre-1982 kill and the early peak in the actual estimated red drum kill. The total kill of red drum then quickly dropped through the late 1980's reflecting a series of increasingly restrictive regulations to harvest. Since the late 1980's the total kill shows an increasing trend through 2007.

### *Biostatistics*

Along with the observed increase in the numbers of MRFSS interviews, there has been a concomitant increase in the numbers of lengths and weights measured for angler-caught red drum. No angler-landed red drum have been sampled for aging structures during the MRFSS on the Florida Atlantic coast during 1981-2007; occasional special projects, e.g. the life history study during 1981-1983, have provided some age structures (Table 1).

The annual length composition of the observed recreational fisheries landings (MRFSS Type A estimates) were estimated using red drum lengths measured from the creel, with these strata-specific samples weighted by the estimated annual observed landings estimates made within MRFSS strata (wave x mode fishing x area fished). Initially, differences in length frequencies were examined visually for the different levels within each strata. This led to the immediate collapse of the fishing mode strata into shore fishing and boat fishing and the area-fished strata into ocean fishing and inland (estuary) fishing. All modified-strata cells with enough lengths to meet a minimum sample size of twenty lengths had their estimated type-A catch assigned that length-frequency. If the sample size for lengths was insufficient, length and estimated catch data were pooled across strata levels until the required length sample size of twenty fish was reached then the catch length frequency was generated. Hierarchically, this pooling occurred first across all modes of fishing since visual inspection indicated less difference between lengths in these categories than between the categories for area fished and time of year. As necessary, further pooling of length data was made 1) within 'warm' (July-December) and 'cold' (January-June) seasons, 2) across all areas fished, and finally 3) within relatively stable management periods (1982-1985, 1986-1995, 1996-2007). These length-frequencies for red drum observed in the landings were combined with the released-fish length frequencies (see below) to apportion the unobserved (MRFSS Type B1) recreational landings into length frequencies.

The length compositions of red drum released alive (Type B2) were estimated using sizes taken from a volunteer angler logbook program designed to collect the sizes

of fish that anglers released or kept during 2002-2007 (Table 5) and survey-designed gulf coast hook-and-line sampling activities conducted during 2004-2007 (Table 6). It was assumed that the annual hook-and-line fishing conducted for each of these studies was representative of the angling public's annual catch of released fish on the Atlantic coast of Florida. Angler-volunteered information on the sizes of red drum they release was collected using a one-day logbook distributed to anglers randomly chosen from Florida's licensed fishermen living in Southeast Florida (Table 5). With large gaps in the temporal and spatial coverage of these data, I had to assume that: 1) the 1982-1985 length frequencies on both coasts were the same as found for the survey-designed hook-and-line sampling given the only restriction to retention during this time period was a 12-inch fork length minimum size limit, 2) the 1986 and 1987 release lengths could be represented by the survey-designed data filtered through the current regulations, 3) the complete survey-designed length-frequency sample represented the length frequencies during the completely closed year of 1988, and 4) the coast-specific logbook data, sometimes pooled for years when samples did not exist or were small (<20 lengths), could represent the release length frequencies during 1989-2007.

Lengths of most red drum landed by recreational fishermen during 2007 were from 18 to 26 inches on the Atlantic coast. This has been fairly consistent since 1989 with the 18-inch-TL-minimum/27-inch-TL maximum-size limits (Table 7). There was a substantial reduction in landings of small red drum (TL < 13") beginning in 1986. Prior to this 36% of the landings made on the Atlantic coast was smaller than 13 inches total length. Since 1989, the proportion of the landings of this size has averaged only 2% of the annual landings. The estimated length-frequency distributions from volunteer logbooks has been somewhat consistent since 2002. During the period 2002-2007, lengths of released fish were mostly larger than 8-10 inches TL and were relatively common up to about 30 inches TL on both coast (Table 8).

#### *Estimated catch at age*

The age composition of red drum landed (MRFSS Type A+B1) during 1982-2007 was estimated using the estimated annual length frequencies of the landings and period-specific age-length keys. Age-length keys were developed using all age-length data available and included fish sampled from the commercial fisheries during the 1980's, from scientific collections during 1989-2007, and from the recreational fishery. Annual age-length keys were developed for each year during the period 2004-2007 and a single age-length keys was developed for the earlier period, 1981-2003 (Table 9). Due to inadequate sample sizes, significant filling was need to complete the annual age-length keys, especially at the smaller and larger fish-length extremes. The same process was applied to estimated ages of released red drum.

There was a general shift in the recreational fishery landings away from age-0 red drum after 1985. This was a consequence of the increased minimum size limit during the mid 1980's. The proportion of age-0's in the landings was 70% during 1982-1985, 19% during the extended 1986-1996 transition, and then 4% after 1996 (Table 10). Age-1-3 red drum appeared in the landings in higher proportions after 1985, with the proportion of age-3 fish most variable from year to year. The age-1, -2, and -3 proportions jumped from 0.24, 0.03, 0.02 to 0.38, 0.34, and 0.12 between the periods 1982-1985 and 1986-2007, with associated CV's after 1985 of 14% for age 1, 19% for age 2, and 32% for age 3.

Unfortunately much of the data required to estimate the age composition of red drum released alive by anglers was not available prior to 2003 on the Atlantic coast of Florida. A short description of the data and assumptions needed to estimate their length-frequencies and age-frequencies are given above. Given these limitations, the best estimates of age-frequencies for these fish indicated that all were all were age-0 fish on the Atlantic coast prior to 1986 (Table 11). After this, most red drum released alive each year were age-1 but the range of ages released alive expanded to include all ages from 0-9<sup>+</sup>.

### *References*

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Table 1. Number of interviews, total and those that indicated red drum as a target or caught a red drum (directed), where anglers were interviewed by creel clerks along the Atlantic coast of Florida during 1982-2007. Also, given are numbers of red drum measured for length, weight during the interviews and numbers of recreationally caught fish sampled for otoliths each year.

<b>Florida Atlantic Coast</b>					
	Trips	Direct	Len.	Wgt.	Age
1982	4,496	140	102	102	47
1983	4,884	303	151	152	0
1984	5,820	282	178	176	0
1985	4,733	163	65	65	0
1986	4,907	222	64	63	0
1987	4,659	111	22	24	0
1988	6,082	68	2	2	0
1989	5,381	160	15	19	0
1990	5,057	148	18	18	0
1991	6,018	276	47	44	0
1992	11,434	424	56	52	0
1993	13,395	571	67	67	0
1994	15,145	807	100	111	0
1995	14,039	779	81	74	0
1996	11,753	726	114	114	0
1997	12,225	671	59	59	0
1998	13,680	1,090	119	119	0
1999	18,029	2,006	230	218	0
2000	17,058	2,374	267	255	0
2001	19,728	2,735	279	275	0
2002	22,191	2,506	203	201	0
2003	19,833	1,990	211	206	0
2004	16,218	2,274	182	180	0
2005	16,699	2,379	215	199	0
2006	18,916	2,419	214	197	18
2007	17,817	2,030	203	195	0

Table 2. Estimates and PSE's for red drum landings (A+B1) and total catch (A+B1+B2) from three sources and comparison with final estimates made using necessary for-hire survey estimate adjustments.

	A+B1							A+B1+B2						
	MRFSS file	Estimates MRFSS web	ACCSP	MRFSS file	PSEs MRFSS web	ACCSP	Final Estimate	MRFSS file	Estimates MRFSS web	ACCSP	MRFSS file	PSEs MRFSS web	ACCSP	Final Estimate
1981		75,244	75,244		36.7	36.73			84,287	84,287		33.7	33.65	
1982	204,399	204,401	204,401	27.53	27.5	27.53	231,965	214,571	214,573	214,573	26.42	26.4	26.42	242,137
1983	344,514	344,513	344,513	18.66	19.1	19.14	344,514	399,238	399,237	399,237	17.41	17.4	17.41	399,238
1984	549,383	549,381	549,381	34.60	16.1	16.14	549,573	596,579	596,577	596,577	15.16	15.2	15.16	596,769
1985	265,185	265,185	265,185	22.21	22.2	22.21	265,185	458,583	458,583	458,583	17.76	17.8	17.76	458,583
1986	113,440	113,440	113,440	19.76	19.8	19.76	113,440	213,536	213,536	213,536	14.86	14.9	14.86	213,536
1987	51,224	51,225	51,225	30.89	30.9	30.89	51,224	429,183	429,183	429,183	18.98	19	18.98	429,183
1988	9,542	9,542	9,542	72.62	72.6	72.61	9,542	243,530	243,531	243,531	26.64	26.6	26.63	243,530
1989	34,748	34,748	34,748	24.26	24.3	24.26	34,748	207,051	207,050	207,050	18.21	18.2	18.21	207,051
1990	44,280	44,280	44,280	22.72	22.7	22.72	44,280	112,947	112,948	112,948	14.24	14.2	14.24	112,947
1991	102,729	102,727	102,727	15.72	15.7	15.72	102,729	748,501	748,501	748,501	20.20	20.2	20.20	748,501
1992	104,267	104,265	104,265	14.08	14.1	14.08	104,121	389,160	389,158	389,158	9.23	9.2	9.23	388,917
1993	65,140	65,140	65,140	10.52	10.5	10.52	66,684	530,797	530,796	530,796	10.42	10.4	10.42	532,341
1994	120,940	120,938	120,938	9.86	9.9	9.86	120,940	812,201	812,200	812,200	8.96	9	8.96	812,751
1995	96,928	96,927	96,927	10.73	10.7	10.73	96,928	780,634	780,633	780,633	8.10	8.1	8.10	780,634
1996	146,823	146,823	146,823	16.12	16.1	16.12	146,823	647,197	647,197	647,197	8.10	8.1	8.10	647,104
1997	75,235	75,235	75,235	14.09	14.1	14.09	75,096	635,795	635,794	635,794	8.67	8.7	8.67	635,447
1998	107,983	107,982	107,982	10.25	10.3	10.25	108,441	588,993	588,991	588,991	7.35	7.3	7.35	590,474
1999	126,181	126,180	126,180	7.81	7.8	7.81	131,248	692,163	692,161	692,161	6.72	6.7	6.72	714,457
2000	191,070	191,070	191,070	8.36	8.4	8.36	194,735	884,223	884,222	884,222	6.00	6	6.00	907,449
2001	177,633	177,633	177,633	8.23	8.2	8.23	181,102	1,027,677	1,027,677	1,027,677	6.35	6.4	6.35	1,044,823
2002	119,009	119,010	119,010	8.73	8.7	8.73	120,646	782,889	782,889	782,889	7.84	7.8	7.84	790,930
2003	159,331	159,331	159,331	8.49	8.5	8.48	171,398	908,097	908,096	908,096	7.06	7.1	7.05	974,534
2004	164,170	164,170	164,170	8.39	8.4	8.39	164,170	1,301,710	1,301,711	1,301,711	6.94	6.9	6.94	1,301,710
2005	196,235	196,235	196,235	9.13	9.1	9.13	196,235	1,467,277	1,467,276	1,467,276	6.59	6.6	6.58	1,467,277
2006	149,756	149,756	149,756	8.18	8.2	8.18	149,756	1,043,537	1,043,537	1,043,537	6.30	6.3	6.30	1,043,537
2007	199,158	199,159		9.04	9		199,158	1,096,249	1,096,251		6.61	6.6		1,096,249

Table 3. Estimated number of red drum landed (MRFSS Type A+B1) and number released alive (MRFSS Type B2) for each two-month period and for each year along the Atlantic coast of Florida during 1982-2007. Blanks indicate periods when no estimates were available. The proportion of the total catch that was released alive is also given.

	Landings							Released Alive							Total Catch	Prop. Released
	Jan-Feb	Mar-Apr	May-Jun	Jul-Aug	Sep-Oct	Nov-Dec	Annual	Jan-Feb	Mar-Apr	May-Jun	Jul-Aug	Sep-Oct	Nov-Dec	Annual		
1982	7,367		47,764	37,249	24,227	87,792	231,965	0		0	2,591	7,581	0	10,172	242,137	0.042
1983	12,757	3,046	24,840	51,043	143,160	109,668	344,514	0	1,304	6,913	8,685	32,461	5,361	54,724	399,238	0.137
1984	27,260	19,414	56,941	167,069	134,281	144,608	549,573	6,769	2,415	1,782	23,019	0	13,211	47,196	596,769	0.079
1985	16,384	36,437	21,326	124,772	61,416	4,850	265,185	0	6,001	0	41,265	128,393	17,739	193,398	458,583	0.422
1986	1,696	1,093	25,139	39,180	44,713	1,619	113,440	29,532	0	13,691	22,094	22,356	12,423	100,096	213,536	0.469
1987	11,640	1,339	1,283	0	9,596	27,366	51,224	15,520	0	19,249	25,119	237,719	80,352	377,959	429,183	0.881
1988	0	0	0	6,572	2,970	0	9,542	55,632	7,398	14,598	37,958	61,303	57,099	233,988	243,530	0.961
1989	2,897	0	1,764	1,081	27,280	1,726	34,748	17,381	12,456	3,611	28,361	60,204	50,290	172,303	207,051	0.832
1990	9,363	0	9,810	14,187	3,793	7,127	44,280	2,881	11,006	11,813	13,662	8,548	20,757	68,667	112,947	0.608
1991	2,326	5,636	2,593	19,160	41,839	31,175	102,729	8,168	1,426	32,409	238,978	129,418	235,373	645,772	748,501	0.863
1992	3,101	669	24,724	43,024	16,897	15,706	104,121	15,697	31,729	54,417	35,023	42,093	105,837	284,796	388,917	0.732
1993	7,366	777	4,698	17,751	20,368	15,724	66,684	76,186	53,603	36,128	85,258	32,132	182,350	465,657	532,341	0.875
1994	10,547	4,241	13,614	23,364	50,512	18,662	120,940	82,842	80,481	77,767	61,601	221,326	167,794	691,811	812,751	0.851
1995	10,701	4,702	6,209	23,502	42,057	9,757	96,928	125,540	89,243	47,465	105,954	191,706	123,798	683,706	780,634	0.876
1996	13,415	15,996	13,921	48,053	33,815	21,623	146,823	126,262	56,739	76,883	121,667	75,531	43,199	500,281	647,104	0.773
1997	5,573	1,304	19,210	11,083	24,967	12,959	75,096	54,120	14,254	40,512	149,293	175,034	127,138	560,351	635,447	0.882
1998	4,476	17,037	22,195	8,346	41,133	15,254	108,441	34,528	78,108	75,998	40,019	147,289	106,091	482,033	590,474	0.816
1999	10,688	8,095	18,572	25,273	52,086	16,534	131,248	68,661	29,323	89,204	115,391	202,630	78,000	583,209	714,457	0.816
2000	15,018	18,618	19,007	36,646	68,683	36,763	194,735	60,520	65,653	84,992	113,272	180,105	208,172	712,714	907,449	0.785
2001	20,025	18,142	25,966	44,514	44,899	27,556	181,102	102,520	114,129	148,782	163,569	175,983	158,738	863,721	1,044,823	0.827
2002	19,055	15,226	16,227	14,930	35,198	20,010	120,646	160,065	61,555	65,774	77,174	121,280	184,436	670,284	790,930	0.847
2003	10,397	16,508	22,403	45,899	44,712	31,479	171,398	101,609	99,222	59,925	165,647	152,501	224,232	803,136	974,534	0.824
2004	11,362	24,535	24,725	27,216	59,819	16,513	164,170	178,378	219,811	139,539	122,097	276,970	200,745	1,137,540	1,301,710	0.874
2005	15,930	14,949	24,284	24,975	84,497	31,600	196,235	195,692	174,246	102,249	175,898	340,299	282,658	1,271,042	1,467,277	0.866
2006	27,342	17,105	20,868	21,395	36,453	26,593	149,756	227,923	153,671	94,253	106,577	137,051	174,306	893,781	1,043,537	0.856
2007	22,267	24,974	31,446	48,821	54,682	16,968	199,158	124,239	147,112	112,439	159,425	244,611	109,265	897,091	1,096,249	0.818

Table 4. Estimated recreational kill (landings plus 5% of fish released alive) of red drum on the Atlantic coast of Florida during the period 1950-2007. Landings prior to 1982 were estimated using the 1982-1984 geometric mean of the total catch divided by the estimated Florida population size (total catch =  $4.37e5 + 9.6e-9[\text{FL population}^2]$ ). This predicted catch was apportioned by coast using the average of the 1982-1984 annual proportions of total catch made on each coast. The 1982-2007 estimates were derived from recreational landings and release estimates made by the National Marine Fisheries Service Marine Fisheries Statistics Survey as modified using necessary for-hire survey conversions.

Year	Total kill	Year	Total kill
1950	89,632	1979	302,318
1951	94,834	1980	315,243
1952	100,338	1981	324,171
1953	106,161	1982	232,473
1954	112,322	1983	347,250
1955	118,841	1984	551,933
1956	125,739	1985	274,855
1957	133,037	1986	118,445
1958	140,758	1987	70,122
1959	148,927	1988	21,241
1960	160,147	1989	43,363
1961	165,207	1990	47,713
1962	170,427	1991	135,018
1963	175,811	1992	118,361
1964	181,366	1993	89,967
1965	187,097	1994	155,531
1966	193,008	1995	131,113
1967	199,106	1996	171,837
1968	205,397	1997	103,114
1969	211,887	1998	132,543
1970	219,653	1999	160,408
1971	227,589	2000	230,371
1972	235,812	2001	224,288
1973	244,331	2002	154,160
1974	253,159	2003	211,555
1975	262,305	2004	221,047
1976	271,782	2005	259,787
1977	281,602	2006	194,445
1978	291,776	2007	244,013



Table 5. Length frequencies (inches total length) of red drum caught and kept (K) or released (R) as reported in volunteer angler logbooks available for 2002-2007.

Atlantic coast (Southeast)

Trips inchTL	2002 7		2003 21		2004 32		2005 27		2006 7		2007 15	
	K	R	K	R	K	R	K	R	K	R	K	R
5	0	0	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0	0	0	0	0
8	0	0	0	2	1	0	0	0	0	1	0	0
9	0	0	0	2	0	0	0	0	0	1	0	0
10	0	0	0	1	0	0	0	0	0	0	0	0
11	0	0	0	1	0	0	0	0	0	0	0	0
12	0	0	0	2	1	0	0	0	0	0	0	1
13	0	0	0	0	0	0	0	0	0	0	0	0
14	0	0	0	1	0	1	0	0	0	0	0	0
15	0	0	0	3	0	0	0	1	0	1	0	0
16	0	0	0	6	0	1	0	2	0	0	0	0
17	0	0	0	3	0	2	0	0	0	0	0	1
18	0	0	0	1	0	0	0	0	0	2	1	0
19	0	0	0	1	2	0	0	0	0	0	3	0
20	0	0	0	1	1	1	1	0	0	1	0	0
21	0	0	1	0	0	0	1	2	0	0	0	2
22	0	0	0	3	2	0	1	0	1	0	1	1
23	0	0	1	1	2	0	0	0	1	0	0	0
24	0	0	3	1	0	0	0	0	1	0	1	0
25	0	0	2	0	0	0	0	1	0	0	0	0
26	0	0	2	1	0	2	0	0	0	0	1	0
27	0	0	0	0	0	0	0	0	0	0	0	1
28	0	0	0	1	0	0	0	0	0	0	0	1
29	0	0	0	0	0	0	0	0	0	0	0	2
30	0	0	0	0	0	0	0	0	0	0	0	1
31	0	0	0	1	0	0	0	0	0	0	0	0
32	0	0	0	3	0	0	0	0	0	0	0	1
33	0	0	0	1	0	0	0	0	0	0	0	0
34	0	0	0	0	0	0	0	0	0	0	0	0
35	0	0	0	0	0	0	0	0	0	0	0	0
36	0	0	0	2	0	1	0	0	0	0	0	0
37	0	0	0	0	0	0	0	0	0	0	0	0
38	0	0	0	1	0	0	0	0	0	0	0	0
39	0	0	0	0	0	0	0	0	0	0	0	0
40	0	0	0	0	0	1	0	0	0	0	0	0
Total	0	0	9	39	9	9	3	6	3	6	7	11

Table 6. Length frequencies (inches total length) of red drum caught and kept (K) or released (R) by scientist using hook-and-line gear during 2004-2007 fishery independent monitoring surveys.

Gulf coast (Southwest)									
Trips inchTL	2004 46		2005 120		2006 78		2007 56		R
	K	R	K	R	K	R	K		
5	0	0	0	0	0	0	0	0	0
6	0	0	0	1	0	0	0	0	0
7	0	0	0	2	0	0	0	0	0
8	0	0	0	21	0	0	0	0	8
9	0	0	0	53	0	1	0	0	10
10	0	6	0	106	0	1	0	0	7
11	0	21	0	96	0	6	0	0	10
12	0	23	0	140	0	13	0	0	13
13	0	30	0	97	0	35	0	0	11
14	0	39	0	78	0	48	0	0	3
15	0	27	0	73	0	65	0	0	8
16	0	17	0	49	0	44	0	0	15
17	0	19	0	26	0	43	0	0	19
18	4	27	6	16	8	26	4	0	12
19	5	45	4	17	2	18	1	0	17
20	7	25	8	18	3	4	5	0	10
21	1	22	3	13	2	18	5	0	12
22	5	17	4	10	6	22	4	0	11
23	0	7	4	11	2	25	3	0	12
24	2	3	0	8	4	10	4	0	5
25	1	2	1	8	2	11	0	0	3
26	0	2	1	3	0	7	1	0	1
27	0	0	0	8	0	6	0	0	5
28	0	1	0	4	0	3	0	0	5
29	0	0	0	4	0	2	0	0	0
30	0	0	0	1	0	0	0	0	1
31	0	1	0	0	0	0	0	0	0
32	0	0	0	0	0	1	0	0	0
33	0	0	0	0	0	0	0	0	0
34	0	0	0	0	0	0	0	0	0
35	0	0	0	0	0	0	0	0	0
36	0	0	0	0	0	0	0	0	0
37	0	0	0	0	0	0	0	0	0
38	0	0	0	0	0	0	0	0	0
39	0	0	0	0	0	0	0	0	0
40	0	0	0	0	0	0	0	0	0
Totals	25	334	31	863	29	409	27		198

Table 7. Estimated total length(inches) frequencies for the recreational landings (MRFSS Type A+B1) of red drum made on the Atlantic coast of Florida each year during 1988-2007. Earlier length-frequencies are not shown due to space constraints.

TL	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	2	122	277	785	493	299	676	1,119	737	177	518	283	238	274	413	327	556	334	316	655
9	57	189	357	785	493	299	676	1,119	737	177	518	283	238	274	413	327	556	334	316	655
10	77	38	86	244	153	93	210	348	229	55	161	88	74	85	128	163	0	0	0	0
11	164	240	325	244	5,275	93	210	348	229	55	161	88	74	85	128	163	0	107	0	0
12	247	526	754	785	493	1,443	2,690	1,119	737	177	1,551	283	238	274	413	327	0	334	316	655
13	815	2,830	3,343	2,240	13,911	2,288	16,594	841	27,174	7,744	1,205	0	0	122	495	0	0	383	0	132
14	330	556	749	541	340	1,350	2,392	771	508	1,108	1,562	195	164	189	285	163	556	3,817	0	0
15	287	475	786	1,326	833	506	3,068	1,890	3,756	299	875	1,188	402	464	698	490	1,111	667	633	2,524
16	317	702	1,229	4,595	2,206	898	2,027	3,356	3,405	530	1,554	1,667	1,320	2,308	1,819	980	4,043	3,263	1,559	2,538
17	237	454	812	1,623	1,020	857	1,397	3,188	4,035	365	2,888	2,923	2,526	3,701	1,646	1,692	2,307	5,089	477	4,296
18	487	1,545	1,968	1,281	4,922	6,277	7,359	2,964	4,751	189	5,408	5,806	13,990	5,353	5,791	9,120	9,202	9,047	9,650	12,695
19	597	1,992	2,395	9,646	2,351	2,427	6,700	3,800	5,294	2,637	8,634	11,728	11,935	9,708	11,619	16,411	15,627	24,183	11,001	18,797
20	701	2,488	3,082	3,078	7,119	6,040	5,285	9,137	6,639	3,758	8,147	14,972	12,966	23,650	6,776	12,722	25,313	19,641	22,196	15,645
21	850	3,553	4,399	13,273	13,895	7,554	9,781	8,586	16,162	5,337	13,911	7,100	19,048	13,018	14,342	19,587	20,596	25,983	20,201	35,273
22	542	2,046	2,591	5,509	6,494	4,300	5,838	6,742	10,248	6,288	10,185	16,181	31,246	20,010	12,910	14,583	16,156	22,738	15,521	23,663
23	573	2,059	2,474	2,484	6,001	3,762	4,035	6,466	10,485	7,616	11,037	23,429	30,041	27,346	14,666	24,324	13,830	20,061	15,155	20,283
24	640	2,531	3,031	6,963	7,472	7,194	13,739	5,570	7,824	5,220	7,240	17,087	21,413	17,898	10,118	24,186	15,671	23,273	16,639	16,234
25	435	1,798	2,174	7,459	2,384	1,496	4,213	8,365	13,709	67	12,705	13,761	15,804	19,283	11,553	18,789	14,531	19,604	15,182	19,055
26	566	2,623	3,241	8,886	10,770	4,228	9,791	8,241	9,970	9,957	6,042	10,999	22,112	18,190	13,377	15,969	13,269	6,640	9,569	14,052
27	730	3,415	4,084	12,382	7,506	4,927	12,263	8,278	11,430	2,087	5,064	1,540	9,131	14,025	8,097	7,289	8,557	6,260	5,902	7,503
28	511	2,374	2,897	14,866	4,735	5,926	5,062	5,906	5,259	3,129	5,403	195	645	2,906	2,497	1,278	1,180	3,145	3,262	1,718
29	167	766	1,006	594	1,100	2,753	1,282	2,617	558	1,258	1,597	320	180	842	313	1,202	0	667	1,224	1,475
30	77	383	503	297	1,639	113	1,027	1,265	279	14,208	196	107	90	104	652	0	0	334	316	655
31	18	105	166	244	153	93	2,136	348	229	2,075	161	88	74	85	128	163	0	0	0	0
32	45	362	602	1,029	1,373	392	885	1,466	965	232	679	371	312	360	541	490	0	331	316	655
33	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
34	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
35+	69	576	949	1,570	990	1,076	1,604	3,078	1,474	351	1,039	566	474	548	828	653	1,109	0	5	0
Tot	9,542	34,748	44,280	102,729	104,121	66,684	120,940	96,928	146,823	75,096	108,441	131,248	194,735	181,102	120,646	171,398	164,170	196,235	149,756	199,158

Table 8. Estimated total length(inches) frequencies for the recreational live releases (MRFSS Type B2) of red drum made on the Atlantic coast of Florida each year during 1988-2007. Earlier length-frequencies are not shown due to space constraints.

TL	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	65	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	131	7,110	2,834	26,648	11,752	19,216	28,548	28,214	20,645	23,123	19,892	24,067	29,411	35,642	27,660	41,186	54,169	55,263	38,860	39,004
9	3,454	7,110	2,834	26,648	11,752	19,216	28,548	28,214	20,645	23,123	19,892	24,067	29,411	35,642	27,660	41,186	54,169	55,263	38,860	39,004
10	6,201	2,209	880	8,279	3,651	5,970	8,869	8,765	6,414	7,184	6,180	7,477	9,137	11,073	8,593	20,593	0	0	0	0
11	9,867	2,209	880	8,279	3,651	5,970	8,869	8,765	6,414	7,184	6,180	7,477	9,137	11,073	8,593	20,593	0	0	0	0
12	13,105	7,110	2,834	26,648	11,752	19,216	28,548	28,214	20,645	23,123	19,892	24,067	29,411	35,642	27,660	41,186	0	55,263	38,860	39,004
13	18,024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	18,770	4,901	1,953	18,369	8,101	13,246	19,679	19,448	14,231	15,939	13,712	16,590	20,274	24,569	19,067	20,593	54,169	0	0	0
15	18,649	12,012	4,787	45,018	19,854	32,462	48,227	47,662	34,875	39,063	33,603	40,656	49,684	60,211	46,727	61,780	108,337	110,525	77,720	78,008
16	19,937	21,331	8,501	79,945	35,257	57,647	85,645	84,641	61,934	69,370	59,675	72,200	88,233	106,927	82,980	123,559	162,506	110,525	77,720	78,008
17	15,752	14,704	5,860	55,108	24,304	39,738	59,037	58,345	42,692	47,818	41,135	49,769	60,821	73,707	57,200	61,780	108,337	55,263	38,860	39,004
18	15,480	7,593	3,026	28,460	12,551	20,522	30,488	30,131	22,048	24,695	21,243	25,702	31,410	38,065	29,540	20,593	108,337	110,525	77,720	78,008
19	15,191	2,209	880	8,279	3,651	5,970	8,869	8,765	6,414	7,184	6,180	7,477	9,137	11,073	8,593	20,593	0	0	0	0
20	16,872	7,593	3,026	28,460	12,551	20,522	30,488	30,131	22,048	24,695	21,243	25,702	31,410	38,065	29,540	20,593	108,337	55,263	38,860	39,004
21	11,750	10,769	4,292	40,361	17,800	29,104	43,238	42,732	31,268	35,022	30,127	36,451	44,545	53,983	41,893	0	108,337	221,051	155,440	156,016
22	11,886	9,319	3,714	34,928	15,404	25,186	37,418	36,979	27,058	30,307	26,071	31,544	38,548	46,716	36,253	61,780	0	55,263	38,860	39,004
23	12,140	2,209	880	8,279	3,651	5,970	8,869	8,765	6,414	7,184	6,180	7,477	9,137	11,073	8,593	20,593	0	0	0	0
24	9,628	2,209	880	8,279	3,651	5,970	8,869	8,765	6,414	7,184	6,180	7,477	9,137	11,073	8,593	20,593	0	0	0	0
25	5,548	2,692	1,073	10,090	4,450	7,276	10,810	10,683	7,817	8,755	7,532	9,113	11,136	13,496	10,473	0	54,169	55,263	38,860	39,004
26	3,594	7,593	3,026	28,460	12,551	20,522	30,488	30,131	22,048	24,695	21,243	25,702	31,410	38,065	29,540	20,593	108,337	0	0	0
27	2,042	2,692	1,073	10,090	4,450	7,276	10,810	10,683	7,817	8,755	7,532	9,113	11,136	13,496	10,473	0	0	55,263	38,860	39,004
28	2,625	4,901	1,953	18,369	8,101	13,246	19,679	19,448	14,231	15,939	13,712	16,590	20,274	24,569	19,067	20,593	0	55,263	38,860	39,004
29	2,125	5,384	2,146	20,180	8,900	14,552	21,619	21,366	15,634	17,511	15,064	18,225	22,272	26,991	20,946	0	0	110,525	77,720	78,008
30	529	2,692	1,073	10,090	4,450	7,276	10,810	10,683	7,817	8,755	7,532	9,113	11,136	13,496	10,473	0	0	55,263	38,860	39,004
31	325	2,209	880	8,279	3,651	5,970	8,869	8,765	6,414	7,184	6,180	7,477	9,137	11,073	8,593	20,593	0	0	0	0
32	163	9,319	3,714	34,928	15,404	25,186	37,418	36,979	27,058	30,307	26,071	31,544	38,548	46,716	36,253	61,780	0	55,261	38,860	39,003
33	134	2,209	880	8,279	3,651	5,970	8,869	8,765	6,414	7,184	6,180	7,477	9,137	11,073	8,593	20,593	0	0	0	0
34	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
35+	1	12015	4788	45019	19855	32458	48230	47667	34872	39068	33602	40655	49685	60212	46728	61783	108336	0	1	0
Tot	233,988	172,303	68,667	645,772	284,796	465,657	691,811	683,706	500,281	560,351	482,033	583,209	712,714	863,721	670,284	803,136	1,137,540	1,271,042	893,781	897,091

Table 9. Age-length keys used to convert recreational lengths to ages for red drum killed along the Atlantic coast of Florida during the 1982-2003 period and each year during 2004-2007. Ages (0-14<sup>+</sup>) are modeled ages, incremented on January 1 beginning after the first full year of life, and lengths are total length (TL) inch classes.

1982-2003

TL\Age	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14 <sup>+</sup>
6	1.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	1.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	1.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
9	1.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
10	1.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
11	1.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
12	1.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
13	0.9318	0.0682	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
14	0.7246	0.2754	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
15	0.6022	0.3979	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
16	0.2577	0.7423	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
17	0.2065	0.7935	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
18	0.1000	0.8625	0.0375	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
19	0.0933	0.7867	0.1200	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
20	0.0685	0.7808	0.1507	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
21	0.0233	0.6279	0.3488	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
22	0.0101	0.4950	0.4546	0.0404	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
23	0.0000	0.3483	0.5393	0.1011	0.0000	0.0112	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
24	0.0000	0.2697	0.5281	0.1685	0.0225	0.0112	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
25	0.0000	0.1705	0.6136	0.1705	0.0455	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
26	0.0000	0.1594	0.4638	0.3044	0.0435	0.0145	0.0145	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
27	0.0000	0.0986	0.5352	0.3239	0.0282	0.0000	0.0141	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
28	0.0000	0.1081	0.5135	0.2973	0.0811	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
29	0.0000	0.0588	0.5294	0.2549	0.0784	0.0588	0.0196	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
30	0.0000	0.0976	0.3902	0.4390	0.0488	0.0000	0.0000	0.0244	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
31	0.0000	0.0000	0.3548	0.4194	0.1613	0.0323	0.0323	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
32	0.0000	0.0000	0.1923	0.5769	0.0769	0.0769	0.0385	0.0385	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
33	0.0000	0.0000	0.1429	0.4286	0.0952	0.2381	0.0952	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
34	0.0000	0.0000	0.0000	0.7500	0.1667	0.0833	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
35	0.0000	0.0000	0.0000	0.5000	0.2000	0.3000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
36	0.0000	0.0000	0.0000	0.0000	0.1000	0.4000	0.2000	0.0000	0.1000	0.1000	0.0000	0.0000	0.0000	0.0000	0.1000
37	0.0000	0.0000	0.0000	0.0000	0.0000	0.2000	0.0000	0.0000	0.3000	0.2000	0.2000	0.0000	0.1000	0.0000	0.0000
38	0.0000	0.0000	0.0000	0.0000	0.0000	0.2000	0.2000	0.0000	0.2000	0.3000	0.1000	0.0000	0.0000	0.0000	0.0000
39	0.0000	0.0000	0.0000	0.0000	0.0667	0.2000	0.1333	0.0000	0.0667	0.3333	0.0000	0.0667	0.0000	0.0667	0.0667
40	0.0000	0.0000	0.0000	0.0000	0.0000	0.0667	0.1333	0.0000	0.1333	0.2000	0.0667	0.0667	0.0000	0.0000	0.3333
41	0.0000	0.0000	0.0000	0.0000	0.0769	0.0000	0.0769	0.0769	0.0769	0.1539	0.0000	0.2308	0.0769	0.0000	0.2308
42	0.0000	0.0000	0.0000	0.0000	0.0556	0.0000	0.1111	0.0000	0.0000	0.1111	0.1667	0.1667	0.0000	0.0556	0.3333
43	0.0000	0.0000	0.0000	0.0000	0.0667	0.0000	0.0667	0.0000	0.0667	0.0000	0.2000	0.1333	0.0667	0.1333	0.2667
44	0.0000	0.0000	0.0000	0.0000	0.0000	0.2000	0.0000	0.0000	0.0000	0.0000	0.1000	0.1000	0.0000	0.0000	0.6000
45	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.2000	0.2000	0.0000	0.0000	0.6000
46	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.2000	0.0000	0.0000	0.0000	0.8000
47	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.5000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.5000
48	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.5000	0.0000	0.5000

Table 9 (cont.). Age-length keys used to convert recreational lengths to ages for red drum killed along the Atlantic coast of Florida during the 1982-2003 period and each year during 2004-2007. Ages (0-14<sup>+</sup>) are modeled ages, incremented on January 1 beginning after the first full year of life, and lengths are total length (TL) inch classes.

2004															
TL\Age	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14 <sup>+</sup>
6	1.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	1.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	1.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
9	1.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
10	1.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
11	1.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
12	1.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
13	0.0000	1.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
14	0.0000	0.7000	0.3000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
15	0.2000	0.8000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
16	0.0000	1.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
17	0.0000	1.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
18	0.0000	0.8182	0.1818	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
19	0.0000	0.3000	0.7000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
20	0.0000	1.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
21	0.0170	0.5678	0.3983	0.0170	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
22	0.0000	0.0000	0.6000	0.4000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
23	0.0000	0.0000	0.5000	0.3000	0.0000	0.2000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
24	0.0000	0.0000	0.7500	0.0833	0.0833	0.0833	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
25	0.0000	0.0000	0.4000	0.6000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
26	0.0000	0.0000	0.2000	0.6000	0.0000	0.1000	0.1000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
27	0.0000	0.0000	0.0000	0.8000	0.0000	0.0000	0.2000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
28	0.0000	0.0000	0.4000	0.4000	0.2000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
29	0.0000	0.0000	0.0000	0.5000	0.0000	0.3000	0.2000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
30	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	1.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
31	0.0000	0.0000	0.0000	0.0000	0.0000	0.5000	0.5000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
32	0.0000	0.0000	0.0000	0.0000	0.0000	0.5000	0.2000	0.3000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
33	0.0000	0.0000	0.0000	0.0000	0.0000	0.8000	0.2000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
34	0.0000	0.0000	0.0000	0.0000	0.0000	1.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
35	0.0000	0.0000	0.0000	0.0000	0.0000	1.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
36	0.0000	0.0000	0.0000	0.0000	0.0000	0.5000	0.2000	0.0000	0.1000	0.1000	0.0000	0.0000	0.0000	0.0000	0.1000
37	0.0000	0.0000	0.0000	0.0000	0.0000	0.3000	0.0000	0.0000	0.3000	0.1000	0.2000	0.0000	0.1000	0.0000	0.0000
38	0.0000	0.0000	0.0000	0.0000	0.0000	0.2000	0.3000	0.0000	0.2000	0.2000	0.1000	0.0000	0.0000	0.0000	0.0000
39	0.0000	0.0000	0.0000	0.0000	0.0000	0.2143	0.1429	0.0000	0.0714	0.3571	0.0000	0.0714	0.0000	0.0714	0.0714
40	0.0000	0.0000	0.0000	0.0000	0.0000	0.0667	0.1333	0.0000	0.1333	0.2000	0.0667	0.0667	0.0000	0.0000	0.3333
41	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0833	0.0833	0.0833	0.1667	0.0000	0.2500	0.0833	0.0000	0.2500
42	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.1177	0.0000	0.0000	0.1177	0.1765	0.1765	0.0000	0.0588	0.3529
43	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0714	0.0000	0.0714	0.0000	0.2143	0.1429	0.0714	0.1429	0.2857
44	0.0000	0.0000	0.0000	0.0000	0.0000	0.2000	0.0000	0.0000	0.0000	0.0000	0.1000	0.2000	0.0000	0.0000	0.5000
45	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.3000	0.1000	0.0000	0.0000	0.6000
46	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.2000	0.0000	0.0000	0.0000	0.8000
47	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.5000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.5000
48	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.5000	0.0000	0.5000

Table 9 (cont.). Age-length keys used to convert recreational lengths to ages for red drum killed along the Atlantic coast of Florida during the 1982-2003 period and each year during 2004-2007. Ages (0-14<sup>+</sup>) are modeled ages, incremented on January 1 beginning after the first full year of life, and lengths are total length (TL) inch classes.

2005															
TL\Age	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14 <sup>+</sup>
6	1.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	1.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	1.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
9	1.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
10	1.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
11	1.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
12	1.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
13	1.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
14	0.6364	0.3636	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
15	0.5556	0.4444	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
16	0.0714	0.9286	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
17	0.0800	0.9200	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
18	0.0000	1.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
19	0.0000	1.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
20	0.0000	0.7692	0.2308	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
21	0.0000	0.5000	0.5000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
22	0.0000	0.6000	0.4000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
23	0.0000	0.4000	0.2000	0.1000	0.2000	0.1000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
24	0.0000	0.0000	0.3000	0.1000	0.4000	0.2000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
25	0.0000	0.2000	0.2000	0.0000	0.6000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
26	0.0000	0.0000	0.0000	0.0000	0.6000	0.2000	0.2000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
27	0.0000	0.0000	0.0000	0.2000	0.6000	0.0000	0.2000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
28	0.0000	0.0000	0.0000	0.0000	1.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
29	0.0000	0.0000	0.0000	0.0000	0.5000	0.4000	0.1000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
30	0.0000	0.0000	0.0000	0.0000	0.6000	0.0000	0.0000	0.4000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
31	0.0000	0.0000	0.0000	0.1000	0.7000	0.1000	0.1000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
32	0.0000	0.0000	0.0000	0.0000	0.5000	0.2000	0.1000	0.2000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
33	0.0000	0.0000	0.0000	0.0000	0.3000	0.5000	0.2000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
34	0.0000	0.0000	0.0000	0.0000	0.7000	0.3000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
35	0.0000	0.0000	0.0000	0.0000	0.4000	0.6000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
36	0.0000	0.0000	0.0000	0.0000	0.1000	0.4000	0.2000	0.0000	0.1000	0.1000	0.0000	0.0000	0.0000	0.0000	0.1000
37	0.0000	0.0000	0.0000	0.0000	0.0000	0.2000	0.0000	0.0000	0.4000	0.2000	0.1000	0.0000	0.1000	0.0000	0.0000
38	0.0000	0.0000	0.0000	0.0000	0.0000	0.1000	0.3000	0.0000	0.2000	0.3000	0.1000	0.0000	0.0000	0.0000	0.0000
39	0.0000	0.0000	0.0000	0.0000	0.0667	0.2000	0.1333	0.0000	0.0667	0.3333	0.0000	0.0667	0.0000	0.0667	0.0667
40	0.0000	0.0000	0.0000	0.0000	0.0000	0.0667	0.1333	0.0000	0.1333	0.2000	0.0667	0.0667	0.0000	0.0000	0.3333
41	0.0000	0.0000	0.0000	0.0000	0.0769	0.0000	0.0769	0.0769	0.0769	0.1539	0.0000	0.2308	0.0769	0.0000	0.2308
42	0.0000	0.0000	0.0000	0.0000	0.0556	0.0000	0.1111	0.0000	0.0000	0.1111	0.1667	0.1667	0.0000	0.0556	0.3333
43	0.0000	0.0000	0.0000	0.0000	0.0667	0.0000	0.0667	0.0000	0.0667	0.0000	0.2000	0.1333	0.0667	0.1333	0.2667
44	0.0000	0.0000	0.0000	0.0000	0.0000	0.1000	0.0000	0.0000	0.0000	0.0000	0.1000	0.2000	0.0000	0.0000	0.6000
45	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.3000	0.2000	0.0000	0.0000	0.5000
46	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.2000	0.0000	0.0000	0.0000	0.8000
47	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.5000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.5000
48	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.5000	0.0000	0.5000

Table 9 (cont.). Age-length keys used to convert recreational lengths to ages for red drum killed along the Atlantic coast of Florida during the 1982-2003 period and each year during 2004-2007. Ages (0-14<sup>+</sup>) are modeled ages, incremented on January 1 beginning after the first full year of life, and lengths are total length (TL) inch classes.

2006															
TL\Age	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14 <sup>+</sup>
6	1.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	1.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	1.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
9	1.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
10	1.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
11	1.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
12	1.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
13	1.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
14	0.4000	0.6000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
15	0.5000	0.5000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
16	0.0909	0.6364	0.2727	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
17	0.1250	0.6875	0.1875	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
18	0.0000	0.6923	0.3077	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
19	0.0000	0.7500	0.2500	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
20	0.0000	0.6000	0.4000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
21	0.0000	0.4000	0.5000	0.1000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
22	0.0000	0.2308	0.6923	0.0769	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
23	0.0000	0.2857	0.3571	0.2857	0.0714	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
24	0.0000	0.4000	0.6000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
25	0.0000	0.1000	0.9000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
26	0.0000	0.3000	0.4000	0.3000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
27	0.0000	0.3000	0.3000	0.0000	0.4000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
28	0.0000	0.0000	0.0000	1.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
29	0.0000	0.0526	0.4737	0.3333	0.0702	0.0526	0.0175	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
30	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	1.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
31	0.0000	0.0000	0.0000	1.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
32	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	1.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
33	0.0000	0.0000	0.1364	0.4091	0.1364	0.2273	0.0909	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
34	0.0000	0.0000	0.0000	0.7500	0.1667	0.0833	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
35	0.0000	0.0000	0.0000	0.0000	0.0000	1.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
36	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.3000	0.4000	0.0000	0.0000	0.0000	0.0000	0.3000
37	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.4000	0.2000	0.2000	0.0000	0.2000	0.0000	0.0000
38	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.2000	0.0000	0.2000	0.4000	0.2000	0.0000	0.0000	0.0000	0.0000
39	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.1000	0.6000	0.0000	0.1000	0.0000	0.1000	0.1000
40	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.1667	0.2500	0.0833	0.0833	0.0000	0.0000	0.4167
41	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0909	0.0909	0.1818	0.0000	0.2727	0.0909	0.0000	0.2727
42	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.1333	0.2000	0.2000	0.0000	0.0667	0.4000
43	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0769	0.0000	0.2308	0.1539	0.0769	0.1539	0.3077
44	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.2000	0.2000	0.0000	0.0000	0.6000
45	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.3000	0.1000	0.0000	0.0000	0.6000
46	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.2000	0.0000	0.0000	0.0000	0.8000
47	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.5000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.5000
48	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.5000	0.0000	0.5000



Table 9 (cont.). Age-length keys used to convert recreational lengths to ages for red drum killed along the Atlantic coast of Florida during the 1982-2003 period and each year during 2004-2007. Ages (0-14<sup>+</sup>) are modeled ages, incremented on January 1 beginning after the first full year of life, and lengths are total length (TL) inch classes.

2007															
TL\Age	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14 <sup>+</sup>
6	1.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	1.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	1.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
9	1.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
10	1.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
11	1.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
12	1.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
13	0.9167	0.0833	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
14	0.6000	0.4000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
15	0.5294	0.4706	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
16	0.2500	0.6667	0.0833	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
17	0.0667	0.8667	0.0667	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
18	0.0556	0.7778	0.1667	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
19	0.0000	0.7273	0.2727	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
20	0.0000	0.7273	0.2727	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
21	0.0000	0.3000	0.6000	0.1000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
22	0.0000	0.3529	0.6471	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
23	0.0000	0.2000	0.7333	0.0000	0.0000	0.0667	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
24	0.0000	0.1818	0.5455	0.1818	0.0000	0.0909	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
25	0.0000	0.0667	0.3333	0.5333	0.0667	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
26	0.0000	0.1000	0.1000	0.5000	0.0000	0.1000	0.2000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
27	0.0000	0.0000	0.0000	0.8000	0.0000	0.0000	0.2000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
28	0.0000	0.0000	0.6000	0.2000	0.2000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
29	0.0000	0.0000	0.0000	0.2000	0.0000	0.6000	0.2000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
30	0.0000	0.0000	0.0000	0.7000	0.0000	0.0000	0.0000	0.3000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
31	0.0000	0.0000	0.0000	0.0000	0.0000	0.5000	0.5000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
32	0.0000	0.0000	0.0000	0.0000	0.2000	0.4000	0.2000	0.2000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
33	0.0000	0.0000	0.0000	0.0000	0.2000	0.6000	0.2000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
34	0.0000	0.0000	0.0000	0.0000	0.0000	1.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
35	0.0000	0.0000	0.0000	0.0000	0.0000	1.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
36	0.0000	0.0000	0.0000	0.0000	0.0000	0.5000	0.2000	0.0000	0.1000	0.1000	0.0000	0.0000	0.0000	0.0000	0.1000
37	0.0000	0.0000	0.0000	0.0000	0.0000	0.2000	0.0000	0.0000	0.3000	0.2000	0.1000	0.0000	0.2000	0.0000	0.0000
38	0.0000	0.0000	0.0000	0.0000	0.0000	0.1000	0.3000	0.0000	0.1000	0.4000	0.1000	0.0000	0.0000	0.0000	0.0000
39	0.0000	0.0000	0.0000	0.0000	0.0000	0.2143	0.1429	0.0000	0.0714	0.3571	0.0000	0.0714	0.0000	0.0714	0.0714
40	0.0000	0.0000	0.0000	0.0000	0.0000	0.0667	0.1333	0.0000	0.1333	0.2000	0.0667	0.0667	0.0000	0.0000	0.3333
41	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0833	0.0833	0.0833	0.1667	0.0000	0.2500	0.0833	0.0000	0.2500
42	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.1177	0.0000	0.0000	0.1177	0.1765	0.1765	0.0000	0.0588	0.3529
43	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0714	0.0000	0.0714	0.0000	0.2143	0.1429	0.0714	0.1429	0.2857
44	0.0000	0.0000	0.0000	0.0000	0.0000	0.2000	0.0000	0.0000	0.0000	0.0000	0.2000	0.1000	0.0000	0.0000	0.5000
45	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.3000	0.2000	0.0000	0.0000	0.5000
46	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.2000	0.0000	0.0000	0.0000	0.8000
47	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.5000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.5000
48	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.5000	0.0000	0.5000

Table 10. Estimated age structure of the recreational landings (MRFSS Type A+B1 estimates) of red drum from along Florida's Atlantic coast during 1982-2007. Numbers under each age are the proportions of each year's total landings, by number, in that age group.

	0	1	2	3	4	5	6	7	8	9+	Landings
1982	0.5836	0.3791	0.0179	0.0092	0.0022	0.0022	0.0002	0.0001	0.0020	0.0034	204,402
1983	0.6421	0.2975	0.0339	0.0193	0.0049	0.0012	0.0008	0.0003	0.0000	0.0000	344,514
1984	0.7242	0.1806	0.0402	0.0281	0.0074	0.0022	0.0010	0.0002	0.0000	0.0161	549,577
1985	0.8568	0.1122	0.0192	0.0084	0.0018	0.0011	0.0005	0.0002	0.0000	0.0000	265,180
1986	0.2206	0.3869	0.2505	0.0904	0.0182	0.0105	0.0065	0.0000	0.0018	0.0146	113,441
1987	0.3707	0.3038	0.2077	0.0919	0.0146	0.0060	0.0031	0.0022	0.0000	0.0000	51,227
1988	0.2123	0.3776	0.2831	0.0978	0.0156	0.0050	0.0033	0.0005	0.0005	0.0044	9,543
1989	0.1534	0.3540	0.3258	0.1228	0.0202	0.0083	0.0057	0.0008	0.0013	0.0077	34,748
1990	0.1620	0.3552	0.3139	0.1206	0.0202	0.0099	0.0066	0.0009	0.0019	0.0088	44,285
1991	0.0900	0.3505	0.3653	0.1473	0.0265	0.0078	0.0061	0.0005	0.0016	0.0044	102,728
1992	0.2208	0.3373	0.2976	0.1112	0.0163	0.0073	0.0049	0.0009	0.0010	0.0027	104,120
1993	0.1130	0.3969	0.3305	0.1158	0.0206	0.0089	0.0053	0.0005	0.0015	0.0070	66,684
1994	0.2177	0.3284	0.2952	0.1191	0.0195	0.0086	0.0060	0.0005	0.0014	0.0036	120,940
1995	0.0991	0.3682	0.3425	0.1300	0.0223	0.0120	0.0076	0.0009	0.0025	0.0150	96,926
1996	0.2332	0.3360	0.3028	0.0984	0.0153	0.0060	0.0042	0.0003	0.0011	0.0029	146,822
1997	0.1300	0.2788	0.3576	0.1883	0.0271	0.0073	0.0045	0.0047	0.0005	0.0014	75,097
1998	0.0832	0.4244	0.3591	0.1016	0.0172	0.0068	0.0037	0.0003	0.0010	0.0028	108,439
1999	0.0453	0.4537	0.3822	0.0958	0.0126	0.0063	0.0023	0.0001	0.0005	0.0012	131,248
2000	0.0321	0.4398	0.3988	0.1069	0.0131	0.0055	0.0028	0.0001	0.0003	0.0007	194,735
2001	0.0356	0.4196	0.4011	0.1179	0.0157	0.0056	0.0032	0.0001	0.0003	0.0009	181,103
2002	0.0496	0.4224	0.3834	0.1152	0.0161	0.0064	0.0040	0.0003	0.0007	0.0020	120,648
2003	0.0364	0.4329	0.3961	0.1088	0.0152	0.0064	0.0029	0.0001	0.0004	0.0008	171,397
2004	0.0102	0.3463	0.3550	0.2209	0.0094	0.0348	0.0196	0.0000	0.0008	0.0029	164,171
2005	0.0251	0.4908	0.2117	0.0285	0.1869	0.0424	0.0137	0.0010	0.0000	0.0000	196,236
2006	0.0098	0.3924	0.4754	0.0941	0.0236	0.0004	0.0001	0.0042	0.0000	0.0000	149,755
2007	0.0253	0.3523	0.4067	0.1545	0.0088	0.0270	0.0238	0.0016	0.0000	0.0000	199,158

Table 11. Estimated age structure of the recreational live releases (MRFSS Type B2 estimates) of red drum from along Florida's Atlantic coast during 1982-2007. Numbers under each age are the proportions of each year's total landings, by number, in that age group.

	0	1	2	3	4	5	6	7	8	9+	Releases
1982	1.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	10,172
1983	1.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	54,724
1984	1.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	47,196
1985	1.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	193,398
1986	0.3972	0.4310	0.1331	0.0312	0.0048	0.0020	0.0007	0.0001	0.0000	0.0000	100,096
1987	0.3972	0.4310	0.1331	0.0312	0.0048	0.0020	0.0007	0.0001	0.0000	0.0000	377,959
1988	0.3733	0.4353	0.1500	0.0336	0.0050	0.0020	0.0006	0.0001	0.0000	0.0000	233,988
1989	0.2722	0.3693	0.1623	0.0921	0.0204	0.0305	0.0181	0.0025	0.0088	0.0238	172,303
1990	0.2722	0.3693	0.1623	0.0921	0.0204	0.0305	0.0181	0.0025	0.0088	0.0238	68,667
1991	0.2722	0.3693	0.1623	0.0921	0.0204	0.0305	0.0181	0.0025	0.0088	0.0238	645,772
1992	0.2722	0.3693	0.1623	0.0921	0.0204	0.0305	0.0181	0.0025	0.0088	0.0238	284,796
1993	0.2722	0.3693	0.1623	0.0921	0.0204	0.0305	0.0181	0.0025	0.0088	0.0238	465,657
1994	0.2722	0.3693	0.1623	0.0921	0.0204	0.0305	0.0181	0.0025	0.0088	0.0238	691,811
1995	0.2722	0.3693	0.1623	0.0921	0.0204	0.0305	0.0181	0.0025	0.0088	0.0238	683,706
1996	0.2722	0.3693	0.1623	0.0921	0.0204	0.0305	0.0181	0.0025	0.0088	0.0238	500,281
1997	0.2722	0.3693	0.1623	0.0921	0.0204	0.0305	0.0181	0.0025	0.0088	0.0238	560,351
1998	0.2722	0.3693	0.1623	0.0921	0.0204	0.0305	0.0181	0.0025	0.0088	0.0238	482,033
1999	0.2722	0.3693	0.1623	0.0921	0.0204	0.0305	0.0181	0.0025	0.0088	0.0238	583,209
2000	0.2722	0.3693	0.1623	0.0921	0.0204	0.0305	0.0181	0.0025	0.0088	0.0238	712,714
2001	0.2722	0.3693	0.1623	0.0921	0.0204	0.0305	0.0181	0.0025	0.0088	0.0238	863,721
2002	0.2722	0.3693	0.1623	0.0921	0.0204	0.0305	0.0181	0.0025	0.0088	0.0238	670,284
2003	0.3331	0.3360	0.1229	0.0916	0.0214	0.0394	0.0220	0.0030	0.0103	0.0205	803,136
2004	0.1159	0.5749	0.1076	0.0873	0.0000	0.0365	0.0254	0.0000	0.0111	0.0413	1,137,540
2005	0.1884	0.4015	0.1231	0.0087	0.1870	0.0435	0.0217	0.0261	0.0000	0.0220	1,271,042
2006	0.1873	0.3166	0.2864	0.0932	0.0235	0.0046	0.0015	0.0870	0.0000	0.0458	893,781
2007	0.2059	0.3062	0.2096	0.1319	0.0203	0.0696	0.0348	0.0217	0.0000	0.0232	897,091

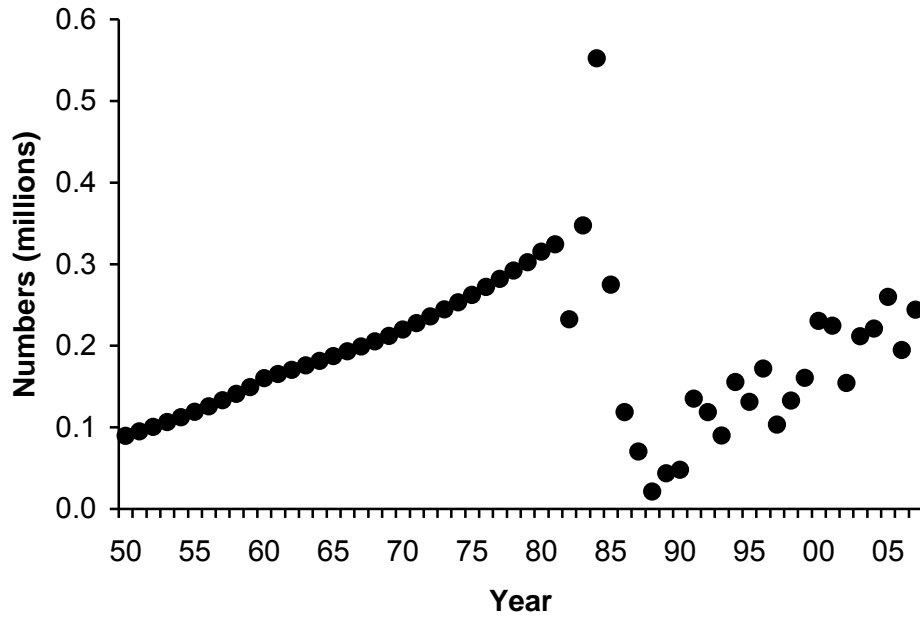


Figure 1. Estimated numbers of red drum killed by anglers along the Atlantic coast of Florida during the period 1950-2007.