

**ESTIMATED GULF OF MEXICO VERMILION SNAPPER
RECREATIONAL LANDINGS (MRFSS, HEADBOAT, TPWD)
DURING 1981-2004**

by

Shannon L. Cass-Calay
and
Guillermo A. Diaz

National Marine Fisheries Service
Southeast Fisheries Science Center
75 Virginia Beach Dr.
Miami, FL 33149

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INTRODUCTION

Recreational landings estimates in the U.S. Gulf of Mexico are available from three sources: the Marine Recreational Fishery Statistics Survey (MRFSS) beginning in 1979, the NMFS Beaufort Headboat Survey (HBS) beginning 1986, and the Texas Parks & Wildlife Sport Fishing Coastal Creel Survey (TPWD) beginning in 1983. These three data sources were used to compile the recreational landings of vermilion snapper (*Rhomboplites aurorubens*) during 1981-2004.

METHODS

For all data sources, only fish identified as “vermilion snapper” were included in the landings estimates. All landings are reported in numbers of fish.

MRFSS estimates for 1981 and later were recalculated using a new estimation procedure during the early 1990s. It was not possible to recalculate the 1979 and 1980 estimates and the MRFSS program does not recommend the use of the “old” 1979 and 1980 landings estimates. Therefore, they were not considered.

As of 2000, the official MRFSS estimates for charterboats are from the For-Hire Survey (FHS), and estimates calculated using the previous methodology are no longer available. Earlier MRFSS charterboat estimates (1981-1997) were adjusted to allow direct comparison with new FHS estimates using the methods described in SEDAR7-AW-03. This adjustment is necessary to construct a continuous and directly comparable time series of recreational landings.

RESULTS AND DISCUSSION

Marine Recreational Fishery Statistics (MRFSS)

Recreational landings (A + B1) from the MRFSS program are summarized by state and mode in Tables 1-5 and in Figures 1 and 2. A + B1 landings include fish landed and observed by the sampler (A), landed but not observed, discarded dead, and used as bait (B1). The vast majority of the landings reported by MRFSS come from the eastern Gulf of Mexico (FL and AL).

Recreational landings of vermilion snapper are highest in 1982, and during the late 1980s to mid 1990s (generally exceeding 600,000 fish). After 1995, landings declined substantially (to a low of approximately 200,000 fish) and remained low until 2000. Since then, landings have increased slowly to about 450,000 fish landed in 2004.

By fishing mode, charterboats (CB) land the largest number of vermilion snapper followed by private boats (PB; Figure 3). Landings from the combined mode (CB+HB) mode are significant before 1986, but fall to zero after 1986. This occurs because after 1985, the combined CB+HB mode is not used and headboats are no longer surveyed by MRFSS. Instead, HB reporting became the responsibility of the NMFS Headboat Survey Program.

Very few vermilion snapper are landed by anglers fishing off piers, jetties and man-made structures (SHORE; Table 1). However, in 1991, 131,286 vermilion snapper were reportedly landed by shore based recreational anglers. At the recommendation of the SEDAR9-DW panel, these data were considered unreliable, and were excluded from assessment model inputs.

Vermilion snapper released alive (B2) are reported by state and fishing mode in Tables 6-10 and Figure 3 and 4. The number and proportion of vermilion snapper classified as landed and observed (A), landed but not observed, returned dead or used as bait (B1) and released alive (B2) are reported by year in Table 11 and Figure 5. In general, the largest fraction of vermilion snapper are reported as type A catch, although in 1985 and 1986, the majority were classified B1. The B1 fraction is generally between 10% and 40% before 1996, but drops to below 13% between 1997 and 2004. For the purposes of the 2005 vermilion snapper assessment, the SEDAR9-DW panel recommended that landings be tabulated using A+B1 catch, and that recreational discards be calculated using B2 releases multiplied by the assumed release mortality rate (SEDAR9-DW-REPORT).

NMFS Headboat Survey (HBS)

Landings of vermilion snapper by headboats operating in the U.S. Gulf of Mexico during 1986-2004 are summarized in Tables 12 and 13 and in Figure 6. Headboat landings are assumed to be equivalent to MRFSS A+B1 landings. The largest catches of vermilion snapper by headboats occurred in area 23 (NW FL and AL). Moderate landings also occurred off the Florida Middle Grounds (area 22) and NE and Central Texas (areas 25 and 26, respectively). Gulfwide, headboat landings were greatest from 1986-1995, generally exceeding 500,000 fish. After 1995, landings decreased to a minimum of approximately 158,000 fish in 1998. Landings have gradually increased since. In 2004, 337,572 fish were landed by headboats gulfwide.

To estimate the number of vermilion snapper discarded by the headboat fleet, the SEDAR9-DW panel recommended applying the MRFSS charterboat AB1:B2 annual ratios, and the appropriate release mortality rate (SEDAR9-DW-REPORT).

Texas Parks & Wildlife Sport Fishing Coastal Creel Survey (TPWD)

Landings of vermilion snapper reported by the TPWD survey are summarized in Table 14 and Figure 7. Prior to 1986, TPWD was responsible for reporting the landings of all boat modes operating in Texas. Therefore, the high estimates (>50,000 fish) in 1983 and 1984 are likely correct, and are attributable to headboats (Table 14). No estimate exists for Texas headboats in 1985, although some landings likely occurred. Beginning in 1986, Gulf of Mexico HB landings were compiled and reported by the NMFS Headboat Survey. TPWD continued to sample CB and PB fishing modes, but the emphasis was placed on sampling bay and inshore fishing effort. Thus, landings of vermilion snapper, a predominantly offshore target, are extremely modest (< 5,500 fish) after 1985.

LITERATURE CITED

- SEDAR7-AW-03 (Diaz, G.A. and Phares, P.) 2004. Estimated conversion factors for calibrating MRFSS charterboat landings and effort estimates for the Gulf of Mexico in 1981-1997 with For-Hire-Survey estimates with application to red snapper landings.
- SEDAR9-DW-REPORT. 2005. Vermilion Snapper Data Workshop Report. S.L.Cass-Calay (ed.).

Table 1. MRFSS A+B1 landings (numbers of fish) for the shore mode by year and state.

SHORE MODE (MODE 1)

YEAR	AL	CV	FL	CV	LA	CV	MS	CV
1981	0	0.00	0	0.00	0	0.00	0	0.00
1982	0	0.00	0	0.00	0	0.00	0	0.00
1983	0	0.00	0	0.00	0	0.00	0	0.00
1984	0	0.00	0	0.00	0	0.00	0	0.00
1985	0	0.00	903	1.00	0	0.00	0	0.00
1986	0	0.00	0	0.00	0	0.00	0	0.00
1987	0	0.00	0	0.00	0	0.00	0	0.00
1988	0	0.00	0	0.00	0	0.00	0	0.00
1989	0	0.00	0	0.00	0	0.00	0	0.00
1990	5,916	0.54	0	0.00	0	0.00	0	0.00
1991	2,665	0.61	131,286	0.59	0	0.00	0	0.00
1992	0	0.00	0	0.00	0	0.00	0	0.00
1993	0	0.00	0	0.00	0	0.00	0	0.00
1994	0	0.00	0	0.00	0	0.00	0	0.00
1995	0	0.00	0	0.00	0	0.00	0	0.00
1996	0	0.00	0	0.00	0	0.00	0	0.00
1997	0	0.00	0	0.00	0	0.00	0	0.00
1998	0	0.00	0	0.00	0	0.00	0	0.00
1999	0	0.00	0	0.00	0	0.00	0	0.00
2000	0	0.00	0	0.00	0	0.00	0	0.00
2001	0	0.00	0	0.00	0	0.00	0	0.00
2002	0	0.00	0	0.00	0	0.00	0	0.00
2003	0	0.00	0	0.00	0	0.00	0	0.00
2004	0	0.00	0	0.00	0	0.00	0	0.00

Table 2. MRFSS A+B1 landings (numbers of fish) for the charterboat mode by year and state.

CHARTERBOAT MODE (MODE 3)

YEAR	AL	CV	FL	CV	LA	CV	MS	CV
1981	0	0.00	0	0.00	0	0.00	0	0.00
1982	0	0.00	0	0.00	0	0.00	0	0.00
1983	0	0.00	0	0.00	0	0.00	0	0.00
1984	0	0.00	0	0.00	0	0.00	0	0.00
1985	0	0.00	0	0.00	0	0.00	0	0.00
1986	66,037	1.00	281,844	0.31	1,228	0.98	0	0.00
1987	51,369	1.29	305,963	0.45	2,317	1.33	0	0.00
1988	32,897	0.88	335,622	0.22	0	0.00	0	0.00
1989	58,848	0.90	167,315	0.25	0	0.00	0	0.00
1990	299,703	0.77	217,646	0.32	1,970	1.35	621	1.46
1991	209,947	0.73	382,884	0.23	6,377	1.01	0	0.00
1992	220,718	0.84	217,331	0.19	1,337	0.93	0	0.00
1993	236,741	0.67	267,908	0.13	49	1.36	158	1.41
1994	118,611	0.76	283,341	0.15	4,031	1.14	432	1.29
1995	181,589	0.72	481,653	0.26	1,842	1.20	0	0.00
1996	158,674	0.71	94,421	0.27	380	1.60	0	0.00
1997	175,040	0.73	100,715	0.27	271	1.54	67	1.62
1998	95,782	0.24	44,251	0.08	36	0.96	0	0.00
1999	63,476	0.19	99,206	0.07	384	0.41	0	0.00
2000	19,000	0.25	111,117	0.08	0	0.00	0	0.00
2001	52,196	0.22	113,454	0.08	0	0.00	0	0.00
2002	26,640	0.20	83,744	0.07	3,777	0.74	0	0.00
2003	32,986	0.22	84,644	0.07	1,611	0.36	0	0.00
2004	83,639	0.21	159,500	0.05	16,356	0.76	0	0.00

Table 3. MRFSS A+B1 landings (numbers of fish) for the private boat mode by year and state.

PRIVATE BOAT MODE (MODE 4)									
YEAR	AL	CV	FL	CV	LA	CV	MS	CV	
1981	24,082	0.42	60,142	0.34	23,793	0.51	0	0.00	
1982	0	0.00	954	0.47	11,749	0.76	0	0.00	
1983	0	0.00	0	0.00	17,909	0.50	0	0.00	
1984	22,056	0.74	0	0.00	489	0.75	0	0.00	
1985	0	0.00	241,938	0.47	22,940	0.53	0	0.00	
1986	0	0.00	78,393	0.33	0	0.00	0	0.00	
1987	11,071	0.46	133,831	0.36	0	0.00	0	0.00	
1988	72,824	0.51	226,466	0.32	0	0.00	0	0.00	
1989	48,224	0.44	132,724	0.34	0	0.00	0	0.00	
1990	96,682	0.43	18,930	0.60	0	0.00	0	0.00	
1991	20,608	0.38	28,262	0.51	0	0.00	10,646	1.00	
1992	142,882	0.16	117,903	0.23	17,095	0.41	431	0.60	
1993	105,624	0.21	69,894	0.32	1,056	0.15	914	0.49	
1994	50,747	0.21	39,131	0.39	0	0.00	0	0.00	
1995	67,719	0.28	59,440	0.24	763	1.01	0	0.00	
1996	4,611	0.57	31,924	0.37	1,656	0.64	0	0.00	
1997	55,523	0.46	719	1.00	3,952	0.62	841	0.98	
1998	9,031	0.34	3,121	0.64	2,461	0.71	0	0.00	
1999	57,278	0.30	18,567	0.34	1,868	0.67	688	0.75	
2000	5,582	0.44	22,561	0.42	0	0.00	0	0.00	
2001	81,179	0.30	149,384	0.32	6,150	0.70	0	0.00	
2002	55,589	0.32	122,814	0.31	0	0.00	0	0.00	
2003	31,621	0.44	138,735	0.24	5,426	0.49	693	0.77	
2004	69,493	0.45	142,697	0.22	2,520	0.68	3,755	0.90	

Table 4. MRFSS A+B1 landings (numbers of fish) for the combined charterboat/headboat mode by year and state.

COMBINED CHARTER+HEADBOAT MODE (MODE 5)

YEAR	AL	CV	FL	CV	LA	CV	MS	CV
1981	6,144	1.15	27,727	0.78	0	0.00	0	0.00
1982	74,259	1.24	668,552	0.76	38,352	1.20	0	0.00
1983	31,917	1.05	122,617	0.44	0	0.00	0	0.00
1984	185,302	0.85	88,863	0.76	0	0.00	0	0.00
1985	0	0.00	119,781	0.72	13,740	1.16	0	0.00
1986	0	0.00	0	0.00	0	0.00	0	0.00
1987	0	0.00	0	0.00	0	0.00	0	0.00
1988	0	0.00	0	0.00	0	0.00	0	0.00
1989	0	0.00	0	0.00	0	0.00	0	0.00
1990	0	0.00	0	0.00	0	0.00	0	0.00
1991	0	0.00	0	0.00	0	0.00	0	0.00
1992	0	0.00	0	0.00	0	0.00	0	0.00
1993	0	0.00	0	0.00	0	0.00	0	0.00
1994	0	0.00	0	0.00	0	0.00	0	0.00
1995	0	0.00	0	0.00	0	0.00	0	0.00
1996	0	0.00	0	0.00	0	0.00	0	0.00
1997	0	0.00	0	0.00	0	0.00	0	0.00
1998	0	0.00	0	0.00	0	0.00	0	0.00
1999	0	0.00	0	0.00	0	0.00	0	0.00
2000	0	0.00	0	0.00	0	0.00	0	0.00
2001	0	0.00	0	0.00	0	0.00	0	0.00
2002	0	0.00	0	0.00	0	0.00	0	0.00
2003	0	0.00	0	0.00	0	0.00	0	0.00
2004	0	0.00	0	0.00	0	0.00	0	0.00

Table 5. MRFSS A+B1 landings (numbers of fish) for all modes by year and state.

ALL MODES											
YEAR	AL	CV	FL	CV	LA	CV	MS	CV	TOTAL A+B1	CV	
1981	30,226	0.41	87,868	0.34	23,793	0.51	0	0.00	141,888	0.24	
1982	74,259	1.24	669,506	0.76	50,101	0.94	0	0.00	793,866	0.65	
1983	31,917	1.05	122,617	0.44	17,909	0.50	0	0.00	172,443	0.37	
1984	207,358	0.76	88,863	0.76	489	0.75	0	0.00	296,709	0.58	
1985	0	0.00	362,622	0.39	36,680	0.55	0	0.00	399,302	0.36	
1986	66,037	1.00	360,237	0.26	1,228	0.98	0	0.00	427,502	0.26	
1987	62,439	1.06	439,793	0.33	2,317	1.33	0	0.00	504,549	0.32	
1988	105,721	0.44	562,087	0.18	0	0.00	0	0.00	667,808	0.17	
1989	107,072	0.53	300,039	0.21	0	0.00	0	0.00	407,112	0.21	
1990	402,301	0.58	236,576	0.30	1,970	1.35	621	1.46	641,468	0.38	
1991	233,220	0.66	542,433	0.22	6,377	1.01	10,646	1.00	792,677	0.24	
1992	363,600	0.51	335,235	0.15	18,432	0.38	431	0.60	717,698	0.27	
1993	342,365	0.46	337,802	0.12	1,105	0.16	1,072	0.47	682,344	0.24	
1994	169,358	0.53	322,472	0.14	4,031	1.14	432	1.29	496,292	0.20	
1995	249,308	0.53	541,093	0.24	2,604	0.90	0	0.00	793,005	0.23	
1996	163,286	0.69	126,345	0.22	2,036	0.60	0	0.00	291,667	0.40	
1997	230,563	0.56	101,434	0.27	4,223	0.59	907	0.91	337,128	0.39	
1998	104,813	0.23	47,372	0.08	2,497	0.70	0	0.00	154,681	0.16	
1999	120,754	0.17	117,773	0.08	2,251	0.56	688	0.75	241,466	0.09	
2000	24,582	0.22	133,678	0.10	0	0.00	0	0.00	158,260	0.09	
2001	133,375	0.20	262,838	0.19	6,150	0.70	0	0.00	402,363	0.14	
2002	82,229	0.22	206,558	0.18	3,777	0.74	0	0.00	292,565	0.15	
2003	64,608	0.24	223,379	0.15	7,037	0.39	693	0.77	295,717	0.13	
2004	153,131	0.23	302,196	0.11	18,876	0.67	3,755	0.90	477,958	0.10	

Table 6. Numbers of fish released alive (B2) for the shore mode by year and state.

SHORE MODE (MODE 1)									
YEAR	AL	CV	FL	CV	LA	CV	MS	CV	
1981	0	0.00	0	0.00	0	0.00	0	0.00	
1982	0	0.00	0	0.00	0	0.00	0	0.00	
1983	0	0.00	0	0.00	0	0.00	0	0.00	
1984	0	0.00	0	0.00	0	0.00	0	0.00	
1985	0	0.00	0	0.00	0	0.00	0	0.00	
1986	0	0.00	0	0.00	0	0.00	0	0.00	
1987	0	0.00	0	0.00	0	0.00	0	0.00	
1988	0	0.00	0	0.00	0	0.00	0	0.00	
1989	0	0.00	0	0.00	0	0.00	0	0.00	
1990	0	0.00	5,167	1.00	0	0.00	0	0.00	
1991	0	0.00	0		0	0.00	0	0.00	
1992	0	0.00	3,583	1.00	0	0.00	0	0.00	
1993	0	0.00	11,035	0.68	0	0.00	0	0.00	
1994	0	0.00	0	0.00	0	0.00	0	0.00	
1995	0	0.00	0	0.00	0	0.00	0	0.00	
1996	0	0.00	0	0.00	0	0.00	0	0.00	
1997	0	0.00	0	0.00	0	0.00	0	0.00	
1998	0	0.00	0	0.00	0	0.00	0	0.00	
1999	0	0.00	0	0.00	0	0.00	0	0.00	
2000	0	0.00	0	0.00	0	0.00	0	0.00	
2001	0	0.00	0	0.00	0	0.00	0	0.00	
2002	0	0.00	833	1.00	0	0.00	0	0.00	
2003	1,508	1.00	0	0.00	0	0.00	0	0.00	
2004	0	0.00	0	0.00	0	0.00	0	0.00	

Table 7. Numbers of fish released alive (B2) for the charterboat mode by year and state.

CHARTERBOAT MODE (MODE 3)										
YEAR	AL	CV	FL	CV	LA	CV	MS	CV		
1981	0	0.00	0	0.00	0	0.00	0	0.00		
1982	0	0.00	0	0.00	0	0.00	0	0.00		
1983	0	0.00	0	0.00	0	0.00	0	0.00		
1984	0	0.00	0	0.00	0	0.00	0	0.00		
1985	0	0.00	0	0.00	0	0.00	0	0.00		
1986	0	0.00	8,399	0.57	0	0.00	0	0.00		
1987	2,166	1.47	843	0.73	0	0.00	0	0.00		
1988	0	0.00	84,076	0.35	0	0.00	0	0.00		
1989	0	0.00	16,429	0.54	0	0.00	0	0.00		
1990	13,282	1.19	16,061	0.59	0	0.00	0	0.00		
1991	4,017	0.91	15,232	0.47	0	0.00	0	0.00		
1992	15,252	0.95	37,914	0.37	0	0.00	0	0.00		
1993	68,445	0.82	61,286	0.33	0	0.00	236	1.62		
1994	12,323	0.90	18,968	0.46	0	0.00	884	1.39		
1995	28,271	0.95	124,043	0.24	0	0.00	0	0.00		
1996	25,229	0.81	3,683	0.49	0	0.00	0	0.00		
1997	6,150	0.90	14,708	0.73	0	0.00	0	0.00		
1998	9,485	0.41	4,553	0.34	0	0.00	0	0.00		
1999	904	0.60	8,847	0.22	0	0.00	0	0.00		
2000	569	0.50	7,516	0.25	0	0.00	0	0.00		
2001	919	0.80	9,508	0.33	0	0.00	0	0.00		
2002	1,450	0.62	1,659	0.32	0	0.00	0	0.00		
2003	189	1.00	3,646	0.27	0	0.00	0	0.00		
2004	10,477	0.40	17,990	0.12	0	0.00	0	0.00		

Table 8. Numbers of fish released alive (B2) for the private boat mode by year and state.

PRIVATE BOAT MODE (MODE 4)										
YEAR	AL	CV	FL	CV	LA	CV	MS	CV		
1981	0	0.00	0	0.00	0	0.00	0	0.00		
1982	0	0.00	0	0.00	0	0.00	0	0.00		
1983	0	0.00	0	0.00	0	0.00	0	0.00		
1984	0	0.00	0	0.00	0	0.00	0	0.00		
1985	0	0.00	0	0.00	5,066	1.00	0	0.00		
1986	0	0.00	54,123	0.37	0	0.00	0	0.00		
1987	0	0.00	15,772	0.59	0	0.00	0	0.00		
1988	0	0.00	25,277	0.39	0	0.00	0	0.00		
1989	0	0.00	36,365	0.51	0	0.00	0	0.00		
1990	0	0.00	2,561	1.00	0	0.00	0	0.00		
1991	12,838	0.55	112,878	0.35	0	0.00	0	0.00		
1992	5,197	0.42	104,702	0.28	0	0.00	1,092	0.59		
1993	41,650	0.39	115,756	0.27	0	0.00	18,171	0.60		
1994	29,950	0.46	31,831	0.31	0	0.00	0	0.00		
1995	10,274	0.52	84,522	0.31	10,890	1.00	0	0.00		
1996	2,793	0.62	53,730	0.29	0	0.00	1,340	0.90		
1997	8,972	0.72	3,592	0.61	774	1.00	0	0.00		
1998	3,863	0.44	6,597	0.53	0	0.00	0	0.00		
1999	23,530	0.79	13,050	0.36	6,669	0.67	76	1.00		
2000	3,543	0.69	10,712	0.44	2,405	1.00	0	0.00		
2001	6,080	0.54	33,003	0.38	0	0.00	0	0.00		
2002	4,859	0.90	71,475	0.27	0	0.00	462	1.00		
2003	548	1.00	67,176	0.23	0	0.00	0	0.00		
2004	12,688	0.76	74,775	0.29	0	0.00	0	0.00		

Table 9. Numbers of fish released alive (B2) for the combined charter/headboat modes by year and state.

COMBINED CHARTER+HEADBOAT MODE (MODE 5)

YEAR	AL	CV	FL	CV	LA	CV	MS	CV
1981	0	0.00	0	0.00	0	0.00	0	0.00
1982	0	0.00	3,968	1.49	0	0.00	0	0.00
1983	592	1.46	27,902	0.63	0	0.00	0	0.00
1984	724	1.36	13,598	0.72	0	0.00	0	0.00
1985	0	0.00	17,068	0.94	0	0.00	0	0.00
1986	0	0.00	0	0.00	0	0.00	0	0.00
1987	0	0.00	0	0.00	0	0.00	0	0.00
1988	0	0.00	0	0.00	0	0.00	0	0.00
1989	0	0.00	0	0.00	0	0.00	0	0.00
1990	0	0.00	0	0.00	0	0.00	0	0.00
1991	0	0.00	0	0.00	0	0.00	0	0.00
1992	0	0.00	0	0.00	0	0.00	0	0.00
1993	0	0.00	0	0.00	0	0.00	0	0.00
1994	0	0.00	0	0.00	0	0.00	0	0.00
1995	0	0.00	0	0.00	0	0.00	0	0.00
1996	0	0.00	0	0.00	0	0.00	0	0.00
1997	0	0.00	0	0.00	0	0.00	0	0.00
1998	0	0.00	0	0.00	0	0.00	0	0.00
1999	0	0.00	0	0.00	0	0.00	0	0.00
2000	0	0.00	0	0.00	0	0.00	0	0.00
2001	0	0.00	0	0.00	0	0.00	0	0.00
2002	0	0.00	0	0.00	0	0.00	0	0.00
2003	0	0.00	0	0.00	0	0.00	0	0.00
2004	0	0.00	0	0.00	0	0.00	0	0.00

Table 10. Numbers of fish released alive (B2) for all modes by year and state.

ALL MODES										
YEAR	AL	CV	FL	CV	LA	CV	MS	CV	TOTAL A+B1	CV
1981	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
1982	0	0.00	3,968	1.49	0	0.00	0	0.00	3,968	1.49
1983	592	1.46	27,902	0.63	0	0.00	0	0.00	28,494	0.62
1984	724	1.36	13,598	0.72	0	0.00	0	0.00	14,323	0.68
1985	0	0.00	17,068	0.94	5,066	1.00	0	0.00	22,134	0.76
1986	0	0.00	62,522	0.33	0	0.00	0	0.00	62,522	0.33
1987	2,166	1.47	16,615	0.57	0	0.00	0	0.00	18,781	0.53
1988	0	0.00	109,353	0.28	0	0.00	0	0.00	109,353	0.28
1989	0	0.00	52,794	0.39	0	0.00	0	0.00	52,794	0.39
1990	13,282	1.19	23,790	0.46	0	0.00	0	0.00	37,072	0.52
1991	16,855	0.47	128,110	0.31	0	0.00	0	0.00	144,965	0.28
1992	20,449	0.72	146,199	0.22	0	0.00	1,092	0.59	167,741	0.21
1993	110,094	0.53	188,077	0.20	0	0.00	18,407	0.59	316,578	0.22
1994	42,273	0.42	50,799	0.26	0	0.00	884	1.39	93,956	0.23
1995	38,545	0.71	208,565	0.19	10,890	1.00	0	0.00	258,000	0.19
1996	28,022	0.73	57,414	0.27	0	0.00	1,340	0.90	86,776	0.30
1997	15,122	0.56	18,300	0.60	774	1.00	0	0.00	34,195	0.41
1998	13,348	0.31	11,150	0.34	0	0.00	0	0.00	24,498	0.23
1999	24,434	0.76	21,897	0.23	6,669	0.67	76	1.00	53,076	0.37
2000	4,112	0.60	18,228	0.28	2,405	1.00	0	0.00	24,746	0.25
2001	6,999	0.48	42,511	0.30	0	0.00	0	0.00	49,510	0.27
2002	6,309	0.71	73,967	0.26	0	0.00	462	1.00	80,739	0.25
2003	2,246	0.72	70,822	0.22	0	0.00	0	0.00	73,068	0.21
2004	23,166	0.45	92,765	0.23	0	0.00	0	0.00	115,931	0.21

Table 11. MRFSS landings and discards (**A**=landed and obs by interviewer; **B1**=returned dead, used for bait, or dead but not observed; **B2** = released alive) in numbers of fish, and the fraction of the total catch that is identified as A, B1 and B2.

YEAR	Total A	Total B1	Total B2	% A	% B1	% B2
1981	88,339	53,549	0	62.3	37.7	0.0
1982	788,910	4,957	3,968	98.9	0.6	0.5
1983	116,245	56,199	28,494	57.9	28.0	14.2
1984	275,291	21,418	14,323	88.5	6.9	4.6
1985	130,265	269,037	22,134	30.9	63.8	5.3
1986	67,191	360,311	62,522	13.7	73.5	12.8
1987	362,939	141,610	18,781	69.4	27.1	3.6
1988	443,967	223,842	109,353	57.1	28.8	14.1
1989	327,171	79,941	52,794	71.1	17.4	11.5
1990	542,946	98,522	37,072	80.0	14.5	5.5
1991	438,646	354,030	144,965	46.8	37.8	15.5
1992	651,937	65,761	167,741	73.6	7.4	18.9
1993	547,613	134,731	316,578	54.8	13.5	31.7
1994	297,207	199,085	93,956	50.4	33.7	15.9
1995	516,622	276,383	258,000	49.2	26.3	24.5
1996	229,797	61,870	86,776	60.7	16.3	22.9
1997	314,104	23,024	34,195	84.6	6.2	9.2
1998	153,442	1,239	24,498	85.6	0.7	13.7
1999	233,499	7,967	53,076	79.3	2.7	18.0
2000	148,036	10,224	24,746	80.9	5.6	13.5
2001	381,289	21,074	49,510	84.4	4.7	11.0
2002	266,870	25,694	80,739	71.5	6.9	21.6
2003	274,042	21,675	73,068	74.3	5.9	19.8
2004	402,519	75,439	115,931	67.8	12.7	19.5

Table 12. Headboat landings (number of fish) by area.

YEAR	AREA								Total ALL
	Dry Tortugas Gulf Vessels	SW FL	FL Middle Grounds	NW FL & AL	LA	NE TX	Central TX	South TX	
	18	21	22	23	24	25	26	27	
1986	28	2,645	26,279	488,750	792	36,729	13,555	2,215	570,993
1987		3,921	11,289	458,594	54	36,052	16,343	4,212	530,465
1988		5,984	9,111	641,962	1,591	34,985	13,027	1,121	707,781
1989		8,967	14,588	355,736	308	31,344	32,293	10,646	453,882
1990	308	8,052	15,058	411,767	1,272	30,122	46,526	25,547	538,652
1991		5,093	8,844	409,086	787	15,802	50,564	16,182	506,358
1992	10	11,424	8,741	545,357	3,960	31,778	40,167	1,098	642,535
1993	22	15,442	16,480	411,036	3,502	49,257	20,367	3,480	519,586
1994	22	11,354	18,783	344,653	3,165	75,280	32,791	6,684	492,732
1995	22	6,028	6,632	320,827	1,097	59,236	37,978	3,947	435,767
1996		9,775		209,416	1,546	40,740	28,129	4,540	294,146
1997		850	436	200,182	183	42,791	32,094	1,437	277,973
1998		2,720	6,000	87,633	80	36,450	23,350	1,920	158,153
1999		1,986	5,679	130,005	544	17,249	23,218	289	178,970
2000		717	1,347	129,563	323	26,057	16,132	5	174,144
2001		2,315	1,239	145,148	355	26,742	37,815	2,179	215,793
2002		2,944	2,448	141,498	355	31,580	37,117	1,366	217,308
2003		5,912	1,432	208,341	389	37,171	41,122	4,852	299,219
2004		4,671	894	230,608	N/A**	55,340	42,137	3,922	337,572

Table 13. Headboat landings (number of fish) by state.

YEAR	FL	NW FL & AL	LA	TX	Total
1986	28,952	488,750	792	52,499	570,993
1987	15,210	458,594	54	56,607	530,465
1988	15,095	641,962	1,591	49,133	707,781
1989	23,555	355,736	308	74,283	453,882
1990	23,418	411,767	1,272	102,195	538,652
1991	13,937	409,086	787	82,548	506,358
1992	20,175	545,357	3,960	73,043	642,535
1993	31,944	411,036	3,502	73,104	519,586
1994	30,159	344,653	3,165	114,755	492,732
1995	12,682	320,827	1,097	101,161	435,767
1996	9,775	209,416	1,546	73,409	294,146
1997	1,286	200,182	183	76,322	277,973
1998	8,720	87,633	80	61,720	158,153
1999	7,665	130,005	544	40,756	178,970
2000	2,064	129,563	323	42,194	174,144
2001	3,554	145,148	355	66,736	215,793
2002	5,392	141,498	355	70,063	217,308
2003	7,344	208,341	389	83,145	299,219
2004	5,565	230,608	N/A**	101,399	337,572

Table 14. TPWD landings in numbers by mode.

YEAR	HB	MODE CB	PB	TOTAL
1983	53,141		6	53,147
1984	70,271		86	70,357
1985	N/A **	N/A **	N/A **	N/A **
1986			56	56
1987			292	292
1988			749	749
1989			229	229
1990		16		16
1992			42	42
1993			731	731
1994		18	238	256
1995			517	517
1996			249	249
1997		556	3,062	3,618
1998		236	654	890
1999		302	1,212	1,514
2000		384	953	1,337
2001		4,729	627	5,356
2002			2,092	2,092
2003		116	1,482	1,598

** No estimates of vermilion snapper landings are available from TPWD in 1985.

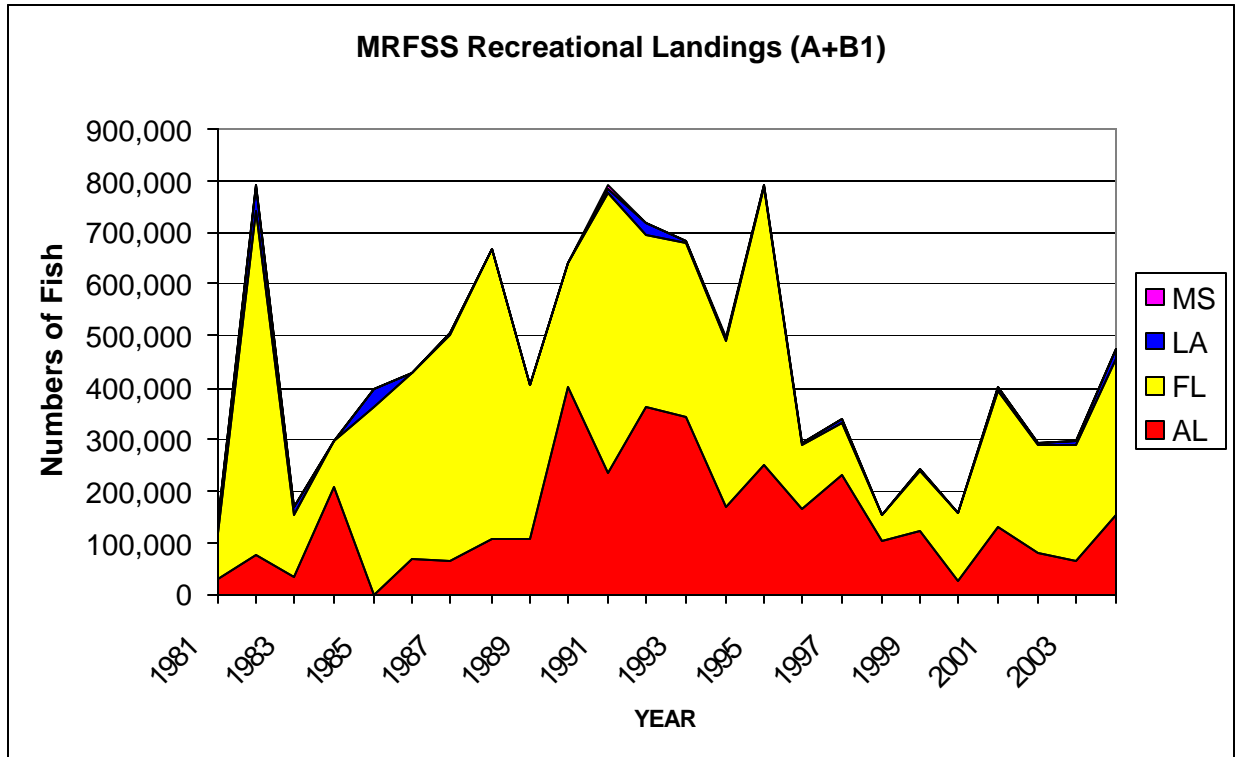


Figure 1. MRFSS landings estimates (A+B1) in numbers by state.

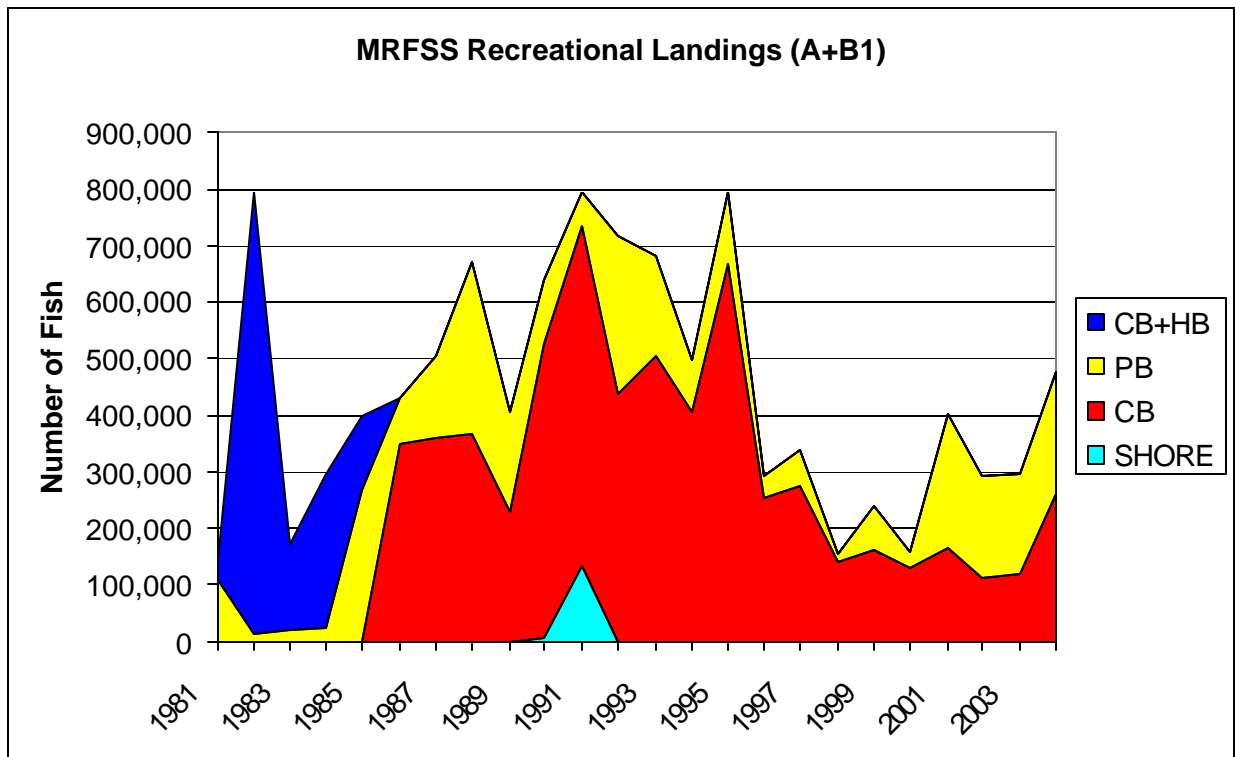


Figure 2. MRFSS landings estimates (A+B1) in numbers by fishing mode.

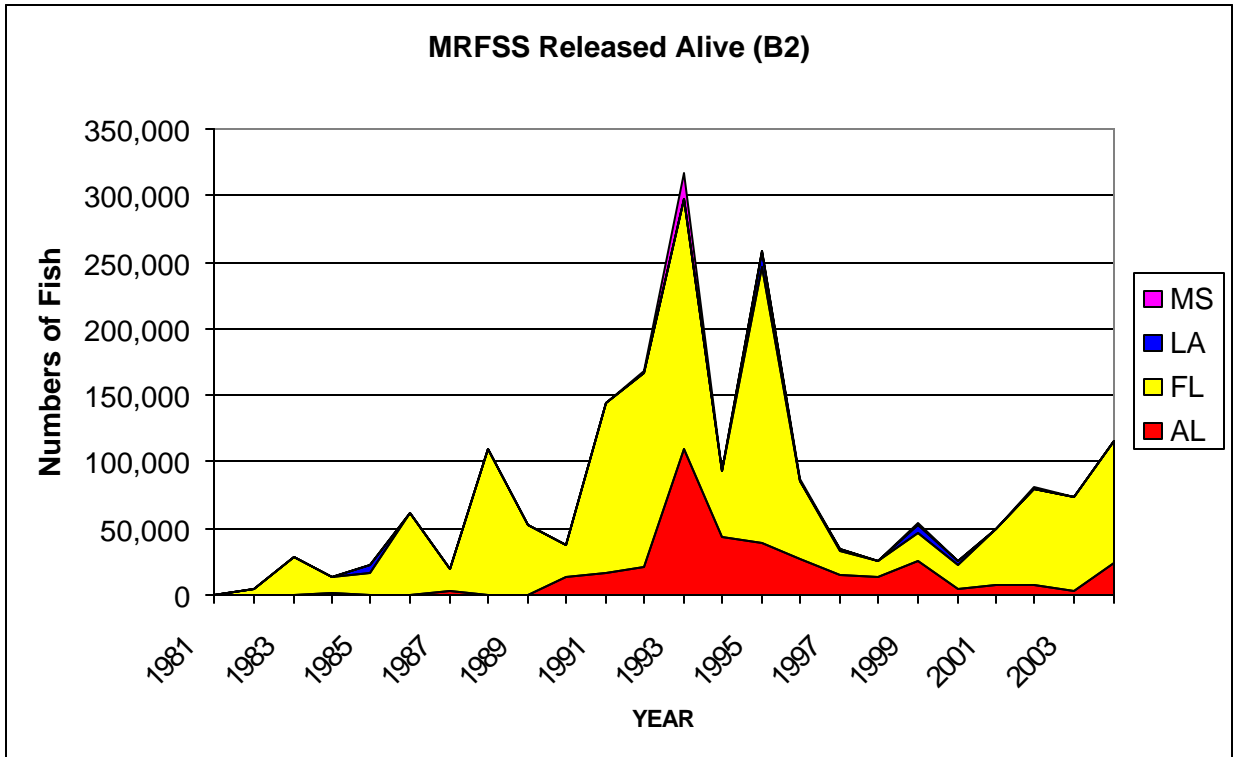


Figure 3. MRFSS releases in numbers by state.

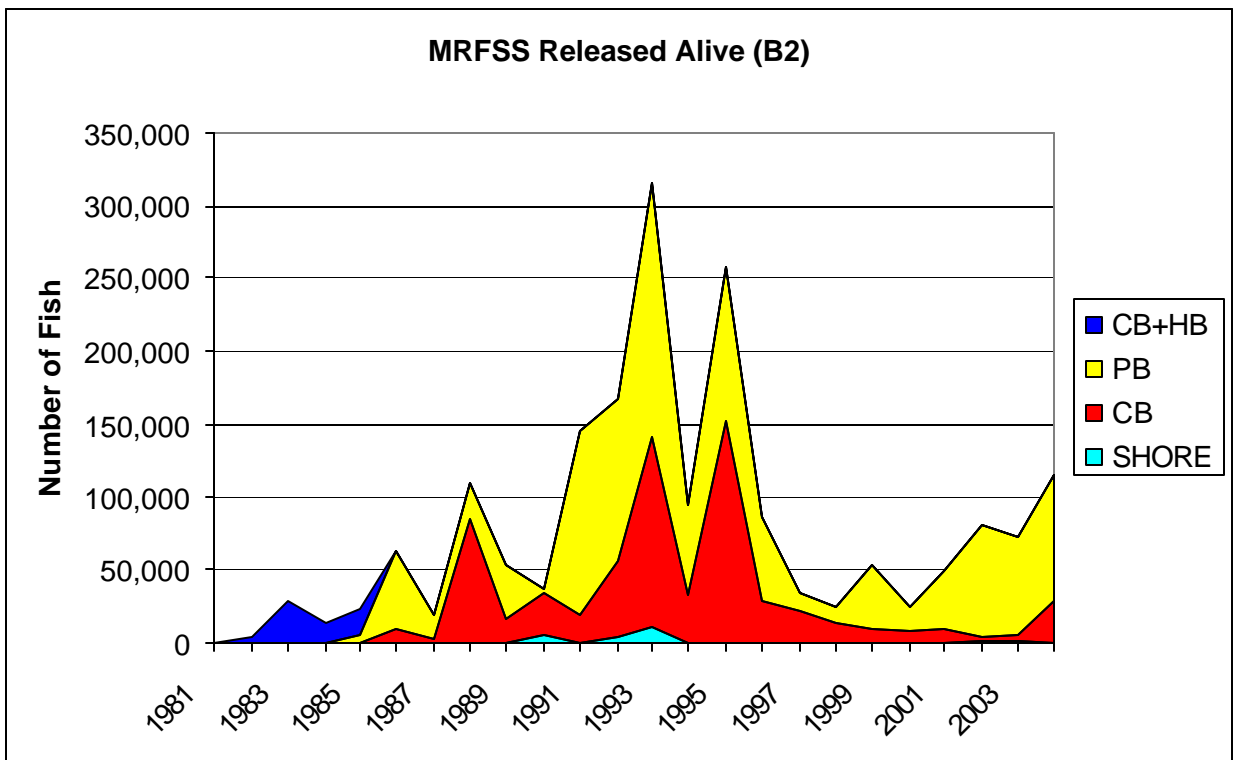


Figure 4. MRFSS releases in numbers by mode.

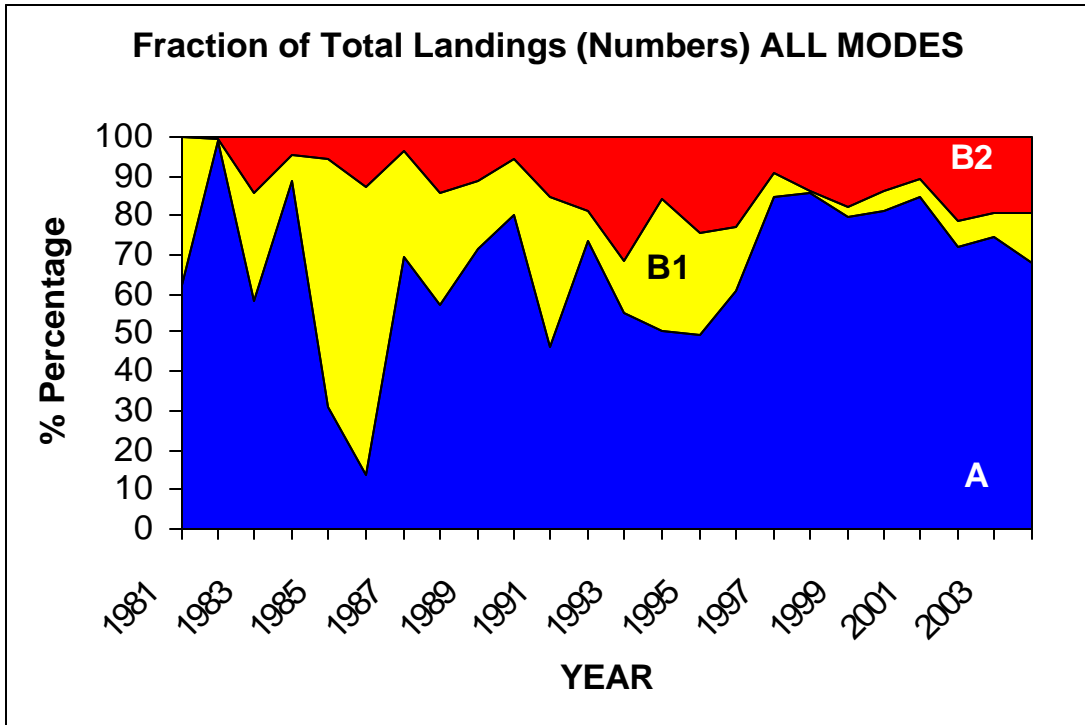


Figure 5. Fraction of total catch that are identified as **A** (landed and observed by interviewer), **B1** (returned dead, used for bait, or dead but not observed) and **B2** (released alive).

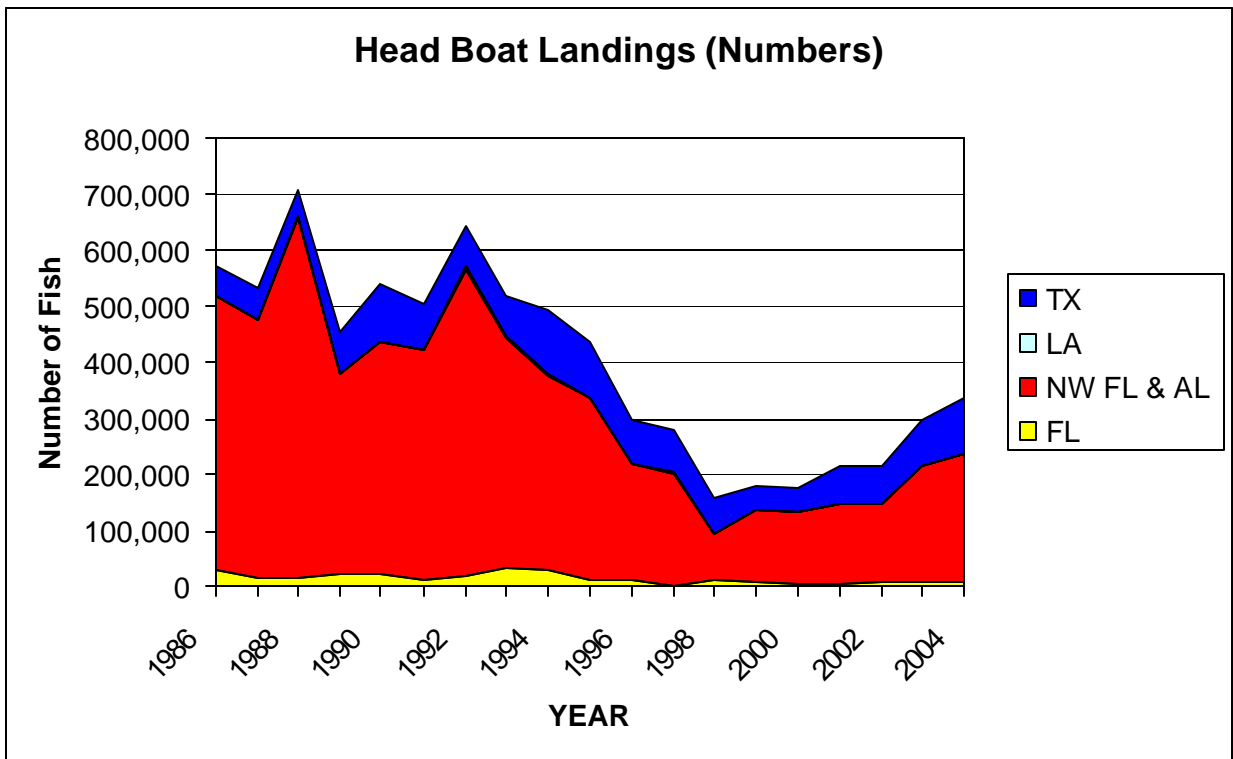


Figure 6. Headboat landings by state.

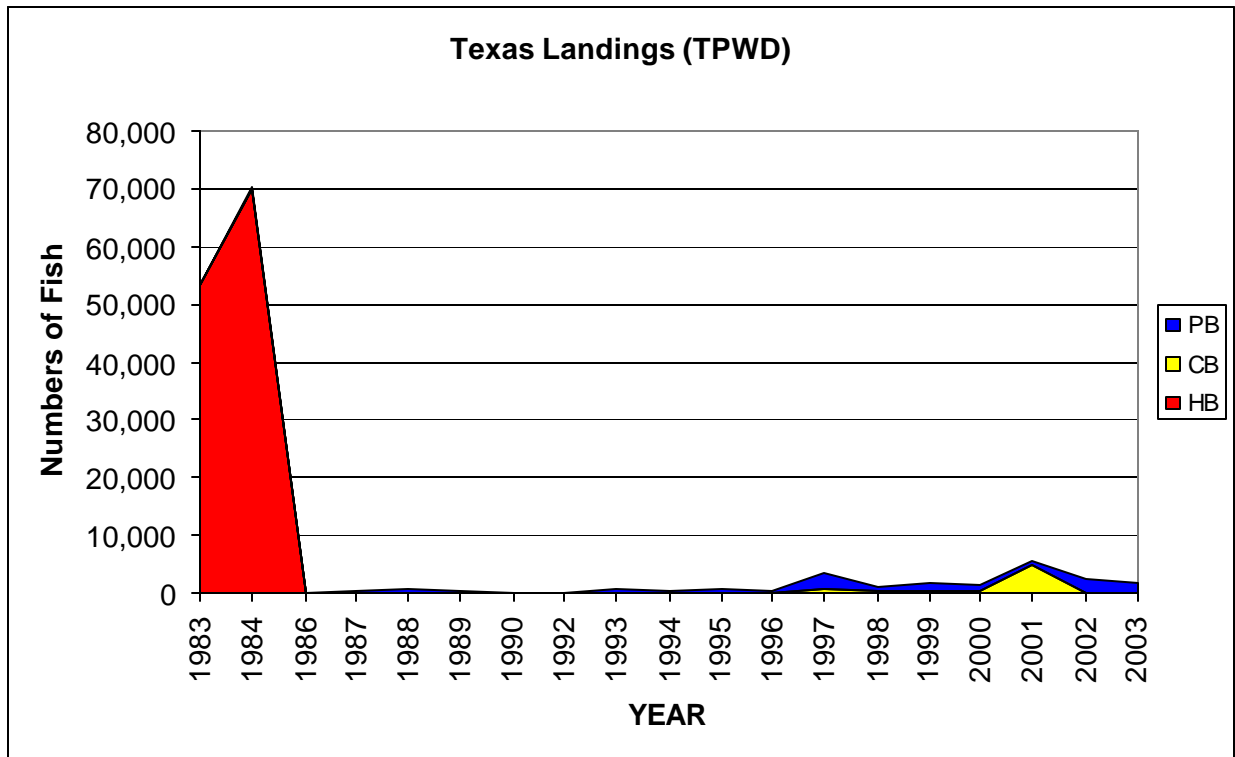


Figure 7. Texas landings (TPWD) by mode.