

MRFSS LANDINGS AND LENGTH DATA SUMMARYDouglas Vaughan¹**I. Deep Water Complex (NODC Code):**

Snowy Grouper (8835020411)
Tilefish (Golden) (8835220201)
Speckled Hind (8835020404)
Warsaw Grouper (8835220410)
Blueline Tilefish (8835220104)
Queen Snapper (8835360301)
Misty Grouper (8835020409)
Yellowedge Grouper (8835020405)

II. Estimated Landings from MRFSS (1981-2002)**Landings in Numbers:**

Landings in numbers are estimated in the MRFSS for three (3) landings categories: retained fish available for measurement (*type A*), retained fish unavailable for measurement (*type B1*), and released fish (*type B2*). **Table 1** summarizes percent of total landings by these three categories for the eight deep water complex species considered in this report. Most landings represent two modes of fishing: private boats and charter boats. The latter are smaller for-hire vessels, not including headboats. Estimated total landings in numbers (A+B1+B2) by mode are summarized by species in **Tables A1-A8**. Plots of total landings with plus/minus 1 standard deviation for combined charter and private boats for 1981-2002 are shown for snowy grouper (**Figure A1**), tilefish (**Figure A2**), speckled hind (**Figure A3**), warsaw grouper (**Figure A4**), and blueline tilefish (**Figure A5**; charter boat only since 1993). Minimal landings information are available for queen snapper, misty grouper, and yellowedge grouper. Tilefish and speckled hind landings include a small number from the shore mode. There is one cell for this mode for tilefish (year=2000, wave=3, state=FL, area=<3 mi). There are three cells for this mode for speckled hind (**1**: year=1990, wave=4, state=NC, area=<3 mi; **2**: year=1994, wave=5, state=NC, area=inland; and **3**: year=1999, wave=1, state=FL, area=<10 mi).

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Table 1. Years with positive landings, percent of total landings by catch type, and percent of estimated *type A* fish with available mean weight for eight species in Deep Water Complex.

Deep Water Complex Species	Years with Landings (out of 22)	Total Landings Ratios: <i>A</i> : <i>B1</i> : <i>B2</i> (%)	% <i>Type A</i> Landings with Mean Weight
Snowy grouper	19	78/11/11	81.9
Tilefish	18	57/38/5	71.1
Speckled hind	17	31/0/69	54.9
Warsaw grouper	22	78/3/19	97.8
Blueline tilefish	7	100/0/0	87.6
Queen snapper	6	97/0/3	99.9
Misty grouper	2	62/0/38	100.0
Yellowedge grouper	5	100/0/0	64.0

Landings in Biomass:

Obtaining estimates of landings in biomass can be difficult to estimate when mean weight of fish by cell [year, wave (2-month period), mode of fishing, and area fished (distance from shore)] are unavailable. If mean weight is unavailable for the cell, then a missing value (or zero) is given as the mean weight, and when the landings in weight are accumulated across cells, then the weight of landings for that cell are zero. The percent of landings in numbers representing type A fish for which a mean weight is available for expanding is given in **Table 1**. By definition, no mean weight is available for *type B1* and *B2* fish. It is reasonable to use the mean weight of *type A* fish for *type B1* fish. It is more problematic as to what to use to represent the mean weight for *type B2* fish, especially when bag and/or size limits are in effect.

III. Length Frequency Data from MRFSS (1981-2002)

The sample size of fish from the Deep Water Complex that were intercepted for measurement (*type A*) by the MRFSS for the period 1981-2002 are summarized in Table 2. Length frequency distributions were developed from the available lengths from charter and/or private boats as weighted by the landings in numbers (*A+B1*). Figures developed from these data are summarized for snowy grouper (**Figure A6**), tilefish (**Figure A7**), speckled hind (**Figure A8**), warsaw grouper (**Figure A9**), and blueline tilefish (**Figure A10**; charter boat only). Minimal data were available for queen snapper, misty grouper and yellowedge grouper (less than 5 fish total for 1981-2002).

Table 2. Sample sizes of intercepted fish from the Deep Water Complex available for measurement (*type A* fish).

Year	Snowy grouper	Tilefish	Speckled hind	Warsaw grouper	Blueline tilefish	Queen snapper	Misty grouper	Yellow-edge grouper	Total
1981	0	0	0	0	0	0	0	0	0
1982	0	0	0	0	0	0	0	0	0
1983	7	2	0	14	0	0	0	0	23
1984	1	1	0	3	0	0	0	0	5
1985	0	1	0	13	0	0	0	0	14
1986	0	0	1	1	0	0	0	0	2
1987	1	1	1	7	0	0	2	0	12
1988	2	1	0	3	0	0	0	1	7
1989	0	0	1	13	0	0	0	0	14
1990	1	1	1	2	0	0	0	0	5
1991	3	2	0	5	0	0	0	0	10
1992	0	0	0	4	0	0	0	0	4
1993	1	0	0	0	2	0	0	0	3
1994	1	2	3	3	0	0	0	0	9
1995	10	0	0	6	2	0	0	0	18
1996	2	1	2	2	7	1	0	0	15
1997	8	14	2	1	15	0	0	1	41
1998	3	3	1	5	0	0	0	0	12
1999	13	2	1	5	0	2	0	0	23
2000	1	5	3	4	1	0	0	0	14
2001	32	18	3	2	15	0	0	1	71
2002	18	28	0	17	2	0	0	0	65
Total	104	82	19	110	44	3	2	3	367

Appendix A. Species-Specific Tables and Figures

Table A1. Estimated total landings (A+B1+B2) of Snowy grouper by year with proportional standard error by mode and total from the MRFSS, 1981-2002.

Year	Charter Boats		Private Boats		Total	
	A+B1+B2	PSE	A+B1+B2	PSE	A+B1+B2	PSE
1981	0	0%	17647	54%	17647	54%
1982	4652	65%	365	0%	5017	61%
1983	4723	46%	2879	100%	7602	47%
1984	0	0%	1648	77%	1648	77%
1985	0	0%	0	0%	0	0%
1986	0	0%	0	0%	0	0%
1987	513	53%	4841	63%	5354	57%
1988	112	43%	2318	100%	2430	95%
1989	0	0%	0	0%	0	0%
1990	0	0%	1601	84%	1601	84%
1991	97	65%	0	0%	97	65%
1992	670	48%	1719	71%	2388	53%
1993	123	66%	8444	100%	8567	99%
1994	867	96%	0	0%	867	96%
1995	2718	77%	5836	85%	8554	63%
1996	0	0%	1567	64%	1567	64%
1997	146	100%	17872	44%	18018	44%
1998	570	71%	0	0%	570	71%
1999	3761	45%	4333	69%	8095	43%
2000	1286	55%	1133	100%	2419	55%
2001	7034	56%	3220	70%	10254	45%
2002	1643	55%	505	100%	2148	48%

Table A2. Estimated total landings (A+B1+B2) of tilefish (golden) by year with proportional standard error by mode and total from the MRFSS, 1981-2002.

Year	Charter Boats		Private Boats		Total	
	A+B1+B2	PSE	A+B1+B2	PSE	A+B1+B2	PSE
1981	0	0%	0	0%	0	0%
1982	0	0%	0	0%	0	0%
1983	367	100%	0	0%	367	100%
1984	0	0%	1648	77%	1648	77%
1985	577	100%	20384	60%	20960	59%
1986	46	100%	0	0%	46	100%
1987	33	100%	0	0%	33	100%
1988	0	0%	900	56%	900	56%
1989	0	0%	0	0%	0	0%
1990	48	49%	0	0%	48	49%
1991	65	65%	0	0%	65	65%
1992	1062	62%	706	100%	1768	55%
1993	0	0%	700	0%	700	100%
1994	2607	41%	0	0%	2607	41%
1995	0	0%	0	0%	0	0%
1996	45	100%	1069	100%	1114	96%
1997	750	72%	6165	72%	6915	65%
1998	472	101%	0	0%	472	101%
1999	1952	62%	0	0%	1952	62%
2000	732	50%	3164	78%	3896	64%
2001	2464	54%	687	73%	3150	45%
2002	2036	45%	0	0%	2036	45%

Table A3. Estimated total landings (A+B1+B2) of speckled hind by year with proportional standard error by mode and total from the MRFSS, 1981-2002.

Year	Charter Boats		Private Boats		Total	
	A+B1+B2	PSE	A+B1+B2	PSE	A+B1+B2	PSE
1981	0	0%	0	0%	0	0%
1982	0	0%	0	0%	0	0%
1983	0	0%	0	0%	0	0%
1984	0	0%	0	0%	0	0%
1985	0	0%	0	0%	0	0%
1986	189	100%	0	0%	189	100%
1987	114	47%	1260	71%	1374	65%
1988	98	80%	0	0%	98	80%
1989	56	44%	0	0%	56	44%
1990	0	0%	893	71%	893	71%
1991	0	0%	2896	59%	2896	59%
1992	19	44%	6768	0%	6787	39%
1993	106	27%	0	0%	106	27%
1994	543	40%	549	40%	1092	28%
1995	50	100%	2048	89%	2098	87%
1996	618	93%	2083	85%	2701	69%
1997	1012	59%	0	0%	1012	59%
1998	425	71%	592	71%	1017	51%
1999	292	100%	3446	38%	3738	36%
2000	180	74%	7938	81%	8118	79%
2001	289	58%	442	100%	731	65%
2002	0	0%	3633	38%	3633	38%

Table A4. Estimated total landings (A+B1+B2) of warsaw grouper by year with proportional standard error by mode and total from the MRFSS, 1981-2002.

Year	Charter Boats		Private Boats		Total	
	A+B1+B2	PSE	A+B1+B2	PSE	A+B1+B2	PSE
1981	178	100%	0	0%	178	100%
1982	804	100%	3608	50%	4412	45%
1983	18986	74%	17789	68%	36775	50%
1984	530	52%	5231	72%	5761	66%
1985	756	55%	131653	50%	132409	50%
1986	0	0%	140	61%	140	61%
1987	3074	100%	1577	40%	4651	67%
1988	1609	63%	4049	71%	5658	54%
1989	0	0%	26398	31%	26398	31%
1990	48	49%	259	100%	307	85%
1991	533	100%	6803	41%	7336	39%
1992	150	53%	554	21%	704	20%
1993	610	100%	0	0%	610	100%
1994	960	48%	1671	71%	2631	48%
1995	3084	54%	942	100%	4027	47%
1996	661	88%	2470	51%	3131	44%
1997	513	101%	785	100%	1298	72%
1998	1020	75%	1461	66%	2481	50%
1999	762	50%	1378	58%	2139	41%
2000	654	45%	692	73%	1346	44%
2001	204	69%	0	0%	204	69%
2002	1083	45%	0	0%	1083	45%

Table A5. Estimated total landings (A+B1+B2) of blueline tilefish by year with proportional standard error from charter boats from the MRFSS, 1993-2002.

Year	Charter Boats		Private Boats		Total	
	A+B1+B2	PSE	A+B1+B2	PSE	A+B1+B2	PSE
1993	2792	74%	0	0%	2792	74%
1994	0	0%	0	0%	0	0%
1995	2185	99%	0	0%	2185	99%
1996	312	100%	0	0%	312	100%
1997	6560	100%	0	0%	6560	100%
1998	0	0%	0	0%	0	0%
1999	0	0%	0	0%	0	0%
2000	26	98%	0	0%	26	98%
2001	1971	99%	0	0%	1971	99%
2002	79	100%	349	100%	428	84%

Table A6. Estimated total landings (A+B1+B2) of queen snapper by year with proportional standard error by mode and total from the MRFSS, 1982, 1989, 1996, 1999, 2001-2002.

Year	Charter Boat		Private Boat		Total	
	A+B1+B2	PSE	A+B1+B2	PSE	A+B1+B2	PSE
1982			341	100%	341	100%
1989	24357	86%			24357	86%
1996			1080	100%	1080	100%
1999	883	72%			883	72%
2001	18	94%			18	94%
2002			319	100%	319	100%

Table A7. Estimated total landings (A+B1+B2) of misty grouper by year with proportional standard error by mode (private boats only) from the MRFSS, 1987 and 1995.

Year	A+B1+B2	PSE
1987	2450	59%
1995	1516	100%

Table A8. Estimated total landings (A+B1+B2) of yellowedge grouper by year with proportional standard error by mode and total from the MRFSS, 1988, 1997, 2000-2001.

Year	Charter Boat		Private Boat		Total	
	A+B1+B2	PSE	A+B1+B2	PSE	A+B1+B2	PSE
1988			1101	59%	1101	59%
1997	81	100%			81	100%
2000	23	103%			23	103%
2001	85	99%	690	100%	775	90%

Fig. A1. Snowy Grouper: Private and Charter Boats

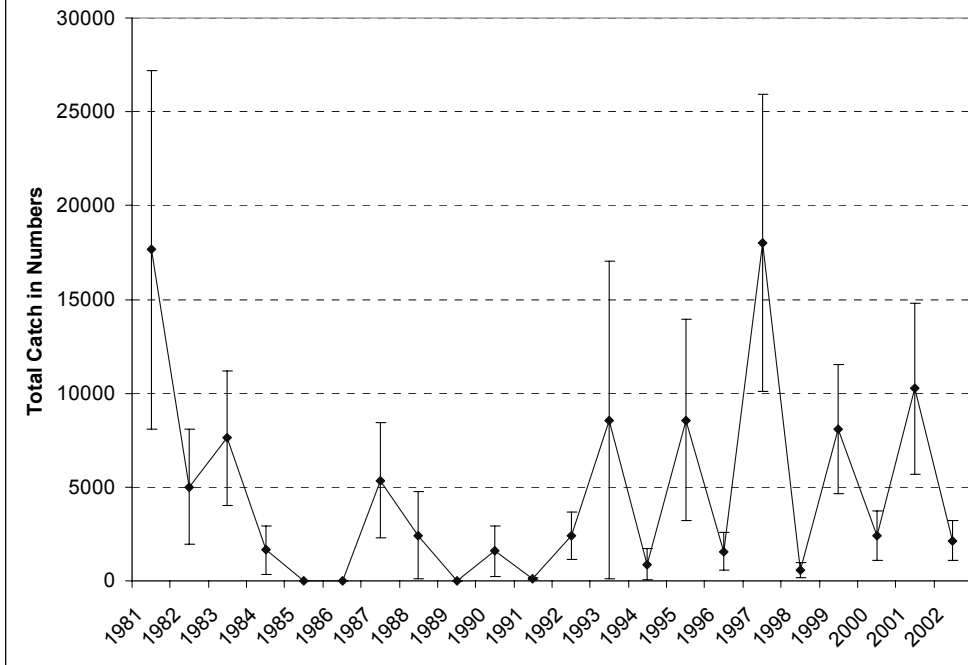


Fig. A2. Tilefish: Private and Charter Boats

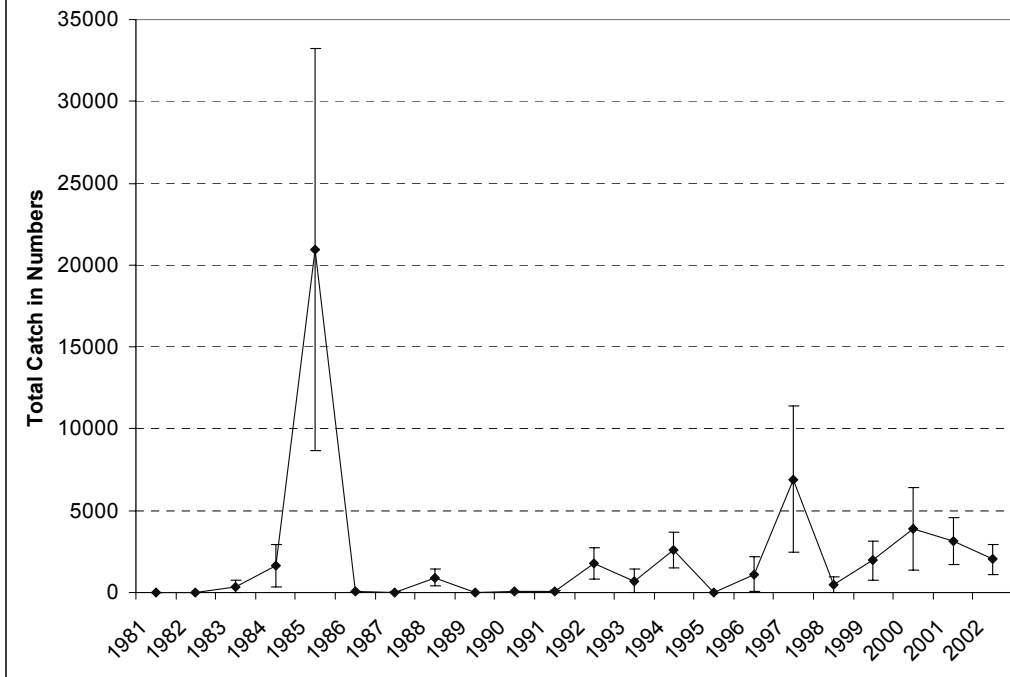


Fig. A3. Speckled Hind: Private and Charter Boats

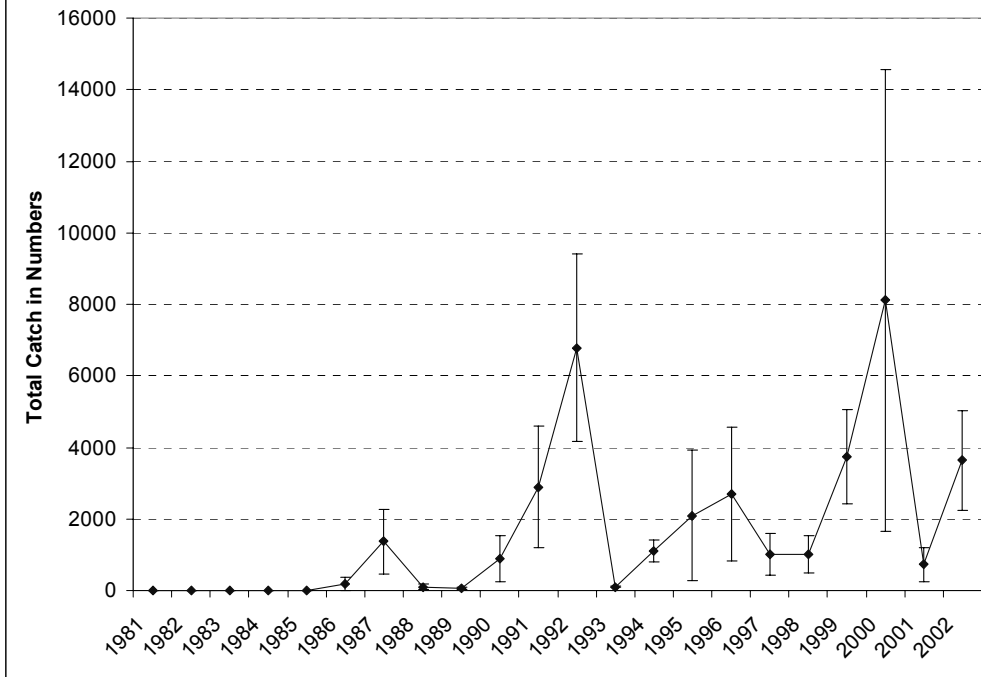


Fig. A4. Warsaw Grouper: Private and Charter Boats

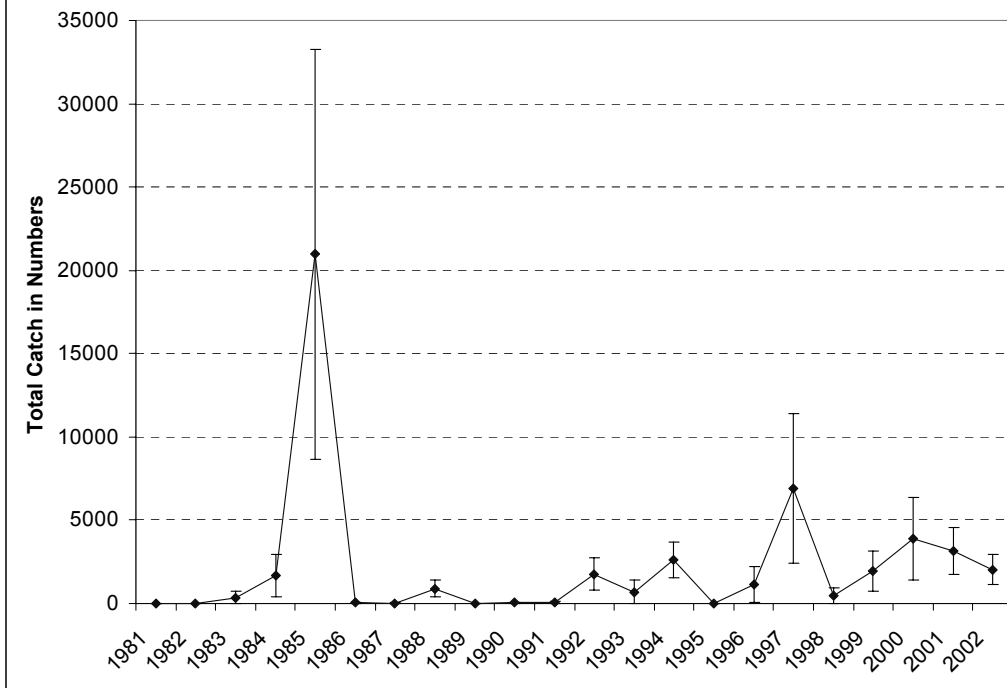


Fig. A5. Blueline Tilefish: Charter Boats

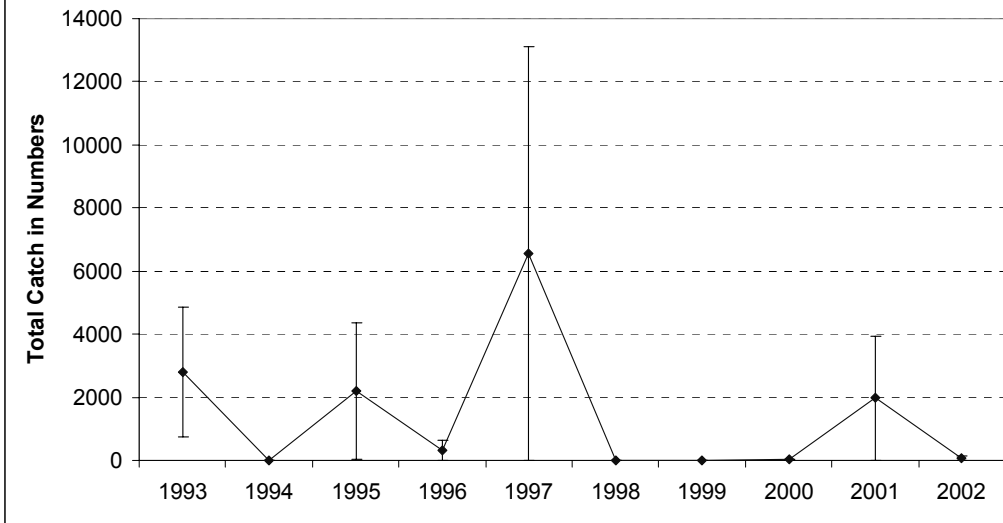


Fig. A6. Combined Charter and Private Snowy Grouper

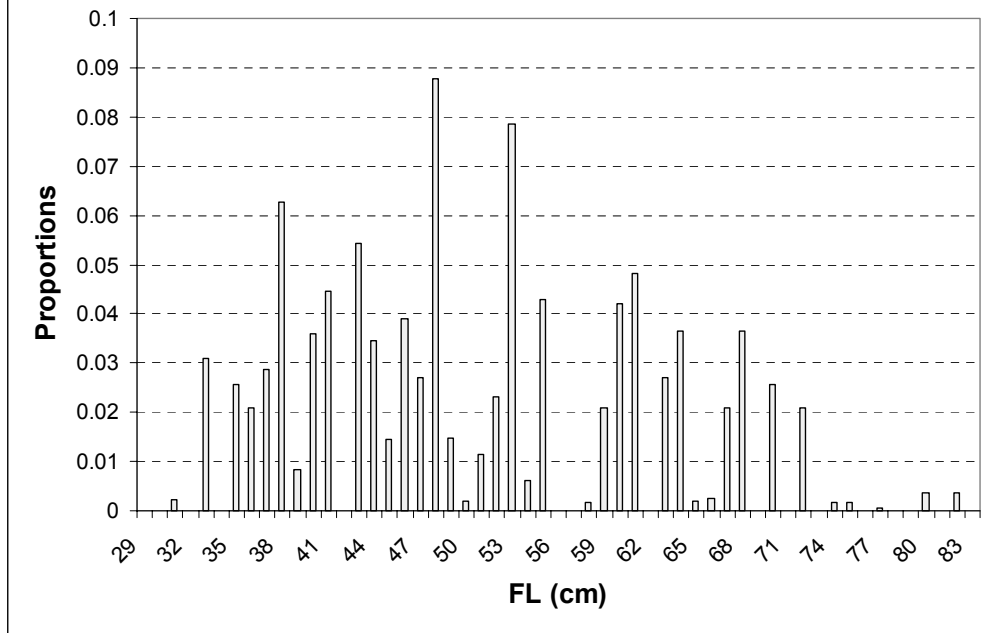


Fig. A7. Combined Charter and Private Tilefish

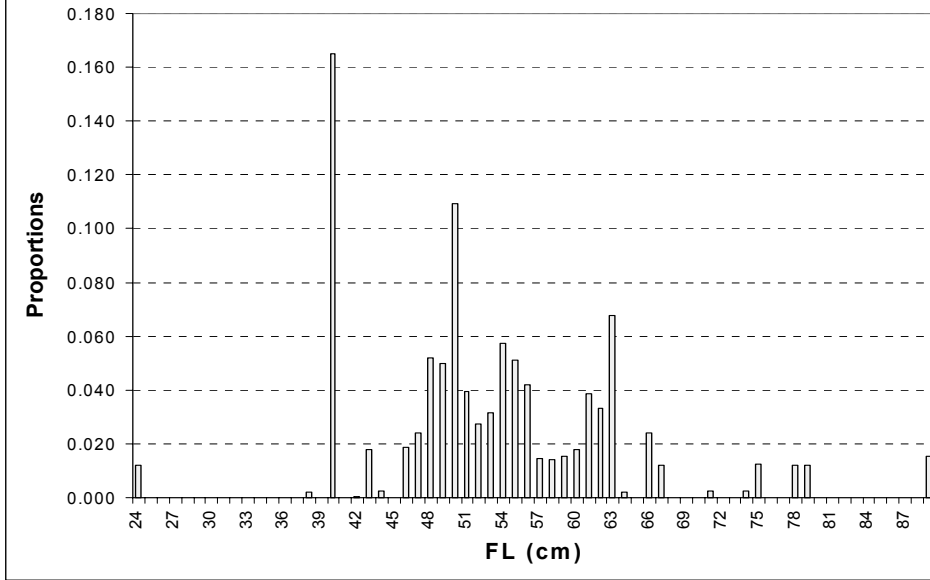


Fig. A8. Combined Charter and Private Speckled Hind

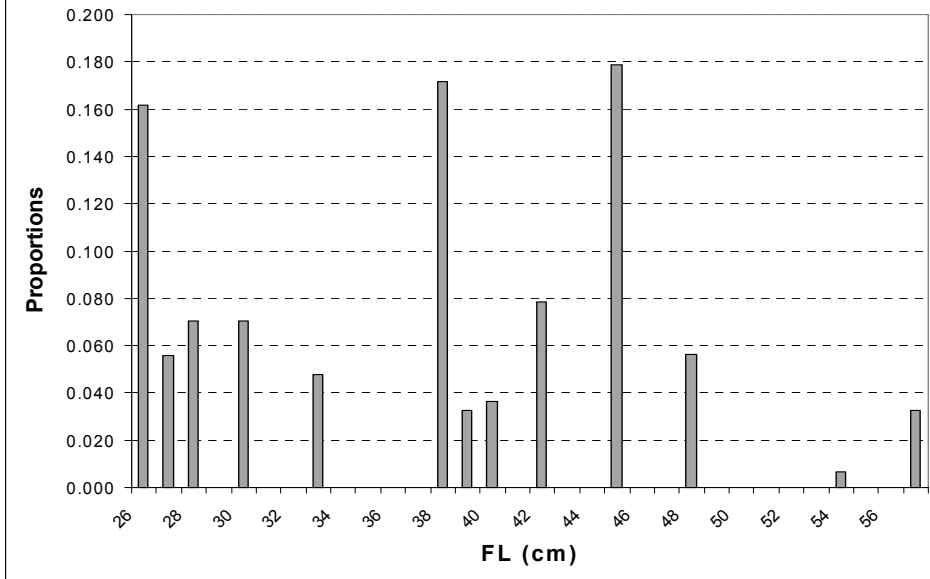


Fig. A9. Combined Charter and Private Warsaw Grouper

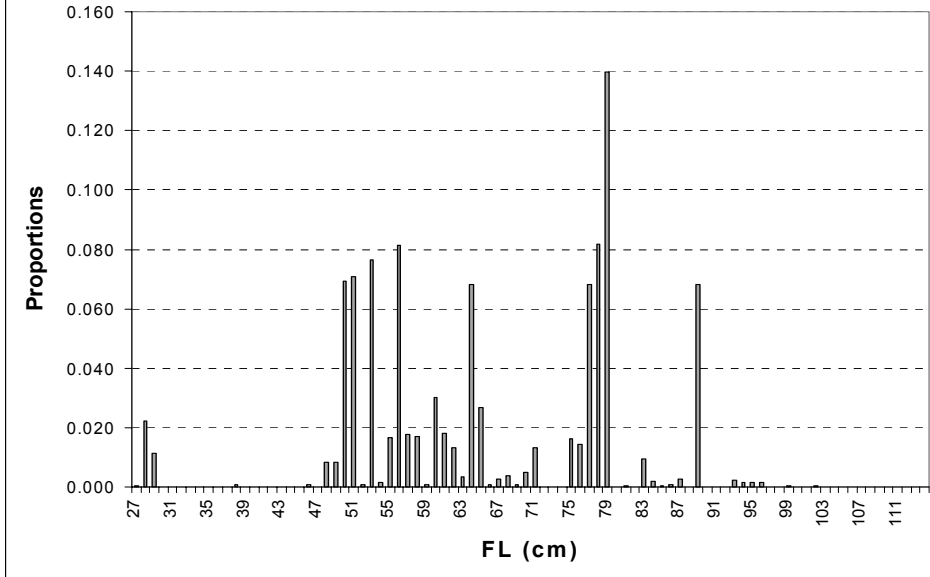


Fig. A10. Blueline Tilefish - Charter Boats

