

**Summary of Black Sea Bass (*Centropristis striata*) Length Composition Sampling from the
Trip Interview Program (TIP) 1981-2010**

David R. Gloeckner
Southeast Fisheries Science Center
National Marine Fisheries Service
National Oceanic and Atmospheric Administration
75 Virginia Beach Drive
Miami, FL 33149

SEDAR25-DW21

Date Submitted: 26 April 2011
Date Last Updated: 17 May 2011



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By

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May 11, 2011

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Sustainable Fisheries Division Contribution No. SFD-2011-2005

Description of Trip Interview Program (TIP)

The Trip Interview Program (TIP), was developed and facilitated by the National Marine Fisheries Service Southeast Fisheries Science Center collects data on fishing effort, species composition of the catch, size frequency of the catch and collect age and tissue samples for analysis at one of the NMFS laboratories. Port agents in the southeastern United States visit docks and fish houses where they interview the fisherman and take length and weight measurements of the catch. Port agents are either stationed at the location where the fish are unloaded and are able to measure each fish as it is landed, or if the fish have already been unloaded, the port agents then measure a sample of the catch from the storage containers within the fish house. Whenever possible, a captain or crewmember are interviewed to obtain information about the fishing trip, including area fished, gear, etc. Hard part and tissue samples are sometimes obtained from species and sent to the lab for age based or genetic analysis. Like the other statistics gathering programs, this one is also a joint or cooperative effort with the state fishery agencies in the Southeast Region.

The dock-side sampling for this program is conducted at ports located in coastal areas in the South Atlantic (North Carolina through Florida Keys) and Gulf of Mexico as well as Puerto Rico and the US Virgin Islands. When the catch is intercepted it is sampled on a random basis. Sampling is done according to the market categories that make up the landings. A market category is any combination of species, species group, or size that occurs within the catch and is distinctly marketed (i.e., large red snapper, groupers, porgies). The TIP protocol is to obtain 30 length measurements in each sample. The entire catch of a market group will be sampled if it is less than 30 individuals. In the case of large catches where there is a variety in sizes for a species the sampler may take up to 50 length measurements in a sample.

When hard parts or tissue samples are taken, they are processed according to established procedures and sent to either the Panama City Laboratory or the Beaufort Laboratory for analysis. The age, reproductive maturity, sex and other life history data are entered into databases maintained by the individual Laboratories.

Tip data entry

Once a port agent returns after an interview, they enter the data into the TIP database using the TIP Online interface. The first screen collects basic data on the interview, such as date, landings location, sampling location, vessel number, fishing mode, type of interview, days out and days fished (Figure 1). If effort information were collected, this information is entered on the effort screen (Figure 2). Each effort record is tied to the interview with the interview number. If landings data were collected, the agent enters the landings information in the landings screen (Figure 3). Each species, market, grade, condition and weight is entered on this screen. In the past, if no landings information was available, the port agent created a dummy record with no weight to attach to the sample. Currently, samplers are strongly encouraged to collect landings information for each interview. The sampler begins entry of the sample information by selecting the landings record from which the sample was drawn (Figure 4). This creates a link between the weight of the landings and the sample. This link allows for weighting of the sample by the appropriate landings. The sampler then enters the size of the sample for each species, market and grade as well as the type of sampling used (sampled from unsorted catch, sorted catch, etc.). The sampler then enters the information

collected from each fish in the observation screen (Figure 5). The port agent begins by selecting the sample from which the individual fish was derived, which is then saved in the individual length data. The port agent then enters the species, size, grade, sex, length, type of length, length measurement type, weight, weight type and enters information otolith or tissue samples if taken. After all information is entered the data is saved and is written to Oracle tables on the SEFSC server.

TIP data used for length frequencies

Biological sample data were obtained from the TIP sample data at NMFS/SEFSC. Data were filtered to eliminate those records that included a size or effort bias, non-random collection of length data, were not from commercial trips, fish were selected by quota sampling or the data was not collected shore-side. These data were further limited to those that could be assigned a year, gear, and state. Data that had an unknown sampling year, gear, or sampling state were deleted from the file. These data must be weighted by trip, so where no trip landings data were available, the sample was excluded. TIP data must also be weighted spatially by the landings for the particular year, state and gear stratum. TIP data were joined with landings data by year, gear, and state. Landings data were also limited to only those data that could be assigned a year, gear, and state. Landings and biological data were assigned a state based on landing location or sample location if there was no landing location assigned.

Reason for weighting samples

Although every attempt is made to standardize sampling, different locations may require deviation from TIP protocols, so there may be differences in the methods used to collect samples. These differences could create biases when using raw length frequencies (Chih, 2006). First, there may differences in sampling fractions between trips due to the sampling environment or time limitations that differ in each location. A small catch may have all the fish sampled and a large catch may have equal or fewer fish sampled, resulting in a smaller proportion of the fish sampled. If we use the raw lengths, then the overall length distribution will overemphasize the lengths from the small catch. For example, if small catches for some reason have larger fish than large catches, this would result in a length distribution shifted toward larger fish than were actually present in the universe of fish landed. To correct for this type of bias, we weight the samples by the catch from which the sample was drawn for each trip, so the lengths from a large catch contribute more to the overall length composition than those from a small catch.

Second, there may be differences in sampling intensity between areas. North Carolina may sample more trips than South Carolina, resulting in more fish sampled in NC even though SC may have more landings. Using raw length data to develop a length composition would bias the length composition toward samples obtained in NC. If there happens to be a size difference between fish landed in NC and those in SC, then the sample will not be representative of the overall landings and will be biased toward the sizes of fish landed in NC. To correct this bias we weight the samples by the total landings in each state, so the proportion of the lengths included in the length composition are proportional to the landings from each area.

Using the weighting methods established in SEDAR 10 and used in SEDAR 15 and 19 (SEDAR, 2006; SEDAR, 2008a; SEDAR, 2008b; SEDAR, 2010a; SEDAR, 2010b), the

length compositions were weighted by the product of the landings in numbers for the year, state, and gear stratum and trip catch in numbers.

Landings used for weighting

Black sea bass landings were compiled by the commercial working group during the Data Workshop. Landings by year, state and gear were used to weight the length composition samples.

Sampling frequency

The number of trips sampled ranged from a high of 116 for hand line gear in 2005 to a low of zero for many strata (Table 1). The number of trips sampled was consistently greater than 10 trips for hand line gear from 1984-2010, and pots and traps for 2005-2010. Trips using trawl and other gear were rarely sampled. Table 3 displays number of trip that caught black sea bass, number of trips targeting black sea bass, number of valid samples and number of samples used (trip weights available).

The number of fish sampled had a high of 2,218 for pot and trap gear in 2009 to lows of zero for many of the strata (Table 2). The number of lengths sampled was consistently greater than 100 for hand line gear for 1984-2010. Pot and trap lengths sampled were well above 100 lengths per year for most years, excluding 1985, 1986, 1995-1997, and 1999. For trawl and other gears, the numbers of length samples available were below 100 for most years. Table 4 displays the number of valid samples and number of samples used (trip weights available).

Length distributions

All lengths were converted to TL in mm using the formula provided in the Black Sea Bass SEDAR Update #1 (SEDAR, 2006) and binned into one centimeter groups with a floor of 0.6 cm and a ceiling of 0.5 cm. Length was converted to weight (whole weight in pounds) using conversions provided by the life history group. The length data and landings data were divided into hand line, traps, trawl and other gears. Length compositions were weighted by the trip landings in numbers and the landings in numbers by strata (state, year, gear). Annual length compositions of black sea bass are summarized in Figures 6-9.

Landings in numbers

The weight in pounds for each sample was calculated and the mean weight by gear and year (weighted by weight of fish in the sample at length in pounds whole weight, trip weight in pounds whole weight and landing weight in pounds whole weight) were calculated. Where the sample size was less than 20, the mean across all years for that gear was used (Table 3). The landings in pounds whole weight were then divided by the mean weight for that stratum to derive landings in numbers (Table 4).

Adequacy for characterizing catch

Length sampling has been inadequate for gears other than hand line and pots and traps. Sampling fractions are less than 0.05 for many years in the hand line and long line gear categories. Sample size needs to be paid particular attention when using the length compositions. Length sampling fractions are displayed in Table 5. The number of samples for trawl and other gears may indicate that length compositions for these gear categories should be supplemented with hand line and pot and trap length compositions to obtain a reasonable sample size.

Literature Cited

Chih, C. 2006. Effect of Some Variations in Sampling Practices on the Length Frequency Distribution of Gag Groupers Caught by Commercial Fisheries in the Gulf of Mexico (<http://www.sefsc.noaa.gov/sedar/download/S10DW23%20TIP%20sampling.pdf?id=DOCUMENT>).

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SEDAR. 2010b. SEDAR 19 Stock Assessment Report 1: South Atlantic Red Grouper. (http://www.sefsc.noaa.gov/sedar/download/Red_grouper_SAR_FINAL.pdf?id=DOCUMENT).

Table 1. Number of trips from logbooks landing any amount of black sea bass, where sea bass was targeted (black sea bass was at least 30% of catch) and the number of trips with valid samples (no biases) and number of trips with samples usable for analysis (trip weights available) by year and gear. No data is available specific to trawl gear from the Coastal Logbook Program.

YEAR	HAND LINES				POTS				TRAWL				OTHER			
	ALL LOGBOOK	LOGBOOK TARGET	TRIPS WITH VALID SAMPLES	TRIPS WITH SAMPLES FOR ANALYSIS	ALL LOGBOOK	LOGBOOK TARGET	TRIPS WITH VALID SAMPLES	TRIPS WITH SAMPLES FOR ANALYSIS	ALL LOGBOOK	LOGBOOK TARGET	TRIPS WITH VALID SAMPLES	TRIPS WITH SAMPLES FOR ANALYSIS	ALL LOGBOOK	LOGBOOK TARGET	TRIPS WITH VALID SAMPLES	TRIPS WITH SAMPLES FOR ANALYSIS
1983			6	6			7	7			0	0			0	0
1984			66	66			9	9			1	1			1	1
1985			56	56			0	0			0	0			3	2
1986			45	45			0	0			0	0			1	1
1987			50	50			5	5			1	0			2	2
1988			52	52			12	12			1	1			1	1
1989			30	30			3	3			0	0			1	1
1990			43	43			9	9			0	0			1	1
1991			46	46			8	7			0	0			5	3
1992	1,089	147	26	26	532	519	5	5			0	0	55	**	1	1
1993	2,220	257	32	32	929	905	2	2			0	0	92	**	0	0
1994	2,776	353	41	41	1,104	1,085	3	3			0	0	105	**	1	1
1995	2,233	279	39	39	898	880	0	0			0	0	107	**	0	0
1996	2,092	251	23	23	1,099	1,083	0	0			0	0	118	6	0	0
1997	2,429	360	17	17	1,267	1,240	0	0			1	1	152	10	2	2
1998	2,435	256	20	20	1,145	1,140	1	1			0	0	204	16	1	1
1999	1,891	254	42	42	1,020	1,005	0	0			0	0	149	14	1	1
2000	1,535	182	47	47	807	784	3	3			0	0	143	22	3	3

YEAR	HAND LINES				POTS				TRAWL				OTHER			
	ALL LOGBOOK	LOGBOOK TARGET	TRIPS WITH VALID SAMPLES	TRIPS WITH SAMPLES FOR ANALYSIS	ALL LOGBOOK	LOGBOOK TARGET	TRIPS WITH VALID SAMPLES	TRIPS WITH SAMPLES FOR ANALYSIS	ALL LOGBOOK	LOGBOOK TARGET	TRIPS WITH VALID SAMPLES	TRIPS WITH SAMPLES FOR ANALYSIS	ALL LOGBOOK	LOGBOOK TARGET	TRIPS WITH VALID SAMPLES	TRIPS WITH SAMPLES FOR ANALYSIS
2001	1,772	155	73	73	1,076	1,063	2	2			0	0	108	**	4	4
2002	1,714	160	61	61	778	757	6	6			0	0	105	7	1	1
2003	1,379	146	53	53	762	756	7	7			0	0	93	10	3	3
2004	1,446	158	98	98	804	803	8	8			0	0	115	13	4	4
2005	1,378	108	116	116	571	566	16	16			0	0	106	7	0	0
2006	1,344	114	98	98	738	726	26	26			0	0	93	6	5	5
2007	1,245	95	93	93	583	567	47	47			0	0	134	8	2	2
2008	1,341	95	90	90	513	504	79	79			0	0	106	7	3	3
2009	1,541	145	71	71	721	717	89	89			0	0	133	7	15	15
2010	847	89	91	91	342	342	74	74			0	0	93	**	14	14

**=data deemed confidential have been removed.

Table 2. Number of length samples used for analysis and number of valid (no biases) length samples collected by year and gear.

YEAR	GEAR							
	HANDLINE		POTS		TRAWL		OTHER	
	SAMPLES USED	VALID SAMPLES	SAMPLES USED	VALID SAMPLES	SAMPLES USED	VALID SAMPLES	SAMPLES USED	VALID SAMPLES
1983	54	55	258	278	0	0	0	0
1984	1,528	1,801	757	857	29	29	13	13
1985	1,248	1,428	0	305	0	0	3	16
1986	695	1,402	0	893	0	0	23	23
1987	804	1,321	694	694	0	19	20	20
1988	814	1,029	1,080	1,498	6	6	12	12
1989	695	715	265	369	0	0	5	5
1990	1,140	1,376	770	770	0	0	6	77
1991	812	1,686	470	1,205	0	0	59	120
1992	404	1,375	477	1,556	0	0	12	26
1993	398	1,096	115	667	0	0	0	371
1994	570	1,110	250	1,463	0	0	4	120
1995	235	710	0	352	0	0	0	0
1996	239	819	0	506	0	0	0	0
1997	149	1,098	0	873	1	1	261	261
1998	184	1,687	319	428	0	0	3	3
1999	802	1,746	0	868	0	0	1	3
2000	410	1,047	416	448	0	0	208	209
2001	937	1,896	268	435	0	0	404	406
2002	1,039	1,569	916	4,044	0	0	4	4
2003	394	985	1,238	7,513	0	0	28	35
2004	1,527	2,314	1,015	1,248	0	0	14	18
2005	1,339	1,603	670	712	0	0	0	0
2006	1,214	1,636	1,115	1,571	0	0	57	66

YEAR	GEAR							
	HANDLINE		POTS		TRAWL		OTHER	
	SAMPLES USED	VALID SAMPLES	SAMPLES USED	VALID SAMPLES	SAMPLES USED	VALID SAMPLES	SAMPLES USED	VALID SAMPLES
2007	860	1,039	1,958	2,915	0	0	2	13
2008	629	795	1,945	2,281	0	0	9	11
2009	622	922	2,218	3,015	0	0	222	223
2010	631	636	1,883	1,881	0	0	284	299

Table 3. Mean weights in pounds whole weight used to derive landings in numbers by year and gear.

YEAR	GEAR			
	HAND LINES	POTS AND TRAPS	TRAWL	OTHER
1983	1.095	0.803	1.553	1.006
1984	1.230	0.941	1.553	1.006
1985	1.319	1.110	1.553	1.006
1986	1.338	1.110	1.553	1.006
1987	1.484	1.173	1.553	1.006
1988	1.151	1.075	1.553	1.006
1989	1.335	1.116	1.553	1.006
1990	1.014	0.993	1.553	1.006
1991	1.190	1.009	1.553	1.860
1992	1.108	0.836	1.553	1.006
1993	1.207	0.842	1.553	1.006
1994	1.435	1.296	1.553	1.006
1995	1.779	1.110	1.553	1.006
1996	1.480	1.110	1.553	1.006
1997	1.321	1.110	1.553	0.937
1998	1.359	0.854	1.553	1.006
1999	1.307	1.110	1.553	1.006
2000	1.364	1.090	1.553	1.122
2001	1.307	1.063	1.553	1.065
2002	1.444	1.090	1.553	1.006
2003	1.338	0.902	1.553	1.006
2004	1.288	0.931	1.553	1.006
2005	1.444	1.120	1.553	1.006
2006	1.565	1.246	1.553	0.752
2007	1.563	1.246	1.553	1.006
2008	1.349	1.194	1.553	1.006
2009	1.545	1.182	1.553	0.843
2010	1.636	1.214	1.553	0.901


Table 4. Commercial landings by gear and year in numbers (thousands).

YEAR	GEAR			
	HAND LINES	POTS AND TRAPS	TRAWL	OTHER
1983	133.099	599.605	5.489	11.579
1984	158.182	432.278	11.444	4.554
1985	124.389	354.546	15.338	2.324
1986	122.001	450.628	14.385	3.284
1987	100.624	341.867	4.812	2.826
1988	205.604	475.877	13.632	0.589
1989	186.136	462.053	8.680	0.833
1990	255.049	685.797	8.740	5.041
1991	224.578	604.215	2.837	10.486
1992	206.130	640.878	4.467	6.229
1993	156.680	592.696	3.327	42.105
1994	149.862	399.931	1.379	24.521
1995	78.300	368.464	1.367	22.007
1996	86.384	457.003	0.969	10.381
1997	123.439	477.884	0.159	13.635
1998	163.751	509.825	1.903	5.543
1999	143.392	447.721	1.371	14.152
2000	67.750	372.364	0.398	7.608
2001	67.959	460.629	0.120	31.465
2002	68.518	380.909	0.078	12.180
2003	69.249	533.940	0.063	27.426
2004	83.727	671.095	0.050	3.390
2005	47.080	341.704	0.060	5.278
2006	41.569	384.327	0.049	7.431
2007	36.544	280.010	0.044	1.795
2008	43.749	298.012	0.052	6.148
2009	72.404	454.635	0.254	192.293
2010	68.201	292.598	1.093	45.892

Table 5. Commercial length sampling fractions by gear and year.

YEAR	GEAR			
	HAND LINES	POTS AND TRAPS	TRAWL	OTHER
1983	0.000	0.000	0.000	0.000
1984	0.010	0.002	0.003	0.004
1985	0.010	0.000	0.000	0.001
1986	0.006	0.000	0.000	0.011
1987	0.008	0.002	0.000	0.008
1988	0.004	0.002	0.000	0.006
1989	0.004	0.001	0.000	0.002
1990	0.004	0.001	0.000	0.002
1991	0.004	0.001	0.000	0.041
1992	0.002	0.001	0.000	0.008
1993	0.003	0.000	0.000	0.000
1994	0.004	0.001	0.000	0.000
1995	0.003	0.000	0.000	0.000
1996	0.003	0.000	0.000	0.000
1997	0.001	0.000	0.006	0.026
1998	0.001	0.001	0.000	0.000
1999	0.006	0.000	0.000	0.000
2000	0.006	0.001	0.000	0.159
2001	0.014	0.001	0.000	0.148
2002	0.015	0.002	0.000	0.001
2003	0.006	0.002	0.000	0.023
2004	0.018	0.002	0.000	0.015
2005	0.028	0.002	0.000	0.000
2006	0.029	0.003	0.000	0.030
2007	0.024	0.007	0.000	0.003
2008	0.014	0.007	0.000	0.004
2009	0.009	0.005	0.000	0.069
2010	0.009	0.006	0.000	0.060

NOAA - SEFSC Trip Interview Program


TIP Online
 Ver 1.0

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User: DGLOECKN

Trip Data Entry

[Delete](#)
[Save](#)
[Cancel](#)

[Interview](#)
[Effort¹](#)
[Landing³](#)
[Sample³](#)
[Observation⁷](#)

Interview Number: 201118FL312465 **Status:** Valid

Agency: **NMFS-SER** Agent: **HMILLER** 0) Interview Date: 2011-05-02

1) Fishing Mode: **COMMERCIAL** Information Source: **SITE SAMPLING** Interview Type: **FISHERMAN SAMPLE**

LANDING AREA

2) State: **FL** County: **087** Place Code: **68800**

SAMPLING AREA

3) State: **FL** County: **087** Place Code: **68800** Dealer: **99999999**

TRIP INFORMATION

4) # of Vessels: **1** Trip #: **1** Landing Type: **COMPLETE LANDINGS** ☒ Effort Data Collected

5) Crew: **2** Bias Type: **NO BIAS KNOWN** Termination: **NORMAL**

TIME OF DATA COLLECTION **TRIP DATES**

6) Begin: 9:30 End: 10:30 Start: 2011-04-27 End: 2011-05-02 Days Out: **5** Days Fished: **4**

VESSEL INFORMATION

7) License Agency: **Select a value** Individual License #: Vessel #: **99999999** New Vessel Name:


8) Ticket Agency: **Select a value** Trip Ticket #: Agent Username Id: **HMILLER** Is Checked?: **NO**

9) Comments: **MARGELITA@ REBECCA** Checker: Checked date:

[Delete](#)
[Save](#)
[Cancel](#)
[Finish](#)

Figure 1. Screen shot of the interview screen as presented during data entry to TIP Online.

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User: DGLOECKN

Trip Data Entry

[Interview](#) [Effort](#) [Landing³](#) [Sample³](#) [Observation⁷](#)

Interview Number: 201118FL312465 Status: Valid

Rec#	Id	Gear	Qty	Freq	Size	Status
1	374710	610	2			Valid

[+](#)

EFFORT INFORMATION

0) Gear 610	1) Qty 2	2) Usage/Freq 	3) Size 	4) Gear Avg Info 1
	5) Number Set 	6) Total Line Length 	7) Avg Miles per Set 	8) Soak Time

POSITIONING INFORMATION

AREA		GLOBAL POSITION	
9) Region GULF	A) Area 2.9	Q) Quadrant T) 10 min 4	Lat Hemisphere North Long Hemisphere West
			L) Lat Degree Long Degree
			Lat Min Long Min
			Lat Sec Long Sec


D) Distance to Shore
M) Min or Avg Depth
X) Maximum Depth

Comment
REBECCA

[Hide](#) [Delete](#) [Save](#) [Cancel](#) [Finish](#)

Figure 2. Screen shot of the effort screen as presented during data entry to TIP Online.

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Trip Data Entry

[Interview](#) [Effort¹](#) [Landing](#) [Sample³](#) [Observation⁷](#)

Interview Number: 201118FL312465 Status: Valid

Rec#	Id	Rep	Gear	Area	Region	Species	Mkt Species	Qty	Weight	Unit	Status
1	1140297	3	610	2.9	5	YELLOWTAIL SNAPPER,OCYURUS CHR	3767	350	4	Valid	
2	1140296	2	610	2.9	5	YELLOWTAIL SNAPPER,OCYURUS CHR	3767	900	4	Valid	
3	1140295	1	610	2.9	5	YELLOWTAIL SNAPPER,OCYURUS CHR	3767	700	4	Valid	

Navigation: [Previous](#) [First](#) [Next](#) [Last](#) [Add](#)

0) Gear: 610

1) Region: GULF

2) Area: 2.9

3) Market Species: 3767

4) Size: SMALL OR 3

5) Grade: NO GRADE

6) Qty:

7) Weight: 700

8) Unit: POUNDS

9) Condition: UNGRADED








Market Counts: M) Min: X) Max:

Comment:

[Hide](#) [Delete](#) [Save](#) [Cancel](#) [Finish](#)

Figure 3. Screen shot of the landing screen as presented during data entry to TIP Online.

NOAA - SEFSC Trip Interview Program






 **TIP Online** Ver 1.0       User: DGLOECKN

Trip Data Entry Hide Delete Save Cancel



Interview **Effort¹** **Landing³** **Sample** **Observation⁷**





Interview Number: 201118FL312465 Status: Valid





Rec#	Id	Rep	Samp#	S. Method	Full Catch	Species	Code	Size	Status
1	710824	3	1	2	0	YELLOWTAIL SNAPPER,OCYURUS CHR	3767	69	Valid
2	710823	2	1	2	0	YELLOWTAIL SNAPPER,OCYURUS CHR	3767	46	Valid
3	710822	1	1	2	0	YELLOWTAIL SNAPPER,OCYURUS CHR	3767	52	Valid

Navigation:     





SAMPLE INFORMATION

0) Landing 1140295  1) Species 3767 

2) Size SMALL OR 3  3) Grade NO GRADE  4) Sample Method LANDED SORTED  5) Full Catch? No 

6) Condition UNGRADED  7) Weight  8) Unit Select a value  9) Count/Qty 2  ☒ R) Random Sample

SUB-SAMPLE INFORMATION


W) Weight  U) Unit Select a value  K) Condition  Q) Count/Qty  ☐ B) Random Sub-Sample

Comment:

Hide Delete Save Cancel Finish

Figure 4. Screen shot of the sample screen as presented during data entry to TIP Online.

NOAA - SEFSC Trip Interview Program

 **TIP Online** Ver 1.0 [home](#) [data entry](#) [expert](#) [tools](#) [help](#) [logout](#) User: DGLOECKN

Trip Data Entry [Save](#) [Delete](#) [Cancel](#)

Interview **Effort¹** **Landing³** **Sample³** **Observation**

Interview Number: 201118FL312465 Status: Valid Observation: 5978892

0) Sample 1) Species 2) Size 3) Condition 4) Grade

710822 3767 SMALL OR 3 UNGRADED NO GRADE

5) Sex 6) Maturity Stage 7) #Fish X) Exact 8) Weight Unit 9) Sample Method W)Weight

MALE IMMATURE 1 EXACT NO WEIGHT LANDED SORTED 0

Length Information

Length Length Unit Length Type

25.7 CENTIMETERS FORK LENGTH

NO LENGTH NO LENGTH

Comment Section

Comments:

Sample Tagging Information

T)Tag Number	Sample Type	T)Tag Number	Sample Type
2011160 0433	OTOLITH	2011076	SCALES
2011076	SCALES	2011076	SCALES
2011076	SCALES	2011076	SCALES

Figure 5. Screen shot of the observation screen as presented during data entry to TIP Online.

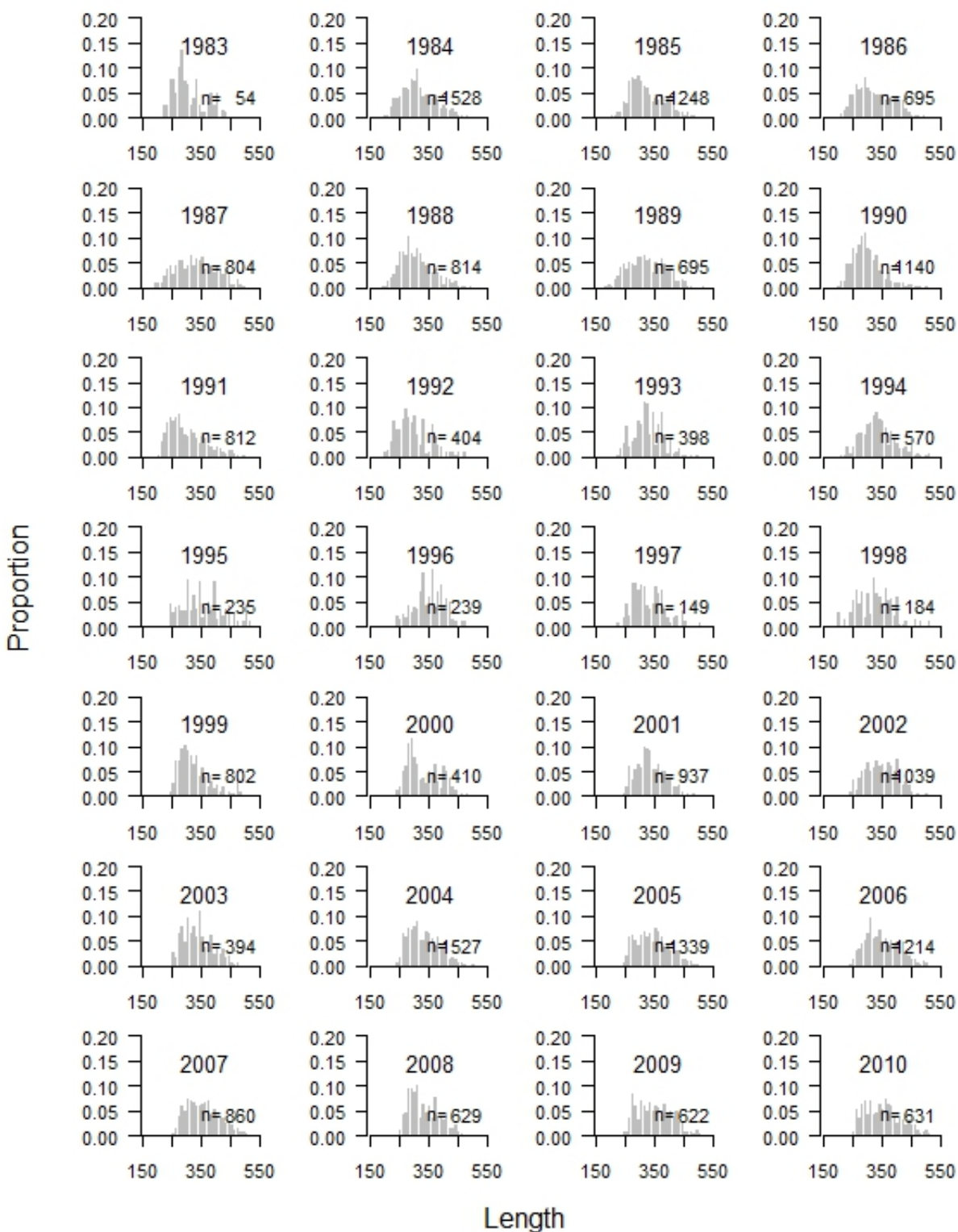


Figure 6. Relative length composition of commercial length (TL in mm) samples by year for hand line.

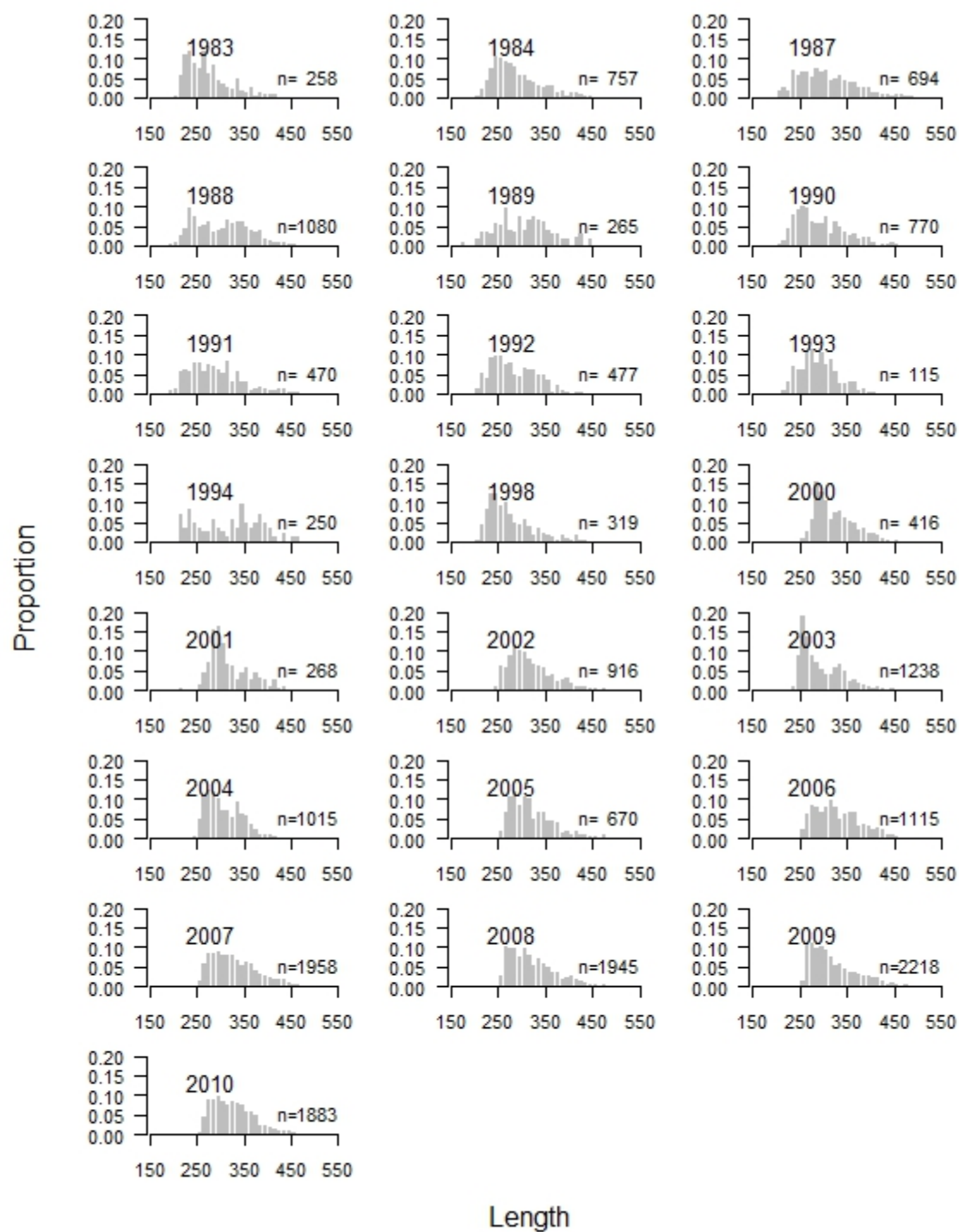


Figure 7. Relative length composition of commercial length (TL in mm) samples by year for pot and trap gear.

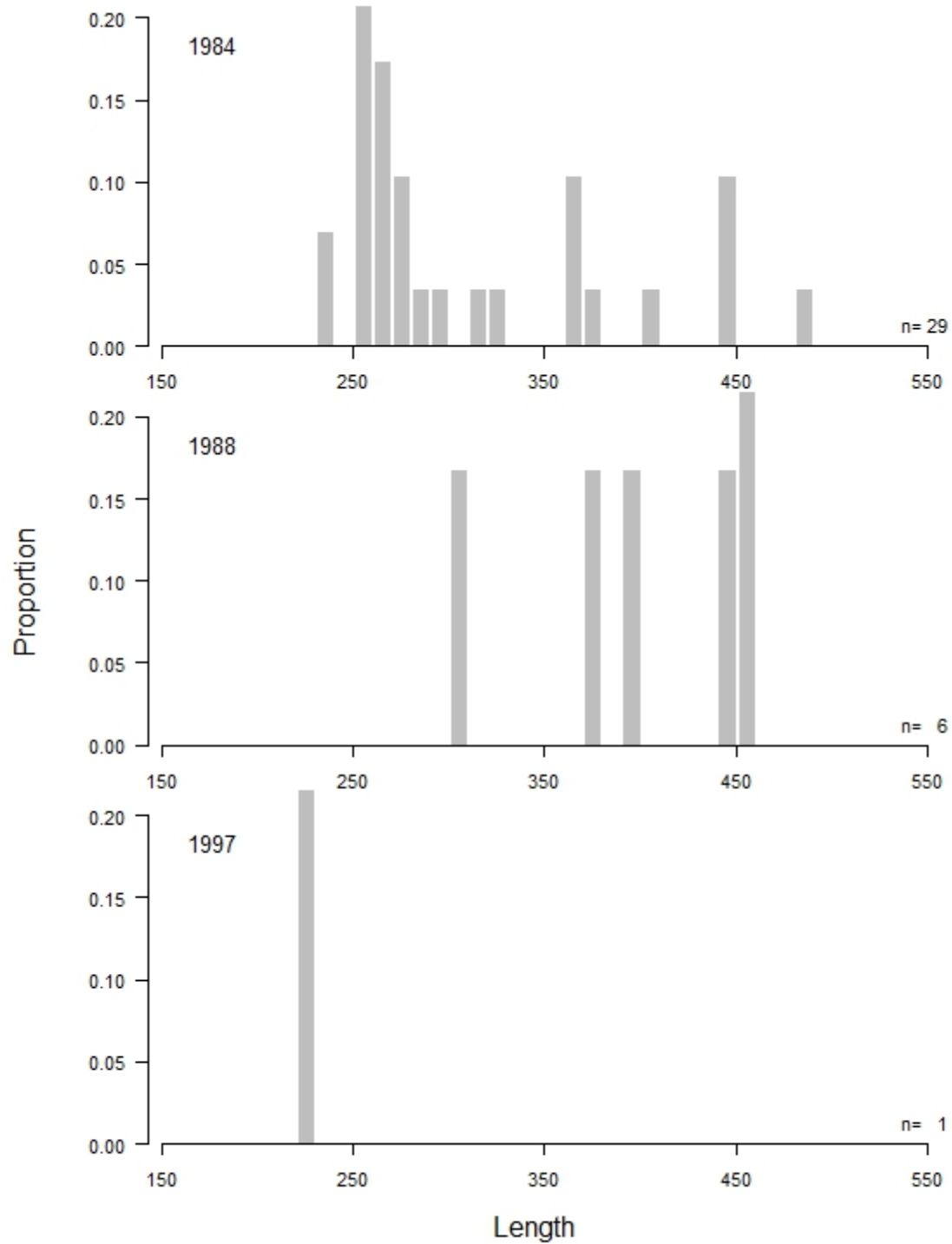


Figure 8. Relative length composition of commercial length (TL in mm) samples by year for trawl gear.

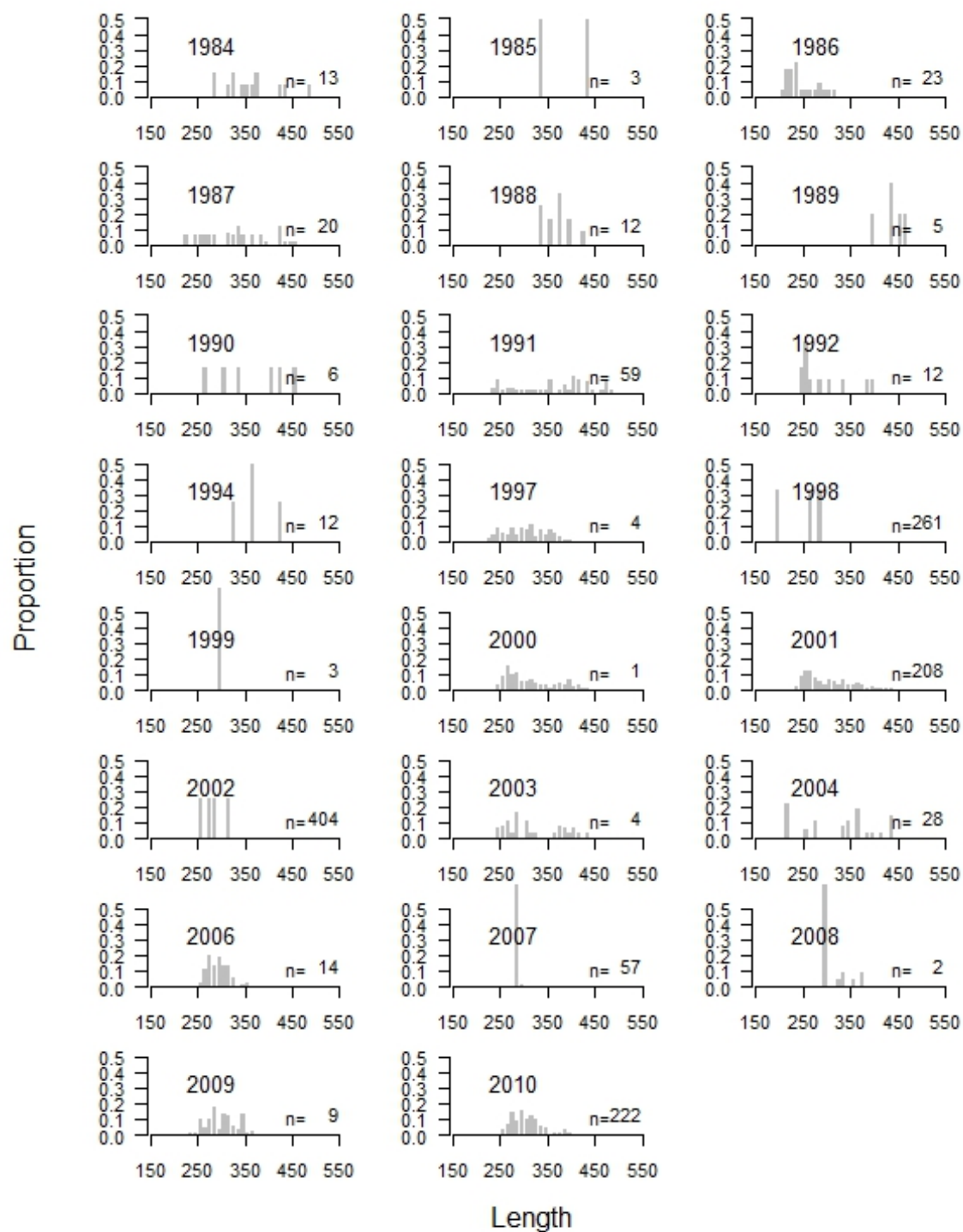


Figure 9. Relative length composition of commercial length (TL in mm) samples by year for other gear.