



# Technical Report

**Massachusetts Division of Marine Fisheries  
Technical Report TR-60**

**Summary of Recreational Fishery Data for  
Striped Bass Collected by Volunteer  
Anglers in Massachusetts**

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Executive Office of Energy and Environmental Affairs  
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Massachusetts Division of Marine Fisheries

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# **Summary of Recreational Fishery Data for Striped Bass Collected by Volunteer Anglers in Massachusetts**

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Matthew A. Beaton, Secretary  
**Department of Fish and Game**  
George N. Peterson, Jr., Commissioner  
**Massachusetts Division of Marine Fisheries**  
Paul Diodati, Director



**Abstract:** The Sportfish Data Collection Team (SADCT) program began in 2002 to solicit the help of volunteer recreational anglers in collecting biological data on striped bass encountered during fishing trips in Massachusetts waters. On average, 33 anglers have contributed samples each year. Some anglers have participated in all years of the study (2002-2013). Most contributing anglers (>50%) fished only from a boat or from both boat and shore. Samples came from anglers fishing primarily in the northern region (north of Cape Cod including Cape Cod Bay) of Massachusetts during 2002-2007. However, since then, more samples have come from anglers fishing in the southern region (south of Cape Cod including eastern side of Cape Cod). Since 2002, contributing anglers have collected 21,594 size and age samples. The size and age information collected by participating anglers was used directly in the coast-wide stock assessment for striped bass.

## Introduction

Striped bass (*Morone saxatilis*) is a popular marine fish species sought by recreational anglers in Massachusetts waters. As a result of over-exploitation of the adult spawning stock, the coast-wide striped bass abundance reached alarmingly low levels in the early 1980s, prompting interstate management regulations that severely restricted fishing (Richards and Rago 1999). After several years of stringent regulations, the Atlantic States Marine Fisheries Commission declared in 1995 that the Atlantic coast striped bass population had recovered (Field 1997; Richards and Rago 1999) as estimated female spawning stock biomass had increased from 5,100 metric tons in 1982 to around 60,000 metric tons by the mid-1990s (ASMFC 2013).

The current stock assessment methods for striped bass require that all sources of recreational fishery removals (number of harvested fish and released fish that die due to handling) are accounted for and that the age composition of these removals is determined. Prior to 2002, the only striped bass data collected in Massachusetts waters was done by the National Marine Fisheries Service's Marine Recreational Information Program (MRIP) (formerly Marine Recreational Finfish Statistical Survey, MRFSS). The MRIP survey estimates the number of striped bass that are harvested and released, and collects some size data on harvested striped bass. The Massachusetts Division of Marine Fisheries (*Marine Fisheries*) recognized the need to collect more size and age information on harvested and released striped bass. The Sportfish Angler Data Collection Team (SADCT) program was started in 2002 to solicit the help of volunteer recreational anglers to collect data during their fishing trips

in Massachusetts waters.

The objectives of this report are to describe the SADCT program and to summarize the characteristics of contributing anglers and the biological data of striped bass collected during the first twelve years (2002-2013) of the program.

## Description of Program from 2002-2013

The SADCT program was accomplished by volunteer recreational anglers who fished in Massachusetts waters. Volunteer anglers were recruited through presentations given by *Marine Fisheries* staff at local fishing clubs and various hunting/fishing expos. Interested anglers registered by form. Every March, registration forms were mailed to all existing volunteers, asking if they would participate in the upcoming fishing season. In April, supply packets which included coin envelopes for scale storage and directions on how to collect scales and record needed information were mailed to all participating anglers. Each coin envelope was pre-stamped with spaces for: collector name, date, species, total length (TL, inches), location, mode (shore or boat fishing), and disposition (released or harvested) of each fish. Anglers were instructed to collect samples from ten fish per month during May-October, and were asked to pick each randomly from fish caught on a given day. Five to ten scales per fish were collected from the area above the lateral line and below the second dorsal fin. Anglers were asked to return samples monthly. At the end of each fishing season, annual reports summarizing length, age, and geographic data collected were generated for each angler who contributed samples. Anglers were awarded a hat and t-shirt for the first two years of participation, and a bronze, silver, or gold pin

**Table 1. Yearly number of registered anglers, number of contributing anglers (those who returned samples), the percent of contributing anglers, and the gender and fishing mode composition of contributing anglers.**

Year	Registered Anglers	Contributing Anglers	Percentage Contributing	Gender (Percent)			Fishing Mode (Percent)			
				Female	Male	Both	Boat	Shore	Both	Unknown
2002	52	37	71.2	5.4	91.9	2.7	56.8	27.0	16.2	0.0
2003	94	70	74.5	2.9	95.7	1.4	60.0	17.1	22.9	0.0
2004	135	70	51.9	2.9	95.7	1.4	50.0	11.4	35.7	2.9
2005	103	61	59.2	3.3	95.1	1.6	25.5	19.7	27.9	0.0
2006	75	36	48.0	2.9	94.3	2.9	63.9	16.7	19.4	0.0
2007	73	38	52.1	3.3	93.3	3.3	55.3	18.4	26.3	0.0
2008	57	37	64.9	7.1	89.3	3.6	62.2	13.5	24.3	0.0
2009	83	35	42.2	2.8	97.2	0.0	68.6	11.4	20.0	0.0
2010	63	29	43.6	5.3	94.7	0.0	65.5	10.3	24.1	0.0
2011	56	35	62.5	2.7	97.3	0.0	54.3	20.0	25.7	0.0
2012	52	30	27.7	3.4	96.6	0.0	63.3	13.3	23.3	0.0
2013	42	28	66.7	0.0	100.0	0.0	64.3	10.7	25.0	0.0

**Table 2. Regional fishing locations of contributing anglers. N = North, S = South, C = Cape Cod Canal.**

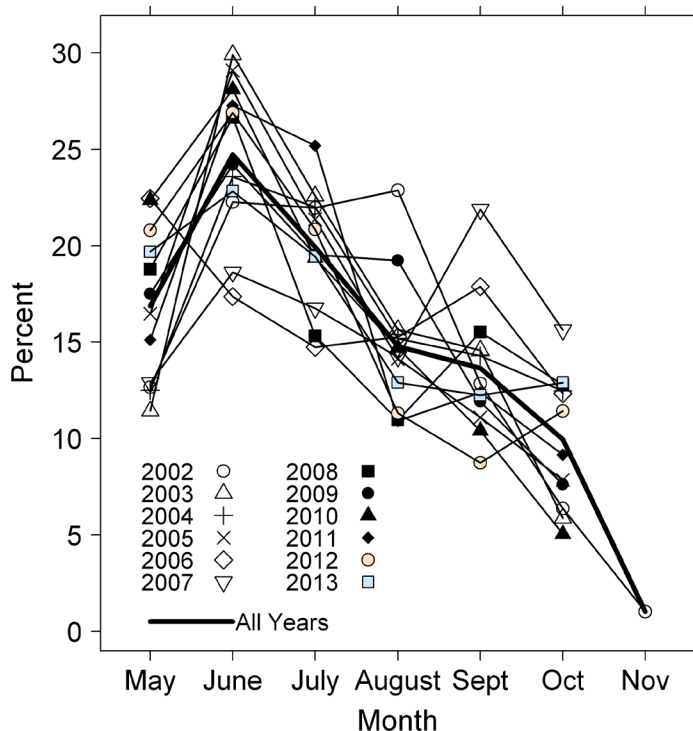
Year	Contributing Anglers	Region (Percent)							
		North	South	N/S	Canal	N/C	S/C	All	Unknown
2002	37	81.1	0.0	10.8	0.0	5.4	2.7	0.0	0.0
2003	70	71.4	7.1	14.3	0.0	2.9	0.0	2.9	1.4
2004	70	68.6	5.7	15.7	1.4	4.3	1.4	2.9	0.0
2005	61	73.8	4.9	13.1	0.0	6.6	0.0	1.6	0.0
2006	36	80.6	5.6	5.6	2.8	2.8	2.8	0.0	0.0
2007	38	73.7	7.9	10.5	2.6	2.6	2.6	0.0	0.0
2008	37	67.6	8.1	10.8	2.7	5.4	2.7	2.7	0.0
2009	35	60.0	11.4	71.1	2.9	5.7	0.0	2.9	0.0
2010	29	55.2	6.9	20.7	3.4	3.4	3.4	6.9	0.0
2011	35	48.6	25.7	8.6	2.9	0.0	2.9	11.4	0.0
2012	30	43.3	20.0	23.3	6.7	0.0	0.0	6.7	0.0
2013	28	57.1	10.7	17.9	0.0	0.0	3.6	7.1	3.6

**Table 3. Percentage of new anglers comprising the contributing anglers, and the mean, minimum, and maximum years of contributions by anglers.**

Year	Contributing Anglers	Percent New Anglers	Number of Years of Contributions		
			Mean	Minimum	Maximum
2002	37	100	1.0	1	1
2003	70	58.6	1.4	1	2
2004	70	24.3	2.1	1	3
2005	61	6.6	2.9	1	4
2006	36	2.8	3.9	1	5
2007	38	7.9	4.5	1	6
2008	37	8.1	5.1	1	7
2009	35	17.1	5.3	1	8
2010	29	10.3	6.7	1	9
2011	35	17.1	5.7	1	10
2012	30	3.3	6.5	1	11
2013	28	7.1	7.5	1	12

**Table 4. The numbers of anglers contributing samples by year and month.**

Year	May	June	July	August	September	October	November
2002	17	26	28	23	18	9	3
2003	28	56	52	40	37	17	0
2004	41	56	52	41	35	28	0
2005	31	50	43	36	28	16	0
2006	20	29	29	25	22	16	0
2007	23	31	27	25	30	21	0
2008	24	33	26	23	21	16	0
2009	22	27	26	26	20	11	0
2010	25	25	23	20	17	11	0
2011	24	27	27	21	22	11	0
2012	23	28	19	15	17	12	0
2013	18	21	19	20	20	15	0



**Figure 1. Percentage of total samples contributed monthly by anglers for each year and all years combined.**

for five, seven, or ten years, respectively, of participation. Anglers would also receive bronze, silver, or gold pins for collecting 300, 500, or 1,000 scale samples, respectively.

#### Data Processing

All angler and biological data were entered and stored in a

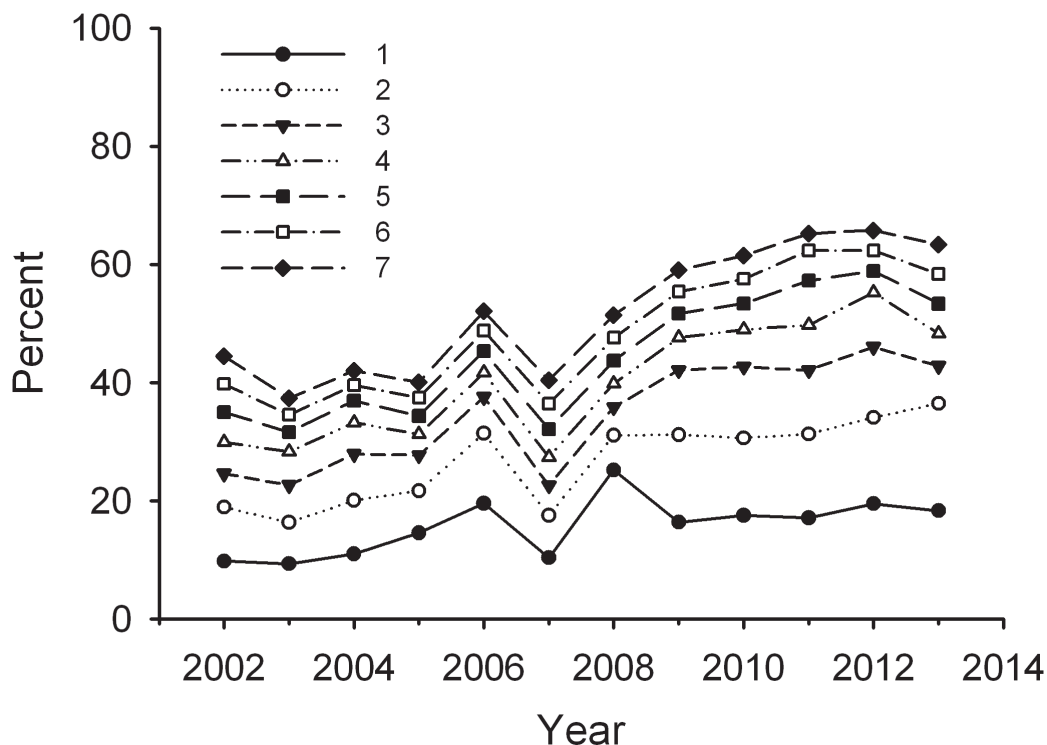
Microsoft Access database and quality control procedures were performed to check for inconsistencies. Any inconsistencies (e.g., unrealistically large fish or missing data) were removed from the database. Scales for aging were sub-sampled using a weighted random design based on the total number of striped bass caught in each wave and mode stratum (boat or shore) (as determined by MRIP) (Nelson 2013). Five scales from each fish were cleaned and pressed into an acetate slide. Age determination was made under a microfiche reader by an experienced striped bass age reader.

#### Angler Characteristics

The number of anglers who registered with the program ranged from 42 (2013) to 135 (2004) (Table 1). However, only about 42% (2009) to 74% (2003) of those registered contributed samples. Contributing anglers were mostly male (>89%) and the remaining percentages were comprised of female (<6%) anglers and those registered as a couple (husband and wife). Over 50% of the contributing anglers fished only from a boat, about 16%-36% fished from both shore and boat, and about 10%-27% fished only from shore, depending on year.

Most contributing anglers (>73%) fished only in the northern region (locations north of Cape Cod including Cape Cod Bay) of Massachusetts during 2002-2007 (Table 2). After 2007, the percentage of contributing anglers fishing only in the northern region declined to 43%-68%, as participation of anglers who fished only in the southern region (locations south of Cape Cod including eastern side of Cape Cod) or fished in both the northern and southern regions increased. Between 11% and 34% of the contributing anglers fished in multiple regions including Cape Cod Canal proper.

Except for the early years (2002-2004) of the SADCT pro-



**Figure 2. The percentage of total samples collected by the top one to seven contributing anglers in each year.**

**Table 5. The percentage of total samples collected by year and fishing mode; n = sample size.**

Year	n	Fishing Mode (Percent)			
		Boat	Shore	Both	Unknown
2002	988	55.2	13.6	31.3	0.0
2003	2250	27.2	7.2	35.6	0.0
2004	2905	39.3	5.7	45.8	9.2
2005	2344	43.5	12.9	43.6	0.0
2006	1711	65.5	16.2	18.4	0.0
2007	1504	48.5	9.6	42.0	0.0
2008	1534	71.0	7.9	21.1	0.0
2009	1628	67.3	3.9	28.7	0.0
2010	1605	70.3	2.3	27.4	0.0
2011	2164	66.6	2.5	30.9	0.0
2012	1751	44.0	2.6	53.5	0.0
2013	1210	55.2	1.9	42.9	0.0

**Table 6. The percentage of total samples collected by year and region; n = sample size, N = North, S = South, C = Cape Cod Canal.**

Year	n	Region (Percent)							
		North	South	N/S	Canal	N/C	S/C	All	Unknown
2002	988	73.1	0.0	10.2	0.0	6.9	9.8	0.0	0.0
2003	2250	70.7	6.4	11.0	0.0	4.8	0.0	7.1	<0.1
2004	2905	65.0	4.0	12.4	11.0	6.4	0.3	0.9	0.0
2005	2344	55.1	16.7	13.2	0.0	14.6	0.0	0.3	0.0
2006	1711	59.2	0.5	5.3	11.9	3.6	19.6	0.0	0.0
2007	1504	67.6	12.9	11.2	2.9	5.1	0.4	0.0	0.0
2008	1534	49.2	3.1	12.3	4.8	4.5	25.2	1.0	0.0
2009	1628	35.9	16.7	37.5	0.6	3.9	0.0	5.5	0.0
2010	1605	37.1	18.5	32.8	0.2	1.7	1.1	8.5	0.0
2011	2164	31.3	39.5	17.3	0.0	0.0	1.1	10.7	0.0
2012	1751	25.2	18.8	42.7	1.4	0.0	0.0	11.9	0.0
2013	1210	40.7	22.3	28.3	0.0	0.0	0.6	7.6	0.2

**Table 7. Percentage of total samples by disposition and year; n = sample size.**

Year	n	Disposition (Percent)		
		Harvested	Released	Unknown
2002	988	-	-	100.0
2003	2250	17.0	81.8	1.2
2004	2905	13.4	85.7	0.9
2005	2344	14.1	83.7	2.1
2006	1711	8.7	91.1	0.2
2007	1504	11.7	88.2	0.1
2008	1534	15.4	84.5	0.1
2009	1628	23.1	76.9	0.0
2010	1605	24.2	75.8	0.0
2011	2164	32.2	67.8	0.0
2012	1751	30.8	68.8	0.4
2013	1210	29.8	69.8	0.3



gram, the contributing anglers were comprised mostly of individuals who provided samples over multiple years. This is reflected in the low percentage of new anglers contributing samples each year after 2004, and in the increasing mean number of years of angler contributions (Table 3). Those anglers who repeatedly contributed did so in consecutive years. However, in several cases, gaps in participation ranging from one to four years, did occur. Three anglers have participated in all years of this study.

### Sample Contributions

The number of anglers contributing samples varied on a monthly basis. Participation peaked primarily in June and declined thereafter (Table 4). Only in the first year of the program were anglers actively returning samples in November.

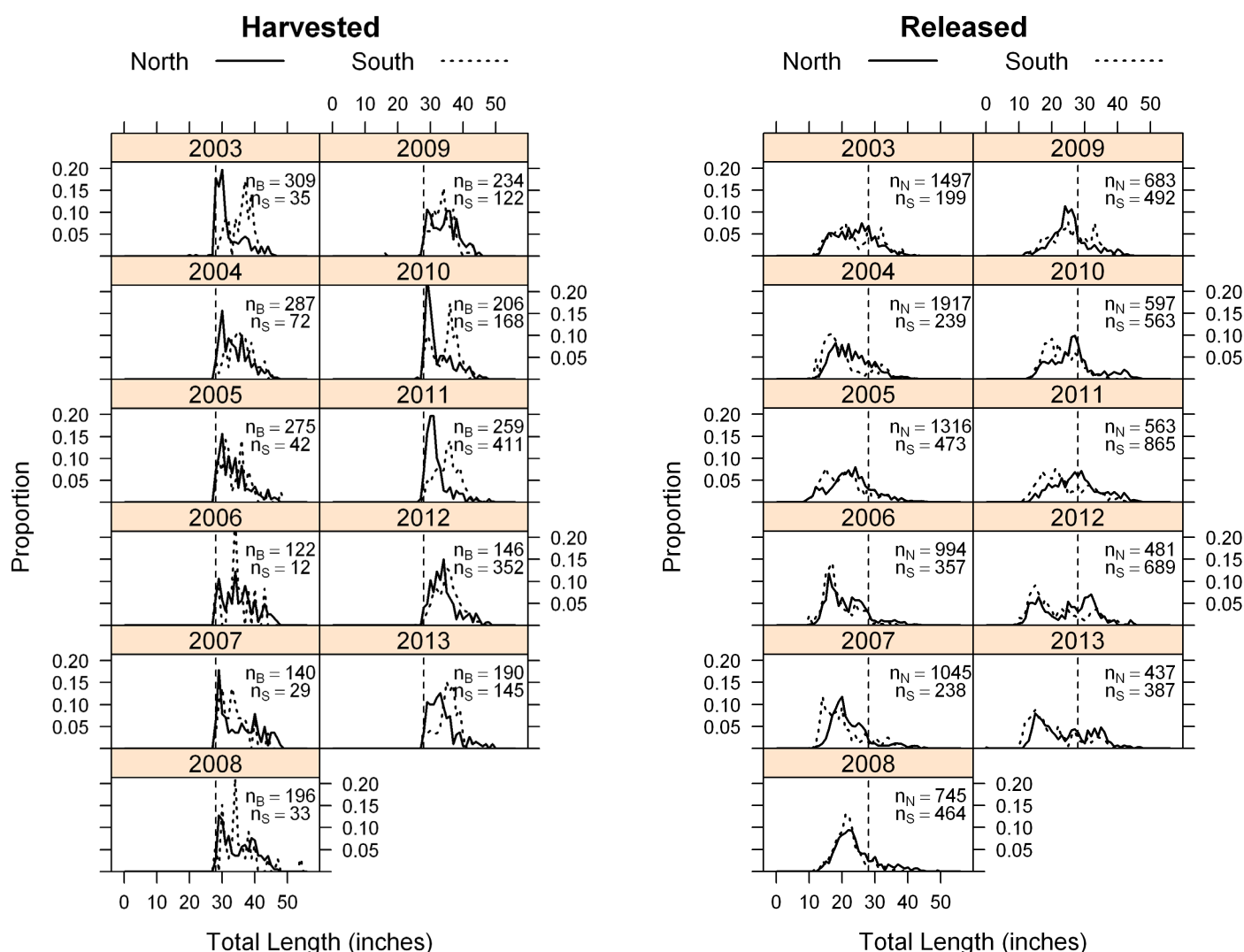
A total of 21,594 striped bass samples were collected by anglers during 2002–2013 (Table 5). The number of samples contributed each year ranged from 988 (2002) to 2,905 fish (2004). Most samples came from anglers who fished from a boat only or fished from a boat and shore. After 2008, <4% of the samples came from anglers who fished solely from shore.

From 2002-2007, most samples (>55%) came from anglers who fished in the northern region. After 2007, most samples came from anglers who fished only in the southern region, or who fished in both regions (Table 6).

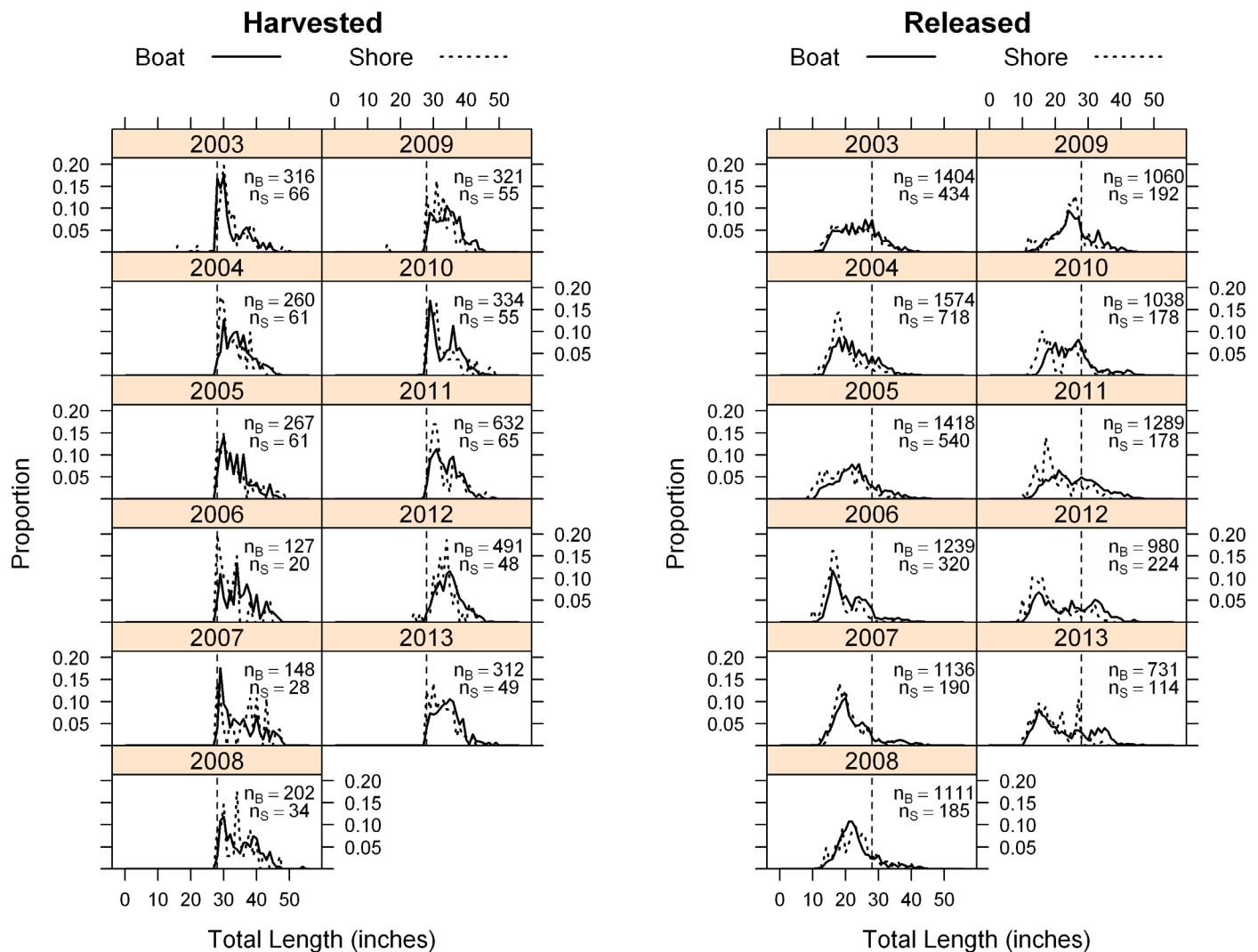
The number of samples collected by anglers varied on a monthly basis. In general, the percentage of samples contributed by anglers peaked generally in June and declined thereafter, reflecting the monthly angler participation trend described previously (Figure 1).

Samples were contributed disproportionately among anglers and the level of contributions changed over time. Prior to 2006, 22%-27% of the samples were contributed by three anglers in each year and about 37-44% were contributed by seven anglers (Figure 2). After 2006, contributions by three and seven anglers increased to an average of 43% and 64%, respectively, during 2010-2013, indicating a high percentage of samples came from a minority of anglers (Figure 2).

The majority (68%-91%) of samples returned by anglers were from striped bass released after capture (Table 7). However, the percentage of fish released declined over time.



**Figure 3.** Size frequencies of harvested and released striped bass collected from the North and South regions by year. The vertical dashed line represents the minimum size limit (28 inches TL) in Massachusetts.



**Figure 4.** Size frequencies of harvested and released striped bass collected from the North and South regions by year. The vertical dashed line represents the minimum size (28 inches TL).

### Biological Characteristics

**Size** Total lengths of striped bass reported by anglers as summarized in detail by region, mode, disposition and year in Table A1 (in Appendix). Total lengths of striped bass reported by anglers ranged from 8 to 56 inches TL. The size of striped bass harvested in the northern region averaged about 33.8 inches TL and the size of striped bass harvested in the southern region averaged about 34.8 inches TL, indicating slightly larger fish were harvested in the latter region. The size of striped bass released averaged 24.2 inches TL in the northern region and 21.9 inches TL in the southern region, indicating that, in general, smaller striped bass were released by anglers in the latter region (Figure 3).

In general, slightly larger striped bass were harvested by boat-based anglers (grand average size: 34.3 inches TL, range of averages: 32.5-35.3 inches TL) than by shore-based anglers (grand average size: 33.3 inches TL, average size range: 32.3-inches TL) (Figure 4). Smaller striped bass were released by shore-based anglers (grand average size: 20.7 inches TL, average size range: 17.7-24.1 inches TL) than by boat-based anglers (grand average size: 23.6 inches TL, average size range: 21.2-25.9 inches TL).

In general, lengths of striped bass harvested by anglers were

smallest in May (range of average sizes: 31.7-36.2 inches TL) and were largest in June (average size range: 31.9-35.2 inches TL) and July (average size range: 32.2-35.6 inches TL). Lengths of released striped bass reported by anglers were smallest in May (average size range: 18.3-25.1 inches TL) and October (average size range: 18.7-22.6 inches TL), and lengths were largest in June (average size range: 20.8-26.5 inches TL) and July (average size range: 21.9-27.6 inches TL) (Table 8).

**Age** Ages of striped bass scales collected by anglers are summarized in detail by region, mode, disposition, and year in Table A2. Unfortunately, not all scale samples could be read, due to ageing demands for other programs. Age was determined for 6,060 scale samples. The percentage of the total samples aged each year averaged 30% (range: 13%-53%) (Table 9). Striped bass scale-based ages ranged from 2 to 18 years and averaged 6.3 years-old (average age range: 5.7-6.7 years) (Table 9).

In general, older fish were caught by anglers fishing in the North than by anglers fishing in the South, reflecting the regional size differences discussed earlier. Overall average age of striped bass collected in the northern region was 6.6 years (average age range: 5.7-7.3 years), while overall average age in the southern region was 5.7 years (average age

**Table 8a. Sizes of striped bass harvested by anglers and summarized by year and month; n = sample size, Min = minimum, Max = maximum, SD = standard deviation.**

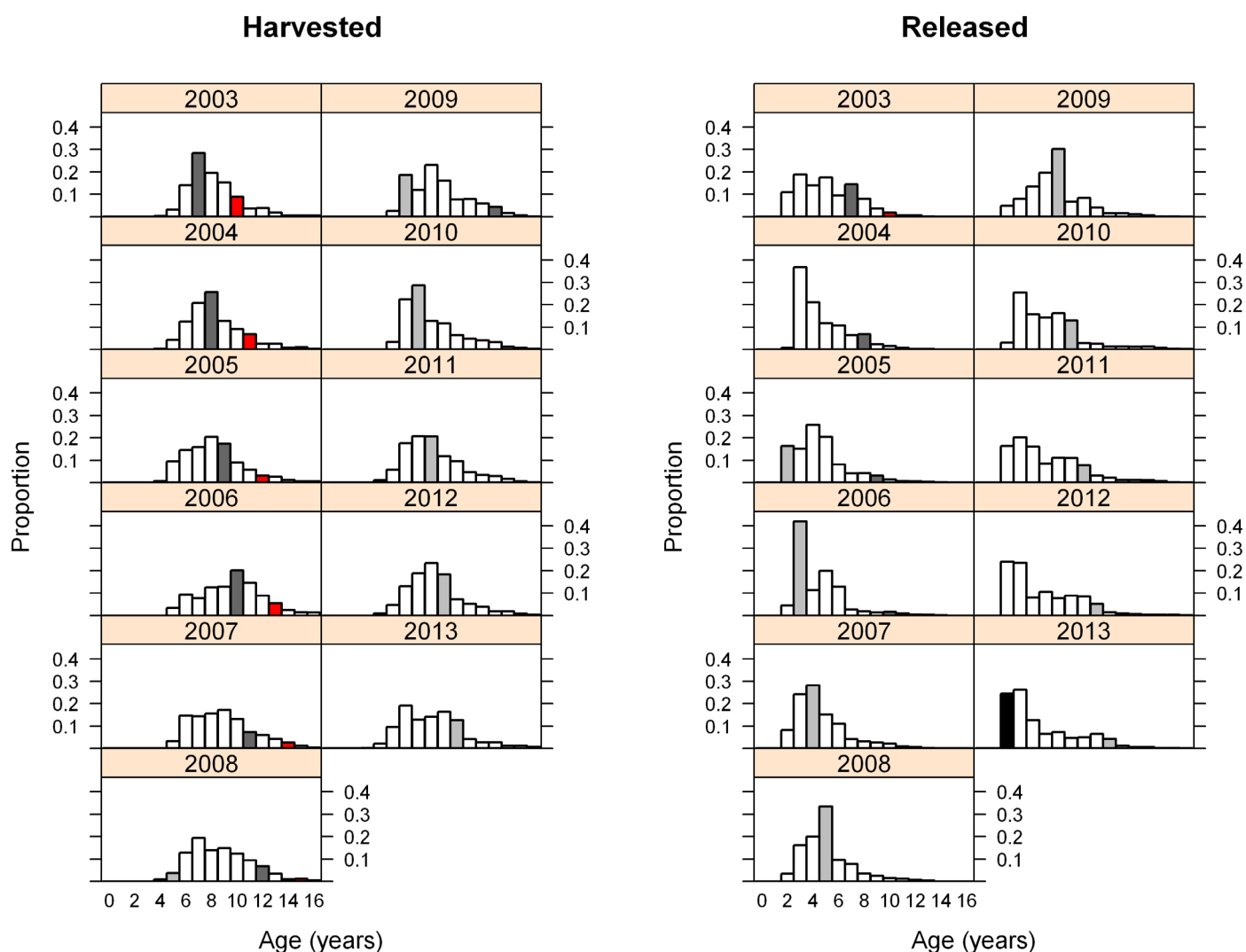
Year	May					June					July					August					September					October				
	n	Min	Max	Mean	SD	n	Min	Max	Mean	SD	n	Min	Max	Mean	SD	n	Min	Max	Mean	SD	n	Min	Max	Mean	SD	n	Min	Max	Mean	SD
2003	37	28	41	31.8	3.57	135	20	46	23.0	4.40	108	27	48	32.3	4.86	51	16	45	33.7	5.71	44	26	50	33.1	4.80	8	30	42	35.9	4.22
2004	40	29	44	35.2	4.12	130	28	45	34.4	4.32	101	28	45	33.9	4.11	57	28	43	32.9	4.11	45	28	47	35.2	4.44	15	28	46	34.3	5.67
2005	38	28	42	32.5	3.26	123	28	44	33.5	4.04	70	28	44	32.2	3.97	49	28	46	34.1	5.38	35	29	48	35.8	5.26	16	29	47	37.1	5.01
2006	28	28	47	35.3	4.82	30	28	43	33.8	4.22	38	28	45	35.6	4.98	28	28	46	35.9	5.40	18	28	45	33.0	5.76	6	29	39	34.7	3.50
2007	11	29	47	36.2	5.86	36	29	44	35.2	4.87	30	28	47	32.8	5.16	25	28	48	38.4	6.25	51	28	47	35.1	5.90	23	28	41	33.8	4.77
2008	25	28	40	33.4	3.87	61	28	45	34.2	5.05	50	29	46	34.8	4.70	30	28	47	34.5	4.70	54	39	45	36.4	4.46	16	28	54	38.3	8.06
2009	48	28	43	32.8	3.33	81	28	44	34.4	3.37	88	28	42	33.6	3.36	103	28	44	35.1	4.50	36	28	43	33.9	4.44	20	16	45	32.8	6.69
2010	43	26	42	31.7	3.40	90	28	48	31.9	4.38	94	28	43	35.0	4.12	93	28	45	34.5	4.00	58	28	47	33.0	4.84	11	28	43	34.2	5.81
2011	41	28	42	31.4	2.98	206	28	48	33.9	4.21	240	28	49	34.7	3.77	107	27	48	34.6	4.00	77	28	41	32.4	3.58	26	28	44	32.5	4.45
2012	83	28	41	33.0	3.07	172	24	48	34.9	4.22	164	28	42	35.4	3.45	69	30	47	36.5	3.76	35	26	44	33.1	3.94	17	29	41	33.9	4.16
2013	40	28	36	31.8	2.04	71	28	42	32.9	3.42	109	28	46	35.6	3.38	50	28	49	35.2	5.48	47	28	49	35.1	4.69	44	28	42	32.5	3.05

**Table 8b. Sizes of striped bass released by anglers and summarized by year and month; n = sample size, Min = minimum, Max = maximum, SD = standard deviation.**

Year	May					June					July					August					September					October				
	n	Min	Max	Mean	SD	n	Min	Max	Mean	SD	n	Min	Max	Mean	SD	n	Min	Max	Mean	SD	n	Min	Max	Mean	SD	n	Min	Max	Mean	SD
2003	214	10	36	21.1	6.03	527	10	42	24.8	6.17	393	12	43	25.0	6.26	301	14	44	23.6	6.09	282	13	40	23.3	5.86	124	15	36	22.6	4.55
2004	322	10	37	20.0	5.73	546	12	46	24.0	6.85	533	10	48	23.9	6.25	380	14	40	22.7	5.19	368	10	42	21.4	4.34	342	10	34	19.1	3.22
2005	348	9	36	20.4	6.29	537	9	45	23.7	6.58	416	10	46	22.4	6.23	282	11	43	22.1	6.73	212	12	45	21.7	5.87	168	14	39	20.3	6.37
2006	355	10	38	18.3	5.43	266	12	39	22.6	6.40	212	12	43	21.9	5.99	233	12	43	21.0	5.66	288	13	44	20.3	5.27	205	10	39	19.7	4.97
2007	183	12	42	20.4	4.97	243	12	43	22.8	6.82	222	10	56	22.6	6.03	189	13	42	21.7	5.43	278	10	46	23.5	7.10	212	13	41	19.9	4.73
2008	263	12	40	21.47	4.70	348	12	45	23.8	5.72	185	14	43	25.5	6.29	136	12	49	22.7	5.32	184	10	43	24.2	6.05	180	12	44	20.7	4.63
2009	237	12	41	25.1	4.70	313	11	41	26.2	6.48	230	12	42	25.3	5.28	210	14	43	27.2	5.76	158	13	45	25.7	6.69	104	14	43	22.0	5.90
2010	316	12	43	24.4	6.04	361	15	44	25.5	5.39	217	13	48	24.2	7.32	143	14	43	23.8	6.90	109	15	46	25.8	8.09	70	15	42	22.4	5.75
2011	286	10	40	22.2	6.54	384	10	47	26.5	7.16	305	13	45	27.6	7.16	129	13	46	26.4	8.38	191	13	46	23.9	6.34	172	12	43	22.2	6.50
2012	281	9	39	20.9	7.71	295	10	41	24.4	8.10	201	10	42	25.3	8.07	128	13	45	26.9	9.45	118	12	41	23.0	7.24	181	12	38	18.7	6.03
2013	198	10	37	21.8	7.32	205	11	42	20.8	8.08	124	12	38	23.5	8.42	105	13	44	24.4	8.55	100	13	47	23.7	9.14	112	13	43	22.4	6.25

**Table 9. Summary statistics of ages determined from scales by year; n = sample size, n<sub>aged</sub> = sample size aged, Percent = percentage of total aged, SD = standard deviation.**

Year	n	n <sub>aged</sub>	Age				SD
			Percent	Minimum	Maximum	Mean	
2002	988	450	45.5	2	15	5.7	2.71
2003	2,250	574	25.5	2	15	6.2	3.12
2004	2,905	388	13.4	2	17	6.7	3.38
2005	2,344	483	20.6	2	18	6.2	3.46
2006	1,711	418	24.4	2	18	6.5	3.23
2007	1,504	434	28.9	2	16	6.1	3.22
2008	1,534	398	25.9	2	16	6.4	3.06
2009	1,628	523	32.1	2	15	6.4	3.04
2010	1,605	544	33.9	2	16	6.6	3.24
2011	2,164	566	26.2	2	16	6.3	3.51
2012	1,751	624	35.6	2	17	6.0	3.43
2013	1,210	648	53.6	2	17	5.9	3.30



**Figure 5. Age composition of striped bass harvested and released by Massachusetts anglers. The 1993, 1996, 2003, and 2011 year-classes are highlighted in red, dark gray, and black, respectively.**

**Table 10. Summary statistics of ages determined from scales by year and region; n = sample size, SD = standard deviation.**

Year	North					South				
	n	Minimum Age	Maximum Age	Mean Age	SD Age	n	Minimum Age	Maximum Age	Mean Age	SD Age
2002	408	2	15	2.7	2.76	17	3	9	7.0	2.03
2003	460	2	15	6.3	3.11	73	2	12	5.8	3.12
2004	292	2	17	6.8	3.38	69	2	15	6.2	3.47
2005	360	2	18	6.8	3.42	100	2	16	4.8	3.24
2006	318	2	18	6.9	3.35	57	2	13	5.1	2.59
2007	341	2	15	6.3	3.24	76	2	14	5.1	2.68
2008	263	2	16	7.0	3.13	100	2	16	5.5	2.61
2009	292	2	14	6.5	3.14	206	2	15	6.3	2.92
2010	298	2	16	7.3	3.41	228	2	14	5.6	2.66
2011	212	2	16	6.9	3.40	338	2	15	5.9	3.53
2012	233	2	17	5.9	3.58	363	2	17	6.0	3.36
2013	333	2	17	6.4	3.40	300	2	15	5.3	3.12

range: 4.8-7.0) (Table 10).

Older fish were caught more often by boat-based anglers than by anglers fishing from shore, reflecting the mode size differences discussed earlier. The overall average age of striped bass collected by boat anglers was 6.4 years (average age range: 5.8-6.8 years), while average age of shore-caught striped bass was 5.5 years (average age range : 4.4-6.4 years) (Table 11).

Striped bass harvested by anglers were older than striped bass released by anglers reflecting the 28 inch minimum size limit in Massachusetts (Table 12). The overall average age of harvested fish was 9.4 years (average age range: 9.0-10.0 years), while average age of released striped bass was 5.3 years (average age range: 4.5-5.7 years).

#### Application of Size and Age Data

The age and corresponding size data collected by anglers are used to develop annual age-length keys, which are applied to harvest and release size data of the recreational fishery to obtain the age composition of striped bass harvested and released in Massachusetts waters. The age compositions of harvested and released striped bass for each year are shown in Figure 5. Large year-classes (1993, 1996, 2003, and 2011) of Chesapeake Bay origin are readily identifiable in the catches of Massachusetts anglers. All age composition data were used directly in the coast-wide stock assessment for striped bass (ASMFC 2013).

#### Future of the SADCT Program

The SADCT program will continue into the future as long as dedicated anglers are willing to collect samples. Since the program had been such a success for striped bass, it was expanded in 2014 to include volunteer anglers who are willing to collect size and age samples from scup (*Stenotomus chrysops*), black sea bass (*Centropristis striata*), and summer flounder (*Paralichthys dentatus*).

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**Table 11. Summary statistics of age determined from scales by year and fishing mode; n = sample size, SD = standard deviation.**

Year	Boat					Shore				
	n	Minimum Age	Maximum Age	Mean Age	SD Age	n	Minimum Age	Maximum Age	Mean Age	SD Age
2002	366	2	15	5.8	2.67	84	2	14	5.5	2.89
2003	469	2	15	6.5	3.17	105	2	13	5.2	2.69
2004	295	2	17	6.5	3.38	58	3	14	6.4	3.05
2005	401	2	18	6.4	3.48	82	2	16	5.6	3.31
2006	340	2	18	6.8	3.32	77	2	13	5.0	2.22
2007	353	2	15	6.2	3.23	81	2	16	6.0	3.17
2008	310	2	16	6.7	3.09	88	2	16	5.7	2.84
2009	449	2	14	6.5	3.09	74	2	15	6.0	2.70
2010	482	2	16	6.7	3.26	62	2	15	6.1	3.11
2011	489	2	16	6.5	3.49	77	2	15	5.2	3.41
2012	538	2	17	6.3	3.46	85	2	13	4.4	2.72
2013	586	2	17	5.9	3.32	62	2	13	5.4	3.08

**Table 12. Summary statistics of age determined from scales by year and disposition; n = sample size, SD = standard deviation.**

Year	Harvested					Released				
	n	Minimum Age	Maximum Age	Mean Age	SD Age	n	Minimum Age	Maximum Age	Mean Age	SD Age
2003	118	4	15	9.3	2.24	447	2	14	5.4	2.81
2004	101	5	16	10.0	2.46	279	2	17	5.5	2.83
2005	101	5	18	9.9	2.62	368	2	15	5.2	2.99
2006	100	5	18	9.6	2.76	316	2	15	5.5	2.72
2007	89	4	16	9.6	2.59	345	2	15	5.3	2.73
2008	97	5	16	9.3	2.51	301	2	16	5.5	2.63
2009	145	2	15	8.9	2.39	378	2	13	5.4	2.69
2010	146	5	16	9.0	2.52	398	2	16	5.7	3.03
2011	153	5	16	9.2	2.39	413	2	15	5.2	3.25
2012	169	3	17	9.5	2.59	453	2	15	4.7	2.73
2013	194	3	16	9.0	2.28	453	2	17	4.5	2.73

## Appendix

**Table A1. Annual summary statistics of length data collected by SADCT anglers by region, mode, and disposition.**

Region: North																
Disposition:		Harvested					Released					Unknown				
Year	n	Min	Max	Mean	SD	n	Min	Max	Mean	SD	n	Min	Max	Mean	SD	
Mode: Boat	2002										650	8	50	24.8	6.97	
	2003	282	20	46	32.1	4.63	1250	12	43	24.2	5.92	17	26	40	30.9	4.17
	2004	191	28	47	34.2	4.42	1373	10	48	23.1	5.73	7	18	41	30.7	8.62
	2005	234	28	47	33.7	4.54	995	9	46	23.8	6.44	50	20	40	30.0	4.81
	2006	117	28	47	35.4	5.02	887	10	44	21.9	6.18	4	25	34	29.2	3.77
	2007	125	29	49	35.2	5.84	938	10	56	22.8	6.28	1	33	33	33.0	-
	2008	183	28	47	35.2	4.97	687	13	45	24.1	6.25	-	-	-	-	-
	2009	205	274	45	34.5	4.24	630	12	45	25.8	5.97	-	-	-	-	-
	2010	183	26	47	32.8	4.54	547	13	47	26.8	7.17	-	-	-	-	-
	2011	249	27	48	31.9	3.67	541	13	47	27.8	7.16	-	-	-	-	-
	2012	144	28	48	34.2	4.30	437	10	45	25.0	8.06	-	-	-	-	-
	2013	185	28	49	33.7	4.44	420	12	47	24.5	8.23	2	36	36	36.0	0
Mode: Shore	2002											215	10	46	23.2	6.86
	2003	26	28	39	31.6	3.15	244	10	42	22.7	6.52	1	29	29	29.0	-
	2004	33	28	41	32.4	3.61	345	10	38	19.8	5.41	1	36	36	36.0	-
	2005	39	28	47	33.2	4.81	316	9	45	19.5	6.43	-	-	-	-	-
	2006	5	28	33	30.8	2.59	107	10	36	17.7	4.85	-	-	-	-	-
	2007	15	28	46	35.3	6.26	106	14	29	20.0	3.43	-	-	-	-	-
	2008	13	28	43	32.5	5.22	58	14	29	21.4	3.62	-	-	-	-	-
	2009	29	28	43	33.1	3.77	53	11	39	24.7	5.55	-	-	-	-	-
	2010	23	28	41	30.6	3.00	50	13	41	24.6	5.51	-	-	-	-	-
	2011	10	28	38	31.4	3.66	22	15	36	24.3	6.77	-	-	-	-	-
	2012	2	33	34	33.5	0.71	44	10	35	21.9	7.25	-	-	-	-	-
	2013	5	31	40	36.2	3.96	16	14	34	20.8	6.23	-	-	-	-	-
Mode: Unknown	2002											-	-	-	-	-
	2003	1	28	28	28.0	-	3	14	27	22.7	7.50	3	30	42	35.3	6.11
	2004	63	28	44	33.6	4.25	199	16	46	26.3	5.45	17	26	44	31.1	4.52
	2005	2	32	34	33.0	1.41	5	21	31	24.4	4.45	-	-	-	-	-
	2006	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2007	-	-	-	-	-	1	14	14	14.0	-	-	-	-	-	-
	2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2011	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2012	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Table A1 continued.

Region: South																
Disposition:		Harvested					Released					Unknown				
Year	n	Min	Max	Mean	SD	n	Min	Max	Mean	SD	n	Min	Max	Mean	SD	
Mode: Boat	2002										23	23	38	30.7	4.18	
	2003	29	29	41	35.6	3.29	135	12	44	24.3	7.57	4	33	35	34.0	0.82
	2004	68	28	45	35.3	3.88	200	12	40	21.0	6.41	-	-	-	-	-
	2005	30	28	44	33.8	3.86	422	11	40	21.2	6.14	-	-	-	-	-
	2006	10	28	40	33.9	3.69	345	11	36	19.2	4.83	-	-	-	-	-
	2007	23	28	44	33.2	3.79	198	10	41	19.6	6.16	-	-	-	-	-
	2008	19	28	54	34.7	6.41	418	12	49	21.6	4.24	2	34	37	35.5	2.12
	2009	107	28	43	33.8	3.34	427	14	42	26.0	6.12	-	-	-	-	-
	2010	151	28	44	34.6	3.87	487	15	42	23.2	4.83	-	-	-	-	-
	2011	376	28	49	35.4	3.62	747	11	42	24.1	6.87	-	-	-	-	-
	2012	344	26	45	35.2	3.67	534	10	43	23.1	8.33	7	24	39	31.4	5.38
	2013	127	28	43	35.4	3.22	309	11	40	20.9	7.76	1	37	37	37.0	-
Mode: Shore	2002											2	21	22	21.5	0.71
	2003	6	30	39	35.5	3.73	64	13	32	23.5	4.93	-	-	-	-	-
	2004	-	-	-	-	-	39	10	33	16.9	5.06	-	-	-	-	-
	2005	11	30	48	35.4	5.77	51	10	37	19.0	7.77	-	-	-	-	-
	2006	2	34	43	38.5	6.36	12	10	22	11.7	3.50	-	-	-	-	-
	2007	6	29	40	34.8	4.17	40	12	35	22.9	6.34	-	-	-	-	-
	2008	14	30	47	35.9	4.04	46	10	39	25.8	5.96	-	-	-	-	-
	2009	15	16	41	31.7	5.31	65	12	35	23.3	6.30	-	-	-	-	-
	2010	17	28	43	33.3	4.03	76	12	32	21.6	6.17	-	-	-	-	-
	2011	35	29	46	34.1	4.31	118	10	42	19.2	5.98	-	-	-	-	-
	2012	7	24	36	31.7	3.73	155	9	33	16.8	5.22	-	-	-	-	-
	2013	18	28	42	33.4	3.70	78	10	35	18.4	5.46	1	39	39	39.0	-
Mode: Unknown	2002											-	-	-	-	-
	2003	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2004	4	37	42	39.5	2.08	-	-	-	-	-	-	-	-	-	-
	2005	1	28	28	28.0	-	-	-	-	-	-	-	-	-	-	-
	2006	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2007	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2011	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2012	1	36	36	36.0	-	-	-	-	-	-	-	-	-	-	-
	2013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table A1 continued.

Region: Cape Cod Canal																
Disposition:		Harvested					Released					Unknown				
Year	n	Min	Max	Mean	SD	n	Min	Max	Mean	SD	n	Min	Max	Mean	SD	
Mode: Boat	2002											-	-	-	-	-
	2003	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2004	1	35	35	35.0	-	1	17	17	17.0	-	-	-	-	-	-
	2005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2006	-	-	-	-	-	6	18	26	23.0	2.83	-	-	-	-	-
	2007	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2008	-	-	-	-	-	1	21	21	21.0	-	-	-	-	-	-
	2009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2010	-	-	-	-	-	4	20	26	23.5	2.52	-	-	-	-	-
	2011	1	31	31	31.0	-	1	21	21	21.0	-	-	-	-	-	-
	2012	-	-	-	-	-	2	21	24	22.5	2.12	-	-	-	-	-
	2013	-	-	-	-	-	1	20	20	20.0	-	-	-	-	-	-
Mode: Shore	2002											98	11	34	21.8	5.96
	2003	32	16	48	32.6	5.90	118	13	36	22.5	5.17	-	-	-	-	-
	2004	28	28	45	34.4	4.84	332	14	37	20.1	4.27	-	-	-	-	-
	2005	11	28	40	30.9	3.83	165	13	34	20.4	4.15	-	-	-	-	-
	2006	13	28	44	31.9	4.63	201	11	31	18.1	3.72	-	-	-	-	-
	2007	7	29	47	38.3	6.55	43	15	26	19.2	2.54	-	-	-	-	-
	2008	6	28	42	35.3	4.80	79	12	40	22.2	6.21	-	-	-	-	-
	2009	5	29	39	33.2	3.77	27	16	37	24.7	5.00	-	-	-	-	-
	2010	14	28	48	35.1	6.85	17	18	37	26.8	4.38	-	-	-	-	-
	2011	20	29	41	32.6	3.69	15	17	33	28.1	4.24	-	-	-	-	-
	2012	18	26	43	35.1	4.46	9	18	36	29.7	4.87	-	-	-	-	-
	2013	1	36	36	36.0	-	2	22	22	22.0	0	-	-	-	-	-
Mode: Unknown	2002											-	-	-	-	-
	2003	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2004	-	-	-	-	-	-	-	-	-	-	1	21	21	21.0	-
	2005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2006	1	36	36	36.0	-	-	-	-	-	-	-	-	-	-	-
	2007	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2011	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2012	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

**Table A1 continued.**

Region: Unknown																
Disposition:		Harvested					Released					Unknown				
Year	n	Min	Max	Mean	SD	n	Min	Max	Mean	SD	n	Min	Max	Mean	SD	
Mode: Boat	2002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	2003	5	29	50	38.6	7.57	19	20	40	28.3	5.61	1	34	34	34.0	
	2004	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	2005	3	34	35	34.3	0.58	1	24	24	24.0	-	-	-	-	-	
	2006	-	-	-	-	-	1	15	15	15.0	-	-	-	-	-	
	2007	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	2008	-	-	-	-	-	5	14	26	21.8	4.76	-	-	-	-	
	2009	9	28	44	36.1	5.64	3	19	28	24.7	4.93	-	-	-	-	
	2010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	2011	6	30	34	32.3	1.37	-	-	-	-	-	-	-	-	-	
	2012	3	31	37	34.0	3.00	7	17	31	22.0	5.66	-	-	-	-	
	2013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Mode: Shore	2002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	2003	2	30	30	30.0	0	8	10	16	12.2	2.19	-	-	-	-	
	2004	-	-	-	-	-	2	10	10	10.0	0	-	-	-	-	
	2005	-	-	-	-	-	8	11	22	17.0	4.34	-	-	-	-	
	2006	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	2007	-	-	-	-	-	1	10	10	10.0	-	-	-	-	-	
	2008	1	30	30	30.0	-	2	17	20	18.5	2.12	-	-	-	-	
	2009	6	28	33	30.0	2.28	47	14	34	24.0	3.39	-	-	-	-	
	2010	1	38	38	38.0	-	35	14	19	17.0	1.42	-	-	-	-	
	2011	-	-	-	-	-	23	14	30	20.3	4.50	-	-	-	-	
	2012	21	28	41	32.9	2.94	16	12	32	23.9	6.86	-	-	-	-	
	2013	25	28	36	31.1	2.40	18	11	28	20.8	5.25	-	-	-	-	

**Table A2. Annual summary statistics of age data collected by SADCT anglers by region, mode, and disposition.**

Region: North																
Disposition:		Harvested					Released					Unknown				
Year	n	Min	Max	Mean	SD	n	Min	Max	Mean	SD	n	Min	Max	Mean	SD	
Mode: Boat	2002										351	2	15	5.7	2.69	
	2003	85	4	15	9.3	2.41	307	2	14	5.7	2.90	6	7	10	8.0	1.26
	2004	51	5	16	10.1	2.88	175	2	17	5.4	2.69	5	3	11	8.6	3.36
	2005	74	5	18	10.1	2.73	226	2	15	5.8	3.08	14	4	11	7.4	2.03
	2006	81	5	18	9.8	2.81	203	2	15	6.1	2.97	2	5	7	6.0	1.41
	2007	63	4	14	9.6	2.47	239	2	15	5.6	2.9					
	2008	72	5	15	9.5	2.46	165	2	16	6.2	2.86					
	2009	74	6	14	9.1	2.41	196	2	13	5.5	2.88					
	2010	76	5	16	9.0	2.71	200	2	16	6.8	3.52					
	2011	40	5	16	8.2	2.56	165	2	15	6.6	3.55					
	2012	44	6	1	10.2	2.89	177	2	15	5.1	2.98					
	2013	103	5	16	9.0	2.45	215	2	17	5.2	3.12					
Mode: Shore	2002	-	-	-	-	-	-	-	-	-	-	57	2	14	5.8	3.16
	2003	6	7	10	8.7	1.21	56	2	13	4.9	2.45	-	-	-	-	-
	2004	5	9	11	10.2	0.84	22	3	10	5.5	2.24	-	-	-	-	-
	2005	13	6	12	9.1	1.93	33	2	10	4.5	2.45	-	-	-	-	-
	2006	3	6	11	8.0	2.65	29	2	10	4.5	2.11	-	-	-	-	-
	2007	9	6	15	10.2	2.73	30	2	8	4.1	1.58	-	-	-	-	-
	2008	6	5	11	8.2	2.32	20	3	7	4.2	1.18	-	-	-	-	-
	2009	13	6	10	8.0	1.41	9	2	10	4.6	2.55	-	-	-	-	-
	2010	7	6	11	8.1	1.86	15	2	10	5.6	2.41	-	-	-	-	-
	2011	3	7	11	9.0	2.00	4	2	8	6.0	2.71	-	-	-	-	-
	2012	-	-	-	-	-	12	2	8	3.1	1.73	-	-	-	-	-
	2013	3	8	12	10.3	2.08	12	2	7	3.7	1.72	-	-	-	-	-
Mode: Unknown	2002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2003	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2004	13	6	14	9.3	2.25	18	4	15	9.6	3.42	3	8	11	9.0	1.73
	2005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2006	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2007	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2011	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2012	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table A2 continued.

Region: South																
Disposition:		Harvested					Released					Unknown				
Year	n	Min	Max	Mean	SD	n	Min	Max	Mean	SD	n	Min	Max	Mean	SD	
Mode: Boat	2002	-	-	-	-	-	-	-	-	-	15	4	9	7.5	1.46	
	2003	14	8	12	9.8	1.31	45	2	12	4.6	2.54	2	9	10	9.5	0.71
	2004	23	7	15	10.1	1.98	41	2	9	4.3	2.08	-	-	-	-	-
	2005	8	6	11	8.9	1.81	78	2	11	4.0	2.55	-	-	-	-	-
	2006	5	7	11	9.4	1.67	47	2	10	4.5	1.93	-	-	-	-	-
	2007	7	5	14	8.4	2.99	44	2	10	4.0	2.19	-	-	-	-	-
	2008	8	5	10	7.6	1.77	64	2	10	4.5	1.88	-	-	-	-	-
	2009	38	5	14	9.1	2.38	135	2	13	5.5	2.58	-	-	-	-	-
	2010	51	5	14	8.9	2.16	152	2	12	4.7	1.94	-	-	-	-	-
	2011	96	6	14	9.6	2.24	187	2	15	4.4	2.68	-	-	-	-	-
	2012	111	5	17	9.3	2.45	197	2	13	4.7	2.68	2	9	9	9.0	0.00
	2013	68	3	15	9.2	2.01	199	2	12	4.0	2.27	-	-	-	-	-
Mode: Shore	2002	-	-	-	-	-	-	-	-	-	2	3	3	3.0	0.00	
	2003	2	9	10	9.5	0.71	10	2	6	3.8	1.14	-	-	-	-	-
	2004	-	-	-	-	-	4	3	3	3.0	0.00	-	-	-	-	-
	2005	3	9	16	12.7	3.51	11	2	11	5.4	3.47	-	-	-	-	-
	2006	2	8	13	10.5	3.54	3	2	5	3.3	1.53	-	-	-	-	-
	2007	5	6	9	8.0	1.22	20	3	10	5.8	2.20	-	-	-	-	-
	2008	7	7	16	9.9	3.24	21	2	12	6.1	2.57	-	-	-	-	-
	2009	11	2	15	8.4	3.23	22	2	9	4.8	1.89	-	-	-	-	-
	2010	4	7	9	7.8	0.96	21	2	6	3.8	1.36	-	-	-	-	-
	2011	9	7	12	9.4	1.88	46	2	14	3.7	2.69	-	-	-	-	-
	2012	1	3	3	3.0	-	51	2	9	3.4	1.56	-	-	-	-	-
	2013	12	5	13	7.9	2.19	20	2	6	3.0	0.97	1	11	11	11	-
Mode: Unknown	2002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2003	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2004	1	10	10	10	-	-	-	-	-	-	-	-	-	-	-
	2005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2006	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2007	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2011	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2012	1	9	9	9	-	-	-	-	-	-	-	-	-	-	-
	2013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table A2 continued.

Region: Cape Cod Canal																
Disposition:		Harvested					Released					Unknown				
Year	n	Min	Max	Mean	SD	n	Min	Max	Mean	SD	n	Min	Max	Mean	SD	
Mode: Boat	2002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2003	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2004	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2006	-	-	-	-	-	1	5	5	5.0	-	-	-	-	-	-
	2007	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2010	-	-	-	-	-	3	3	6	4.3	1.53	-	-	-	-	-
	2011	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2012	-	-	-	-	-	2	4	6	5.0	1.41	-	-	-	-	-
	2013	-	-	-	-	-	1	4	4	4.0	-	-	-	-	-	-
Mode: Shore	2002	-	-	-	-	-	-	-	-	-	-	25	2	9	4.9	2.09
	2003	8	7	12	9.0	2.07	20	2	9	4.2	2.19	-	-	-	-	-
	2004	8	7	14	10.5	2.14	17	3	11	5.6	2.32	-	-	-	-	-
	2005	3	7	10	8.7	1.53	19	2	8	3.6	1.68	-	-	-	-	-
	2006	8	5	10	7.1	1.73	32	3	7	4.4	1.24	-	-	-	-	-
	2007	5	9	16	12.2	2.86	11	2	7	4.5	1.44	-	-	-	-	-
	2008	4	6	12	9.0	2.94	30	2	10	4.5	2.16	-	-	-	-	-
	2009	1	11	11	11.0	-	7	3	9	5.1	2.48	-	-	-	-	-
	2010	7	7	15	11.0	3.27	4	6	7	6.5	0.58	-	-	-	-	-
	2011	4	8	15	10.8	3.10	5	6	7	6.6	0.55	-	-	-	-	-
	2012	5	8	13	10.2	1.79	3	3	9	6.7	3.21	-	-	-	-	-
	2013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mode: Unknown	2002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2003	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2004	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2006	1	10	10	10	-	-	-	-	-	-	-	-	-	-	-
	2007	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2011	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2012	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table A2 continued.

Region: Unknown																
Disposition:		Harvested				Released				Unknown						
Year	n	Min	Max	Mean	SD	n	Min	Max	Mean	SD	n	Min	Max	Mean	SD	
Mode: Boat	2002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2003	2	9	13	11.0	2.83	7	4	12	7.9	2.73	1	9	9	9	-
	2004	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2005	-	-	-	-	-	1	5	5	5.0	-	-	-	-	-	-
	2006	-	-	-	-	-	1	3	3	3.0	-	-	-	-	-	-
	2007	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2008	-	-	-	-	-	1	3	3	3.0	-	-	-	-	-	-
	2009	6	6	13	8.7	2.50	-	-	-	-	-	-	-	-	-	-
	2010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2011	1	7	7	7.0	-	-	-	-	-	-	-	-	-	-	-
	2012	2	7	8	7.5	0.71	3	3	7	4.3	2.31	-	-	-	-	-
	2013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mode: Shore	2002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2003	1	5	5	5.0	-	2	2	3	2.5	0.71	-	-	-	-	-
	2004	-	-	-	-	-	2	3	3	3.0	0.00	-	-	-	-	-
	2005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2006	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2007	-	-	-	-	-	1	2	2	2.0	-	-	-	-	-	-
	2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2009	2	6	8	7.0	1.41	9	2	6	4.2	1.39	-	-	-	-	-
	2010	1	12	12	12.0	-	3	3	4	3.3	0.58	-	-	-	-	-
	2011	-	-	-	-	-	6	3	4	3.3	0.52	-	-	-	-	-
	2012	5	7	12	9.0	1.87	8	2	9	5.3	2.71	-	-	-	-	-
	2013	8	6	13	8.8	2.31	6	4	5	4.3	0.52	-	-	-	-	-