

Atlantic Blacktip Shark Benchmark Stock Assessment

Catches

SEDAR 65 (Review Workshop)

October 29, 2020

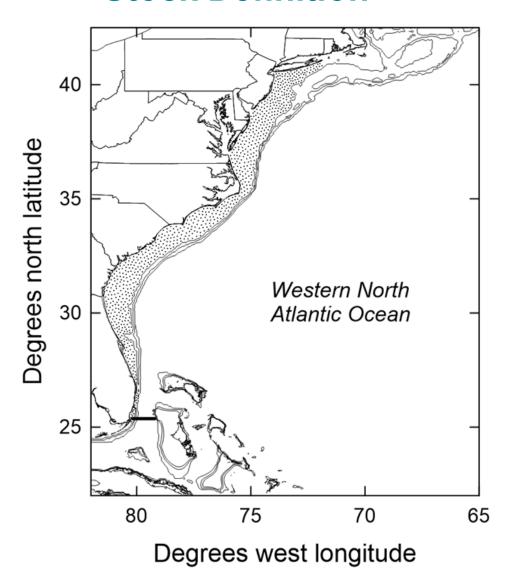


Stock Definition

- No recorded movement between the U.S. east coast and the Gulf of Mexico (based on conventional and archival tagging and acoustic telemetry)
- Recent telemetry data have revealed that blacktip sharks regularly migrate as far north as the southern coast of Long Island, NY
- For management purposes (to separate the ATL vs. GOM stocks) the southern limit of the blacktip shark distribution is 25°20.4' latitude



Stock Definition





Commercial catches

Landings:

- Have 14 more years of data than for SEDAR 11
- 1981-1982 landings assumed equal to 0
- 1983-1985 landings linearly increase to average of 1986-1988 landings
- 1986-1990 landings are a legacy from the 1996 SEW (include longline and gillnet landings from FL east coast, GA, and SC)
- 1991-2012 landings come from the FINS database (ACCSP/Atlantic region)
- 2013-2018 landings come from the eDealer database
- Native form is weight (lb dressed weight)



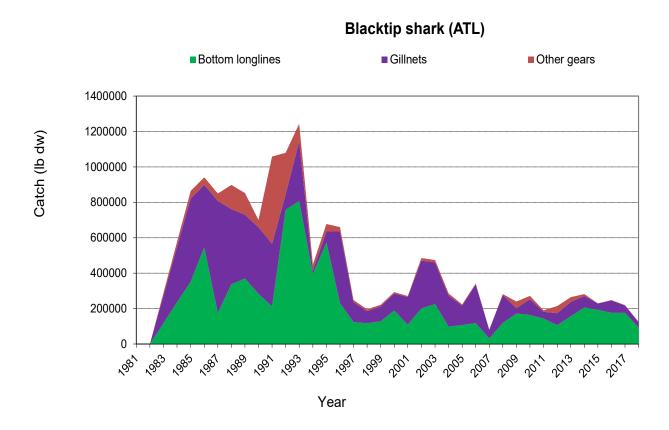
Commercial catches

Bycatch:

- Commercial discards from these 3 programs were considered but the AP decided they were not reliable and they were not included in the reference case:
 - Bottom longlines (1994-2018)
 - Gillnets in the Southeast (1999-2018)
 - Gillnets in the Northeast (1995-2018)
- Ultimately identified 3 gear types to use as fleets in assessment: bottom longlines, gillnets, and other gear (including unreported catches in 1988-89 that were a legacy of SEDAR 11)



Commercial landings





Recreational catches

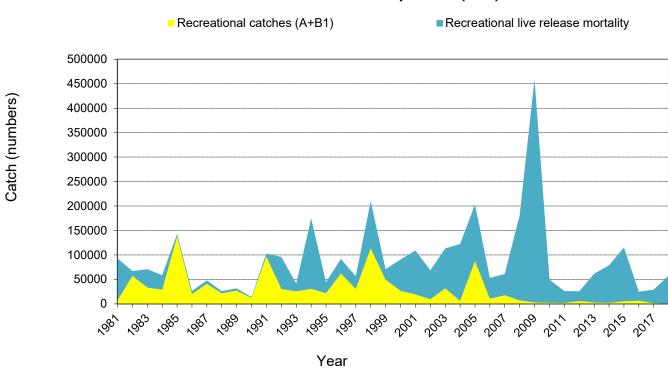
- Includes landed + discarded dead + released alive (A+B1+B2)
- 1981-2018: Sum of MRIP and Headboat Survey
- Includes APAIS (Access Point Angler Intercept Survey) and FES (Fishing Effort Survey) calibrations
- Native form is numbers
- Post-release mortality estimates to estimate proportion of animals released alive (B2) that die were:

	Estimate	Lower 95% CI	Upper 95% CI
Recreational	18.5%	10.8%	28.7%



Initial recreational catches

Blacktip shark (ATL)



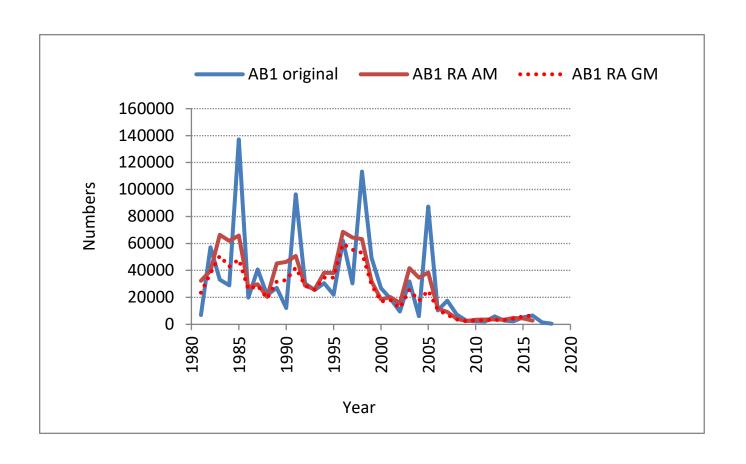


AP decisions for recreational catches at the DW

- The 2009 peak in B2 catches was due to 2 records with unusually high estimates (404,126 and 1,925,555 sharks) caught in SC, May-June, Inshore. High PSE and large effort from FES contributed to this unusually high estimate
- We smoothed it by setting it equal to the geometric mean of the 3 preceding and ensuing years
- To get rid of other peaks in AB1s (harvested) and B2s a 3-year running average was applied

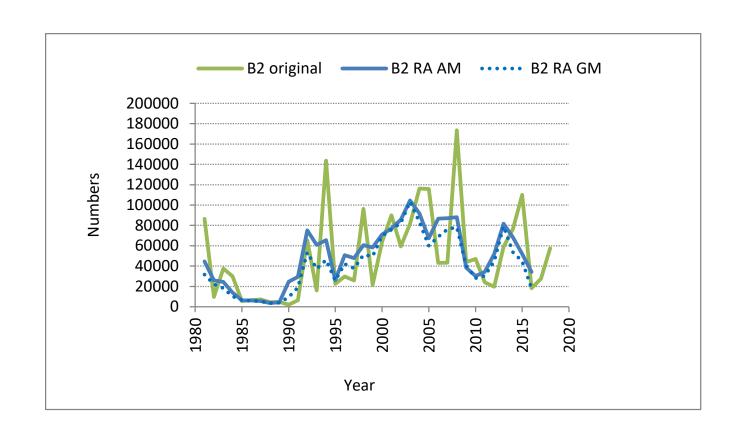


Comparison of recreational catches (AB1)





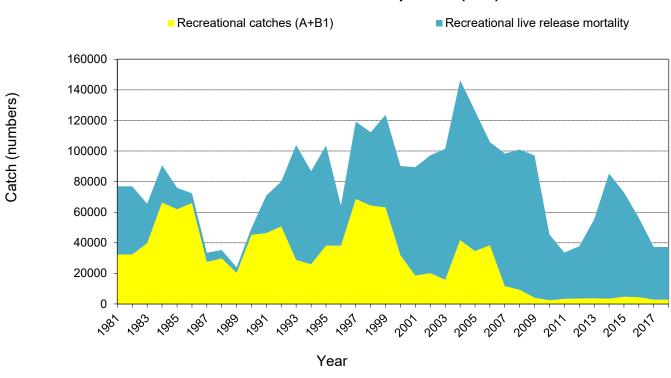
Comparison of recreational catches (B2)





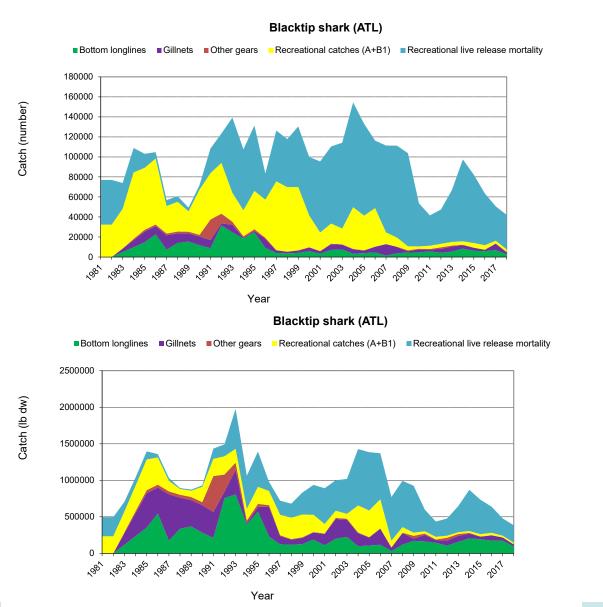
Final recreational catches







Catches by sector for the reference (base) case



Numbers

Weight (lb dw)



Reference case (base run)

- Commercial landings (weight):
- Bottom longline
- Gillnets
- Other gears + unreported
 - No commercial discards (dead or released alive that die) were included
 - Dressed weight to whole weight conversion ratio of 1.39



Reference case (base run)

Recreational catches (numbers):

- A+B1
- B2 that die (with rod & reel PRM = 18.5%)
- Both series were smoothed

Low catch scenario: commercial catches (=reference)

- No uncertainty in commercial landings, so kept the same series as for reference case:
- Bottom longline
- Gillnets
- Other gears + unreported
 - A low estimate of commercial discards could not be included because reference case did not include discards so even a low value of discards would have resulted in higher catch than in the reference case
 - Same dressed weight to whole weight conversion ratio of 1.39 as for reference case



Low catch scenario: recreational catches

Recreational catches:

- Used PSEs (-1PSE) available for the 1981-2018 time series for both A+B1 and B2
- Applied the lower 95% CL of 10.8% (vs. 18.5% in reference case) as a post-release mortality rate for B2

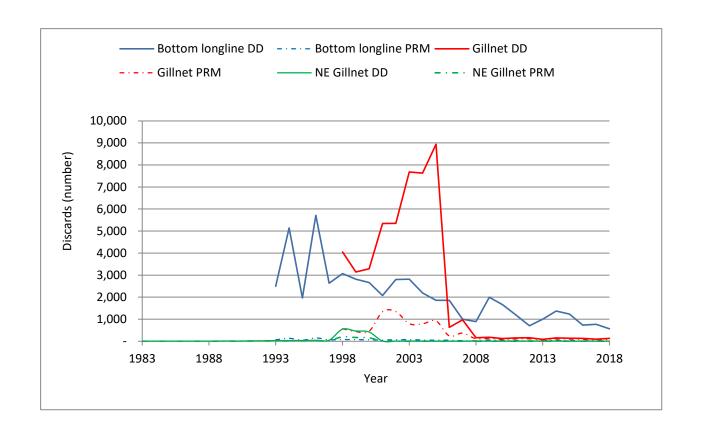


High catch scenario: commercial catches

- No uncertainty in commercial landings, so kept the same series as for reference case:
- Bottom longline
- Gillnets
- Other gears + unreported
- Included both dead discards and sharks released alive that die (vs. no discards at all in reference case). Also included a PRM of 54.8% for bottom longline (vs. 44.2% in the initial run that was going to include bycatch) and 44.4% for gillnets (vs. 31% in the initial run that was going to include bycatch)
- Used a dressed weight to whole weight conversion ratio of 2.0 (vs. 1.39 in reference case)



High catch scenario: commercial discards





High catch scenario: recreational catches

Recreational catches:

- Used PSEs (+ 1 PSE) available for the 1981-2018 time series for both A+B1 and B2
- Applied the upper 95% CL of 28.7% (vs. 18.5% in reference case) as a post-release mortality rate for B2

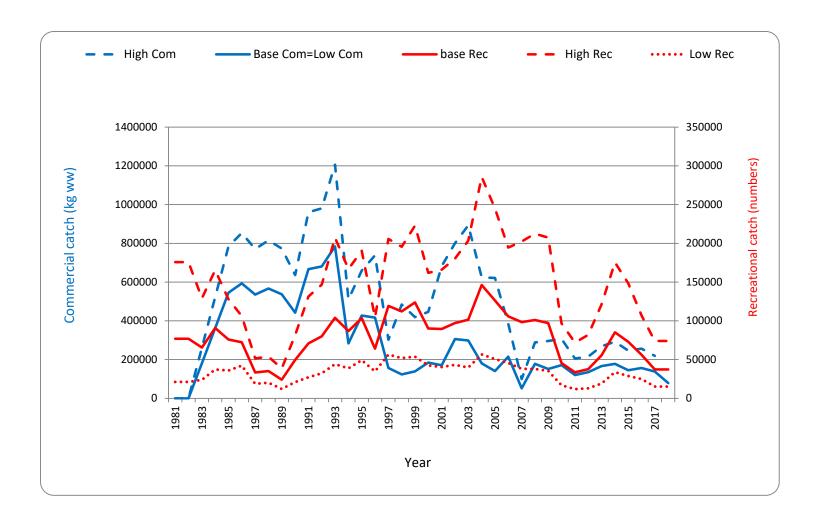


Reference case, low, and high catch scenarios: summary table

	Commercial (weight)				-	Recreational (numbers)				
Scenario	Gear	Landings	Dead discards	Released alive that die	PRM of commercial released alive	DW to WW ratio	Scenario	AB1	B2 that die	PRM of recreational released alive
Reference	Longlines Gillnets Other gear	Base Base Base	No No No	No No No	n/a n/a n/a	1.39 1.39 1.39	Reference	Base	Base	18.50%
Low catch	Longlines Gillnets Other gear	Base Base Base	No No No	No No No	n/a n/a n/a	1.39 1.39 1.39	Low catch	-1PSE	-1PSE	10.80%
High catch	Longlines Gillnets Other gear	Base Base Base	Yes Yes No	Yes Yes No	54.8% 44.4% n/a	2.00 2.00 2.00	High catch	+1PSE	+1PSE	28.70%



Reference case, low, and high catch scenarios





Additional slides



Homework/Decisions for commercial catches

- Set 1981 and 1982 landings to 0 because hardly any effort then
- Assume a linear increase from 0 in 1982 to the mean of the first 3 years (1986-1988) for the 3 fleets considered (longlines, gillnets, and other combined gears)
- Reconstruct "other combined gears" series to start also in 1983 setting 1986-1990 values equal to the mean of the entire time series (1991-2018)
- Back-calculate discards to 1983 for longlines and gillnets using mean for entire time series (1993 – 2018 for longlines; 1999-2018 for gillnets)
- Apply post-release mortality rates of: gillnets (31%), hook and line (18.5%), bottom longlines (44.2%)
- Potential NEFOP-based bycatch estimates pending



AB1

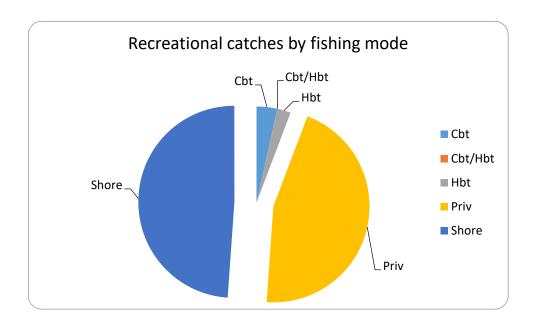
Recreational catches: PSEs

	1
D	Z

1981	BLACKTIP SHARK	6,827	92
1982	BLACKTIP SHARK	57,164	36.6
1983	BLACKTIP SHARK	32,278	51.3
1984	BLACKTIP SHARK	29,669	73.4
1985	BLACKTIP	142,489	43
1986	SHARK BLACKTIP	20,513	24.7
1987	SHARK BLACKTIP	42,914	32.4
1988	SHARK BLACKTIP	21,124	64.5
1989	SHARK BLACKTIP	26,659	30.3
1990	SHARK BLACKTIP	11,637	54.6
1991	SHARK BLACKTIP	95,334	66.9
1992	SHARK BLACKTIP	29,086	36.1
1993	SHARK BLACKTIP	24,927	41.5
1994	SHARK BLACKTIP	31,169	30.5
1995	SHARK BLACKTIP	23,729	40
1996	SHARK BLACKTIP	62,340	35.7
1997	SHARK BLACKTIP	29,948	44.5
1998	SHARK BLACKTIP	113,474	55.2
1999	SHARK BLACKTIP	50,157	37.3
2000	SHARK BLACKTIP	26,375	67.1
2001	SHARK BLACKTIP	18,896	37.8
2002	SHARK BLACKTIP	8,864	39.7
2003	SHARK BLACKTIP	30,924	70
2004	SHARK BLACKTIP	5,506	42.3
2005	SHARK BLACKTIP	86,663	59.7
2006	SHARK BLACKTIP SHARK	9,955	64.1
2007	BLACKTIP SHARK	17,163	39.4
2008	BLACKTIP SHARK	6,974	45.2
2009	BLACKTIP SHARK	2,526	71.3
2010	BLACKTIP	1,725	59.3
2011	SHARK BLACKTIP	1,875	99
2012	SHARK BLACKTIP SHARK	5,610	77.3
2013	BLACKTIP SHARK	2,140	71.5
2014	BLACKTIP SHARK	2,188	31.5
2015	BLACKTIP SHARK	5,241	55.3
2016	BLACKTIP SHARK	6,420	72.8
2017	BLACKTIP SHARK	1,452	92.2
2018	BLACKTIP	407	49.6
	SHARK		

SHARK 1982 BLACKTIP 52,399 5				
1982 BLACKTIP S2,399 S SHARK SHARK	1981		467,002	95.2
1983 BLACKTIP SHARK 162,402 82. SHARK 1985 BLACKTIP 33,039 55. SHARK 1986 BLACKTIP 35,882 43. SHARK 1987 BLACKTIP 39,701 40. SHARK 1988 BLACKTIP 24,225 44. SHARK 1989 BLACKTIP 24,990 40. SHARK 1990 BLACKTIP 352,323 50. SHARK 1991 BLACKTIP 352,323 50. SHARK 1992 BLACKTIP 352,323 50. SHARK 1993 BLACKTIP 352,323 50. SHARK 1994 BLACKTIP 137,833 23. SHARK 1995 BLACKTIP 137,833 23. SHARK 1996 BLACKTIP 137,833 23. SHARK 1996 BLACKTIP 159,219 34. SHARK 1997 BLACKTIP 159,219 34. SHARK 1998 BLACKTIP 159,219 34. SHARK 1999 BLACKTIP 159,219 34. SHARK 1999 BLACKTIP 159,219 34. SHARK 1999 BLACKTIP 342,075 36. SHARK 1999 BLACKTIP 342,075 36. SHARK 1996 BLACKTIP 342,075 36. SHARK 1996 BLACKTIP 320,963 18. SHARK 180,000 BLACKTIP 232,085 23. SHARK 2001 BLACKTIP 320,963 18. SHARK 2005 BLACKTIP 232,085 23. SHARK 2006 BLACKTIP 232,085 23. SHARK 2007 BLACKTIP 232,085 23. SHARK 2008 BLACKTIP 232,085 23. SHARK 2009 BLACKTIP 2466,941 61. SHARK 2009 BLACKTIP 252,897 28. SHARK 2009 BLACKTIP 252,897 28. SHARK 2010 BLACKTIP 252,897 28. SHARK 2011 BLACKTIP 259,8911 23. SHARK 2012 BLACKTIP 259,8911 23. SHARK 2016 BLACKTIP 316,792 33. SHARK 2016 BLACKTIP 397,164 25. SHARK 2016 BLACKTIP 316,792 33. SHARK 2016 BLACKTIP 316,792 33. SHARK 2016 BLACKTIP 316,7	1982	BLACKTIP	52,399	51
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SHARK 2012 BLACKTIP 105,162 46.	2011		128,199	53.9
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2016 BLACKTIP 97,164 25. SHARK 2017 BLACKTIP 147,576 22.	2015	BLACKTIP	593,811	23.2
2017 BLACKTIP 147,576 22.	2016	BLACKTIP	97,164	25.7
SHARK	2017	BLACKTIP	147,576	22.2
2018 BLACKTIP 308,116 32.	2018	BLACKTIP	308,116	32.6
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Recreational catches by fishing mode

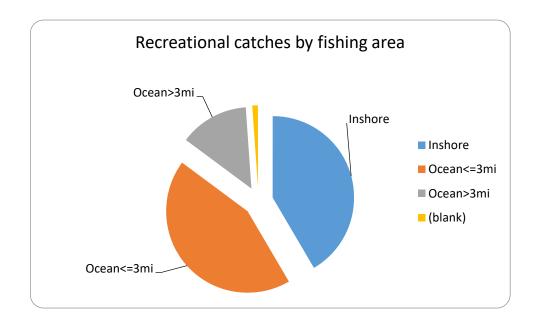


Fishing mode	ab1	Percen
Cbt	38487	0.03
Cbt/Hbt	53	5E-05
Hbt	25080	0.02
Priv	501187	0.45
Shore	540004	0.49
total	1104810	1

Most catches by private boats and from shore



Recreational catches by fishing area

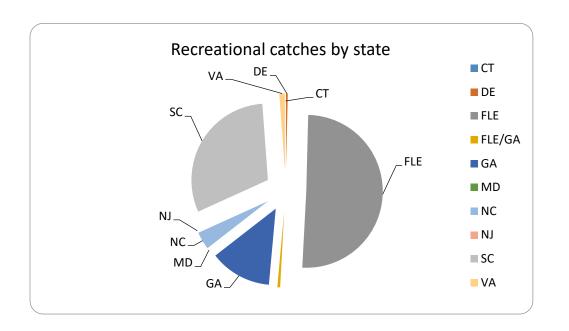


Fishing area	ab1	Percent
Inshore	458867	0.42
Ocean<=3mi	481882	0.44
Ocean>3mi	151614	0.14
(blank)	12447	0.01
total	1104811	1

Most catches within 3 miles from shore and in inshore waters



Recreational catches by state

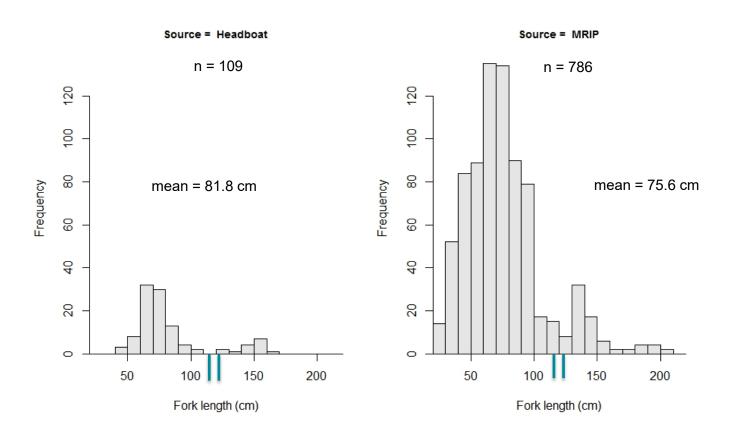


State	ab1	Percent
CT	0	0
DE	4356	0.004
FLE	557410	0.50
FLE/GA	6487	0.006
GA	144099	0.13
MD	49	4.4E-05
NC	41227	0.04
NJ	0	0
SC	338230	0.31
VA	12953	0.01
total	1104810	1

Most catches in Southeast region (FL, SC, and GA)



Recreational length compositions by survey

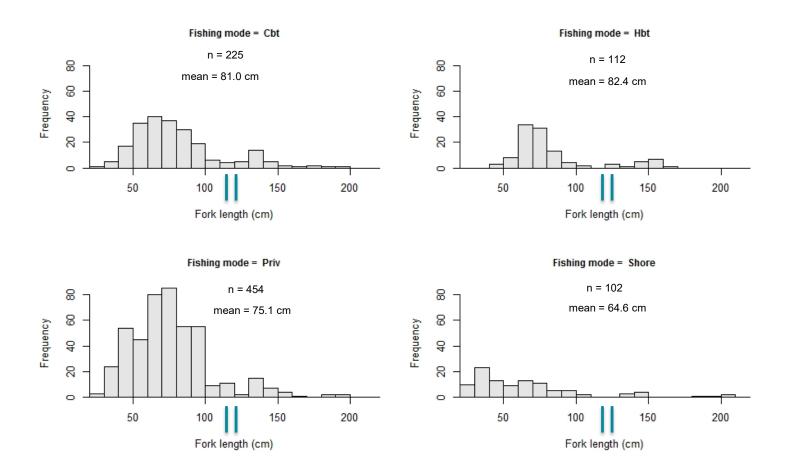


Most blacktips caught are immature (<115-123 cm FL)





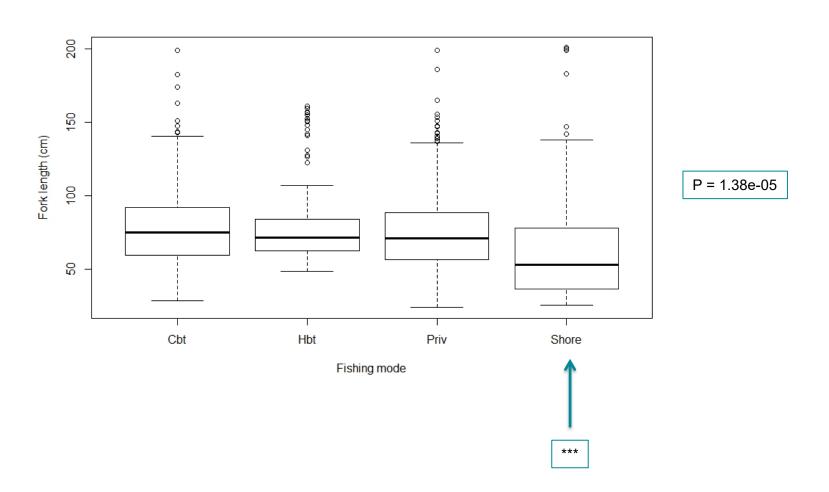
Recreational length compositions by fishing mode



Most blacktips caught are immature (<115-123 cm FL)

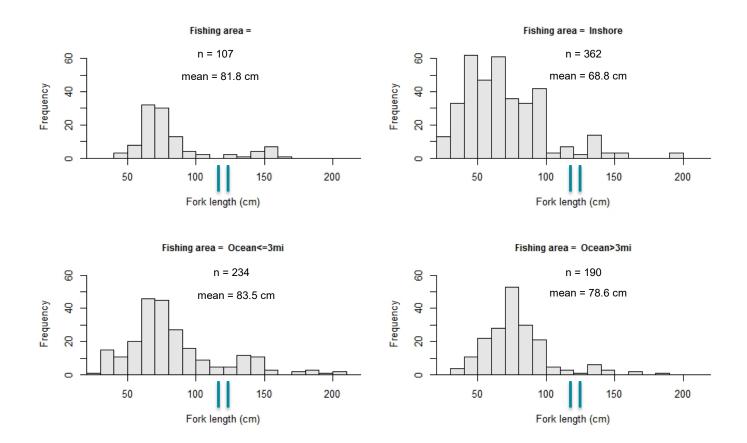


Recreational lengths by fishing mode





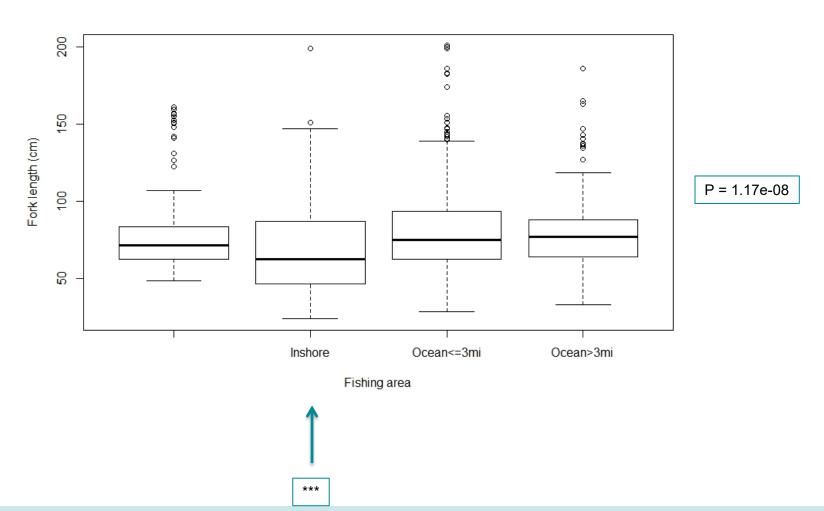
Recreational length compositions by fishing area



Most blacktips caught are immature (<115-123 cm FL)

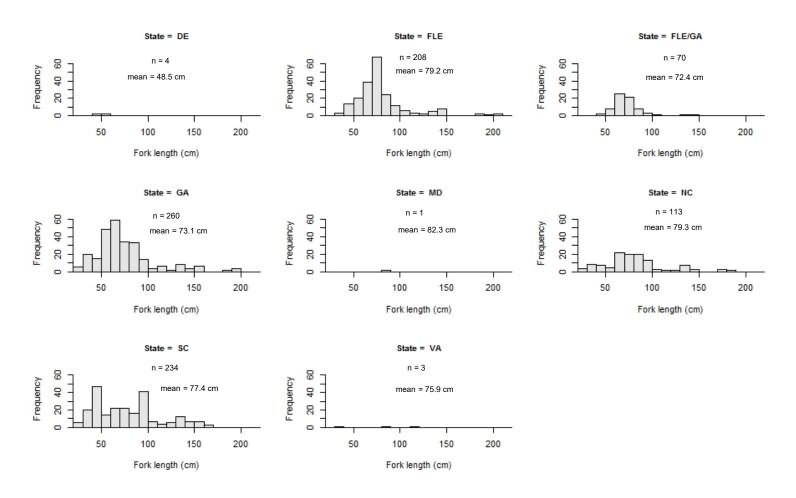


Recreational lengths by fishing area





Recreational length compositions by state



Most blacktips caught are immature (<115-123 cm FL)



Recreational lengths by state

