



NOAA
FISHERIES

SEFSC

Atlantic Blacktip Shark Benchmark Stock Assessment

Catches

SEDAR 65 (Review Workshop)

October 29, 2020

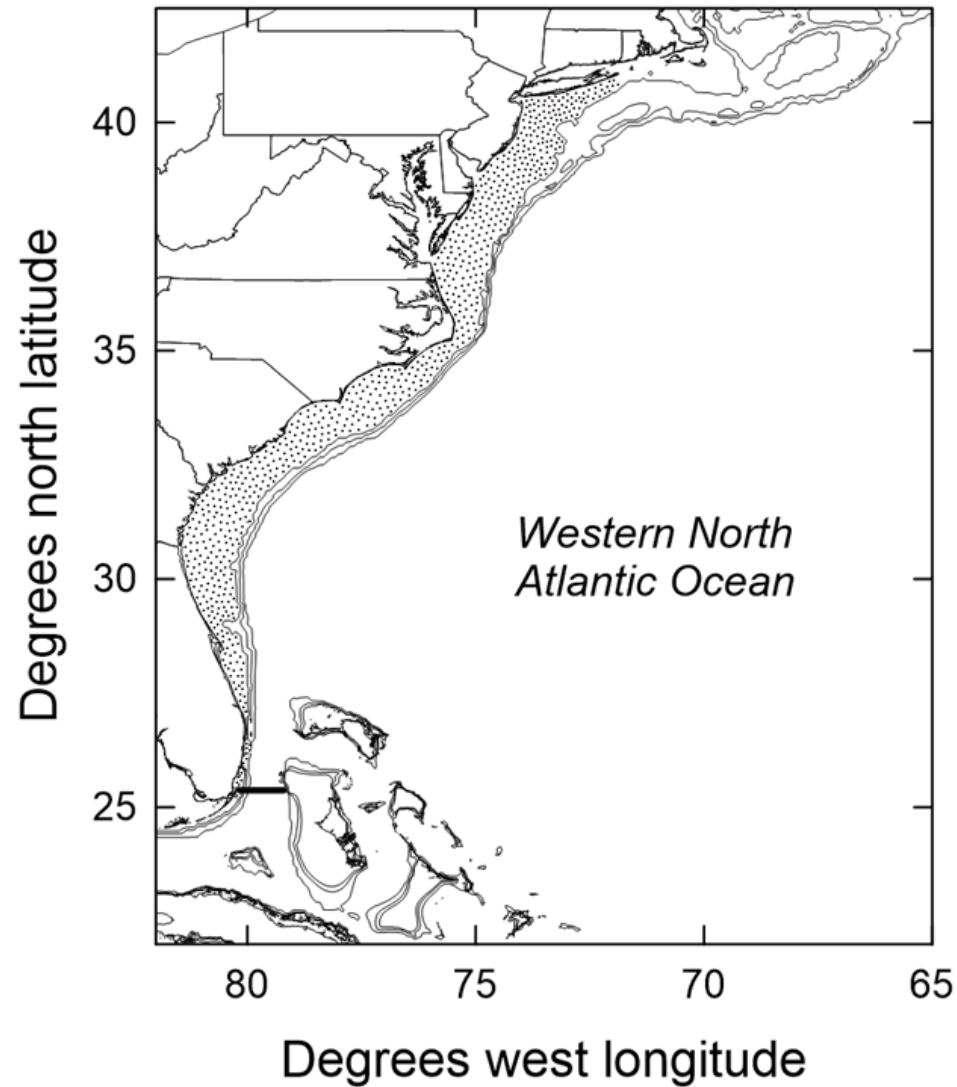


Stock Definition

- 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)

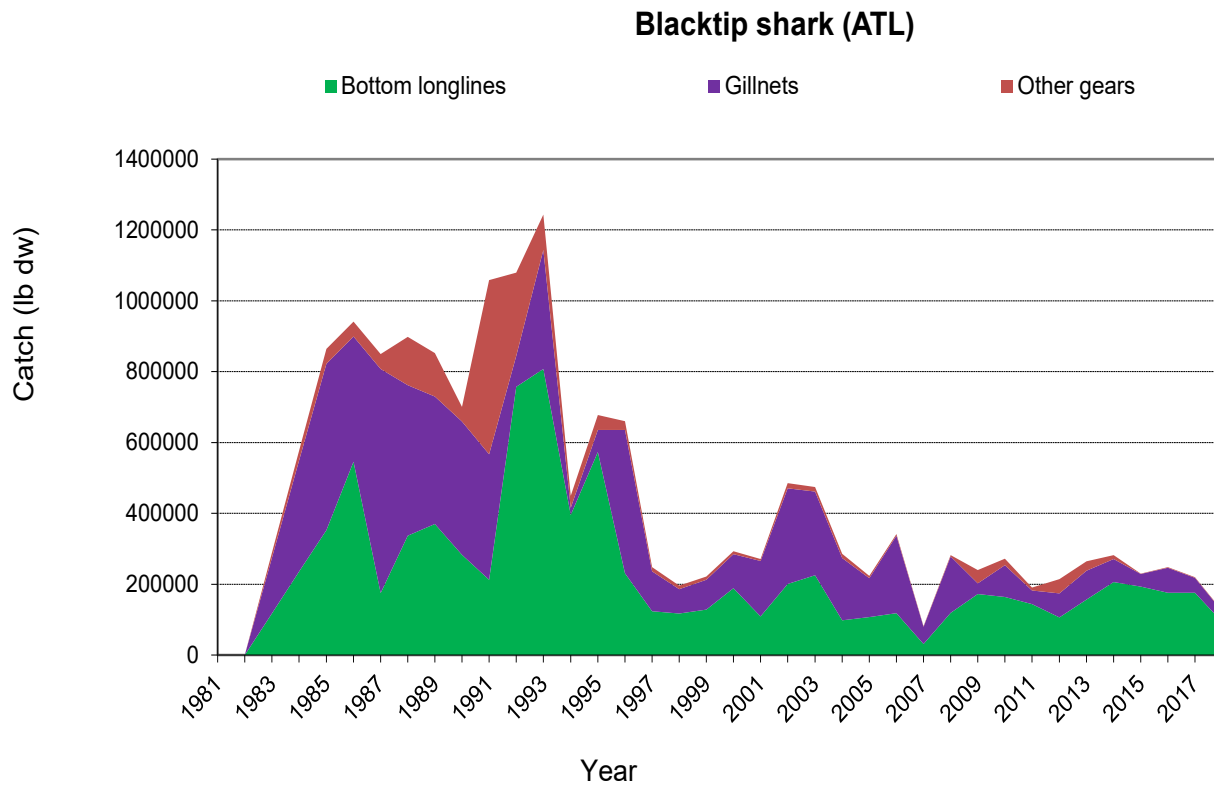
Commercial catches

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

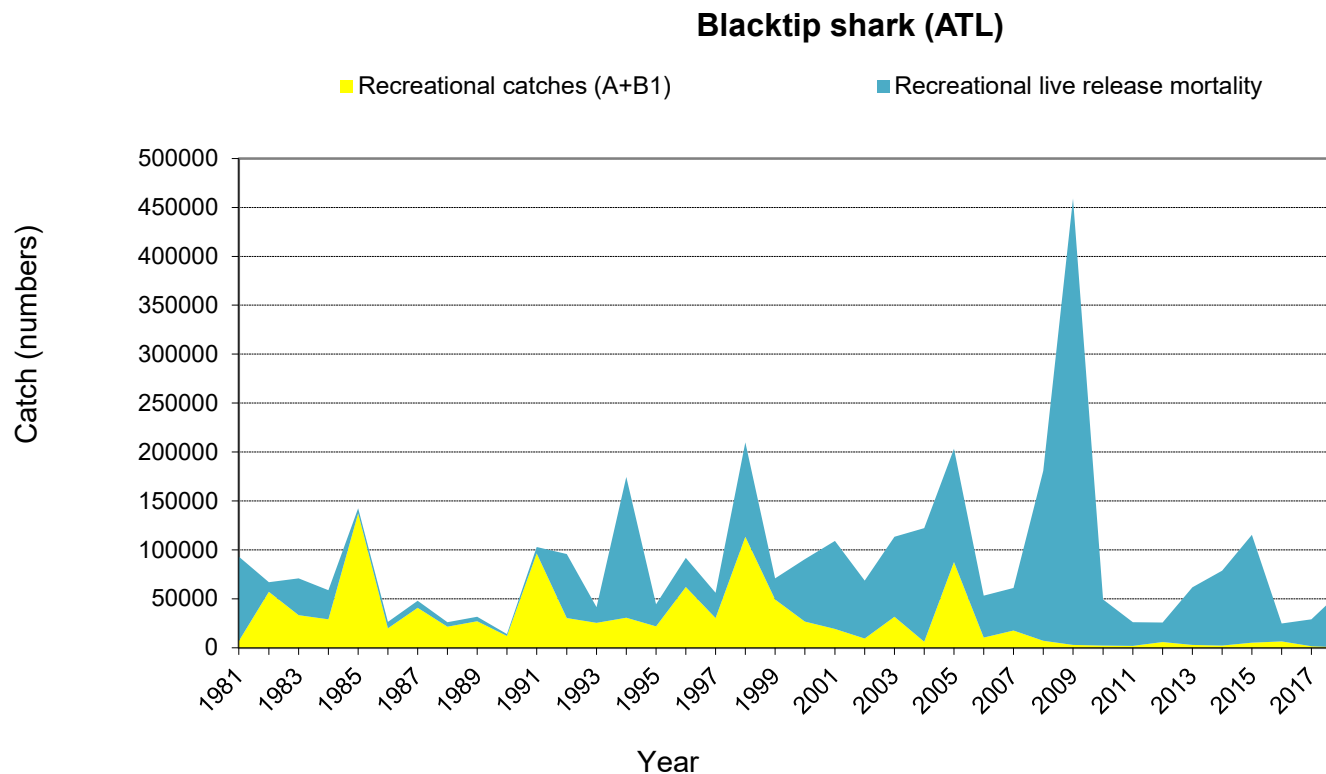


Recreational catches

- 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

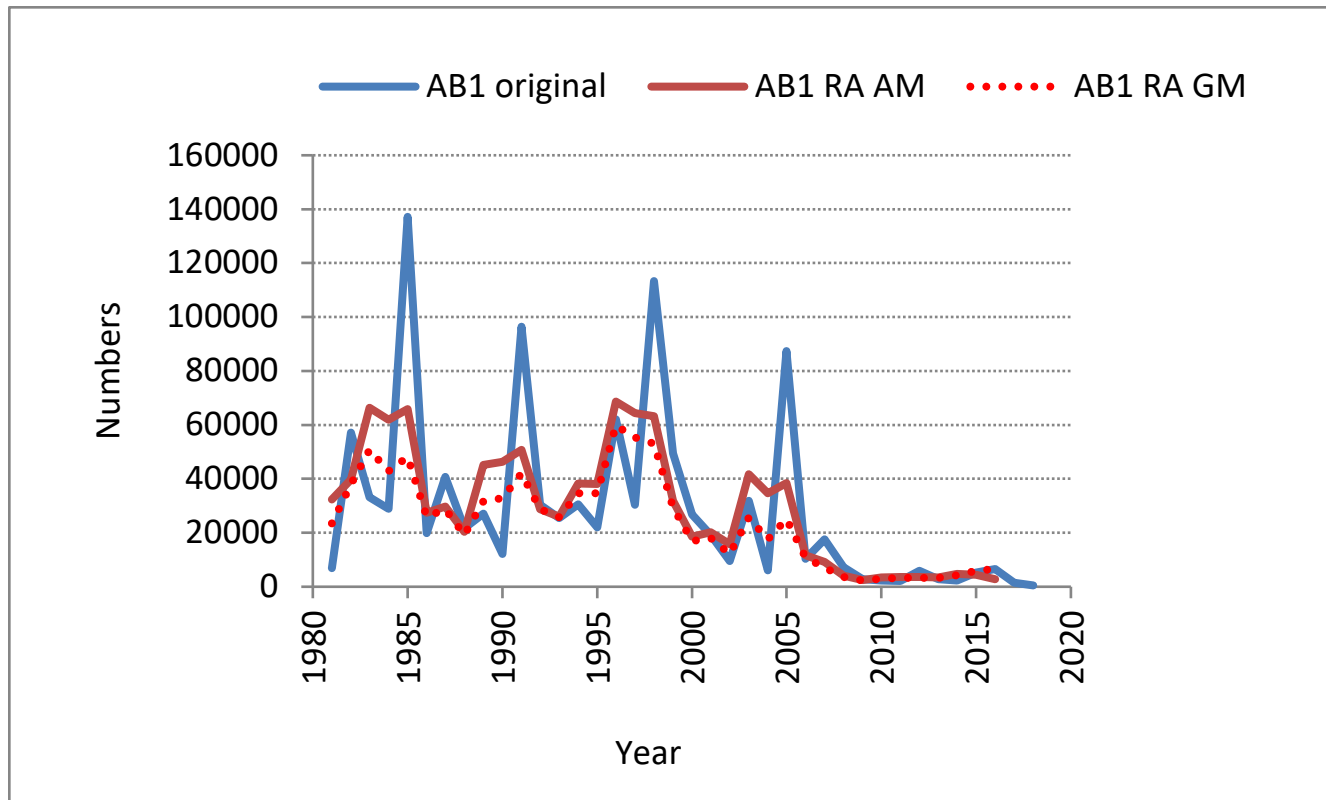


AP decisions for recreational catches at the DW

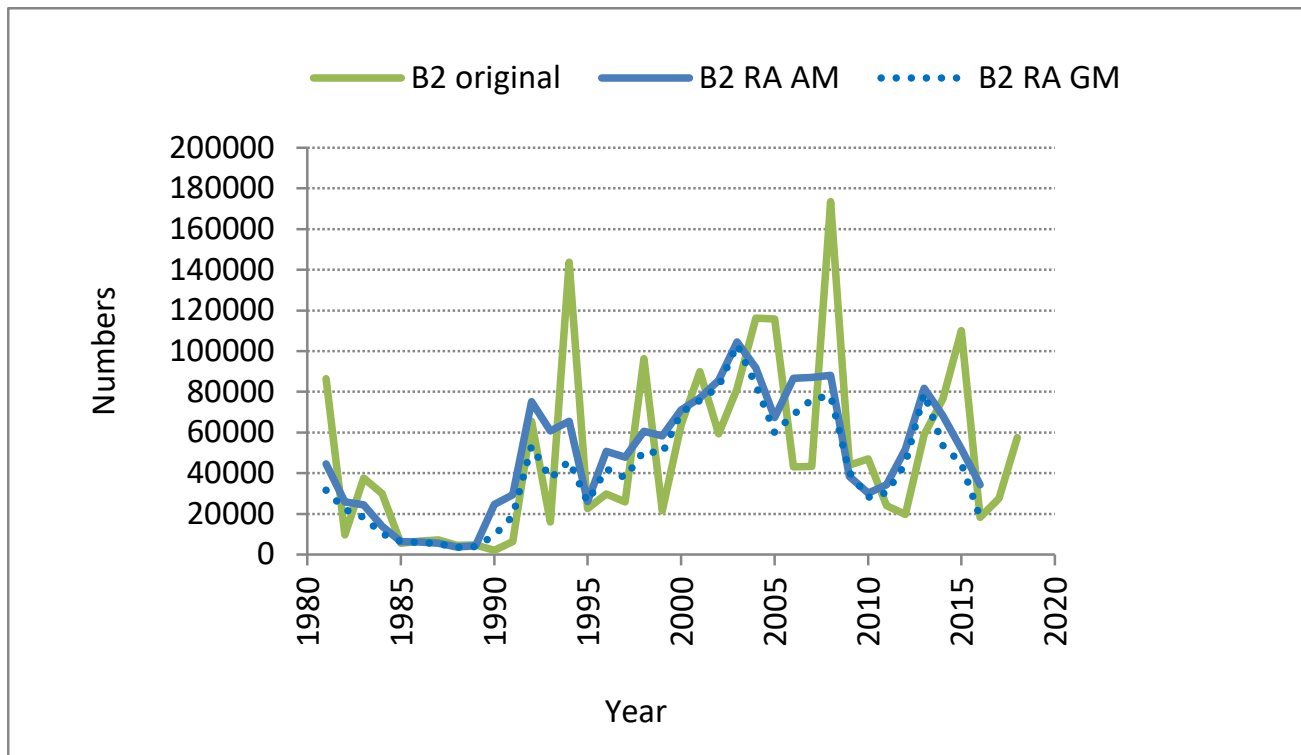
- The 2009 peak in B2 catches was due to 2 records with unusually high estimates (404,126 and 1,925,555 sharks) caught in SC, May-June, Inshore. High PSE and large effort from FES contributed to this unusually high estimate
- We smoothed it by setting it equal to the geometric mean of the 3 preceding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



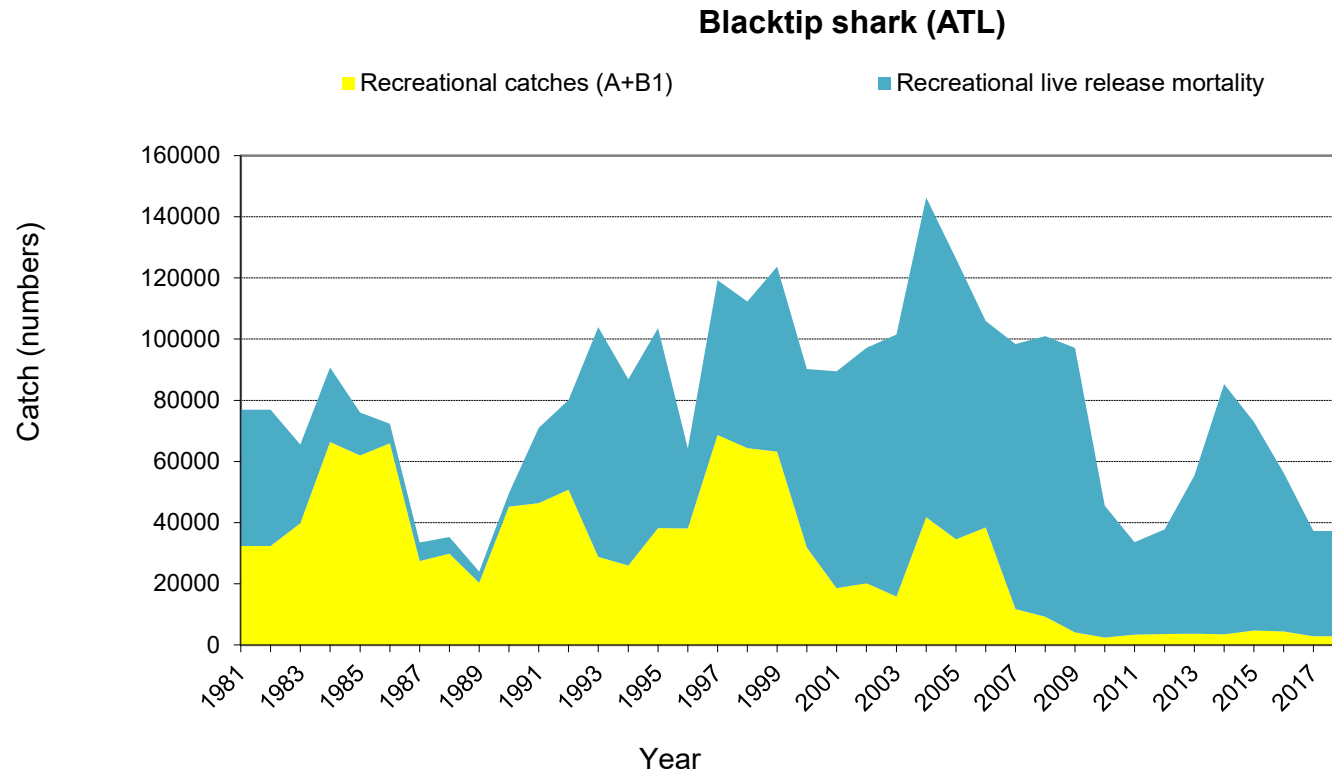
Comparison of recreational catches (AB1)



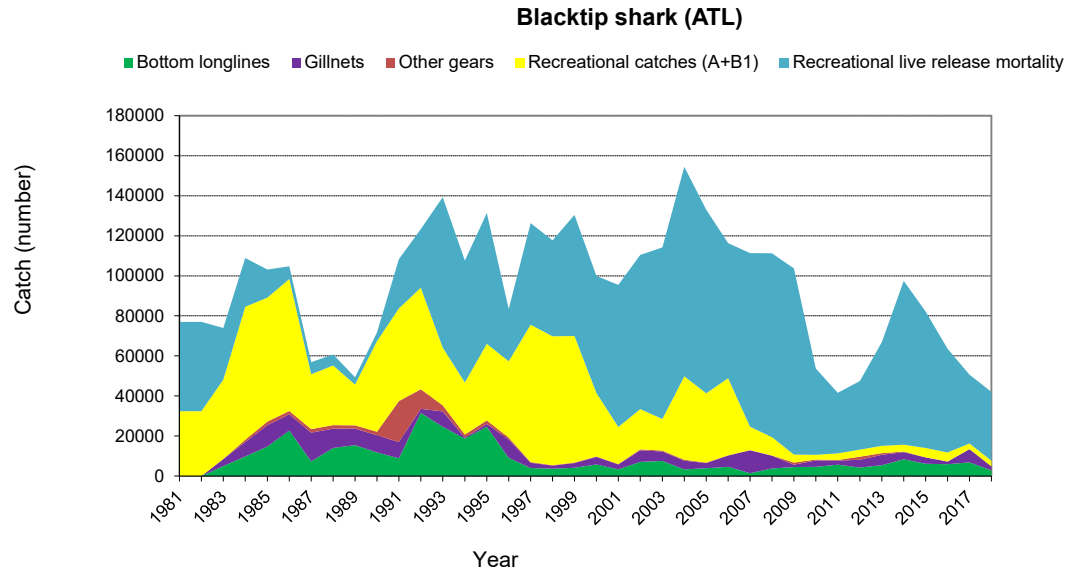
Comparison of recreational catches (B2)



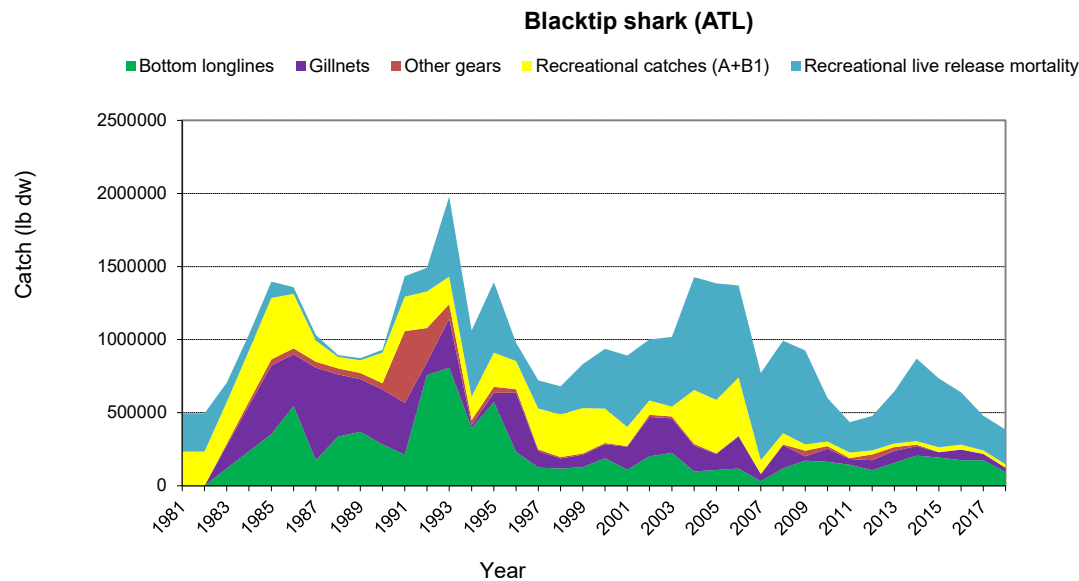
Final recreational catches



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:

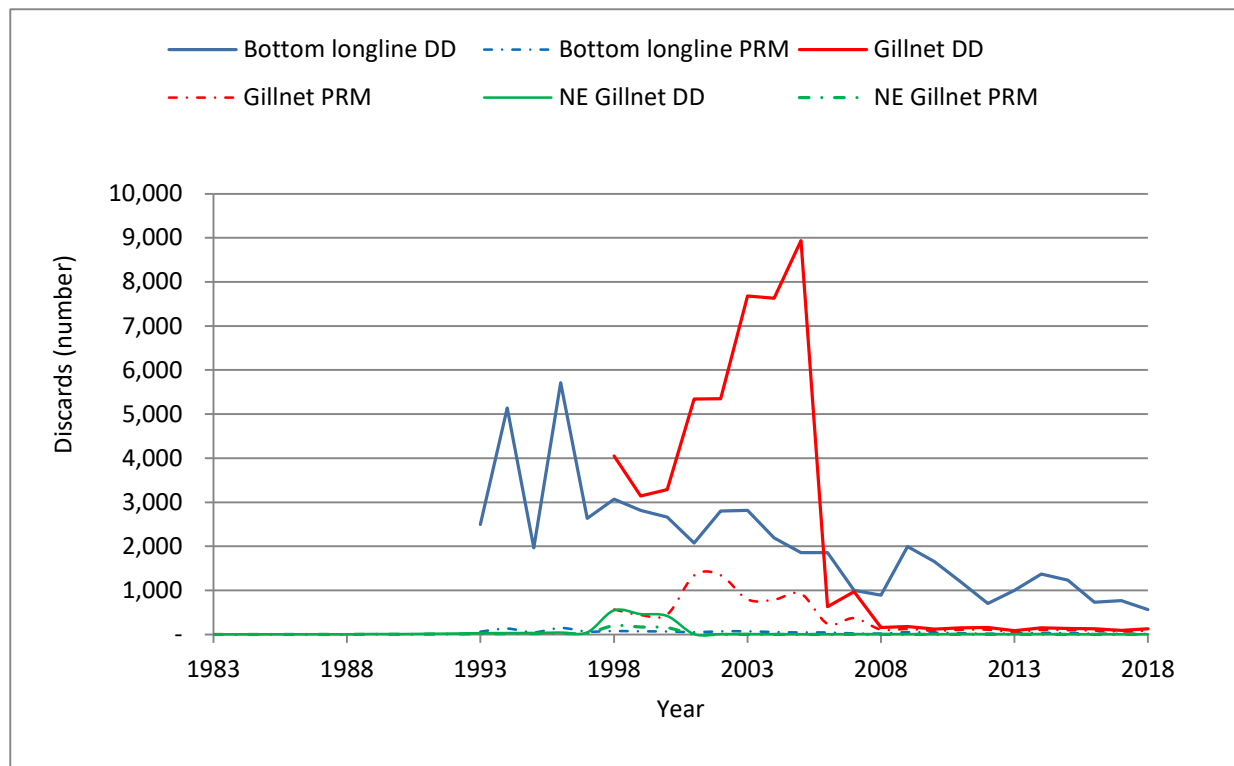
- Used PSEs (-1PSE) available for the 1981-2018 time series for both A+B1 and B2
- Applied the lower 95% CL of 10.8% (vs. 18.5% in reference case) as a post-release mortality rate for B2

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

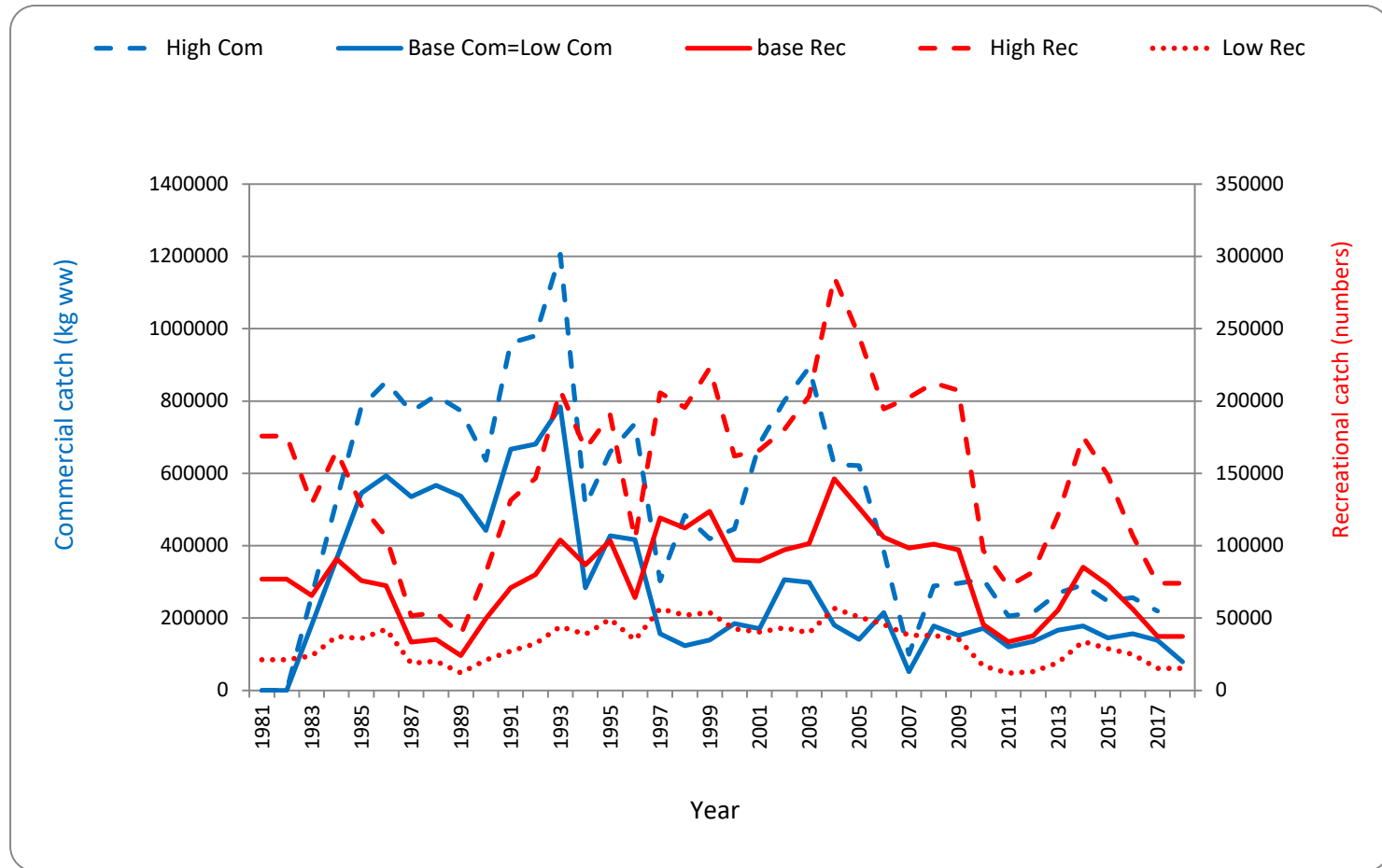
Recreational catches:

- 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	Base	No	No	n/a	1.39	Reference	Base	Base	18.50%
	Gillnets	Base	No	No	n/a	1.39				
	Other gear	Base	No	No	n/a	1.39				
Low catch	Longlines	Base	No	No	n/a	1.39	Low catch	-1PSE	-1PSE	10.80%
	Gillnets	Base	No	No	n/a	1.39				
	Other gear	Base	No	No	n/a	1.39				
High catch	Longlines	Base	Yes	Yes	54.8%	2.00	High catch	+1PSE	+1PSE	28.70%
	Gillnets	Base	Yes	Yes	44.4%	2.00				
	Other gear	Base	No	No	n/a	2.00				

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

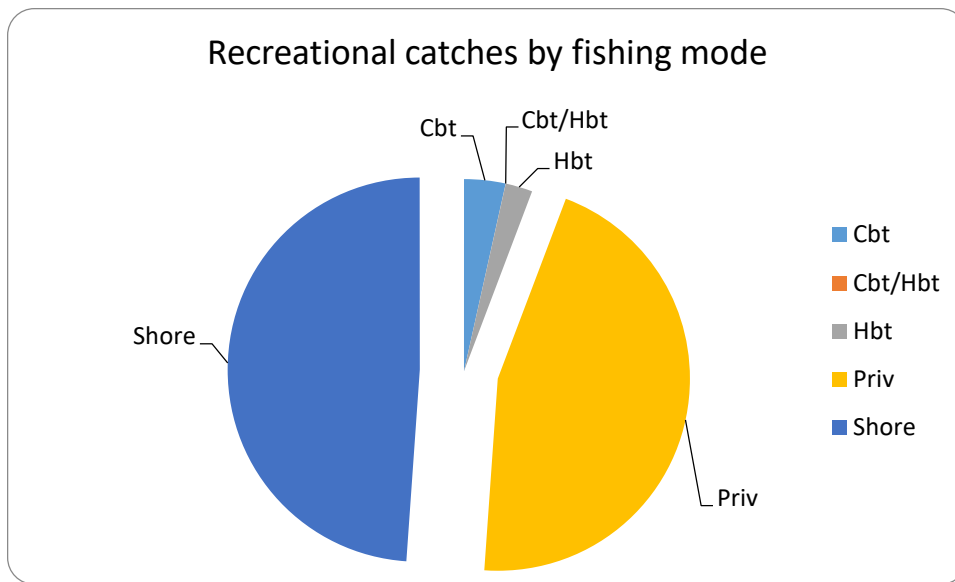
Recreational catches: PSEs

B2

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 SHARK	142,489	43
1986	BLACKTIP SHARK	20,513	24.7
1987	BLACKTIP SHARK	42,914	32.4
1988	BLACKTIP SHARK	21,124	64.5
1989	BLACKTIP SHARK	26,659	30.3
1990	BLACKTIP SHARK	11,637	54.6
1991	BLACKTIP SHARK	95,334	66.9
1992	BLACKTIP SHARK	29,086	36.1
1993	BLACKTIP SHARK	24,927	41.5
1994	BLACKTIP SHARK	31,169	30.5
1995	BLACKTIP SHARK	23,729	40
1996	BLACKTIP SHARK	62,340	35.7
1997	BLACKTIP SHARK	29,948	44.5
1998	BLACKTIP SHARK	113,474	55.2
1999	BLACKTIP SHARK	50,157	37.3
2000	BLACKTIP SHARK	26,375	67.1
2001	BLACKTIP SHARK	18,896	37.8
2002	BLACKTIP SHARK	8,864	39.7
2003	BLACKTIP SHARK	30,924	70
2004	BLACKTIP SHARK	5,506	42.3
2005	BLACKTIP SHARK	86,663	59.7
2006	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 SHARK	1,725	59.3
2011	BLACKTIP SHARK	1,875	99
2012	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 SHARK	407	49.6

1981	BLACKTIP SHARK	467,002	95.2
1982	BLACKTIP SHARK	52,399	51
1983	BLACKTIP SHARK	203,386	74.5
1984	BLACKTIP SHARK	162,402	82.3
1985	BLACKTIP SHARK	33,039	55.8
1986	BLACKTIP SHARK	35,882	43.8
1987	BLACKTIP SHARK	39,701	40.8
1988	BLACKTIP SHARK	24,225	44.5
1989	BLACKTIP SHARK	24,990	40.9
1990	BLACKTIP SHARK	11,651	55
1991	BLACKTIP SHARK	34,696	29
1992	BLACKTIP SHARK	352,323	50.8
1993	BLACKTIP SHARK	86,981	32.8
1994	BLACKTIP SHARK	775,842	41.7
1995	BLACKTIP SHARK	137,833	23.8
1996	BLACKTIP SHARK	164,677	21.2
1997	BLACKTIP SHARK	159,219	34.5
1998	BLACKTIP SHARK	529,699	34.7
1999	BLACKTIP SHARK	115,823	26.5
2000	BLACKTIP SHARK	342,075	36.6
2001	BLACKTIP SHARK	482,494	20.6
2002	BLACKTIP SHARK	320,963	18.6
2003	BLACKTIP SHARK	440,520	33.1
2004	BLACKTIP SHARK	627,484	41.6
2005	BLACKTIP SHARK	625,334	27.7
2006	BLACKTIP SHARK	232,085	23.8
2007	BLACKTIP SHARK	233,561	31.2
2008	BLACKTIP SHARK	937,342	42.2
2009	BLACKTIP SHARK	2,466,941	61.6
2010	BLACKTIP SHARK	252,897	28.5
2011	BLACKTIP SHARK	128,199	53.9
2012	BLACKTIP SHARK	105,162	46.3
2013	BLACKTIP SHARK	316,792	33.6
2014	BLACKTIP SHARK	412,728	48.2
2015	BLACKTIP SHARK	593,811	23.2
2016	BLACKTIP SHARK	97,164	25.7
2017	BLACKTIP SHARK	147,576	22.2
2018	BLACKTIP SHARK	308,116	32.6

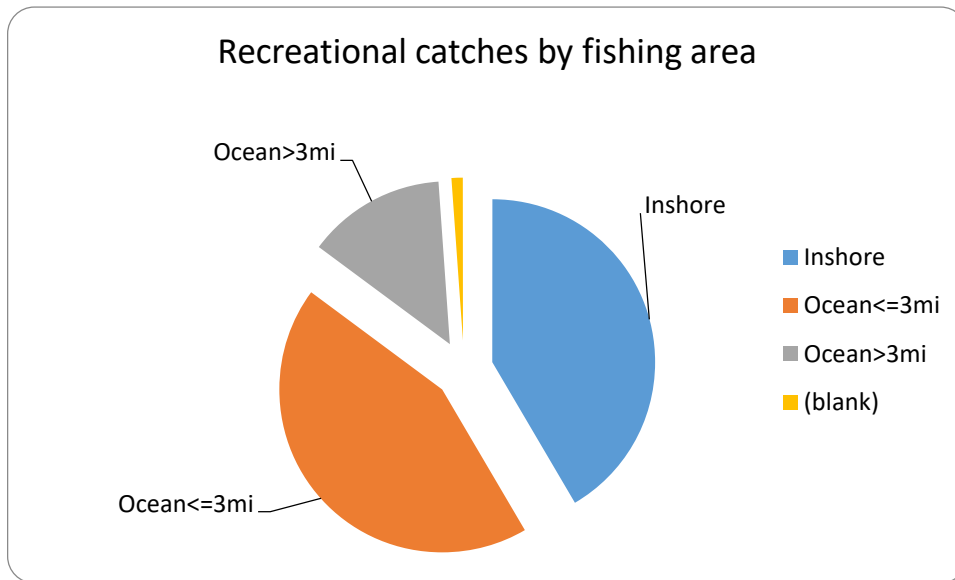
Recreational catches by fishing mode



Fishing mode	ab1	Percent
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

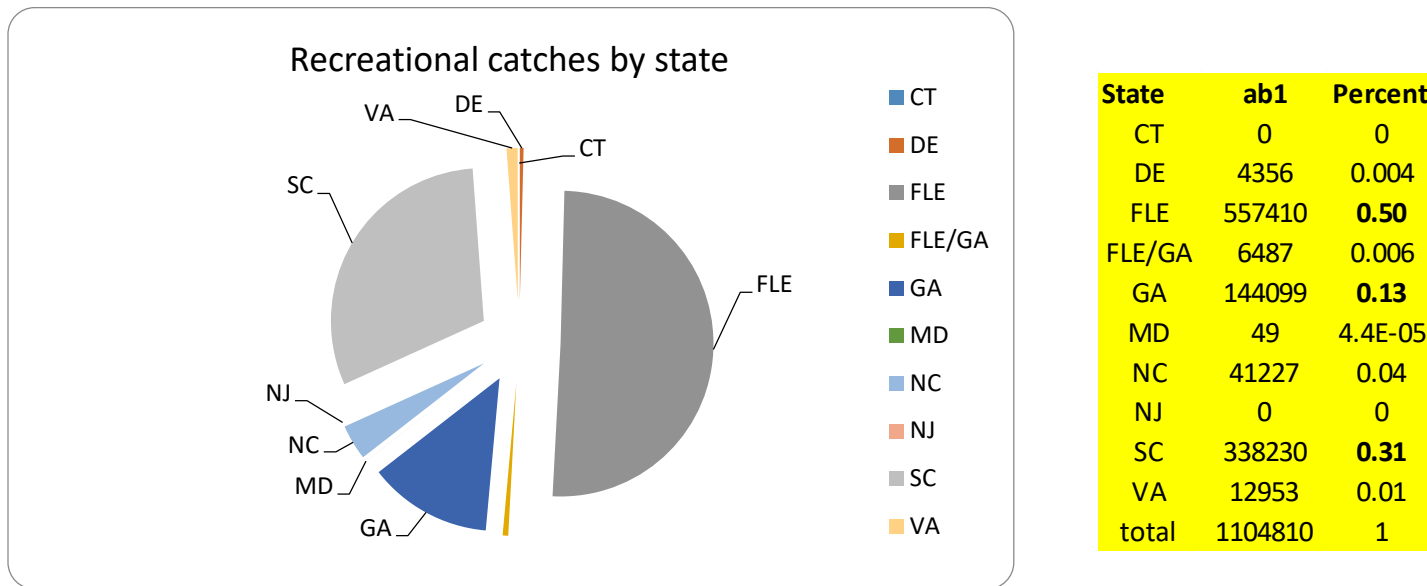
Recreational catches by fishing area



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

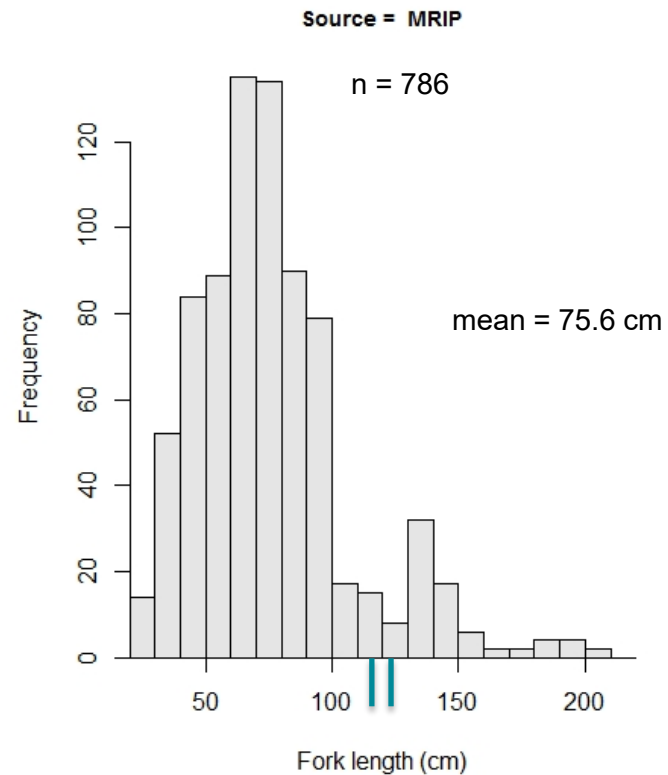
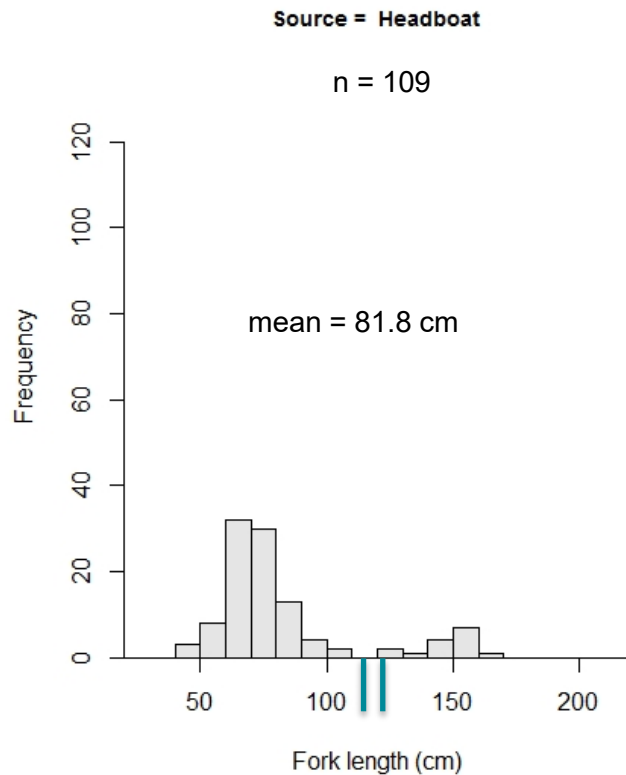
Most catches within 3 miles from shore and in inshore waters

Recreational catches by state



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

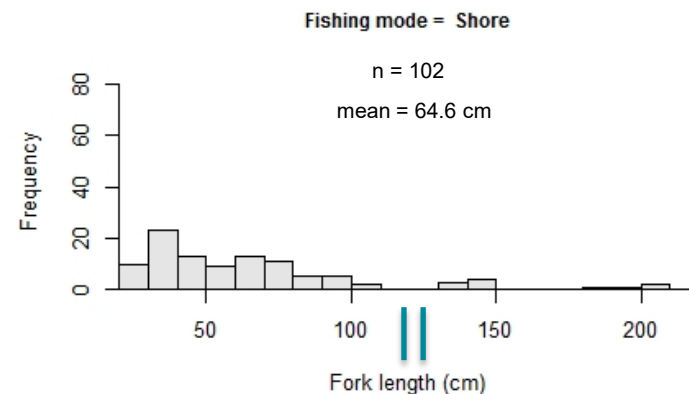
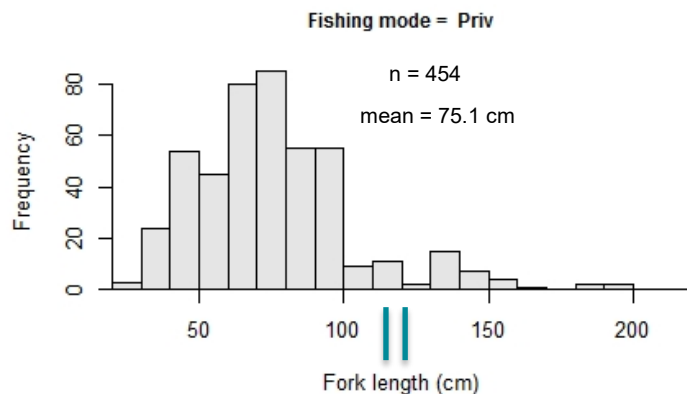
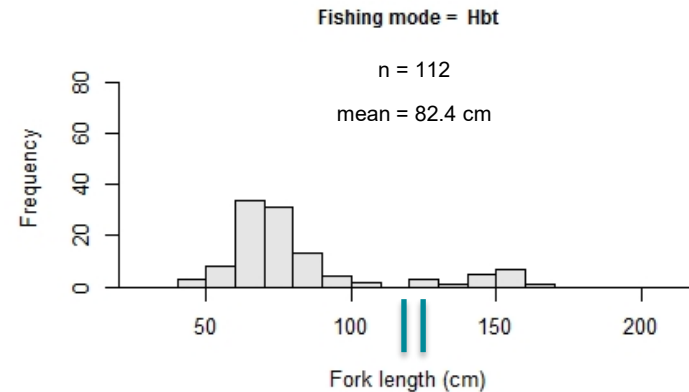
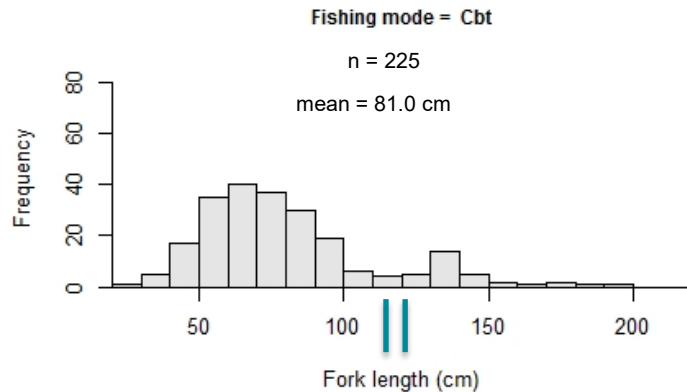
Recreational length compositions by survey



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

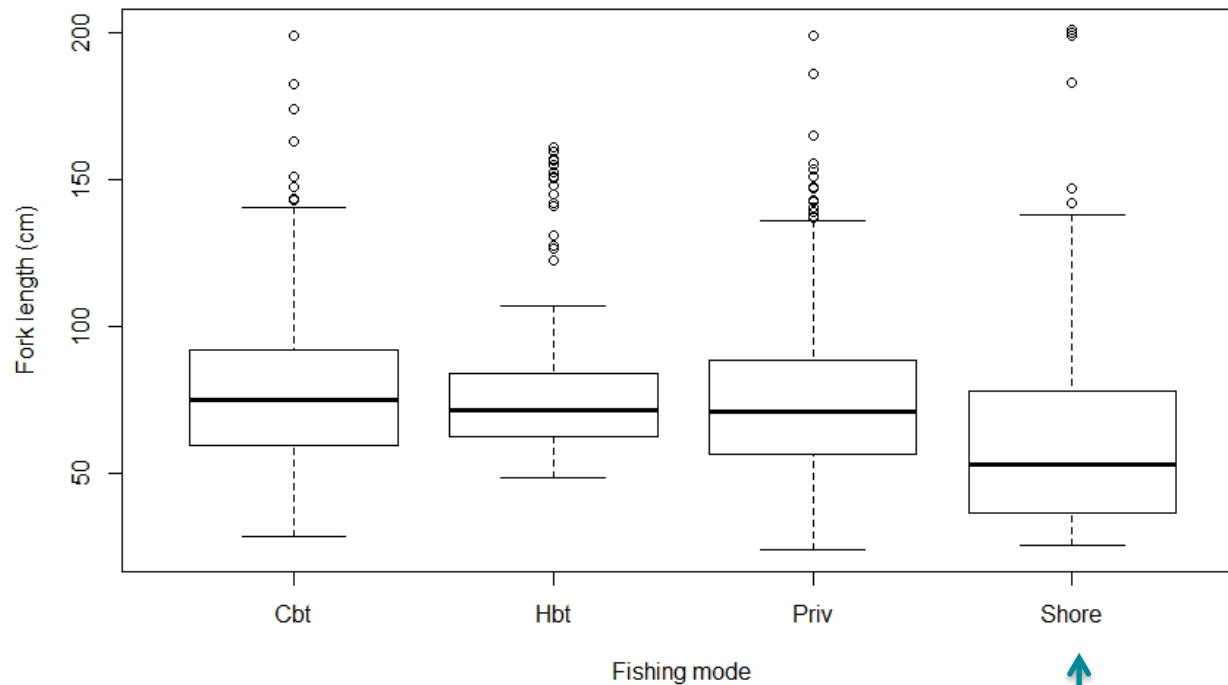
P = 0.039

Recreational length compositions by fishing mode



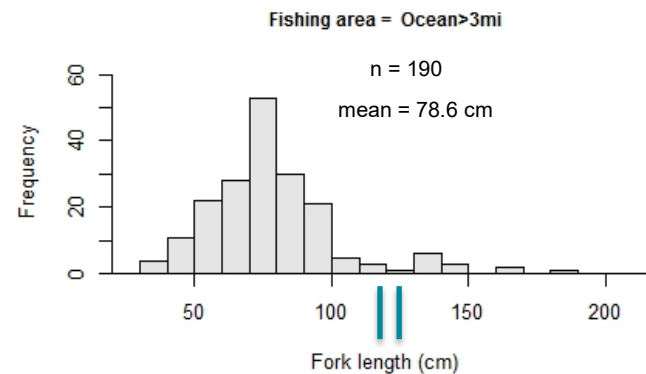
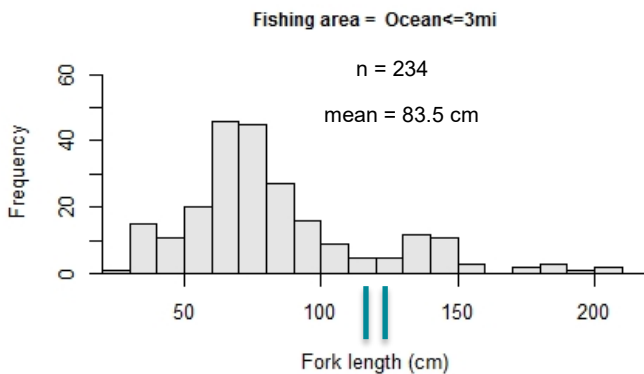
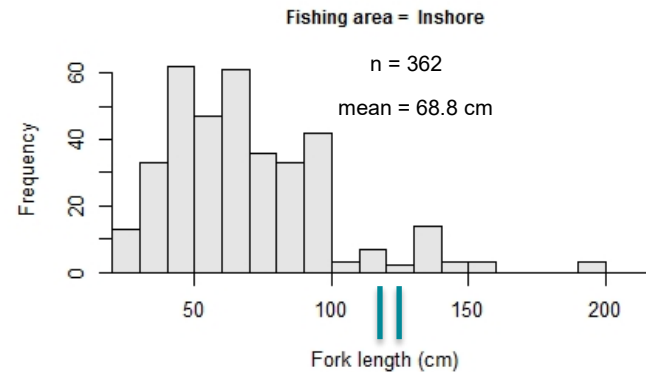
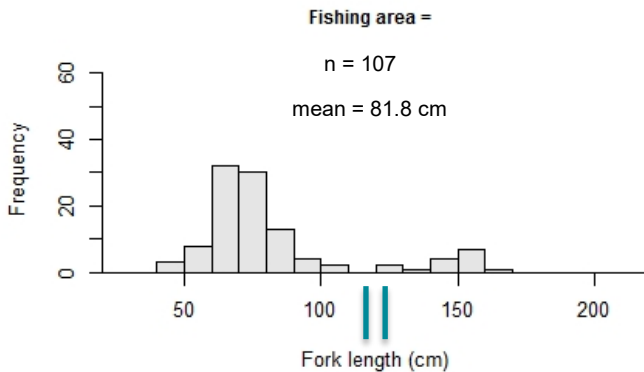
Most blacktips caught are immature (<115-123 cm FL)

Recreational lengths by fishing mode



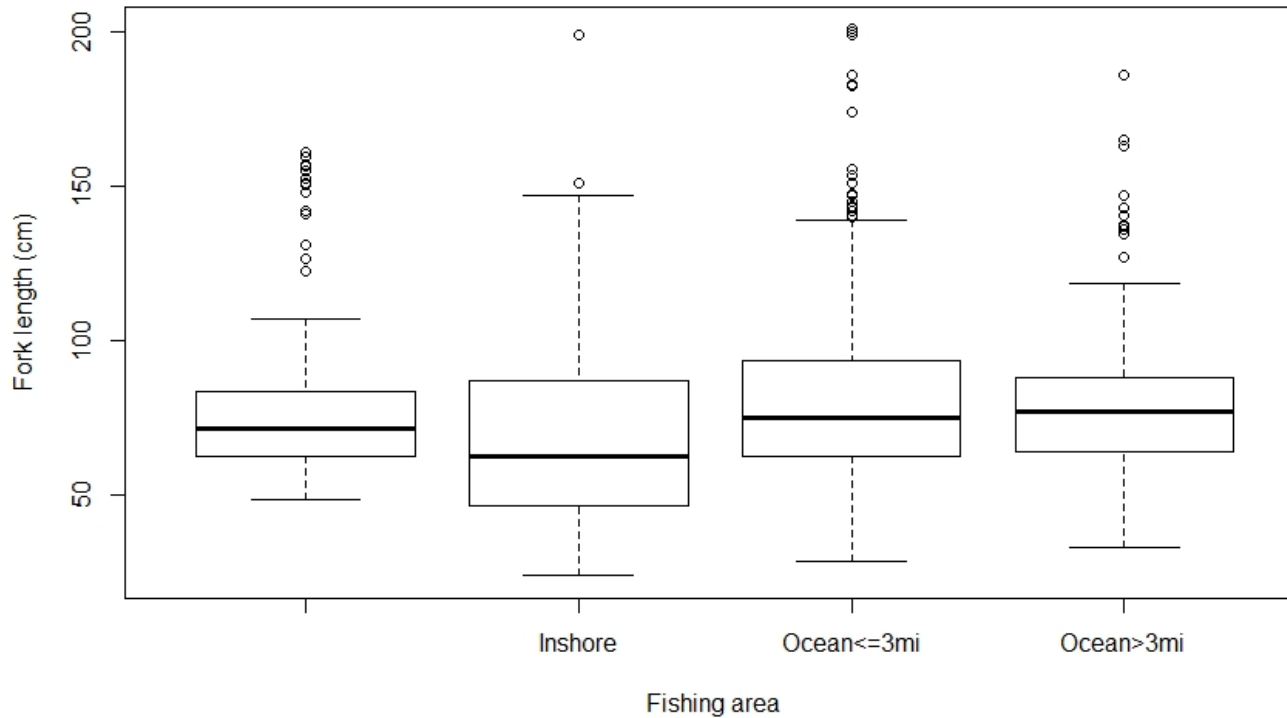
P = 1.38e-05

Recreational length compositions by fishing area



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

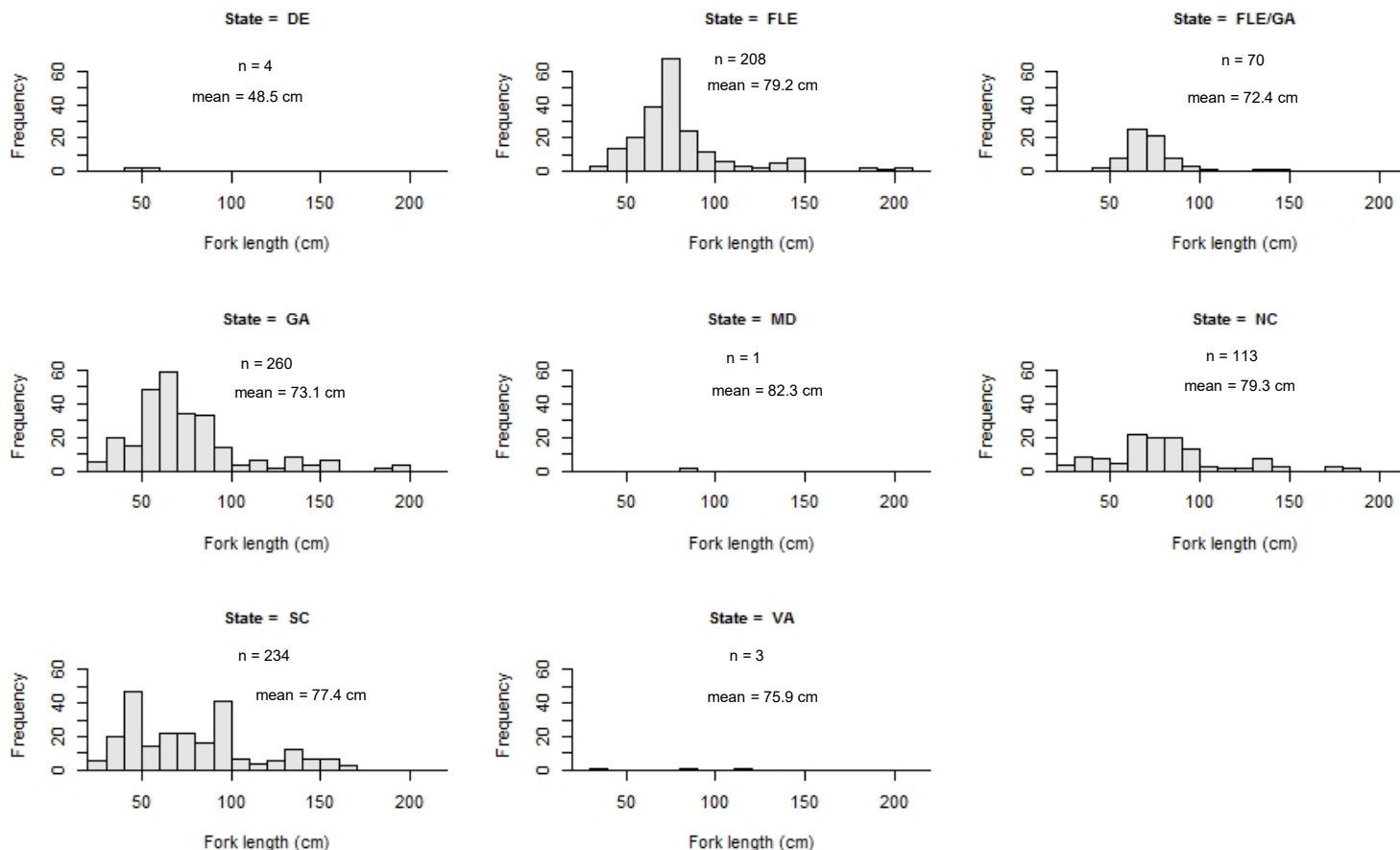
Recreational lengths by fishing area



P = 1.17e-08

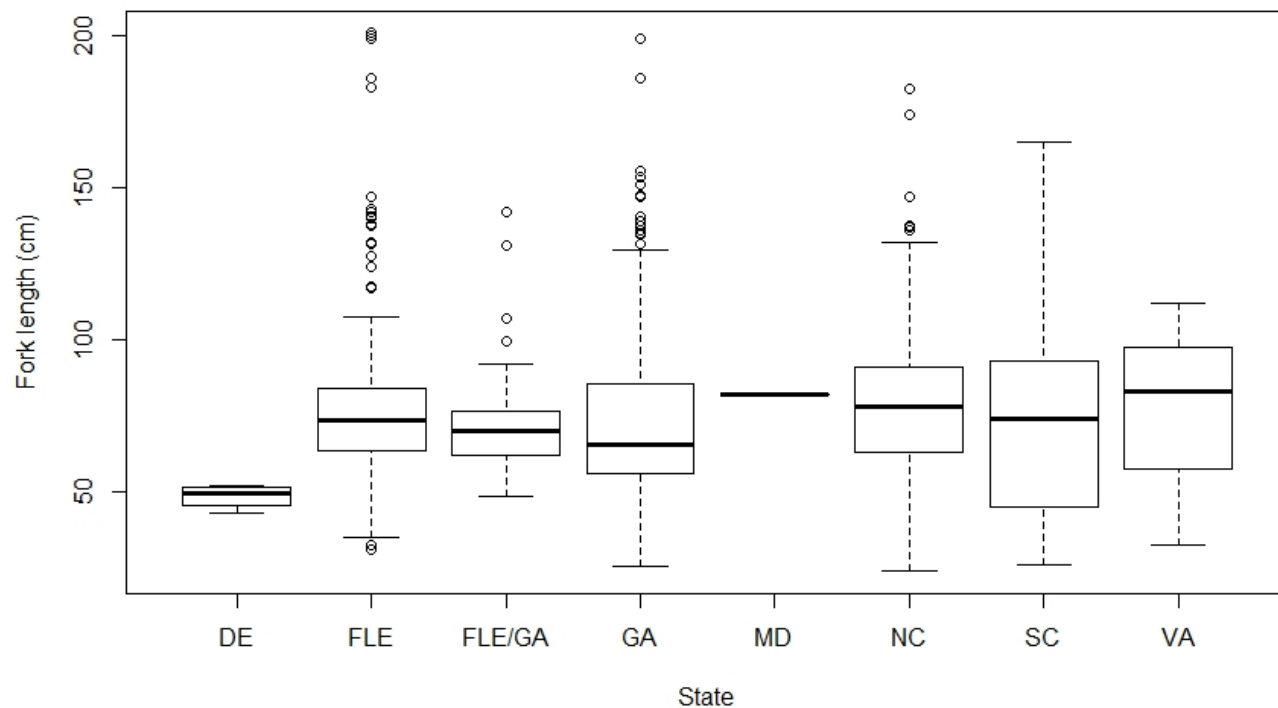


Recreational length compositions by state



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

Recreational lengths by state



P = 0.162