

North Carolina Black Bear Annual Report

Updated with 2020 Data

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Funding for the Black Bear Program was partially provided through a Pittman-Robertson Wildlife Restoration Grant. The Federal Aid in Wildlife Restoration Act, popularly known as the Pittman-Robertson Act, was approved by Congress on September 2, 1937, and began functioning July 1, 1938. The purpose of this Act was to provide funding for the selection, restoration, rehabilitation and improvement of wildlife habitat, wildlife management research, and the distribution of information produced by the projects. The Act was amended October 23, 1970, to include funding for hunter training programs and the development, operation and maintenance of public target ranges.

Funds are derived from an 11 percent Federal excise tax on sporting arms, ammunition, and archery equipment, and a 10 percent tax on handguns. These funds are collected from the manufacturers by the Department of the Treasury and are apportioned each year to the States and Territorial areas (except Puerto Rico) by the Department of the Interior on the basis of formulas set forth in the Act. Funds for hunter education and target ranges are derived from one-half of the tax on handguns and archery equipment.

Each state's apportionment is determined by a formula which considers the total area of the state and the number of licensed hunters in the state. The program is a cost-reimbursement program, where the state covers the full amount of an approved project then applies for reimbursement through Federal Aid for up to 75 percent of the project expenses. The state must provide at least 25 percent of the project costs from a non-federal source.



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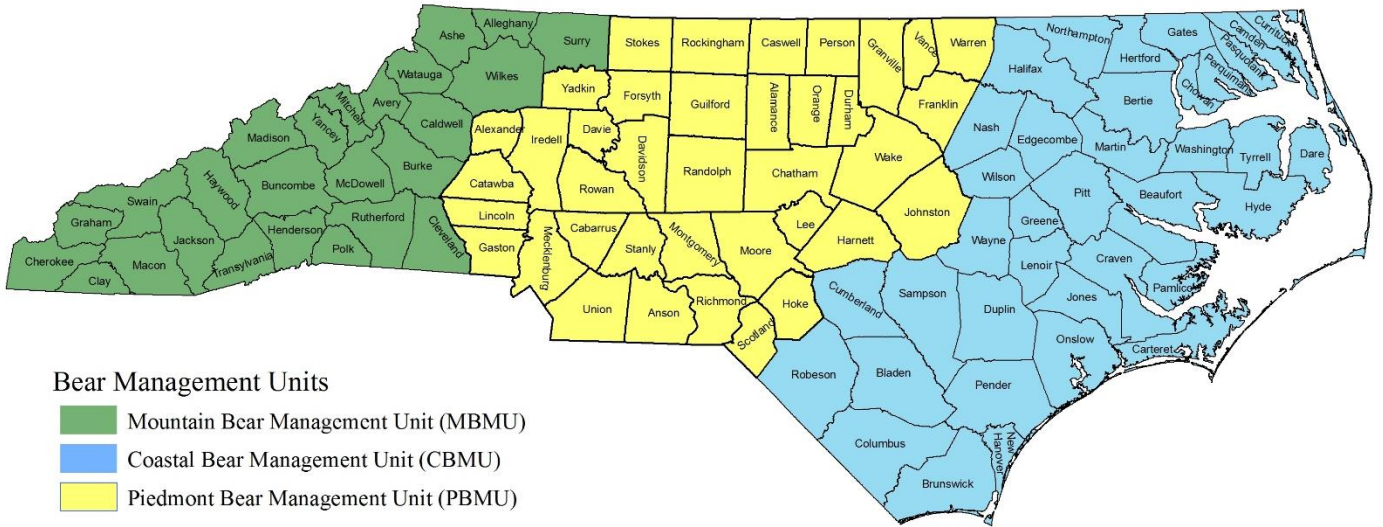
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For more information on black bears in North Carolina, please visit our website at: www.ncwildlife.org/bear

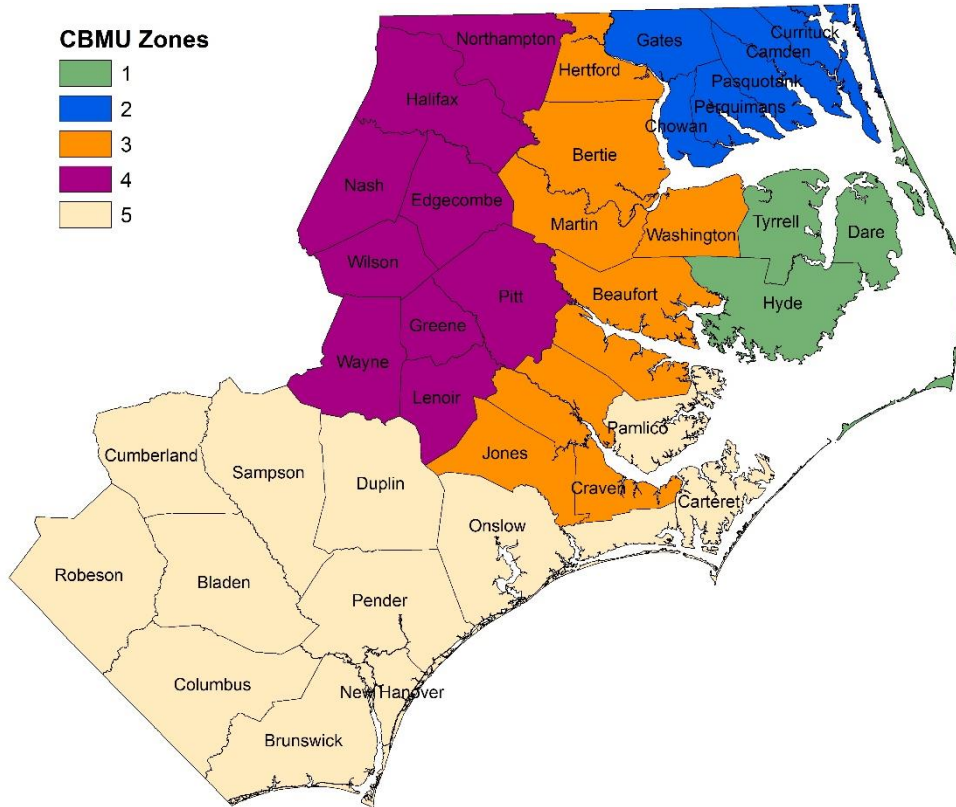
There you will find information on:

- NCWRC’s 2012-2022 Black Bear Management Plan
- BearWise and how to prevent and resolve conflicts with bears.
- How to participate in the Black Bear Cooperator Program.
- Harvest Reports and Summaries

Black Bear Management Units



Coastal Bear Management Unit (CBMU) Zones



Statewide and Bear Management Unit Harvest

The 2020 bear hunting seasons and regulations can be found in Appendix A. The statewide reported harvest for 2020 was a record harvest of 3,748 bears (Figure 1), an 8% increase from 2019 (N=3,476; Table 1). The 2020 season was the 6th year in a row in which harvest exceeded 3,000 bears and was the highest reported harvest since 1976 (Table 1). Record breaking harvest totals were recorded in the Coastal and Piedmont Bear Management Units (BMU), 2,238 and 81 respectively (Figure 1; Table 2). The Mountain BMU experienced its second-highest recorded harvest of 1,429 bears (Figure 1; Table 2). The increase in harvest likely reflects the “COVID effect” that several states, including North Carolina, have experienced. During 2020, many North Carolinians reconnected with the outdoors, including participating in regulated hunting. A record for the number of bear e-stamps were issued (n=88,411 bear e-stamps), which was also an 8% increase from the 2019 season. Male harvest increased 4% in 2020, while female harvest increased 13% (Table 1). Females comprised 42% of the reported harvest, which is the highest ratio that females have comprised the harvest since 1998.

Up until the late 1980's, the majority of bears harvested in North Carolina were in the Mountain Bear Management Unit (MBMU) versus the Coastal Bear Management Unit (CBMU), partly due to the closure of several coastal counties to bear hunting (Table 3; Figure 2). As coastal bear populations increased and bear hunting seasons expanded in the CBMU counties, bear harvest levels increased and started to exceed bear harvest levels in the MBMU. Since 1993, most bears harvested in North Carolina are from the CBMU (Table 3; Figure 2). During the 2020 season, 60% of bears harvested in North Carolina were from the CBMU, while 38% and 2% of bears were harvested in the MBMU and PBMU, respectively.

The composition of the statewide harvest that occurs in the mountains fluctuates annually, largely due to mast abundance and weather (Table 2 and 3). The increase in the percent of bears harvested from the MBMU (+11%; Table 2) during the 2020 season was largely due to the lower mast production from the previous year, which makes bears more vulnerable to harvest due to both their limited movements searching for food and less attraction to bait. The sex ratio of the CBMU harvest is increasingly biased towards females, while in the MBMU in low mast years, females comprise a higher portion of the MBMU harvest, as was the case in 2018 and 2020 (Table 4). Until 2005, there were no counties in the Piedmont Bear Management Unit (PBMU) with a bear hunting season. Starting in 2014, all 100 counties in North Carolina have a regulated bear hunting season, though harvest is still concentrated on the fringes of the CBMU, MBMU, and Virginia (Figure 3). The highest number of bears harvested per square mile occurs in the eastern portion of the CBMU (Tyrrell and Hyde counties; Figure 3). In some counties, the bears harvested per square mile is not necessarily reflective of the bear population, but rather limits on hunter access. For example, although Dare County has one of the densest bear populations in the United States, hunter access is very limited due to the amount of federal lands (i.e., Alligator River National Wildlife Refuge; Dare County Bombing Range) where bear hunting is restricted or prohibited (Figure 3).

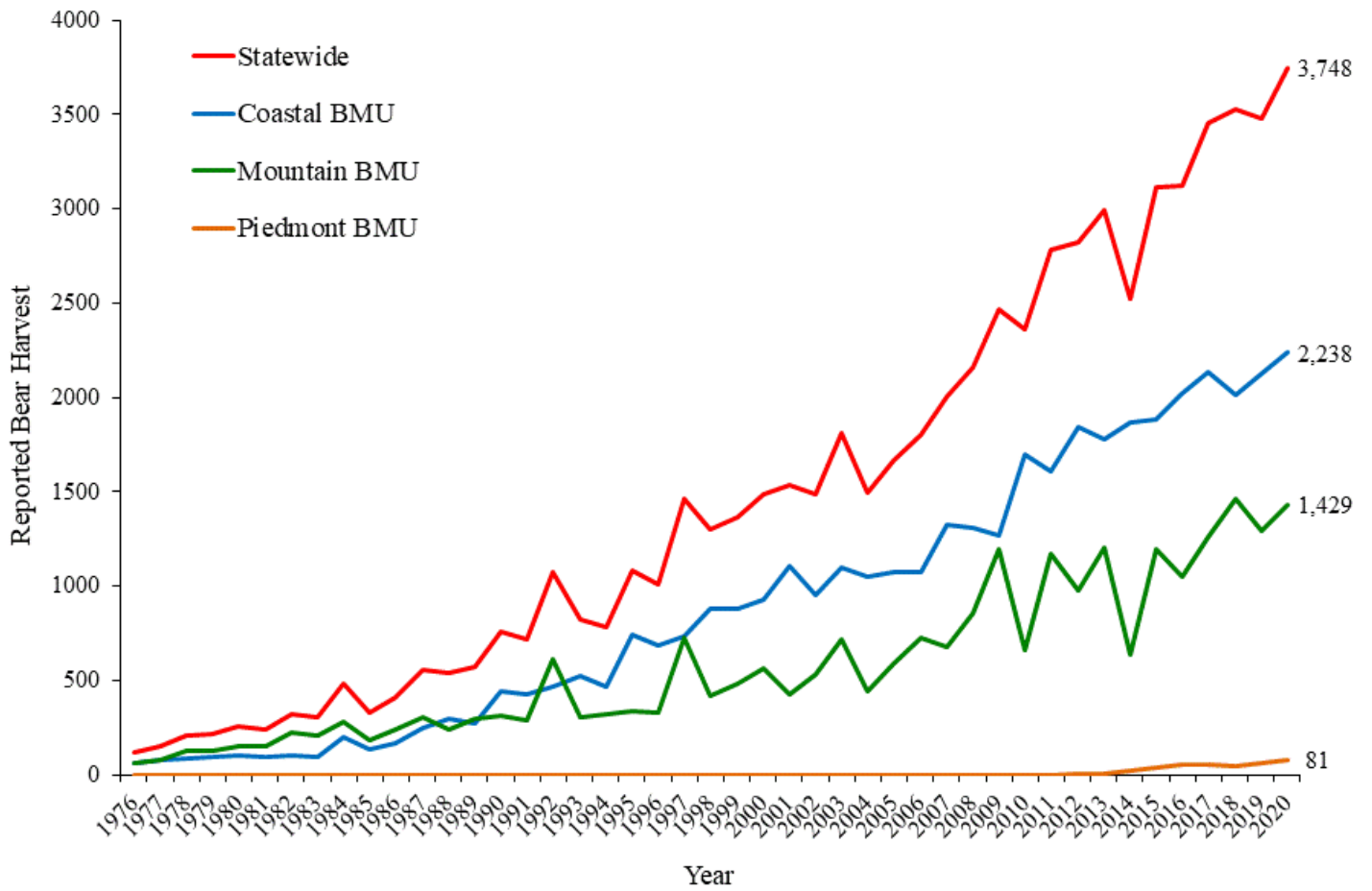


Figure 1. Statewide and regional harvest from 1976 through 2020.

Table 1. Statewide reported harvest of male and female bears from 1976 through 2020.

Year	Male		Female		All Bears	
	Harvest	Percent Change	Harvest	Percent Change	Total Harvest	Percent Change
1976	71	--	48	--	121	--
1977	84	18%	68	42%	154	27%
1978	144	71%	68	0.0%	214	39%
1979	124	-14%	93	37%	219	3%
1980	24	-81%	27	-71%	254	16%
1981	127	429%	79	193%	250	-2%
1982	178	40%	118	49%	319	27%
1983	189	6%	96	-19%	305	-4%
1984	323	71%	157	64%	481	58%
1985	198	-39%	124	-21%	322	-33%
1986	263	33%	144	16%	409	27%
1987	386	47%	167	16%	554	35%
1988	334	-14%	233	40%	567	3%
1989	310	-7%	237	2%	547	-4%
1990	455	47%	304	28%	760	39%
1991	416	-9%	294	-3%	716	-6%
1992	639	54%	420	43%	1060	48%
1993	505	-21%	316	-25%	821	-23%
1994	470	-7%	315	-0.3%	785	-4%
1995	657	40%	427	36%	1,084	38%
1996	593	-10%	417	-2%	1,010	-7%
1997	825	39%	638	53%	1,464	45%
1998	723	-12%	577	-10%	1,300	-11%
1999	820	13%	546	-5%	1,366	5%
2000	891	9%	599	10%	1,490	9%
2001	937	5%	596	-0.5%	1,533	3%
2002	939	0.2%	546	-8%	1,485	-3%
2003	1080	15%	732	34%	1,812	22%
2004	947	-12%	550	-25%	1,497	-17%
2005	1,024	8%	637	16%	1,661	11%
2006	1,142	12%	658	3%	1,800	8%
2007	1,198	5%	807	23%	2,005	11%
2008	1,323	10%	839	4%	2,162	8%
2009	1,537	16%	931	11%	2,468	14%
2010	1,481	-4%	882	-5%	2,363	-4%
2011	1,742	18%	1,033	17%	2,779	18%
2012	1,670	-4%	1,157	12%	2,827	2%

Year	Male		Female		All Bears	
	Harvest	Percent Change	Harvest	Percent Change	Total Harvest	Percent Change
2013	1,788	7%	1,203	4%	2,991	6%
2014	1,490	-17%	1,030	-14%	2,521	-16%
2015	1,930	31%	1,185	15%	3,118	24%
2016	1,839	-5%	1,285	8%	3,125	0.2%
2017	2,159	17%	1,295	1%	3,454	11%
2018	2,069	-4%	1,461	13%	3,530	2%
2019	2,096	1%	1,380	-6%	3,476	-2%
2020	2,183	4%	1,565	13%	3,748	8%

Table 2. Harvest of registered black bears in the CBMU and MBMU and percent change in registered harvest from 1980-2020.

Year	CBMU						MBMU					
	Male		Female		Total ¹		Male		Female		Total ¹	
	Harvest	% change	Harvest	% change	Harvest	% change	Harvest	% change	Harvest	% change	Harvest	% change
1980	3	-94%	5	-88%	104	11%	21	-70%	22	-58%	152	22%
1981	42	1300%	26	420%	92	-12%	85	305%	53	141%	152	0%
1982	45	7%	46	77%	97	5%	133	56%	72	36%	221	45%
1983	55	22%	29	-37%	96	-1%	134	1%	67	-7%	209	-5%
1984	134	144%	65	124%	199	107%	189	41%	92	37%	281	34%
1985	80	-40%	57	-12%	137	-31%	118	-38%	67	-27%	186	-34%
1986	116	45%	51	-11%	167	22%	147	25%	93	39%	242	30%
1987	166	43%	80	57%	246	47%	220	50%	87	-6%	307	27%
1988	173	4%	126	58%	299	22%	161	-27%	107	23%	268	-13%
1989	147	-15%	128	2%	275	-8%	163	1%	109	2%	272	1%
1990	257	75%	187	46%	444	61%	198	21%	117	7%	315	16%
1991	242	-6%	187	0%	429	-3%	174	-12%	107	-9%	287	-9%
1992	281	16%	183	-2%	464	8%	358	106%	237	121%	595	107%
1993	304	8%	219	20%	523	13%	201	-44%	97	-59%	298	-50%
1994	286	-6%	177	-19%	463	-11%	184	-8%	138	42%	322	8%
1995	426	49%	319	80%	745	61%	231	26%	108	-22%	339	5%
1996	384	-10%	301	-6%	685	-8%	209	-10%	116	7%	325	-4%
1997	417	9%	320	6%	737	8%	408	95%	318	174%	726	123%

Year	CBMU						MBMU					
	Male		Female		Total ¹		Male		Female		Total ¹	
	Harvest	% change	Harvest	% change	Harvest	% change	Harvest	% change	Harvest	% change	Harvest	% change
1998	457	10%	422	32%	879	19%	266	-35%	155	-51%	421	-42%
1999	509	11%	372	-12%	881	0%	311	17%	174	12%	485	15%
2000	532	5%	397	7%	929	5%	359	15%	202	16%	561	16%
2001	667	25%	440	11%	1,107	19%	270	-25%	156	-23%	426	-24%
2002	594	-11%	361	-18%	955	-14%	345	28%	185	19%	530	24%
2003	656	10%	442	22%	1,098	15%	425	23%	292	58%	717	35%
2004	643	-2%	410	-7%	1,053	-4%	304	-28%	140	-52%	444	-38%
2005	655	2%	418	2%	1,073	2%	371	22%	219	56%	590	33%
2006	639	-2%	436	4%	1,075	0%	503	36%	222	1%	725	23%
2007	789	23%	538	23%	1,327	23%	409	-19%	269	21%	678	-6%
2008	757	-4%	548	2%	1,305	-2%	566	38%	291	8%	857	26%
2009	792	5%	478	-13%	1,270	-3%	745	32%	452	55%	1,197	40%
2010	1,060	34%	641	34%	1,701	34%	421	-43%	241	-47%	662	-45%
2011	987	-7%	620	-3%	1,608	-5%	755	79%	415	72%	1,170	77%
2012	1,082	10%	762	23%	1,844	15%	585	-23%	395	-5%	980	-16%
2013	1,089	1%	692	-9%	1,781	-3%	696	19%	510	29%	1,206	23%
2014	1,103	1%	764	10%	1,867	5%	372	-47%	262	-49%	634	-47%
2015	1,115	1%	762	0%	1,880	1%	784	111%	415	58%	1,199	89%
2016	1,141	2%	882	16%	2,024	8%	666	-15%	385	-7%	1,051	-12%

Year	CBMU						MBMU					
	Male Harvest	Male % change	Female Harvest	Female % change	Total ¹ Harvest	Total ¹ % change	Male Harvest	Male % change	Female Harvest	Female % change	Total ¹ Harvest	Total ¹ % change
2017	1,252	10%	885	0.3%	2,137	6%	872	31%	392	2%	1,264	20%
2018	1151	-8%	866	-2%	2,017	-6%	883	1%	583	49%	1,466	16%
2019	1,222	6%	906	4.4%	2,128	6%	832	-6%	458	-22%	1,290	-12%
2020	1,264	3%	974	8%	2,238	5%	861	3%	568	24%	1,429	11%

¹ Total includes harvest of bears in which sex is unknown.

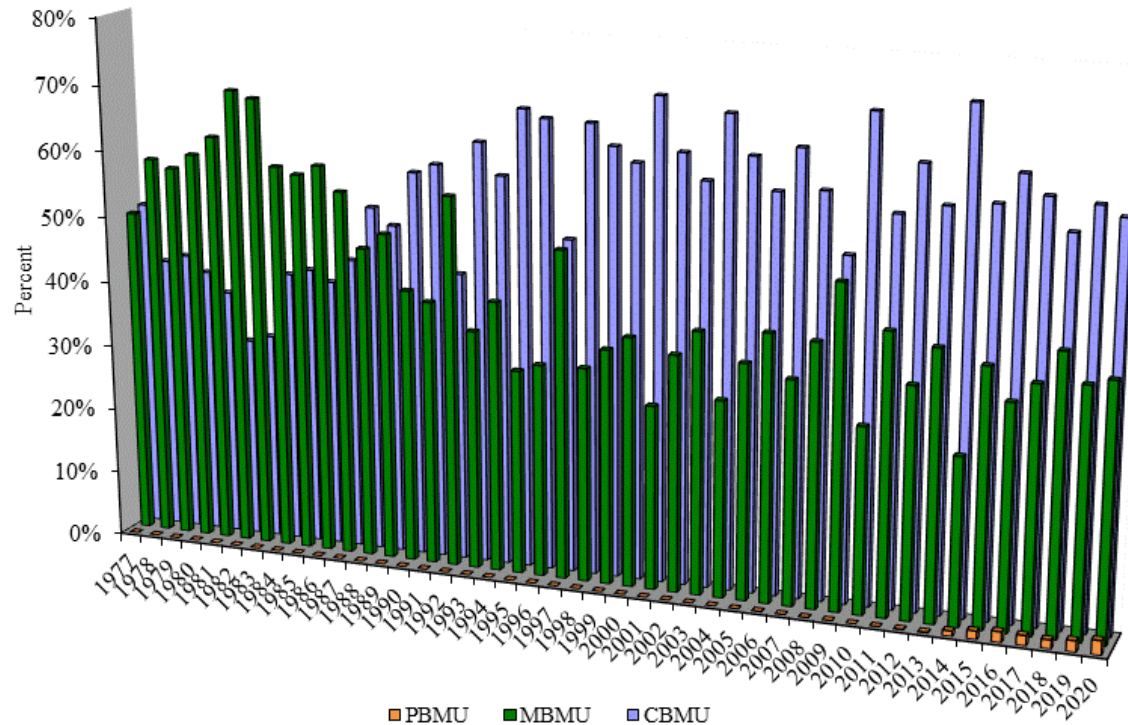


Figure 2. Percent of total reported bear harvest that occurs in the PBMU, MBMU and CBMU of North Carolina from 1977 through 2020.

Table 3. Percent (%) of total reported bear harvest that occurs in the CBMU, MBMU, and PBMU of North Carolina from 1987 through 2020.

Season	% of Total Harvest in CBMU Region	% of Total Harvest in MBMU Region	% of Total Harvest in PBMU Region
1987	44%	56%	NS
1988	53%	47%	NS
1989	50%	50%	NS
1990	58%	42%	NS
1991	60%	40%	NS
1992	44%	56%	NS
1993	64%	36%	NS
1994	59%	41%	NS
1995	69%	31%	NS
1996	68%	32%	NS
1997	50%	50%	NS
1998	68%	32%	NS
1999	64%	36%	NS
2000	62%	38%	NS
2001	72%	28%	NS
2002	64%	36%	NS
2003	60%	40%	NS
2004	70%	30%	NS
2005	65%	35%	0%
2006	60%	40%	0%
2007	66%	34%	0%
2008	60%	40%	0%
2009	51%	49%	0%
2010	72%	28%	0%
2011	58%	42%	0%
2012	65%	35%	0%
2013	60%	40%	0%
2014	74%	25%	1%
2015	60%	39%	1%
2016	65%	33%	2%
2017	62%	36%	2%
2018	57%	42%	1%
2019	61%	37%	2%
2020	60%	38%	2%

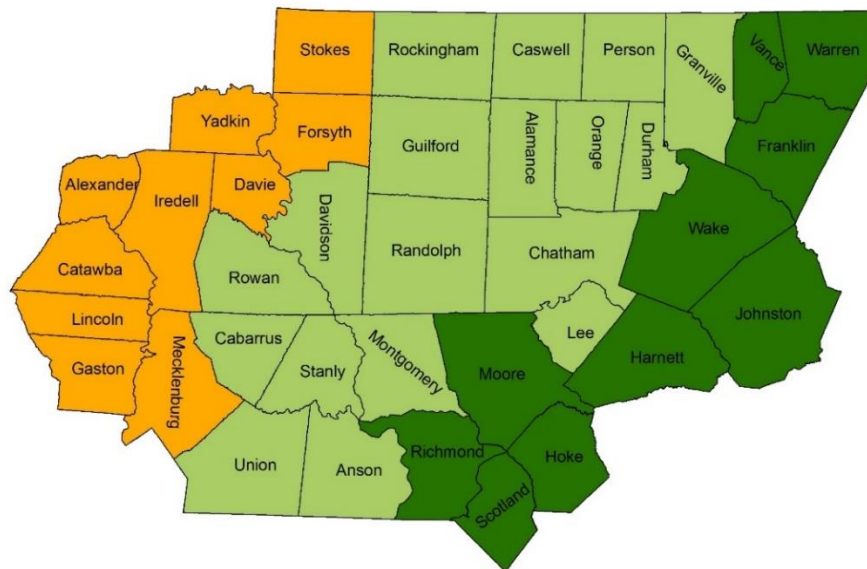
Table 4. Percentage of males and females that comprised the reported harvest in the three bear management units of North Carolina from 1976 through 2020.

Year	CBMU		MBMU		PBMU	
	% Female	% Male	% Female	% Male	% Female	% Male
1976	43%	57%	38%	62%	n/s	n/s
1977	47%	53%	42%	58%	n/s	n/s
1978	27%	73%	36%	64%	n/s	n/s
1979	44%	56%	42%	58%	n/s	n/s
1980	63%	38%	51%	49%	n/s	n/s
1981	38%	62%	38%	62%	n/s	n/s
1982	51%	49%	35%	65%	n/s	n/s
1983	35%	65%	33%	67%	n/s	n/s
1984	33%	67%	33%	67%	n/s	n/s
1985	42%	58%	36%	64%	n/s	n/s
1986	31%	69%	39%	61%	n/s	n/s
1987	33%	67%	28%	72%	n/s	n/s
1988	42%	58%	40%	60%	n/s	n/s
1989	47%	53%	40%	60%	n/s	n/s
1990	42%	58%	37%	63%	n/s	n/s
1991	44%	56%	38%	62%	n/s	n/s
1992	39%	61%	40%	60%	n/s	n/s
1993	42%	58%	33%	67%	n/s	n/s
1994	38%	62%	43%	57%	n/s	n/s
1995	43%	57%	32%	68%	n/s	n/s
1996	44%	56%	36%	64%	n/s	n/s
1997	43%	57%	44%	56%	n/s	n/s
1998	48%	52%	37%	63%	n/s	n/s
1999	42%	58%	36%	64%	n/s	n/s
2000	43%	57%	36%	64%	n/s	n/s
2001	40%	60%	37%	63%	n/s	n/s
2002	38%	62%	35%	65%	n/s	n/s
2003	40%	60%	41%	59%	n/s	n/s
2004	39%	61%	32%	68%	n/s	n/s
2005	39%	61%	37%	63%	0%	0%

Year	CBMU		MBMU		PBMU	
	% Female	% Male	% Female	% Male	% Female	% Male
2006	41%	59%	31%	69%	0%	100%
2007	41%	59%	40%	60%	100%	0%
2008	42%	58%	34%	66%	0%	100%
2009	38%	62%	38%	62%	100%	0%
2010	38%	62%	36%	64%	0%	0%
2011	39%	61%	35%	65%	0%	100%
2012	41%	59%	40%	60%	0%	100%
2013	39%	61%	42%	58%	25%	75%
2014	41%	59%	41%	59%	20%	80%
2015	41%	59%	35%	65%	21%	79%
2016	44%	56%	37%	63%	36%	64%
2017	41%	59%	31%	69%	37%	63%
2018	43%	57%	40%	60%	26%	74%
2019	43%	57%	36%	64%	28%	72%
2020	44%	56%	40%	60%	28%	72%

Piedmont Bear Management Unit (PBMU): In 2005, four counties in the PBMU were opened to bear hunting. In 2014, all 38 counties were opened for bear hunting opportunities in the PBMU in order to meet the 2012-2022 Black Bear Management Plan objective for this region, which is to limit the establishment of the bear population. There are 3 bear hunting seasons in the PBMU, which are open concurrent to the deer gun season for that county (Figure 4). While there are small, established bear populations in at least 9 counties of the PBMU that have a bear hunting season, harvest levels are low in comparisons to the CBMU and the MBMU, reflecting the lower number of bears. In 2020, 81 bears (58 males;23 females) were harvested from the PBMU; this was a 40% increase from 2019 harvest (n=58 bears; Table 5) and highest harvest of both male and female bears recorded in the PBMU since seasons reopened.

The majority of the harvest occurred in the northern PBMU counties that border Virginia, with Warren County having the highest bear harvest, followed by Stokes County (Table 5; Figure 5). This is likely due to these northern counties being less developed than other areas of the PBMU, as well as Virginia serving as a source population for black bear. Of note is bears were harvested from Anson, Davie, and Lee counties for the first time in decades. In Davie County, a still hunter harvested a 1.75 year old female. In Anson County, an archery hunter harvested a female bear; no tooth was submitted to determine age. And in Lee County, a still hunter harvested a male bear; no tooth was submitted to determine age. The percent of females that comprised the 2020 reported harvest was similar to the 2019 season; females comprised 28% of the harvest. But unlike previous seasons, some female bears were harvested beyond the periphery of the PBMU, with a female bear harvested in both Davie and Davidson counties (Table 4; Figure 6). Most bears, including female bears, were harvested in the first half of the PBMU seasons, with no female bears taken in the last half (Figure 7 and 8). Half of all bears were harvested on Fridays and Saturdays.



Piedmont - Eastern	Piedmont - Central	Piedmont – Northwestern
Oct. 17, 2020-Jan. 1, 2021	Nov. 14, 2020-Jan. 1, 2021	Nov. 21, 2020-Jan. 1, 2021
10 counties	19 counties	9 counties

Figure 4. The 2020 PBMU bear hunting seasons, which are based on the deer gun seasons for these counties.

Table 5. Reported harvest results of black bears by county in the Piedmont BMU of North Carolina from 2005 through 2020 (n/s=no season).

County	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Total
Alamance	n/s	n/s	n/s	n/s	n/s	n/s	n/s	n/s	n/s	0	0	0	0	0	0	0	0
Alexander	0	0	0	0	0	0	1	0	0	1	1	0	2	0	1	2	8
Anson	n/s	n/s	n/s	n/s	n/s	n/s	n/s	n/s	n/s	0	0	0	0	0	0	1	1
Cabarrus	n/s	n/s	n/s	n/s	n/s	n/s	n/s	n/s	n/s	0	0	0	0	0	0	0	0
Caswell	n/s	n/s	n/s	n/s	n/s	n/s	n/s	n/s	n/s	0	3	7	5	4	13	7	39
Catawba	0	1	1	1	1	0	0	0	0	1	1	0	1	0	0	1	8
Chatham	n/s	n/s	n/s	n/s	n/s	n/s	n/s	n/s	n/s	0	0	1	0	0	0	0	1
Davidson	n/s	n/s	n/s	n/s	n/s	n/s	n/s	n/s	n/s	0	0	0	0	0	0	1	1
Davie	n/s	n/s	n/s	n/s	n/s	n/s	n/s	n/s	n/s	0	0	0	0	0	0	1	1
Durham	n/s	n/s	n/s	n/s	n/s	n/s	n/s	n/s	n/s	0	1	0	0	0	0	0	1
Forsyth	n/s	n/s	n/s	n/s	n/s	n/s	n/s	n/s	n/s	0	0	0	0	0	0	0	0
Franklin	n/s	n/s	n/s	n/s	n/s	n/s	n/s	n/s	n/s	0	3	2	0	1	1	0	7
Gaston	n/s	n/s	n/s	n/s	n/s	n/s	n/s	n/s	n/s	0	0	0	0	0	1	0	1
Granville	n/s	n/s	n/s	n/s	n/s	n/s	n/s	n/s	n/s	1	4	3	4	6	7	12	37
Guilford	n/s	n/s	n/s	n/s	n/s	n/s	n/s	n/s	n/s	0	0	0	0	0	0	0	0
Harnett	n/s	n/s	n/s	n/s	n/s	n/s	n/s	0	0	0	1	0	0	1	0	0	2
Hoke	n/s	n/s	n/s	n/s	n/s	n/s	n/s	n/s	n/s	0	0	0	0	0	0	0	0
Iredell	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
Johnston	n/s	n/s	n/s	n/s	n/s	n/s	n/s	1	0	0	2	1	1	0	0	2	7
Lee	n/s	n/s	n/s	n/s	n/s	n/s	n/s	n/s	n/s	0	0	0	0	0	0	1	1
Lincoln	n/s	n/s	n/s	n/s	n/s	n/s	n/s	n/s	n/s	0	0	0	0	0	0	0	0
Mecklenburg	n/s	n/s	n/s	n/s	n/s	n/s	n/s	n/s	n/s	0	0	0	0	0	0	0	0
Montgomery	n/s	n/s	n/s	n/s	n/s	n/s	n/s	n/s	n/s	1	0	0	0	0	0	0	1
Moore	n/s	n/s	n/s	n/s	n/s	n/s	n/s	n/s	n/s	0	0	0	0	0	0	0	0
Orange	n/s	n/s	n/s	n/s	n/s	n/s	n/s	n/s	n/s	0	0	0	0	0	0	0	0

County	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Total
Person	n/s	n/s	n/s	n/s	n/s	n/s	n/s	n/s	n/s	8	7	9	7	4	5	9	49
Randolph	n/s	n/s	n/s	n/s	n/s	n/s	n/s	n/s	n/s	0	0	1	0	0	0	0	1
Richmond	n/s	n/s	n/s	n/s	n/s	n/s	n/s	n/s	n/s	0	0	0	0	0	0	0	0
Rockingham	n/s	n/s	n/s	n/s	n/s	n/s	n/s	n/s	n/s	2	3	5	4	5	3	10	32
Rowan	n/s	n/s	n/s	n/s	n/s	n/s	n/s	n/s	n/s	0	0	0	0	0	0	0	0
Scotland	n/s	n/s	n/s	n/s	n/s	n/s	n/s	n/s	n/s	0	0	0	0	0	0	0	0
Stanly	n/s	n/s	n/s	n/s	n/s	n/s	n/s	n/s	n/s	0	0	0	0	0	0	0	0
Stokes	n/s	n/s	n/s	n/s	n/s	n/s	n/s	1	2	2	8	6	19	8	8	15	69
Union	n/s	n/s	n/s	n/s	n/s	n/s	n/s	n/s	n/s	0	0	0	0	0	0	0	0
Vance	n/s	n/s	n/s	n/s	n/s	n/s	n/s	0	0	1	1	3	2	1	3	2	13
Wake	n/s	n/s	n/s	n/s	n/s	n/s	n/s	n/s	n/s	0	0	0	0	1	0	0	1
Warren	n/s	n/s	n/s	n/s	n/s	n/s	n/s	1	2	2	4	12	7	15	15	17	75
Yadkin	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	2
Total	0	1	1	1	1	0	1	3	4	20	39	50	52	47	58	81	359

Table 6. Total number of male and female bears harvested in the Piedmont BMU from 2005 through 2020.

Year	Male		Female		Total		Harvest Sex Ratio	
	Harvest	% change	Harvest	% change	Harvest	% change	% Female	% Male
2005	0		0		0			
2006	1	100%	0	0%	1	100%	0%	100%
2007	0	-100%	1	100%	1	0%	100%	0%
2008	1	100%	0	-100%	1	0%	0%	100%
2009	0	-100%	1	100%	1	0%	100%	0%
2010	0	0%	0	-100%	0	-100%	0%	0%
2011	1	100%	0	0%	1	100%	0%	100%
2012	3	200%	0	0%	3	200%	0%	100%
2013	3	0%	1	100%	4	33%	25%	75%
2014*	16	433%	4	300%	20	400%	20%	80%
2015	31	94%	8	100%	39	95%	21%	79%
2016	32	3%	18	125%	50	28%	36%	64%
2017	33	3%	19	6%	52	4%	37%	63%
2018	35	6%	12	-37%	47	-10%	26%	74%
2019	42	20%	16	33%	58	23%	28%	72%
2020	58	38%	23	44%	81	40%	28%	72%

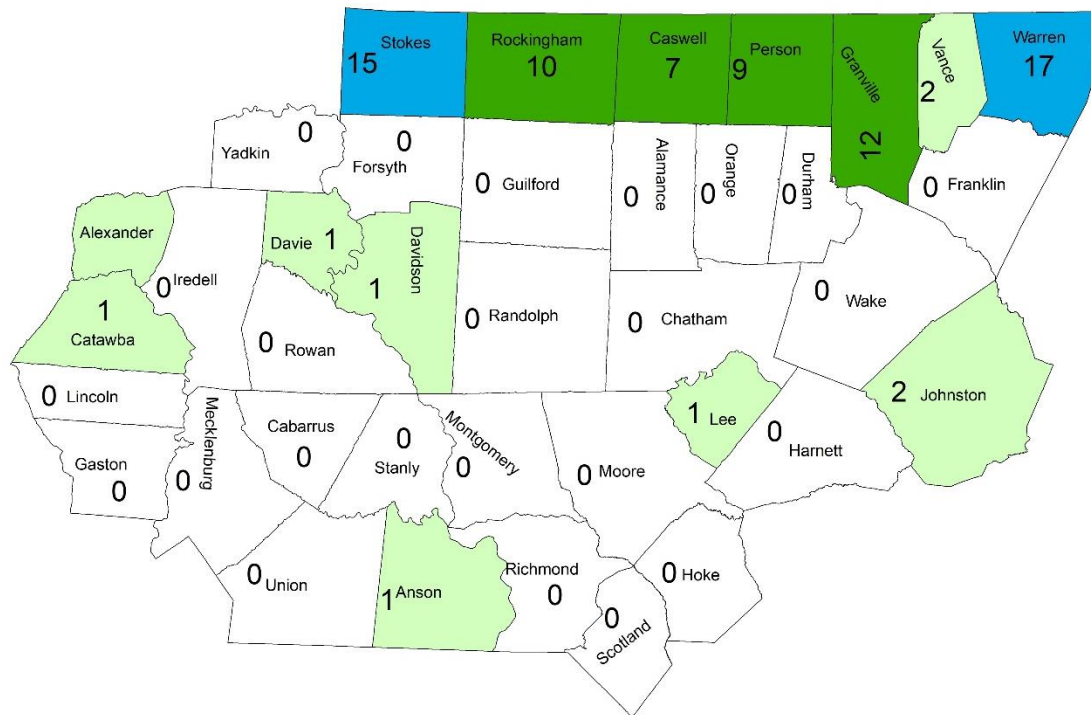


Figure 5. Reported harvest of black bears in the PBMU during the 2020 bear hunting season.

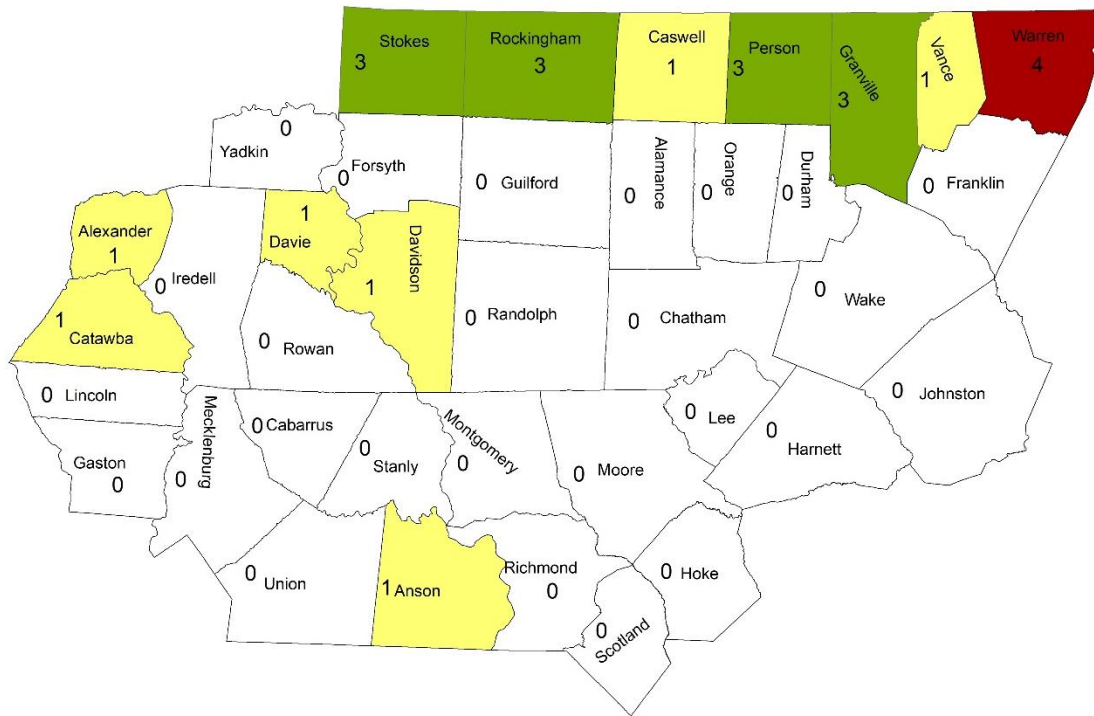


Figure 6. Reported harvest of female black bears in the PBMU during the 2020 black bear hunting season.

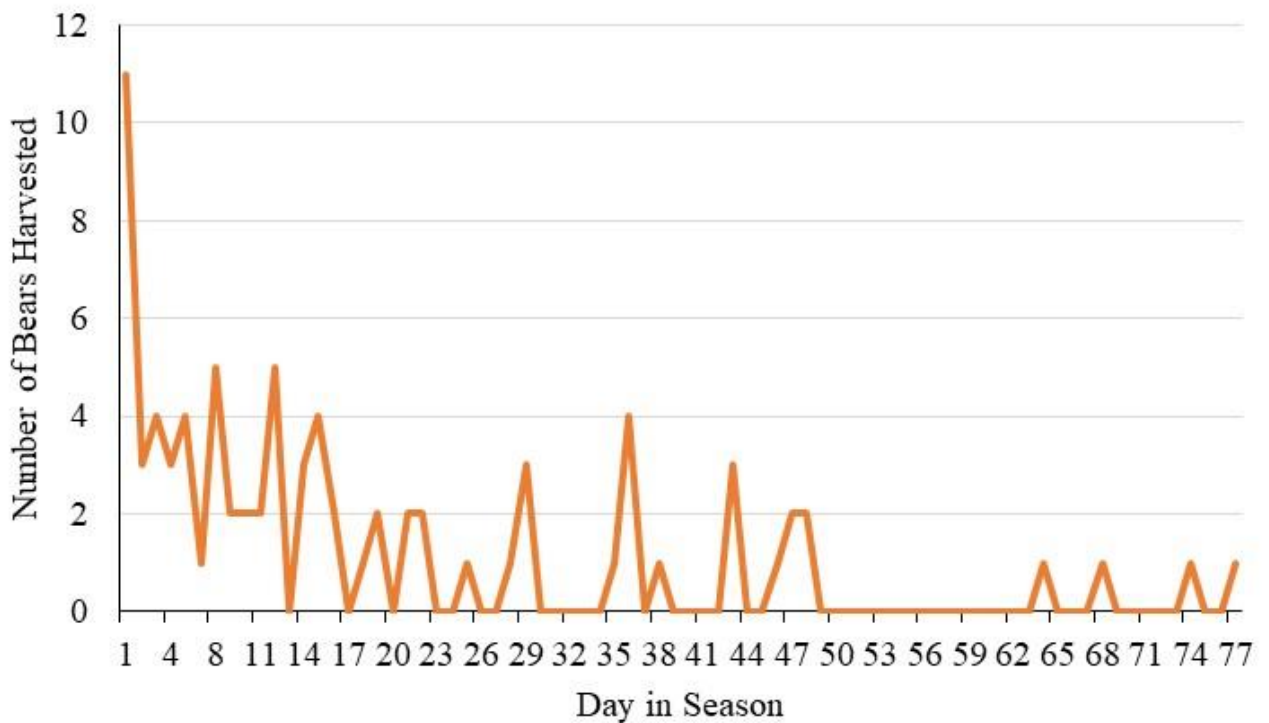


Figure 7. Number of bears harvested per day during the 2020 PBMU seasons.

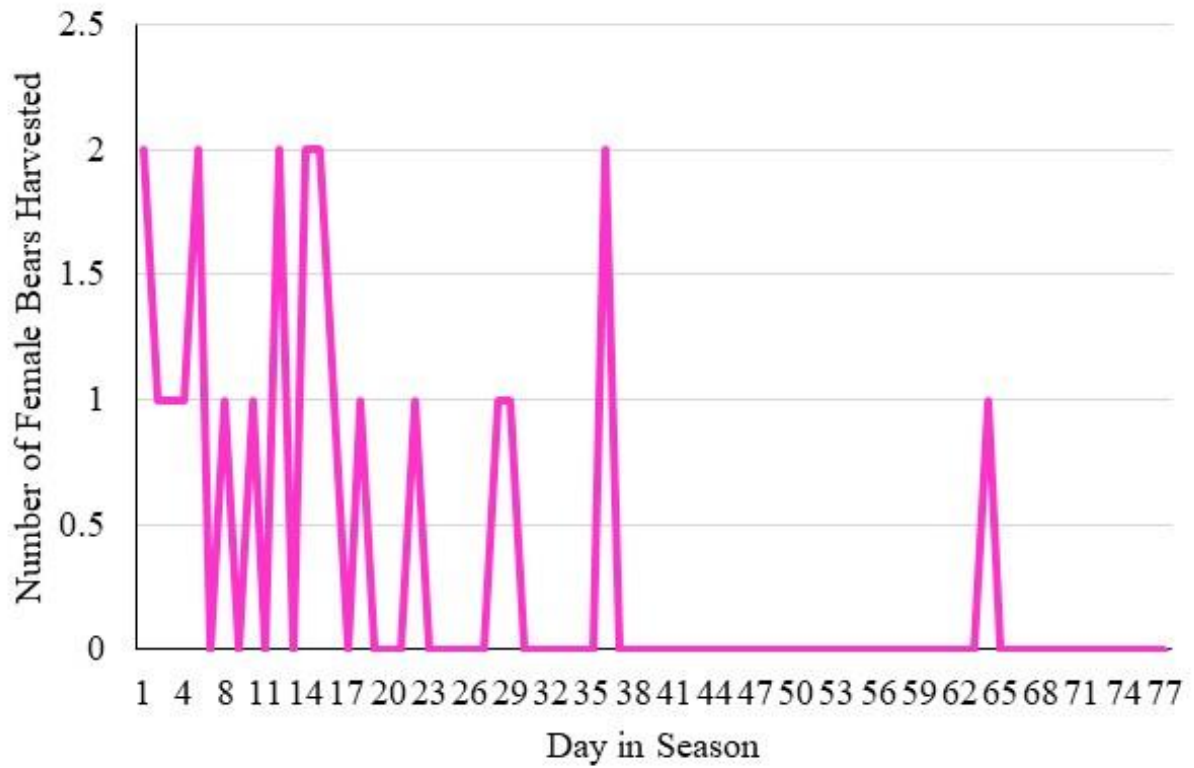


Figure 8. Number of female bears harvested per day during the 2020 PBMU seasons.

Coastal Bear Management Unit (CBMU): In 2020, the reported harvest increased 5% (n=2,238 bears; Table 2) from what occurred during the 2019 harvest (n=2,128 bears). The 2020 harvest season was the highest on record and the 5th year in a row that the harvest exceeded 2,000 bears. Harvest in the CBMU can vary based on weather and hunter access. For example, in 2016 harvest levels were lower during the first few days due to the effects of the Supermoon on bear activity patterns. In 2017, there were no weather events of note that occurred during the bear season. In 2018, many counties in the CBMU, especially in the southern portion, experienced high water due to the record rainfall from Hurricane Florence in September. Hurricane Florence not only caused tremendous property damage, which likely resulted in some hunters having limited time to hunt, but flooded portions of the landscape, which limited access to huntable lands. However, despite the influence of weather, harvest rates in the CBMU have remained high in recent years, likely due to changes in season structures over the last six years, such as legalization of unprocessed bait all season, Sunday hunting on private lands, and the lengthening of many seasons in 2018 (Table 7). For example, in 2017, there were 1,022 bear hunting days in the CBMU and, after season changes that took effect in 2018, there were 1,318 hunting days in 2019. With a difference of almost 300 hunting days, hunters have more time to bear hunt if unsuccessful on their first outings, while bear hunting guides can accommodate more clients.

Table 7. Changes to CBMU bear hunting season structure from 2007 through 2020.

Year	Change	Note
2007	Release of dogs allowed in the vicinity of unprocessed bait	
2011	Sunday hunting with archery equipment allowed.	
2014	Use of unprocessed bait allowed for 1 st six days of season	
2014	Robeson County opened to bear hunting.	
2016	Brunswick and Columbus counties changed from 3-week December season to 9-week Nov. to Jan. 1 season.	
2016	Sunday hunting with firearms allowed on private land	
2016	Use of unprocessed bait allowed entirety of CBMU seasons.	
2017	No changes.	35 CBMU counties had a total of 1,022 bear hunting days.
2018	CBMU seasons lengthened in all 37 CBMU counties, including Thanksgiving holiday weekend in 3 counties.	
2018	CBMU November seasons started 2 days earlier in 25 counties	Change from Monday opening day to Saturday opening day.
2018	CBMU December season started 2 days earlier in 16 counties	Change from Monday opening day to Saturday day
2018	Robeson County changed from 3-week December season to 9-week Nov. to Jan. 1 season.	
2019	No changes	37 CBMU counties had a total of 1,318 bear hunting days.
2020	No changes	

As in previous seasons dating back to 2016, the county with the highest reported harvest was Hyde County (n=258), followed by Beaufort (n=224), Tyrrell (n=217), Jones (n=181) and Bladen (n=137; Figure 9, Table 8). Record harvests occurred in 8 of 37 counties of the CBMU and include Bladen, Craven, Cumberland, Duplin, Jones, Onslow, Pender, and Sampson counties (Table 8). Dare, Pamlico, and Wilson experienced the largest increase in harvest, while New Hanover and Edgecombe counties experienced the largest decline, at 67% and 44% respectively (Table 8).

In 2020, there was a 3% increase in the reported male harvest (n=1,264) and an 8% increase in the reported female harvest (n=974; Table 3; Figure 10). The percentage of female black bears that comprise the reported harvest had increased over the past 7 seasons (average=42% from 2014 to 2020), compared to the previous 5-year period from 2009 to 2013 (average=39%; Table 4; Figure 11). In 2016 and in 2020, females comprised 44% of the black bears harvested in the CBMU. The 2016 and 2020 female sex ratio of the reported harvest is the maximum before we expect population declines. In 2017, female bears comprised 41% of the CBMU reported harvest and in 2018 and 2019, females comprised 43% of the harvest.

The increase in the female sex ratio of the harvest, coupled with the record harvests of the past few years, likely explains the slowing growth of the bear population in the CBMU; population growth has declined and is now at zero (page 91; Figure 59), which is in accordance with the objective (“stabilize the CBMU bear population”) approved by the Commission in the 2012-2022 Black Bear Management Plan. Several changes have occurred in the season structures and methods allowed since 2007 that has resulted in the record harvests of the past few years (Table 7). The Commission will continue to closely monitor the harvest to determine how it is influencing the CBMU bear population. Similar to previous years, Beaufort, Hyde, and Tyrrell counties had the highest reported harvest of female bears, while two counties on the western periphery of the CBMU had no females harvested (Figure 12). The female sex ratio of the harvest was over 44% in 14 counties, with Perquimans County having the most bias towards female harvest at 67%, followed by Dare (64%), Columbus (64%), Chowan (63%), Wilson (60%), Washington (56%), Hertford (52%), Onslow (51%), Jones (51%), and New Hanover (50%) counties (Figure 13). Females comprised 44% of the harvest in Bertie and Pasquotank counties, while females comprised less than 44% of the harvest in the remaining 18 counties of the CBMI (Figure 13).

During the 2020 season, 44% of the reported CBMU harvest occurred in the first seven days of the season, similar to the previous two seasons (Figure 14). The last three seasons show a slight decline in percent of bears harvested within the first seven days, compared to previous seasons, likely due the longer November season in several counties. This longer season (Table 7) may have changed hunter effort and selectivity during the first seven days. Most of the reported harvest still occurred in November, while females comprised the reported harvest throughout the entirety of the season though there was an overall slight decline from November through December (Figures 15 and 16). In previous seasons, the bear harvest precipitately declined after the first 2-3 weeks; harvest in 2018 through 2020 seasons declined even more precipitately than prior seasons after the first three days, but plateaued from weeks 2 through 5, whereas historically during this time period, the harvest dropped to very low levels and remained at low levels from week 3 until the close of the season (Figure 17). In 2018 through 2020

seasons, females comprised a higher percentage of the harvest in the last half of the season (mean=38%) vs previous seasons (33%; Figure 18). And unlike previous seasons, from 2018 through 2020, female bears comprised greater than 50% of the harvest on several days in the last half of the season (Figure 18).

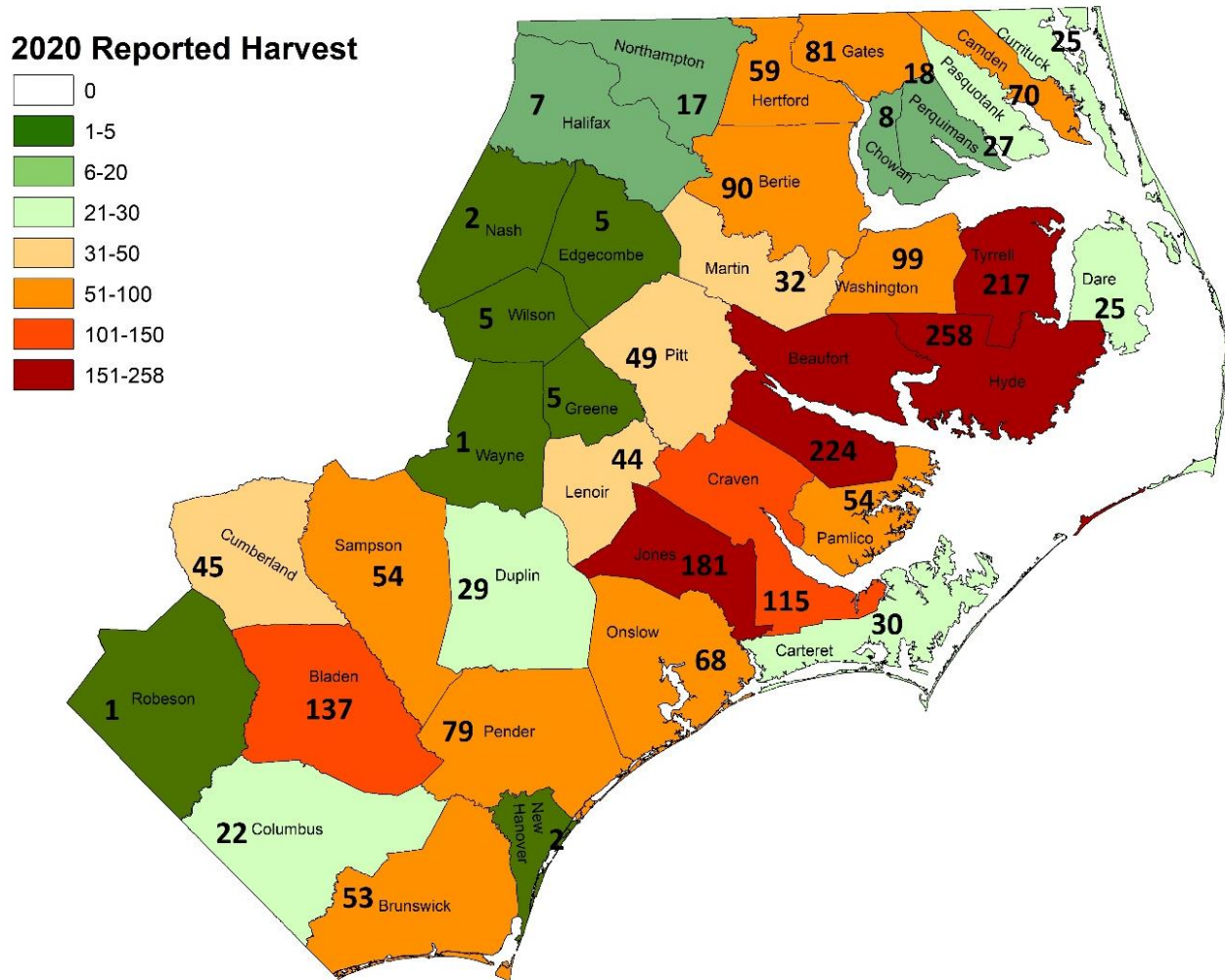


Figure 9. The 2020 reported harvest by county in the CBMU.

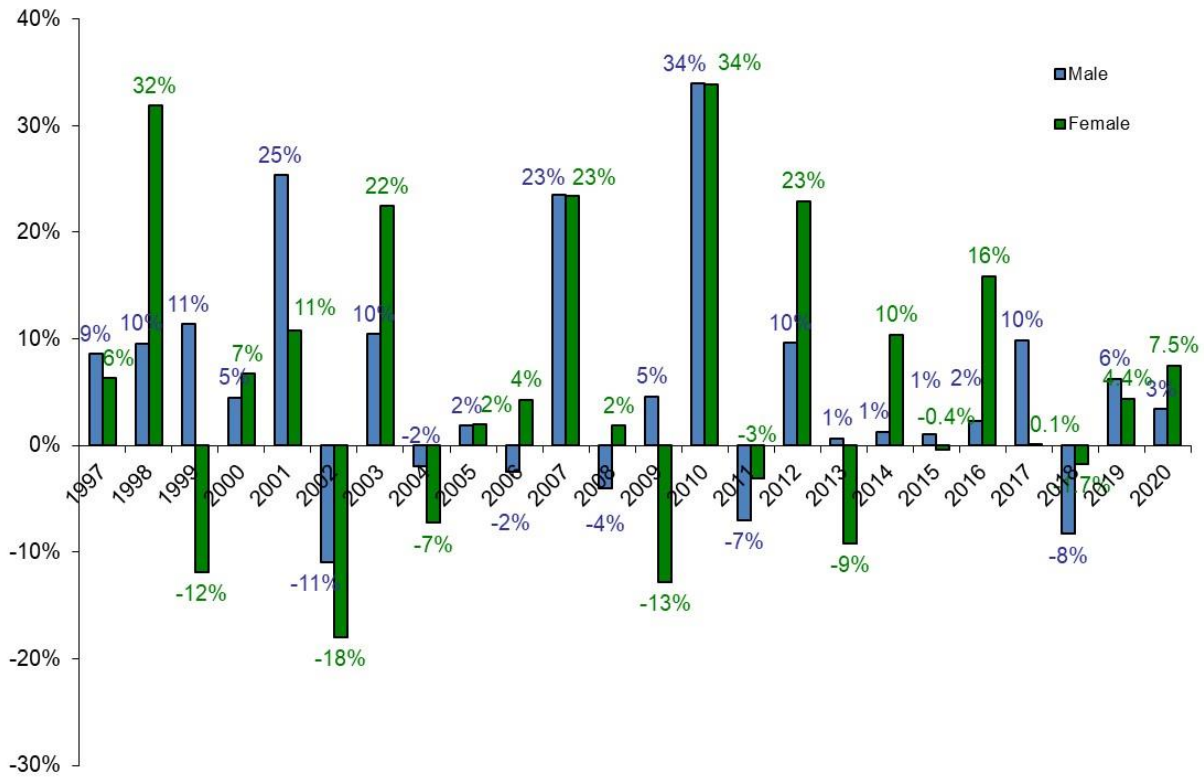


Figure 10. Annual percent change in male and female reported harvest in the CBMU from 1997 through 2020.

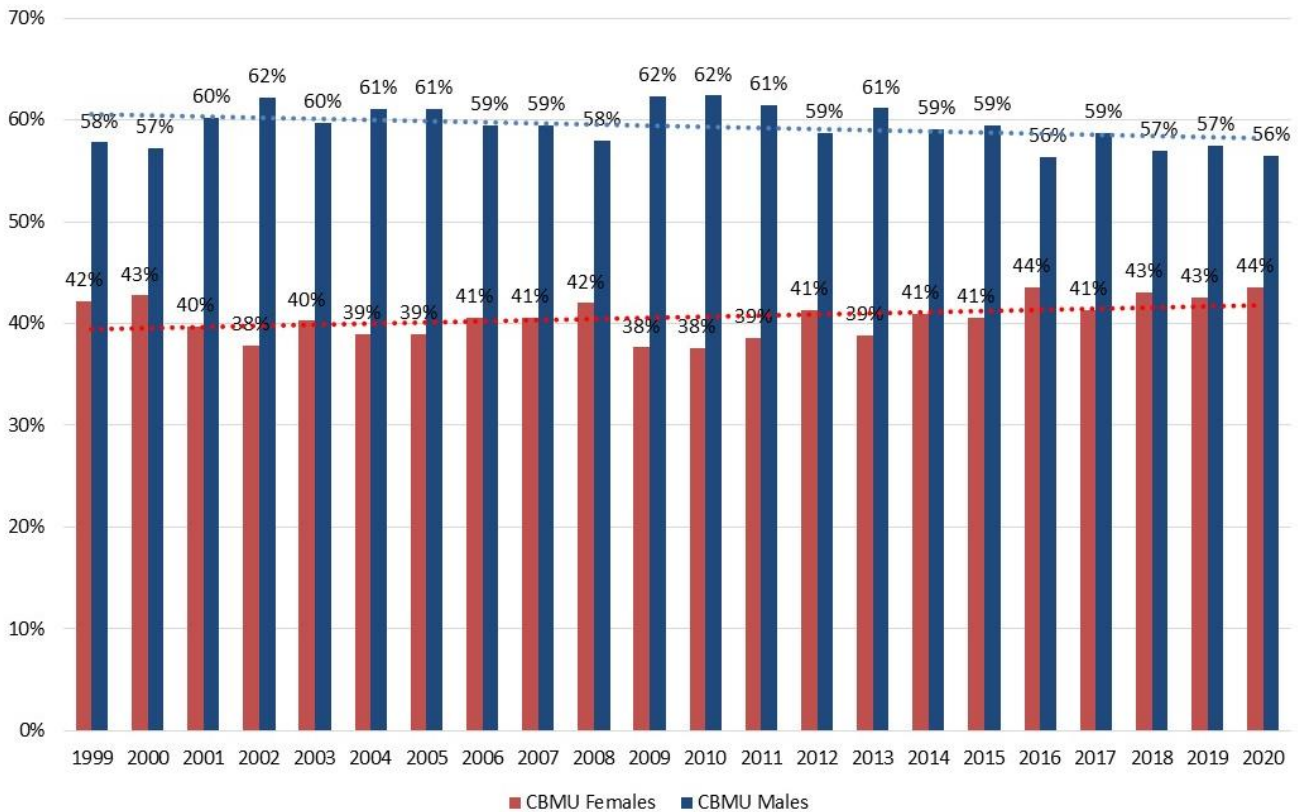


Figure 11. Percentage of male (red) and female (blue) bears in the reported CBMU harvest.

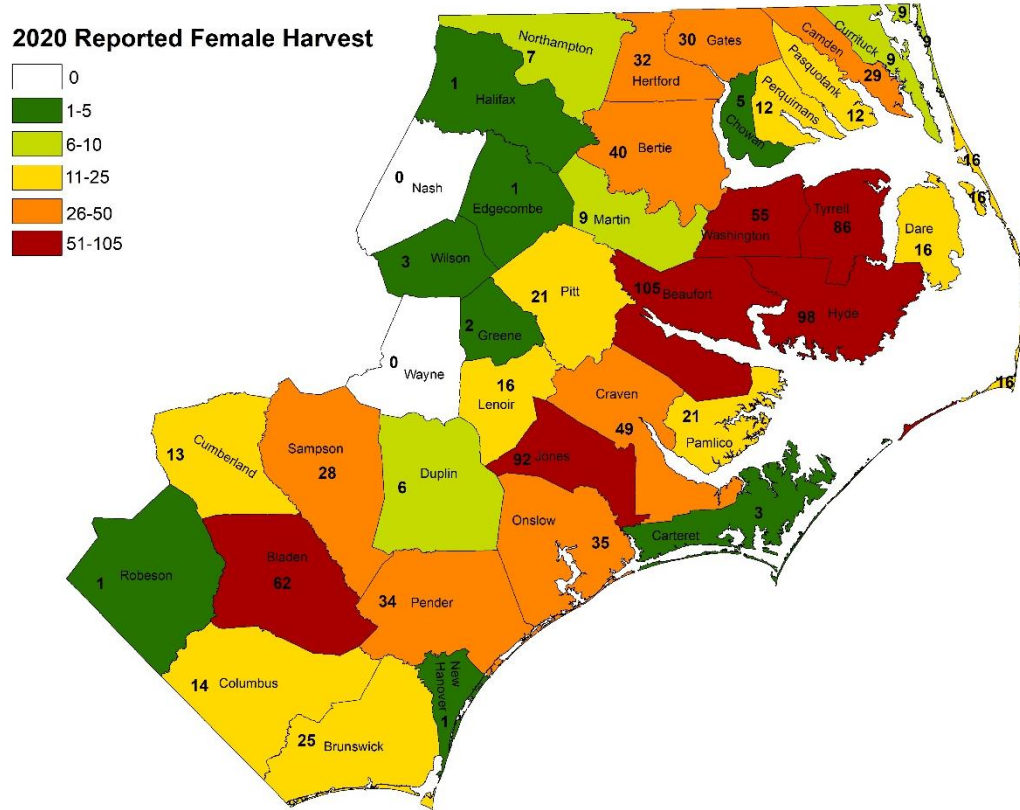


Figure 12. The 2020 reported female harvest by county in the CBMU.

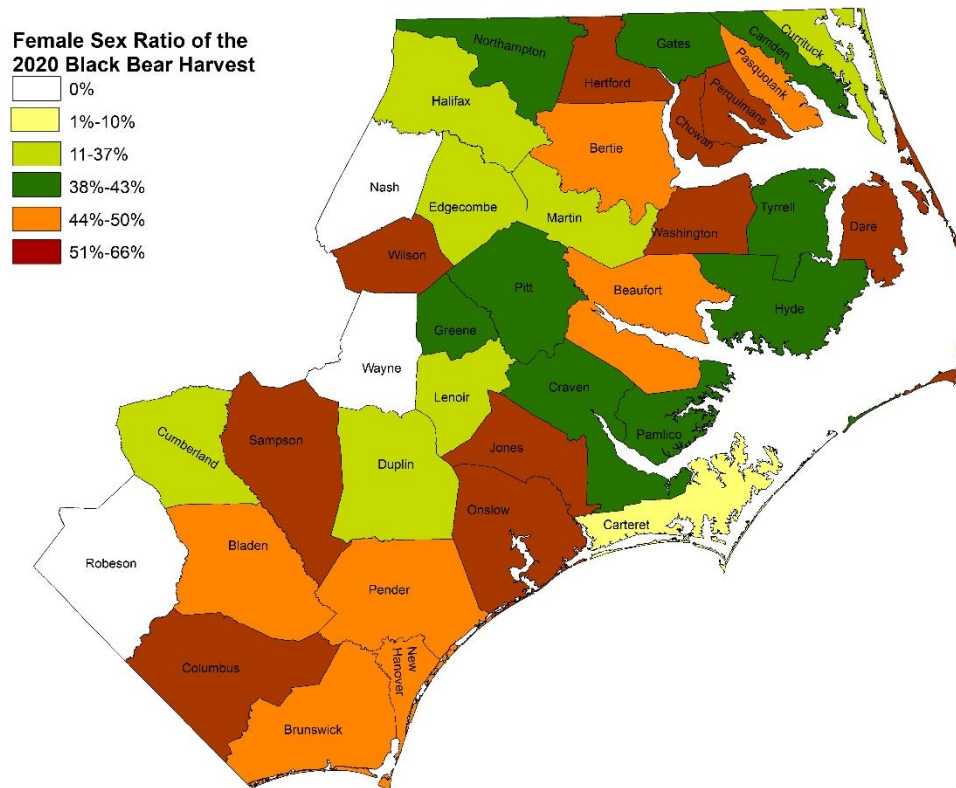


Figure 13. Percentage of the 2020 reported harvest comprised of female black bears in the CBMU.

Table 8. Reported harvest of black bears by county in the Coastal CBMU from 2007 to 2020.

County	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Totals	% change 2019 to 2020
Beaufort	164	124	151	184	183	169	181	200	201	189	228	194	201	224	2,848	11%
Bertie	73	44	50	61	90	112	99	68	81	79	100	75	90	90	1,203	0%
Bladen	74	87	66	101	88	91	98	103	90	101	121	95	123	137	1,492	11%
Brunswick	42	36	34	26	32	43	37	46	31	56	57	32	62	53	649	-15%
Camden	45	59	62	71	64	78	63	43	63	79	77	63	66	70	1,001	6%
Carteret	40	23	23	25	31	32	15	28	36	29	45	35	33	30	488	-9%
Chowan	12	16	8	9	7	17	15	16	13	6	12	7	8	8	171	0%
Columbus	19	30	17	25	21	32	25	14	9	25	23	15	27	22	350	-19%
Craven	67	66	77	84	79	87	65	76	67	79	90	100	99	115	1,238	16%
Cumberland	16	15	15	9	16	33	20	25	36	22	27	23	43	45	371	5%
Currituck	49	39	26	34	39	27	26	35	40	31	30	23	22	25	478	14%
Dare	10	3	7	4	5	3	3	10	2	11	18	9	10	25	124	150%
Duplin	7	13	10	18	16	17	11	14	15	9	19	18	22	29	229	32%
Edgecombe	n/s	n/s	n/s	n/s	n/s	12	10	7	9	8	13	11	9	5	84	-44%
Gates	52	53	55	75	52	75	70	82	77	75	85	85	87	81	1,104	-7%
Greene	n/s	2	1	0	1	4	5	4	2	2	8	3	6	5	43	-17%
Halifax	2	2	1	3	6	4	7	4	0	2	9	4	6	7	60	17%
Hertford	24	32	35	53	71	48	59	50	48	58	39	45	56	59	711	5%
Hyde	138	159	163	215	180	210	216	253	233	260	269	262	241	258	3,340	7%
Jones	127	111	96	154	129	108	159	134	116	134	158	159	176	181	2,134	3%
Lenoir	n/s	19	13	13	22	32	29	18	26	30	39	40	46	44	371	-4%
Martin	40	33	28	53	48	50	64	61	56	43	43	47	31	32	685	3%
Nash	n/s	n/s	n/s	n/s	n/s	0	0	0	1	0	0	0	2	2	5	0%
New Hanover	5	1	4	3	3	3	5	5	1	4	3	2	6	2	49	-67%
Northampton	4	7	8	14	8	15	15	25	16	19	31	17	25	17	240	-32%
Onslow	46	46	47	61	44	54	47	55	49	67	51	41	58	68	811	17%
Pamlico	39	27	45	42	22	37	41	45	53	56	47	40	33	54	632	64%
Pasquotank	10	6	7	10	8	11	8	25	14	12	24	39	32	27	255	-16%
Pender	38	49	46	73	66	45	48	56	53	51	76	60	62	79	886	27%
Perquimans	8	2	3	15	5	17	10	11	10	24	20	14	19	18	179	-5%

County	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Totals	CBMU Harvest	
																	% change 2019 to 2020
Pitt	n/s	12	20	36	40	51	77	61	38	60	57	49	57	49	607	-14%	
Robeson	n/s	n/s	n/s	n/s	n/s	n/s	n/s	0	2	0	0	0	0	1	3	100%	
Sampson	6	13	12	14	17	25	19	28	20	37	31	26	41	54	362	32%	
Tyrrell	102	113	90	150	137	216	151	156	264	231	185	258	221	217	2,648	-2%	
Washington	68	63	50	66	75	81	79	102	105	131	98	125	107	99	1,386	-7%	
Wayne	n/s	n/s	n/s	n/s	n/s	0	0	1	0	0	1	1	0	1	4	100%	
Wilson	n/s	n/s	n/s	n/s	n/s	5	3	6	3	4	4	0	1	5	31	400%	
Totals	1,327	1,305	1,270	1,701	1,605	1,844	1,780	1,867	1,880	2,024	2,138	2,017	2,128	2,238	27,272		

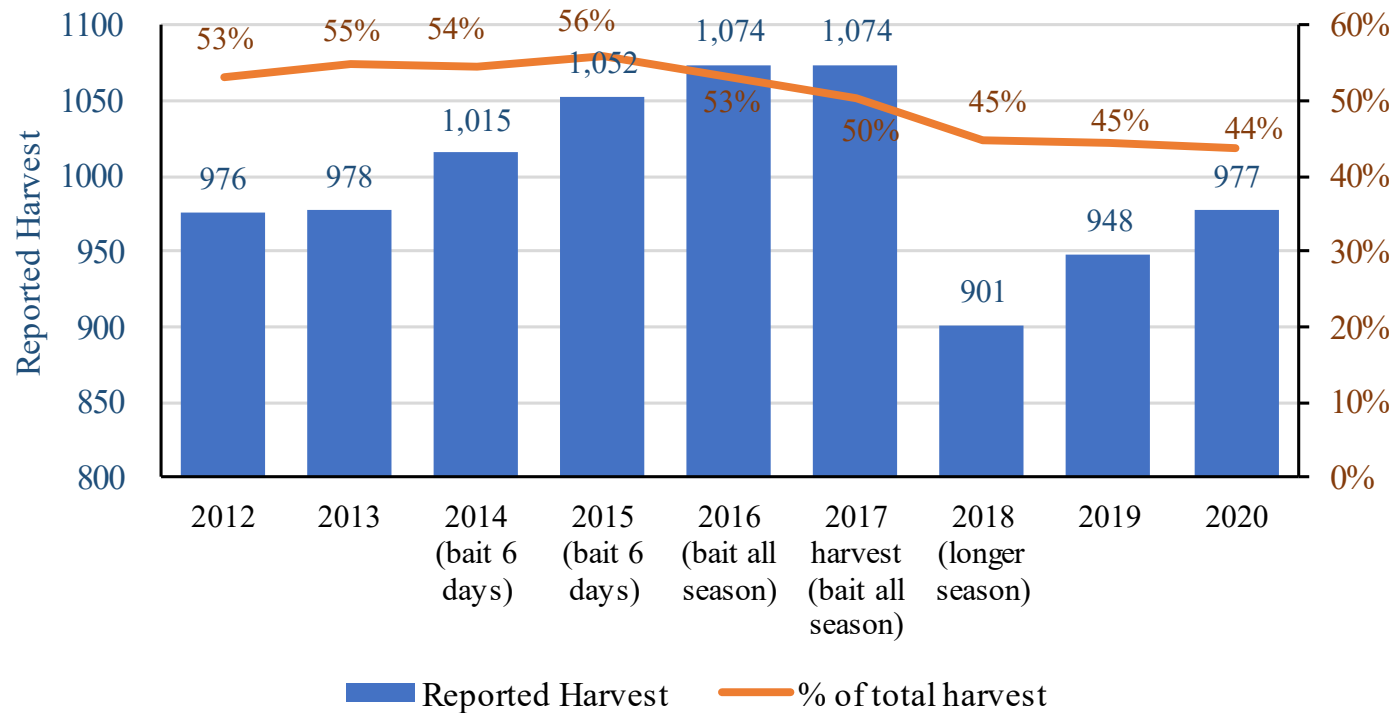


Figure 14. Reported harvest in first 7 days of CBMU season from 2012 through 2020.

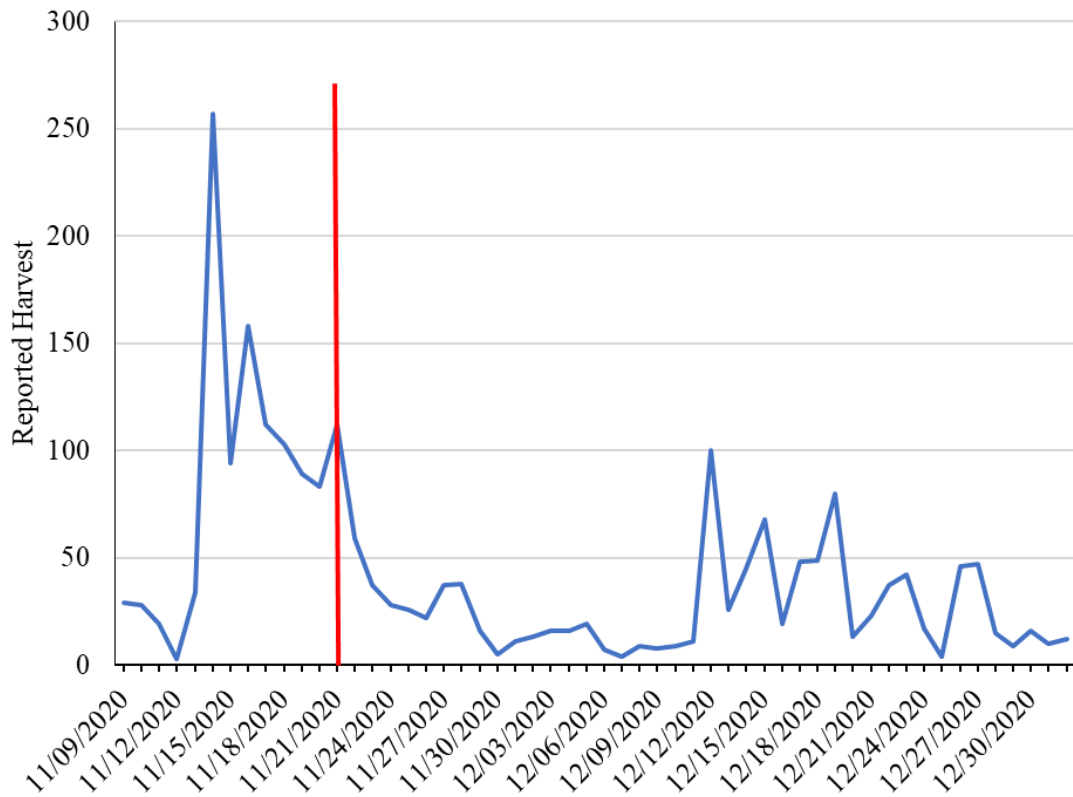


Figure 15. Number of reported bears harvested per date in the CBMU during the 2020 season. The red line indicates the split in the season for several counties.

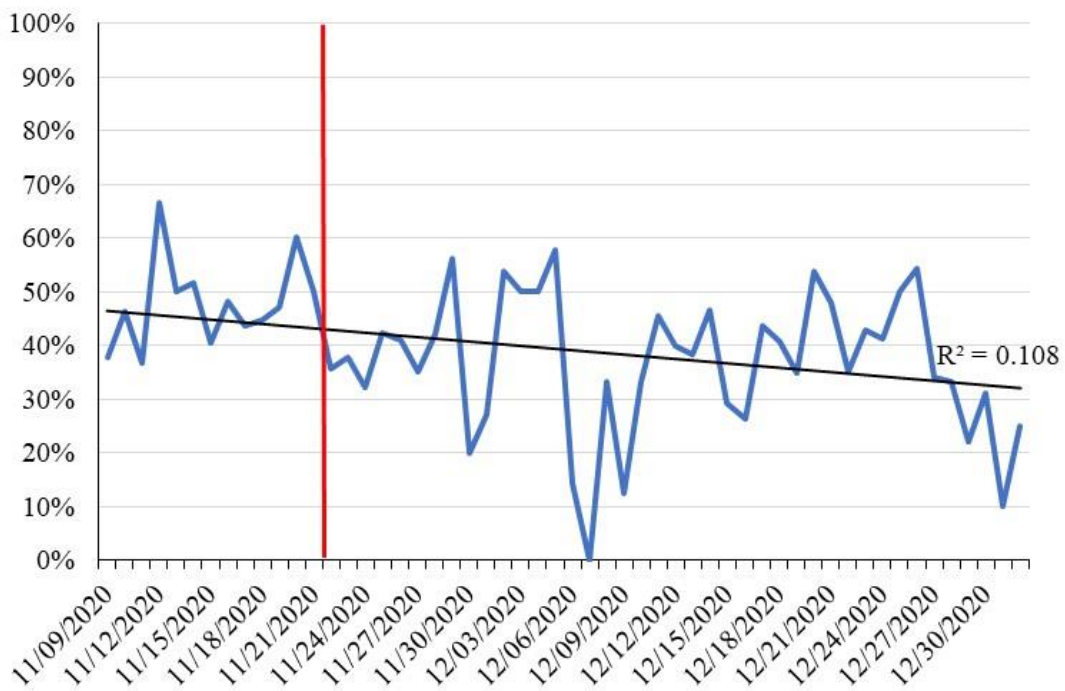


Figure 16. Percent of female bears that comprise the registered harvest during the 2020 season in the CBMU (trend indicated by black line). The red line indicates the split in the season for several counties.

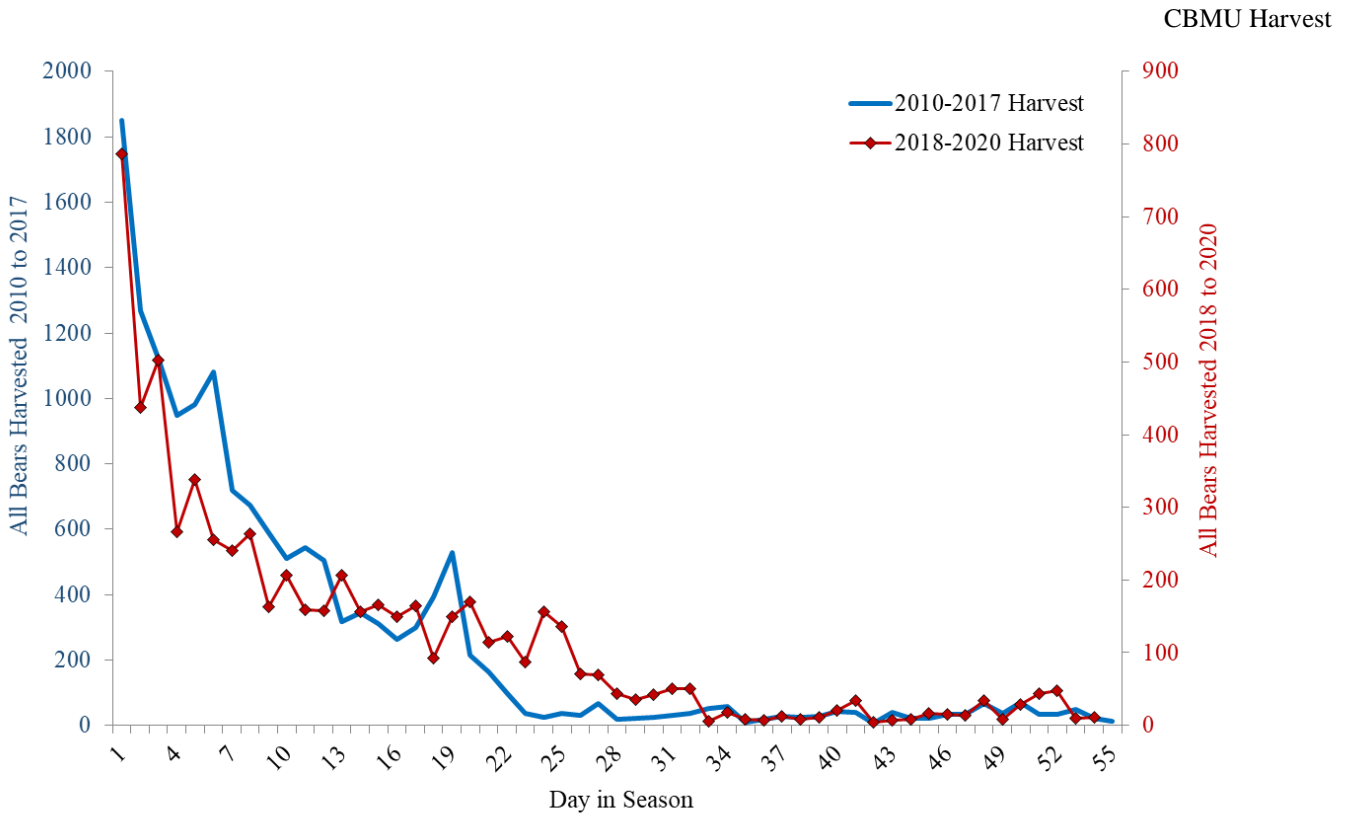


Figure 17. Comparison of 2018 to 2020 CBMU reported bear harvest by day in season (red line) with harvest from previous seasons (2010 through 2018 seasons; blue line).

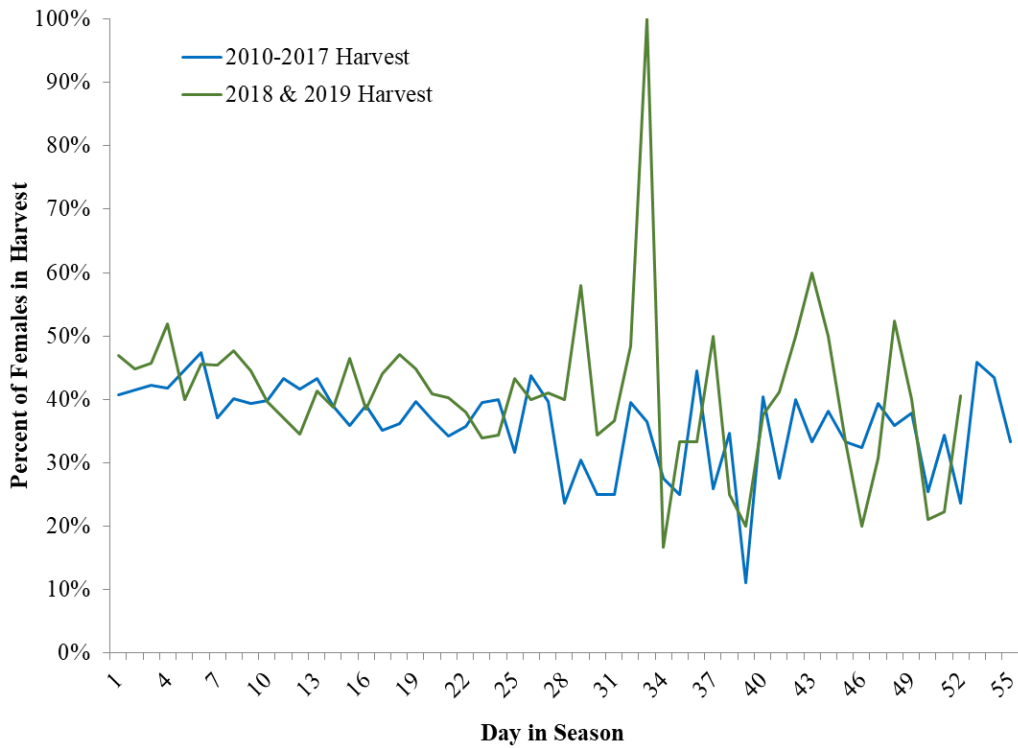
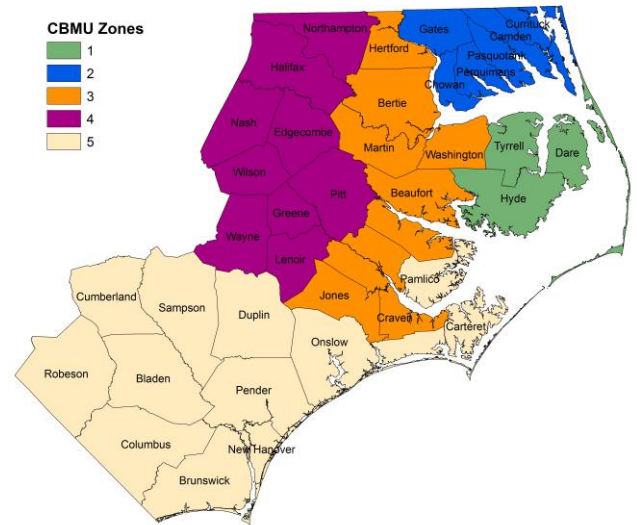


Figure 18. Comparison of the percentage of female bears in the 2018 through 2020 CBMU reported harvest by day in season (green line) with harvest from previous seasons (2010 through 2018 seasons; blue line).

CBMU Zone Harvest

In August 2016, the Commission engaged with constituents through 7 public bear management forums across the State. These forums were to engage with citizens on bear management issues and to gain feedback on the development of distinct biological zones for the CBMU. As a result, five zones (Figure 19) were created in the CBMU based on bear land cover, harvest per huntable acre, and percent of sanctuary in a county, as well as expert opinion provided by Commission biological staff and input from constituents. Seventy-six percent of attendees at the forums felt the zones were reasonable. There was less agreement about whether the Commission should create biological zones in the MBMU (50% support). Many hunters who did not support zones in the MBMU indicated concern that by creating zones, different seasons would be developed, resulting in greater hunting pressure on the bear population if these seasons were not concurrent.



In 2018, the Commission approved changes to bear hunting seasons in the CBMU that aligned the season to the zone, added Saturday openers for the November and December seasons in zones 1 through 4, changed the November season start date and end date in Zone 4, and extended the November season in Zone 1 from 6 days to 16 days, which also added 3 weekends (Table 7).

While we cannot currently extrapolate population growth trends, absolute population estimate, or density estimates at the CBMU zone level, we can monitor harvest levels. In 2020, reported harvest was highest in Zone 3 (n=800 bears) followed by Zone 5 (n=574 bears), while lowest in Zone 4 (n=135 bears; Figure 20 and 21). Except for Zone 2 (-2%) and Zone 4 (-11%), all other zones experienced increases in harvest during 2020; Zone 1 increased 6%, Zone 3 increased 5%, and Zone 5 increased 13% (Figure 20). When accounting for land area, harvest per square mile was highest in Zone 1, followed by Zone 3 (Figure 22). Harvest per square mile was lowest in Zone 4, which is expected, as this zone is at the periphery of occupied bear range in the CBMU (Figure 22). Hunters were more selective for male bears in Zones 1 and 4 and less selective in Zones 2, 3, and 5 (Figure 23).

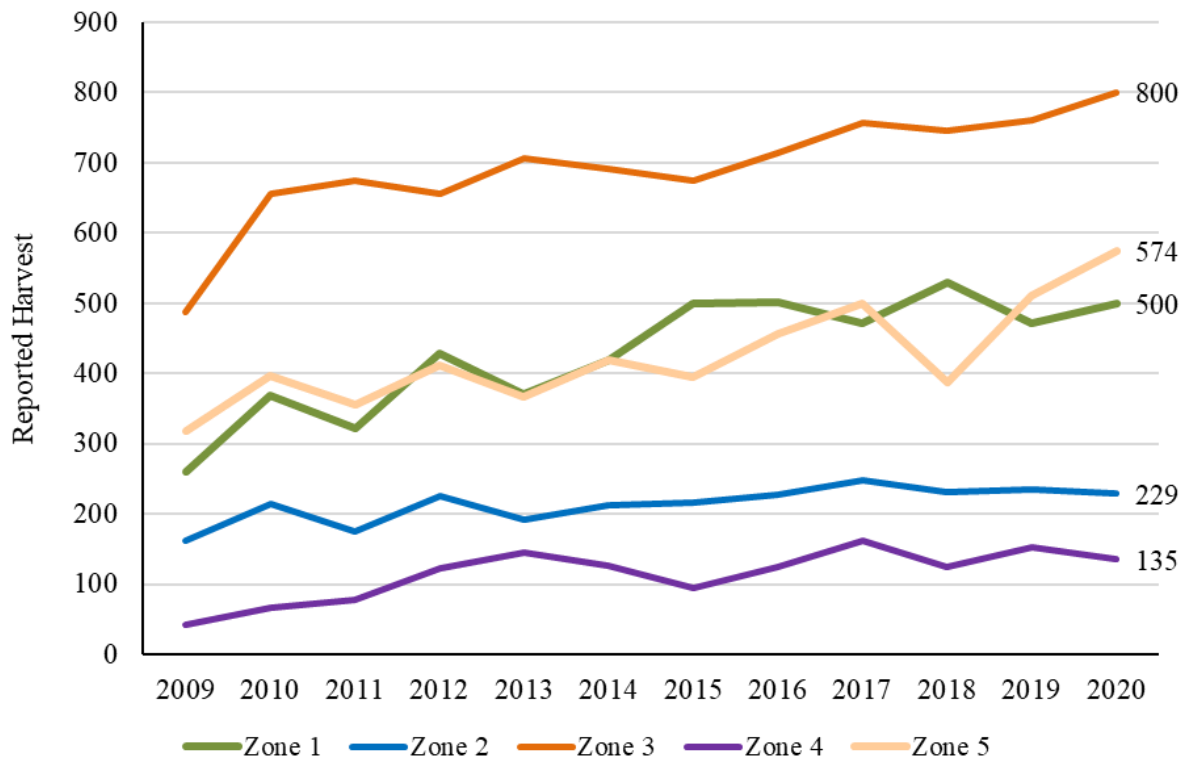


Figure 20. Reported harvest by CBMU zone from 2009 through 2020.

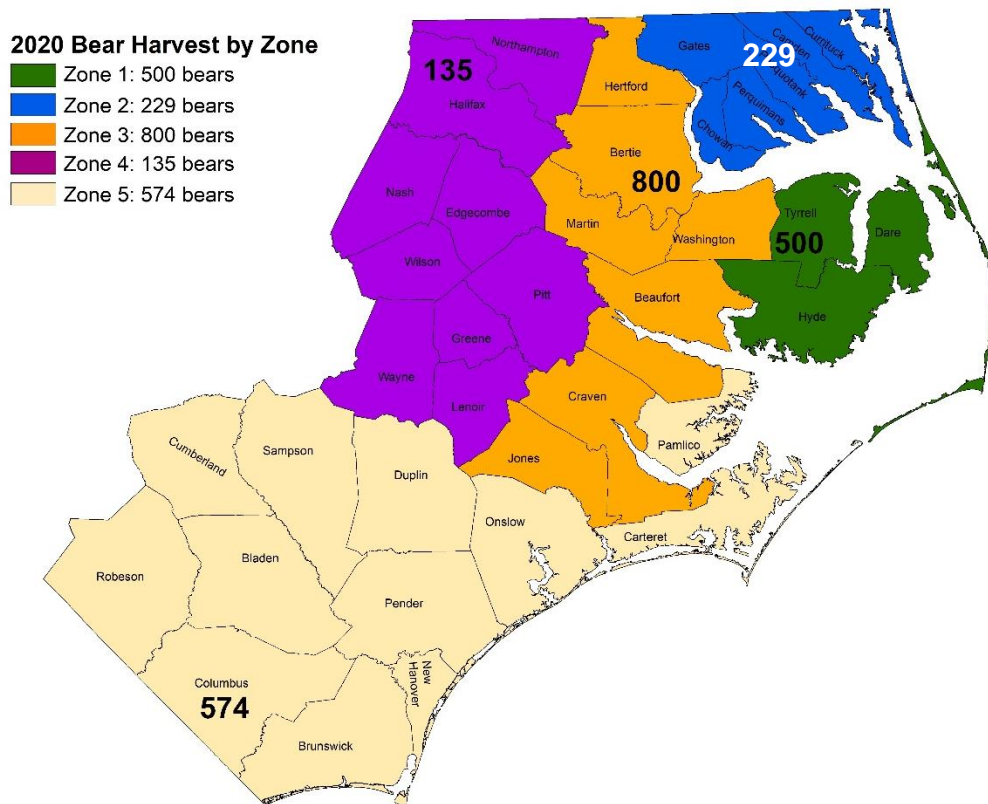


Figure 21. 2020 reported bear harvest by CBMU zone.

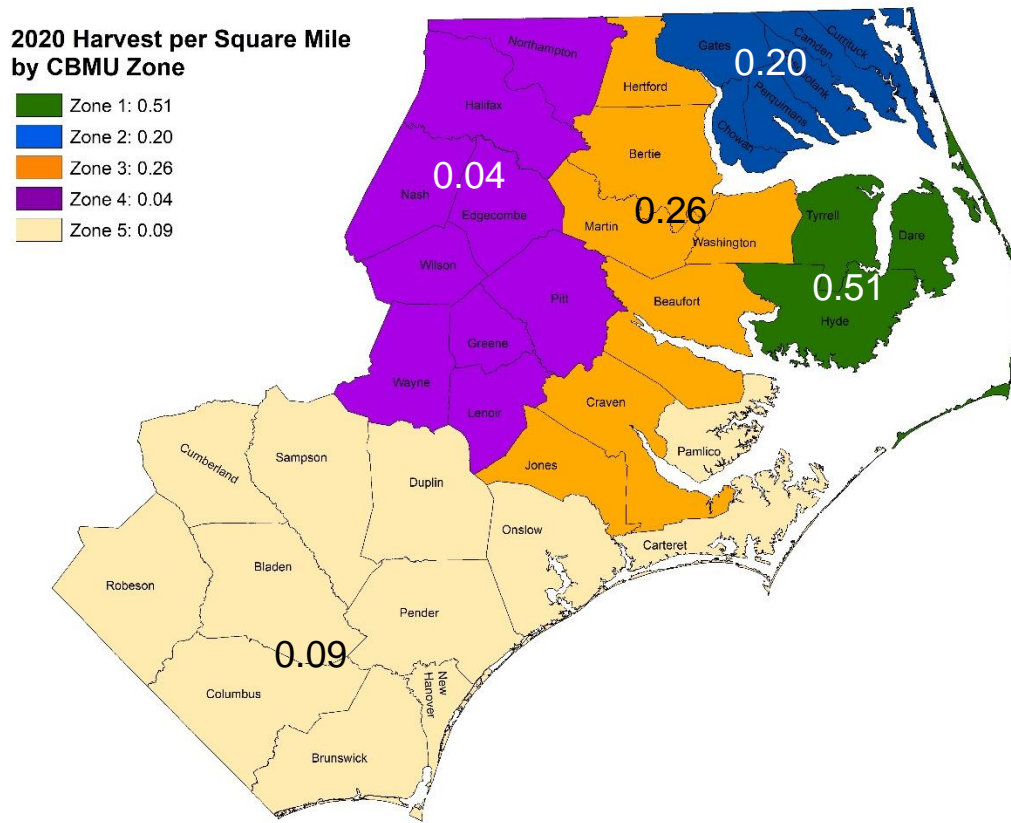


Figure 22. 2020 bear harvest per square mile by CBMU Zone.

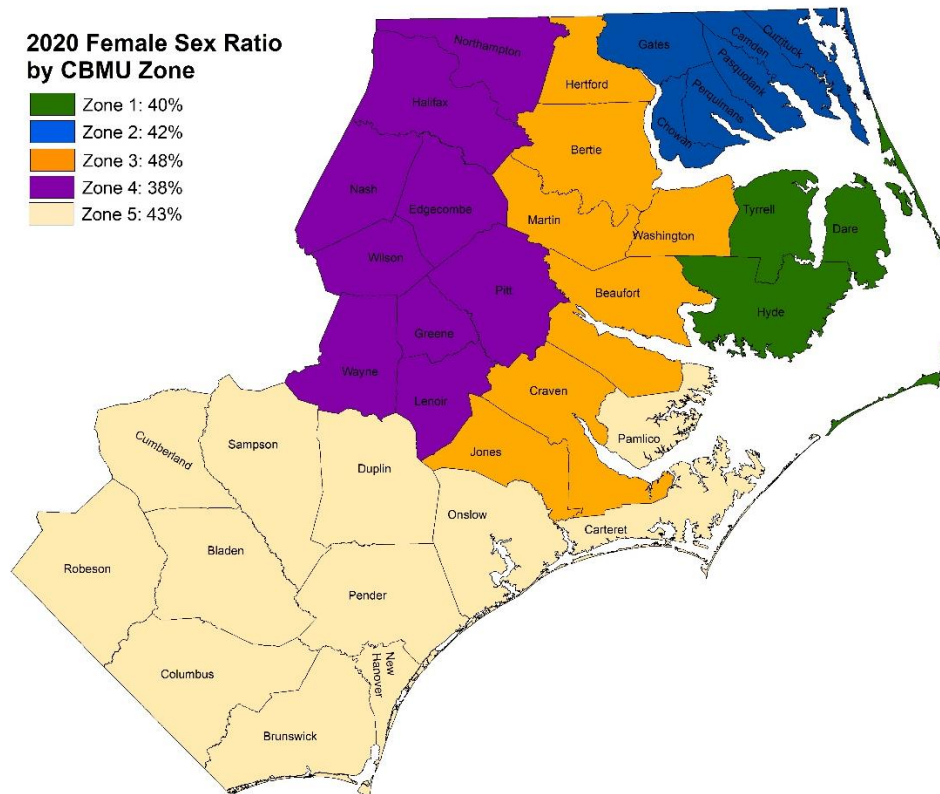


Figure 23. 2020 female sex ratio by CBMU zone.

Mountain Bear Management Unit (MBMU): The 2020 reported harvest (n=1,429 bears) in the MBMU increased by 11% compared to the 2019 season (n=1,290 bears; Table 3). The MBMU reported harvest was the 2nd highest on record and the sixth year in a row that harvest exceeded 1,000 bears. The MBMU harvest has exceeded 1,000 bears for 9 of the last 12 seasons. During the 2009 season, the reported bear harvest exceeded 1,000 bears for the first time since records were kept; the current record reported harvest was 1,466 bears in the 2018 season (Table 3).

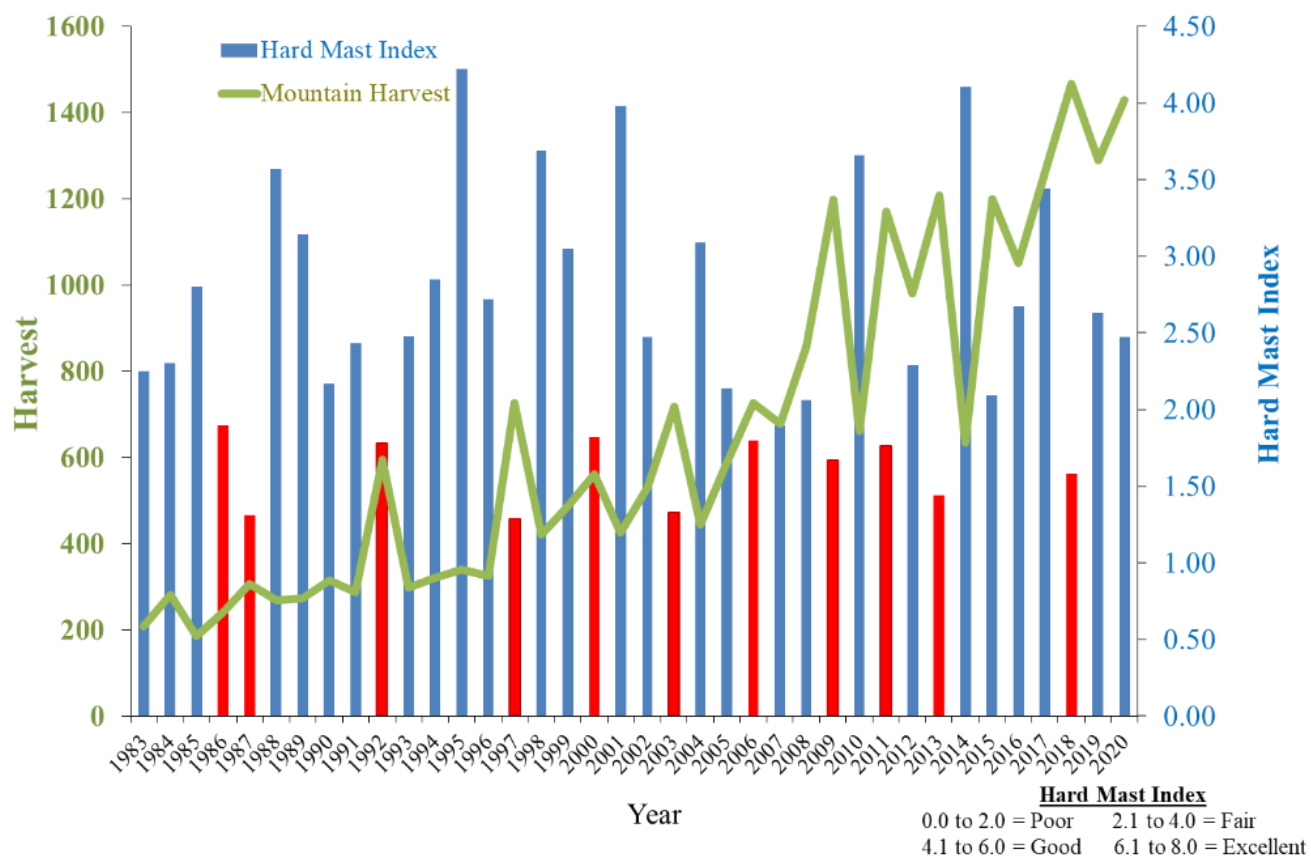


Figure 24. Registered bear harvest and hard mast index in the MBMU of North Carolina, 1983 through 2019, with increases in harvest corresponding with a poor hard mast index (indicated by the red bars).

As with the CBMU, the MBMU bear harvest is also tied to bear population size, number of hunters, weather, and changes in bear hunting season structure and hunting methods. However, the MBMU bear harvest is also closely tied to the availability of hard and soft mast; harvest levels rise in years of poor natural food availability and drop in years of good natural food availability. When there is a lack of hard mast, bears are more attracted to unnatural food sources, such as bait piles, and look for food over larger unfamiliar areas, making them more accessible to hunters. During falls 2009, 2011 and 2013, the hard mast abundance was poor, which contributed to the record bear harvests that occurred in the MBMU in those years (Table 3; Figure 24). More recently, in 2016 the harvest declined 12% which corresponded with a fair hard mast crop and an improvement in hard mast production when compared to 2015 (Figure 24). However, the harvest in 2017 differed from the tradition pattern observed in the MBMU; despite an

improvement in hard mast production from 2016, in 2017, there was a 20% harvest increase and a record harvest (Figure 24). While the fall hard mast index was higher in 2017 than in 2016, the 2017 hard mast production was uneven and extremely variable based on location, with some areas experiencing poor production while other areas experienced good to excellent production. For example, several areas experienced very poor production of white oaks. In addition, we suspect that hard mast productivity in 2016 was higher than what the index reflected. In 2018, hard mast abundance was poor, resulting in an increase in the reported harvest (+16%), as well as a record harvest (Figure 24). The hard mast abundance was improved in 2019, which explains the 12% decline in the reported harvest in the MBMU. During 2020, hard mast abundance declined from the previous year, and the harvest increased in response (Figure 24).

The county with the highest reported harvest was McDowell County, followed by Haywood and Buncombe counties; all reported >100 bears (Figure 25, Table 9). Record harvests occurred in 6 of 25 counties of the MBMU and include Alleghany, Avery, Buncombe, McDowell, Polk, Surry counties (Table 9). Fourteen counties experienced increases in harvest and 11 counties experienced declines in harvest. Swain (+223%), Alleghany (+77%), Wilkes (+64%), Buncombe (+57%) and Jackson (+56%) counties experienced the largest increase in harvest, while Swain (-100%), Burke (-41%), Henderson (-29%), and Rutherford (-21%) experienced the largest declines in harvest (Table 9).

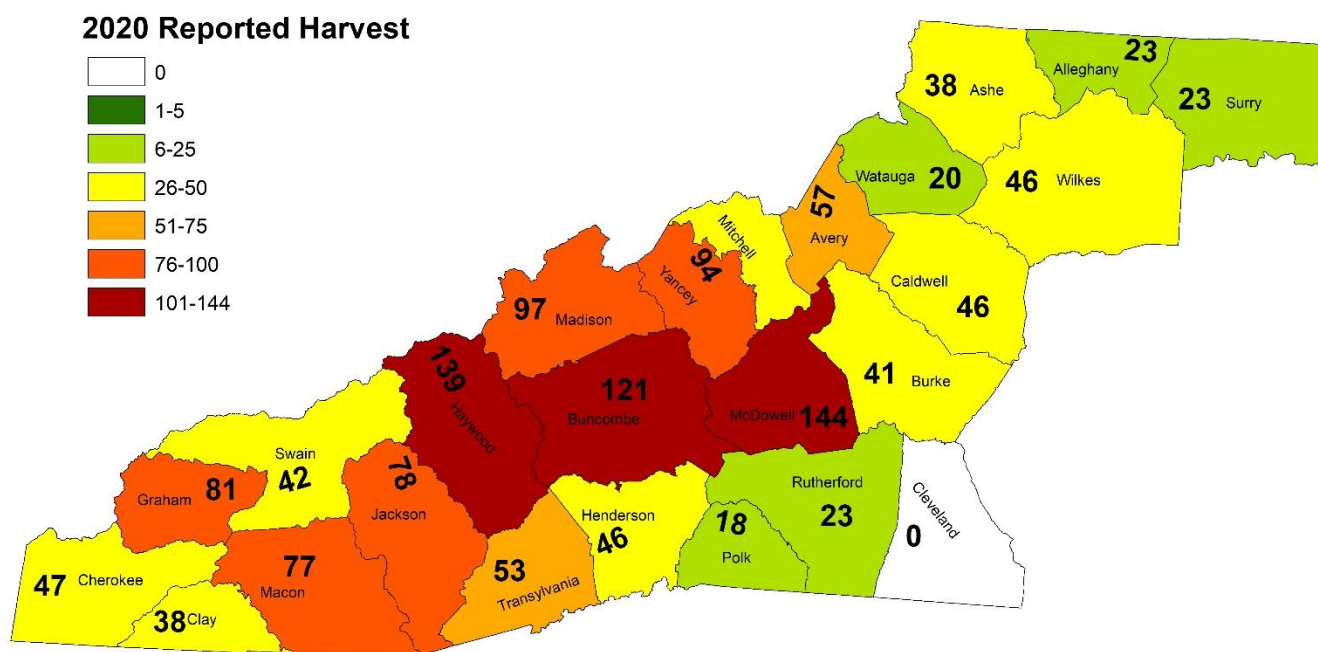


Figure 25. Reported harvest by county in the MBMU during the 2020 bear hunting season.

Table 9. Reported harvest results of black bears by county in the Mountain Bear Management Unit (MBMU) of North Carolina from 2007 through 2020.

County	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	% change from 2019 to 2020
Alleghany	3	9	15	2	8	6	6	2	8	11	11	14	13	23	77%
Ashe	10	17	36	5	31	24	25	8	29	30	50	37	27	38	41%
Avery	10	25	46	17	46	25	45	25	48	43	50	52	47	57	21%
Buncombe	17	39	47	18	49	47	74	30	61	68	69	103	77	121	57%
Burke	19	26	57	28	37	38	55	19	33	36	47	44	70	41	-41%
Caldwell	16	25	39	15	36	23	31	15	51	40	48	45	49	46	-6%
Cherokee	39	51	75	51	85	71	58	32	65	44	64	60	52	47	-10%
Clay	48	53	27	49	25	40	37	25	29	27	32	40	43	38	-12%
Cleveland	1	0	1	0	0	3	3	1	0	0	0	0	2	0	-100%
Graham	70	55	111	74	134	96	68	77	116	58	103	95	76	81	7%
Haywood	60	76	96	41	127	75	102	54	117	92	99	142	104	139	34%
Henderson	22	23	35	10	37	25	38	7	28	26	33	61	65	46	-29%
Jackson	38	23	47	28	37	59	71	26	63	54	64	80	50	78	56%
Macon	80	81	95	65	77	67	110	50	87	41	76	72	92	77	-16%
Madison	66	80	92	46	73	73	91	55	120	107	79	135	102	97	-5%
McDowell	54	66	98	87	105	110	98	67	81	119	117	128	109	144	32%
Mitchell	16	47	64	19	40	29	42	22	37	36	45	52	32	37	16%
Polk	3	3	8	2	5	3	13	5	9	3	7	15	13	18	38%
Rutherford	5	15	29	8	6	10	25	7	14	13	16	24	29	23	-21%
Surry	3	2	11	2	15	11	15	6	8	21	18	6	17	23	35%
Swain	14	16	22	15	43	24	23	14	24	23	33	52	13	42	223%
Transylvania	30	20	36	26	43	42	52	18	33	25	42	45	55	53	-4%
Watauga	5	9	17	3	9	10	20	8	26	10	17	18	18	20	11%
Wilkes	3	21	20	9	24	13	16	10	29	27	35	62	28	46	64%
Yancey	45	74	73	42	78	56	89	51	83	97	109	84	107	94	-12%
Totals	677	856	1,197	662	1,170	980	1,207	634	1,199	1,051	1,264	1,466	1,290	1,429	11%

During the 2020 harvest season, the number of females and males harvested in the MBMU increased by 3% and 24%, respectively (Table 3; Figure 26). In the MBMU, the percentage of females that have comprised the total harvest has varied over the last 10 years (31% - 42%; Table 4; Figure 27). The 10-year average has been 38%; during the 2020 season females comprised 40% of the reported harvest. Typically, when hard mast abundance is fair to good, we see a decrease in the female sex ratio of the harvest, as they are less vulnerable to hunters. The overall trend in the MBMU shows slightly less selectivity against females (Figure 27 and 28). Unlike the 2018 and 2019 seasons, multiple counties exceeded a 44% female sex ratio (Figure 29); for sustainable bear harvests, in which the objective is to have continued positive bear population growth, the female sex ratio of the harvest should not exceed 44%. Five counties exceeded 44% female sex ratio and two counties were at 44% female sex ratio. Unlike the CBMU, where population growth is now at zero percent, the MBMU is still at 5% population growth (page 91; Figure 60). The additional harvest pressure on females in some of these counties may help to achieve the bear population objective for the MBMU, which is to stabilize the population by reducing population growth to zero.

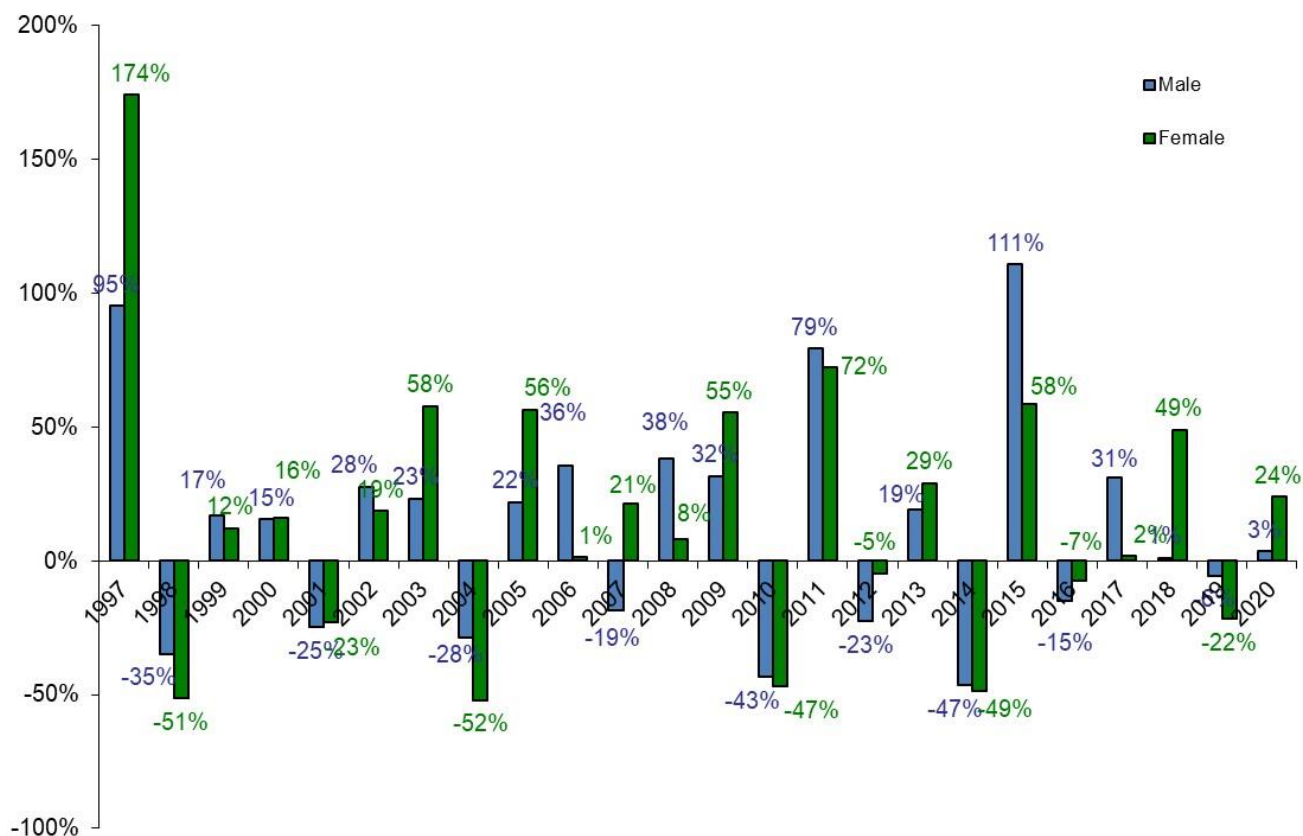


Figure 26. Annual percent change in male and female reported harvest in the MBMU from 1997 through 2020.

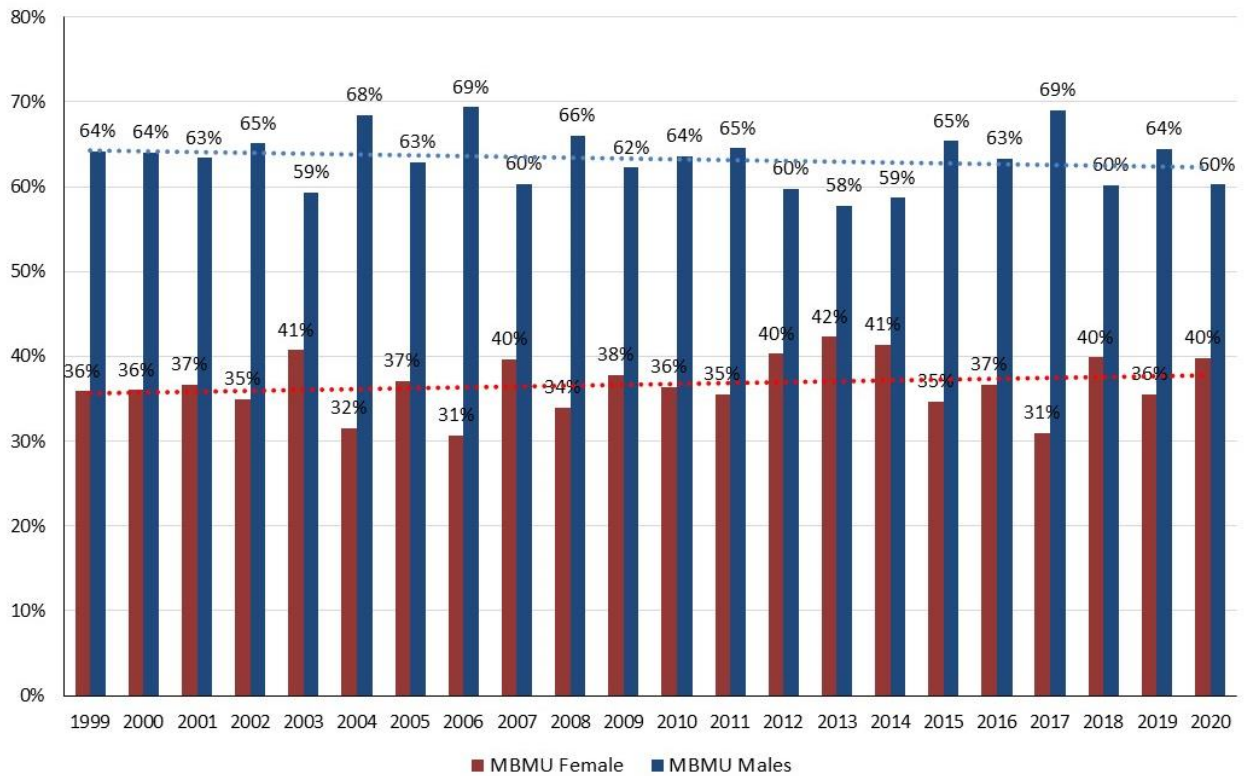


Figure 27. Percentage of male (red) and female (blue) bears in the reported MBMU harvest.

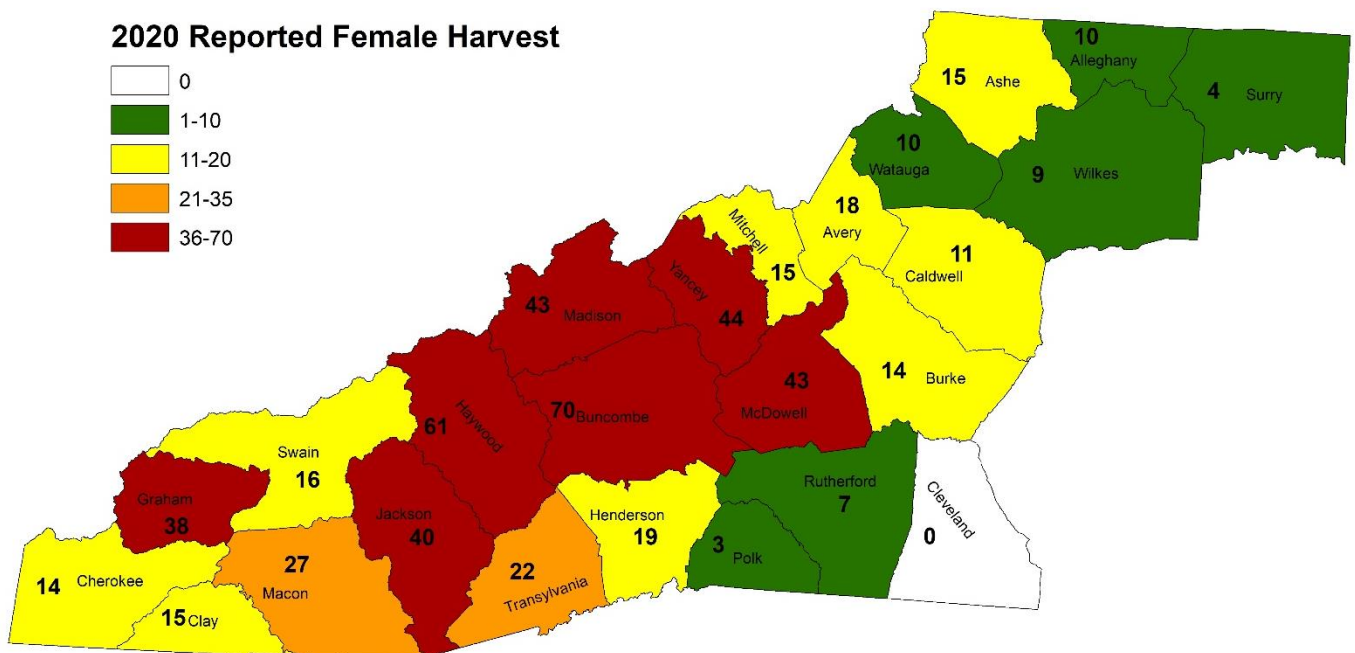


Figure 28. The 2020 reported female harvest by county in the MBMU.

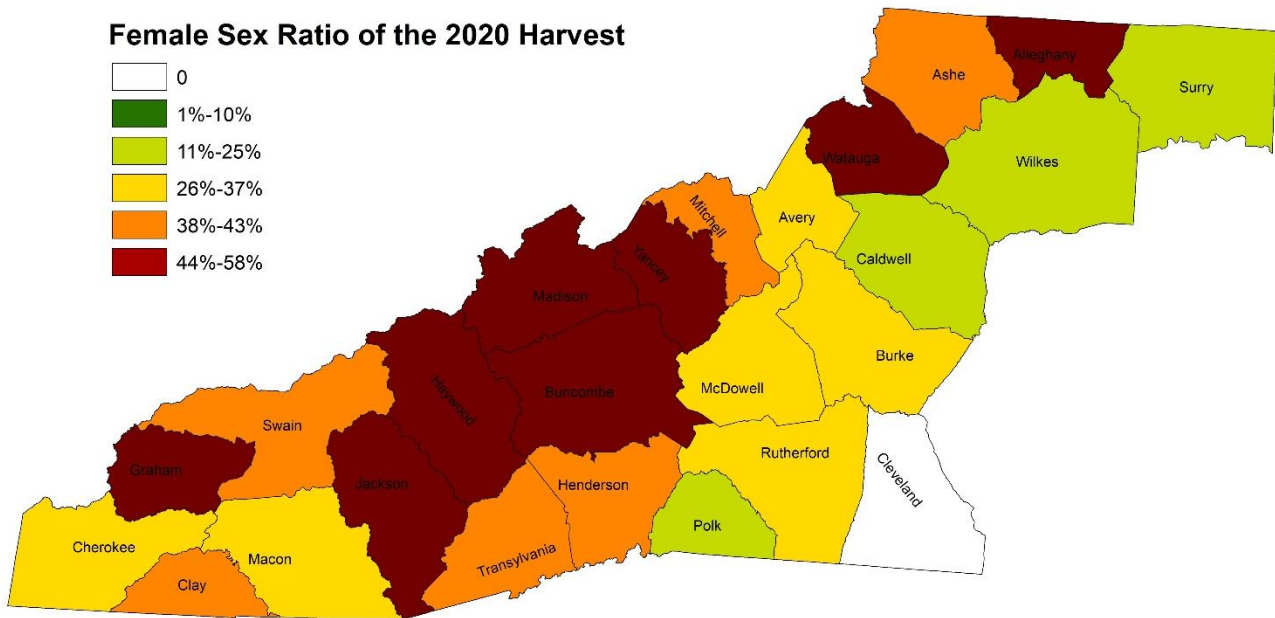


Figure 29. Percentage of the reported harvest comprised of female black bears in the MBMU during the 2020 bear hunting season.

As expected, and observed in previous seasons, reported harvest of all bears and female bears, declined throughout the season, with increases occurring on the last day of the split and last day of the season (Figures 30 and 31). The percent of females in the harvest showed a declining trend throughout the season (Figure 32).

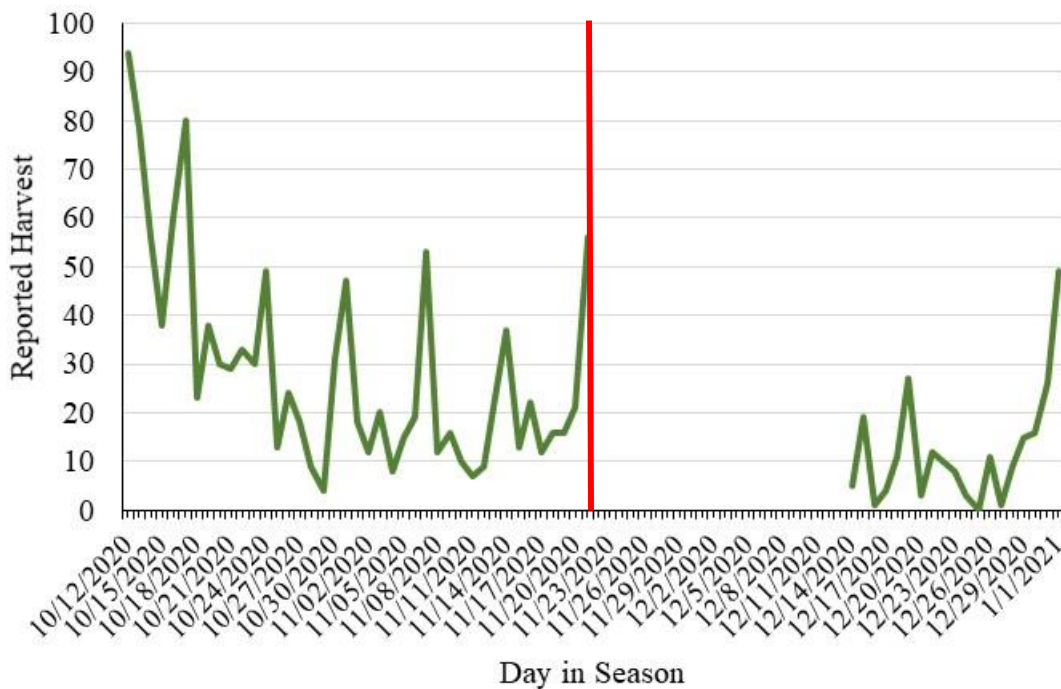


Figure 30. Reported bear harvest by day in the during the 2020 bears season in the MBMU season. Red line indicates the split in the season.

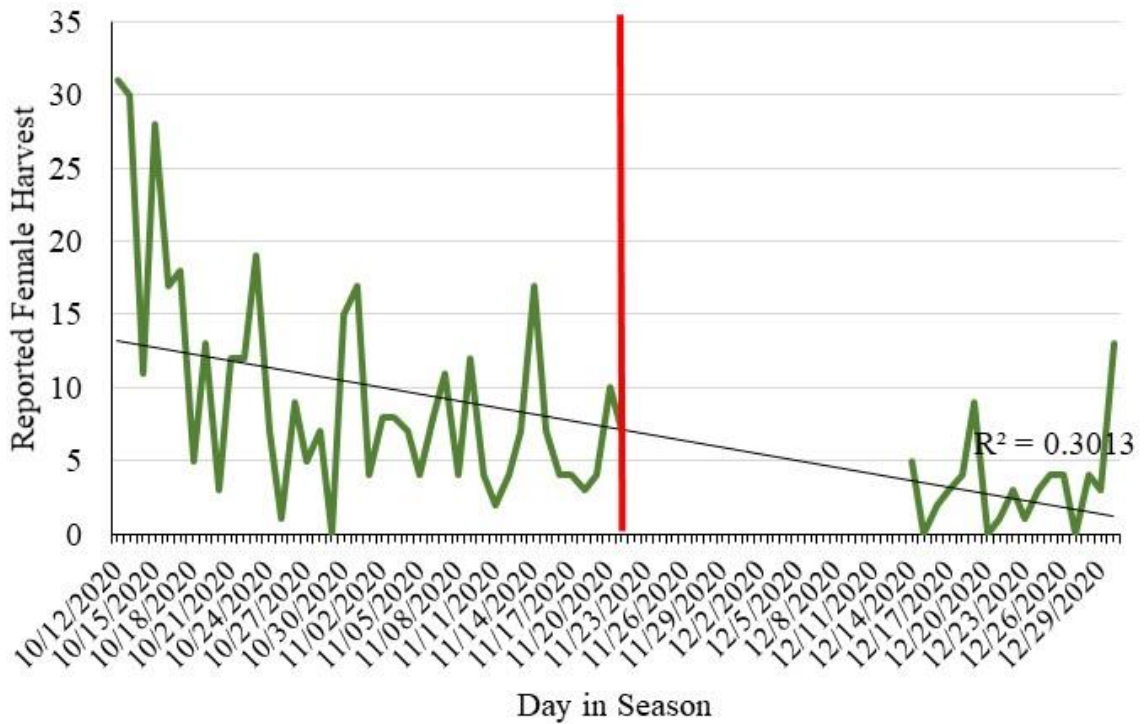


Figure 31. Reported harvest of female bears during the 2020 season in the MBMU (trend indicated by black line). The red line indicates the split in the season.

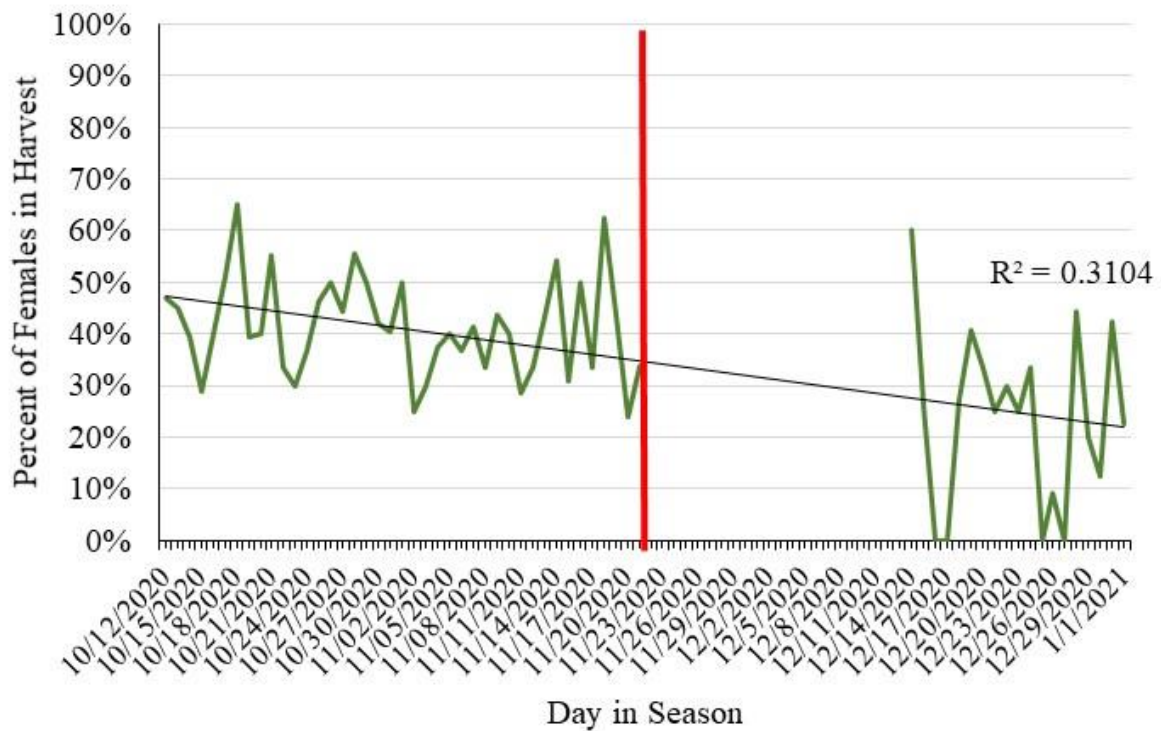


Figure 32. Percentage of female bears comprising the reported harvest during the 2020 season in the MBMU (trend indicated by black line). The red line indicates the split in the season.

Harvest by District

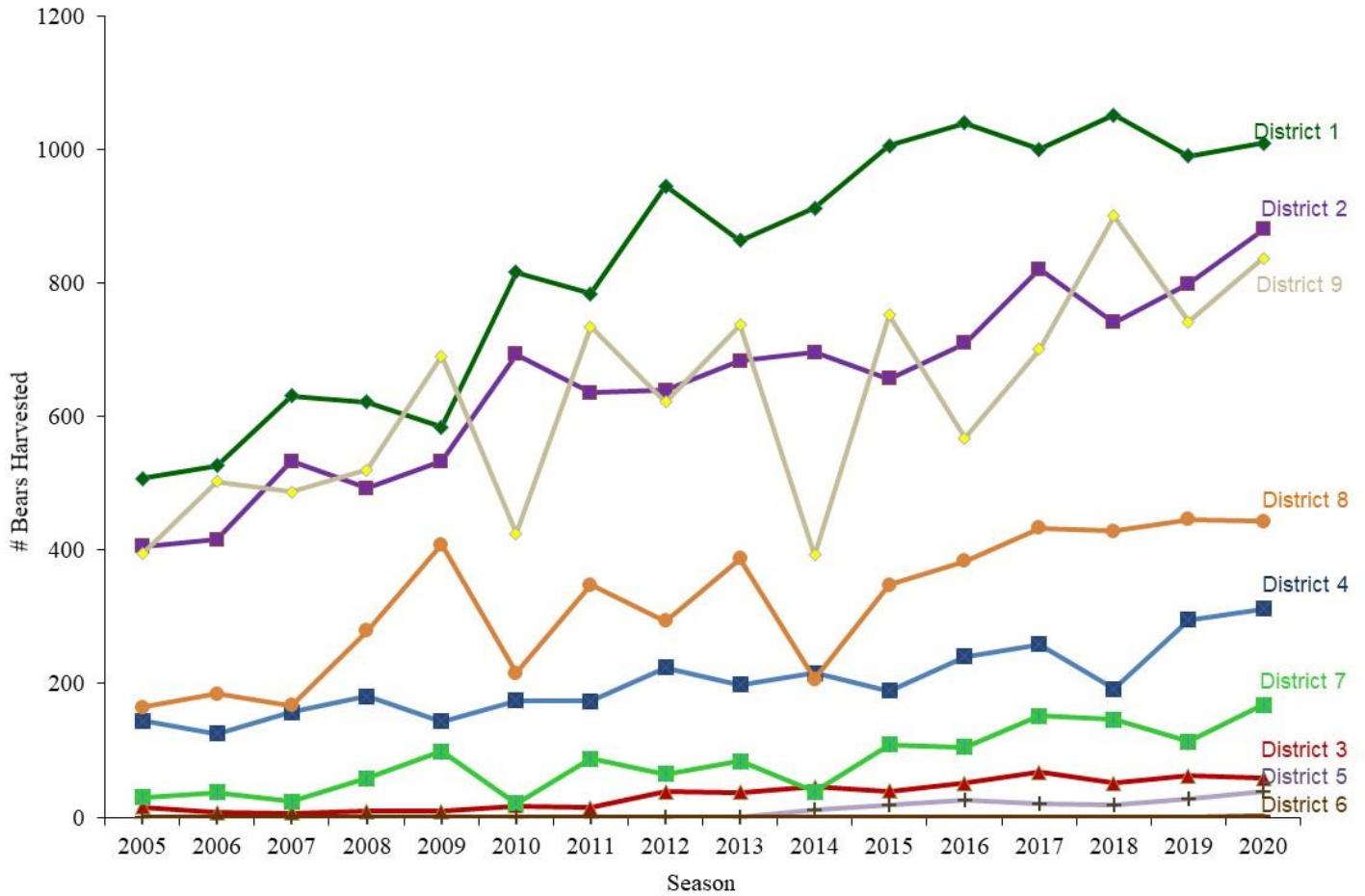


Figure 33. The reported harvest of black bears by district from 2005 through 2020.

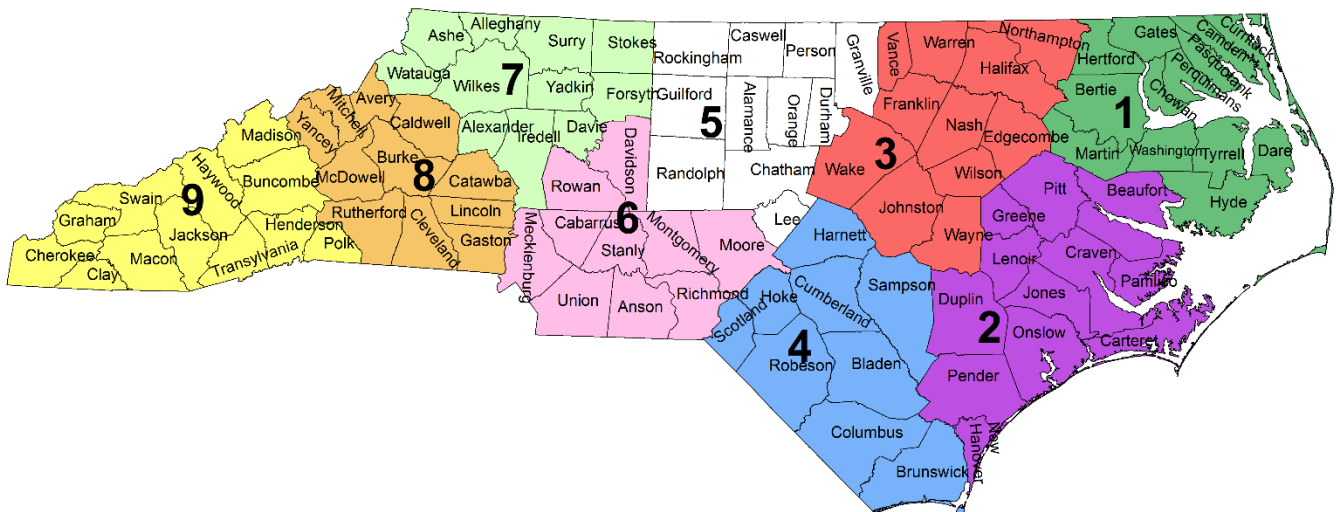


Figure 34. The nine wildlife districts of the North Carolina Wildlife Resources Commission.

Table 10. The reported harvest of black bears by district from 1977 through 2020.

Season	District								
	1	2	3	4	5	6	7	8	9
1977	0	58	0	16	0	0	0	23	56
1978	0	57	0	28	0	0	1	45	78
1979	0	57	0	36	0	0	2	29	93
1980	0	74	0	30	0	0	2	49	101
1981	0	62	0	30	0	0	1	32	118
1982	0	73	0	26	0	0	0	56	168
1983	0	71	0	26	0	0	0	54	157
1984	0	120	0	81	0	0	2	45	234
1985	0	103	0	35	0	0	0	34	153
1986	48	86	0	33	0	0	1	76	163
1987	94	93	0	58	0	0	1	68	238
1988	98	136	0	62	0	0	0	53	187
1989	83	146	0	46	0	0	2	59	239
1990	194	192	0	58	0	0	4	81	231
1991	187	185	0	57	0	0	1	75	210
1992	222	186	0	56	0	0	2	130	478
1993	239	206	0	78	0	0	4	65	232
1994	194	192	0	77	0	0	5	102	215
1995	389	281	0	75	0	0	6	74	254
1996	392	204	0	89	0	0	3	91	231
1997	359	296	0	82	0	0	12	197	517
1998	467	336	15	61	0	0	9	119	293
1999	447	312	16	106	0	0	10	107	368
2000	461	355	9	104	0	0	20	139	402
2001	469	520	15	103	0	0	14	110	302
2002	429	410	16	100	0	0	30	170	330
2003	557	423	1	117	0	0	22	227	468
2004	480	401	13	159	0	0	15	99	330
2005	507	406	15	145	0	0	30	165	395
2006	527	416	7	125	0	0	37	185	503
2007	631	533	6	157	0	0	24	167	487
2008	622	493	9	181	0	0	58	279	520
2009	584	533	9	144	0	0	99	408	691
2010	816	693	17	175	0	0	21	216	425
2011	784	636	14	174	0	0	88	348	735
2012	945	639	38	224	0	0	65	294	622
2013	864	683	37	199	0	0	84	387	737
2014	912	696	46	216	12	1	38	207	393
2015	1,006	657	39	189	18	0	109	348	752
2016	1,040	710	51	241	26	0	105	384	568
2017	1,000	821	68	259	20	0	152	433	701
2018	1,052	741	51	192	19	0	146	429	900
2019	990	799	62	296	28	0	113	446	742
2020	1009	880	58	312	39	2	168	443	837
Percent of 2020 Harvest by District	26%	21%	2%	8%	1%	0%	3%	12%	20%

Bear Permit Hunt Harvest

Prior to 2009, information on bear harvest that occurred on three of the bear permit hunts was obtained through the voluntary permit hunt surveys and voluntary tooth submission. However, hunter response to the permit surveys was low; in 2008, average response rate to the permit surveys was 10%. The exception to this is the Dare Bombing Range Bear Permit hunt, which is well monitored by NCWRC staff, due to the limited number of permit hunt days and the ability to have an established stationary check station; there is only one entrance and exit to the permit hunt. In order to improve our ability to monitor harvest on Mt. Mitchell and Daniel Boone Bear Sanctuaries, which are within Pisgah Game Land, questions were added to the big game registration system, enabling permit hunters to provide the sanctuaries as the location of their bear harvest.

In 2020, 25 bears were harvested during bear permit hunts (Table 11) and NCWRC received tooth submissions from 60% of these bears. The -19% decline in reported harvest on permit hunts was largely due the Pond Mountain and Daniel Boone Bear Sanctuary permit hunts, which experienced a 50% and 55% decrease in the harvest, respectively, compared to 2019. This despite the 8% increase in reported harvest overall for the Mountain BMU. Submission rates from bears taken on Pond Mountain (33%), followed by Mt. Mitchell Bear Sanctuary (45%) are the lowest of all permit hunts, while highest on Dare Bombing Range (100%), followed by Daniel Boone Bear Sanctuary (80%), the former due to the Commission's physical check station. While harvest estimates for the Holly Shelter Bear Garden Tract are unknown, several permit houndsmen parties initiate the start of their bear hunt on the tract, with the remainder of the chase occurring off the tract within Holly Shelter Game Land.

Table 11. Reported bear harvest for bear permit hunts from 2008 through 2020.

Sanctuary	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Dare Bombing Range ¹	2	4	3	3	1	2	9	1	8	15	1	1	5
Daniel Boone Bear Sanctuary ²	NS	5	3	2	5	3	1	7	4	8	6	11	5
Holly Shelter Bear Garden Tract ⁴	0	0	0	0	1	1	NA ⁴	NA ⁴	NA ⁴	NA ⁴	NA ⁴	NA ⁴	NA ⁴
Mt. Mitchell Bear Sanctuary ⁵	5	2	3	3	16	3	7	16	13	11	4	13	11
Pond Mountain ²	NS	NS	NS	1	0	0	0	3	1	0	0	6	3
Texas Plantation ²	NS	NS	NS	NS	NS	NS	NS	0	0	0	0	0	1
Total Registered Harvest	7	11	9	9	23	9	17	27	26	34	11	31	25

¹Harvest based on check station

²Harvest based on reported harvest to big game registration system

³Harvest based on permit surveys

⁴From 2007-2008, harvest based on permit surveys; after 2009, harvest based on big game registration system

⁵Harvest based on reported harvest to big game registration system

Mean weight and age of bears harvested on permit hunts can be seen in Table 12. Male and female bears harvested on the Dare Bombing Range permit hunt tend to be older and weigh less than the 10-year average observed for bears harvested in the CBMU (Table 12 and Table 36 on page 77). For example, male bears taken on the Dare Bombing Range permit hunt weigh ~169 lbs. lower than male bears harvested the CBMU (Table 12 and Table 36). Male and female bears harvested on Daniel Boone Bear Sanctuary were older and heavier than male bears harvested in the MBMU (Table 12 and Table 36). The pattern observed on Mt. Mitchell Bear Sanctuary is similar to that observed on Dare Bombing Range; male and female bears are older and weigh slightly less than bears harvested in the remaining MBMU. Sample size is low on Pond Mountain, but based on sampled bears, male bears are older and heavier than other male bears in the MBMU, while female bears are older than female bears sampled in the MBMU (Table 12 and Table 36).

Table 12. Mean age (years), mean weight (lbs.) and samples sizes (n) of bears sampled on bear permit hunts (2006 through 2020).

Permit Hunt	Age		Weight	
	Male	Female	Male	Female
Dare Bombing Range	5.4 (n=22)	8.3 (n=41)	171 (n=22)	164 (n=41)
Daniel Boone	4.1 (n=25)	6.7 (n=12)	255 (n=25)	213 (n=12)
Mt. Mitchell	4.5 (n=33)	5.7 (n=27)	224 (n=33)	176 (n=27)
Pond Mountain	3.9 (n=6)	6.4 (n=3)	263 (n=6)	N/A

Harvest on Game Lands

The percent of the bear harvest that occurs on game lands has remained fairly stable from 1998 through 2012 (Table 13; Figure 35). Until 2008, the majority of the MBMU bear harvest occurred on game lands, but since that season, the majority of the MBMU bear harvest typically occurs on private lands, with the exception of 2010, 2012, and 2014 (Table 13; Figure 35). However, compared to the other BMUs, game lands still comprise a significant source for harvested bears in the MBMU. In the CBMU, harvest by land type has been more stable and in the 2020 season, 96% of the CBMU bear harvest occurred on private lands. A vast majority of bears harvested in the PBMU were taken on private lands (99%; Table 13; Figure 35). One reason for the regional difference is that in the MBMU there is a large amount of public lands (e.g. Pisgah National Forest, Nantahala National Forest), as well as private properties that are smaller than what is observed in the coast. In the CBMU, private properties tend to have a large amount of acreage (e.g. Weyerhaeuser, agricultural operations) that is more conducive to bear hunting with hounds. The declining percent of bears harvested off of game lands in the MBMU is likely due to the increase in the still hunted harvest aided by bait (Table 26 on page 61). However, with human populations projected to increase in North Carolina and the increasing cost of leasing private lands, NCWRC game lands will become increasingly important in maintaining and providing bear hunting opportunities.

Table 13. Percentage of North Carolina's registered bear harvest occurring on game lands, 1998 through 2020.

Year	CBMU		MBMU		PBMU		Statewide	
	Game land	Other	Game land	Other	Game land	Other	Game land	Other
1998	3%	97%	67%	33%			24%	76%
1999	6%	94%	67%	33%			27%	73%
2000	3%	97%	50%	50%			21%	79%
2001	6%	94%	63%	37%			22%	78%
2002	5%	95%	54%	46%			22%	78%
2003	5%	95%	56%	44%			25%	75%
2004	5%	95%	67%	33%			24%	76%
2005	6%	94%	55%	45%			23%	77%
2006	6%	94%	52%	48%			25%	75%
2007	8%	92%	61%	39%			26%	74%
2008	6%	94%	50%	50%			24%	76%
2009	6%	94%	43%	57%			24%	76%
2010	6%	94%	65%	35%			23%	77%
2011	6%	94%	48%	52%			24%	76%
2012	6%	94%	53%	47%	0%	100%	22%	78%
2013	3%	97%	42%	58%	0%	100%	19%	81%
2014	5%	95%	56%	44%	10%	90%	18%	82%
2015	5%	95%	44%	56%	0%	100%	20%	80%
2016	4%	96%	43%	57%	6%	94%	17%	83%
2017	5%	95%	46%	54%	0%	100%	20%	80%
2018	3%	97%	31%	69%	6%	94%	15%	85%
2019	4%	96%	43%	57%	7%	93%	19%	81%
2020	4%	96%	39%	61%	1%	99%	17%	83%

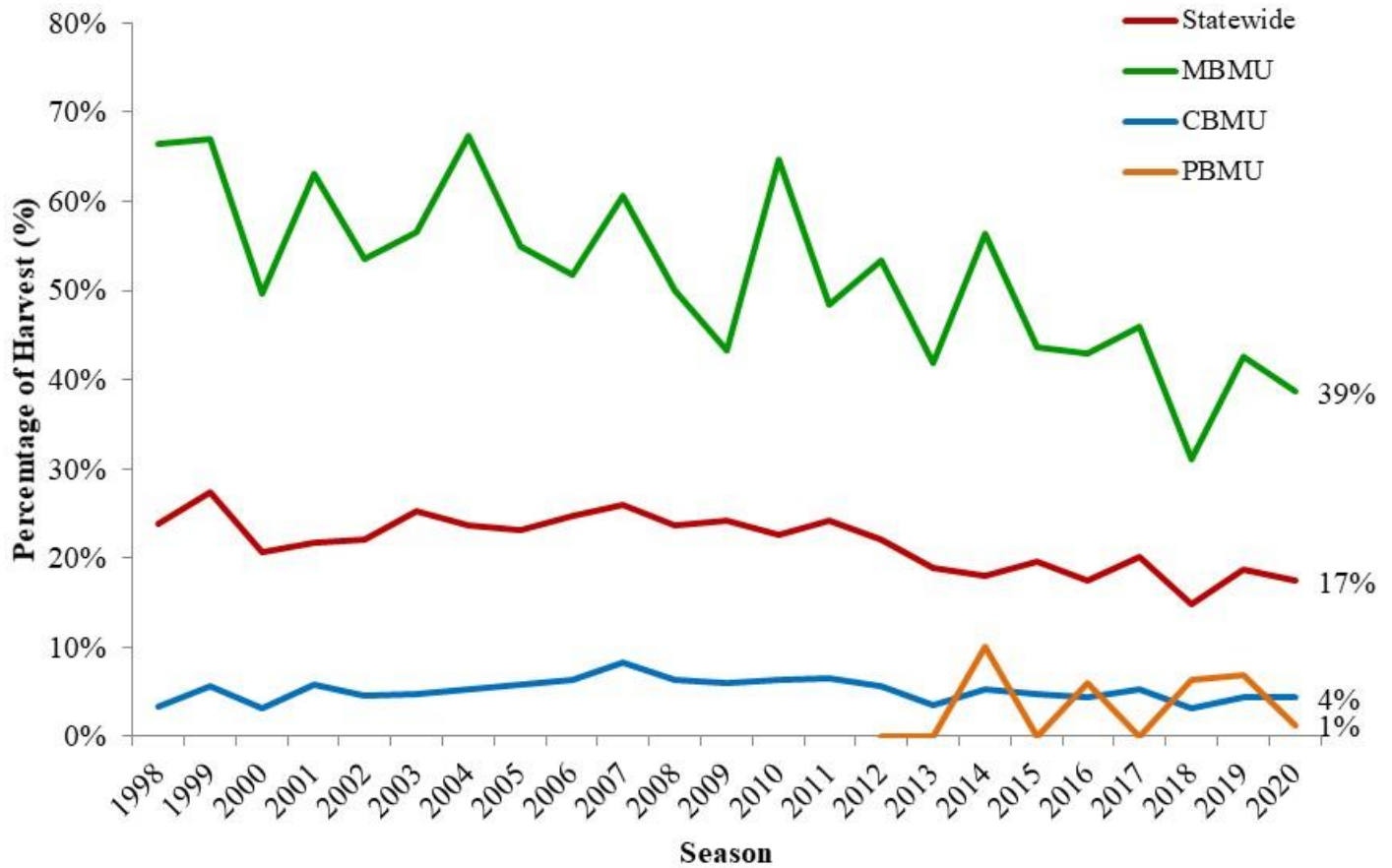


Figure 35. Percentage of registered bear harvest occurring on game lands, 1998 through 2020.

In the CBMU, a majority (56%) of the game land harvest occurs on four game lands: Croatan National Forest (22%), Buckridge (16%), Bladen Lakes State Forest (9%), and Alligator River (9%; Table 14). During the 2020 bear season, 21 bears were harvested on Buckridge Game Land, followed by Croatan National Forest (n=12), Lantern Acres Game Land (n=9), and Alligator River Game Land (n=6). In the MBMU, 93% of the game land harvest occurs on Nantahala National Forest (52%) and Pisgah National Forest (41%; Table 14). These two national forests comprise just over one million acres total and are the largest public lands in the mountain region in which bear hunting is allowed. Nantahala National Forest (n=260), followed by Pisgah (n=240) had the highest bear harvest on game lands, followed by Cold Mountain (n=12) and Mt. Mitchell Bear Sanctuary (n=10). Five bears were harvested off of Daniel Boone Bear Sanctuary (Table 14). In the PBMU, one bear was harvested on Mayo Game Lands during the 2020 bear season (Table 14).

Table 14. Registered harvest on game lands in the CBMU, MBMU, and PBMU of North Carolina, 2014 through 2020. Note: The total column reflects total harvest from 2008-2020.

Region	Game Land	2014	2015	2016	2017	2018	2019	2020	Total	% of Total Harvest by Game Land
CBMU	Alligator River	11	14	10	4	3	8	6	103	9%
	Angola Bay	2	3	1	8	7	7	8	59	5%
	Bachelor Bay	0	0	0	0	0	0	0	1	0%
	Bertie County ¹	1	0	1	1	1	0	3	11	1%
	Bladen Lakes State Forest	9	16	6	10	4	7	9	108	9%
	Buckridge	12	18	11	19	4	14	21	186	16%
	Cape Fear River Wetlands	0	0	0	0	0	0	0	2	0%
	Carteret County ¹	0	1	1	0	1	1	3	15	1%
	Chowan Swamp	4	3	2	5	4	6	8	63	5%
	Columbus County	2	0	1	0	1	0	1	8	1%
	Croatan	23	11	23	26	8	25	12	250	22%
	Dare	9	2	8	15	1	1	5	56	5%
	Dover Bay	1	0	0	0	0	0	0	2	0%
	Goose Creek	2	0	0	4	1	0	5	17	1%
	Green Swamp	0	1	0	1	0	0	0	3	0%
	Gull Rock	3	3	5	2	3	4	4	36	3%
	Holly Shelter	5	6	4	1	2	4	0	39	3%
	Juniper Creek	5	1	1	2	5	1	0	31	3%
	Lantern Acres	3	6	6	7	10	12	3	73	6%
	Light Ground Pocosin	0	0	0	0	0	0	0	1	0%
	Neuse River	0	0	0	0	0	0	1	3	0%
	New Lake	0	1	2	0	3	0	1	7	1%
	North River	0	0	3	1	0	0	1	5	0%
	Northwest River Marsh	0	0	0	0	0	1	0	1	0%
	Pungo River	0	1	0	0	0	1	0	3	0%
	Stones Creek	0	0	0	0	0	0	0	1	0%
	Texas Plantation	NS	0	0	0	0	0	1	1	0%
Van Swamp	5	1	3	8	7	1	6	60	5%	
White Oak River	0	0	0	0	0	1	0	4	0%	
MBMU	Buffalo Cove	0	2	3	2	3	4	3	22	0.3%
	Cold Mountain	7	10	4	14	4	13	12	107	1.7%
	Daniel Boone Bear Sanctuary	1	7	4	8	6	11	5	60	1.0%
	Green River	2	3	1	0	4	2	1	18	0.3%
	Headwaters	0	0	0	0	1	1	2	4	0.1%

Region	Game Land	2014	2015	2016	2017	2018	2019	2020	Total	% of Total Harvest by Game Land
	Mitchell River	1	0	0	0	0	0	0	2	0.0%
	Mt. Mitchell Bear Sanctuary	7	16	13	11	4	13	10	101	1.6%
	Nantahala	187	298	206	287	239	251	260	3,247	52%
	Needmore	3	2	1	7	6	4	3	56	0.9%
	Pisgah	143	179	216	241	184	236	240	2,572	41%
	Pond Mountain	0	2	1	2	0	6	3	15	0.2%
	Sandy Mush	2	2	1	1	0	0	3	14	0.2%
	South Mountains	1	1	1	2	2	6	4	29	0.5%
	Three Top Mountain	1	1	1	2	0	0	0	8	0.1%
	Toxaway	2	0	0	3	2	2	4	26	0.4%
	William H. Silver	0	0	0	0	1	1	3	5	0.1%
PBMU	Harris	0	0	0	0	1	0	0	1	7%
	Mayo	0	2	2	0	0	1	1	6	43%
	R.Wayne Bailey-Caswell	0	1	1	0	1	3	0	6	43%
	Sandy Creek	0	0	0	0	1	0	0	1	7%

¹ Possibly an error in reporting from hunters equating game land to county of harvest.

Harvest by Weapon Type

Since 1981, the requirement to report the weapon used for taking bears has changed throughout the years (Table 15). As of 2010, when a hunter registers a bear, s/he must indicate if a gun, bow, muzzleloader or crossbow was used. A majority of bears are harvested by use of gun (93%), followed by bow (3%), muzzleloaders (2%), then crossbow (1%).

Table 15. Composition of registered bear harvest by weapon from 1983 through 2020.

Year	Statewide Harvest	Gun	Muzzleloader	Bow	Crossbow	Unknown
1983	308	97%	N/A	N/A	N/A	3%
1984	482	95%	N/A	N/A	N/A	5%
1985	325	90%	N/A	N/A	N/A	10%
1986	407	100%	N/A	N/A	N/A	0%
1987	552	99%	N/A	N/A	N/A	1%
1988	536	100%	N/A	N/A	N/A	0%
1989	575	98%	N/A	N/A	N/A	2%
1990	760	99%	N/A	1%	N/A	0%
1991	715	95%	N/A	1%	N/A	4%
1992 ¹	1,074	96%	0.1%	2%	N/A	3%
1993 ²	824	55%	0.0%	0%	N/A	45%
1994	785	60%	0.1%	1%	N/A	39%
1995	1,079	55%	0.0%	0%	N/A	45%
1996	1,010	57%	0.1%	0%	N/A	42%
1997	1,463	51%	0.0%	1%	N/A	48%
1998	1,300	52%	0.0%	0.1%	N/A	48%
1999	1,366	46%	0.3%	0.1%	N/A	53%
2000	1,490	41%	0.1%	0.3%	N/A	58%
2001	1,533	44%	0.1%	0.2%	N/A	56%
2002	1,485	43%	0.0%	1%	N/A	56%
2003	1,812	47%	0.1%	0.3%	N/A	52%
2004	1,497	43%	0.1%	0.3%	N/A	56%
2005	1,661	37%	0.2%	0.2%	N/A	62%
2006	1,800	41%	0.1%	0.1%	N/A	59%
2007	2,006	44%	0.1%	0.2%	N/A	56%
2008	2,162	58%	1%	3%	N/A	38%
2009 ³	2,468	93%	1%	5%	N/A	1%
2010	2,363	96%	1%	2%	0.30%	0.30%
2011	2,779	95%	1%	4%	0.54%	0.04%
2012	2,827	95%	1%	3%	0.81%	0%
2013	2,521	97%	1%	2%	0.40%	10%
2014	3,118	95%	1%	3%	0.61%	0.1%
2015	2,521	97%	1%	2%	0.40%	10%
2016	3,125	94%	2%	3%	0.74%	0.1%
2017	3,454	94%	2%	3%	1%	0%
2018	3,530	92%	2%	4%	2%	0%
2019	3,476	93%	1%	3%	1%	0%
2020	3,748	94%	2%	3%	1%	0%
5- yr. Average		93%	2%	3%	1%	0%

¹From 1981-1992, weapon reported when hunters registered their bear.

² Weapon used based on sampled harvest.

³Type of weapon required when registering by all registration methods (i.e. big game harvest sheet, on-line and phone).

Non-Resident (NR) Bear Harvest

Until Oct. 1, 2011, determining the annual number of NR bear hunters was difficult. Prior to Oct. 1, 2011, non-residents (NRs) were required to obtain a NR bear/wild boar license prior to hunting bear. Because the NR bear license was combined with wild boar, not all NRs who purchased the NR bear/wild boar license were hunting bear. Another difficulty in determining the number of NR bear hunters was that NRs who purchased a NR lifetime sportsman license prior to May 24th, 1994 are exempt from purchasing a NR bear license. In 2011, these exempt lifetime NRs comprised 7% of the non-resident registered bear harvest. Lastly, during 2011, 26% of successful NR bear hunters who registered their harvested bear did not purchase the NR bear license. Some of these successful NRs may have been exempt from having to purchase the separate bear license, while other NRs were illegally hunting without the required NR bear license.

After Oct. 1, 2011, wild boars were reclassified as feral hogs and non-resident hog hunters were no longer required to purchase the separate license. This improved our efforts to estimate the number of NR bear hunters. However, due to NR lifetime license exemptions, other exemptions, and illegal activity, we continued to underestimate the number of NR bear hunters in North Carolina.

In July 1, 2014 the bear e-stamp was created and is required for all hunters before taking any bear within North Carolina. For NR hunters, they must have the bear e-stamp if they hunt bears, even if they are exempt from purchasing the NR bear license. The bear e-stamp will provide a more accurate estimate of NR hunters who hunt bears in North Carolina. In addition, the NC General Assembly increased the NR bear license from \$125 to \$225 in 2015.

In 2020, there was a 3% increase in bear e-stamps issued ($n=3,329$) to NRs compared to the previous year; 47% of NRs were required to purchase the bear e-stamp; 53% of NRs were exempt from purchasing the bear e-stamp due to their lifetime license (Table 16). There was a 3% increase in the number of NR bear licenses ($n=1,230$) sold compared to 2019, which is the first-time changes in NR bear licenses corresponded with the bear e-stamps issued to NR. Only 37% of NRs who were issued a bear e-stamp were also issued a NR bear license.

The Covid pandemic did not appear to impact NR travel to North Carolina to bear hunt; during 2020, there was a 3% increase in the number of NRs that were issued a bear e-stamp (Table 16). During 2020, a majority of NR bear hunters were from Virginia (28%), South Carolina (16%), and Tennessee (15%), which matches trends seen in previous seasons. NR bear hunters came from all 50 states, including Alaska and Hawaii, and 1 country (Tunisia). It is estimated that successful NR bear hunters comprised 14% of the registered bear harvest (Table 16; Figure 36). For the first time since method of harvest was recorded during registration, a majority of NR bear hunters (52%) successfully harvested a bear by still/stand hunting in the CBMU (Table 17). In the MBMU, the majority of the reported harvest was with the assistance of hounds (69%; Table 17). The percent of NRs that successfully harvested a bear by still/stand hunting has increased in the MBMU and CBMU since 2016, likely due to the legalization of unprocessed bait, resulting in higher success rates (Table 17). NR bear hunters showed selectivity for male bears in all three BMUs during the 2019 season (Table 17). Compared to resident hunters, NRs showed more selectivity for male bears in the CBMU and PBMU, and less selectivity for males in the MBMU (Table 17).

Table 16. Non-resident (NR) bear license sales, NR bear e-stamps, and harvest from 2001 through 2020.

Year	NR Bear Licenses Issued	Bear E-Stamps Issued to NR	NRs paid for Bear E-stamp ¹	NR ² Male Harvest	NR Female Harvest	Total NR Harvest	NR Composition of Statewide Harvest
2001	698	NA	NA	45	37	82	5%
2002	1,075	NA	NA	39	17	56	4%
2003	1,126	NA	NA	91	51	142	8%
2004	1,123	NA	NA	73	36	109	7%
2005	695	NA	NA	93	49	142	9%
2006	1,124	NA	NA	90	71	161	9%
2007	1,201	NA	NA	115	79	194	10%
2008	1,107	NA	NA	81	59	140	6%
2009	1,080	NA	NA	93	39	132	5%
2010	1,071	NA	NA	123	67	190	8%
2011 ³	1,127	NA	NA	150	106	256	9%
2012	1,194	NA	NA	179	126	305	11%
2013	1,216	NA	NA	159	114	273	9%
2014	1,149	2,490	974	175	107	282	11%
2015	991	2,702	1,041	239	134	373	12%
2016	1,224	2,723	1,122	207	184	391	13%
2017	1,430	3,033	1,339	310	169	479	14%
2018	1,577	3,045	1,359	286	175	462	13%
2019	1,198	3,227	1,532	335	194	529	15%
2020	1,230	3,329	1,570	337	201	538	14%
Total	22,636	20,549	7,367	3,220	2,015	5,235	

¹All NRs are required to have bear e-stamp, but NRs with lifetime licenses prior to July 1, 2014 receive it free upon request.

² Male and female reported harvest includes NRs who were exempt from purchasing a NR bear license.

³ In October 2011, license changed to non-resident bear license, as wild boar was reclassified to feral hog.

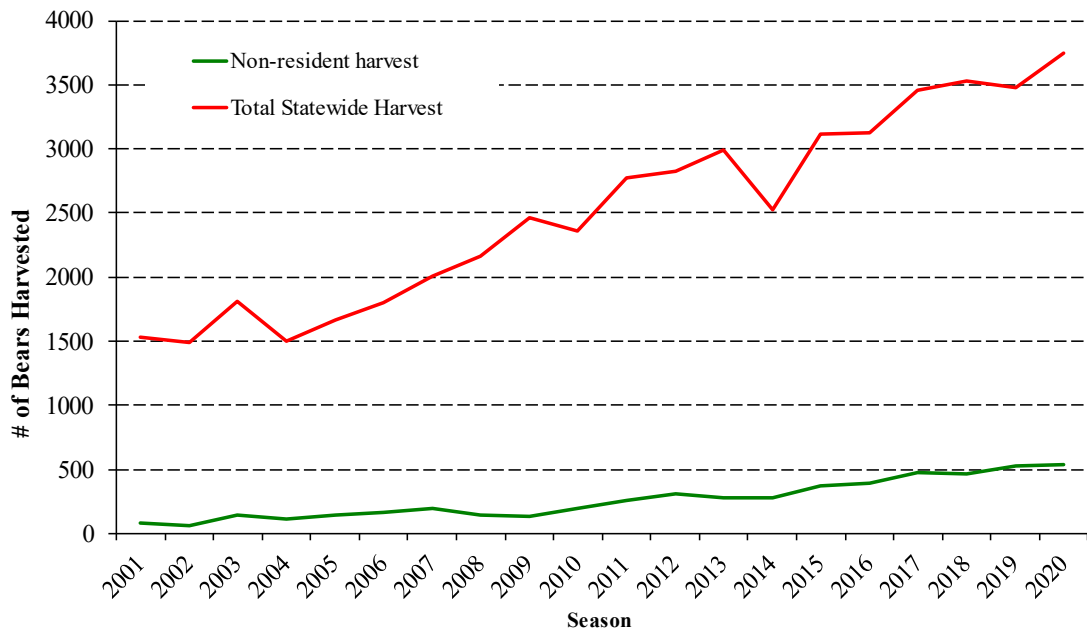


Figure 36. Number of bears harvested by non-residents and total number of bears harvested statewide from 2001 through 2020.

Table 17. Sex ratio and method of harvest of successful non-resident bear hunters who registered a bear, 2002 through 2020.

Year	CBMU		MBMU		PBMU		CBMU		MBMU		PBMU	
	Male	Female	Male	Female	Male	Female	Still	Dog	Still	Dog	Still	Dog
2002	68%	32%	72%	28%	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2003	65%	35%	61%	39%	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2004	64%	36%	74%	26%	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2005	61%	39%	78%	23%	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2006	53%	47%	61%	39%	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2007	60%	40%	57%	43%	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2008	57%	43%	58%	42%	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2009	67%	33%	77%	23%	N/A	N/A	47%	53%	5%	95%	N/A	N/A
2010	64%	36%	67%	33%	N/A	N/A	31%	69%	6%	94%	N/A	N/A
2011	56%	44%	63%	37%	N/A	N/A	22%	78%	14%	86%	N/A	N/A
2012	58%	42%	60%	40%	N/A	N/A	38%	62%	8%	92%	N/A	N/A
2013	58%	42%	59%	41%	N/A	N/A	36%	64%	16%	84%	N/A	N/A
2014	62%	38%	62%	38%	67%	33%	38%	62%	14%	86%	33%	67%
2015	62%	38%	70%	30%	67%	33%	43%	58%	10%	90%	67%	33%
2016	52%	48%	59%	41%	50%	50%	44%	56%	11%	89%	75%	25%
2017	64%	36%	68%	32%	100%	0%	47%	53%	20%	80%	100%	0%
2018	64%	36%	58%	42%	50%	50%	47%	53%	35%	65%	50%	50%
2019	65%	35%	58%	42%	67%	33%	47%	53%	30%	70%	33%	67%
2020	64%	36%	58%	42%	100%	0%	52%	48%	31%	69%	100%	0%
2020 (Resident)	55%	45%	60%	40%	71%	29%	42%	58%	33%	67%	16%	84%

During the 2020 season, 18%, 9%, and 1% of the reported harvest in the CBMU, MBMU, and PBMU, respectively, were by non-residents (Table 18). While the percent of residents that comprise the reported MBMU bear harvest has remained stable since 2010 (90-93%), there is a decreasing trend in resident hunters that comprise the reported CBMU bear harvest (89% to 81%; Table 18). In the CBMU, Zone 1 (39%) had the highest percentage of the reported harvest in that zone comprised by non-residents, followed by Zone 2 (21%; Table 19). The majority of bears taken by non-residents in the CBMU occurred in Zone 3 (36%), followed by Zone 5 (26%; Table 19).

Table 18. Percent of reported harvest in the CBMU and MBMU that is comprised of resident and non-resident hunters from 2010 through 2020.

Year	CBMU		MBMU		PBMU	
	Resident	Non-resident	Resident	Non-resident	Resident	Non-resident
2010	89%	11%	92%	8%	100%	0%
2011	89%	11%	93%	7%	1%	0%
2012	87%	13%	93%	7%	100%	0%
2013	89%	11%	93%	7%	100%	0%
2014	88%	12%	91%	9%	85%	15%
2015	88%	12%	92%	8%	92%	8%
2016	84%	16%	93%	7%	92%	8%
2017	83%	17%	91%	9%	96%	4%
2018	83%	17%	92%	8%	96%	4%
2019	81%	19%	90%	10%	95%	5%
2020	82%	18%	91%	9%	99%	1%

Table 19. Non-resident reported harvest by Coastal BMU Zone for 2020 hunting season.

Coastal BMU Zone	NR Harvest	% of Harvest by NR in each Zone	Total Harvest	% of CBMU Harvest by NR by Zone
Coastal BMU Zone 1	195	39%	500	22.3%
Coastal BMU Zone 2	47	21%	229	10.2%
Coastal BMU Zone 3	119	15%	800	35.7%
Coastal BMU Zone 4	13	10%	135	6.0%
Coastal BMU Zone 5	38	7%	574	25.6%
CBMU Total	412	18%	2,238	

Bear e-stamp holder survey

In July 1, 2014, the bear e-stamp became a requirement for both residents and non-residents who hunted bears during the regulated bear hunting season in North Carolina. The implementation of the bear e-stamp allowed the NCWRC to identify potential bear hunters for the first time. In January 2015, the NCWRC initiated a survey of all holders of the bear e-stamp from the 2014 bear hunting season. This survey will be conducted annually in order to monitor changes in the number of active bear hunters and bear hunter success rates. In addition, biological staff can gain information on specific harvest statistics (e.g., hunter effort and success by method). This data will aid in evaluating future regulatory proposals, as well as help biological staff demonstrate cause-effect relationships of several factors that influence harvest levels, such as regulatory and statutory changes, number of bear hunters, changes in hunting methods, and changes in bear population levels.

Results from the survey from 2014-15 to 2019-20 can be seen in Appendix B and results for the 2019 bear e-stamp holder survey can be seen in Appendix C. Detailed results from the 2020 bear e-stamp holder survey will be posted shortly. During the 2020 bear hunting season, 88,411 hunters had a valid bear e-stamp (Figure 37), of which 59% (n=52,604) received due to exemptions (e.g., lifetime license holder prior to July 1, 2014, landowner who hunts on their land; Table 20). The number of paid bear e-stamps issued has increased since the bear e-stamp was required to hunt bears in 2014; it increased 8% during the 2020 season. We sent the survey to 87,828 bear e-stamp holders with valid addresses and received 28,162 responses (33% response rate). Fifty-nine percent of respondents had not hunted black blacks prior to the 2020 bear hunting season. Based on survey results, it is estimated there were 13,342 active bear hunters during the 2020 regulated bear hunting season (Table 20). In 2019, hound hunting was the method used most often in the MBMU (57%), while still/stand hunting was the more common method in the CBMU (53%) and PBMU (91%; Table 21).

Table 20. Results of bear e-stamp holder survey for the 2014-15 through 2020-21 survey years.

Survey Year	# Bear E-stamp holders	# Paid Bear E-stamp holders	# of Survey Respondents	Response Rate	# Identifying as Bear Hunters ¹	% Hunted Specifically for Bear	Estimated # Active Bear Hunters ²	% Respondents Harvested Bear
2014-15	70,391	24,205 (34%)	31,292	44%	N/A	15%	10,758	7.1%
2015-16	79,743	28,185 (36%)	28,273	36%	N/A	14%	11,434	6.8%
2016-17	79,718	29,379 (37%)	31,292	39%	21,129	14%	10,855	5.6%
2017-18	83,151	31,608 (38%)	29,489	36%	22,513	15%	12,302	6.8%
2018-19	84,662	33,396 (39%)	30,155	37%	22,050	14%	12,088	6.1%
2019-20	85,012	33,024 (39%)	28,326	35%	22,059	14%	11,866	5.8%
2020-21	88,411	35,807 (41%)	28,162	33%	24,766	15%	13,342	7.6%

¹Based on survey question that asked bear e-stamp holder if they identify as a bear hunter.

²Estimated based on survey question that asked if bear e-stamp holder hunted specifically for bear during applicable season.

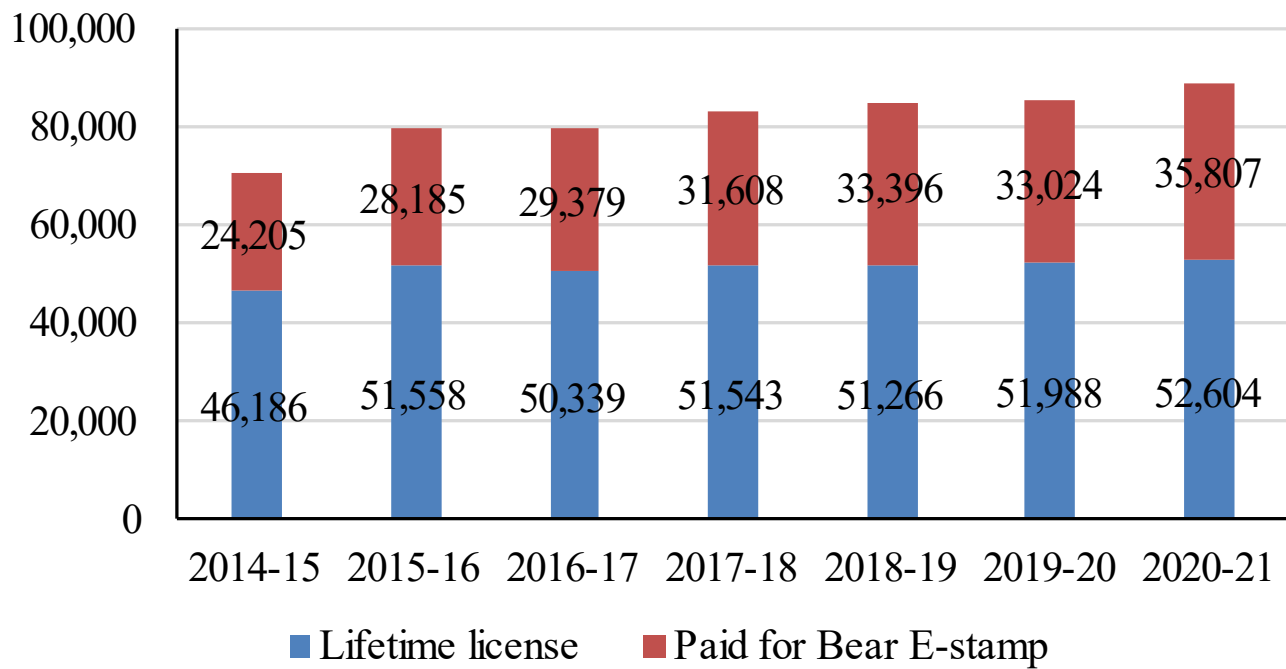


Figure 37. Number of Bear E-stamps issued from 2014-15 season through 2020-21 season.

Table 21. Method of hunting by bear management unit during the 2019 bear hunting season.

Region	Method	% of Method ¹	Primarily used Bait
Statewide	Dog	51%	49%
	Still / Stand	49%	64%
Coastal BMU	Dog	47%	49%
	Still / Stand	53%	63%
Mountain BMU	Dog	57%	31%
	Still / Stand	43%	44%
Piedmont BMU	Dog	9%	7%
	Still / Stand	91%	39%

¹Includes hunters who used both methods and/or hunted in greater than one bear management unit.

Bear Cooperator Program Participation

The Black Bear Cooperator Program lets hunters directly participate with the NCWRC in monitoring the bear population when they voluntarily submit biological information from their harvested bear to the NCWRC. Age and sex information gathered from biological samples are used for analyzing the age structure of the harvested population and for population reconstruction modeling. Hunter submissions are critical to the program's success. Participating hunters receive an age report on their harvested bear, as well as a blaze orange black bear cooperator hat. For information on how to participate and instructions on removing the upper pre-molars from a bear, please visit: ncwildlife.org/bearcooperator



Participation: In order to meet the assumptions of population reconstruction (see page 89), remove biases due to the under-sampling of younger bears and female bears, accurately determine age structures of the bear populations, and calculate population growth rates at a smaller scale (i.e., CBMU zones 1-5), we would need ~80 to 90% submission rate. This has not yet been accomplished through the voluntary Bear Cooperator Program. Despite intensive efforts expended by NCWRC staff during the bear hunting seasons, the number of bear teeth submitted by hunters statewide has declined since the 1990's (Table 22, Figure 38).

These efforts involve the following:

1. The Bear Cooperator Hat;
2. The Bear Cooperator Packet, sent to all Bear e-stamp holders, that contains a self-addressed postage-paid bear tooth envelope and instructions on how to remove the upper pre-molars.
3. Meeting with party leaders to provide tooth collection supplies;
4. Meeting with party leaders to pick up teeth at the end of the season;
5. Calling bear hunters who registered their bear to request a tooth;
6. Roving check stations, in which staff drive around counties to weigh bears and pull premolars from harvested bears;
7. Responding to phone calls from hunters that would like their bear weighed.
8. An ad that appears with the hunter's authorization number when s/he registers a bear on-line.
9. An ad that appears on the big game report card for those hunters that receive a bear e-stamp.

In order to increase submission rates, the NCWRC in 2014 started mailing bear cooperator envelopes to all holders of the Bear E-stamp prior to and during the regulated bear hunting season. These are self-addressed, postage-paid envelopes that allow the hunter to place both upper pre-molar teeth in the envelope, fill out information on the envelope, then place the envelope in a mailbox. There was an increase in submission rates in 2014 (60%), but submission rates have declined in all bear management units since 2014 (Figure 38, Table 22).

During the 2020 season, roving check stations were not conducted in the Coastal BMU due to Covid-19 safety guidelines. As an alternative to roving check stations, staff from the Game and Furbearer Program, Operations, and LAWA called, texted, and/or emailed bear hunters the same day they registered their bear harvest; this was done in the PBMU and CBMU. Despite this contact, tooth submission rates in CBMU declined from 52% in 2019 to 46% in 2020 (Table 22). All three BMUs had under 50% participation and, for the sixth year in a row, tooth submission rates in the CBMU (46%) exceeded that in the MBMU (42%). Since the cooperator program was initiated in 1976, the MBMU had higher submission rates than the CBMU; however, submission rates from the CBMU started to exceed that of the MBMU in 2013. The MBMU had the lowest submission rate during the 2018 season (42%, Table 22). The higher submission

rates in the CBMU is likely due to a combination of outreach efforts to assist hunters in participating in the Black Bear Cooperator Program and an increase in roving check stations during the first week of the CBMU seasons. The decline in submission rates in the MBMU may be partly due hunter disapproval of enforcement activities and regulatory changes that have occurred over the past 6 years.

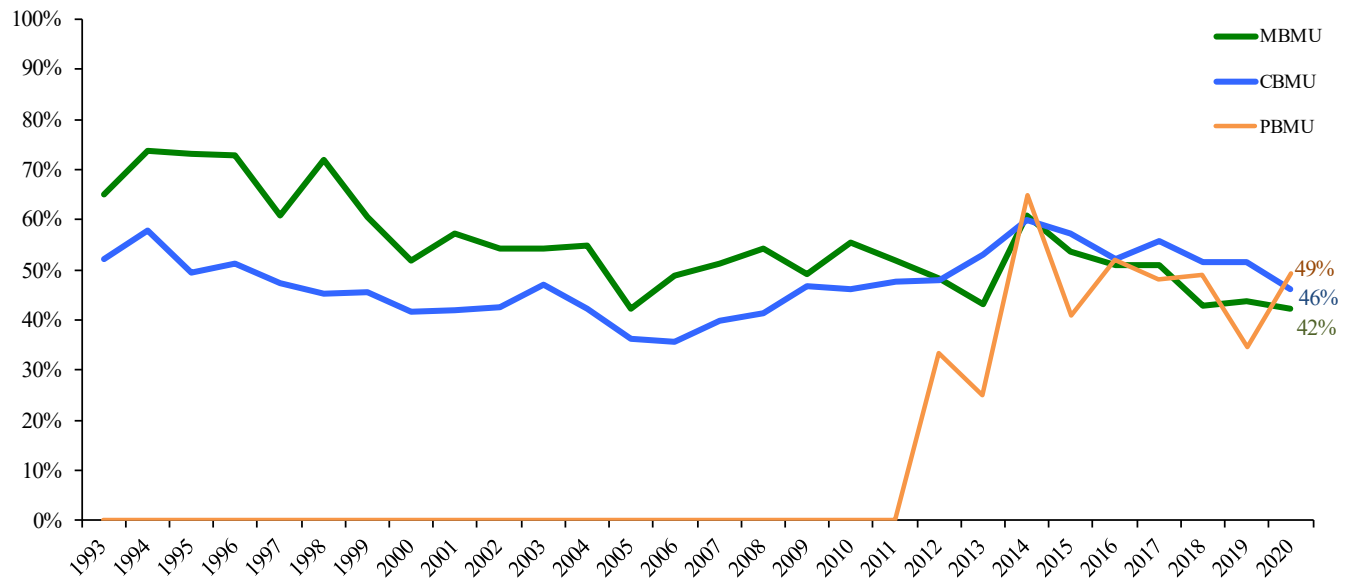


Figure 38. Percentage of registered bears that are sampled by NCWRC for aging from 1976 through 2020.

Table 22. Percent of registered black bears in each bear management region that are sampled by NCWRC from 1976 through 2020 (ns=no season).

Year	CBMU	MBMU	PBMU
1976	31%	97%	ns
1977	23%	75%	ns
1978	51%	90%	ns
1979	48%	69%	ns
1980	36%	69%	ns
1981	58%	74%	ns
1982	38%	58%	ns
1983	44%	88%	ns
1984	29%	77%	ns
1985	32%	80%	ns
1986	24%	74%	ns
1987	42%	77%	ns
1988	38%	61%	ns
1989	36%	55%	ns
1990	34%	57%	ns
1991	30%	61%	ns
1992	50%	54%	ns
1993	52%	65%	ns
1994	58%	74%	ns
1995	50%	73%	ns
1996	51%	73%	ns
1997	47%	61%	ns
1998	45%	72%	ns

Year	CBMU	MBMU	Bear Cooperator Program PBMU
1999	46%	60%	ns
2000	42%	52%	ns
2001	42%	57%	ns
2002	43%	54%	ns
2003	47%	54%	ns
2004	42%	55%	ns
2005	35%	42%	N/A ¹
2006	36%	49%	0%
2007	40%	51%	0%
2008	41%	54%	0%
2009	47%	49%	0%
2010	46%	55%	N/A
2011	48%	52%	0%
2012	48%	48%	33%
2013	53%	43%	25%
2014	60%	61%	65%
2015	57%	54%	41%
2016	52%	51%	56%
2017	57%	50%	48%
2018	51%	43%	49%
2019	52%	44%	36%
2020	46%	42%	49%

¹ N/A: Submission rates not available because no bears were harvested in that region.

Participation by hunting methods: Two types of hunting methods are utilized in North Carolina, still/stand and dog hunting. The use of dogs to “strike” and “tree” bears has been a technique that goes back centuries. North Carolinians developed a strain of hound to hunt bears, known as the Plott Hound, which has been designated by the Legislature as the official state dog of North Carolina. Still hunting or stand hunting is also an important hunting method. This is a technique whereby hunters place stands on either trails, field edges, or in areas frequented by bears to feed.

Since 2009, NCWRC biological staff has been able to collect information on method of hunt by hunters reporting their harvest, allowing us to compare reported harvest to the sampled harvest. Bear houndsmen participation in the Bear Cooperator Program has been substantially higher than participation by still hunters (Table 23; Figure 39). In 2020, 51% of houndsmen who harvested a bear also submitted biological information versus 35% of still hunters. Still hunter submission rates have improved since the NCWRC started sending out bear cooperator packets to all Bear e-stamp holders in 2014, but participation has remained under 40% the past three seasons (Table 23, Figure 39).

Houndsmen participation is likely higher than still hunters due to their greater awareness of the Bear Cooperator Program. Since data collection began in 1969, NCWRC staff have worked closely with houndsmen in the collection biological samples, such as sex, weight, age and location of harvest. In addition, party leaders regularly collect biological samples from all bears harvested by their party and submit them to NCWRC staff at the end of the bear season. Houndsmen are also more visible to NCWRC roving check stations, and have more established hunt clubs, so NCWRC staff are able to identify houndsmen during the bear season. In contrast, still hunters are individuals that are more difficult to identify by NCWRC staff during the bear season. A portion of the still harvest is opportunistic to deer hunting; these hunters are not traditional bear hunters and less likely to be aware of the Bear Cooperator Program and other black bear monitoring efforts.

Table 23. Bear Cooperator Program participation rates (%) of still hunters and houndsmen in the three bear management units of North Carolina (2009-2020).

	<u>Statewide</u>		<u>CBMU</u>		<u>MBMU</u>		<u>PBMU</u>	
	Still	Dogs	Still	Dogs	Still	Dogs	Still	Dogs
2009 Participation Rates	20%	62%	23%	58%	15%	66%	0%	N/A ¹
2010 Participation Rates	25%	59%	26%	57%	18%	63%	N/A ²	N/A
2011 Participation Rates	21%	61%	22%	59%	19%	64%	0%	N/A
2012 Participation Rates	27%	57%	29%	58%	20%	54%	50%	N/A
2013 Participation Rates	27%	57%	32%	60%	18%	53%	0%	50%
2014 Participation Rates	45%	65%	47%	66%	34%	62%	47%	100%
2015 Participation Rates	45%	61%	51%	61%	32%	61%	43%	25%
2016 Participation Rates	40%	58%	43%	58%	30%	58%	57%	53%
2017 Participation Rates	44%	61%	50%	62%	29%	59%	51%	29%
2018 Participation Rates	39%	53%	47%	53%	25%	53%	54%	33%
2019 Participation Rates	39%	55%	45%	57%	25%	52%	40%	23%
2020 Participation Rates	35%	51%	40%	51%	23%	51%	49%	54%

¹ N/A: Submission rates not available because no bears were harvested by hound hunters in that management unit.

² N/A: Submission rates not available because no bears were harvested by hound hunters in that management unit.

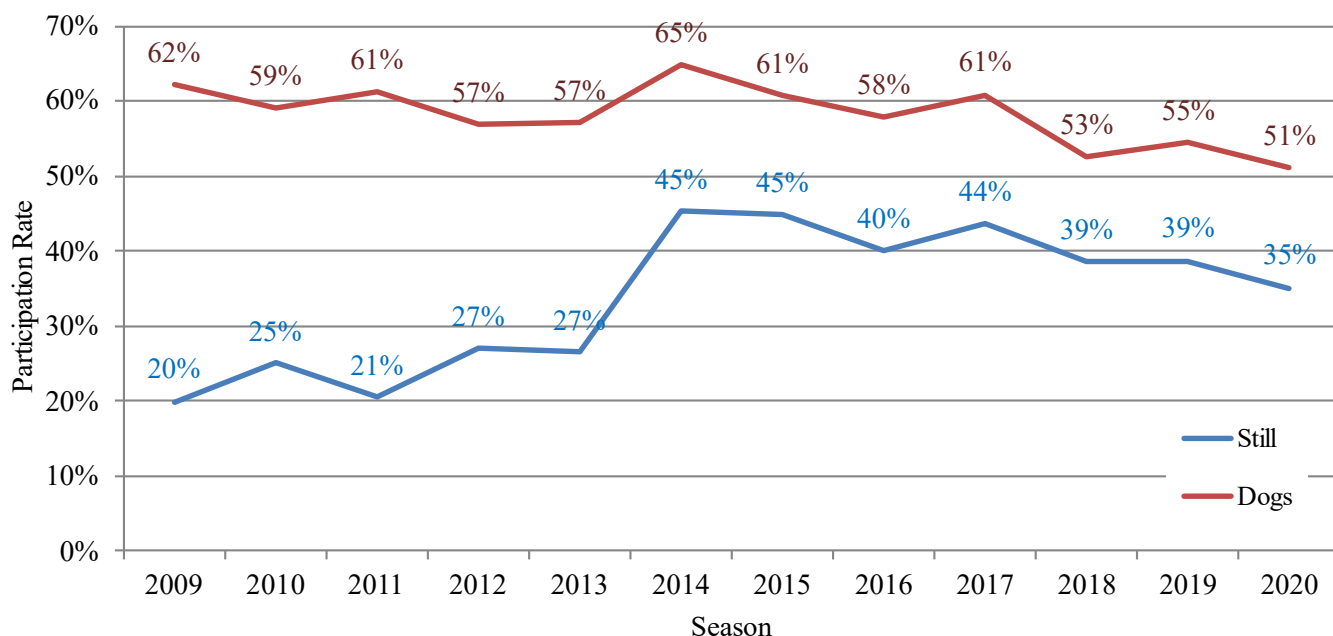


Figure 39. Participation in the bear cooperator program by hunting methods from 2009 through 2020 in North Carolina.

Hunter Input on Bear Cooperator Program: Bear hunters frequently ask the NCWRC staff on whether the Bear Cooperator Program would become mandatory. These inquiries have increased since 2014 as a result in changes in bear management (i.e., use of unprocessed bait, liberalization of some CBMU bear seasons). In reviewing the regulations for other states that have bears seasons, 26 of 33 states with a bear season (includes Florida) require mandatory tooth submission (79%), 21 have mandatory physical check or check station (61%), and 5 have voluntary tooth submission programs (15%); 2 are unknown (Nevada, Oklahoma). Including states with mandatory tooth submission and mandatory check stations, 82% of states with a bear season have stricter measures than North Carolina to monitor the harvest and obtain biological data. Within the last 3 years, two states, Florida and West Virginia, have implemented mandatory tooth submission. Florida implemented mandatory tooth submission when they reopened their bear hunting season in 2015. West Virginia changed from a voluntary program to a mandatory program in 2016. Five of 26 states with mandatory tooth submission allow hunters to submit the tooth by mail. North Carolina is the only state that allows use of bait as an aid in bear hunting that does not have mandatory tooth submission.

From March through April 2017, the NCWRC conducted 5 bear forums across the state. In addition, the NCWRC conducted a bear focus group meeting with party leaders in Waynesville in July 2017. During these meetings, the WRC asked attendees whether they supported mandatory tooth submission. Results indicate substantial support for mandatory tooth submission (74%; Table 24). Note that the question focused on increasing the ability of the WRC to model the bear population on a smaller scale, and did not discuss the other benefits (e.g., more accurately compare age structure of harvest by method, remove bias due to older male bears overrepresented in the sample) that would occur with mandatory tooth submission.

Table 24. Results of six bear forums conducted in North Carolina in 2017.

Question.	To model the bear population at a smaller scale we need higher tooth submission rates?		
	<i>Would you support mandatory tooth submission by successful hunters?</i>		
	Yes	No	I need to think about it
Marion	67% (20)	30% (9)	3% (1)
Thomasville	100% (5)	0	0
Bladen Co.	88% (37)	12% (5)	0
Williamston	68% (30)	30% (13)	2% (1)
New Bern	94% (30)	0	6% (2)
Waynesville	56% (28)	38 (19)	6% (3)
Statewide	74% (150)	23% (46)	3% (7)

Age information gathered from the upper premolar tooth are used for analyzing the age structure of the harvested population and for population reconstruction modeling. Our bear population estimates and population growth rates are based on a population reconstruction model (see page 88). Hunter submissions are critical to the program’s success. However, due to low submission rates in several counties, we are

unable to extrapolate population growth rates or estimates at a scale lower than the existing bear management units (e.g., CBMU, MBMU). We are unable to determine changes in population growth rates within the new CBMU zones (zones 1 to 5) approved in 2017 or determine the age structure of females in the PBMU, which would help us identify if reproducing females are populating this bear management unit.

Another issue is in comparing the age structure of bears harvested by hunting method, as low submission rates likely result in biased data. With recent changes in bear management (e.g., use of unprocessed food by still hunters, liberalization of CBMU seasons), the Commission is often asked whether there are differences in bears harvested by still hunters and houndsmen. Bear houndsmen participation in the Bear Cooperator Program has been substantially higher than participation by still hunters (Table 23; Figure 39). For example, in 2009, 62% of houndsmen and 20% of still hunters submitted an upper premolar for aging. But submission rates have declined among hound hunters (51% in 2020) and remain low for still hunters (35% in 2020; Table 23). While still hunter submission rates have improved since the NCWRC started sending out bear cooperator packets to all Bear e-stamp holders, submission rates are still too low for confident analysis. Samples received from both hunting methods are more likely to be biased towards older, male bears.

Method of Harvest

Prior to 2008, the WRC was able to track method of harvest only through information provided voluntarily by hunters when they submitted a premolar tooth for aging. In 2008, the big game registration system started requesting method of harvest from hunters registering their harvested bear on-line or via phone. In 2009, the NCWRC requested information on method of take through all three registration systems. However, we refined the question on the big game cooperator sheets in 2010 to improve data collection; the question on method of take was changed to a “yes/no” question.

Use of dogs remains the primary method for successfully harvesting bears in North Carolina (59% in 2020; Table 25). However, statewide, the method of harvest used to hunt bears is split evenly between stand/still hunting and dog hunting (Table 21); several hunters employ both methods during the bear hunting season. Since the big game registration system reflects all reported bear harvests, the data we collect voluntarily from bear hunters appears to be biased towards bear hunters using dogs, likely due to their awareness of the bear cooperator program.

Table 25. Method of harvest from voluntary tooth submission and from big game registration system, 1992-2020.

Season	Tooth Submission Data			Registered Harvest		
	Dog	Still	Unknown	Dog	Still	Unknown
1993	77%	22%	0.6%	N/A	N/A	N/A
1994	77%	23%	0.4%	N/A	N/A	N/A
1995	74%	24%	2%	N/A	N/A	N/A
1996	79%	20%	1%	N/A	N/A	N/A
1997	78%	20%	2%	N/A	N/A	N/A
1998	75%	24%	1%	N/A	N/A	N/A
1999	77%	21%	2%	N/A	N/A	N/A
2000	77%	23%	0.3%	N/A	N/A	N/A
2001	81%	17%	1%	N/A	N/A	N/A
2002	81%	17%	2%	N/A	N/A	N/A
2003	81%	17%	2%	N/A	N/A	N/A
2004	82%	16%	3%	N/A	N/A	N/A
2005	82%	16%	2%	N/A	N/A	N/A
2006	85%	13%	2%	N/A	N/A	N/A
2007	84%	14%	2%	N/A	N/A	N/A
2008 ¹	87%	12%	0.6%	37%	25%	38%
2009 ²	84%	16%	0.5%	63%	36%	0.1%
2010	84%	15%	0.5%	69%	30%	0.1%
2011	88%	12%	0.0%	71%	29%	0.0%
2012	83%	16%	0.8%	68%	31%	0.1%
2013	82%	18%	0.1%	69%	31%	0.0%
2014	74%	24%	2.6%	68%	32%	0.0%
2015	72%	27%	0.6%	66%	34%	0.0%
2016	73%	27%	0.2%	65%	35%	0%
2017	70%	30%	0.2%	63%	37%	0%
2018	66%	32%	1.3%	60%	40%	0%
2019	71%	29%	0.2%	63%	37%	0%
2020	67%	32%	0.4%	59%	41%	0%

¹In 2008, the big game registration system started collecting information on method of hunting on-line and via telephone.

²In 2009, the big game registration system added method of harvest to the big game cooperator sheets.

Regional method of harvest: The majority of bears harvested in the CBMU and MBMU are by houndsmen, while most bears taken in the PBMU are by still hunters (Table 26). Still hunting of bears is more common in the CBMU and the PBMU, than in the MBMU. In the MBMU, the percentage of bears taken by still hunters has increased and since 2017, 30% or more of bears taken in the MBMU are by still hunters (Table 26). During 2020, the percentage of the harvest comprised of hound hunters in the MBMU declined by 3% (Table 26). However, the harvest by both hound hunters and still hunters increased 6% and 21%, respectively, from the previous season (Figure 40). Increases in harvest by both still and hound hunters is often due the low abundance of hard mast during these years; when there is a lack of hard mast, bears are more attracted to unnatural food sources, such as bait, and look for food over larger unfamiliar areas, making them more accessible to hunters. In the CBMU, still hunters comprised 44% of the reported harvest in 2020, the highest percentage of the CBMU harvest since method of harvest was recorded during registration in 2009 (Table 26). Compared to the previous season, still hunter harvest in the CBMU increased 16%, while harvest by hound hunters declined 2% (Figure 41). While harvest by hound hunters has fluctuated in the CBMU since 2014 (-8% to 8%; Figure 41), the change in the harvest from season to season by still hunters has remained positive, with the exception of 2018 (Figure 41). In 2014, use of unprocessed bait was allowed for still hunters. This change likely resulted in still hunters being more successful, despite annual changes in weather that can impact hunting success in the CBMU.

Table 26. Method of harvest by bear management unit, based on 2009¹ through 2020 registered harvest.

Year	CBMU			MBMU			PBMU	
	Still	Dog	Unknown	Still	Dog	Unknown	Still	Dog
2009 ¹	39%	59%	1.7%	33%	66%	0.3%	100%	0%
2010 ²	36%	64%	0.1%	15%	84%	0.3%	0%	0%
2011	31%	69%	0.1%	27%	73%	0.0%	100%	0%
2012	36%	64%	0.2%	24%	76%	0.0%	67%	33%
2013	33%	67%	0%	29%	71%	0.0%	50%	50%
2014	37%	63%	0.1%	14%	86%	0%	75%	25%
2015	37%	63%	0%	26%	74%	0%	90%	10%
2016	38%	62%	0%	27%	73%	0%	70%	30%
2017	40%	60%	0%	30%	70%	0%	87%	13%
2018	41%	59%	0%	38%	62%	0%	74%	26%
2019	40%	60%	0%	30%	70%	0%	78%	22%
2020	44%	56%	0%	33%	67%	0%	84%	16%

¹In 2009, the big game registration system started collecting information on method of hunting on all three registration methods (i.e. on-line, telephone, big game cooperator sheets).

²In 2010, method of harvest on the big game cooperator sheets was refined to improve data collection.

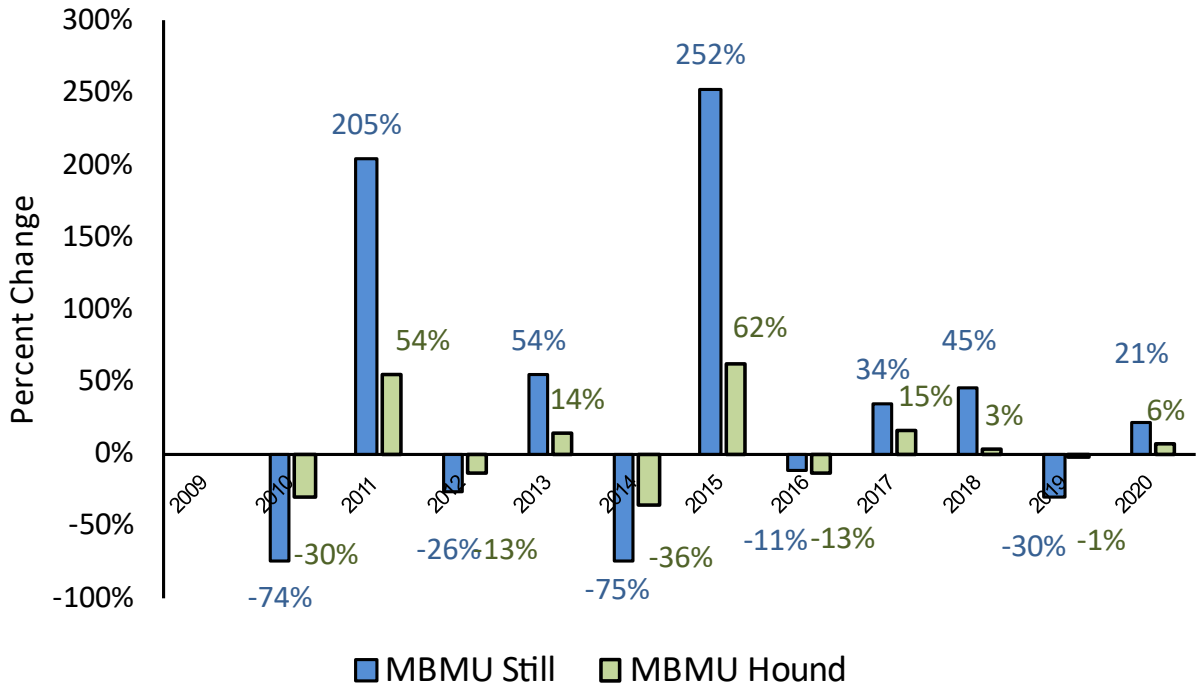


Figure 40. Percent change (%) in reported harvested in the MBMU by method of harvest from 2010 through 2020.

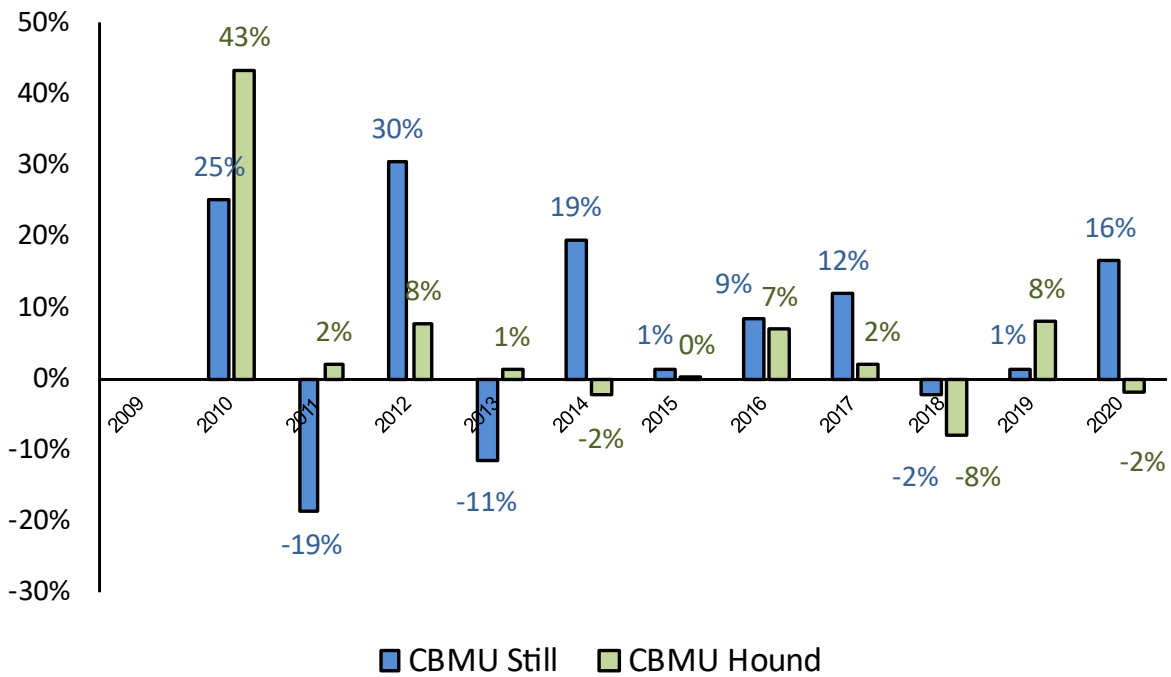


Figure 41. Percent change (%) in reported harvested in the CBMU by method of harvest from 2010 through 2020.

District and County method of harvest: While use of dogs has been the primary method of successful bear harvest in most wildlife districts, still hunters took 100%, 93%, 87%, and 62% of harvested bears in District 6, District 5, District 7, and District 3, respectively (Table 27). Of the remaining wildlife districts, Districts 8 and 9 had the highest percent of bears taken by houndsmen (72%-77%; Table 27).

During 2020, still hunters harvested 100% of the bears in 15 counties; 9 of these counties are in the PBMU and 1 county (Pamlico County) prohibits pursuing bears with hounds by local law (Table 28). Houndsmen harvested >90% of bears in 4 counties, 3 of which are located in the MBMU (Table 28). During the 2018 and 2019 seasons, houndsmen harvested the majority of the bears in 40 counties and still hunters harvested the majority of bears in 29 counties. During 2020, houndsmen harvested the majority of bears in 39 counties and still hunters harvested the majority of bears in 35 counties. One county (Nash), had equal harvest by still and houndsmen (Table 28). No harvest took place in 26 counties. In the MBMU, Graham (98%), Macon (97%), and Caldwell (91%) counties had the highest percent of bears taken by houndsmen. In the CBMU, Martin County (94%), followed by Greene County (80%) County had the highest percent of bears taken by houndsmen (Table 28). In the PBMU, still hunters harvested the majority of bears in all PBMU counties (n=13 counties) where bear harvest occurred (Table 28).

Table 27. Method of harvest by district, based on the 2020 registered harvest.

District	Dogs	Still	% Dogs	% Still
1	529	480	52%	48%
2	514	366	58%	42%
3	22	36	38%	62%
4	195	117	63%	38%
5	3	36	8%	92%
6	0	2	0%	100%
7	22	146	13%	87%
8	342	101	77%	23%
9	601	236	72%	28%
Statewide	2,228	1,520	59%	41%

Table 28. Method of harvest by county, based on the 2020 registered harvest.

County	Still	Dog
Alamance	N/A ¹	N/A
Alexander	100%	0%
Alleghany	100%	0%
Anson	N/A	N/A
Ashe	87%	13%
Avery	19%	81%
Beaufort	36%	64%
Bertie	34%	66%
Bladen	40%	60%

County	Still	Dog
Brunswick	30%	70%
Buncombe	66%	34%
Burke	27%	73%
Cabarrus	N/A	N/A
Caldwell	9%	91%
Camden	37%	63%
Carteret	27%	73%
Caswell	86%	14%
Catawba	100%	0%
Chatham	N/A	N/A
Cherokee	15%	85%
Chowan	63%	38%
Clay	13%	87%
Cleveland	N/A	N/A
Columbus	45%	55%
Craven	30%	70%
Cumberland	29%	71%
Currituck	32%	68%
Dare	96%	4%
Davidson	100%	0%
Davie	100%	0%
Duplin	34%	66%
Durham	N/A	N/A
Edgecombe	40%	60%
Forsyth	N/A	N/A
Franklin	N/A	N/A
Gaston	N/A	N/A
Gates	36%	64%
Graham	2%	98%
Granville	100%	0%
Greene	20%	80%
Guilford	N/A	N/A
Halifax	43%	57%
Harnett	N/A	N/A
Haywood	15%	85%
Henderson	65%	35%
Hertford	22%	78%
Hoke	N/A	N/A
Hyde	67%	33%

County	Still	Dog
Iredell	N/A	N/A
Jackson	13%	87%
Johnston	100%	0%
Jones	35%	65%
Lee	100%	0%
Lenoir	57%	43%
Lincoln	N/A	N/A
Macon	3%	97%
Madison	34%	66%
Martin	6%	94%
McDowell	22%	78%
Mecklenburg	N/A	N/A
Mitchell	41%	59%
Montgomery	N/A	N/A
Moore	N/A	N/A
Nash	50%	50%
New Hanover	100%	0%
Northampton	65%	35%
Onslow	35%	65%
Orange	N/A	N/A
Pamlico	100%	0%
Pasquotank	63%	37%
Pender	56%	44%
Perquimans	39%	61%
Person	78%	22%
Pitt	41%	59%
Polk	94%	6%
Randolph	N/A	N/A
Richmond	N/A	N/A
Robeson	100%	0%
Rockingham	100%	0%
Rowan	N/A	N/A
Rutherford	70%	30%
Sampson	41%	59%
Scotland	N/A	N/A
Stanly	N/A	N/A
Stokes	80%	20%
Surry	100%	0%
Swain	17%	83%

County	Still	Dog
Transylvania	42%	58%
Tyrrell	47%	53%
Union	N/A	N/A
Vance	100%	0%
Wake	N/A	N/A
Warren	59%	41%
Washington	45%	55%
Watauga	85%	15%
Wayne	100%	0%
Wilkes	76%	24%
Wilson	80%	20%
Yadkin	N/A	N/A
Yancey	13%	87%

¹ N/A: Percent method of harvest not available because no bears were harvested in that county.

Sex Ratio by method of harvest and BMU: Statewide, a majority of bears harvested by all hunters were male (Table 29). During the 2020 season, still hunters in the CBMU harvested slightly more females than males (51% female; Figure 42), whereas houndsmen showed greater selectivity for male bears (Table 29; Figure 43). Since 2010, still hunters have shown a declining selectivity for male bears in the CBMU, with two seasons (2015 and 2020) in which the majority of the harvest by still hunters was female bears (Figure 42).

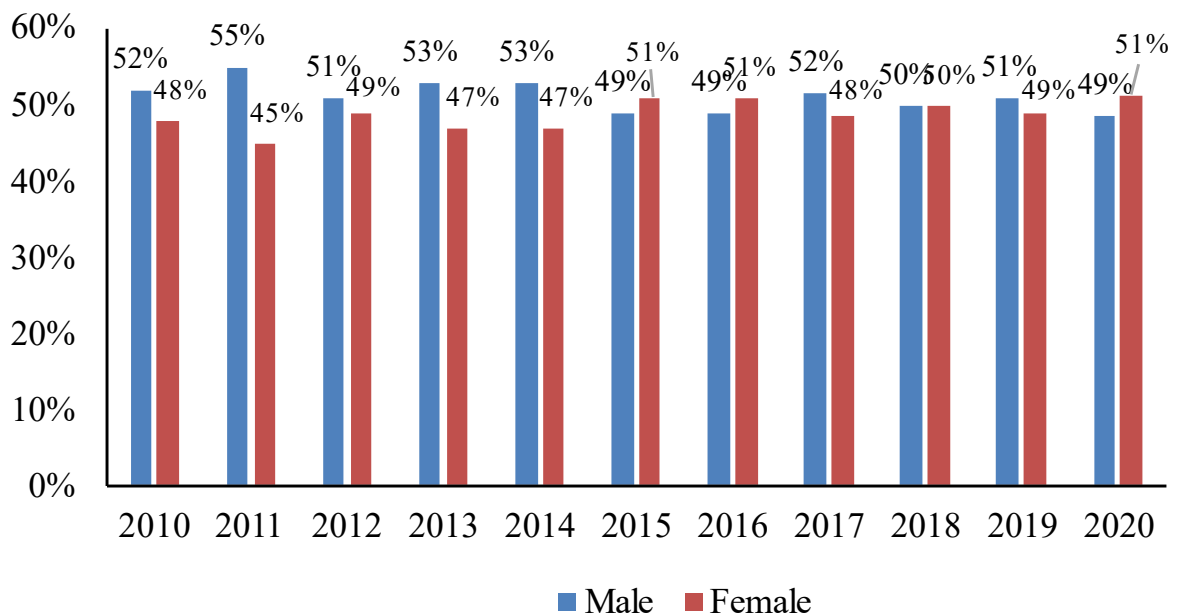


Figure 42. Sex ratio of the bear harvest by still hunters in the Coastal BMU from 2010 through 2020

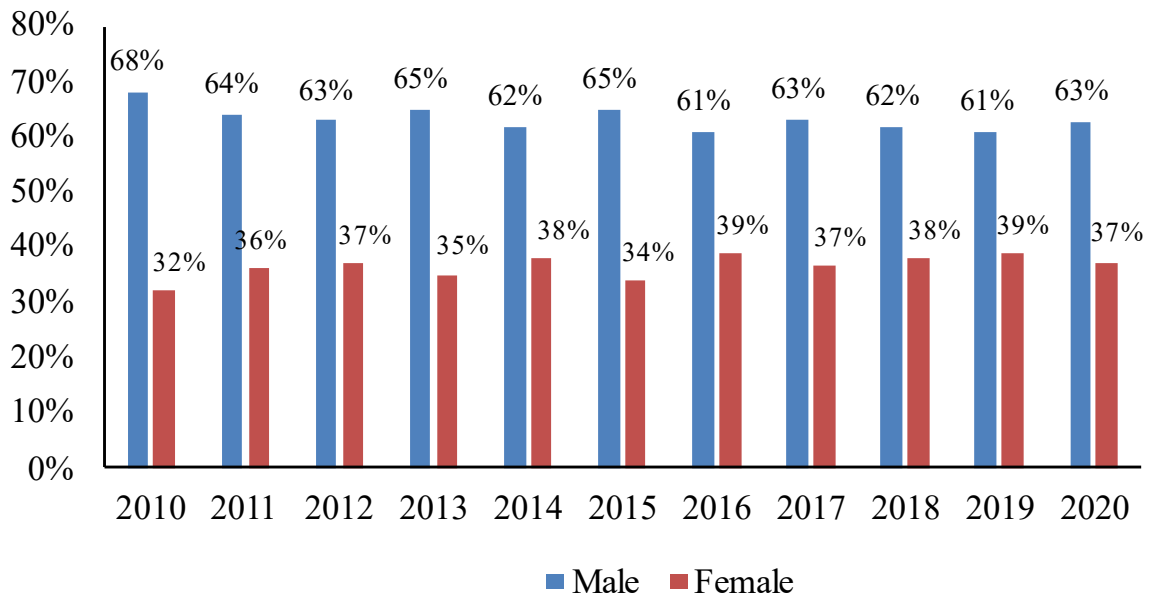


Figure 43. Sex ratio of the bear harvest by houndsmen in the Coastal BMU from 2010 through 2020.

Table 29. Sex ratio by method of harvest based on the 2012 through 2019 registered harvest.

Year	Method	CBMU		MBMU		PBMU		Statewide	
		Male	Female	Male	Female	Male	Female	Male	Female
2013	Dog	65% (n=781)	35% (n=419)	60% (n=512)	40% (n=339)	100% (n=2)	0% (n=0)	63% (n=1,295)	37% (n=758)
	Still	53% (n=307)	47% (n=273)	52% (n=185)	48% (n=171)	50% (n=1)	50% (n=1)	53% (n=493)	47% (n=445)
2014	Dog	62% (n=773)	38% (n=441)	57% (n=311)	43% (n=233)	60% (n=3)	40% (n=2)	61% (n=1,047)	39% (n=676)
	Still	53% (n=369)	47% (n=323)	68% (n=61)	32% (n=29)	87% (n=13)	13% (n=2)	56% (n=443)	44% (n=354)
2015	Dog	65% (n=771)	34% (n=405)	66% (n=585)	35% (n=297)	100% (n=4)	0% (n=0)	66% (n=1,360)	34% (n=702)
	Still	49% (n=344)	51% (n=357)	63% (n=199)	37% (n=118)	77% (n=27)	23% (n=8)	54% (n=570)	46% (n=483)
2016	Dog	61% (n=764)	39% (n=496)	62% (n=476)	38% (n=292)	73% (n=11)	27% (n=4)	61% (n=1,251)	39% (n=792)
	Still	49% (n=376)	51% (n=386)	67% (n=190)	33% (n=93)	60% (n=21)	40% (n=14)	54% (n=587)	46% (n=493)
2017	Dog	63% (n=813)	37% (n=472)	69% (n=615)	31% (n=270)	43% (n=3)	57% (n=4)	66% (n=1,431)	34% (n=746)
	Still	52% (n=439)	48% (n=413)	68% (n=257)	32% (n=122)	67% (n=30)	33% (n=19)	57% (n=726)	43% (n=550)
2018	Dog	62% (n=734)	38% (n=450)	61% (n=558)	39% (n=356)	83% (n=10)	17% (n=2)	62% (n=1,302)	38% (n=808)
	Still	50% (n=376)	50% (n=386)	59% (n=190)	41% (n=93)	71% (n=21)	29% (n=14)	54% (n=587)	46% (n=493)

		Method of Harvest							
		CBMU		MBMU		PBMU		Statewide	
Method		Male	Female	Male	Female	Male	Female	Male	Female
		(n=416)	(n=418)	(n=323)	(n=228)	(n=25)	(n=10)	(n=764)	(n=646)
2019	Dog	61%	39%	65%	35%	77%	23%	63%	37%
	Still	(n=786) 51%	(n=493) 49%	(n=584) 64%	(n=321) 36%	(n=10) 71%	(n=3) 29%	(n=1,380) 56%	(n=817) 44%
2020	Dog	(n=436) 63%	(n=413) 37%	(n=248) 61%	(n=137) 39%	(n=32) 46%	(n=13) 54%	(n=716) 62%	(n=563) 38%
	Still	(n=786) 49%	(n=467) 51%	(n=588) 58%	(n=374) 42%	(n=6) 76%	(n=7) 24%	(n=1,380) 53%	(n=848) 47%
	Still	(n=479) 49%	(n=506) 51%	(n=273) 58%	(n=194) 42%	(n=58) 76%	(n=16) 24%	(n=804) 53%	(n=716) 47%

In the MBMU when mast is fair to poor, as it was in 2018 and 2020, bear hunters, in particular still hunters, are likely to harvest a greater ratio of females than in years with fair to good mast crop. This is due to the poor acorn crop causing bears to travel more extensively, making them more vulnerable to harvest and more likely to be attracted to artificial food sources, such as unprocessed bait. In 2020, mast abundance was lower than in 2019, and both still and hound hunters harvested a higher ratio of females than in 2019 (Table 29; Figures 43 and 44). Compared to still hunters, houndsmen in the MBMU showed greater selectivity for male bears than female bears (Table 29).

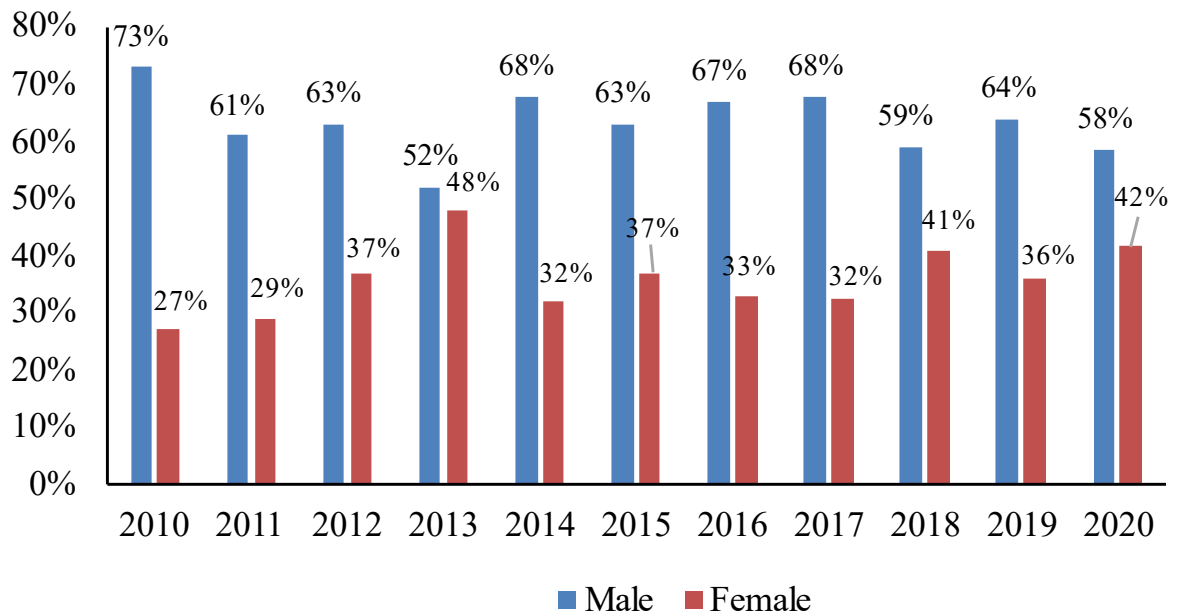


Figure 44. Sex ratio of the bear harvest by still hunters in the Mountain BMU from 2010 through 2020

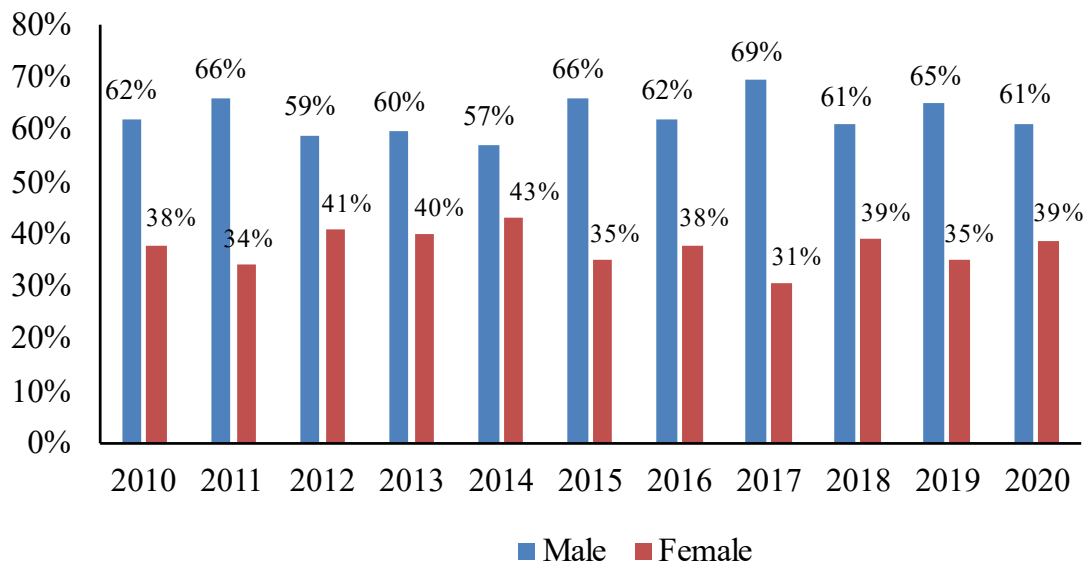


Figure 45. Sex ratio of the bear harvest by houndsmen in the Mountain BMU from 2010 through 2020.

Sex ratio by method, district and county: In 8 of 8 wildlife districts where bear harvest occurred, houndsmen harvested a higher ratio of male bears than female bears (57% to 73% male; Table 30). Similar to 2018 and 2019, still hunters in 6 of 8 wildlife districts harvested a higher ratio of male bears to females bears during the 2020 season (51% to 81% male; Table 30). Houndsmen harvested the highest ratio of males in District 7, followed by District 3, while still hunters harvested the highest ratio of males in district 5, followed by District 3 (Table 30). All three districts are partially or fully in the PBMU. The PBMU not only has a less established bear population compared to the CBMU and MBMU, but is a BMU in which bears are still expanding their range. Bear range expansion is initially led by dispersing males, so the PBMU likely has many more males than females, as reflected in the harvest by both houndsmen and still hunters. Houndsmen harvested the highest ratio of females (100%) in District 5, followed by District 9 (43%), while still hunters harvested the highest ratio of females (100%) in District 6, followed by District 4 (62%; Table 30)

Table 30. Sex ratio by method of harvest by district based on 2020 registered harvest.

District	Dogs		Still		Dogs		Still		All Methods	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
1	332	197	244	236	63%	37%	51%	49%	57%	43%
2	320	194	175	191	62%	38%	48%	52%	56%	44%
3	15	7	26	10	68%	32%	72%	28%	71%	29%
4	124	71	45	72	64%	36%	38%	62%	54%	46%
5	0	3	29	7	0%	100%	81%	19%	74%	26%
6	0	0	0	2	0%	0%	0%	100%	0%	100%
7	16	6	99	47	73%	27%	68%	32%	68%	32%
8	228	114	62	39	67%	33%	61%	39%	65%	35%
9	345	256	124	112	57%	43%	53%	47%	56%	44%

Table 31. Method of harvest by county and sex, based on the 2020 registered harvest.

County	Still			Dog			Percent Female		
	Male	Female	Total	Male	Female	Total	Still	Dog	All Methods
Alamance	0	0	0	0	0	0	N/A ¹	N/A	N/A
Alexander	1	1	2	0	0	0	100%	0%	50%
Alleghany	13	10	23	0	0	0	100%	0%	43%
Anson	0	1	1	0	0	0	N/A	N/A	N/A
Ashe	20	13	33	3	2	5	87%	13%	39%
Avery	8	3	11	31	15	46	19%	81%	32%
Beaufort	38	42	80	81	63	144	36%	64%	47%
Bertie	8	23	31	42	17	59	34%	66%	44%
Bladen	22	33	55	52	30	82	40%	60%	46%
Brunswick	9	7	16	19	18	37	30%	70%	47%
Buncombe	31	49	80	20	21	41	66%	34%	58%
Burke	9	2	11	18	12	30	27%	73%	34%
Cabarrus	0	0	0	0	0	0	N/A	N/A	N/A
Caldwell	2	2	4	33	9	42	9%	91%	24%
Camden	15	11	26	26	18	44	37%	63%	41%
Carteret	5	3	8	22	0	22	27%	73%	10%
Caswell	6	0	6	0	1	1	86%	14%	14%
Catawba	0	1	1	0	0	0	100%	0%	100%
Chatham	0	0	0	0	0	0	N/A	N/A	N/A
Cherokee	6	1	7	27	13	40	15%	85%	30%
Chowan	3	2	5	0	3	3	63%	38%	63%
Clay	3	2	5	20	13	33	13%	87%	39%
Cleveland	0	0	0	0	0	0	N/A	N/A	N/A
Columbus	3	7	10	5	7	12	45%	55%	64%
Craven	17	17	34	49	32	81	30%	70%	43%
Cumberland	5	8	13	27	5	32	29%	71%	29%
Currituck	3	5	8	13	4	17	32%	68%	36%
Dare	9	15	24	0	1	1	96%	4%	64%
Davidson	0	1	1	0	0	0	100%	0%	100%
Davie	0	1	1	0	0	0	100%	0%	100%
Duplin	5	5	10	18	1	19	34%	66%	21%
Durham	0	0	0	0	0	0	N/A	N/A	N/A
Edgecombe	2	0	2	2	1	3	40%	60%	20%
Forsyth	0	0	0	0	0	0	N/A	N/A	N/A
Franklin	0	0	0	0	0	0	N/A	N/A	N/A
Gaston	0	0	0	0	0	0	N/A	N/A	N/A
Gates	18	11	29	33	19	52	36%	64%	37%

County	Still			Dog			Percent Female		
	Male	Female	Total	Male	Female	Total	Still	Dog	All Methods
Graham	2	0	2	41	38	79	2%	98%	47%
Granville	9	3	12	0	0	0	100%	0%	25%
Greene	0	1	1	3	1	4	20%	80%	40%
Guilford	0	0	0	0	0	0	N/A	N/A	N/A
Halifax	3	0	3	3	1	4	43%	57%	14%
Harnett	0	0	0	0	0	0	N/A	N/A	N/A
Haywood	8	13	21	70	48	118	15%	85%	44%
Henderson	19	11	30	8	8	16	65%	35%	41%
Hertford	6	7	13	21	25	46	22%	78%	54%
Hoke	0	0	0	0	0	0	N/A	N/A	N/A
Hyde	101	71	172	59	27	86	67%	33%	38%
Iredell	0	0	0	0	0	0	N/A	N/A	N/A
Jackson	4	6	10	34	34	68	13%	87%	51%
Johnston	2	0	2	0	0	0	100%	0%	0%
Jones	26	38	64	63	54	117	35%	65%	51%
Lee	1	0	1	0	0	0	100%	0%	0%
Lenoir	13	12	25	15	4	19	57%	43%	36%
Lincoln	0	0	0	0	0	0	N/A	N/A	N/A
Macon	1	1	2	49	26	75	3%	97%	35%
Madison	16	17	33	38	26	64	34%	66%	44%
Martin	1	1	2	22	8	30	6%	94%	28%
McDowell	20	11	31	81	32	113	22%	78%	30%
Mecklenburg	0	0	0	0	0	0	N/A	N/A	N/A
Mitchell	9	6	15	13	9	22	41%	59%	41%
Montgomery	0	0	0	0	0	0	N/A	N/A	N/A
Moore	0	0	0	0	0	0	N/A	N/A	N/A
Nash	1	0	1	1	0	1	50%	50%	0%
New									
Hanover	1	1	2	0	0	0	100%	0%	50%
Northampton	6	5	11	4	2	6	65%	35%	41%
Onslow	8	16	24	25	19	44	35%	65%	51%
Orange	0	0	0	0	0	0	N/A	N/A	N/A
Pamlico ²	33	21	54	0	0	0	100%	0%	39%
Pasquotank	11	6	17	4	6	10	63%	37%	44%
Pender	21	23	44	24	11	35	56%	44%	43%
Perquimans	1	6	7	5	6	11	39%	61%	67%
Person	6	1	7	0	2	2	78%	22%	33%
Pitt	8	12	20	20	9	29	41%	59%	43%
Polk	15	2	17	0	1	1	94%	6%	17%

County	Still			Dog			Percent Female		
	Male	Female	Total	Male	Female	Total	Still	Dog	All Methods
Randolph	0	0	0	0	0	0	N/A	N/A	N/A
Richmond	0	0	0	0	0	0	N/A	N/A	N/A
Robeson	0	1	1	0	0	0	100%	0%	100%
Rockingham	7	3	10	0	0	0	100%	0%	30%
Rowan	0	0	0	0	0	0	N/A	N/A	N/A
Rutherford	11	5	16	5	2	7	70%	30%	30%
Sampson	5	17	22	21	11	32	41%	59%	52%
Scotland	0	0	0	0	0	0	N/A	N/A	N/A
Stanly	0	0	0	0	0	0	N/A	N/A	N/A
Stokes	11	1	12	1	2	3	80%	20%	20%
Surry	19	4	23	0	0	0	100%	0%	17%
Swain	3	4	7	23	12	35	17%	83%	38%
Transylvania	16	6	22	15	16	31	42%	58%	42%
Tyrrell	53	48	101	78	38	116	47%	53%	40%
Union	0	0	0	0	0	0	N/A	N/A	N/A
Vance	1	1	2	0	0	0	100%	0%	50%
Wake	0	0	0	0	0	0	N/A	N/A	N/A
Warren	8	2	10	5	2	7	59%	41%	24%
Washington	15	30	45	29	25	54	45%	55%	56%
Watauga	9	8	17	1	2	3	85%	15%	50%
Wayne	1	0	1	0	0	0	100%	0%	0%
Wilkes	26	9	35	11	0	11	76%	24%	20%
Wilson	2	2	4	0	1	1	80%	20%	60%
Yadkin	0	0	0	0	0	0	N/A	N/A	N/A
Yancey	3	9	12	47	35	82	13%	87%	47%
Total	803	717	1,520	1,380	848	2,228	41%	59%	42%

¹ N/A: No harvest occurred in the county

² Pamlico: Session law 1983, c. 448 prohibits taking bears with dogs.

Weights of Sampled Harvested Bears

Mortality information from harvested bears, including the collection of premolar teeth and reproductive tracts, began in 1969. NCWRC staff continue to work closely with bear hunters to collect biological data from harvested bears. Age and sex information gathered from biological samples are used for analyzing the age structure of the harvested population and for population reconstruction modeling.

During the 2020 hunting season, no bears were sampled that weighed over 700 lbs. (Table 32). This is the first season since the 2011 season in which no bears were reported to be over 700 lbs. (Figure 46 and Figure 47). The plurality of bears harvested since 1976 are in the 100-199 lbs. weight class (26%), followed by the 200-299 lbs. weight class (20%; Table 33; Figure 46). During the 2020 season, a higher percent of bears in the 100-199 lbs. and 200-299 lbs. category comprised the sampled harvest versus previous years (Table 32 and 33). Since 1976, 30 harvested male bears that were sampled by NCWRC staff weighed over 700 lbs. (Table 33; Figure 46 and 47). Hyde County has produced the 2nd and 3rd largest bears in North Carolina, and 5 of the top ten bears have been harvested in Hyde County (Table 34). To be a top ten bear by weight in North Carolina, a bear must weigh at least 735 lbs. (Table 34).

Table 32. Number of harvested bears sampled by weight category during the 2020 hunting season.

2020 Hunting Season					
Weight Category	Statewide Total	Statewide Percent	MBMU	CBMU	PBMU
<100 lbs.	15	1.3%	2	19	0
100-199 lbs.	382	33.5%	200	210	9
200-299 lbs.	371	32.5%	117	214	11
300-399 lbs.	160	14.0%	33	94	2
400-499 lbs.	122	10.7%	10	85	2
500-599 lbs.	71	6.2%	2	68	1
600-699 lbs.	15	1.3%	1	22	0
700-799 lbs.	4	0.4%	0	0	0

Table 33. Number of harvested bears sampled by weight category from 1976 through 2020, North Carolina.

Weight Category	Statewide	Statewide Percent	MBMU	CBMU	PBMU
<100 lbs.	674	2.0%	312	362	0
100-199 lbs.	8,996	26.4%	4,550	4,411	34
200-299 lbs.	6,808	20.0%	2,424	4,334	49
300-399 lbs.	2,929	8.6%	853	2,063	13
400-499 lbs.	2,234	6.6%	333	1,896	5
500-599 lbs.	1,428	4.2%	64	1,361	3
600-699 lbs.	362	1.1%	8	353	1
700-799 lbs.	30	0.1%	0	30	0
> 800 lbs.	1	0.0%	0	1	0

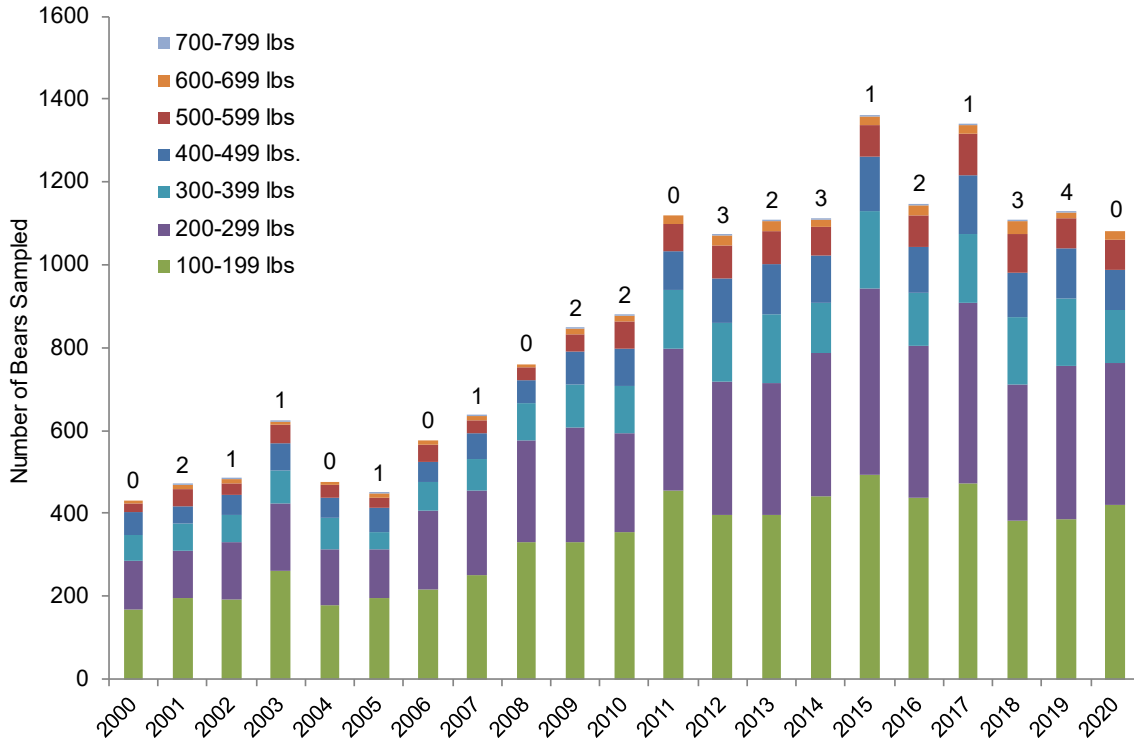


Figure 46. Number of bears sampled by weight category from 2000 through 2020. Note: Number on top of each bar indicates number of bears sampled from 700-799 lbs.

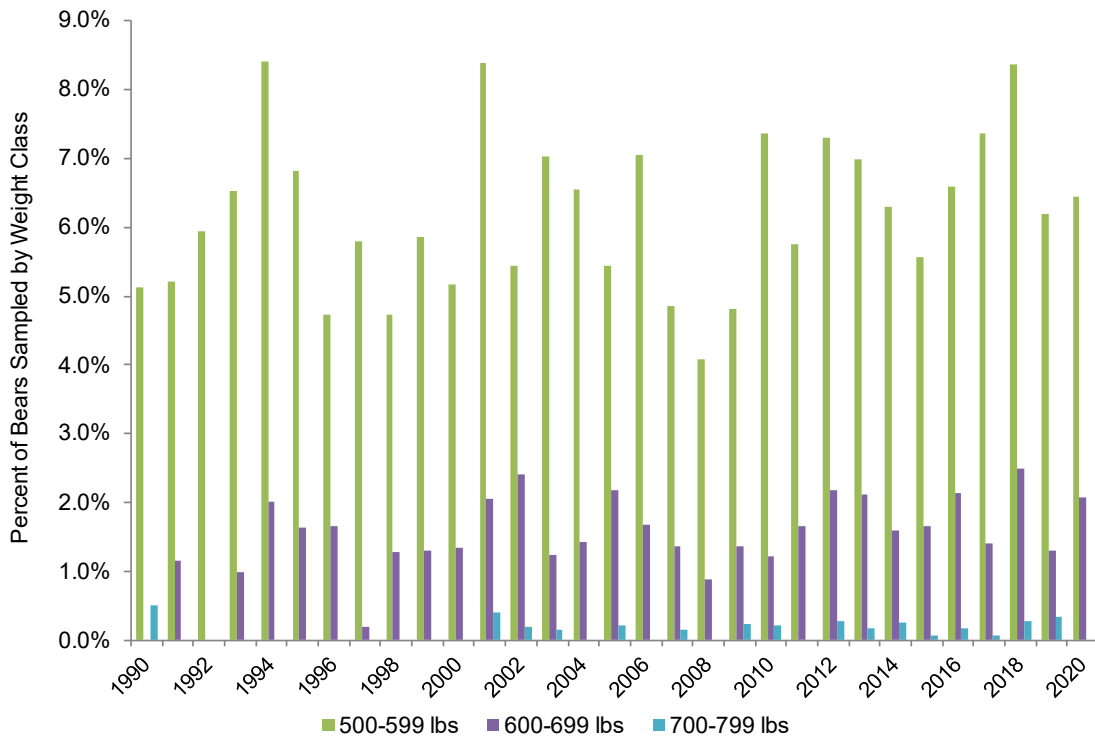


Figure 47. The number of harvested black bears sampled by the Commission that weighed over 500 lbs. from 1990 through 2020.

Table 34. Top ten male bear weights recorded by NCWRC from 1976 through 2020.

Rank	Year	County	BMU	Type of Hunt	Weight	Sex	Age
1	1998	CRAVEN	Coastal	DG	880	M	10.75
2	2014	HYDE	Coastal	DG	784	M	9.75
3	2014	HYDE	Coastal	ST	782	M	9.75
4	2012	WASHINGTON	Coastal	DG	780	M	6.75
4	2013	CRAVEN	Coastal	DG	780	M	8.75
5	2009	HYDE	Coastal	ST	760	M	6.75
5	2019	BEAUFORT	Coastal	DG	760	M	7.75
6	2016	HYDE	Coastal	DG	757	M	8.75
7	2007	DARE	Coastal	ST	752	M	7.75
8	2001	GATES	Coastal	DG	742	M	9.75
9	2001	BEAUFORT	Coastal	DG	740	M	13.75
10	2012	HYDE	Coastal	DG	735	M	11.75
10	2014	TYRRELL	Coastal	DG	735	M	7.75

The record female bear weight recorded was 520 lbs., taken by a hound hunter in Martin County in 2015 (Table 35). To be a top ten female bear by weight, a harvested female bear must weigh at least 425 lbs. Unlike the top ten harvested male bears, in which 10 of the 13 bears were taken by hound hunters, 7 of the top ten females were harvested by hound hunters and 5 were harvested by still hunters (Table 35). Only one of the top ten harvested female bears was in the Mountain BMU; the remaining 11 bears were harvested in the Coastal BMU. Four of the 12 female bears were taken in Hyde County (Table 35).

Table 35. Top ten female bear weights recorded by NCWRC from 1976 through 2020.

Rank	Year	County	BMU	Type of Hunt	Weight	Sex	Age
1	2015	Martin	Coastal	S	DG	520	18.75
2	2017	Sampson	Coastal	R	DG	517	13.75
3	2017	Hyde	Coastal	R	ST	482	6.75
4	2020	Edgecombe	Coastal	R	DG	471	8.75
5	2010	Chowan	Coastal	S	DG	450	13.75
5	2010	Hyde	Coastal	S	DG	450	3.75
6	2007	Hyde	Coastal	R	ST	445	9.75
7	2018	Washington	Coastal	R	DG	440	13.75
8	2013	Caldwell	Mountains	R	DG	438	5.75
8	2019	Pitt	Coastal	R	ST	438	11.75
9	2016	Hyde	Coastal	U	ST	429	12.75
10	2013	Tyrrell	Coastal	R	ST	425	4.75

Weight by Bear Management Unit: Male bears sampled in the CBMU during the 2020 hunting season weighed more, on average, than their counterparts in the MBMU and PBMU (All hunters; Table 36, Figure 48). The mean weight of male bears in the CBMU were 124 lbs. and 76 lbs. heavier than male bears in the MBMU and PBMU, respectively (Table 36). Female bears in the PBMU weighed more than females sampled in the CBMU and MBMU, though sample size is low (Table 36). The mean weight of female bears in the PBMU were 12 lbs. and 21 lbs. heavier than female bears in the CBMU and MBMU, respectively (Table 36). Sample size was small in the PBMU and mean weight was based on 6 female bears. Removing the PBMU, we observe that the CBMU male and female bears typically weigh more than bears in the MBMU (Figure 48). This difference in weight between the bear management units is expected; bears in the MBMU are dependent on availability of natural food sources (i.e., soft and hard mast) that fluctuate annually in abundance, which can limit how much weight they can gain. In addition, natural food sources in the MBMU are only available during late spring through fall. The opposite occurs in the CBMU; not only are food sources (e.g., soft mast, hard mast, agricultural crops) relatively stable from year to year, but these food sources are available during a longer period of time during the year, due to the longer growing season. Much of the PBMU has a recently expanded bear population, in which younger, thus smaller, male bears will more likely comprise the population and the harvest. Mean weight of male bears in the CBMU was similar to the 10-year average, while female bears during 2020 were 7 lbs. lighter than the average. Male bears in the MBMU were 8 lbs. lighter in 2020 than the 10-year average, while female bears were 5 lbs. heavier than the average (Table 36).

Weight by Method of Hunt: For the 2020 season, CBMU male and female bears sampled from houndsmen were heavier (16 lbs. and 39 lbs. respectively) than those sampled from still hunters (Table 36). Weights of male and female bears sampled from the MBMU were similar between still hunters and houndsmen. Compared to the 10-year average, bears sampled from still hunters during 2020 in the CBMU were lighter in weight, as were male bears sampled in the MBMU (Table 36). During 2020, houndsmen in the CBMU harvested heavier male bears and slightly lighter females compared to the 10-year average, while houndsmen in the MBMU harvested lighter males and heavier females than the average (Table 36). In the PBMU, houndsmen harvested heavier male bears and lighter female bears than still hunters during 2020. Limited interpretation should be given to these results, since we are unable to sample all harvested bears and submission rates from still hunters remain lower than houndsmen in both the CBMU and MBMU (Table 23 on page 57). Still hunters, and hunters in general, are more likely to provide information on larger bears vs. smaller bears.

Table 36. Mean age and weight for harvested bears sampled from North Carolina during the 2020 season and 10-year averages.

Season	Region	Hunting Method	Mean Age (yr.)		Mean Weight (lbs.)	
			Male	Female	Male	Female
2020	CBMU	Still Hunters	4.0	4.5	330	172
		Houndsmen	4.6	5.2	346	211
		<i>All Hunters</i>	4.4	4.9	341	197
2020	MBMU	Still Hunters	3.1	3.6	216	187
		Houndsmen	3.4	5.5	216	188
		<i>All Hunters</i>	3.3	5.2	217	188
2020	PBMU	Still Hunters	2.8	3.5	262	214
		Houndsmen	2.8	4.1	298	204
		<i>All Hunters</i>	2.8	3.7	265	209
2011-2020 (10-yr. average)	CBMU	Still Hunters	4.7	4.8	340	182
		Houndsmen	4.6	5.2	339	213
		<i>All Hunters</i>	4.7	5.1	340	204
2011-2020 (10-yr. average)	MBMU	Still Hunters	3.2	4.4	235	188
		Houndsmen	3.6	5.4	224	182
		<i>All Hunters</i>	3.5	5.2	225	183
2011-2020 (10-yr. average)	PBMU	Still Hunters	2.7	3.5	256	214
		Houndsmen	2.7	5.0	264	231
		<i>All Hunters</i>	2.7	3.8	258	220

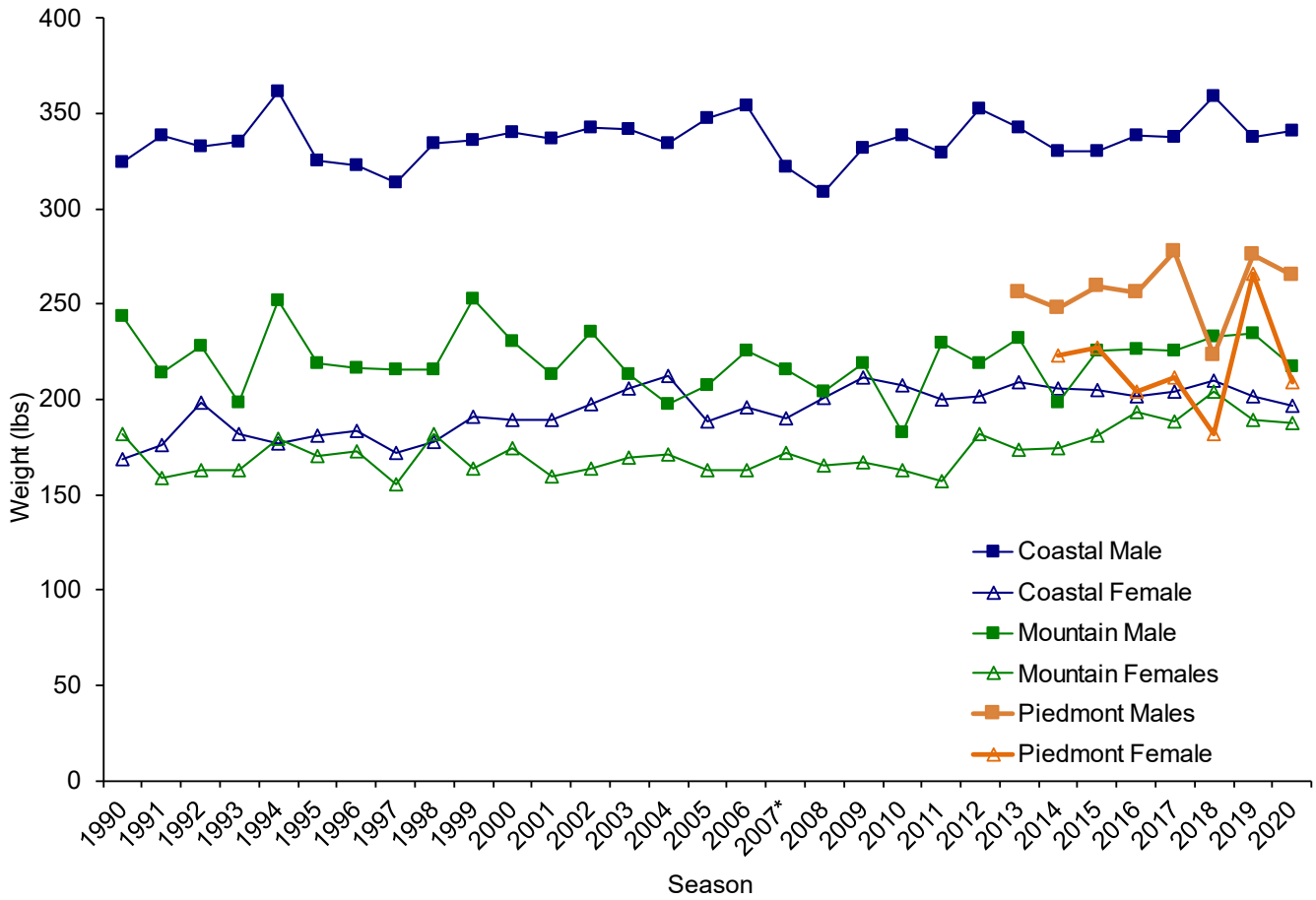


Figure 48. Average weight of sampled male and female bears in each bear management unit from 1990 through 2020.

MBMU weights: Through 2014, the average (\bar{x}) weight of harvested male bears sampled in the MBMU has varied. For example, from 1990 through 2014, weight varied by as much as 71 lbs., with 2010 experiencing the lowest weight (\bar{x} =182 lbs.) and 1999 experiencing the heaviest weight (\bar{x} =253 lbs.). From 2015-2019, the average weight of male bears sampled has been stable to slightly increasing (226-235 lbs.; blue bars, Figure 49). From 2000 through 2020, the average weight of male bears sampled was lowest in 2010 (\bar{x} =182 lbs.) and highest in 2002 (\bar{x} =236 lbs.). In 2020, the average weight of male bears sampled was 217 lbs., which was 18 lbs. lighter than 2019, and the lightest weight since 2014, but not significantly different ($p<0.05$) then almost all seasons over the last 20 years. Overall, average male weights are stable to slightly increasing (Figure 49), however there is a stable to slightly declining trend in the percent of male bears >300 lbs. that comprise the harvest (blue line; Figure 50). However, limited interpretation should be made, as reporting bear weight is not mandatory, and hunters may be less inclined to report weights of smaller bears versus larger bears. Further analysis is needed to determine if certain factors, such as the annual variation in hard mast abundance (Table 41, page 106), limited participation of still hunters in the bear cooperator program, and the ability of both still hunters (first half of bear season) and hound hunters (all season) to use unprocessed bait to aid in hunting bears, has influenced the sampled male bear weights over the past few years.

Similar to harvested MBMU male bears, the average (\bar{x}) weight of harvested female bears sampled in the MBMU has remained stable to slightly increasing over the past 20 years (red bars; Figure 49), with weight varying by 43 lbs. during this time period. Female weights likely reflect greater hunter selectivity and the fact that female bears are limited in size, due to variation in natural food supplies and the energetic demands of raising cubs. In 2020, the average weight of harvested female bears sampled in the MBMU was 187 lbs. and similar to the 2019 season (\bar{x} =189 lbs.), but significantly lighter ($p<0.05$) than the 2018 season (\bar{x} =204 lbs.). However, the average weight of females during the 2020 season was significantly heavier than several previous seasons (i.e., 2001 through 2011 and 2013; Figure 49). The average weight of female bears was lowest in 2011 (\bar{x} =157 lbs.) and highest in 2018 (\bar{x} =204 lbs.), which was a significant difference in weight ($p<0.05$). The 2018 sampled weight for females was the highest sampled weight since 2000 and was significantly higher than several previous seasons. This could be due to several factors. For example, the 2018 sampled female weight may have reflected the good mast crop in fall 2017, which contributed to bears being in better nutritional condition during 2018 (Table 41 on page 106). The sampled female weight for 2018 could also reflect greater hunter selectivity. We observed a similar trend with the 2016 sampled harvest; the 2016 sampled female weight was the 2nd highest on record since 2000 and likely the good mast crop in fall 2015.

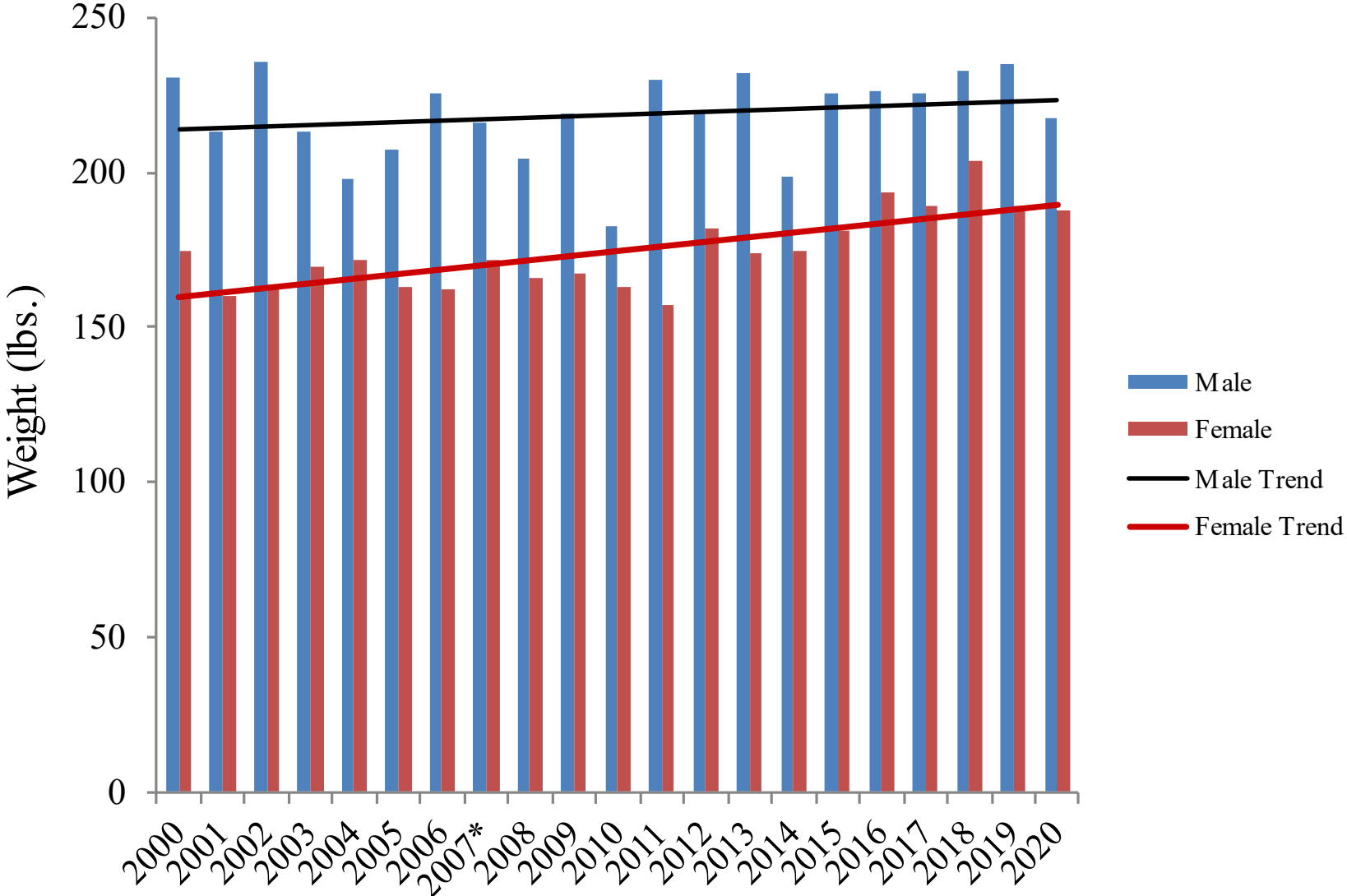


Figure 49. Average weight of harvested male and female bears sampled in the MBMU, 2000-2020.

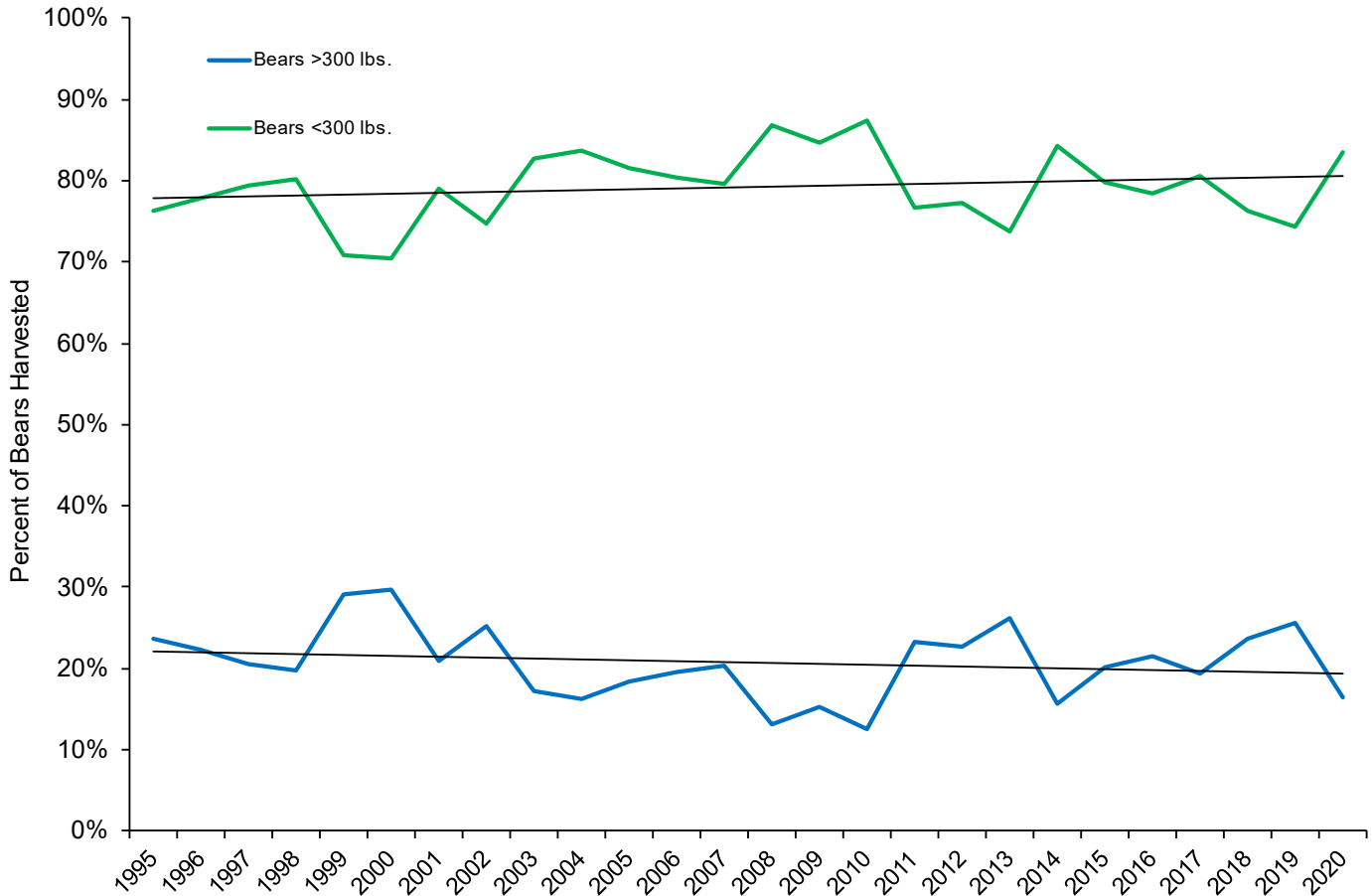


Figure 50. Percent of male bears sampled in the MBMU that weighed over and under 300 lbs. from 1995 through 2020 in North Carolina.

CBMU Weights: From 2000 through 2020, average (\bar{x}) weights of harvested male bears sampled in the CBMU has remained fairly stable (blue bars; Figure 51), likely reflecting year-round stable food resources (e.g., hard mast, agricultural crops). However, there has been a slight decline in weights of males sampled during 2019 and 2020, compared to the 2018 season (Figure 51). In 2019, the average weight of sampled males in the CBMU was 338 lbs. and significantly lower than the 2018 season, but significantly higher than the 2008 season. In 2008, the average weight of harvested male bears declined to 309 lbs., which was the lowest average weight recorded during the past 20 years. Otherwise, the sampled male weight in 2019 was similar to all other seasons from 2000 to 2017. In 2020, the average weight of sampled males was 341 lbs. and significantly higher to the 2008 season. Otherwise, male weights sampled in 2020 were similar to previous seasons dating back to 2000. The highest average weights for harvested males occurred during the 2018 (\bar{x} = 359 lbs.), 2006 (\bar{x} = 354 lbs.) and 2012 (\bar{x} = 352 lbs.) seasons. The sampled bear weights from the 2018 season differed significantly ($p \leq 0.05$) from the previous 4 seasons. In 2018, the Commission approved changes to bear hunting seasons in the CBMU that aligned seasons to zones (Figure 19 on page 29), added Saturday openers for the November and December seasons in zones 1 through 4, changed the November season start date and end date in Zone 4, and extended the November season in Zone 1 from 6 days to 16 days, which also added 3 weekends (Table 7 on page 20). These season changes, especially in Zone 1 (Dare, Hyde and Tyrrell

counties), may have allowed hunters more time to select for larger bears. Change in weight may also reflect low sampling weight of harvested bears. There is a very slight trend upwards in the percentage of male bears sampled that weigh over 500 lbs. (blue line; Figure 52). The percent of male bears sampled that weighed over 500 lbs. declined in 2019 (17%) and was the lowest percent since 2015 (16%) and second lowest since 2008 (11%; Figure 52). In 2020, 20% of bears sampled weighed over 500 lbs. (Figure 52).

The average (\bar{x}) weight of harvested female bears sampled in the CBMU has also remained fairly stable over the past 20 years, ranging from \bar{x} =189 lbs. to \bar{x} =212 lbs. (red bars; Figure 51). The heaviest average weight occurred during the 2004 and 2009 seasons (\bar{x} =212 lbs.). In 2020, the average weight of sampled female bears in the CBMU was 196 lbs., which was lower than the 2019 season (\bar{x} =201 lbs.) and significantly lower than the 2018, 2013, 2009, and 2004 seasons (Figure 51).

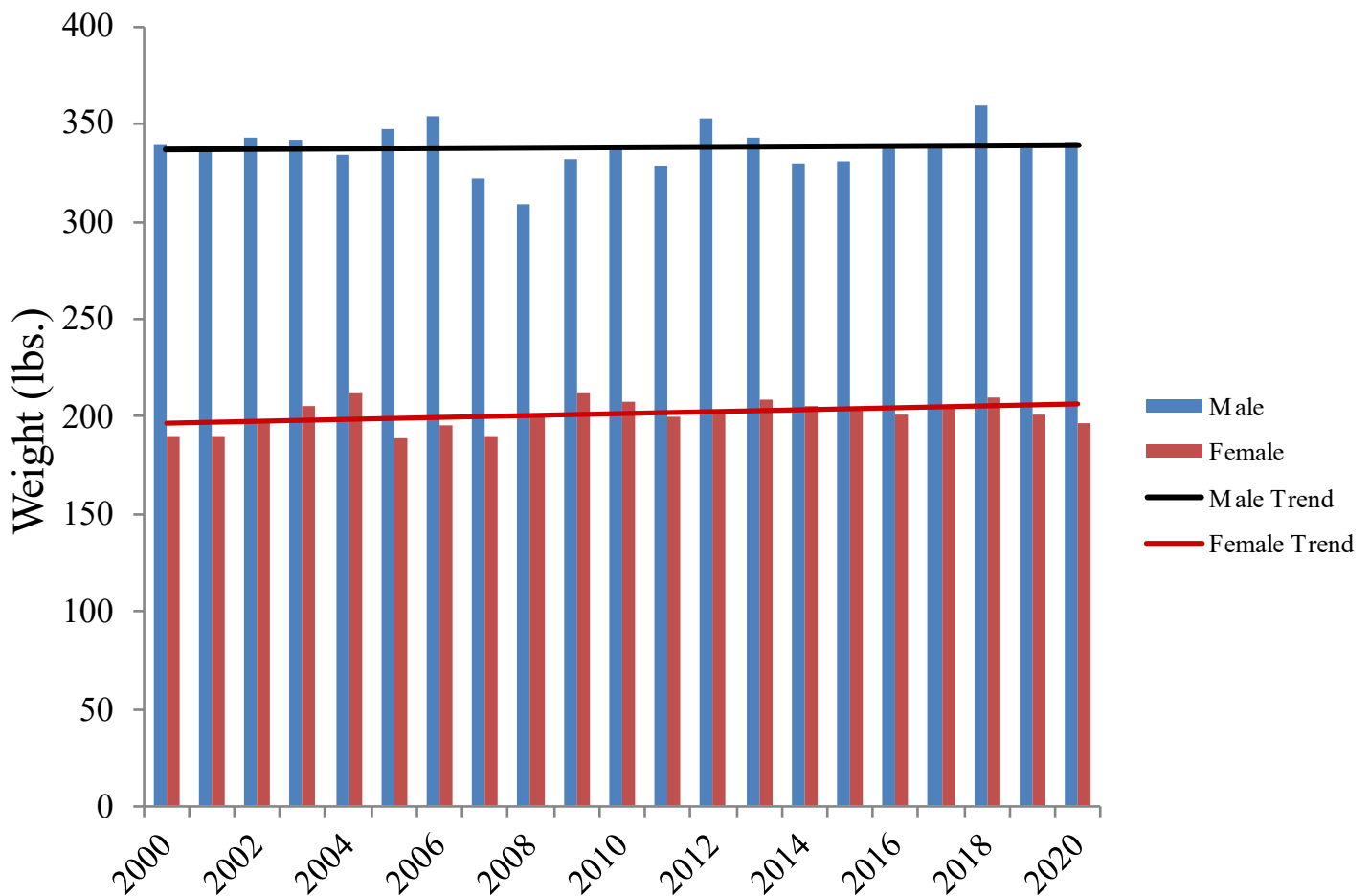


Figure 51. Average weight of harvested male and females bears sampled in the CBMU, 2000-2020.

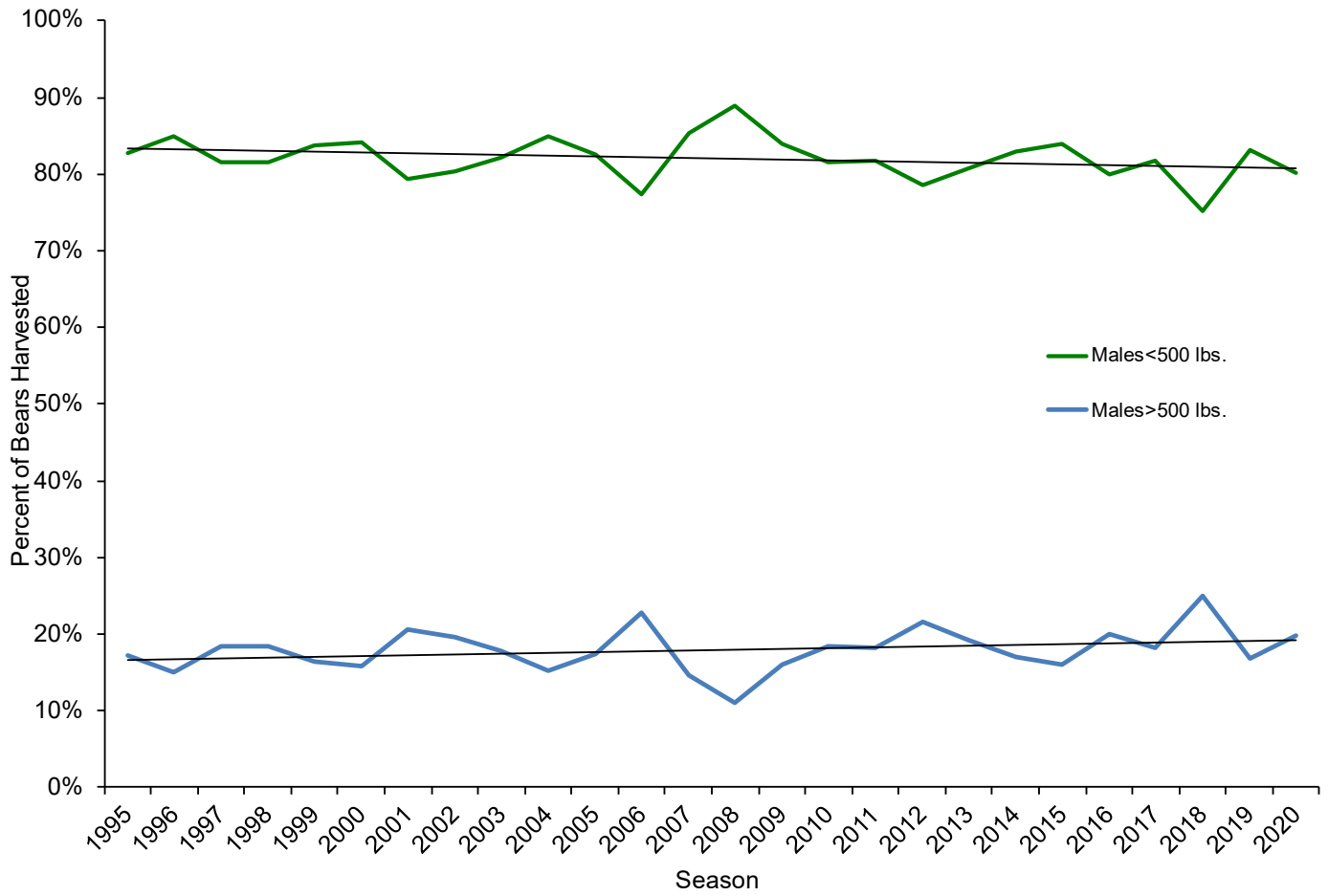


Figure 52. Percent of male bears sampled in the CBMU that weighed over and under 500 lbs. from 1995 through 2020 in North Carolina.

Ages of Sampled Harvested Bears

During the 2020 bear hunting seasons, the oldest bear harvested was a 350 lb. female bear in Bertie County taken by a still hunter that was 24.75 years old. She was the 2nd oldest bear taken during the harvest season since 1969 (Table 37). The oldest bear harvested in the MBMU during the 2020 season was a 17.75-year-old female bear taken by a dog hunter in Macon County; she weighed 200 lbs. The oldest male harvested during the 2020 season was a 19.75-year-old bear taken in the CBMU (Tyrell County) by a still hunter that weighed 445 lbs. The oldest bear ever harvested in North Carolina was a 26.75 year-old female bear taken in 2003 by a still hunter in the MBMU (Table 37). The oldest male bears harvested in North Carolina were both 23.75 years old and taken in the CBMU in 2005 and 2013 (Table 37). The oldest male bear taken in the MBMU was 22.75 years old harvested by houndsmen in 1969. Since 1969, only one bear has been harvested that was 26.75 years-old and no bears have been harvested that were 25.75 years old (Table 38).

Table 37. Top five bear ages, based on sampled harvest, recorded by NCWRC from 1969 through 2020.

Rank	Year	County	Region	Type of Hunt	Sex	Age	Weight
1	2003	McDowell	Mountains	Still/Stand	F	26.75	200
2	2011	Beaufort	Coastal Plain	Still/Stand	F	24.75	180
2	2020	Bertie	Coastal Plain	Still/Stand	F	24.75	350
3	1998	Madison	Mountains	Dogs	F	23.75	not reported
3	2003	Haywood	Mountains	Dogs	F	23.75	not reported
3	2005	McDowell	Mountains	Dogs	F	23.75	100
3	2005	Pamlico	Coastal Plain	Still/Stand	F	23.75	275
3	2005	Bertie	Coastal Plain	Still/Stand	M	23.75	460
3	2009	Chowan	Coastal Plain	Dogs	F	23.75	not reported
3	2013	Chowan	Coastal Plain	Dogs	F	23.75	150
3	2013	Hyde	Coastal Plain	Still/Stand	M	23.75	545
4	1969	Graham	Mountains	Dogs	M	22.75	not reported
4	2000	Graham	Mountains	Dogs	F	22.75	not reported
4	2009	Macon	Mountains	Dogs	F	22.75	140
4	2015	Bladen	Coastal Plain	Dogs	F	22.75	250
4	2018	Haywood	Mountains	Still/Stand	F	22.75	not reported
5	1990	Onslow	Coastal Plain	Unknown	F	21.75	200
5	1992	Yancey	Mountains	Dogs	F	21.75	not reported
5	1995	Tyrrell	Coastal Plain	Still/Stand	F	21.75	not reported
5	2011	Hyde	Coastal Plain	Still/Stand	M	21.75	320
5	2013	Bertie	Coastal Plain	Dogs	F	21.75	285
5	2017	Craven	Coastal Plain	Dogs	F	21.75	325

Female bears harvested in the MBMU and CBMU are usually older than male bears and females in the PBMU (Figure 53). For the past three seasons, female bears in the MBMU have been slightly older than female bears in the CBMU; from 2014 through 2017, females in the CBMU were older than the MBMU (Figure 53). This change may reflect the impact of increased harvest pressure (Table 7) resulting in declining population growth rates (Figure 59 on page 91) in the CBMU. Conversely, male bears in the

CBMU are older than male bears harvested in the MBMU and PBMU (Figure 53). During the 2020 season, a majority of harvested male bears sampled in the CBMU were 3-5 years old (n=164; Figure 54), followed by the yearling age class (n=160); 3-5 year-old females comprised a majority of the CBMU sampled harvest, followed by yearlings (n=103). In the MBMU during the 2020 season, 3-5 year old males and females comprised the majority of the sampled harvest (Figure 54).

Table 38. Number of harvested bears sampled that were greater than 15 years old, 1969 through 2020, North Carolina.

Age (yrs.)	Number of Bears	MBMU	CBMU
15.75	140	29	111
16.75	71	22	49
17.75	54	19	35
18.75	30	7	23
19.75	21	5	16
20.75	22	4	18
21.75	6	1	5
22.75	5	4	1
23.75	8	3	5
24.75	2	0	2
25.75	0	0	0
26.75	1	1	0

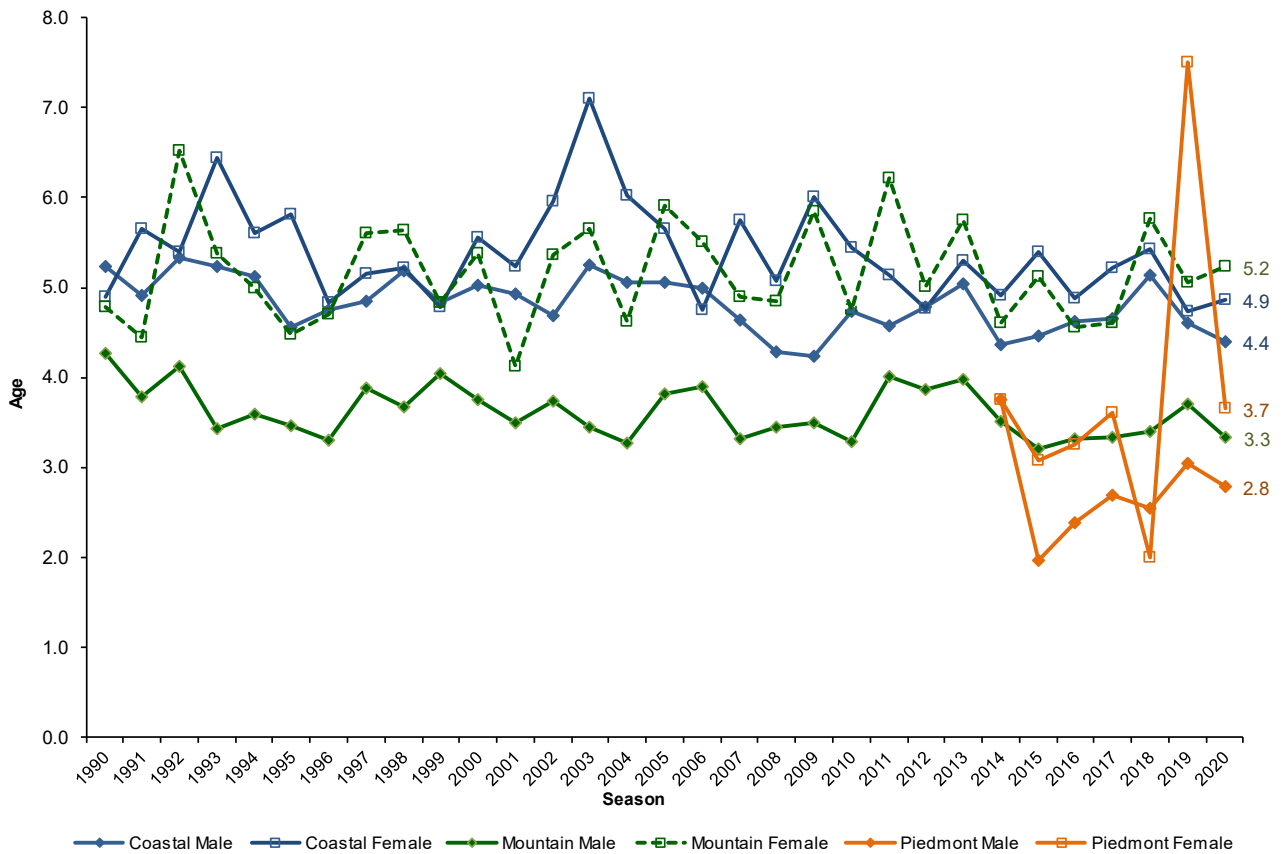


Figure 53. Average age of harvested bears sampled by bear management unit and by sex from 1990 through 2020.

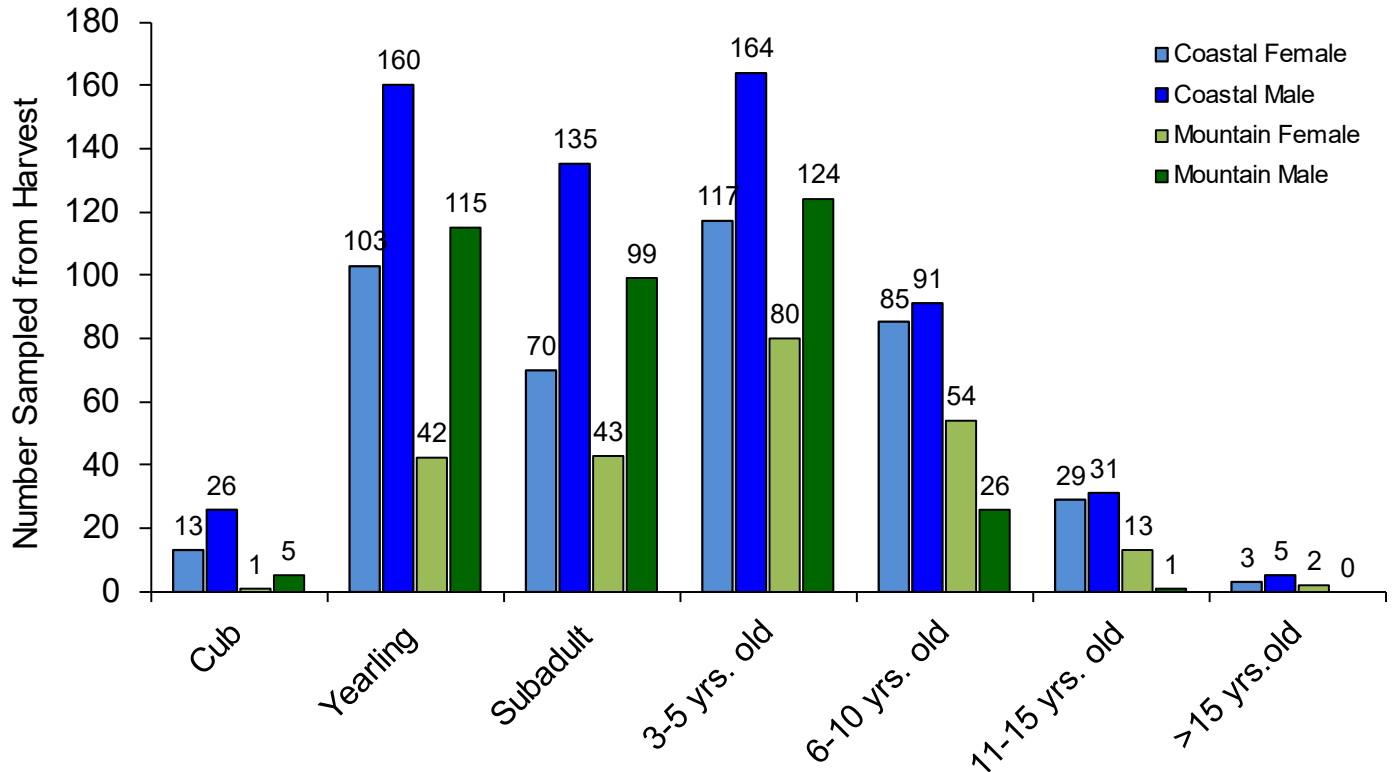


Figure 54. Number of bears sampled by age class in the MBMU and CBMU during the 2020 season.

CBMU Ages: There is a declining trend in the average (\bar{x}) age of harvested males sampled in the CBMU (blue bars; Figure 55). In 2020, the average age of sampled bears was 4.4 years old, which was slightly younger than the 2019 season (\bar{x} =4.6 years old) and significantly younger than the 2018 season (\bar{x} =5.1 years old), the 2013 season (\bar{x} =5.0 years old), and the 2012 season (\bar{x} =4.8 years old). Since 2000, the oldest mean age of male bears occurred in the 2018 season, followed by the 2005 season, and the youngest mean age occurred in 2009 (\bar{x} = 4.2 years old; Figure 55)

From 2000 to 2020, the average (\bar{x}) age of harvested female bears sampled in the CBMU has varied, ranging from 4.7 yrs. old to 7.1 yrs. old, but also shows a declining trend (red bars; Figure 55). The average age of female bears peaked in 2003 (\bar{x} =7.1 yrs. old). In 2020, the average age of females sampled was 4.9 years old, which was similar to the previous season (2019; \bar{x} =4.7 years old) and significantly younger than the 2018 season (\bar{x} =5.4 years old). The 2019 season is the youngest female age sampled since the 1983 season, while the 2003 season, followed by the 2004 season (\bar{x} =6.0 years old) had the oldest mean age (Figure 55). There was no significant difference ($p \leq 0.05$) in average age of male and female bears during the 2020 season (4.4 and 4.9 years old, respectively), which has occurred two time previously (2012 and 2019 seasons) in the last 20 years.

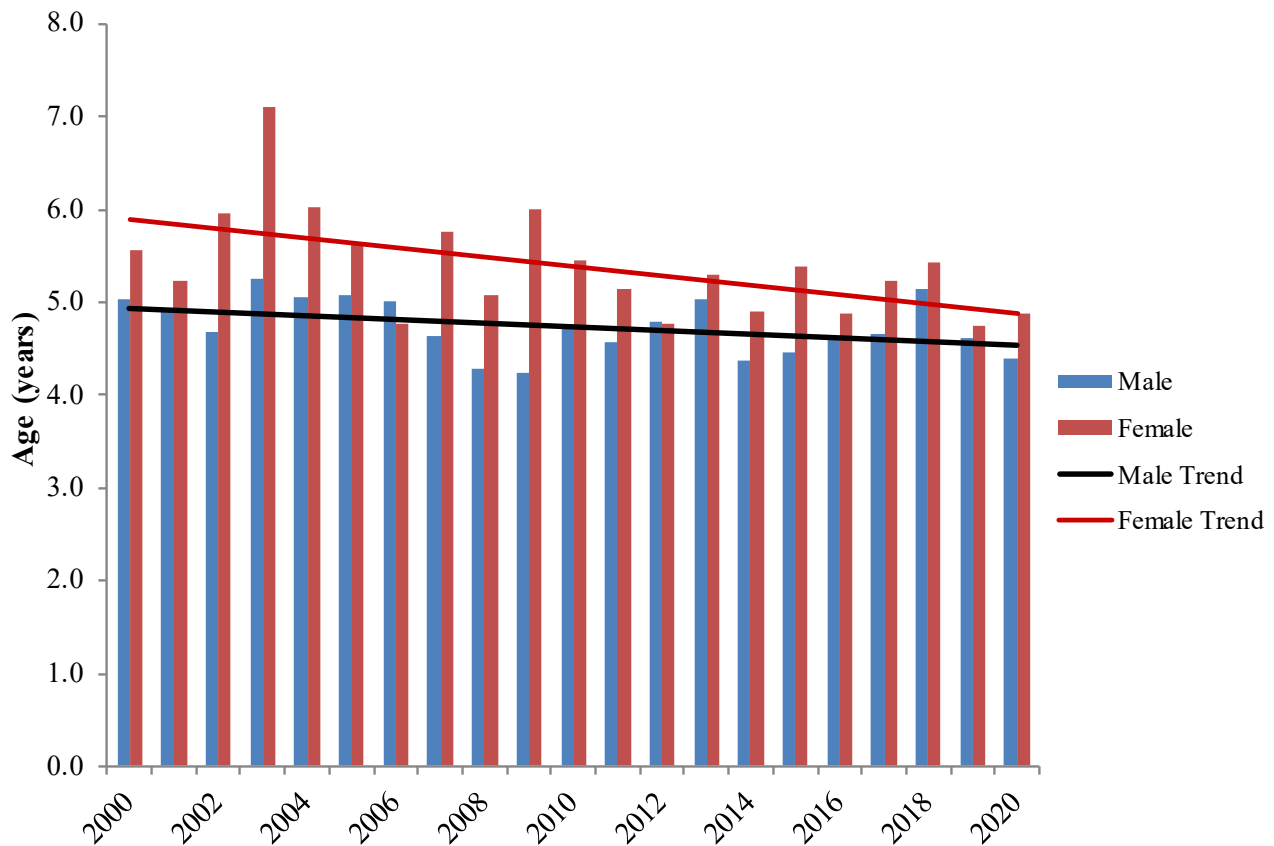


Figure 55. Average age of harvested male and female bears sampled in the CBMU, 2000-2020.

MBMU Ages: There has been variation in the average (\bar{x}) age of harvested male bears over the past 20 years, likely due to annual changes in hard mast abundance, which heavily influences harvest pressure (blue bars; Figure 48). The average age harvested was lowest during the 2015 seasons (\bar{x} =3.2 yrs. old), and highest during the 2011 and 2013 (\bar{x} =4.0 yrs. old) seasons. Overall, there is a slightly declining trend in male ages sampled (Figure 56). In 2019, the average age of sampled male bears (\bar{x} =3.7 yrs. old) was similar to the 2018 season, but significantly older than the 2015-2017 seasons and the 2004, 2007, and 2010 seasons.

The average (\bar{x}) age of harvested female bears sampled has also varied significantly from 2000 through 2019 and but shows only a slight declining trend in female bear age (red bars; Figure 56). As with males in the MBMU, this variation is likely due to annual changes in hard mast abundance, which heavily influences harvest pressure. The average age harvested was lowest during the 2014, 2016 and 2017 seasons (\bar{x} =4.1 yrs. old) and highest during the 2011 season (\bar{x} =6.2 yrs. old). The average age of harvested female bears sampled during the 2019 season (\bar{x} =5.0 yrs. old) was significantly younger than the previous season (2018; \bar{x} =5.8 yrs. old), as well as the 2005, 2009, 2011, and 2013 seasons.

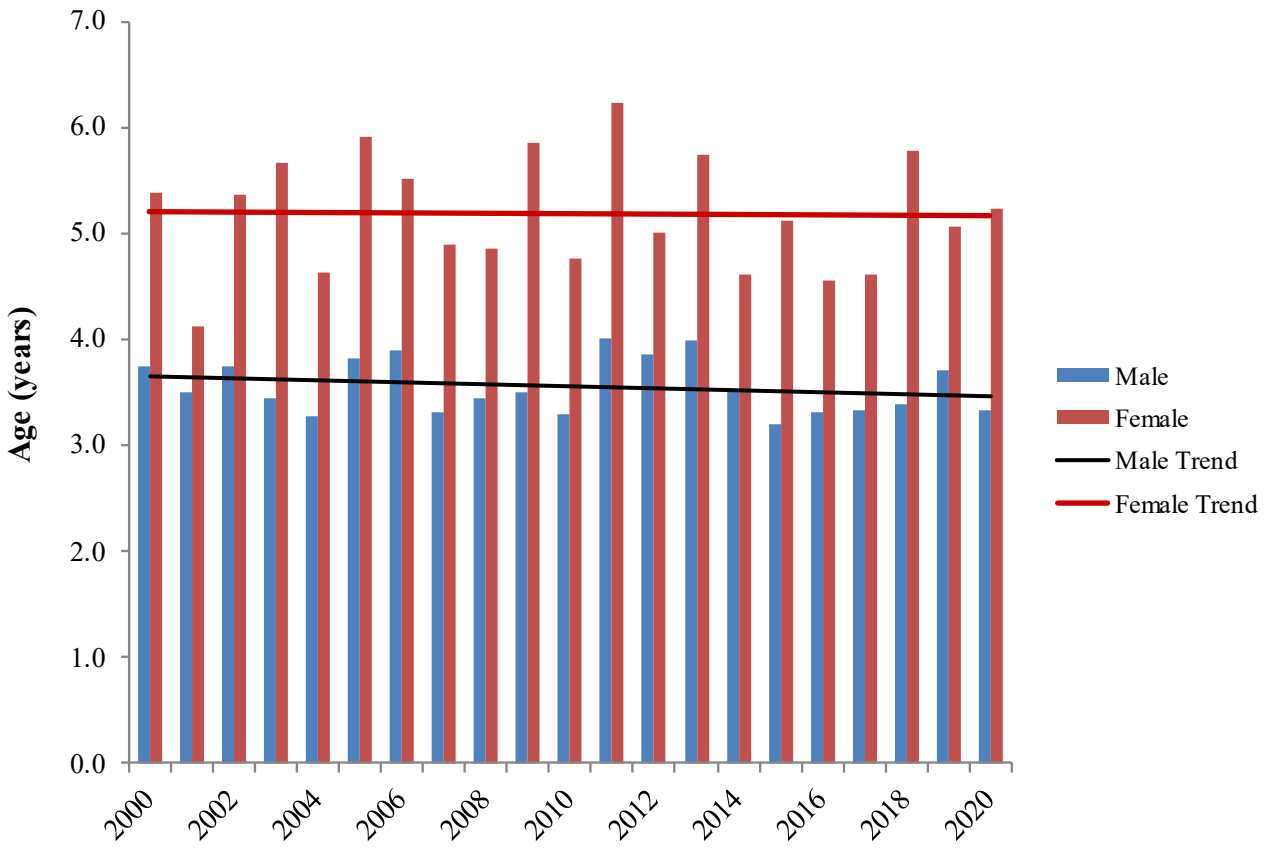


Figure 56. Average age of harvested male and female bears sampled in the MBMU, 2000-2020.

Population Growth Rates and Estimates

Our bear population estimates and population growth rates are based on population reconstruction which relies on biological data collected voluntarily from harvested bears (see page 54) on Bear Cooperator Program. This method of population analysis reconstructs the age structure of the bear population three years prior to when the biological data is collected. For example, biological data collected during the 2020 harvest season reconstructs the size of the bear population in 2017 (Figures 57 and 58). Therefore, impacts of harvest on the bear population are not known until three years after any regulatory change has occurred. Because of this lag time, caution should be taken in setting specific harvest levels for bears until a more robust population model can be identified and developed. In addition, population reconstruction is sensitive to changes in harvest levels, so population trends may follow harvest trends (Figures 58). Population reconstruction relies on the assumption that the sampled harvest reflects the actual harvest (e.g., % younger bears in the harvest equals % younger bears in sampled harvest). Anecdotal evidence indicates the sampled harvest is biased towards older bears, because hunters are less interested in receiving age results from younger bears (e.g., yearlings, subadults). To overcome biases in sampling, as well as to be able to have more accurate growth rates and population estimates at the bear management unit level and CBMU zone level, tooth submission rates should be above 80%. Lastly, population reconstruction is mainly meant as a tool to monitor bear population trends (i.e., growth rates, λ) over time, rather than to come up with precise population estimates.

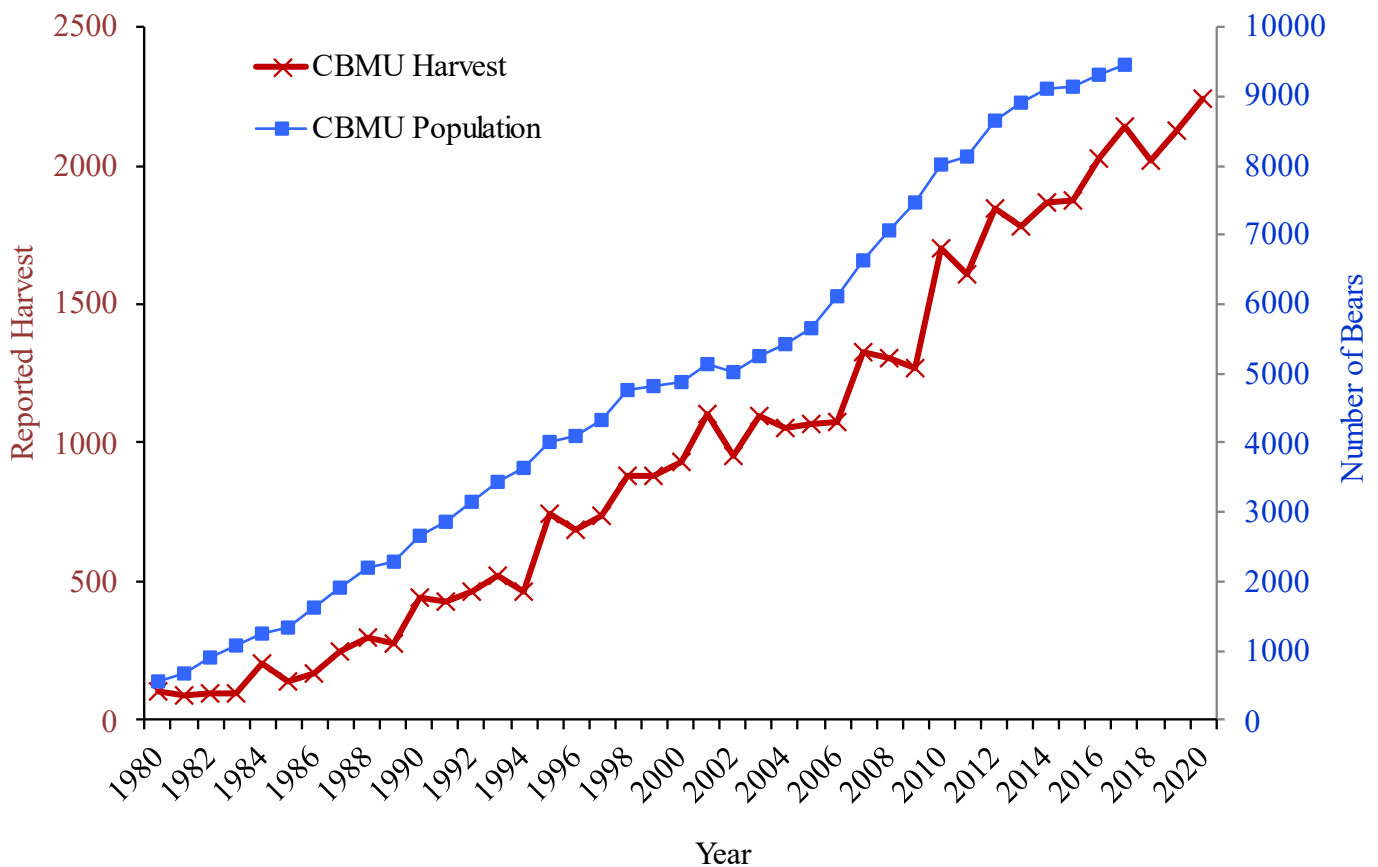


Figure 57. Reported harvest (1980-2020) and estimated black bear population (1980-2017) in the CBMU of North Carolina.

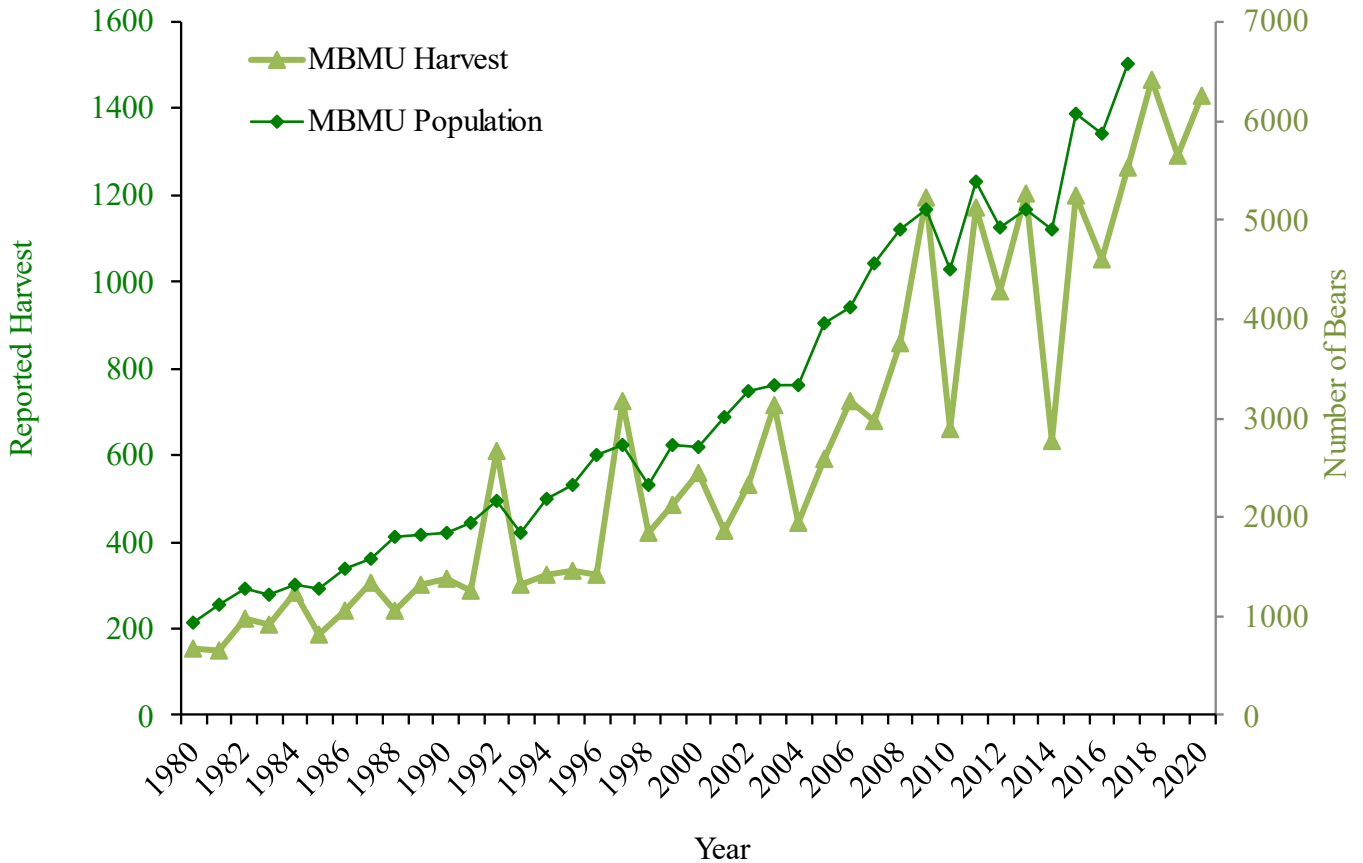


Figure 58. Reported harvest (1980-2020) and estimated black bear population (1980-2017) in the MBMU of North Carolina.

Based on the population reconstruction model, the bear population was estimated to be 5,920 to 6,571 bears in the MBMU and 9,459 to 10,474 bears in the CBMU during 2017 (Figures 57 and 58). Other influences on population estimates are submission rates; where submission rates are low, population reconstruction may underestimate the population. For example, submission rates from District 7, which comprises 6 counties in the PBMU and 5 counties in the MBMU, has low submission rates (25%), so the model may underestimate the population in the CBMU as a result.

Population growth rates in the CBMU and the MBMU show a declining trend (Figures 59 and 60). The population objectives of the MBMU and the CBMU, based on the 2012-2022 Black Bear Management Plan, were to lower the rate of population growth in order to stabilize bear populations and keep them within cultural carrying capacity. The Commission is meeting this objective in the CBMU (Figure 59) due to the changes on bear season structures (e.g., lengthening seasons) and hunting methods (i.e., legalization of use of unprocessed bait) that have occurred since 2007 (Table 7). The CBMU is at 0%-1% population growth and that growth trend is resulting the bear population starting to plateau (Figure 57). Population growth in the MBMU is also declining, but more slowly than that of the CBMU (Figure 60). As of 2017, population growth had declined to 5%.

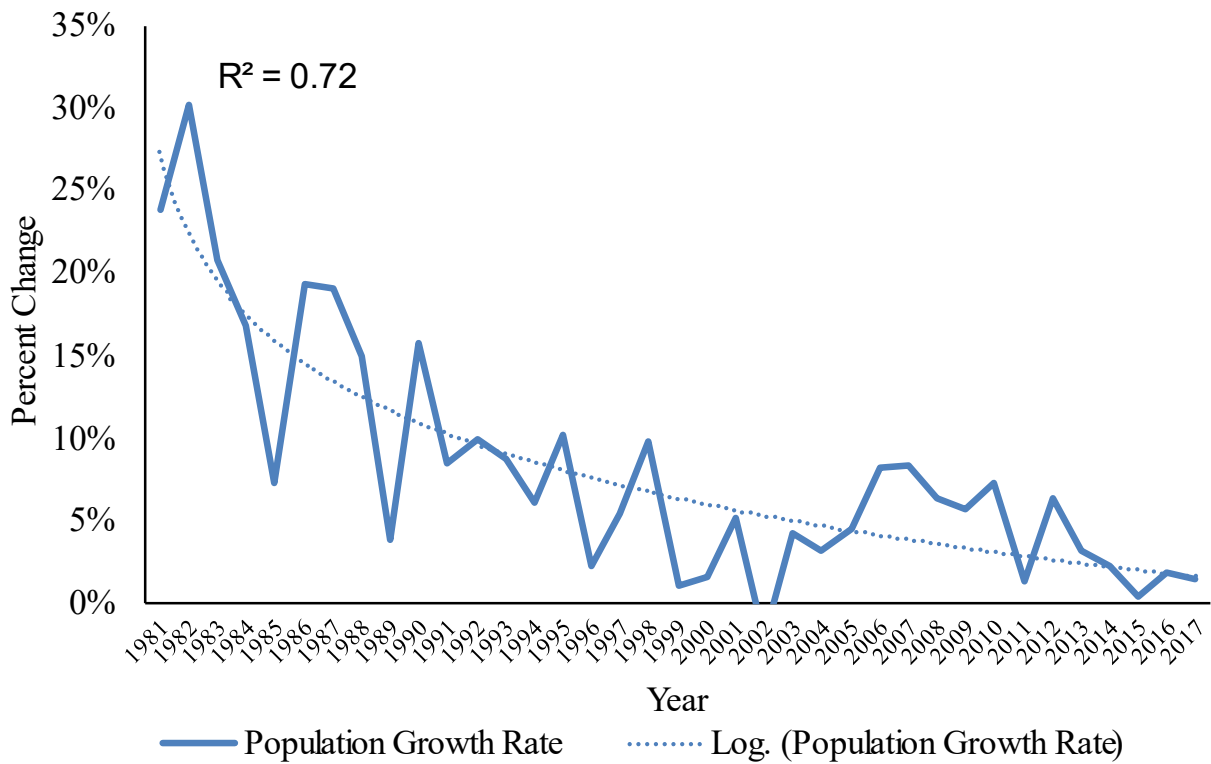


Figure 59. Population growth rates of the CBMU bear population (1981-2017)



Figure 60. Population growth rates of the MBMU bear population (1981-2017).

Non-Harvest Mortality

Human-induced mortality is the greatest source of black bear mortality in North Carolina (Figure 61). Regulated hunting (92%) remains the primary cause of mortality in black bears, with vehicle collisions (7%) being the second leading cause of mortality.

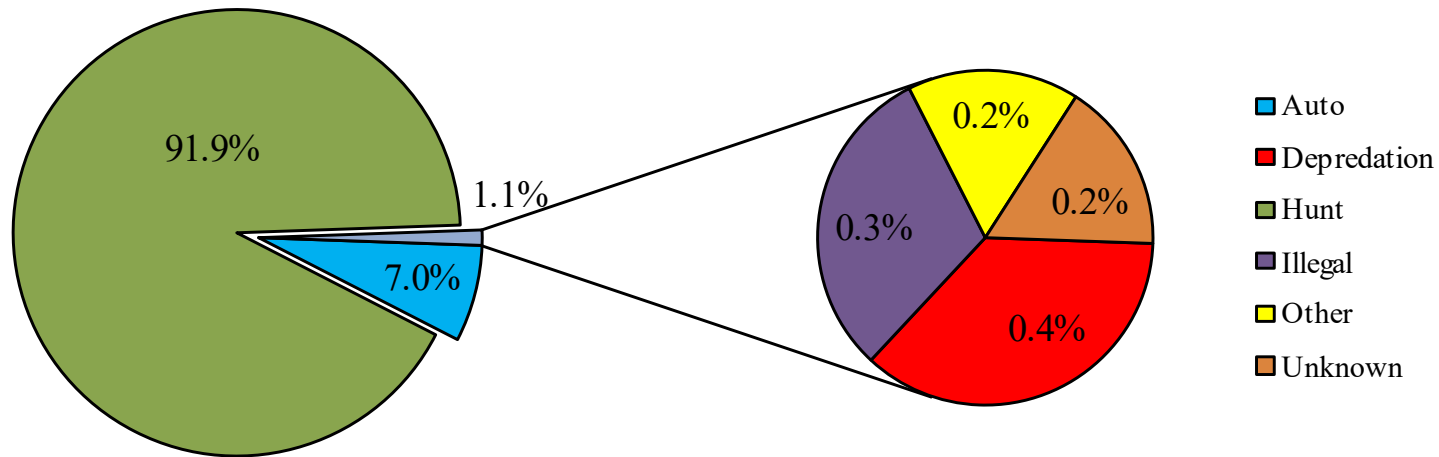


Figure 61. Causes of mortality among bears sampled by NCWRC from 1969 through 2020.

During 2020, there were 282 non-harvest mortalities in North Carolina (Table 39); 87% of these non-harvest mortalities were from vehicle collisions (n=244), followed by depredation (n=13), other mortalities (n=13), unknown causes (n=9), and illegal mortalities (n=3). Depredation mortalities increased 44% in 2020, particularly in the MBMU (120%; n=11; Figures 62 and 63). Illegal mortalities remained similar to the previous season (n=3; Figure 64).

Vehicle-caused mortalities increased 9% from 2019 (n=244; Figure 65). Although there was speculation that Covid-19 restrictions would reduce roadkill mortality due to fewer people traveling to and from work, we did not observe that for bear roadkill in North Carolina. Likely because there was an increase in the number of people participating in outdoor activity, resulting in many traveling for hiking, camping and other outdoor activities offered by the public lands, particularly in western North Carolina. Vehicle-caused mortalities increased 68% in the Mountain BMU (Figure 66). Sixty-one percent of vehicle-caused mortalities occurred in the CBMU during 2020 (Figure 66), likely reflecting the higher bear population and number of highways in that region. In 2020, Buncombe (n=41), Currituck (n=23), and Haywood (n=17) counties reported the highest number of vehicle mortalities (Figure 67). Both in 2020 and historically, Buncombe County leads counties within the MBMU for vehicle-caused mortalities (Figure 67 and 68).

A majority of vehicle-caused mortalities occur in October, followed by November and June (Figures 69). The increase in the number of roadkills that occur in June is primarily due to increased movements by younger bears; when the female's offspring are just over a year old, they will separate from their mother sometime after den emergence (late April through mid-June) and disperse until they establish a home range. Male yearlings and subadults tend to travel further from their natal home range than females, thus they comprise the majority of roadkills (Figure 71). The age distribution of female bears is more even, with most mortalities occurring in the 3-5 age class, followed by yearling age class (Figure 72).

The increases in roadkills that occur in October and November is due to increased travel by both male and female bears in search of foods (Figures 70). During fall, black bears must consume mass amounts of food to prepare their body for winter, when they must rely on their body fat for nutrition, maintenance, production of cubs and lactation. The need to find foods in fall in order to have adequate body fat for the lactation and the production of cubs is likely the main reason female adults (>3 years old) comprise the majority of roadkilled female bears (Figure 72).

Table 39. Non-harvest mortalities by district during 2020.

District	Vehicle	Depredation	Illegal	Other	Unknown	Total
1	102	1	0	7	1	111
2	42	1	0	0	1	44
3	2	0	0	0	0	2
4	5	0	0	0	1	6
5	3	0	0	0	0	3
6	0	0	0	0	0	0
7	1	1	1	0	0	3
8	15	0	0	2	3	20
9	74	10	2	4	3	93
Total	244	13	3	13	9	282

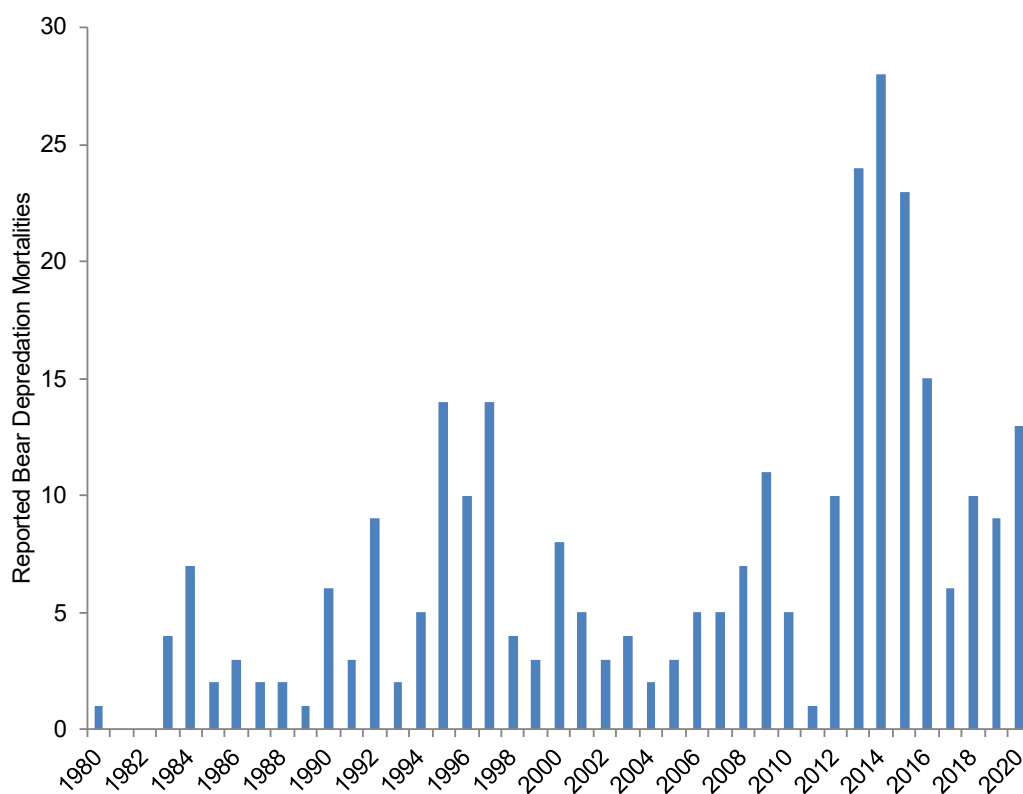


Figure 62. Number of reported bear mortalities caused by depredation from 1980 through 2020 in North Carolina.

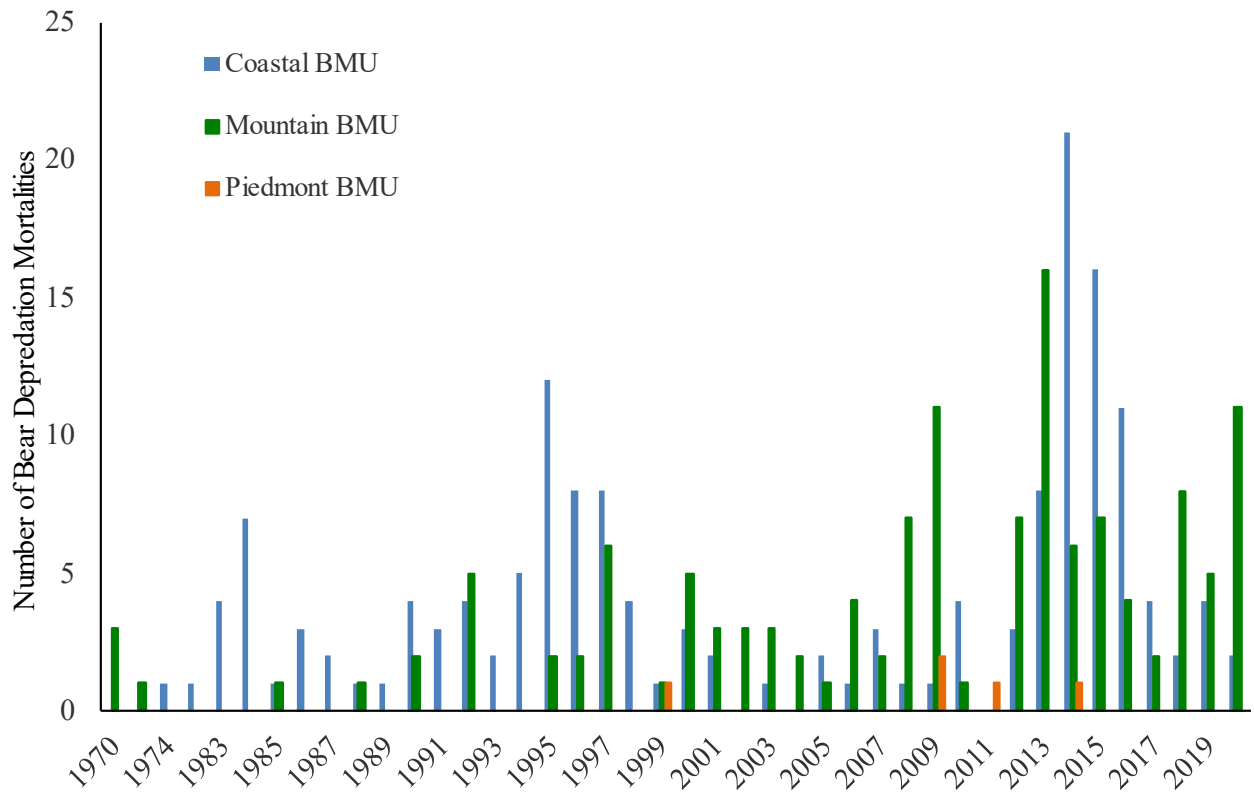


Figure 63. Number of reported bear mortalities caused by depredation from 1980 through 2020 in North Carolina by bear management unit.

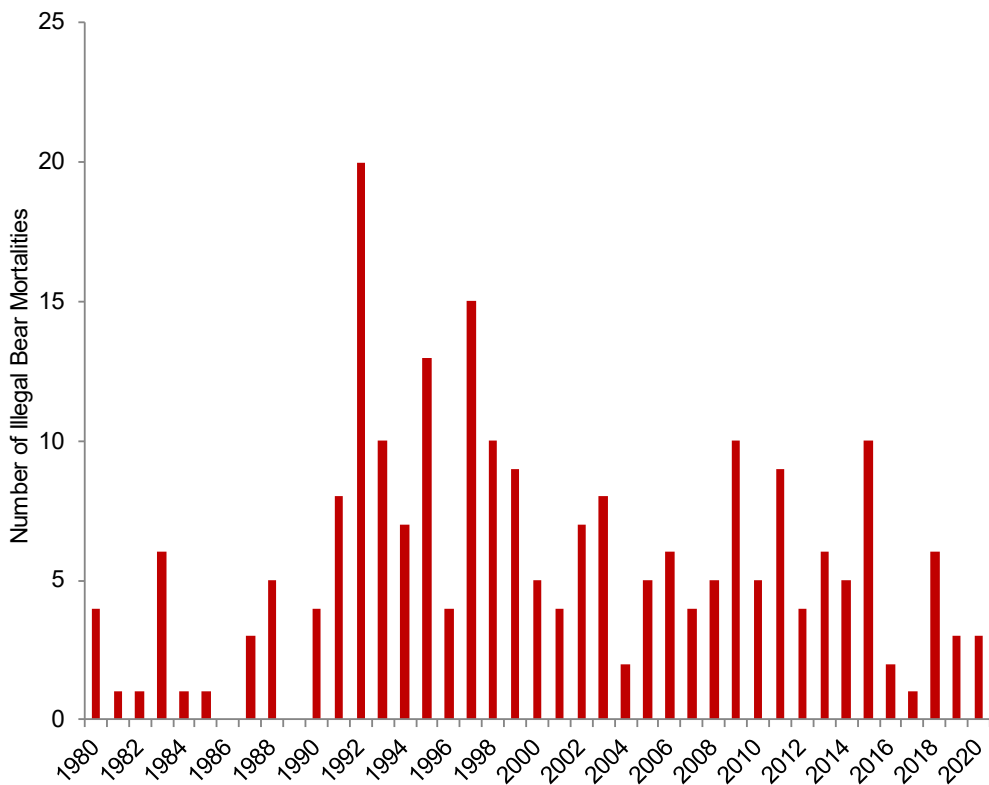


Figure 64. Number of illegal bear mortalities in North Carolina from 1980 through 2020.

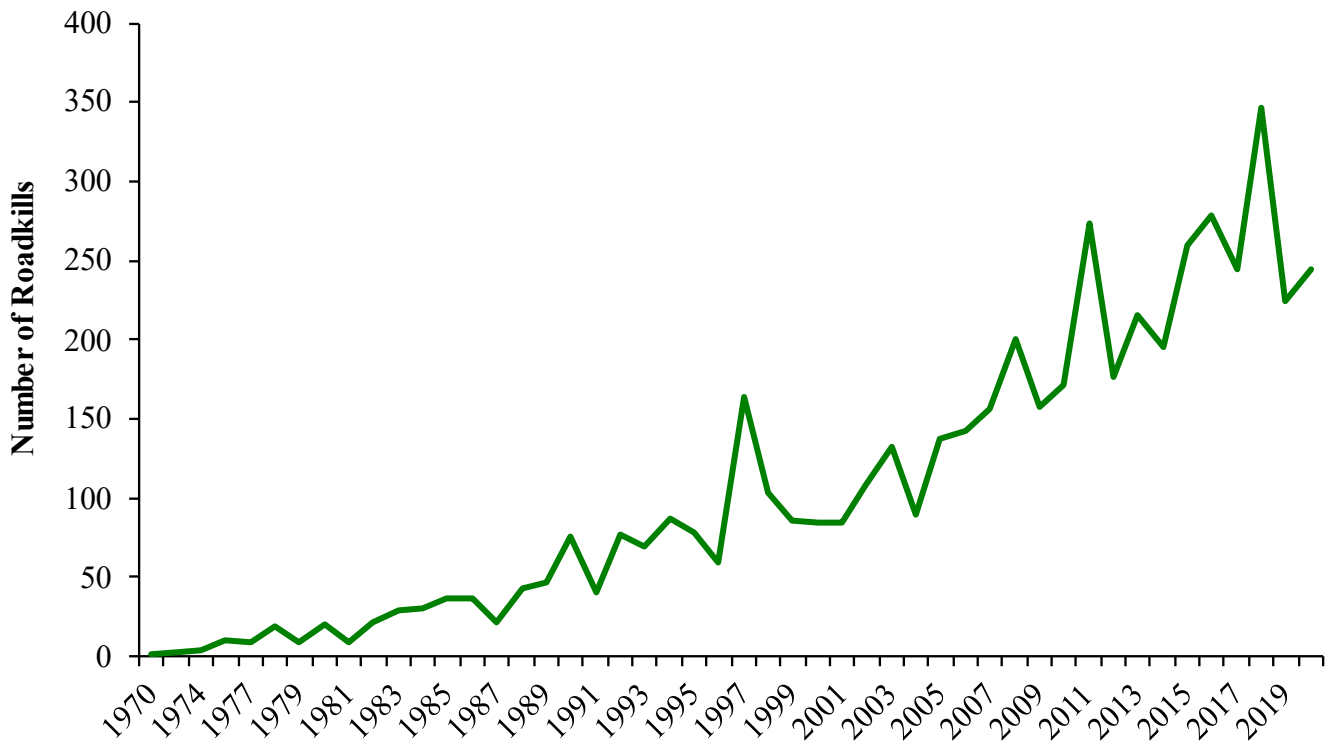


Figure 65. Total number of vehicle-caused black bear mortalities in North Carolina from 1970 through 2020.

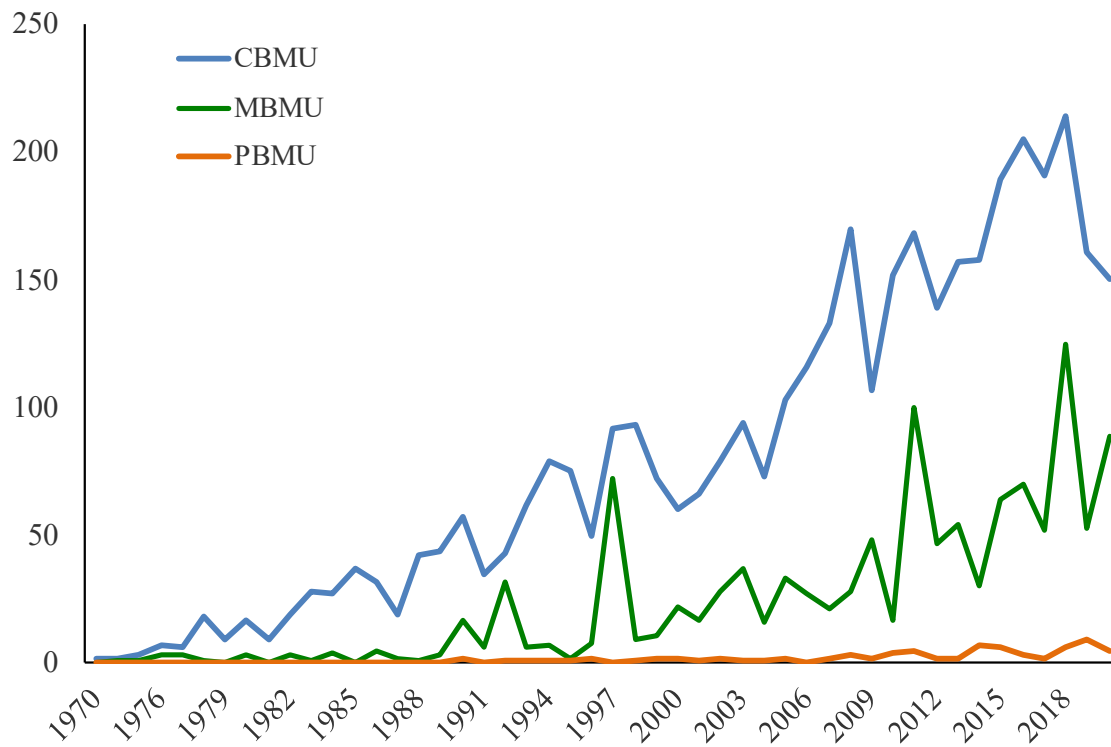


Figure 66. Total number of vehicle-caused black bear mortalities in North Carolina from 1970 through 2020 by bear management unit.

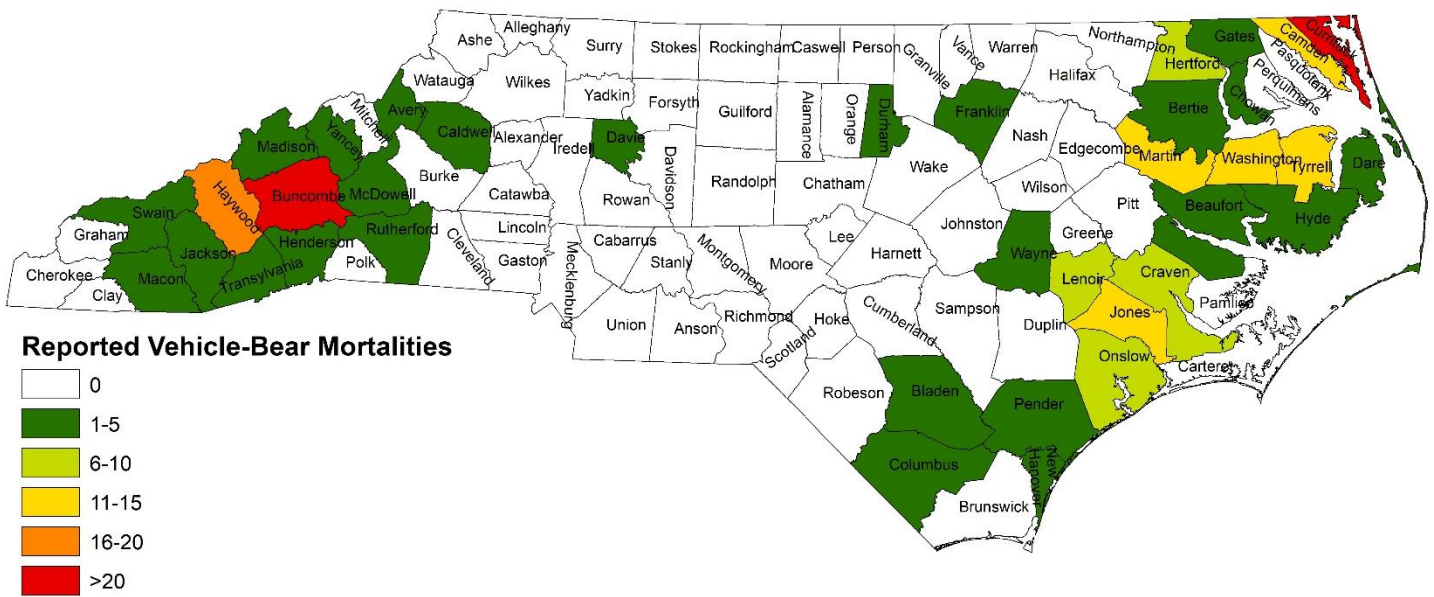


Figure 67. Number of vehicle-caused bear mortalities in North Carolina in 2020.

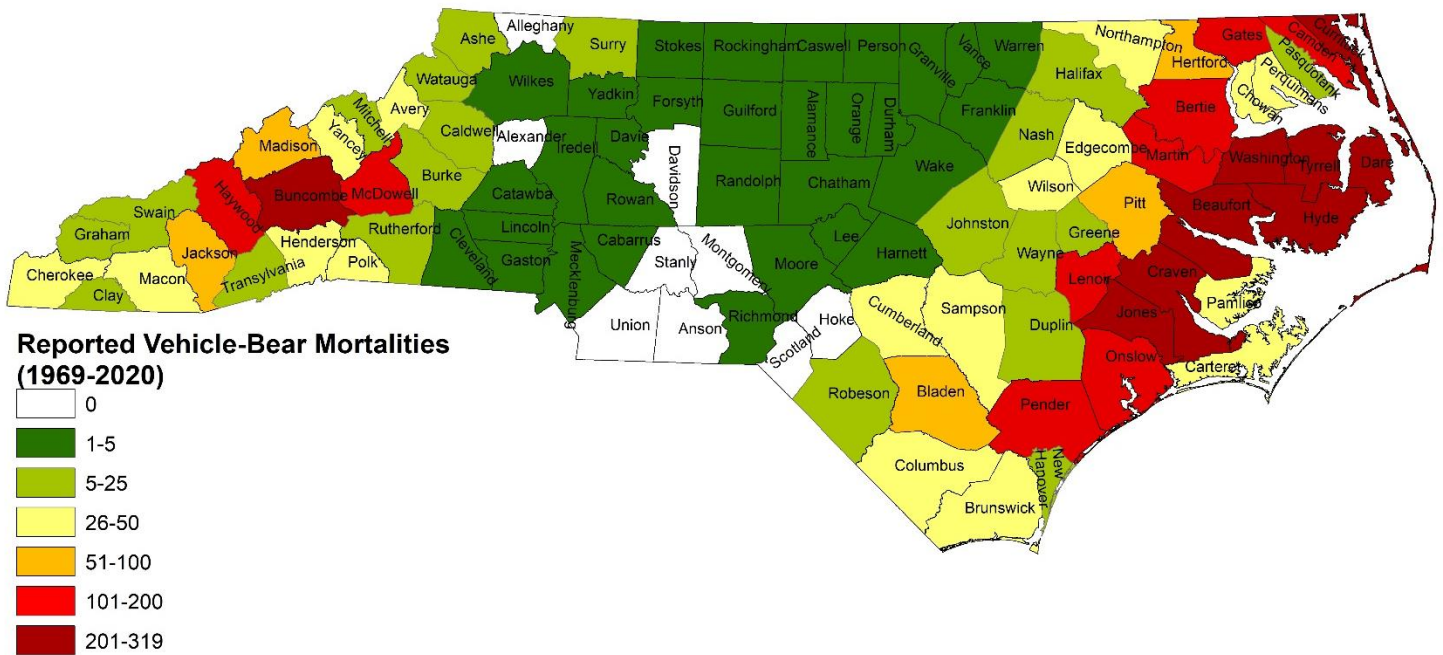


Figure 68. Number of vehicle-caused bear mortalities from 1969 through 2020.

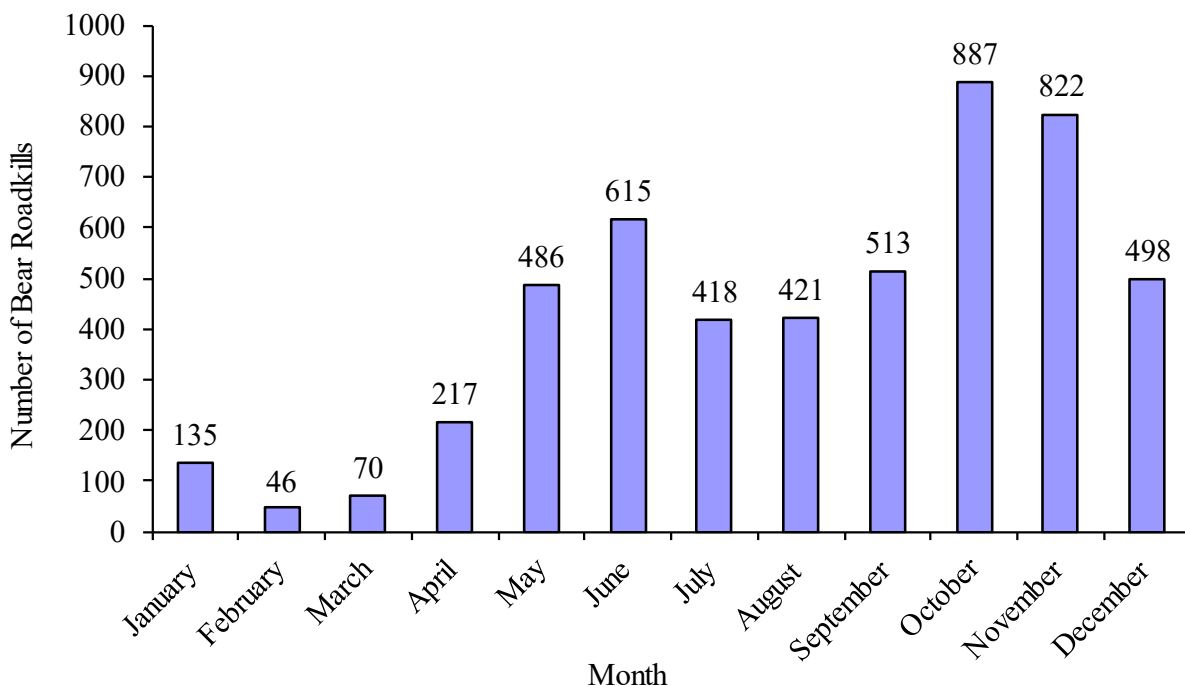


Figure 69. Number of vehicle-caused mortalities by month in North Carolina, 1970-2020.

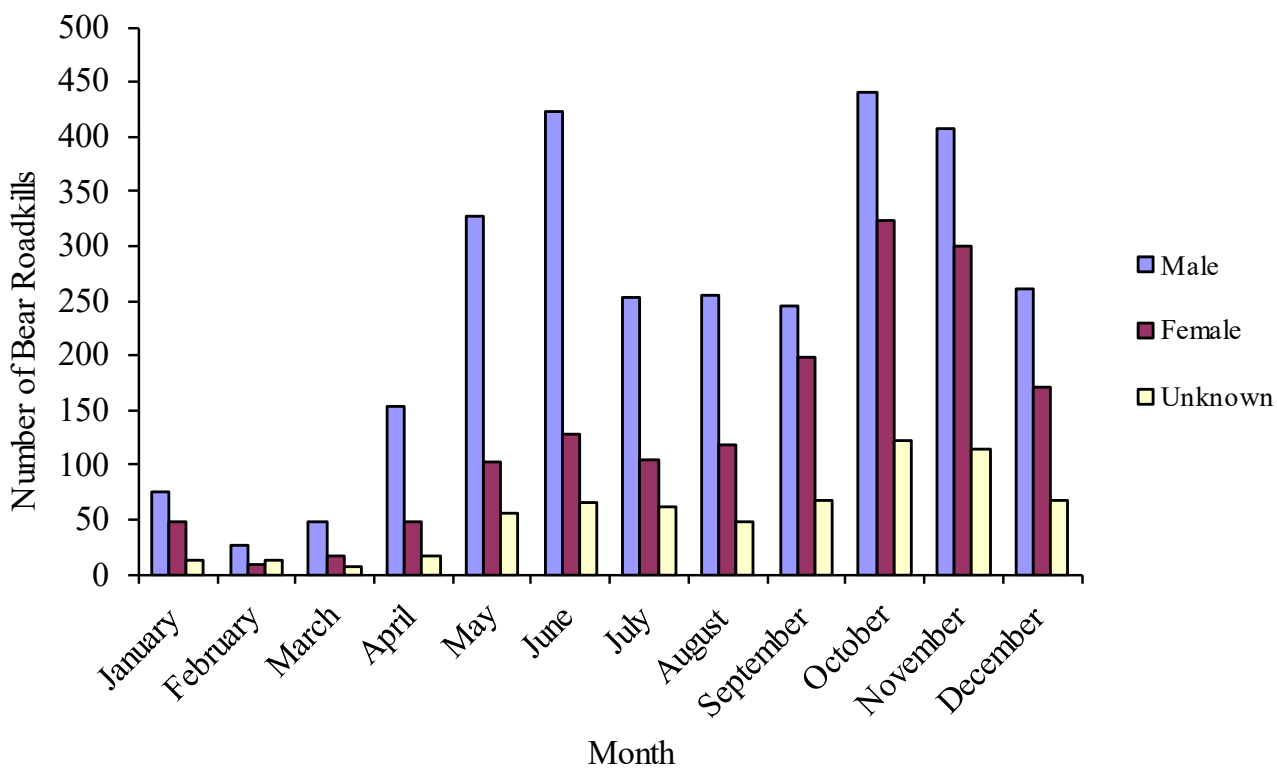


Figure 70. Number of vehicle-caused mortalities by month and by sex in North Carolina, 1970 through 2020.

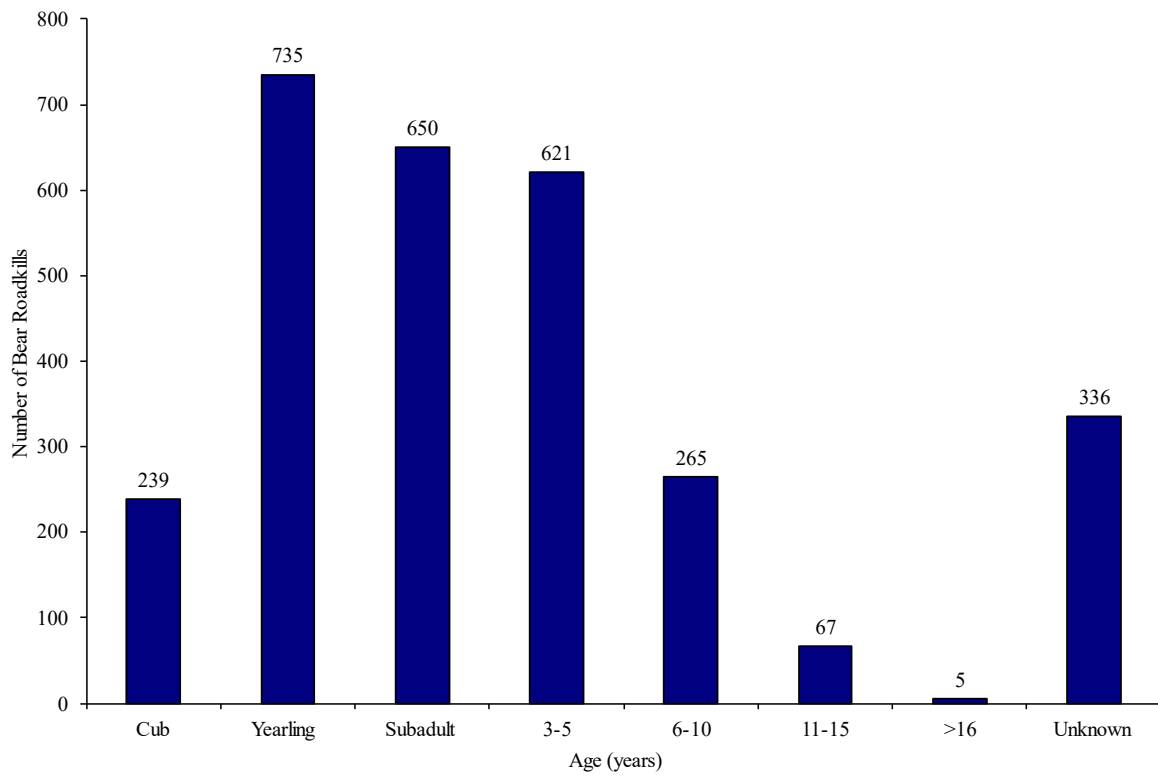


Figure 71. Number of vehicle-caused mortalities of male bears by age category in North Carolina, 1970-2020.

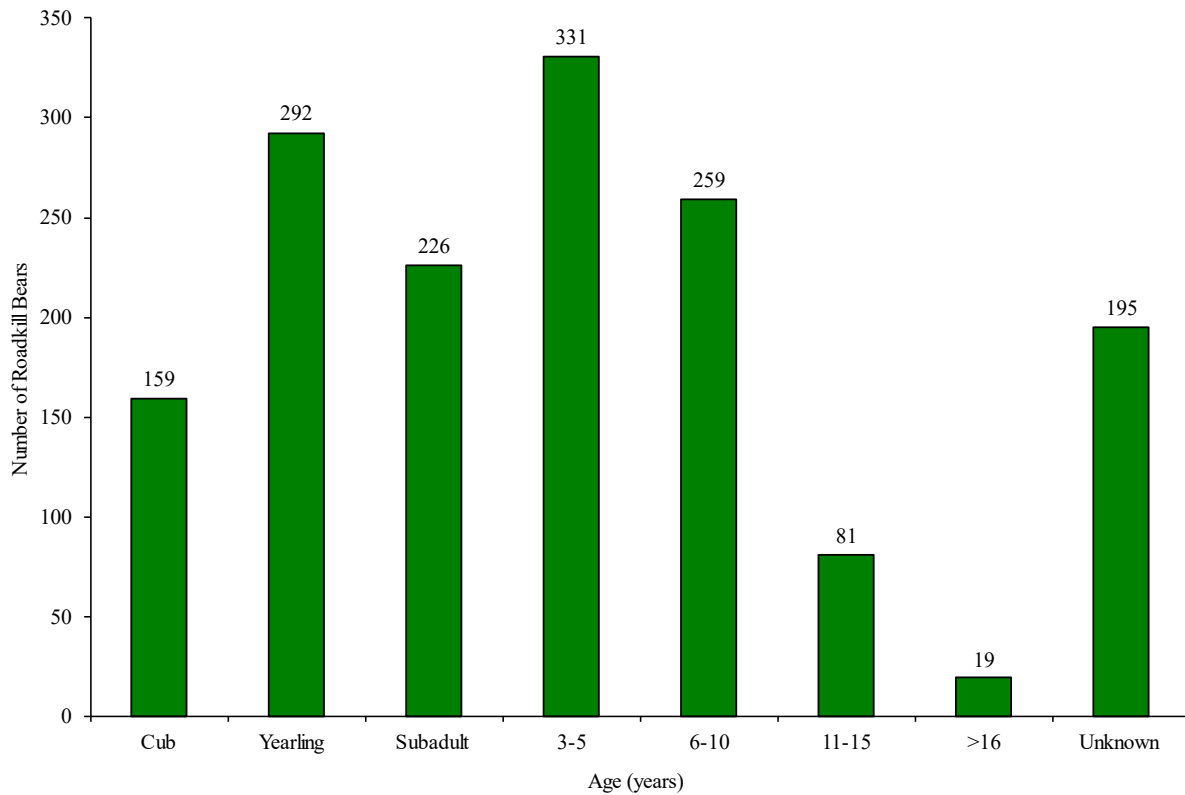


Figure 72. Number of vehicle-caused mortalities of female bears by age category in North Carolina, 1970-2020.

Human-Bear Interactions

Since 1993, WRC biological staff have recorded human-bear interaction reports (Table 40; Figure 73). A human-bear interaction includes both bear observations and conflicts with bears. This information not only aids in tracking bear population trends, behavior and occurrences, but helps the WRC predict when most interactions may occur (Figures 67 through 70) and identify common sources of conflict so that we can properly address human-bear interactions and provide effective technical guidance to resolve conflicts.

In 2020, observations and complaints about black bears increased 16%, from 1,329 in 2019 to 1,544 in 2020 (Table 40; Figure 73). This was the 2nd highest recorded number of human-bear interactions since 1993. In 2020, the hard mast was below mast production in 2019 (page 106; Table 41); changes in mast abundance contributes to the changes in the number of human-bear interactions, with lower interactions occurring in years with improved abundance of natural foods. In poor mast years when natural foods are scarce, bears travel more to find food, making it more likely they will encounter people. In poor natural food years, bears are also more attracted to unnatural food sources (e.g., trash, bird feeders). But there were other contributors to the number of human-bear interactions observed in 2020, including the continued growth of both the bear population (Figures 58 and 60, pages 90-91), as well as the human population in the MBMU. In addition, Covid-19 restrictions and the pandemic's impacts on both work and school resulted in more people staying at home. This resulted in residents more likely to observe bears in their neighborhood during the daytime. There were also anecdotal reports of increased participation in backyard bird watching via bird feeders, which resulted in attracting bears.

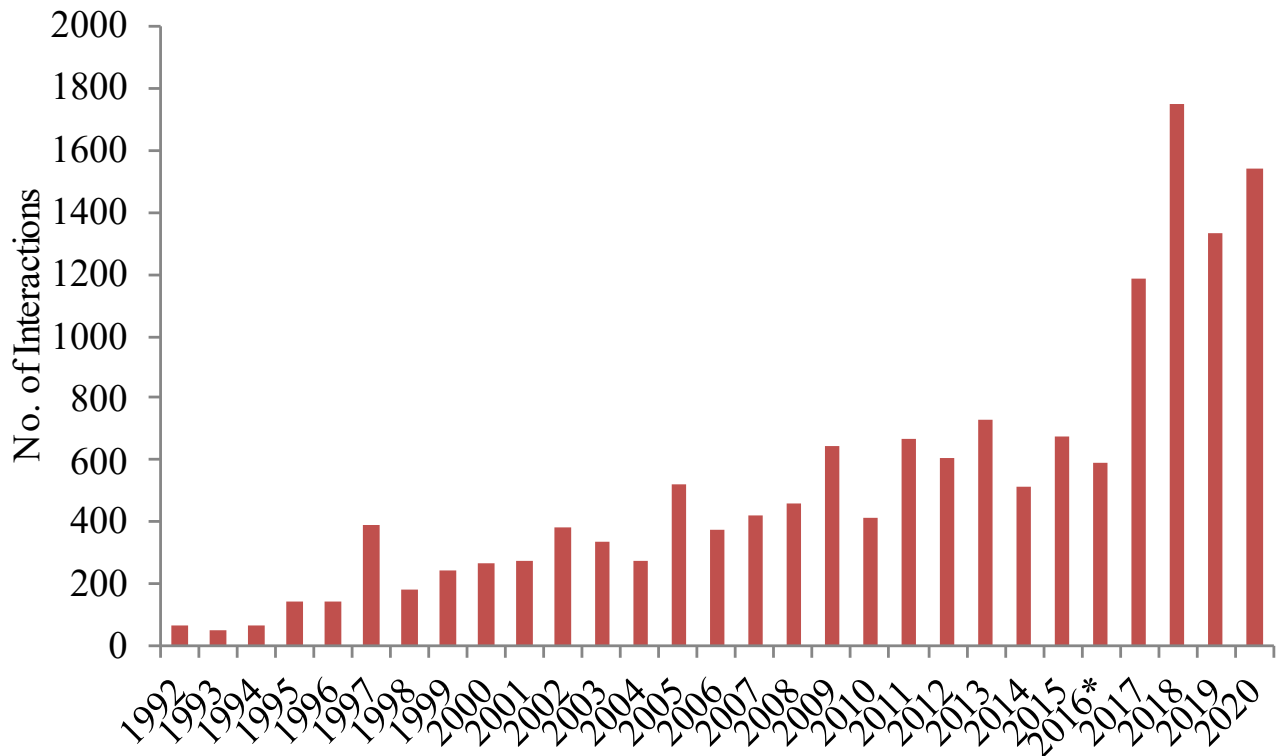


Figure 73. Number of human-bear interactions by year in North Carolina, 1993 through 2020.

*Statewide wildlife helpline created.

As in past years, the MBMU had the highest number of human-bear interactions (n=1,121; 74% of statewide phone calls; Figure 74), particularly District 9, which comprised 63% of all interactions (Table 40). While the MBMU experienced a 39% increase in human-bear interactions, the PBMU and CBMU experienced a 40% and 18% decline, respectively (Figure 74). The high number of human-bear interactions in District 9 is largely driven by the high human population in Buncombe County, coupled with high bear densities in this area, due to limited hunter access, topography and habitat that aids in bear dispersal, and the high amount of artificial food resources in and around Asheville (e.g., bird feeders, purposeful feeding). Buncombe (n=619) and Haywood (n=71) counties reported the highest number of human-bear interactions, followed by Henderson County (n=62; Figure 76).

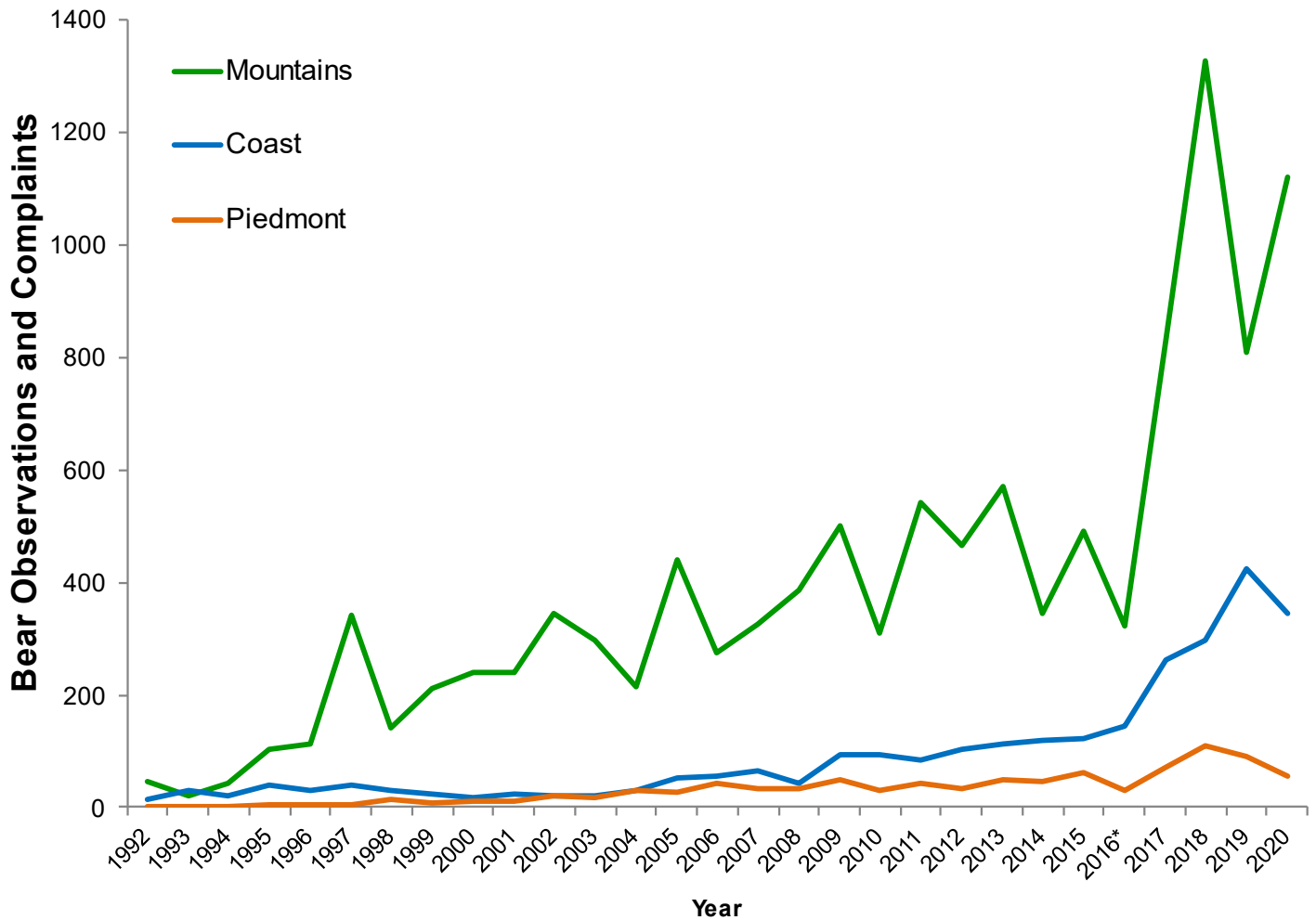


Figure 74. Number of human-bear interactions by bear management unit from 1992 through 2020.

Table 40. Number of Human-Bear Interactions Received by the North Carolina Wildlife Resources Commission, 1998-2020.

District	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016*	2017	2018	2019	2020
1	7	2	6	9	17	30	31	21	44	46	48	53	48	58	70	90	103	93	174	185
2	10	10	8	12	19	14	9	3	27	33	22	25	52	49	40	31	104	157	159	95
3	5	3	0	16	12	13	13	12	22	11	17	14	6	5	6	9	24	39	43	14
4	5	6	7	8	6	5	15	5	9	9	11	17	11	11	14	23	42	36	58	58
5	9	10	8	11	16	12	7	13	11	6	14	12	14	12	18	12	15	30	34	22
6	0	0	0	0	0	4	4	3	3	0	8	3	15	6	6	2	14	13	19	10
7	7	13	15	12	16	29	27	30	34	15	29	24	46	36	39	39	50	93	54	99
8	18	55	82	40	51	37	41	70	91	63	97	70	74	62	63	46	144	129	106	80
9	216	278	226	184	397	232	271	302	405	234	425	385	465	272	419	331	671	1143	676	959
Totals	277	377	352	292	534	376	418	459	646	417	671	603	731	511	675	583	1182	1733	1323	1522

*New call center created and all Commission staff now reporting phone calls about bears.

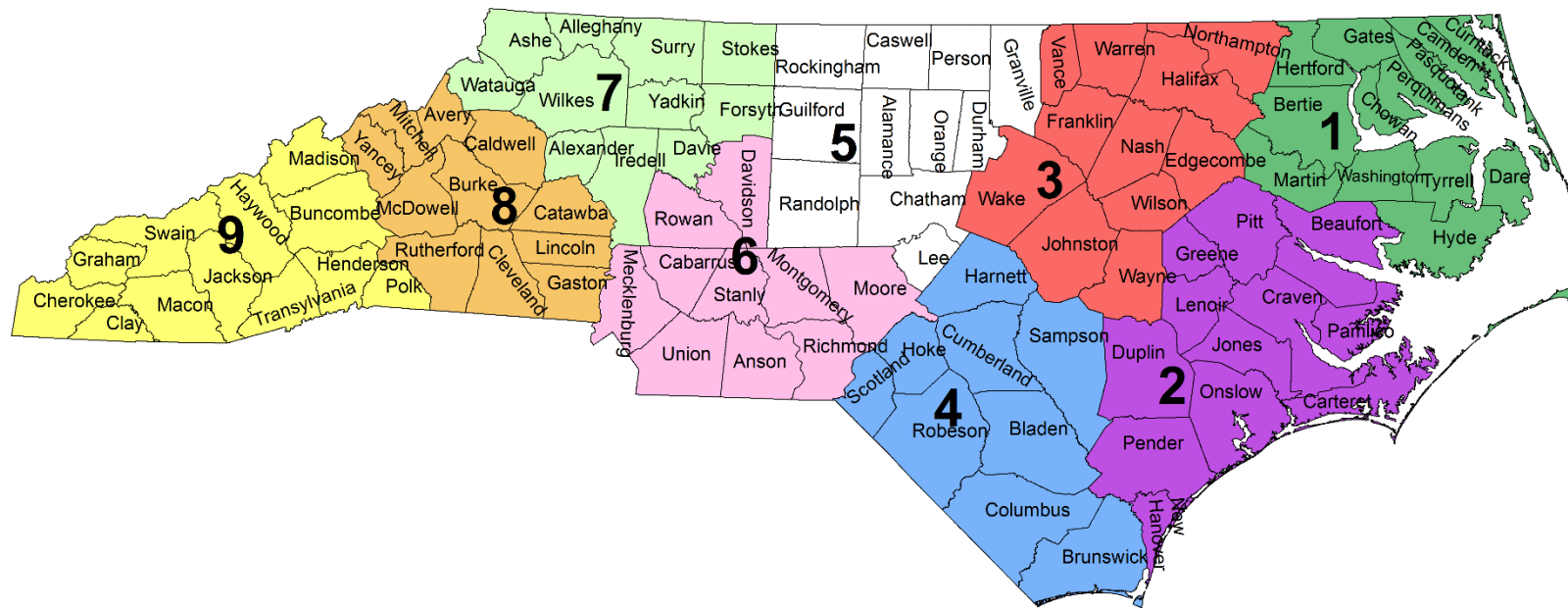


Figure 75. The nine wildlife districts of the North Carolina Wildlife Resources Commission.

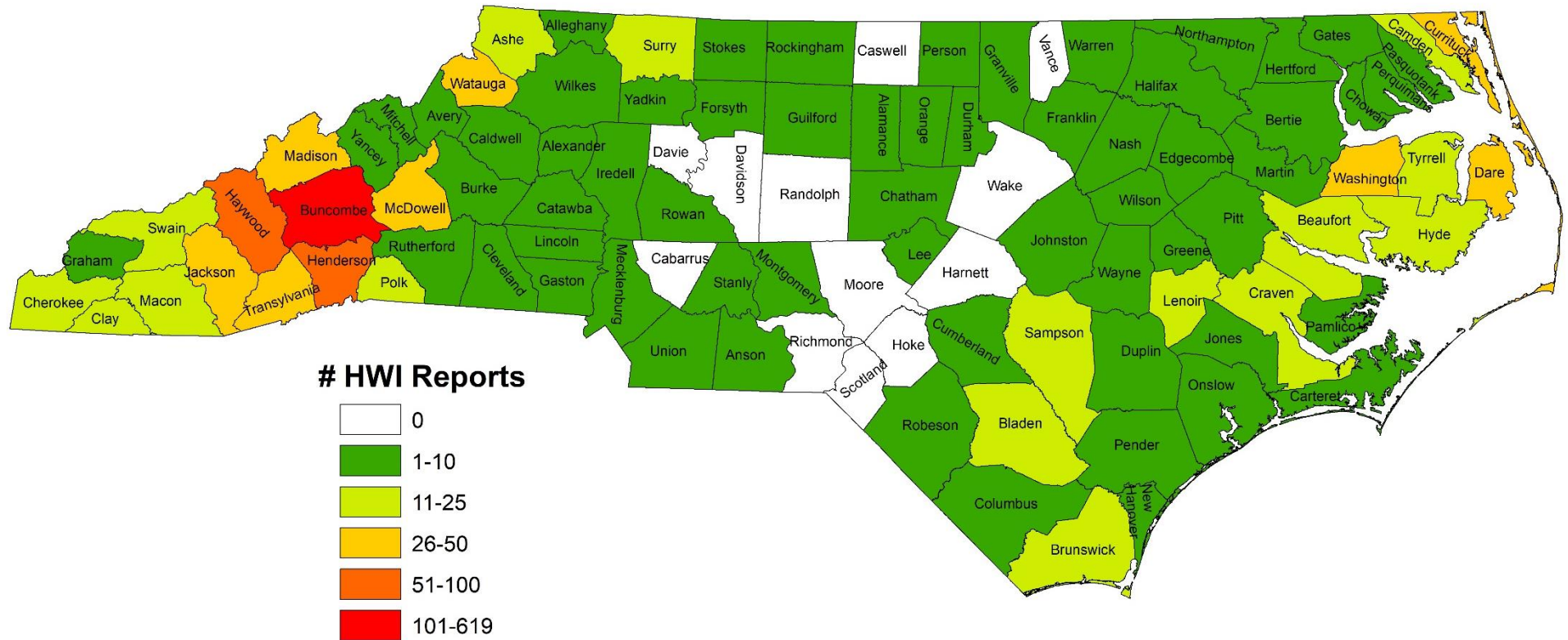


Figure 76. Number of human-bear interaction reports received by the North Carolina Wildlife Resources Commission in 2020.

Since 1993, a majority of observations and complaints about black bears occur in May through July (Figure 77), when bears are more active due to increased traveling to locate scarce spring natural food resources. Due to scarce natural foods, bears may become more attracted to unnatural foods, such as agricultural crops, bird feeders and garbage. In the CBMU during June and July, corn is typically reaching the milk stage of the growth stage, which makes it highly attractive to bears. May and June are also the time of year when yearling bears are dispersing away from their mothers and more likely to encounter human development and unnatural food sources. In late summer and early fall, acorns become available, resulting in a decline in human-bear interactions at this time of year. Unlike the 28-year trend, monthly patterns human-bear interactions in 2020 were highest from June through August and declined once hard mast was available in late August/early September through the fall (Figures 78 and 79). Human-bear interactions were at their highest in the MBMU, PBMU, and CBMU during the summer months, though each BMU had peak interactions staggered by month; peak interactions occurred May through July for the CBMU (n=53-56 monthly), in June for the PBMU and in August for the MBMU (Figure 79).

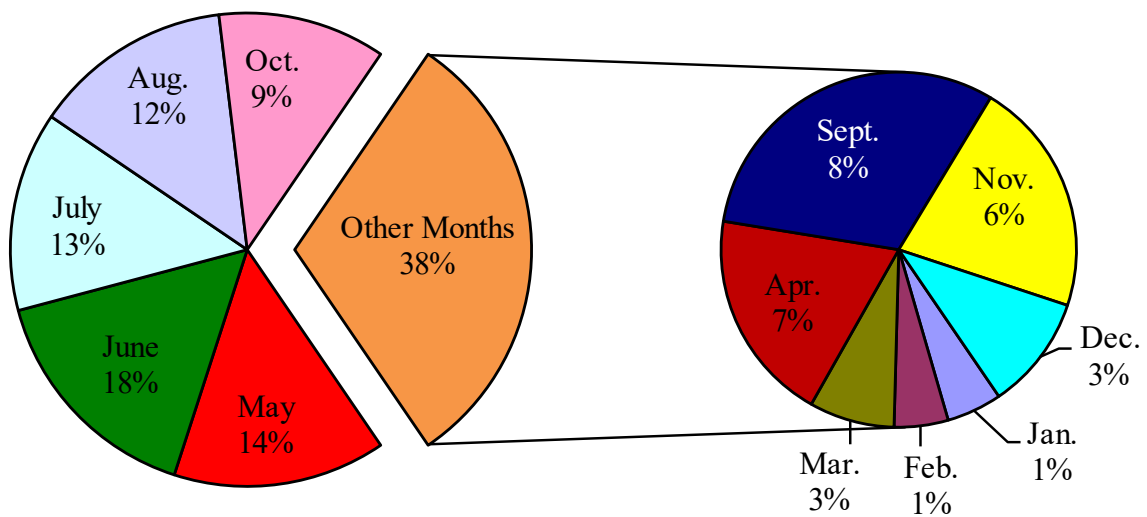


Figure 77. Percentage of statewide black bear observations and complaints by month for 1993-2020.

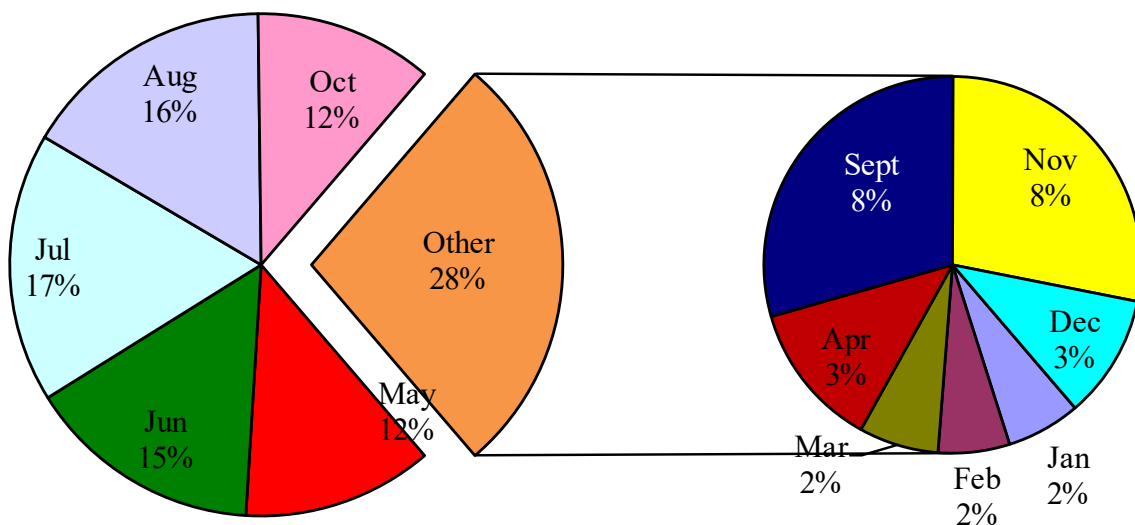


Figure 78. Percentage of statewide black bear observations and complaints by month for 2020.

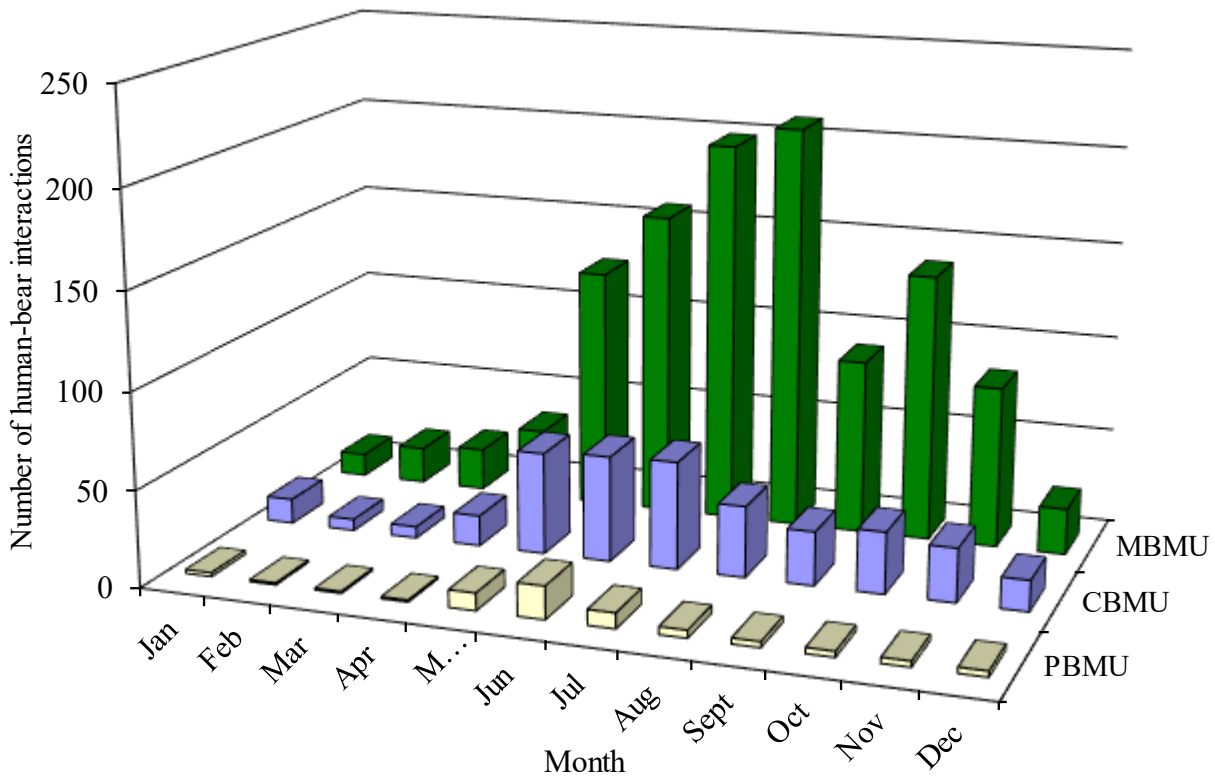


Figure 79. Number of human-bear interactions by month and bear management unit in 2020 in North Carolina.

Hard Mast Surveys

NCWRC personnel have surveyed hard mast in the Mountain Region of North Carolina since 1983. From 1983-2005, North Carolina's hard mast surveys were conducted and reported using a method developed by Whitehead (1969) with slight modifications (Wentworth et al. 1992). Beginning with the 2006 survey, we are using a new protocol and formula for determining mast indices (Greenberg and Warburton 2007). The new protocol only requires simple calculation of percent crown with acorns in the field. In order to maintain consistency with the old technique, the new technique uses statistically verified equations to convert mast index values to numbers previously used with the Whitehead (1969) method. Hard mast results reported in this document utilize the techniques described in Greenberg and Warburton (2007) and are described using the scale used by our agency since 1983. Due to small sample sizes, results will no longer be reported for individual routes for hickory and beech, but overall values for these species will be reported.

The 2020 hard mast survey was conducted by WRC Land and Water Access staff, WRC Wildlife Management Division Private Lands staff, and South Mountains State Park staff on 12 routes in western North Carolina. Carl Sandburg Home National Historic Site staff were unable to conduct the surveys in their area this year, as acorns had dropped early. A total of 1,405 trees were sampled including 546 from the white oak group, 680 from the red oak group, 135 hickories, 40 beeches, and 3 walnuts. Other trees sampled were dead trees (n=24). Combining all groups of species, mast was rated as fair, with an overall index of 2.47, which is a slight decline from last year's mast crop index (2.63; Table 41). Since 1983, North Carolina has experienced 24 years out of 38 years in which the hard mast index was rated as fair. Including only the oak species, mast production rated as fair (2.43; Table 41).

White oak production rated as poor (1.42) and below both the long-term average (1.85) and last year's index (1.97; Table 41). When the white oak group is separated by species, chestnut oak (1.18) and white oak (1.71) production rated as poor (Table 2). Red oak production rated as fair (3.23) and above the long-term average (2.85) and last year's index (2.84; Table 41) for the species. Separated by species, black oak (2.18) and northern red oak (3.02) rated as fair, while scarlet oak rated as good (4.04; Table 2). Hickory production rated as fair (2.26) and slightly below the long-term average (2.36) for the species (Table 41). Beech production (4.67) was good and above the long-term average (4.11; Table 41).

This season's hard mast crop was the twenty-fourth year since 1983 in which the overall hard mast index was fair. The fall hard mast index was slightly lower in 2020 than in 2019, but close to long-term averages. White oak productivity was poor in most areas, except for Macon and Burke counties, while red oak productivity was fair, but more variable by county compared to white oak. Similar to North Carolina, surrounding states reported that acorns, in particular hickory, dropped early in several areas and that red oak productivity was better than white oak productivity. However, red oak productivity appeared to be better in Kentucky, Georgia, and South Carolina than in North Carolina. While mast surveys are not conducted outside the MBMU, anecdotally, hard mast productivity in the Piedmont region appeared to be good to excellent, with some areas reporting "bumper" crops. The overall trend in hard mast production shows a very slight declining trend since surveys were initiated in 1983.

This report and previous annual mast reports (2003 to present) can be found at: <http://www.ncwildlife.org/bear> and click on "Surveys and Reports" tab, then the "[Hard and Soft Mast Surveys](#)" link.

Table 41. Hard Mast Survey Results for Western North Carolina, 1983-2020.

Year	White Oak	Red Oak	All Oaks	Hickory	Beech	Total
1983	1.43	2.59		1.99	5.51	2.25
1984	1.08	2.73		3.05	4.28	2.30
1985	2.01	3.66		0.80	3.06	2.80
1986	1.32	1.98		2.25	5.22	1.90
1987	1.16	0.56		3.57	5.75	1.31
1988	3.16	4.07		2.04	4.25	3.57
1989	0.43	4.89		2.78	6.44	3.14
1990	1.85	2.62		1.20	1.89	2.17
1991	2.38	1.93		3.75	6.89	2.43
1992	1.07	2.45		0.72	1.17	1.78
1993	0.65	3.58		2.43	4.77	2.48
1994	2.06	3.48		2.02	6.20	2.85
1995	2.80	5.60		2.48	0.36	4.22
1996	3.70	1.99		2.81	4.31	2.72
1997	0.53	1.79		1.17	2.35	1.29
1998	2.26	4.68		3.27	4.70	3.69
1999	3.28	2.76		2.80	6.22	3.05
2000	0.50	2.11		2.73	5.71	1.82
2001	2.83	4.92		2.88	3.97	3.98
2002	1.90	3.01		1.75	3.44	2.47
2003	1.24	0.68		3.58	5.42	1.33
2004	3.99	2.93		1.32	1.65	3.09
2005	0.70	3.11		1.86	4.30	2.14
2006	1.70	1.40	1.50*	3.20	4.10	1.80
2007	3.02	1.19	2.04	0.73	2.71	1.90
2008	1.01	2.40	1.76	3.82	4.34	2.06
2009	0.48	2.47	1.55	1.72	5.58	1.67
2010	3.46	3.97	3.75	3.50	0.87	3.66
2011	1.17	2.22	1.74	1.30	4.96	1.76
2012	1.87	2.68	2.31	2.01	3.14	2.29
2013	1.00	1.43	1.23	2.43	4.45	1.44
2014	4.43	4.36	4.42	2.33	1.23	4.10
2015	1.07	2.65	1.92	2.64	5.77	2.09
2016	2.71	2.60	2.66	2.45	4.08	2.67
2017	2.13	4.42	3.40	3.20	5.69	3.44
2018	0.94	2.14	1.61	1.58	1.11	1.58
2019	1.97	2.84	2.45	3.35	5.54	2.63
2020	1.42	3.23	2.43	2.26	4.67	2.47
Average	1.85	2.85	2.32	2.36	4.11	2.48

Numerical Rating = Crop Quality

0.0 to 2.0 = Poor 2.1 to 4.0 = Fair

4.1 to 6.0 = Good 6.1 to 8.0 = Excellent

* Not reported for prior years.

Bait Station Surveys

Bait station surveys in the MBMU were initiated in 1992 to provide the Commission an additional technique for monitoring bear populations. This survey provides monitoring tool that is independent of harvest and human-bear interaction data, which both have biases. The surveys were conducted annually until 2005, then based on recommendations from the Southern Appalachian Black Bear Study Group, changed to every two years. Several other states in the southeast use this tool to monitor trends in the bear population. All surveys are conducted on public lands (i.e., game lands, national forest), where the Commission has long-term access. In 1998, bait station surveys were conducted in the CBMU to see if this technique could be used to monitor the CBMU's bear population. Due to the abundance of natural foods and agricultural crops, which resulted in bears less likely to visit the bait station, as well as the lower amount of public lands to conduct the surveys, it was determined this technique was not an effective tool in the CBMU.

The previous bait station survey was conducted in summer 2019 by LAWA staff. A total of 812 bait stations were set in areas of occupied bear range in western North Carolina during July 2019. After removing 21 stations disturbed by non-target animals, 791 stations were visited 423 times by black bears for a visitation rate of 53% (Figure 80). This rate is a slight increase in visitation rates since 2017. The decline in visitation rates from 2009 through 2013 reflect a host of factors, including record rainfall that occurred during the summer 2013 and changes made to the survey lines in 2011 and 2013. These changes included the removal of several bait stations and survey lines, and the addition of 4 new survey lines. No changes were made to survey lines since 2015.

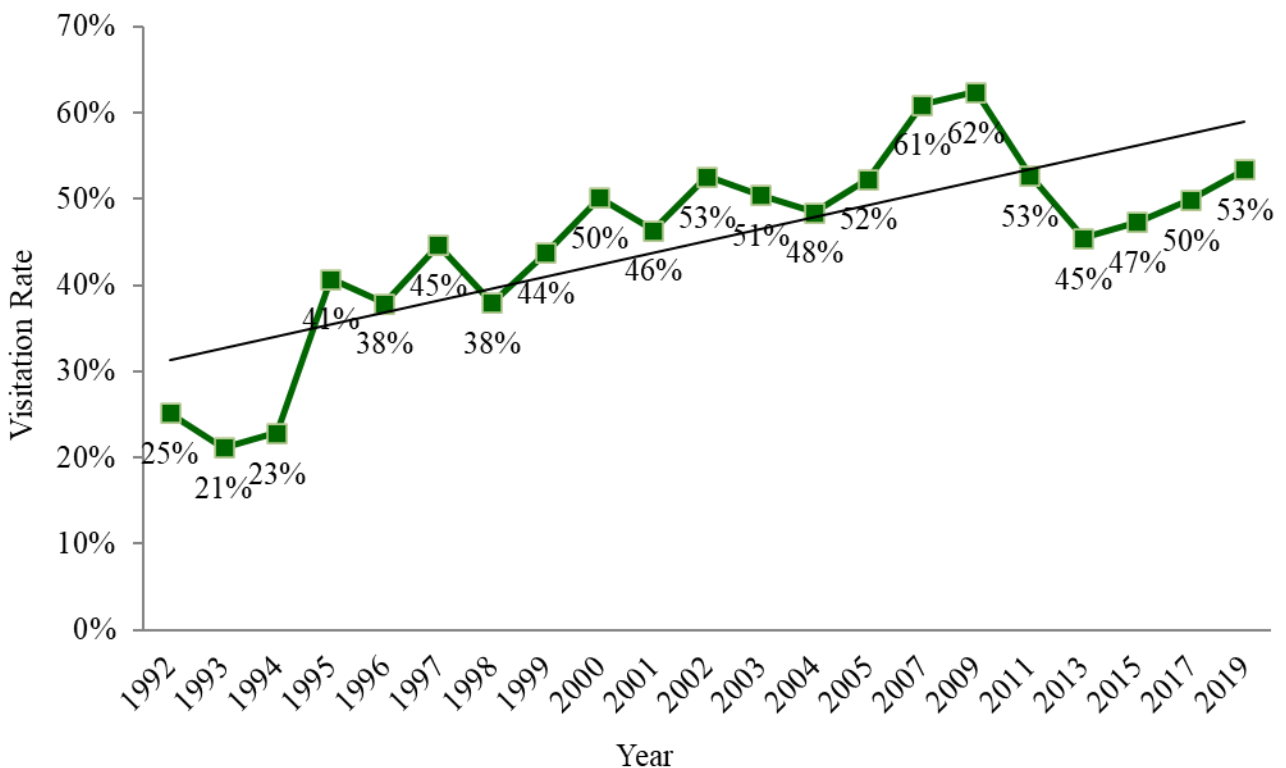


Figure 80. Mountain Black Bear Bait Survey Visitation Rate (%), 1992-2019.

Big Game – Bear

BEAR HUNTING SEASONS

Daily limit 1; Season limit 1

SEASON DATES	APPLICABLE COUNTY OR COUNTIES
MOUNTAIN BEAR MANAGEMENT UNIT SEASONS	
Oct. 12 – Nov. 21	In and west of Surry, Wilkes, Caldwell, Burke, Cleveland.
Dec. 14 – Jan. 1	<i>Note: Further game land restrictions may apply. See the "Game Lands" section for specific game land rules.</i>
PIEDMONT BEAR MANAGEMENT UNIT SEASONS	
Oct. 17, 2020 – Jan. 1, 2021	Franklin, Harnett, Hoke, Johnston, Moore, Richmond, Scotland, Vance, Wake, Warren
Nov. 14, 2020 – Jan. 1, 2021	Alamance, Anson, Cabarrus, Caswell, Chatham, Davidson, Durham, Granville, Guilford, Lee, Mecklenburg, Montgomery, Orange, Person, Randolph, Rockingham, Rowan, Stanly, Union
Nov. 21, 2020 – Jan. 1, 2021	Alexander, Catawba, Davie, Forsyth, Gaston, Iredell, Lincoln, Stokes, Yadkin
COASTAL BEAR MANAGEMENT UNIT SEASONS	
Nov. 14 – Nov. 29 and Dec. 12 – Dec. 27, 2020	Zone 1: Dare, Hyde, Tyrrell
Nov. 14 – Nov. 22 and Dec. 12 – Dec. 27, 2020	Zone 2: Camden*, Chowan*, Currituck, Gates, Pasquotank*, Perquimans
Nov. 14 – Nov. 22 and Dec. 12 – Dec. 27, 2020	Zone 3: Beaufort, Bertie, Craven, Hertford, Jones, Martin, Washington
Nov. 21 – Dec. 20, 2020	Zone 4: Edgecombe, Greene, Halifax, Lenoir, Nash, Northampton, Pitt, Wayne, Wilson
Nov. 9, 2020 – Jan. 1, 2021	Zone 5: Bladen, Brunswick, Carteret, Columbus, Cumberland, Duplin, New Hanover, Onslow, Pamlico (use of dogs for hunting bears prohibited in this county), Pender, Robeson, Sampson

* Per local law, bear season in these counties opens on Nov. 13.

Restrictions

It is unlawful to do any of the following:

- Take a cub (less than 75 pounds) or a female bear with cub(s).
- Hunt bear on a designated bear sanctuary. (See the information below on bear sanctuaries.)

Information on the use of dogs to hunt bears and the use of unprocessed foods is on pages 54–55, 65. Information about the bear cooperator program can be found under the Bear Seasons map on page 65.

Bear Sanctuaries

Bear may not be taken in those parts of counties included in the following sanctuaries:

- Bachelor Bay Bear Sanctuary
Bertie and Washington counties
- Columbus County Bear Sanctuary
Brunswick and Columbus counties
- Croatan Bear Sanctuary
Carteret, Craven and Jones counties
- Daniel Boone Bear Sanctuary (except by permit only)
Avery, Burke and Caldwell counties
- Dare Bear Sanctuary (except by permit only)
Dare and Hyde counties
- Fires Creek Bear Sanctuary
Clay County
- Flat Top Bear Sanctuary
Mitchell and Yancey counties
- Green Swamp Bear Sanctuary
Brunswick County
- Gull Rock Bear Sanctuary
Hyde County
- Harmon Den Bear Sanctuary
Haywood County
- Juniper Creek Bear Sanctuary
Brunswick and Columbus counties
- Mt. Mitchell Bear Sanctuary (except by permit only)
McDowell and Yancey counties
- North River Bear Sanctuary
Camden and Currituck counties
- Panthertown-Bonas Defeat Bear Sanctuary
Jackson County
- Pisgah Bear Sanctuary
Buncombe, Haywood, Henderson and Transylvania counties
- Pungo River Bear Sanctuary
Hyde County

- Rich Mountain Bear Sanctuary
Madison County
- Sherwood Bear Sanctuary
Haywood County
- Standing Indian Bear Sanctuary
Macon County
- Suggs Mill Pond Bear Sanctuary
Bladen and Cumberland counties
- Thurmond Chatham Bear Sanctuary
Alleghany and Wilkies counties
- Wayah Bear Sanctuary
Macon County

The following additional restrictions apply to bear sanctuaries:

- Dogs may not be used to pursue bear, except during permit hunts that allow hunting bear with dogs.
- It is unlawful to take feral swine on bear sanctuaries except during the deer archery season, deer blackpowder season, deer gun season and any small game season using only weapons and manner of take prescribed for that hunting season.
- Dogs may not be used to take feral swine.
- It is unlawful to train dogs or allow dogs to run unleashed on bear sanctuaries in and west of Madison, Buncombe, Henderson and Polk counties from March 1 until the Monday on or nearest Oct. 15.

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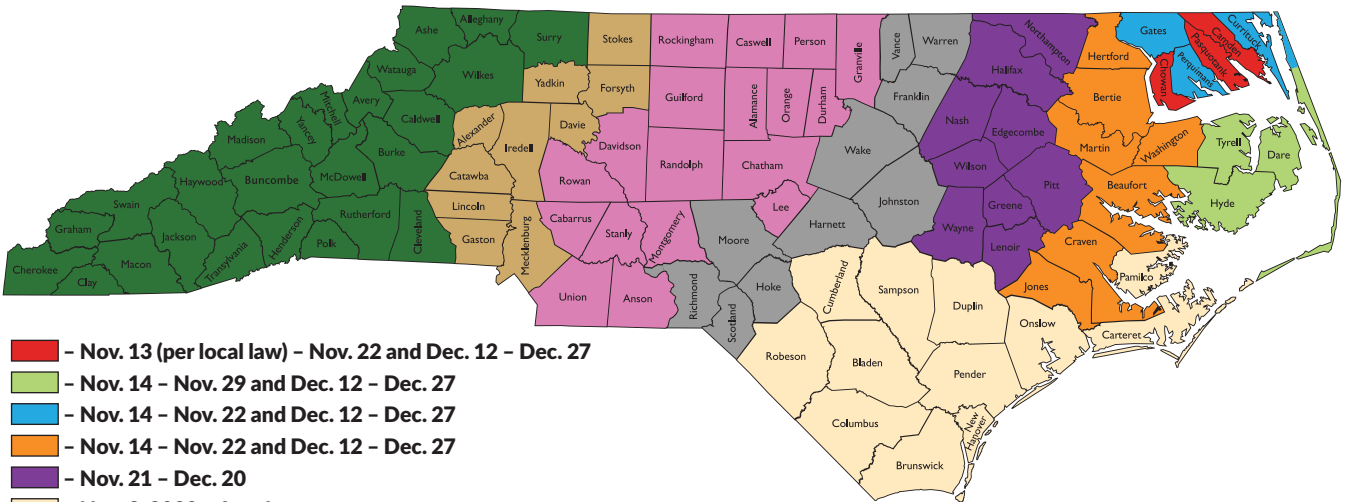
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2020-2021 Bear Seasons

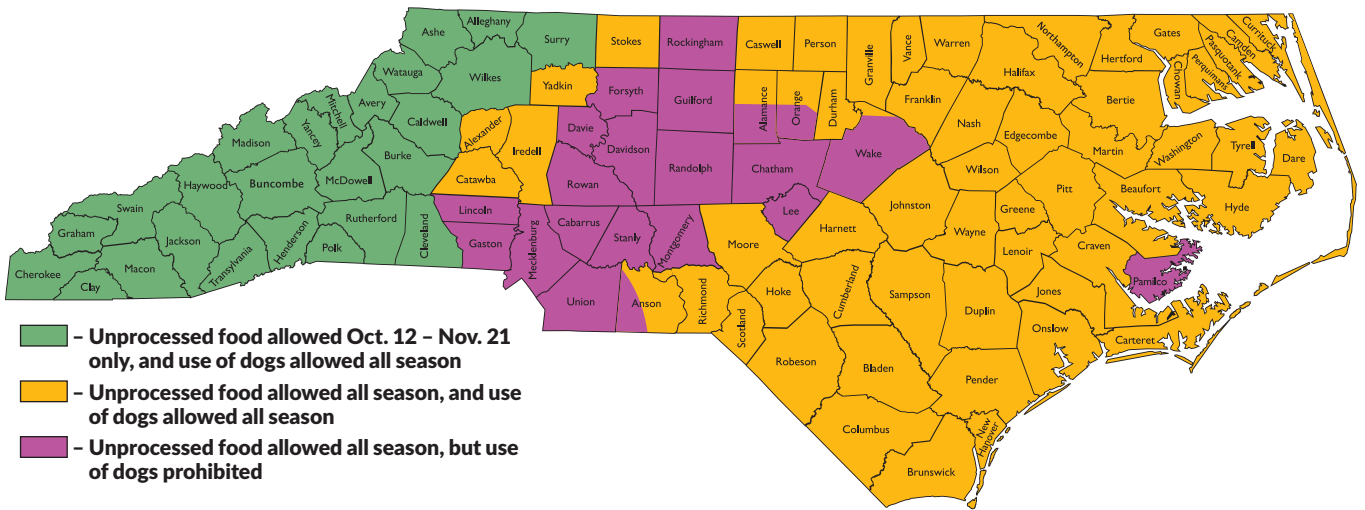


- - Nov. 13 (per local law) - Nov. 22 and Dec. 12 - Dec. 27
- - Nov. 14 - Nov. 29 and Dec. 12 - Dec. 27
- - Nov. 14 - Nov. 22 and Dec. 12 - Dec. 27
- - Nov. 14 - Nov. 22 and Dec. 12 - Dec. 27
- - Nov. 21 - Dec. 20
- - Nov. 9, 2020 - Jan. 1
- - Oct. 17 - Jan. 1
- - Nov. 14 - Jan. 1
- - Nov. 21 - Jan. 1
- - Oct. 12 - Nov. 21 and Dec. 14 - Jan. 1



Bear Hunters: Become a Bear Cooperator and receive a free, blaze orange hunting hat by submitting the premolars from your bear. Call 919-707-0050 or visit ncwildlife.org/bear for more information, including a video on how to remove the premolars.

Hunting Bear with Dogs and Using Unprocessed Foods



- - Unprocessed food allowed Oct. 12 - Nov. 21 only, and use of dogs allowed all season
- - Unprocessed food allowed all season, and use of dogs allowed all season
- - Unprocessed food allowed all season, but use of dogs prohibited

DOGS. Hunting bears with dogs is prohibited in the following counties or parts of counties: Alamance south of I-85, Anson west of N.C. Hwy 742, Cabarrus, Chatham, Davie, Davidson, Forsyth, Gaston, Guilford, Lee, Lincoln, Mecklenburg, Montgomery, Orange south of I-85, Pamlico (per local law), Randolph, Rockingham, Rowan, Stanly, Union, and Wake south of N.C. Hwy 98. In all other counties, hunting bears with the use of dogs is legal during open bear seasons, but restrictions may apply on game lands. See "Game Land" section for further information.

UNPROCESSED FOODS. Legal during the Monday on or nearest October 15 to the Saturday before Thanksgiving* in and west of Surry, Wilkes, Caldwell, Burke and Cleveland counties. In all other counties, unprocessed foods may be used to aid in taking of bear during any open season for bear.

* The prohibition against taking bears with the use and aid of bait does not apply to the release of dogs in the vicinity of any food source that is not a processed food product.

However, dogs may not be released in the vicinity of any commercially available mineral supplement whether placed for the purpose of attracting deer or otherwise.

It is unlawful:

- to take a bear while in the act of consuming unprocessed foods; or with use or aid of any animal, animal part or product, salt, salt lick, honey, sugar, sugar-based material, syrups, candy, pastry, gum, candy block, oils, spices, peanut butter, grease; or extract of such substances; or any substance modified by any of the above substances or extract of above substance; or any bear bait attractant, including scented sprays, aerosols, scent balls, and scent powders; or processed food products. Processed food products are any food substance or flavoring that has been modified by the addition of ingredients or by treatment to modify its chemical composition or form or to enhance its aroma or taste. This includes: food products enhanced by sugar, honey, syrups, oils, salts, spices, peanut butter, grease, meat, bones, or blood; candies, pastries, gum, and sugar blocks; and extracts of such products; and to place any sort of processed or unprocessed foods on game lands.

**Summary of results from Bear E-stamp Survey
2014-15 through 2019-20**

Table 1. Summary of the number of bear e-stamp holders and response rates to bear e-stamp survey.

Survey Year	# Bear e-stamp holders	# Paid Bear e-stamp holders	% included w/lifetime license	Estimated Bear e-Stamp revenue	% non-residents	# of Survey Respondents	Response Rate
2014-15	70,391	24,205 (34%)	66%	\$242,050	3.5%	31,292	44%
2015-16	79,743	28,185 (36%)	65%	\$281,850	3.5%	28,273	36%
2016-17	79,718	29,379 (37%)	63%	\$293,790	3.5%	31,292	39%
2017-18	83,151	31,608 (38%)	62%	\$316,080	3.6%	29,489	36%
2018-19	84,662	33,396 (39%)	61%	\$333,960	3.6%	30,188	37%
2019-20	85,012	33,024 (39%)	61%	\$330,240	3.8%	28,326	35%

Bear e-stamp Survey Questions

1. What is the most important reason you obtained the Bear e-Stamp? Check only one

Survey Year	% Didn't Know Had It	# Didn't Know Had It	% Included w/lifetime license - No bear hunting intentions	# Included w/lifetime license - No bear hunting intentions	% To hunt bears	# To hunt bears
2014-15	n/a	n/a	40.5%	28,514	59.5%	41,877
2015-16	7.1%	5,625	24.4%	19,469	68.5%	54,649
2016-17	5.1%	4,049	25.3%	20,161	69.6%	55,508
2017-18	4.5%	3,759	25.1%	20,886	70.4%	58,507
2018-19	4.5%	3,834	23.8%	20,164	71.7%	60,664
2019-20	3.3%	2,810	23.8%	20,192	72.9%	62,009



North Carolina Wildlife Resources Commission (NCWRC) Bear e-Stamp Holder Survey

Attention Bear e-Stamp holder: The NCWRC is conducting this survey to help us make the best management decisions for black bears and bear hunters. Please take a few minutes to complete this important questionnaire, **even if you did not hunt for bears during the 2019 season.**

«First_Name» «Middle_Name» «Last_Name» «Suffix»
 «Address_1_»
 «Address_2_»
 «City» «State_» «Zip» «Zip_4»

WRC Customer Number:
 «WRCcustomernumber»



Your response is very important. Your response will help us determine the annual number of active bear hunters in North Carolina and hunter success rates by harvest method. Your information will also help us determine if changes in harvest levels are due to changes in hunting methods, the number of bear hunters, or actual changes in the bear population. This information will assist us in evaluating both current and future regulations and statutes, as well as management options.

We appreciate you taking an active part in the management of North Carolina's wildlife resources.

Please complete the following bear e-Stamp Holder survey and return it in the enclosed business reply envelope, or complete the survey online at, ncwildlife.org/bearsurvey by using the following access code:

<<WRC_#>>

Sincerely,

A handwritten signature in black ink, appearing to read "Colleen".

Colleen Olfenbittel, Black Bear and Furbearer Biologist



2019 Bear e-Stamp Holder Survey

It is important that you complete and return this survey even if you did not hunt or harvest a bear.

1. What is the most important reason you obtained the Bear e-Stamp? **Check only one**

24% It was free with my lifetime license (if purchased prior to July 1, 2014), but I did not intend to hunt bears.

3% I did not know I was issued a Bear e-Stamp until I received this survey.

If you checked one of the boxes above, skip Question 2 and please proceed to Question 3.

73% I obtained the Bear e-Stamp, so that I could legally hunt and/or kill a bear during the past 2018 season.

2. Which of these two statements best described your hunting plans for the past 2019 season?

30% I usually hunt bears every year and planned on hunting bears in 2019.

70% I usually don't hunt bears in North Carolina, but planned on hunting bears during the 2018 season because **(check all that apply)**:

60% I might see a bear while hunting other game species.

19% there are more bears where I hunt.

15% I had the opportunity to bear hunt ((examples include a friend invited you, you got access to hunting land with bears, etc.)

6% Bears causing property damage.

5% Other reason

3. Do you consider yourself a bear hunter? **26%: Yes** **74%: No**

4. Have you hunted specifically for bears in North Carolina before the **2019** season?

39%: Yes **61%: No**

5. Which *best* describes your bear hunting efforts during the **2019** season:

53% I hunted specifically for other game species (deer, feral hogs, squirrel, etc...), but may have taken a bear had I seen one.

33% I did not hunt for bears during the 2019 season.

14% I hunted specifically for bear.

6. Are you a commercial bear hunting guide for other hunters? **1%: Yes** **99%: No**

7. Are you a hunting party leader for other bear hunters? **6%: Yes** **94%: No**

8. Hunting by County (skip this question if you did not specifically hunt for bears during the 2019 season):

Still/Stand Hunting Results:

Bear Management Unit	Est. # of hunters	Number of <u>Days</u> You Hunted	Reported Harvest	Effort (Harvest/Days)	Success Rate
CBMU	4,310	26,701	807	3.02	19%
MBMU	1,658	10,216	216	2.11	13%
PBMU	402	3,046	20	0.66	5%

Dog Hunting Results:

Bear Management Unit	Est. # of hunters	Number of <u>Days</u> You Hunted	Reported Harvest	Effort (Harvest/Days)	Success Rate
CBMU	3,761	32,348	974	3.01	26%
MBMU	2,213	29,632	471	1.59	21%
PBMU	40	172	3	1.67	7%

9. Did you harvest a bear during the 2019 season:

- 1%**: Yes, while hunting specifically for other game **5%**: Yes, while hunting specifically for bear
94%: No, I did not harvest a bear

10. If you harvested a bear during the 2019 season, which hunting method did you use to harvest your bear during the 2019 season?

- 31%**: Still or Stand Hunt *with* aid of bait* **25%**: Dog Hunt *with* aid of bait*
18%: Still or Stand Hunt *without* aid of bait **26%**: Dog Hunt *without* aid of bait

*bait means unprocessed foods, such as corn, peanuts, and sweet potatoes.

11. Please select from the following to describe why you harvested your particular bear:

- 39%**: Bear was large enough for me
22%: My first bear harvested **7%**: Last opportunity for me to harvest a bear for the season
12%: Only bear I had the opportunity to harvest **6%**: Other
9%: First bear I saw while hunting **5%**: Targeted commonly-seen bear

2. Which of these two statements best described your bear hunting plans for the past season?

Note: Only respondents answering that they planned on hunting bears in question 1 were asked this question.

Survey Year	I usually hunt bears every year and planned on hunting bears this past season	I usually don't hunt bears in North Carolina, but planned on hunting bears during this past season
2014-15	n/a	n/a
2015-16	n/a	n/a
2016-17	67.5%	32.5%
2017-18	67.0%	33.0%
2018-19	66.4%	33.6%
2019-20	70.0%	30.0%

3. Do you consider yourself a bear hunter?

Survey Year	Percent that self-identify as a bear hunter	Est. # of self-identified bear hunters
2014-15	n/a	n/a
2015-16	n/a	n/a
2016-17	27.6%	21,973
2017-18	27.1%	22,513
2018-19	26.5%	22,050
2019-20	25.9%	22,059

4. Have you hunted specifically for bears in North Carolina *before*?

Survey Year	Percent that had not hunted bears before
2014-15	54.0%
2015-16	61.4%
2016-17	60.6%
2017-18	60.6%
2018-19	60.5%
2019-20	60.9%

5. Which *best* describes your bear hunting efforts during the most recent season:

Survey Year	# got bear e-stamp to hunt bears	Did not hunt bears	Hunted for other game species, but may have taken a bear if seen ¹	Est. # of opportunistic bear hunters ¹	Hunted specifically for bear ²	Est. # of self-identified bear hunters	Est. # of active bear hunters ²
2014-15	41,877	34.0%	50.7%	35,688	15.3%	n/a	10,758
2015-16	54,649	40.4%	45.1%	35,991	14.5%	n/a	11,542
2016-17	55,508	36.0%	49.9%	39,751	14.1%	21,973	11,238
2017-18	58,507	35.3%	49.9%	41,487	14.8%	22,513	12,302
2018-19	60,664	34.6%	51.0%	42,382	14.4%	22,050	12,008
2019-20	62,009	33.3%	52.7%	44,802	14.0%	22,059	11,866

¹ Hunting other game, but may take bear if seen

² Hunting specifically for bears

6. Are you a commercial bear hunting guide for other hunters? **1%: Yes 99%: No**

7. Are you a hunting party leader for other bear hunters? **6%: Yes 94%: No**

8. Hunting by County (*skip this question if you did not specifically hunt for bears during the season*)

This question used to determine method of hunt, use of bait, and effort by BMU.

Table 2. Estimated number of hunters and percent of hunters using still or dog hunting methods by BMU from 2017-18 season through 2019-20 season.

Year	MBMU				CBMU				PBMU			
	Est. # hunters		% of method		Est. # hunters		% of method		Est. # hunters		% of method	
	Dog	Still/Stand	Dog	Still/Stand	Dog	Still/Stand	Dog	Still/Stand	Dog	Still/Stand	Dog	Still/Stand
2017	2,501	1,623	61%	39%	4,296	4,668	48%	52%	68	417	14%	86%
2018	2,510	1,733	59%	41%	3,893	4,449	47%	53%	50	347	13%	87%
2019	2,213	1,658	57%	43%	3,761	4,310	47%	53%	40	402	9%	91%

Table 3. Estimated effort and success rate by method of hunt in each BMU from 2016-17 season through 2019-20 season. Note: The higher the effort number, the less number of days it took to harvest a bear.

Year	MBMU				CBMU				PBMU			
	Effort		Success Rate		Effort		Success Rate		Effort		Success Rate	
	Dog	Still/ Stand	Dog	Still/ Stand	Dog	Still/ Stand	Dog	Still/ Stand	Dog	Still/ Stand	Dog	Still/ Stand
2016	1.75	1.06	18%	7%	3.79	1.56	24%	10%	1.09	0.15	9%	2%
2017	1.71	2.10	23%	14%	3.65	3.08	29%	19%	1.14	0.26	8%	3%
2018	1.51	2.83	20%	18%	3.06	3.55	25%	21%	2.74	0.46	11%	4%
2019	1.59	2.11	21%	13%	3.01	3.02	26%	19%	1.67	0.66	7%	5%

9. Did you harvest a bear during the season:

	2016	2017	2018	2019
Yes, while hunting specifically for <u>other game</u>	1.0%	1.2%	0.9%	0.9%
Yes, while hunting specifically for <u>bear</u>	4.5%	5.8%	5.2%	4.9%
No, I did not harvest a bear	94.5%	93.3%	93.9%	94.2%

10. If you harvested a bear during the season, which hunting method did you use to harvest your bear during the season?

	2016	2017	2018	2019
Still or Stand Hunt <i>with</i> aid of bait*	26.5%	29.3%	32.1%	31.2%
Still or Stand Hunt <i>without</i> aid of bait	14.9%	15.9%	17.5%	17.6%
Dog Hunt <i>with</i> aid of bait	24.5%	25.6%	24.8%	24.9%
Dog Hunt <i>without</i> aid of bait	31.3%	29.3%	25.7%	26.3%

*bait means unprocessed foods, such as corn, peanuts, and sweet potatoes.