Status & Management of Black Bears in NC
2016 Bear Forum Presentation

So What is Tonight About?

1. Briefly review the NC Black Bear Management Plan.
2. Share data and information about our bear populations.
3. Describe development of “Zones” in the Coastal Bear Management Unit.
4. Discuss with hunters the status and opportunities regarding bear hunting rules, seasons, future needs and desires.
5. Get input from you on the future of bear management!

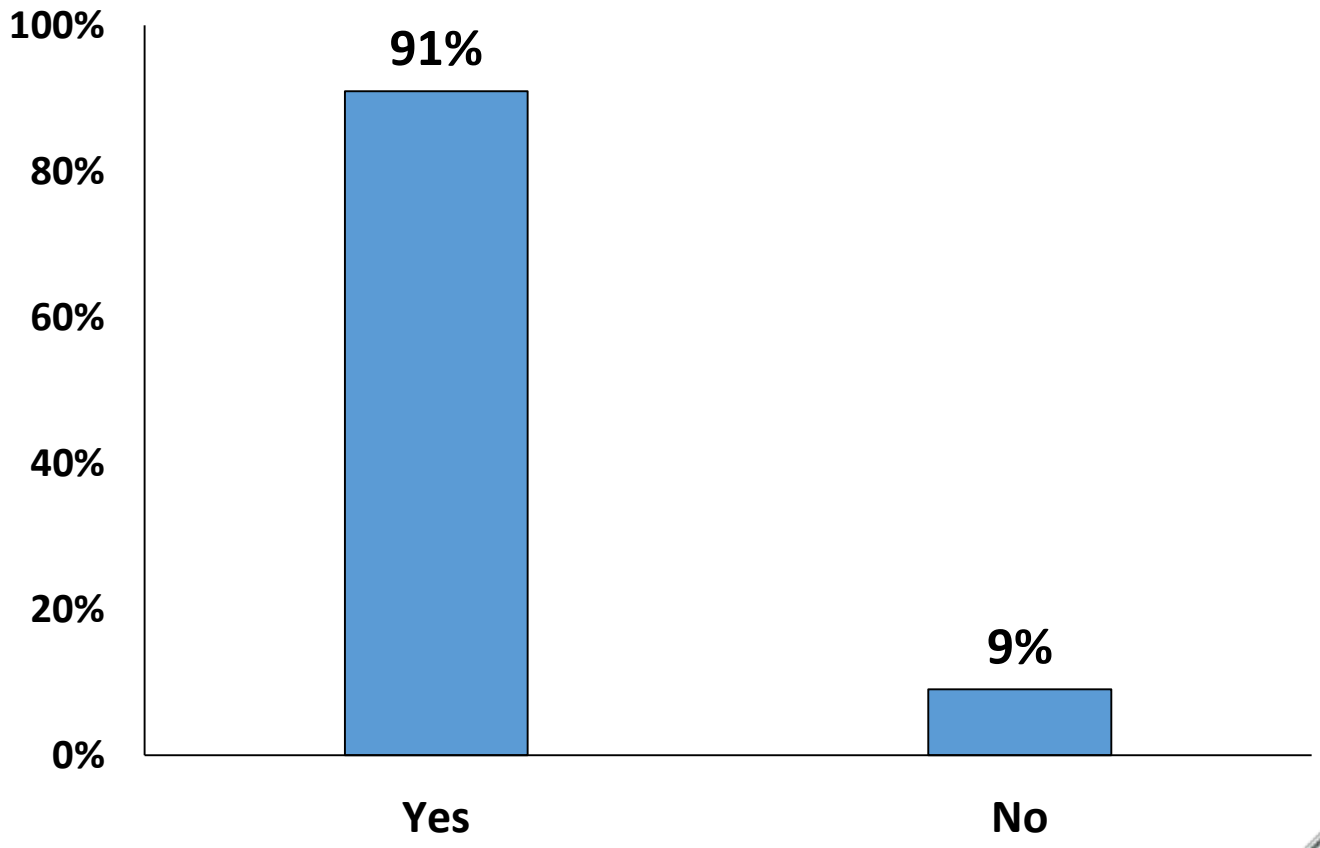
NORTH CAROLINA Wildlife RESOURCES COMMISSION

We are going high tech!

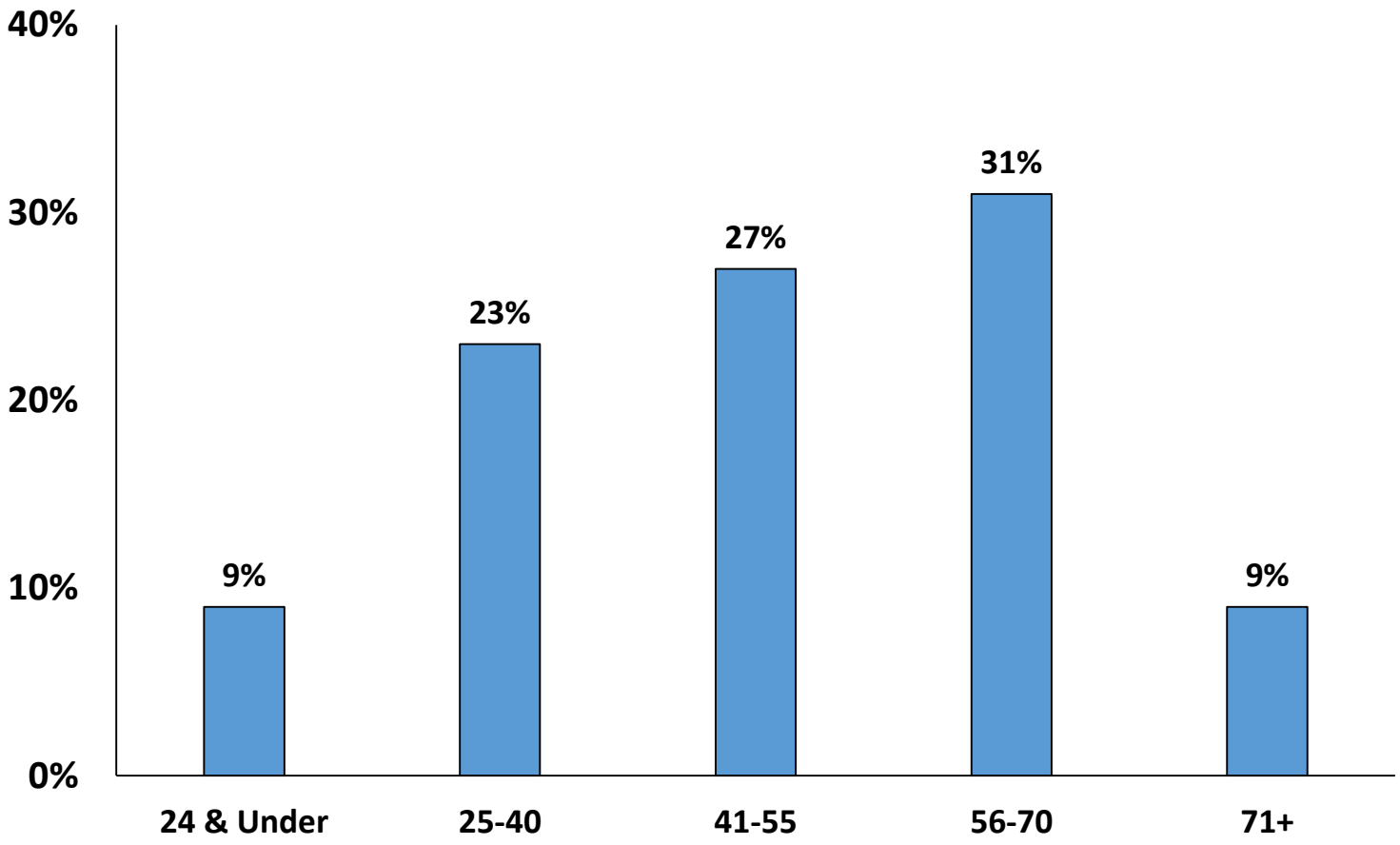
Each attendee was given an electronic device that they could use to anonymously answer questions throughout the night. The statewide summary of audience answers are included in this presentation.

NORTH CAROLINA Wildlife RESOURCES COMMISSION

Are you a hunter? (for any species)

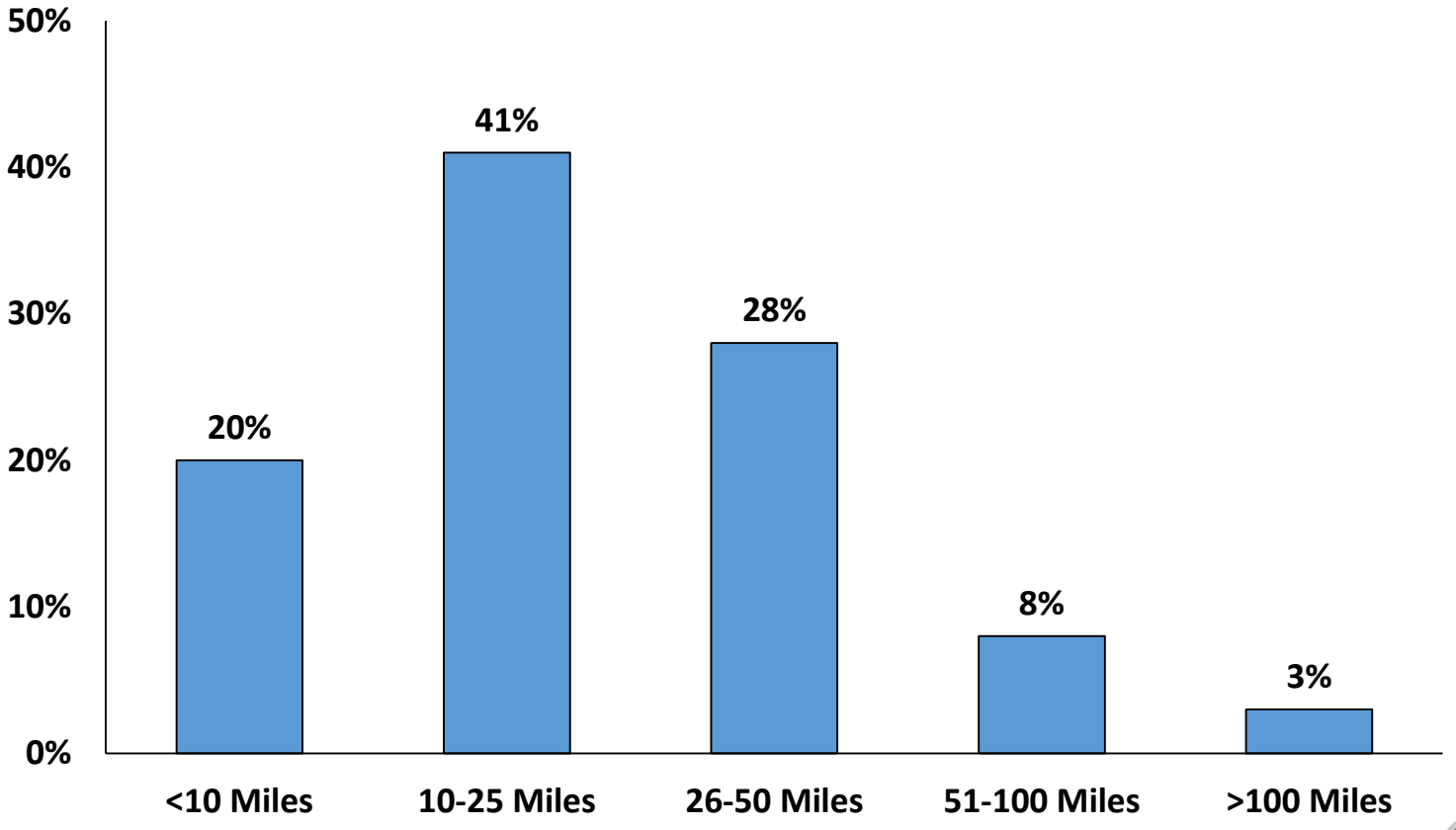


Please tell us your age range…



NORTH CAROLINA Wildlife RESOURCES COMMISSION

How far did you travel to get to this meeting?



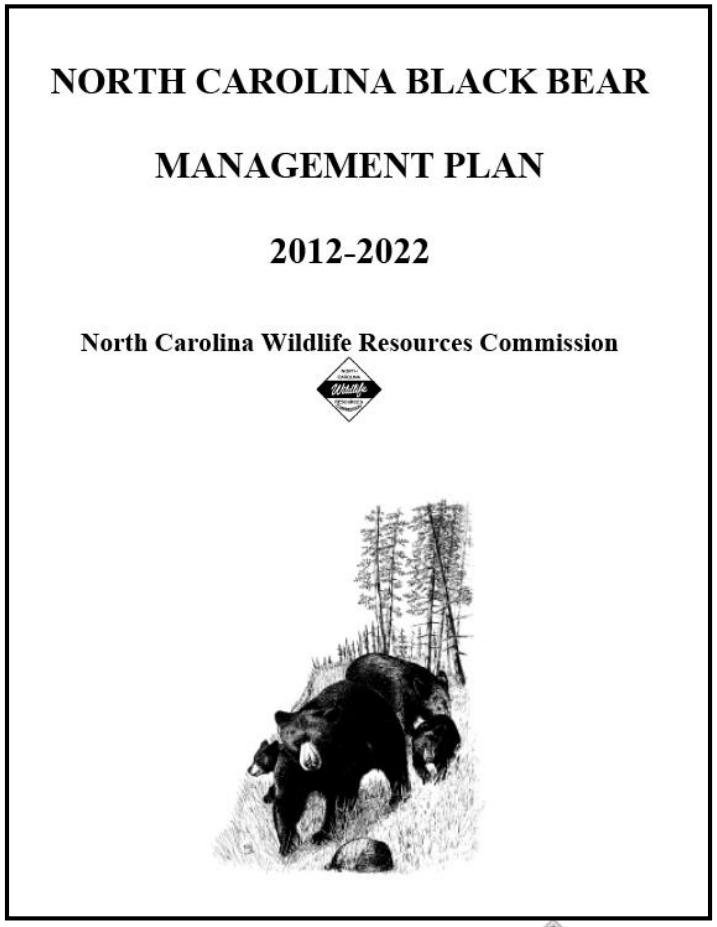
NORTH CAROLINA Wildlife RESOURCES COMMISSION

Review of North Carolina Black Bear Management Plan

Plan Approach

- History
- Current Status
- Future management

- Biologically-sound principles
- Formalizes Process:
  - Goal
  - Objectives
  - Addressing bear issues

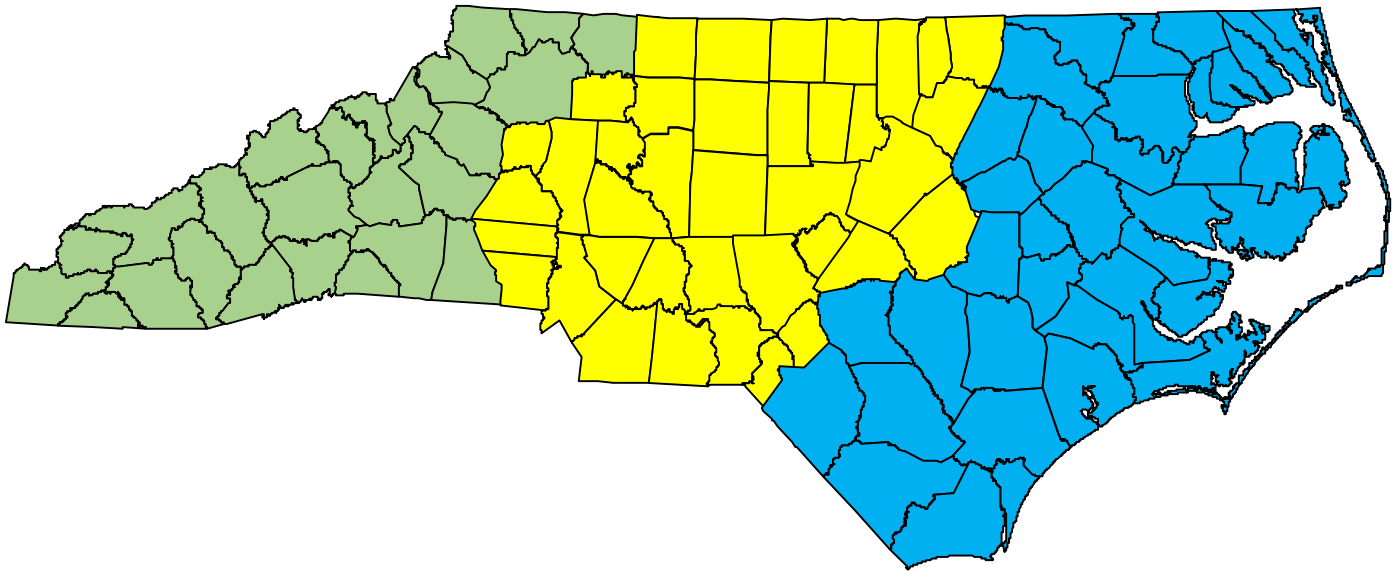


Plan Goal

"Use science-based decision making and biologically-sound management principles to manage black bear populations in balance with available habitats and human expectations to assure long-term existence and hunting opportunities."

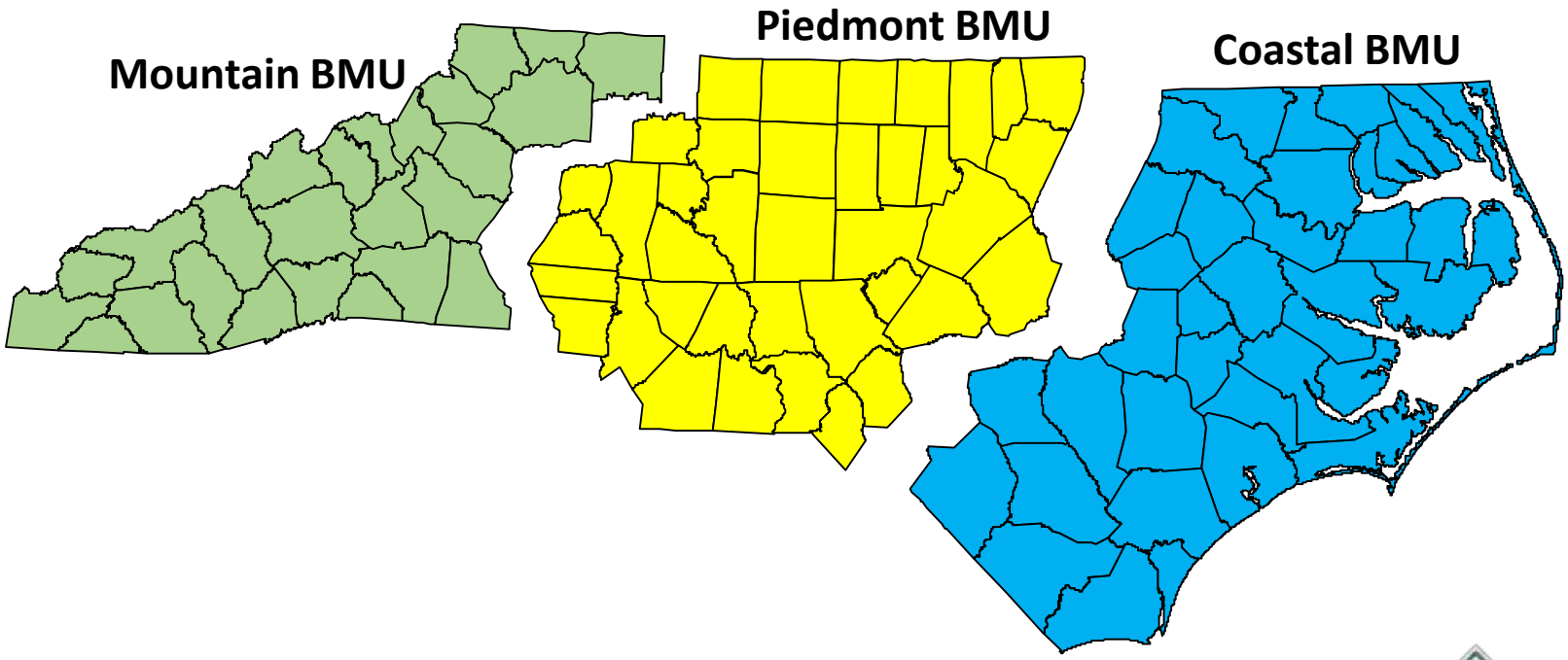
Plan Objectives

Seven Statewide Management Objectives



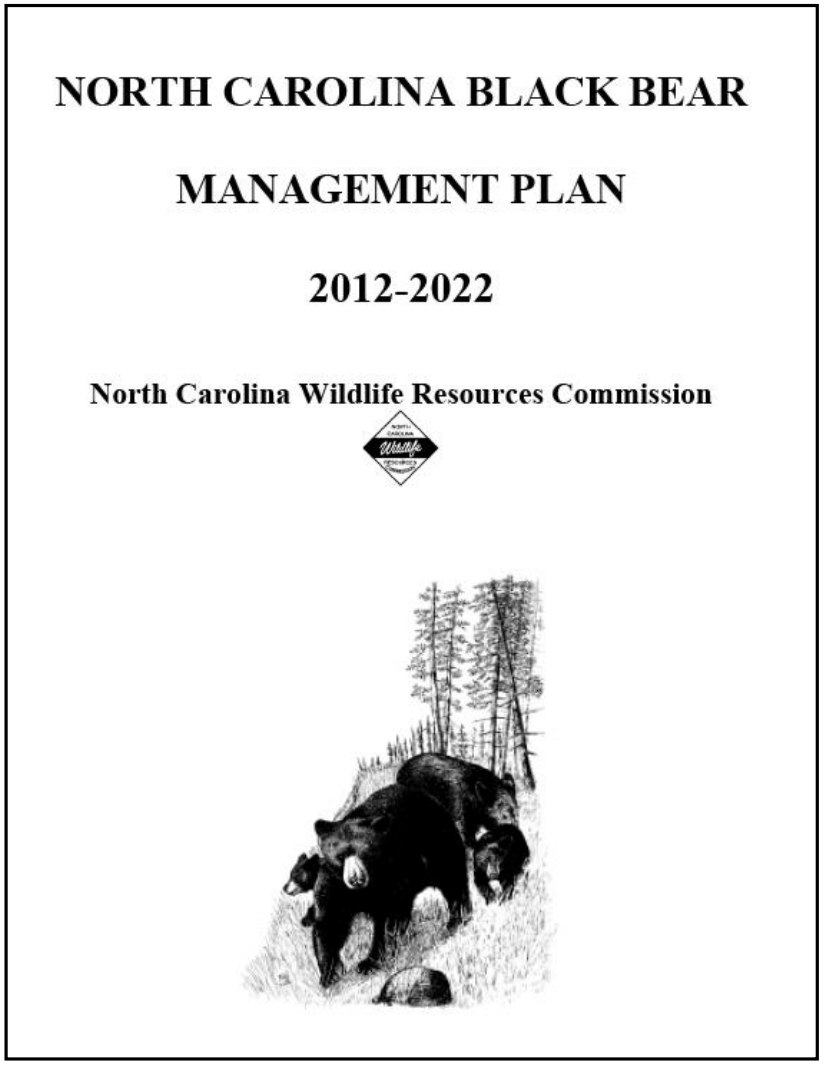
NORTH CAROLINA Wildlife RESOURCES COMMISSION

The Plan Identifies Three Regional Black Bear Management Units (BMU)



Population objectives were developed for each unit.

NORTH CAROLINA Wildlife RESOURCES COMMISSION



www.ncwildlife.org/bear

NORTH CAROLINA Wildlife RESOURCES COMMISSION

Review of North Carolina Bear Population Data and Information

What are “Data”?

Facts or information (measurements or statistics) used to calculate, analyze, or plan something.

Examples:

Number of bears harvested

Number of Hunters

Square miles of huntable land in each county

NORTH CAROLINA Wildlife RESOURCES COMMISSION

Where Do We Get Our Data?

Most of it comes from you, our Bear Hunters!

NORTH CAROLINA Wildlife RESOURCES COMMISSION

We know we send you lot's of stuff……

North Carolina Wildlife Resources Commission (NCWRC)
Black Bear Hunter 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 2015 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 hel
of active bear hunters in North Carolina and hunter success
information will also help us determine if changes in harvest
hunting methods, the number of bear hunters, or actual chang
information will assist us in evaluating both current and future re
as management options.

Your answers are completely confidential.

We appreciate you taking an active part in the management of North
resources.
**Please complete the following black bear hunter survey a
enclosed business reply envelope.**

Sincerely,

Colleen Olfenbuttel, Black Bear and Furbearer Biologist

This report card is valid for the 2014-15 hunting season. Refer to your license before hunting to ensure your license(s) is valid.

WRC Customer #: 7612765
Big Game Harvest Report Card

- Punch or cut the appropriate crossbar symbol before hunting the animal from the site of kill.
- All harvests must be reported within 24 hours.
- Harvest must be reported BEFORE the animal is delivered for dismemberment for consumption.
- Report harvest by phone (844-466-8463), online (ncwildlife.org), or by Wildlife Cooperator Agent (list available for county and small archery stores).
- Record authorization number on the dashed line beside the appropriate crossbar symbol.
- Record all information requested before reporting.
- If the animal is to be checked by one reporting it must be checked with your name, WRC customer number and date of kill.
- Antlerless is defined as does and button bucks.

Harvest ID #7612765820 — Bear - Not Required to Harvest a Sex, Size or Age Specific Bear (Report Harvest)

Harvest ID #7612765810 — Antlered or Antlerless Deer - Statewide
Harvest ID #7612765811 — Antlered or Antlerless Deer - Statewide
Harvest ID #7612765812 — Antlerless Deer - Statewide
Also valid for antlered deer in Eastern Season
Harvest ID #7612765813 — Antlerless Deer - Statewide
Also valid for antlered deer in Eastern Season

Harvest ID #7612765814 — Antlerless Deer - Statewide
Harvest ID #7612765815 — Antlerless Deer - Statewide
Harvest ID #7612765840 — Wild Turkey - Male or Bearded Only
Harvest ID #7612765841 — Wild Turkey - Male or Bearded Only

Attention Bear Hunters
Become a Black Bear Cooperator!

Help us monitor our bear population by submitting the upper pre-molar teeth from your bear.
We will send you a complementary blaze orange "North Carolina Black Bear Cooperator" ball cap and enter you in a drawing for a prize!
For more information, go to www.ncwildlife.org/bear and click the "Cooperator Program" tab or call 919-707-0050.

Envelop Flap

NCWRC –BEAR TOOTH RETURN ENVELOPE

We need the premolar tooth from all bears, young & old, big & small. You will receive a blaze orange cooperator hat & the age of your bear.

If you need assistance, call (919) 707-0050 to get contact information for your local biologist. A video showing how to remove the tooth is available at: …org/bear

1ST PREMOLAR (PULL THIS TOOTH)

…BEAR COOPERATOR PROGRAM

…MER # *(found on your hunting license)*:

STATE:

☐ Party Leader, ☐ Both

…OF KILL:

…EMALE

…land ☐ Game land

…ESSED

☐ Muzzleloader ☐ Bow

…mber:

…e:

Why Do We Need Data?

We need data to effectively measure, monitor, and manage our bear populations.

- Monitor Population trends
- Determine effects of hunting regulations
- Manage people (response, defense of hunting, etc.)

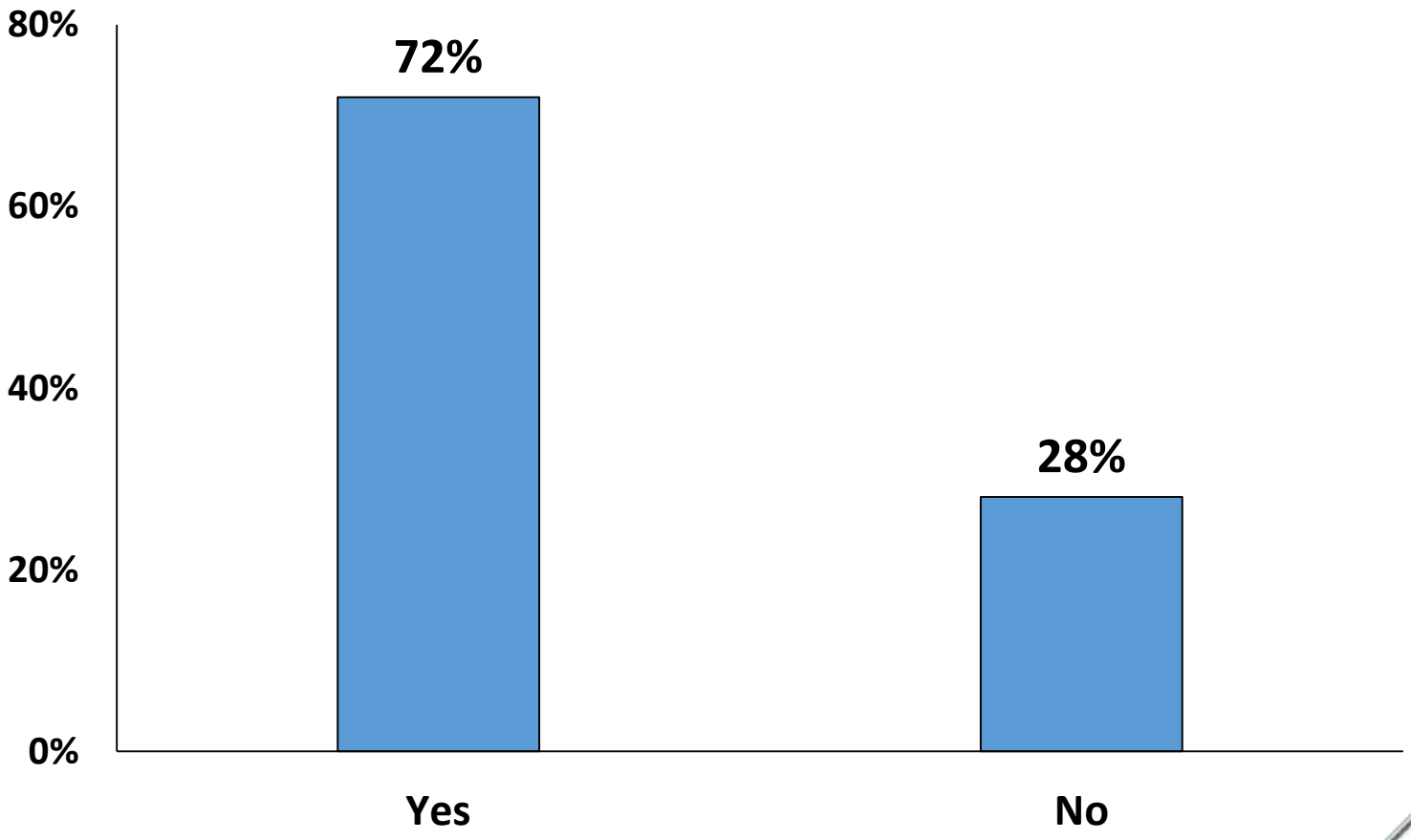
NORTH CAROLINA Wildlife RESOURCES COMMISSION

We’re working for you, so please:

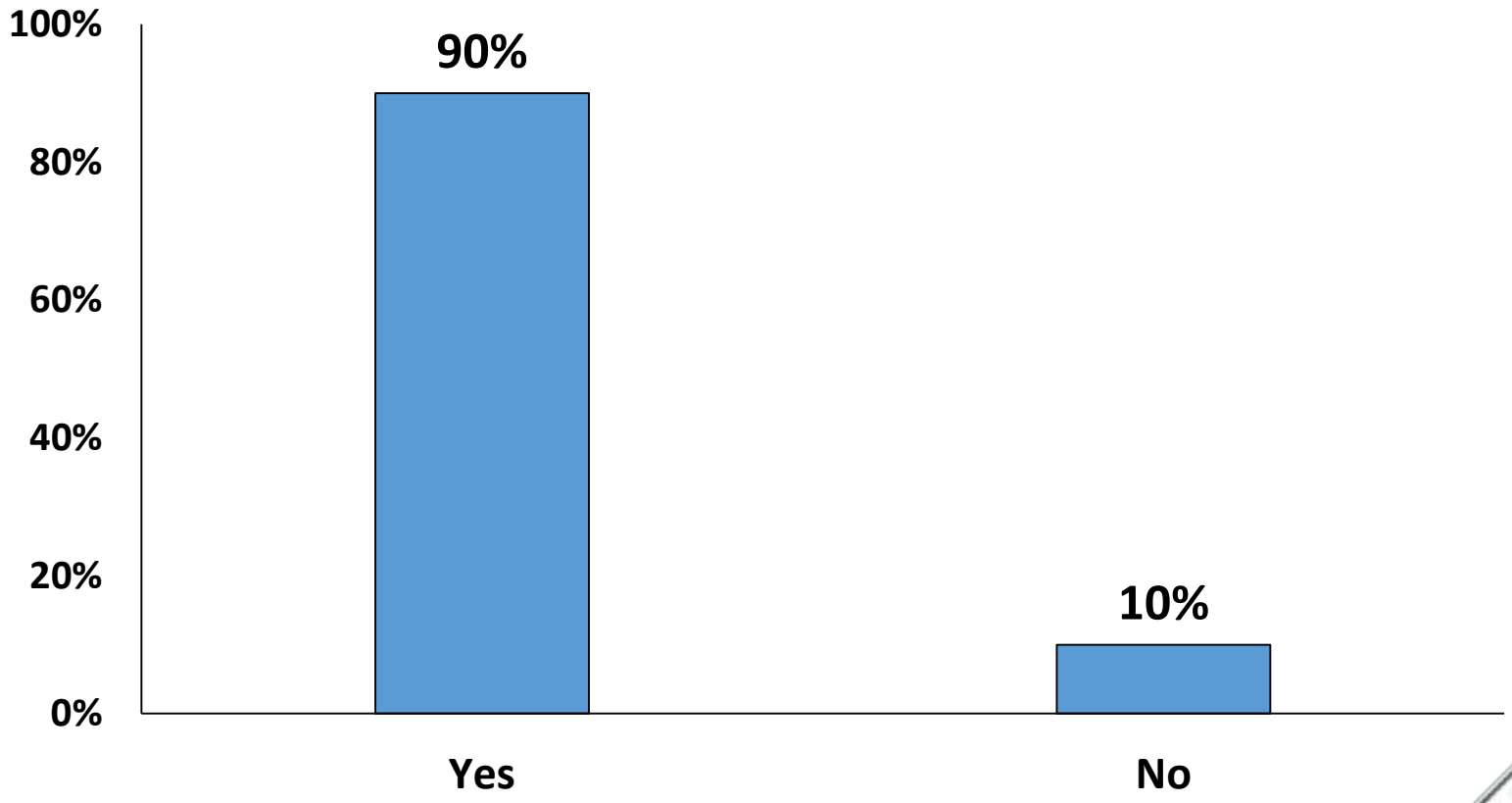
- Report your bear harvest
- Respond to mail surveys
- Submit a tooth from the bear you harvest

NORTH CAROLINA Wildlife RESOURCES COMMISSION

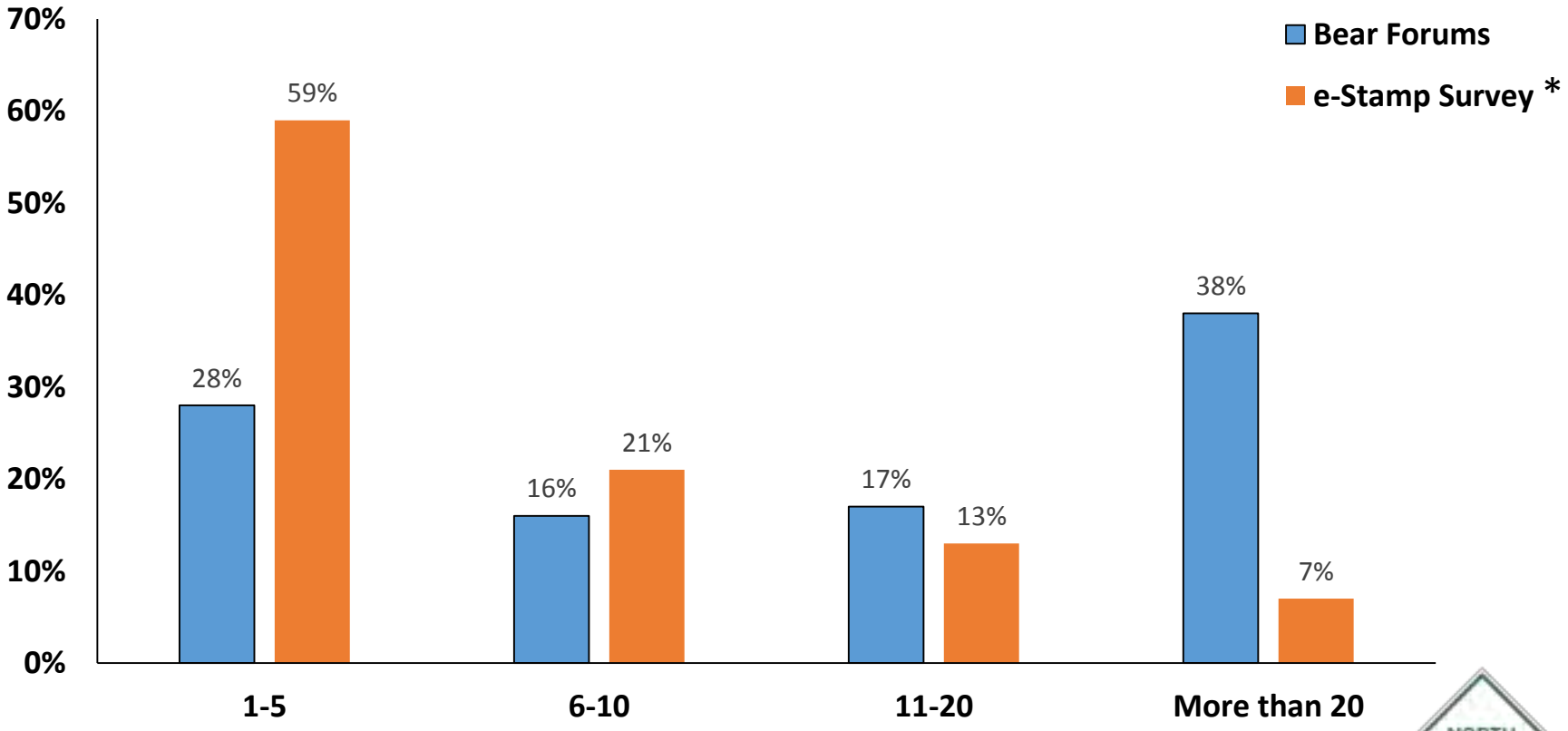
Do you consider yourself a bear hunter?



If you are a bear hunter, do you hunt species other than bear?



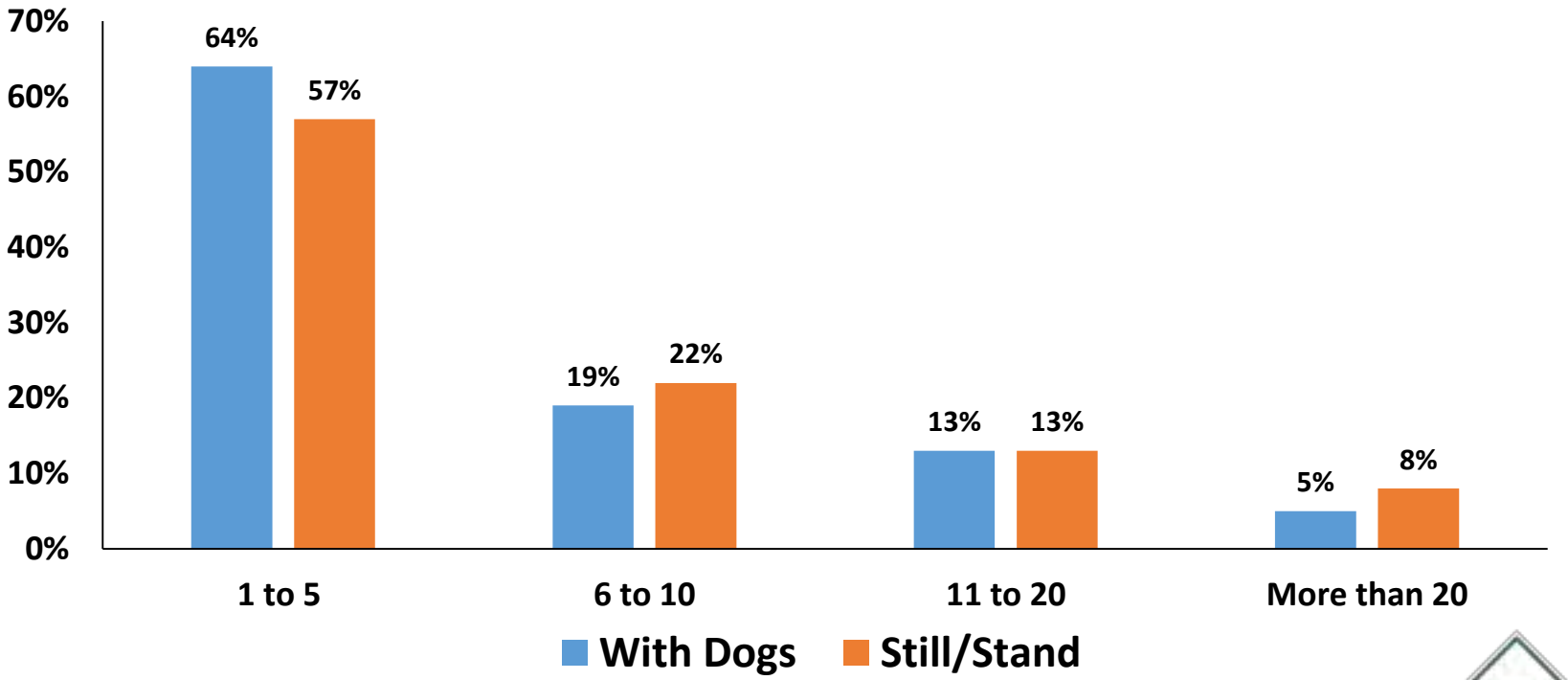
If you hunt, on average, how many days do you hunt bear each year?



*e-Stamp Survey – Survey of all NC bear e-Stamp license holders

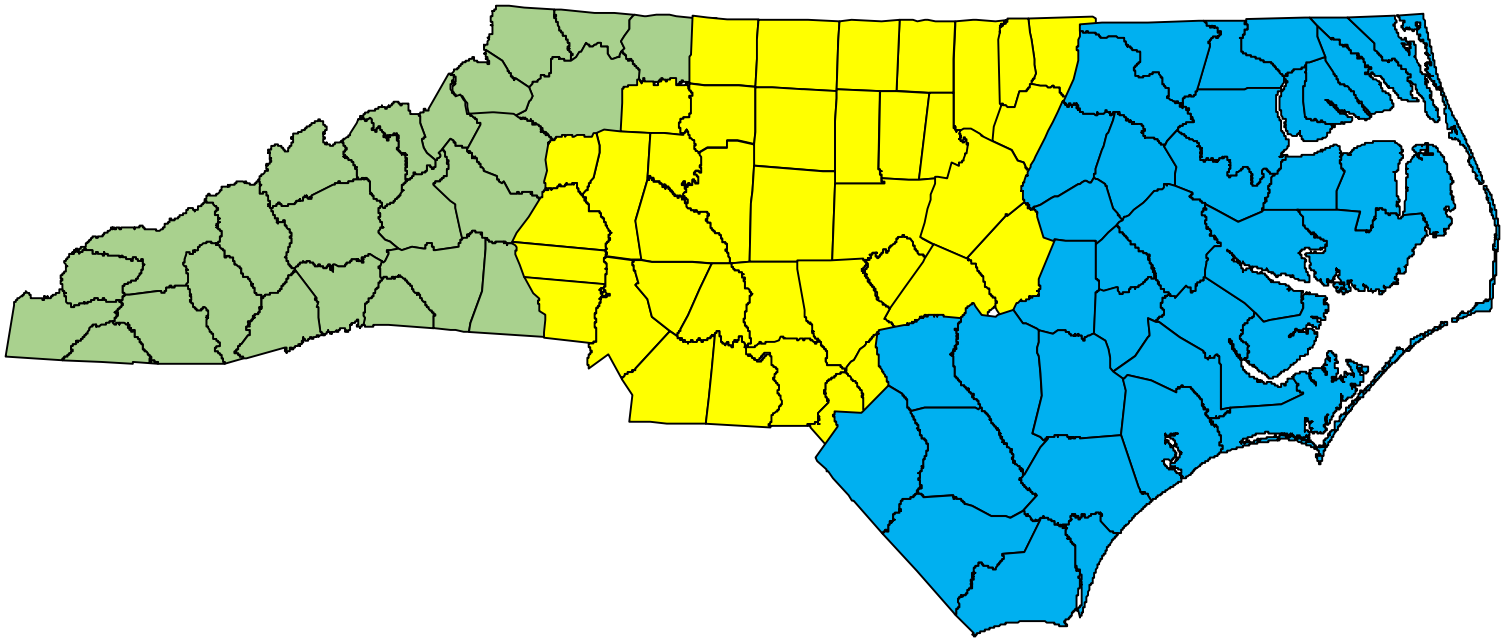
How many days did you hunt bears?

(2015 e-Stamp Survey)



NORTH CAROLINA Wildlife RESOURCES COMMISSION

Statewide Harvest Data



NORTH CAROLINA Wildlife RESOURCES COMMISSION

What do you think the statewide bear harvest was in 2015?

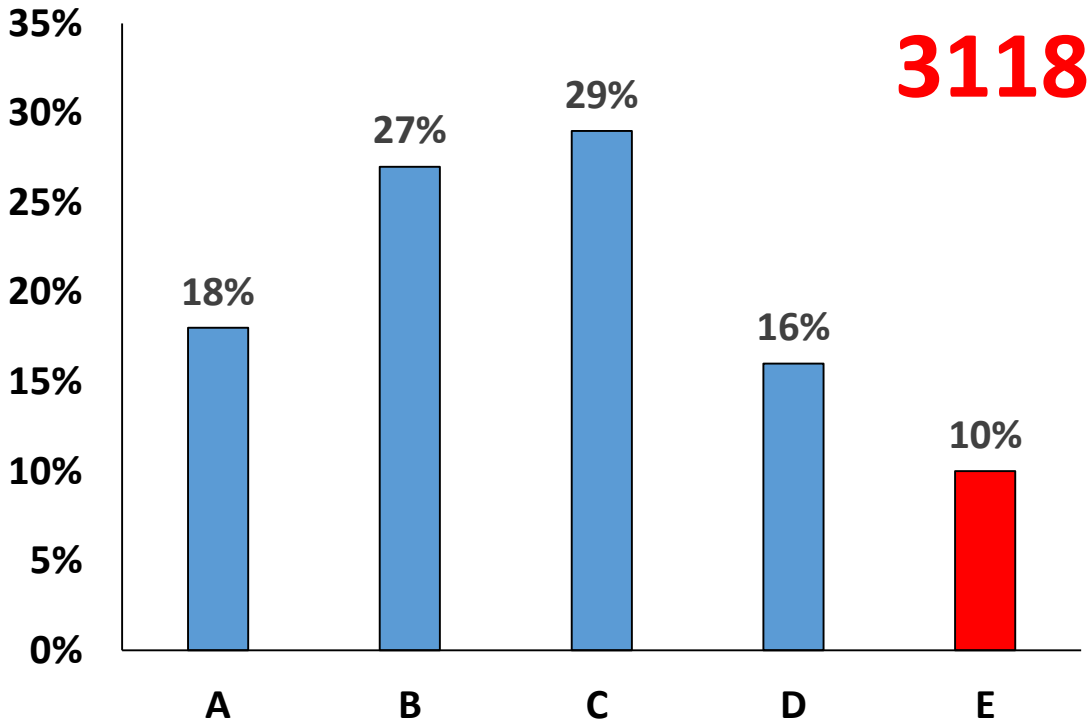
A. < 500

B. 500 - 1000

C. 1000 - 2000

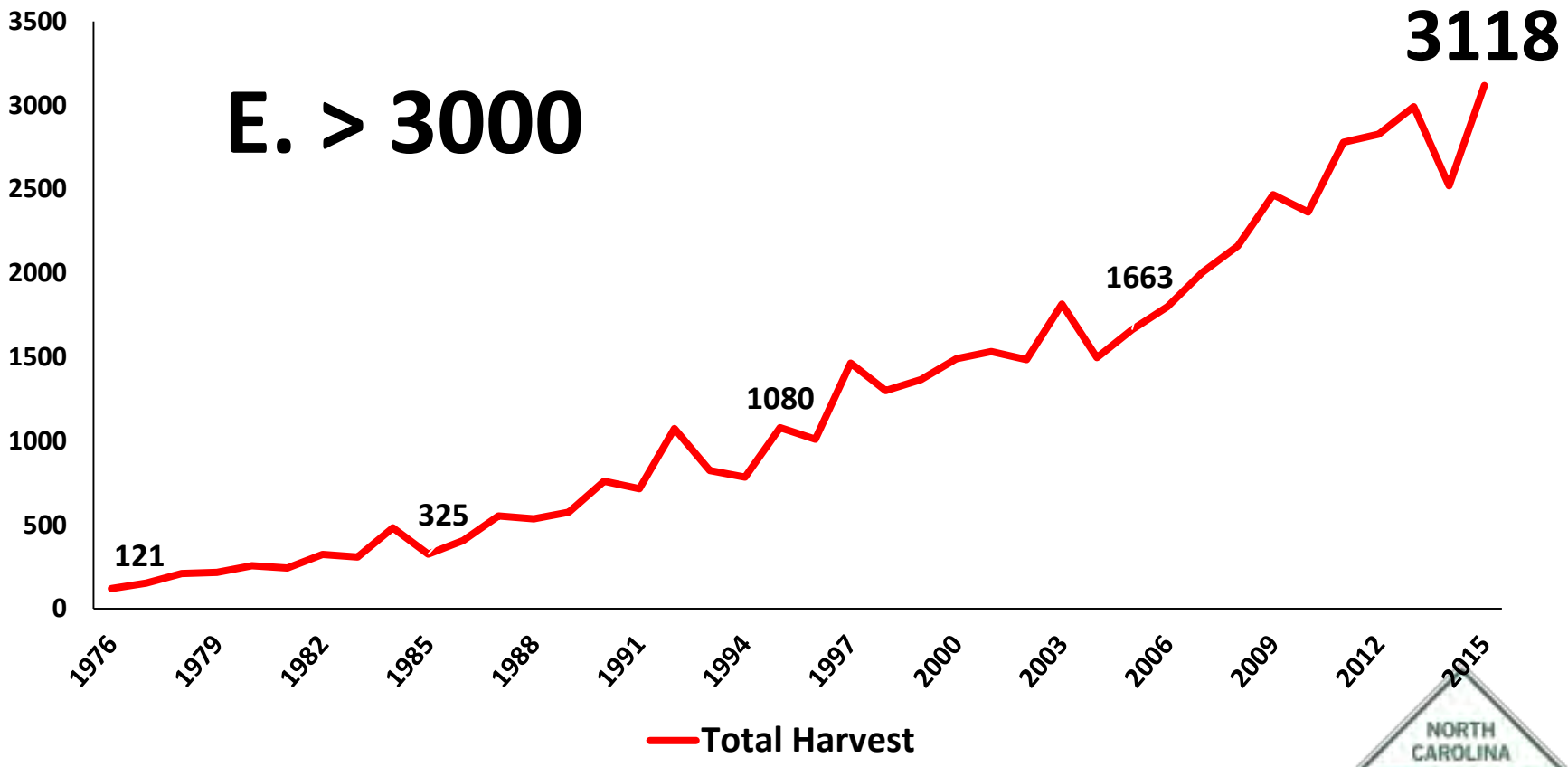
D. 2000 – 3000

E. > 3000

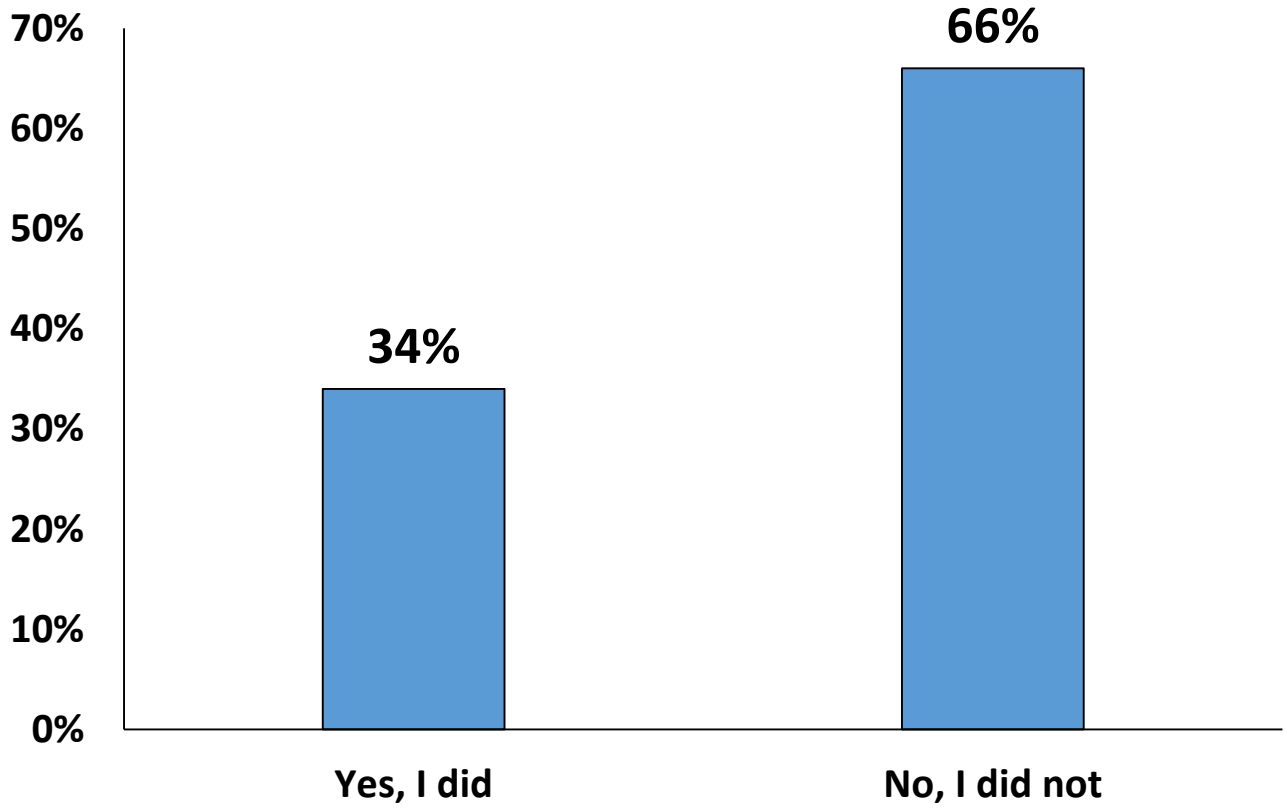


3118

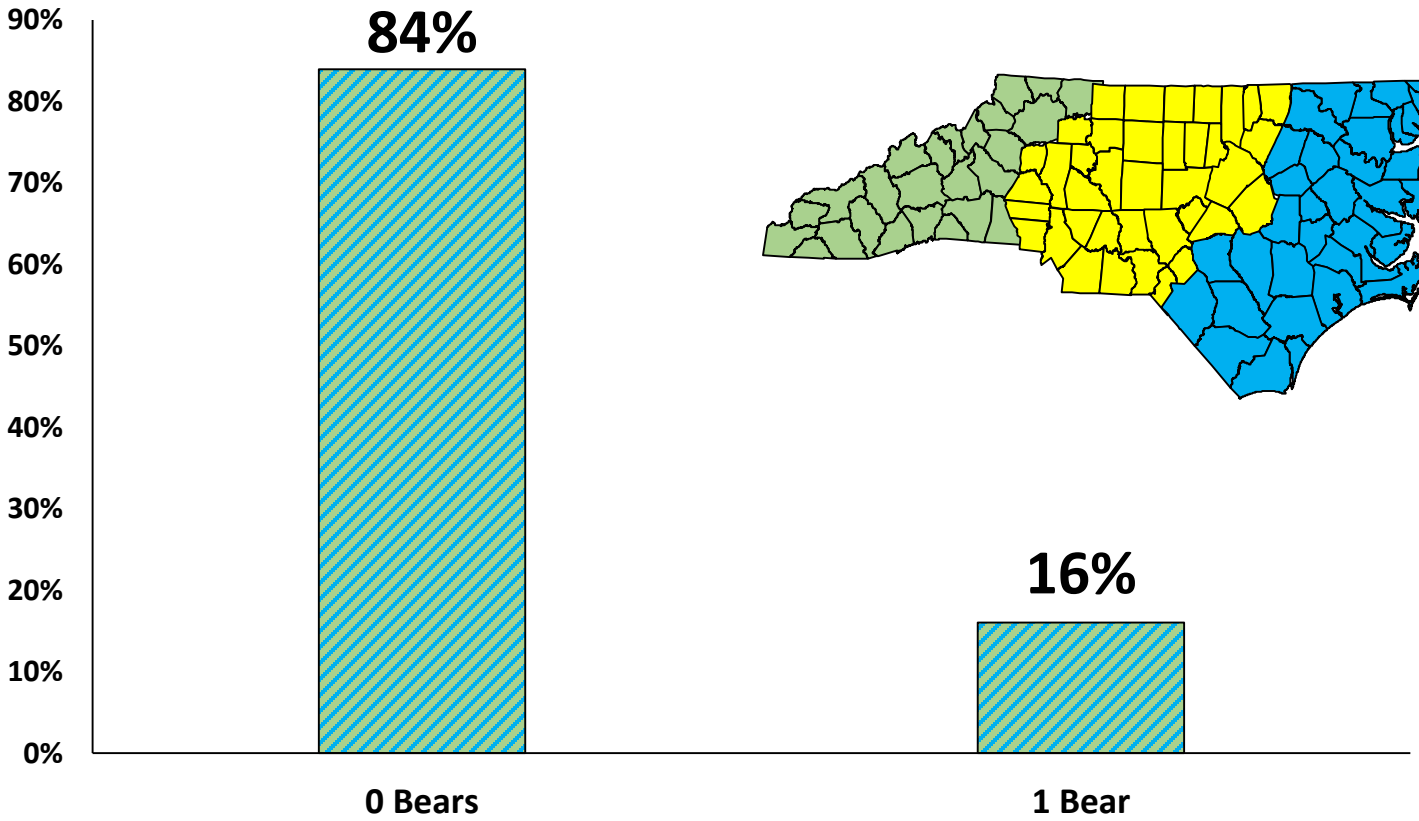
2015 Statewide Black Bear Harvest

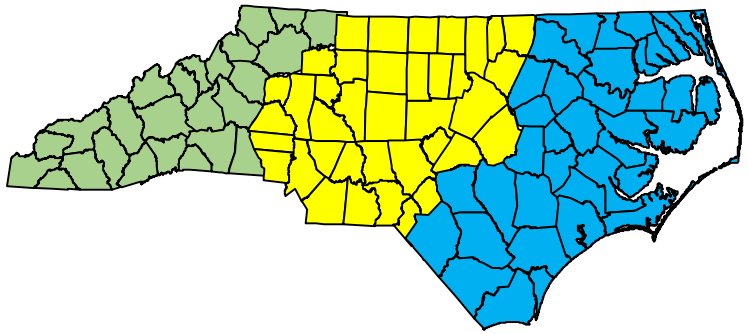


If you bear hunted last season, did <u>you</u> kill a bear?



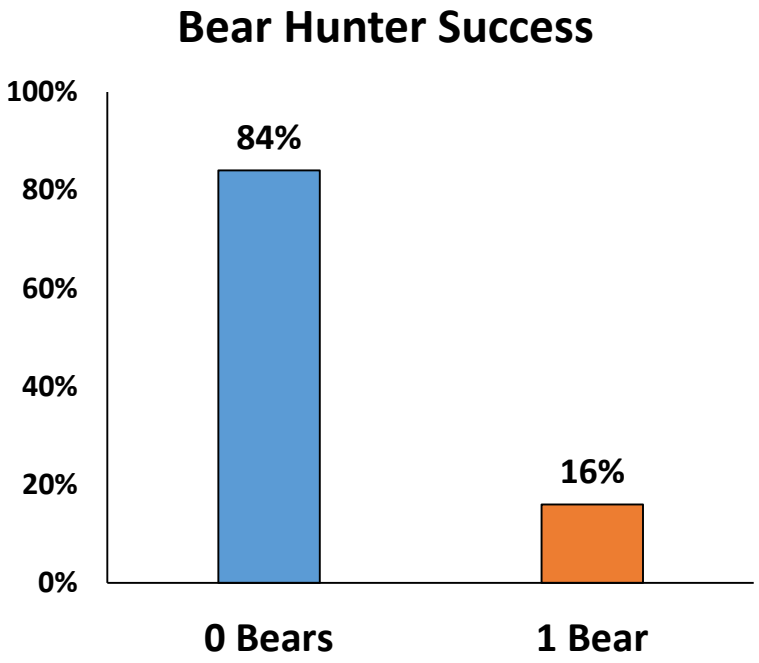
2014-2015 Hunter Harvest Survey
Hunter Success Statewide

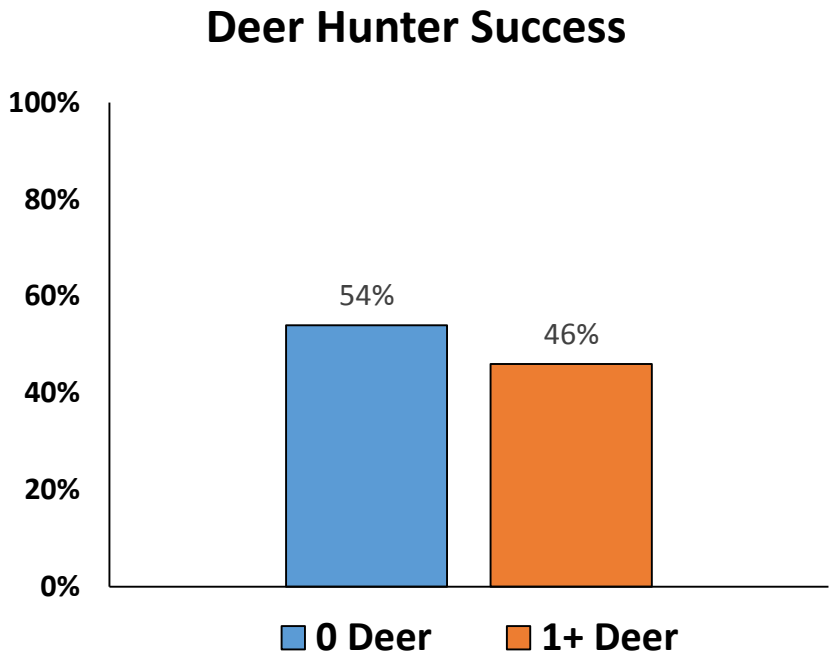




NORTH CAROLINA Wildlife RESOURCES COMMISSION

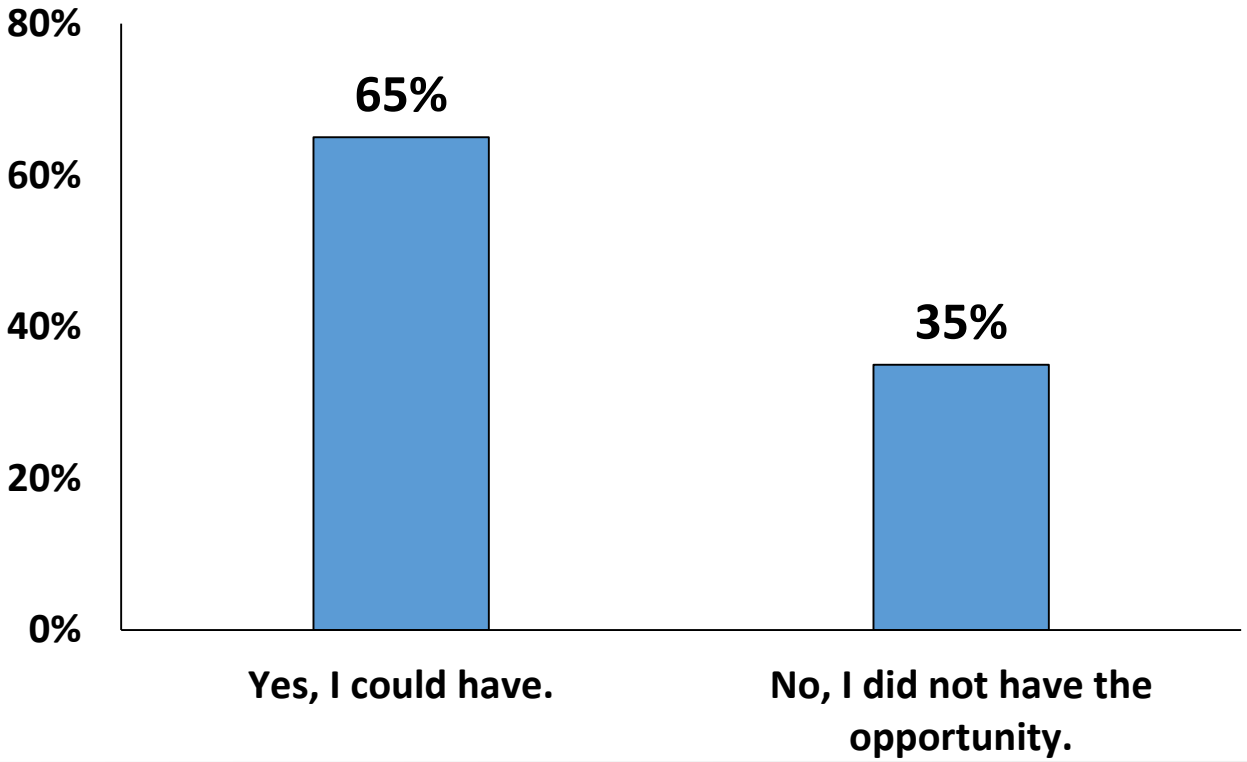
Statewide Hunter Success #s





NORTH CAROLINA Wildlife RESOURCES COMMISSION

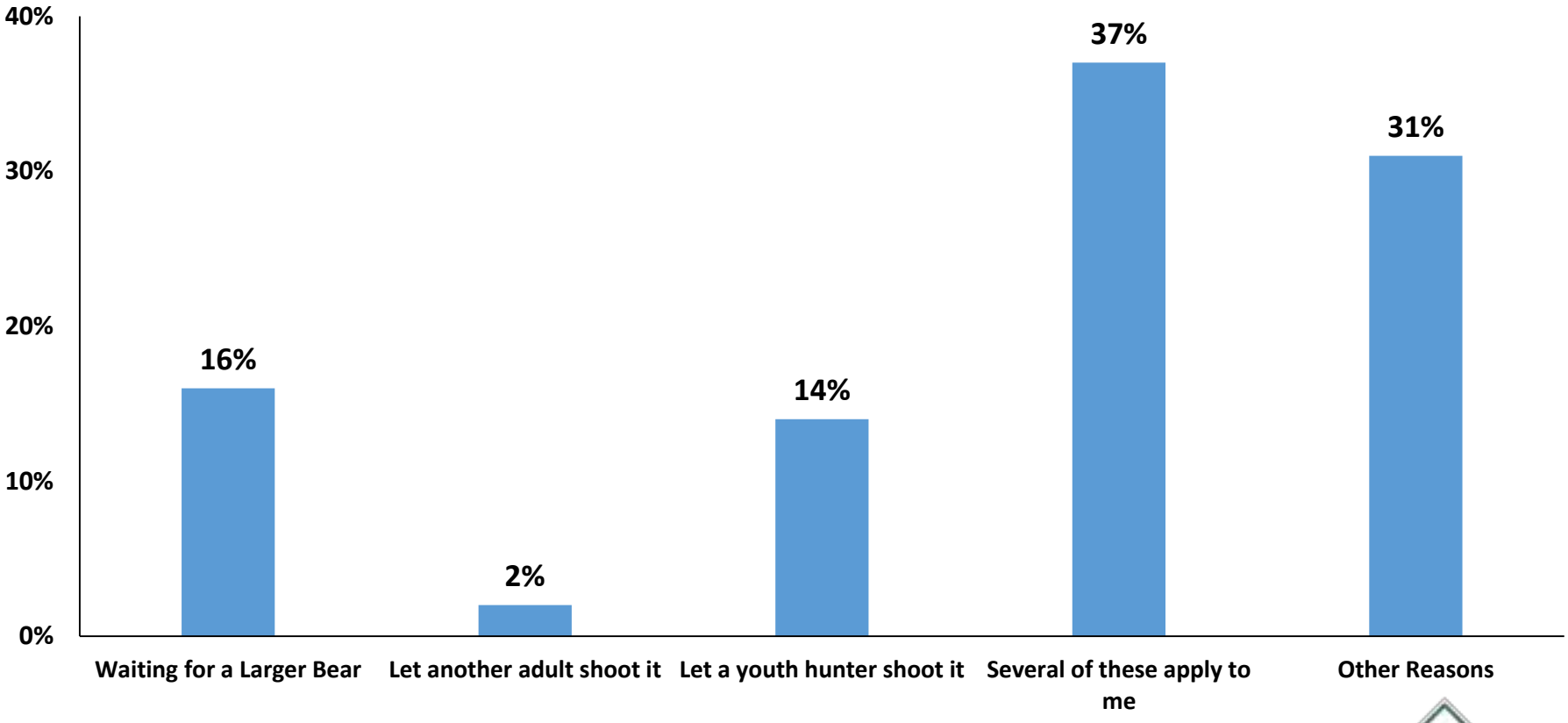
If you bear hunted last season, could you have killed a bear but chose not to shoot it?



If you chose not to shoot, Why?

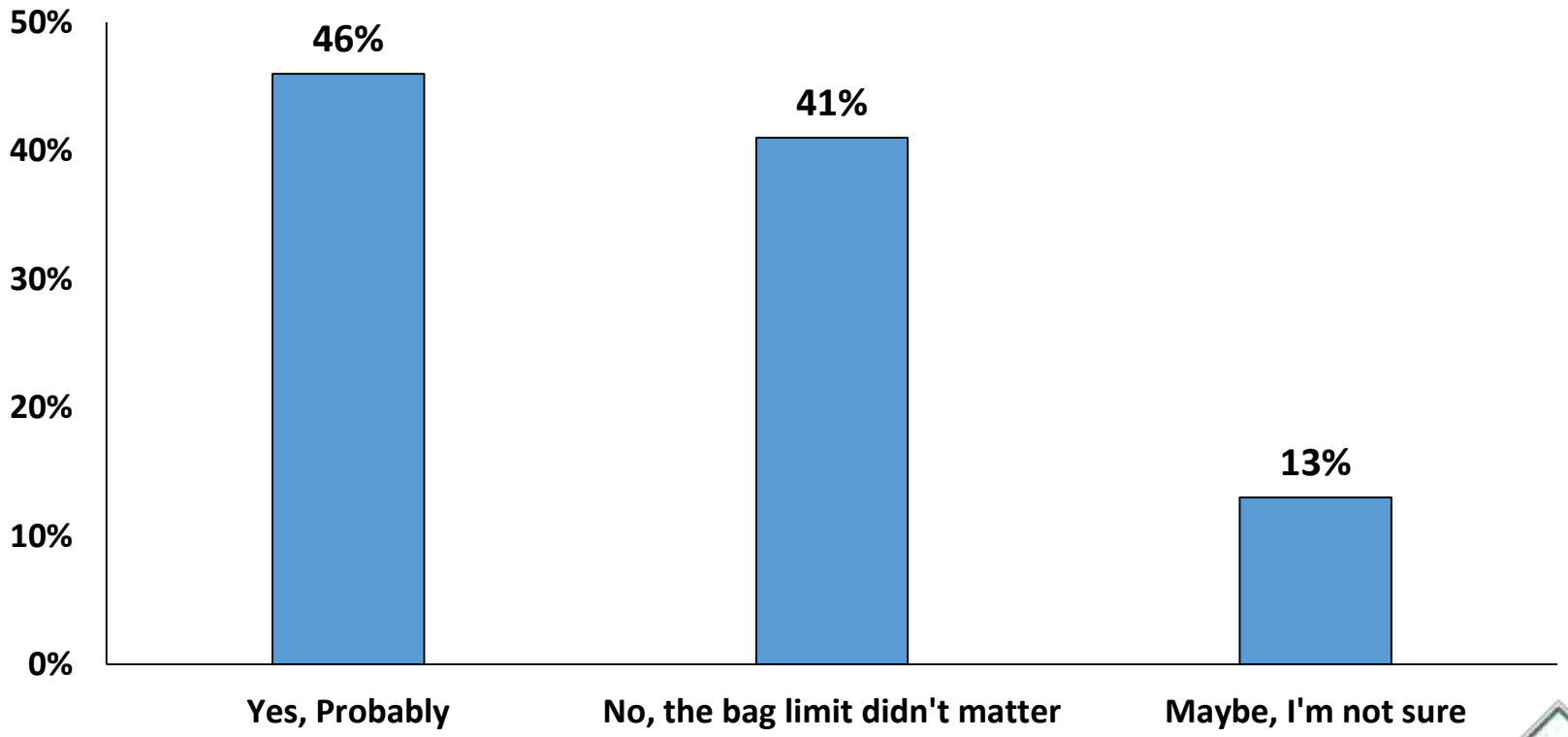
A. I was waiting for a larger bear (saving my “tag”).
B. I let another adult shoot it.
C. I let a youth hunter shoot it.
D. Several of these applied to me.
E. Other reasons.

If you chose not to shoot, why?



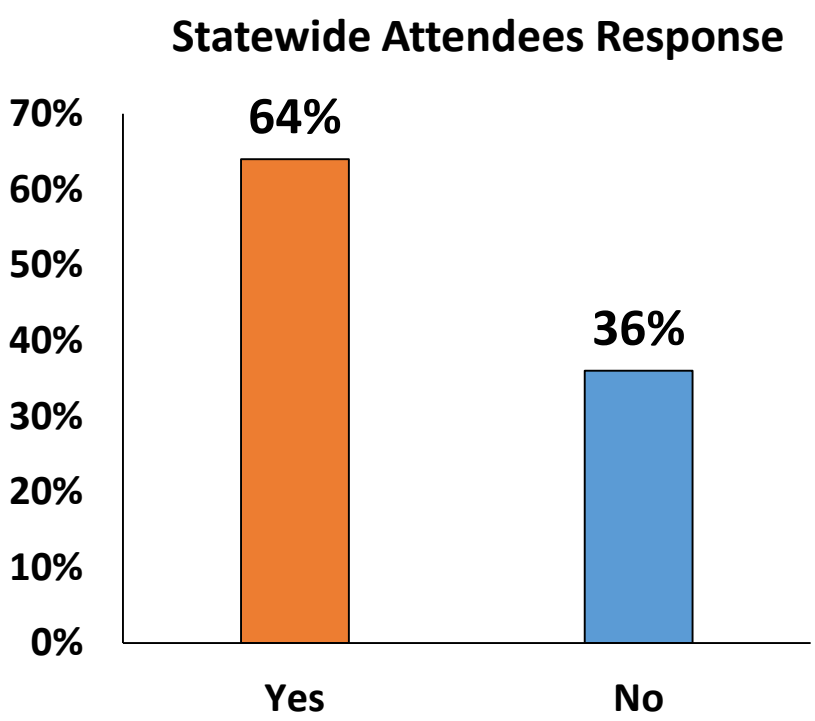
NORTH CAROLINA Wildlife RESOURCES COMMISSION

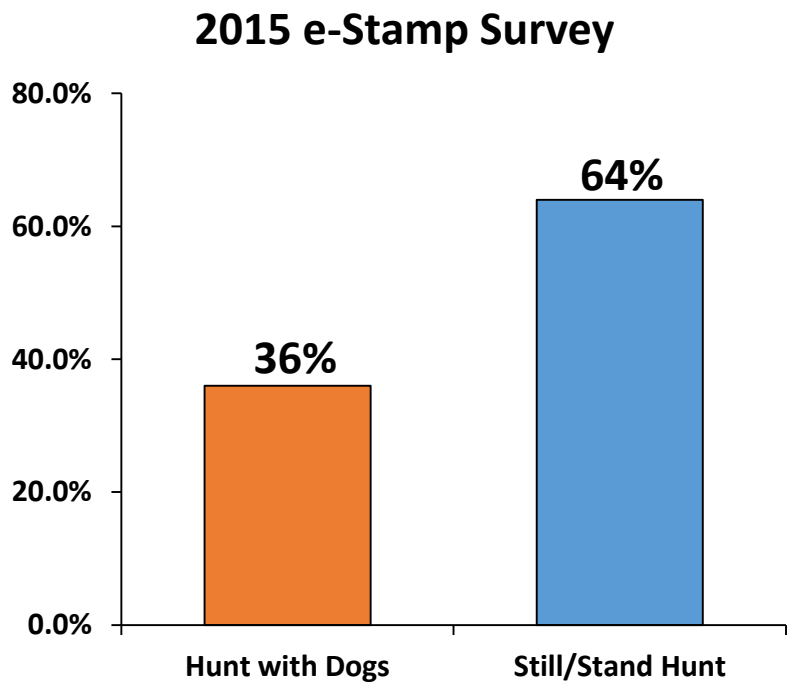
If your bag limit had been two bears, would you have chosen to shoot a bear?



NORTH CAROLINA Wildlife RESOURCES COMMISSION

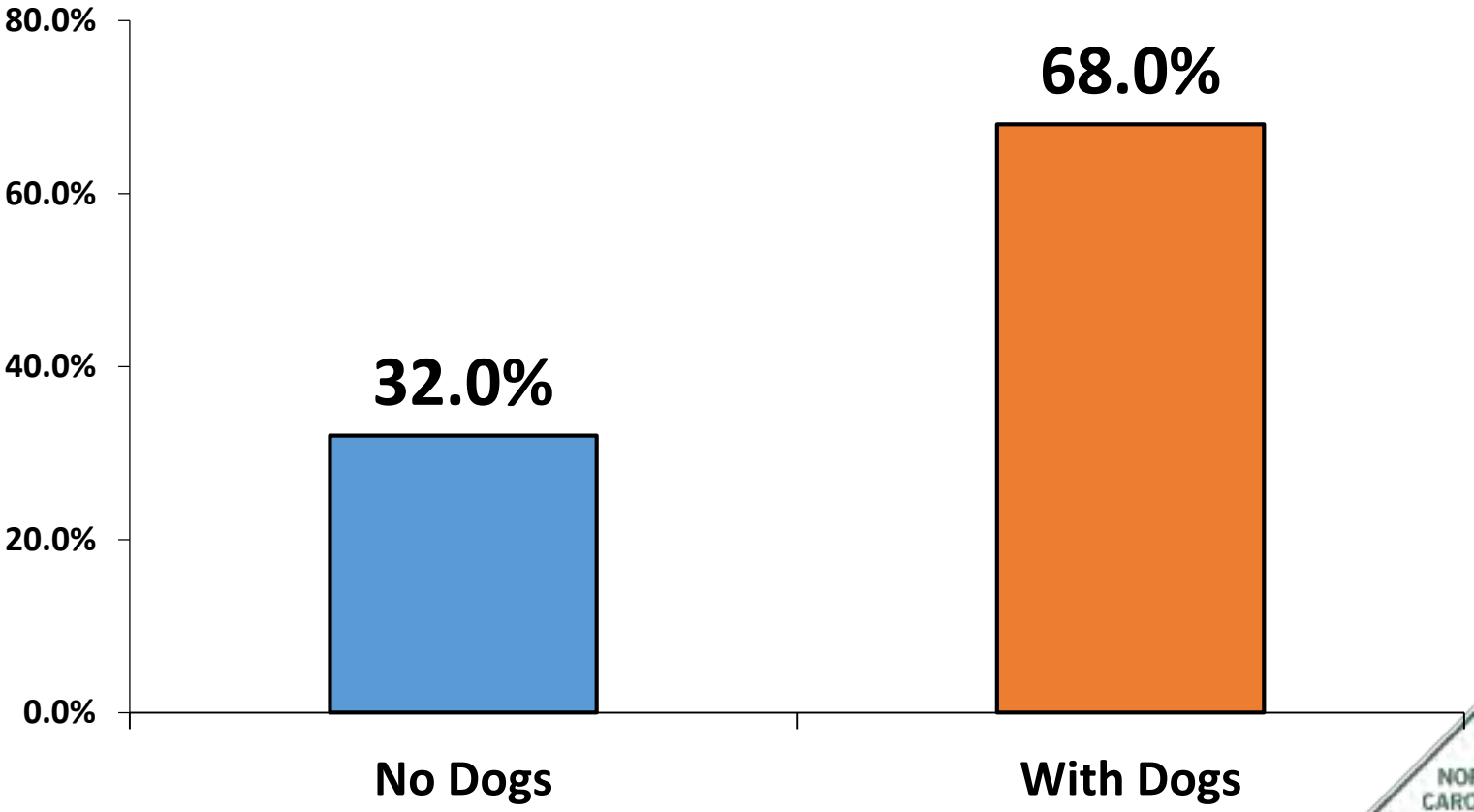
Last season, did you participate in a bear hunt using dogs?





NORTH CAROLINA Wildlife RESOURCES COMMISSION

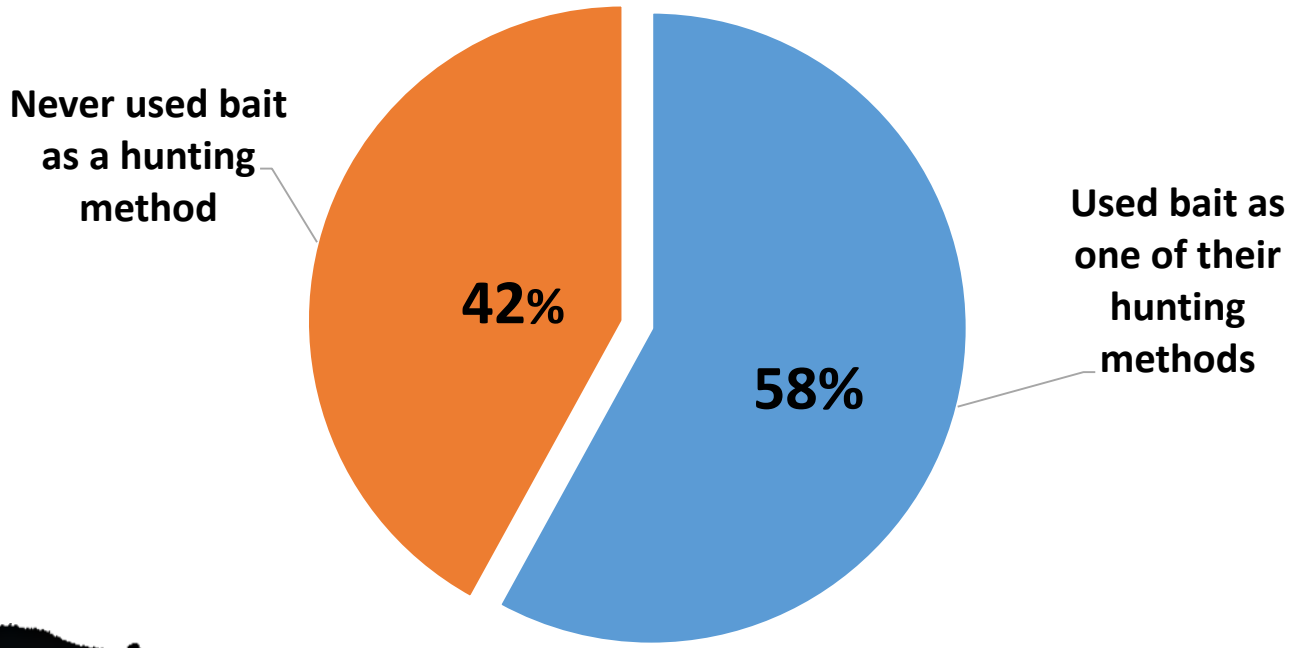
Use of Dogs for Harvesting Bears
(2013-2015 Reported Harvest)



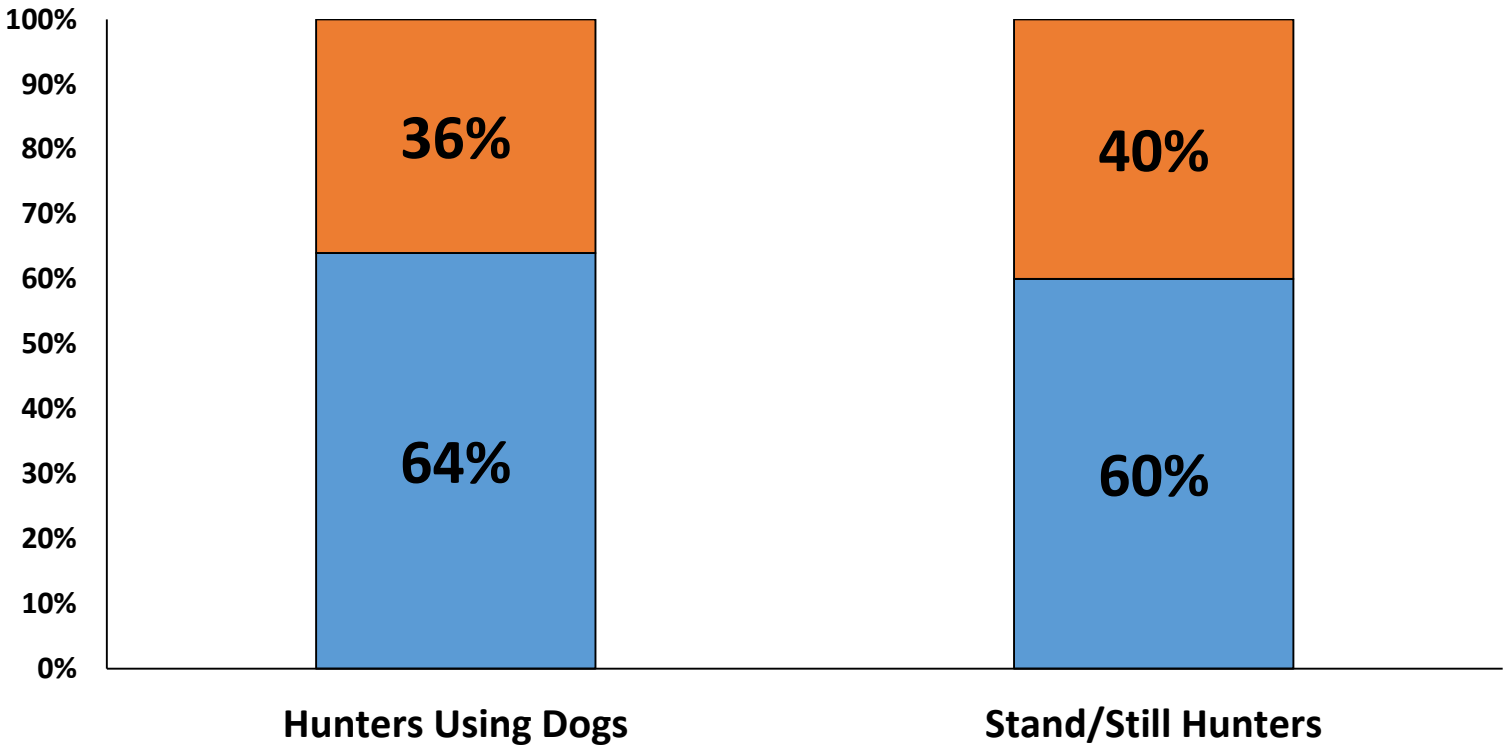
NORTH CAROLINA Wildlife RESOURCES COMMISSION

Successful Bear Hunters Statewide
(2015 e-Stamp Survey)

Used Bait as a Hunting Method



Use of Bait by Method
(2015 e-Stamp Survey)

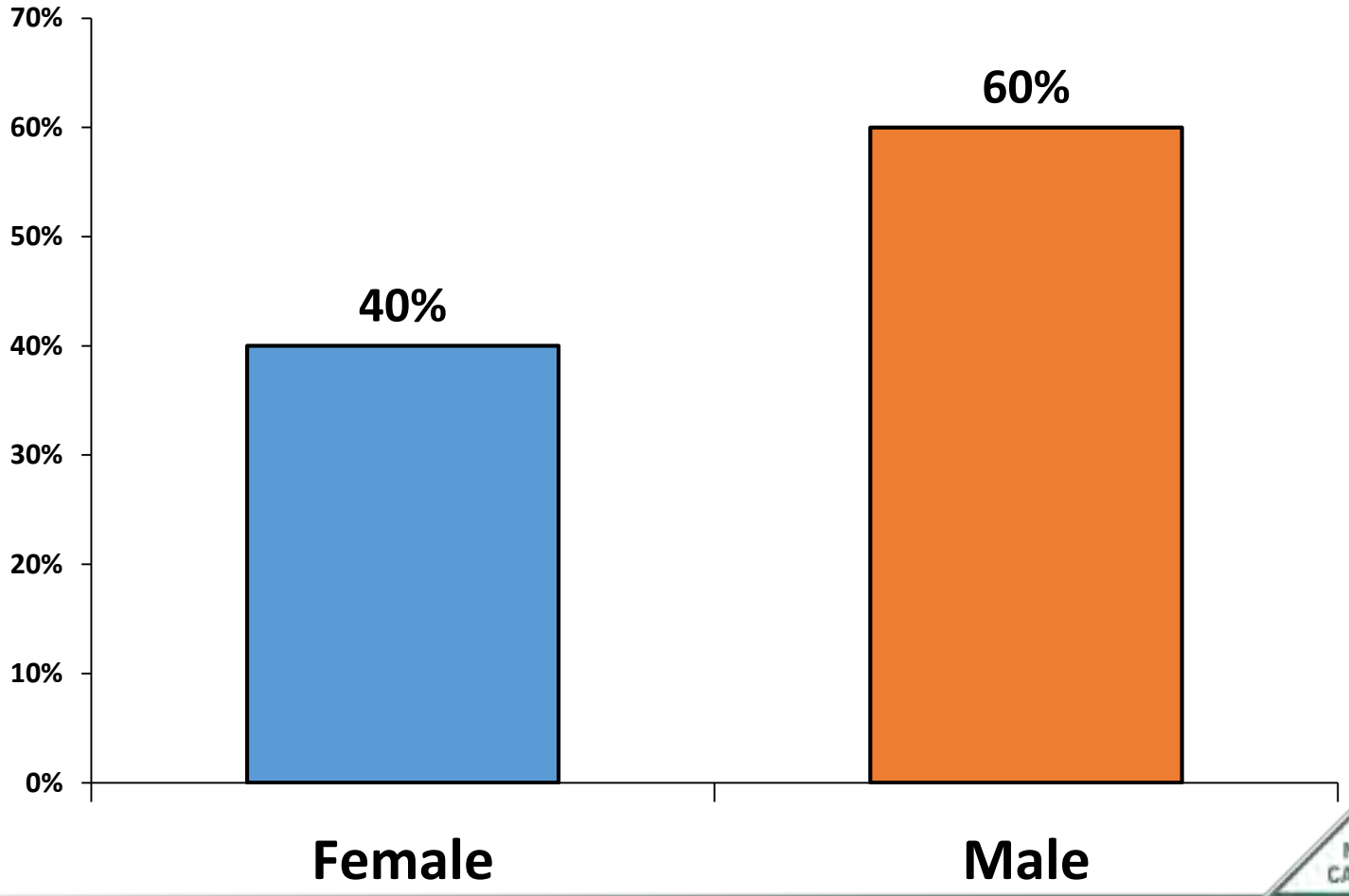


NORTH CAROLINA Wildlife RESOURCES COMMISSION

Sow harvest is important to population management!

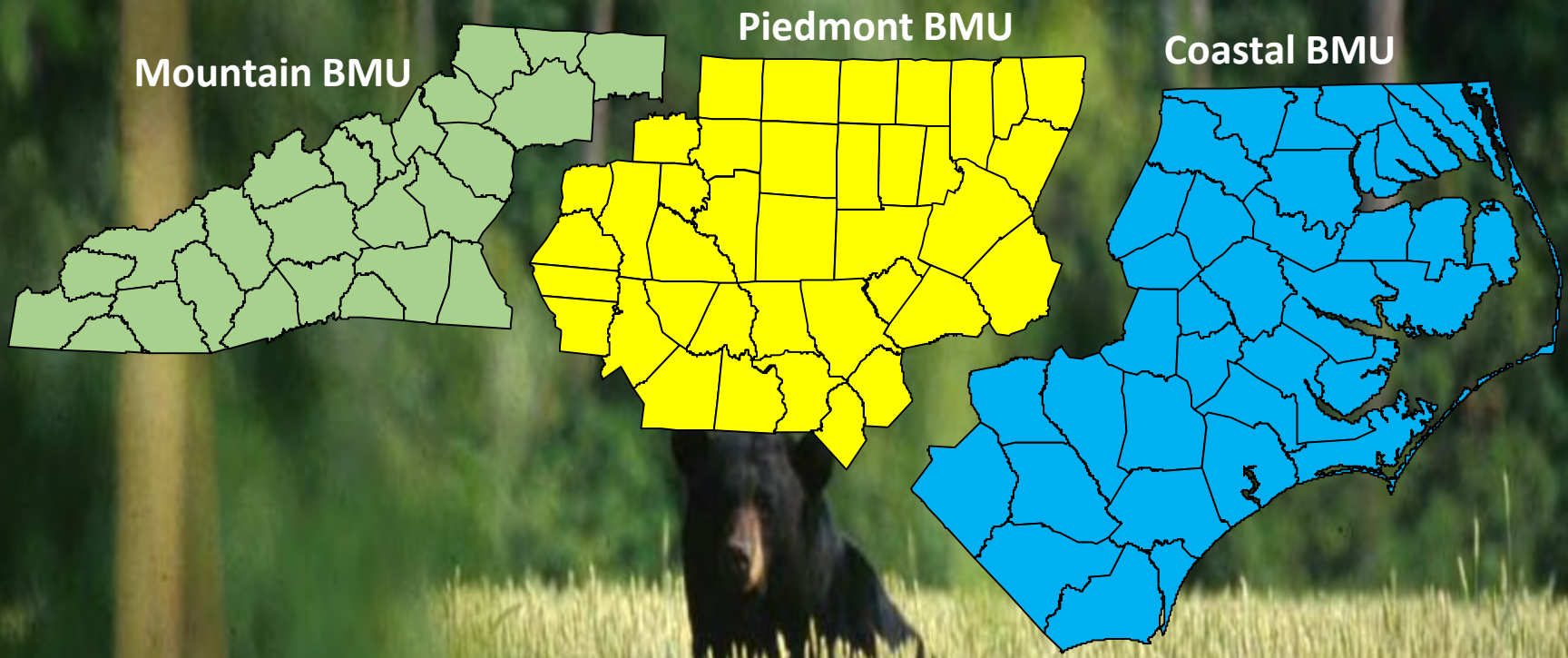
NORTH CAROLINA Wildlife RESOURCES COMMISSION

Sex Ratio of Harvested Bears
(2013-2015)

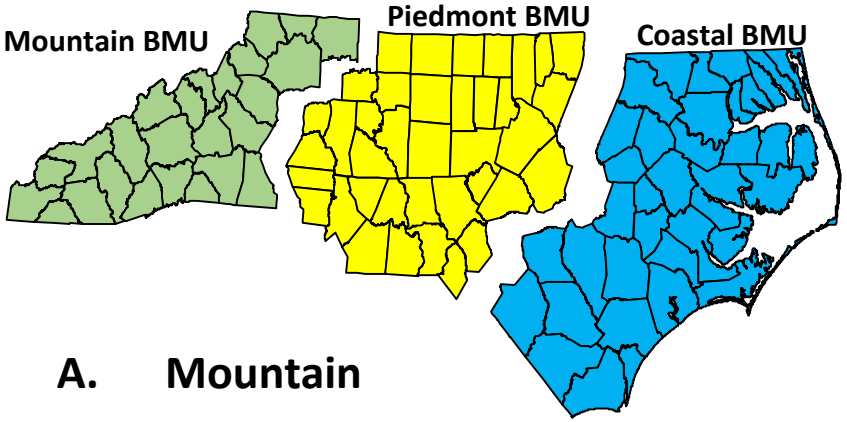


NORTH CAROLINA Wildlife RESOURCES COMMISSION

Regional Black Bear Management Units



Which Bear Unit(s) do you hunt in?



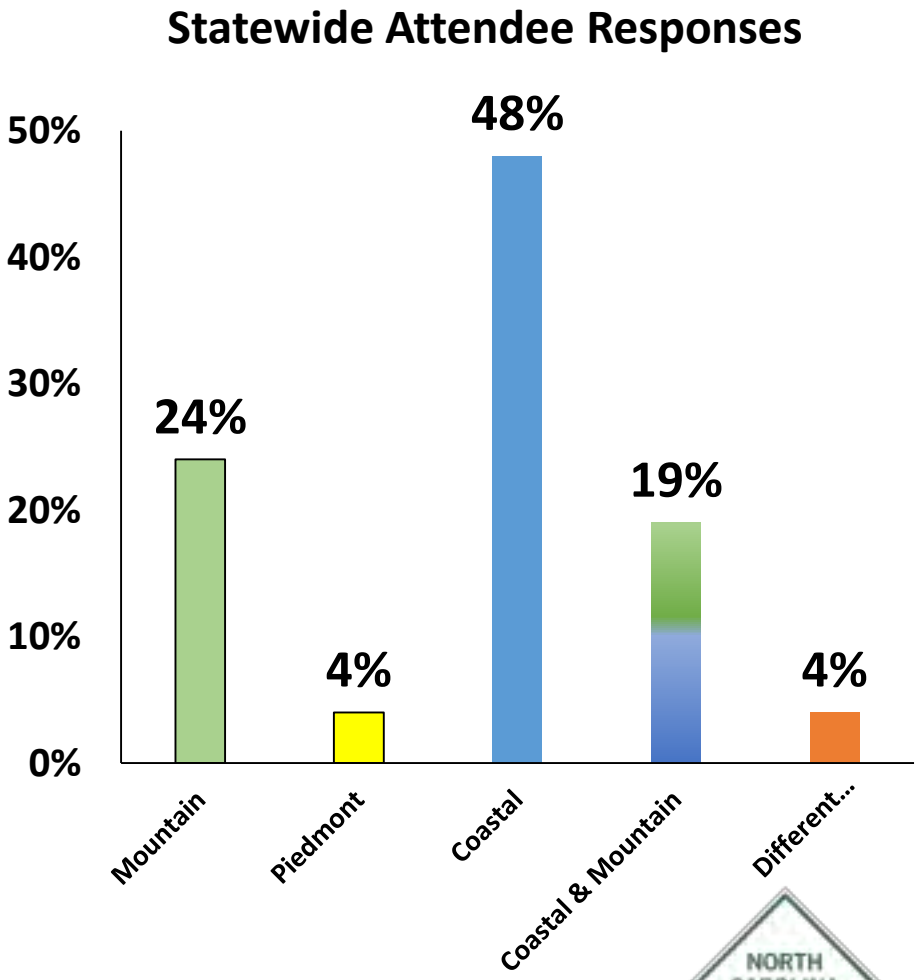
A. Mountain

B. Piedmont

C. Coastal

D. Coastal and Mountain

E. Different combinations



Bear Management Unit Population Objective Statements

Mountain Objective

Stabilize the Mountain Bear Population at the current level.

Piedmont Objective

Manage the PBMU as a “limited bear population zone”.

Coastal Objective

Maintain the Coastal Bear Population at current levels.

NORTH CAROLINA Wildlife RESOURCES COMMISSION

So, let's talk briefly about Bear Population Management!

Based on the current "best science" to maintain a stable population:

- We can harvest approximately 22-27% of our minimum bear population estimate annually (huntable population*).
- 40-44% of the harvest level can be females (sows) before we expect to experience population declines.

**Huntable population represents the estimate of bears in areas where they can be legally hunted. Examples of bears not represented in this estimate are bears found on National Parks, Wildlife Refuges, large black bear sanctuaries and significant urban areas.*

NORTH CAROLINA Wildlife RESOURCES COMMISSION

So, for NC's best current data that translates to:

Mountain Region

2014 Minimum Huntable Population Estimate: 5,917

- Current 3 yr. average harvest = 1,013 (17%)
- Current 3 yr. average female harvest is: 39%

Coastal Region

2014 Minimum Huntable Population Estimate: 11,259

- Current 3 yr. average harvest = 1,842 (16%)
- Current 3 yr. average female harvest is: 40%

NORTH CAROLINA Wildlife RESOURCES COMMISSION

So, using our best current data:

Mountain Region

2014 Minimum Huntable Population Estimate: 5,917

- Possible 289-585 more bears in the harvest (3 yr. avg.)
- Of which, 116-234 can be female bears

Coastal Region

2014 Minimum Huntable Population Estimate: 11,259

- Possible 635-1198 more bears in the harvest (3 yr. avg.)
- Of which, 254-479 can be female bears

NORTH CAROLINA Wildlife RESOURCES COMMISSION

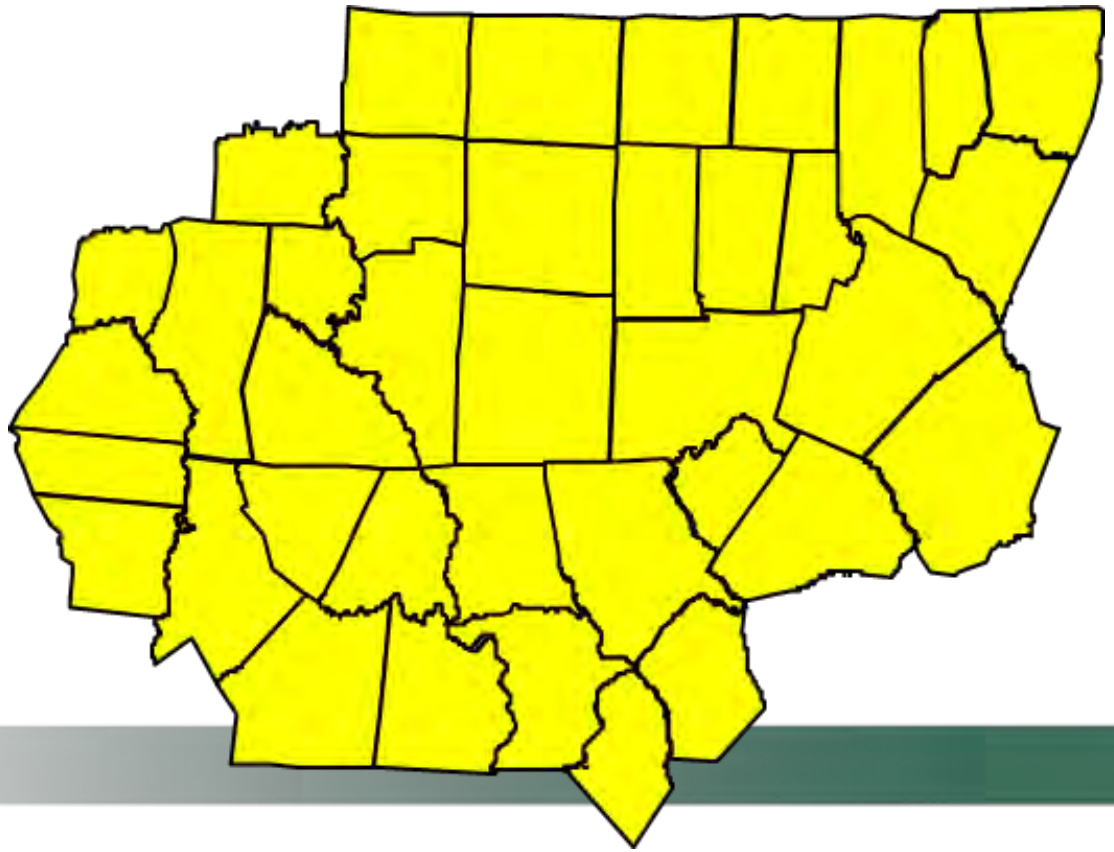
Recent Regulatory Changes

- Baiting (hunting with the aid of unprocessed foods)
- New county seasons
- 75 lbs. cub weight law (statutory change)

NORTH CAROLINA Wildlife RESOURCES COMMISSION

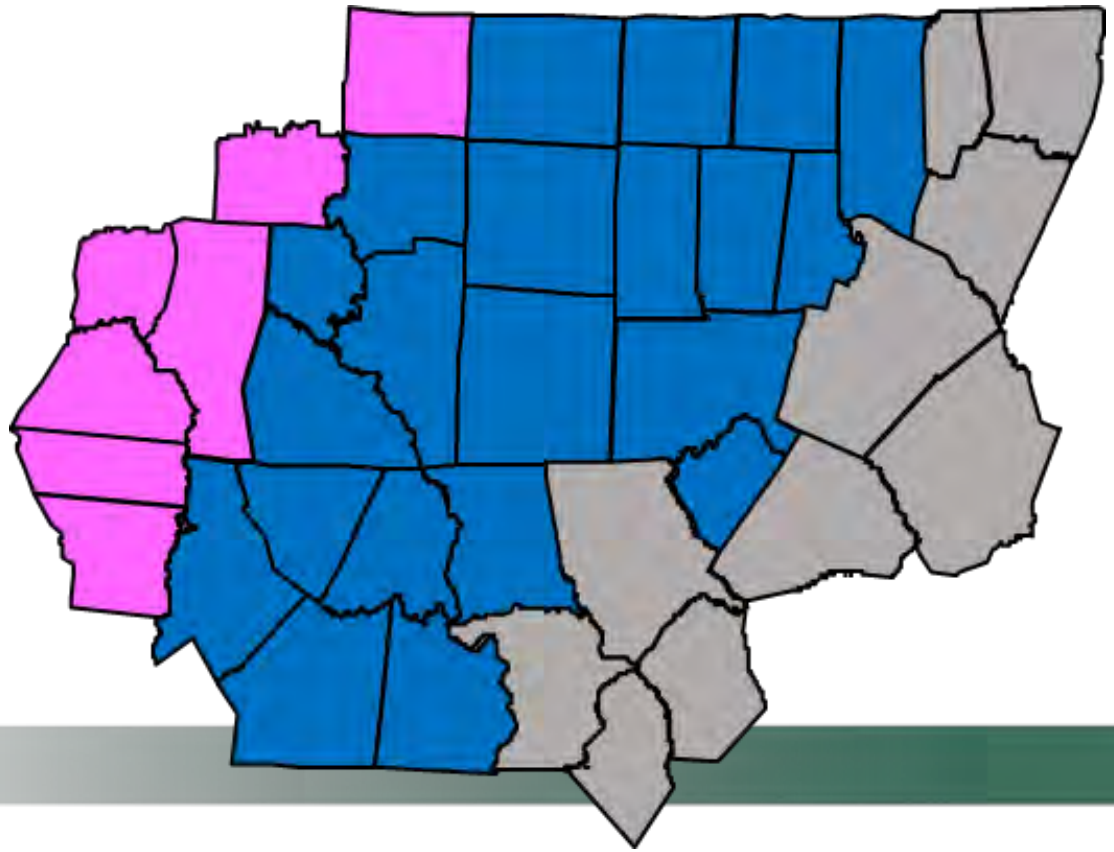
Piedmont Bear Management Unit (PBMU)

Objective: To manage the PBMU as a "limited bear population zone"



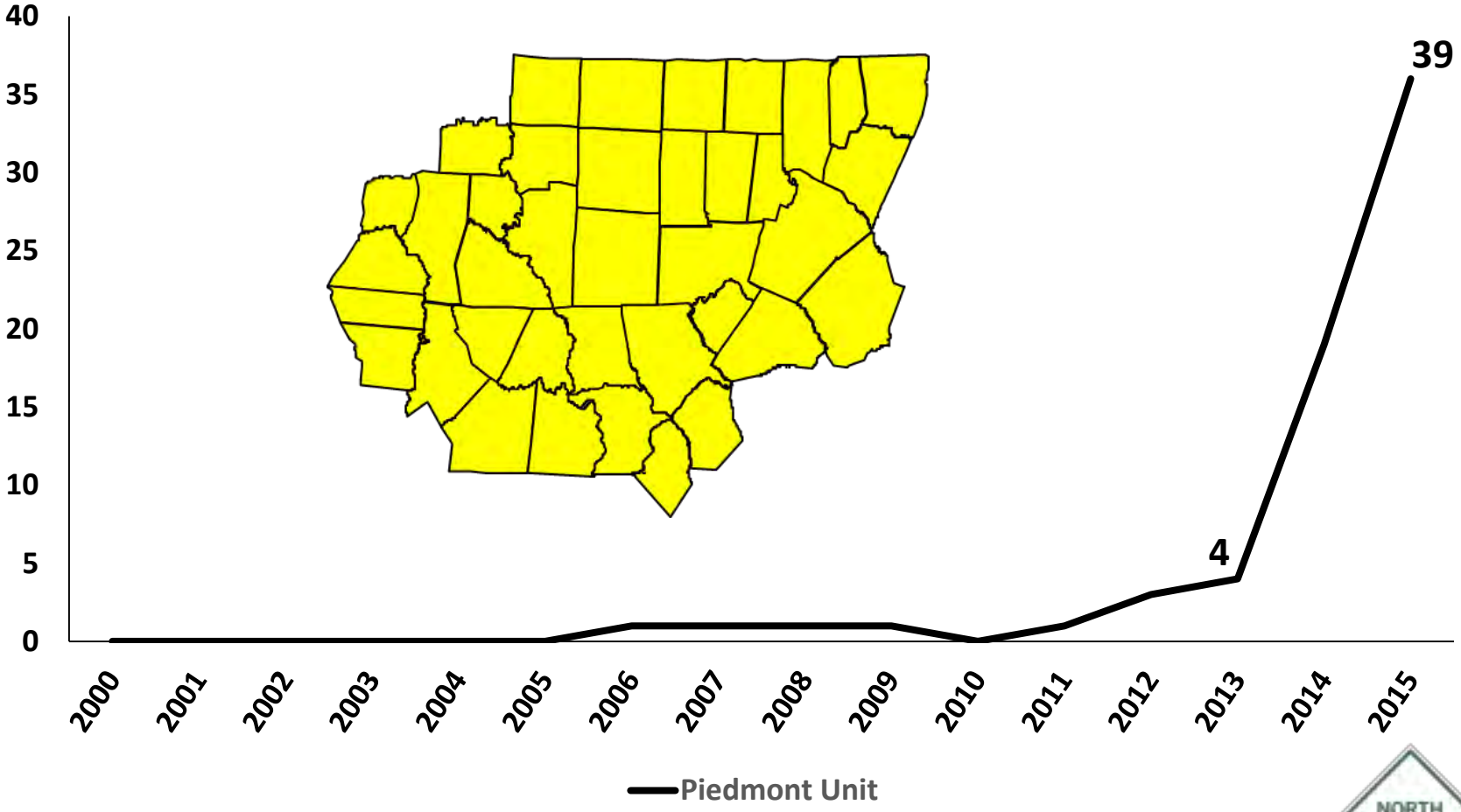
NORTH CAROLINA Wildlife RESOURCES COMMISSION

Piedmont Bear Management Unit
Bear Hunting Seasons



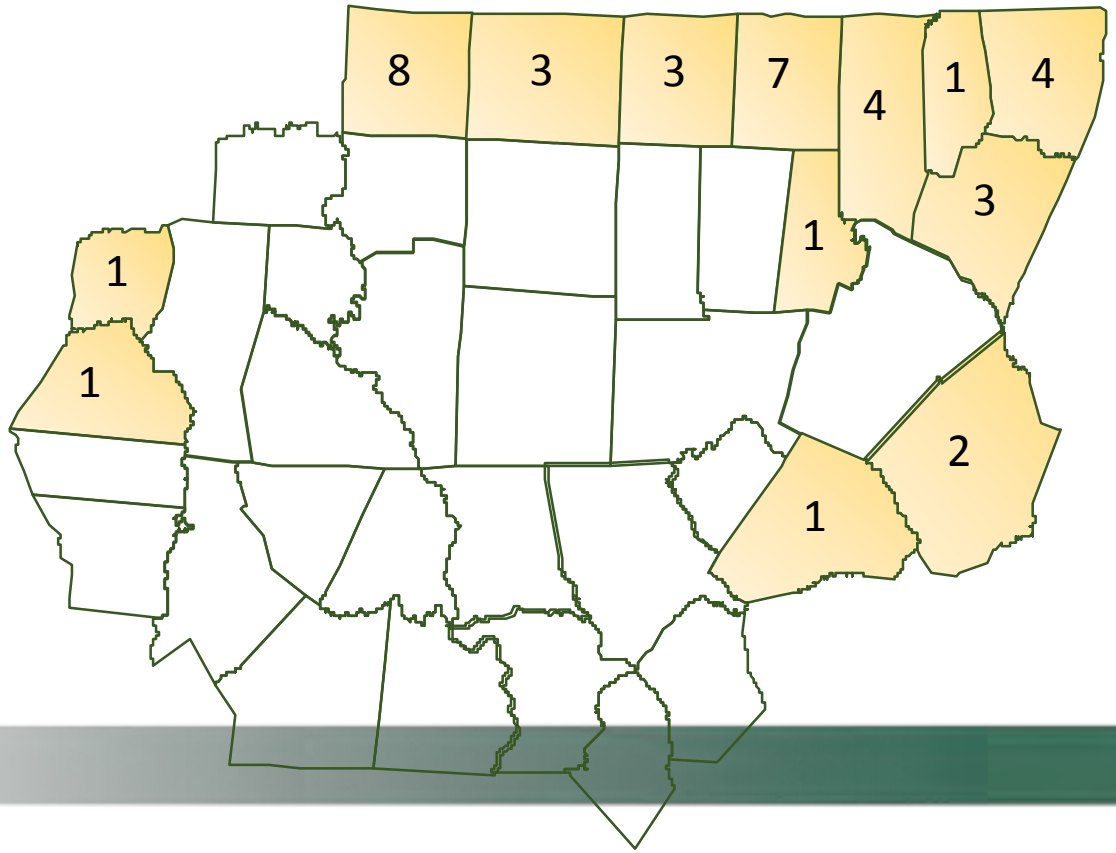
NORTH CAROLINA Wildlife RESOURCES COMMISSION

PBMU Reported Harvest



NORTH CAROLINA Wildlife RESOURCES COMMISSION

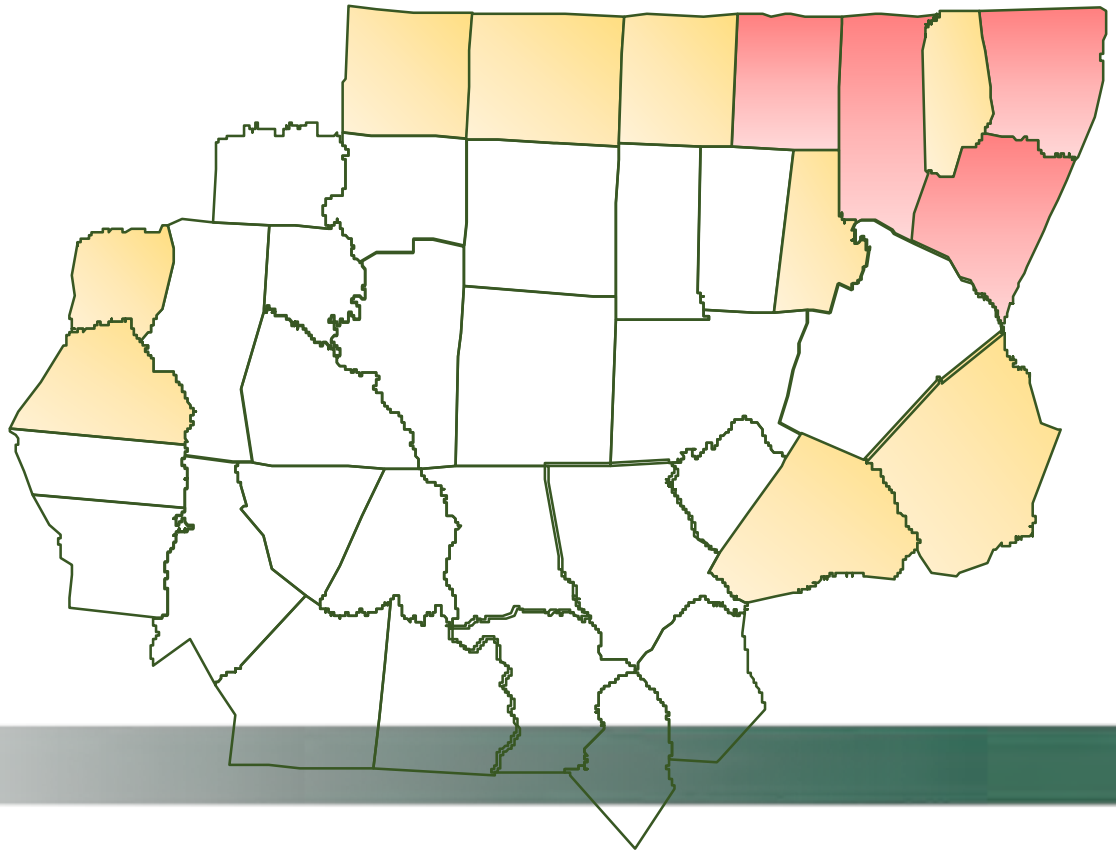
2015 Reported Bear Harvest in the PBMU



NORTH CAROLINA Wildlife RESOURCES COMMISSION

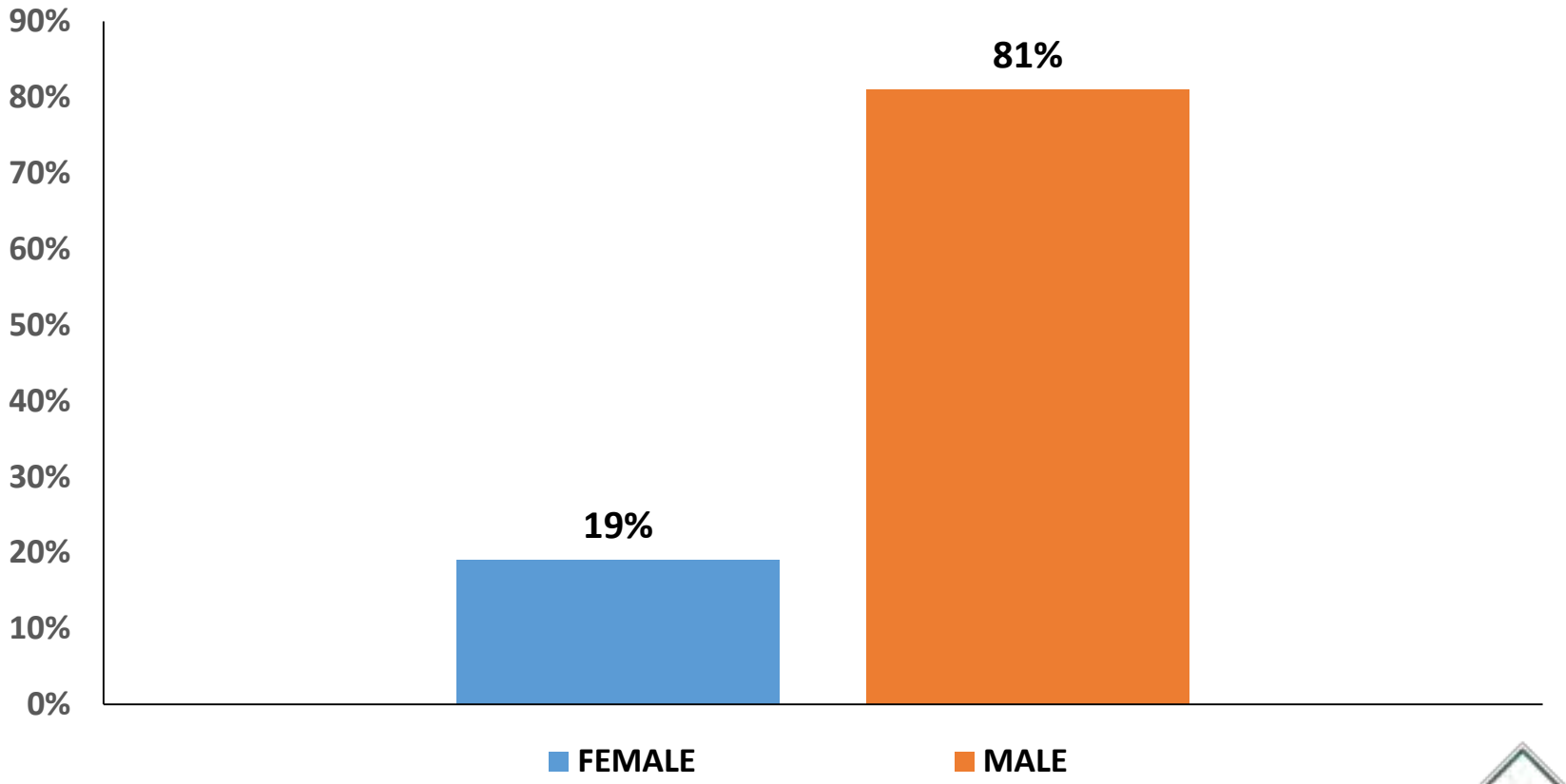
2015 Piedmont Hunting Methods

- With Dogs = 4 (*Franklin, Granville, Person and Warren*)



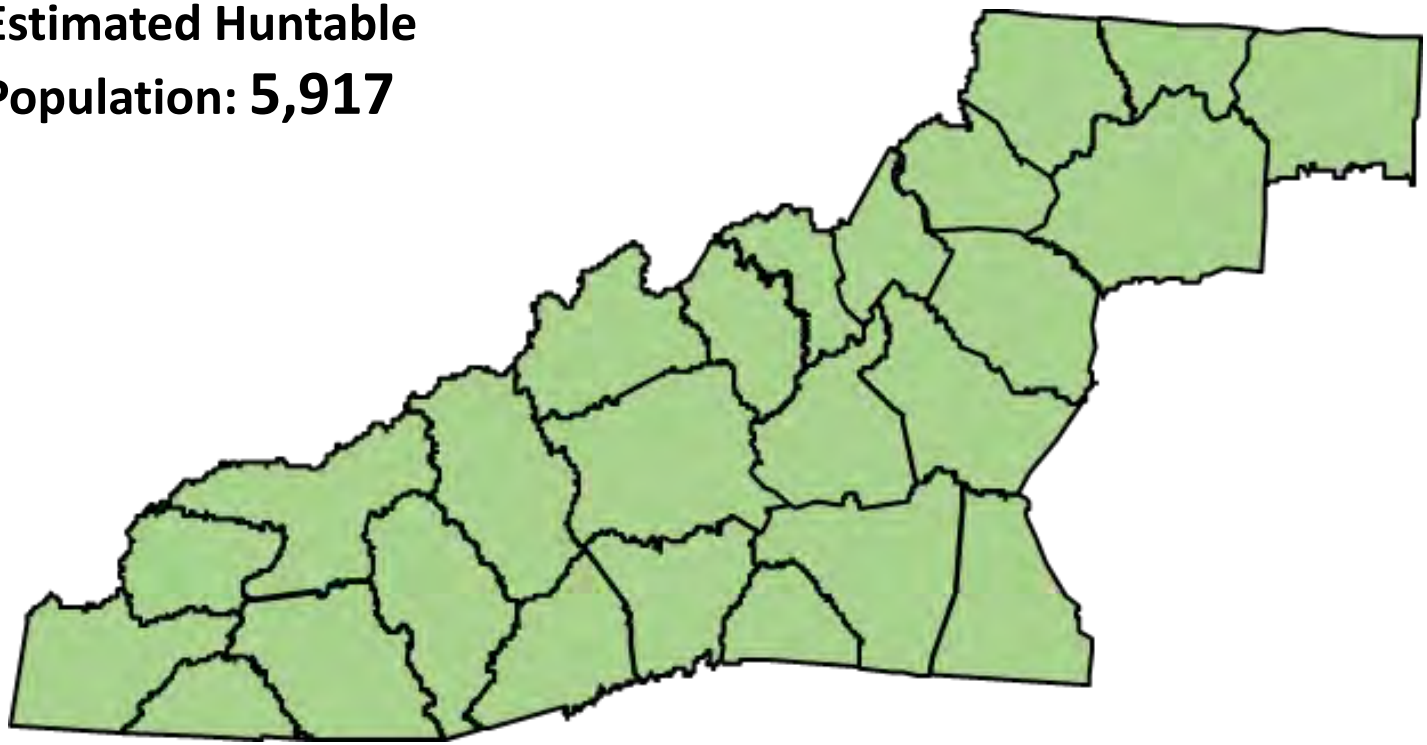
NORTH CAROLINA Wildlife RESOURCES COMMISSION

2013-2015 Harvest Sex Ratios PBMU



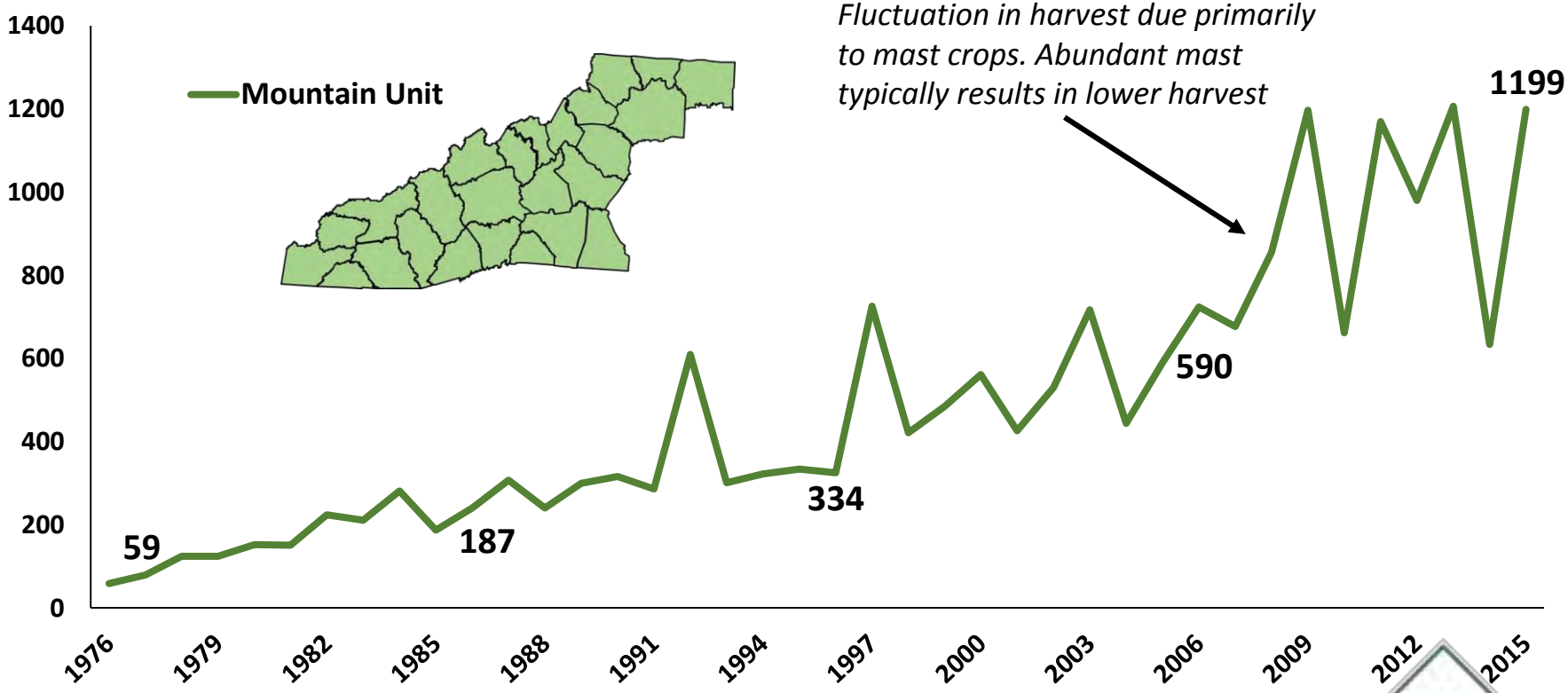
Mountain Bear Management Unit (MBMU) and Bear Hunting Season

Estimated Huntable Population: 5,917



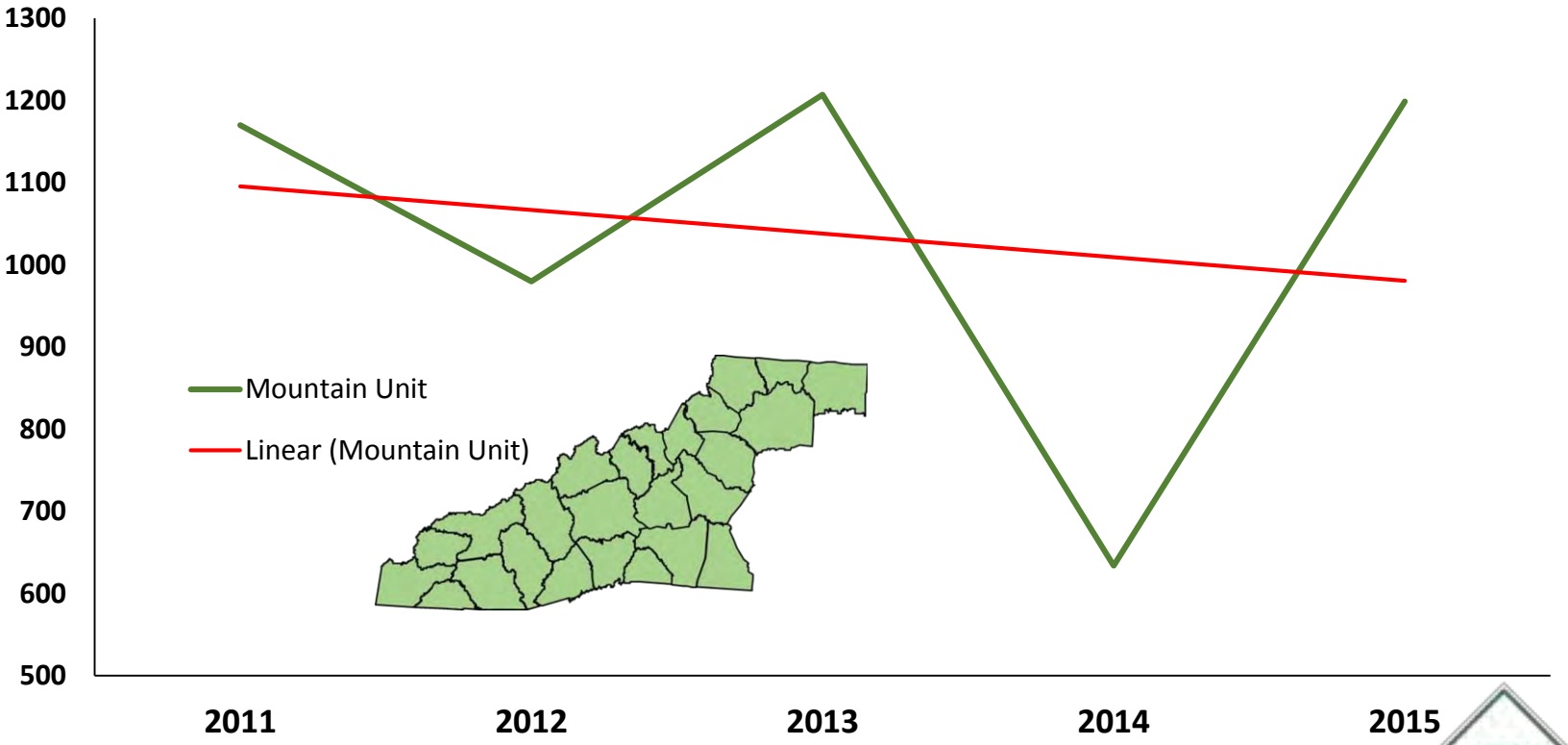
NORTH CAROLINA Wildlife RESOURCES COMMISSION

Mountain Bear Management Unit Reported Harvest



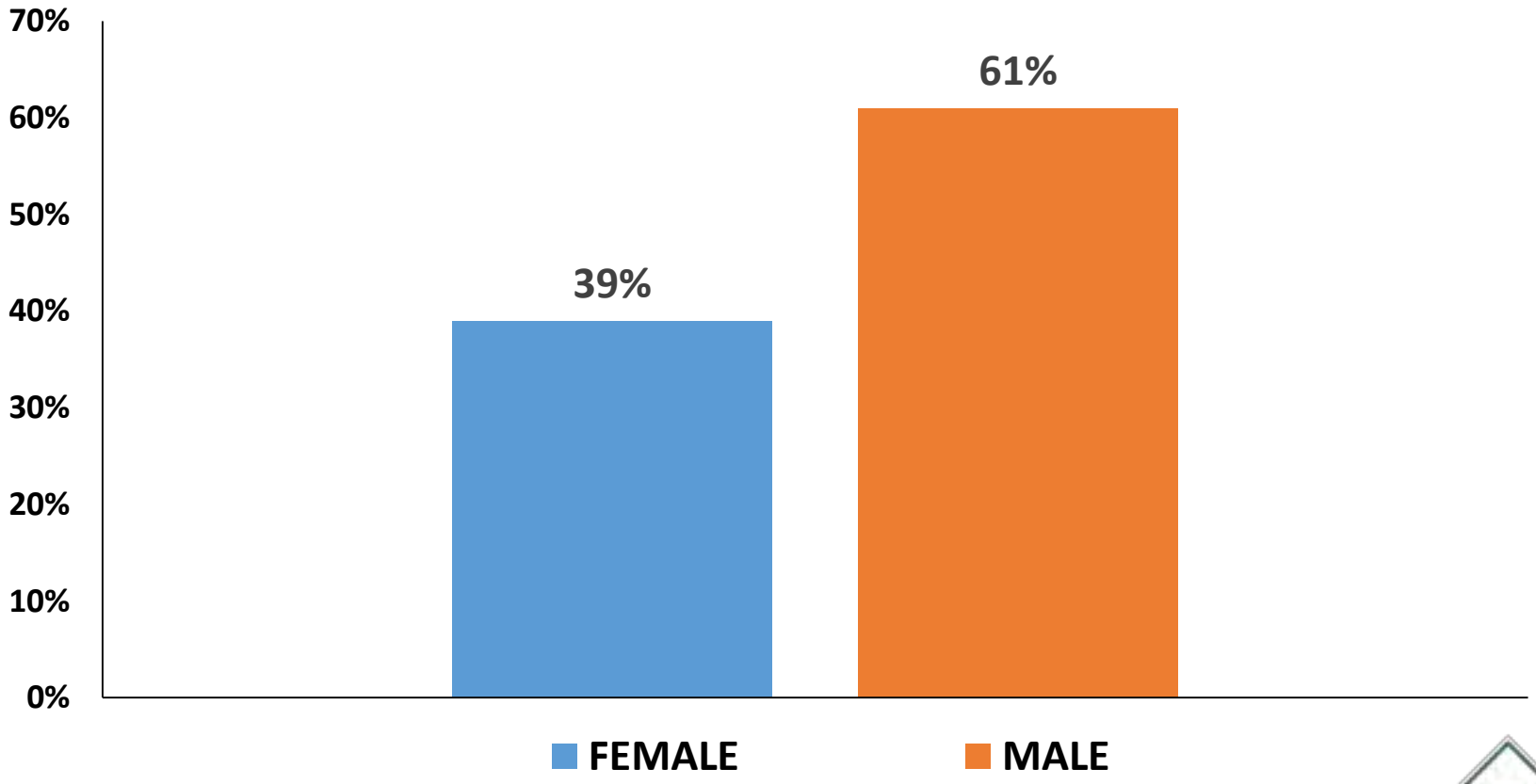
NORTH CAROLINA Wildlife RESOURCES COMMISSION

Mountain Bear Management Unit Reported Harvest (5 Yr. Trend)

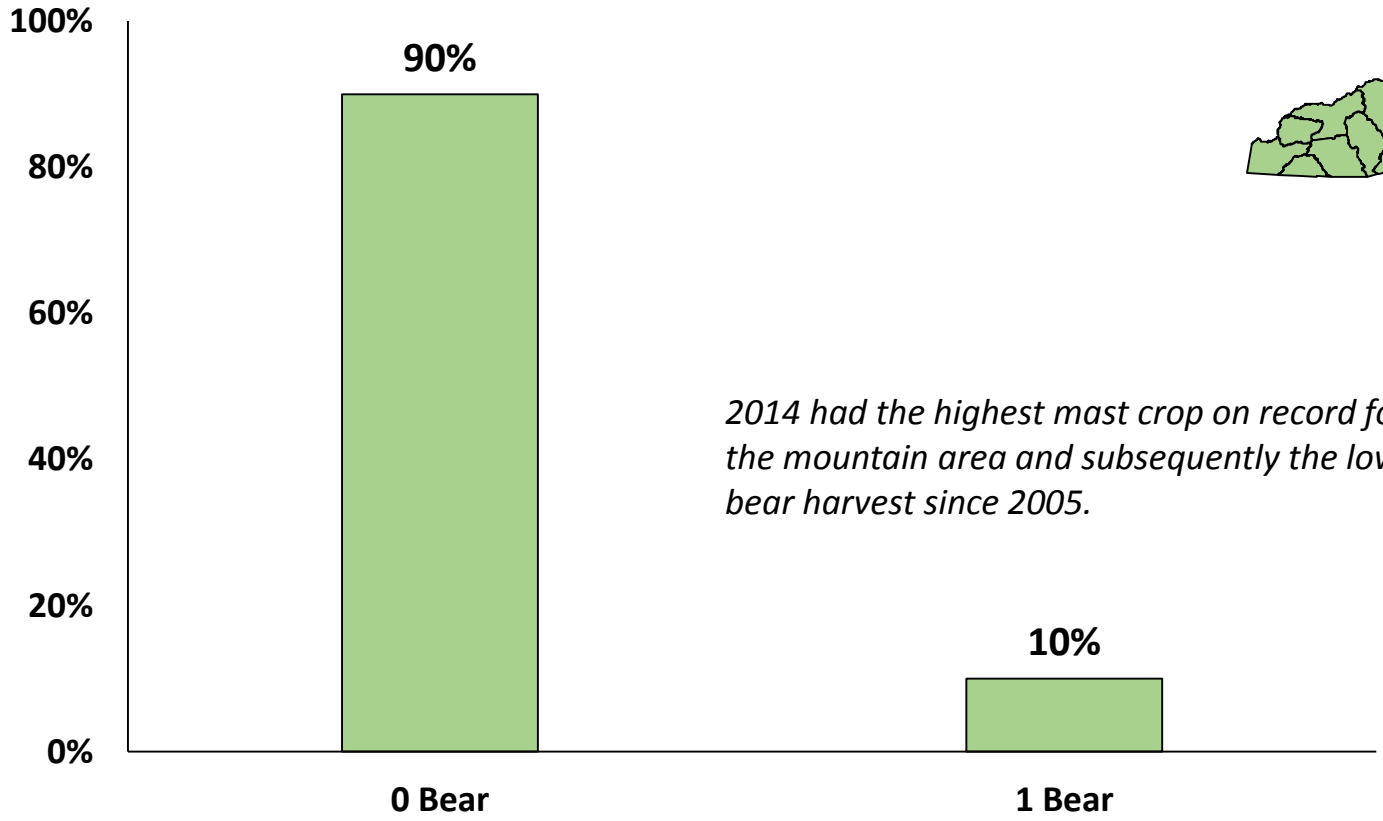


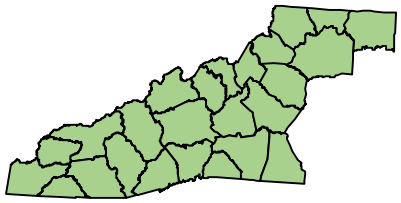
2014 was the highest recorded mast crop on record!

2013-2015 Harvest Sex Ratios MBMU



Fall 2014 Hunter Success MBMU (Hunter Harvest Survey)

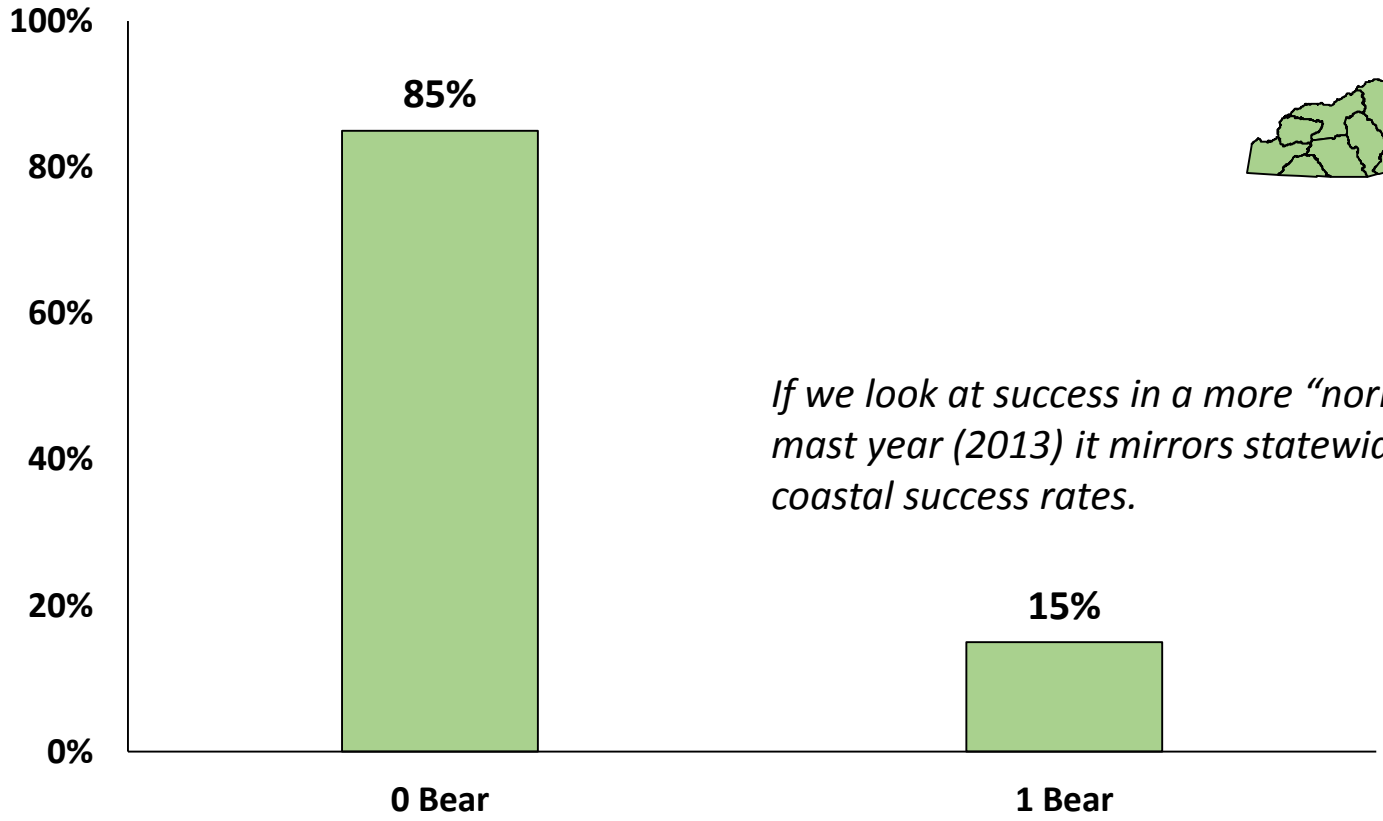


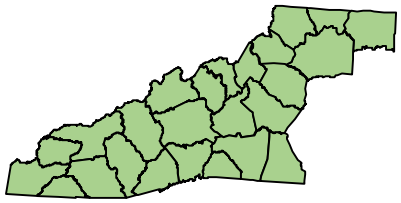


2014 had the highest mast crop on record for the mountain area and subsequently the lowest bear harvest since 2005.

NORTH CAROLINA Wildlife RESOURCES COMMISSION

Fall 2013 Hunter Success MBMU (Hunter Harvest Survey)

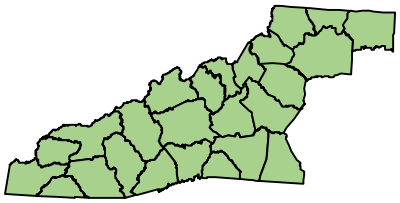


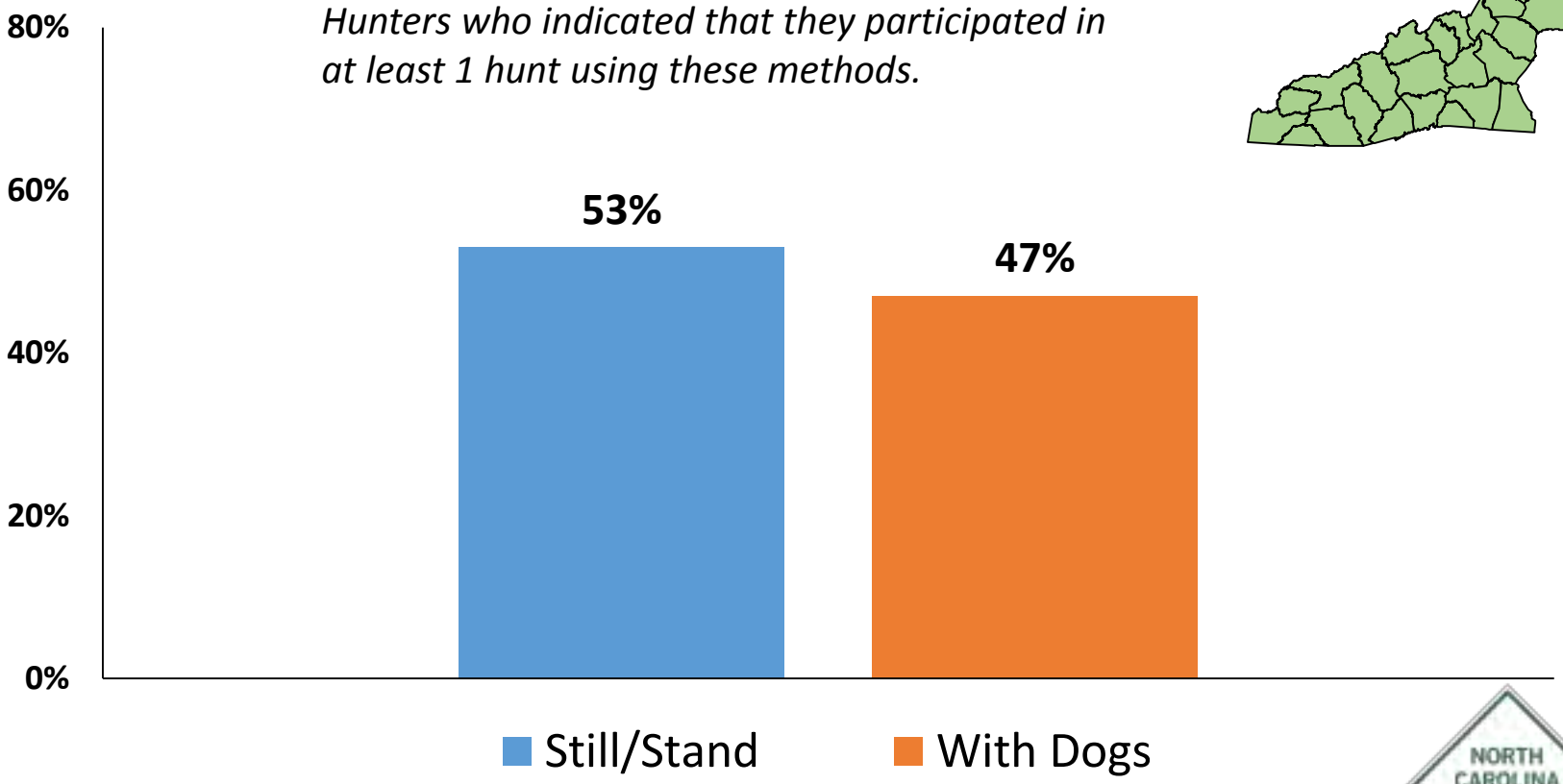


If we look at success in a more "normal" mast year (2013) it mirrors statewide and coastal success rates.

MBMU by Hunting Method
(2015 e-Stamp Survey)

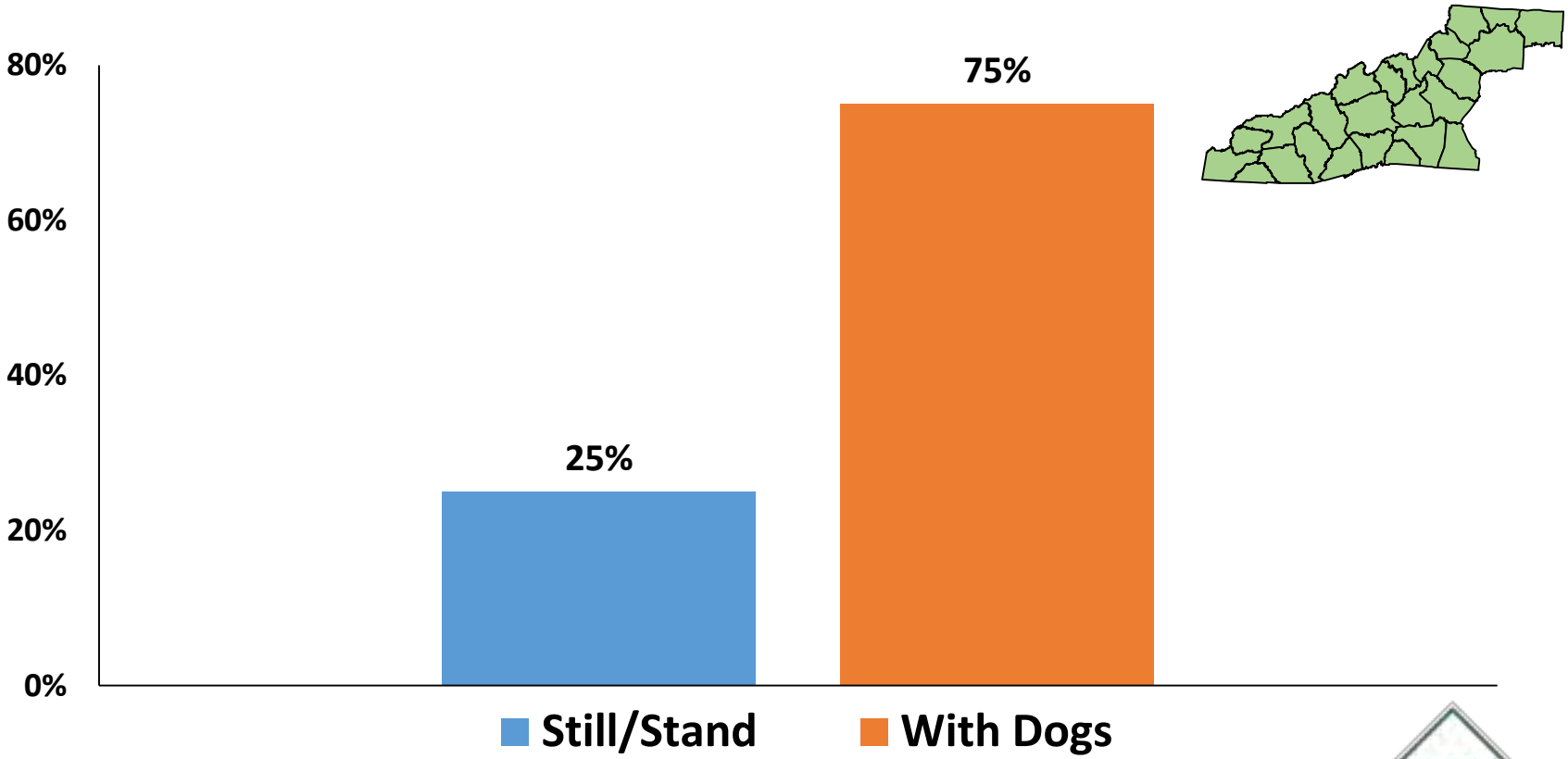
Hunters who indicated that they participated in at least 1 hunt using these methods.





NORTH CAROLINA Wildlife RESOURCES COMMISSION

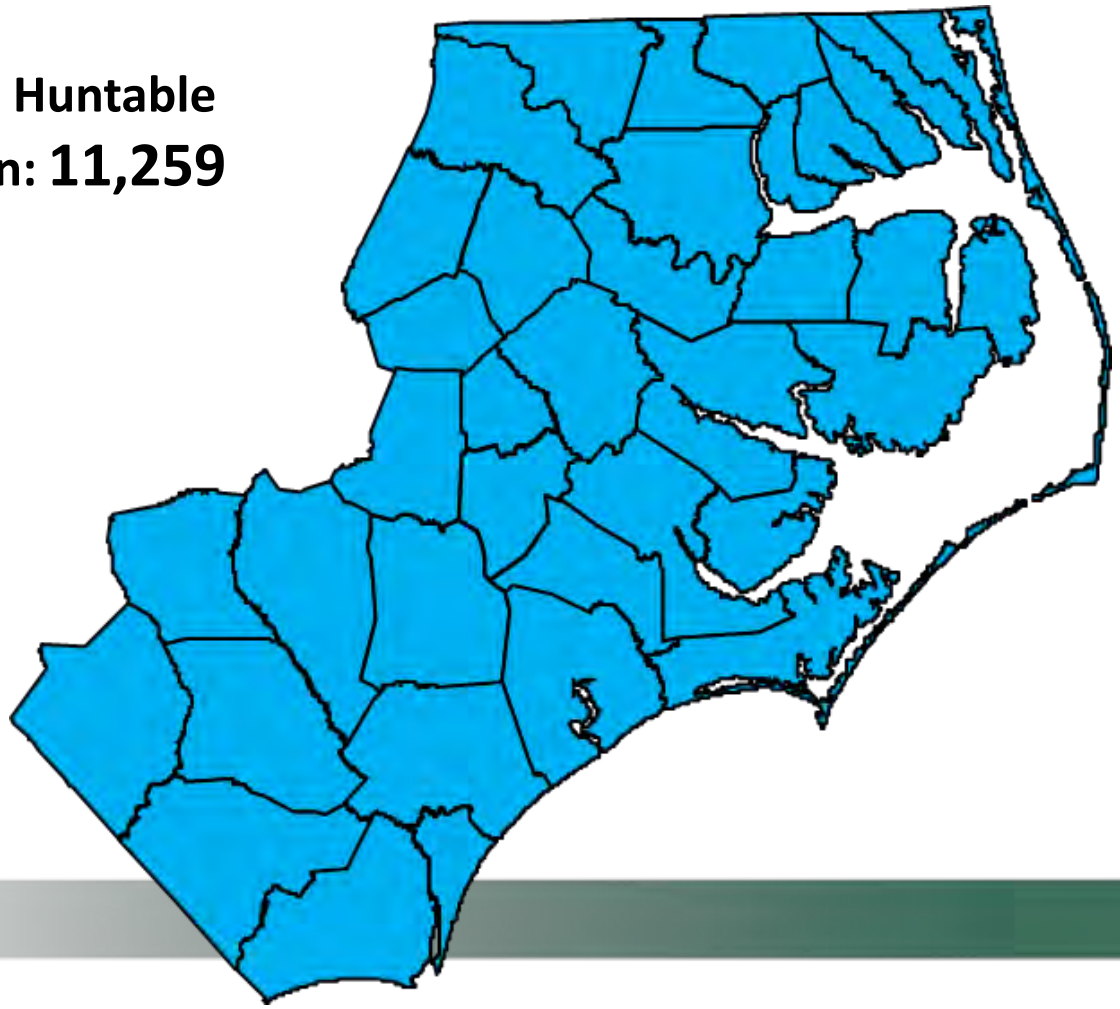
MBMU Harvest by Hunting Method
(3 Year Average Reported Harvest)



NORTH CAROLINA Wildlife RESOURCES COMMISSION

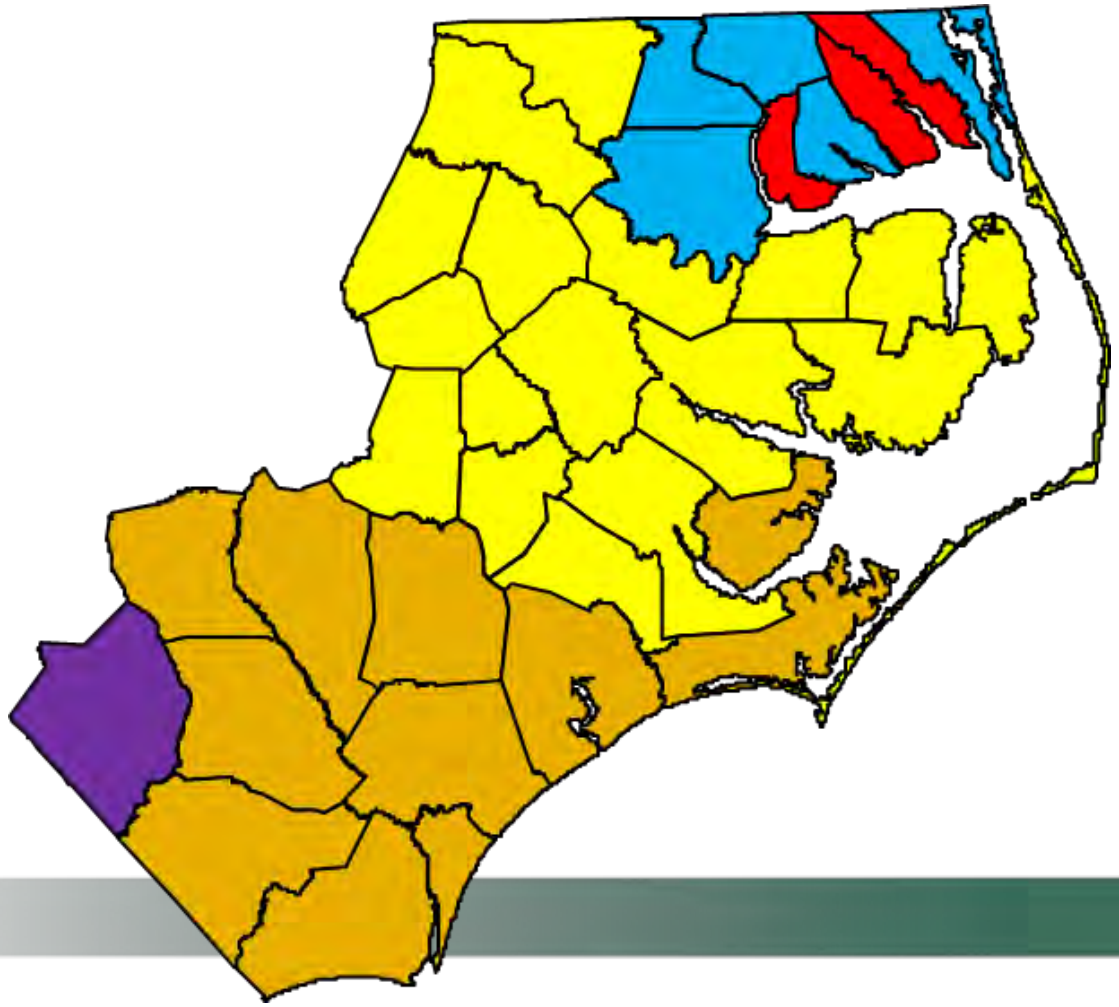
Coastal Bear Management Unit (CBMU)

Estimated Huntable Population: 11,259



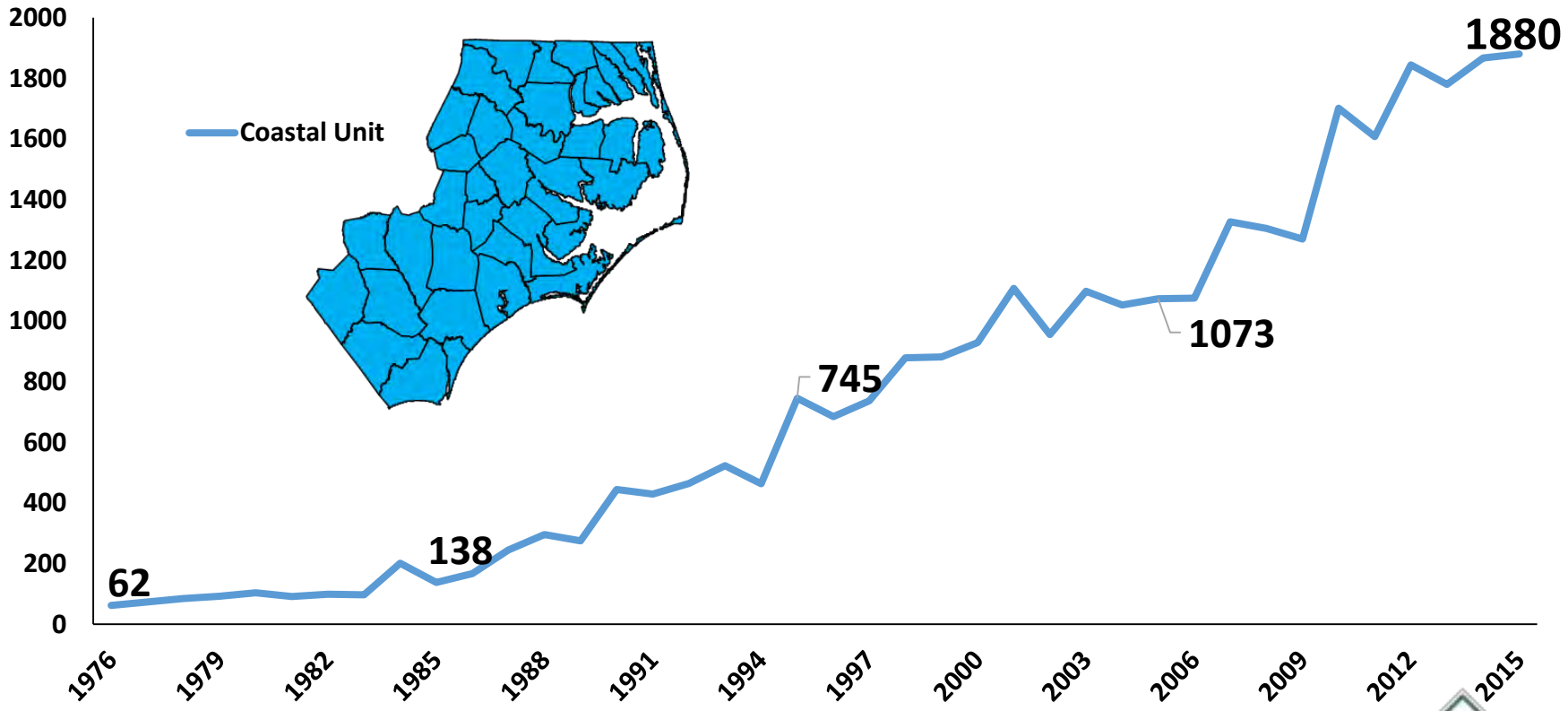
NORTH CAROLINA Wildlife RESOURCES COMMISSION

Coastal Bear Management Unit
2016 Hunting Seasons



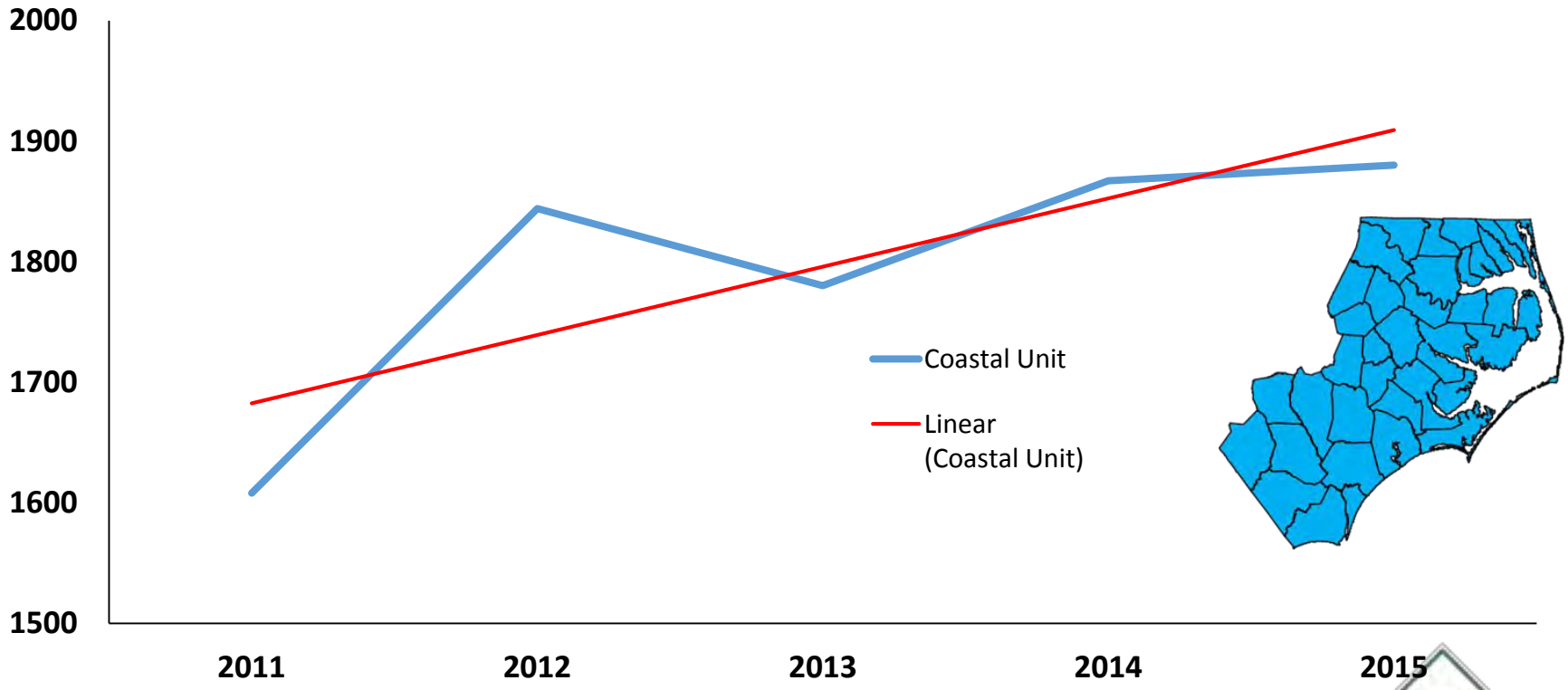
NORTH CAROLINA Wildlife RESOURCES COMMISSION

Coastal Bear Management Unit Reported Bear Harvest



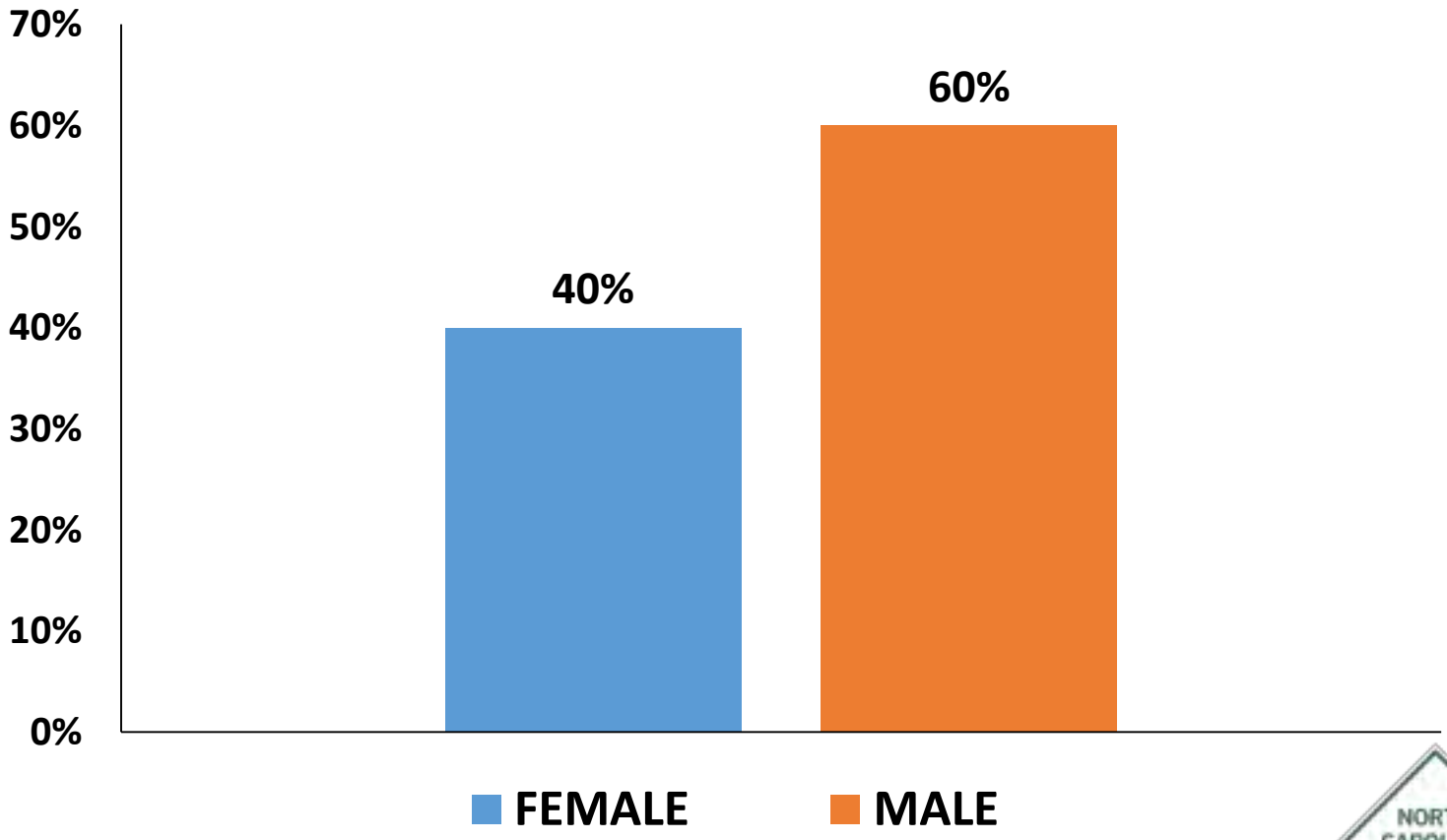
NORTH CAROLINA Wildlife RESOURCES COMMISSION

Coastal Bear Management Unit Reported Harvest (5 Yr. Trend)

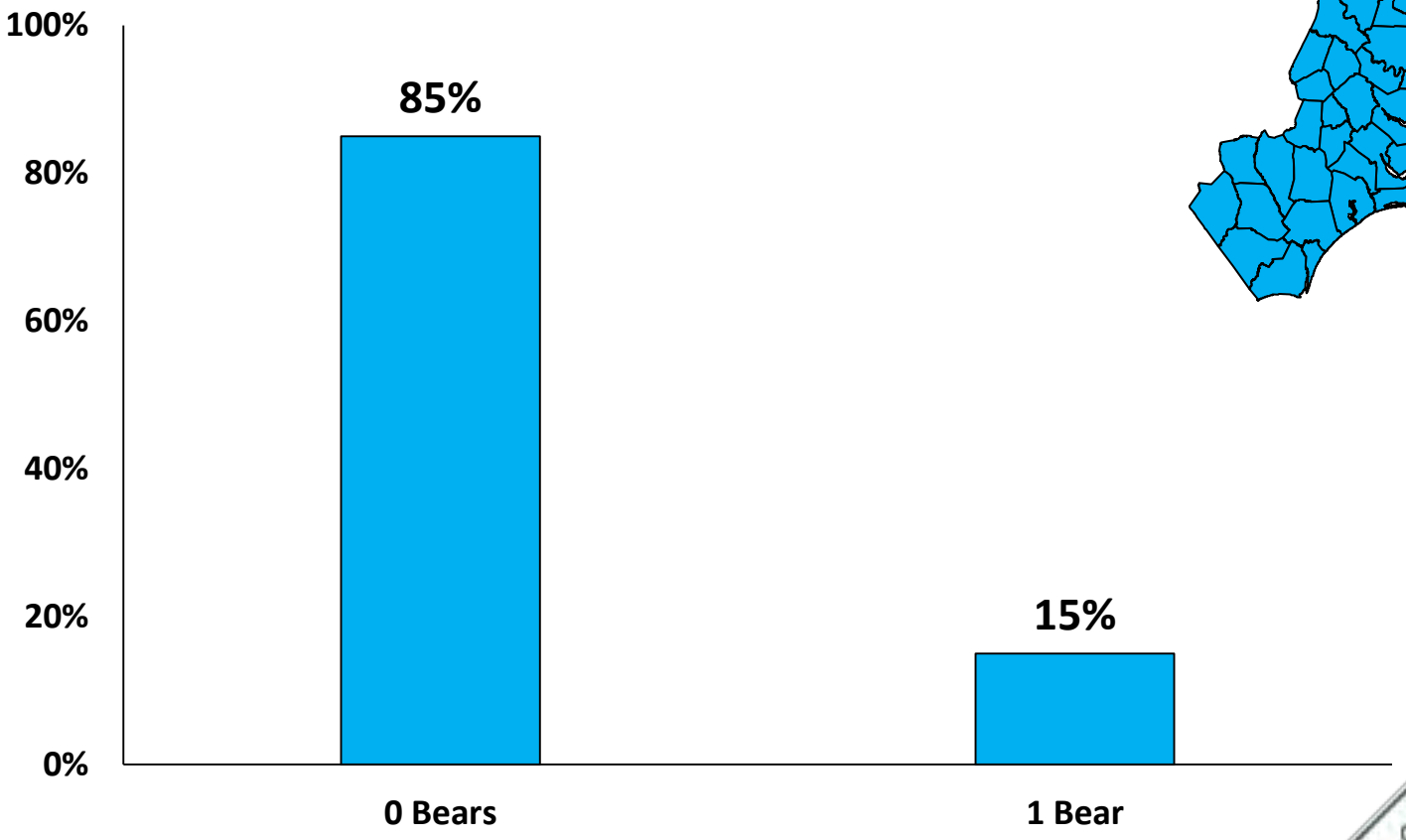


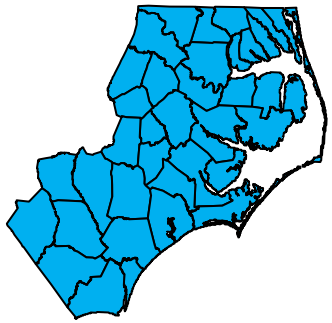
NORTH CAROLINA Wildlife RESOURCES COMMISSION

2013-2015 Harvest Sex Ratios CBMU



Fall 2014 Hunter Success CBMU
(Hunter Harvest Survey)

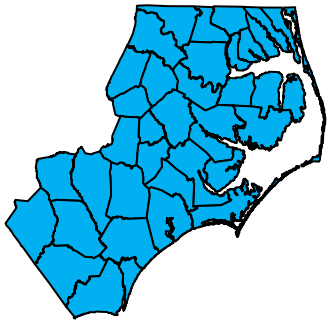


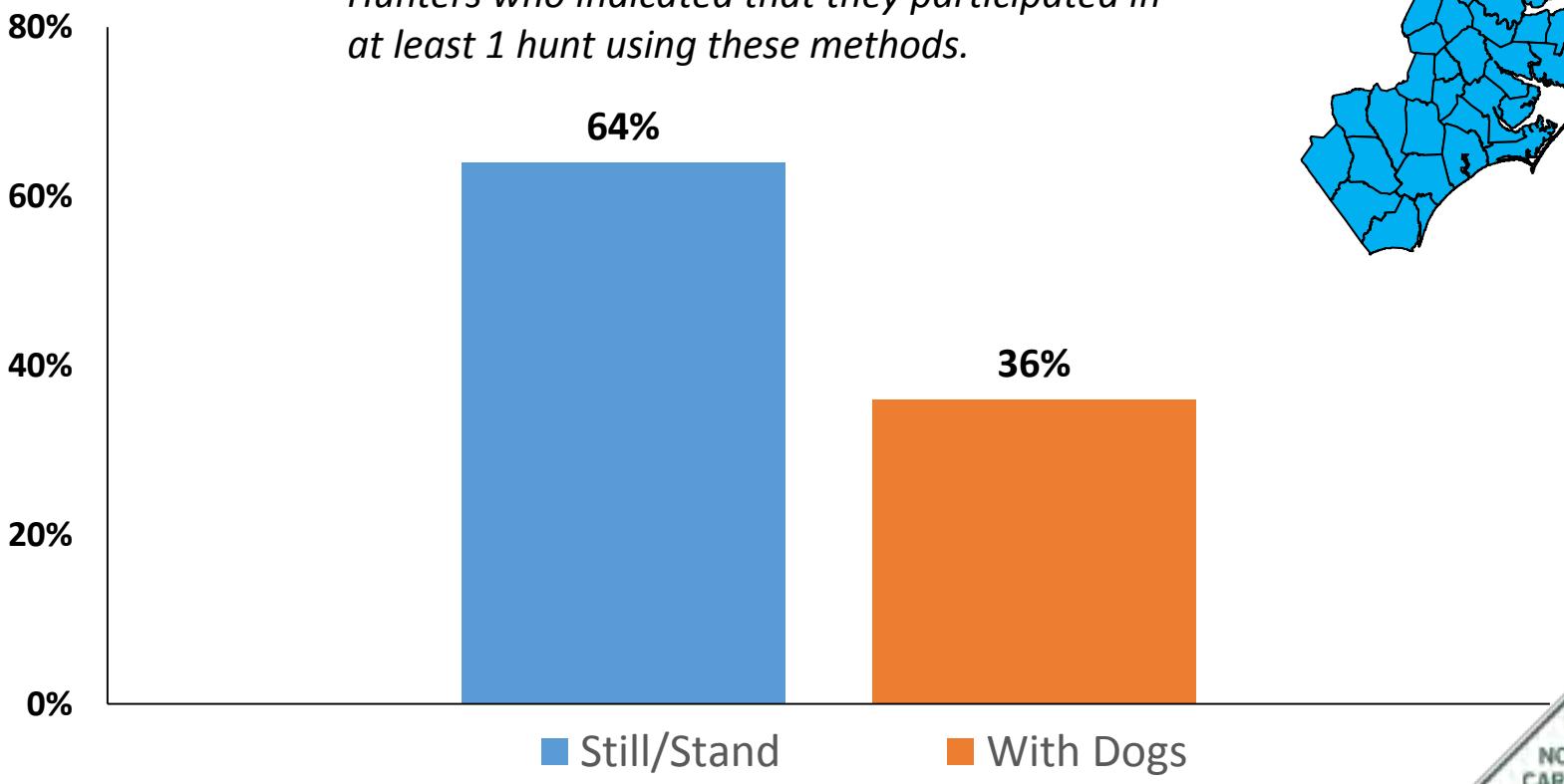


NORTH CAROLINA Wildlife RESOURCES COMMISSION

CBMU Hunting Method
(2015 e-Stamp Survey)

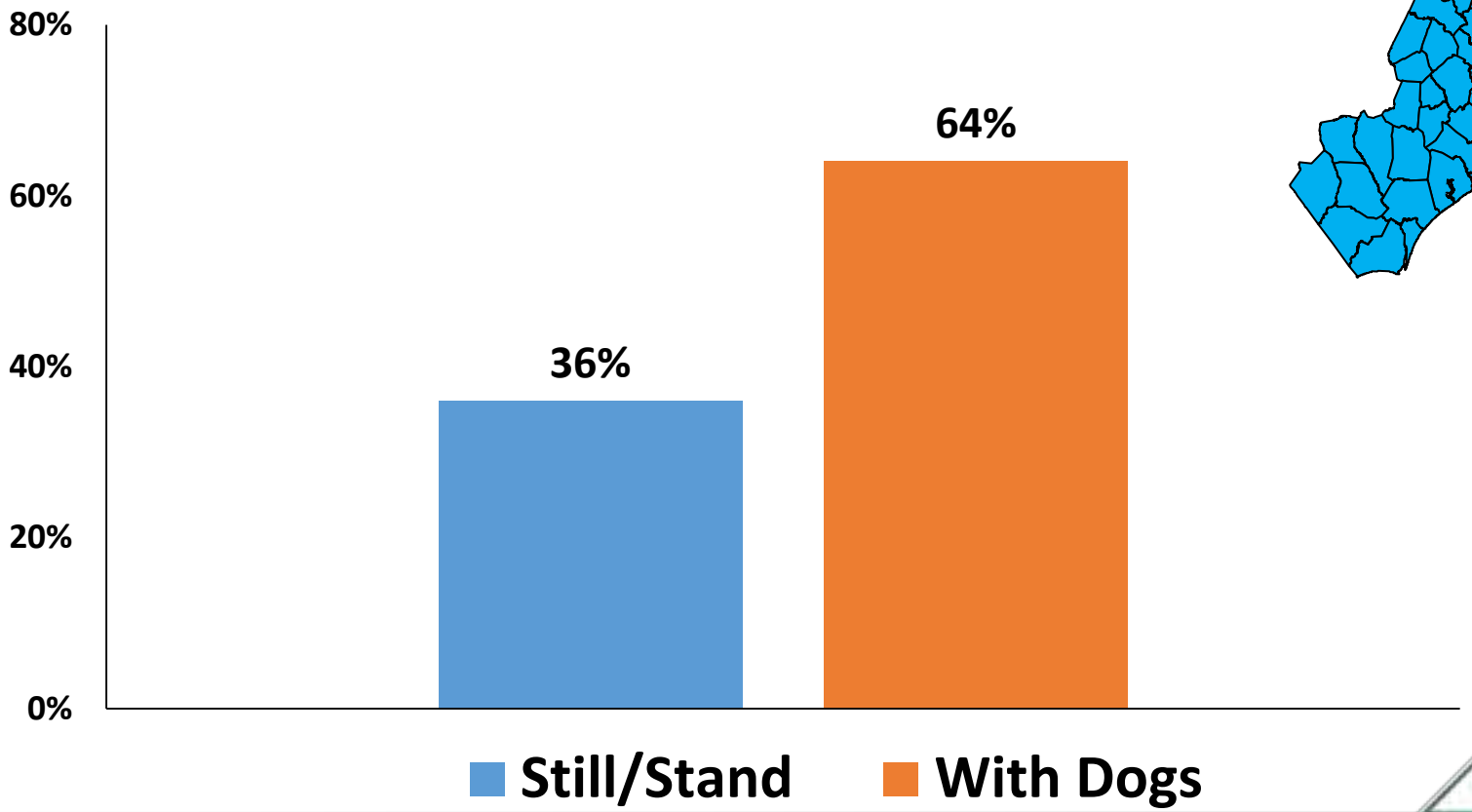
Hunters who indicated that they participated in at least 1 hunt using these methods.

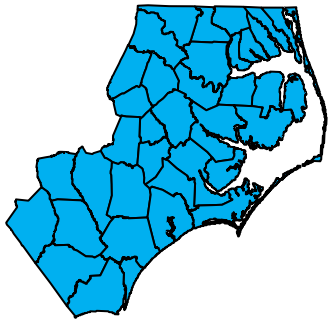




NORTH CAROLINA Wildlife RESOURCES COMMISSION

CBMU Harvest by Hunting Method
(3 Year Average Reported Harvest)

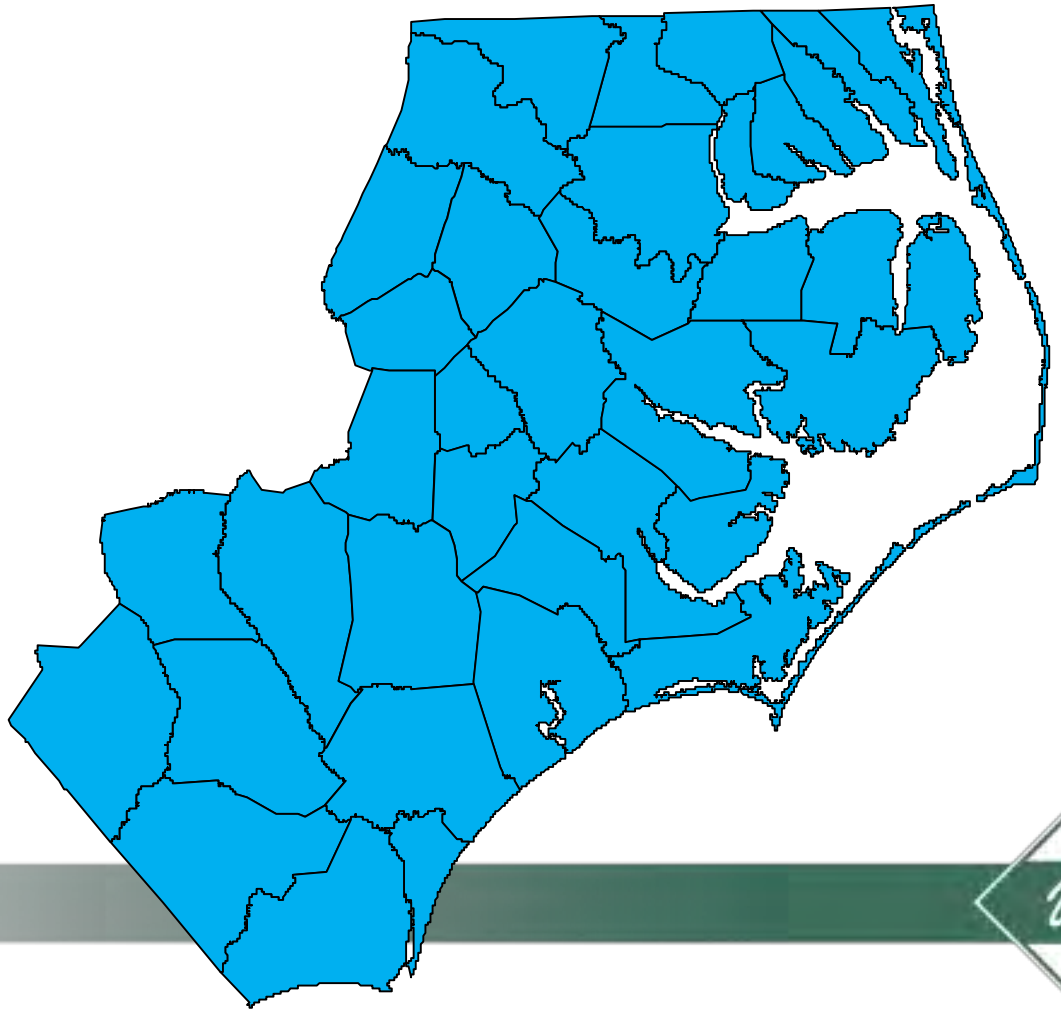




NORTH CAROLINA Wildlife RESOURCES COMMISSION

Development of Zones in the Coastal Bear Management Unit

Coastal Bear Management Unit (CBMU)



NORTH CAROLINA Wildlife RESOURCES COMMISSION

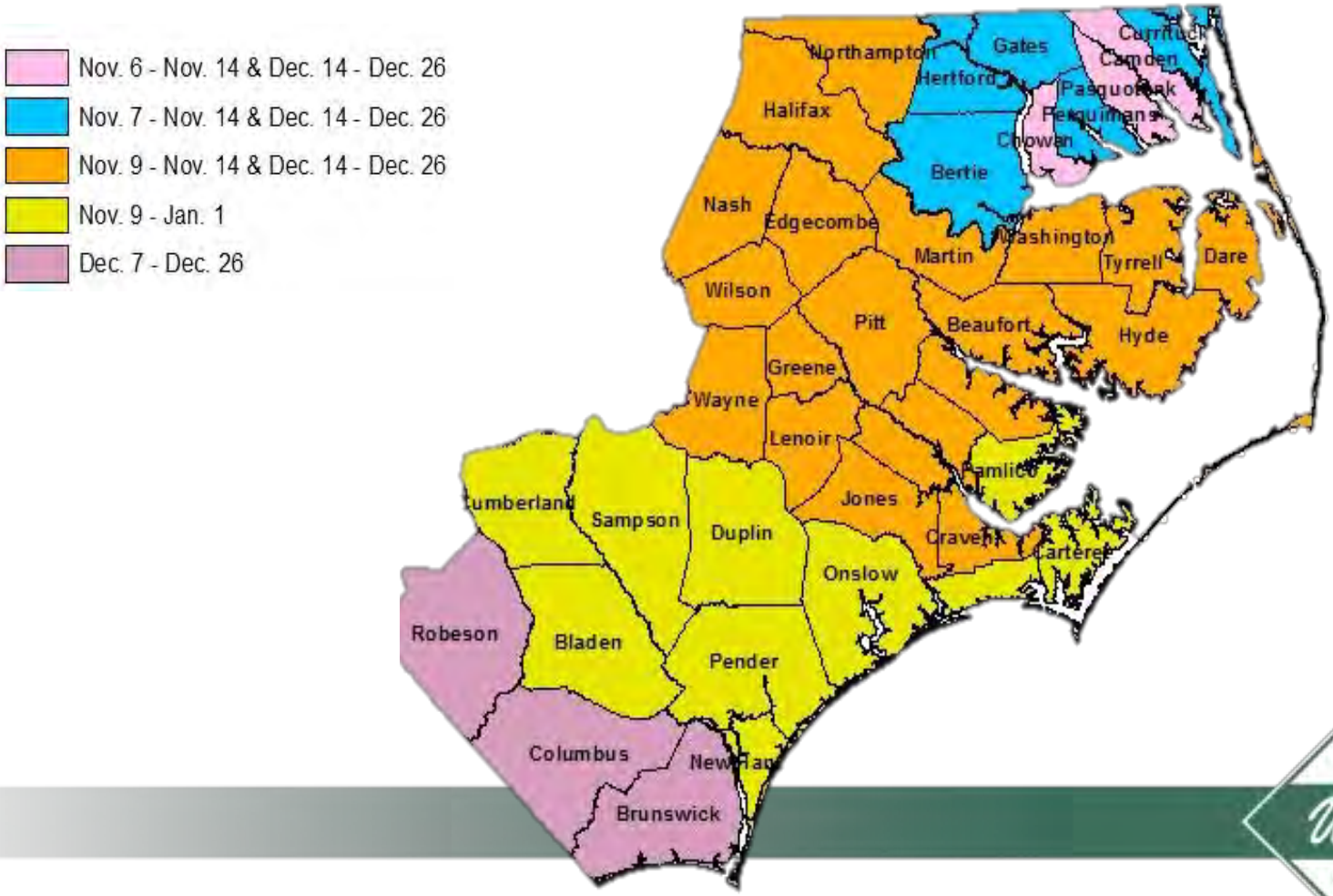
Why Develop CBMU Zones?

Biologists, commissioners, and hunters have all recognized there are major differences across the Coastal Bear Management Unit.

- Bear Population Levels
- Land Use (Available Habitat)
- Hunter Desires and Management Preferences
- Levels of Human / Bear Conflicts (Agriculture)

NORTH CAROLINA Wildlife RESOURCES COMMISSION

2015 CBMU Bear Seasons



NORTH CAROLINA Wildlife RESOURCES COMMISSION

Development of CBMU Zones

- These 5 bear seasons are not bear management areas or units.
- Instead, they reflect season dates established over time that were based on:
    - Bear Population Recovery / Expansion
    - Hunter Access
    - Hunter Desire and Input
    - Local Law

NORTH CAROLINA Wildlife RESOURCES COMMISSION

Development of CBMU Zones

So, to create zones we needed to start from scratch…….

NORTH CAROLINA Wildlife RESOURCES COMMISSION

Development of CBMU Zones

So, to create zones we needed to start from scratch…….

Because:

The existing bear seasons should not drive us toward a conclusion.

Development of CBMU Zones

We needed to conduct a cluster (or grouping) analysis based on variables that impact bear management and that are available for each county within the CBMU.

So, what is a cluster analysis?

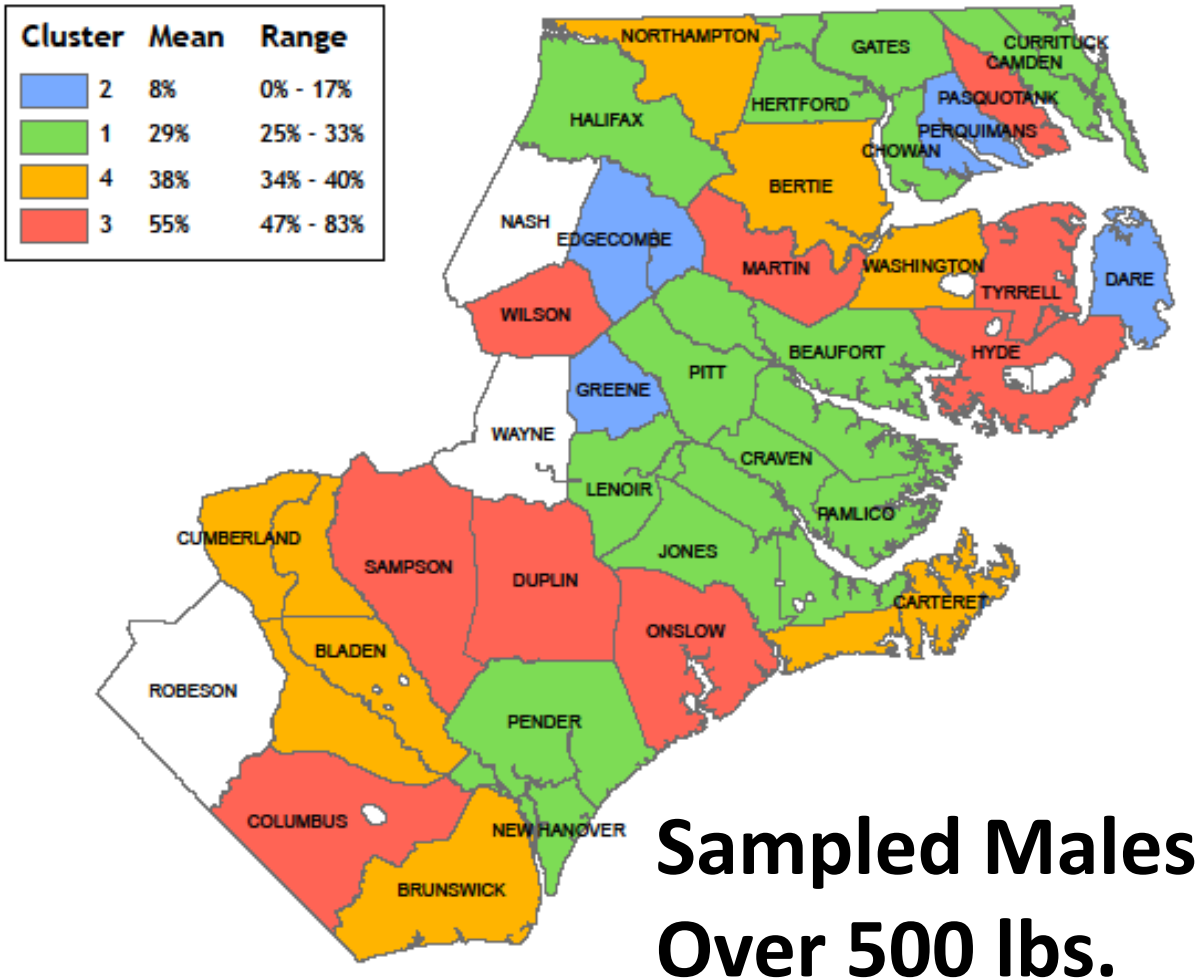
Development of CBMU Zones

In simplest terms:

A cluster analysis is an formula that determines similarities and differences between items based on identified variables and then groups them accordingly.

So, let's look at a simple cluster analysis……

NORTH CAROLINA Wildlife RESOURCES COMMISSION



Sampled Males Over 500 lbs.

NORTH CAROLINA Wildlife RESOURCES COMMISSION

Development of CBMU Zones

1. What are most important variables with regard to bear management?

2. And, which ones are available at the county level?

We made a list……..

NORTH CAROLINA Wildlife RESOURCES COMMISSION

Development of CBMU Zones
Available Variables

Four Broad Categories of Variables

- Biological
- Harvest
- Habitat
- Hunter Access and “Bear Refugia”

Development of CBMU Zones
Available Variables

Four Broad Categories of Variables

- Biological (5)
- Harvest (6)
- Habitat (1)
- Hunter Access and "Bear Refugia" (4)

16 potential variables were identified for consideration

NORTH CAROLINA Wildlife RESOURCES COMMISSION

We ran 62 different cluster analyses with different combinations of the 16 available variables, and cluster groups ranging from 2 to 5.

We determined that only 5 of the 16 available variables were providing meaningful results in cluster analysis.

We did not allow the process to force geographic clustering.

NORTH CAROLINA Wildlife RESOURCES COMMISSION

Development of CBMU Zones
Evaluated Variables

The 5 variables that demonstrated the ability to significantly influence clustering of counties were:

- Bear land cover
- Harvest per huntable area
- Ratio of sanctuary to non-sanctuary
- Average weight of sampled males
- Hunter success rate

Development of CBMU Zones
Evaluated Variables

- **Bear Land Cover**:
  - Deciduous forest
  - Mixed forest
  - Wetland

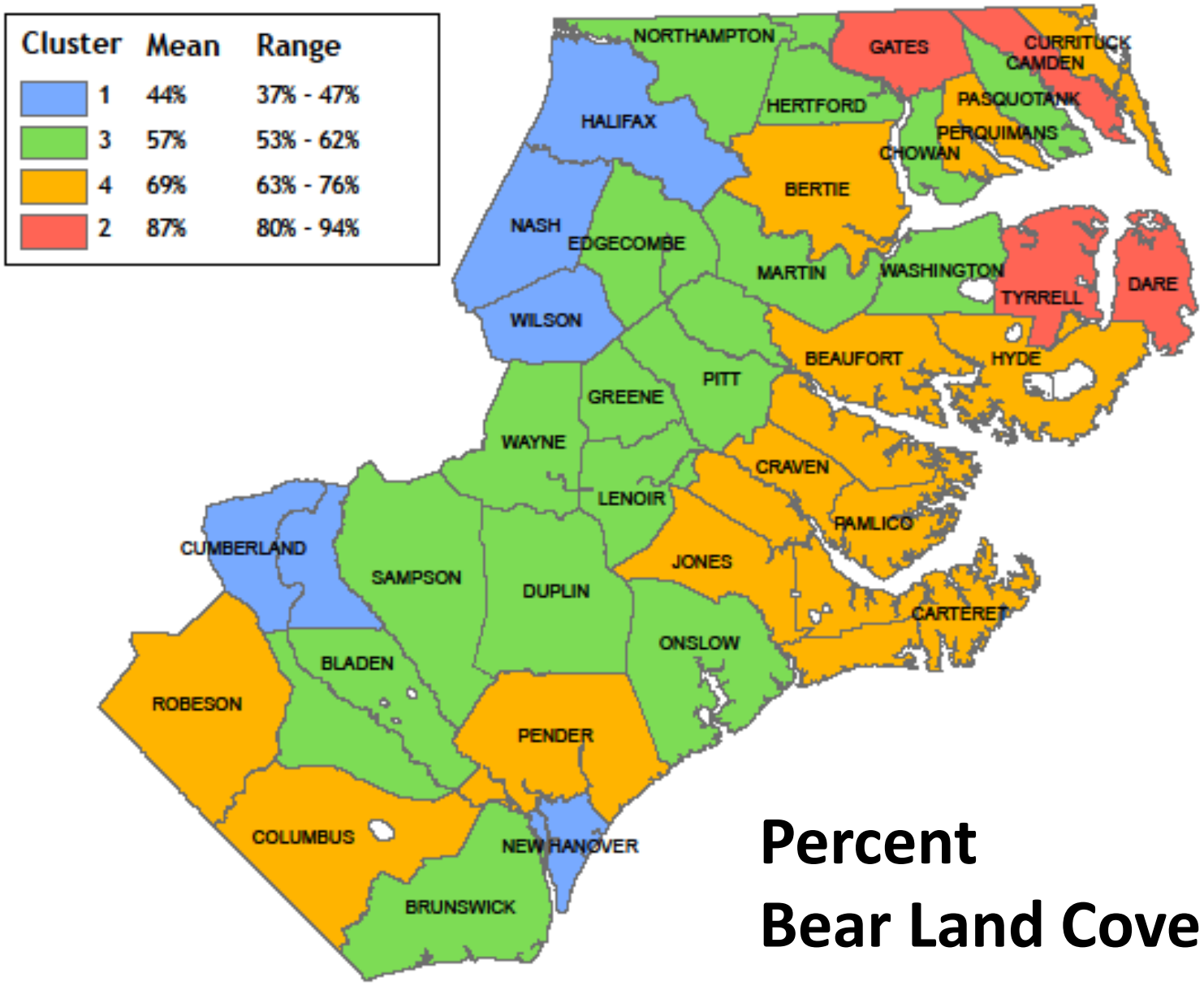
  * Agriculture influence on the landscape ???

NORTH CAROLINA Wildlife RESOURCES COMMISSION

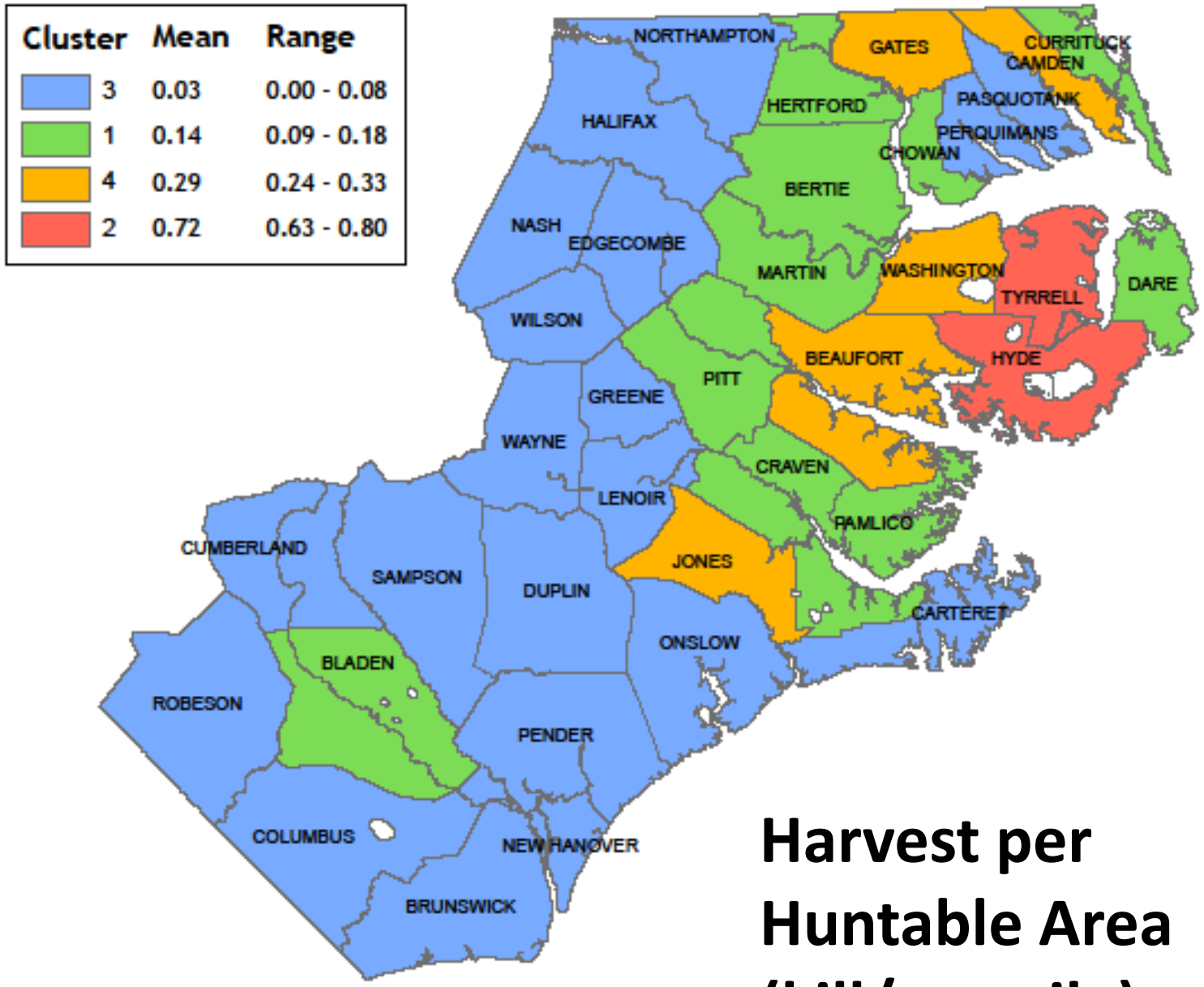
Development of CBMU Zones
Evaluated Variables

- **Bear Land Cover:**
  - Deciduous forest
  - Mixed forest
  - Wetland

  - “Edible” planted crop (3-year average)

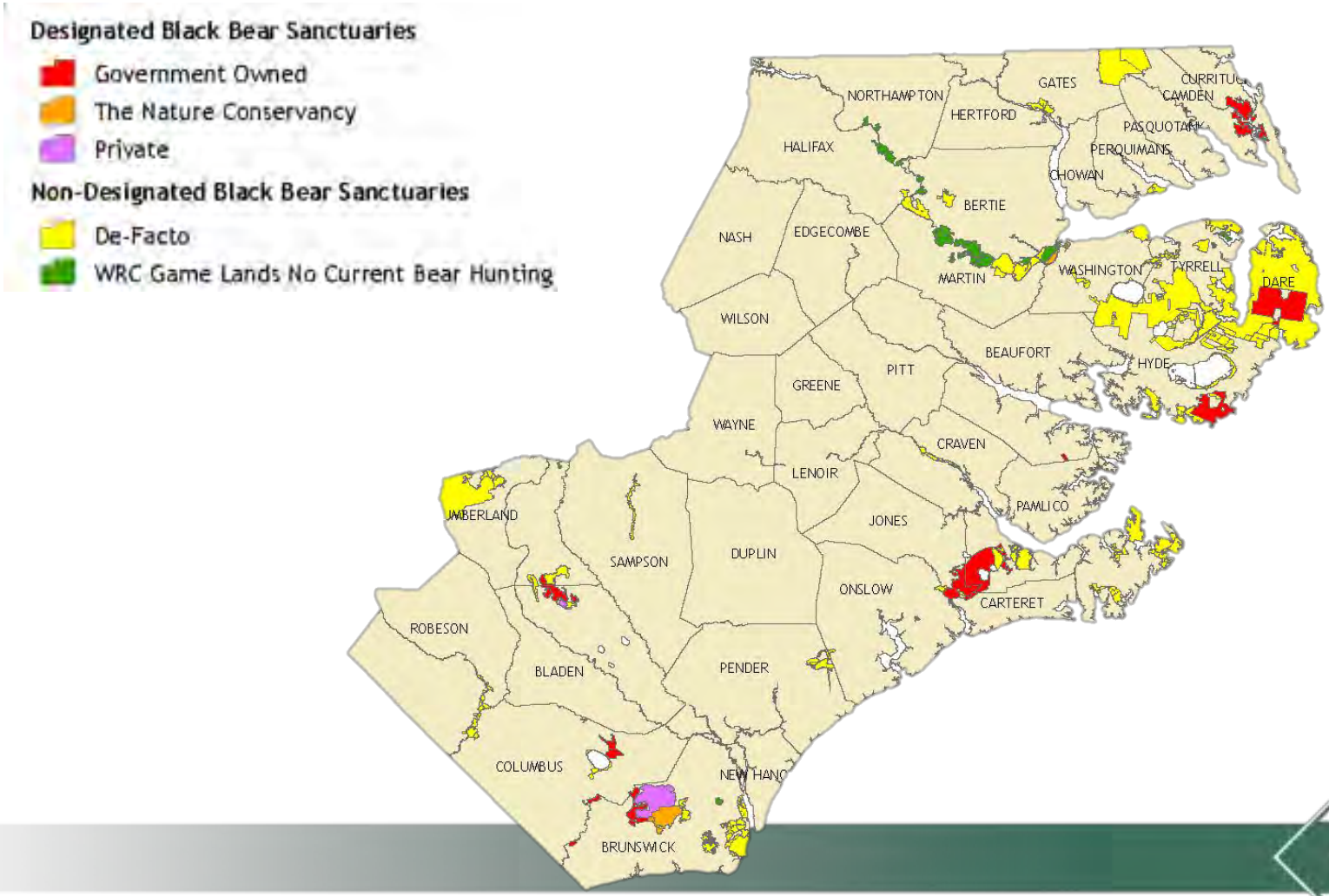


Percent Bear Land Cover

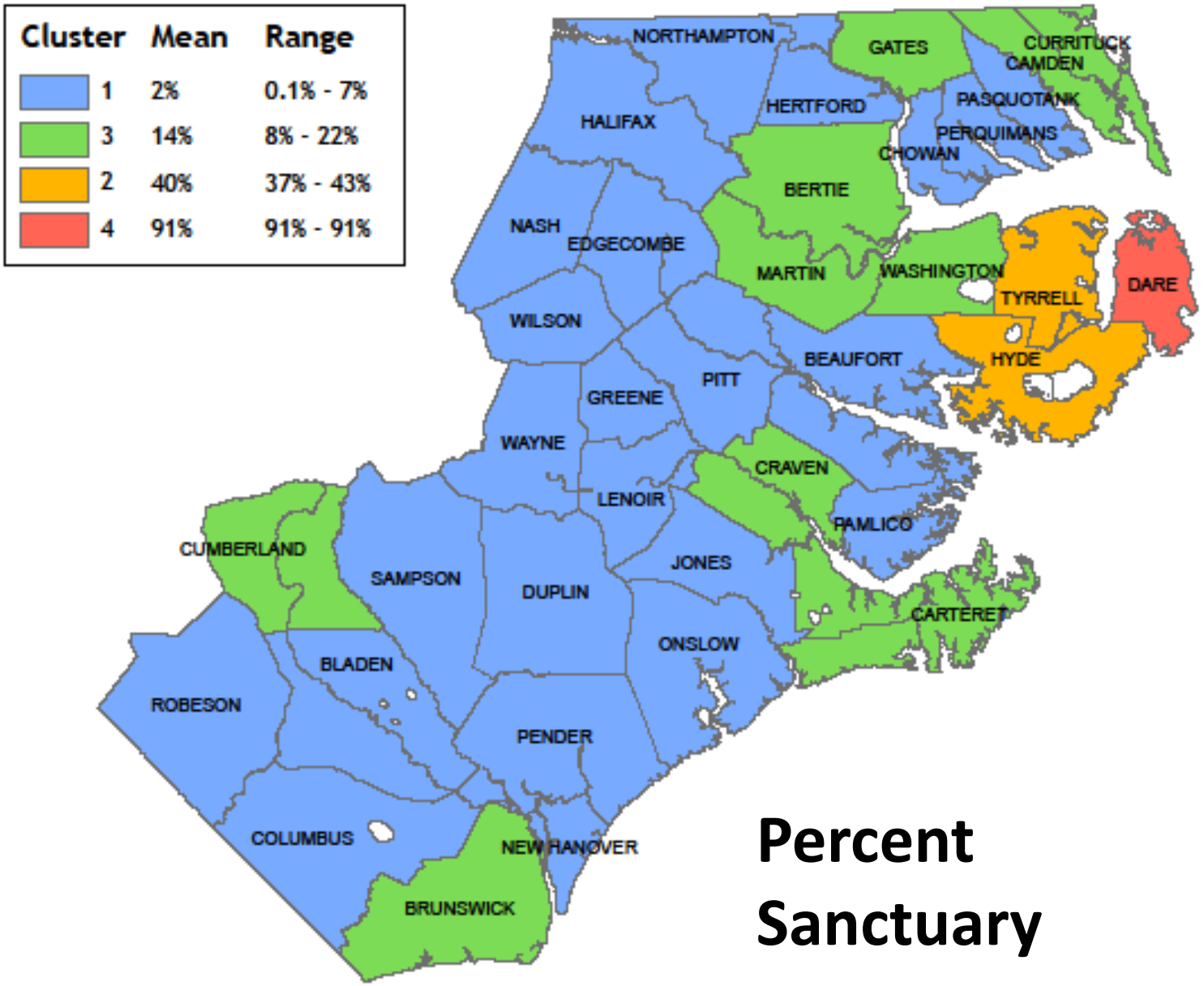


Harvest per Huntable Area (kill/sq. mile)

Bear Sanctuaries



NORTH CAROLINA Wildlife RESOURCES COMMISSION



Percent Sanctuary

Final Zone Development

We ran multiple cluster analysis and found that Dare County was heavily influencing the clusters.

So we removed it and ran the analyses again.

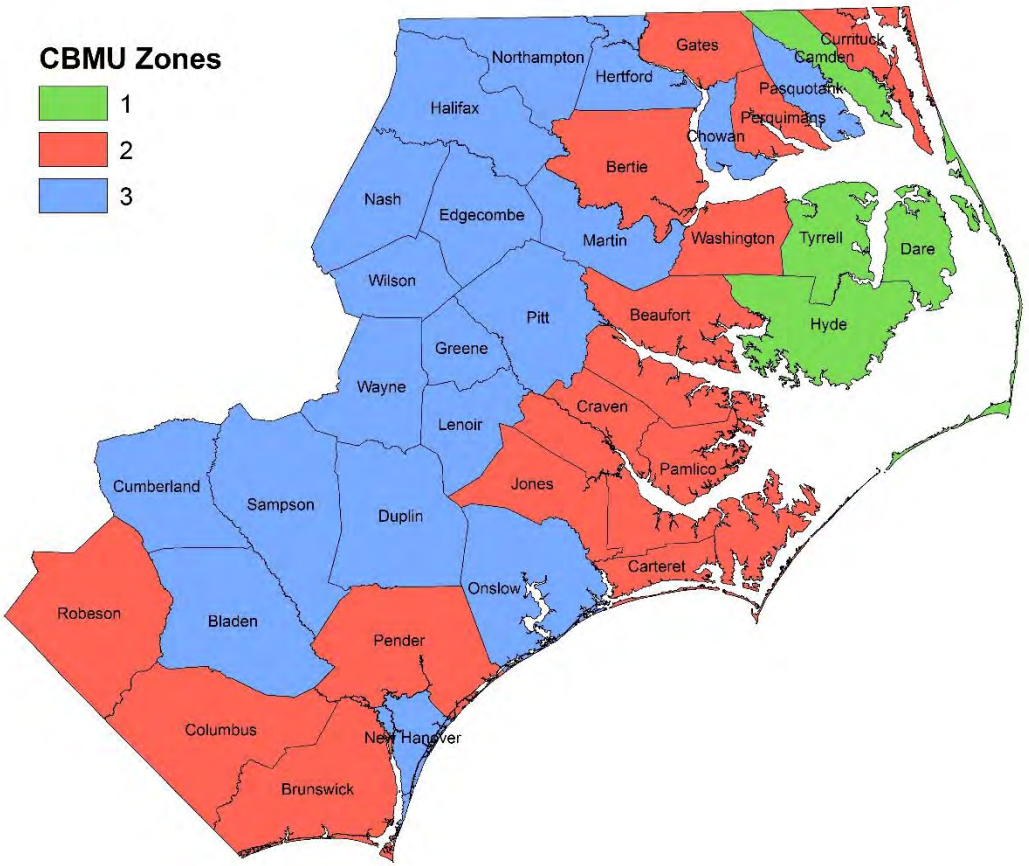
So let's look at the one that fit the best…..

NORTH CAROLINA Wildlife RESOURCES COMMISSION

Final Zone Development

* Our BEST Analysis was 3 Clusters with 3 Variables:

Bear Land Cover, Harvest per Huntable Area, and Percent Sanctuary



*The only Anova with pairwise testing resulting in 9 out of 9 (100%) of cluster comparisons being significantly different (P<0.05).

NORTH CAROLINA Wildlife RESOURCES COMMISSION

Science and Statistics can’t tell you the complete answer to every question…..

NORTH CAROLINA Wildlife RESOURCES COMMISSION

Final Zone Development

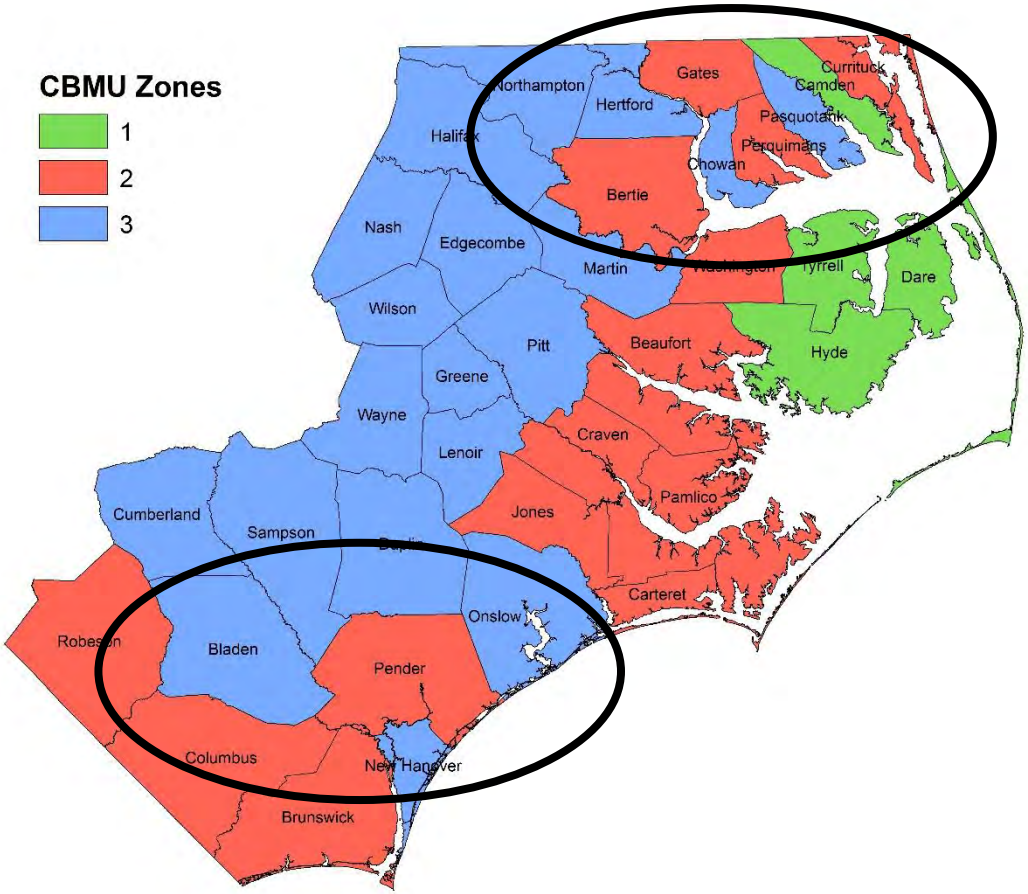
This map was next evaluated using expert elicitation of WRC biological staff.

We asked them to provide recommendations based on their management knowledge and field experience in these counties.

To Produce a Final Map of CBMU Zones

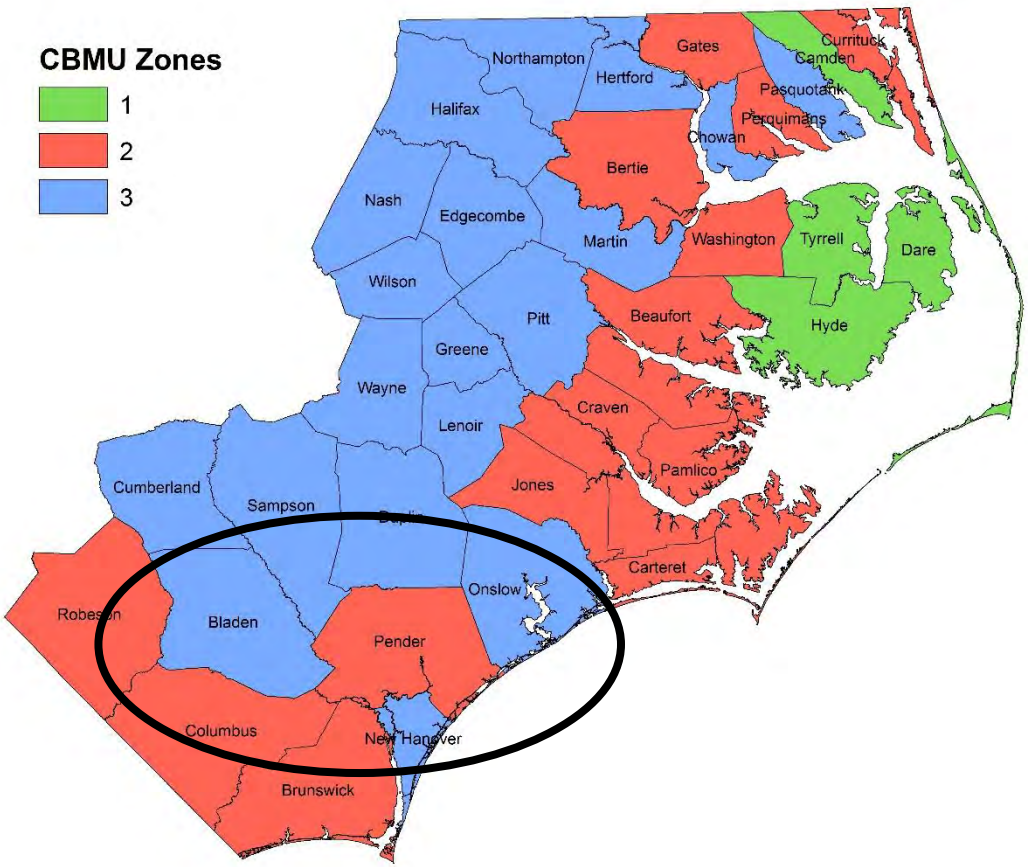
Final Zone Development

BEST Analysis 3 Clusters with 3 Variables:



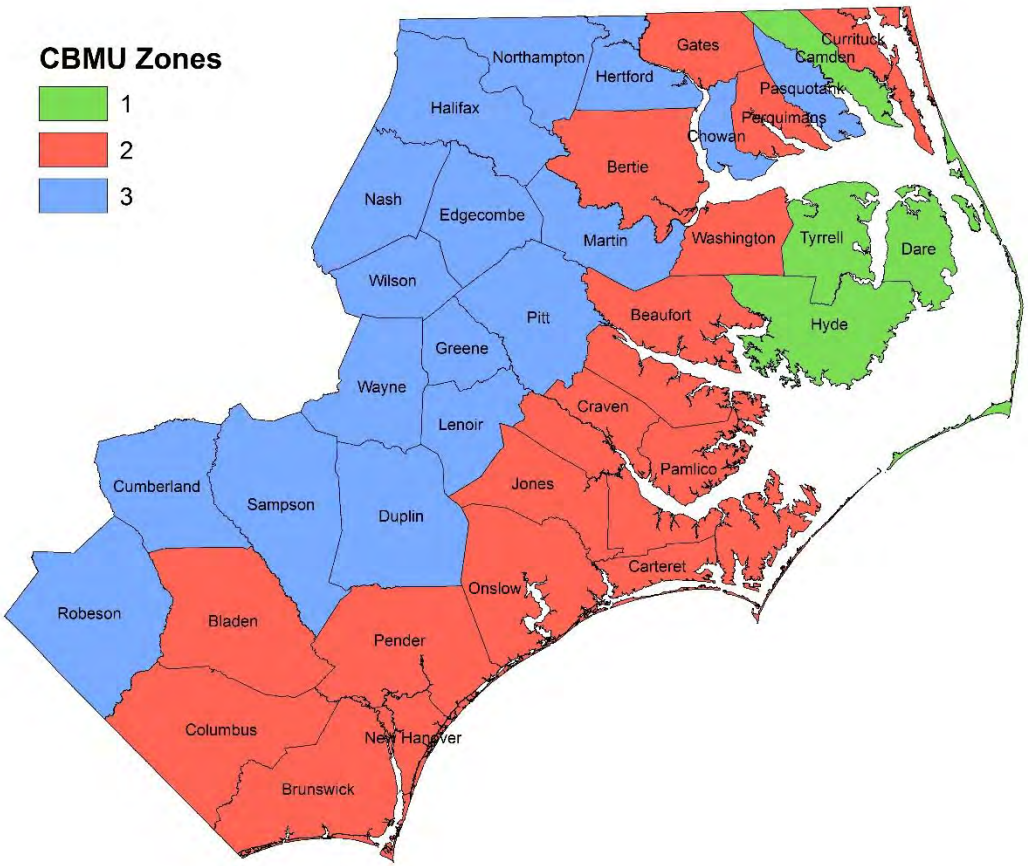
Final Zone Development

BEST Analysis 3 Clusters with 3 Variables:



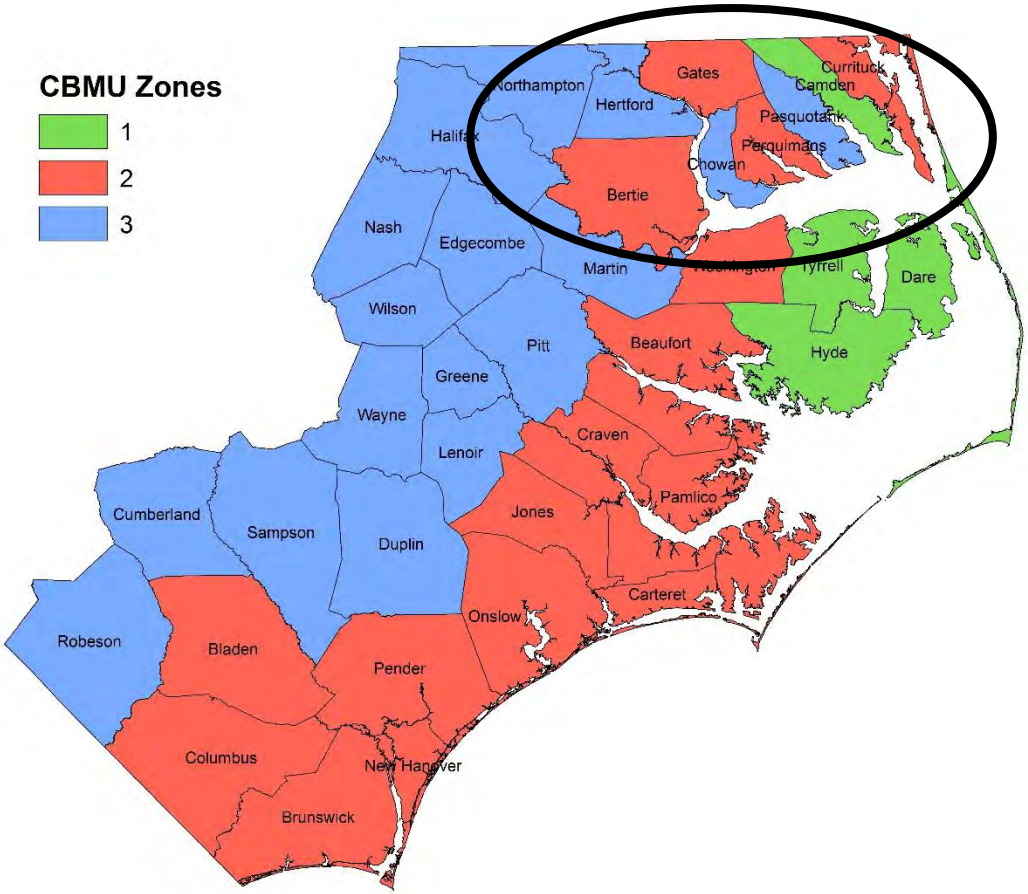
Final Zone Development

BEST Analysis 3 Clusters with 3 Variables:



Final Zone Development

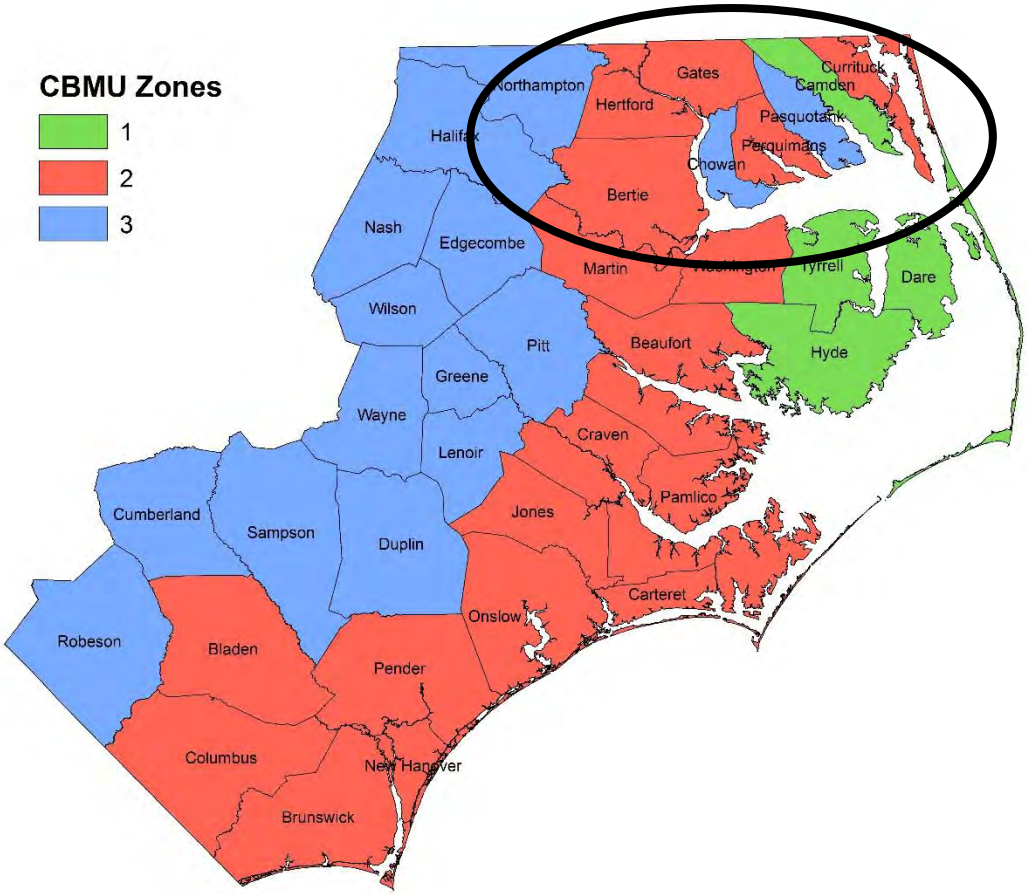
BEST Analysis 3 Clusters with 3 Variables:



NORTH CAROLINA Wildlife RESOURCES COMMISSION

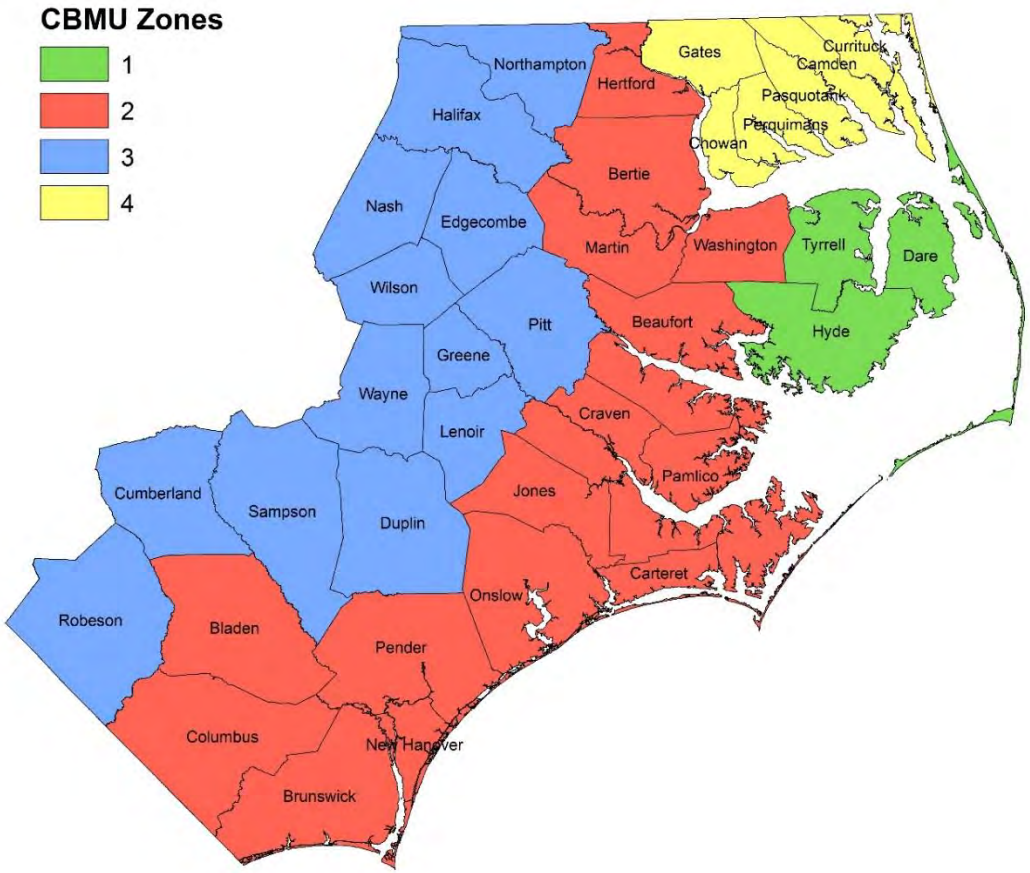
Final Zone Development

BEST Analysis 3 Clusters with 3 Variables:



NORTH CAROLINA Wildlife RESOURCES COMMISSION

CBMU Biological Zones



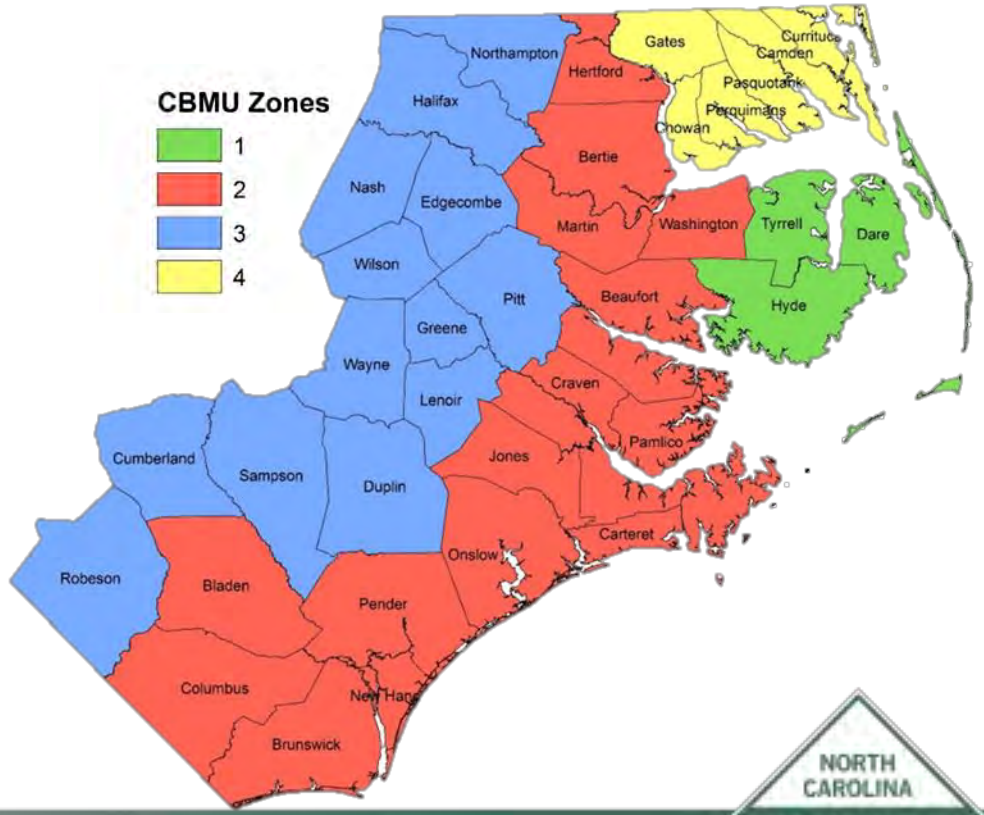
NORTH CAROLINA Wildlife RESOURCES COMMISSION

Do you think these zones look like reasonable bear management zones for our coastal unit?

A. Yes.

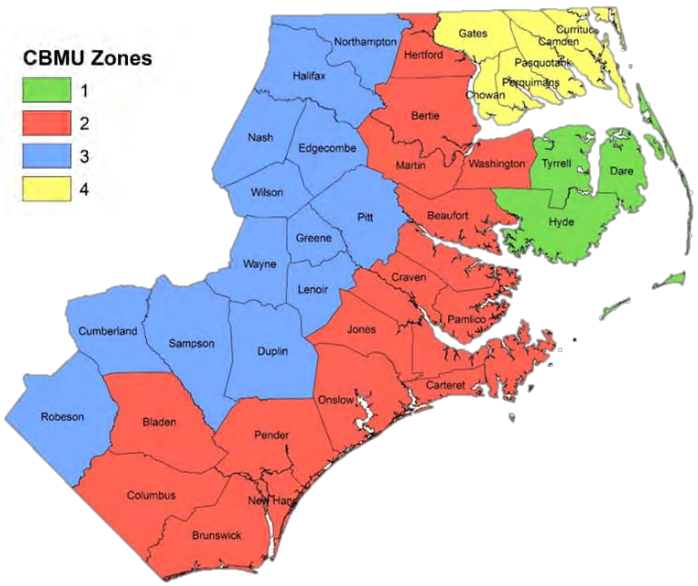
B. No.

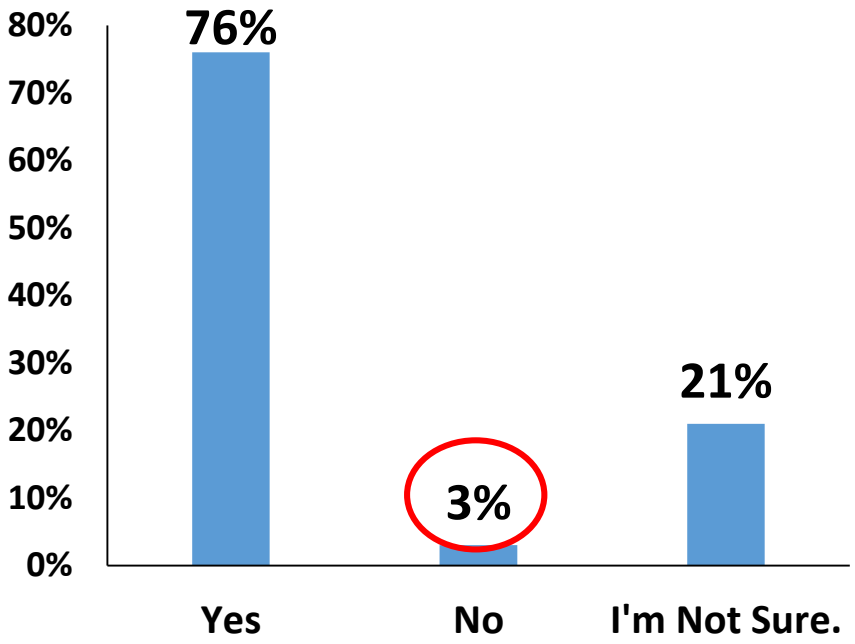
C. I'm Not Sure.



NORTH CAROLINA Wildlife RESOURCES COMMISSION

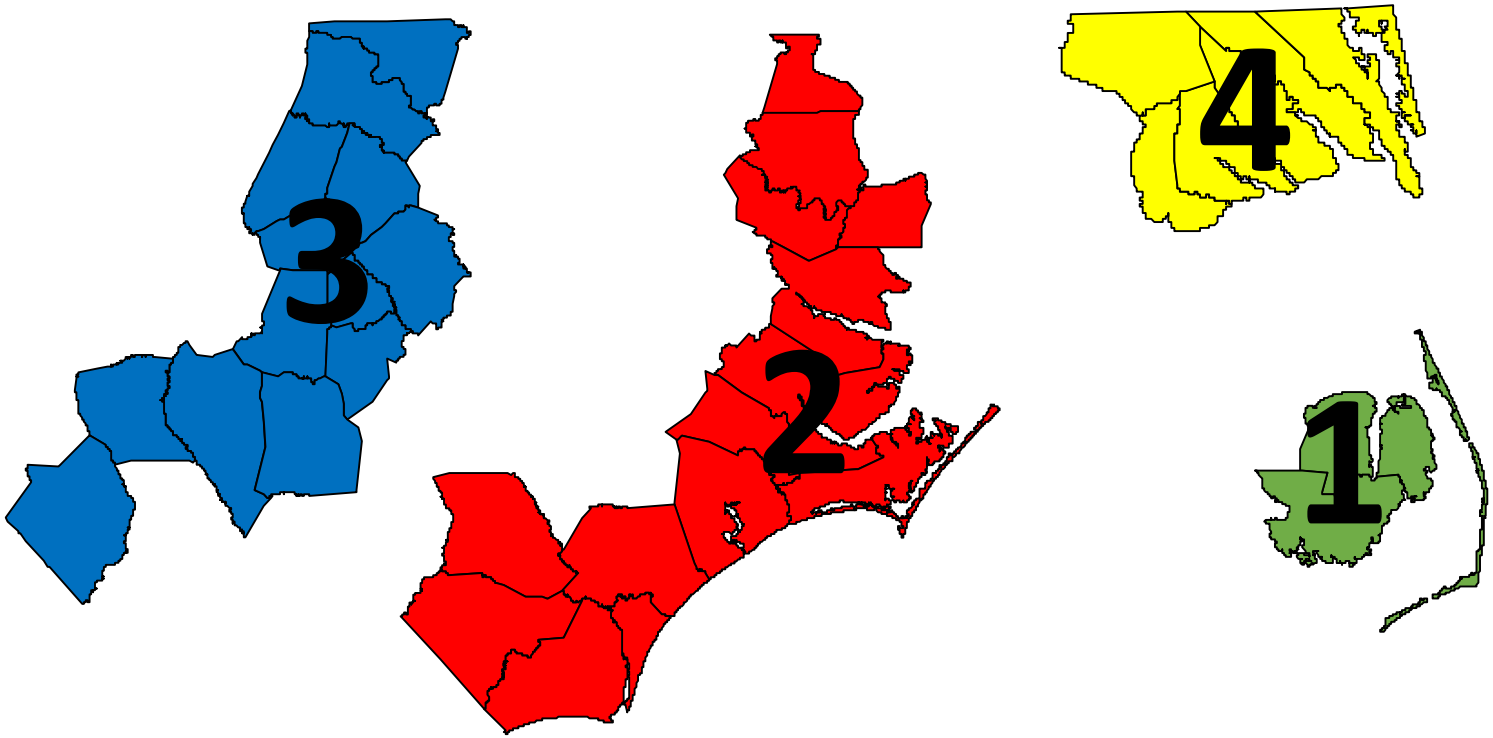
Do you think these zones look like reasonable bear management zones for our coastal unit?





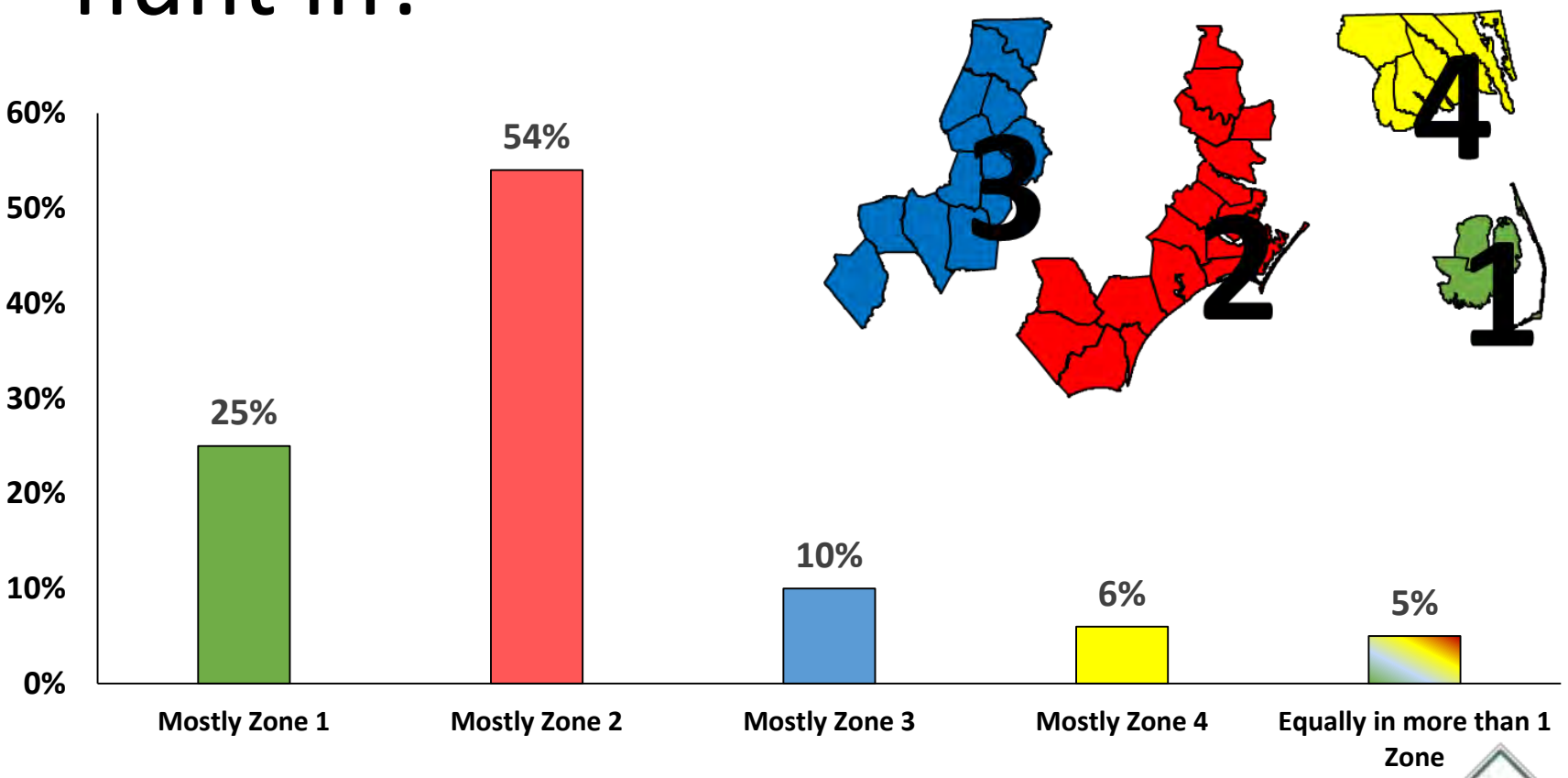
NORTH CAROLINA Wildlife RESOURCES COMMISSION

So, now let's talk about information for each of these zones!



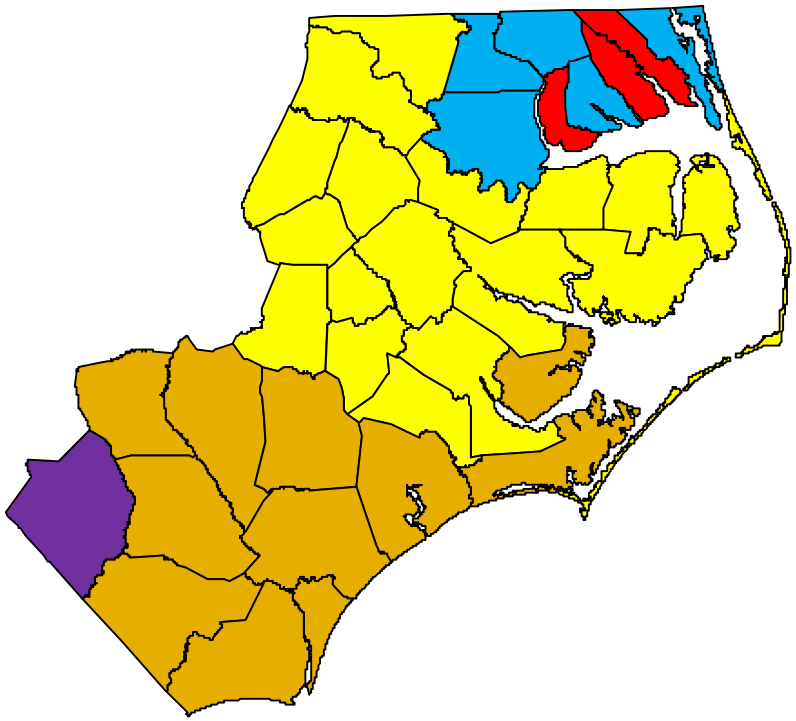
NORTH CAROLINA Wildlife RESOURCES COMMISSION

Which CBMU Zone do you most hunt in?



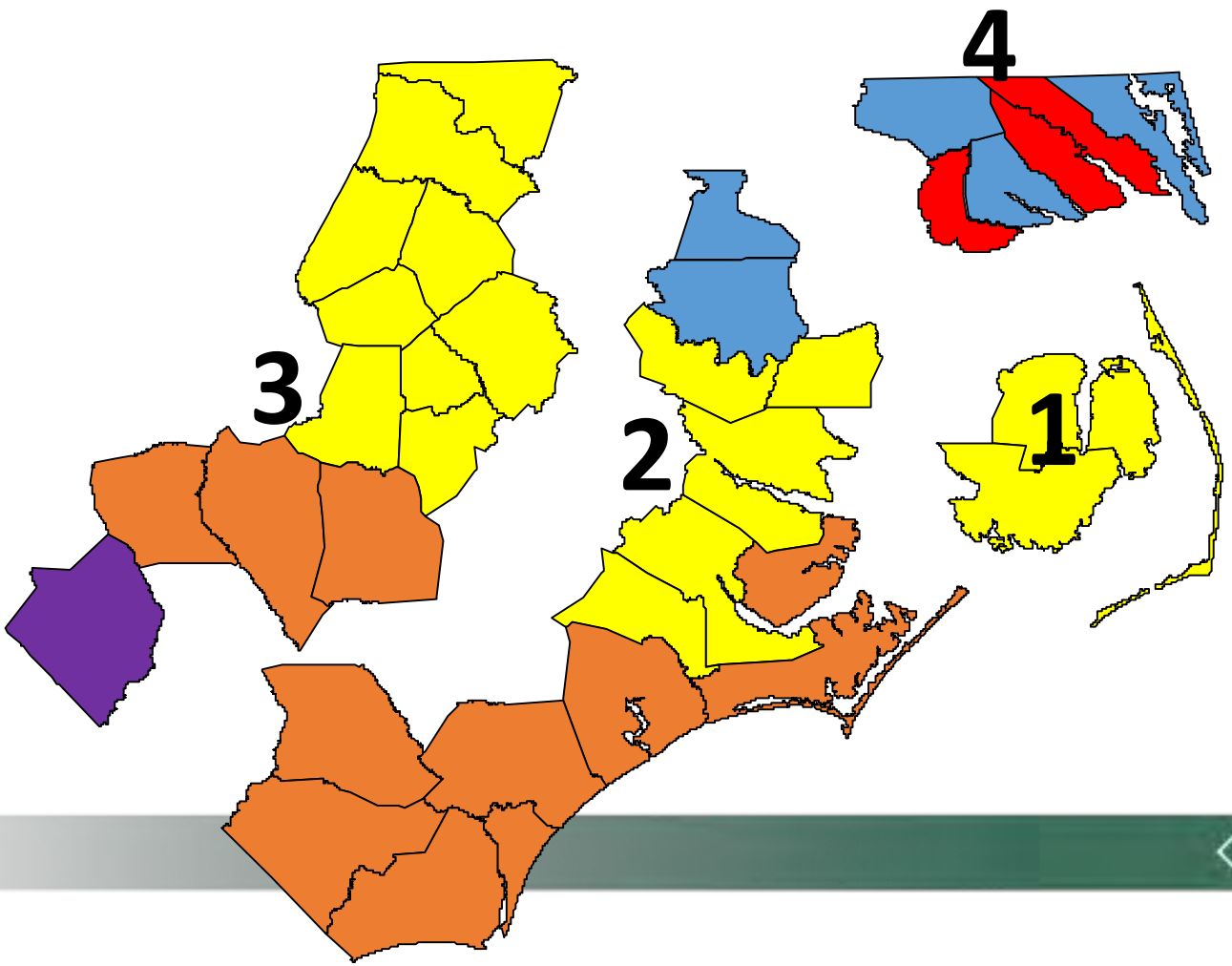
NORTH CAROLINA Wildlife RESOURCES COMMISSION

2016 CBMU Bear Seasons

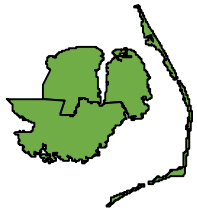
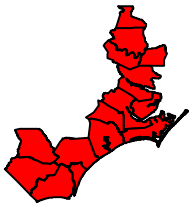
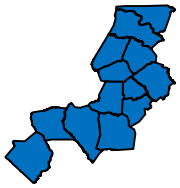
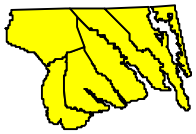


NORTH CAROLINA Wildlife RESOURCES COMMISSION

How our current bear seasons overlay on the CBMU Zones!

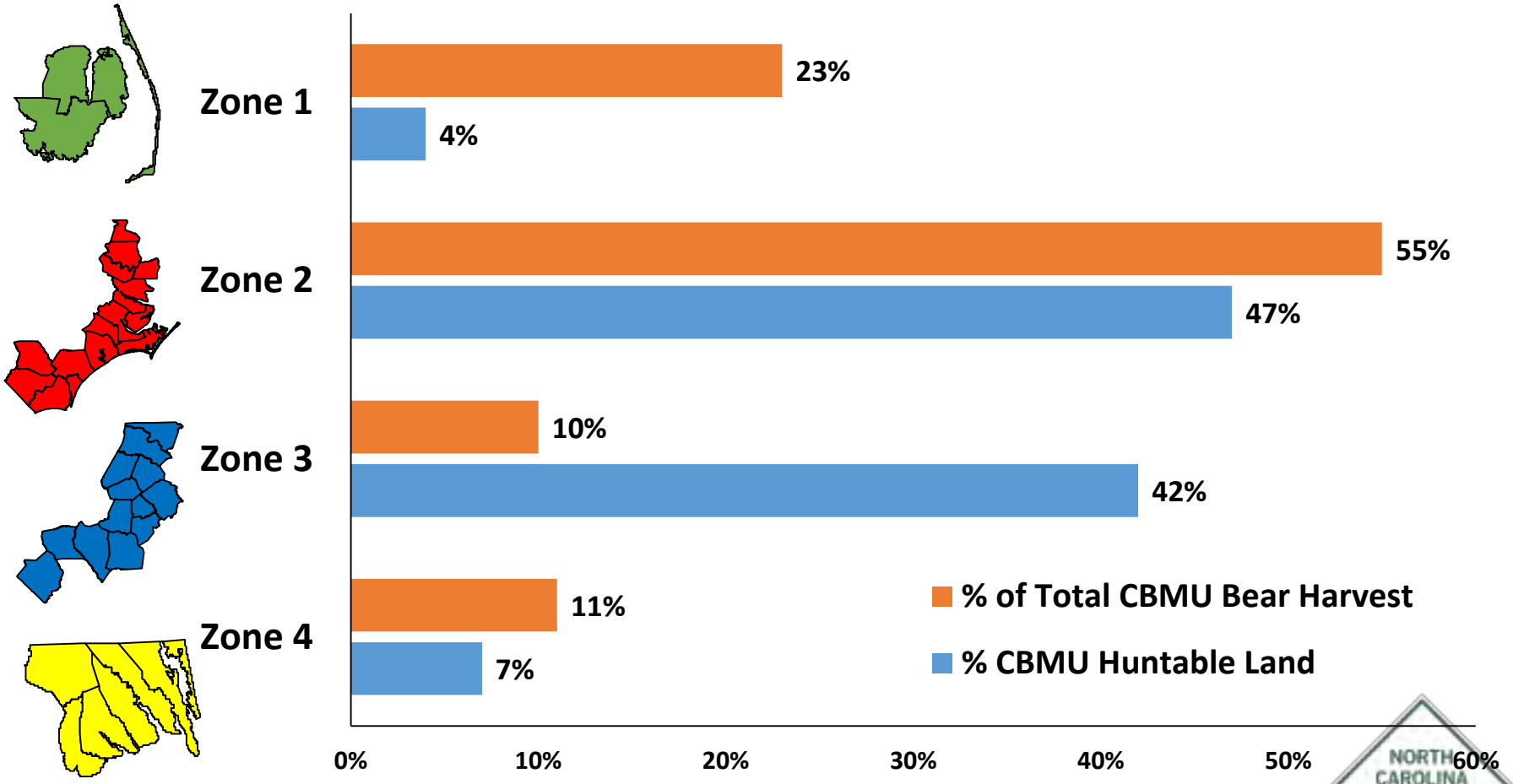


NORTH CAROLINA Wildlife RESOURCES COMMISSION

Zone	Number of Counties	Total Land Area (Square Miles)	Huntable Land (Square Miles)
1 	3	1,459	635 (44%)
2 	15	9,275	8,141 (88%)
3 	13	7,959	7,252 (91%)
4 	6	1,486	1,289 (87%)

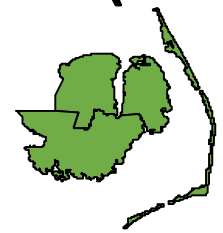
NORTH CAROLINA Wildlife RESOURCES COMMISSION

CBMU Zone Comparisons
(3 Year Average Reported Harvest)

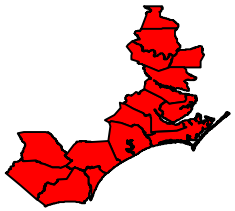


NORTH CAROLINA Wildlife RESOURCES COMMISSION

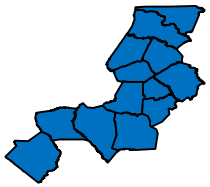
CBMU Zone Comparisons
(3 Year Average Reported Harvest)



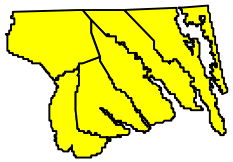
Zone 1



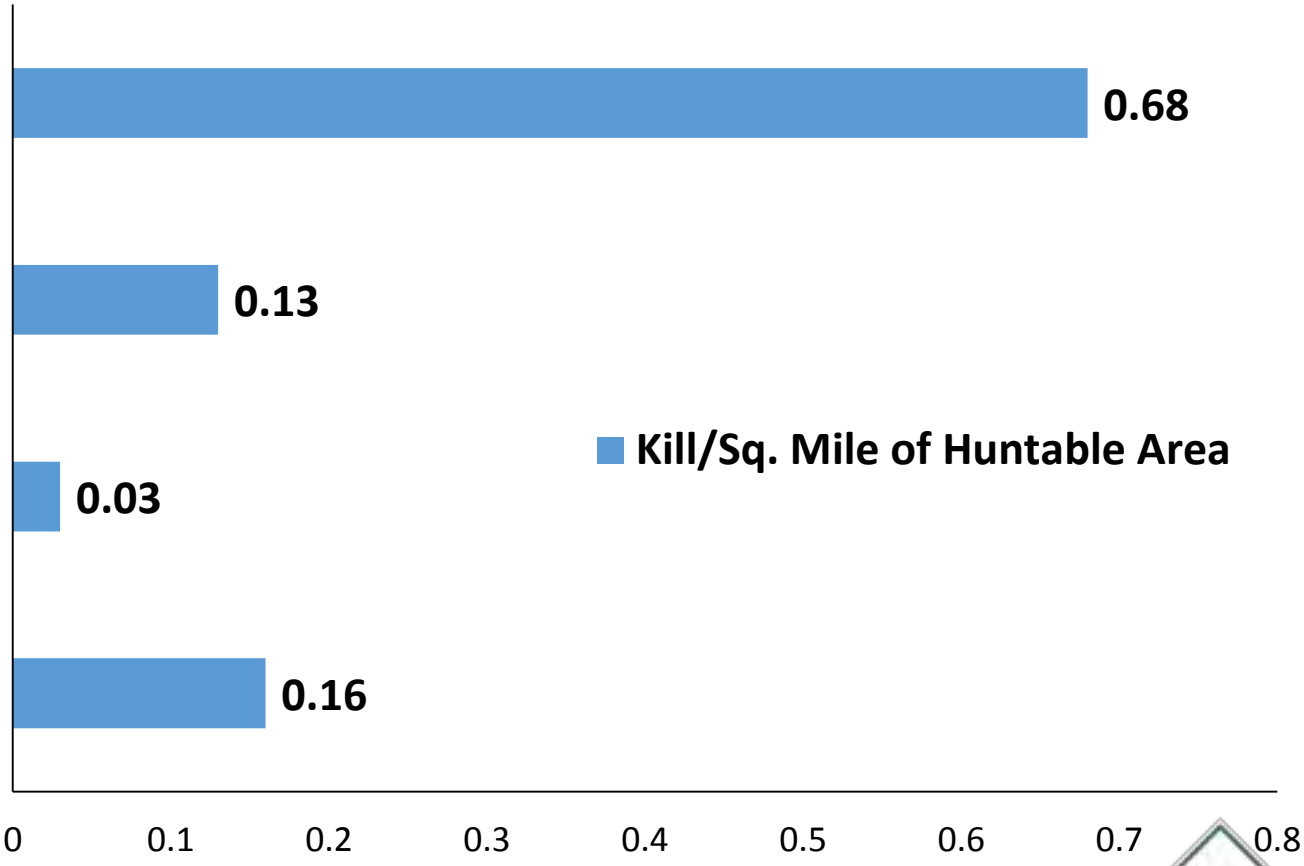
Zone 2



Zone 3

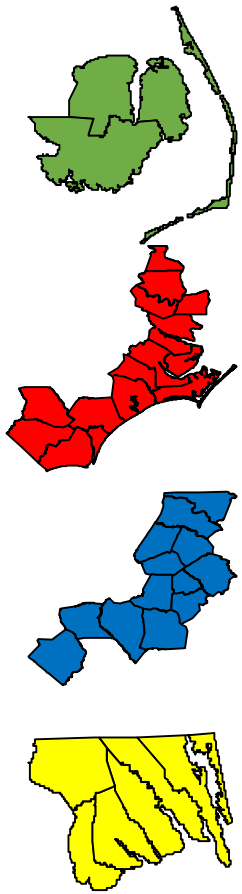


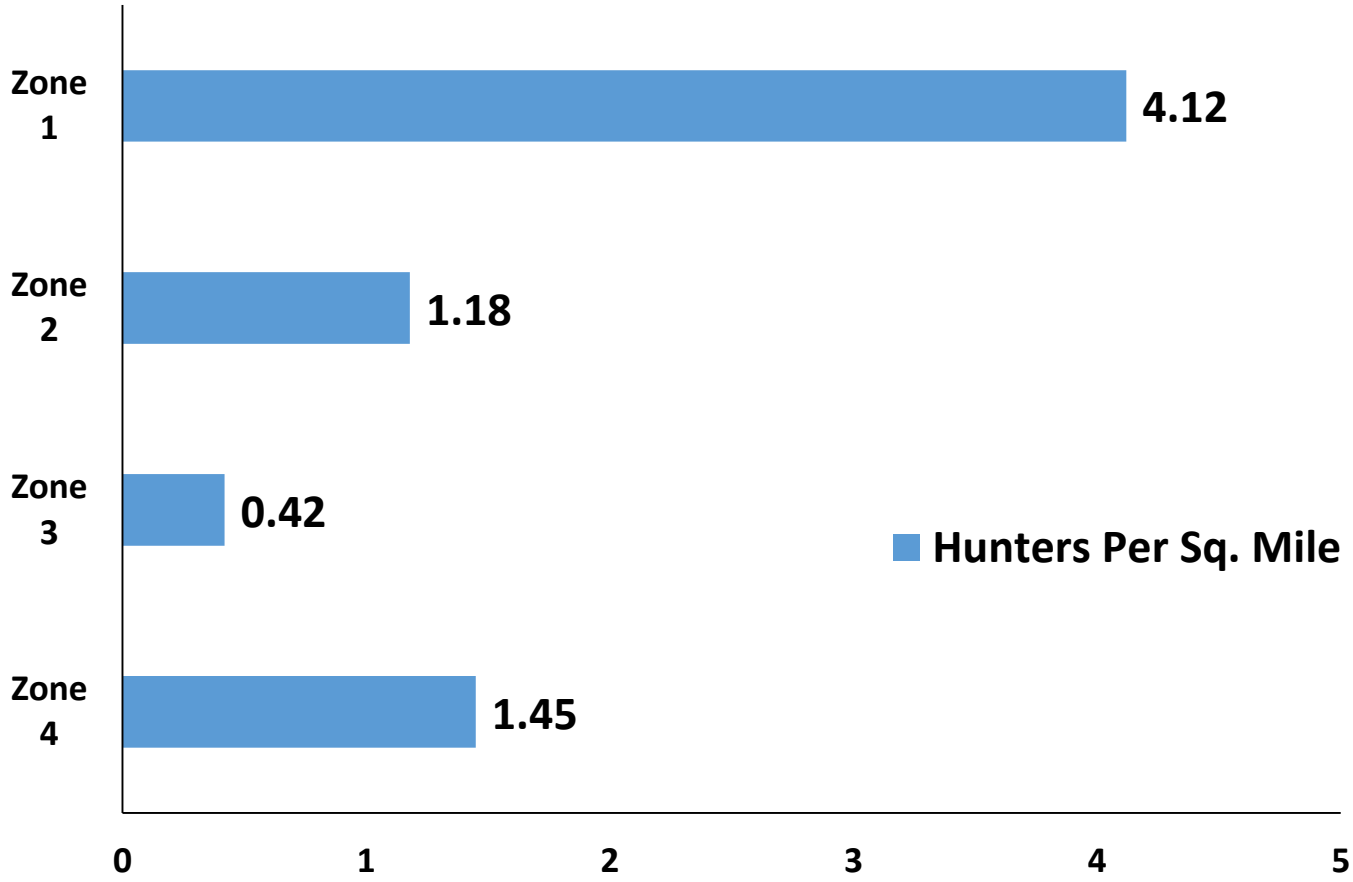
Zone 4



NORTH CAROLINA Wildlife RESOURCES COMMISSION

CBMU Zone Comparisons





(2015 e-stamp)

Which CBMU Zone do you hunt most in?

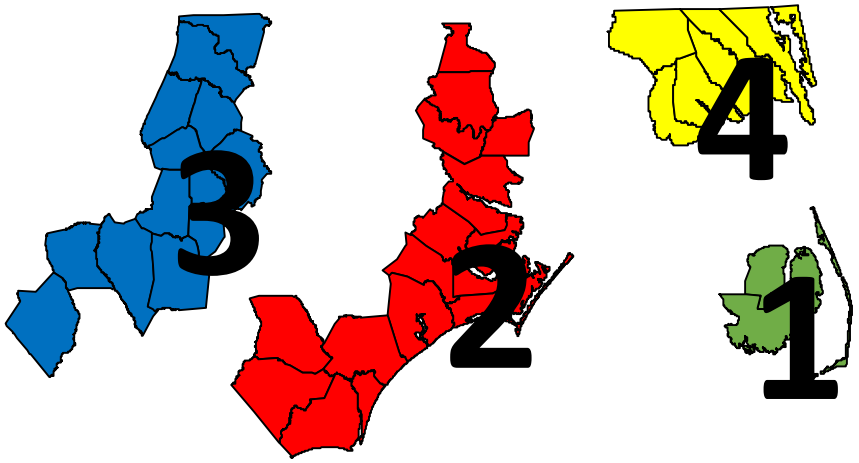
A. Mostly Zone 1

B. Mostly Zone 2

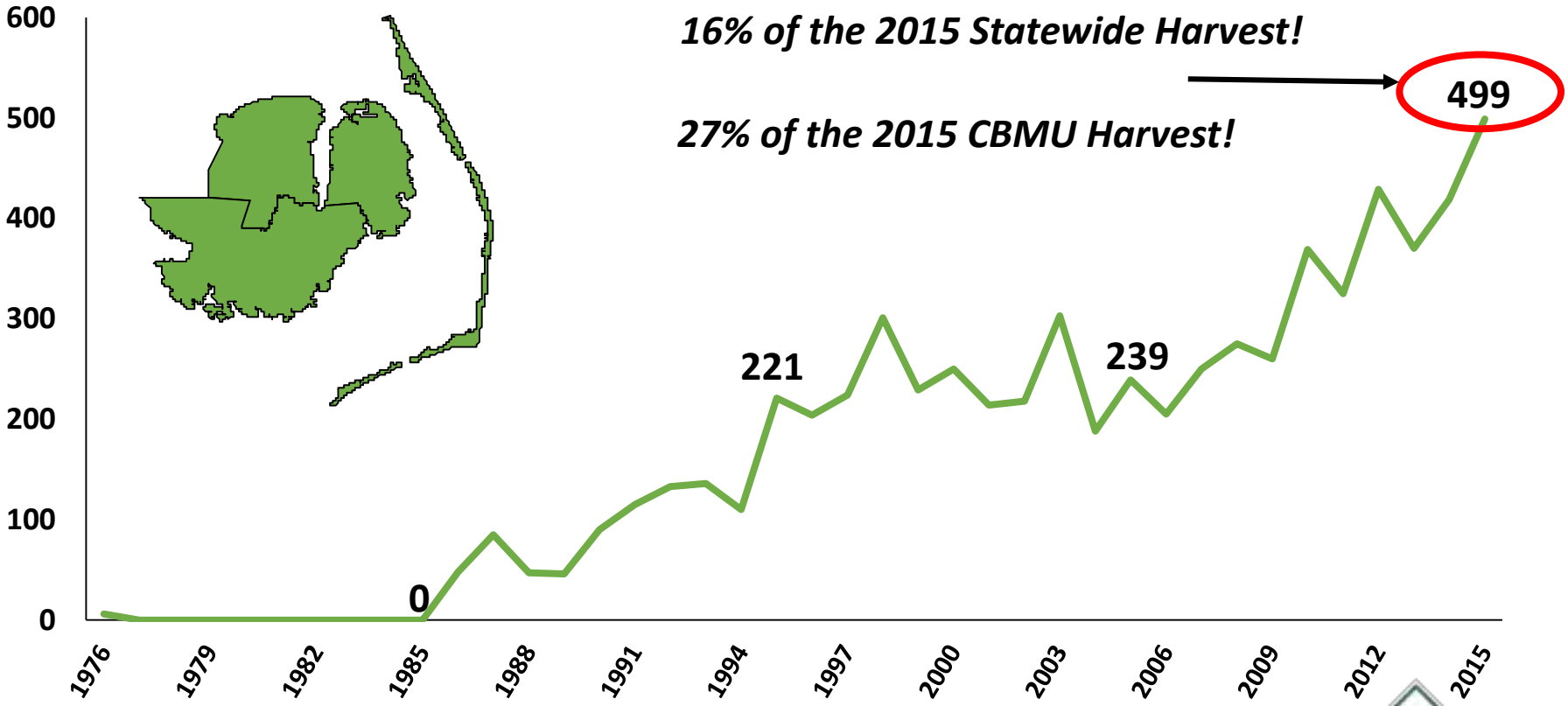
C. Mostly Zone 3

D. Mostly Zone 4

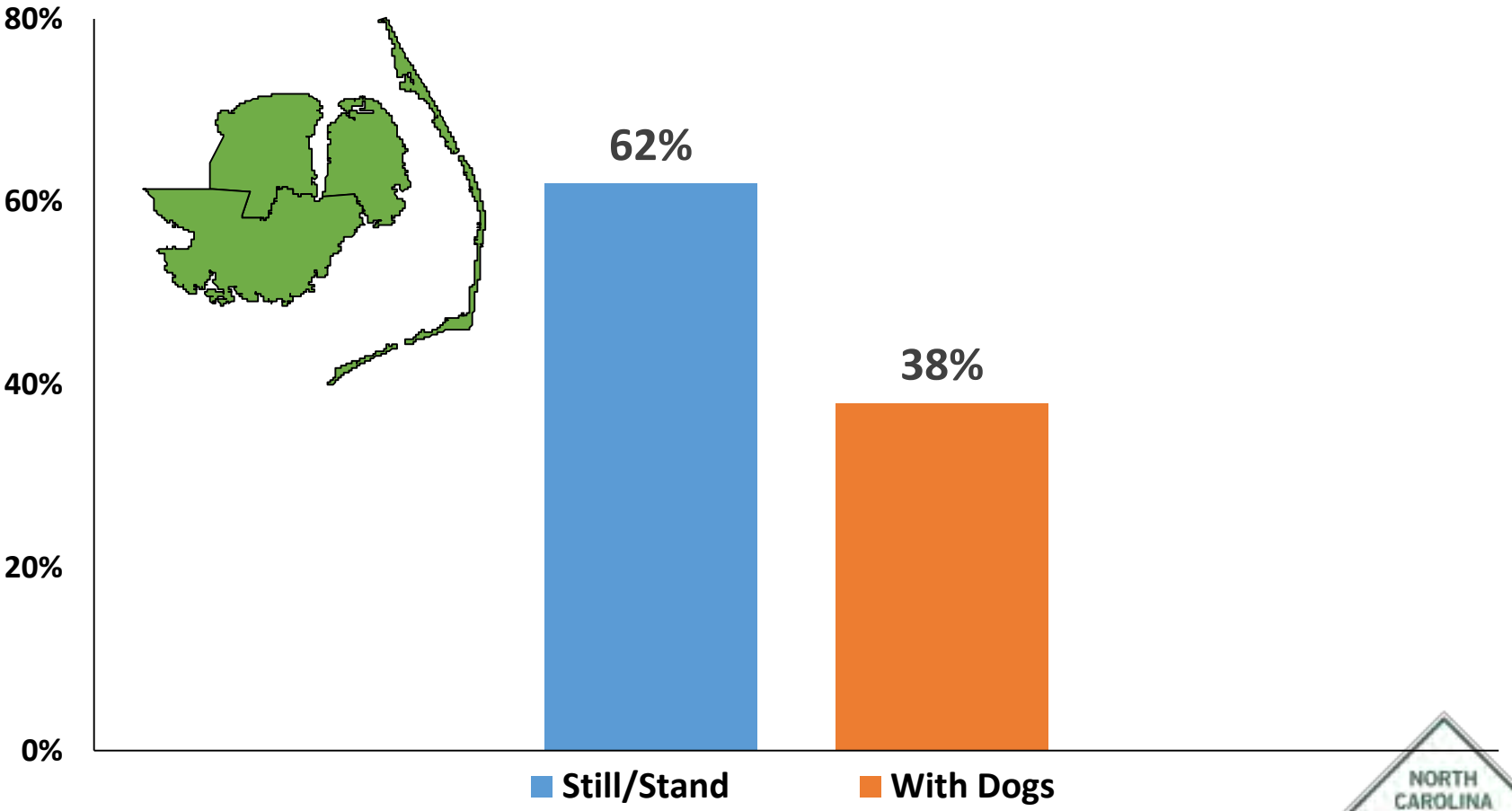
E. Equally in more than 1 Zone



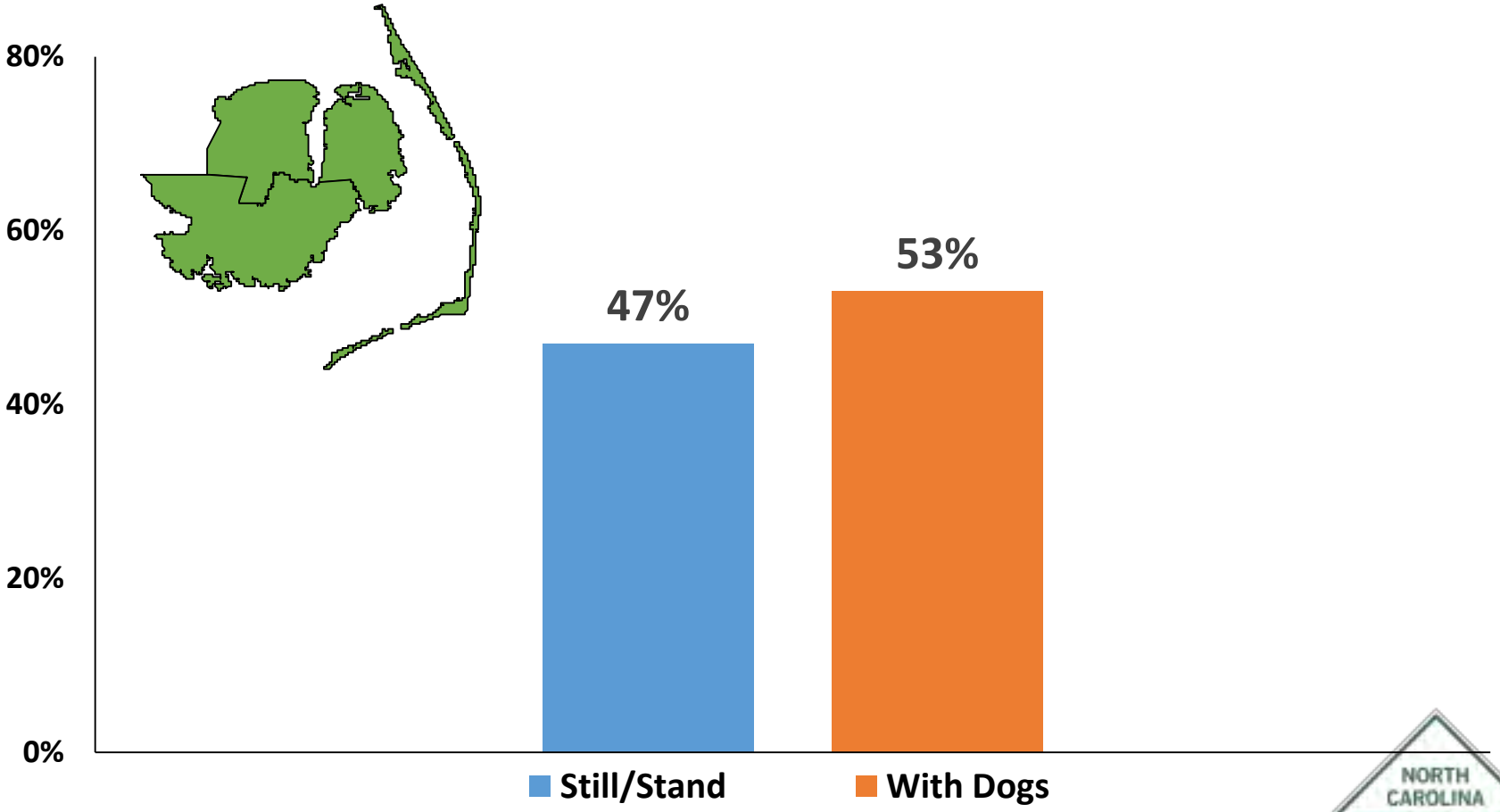
CBMU Zone 1 Harvest Trend



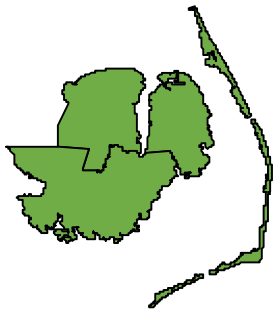
Zone 1 Hunting Methods
(2015 e-Stamp Survey)

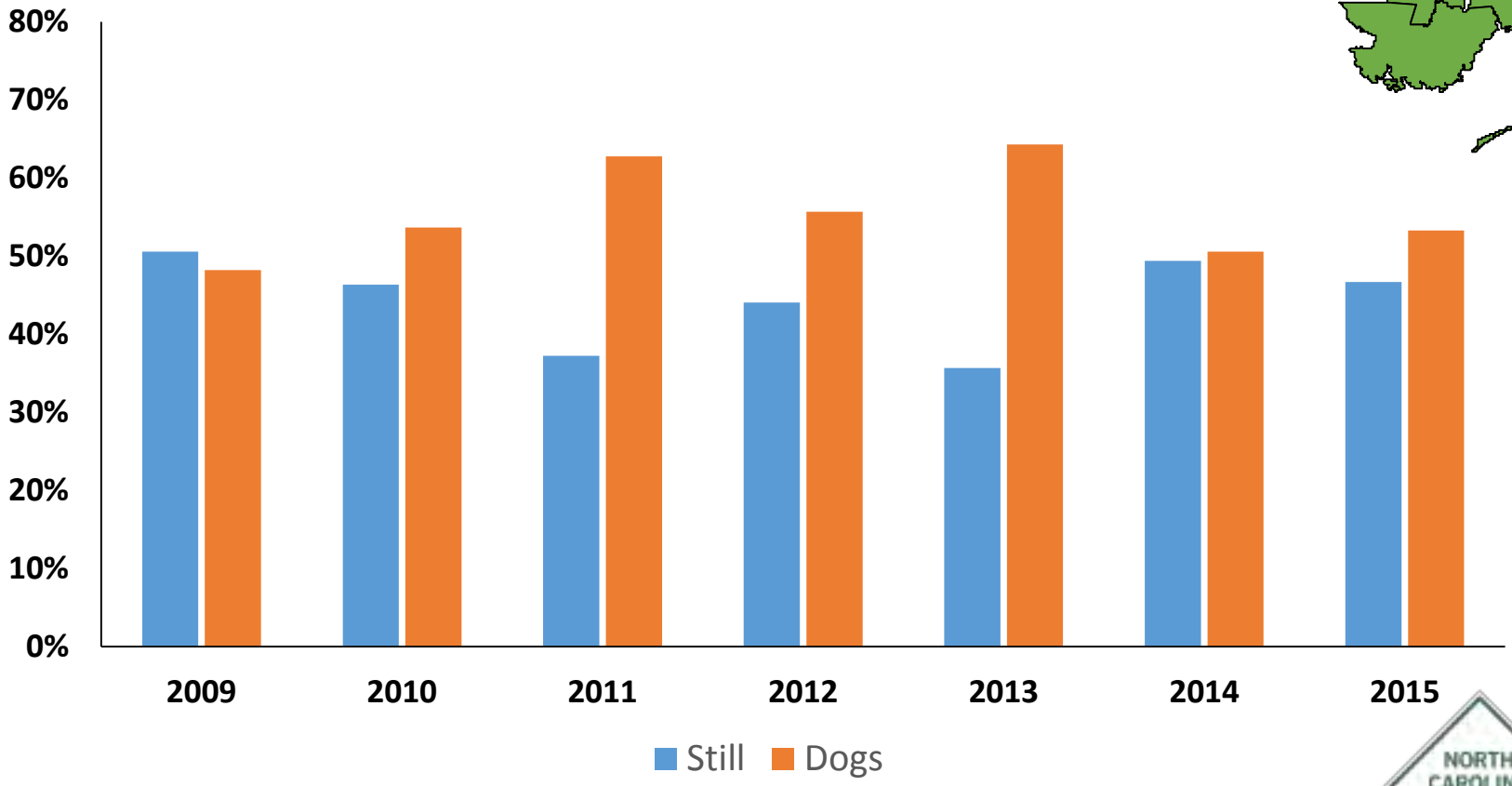


Zone 1 Harvest by Hunting Methods
(2015 Reported Harvest)



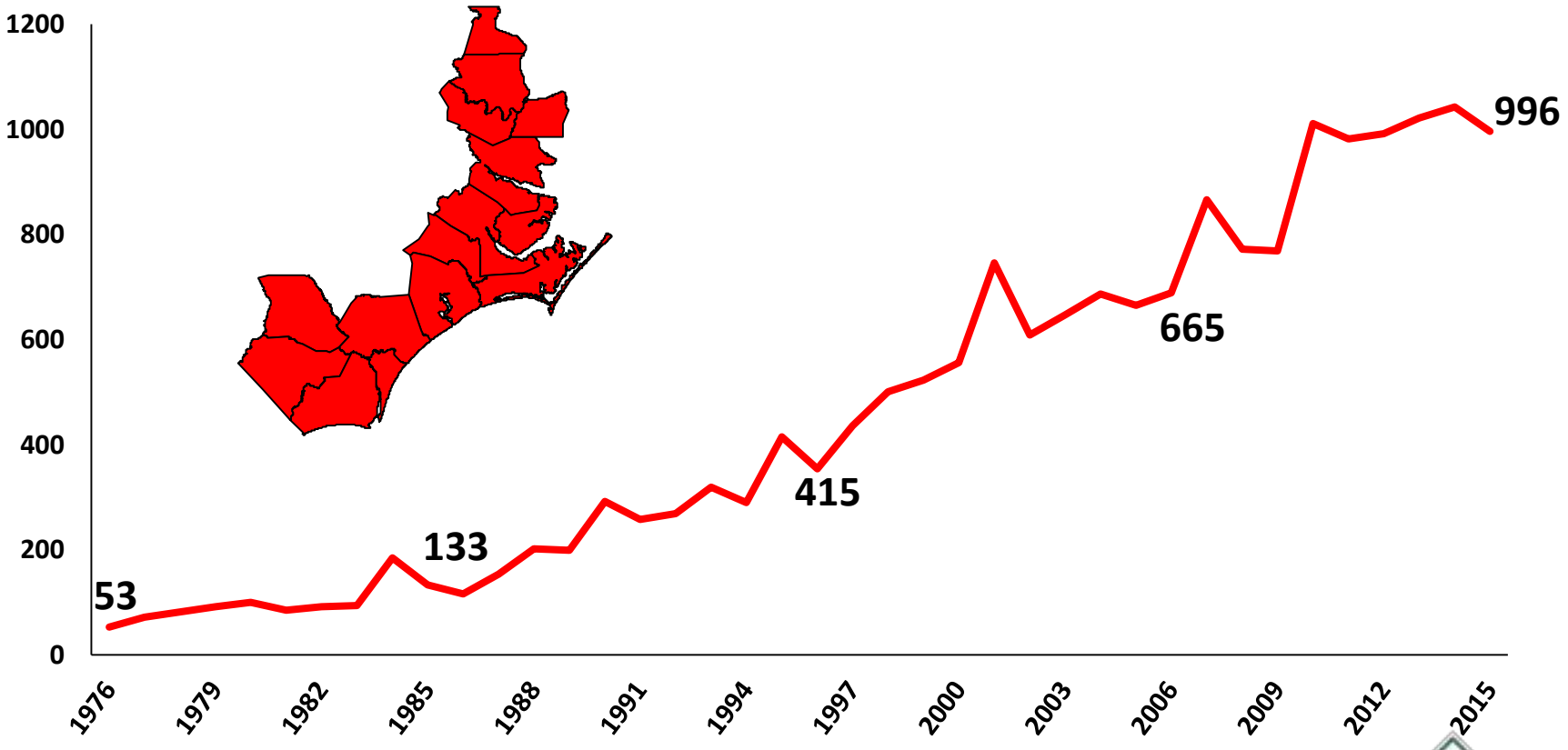
Zone 1 Harvested Bears by Method (2009-2015)





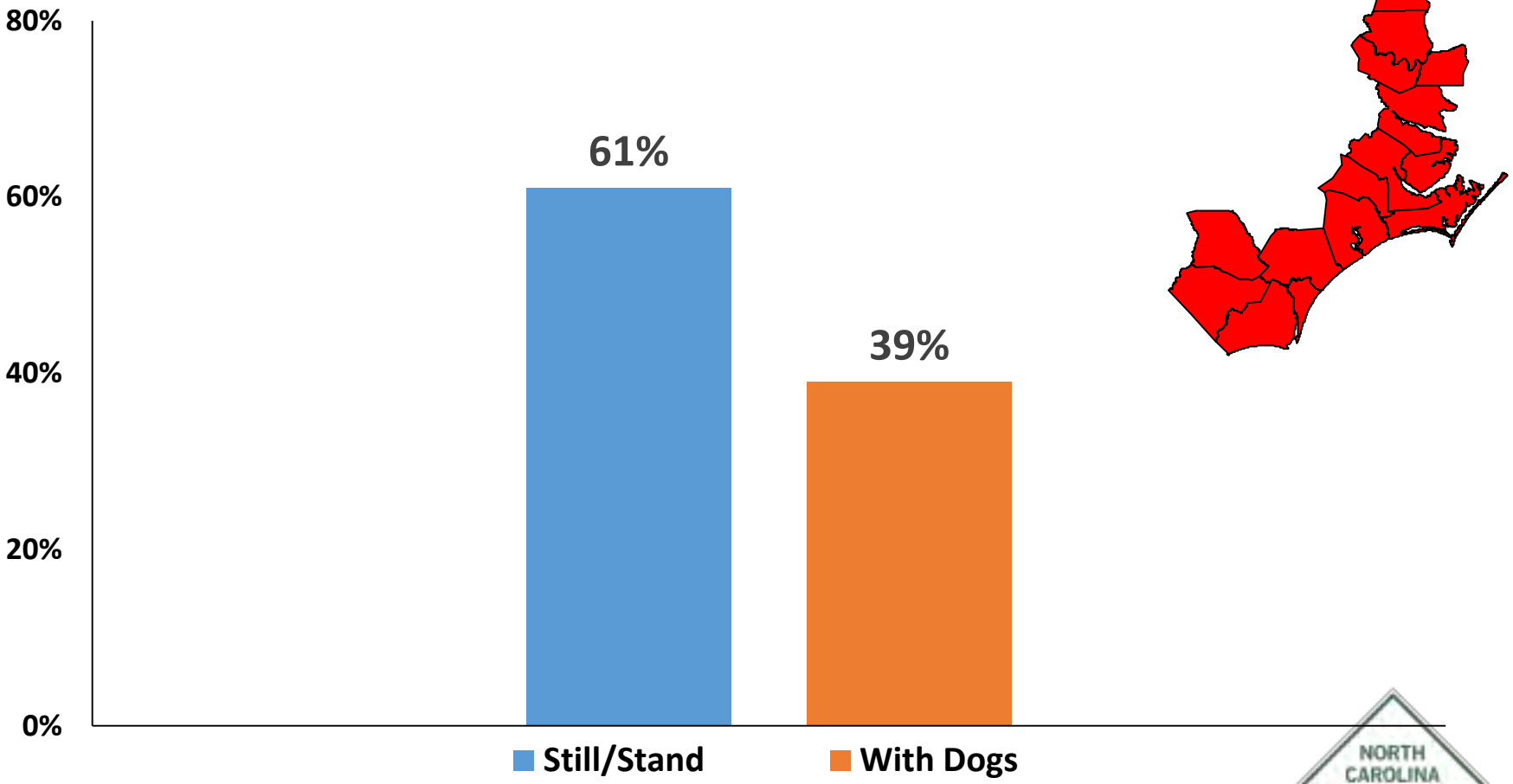
NORTH CAROLINA Wildlife RESOURCES COMMISSION

CBMU Zone 2 Harvest Trend



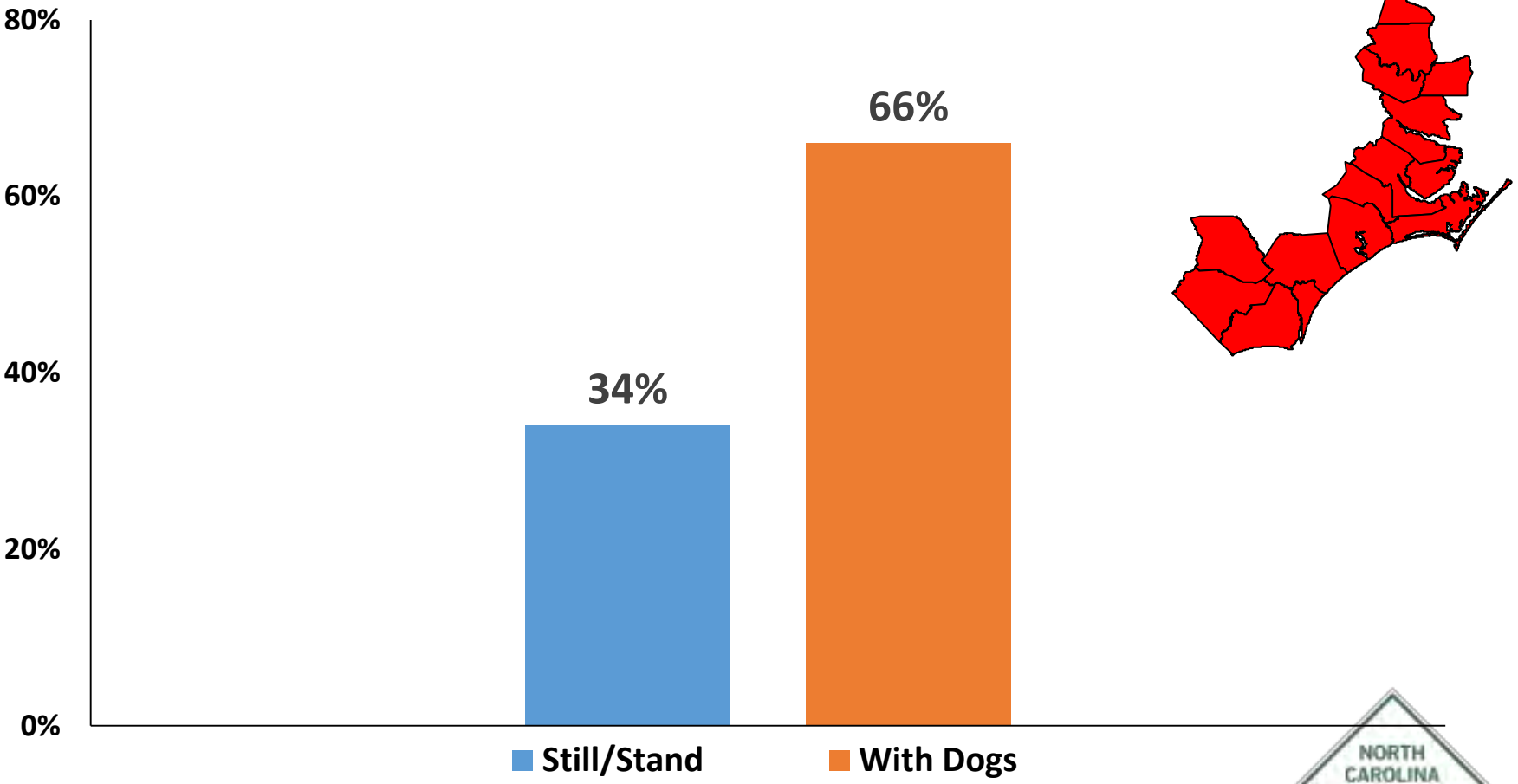
NORTH CAROLINA Wildlife RESOURCES COMMISSION

Zone 2 Hunting Methods
(2015 e-Stamp Survey)



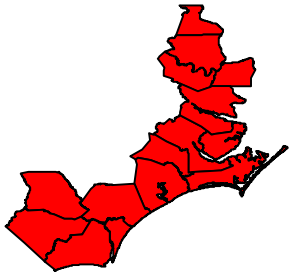
NORTH CAROLINA Wildlife RESOURCES COMMISSION

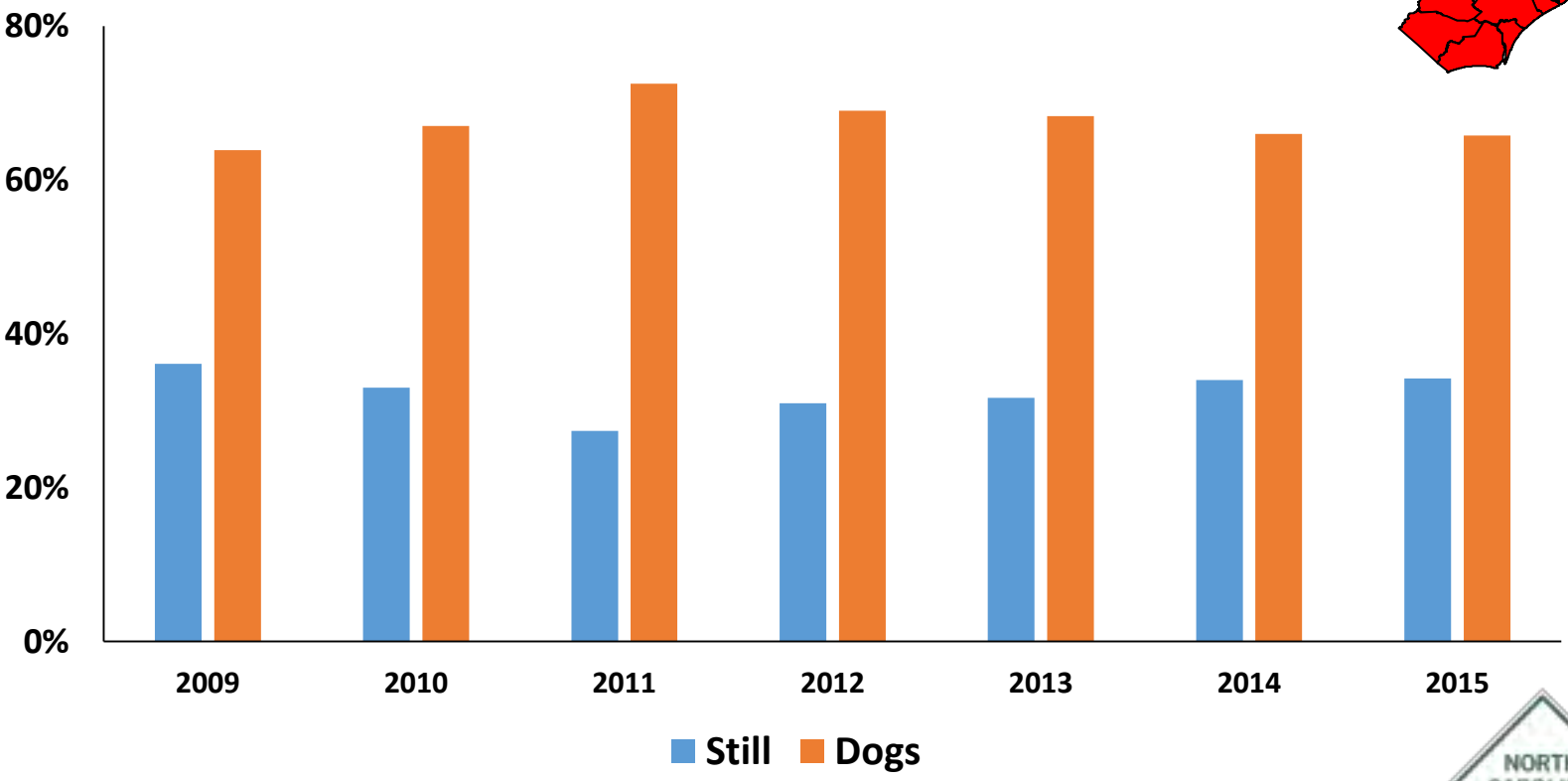
Zone 2 Harvest by Hunting Methods
(2015 Reported Harvest)



NORTH CAROLINA Wildlife RESOURCES COMMISSION

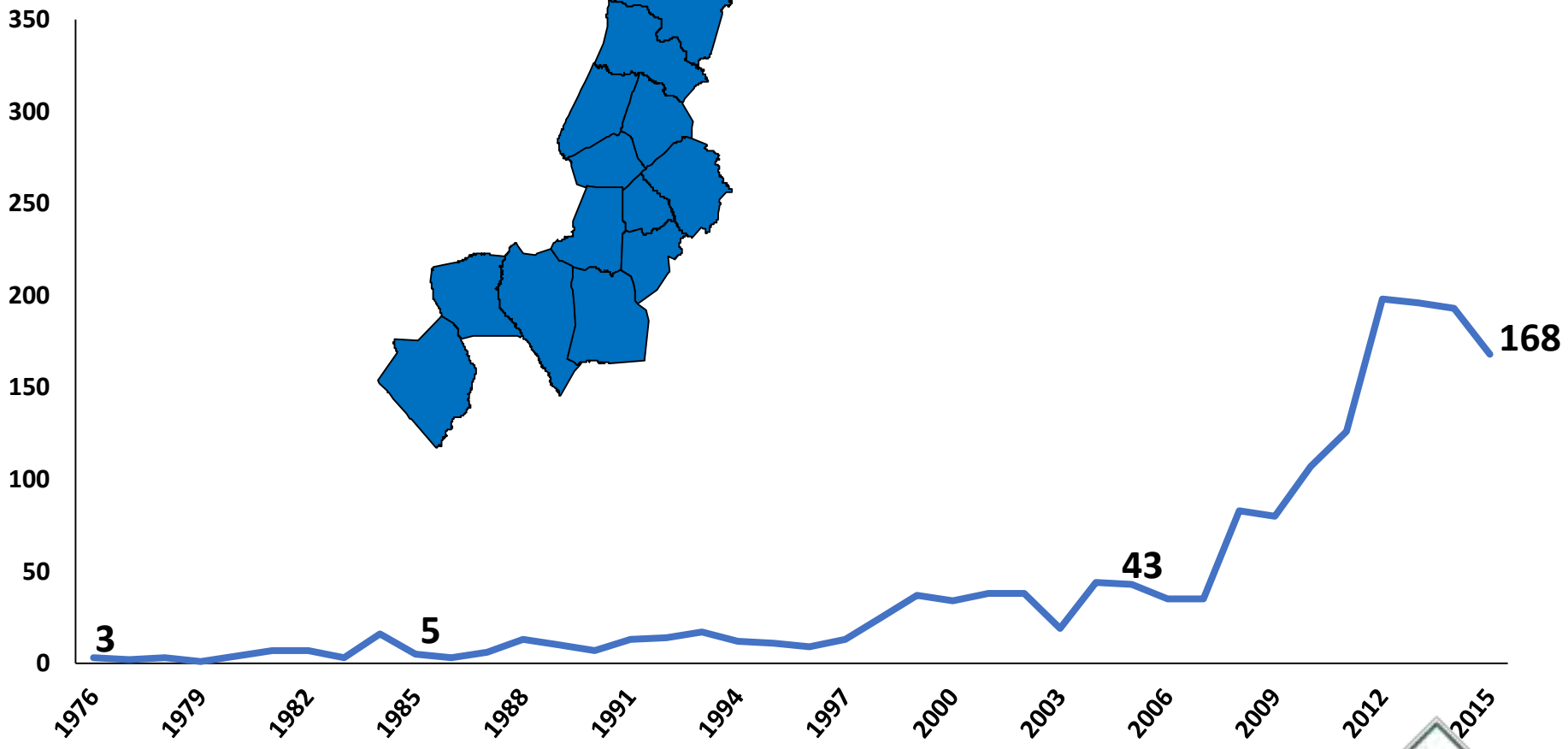
Zone 2 Harvested Bears by Method
(2009-2015)





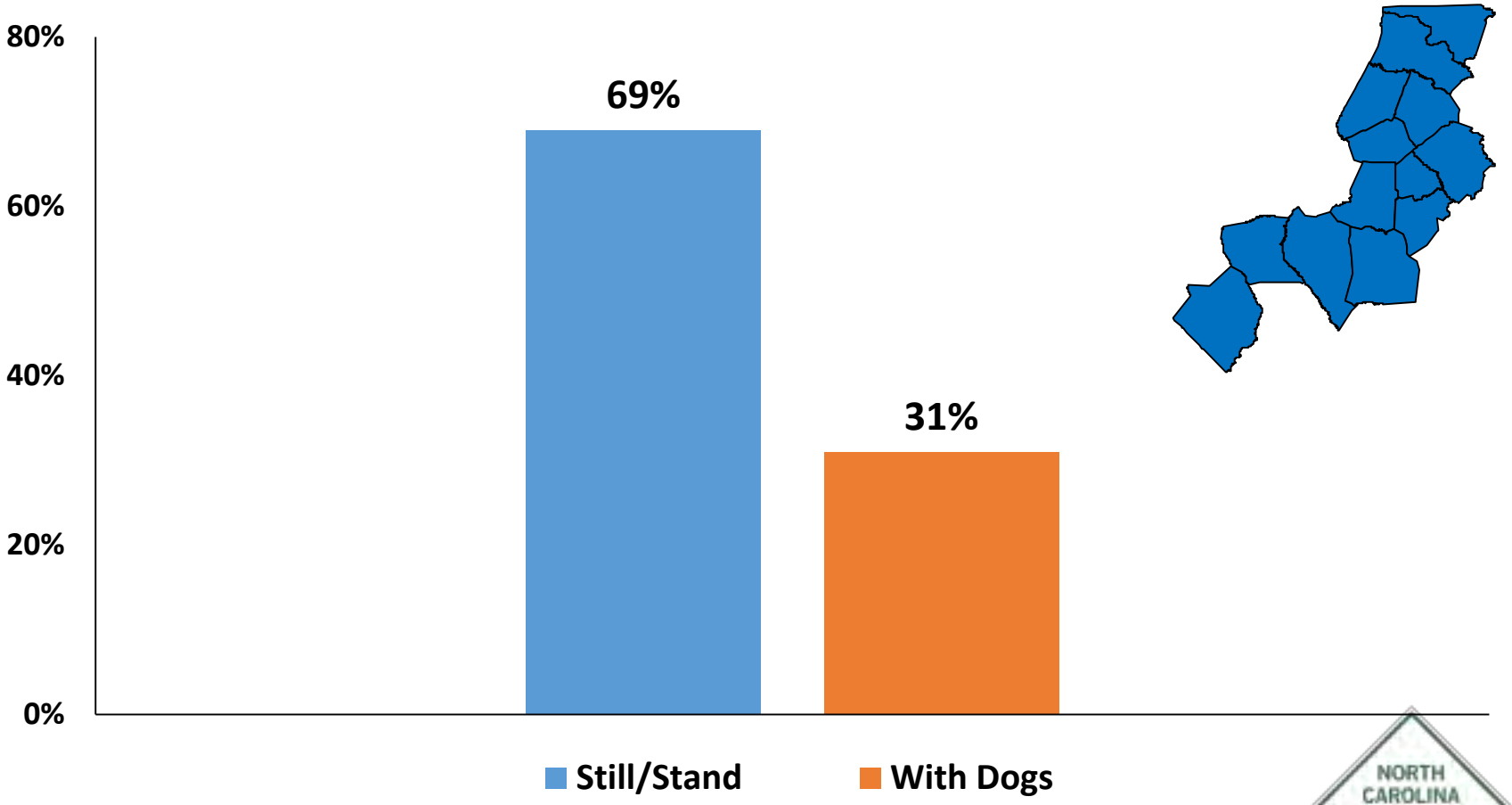
NORTH CAROLINA Wildlife RESOURCES COMMISSION

CBMU Zone 3 Harvest Trend



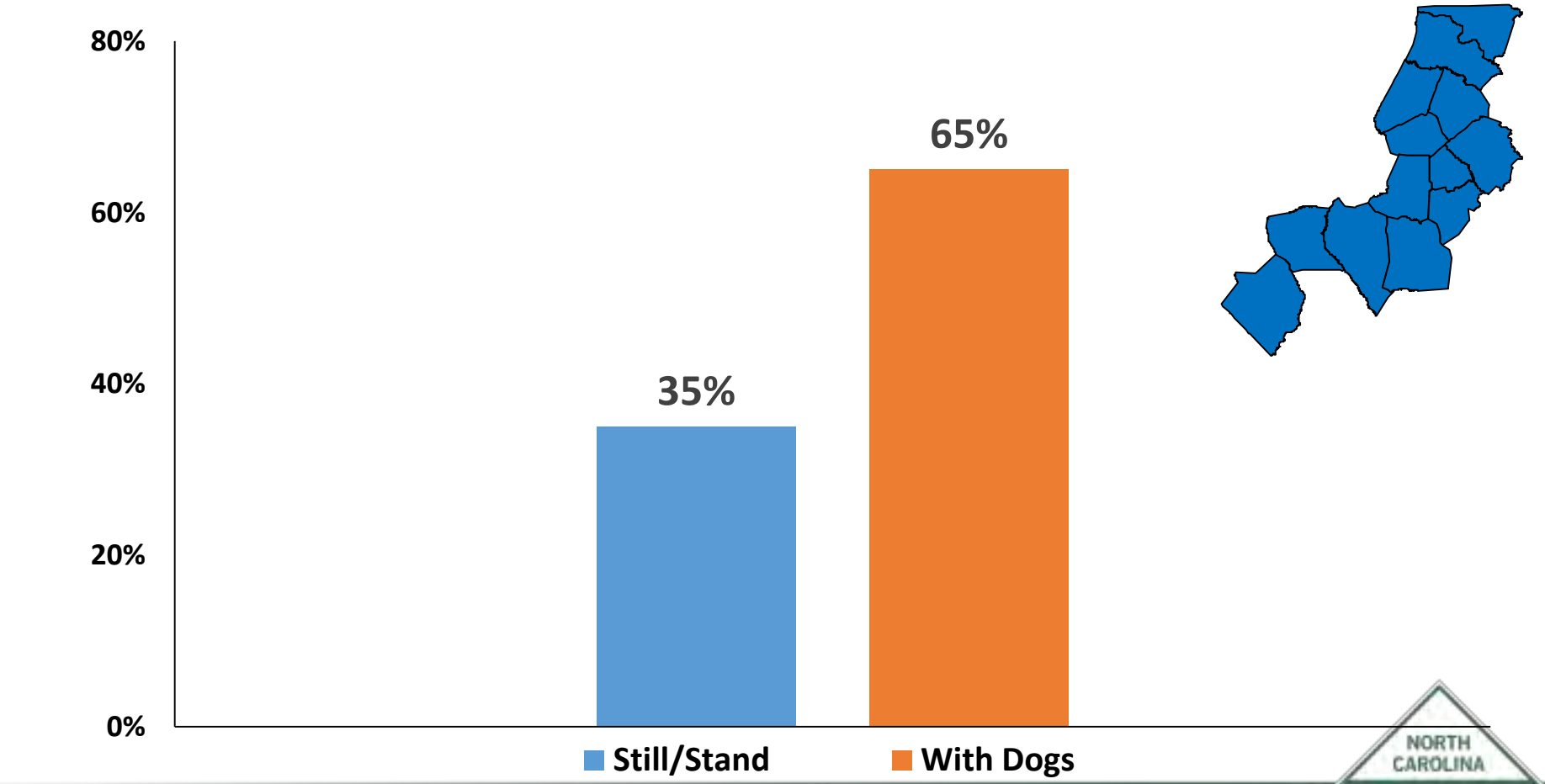
NORTH CAROLINA Wildlife RESOURCES COMMISSION

Zone 3 Hunting Methods
(2015 e-Stamp Survey)



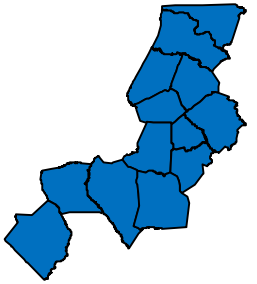
NORTH CAROLINA Wildlife RESOURCES COMMISSION

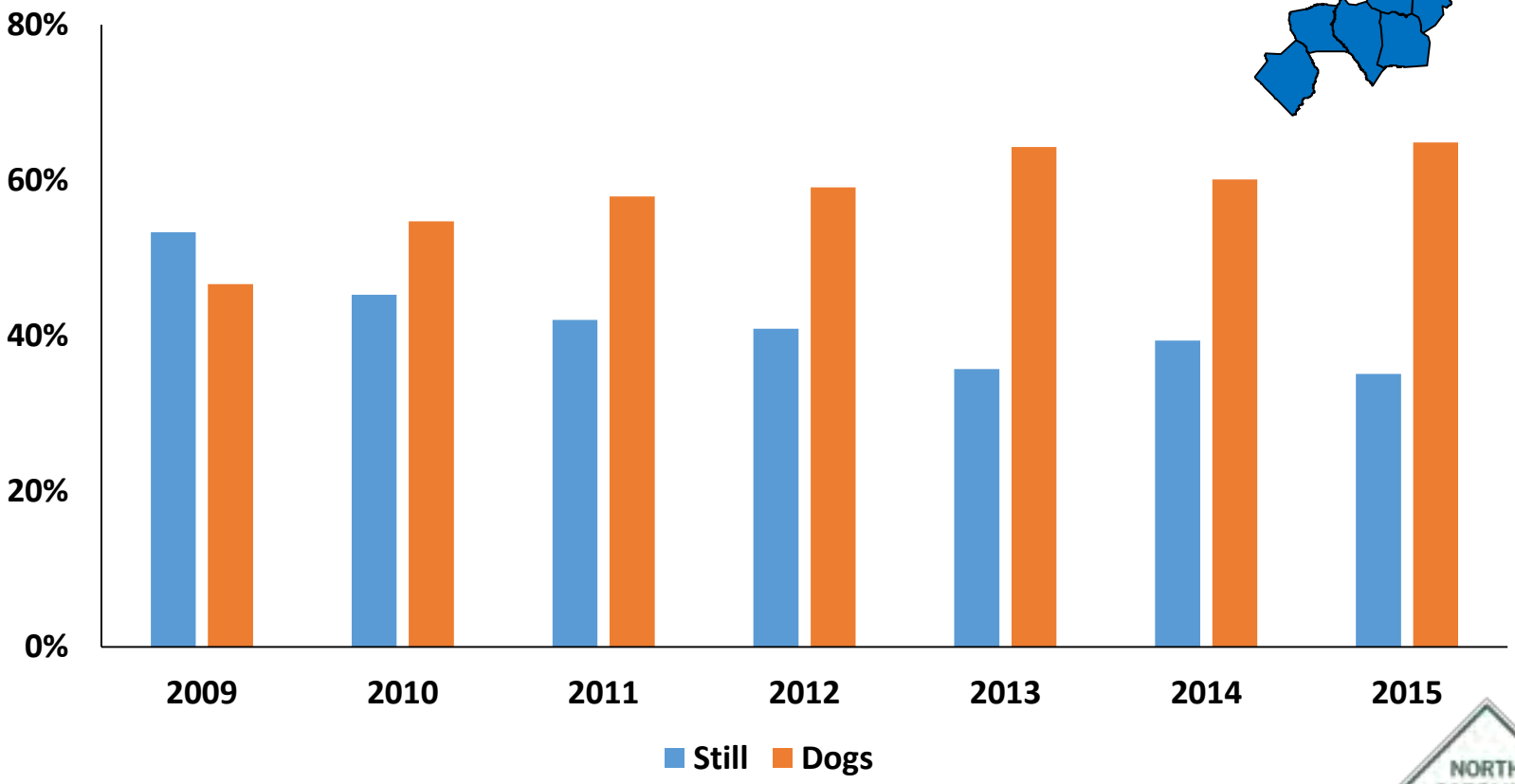
Zone 3 Harvest by Hunting Methods
(2015 Reported Harvest)



NORTH CAROLINA Wildlife RESOURCES COMMISSION

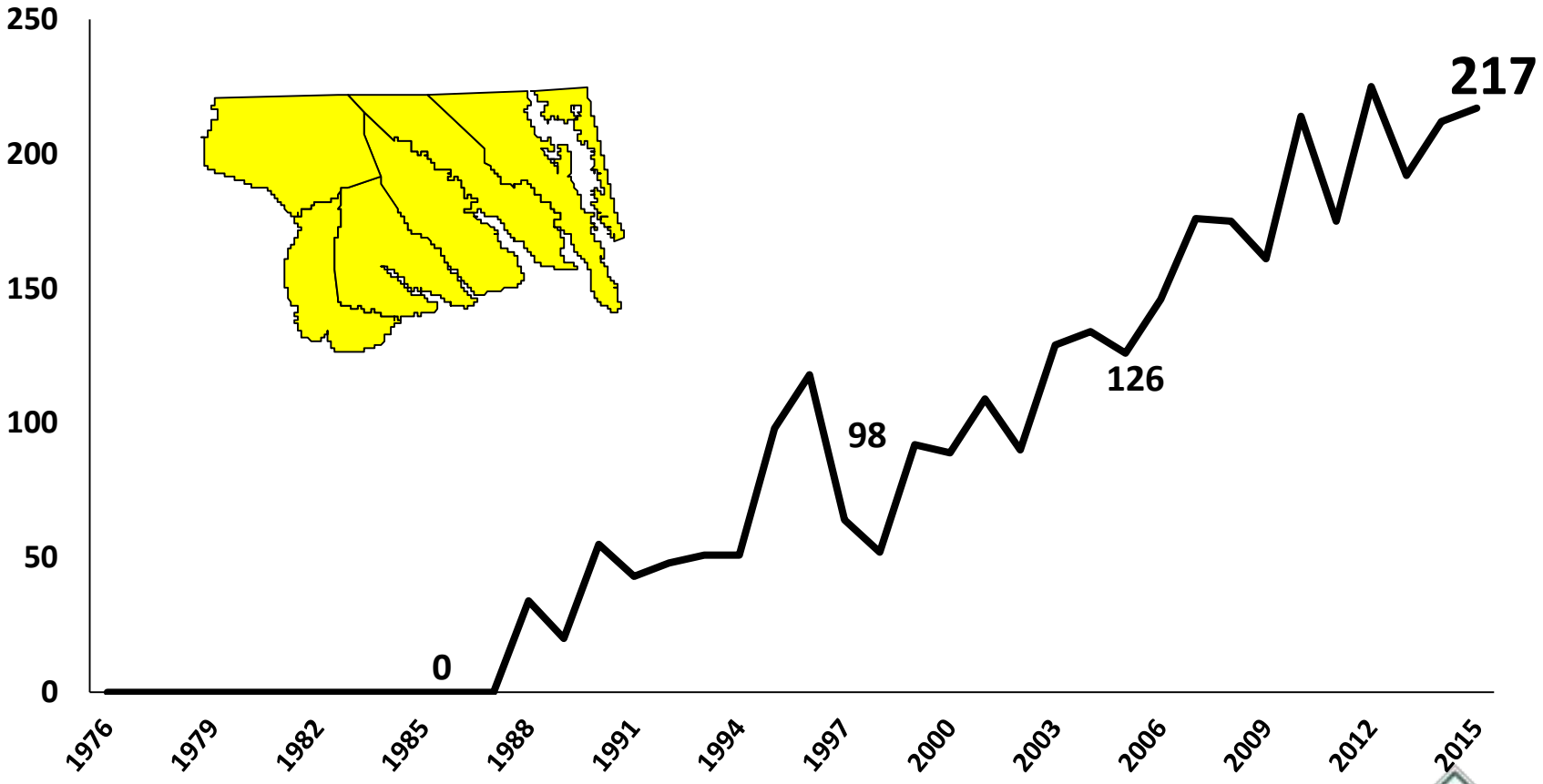
Zone 3 Harvested Bears by Method
(2009-2015)





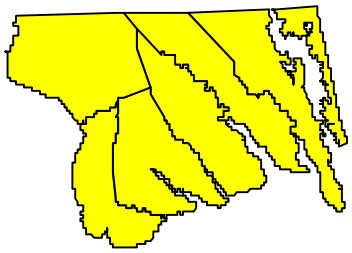
NORTH CAROLINA Wildlife RESOURCES COMMISSION

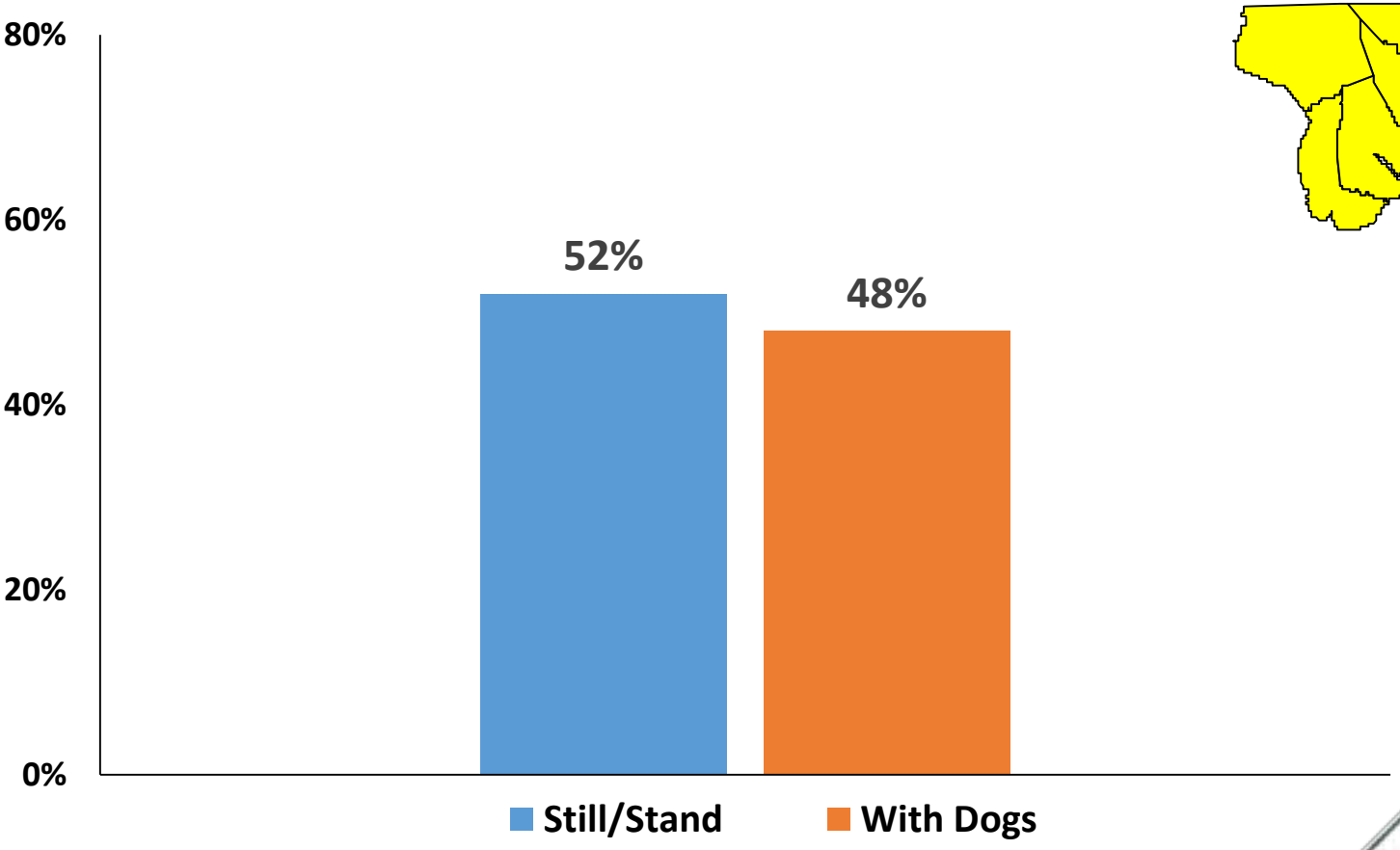
CBMU Zone 4 Harvest Trend



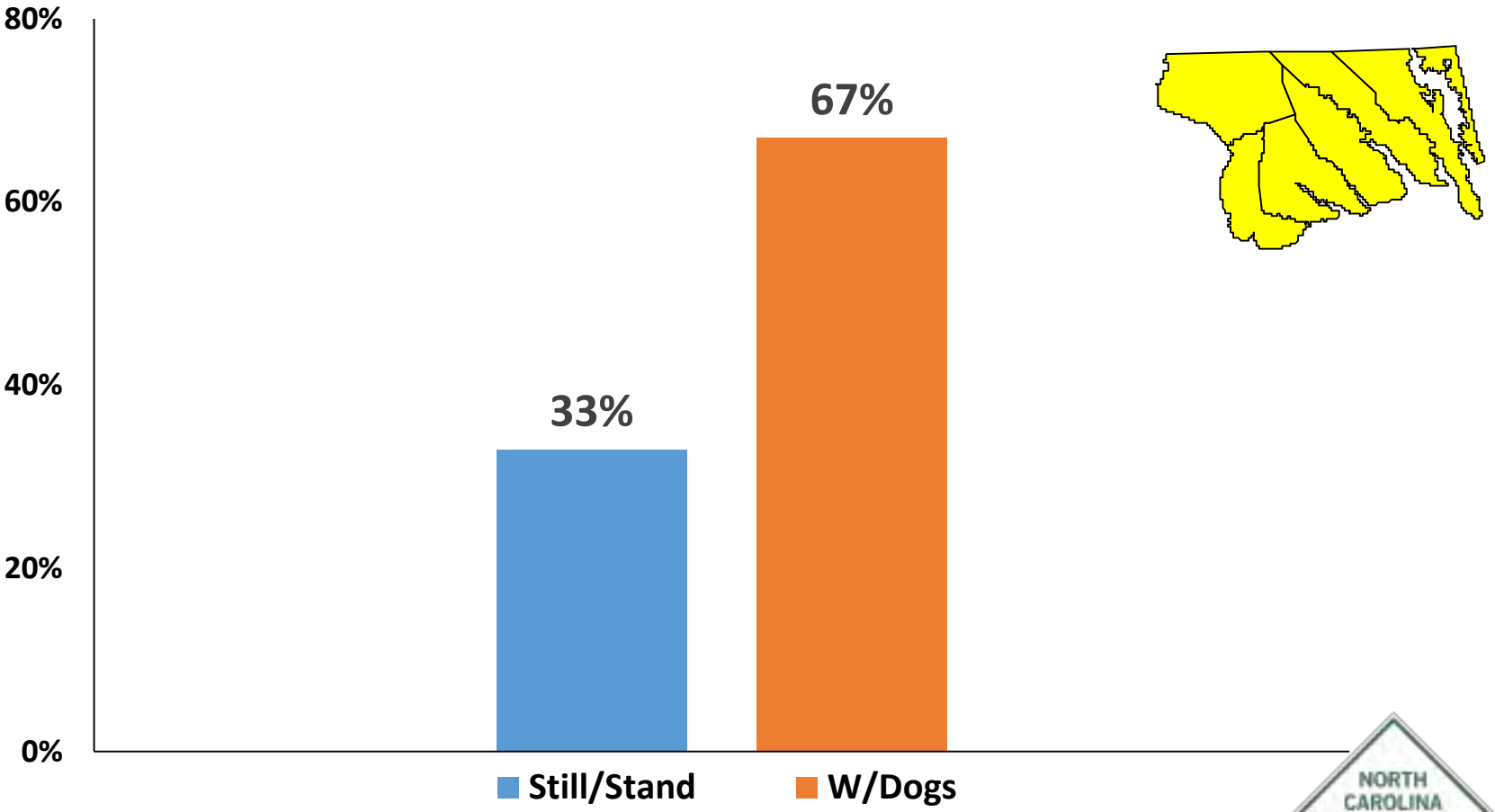
NORTH CAROLINA Wildlife RESOURCES COMMISSION

Zone 4 Hunting Methods
(2015 e-Stamp Survey)



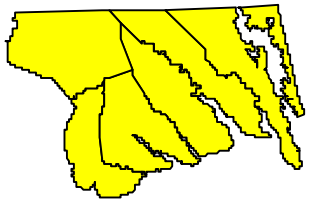


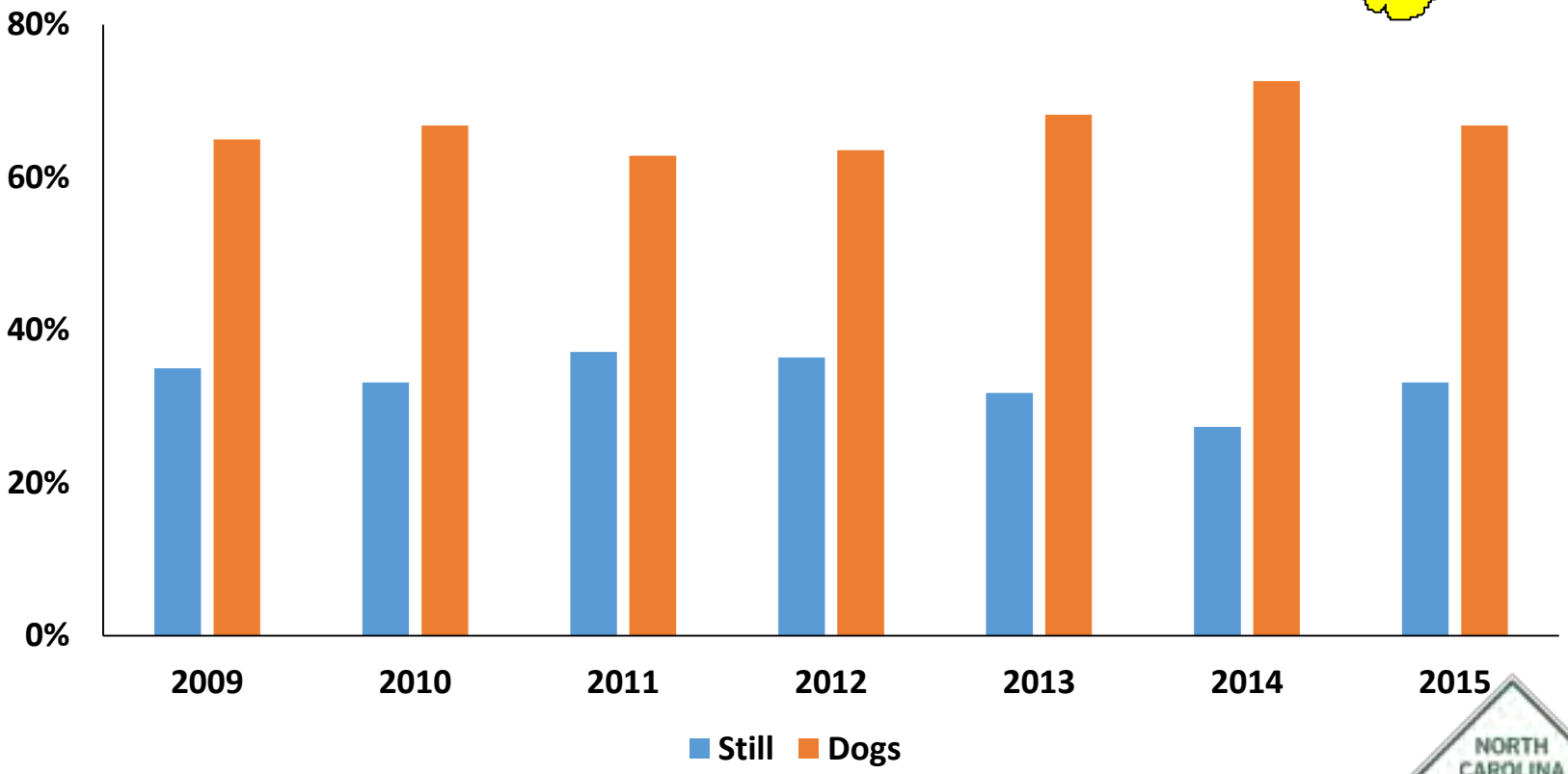
Zone 4 Harvest by Hunting Methods
(2015 Reported Harvest)



NORTH CAROLINA Wildlife RESOURCES COMMISSION

Zone 4 Harvested Bears by Method
(2009-2015)





Discussion and Input Time!

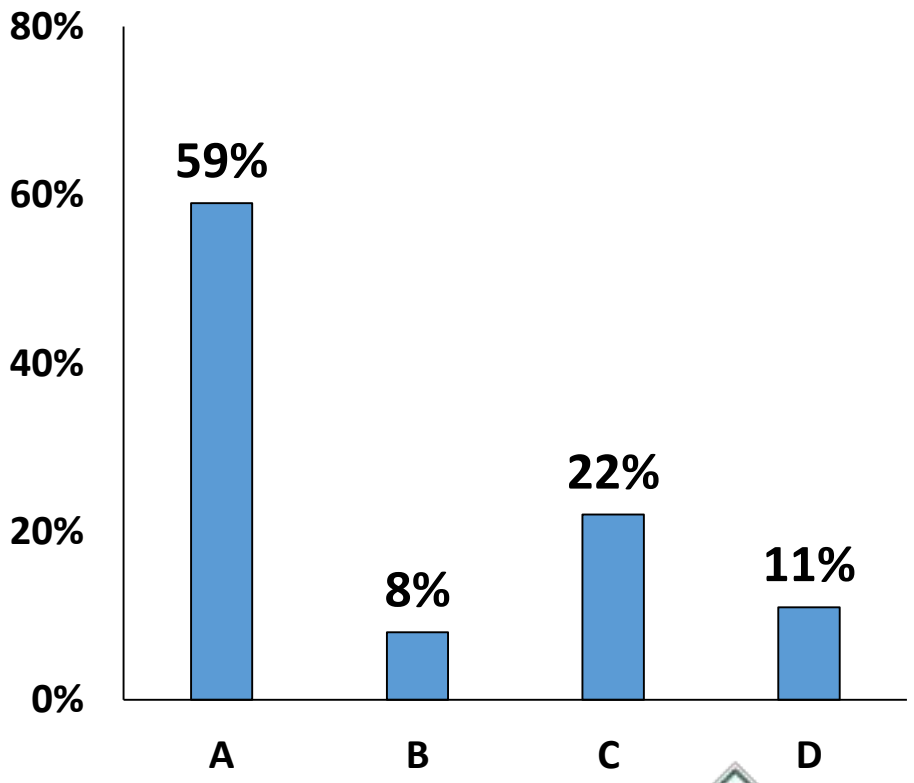
Where you hunt the most…….

A. The bear population is **INCREASING**

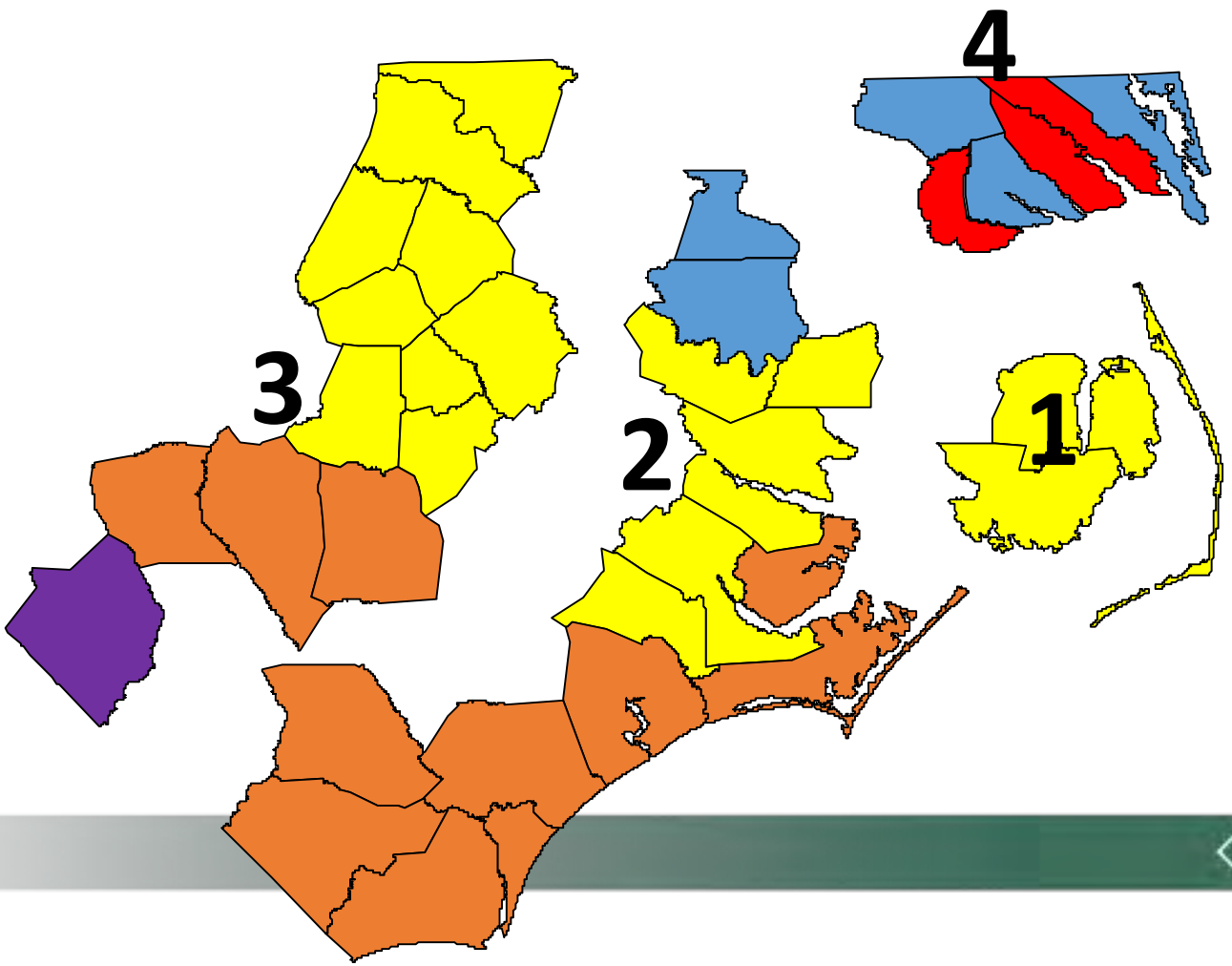
B. The bear population is **DECREASING**

C. The bear population is **STABLE**

D. I'm **NOT SURE**

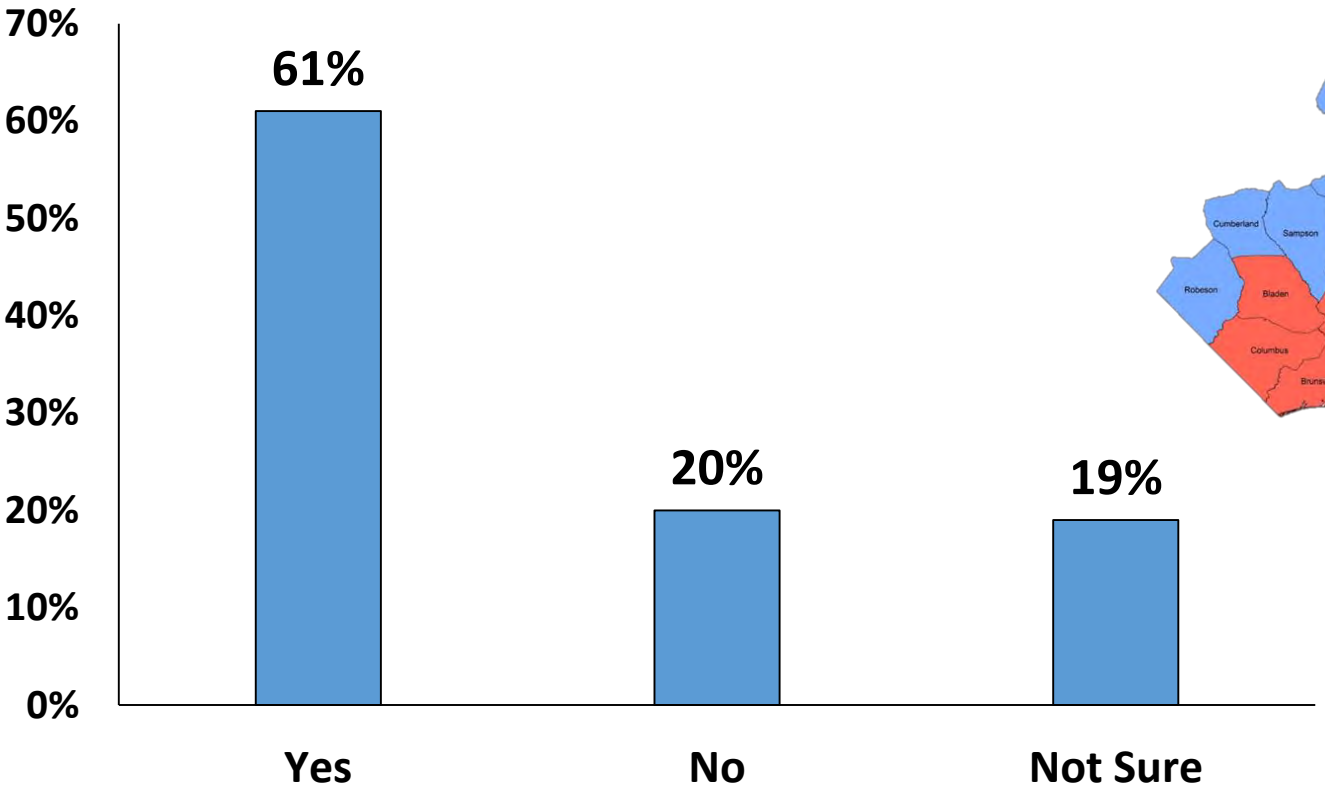


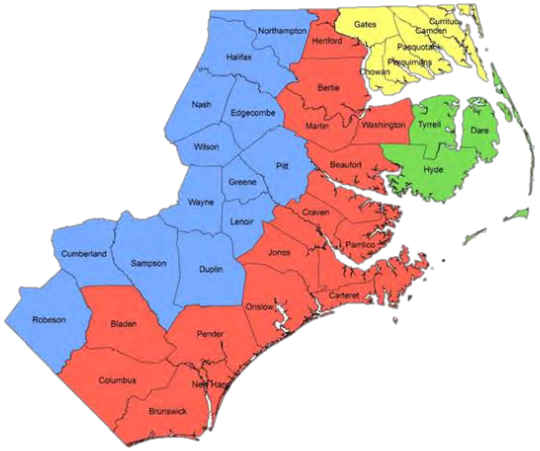
How our current bear seasons overlay on the CBMU Zones!



NORTH CAROLINA Wildlife RESOURCES COMMISSION

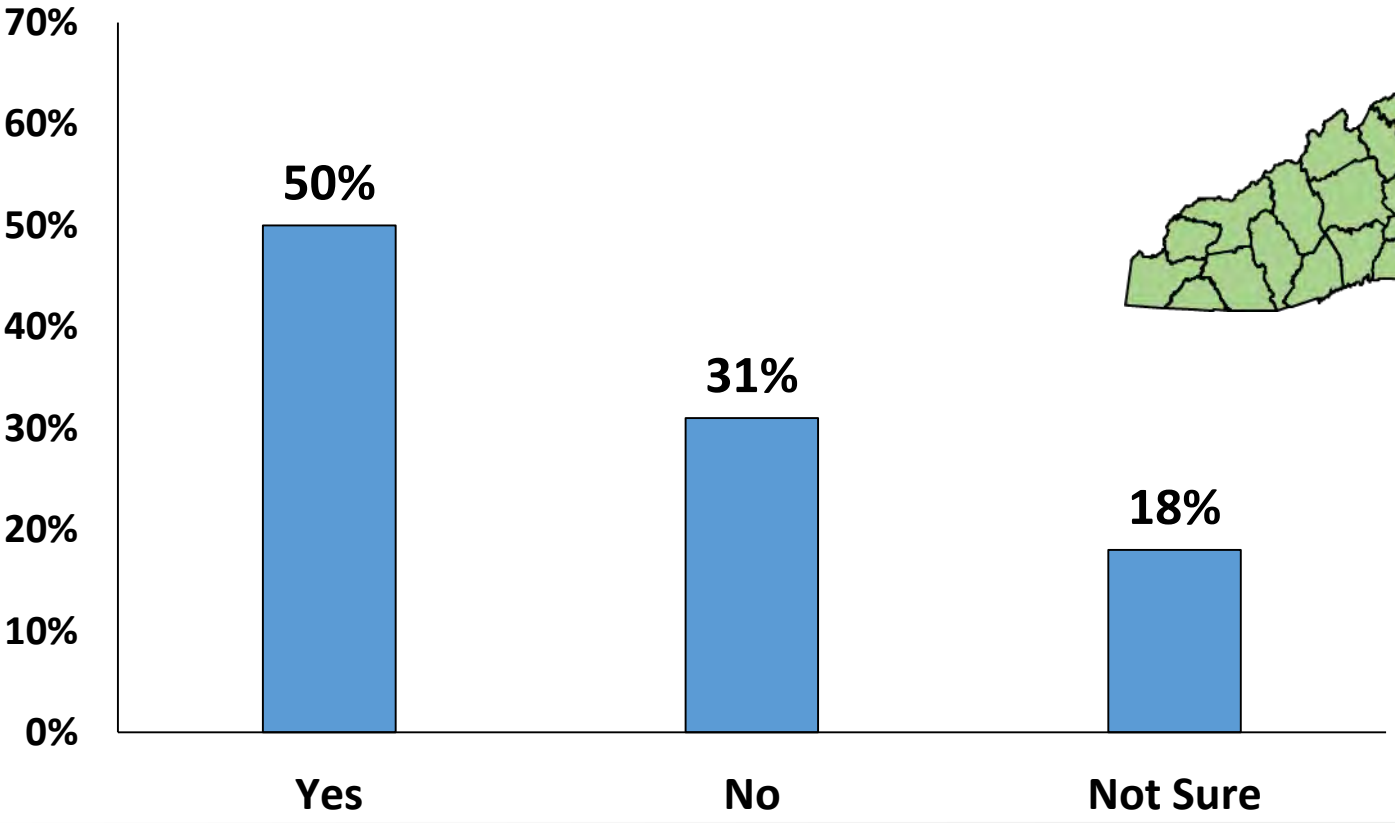
Should Coastal Bear Seasons be aligned with the new Zones?



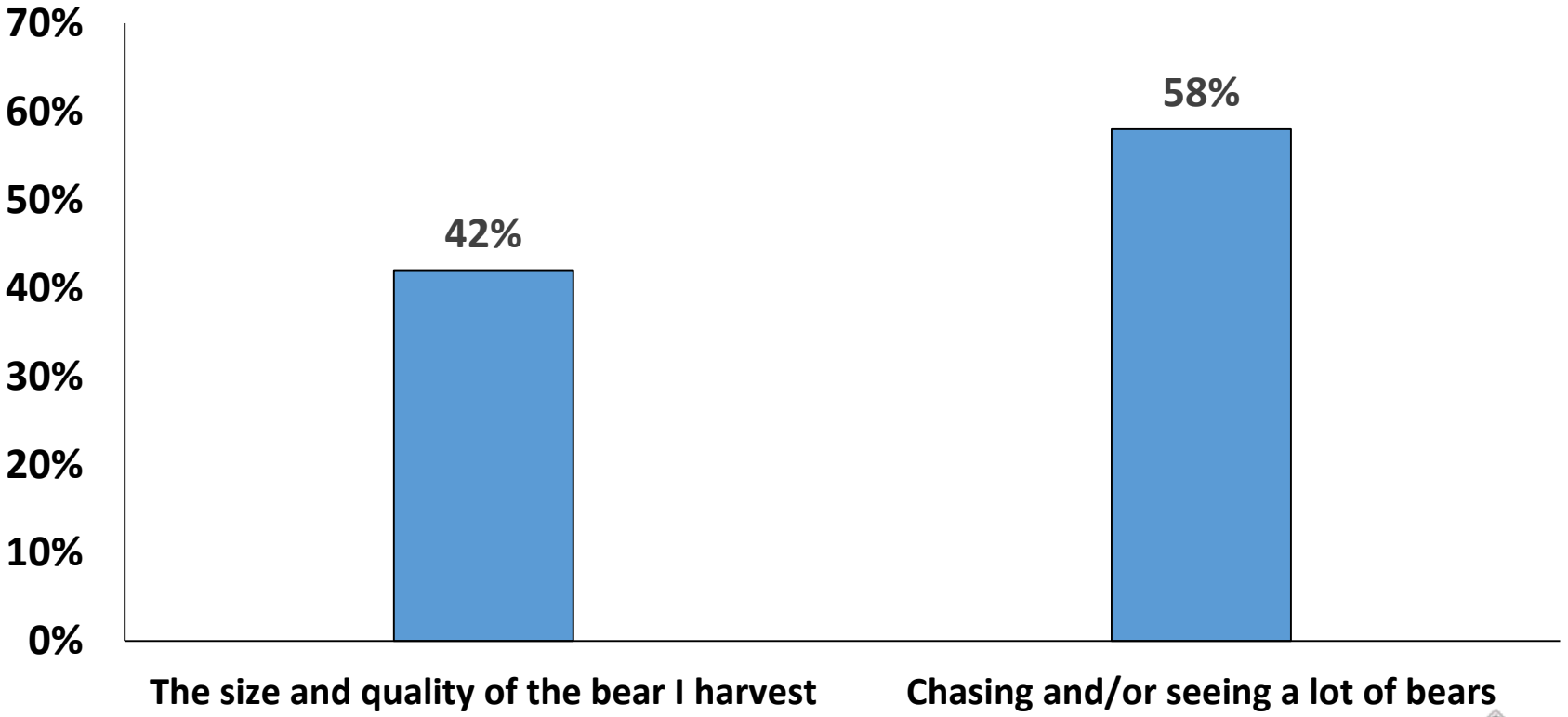


NORTH CAROLINA Wildlife RESOURCES COMMISSION

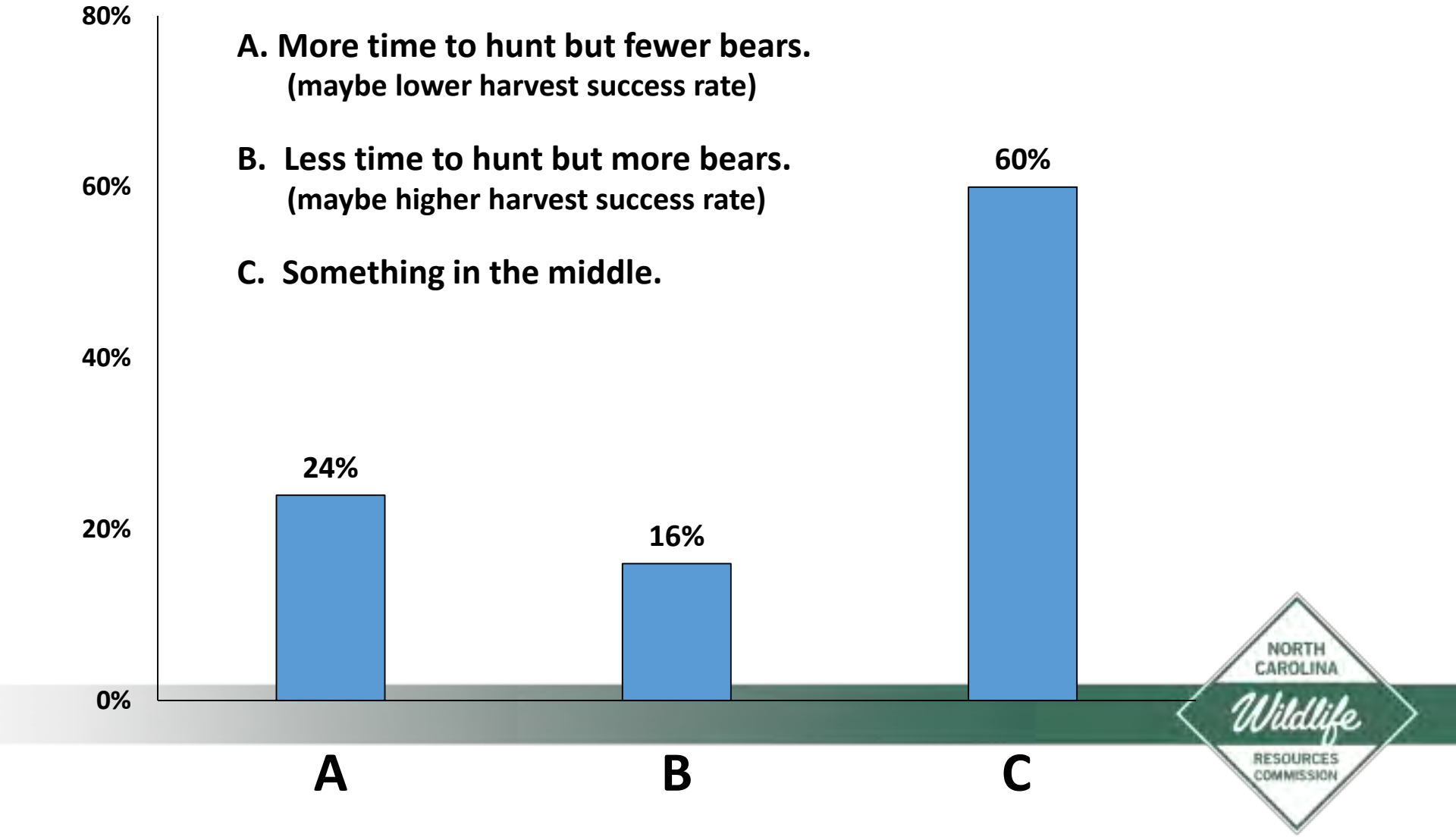
Should we examine the mountain bear unit for biological Zones?



On a given bear hunt, which is more important to you?



Which is more important to you?



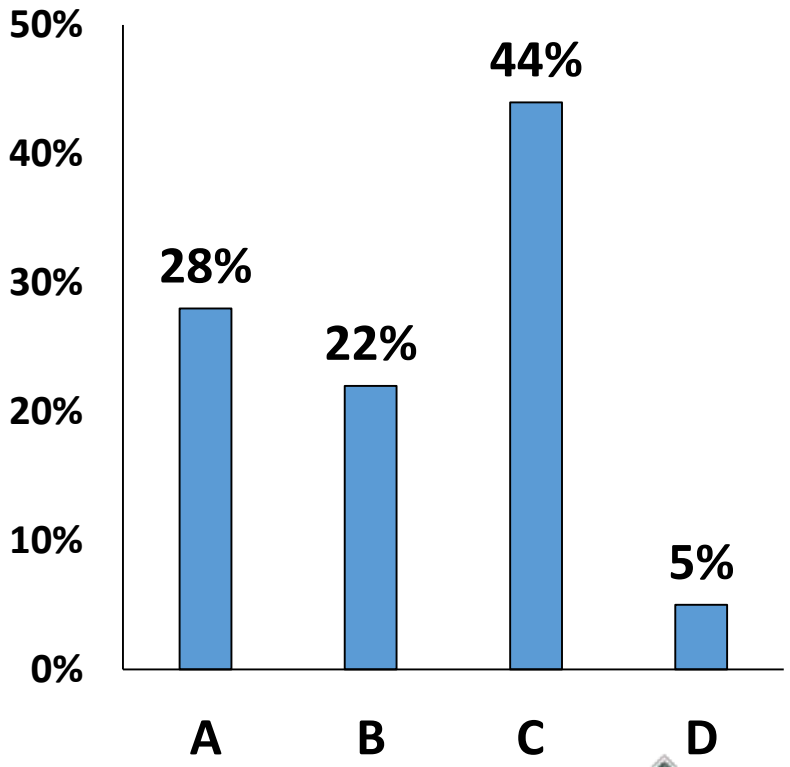
Where you hunt the most…….

A. The bear population should be **INCREASED**

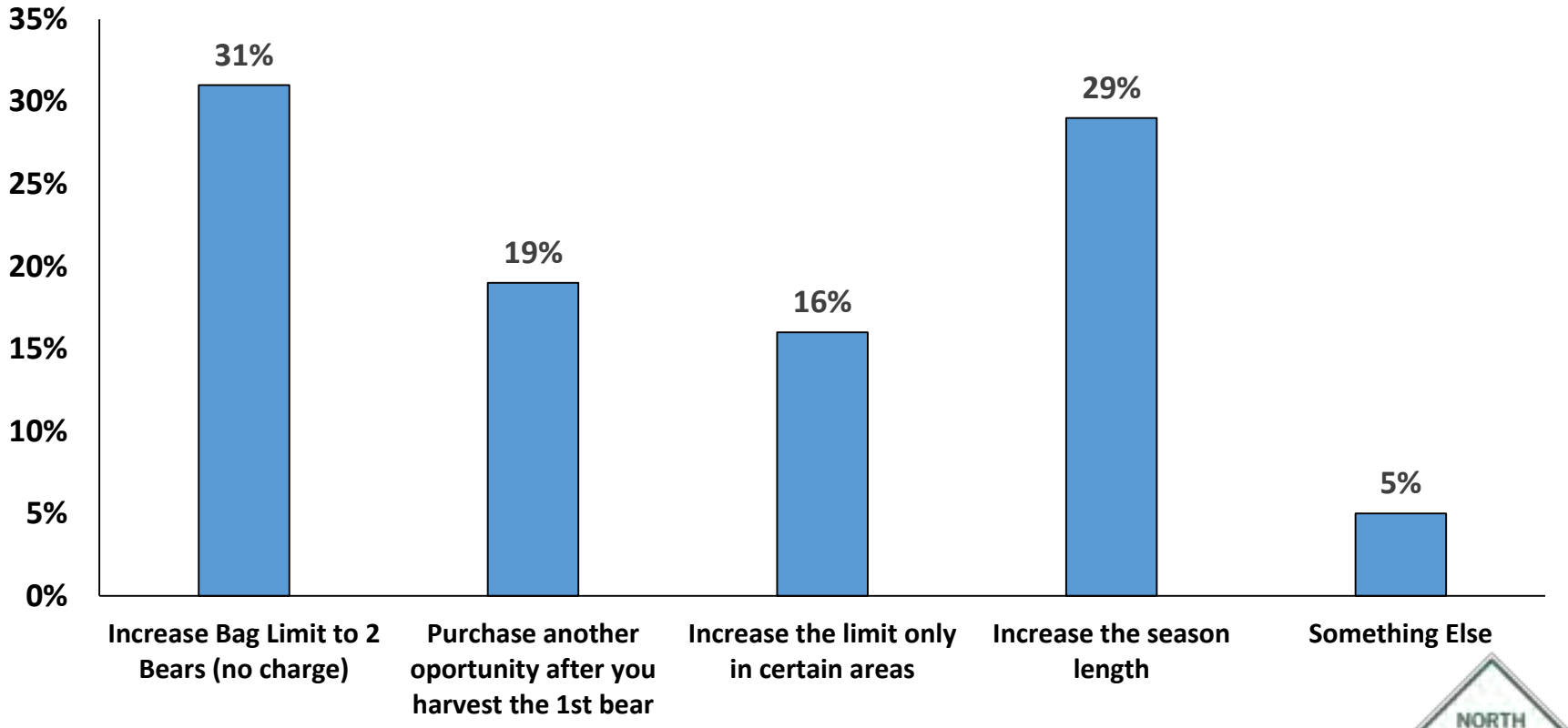
B. The bear population should be **DECREASED**

C. The bear population should be **LEFT AS IS**

D. I'm **NOT SURE**

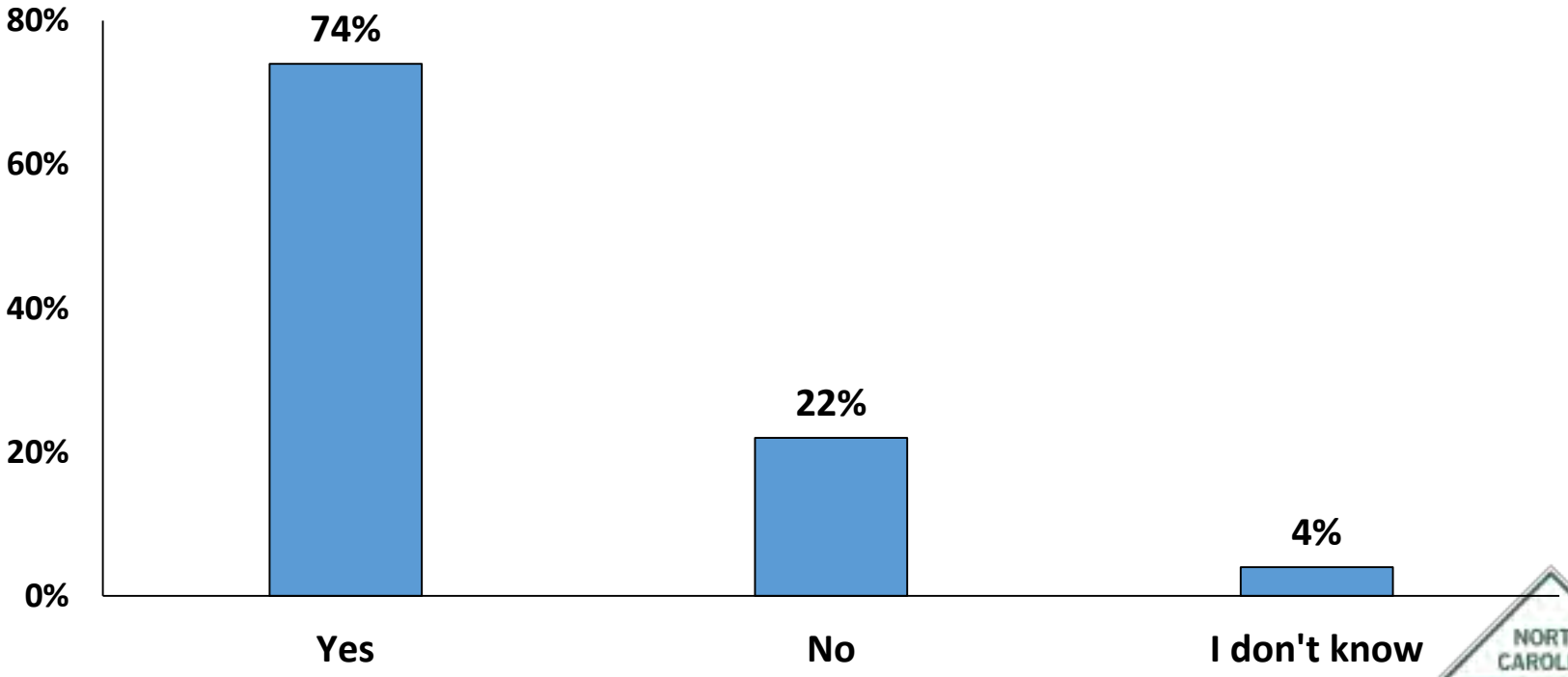


If necessary, what do you think would be the best way to increase the bear harvest?

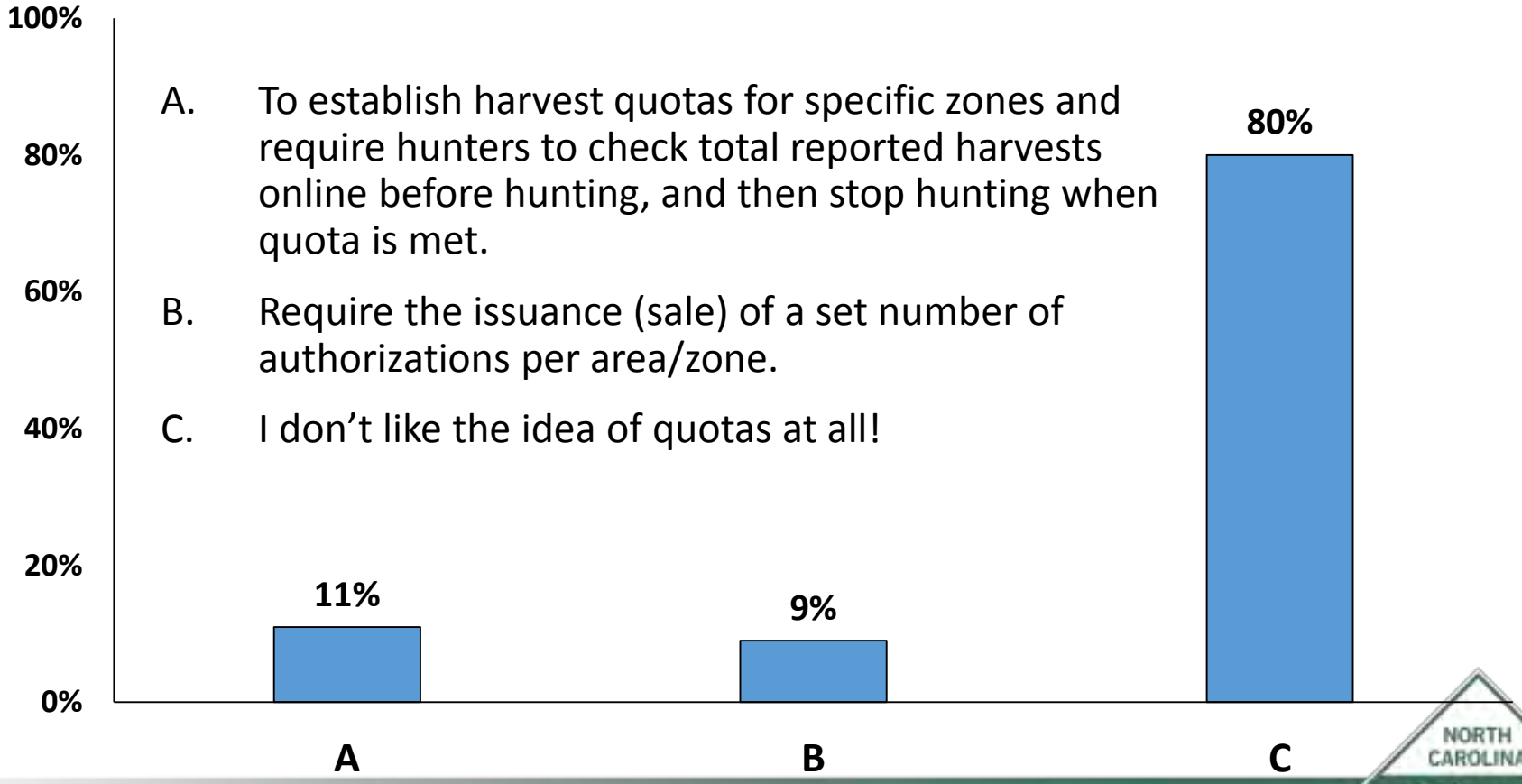


Would you support this idea?

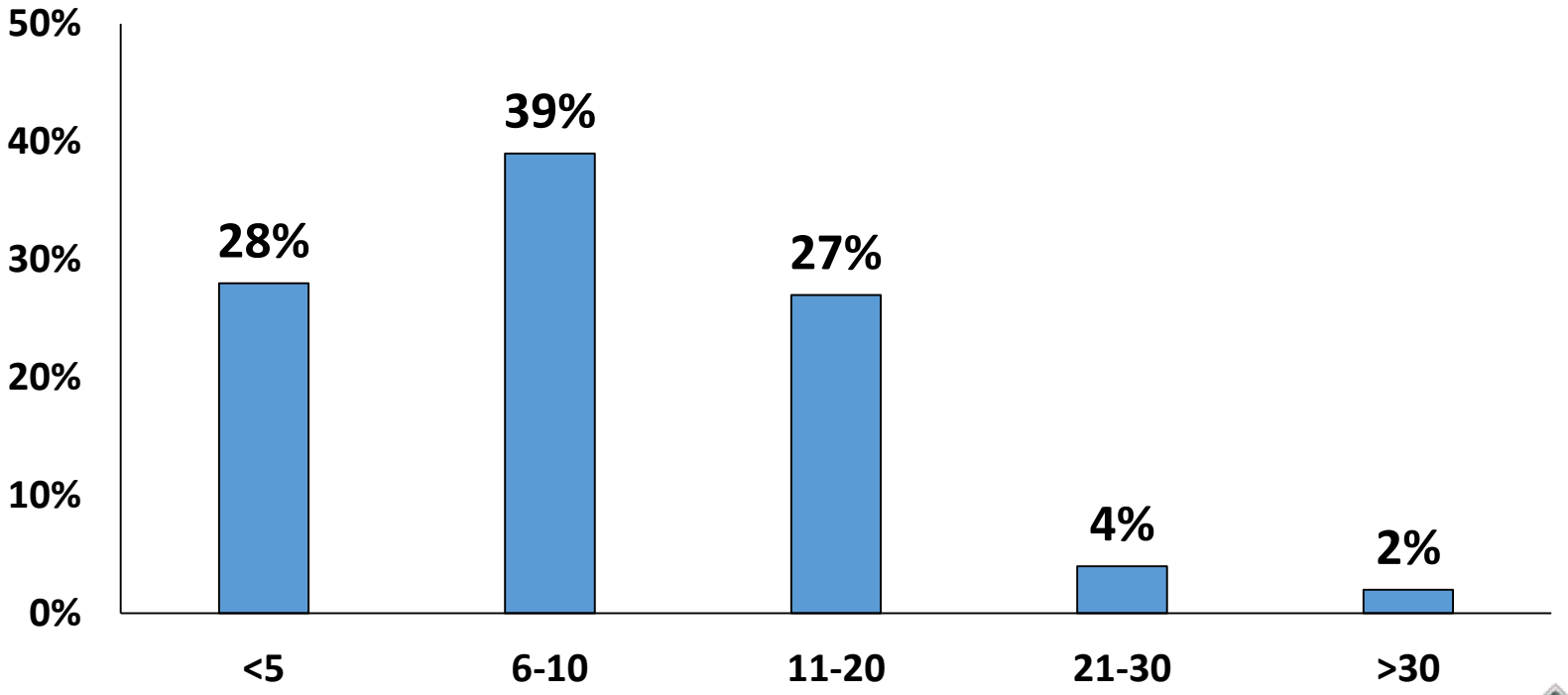
Allow any appropriately licensed hunter that is actively participating in a hunt to validate and reporting the harvest of a bear shot by an other appropriately licensed hunter participating in the same hunt (applies to both dog and still/stand hunts).



If a specific zone was allotted a "quota" of bears, would you prefer:



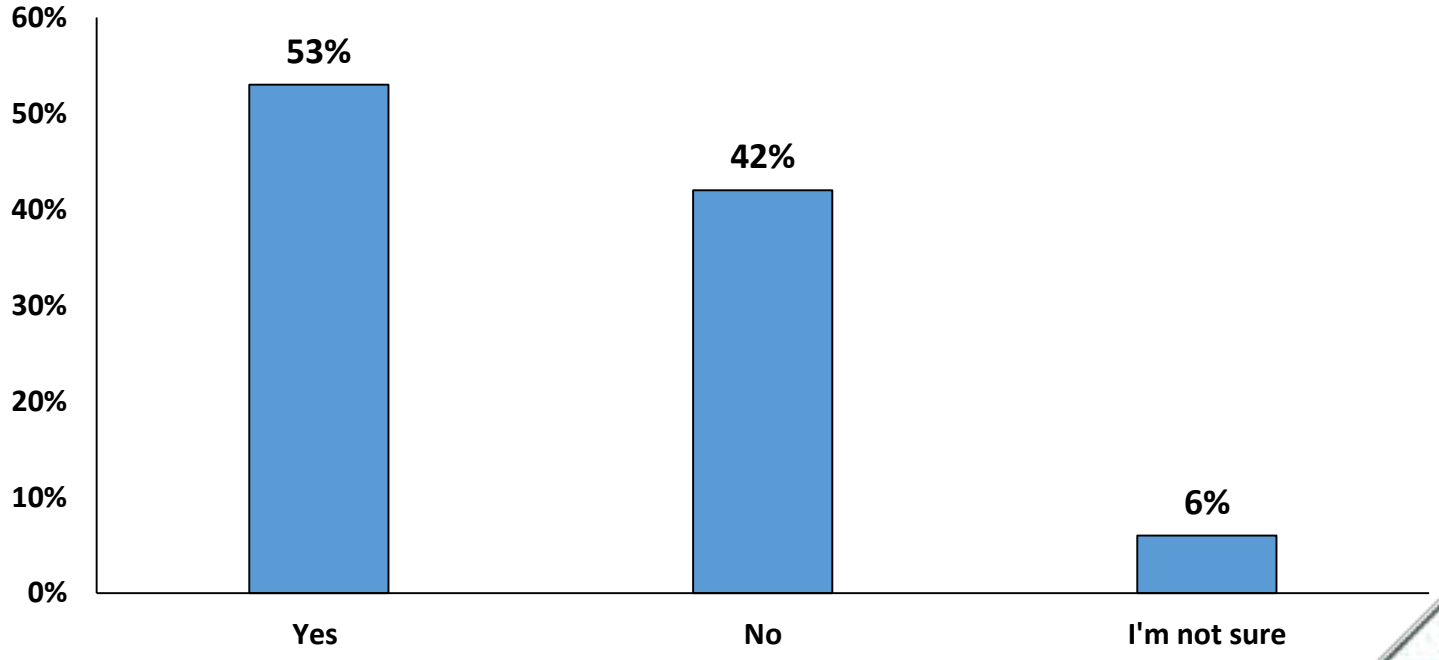
If you hunt with a group, what is the average number of hunters in your group?



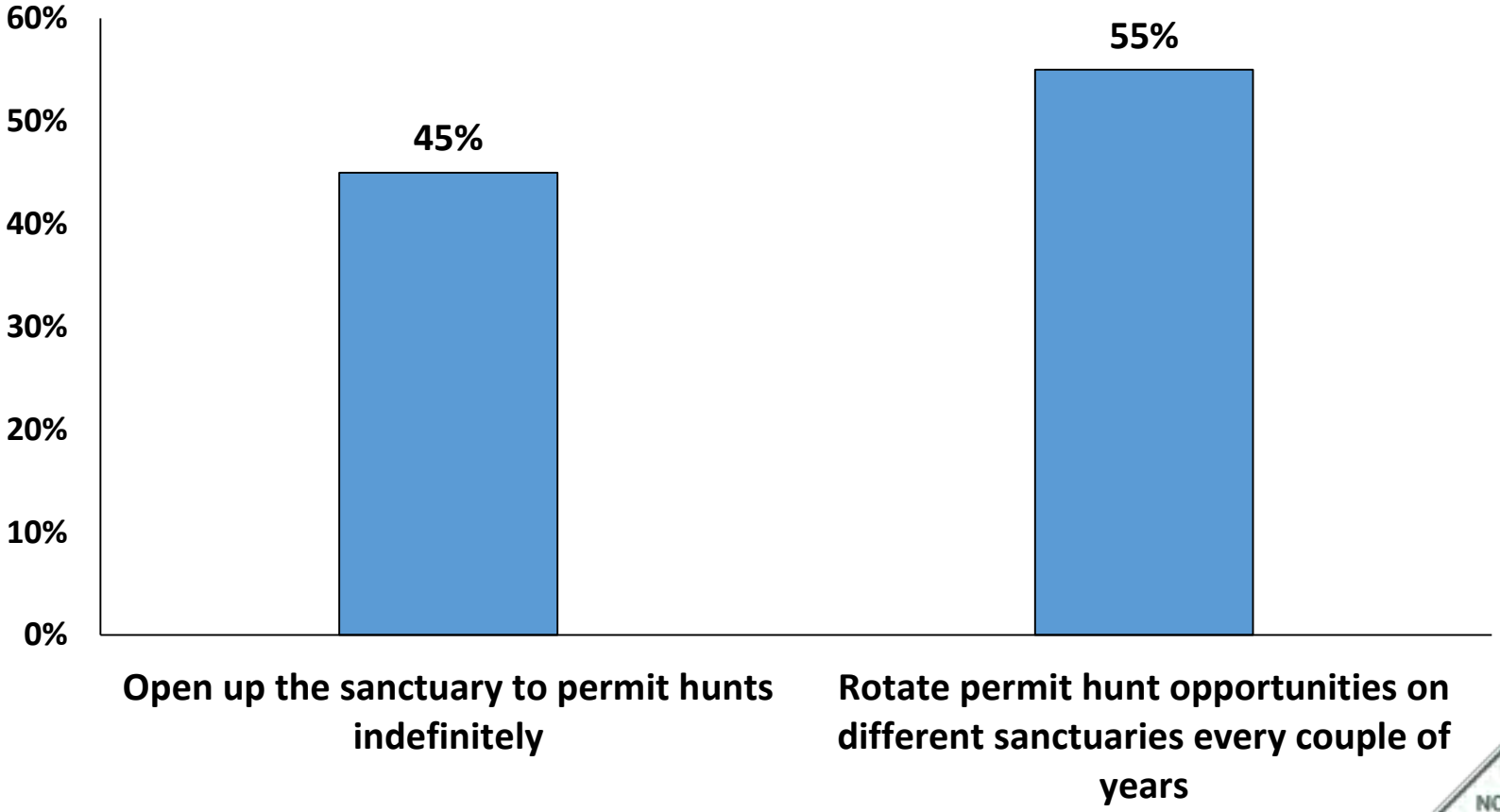
Two Sanctuary Questions

Asked in Sylva, Morganton, Thomasville and Raleigh

1. Do you support the idea of opening bear sanctuaries to hunting?



2. If we opened selected sanctuaries would you prefer:

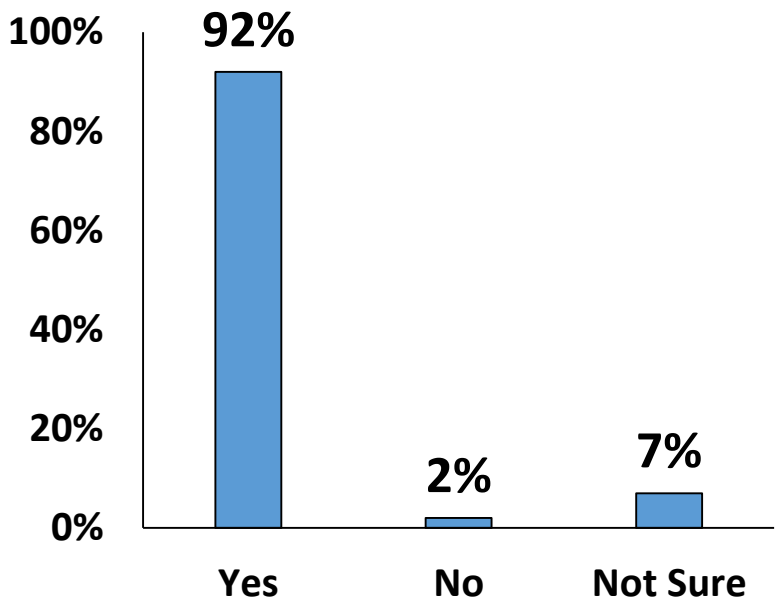


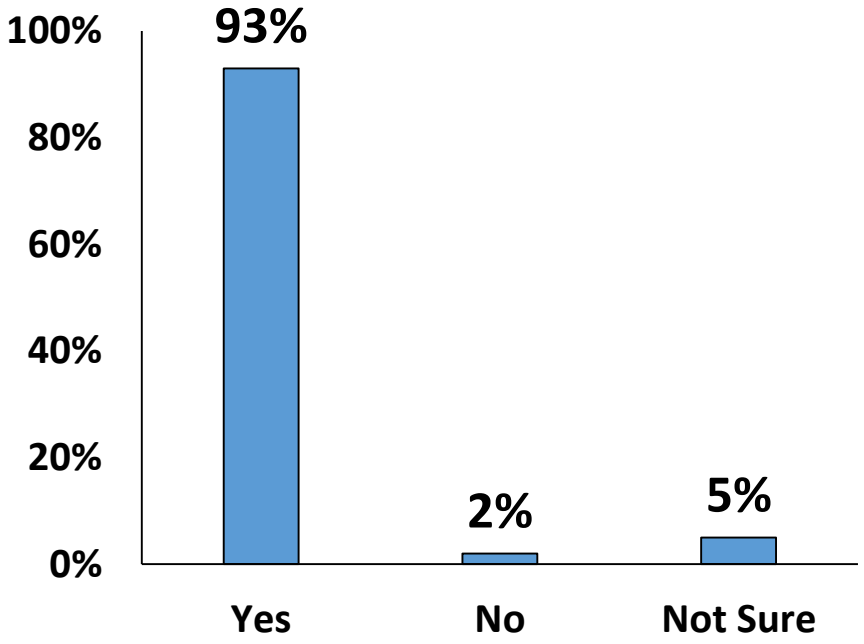
NORTH CAROLINA Wildlife RESOURCES COMMISSION

One Last Thing…

Is this type of forum helpful?

A. Yes
B. No
C. Not sure



Would you like to see more forums or something similar?

A. Yes
B. No
C. Not sure