Unit 22 Overview

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Alaska Department of Fish and Game
Nome, Alaska

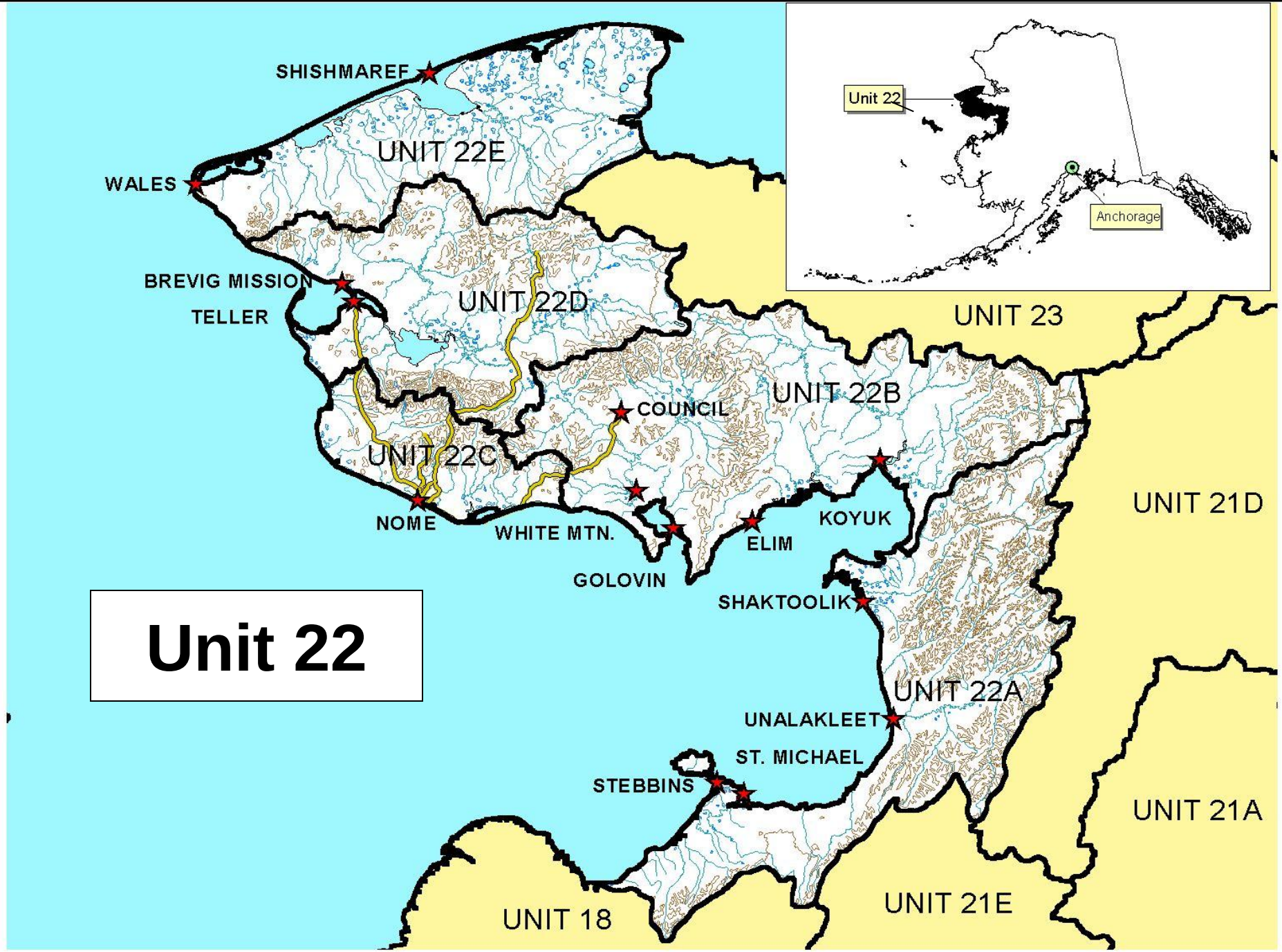
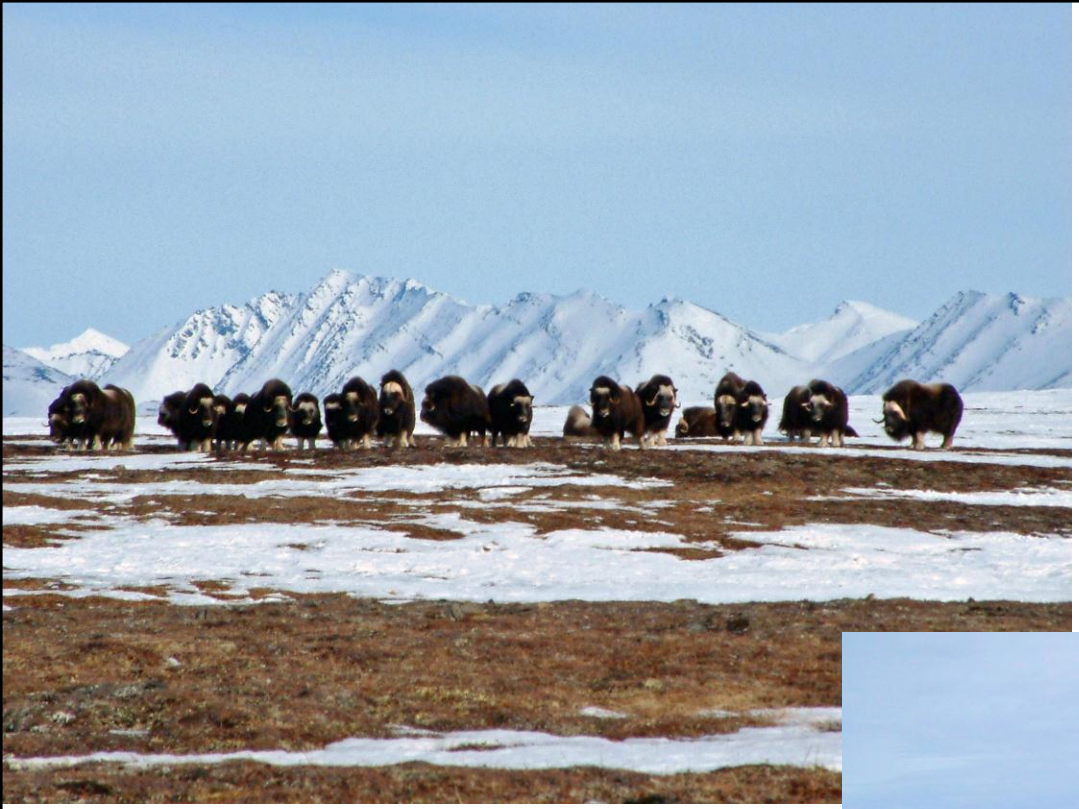

SHISHMAREF
UNIT 22E
WALES
BREVIG MISSION
TELLER
UNIT 22D
UNIT 23
COUNCIL
UNIT 22B
UNIT 22C
NOME
WHITE MTN.
KOYUK
ELIM
UNIT 21D
GOLOVIN
SHAKTOOLIK
Unit 22
UNIT 22A
UNALAKLEET
ST. MICHAEL
STEBBINS
UNIT 21A
UNIT 18
UNIT 21E
Unit 22
Anchorage

Figure 1

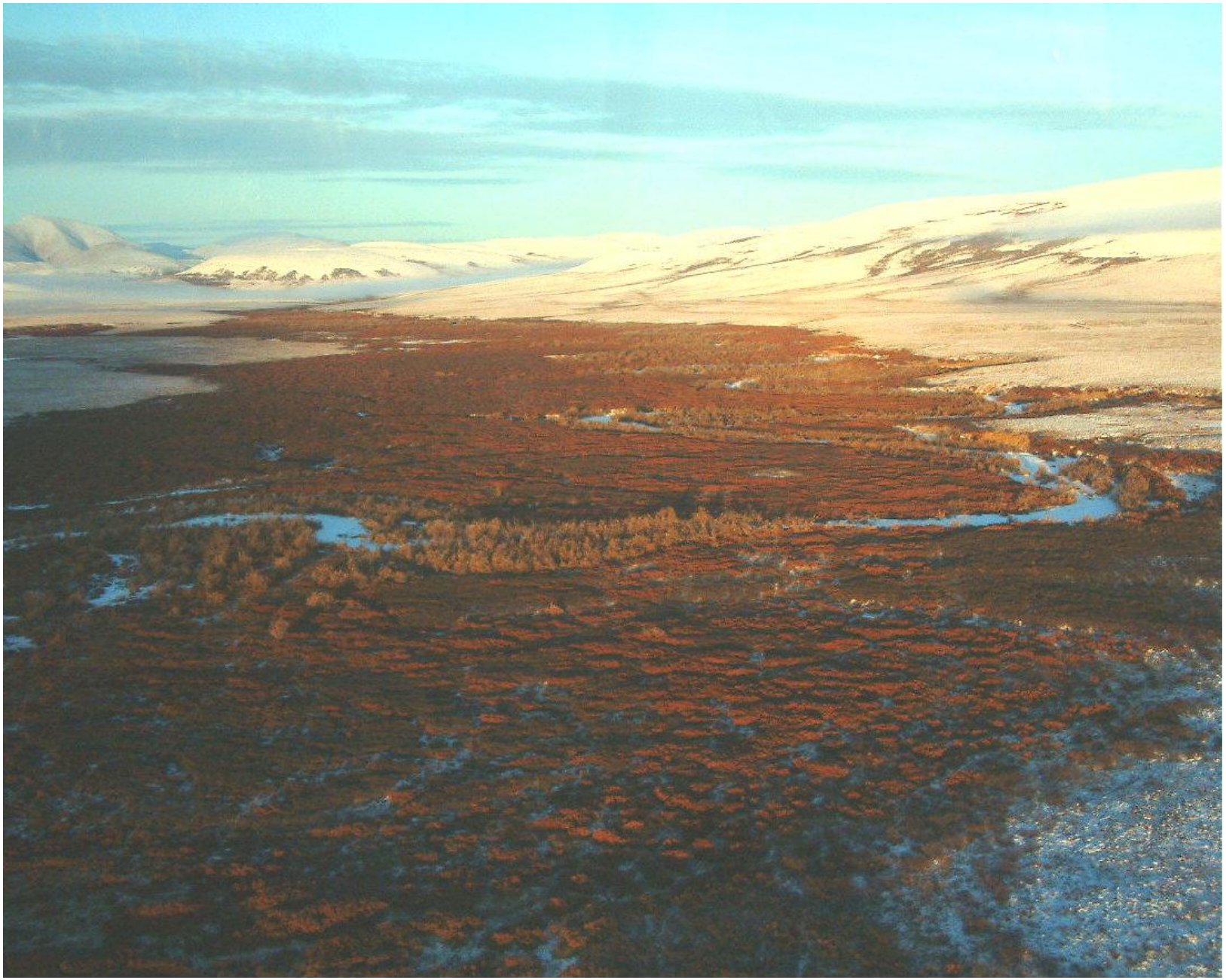


Unit 22C

Unit 22C

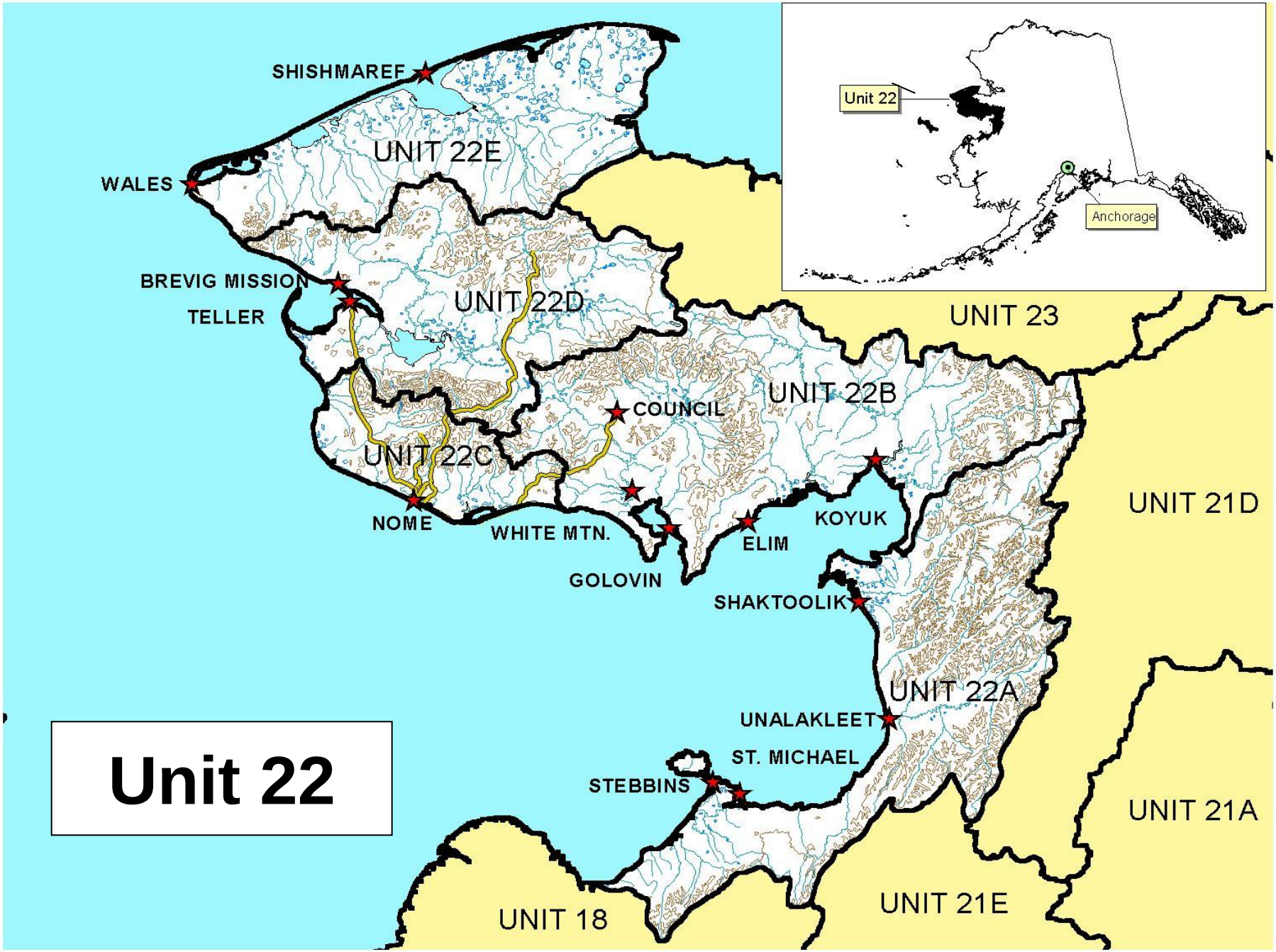
Unit 22B

Unit 22D



Unit 22C

Unit 22 Overview: Slide 7


SHISHMAREF
UNIT 22E
WALES
BREVIG MISSION
TELLER
UNIT 22D
UNIT 23
COUNCIL
UNIT 22B
UNIT 22C
NOME
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SHAKTOOLIK
UNIT 22A
UNALAKLEET
ST. MICHAEL
STEBBINS
UNIT 21A
UNIT 18
UNIT 21E
Unit 22
Unit 22
Anchorage
Unit 22

Figure 1

Unit 22A Fall Moose Hunt

Unit 22D Fall Moose Hunt

Unit 22: Moose Summary

2013 Population

Unit 22 estimate = 5,073 – 6,983 moose

Harvestable surplus = 310 moose

Subsistence

Amount necessary = 250 – 300 moose

Intensive Management

Population objective = 5,100 – 6,800 moose

Harvest objective = 300 – 680 moose

Figure 2

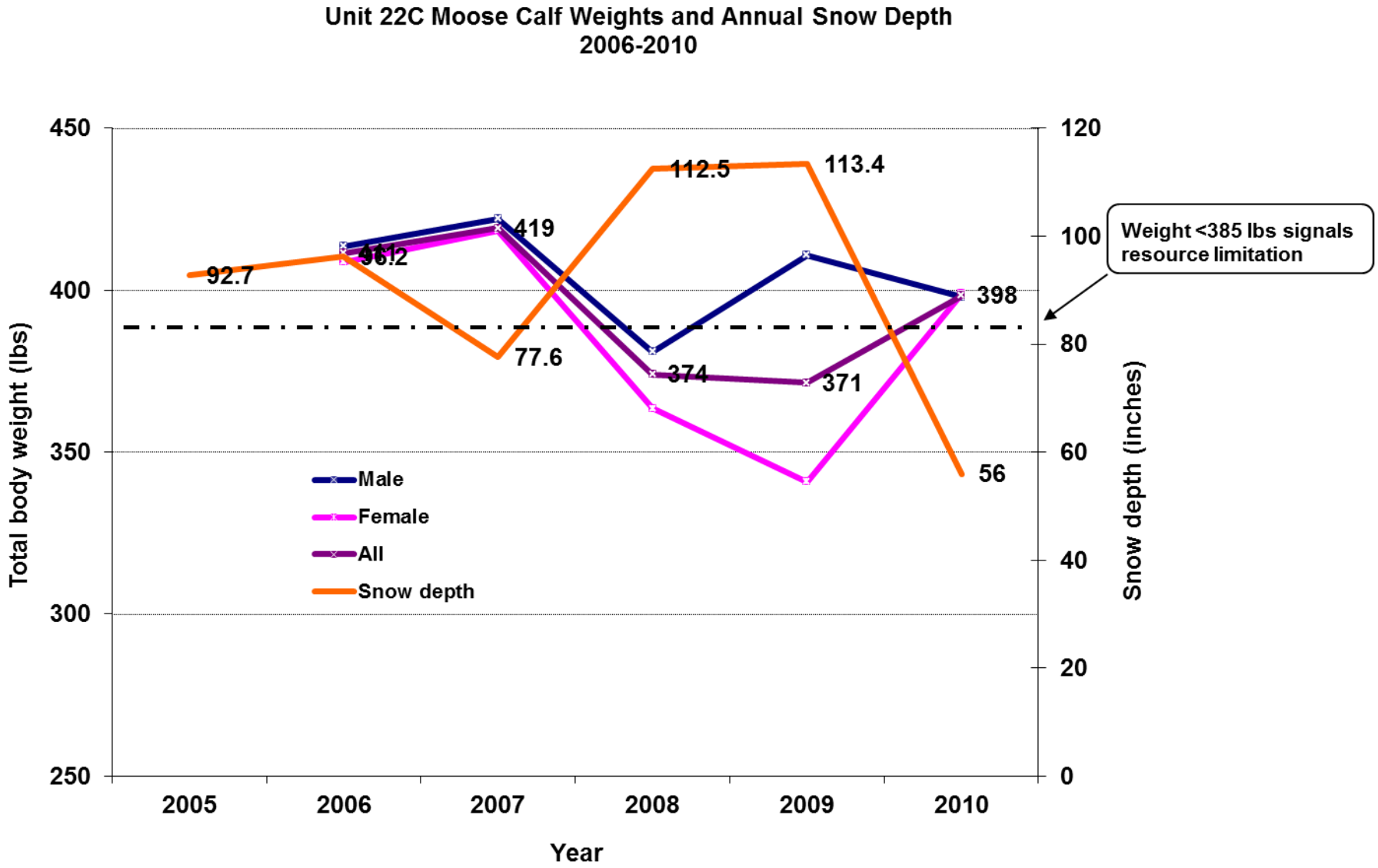

Unit 22C Moose Calf Weights and Annual Snow Depth
2006-2010
Total body weight (lbs)
Snow depth (inches)
Year
450
400
350
300
250
120
100
80
60
40
20
0
2005
2006
2007
2008
2009
2010
Male
Female
All
Snow depth
92.7
411
419
77.6
112.5
113.4
374
371
398
56
Weight <385 lbs signals resource limitation

Figure 3

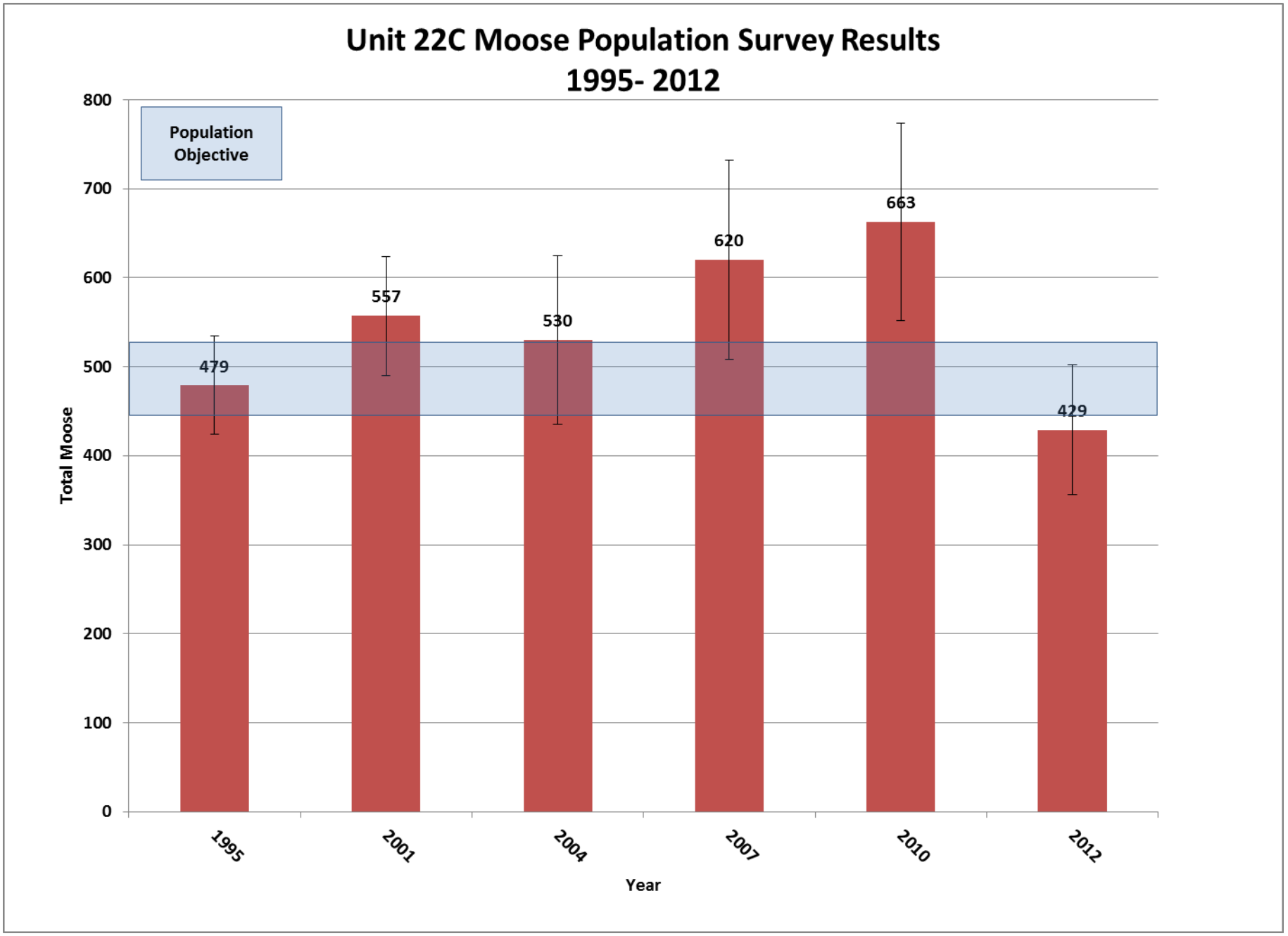

Unit 22C Moose Population Survey Results
1995- 2012
Population Objective
Total Moose
800
700
600
500
400
300
200
100
0
479
557
530
620
663
429
1995
2001
2004
2007
2010
2012
Year

Figure 4

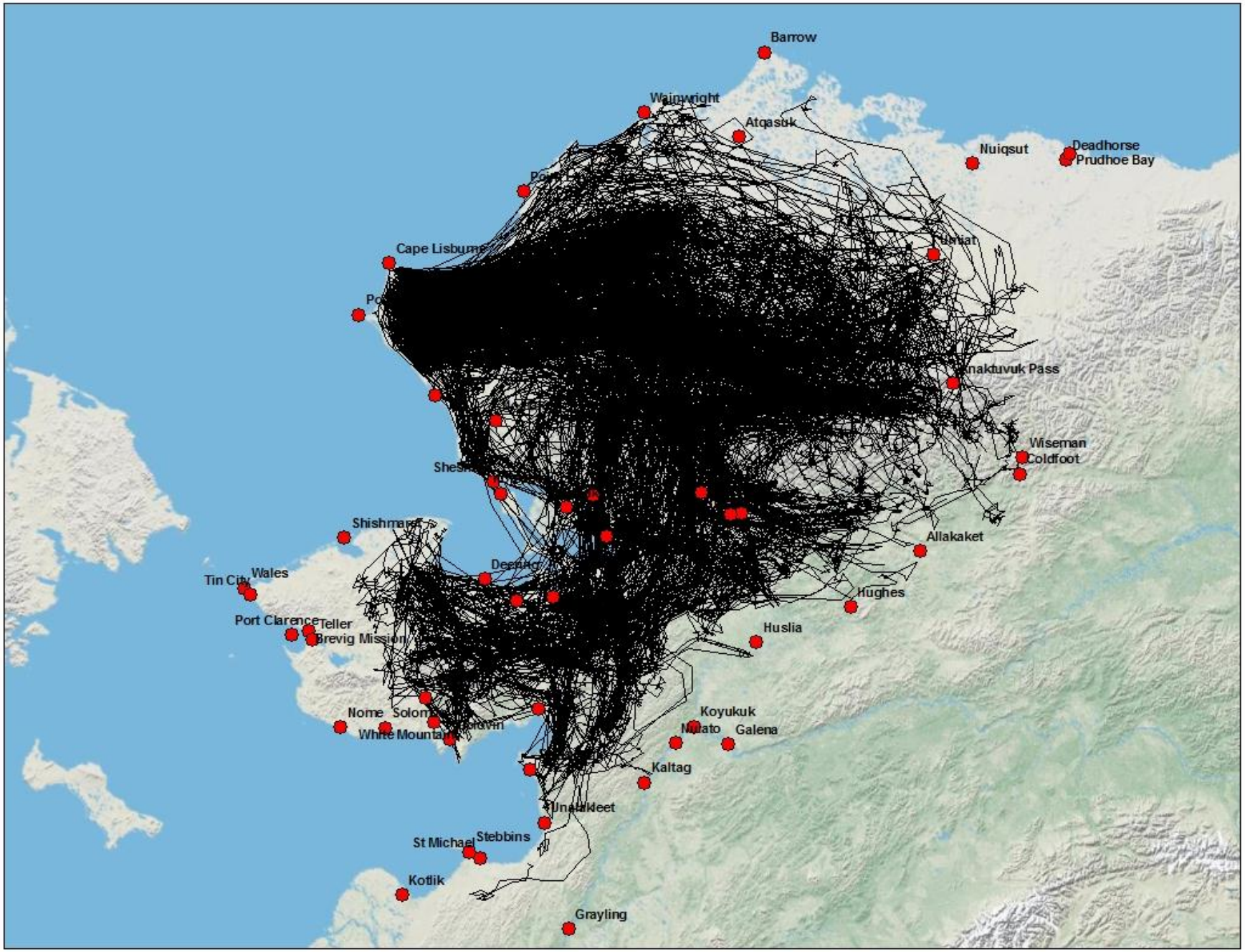


Figure 5

Unit 22 Overview: Slide 14

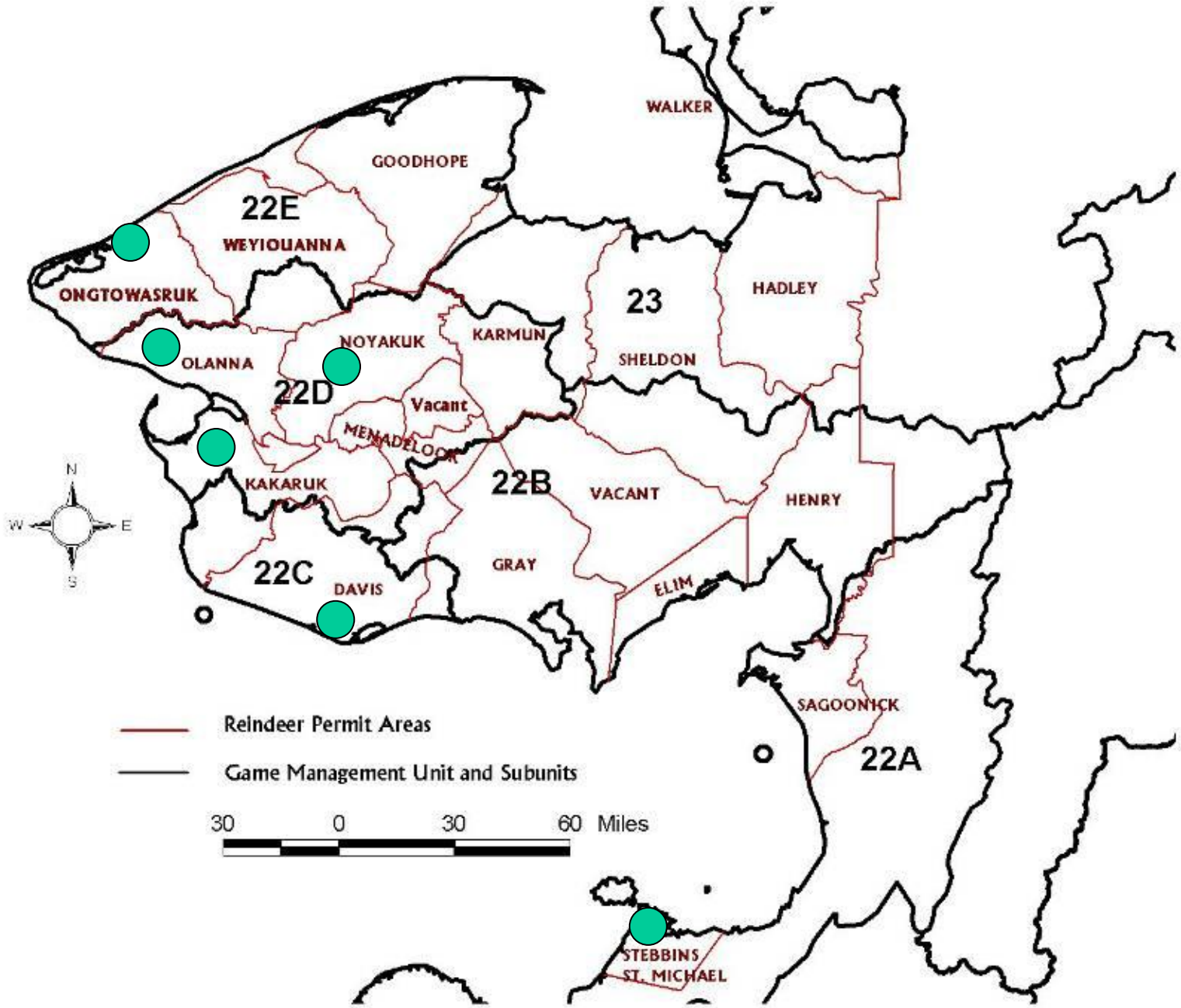

WALKER
GOODHOPE
22E
WEYIOUANNA
ONGTOWASRUK
OLANNA
NOYAKUK
KARMUN
23
HADLEY
SHELDON
22D
Vacant
MENADELOOK
KAKARUK
22B
VACANT
HENRY
22C
DAVIS
GRAY
ELIM
SAGOONICK
22A
STEBBINS
ST. MICHAEL
N
W
E
S
Reindeer Permit Areas
Game Management Unit and Subunits
30 0 30 60 Miles

Figure 6

Unit 22B

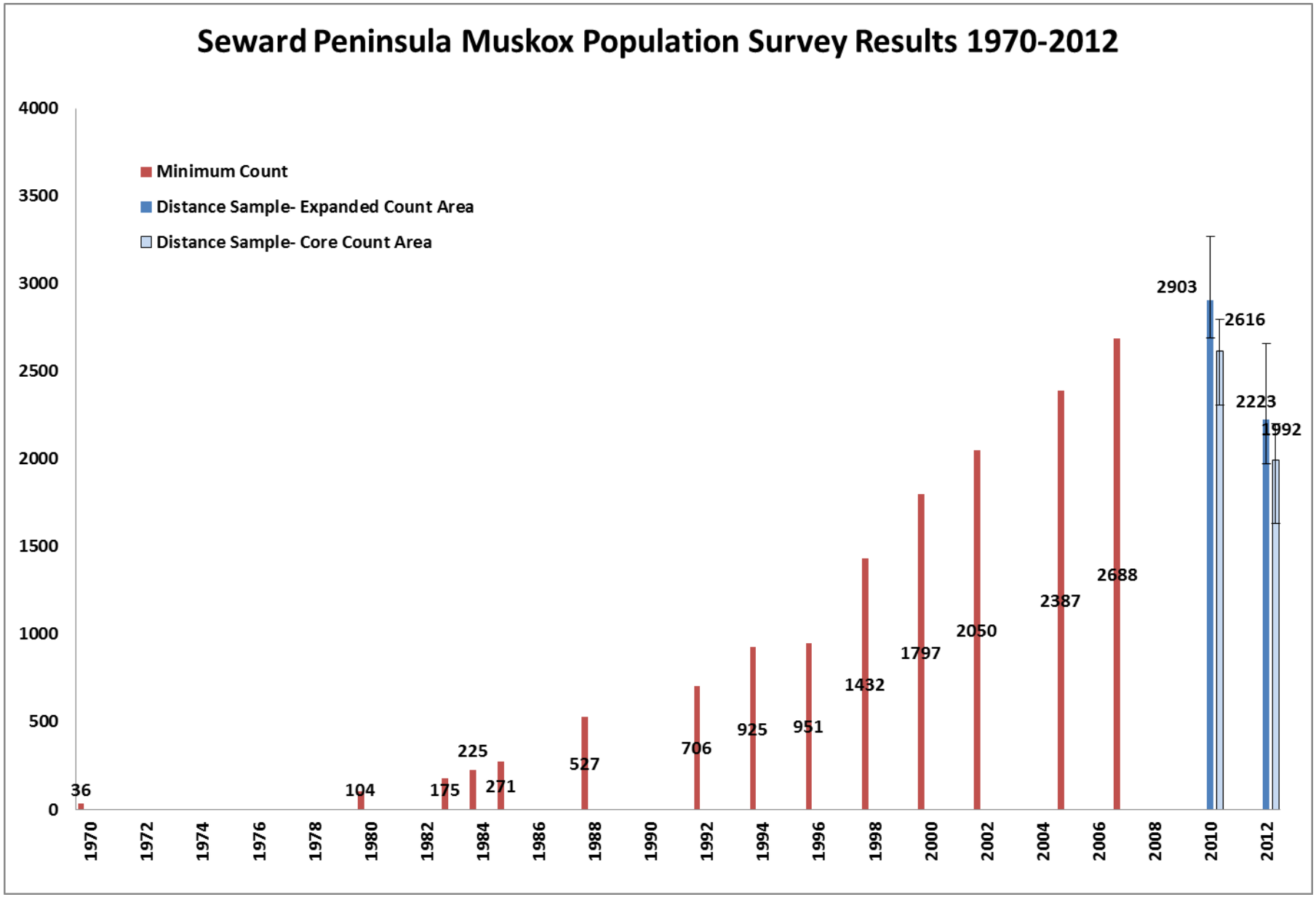

Seward Peninsula Muskox Population Survey Results 1970-2012
Minimum Count
Distance Sample- Expanded Count Area
Distance Sample- Core Count Area
4000
3500
3000
2500
2000
1500
1000
500
0
36
104
175
225
271
527
706
925
951
1432
1797
2050
2387
2688
2903
2616
2223
1992
1970
1972
1974
1976
1978
1980
1982
1984
1986
1988
1990
1992
1994
1996
1998
2000
2002
2004
2006
2008
2010
2012

Figure 7

Location of Seward Peninsula Muskox Groups, Spring 2012

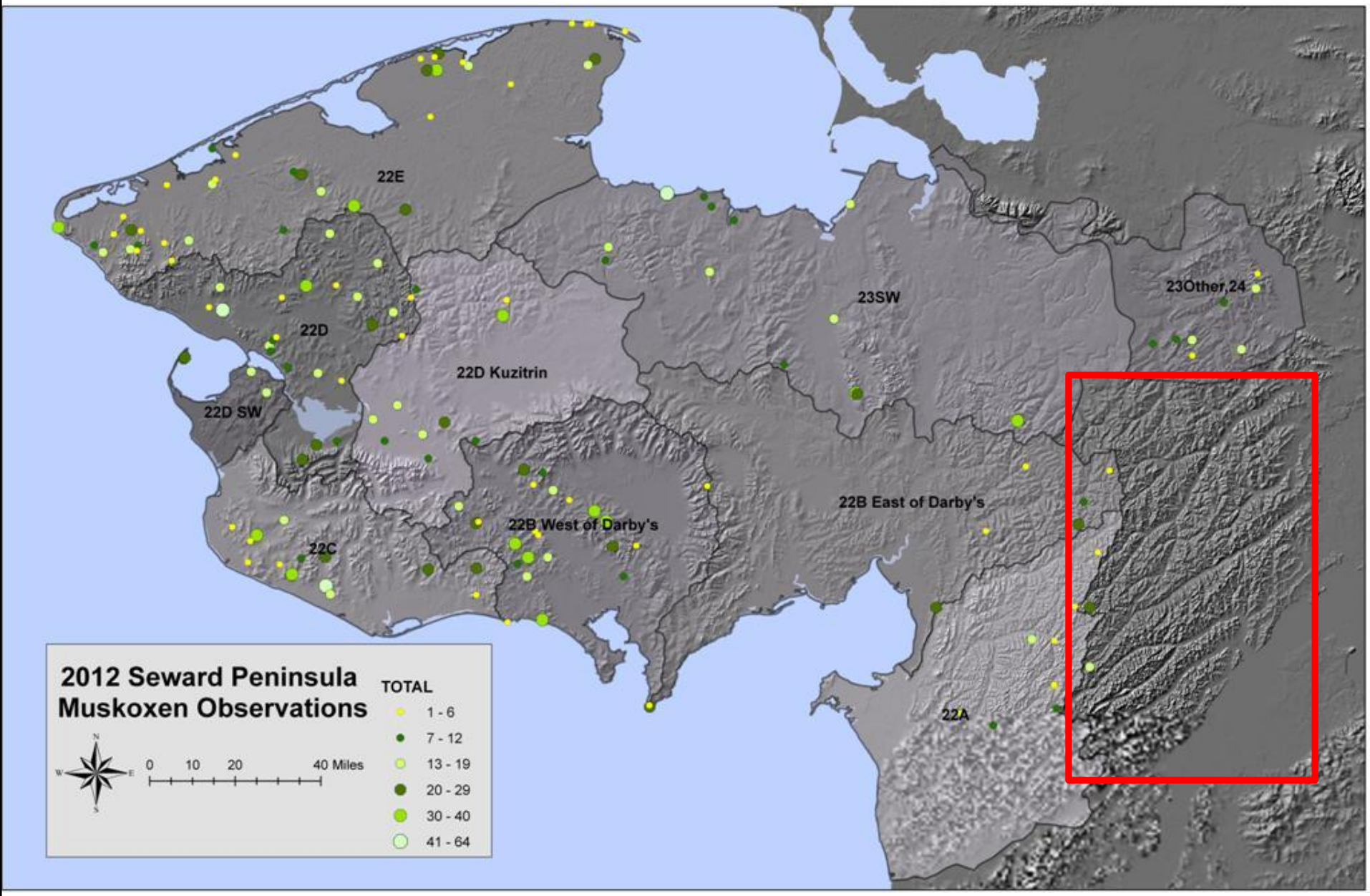


Figure 8

Unit 22C Muskox Composition Survey Results, 2002 – 2012

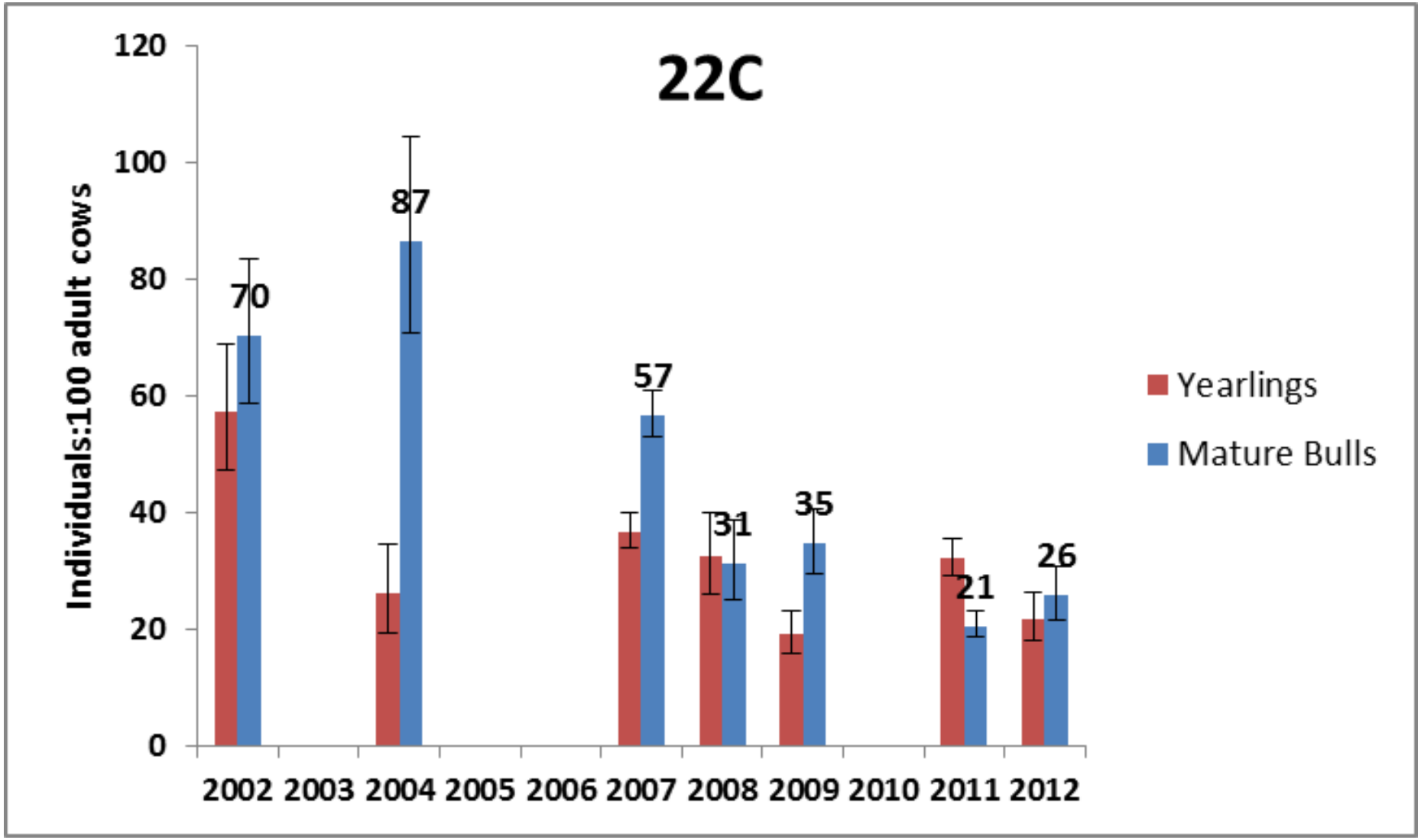


Figure 9

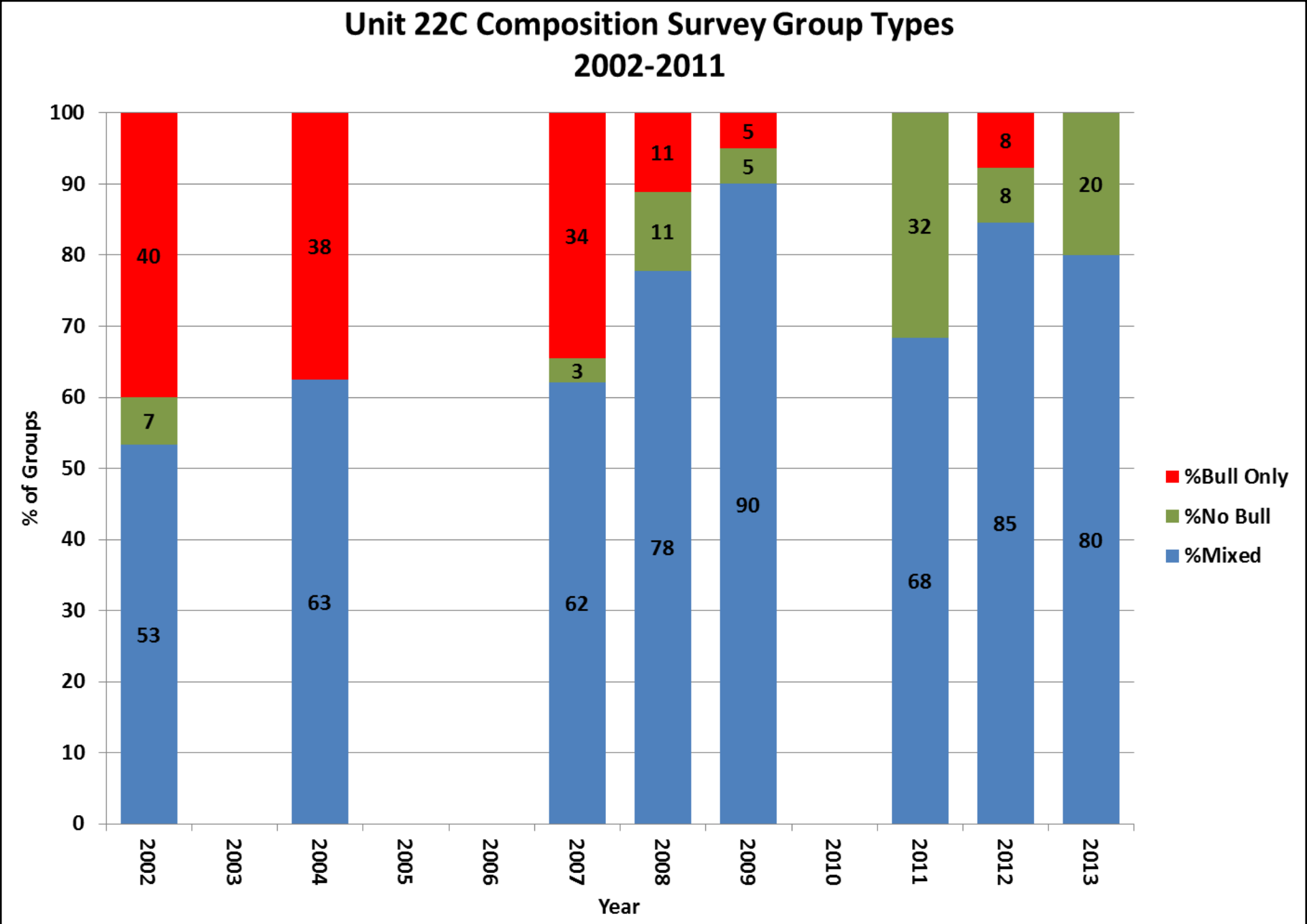

Unit 22C Composition Survey Group Types
2002-2011
% of Groups
Year
%Bull Only
%No Bull
%Mixed
100
90
80
70
60
50
40
30
20
10
0
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
40
7
53
38
63
34
3
62
11
11
78
5
5
90
32
68
8
8
85
20
80

Figure 10

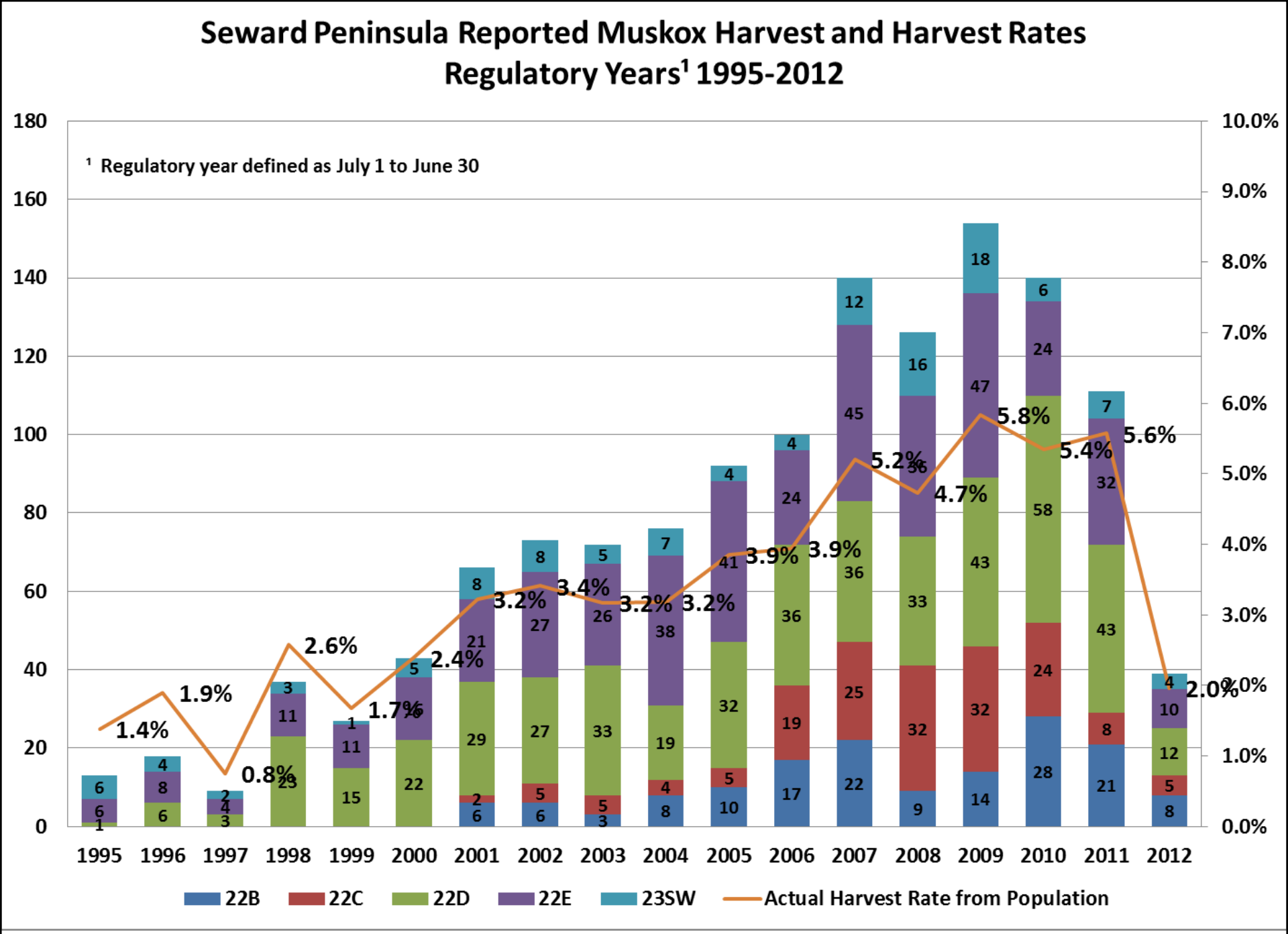
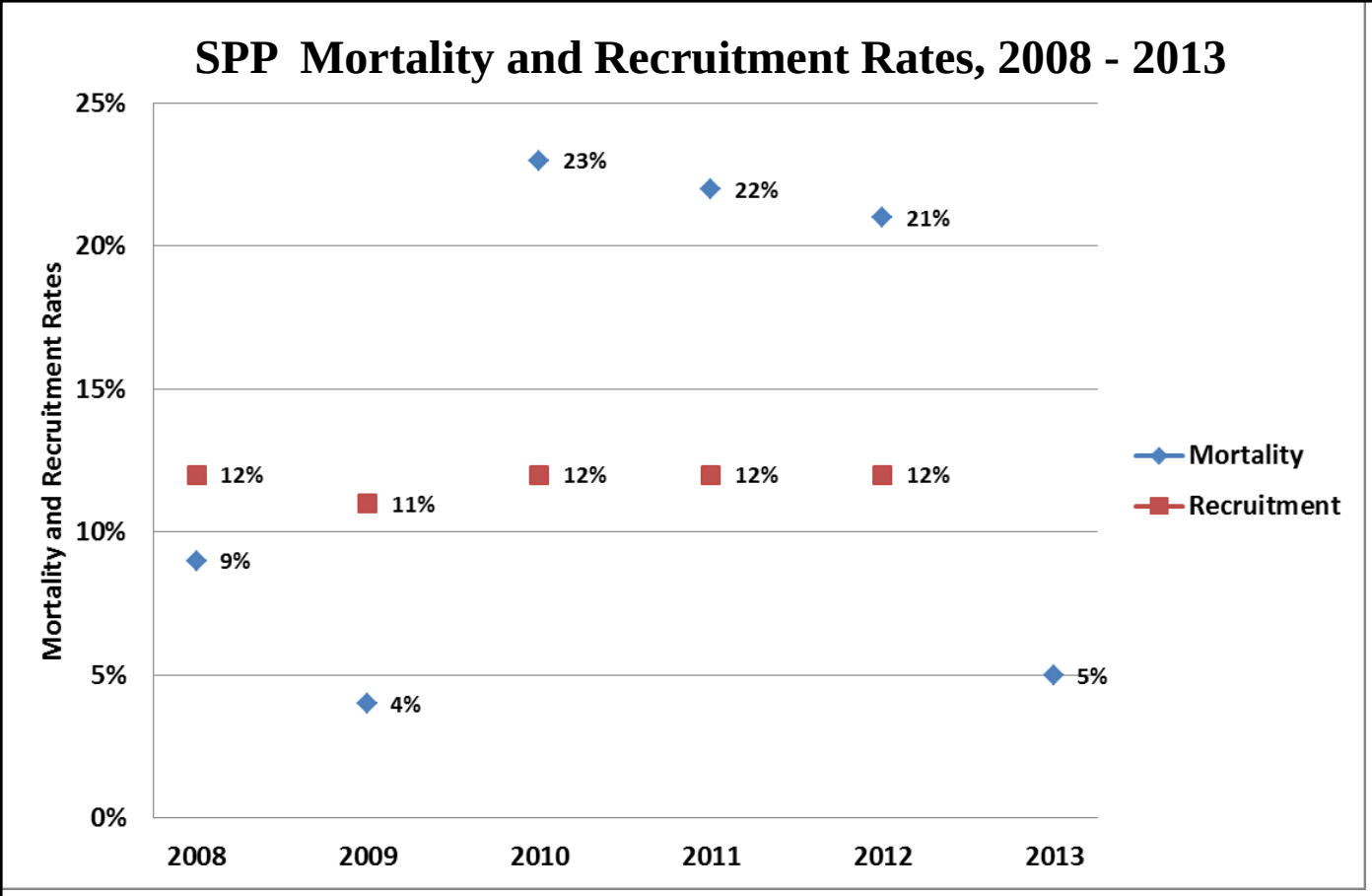

Seward Peninsula Reported Muskox Harvest and Harvest Rates
Regulatory Years[1] 1995-2012
[1] Regulatory year defined as July 1 to June 30
180
160
140
120
100
80
60
40
20
0
10.0%
9.0%
8.0%
7.0%
6.0%
5.0%
4.0%
3.0%
2.0%
1.0%
0.0%
1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012
1.4% 1.9% 0.8% 2.6% 1.7% 2.4% 3.2% 3.4% 3.2% 3.2% 3.9% 3.9% 5.2% 4.7% 5.8% 5.4% 5.6% 2.0%
22B
22C
22D
22E
23SW
Actual Harvest Rate from Population

Figure 11


SPP Mortality and Recruitment Rates, 2008 - 2013
Mortality and Recruitment Rates
25%
20%
15%
10%
5%
0%
2008
2009
2010
2011
2012
2013
23%
22%
21%
12%
11%
12%
12%
12%
9%
4%
5%
Mortality
Recruitment

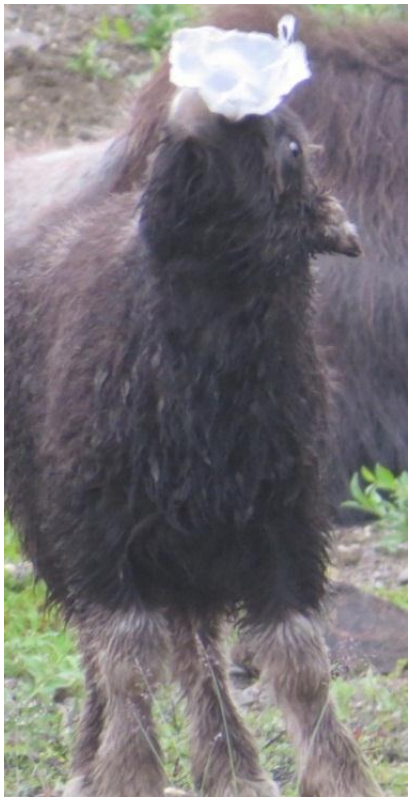


Figure 12

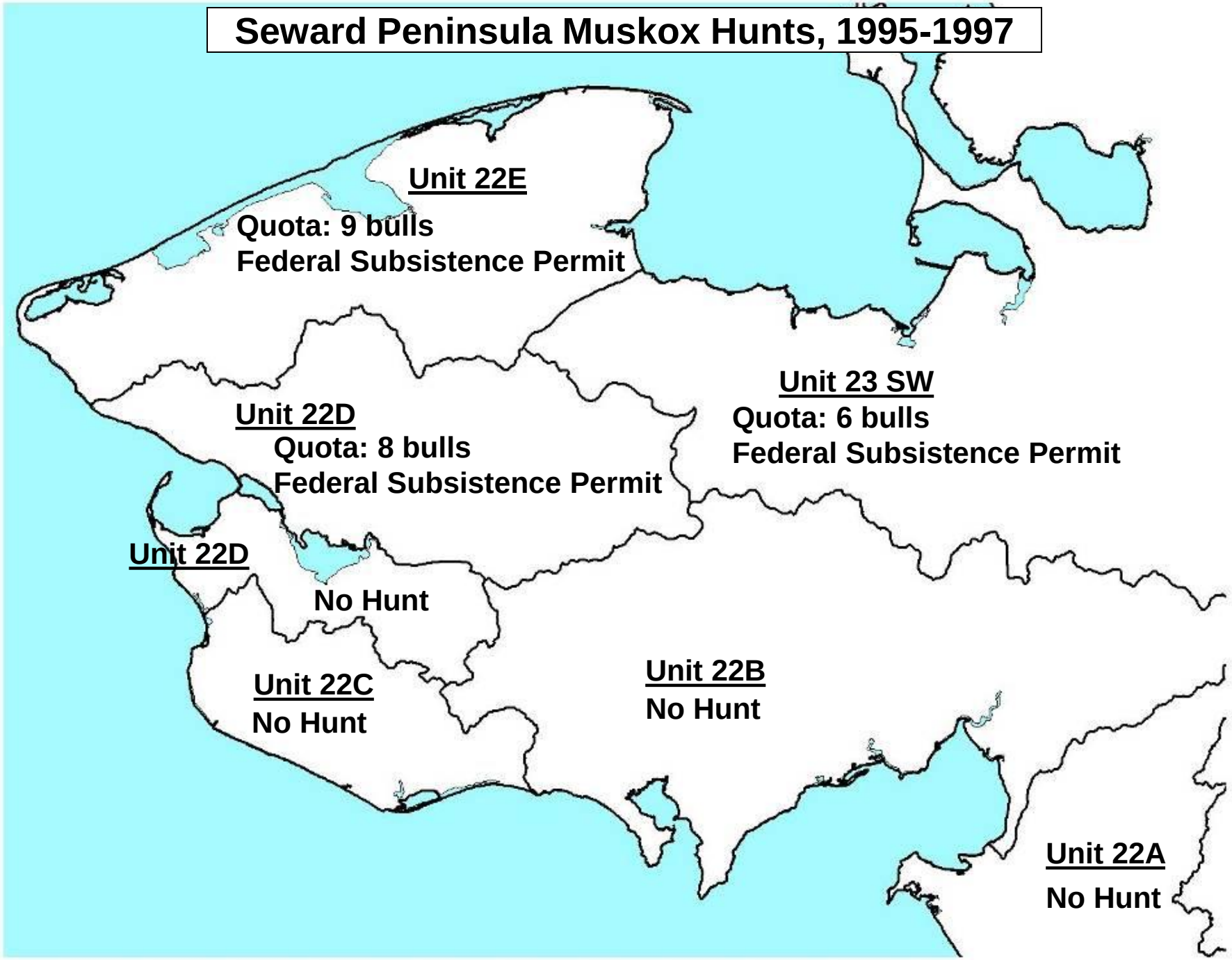

Seward Peninsula Muskox Hunts, 1995-1997
Unit 22E
Quota: 9 bulls
Federal Subsistence Permit
Unit 23 SW
Quota: 6 bulls
Federal Subsistence Permit
Unit 22D
Quota: 8 bulls
Federal Subsistence Permit
Unit 22D
No Hunt
Unit 22C
No Hunt
Unit 22B
No Hunt
Unit 22A
No Hunt

Figure 13

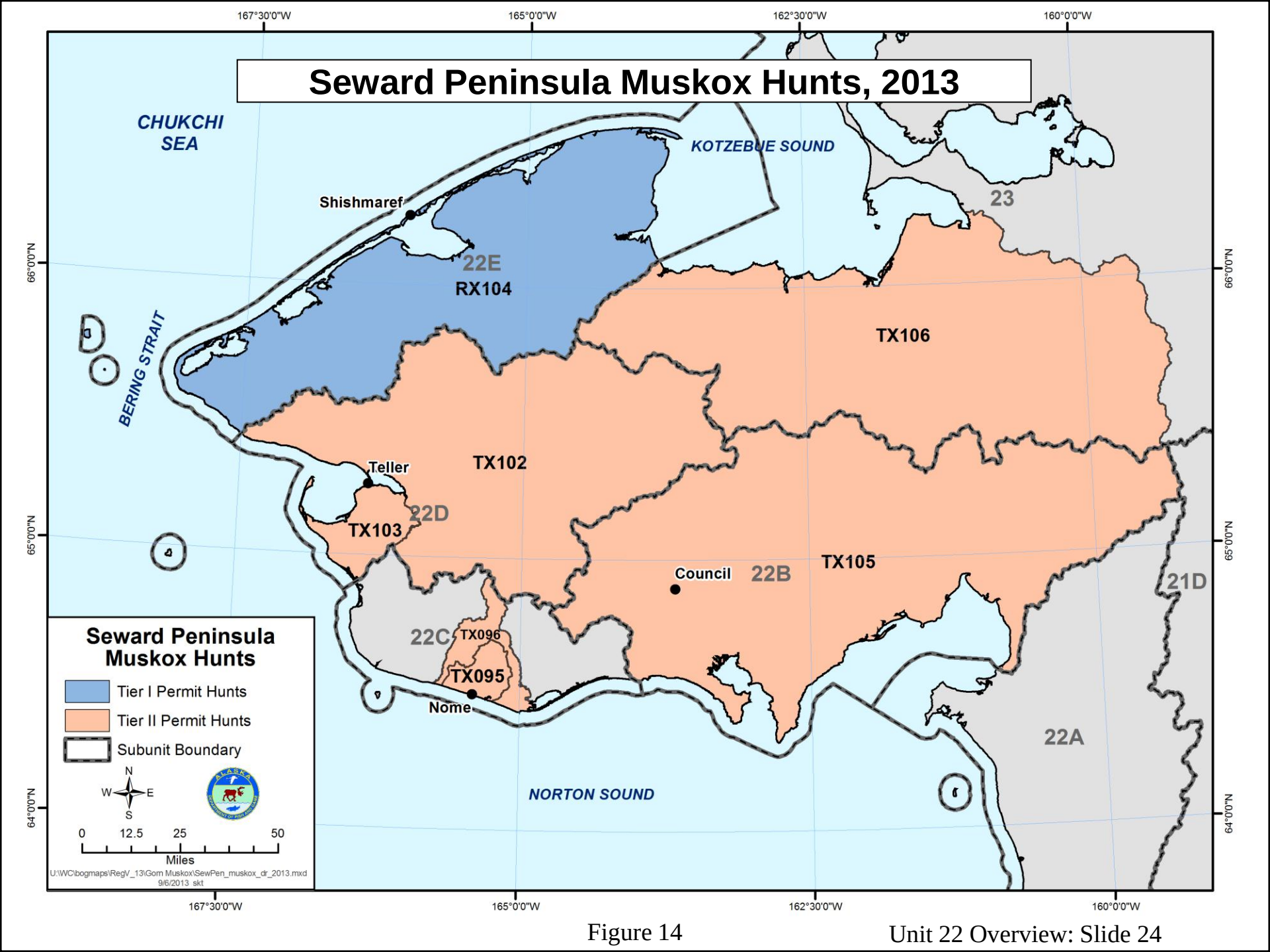

Seward Peninsula Muskox Hunts, 2013
CHUKCHI SEA
KOTZEBUE SOUND
BERING STRAIT
NORTON SOUND
Shishmaref
Teller
Council
Nome
22E
RX104
23
TX106
TX102
22D
TX103
TX105
22B
21D
22C
TX096
TX095
22A
167°30'0"W
165°0'0"W
162°30'0"W
160°0'0"W
66°0'0"N
65°0'0"N
64°0'0"N
Seward Peninsula Muskox Hunts
Tier I Permit Hunts
Tier II Permit Hunts
Subunit Boundary
N
W
E
S
0
12.5
25
50
Miles
U:\WC\bogmaps\RegV_13\Gorn Muskox\SewPen_muskox_dr_2013.mxd
9/6/2013 skt

Figure 14

Seward Peninsula Muskox Population Survey Line Transects, 2012

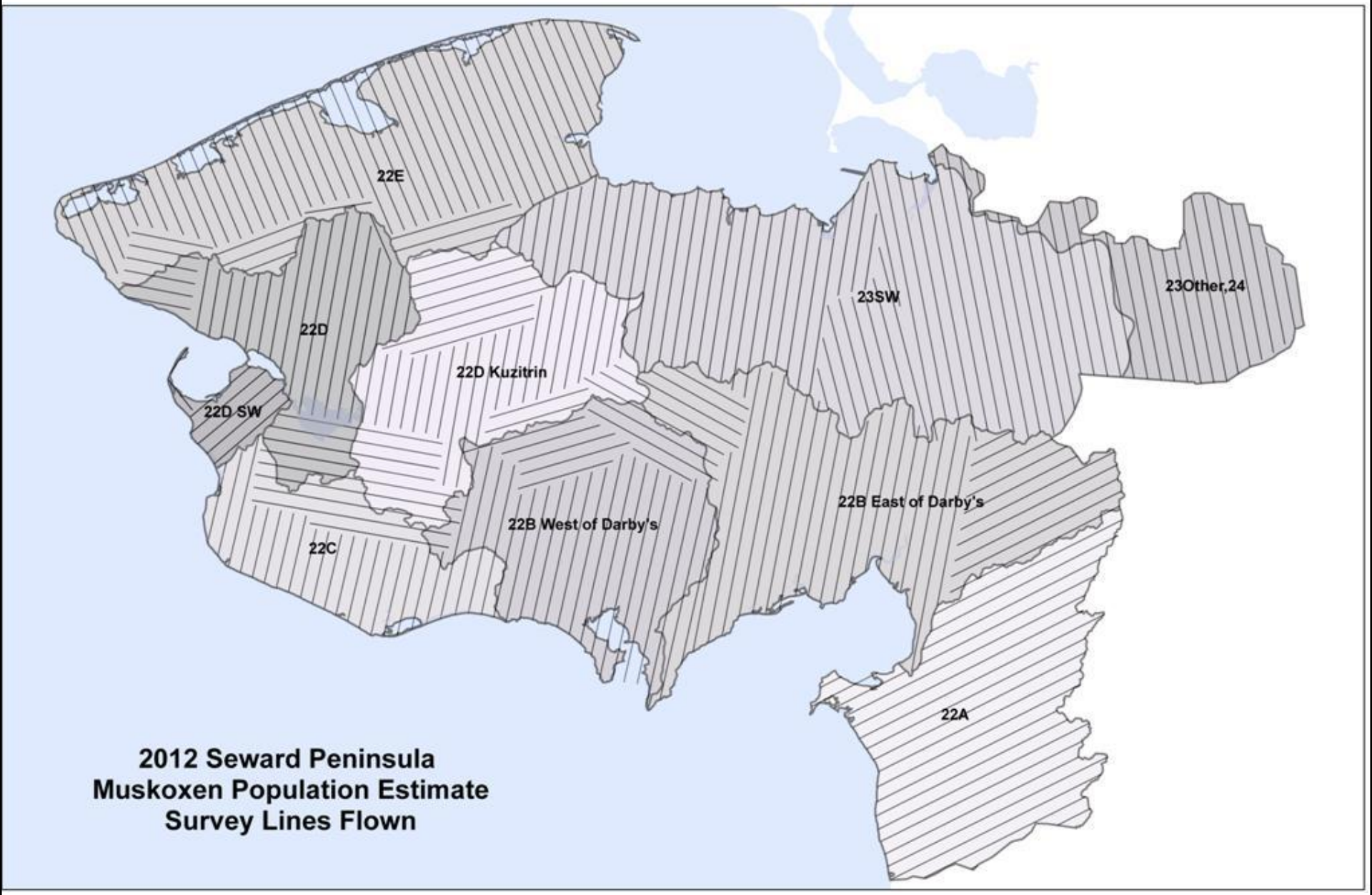


Figure 15

Unit 22C

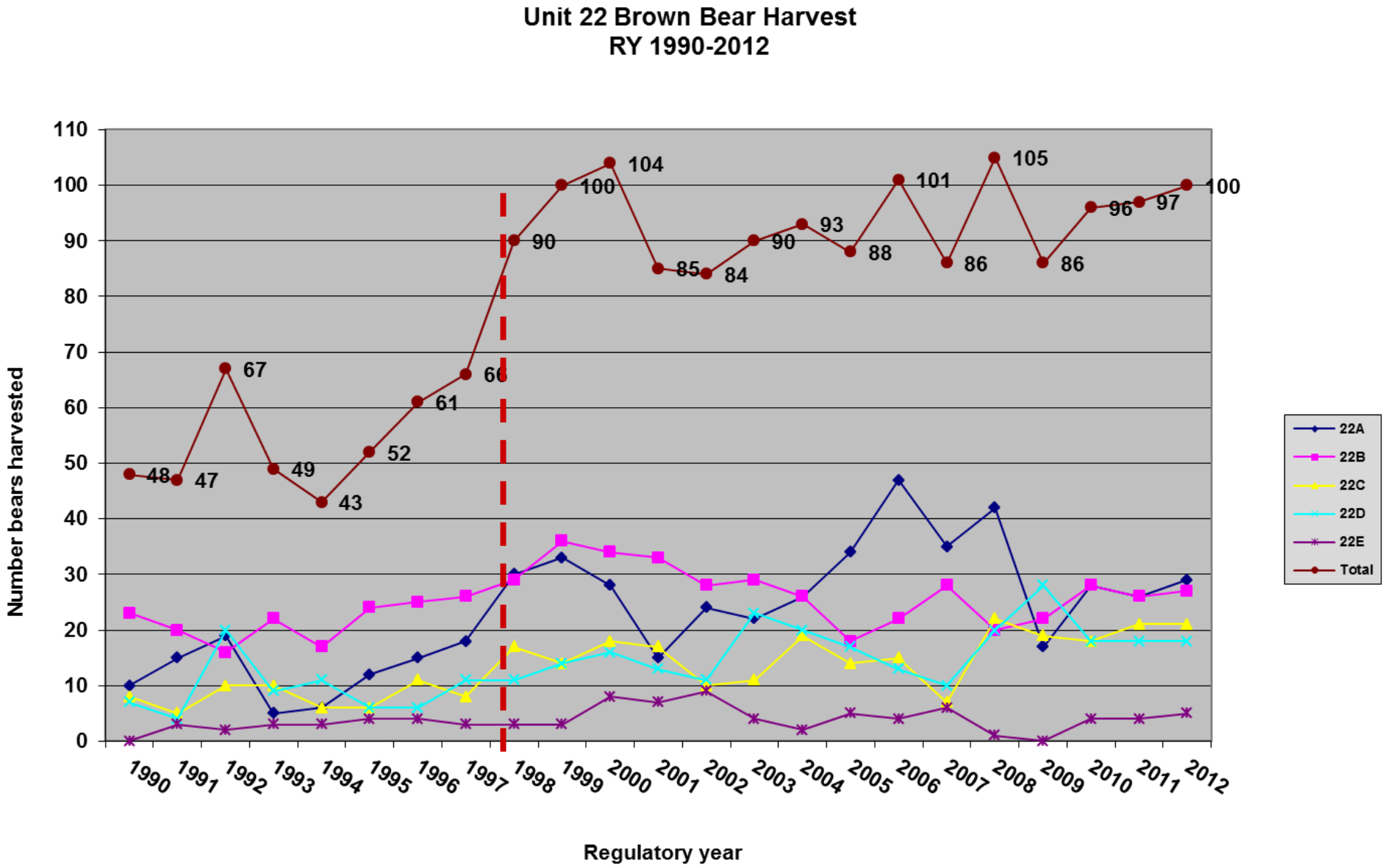

Unit 22 Brown Bear Harvest
RY 1990-2012
Number bears harvested
Regulatory year
22A
22B
22C
22D
22E
Total
48
47
67
49
43
52
61
66
90
100
104
85
84
90
93
88
101
86
105
86
96
97
100

Figure 16

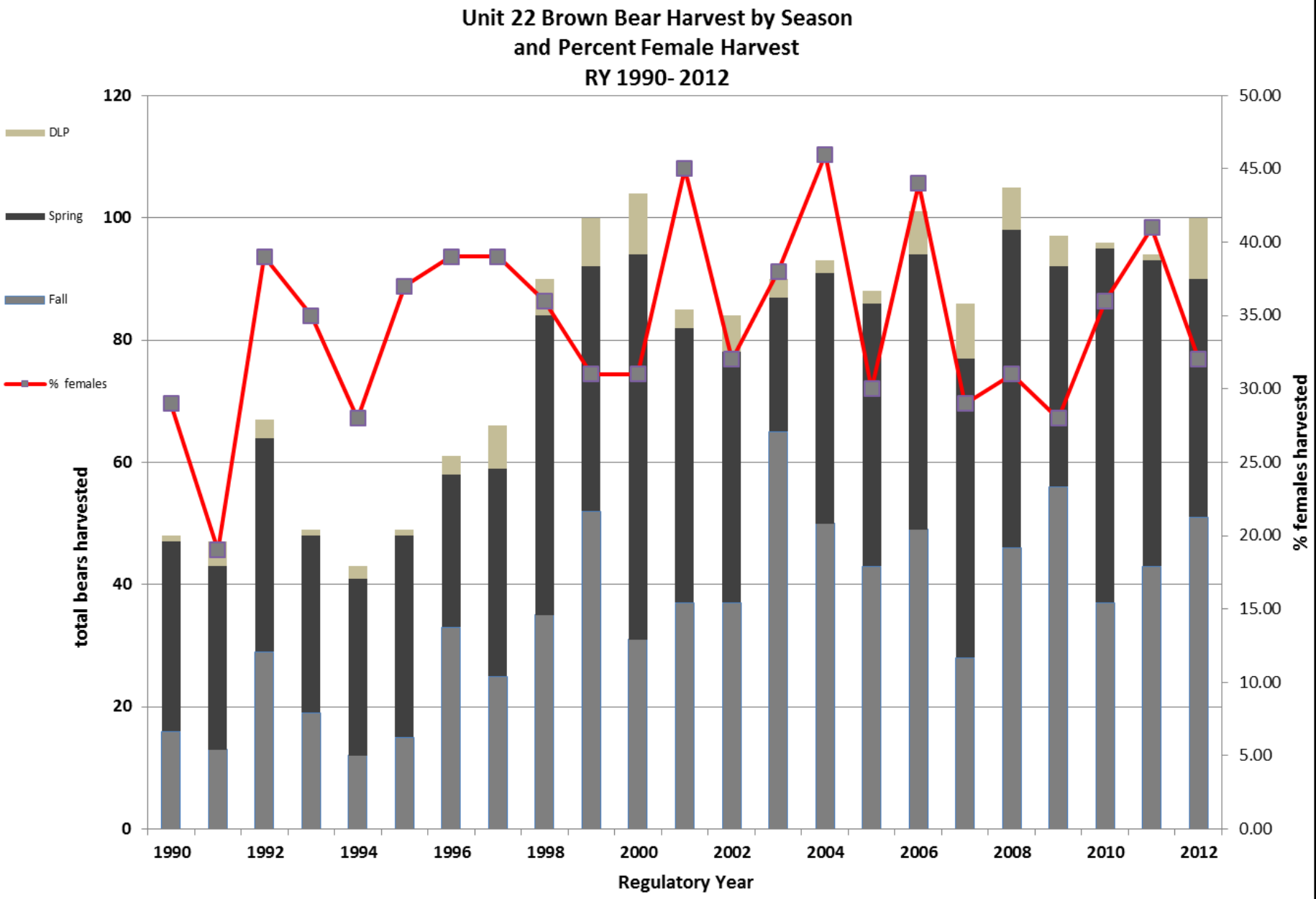

Unit 22 Brown Bear Harvest by Season
and Percent Female Harvest
RY 1990- 2012
DLP
Spring
Fall
% females
total bears harvested
% females harvested
Regulatory Year
0
20
40
60
80
100
120
0.00
5.00
10.00
15.00
20.00
25.00
30.00
35.00
40.00
45.00
50.00
1990
1992
1994
1996
1998
2000
2002
2004
2006
2008
2010
2012

Figure 17

Unit 22C

Questions?

GAME MANAGEMENT UNIT 22

Seward Peninsula and the mainland drained by streams flowing into Norton Sound

Area Biologist: Tony Gorn
Assistant Area Biologist: Letty Hughes
Fish & Wildlife Technician: Bill Dunker

Arctic and Western Region, Board of Game Meeting, Kotzebue, Jan. 2014

DESCRIPTION Unit 22 is a 25,230 mi² area that consists of 5 subunits (22A, 22B, 22C, 22D, 22E) covering much of the Seward Peninsula and southern Norton Sound including St. Lawrence Island and Little Diomede (**Figure 1**). Terrain varies from rugged mountains and river valleys to flat coastal wetlands. Spruce forests characterize eastern portions of the unit, while western portions are treeless and largely tundra covered with willow thickets along the riparian corridors.

During snow free months access to most of the unit is limited to boats, 4-wheelers and airplanes, except along the Nome road system in the central Seward Peninsula where almost 400 miles of gravel road gives access to Units 22B, Unit 22C, and Unit 22D. Once there is snow cover, hunters and trappers disperse by snow machine all over the unit in pursuit of bears, moose, caribou, muskox or furbearers.

HUMAN POPULATION Approximately 9000 people live in Unit 22, residing in 15 mainland coastal communities. The region's population is 79% Alaska Native, mostly Inupiat Eskimo. A majority of Unit 22 residents depend on subsistence hunting and fishing to help meet their nutritional needs.

WILDLIFE POPULATIONS

Moose Moose have only been present on the Seward Peninsula since 1930, but they very quickly became an important subsistence resource. Moose populations in most parts of the unit peaked in the mid-1980s and have since declined. Winter habitat limitations are believed to have caused large-scale declines following severe winters in the late 1980s and early 1990s, and since then we believe predation, primarily by brown bears, has depressed moose recruitment in some parts of Unit 22. The harvestable surplus of moose has increased due in part to nearly 20 years of shortened seasons and harvest quotas in the most heavily hunted areas, and is near the upper threshold of the amount necessary for subsistence (**Figure 2**).

Management Activities include an annual moose population census, rotating each spring between the 5 subunits. Sex and age composition surveys are attempted in the spring and fall in the most heavily hunted areas. The department weighed 10-month old moose calves between 2006 and 2010 to help determine if habitat limitations were contributing to the further decline of moose numbers in some areas of Unit 22 (**Figure 3**). Short yearling

weights from Unit 22C show moose may be affected by years of deep snow fall. During years of average snow fall (long term average is 62") 10 month old calf weights generally exceeded 400 lbs., compared to 2008 and 2009 when more than 110 inches of snow fell in the Nome area and short yearling weights declined more than 40 lbs. The two years of high snow fall recorded in 2007 and 2008 are the 2nd (113.4") and 3rd (112.5") deepest snow fall years on record. These results indicated moose populations along the southern Seward Peninsula coast may needed to be reduced in order to remain sustainable if weather patterns observed in the late 2000's persist into the future.

The department counted moose in Unit 22C during the spring of 2012 and found a population decline (429 ±17%) in the area near our population objective (450-525) (**Figure 4**), and consequently cancelled the antlerless moose hunt in the area first authorized by the board in 1999.

The Board will consider three moose proposals at this meeting (Proposals 13, 14, 15).

Caribou Unit 22 caribou information can be found in Jim Dau's Western Arctic Caribou overview. From the early 1980s through the late 1990s, a portion of the Western Arctic Caribou Herd wintered in the Nulato Hills and on the eastern Seward Peninsula. In 1996, for the first time in over 100 years, significant numbers of caribou reoccupied their historic range on the central Seward Peninsula. Since then varying numbers of caribou have wintered on the central Seward Peninsula and have progressively ranged further westward (**Figure 5**). This is a great benefit to peninsula hunters, but it has jeopardized the reindeer industry. Over half of the Seward Peninsula reindeer herds have been lost to migratory caribou and caribou hunters have mistakenly shot reindeer. The green dots (**Figure 6**) indicate active reindeer ranges, and the remaining brown polygons show where herds once existed, but since have been lost to migrating caribou.

There are no Unit 22 caribou proposals at this meeting.

Management Activities for caribou include collecting information from radio tracking flights about caribou numbers, locations and movements. This information along with producing maps of satellite collared caribou are provided to the Reindeer Herders Association to alert herders as caribou approach their reindeer ranges. Location and distribution information is also used to justify emergency order openings when caribou move into Units 22C, western Unit 22D and western Unit 22E. Nome staff participate in fall and spring range-wide radiotracking surveys; calving, composition and recruitment surveys, the biennial WAH photo-census, and annual collaring operations.

Muskoxen The reintroduction of muskox to the Seward Peninsula was a great biological success that has created enormous management challenges. Since 1970 when 36 muskoxen were released in Unit 22C, the population grew to 2616 animals estimated in the core count area during the spring 2010 census. The herd grew 14% annually from 1970-2000, but

growth slowed to 4% from 2000-2010. In 2012 we estimated 1992 muskox in the core count area which represents a 12% annual decline between 2010 and 2012 (**Figure 7**). Muskox are now established throughout the Seward Peninsula and populations are large enough to support hunts in all parts of Unit 22, except Unit 22A, although nowhere near the levels experienced in recent years.

Figure 8 illustrates distribution of muskox groups detected during the 2012 population survey. The red box outlines the northern portion of the Nulato Hills located east of the Seward Peninsula. Future population surveys will include survey coverage of this area to better document range expansion and provide better closure to the survey area which should provide the department with additional information related to eastward range expansion.

The department documented declines in recruitment and mature bull: cow ratios across the Seward Peninsula during 2002- 2012 (**Figure 9**), which is consistent with population survey results that found a decline during the same time period. During 2002 – 2004 when less than one bull a year was harvested from 22C, composition surveys found greater than 60 mature bulls: 100 cows. Since 2006 when average harvest increased to 26 bulls per year, composition surveys found a decrease in mature bulls and are now below our management objective of 30 mature bulls: 100 cows.

Figure 10 illustrates the type of groups we classified in Unit 22C during spring composition surveys completed after hunts closed. The red sections of the bars indicate bulls only groups visited since 2002, and those groups have decreased through time. The green bars, or groups with no mature bulls present, have increased through time. We believe it's necessary to rebuild bull: cow ratios within the population and current hunts use conservative harvest rates compared to past hunts to help rebuild this portion of the population.

The recent understanding of selective harvest patterns by hunters, along with a change in population growth forecasts continued lower harvest rates, lower harvestable surpluses, and a Tier II hunt regime for future hunts. We complete comprehensive muskox population and composition surveys every 2 years on the Seward Peninsula and future hunts will use harvest rates consistent with what we used in the late 1990's until population metrics again increase. Tier II hunts administered in 2012 used a 2% harvest rate consistent to hunts administered between 1995 and 2000 (**Figure 11)**.

The department began collaring muskox in 2008 in areas of the central and southern Seward Peninsula to better understand current natural mortality rates and movement and dispersal of groups of local muskoxen (**Figure 12)**. The department believes recruitment rates have been relatively consistent since 2008, and mortality rates may have exceeded 20% between 2010-2012. There are several causes to mortality which vary from vehicle collisions, drowning, weather related events, trash, and predation. It is noteworthy to mention that the 2013 mortality rate found from collars is 5%.

Observations by staff, visits to the kill sites of radio collared muskox, and information from brown bear hunting guides has led us to believe that brown bear predation on muskox groups have increased in recent years. Muskox appeared effective in defending themselves against predators for nearly 35 years with high numbers of mature bulls present in the population. This pattern of increased predation rates appears to have been common following the initiation of managed hunts that resulted in increased harvest rates and selective harvest patterns towards mature bulls. Large bulls play important social roles within muskox groups. The overall decline of mature bulls in the population, and in some situations complete disappearance from mixed groups, presumably plays a role in increased bear predation. The primary objective for current hunt management is to increase mature bull to cow ratios. To achieve this objective, we have applied lower harvest rates than those used in recently held hunts to help rebuild the proportion of mature bulls in the population. Ideally, by increasing mature bull numbers we will give muskox the natural tools required to defend themselves against predators.

A Seward Peninsula muskox management plan was developed in 1994 and the Seward Peninsula Muskox Cooperators Group was formed to provide unified recommendations to state and federal managers from stakeholders with widely divergent viewpoints. In 1995, after the State Board of Game reached a negative C&T finding for Seward Peninsula muskox, the Federal Subsistence Board allocated the entire harvestable surplus of 23 muskox to the federal subsistence hunt and from 1995-1997 the only hunting on the Seward Peninsula was by federal subsistence permit **(Figure 13)**. After a decade of hard work through the Muskox Cooperators Group and with support by the state and federal boards hunting opportunity increased considerably and today there is a combination of Federal subsistence and State Tier I and Tier II hunts **(Figure 14)**.

It is difficult to argue against the success of the Cooperators group. The group created an environment that made complex management scenarios cooperative between state and federal agencies, and kept a very complex evolution of regulatory change out of litigation. However, the management plan created in 1994 is outdated and last year Region 5 Fish & Game staff worked to update the plan to take back to the Cooperators for their input, however, the group has not met and the plan continues to be outdated.

***Management Activities*:** Every two years the department leads an interagency population survey **(Figure 15)** of the Seward Peninsula muskox population. I've been told the population survey is the largest State and Federal collaboration in Alaska and demonstrates the close cooperative working relationship that exists within the Seward Peninsula muskox management program, and the project requires about 250 flight hours to complete. Beginning in 2012, comprehensive sex and age composition surveys were completed after the completion of the population survey, and we believe this survey will allow us to understand sex and age composition from all areas of the Seward Peninsula population. We deploy collars within the herd to better understand natural mortality rates and movements of animals, administer hunts, and provide hunter orientations to permit holders. Nome staff also spend a

considerable amount of time moving nuisance muskox from personal property and airports during the summer months around Nome.

There are no muskox proposals at this meeting.

Brown Bears We do not have a population estimate for brown bears in Unit 22, however we believe bear numbers increased unit-wide during the 1990s and early 2000s. Since 1997 the Board has lengthened bear seasons, established a 1 bear per year subsistence season with no tag fee or sealing requirement, increased the number of nonresident drawing permits, eliminated the resident tag fee and adopted 1 and 2 bear per year bag limits in Unit 22, excluding Unit 22C. Hunters harvested a record high 105 bears during the 2008 regulatory year **(Figure 16)**. Reported harvest from 1990-1997 compared to 1998-2010 increased 72% and in the last few years there has been some indication from staff and local observations that bear numbers have stabilized, at least in the areas readily accessible to Nome hunters.

Although it is believed brown bear harvest data is insensitive to changes in levels of brown bear populations, we have not observed any noteworthy changes in total harvest, age of harvest, sex of harvest, or size of bears harvested that indicate harvest levels at the 90 bears per year level have negatively impacted the Unit 22 brown bear population **(Figure 17)**. We believe brown bear predation on calves is contributing to the decline of moose populations in parts of the Unit and hope that continuation of current brown bear harvest levels will in time result in improved calf survival. Until we have current bear population data we do not support measures that would significantly increase annual brown bear harvest. We support small, incremental change to regulation and the opportunity to evaluate liberalization of regulation and the effect on harvest.

Brown bear management activities involve monitoring harvest through sealing certificates, administering general season, registration, and drawing hunts, responding to public complaints about bears and providing public education about bears and bear safety. Information is gathered from observations made during surveys of other game species, village-based big game harvest surveys, conversations with knowledgeable local residents and analysis of harvest data.

The Board will consider 2 Unit 22 brown bear proposals at this meeting (Proposals 16 and 17).

Black Bears Black bears are most commonly found in eastern portions of Unit 22. The department does not have a population estimate for black bears in Unit 22. Sealing reports indicate less than 2 bears a year are harvested annually from Unit 22.

There are no black bear proposals at this meeting.

Furbearers Furbearers found in Unit 22 include, beavers, arctic and red fox, martens, mink, muskrats, land otters, wolverines and wolves. The most notable development regarding furbearers is the increasing abundance of wolves since caribou began wintering on the Seward Peninsula.

Predation by wolves in Unit 22A has long been thought to affect moose densities there but wolves were not previously believed to be a significant factor in moose mortality on the Seward Peninsula, but that is changing as wolves become more numerous.

Management Activities for furbearers include sealing furs and supporting village fur-sealing agents. We monitor harvests and assess population status and trends through information obtained from the fur sealing program, annual hunter/trapper questionnaires, village-based big game harvest surveys, and observations by staff and the public.

The Board will consider 2 furbearer proposals at this meeting (Proposals 18 and 19).

List of Figures: