

Technical Paper No. 374

The Subsistence Harvest of Harbor Seals and Sea Lions on Kodiak Island in 2011

Alaska Department of Fish and Game, Division of Subsistence

and

Alaska Native Harbor Seal Commission

July 2012

**Alaska Department of Fish and Game
Division of Subsistence**



**Alaska Native Harbor Seal
Commission**



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Weights and measures (metric)

centimeter	cm
deciliter	dL
gram	g
hectare	ha
kilogram	kg
kilometer	km
liter	L
meter	m
milliliter	mL
millimeter	mm

Weights and measures (English)

cubic feet per second	ft ³ /s
foot	ft
gallon	gal
inch	in
mile	mi
nautical mile	nmi
ounce	oz
pound	lb
quart	qt
yard	yd

Time and temperature

day	d
degrees Celsius	°C
degrees Fahrenheit	°F
degrees kelvin	K
hour	h
minute	min
second	s

Physics and chemistry

all atomic symbols

alternating current	AC
ampere	A
calorie	cal
direct current	DC
hertz	Hz
horsepower	hp
hydrogen ion activity (negative log of)	pH
parts per million	ppm
parts per thousand	ppt, ‰
volts	V
watts	W

General

all commonly-accepted abbreviations
e.g., Mr., Mrs., AM, PM, etc.

all commonly-accepted professional titles e.g., Dr., Ph.D., R.N., etc.

Alaska Administrative Code	AAC
at	@

compass directions:

east	E
north	N
south	S
west	W

copyright	©
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corporate suffixes:

Company	Co.
Corporation	Corp.
Incorporated	Inc.
Limited	Ltd.

District of Columbia	D.C.
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et alii (and others)	et al.
----------------------	--------

et cetera (and so forth)	etc.
--------------------------	------

exempli gratia (for example)	e.g.
------------------------------	------

Federal Information Code	FIC
--------------------------	-----

id est (that is)	i.e.
------------------	------

latitude or longitude	lat. or long.
-----------------------	---------------

monetary symbols (U.S.)	\$, ¢
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months (tables and figures):	first three letters (Jan.,...,Dec)
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registered trademark	®
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trademark	™
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United States (adjective)	U.S.
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United States of America (noun)	USA
---------------------------------	-----

U.S.C.	United States Code
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U.S. state	use two-letter abbreviations (e.g., AK, WA)
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Measures (fisheries)

fork length	FL
mid-eye-to-fork	MEF
mid-eye-to-tail-fork	METF
standard length	SL
total length	TL

Mathematics, statistics

all standard mathematical signs, symbols and abbreviations

alternate hypothesis	H _A
base of natural logarithm	e
catch per unit effort	CPUE
coefficient of variation	CV
common test statistics	(F, t, χ^2 , etc.)
confidence interval	CI
correlation coefficient (multiple)	R
correlation coefficient (simple)	r
covariance	cov
degree (angular)	°
degrees of freedom	df
expected value	E
greater than	>
greater than or equal to	≥
harvest per unit effort	HPUE
less than	<
less than or equal to	≤
logarithm (natural)	ln
logarithm (base 10)	log
logarithm (specify base)	log ₂ , etc.
minute (angular)	'
not significant	NS
null hypothesis	H ₀
percent	%
probability	P
probability of a type I error (rejection of the null hypothesis when true)	α
probability of a type II error (acceptance of the null hypothesis when false)	β
second (angular)	"
standard deviation	SD
standard error	SE
variance	
population	Var
sample	var

The Subsistence Harvest of Harbor Seals and Sea Lions on Kodiak Island in 2011

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**Alaska Department of Fish and Game
Division of Subsistence
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ABSTRACT

This report describes the subsistence takes of harbor seals *Phoca vitulina* and Steller sea lions *Eumetopias jubatus* by Alaska Natives on Kodiak Island in 2011, including quantity, seasons, geographic distribution, and age and sex of the harvest. Information is summarized at regional and community levels and is compared with annual takes since 1992. The research was conducted by the Alaska Native Harbor Seal Commission and the Alaska Department of Fish and Game, Division of Subsistence under contract with the National Marine Fisheries Service. Information derives from interviews conducted by local researchers with 220 of 281 households (78.3%) in 7 communities on Kodiak Island. The project received generous support from leaders of local Native governments.

During 2011, the estimated subsistence take of harbor seals on Kodiak Island was 163 seals, with a 95% confidence range of between 126 to 208 animals. Of the take, 10.8% (18 seals) were struck and lost and 89.2% (145 seals) were harvested. Harbor seals were taken in all 7 communities on Kodiak Island. Hunters reported taking males over females by 2.9 to 1 and adults (82.4%) over juveniles (12.4%) or pups (0.0%). The take of harbor seals in 2011 was the third lowest recorded on Kodiak Island since 1992.

During 2011, the estimated subsistence take of sea lions on Kodiak Island was 20 sea lions, with a 95% confidence range of between 15 to 28 animals. Of the take, all sea lions were harvested and none was struck and lost. Sea lions were taken in 3 of 7 communities on Kodiak Island. Hunters reported taking males and females in equal numbers. All harvests were adults (no juveniles or pups). Sea lion takes on Kodiak Island have declined since the mid-1990s, with takes leveling off in recent decades.

ACKNOWLEDGEMENTS

This project would not have been possible without local support in every community where we conducted the survey. We wish to thank each tribal council and city council that facilitated our work. Heartfelt thanks are owed to the many elders and local marine mammal experts who allowed us to interview them at length about their lifelong uses and observations of sea lions and harbor seals. In addition, we are deeply indebted to the hunters who volunteered to report their subsistence harvests to local researchers. The 5 local researchers who conducted household interviews deserve to be recognized individually for their high level of interest and work: Randy Amodo in Ahkiok, Victoria Cornwell in Kodiak City and Ouzinkie, Marlene Kenoyer in Larsen Bay, Matilda Christiansen and Victoria Cornwell in Old Harbor, and Jessica Ursin in Port Lions.

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INTRODUCTION

This report describes the subsistence takes of harbor seals *Phoca vitulina* and Steller sea lions *Eumetopias jubatus* by Alaska Natives in 7 communities on Kodiak Island during calendar year 2011 (Figure 1, Table 1). The report provides information on the size of the take, the seasons, the geographic distributions, and age and sex of harvested animals. The research was a collaborative effort between the Alaska Native Harbor Seal Commission (ANHSC) and the Alaska Department of Fish and Game (ADF&G) Division of Subsistence, under contract with the National Marine Fisheries Service (NMFS) of the National Oceanic and Atmospheric Administration (NOAA). The research was conducted in cooperation with tribal governments in the study communities. The study was part of a longer-term research program on harbor seals and sea lions in Alaska by ANHSC and ADF&G that has documented subsistence takes from 1992 through 2008 (Wolfe and Mishler 1993, 1994, 1995, 1996, 1997, Wolfe and Mishler 1998; Wolfe and Hutchinson-Scarborough 1999; Wolfe 2001; Wolfe et al. 2002, 2003, 2004, 2005, 2006; Wolfe et al. 2008, 2009a, 2009b), with no surveys in 1999, 2009, and 2010. This study included only Kodiak Island harbor seal and Steller sea lion subsistence harvests, and did not include the other statewide areas researched in previous years due to limited funding provided for the program in 2011.

The general geographic distributions of harbor seals and sea lions in Alaska are shown in figures 2 and 3 (from Burns et al. 1985). The use of harbor seals and sea lions by Alaska Natives for food and raw materials has a long tradition in Alaska, its origins predating historical contact and continuing to the present. The Alaska Native groups using harbor seals include the Aleut of the Aleutian Islands; the Alutiiq and Eyak of the Pacific Gulf coast; the Tlingit, Haida, and Tsimshian of the Southeast archipelago; and the Yup'ik of Southwest Alaska. The Dena'ina of Cook Inlet occasionally use harbor seals. The primary users of sea lions are the Aleut of the Aleutian Islands and Pribilof Islands and the Alutiiq of certain communities of Kodiak Island and the Gulf of Alaska. Sea lions are used more occasionally by Tlingit, Haida, Tsimshian, and

Yup'ik groups. Subsistence products derived from harbor seals and sea lions include oil, meat, and skins (Wolfe and Mishler 1993).

This report is organized in several sections. The “Methodology” section describes the methods used to collect information. Two sections (“The Subsistence Take of Harbor Seals in 2011” and “The Subsistence Take of Sea Lions in 2011”) present information on the takes of harbor seals and sea lions on Kodiak Island, summarized by community and region. In the “Discussion” section are interpretations of the 2011 survey year, including summaries of harvest patterns since 1992 derived from previous survey years. Appendix A contains a copy of the survey instrument used in household interviews with marine mammal hunters. Appendix B contains subsistence takes of harbor seals and sea lions by year and community on Kodiak Island. Appendix C contains detailed materials on the subsistence takes of harbor seals and sea lions by community in 2011.

Table 1.–Sampling methodology by community, harbor seal and sea lion surveys, 2011.

Region and community	2010 U.S. Census estimated Native population	Type of design	Identified household universe	Surveyed households	Percentage households surveyed
Akhiok	36	Census	25	12	48.0%
Karluk	35	Census	14	13	92.9%
Kodiak City	607	Chain referral	62	40	64.5%
Larsen Bay	62	Census	33	26	78.8%
Old Harbor	191	Census	65	60	92.3%
Ouzinkie	128	Chain referral	37	33	89.2%
Port Lions	114	Chain referral	45	36	80.0%
Kodiak Island	1,173		281	220	78.3%

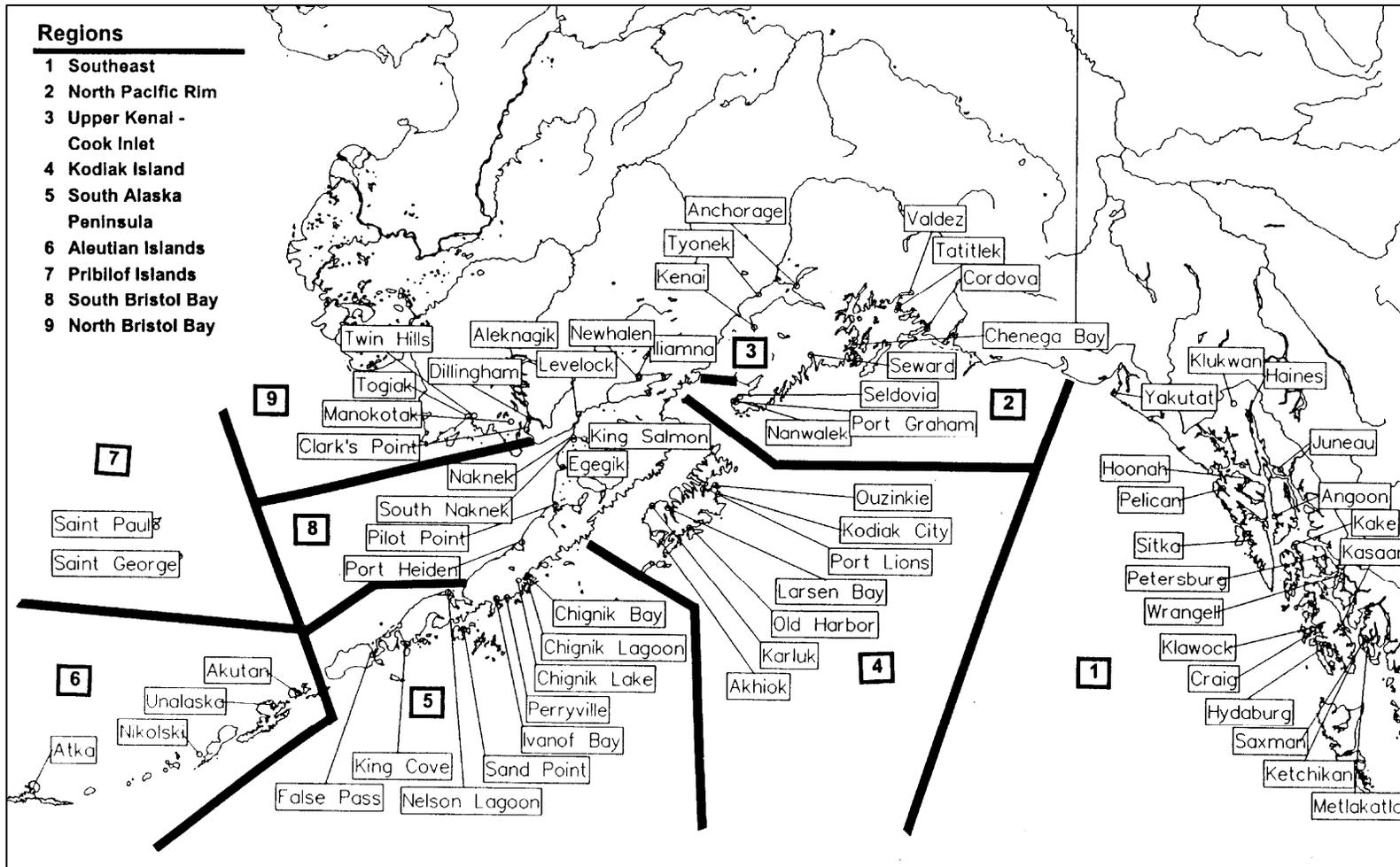


Figure 1.—Map of study area and regions.

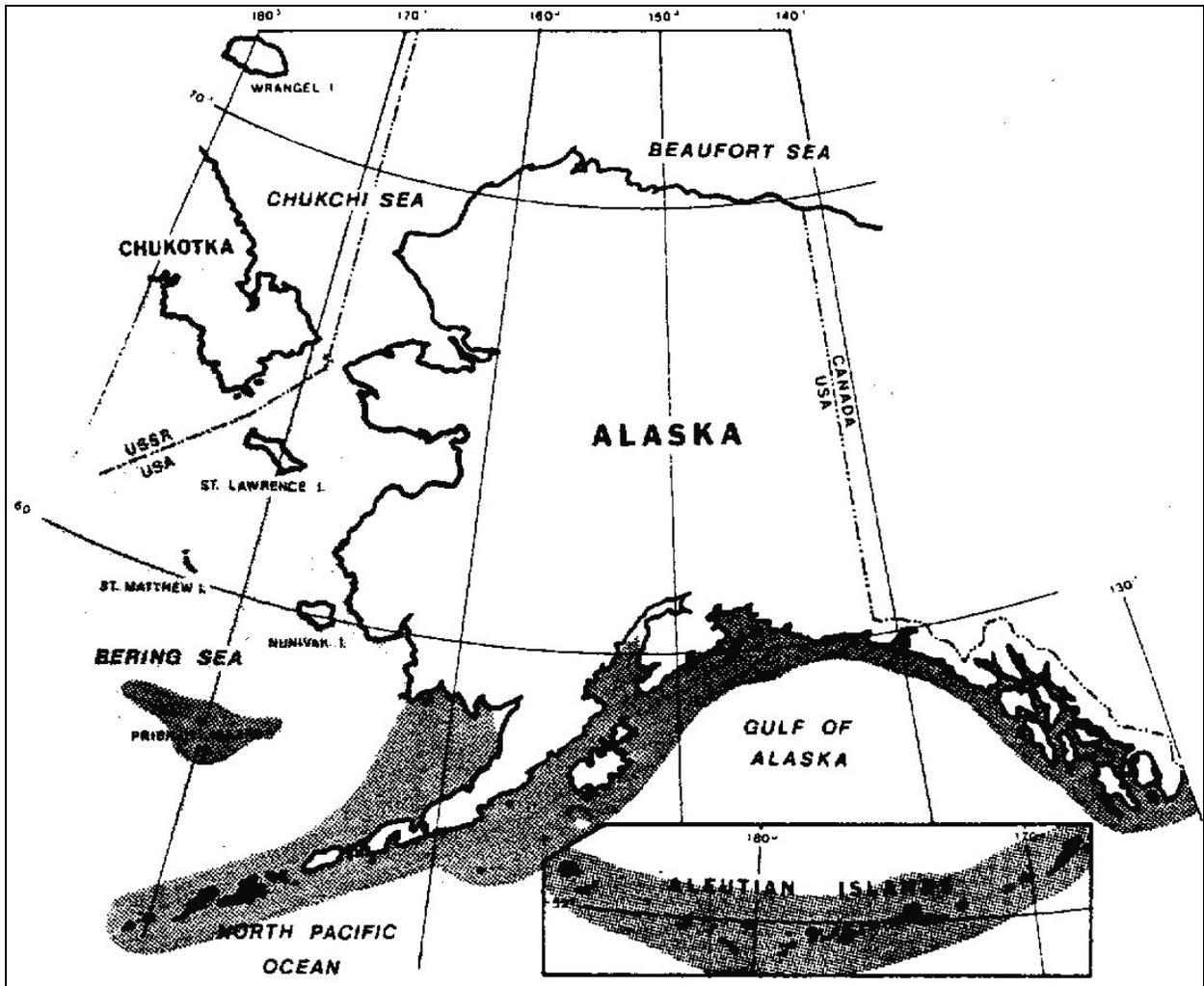


Figure 2.—General distribution of Steller sea lions *Eumetopias jubatus* in Alaska.

Source Burns et al. 1985.

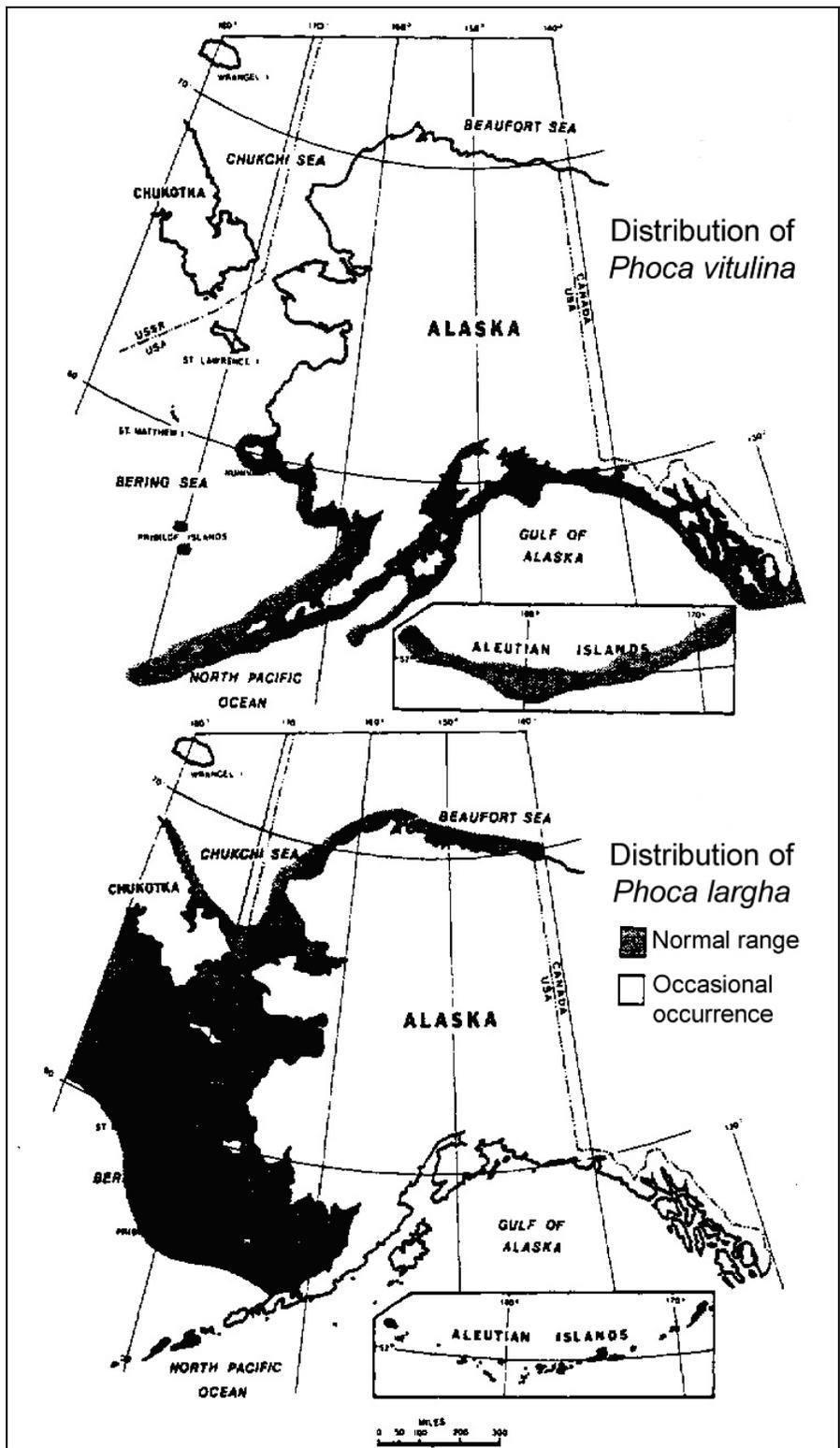


Figure 3.—General distribution of harbor seals *Phoca vitulina* and spotted seals *Phoca largha* in Alaska.

Source Burns et al. 1985.

METHODOLOGY

Information on the subsistence takes of harbor seals and sea lions was collected through interviews with persons in 220 Alaska Native households in 7 communities on Kodiak Island (Table 1). The survey instrument administered in household interviews was similar to one used since 1992, originally developed in consultation with the Rural Alaska Community Action Program (RurAL CAP) and the Indigenous People's Council for Marine Mammals (IPCoMM) (see Appendix A). Hunters and household heads were asked to recall the numbers of harbor seals and sea lions taken by household members during each month over the past year. The survey contained questions that pertained to harvest numbers, struck and lost animals, age of animals, and sex of animals. The survey also asked whether the household used, harvested, received, or gave away harbor seals or sea lions during the last year. Interviews were conducted by 5 local researchers hired and trained as part of the project. Surveys were administered in December 2011–March 2012 to cover the period from January through December 2011.

Since its inception in 1992, seal harvest monitoring has been a collaborative effort with Alaska Native hunters and organizations. During the first year of the study, a number of Native governments, Native leaders, and associations with interests in harbor seal and sea lion management were contacted to obtain suggestions about project design, including the Alaska Federation of Natives, the Aleutians East Borough, Aleutian-Pribilof Islands Association, Bristol Bay Native Association, Central Council of Tlingit and Haida Indian Tribes of Alaska, Cook Inlet Region, Inc., IPCoMM (meeting through RurAL CAP), Kodiak Area Native Association, and the North Pacific Rim (now named Chugachmiut). RurAL CAP and IPCoMM served as the formal technical oversight organizations for the first 5 years of the project through a subcontract with the Division of Subsistence. Since 1997, formal technical oversight for the project has been provided by the ANHSC.

During 2012, the ANHSC received funding directly from NMFS and entered into a cooperative agreement with the Division of Subsistence to jointly conduct the harvest

assessment project. The ANHSC provided a project coordinator, local researchers, and an analyst for writing the final report. The Division of Subsistence assisted ANHSC with training local research assistants and Division of Subsistence provided the survey instrument and data analysis.

Support for monitoring was solicited from local Native governments or leaders of local government entities for each community where surveys were conducted. Since the project began in 1992, contacts have been made with representatives of the 7 Kodiak Island communities listed in Table 2. Local governments have been extremely helpful during the course of the project, especially by identifying Native households, potential local researchers, and marine mammal experts in the community to contact.

The project was designed to protect the identities of surveyed participants. Marine mammal hunters and other respondents were informed that participation in interviews was completely voluntary. Respondents were told that their identities would be kept confidential in reports presenting the information. Permission to administer the household harvest survey was asked of each individual respondent, face-to-face at the person's home or during an initial phone contact. At this time, the purpose of the project was described. If a person declined to participate in the study, the person was thanked for his or her time and a survey was not conducted. Persons who were interviewed as part of the harvest survey were not paid. Most marine mammal hunters generously offered their assistance to the study.

Locally-hired researchers supervised by ANHSC staff collected the information on subsistence takes of sea lions and harbor seals during 2011. On October 11, 2011, ANHSC and Division of Subsistence staff conducted a harvest data training workshop for local research assistants in Kodiak. All of the local research assistants attended with the exception of one that was trained at a later date by ANHSC staff. Project background was provided, as well as instruction in developing household lists and how to accurately administer and accurately fill out the survey forms. Local researchers performed tasks such as updating community lists of households and hunters, implementing household sampling regimes, administering household

surveys during the yearly cycle, data proofing of surveys and survey tracking forms, and mailing surveys and tracking sheets for data entry and analysis. The ANHSC regional coordinator performed tasks such as obtaining formal support for the project from Native organizations, recruiting and selecting local hires, developing household sampling regimes, training and supervising local researchers, proofing survey data, and consulting local researchers to resolve data questions in preparation for data entry and analysis. Entering and analyzing data for a centralized database was done by ADF&G staff.

Table 2.–Kodiak Island community organizations contacted during the project, 1992–2011.

Community	Government/Organization
Akhiok	Akhiok Tribal Council City of Akhiok
Karluk	Karluk IRA Council
Kodiak City	Kodiak Tribal Council Kodiak Area Native Association Sun'aq Tribe of Kodiak
Larsen Bay	Larsen Bay Tribal Council City of Larsen Bay
Old Harbor	Old Harbor Tribal Council City of Old Harbor
Ouzinkie	Ouzinkie Native Corporation Ouzinkie Tribal Council City of Ouzinkie
Port Lions	Port Lions Tribal Council City of Port Lions

Households were selected using a census sampling or chain referral sampling (Table 1). Sampling designs and expansion methods were similar to those used the first study year, as described in Wolfe and Mishler (1993:17–19). Census sampling means all households with Alaska Natives were identified for contact. For chain referral communities, the sampling universe comprised all households with marine mammal hunters (based on past or potential activities), as identified by key respondents and other surveyed hunters in the community. For this study, 78.3% of identified households (220 of 281 households) were contacted and interviewed. This is a relatively high sampling fraction for studies using survey methodologies that rely upon voluntary participation by surveyed households. The non-response rate was due primarily to logistical problems in contacting households, rather than refusals to participate.

During the 2011 data year, local researchers collected information in all communities except Karluk (Table1). Karluk was last surveyed in 2005, when 13 of 14 households were interviewed. In this report, data from that year is used to estimate the harvest at Karluk in 2011.

In Appendix C, the statistical analysis presents harvest data in 3 different tables for each community. In the first table, the unexpanded reported take is presented for each community, representing actual animals reported harvested and struck and lost by surveyed hunters with no fractions of animals. The second table presents the takes of surveyed hunters expanded to include unsurveyed hunters using different methods depending upon the household sampling design as described above. In this expansion, the proportions of the seasonal takes of the surveyed households are preserved, so takes with unknown months exist in the table. The expansion treats each community as a separate sampling universe. Fractions of animals commonly result from the expansion, which are rounded to the nearest tenth. The third table presents a seasonally-adjusted expanded take: takes with unknown months are assigned to months based on the proportion of the known take. The numbers in this third table form the basis for the numbers in the report narrative. The calculation of the confidence range around the estimate follows the method in Cochran (1977:5.13, 5.15). In this process, the unexpanded

reported take (that is, the known take) is used as the lower range for a community if it is higher than the statistically-calculated lower take estimate.

THE SUBSISTENCE TAKE OF HARBOR SEALS IN 2011

In 2011, hunters on Kodiak Island took an estimated 163 harbor seals for subsistence uses (including struck and loss), with a 95% confidence range of between 126 to 208 animals (Table 3). Of the subsistence take, 10.8% (18 harbor seals) were struck and lost, and 89.2% (145 harbor seals) were harvested.

Harbor seals were taken in all 7 communities in 2011 (Table 4). Takes in communities ranged from 6 seals in Port Lions to 43 seals in Old Harbor. In addition to harvests, harbor seals commonly were distributed between Native households in a community, such as in Old Harbor, where 65.0% of households used harbor seal, while 31.7% of household harvested harbor seal (Table 4).

Seals were taken during all months in 2011, with peaks in harvests in February and September to October, and with the lowest harvest in June (Figure 4). This resembles the general seasonal pattern on Kodiak Island since 1992 (Figure 5). Overall, harbor seal harvests in 2011 fell toward the mid-ranges for each month compared with other years. Seasonal hunting patterns of each community are shown in the tables and figures of Appendix C.

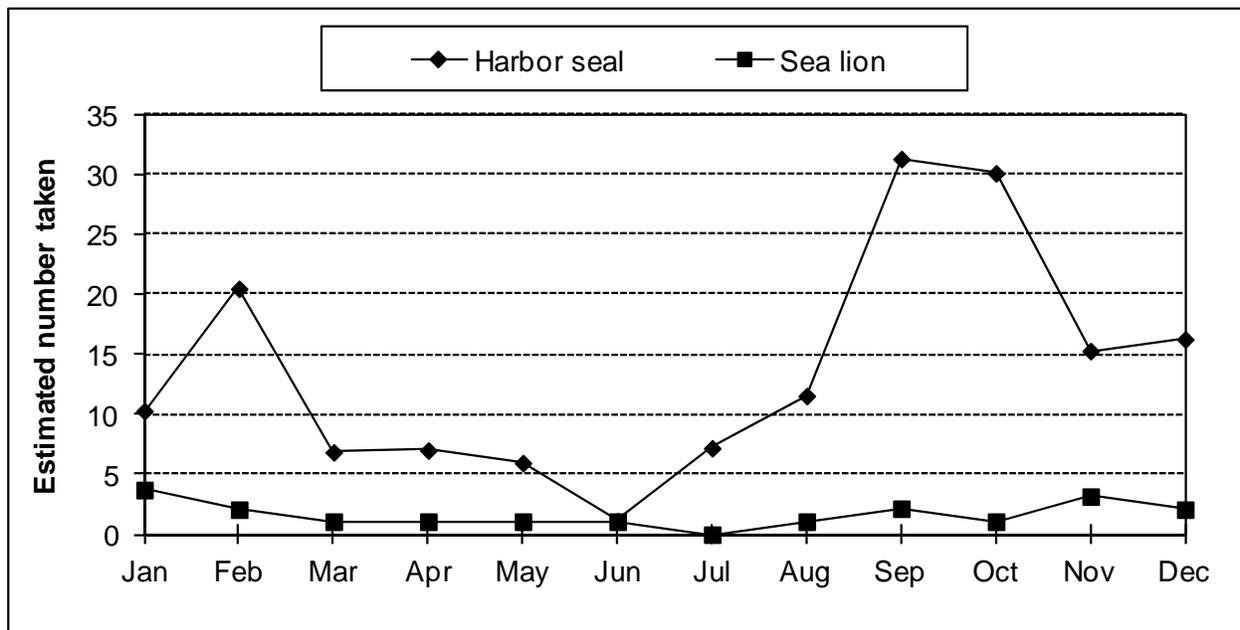
Hunters reported harvesting male harbor seals over female harbor seals by a ratio of about 3 to 1 (83 males to 28 females of harvests with reported sex) (Table 5). Hunters were also asked to indicate the age of their seal if known. Of all estimated total seals harvested with reported ages, substantially more adult harbor seals (120 adults, 86.9%) were harvested than juveniles (18 juveniles, 13.1%) or pups (0 pups, 0.0%) (Table 5). Overall, adult females (about 21 animals) comprised about 18.8% of the total harbor seal harvest whose age and sex was reported in 2011. Hunters did not report the sex for 23.5% of the harvest or the age for about 5.1% of the harvest. The age and sex are also unknown for animals that were struck and lost. A further analysis of age and sex composition is found in the "Discussion" section.

Table 3.—Estimated subsistence takes of harbor seals on Kodiak Island, 1992–2008, 2011.

Year	Estimated total			Lower and upper confidence range for total take
	Harvest	Struck and lost	Total take	
1992	225.5 94.5%	13.1 5.5%	238.6 100.0%	186–319
1993	171.7 89.5%	20.1 10.5%	191.8 100.0%	173–224
1994	168.2 98.0%	3.6 2.1%	171.7 100.0%	128–232
1995	223.0 96.0%	9.2 4.0%	232.2 100.0%	207–269
1996	185.2 97.4%	4.9 2.6%	190.1 100.0%	158–226
1997	189.8 91.2%	18.3 8.8%	208.2 100.0%	183–244
1998	174.0 97.9%	3.7 2.1%	177.7 100.0%	156–203
2000	185.9 96.2%	7.3 3.8%	193.2 100.0%	166–241
2001	155.6 97.0%	4.8 3.0%	160.4 100.0%	138–202
2002	152.1 93.7%	10.2 6.3%	162.3 100.0%	152–187
2003	172.7 93.0%	13.0 7.0%	185.6 100.0%	124–268
2004	172.2 91.6%	15.7 8.4%	188.0 100.0%	148–247
2005	305.1 96.6%	10.6 3.4%	315.7 100.0%	242–441
2006	210.3 95.4%	10.2 4.6%	220.5 100.0%	140–352
2007	198.6 97.2%	5.8 2.8%	204.4 100.0%	136–325
2008	165.5 86.2%	26.5 13.8%	192.0 100.0%	163–232
2011	145.6 89.2%	17.7 10.8%	163.3 100.0%	126–208

Table 4.—Subsistence harbor seal harvest, take and use by community, 2011.

Community	Harbor seal harvest per capita	Native households harvesting harbor seals	Native households using harbor seals	Harvest	Struck and lost	Total take	Total take		
							Confidence interval (± %)	Lower range estimate	Upper range estimate
Akhiok	.46	50.0%	91.7%	16.7	10.4	27.1	51.9%	13.0	41.1
Karluk	.55	76.9%	76.9%	19.4	0.0	19.4	12.5%	18.0	21.8
Kodiak City	.06	32.5%	100.0%	34.1	1.6	35.7	37.0%	23.0	48.8
Larsen Bay	.16	23.1%	34.6%	10.2	1.3	11.4	32.2%	9.0	15.1
Old Harbor	.21	31.7%	65.0%	40.1	3.3	43.3	12.1%	40.0	48.6
Ouzinkie	.16	39.4%	100.0%	20.2	0.0	20.2	15.5%	18.0	23.3
Port Lions	.04	8.3%	16.7%	5.0	1.3	6.3	51.2%	5.0	9.5
Kodiak Island				145.6	17.7	163.3	27.5%	126.0	208.2



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Harbor seals	10.3	20.5	6.9	7.0	6.0	1.1	7.2	11.5	31.3	30.1	15.3	16.3
Percentage	6.3%	12.5%	4.2%	4.3%	3.6%	0.7%	4.4%	7.1%	19.1%	18.4%	9.4%	10.0%
Cum. percent	6.3%	18.8%	23.0%	27.3%	31.0%	31.7%	36.1%	43.1%	62.3%	80.7%	90.0%	100%
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Sea lions	3.7	2.1	1.1	1.1	1.1	1.1	0.0	1.1	2.2	1.1	3.2	2.1
Percentage	18.9%	10.6%	5.5%	5.5%	5.5%	5.5%	0.0%	5.5%	11.0%	5.5%	16.1%	10.6%
Cum. percent	18.9%	29.4%	34.9%	40.4%	45.9%	51.4%	51.4%	56.9%	67.9%	73.4%	89.4%	100%

Figure 4.—Seasonally adjusted takes of harbor seals and sea lions on Kodiak Island, 2011.

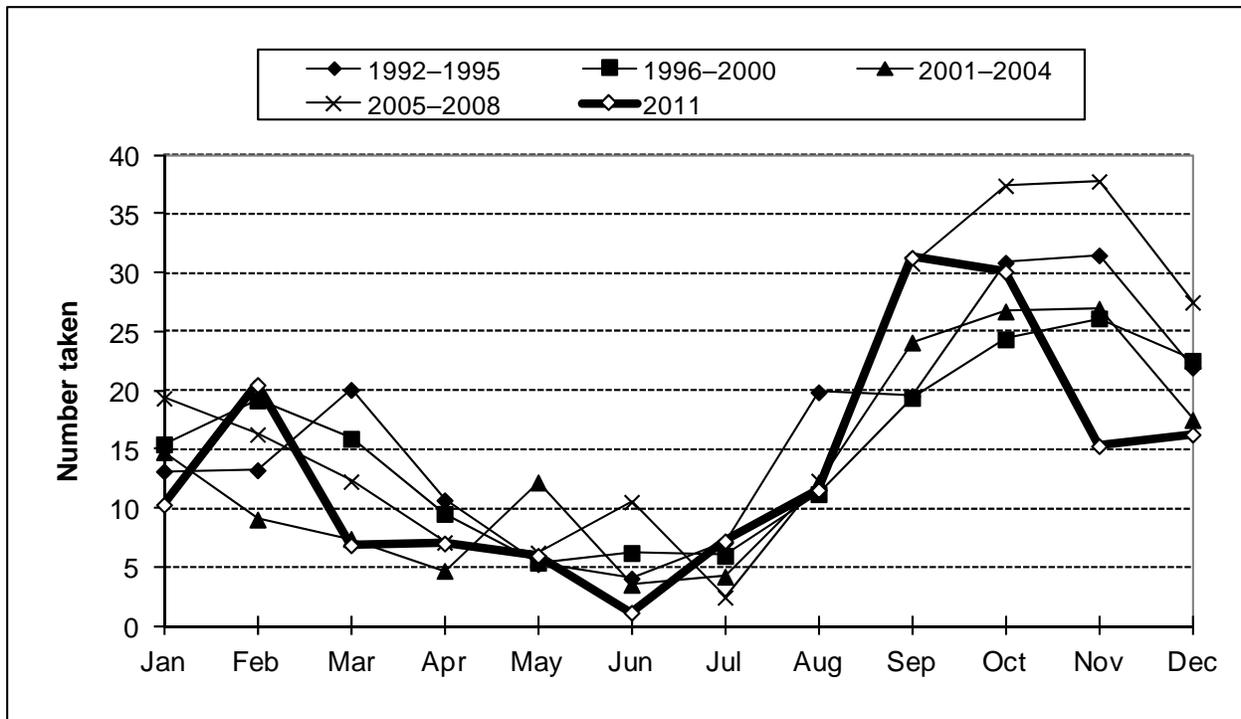


Figure 5.—Mean seasonally adjusted takes of harbor seals on Kodiak Island, 1992–1995, 1996–2000, 2001–2004, 2005–2008, and 2011.

Table 5.—Age and sex composition of harbor seal harvests on Kodiak Island, 2011.

	Male	Female	Unknown Sex	Total
Adult	72.7	20.6	26.7	120.0
Row percent	60.5%	17.2%	22.3%	100.0%
Column percent	87.3%	73.3%	78.1%	82.4%
Juvenile	10.6	5.4	2.1	18.1
Row percent	58.5%	30.0%	11.5%	100.0%
Column percent	12.7%	19.3%	6.1%	12.4%
Pup	0.0	0.0	0.0	0.0
Row percent	0.0%	0.0%	0.0%	0.0%
Column percent	0.0%	0.0%	0.0%	0.0%
Unknown age	0.0	2.1	5.4	7.5
Row percent	0.0%	27.8%	72.2%	100.0%
Column percent	0.0%	7.4%	15.8%	5.1%
Total	83.2	28.1	34.2	145.6
Row percent	57.2%	19.3%	23.5%	100.0%
Column percent	100.0%	100.0%	100.0%	100.0%

Surveyed households were asked to make subjective assessments of harbor seal population trends in their hunting areas during 2011 (Table 6). The survey asked, “During 2011, did you observe any changes to harbor seal numbers in your area?” with four possible answers provided: “Increase,” “Decrease,” “No Change,” or “Didn’t Observe.” Most hunters on Kodiak Island reported that the seal population had increased (53.5%) or had remained stable (40.8%) (Table 6). A minority of hunters (5.6%) reported that seal populations had declined.

The assessments for 2011 can be compared with observed trends from other surveys during 2000 and 2004, when surveyed households were asked, “Compared to 5 years ago, has the harbor seal population where members of your household have hunted ‘increased,’ ‘remained stable,’ ‘declined,’ ‘do not know,’ or ‘not applicable (do not hunt)’?” As shown in Table 7, there was a notable shift in hunter assessments from 18.7% “increased” in 2000 to 52.9% “increased” in 2004. The assessment of 53.5% “increased” in 2011 is similar to the assessment given by hunters in 2004. Conversely, there has been a notable change in the percentage of hunters that reported that seal populations had “declined,” from 33.3% in 2000, to 9.8% in 2004, and 5.6% in 2011 (Table 7). Overall, based on hunter assessments of recent trends, harbor seal populations on Kodiak Island were primarily judged to be “stable” or “increased.”

Table 6.–Local harbor seal population changes, Kodiak Island hunters’ assessments, 2011.

Community (hunters reporting)	Increased	Remained stable	Declined
Akhiok (6)	50.0%	50.0%	0.0%
Kodiak City (19)	47.4%	42.1%	10.5%
Larsen Bay (7)	71.4%	14.3%	14.3%
Old Harbor (19)	57.9%	42.1%	0.0%
Ouzinkie (16)	37.5%	56.3%	6.3%
Port Lions (4)	100.0%	0.0%	0.0%
All communities (71)	53.5%	40.8%	5.6%

Table 7.–Local harbor seal population changes, Kodiak Island hunters’ assessments from 4 surveys.

Assessment years	Increased	Remained stable	Declined
Comparing 2000 with 1995 ^a	18.7%	48.0%	33.3%
Comparing 2004 with 1999 ^b	52.9%	37.3%	9.8%
Single year (2008) ^c	39.0%	39.0%	22.0%
Current year (2011) ^d	53.5%	40.8%	5.6%

a. Question asked in 2001

b. Question asked in 2005

c. Question asked in 2009

d. Question asked in 2012

THE SUBSISTENCE TAKE OF SEA LIONS IN 2011

In 2011, hunters on Kodiak Island took an estimated 20 sea lions for subsistence uses, with a 95% confidence range of between 15 to 28 animals (Table 8). Of the 2011 subsistence take, all sea lions were harvested and none was struck and lost.

Sea lions were taken in 3 communities on Kodiak Island in 2011 (Akhiok, Kodiak City, and Old Harbor) (Table 9). No surveyed households reported harvesting or using sea lions in Karluk, Larsen Bay, Ouzinkie, and Port Lions. The communities with the greatest uses of sea lions were Akhiok (where 41.7% of surveyed households reported using sea lions) and Old Harbor (where 23.3% of surveyed household reported using sea lions) (Table 9).

Sea lions were reported taken during every month except July in 2011, with 1 to 4 sea lions taken each month (Figure 4). Overall, sea lion harvests on Kodiak Island have been substantially lower compared with the period 1992 through 1995, with notable declines during both the spring and fall periods (Figure 6). Seasonal hunting patterns of communities are depicted in the tables and figures of Appendix C.

Hunters reported harvesting equal numbers of male and female sea lions in 2011 (Table 10). Hunters also reported that all harvested sea lions were adults. No juveniles or pups were harvested. Hunters did not report the sex for 21.6% of the harvest or the age for 32.1% of the harvest.

Surveyed households were asked to make subjective assessments of sea lion population trends in their hunting areas during 2011 (Table 11). The survey asked, "During 2011, did you observe any changes to sea lion numbers in your area?" with four possible answers provided: "Increase," "Decrease," "No Change," or "Didn't Observe." Most sea lion hunters on Kodiak Island thought that the sea lion population had increased (50.0%) or had remained stable (50.0%) (Table 11). No surveyed households reported that sea lion populations had declined.

The assessments for 2011 can be compared with observed trends from other surveys during 2000 and 2004, when surveyed households were asked, "Compared to 5 years ago, has

the sea lion population where members of your household have hunted 'increased,' 'remained stable,' 'declined,' 'do not know,' or 'not applicable (do not hunt)'?" As shown in Table 12, there was a notable shift in hunter assessments from 78.6% "declined" in 2000 to 16.7% "declined" in 2004, and to 0.0% "declined" in 2011. Conversely, there has been a notable change in the percentage of hunters that reported that sea lion populations had "increased," from 17.9% in 2000, to 41.7% in 2004, and to 50.0% in 2011 (Table 12). Overall, based on hunter assessments of recent trends, sea lion populations on Kodiak Island were primarily judged to be "stable" or "increased."

Table 8.—Estimated subsistence takes of sea lions on Kodiak Island, 1992–2008, 2011.

Year	Estimated total			Lower and upper confidence range for total take
	Harvest	Struck and lost	Total take	
1992	41.5 71.8%	16.3 28.2%	57.8 100.0%	46–76
1993	41.5 71.1%	16.9 28.9%	58.4 100.0%	41–93
1994	57.1 93.1%	4.2 6.9%	61.3 100.0%	45–84
1995	127.9 94.3%	7.7 5.7%	135.7 100.0%	118–156
1996	53.9 89.5%	6.3 10.5%	60.2 100.0%	52–69
1997	33.3 87.2%	4.9 12.8%	38.2 100.0%	32–48
1998	14.5 81.5%	3.3 18.5%	17.8 100.0%	16–21
2000	18.5 100.0%	0.0 0.0%	18.5 100.0%	16–26
2001	32.8 93.7%	2.2 6.3%	35.0 100.0%	31–46
2002	16.1 100.0%	0.0 0.0%	16.1 100.0%	15–21
2003	30.3 84.2%	5.7 15.8%	36.0 100.0%	25–53
2004	13.5 79.4%	3.5 20.6%	17.0 100.0%	14–25
2005	21.9 87.3%	3.2 12.7%	25.1 100.0%	21–36
2006	7.0 100.0%	0.0 0.0%	7.0 100.0%	4–15
2007	15.8 81.9%	3.5 18.1%	19.3 100.0%	15–30
2008	12.1 64.4%	6.7 35.6%	18.8 100.0%	17–24
2011	19.7 100.0%	0.0 0.0%	19.7 100.0%	15–28

Table 9.—Subsistence sea lion harvest, take, and use by community, 2011.

Community	Sea lion harvest per capita	Native households harvesting sea lions	Native households using sea lions	Harvest	Struck and lost	Total take	Total take		
							Confidence interval (± %)	Lower range estimate	Upper range estimate
Akhiok	.17	25.0%	41.7%	6.3	0.0	6.3	73.8%	3.0	10.9
Karluk	.00	0.0%	0.0%	0.0	0.0	0.0	0.0%	0.0	0.0
Kodiak City	.00	2.5%	2.5%	1.6	0.0	1.6	116.8%	1.0	3.4
Larsen Bay	.00	0.0%	0.0%	0.0	0.0	0.0	0.0%	0.0	0.0
Old Harbor	.06	16.7%	23.3%	11.9	0.0	11.9	16.5%	11.0	13.9
Ouzinkie	.00	0.0%	0.0%	0.0	0.0	0.0	0.0%	0.0	0.0
Port Lions	.00	0.0%	0.0%	0.0	0.0	0.0	0.0%	0.0	0.0
Kodiak Island				19.7	0.0	19.7	42.6%	15.0	28.1

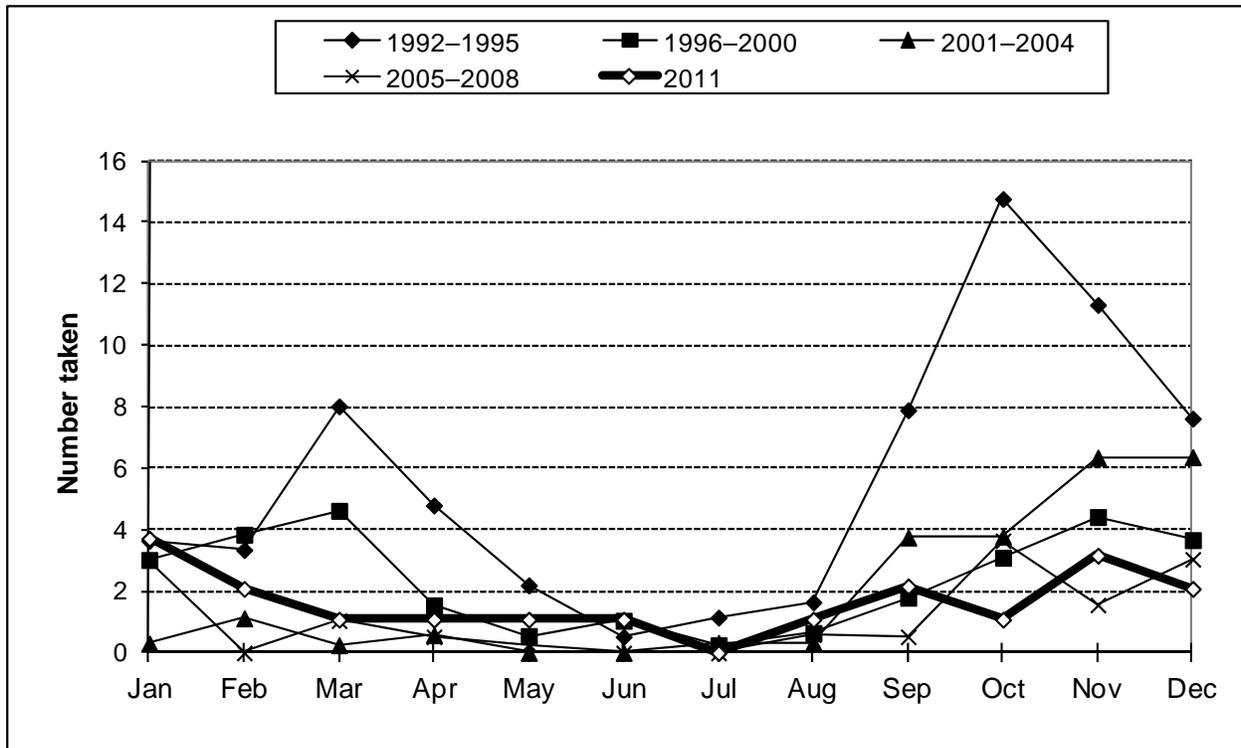


Figure 6.—Mean seasonally adjusted takes of sea lions on Kodiak Island, 1992–1995, 1996–2000, 2001–2004, and 2005–2008, and 2011.

Table 10.—Age and sex composition of sea lion harvests on Kodiak Island, 2011.

	Male	Female	Unknown sex	Total
Adult	5.9	5.4	2.1	13.4
Row percent	44.0%	40.5%	15.6%	100.0%
Column percent	73.8%	72.2%	49.0%	67.9%
Juvenile	0.0	0.0	0.0	0.0
Row percent	0.0%	0.0%	0.0%	0.0%
Column percent	0.0%	0.0%	0.0%	0.0%
Pup	0.0	0.0	0.0	0.0
Row percent	0.0%	0.0%	0.0%	0.0%
Column percent	0.0%	0.0%	0.0%	0.0%
Unknown age	2.1	2.1	2.2	6.3
Row percent	32.9%	32.9%	34.2%	100.0%
Column percent	26.2%	27.8%	51.0%	32.1%
Total	8.0	7.5	4.3	19.7
Row percent	40.4%	38.0%	21.6%	100.0%
Column percent	100.0%	100.0%	100.0%	100.0%

Table 11.—Local sea lion population changes, Kodiak Island hunters' assessments, 2011.

Community (hunters reporting)	Increased	Remained stable	Declined
Akhiok (1)	0.0%	100.0%	0.0%
Kodiak City (0)	0.0%	0.0%	0.0%
Larsen Bay (0)	0.0%	0.0%	0.0%
Old Harbor (9)	55.6%	44.4%	0.0%
Ouzinkie (0)	0.0%	0.0%	0.0%
Port Lions (0)	0.0%	0.0%	0.0%
All communities (10)	50.0%	50.0%	0.0%

Table 12.—Local sea lion population changes, Kodiak Island hunters' assessments from 4 surveys.

Assessment years	Increased	Remained stable	Declined
Comparing 2000 with 1995 ^a	17.9%	3.6%	78.6%
Comparing 2004 with 1999 ^b	41.7%	41.7%	16.7%
Single year (2008) ^c	0.0%	100.0%	0.0%
Current year (2011) ^d	50.0%	50.0%	0.0%

a. Question asked in 2001

b. Question asked in 2005

c. Question asked in 2009

d. Question asked in 2012

HUNTING PARTICIPATION AND SUCCESS

In 2011, about 120 households hunted harbor seals on Kodiak Island (Table 13). From 1992 to 2003, there was a substantial decline in the numbers of households hunting for harbor seals, from about 107 to 64 households (Figure 7). Since then, the number of households that have reported hunting for harbor seal has increased each survey year, from 71 households in 2004 to 120 households in 2011. The number of successful households hunting harbor seals in 2011 (90 households) was the third highest since the survey began in 1992.

In 2011, about 19 households reported hunting sea lions on Kodiak Island (Table 13). The number of households hunting for sea lions fell from a high of 56 households in 1995 to 20 households in 1997. After a slight increase to 22 households in 1998, the number of households that have reported hunting sea lions has remained below 20 households each year since then.

(Figure 7). All households hunting for sea lions were successful in 2011, a high success rate similar to several other years (1995, 1997, and 2006) (Table 13).

Table 13.—Kodiak Island households hunting or harvesting harbor seals or sea lions, 1992–2008, 2011.

Year	HARBOR SEALS			SEA LIONS		
	Households hunting	Households harvesting	Success rate	Households hunting	Households harvesting	Success rate
1992	107	92	85.7%	32	21	64.4%
1993	90	76	84.8%	51	29	57.4%
1994	80	67	84.1%	48	34	70.3%
1995	81	76	93.5%	56	53	94.2%
1996	75	67	88.7%	38	31	82.6%
1997	87	71	81.9%	20	20	100.0%
1998	80	64	80.3%	22	13	59.8%
2000	82	70	85.3%	17	12	74.4%
2001	68	63	92.4%	16	16	100.0%
2002	68	66	96.4%	14	13	91.1%
2003	64	57	89.4%	21	16	73.3%
2004	71	67	94.2%	16	12	76.1%
2005	85	79	93.6%	15	11	76.5%
2006	88	75	85.7%	7	7	100.0%
2007	91	78	86.5%	16	15	92.4%
2008	117	96	81.9%	11	10	89.2%
2011	120	90	74.9%	19	19	100.0%

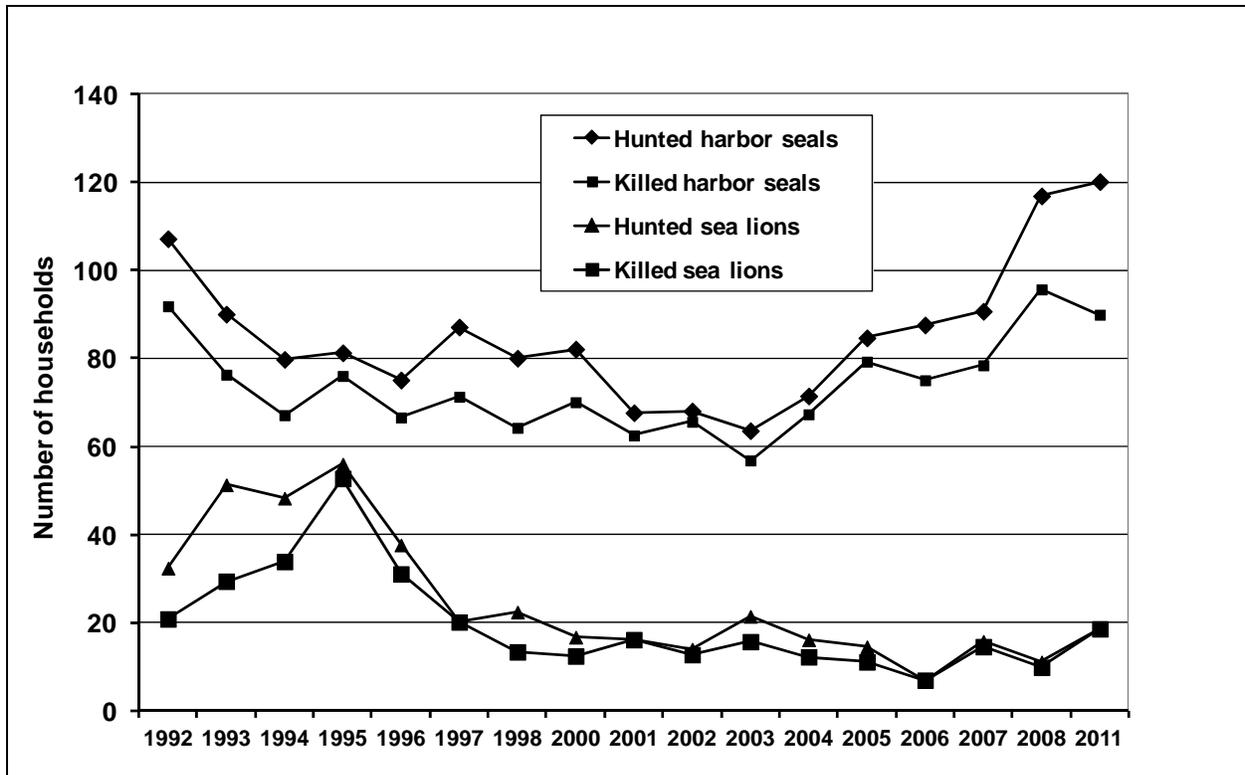


Figure 7.—Trends in numbers of households hunting harbor seals and sea lions, Kodiak Island, 1992–2008, 2011.

DISCUSSION

On Kodiak Island, subsistence takes of harbor seals have fluctuated without clear trends since surveys began in 1992 (Figure 8). The total take of harbor seals in 2011 (163 seals) was 31.6% lower than takes in 1992 (239 seals) and 15.0% lower than takes in 2008 (188 seals), the previous survey year (Figure 8). Further, the harvest of harbor seals in 2011 (146 seals) was the lowest ever recorded on Kodiak Island. Yet this does not indicate a declining trend. Three high years of take occurred in recent survey years (2005 to 2007), with the highest recorded take in 2005 (316 seals).

Statewide, declines in harbor seal harvests have been associated with fewer seal hunters (Wolfe et al. 2009b). On Kodiak Island, this has not been the general trend. There is no apparent decline in seal hunters on Kodiak Island (Figure 7). Hunters, hunting success, and harvest rates for harbor seals on Kodiak Island are depicted in Figure 9. The number of hunters

increased by 87.5% since 2003 (from 64 to 120 hunters). At the same time, the proportion of unsuccessful hunters also increased since 2003 (from 10.9% to 25.0% of hunters). Further, successful hunters reported relatively low harvest rates in 2011 (1.6 seals per household), the lowest ever recorded and substantially below the peak year in 2005 (3.8 seals per household). So while there were more seal hunters on Kodiak Island in 2011, the success rates of hunters and the productivity of successful hunters were lower compared with other years.

Figures 10 and 11 compare the age and sex composition of the yearly subsistence harvests of harbor seals and sea lions since 1992 on Kodiak Island. For both harbor seals and sea lions, hunters typically have reported harvesting more males than females each year (Figure 10). Considering harvests of known sex, males have comprised 76.2% of the harbor seal harvest and 74.3% of the sea lion harvest since 1992. The higher proportion of males in the harvests may reflect the greater availability of males in the groups of animals hunted due to sex segregation in groups. It also may indicate that females are more elusive than males when disturbed in a group, presenting comparatively fewer or more difficult targets.

In recent years, hunters have reported taking more adult seals (older, larger animals) compared with juveniles (younger, smaller animals) on Kodiak Island (Figure 11). Juveniles comprised 30.5% of the seal harvest from 1992 to 2003, compared to 7.5% of the seal harvest from 2004 to 2011 (the adult portion increased from 67.4% to 92.2%). Seal harvests by age class and month on Kodiak Island are shown in Figure 12, and the portion of juvenile seals in the harvest by month is shown in Figure 13. These time series illustrate the increased contribution of adult seals in the harvest, particularly during 1998 and after January 2004 (Figure 13). The age changes in harvests possibly reflect changes in the age compositions of seal populations accessible to hunters, perhaps due to changing population structures. The older ages of harvested seals in more recent years may reflect relatively larger and more stable seal populations with proportionately larger older age classes in the population, while the younger ages of seals harvested in earlier periods may reflect populations that were distressed

or rebuilding, with proportionately larger young age classes. As discussed previously, hunters have reported more stable seal populations in recent years (Table 7).

Similar to harbor seals, fewer juvenile sea lions have been part of harvests on Kodiak Island in recent years (Figure 11). During the early survey period (1992–1996), juvenile sea lions comprised 56.8% of the harvest, and juveniles represented the majority of the harvest in 5 of 6 survey years. In the more recent survey period (1997–2011), juveniles comprised 26.2% of the harvest, and juveniles represented the majority of the harvest in only 2 of 11 survey years. Proportionately, harvests of adult sea lions have increased, while harvests of juveniles have decreased.

Compared with harbor seal takes, there are clearer trends in sea lion takes on Kodiak Island (Figure 14). From 1992 to 1996, subsistence takes of sea lions numbered about 60 animals annually (except for 136 sea lions killed in 1995). Takes of sea lions dropped sharply after this, with an average of 22 animals from 1998 to 2011 (Figure 14). The sea lion take in 2011 (20 animals) was consistent with that lower level.

Hunters, hunting success, and harvest rates for sea lions on Kodiak Island are depicted in Figure 15. The numbers of hunters for sea lions decreased substantially from a peak of 56 hunters in 1995 to 14 hunters by 2000, and as low as 7 hunters in 2006; however, by 2011 the numbers of sea lion hunters increased to 19 in 2011 (Figure 15). The harvest rates of successful hunters have decreased slightly on Kodiak Island. During the early higher harvest period (1992 to 1996), successful hunters harvested an average of 1.8 sea lions per household, compared with an average of 1.4 sea lions per household during the later lower harvest period (1997 to 2011). In 2011, the harvest rate was 1.1 sea lions per household. Overall, the decreased takes of sea lions on Kodiak Island appear to be principally associated with fewer sea lion hunters, and secondarily to lower productivity of successful hunters.

Declines in the numbers of sea lion hunters occurred at a time when sea lions became increasingly harder to find in local hunting areas and consequently more difficult and expensive to hunt. Kodiak Island hunters reported taking “more time and effort” in hunting sea lions in 2000

compared with 1995–1999 (Wolfe et al. 2009b). As sea lions became scarcer in a community's hunting area, some hunters chose to stop hunting them. The hunters that continued to hunt appear to maintain annual harvest rates a bit lower than past years, and the hunters must invest more time and effort in pursuit of the sea lions harvested.

In addition to these factors, it is quite likely that some sea lion hunters chose to reduce their hunting activity because of perceived problems with sea lion populations. Some portion of the decline in hunting effort during the early to mid-1990s probably reflected hunters choosing not to hunt in order to help conserve sea lion populations. The effects of these factors on sea lion harvests appear to have run their course. After 1997, the numbers of sea lion hunters and sea lion takes have leveled off. From 1998 to 2011, sea lion takes have averaged 21 animals, with a range 7 and 35 animals annually. Hunters also are reporting more stable or increasing sea lions populations. All together, the information from surveyed hunters suggests stabilization in the takes of sea lions over the last several years on Kodiak Island.

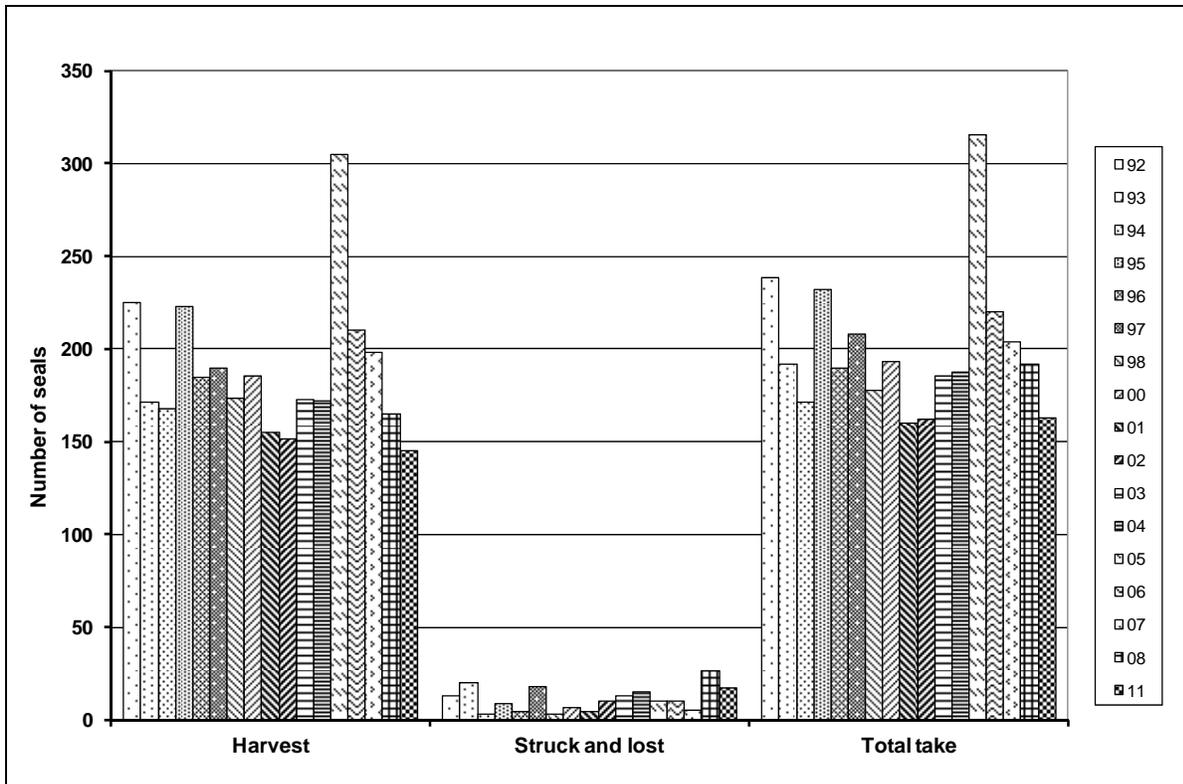


Figure 8.—Estimated subsistence takes of harbor seals on Kodiak Island, 1992–2008, 2011.

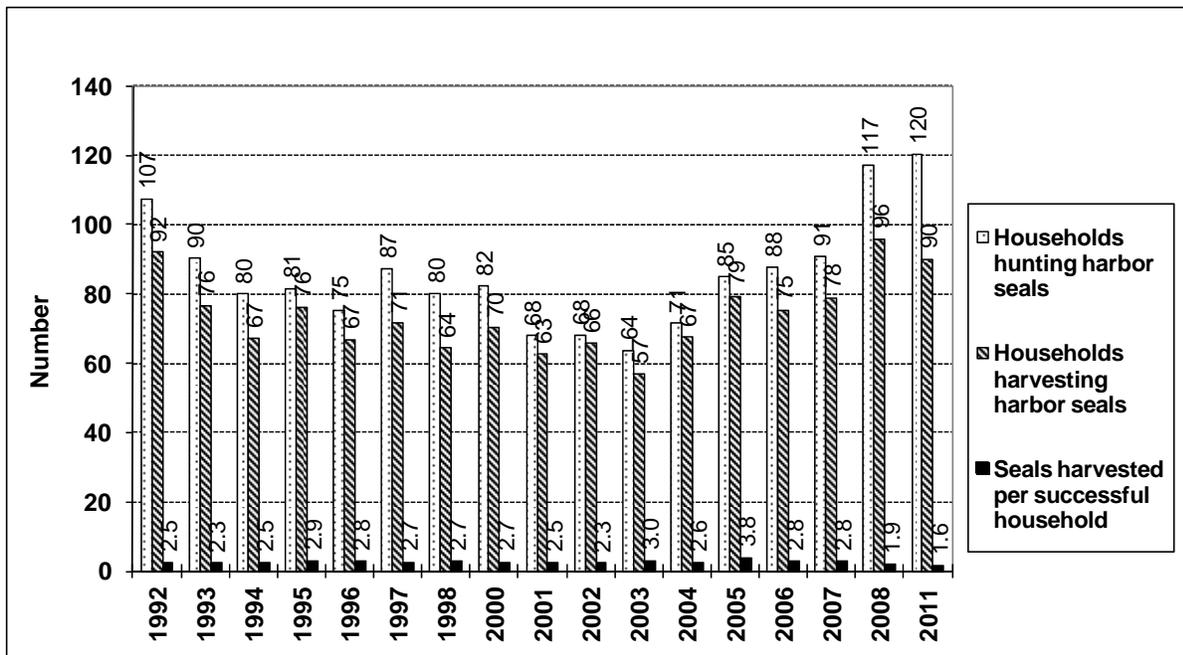


Figure 9.—Harbor seal hunters and success rates, Kodiak Island, 1992–2008, 2011.

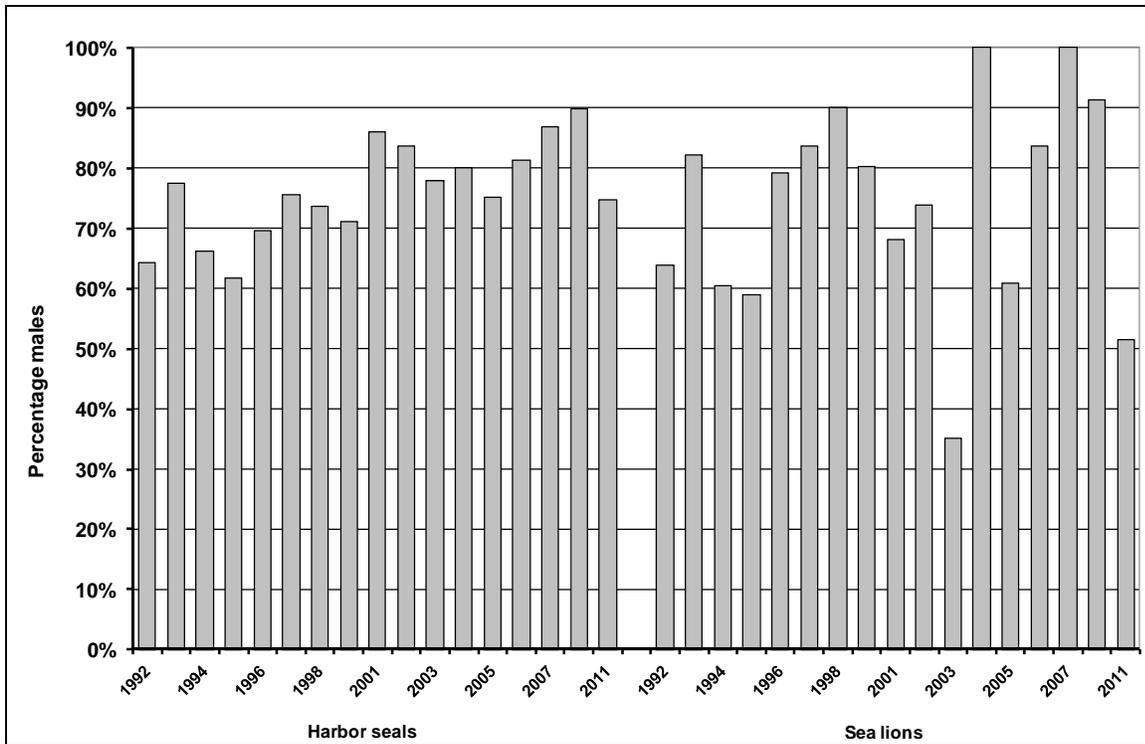


Figure 10.—Harbor seal and sea lion harvests reported as males by hunters, Kodiak Island, 1992–2008, 2011.

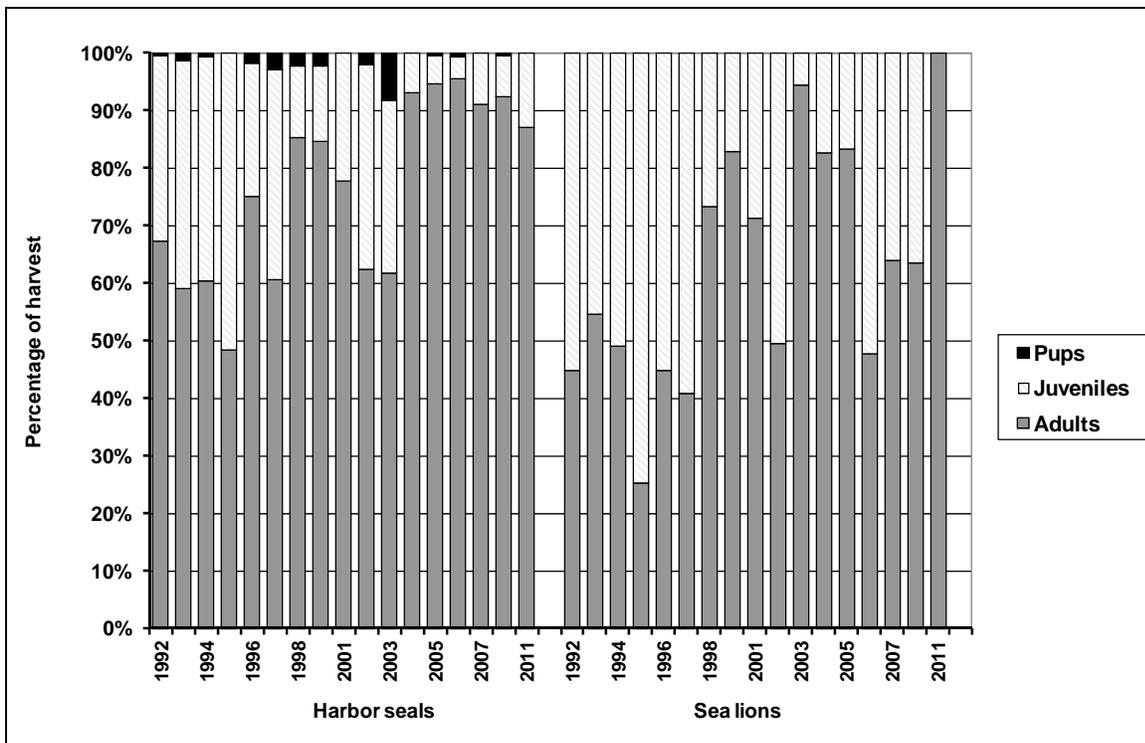


Figure 11.—Age composition of harbor seal and sea lion harvests reported by hunters, Kodiak Island, 1992–2008, 2011.

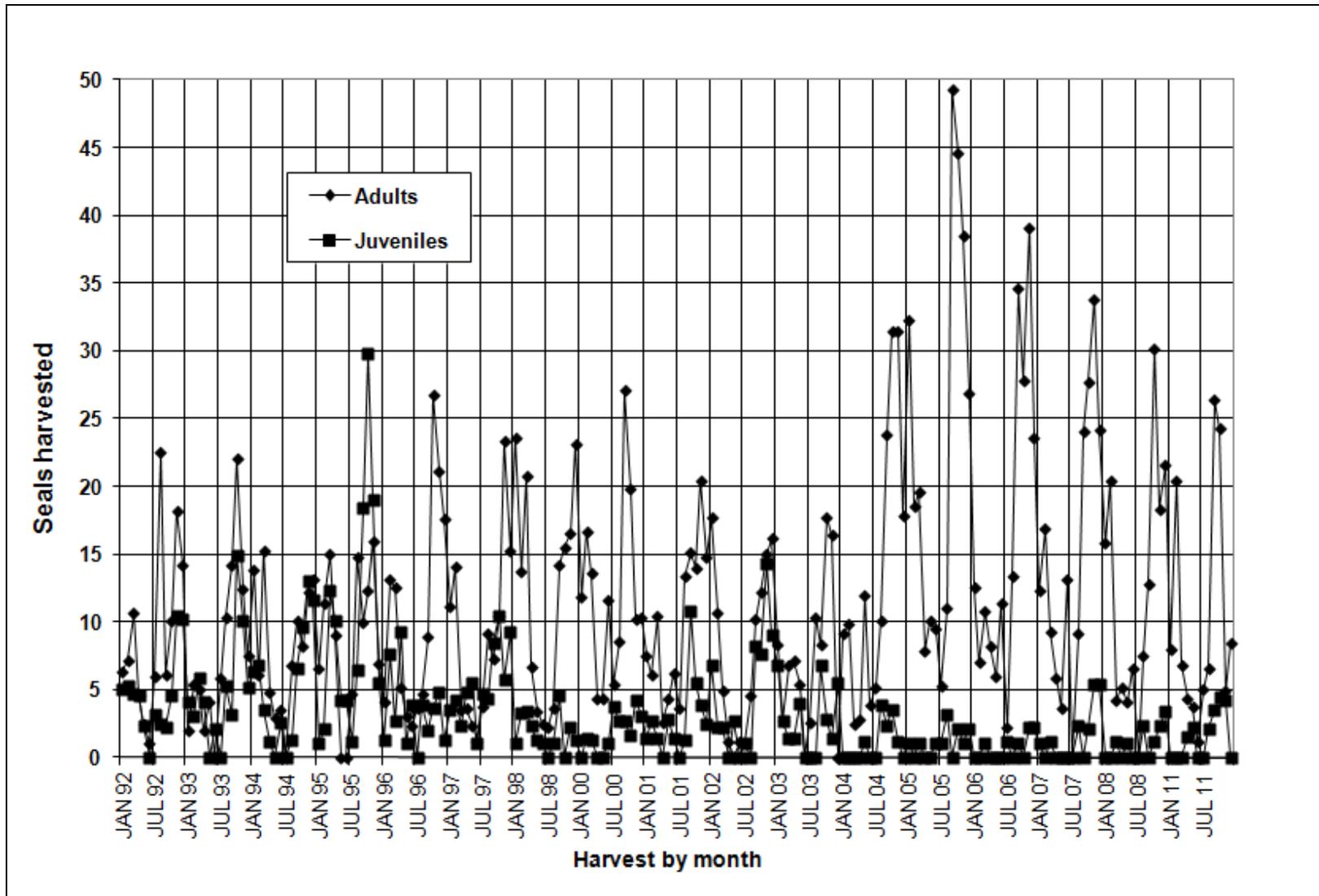


Figure 12.—Adult and juvenile harbor seal harvests by month, Kodiak Island, 1992–2008, 2011.

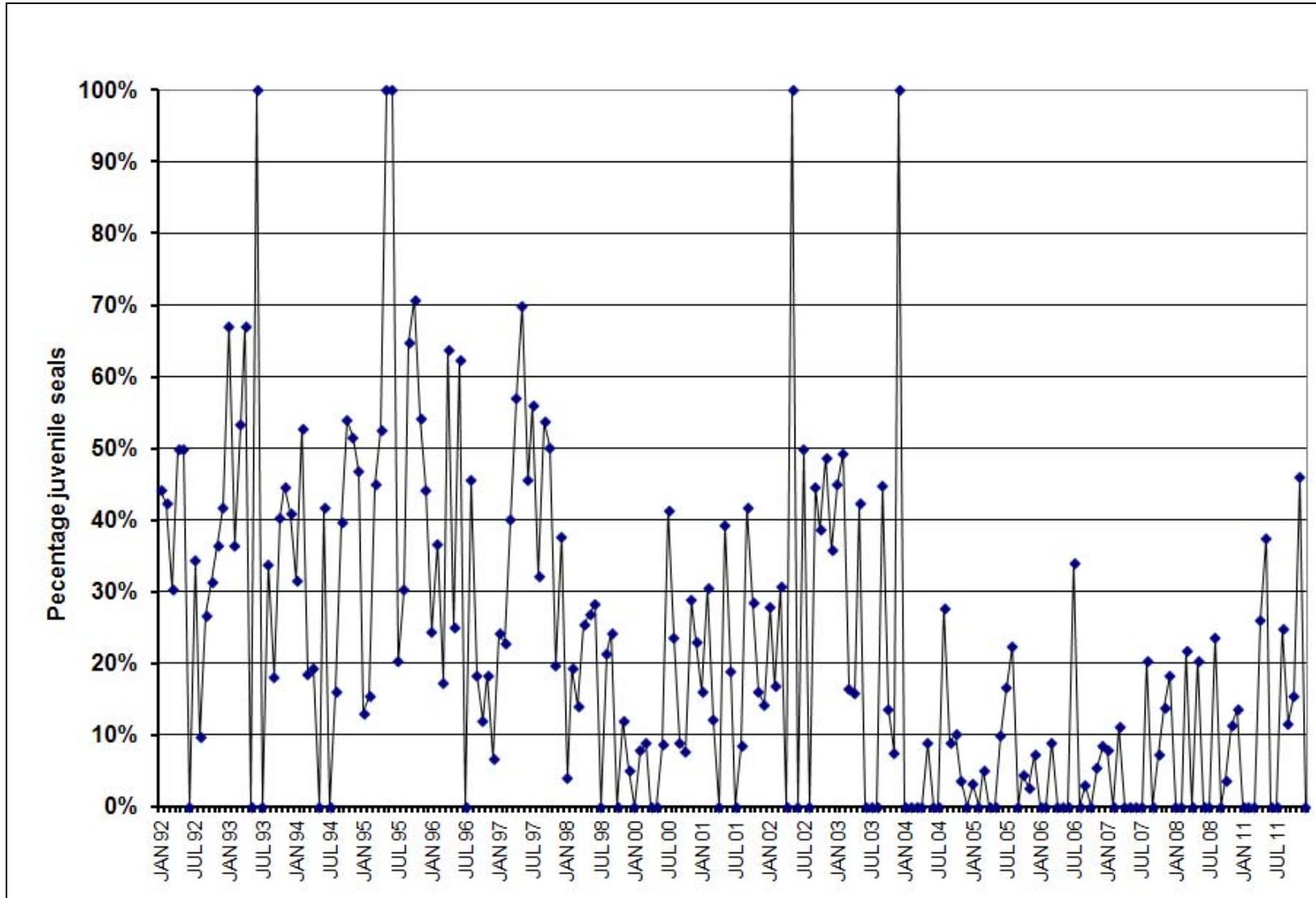


Figure 13.—Juvenile proportion of harbor seal harvests, Kodiak Island, 1992–2008, 2011.

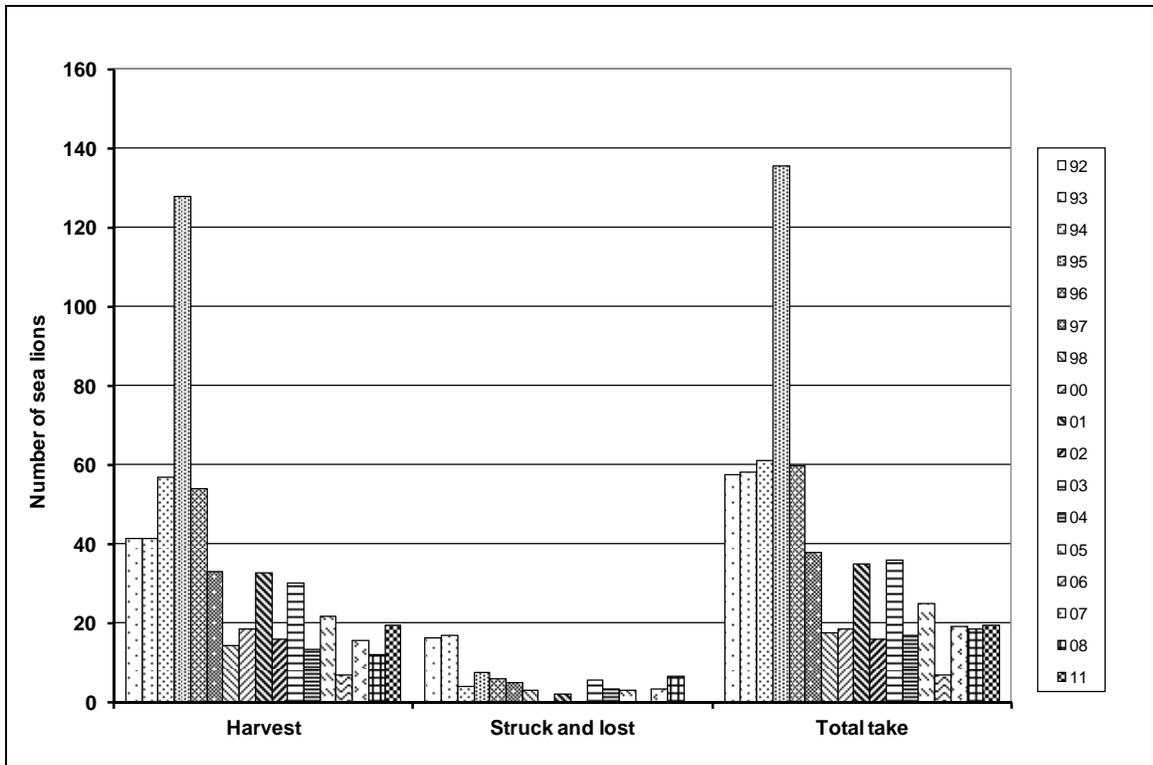


Figure 14.—Estimated subsistence takes of sea lions on Kodiak Island, 1992–2008, 2011.

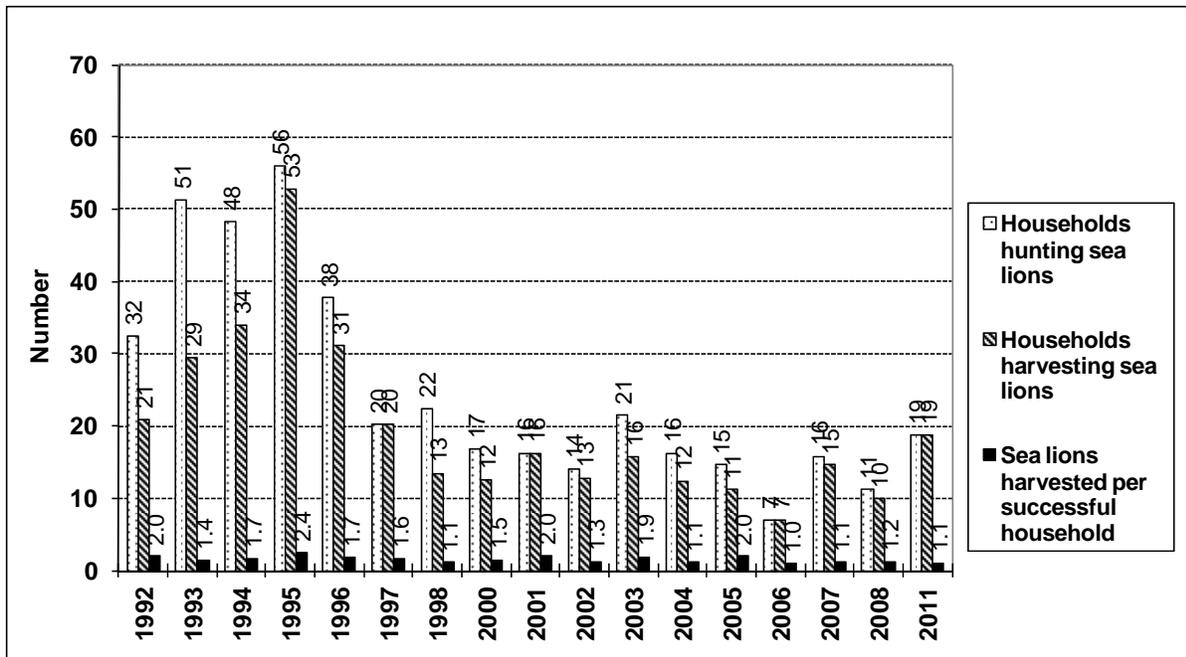


Figure 15.—Sea lion hunters and success rates, Kodiak Island, 1992–2008, 2011.

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APPENDIX A
SURVEY INSTRUMENT USED
IN HOUSEHOLD INTERVIEWS, 2011

HARBOR SEAL

2011 MARINE MAMMAL SURVEY

Kodiak

Are any members of your household Alaska Natives? Yes () No () If No, thank you for your cooperation. This survey is relevant to Native households.

If yes, how many people lived in your household in 2011? ()

Check if no contact with Household **No Contact** ()

DID YOU OR MEMBERS OF YOUR HOUSEHOLD HUNT OR "USE" (process, eat, receive, crafts) HARBOR SEALS IN 2011? Yes () No ()

(IF YES TO HARBOR SEALS, COMPLETE THE FOLLOWING QUESTIONS:)

14. DID YOUR HOUSEHOLD HUNT/USE SEA LIONS IN 2011?
No () Thank you | Yes () (Go to Sea lion form)

During 2011, did you or your household:

1. Use harbor seals (meat, hides, or oil)?
2. Hunt harbor seals? If yes, go to 2a and 2b.....
3. Kill and retrieve harbor seals?
4. Receive harbor seals from other households or communities?
5. Give away harbor seals to other households or communities?

Yes	No

2a. How many seal hunters in your household? ()

2b. If you hunted outside Kodiak Island region where did you hunt? _____

IF YES TO QUESTION 2 OR 3 ABOVE, GO TO QUESTION 6. IF NO, GO TO QUESTION 11-13, THEN COMPLETE SEA LION SURVEY QUESTION 14.

6. How many harbor seals did your household kill and retrieve? [Enter in total box.] _____

7. In which months were they killed and retrieved? How many in (January, etc.)? [Enter the numbers by month.]

HARBOR SEAL	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	UNKNOWN	TOTAL
TOTAL														

8. Of the harbor seals killed and retrieved in (January, etc.), how many were male, female, and how many were pups, juveniles, or adults? [Enter the numbers by month]

HARBOR SEAL (Detail)		JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	UNKNOWN	TOTAL
ADULT	MALE														
	FEMALE														
	UNKNOWN														
JUVENILE	MALE														
	FEMALE														
	UNKNOWN														
PUP	MALE														
	FEMALE														
	UNKNOWN														
UNKNOWN AGE	MALE														
	FEMALE														
	UNKNOWN														

During 2011, 9. How many harbor seal were struck and lost by your household? [Enter number in total box.] _____

10. In which months were they struck and lost? [Enter numbers by month.]

HARBOR SEAL	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	UNKNOWN	TOTAL
STRUCK AND LOST														

Supplemental Questions:

11. During 2011, did you observe any changes to harbor seal numbers in your area? Increase _____ Decrease _____ No Change _____ Didn't Observe _____

12. During 2011, what was the condition of the seals you harvested? _____

13. Do you intend to hunt or hunt again before January 2012? Yes _____ Maybe _____ No _____

"THANK YOU FOR YOUR COOPERATION"

Community: () HHID: () List: Hunter Random Interviewer: _____ Date: _____

SEA LION

2011 MARINE MAMMAL SURVEY

Kodiak

DID YOU OR MEMBERS OF YOUR HOUSEHOLD HUNT OR "USE" (process, eat, receive, crafts) SEA LIONS IN 2011? YES _____ NO _____
 (IF YES, PLEASE COMPLETE THE FOLLOWING QUESTIONS:) (IF NO, skip to question #13)

During 2011, did you or your household:

1. **Use** sea lions (meat, hides, or oil)?
2. **Hunt** sea lions? If yes, go to 2a and 2b
3. **Kill and retrieve** sea lions?
4. **Receive** sea lions from other households or communities?
5. **Give away** sea lions to other households or communities? ...

Yes	No

2a. **How many** sea lion hunters in your household? (____)

2b. If you **hunted outside Kodiak Island region** where did you hunt? _____

IF YES TO QUESTION 2 OR 3 ABOVE, GO TO QUESTION 6. IF NO, GO TO QUESTION 11-13.

6. How many sea lions did your household kill and retrieve? [Enter total number in box.] _____

7. In which months were they killed and retrieved? How many in (January, etc.)? [Enter the numbers by month.] _____

SEA LIONS	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	UNKNOWN	TOTAL
TOTAL														

8. Of the sea lions killed and retrieved in (January, etc.), how many were male, female, and how many were pups, juveniles, or adults? [Enter the numbers by month]

SEA LIONS (Detail)	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	UNKNOWN	TOTAL
ADULT	MALE													
	FEMALE													
	UNKNOWN													
JUVENILE	MALE													
	FEMALE													
	UNKNOWN													
PUP	MALE													
	FEMALE													
	UNKNOWN													
UNKNOWN AGE	MALE													
	FEMALE													
	UNKNOWN													

During 2011: 9. How many sea lions were struck and lost by your household? [Enter number in total box.] _____

10. In which months were they struck and lost? [Enter numbers by month.] _____

SEA LIONS	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	UNKNOWN	TOTAL
STRUCK AND LOST														

Supplemental Question:

11. During 2011, did you observe any changes to sea lion numbers in your area? Increase _____ Decrease _____ No Change _____ Didn't Observe _____

12. During 2011, what was the condition of the sea lions you harvested? _____

13. Do you intend to hunt or hunt again before January 2012? Yes _____ Maybe _____ No _____

"THANK YOU FOR YOUR COOPERATION"

Community: _____ **HHID:** (____) **List:** Hunter Random **Interviewer:** _____ **Date:** _____

APPENDIX B

**SUBSISTENCE TAKES OF
HARBOR SEALS AND SEA LIONS
BY COMMUNITY AND YEAR, KODIAK ISLAND**

**Appendix B, Table 1
Subsistence Harbor Seal Takes by
Kodiak Island Communities, 1992 - 2008, 2011**

Community	Struck and			Struck and			Struck and			Struck and			Struck and		
	Harvest	Lost	Take	Harvest	Lost	Take	Harvest	Lost	Take	Harvest	Lost	Take	Harvest	Lost	Take
	1992			1993			1994			1995			1996		
Akhiok	20.0	3.0	23.0	13.3	0.0	13.3	14.5	0.0	14.5	5.0	0.0	5.0	12.0	1.0	13.0
Karluk	16.5	1.5	18.0	10.0	1.3	11.3	7.5	0.0	7.5	28.1	6.8	34.9	15.1	0.0	15.1
Kodiak City	36.9	0.0	36.9	6.0	1.0	7.0	7.6	0.0	7.6	8.8	0.0	8.8	9.0	0.0	9.0
Larsen Bay	6.5	0.0	6.5	7.7	5.5	13.2	13.4	2.2	15.7	11.0	0.0	11.0	15.0	0.0	15.0
Old Harbor	86.8	5.3	92.1	67.6	2.7	70.3	83.7	1.3	85.0	112.0	2.4	114.4	113.5	1.3	114.8
Ouzinkie	21.8	1.1	23.0	41.2	8.7	49.8	33.4	0.0	33.4	56.1	0.0	56.1	16.7	2.6	19.3
Port Lions	36.9	2.2	39.1	26.0	1.0	27.0	8.0	0.0	8.0	2.0	0.0	2.0	4.0	0.0	4.0
	1997			1998			2000			2001			2002		
Akhiok	7.9	0.0	7.9	7.3	0.0	7.3	17.6	0.0	17.6	7.2	0.0	7.2	6.3	0.0	6.3
Karluk	19.0	0.0	19.0	11.0	0.0	11.0	19.5	1.5	21.0	8.3	0.0	8.3	8.3	0.0	8.3
Kodiak City	13.0	0.0	13.0	11.0	0.0	11.0	21.6	4.8	26.4	17.5	0.0	17.5	17.5	0.0	17.5
Larsen Bay	9.8	4.2	13.9	1.7	0.0	1.7	18.6	0.0	18.6	9.0	1.1	10.2	3.3	0.0	3.3
Old Harbor	80.0	4.8	84.8	55.1	1.1	56.2	59.1	0.0	59.1	71.3	0.0	71.3	40.5	0.0	40.5
Ouzinkie	55.2	9.4	64.6	82.0	2.5	84.5	43.0	1.0	44.0	33.4	2.6	36.0	63.4	10.2	73.6
Port Lions	5.0	0.0	5.0	6.0	0.0	6.0	6.4	0.0	6.4	8.8	1.1	9.9	13.0	0.0	13.0
	2003			2004			2005			2006			2007		
Akhiok	5.5	0.0	5.5	4.2	1.4	5.6	6.9	0.0	6.9	13.6	1.1	14.7	7.0	0.0	7.0
Karluk	4.3	0.0	4.3	3.1	0.0	3.1	19.4	0.0	19.4	19.4	0.0	19.4	0.0	0.0	0.0
Kodiak City	32.0	6.0	38.0	21.0	4.5	25.5	10.8	0.0	10.8	10.8	0.0	10.8	21.3	2.2	23.6
Larsen Bay	2.5	0.0	2.5	12.5	0.0	12.5	17.0	0.0	17.0	20.3	0.0	20.3	8.6	0.0	8.6
Old Harbor	66.7	2.9	69.6	37.8	5.9	43.7	37.5	1.1	38.6	20.2	0.0	20.2	35.2	3.5	38.7
Ouzinkie	48.8	4.1	52.8	73.0	3.9	76.9	136.6	9.5	146.1	49.0	9.1	58.1	49.5	0.0	49.5
Port Lions	12.9	0.0	12.9	20.6	0.0	20.6	77.0	0.0	77.0	77.0	0.0	77.0	77.0	0.0	77.0
	2008			2011											
Akhiok	10.5	5.2	15.7	16.7	10.4	27.1									
Karluk	0.0	0.0	0.0	19.4	0.0	19.4									
Kodiak City	62.6	8.6	71.3	34.1	1.6	35.7									
Larsen Bay	5.2	0.0	5.2	10.2	1.3	11.4									
Old Harbor	35.2	3.5	38.7	40.1	3.3	43.3									
Ouzinkie	32.1	3.1	35.2	20.2	0.0	20.2									
Port Lions	20.0	6.0	26.0	5.0	1.3	6.3									

**Appendix B, Table 2
Subsistence Sea Lion Takes by
Kodiak Island Communities, 1992 - 2008, 2011**

Community	Struck and Lost Take			Struck and Lost Take											
	Harvest	and Lost	Take	Harvest	and Lost	Take									
	1992			1993			1994			1995			1996		
Akhiok	3.0	1.0	4.0	0.0	0.0	0.0	3.2	0.0	3.2	1.0	1.0	2.0	6.0	1.0	7.0
Karluk	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Kodiak City	0.0	0.0	0.0	0.0	12.7	12.7	1.1	0.0	1.1	2.2	0.0	2.2	3.0	0.0	3.0
Larsen Bay	1.1	0.0	1.1	0.0	0.0	0.0	2.2	0.0	2.2	2.0	1.0	3.0	0.0	0.0	0.0
Old Harbor	32.9	13.2	46.1	32.1	1.0	33.2	46.2	1.3	47.5	107.1	5.7	112.9	44.9	5.3	50.2
Ouzinkie	3.4	0.0	3.4	5.4	2.2	7.6	4.4	2.9	7.3	15.6	0.0	15.6	0.0	0.0	0.0
Port Lions	1.1	2.2	3.3	4.0	1.0	5.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	1997			1998			2000			2001			2002		
Akhiok	6.6	1.3	7.9	3.1	0.0	3.1	3.2	0.0	3.2	1.4	0.0	1.4	0.0	0.0	0.0
Karluk	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Kodiak City	3.0	0.0	3.0	0.0	1.0	1.0	2.4	0.0	2.4	2.5	0.0	2.5	2.5	0.0	2.5
Larsen Bay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Old Harbor	22.7	3.6	26.3	10.3	2.3	12.6	12.9	0.0	12.9	26.3	2.2	28.5	8.5	0.0	8.5
Ouzinkie	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.6	0.0	2.6	5.1	0.0	5.1
Port Lions	1.0	0.0	1.0	1.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	2003			2004			2005			2006			2007		
Akhiok	2.7	1.4	4.1	1.4	0.0	1.4	0.0	0.0	0.0	2.3	0.0	2.3	3.0	0.0	3.0
Karluk	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Kodiak City	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Larsen Bay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Old Harbor	27.6	4.4	31.9	8.3	3.5	11.8	18.2	3.2	21.4	1.1	0.0	1.1	7.0	3.5	10.5
Ouzinkie	0.0	0.0	0.0	2.6	0.0	2.6	0.0	0.0	0.0	0.0	0.0	0.0	2.1	0.0	2.1
Port Lions	0.0	0.0	0.0	1.2	0.0	1.2	3.7	0.0	3.7	3.7	0.0	3.7	3.7	0.0	3.7
	2008			2011											
Akhiok	2.1	3.1	5.2	6.3	0.0	6.3									
Karluk	0.0	0.0	0.0	0.0	0.0	0.0									
Kodiak City	0.0	0.0	0.0	1.6	0.0	1.6									
Larsen Bay	0.0	0.0	0.0	0.0	0.0	0.0									
Old Harbor	7.0	3.5	10.5	11.9	0.0	11.9									
Ouzinkie	0.0	0.0	0.0	0.0	0.0	0.0									
Port Lions	3.0	0.0	3.0	0.0	0.0	0.0									

APPENDIX C
SUBSISTENCE TAKES OF
HARBOR SEALS AND SEA LIONS
BY REGION AND COMMUNITY

Table C-1. SEA LION AND HARBOR SEAL HARVESTS: KODIAK ISLAND, 2011

<i>SAMPLING DESIGN:</i>		<u>Active</u>	<u>Other</u>	<u>Total</u>
<i>MIXED</i>	Total Household Universe	144	137	281
	Surveyed Households	109	111	220
	Sampling Fraction	75.7%	81.0%	78.3%
	Sample Household Members	310	307	617
	Estimated Household Members	402.9	392.2	795.2
	2010 U.S. Census Estimated Native Population	---	---	1173

HARVEST AND USE INFORMATION

<i>Percentage of Native Households:</i>			<i>Estimated Community Harvest and Take (Expanded):</i>		
	Sea	Harbor		Sea	Harbor
	<u>Lion</u>	<u>Seal</u>		<u>Lion</u>	<u>Seal</u>
Used	N/A	N/A	Total Number Harvested	19.7	145.6
Hunted	N/A	N/A	Total Number Struck and Lost	0.0	17.7
Harvested	N/A	N/A	Total Number Taken	19.7	163.3
Received	N/A	N/A			
Gave Away	N/A	N/A	Number Harvested Per Capita	0.02	0.12

<i>SEA LION HARVEST BY MONTH</i>													<i>Unknown</i>	
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Month	Total
REPORTED HARVEST AND TAKE BY SAMPLED HOUSEHOLDS (UNEXPANDED)														
Harvest	3	1	1	1	1	1	0	1	2	1	2	1	0	15
Struck & Lost	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Take	3	1	1	1	1	1	0	1	2	1	2	1	0	15
ESTIMATED HARVEST AND TAKE BY COMMUNITY (EXPANDED)														
Harvest	3.7	2.1	1.1	1.1	1.1	1.1	0.0	1.1	2.2	1.1	3.2	2.1	0.0	19.7
Struck & Lost	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Take	3.7	2.1	1.1	1.1	1.1	1.1	0.0	1.1	2.2	1.1	3.2	2.1	0.0	19.7
ESTIMATED SEASONALLY ADJUSTED HARVEST AND TAKE BY COMMUNITY (EXPANDED)														
Harvest	3.7	2.1	1.1	1.1	1.1	1.1	0.0	1.1	2.2	1.1	3.2	2.1		19.7
Struck & Lost	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0
Total Take	3.7	2.1	1.1	1.1	1.1	1.1	0.0	1.1	2.2	1.1	3.2	2.1		19.7
Total Take (%)	18.9%	10.6%	5.5%	5.5%	5.5%	5.5%	0.0%	5.5%	11.0%	5.5%	16.1%	10.6%		100%
Cum. Take	3.7	5.8	6.9	8.0	9.1	10.1	10.1	11.2	13.4	14.5	17.6	19.7		
Cum. Take (%)	18.9%	29.4%	34.9%	40.4%	45.9%	51.4%	51.4%	56.9%	67.9%	73.4%	89.4%	100.0%		

<i>HARBOR SEAL HARVEST BY MONTH</i>													<i>Unknown</i>	
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Month	Total
REPORTED HARVEST AND TAKE BY SAMPLED HOUSEHOLDS (UNEXPANDED)														
Harvest	7	16	5	6	5	1	5	8	24	24	8	5	1	115
Struck & Lost	2	0	0	0	0	0	1	2	1	0	1	2	2	11
Total Take	9	16	5	6	5	1	6	10	25	24	9	7	3	126
ESTIMATED HARVEST AND TAKE BY COMMUNITY (EXPANDED)														
Harvest	7.9	20.5	6.9	7.0	6.0	1.1	6.1	8.7	29.9	29.8	11.2	8.4	2.1	145.6
Struck & Lost	2.4	0.0	0.0	0.0	0.0	0.0	1.1	2.8	1.1	0.0	2.1	4.2	4.2	17.7
Total Take	10.3	20.5	6.9	7.0	6.0	1.1	7.2	11.5	31.0	29.8	13.3	12.6	6.3	163.3
ESTIMATED SEASONALLY ADJUSTED HARVEST AND TAKE BY COMMUNITY (EXPANDED)														
Harvest	7.9	20.5	6.9	7.0	6.0	1.1	6.1	8.7	30.2	30.1	11.8	9.3		145.6
Struck & Lost	2.4	0.0	0.0	0.0	0.0	0.0	1.1	2.8	1.1	0.0	3.5	6.9		17.7
Total Take	10.3	20.5	6.9	7.0	6.0	1.1	7.2	11.5	31.3	30.1	15.3	16.3		163.3
Total Take (%)	6.3%	12.5%	4.2%	4.3%	3.6%	0.7%	4.4%	7.1%	19.1%	18.4%	9.4%	10.0%		100%
Cum. Take	10.3	30.8	37.6	44.6	50.6	51.7	58.9	70.4	101.7	131.8	147.1	163.3		
Cum. Take (%)	6.3%	18.8%	23.0%	27.3%	31.0%	31.7%	36.1%	43.1%	62.3%	80.7%	90.0%	100.0%		

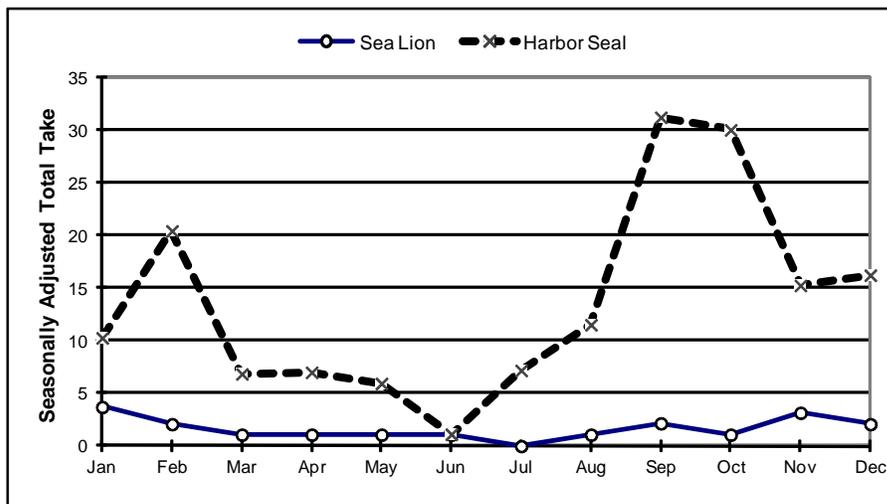
SOURCE: ANHSC Household Surveys, 2011.

Table C-1. (cont.) SEA LION AND HARBOR SEAL HARVESTS: KODIAK ISLAND, 2011

HARVEST BY AGE AND SEX

	Sea Lion				Harbor Seal			
	Reported by Sample		Community Est. (Expanded)		Reported by Sample		Community Est. (Expanded)	
	Number	%	Number	%	Number	%	Number	%
Adult Male	5	33.3%	5.9	29.8%	58	50.4%	72.7	49.9%
Adult Female	5	33.3%	5.4	27.5%	16	13.9%	20.6	14.2%
Adult Unknown Sex	1	6.7%	2.1	10.6%	22	19.1%	26.7	18.4%
Juvenile Male	0	0.0%	0.0	0.0%	9	7.8%	10.6	7.3%
Juvenile Female	0	0.0%	0.0	0.0%	3	2.6%	5.4	3.7%
Juvenile Unknown Sex	0	0.0%	0.0	0.0%	1	0.9%	2.1	1.4%
Pup Male	0	0.0%	0.0	0.0%	0	0.0%	0.0	0.0%
Pup Female	0	0.0%	0.0	0.0%	0	0.0%	0.0	0.0%
Pup Unknown Sex	0	0.0%	0.0	0.0%	0	0.0%	0.0	0.0%
Male Unknown Age	1	6.7%	2.1	10.6%	0	0.0%	0.0	0.0%
Female Unknown Age	1	6.7%	2.1	10.6%	1	0.9%	2.1	1.4%
Unknown Sex and Age	2	13.3%	2.2	11.0%	5	4.3%	5.4	3.7%
Total	15	100.0%	19.7	100.0%	115	100.0%	145.6	100%

SEASONALLY ADJUSTED TAKE BY MONTH, SEA LION AND HARBOR SEAL



ESTIMATED COMMUNITY HARVEST, STRUCK AND LOST, AND TAKE BY YEAR

SEA LION				HARBOR SEAL			
Year	Harvest	Struck/ Lost	Total Take	Year	Harvest	Struck/ Lost	Total Take
1992	41.5	16.3	57.8	1992	225.5	13.1	238.6
1993	41.5	16.9	58.4	1993	171.7	20.1	191.8
1994	57.1	4.2	61.3	1994	168.2	3.6	171.7
1995	127.9	7.7	135.7	1995	223.0	9.2	232.2
1996	53.9	6.3	60.2	1996	185.2	4.9	190.1
1997	33.3	4.9	38.2	1997	189.8	18.3	208.2
1998	14.5	3.3	17.8	1998	174.0	3.7	177.7
2000	18.5	0.0	18.5	2000	185.9	7.3	193.2
2001	32.8	2.2	35.0	2001	155.6	4.8	160.4
2002	16.1	0.0	16.1	2002	152.1	10.2	162.3
2003	30.3	5.7	36.0	2003	172.7	13.0	185.6
2004	13.5	3.5	17.0	2004	172.2	15.7	188.0
2005	21.9	3.2	25.1	2005	305.1	10.6	315.7
2006	7.0	0.0	7.0	2006	210.3	10.2	220.5
2007	15.8	3.5	19.3	2007	218.0	5.8	223.8
2008	12.1	6.7	18.8	2008	184.9	26.5	211.4
2011	19.7	0.0	19.7	2011	145.6	17.7	163.3

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys 1992-1998; ANHSC Household Surveys, 2000-2011.

Table C-2. SEA LION AND HARBOR SEAL HARVEST AND TAKE ESTIMATES: Akhiok, 2011

SAMPLING DESIGN:

CENSUS	Total Native Households	25
	Surveyed Households	12
	Sampling Fraction	48.0%
	Sample Household Members	48
	Estimated Household Members	100.0
	2010 U.S. Census Estimated Native Population	36

HARVEST AND USE INFORMATION

<i>Percentage of Native Households:</i>			<i>Estimated Community Harvest and Take (Expanded):</i>		
	Sea Lion	Harbor Seal		Sea Lion	Harbor Seal
Used	41.7%	91.7%	Total Number Harvested	6.3	16.7
Hunted	25.0%	50.0%	Total Number Struck and Lost	0.0	10.4
Harvested	25.0%	50.0%	Total Number Taken	6.3	27.1
Received	25.0%	50.0%			
Gave Away	25.0%	66.7%	Number Harvested Per Capita	0.17	0.46

SEA LION HARVEST BY MONTH													Unknown	Total
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Month	
REPORTED HARVEST AND TAKE BY SAMPLED HOUSEHOLDS (UNEXPANDED)														
Harvest	0	1	0	0	0	0	0	0	0	0	1	1	0	3
Struck & Lost	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Take	0	1	0	0	0	0	0	0	0	0	1	1	0	3
ESTIMATED HARVEST AND TAKE BY COMMUNITY (EXPANDED)														
Harvest	0.0	2.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.1	2.1	0.0	6.3
Struck & Lost	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Take	0.0	2.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.1	2.1	0.0	6.3
ESTIMATED SEASONALLY ADJUSTED HARVEST AND TAKE BY COMMUNITY (EXPANDED)														
Harvest	0.0	2.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.1	2.1		6.3
Struck & Lost	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0
Total Take	0.0	2.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.1	2.1		6.3
Total Take (%)	0.0%	33.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	33.3%	33.3%		100.0%
Cum. Take	0.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	4.2	6.3		
Cum. Take (%)	0.0%	33.3%	33.3%	33.3%	33.3%	33.3%	33.3%	33.3%	33.3%	33.3%	66.7%	100.0%		

HARBOR SEAL HARVEST BY MONTH													Unknown	Total
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Month	
REPORTED HARVEST AND TAKE BY SAMPLED HOUSEHOLDS (UNEXPANDED)														
Harvest	0	0	0	0	0	0	0	0	1	1	2	3	1	8
Struck & Lost	0	0	0	0	0	0	0	0	0	0	1	2	2	5
Total Take	0	0	0	0	0	0	0	0	1	1	3	5	3	13
ESTIMATED HARVEST AND TAKE BY COMMUNITY (EXPANDED)														
Harvest	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.1	2.1	4.2	6.3	2.1	16.7
Struck & Lost	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.1	4.2	4.2	10.4
Total Take	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.1	2.1	6.3	10.4	6.3	27.1
ESTIMATED SEASONALLY ADJUSTED HARVEST AND TAKE BY COMMUNITY (EXPANDED)														
Harvest	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.4	2.4	4.8	7.1		16.7
Struck & Lost	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.5	6.9		10.4
Total Take	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.4	2.4	8.2	14.1		27.1
Total Take (%)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	8.8%	8.8%	30.4%	52.0%		100.0%
Cum. Take	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.4	4.8	13.0	27.1		
Cum. Take (%)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	8.8%	17.6%	48.0%	100.0%		

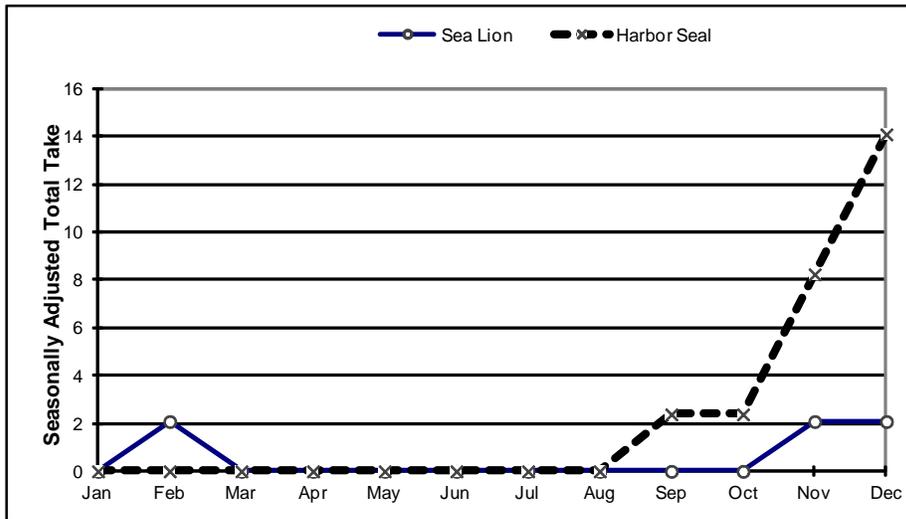
SOURCE: ANHSC Household Surveys, 2011.

Table C-2. (cont.) SEA LION & HARBOR SEAL HARVEST ESTIMATES: Akhiok, 2011

HARVEST BY AGE AND SEX

	Sea Lion				Harbor Seal			
	Reported by Sample		Community Est. (Expanded)		Reported by Sample		Community Est. (Expanded)	
	Number	%	Number	%	Number	%	Number	%
Adult Male	0	0.0%	0.0	0.0%	2	25.0%	4.2	25.0%
Adult Female	0	0.0%	0.0	0.0%	2	25.0%	4.2	25.0%
Adult Unknown Sex	1	33.3%	2.1	33.3%	0	0.0%	0.0	0.0%
Juvenile Male	0	0.0%	0.0	0.0%	0	0.0%	0.0	0.0%
Juvenile Female	0	0.0%	0.0	0.0%	2	25.0%	4.2	25.0%
Juvenile Unknown Sex	0	0.0%	0.0	0.0%	1	12.5%	2.1	12.5%
Pup Male	0	0.0%	0.0	0.0%	0	0.0%	0.0	0.0%
Pup Female	0	0.0%	0.0	0.0%	0	0.0%	0.0	0.0%
Pup Unknown Sex	0	0.0%	0.0	0.0%	0	0.0%	0.0	0.0%
Male Unknown Age	1	33.3%	2.1	33.3%	0	0.0%	0.0	0.0%
Female Unknown Age	1	33.3%	2.1	33.3%	1	12.5%	2.1	12.5%
Unknown Sex and Age	0	0.0%	0.0	0.0%	0	0.0%	0.0	0.0%
Total	3	100.0%	6.3	100.0%	8	100.0%	16.7	100.0%

SEASONALLY ADJUSTED TAKE BY MONTH, SEA LION AND HARBOR SEAL



ESTIMATED COMMUNITY HARVEST, STRUCK AND LOST, AND TAKE BY YEAR

SEA LION				HARBOR SEAL			
Year	Harvest	Struck/ Lost	Total Take	Year	Harvest	Struck/ Lost	Total Take
1992	3.0	1.0	4.0	1992	20.0	3.0	23.0
1993	0.0	0.0	0.0	1993	13.3	0.0	13.3
1994	3.2	0.0	3.2	1994	14.5	0.0	14.5
1995	1.0	1.0	2.0	1995	5.0	0.0	5.0
1996	6.0	1.0	7.0	1996	12.0	1.0	13.0
1997	6.6	1.3	7.9	1997	7.9	0.0	7.9
1998	3.1	0.0	3.1	1998	7.3	0.0	7.3
2000	3.2	0.0	3.2	2000	17.6	0.0	17.6
2001	1.4	0.0	1.4	2001	7.2	0.0	7.2
2002	0.0	0.0	0.0	2002	6.3	0.0	6.3
2003	2.7	1.4	4.1	2003	5.5	0.0	5.5
2004	1.4	0.0	1.4	2004	4.2	1.4	5.6
2005	0.0	0.0	0.0	2005	6.9	0.0	6.9
2006	2.3	0.0	2.3	2006	13.6	1.1	14.7
2007	3.0	0.0	3.0	2007	7.0	0.0	7.0
2008	2.1	3.1	5.2	2008	10.5	5.2	15.7
2011	6.3	0.0	6.3	2011	16.7	10.4	27.1

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys 1992-1998; ANHSC Household Surveys, 2000-2011.

Table C-3. SEA LION AND HARBOR SEAL HARVEST AND TAKE ESTIMATES: Karluk, 2011

SAMPLING DESIGN:

CENSUS	Total Native Households	14
	Surveyed Households	13
	Sampling Fraction	92.9%
	Sample Household Members	36
	Estimated Household Members	38.8
	2010 U.S. Census Estimated Native Population	35

HARVEST AND USE INFORMATION

<i>Percentage of Native Households:</i>			<i>Estimated Community Harvest and Take (Expanded):</i>		
	Sea Lion	Harbor Seal		Sea Lion	Harbor Seal
Used	N/A	N/A	Total Number Harvested	0.0	19.4
Hunted	0.0%	0.0%	Total Number Struck and Lost	0.0	0.0
Harvested	0.0%	76.9%	Total Number Taken	0.0	0.0
Received	N/A	N/A			
Gave Away	N/A	N/A	Number Harvested Per Capita	0.00	0.55

SEA LION HARVEST BY MONTH													Unknown	Total
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Month	
REPORTED HARVEST AND TAKE BY SAMPLED HOUSEHOLDS (UNEXPANDED)														
Harvest	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Struck & Lost	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Take	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ESTIMATED HARVEST AND TAKE BY COMMUNITY (EXPANDED)														
Harvest	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Struck & Lost	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Take	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ESTIMATED SEASONALLY ADJUSTED HARVEST AND TAKE BY COMMUNITY (EXPANDED)														
Harvest	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Struck & Lost	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Take	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Take (%)	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Cum. Take	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cum. Take (%)	---	---	---	---	---	---	---	---	---	---	---	---	---	---

HARBOR SEAL HARVEST BY MONTH													Unknown	Total
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Month	
REPORTED HARVEST AND TAKE BY SAMPLED HOUSEHOLDS (UNEXPANDED)														
Harvest	0	1	0	0	0	0	0	0	9	6	2	0	0	18
Struck & Lost	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Take	0	1	0	0	0	0	0	0	9	6	2	0	0	18
ESTIMATED HARVEST AND TAKE BY COMMUNITY (EXPANDED)														
Harvest	0.0	1.1	0.0	0.0	0.0	0.0	0.0	0.0	9.7	6.5	2.2	0.0	0.0	19.4
Struck & Lost	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Take	0.0	1.1	0.0	0.0	0.0	0.0	0.0	0.0	9.7	6.5	2.2	0.0	0.0	19.4
ESTIMATED SEASONALLY ADJUSTED HARVEST AND TAKE BY COMMUNITY (EXPANDED)														
Harvest	0.0	1.1	0.0	0.0	0.0	0.0	0.0	0.0	9.7	6.5	2.2	0.0	0.0	19.4
Struck & Lost	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Take	0.0	1.1	0.0	0.0	0.0	0.0	0.0	0.0	9.7	6.5	2.2	0.0	0.0	19.4
Total Take (%)	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Cum. Take	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cum. Take (%)	---	---	---	---	---	---	---	---	---	---	---	---	---	---

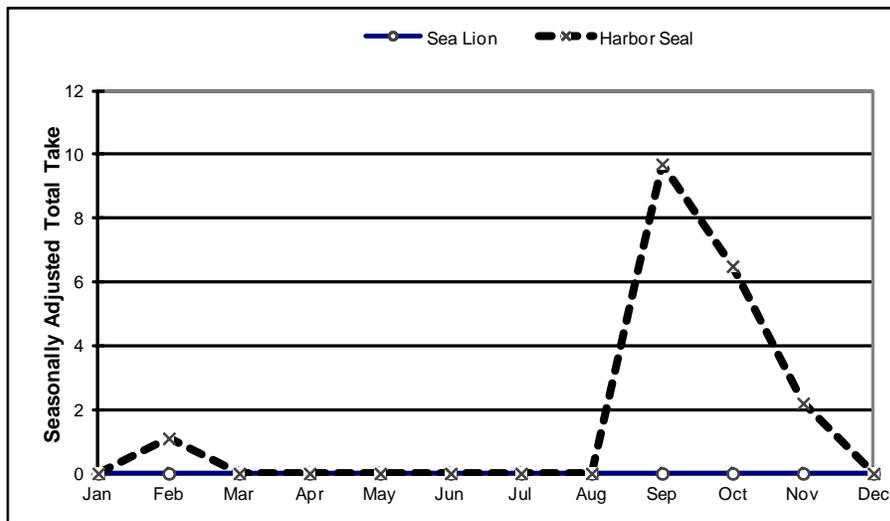
ANHSC Household Surveys, 2000-2011 (No surveys conducted from 2006-2011. Harvest estimates based on 2005 surveys).

Table C-3. (cont.) SEA LION & HARBOR SEAL HARVEST ESTIMATES: Karluk, 2011

HARVEST BY AGE AND SEX

	Sea Lion				Harbor Seal			
	Reported by Sample		Community Est. (Expanded)		Reported by Sample		Community Est. (Expanded)	
	Number	%	Number	%	Number	%	Number	%
Adult Male	0	---	0.0	---	0	0.0%	0.0	0.0%
Adult Female	0	---	0.0	---	2	11.1%	2.2	11.1%
Adult Unknown Sex	0	---	0.0	---	13	72.2%	14.0	72.2%
Juvenile Male	0	---	0.0	---	0	0.0%	0.0	0.0%
Juvenile Female	0	---	0.0	---	0	0.0%	0.0	0.0%
Juvenile Unknown Sex	0	---	0.0	---	0	0.0%	0.0	0.0%
Pup Male	0	---	0.0	---	0	0.0%	0.0	0.0%
Pup Female	0	---	0.0	---	0	0.0%	0.0	0.0%
Pup Unknown Sex	0	---	0.0	---	0	0.0%	0.0	0.0%
Male Unknown Age	0	---	0.0	---	0	0.0%	0.0	0.0%
Female Unknown Age	0	---	0.0	---	0	0.0%	0.0	0.0%
Unknown Sex and Age	0	---	0.0	---	3	16.7%	3.2	16.7%
Total	0	---	0.0	---	18	100.0%	19.4	100.0%

SEASONALLY ADJUSTED TAKE BY MONTH, SEA LION AND HARBOR SEAL



ESTIMATED COMMUNITY HARVEST, STRUCK AND LOST, AND TAKE BY YEAR

SEA LION				HARBOR SEAL			
Year	Harvest	Struck/	Total	Year	Harvest	Struck/	Total
		Lost	Take			Lost	Take
1992	0.0	0.0	0.0	1992	16.5	1.5	18.0
1993	0.0	0.0	0.0	1993	10.0	1.3	11.3
1994	0.0	0.0	0.0	1994	7.5	0.0	7.5
1995	0.0	0.0	0.0	1995	28.1	6.8	34.9
1996	0.0	0.0	0.0	1996	15.1	0.0	15.1
1997	0.0	0.0	0.0	1997	19.0	0.0	19.0
1998	0.0	0.0	0.0	1998	11.0	0.0	11.0
2000	0.0	0.0	0.0	2000	19.5	1.5	21.0
2001	0.0	0.0	0.0	2001	8.3	0.0	8.3
2002	0.0	0.0	0.0	2002	8.3	0.0	8.3
2003	0.0	0.0	0.0	2003	4.3	0.0	4.3
2004	0.0	0.0	0.0	2004	3.1	0.0	3.1
2005	0.0	0.0	0.0	2005	19.4	0.0	19.4
2006	0.0	0.0	0.0	2006	19.4	0.0	19.4
2007	0.0	0.0	0.0	2007	19.4	0.0	19.4
2008	0.0	0.0	0.0	2008	19.4	0.0	19.4
2011	0.0	0.0	0.0	2011	19.4	0.0	19.4

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys 1992-1998; ANHSC Household Surveys, 2000-2011 (No surveys conducted from 2006-2011. Harvest estimates based on 2005 surveys).

Table C-4. SEA LION AND HARBOR SEAL HARVEST AND TAKE ESTIMATES: Kodiak City, 2011

SAMPLING DESIGN:

CHAIN REFERRAL	Total Referred Households	62
	Surveyed Households	40
	Sampling Fraction	64.5%
	Sample Household Members	100
	Estimated Household Members	155.0
	2010 U.S. Census Estimated Native Population	607

HARVEST AND USE INFORMATION

<i>Percentage of Sample Households:</i>			<i>Estimated Community Harvest and Take (Expanded):</i>		
	Sea <u>Lion</u>	Harbor <u>Seal</u>		Sea <u>Lion</u>	Harbor <u>Seal</u>
Used	2.5%	100.0%	Total Number Harvested	1.6	34.1
Hunted	2.5%	57.5%	Total Number Struck and Lost	0.0	1.6
Harvested	2.5%	32.5%	Total Number Taken	1.6	35.7
Received	0.0%	87.5%			
Gave Away	2.5%	52.5%	Number Harvested Per Capita	0.00	0.06

SEA LION HARVEST BY MONTH													Unknown	Total
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Month	Total
REPORTED HARVEST AND TAKE BY SAMPLED HOUSEHOLDS (UNEXPANDED)														
Harvest	1	0	0	0	0	0	0	0	0	0	0	0	0	1
Struck & Lost	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Take	1	0	0	0	0	0	0	0	0	0	0	0	0	1
ESTIMATED HARVEST AND TAKE BY COMMUNITY (EXPANDED)														
Harvest	1.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.6
Struck & Lost	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Take	1.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.6
ESTIMATED SEASONALLY ADJUSTED HARVEST AND TAKE BY COMMUNITY (EXPANDED)														
Harvest	1.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.6
Struck & Lost	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Take	1.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.6
Total Take (%)	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
Cum. Take	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	
Cum. Take (%)	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	

HARBOR SEAL HARVEST BY MONTH													Unknown	Total
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Month	Total
REPORTED HARVEST AND TAKE BY SAMPLED HOUSEHOLDS (UNEXPANDED)														
Harvest	0	6	3	1	1	0	1	0	5	5	0	0	0	22
Struck & Lost	0	0	0	0	0	0	0	1	0	0	0	0	0	1
Total Take	0	6	3	1	1	0	1	1	5	5	0	0	0	23
ESTIMATED HARVEST AND TAKE BY COMMUNITY (EXPANDED)														
Harvest	0.0	9.3	4.7	1.6	1.6	0.0	1.6	0.0	7.8	7.8	0.0	0.0	0.0	34.1
Struck & Lost	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.6	0.0	0.0	0.0	0.0	0.0	1.6
Total Take	0.0	9.3	4.7	1.6	1.6	0.0	1.6	1.6	7.8	7.8	0.0	0.0	0.0	35.7
ESTIMATED SEASONALLY ADJUSTED HARVEST AND TAKE BY COMMUNITY (EXPANDED)														
Harvest	0.0	9.3	4.7	1.6	1.6	0.0	1.6	0.0	7.8	7.8	0.0	0.0	0.0	34.1
Struck & Lost	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.6	0.0	0.0	0.0	0.0	0.0	1.6
Total Take	0.0	9.3	4.7	1.6	1.6	0.0	1.6	1.6	7.8	7.8	0.0	0.0	0.0	35.7
Total Take (%)	0.0%	26.1%	13.0%	4.3%	4.3%	0.0%	4.3%	4.3%	21.7%	21.7%	0.0%	0.0%	0.0%	100.0%
Cum. Take	0.0	9.3	14.0	15.5	17.1	17.1	18.6	20.2	27.9	35.7	35.7	35.7	35.7	
Cum. Take (%)	0.0%	26.1%	39.1%	43.5%	47.8%	47.8%	52.2%	56.5%	78.3%	100.0%	100.0%	100.0%	100.0%	

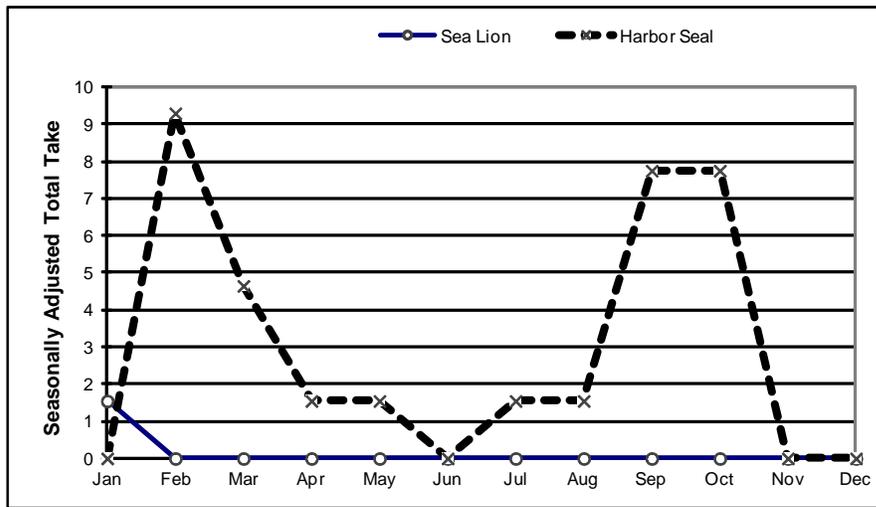
SOURCE: ANHSC Household Surveys, 2011.

Table C-4. (cont.) SEA LION & HARBOR SEAL HARVEST ESTIMATES: Kodiak City, 2011

HARVEST BY AGE AND SEX

	Sea Lion				Harbor Seal			
	Reported by		Community Est.		Reported by		Community Est.	
	Sample		(Expanded)		Sample		(Expanded)	
	Number	%	Number	%	Number	%	Number	%
Adult Male	1	100.0%	1.6	100.0%	13	59.1%	20.2	59.1%
Adult Female	0	0.0%	0.0	0.0%	2	9.1%	3.1	9.1%
Adult Unknown Sex	0	0.0%	0.0	0.0%	6	27.3%	9.3	27.3%
Juvenile Male	0	0.0%	0.0	0.0%	1	4.5%	1.6	4.5%
Juvenile Female	0	0.0%	0.0	0.0%	0	0.0%	0.0	0.0%
Juvenile Unknown Sex	0	0.0%	0.0	0.0%	0	0.0%	0.0	0.0%
Pup Male	0	0.0%	0.0	0.0%	0	0.0%	0.0	0.0%
Pup Female	0	0.0%	0.0	0.0%	0	0.0%	0.0	0.0%
Pup Unknown Sex	0	0.0%	0.0	0.0%	0	0.0%	0.0	0.0%
Male Unknown Age	0	0.0%	0.0	0.0%	0	0.0%	0.0	0.0%
Female Unknown Age	0	0.0%	0.0	0.0%	0	0.0%	0.0	0.0%
Unknown Sex and Age	0	0.0%	0.0	0.0%	0	0.0%	0.0	0.0%
Total	1	100.0%	1.6	100.0%	22	100.0%	34.1	100.0%

SEASONALLY ADJUSTED TAKE BY MONTH, SEA LION AND HARBOR SEAL



ESTIMATED COMMUNITY HARVEST, STRUCK AND LOST, AND TAKE BY YEAR

SEA LION				HARBOR SEAL			
Year	Harvest	Struck/ Lost	Total Take	Year	Harvest	Struck/ Lost	Total Take
1992	0.0	0.0	0.0	1992	36.9	0.0	36.9
1993	0.0	12.7	12.7	1993	6.0	1.0	7.0
1994	1.1	0.0	1.1	1994	7.6	0.0	7.6
1995	2.2	0.0	2.2	1995	8.8	0.0	8.8
1996	3.0	0.0	3.0	1996	9.0	0.0	9.0
1997	3.0	0.0	3.0	1997	13.0	0.0	13.0
1998	0.0	1.0	1.0	1998	11.0	0.0	11.0
2000	2.4	0.0	2.4	2000	21.6	4.8	26.4
2001	2.5	0.0	2.5	2001	17.5	0.0	17.5
2002	2.5	0.0	2.5	2002	17.5	0.0	17.5
2003	0.0	0.0	0.0	2003	32.0	6.0	38.0
2004	0.0	0.0	0.0	2004	21.0	4.5	25.5
2005	0.0	0.0	0.0	2005	10.8	0.0	10.8
2006	0.0	0.0	0.0	2006	10.8	0.0	10.8
2007	0.0	0.0	0.0	2007	21.3	2.2	23.6
2008	0.0	0.0	0.0	2008	62.6	8.6	71.3
2011	1.6	0.0	1.6	2011	34.1	1.6	35.7

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys 1992-1998; ANHSC Household Surveys, 2000-2011.

Table C-5. SEA LION AND HARBOR SEAL HARVEST AND TAKE ESTIMATES: Larsen Bay, 2011

SAMPLING DESIGN:

CENSUS	Total Native Households	33
	Surveyed Households	26
	Sampling Fraction	78.8%
	Sample Household Members	67
	Estimated Household Members	84.5
	2010 U.S. Census Estimated Native Population	62

HARVEST AND USE INFORMATION

<i>Percentage of Native Households:</i>			<i>Estimated Community Harvest and Take (Expanded):</i>		
	Sea Lion	Harbor Seal		Sea Lion	Harbor Seal
Used	0.0%	34.6%	Total Number Harvested	0.0	10.2
Hunted	0.0%	26.9%	Total Number Struck and Lost	0.0	1.3
Harvested	0.0%	23.1%	Total Number Taken	0.0	11.4
Received	0.0%	19.2%			
Gave Away	0.0%	26.9%	Number Harvested Per Capita	0.00	0.16

SEA LION HARVEST BY MONTH													Unknown	Total
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Month	
REPORTED HARVEST AND TAKE BY SAMPLED HOUSEHOLDS (UNEXPANDED)														
Harvest	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Struck & Lost	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Take	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ESTIMATED HARVEST AND TAKE BY COMMUNITY (EXPANDED)														
Harvest	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Struck & Lost	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Take	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ESTIMATED SEASONALLY ADJUSTED HARVEST AND TAKE BY COMMUNITY (EXPANDED)														
Harvest	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Struck & Lost	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Take	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Take (%)	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Cum. Take	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cum. Take (%)	---	---	---	---	---	---	---	---	---	---	---	---	---	---

HARBOR SEAL HARVEST BY MONTH													Unknown	Total
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Month	
REPORTED HARVEST AND TAKE BY SAMPLED HOUSEHOLDS (UNEXPANDED)														
Harvest	1	1	0	0	0	0	1	0	2	0	3	0	0	8
Struck & Lost	1	0	0	0	0	0	0	0	0	0	0	0	0	1
Total Take	2	1	0	0	0	0	1	0	2	0	3	0	0	9
ESTIMATED HARVEST AND TAKE BY COMMUNITY (EXPANDED)														
Harvest	1.3	1.3	0.0	0.0	0.0	0.0	1.3	0.0	2.5	0.0	3.8	0.0	0.0	10.2
Struck & Lost	1.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.3
Total Take	2.5	1.3	0.0	0.0	0.0	0.0	1.3	0.0	2.5	0.0	3.8	0.0	0.0	11.4
ESTIMATED SEASONALLY ADJUSTED HARVEST AND TAKE BY COMMUNITY (EXPANDED)														
Harvest	1.3	1.3	0.0	0.0	0.0	0.0	1.3	0.0	2.5	0.0	3.8	0.0	0.0	10.2
Struck & Lost	1.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.3
Total Take	2.5	1.3	0.0	0.0	0.0	0.0	1.3	0.0	2.5	0.0	3.8	0.0	0.0	11.4
Total Take (%)	22.2%	11.1%	0.0%	0.0%	0.0%	0.0%	11.1%	0.0%	22.2%	0.0%	33.3%	0.0%	0.0%	100.0%
Cum. Take	2.5	3.8	3.8	3.8	3.8	3.8	5.1	5.1	7.6	7.6	11.4	11.4	11.4	11.4
Cum. Take (%)	22.2%	33.3%	33.3%	33.3%	33.3%	33.3%	44.4%	44.4%	66.7%	66.7%	100.0%	100.0%	100.0%	100.0%

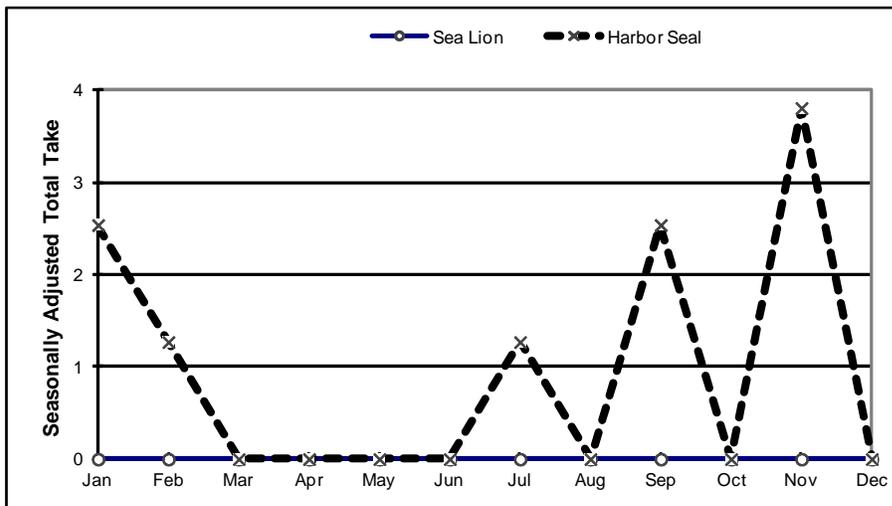
SOURCE: ANHSC Household Surveys, 2011.

Table C-5. (cont.) SEA LION & HARBOR SEAL HARVEST ESTIMATES: Larsen Bay, 2011

HARVEST BY AGE AND SEX

	Sea Lion				Harbor Seal			
	Reported by Sample		Community Est. (Expanded)		Reported by Sample		Community Est. (Expanded)	
	Number	%	Number	%	Number	%	Number	%
Adult Male	0	---	0.0	---	5	62.5%	6.3	62.5%
Adult Female	0	---	0.0	---	2	25.0%	2.5	25.0%
Adult Unknown Sex	0	---	0.0	---	1	12.5%	1.3	12.5%
Juvenile Male	0	---	0.0	---	0	0.0%	0.0	0.0%
Juvenile Female	0	---	0.0	---	0	0.0%	0.0	0.0%
Juvenile Unknown Sex	0	---	0.0	---	0	0.0%	0.0	0.0%
Pup Male	0	---	0.0	---	0	0.0%	0.0	0.0%
Pup Female	0	---	0.0	---	0	0.0%	0.0	0.0%
Pup Unknown Sex	0	---	0.0	---	0	0.0%	0.0	0.0%
Male Unknown Age	0	---	0.0	---	0	0.0%	0.0	0.0%
Female Unknown Age	0	---	0.0	---	0	0.0%	0.0	0.0%
Unknown Sex and Age	0	---	0.0	---	0	0.0%	0.0	0.0%
Total	0	---	0.0	---	8	100.0%	10.2	100.0%

SEASONALLY ADJUSTED TAKE BY MONTH, SEA LION AND HARBOR SEAL



ESTIMATED COMMUNITY HARVEST, STRUCK AND LOST, AND TAKE BY YEAR

SEA LION				HARBOR SEAL			
Year	Harvest	Struck/ Lost	Total Take	Year	Harvest	Struck/ Lost	Total Take
1992	1.1	0.0	1.1	1992	6.5	0.0	6.5
1993	0.0	0.0	0.0	1993	7.7	5.5	13.2
1994	2.2	0.0	2.2	1994	13.4	2.2	15.7
1995	2.0	1.0	3.0	1995	11.0	0.0	11.0
1996	0.0	0.0	0.0	1996	15.0	0.0	15.0
1997	0.0	0.0	0.0	1997	9.8	4.2	13.9
1998	0.0	0.0	0.0	1998	1.7	0.0	1.7
2000	0.0	0.0	0.0	2000	18.6	0.0	18.6
2001	0.0	0.0	0.0	2001	9.0	1.1	10.2
2002	0.0	0.0	0.0	2002	3.3	0.0	3.3
2003	0.0	0.0	0.0	2003	2.5	0.0	2.5
2004	0.0	0.0	0.0	2004	12.5	0.0	12.5
2005	0.0	0.0	0.0	2005	17.0	0.0	17.0
2006	0.0	0.0	0.0	2006	20.3	0.0	20.3
2007	0.0	0.0	0.0	2007	8.6	0.0	8.6
2008	0.0	0.0	0.0	2008	5.2	0.0	5.2
2011	0.0	0.0	0.0	2011	10.2	1.3	11.4

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys 1992-1998; ANHSC Household Surveys, 2000-2011.

Table C-6. SEA LION AND HARBOR SEAL HARVEST AND TAKE ESTIMATES: Old Harbor, 2011

SAMPLING DESIGN:

CENSUS	Total Native Households	65
	Surveyed Households	60
	Sampling Fraction	92.3%
	Sample Household Members	156
	Estimated Household Members	169.0
	2010 U.S. Census Estimated Native Population	191

HARVEST AND USE INFORMATION

<i>Percentage of Sample Households:</i>			<i>Estimated Community Harvest and Take (Expanded):</i>		
	Sea Lion	Harbor Seal		Sea Lion	Harbor Seal
Used	23.3%	65.0%	Total Number Harvested	11.9	40.1
Hunted	16.7%	38.3%	Total Number Struck and Lost	0.0	3.3
Harvested	16.7%	31.7%	Total Number Taken	11.9	43.3
Received	10.0%	48.3%			
Gave Away	18.3%	38.3%	Number Harvested Per Capita	0.06	0.21

SEA LION HARVEST BY MONTH

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Unknown Month	Total
REPORTED HARVEST AND TAKE BY SAMPLED HOUSEHOLDS (UNEXPANDED)														
Harvest	2	0	1	1	1	1	0	1	2	1	1	0	0	11
Struck & Lost	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Take	2	0	1	1	1	1	0	1	2	1	1	0	0	11
ESTIMATED HARVEST AND TAKE BY COMMUNITY (EXPANDED)														
Harvest	2.2	0.0	1.1	1.1	1.1	1.1	0.0	1.1	2.2	1.1	1.1	0.0	0.0	11.9
Struck & Lost	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Take	2.2	0.0	1.1	1.1	1.1	1.1	0.0	1.1	2.2	1.1	1.1	0.0	0.0	11.9
ESTIMATED SEASONALLY ADJUSTED HARVEST AND TAKE BY COMMUNITY (EXPANDED)														
Harvest	2.2	0.0	1.1	1.1	1.1	1.1	0.0	1.1	2.2	1.1	1.1	0.0		11.9
Struck & Lost	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0
Total Take	2.2	0.0	1.1	1.1	1.1	1.1	0.0	1.1	2.2	1.1	1.1	0.0		11.9
Total Take (%)	18.2%	0.0%	9.1%	9.1%	9.1%	9.1%	0.0%	9.1%	18.2%	9.1%	9.1%	0.0%		100.0%
Cum. Take	2.2	2.2	3.3	4.3	5.4	6.5	6.5	7.6	9.8	10.8	11.9	11.9		
Cum. Take (%)	18.2%	18.2%	27.3%	36.4%	45.5%	54.5%	54.5%	63.6%	81.8%	90.9%	100.0%	100.0%		

HARBOR SEAL HARVEST BY MONTH

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Unknown Month	Total
REPORTED HARVEST AND TAKE BY SAMPLED HOUSEHOLDS (UNEXPANDED)														
Harvest	5	4	1	4	2	0	2	6	4	6	1	2	0	37
Struck & Lost	1	0	0	0	0	0	1	0	1	0	0	0	0	3
Total Take	6	4	1	4	2	0	3	6	5	6	1	2	0	40
ESTIMATED HARVEST AND TAKE BY COMMUNITY (EXPANDED)														
Harvest	5.4	4.3	1.1	4.3	2.2	0.0	2.2	6.5	4.3	6.5	1.1	2.2	0.0	40.1
Struck & Lost	1.1	0.0	0.0	0.0	0.0	0.0	1.1	0.0	1.1	0.0	0.0	0.0	0.0	3.3
Total Take	6.5	4.3	1.1	4.3	2.2	0.0	3.3	6.5	5.4	6.5	1.1	2.2	0.0	43.3
ESTIMATED SEASONALLY ADJUSTED HARVEST AND TAKE BY COMMUNITY (EXPANDED)														
Harvest	5.4	4.3	1.1	4.3	2.2	0.0	2.2	6.5	4.3	6.5	1.1	2.2		40.1
Struck & Lost	1.1	0.0	0.0	0.0	0.0	0.0	1.1	0.0	1.1	0.0	0.0	0.0		3.3
Total Take	6.5	4.3	1.1	4.3	2.2	0.0	3.3	6.5	5.4	6.5	1.1	2.2		43.3
Total Take (%)	15.0%	10.0%	2.5%	10.0%	5.0%	0.0%	7.5%	15.0%	12.5%	15.0%	2.5%	5.0%		100.0%
Cum. Take	6.5	10.8	11.9	16.3	18.4	18.4	21.7	28.2	33.6	40.1	41.2	43.3		
Cum. Take (%)	15.0%	25.0%	27.5%	37.5%	42.5%	42.5%	50.0%	65.0%	77.5%	92.5%	95.0%	100.0%		

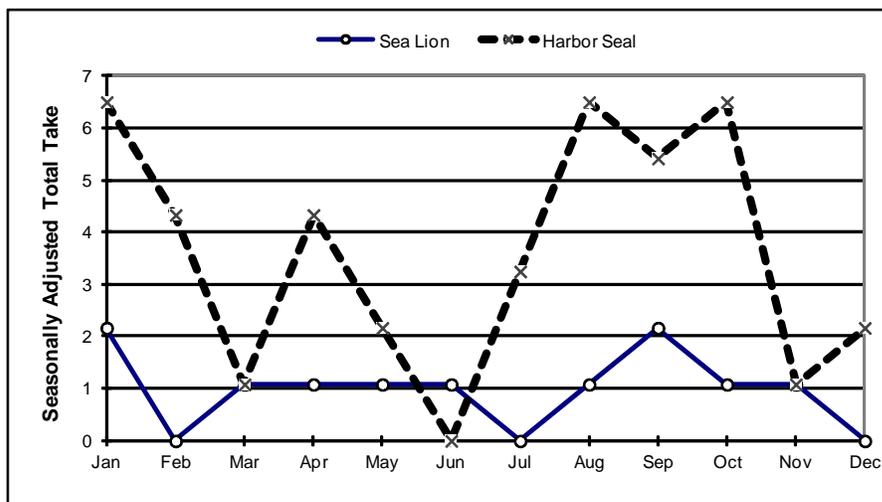
SOURCE: ANHSC Household Surveys, 2011.

Table C-6. (cont.) SEA LION & HARBOR SEAL HARVEST ESTIMATES: Old Harbor, 2011

HARVEST BY AGE AND SEX

	Sea Lion				Harbor Seal			
	Reported by Sample		Community Est. (Expanded)		Reported by Sample		Community Est. (Expanded)	
	Number	%	Number	%	Number	%	Number	%
Adult Male	4	36.4%	4.3	36.4%	23	62.2%	24.9	62.2%
Adult Female	5	45.5%	5.4	45.5%	8	21.6%	8.7	21.6%
Adult Unknown Sex	0	0.0%	0.0	0.0%	2	5.4%	2.2	5.4%
Juvenile Male	0	0.0%	0.0	0.0%	2	5.4%	2.2	5.4%
Juvenile Female	0	0.0%	0.0	0.0%	0	0.0%	0.0	0.0%
Juvenile Unknown Sex	0	0.0%	0.0	0.0%	0	0.0%	0.0	0.0%
Pup Male	0	0.0%	0.0	0.0%	0	0.0%	0.0	0.0%
Pup Female	0	0.0%	0.0	0.0%	0	0.0%	0.0	0.0%
Pup Unknown Sex	0	0.0%	0.0	0.0%	0	0.0%	0.0	0.0%
Male Unknown Age	0	0.0%	0.0	0.0%	0	0.0%	0.0	0.0%
Female Unknown Age	0	0.0%	0.0	0.0%	0	0.0%	0.0	0.0%
Unknown Sex and Age	2	18.2%	2.2	18.2%	2	5.4%	2.2	5.4%
Total	11	100.0%	11.9	100.0%	37	100.0%	40.1	100.0%

SEASONALLY ADJUSTED TAKE BY MONTH, SEA LION AND HARBOR SEAL



ESTIMATED COMMUNITY HARVEST, STRUCK AND LOST, AND TAKE BY YEAR

SEA LION				HARBOR SEAL			
Year	Harvest	Struck/ Lost	Total Take	Year	Harvest	Struck/ Lost	Total Take
1992	32.9	13.2	46.1	1992	86.8	5.3	92.1
1993	32.1	1.0	33.2	1993	67.6	2.7	70.3
1994	46.2	1.3	47.5	1994	83.7	1.3	85.0
1995	107.1	5.7	112.9	1995	112.0	2.4	114.4
1996	44.9	5.3	50.2	1996	113.5	1.3	114.8
1997	22.7	3.6	26.3	1997	80.0	4.8	84.8
1998	10.3	2.3	12.6	1998	55.1	1.1	56.2
2000	12.9	0.0	12.9	2000	59.1	0.0	59.1
2001	26.3	2.2	28.5	2001	71.3	0.0	71.3
2002	8.5	0.0	8.5	2002	40.5	0.0	40.5
2003	27.6	4.4	31.9	2003	66.7	2.9	69.6
2004	8.3	3.5	11.8	2004	37.8	5.9	43.7
2005	18.2	3.2	21.4	2005	37.5	1.1	38.6
2006	1.1	0.0	1.1	2006	20.2	0.0	20.2
2007	7.0	3.5	10.5	2007	35.2	3.5	38.7
2008	7.0	3.5	10.5	2008	35.2	3.5	38.7
2011	11.9	0.0	11.9	2011	40.1	3.3	43.3

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys 1992-1998; ANHSC Household Surveys, 2000-2011.

Table C-7. SEA LION AND HARBOR SEAL HARVEST AND TAKE ESTIMATES: Ouzinkie, 2011

SAMPLING DESIGN:

CHAIN REFERRAL	Total Native Households	37
	Surveyed Households	33
	Sampling Fraction	89.2%
	Sample Household Members	113
	Estimated Household Members	126.7
	2010 U.S. Census Estimated Native Population	128

HARVEST AND USE INFORMATION

<i>Percentage of Sample Households:</i>			<i>Estimated Community Harvest and Take (Expanded):</i>		
	Sea	Harbor		Sea	Harbor
	<u>Lion</u>	<u>Seal</u>		<u>Lion</u>	<u>Seal</u>
Used	0.0%	100.0%	Total Number Harvested	0.0	20.2
Hunted	0.0%	60.6%	Total Number Struck and Lost	0.0	0.0
Harvested	0.0%	39.4%	Total Number Taken	0.0	20.2
Received	0.0%	72.7%			
Gave Away	0.0%	54.5%	Number Harvested Per Capita	0.00	0.16

SEA LION HARVEST BY MONTH													Unknown	
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Month	Total
REPORTED HARVEST AND TAKE BY SAMPLED HOUSEHOLDS (UNEXPANDED)														
Harvest	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Struck & Lost	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Take	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ESTIMATED HARVEST AND TAKE BY COMMUNITY (EXPANDED)														
Harvest	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Struck & Lost	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Take	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ESTIMATED SEASONALLY ADJUSTED HARVEST AND TAKE BY COMMUNITY (EXPANDED)														
Harvest	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0
Struck & Lost	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0
Total Take	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0
Total Take (%)	---	---	---	---	---	---	---	---	---	---	---	---		---
Cum. Take	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Cum. Take (%)	---	---	---	---	---	---	---	---	---	---	---	---		

HARBOR SEAL HARVEST BY MONTH													Unknown	
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Month	Total
REPORTED HARVEST AND TAKE BY SAMPLED HOUSEHOLDS (UNEXPANDED)														
Harvest	0	4	1	1	2	1	1	2	2	4	0	0	0	18
Struck & Lost	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Take	0	4	1	1	2	1	1	2	2	4	0	0	0	18
ESTIMATED HARVEST AND TAKE BY COMMUNITY (EXPANDED)														
Harvest	0.0	4.5	1.1	1.1	2.2	1.1	1.1	2.2	2.2	4.5	0.0	0.0	0.0	20.2
Struck & Lost	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Take	0.0	4.5	1.1	1.1	2.2	1.1	1.1	2.2	2.2	4.5	0.0	0.0	0.0	20.2
ESTIMATED SEASONALLY ADJUSTED HARVEST AND TAKE BY COMMUNITY (EXPANDED)														
Harvest	0.0	4.5	1.1	1.1	2.2	1.1	1.1	2.2	2.2	4.5	0.0	0.0		20.2
Struck & Lost	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0
Total Take	0.0	4.5	1.1	1.1	2.2	1.1	1.1	2.2	2.2	4.5	0.0	0.0		20.2
Total Take (%)	0.0%	22.2%	5.6%	5.6%	11.1%	5.6%	5.6%	11.1%	11.1%	22.2%	0.0%	0.0%		100.0%
Cum. Take	0.0	4.5	5.6	6.7	9.0	10.1	11.2	13.5	15.7	20.2	20.2	20.2		
Cum. Take (%)	0.0%	22.2%	27.8%	33.3%	44.4%	50.0%	55.6%	66.7%	77.8%	100.0%	100.0%	100.0%		

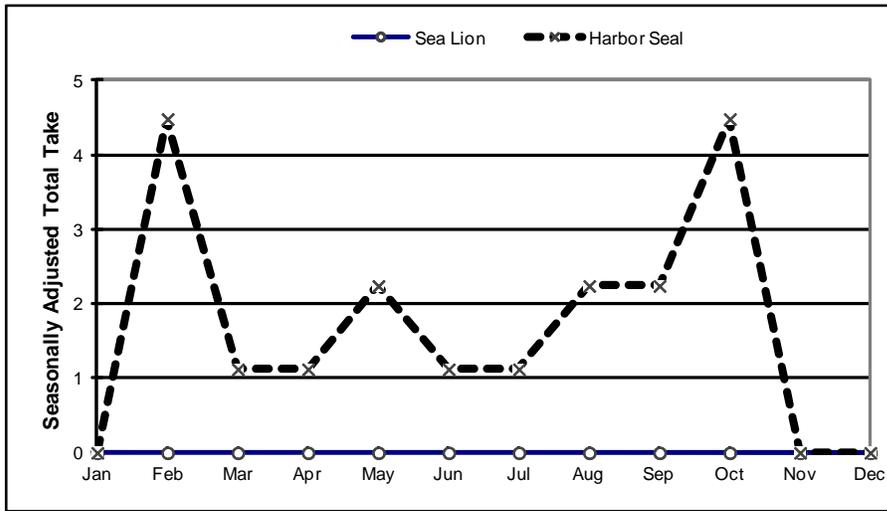
SOURCE: ANHSC Household Surveys, 2011.

Table C-7. (cont.) SEA LION & HARBOR SEAL HARVEST ESTIMATES: Ouzinkie, 2011

HARVEST BY AGE AND SEX

	Sea Lion				Harbor Seal			
	Reported by Sample		Community Est. (Expanded)		Reported by Sample		Community Est. (Expanded)	
	Number	%	Number	%	Number	%	Number	%
Adult Male	0	---	0.0	---	13	72.2%	14.6	72.2%
Adult Female	0	---	0.0	---	0	0.0%	0.0	0.0%
Adult Unknown Sex	0	---	0.0	---	0	0.0%	0.0	0.0%
Juvenile Male	0	---	0.0	---	5	27.8%	5.6	27.8%
Juvenile Female	0	---	0.0	---	0	0.0%	0.0	0.0%
Juvenile Unknown Sex	0	---	0.0	---	0	0.0%	0.0	0.0%
Pup Male	0	---	0.0	---	0	0.0%	0.0	0.0%
Pup Female	0	---	0.0	---	0	0.0%	0.0	0.0%
Pup Unknown Sex	0	---	0.0	---	0	0.0%	0.0	0.0%
Male Unknown Age	0	---	0.0	---	0	0.0%	0.0	0.0%
Female Unknown Age	0	---	0.0	---	0	0.0%	0.0	0.0%
Unknown Sex and Age	0	---	0.0	---	0	0.0%	0.0	0.0%
Total	0	---	0.0	---	18	100.0%	20.2	100.0%

SEASONALLY ADJUSTED TAKE BY MONTH, SEA LION AND HARBOR SEAL



ESTIMATED COMMUNITY HARVEST, STRUCK AND LOST, AND TAKE BY YEAR

SEA LION				HARBOR SEAL			
Year	Harvest	Lost	Take	Year	Harvest	Lost	Take
1992	3.4	0.0	3.4	1992	21.8	1.1	23.0
1993	5.4	2.2	7.6	1993	41.2	8.7	49.8
1994	4.4	2.9	7.3	1994	33.4	0.0	33.4
1995	15.6	0.0	15.6	1995	56.1	0.0	56.1
1996	0.0	0.0	0.0	1996	16.7	2.6	19.3
1997	0.0	0.0	0.0	1997	55.2	9.4	64.6
1998	0.0	0.0	0.0	1998	82.0	2.5	84.5
2000	0.0	0.0	0.0	2000	43.0	1.0	44.0
2001	2.6	0.0	2.6	2001	33.4	2.6	36.0
2002	5.1	0.0	5.1	2002	63.4	10.2	73.6
2003	0.0	0.0	0.0	2003	48.8	4.1	52.8
2004	2.6	0.0	2.6	2004	73.0	3.9	76.9
2005	0.0	0.0	0.0	2005	136.6	9.5	146.1
2006	0.0	0.0	0.0	2006	49.0	9.1	58.1
2007	2.1	0.0	2.1	2007	49.5	0.0	49.5
2008	0.0	0.0	0.0	2008	32.1	3.1	35.2
2011	0.0	0.0	0.0	2011	20.2	0.0	20.2

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys 1992-1998; ANHSC Household Surveys, 2000-2011.

Table C-8. SEA LION AND HARBOR SEAL HARVEST AND TAKE ESTIMATES: Port Lions, 2011

SAMPLING DESIGN:

CHAIN REFERRAL	Total Referred Households	45
	Surveyed Households	36
	Sampling Fraction	80.0%
	Sample Household Members	97
	Estimated Household Members	121.3
	2010 U.S. Census Estimated Native Population	114

HARVEST AND USE INFORMATION

<i>Percentage of Sample Households:</i>			<i>Estimated Community Harvest and Take (Expanded):</i>		
	Sea	Harbor		Sea	Harbor
	<u>Lion</u>	<u>Seal</u>		<u>Lion</u>	<u>Seal</u>
Used	0.0%	16.7%	Total Number Harvested	0.0	5.0
Hunted	0.0%	11.1%	Total Number Struck and Lost	0.0	1.3
Harvested	0.0%	8.3%	Total Number Taken	0.0	6.3
Received	0.0%	8.3%			
Gave Away	0.0%	11.1%	Number Harvested Per Capita	0.00	0.04

SEA LION HARVEST BY MONTH													Unknown	Total
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Month	Total
REPORTED HARVEST AND TAKE BY SAMPLED HOUSEHOLDS (UNEXPANDED)														
Harvest	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Struck & Lost	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Take	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ESTIMATED HARVEST AND TAKE BY COMMUNITY (EXPANDED)														
Harvest	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Struck & Lost	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Take	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ESTIMATED SEASONALLY ADJUSTED HARVEST AND TAKE BY COMMUNITY (EXPANDED)														
Harvest	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Struck & Lost	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Take	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Take (%)	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Cum. Take	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cum. Take (%)	---	---	---	---	---	---	---	---	---	---	---	---	---	---

HARBOR SEAL HARVEST BY MONTH													Unknown	Total
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Month	Total
REPORTED HARVEST AND TAKE BY SAMPLED HOUSEHOLDS (UNEXPANDED)														
Harvest	1	0	0	0	0	0	0	0	1	2	0	0	0	4
Struck & Lost	0	0	0	0	0	0	0	1	0	0	0	0	0	1
Total Take	1	0	0	0	0	0	0	1	1	2	0	0	0	5
ESTIMATED HARVEST AND TAKE BY COMMUNITY (EXPANDED)														
Harvest	1.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.3	2.5	0.0	0.0	0.0	5.0
Struck & Lost	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0	0.0	0.0	0.0	0.0	1.3
Total Take	1.3	0.0	0.0	0.0	0.0	0.0	0.0	1.3	1.3	2.5	0.0	0.0	0.0	6.3
ESTIMATED SEASONALLY ADJUSTED HARVEST AND TAKE BY COMMUNITY (EXPANDED)														
Harvest	1.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.3	2.5	0.0	0.0	0.0	5.0
Struck & Lost	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0	0.0	0.0	0.0	0.0	1.3
Total Take	1.3	0.0	0.0	0.0	0.0	0.0	0.0	1.3	1.3	2.5	0.0	0.0	0.0	6.3
Total Take (%)	20.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	20.0%	20.0%	40.0%	0.0%	0.0%	0.0%	100.0%
Cum. Take	1.3	1.3	1.3	1.3	1.3	1.3	1.3	2.5	3.8	6.3	6.3	6.3	6.3	6.3
Cum. Take (%)	20.0%	20.0%	20.0%	20.0%	20.0%	20.0%	20.0%	40.0%	60.0%	100.0%	100.0%	100.0%	100.0%	100.0%

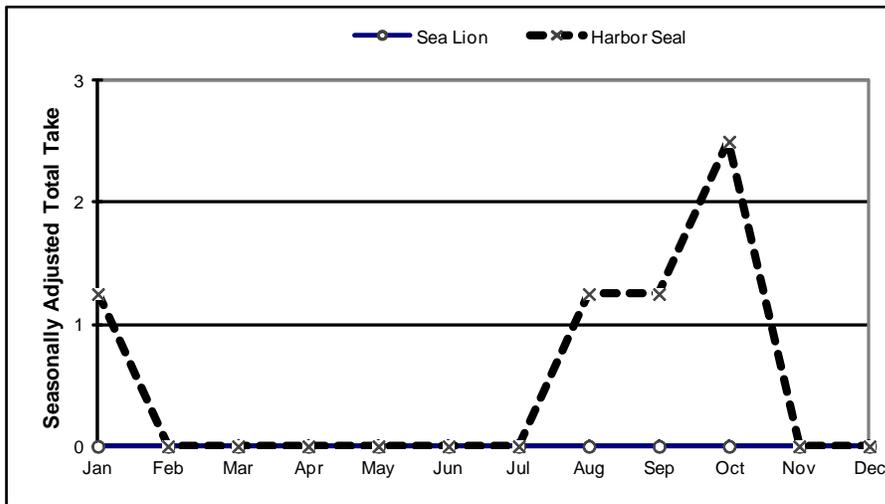
SOURCE: ANHSC Household Surveys, 2011.

Table C-8. (cont.) SEA LION & HARBOR SEAL HARVEST ESTIMATES: Port Lions, 2011

HARVEST BY AGE AND SEX

	Sea Lion				Harbor Seal			
	Reported by Sample		Community Est. (Expanded)		Reported by Sample		Community Est. (Expanded)	
	Number	%	Number	%	Number	%	Number	%
Adult Male	0	---	0.0	---	2	50.0%	2.5	50.0%
Adult Female	0	---	0.0	---	0	0.0%	0.0	0.0%
Adult Unknown Sex	0	---	0.0	---	0	0.0%	0.0	0.0%
Juvenile Male	0	---	0.0	---	1	25.0%	1.3	25.0%
Juvenile Female	0	---	0.0	---	1	25.0%	1.3	25.0%
Juvenile Unknown Sex	0	---	0.0	---	0	0.0%	0.0	0.0%
Pup Male	0	---	0.0	---	0	0.0%	0.0	0.0%
Pup Female	0	---	0.0	---	0	0.0%	0.0	0.0%
Pup Unknown Sex	0	---	0.0	---	0	0.0%	0.0	0.0%
Male Unknown Age	0	---	0.0	---	0	0.0%	0.0	0.0%
Female Unknown Age	0	---	0.0	---	0	0.0%	0.0	0.0%
Unknown Sex and Age	0	---	0.0	---	0	0.0%	0.0	0.0%
Total	0	---	0.0	---	4	100.0%	5.0	100.0%

SEASONALLY ADJUSTED TAKE BY MONTH, SEA LION AND HARBOR SEAL



ESTIMATED COMMUNITY HARVEST, STRUCK AND LOST, AND TAKE BY YEAR

SEA LION				HARBOR SEAL			
Year	Harvest	Struck/ Lost	Total Take	Year	Harvest	Struck/ Lost	Total Take
1992	1.1	2.2	3.3	1992	36.9	2.2	39.1
1993	4.0	1.0	5.0	1993	26.0	1.0	27.0
1994	0.0	0.0	0.0	1994	8.0	0.0	8.0
1995	0.0	0.0	0.0	1995	2.0	0.0	2.0
1996	0.0	0.0	0.0	1996	4.0	0.0	4.0
1997	1.0	0.0	1.0	1997	5.0	0.0	5.0
1998	1.0	0.0	1.0	1998	6.0	0.0	6.0
2000	0.0	0.0	0.0	2000	6.4	0.0	6.4
2001	0.0	0.0	0.0	2001	8.8	1.1	9.9
2002	0.0	0.0	0.0	2002	13.0	0.0	13.0
2003	0.0	0.0	0.0	2003	12.9	0.0	12.9
2004	1.2	0.0	1.2	2004	20.6	0.0	20.6
2005	3.7	0.0	3.7	2005	77.0	0.0	77.0
2006	3.7	0.0	3.7	2006	77.0	0.0	77.0
2007	3.7	0.0	3.7	2007	77.0	0.0	77.0
2008	3.0	0.0	3.0	2008	20.0	6.0	26.0
2011	0.0	0.0	0.0	2011	5.0	1.3	6.3

SOURCE: Alaska Department of Fish and Game, Division of Subsistence, Household Surveys 1992-1998; ANHSC Household Surveys, 2000-2011. No surveys were conducted in 2006 or 2007. Harvest estimates based on 2005 surveys.