

Alaska Subsistence Harvest of Birds and Eggs, 2017, Alaska Migratory Bird Co-Management Council

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December 2018

Alaska Department of Fish and Game
Division of Subsistence



Alaska Migratory Bird
Co-Management Council



Symbols and Abbreviations

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Weights and measures (metric)		General		Mathematics, statistics	
centimeter	cm	Alaska Administrative Code	AAC	<i>all standard mathematical signs, symbols and abbreviations</i>	
deciliter	dL	all commonly-accepted abbreviations	e.g., Mr., Mrs., AM, PM, etc.	alternate hypothesis	H _A
gram	g			base of natural logarithm	e
hectare	ha			catch per unit effort	CPUE
kilogram	kg	all commonly-accepted professional titles	e.g., Dr., Ph.D., R.N., etc.	coefficient of variation	CV
kilometer	km			confidence interval	CI
liter	L	at	@	correlation coefficient (multiple)	R
meter	m	compass directions:		correlation coefficient (simple)	r
milliliter	mL	east	E	covariance	cov
millimeter	mm	north	N	degree (angular)	°
		south	S	degrees of freedom	df
Weights and measures (English)		west	W	expected value	E
cubic feet per second	ft ³ /s	copyright	©	greater than	>
foot	ft	corporate suffixes:		greater than or equal to	≥
gallon	gal	Company	Co.	harvest per unit effort	HPUE
inch	in	Corporation	Corp.	less than	<
mile	mi	Incorporated	Inc.	less than or equal to	≤
nautical mile	nmi	Limited	Ltd.	logarithm (natural)	ln
ounce	oz	District of Columbia	D.C.	logarithm (base 10)	log
pound	lb	et alii (and others)	et al.	logarithm (specify base)	log ₂ , etc.
quart	qt	et cetera (and so forth)	etc.	minute (angular)	'
yard	yd	exempli gratia (for example)	e.g.	not significant	NS
		Federal Information Code	FIC	null hypothesis	H ₀
Time and temperature		id est (that is)	i.e.	percent	%
day	d	latitude or longitude	lat. or long.	probability	P
degrees Celsius	°C	monetary symbols (U.S.)	\$, ¢	probability of a type I error (rejection of the null hypothesis when true)	α
degrees Fahrenheit	°F	months (tables and figures)	first three letters (Jan.,...,Dec)	probability of a type II error (acceptance of the null hypothesis when false)	β
degrees kelvin	K	registered trademark	®	second (angular)	"
hour	h	trademark	™	standard deviation	SD
minute	min	United States (adjective)	U.S.	standard error	SE
second	s	United States of America (noun)	USA	variance	
		U.S.C.	United States Code	population	Var
Physics and chemistry		U.S. state	two-letter abbreviations (e.g., AK, WA)	sample	var
<i>all atomic symbols</i>					
alternating current	AC	Measures (fisheries)			
ampere	A	fork length	FL		
calorie	cal	mideye-to-fork	MEF		
direct current	DC	mideye-to-tail-fork	METF		
hertz	Hz	standard length	SL		
horsepower	hp	total length	TL		
hydrogen ion activity (negative log of)	pH				
parts per million	ppm				
parts per thousand	ppt, ‰				
volts	V				
watts	W				

TECHNICAL PAPER NO. 443

**ALASKA SUBSISTENCE HARVEST OF BIRDS AND EGGS, 2017,
ALASKA MIGRATORY BIRD CO-MANAGEMENT COUNCIL**

by

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On the front cover, this year we honor John Active (1948–2018), Yup'ik traditional storyteller, culture bearer, and Alaska Native media pioneer. Beginning in the 1970s, John produced diverse radio and video programs to entertain and inform the Yukon-Kuskokwim Delta, Alaska, and beyond. He also generously shared his deep knowledge of the Yup'ik language and culture in a multitude of other endeavors. Birds often featured in the traditional stories told by John: raven, crane, and goose spoke as time slowed down. *Quyana cakneq*, John.

Cover photo by Lili Naves, Bethel, December 2017.

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ABSTRACT

This report presents subsistence harvest estimates of birds and their eggs in Alaska for the data year 2017. Data were collected through the Harvest Assessment Program of the Alaska Migratory Bird Co-Management Council. This program relies on collaboration among the U.S. Fish and Wildlife Service, the Alaska Department of Fish and Game, and regional and local Alaska Native organizations. Information obtained by this program is used to inform subsistence harvest regulations, to document customary and traditional uses of migratory birds in Alaska, and to support sustainable harvest opportunities and conservation of birds. Participation by communities and households in the harvest survey is voluntary. In 2017, the survey covered 5 migratory bird management regions: Bristol Bay, Yukon-Kuskokwim Delta, Bering Strait-Norton Sound, North Slope, and Interior Alaska. These regions represent more than 90% of the total subsistence bird harvest in Alaska and are used as an index to the Alaska-wide harvest. The sampling design treats regions as strata and uses two-stage sampling in each region. Within regions, communities are selected by systematic random sampling. Within communities, households are selected by simple random sampling. Harvest reported by surveyed communities is extrapolated to nonsurveyed communities in the same region. Data are reported at the region and survey-wide levels. This report also includes harvest estimates for the Cordova spring bird and egg harvest in the Gulf of Alaska-Cook Inlet region, where a mail-out survey is administered to all households that register to participate in that harvest.

Key words: Alaska Migratory Bird Co-Management Council, AMBCC, migratory birds, migratory bird eggs, subsistence harvest, subsistence hunting, subsistence harvest estimates, ducks, geese, swans, cranes, ptarmigan, grouse, seabirds, shorebirds, grebes, loons

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Bristol Bay

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- Ivan Washington (Levelock)
- John O. Mark (Togiak NWR Refuge Information Technician; Platinum)
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- Rose Gosuk (South Naknek)
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- Alexie Flynn (Cheforak)
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- Joseph Post II (Tununak)
- Katie Tall (Chevak)
- Larry Lamont (Tuluksak)

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- Maryann Frank (Tuntutuliak)
- Wassilie Guy (Napaskiak)

Bering Strait-Norton Sound

- Arley Nanouk (Unalakleet)
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- Morgan Annogiuk (Savoonga)

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INTRODUCTION

In 1916, Canada and the United States ratified the Migratory Bird Treaty (the treaty) to protect migratory bird populations. Among other provisions, the treaty set an annual hunting closure between 10 March and 1 September. However, this provision failed to provide for the spring and summer harvest of migratory birds by northern peoples; this harvest has been historically necessary to their subsistence way of life. Despite the closure, customary and traditional bird hunting in spring and summer continued.

In 1997, the U.S. Congress ratified a treaty amendment recognizing traditional spring–summer subsistence bird harvest by northern peoples. The goal of the amendment was to promote conservation of migratory birds by including subsistence hunting in the regulatory process. The amendment authorized the U.S. Fish and Wildlife Service (USFWS) to open regulated spring–summer subsistence hunts of migratory birds in Alaska. The amendment also mandated that Alaska’s Native peoples have a meaningful role in harvest management. As a result of this direction, the Alaska Migratory Bird Co-Management Council (AMBCC) was formed in 2000. The AMBCC is composed of representatives from the USFWS, Alaska Department of Fish and Game (ADF&G), and regional Native entities (65 FR 16405–16409¹). The AMBCC identified the need for harvest assessment to document traditional uses of migratory birds and harvest amounts. Harvest assessment is also needed to meet the intentions of the amended treaty: (1) subsistence harvest should remain at traditional levels relative to bird population sizes; (2) subsistence harvest data should be integrated with flyway and national harvest management programs; and (3) regulatory processes for all migratory bird hunting should be inclusive of users and responsive to conservation needs. The first legal spring–summer subsistence hunting season was in 2003.

Subsistence bird and egg harvest assessment occurred annually in 1985–2002 in the Yukon-Kuskokwim Delta region (Y-K Delta) in the context of the Goose Management Plan (Copp 1985; Copp and Roy 1986; Wentworth 2007a; Zavaleta 1999). Surveys were also conducted in the Bristol Bay region every other year in 1995–2002 (Wentworth 2007b). These earlier surveys had an important role in refining survey methods, developing acceptance of harvest surveys in subsistence communities, engaging users in the management process, and together with the AMBCC survey (below), they provide a long-term dataset needed for understanding harvest patterns.

The AMBCC Harvest Assessment Program (AMBCC-HAP) was based on the Goose Management Plan surveys conducted in the Y-K Delta and Bristol Bay and expanded the geographic coverage of bird and egg harvest monitoring to other regions in Alaska (Reynolds 2007)². The AMBCC survey has been conducted annually since 2004 relying on collaboration among USFWS, ADF&G, and Alaska Native partners. The USFWS and the ADF&G have funded the AMBCC-HAP. The ADF&G Division of Subsistence currently coordinates the AMBCC-HAP on behalf of the AMBCC. Data collection is usually implemented by Native partners at the regional and local levels. Data collection in 2004–2009 followed methods described in Naves (2010rev.). In 2008–2009, the survey program underwent a first revision to streamline program structure and data collection, analysis, and reporting (Naves et al. 2008). Revised survey methods were implemented in 2010–2015 following methods described in Naves (2012). In 2014–2016, the survey program underwent a second revision, which addressed the distribution of sampling effort among regions and communities, and data analysis (George et al. 2015; Otis et al. 2016). In 2016, the survey piloted the newly revised sampling design (Naves and Otis 2017). Based on results of the 2016 survey, an optimal allocation analysis was used to adjust the sampling design used in the 2017 survey (Otis et al. 2017).

Information generated by the AMBCC-HAP is available to Alaska rural communities (or villages), Native organizations, state and federal resource management and conservation agencies, the Pacific Flyway Council, and the public. This report is the eleventh in a series presenting annual harvest estimates for birds and their eggs based on data collected by the AMBCC-HAP (Naves 2010rev., 2010, 2011, 2012, 2014a; Naves and Braem 2014; Naves 2015b, 2015c, 2016; Naves and Otis 2017). The AMBCC-HAP also conducts research, outreach, and education to address priority information needs and management issues (Naves and Zeller 2013; Naves 2014b; Rothe et al. 2015; Naves 2015a; Naves and Fall 2017; Naves and Zeller 2017; Naves 2018)³. Annual harvest reports, electronic data,

1. Federal Register Vol. 65, No. 60 (March 28, 2000) available online: <http://www.gpo.gov/fdsys/pkg/FR-2000-03-28/pdf/00-7550.pdf>.

2. See also AMBCC (Alaska Migratory Bird Co-Management Council). 2003. Recommendations for a statewide Alaska migratory bird subsistence harvest survey. Unpublished report by the Subsistence Harvest Survey Committee. U.S. Fish and Wildlife Service, Division of Migratory Bird Management, Anchorage.

3. See also Liliana C. Naves and Jacqueline M. Keating, 2018, Shorebird subsistence harvest and indigenous knowledge in Alaska, Alaska Department of Fish and Game Division of Subsistence, Anchorage, unpublished report.

program information, and other products are available at the webpage of the AMBCC-HAP⁴. Some uses of the data are:

- Document the importance of customary and traditional subsistence uses of migratory birds by Alaska communities so that these uses will be protected and conducted in a sustainable manner;
- Document subsistence harvest trends and track changes in harvest;
- Inform spring–summer migratory bird harvest regulations; and
- Assist in the development of management plans.

4. <http://www.adfg.alaska.gov/index.cfm?adfg=subsistence.AMBCC>

METHODS

ETHICAL STANDARDS

From the perspective of subsistence harvesters, harvest surveys collect information that commonly is private and sensitive. Subsistence bird harvest data are sensitive because spring and summer hunting was illegal until recently. Subsistence users fear that information provided in harvest surveys may be used to direct law enforcement efforts and to limit harvest practices that are essential for their diet and culture. To meet survey objectives, it is essential to develop and maintain trust and collaboration between subsistence users and resource management agencies. Community and household participation in the survey is voluntary. Community consent to conduct surveys is formally granted as tribal council resolutions, and ethical principles for social science research are closely observed (Arctic Research Consortium of the United States (ARCUS) 1999:55–59; Naves 2012:7)⁵. Data at the household level are considered confidential. AMBCC-HAP data are usually reported at the region levels, though specific data release agreements may allow data release at the community level (e.g., Naves and Zeller 2013; Naves 2014b, 2015c). Archived materials do not include household names or other personal information to maintain anonymity of household harvest reports (a numeric household identifier is used). Names on household lists are covered; lists not showing names are then scanned for digital archiving together with other survey materials. Preliminary harvest estimates are submitted to AMBCC partners for their review before being adopted. Information from the survey is not to be used for punitive law enforcement purposes, and there are no known instances when this may have happened since regular bird harvest surveys started in the 1980s.

FIVE-REGIONS SURVEY

Sampling Design

The revised sampling design was based on the objectives, priorities, and funding level for the survey program identified by AMBCC partners during the review process (George et al. 2015; Otis et al. 2016). Alaska-wide harvest estimates were considered the main priority, and region-level harvest estimates were considered a secondary priority. Because of challenges in accurately estimating harvest for rarely-harvested species, optimal allocation analyses to distribute sampling effort were based on past harvest estimates for commonly-harvested species ([George et al. 2015:69–70]; Table 1).

The sampling frame includes five regions, which together represent about 90% of the total subsistence bird harvest in Alaska: Yukon-Kuskokwim Delta, Bering Strait-Norton Sound, Interior Alaska, Bristol Bay, and North Slope (Appendix A). Harvest in these five regions serves as an index of the Alaska-wide harvest. The same regions are to be sampled each year (Otis et al. 2016). Harvest data for non-surveyed regions may be occasionally available depending on surveys conducted by other organizations, including Native organizations. The AMBCC-HAP can provide technical assistance in harvest data collection and analysis upon request. Also, depending on priorities, the AMBCC-HAP may conduct dedicated studies to address specific data needs in the nonsurveyed regions. These additional data will not be incorporated in the regular five regions' harvest estimates, but may be provided as separate reports.

The survey uses a stratified, two-stage sampling design. Regions are considered strata. Within each region, communities are first-stage sampling units and households are second-stage sampling units. The clustering of communities into subregions was eliminated because harvest estimates at the region and Alaska-wide levels were considered a priority during the survey revision, and providing accurate harvest estimates at the subregion level require increased sampling effort at increased survey cost (Naves 2012; George et al. 2015).

5. See also Alaska Federation of Natives. 2013. "Alaska Federation of Natives Guidelines for Research." Alaska Native Knowledge Network. Accessed February 25, 2014. <http://www.ankn.uaf.edu/IKS/afnguide.html>.

Table 1.–Commonly-harvested species used in analyses of survey performance.

Species	Scientific name
American widgeon ¹	<i>Anas americana</i>
Black brant ^{1, 2, 4}	<i>Branta bernicla</i>
Black scoter ^{1, 2, 4}	<i>Melanitta americana</i>
Cackling/Canada goose ¹	<i>Branta hutchinsi</i> and <i>B. canadensis</i>
Canvasback ²	<i>Aythya valisineria</i>
Common eider ^{3, 4}	<i>Somateria mollissima</i>
Greater white-fronted goose ¹	<i>Anser albifrons</i>
King eider ^{1, 4}	<i>Somateria spectabilis</i>
Long-tailed duck ²	<i>Clangula hyemalis</i>
Mallard ^{1, 2}	<i>Anas platyrhynchos</i>
Northern pintail ¹	<i>Anas acuta</i>
Greater/lesser scaup ¹	<i>Aythya marila</i> and <i>A. affinis</i>
Snow goose ¹	<i>Chen caerulescens</i>
Surf scoter ²	<i>Melanitta perspicillata</i>
White-winged scoter ¹	<i>Melanitta fusca</i>

Source: George et al. (2015:69–70)

- 1: Important subsistence resources; >2% of the total subsistence harvest of birds in Alaska, based on 2004–2008 AMBCC harvest estimates.
- 2: Large proportion (>5%) of Alaska breeding population is harvested by subsistence users.
- 3: Large proportion (>5%) of Alaska breeding population is harvested by subsistence users and harvest during fall and winter includes birds breeding outside of Alaska (mixed populations).
- 4: Species of conservation concern that are harvested in significant numbers.

For each region and year, a systematic random sample of communities is selected to be surveyed. With the objective of obtaining a geographically dispersed set of communities, in each region, communities were sequentially numbered following a geographic route (south to north, coastal to inland; figures 1–5). A starting-point community is randomly selected, which defines the other selected communities (e.g., every 4th community in the sequentially numbered route). Communities are selected randomly regardless of their total number of households. Based on results from the 2016 survey, an optimal allocation analysis was conducted to fine-tune the distribution of sampling effort among regions, i.e., the number of communities and households to be sampled in each region (Table 2) (Otis et al. 2017).

To increase accuracy of harvest estimates, in the 2017 survey, communities with more than 200 households were divided into parcels so that individual parcels had a maximum of 200 households (Otis et al. 2017). In the 2016 survey, large communities were divided into parcels of up to 300 households (Naves and Otis 2017). For purposes of sampling, each parcel was treated as an individual community. The number of parcels per community was based on the 2010 census; it is fixed across years and will be updated based on the 2020 census (Table 2). This approach was adopted to prevent excessive complexity on the annual selection of communities/parcels to be surveyed, because using annual population estimates to derive number of parcels per community could lead to variation in the number of parcels across years. Communities with fewer than 10 households in the 2010 census and in the 2011–2015 population estimates were excluded from the sampling frame (U.S. Census Bureau 2011; ADLWD n.d.) (Bristol Bay region: Ivanof Bay, Portage Creek, Ugashik, Pope Vannoy Landing; Interior Alaska region: Lake Minchumina, Coldfoot, Wiseman, Livengood, Chicken, Healy Lake).

Participation in the survey is voluntary at the community and household levels. For each survey year, if a selected community declines to participate or cannot be surveyed because of a major logistical constraint, an alternate community is selected. Following the geographic route established for the systematic random sampling of communities, the first alternate community is the one immediately before the originally selected community

(Figures 1–5). If a first-alternate community declines to participate or cannot be surveyed because of a major logistical constraint, the community immediately after the originally selected community is selected as the second alternate. Within communities, if a selected household declines to participate or cannot be contacted after three reasonable attempts (as described in Naves [2012]), an alternate household is randomly selected, and this process is repeated until the household sampling goal is met.

In the revised survey, harvest level stratification (harvester, non-harvester) is no longer used. This modification was made to simplify survey methods and because of challenges in reliably assigning households to strata, especially in larger communities. Within each selected community, households are selected by simple random sampling to be surveyed. For the 2017 survey, based on optimal allocation and discussion with AMBCC partners, 10 households were to be surveyed in each selected community, except that 19 households were to be surveyed per community in the Bering Strait-Norton Sound region and 30 households were to be surveyed per community in the North Slope region (Otis et al. 2017). The number of households surveyed per community is lower in the revised AMBCC survey than in other surveys conducted in Alaska because Alaska-wide estimates were defined as a priority during the AMBCC survey revision (George et al. 2015). This change generated concerns among some AMBCC partners because a reduced sample size within communities may incur the possibility of missing some high harvesters, which would in turn result in underestimated harvest at the community level. However, the intent of the survey is to reflect a large-scale perspective of the subsistence bird harvest. Harvest estimates are only produced at the region and survey-wide levels. Harvest estimates at the region level are based on the total number of households sampled in the region, and this larger sample size accurately represents the true proportion of harvesters and nonharvesters at the region level.

Table 2.—Distribution of sampling effort, 2017 survey.

Region	Total communities/parcels ¹	Communities/parcels to be surveyed	Households to be surveyed in each community/parcel	Total households to be surveyed
Bristol Bay	33	11	10	110
Yukon-Kuskokwim Delta	58	18	10	180
Bering Strait-Norton Sound	23	6	19	114
North Slope	14	5	30	150
Interior Alaska	43	10	10	100
Total	171	50		654

Source: Otis et al. (2017)

1: “Communities/parcels” refer to sampling units, accounting for (a) division of large communities into parcels and (b) communities with fewer than 10 households, which were excluded from the sampling frame. Total households per community based on 2010 census.

Dividing Large Communities into Parcels

For small communities, a list of households based on family names is compiled by a person who knows the community. People move between communities and households within communities, thus household lists need to be frequently updated. For large communities, it is impractical to keep updated lists of all households based on family names, and instead, surveys use lists of physical addresses. Lists of addresses may be obtained from the planning department, electrical company, emergency services, or other service entities in a community. Lists of addresses may identify individual units in multi-unit buildings (apartment buildings, duplexes, etc.). The ability to distinguish between residential and non-residential addresses depends on the source of information.

For each community, all addresses identified as residential were considered for household selection. Addresses identified as non-residential were excluded from the selection. Using the software Microsoft Excel⁶, a formula assigned a random number to each address. The lists were sorted from the smallest to the largest random number

6. Product names are given because they are established standards for the State of Alaska or for scientific completeness: they do not constitute product endorsement.

and divided into sequential parts according to the number of parcels defined for each community. Thus, parcels were composed of a random set of addresses within a community. This process ensures that parcels are not biased by potential demographic characteristics of neighborhoods, such as ethnicity or age classes.

For household selection within each parcel, addresses were again sorted based on a randomly assigned number. The top-listed addresses were selected to be surveyed as the original sample. Additional addresses were pre-selected as potential alternates to replace addresses of the original sample that were non-residential, non-occupied, could not be contacted, or declined to participate in the survey. Alternate addresses were used as needed following the random order in which they were listed.

Utqiagvik—A list of residential addresses and a set of plat maps were obtained from the Planning Department of the North Slope Borough. A set of aerial photographs also showing plot numbers was obtained online (<http://www.north-slope.org/our-communities/barrow>). The list included 1,223 residential addresses and was divided into 7 parcels of equal size. Based on the 2017 estimated community size, data analysis used parcel sizes of 192 households.

Bethel—A list of addresses used for the salmon harvest survey in 2016 was obtained from the Division of Commercial Fisheries of the Alaska Department of Fish and Game. This list has been updated and ground-truthed over the years. The list included 2,130 addresses (most of them residential) and was divided into 10 parcels. A set of plat maps was obtained from the Planning Department of the city of Bethel. Based on the 2017 estimated community size, data analysis used parcel sizes of 194 households.

Dillingham—A list of addresses was obtained from the Planning Department of the City of Dillingham. The list was last updated in 2014 and a more recent list was unavailable. The list included 1,109 addresses, of which 76 addresses were identified as non-residential and were excluded, resulting in 1,033 total addresses. The address list was divided into 5 parcels. Based on the 2017 estimated community size, data analysis used parcel sizes of 169 households.

Nome—A list including 2,204 addresses was obtained from the Planning Department of the City of Nome. A total of 1,472 addresses were identified as having a structure, and this list was divided into 7 parcels. Based on the 2017 estimated community size, data analysis used parcel sizes of 179 households.

Data Collection, Household Visits

Data collection followed methods described in Naves (2012). At the community level, data collection relied on household lists including all resident households, except for the largest communities, where the survey used lists of addresses as described above (Appendix B). A household was considered resident if its members had lived in the community for at least the 12 months prior to the survey. Household lists did not include unoccupied dwellings, commercial buildings, and public buildings.

Local surveyors were trained by a regional partner or survey coordination staff. Harvest surveys were completed during in-person interviews conducted by a local surveyor. Survey respondents were instructed (1) to report all bird and egg harvests by all harvesters in the household, including those given to other household(s); (2) to report the household's share of any harvest done by a multi-individual harvesting party; and (3) not to report birds or eggs received from other household(s). A tracking sheet was used to document household contacts and participation (Appendix C). Alternate households or addresses were selected to replace households that declined to participate and households that could not be contacted after three reasonable attempts. Alternate addresses were selected as needed until the household sampling goal was achieved.

The harvest report form was used to record the harvest of birds and eggs (appendices D–G). The survey form included species important for subsistence uses or of management interest. Harvest of species not represented in the form can be reported in the field “other bird.” Some species that are difficult to tell apart were combined in categories. The form had a sheet for each survey season (winter: 1 November–9 March, spring: 2 April–30 June, summer: 1 July–31 August, and fall: 1 September–31 October). Because of bird phenology, winter data were collected only in the Bristol Bay region, and in the North Slope region, only spring and summer data were collected. The bird identification guide had color drawings of birds (appendices G–K). A poster with color photographs of all species included in the survey assisted in species identification and outreach (appendices L–O). On the poster, close to each photograph, appeared the species' English name and a blank field for writing Native and local names. Lists of local and Alaska Native species names are available to data collection staff to help in communicating with respondents and in species identification (Naves 2010rev.).

Since 2012, loon species names have not been displayed on the bird identification guide and harvest report form because of confusion with the English name “common loon,” which is frequently understood as the locally most common species of loon, and because of differences between local ethnotaxonomy and Western taxonomy (Naves and Zeller 2013). Loon harvest data were presented in this report by species names corresponding to the numeric labels used in survey forms [loon 1: Pacific-Arctic loon (*Gavia pacifica* and *G. arctica*), loon 2: unidentified loon in nonbreeding plumage, loon 3: yellow-billed loon (*G. adamsii*), loon 4: common loon (*G. immer*), and loon 5: red-throated loon (*G. stellata*)].

Data Analysis

Electronic data entry of completed surveys was done using Microsoft Office Access 2010 forms. The raw data were stored in a Microsoft SQL Server Management Studio 2008 relational database. Double data entry and logic checks ensured accuracy of the data stored in the database (reported harvest, sample size, strata size). Logic checks and data analysis were done with IBM SPSS Statistics 19.0.0, 2010. Original survey forms were scanned and archived as digital files. To ensure anonymity of household harvest reports, household names and other personal information provided were covered prior to scanning, and the original forms were not archived.

Reported harvests from surveyed communities were extrapolated to nonsurveyed communities in the same region. There are several alternative estimators of total harvest for multi-stage sampling designs, and the use of a simple unbiased estimator and a ratio estimator were explored (Cochran 1977; Otis et al. 2016). The unbiased estimator can have slightly larger variance than the ratio estimator in some applications. However, the unbiased estimator was chosen because of its simplicity in estimation of regional and survey-wide harvests, and because the ratio estimator is not unbiased (Appendix P).

For nonsurveyed communities, the number of occupied households was calculated by dividing 2017 population estimates (ADLWD n.d.) by the number of people per household reported in the 2010 census (U.S. Census Bureau 2011). Harvest estimates and variances were calculated for each season, and annual estimates were calculated as the sum of seasonal harvest. Harvest estimates and their variances are calculated for each region and then summed to produce survey-wide harvest estimates and variances. In 2017, a total of 47 communities/parcels were surveyed and 46 communities/parcels were included in data analysis (Appendix A).

The subsistence harvest survey covers a large geographic area and number of species. Some species are abundant and harvested in relatively large numbers. Other species are harvested only occasionally because they have small populations, restricted distribution, or are not widely used for subsistence purposes. Wide-coverage sampling designs such as that used in the AMBCC survey cannot address both commonly- and rarely-harvested species with the same level of precision (Copp and Roy 1986:11, H-15; Otis et al. 2016). Few data points for rarely-harvested species results in less accurate harvest estimates and wider confidence intervals as compared to commonly-harvested species. Dedicated harvest surveys and specific analytical procedures would be required to accurately estimate harvest of species that have small populations, low densities, or limited distributions, and that are less likely to be precisely documented in the regular statewide subsistence harvest survey.

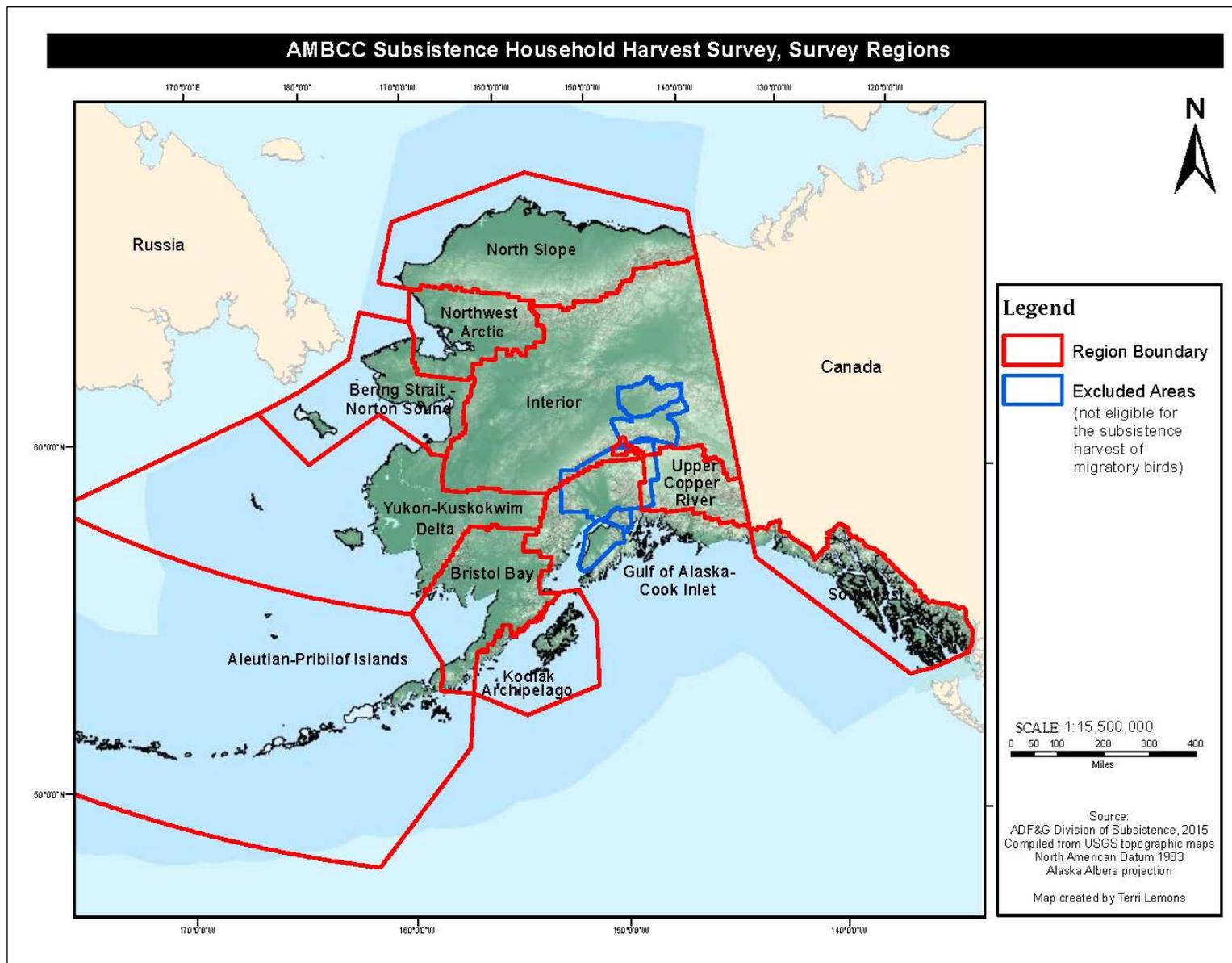


Figure 1.—Management regions for the Alaska migratory bird subsistence harvest.

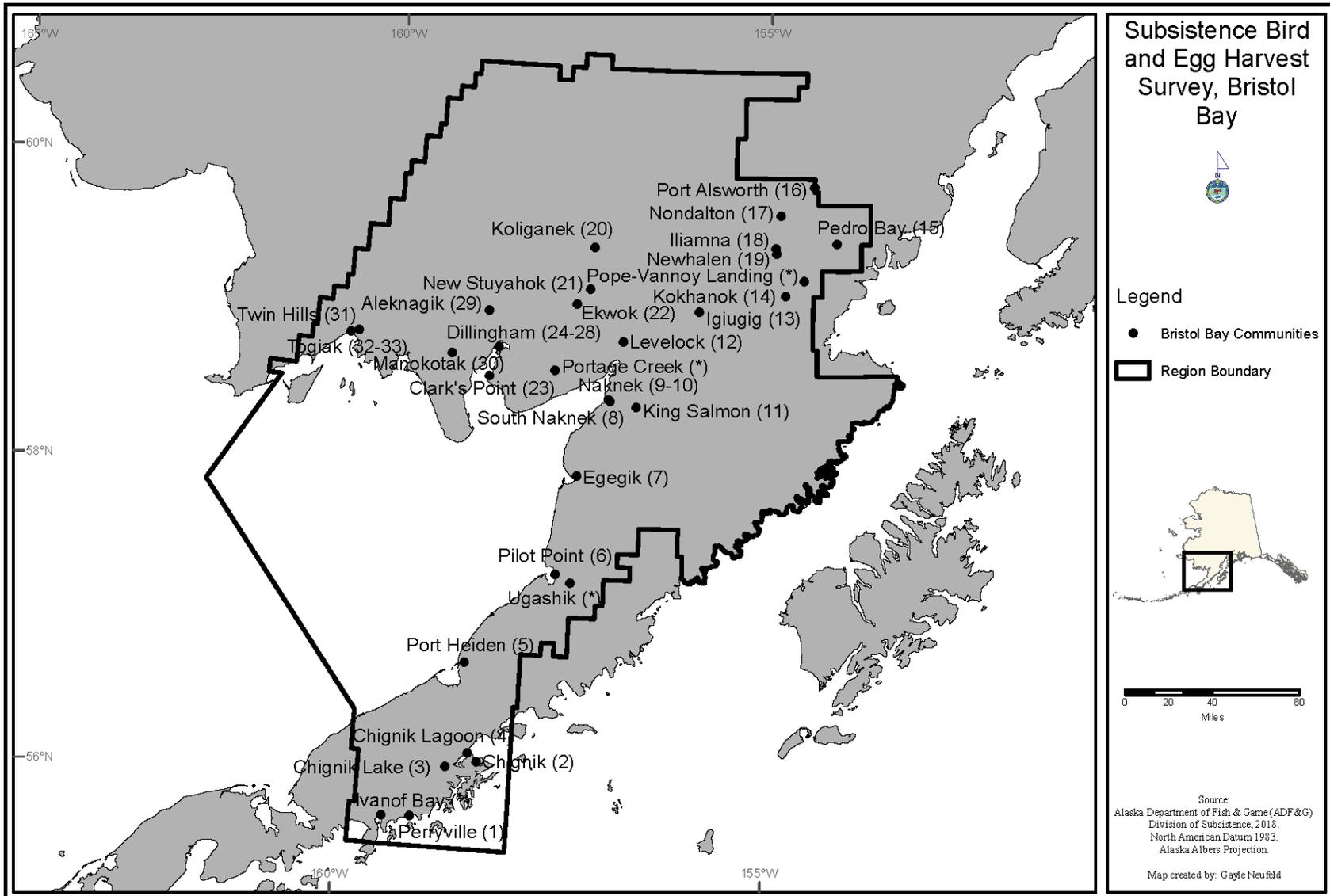


Figure 2.—Bristol Bay region with sequential numbering of communities for systematic random sampling. An asterisk “*” indicates communities with fewer than 10 households, which were excluded from the sampling frame.

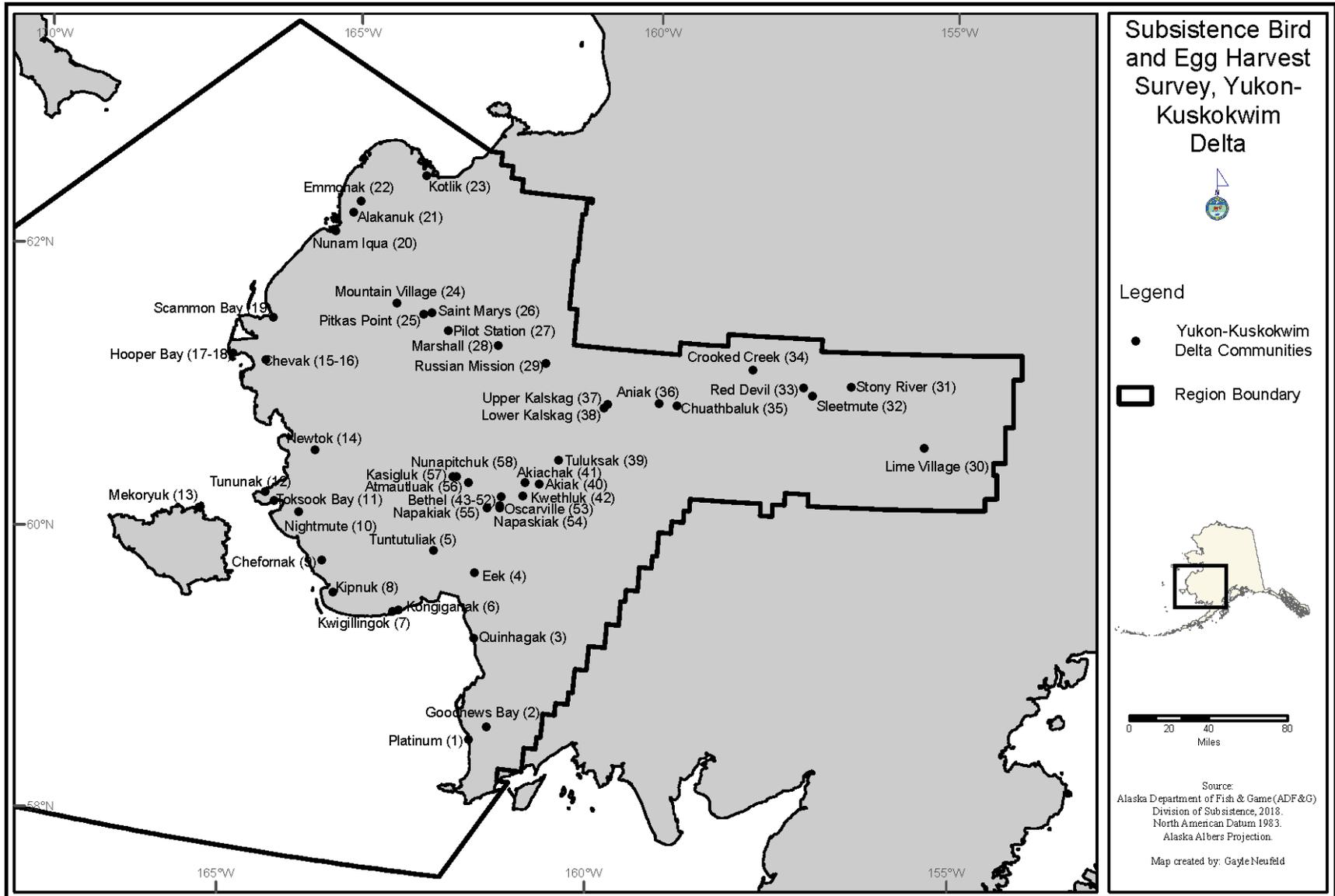


Figure 3.—Yukon-Kuskokwim Delta region with sequential numbering of communities for systematic random sampling.

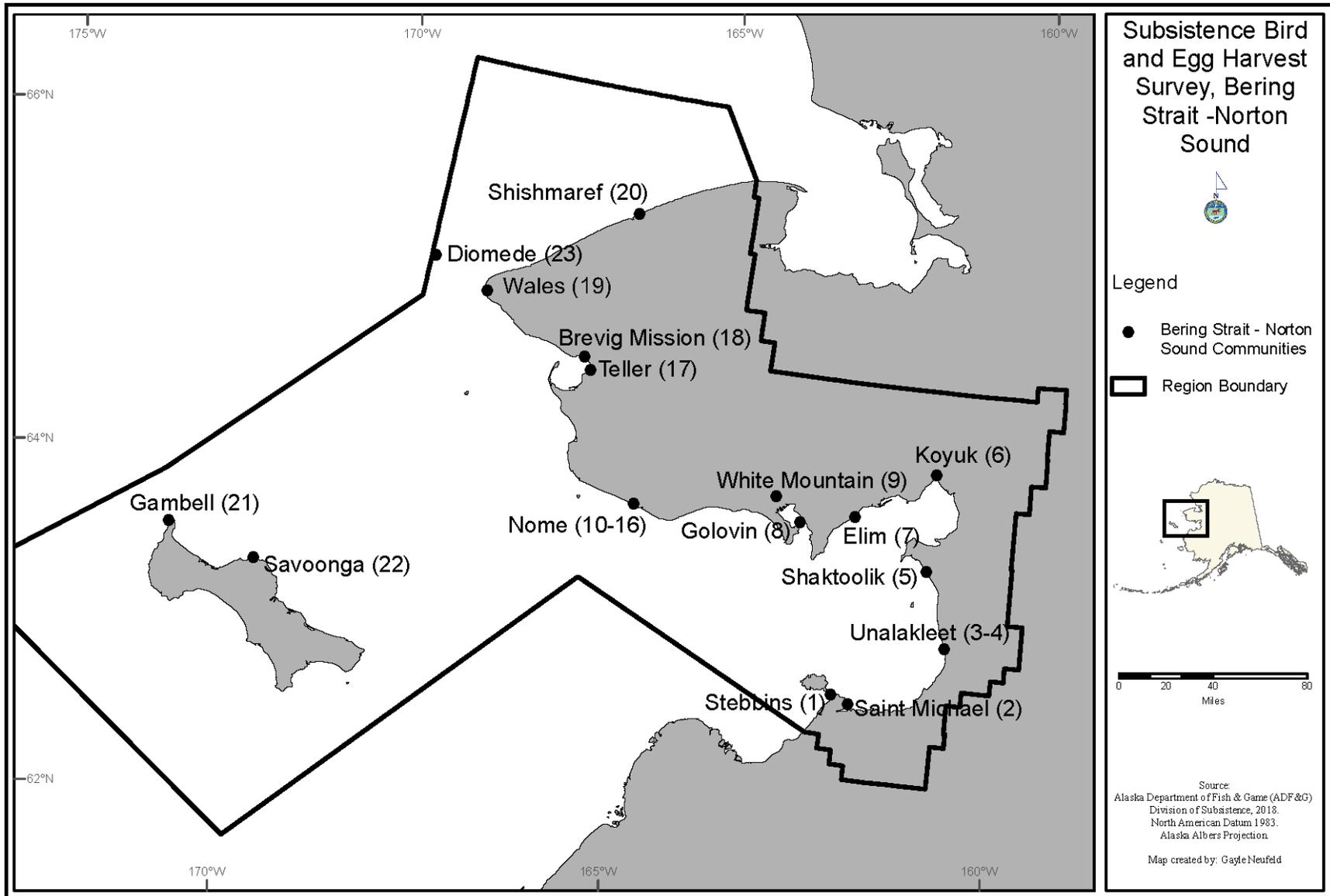


Figure 4.-Bering Strait-Norton Sound region with sequential numbering of communities for systematic random sampling.

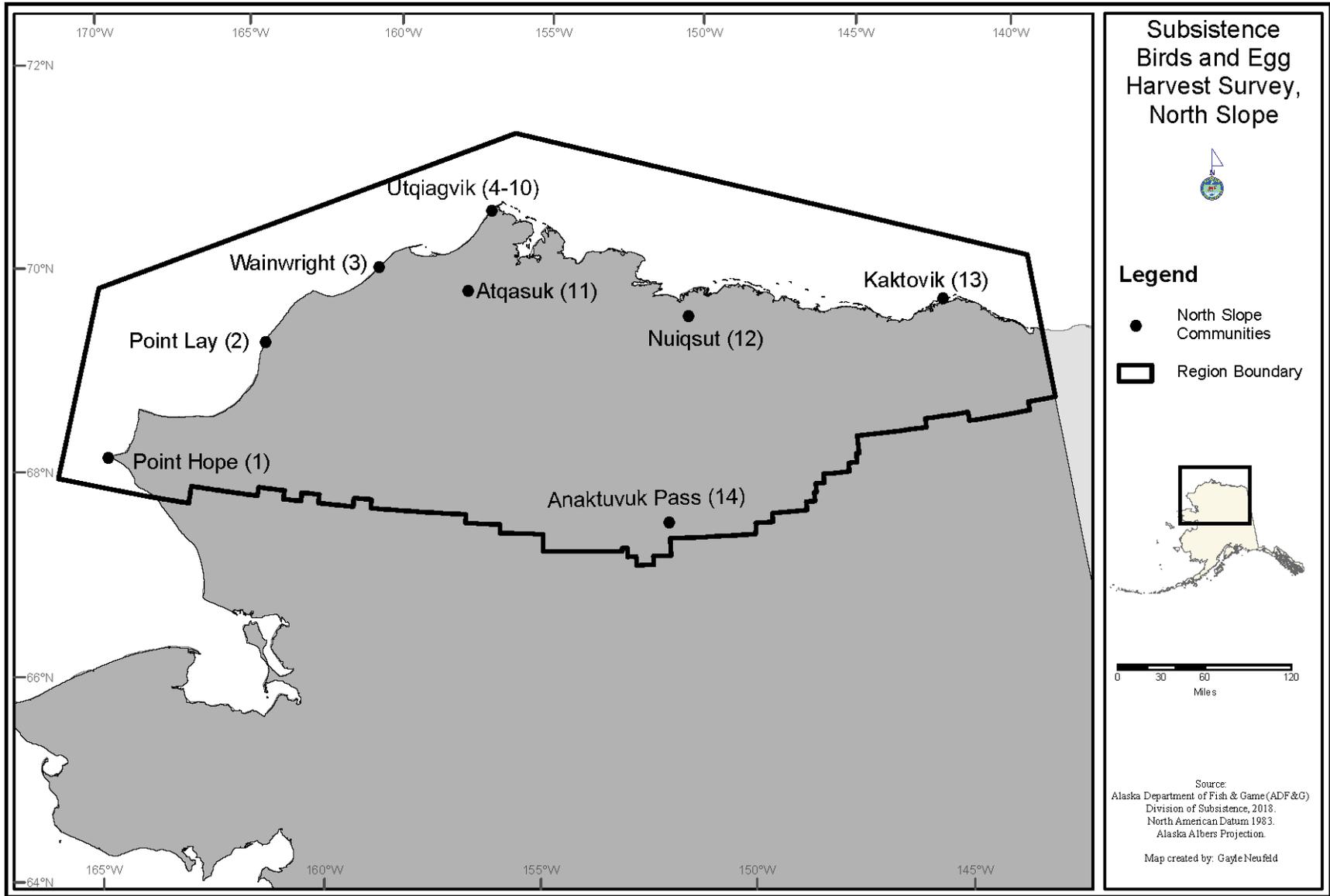


Figure 5.—North Slope region with sequential numbering of communities for systematic random sampling.

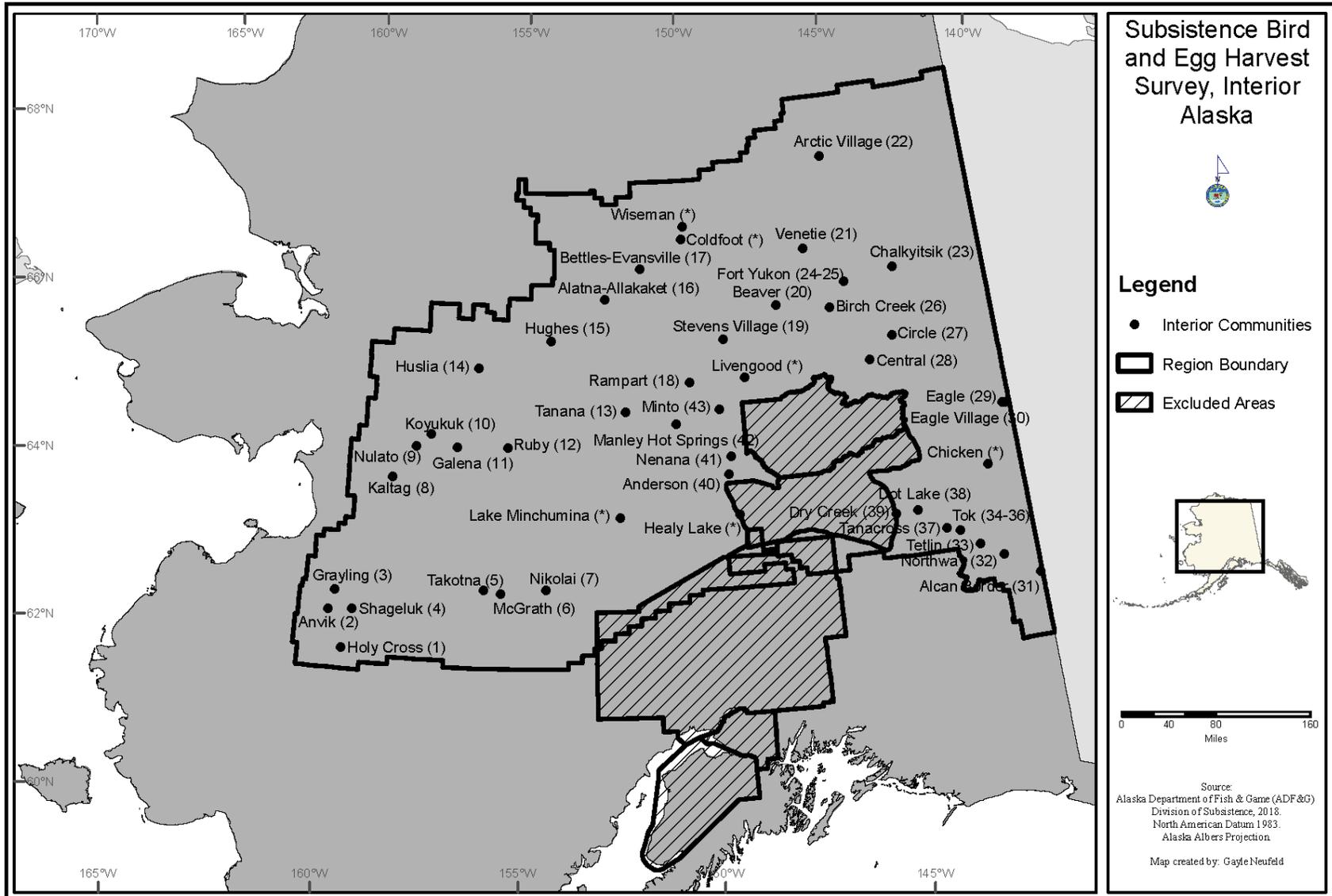


Figure 6.—Interior Alaska region with sequential numbering of communities for systematic random sampling. An asterisk “*” indicates communities with fewer than 10 households, which were excluded from the sampling frame.

CORDOVA HARVEST MAIL-OUT SURVEY

The Cordova migratory bird subsistence harvest was first authorized in 2014⁷. The season was opened 2–30 April for waterfowl hunting and 1–31 May for gull egg harvesting, with a limited list of species opened to harvest. Households were required to register for this harvest. In 2017, a total of 27 households registered for this harvest. The ADF&G Division of Subsistence coordinated the household registration and mail-out survey in collaboration with the local partners (Eyak Tribe, U.S. Forest Service, Alaska Department of Fish and Game, Chugach Regional Resources Commission, Native Village of Chenega, and Native Village of Tatitlek).

A mail-out harvest survey was sent in June 2017 to all registered households (Appendix Q). Survey reminders were sent in July and August to registered households that had not yet provided completed surveys. The survey was conducted in the context of the AMBCC-HAP. A total of 25 completed surveys were returned (out of 27 registered households) resulting in a response rate of 93%. Harvests reported in returned surveys were extrapolated to non-returned surveys.

COMMUNITY AND HOUSEHOLD PARTICIPATION RATES

The community participation rate was calculated as the number of communities that agreed to participate divided by the number of communities where contact was attempted. The number of communities where contact was attempted included (a) communities that agreed to participate, (b) communities that did not agree to participate, and (c) communities where multiple contact attempts were made without a response. No response from communities may suggest lack of interest or willingness to participate in the survey, but it also may also be related to conditions proper to individual communities not related to the survey (e.g., tribal office not staffed, malfunction of local communication systems). Thus, as calculated, the community participation rates may underestimate communities' willingness to participate in the survey. Because it may be difficult to differentiate between causes of no-response, a conservative approach was chosen to calculate community participation rates.

In communities surveyed by in-person interviews (5-regions survey), the household participation rate was calculated as the number of households that agreed to participate divided by the number of households contacted. Detailed information on calculation of household participation rates was presented in Naves (2015b:19–20). In the Cordova mail-out survey, the household participation rate was calculated as the proportion of registered households that provided a completed survey.

RESULTS AND DISCUSSION

In 2004–2015, sampling effort depended on funding, monitoring priorities, and size of the communities surveyed (Table 3). Starting in 2016, the same 5 regions are to be surveyed annually, and within regions, a fixed number of communities and households are to be surveyed. In 2017, 56 communities were invited to participate in the survey and 50 communities agreed to participate (Table 4). The 2017 household participation rates are presented in Table 5.

Annual harvest estimates (all species combined) were summarized in tables 6 (birds) and 7 (eggs), which also signal that estimates detailed by species and seasons are available in the following tables 8–20. Starting in 2016, the revised sampling design defined the annual geographic coverage of the survey to 5 regions. While the revised sampling design provides Alaska-wide harvest estimates with good precision through the 5-regions index, estimates at the region level may be less accurate than in previous years. The 2016 and 2017 5-regions index were comparable to the 2004–2009, 2010–2015, and 2004–2015 averages at the same geographic scale (Tables 6 and 7). Comments provided by the North Slope Borough Fish and Game Management Committee to draft harvest estimates offer context to harvest numbers and limitations of the survey in depicting harvest patterns at the region level on an annual basis (Appendix R). The current survey design prioritizes Alaska-wide harvest estimates and relies on multi-year data to depict harvest patterns. A summary was produced to facilitate data review and community communication regarding the Cordova harvest (Table 20, Appendix S).

7. Federal Register Vol. 79, No. 67 (April 8, 2014) available online: <https://www.gpo.gov/fdsys/pkg/FR-2014-04-08/pdf/FR-2014-04-08.pdf>.

Table 3.–Number of communities/parcels and households included in data analysis, 2004–2017.

Survey year	Communities/parcels included in harvest estimates	Households surveyed			
		Spring ^c	Summer ^c	Fall (or Fall–Winter)	Winter
2004	77	1,770	1,707	1,673	a
2005	75	2,226	2,251	1,742	a
2006	62	1,793	1,773	1,687	a
2007	74	2,076	2,051	1,491	a
2008	44	1,630	1,568	1,189	a
2009	27	923	909	762	a
2010	50	1,875	1,845	1,675	215
2011	25	1,335	1,176	1,197	36
2012	3	473	473	445	216
2013	20	600	600	599	b
2014	7	250	222	222	b
2015	20	907	892	892	b
2016	43	447	425	373	10 ^d
2017	46	664	639	489	101 ^e

Sources Survey results for 2004–2016 were reported in Naves (2010rev., 2010, 2011, 2012, 2014a, 2015b, 2015c, 2016), Naves and Braem (2014), and Naves and Otis (2017).

- a. In 2004–2009, for regions and subregions with a winter survey, data were recorded as fall–winter.
- b. The subregions and regions surveyed usually have no winter survey.
- c. The Cordova survey covers April–May harvest only, and North Slope survey covers spring and summer only.
- d. Only one community had winter survey, thus winter data were not included in harvest expansion.
- e. Winter surveys were conducted in all communities surveyed in the Bristol Bay region.

Table 4.–Community participation rate, 2017.

Regions	Total communities	Contacted communities	Communities that agreed to participate in the survey	Community participation rate
Bristol Bay	31	11	10	91%
Yukon-Kuskokwim Delta	47	20	16	80%
Bering Strait-Norton Sound	16	6	6	100%
North Slope	8	4	4	100%
Interior Alaska	48	14	13	93%
Cordova harvest	1	1	1	100%
Total	151	56	50	89%

Note Community participation rate equals (=) number of communities that agreed to participate divided by (÷) number of communities contacted.

Table 5.–Household participation rate, 2004–2017.

Region Subregion	2004		2005		2006		2007		2008		2009		2010		2011		2012		2013		2014		2015		2016		2017		
	Partici- pation	N	Partici- pation	N	Partici- pation	N	Partici- pation	N	Partici- pation	N	Partici- pation	N	Partici- pation	N															
Gulf of Alaska-Cook Inlet	98%	55	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Gulf of Alaska Villages	100%	41	-	-	85%	26	-	-	-	-	-	-	100%	65	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Cordova	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	78%	36	75%	20	85%	26	93%	27
Cook Inlet	93%	14	71%	17	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Kodiak Archipelago	-	-	-	-	85%	137	-	-	-	-	-	-	95%	289	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Kodiak Villages	100%	†65	-	-	99%	76	-	-	-	-	-	-	97%	115	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Kodiak City & Road Connected	-	-	-	-	69%	61	-	-	-	-	-	-	93%	174	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Aleutian-Pribilof Islands	-	-	-	-	-	-	-	-	100%	226	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Aleutian-Pribilof Villages	-	-	98%	40	-	-	100%	25	99%	87	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Unalaska	-	-	-	-	-	-	-	-	100%	139	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Bristol Bay	-	-	78%	249	-	-	93%	312	98%	360	-	-	-	-	96%	407	-	-	-	-	-	-	-	-	-	95%	40	97%	105
South Alaska Peninsula	*	*	-	-	-	-	93%	29	*	*	-	-	-	-	89%	44	-	-	-	-	-	-	-	-	-	-	-	-	
Southwest Bristol Bay	*	*	73%	113	*	*	90%	166	96%	156	-	-	-	-	96%	243	-	-	-	-	-	-	-	-	-	-	-	-	
Dillingham	-	-	81%	136	-	-	97%	117	100%	204	-	-	-	-	99%	120	-	-	-	-	-	-	-	-	-	-	-	-	
Yukon-Kuskokwim Delta	84%	642	88%	787	75%	787	70%	682	72%	464	67%	523	89%	609	96%	493	-	-	98%	521	-	-	95%	930	92%	232	97%	169	
Y-K Delta South Coast	95%	106	100%	124	78%	90	92%	144	*	*	68%	95	97%	112	100%	115	-	-	99%	120	-	-	93%	128	-	-	-	-	
Y-K Delta Mid Coast	82%	214	81%	232	90%	175	77%	92	72%	111	61%	168	80%	155	90%	156	-	-	94%	90	-	-	85%	113	-	-	-	-	
Y-K Delta North Coast	100%	58	92%	38	58%	107	57%	92	79%	87	80%	99	100%	77	100%	56	-	-	100%	93	-	-	100%	122	-	-	-	-	
Lower Yukon	83%	42	86%	180	89%	72	67%	231	*	*	*	*	100%	65	99%	88	-	-	100%	101	-	-	100%	98	-	-	-	-	
Lower Kuskokwim	76%	222	90%	213	69%	270	55%	123	65%	239	63%	161	81%	186	96%	78	-	-	98%	117	-	-	99%	227	-	-	-	-	
Central Kuskokwim	*	*	-	-	74%	73	*	*	*	*	-	-	100%	14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Bethel	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	-	-	-	-	-	-	92%	242	-	-	-	-	
Bering Strait-Norton Sound	71%	528	81%	347	-	-	90%	439	-	-	-	-	81%	489	-	-	-	-	-	-	-	-	-	-	96%	56	85%	121	
St. Lawrence-Diomed Islands	76%	112	87%	75	-	-	95%	86	-	-	42%	‡191	76%	308	94%	283	96%	272	-	-	-	-	-	-	-	-	-	-	
Bering Strait Mainland Villages	84%	206	79%	142	-	-	93%	161	-	-	-	-	91%	181	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Nome	57%	210	81%	130	-	-	86%	192	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Northwest Arctic	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Northwest Arctic Villages	-	-	-	-	98%	220	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Kotzebue	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	82%	266	-	-	-	-	-	-	-	-	-	-	
North Slope	-	-	93%	619	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100%	52	99%	154	
North Slope Villages	-	-	90%	395	-	-	*	*	*	*	*	*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Barrow	-	-	98%	224	-	-	*	*	*	*	*	*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Interior	-	-	-	-	98%	544	-	-	-	-	-	-	99%	523	-	-	-	-	-	-	-	-	-	-	90%	80	94%	116	
Mid Yukon-Upper Kuskokwim	*	*	*	*	*	*	-	-	-	-	-	-	100%	90	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Yukon-Koyukuk	*	*	*	*	90%	83	100%	52	100%	52	-	-	97%	132	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Upper Yukon	*	*	-	-	98%	274	100%	144	-	-	-	-	100%	109	-	-	-	-	-	-	99%	228	-	-	-	-	-	-	
Tanana Villages	99%	102	-	-	100%	127	-	-	-	-	-	-	100%	60	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Tok	-	-	-	-	100%	60	-	-	-	-	-	-	100%	132	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Upper Copper River	100%	55	-	-	-	-	94%	33	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	

Source: Household participation rates 2004–2016 (Naves and Otis 2017).

Household participation rate equals (=) number of households that agreed to participate divided by (÷) number of households contacted.

N: Number of households contacted ("N" may differ from the number of households surveyed).

-: Subregion, region not surveyed. *: Household consent data not available for analysis.

‡: 2009 Reduced household participation in St. Lawrence-Diomed Islands subregion may have been related to other surveys being conducted in that year.

†: 2004 Data collection not completed in Kodiak Villages subregion, harvest data not available although household participation data were provided.

Table 6.—Annual estimated bird harvest (all birds, spring, summer, fall, and winter), AMBCC survey, 2004–2017.

Regions, subregions (all birds, all seasons)	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2004-2009 Average	2010-2015 Average	2004-2015 Average	2016	2017	
Gulf of Alaska-Cook Inlet	2,995												1,802	1,196	1,614			
Gulf of Alaska Villages	2,756		596				1,049						1,676	1,049	1,467			
Cordova											42	0		21	21	80	174	
Cook Inlet	239	13											126		126			
Kodiak Archipelago							6,926						10,531	6,926	8,729			
Kodiak Villages			5,552				1,947						5,552	1,947	3,750			
Kodiak City & Road-connected							4,979							4,979	4,979			
Aleutian-Pribilof Islands					8,401								11,390		11,390			
Aleutian-Pribilof Villages		16,876		7,371	7,642								10,630		10,630			
Unalaska					760								760		760			
Bristol Bay*	47,336			28,285	32,995			30,081					32,901	30,084	32,046	63,880	53,464	
South Alaska Peninsula	801			968	115			833					628	833	679			
Southwest Bristol Bay	14,955	32,769	26,715	20,169	29,352			26,601					24,792	26,601	25,094			
Dillingham		11,769		7,148	3,527			2,650					7,481	2,650	6,273			
Yukon-Kuskokwim Delta*	130,343	114,514	171,856	148,715	79,088	195,082	142,834	110,611					110,836	138,748	134,723	137,152	78,602	70,942
Y-K Delta South Coast	25,764	35,508	31,918	33,927	19,999	35,203	17,537	37,834		33,417			21,381	30,387	27,542	29,249		
Y-K Delta Mid Coast	34,480	17,546	61,998	43,737	17,160	82,654	37,363	13,899		58,770			21,164	42,929	32,799	38,877		
Y-K Delta North Coast	8,806	11,206	4,493	1,206	4,867	13,637	4,920			5,839			10,121	7,369	6,960	7,233		
Lower Yukon	6,201	6,815	10,269	3,988	4,727	6,904	7,748			10,863			17,114	6,484	11,908	8,292		
Lower Kuskokwim	46,033	16,557	48,849	58,983	22,813	44,934	71,317	32,826		65,081			26,450	39,695	48,919	43,384		
Central Kuskokwim	440		1,167	219			659						609	659	621			
Bethel	8,618	23,954	13,163	6,654	7,789	7,478	3,290	2,539				11,978	11,276	5,936	9,496			
Bering Strait-Norton Sound*	53,576	74,115		123,257									83,649	32,379	39,758	36,458	27,429	
St. Lawrence-Diomedes Is.						41,176	14,054	12,077	8,848				41,176	11,660	19,039			
Bering Strait Mainland Villages							20,719							20,719	20,719			
Nome																		
Northwest Arctic																	14,113	
Northwest Arctic Villages			9,676										9,676		9,676			
Kotzebue									4,437					4,437	4,437			
North Slope*		15,615		44,270	45,123	19,075							31,021		31,021	76,315	16,383	
North Slope Villages																		
Barrow																		
Interior Alaska*	50,995		37,068				32,611						45,100	30,957	39,067	108,742	24,794	
Mid Yukon-Upper Kuskokwim	3,086	2,744	697				786						2,176	786	1,828			
Yukon-Koyukuk	3,108	930	1,764	3,031	6,908		4,532						3,148	4,532	3,379			
Upper Yukon	14,418		10,927	18,402			12,692			9,384			14,582	11,038	13,165			
Tanana Villages	20,388		17,358				14,086						18,873	14,086	17,277			
Tok			6,321				515						6,321	515	3,418			
Upper Copper River	1,120			247									684		684			
Alaska-wide (all regions)													355,827	279,358	301,460			
Five-regions index (regions indicated by •)													331,420	259,163	279,044	363,998	193,012	

Source Survey results for 2004–2016 were reported in Naves (2010a; 2010b; 2011; 2012; 2014b; 2015b; 2015c; 2016), Naves and Braem (2014), Naves and Otis (2017).

Region-level averages calculated as the sum of the averages for the subregions. Empty cells denote lack of data.

Table 7.—Annual estimated egg harvest (all eggs), AMBCC survey, 2004–2017.

Regions, subregions (all eggs)	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2004-2009 Average	2010-2015 Average	2004-2015 Average	2016	2017	
Gulf of Alaska-Cook Inlet	2,178												1,140	1,566	1,413			
Gulf of Alaska Villages	2,173		102				1,366						1,137	1,366	1,214			
Cordova											131	263		197	197	105	113	
Cook Inlet	5	0											3		3			
Kodiak Archipelago			5,222				803						5,222	803	3,012			
Kodiak Villages			4,545				771						4,545	771	2,658			
Kodiak City & Road-connected			677				32						677	32	355			
Aleutian-Pribilof Islands					4,778								8,053		8,053			
Aleutian-Pribilof Villages		11,733		6,127	4,018								7,293		7,293			
Unalaska					760								760		760			
Bristol Bay*		47,799		30,801	47,653			25,211					44,831	25,213	41,296	69,367	28,029	
South Alaska Peninsula	409			651	106			392					389	392	390			
Southwest Bristol Bay	54,437	39,206	31,292	25,118	37,630			21,105					37,537	21,105	34,798			
Dillingham		5,768		5,032	9,917			3,716					6,906	3,716	6,108			
Yukon-Kuskokwim Delta*	27,288	22,268	30,723	19,153	31,195	58,995	26,965	54,075					56,767	31,182	45,372	36,282	35,450	35,970
Y-K Delta South Coast	7,768	13,424	7,406	1,746	8,442	29,065	6,208	26,492		21,605		15,424	11,309	17,432	13,758			
Y-K Delta Mid Coast	14,598	2,140	21,354	11,930	16,195	24,640	19,137	15,213		7,963		13,400	15,143	13,928	14,657			
Y-K Delta North Coast	2,466	3,921	188	22	554	345	1,619			8,240		14,654	1,249	8,171	3,557			
Lower Yukon	191	652	232	565	0	386	0			1,392		3,902	338	1,765	813			
Lower Kuskokwim	2,265	1,302	1,498	4,891	5,298	3,087	0	877		6,995		6,873	3,057	3,686	3,309			
Central Kuskokwim	0		15	0			0						5	0	4			
Bethel	0	261	29	0	23	179	0	0				1,169	82	390	185			
Bering Strait-Norton Sound*	99,494	113,082		146,557									119,711	49,371	69,799	37,072	120,926	
St. Lawrence-Diomedes Is.						117,174	55,682	20,999	29,701				117,174	35,461	55,889			
Bering Strait Mainland Villages							13,910							13,910	13,910			
Nome																		
Northwest Arctic																	15,977	
Northwest Arctic Villages			10,081										10,081		10,081			
Kotzebue									5,896					5,896	5,896			
North Slope*		4,705		2,388	858	2,430							2,595		2,595	26,745	2,121	
North Slope Villages																		
Barrow																		
Interior Alaska*	1,009		911				65						870	65	662	888	0	
Mid Yukon-Upper Kuskokwim	0	2	0				0						1	0	1			
Yukon-Koyukuk	11	0	0	0	0		22						2	22	6			
Upper Yukon	40		0	0			0				110		13	55	30			
Tanana Villages	760		875				43						817	43	559			
Tok			36				0						36	0	18			
Upper Copper River	82			0									41		41			
Alaska-wide (all regions)													213,645	133,078	163,153			
Five-regions index (regions indicated by *)													199,189	122,616	150,634	169,521	187,047	

Source: Survey results for 2004–2016 were reported in Naves (2010a; 2010b; 2011; 2012; 2014b; 2015b; 2015c; 2016), Naves and Braem (2014), Naves and Otis (2017).

Region-level averages calculated as the sum of the averages for the subregions. Empty cells denote lack of data.

Table 8.—Estimated bird harvest, Alaska-wide (5-regions index), 2017.

Species	Yearly bird harvest			Spring		Summer		Fall		Winter	
	Reported	Estimated	CIP	Estimated	CIP	Estimated	CIP	Estimated	CIP	Estimated	CIP
Ducks											
* American wigeon	102	3,472	90%	2,943	90%	139	157%	390	123%	0	
Teal	73	2,195	103%	1,415	109%	101	185%	679	114%	0	
* Mallard	460	14,324	61%	10,221	61%	444	136%	3,659	78%	0	
* Northern pintail	263	8,767	51%	7,837	54%	285	157%	646	95%	0	
Northern shoveler	24	708	76%	406	86%	34	197%	268	132%	0	
* Black scoter	252	8,992	65%	6,584	85%	135	197%	2,273	90%	0	
* Surf scoter	22	438	102%	283	143%	0		68	183%	88	194%
* White-winged scoter	25	898	151%	696	189%	34	197%	169	177%	0	
Bufflehead	11	326	113%	326	113%	0		0		0	
Goldeneye	70	2,248	92%	1,866	93%	204	150%	178	148%	0	
* Canvasback	5	179	141%	34	197%	34	197%	112	136%	0	
* Scaup	194	7,587	106%	7,552	106%	0		35	197%	0	
* Common eider	129	3,254	80%	2,243	92%	448	173%	563	105%	0	
* King eider	748	21,555	92%	17,933	106%	3,622	120%	0		0	
Spectacled eider	24	988	189%	149	170%	839	198%	0		0	
Steller's eider	0	0		0		0		0		0	
Harlequin duck	39	1,639	116%	350	183%	868	198%	421	144%	0	
* Long-tailed duck	22	454	98%	454	98%	0		0		0	
Merganser	15	692	118%	168	198%	0		347	198%	177	198%
Duck (unidentified)	28	904	148%	372	151%	352	185%	180	130%	0	
Total ducks	2,506	79,621	43%	61,832	49%	7,536	83%	9,988	50%	265	143%
Geese											
* Black brant	340	10,413	94%	9,573	103%	72	125%	768	126%	0	
* Cackling/Canada goose	730	22,979	37%	17,631	41%	1,120	100%	4,229	67%	0	
* Greater white-fronted goose	1,318	25,936	36%	24,568	38%	0		1,369	78%	0	
Emperor goose	81	2,344	83%	1,451	121%	233	196%	660	116%	0	
* Snow goose	274	5,602	136%	5,208	140%	0		394	106%	0	
Goose (unidentified)	0	0		0		0		0		0	
Total geese	2,743	67,275	37%	58,430	42%	1,424	87%	7,421	48%	0	
Swan	65	2,062	65%	1,337	76%	111	108%	614	87%	0	
Sandhill crane	67	2,334	62%	1,872	65%	39	197%	423	103%	0	
Seabirds											
Cormorant	63	2,642	185%	0		1,845	183%	797	191%	0	
Tern	0	0		0		0		0		0	
Black-legged kittiwake	0	0		0		0		0		0	
Red-legged kittiwake	0	0		0		0		0		0	
Bonaparte's/Sabine's gull	0	0		0		0		0		0	
Mew gull	2	78	197%	78	197%	0		0		0	
Large gull	1	18	194%	18	194%	0		0		0	
Auklet	0	0		0		0		0		0	
Murre	98	4,110	183%	4,110	183%	0		0		0	
Guillemot	3	54	194%	0		54	194%	0		0	
Puffin	0	0		0		0		0		0	
Total seabirds	167	6,902	179%	4,206	178%	1,899	178%	797	191%	0	
Shorebirds											
Black oystercatcher	0	0		0		0		0		0	
Whimbrel/Curlew	0	0		0		0		0		0	
Godwit	0	0		0		0		0		0	
Golden/Black-bellied plover	0	0		0		0		0		0	
Turnstone	0	0		0		0		0		0	
Phalarope	0	0		0		0		0		0	
Small shorebird	0	0		0		0		0		0	
Total shorebirds	0	0		0		0		0		0	
Loons and grebes											
Common loon	3	243	199%	0		0		243	199%	0	
Pacific loon	7	125	194%	0		125	194%	0		0	
Red-throated loon	2	84	198%	0		84	198%	0		0	
Yellow-billed loon	8	239	150%	126	198%	114	143%	0		0	
Loon (non-breeding plumage)	37	1,552	196%	629	198%	923	194%	0		0	
Grebe	3	126	198%	0		126	198%	0		0	
Total loons and grebes	60	2,369	159%	755	198%	1,371	165%	243	199%	0	
Snowy owl	0	0		0		0		0		0	
Other/unknown bird	0	0		0		0		0		0	
* Total commonly-harvested species	4,884	134,851	36%	113,758	42%	6,331	84%	14,674	41%	88	194%
Total migratory birds	5,608	160,562	35%	128,432	39%	12,381	85%	19,485	37%	265	143%
Ptarmigans and grouses											
Grouse	687	15,739	44%	2,739	80%	0		12,273	50%	727	143%
Ptarmigan	540	16,711	74%	8,427	84%	6,213	169%	897	92%	1,175	146%
Total ptarmigans and grouses	1,227	32,450	42%	11,166	67%	6,213	169%	13,170	46%	1,901	112%
Total birds	6,835	193,012	31%	139,598	38%	18,593	81%	32,655	29%	2,166	100%

* : Commonly-harvested species. CIP: Confidence interval as percentage of the estimated harvest.

Table 9.–Estimated egg harvest, Alaska-wide (5-regions index), 2017.

Species	Yearly egg harvest			Spring		Summer	
	Reported	Estimated	CIP	Estimated	CIP	Estimated	CIP
Ducks							
* American wigeon	39	1,253	135%	1,253	135%	0	
Teal	20	510	196%	510	196%	0	
* Mallard	54	863	140%	863	140%	0	
* Northern pintail	35	1,153	113%	1,153	113%	0	
Northern shoveler	22	697	140%	697	140%	0	
* Black scoter	37	944	190%	944	190%	0	
* Surf scoter	0	0		0		0	
* White-winged scoter	32	817	190%	817	190%	0	
Bufflehead	0	0		0		0	
Goldeneye	0	0		0		0	
* Canvasback	10	255	196%	255	196%	0	
* Scaup	12	306	196%	306	196%	0	
* Common eider	355	9,154	177%	9,154	177%	0	
* King eider	20	510	196%	510	196%	0	
Spectacled eider	12	306	196%	306	196%	0	
Steller's eider	0	0		0		0	
Eider (unidentified)	119	1,033	183%	1,033	183%	0	
Harlequin duck	0	0		0		0	
* Long-tailed duck	20	510	196%	510	196%	0	
Merganser	20	510	196%	510	196%	0	
Duck (unidentified)	547	5,808	146%	5,808	146%	0	
Total ducks	1,354	24,629	107%	24,629	107%	0	
Geese							
* Black brant	112	3,088	151%	2,705	149%	383	196%
* Cackling/Canada goose	260	9,213	65%	8,910	67%	302	196%
* Greater white-fronted goose	516	10,449	63%	10,449	63%	0	
Emperor goose	42	1,443	145%	1,443	145%	0	
* Snow goose	5	128	196%	0		128	196%
Goose (unidentified)	0	0		0		0	
Total geese	935	24,320	61%	23,507	61%	813	143%
Swan	105	3,577	104%	3,577	104%	0	
Sandhill crane	54	1,772	83%	1,772	83%	0	
Seabirds							
Cormorant	20	839	198%	839	198%	0	
Tem	25	554	152%	554	152%	0	
Black-legged kittiwake	45	1,840	138%	1,840	138%	0	
Red-legged kittiwake	0	0		0		0	
Bonaparte's/Sabine's gull	0	0		0		0	
Mew gull	275	9,648	91%	9,648	91%	0	
Large gull	2,565	71,546	112%	71,546	112%	0	
Gull (unidentified)	365	3,170	188%	3,170	188%	0	
Auklet	0	0		0		0	
Murre	1,011	42,398	185%	42,398	185%	0	
Guillemot	0	0		0		0	
Puffin	0	0		0		0	
Total seabirds	4,306	129,995	77%	129,995	77%	0	
Shorebirds							
Black oystercatcher	0	0		0		0	
Whimbrel/Curlew	0	0		0		0	
Godwit	1	18	194%	18	194%	0	
Golden/Black-bellied plover	17	434	192%	434	192%	0	
Turnstone	2	51	196%	51	196%	0	
Phalarope	10	255	187%	255	187%	0	
Small shorebird	49	1,250	185%	1,250	185%	0	
Total shorebirds	79	2,008	181%	2,008	181%	0	
Loons and grebes							
Common loon	2	51	196%	51	196%	0	
Pacific loon	6	153	188%	153	188%	0	
Red-throated loon	0	0		0		0	
Yellow-billed loon	7	179	187%	179	187%	0	
Grebe	0	0		0		0	
Total loons and grebes	15	383	187%	383	187%	0	
Snowy owl	0	0		0		0	
Other/unknown bird	0	0		0		0	
* Total commonly-harvested species	1,507	38,643	86%	37,830	86%	813	143%
Total migratory birds	6,848	186,683	68%	185,871	68%	813	143%
Ptarmigans and grouses							
Grouse	0	0		0		0	
Ptarmigan	35	364	126%	364	126%	0	
Total ptarmigans and grouses	35	364	126%	364	126%	0	
Total eggs	6,883	187,047	68%	186,234	68%	813	143%

* : Commonly-harvested species. CIP: Confidence interval as percentage of the estimated harvest.

Table 10.—Estimated bird harvest, Bristol Bay region, 2017.

Species	Yearly bird harvest			Spring		Summer		Fall		Winter	
	Reported	Estimated	CIP	Estimated	CIP	Estimated	CIP	Estimated	CIP	Estimated	CIP
Ducks											
* American wigeon	48	1,680	173%	1,400	174%	105	197%	175	197%	0	
Teal	35	1,151	185%	770	188%	0		381	181%	0	
* Mallard	173	6,379	112%	4,364	113%	280	197%	1,736	122%	0	
* Northern pintail	84	3,288	88%	2,521	99%	217	198%	549	110%	0	
Northern shoveler	2	70	197%	70	197%	0		0		0	
* Black scoter	97	4,359	108%	3,090	148%	0		1,269	141%	0	
* Surf scoter	6	123	145%	35	197%	0		0		88	194%
* White-winged scoter	0	0		0		0		0		0	
Bufflehead	2	70	197%	70	197%	0		0		0	
Goldeneye	32	1,096	172%	921	172%	35	197%	140	182%	0	
* Canvasback	0	0		0		0		0		0	
* Scaup	5	175	197%	140	197%	0		35	197%	0	
* Common eider	5	217	198%	0		0		217	198%	0	
* King eider	282	12,356	148%	12,356	148%	0		0		0	
Spectacled eider	0	0		0		0		0		0	
Steller's eider	0	0		0		0		0		0	
Harlequin duck	32	1,288	141%	350	183%	868	198%	70	197%	0	
* Long-tailed duck	0	0		0		0		0		0	
Merganser	11	525	142%	0		0		347	198%	177	198%
Duck (unidentified)	0	0		0		0		0		0	
Total ducks	814	32,776	90%	26,087	98%	1,505	147%	4,919	85%	265	143%
Geese											
* Black brant	139	6,285	148%	6,225	149%	0		59	198%	0	
* Cackling/Canada goose	169	7,046	82%	4,828	88%	210	141%	2,008	123%	0	
* Greater white-fronted goose	53	1,776	83%	1,776	83%	0		0		0	
Emperor goose	6	61	190%	0		0		61	190%	0	
* Snow goose	0	0		0		0		0		0	
Total geese	367	15,168	82%	12,830	95%	210	141%	2,129	116%	0	
Swan	3	85	151%	85	151%	0		0		0	
Sandhill crane	2	61	153%	61	153%	0		0		0	
Seabirds											
Cormorant	0	0		0		0		0		0	
Tern	0	0		0		0		0		0	
Black-legged kittiwake	0	0		0		0		0		0	
Red-legged kittiwake	0	0		0		0		0		0	
Bonaparte's/Sabine's gull	0	0		0		0		0		0	
Mew gull	0	0		0		0		0		0	
Large gull	0	0		0		0		0		0	
Auklet	0	0		0		0		0		0	
Murre	0	0		0		0		0		0	
Guillemot	0	0		0		0		0		0	
Puffin	0	0		0		0		0		0	
Total seabirds	0	0		0		0		0		0	
Shorebirds											
Black oystercatcher	0	0		0		0		0		0	
Whimbrel/Curlew	0	0		0		0		0		0	
Godwit	0	0		0		0		0		0	
Golden/Black-bellied plover	0	0		0		0		0		0	
Turnstone	0	0		0		0		0		0	
Phalarope	0	0		0		0		0		0	
Small shorebird	0	0		0		0		0		0	
Total shorebirds	0	0		0		0		0		0	
Loons and grebes											
Common loon	0	0		0		0		0		0	
Pacific loon	0	0		0		0		0		0	
Red-throated loon	0	0		0		0		0		0	
Yellow-billed loon	0	0		0		0		0		0	
Loon (non-breeding plumage)	0	0		0		0		0		0	
Grebe	0	0		0		0		0		0	
Total loons and grebes	0	0		0		0		0		0	
Other/unknown bird	0	0		0		0		0		0	
* Total commonly-harvested species	1,061	43,684	83%	36,736	96%	812	99%	6,049	82%	88	194%
Total migratory birds	1,186	48,091	82%	39,063	93%	1,715	128%	7,048	76%	265	143%
Ptarmigans and grouses											
Grouse	189	3,385	96%	987	131%	0		1,671	166%	727	143%
Ptarmigan	99	1,988	101%	222	138%	276	187%	316	180%	1,175	146%
Total ptarmigans and grouses	288	5,373	68%	1,209	117%	276	187%	1,987	140%	1,901	112%
Total birds	1,474	53,464	77%	40,272	90%	1,991	111%	9,035	60%	2,166	100%

* : Commonly-harvested species. CIP: Confidence interval as percentage of the estimated harvest.

Table 11.—Estimated egg harvest, Bristol Bay region, 2017.

Species	Yearly egg harvest			Spring		Summer	
	Reported	Estimated	CIP	Estimated	CIP	Estimated	CIP
Ducks							
* American wigeon	0	0		0		0	
Teal	0	0		0		0	
* Mallard	42	632	180%	632	180%	0	
* Northern pintail	0	0		0		0	
Northern shoveler	0	0		0		0	
* Black scoter	0	0		0		0	
* Surf scoter	0	0		0		0	
* White-winged scoter	0	0		0		0	
Bufflehead	0	0		0		0	
Goldeneye	0	0		0		0	
* Canvasback	0	0		0		0	
* Scaup	0	0		0		0	
* Common eider	0	0		0		0	
* King eider	0	0		0		0	
Spectacled eider	0	0		0		0	
Steller's eider	0	0		0		0	
Harlequin duck	0	0		0		0	
* Long-tailed duck	0	0		0		0	
Merganser	0	0		0		0	
Duck (unidentified)	0	0		0		0	
Total ducks	42	632	180%	632	180%	0	
Geese							
* Black brant	0	0		0		0	
* Cackling/Canada goose	5	231	198%	231	198%	0	
* Greater white-fronted goose	3	139	198%	139	198%	0	
Emperor goose	0	0		0		0	
* Snow goose	0	0		0		0	
Total geese	8	370	198%	370	198%	0	
Swan	0	0		0		0	
Sandhill crane	0	0		0		0	
Seabirds							
Cormorant	0	0		0		0	
Tern	8	120	193%	120	193%	0	
Black-legged kittiwake	20	1,183	198%	1,183	198%	0	
Red-legged kittiwake	0	0		0		0	
Bonaparte's/Sabine's gull	0	0		0		0	
Mew gull	108	3,990	147%	3,990	147%	0	
Large gull	633	21,734	79%	21,734	79%	0	
Auklet	0	0		0		0	
Murre	0	0		0		0	
Guillemot	0	0		0		0	
Puffin	0	0		0		0	
Total seabirds	769	27,027	83%	27,027	83%	0	
Shorebirds							
Black oystercatcher	0	0		0		0	
Whimbrel/Curlew	0	0		0		0	
Godwit	0	0		0		0	
Golden/Black-bellied plover	0	0		0		0	
Turnstone	0	0		0		0	
Phalarope	0	0		0		0	
Small shorebird	0	0		0		0	
Total shorebirds	0	0		0		0	
Loons and grebes							
Common loon	0	0		0		0	
Pacific loon	0	0		0		0	
Red-throated loon	0	0		0		0	
Yellow-billed loon	0	0		0		0	
Grebe	0	0		0		0	
Total loons and grebes	0	0		0		0	
Other/unknown bird	0	0		0		0	
* Total commonly-harvested species	50	1,002	130%	1,002	130%	0	
Total migratory birds	819	28,029	80%	28,029	80%	0	
Ptarmigans and grouses							
Grouse	0	0		0		0	
Ptarmigan	0	0		0		0	
Total ptarmigans and grouses	0	0		0		0	
Total eggs	819	28,029	80%	28,029	80%	0	

* : Commonly-harvested species. CIP: Confidence interval as percentage of the estimated harvest.

Table 12.—Estimated bird harvest, Yukon-Kuskokwim Delta region, 2017.

Species	Yearly bird harvest			Spring		Summer		Fall	
	Reported	Estimated	CIP	Estimated	CIP	Estimated	CIP	Estimated	CIP
Ducks									
* American wigeon	27	930	91%	840	93%	34	197%	57	196%
Teal	16	322	94%	131	108%	101	185%	90	141%
* Mallard	138	4,012	87%	2,348	77%	164	150%	1,500	127%
* Northern pintail	84	2,200	68%	2,090	72%	68	183%	43	158%
Northern shoveler	17	469	96%	300	105%	34	197%	135	176%
* Black scoter	119	4,393	77%	3,255	98%	135	197%	1,003	98%
* Surf scoter	8	264	151%	197	197%	0		68	183%
* White-winged scoter	6	203	175%	0		34	197%	169	177%
Bufflehead	6	180	179%	180	179%	0		0	
Goldeneye	32	840	83%	633	85%	169	177%	38	174%
* Canvasback	4	135	176%	34	197%	34	197%	68	183%
* Scaup	189	7,412	108%	7,412	108%	0		0	
* Common eider	3	70	196%	70	196%	0		0	
* King eider	112	3,611	146%	3,611	146%	0		0	
Spectacled eider	1	23	196%	23	196%	0		0	
Steller's eider	0	0		0		0		0	
Harlequin duck	7	351	168%	0		0		351	168%
* Long-tailed duck	6	293	137%	293	137%	0		0	
Merganser	0	0		0		0		0	
Duck (unidentified)	24	869	153%	346	162%	352	185%	171	136%
Total ducks	799	26,576	53%	21,761	64%	1,123	127%	3,692	68%
Geese									
* Black brant	35	1,195	87%	1,110	92%	0		86	136%
* Cackling/Canada goose	332	11,088	45%	8,291	59%	910	119%	1,887	70%
* Greater white-fronted goose	326	12,115	64%	10,874	71%	0		1,241	83%
Emperor goose	60	1,799	104%	1,093	157%	233	196%	473	152%
* Snow goose	1	39	197%	0		0		39	197%
Total geese	754	26,236	50%	21,367	64%	1,142	105%	3,727	58%
Swan	48	1,758	76%	1,117	89%	111	108%	530	96%
Sandhill crane	40	1,381	81%	1,100	85%	39	197%	242	146%
Seabirds									
Cormorant	0	0		0		0		0	
Tern	0	0		0		0		0	
Black-legged kittiwake	0	0		0		0		0	
Bonaparte's/Sabine's gull	0	0		0		0		0	
Mew gull	2	78	197%	78	197%	0		0	
Large gull	0	0		0		0		0	
Auklet	0	0		0		0		0	
Murre	0	0		0		0		0	
Guillemot	0	0		0		0		0	
Puffin	0	0		0		0		0	
Total seabirds	2	78	197%	78	197%	0		0	
Shorebirds									
Whimbrel/Curlew	0	0		0		0		0	
Godwit	0	0		0		0		0	
Golden/Black-bellied plover	0	0		0		0		0	
Turnstone	0	0		0		0		0	
Phalarope	0	0		0		0		0	
Small shorebird	0	0		0		0		0	
Total shorebirds	0	0		0		0		0	
Loons and grebes									
Common loon	3	243	199%	0		0		243	199%
Pacific loon	0	0		0		0		0	
Red-throated loon	0	0		0		0		0	
Yellow-billed loon	0	0		0		0		0	
Loon (non-breeding plumage)	0	0		0		0		0	
Grebe	0	0		0		0		0	
Total loons and grebes	3	243	199%	0		0		243	199%
Other/unknown bird									
0	0		0		0		0		0
* Total commonly-harvested species	1,390	47,960	51%	40,423	62%	1,377	100%	6,160	50%
Total migratory birds	1,646	56,272	47%	45,424	60%	2,415		8,433	42%
Ptarmigans and grouses									
Grouse	57	2,313	129%	131	197%	0		2,182	137%
Ptarmigan	283	12,357	97%	6,887	102%	5,238	199%	233	196%
Total ptarmigans and grouses	340	14,670	81%	7,018	100%	5,238	199%	2,414	124%
Total birds	1,986	70,942	44%	52,442	60%	7,653	136%	10,847	53%

* : Commonly-harvested species. CIP: Confidence interval as percentage of the estimated harvest.

Table 13.—Estimated egg harvest, Yukon-Kuskokwim Delta region, 2017.

Species	Yearly egg harvest			Spring		Summer	
	Reported	Estimated	CIP	Estimated	CIP	Estimated	CIP
Ducks							
* American wigeon	19	742	185%	742	185%	0	
Teal	0	0		0		0	
* Mallard	0	0		0		0	
* Northern pintail	29	1,000	126%	1,000	126%	0	
Northern shoveler	10	391	197%	391	197%	0	
* Black scoter	0	0		0		0	
* Surf scoter	0	0		0		0	
* White-winged scoter	0	0		0		0	
Bufflehead	0	0		0		0	
Goldeneye	0	0		0		0	
* Canvasback	0	0		0		0	
* Scaup	0	0		0		0	
* Common eider	0	0		0		0	
* King eider	0	0		0		0	
Spectacled eider	0	0		0		0	
Steller's eider	0	0		0		0	
Harlequin duck	0	0		0		0	
* Long-tailed duck	0	0		0		0	
Merganser	0	0		0		0	
Duck (unidentified)	35	1,367	179%	1,367	179%	0	
Total ducks	93	3,500	154%	3,500	154%	0	
Geese							
* Black brant	17	664	197%	664	197%	0	
* Cackling/Canada goose	240	8,575	69%	8,273	72%	302	196%
* Greater white-fronted goose	198	7,178	75%	7,178	75%	0	
Emperor goose	22	932	198%	932	198%	0	
* Snow goose	0	0		0		0	
Total geese	477	17,350	69%	17,047	71%	302	196%
Swan	72	2,778	123%	2,778	123%	0	
Sandhill crane	40	1,405	96%	1,405	96%	0	
Seabirds							
Cormorant	0	0		0		0	
Tern	0	0		0		0	
Black-legged kittiwake	0	0		0		0	
Bonaparte's/Sabine's gull	0	0		0		0	
Mew gull	153	5,104	127%	5,104	127%	0	
Large gull	217	5,835	119%	5,835	119%	0	
Auklet	0	0		0		0	
Murre	0	0		0		0	
Guillemot	0	0		0		0	
Puffin	0	0		0		0	
Total seabirds	370	10,939	107%	10,939	107%	0	
Shorebirds							
Whimbrel/Curlew	0	0		0		0	
Godwit	0	0		0		0	
Golden/Black-bellied plover	0	0		0		0	
Turnstone	0	0		0		0	
Phalarope	0	0		0		0	
Small shorebird	0	0		0		0	
Total shorebirds	0	0		0		0	
Loons and grebes							
Common loon	0	0		0		0	
Pacific loon	0	0		0		0	
Red-throated loon	0	0		0		0	
Yellow-billed loon	0	0		0		0	
Grebe	0	0		0		0	
Total loons and grebes	0	0		0		0	
Other/unknown bird	0	0		0		0	
* Total commonly-harvested species	503	18,159	71%	17,857	72%	302	196%
Total migratory birds	1,052	35,970	72%	35,668	73%	302	196%
Ptarmigans and grouses							
Grouse	0	0		0		0	
Ptarmigan	0	0		0		0	
Total ptarmigans and grouses	0	0		0		0	
Total eggs	1,052	35,970		35,668		302	

* : Commonly-harvested species. CIP: Confidence interval as percentage of the estimated harvest.

Table 14.—Estimated bird harvest, Bering Strait-Norton Sound region, 2017.

Species	Yearly bird harvest			Spring		Summer		Fall	
	Reported	Estimated	CIP	Estimated	CIP	Estimated	CIP	Estimated	CIP
Ducks									
* American wigeon	4	121	197%	121	197%	0		0	
Teal	8	233	151%	182	197%	0		51	196%
* Mallard	13	320	137%	269	167%	0		51	196%
* Northern pintail	18	502	178%	485	186%	0		17	188%
Northern shoveler	0	0		0		0		0	
* Black scoter	0	0		0		0		0	
* Surf scoter	0	0		0		0		0	
* White-winged scoter	0	0		0		0		0	
Bufflehead	0	0		0		0		0	
Goldeneye	0	0		0		0		0	
* Canvasback	0	0		0		0		0	
* Scaup	0	0		0		0		0	
* Common eider	65	2,053	114%	1,706	116%	0		346	117%
* King eider	15	629	198%	0		629	198%	0	
Spectacled eider	23	965	193%	126	198%	839	198%	0	
Steller's eider	0	0		0		0		0	
Harlequin duck	0	0		0		0		0	
* Long-tailed duck	2	17	188%	17	188%	0		0	
Merganser	4	168	198%	168	198%	0		0	
Duck (unidentified)	4	35	184%	26	188%	0		9	188%
Total ducks	156	5,042	93%	3,100	77%	1,468	198%	474	112%
Geese									
* Black brant	92	2,412	123%	1,788	167%	0		624	153%
* Cackling/Canada goose	101	2,689	116%	2,506	114%	0		183	153%
* Greater white-fronted goose	55	1,422	146%	1,294	143%	0		128	187%
Emperor goose	15	485	98%	359	112%	0		126	189%
* Snow goose	199	4,914	155%	4,558	160%	0		355	116%
Total geese	462	11,922	132%	10,506	144%	0		1,416	91%
Swan	8	174	84%	91	84%	0		84	198%
Sandhill crane	17	455	118%	353	129%	0		102	196%
Seabirds									
Cormorant	63	2,642	185%	0		1,845	183%	797	191%
Tern	0	0		0		0		0	
Black-legged kittiwake	0	0		0		0		0	
Bonaparte's/Sabine's gull	0	0		0		0		0	
Mew gull	0	0		0		0		0	
Large gull	0	0		0		0		0	
Auklet	0	0		0		0		0	
Murre	98	4,110	183%	4,110	183%	0		0	
Guillemot	0	0		0		0		0	
Puffin	0	0		0		0		0	
Total seabirds	161	6,752	183%	4,110	183%	1,845	183%	797	191%
Shore birds									
Whimbrel/Curlew	0	0		0		0		0	
Godwit	0	0		0		0		0	
Golden/Black-bellied plover	0	0		0		0		0	
Turnstone	0	0		0		0		0	
Phalarope	0	0		0		0		0	
Small shorebird	0	0		0		0		0	
Total shore birds	0	0		0		0		0	
Loons and grebes									
Common loon	0	0		0		0		0	
Pacific loon	0	0		0		0		0	
Red-throated loon	2	84	198%	0		84	198%	0	
Yellow-billed loon	4	168	198%	126	198%	42	198%	0	
Loon (non-breeding plumage)	37	1,552	196%	629	198%	923	194%	0	
Grebe	3	126	198%	0		126	198%	0	
Total loons and grebes	46	1,929	192%	755	198%	1,174	190%	0	
Other/unknown bird	0	0		0		0		0	
* Total commonly-harvested species	564	15,079	111%	12,746	124%	629	198%	1,705	92%
Total migratory birds	850	26,275	92%	18,914	89%	4,487		2,873	105%
Ptarmigans and grouses									
Grouse	19	576	184%	424	189%	0		152	187%
Ptarmigan	22	578	120%	457	143%	0		121	197%
Total ptarmigans and grouses	41	1,154	125%	881	118%	0		273	190%
Total birds	891	27,429	88%	19,796	87%	4,487		3,146	91%

* : Commonly-harvested species. CIP: Confidence interval as percentage of the estimated harvest.

Table 15.—Estimated egg harvest, Bering Strait-Norton Sound region, 2017.

Species	Yearly egg harvest			Spring		Summer	
	Reported	Estimated	CIP	Estimated	CIP	Estimated	CIP
Ducks							
* American wigeon	20	510	196%	510	196%	0	
Teal	20	510	196%	510	196%	0	
* Mallard	8	204	196%	204	196%	0	
* Northern pintail	6	153	196%	153	196%	0	
Northern shoveler	12	306	196%	306	196%	0	
* Black scoter	37	944	190%	944	190%	0	
* Surf scoter	0	0		0		0	
* White-winged scoter	32	817	190%	817	190%	0	
Bufflehead	0	0		0		0	
Goldeneye	0	0		0		0	
* Canvasback	10	255	196%	255	196%	0	
* Scaup	12	306	196%	306	196%	0	
* Common eider	355	9,154	177%	9,154	177%	0	
* King eider	20	510	196%	510	196%	0	
Spectacled eider	12	306	196%	306	196%	0	
Steller's eider	0	0		0		0	
Eider (unidentified)	119	1,033	183%	1,033	183%	0	
* Harlequin duck	0	0		0		0	
Long-tailed duck	20	510	196%	510	196%	0	
Merganser	20	510	196%	510	196%	0	
Duck (unidentified)	512	4,440	183%	4,440	183%	0	
Total ducks	1,215	20,470	126%	20,470	126%	0	
Geese							
* Black brant	95	2,424	185%	2,041	187%	383	196%
* Cackling/Canada goose	15	407	128%	407	128%	0	
* Greater white-fronted goose	50	1,276	196%	1,276	196%	0	
Emperor goose	20	510	196%	510	196%	0	
* Snow goose	5	128	196%	0		128	196%
Total geese	185	4,744	175%	4,234	175%	510	196%
Swan	31	791	190%	791	190%	0	
Sandhill crane	14	367	153%	367	153%	0	
Seabirds							
Cormorant	20	839	198%	839	198%	0	
Tern	17	434	187%	434	187%	0	
Black-legged kittiwake	25	657	150%	657	150%	0	
Bonaparte's/Sabine's gull	0	0		0		0	
Mew gull	14	554	158%	554	158%	0	
Large gull	1,709	43,925	177%	43,925	177%	0	
Gull (unidentified)	365	3,170	188%	3,170	188%	0	
Auklet	0	0		0		0	
Murre	1,011	42,398	185%	42,398	185%	0	
Guillemot	0	0		0		0	
Puffin	0	0		0		0	
Total seabirds	3,161	91,977	105%	91,977	105%	0	
Shorebirds							
Whimbrel/Curlew	0	0		0		0	
Godwit	0	0		0		0	
Golden/Black-bellied plover	17	434	192%	434	192%	0	
Turnstone	2	51	196%	51	196%	0	
Phalarope	10	255	187%	255	187%	0	
Small shorebird	49	1,250	185%	1,250	185%	0	
Total shorebirds	78	1,990	183%	1,990	183%	0	
Loons and grebes							
Common loon	2	51	196%	51	196%	0	
Pacific loon	6	153	188%	153	188%	0	
Red-throated loon	0	0		0		0	
Yellow-billed loon	7	179	187%	179	187%	0	
Grebe	0	0		0		0	
Total loons and grebes	15	383	187%	383	187%	0	
Other/unknown bird	0	0		0		0	
* Total commonly-harvested species	685	17,598	174%	17,088	174%	510	196%
Ptarmigans and grouses							
Total migratory birds	4,699	120,722		120,212		510	
Grouse	0	0		0		0	
Ptarmigan	8	204	196%	204	196%	0	
Total ptarmigans and grouses	8	204	196%	204	196%	0	
Total eggs	4,707	120,926	101%	120,416	101%	510	

* : Commonly-harvested species. CIP: Confidence interval as percentage of the estimated harvest.

Table 16.—Estimated bird harvest, North Slope region, 2017.

Species	Yearly bird harvest			Spring		Summer	
	Reported	Estimated	CIP	Estimated	CIP	Estimated	CIP
Ducks							
* American wigeon	0	0		0		0	
Teal	2	20	190%	20	190%	0	
* Mallard	10	101	190%	101	190%	0	
* Northern pintail	0	0		0		0	
Northern shoveler	0	0		0		0	
* Black scoter	0	0		0		0	
* Surf scoter	0	0		0		0	
* White-winged scoter	0	0		0		0	
* Scaup	0	0		0		0	
* Common eider	56	915	110%	467	114%	448	173%
* King eider	339	4,959	104%	1,966	75%	2,993	139%
Spectacled eider	0	0		0		0	
Steller's eider	0	0		0		0	
* Long-tailed duck	0	0		0		0	
Merganser	0	0		0		0	
Duck (unidentified)	0	0		0		0	
Total ducks	407	5,994	101%	2,554	69%	3,441	141%
Geese							
* Black brant	74	521	78%	449	99%	72	125%
* Cackling/Canada goose	40	458	131%	458	131%	0	
* Greater white-fronted goose	774	7,034	44%	7,034	44%	0	
* Snow goose	62	502	57%	502	57%	0	
Goose (unidentified)	0	0		0		0	
Total geese	950	8,515	37%	8,443	37%	72	125%
Swan	6	44	87%	44	87%	0	
Sandhill crane	3	43	161%	43	161%	0	
Seabirds							
Tem	0	0		0		0	
Bonaparte's/Sabine's gull	0	0		0		0	
Large gull	1	18	194%	18	194%	0	
Murre	0	0		0		0	
Guillemot	3	54	194%	0		54	194%
Total seabirds	4	72	182%	18	194%	54	194%
Shorebirds							
Whimbrel/Curlew	0	0		0		0	
Godwit	0	0		0		0	
Golden/Black-bellied plover	0	0		0		0	
Tumstone	0	0		0		0	
Phalarope	0	0		0		0	
Small shorebird	0	0		0		0	
Total shorebirds	0	0		0		0	
Loons and grebes							
Pacific loon	7	125	194%	0		125	194%
Red-throated loon	0	0		0		0	
Yellow-billed loon	4	72	194%	0		72	194%
Loon (non-breeding plumage)	0	0		0		0	
Total loons and grebes	11	197	194%	0		197	194%
Snowy owl	0	0		0		0	
Other/unknown bird	0	0		0		0	
* Total commonly-harvested species	1,355	14,489	61%	10,977	41%	3,512	140%
Total migratory birds	1,381	14,865	63%	11,102	41%	3,763	142%
Ptarmigans and grouses							
Grouse	0	0		0		0	
Ptarmigan	105	1,518	126%	819	108%	699	178%
Total ptarmigans and grouses	105	1,518	126%	819	108%	699	178%
Total birds	1,486	16,383	66%	11,921	41%	4,462	145%

* : Commonly-harvested species. CIP: Confidence interval as percentage of the estimated harvest.

Note See Appendix S for comments from North Slope Borough Fish and Game Management Committee on harvest estimates.

Table 17.—Estimated egg harvest, North Slope region, 2017.

Species	Yearly egg harvest			Spring		Summer	
	Reported	Estimated	CIP	Estimated	CIP	Estimated	CIP
Ducks							
* American wigeon	0	0		0		0	
Teal	0	0		0		0	
* Mallard	4	27	185%	27	185%	0	
* Northern pintail	0	0		0		0	
Northern shoveler	0	0		0		0	
* Black scoter	0	0		0		0	
* Surf scoter	0	0		0		0	
* White-winged scoter	0	0		0		0	
* Scaup	0	0		0		0	
* Common eider	0	0		0		0	
* King eider	0	0		0		0	
Spectacled eider	0	0		0		0	
Steller's eider	0	0		0		0	
* Long-tailed duck	0	0		0		0	
Merganser	0	0		0		0	
Duck (unidentified)	0	0		0		0	
Total ducks	4	27	185%	27	185%	0	
Geese							
* Black brant	0	0		0		0	
* Cackling/Canada goose	0	0		0		0	
* Greater white-fronted goose	265	1,856	158%	1,856	158%	0	
* Snow goose	0	0		0		0	
Goose (unidentified)	0	0		0		0	
Total geese	265	1,856	158%	1,856	158%	0	
Swan	2	8	174%	8	174%	0	
Sandhill crane	0	0		0		0	
Seabirds							
Tem	0	0		0		0	
Bonaparte's/Sabine's gull	0	0		0		0	
Large gull	6	52	127%	52	127%	0	
Murre	0	0		0		0	
Guillemot	0	0		0		0	
Total seabirds	6	52	127%	52	127%	0	
Shorebirds							
Whimbrel/Curlew	0	0		0		0	
Godwit	1	18	194%	18	194%	0	
Golden/Black-bellied plover	0	0		0		0	
Turnstone	0	0		0		0	
Phalarope	0	0		0		0	
Small shorebird	0	0		0		0	
Total shorebirds	1	18	194%	18	194%	0	
Loons and grebes							
Pacific loon	0	0		0		0	
Red-throated loon	0	0		0		0	
Yellow-billed loon	0	0		0		0	
Total loons and grebes	0	0		0		0	
Snowy owl	0	0		0		0	
Other/unknown bird	0	0		0		0	
* Total commonly-harvested species	269	1,883	158%	1,883	158%	0	
Total migratory birds	278	1,962	154%	1,962	154%	0	
Ptarmigans and grouses							
Grouse	0	0		0		0	
Ptarmigan	27	160	140%	160	140%	0	
Total ptarmigans and grouses	27	160	140%	160	140%	0	
Total eggs	305	2,121	150%	2,121	150%	0	

* : Commonly-harvested species. CIP: Confidence interval as percentage of the estimated harvest.

Note See Appendix S for comments from North Slope Borough Fish and Game Management Committee on harvest estimates.

Table 18.—Estimated bird harvest, Interior Alaska region, 2017.

Species	Yearly bird harvest			Spring		Summer		Fall	
	Reported	Estimated	CIP	Estimated	CIP	Estimated	CIP	Estimated	CIP
Ducks									
* American wigeon	23	740	88%	582	108%	0		158	199%
Teal	12	470	124%	312	107%	0		158	199%
* Mallard	126	3,512	101%	3,139	105%	0		373	101%
* Northern pintail	77	2,777	104%	2,740	105%	0		37	186%
Northern shoveler	5	170	157%	36	194%	0		133	198%
* Black scoter	36	240	131%	240	131%	0		0	
* Surf scoter	8	51	184%	51	184%	0		0	
* White-winged scoter	19	696	189%	696	189%	0		0	
Bufflehead	3	76	153%	76	153%	0		0	
Goldeneye	6	312	151%	312	151%	0		0	
* Canvasback	1	44	198%	0		0		44	198%
* Scaup	0	0		0		0		0	
Harlequin duck	0	0		0		0		0	
* Long-tailed duck	14	144	128%	144	128%	0		0	
Merganser	0	0		0		0		0	
Duck (unidentified)	0	0		0		0		0	
* Total ducks	330	9,231	86%	8,329	85%	0		902	116%
Geese									
* Cackling/Canada goose	88	1,698	80%	1,548	80%	0		150	108%
* Greater white-fronted goose	110	3,589	103%	3,589	103%	0		0	
Snow goose	12	147	116%	147	116%	0		0	
Total geese	210	5,434	78%	5,284	79%	0		150	108%
Swan	0	0		0		0		0	
Sandhill crane	5	394	191%	315	199%	0		79	199%
Seabirds									
Tern	0	0		0		0		0	
Bonaparte's/Sabine's gull	0	0		0		0		0	
Mew gull	0	0		0		0		0	
Large gull	0	0		0		0		0	
Total seabirds	0	0		0		0		0	
Shorebirds									
Whimbrel/Curlew	0	0		0		0		0	
Godwit	0	0		0		0		0	
Golden/Black-bellied plover	0	0		0		0		0	
Phalarope	0	0		0		0		0	
Small shorebird	0	0		0		0		0	
Total shorebirds	0	0		0		0		0	
Loons and grebes									
Common loon	0	0		0		0		0	
Pacific loon	0	0		0		0		0	
Red-throated loon	0	0		0		0		0	
Loon (non-breeding plumage)	0	0		0		0		0	
Grebe	0	0		0		0		0	
Total loons and grebes	0	0		0		0		0	
Other/unknown bird	0	0		0		0		0	
* Total commonly-harvested species	514	13,638	81%	12,877	81%	0		761	101%
Total migratory birds	545	15,059	83%	13,929	82%	0		1,130	113%
Ptarmigans and grouses									
Grouse	422	9,465	55%	1,196	130%	0		8,269	55%
Ptarmigan	31	269	108%	43	165%	0		227	130%
Total ptarmigans and grouses	453	9,734	53%	1,239	125%	0		8,496	52%
Total birds	998	24,794	55%	15,167	75%	0		9,626	48%

* : Commonly-harvested species.

CIP: Confidence interval as percentage of the estimated harvest.

Table 19.—Estimated egg harvest, Interior Alaska region, 2017.

Species	Yearly egg harvest			Spring		Summer	
	Reported	Estimated	CIP	Estimated	CIP	Estimated	CIP
Ducks							
* American wigeon	0	0		0		0	
Teal	0	0		0		0	
* Mallard	0	0		0		0	
* Northern pintail	0	0		0		0	
Northern shoveler	0	0		0		0	
* Black scoter	0	0		0		0	
* Surf scoter	0	0		0		0	
* White-winged scoter	0	0		0		0	
Bufflehead	0	0		0		0	
Goldeneye	0	0		0		0	
* Canvasback	0	0		0		0	
* Scaup	0	0		0		0	
Harlequin duck	0	0		0		0	
* Long-tailed duck	0	0		0		0	
Merganser	0	0		0		0	
Duck (unidentified)	0	0		0		0	
Total ducks	0	0		0		0	
Geese							
* Cackling/Canada goose	0	0		0		0	
* Greater white-fronted goose	0	0		0		0	
* Snow goose	0	0		0		0	
Total geese	0	0		0		0	
Swan	0	0		0		0	
Sandhill crane	0	0		0		0	
Seabirds							
Tern	0	0		0		0	
Bonaparte's/Sabine's gull	0	0		0		0	
Mew gull	0	0		0		0	
Large gull	0	0		0		0	
Total seabirds	0	0		0		0	
Shorebirds							
Whimbrel/Curlew	0	0		0		0	
Godwit	0	0		0		0	
Golden/Black-bellied plover	0	0		0		0	
Phalarope	0	0		0		0	
Small shorebird	0	0		0		0	
Total shorebirds	0	0		0		0	
Loons and grebes							
Common loon	0	0		0		0	
Pacific loon	0	0		0		0	
Red-throated loon	0	0		0		0	
Grebe	0	0		0		0	
Total loons and grebes	0	0		0		0	
Other/unknown bird	0	0		0		0	
* Total commonly-harvested species	0	0		0		0	
Total migratory birds	0	0		0		0	
Ptarmigans and grouses							
Grouse	0	0		0		0	
Ptarmigan	0	0		0		0	
Total ptarmigans and grouses	0	0		0		0	
Total eggs	0	0		0		0	

* : Commonly-harvested species.

CIP: Confidence interval as percentage of the estimated harvest.

Table 20.—Estimated April–May Cordova bird and egg harvest, 2014–2017.

Species	2014			2015			2016			2017		
	Reported	Estimated	CIP									
Birds												
American wigeon	1	1	97%	0	0		1	1	82%	5	5	40%
Teal	1	1	97%	0	0		0	0		14	15	25%
Mallard	11	14	43%	0	0		16	19	36%	42	45	22%
Northern pintail	12	15	47%	0	0		56	66	31%	82	89	28%
Northern shoveler	0	0		0	0		2	2	82%	0	0	
Black scoter	0	0		0	0		0	0		0	0	
Surf scoter	0	0		0	0		0	0		0	0	
White-winged scoter	0	0		0	0		0	0		0	0	
Bufflehead	0	0		0	0		0	0		0	0	
Goldeneye	0	0		0	0		0	0		4	4	56%
Canvasback	0	0		0	0		0	0		0	0	
Scaup	0	0		0	0		0	0		0	0	
Common eider	0	0		0	0		0	0		0	0	
King eider	0	0		0	0		0	0		0	0	
Harlequin duck	0	0		0	0		0	0		0	0	
Long-tailed duck	0	0		0	0		0	0		0	0	
Merganser	0	0		0	0		0	0		0	0	
Total ducks	25	32	38%	0	0		75	89	29%	147	159	24%
Greater white-fronted goose	4	5	67%	0	0		0	0		7	8	30%
Snow goose	4	5	57%	0	0		5	6	67%	3	3	56%
Total geese	8	10	49%	0	0		5	6	67%	10	11	29%
Sandhill crane	0	0		0	0		0	0		3	3	56%
Other/unknown bird	0	0		0	0		0	0		1	1	56%
Total birds	33	42	37%	0	0		80	95	27%	161	174	23%
Eggs												
Gull (unidentified)	102	131	37%	197	263	51%	105	124	47%	105	113	27%
Total eggs	102	131	37%	197	263	51%	105	124	47%	105	113	27%

CIP: confidence interval as percentage of the estimated harvest.

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APPENDICES

Appendix A.—Regions and communities included in the 2004–2017 harvest estimates.

Region, community	House-	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
	holds ^a														
Gulf of Alaska-Cook Inlet															
Chenega	31	-	-	x	-	-	-	x	-	-	-	-	-	-	-
Cordova†	922	-	-	-	-	-	-	-	-	-	-	x	x	x	x
Nanwalek	55	x	-	-	-	-	-	x	-	-	-	-	-	-	-
Port Graham	79	x	-	x	-	-	-	-	-	-	-	-	-	-	-
Tatitlek	36	x	-	-	-	-	-	-	-	-	-	-	-	-	-
Tyonek	70	x	x	-	-	-	-	-	-	-	-	-	-	-	-
Kodiak Archipelago															
Akhiok	19	-	-	x	-	-	-	x	-	-	-	-	-	-	-
Aleneva	9	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Balance of Kodiak Is. Borough	1,665	-	-	-	-	-	-	x	-	-	-	-	-	-	-
Chiniak	20	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Karluk	12	-	-	x	-	-	-	x	-	-	-	-	-	-	-
Kodiak City	2,039	-	-	x	-	-	-	-	-	-	-	-	-	-	-
Kodiak Station	332	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Larsen Bay	34	-	-	x	-	-	-	x	-	-	-	-	-	-	-
Old Harbor	84	-	-	x	-	-	-	-	-	-	-	-	-	-	-
Ouzinkie	56	-	-	x	-	-	-	-	-	-	-	-	-	-	-
Port Lions	77	-	-	-	-	-	-	x	-	-	-	-	-	-	-
Womens Bay	283	-	-	-	-	-	-	x	-	-	-	-	-	-	-
Aleutian-Pribilof Islands															
Adak	44	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Akutan	40	-	x	-	x	x	-	-	-	-	-	-	-	-	-
Atka	24	-	x	-	-	-	-	-	-	-	-	-	-	-	-
Cold Bay	46	-	x	-	-	-	-	-	-	-	-	-	-	-	-
False Pass	15	-	-	-	-	x	-	-	-	-	-	-	-	-	-
King Cove	181	-	x	-	-	x	-	-	-	-	-	-	-	-	-
Nelson Lagoon	22	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nikolski	13	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Saint George	42	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Saint Paul	162	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sand Point	246	-	-	-	-	x	-	-	-	-	-	-	-	-	-
Unalaska	927	-	-	-	-	x	-	-	-	-	-	-	-	-	-
Bristol Bay															
Aleknagik	71	x	-	-	x	x	-	-	x	-	-	-	-	-	-
Chignik	41	x	-	-	x	-	-	-	x	-	-	-	-	-	x
Chignik Lagoon	29	x	-	-	-	-	-	-	-	-	-	-	-	x	-
Chignik Lake	27	x	-	-	-	x	-	-	-	-	-	-	-	-	-
Clarks Point	24	x	x	-	x	x	-	-	-	-	-	-	-	-	-
Dillingham	855	-	x	-	x	x	-	-	x	-	-	-	-	x	x
Egegik	29	-	x	-	x	-	-	-	-	-	-	-	-	-	-
Ekwok	37	x	-	-	x	x	-	-	x	-	-	-	-	-	-

-continued-

Region, community	House-	holds ^a	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Igiugig	16	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Iliamna	39	-	x	-	x	-	-	-	-	-	-	-	-	-	x	x
Ivanof Bay	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
King Salmon	157	-	x	-	-	-	-	-	-	-	-	-	-	-	-	-
Kokhanok	52	x	x	-	x	x	-	-	x	-	-	-	-	-	-	-
Koliganek	55	-	x	-	x	-	-	-	-	-	-	-	-	-	-	-
Levelock	27	x	x	-	-	x	-	-	x	-	-	-	-	-	x	x
Manokotak	121	-	x	-	x	-	-	-	x	-	-	-	-	-	-	x
Naknek	231	x	-	-	x	-	-	-	x	-	-	-	-	-	-	-
New Stuyahok	114	-	x	-	x	-	-	-	-	-	-	-	-	-	-	x
Newhalen	50	x	x	-	-	x	-	-	-	-	-	-	-	-	-	-
Nondalton	57	x	x	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedro Bay	19	-	x	-	-	-	-	-	-	-	-	-	-	-	-	-
Perryville	38	x	-	-	x	-	-	-	x	-	-	-	-	-	-	-
Pilot Point	27	-	x	-	-	-	-	-	-	-	-	-	-	-	-	-
Pope-Vannoy Landing‡	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Port Alsworth‡	44	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Port Heiden	35	-	x	-	-	-	-	-	x	-	-	-	-	-	-	x
Portage Creek‡	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
South Naknek	35	-	x	-	x	-	-	-	-	-	-	-	-	-	-	x
Togiak	231	x	-	x	x	-	-	-	x	-	-	-	-	-	-	x
Twin Hills	29	x	x	-	x	-	-	-	-	-	-	-	-	-	-	-
Ugashik‡	7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Yukon-Kuskokwim Delta																
Akiachak	150	-	-	x	-	-	x	-	-	-	-	-	-	x	x	-
Akiak	90	-	x	x	x	-	-	x	-	-	-	-	-	x	x	-
Alakanuk	160	x	-	x	-	-	x	x	-	-	x	-	x	-	-	x
Aniak	166	x	x	-	-	x	-	-	-	-	-	-	-	x	x	x
Atmautluak	63	x	-	-	x	x	-	-	-	-	x	-	-	-	x	-
Bethel	1,896	x	x	x	x	x	x	x	x	-	-	-	-	x	x	x
Chefornak	92	x	-	x	x	-	x	x	-	-	x	-	-	-	-	x
Chevak	209	x	-	-	-	-	x	x	-	-	-	-	-	x	-	x
Chuathbaluk	36	x	-	-	-	-	-	-	-	-	-	-	-	-	x	-
Crooked Creek	38	x	-	x	-	-	-	-	-	-	-	-	-	-	-	-
Eek	91	x	x	-	x	x	-	x	x	-	-	-	-	x	-	-
Emmonak	185	-	x	x	x	x	x	-	-	-	-	x	-	-	x	-
Goodnews Bay	76	-	-	x	-	-	-	-	x	-	-	x	-	-	-	-
Hooper Bay	256	x	x	-	-	x	-	-	x	-	-	-	-	x	x	x
Kasigluk	113	x	-	x	x	-	x	-	-	-	-	x	-	-	-	-
Kipnuk	153	-	x	x	x	-	x	-	x	-	-	-	-	-	-	-
Kongiganak	94	-	x	x	x	x	-	-	-	-	-	-	-	-	-	-
Kotlik	128	x	x	-	-	-	-	-	-	-	-	-	-	x	-	-
Kwethluk	172	x	x	x	x	-	x	x	-	-	-	-	-	x	x	x

-continued-

Region, community	House- holds^a	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Kwigillingok	82	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lime Village	11	-	-	x	-	-	-	x	-	-	-	-	-	-	-
Lower Kalskag	75	x	-	x	x	x	x	x	-	-	-	-	-	-	-
Marshall	100	x	x	-	x	x	-	x	-	-	-	-	x	-	-
Mekoryuk	70	-	x	-	x	x	-	-	x	-	-	-	-	x	-
Mountain Village	184	-	x	-	x	x	-	-	-	-	x	-	-	-	-
Napakiak	96	-	-	-	x	-	-	-	-	-	x	-	-	-	-
Napaskiak	94	-	x	x	x	x	x	-	x	-	-	-	x	x	x
Newtok	70	-	x	x	-	x	x	-	-	-	x	-	-	-	-
Nightmute	59	x	-	x	x	-	x	-	x	-	-	-	-	x	-
Nunam Iqua	43	-	x	x	-	x	x	x	-	-	-	-	x	x	-
Nunapitchuk	124	x	x	-	x	x	-	-	x	-	-	-	-	x	-
Oscarville	15	-	-	x	x	-	x	x	-	-	x	-	-	x	-
Pilot Station	121	-	x	x	-	x	x	-	-	-	-	-	x	-	x
Pitkas Point	31	x	-	x	x	-	x	x	-	-	x	-	-	-	-
Platinum	19	-	x	x	-	-	-	x	-	-	x	-	-	-	-
Quinhagak	165	x	x	x	x	-	-	-	x	-	x	-	x	x	-
Red Devil	12	-	-	-	x	-	-	-	-	-	-	-	-	-	-
Russian Mission	73	-	x	x	-	x	x	-	-	-	-	-	x	-	x
Saint Marys	151	-	x	-	x	-	x	-	-	-	x	-	-	-	-
Scammon Bay	96	-	-	x	-	x	x	x	-	-	x	-	-	-	-
Sleetmute	36	-	-	x	x	-	-	-	-	-	-	-	-	-	-
Stony River	20	x	-	x	-	-	-	-	-	-	-	-	-	x	x
Toksook Bay	125	x	x	-	x	-	-	-	-	-	x	-	x	x	-
Tuluksak	92	-	x	x	-	x	-	-	x	-	-	-	x	-	x
Tuntutuliak	96	x	-	x	-	x	x	x	-	-	x	-	x	x	x
Tununak	84	x	x	-	x	x	-	-	x	-	x	-	-	-	x
Upper Kalskag	60	-	x	x	-	-	-	-	x	-	x	-	-	x	-
Bering Strait-Norton Sound															
Brevig Mission	93	x	-	-	x	-	-	x	-	-	-	-	-	-	x
Diomedea	38	-	x	-	x	-	-	x	-	-	-	-	-	x	-
Elim	89	x	x	-	-	-	-	-	-	-	-	-	-	-	-
Gambell	164	x	x	-	x	-	x	x	x	x	-	-	-	-	-
Golovin	49	-	x	-	x	-	-	x	-	-	-	-	-	-	-
Koyuk	89	-	x	-	x	-	-	x	-	-	-	-	-	-	-
Nome	1,216	x	x	-	x	-	-	-	-	-	-	-	-	x	x
Saint Michael	96	x	-	-	x	-	-	-	-	-	-	-	-	-	-
Savoonga	166	x	x	-	x	-	x	x	x	x	-	-	-	-	x
Shaktoolik	64	-	-	-	x	-	-	x	-	-	-	-	-	x	-
Shishmaref	141	x	x	-	-	-	-	-	-	-	-	-	-	-	-
Stebbins	134	-	x	-	x	-	-	x	-	-	-	-	-	-	-
Unalakleet	225	x	-	-	x	-	-	-	-	-	-	-	-	-	x
Teller	72	x	x	-	-	-	-	-	-	-	-	-	-	-	-

-continued-

Region, community	House- holds^a	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Wales	43	x	x	-	-	-	-	-	-	-	-	-	-	x	x
White Mountain	65	x	-	-	x	-	-	-	-	-	-	-	-	x	-
Northwest Arctic															
Ambler	75	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Buckland	98	-	-	x	-	-	-	-	-	-	-	-	-	-	-
Deering	44	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Kiana	101	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Kivalina	85	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Kobuk	36	-	-	x	-	-	-	-	-	-	-	-	-	-	-
Kotzebue	954	-	-	-	-	-	-	-	-	x	-	-	-	-	-
Noatak	114	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Noorvik	153	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Selawik	186	-	-	x	-	-	-	-	-	-	-	-	-	-	-
Shungnak	62	-	-	x	-	-	-	-	-	-	-	-	-	-	-
North Slope															
Anaktuvuk Pass	99	-	x	-	x	-	-	-	-	-	-	-	-	-	x
Atkasuk	64	-	x	-	x	-	-	-	-	-	-	-	-	-	x
Kaktovik	72	-	x	-	x	x	x	-	-	-	-	-	-	x	-
Nuiqsut	114	-	-	-	-	x	x	-	-	-	-	-	-	-	-
Point Hope	186	-	x	-	-	x	-	-	-	-	-	-	-	x	-
Point Lay	60	-	x	-	-	-	-	-	-	-	-	-	-	-	x
Utqiagvik (Barrow)	1,280	-	x	-	x	x	x	-	-	-	-	-	-	x	x
Wainwright	147	-	x	-	x	x	x	-	-	-	-	-	-	x	-
Interior Alaska															
Alatna	12	x	-	x	x	x	-	x	-	-	-	-	-	-	-
Alcan Border‡		-	-	-	-	-	-	-	-	-	-	-	-	-	-
Allakaket	62	x	-	x	x	x	-	x	-	-	-	-	-	-	-
Allakaket-Alatna	74	-	-	-	-	-	-	-	-	-	-	-	-	x	-
Anderson‡	90	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Anvik	33	x	x	x	-	-	-	x	-	-	-	-	-	x	x
Arctic Village	65	-	-	x	-	-	-	-	-	-	-	x	-	-	-
Beaver	36	-	-	x	x	-	-	x	-	-	-	x	-	-	-
Bettles-Evansville	21	-	-	x	-	-	-	-	-	-	-	-	-	x	-
Birch Creek	17	-	-	-	x	-	-	-	-	-	-	-	-	x	-
Central	53	-	-	x	-	-	-	x	-	-	-	-	-	-	-
Chalkyitsik	24	-	-	x	x	-	-	x	-	-	-	x	-	-	-
Chicken‡	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Circle	40	-	-	x	x	-	-	-	-	-	-	x	-	-	x
Coldfoot	6	-	-	-	-	-	-	x	-	-	-	-	-	-	-
Dot Lake	26	x	-	-	-	-	-	-	-	-	-	-	-	-	-
Dry Creek	29	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Eagle Village	31	x	-	-	-	-	-	-	-	-	-	-	-	-	x
Eagle	41	x	-	-	-	-	-	-	-	-	-	-	-	-	x

-continued-

Region, community	House-	holds ^a	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Fort Yukon	246	x	-	x	x	-	-	-	-	-	-	-	x	-	x	x
Galena	190	x	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Grayling	55	-	x	x	-	-	-	-	-	-	-	-	-	-	-	-
Healy Lake	7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Holy Cross	64	x	x	x	-	-	-	x	-	-	-	-	-	-	-	-
Hughes	31	x	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Huslia	91	x	-	-	-	-	-	-	x	-	-	-	-	-	-	x
Kaltag	70	x	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Koyukuk	42	x	x	-	-	-	-	-	-	-	-	-	-	-	-	x
Lake Minchumina	6	x	-	x	-	-	-	-	-	-	-	-	-	-	-	-
Livengood‡	7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Manley Hot Springs	41	x	-	-	-	-	-	-	-	-	-	-	-	-	-	-
McGrath	147	-	-	-	-	-	-	-	-	-	-	-	-	-	-	x
Minto	65	-	-	x	-	-	-	-	x	-	-	-	-	-	-	-
Nenana‡	185	x	-	x	-	-	-	-	-	-	-	-	-	-	-	x
Nikolai	37	x	x	x	-	-	-	-	-	-	-	-	-	-	-	-
Northway	77	x	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nulato	92	x	x	-	-	-	-	-	-	-	-	-	-	-	x	-
Rampart	10	-	-	-	-	-	-	-	x	-	-	-	-	-	-	x
Ruby	62	x	x	-	-	-	-	-	x	-	-	-	-	-	-	-
Shageluk	36	-	x	-	-	-	-	-	-	-	-	-	-	-	-	-
Stevens Village	26	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Takotna	22	-	x	-	-	-	-	-	x	-	-	-	-	-	x	-
Tanacross	53	-	-	x	-	-	-	-	-	-	-	-	-	-	-	-
Tanana	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tetlin	43	-	-	-	-	-	-	-	x	-	-	-	-	-	-	-
Tok	532	-	-	x	-	-	-	-	x	-	-	-	-	-	-	-
Venetie	61	-	-	x	x	-	-	-	x	-	-	-	x	-	-	-
Wiseman	5	-	-	-	-	-	-	-	x	-	-	-	-	-	-	-
Upper Copper River																
Cantwell	104	-	-	-	x	-	-	-	-	-	-	-	-	-	-	-
Chistochina	36	x	-	-	x	-	-	-	-	-	-	-	-	-	-	-
Chitina	52	x	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Copper Center	123	x	-	-	x	-	-	-	-	-	-	-	-	-	-	-
Gakona	86	x	-	-	x	-	-	-	-	-	-	-	-	-	-	-
Gulkana	36	x	-	-	x	-	-	-	-	-	-	-	-	-	-	-
Mentasta Lake	46	x	-	-	x	-	-	-	-	-	-	-	-	-	-	-
Tazlina	111	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Southeast Alaska^b																
Craig	470	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hoonah	305	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Yakutat	270	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hydaburg	128	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

-continued-

Sources Survey results for 2004–2016 were reported in Naves (2010rev., 2010, 2011, 2012, 2014a, 2015b, 2016), Naves and Braem (2014), Naves and Otis (2017).

- a. Households: Total number of occupied households based on 2010 Census.
- b. Communities eligible only to harvest of glaucous-winged gull eggs (FR vol. 75, No. 70, pp. 18764–18773, April 13, 2010).

Note ‡ The communities of Alcan Border, Anderson, Chicken, Livengood, Pope-Vanoy Landing, Portage Creek, Port Alsworth, and Ugashik were added to the sampling universe in 2014. Also at this revision, the Four Mile Road CDP was combined to the community of Nenana for the purposes of this survey.

Note † Cordova was included starting in 2014 when the spring hunt was first authorized.

Note Allakaket includes Allalakket City and New Allakaket CDP. Starting in 2016, the communities of Alatna and Allakaket were combined for the purposes of this survey.

Note Dot Lake includes Dot Lake Village and Dot Lake CDP for the purposes of this survey.

Note Bettles-Evansville includes both Bettles and Evansville for the purposes of this survey.

Note Northway includes Northway Village, Northway Junction, and Northway CDPs for the purposes of this survey.

Note Nenana includes Nenana City and Four Mile Road CDP for the purposes of this survey.

Note Balance of Kodiak Island Borough listed as Kodiak at Large in previous AMBCC documents.

Appendix C.–Tracking sheet and household consent form (original size 8.5x11 inches).



AMBCC Harvest Survey
OMB FWS Form 3-2380 Expires 10/31/2019

page ____ / ____

Tracking Sheet & Household Consent Form

Copy here only the households selected to be surveyed.

Village: _____ Harvest Year: _____ Surveyor: _____

Household ID	Household name	Household consent				Harvest report completed Date (mm/dd/yy)	Comments (Why no contact? Moved?)
		Attempt	Date (mm/dd/yy)	Agreed	Refused		
		1 st	/ /				/ /
		2 nd	/ /				/ /
		3 rd	/ /				/ /
		1 st	/ /				/ /
		2 nd	/ /				/ /
		3 rd	/ /				/ /
		1 st	/ /				/ /
		2 nd	/ /				/ /
		3 rd	/ /				/ /
		1 st	/ /				/ /
		2 nd	/ /				/ /
		3 rd	/ /				/ /
		1 st	/ /				/ /
		2 nd	/ /				/ /
		3 rd	/ /				/ /
		1 st	/ /				/ /
		2 nd	/ /				/ /
		3 rd	/ /				/ /

Appendix D.-Harvest report form, Western Alaska (spring sheet, both sides, original size 8.5x11 inches).

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OMB FWS Form 3-2381-1 Expires 31/10/2019

AMBCS Subsistence Migratory Bird Household Harvest Survey
Western Alaska Harvest Report - SPRING
Y-K Delta, Bering Strait-Norton Sound, NW Arctic, Bristol Bay (except South AK Peninsula)

Did the household harvest birds or eggs from **April 1 to June 30**? YES NO

Village: _____ Household ID: _____ Harvest Year: _____ Date: ____/____/____

American wigeon birds _____ eggs _____	Teal birds _____ eggs _____	Mallard birds _____ eggs _____	Northern pintail birds _____ eggs _____
Northern shoveler birds _____ eggs _____	Black scoter birds _____ eggs _____	Surf scoter birds _____ eggs _____	White-winged scoter birds _____ eggs _____
Bufflehead birds _____ eggs _____	Goldeneye birds _____ eggs _____	Canvasback birds _____ eggs _____	Scaup birds _____ eggs _____
Common eider birds _____ eggs _____	King eider birds _____ eggs _____	Spectacled eider birds _____ eggs _____	Steller's eider birds _____ eggs _____
Harlequin duck birds _____ eggs _____	Long-tailed duck birds _____ eggs _____	Merganser birds _____ eggs _____	Unknown duck birds _____ eggs _____
Black brant birds _____ eggs _____	Cackling/Canada goose birds _____ eggs _____	Greater white-fronted goose birds _____ eggs _____	Emperor goose birds _____ eggs _____
Snow goose birds _____ eggs _____			

FWS Form 3-2381-1 10/09. This form supersedes form 7-PW-103, which is obsolete.

OMB FWS Form 3-2381-1 Expires 10/31/2019

AMBCS Subsistence Migratory Bird Household Harvest Survey
Western Alaska Harvest Report
SPRING - April 1 to June 30

Village: _____ Household ID: _____ Harvest Year: _____ Date: ____/____/____

Swan birds _____ eggs _____	Sandhill crane birds _____ eggs _____	Grouse birds _____ eggs _____	Ptarmigan birds _____ eggs _____
"Loon 1" birds _____ eggs _____	"Loon 2" birds _____ eggs _____	"Loon 3" birds _____ eggs _____	"Loon 4" birds _____ eggs _____
"Loon 5" birds _____ eggs _____			
Grebe birds _____ eggs _____	Cormorant birds _____ eggs _____	Murre birds _____ eggs _____	Guillemot birds _____ eggs _____
Auklet birds _____ eggs _____	Puffin birds _____ eggs _____	Black-legged kittiwake birds _____ eggs _____	Bonaparte's/Sabine's Gull birds _____ eggs _____
Mew gull birds _____ eggs _____	Large gull birds _____ eggs _____	Tern birds _____ eggs _____	Whimbrel/Curlew birds _____ eggs _____
Golden/Black-bellied plover birds _____ eggs _____	Turnstone birds _____ eggs _____	Phalarope birds _____ eggs _____	Small shorebird birds _____ eggs _____
Other/unknown bird: _____ birds _____ eggs _____			

Comments: _____

Appendix E.—Harvest report form, Southern Coastal Alaska (spring sheet, both sides, original size 8.5x11 inches).

44

OMB FWS Form 3-2381-2 Expires 10/31/2019

AMBC Subsistence Migratory Bird Household Harvest Survey
Southern Coastal Alaska Harvest Report - WINTER
 Gulf of Alaska-Cook Inlet, Kodiak Archipelago, Aleutian-Pribilof Is., South AK Peninsula

Did the household harvest birds or eggs from **November 1 to March 9**? YES NO

Village: _____ Household ID: _____ Harvest Year: _____ Date: _____

American wigeon birds _____ 	Teal birds _____ 	Mallard birds _____ 	Northern pintail birds _____
Northern shoveler birds _____ 	Black scoter birds _____ 	Surf scoter birds _____ 	White-winged scoter birds _____
Bufflehead birds _____ 	Goldeneye birds _____ 	Canvasback birds _____ 	Scaup birds _____
Common eider birds _____ 	King eider birds _____ 	Steller's eider birds _____ 	Harlequin duck birds _____
Long-tailed duck birds _____ 	Merganser birds _____ 	Unknown duck birds _____ 	Black brant birds _____
Cackling/Canada goose birds _____ 	Greater white-fronted goose birds _____ 	Emperor goose birds _____ 	Snow goose birds _____
Swan birds _____ 	Sandhill crane birds _____ 	Grouse birds _____ 	Ptarmigan birds _____

FWS Form 3-2381-2 10/09. This form supersedes form 7-FW-103b, which is obsolete.

OMB FWS Form 3-2381-2 Expires 10/31/2019

AMBC Subsistence Migratory Bird Household Harvest Survey
Southern Coastal Alaska Harvest Report
WINTER - November 1 to March 9

Village: _____ Household ID: _____ Harvest Year: _____ Date: _____

"Loon 1" birds _____ eggs _____	"Loon 2" birds _____ eggs _____	"Loon 3" birds _____ eggs _____	"Loon 4" birds _____ eggs _____	"Loon 5" birds _____ eggs _____
Grebe birds _____ 	Cormorant birds _____ 	Murre birds _____ 	Guillemot birds _____ 	
Auklet birds _____ 	Puffin birds _____ 	Black-legged kittiwake birds _____ 	Red-legged kittiwake birds _____ 	
Bonaparte's/Sabine's Gull birds _____ 	Mew gull birds _____ 	Large gull birds _____ 	Tern birds _____ 	
Black oystercatcher birds _____ 	Whimbrel/Curlew birds _____ 	Godwit birds _____ 	Golden/Black-bellied plover birds _____ 	
Turnstone birds _____ 	Phalarope birds _____ 	Small shorebird birds _____ 	Other/unknown bird: birds _____	

Comments: _____

Appendix F.—Harvest report form, North Slope (spring sheet, both sides, original size 8.5x11 inches).

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OMB FWS Form 3-2381-4 Expires 10/31/2019

AMBCC Subsistence Migratory Bird Household Harvest Survey
North Slope Harvest Report - SPRING

Did the household harvest birds or eggs from **April 1 to June 30**? YES NO

Village: _____ Household ID: _____ Harvest Year: _____ Date: _____

Northern wigeon birds _____ eggs _____	Teal birds _____ eggs _____	Mallard birds _____ eggs _____	Northern pintail birds _____ eggs _____	
Northern shoveler birds _____ eggs _____	Black scoter birds _____ eggs _____	Surf scoter birds _____ eggs _____	White-winged scoter birds _____ eggs _____	
Scaup birds _____ eggs _____	Common elder birds _____ eggs _____	King elder birds _____ eggs _____	Spectacled elder birds _____ eggs _____	
Steller's elder birds _____ eggs _____	Long-tailed duck birds _____ eggs _____	Merganser birds _____ eggs _____	Unknown duck birds _____ eggs _____	
Black brant birds _____ eggs _____	Cackling/Canada goose birds _____ eggs _____	Greater white-fronted goose birds _____ eggs _____	Snow goose birds _____ eggs _____	Unknown goose birds _____ eggs _____

FWS Form 3-2381-4 10/09. This form supersedes form 7-PW-103, which is obsolete.

OMB FWS Form 3-2381-4 Expires 10/31/2019

AMBCC Subsistence Migratory Bird Household Harvest Survey
North Slope Harvest Report
SPRING - April 1 to June 30

Village: _____ Household ID: _____ Harvest Year: _____ Date: _____

Swan birds _____ eggs _____	Sandhill crane birds _____ eggs _____	Grouse birds _____ eggs _____	Ptarmigan birds _____ eggs _____	
"Loon 1" birds _____ eggs _____	"Loon 2" birds _____ eggs _____	"Loon 3" birds _____ eggs _____	"Loon 5" birds _____ eggs _____	
Tern birds _____ eggs _____	Sabine's gull birds _____ eggs _____	Large gull birds _____ eggs _____	Murre birds _____ eggs _____	Guillemot birds _____ eggs _____
Whimbrel/Curlew birds _____ eggs _____	Godwit birds _____ eggs _____	Golden/Black-bellied plover birds _____ eggs _____	Turnstone birds _____ eggs _____	
Phalarope birds _____ eggs _____	Small shorebird birds _____ eggs _____	Snowy owl birds _____ eggs _____	Other/unknown bird: birds _____ eggs _____	

Comments: _____

Appendix G.–Harvest report form, Interior Alaska (spring sheet, both sides, original size 8.5x11 inches).

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OMB FWS Form 3-2381-3 Expires 10/31/2019

AMBCC Subsistence Migratory Bird Household Harvest Survey
Interior Alaska Harvest Report - SPRING
 Upper Copper River and Interior Alaska

Did the household harvest birds or eggs from **April 1 to June 30**? YES NO

Village: _____ Household ID: _____ Harvest Year: _____ Date: _____

<p>American wigeon birds _____ eggs _____</p>	<p>Teal birds birds _____ eggs _____</p>	<p>Mallard birds _____ eggs _____</p>	<p>Northern pintail birds _____ eggs _____</p>
<p>Northern shoveler birds _____ eggs _____</p>	<p>Black scoter birds _____ eggs _____</p>	<p>Surf scoter birds _____ eggs _____</p>	<p>White-winged scoter birds _____ eggs _____</p>
<p>Bufflehead birds _____ eggs _____</p>	<p>Goldeneye birds _____ eggs _____</p>	<p>Canvasback birds _____ eggs _____</p>	<p>Scaup birds _____ eggs _____</p>
<p>Harlequin duck birds _____ eggs _____</p>	<p>Long-tailed duck birds _____ eggs _____</p>	<p>Merganser birds _____ eggs _____</p>	<p>Unknown duck birds _____ eggs _____</p>
<p>Cackling/Canada goose birds _____ eggs _____</p>	<p>Greater white-fronted goose birds _____ eggs _____</p>	<p>Snow goose birds _____ eggs _____</p>	<p>Swan birds _____ eggs _____</p>
<p>Sandhill crane birds _____ eggs _____</p>			

FWS Form 3-2381-3 10/09. This form supersedes form 7-FW-103a, which is obsolete.

OMB FWS Form 3-2381-3 Expires 10/31/2019

AMBCC Subsistence Migratory Bird Household Harvest Survey
Interior Alaska Harvest Report
SPRING - April 1 to June 30

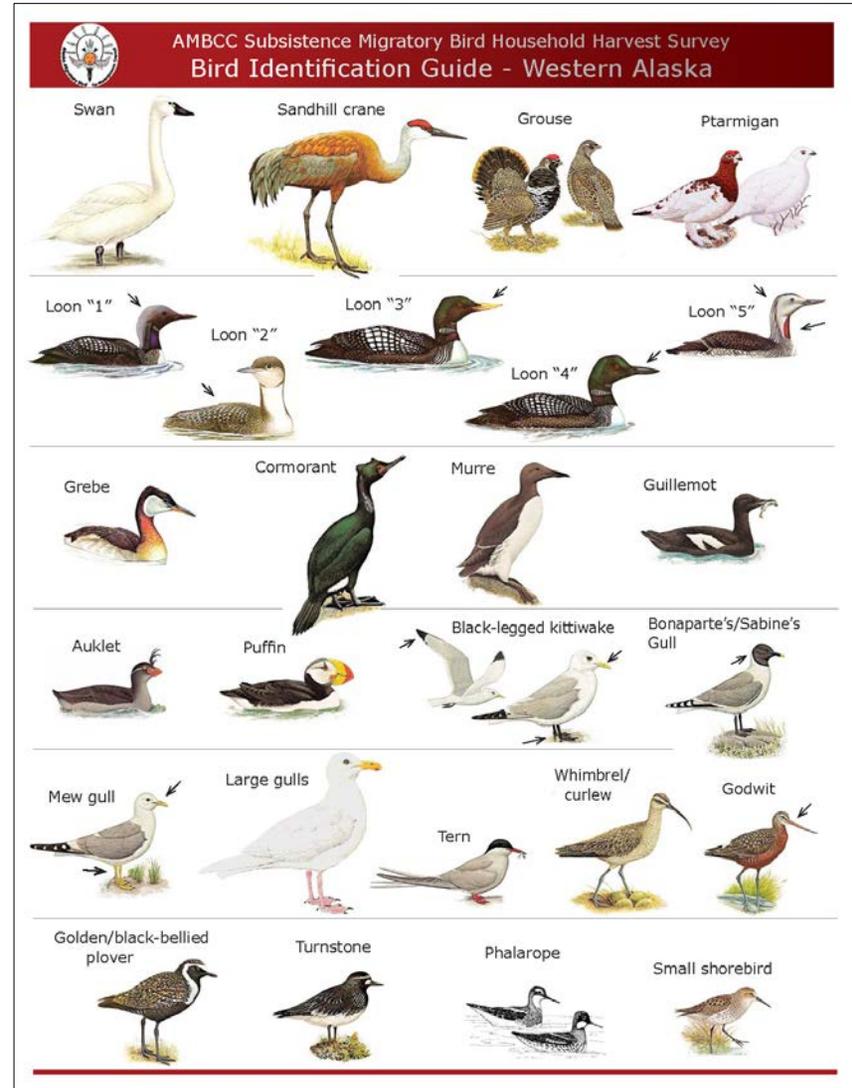
Village: _____ Household ID: _____ Harvest Year: _____ Date: _____

<p>Loon "1" birds _____ eggs _____</p>	<p>Loon "2" birds _____ eggs _____</p>	<p>Loon "4" birds _____ eggs _____</p>	<p>Loon "5" birds _____ eggs _____</p>
<p>Grebe birds _____ eggs _____</p>	<p>Tern birds _____ eggs _____</p>	<p>Bonaparte's gull birds _____ eggs _____</p>	<p>Mew gull birds _____ eggs _____</p>
<p>Large gull birds _____ eggs _____</p>	<p>Grouse birds _____ eggs _____</p>	<p>Ptarmigan birds _____ eggs _____</p>	<p>Whimbrel/Curlew birds _____ eggs _____</p>
<p>Godwit birds _____ eggs _____</p>	<p>Golden/Black-bellied plover birds _____ eggs _____</p>	<p>Phalarope birds _____ eggs _____</p>	<p>Small shorebird birds _____ eggs _____</p>

Other/unknown bird: _____

Comments:

Appendix H.–Bird identification guide, Western Alaska (both sides, original size 8.5x11 inches).



Appendix I.–Bird identification guide, Southern Coastal Alaska (both sides, original size 8.5x11 inches).

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AMBCC Subsistence Migratory Bird Household Harvest Survey
Bird Identification Guide - Southern Coastal Alaska
 Gulf of Alaska/Cook Inlet, Kodiak Archipelago, Aleutian/Pribilof Is., South AK Peninsula

American wigeon, Teal, Mallard, Northern pintail, Northern shoveler, Black scoter, Surf scoter, White-winged scoter, Bufflehead, Goldeneye, Canvasback, Scaup, Common eider, King eider, Steller's eider, Harlequin duck, Long-tailed duck, Merganser, Black brant duck, Cackling/Canada goose, White-fronted goose, Emperor goose, Snow goose

AMBCC Subsistence Migratory Bird Household Harvest Survey
Bird identification Guide - Southern Coastal Alaska

Swan, Sandhill crane, Grouse, Ptarmigan, Loon "1", Loon "2", Loon "3", Loon "4", Loon "5", Grebe, Cormorant, Murre, Guillemot, Auklet, Puffin, Black-legged kittiwake, Red-legged kittiwake, Large gulls, Bonaparte's/Sabine's gull, Mew gull, Tern, Oystercatcher, Whimbrel/curlew, Godwit, Golden/black-bellied plover, Turnstone, Phalarope, Small shorebird

Appendix J.—Bird identification guide, North Slope (both sides, original size 8.5x11 inches).

AMBCC Subsistence Migratory Bird Household Harvest Survey
Bird Identification Guide - North Slope

American Wigeon, Teal, Mallard, Northern Pintail, Northern Shoveler, Black Scoter, Surf Scoter, White-winged Scoter, Scaup, Long-tailed Duck, Merganser, Spectacled Eider, Common Eider, King Eider, Steller's Eider, Black Brant, Cackling/Canada Goose, Greater White-fronted Goose, Snow Goose

AMBCC Subsistence Migratory Bird Household Harvest Survey
Bird Identification Guide - North Slope

Swan, Sandhill Crane, Grouse, Ptarmigan, Loon "1", Loon "2", Loon "3", Loon "5", Tern, Sabine's Gull, Large Gull, Murre, Guillemot, Whimbrel/Curlew, Godwit, Turnstone, Snowy Owl, Golden/Black-bellied Plover, Phalarope, Small Shorebird

Appendix K.—Bird identification guide, Interior Alaska (both sides, original size 8.5x11 inches).

AMBC Subsistence Migratory Bird Household Harvest Survey
Bird identification Guide - Interior Alaska
 Upper Copper River and Interior Alaska

American wigeon, Teal, Mallard, Northern pintail, Northern shoveler, Black scoter, Surf scoter, White-winged scoter, Bufflehead, Goldeneye, Canvasback, Scaup, Harlequin duck, Long-tailed duck, Merganser, Cackling/Canada goose, Greater white-fronted goose, Snow goose

AMBC Subsistence Migratory Bird Household Harvest Survey
Bird Identification Guide - Interior Alaska

Swan, Sandhill crane, Grebe, Loon "1", Loon "2", Loon "4", Loon "5", Mew gull, Large gulls, Bonaparte's Gull, Tern, Grouse, Ptarmigan, Whimbrel/Curlew, Godwit, Golden/black-bellied plover, Phalarope, Small shorebird

Appendix L.–Bird poster, Western Alaska (original size 23x36 inches).

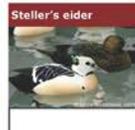
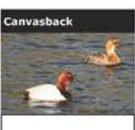
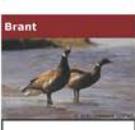
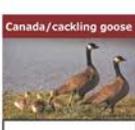
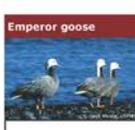


Alaska Migratory Bird Co-Management Council - AMBCC

Birds on the Subsistence Harvest Survey

Y-K Delta, Bering Strait-Norton Sound, NW Arctic, Bristol Bay (except South AK Peninsula)

Write your local bird names in the boxes below the pictures.
Birds/eggs that may be closed to harvest are shown with a red name tag; check the current regulation booklet.

 <input type="text"/>	 <input type="text"/>	 <input type="text"/>	 <input type="text"/>	 <input type="text"/>	 <input type="text"/>	 <input type="text"/>
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Please complete the survey so that:

- There is better understanding of the birds important to your culture;
- The subsistence harvest regulations are based on correct information;
- The subsistence harvest of birds will continue for you and your children.

Thank you!

AMBCC website
<http://alaska.fws.gov/ambcc/index.htm>

ADF&G Division of Subsistence
333 Raspberry Rd
Anchorage AK 99518
phone (907) 267-2353

AMBCC contact at USFWS Migratory Birds
1011 E. Tudor Rd, MS 201
Anchorage, AK 99503
phone (907) 786-3443

Appendix M.–Bird poster, Southern Coastal Alaska (original size 23x36 inches).

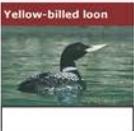
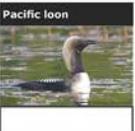
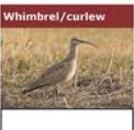


Alaska Migratory Bird Co-Management Council - AMBCC

Birds on the Subsistence Harvest Survey

Gulf of Alaska-Cook Inlet, Kodiak Archipelago, Aleutian-Pribilof Islands, South Alaska Peninsula (Bristol Bay Region)

Write your local bird names in the boxes below the pictures.
Birds/eggs that may be closed to harvest are shown with a red name tag; check the current regulation booklet.

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Please complete the survey so that:

- There is better understanding of the birds important to your culture;
- The subsistence harvest regulations are based on correct information;
- The subsistence harvest of birds will continue for you and your children.

Thank you!

AMBCC website
<http://alaska.fws.gov/ambcc/index.htm>

ADF&G Division of Subsistence
333 Raspberry Rd
Anchorage AK 99518
phone (907) 267-2353

AMBCC contact at USFWS Migratory Birds
1011 E. Tudor Rd, MS 201
Anchorage, AK 99503
phone (907) 786-3443

Appendix N.–Bird poster, North Slope (original size 23x36 inches).

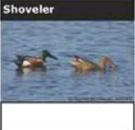
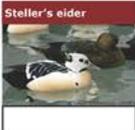
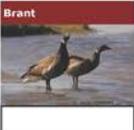
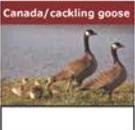


Alaska Migratory Bird Co-Management Council - AMBCC

Birds on the Subsistence Harvest Survey

North Slope

Write your local bird names in the boxes below the pictures.
Birds/eggs that may be closed to harvest are shown with a red name tag; check the current regulation booklet.

 <input type="text"/>	 <input type="text"/>	 <input type="text"/>	 <input type="text"/>	 <input type="text"/>	 <input type="text"/>
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 <input type="text"/>					
 <input type="text"/>					

Please complete the survey so that:

- There is better understanding of the birds important to your culture;
- The subsistence harvest regulations are based on correct information;
- The subsistence harvest of birds will continue for you and your children.

Thank you!

AMBCC website
<http://alaska.fws.gov/ambcc/index.htm>

ADF&G Division of Subsistence
333 Raspberry Rd
Anchorage, AK 99518
phone (907) 267-2353

**AMBCC contact at
USFWS Migratory Birds**
1011 E. Tudor Rd, MS 201
Anchorage, AK 99503
phone (907) 786-3443

Appendix O.–Bird poster, Interior Alaska (original size 23x36 inches).

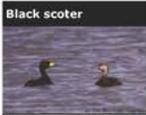

Alaska Migratory Bird Co-Management Council - AMBCC

Birds on the Subsistence Harvest Survey

Interior Alaska & Upper Copper River

Write your local bird names in the boxes below the pictures.

Birds/eggs that may be closed to harvest are shown with a red name tag; check the current regulation booklet.

 <input type="text"/>	 <input type="text"/>	 <input type="text"/>	 <input type="text"/>	 <input type="text"/>	 <input type="text"/>
 <input type="text"/>	 <input type="text"/>	 <input type="text"/>	 <input type="text"/>	 <input type="text"/>	 <input type="text"/>
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 <input type="text"/>	 <input type="text"/>	 <input type="text"/>	 <input type="text"/>	 <input type="text"/>	

Please complete the survey so that:

- There is better understanding of the birds important to your culture;
- The subsistence harvest regulations are based on correct information;
- The subsistence harvest of birds will continue for you and your children.

Thank you!

AMBCC website
<http://alaska.fws.gov/ambcc/index.htm>

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333 Raspberry Rd
Anchorage, AK 99518
phone (907) 267-2353

**AMBCC contact at
USFWS Migratory Birds**
1011 E. Tudor Rd, MS 201
Anchorage, AK 99503
phone (907) 786-3443

Appendix P.–Formulas used to calculate estimated harvest, variance, and confidence interval percentage.

Community estimated harvest

$$(Equation 1) \quad \hat{Y}_i = \frac{M_i}{m_i} \times \sum_{j=1}^{m_i} y_{ij}$$

Region estimated harvest

$$(Equation 2) \quad \hat{Y}_{reg} = \frac{N}{n} \sum_{i=1}^n \hat{Y}_i$$

Region variance

$$(Equation 3.a) \quad v(\hat{Y}_{reg}) = \frac{N^2(1-f_1)}{n} s_u^2 + \frac{N}{n} \sum_{i=1}^n \frac{M_i^2(1-f_{2i})s_i^2}{m_i}$$

$$(Equation 3.b) \quad s_u^2 = \frac{1}{n-1} \sum_{i=1}^n (\hat{Y}_i - \hat{\bar{Y}})^2$$

$$(Equation 3.c) \quad s_i^2 = \frac{1}{m_i-1} \sum_{j=1}^{m_i} (y_{ij} - \bar{y}_i)^2$$

$$(Equation 3.d) \quad \bar{y}_i = \frac{\sum_{j=1}^{m_i} y_{ij}}{m_i}$$

$$(Equation 3.e) \quad \hat{\bar{Y}} = \frac{\sum_{i=1}^n \hat{Y}_i}{n}$$

Alaska-wide estimated harvest

$$(Equation 4) \quad \hat{Y}_{AK} = \sum_{R=1}^{reg} \hat{Y}_{reg}$$

Alaska-wide variance

$$(Equation 5) \quad v(\hat{Y}_{AK}) = \sum_{R=1}^{reg} v(\hat{Y}_{reg})$$

Confidence interval at region and Alaska-wide levels

$$(Equation 6.a) \quad CIP(\hat{Y}) = 2 \times CV \quad (Equation 6.b) \quad CV(\hat{Y}) = \frac{\sqrt{v(\hat{Y})}}{\hat{Y}}$$

i = communities in a region (primary sampling units)

j = households in a community (secondary sampling units)

reg = region

AK = Alaska-wide

\hat{Y} = estimated harvest

y_{ij} = harvest reported by j^{th} surveyed household in the i^{th} community

\hat{Y}_{reg} = average community harvest in a region

\bar{y}_i = mean household harvest in sampled community i

m = sampled households

M = total households

n = sampled communities in region

N = total communities in region

R = number of regions

$v(\hat{Y})$ = variance of harvest estimate

f_1 = sampling fraction in regions (n/N)

f_{2i} = sampling fraction in communities (m_i/M_i)

s_i^2 = variance among households in a community

s_u^2 = variance among communities in a region

$CIP(\hat{Y})$ = confidence interval as a percentage of the harvest estimate

$CV(\hat{Y})$ = coefficient of variation

Appendix Q.–Harvest report form and bird identification guide, Cordova mail-out survey (original size 8.5x11 inches).

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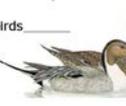
Alaska Migratory Bird Co-Management Council (AMBCC)
Subsistence Household Harvest Survey, Cordova Harvest Report – **SPRING 2016**

1. Household registration #: _____ 2. Date survey was completed: ____/____/2016
(2 letters followed by 3 numbers)

3. How many people listed under this household registration tried to harvest: birds (____) eggs (____)

4. Did the household harvest birds or eggs from 2 April to 31 May, 2016? (checkmark) YES NO

Below, please report numbers of birds and eggs harvested by your household:

American wigeon birds _____ 	Teal birds _____ 	Mallard birds _____ 	Northern pintail birds _____ 
Northern shoveler birds _____ 	Black scoter birds _____ 	Surf scoter birds _____ 	White-winged scoter birds _____ 
Bufflehead birds _____ 	Goldeneye birds _____ 	Canvasback birds _____ 	Scaup birds _____ 
Common elder birds _____ 	King elder birds _____ 	Harlequin duck birds _____ 	Long-tailed duck birds _____ 
Merganser birds _____ 	Greater white-fronted goose birds _____ 	Snow goose birds _____ 	Sandhill crane birds _____ 
Gull eggs _____ 	Other/unknown bird: birds: _____ eggs: _____	Comments:	

FWS Form 3-281-2 10/09. This form supersedes form 7-FW-103b, which is obsolete.

Instructions for Birds and Eggs Household Harvest Survey

TO AVOID FUTURE NOTIFICATIONS, PLEASE COMPLETE AND RETURN THIS SURVEY NOW.
It is very important that you participate even if your household did not harvest.

Harvest estimates from this survey are used to:

- Show the importance of subsistence uses of migratory birds.
- Protect subsistence harvests.
- Assess whether harvest regulations are appropriate.
- Plan for the conservation of birds.

1. Please complete one survey per household including harvests by all household members listed in your registration.
2. Respond to questions 1 through 4 at top of survey form.
3. In the fields provided close to bird drawings, report numbers of all birds and eggs harvested by your household, including those that you gave to other household(s).
4. Do not report in your survey birds or eggs received from other household(s).
5. If you harvested with people from other household(s), report in your survey only your household's share of the harvest.
6. Report numbers of birds and eggs as individual units. For instance, if you harvested eggs using a 5-gal bucket or other kind of container, specify how many eggs.
7. Write comments in the box provided at the bottom of the survey form (weather, hunting conditions, access to hunting areas, unusual birds seen, household registration and survey process, etc.).
8. Fold this survey and put it in the pre-stamped envelope provided, close it, and mail it to the pre-printed address.

Thank you for participating in this survey! We'll distribute survey results in your community.

Questions about this survey? Give us a call:
Division of Subsistence, Alaska Department of Fish and Game: 907-267-2302 (Anchorage)
Migratory Birds Management Division, U.S. Fish and Wildlife Service: 907-786-3499 (Anchorage)



Paperwork Reduction Act Statement

In accordance with the Paperwork Reduction Act (44 U.S.C. 3501 et seq.), please note the following information. This survey is authorized by the Migratory Bird Treaty Act (16 U.S.C. 703 et seq.) and the Migratory Bird Treaty Act Protocol Amendment (1995) and its letter of submittal from the Department of State to the White House, which specifies the need for harvest monitoring.

Your participation in the survey is voluntary. We will use the information your household provides to estimate subsistence migratory bird harvest in subsistence eligible areas of Alaska. Household harvest reports are anonymous and no names are used on harvest report forms. Harvest estimates are calculated at the regional and subregional levels. With help of a surveyor, we estimate it will take about 5 minutes each to provide household consent and to report your seasonal bird/egg harvest.

The Office of Management and Budget has approved this information collection and assigned control number 1018-0124, which expires 6/30/2016. We may not conduct or sponsor and you are not required to respond to a survey unless it displays a current OMB control number.

You may provide comments on the estimated burden or any other aspect of FWS Forms 3-2360, 3-2381-1, 3-2381-2, 3-2381-3, and 3-2381-4 to the Information Collection Officer, Mail Stop 2042-PDM, U.S. Fish and Wildlife Service, 4401 N Fairfax Dr., Arlington, VA 22203.

Appendix R.–Comments from North Slope Borough Fish and Game Management Committee on the 2017 AMBCC bird and egg harvest estimates.

NORTH SLOPE BOROUGH
Department of Wildlife Management

P.O. Box 69
Barrow, Alaska 99723

Phone: Central Office (907) 852-2611 ext. 350
or: (907) 852-0350
FAX: (907) 852-0351
Arctic Research Facility: (907) 852-0352



Taqulik Hepa, Director

8 October 2018

Liliana Naves
AMBCC-HAP Coordinator
Division of Subsistence
Alaska Department of Fish and Game

RE: Comments on the 2017 Preliminary Harvest Estimates

Dear Liliana,

The North Slope Borough Fish and Game Management Committee (acting as the AMBCC's North Slope Regional Management Body) met in late September in Atkasuk, Alaska. During that meeting, they reviewed the 2017 Preliminary [Bird] Harvest Estimates for the North Slope Region. They approved the general harvest estimates; however, they would like some caveats and explanations added to the report about some of the specific results. Below are brief discussions about each of those items.

- The estimated harvest of eiders and thus all ducks in Table 9 is likely biased low. This is probably due to which villages were selected to be surveyed in 2017. Anaktuvuk Pass and Atkasuk are inland villages thus do not harvest eiders. Our Committee members speculated that the eider harvest was likely higher than reported. A foot note should be added expressing this concern and observation.
- The report of Black Brant taken in Anaktuvuk Pass does not seem accurate. It is highly unlikely that brant migrate through Anaktuvuk Pass. It is unclear why brant were reported to have been harvested there but may have been due to species misidentification.
- Committee members had conflicting notions about the estimated number of harvested Greater White-fronted Geese. Some committee members felt this number was too low but others pointed out that the harvest might have been lower in 2017 because of early and rapid spring break up. Some hunters may not have been able to get to spring hunting areas because of early breakup.
- The Committee noted that there is no category of "unknown eggs" in Table 10. Committee members stated that in some cases egg collectors likely do not know the species of birds from which they collect eggs. This would be especially true for ducks and shorebirds. They strongly recommend that "unknown eggs" be added to the categories of birds, especially for ducks and shorebirds.

Liliana Naves, AMBCC-HAP Coordinator
8 October 2018
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- Data were only collected at Anaktuvuk Pass, Atkasuk, Point Lay and Utqiagvik for the 2017 harvest. Because of this, the estimated harvest of murre eggs is zero. Point Hope annually collects murre eggs. Given that this report "represents" the North Slope harvest of birds and their eggs in 2017, there should be a prominent note that acknowledges the bias in the reporting of the North Slope harvest. In the future we suggest dealing with this issue in one of two ways: (1) include Point Hope in the annual survey because they have unique bird hunting opportunities among North Slope villages; or (2) report the average take of murre eggs from previous surveys.

Our Committee hopes that you will be able to include the above comments as explanatory notes in the final report on the 2017 harvest of migratory birds and eggs. Please let me know if you have any questions or need clarification.

Sincerely,

Taqulik Hepa
Director North Slope Borough Department of Wildlife Management
North Slope Regional Management Body Representative

Cc: Patty Schwalenberg, AMBCC Executive Director

Appendix S.–Summary of Cordova bird and egg harvest estimates produced for community communication.



**Alaska Migratory Bird Co-Management Council (AMBCC)
Cordova Bird and Egg Subsistence Harvest Estimates
April–May 2014–2017**

The Cordova migratory bird subsistence harvest was opened 2–30 April for waterfowl hunting and 1–31 May for gull egg harvesting. A limited list of species was opened to harvest. Participants were required to obtain a registration issued at the Cordova offices of the U.S. Forest Service and Native Village of Eyak. The Division of Subsistence of the Alaska Department of Fish and Game (ADF&G) coordinated the registration process and the mail-out harvest survey in collaboration with the local partners. For more information on subsistence harvest of birds and eggs see <https://www.fws.gov/alaska/ambcc/>.



Participation	2014	2015	2016	2017
Registered households	36	20	26	27
Surveys completed	28	15	22	25
Survey participation	78%	75%	85%	93%

<i>Harvest estimates, number of birds and eggs</i>	2014		2015		2016		2017	
	Reported	Estimated	Reported	Estimated	Reported	Estimated	Reported	Estimated
Birds								
American wigeon	1	1	0	0	1	1	5	5
Gadwall	0	0	0	0	0	0	1	1
Teal	1	1	0	0	0	0	14	15
Mallard	11	14	0	0	16	19	42	45
Northern pintail	12	15	0	0	56	66	82	89
Northern shoveler	0	0	0	0	2	2	0	0
Black scoter	0	0	0	0	0	0	0	0
Surf scoter	0	0	0	0	0	0	0	0
White-winged scoter	0	0	0	0	0	0	0	0
Bufflehead	0	0	0	0	0	0	0	0
Goldeneye	0	0	0	0	0	0	4	4
Canvasback	0	0	0	0	0	0	0	0
Scaup	0	0	0	0	0	0	0	0
Common eider	0	0	0	0	0	0	0	0
King eider	0	0	0	0	0	0	0	0
Harlequin duck	0	0	0	0	0	0	0	0
Long-tailed duck	0	0	0	0	0	0	0	0
Merganser	0	0	0	0	0	0	0	0
Greater white-fronted goose	4	5	0	0	0	0	7	8
Snow goose	4	5	0	0	5	6	3	3
Sandhill crane	0	0	0	0	0	0	3	3
Total birds	33	42	0	0	80	95	161	174
Eggs								
Gull (unidentified)	102	131	197	263	105	124	105	113
Total eggs	102	131	197	263	105	124	105	113

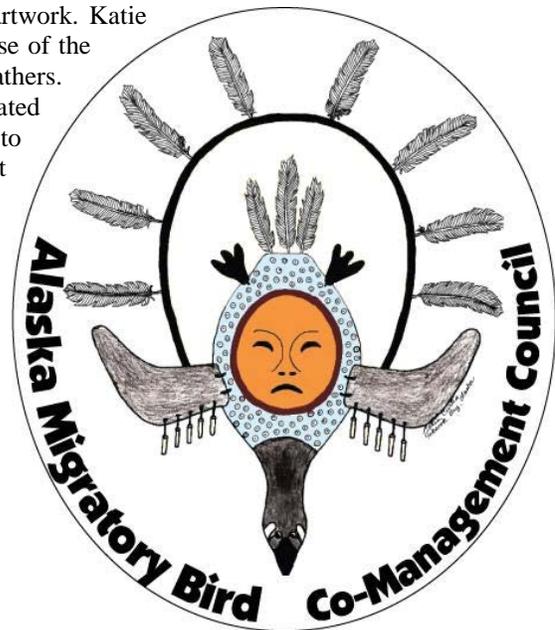
Many thanks to all households that participated in the survey! John Whissel (Native Village of Eyak), Milo Burcham (U.S. Forest Service), Patty Brown-Schwalenberg (Chugach Regional Resources Commission), and Charlotte Westing (ADF&G Wildlife Conservation) assisted in household registration and community communication.

Prepared by Liliana Naves, ADF&G Division of Subsistence, Anchorage. liliana.naves@alaska.gov. Last updated 24 October 2018.
For a copy of the Alaska Department of Fish and Game OEO statement, see <http://www.adfg.alaska.gov/index.cfm?adfg=home.oestatement>

A NOTE ON THE AMBCC LOGO

Indigenous Yup'ik peoples live in Western, Southwestern, and Southcentral Alaska, as well as in the Russian Far East. In the traditional Yup'ik universe, each animal species has its own world, where they live in communities, like people, and which shamans can visit. Historically, artists carved masks to represent the shaman's spirit helpers and the spirits of fish and wildlife. The different levels of the universe inhabited by the spirits of the animals were represented by rings around a mask. Masks were used during a winter ceremony called *Kelek*, or "Inviting-In Feast." The host community invited people of other communities, as well as the spirits of people who had died and the spirits of the animals, to participate in the ceremony. During *Kelek*, people sang, drummed, and danced with masks to ask for a plentiful harvest in the coming year, to appease animal spirits that may have been offended, and to avoid misfortune in the relationship between people and animals. The masks also could be funny, abstract, fearsome, representations of human faces, and very small or very large. Most *Kelek* masks were destroyed after the ceremony. Today, masks are important items in Native art and economies and are designed to be displayed rather than worn. Yup'ik animal masks are beautiful materializations of the Yup'ik appreciation and respect for the natural resources they depend upon. To learn more about *Kelek* and Yup'ik masks see Fienup-Riordan (1983, 1996) and Pete (1989).

The logo of the Alaska Migratory Bird Co-Management Council (AMBCC) incorporates the drawing of a Yup'ik mask by artist Katie Curtis from Toksook Bay, Alaska. Some people refer to this drawing as "The Goose Mask." The U.S. Fish and Wildlife Service commissioned this drawing in the late 1990s during the process of creating the AMBCC. An actual mask was not carved. The original drawing is black and white; the colors used here were added in 2009 when new outreach materials were produced for the AMBCC subsistence harvest survey. The choice of colors was based on historical and current Yup'ik artwork. Katie Curtis was consulted during this process and agreed with the use of the colors. The mask depicts a Canada goose surrounded by 8 feathers. The feathers represent the 8 steps to implement a legal, regulated spring subsistence bird hunt: 1) Notify people of the intent to form management bodies; 2) Meet to share ideas; 3) Send out ideas and listen; 4) Choose the form of management bodies; 5) Start rule-making; 6) Recommend rules for Alaska; 7) Link with management in other U.S. flyways; and 8) Link with the nation. Since its inception, this new regulatory framework has been designed to promote true collaboration among a diversity of stakeholders as cultures intermingle in the history of wildlife management and conservation in Alaska.



References

- Fienup-Riordan, Ann. 1983. *The Nelson Island Eskimo: Social Structure and Ritual Distribution*. The Alaskana Book Series no. 40. Alaska Pacific University Press, Anchorage. Cited in this report as Fienup-Riordan 1983.
- Fienup-Riordan, Ann. 1996. *The Living Tradition of Yup'ik Masks: Agayuliyarput = Our Way of Making Prayer*. University of Washington Press, Seattle. Cited in this report as Fienup-Riordan 1996.
- Pete, Mary C. 1989. "The Universe in a Mask." *Alaska Fish and Game* 21 (6): 38–39. Alaska Department of Fish and Game, Juneau. Cited in this report as Pete 1989.