Technical Paper No. 422

Alaska Subsistence Harvest of Birds and Eggs, 2015, Alaska Migratory Bird Co-Management Council

Liliana C. Naves

September 2016

Alaska Department of Fish and Game
Division of Subsistence

Alaska Migratory Bird
Co-Management Council

Symbols and Abbreviations

The following symbols and abbreviations, and others approved for the Système International d'Unités (SI), are used without definition in the reports by the Division of Subsistence. All others, including deviations from definitions listed below, are noted in the text at first mention, as well as in the titles or footnotes of tables, and in figure or figure captions.

Weights and measures (metric)

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

Weights and measures (English)

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

Time and temperature

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

Physics and chemistry

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

General

Alaska Administrative Code	AAC
all commonly-accepted abbreviations	e.g., Mr., Mrs., AM, PM, etc.
all commonly-accepted professional titles	e.g., Dr., Ph.D., R.N., etc.
at	@
compass directions:	
east	E
north	N
south	S
west	W
copyright	©
corporate suffixes:	
Company	Co.
Corporation	Corp.
Incorporated	Inc.
Limited	Ltd.
District of Columbia	D.C.
et alii (and others)	et al.
et cetera (and so forth)	etc.
exempli gratia (for example)	e.g.
Federal Information Code	FIC
id est (that is)	i.e.
latitude or longitude	lat. or long.
monetary symbols (U.S.)	$, ¢
months (tables and figures)	first three letters (Jan,...,Dec)
registered trademark	®
trademark	™
United States (adjective)	U.S.
United States of America (noun)	USA
U.S.C.	United States Code
U.S. state	two-letter abbreviations (e.g., AK, WA)

Measures (fisheries)

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

Mathematics, statistics

all standard mathematical signs, symbols and abbreviations	
alternate hypothesis	H_A
base of natural logarithm	e
catch per unit effort	CPUE
coefficient of variation	CV
common test statistics	(F, t, χ^2, etc.)
confidence interval	CI
correlation coefficient (multiple)	R
correlation coefficient (simple)	r
covariance	cov
degree (angular)	°
degrees of freedom	df
expected value	E
greater than	>
greater than or equal to	≥
harvest per unit effort	HPUE
less than	<
less than or equal to	≤
logarithm (natural)	ln
logarithm (base 10)	log
logarithm (specify base)	$\log_2$, etc.
minute (angular)	'
not significant	NS
null hypothesis	H_O
percent	%
probability	P
probability of a type I error (rejection of the null hypothesis when true)	α
probability of a type II error (acceptance of the null hypothesis when false)	β
second (angular)	"
standard deviation	SD
standard error	SE
variance	
population	Var
sample	var

TECHNICAL PAPER NO. 422

ALASKA SUBSISTENCE HARVEST OF BIRDS AND EGGS, 2015, ALASKA MIGRATORY BIRD CO-MANAGEMENT COUNCIL

by

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The Division of Subsistence Technical Paper series was established in 1979 and represents the most complete collection of information about customary and traditional uses of fish and wildlife resources in Alaska. The papers cover all regions of the state. Some papers were written in response to specific fish and game management issues. Others provide detailed, basic information on the subsistence uses of particular communities which pertain to a large number of scientific and policy questions.

Technical Paper series reports are available through the Alaska Resources Library and Information Services (ARLIS), the Alaska State Library and on the Internet: http://www.adfg.alaska.gov/sf/publications/. This publication has undergone editorial and professional review.

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Front cover photo: Butch (Steve Hobson Jr.) teaching young Kela (Tristan Evanoff-Stickman) how to pluck and process birds, this day a spruce grouse. Lime Village, November 2013. Grouse and ptarmigan are important subsistence resources. These birds are considered residents but are included in the harvest survey of the Alaska Migratory Bird Co-Management Council because they are important subsistence resources. Photo by James M. Van Lanen, ADF&G Division of Subsistence.

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ABSTRACT

This report presents subsistence harvest estimates of birds and their eggs in Alaska for the data year 2015. 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 plan for the continued harvest and conservation of birds. Participation by communities and individual households in the harvest survey is voluntary. The survey covers spring, summer, and fall harvests in most regions. Some regions also have a winter survey. Harvest estimates are based on a stratified, multistage sample of communities and households. The sampling frame encompasses all households in regions eligible for the subsistence harvest of migratory birds and their eggs in Alaska. Households are the basic sampling unit. Communities with similar harvest patterns are grouped into subregions. Harvests reported by surveyed communities are extrapolated to nonsurveyed communities in the same subregion. Subregions are grouped into regions, which correspond to the migratory bird management regions. Data are usually reported at the subregion and region levels. Regions surveyed have been selected annually depending on monitoring priorities and funding availability. In 2015, the harvest survey was conducted in the Cordova subregion (Gulf of Alaska-Cook Inlet region) and in the Yukon-Kuskokwim Delta region.

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, ptarmigans, grouses, seabirds, shorebirds, grebes, loons.

ACKNOWLEDGMENTS

This subsistence harvest survey would not have been possible without the local support of the Alaska communities. The Alaska Migratory Bird Co-Management Council (AMBCC) and the Alaska Department of Fish and Game (ADF&G) Division of Subsistence are grateful to all households that agreed to report their subsistence harvests. The AMBCC and the ADF&G Division of Subsistence are thankful for the collaboration of the many Alaska Native organizations, national wildlife refuges, village councils, local surveyors, and other partners that coordinated, facilitated, and conducted data collection.

Refuge Information Technicians (RITs) of the Yukon Delta and Togiak National Wildlife Refuges worked in 2015 data collection as field coordinators and also as local surveyors in the Yukon-Kuskokwim Delta region:

- Cristopher Tulik;
- David Therchik;
- David Philips;
- James Sipary;
- Mildred Fitka;
- John O. Mark.

Local surveyors for the Yukon-Kuskokwim Delta communities in the 2015 survey were:

- Joe Asuluk, James Sipary, David Therchick, David Phillipds, and Christopher Tulik (Bethel);
- Mark Agimuk (Chevak);
- Carl White Jr. (Eek);
- Emily Smith and Jerry L. Moses (Hooper Bay);
- Andrew Hunt Jr. (Kotlik);
- Margareth Michael (Kwethluk);
- Mildred Fitka (Marshall);
- Wassilie Guy (Napaskiak);
- Carolyn Kisick (Pilot Station);
- John O. Mark (Quinhagak);
- Jason Housler (Russian Mission);
- Hilda Stern (Alakanuk, Nunam Iqua);
- Myra Woods (Toksook Bay);
- Alfreda Evan (Tuluksak);
- Maryann Frank (Tuntutuliak).

The 2015 Cordova household registration and the mail-out survey were conducted in partnership with the local Eyak Tribe, the U.S. Forest Service, and the Alaska Department of Fish and Game offices. John Whissel, Milo Burcham, and Charlotte Westing greatly facilitated this collaboration.

Staff of the Information Management Unit of the ADF&G Division of Subsistence provided data entry and management support. Adam Knight edited this report.

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; these harvests have 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 and summer subsistence bird harvests 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 and summer subsistence hunts of migratory birds in Alaska. The amendment also mandated that Alaska's Native people play 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 16405–16409[1]). The AMBCC identified the need for harvest assessment to document traditional uses of migratory birds and levels of harvest. Harvest assessment is also needed to meet the intentions of the amended treaty: (1) subsistence harvests 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.

Annual monitoring of bird and egg harvests occurred in 1985–2002 in the Yukon-Kuskokwim Delta region (Y-K Delta) (Copp 1985; Copp and Roy 1986; Wentworth 2007b) in the context of the Goose Management Plan (Zavaleta 1999). Similar surveys were conducted in the Bristol Bay region about every other year in 1995–2002 (Wentworth 2007a). These earlier surveys played 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 harvest data (below) constitute a long-term dataset necessary for the understanding of highly variable harvests.

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 birds and eggs harvest monitoring to other Alaska regions (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, which is currently coordinated by the ADF&G Division of Subsistence. 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 was collaboratively revised to streamline program structure and data collection, analysis, and reporting (Naves et al. 2008). The revised survey has been implemented since 2010. The AMBCC-HAP also conducts research, outreach, and education to address specific management issues (Naves and Zeller 2013; Naves 2014b; Rothe et al. 2015; Naves 2015a). This report is the nineth in a series presenting annual harvest estimates for birds and their eggs based on data collected by the AMBCC-HAP (Naves 2010rev.; Naves 2010; Naves 2011; Naves 2012; Naves 2014a; Naves and Braem 2014; Naves 2015b; Naves 2015c).

Harvest estimates from the AMBCC survey are available to Alaska rural communities (or villages), Native organizations, state and federal resource management and conservation agencies, the Pacific Flyway Council, and the general public. Some uses of the survey 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 harvests;
- Inform spring–summer migratory bird harvest regulations; and
- Assist in the development of management plans.

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.

METHODS

GENERAL SURVEY DESIGN

Current survey methods were described in Naves (2012). The subsistence harvest survey area includes 202 remote communities in 10 survey and management regions (68 FR 43010–43030[3]) (Figure 1, Appendix A). The Southeast Alaska region has not been surveyed (4 communities are eligible only for egg harvests). The survey regions were divided in 31 subregions to better account for geographical variation in harvest patterns. In 2010, the regions had a total population of 89,481 people (U.S. Census Bureau 2011). Regions have been surveyed depending on annual management priorities, funding availability, and factors affecting data collection logistics in remote Alaska (e.g., weather, communication, existing local partnerships) (tables 1, 4, and 5).

In 2015, the survey was conducted in the Yukon-Kuskokwim Delta region (Figure 2) and in the Cordova subregion (Gulf of Alaska-Cook Inlet region; Figure 3). Staff of the Yukon Delta and Togiak National Wildlife Refuges participated in data collection in the Yukon-Kuskokwim Delta region. The Native Village of Eyak and the U.S. Forest Service participated in the Cordova hunt registration, which defines the sampling universe for the Cordova mail-out survey (see below).

From a subsistence harvester's perspective, harvest surveys collect information that commonly is private and sensitive. Subsistence bird harvests 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 necessary to develop and maintain trust and collaboration between subsistence users and resource management agencies. Community and household participation in the survey were voluntary. Community consent to conduct surveys was granted as tribal council resolutions, and ethical principles for social science research were closely observed (Arctic Research Consortium of the United States (ARCUS) 1999:55–59; Naves 2012:7)[4]. Data at the household level are considered confidential. AMBCC-HAP data are usually reported at the subregion and region levels. Specific data release agreements can allow data release at the community level (e.g., Naves and Zeller 2013; Naves 2014b; Naves 2015c). Archived materials do not include household names or other personal information for anonymity of household harvest reports (a numeric household identifier is used). Names on household lists are covered; lists not showing names are then photocopied and scanned for digital archiving together with other survey materials. Preliminary harvest estimates based on survey data are submitted to Alaska Native regional partners and other AMBCC partners for review before being adopted by the AMBCC. Information from the survey is not to be used for punitive law enforcement purposes, nor has this been reported to have happened.

In-Person Surveys: Yukon-Kuskokwim Delta Region

The household was the basic sampling unit. The sampling frame encompassed all occupied households in surveyed regions or subregions. At the community level, data collection relied on household lists including all resident households (Appendix B). A household is considered resident if its members have 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 hunters in the household, including those given to other household(s); (2) to report the household's share of harvests 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 were selected to replace households that declined to participate and households that could not be contacted after 3 reasonable attempts.

The harvest report form for Western Alaska was used to record the harvest of birds and eggs (Appendix D). The survey form included species important for subsistence uses or of management interest. Harvests of species not represented in the form can be reported in the field "other bird." Some species that are difficult to tell apart were

3. Federal Register Vol. 68, No. 139 (July 21, 2003) available online: http://www.gpo.gov/fdsys/pkg/FR-2003-07-21/pdf/03-18097.pdf.
4. 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.

combined in categories. The form had a sheet for each survey season (spring: 2 April–30 June, summer: 1 July–31 August, and fall: 1 September–31 October). The bird identification guide had color drawings of birds (Appendix E). A poster with color photographs of all species included in the survey assisted in species identification and outreach (Appendix F). On the poster, close to each photograph, appeared the species' English name and a blank field for writing Native and local names. Data collection staff used lists of local and Alaska Native species names to help in communicating with respondents and in species identification (Naves 2010rev.).

Starting in 2012, loon species names have not been displayed on the bird identification guide and harvest report form because of confusion generated by 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). A juvenile Pacific loon (*Gavia pacifica)* was added to represent nonbreeding plumages. Drawings depicted size differences among species. The common (*G. immer*) and the yellow-billed loons (*G. adamsii*) were presented side-by-side for comparison. The Pacific and Arctic (*G. arctica*) loons were combined, and adults in nonbreeding plumage and juveniles were treated as "nonbreeding" because these categories are difficult to tell apart. Loon harvest data are presented in this report by species names corresponding to the numeric labels used in survey forms [loon 1: Pacific-Arctic loon, loon 2: unidentified loon in nonbreeding plumage, loon 3: yellow-billed loon, loon 4: common loon, and loon 5: red-throated loon (*G. stellata*)].

In 2004–2011, Bethel was sampled based on an incomplete list of households stratified a priori as "harvester" or "other." The total number of households was derived from population estimates. Based on data from other hub communities, stratification of the total community of Bethel assumed that 30% of all households were harvesters (Naves 2015a). In 2015, differently from previous survey years, sampling in Bethel used simple ramdom sampling. A complete list of occupied residential addresses was compiled (excluding commercial and vacant units), and a sampling goal of 200 households was set. A total of 205 households were surveyed in Bethel in 2015.

Mail-out Surveys: Cordova Subregion

The Cordova migratory bird subsistence harvest was first authorized in 2014[5]. The season 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, and only Cordova residents were eligible to participate. Participants were required to register at the Cordova offices of the U.S. Forest Service or Native Village of Eyak. In 2015, a total of 20 households registered. The ADF&G Division of Subsistence coordinated the registration and survey process in collaboration with AMBCC and local partners (Eyak Tribe, U.S. Forest Service, Alaska Department of Fish and Game, Chugach Regional Resources Commission).

A mail-out harvest survey was sent in late June, 2015 to all registered households (Appendix G). Survey reminders were sent in late July and again in late 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 15 completed surveys were returned (out of 20 registered households) resulting in a response rate of 75%.

5. 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 1.–Number of communities and households included in data analysis, 2004–2015.

Survey year	Communities included in harvest estimates	Households surveyed			
		Spring	Summer	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[c]	222[c]	b
2015	20	907	892[c]	892[c]	b

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

a. In 2004–2009, for regions and subregions with a winter survey, data were recorded as fall–winter.

b. The subregions surveyed usually have no winter survey.

c. The Cordova survey covered April–May harvests only.

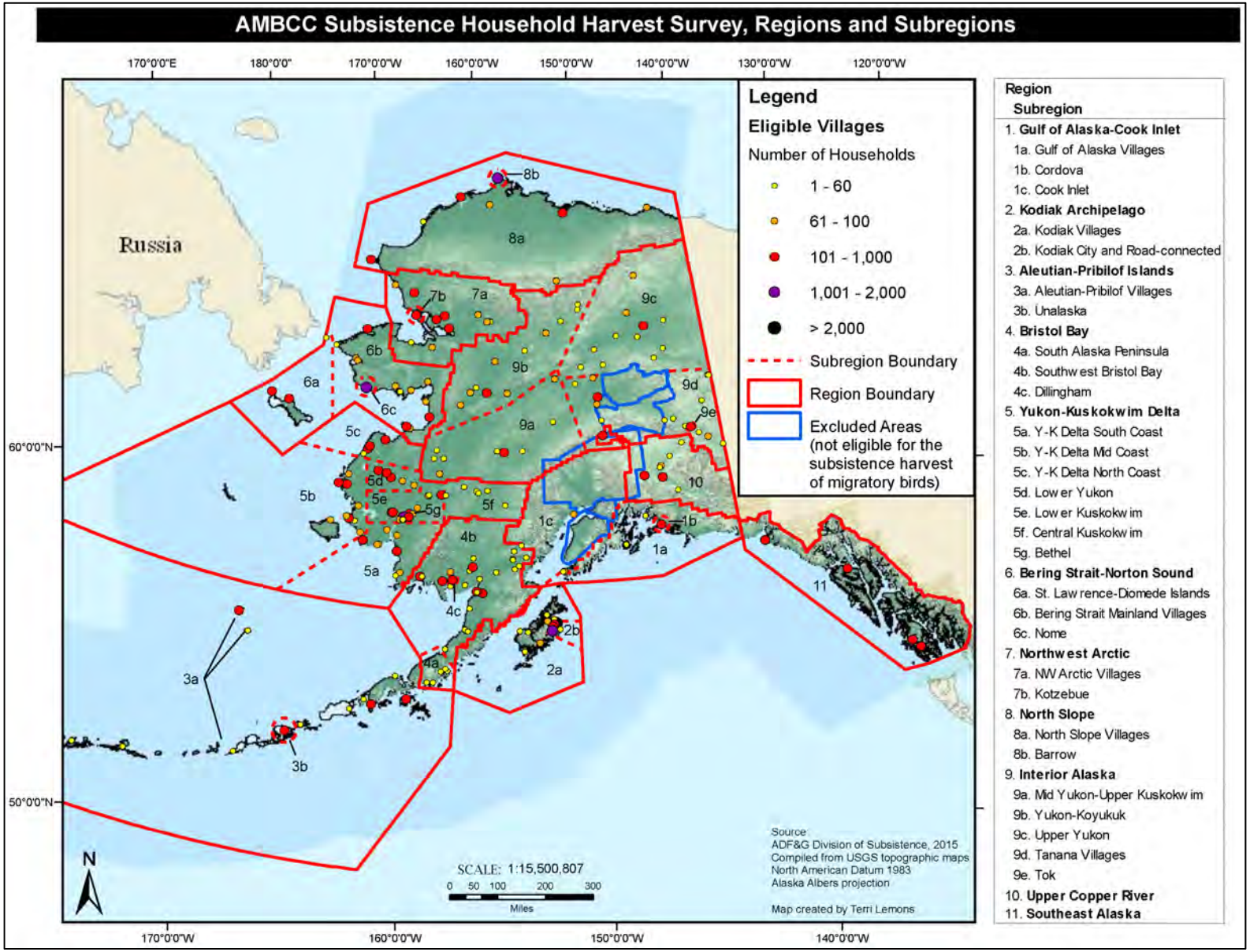

Figure 1.–Regions and subregions of the AMBCC migratory bird subsistence harvest survey.

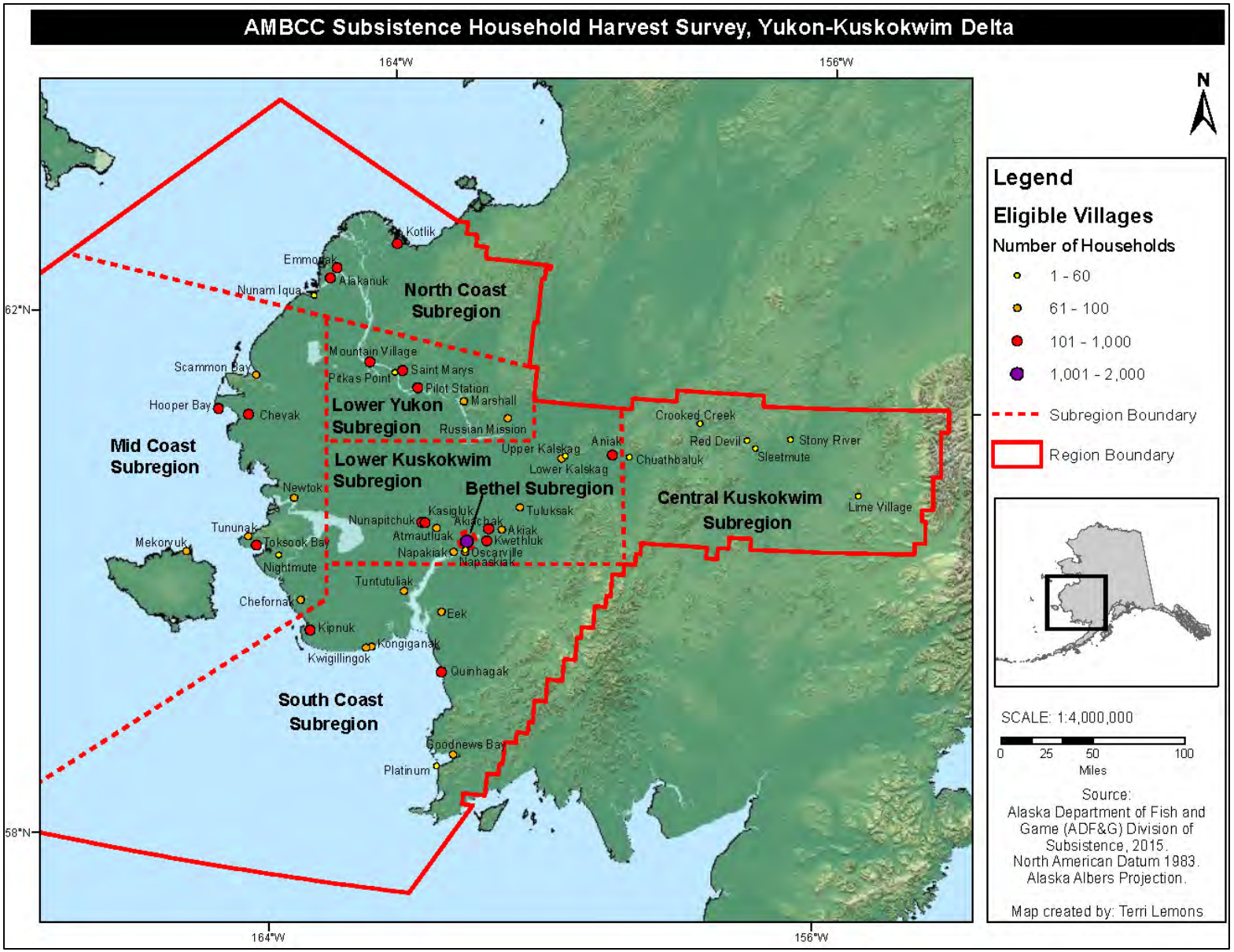

Figure 2.–Yukon-Kuskokwim Delta region.

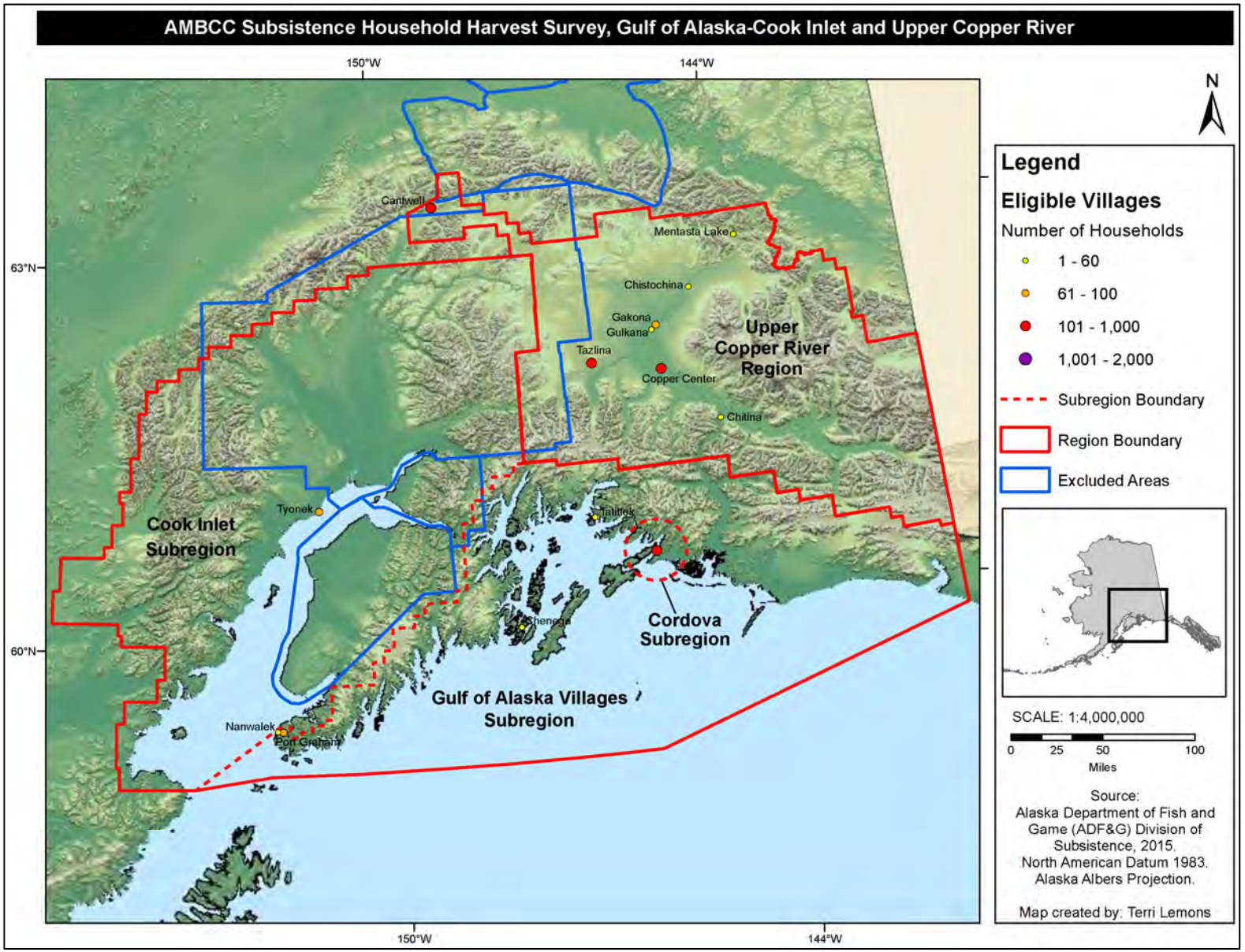

Figure 3.–Gulf of Alaska-Cook Inlet and Upper Copper River regions.

DATA ANALYSIS

Harvest Estimates

Electronic data entry of completed surveys was done using Microsoft Office Access 2010[6] forms. The raw data were stored in a Microsoft SQL Server Management Studio 2008 relational database. Double data entry and logic checks ensure accuracy of the data stored in the database (reported harvests, sampling method used, 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.

For the Yukon-Kuskokwim Delta region, reported harvests from surveyed communities were extrapolated to nonsurveyed communities in the same subregion and region. Harvest estimates and confidence intervals were based on Cochran (1977) and Bernard, Bingham, and Alexandersdottir (1998) (appendices H and I). Harvest estimates were calculated for each season, and annual estimates were calculated as the sum of seasonal harvests. For nonsurveyed communities, the number of occupied households was calculated by dividing 2015 population estimates (Alaska Department of Labor and Workforce Development 2014) by the number of people per household reported in the 2010 census (U.S. Census Bureau 2011). For the Cordova subregion, harvests reported in returned surveys were extrapolated to non-returned surveys. If the low end of confidence intervals was less than the reported harvest, the calculated low end was replaced by the reported harvest. In 2015, a total of 20 communities were surveyed and all of them were included in data analysis (Appendix A).

The subsistence harvest survey covers a large geographic area and a large 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 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 species rarely harvested result in less accurate harvest estimates and wider confidence intervals as compared to species commonly harvested. Dedicated harvest surveys and specific analytical procedures would be required to accurately estimate harvests 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.

Community and Household Participation Rates

The community participation rate was calculated as the number of communities that agreed to participate divided by the total number of communities where contact was attempted (Table 2). The total 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 (which may suggest lack of interest or willingness to participate in the survey).

In the Yukon-Kuskokwim Delta communities (surveyed by in-person interviews), the household participation rate was calculated as the number of households that agreed to participate divided by the total number of households contacted (Table 3). The total number of households contacted included (a) households that agreed to participate and (b) households that did not agree to participate. For communities with available household consent information, household consent was considered as agreement all for households for which a harvest survey form was provided for any season. This procedure has not been implemented for communities for which household participation information was not available in order to not artificially inflate participation rates in the absence of information on cases of no consent. 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.

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

RESULTS AND DISCUSSION

In 2015, 24 communities were invited to participate in the survey and 20 communities agreed to participate (Table 2). The 2015 household participation rates are presented in Table 3.

Annual region and subregion harvest estimates (all species combined) were summarized in tables 4 (birds) and 5 (eggs), which also indicate that estimates detailed by species and seasons are available in the following region and subregion tables (tables 6–20). Harvest estimate tables included all species represented in the harvest report form. The categories duck (unidentified), goose (unidentified), gull (unidentified), and other/unknown bird were included only if harvest in these categories was reported.

Information on sampling effort was presented as footnotes to harvest estimate tables. For subregion tables, "sampling effort" referred to the number of communities included in the analysis (Appendix A) and the proportion of subregion households represented in the sample (total number of households in surveyed communities in relation to the total number of households in the subregion). Deviations from standard survey methods (if any occurred) were also presented as table footnotes (e.g., incomplete geographic coverage or nonstandard community sampling approaches). Detected unusually high or low harvest estimates are indicated by an asterisk "*" in the respective tables.

A summary produced to facilitate data review, communication, and outreach regarding survey results was included in this report as appendix J (Cordova).

Table 2.–Community participation rate for subregions, 2015.

	Communities in subregion	Contacted communities	Communities that agreed to participate in the survey	Community participation rate
Cordova subregion	1	1	1	100%
Yukon-Kuskokwim Delta region	47	23	19	83%

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

Table 3.–Household participation rate for regions and subregions, 2004–2015.

Region / Subregion	2004		2005		2006		2007		2008		2009		2010		2011		2012		2013		2014		2015	
	Partici-pation	N	Partici-pation	N	Partici-pation	N	Partici-pation	N	Partici-pation	N	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
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**	-	-	-	-	-	-	-	-
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**
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**	-	-	-	-	-	-	-	-	-	-
St. Lawrence-Diomede 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**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
North Slope Villages	-	-	90%	395	-	-	*	*	*	*	*	*	-	-	-	-	-	-	-	-	-	-	-	-
Barrow	-	-	98%	224	-	-	*	*	*	*	*	*	-	-	-	-	-	-	-	-	-	-	-	-
Interior	-	-	-	-	**98%**	**544**	-	-	-	-	-	-	**99%**	**523**	-	-	-	-	-	-	-	-	-	-
Mid Yukon-Upper Kuskokwin	*	*	*	*	*	*	-	-	-	-	-	-	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 2004–2013 (Naves 2015b); 2014 (Naves 2015c).

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 actually surveyed).

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

‡: 2009 Reduced household participation in St. Lawrence-Diomede 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 was provided.

Table 4.–Annual estimated bird harvest, all subregions and regions (total birds), AMBCC survey, 2004–2015.

Regions, subregions	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Gulf of Alaska-Cook Inlet[e]	**2,995**	*	*	-	-	-	*	-	-	-	*	*
Gulf of Alaska Villages	2,756	-	596	-	-	-	1,049	-	-	-	-	-
Cordova	-	-	-	-	-	-	-	-	-	-	42	0
Cook Inlet	239	13	-	-	-	-	-	-	-	-	-	-
Kodiak Archipelago	-	-	*	-	-	-	**6,926**	-	-	-	-	-
Kodiak Villages	-	-	5,552	-	-	-	1,947	-	-	-	-	-
Kodiak City & Road-connected	-	-	a	-	-	-	4,979	-	-	-	-	-
Aleutian-Pribilof Islands	-	*	-	*	**8,401**	-	-	-	-	-	-	-
Aleutian-Pribilof Villages	-	16,876	-	(7,371)	7,642	-	-	-	-	-	-	-
Unalaska	-	-	-	-	760	-	-	-	-	-	-	-
Bristol Bay	*	**47,336**	*	**28,285**	**32,995**	-	-	**30,081**	-	-	-	-
South Alaska Peninsula	801	-	-	968	(115)	-	-	833	-	-	-	-
Southwest Bristol Bay	14,955	32,769	(26,715)	20,169	(29,352)	-	-	26,601	-	-	-	-
Dillingham	-	11,769	-	7,148	3,527	-	-	2,650	-	-	-	-
Yukon-Kuskokwim Delta	**130,343**	**114,514**	**171,856**	**148,715**[b]	**79,088**	**195,082**	**142,834**	**110,611**	-	*	-	**110,836**
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
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
Y-K Delta North Coast	8,806	11,206	4,493	1,206	4,867	13,637	4,920	-	-	5,839	-	10,121
Lower Yukon	(6,201)	6,815	10,269	3,988	4,727	6,904	(7,748)	-	-	10,863	-	17,114
Lower Kuskokwim	46,033	16,557	48,849	58,983	22,813	44,934	(7,1317)	(32,826)	-	(6,5081)	-	26,450
Central Kuskokwim	440	-	1,167	219	-	-	(659)	-	-	-	-	-
Bethel[c]	8,618	23,954	13,163	6,654[b]	7,789	7,478	3,290	2,539	-	-	-	11,978
Bering Strait-Norton Sound	**53,576**	**74,115**	-	**123,257**	-	*	*	*	*	-	-	-
St. Lawrence-Diomede Is.	‡	‡	-	‡	-	41,176	14,054	12,077	8,848	-	-	-
Bering Strait Mainland Villages	‡	‡	-	‡	-	-	20,719	-	-	-	-	-
Nome	‡	‡	-	‡	-	-	-	-	-	-	-	-
Northwest Arctic	-	-	*	-	-	-	-	-	*	-	-	-
Northwest Arctic Villages	-	-	9,676	-	-	-	-	-	-	-	-	-
Kotzebue	-	-	-	-	-	-	-	-	4,437	-	-	-
North Slope	-	**15,615**	-	**44270**[d]	**45,123**	**19,075**	-	-	-	-	-	-
North Slope Villages	-	‡	-	‡	‡	‡	-	-	-	-	-	-
Barrow	-	‡	-	‡	‡	‡	-	-	-	-	-	-
Interior Alaska	**50,995**	*	**37,068**	*	*	-	**32,611**	-	-	-	*	-
Mid Yukon-Upper Kuskokwim	(3,086)	2,744	697	-	-	-	(786)	-	-	-	-	-
Yukon-Koyukuk	3,108	(930)	(1,764)	(3,031)	(6,908)	-	4,532	-	-	-	-	-
Upper Yukon	(14,418)	-	10,927	18,402	-	-	(12,692)	-	-	-	9,384	-
Tanana Villages	20,388	-	17,358	-	-	-	(14,086)	-	-	-	-	-
Tok	-	-	6,321[d]	-	-	-	515[d]	-	-	-	-	-
Upper Copper River[e]	**1,120**	-	-	**247**	-	-	-	-	-	-	-	-

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

-: Region/subregion not surveyed. *: Less than 75% of region households represented in sample, region harvest estimates not produced.

(In parenthesis): Less than 30% of subregion households represented in the sample and/or only 1 out of several subregion villages surveyed.

‡: Subregion harvest estimates not released.

a: Fall-winter bird harvest data not available for Kodiak City and Road-connected subregion; annual harvest estimates calculated for eggs only.

b: Does not include fall bird harvest for Bethel subregion.

c: Bethel harvest expansions assume that harvester households account for 30% of the total village households (village size estimates).

d: Barrow subregion harvest estimates assumed simple random sampling.

e: A subsistence bird hunt was first authorized in Cordova in 2014. Therefore, 2004 region harvest estimates do not include this subregion.

Table 5.–Annual estimated egg harvest, all subregions and regions (total eggs), AMBCC survey, 2004–2015.

Regions, subregions	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Gulf of Alaska-Cook Inlet[e]	**2,178**	*	*	-	-	-	*	-	-	-	*	*
Gulf of Alaska Villages	2,173	-	102	-	-	-	1,366	-	-	-	-	-
Cordova	-	-	-	-	-	-	-	-	-	-	131	263
Cook Inlet	5	0	-	-	-	-	-	-	-	-	-	-
Kodiak Archipelago	-	-	**5,222**	-	-	-	**803**	-	-	-	-	-
Kodiak Villages	-	-	4,545	-	-	-	771	-	-	-	-	-
Kodiak City & Road-connected	-	-	(677[a])	-	-	-	32	-	-	-	-	-
Aleutian-Pribilof Islands	-	*	-	*	**4,778**	-	-	-	-	-	-	-
Aleutian-Pribilof Villages	-	11,733	-	6,127	4,018	-	-	-	-	-	-	-
Unalaska	-	-	-	-	760	-	-	-	-	-	-	-
Bristol Bay	*	**47,799**	*	**30,801**	**47,653**	-	-	**25,211**	-	-	-	-
South Alaska Peninsula	409	-	-	651	(106)	-	-	392	-	-	-	-
Southwest Bristol Bay	54,437	39,206	(31,292)	25,118	(37,630)	-	-	21,105	-	-	-	-
Dillingham	-	5,768	-	5,032	9,917	-	-	3,716	-	-	-	-
Yukon-Kuskokwim Delta	**27,288**	**22,268**	**30,723**	**19,153**	**31,195**	**58,995**	**26,965**	**54,075**	-	*	-	**56,767**
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
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
Y-K Delta North Coast	2,466	3,921	188	22	554	345	1,619	-	-	8,240	-	14,654
Lower Yukon	(191)	652	232	565	0	386	(0)	-	-	1,392	-	3,902
Lower Kuskokwim	2,265	1,302	1,498	4,891	5,298	3,087	(0)	(877)	-	(6,995)	-	6,873
Central Kuskokwim	0	-	15	0	-	-	(0)	-	-	-	-	-
Bethel[b]	0	261	29	0	23	179	0	0	-	-	-	1,169
Bering Strait-Norton Sound	**99,494**	**113,082**	-	**146,557**	-	*	*	*	*	-	-	-
St. Lawrence-Diomede Is.	‡	‡	-	‡	-	117,174	55,682	20,999	29,701	-	-	-
Bering Strait Mainland Villages	‡	‡	-	‡	-	-	13,910	-	-	-	-	-
Nome	‡	‡	-	‡	-	-	-	-	-	-	-	-
Northwest Arctic	-	-	*	-	-	-	-	-	*	-	-	-
Northwest Arctic Villages	-	-	10,081	-	-	-	-	-	-	-	-	-
Kotzebue	-	-	-	-	-	-	-	-	5,896	-	-	-
North Slope	-	**4,705**	-	**2388**[c]	**858**	**2,430**	-	-	-	-	-	-
North Slope Villages	-	‡	-	‡	‡	‡	-	-	-	-	-	-
Barrow	-	‡	-	‡	‡	‡	-	-	-	-	-	-
Interior Alaska	**1,009**	*	**911**	*	*	-	**65**	-	-	-	*	-
Mid Yukon-Upper Kuskokwim	(0)	2	0	-	-	-	(0)	-	-	-	-	-
Yukon-Koyukuk	11	(0)	(0)	(0)	(0)	-	22	-	-	-	-	-
Upper Yukon	(40)	-	0	0	-	-	(0)	-	-	-	110	-
Tanana Villages	760	-	875	-	-	-	(43)	-	-	-	-	-
Tok	-	-	36[c]	-	-	-	0	-	-	-	-	-
Upper Copper River[d]	**82**	-	-	**0**	-	-	-	-	-	-	-	-

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

-: Region/subregion not surveyed. *: Less than 75% of region households represented in sample, region harvest estimates not produced.

‡: Subregion harvest estimates not released.

(In parenthesis): Less than 30% of subregion households represented in the sample and/or only 1 out of several subregion villages surveyed.

a: Harvest estimates based on a sample of only known harvester households.

b: Bethel harvest expansions assume that harvester households account for 30% of the total village households (village size estimates).

c: Barrow subregion harvest estimates assumed simple random sampling.

d: Sampling and harvest expansions represent Alaska Native households only.

e: A subsistence bird hunt was first authorized in Cordova in 2014. Therefore, 2004 region harvest estimates do not include this subregion.

Table 6.–Estimated April–May bird and egg harvest, Gulf of Alaska-Cook Inlet region, Cordova subregion, 2015.

	Yearly bird harvest			
	Reported number	Estimated number	Confidence Interval	
			CIP	Low – High
Birds				
American wigeon	0	0		-
Teal	0	0		-
Mallard	0	0		-
Northern pintail	0	0		-
Northern shoveler	0	0		-
Black scoter	0	0		-
Surf scoter	0	0		-
White-winged scoter	0	0		-
Bufflehead	0	0		-
Goldeneye	0	0		-
Canvasback	0	0		-
Scaup	0	0		-
Common eider	0	0		-
King eider	0	0		-
Harlequin duck	0	0		-
Long-tailed duck	0	0		-
Merganser	0	0		-
Total ducks	0	0		-
Greater white-fronted goose	0	0		-
Snow goose	0	0		-
Total geese	0	0		-
Sandhill crane	0	0		-
Total migratory birds	0	0		-
Total birds	0	0		-
Eggs				
Gull (unidentified)	197	263	51%	197 – 398
Total eggs	197	263	51%	197 – 398

Sampling effort (Cordova subregion, 2015): 1 out of 1 community in the subregion was included in analysis. Harvest estimates were based on 15 completed mail-out surveys, out of a total of 20 registered households.

Table 7.–Estimated bird harvest, Yukon-Kuskokwim Delta region, 2015.

Species	Yearly bird harvest				Seasonal estimated bird harvest					
	Reported	Estimated	Confidence Interval		Spring		Summer		Fall	
	number	number	CIP	Low – High	Number	CIP	Number	CIP	Number	CIP
Ducks										
American wigeon	309	1,791	22%	1,396 – 2,187	1,024	29%	172	64%	595	27%
Teal	160	963	44%	536 – 1,389	509	48%	58	82%	395	54%
Mallard	1,199	8,268	17%	6,888 – 9,647	4,665	22%	649	46%	2,954	18%
Northern pintail	738	4,126	15%	3,503 – 4,749	1,758	19%	327	79%	2,040	21%
Northern shoveler	97	546	36%	351 – 740	385	47%	57	70%	104	42%
Black scoter	1,251	7,988	15%	6,758 – 9,218	5,711	19%	252	58%	2,025	27%
Surf scoter	167	1,098	80%	219 – 1,976	1,037	85%	20	86%	41	67%
White-winged scoter	547	3,458	42%	2,005 – 4,910	2,535	56%	37	89%	885	38%
Bufflehead	94	645	79%	133 – 1,158	407	85%	0		238	159%
Goldeneye	201	1,265	27%	926 – 1,604	789	36%	155	67%	322	32%
Canvasback	32	198	99%	32 – 395	29	71%	19	78%	150	129%
Scaup	597	3,328	28%	2,391 – 4,266	2,914	31%	54	88%	360	43%
Common eider	26	159	61%	61 – 256	159	61%	0		0	
King eider	401	2,482	38%	1,540 – 3,424	2,441	39%	0		41	101%
Spectacled eider	4	14	121%	4 – 32	7	121%	7	121%	0	
Steller's eider	5	46	117%	5 – 99	0		46	117%	0	
Harlequin duck	18	108	63%	40 – 175	75	72%	0		33	124%
Long-tailed duck	117	611	40%	370 – 852	533	41%	0		78	123%
Merganser	40	197	50%	98 – 297	142	55%	0		55	115%
Duck (unidentified)	294	1,391	28%	1,007 – 1,776	355	37%	345	49%	692	37%
Total ducks	6,297	38,682	13%	33,493 – 43,872	25,476	17%	2,198	30%	11,009	15%
Geese										
Black brant	402	2,348	20%	1,890 – 2,806	1,902	22%	287	54%	158	44%
Cackling/Canada goose	3,668	23,053	9%	20,999 – 25,107	14,691	9%	737	24%	7,625	10%
Greater white-fronted goose	3,107	19,703	11%	17,478 – 21,928	14,943	12%	398	34%	4,362	21%
Emperor goose	87	558	35%	362 – 754	450	43%	0		108	40%
Snow goose	1,039	4,724	11%	4,186 – 5,263	2,411	12%	25	75%	2,288	13%
Total geese	8,303	50,386	8%	46,120 – 54,651	34,397	10%	1,447	28%	14,542	11%
Tundra swan	778	4,679	12%	4,141 – 5,218	2,551	12%	161	41%	1,967	19%
Sandhill crane	444	2,665	16%	2,247 – 3,083	1,698	17%	48	59%	919	20%
Seabirds										
Cormorant	3	19	117%	3 – 41	19	117%	0		0	
Tern	4	28	117%	4 – 62	28	117%	0		0	
Black-legged kittiwake	0	0		-	0		0		0	
Bonaparte's/Sabine's gull	0	0		-	0		0		0	
Mew gull	25	532	120%	25 – 1,168	532	120%	0		0	
Large gull	113	1,708	112%	113 – 3,619	1,708	112%	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	145	2,288	111%	145 – 4,835	2,288	111%	0		0	
Shorebirds										
Whimbrel/Curlew	4	27	83%	5 – 49	27	64%	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	4	27	83%	5 – 49	27	83%	0		0	
Loons and grebes										
Common loon	11	49	68%	16 – 82	30	77%	19	125%	0	
Pacific loon	3	14	87%	3 – 27	8	121%	6	125%	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	2	11	88%	2 – 21	11	88%	0		0	
Total loons and grebes	16	75	49%	38 – 111	50	54%	25	98%	0	
Other/unknown bird	3	57	121%	3 – 125	0		0		57	121%
Total migratory birds	15,990	98,859	10%	88,999 – 108,719	66,486	11%	3,879	24%	28,493	11%
Ptarmigans and grouses										
Grouse	391	2,050	19%	1,655 – 2,444	107	49%	30	91%	1,913	20%
Ptarmigan	1,450	9,928	25%	7,403 – 12,452	9,201	27%	38	125%	689	55%
Total ptarmigans and grouses	1,841	11,977	22%	9,373 – 14,581	9,308	26%	67	80%	2,602	25%
Total birds	17,831	110,836	10%	99,449 – 122,222	75,794	12%	3,947	24%	31,095	11%

Sampling effort (Yukon-Kuskokwim Delta region, 2015): 19 out of 47 villages in this region were included in analysis; 6 out of 7 subregions were surveyed; 98% of the region households were represented in the sample. -: No reported harvest.

Table 8.–Estimated egg harvest, Yukon-Kuskokwim Delta region, 2015.

Species	Yearly egg harvest				Seasonal estimated egg harvest					
	Reported number	Estimated number	Confidence Interval		Spring		Summer		Fall	
			CIP	Low – High	Number	CIP	Number	CIP	Number	CIP
Ducks										
American wigeon	120	740	45%	410 – 1,071	740	45%	0		0	
Teal	71	316	56%	140 – 492	316	56%	0		0	
Mallard	425	2,670	25%	2,009 – 3,331	2,014	30%	656	42%	0	
Northern pintail	674	3,459	16%	2,898 – 4,020	3,054	17%	405	43%	0	
Northern shoveler	94	479	43%	271 – 688	479	43%	0		0	
Black scoter	24	145	80%	29 – 261	73	114%	73	114%	0	
Surf scoter	0	0		-	0		0		0	
White-winged scoter	0	0		-	0		0		0	
Bufflehead	0	0		-	0		0		0	
Goldeneye	11	40	109%	11 – 84	36	121%	4	126%	0	
Canvasback	8	29	121%	8 – 64	29	121%	0		0	
Scaup	6	25	126%	6 – 56	25	126%	0		0	
Common eider	21	140	70%	43 – 238	76	82%	64	117%	0	
King eider	10	71	117%	10 – 155	71	117%	0		0	
Spectacled eider	0	0		-	0		0		0	
Steller's eider	0	0		-	0		0		0	
Harlequin duck	0	0		-	0		0		0	
Long-tailed duck	2	8	121%	2 – 18	8	121%	0		0	
Merganser	0	0		-	0		0		0	
Duck (unidentified)	997	4,799	15%	4,075 – 5,522	4,203	15%	596	59%	0	
Total ducks	2,463	12,923	12%	11,396 – 14,449	11,124	13%	1,798	31%	0	
Geese										
Black brant	258	1,496	45%	828 – 2,164	1,496	45%	0		0	
Cackling/Canada goose	2,016	11,772	16%	9,907 – 13,637	9,940	14%	1,832	29%	0	
Greater white-fronted goose	1,453	9,323	21%	7,328 – 11,319	9,238	22%	85	117%	0	
Emperor goose	144	776	47%	411 – 1,141	689	52%	87	90%	0	
Snow goose	78	429	60%	173 – 685	281	63%	148	125%	0	
Total geese	3,949	23,796	17%	19,807 – 27,786	21,644	18%	2,153	35%	0	
Tundra swan	687	3,547	14%	3,068 – 4,026	3,281	14%	266	43%	0	
Sandhill crane	379	1,892	15%	1,617 – 2,167	1,759	15%	133	49%	0	
Seabirds										
Cormorant	0	0		-	0		0		0	
Tern	154	916	34%	601 – 1,232	916	34%	0		0	
Black-legged kittiwake	16	58	85%	16 – 107	58	85%	0		0	
Bonaparte's/Sabine's gull	20	91	77%	21 – 161	91	77%	0		0	
Mew gull	379	2,267	28%	1,636 – 2,898	2,267	28%	0		0	
Large gull	999	5,470	21%	4,328 – 6,612	5,147	22%	323	52%	0	
Auklet	0	0		-	0		0		0	
Murre	456	2,544	80%	506 – 4,582	2,204	90%	340	125%	0	
Guillemot	0	0		-	0		0		0	
Puffin	0	0		-	0		0		0	
Total seabirds	2,024	11,345	22%	8,836 – 13,855	10,683	23%	662	68%	0	
Shorebirds										
Whimbrel/Curlew	0	0		-	0		0		0	
Godwit	4	24	115%	4 – 52	24	115%	0		0	
Golden/Black-bellied plover	110	651	40%	394 – 909	651	40%	0		0	
Turnstone	11	60	66%	21 – 100	60	66%	0		0	
Phalarope	62	294	66%	101 – 487	294	66%	0		0	
Small shorebird	242	1,455	35%	942 – 1,967	1,455	35%	0		0	
Total shorebirds	429	2,485	34%	1,639 – 3,331	2,485	34%	0		0	
Loons and grebes										
Common loon	0	0		-	0		0		0	
Pacific loon	16	78	54%	36 – 120	78	54%	0		0	
Red-throated loon	0	0		-	0		0		0	
Yellow-billed loon	2	7	121%	2 – 16	7	121%	0		0	
Grebe	2	12	124%	2 – 26	12	124%	0		0	
Total loons and grebes	20	97	47%	52 – 142	97	47%	0		0	
Total migratory birds	9,951	56,085	11%	49,854 – 62,316	51,072	12%	5,013	31%	0	
Ptarmigans and grouses										
Grouse	0	0		-	0		0		0	
Ptarmigan	104	682	52%	329 – 1,035	558	57%	123	125%	0	
Total ptarmigans and grouses	104	682	52%	329 – 1,035	558	57%	123	125%	0	
Total eggs	10,055	56,767	11%	50,436 – 63,099	51,631	12%	5,136	31%	0	

Sampling effort (Yukon-Kuskokwim Delta region, 2015): 19 out of 47 villages in this region were included in analysis; 6 out of 7 subregions were surveyed; 98% of the region households were represented in the sample. -: No reported harvest.

Table 9.–Estimated bird harvest, Yukon-Kuskokwim Delta region, South Coast subregion, 2015.

Species	Yearly bird harvest				Seasonal estimated bird harvest					
	Reported	Estimated	Confidence Interval		Spring		Summer		Fall	
	number	number	CIP	Low – High	Number	CIP	Number	CIP	Number	CIP
Ducks										
American wigeon	54	308	41%	182 – 434	165	86%	0		143	63%
Teal	65	361	30%	251 – 470	199	60%	0		162	48%
Mallard	189	1,521	26%	1,123 – 1,919	958	58%	208	122%	355	40%
Northern pintail	145	954	23%	734 – 1,174	455	35%	208	122%	291	40%
Northern shoveler	39	223	41%	132 – 314	172	68%	0		50	62%
Black scoter	177	1,033	24%	789 – 1,277	857	33%	148	85%	27	95%
Surf scoter	3	16	88%	3 – 30	0		0		16	117%
White-winged scoter	42	248	47%	132 – 364	242	63%	0		6	117%
Bufflehead	14	83	50%	41 – 124	53	82%	0		30	117%
Goldeneye	33	180	32%	121 – 238	113	57%	0		67	57%
Canvasback	4	24	61%	9 – 38	12	117%	0		12	117%
Scaup	76	438	29%	312 – 564	287	48%	0		151	56%
Common eider	0	0		-	0		0		0	
King eider	7	38	63%	14 – 61	38	83%	0		0	
Spectacled eider	0	0		-	0		0		0	
Steller's eider	5	45	79%	9 – 80	0		45	119%	0	
Harlequin duck	7	41	85%	7 – 76	41	117%	0		0	
Long-tailed duck	0	0		-	0		0		0	
Merganser	24	129	49%	66 – 192	75	69%	0		54	117%
Total ducks	884	5,639	16%	4,758 – 6,521	3,667	26%	609	88%	1,364	28%
Geese										
Black brant	25	137	55%	62 – 213	137	73%	0		0	
Cackling/Canada goose	539	3,318	16%	2,799 – 3,837	2,888	18%	0		430	32%
Greater white-fronted goose	934	5,596	14%	4,826 – 6,365	4,494	17%	6	117%	1,095	42%
Emperor goose	11	136	58%	57 – 215	136	95%	0		0	
Snow goose	0	0		-	0		0		0	
Total geese	1,509	9,187	13%	8,001 – 10,374	7,656	17%	6	117%	1,525	35%
Tundra swan	132	896	19%	728 – 1,063	661	29%	0		234	59%
Sandhill crane	141	945	19%	763 – 1,126	761	28%	11	117%	173	77%
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	25	519	73%	138 – 900	519	122%	0		0	
Large gull	75	1,558	73%	415 – 2,701	1,558	122%	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	100	2,077	73%	553 – 3,601	2,077	122%	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	0	0		-	0		0		0	
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	0	0		-	0		0		0	
Total migratory birds	2,766	18,744	16%	15,681 – 21,807	14,822	30%	625	86%	3,296	27%
Ptarmigans and grouses										
Grouse	0	0		-	0		0		0	
Ptarmigan	334	2,637	34%	1,743 – 3,532	2,627	53%	0		11	117%
Total ptarmigans and grouses	334	2,637	34%	1,743 – 3,532	2,627	53%	0		11	117%
Total birds	3,100	21,381	18%	17,557 – 25,205	17,449	32%	625	86%	3,307	27%

Sampling effort (South Coast subregion, 2015): 3 out of 8 villages in this subregion were included in analysis; 42% of subregion households were represented in the sample. -: Reported harvest=0.

Table 10.–Estimated egg harvest, Yukon-Kuskokwim Delta region, South Coast subregion, 2015.

Species	Yearly egg harvest				Seasonal estimated egg harvest					
	Reported number	Estimated number	Confidence Interval		Spring		Summer		Fall	
			CIP	Low – High	Number	CIP	Number	CIP	Number	CIP
Ducks										
American wigeon	10	54	88%	10 – 101	54	117%	0		0	
Teal	27	159	61%	62 – 256	159	82%	0		0	
Mallard	72	416	43%	238 – 595	374	62%	43	117%	0	
Northern pintail	148	844	34%	556 – 1,131	844	45%	0		0	
Northern shoveler	18	96	63%	36 – 157	96	83%	0		0	
Black scoter	24	142	61%	56 – 227	71	117%	71	117%	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	0	0		-	0		0		0	
King eider	0	0		-	0		0		0	
Spectacled eider	0	0		-	0		0		0	
Steller's eider	0	0		-	0		0		0	
Harlequin duck	0	0		-	0		0		0	
Long-tailed duck	0	0		-	0		0		0	
Merganser	0	0		-	0		0		0	
Total ducks	299	1,711	30%	1,200 – 2,222	1,597	41%	114	85%	0	
Geese										
Black brant	0	0		-	0		0		0	
Cackling/Canada goose	437	2,716	29%	1,933 – 3,499	2,684	34%	32	96%	0	
Greater white-fronted goose	575	3,488	31%	2,414 – 4,561	3,488	41%	0		0	
Emperor goose	0	0		-	0		0		0	
Snow goose	0	0		-	0		0		0	
Total geese	1,012	6,204	30%	4,365 – 8,042	6,171	40%	32	117%	0	
Tundra swan	182	1,183	21%	931 – 1,436	1,183	30%	0		0	
Sandhill crane	73	481	25%	362 – 600	481	35%	0		0	
Seabirds										
Cormorant	0	0		-	0		0		0	
Tern	38	238	36%	152 – 323	238	48%	0		0	
Black-legged kittiwake	0	0			0		0		0	
Bonaparte's/Sabine's gull	10	54	88%	10 – 101	54	117%	0		0	
Mew gull	266	1,477	28%	1,060 – 1,895	1,477	35%	0		0	
Large gull	104	571	30%	399 – 743	571	38%	0		0	
Auklet	0	0			0		0		0	
Murre	401	2,152	70%	645 – 3,659	2,152	92%	0		0	
Guillemot	0	0			0		0		0	
Puffin	0	0			0		0		0	
Total seabirds	819	4,492	36%	2,853 – 6,131	4,492	46%	0		0	
Shorebirds										
Whimbrel/Curlew	0	0		-	0		0		0	
Godwit	0	0		-	0		0		0	
Golden/Black-bellied plover	47	273	52%	130 – 415	273	71%	0		0	
Turnstone	11	59	52%	28 – 90	59	67%	0		0	
Phalarope	24	137	64%	49 – 226	137	88%	0		0	
Small shorebird	106	663	39%	403 – 922	663	53%	0		0	
Total shorebirds	188	1,132	42%	652 – 1,612	1,132	57%	0		0	
Loons and grebes										
Common loon	0	0		-	0		0		0	
Pacific loon	10	55	45%	30 – 80	55	59%	0		0	
Red-throated loon	0	0		-	0		0		0	
Yellow-billed loon	0	0		-	0		0		0	
Grebe	0	0		-	0		0		0	
Total loons and grebes	10	55	45%	30 – 80	55	59%	0		0	
Total migratory birds	2,583	15,258	20%	12,166 – 18,350	15,112	25%	146	82%	0	
Ptarmigans and grouses										
Grouse	0	0		-	0		0		0	
Ptarmigan	8	166	73%	44 – 288	166	122%	0		0	
Total ptarmigans and grouses	8	166	73%	44 – 288	166	122%	0		0	
Total eggs	2,591	15,424	20%	12,298 – 18,550	15,278	26%	146	82%	0	

Sampling effort (South Coast subregion, 2015): 3 out of 8 villages in this subregion were included in analysis; 42% of subregion households were represented in the sample. -: Reported harvest=0.

Table 11.–Estimated bird harvest, Yukon-Kuskokwim Delta region, Mid-Coast subregion, 2015.

Species	Yearly bird harvest				Seasonal estimated bird harvest					
	Reported	Estimated	Confidence Interval		Spring		Summer		Fall	
	number	number	CIP	Low – High	Number	CIP	Number	CIP	Number	CIP
Ducks										
American wigeon	59	300	42%	173 – 428	139	120%	28	120%	133	52%
Teal	29	138	39%	84 – 192	57	95%	0		81	64%
Mallard	166	1,385	34%	914 – 1,856	1,004	75%	56	95%	325	55%
Northern pintail	215	968	26%	721 – 1,216	355	55%	18	101%	595	42%
Northern shoveler	20	94	41%	55 – 134	45	96%	14	120%	35	76%
Black scoter	2	14	79%	3 – 25	14	120%	0		0	
Surf scoter	2	14	79%	3 – 25	14	120%	0		0	
White-winged scoter	6	21	104%	6 – 43	0		0		21	123%
Bufflehead	2	10	63%	4 – 17	7	120%	0		4	123%
Goldeneye	3	11	104%	3 – 22	0		0		11	123%
Canvasback	13	46	84%	13 – 84	0		11	123%	35	123%
Scaup	3	21	79%	4 – 37	21	120%	0		0	
Common eider	24	143	46%	77 – 209	143	67%	0		0	
King eider	390	2,357	29%	1,684 – 3,031	2,345	40%	0		12	119%
Spectacled eider	4	14	74%	4 – 25	7	123%	7	123%	0	
Steller's eider	0	0		-	0		0		0	
Harlequin duck	0	0		-	0		0		0	
Long-tailed duck	30	166	49%	85 – 248	159	74%	0		7	123%
Merganser	0	0		-	0		0		0	
Total ducks	968	5,703	19%	4,641 – 6,766	4,311	33%	133	70%	1,260	36%
Geese										
Black brant	282	1,671	18%	1,375 – 1,968	1,538	25%	49	92%	84	74%
Cackling/Canada goose	717	5,140	13%	4,463 – 5,816	3,842	17%	42	58%	1,256	34%
Greater white-fronted goose	590	4,248	15%	3,611 – 4,884	3,272	22%	140	54%	836	69%
Emperor goose	17	124	49%	63 – 186	124	79%	0		0	
Snow goose	1	7	79%	1 – 12	7	120%	0		0	
Total geese	1,607	11,190	13%	9,727 – 12,653	8,783	19%	231	52%	2,176	51%
Tundra swan	57	350	27%	257 – 444	157	49%	13	86%	180	63%
Sandhill crane	54	391	25%	294 – 489	272	44%	25	95%	95	100%
Seabirds										
Cormorant	3	19	82%	3 – 34	19	119%	0		0	
Tern	4	28	79%	6 – 50	28	120%	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	6	37	82%	7 – 67	37	119%	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	13	84	49%	43 – 124	84	71%	0		0	
Shorebirds										
Whimbrel/Curlew	4	26	48%	14 – 39	26	65%	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	4	26	57%	11 – 41	26	85%	0		0	
Loons and grebes										
Common loon	5	18	86%	5 – 33	18	101%	0		0	
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	5	18	86%	5 – 33	18	101%	0		0	
Total migratory birds	2,708	17,762	13%	15,432 – 20,093	13,650	20%	401	47%	3,711	40%
Ptarmigans and grouses										
Grouse	0	0		-	0		0		0	
Ptarmigan	446	3,401	30%	2,394 – 4,409	3,339	48%	0		63	90%
Total ptarmigans and grouses	446	3,401	30%	2,394 – 4,409	3,339	48%	0		63	90%
Total birds	3,154	21,164	14%	18,175 – 24,152	16,988	23%	401	47%	3,774	40%

Sampling effort (Mid Coast subregion, 2015): 3 out of 9 villages in this subregion were included in analysis; 45% of subregion households were represented in the sample. -: Reported harvest=0.

Table 12.–Estimated egg harvest, Yukon-Kuskokwim Delta region, Mid-Coast subregion, 2015.

Species	Yearly egg harvest				Seasonal estimated egg harvest					
	Reported number	Estimated number	Confidence Interval		Spring		Summer		Fall	
			CIP	Low – High	Number	CIP	Number	CIP	Number	CIP
Ducks										
American wigeon	14	97	79%	20 – 175	97	120%	0		0	
Teal	12	42	104%	12 – 86	42	123%	0		0	
Mallard	45	272	56%	120 – 424	272	82%	0		0	
Northern pintail	50	272	49%	140 – 405	272	70%	0		0	
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	10	35	104%	10 – 72	35	123%	0		0	
Canvasback	8	28	104%	8 – 57	28	123%	0		0	
Scaup	0	0		-	0		0		0	
Common eider	21	137	48%	71 – 203	74	84%	63	120%	0	
King eider	10	70	79%	14 – 125	70	120%	0		0	
Spectacled eider	0	0		-	0		0		0	
Steller's eider	0	0		-	0		0		0	
Harlequin duck	0	0		-	0		0		0	
Long-tailed duck	0	0		-	0		0		0	
Merganser	0	0		-	0		0		0	
Total ducks	170	953	41%	563 – 1,344	891	61%	63	120%	0	
Geese										
Black brant	195	1,130	39%	688 – 1,571	1,130	56%	0		0	
Cackling/Canada goose	399	2,932	20%	2,333 – 3,530	2,695	30%	237	89%	0	
Greater white-fronted goose	505	3,708	22%	2,888 – 4,528	3,624	33%	83	120%	0	
Emperor goose	63	383	57%	167 – 600	383	84%	0		0	
Snow goose	0	0		-	0		0		0	
Total geese	1,162	8,152	22%	6,334 – 9,970	7,832	34%	320	91%	0	
Tundra swan	46	179	41%	106 – 253	179	49%	0		0	
Sandhill crane	40	155	36%	99 – 211	155	43%	0		0	
Seabirds										
Cormorant	0	0		-	0		0		0	
Tern	46	250	48%	131 – 369	250	68%	0		0	
Black-legged kittiwake	16	56	74%	16 – 98	56	87%	0		0	
Bonaparte's/Sabine's gull	10	35	75%	10 – 62	35	89%	0		0	
Mew gull	45	279	55%	125 – 432	279	81%	0		0	
Large gull	343	2,390	27%	1,742 – 3,038	2,390	39%	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	460	3,010	24%	2,300 – 3,720	3,010	33%	0		0	
Shorebirds										
Whimbrel/Curlew	0	0		-	0		0		0	
Godwit	0	0		-	0		0		0	
Golden/Black-bellied plover	23	143	51%	69 – 216	143	75%	0		0	
Turnstone	0	0		-	0		0		0	
Phalarope	4	14	104%	4 – 29	14	123%	0		0	
Small shorebird	71	466	44%	259 – 674	466	65%	0		0	
Total shorebirds	98	623	41%	370 – 876	623	58%	0		0	
Loons and grebes										
Common loon	0	0		-	0		0		0	
Pacific loon	6	21	104%	6 – 43	21	123%	0		0	
Red-throated loon	0	0		-	0		0		0	
Yellow-billed loon	2	7	104%	2 – 14	7	123%	0		0	
Grebe	0	0		-	0		0		0	
Total loons and grebes	8	28	83%	8 – 51	28	97%	0		0	
Total migratory birds	1,984	13,101	18%	10,744 – 15,457	12,718	26%	383	84%	0	
Ptarmigans and grouses										
Grouse	0	0		-	0		0		0	
Ptarmigan	49	300	53%	140 – 460	300	78%	0		0	
Total ptarmigans and grouses	49	300	53%	140 – 460	300	78%	0		0	
Total eggs	2,033	13,400	18%	10,976 – 15,824	13,017	26%	383	84%	0	

Sampling effort (Mid Coast subregion, 2015): 3 out of 9 villages in this subregion were included in analysis; 45% of subregion households were represented in the sample. -: Reported harvest=0.

Table 13.–Estimated bird harvest, Yukon-Kuskokwim Delta region, North Coast subregion, 2015.

Species	Yearly bird harvest				Seasonal estimated bird harvest					
	Reported number	Estimated number	Confidence Interval		Spring		Summer		Fall	
			CIP	Low – High	Number	CIP	Number	CIP	Number	CIP
Ducks										
American wigeon	5	20	43%	12 – 29	2	122%	16	81%	2	122%
Teal	5	24	45%	13 – 34	0		16	81%	8	128%
Mallard	15	64	44%	36 – 93	11	105%	45	89%	8	128%
Northern pintail	134	568	17%	472 – 664	122	55%	62	52%	384	24%
Northern shoveler	26	140	49%	71 – 208	83	125%	42	87%	15	96%
Black scoter	0	0		-	0		0		0	
Surf scoter	0	0		-	0		0		0	
White-winged scoter	1	4	86%	1 – 8	0		4	128%	0	
Bufflehead	0	0		-	0		0		0	
Goldeneye	1	4	86%	1 – 8	0		4	128%	0	
Canvasback	2	8	61%	3 – 13	0		8	90%	0	
Scaup	0	0		-	0		0		0	
Common eider	0	0		-	0		0		0	
King eider	0	0		-	0		0		0	
Spectacled eider	0	0		-	0		0		0	
Steller's eider	0	0		-	0		0		0	
Harlequin duck	0	0		-	0		0		0	
Long-tailed duck	2	8	61%	3 – 13	0		0		8	90%
Merganser	0	0		-	0		0		0	
Duck (unidentified)	259	1,146	19%	924 – 1,368	195	37%	337	50%	615	41%
Total ducks	450	1,987	13%	1,728 – 2,246	412	35%	533	35%	1,041	25%
Geese										
Black brant	25	89	23%	69 – 109	29	50%	17	121%	42	35%
Cackling/Canada goose	425	1,809	14%	1,548 – 2,071	285	28%	192	55%	1,331	15%
Greater white-fronted goose	155	635	13%	552 – 719	275	21%	2	122%	358	19%
Emperor goose	26	111	25%	83 – 138	27	71%	0		83	44%
Snow goose	885	3,764	13%	3,293 – 4,235	1,753	14%	0		2,011	14%
Total geese	1,516	6,408	11%	5,683 – 7,133	2,369	13%	212	70%	3,826	12%
Tundra swan	141	542	12%	477 – 607	117	31%	4	128%	421	13%
Sandhill crane	96	351	13%	304 – 397	82	32%	0		268	18%
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	0	0		-	0		0		0	
Large gull	32	73	71%	32 – 125	73	82%	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	32	73	71%	32 – 125	73	82%	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	0	0		-	0		0		0	
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	0	0		-	0		0		0	
Total migratory birds	2,235	9,360	10%	8,455 – 10,266	3,054	12%	749	38%	5,557	10%
Ptarmigans and grouses										
Grouse	0	0		-	0		0		0	
Ptarmigan	208	761	20%	610 – 912	502	34%	0		259	51%
Total ptarmigans and grouses	208	761	20%	610 – 912	502	34%	0		259	51%
Total birds	2,443	10,121	9%	9,164 – 11,079	3,556	12%	749	38%	5,816	10%

Sampling effort (Nort Coast subregion, 2015): 3 out of 4 villages in this subregion were included in analysis; 59% of subregion households were represented in the sample. -: Reported harvest=0.

Table 14.–Estimated egg harvest, Yukon-Kuskokwim Delta region, North Coast subregion, 2015.

Species	Yearly egg harvest				Seasonal estimated egg harvest					
	Reported number	Estimated number	Confidence Interval		Spring		Summer		Fall	
			CIP	Low – High	Number	CIP	Number	CIP	Number	CIP
Ducks										
American wigeon	0	0		-	0		0		0	
Teal	12	27	104%	12 – 56	27	122%	0		0	
Mallard	52	169	50%	85 – 252	169	66%	0		0	
Northern pintail	346	1,476	16%	1,243 – 1,709	1,476	16%	0		0	
Northern shoveler	64	324	37%	205 – 442	324	56%	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	1	4	86%	1 – 8	0		4	128%	0	
Canvasback	0	0		-	0		0		0	
Scaup	6	24	86%	6 – 45	24	128%	0		0	
Common eider	0	0		-	0		0		0	
King eider	0	0		-	0		0		0	
Spectacled eider	0	0		-	0		0		0	
Steller's eider	0	0		-	0		0		0	
Harlequin duck	0	0		-	0		0		0	
Long-tailed duck	0	0		-	0		0		0	
Merganser	0	0		-	0		0		0	
Duck (unidentified)	863	3,683	14%	3,158 – 4,208	3,463	16%	220	62%	0	
Total ducks	1,344	5,707	12%	5,050 – 6,365	5,483	12%	224	61%	0	
Geese										
Black brant	48	271	41%	159 – 384	271	65%	0		0	
Cackling/Canada goose	775	3,322	14%	2,871 – 3,773	3,074	13%	248	72%	0	
Greater white-fronted goose	165	789	31%	546 – 1,033	789	47%	0		0	
Emperor goose	65	298	35%	195 – 401	249	57%	49	128%	0	
Snow goose	54	274	42%	160 – 389	274	64%	0		0	
Total geese	1,107	4,956	15%	4,227 – 5,684	4,659	19%	297	94%	0	
Tundra swan	371	1,465	14%	1,261 – 1,670	1,465	12%	0		0	
Sandhill crane	232	963	15%	814 – 1,112	963	17%	0		0	
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	0	0		-	0		0		0	
Large gull	415	1,483	23%	1,148 – 1,818	1,483	31%	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	415	1,483	23%	1,148 – 1,818	1,483	31%	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	0	0		-	0		0		0	
Pacific loon	0	0		-	0		0		0	
Red-throated loon	0	0		-	0		0		0	
Yellow-billed loon	0	0		-	0		0		0	
Grebe	0	0		-	0		0		0	
Total loons and grebes	0	0		-	0		0		0	
Total migratory birds	3,469	14,574	11%	13,022 – 16,126	14,053	10%	521	76%	0	
Ptarmigans and grouses										
Grouse	0	0		-	0		0		0	
Ptarmigan	27	79	57%	34 – 125	79	78%	0		0	
Total ptarmigans and grouses	27	79	57%	34 – 125	79	78%	0		0	
Total eggs	3,496	14,654	11%	13,095 – 16,213	14,133	10%	521	76%	0	

Sampling effort (Nort Coast subregion, 2015): 3 out of 4 villages in this subregion were included in analysis; 59% of subregion households were represented in the sample. -: Reported harvest=0.

Table 15.–Estimated bird harvest, Yukon-Kuskokwim Delta region, Lower Yukon subregion, 2015.

Species	Yearly bird harvest				Seasonal estimated bird harvest					
	Reported	Estimated	Confidence Interval		Spring		Summer		Fall	
	number	number	CIP	Low – High	Number	CIP	Number	CIP	Number	CIP
Ducks										
American wigeon	122	672	20%	537 – 806	431	31%	12	117%	229	39%
Teal	18	83	78%	18 – 148	83	98%	0		0	
Mallard	442	2,543	13%	2,212 – 2,874	1,290	20%	52	84%	1,201	18%
Northern pintail	36	204	31%	140 – 268	130	49%	0		74	76%
Northern shoveler	0	0		-	0		0		0	
Black scoter	335	2,023	21%	1,595 – 2,450	1,582	31%	24	117%	417	47%
Surf scoter	24	142	64%	52 – 233	133	94%	9	120%	0	
White-winged scoter	2	12	84%	2 – 22	12	117%	0		0	
Bufflehead	0	0		-	0		0		0	
Goldeneye	30	214	29%	151 – 278	130	48%	0		84	45%
Canvasback	2	12	84%	2 – 22	12	117%	0		0	
Scaup	0	0		-	0		0		0	
Common eider	2	12	84%	2 – 22	12	117%	0		0	
King eider	0	0		-	0		0		0	
Spectacled eider	0	0		-	0		0		0	
Steller's eider	0	0		-	0		0		0	
Harlequin duck	0	0		-	0		0		0	
Long-tailed duck	0	0		-	0		0		0	
Merganser	0	0		-	0		0		0	
Duck (unidentified)	17	103	66%	35 – 170	91	103%	0		12	117%
Total ducks	1,030	6,020	13%	5,239 – 6,801	3,907	19%	97	88%	2,017	21%
Geese										
Black brant	8	49	67%	16 – 81	49	92%	0		0	
Cackling/Canada goose	567	3,237	14%	2,792 – 3,681	1,934	15%	75	56%	1,228	17%
Greater white-fronted goose	620	3,536	12%	3,097 – 3,975	2,256	18%	129	68%	1,151	20%
Emperor goose	5	30	84%	5 – 56	30	117%	0		0	
Snow goose	144	787	19%	639 – 936	576	26%	0		211	45%
Total geese	1,344	7,639	12%	6,757 – 8,521	4,845	16%	204	69%	2,590	19%
Tundra swan	161	952	14%	823 – 1,082	626	16%	18	87%	309	28%
Sandhill crane	5	30	46%	16 – 43	24	71%	0		6	117%
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	0	0		-	0		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	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	
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	0	0		-	0		0		0	
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	0	0		-	0		0		0	
Other/unknown bird	3	55	76%	14 – 97	0		0		55	124%
Total migratory birds	2,543	14,696	11%	13,059 – 16,334	9,401	15%	319	67%	4,976	18%
Ptarmigans and grouses										
Grouse	262	1,534	21%	1,215 – 1,854	35	75%	0		1,499	24%
Ptarmigan	152	884	39%	538 – 1,230	604	54%	0		280	117%
Total ptarmigans and grouses	414	2,418	23%	1,872 – 2,964	639	52%	0		1,779	35%
Total birds	2,957	17,114	11%	15,151 – 19,077	10,040	15%	319	67%	6,756	21%

Sampling effort (Lower Yukon, 2015): 3 out of 6 villages in this subregion were included in analysis; 42% of subregion households were represented in the sample. -: Reported harvest=0.

Table 16.–Estimated egg harvest, Yukon-Kuskokwim Delta region, Lower Yukon subregion, 2015.

Species	Yearly egg harvest				Seasonal estimated egg harvest					
	Reported number	Estimated number	Confidence Interval		Spring		Summer		Fall	
			CIP	Low – High	Number	CIP	Number	CIP	Number	CIP
Ducks										
American wigeon	96	571	41%	338 – 805	571	53%	0		0	
Teal	0	0		-	0		0		0	
Mallard	113	710	33%	479 – 941	710	41%	0		0	
Northern pintail	13	77	84%	13 – 143	77	117%	0		0	
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	0	0		-	0		0		0	
King eider	0	0		-	0		0		0	
Spectacled eider	0	0		-	0		0		0	
Steller's eider	0	0		-	0		0		0	
Harlequin duck	0	0		-	0		0		0	
Long-tailed duck	0	0		-	0		0		0	
Merganser	0	0		-	0		0		0	
Duck (unidentified)	74	640	36%	410 – 870	640	50%	0		0	
Total ducks	296	1,999	29%	1,429 – 2,569	1,999	36%	0		0	
Geese										
Black brant	0	0		-	0		0		0	
Cackling/Canada goose	35	209	43%	119 – 298	209	52%	0		0	
Greater white-fronted goose	71	423	40%	255 – 590	423	51%	0		0	
Emperor goose	0	0		-	0		0		0	
Snow goose	0	0		-	0		0		0	
Total geese	106	631	39%	386 – 877	631	50%	0		0	
Tundra swan	22	156	40%	94 – 218	156	56%	0		0	
Sandhill crane	2	12	84%	2 – 22	12	117%	0		0	
Seabirds										
Cormorant	0	0		-	0		0		0	
Tern	37	220	52%	107 – 334	220	69%	0		0	
Black-legged kittiwake	0	0		-	0		0		0	
Bonaparte's/Sabine's gull	0	0		-	0		0		0	
Mew gull	63	437	43%	249 – 626	437	59%	0		0	
Large gull	40	238	61%	93 – 383	238	83%	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	140	896	41%	525 – 1,266	896	55%	0		0	
Shorebirds										
Whimbrel/Curlew	0	0		-	0		0		0	
Godwit	4	24	84%	4 – 44	24	117%	0		0	
Golden/Black-bellied plover	31	185	50%	93 – 276	185	66%	0		0	
Turnstone	0	0		-	0		0		0	
Phalarope	0	0		-	0		0		0	
Small shorebird	0	0		-	0		0		0	
Total shorebirds	35	208	47%	109 – 307	208	63%	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	
Yellow-billed loon	0	0		-	0		0		0	
Grebe	0	0		-	0		0		0	
Total loons and grebes	0	0		-	0		0		0	
Total migratory birds	601	3,902	32%	2,655 – 5,149	3,902	40%	0		0	
Ptarmigans and grouses										
Grouse	0	0		-	0		0		0	
Ptarmigan	0	0		-	0		0		0	
Total ptarmigans and grouses	0	0		-	0		0		0	
Total eggs	601	3,902	32%	2,655 – 5,149	3,902	40%	0		0	

Sampling effort (Lower Yukon, 2015): 3 out of 6 villages in this subregion were included in analysis; 42% of subregion households were represented in the sample. -: Reported harvest=0.

Table 17.–Estimated bird harvest, Yukon-Kuskokwim Delta region, Lower Kuskokwim subregion, 2015.

Species	Yearly bird harvest				Seasonal estimated bird harvest					
	Reported number	Estimated number	Confidence Interval		Spring		Summer		Fall	
			CIP	Low – High	Number	CIP	Number	CIP	Number	CIP
Ducks										
American wigeon	57	328	27%	238 – 419	212	53%	42	98%	74	91%
Teal	20	105	33%	70 – 139	58	65%	21	126%	25	94%
Mallard	314	1,830	11%	1,626 – 2,034	1,002	21%	233	50%	595	23%
Northern pintail	178	1,035	14%	887 – 1,182	594	26%	23	89%	418	30%
Northern shoveler	8	36	56%	16 – 56	36	80%	0		0	
Black scoter	595	3,310	12%	2,923 – 3,698	2,104	20%	73	89%	1,133	24%
Surf scoter	84	360	31%	247 – 473	326	50%	11	126%	24	82%
White-winged scoter	405	2,181	14%	1,882 – 2,480	1,462	23%	32	100%	687	26%
Bufflehead	41	167	51%	82 – 253	167	70%	0		0	
Goldeneye	118	667	19%	540 – 794	367	36%	147	70%	153	57%
Canvasback	1	4	88%	1 – 8	4	123%	0		0	
Scaup	453	2,141	21%	1,691 – 2,591	1,987	30%	53	89%	101	60%
Common eider	0	0		-	0		0		0	
King eider	2	8	88%	2 – 15	0		0		8	123%
Spectacled eider	0	0		-	0		0		0	
Steller's eider	0	0		-	0		0		0	
Harlequin duck	9	44	45%	24 – 63	32	77%	0		12	123%
Long-tailed duck	78	352	37%	223 – 481	342	53%	0		11	126%
Merganser	16	64	65%	22 – 105	64	90%	0		0	
Duck (unidentified)	18	109	40%	66 – 153	61	92%	0		49	78%
Total ducks	2,397	12,742	11%	11,323 – 14,160	8,819	19%	635	41%	3,288	17%
Geese										
Black brant	62	346	33%	232 – 460	104	76%	214	67%	28	92%
Cackling/Canada goose	1,223	7,035	10%	6,305 – 7,765	3,766	13%	410	33%	2,860	16%
Greater white-fronted goose	535	2,494	16%	2,100 – 2,887	2,104	22%	111	63%	278	66%
Emperor goose	28	143	44%	81 – 206	121	74%	0		22	101%
Snow goose	9	54	33%	36 – 72	18	97%	24	76%	12	90%
Total geese	1,857	10,072	9%	9,139 – 11,005	6,112	15%	760	42%	3,200	16%
Tundra swan	253	1,488	11%	1,327 – 1,650	790	16%	122	51%	577	20%
Sandhill crane	139	796	13%	695 – 897	449	23%	12	89%	335	18%
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	0	0		-	0		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	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	
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	6	30	60%	12 – 49	12	123%	18	127%	0	
Pacific loon	3	14	61%	5 – 23	8	123%	6	127%	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	2	11	58%	5 – 17	11	89%	0		0	
Total loons and grebes	11	55	38%	34 – 77	31	65%	24	100%	0	
Total migratory birds	4,657	25,153	9%	22,800 – 27,507	16,200	15%	1,553	40%	7,400	15%
Ptarmigans and grouses										
Grouse	127	447	23%	342 – 551	69	65%	29	93%	349	33%
Ptarmigan	194	850	28%	611 – 1,088	813	38%	37	127%	0	
Total ptarmigans and grouses	321	1,297	20%	1,032 – 1,561	882	37%	66	81%	349	33%
Total birds	4,978	26,450	9%	23,985 – 28,915	17,083	15%	1,619	38%	7,748	14%

Sampling effort (Lower Kuskokwim subregion, 2015): 6 out of 13 villages in this subregion were included in analysis; 53% of subregion households were represented in the sample. -: Reported harvest=0.

Table 18.–Estimated egg harvest, Yukon-Kuskokwim Delta region, Lower Kuskokwim subregion, 2015.

Species	Yearly egg harvest				Seasonal estimated egg harvest					
	Reported number	Estimated number	Confidence Interval		Spring		Summer		Fall	
			CIP	Low – High	Number	CIP	Number	CIP	Number	CIP
Ducks										
American wigeon	0	0		–	0		0		0	
Teal	20	80	88%	20 – 150	80	123%	0		0	
Mallard	123	840	26%	625 – 1,055	242	64%	598	45%	0	
Northern pintail	117	708	25%	528 – 888	312	60%	396	44%	0	
Northern shoveler	12	48	88%	12 – 90	48	123%	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	0	0		-	0		0		0	
King eider	0	0		-	0		0		0	
Spectacled eider	0	0		-	0		0		0	
Steller's eider	0	0		-	0		0		0	
Harlequin duck	0	0		-	0		0		0	
Long-tailed duck	2	8	88%	2 – 15	8	123%	0		0	
Merganser	0	0		-	0		0		0	
Duck (unidentified)	60	362	58%	153 – 571	0		362	89%	0	
Total ducks	334	2,046	23%	1,582 – 2,509	690	57%	1,355	38%	0	
Geese										
Black brant	15	60	88%	15 – 113	60	123%	0		0	
Cackling/Canada goose	337	1,985	21%	1,575 – 2,394	713	42%	1,272	35%	0	
Greater white-fronted goose	117	495	44%	280 – 711	495	60%	0		0	
Emperor goose	16	76	60%	30 – 122	40	123%	36	127%	0	
Snow goose	24	145	81%	27 – 262	0		145	127%	0	
Total geese	509	2,760	24%	2,104 – 3,417	1,308	51%	1,452	44%	0	
Tundra swan	52	339	26%	252 – 427	79	75%	260	43%	0	
Sandhill crane	25	167	29%	118 – 215	37	81%	130	50%	0	
Seabirds										
Cormorant	0	0		-	0		0		0	
Tern	25	106	69%	32 – 180	106	97%	0		0	
Black-legged kittiwake	0	0		-	0		0		0	
Bonaparte's/Sabine's gull	0	0		-	0		0		0	
Mew gull	5	20	88%	5 – 38	20	123%	0		0	
Large gull	82	508	30%	356 – 661	193	80%	315	53%	0	
Auklet	0	0		-	0		0		0	
Murre	55	332	81%	62 – 601	0		332	127%	0	
Guillemot	0	0		-	0		0		0	
Puffin	0	0		-	0		0		0	
Total seabirds	167	966	35%	628 – 1,304	319	77%	647	69%	0	
Shorebirds										
Whimbrel/Curlew	0	0		-	0		0		0	
Godwit	0	0		-	0		0		0	
Golden/Black-bellied plover	9	36	88%	9 – 68	36	123%	0		0	
Turnstone	0	0		-	0		0		0	
Phalarope	34	136	79%	34 – 242	136	109%	0		0	
Small shorebird	65	291	51%	143 – 439	291	72%	0		0	
Total shorebirds	108	463	58%	194 – 732	463	81%	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	
Yellow-billed loon	0	0		-	0		0		0	
Grebe	2	11	82%	2 – 21	11	126%	0		0	
Total loons and grebes	2	11	82%	2 – 21	11	126%	0		0	
Total migratory birds	1,197	6,752	22%	5,298 – 8,206	2,908	48%	3,844	38%	0	
Ptarmigans and grouses										
Grouse	0	0		-	0		0		0	
Ptarmigan	20	121	81%	22 – 219	0		121	127%	0	
Total ptarmigans and grouses	20	121	81%	22 – 219	0		121	127%	0	
Total eggs	1,217	6,873	21%	5,401 – 8,344	2,908	48%	3,965	38%	0	

Sampling effort (Lower Kuskokwim subregion, 2015): 6 out of 13 villages in this subregion were included in analysis; 53% of subregion households were represented in the sample. -: Reported harvest=0.

Table 19.–Estimated bird harvest, Yukon-Kuskokwim Delta region, Bethel subregion, 2015.

Species	Yearly bird harvest				Seasonal estimated bird harvest					
	Reported number	Estimated number	Confidence Interval		Spring		Summer		Fall	
			CIP	Low – High	Number	CIP	Number	CIP	Number	CIP
Ducks										
American wigeon	12	120	64%	44 – 196	50	187%	70	133%	0	
Teal	23	230	67%	76 – 384	100	187%	20	187%	110	171%
Mallard	73	729	39%	442 – 1,016	290	104%	40	187%	400	97%
Northern pintail	30	300	55%	134 – 465	60	159%	10	187%	230	117%
Northern shoveler	4	40	108%	4 – 83	40	187%	0		0	
Black scoter	142	1,419	37%	895 – 1,943	1,019	78%	0		400	108%
Surf scoter	54	539	91%	54 – 1,028	539	157%	0		0	
White-winged scoter	91	909	87%	115 – 1,703	759	177%	0		150	187%
Bufflehead	37	370	77%	87 – 653	170	187%	0		200	187%
Goldeneye	16	160	85%	23 – 296	160	148%	0		0	
Canvasback	10	100	108%	10 – 208	0		0		100	187%
Scaup	65	649	57%	277 – 1,022	549	116%	0		100	112%
Common eider	0	0		-	0		0		0	
King eider	2	20	108%	2 – 42	0		0		20	187%
Spectacled eider	0	0		-	0		0		0	
Steller's eider	0	0		-	0		0		0	
Harlequin duck	2	20	108%	2 – 42	0		0		20	187%
Long-tailed duck	7	70	83%	12 – 128	20	187%	0		50	187%
Merganser	0	0		-	0		0		0	
Total ducks	568	5,674	37%	3,553 – 7,796	3,756	90%	140	114%	1,778	77%
Geese										
Black brant	0	0		-	0		0		0	
Cackling/Canada goose	197	1,968	23%	1,514 – 2,422	1,628	46%	0		340	60%
Greater white-fronted goose	273	2,727	29%	1,945 – 3,510	2,188	58%	0		539	78%
Emperor goose	0	0		-	0		0		0	
Snow goose	0	0		-	0		0		0	
Total geese	470	4,695	29%	3,319 – 6,072	3,816	60%	0		879	69%
Tundra swan	34	340	55%	152 – 527	140	108%	0		200	144%
Sandhill crane	9	90	65%	32 – 148	70	133%	0		20	187%
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	0	0		-	0		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	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	
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	0	0		-	0		0		0	
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	0	0		-	0		0		0	
Total migratory birds	1,081	10,799	28%	7,766 – 13,833	7,782	62%	140	114%	2,877	70%
Ptarmigans and grouses										
Grouse	2	20	108%	2 – 42	0		0		20	187%
Ptarmigan	116	1,159	55%	519 – 1,799	1,099	100%	0		60	187%
Total ptarmigans and grouses	118	1,179	55%	536 – 1,821	1,099	100%	0		80	187%
Total birds	1,199	11,978	27%	8,714 – 15,242	8,881	59%	140	114%	2,957	69%

Sampling effort (Bethel subregion, 2015): 1 out of 1 village in this subregion was included in analysis. Differently of previous survey years, Bethel sampling was based on simple random sampling. -: Reported harvest=0.

Table 20.–Estimated egg harvest, Yukon-Kuskokwim Delta region, Bethel subregion, 2015.

Species	Yearly egg harvest				Seasonal estimated egg harvest					
	Reported number	Estimated number	Confidence Interval		Spring		Summer		Fall	
			CIP	Low – High	Number	CIP	Number	CIP	Number	CIP
Ducks										
American wigeon	0	0		-	0		0		0	
Teal	0	0		-	0		0		0	
Mallard	20	200	108%	20 – 416	200	187%	0		0	
Northern pintail	0	0		-	0		0		0	
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	0	0		-	0		0		0	
King eider	0	0		-	0		0		0	
Spectacled eider	0	0		-	0		0		0	
Steller's eider	0	0		-	0		0		0	
Harlequin duck	0	0		-	0		0		0	
Long-tailed duck	0	0		-	0		0		0	
Merganser	0	0		-	0		0		0	
Total ducks	20	200	108%	20 – 416	200	187%	0		0	
Geese										
Black brant	0	0		-	0		0		0	
Cackling/Canada goose	33	330	61%	129 – 530	330	105%	0		0	
Greater white-fronted goose	20	200	108%	20 – 416	200	187%	0		0	
Emperor goose	0	0		-	0		0		0	
Snow goose	0	0		-	0		0		0	
Total geese	53	529	93%	53 – 1,022	529	161%	0		0	
Tundra swan	14	140	77%	32 – 248	140	133%	0		0	
Sandhill crane	7	70	83%	12 – 128	70	144%	0		0	
Seabirds										
Cormorant	0	0		-	0		0		0	
Tern	8	80	108%	8 – 166	80	187%	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	15	150	108%	15 – 312	150	187%	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	23	230	108%	23 – 478	230	187%	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	0	0		-	0		0		0	
Pacific loon	0	0		-	0		0		0	
Red-throated loon	0	0		-	0		0		0	
Yellow-billed loon	0	0		-	0		0		0	
Grebe	0	0		-	0		0		0	
Total loons and grebes	0	0		-	0		0		0	
Total migratory birds	117	1,169	94%	117 – 2,272	1,169	163%	0		0	
Ptarmigans and grouses										
Grouse	0	0		-	0		0		0	
Ptarmigan	0	0		-	0		0		0	
Total ptarmigans and grouses	0	0		-	0		0		0	
Total eggs	117	1,169	94%	117 – 2,272	1,169	163%	0		0	

Sampling effort (Bethel subregion, 2015): 1 out of 1 village in this subregion was included in analysis. Differently of previous survey years, Bethel sampling was based on simple random sampling. -: Reported harvest=0.

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APPENDICES

Appendix A.–Regions and communities included in the 2004–2015 harvest estimates.

Region, ***subregion***, community	House-holds¶	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Gulf of Alaska-Cook Inlet													
Gulf of Alaska Villages													
Chenega	31	-	-	x	-	-	-	x	-	-	-	-	-
Nanwalek	55	x	-	-	-	-	-	x	-	-	-	-	-
Port Graham	79	x	-	x	-	-	-	-	-	-	-	-	-
Tatitlek	36	x	-	-	-	-	-	-	-	-	-	-	-
Cordova†	922	-	-	-	-	-	-	-	-	-	-	x	x
Cook Inlet													
Tyonek	70	x	x	-	-	-	-	-	-	-	-	-	-
Kodiak Archipelago													
Kodiak Villages													
Akhiok	19	-	-	x	-	-	-	x	-	-	-	-	-
Karluk	12	-	-	x	-	-	-	x	-	-	-	-	-
Larsen Bay	34	-	-	x	-	-	-	x	-	-	-	-	-
Old Harbor	84	-	-	x	-	-	-	-	-	-	-	-	-
Ouzinkie	56	-	-	x	-	-	-	-	-	-	-	-	-
Port Lions	77	-	-	-	-	-	-	x	-	-	-	-	-
Kodiak City and Road-connected													
Aleneva	9	-	-	-	-	-	-	-	-	-	-	-	-
Chiniak	20	-	-	-	-	-	-	-	-	-	-	-	-
Kodiak City	2,039	-	-	x	-	-	-	-	-	-	-	-	-
Kodiak Station	332	-	-	-	-	-	-	-	-	-	-	-	-
Womens Bay	283	-	-	-	-	-	-	x	-	-	-	-	-
Balance of Kodiak Is. Borough	1,665	-	-	-	-	-	-	x	-	-	-	-	-
Aleutian-Pribilof Islands													
Aleutian-Pribilof Villages													
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	-	-	-	-	-	-	-	-	-	-	-	-
Sand Point	246	-	-	-	-	x	-	-	-	-	-	-	-
Saint George	42	-	-	-	-	-	-	-	-	-	-	-	-
Saint Paul	162	-	-	-	-	-	-	-	-	-	-	-	-
Unalaska	927	-	-	-	-	x	-	-	-	-	-	-	-
Bristol Bay													
South Alaska Peninsula													
Chignik	41	x	-	-	x	-	-	-	x	-	-	-	-
Chignik Lagoon	29	x	-	-	-	-	-	-	-	-	-	-	-
Chignik Lake	27	x	-	-	-	x	-	-	-	-	-	-	-

-continued-

Region, *subregion*, community	House-holds¶	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Ivanof Bay	2	-	-	-	-	-	-	-	-	-	-	-	-
Perryville	38	x	-	-	x	-	-	-	x	-	-	-	-
Southwest Bristol Bay													
Aleknagik	71	x	-	-	x	x	-	-	x	-	-	-	-
Clark's Point	24	x	x	-	x	x	-	-	-	-	-	-	-
Egegik	29	-	x	-	x	-	-	-	-	-	-	-	-
Ekwok	37	x	-	-	x	x	-	-	x	-	-	-	-
Igiugig	16	-	-	-	-	-	-	-	-	-	-	-	-
Iliamna	39	-	x	-	x	-	-	-	-	-	-	-	-
King Salmon	157	-	x	-	-	-	-	-	-	-	-	-	-
Kokhanok	52	x	x	-	x	x	-	-	x	-	-	-	-
Koliganek	55	-	x	-	x	-	-	-	-	-	-	-	-
Levelock	27	x	x	-	-	x	-	-	x	-	-	-	-
Manokotak	121	-	x	-	x	-	-	-	x	-	-	-	-
Naknek	231	x	-	-	x	-	-	-	x	-	-	-	-
New Stuyahok	114	-	x	-	x	-	-	-	-	-	-	-	-
Newhalen	50	x	x	-	-	x	-	-	-	-	-	-	-
Nondalton	57	x	x	-	-	-	-	-	-	-	-	-	-
Pedro Bay	19	-	x	-	-	-	-	-	-	-	-	-	-
Pilot Point	27	-	x	-	-	-	-	-	-	-	-	-	-
Pope-Vannoy Landing‡	3	-	-	-	-	-	-	-	-	-	-	-	-
Portage Creek‡	1	-	-	-	-	-	-	-	-	-	-	-	-
Port Heiden	35	-	x	-	-	-	-	-	x	-	-	-	-
Port Alsworth‡	44	-	-	-	-	-	-	-	-	-	-	-	-
South Naknek	35	-	x	-	x	-	-	-	-	-	-	-	-
Togiak	231	x	-	x	x	-	-	-	x	-	-	-	-
Twin Hills	29	x	x	-	x	-	-	-	-	-	-	-	-
Ugashik‡	7	-	-	-	-	-	-	-	-	-	-	-	-
Dillingham	855	-	x	-	x	x	-	-	x	-	-	-	-
Yukon-Kuskokwim Delta													
Y-K Delta South Coast													
Eek	91	x	x	-	x	x	-	x	x	-	-	-	x
Goodnews Bay	76	-	-	x	-	-	-	x	-	-	x	-	-
Kipnuk	153	-	x	x	x	-	x	-	x	-	-	-	-
Kongiganak	94	-	x	x	x	x	-	-	-	-	-	-	-
Kwigillingok	82	-	-	-	-	-	-	-	-	-	-	-	-
Platinum	19	-	x	x	-	-	-	x	-	-	x	-	-
Quinhagak	165	x	x	x	x	-	-	-	x	-	x	-	x
Tuntutuliak	96	x	-	x	-	x	x	x	-	-	x	-	x
Y-K Delta Mid Coast													
Chefornak	92	x	-	x	x	-	x	x	-	-	x	-	-
Chevak	209	x	-	-	-	-	x	x	-	-	-	-	x
Hooper Bay	256	x	x	-	-	x	-	-	x	-	-	-	x

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Region, ***subregion***, community	House-holds¶	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Mekoryuk	70	-	x	-	x	x	-	-	x	-	-	-	-
Newtok	70	-	x	x	-	x	x	-	-	-	x	-	-
Nightmute	59	x	-	x	x	-	x	-	x	-	-	-	-
Scammon Bay	96	-	-	x	-	x	x	x	-	-	x	-	-
Toksook Bay	125	x	x	-	x	-	-	-	-	-	x	-	x
Tununak	84	x	x	-	x	x	-	-	x	-	x	-	-
Y-K Delta North Coast													
Alakanuk	160	x	-	x	-	-	x	x	-	-	x	-	x
Emmonak	185	-	x	x	x	x	x	-	-	-	x	-	-
Kotlik	128	x	x	-	-	-	-	-	-	-	-	-	x
Nunam Iqua	43	-	x	x	-	x	x	x	-	-	-	-	x
Lower Yukon													
Marshall	100	x	x	-	x	x	-	x	-	-	-	-	x
Mountain Village	184	-	x	-	x	x	-	-	-	-	x	-	-
Pilot Station	121	-	x	x	-	x	x	-	-	-	-	-	x
Pitkas Point	31	x	-	x	x	-	x	x	-	-	x	-	-
Russian Mission	73	-	x	x	-	x	x	-	-	-	-	-	x
Saint Mary's	151	-	x	-	x	-	x	-	-	-	x	-	-
Lower Kuskokwim													
Akiachak	150	-	-	x	-	-	x	-	-	-	-	-	x
Akiak	90	-	x	x	x	-	-	x	-	-	-	-	x
Aniak	166	x	x	-	-	x	-	-	-	-	-	-	x
Atmautluak	63	x	-	-	x	x	-	-	-	-	x	-	-
Kasigluk	113	x	-	x	x	-	x	-	-	-	x	-	-
Kwethluk	172	x	x	x	x	-	x	x	-	-	-	-	x
Lower Kalskag	75	x	-	x	x	x	x	x	-	-	-	-	-
Napakiak	96	-	-	-	x	-	-	-	-	-	x	-	-
Napaskiak	94	-	x	x	x	x	x	-	x	-	-	-	x
Nunapitchuk	124	x	x	-	x	x	-	-	x	-	-	-	-
Oscarville	15	-	-	x	x	-	x	x	-	-	x	-	-
Tuluksak	92	-	x	x	-	x	-	-	x	-	-	-	x
Upper Kalskag	60	-	x	x	-	-	-	-	x	-	x	-	-
Central Kuskokwim													
Chuathbaluk	36	x	-	-	-	-	-	-	-	-	-	-	-
Crooked Creek	38	x	-	x	-	-	-	-	-	-	-	-	-
Lime Village	11	-	-	x	-	-	-	x	-	-	-	-	-
Red Devil	12	-	-	-	x	-	-	-	-	-	-	-	-
Sleetmute	36	-	-	x	x	-	-	-	-	-	-	-	-
Stony River	20	x	-	x	-	-	-	-	-	-	-	-	-
Bethel	1,896	x	x	x	x	x	x	x	x	-	-	-	x
Bering Strait-Norton Sound													
St. Lawrence-Diomede Islands													
Diomede	38	-	x	-	x	-	-	x	-	-	-	-	-

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Region, *subregion*, community	House-holds¶	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Gambell	164	x	x	-	x	-	x	x	x	x	-	-	-
Savoonga	166	x	x	-	x	-	x	x	x	x	-	-	-
Bering Strait Mainland Villages													
Brevig Mission	93	x	-	-	x	-	-	x	-	-	-	-	-
Elim	89	x	x	-	-	-	-	-	-	-	-	-	-
Golovin	49	-	x	-	x	-	-	x	-	-	-	-	-
Koyuk	89	-	x	-	x	-	-	x	-	-	-	-	-
Shaktoolik	64	-	-	-	x	-	-	x	-	-	-	-	-
Shishmaref	141	x	x	-	-	-	-	-	-	-	-	-	-
Saint Michael	96	x	-	-	x	-	-	-	-	-	-	-	-
Stebbins	134	-	x	-	x	-	-	x	-	-	-	-	-
Teller	72	x	x	-	-	-	-	-	-	-	-	-	-
Unalakleet	225	x	-	-	x	-	-	-	-	-	-	-	-
Wales	43	x	x	-	-	-	-	-	-	-	-	-	-
White Mountain	65	x	-	-	x	-	-	-	-	-	-	-	-
Nome	1,216	x	x	-	x	-	-	-	-	-	-	-	-
Northwest Arctic													
Northwest Arctic Villages													
Ambler	75	-	-	-	-	-	-	-	-	-	-	-	-
Buckland	98	-	-	x	-	-	-	-	-	-	-	-	-
Deering	44	-	-	-	-	-	-	-	-	-	-	-	-
Kiana	101	-	-	-	-	-	-	-	-	-	-	-	-
Kivalina	85	-	-	-	-	-	-	-	-	-	-	-	-
Kobuk	36	-	-	x	-	-	-	-	-	-	-	-	-
Noatak	114	-	-	-	-	-	-	-	-	-	-	-	-
Noorvik	153	-	-	-	-	-	-	-	-	-	-	-	-
Selawik	186	-	-	x	-	-	-	-	-	-	-	-	-
Shungnak	62	-	-	x	-	-	-	-	-	-	-	-	-
Kotzebue	954	-	-	-	-	-	-	-	-	x	-	-	-
North Slope													
North Slope Villages													
Anaktuvuk Pass	99	-	x	-	x	-	-	-	-	-	-	-	-
Atqasuk	64	-	x	-	x	-	-	-	-	-	-	-	-
Kaktovik	72	-	x	-	x	x	x	-	-	-	-	-	-
Nuiqsut	114	-	-	-	-	x	x	-	-	-	-	-	-
Point Hope	186	-	x	-	-	x	-	-	-	-	-	-	-
Point Lay	60	-	x	-	-	-	-	-	-	-	-	-	-
Wainwright	147	-	x	-	x	x	x	-	-	-	-	-	-
Barrow	1,280	-	x	-	x	x	x	-	-	-	-	-	-
Interior Alaska													
Mid Yukon-Upper Kuskokwim													
Anvik	33	x	x	x	-	-	-	x	-	-	-	-	-
Grayling	55	-	x	x	-	-	-	-	-	-	-	-	-

-continued-

Region, ***subregion***, community	House-holds¶	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Holy Cross	64	x	x	x	-	-	-	x	-	-	-	-	-
Lake Minchumina	6	x	-	x	-	-	-	-	-	-	-	-	-
McGrath	147	-	-	-	-	-	-	-	-	-	-	-	-
Nikolai	37	x	x	x	-	-	-	-	-	-	-	-	-
Shageluk	36	-	x	-	-	-	-	-	-	-	-	-	-
Takotna	22	-	x	-	-	-	-	x	-	-	-	-	-
Tanana	100	-	-	-	-	-	-	-	-	-	-	-	-
Yukon-Koyukuk													
Alatna	12	x	-	x	x	x	-	x	-	-	-	-	-
Allakaket	62	x	-	x	x	x	-	x	-	-	-	-	-
Bettles-Evansville	21	-	-	x	-	-	-	-	-	-	-	-	-
Coldfoot	6	-	-	-	-	-	-	x	-	-	-	-	-
Galena	190	x	-	-	-	-	-	-	-	-	-	-	-
Hughes	31	x	-	-	-	-	-	-	-	-	-	-	-
Huslia	91	x	-	-	-	-	-	x	-	-	-	-	-
Kaltag	70	x	-	-	-	-	-	-	-	-	-	-	-
Koyukuk	42	x	x	-	-	-	-	-	-	-	-	-	-
Nulato	92	x	x	-	-	-	-	-	-	-	-	-	-
Ruby	62	x	x	-	-	-	-	x	-	-	-	-	-
Wiseman	5	-	-	-	-	-	-	x	-	-	-	-	-
Upper Yukon													
Arctic Village	65	-	-	x	-	-	-	-	-	-	-	x	-
Beaver	36	-	-	x	x	-	-	x	-	-	-	x	-
Birch Creek	17	-	-	-	x	-	-	-	-	-	-	-	-
Central	53	-	-	x	-	-	-	x	-	-	-	-	-
Chalkyitsik	24	-	-	x	x	-	-	x	-	-	-	x	-
Circle	40	-	-	x	x	-	-	-	-	-	-	x	-
Fort Yukon	246	x	-	x	x	-	-	-	-	-	-	x	-
Livengood‡	7	-	-	-	-	-	-	-	-	-	-	-	-
Rampart	10	-	-	-	-	-	-	x	-	-	-	-	-
Stevens Village	26	-	-	-	-	-	-	-	-	-	-	-	-
Venetie	61	-	-	x	x	-	-	x	-	-	-	x	-
Tanana Villages													
Alcan Border‡		-	-	-	-	-	-	-	-	-	-	-	-
Anderson‡	90	-	-	-	-	-	-	-	-	-	-	-	-
Chicken‡	5	-	-	-	-	-	-	-	-	-	-	-	-
Dot Lake	26	x	-	-	-	-	-	-	-	-	-	-	-
Dry Creek	29	-	-	-	-	-	-	-	-	-	-	-	-
Eagle	41	x	-	-	-	-	-	-	-	-	-	-	-
Eagle Village	31	x	-	-	-	-	-	-	-	-	-	-	-
Healy Lake	7	-	-	-	-	-	-	-	-	-	-	-	-
Manley Hot Springs	41	x	-	-	-	-	-	-	-	-	-	-	-
Minto	65	-	-	x	-	-	-	x	-	-	-	-	-

-continued-

Region, *subregion*, community	House-holds¶	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Nenana‡	185	x	-	x	-	-	-	-	-	-	-	-	-
Northway	77	x	-	-	-	-	-	-	-	-	-	-	-
Tanacross	53	-	-	x	-	-	-	-	-	-	-	-	-
Tetlin	43	-	-	-	-	-	-	x	-	-	-	-	-
Tok	532	-	-	x	-	-	-	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[a]													
Craig	470	-	-	-	-	-	-	-	-	-	-	-	-
Hoonah	305	-	-	-	-	-	-	-	-	-	-	-	-
Hydaburg	128	-	-	-	-	-	-	-	-	-	-	-	-
Yakutat	270	-	-	-	-	-	-	-	-	-	-	-	-

*Source*s Survey results for 2004–2014 were reported in Naves (2010rev.; 2010; 2011; 2012; 2014a; 2015b) and Naves and Braem (2014).

Households: Total number of occupied households based on 2011 Census.

Note a. 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 added to the community of Nenana.

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

Note Allakaket includes Allalaket City and New Allakaket CDP.

Note Dot Lake includes Dot Lake Village and Dot Lake CDP.

Note Bettles-Evansville includes both Bettles and Evansville.

Note Northway includes Northway Village, Northway Junction, and Northway CDP.

Note Nenana includes Nenana City and Four Mile Road CDP.

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

Appendix B.–Household list and selection form (original size 8.5x11 inches).

AMBCC Harvest Survey. Household Names are Confidential. page ____ / ____

Household List & Selection Form

Village:_____ Surveyor:_____ Harvest Year:_____

Total resident households: _____

Sampling method [a]: ☐ Census (up to 30 households in total)
☐ 75% Simple Random Sampling (31-60 households in total)
☐ Harvester-Other Stratification (61+ households in total)

[a] *After counting the total number of resident households, checkmark the sampling method to be used.*
[b] *Classify households as "harvester" or "other" only if using harvest-other stratification.*
[c] ***Harvester**: households that harvested birds or eggs in any of the last 3 years.*
[d] ***Other:** non-harvesters (did not harvest birds or eggs in any of the last 3 years) and households of unknown harvest pattern.*

Household ID	Household Name *List only households resident in the village for at least the last 12 months.*	*Select only one* [b]: Harvester [c]	Other [d]	Selected	Alternate	No contact/ consent

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

AMBCC Harvest Survey

OMB FWS Form 3-2380 Expires 09/30/2018

page ____ / ____

Tracking Sheet & Household Consent Form

Copy here only the households selected to be surveyed.

Village: _____ Harvest Year: _____ Surveyor: _____

House-hold ID	Household name	Household consent				Harvest report *(spring, summer, and fall)*	Comments *(Why no contact? Moved?)*
		Agreed	Refu-sed	No contact	Date completed (mm/dd/yyyy)	Date completed (mm/dd/yyyy)	
					/ /	/ /	
					/ /	/ /	
					/ /	/ /	
					/ /	/ /	
					/ /	/ /	
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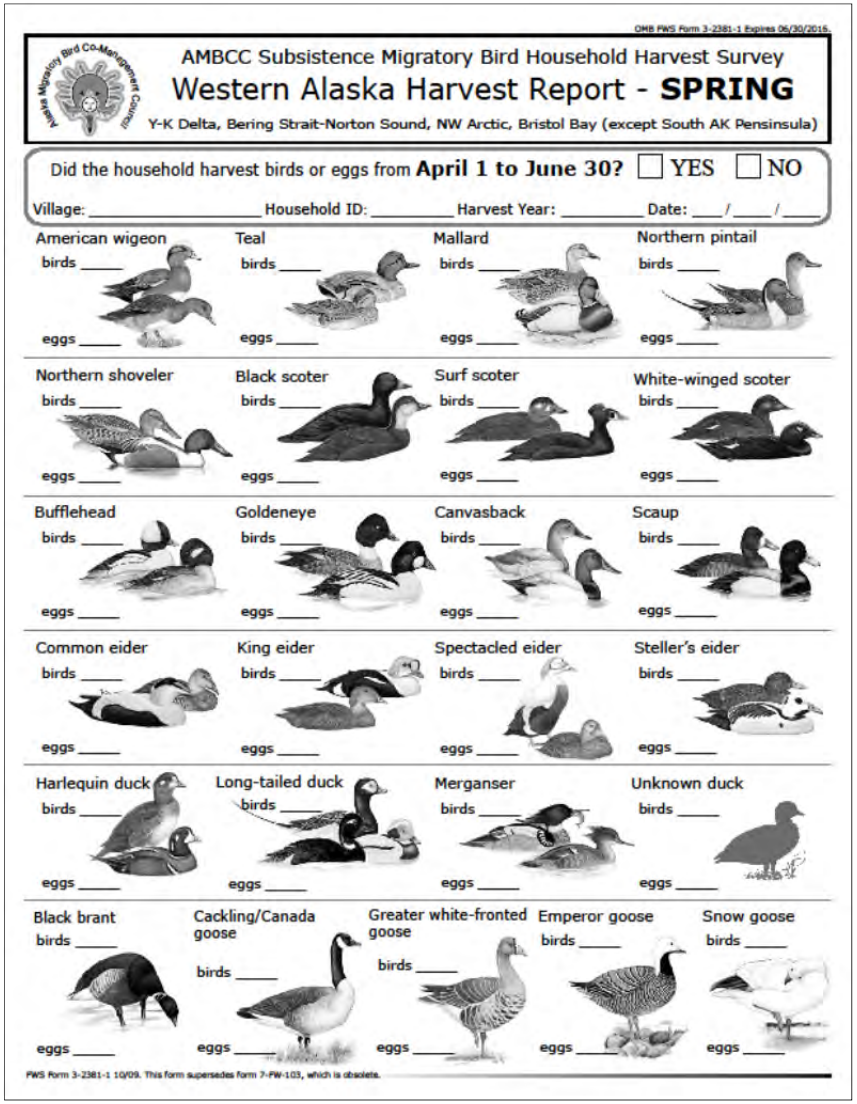
OMB Form 3060-1100 This form supersedes form(s) 102, which is obsolete.

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



OMB FWS Form 3-2381-1 Expires 06/30/2016

AMBCC 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 Pensinsula)

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 ____

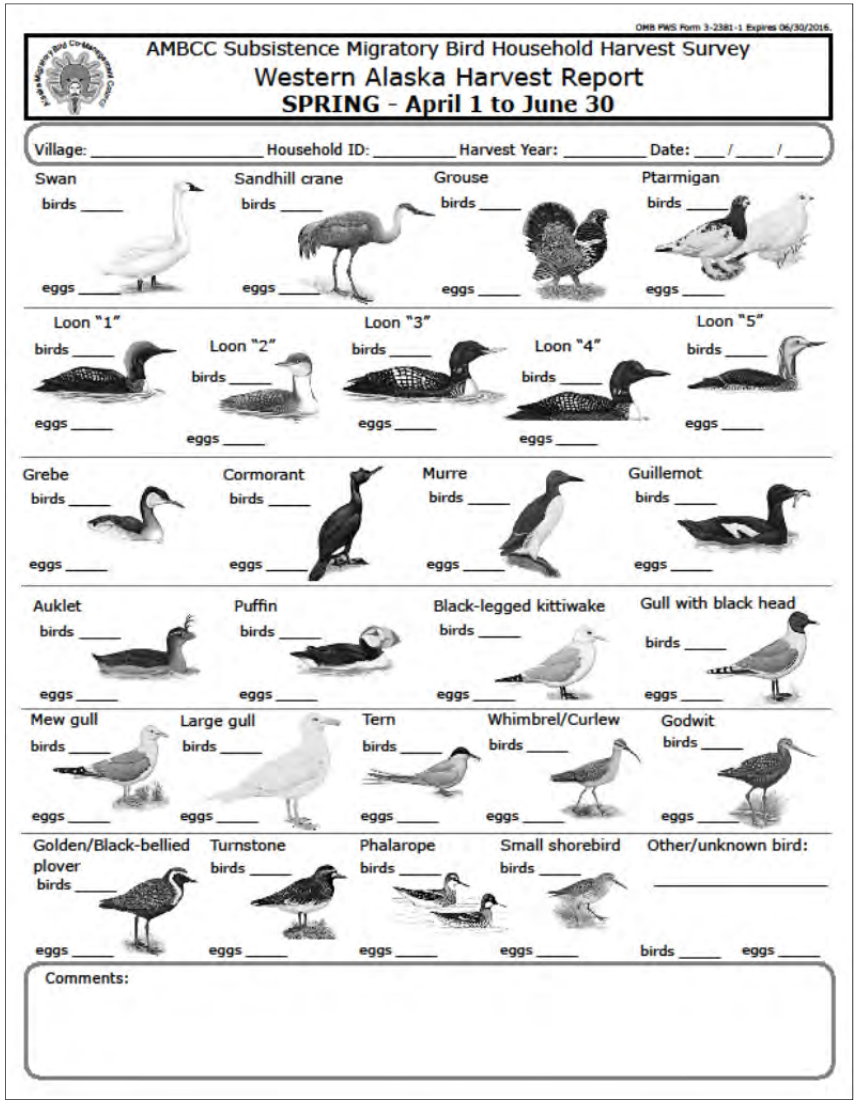
Cackling/Canada goose — birds ____ eggs ____

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-FW-103, which is obsolete.



OMB FWS Form 3-2381-1 Expires 06/30/2016

AMBCC 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 ____

Gull with black head — birds ____ eggs ____

Mew gull — birds ____ eggs ____

Large gull — birds ____ eggs ____

Tern — birds ____ eggs ____

Whimbrel/Curlew — birds ____ eggs ____

Godwit — birds ____ eggs ____

Golden/Black-bellied plover — birds ____ eggs ____

Turnstone — birds ____ eggs ____

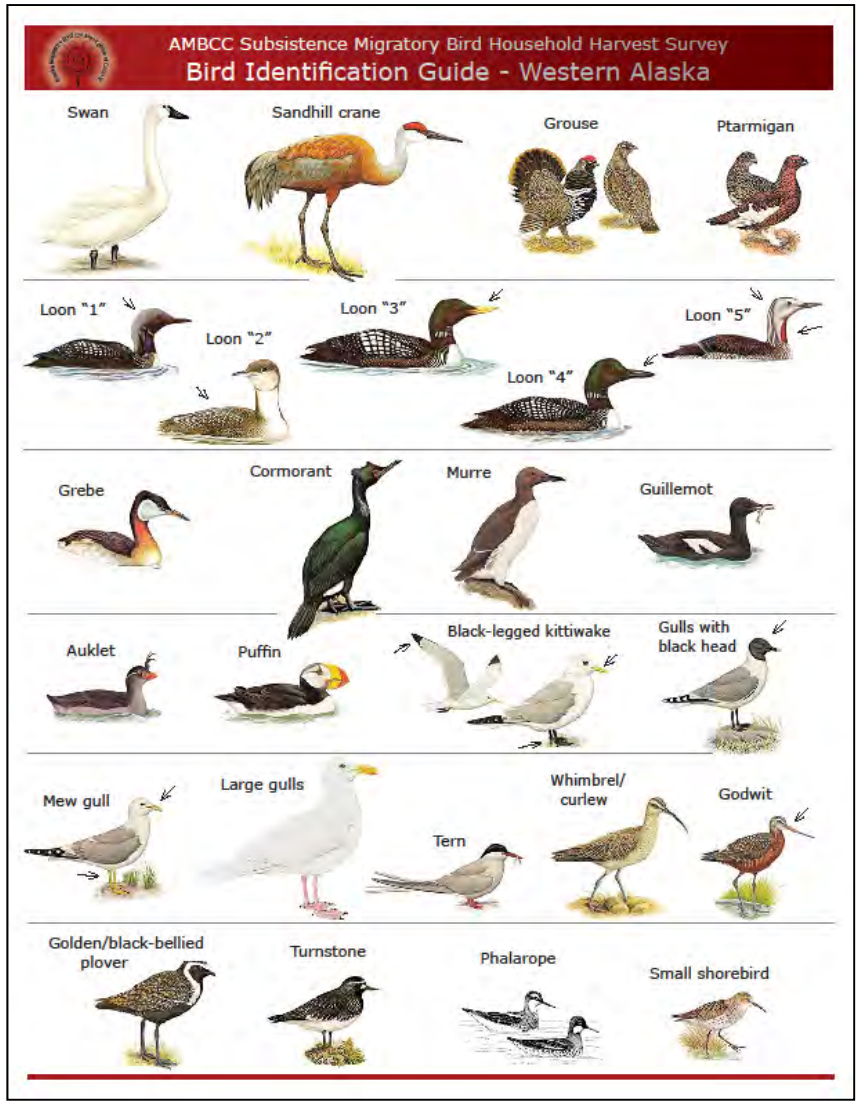
Phalarope — birds ____ eggs ____

Small shorebird — birds ____ eggs ____

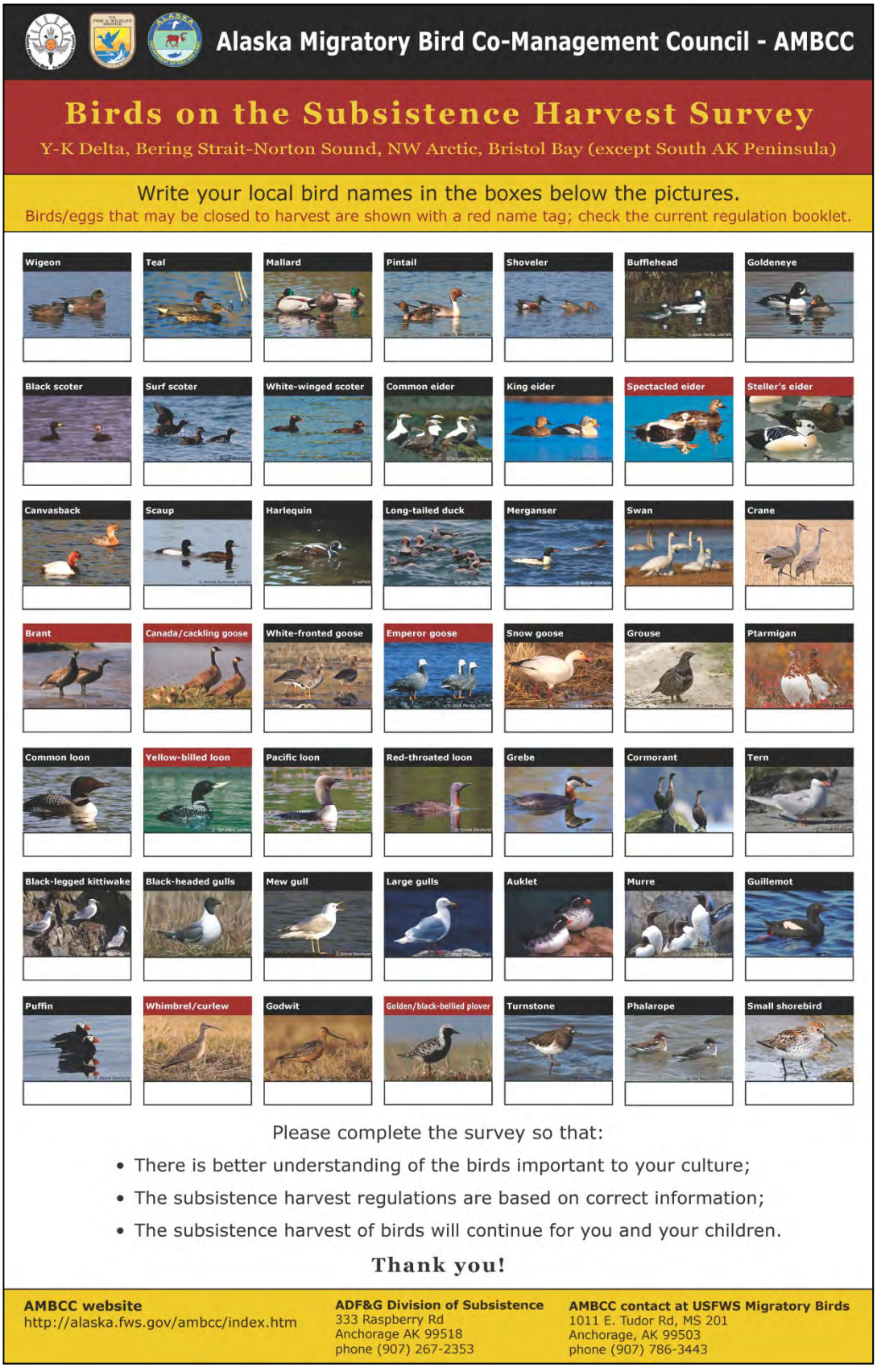
Other/unknown bird: _____ birds ____ eggs ____

Comments:

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



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



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

Alaska Migratory Bird Co-Management Council (AMBCC)
Subsistence Household Harvest Survey, Cordova Harvest Report – **SPRING 2014**

1. Household registration #: _____ (2 letters followed by 3 numbers) 2. Date survey was completed: _____ /_____ /2014

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, 2014? (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 eider birds_____

King eider 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 3-2381-2 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 the bird drawings, report 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 your 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)

EYAK

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 3-2380, 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 H.–Formulas used to calculate subregion estimated harvest, variance, and confidence interval (3-stage stratified cluster sampling).

$$X_s = \frac{N_{1s}}{n_{1s}} \left\{ \sum_{i=1}^{h} \frac{N_{2si}}{n_{2si}} \left[\sum_{j=1}^{h_i} \frac{N_{3sij}}{n_{3sij}} \left(\sum_{k=1}^{n_{3sij}} x_{sijk} \right) \right] \right\}$$

$$Var(X_s) = N_{1s}^2 \left[\left(1 - \frac{n_{1s}}{N_{1s}} \right) \times \frac{s_{1s}^2}{n_{1s}} \right] + \frac{N_{1s}}{n_{1s}} \left\{ \sum_{i=1}^{h} N_{2si}^2 \left[\left(1 - \frac{n_{2si}}{N_{2si}} \right) \times \frac{s_{2si}^2}{n_{2si}} \right] \right\} + \frac{N_{1s}}{n_s} \left\{ \sum_{i=1}^{h} \frac{N_{2si}}{n_{2si}} \left[\sum_{j=1}^{h_i} N_{3sij}^2 \left[\left(1 - \frac{n_{3sij}}{N_{3sij}} \right) \times \frac{s_{3sij}^2}{n_{3sij}} \right] \right] \right\}$$

$$CI(X_s) = t_{\alpha/2} \times \sqrt{\text{var}(X_s)}$$

$$CIP(X_s) = \frac{CI(X_s)}{X_s}$$

$$s_{1s}^2 = \frac{\sum_{i=1}^{h} \left\{ \sum_{j=1}^{h_i} \left[\left[\sum_{k=1}^{n_{3sij}} \left(x_{sijk} - \bar{x}_s \right)^2 \right] + p_{3sij} \times (\bar{x}_{sij} - \bar{x}_s)^2 \right] \right\}}{(n_{1s} - 1)}$$

$$p_{3sij} = N_{3sij} - n_{3sij}$$

$$s_{2si}^2 = \frac{\sum_{j=1}^{h_i} \left\{ \left[\sum_{k=1}^{n_{3sij}} \left(x_{sijk} - \bar{x}_{si} \right)^2 \right] + p_{3sij} \times (\bar{x}_{sij} - \bar{x}_{si})^2 \right\}}{(n_{2si} - 1)}$$

$$s_{3sij}^2 = \frac{\sum_{k=1}^{n_{3sij}} \left(x_{sijk} - \bar{x}_{sij} \right)^2}{(n_{3sij} - 1)}$$

$$\bar{x}_s = \frac{\frac{N_{1s}}{n_{1s}} \left\{ \sum_{i=1}^{h} \frac{N_{2si}}{n_{2si}} \left[\sum_{j=1}^{h_i} \frac{N_{3sij}}{n_{3sij}} \left(\sum_{k=1}^{n_{3sij}} x_{sijk} \right) \right] \right\}}{N_{1s}}$$

$$\bar{x}_{si} = \frac{\frac{N_{2si}}{n_{2si}} \left[\sum_{j=1}^{h_i} \frac{N_{3sij}}{n_{3sij}} \left(\sum_{k=1}^{n_{3sij}} x_{sijk} \right) \right]}{N_{2si}}$$

$$\bar{x}_{sij} = \frac{\frac{N_{3sij}}{n_{3sij}} \left(\sum_{k=1}^{n_{3sij}} x_{sijk} \right)}{N_{3sij}}$$

X_S = subregion estimated harvest. This formula accounts for missing strata, but it does not account for missing seasons. If a whole season is missing for any community, analytical procedures are necessary to fill out missing data with average harvests.

$Var(X_s)$ = variance of subregional harvest estimate.

$CI(X_s)$ = confidence interval around the harvest estimate (confidence level 95%).

$CIP(X_s)$ = confidence interval as a percentage of the harvest estimate.

s = first-stage units (subregion).

i = second-stage units (sampled harvest level strata).

j = third-stage unit (harvest level strata).

k = households.

h = Total sampled subregions in region r.

h_s = sampled villages in subregion s.

N_{1s} = total number of households in subregion s.

n_{1s} = total number of households in sampled communities in subregion s.

N_{2si} = total number of households in all strata of a community in subregion s.

n_{2si} = number of households in sampled strata of a community in subregion s.

N_{3sij} = total number of households in each stratum of a community in subregion s.

n_{3sij} = number of households sampled in each stratum of a community in subregion s.

x_{sijk} = individual household reported harvest.

s_1^2 = first-stage sample variance.

s_2^2 = second-stage sample variance.

s_3^2 = third-stage sample variance (harvest level strata).

$\bar{x}_s$ = average subregional household harvest.

$\bar{x}_{si}$ = average community household harvest.

$\bar{x}_{sij}$ = average household harvest for harvest level strata.

P_{3sij} = factor to account for variance of non-sampled households for which the average harvest was applied.

$t_{\alpha/2}$ = Student's t distribution value with significance level (tail area probability) $\alpha = 0.05$.

Note: the term "N_{2si}/n_{2s}" accounts for missing stratum at the community level; this term equals 1 if all strata in the community have been surveyed. For instance:

	Harvester	Other	
Total households	40	50	$N_{2si} = 90$
Sampled households	40	0	$n_{2si} = 40$

Appendix I.–Formulas to calculate region estimated harvests, variances, and confidence intervals (4-stage stratified cluster sampling)

$$Var(X_r) = N_{1r}^2\left[\left(1-\frac{n_{1r}}{N_{1r}}\right)\times\frac{s_{1r}^2}{n_{1r}}\right]+\frac{N_{1r}}{n_{1r}}\left\{\sum_{s=1}^{h}N_{2rs}^2\left[\left(1-\frac{n_{2rs}}{N_{2rs}}\right)\times\frac{s_{2rs}^2}{n_{2rs}}\right]\right\}+$$
$$\frac{N_{1r}}{n_{1r}}\left\{\sum_{s=1}^{h}\frac{N_{2rs}}{n_{2rs}}\left[\sum_{i=1}^{h_s}N_{3rsi}^2\left[\left(1-\frac{n_{3rsi}}{N_{3rsi}}\right)\times\frac{s_{3rsi}^2}{n_{3rsi}}\right]\right]\right\}+$$
$$\frac{N_{1r}}{n_{1r}}\left\{\sum_{s=1}^{h}\frac{N_{2rs}}{n_{2rs}}\left[\sum_{i=1}^{h_s}\frac{N_{3rsi}}{n_{3rsi}}\left[\sum_{j=1}^{h_{si}}N_{4rsij}^2\left[\left(1-\frac{n_{4rsij}}{N_{4rsij}}\right)\times\frac{s_{4rsij}^2}{n_{4rsij}}\right]\right]\right]\right\}$$

$$CI(X_r) = t_{1/\alpha}\times\sqrt{\mathrm{var}(X_r)} \qquad CIP(X_r) = t_{1/\alpha}\times\sqrt{\mathrm{var}(X_r)}\,\frac{1}{X_r}$$

$$s_{1r}^2 = \frac{\sum_{s=1}^{h}\left[\sum_{i=1}^{h_s}\left[\sum_{j=1}^{h_{si}}\left[\left[\sum_{k=1}^{n_{4rsij}}\left(x_{rsijk}-\bar{x}_r\right)^2\right]+p_{4rsij}\times(\bar{x}_{rsij}-\bar{x}_r)^2\right]\right]\right]}{(n_{1r}-1)}$$

$$s_{2rs}^2 = \frac{\sum_{i=1}^{h_s}\left\{\sum_{j=1}^{h_{si}}\left[\left[\sum_{k=1}^{n_{4rsij}}\left(x_{rsijk}-\bar{x}_{rs}\right)^2\right]+p_{4rsij}\times(\bar{x}_{rsij}-\bar{x}_{rs})^2\right]\right\}}{(n_{2rs}-1)} \qquad p_{4rsij} = N_{4rsij}-n_{4rsij}$$

$$s_{3rsi}^2 = \frac{\sum_{j=1}^{h_{si}}\left\{\left[\sum_{k=1}^{n_{4rsij}}\left(x_{rsijk}-\bar{x}_{rsi}\right)^2\right]+p_{4rsij}\times(\bar{x}_{rsij}-\bar{x}_{rsi})^2\right\}}{(n_{3rsi}-1)} \qquad s_{4rsij}^2 = \frac{\sum_{k=1}^{n_{4rsij}}\left(x_{rsijk}-\bar{x}_{rsij}\right)^2}{(n_{4rsij}-1)}$$

$$\bar{x}_r = \frac{\frac{N_{1r}}{n_{1r}}\left\{\sum_{s=1}^{h}\frac{N_{2rs}}{n_{2rs}}\left[\sum_{i=1}^{h_s}\frac{N_{3rsi}}{n_{3rsi}}\left[\sum_{j=1}^{h_{si}}\frac{N_{4rsij}}{n_{4rsij}}\left(\sum_{k=1}^{n_{4rsij}}x_{rsijk}\right)\right]\right]\right\}}{N_{1r}} \qquad \bar{x}_{rs} = \frac{\frac{N_{2rs}}{n_{2rs}}\left\{\sum_{i=1}^{h_s}\frac{N_{3rsi}}{n_{3rsi}}\left[\sum_{j=1}^{h_{si}}\frac{N_{4rsij}}{n_{4rsij}}\left(\sum_{k=1}^{n_{4rsij}}x_{rsijk}\right)\right]\right\}}{N_{2rs}}$$

$$\bar{x}_{rsi} = \frac{\frac{N_{3rsi}}{n_{3rsi}}\left[\sum_{j=1}^{h_{si}}\frac{N_{4rsij}}{n_{4rsij}}\left(\sum_{k=1}^{n_{4rsij}}x_{rsijk}\right)\right]}{N_{3rsi}} \qquad \bar{x}_{rsij} = \frac{\frac{N_{4rsij}}{n_{4rsij}}\left(\sum_{k=1}^{n_{4rsij}}x_{rsijk}\right)}{N_{4rsij}}$$

X_r = region estimated harvest. This formula accounts for missing strata, but it does not account for missing seasons. If a whole season is missing for any village, analytical procedures are needed to fill missing data with average harvests.

$Var(X_r)$ = variance of region harvest estimate.

CI = 95% confidence interval.

CIP = 95% confidence interval percentile.

r = first-stage units (region).

s = second-stage units (subregion).

i = third-stage units (sampled harvest level strata).

j = fourth-stage unit (harvest level strata).

k = individual households.

h = Total sampled subregions in region r.

h_s = sampled villages in subregion s.

h_{si} = sampled strata in the village.

N_{1r} = total number of households in region *r*.

n_{1r} = number of households in sampled subregions in region *r*.

N_{2rs} = total number of households in subregion *s*.

n_{2rs} = number of households in sampled villages in subregion *s*.

N_{3rsi} = total number of households in all strata of a village.

n_{3rsi} = number of households in sampled strata of a village.

N_{4rsij} = total number of households in each stratum of a village.

n_{4rsij} = number of households sampled in each stratum of a village.

x_{rsijk} = individual household reported harvest.

s_1^2 = first-stage sample variance.

s_2^2 = second-stage sample variance.

s_3^2 = third-stage sample variance.

s_4^2 = fourth-stage sample variance.

$\bar{x}_r$ = average regional household harvest.

$\bar{x}_{rs}$ = average subregional household harvest.

$\bar{x}_{rsi}$ = average village household harvest.

$\bar{x}_{rsij}$ = average household harvest for harvest level strata.

P_{4rsij} = factor to account for variance of non-sampled households for which a average harvest was applied.

$t_{1/\alpha}$ = Student's *t* distribution value with tail area probability α.

Note: the term "N_{3rsi}/n_{3rsi}" accounts for missing stratum at the village level; this term equals 1 if all strata in the village have been surveyed. For instance:

	Harvester	Other	
Total households	40	50	N2si = 90
Sampled households	40	0	n2si = 40

Appendix J.–Summary of Cordova bird and egg harvest estimates produced for outreach and communication.

Alaska Migratory Bird Co-Management Council (AMBCC)

Cordova Bird and Egg Harvest Estimates, 2015

10 August, 2016
Prepared by Liliana Naves, ADF&G Division of Subsistence, Anchorage

As in 2014, the 2015 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 and only Cordova residents were eligible to participate. Participants were required to register at the Cordova office of the U.S. Forest Service or the Native Village of Eyak. A total of 20 households registered (Table 1). The Division of Subsistence of the Alaska Department of Fish and Game (ADF&G) coordinated the registration process and the harvest survey in collaboration with AMBCC and the local partners.

The harvest survey was conducted in the context of the AMBCC Harvest Assessment Program. A mail-out harvest survey was sent in late June, 2015 to all registered households. Survey reminders were sent in late July and late August to registered holseholds that had not yet provided completed surveys. A total of 15 completed surveys were provided (out of 20 registered households) resulting in a response rate of 75%. The estimated harvest was 263 gull eggs and no harvest of birds was reported (Table 2).

Table 1. Participation in the 2015 Cordova spring harvest of migratory birds.

Total households in Cordova[1]:	922
Household registrations issued:	20
Total Cordova population[1]:	2,239
People listed in all registrations:	40
People per registration[2]:	1–4
People trying to harvest birds[3]:	1
Households harvesting birds[3]:	0
People trying to harvest eggs[3]:	11
Households harvesting eggs[3]:	8

1: 2010 Census (U.S. Census Bureu, 2011).
2: Permit holder and other household members listed.
3: Based on 15 returned surveys.

Glaucous-winged gull and nest.

Table 2. Spring harvest of birds and eggs, Cordova, April–May 2015.

	Number reported	Estimated harvest	Confidence Interval CIP	Low	–	High
Birds						
American wigeon	0	0	-		-	
Teal	0	0	-		-	
Mallard	0	0	-		-	
Northern pintail	0	0	-		-	
Northern shoveler	0	0	-		-	
Black scoter	0	0	-		-	
Surf scoter	0	0	-		-	
White-winged scoter	0	0	-		-	
Bufflehead	0	0	-		-	
Goldeneye	0	0	-		-	
Canvasback	0	0	-		-	
Scaup	0	0	-		-	
Common eider	0	0	-		-	
King eider	0	0	-		-	
Harlequin duck	0	0	-		-	
Long-tailed duck	0	0	-		-	
Merganser	0	0	-		-	
Total ducks	0	0	-		-	
Greater white-fronted goose	0	0	-		-	
Snow goose	0	0	-		-	
Total geese	0	0	-		-	
Sandhill crane	0	0	-		-	
Total birds	0	0	-		-	
Eggs						
Gull (unidentified)	197	263	51%	197	–	398

CIP: Confidence interval as a percentage of estimated harvests.

Comments provided in surveys:

"Nice weather, Egg Island outer beach."
"I think we went too late in May."
"Beautiful day. Even saw a nest with goose eggs, but left them."
"Did not get opportunity to get to barrier islands for birds or eggs."
"Did not have time or means to get to barrier islands. No harvest."
"Collected eggs on Little Egg Island from gull colony on May 12th. Gulls had 1–2 eggs per nest."

Acknowledgments
We thank all households that participated in this survey and shared information about their subsistence harvests. John Whissel (Native Village of Eyak), Milo Burcham (U.S. Forest Service), Patty Brown-Schwalenberg (Chugach Regional Resources Commission), Donna Dewhurst (USFWS-AMBCC Program), Charlote Westing (ADF&G Wildlife Conservation), and Theresa Quiner (ADF&G Subsistence) among other people assisted in the registration process, community outreach and communication, and harvest data collection.

For a copy of the Alaska Department of Fish and Game OEO statement, see http://www.adfg.alaska.gov/index.cfm?adfg=home.oeostatement

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 plentiful harvests 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.

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