

Technical Paper No. 493

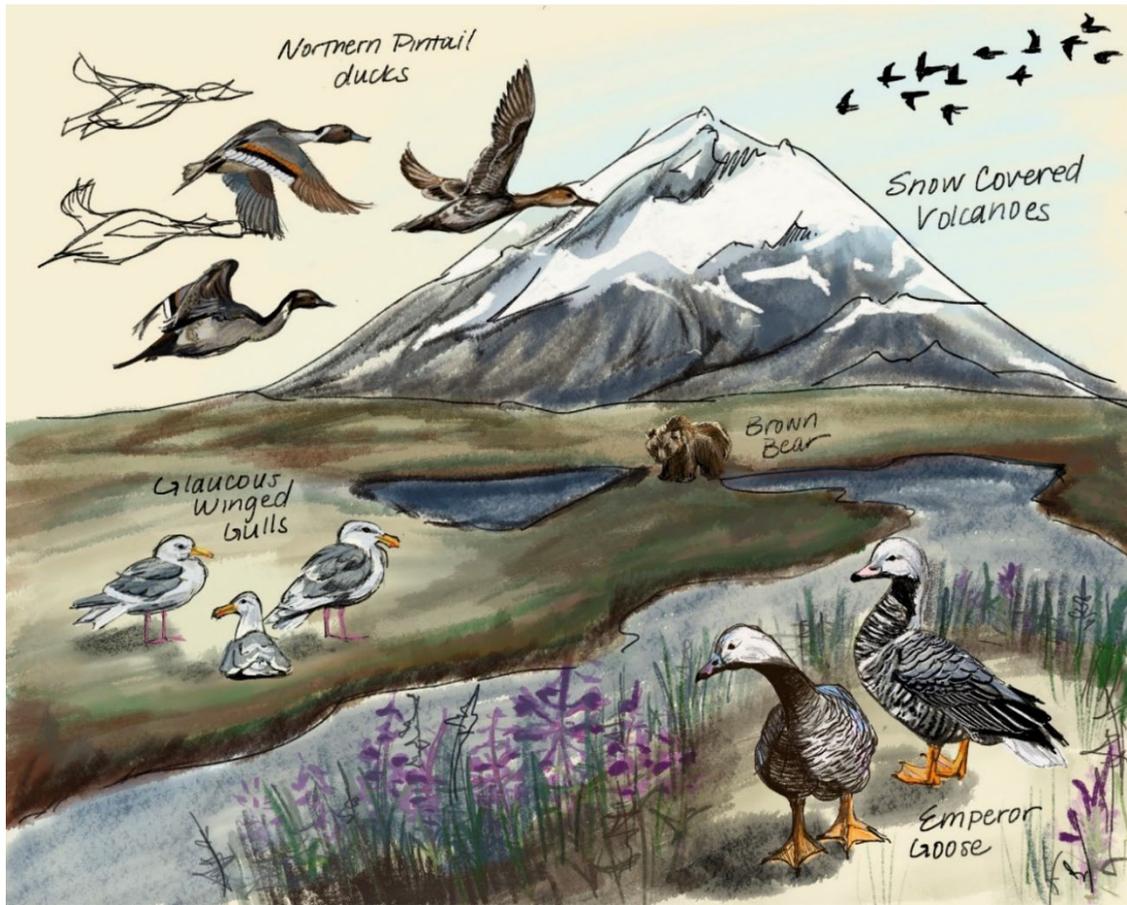
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# Bird and Egg Harvest on the Aleutian-Pribilof Islands and the Kodiak Archipelago, 2020

by

Liliana C. Naves and Lara F. Mengak



May 2023

Alaska Department of Fish and Game

Division of Subsistence



# ERRATA

Originally published in May 2023, Technical Paper 493, *Bird and Egg Harvest on the Aleutian-Pribilof Islands and the Kodiak Archipelago, 2020* has been revised to correct text on pages 4 and 22.

On page 4,

On the survey form (Appendix 8)...

now reads,

On the survey form (Appendix H)....

On page 22,

The total bird harvest by residents of Womens Bay CDP in 2020 was 2,534 birds. Considering these three areas together, 21 bird species/categories were reported as harvested, and some species harvested in larger numbers were teal, mallard, scoters, bufflehead, goldeneyes, scaup, harlequin duck, and long-tailed duck. From 1982–2020, egg harvests by residents of Kodiak City and Mill Bay CDP and Borough Balance ranged 306–1,478 eggs per year.

now reads,

The total bird harvest by residents of Womens Bay CDP in 2020 was **2,597** birds. Considering these three areas together, 21 bird species/categories were reported as harvested, and some species harvested in larger numbers were teal, mallard, scoters, bufflehead, goldeneyes, scaup, harlequin duck, and long-tailed duck. From 1982–2020, egg harvests by residents of Kodiak City and Mill Bay CDP and Borough Balance ranged 306–**1,362** eggs per year.

## 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.

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

***TECHNICAL PAPER NO. 493***

**BIRD AND EGG HARVEST ON THE ALEUTIAN-PRIBILOF ISLANDS  
AND THE KODIAK ARCHIPELAGO, 2020**

by

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May 2023

This study was funded by the U.S. Fish and Wildlife Service Pittman-Robertson Federal Aid in Wildlife Restoration Act (grant AKW-R-10-2019/F19AF00506) and the Alaska Department of Fish and Game-Division of Subsistence.

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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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*This document should be cited as:*

*Naves, Liliana C. and Lara, F. Mengak. 2023. Bird and Egg Harvest on the Aleutian-Pribilof Islands and the Kodiak Archipelago, 2020. Alaska Department of Fish and Game Division of Subsistence, Technical Paper No. 493, Anchorage.*

Front cover image: Emperor geese at home in an ecosystem typical of the Aleutian Islands and Kodiak Archipelago. Artwork by Laura Donohue, used with permission (lkd43@cornell.edu).

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# ABSTRACT

Federal regulations re-opened the harvest of emperor goose in 2017 in Alaska after a 30-year closure, but the number of geese available for a sustainable harvest remains limited. The objective of this study was to complement bird harvest data within the emperor goose distribution range in Alaska, since data for the Aleutian-Pribilof Islands and Kodiak Archipelago regions were scarce. The survey included all kinds of birds and eggs, including emperor goose, to depict the broader context of the bird harvest. We surveyed households to quantify the 2020 harvest of birds and eggs in nine communities in the Kodiak Archipelago (Larsen Bay, Port Lions, Kodiak City, Womens Bay, and Mill Bay and Borough Balance) and Aleutian-Pribilof Islands (Adak, Akutan, Sand Point, and Saint Paul). We estimated seasonal and annual harvests for each community. Data from surveyed communities were extrapolated to non-surveyed communities to estimate harvest at the regional level. Regional harvest estimates included additional data available from other studies (2018 for Akhiok and Old Harbor and 2020 for Unalaska). Participation of communities and households in the survey was voluntary. Community consent to conduct the survey was granted by tribal and city councils. Household harvest data were anonymous and confidential. We reduced in-person interactions for collection because of public health concerns during the COVID-19 pandemic. Local research assistants delivered surveys to households and facilitated communication. Households completed surveys based on printed instructions and returned completed surveys by mail. Project staff complemented sample sizes with phone interviews. A total of 570 surveys were completed: 76% were returned by mail and 24% completed by phone. The total estimated harvest (species combined) was 2,858 birds and 1,264 eggs for the Aleutian-Pribilof Islands region and 14,327 birds and 3,718 eggs for the Kodiak Archipelago. Aleutian-Pribilof Islands residents reported harvesting 52 emperor geese leading to an estimated (extrapolated) harvest of 210 geese. Residents of the Kodiak Archipelago reported harvesting 26 emperor geese leading to an estimated harvest of 244 geese. We also compiled bird and egg harvest estimates from previous studies to put the 2020 data collected in this study in perspective.

**Key words:** subsistence, harvest, hunting, bird harvest, egg harvest, Aleutian Islands, Pribilof Islands, Kodiak Archipelago, ducks, geese, swans, cranes, ptarmigan, seabirds, shorebirds, grebes, loons, emperor goose.

## ACKNOWLEDGMENTS

This study relied on support from the local communities. We are grateful to all communities and households that agreed to report their bird harvests. We thank the tribal and city councils for their support and guidance: Adak City Council; Native Village of Akutan; Native Village of Unga, Pauloff Harbor Village, and Qagan Tayagungin Tribe of Sand Point; Aleut Community of Saint Paul Island; Native Village of Larsen Bay; Native Village of Port Lions; and Tangirnaq Native Village, Native Village of Afognak, and Sun'aq Tribe of Kodiak. We are most thankful to the local research assistants for their work in data collection and local communication about the survey: Kimberly (Mik) Turnbull (Adak); Carmen Bereskin (Akutan); Michelle Gronholdt (Sand Point); Aaron Lestenkof and Paul Melovidov (Saint Paul); Marilyn Henson (Larsen Bay); Renae Kewan (Port Lions); Dahlia Berns, Danielle Butts, and Daniel Hernandez (Kodiak City); Alicia Short-McEwan (Womens Bay); and Emilia Bartnick (Mill Bay and Borough Balance). This study also included data collected in harvest surveys conducted in Akhiok and Old Harbor in 2018 and in Unalaska in 2020; we thank all the ADF&G staff and local research assistants for their work on those projects. Henry Adams beautifully illustrated the bird species depicted in the survey form. Laura Donohue kindly allowed use of her artwork on the cover of this report. Pam Amundson and Deanne Lincoln helped with contracts and budget management. David Koster assisted in data management. Gayle Neufeld designed the map. Adam Knight edited this report. We thank you all.

# INTRODUCTION

## BIRDS AS FOOD AND CULTURAL RESOURCES IN REMOTE ALASKA COMMUNITIES

Indigenous subsistence hunting of most kinds of birds has occurred in Alaska for millennia (Wolfe et al. 1990). Until the mid-1900s, birds provided skins for clothing, bones for tools, and food for people and sled dogs. Today, Alaska’s subsistence communities have a mixed economy that relies on cash income and the harvest of wild resources for food and sociocultural structure. Currently, subsistence communities use birds mostly as human food and cultural resources. The annual subsistence harvest is estimated at 36.2 million edible pounds per year including fish (53%), land and marine mammals (23% and 14%), plants (4%), shellfish (3%), and birds and eggs (3%) (Fall 2016). Bird harvest adds diet diversity, enhances food security, and is culturally and socially important. Although some subsistence bird hunts are specialized, bird hunting often takes place opportunistically in conjunction with pursuits such as fishing, marine mammal hunting, and berry picking.

Federal regulations re-opened the harvest of emperor goose in 2017 in Alaska after a 30-year closure, but the number of geese available for harvest remains limited. The objective of this study was to complement bird harvest data within the emperor goose distribution range in Alaska, since data for the Aleutian-Pribilof Islands and Kodiak Archipelago regions were scarce. The surveys included harvest of dozens of species of birds and their eggs, including emperor goose, to depict the broader context of the subsistence bird harvest. We surveyed households to quantify the harvest of birds and eggs in nine communities in the Kodiak Archipelago (Larsen Bay, Port Lions, Kodiak City, Womens Bay, and Mill Bay and Borough Balance) and Aleutian-Pribilof Islands (Adak, Akutan, Sand Point, and Saint Paul) (Figure 1). Data collection occurred in March–June 2021 and represented the regulatory period 2 April 2020–9 March 2021. We estimated seasonal and annual harvests for each community. We also extrapolated data from surveyed to non-surveyed communities to estimate harvest at the regional level. Regional harvest estimates also included 2018 data for Akhiok and Old Harbor (Sill et al. 2021) and 2020 data for Unalaska (Keating et al. 2022).

The mission of the ADF&G Division of Subsistence is to “scientifically gather, quantify, evaluate, and report information about customary and traditional uses of Alaska’s fish and wildlife resources” [AS 16.05.094]. This study reduced an information gap related to uses of emperor goose and other birds in the Aleutian-Pribilof Islands and Kodiak Archipelago regions (ADF&G 2017).

## EMPEROR GOOSE HARVEST MANAGEMENT

The emperor goose distribution range is limited to Bering Sea coastal habitats in Alaska and Russia. Emperor geese breed primarily on the Yukon-Kuskokwim Delta (western Alaska), but also on the Seward Peninsula (northwestern Alaska) and the Chukotka Peninsula (Russia). Wintering areas include the Alaska Peninsula, Aleutian Islands, and Kodiak Archipelago in Alaska and the Commander Islands in Russia (Lewis et al. 2021; Schmutz et al. 2020; Uher-Koch et al. 2021). This species is an important food and cultural resource for indigenous peoples in Alaska (ADF&G 2017; Wolfe and Paige 1995). Non-indigenous hunters also value the opportunity to hunt emperor geese, and non-local hunters support guiding, lodging, and related services as economic activities (McDowell Group 2021). As an endemic species, the emperor goose also attracts nature-oriented tourism and is a highlight of birding destinations in Alaska despite its remote distribution (Cervený 2008).<sup>1</sup>

Reduced emperor goose numbers led to the closure of fall-winter hunting opportunities in 1986 and an agreement for cessation of the subsistence harvest in 1987 (Pacific Flyway Council 1999rev.). The population grew slowly in the following decades. In 2015, the emperor goose population index reached 80,000 birds, meeting the management plan threshold for the re-authorization of harvest. Re-opening harvest in 2017 involved the revision of population monitoring and harvest management methods (Dooley

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1. ADF&G. *n.d.* “Bird viewing,” <http://www.adfg.alaska.gov/index.cfm?adfg=birdviewing.main>.

et al. 2016).<sup>2</sup> The emperor goose management plan of the Alaska Migratory Bird Co-Management Council (AMBCC) outlined the harvest strategy for the spring-summer season (AMBCC 2016). The Pacific Flyway Council emperor goose management plan outlined the strategy for the fall-winter season (Pacific Flyway Council 2016). The two plans are complementary and recognize the emperor goose as a shared resource that encompasses harvest and non-consumptive uses (e.g., ecological functions, wildlife viewing, and cultural importance).

The number of emperor geese available for a sustainable harvest is still limited (Dooley et al. 2016). High interest in opportunities for emperor goose harvest has been documented through many regulatory proposals submitted in 2015–2021 to the AMBCC and the Alaska Board of Game.<sup>3,4</sup> Harvest management has strived to allocate this limited resource across regulatory seasons and regions.

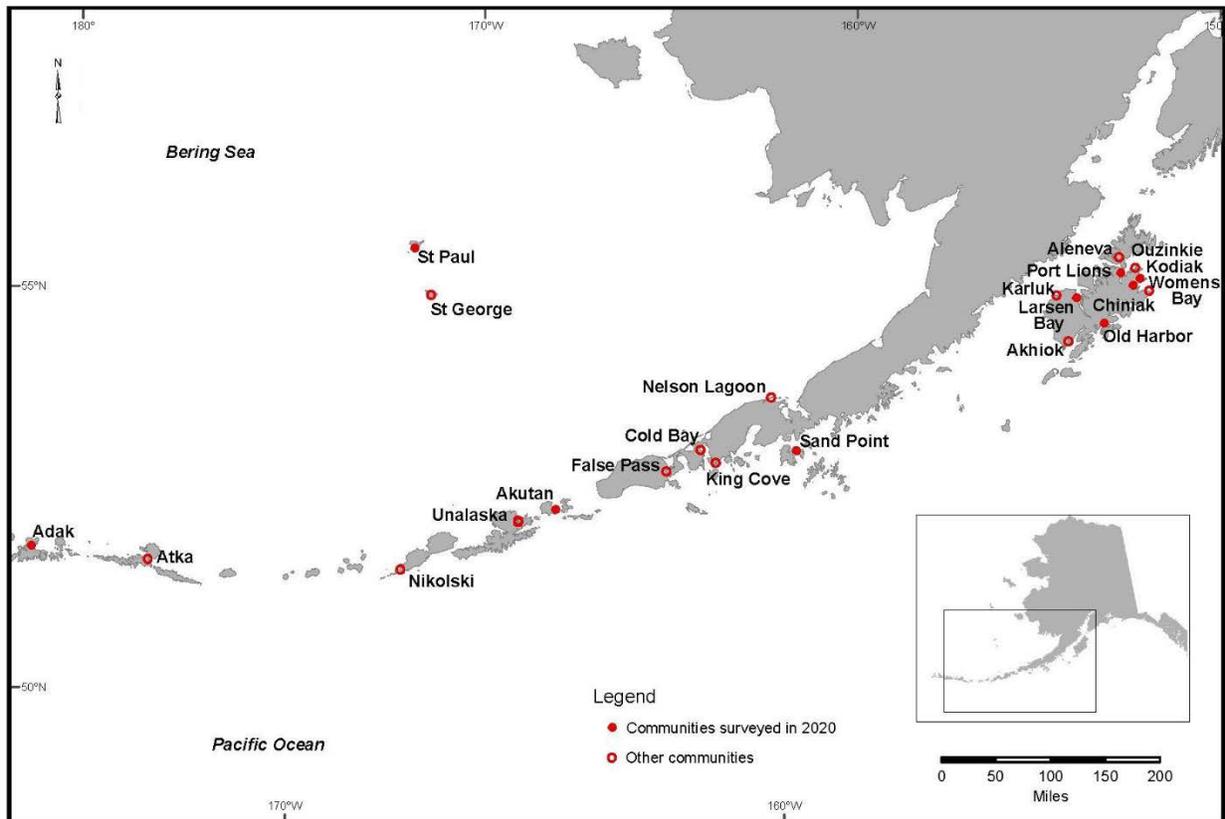


Figure 1.—Communities of the Aleutian-Pribilof Islands and Kodiak Archipelago.

Harvest regulations for migratory birds in Alaska include a spring-summer subsistence season (50 CFR § 92) and a fall-winter general hunting season (50 CFR § 20). Harvest regulations for the emperor goose in the spring-summer season do not involve a harvest quota, special permit, bag or season limits, or mandatory harvest reporting (Federal Register vol. 82, no. 63, page 16298). In the Aleutian-Pribilof Islands and Kodiak Archipelago, hunters rely on harvest opportunities during the fall-winter season because of limited emperor goose availability in spring-summer.

2. Osnas E., and C. Frost. 2016. Emperor goose decision rules. Draft report. U.S. Fish and Wildlife Service-Alaska Region, Division of Migratory Bird Management, Anchorage, USA.  
 3. ADF&G. *n.d.*, “Alaska Board of Game” <http://www.adfg.alaska.gov/index.cfm?adfg=gameboard.main>.  
 4. AMBCC. 2022. “Calendars & Meetings, Events from *Upcoming Meetings* Category and Past Meeting Transcripts.” <https://www.alaskamigratorybirds.com/index.php/calendar-meetings> (Accessed November 28, 2022).

Starting in 2017, hunters were required to obtain a special permit to participate in the fall-winter emperor goose hunt; the permit system was administered by the Alaska Department of Fish and Game (ADF&G).<sup>5</sup> An unlimited number of Alaska resident permits were available free of charge online, at local ADF&G offices, and from other local issuers within the emperor goose distribution range. Alaska residents could obtain a permit for more than one hunt area in a year. Permitted residents could take one emperor goose for an entire fall-winter season and across hunt areas. Season dates were 8 Oct–22 Jan for the Kodiak Archipelago (Game Management Unit [GMU] 8) and Western Aleutian Islands (GMU 10 except Unimak Island), 16–31 Oct for Izembek State Game Refuge (SGR) (in GMU 9), and 1 Sep–16 Dec in the other hunt areas. Beginning in 2018, 25 drawing (lottery) permits were available to nonresidents. A nonresident permit allowed take of one emperor goose for an entire fall-winter season within GMUs 8, 9, and 10 and the Izembek SGR. Fall-winter harvest of emperor goose was closed in the Kodiak roaded area, within boundaries as defined for the spring-summer season (Federal Register vol. 68, no. 139, page 43,010; 50 CFR § 92). Permit holders were required to report emperor goose take within 24–72 hours by phone or online. Hunt areas closed on the last day of the season or by emergency order when quotas were met.

As outlined in the emperor goose management plans, based on defined population thresholds, in the 2017–2019 hunting seasons the fall-winter emperor goose hunt had a harvest quota of 1,000 birds divided among seven hunt areas (125–175 birds per area). In 2019, the emperor goose population index fell below a threshold defined in the management plans. Consequently, the following harvest management actions were implemented in 2020: (1) the fall-winter harvest quota was reduced to 500 birds; (2) during the spring-summer subsistence season, egg harvesting was closed; and (3) outreach to all harvesters was prioritized to communicate about conservation concerns raised by the reduced population numbers.

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5. ADF&G. *n.d.*, Emperor goose hunting, <http://www.adfg.alaska.gov/index.cfm?adfg=waterfowlhunting.emperorgoosehunt>.

# METHODS

## ETHICAL PRINCIPLES FOR SOCIAL SCIENCE RESEARCH

We followed broadly accepted ethical principles for social sciences<sup>6,7</sup> (ACUNS 2003) as well as the Alaska confidentiality statute (AS 16.05.815). These principles include community approval of research designs, informed consent, anonymity or confidentiality of study participants, community review of draft findings, and the provision of final study findings to the involved communities upon completion of the research.

Participation in the survey was voluntary for communities and households. Project staff communicated with local tribal and city councils in each community to provide information about the project and request community consent. Communication with local councils was by phone and email. After an initial phone contact, we provided councils with a project summary, draft survey form, and a cover letter asking to include the consent request as an agenda item for the upcoming council meeting. Project staff followed up by phone to ensure the materials sent by email were received, assess whether further information was needed, and confirm participation in the tribal council meeting. We attended tribal council meetings by phone to present and discuss the project and the consent request (Table 1). Tribal and city councils formalized resolutions of community consent for conducting the survey (appendices A–G).

We also coordinated and communicated about the project within the AMBCC and its regional bodies for the Aleutian-Pribilof Islands and Kodiak Archipelago regions. We attended meetings of the full council and regional councils to present project objectives and updates and discuss related management topics.

Tribal councils and other local organizations provided guidance on timing for data collection, means for survey outreach, and candidate individuals to be contracted as local research assistants. In advance of and during data collection, local research assistants assisted in communication to inform local residents about the survey. Local research assistants and local councils assisted in survey outreach by displaying an informational flyer in public spaces (tribal councils, post offices, grocery stores, and other local businesses) and posting survey information on local social media.

On the survey form (Appendix H), we provided individual households with information about project objectives and instructions on how to complete and return the survey. We considered the return of a completed survey as evidence of informed consent by households to participate in the survey. In phone interviews conducted to complement sample size, after a brief project introduction, the interviewer asked the household member whether he/she agreed to participate in the survey and this information was recorded on a tracking sheet. Households in each community that completed and returned the survey were entered into a raffle to acknowledge and encourage participation. Raffle items included at least one bird identification book and one pair of binoculars for each community surveyed.

We provided preliminary, summary study results to tribal councils and other local entities in the study communities for their review and comment. We coordinated with local councils and requested participation in their regularly scheduled council meeting to discuss study results. We revised the draft report accounting for review comments. We provided a copy of the final report as well as summary results to tribal and local councils in study communities as well as members of the regional bodies of the Alaska Migratory Bird Co-Management Council. Harvest estimates from this study are also available in the publicly accessible online database Subsistence Community Subsistence Information System maintained by the ADF&G Division of Subsistence.<sup>8</sup>

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6. Alaska Federation of Natives. 2013. “Alaska Federation of Natives Guidelines for Research.” Alaska Native Knowledge Network. <http://www.ankn.uaf.edu/IKS/afnguide.html> (accessed November 23, 2022)

7. National Science Foundation Interagency Social Science Task Force. 2018. “Principles for the Conduct of Research in the Arctic.” <https://www.nsf.gov/geo/opp/arctic/conduct.jsp> (accessed November 28, 2022).

8. ADF&G Community Subsistence Information System (CSIS), <http://www.adfg.alaska.gov/sb/CSIS/>. Hereinafter cited as CSIS.

Table 1.–Local organizations involved and local research assistants.

Communities	Local organizations that provided community consent	Local research assistants
<b>Aleutian-Pribilof Islands region</b>		
Adak	Adak City Council (Appendix A)	Kimberly (Mik) Turnbull
Akutan	Native Village of Akutan (Appendix B)	Carmen Bereskin
Saint Paul	Aleut Community of Saint Paul Island (Appendix D)	Aaron Lestenkof and Paul Melovidov
Sand Point	Native Village of Unga, Pauloff Harbor Village, and Qagan Tayagungin Tribe of Sand Point (Appendix C)	Michelle Gronholdt
<b>Kodiak Archipelago region</b>		
Larsen Bay	Native Village of Larsen Bay (Appendix E)	Marilyn Henson
Port Lions	Native Village of Port Lions (Appendix F)	Renae Kewan
Kodiak City	Tangirnaq Native Village, Sun’aq Tribe of Kodiak, and Native Village of Afognak (Appendix G)	Danielle Butts, Daniel Hernandez, and Dahlia Berns
Womens Bay Census Designated Place (CDP)	Same as for Kodiak City	Alicia Short-McEwan
Mill Bay CDP and Borough Balance	Same as for Kodiak City	Emilia Bartnick

## GEOGRAPHIC DOMAIN AND DEMOGRAPHIC INFORMATION

The geographic regions “Aleutian-Pribilof Islands” and “Kodiak Archipelago” followed the management regions defined for the Alaska spring-summer subsistence harvest of migratory birds since this system reflects cultural, geographic, ecological, and regulatory domains relevant for Alaska rural residents (50 CFR § 92). We listed regions and communities in approximate alphabetical order (Table 2).

The survey represented harvests by all year-round resident households in study communities and regions. We calculated seasonal and annual harvest estimates for each community by expanding (extrapolating) average harvests reported by surveyed households to represent non-surveyed households. Data from surveyed communities were also extrapolated to calculate harvest estimates at the region level. Data to calculate region-level harvest estimates were supplemented by 2018 data for Akhiok and Old Harbor (Sill et al. 2021) and 2020 data for Unalaska (Keating et al. 2022).

We defined “year-round” as households domiciled in the community when the surveys took place and for 12 months during the study year 2020. We identified the total number of households in each community based on consultation with community officials and other parties knowledgeable about individual communities. Criteria for inclusion of households in the survey and seasonal residency may explain differences between total number of households defined for this study and other demographic data such as the 2020 federal census and the U.S. Census Bureau’s American Community Survey (U.S. Census Bureau 2021) and the Alaska Department of Labor and Workforce Development (ADLWD n.d.).

This study documented bird and egg harvests by households residing in the surveyed communities, including their harvests that may have happened outside the limits of their community of residence (figures 2–4). Some communities in the Aleutian-Pribilof Islands and the Kodiak Archipelago are visited by nonresident hunters for waterfowl harvest in the fall-winter general hunting season (e.g., Adak, Saint Paul, Cold Bay, Unalaska, Larsen Bay, and Kodiak City). Harvests by nonresident hunters were not included in this study. Waterfowl harvest in the fall-winter season is monitored by a nationwide migratory bird harvest survey managed by the U.S. Fish and Wildlife Service in collaboration with state wildlife agencies via the waterfowl (duck) stamp program; results from the Harvest Information Program are reported at the state-wide level (Olson 2021).

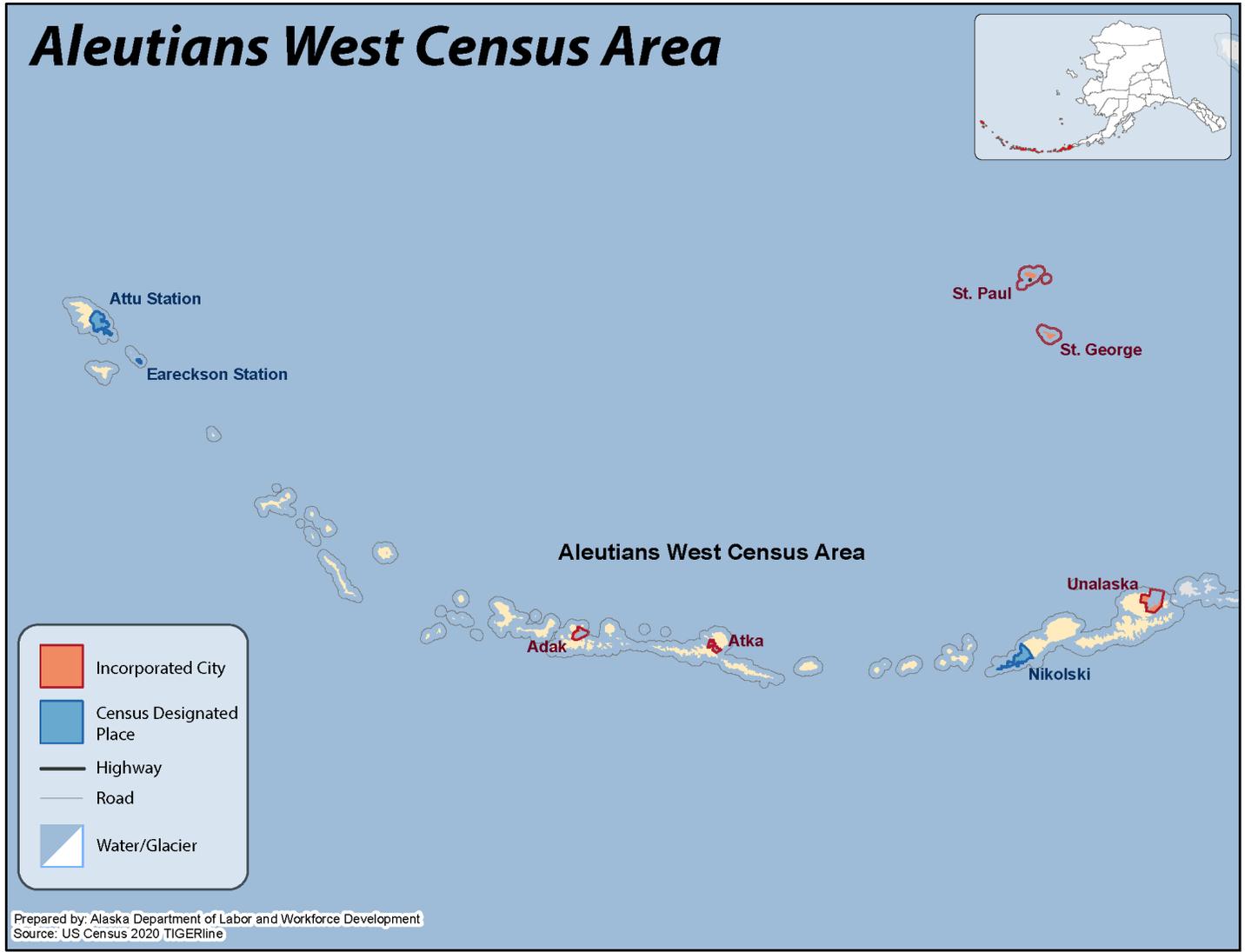


Figure 2.—Geographic boundaries of communities in the Aleutians West Borough, Aleutian-Pribilof Islands region. Map reproduced from the Alaska Department of Labor and Workforce Development “2020 Census Area Maps” <https://live.laborstats.alaska.gov/census/maps/2020-pdf>.

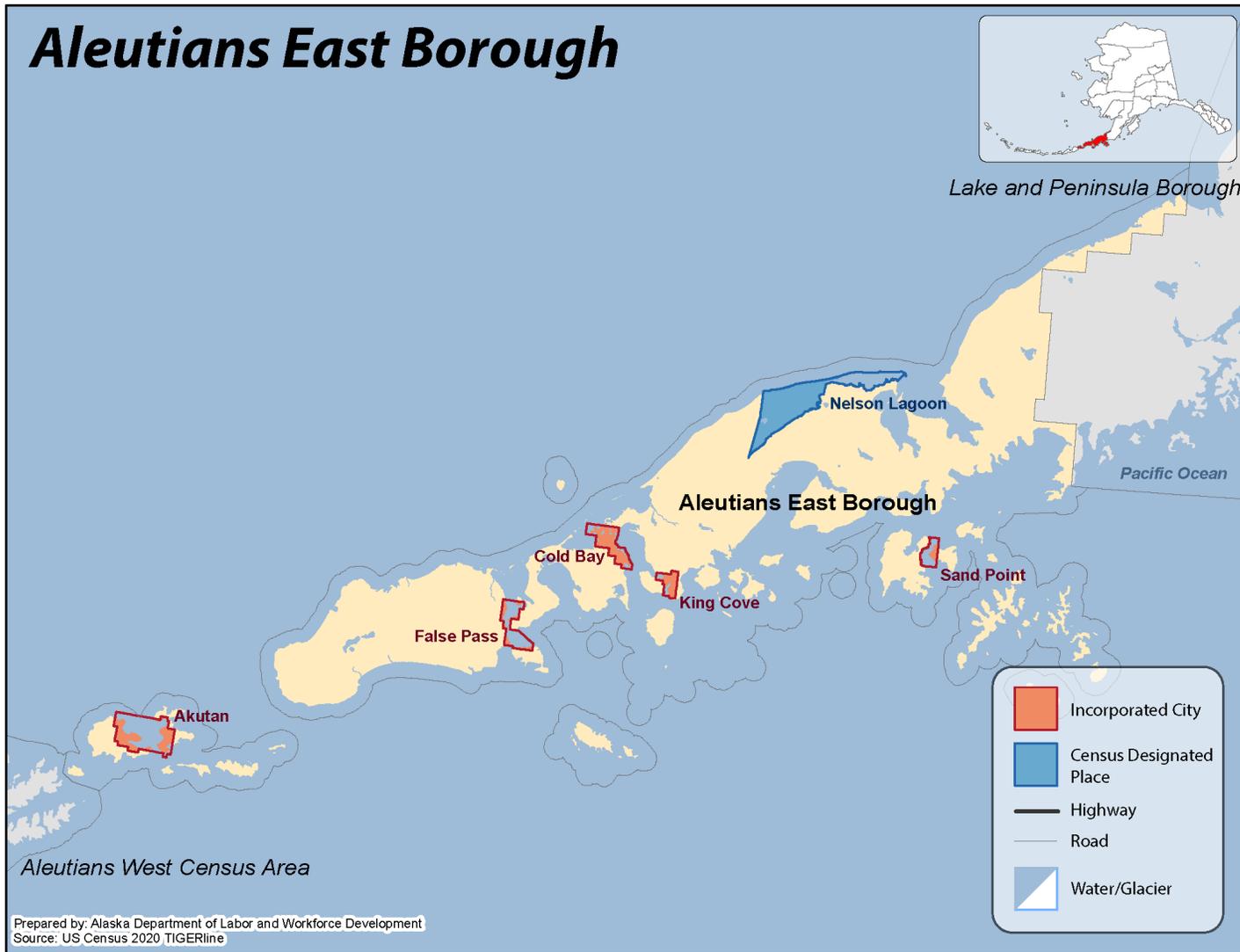


Figure 3.—Geographic boundaries of communities in the Aleutians East Borough, Aleutian-Pribilof Islands region. Map reproduced from the Alaska Department of Labor and Workforce Development “2020 Census Area Maps” <https://live.laborstats.alaska.gov/census/maps/2020-pdf>.

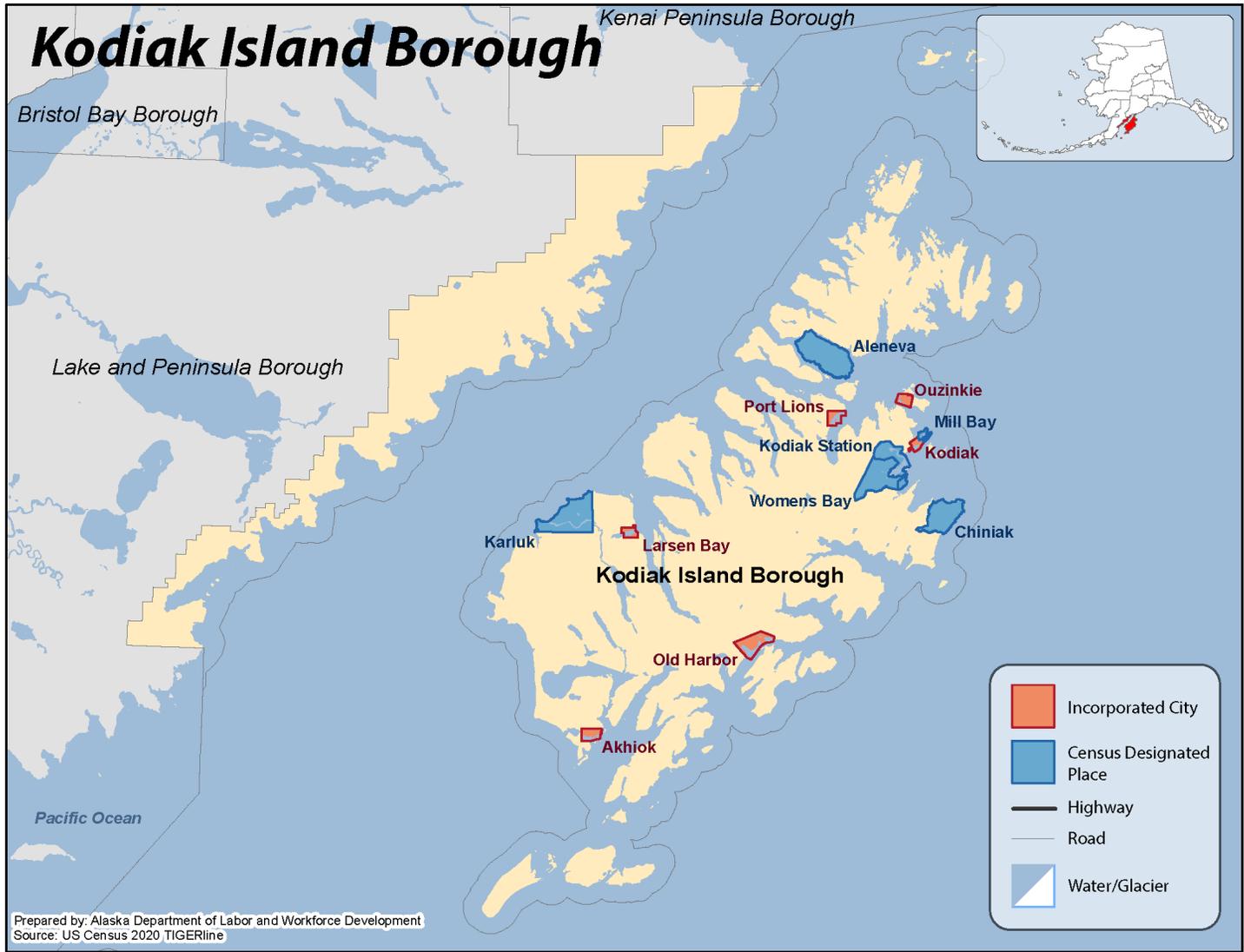


Figure 4.—Geographic boundaries of communities in the Kodiak Island Borough, Kodiak Archipelago region. Map reproduced from the Alaska Department of Labor and Workforce Development “2020 Census Area Maps” <https://live.laborstats.alaska.gov/census/maps/2020-pdf>.

Table 2.—Demographic information for communities on the Aleutian-Pribilof Islands and Kodiak Archipelago.

Communities	Census 2020 <sup>a</sup>			ACS 2016– 2020 <sup>b</sup>	Estimates used in this study
	Occupied housing units	Population <sup>§</sup>	American Indian and Alaska Native <sup>§*</sup>	Total households	Total households
Aleutian-Pribilof Islands region					
Aleutian-Pribilof Communities					
Adak City <sup>♦</sup>	62	114	47%	51	38 <sup>c</sup>
Akutan City <sup>♦</sup>	48	113	81%	69	27 <sup>c</sup>
Atka City	14	53	98%	9	14 <sup>a</sup>
Cold Bay City	21	42	60%	86	21 <sup>a</sup>
False Pass City	13	59	80%	35	13 <sup>a</sup>
King Cove City	165	427	90%	335	165 <sup>a</sup>
Nelson Lagoon CDP	20	41	93%	41	20 <sup>a</sup>
Nikolski CDP	22	39	72%	6	22 <sup>a</sup>
St. George City	26	67	94%	29	26 <sup>a</sup>
Saint Paul City <sup>♦</sup>	135	376	100%	104	113 <sup>c</sup>
Sand Point City <sup>♦</sup>	215	531	71%	422	201 <sup>c</sup>
Total households					660 <sup>c</sup>
Unalaska City <sup>◊</sup>	641	1,677	22%	1,107	998 <sup>d</sup>
Kodiak Archipelago region					
Kodiak Communities					
Akhiok City <sup>◊</sup>	30	63	89%	31	14 <sup>e</sup>
Karluk CDP	14	27	96%	15	14 <sup>a</sup>
Larsen Bay City <sup>♦</sup>	24	34	82%	21	17 <sup>c</sup>
Old Harbor City <sup>◊</sup>	95	216	86%	90	67 <sup>e</sup>
Ouzinkie City	45	109	77%	53	45 <sup>a</sup>
Port Lions City <sup>♦</sup>	76	170	65%	68	65 <sup>c</sup>
Total households					222
Kodiak Roaded Area					
Aleneva CDP	2	5	0%	4	2 <sup>a</sup>
Chiniak CDP	22	61	36%	0	22 <sup>a</sup>
Kodiak City <sup>♦</sup>	1,951	5,482	16%	1,680	1,403 <sup>f</sup>
Kodiak Station CDP	418	1,367	5%	497	387 <sup>f</sup>
Womens Bay CDP <sup>♦</sup>	287	743	19%	334	281 <sup>c</sup>
Mill Bay CDP and Balance of Kodiak Island Borough <sup>♦</sup>	1,607 (1,550 at Mill Bay and 57 at Balance)	4,385	22%	1,364 <sup>‡</sup>	1,074 <sup>a,f</sup>
Total households					3,169 <sup>f</sup>

Source: (a) U.S. Census Bureau (2021); (b) American Community Survey (U.S. Census Bureau 2021); (c) this study; (d) Keating et al. (2020); (e) Sill et al. (2021); (f) Keating et al. (*In prep*).

§: “Population” and “American Indian and Alaska Native” excluded population in group quarters.

\*: Race alone or in combination.

♦: Communities surveyed in this study.

◊: Additional 2018 (Sill et al. 2021) and 2020 (Keating et al. *In prep*) data used in region harvest estimates.

‡: Does not include Balance of Kodiak Island Borough.

## DATA COLLECTION

In each community, we contracted with local research assistants to deliver survey packets to households and to assist with communication (plates 1–3). Data collection used approaches to minimize in-person interactions because of public health concerns during the COVID-19 pandemic. We developed lists of residential addresses or households for each surveyed community based on information provided by local organizations. Local research assistants attempted to distribute surveys to all households in the surveyed communities or census designated places. However, in the Mill Bay and Borough Balance sampling was based on a random selection of 25% of all addresses.

We based lists of residential addresses for Kodiak City, Womens Bay CDP, and Mill Bay CDP and Borough Balance on a list of all addresses provided by the Kodiak Island Borough. Project staff screened the complete list to exclude nonresidential addresses. Ground truthing in these larger communities during survey distribution to identify other nonresidential addresses and vacant and temporary residencies was limited due to efforts to minimize in-person interaction during the COVID-19 pandemic.

This study was based on methods used in the survey conducted by the Alaska Migratory Bird Co-Management Council since 2004, which uses in-person interviews (Naves et al. 2021). However, we designed a survey form to be completed by a household member on his or her own and returned by mail using a pre-addressed, postage-paid envelope (Appendix H). The form included instructions on how to complete the survey, one page for each season of the year, and fields next to bird drawings where households were asked to write numbers of birds and eggs taken in each season. Based on bird phenology and harvest regulations for migratory birds in Alaska, we considered seasons as spring (2 April–30 June), summer (1 July–31 August), fall (1 September–31 October), and winter (1 November–9 March). The survey also included the following questions pertaining to emperor goose harvest:

- What months of the year do people in your community usually harvest emperor goose?
- What are some factors that affect timing of emperor goose harvest in your community?
- What are some factors that affect the opportunity to harvest emperor goose in your community?
- Would you have other comments or observations about emperor geese and their harvest?

We mailed survey materials to local research assistants including their contract paperwork, training manual, preliminary community address list, community map or aerial photo, tracking sheets, and household survey packages, which contained a survey form, postage-paid return envelope, a pen, and a raffle ticket in a plastic bag (Plate 2). After local research assistants received and reviewed survey materials, we convened for training by phone or video call.

Local research assistants distributed surveys to residential units by hanging a household survey package on doorknobs (Table 3, Plate 2). All blank survey forms were identified by a unique numeric code, which was assigned to individual addresses as they were distributed to households; this information was recorded in a survey distribution tracking sheet (Plate 2). Pre-addressed, postage-paid return envelopes directed completed surveys to project staff in Anchorage, who monitored survey returns based on the survey distribution tracking sheet provided by the local research assistants.

Project staff did follow up phone interviews to complement sample sizes (Table 3). We compiled individual contact information (name, address, phone number) from State of Alaska service records and aggregated addresses into households. We cross-checked addresses in the lists thus generated with tracking sheets used for survey distribution to match households. We identified households that had not provided a completed survey and randomly selected households for a follow up phone interview. However, there were challenges to reconstruct households based on individual information and to match addresses used for distribution of the mail survey. We attempted to contact each selected household up to three times, each attempt at different days, times of day, or both. We were unable to contact many households because the available phone number was out of service, or they did not answer. Some households contacted by phone explained they

had already provided a completed survey by mail. In some cases there was a delay in receiving completed surveys by mail. A few households contacted by phone did not meet residence criteria for inclusion in the survey. A total of 570 surveys were completed: 76% returned by mail and 24% completed by phone (Table 4).

Table 3.—Timing of data collection, 2020 bird harvest survey on the Aleutian-Pribilof Islands and Kodiak Archipelago.

Communities	Distribution of mail survey to households	Complementary phone survey
Aleutian-Pribilof Islands region		
Adak	9–15 Apr 2021	17 May–3 Jun 2021
Akutan	17 Apr–23 May 2021	27 May–9 Jun 2021
Saint Paul	14 Apr–18 May 2021	15–22 Jun 2021
Sand Point	22 Mar–5 Apr 2021	21 Apr–27 May 2021
Kodiak Archipelago region		
Larsen Bay	24–31 Mar 2021	13–27 May 2021
Port Lions	1–2 Apr 2021	13–26 May 2021
Kodiak City	30 Mar–12 Jun 2021	1–25 Jun 2021
Womens Bay	31 Mar–20 May 2021	3–24 Jun 2021
Mill Bay and Borough	15 Apr–1 Jun 2021	22–28 Jun 2021
Balance		

Table 4.—Sampling rates, 2020 bird harvest survey on the Aleutian-Pribilof Islands and Kodiak Archipelago.

Communities	Mail survey			Complementary phone survey					Total			
	Surveys distributed	Surveys completed	Participation rate <sup>a</sup>	Households selected (contact attempted)	Households contacted <sup>b</sup>	Refused to participate	Surveys completed (agreed to participate)	Participation rate <sup>c</sup>	Households in community <sup>d</sup>	Surveys completed	Sampling rate <sup>e</sup>	
Aleutian-Pribilof Islands region												
Adak	38	14	37%	20	12	1	11	92%	38	25	66%	
Akutan	27	7	26%	32	15	0	15	100%	27	22	81%	
Saint Paul	113	20	18%	21	13	5	8	62%	113	28	25%	
Sand Point	195	62	32%	53	39	10	24	62%	201	86	43%	
Kodiak Archipelago region												
Larsen Bay	17	6	35%	21	11	1	10	91%	17	16	94%	
Port Lions	64	26	41%	20	12	2	9	75%	65	35	54%	
Kodiak City	1,454	186	13%	68	42	6	36	86%	1,477	222	15%	
Womens Bay	269	49	18%	18	11	2	9	82%	281	58	21%	
CDP												
Mill Bay CDP and Borough	367	61	17%	35	23	3	17	74%	1,281	78	6%	
Balance												
Total	2,544	431	17%	288	178	30	139	78%	3,500	570	16%	

a: Participation rate in mail survey = (surveys completed ÷ surveys distributed) × 100.

b: Households that we were able to contact and that (1) met residence criteria for inclusion in the survey and (2) had not yet provided a completed survey by mail. We attempted to contact all households selected for a phone interview. We were unable to contact many households because the available phone number was out of service or did not answer. A few households contacted by phone explained they had already provided a completed survey by mail. A few households contacted by phone did not meet residence criteria for inclusion in the survey.

c: Participation rate in phone survey = (households that agreed to participate ÷ households contacted that met residence criteria for inclusion in the survey and had not yet provided a completed survey by mail) × 100.

d: As defined in this study based on consultation with local partners.

e: Overall sampling rate = (total surveys completed ÷ total households in community) × 100.

## DATA ANALYSIS

We used a Microsoft Access data entry interface to store data in a Microsoft SQL Server relational database. The database structure included rules, constraints, and referential integrity to ensure that data were entered completely and accurately. Data were entered twice; datasets were cross-checked to identify and correct data entry errors. We analyzed data using the IBM Statistical Package for the Social Sciences (SPSS) version 27.<sup>9</sup>

We updated lists of addresses for each community based on information noted by local research assistants during data collection pertaining to nonresidential addresses, vacant dwellings, and temporary (non-yearlong) residents. In Kodiak City, Womens Bay, and Mill Bay and Borough Balance the large number of total households limited the ability of knowing this information without talking with household members. For data analysis, we used the total number of households for the Kodiak roaded area as defined in another survey conducted in 2021, which was able to further ground truth a preliminary list of addresses (Keating et al. *In prep*; Table 2).

We calculated community harvest estimates and confidence intervals (CI) applying weighted means for simple random sampling and used the formulae below (Cochran 1977). Small CI percentages indicate that an estimate is likely to be close to the mean of the sample. Large CI percentages indicate that estimates may be further from the mean of the sample.

$$H_i = \bar{h}_i S_i \quad (1)$$

$$\bar{h}_i = \frac{h_i}{n_i} \quad (2)$$

where:

$H_i$  = estimated harvest (number of birds or eggs) for the community  $i$

$\bar{h}_i$  = mean harvest of surveyed households

$h_i$  = total harvest reported by surveyed households

$n_i$  = number of surveyed households

$S_i$  = total number of households in community  $i$

$$CIP(\pm) = \frac{t_{\alpha/2} \times \frac{s}{\sqrt{n}} \times \sqrt{\frac{N-n}{N-1}}}{\bar{x}} \quad (3)$$

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

Where:

$CIP$  = confidence interval as a percentage of the estimated harvest

$s$  = sample standard deviation

$n$  = surveyed households

$N$  = total households in community

$t_{\alpha/2}$  = Student's t statistic for alpha level ( $\alpha = 0.95$ ) with  $n-1$  degrees of freedom, and

$\bar{x}$  = sample mean.

The formulas below were used to calculate subregion estimated harvest, variance, and confidence interval (3-stage stratified cluster sampling; Bernard et al. 1998; Naves 2016; Naves et al. 2008). Subregions pertained to Aleutian-Pribilof Communities, Unalaska, Kodiak Communities, and Kodiak Roaded Area (Table 2). Region-level harvest and variance were then calculated as the sum of the subregions harvests and variances. We used the total number of occupied households from the 2020 Census for non-surveyed communities to extrapolate harvest data from surveyed to non-surveyed communities and estimate harvest for subregions and regions (Table 2).

$$X = \frac{N_{1r}}{n_{1r}} \times \left\{ \sum_{i=1}^{h_r} \frac{N_{2ri}}{n_{2ri}} \times \left[ \sum_{j=1}^{h_i} \frac{N_{3rij}}{n_{3rij}} \times \left( \sum_{k=1}^{n_{3rij}} x_{rijk} \right) \right] \right\} \quad (4)$$

$$\begin{aligned} var(X) = & \left\{ N_{1r}^2 \times \left[ \left( 1 - \frac{n_{1r}}{N_{1r}} \right) \times \frac{s_{1r}^2}{n_{1r}} \right] \right\} + \left\{ \frac{N_{1r}}{n_{1r}} \times \left[ \sum_{i=1}^h N_{2ri}^2 \times \left( \left( 1 - \frac{n_{2ri}}{N_{2ri}} \right) \times \frac{s_{2ri}^2}{n_{2ri}} \right) \right] \right\} \\ & + \left\{ \frac{N_{1r}}{n_{1r}} \times \left[ \sum_{i=1}^{h_r} \frac{N_{2ri}}{n_{2ri}} \times \left( \sum_{j=1}^{h_i} N_{3rij}^2 \times \left( \left( 1 - \frac{n_{3rij}}{N_{3rij}} \right) \times \frac{s_{3rij}^2}{n_{3rij}} \right) \right) \right] \right\} \end{aligned} \quad (5)$$

$$CIP(X) = \frac{CI(X)}{X} \quad (6)$$

$$CI(X) = t_{\alpha/2} \times \sqrt{var(X)} \quad (7)$$

$$s_{1r}^2 = \frac{\sum_{i=1}^{h_r} \left\{ \sum_{j=1}^{h_i} \left[ \left( \sum_{k=1}^{n_{3rij}} (x_{rijk} - \bar{x}_r)^2 \right) + \left( P_{3rij} \times (\bar{x}_{rij} - \bar{x}_r)^2 \right) \right] \right\}}{n_{1r} - 1} \quad (8)$$

$$s_{2ri}^2 = \frac{\sum_{j=i}^{h_i} \left[ \left( \sum_{k=1}^{n_{3rij}} (x_{rijk} - \bar{x}_{ri})^2 \right) + \left( P_{3rij} \times (\bar{x}_{rij} - \bar{x}_{ri})^2 \right) \right]}{n_{2ri} - 1} \quad (9)$$

$$s_{3rij}^2 = \frac{\sum_{k=1}^{n_{3rij}} (x_{rijk} - \bar{x}_{rij})^2}{n_{3rij} - 1} \quad (10)$$

$$P_{3rij} = N_{3rij} - n_{3rij} \quad (11)$$

$$\bar{x}_r = \frac{\frac{N_{1r}}{n_{1r}} \times \left\{ \sum_{i=1}^{h_r} \frac{N_{2ri}}{n_{2ri}} \times \left[ \sum_{j=1}^{h_i} \frac{N_{3rij}}{n_{3rij}} \times \left( \sum_{k=1}^{n_{3rij}} x_{rijk} \right) \right] \right\}}{N_{1r}} \quad (12)$$

$$\bar{x}_{ri} = \frac{\frac{N_{2ri}}{n_{2ri}} \times \left[ \sum_{j=1}^{h_i} \frac{N_{3rij}}{n_{3rij}} \times \left( \sum_{k=1}^{n_{3rij}} x_{rijk} \right) \right]}{N_{2ri}} \quad (13)$$

$$\bar{x}_{rij} = \frac{\frac{N_{3rij}}{n_{3rij}} \times \left( \sum_{k=1}^{n_{3rij}} x_{rijk} \right)}{N_{3rij}} \quad (14)$$

Where:

X = estimated harvest at subregion level

var(X) = variance of estimated harvest at subregion level

CI(X) = confidence interval around estimated harvest (confidence level 95%)

CIP(X) = confidence interval as a percentage of the estimated harvest

r = subregion

i = community

j = harvest level stratum (none, low, high; harvester, other; single stratum if survey used simple random sampling)

k = households

h<sub>r</sub> = sampled households in subregion

h<sub>i</sub> = sampled households in stratum

N<sub>1r</sub> = total households in subregion

n<sub>1r</sub> = total households in sampled communities

N<sub>2ri</sub> = total households in all harvest level strata in sampled communities

n<sub>2ri</sub> = total households in sampled harvest level strata in sampled communities

Note: The term “N<sub>i</sub>/n<sub>i</sub>,” accounts for missing harvest level stratum at the community level; this term equals one if all strata in a community were surveyed. For example:

	Harvester	Other	
Total households	40	50	N <sub>2</sub> =90
Households in sampled strata	40	0	n <sub>2</sub> =40

N<sub>3rij</sub> = total households in each harvest level stratum in a community

n<sub>3rij</sub> = households sampled in each harvest level stratum in a community

x<sub>rijk</sub> = harvest reported by individual households

s<sub>1</sub><sup>2</sup> = first-stage sample variance

s<sub>2</sub><sup>2</sup> = second-stage sample variance

s<sub>3</sub><sup>2</sup> = third-stage sample variance

$\bar{x}_r$  = average household harvest in subregion

$\bar{x}_{ri}$  = average household harvest in community

$\bar{x}_{rij}$  = average household harvest in harvest level strata

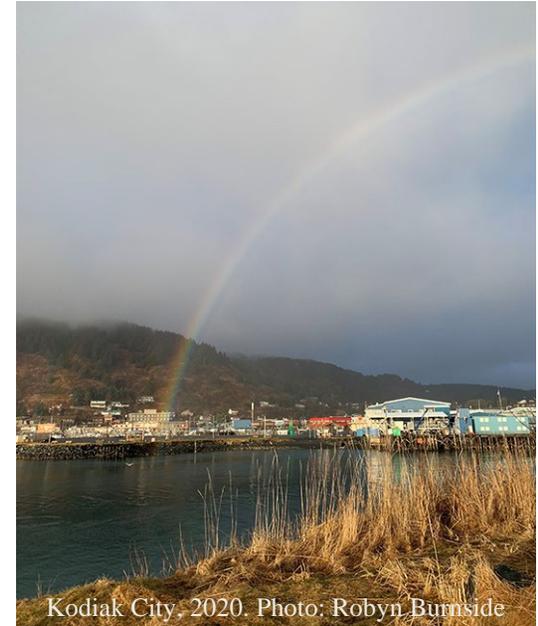
$P_{3rij}$  = factor to account for variance of non-sampled households for which the average harvest was applied.

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

For the additional questions pertaining to emperor goose and for the close-ended questions, we counted responses and calculated their frequencies. For open-ended questions, we qualitatively coded responses into common themes; responses may fit under more than one theme.



Sand Point, May 2008. Photo: Lili Naves



Kodiak City, 2020. Photo: Robyn Burnside



Adak, 2020. Photo: Mik Turnbull



Akutan, 2009. Photo: Lisa Hutchinson-Scarborough

Plate 1.—Communities and environments on the Aleutian-Pribilof Islands and Kodiak Archipelago.



Survey materials received by mail. Photo: Danielle Butts



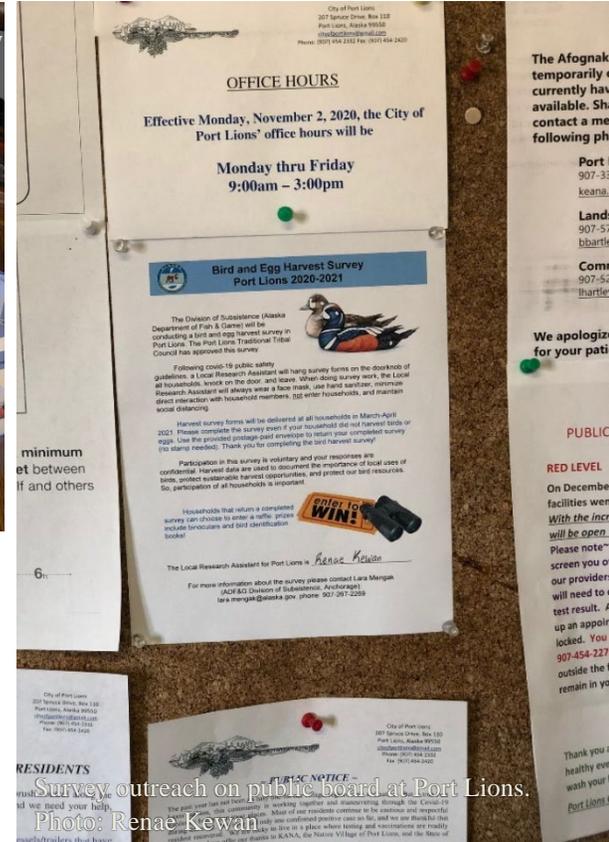
Sorting survey materials for daily runs in Adak. Photo: Mik Turnbull



Survey delivered to household in Port Lions. Photo: Renae Kewan.



Survey delivered to household in Kodiak. Photo: Danielle Butts



Survey outreach on public board at Port Lions. Photo: Renae Kewan

Plate 2.–Data collection, 2020 bird harvest survey on the Aleutian-Pribilof Islands and Kodiak Archipelago.

Next, we would like to ask a few questions specifically about emperor goose.



The emperor goose is a traditional subsistence resource. Harvest of emperor goose was legally re-authorized in Alaska in 2017, after a hunting closure had been in place for about 30 years due to population decline. The following questions will help to better understand the importance of emperor goose for subsistence users and to evaluate harvest management.

1. What months of the year do people in your community USUALLY harvest emperor goose? Check all that apply.

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
					UNKNOWN						

2. What factors affect the TIMING of emperor goose harvest in your community? Check all that apply.

- Harvest mostly when birds are fat
- Harvest mostly when birds aren't molting feathers, so there are no pin feathers
- Weather (explain):
- Other (explain): THEY ARE TEMPORARY VISITORS TO KODIAK NOT VERY RELIABLE ARRIVAL/LENGTH OF STAY/DEPARTURE TIMES KNOWN
- I don't know

3. What factors affect the OPPORTUNITY to harvest emperor goose in your community? Check all that apply and briefly explain why the factor(s) affect harvest of emperor goose.

- Weather (explain): VERY LITTLE OPEN LAND TO HUNT
- Other subsistence activities (explain): DAM NATIVES & BERENSON GOOSE. KEEP TIGHT REINS ON LAND.
- Other (explain): MY HEALTH & AGE, CAN ONLY HUNT AT LOW TIDES (DAYTIMES) NO DOG TO RETRIEVE BIRDS FROM WATER
- I don't know

4. Do you have other comments or observations about emperor geese and their harvest?

I'M KEEPING THE BIRD PAGES AS A REFERENCE AND IDENTIFICATION AID.

Turn to page 3 to report harvest numbers. →

2016

## Bird and Egg Harvest Survey Aleutian-Pribilof Islands and Kodiak Archipelago



Nicely done survey!!  
Likes pictures included!  
Photos would add pic of the field where they were harvested  
@ add comments for names of birds (at least 10-15) vary

We are requesting your participation in a short survey to estimate bird and egg harvest in your region. A local organization or Tribal Council in your community has approved this survey. Participation in this survey is voluntary. Your responses are confidential. Harvest estimates are used to:

- Document the importance of local uses of birds.
- Protect our bird resources.
- Protect sustainable harvest opportunities.
- Assess whether harvest regulations are appropriate.

**Qaqaasakung, quyanaasinaq, thank you!**  
We'll share combined survey results with your community.

For questions about the survey, please contact Lara.Mengak@alaska.gov, phone 267-2269.  
Division of Subsistence, Alaska Department of Fish and Game, Anchorage



2012

Plate 3.—Some positive feedback from participants, 2020 bird harvest survey on the Aleutian-Pribilof Islands and Kodiak Archipelago.

# RESULTS AND DISCUSSION

## UNDERSTANDING VARIATION IN HARVEST ESTIMATES

Besides results for the 2020 harvest survey, in this study we also compiled harvest estimates from previous studies at the community, subregion, and regional levels to put results of this study in perspective and to depict harvest patterns considering variation in harvest estimates.

Harvest composition and amounts may show large annual variation related to socio-economic and ecological factors (Fall et al. 2013; Wolfe et al. 1990). For example, people may have less time to harvest birds in a particular year due to workforce demands or other personal reasons. Access to resources may be affected by variations of migratory routes of animals, or weather conditions that either favor or preclude harvest. Harvest estimates may also be affected by aspects of data collection such as sampling rates (proportion of households sampled) and other contexts that may interfere with participation of households in the survey. Several years of data may be needed to depict the range of annual harvest and to detect temporal trends.

Other factors impart uncertainty to harvest estimates within any given year. Subsistence harvest estimates may involve a relatively high degree of uncertainty (wide confidence intervals) because of characteristics intrinsic to the data. Harvest levels are highly variable among households within a community. High-harvest households take a large proportion of the total harvests and then share their harvests with low-harvest and no-harvest households. In general, about 30% of households account for 70% of the total harvests in a community (Wolfe et al. 2009). Dividing households into categories—i.e., stratification (e.g., households that usually harvest and households that usually do not harvest)—and then sampling within these categories helps reduce uncertainty in harvest estimates (Cochran 1977). However, information is often unavailable to enable categorization of households in advance of data collection.

Finally, precision of harvest estimates for different species varies within a survey. Harvest surveys often include dozens or hundreds of resources. Some species may be harvested regularly and in relatively large numbers. Other species may be harvested only occasionally because they have small populations, restricted distribution, or are not widely used. In a multi-species survey, harvest estimates for resources taken infrequently or in relatively small numbers are often less accurate than estimates for commonly-taken resources (Copp 1985:H-15; Otis et al. 2016). Few data points for rarely-harvested species results in less precise harvest estimates and wider confidence intervals as compared to commonly-harvested species.

Despite annual variation and some uncertainty of harvest estimates, decades of research in subsistence communities across Alaska using harvest surveys have shown consistent geographical and seasonal patterns of resources use that are coherent with local and regional socio-ecological contexts (Fall 2016; Naves 2018; Naves et al. 2019; Wolfe 2004).<sup>10</sup> A more exact picture emerges as multiple years of data become available for communities or regions.

## HARVEST ESTIMATES AT COMMUNITY LEVEL

### Aleutian-Pribilof Islands

Adak—The annual estimated bird harvest (all species combined) by residents of the community of Adak in 2020 was 117 birds (Table 6). A total of 12 bird species or categories were reported as harvested. Some species harvested in larger numbers were teals, bufflehead, common eider, harlequin duck, mergansers, and ptarmigan. There were no reports of egg harvests (Table 7).

Akutan—Seasonal and annual harvest estimates for the 2020 survey in Akutan are presented in tables 8 and 9. Three other previous studies (1990, 1996, 2008) documented bird harvest by residents of the community

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10. ADF&G Community Subsistence Information System (CSIS), <http://www.adfg.alaska.gov/sb/CSIS/>. Hereinafter cited as CSIS.

of Akutan (Fall et al. 1998; 2012; CSIS). Across the four available data years between 1990 and 2020, bird harvest estimates (all species combined) ranged 200–2,433 birds per year, with an average of 1,078 birds per year (Table 10). A total of 26 bird species or categories were reported as harvested. Some species harvested in larger numbers were teal, mallard, scoters, bufflehead, goldeneye, scaup, harlequin duck, and puffin. Egg harvest ranged 296–2,218 eggs per year with an average of 1,102 eggs per year (Table 11). Eggs of six bird species/categories were reported as harvested, and eggs of gulls composed 94% of the total egg harvest.

Saint Paul—The estimated bird harvest (all species combined) by residents of the community of Saint Paul in 2020 was 432 birds per year (Table 12). Some species harvested in larger numbers were teals, king eider, long-tailed duck, and red-legged kittiwake. The estimated egg harvest was 113 eggs, all reported as eggs of murre (Table 13). A study conducted in 1994 documented higher harvest amounts and a larger diversity of species (18 *versus* 8 species/categories) (Mishler et al. 1996; Table 14). Differences between results of the 1994 and 2020 surveys may be related to sampling percentages (72% in 1994), annual variation in harvests, and changes in harvests across decades. In this study, the sample percentage in Saint Paul (25%) was relatively low compared to other similarly-sized communities surveyed in this project (43%–94%; Table 4). This may have been related at least partially to disruptions related to the COVID-19 pandemic in March–June 2021 when preparations for and data collection occurred.

Sand Point—Seasonal and annual harvest estimates for the 2020 survey in Sand Point are presented in tables 15 and 16. Two other previous studies (1992, 2016) documented bird harvest by residents of the community of Sand Point (Fall et al. 1993; CSIS). Across all available data years (1992, 2016, and 2020), annual bird harvest estimates (all species combined) ranged from 251–2,238 birds per year, with an average of 930 birds per year (Table 17). A total of 22 bird species/categories were reported as harvested. Some species harvested in larger numbers were teals, mallard, bufflehead, black brant, cackling/Canada goose, emperor goose, and Wilson’s snipe. Egg harvest ranged 197–2,291 eggs per year with an average of 1,276 eggs per year (Table 18). Eggs of six bird species/categories were reported as harvested, and eggs of large gulls composed 91% of the total egg harvest.

## **Kodiak Archipelago**

Larsen Bay—Seasonal and annual harvest estimates for the 2020 survey in Larsen Bay are presented in tables 19 and 20. Previous studies documented bird harvest by residents of the community of Larsen Bay (Fall 1997; Fall and Utermohle 1999; Fall and Walker 1993; Mishler and Cohen 2022rev.; Schroeder et al. 1987; Sill et al. 2021; CSIS). Across all available data (nine years between 1989 and 2020), annual bird harvest estimates (all species combined) ranged 10–898 birds per year, with an average of 397 birds per year (Table 21). A total of 19 bird species/categories were reported as harvested. Some species harvested in larger numbers were teals, mallard, scoters, bufflehead, goldeneyes, mergansers, and ptarmigan. Egg harvest ranged 9–172 eggs per year with an average of 116 eggs per year and were composed only of gull eggs (Table 22).

Port Lions—Seasonal and annual harvest estimates for the 2020 survey in Port Lions are presented in tables 23 and 24. Previous studies documented bird harvest by residents of the community of Port Lions (Fall 2006; Fall and Walker 1993; Mishler and Cohen 2022rev.; Schroeder et al. 1987; CSIS). Across six years of data between 1989 and 2020, bird harvest estimates (all species combined) ranged 509–1,077 birds per year, with an average of 717 birds per year (Table 25). A total of 18 bird species/categories were reported as harvested. Some species harvested in larger numbers were mallard, scoters, goldeneyes, and ptarmigan. Egg harvest ranged 78–277 eggs per year with an average of 169 eggs per year. Eggs of six species/categories were reported as harvested and eggs of gulls composed 93% of the total egg harvest (Table 26).

Kodiak City, Womens Bay CDP, Mill Bay CDP and Borough Balance—Detailed results the for the 2020 survey in the Kodiak roaded area are presented in tables 27–32. Previous studies documented bird harvest by residents of Kodiak City (1982, 1991, 1992, and 1993) and Mill Bay CDP and Borough Balance (1991)

(CSIS). Few harvest surveys including bird data have been conducted in the Kodiak Island roaded area. Individual surveys covered different geographic areas in different years, and there was substantial variation in annual estimates for individual areas. Also, harvest surveys in the Kodiak Island roaded area have often relied on low sampling rates (often 5%–7%, Table 5) compared to surveys conducted in smaller Alaska communities. Lower sampling rates often involve higher uncertainty in survey results. Nevertheless, the available data help to document harvests and to describe general harvest patterns.

Considering all available data (1982–2020), annual bird harvests by residents of Kodiak City and Mill Bay CDP and Borough Balance—these two areas having generally comparable human population—ranged 1,963–6,282 birds per year (Table 33). The total bird harvest by residents of Womens Bay CDP in 2020 was 2,597 birds. Considering these three areas together, 21 bird species/categories were reported as harvested, and some species harvested in larger numbers were teal, mallard, scoters, bufflehead, goldeneyes, scaup, harlequin duck, and long-tailed duck. From 1982–2020, egg harvests by residents of Kodiak City and Mill Bay CDP and Borough Balance ranged 306–1,362 eggs per year. In 2020, the estimated egg harvest by residents of Womens Bay CDP was 174 eggs (Table 34). Eggs of 11 species and categories of birds were reported as harvested, and eggs of terns and gulls were the kinds harvested in the largest proportions.

Table 5.—Sampling in harvest surveys including bird data, Kodiak Island Roaded area, 1982–2020.

Community	Year	Birds		Eggs		Total house- holds	Surveyed house- holds	Sampling rate	Sampling method
		Reported harvest	Estimated harvest	Reported harvest	Estimated harvest				
Kodiak City*	1982 <sup>a</sup>	236	3,782	85	1,362	2,484	155	6%	SRS
Kodiak City	1991 <sup>a</sup>	213	3,458	-	-	1,877	100	5%	SRS
Kodiak City	1992 <sup>a</sup>	269	4,716	42	736	1,753	100	6%	SRS
Kodiak City	1993 <sup>a</sup>	218	5,052	64	1,215	1,994	105	5%	SRS
Kodiak City	2020 <sup>b</sup>	269	2,067	137	911	1,477	222	15%	SRS
Womens Bay CDP	2020 <sup>b</sup>	523	2,534	36	174	281	58	21%	SRS
Mill Bay CDP and Borough Balance	1991 <sup>a</sup>	163	2,490	20	306	1,161	76	7%	SRS
Mill Bay and Borough Balance	2020 <sup>b</sup>	432	7,095	90	1,478	1,281	78	6%	SRS
Roaded area	2021 <sup>c</sup>	-	2,911	-	276	3,169	269	9%	SRS

Source: (a) CSIS; (b) this study; (c) Keating et al. (*In prep*).

SRS: Simple random sampling

\*: Combined Kodiak City and Womens Bay.

Table 6.–Bird harvest estimates, Adak, 2020.

Species, category	Yearly bird harvest		Spring		Summer		Fall		Winter		
	Reported	Estimated	CIP	Estimated	CIP	Estimated	CIP	Estimated	CIP	Estimated	CIP
<b>Ducks</b>											
American wigeon	3	5	121%	0		0		0		5	121%
Gadwall	0	0		0		0		0		0	
Teal	14	21	69%	0		0		5	88%	17	87%
Mallard	1	2	121%	0		0		0		2	121%
Northern pintail	0	0		0		0		0		0	
Northern shoveler	0	0		0		0		0		0	
Black scoter	0	0		0		0		0		0	
Surf scoter	0	0		0		0		0		0	
White-winged scoter	0	0		0		0		0		0	
Bufflehead	4	6	121%	0		0		0		6	121%
Goldeneye	3	5	88%	0		0		0		5	88%
Canvasback	3	5	121%	0		0		0		5	121%
Scaup	0	0		0		0		0		0	
Common eider	4	6	121%	0		0		0		6	121%
King eider	0	0		0		0		0		0	
Spectacled eider	0	0		0		0		0		0	
Steller's eider	0	0		0		0		0		0	
Harlequin duck	19	29	71%	0		0		8	121%	21	89%
Long-tailed duck	2	3	84%	0		0		0		3	84%
Merganser	10	15	121%	0		0		0		15	121%
Total ducks	63	96	77%	0		0		12	94%	84	87%
<b>Geese</b>											
Black brant	0	0		0		0		0		0	
Cackling/Canada goose	0	0		0		0		0		0	
Greater white-fronted goose	0	0		0		0		0		0	
Emperor goose	2	3	121%	0		0		0		3	121%
Snow goose	0	0		0		0		0		0	
Total geese	2	3	121%	0		0		0		3	121%
<b>Swans</b>	0	0		0		0		0		0	
<b>Seabirds</b>											
Cormorant	0	0		0		0		0		0	
Tern	0	0		0		0		0		0	
Black-legged kittiwake	0	0		0		0		0		0	
Red-legged kittiwake	0	0		0		0		0		0	
Mew gull	0	0		0		0		0		0	
Large gull	0	0		0		0		0		0	
Auklet	0	0		0		0		0		0	
Murre	0	0		0		0		0		0	
Guillemot	0	0		0		0		0		0	
Puffin	0	0		0		0		0		0	
Total seabirds	0	0		0		0		0		0	
<b>Shorebirds</b>											
Black oystercatcher	0	0		0		0		0		0	
Whimbrel	0	0		0		0		0		0	
Godwit	0	0		0		0		0		0	
Semipalmated plover	0	0		0		0		0		0	
Turnstone	0	0		0		0		0		0	
Phalarope	0	0		0		0		0		0	
Small sandpiper	0	0		0		0		0		0	
Wilson's snipe	0	0		0		0		0		0	
Total shorebirds	0	0		0		0		0		0	
<b>Loons and grebes</b>											
Common loon	0	0		0		0		0		0	
Pacific loon	0	0		0		0		0		0	
Red-throated loon	0	0		0		0		0		0	
Yellow-billed loon	0	0		0		0		0		0	
Loon (non-breeding plumage)	0	0		0		0		0		0	
Grebe	0	0		0		0		0		0	
Total loons and grebes	0	0		0		0		0		0	
<b>Total migratory birds</b>	65	99	78%	0		0		12	94%	87	88%
<b>Ptarmigan</b>	12	18	102%	0		0		3	121%	15	121%
<b>Total birds</b>	77	117	81%	0		0		15	85%	102	92%

CIP: Confidence interval as percentage of the estimated harvest.

Table 7.–Egg harvest estimates, Adak, 2020.

Species, category	Yearly egg harvest			Spring			Summer			Fall			Winter		
	Reported	Estimated	CIP	Estimated	CIP	Estimated	CIP	Estimated	CIP	Estimated	CIP	Estimated	CIP		
<b>Ducks</b>															
American wigeon	0	0		0		0		0		0		0		0	
Gadwall	0	0		0		0		0		0		0		0	
Teal	0	0		0		0		0		0		0		0	
Mallard	0	0		0		0		0		0		0		0	
Northern pintail	0	0		0		0		0		0		0		0	
Northern shoveler	0	0		0		0		0		0		0		0	
Black scoter	0	0		0		0		0		0		0		0	
Surf scoter	0	0		0		0		0		0		0		0	
White-winged scoter	0	0		0		0		0		0		0		0	
Bufflehead	0	0		0		0		0		0		0		0	
Goldeneye	0	0		0		0		0		0		0		0	
Scaup	0	0		0		0		0		0		0		0	
Common eider	0	0		0		0		0		0		0		0	
King eider	0	0		0		0		0		0		0		0	
Spectacled eider	0	0		0		0		0		0		0		0	
Steller's eider	0	0		0		0		0		0		0		0	
Harlequin duck	0	0		0		0		0		0		0		0	
Long-tailed duck	0	0		0		0		0		0		0		0	
Merganser	0	0		0		0		0		0		0		0	
Total ducks	0	0		0		0		0		0		0		0	
<b>Geese</b>															
Black brant	0	0		0		0		0		0		0		0	
Cackling/Canada goose	0	0		0		0		0		0		0		0	
Greater white-fronted goose	0	0		0		0		0		0		0		0	
Emperor goose	0	0		0		0		0		0		0		0	
Snow goose	0	0		0		0		0		0		0		0	
Total geese	0	0		0		0		0		0		0		0	
<b>Swans</b>	0	0		0		0		0		0		0		0	
<b>Seabirds</b>															
Cormorant	0	0		0		0		0		0		0		0	
Tern	0	0		0		0		0		0		0		0	
Black-legged kittiwake	0	0		0		0		0		0		0		0	
Red-legged kittiwake	0	0		0		0		0		0		0		0	
Mew gull	0	0		0		0		0		0		0		0	
Large gull	0	0		0		0		0		0		0		0	
Auklet	0	0		0		0		0		0		0		0	
Murre	0	0		0		0		0		0		0		0	
Guillemot	0	0		0		0		0		0		0		0	
Puffin	0	0		0		0		0		0		0		0	
Total seabirds	0	0		0		0		0		0		0		0	
<b>Shorebirds</b>															
Black oystercatcher	0	0		0		0		0		0		0		0	
Whimbrel	0	0		0		0		0		0		0		0	
Godwit	0	0		0		0		0		0		0		0	
Semipalmated plover	0	0		0		0		0		0		0		0	
Turnstone	0	0		0		0		0		0		0		0	
Phalarope	0	0		0		0		0		0		0		0	
Small sandpiper	0	0		0		0		0		0		0		0	
Wilson's snipe	0	0		0		0		0		0		0		0	
Total shorebirds	0	0		0		0		0		0		0		0	
<b>Loons and grebes</b>															
Common loon	0	0		0		0		0		0		0		0	
Pacific loon	0	0		0		0		0		0		0		0	
Red-throated loon	0	0		0		0		0		0		0		0	
Yellow-billed loon	0	0		0		0		0		0		0		0	
Grebe	0	0		0		0		0		0		0		0	
Total loons and grebes	0	0		0		0		0		0		0		0	
<b>Total migratory birds</b>	0	0		0		0		0		0		0		0	
<b>Ptarmigan</b>	0	0		0		0		0		0		0		0	
<b>Total eggs</b>	0	0		0		0		0		0		0		0	

CIP: Confidence interval as percentage of the estimated harvest.

Table 8.–Bird harvest estimates, Akutan, 2020.

Species, category	Yearly bird harvest			Spring		Summer		Fall		Winter	
	Reported	Estimated	CIP								
<b>Ducks</b>											
American wigeon	0	0		0		0		0		0	
Gadwall	0	0		0		0		0		0	
Teal	25	31	62%	7	89%	0		5	89%	18	73%
Mallard	0	0		0		0		0		0	
Northern pintail	0	0		0		0		0		0	
Northern shoveler	0	0		0		0		0		0	
Black scoter	12	15	65%	10	89%	0		0		5	89%
Surf scoter	6	7	89%	0		0		0		7	89%
White-winged scoter	0	0		0		0		0		0	
Bufflehead	0	0		0		0		0		0	
Goldeneye	10	12	89%	0		0		0		12	89%
Scaup	0	0		0		0		0		0	
Common eider	0	0		0		0		0		0	
King eider	0	0		0		0		0		0	
Spectacled eider	0	0		0		0		0		0	
Steller's eider	0	0		0		0		0		0	
Harlequin duck	69	85	67%	37	89%	0		15	89%	33	56%
Long-tailed duck	0	0		0		0		0		0	
Merganser	0	0		0		0		0		0	
Total ducks	122	150	58%	54	89%	0		20	89%	76	57%
<b>Geese</b>											
Black brant	0	0		0		0		0		0	
Cackling/Canada goose	0	0		0		0		0		0	
Greater white-fronted goose	0	0		0		0		0		0	
Emperor goose	9	11	62%	0		0		0		11	62%
Snow goose	0	0		0		0		0		0	
Total geese	9	11	62%	0		0		0		11	62%
<b>Swans</b>	0	0		0		0		0		0	
<b>Seabirds</b>											
Cormorant	0	0		0		0		0		0	
Tern	0	0		0		0		0		0	
Black-legged kittiwake	0	0		0		0		0		0	
Red-legged kittiwake	0	0		0		0		0		0	
Mew gull	0	0		0		0		0		0	
Large gull	0	0		0		0		0		0	
Auklet	0	0		0		0		0		0	
Murre	0	0		0		0		0		0	
Guillemot	0	0		0		0		0		0	
Puffin	32	39	84%	17	89%	2	89%	20	89%	0	
Total seabirds	32	39	84%	17	89%	2	89%	20	89%	0	
<b>Shorebirds</b>											
Black oystercatcher	0	0		0		0		0		0	
Whimbrel	0	0		0		0		0		0	
Godwit	0	0		0		0		0		0	
Semipalmated plover	0	0		0		0		0		0	
Turnstone	0	0		0		0		0		0	
Phalarope	0	0		0		0		0		0	
Small sandpiper	0	0		0		0		0		0	
Wilson's snipe	0	0		0		0		0		0	
Total shorebirds	0	0		0		0		0		0	
<b>Loons and grebes</b>											
Common loon	0	0		0		0		0		0	
Pacific loon	0	0		0		0		0		0	
Red-throated loon	0	0		0		0		0		0	
Yellow-billed loon	0	0		0		0		0		0	
Loon (non-breeding plumage)	0	0		0		0		0		0	
Grebe	0	0		0		0		0		0	
Total loons and grebes	0	0		0		0		0		0	
<b>Total migratory birds</b>	163	200	59%	71	89%	2	89%	39	89%	87	57%
<b>Ptarmigan</b>	10	12	89%	0		0		12	89%	0	
<b>Total birds</b>	173	212	58%	71	89%	2	89%	52	70%	87	57%

CIP: Confidence interval as percentage of the estimated harvest.

Table 9.–Egg harvest estimates, Akutan, 2020.

Species, category	Yearly egg harvest			Spring		Summer		Fall		Winter	
	Reported	Estimated	CIP								
<b>Ducks</b>											
American wigeon	0	0		0		0		0		0	
Gadwall	0	0		0		0		0		0	
Teal	0	0		0		0		0		0	
Mallard	0	0		0		0		0		0	
Northern pintail	0	0		0		0		0		0	
Northern shoveler	0	0		0		0		0		0	
Black scoter	0	0		0		0		0		0	
Surf scoter	0	0		0		0		0		0	
White-winged scoter	0	0		0		0		0		0	
Bufflehead	0	0		0		0		0		0	
Goldeneye	0	0		0		0		0		0	
Scaup	0	0		0		0		0		0	
Common eider	0	0		0		0		0		0	
King eider	0	0		0		0		0		0	
Spectacled eider	0	0		0		0		0		0	
Steller's eider	0	0		0		0		0		0	
Harlequin duck	0	0		0		0		0		0	
Long-tailed duck	0	0		0		0		0		0	
Merganser	0	0		0		0		0		0	
Total ducks	0	0		0		0		0		0	
<b>Geese</b>											
Black brant	0	0		0		0		0		0	
Cackling/Canada goose	0	0		0		0		0		0	
Greater white-fronted goose	0	0		0		0		0		0	
Emperor goose	0	0		0		0		0		0	
Snow goose	0	0		0		0		0		0	
Total geese	0	0		0		0		0		0	
<b>Swans</b>	0	0		0		0		0		0	
<b>Seabirds</b>											
Cormorant	0	0		0		0		0		0	
Tern	0	0		0		0		0		0	
Black-legged kittiwake	0	0		0		0		0		0	
Red-legged kittiwake	0	0		0		0		0		0	
Mew gull	0	0		0		0		0		0	
Large gull	175	215	45%	215	45%	0		0		0	
Auklet	0	0		0		0		0		0	
Murre	0	0		0		0		0		0	
Guillemot	0	0		0		0		0		0	
Puffin	24	29	89%	15	89%	15	89%	0		0	
Total seabirds	199	244	40%	230	42%	15	89%	0		0	
<b>Shorebirds</b>											
Black oystercatcher	42	52	77%	37	72%	15	89%	0		0	
Whimbrel	0	0		0		0		0		0	
Godwit	0	0		0		0		0		0	
Semipalmated plover	0	0		0		0		0		0	
Turnstone	0	0		0		0		0		0	
Phalarope	0	0		0		0		0		0	
Small sandpiper	0	0		0		0		0		0	
Wilson's snipe	0	0		0		0		0		0	
Total shorebirds	42	52	77%	37	72%	15	89%	0		0	
<b>Loons and grebes</b>											
Common loon	0	0		0		0		0		0	
Pacific loon	0	0		0		0		0		0	
Red-throated loon	0	0		0		0		0		0	
Yellow-billed loon	0	0		0		0		0		0	
Grebe	0	0		0		0		0		0	
Total loons and grebes	0	0		0		0		0		0	
<b>Total migratory birds</b>	241	296	39%	266	39%	29	89%	0		0	
<b>Ptarmigan</b>	0	0		0		0		0		0	
<b>Total eggs</b>	241	296	39%	266	39%	29	89%	0		0	

CIP: Confidence interval as percentage of the estimated harvest.

Table 10.—Annual bird harvest estimates, Akutan, 1990–2020.

Species, category	1990		1996		2008		2020		1990–2020 Average	
	CSIS	Fall et al. (1998)	Fall et al. (1998)	Fall et al. (2012)	Fall et al. (2012)	Fall et al. (2012)	this study	this study		
<b>Ducks</b>										
American wigeon	9	0	0	0	0	0	0	2	0%	
Gadwall	7	2	0	0	0	0	0	2	0%	
Teal	254	114	114	114	31	128	11%			
Mallard	143	57	10	0	53	5%				
Northern pintail	99	7	0	0	27	2%				
Northern shoveler	-	-	0	0	0	0%				
Black scoter	-	80	-	15	47	4%				
Surf scoter	-	0	0	7	2	0%				
White-winged scoter	-	149	100	0	83	7%				
Scoter (unidentified)	226	-	-	-	-	-				
Bufflehead	155	56	24	0	59	5%				
Goldeneye	157	55	1	12	56	5%				
Scaup	126	47	9	0	46	4%				
Canvasback	2	-	0	-	1	0%				
Common eider	-	2	0	0	1	0%				
King eider	-	0	0	0	0	0%				
Spectacled eider	-	0	0	0	0	0%				
Steller's eider	-	2	4	0	2	0%				
Eider (unidentified)	236	-	-	-	-	-				
Harlequin duck	288	143	147	85	166	15%				
Long-tailed duck	58	30	-	0	29	3%				
Merganser	66	23	8	0	24	2%				
Duck (unidentified)	0	0	0	0	0	0%				
Total ducks	1,827	767	494	150	809	71%				
<b>Geese</b>										
Black brant	10	6	0	0	5	0%				
Cackling/Canada goose	51	2	0	0	13	1%				
Greater white-fronted goose	-	-	0	0	0	0%				
Emperor goose	160	125	20	11	79	7%				
Snow goose	-	0	0	0	0	0%				
Total geese	221	133	20	11	96	8%				
Swans	0	0	0	0	0	0%				
<b>Seabirds</b>										
Cormorant	9	0	0	0	2	0%				
Tern	-	-	0	0	0	0%				
Black-legged kittiwake	-	-	-	0	0	0%				
Red-legged kittiwake	-	-	-	0	0	0%				
Mew gull	-	-	-	0	0	0%				
Large gull	-	-	0	0	0	0%				
Auklet	99	29	0	0	32	3%				
Murre	45	5	0	0	13	1%				
Guillemot	-	-	0	0	0	0%				
Puffin	222	77	119	39	114	10%				
Fulmar	-	-	0	-	0	0%				
Murrelet	-	-	0	-	0	0%				
Shearwater	-	-	0	-	0	0%				
Total seabirds	375	111	119	39	161	14%				
<b>Shorebirds</b>										
Black oystercatcher	-	0	33	0	11	1%				
Whimbrel	-	-	-	0	0	0%				
Godwit	-	-	-	0	0	0%				
Semipalmated plover	-	-	0	0	0	0%				
Turnstone	-	-	-	0	0	0%				
Phalarope	-	-	-	0	0	0%				
Small sandpiper	-	-	0	0	0	0%				
Wilson's snipe	0	0	0	0	0	0%				
Total shorebirds	0	0	33	0	8	1%				
<b>Loons and grebes</b>										
Common loon	-	0	-	0	0	0%				
Pacific loon	-	0	-	0	0	0%				
Red-throated loon	-	0	-	0	0	0%				
Yellow-billed loon	-	0	-	0	0	0%				
Loon (non-breeding plumage)	-	-	-	0	0	0%				
Grebe	-	0	-	0	0	0%				
Total loons and grebes	11	0	-	0	4	0%				
Bird (unidentified)	0	0	2	0	1	0%				
<b>Total migratory birds</b>	<b>2,433</b>	<b>1,009</b>	<b>669</b>	<b>200</b>	<b>1,078</b>	<b>94%</b>				
<b>Ptarmigan</b>	<b>190</b>	<b>23</b>	<b>26</b>	<b>12</b>	<b>63</b>	<b>6%</b>				
<b>Total birds</b>	<b>2,623</b>	<b>1,032</b>	<b>695</b>	<b>212</b>	<b>1,141</b>	<b>100%</b>				

—: Not specifically named in harvest survey instrument.

Table 11.—Annual egg harvest estimates, Akutan, 1990–2020.

Species, category	1990	1996	2008	2020	1990–2020 Average	
Egg harvest	CSIS	Fall et al. (1998)	Fall et al. (2012)	this study		
<b>Ducks</b>						
American wigeon	-	-	-	0	0	0%
Gadwall	-	-	-	0	0	0%
Teal	-	0	0	0	0	0%
Mallard	-	-	0	0	0	0%
Northern pintail	-	-	-	0	0	0%
Northern shoveler	-	-	-	0	0	0%
Black scoter	-	-	-	0	0	0%
Surf scoter	-	-	-	0	0	0%
White-winged scoter	-	-	-	0	0	0%
Bufflehead	-	-	-	0	0	0%
Goldeneye	-	-	-	0	0	0%
Scaup	-	-	-	0	0	0%
Common eider	-	0	-	0	0	0%
King eider	-	-	-	0	0	0%
Spectacled eider	-	-	-	0	0	0%
Steller's eider	-	-	-	0	0	0%
Harlequin duck	-	-	-	0	0	0%
Long-tailed duck	-	-	-	0	0	0%
Merganser	-	-	-	0	0	0%
Total ducks	45	0	0	0	11	1%
<b>Geese</b>						
Black brant	-	0	0	0	0	0%
Cackling/Canada goose	-	-	-	0	0	0%
Greater white-fronted goose	-	-	-	0	0	0%
Emperor goose	-	-	-	0	0	0%
Snow goose	-	-	-	0	0	0%
Total geese	-	0	-	0	0	0%
<b>Swans</b>						
-	-	-	-	0	0	0%
<b>Seabirds</b>						
Cormorant	-	0	0	0	0	0%
Tern	0	0	0	0	0	0%
Black-legged kittiwake	-	0	-	0	0	0%
Red-legged kittiwake	-	0	-	0	0	0%
Mew gull	-	-	-	0	0	0%
Large gull	-	-	-	215	-	-
Gull (unidentified)	2,096	758	1,093	-	1,040	94%
Auklet	-	-	-	0	0	0%
Murre	0	0	0	0	0	0%
Guillemot	-	-	-	0	0	0%
Puffin	0	0	0	29	7	1%
Fulmar	-	0	-	-	0	0%
Guillemot	-	0	-	-	0	0%
Murrelet	-	14	-	-	14	1%
Total seabirds	2,096	772	1,093	244	1,051	95%
<b>Shorebirds</b>						
Black oystercatcher	-	11	9	52	24	2%
Whimbrel	-	-	-	0	0	0%
Godwit	-	-	-	0	0	0%
Semipalmated plover	-	-	-	0	0	0%
Turnstone	-	-	-	0	0	0%
Phalarope	-	-	-	0	0	0%
Small sandpiper	-	-	-	0	0	0%
Wilson's snipe	77	9	-	0	29	3%
Total shorebirds	77	21	9	52	40	4%
<b>Loons and grebes</b>						
Common loon	-	-	-	0	0	0%
Pacific loon	-	-	-	0	0	0%
Red-throated loon	-	-	-	0	0	0%
Yellow-billed loon	-	-	-	0	0	0%
Grebe	-	-	-	0	0	0%
Total loons and grebes	-	-	-	0	0	0%
<b>Total migratory birds</b>	<b>2,218</b>	<b>793</b>	<b>1,102</b>	<b>296</b>	<b>1,102</b>	<b>100%</b>
<b>Ptarmigan</b>	-	-	-	0	0	0%
<b>Total eggs</b>	<b>2,217</b>	<b>792</b>	<b>1,102</b>	<b>296</b>	<b>1,102</b>	<b>100%</b>

:- Not specifically named in harvest survey instrument.

Table 12.—Bird harvest estimates, Saint Paul, 2020.

Species, category	Yearly bird harvest			Spring		Summer		Fall		Winter	
	Reported	Estimated	CIP	Estimated	CIP	Estimated	CIP	Estimated	CIP	Estimated	CIP
<b>Ducks</b>											
American wigeon	0	0		0		0		0		0	
Gadwall	0	0		0		0		0		0	
Teal	8	32	178%	0		32	178%	0		0	
Mallard	2	8	178%	8	178%	0		0		0	
Northern pintail	0	0		0		0		0		0	
Northern shoveler	0	0		0		0		0		0	
Black scoter	0	0		0		0		0		0	
Surf scoter	0	0		0		0		0		0	
White-winged scoter	0	0		0		0		0		0	
Bufflehead	0	0		0		0		0		0	
Goldeneye	0	0		0		0		0		0	
Scaup	0	0		0		0		0		0	
Common eider	0	0		0		0		0		0	
King eider	15	61	131%	0		0		0		61	131%
Spectacled eider	0	0		0		0		0		0	
Steller's eider	0	0		0		0		0		0	
Harlequin duck	0	0		0		0		0		0	
Long-tailed duck	4	16	178%	16	178%	0		0		0	
Merganser	0	0		0		0		0		0	
<b>Total ducks</b>	<b>29</b>	<b>117</b>	<b>87%</b>	<b>24</b>	<b>178%</b>	<b>32</b>	<b>178%</b>	<b>0</b>		<b>61</b>	<b>131%</b>
<b>Geese</b>											
Black brant	0	0		0		0		0		0	
Cackling/Canada goose	2	8	178%	8	178%	0		0		0	
Greater white-fronted goose	0	0		0		0		0		0	
Emperor goose	0	0		0		0		0		0	
Snow goose	0	0		0		0		0		0	
<b>Total geese</b>	<b>2</b>	<b>8</b>	<b>178%</b>	<b>8</b>	<b>178%</b>	<b>0</b>		<b>0</b>		<b>0</b>	
<b>Swans</b>											
	0	0		0		0		0		0	
<b>Seabirds</b>											
Cormorant	0	0		0		0		0		0	
Tern	0	0		0		0		0		0	
Black-legged kittiwake	3	12	178%	12	178%	0		0		0	
Red-legged kittiwake	73	295	108%	81	178%	161	128%	52	178%	0	
Mew gull	0	0		0		0		0		0	
Large gull	0	0		0		0		0		0	
Auklet	0	0		0		0		0		0	
Murre	0	0		0		0		0		0	
Guillemot	0	0		0		0		0		0	
Puffin	0	0		0		0		0		0	
<b>Total seabirds</b>	<b>76</b>	<b>307</b>	<b>106%</b>	<b>93</b>	<b>178%</b>	<b>161</b>	<b>128%</b>	<b>52</b>	<b>178%</b>	<b>0</b>	
<b>Shorebirds</b>											
Black oystercatcher	0	0		0		0		0		0	
Whimbrel	0	0		0		0		0		0	
Godwit	0	0		0		0		0		0	
Semipalmated plover	0	0		0		0		0		0	
Turnstone	0	0		0		0		0		0	
Phalarope	0	0		0		0		0		0	
Small sandpiper	0	0		0		0		0		0	
Wilson's snipe	0	0		0		0		0		0	
<b>Total shorebirds</b>	<b>0</b>	<b>0</b>		<b>0</b>		<b>0</b>		<b>0</b>		<b>0</b>	
<b>Loons and grebes</b>											
Common loon	0	0		0		0		0		0	
Pacific loon	0	0		0		0		0		0	
Red-throated loon	0	0		0		0		0		0	
Yellow-billed loon	0	0		0		0		0		0	
Loon (non-breeding plumage)	0	0		0		0		0		0	
Grebe	0	0		0		0		0		0	
<b>Total loons and grebes</b>	<b>0</b>	<b>0</b>		<b>0</b>		<b>0</b>		<b>0</b>		<b>0</b>	
<b>Total migratory birds</b>	<b>107</b>	<b>432</b>	<b>89%</b>	<b>125</b>	<b>166%</b>	<b>194</b>	<b>109%</b>	<b>52</b>	<b>178%</b>	<b>61</b>	<b>131%</b>
<b>Ptarmigan</b>	<b>0</b>	<b>0</b>		<b>0</b>		<b>0</b>		<b>0</b>		<b>0</b>	
<b>Total birds</b>	<b>107</b>	<b>432</b>	<b>89%</b>	<b>125</b>	<b>166%</b>	<b>194</b>	<b>109%</b>	<b>52</b>	<b>178%</b>	<b>61</b>	<b>131%</b>

CIP: Confidence interval as percentage of the estimated harvest.

Table 13.—Egg harvest estimates, Saint Paul, 2020.

Species, category	Yearly egg harvest			Spring		Summer		Fall		Winter	
	Reported	Estimated	CIP	Estimated	CIP	Estimated	CIP	Estimated	CIP	Estimated	CIP
<b>Ducks</b>											
American wigeon	0	0		0		0		0		0	
Gadwall	0	0		0		0		0		0	
Teal	0	0		0		0		0		0	
Mallard	0	0		0		0		0		0	
Northern pintail	0	0		0		0		0		0	
Northern shoveler	0	0		0		0		0		0	
Black scoter	0	0		0		0		0		0	
Surf scoter	0	0		0		0		0		0	
White-winged scoter	0	0		0		0		0		0	
Bufflehead	0	0		0		0		0		0	
Goldeneye	0	0		0		0		0		0	
Scaup	0	0		0		0		0		0	
Common eider	0	0		0		0		0		0	
King eider	0	0		0		0		0		0	
Spectacled eider	0	0		0		0		0		0	
Steller's eider	0	0		0		0		0		0	
Harlequin duck	0	0		0		0		0		0	
Long-tailed duck	0	0		0		0		0		0	
Merganser	0	0		0		0		0		0	
Total ducks	0	0		0		0		0		0	
<b>Geese</b>											
Black brant	0	0		0		0		0		0	
Cackling/Canada goose	0	0		0		0		0		0	
Greater white-fronted goose	0	0		0		0		0		0	
Emperor goose	0	0		0		0		0		0	
Snow goose	0	0		0		0		0		0	
Total geese	0	0		0		0		0		0	
<b>Swans</b>	0	0		0		0		0		0	
<b>Seabirds</b>											
Cormorant	0	0		0		0		0		0	
Tern	0	0		0		0		0		0	
Black-legged kittiwake	0	0		0		0		0		0	
Red-legged kittiwake	0	0		0		0		0		0	
Mew gull	0	0		0		0		0		0	
Large gull	0	0		0		0		0		0	
Auklet	0	0		0		0		0		0	
Murre	28	113	154%	113	154%	0		0		0	
Guillemot	0	0		0		0		0		0	
Puffin	0	0		0		0		0		0	
Total seabirds	28	113	154%	113	154%	0		0		0	
<b>Shorebirds</b>											
Black oystercatcher	0	0		0		0		0		0	
Whimbrel	0	0		0		0		0		0	
Godwit	0	0		0		0		0		0	
Semipalmated plover	0	0		0		0		0		0	
Turnstone	0	0		0		0		0		0	
Phalarope	0	0		0		0		0		0	
Small sandpiper	0	0		0		0		0		0	
Wilson's snipe	0	0		0		0		0		0	
Total shorebirds	0	0		0		0		0		0	
<b>Loons and grebes</b>											
Common loon	0	0		0		0		0		0	
Pacific loon	0	0		0		0		0		0	
Red-throated loon	0	0		0		0		0		0	
Yellow-billed loon	0	0		0		0		0		0	
Grebe	0	0		0		0		0		0	
Total loons and grebes	0	0		0		0		0		0	
<b>Total migratory birds</b>	28	113	154%	113	154%	0		0		0	
<b>Ptarmigan</b>	0	0		0		0		0		0	
<b>Total eggs</b>	28	113	154%	113	154%	0		0		0	

CIP: Confidence interval as percentage of the estimated harvest.

Table 14.—Annual bird and egg harvest estimates, Saint Paul, 1994 and 2020.

Species, category	Bird 1994		Bird 2020	
	Mishler et al. (1996)	This study	Mishler et al. (1996)	This study
<b>Ducks</b>				
American wigeon	-	0	-	0
Gadwall	-	0	-	0
Teal	-	32	-	0
Mallard	0	8	-	0
Northern pintail	26	0	-	0
Northern shoveler	-	0	-	0
Black scoter	-	0	-	0
Surf scoter	40	0	-	0
White-winged scoter	8	0	-	0
Bufflehead	-	0	-	0
Goldeneye	-	0	-	0
Scaup	-	0	-	0
Common eider	6	0	-	0
King eider	318	61	-	0
Spectacled eider	-	0	-	0
Steller's eider	11	0	-	0
Harlequin duck	21	0	-	0
Long-tailed duck	40	16	-	0
Merganser	-	0	-	0
Total ducks	469	117	-	0
<b>Geese</b>				
Black brant	15	0	-	0
Cackling/Canada goose	-	8	-	0
Greater white-fronted goose	-	0	-	0
Emperor goose	8	0	-	0
Snow goose	-	0	-	0
Geese (unidentified)	4	0	-	0
Total geese	26	8	-	0
<b>Swans</b>				
	-	0	-	0
<b>Seabirds</b>				
Cormorant	38	0	-	0
Tem	-	0	-	0
Black-legged kittiwake	346	12	-	0
Red-legged kittiwake	463	295	-	0
Mew gull	-	0	-	0
Large gull	-	0	-	0
Auklet	81	0	19	0
Murre	361	0	572	113
Guillemot	-	0	-	0
Puffin	8	0	-	0
Total seabirds	1,297	307	591	113
<b>Shorebirds</b>				
Black oystercatcher	-	0	-	0
Whimbrel	-	0	-	0
Godwit	-	0	-	0
Semipalmated plover	-	0	-	0
Turnstone	-	0	-	0
Phalarope	-	0	-	0
Small sandpiper	-	0	-	0
Wilson's snipe	-	0	-	0
Golden plover	6	-	-	0
Total shorebirds	6	0	-	0
<b>Loons and grebes</b>				
Common loon	-	0	-	0
Pacific loon	-	0	-	0
Red-throated loon	-	0	-	0
Yellow-billed loon	-	0	-	0
Loon (non-breeding plumage)	-	0	-	0
Grebe	-	0	-	0
Total loons and grebes	-	0	-	0
<b>Total migratory birds</b>	<b>1,796</b>	<b>432</b>	<b>591</b>	<b>113</b>
<b>Ptarmigan</b>	<b>15</b>	<b>0</b>	<b>-</b>	<b>0</b>
<b>Total</b>	<b>1,811</b>	<b>432</b>	<b>591</b>	<b>113</b>

:- Not specifically named in harvest survey instrument.

Table 15.—Bird harvest estimates, Sand Point, 2020.

Species, category	Yearly bird harvest			Spring		Summer		Fall		Winter	
	Reported	Estimated	CIP								
<b>Ducks</b>											
American wigeon	2	5	150%	5	150%	0		0		0	
Gadwall	0	0		0		0		0		0	
Teal	23	54	132%	7	150%	0		0		47	150%
Mallard	34	79	77%	16	115%	0		14	112%	49	109%
Northern pintail	0	0		0		0		0		0	
Northern shoveler	0	0		0		0		0		0	
Black scoter	0	0		0		0		0		0	
Surf scoter	0	0		0		0		0		0	
White-winged scoter	0	0		0		0		0		0	
Bufflehead	0	0		0		0		0		0	
Goldeneye	0	0		0		0		0		0	
Scaup	0	0		0		0		0		0	
Common eider	2	5	150%	0		0		5	150%	0	
King eider	1	2	150%	2	150%	0		0		0	
Spectacled eider	1	2	150%	0		0		2	150%	0	
Steller's eider	0	0		0		0		0		0	
Harlequin duck	0	0		0		0		0		0	
Long-tailed duck	0	0		0		0		0		0	
Merganser	0	0		0		0		0		0	
Total ducks	63	147	90%	30	129%	0		21	121%	96	129%
<b>Geese</b>											
Black brant	28	65	96%	21	150%	5	150%	0		40	134%
Cackling/Canada goose	0	0		0		0		0		0	
Greater white-fronted goose	0	0		0		0		0		0	
Emperor goose	37	86	123%	9	118%	0		2	150%	75	141%
Snow goose	0	0		0		0		0		0	
Total geese	65	152	108%	30	139%	5	150%	2	150%	115	138%
Swans	0	0		0		0		0		0	
<b>Seabirds</b>											
Cormorant	0	0		0		0		0		0	
Tern	0	0		0		0		0		0	
Black-legged kittiwake	0	0		0		0		0		0	
Red-legged kittiwake	0	0		0		0		0		0	
Mew gull	0	0		0		0		0		0	
Large gull	0	0		0		0		0		0	
Auklet	0	0		0		0		0		0	
Murre	0	0		0		0		0		0	
Guillemot	0	0		0		0		0		0	
Puffin	1	2	150%	2	150%	0		0		0	
Total seabirds	1	2	150%	2	150%	0		0		0	
<b>Shorebirds</b>											
Black oystercatcher	0	0		0		0		0		0	
Whimbrel	0	0		0		0		0		0	
Godwit	0	0		0		0		0		0	
Semipalmated plover	0	0		0		0		0		0	
Turnstone	0	0		0		0		0		0	
Phalarope	0	0		0		0		0		0	
Small sandpiper	0	0		0		0		0		0	
Wilson's snipe	0	0		0		0		0		0	
Total shorebirds	0	0		0		0		0		0	
<b>Loons and grebes</b>											
Common loon	0	0		0		0		0		0	
Pacific loon	0	0		0		0		0		0	
Red-throated loon	0	0		0		0		0		0	
Yellow-billed loon	0	0		0		0		0		0	
Loon (non-breeding plumage)	0	0		0		0		0		0	
Grebe	0	0		0		0		0		0	
Total loons and grebes	0	0		0		0		0		0	
<b>Total migratory birds</b>	129	302	98%	63	135%	5	150%	23	114%	210	134%
<b>Ptarmigan</b>	41	96	72%	35	117%	0		28	93%	33	130%
<b>Total birds</b>	170	397	88%	98	126%	5	150%	51	80%	243	133%

CIP: Confidence interval as percentage of the estimated harvest.

Table 16.—Egg harvest estimates, Sand Point, 2020.

Species, category	Yearly egg harvest			Spring		Summer		Fall		Winter	
	Reported	Estimated	CIP	Estimated	CIP	Estimated	CIP	Estimated	CIP	Estimated	CIP
<b>Ducks</b>											
American wigeon	0	0		0		0		0		0	
Gadwall	0	0		0		0		0		0	
Teal	0	0		0		0		0		0	
Mallard	0	0		0		0		0		0	
Northern pintail	0	0		0		0		0		0	
Northern shoveler	0	0		0		0		0		0	
Black scoter	0	0		0		0		0		0	
Surf scoter	0	0		0		0		0		0	
White-winged scoter	0	0		0		0		0		0	
Bufflehead	0	0		0		0		0		0	
Goldeneye	0	0		0		0		0		0	
Scaup	0	0		0		0		0		0	
Common eider	0	0		0		0		0		0	
King eider	0	0		0		0		0		0	
Spectacled eider	0	0		0		0		0		0	
Steller's eider	0	0		0		0		0		0	
Harlequin duck	0	0		0		0		0		0	
Long-tailed duck	0	0		0		0		0		0	
Merganser	0	0		0		0		0		0	
Total ducks	0	0		0		0		0		0	
<b>Geese</b>											
Black brant	0	0		0		0		0		0	
Cackling/Canada goose	0	0		0		0		0		0	
Greater white-fronted goose	0	0		0		0		0		0	
Emperor goose	0	0		0		0		0		0	
Snow goose	0	0		0		0		0		0	
Total geese	0	0		0		0		0		0	
<b>Swans</b>	0	0		0		0		0		0	
<b>Seabirds</b>											
Cormorant	0	0		0		0		0		0	
Tern	0	0		0		0		0		0	
Black-legged kittiwake	12	28	150%	28	150%	0		0		0	
Red-legged kittiwake	0	0		0		0		0		0	
Mew gull	0	0		0		0		0		0	
Large gull	70	164	111%	164	111%	0		0		0	
Auklet	0	0		0		0		0		0	
Murre	0	0		0		0		0		0	
Guillemot	0	0		0		0		0		0	
Puffin	0	0		0		0		0		0	
Total seabirds	82	192	97%	192	97%	0		0		0	
<b>Shorebirds</b>											
Black oystercatcher	0	0		0		0		0		0	
Whimbrel	0	0		0		0		0		0	
Godwit	0	0		0		0		0		0	
Semipalmated plover	0	0		0		0		0		0	
Turnstone	0	0		0		0		0		0	
Phalarope	0	0		0		0		0		0	
Small sandpiper	0	0		0		0		0		0	
Wilson's snipe	0	0		0		0		0		0	
Total shorebirds	0	0		0		0		0		0	
<b>Loons and grebes</b>											
Common loon	0	0		0		0		0		0	
Pacific loon	0	0		0		0		0		0	
Red-throated loon	0	0		0		0		0		0	
Yellow-billed loon	0	0		0		0		0		0	
Grebe	0	0		0		0		0		0	
Total loons and grebes	0	0		0		0		0		0	
<b>Total migratory birds</b>	82	192	97%	192	97%	0		0		0	
<b>Ptarmigan</b>	0	0		0		0		0		0	
<b>Total eggs</b>	82	192	97%	192	97%	0		0		0	

CIP: Confidence interval as percentage of the estimated harvest.

Table 17.—Annual bird harvest estimates, Sand Point, 1992, 2016, and 2020.

Species, category	1992	2016	2020	1992–2020 Average	
	Fall et al. (1993)	CSIS	This study		
<b>Ducks</b>					
American wigeon	-	0	5	3	0.2%
Gadwall	0	-	0	0	0.0%
Teal	437	70	54	187	11.7%
Mallard	345	61	79	162	10.1%
Northern pintail	37	8	0	15	0.9%
Northern shoveler	-	-	0	0	0.0%
Black scoter	-	0	0	0	0.0%
Surf scoter	-	0	0	0	0.0%
White-winged scoter	-	9	0	5	0.3%
Scoter (unidentified)	-	-	-	-	-
Bufflehead	133	61	0	65	4.1%
Goldeneye	67	0	0	22	1.4%
Canvasback	31	-	-	31	1.9%
Scaup	0	2	0	1	0.0%
Common eider	-	0	5	2	0.2%
King eider	-	0	2	1	0.1%
Spectacled eider	-	-	2	2	0.2%
Steller's eider	-	0	0	0	0.0%
Eider (unidentified)	39	-	-	39	2.4%
Harlequin duck	65	4	0	23	1.4%
Long-tailed duck	41	-	0	21	1.3%
Merganser	51	0	0	17	1.1%
Duck (unidentified)	18	0	0	6	0.4%
Total ducks	1,265	215	147	542	34.0%
<b>Geese</b>					
Black brant	214	8	65	96	6.0%
Cackling/Canada goose	255	0	0	85	5.3%
Greater white-fronted goose	-	-	0	0	0.0%
Emperor goose	210	26	86	107	6.7%
Snow goose	0	0	0	0	0.0%
Total geese	679	34	152	288	18.1%
<b>Swans</b>	-	0	0	0	0.0%
<b>Sandhill crane</b>	-	2	-	2	0.1%
<b>Seabirds</b>					
Cormorant	-	0	0	0	0.0%
Tern	-	-	0	0	0.0%
Black-legged kittiwake	-	0	0	0	0.0%
Red-legged kittiwake	-	-	0	0	0.0%
Mew gull	-	-	0	0	0.0%
Large gull	-	-	0	0	0.0%
Gull (unidentified)	0	0	-	0	0.0%
Auklet	-	0	0	0	0.0%
Murre	-	0	0	0	0.0%
Guillemot	-	-	0	0	0.0%
Puffin	0	0	2	1	0.1%
Total seabirds	0	0	2	1	0.1%
<b>Shorebirds</b>					
Black oystercatcher	-	0	0	0	0.0%
Whimbrel	-	-	0	0	0.0%
Godwit	-	-	0	0	0.0%
Semipalmated plover	-	-	0	0	0.0%
Turnstone	-	-	0	0	0.0%
Phalarope	-	-	0	0	0.0%
Small sandpiper	-	-	0	0	0.0%
Wilson's snipe	294	-	0	147	9.2%
Total shorebirds	294	0	0	98	6.1%
<b>Loons and grebes</b>					
Common loon	-	-	0	0	0.0%
Pacific loon	-	-	0	0	0.0%
Red-throated loon	-	-	0	0	0.0%
Yellow-billed loon	-	-	0	0	0.0%
Loon (non-breeding plumage)	-	-	0	0	0.0%
Grebe	-	-	0	0	0.0%
Total loons and grebes	-	0	0	0	0.0%
<b>Total migratory birds</b>	2,238	251	302	930	58.3%
<b>Ptarmigan</b>	1,771	129	96	665	41.7%
<b>Total birds</b>	4,009	380	397	1,595	100.0%

:- Not specifically named in the harvest survey instrument.

Table 18.—Annual egg harvest estimates, Sand Point, 1992, 2016, and 2020.

Species, category	1992	2016	2020	1992–2020 Average	
	Fall et al. (1993)	CSIS	This study		
<b>Ducks</b>					
American wigeon	-	-	0	0	0.0%
Gadwall	-	-	0	0	0.0%
Teal	-	-	0	0	0.0%
Mallard	-	-	0	0	0.0%
Northern pintail	-	-	0	0	0.0%
Northern shoveler	-	-	0	0	0.0%
Black scoter	-	-	0	0	0.0%
Surf scoter	-	-	0	0	0.0%
White-winged scoter	-	-	0	0	0.0%
Bufflehead	-	-	0	0	0.0%
Goldeneye	-	-	0	0	0.0%
Scaup	-	-	0	0	0.0%
Common eider	-	-	0	0	0.0%
King eider	-	-	0	0	0.0%
Spectacled eider	-	-	0	0	0.0%
Steller's eider	-	-	0	0	0.0%
Harlequin duck	-	-	0	0	0.0%
Long-tailed duck	-	-	0	0	0.0%
Merganser	-	-	0	0	0.0%
Total ducks	12	0	0	4	0.3%
<b>Geese</b>					
Black brant	-	-	0	0	0.0%
Cackling/Canada goose	-	-	0	0	0.0%
Greater white-fronted goose	-	-	0	0	0.0%
Emperor goose	-	-	0	0	0.0%
Snow goose	-	-	0	0	0.0%
Total geese	-	0	0	0	0.0%
<b>Swans</b>					
	-	-	0	0	0.0%
<b>Seabirds</b>					
Cormorant	-	-	0	0	0.0%
Tern	24	70	0	31	2.4%
Black-legged kittiwake	-	127	28	78	6.1%
Red-legged kittiwake	-	-	0	0	0.0%
Mew gull	-	-	0	0	0.0%
Large gull	-	-	164	1,160	90.6%
Gull (Unidentified)	1,222	2,094	-	-	-
Auklet	-	-	0	0	0.0%
Murre	-	0	0	0	0.0%
Guillemot	-	-	0	0	0.0%
Puffin	0	-	0	0	0.0%
Total seabirds	1,246	2,291	192	1,243	97.1%
<b>Shorebirds</b>					
Black oystercatcher	-	-	0	0	0.0%
Whimbrel	-	-	0	0	0.0%
Godwit	-	-	0	0	0.0%
Semipalmated plover	-	-	0	0	0.0%
Turnstone	-	-	0	0	0.0%
Phalarope	-	-	0	0	0.0%
Small sandpiper	-	-	0	0	0.0%
Wilson's snipe	24	-	0	12	0.9%
Total shorebirds	24	0	0	8	0.6%
<b>Loons and grebes</b>					
Common loon	-	-	0	0	0.0%
Pacific loon	-	-	0	0	0.0%
Red-throated loon	-	-	0	0	0.0%
Yellow-billed loon	-	-	0	0	0.0%
Grebe	-	-	0	0	0.0%
Total loons and grebes	-	-	0	0	0.0%
Bird (unidentified)	59	0	0	20	1.5%
<b>Total migratory birds</b>	<b>1,341</b>	<b>2,291</b>	<b>197</b>	<b>1,276</b>	<b>99.7%</b>
<b>Ptarmigan</b>	<b>-</b>	<b>17</b>	<b>0</b>	<b>9</b>	<b>0.7%</b>
<b>Total eggs</b>	<b>1,340</b>	<b>2,308</b>	<b>192</b>	<b>1,280</b>	<b>100.0%</b>

': Not specifically named in the harvest survey instrument.

Table 19.—Bird harvest estimates, Larsen Bay, 2020.

Species, category	Yearly bird harvest			Spring		Summer		Fall		Winter	
	Reported	Estimated	CIP	Estimated	CIP	Estimated	CIP	Estimated	CIP	Estimated	CIP
<b>Ducks</b>											
American wigeon	0	0		0		0		0		0	
Gadwall	0	0		0		0		0		0	
Teal	0	0		0		0		0		0	
Mallard	4	4	52%	0		4	52%	0		0	
Northern pintail	0	0		0		0		0		0	
Northern shoveler	0	0		0		0		0		0	
Black scoter	0	0		0		0		0		0	
Surf scoter	0	0		0		0		0		0	
White-winged scoter	0	0		0		0		0		0	
Bufflehead	2	2	52%	0		2	52%	0		0	
Goldeneye	30	32	45%	16	52%	4	52%	12	52%	0	
Scaup	0	0		0		0		0		0	
Common eider	0	0		0		0		0		0	
King eider	0	0		0		0		0		0	
Spectacled eider	0	0		0		0		0		0	
Steller's eider	0	0		0		0		0		0	
Harlequin duck	0	0		0		0		0		0	
Long-tailed duck	0	0		0		0		0		0	
Merganser	0	0		0		0		0		0	
Total ducks	36	38	39%	16	52%	11	52%	12	52%	0	
<b>Geese</b>											
Black brant	0	0		0		0		0		0	
Cackling/Canada goose	0	0		0		0		0		0	
Greater white-fronted goose	0	0		0		0		0		0	
Emperor goose	0	0		0		0		0		0	
Snow goose	0	0		0		0		0		0	
Total geese	0	0		0		0		0		0	
<b>Swans</b>											
	0	0		0		0		0		0	
<b>Seabirds</b>											
Cormorant	0	0		0		0		0		0	
Tern	0	0		0		0		0		0	
Black-legged kittiwake	0	0		0		0		0		0	
Red-legged kittiwake	0	0		0		0		0		0	
Mew gull	0	0		0		0		0		0	
Large gull	0	0		0		0		0		0	
Auklet	0	0		0		0		0		0	
Murre	0	0		0		0		0		0	
Guillemot	0	0		0		0		0		0	
Puffin	0	0		0		0		0		0	
Total seabirds	0	0		0		0		0		0	
<b>Shorebirds</b>											
Black oystercatcher	0	0		0		0		0		0	
Whimbrel	0	0		0		0		0		0	
Godwit	0	0		0		0		0		0	
Semipalmated plover	0	0		0		0		0		0	
Turnstone	0	0		0		0		0		0	
Phalarope	0	0		0		0		0		0	
Small sandpiper	0	0		0		0		0		0	
Wilson's snipe	0	0		0		0		0		0	
Total shorebirds	0	0		0		0		0		0	
<b>Loons and grebes</b>											
Common loon	0	0		0		0		0		0	
Pacific loon	0	0		0		0		0		0	
Red-throated loon	0	0		0		0		0		0	
Yellow-billed loon	0	0		0		0		0		0	
Loon (non-breeding plumage)	0	0		0		0		0		0	
Grebe	0	0		0		0		0		0	
Total loons and grebes	0	0		0		0		0		0	
<b>Total migratory birds</b>	<b>36</b>	<b>38</b>	<b>39%</b>	<b>16</b>	<b>52%</b>	<b>11</b>	<b>52%</b>	<b>12</b>	<b>52%</b>	<b>0</b>	
<b>Ptarmigan</b>	<b>0</b>	<b>0</b>		<b>0</b>		<b>0</b>		<b>0</b>		<b>0</b>	
<b>Total birds</b>	<b>36</b>	<b>38</b>	<b>39%</b>	<b>16</b>	<b>52%</b>	<b>11</b>	<b>52%</b>	<b>12</b>	<b>52%</b>	<b>0</b>	

CIP: Confidence interval as percentage of the estimated harvest.

Table 20.—Egg harvest estimates, Larsen Bay, 2020.

Species, category	Yearly egg harvest		Spring	Summer	Fall	Winter
	Reported	Estimated	CIP Estimated	CIP Estimated	CIP Estimated	CIP Estimated
<b>Ducks</b>						
American wigeon	0	0	0	0	0	0
Gadwall	0	0	0	0	0	0
Teal	0	0	0	0	0	0
Mallard	0	0	0	0	0	0
Northern pintail	0	0	0	0	0	0
Northern shoveler	0	0	0	0	0	0
Black scoter	0	0	0	0	0	0
Surf scoter	0	0	0	0	0	0
White-winged scoter	0	0	0	0	0	0
Bufflehead	0	0	0	0	0	0
Goldeneye	0	0	0	0	0	0
Scaup	0	0	0	0	0	0
Common eider	0	0	0	0	0	0
King eider	0	0	0	0	0	0
Spectacled eider	0	0	0	0	0	0
Steller's eider	0	0	0	0	0	0
Harlequin duck	0	0	0	0	0	0
Long-tailed duck	0	0	0	0	0	0
Merganser	0	0	0	0	0	0
Total ducks	0	0	0	0	0	0
<b>Geese</b>						
Black brant	0	0	0	0	0	0
Cackling/Canada goose	0	0	0	0	0	0
Greater white-fronted goose	0	0	0	0	0	0
Emperor goose	0	0	0	0	0	0
Snow goose	0	0	0	0	0	0
Total geese	0	0	0	0	0	0
<b>Swans</b>	0	0	0	0	0	0
<b>Seabirds</b>						
Cormorant	0	0	0	0	0	0
Tern	0	0	0	0	0	0
Black-legged kittiwake	0	0	0	0	0	0
Red-legged kittiwake	0	0	0	0	0	0
Mew gull	2	2 52%	2 52%	0	0	0
Large gull	18	19 52%	19 52%	0	0	0
Auklet	0	0	0	0	0	0
Murre	0	0	0	0	0	0
Guillemot	0	0	0	0	0	0
Puffin	0	0	0	0	0	0
Total seabirds	20	21 46%	21 46%	0	0	0
<b>Shorebirds</b>						
Black oystercatcher	0	0	0	0	0	0
Whimbrel	0	0	0	0	0	0
Godwit	0	0	0	0	0	0
Semipalmated plover	0	0	0	0	0	0
Turnstone	0	0	0	0	0	0
Phalarope	0	0	0	0	0	0
Small sandpiper	0	0	0	0	0	0
Wilson's snipe	0	0	0	0	0	0
Total shorebirds	0	0	0	0	0	0
<b>Loons and grebes</b>						
Common loon	0	0	0	0	0	0
Pacific loon	0	0	0	0	0	0
Red-throated loon	0	0	0	0	0	0
Yellow-billed loon	0	0	0	0	0	0
Grebe	0	0	0	0	0	0
Total loons and grebes	0	0	0	0	0	0
<b>Total migratory birds</b>	20	21 46%	21 46%	0	0	0
<b>Ptarmigan</b>	0	0	0	0	0	0
<b>Total eggs</b>	20	21	21	0	0	0

CIP: Confidence interval as percentage of the estimated harvest.

Table 21.—Annual bird harvest estimates, Larsen Bay, 1982–2020.

Species, category	1982	1986	1989	1990	1991	1992	1993	1997	2003	2018	2020	1982–2020	
	CSIS	Fall and Walker (1993)	Misher and Cohen (2022rev.)	Fall (1991)	CSIS	CSIS	CSIS	Fall and Utermohle (1999)	Fall (1991)	Sill et al. (2021)	This study	Average	
<b>Ducks</b>													
American wigeon	-	-	0	11	0	0	0	0	0	0	0	1	0.3%
Gadwall	-	-	-	0	0	-	-	0	0	-	0	0	0.0%
Teal	-	-	34	25	36	14	0	3	0	0	0	12	2.9%
Mallard	-	-	70	48	110	20	17	52	7	7	4	37	8.6%
Northern pintail	-	-	13	0	0	0	0	0	0	0	0	1	0.3%
Northern shoveler	-	-	-	0	-	-	-	-	-	0	0	0	0.0%
Black scoter	-	-	-	-	-	-	22	0	0	0	0	4	1.0%
Surf scoter	-	-	-	-	-	-	0	0	0	0	0	0	0.0%
White-winged scoter	-	-	-	-	-	-	21	0	0	0	0	4	1.0%
Scoter (unidentified)	-	-	0	80	78	39	0	0	-	-	-	33	7.5%
Bufflehead	-	-	53	64	31	22	27	6	0	3	2	23	5.3%
Goldeneye	-	-	452	486	532	396	138	131	15	0	32	242	55.7%
Scaup	-	-	0	14	0	2	0	5	0	0	0	2	0.5%
Canvasback	-	-	-	-	-	-	5	0	-	-	-	3	0.6%
Common eider	-	-	-	-	-	-	0	0	-	0	0	0	0.0%
King eider	-	-	-	-	-	-	0	0	-	0	0	0	0.0%
Spectacled eider	-	-	-	-	-	-	0	-	-	0	0	0	0.0%
Steller's eider	-	-	-	-	-	-	0	-	-	-	0	0	0.0%
Eider (unidentified)	-	-	0	0	0	0	-	0	-	-	-	0	0.0%
Harlequin duck	-	-	0	9	25	2	0	3	-	0	0	5	1.1%
Long-tailed duck	-	-	37	0	23	0	2	0	0	0	0	7	1.6%
Merganser	-	-	18	46	20	44	12	0	0	0	0	16	3.6%
Duck (unidentified)	-	-	0	34	0	2	0	13	0	0	0	5	1.3%
Redhead duck	-	-	-	-	-	7	0	-	-	-	-	4	0.8%
<b>Total ducks</b>	<b>934</b>	<b>164</b>	<b>677</b>	<b>817</b>	<b>854</b>	<b>548</b>	<b>245</b>	<b>213</b>	<b>22</b>	<b>10</b>	<b>38</b>	<b>411</b>	<b>94.5%</b>
<b>Geese</b>													
Black brant	-	-	0	0	0	0	0	0	0	0	0	0	0.0%
Cackling/Canada goose	-	-	0	0	0	0	0	0	0	0	0	0	0.0%
Greater white-fronted goose	-	-	0	0	0	0	0	0	0	0	0	0	0.0%
Emperor goose	-	-	0	0	0	0	-	0	0	0	0	0	0.0%
Snow goose	-	-	0	-	0	0	0	-	-	-	0	0	0.0%
<b>Total geese</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0.1%</b>
<b>Swans</b>	-	-	-	0	-	-	-	0	-	0	0	0	0.0%
<b>Sandhill crane</b>	-	-	0	0	-	-	-	0	-	0	-	0	0.0%
<b>Seabirds</b>													
Cormorant	-	-	-	0	0	-	-	0	-	0	0	0	0.0%
Tern	-	-	-	-	-	-	-	-	-	0	0	0	0.0%
Black-legged kittiwake	-	-	-	-	-	-	-	-	-	0	0	0	0.0%
Red-legged kittiwake	-	-	-	-	-	-	-	-	-	-	0	0	0.0%
Mew gull	-	-	-	-	-	-	-	-	-	-	0	0	0.0%
Large gull	-	-	-	-	-	-	-	-	-	-	0	0	0.0%
Gull (unidentified)	-	-	0	0	11	5	-	0	0	0	-	2	0.5%
Auklet	-	-	-	-	0	6	6	0	0	0	0	2	0.4%
Murre	-	-	-	0	-	-	-	0	0	0	0	0	0.0%
Guillemot	-	-	-	-	-	-	-	-	-	-	0	0	0.0%
Puffin	-	-	-	0	0	-	-	0	0	-	0	0	0.0%
<b>Total seabirds</b>	-	-	<b>0</b>	<b>0</b>	<b>11</b>	<b>11</b>	<b>6</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>3</b>	<b>0.7%</b>
<b>Shorebirds</b>													
Black oystercatcher	-	-	-	-	0	-	-	-	-	0	0	0	0.0%
Whimbrel	-	-	-	-	-	-	-	-	-	-	0	0	0.0%
Godwit	-	-	-	-	-	-	-	-	-	-	0	0	0.0%
Semipalmated plover	-	-	-	-	-	-	-	-	-	-	0	0	0.0%
Turnstone	-	-	-	-	-	-	-	-	-	-	0	0	0.0%
Phalarope	-	-	-	-	-	-	-	-	-	-	0	0	0.0%
Small sandpiper	-	-	-	-	-	-	-	-	-	-	0	0	0.0%
Wilson's snipe	-	-	0	0	6	0	0	0	0	-	0	1	0.2%
<b>Total shorebirds</b>	-	-	<b>0</b>	<b>0</b>	<b>6</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>0.2%</b>
<b>Loons and grebes</b>													
Common loon	-	-	-	-	-	-	-	-	-	-	0	0	0.0%
Pacific loon	-	-	-	-	-	-	-	-	-	-	0	0	0.0%
Red-throated loon	-	-	-	-	-	-	-	-	-	-	0	0	0.0%
Yellow-billed loon	-	-	-	-	-	-	-	-	-	-	0	0	0.0%
Loon (non-breeding plumage)	-	-	-	-	-	-	-	-	-	-	0	0	0.0%
Grebe	-	-	-	-	-	-	-	-	-	-	0	0	0.0%
<b>Total loons and grebes</b>	-	-	-	<b>0</b>	<b>0</b>	-	-	<b>0</b>	-	-	<b>0</b>	<b>0</b>	<b>0.0%</b>
<b>Total migratory birds</b>	<b>937</b>	<b>164</b>	<b>677</b>	<b>817</b>	<b>871</b>	<b>558</b>	<b>251</b>	<b>213</b>	<b>22</b>	<b>10</b>	<b>38</b>	<b>414</b>	<b>95.3%</b>
<b>Ptarmigan</b>	<b>95</b>	<b>15</b>	<b>13</b>	<b>55</b>	<b>27</b>	<b>-</b>	<b>17</b>	<b>5</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>23</b>	<b>5.2%</b>
<b>Grouse</b>	-	-	-	0	0	0	-	-	-	-	-	0	0.0%
<b>Total birds</b>	<b>1,032</b>	<b>179</b>	<b>690</b>	<b>872</b>	<b>898</b>	<b>558</b>	<b>268</b>	<b>218</b>	<b>22</b>	<b>10</b>	<b>38</b>	<b>435</b>	<b>100.0%</b>

:- Not specifically named in harvest survey instrument.

Table 22.—Annual egg harvest estimates, Larsen Bay, 1982–2020.

Species, category	1982	1986	1989	1990	1991	1992	1993	1997	2003	2018	2020	1982–2020 Average
	CSIS	Fall and Walker (1993)	Misher and Cohen (2022rev.)	Fall (1991)	CSIS	CSIS	CSIS	Fall and Utermohle (1999)	Fall (1991)	Sill et al. (2021)	This study	
<b>Ducks</b>												
American wigeon	-	-	-	-	-	-	-	-	-	-	0	0 0.0%
Gadwall	-	-	-	-	-	-	-	-	-	-	0	0 0.0%
Teal	-	-	-	-	-	-	-	-	-	-	0	0 0.0%
Mallard	-	-	-	-	-	-	-	-	-	-	0	0 0.0%
Northern pintail	-	-	-	-	-	-	-	-	-	-	0	0 0.0%
Northern shoveler	-	-	-	-	-	-	-	-	-	-	0	0 0.0%
Black scoter	-	-	-	-	-	-	-	-	-	-	0	0 0.0%
Surf scoter	-	-	-	-	-	-	-	-	-	-	0	0 0.0%
White-winged scoter	-	-	-	-	-	-	-	-	-	-	0	0 0.0%
Bufflehead	-	-	-	-	-	-	-	-	-	-	0	0 0.0%
Goldeneye	-	-	-	-	-	-	-	-	-	-	0	0 0.0%
Scaup	-	-	-	-	-	-	-	-	-	-	0	0 0.0%
Common eider	-	-	-	-	-	-	-	-	-	-	0	0 0.0%
King eider	-	-	-	-	-	-	-	-	-	-	0	0 0.0%
Spectacled eider	-	-	-	-	-	-	-	-	-	-	0	0 0.0%
Steller's eider	-	-	-	-	-	-	-	-	-	-	0	0 0.0%
Eider (unidentified)	-	-	-	-	-	0	0	-	-	-	-	0 0.0%
Harlequin duck	-	-	-	-	-	-	-	-	-	-	0	0 0.0%
Long-tailed duck	-	-	-	-	-	-	-	-	-	-	0	0 0.0%
Merganser	-	-	-	-	-	-	-	-	-	-	0	0 0.0%
Total ducks	-	-	-	0	0	0	0	0	0	0	0	0 0.0%
<b>Geese</b>												
Black brant	-	-	-	-	-	-	-	-	-	-	0	0 0.0%
Cackling/Canada goose	-	-	-	-	-	-	-	-	-	-	0	0 0.0%
Greater white-fronted goose	-	-	-	-	-	-	-	-	-	-	0	0 0.0%
Emperor goose	-	-	-	-	-	-	-	-	-	-	0	0 0.0%
Snow goose	-	-	-	-	-	-	-	-	-	-	0	0 0.0%
Total geese	-	-	-	0	-	-	-	0	0	0	0	0 0.0%
<b>Swans</b>												
-	-	-	-	-	-	-	-	-	-	0	0	0 0.0%
<b>Seabirds</b>												
Cormorant	-	-	-	-	-	-	-	-	-	-	0	0 0.0%
Tern	-	-	0	0	0	0	0	0	-	-	0	0 0.0%
Black-legged kittiwake	-	-	-	-	0	0	0	0	-	-	0	0 0.0%
Red-legged kittiwake	-	-	-	-	-	-	-	-	-	-	0	0 0.0%
Mew gull	-	-	-	-	-	-	-	-	-	-	2	2 2.6%
Large gull	-	-	-	-	-	-	-	-	-	157	19	81 99.7%
Gull (unidentified)	-	-	172	90	129	15	32	9	105	-	-	-
Auklet	-	-	-	-	-	-	-	-	-	-	0	0 0.0%
Murre	-	-	-	-	-	-	-	-	-	-	0	0 0.0%
Guillemot	-	-	-	-	-	-	-	-	-	-	0	0 0.0%
Puffin	-	-	-	0	0	0	0	0	-	-	0	0 0.0%
Total seabirds	-	-	172	90	129	15	32	9	105	157	21	81 100.0%
<b>Shorebirds</b>												
Black oystercatcher	-	-	-	-	0	0	0	-	-	0	0	0 0.0%
Whimbrel	-	-	-	-	-	-	-	-	-	-	0	0 0.0%
Godwit	-	-	-	-	-	-	-	-	-	-	0	0 0.0%
Semipalmated plover	-	-	-	-	-	-	-	-	-	-	0	0 0.0%
Turnstone	-	-	-	-	-	-	-	-	-	-	0	0 0.0%
Phalarope	-	-	-	-	-	-	-	-	-	-	0	0 0.0%
Small sandpiper	-	-	-	-	-	-	-	-	-	-	0	0 0.0%
Wilson's snipe	-	-	-	-	-	-	-	-	-	-	0	0 0.0%
Total shorebirds	-	-	-	0	0	0	0	-	-	0	0	0 0.0%
<b>Loons and grebes</b>												
Common loon	-	-	-	-	-	-	-	-	-	-	0	0 0.0%
Pacific loon	-	-	-	-	-	-	-	-	-	-	0	0 0.0%
Red-throated loon	-	-	-	-	-	-	-	-	-	-	0	0 0.0%
Yellow-billed loon	-	-	-	-	-	-	-	-	-	-	0	0 0.0%
Grebe	-	-	-	-	-	-	-	-	-	-	0	0 0.0%
Total loons and grebes	-	-	-	-	-	-	-	-	-	0	0	0 0.0%
<b>Total migratory birds</b>	-	-	172	90	129	15	32	9	105	157	21	81 100.0%
<b>Ptarmigan</b>	-	-	-	-	-	-	-	-	-	-	0	0 0.0%
<b>Total eggs</b>	509	84	172	90	129	15	32	9	105	157	21	120 100.0%

:- Not specifically named in harvest survey instrument.

Table 23.—Bird harvest estimates, Port Lions, 2020.

Species, category	Yearly bird harvest			Spring		Summer		Fall		Winter	
	Reported	Estimated	CIP	Estimated	CIP	Estimated	CIP	Estimated	CIP	Estimated	CIP
<b>Ducks</b>											
American wigeon	6	11	102%	4	138%	0		4	138%	4	138%
Gadwall	5	9	113%	7	138%	0		0		2	138%
Teal	13	24	96%	11	138%	0		0		13	138%
Mallard	78	145	53%	13	97%	0		30	99%	102	57%
Northern pintail	2	4	138%	0		0		0		4	138%
Northern shoveler	0	0		0		0		0		0	
Black scoter	66	123	80%	0		0		0		123	80%
Surf scoter	2	4	138%	0		0		0		4	138%
White-winged scoter	10	19	81%	0		0		0		19	81%
Bufflehead	2	4	138%	0		0		0		4	138%
Goldeneye	37	69	90%	9	113%	0		19	138%	41	126%
Scaup	32	59	78%	0		0		0		59	78%
Common eider	0	0		0		0		0		0	
King eider	0	0		0		0		0		0	
Spectacled eider	0	0		0		0		0		0	
Steller's eider	0	0		0		0		0		0	
Harlequin duck	6	11	77%	4	138%	0		4	138%	4	138%
Long-tailed duck	10	19	98%	0		0		0		19	98%
Merganser	2	4	138%	4	138%	0		0		0	
<b>Total ducks</b>	<b>271</b>	<b>503</b>	<b>53%</b>	<b>52</b>	<b>78%</b>	<b>0</b>		<b>56</b>	<b>113%</b>	<b>396</b>	<b>59%</b>
<b>Geese</b>											
Black brant	0	0		0		0		0		0	
Cackling/Canada goose	1	2	138%	0		0		0		2	138%
Greater white-fronted goose	0	0		0		0		0		0	
Emperor goose	0	0		0		0		0		0	
Snow goose	0	0		0		0		0		0	
<b>Total geese</b>	<b>1</b>	<b>2</b>	<b>138%</b>	<b>0</b>		<b>0</b>		<b>0</b>		<b>2</b>	<b>138%</b>
<b>Swans</b>	<b>0</b>	<b>0</b>		<b>0</b>		<b>0</b>		<b>0</b>		<b>0</b>	
<b>Seabirds</b>											
Cormorant	0	0		0		0		0		0	
Tern	0	0		0		0		0		0	
Black-legged kittiwake	0	0		0		0		0		0	
Red-legged kittiwake	0	0		0		0		0		0	
Mew gull	0	0		0		0		0		0	
Large gull	0	0		0		0		0		0	
Auklet	0	0		0		0		0		0	
Murre	0	0		0		0		0		0	
Guillemot	0	0		0		0		0		0	
Puffin	0	0		0		0		0		0	
<b>Total seabirds</b>	<b>0</b>	<b>0</b>		<b>0</b>		<b>0</b>		<b>0</b>		<b>0</b>	
<b>Shorebirds</b>											
Black oystercatcher	0	0		0		0		0		0	
Whimbrel	0	0		0		0		0		0	
Godwit	0	0		0		0		0		0	
Semipalmated plover	0	0		0		0		0		0	
Turnstone	0	0		0		0		0		0	
Phalarope	0	0		0		0		0		0	
Small sandpiper	0	0		0		0		0		0	
Wilson's snipe	0	0		0		0		0		0	
<b>Total shorebirds</b>	<b>0</b>	<b>0</b>		<b>0</b>		<b>0</b>		<b>0</b>		<b>0</b>	
<b>Loons and grebes</b>											
Common loon	0	0		0		0		0		0	
Pacific loon	0	0		0		0		0		0	
Red-throated loon	0	0		0		0		0		0	
Yellow-billed loon	0	0		0		0		0		0	
Loon (non-breeding plumage)	0	0		0		0		0		0	
Grebe	0	0		0		0		0		0	
<b>Total loons and grebes</b>	<b>0</b>	<b>0</b>		<b>0</b>		<b>0</b>		<b>0</b>		<b>0</b>	
<b>Total migratory birds</b>	<b>272</b>	<b>505</b>	<b>53%</b>	<b>52</b>	<b>78%</b>	<b>0</b>		<b>56</b>	<b>113%</b>	<b>397</b>	<b>59%</b>
<b>Ptarmigan</b>	<b>5</b>	<b>9</b>	<b>138%</b>	<b>9</b>	<b>138%</b>	<b>0</b>		<b>0</b>		<b>0</b>	
<b>Total birds</b>	<b>277</b>	<b>514</b>	<b>52%</b>	<b>61</b>	<b>78%</b>	<b>0</b>		<b>56</b>	<b>113%</b>	<b>397</b>	<b>59%</b>

CIP: Confidence interval as percentage of the estimated harvest.

Table 24.—Egg harvest estimates, Port Lions, 2020.

Species, category	Yearly egg harvest			Spring		Summer		Fall		Winter	
	Reported	Estimated	CIP	Estimated	CIP	Estimated	CIP	Estimated	CIP	Estimated	CIP
<b>Ducks</b>											
American wigeon	0	0		0		0		0		0	
Gadwall	0	0		0		0		0		0	
Teal	0	0		0		0		0		0	
Mallard	0	0		0		0		0		0	
Northern pintail	0	0		0		0		0		0	
Northern shoveler	0	0		0		0		0		0	
Black scoter	0	0		0		0		0		0	
Surf scoter	0	0		0		0		0		0	
White-winged scoter	0	0		0		0		0		0	
Bufflehead	0	0		0		0		0		0	
Goldeneye	0	0		0		0		0		0	
Scaup	0	0		0		0		0		0	
Common eider	0	0		0		0		0		0	
King eider	0	0		0		0		0		0	
Spectacled eider	0	0		0		0		0		0	
Steller's eider	0	0		0		0		0		0	
Harlequin duck	0	0		0		0		0		0	
Long-tailed duck	0	0		0		0		0		0	
Merganser	12	22	138%	22	138%	0		0		0	
Total ducks	12	22	138%	22	138%	0		0		0	
<b>Geese</b>											
Black brant	0	0		0		0		0		0	
Cackling/Canada goose	0	0		0		0		0		0	
Greater white-fronted goose	0	0		0		0		0		0	
Emperor goose	0	0		0		0		0		0	
Snow goose	0	0		0		0		0		0	
Total geese	0	0		0		0		0		0	
<b>Swans</b>	0	0		0		0		0		0	
<b>Seabirds</b>											
Cormorant	0	0		0		0		0		0	
Tern	0	0		0		0		0		0	
Black-legged kittiwake	0	0		0		0		0		0	
Red-legged kittiwake	0	0		0		0		0		0	
Mew gull	26	48	81%	48	81%	0		0		0	
Large gull	73	136	64%	136	64%	0		0		0	
Auklet	0	0		0		0		0		0	
Murre	0	0		0		0		0		0	
Guillemot	0	0		0		0		0		0	
Puffin	0	0		0		0		0		0	
Total seabirds	99	184	59%	184	59%	0		0		0	
<b>Shorebirds</b>											
Black oystercatcher	2	4	138%	4	138%	0		0		0	
Whimbrel	0	0		0		0		0		0	
Godwit	0	0		0		0		0		0	
Semipalmated plover	0	0		0		0		0		0	
Turnstone	0	0		0		0		0		0	
Phalarope	0	0		0		0		0		0	
Small sandpiper	0	0		0		0		0		0	
Wilson's snipe	0	0		0		0		0		0	
Total shorebirds	2	4	138%	4	138%	0		0		0	
<b>Loons and grebes</b>											
Common loon	0	0		0		0		0		0	
Pacific loon	0	0		0		0		0		0	
Red-throated loon	0	0		0		0		0		0	
Yellow-billed loon	0	0		0		0		0		0	
Grebe	0	0		0		0		0		0	
Total loons and grebes	0	0		0		0		0		0	
<b>Total migratory birds</b>	113	210	63%	210	63%	0		0		0	
<b>Ptarmigan</b>	0	0		0		0		0		0	
<b>Total eggs</b>	113	210	63%	210	63%	0		0		0	

CIP: Confidence interval as percentage of the estimated harvest.

Table 25.—Annual bird harvest estimates, Port Lions, 1982–2020.

Species, category	1982	1986	1989	1993	2003	2020	1982–2020	
	Schroeder et al. (1987)	Fall and Walker (1993)	Mishker and Cohen (2022rev.)	CSIS	Fall et al. (2006)	This study	Average	
<b>Ducks</b>								
American wigeon	-	-	0	0	0	11	3	0.4%
Gadwall	-	-	-	-	1	9	5	0.7%
Teal	-	-	0	28	17	24	17	2.4%
Mallard	-	-	123	165	159	145	148	20.7%
Northern pintail	-	-	19	0	0	4	6	0.8%
Northern shoveler	-	-	-	-	-	0	0	0.0%
Black scoter	-	-	-	91	39	123	84	11.8%
Surf scoter	-	-	-	-	14	4	9	1.2%
White-winged scoter	-	-	-	96	18	19	44	6.2%
Scoter (unidentified)	-	-	102	-	-	-	102	14.2%
Bufflehead	-	-	60	-	21	4	28	3.9%
Goldeneye	-	-	156	33	85	69	86	12.0%
Scaup	-	-	0	16	0	59	19	2.6%
Canvasback	-	-	-	0	-	-	0	0.0%
Readhead duck	-	-	-	0	-	-	0	0.0%
Common eider	-	-	-	0	1	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%
Eider (unidentified)	-	-	32	-	-	-	32	4.5%
Harlequin duck	-	-	0	57	32	11	25	3.5%
Long-tailed duck	-	-	35	69	16	19	35	4.8%
Merganser	-	-	0	0	8	4	3	0.4%
Duck (unidentified)	-	-	30	0	0	0	8	1.0%
<b>Total ducks</b>	<b>890</b>	<b>598</b>	<b>556</b>	<b>908</b>	<b>411</b>	<b>503</b>	<b>644</b>	<b>89.9%</b>
<b>Geese</b>								
Black brant	-	-	0	0	0	0	0	0.0%
Cackling/Canada goose	-	-	4	0	8	2	3	0.5%
Greater white-fronted goose	-	-	0	0	0	0	0	0.0%
Emperor goose	-	-	0	-	0	0	0	0.0%
Snow goose	-	-	0	0	-	0	0	0.0%
Goose (unidentified)	-	-	0	0	8	0	2	0.3%
<b>Total geese</b>	<b>3</b>	<b>0</b>	<b>4</b>	<b>0</b>	<b>16</b>	<b>2</b>	<b>4</b>	<b>0.6%</b>
<b>Swans</b>								
<b>Sandhill crane</b>	-	-	0	-	-	-	0	0.0%
<b>Seabirds</b>								
Cormorant	-	-	-	-	-	0	0	0.0%
Tern	-	-	-	-	-	0	0	0.0%
Black-legged kittiwake	-	-	-	-	-	0	0	0.0%
Red-legged kittiwake	-	-	-	-	-	0	0	0.0%
Mew gull	-	-	-	-	-	0	0	0.0%
Large gull	-	-	-	-	-	0	0	0.0%
Gull (unidentified)	-	-	0	-	0	-	0	-
Auklet	-	-	-	21	0	0	7	1.0%
Murre	-	-	-	-	0	0	0	0.0%
Guillemot	-	-	-	-	-	0	0	0.0%
Puffin	-	-	-	-	0	0	0	0.0%
<b>Total seabirds</b>	-	-	<b>0</b>	<b>21</b>	<b>0</b>	<b>0</b>	<b>5</b>	<b>0.7%</b>
<b>Shorebirds</b>								
Black oystercatcher	-	-	-	-	-	0	0	0.0%
Whimbrel	-	-	-	-	-	0	0	0.0%
Godwit	-	-	-	-	-	0	0	0.0%
Semipalmated plover	-	-	-	-	-	0	0	0.0%
Turnstone	-	-	-	-	-	0	0	0.0%
Phalarope	-	-	-	-	-	0	0	0.0%
Small sandpiper	-	-	-	-	-	0	0	0.0%
Wilson's snipe	-	-	0	0	0	0	0	0.0%
<b>Total shorebirds</b>	-	-	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0.0%</b>
<b>Loons and grebes</b>								
Common loon	-	-	-	-	-	0	0	0.0%
Pacific loon	-	-	-	-	-	0	0	0.0%
Red-throated loon	-	-	-	-	-	0	0	0.0%
Yellow-billed loon	-	-	-	-	-	0	0	0.0%
Loon (non-breeding plumage)	-	-	-	-	-	0	0	0.0%
Grebe	-	-	-	-	-	0	0	0.0%
<b>Total loons and grebes</b>	-	-	-	-	-	<b>0</b>	<b>0</b>	<b>0.0%</b>
<b>Total migratory birds</b>	<b>893</b>	<b>598</b>	<b>560</b>	<b>929</b>	<b>427</b>	<b>505</b>	<b>652</b>	<b>91.0%</b>
<b>Ptarmigan</b>	<b>24</b>	<b>125</b>	<b>0</b>	<b>148</b>	<b>82</b>	<b>9</b>	<b>65</b>	<b>9.0%</b>
<b>Grouse</b>	-	-	<b>0</b>	-	-	-	<b>0</b>	<b>0.0%</b>
<b>Total birds</b>	<b>917</b>	<b>723</b>	<b>560</b>	<b>1,077</b>	<b>509</b>	<b>514</b>	<b>717</b>	<b>100.0%</b>

-: Not specifically named in harvest survey instrument.

Table 26.—Annual egg harvest estimates, Port Lions, 1982–2020.

Species, category	1982	1986	1989	1993	2003	2020	1982–2020	
	Schroeder et al. (1987)	Fall and Walker (1993)	Mishker and Cohen (2022rev.)	CSIS	Fall et al. (2006)	This study	Average	
<b>Ducks</b>								
American wigeon	-	-	-	-	-	0	0	0.0%
Gadwall	-	-	-	-	-	0	0	0.0%
Teal	-	-	-	-	-	0	0	0.0%
Mallard	-	-	-	-	-	0	0	0.0%
Northern pintail	-	-	-	-	-	0	0	0.0%
Northern shoveler	-	-	-	-	-	0	0	0.0%
Black scoter	-	-	-	-	-	0	0	0.0%
Surf scoter	-	-	-	-	-	0	0	0.0%
White-winged scoter	-	-	-	-	-	0	0	0.0%
Bufflehead	-	-	-	-	-	0	0	0.0%
Goldeneye	-	-	-	-	-	0	0	0.0%
Scaup	-	-	-	-	-	0	0	0.0%
Common eider	-	-	-	-	-	0	0	0.0%
King eider	-	-	-	-	-	0	0	0.0%
Spectacled eider	-	-	-	-	-	0	0	0.0%
Steller's eider	-	-	-	-	-	0	0	0.0%
Eider (unidentified)	-	-	-	0	-	-	0	-
Harlequin duck	-	-	-	-	-	0	0	0.0%
Long-tailed duck	-	-	-	-	-	0	0	0.0%
Merganser	-	-	-	-	-	22	22	13.0%
Duck (unidentified)	-	-	-	0	0	0	0	0.0%
Total ducks	-	-	-	0	0	22	7	4.3%
<b>Geese</b>								
Black brant	-	-	-	-	-	0	0	0.0%
Cackling/Canada goose	-	-	-	-	-	0	0	0.0%
Greater white-fronted goose	-	-	-	-	-	0	0	0.0%
Emperor goose	-	-	-	-	-	0	0	0.0%
Snow goose	-	-	-	-	-	0	0	0.0%
Total geese	-	-	-	-	0	0	0	0.0%
<b>Swans</b>								
-	-	-	-	-	-	0	0	0.0%
<b>Seabirds</b>								
Cormorant	-	-	-	-	-	0	0	0.0%
Tern	-	-	0	0	7	0	2	1.0%
Black-legged kittiwake	-	-	-	43	-	0	22	12.7%
Red-legged kittiwake	-	-	-	-	-	0	0	0.0%
Mew gull	-	-	-	-	-	48	-	-
Large gull	-	-	-	-	-	136	-	-
Gull (unidentified)	-	-	78	235	129	-	157	92.6%
Auklet	-	-	-	-	-	0	0	0.0%
Murre	-	-	-	-	-	0	0	0.0%
Guillemot	-	-	-	-	-	0	0	0.0%
Puffin	-	-	-	0	0	0	0	0.0%
Total seabirds	-	-	78	278	136	184	169	100.0%
<b>Shorebirds</b>								
Black oystercatcher	-	-	-	0	-	4	2	1.1%
Whimbrel	-	-	-	-	-	0	0	0.0%
Godwit	-	-	-	-	-	0	0	0.0%
Semipalmated plover	-	-	-	-	-	0	0	0.0%
Turnstone	-	-	-	-	-	0	0	0.0%
Phalarope	-	-	-	-	-	0	0	0.0%
Small sandpiper	-	-	-	-	-	0	0	0.0%
Wilson's snipe	-	-	-	-	-	0	0	0.0%
Total shorebirds	-	-	-	0	-	4	2	1.1%
<b>Loons and grebes</b>								
Common loon	-	-	-	-	-	0	0	0.0%
Pacific loon	-	-	-	-	-	0	0	0.0%
Red-throated loon	-	-	-	-	-	0	0	0.0%
Yellow-billed loon	-	-	-	-	-	0	0	0.0%
Grebe	-	-	-	-	-	0	0	0.0%
Total loons and grebes	-	-	-	-	-	0	0	0.0%
<b>Total migratory birds</b>	138	172	78	278	136	210	169	100.0%
<b>Ptarmigan</b>	-	-	-	-	-	0	0	0.0%
<b>Total eggs</b>	138	172	78	277	136	210	169	100.0%

:- Not specifically named in harvest survey instrument.

Table 27.—Bird harvest estimates, Kodiak City, 2020.

Species, category	Yearly bird harvest		Spring		Summer		Fall		Winter		
	Reported	Estimated	CIP	Estimated	CIP	Estimated	CIP	Estimated	CIP	Estimated	CIP
<b>Ducks</b>											
American wigeon	0	0		0		0		0		0	
Gadwall	6	38	154%	0		0		32	181%	6	181%
Teal	19	121	137%	0		0		47	130%	73	151%
Mallard	41	262	65%	19	135%	6	181%	124	81%	112	85%
Northern pintail	3	19	135%	0		0		0		19	135%
Northern shoveler	0	0		0		0		0		0	
Black scoter	3	19	181%	0		0		0		19	181%
Surf scoter	2	13	181%	0		0		0		13	181%
White-winged scoter	1	6	181%	6	181%	0		0		0	
Bufflehead	28	177	93%	19	181%	0		0		158	86%
Goldeneye	44	276	90%	51	132%	0		41	181%	184	96%
Scaup	20	126	130%	13	181%	0		0		114	128%
Common eider	0	0		0		0		0		0	
King eider	0	0		0		0		0		0	
Spectacled eider	0	0		0		0		0		0	
Steller's eider	0	0		0		0		0		0	
Harlequin duck	69	435	83%	88	139%	32	181%	154	105%	161	96%
Long-tailed duck	13	82	145%	32	181%	0		19	181%	32	181%
Merganser	2	13	128%	0		0		0		13	128%
Total ducks	251	1,586	71%	228	138%	38	154%	417	93%	903	74%
<b>Geese</b>											
Black brant	2	13	181%	0		0		13	181%	0	
Cackling/Canada goose	6	36	181%	0		0		9	181%	27	181%
Greater white-fronted goose	0	0		0		0		0		0	
Emperor goose	4	25	110%	0		0		0		25	110%
Snow goose	0	0		0		0		0		0	
Total geese	12	74	100%	0		0		22	129%	52	107%
<b>Swans</b>	0	0		0		0		0		0	
<b>Seabirds</b>											
Cormorant	0	0		0		0		0		0	
Tern	0	0		0		0		0		0	
Black-legged kittiwake	0	0		0		0		0		0	
Red-legged kittiwake	0	0		0		0		0		0	
Mew gull	0	0		0		0		0		0	
Large gull	0	0		0		0		0		0	
Auklet	0	0		0		0		0		0	
Murre	0	0		0		0		0		0	
Guillemot	0	0		0		0		0		0	
Puffin	6	38	181%	38	181%	0		0		0	
Total seabirds	6	38	181%	38	181%	0		0		0	
<b>Shorebirds</b>											
Black oystercatcher	0	0		0		0		0		0	
Whimbrel	0	0		0		0		0		0	
Godwit	0	0		0		0		0		0	
Semipalmated plover	0	0		0		0		0		0	
Turnstone	0	0		0		0		0		0	
Phalarope	0	0		0		0		0		0	
Small sandpiper	0	0		0		0		0		0	
Wilson's snipe	0	0		0		0		0		0	
Total shorebirds	0	0		0		0		0		0	
<b>Loons and grebes</b>											
Common loon	0	0		0		0		0		0	
Pacific loon	0	0		0		0		0		0	
Red-throated loon	0	0		0		0		0		0	
Yellow-billed loon	0	0		0		0		0		0	
Loon (non-breeding plumage)	0	0		0		0		0		0	
Grebe	0	0		0		0		0		0	
Total loons and grebes	0	0		0		0		0		0	
<b>Total migratory birds</b>	269	1,698	70%	265	121%	38	154%	439	93%	955	75%
<b>Ptarmigan</b>	42	265	115%	38	181%	0		95	128%	133	144%
<b>Total birds</b>	311	1,963	71%	303	108%	38	154%	534	97%	1,088	77%

CIP: Confidence interval as percentage of the estimated harvest.

Table 28.—Egg harvest estimates, Kodiak City, 2020.

Species, category	Yearly egg harvest			Spring		Summer		Fall		Winter	
	Reported	Estimated	CIP	Estimated	CIP	Estimated	CIP	Estimated	CIP	Estimated	CIP
<b>Ducks</b>											
American wigeon	0	0		0		0		0		0	
Gadwall	0	0		0		0		0		0	
Teal	0	0		0		0		0		0	
Mallard	0	0		0		0		0		0	
Northern pintail	0	0		0		0		0		0	
Northern shoveler	0	0		0		0		0		0	
Black scoter	0	0		0		0		0		0	
Surf scoter	0	0		0		0		0		0	
White-winged scoter	0	0		0		0		0		0	
Bufflehead	0	0		0		0		0		0	
Goldeneye	0	0		0		0		0		0	
Scaup	0	0		0		0		0		0	
Common eider	0	0		0		0		0		0	
King eider	0	0		0		0		0		0	
Spectacled eider	0	0		0		0		0		0	
Steller's eider	0	0		0		0		0		0	
Harlequin duck	0	0		0		0		0		0	
Long-tailed duck	0	0		0		0		0		0	
Merganser	0	0		0		0		0		0	
Total ducks	0	0		0		0		0		0	
<b>Geese</b>											
Black brant	0	0		0		0		0		0	
Cackling/Canada goose	0	0		0		0		0		0	
Greater white-fronted goose	0	0		0		0		0		0	
Emperor goose	0	0		0		0		0		0	
Snow goose	0	0		0		0		0		0	
Total geese	0	0		0		0		0		0	
<b>Swans</b>	0	0		0		0		0		0	
<b>Seabirds</b>											
Cormorant	0	0		0		0		0		0	
Tern	0	0		0		0		0		0	
Black-legged kittiwake	22	139	128%	76	181%	63	181%	0		0	
Red-legged kittiwake	0	0		0		0		0		0	
Mew gull	20	126	181%	126	181%	0		0		0	
Large gull	76	480	69%	367	82%	114	128%	0		0	
Auklet	0	0		0		0		0		0	
Murre	0	0		0		0		0		0	
Guillemot	0	0		0		0		0		0	
Puffin	10	63	181%	63	181%	0		0		0	
Total seabirds	128	809	68%	632	78%	177	139%	0		0	
<b>Shorebirds</b>											
Black oystercatcher	9	57	128%	57	128%	0		0		0	
Whimbrel	0	0		0		0		0		0	
Godwit	0	0		0		0		0		0	
Semipalmated plover	0	0		0		0		0		0	
Turnstone	0	0		0		0		0		0	
Phalarope	0	0		0		0		0		0	
Small sandpiper	0	0		0		0		0		0	
Wilson's snipe	0	0		0		0		0		0	
Total shorebirds	9	57	128%	57	128%	0		0		0	
<b>Loons and grebes</b>											
Common loon	0	0		0		0		0		0	
Pacific loon	0	0		0		0		0		0	
Red-throated loon	0	0		0		0		0		0	
Yellow-billed loon	0	0		0		0		0		0	
Grebe	0	0		0		0		0		0	
Total loons and grebes	0	0		0		0		0		0	
<b>Total migratory birds</b>	137	866	69%	689	80%	177	139%	0		0	
<b>Ptarmigan</b>	0	0		0		0		0		0	
<b>Total eggs</b>	137	866	69%	689	80%	177	139%	0		0	

CIP: Confidence interval as percentage of the estimated harvest.

Table 29.—Bird harvest estimates, Womens Bay CDP, 2020.

Species, category	Yearly bird harvest			Spring		Summer		Fall		Winter	
	Reported	Estimated	CIP	Estimated	CIP	Estimated	CIP	Estimated	CIP	Estimated	CIP
<b>Ducks</b>											
American wigeon	7	34	178%	0		0		10	178%	24	178%
Gadwall	41	199	170%	0		0		15	178%	184	169%
Teal	28	136	130%	0		0		10	178%	126	134%
Mallard	52	252	102%	0		0		107	112%	145	130%
Northern pintail	4	19	140%	0		0		0		19	140%
Northern shoveler	0	0		0		0		0		0	
Black scoter	28	136	136%	39	178%	0		48	178%	48	146%
Surf scoter	43	208	105%	19	178%	0		29	178%	160	117%
White-winged scoter	27	131	126%	29	178%	0		34	178%	68	155%
Bufflehead	50	242	102%	19	178%	0		87	105%	136	121%
Goldeneye	50	242	134%	39	178%	0		63	143%	141	155%
Scaup	72	349	107%	0		0		73	125%	276	116%
Common eider	0	0		0		0		0		0	
King eider	1	5	178%	0		0		0		5	178%
Spectacled eider	0	0		0		0		0		0	
Steller's eider	0	0		0		0		0		0	
Harlequin duck	50	242	136%	0		0		58	178%	184	126%
Long-tailed duck	35	170	106%	0		0		39	140%	131	102%
Merganser	20	97	161%	0		0		34	155%	63	165%
Total ducks	508	2,461	100%	145	178%	0		606	112%	1,710	109%
<b>Geese</b>											
Black brant	0	0		0		0		0		0	
Cackling/Canada goose	15	73	105%	0		0		15	132%	58	110%
Greater white-fronted goose	0	0		0		0		0		0	
Emperor goose	0	0		0		0		0		0	
Snow goose	0	0		0		0		0		0	
Total geese	15	73	105%	0		0		15	132%	58	110%
<b>Swans</b>	0	0		0		0		0		0	
<b>Seabirds</b>											
Cormorant	0	0		0		0		0		0	
Tern	0	0		0		0		0		0	
Black-legged kittiwake	0	0		0		0		0		0	
Red-legged kittiwake	0	0		0		0		0		0	
Mew gull	0	0		0		0		0		0	
Large gull	0	0		0		0		0		0	
Auklet	0	0		0		0		0		0	
Murre	0	0		0		0		0		0	
Guillemot	0	0		0		0		0		0	
Puffin	0	0		0		0		0		0	
Total seabirds	0	0		0		0		0		0	
<b>Shorebirds</b>											
Black oystercatcher	0	0		0		0		0		0	
Whimbrel	0	0		0		0		0		0	
Godwit	0	0		0		0		0		0	
Semipalmated plover	0	0		0		0		0		0	
Turnstone	0	0		0		0		0		0	
Phalarope	0	0		0		0		0		0	
Small sandpiper	0	0		0		0		0		0	
Wilson's snipe	0	0		0		0		0		0	
Total shorebirds	0	0		0		0		0		0	
<b>Loons and grebes</b>											
Common loon	0	0		0		0		0		0	
Pacific loon	0	0		0		0		0		0	
Red-throated loon	0	0		0		0		0		0	
Yellow-billed loon	0	0		0		0		0		0	
Loon (non-breeding plumage)	0	0		0		0		0		0	
Grebe	0	0		0		0		0		0	
Total loons and grebes	0	0		0		0		0		0	
<b>Total migratory birds</b>	523	2,534	99%	145	178%	0		620	111%	1,768	108%
<b>Ptarmigan</b>	13	63	178%	0		0		0		63	178%
<b>Total birds</b>	536	2,597	97%	145	178%	0		620	111%	1,831	105%

CIP: Confidence interval as percentage of the estimated harvest.

Table 30.—Egg harvest estimates, Womens Bay CDP, 2020.

Species, category	Yearly egg harvest			Spring		Summer		Fall		Winter	
	Reported	Estimated	CIP Estimated								
<b>Ducks</b>											
American wigeon	0	0		0		0		0		0	
Gadwall	0	0		0		0		0		0	
Teal	0	0		0		0		0		0	
Mallard	0	0		0		0		0		0	
Northern pintail	0	0		0		0		0		0	
Northern shoveler	0	0		0		0		0		0	
Black scoter	10	48	178%	48	178%	0		0		0	
Surf scoter	2	10	178%	10	178%	0		0		0	
White-winged scoter	3	15	178%	15	178%	0		0		0	
Bufflehead	6	29	178%	29	178%	0		0		0	
Goldeneye	15	73	178%	73	178%	0		0		0	
Scaup	0	0		0		0		0		0	
Common eider	0	0		0		0		0		0	
King eider	0	0		0		0		0		0	
Spectacled eider	0	0		0		0		0		0	
Steller's eider	0	0		0		0		0		0	
Harlequin duck	0	0		0		0		0		0	
Long-tailed duck	0	0		0		0		0		0	
Merganser	0	0		0		0		0		0	
Total ducks	36	174	178%	174	178%	0		0		0	
<b>Geese</b>											
Black brant	0	0		0		0		0		0	
Cackling/Canada goose	0	0		0		0		0		0	
Greater white-fronted goose	0	0		0		0		0		0	
Emperor goose	0	0		0		0		0		0	
Snow goose	0	0		0		0		0		0	
Total geese	0	0		0		0		0		0	
<b>Swans</b>	0	0		0		0		0		0	
<b>Seabirds</b>											
Cormorant	0	0		0		0		0		0	
Tern	0	0		0		0		0		0	
Black-legged kittiwake	0	0		0		0		0		0	
Red-legged kittiwake	0	0		0		0		0		0	
Mew gull	0	0		0		0		0		0	
Large gull	0	0		0		0		0		0	
Auklet	0	0		0		0		0		0	
Murre	0	0		0		0		0		0	
Guillemot	0	0		0		0		0		0	
Puffin	0	0		0		0		0		0	
Total seabirds	0	0		0		0		0		0	
<b>Shorebirds</b>											
Black oystercatcher	0	0		0		0		0		0	
Whimbrel	0	0		0		0		0		0	
Godwit	0	0		0		0		0		0	
Semipalmated plover	0	0		0		0		0		0	
Turnstone	0	0		0		0		0		0	
Phalarope	0	0		0		0		0		0	
Small sandpiper	0	0		0		0		0		0	
Wilson's snipe	0	0		0		0		0		0	
Total shorebirds	0	0		0		0		0		0	
<b>Loons and grebes</b>											
Common loon	0	0		0		0		0		0	
Pacific loon	0	0		0		0		0		0	
Red-throated loon	0	0		0		0		0		0	
Yellow-billed loon	0	0		0		0		0		0	
Grebe	0	0		0		0		0		0	
Total loons and grebes	0	0		0		0		0		0	
<b>Total migratory birds</b>	36	174	178%	174	178%	0		0		0	
<b>Ptarmigan</b>	0	0		0		0		0		0	
<b>Total eggs</b>	36	174	178%	174	178%	0		0		0	

CIP: Confidence interval as percentage of the estimated harvest.

Table 31.—Bird harvest estimates, Mill Bay CDP and Borough Balance, 2020.

Species, category	Yearly bird harvest			Spring		Summer		Fall		Winter	
	Reported	Estimated	CIP	Estimated	CIP	Estimated	CIP	Estimated	CIP	Estimated	CIP
<b>Ducks</b>											
American wigeon	0	0		0		0		0		0	
Gadwall	0	0		0		0		0		0	
Teal	43	577	179%	134	192%	0		175	153%	268	192%
Mallard	27	362	165%	107	192%	0		121	135%	134	192%
Northern pintail	2	27	192%	27	192%	0		0		0	
Northern shoveler	0	0		0		0		0		0	
Black scoter	90	1,208	192%	671	192%	0		268	192%	268	192%
Surf scoter	25	336	192%	268	192%	0		0		67	192%
White-winged scoter	17	228	170%	134	192%	0		0		94	147%
Bufflehead	25	336	192%	134	192%	0		67	192%	134	192%
Goldeneye	20	268	192%	67	192%	0		0		201	192%
Scaup	60	805	192%	403	192%	0		0		403	192%
Common eider	0	0		0		0		0		0	
King eider	0	0		0		0		0		0	
Spectacled eider	0	0		0		0		0		0	
Steller's eider	0	0		0		0		0		0	
Harlequin duck	90	1,208	192%	671	192%	0		268	192%	268	192%
Long-tailed duck	11	148	175%	134	192%	0		0		13	192%
Merganser	0	0		0		0		0		0	
<b>Total ducks</b>	<b>410</b>	<b>5,503</b>	<b>187%</b>	<b>2,752</b>	<b>192%</b>	<b>0</b>		<b>899</b>	<b>172%</b>	<b>1,852</b>	<b>187%</b>
<b>Geese</b>											
Black brant	0	0		0		0		0		0	
Cackling/Canada goose	10	134	192%	67	192%	0		0		67	192%
Greater white-fronted goose	0	0		0		0		0		0	
Emperor goose	12	161	176%	13	192%	0		0		148	175%
Snow goose	0	0		0		0		0		0	
<b>Total geese</b>	<b>22</b>	<b>295</b>	<b>183%</b>	<b>81</b>	<b>192%</b>	<b>0</b>		<b>0</b>		<b>215</b>	<b>180%</b>
<b>Swans</b>											
	0	0		0		0		0		0	
<b>Seabirds</b>											
Cormorant	0	0		0		0		0		0	
Tern	0	0		0		0		0		0	
Black-legged kittiwake	0	0		0		0		0		0	
Red-legged kittiwake	0	0		0		0		0		0	
Mew gull	0	0		0		0		0		0	
Large gull	0	0		0		0		0		0	
Auklet	0	0		0		0		0		0	
Murre	0	0		0		0		0		0	
Guillemot	0	0		0		0		0		0	
Puffin	0	0		0		0		0		0	
<b>Total seabirds</b>	<b>0</b>	<b>0</b>		<b>0</b>		<b>0</b>		<b>0</b>		<b>0</b>	
<b>Shorebirds</b>											
Black oystercatcher	0	0		0		0		0		0	
Whimbrel	0	0		0		0		0		0	
Godwit	0	0		0		0		0		0	
Semipalmated plover	0	0		0		0		0		0	
Turnstone	0	0		0		0		0		0	
Phalarope	0	0		0		0		0		0	
Small sandpiper	0	0		0		0		0		0	
Wilson's snipe	0	0		0		0		0		0	
<b>Total shorebirds</b>	<b>0</b>	<b>0</b>		<b>0</b>		<b>0</b>		<b>0</b>		<b>0</b>	
<b>Loons and grebes</b>											
Common loon	0	0		0		0		0		0	
Pacific loon	0	0		0		0		0		0	
Red-throated loon	0	0		0		0		0		0	
Yellow-billed loon	0	0		0		0		0		0	
Loon (non-breeding plumage)	0	0		0		0		0		0	
Grebe	0	0		0		0		0		0	
<b>Total loons and grebes</b>	<b>0</b>	<b>0</b>		<b>0</b>		<b>0</b>		<b>0</b>		<b>0</b>	
<b>Total migratory birds</b>	<b>432</b>	<b>5,799</b>	<b>187%</b>	<b>2,832</b>	<b>192%</b>	<b>0</b>		<b>899</b>	<b>172%</b>	<b>2,067</b>	<b>187%</b>
<b>Ptarmigan</b>	<b>36</b>	<b>483</b>	<b>162%</b>	<b>0</b>		<b>0</b>		<b>81</b>	<b>192%</b>	<b>403</b>	<b>192%</b>
<b>Total birds</b>	<b>468</b>	<b>6,282</b>	<b>173%</b>	<b>2,832</b>	<b>192%</b>	<b>0</b>		<b>980</b>	<b>161%</b>	<b>2,470</b>	<b>159%</b>

CIP: Confidence interval as percentage of the estimated harvest.

Table 32.—Egg harvest estimates, Mill Bay CDP and Borough Balance, 2020.

Species, category	Yearly egg harvest			Spring		Summer		Fall		Winter	
	Reported	Estimated	CIP	Estimated	CIP	Estimated	CIP	Estimated	CIP	Estimated	CIP
<b>Ducks</b>											
American wigeon	0	0		0		0		0		0	
Gadwall	0	0		0		0		0		0	
Teal	0	0		0		0		0		0	
Mallard	0	0		0		0		0		0	
Northern pintail	0	0		0		0		0		0	
Northern shoveler	0	0		0		0		0		0	
Black scoter	0	0		0		0		0		0	
Surf scoter	0	0		0		0		0		0	
White-winged scoter	0	0		0		0		0		0	
Bufflehead	0	0		0		0		0		0	
Goldeneye	0	0		0		0		0		0	
Scaup	0	0		0		0		0		0	
Common eider	0	0		0		0		0		0	
King eider	0	0		0		0		0		0	
Spectacled eider	0	0		0		0		0		0	
Steller's eider	0	0		0		0		0		0	
Harlequin duck	0	0		0		0		0		0	
Long-tailed duck	0	0		0		0		0		0	
Merganser	0	0		0		0		0		0	
Total ducks	0	0		0		0		0		0	
<b>Geese</b>											
Black brant	0	0		0		0		0		0	
Cackling/Canada goose	0	0		0		0		0		0	
Greater white-fronted goose	0	0		0		0		0		0	
Emperor goose	0	0		0		0		0		0	
Snow goose	0	0		0		0		0		0	
Total geese	0	0		0		0		0		0	
Swan	0	0		0		0		0		0	
<b>Swans</b>											
Cormorant	0	0		0		0		0		0	
Tern	30	403	192%	403	192%	0		0		0	
Black-legged kittiwake	0	0		0		0		0		0	
Red-legged kittiwake	0	0		0		0		0		0	
Mew gull	10	134	192%	134	192%	0		0		0	
Large gull	50	671	192%	671	192%	0		0		0	
Auklet	0	0		0		0		0		0	
Murre	0	0		0		0		0		0	
Guillemot	0	0		0		0		0		0	
Puffin	0	0		0		0		0		0	
Total seabirds	90	1,208	171%	1,208	171%	0		0		0	
<b>Seabirds</b>											
Black oystercatcher	0	0		0		0		0		0	
Whimbrel	0	0		0		0		0		0	
Godwit	0	0		0		0		0		0	
Semipalmated plover	0	0		0		0		0		0	
Turnstone	0	0		0		0		0		0	
Phalarope	0	0		0		0		0		0	
Small sandpiper	0	0		0		0		0		0	
Wilson's snipe	0	0		0		0		0		0	
Total shorebirds	0	0		0		0		0		0	
<b>Shorebirds</b>											
Common loon	0	0		0		0		0		0	
Pacific loon	0	0		0		0		0		0	
Red-throated loon	0	0		0		0		0		0	
Yellow-billed loon	0	0		0		0		0		0	
Grebe	0	0		0		0		0		0	
Total loons and grebes	0	0		0		0		0		0	
<b>Total migratory birds</b>	90	1,208	171%	1,208	171%	0		0		0	
<b>Ptarmigan</b>	0	0		0		0		0		0	
<b>Total eggs</b>	90	1,208	171%	1,208	171%	0		0		0	

CIP: Confidence interval as percentage of the estimated harvest.

Table 33.—Annual bird harvest estimates, Kodiak City, Womens Bay, Mill Bay and Borough Balance, 1982–2020.

Species, category	Kodiak City						Mill Bay & Balance		Womens Bay			
	1982	1991	1992	1993	2020	1982–2020	1991	2020	2020			
	CSIS	CSIS	CSIS	CSIS	This study	Average	CSIS	This study	This study			
<b>Ducks</b>												
American wigeon	-	19	88	19	0	32	1%	31	0	0%	34	1%
Gadwall	-	19	-	-	38	29	1%	299	0	0%	199	8%
Teal	-	56	193	95	121	116	3%	107	577	9%	136	5%
Mallard	-	507	684	1,196	262	662	17%	535	362	6%	252	10%
Northern pintail	-	38	316	0	19	93	2%	0	27	0%	19	1%
Northern shoveler	-	-	-	-	0	0	0%	-	0	0%	0	0%
Black scoter	-	-	-	-	19	19	1%	-	1,208	19%	136	5%
Surf scoter	-	-	-	-	13	13	0%	-	336	5%	208	8%
White-winged scoter	-	-	-	-	6	6	0%	-	228	4%	131	5%
Scoter (unidentified)	-	56	53	114	-	74	2%	-	0	0%	-	-
Bufflehead	-	770	175	874	177	499	13%	244	336	5%	242	9%
Goldeneye	-	488	508	1,120	276	598	16%	458	268	4%	242	9%
Scaup	-	375	0	133	126	159	4%	153	805	13%	349	13%
Redhead duck	-	-	0	0	-	0	0%	-	-	-	-	-
Canvasback	-	-	-	0	-	0	0%	-	-	-	-	-
Common eider	-	-	-	0	0	0	0%	-	0	0%	0	0%
King eider	-	-	-	0	0	0	0%	-	0	0%	5	0%
Spectacled eider	-	-	-	0	0	0	0%	-	0	0%	0	0%
Steller's eider	-	-	-	0	0	0	0%	-	0	0%	0	0%
Eider (unidentified)	-	-	0	0	0	0	0%	31	0	0%	-	-
Harlequin duck	-	619	210	361	435	406	11%	137	1,208	19%	242	9%
Long-tailed duck	-	188	88	19	82	94	2%	-	148	2%	170	7%
Merganser	-	319	35	57	13	106	3%	122	0	0%	97	4%
Duck (unidentified)	-	75	88	152	0	79	2%	0	0	0%	0	0%
<b>Total ducks</b>	<b>2,067</b>	<b>3,529</b>	<b>2,700</b>	<b>4,140</b>	<b>1,586</b>	<b>2,804</b>	<b>74%</b>	<b>2,047</b>	<b>5,503</b>	<b>88%</b>	<b>2,461</b>	<b>95%</b>
<b>Geese</b>												
Black brant	-	-	123	0	13	45	1%	-	0	0%	0	0%
Cackling/Canada goose	-	75	245	0	36	89	2%	-	134	2%	73	3%
Greater white-fronted goose	-	-	0	0	0	0	0%	0	0	0%	0	0%
Emperor goose	-	-	0	-	25	13	0%	-	161	3%	0	0%
Snow goose	-	-	0	0	0	0	0%	-	0	0%	0	0%
<b>Total geese</b>	<b>80</b>	<b>75</b>	<b>368</b>	<b>0</b>	<b>74</b>	<b>119</b>	<b>3%</b>	<b>0</b>	<b>295</b>	<b>5%</b>	<b>73</b>	<b>3%</b>
<b>Swans</b>												
-	-	-	-	-	0	0	0%	-	0	0%	0	0%
<b>Seabirds</b>												
Cormorant	-	-	-	-	0	0	0%	0	0	0%	0	0%
Tern	-	-	-	-	0	0	0%	-	0	0%	0	0%
Black-legged kittiwake	-	-	-	-	0	0	0%	-	0	0%	0	0%
Red-legged kittiwake	-	-	-	-	0	0	0%	-	0	0%	0	0%
Mew gull	-	-	-	-	0	0	0%	-	0	0%	0	0%
Large gull	-	-	-	-	0	0	0%	-	0	0%	0	0%
Gull (unidentified)	-	-	0	-	0	0	0%	-	-	-	-	-
Auklet	-	-	0	0	0	0	0%	0	0	0%	0	0%
Murre	-	-	-	-	0	0	0%	-	0	0%	0	0%
Guillemot	-	-	-	-	0	0	0%	-	0	0%	0	0%
Puffin	-	-	-	-	38	38	1%	0	0	0%	0	0%
<b>Total seabirds</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>38</b>	<b>38</b>	<b>1%</b>	<b>0</b>	<b>0</b>	<b>0%</b>	<b>0</b>	<b>0%</b>
<b>Shorebirds</b>												
Black oystercatcher	-	-	-	-	0	0	0%	0	0	0%	0	0%
Whimbrel	-	-	-	-	0	0	0%	-	0	0%	0	0%
Godwit	-	-	-	-	0	0	0%	-	0	0%	0	0%
Semipalmated plover	-	-	-	-	0	0	0%	-	0	0%	0	0%
Turnstone	-	-	-	-	0	0	0%	-	0	0%	0	0%
Phalarope	-	-	-	-	0	0	0%	-	0	0%	0	0%
Small sandpiper	-	-	-	-	0	0	0%	-	0	0%	0	0%
Wilson's snipe	-	-	438	0	0	146	4%	0	0	0%	0	0%
<b>Total shorebirds</b>	<b>-</b>	<b>-</b>	<b>438</b>	<b>0</b>	<b>0</b>	<b>146</b>	<b>4%</b>	<b>0</b>	<b>0</b>	<b>0%</b>	<b>0</b>	<b>0%</b>
<b>Loons and grebes</b>												
Common loon	-	-	-	-	0	0	0%	-	0	0%	0	0%
Pacific loon	-	-	-	-	0	0	0%	-	0	0%	0	0%
Red-throated loon	-	-	-	-	0	0	0%	-	0	0%	0	0%
Yellow-billed loon	-	-	-	-	0	0	0%	-	0	0%	0	0%
Loon (non-breeding plumage)	-	-	-	-	0	0	0%	-	0	0%	0	0%
Grebe	-	-	-	-	0	0	0%	-	0	0%	0	0%
<b>Total loons and grebes</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>0</b>	<b>0</b>	<b>0%</b>	<b>0</b>	<b>0</b>	<b>0%</b>	<b>0</b>	<b>0%</b>
Other/unknown bird	0	0	0	0	0	0	0%	0	0	0%	0	0%
<b>Total migratory birds</b>	<b>2,147</b>	<b>3,064</b>	<b>3,506</b>	<b>4,140</b>	<b>1,698</b>	<b>2,911</b>	<b>77%</b>	<b>2,047</b>	<b>5,799</b>	<b>92%</b>	<b>2,534</b>	<b>98%</b>
<b>Ptarmigan</b>	<b>1,635</b>	<b>394</b>	<b>1,210</b>	<b>912</b>	<b>265</b>	<b>883</b>	<b>23%</b>	<b>443</b>	<b>483</b>	<b>8%</b>	<b>63</b>	<b>2%</b>
<b>Grouse</b>	<b>-</b>	<b>-</b>	<b>0</b>	<b>-</b>	<b>-</b>	<b>0</b>	<b>0%</b>	<b>0</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
<b>Total birds</b>	<b>3,782</b>	<b>3,458</b>	<b>4,716</b>	<b>5,052</b>	<b>1,963</b>	<b>3,794</b>	<b>100%</b>	<b>2,490</b>	<b>6,282</b>	<b>100%</b>	<b>2,597</b>	<b>100%</b>

∴ Not specifically named in harvest survey instrument.

Table 34.—Annual egg harvest estimates, Kodiak City, Womens Bay, Mill Bay and Borough Balance, 1982–2020.

Species, category	Kodiak City						Mill Bay & Balance			Womens Bay		
	1982	1991	1992	1993	2020	1982–2020	1991	2020	2020			
	CSIS	CSIS	CSIS	CSIS	This study	Average	CSIS	This study	This study			
<b>Ducks</b>												
American wigeon	-	-	-	-	0	0	0%	-	0	0%	0	0%
Gadwall	-	-	-	-	0	0	0%	-	0	0%	0	0%
Teal	-	-	-	-	0	0	0%	-	0	0%	0	0%
Mallard	-	-	-	-	0	0	0%	-	0	0%	0	0%
Northern pintail	-	-	-	-	0	0	0%	-	0	0%	0	0%
Northern shoveler	-	-	-	-	0	0	0%	-	0	0%	0	0%
Black scoter	-	-	-	-	0	0	0%	-	0	0%	48	28%
Surf scoter	-	-	-	-	0	0	0%	-	0	0%	10	6%
White-winged scoter	-	-	-	-	0	0	0%	-	0	0%	15	9%
Bufflehead	-	-	-	-	0	0	0%	-	0	0%	29	17%
Goldeneye	-	-	-	-	0	0	0%	-	0	0%	73	42%
Scaup	-	-	-	-	0	0	0%	-	0	0%	0	0%
Common eider	-	-	-	-	0	0	0%	-	0	0%	0	0%
King eider	-	-	-	-	0	0	0%	-	0	0%	0	0%
Spectacled eider	-	-	-	-	0	0	0%	-	0	0%	0	0%
Steller's eider	-	-	-	-	0	0	0%	-	0	0%	0	0%
Eider (unidentified)	-	-	0	0	-	0	0%	-	0	0%	-	-
Harlequin duck	-	-	-	-	0	0	0%	-	0	0%	0	0%
Long-tailed duck	-	-	-	-	0	0	0%	-	0	0%	0	0%
Merganser	-	-	-	-	0	0	0%	-	0	0%	0	0%
Duck (unidentified)	-	-	0	0	0	0	0%	0	0	0%	0	0%
Total ducks	-	-	0	0	0	0	0%	-	0	0%	174	100%
<b>Geese</b>												
Black brant	-	-	-	-	0	0	0%	-	0	0%	0	0%
Cackling/Canada goose	-	-	-	-	0	0	0%	-	0	0%	0	0%
Greater white-fronted goose	-	-	-	-	0	0	0%	-	0	0%	0	0%
Emperor goose	-	-	-	-	0	0	0%	-	0	0%	0	0%
Snow goose	-	-	-	-	0	0	0%	-	0	0%	0	0%
Total geese	-	-	-	-	0	0	0%	-	0	0%	0	0%
<b>Swans</b>												
Swans	-	-	-	-	0	0	0%	-	0	0%	0	0%
<b>Seabirds</b>												
Cormorant	-	-	-	-	0	0	0%	-	0	0%	0	0%
Tern	-	-	210	76	0	95	9%	-	403	33%	0	0%
Black-legged kittiwake	-	-	0	0	139	46	4%	0	0	0%	0	0%
Red-legged kittiwake	-	-	-	-	0	0	0%	-	0	0%	0	0%
Mew gull	-	-	-	-	126	126	12%	-	134	11%	0	0%
Large gull	-	-	-	1,139	480	810	77%	-	671	56%	0	0%
Gull (unidentified)	-	-	526	0	0	175		306	0	0%	0	0%
Auklet	-	-	-	-	0	0	0%	-	0	0%	0	0%
Murre	-	-	-	-	0	0	0%	-	0	0%	0	0%
Guillemot	-	-	-	-	0	0	0%	-	0	0%	0	0%
Puffin	-	-	0	0	63	21	2%	-	0	0%	0	0%
Total seabirds	-	-	736	1,215	809	920	88%	306	1,208	100%	0	0%
<b>Shorebirds</b>												
Black oystercatcher	-	-	0	0	57	19	2%	-	0	0%	0	0%
Whimbrel	-	-	-	-	0	0	0%	-	0	0%	0	0%
Godwit	-	-	-	-	0	0	0%	-	0	0%	0	0%
Semipalmated plover	-	-	-	-	0	0	0%	-	0	0%	0	0%
Turnstone	-	-	-	-	0	0	0%	-	0	0%	0	0%
Phalarope	-	-	-	-	0	0	0%	-	0	0%	0	0%
Small sandpiper	-	-	-	-	0	0	0%	-	0	0%	0	0%
Wilson's snipe	-	-	-	-	0	0	0%	-	0	0%	0	0%
Total shorebirds	-	-	0	0	57	19	2%	-	0	0%	0	0%
<b>Loons and grebes</b>												
Common loon	-	-	-	-	0	0	0%	-	0	0%	0	0%
Pacific loon	-	-	-	-	0	0	0%	-	0	0%	0	0%
Red-throated loon	-	-	-	-	0	0	0%	-	0	0%	0	0%
Yellow-billed loon	-	-	-	-	0	0	0%	-	0	0%	0	0%
Grebe	-	-	-	-	0	0	0%	-	0	0%	0	0%
Total loons and grebes	-	-	-	-	0	0	0%	-	0	0%	0	0%
<b>Total migratory birds</b>	-	-	736	1,215	866	939	90%	306	1,208	100%	174	100%
<b>Ptarmigan</b>	-	-	-	-	0	0	0%	-	0	0%	0	0%
<b>Total eggs</b>	1,362	-	736	1,215	866	1,045	100%	306	1,208	100%	174	100%

:- Not specifically named in harvest survey instrument

## HARVEST ESTIMATES AT REGIONAL AND SUBREGIONAL LEVELS

Aleutian-Pribilof Islands Region—The total bird harvest in the Aleutian-Pribilof Islands region in 2020 was 2,858 birds (Table 35). The seasonal distribution of harvests was 33% in spring-summer and 67% in fall-winter. The total egg harvest was 1,264 eggs (Table 36). The 2020 estimates compare to 8,402 birds and 4,778 eggs estimated as harvested in 2008 (Table 37; Naves 2010). Comparable estimates at the regional level were not available for other years. Aleutian-Pribilof Islands residents reported harvesting 52 emperor geese leading to an estimated (extrapolated) harvest of 210 geese.

Aleutian-Pribilof Communities Subregion—The total harvest in this subregion in 2020 was 2,017 birds (Table 38) and 1,046 eggs (Table 39). Comparable harvest estimates at the subregion level were available for 2005, 2007, and 2008 (tables 40 and 41; Naves 2010rev.; 2010).

Unalaska Subregion—This study used 2020 Unalaska data from Keating et al. (2022) to generate harvest estimates at the regional level (tables 42 and 43). The 2020 bird and egg harvest estimates were similar to those available for 2008 (Table 44; Naves 2010rev.).

Kodiak Archipelago Region—The total bird harvest in this region in 2020 was 14,327 birds (Table 45). The seasonal distribution of harvests was 28% in spring-summer and 72% in fall-winter. The total egg harvest was 3,718 eggs (Table 46). The 2020 estimates compare to 6,925 birds in 2010 and 5,223 eggs in 2006 and 804 eggs in 2010 (Table 47; Naves 2012; 2010rev.; 2006 annual harvest estimates at the regions level were only available for eggs). Residents of the Kodiak Archipelago reported harvesting 26 emperor geese leading to an estimated harvest of 244 geese.

Kodiak Communities Subregion—The total harvest in this subregion in 2020 was 1,730 birds (Table 48) and 1,106 eggs (Table 49). Comparable estimates at the subregion level were available for 2006 and 2010 (Table 50; Naves 2012; 2010rev.). The 2020 estimates for birds and eggs in general were within the range of the values available for previous years.

Kodiak Roaded Area Subregion—The total harvest in this subregion in 2020 was 12,597 birds (Table 51) and 2,612 eggs (Table 52). Comparable estimates at the subregion level were available for 2010 and 2021 for birds and for 2006, 2010, and 2021 for eggs (Table 53; Keating et al. *In prep* b; Naves 2012; 2010rev.). The 2020 bird and egg estimates were higher than others available, but with few data points for comparison, it is difficult to assess differences. Higher estimates for the Kodiak roaded area accounted for higher estimates at the regional level.

Table 35.—Bird harvest estimates, Aleutian-Pribilof Islands region, 2020.

Species, category	Yearly bird harvest			Spring		Summer		Fall		Winter	
	Reported	Estimated	CIP	Estimated	CIP	Estimated	CIP	Estimated	CIP	Estimated	CIP
<b>Ducks</b>											
American wigeon	5	16	87%	8	126%	0		0		8	122%
Gadwall	2	18	185%	0		0		9	185%	9	185%
Teal	103	529	71%	78	93%	56	134%	139	126%	256	79%
Mallard	43	208	55%	43	78%	0		68	103%	97	82%
Northern pintail	0	0		0		0		0		0	
Northern shoveler	1	9	185%	0		0		9	185%	0	
Black scoter	12	26	92%	17	123%	0		0		9	123%
Surf scoter	6	13	123%	0		0		0		13	123%
White-winged scoter	0	0		0		0		0		0	
Bufflehead	4	11	122%	0		0		0		11	122%
Goldeneye	13	29	93%	0		0		0		29	93%
Canvasback	5	25	133%	0		0		0		25	133%
Scaup	1	9	185%	0		0		0		9	185%
Common eider	6	19	88%	0		0		8	126%	11	122%
King eider	16	109	95%	4	126%	0		0		105	98%
Spectacled eider	1	4	126%	0		0		4	126%	0	
Steller's eider	0	0		0		0		0		0	
Harlequin duck	88	198	72%	64	123%	0		39	91%	95	60%
Long-tailed duck	6	33	113%	28	134%	0		0		5	86%
Merganser	15	70	124%	0		0		9	185%	61	118%
Duck (unidentified)	3	26	185%	0		0		0		26	185%
<b>Total ducks</b>	<b>330</b>	<b>1,352</b>	<b>49%</b>	<b>242</b>	<b>65%</b>	<b>56</b>	<b>134%</b>	<b>285</b>	<b>94%</b>	<b>769</b>	<b>54%</b>
<b>Geese</b>											
Black brant	28	114	80%	37	126%	8	126%	0		69	112%
Cackling/Canada goose	2	14	134%	14	134%	0		0		0	
Greater white-fronted goose	0	0		0		0		0		0	
Emperor goose	52	210	76%	16	99%	0		13	133%	181	87%
Snow goose	0	0		0		0		0		0	
<b>Total geese</b>	<b>82</b>	<b>338</b>	<b>72%</b>	<b>67</b>	<b>96%</b>	<b>8</b>	<b>126%</b>	<b>13</b>	<b>133%</b>	<b>250</b>	<b>93%</b>
<b>Swans</b>											
	0	0		0		0		0		0	
<b>Seabirds</b>											
Cormorant	0	0		0		0		0		0	
Tern	0	0		0		0		0		0	
Black-legged kittiwake	3	21	134%	21	134%	0		0		0	
Red-legged kittiwake	73	513	81%	141	134%	281	96%	91	134%	0	
Mew gull	0	0		0		0		0		0	
Large gull	0	0		0		0		0		0	
Auklet	0	0		0		0		0		0	
Murre	0	0		0		0		0		0	
Guillemot	0	0		0		0		0		0	
Puffin	33	72	109%	34	109%	4	123%	34	123%	0	
<b>Total seabirds</b>	<b>109</b>	<b>607</b>	<b>72%</b>	<b>196</b>	<b>112%</b>	<b>285</b>	<b>95%</b>	<b>126</b>	<b>103%</b>	<b>0</b>	
<b>Shorebirds</b>											
Black oystercatcher	0	0		0		0		0		0	
Godwit	0	0		0		0		0		0	
Semipalmated plover	0	0		0		0		0		0	
Turnstone	0	0		0		0		0		0	
Phalarope	0	0		0		0		0		0	
Small sandpiper	0	0		0		0		0		0	
Wilson's snipe	10	88	185%	35	185%	0		53	185%	0	
<b>Total shorebirds</b>	<b>10</b>	<b>88</b>	<b>185%</b>	<b>35</b>	<b>185%</b>	<b>0</b>		<b>53</b>	<b>185%</b>	<b>0</b>	
<b>Loons and grebes</b>											
Common loon	0	0		0		0		0		0	
Pacific loon	0	0		0		0		0		0	
Red-throated loon	0	0		0		0		0		0	
Yellow-billed loon	0	0		0		0		0		0	
Loon (non-breeding plumage)	0	0		0		0		0		0	
Grebe	0	0		0		0		0		0	
<b>Total loons and grebes</b>	<b>0</b>	<b>0</b>		<b>0</b>		<b>0</b>		<b>0</b>		<b>0</b>	
Other/unknown bird	0	0		0		0		0		0	
<b>Total migratory birds</b>	<b>531</b>	<b>2,384</b>	<b>41%</b>	<b>539</b>	<b>66%</b>	<b>350</b>	<b>79%</b>	<b>476</b>	<b>75%</b>	<b>1,019</b>	<b>55%</b>
<b>Ptarmigan</b>	<b>92</b>	<b>474</b>	<b>53%</b>	<b>61</b>	<b>98%</b>	<b>0</b>		<b>137</b>	<b>68%</b>	<b>276</b>	<b>65%</b>
<b>Total birds</b>	<b>623</b>	<b>2,858</b>	<b>38%</b>	<b>600</b>	<b>63%</b>	<b>350</b>	<b>79%</b>	<b>612</b>	<b>65%</b>	<b>1,296</b>	<b>49%</b>

CIP: Confidence interval as percentage of the estimated harvest.

Table 36.—Egg harvest estimates, Aleutian-Pribilof Islands region, 2020.

Species, category	Yearly egg harvest			Spring		Summer		Fall		Winter	
	Reported	Estimated	CIP	Estimated	CIP	Estimated	CIP	Estimated	CIP	Estimated	CIP
<b>Ducks</b>											
American wigeon	0	0		0		0		0		0	
Gadwall	0	0		0		0		0		0	
Teal	0	0		0		0		0		0	
Mallard	0	0		0		0		0		0	
Northern pintail	0	0		0		0		0		0	
Northern shoveler	0	0		0		0		0		0	
Black scoter	0	0		0		0		0		0	
Surf scoter	0	0		0		0		0		0	
White-winged scoter	0	0		0		0		0		0	
Bufflehead	0	0		0		0		0		0	
Goldeneye	0	0		0		0		0		0	
Scaup	0	0		0		0		0		0	
Common eider	0	0		0		0		0		0	
King eider	0	0		0		0		0		0	
Spectacled eider	0	0		0		0		0		0	
Steller's eider	0	0		0		0		0		0	
Harlequin duck	0	0		0		0		0		0	
Long-tailed duck	0	0		0		0		0		0	
Merganser	0	0		0		0		0		0	
Total ducks	0	0		0		0		0		0	
<b>Geese</b>											
Black brant	0	0		0		0		0		0	
Cackling/Canada goose	0	0		0		0		0		0	
Greater white-fronted goose	0	0		0		0		0		0	
Emperor goose	0	0		0		0		0		0	
Snow goose	0	0		0		0		0		0	
Total geese	0	0		0		0		0		0	
Swan	0	0		0		0		0		0	
<b>Seabirds</b>											
Cormorant	0	0		0		0		0		0	
Tern	0	0		0		0		0		0	
Black-legged kittiwake	12	49	126%	49	126%	0		0		0	
Red-legged kittiwake	0	0		0		0		0		0	
Mew gull	0	0		0		0		0		0	
Large gull	245	659	55%	659	55%	0		0		0	
Auklet	0	0		0		0		0		0	
Murre	28	197	115%	197	115%	0		0		0	
Guillemot	0	0		0		0		0		0	
Puffin	24	51	123%	26	123%	26	123%	0		0	
Total seabirds	309	956	45%	930	46%	26	123%	0		0	
<b>Shorebirds</b>											
Black oystercatcher	67	309	135%	283	145%	26	123%	0		0	
Godwit	0	0		0		0		0		0	
Semipalmated plover	0	0		0		0		0		0	
Turnstone	0	0		0		0		0		0	
Phalarope	0	0		0		0		0		0	
Small sandpiper	0	0		0		0		0		0	
Wilson's snipe	0	0		0		0		0		0	
Total shorebirds	67	309	135%	283	145%	26	123%	0		0	
<b>Loons and grebes</b>											
Common loon	0	0		0		0		0		0	
Pacific loon	0	0		0		0		0		0	
Red-throated loon	0	0		0		0		0		0	
Yellow-billed loon	0	0		0		0		0		0	
Grebe	0	0		0		0		0		0	
Total loons and grebes	0	0		0		0		0		0	
Other/unknown bird	0	0		0		0		0		0	
<b>Total migratory birds</b>	<b>376</b>	<b>1,264</b>	<b>48%</b>	<b>1,213</b>	<b>49%</b>	<b>51</b>	<b>123%</b>	<b>0</b>		<b>0</b>	
<b>Ptarmigan</b>	<b>0</b>	<b>0</b>		<b>0</b>		<b>0</b>		<b>0</b>		<b>0</b>	
<b>Total eggs</b>	<b>376</b>	<b>1,264</b>	<b>48%</b>	<b>1,213</b>	<b>49%</b>	<b>51</b>	<b>123%</b>	<b>0</b>		<b>0</b>	

CIP: Confidence interval as percentage of the estimated harvest.

Table 37.—Annual bird and egg harvest estimates, Aleutian-Pribilof Islands region, 2008 and 2020.

Species, category	Bird 2008	Bird 2020	Egg 2008	Egg 2020
	Naves (2010)	This study	Naves (2010)	This study
<b>Ducks</b>				
American wigeon	0	16	0	0
Gadwall	-	18	-	0
Teal	1,647	529	0	0
Mallard	2,108	208	0	0
Northern pintail	39	0	0	0
Northern shoveler	0	9	0	0
Black scoter	77	26	0	0
Surf scoter	0	13	0	0
White-winged scoter	58	0	0	0
Bufflehead	29	11	0	0
Goldeneye	30	29	0	0
Canvasback	0	25	0	-
Scaup	9	9	0	0
Common eider	0	19	0	0
King eider	0	109	0	0
Spectacled eider	0	4	0	0
Steller's eider	12	0	0	0
Harlequin duck	210	198	0	0
Long-tailed duck	0	33	0	0
Merganser	55	70	32	0
Duck (unidentified)	86	26	194	0
Total ducks	4,360	1,352	226	0
<b>Geese</b>				
Black brant	555	114	0	0
Cackling/Canada goose	996	14	0	0
Greater white-fronted goose	0	0	0	0
Emperor goose	109	210	0	0
Snow goose	0	0	0	0
Total geese	1,660	338	0	0
<b>Swans</b>				
	0	0	0	0
<b>Seabirds</b>				
Cormorant	0	0	0	0
Tern	0	0	0	0
Black-legged kittiwake	0	21	0	49
Red-legged kittiwake	0	513	0	0
Mew gull	-	0	-	0
Large gull	0	0	4,277	659
Auklet	0	0	0	0
Murre	11	0	65	197
Guillemot	0	0	0	0
Puffin	252	72	0	51
Total seabirds	263	607	4,342	956
<b>Shorebirds</b>				
Black oystercatcher	64	0	172	309
Godwit	0	0	0	0
Semipalmated plover	-	0	-	0
Turnstone	-	0	-	0
Phalarope	-	0	-	0
Small sandpiper	0	0	0	0
Wilson's snipe	-	88	-	0
Total shorebirds	64	88	172	309
<b>Loons and grebes</b>				
Common loon	0	0	0	0
Pacific loon	0	0	0	0
Red-throated loon	0	0	0	0
Yellow-billed loon	0	0	0	0
Loon (non-breeding plumage)	-	0	-	0
Grebe	-	0	0	0
Total loons and grebes	0	0	0	0
Other/unknown bird	0	0	27	0
<b>Total migratory birds</b>	<b>6,347</b>	<b>2,384</b>	<b>4,767</b>	<b>1,264</b>
<b>Ptarmigan</b>	<b>2,055</b>	<b>474</b>	<b>11</b>	<b>0</b>
<b>Total</b>	<b>8,402</b>	<b>2,858</b>	<b>4,778</b>	<b>1,264</b>

-. Not specifically named in survey instrument.

Table 38.—Bird harvest estimates, Aleutian-Pribilof Communities subregion, 2020.

Species, category	Yearly bird harvest			Spring		Summer		Fall		Winter	
	Reported	Estimated	CIP								
<b>Ducks</b>											
American wigeon	5	16	88%	8	126%	0		0		8	122%
Gadwall	0	0		0		0		0		0	
Teal	70	240	57%	25	88%	56	134%	16	77%	143	77%
Mallard	37	155	59%	43	78%	0		24	94%	88	89%
Northern pintail	0	0		0		0		0		0	
Northern shoveler	0	0		0		0		0		0	
Black scoter	12	26	92%	17	124%	0		0		9	124%
Surf scoter	6	13	124%	0		0		0		13	124%
White-winged scoter	0	0		0		0		0		0	
Bufflehead	4	11	122%	0		0		0		11	122%
Goldeneye	13	29	93%	0		0		0		29	93%
Canvasback	3	8	122%	0		0		0		8	122%
Scaup	0	0		0		0		0		0	
Common eider	6	19	88%	0		0		8	126%	11	122%
King eider	16	109	95%	4	126%	0		0		105	99%
Spectacled eider	1	4	126%	0		0		4	126%	0	
Steller's eider	0	0		0		0		0		0	
Harlequin duck	88	198	72%	64	124%	0		39	91%	95	60%
Long-tailed duck	6	33	113%	28	134%	0		0		5	86%
Merganser	10	26	122%	0		0		0		26	122%
Total ducks	277	888	38%	189	75%	56	134%	92	65%	550	48%
<b>Geese</b>											
Black brant	28	114	80%	37	126%	8	126%	0		69	112%
Cackling/Canada goose	2	14	134%	14	134%	0		0		0	
Greater white-fronte	0	0		0		0		0		0	
Emperor goose	48	175	89%	16	99%	0		4	126%	155	100%
Snow goose	0	0		0		0		0		0	
Total geese	78	303	79%	67	96%	8	126%	4	126%	224	103%
<b>Swan</b>	0	0		0		0		0		0	
<b>Seabirds</b>											
Cormorant	0	0		0		0		0		0	
Tern	0	0		0		0		0		0	
Black-legged kittiwa	3	21	134%	21	134%	0		0		0	
Red-legged kittiwa	73	513	81%	141	134%	281	96%	91	134%	0	
Mew gull	0	0		0		0		0		0	
Large gull	0	0		0		0		0		0	
Auklet	0	0		0		0		0		0	
Murre	0	0		0		0		0		0	
Guillemot	0	0		0		0		0		0	
Puffin	33	72	110%	34	110%	4	124%	34	124%	0	
Total seabirds	109	607	72%	196	112%	285	95%	126	103%	0	
<b>Shorebirds</b>											
Black oystercatcher	0	0		0		0		0		0	
Godwit	0	0		0		0		0		0	
Semipalmated plover	0	0		0		0		0		0	
Turnstone	0	0		0		0		0		0	
Phalarope	0	0		0		0		0		0	
Small sandpiper	0	0		0		0		0		0	
Wilson's snipe	0	0		0		0		0		0	
Total shorebirds	0	0		0		0		0		0	
<b>Loons and grebes</b>											
Common loon	0	0		0		0		0		0	
Pacific loon	0	0		0		0		0		0	
Red-throated loon	0	0		0		0		0		0	
Yellow-billed loon	0	0		0		0		0		0	
Loon (non-breeding)	0	0		0		0		0		0	
Grebe	0	0		0		0		0		0	
Total loons and grebe	0	0		0		0		0		0	
Other/unknown bird	0	0		0		0		0		0	
Total migratory birds	464	1,797	41%	452	74%	350	79%	222	70%	774	59%
<b>Ptarmigan</b>	63	220	49%	61	98%	0		76	62%	83	84%
<b>Total birds</b>	527	2,017	39%	513	70%	350	79%	297	55%	858	61%

CIP: Confidence interval as percentage of the estimated harvest.

Table 39.—Egg harvest estimates, Aleutian-Pribilof Communities subregion, 2020.

Species, category	Yearly egg harvest			Spring		Summer		Fall		Winter	
	Reported	Estimated	CIP	Estimated	CIP	Estimated	CIP	Estimated	CIP	Estimated	CIP
<b>Ducks</b>											
American wigeon	0	0		0		0		0		0	
Gadwall	0	0		0		0		0		0	
Teal	0	0		0		0		0		0	
Mallard	0	0		0		0		0		0	
Northern pintail	0	0		0		0		0		0	
Northern shoveler	0	0		0		0		0		0	
Black scoter	0	0		0		0		0		0	
Surf scoter	0	0		0		0		0		0	
White-winged scoter	0	0		0		0		0		0	
Bufflehead	0	0		0		0		0		0	
Goldeneye	0	0		0		0		0		0	
Scaup	0	0		0		0		0		0	
Common eider	0	0		0		0		0		0	
King eider	0	0		0		0		0		0	
Spectacled eider	0	0		0		0		0		0	
Steller's eider	0	0		0		0		0		0	
Harlequin duck	0	0		0		0		0		0	
Long-tailed duck	0	0		0		0		0		0	
Merganser	0	0		0		0		0		0	
Total ducks	0	0		0		0		0		0	
<b>Geese</b>											
Black brant	0	0		0		0		0		0	
Cackling/Canada goose	0	0		0		0		0		0	
Greater white-fronted goc	0	0		0		0		0		0	
Emperor goose	0	0		0		0		0		0	
Snow goose	0	0		0		0		0		0	
Total geese	0	0		0		0		0		0	
<b>Swan</b>	0	0		0		0		0		0	
<b>Seabirds</b>											
Cormorant	0	0		0		0		0		0	
Tern	0	0		0		0		0		0	
Black-legged kittiwake	12	49	126%	49	126%	0		0		0	
Red-legged kittiwake	0	0		0		0		0		0	
Mew gull	0	0		0		0		0		0	
Large gull	245	659	55%	659	55%	0		0		0	
Auklet	0	0		0		0		0		0	
Murre	28	197	116%	197	116%	0		0		0	
Guillemot	0	0		0		0		0		0	
Puffin	24	51	124%	26	124%	26	124%	0		0	
<b>Shorebirds</b>											
Total seabirds	309	956	45%	930	46%	26	124%	0		0	
Black oystercatcher	42	90	107%	64	100%	26	124%	0		0	
Godwit	0	0		0		0		0		0	
Semipalmated plover	0	0		0		0		0		0	
Turnstone	0	0		0		0		0		0	
Phalarope	0	0		0		0		0		0	
Small sandpiper	0	0		0		0		0		0	
Wilson's snipe	0	0		0		0		0		0	
Total shorebirds	42	90	107%	64	100%	26	124%	0		0	
<b>Loons and grebes</b>											
Common loon	0	0		0		0		0		0	
Pacific loon	0	0		0		0		0		0	
Red-throated loon	0	0		0		0		0		0	
Yellow-billed loon	0	0		0		0		0		0	
Grebe	0	0		0		0		0		0	
Total loons and grebes	0	0		0		0		0		0	
Other/unknown bird	0	0		0		0		0		0	
Total migratory birds	351	1,046	44%	994	45%	51	124%	0		0	
<b>Ptarmigan</b>	0	0		0		0		0		0	
<b>Total eggs</b>	351	1,046	44%	994	45%	51	124%	0		0	

CIP: Confidence interval as percentage of the estimated harvest.

Table 40.—Annual bird harvest estimates, Aleutian-Pribilof Communities subregion, 2005–2020.

Species, category	2005	2007	2008	2020	2005–2020 Average	
	Naves (2009)	Naves (2009)	Naves (2010)	This study		
<b>Ducks</b>						
American wigeon	257	0	0	16	68	0.8%
Gadwall	-	-	-	0	0	0.0%
Teal	1,844	447	1,566	240	1,024	12.1%
Mallard	1,795	0	2,000	155	988	11.6%
Northern pintail	983	0	33	0	254	3.0%
Northern shoveler	78	0	0	0	20	0.2%
Black scoter	143	383	77	26	157	1.9%
Surf scoter	15	0	0	13	7	0.1%
White-winged scoter	123	1,021	58	0	301	3.5%
Bufflehead	242	191	29	11	118	1.4%
Goldeneye	879	0	3	29	228	2.7%
Canvasback	185	0	0	8	48	0.6%
Scaup	214	64	9	0	72	0.8%
Common eider	72	0	0	19	23	0.3%
King eider	80	0	0	109	47	0.6%
Spectacled eider	0	0	0	4	1	0.0%
Steller's eider	0	0	12	0	3	0.0%
Harlequin duck	775	2,234	129	198	834	9.8%
Long-tailed duck	39	0	0	33	18	0.2%
Merganser	243	64	17	26	88	1.0%
Duck (unidentified)	39	0	0	0	10	0.1%
Total ducks	8,006	4,404	3,933	888	4,308	50.8%
<b>Geese</b>						
Black brant	1,450	0	523	114	522	6.2%
Cackling/Canada goose	4,208	0	996	14	1,305	15.4%
Greater white-fronted goose	13	0	0	0	3	0.0%
Emperor goose	213	223	45	175	164	1.9%
Snow goose	0	0	0	0	0	0.0%
Total geese	5,884	223	1,564	303	1,994	23.5%
<b>Swan</b>	7	0	0	0	2	0.0%
<b>Sandhill crane</b>	59	0	0	-	20	0.2%
<b>Seabirds</b>						
Cormorant	0	0	0	0	0	0.0%
Tern	0	0	0	0	0	0.0%
Black-legged kittiwake	0	0	0	21	5	0.1%
Red-legged kittiwake	0	0	0	513	128	1.5%
Mew gull	-	-	-	0	0	0.0%
Large gull	78	0	0	0	20	0.2%
Auklet	0	0	0	0	0	0.0%
Murre	0	0	0	0	0	0.0%
Guillemot	0	0	0	0	0	0.0%
Puffin	731	2,744	252	72	950	11.2%
Total seabirds	809	2,744	252	607	1,103	13.0%
<b>Shorebirds</b>						
Black oystercatcher	39	0	64	0	26	0.3%
Godwit	0	0	0	0	0	0.0%
Semipalmated plover	-	-	-	0	0	0.0%
Turnstone	-	-	-	0	0	0.0%
Phalarope	-	-	-	0	0	0.0%
Golden plover	156	0	0	-	52	0.6%
Small sandpiper	325	0	0	0	81	1.0%
Wilson's snipe	-	-	-	0	0	0.0%
Total shorebirds	520	0	64	0	146	1.7%
<b>Loons and grebes</b>						
Common loon	0	0	0	0	0	0.0%
Pacific loon	0	0	0	0	0	0.0%
Red-throated loon	0	0	0	0	0	0.0%
Yellow-billed loon	0	0	0	0	0	0.0%
Loon (non-breeding plumage)	-	-	-	0	0	0.0%
Grebe	-	-	-	0	0	0.0%
Total loons and grebes	0	0	0	0	0	0.0%
Other/unknown bird	0	0	0	0	0	0.0%
<b>Total migratory birds</b>	15,285	7,371	5,813	1,797	7,567	89.3%
<b>Ptarmigan</b>	1,591	0	1,829	220	910	10.7%
<b>Total birds</b>	16,876	7,371	7,642	2,017	8,477	100.0%

-: Not specifically named in survey instrument.

Table 41.—Annual egg harvest estimates, Aleutian-Pribilof Communities subregion, 2005–2020.

Species, category	2005	2007	2008	2020	2005–2020 Average	
	Naves (2009)	Naves (2009)	Naves (2010)	This study		
<b>Ducks</b>						
American wigeon	0	0	0	0	0	0.0%
Gadwall	-	-	-	0	0	0.0%
Teal	0	0	0	0	0	0.0%
Mallard	0	0	0	0	0	0.0%
Northern pintail	0	0	0	0	0	0.0%
Northern shoveler	0	0	0	0	0	0.0%
Black scoter	0	0	0	0	0	0.0%
Surf scoter	0	0	0	0	0	0.0%
White-winged scoter	0	0	0	0	0	0.0%
Bufflehead	0	0	0	0	0	0.0%
Goldeneye	0	0	0	0	0	0.0%
Scaup	0	0	0	0	0	0.0%
Common eider	0	0	0	0	0	0.0%
King eider	51	0	0	0	13	0.2%
Spectacled eider	0	0	0	0	0	0.0%
Steller's eider	0	0	0	0	0	0.0%
Harlequin duck	0	0	0	0	0	0.0%
Long-tailed duck	0	0	0	0	0	0.0%
Merganser	0	0	0	0	0	0.0%
Total ducks	51	0	0	0	13	0.2%
<b>Geese</b>						
Black brant	0	0	0	0	0	0.0%
Cackling/Canada goose	0	0	0	0	0	0.0%
Greater white-fronted goose	0	0	0	0	0	0.0%
Emperor goose	0	0	0	0	0	0.0%
Snow goose	0	0	0	0	0	0.0%
Total geese	0	0	0	0	0	0.0%
<b>Swan</b>						
	0	0	0	0	0	0.0%
<b>Seabirds</b>						
Cormorant	0	0	0	0	0	0.0%
Tern	65	0	0	0	16	0.3%
Black-legged kittiwake	117	0	0	49	41	0.7%
Red-legged kittiwake	39	0	0	0	10	0.2%
Mew gull	-	-	-	0	0	0.0%
Large gull	9,933	6,127	4,008	659	5,182	90.4%
Auklet	0	0	0	0	0	0.0%
Murre	0	0	0	197	49	0.9%
Guillemot	0	0	0	0	0	0.0%
Puffin	156	0	0	51	52	0.9%
Total seabirds	10,310	6,127	4,008	956	5,350	93.4%
<b>Shorebirds</b>						
Black oystercatcher	294	0	11	90	99	1.7%
Godwit	0	0	0	0	0	0.0%
Semipalmated plover	-	-	-	0	0	0.0%
Turnstone	-	-	-	0	0	0.0%
Phalarope	-	-	-	0	0	0.0%
Golden plover	101	0	0	-	34	0.6%
Small sandpiper	0	0	0	0	0	0.0%
Wilson's snipe	-	-	-	0	0	0.0%
Total shorebirds	395	0	11	90	124	2.2%
<b>Loons and grebes</b>						
Common loon	0	0	0	0	0	0.0%
Pacific loon	0	0	0	0	0	0.0%
Red-throated loon	0	0	0	0	0	0.0%
Yellow-billed loon	0	0	0	0	0	0.0%
Grebe	-	-	-	0	0	0.0%
Total loons and grebes	0	0	0	0	0	0.0%
Other/unknown bird	0	0	0	0	0	0.0%
Total migratory birds	10,756	6,127	4,019	1,046	5,487	95.7%
<b>Ptarmigan</b>						
	977	0	0	0	244	4.3%
Total eggs	11,733	6,127	4,019	1,046	5,731	100.0%

-: Not specifically named in survey instrument.

Table 42.—Bird harvest estimates, Unalaska subregion, 2020 (Keating et al. 2022).

Species, category	Yearly bird harvest			Spring		Summer		Fall		Winter	
	Reported	Estimated	CIP	Estimated	CIP	Estimated	CIP	Estimated	CIP	Estimated	CIP
<b>Ducks</b>											
American wigeon	0	0		0		0		0		0	
Gadwall	2	18	186%	0		0		9	186%	9	186%
Teal	33	289	121%	53	131%	0		123	143%	114	149%
Mallard	6	53	131%	0		0		44	153%	9	186%
Northern pintail	0	0		0		0		0		0	
Northern shoveler	1	9	186%	0		0		9	186%	0	
Black scoter	0	0		0		0		0		0	
Surf scoter	0	0		0		0		0		0	
White-winged scoter	0	0		0		0		0		0	
Bufflehead	0	0		0		0		0		0	
Goldeneye	0	0		0		0		0		0	
Canvasback	2	18	186%	0		0		0		18	186%
Scaup	1	9	186%	0		0		0		9	186%
Common eider	0	0		0		0		0		0	
King eider	0	0		0		0		0		0	
Spectacled eider	0	0		0		0		0		0	
Steller's eider	0	0		0		0		0		0	
Harlequin duck	0	0		0		0		0		0	
Long-tailed duck	0	0		0		0		0		0	
Merganser	5	44	186%	0		0		9	186%	35	186%
Duck (unidentified)	3	26	186%	0		0		0		26	186%
Total ducks	53	464	123%	53	131%	0		193	136%	219	145%
<b>Geese</b>											
Black brant	0	0		0		0		0		0	
Cackling/Canada goose	0	0		0		0		0		0	
Greater white-fronted goose	0	0		0		0		0		0	
Emperor goose	4	35	92%	0		0		9	186%	26	107%
Snow goose	0	0		0		0		0		0	
Total geese	4	35	92%	0		0		9	186%	26	107%
<b>Swan</b>	0	0		0		0		0		0	
<b>Seabirds</b>											
Cormorant	0	0		0		0		0		0	
Tern	0	0		0		0		0		0	
Black-legged kittiwake	0	0		0		0		0		0	
Red-legged kittiwake	0	0		0		0		0		0	
Mew gull	0	0		0		0		0		0	
Large gull	0	0		0		0		0		0	
Auklet	0	0		0		0		0		0	
Murre	0	0		0		0		0		0	
Guillemot	0	0		0		0		0		0	
Puffin	0	0		0		0		0		0	
Total seabirds	0	0		0		0		0		0	
<b>Shorebirds</b>											
Black oystercatcher	0	0		0		0		0		0	
Godwit	0	0		0		0		0		0	
Semipalmated plover	0	0		0		0		0		0	
Turnstone	0	0		0		0		0		0	
Phalarope	0	0		0		0		0		0	
Small sandpiper	0	0		0		0		0		0	
Wilson's snipe	10	88	186%	35	186%	0		53	186%	0	
Total shorebirds	10	88	186%	35	186%	0		53	186%	0	
<b>Loons and grebes</b>											
Common loon	0	0		0		0		0		0	
Pacific loon	0	0		0		0		0		0	
Red-throated loon	0	0		0		0		0		0	
Yellow-billed loon	0	0		0		0		0		0	
Loon (non-breeding plumage)	0	0		0		0		0		0	
Grebe	0	0		0		0		0		0	
Total loons and grebes	0	0		0		0		0		0	
Other/unknown bird	0	0		0		0		0		0	
Total migratory birds	67	587	111%	88	142%	0		254	127%	245	131%
<b>Ptarmigan</b>	29	254	90%	0		0		61	133%	193	86%
<b>Total birds</b>	96	840	90%	88	142%	0		315	115%	438	83%

CIP: Confidence interval as percentage of the estimated harvest.

Table 43.—Egg harvest estimates, Unalaska subregion, 2020 (Keating et al. 2022).

Species, category	Yearly egg harvest			Spring		Summer		Fall		Winter	
	Reported	Estimated	CIP	Estimated	CIP	Estimated	CIP	Estimated	CIP	Estimated	CIP
<b>Ducks</b>											
American wigeon	0	0		0		0		0		0	
Gadwall	0	0		0		0		0		0	
Teal	0	0		0		0		0		0	
Mallard	0	0		0		0		0		0	
Northern pintail	0	0		0		0		0		0	
Northern shoveler	0	0		0		0		0		0	
Black scoter	0	0		0		0		0		0	
Surf scoter	0	0		0		0		0		0	
White-winged scoter	0	0		0		0		0		0	
Bufflehead	0	0		0		0		0		0	
Goldeneye	0	0		0		0		0		0	
Scaup	0	0		0		0		0		0	
Common eider	0	0		0		0		0		0	
King eider	0	0		0		0		0		0	
Spectacled eider	0	0		0		0		0		0	
Steller's eider	0	0		0		0		0		0	
Harlequin duck	0	0		0		0		0		0	
Long-tailed duck	0	0		0		0		0		0	
Merganser	0	0		0		0		0		0	
Total ducks	0	0		0		0		0		0	
<b>Geese</b>											
Black brant	0	0		0		0		0		0	
Cackling/Canada goose	0	0		0		0		0		0	
Greater white-fronted goose	0	0		0		0		0		0	
Emperor goose	0	0		0		0		0		0	
Snow goose	0	0		0		0		0		0	
Total geese	0	0		0		0		0		0	
<b>Swan</b>	0	0		0		0		0		0	
<b>Seabirds</b>											
Cormorant	0	0		0		0		0		0	
Tern	0	0		0		0		0		0	
Black-legged kittiwake	0	0		0		0		0		0	
Red-legged kittiwake	0	0		0		0		0		0	
Mew gull	0	0		0		0		0		0	
Large gull	0	0		0		0		0		0	
Auklet	0	0		0		0		0		0	
Murre	0	0		0		0		0		0	
Guillemot	0	0		0		0		0		0	
Puffin	0	0		0		0		0		0	
Total seabirds	0	0		0		0		0		0	
<b>Shorebirds</b>											
Black oystercatcher	25	219	186%	219	186%	0		0		0	
Godwit	0	0		0		0		0		0	
Semipalmated plover	0	0		0		0		0		0	
Turnstone	0	0		0		0		0		0	
Phalarope	0	0		0		0		0		0	
Small sandpiper	0	0		0		0		0		0	
Wilson's snipe	0	0		0		0		0		0	
Total shorebirds	25	219	186%	219	186%	0		0		0	
<b>Loons and grebes</b>											
Common loon	0	0		0		0		0		0	
Pacific loon	0	0		0		0		0		0	
Red-throated loon	0	0		0		0		0		0	
Yellow-billed loon	0	0		0		0		0		0	
Grebe	0	0		0		0		0		0	
Total loons and grebes	0	0		0		0		0		0	
Other/unknown bird	0	0		0		0		0		0	
Total migratory birds	25	219	186%	219	186%	0		0		0	
<b>Ptarmigan</b>	0	0		0		0		0		0	
<b>Total eggs</b>	25	219	186%	219	186%	0		0		0	

CIP: Confidence interval as percentage of the estimated harvest.

Table 44.—Annual bird and egg harvest estimates, Unalaska subregion, 2008 and 2020.

Species, category	Bird 2008		Bird 2020		Egg 2008		Egg 2020	
	Naves (2010)	Keating et al. (2022)						
<b>Ducks</b>								
American wigeon	0	0	0	0	0	0	0	0
Gadwall	-	18	-	18	-	18	-	18
Teal	81	289	0	289	0	289	0	289
Mallard	108	53	0	53	0	53	0	53
Northern pintail	5	0	0	0	0	0	0	0
Northern shoveler	0	9	0	9	0	9	0	9
Black scoter	0	0	0	0	0	0	0	0
Surf scoter	0	0	0	0	0	0	0	0
White-winged scoter	0	0	0	0	0	0	0	0
Bufflehead	0	0	0	0	0	0	0	0
Goldeneye	27	0	0	0	0	0	0	0
Canvasback	0	18	-	18	-	18	-	18
Scaup	0	9	0	9	0	9	0	9
Common eider	0	0	0	0	0	0	0	0
King eider	0	0	0	0	0	0	0	0
Spectacled eider	0	0	0	0	0	0	0	0
Steller's eider	0	0	0	0	0	0	0	0
Harlequin duck	81	0	0	0	0	0	0	0
Long-tailed duck	0	0	0	0	0	0	0	0
Merganser	38	44	32	44	32	44	32	44
Duck (unidentified)	86	26	194	26	194	26	-	-
Total ducks	426	464	226	464	226	464	0	0
<b>Geese</b>								
Black brant	32	0	0	0	0	0	0	0
Cackling/Canada goose	0	0	0	0	0	0	0	0
Greater white-fronted goose	0	0	0	0	0	0	0	0
Emperor goose	65	35	0	35	0	35	0	35
Snow goose	0	0	0	0	0	0	0	0
Total geese	97	35	0	35	0	35	0	35
<b>Swan</b>	0	0	0	0	0	0	0	0
<b>Sandhill crane</b>	0	-	0	-	0	-	0	-
<b>Seabirds</b>								
Cormorant	0	0	0	0	0	0	0	0
Tern	0	0	0	0	0	0	0	0
Black-legged kittiwake	0	0	0	0	0	0	0	0
Red-legged kittiwake	0	0	0	0	0	0	0	0
Mew gull	-	0	-	0	-	0	-	0
Large gull	0	0	269	0	269	0	0	0
Auklet	0	0	0	0	0	0	0	0
Murre	11	0	65	0	65	0	0	0
Guillemot	0	0	0	0	0	0	0	0
Puffin	0	0	0	0	0	0	0	0
Total seabirds	11	0	334	0	334	0	0	0
<b>Shorebirds</b>								
Black oystercatcher	0	0	162	0	162	219	0	219
Godwit	0	0	0	0	0	0	0	0
Semipalmated plover	-	0	-	0	-	0	-	0
Turnstone	-	0	-	0	-	0	-	0
Phalarope	-	0	-	0	-	0	-	0
Small sandpiper	0	0	0	0	0	0	0	0
Wilson's snipe	0	88	0	88	0	88	0	88
Total shorebirds	0	88	162	88	162	219	0	219
<b>Loons and grebes</b>								
Common loon	0	0	0	0	0	0	0	0
Pacific loon	0	0	0	0	0	0	0	0
Red-throated loon	0	0	0	0	0	0	0	0
Yellow-billed loon	0	0	0	0	0	0	0	0
Loon (non-breeding plumage)	-	0	-	0	-	0	-	0
Grebe	-	0	-	0	-	0	-	0
Total loons and grebes	0	0	0	0	0	0	0	0
Other/unknown bird	0	0	27	0	27	-	-	-
Total migratory birds	534	587	749	587	749	219	219	219
<b>Ptarmigan</b>	226	254	11	254	11	0	0	0
Total	760	840	760	840	760	219	219	219

-: Not specifically named in survey instrument.

Table 45.—Bird harvest estimates, Kodiak Archipelago region, 2020.

Species, category	Yearly bird harvest			Spring		Summer		Fall		Winter	
	Reported	Estimated	CIP	Estimated	CIP	Estimated	CIP	Estimated	CIP	Estimated	CIP
<b>Ducks</b>											
American wigeon	13	55	121%	5	127%	0		16	119%	33	140%
Gadwall	52	287	127%	10	127%	0		54	126%	224	148%
Teal	120	1,053	107%	171	160%	0		269	109%	613	96%
Mallard	249	1,361	54%	164	134%	13	104%	449	54%	735	51%
Northern pintail	14	90	77%	31	175%	0		0		59	72%
Northern shoveler	0	0		0		0		0		0	
Black scoter	242	1,917	129%	825	166%	0		368	151%	724	81%
Surf scoter	81	674	107%	334	164%	0		34	163%	306	80%
White-winged scoter	58	459	98%	197	142%	0		39	163%	222	83%
Bufflehead	122	917	82%	200	139%	3	104%	179	94%	535	67%
Goldeneye	310	1,418	53%	216	80%	6	104%	162	80%	1,034	56%
Scaup	184	1,569	108%	483	170%	0		84	115%	1,002	90%
Common eider	0	0		0		0		0		0	
King eider	1	6	163%	0		0		0		6	163%
Spectacled eider	0	0		0		0		0		0	
Steller's eider	0	0		0		0		0		0	
Harlequin duck	220	2,221	113%	888	155%	37	168%	564	104%	733	85%
Long-tailed duck	69	489	73%	193	146%	0		67	102%	230	69%
Merganser	24	132	126%	5	127%	0		39	141%	88	127%
<b>Total ducks</b>	<b>1,759</b>	<b>12,649</b>	<b>90%</b>	<b>3,723</b>	<b>151%</b>	<b>59</b>	<b>110%</b>	<b>2,325</b>	<b>80%</b>	<b>6,542</b>	<b>66%</b>
<b>Geese</b>											
Black brant	4	21	125%	0		0		15	168%	6	133%
Cackling/Canada goose	47	331	89%	78	175%	0		43	79%	210	78%
Greater white-fronted goose	0	0		0		0		0		0	
Emperor goose	26	244	125%	16	175%	0		0		229	121%
Snow goose	0	0		0		0		0		0	
<b>Total geese</b>	<b>77</b>	<b>596</b>	<b>99%</b>	<b>94</b>	<b>175%</b>	<b>0</b>		<b>58</b>	<b>73%</b>	<b>444</b>	<b>95%</b>
<b>Swans</b>											
	0	0		0		0		0		0	
<b>Seabirds</b>											
Cormorant	0	0		0		0		0		0	
Tem	0	0		0		0		0		0	
Black-legged kittiwake	0	0		0		0		0		0	
Red-legged kittiwake	0	0		0		0		0		0	
Mew gull	0	0		0		0		0		0	
Large gull	0	0		0		0		0		0	
Auklet	0	0		0		0		0		0	
Murre	0	0		0		0		0		0	
Guillemot	0	0		0		0		0		0	
Puffin	6	44	168%	44	168%	0		0		0	
<b>Total seabirds</b>	<b>6</b>	<b>44</b>	<b>168%</b>	<b>44</b>	<b>168%</b>	<b>0</b>		<b>0</b>		<b>0</b>	
<b>Shorebirds</b>											
Black oystercatcher	0	0		0		0		0		0	
Godwit	0	0		0		0		0		0	
Semipalmated plover	0	0		0		0		0		0	
Turnstone	0	0		0		0		0		0	
Phalarope	0	0		0		0		0		0	
Small sandpiper	0	0		0		0		0		0	
Wilson's snipe	0	0		0		0		0		0	
<b>Total shorebirds</b>	<b>0</b>	<b>0</b>		<b>0</b>		<b>0</b>		<b>0</b>		<b>0</b>	
<b>Loons and grebes</b>											
Common loon	0	0		0		0		0		0	
Pacific loon	0	0		0		0		0		0	
Red-throated loon	0	0		0		0		0		0	
Yellow-billed loon	0	0		0		0		0		0	
Loon (non-breeding plumage)	0	0		0		0		0		0	
Grebe	0	0		0		0		0		0	
<b>Total loons and grebes</b>	<b>0</b>	<b>0</b>		<b>0</b>		<b>0</b>		<b>0</b>		<b>0</b>	
Other/unknown bird	10	30	133%	0		0		30	133%	0	
<b>Total migratory birds</b>	<b>1,852</b>	<b>13,319</b>	<b>89%</b>	<b>3,860</b>	<b>150%</b>	<b>59</b>	<b>110%</b>	<b>2,413</b>	<b>77%</b>	<b>6,987</b>	<b>67%</b>
<b>Ptarmigan</b>	<b>126</b>	<b>1,008</b>	<b>90%</b>	<b>57</b>	<b>133%</b>	<b>0</b>		<b>204</b>	<b>103%</b>	<b>747</b>	<b>114%</b>
<b>Total birds</b>	<b>1,978</b>	<b>14,327</b>	<b>83%</b>	<b>3,917</b>	<b>148%</b>	<b>59</b>	<b>110%</b>	<b>2,617</b>	<b>73%</b>	<b>7,734</b>	<b>62%</b>

CIP: Confidence interval as percentage of the estimated harvest.

Table 46.—Egg harvest estimates, Kodiak Archipelago region, 2020.

Species, category	Yearly egg harvest			Spring		Summer		Fall		Winter	
	Reported	Estimated	CIP	Estimated	CIP	Estimated	CIP	Estimated	CIP	Estimated	CIP
<b>Ducks</b>											
American wigeon	0	0		0		0		0		0	
Gadwall	0	0		0		0		0		0	
Teal	0	0		0		0		0		0	
Mallard	0	0		0		0		0		0	
Northern pintail	0	0		0		0		0		0	
Northern shoveler	0	0		0		0		0		0	
Black scoter	10	56	163%	56	163%	0		0		0	
Surf scoter	2	11	163%	11	163%	0		0		0	
White-winged scoter	3	17	163%	17	163%	0		0		0	
Bufflehead	6	34	163%	34	163%	0		0		0	
Goldeneye	15	84	163%	84	163%	0		0		0	
Scaup	0	0		0		0		0		0	
Common eider	0	0		0		0		0		0	
King eider	0	0		0		0		0		0	
Spectacled eider	0	0		0		0		0		0	
Steller's eider	0	0		0		0		0		0	
Harlequin duck	0	0		0		0		0		0	
Long-tailed duck	0	0		0		0		0		0	
Merganser	12	30	127%	30	127%	0		0		0	
Total ducks	48	233	143%	233	143%	0		0		0	
<b>Geese</b>											
Black brant	0	0		0		0		0		0	
Cackling/Canada goose	0	0		0		0		0		0	
Greater white-fronted goc	0	0		0		0		0		0	
Emperor goose	0	0		0		0		0		0	
Snow goose	0	0		0		0		0		0	
Total geese	0	0		0		0		0		0	
<b>Swans</b>	0	0		0		0		0		0	
<b>Seabirds</b>											
Cormorant	0	0		0		0		0		0	
Tern	117	636	130%	636	130%	0		0		0	
Black-legged kittiwake	127	344	66%	270	71%	73	168%	0		0	
Red-legged kittiwake	0	0		0		0		0		0	
Mew gull	58	371	100%	371	100%	0		0		0	
Large gull	415	1,990	72%	1,858	77%	132	119%	0		0	
Auklet	0	0		0		0		0		0	
Murre	0	0		0		0		0		0	
Guillemot	0	0		0		0		0		0	
Puffin	10	73	168%	73	168%	0		0		0	
Total seabirds	727	3,414	68%	3,208	71%	206	129%	0		0	
<b>Shorebirds</b>											
Black oystercatcher	11	71	111%	71	111%	0		0		0	
Godwit	0	0		0		0		0		0	
Semipalmated plover	0	0		0		0		0		0	
Turnstone	0	0		0		0		0		0	
Phalarope	0	0		0		0		0		0	
Small sandpiper	0	0		0		0		0		0	
Wilson's snipe	0	0		0		0		0		0	
Total shorebirds	11	71	111%	71	111%	0		0		0	
<b>Loons and grebes</b>											
Common loon	0	0		0		0		0		0	
Pacific loon	0	0		0		0		0		0	
Red-throated loon	0	0		0		0		0		0	
Yellow-billed loon	0	0		0		0		0		0	
Grebe	0	0		0		0		0		0	
Total loons and grebes	0	0		0		0		0		0	
Other/unknown bird	0	0		0		0		0		0	
<b>Total migratory birds</b>	786	3,718	63%	3,513	66%	206	129%	0		0	
<b>Ptarmigan</b>	0	0		0		0		0		0	
<b>Total eggs</b>	786	3,718	63%	3,513	66%	206	129%	0		0	

CIP: Confidence interval as percentage of the estimated harvest.

Table 47.—Annual bird and egg harvest estimates, Kodiak Archipelago region, 2006, 2010, and 2020.

Species, category	Bird 2006	Bird 2010	Bird 2020	Egg 2006	Egg 2010	Egg 2020
	Naves (2009)	Naves (2012)	This study	Naves (2009)	Naves (2012)	This study
<b>Ducks</b>						
American wigeon	-	32	55	0	0	0
Gadwall	-	-	287	-	-	0
Teal	-	656	1,053	0	0	0
Mallard	-	1,069	1,361	116	0	0
Northern pintail	-	60	90	0	0	0
Northern shoveler	-	0	0	0	0	0
Black scoter	-	45	1,917	0	0	56
Surf scoter	-	48	674	0	0	11
White-winged scoter	-	122	459	0	0	17
Bufflehead	-	175	917	0	43	34
Goldeneye	-	673	1,418	0	35	84
Canvasback	-	0	-	-	-	-
Scaup	-	16	1,569	0	0	0
Common eider	-	0	0	0	0	0
King eider	-	0	6	0	0	0
Spectacled eider	-	-	0	0	0	0
Steller's eider	-	0	0	0	0	0
Harlequin duck	-	114	2,221	0	0	0
Long-tailed duck	-	27	489	0	0	0
Merganser	-	95	132	32	0	30
Total ducks	-	3,132	12,649	148	78	233
<b>Geese</b>						
Black brant	-	0	21	0	0	0
Cackling/Canada goose	-	19	331	0	0	0
Greater white-fronted goose	-	0	0	0	0	0
Emperor goose	-	0	244	0	0	0
Snow goose	-	0	0	0	0	0
Total geese	-	19	596	0	0	0
<b>Swans</b>	-	0	0	0	0	0
<b>Sandhill crane</b>	-	0	-	0	0	-
<b>Seabirds</b>						
Cormorant	-	0	0	0	0	0
Tern	-	0	0	27	13	636
Black-legged kittiwake	-	2	0	1,409	72	344
Red-legged kittiwake	-	0	0	253	0	0
Mew gull	-	0	0	0	15	371
Large gull	-	0	0	3,084	626	1,990
Auklet	-	0	0	0	0	0
Murre	-	0	0	0	0	0
Guillemot	-	0	0	0	0	0
Puffin	-	0	44	0	0	73
Total seabirds	-	2	44	4,773	726	3,414
<b>Shorebirds</b>						
Black oystercatcher	-	0	0	302	0	71
Godwit	-	0	0	0	0	0
Semipalmated plover	-	0	0	-	-	0
Turnstone	-	0	0	-	-	0
Phalarope	-	0	0	-	-	0
Golden plover	-	0	0	0	0	-
Small sandpiper	-	0	0	0	0	0
Wilson's snipe	-	0	0	0	0	0
Total shorebirds	-	0	0	302	0	71
<b>Loons and grebes</b>						
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	-	-	-
Grebe	-	0	0	0	0	0
Total loons and grebes	-	0	0	0	0	0
Other/unknown bird	-	0	30	0	0	0
<b>Total migratory birds</b>	-	3,153	13,319	5,223	804	3,718
<b>Ptarmigan</b>	-	3,761	1,008	0	0	0
<b>Grouse</b>	0	11	-	0	0	-
<b>Total birds</b>	-	6,925	14,327	5,223	804	3,718

:- Not specifically named in survey instrument.

Table 48.—Bird harvest estimates, Kodiak Communities subregion, 2020.

Species, category	Yearly bird harvest			Spring		Summer		Fall		Winter	
	Reported	Estimated	CIP								
<b>Ducks</b>											
American wigeon	6	15	95%	5	128%	0		5	128%	5	128%
Gadwall	5	13	105%	10	128%	0		0		3	128%
Teal	30	85	64%	15	128%	0		0		69	73%
Mallard	129	343	40%	18	91%	6	105%	40	92%	279	43%
Northern pintail	5	14	98%	0		0		0		14	98%
Northern shoveler	0	0		0		0		0		0	
Black scoter	121	334	56%	0		0		0		334	56%
Surf scoter	11	27	84%	0		0		0		27	84%
White-winged scoter	13	34	66%	0		0		0		34	66%
Bufflehead	19	40	72%	0		3	105%	0		38	77%
Goldeneye	196	505	56%	34	77%	6	105%	41	88%	423	65%
Scaup	32	81	73%	0		0		0		81	73%
Common eider	0	0		0		0		0		0	
King eider	0	0		0		0		0		0	
Spectacled eider	0	0		0		0		0		0	
Steller's eider	0	0		0		0		0		0	
Harlequin duck	11	30	76%	5	128%	0		5	128%	20	106%
Long-tailed duck	10	25	91%	0		0		0		25	91%
Merganser	2	5	128%	5	128%	0		0		0	
Total ducks	590	1,553	37%	93	61%	14	105%	92	89%	1,354	41%
<b>Geese</b>											
Black brant	2	6	135%	0		0		0		6	135%
Cackling/Canada goose	16	48	64%	0		0		15	135%	33	73%
Greater white-fronted goose	0	0		0		0		0		0	
Emperor goose	10	28	86%	0		0		0		28	86%
Snow goose	0	0		0		0		0		0	
Total geese	28	82	54%	0		0		15	135%	67	50%
<b>Swan</b>	0	0		0		0		0		0	
<b>Seabirds</b>											
Cormorant	0	0		0		0		0		0	
Tern	0	0		0		0		0		0	
Black-legged kittiwake	0	0		0		0		0		0	
Red-legged kittiwake	0	0		0		0		0		0	
Mew gull	0	0		0		0		0		0	
Large gull	0	0		0		0		0		0	
Auklet	0	0		0		0		0		0	
Murre	0	0		0		0		0		0	
Guillemot	0	0		0		0		0		0	
Puffin	0	0		0		0		0		0	
Total seabirds	0	0		0		0		0		0	
<b>Shorebirds</b>											
Black oystercatcher	0	0		0		0		0		0	
Godwit	0	0		0		0		0		0	
Semipalmated plover	0	0		0		0		0		0	
Turnstone	0	0		0		0		0		0	
Phalarope	0	0		0		0		0		0	
Small sandpiper	0	0		0		0		0		0	
Wilson's snipe	0	0		0		0		0		0	
Total shorebirds	0	0		0		0		0		0	
<b>Loons and grebes</b>											
Common loon	0	0		0		0		0		0	
Pacific loon	0	0		0		0		0		0	
Red-throated loon	0	0		0		0		0		0	
Yellow-billed loon	0	0		0		0		0		0	
Loon (non-breeding plumage)	0	0		0		0		0		0	
Grebe	0	0		0		0		0		0	
Total loons and grebes	0	0		0		0		0		0	
Other/unknown bird	10	30	135%	0		0		30	135%	0	
Total migratory birds	628	1,665	36%	93	61%	14	105%	137	68%	1,421	40%
<b>Ptarmigan</b>	35	65	53%	13	128%	0		0		52	58%
<b>Total birds</b>	663	1,730	35%	105	62%	14	105%	137	68%	1,473	39%

CIP: Confidence interval as percentage of the estimated harvest.

Table 49.—Egg harvest estimates, Kodiak Communities subregion, 2020.

Species, category	Yearly egg harvest			Spring		Summer		Fall		Winter	
	Reported	Estimated	CIP	Estimated	CIP	Estimated	CIP	Estimated	CIP	Estimated	CIP
<b>Ducks</b>											
American wigeon	0	0		0		0		0		0	
Gadwall	0	0		0		0		0		0	
Teal	0	0		0		0		0		0	
Mallard	0	0		0		0		0		0	
Northern pintail	0	0		0		0		0		0	
Northern shoveler	0	0		0		0		0		0	
Black scoter	0	0		0		0		0		0	
Surf scoter	0	0		0		0		0		0	
White-winged scoter	0	0		0		0		0		0	
Bufflehead	0	0		0		0		0		0	
Goldeneye	0	0		0		0		0		0	
Scaup	0	0		0		0		0		0	
Common eider	0	0		0		0		0		0	
King eider	0	0		0		0		0		0	
Spectacled eider	0	0		0		0		0		0	
Steller's eider	0	0		0		0		0		0	
Harlequin duck	0	0		0		0		0		0	
Long-tailed duck	0	0		0		0		0		0	
Merganser	12	30	128%	30	128%	0		0		0	
Total ducks	12	30	128%	30	128%	0		0		0	
<b>Geese</b>											
Black brant	0	0		0		0		0		0	
Cackling/Canada goose	0	0		0		0		0		0	
Greater white-fronted goc	0	0		0		0		0		0	
Emperor goose	0	0		0		0		0		0	
Snow goose	0	0		0		0		0		0	
Total geese	0	0		0		0		0		0	
<b>Swan</b>	0	0		0		0		0		0	
<b>Seabirds</b>											
Cormorant	0	0		0		0		0		0	
Tern	87	168	49%	168	49%	0		0		0	
Black-legged kittiwake	105	182	69%	182	69%	0		0		0	
Red-legged kittiwake	0	0		0		0		0		0	
Mew gull	28	69	72%	69	72%	0		0		0	
Large gull	289	652	34%	652	34%	0		0		0	
Auklet	0	0		0		0		0		0	
Murre	0	0		0		0		0		0	
Guillemot	0	0		0		0		0		0	
Puffin	0	0		0		0		0		0	
Total seabirds	509	1,071	33%	1,071	33%	0		0		0	
<b>Shorebirds</b>											
Black oystercatcher	2	5	128%	5	128%	0		0		0	
Godwit	0	0		0		0		0		0	
Semipalmated plover	0	0		0		0		0		0	
Turnstone	0	0		0		0		0		0	
Phalarope	0	0		0		0		0		0	
Small sandpiper	0	0		0		0		0		0	
Wilson's snipe	0	0		0		0		0		0	
Total shorebirds	2	5	128%	5	128%	0		0		0	
<b>Loons and grebes</b>											
Common loon	0	0		0		0		0		0	
Pacific loon	0	0		0		0		0		0	
Red-throated loon	0	0		0		0		0		0	
Yellow-billed loon	0	0		0		0		0		0	
Grebe	0	0		0		0		0		0	
Total loons and grebes	0	0		0		0		0		0	
Other/unknown bird	0	0		0		0		0		0	
Total migratory birds	523	1,106	33%	1,106	33%	0		0		0	
<b>Ptarmigan</b>	0	0		0		0		0		0	
<b>Total eggs</b>	523	1,106	33%	1,106	33%	0		0		0	

CIP: Confidence interval as percentage of the estimated harvest.

Table 50.—Annual bird and egg harvest estimates, Kodiak Communities subregion, 2006, 2010, and 2020.

Species, category	Bird 2006	Bird 2010	Bird 2020	Egg 2006	Egg 2010	Egg 2020
	Naves (2009)	Naves (2012)	This study	Naves (2009)	Naves (2012)	This study
<b>Ducks</b>						
American wigeon	196	7	15	0	0	0
Gadwall	-	-	13	-	-	0
Teal	221	72	85	0	0	0
Mallard	1,653	703	343	35	0	0
Northern pintail	164	45	14	0	0	0
Northern shoveler	11	0	0	0	0	0
Black scoter	413	34	334	0	0	0
Surf scoter	247	7	27	0	0	0
White-winged scoter	278	100	34	0	0	0
Bufflehead	636	147	40	0	43	0
Goldeneye	896	590	505	0	35	0
Canvasback	10	0	-			
Scaup	354	0	81	0	0	0
Common eider	0	0	0	0	0	0
King eider	5	0	0	0	0	0
Spectacled eider	0	0	0	0	0	0
Steller's eider	0	0	0	0	0	0
Harlequin duck	117	32	30	0	0	0
Long-tailed duck	104	0	25	0	0	0
Merganser	82	35	5	32	0	30
Total ducks	5,387	1,772	1,553	67	78	30
<b>Geese</b>						
Black brant	0	0	6	0	0	0
Cackling/Canada goose	41	0	48	0	0	0
Greater white-fronted goose	0	0	0	0	0	0
Emperor goose	17	0	28	0	0	0
Snow goose	0	0	0	0	0	0
Total geese	58	0	82	0	0	0
<b>Swan</b>	0	0	0	0	0	0
<b>Sandhill crane</b>	0	0		0	0	-
<b>Seabirds</b>						
Cormorant	0	0	0	0	0	0
Tern	0	0	0	27	13	168
Black-legged kittiwake	0	2	0	1,409	72	182
Red-legged kittiwake	0	0	0	0	0	0
Mew gull	-	-	0	-	15	69
Large gull	0	0	0	2,741	593	652
Auklet	53	0	0	0	0	0
Murre	0	0	0	0	0	0
Guillemot	0	0	0	0	0	0
Puffin	0	0	0	0	0	0
Total seabirds	53	2	0	4,177	693	1,071
<b>Shorebirds</b>						
Black oystercatcher	0	0	0	302	0	5
Godwit	0	0	0	0	0	0
Semipalmated plover	-	-	0	-	-	0
Turnstone	-	-	0	-	-	0
Phalarope	-	-	0	-	-	0
Small sandpiper	0	0	0	0	0	0
Wilson's snipe	0	0	0	0	0	0
Total shorebirds	0	0	0	302	0	5
<b>Loons and grebes</b>						
Common loon	0	0	0	0	0	0
Pacific loon	0	0	0	0	0	0
Red-throated loon	0	0	0	0	0	0
Yellow-billed loon	0	0	0	0	0	0
Loon (non-breeding plumage)	-	-	0			
Grebe	0	0	0	-	0	0
Total loons and grebes	0	0	0	0	0	0
Other/unknown bird	0	0	30	0	0	0
Total migratory birds	5,498	1,774	1,665	4,546	771	1,106
<b>Ptarmigan</b>	51	165	65	0	0	0
<b>Grouse</b>	0	11	-	0	0	-
Total birds	5,549	1,950	1,730	4,546	771	1,106

-. Not specifically named in survey instrument.

Table 51.—Bird harvest estimates, Kodiak roaded area subregion, 2020.

Species, category	Yearly bird harvest			Spring		Summer		Fall		Winter	
	Reported	Estimated	CIP								
<b>Ducks</b>											
American wigeon	7	39	163%	0		0		11	163%	28	163%
Gadwall	47	275	132%	0		0		54	126%	221	150%
Teal	90	968	116%	156	176%	0		269	109%	543	108%
Mallard	120	1,018	71%	147	150%	7	168%	408	59%	455	78%
Northern pintail	9	76	89%	31	176%	0		0		45	90%
Northern shoveler	0	0		0		0		0		0	
Black scoter	121	1,583	156%	825	166%	0		368	151%	390	142%
Surf scoter	70	647	112%	334	164%	0		34	163%	278	87%
White-winged scoter	45	424	106%	197	142%	0		39	163%	188	98%
Bufflehead	103	877	86%	200	139%	0		179	94%	497	72%
Goldeneye	114	914	77%	182	94%	0		121	103%	611	83%
Scaup	152	1,488	114%	483	170%	0		84	115%	921	98%
Common eider	0	0		0		0		0		0	
King eider	1	6	163%	0		0		0		6	163%
Spectacled eider	0	0		0		0		0		0	
Steller's eider	0	0		0		0		0		0	
Harlequin duck	209	2,190	115%	883	156%	37	168%	559	105%	713	88%
Long-tailed duck	59	464	77%	193	146%	0		67	102%	204	77%
Merganser	22	127	131%	0		0		39	141%	88	127%
Total ducks	1,169	11,096	102%	3,630	155%	44	142%	2,233	83%	5,189	82%
<b>Geese</b>											
Black brant	2	15	168%	0		0		15	168%	0	
Cackling/Canada goose	31	283	104%	78	176%	0		28	99%	177	91%
Greater white-fronted goose	0	0		0		0		0		0	
Emperor goose	16	217	140%	16	176%	0		0		201	138%
Snow goose	0	0		0		0		0		0	
Total geese	49	514	114%	94	176%	0		43	87%	378	112%
<b>Swan</b>	0	0		0		0		0		0	
<b>Seabirds</b>											
Cormorant	0	0		0		0		0		0	
Tem	0	0		0		0		0		0	
Black-legged kittiwake	0	0		0		0		0		0	
Red-legged kittiwake	0	0		0		0		0		0	
Mew gull	0	0		0		0		0		0	
Large gull	0	0		0		0		0		0	
Auklet	0	0		0		0		0		0	
Murre	0	0		0		0		0		0	
Guillemot	0	0		0		0		0		0	
Puffin	6	44	168%	44	168%	0		0		0	
Total seabirds	6	44	168%	44	168%	0		0		0	
<b>Shorebirds</b>											
Black oystercatcher	0	0		0		0		0		0	
Godwit	0	0		0		0		0		0	
Semipalmated plover	0	0		0		0		0		0	
Turnstone	0	0		0		0		0		0	
Phalarope	0	0		0		0		0		0	
Small sandpiper	0	0		0		0		0		0	
Wilson's snipe	0	0		0		0		0		0	
Total shorebirds	0	0		0		0		0		0	
<b>Loons and grebes</b>											
Common loon	0	0		0		0		0		0	
Pacific loon	0	0		0		0		0		0	
Red-throated loon	0	0		0		0		0		0	
Yellow-billed loon	0	0		0		0		0		0	
Loon (non-breeding plumage)	0	0		0		0		0		0	
Grebe	0	0		0		0		0		0	
Total loons and grebes	0	0		0		0		0		0	
Other/unknown bird	0	0		0		0		0		0	
Total migratory birds	1,224	11,654	102%	3,768	154%	44	142%	2,276	82%	5,566	83%
<b>Ptarmigan</b>	91	943	96%	44	168%	0		204	103%	695	123%
<b>Total birds</b>	1,315	12,597	95%	3,812	152%	44	142%	2,479	77%	6,262	76%

CIP: Confidence interval as percentage of the estimated harvest.

Table 52.—Egg harvest estimates, Kodiak roaded area subregion, 2020.

Species, category	Yearly egg harvest			Spring		Summer		Fall		Winter	
	Reported	Estimated	CIP	Estimated	CIP	Estimated	CIP	Estimated	CIP	Estimated	CIP
<b>Ducks</b>											
American wigeon	0	0		0		0		0		0	
Gadwall	0	0		0		0		0		0	
Teal	0	0		0		0		0		0	
Mallard	0	0		0		0		0		0	
Northern pintail	0	0		0		0		0		0	
Northern shoveler	0	0		0		0		0		0	
Black scoter	10	56	163%	56	163%	0		0		0	
Surf scoter	2	11	163%	11	163%	0		0		0	
White-winged scoter	3	17	163%	17	163%	0		0		0	
Bufflehead	6	34	163%	34	163%	0		0		0	
Goldeneye	15	84	163%	84	163%	0		0		0	
Scaup	0	0		0		0		0		0	
Common eider	0	0		0		0		0		0	
King eider	0	0		0		0		0		0	
Spectacled eider	0	0		0		0		0		0	
Steller's eider	0	0		0		0		0		0	
Harlequin duck	0	0		0		0		0		0	
Long-tailed duck	0	0		0		0		0		0	
Merganser	0	0		0		0		0		0	
Total ducks	36	203	163%	203	163%	0		0		0	
<b>Geese</b>											
Black brant	0	0		0		0		0		0	
Cackling/Canada goose	0	0		0		0		0		0	
Greater white-fronted goose	0	0		0		0		0		0	
Emperor goose	0	0		0		0		0		0	
Snow goose	0	0		0		0		0		0	
Total geese	0	0		0		0		0		0	
<b>Swan</b>	0	0		0		0		0		0	
<b>Seabirds</b>											
Cormorant	0	0		0		0		0		0	
Tern	30	468	176%	468	176%	0		0		0	
Black-legged kittiwake	22	162	119%	88	168%	73	168%	0		0	
Red-legged kittiwake	0	0		0		0		0		0	
Mew gull	30	303	122%	303	122%	0		0		0	
Large gull	126	1,338	106%	1,206	117%	132	119%	0		0	
Auklet	0	0		0		0		0		0	
Murre	0	0		0		0		0		0	
Guillemot	0	0		0		0		0		0	
Puffin	10	73	168%	73	168%	0		0		0	
Total seabirds	218	2,343	97%	2,138	106%	206	129%	0		0	
<b>Shorebirds</b>											
Black oystercatcher	9	66	119%	66	119%	0		0		0	
Godwit	0	0		0		0		0		0	
Semipalmated plover	0	0		0		0		0		0	
Turnstone	0	0		0		0		0		0	
Phalarope	0	0		0		0		0		0	
Small sandpiper	0	0		0		0		0		0	
Wilson's snipe	0	0		0		0		0		0	
Total shorebirds	9	66	119%	66	119%	0		0		0	
<b>Loons and grebes</b>											
Common loon	0	0		0		0		0		0	
Pacific loon	0	0		0		0		0		0	
Red-throated loon	0	0		0		0		0		0	
Yellow-billed loon	0	0		0		0		0		0	
Grebe	0	0		0		0		0		0	
Total loons and grebes	0	0		0		0		0		0	
Other/unknown bird	0	0		0		0		0		0	
Total migratory birds	263	2,612	89%	2,407	96%	206	129%	0		0	
<b>Ptarmigan</b>	0	0		0		0		0		0	
<b>Total eggs</b>	263	2,612	89%	2,407	96%	206	129%	0		0	

CIP: Confidence interval as percentage of the estimated harvest.

Table 53.—Annual bird and egg harvest estimates, Kodiak roaded area subregion, 2006, 2010, 2020, and 2021.

Species, category	Bird 2006	Bird 2010	Bird 2020	Bird 2021	Egg 2006	Egg 2010	Egg 2020	Egg 2021
	Naves (2009)	Naves (2012)	This study	Keating et al. (In Prep.)	Naves (2009)	Naves (2012)	This study	Keating et al. (In Prep.)
<b>Ducks</b>								
American wigeon	-	26	39	25	0	0	0	-
Gadwall	-	-	275	94	-	-	0	-
Teal	-	584	968	268	0	0	0	-
Mallard	-	366	1,018	869	81	0	0	0
Northern pintail	-	15	76	33	0	0	0	-
Northern shoveler	-	0	0	0	0	0	0	-
Black scoter	-	11	1,583	99	0	0	56	-
Surf scoter	-	41	647	44	0	0	11	-
White-winged scoter	-	21	424	99	0	0	17	-
Bufflehead	-	28	977	293	0	0	34	-
Goldeneye	-	83	914	366	0	0	84	-
Canvasback	-	0	-	-	-	-	-	-
Scaup	-	16	1,488	177	0	0	0	-
Common eider	-	0	0	0	0	0	0	-
King eider	-	0	6	0	0	0	0	-
Spectacled eider	-	-	0	-	0	0	0	-
Steller's eider	-	0	0	0	0	0	0	-
Harlequin duck	-	82	2,190	167	0	0	0	-
Long-tailed duck	-	27	464	0	0	0	0	-
Merganser	-	61	127	57	0	0	0	-
Duck (unknown)	-	0	0	25	-	-	-	-
Total ducks	-	1,361	11,096	2,616	81	0	203	0
<b>Geese</b>								
Black brant	-	0	15	22	0	0	0	-
Cackling/Canada goose	-	19	283	-	0	0	0	-
Greater white-fronted goose	-	0	0	0	0	0	0	-
Emperor goose	-	0	217	36	0	0	0	-
Snow goose	-	0	0	-	0	0	0	-
Goose (unidentified)	-	-	-	35	-	-	-	-
Total geese	-	19	514	93	0	0	0	-
<b>Swan</b>	-	0	0	0	0	0	0	-
<b>Sandhill crane</b>	-	0	-	0	0	0	-	-
<b>Seabirds</b>								
Cormorant	-	0	0	0	0	0	0	-
Tern	-	0	0	0	0	0	468	0
Black-legged kittiwake	-	0	0	0	0	0	162	0
Red-legged kittiwake	-	0	0	-	253	0	0	-
Mew gull	-	-	0	0	-	-	303	0
Large gull	-	0	0	0	344	32	1,338	0
Gull (unidentified)	-	-	-	-	-	-	-	276
Auklet	-	0	0	0	0	0	0	-
Murre	-	0	0	0	0	0	0	0
Guillemot	-	0	0	-	0	0	0	-
Puffin	-	0	44	-	0	0	73	-
Total seabirds	-	0	44	0	597	32	2,343	276
<b>Shorebirds</b>								
Black oystercatcher	-	0	0	0	0	0	66	0
Godwit	-	0	0	-	0	0	0	-
Semipalmated plover	-	0	0	-	-	0	0	-
Turnstone	-	0	0	-	-	0	0	-
Phalarope	-	0	0	-	-	0	0	-
Small sandpiper	-	0	0	-	0	0	0	-
Wilson's snipe	-	0	0	-	0	0	0	-
Total shorebirds	-	0	0	0	0	0	66	-
<b>Loons and grebes</b>								
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	-	-	-	-	-
Grebe	-	0	0	-	-	0	0	-
Total loons and grebes	-	0	0	0	0	0	0	-
Other/unknown bird	-	3	0	0	0	0	0	-
Total migratory birds	-	1,380	11,654	2,709	678	32	2,612	276
<b>Ptarmigan</b>	-	3,596	943	202	0	0	0	-
<b>Grouse</b>	-	0	-	0	-	-	-	-
Total birds	-	4,976	12,597	2,911	678	32	2,612	276

:- Not specifically named in survey instrument.

## ADDITIONAL SURVEY QUESTIONS PERTAINING TO EMPEROR GOOSE

### Months of the year emperor geese are usually harvested

We asked respondents to indicate all months of the year people in their community usually harvest emperor goose (Appendix H). In communities on the Aleutian-Pribilof Islands, respondents most often indicated that emperor geese were usually harvested from October to March (Figure 5a). In the Kodiak Archipelago region, respondents most often indicated that emperor geese were usually harvested from October to January (Figure 5b). In both regions, the months with fewest responses indicating harvest of emperor goose occurred in spring (Apr–Jun) and summer (Jul–Aug).

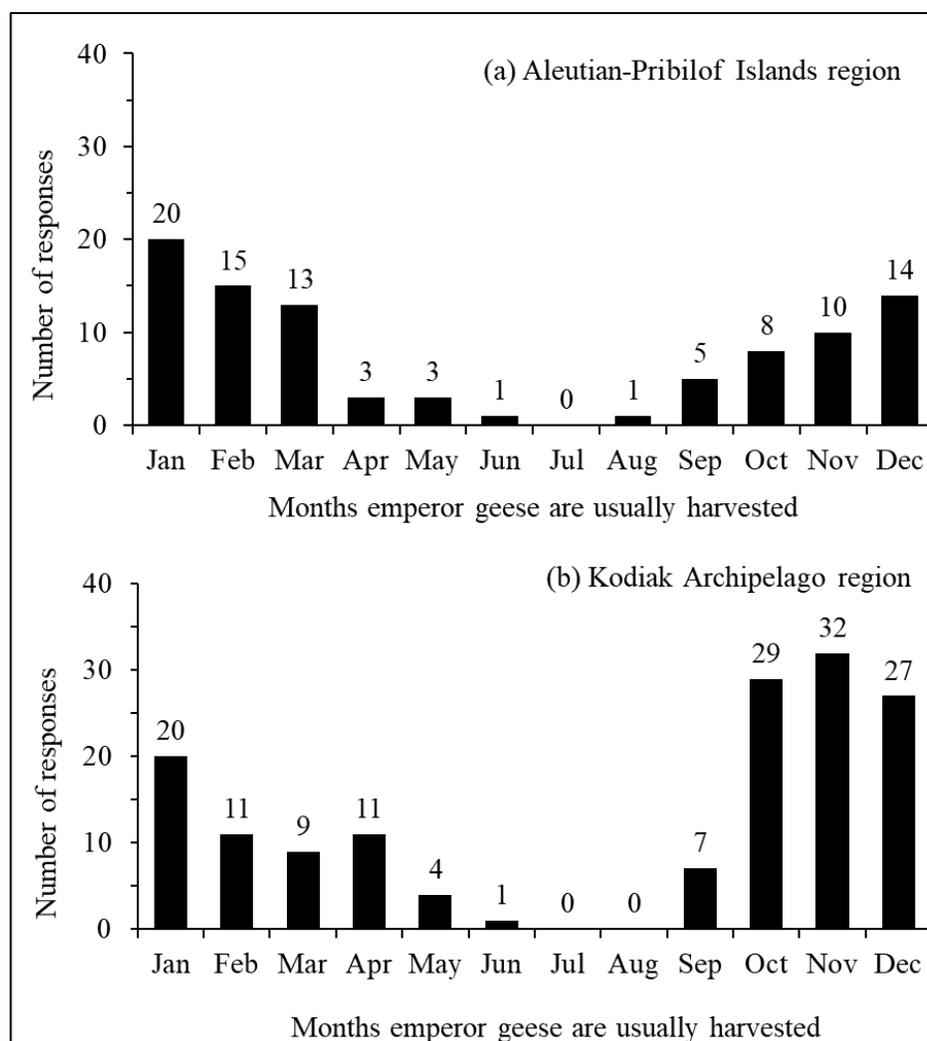


Figure 5.—Months of the year when emperor geese are usually harvested as indicated by survey respondents on the (a) Aleutian-Pribilof Islands (communities surveyed were Adak, Akutan, Sand Point, and Saint Paul) and the (b) Kodiak Archipelago (communities surveyed were Larsen Bay, Port Lions, Kodiak City, Womens Bay, Mill Bay and Borough Balance).

### Factors affecting timing of emperor goose harvest

We asked respondents about factors that affect the timing of emperor geese harvest. In the Aleutian-Pribilof Islands region, respondents most often reported harvesting emperor geese when the birds were fat (Figure 6). Respondents mentioned bad weather ( $n=2$ ), altered bird behavior ( $n=1$ ), and birds being present in the winter ( $n=1$ ) as explanations for how weather affected the timing of harvest. As “other” reasons affecting

timing of harvest, respondents explained geese occurrence (n=5), season and regulations (n=2), goose behavior (n=1), timing with other hunting activities (n=1), equipment (n=1), and bad taste (n=1).

In the Kodiak Archipelago region, respondents mentioned migration (n=1), ice cover (n=1), bad weather (n=1), and ideal conditions (n=1) as explanations for how weather affected emperor goose harvest timing. For “other” reasons, Kodiak Archipelago respondents reported: season and regulations (n=5), geese occurrence (n=5), migration timing (n=4), having free time to hunt (n=2), other hunting activities (n=1), low numbers of geese (n=1), and enjoyment (n=1).

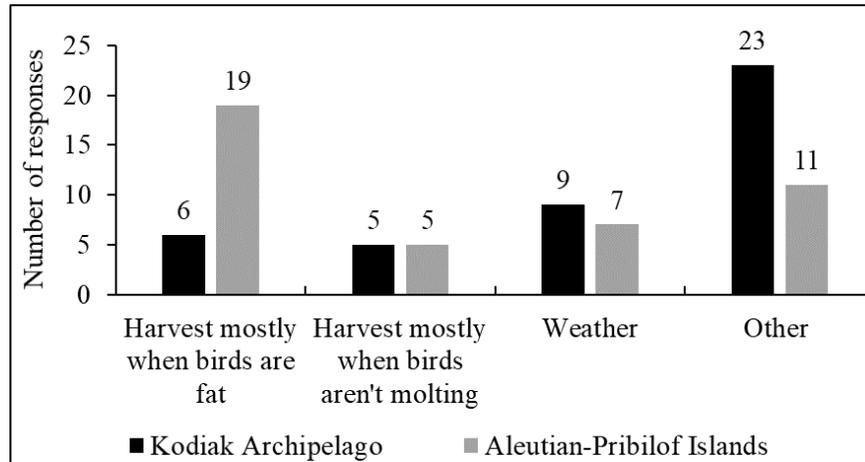


Figure 6.–Factors affecting the timing of emperor goose harvest on the Aleutian Islands and Kodiak Archipelago.

### Other comments and observations about emperor geese and their harvest

In an open-ended question, we asked respondents to provide any additional comments or observations about emperor geese and their harvest. We coded responses into 13 themes, and some responses were coded into more than one theme (Table 54). Many households did not offer comments or additional information.

Respondents (n=24) provided general observations about emperor geese and where they observe geese in their local communities (e.g., “I see them in Pasagshak often,” “See geese by Bud Bay area and they go by Sandy Beach”). Other comments pertained to emperor goose numbers, with some respondents reporting seeing more geese, but others reporting seeing fewer geese. Some respondents in Sand Point, Womens Bay, and Kodiak reported seeing more geese recently, though one respondent from Womens Bay and one in Adak reported seeing fewer geese.

Respondents (n=10) expressed their enjoyment and appreciation of the presence of emperor geese in their communities. Several respondents who enjoyed observing emperor geese also noted that they did not hunt them (“Do not harvest but they are enjoyable to look at”).

Several respondents (n=7) provided comments about season dates or regulations, which reflected diverse perspectives. One respondent from Adak would like more nonresident tags available. Another respondent also from Adak preferred emperor geese harvest to be limited to indigenous users. Two respondents wanted larger bag limits for emperor geese. One respondent supported cessation of egg harvesting (implemented in the 2021 harvest regulations). Another respondent did not support the hunting of emperor geese in Womens Bay but did support bird hunting in general.

A few respondents (n=4) expressed their support and appreciation of being able to hunt emperor geese. However, an equal number of respondents (n=4) did not support the harvest of emperor geese. Those in favor of the harvest expressed their thanks at being able to harvest (“Thank you for opening season”) and that it was “nice to be able to hunt them again.” Respondents who were not supportive of harvesting

emperor geese expressed sadness about the harvest “*seems sad to kill them.*” A respondent that did not support harvest did not believe numbers were high enough to support harvest (“*Populations are still too low*”).

Table 54.—Comments and observations about emperor geese and their harvest, 2020 bird harvest survey on the Aleutian-Pribilof Islands and Kodiak Archipelago.

Themes in open-ended responses	Number of responses
Observation about geese	24
Enjoyment	10
Season, regulations	7
Do not see emperor geese	5
Appreciation of harvest	4
Does not support harvest	4
Difficulty hunting	3
For cultural practices, sharing	2
Disturbance	2
More outreach about regulations	2

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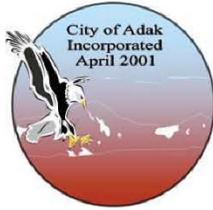
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# **APPENDICES**



# CITY OF ADAK, ALASKA

## RESOLUTION NO. 20-2021-009

### A RESOLUTION CONSENTING TO THE STATE OF ALASKA DEPARTMENT OF FISH & GAME TO CONDUCT BIRD & EGG HARVEST SURVEYS.

**WHEREAS**, the Adak City Council is the governing body for the community of Adak; and,

**WHEREAS**, the Alaska Department of Fish & Game, Division of Subsistence, and its partners, desire to conduct harvest surveys including all kinds of birds and eggs in Adak in the context of the project "Emperor Goose Harvest and Management in Alaska"; and,

**WHEREAS**, the City Council recognizes the importance of documenting the species of birds taken and their quantitative importance in the subsistence way of life and in providing for the long-term sustainability of the harvest of emperor geese and other birds; and,

**WHEREAS**, the City Council recognizes the value of the information that will be used for resource planning and management efforts. The Household harvest remains anonymous and will be aggregated to generate community harvest estimates. Community harvest estimates will be available to the City Council, the community at large, conservation and management agencies, and other interested parties; and,

**WHEREAS**, the City will provide local support and help enlisting household participation.

**NOW THEREFORE BE IT RESOLVED THAT:** The City of Adak, Alaska authorizes the Division of Subsistence of the State of Alaska Department of Fish & Game, and its partners, to conduct bird egg harvest surveys in Adak for the project "Emperor Goose Harvest and Management in Alaska".

**PASSED AND APPROVED** by a duly constituted quorum of the Adak City Council this 15<sup>th</sup> day of December, 2020.

A handwritten signature in black ink, appearing to read "Thomas Spitler".

Thomas Spitler, Mayor



ATTEST:

A handwritten signature in blue ink, appearing to read "Layton J. Lockett".

Layton J. Lockett, City Manager



**Akutan Traditional Council**

P. O. Box 89  
Akutan, Alaska 99553-0089  
(907) 698-2300 / 2301 Fax

RESOLUTION No. 2020-01

**Consent by Tribal Council to Conduct Bird and Egg Harvest Surveys**

WHEREAS: the Native Village of Akutan (hereinafter NVA) is a Federally Recognized Tribe;

WHEREAS: the NVA is the governing body of the people;

WHEREAS: the NVA wishes that the Division of Subsistence of the Alaska Department of Fish and Game and its partner organizations conduct harvest surveys including all kinds of birds and eggs in Akutan in the context of the project "Emperor Goose Harvest and Management in Alaska;"

WHEREAS: the NVA recognizes the importance of documenting the species of birds taken and their quantitative importance in the subsistence way of life and in providing for the long-term sustainability of the harvest of emperor geese and other birds;

WHEREAS: the NVA recognizes the value of the information that will be used for resource planning and management efforts. The household harvest remains anonymous and will be aggregated to generate community harvest estimates. Community harvest estimates will be available to the NVA, the community at large, conservation and management agencies, and other interested parties.

WHEREAS: the NVA will provide local support and help enlisting household participation.

NOW THEREFORE BE IT FURTHER RESOLVED that we authorize the Division of Subsistence of the Alaska Department of Fish and Game and its partners for the project "Emperor Goose Harvest and Management in Alaska" to conduct bird and egg harvest surveys in Akutan.

Approved and passed on this 20 day of JANUARY, 2020 at a duly constituted meeting of the Native Village of Akutan, at which a quorum was present, by a vote of:

\_\_\_ yeas; \_\_\_ nays; \_\_\_ abstaining; \_\_\_ absent.

[Signature]  
(signature)

Joe Bereskin, President  
(print name)

[Signature]  
(signature)

NIKITA BERESKIN, Administrator  
(print name)



**Qagan Tayagungin Tribe**  
**P.O. Box 447**  
**Sand Point, AK 99661**  
**(907) 383 5616**

**RESOLUTION 20-19**

**A RESOLUTION OF CONSENT BY TRIBAL COUNCIL TO CONDUCT BIRD AND EGG HARVEST SURVEYS**

WHEREAS: the Qagan Tayagungin Tribe of Sand Point is a Federally Recognized Tribe;

WHEREAS: the Qagan Tayagungin Tribe is the governing body of Native Village of Sand Point;

WHEREAS: the Qagan Tayagungin Tribe wishes that the Division of Subsistence of the Alaska Department of Fish and Game and its partner organizations conduct harvest surveys including all kinds of birds and eggs in Sand Point in the context of the project "Emperor Goose Harvest and Management in Alaska;"

WHEREAS: the Qagan Tayagungin Tribe recognizes the importance of documenting the species of birds taken and their quantitative importance in the subsistence way of life and in providing for the long-term sustainability of the harvest of emperor geese and other birds;

WHEREAS: the Qagan Tayagungin Tribe recognizes the value of the information that will be used for resource planning and management efforts. The household harvest remains anonymous and will be aggregated to generate community harvest estimates. Community harvest estimates will be available to the Qagan Tayagungin Tribe, the community at large, conservation and management agencies, and other interested parties.

WHEREAS: the Qagan Tayagungin Tribe will provide local support and help enlisting household participation.

NOW THEREFORE BE IT FURTHER RESOLVED that we authorize the Division of Subsistence of the Alaska Department of Fish and Game and its partners for the project "Emperor Goose Harvest and Management in Alaska" to conduct bird and egg harvest surveys in Sand Point.



## UNGA TRIBAL COUNCIL

P.O. Box 508  
Sand Point, Alaska 99661

(907) 383-2415 / 5553 Facsimile  
ungatribe@arctic.net

### RESOLUTION NO 21-01

#### CONSENT BY TRIBAL COUNCIL TO CONDUCT BIRD AND EGG HARVEST SURVEYS

- WHEREAS,** the Native Village of Unga (Unga Tribal Council) is a Federally Recognized Tribe;
- WHEREAS,** the Unga Tribal Council is the governing body of the people;
- WHEREAS,** the Unga Tribal Council wishes that the Division of Subsistence of the Alaska Department of Fish and Game and its partner organizations conduct harvest surveys including all kinds of birds and eggs in Sand Point in the context of the project "Emperor Goose Harvest and Management in Alaska;"
- WHEREAS,** the Unga Tribal Council recognizes the importance of documenting the species of birds taken and tier quantitative importance in the subsistence way of life and in providing for the long term sustainability of the harvest of emperor geese and other birds;
- WHEREAS,** the Unga Tribal Council recognizes the value of the information that will be used for resource planning and management efforts. The household harvest remains anonymous and will be aggregated to generate community harvest estimates. Community harvest estimates will be available to the Unga Tribal Council, the community at large, conservation and management agencies, and other interested parties.
- WHEREAS,** the Unga Tribal Council will provide local support and help enlisting household participation.

**NOW THEREFORE BE IT FURTHER RESOLVED** that we authorize the Division of Subsistence of the Alaska Department of Fish and Game and its partners for the project "Emperor Goose Harvest and Management in Alaska" to conduct bird and egg harvest surveys in Sand Point.

Approved and passed on this 18th day of DECEMBER, 2020 at a duly constituted meeting of the Native Village of Unga (Unga Tribla Council), at which a quorum was present, by a vote of: 3 yeas, 0 nays, \_\_\_ abstaining, 2 absent.

# Pauloff Harbor Tribe

P.O. Box 97  
Sand Point, Alaska 99661

RESOLUTION No. 21-02

Phone: (907) 383-6075  
Fax: (907) 383-6094

## Consent by Tribal Council to Conduct Bird and Egg Harvest Surveys

**WHEREAS:** The Pauloff Harbor Tribal Council (hereinafter PHT) is a federally-recognized tribe and is the governing body of the Tribal members of Pauloff Harbor Village of Sanak, Alaska; and

**WHEREAS:** the PHT wishes that the Division of Subsistence of the Alaska Department of Fish and Game and its partner organizations conduct harvest surveys including all kinds of birds and eggs in Sand Point in the context of the project "Emperor Goose Harvest and Management in Alaska;"

**WHEREAS:** the PHT recognizes the importance of documenting the species of birds taken and their quantitative importance in the subsistence way of life and in providing for the long-term sustainability of the harvest of emperor geese and other birds;

**WHEREAS:** the PHT recognizes the value of the information that will be used for resource planning and management efforts. The household harvest remains anonymous and will be aggregated to generate community harvest estimates. Community harvest estimates will be available to the PHT, the community at large, conservation and management agencies, and other interested parties.

**WHEREAS:** the PHT will provide local support and help enlisting household participation.

**NOW THEREFORE BE IT FURTHER RESOLVED** that we authorize the Division of Subsistence of the Alaska Department of Fish and Game and its partners for the project "Emperor Goose Harvest and Management in Alaska" to conduct bird and egg harvest surveys in Sand Point.

### CERTIFICATION:

This resolution was duly considered and adopted at a meeting of the Pauloff Harbor Tribe in Sand Point, Alaska on January 5, 2021 at which a quorum of Council members were in attendance.

For 5  
Present 5

Against 0  
Absent 0

Abstain 0

### Attest:

George P. Gundersen  
George P. Gundersen  
Tribal Council President

January 5, 2021  
Date

Hillary Smith  
Hillary Smith  
Tribal Council Secretary

January 5, 2021  
Date

Appendix D.–Community consent letter of support, Saint Paul.



March 19, 2021

Lara Mengak  
Division of Subsistence, Alaska Department of Fish and Game  
Anchorage, AK 99503  
Phone 907-267-2269  
Email: lara.menagak@alaska.gov)

**Re: Project: Emperor Goose Harvest and Management in Alaska Bird Harvest Surveys in the Aleutian-Pribilof Islands and Kodiak Archipelago**

Greetings Ms. Mengak:

On behalf of the Aleut Community of St. Paul Island (ACSPI), a federally recognized Alaska Native tribe located in the Pribilof Islands, Bering Sea, Alaska, I authorize the Ecosystem Conservation Office (ECO) to assist ADF&G complete the Emperor Goose Harvest and Management in Alaska: Bird Harvest Surveys in the Aleutian-Pribilof Islands and Kodiak Archipelago for our community. This includes providing support to a Local Research Assistant to deliver the surveys to our households and encourage residents to complete and submit the surveys to ADF&G when complete.

Thank you for the opportunity to contribute to this project.

Respectfully,



Amos T. Philemonoff, Sr.  
President, Aleut Community of St. Paul Island

Appendix E.–Community consent tribal resolution, Larsen Bay.



PHONE 907 847-2207  
FAX 907 847-2307  
PO Box 50  
LARSEN BAY  
ALASKA 99624

RESOLUTION 2020-04

Consent by Tribal Council to Conduct Bird and Egg Harvest Surveys

WHEREAS: the Larsen Bay Tribal Council (hereinafter LBTC) is a Federally Recognized Tribe;

WHEREAS: the LBTC is the governing body of the people;

WHEREAS: the LBTC wishes that the Division of Subsistence of the Alaska Department of Fish and Game and its partner organizations conduct harvest surveys including all kinds of birds and eggs in Larsen Bay in the context of the project "Emperor Goose Harvest and Management in Alaska;"

WHEREAS: the LBTC recognizes the importance of documenting the species of birds taken and their quantitative importance in the subsistence way of life and in providing for the long-term sustainability of the harvest of emperor geese and other birds;

WHEREAS: the LBTC recognizes the value of the information that will be used for resource planning and management efforts. The household harvest remains anonymous and will be aggregated to generate community harvest estimates. Community harvest estimates will be available to the LBTC, the community at large, conservation and management agencies, and other interested parties.

WHEREAS: the LBTC will provide local support and help enlisting household participation.

NOW THEREFORE BE IT FURTHER RESOLVED that we authorize the Division of Subsistence of the Alaska Department of Fish and Game and its partners for the project "Emperor Goose Harvest and Management in Alaska" to conduct bird and egg harvest surveys in Larsen Bay.

Approved and passed on this 18<sup>th</sup> day of December, 2020 at a duly constituted meeting of the Larsen Bay Tribal Council, at which a quorum was present, by a vote of:

2 yeas; 0 nays; 0 abstaining; 0 absent.

[Signature]  
(signature)  
Richard Henson, President  
(print name)

[Signature]  
(signature)  
Marilyn Henson, Administrator  
(print name)

**NATIVE VILLAGE OF PORT LIONS  
PORT LIONS TRADITIONAL TRIBAL COUNCIL**

**RESOLUTION 2020-22R**

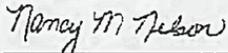
**AUTHORIZING THE ALASKA DEPARTMENT OF FISH AND GAME AND ITS PARTNERS  
TO CONDUCT BIRD AND EGG HARVEST SURVEY'S IN THE COMMUNITY OF PORT  
LIONS.**

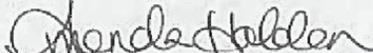
- WHEREAS,** the Native Village of Port Lions (NVPL) is a federally recognized tribe; and
- WHEREAS,** the Port Lions Traditional Tribal Council is the governing body of the Native Village of Port Lions; and
- WHEREAS,** the Native Village of Port Lions has consistently implemented and operated successful membership and community services since its formal inception in August, 1978; and
- WHEREAS,** the NVPL wishes that the Division of Subsistence of the Alaska Department of Fish and Game and its partner organizations conduct harvest surveys including all kinds of birds and eggs in Port Lions in the context of the project "Emperor Goose Harvest and Management in Alaska;"
- WHEREAS,** the NVPL recognizes the importance of documenting the species of birds taken and their quantitative importance in the subsistence way of life and in providing for the long-term sustainability of the harvest of emperor geese and other birds;
- WHEREAS,** the NVPL recognizes the value of the information that will be used for resource planning and management efforts. The household harvest remains anonymous and will be aggregated to generate community harvest estimates. Community harvest estimates will be available to the NVPL, the community at large, conservation and management agencies, and other interested parties.
- WHEREAS,** the NVPL will provide local support and help enlisting household participation.

**NOW THEREFORE BE IT FURTHER RESOLVED,** that we authorize the Division of Subsistence of the Alaska Department of Fish and Game and its partners for the project "Emperor Goose Harvest and Management in Alaska" to conduct bird and egg harvest surveys in Port Lions.

**CERTIFICATION**

We, the undersigned members of the Port Lions Traditional Tribal Council, do hereby certify that the foregoing Resolution was duly adopted by the Port Lions Traditional Tribal Council on the 14<sup>th</sup> day of November 2020, with a quorum present and 6 votes for and 0 votes against and 0 abstaining.

  
\_\_\_\_\_  
Nancy Nelson, President

  
\_\_\_\_\_  
Amanda Holden, Secretary-Treasurer



Traditional Bentwood Hat

# Sun'aq Tribe of Kodiak

Proudly representing members of the Sun'aq Tribe of Kodiak

## RESOLUTION #09-2021

### Consent by Tribal Council to Conduct Bird and Egg Harvest Surveys

**WHEREAS**, the Sun'aq Tribe of Kodiak Tribe of Kodiak is a Federally Recognized Tribe;

**WHEREAS**, the Sun'aq Tribal Council is the governing body of the people;

**WHEREAS**, the Sun'aq Tribal Council wishes that the Division of Subsistence of the Alaska Department of Fish and Game and its partner organizations conduct harvest surveys including all kinds of birds and eggs in Kodiak in the context of the project "Emperor Goose Harvest and Management in Alaska;"

**WHEREAS**, the Sun'aq Tribal Council recognizes the importance of documenting the species of birds taken and their quantitative importance in the subsistence way of life and in providing for the long-term sustainability of the harvest of emperor geese and other birds;

**WHEREAS**, the Sun'aq Tribal Council recognizes the value of the information that will be used for resource planning and management efforts. The household harvest remains anonymous and will be aggregated to generate community harvest estimates. Community harvest estimates will be available to the Sun'aq Tribal Council, the community at large, conservation and management agencies, and other interested parties.

**WHEREAS**, the Sun'aq Tribal Council will provide local support and help enlisting household participation.

**NOW THEREFORE BE IT FURTHER RESOLVED**, that we authorize the Division of Subsistence of the Alaska Department of Fish and Game and its partners for the project "Emperor Goose Harvest and Management in Alaska" to conduct bird and egg harvest surveys in Kodiak.

### CERTIFICATION

The foregoing Resolution was APPROVED and ADOPTED this 22nd Day of March 2021 by a vote of: 6 FOR, 0 AGAINST, 0 ABSENT or 0 ABSTAINED.

  
\_\_\_\_\_  
Nina Gronn, Chair

  
\_\_\_\_\_  
Emily Jean Capjohn, Secretary/Treasurer

  
\_\_\_\_\_  
ATTEST

312 W. Marine Way, Kodiak, Alaska 99615 (907) 486-4449

Fax: (907) 486-3361 \* E-mail: [socialservices@sunaaq.org](mailto:socialservices@sunaaq.org)

Proudly representing the members of the Sun'aq Tribe of Kodiak, Alaska

## Bird and Egg Harvest Survey Aleutian-Pribilof Islands and Kodiak Archipelago



We are requesting your participation in a short survey to estimate bird and egg harvest in your region. A local organization or Tribal Council in your community has approved this survey. Participation in this survey is voluntary. Your responses are confidential. Harvest estimates are used to:

- Document the importance of local uses of birds. ▪ Protect sustainable harvest opportunities.
- Protect our bird resources. ▪ Assess whether harvest regulations are appropriate.

**Qaġaasakung, quyanaasinaq, thank you!**  
**We'll share combined survey results with your community.**

For questions about the survey, please contact [Lara.Mengak@alaska.gov](mailto:Lara.Mengak@alaska.gov), phone 267-2269.  
Division of Subsistence, Alaska Department of Fish and Game, Anchorage



 **Bird and Egg Harvest Survey**  
Aleutian-Pribilof Islands and Kodiak Archipelago

**Instructions for completing your survey:**

1. Surveys are to represent harvest of individual households. We request each household to complete a survey. If more than one person in your household harvested birds/eggs, please combine numbers harvested by all harvesters.
2. Please complete and return the survey even if you did not harvest birds or eggs.
3. In the fields provided close to bird drawings, report numbers of all birds and eggs that your household harvested, including those that you gave to other people.
4. If you harvested with other people, report only your share of the harvest.
5. Do not report birds or eggs received from other people.
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. Return your completed survey including all 5 sheets (even if you did not harvest during a specific season) using the provided postage-paid envelope (no stamp needed).

**First, we would like to ask you about your community and household.**

1. Your community of residence: \_\_\_\_\_ Survey date: \_\_\_\_ / \_\_\_\_ / 2021

During what months of the year do you reside in this community? *Check all that apply.*

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

2. In the last 12 months, how many permanent household members... *(write number of people in each box)*

...tried to harvest birds?  ...tried to harvest eggs?

**Next, we would like to ask if COVID-19 (coronavirus) has impacted your harvest activities.**

3. Did the COVID-19 pandemic directly or indirectly affect your harvest activities? If so, how? (e.g., timing, effort, harvest amount, species harvested)

*Turn to page 2 to answer questions about Emperor Goose. →*

**Next, we would like to ask a few questions specifically about emperor goose.**



*The emperor goose is a traditional subsistence resource. Harvest of emperor goose was legally re-authorized in Alaska in 2017, after a hunting closure had been in place for about 30 years due to population decline. The following questions will help to better understand the importance of emperor goose for subsistence users and to evaluate harvest management.*

4. What months of the year do people in your community USUALLY harvest emperor goose? *Check all that apply.*

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

5. What factors affect the TIMING of emperor goose harvest in your community? *Check all that apply.*

Harvest mostly when birds are fat

Harvest mostly when birds aren't molting feathers, so there are no pin feathers

Weather *(explain):*

Other *(explain):*

I don't know

6. What factors affect the OPPORTUNITY to harvest emperor goose in your community? *Check all that apply and briefly explain why the factor(s) affect harvest of emperor goose.*

Weather *(explain):*

Other subsistence activities *(explain):*

Other *(explain):*

I don't know

7. Do you have other comments or observations about emperor geese and their harvest?

*Turn to page 3 to report harvest numbers. →*

**Spring:** Did your household harvest birds or eggs from **2 April to 30 June 2020?** (check one)  
 Yes  No

Please write the number of birds and eggs harvested by your household during the above period.

American wigeon Birds: _____ Eggs: _____ 	Mallard Birds: _____ Eggs: _____ 	Northern pintail Birds: _____ Eggs: _____ 	Gadwall Birds: _____ Eggs: _____ 	
Northern shoveler Birds: _____ Eggs: _____ 	Teal Birds: _____ Eggs: _____ 	Scaup Birds: _____ Eggs: _____ 	Goldeneye Birds: _____ Eggs: _____ 	
Bufflehead Birds: _____ Eggs: _____ 	Black scoter Birds: _____ Eggs: _____ 	Surf scoter Birds: _____ Eggs: _____ 	White-winged scoter 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: _____ 	Swan Birds: _____ Eggs: _____ 	
Black brant Birds: _____ Eggs: _____ 	Canada/cackling goose Birds: _____ Eggs: _____ 	Greater white-fronted goose Birds: _____ Eggs: _____ 	Emperor goose Birds: _____ Eggs: _____ 	Snow goose Birds: _____ Eggs: _____ 

Turn to page 4 to continue reporting spring harvest. →

**Spring (2 Apr–30 Jun 2020) continuation**

Please write the number of birds and eggs harvested by your household during the above period.

Ptarmigan Birds: _____ Eggs: _____ 	Red-throated loon Birds: _____ Eggs: _____ 	Pacific loon Birds: _____ Eggs: _____ 	Pacific loon non-breeding Birds: _____ Eggs: _____ 	
Yellow-billed loon Birds: _____ Eggs: _____ 	Loon 4 Birds: _____ Eggs: _____ 	Grebe Birds: _____ Eggs: _____ 	Auklet Birds: _____ Eggs: _____ 	
Cormorant Birds: _____ Eggs: _____ 	Murre Birds: _____ Eggs: _____ 	Guillemot Birds: _____ Eggs: _____ 	Puffin Birds: _____ Eggs: _____ 	Mew gull Birds: _____ Eggs: _____ 
Black-legged kittiwake Birds: _____ Eggs: _____ 	Red-legged kittiwake Birds: _____ Eggs: _____ 	Large gull Birds: _____ Eggs: _____ 	Tern Birds: _____ Eggs: _____ 	Black oystercatcher Birds: _____ Eggs: _____ 
Godwit Birds: _____ Eggs: _____ 	Whimbrel Birds: _____ Eggs: _____ 	Wilson's snipe Birds: _____ Eggs: _____ 	Semipalmated plover Birds: _____ Eggs: _____ 	Turnstone Birds: _____ Eggs: _____ 
Phalarope Birds: _____ Eggs: _____ 	Small sandpiper Birds: _____ Eggs: _____ 	Other or unknown bird: Birds: _____ Eggs: _____	Comments: <div style="border: 1px solid black; height: 80px; width: 100%;"></div>	

Turn to page 5 to report summer harvest. →

**Summer:** Did your household harvest birds or eggs from **1 July to 31 August 2020?** (check one)  
 Yes  No

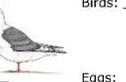
Please write the number of birds and eggs harvested by your household during the above period.

American wigeon Birds: _____ Eggs: _____ 	Mallard Birds: _____ Eggs: _____ 	Northern pintail Birds: _____ Eggs: _____ 	Gadwall Birds: _____ Eggs: _____ 	
Northern shoveler Birds: _____ Eggs: _____ 	Teal Birds: _____ Eggs: _____ 	Scaup Birds: _____ Eggs: _____ 	Goldeneye Birds: _____ Eggs: _____ 	
Bufflehead Birds: _____ Eggs: _____ 	Black scoter Birds: _____ Eggs: _____ 	Surf scoter Birds: _____ Eggs: _____ 	White-winged scoter 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: _____ 	Swan Birds: _____ Eggs: _____ 	
Black brant Birds: _____ Eggs: _____ 	Canada/cackling goose Birds: _____ Eggs: _____ 	Greater white-fronted goose Birds: _____ Eggs: _____ 	Emperor goose Birds: _____ Eggs: _____ 	Snow goose Birds: _____ Eggs: _____ 

Turn to page 6 to continue reporting summer harvest. →

**Summer (1 July–31 Aug 2020) continuation**

Please write the number of birds and eggs harvested by your household during the above period.

Ptarmigan Birds: _____ Eggs: _____ 	Red-throated loon Birds: _____ Eggs: _____ 	Pacific loon Birds: _____ Eggs: _____ 	Pacific loon non-breeding Birds: _____ Eggs: _____ 	
Yellow-billed loon Birds: _____ Eggs: _____ 	Loon 4 Birds: _____ Eggs: _____ 	Grebe Birds: _____ Eggs: _____ 	Auklet Birds: _____ Eggs: _____ 	
Cormorant Birds: _____ Eggs: _____ 	Murre Birds: _____ Eggs: _____ 	Guillemot Birds: _____ Eggs: _____ 	Puffin Birds: _____ Eggs: _____ 	Mew gull Birds: _____ Eggs: _____ 
Black-legged kittiwake Birds: _____ Eggs: _____ 	Red-legged kittiwake Birds: _____ Eggs: _____ 	Large gull Birds: _____ Eggs: _____ 	Tern Birds: _____ Eggs: _____ 	Black oystercatcher Birds: _____ Eggs: _____ 
Godwit Birds: _____ Eggs: _____ 	Whimbrel Birds: _____ Eggs: _____ 	Wilson's snipe Birds: _____ Eggs: _____ 	Semipalmated plover Birds: _____ Eggs: _____ 	Turnstone Birds: _____ Eggs: _____ 
Phalarope Birds: _____ Eggs: _____ 	Small sandpiper Birds: _____ Eggs: _____ 	Other or unknown bird: Birds: _____ Eggs: _____	Comments: <div style="border: 1px solid black; height: 80px; width: 100%;"></div>	

Turn to page 7 to report fall harvest. →

**Fall:** Did your household harvest birds or eggs from **1 September to 31 October 2020?** (check one)  
 Yes  No

Please write the number of birds and eggs harvested by your household during the above period.

American wigeon Birds: _____ Eggs: _____ 	Mallard Birds: _____ Eggs: _____ 	Northern pintail Birds: _____ Eggs: _____ 	Gadwall Birds: _____ Eggs: _____ 	
Northern shoveler Birds: _____ Eggs: _____ 	Teal Birds: _____ Eggs: _____ 	Scaup Birds: _____ Eggs: _____ 	Goldeneye Birds: _____ Eggs: _____ 	
Bufflehead Birds: _____ Eggs: _____ 	Black scoter Birds: _____ Eggs: _____ 	Surf scoter Birds: _____ Eggs: _____ 	White-winged scoter 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: _____ 	Swan Birds: _____ Eggs: _____ 	
Black brant Birds: _____ Eggs: _____ 	Canada/cackling goose Birds: _____ Eggs: _____ 	Greater white-fronted goose Birds: _____ Eggs: _____ 	Emperor goose Birds: _____ Eggs: _____ 	Snow goose Birds: _____ Eggs: _____ 

Turn to page 8 to continue reporting fall harvest. →

**Fall (1 Sept–31 Oct 2020) continuation**

Please write the number of birds and eggs harvested by your household during the above period.

Ptarmigan Birds: _____ Eggs: _____ 	Red-throated loon Birds: _____ Eggs: _____ 	Pacific loon Birds: _____ Eggs: _____ 	Pacific loon non-breeding Birds: _____ Eggs: _____ 	
Yellow-billed loon Birds: _____ Eggs: _____ 	Loon 4 Birds: _____ Eggs: _____ 	Grebe Birds: _____ Eggs: _____ 	Auklet Birds: _____ Eggs: _____ 	
Cormorant Birds: _____ Eggs: _____ 	Murre Birds: _____ Eggs: _____ 	Guillemot Birds: _____ Eggs: _____ 	Puffin Birds: _____ Eggs: _____ 	Mew gull Birds: _____ Eggs: _____ 
Black-legged kittiwake Birds: _____ Eggs: _____ 	Red-legged kittiwake Birds: _____ Eggs: _____ 	Large gull Birds: _____ Eggs: _____ 	Tern Birds: _____ Eggs: _____ 	Black oystercatcher Birds: _____ Eggs: _____ 
Godwit Birds: _____ Eggs: _____ 	Whimbrel Birds: _____ Eggs: _____ 	Wilson's snipe Birds: _____ Eggs: _____ 	Semipalmated plover Birds: _____ Eggs: _____ 	Turnstone Birds: _____ Eggs: _____ 
Phalarope Birds: _____ Eggs: _____ 	Small sandpiper Birds: _____ Eggs: _____ 	Other or unknown bird: Birds: _____ Eggs: _____	Comments: <div style="border: 1px solid black; height: 80px; width: 100%;"></div>	

Turn to page 9 to report winter harvest. →

**Winter:** Did your household harvest birds or eggs from **1 November 2020 to 9 March 2021?** (check one)  
 Yes  No

Please write the number of birds and eggs harvested by your household during the above period.

American wigeon Birds: _____ Eggs: _____ 	Mallard Birds: _____ Eggs: _____ 	Northern pintail Birds: _____ Eggs: _____ 	Gadwall Birds: _____ Eggs: _____ 	
Northern shoveler Birds: _____ Eggs: _____ 	Teal Birds: _____ Eggs: _____ 	Scaup Birds: _____ Eggs: _____ 	Goldeneye Birds: _____ Eggs: _____ 	
Bufflehead Birds: _____ Eggs: _____ 	Black scoter Birds: _____ Eggs: _____ 	Surf scoter Birds: _____ Eggs: _____ 	White-winged scoter 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: _____ 	Swan Birds: _____ Eggs: _____ 	
Black brant Birds: _____ Eggs: _____ 	Canada/cackling goose Birds: _____ Eggs: _____ 	Greater white-fronted goose Birds: _____ Eggs: _____ 	Emperor goose Birds: _____ Eggs: _____ 	Snow goose Birds: _____ Eggs: _____ 

Turn to page 10 to continue reporting winter harvest. →

**Winter (1 Nov 2020–9 March 2021) continuation**

Please write the number of birds and eggs harvested by your household during the above period.

Ptarmigan Birds: _____ Eggs: _____ 	Red-throated loon Birds: _____ Eggs: _____ 	Pacific loon Birds: _____ Eggs: _____ 	Pacific loon non-breeding Birds: _____ Eggs: _____ 	
Yellow-billed loon Birds: _____ Eggs: _____ 	Loon 4 Birds: _____ Eggs: _____ 	Grebe Birds: _____ Eggs: _____ 	Auklet Birds: _____ Eggs: _____ 	
Cormorant Birds: _____ Eggs: _____ 	Murre Birds: _____ Eggs: _____ 	Guillemot Birds: _____ Eggs: _____ 	Puffin Birds: _____ Eggs: _____ 	Mew gull Birds: _____ Eggs: _____ 
Black-legged kittiwake Birds: _____ Eggs: _____ 	Red-legged kittiwake Birds: _____ Eggs: _____ 	Large gull Birds: _____ Eggs: _____ 	Tern Birds: _____ Eggs: _____ 	Black oystercatcher Birds: _____ Eggs: _____ 
Godwit Birds: _____ Eggs: _____ 	Whimbrel Birds: _____ Eggs: _____ 	Wilson's snipe Birds: _____ Eggs: _____ 	Semipalmated plover Birds: _____ Eggs: _____ 	Turnstone Birds: _____ Eggs: _____ 
Phalarope Birds: _____ Eggs: _____ 	Small sandpiper Birds: _____ Eggs: _____ 	Other or unknown bird: Birds: _____ Eggs: _____	Comments: <div style="border: 1px solid black; height: 60px; width: 100%;"></div>	

**Qyanaasinaq, qağaasakung, thank you for completing the survey!**

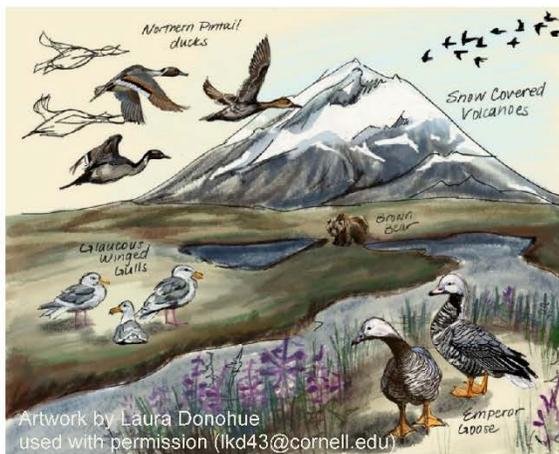


## Aleutian-Pribilof Islands and Kodiak Archipelago 2020 Bird and Egg Harvest Survey

### — SUMMARY RESULTS —

#### OBJECTIVE

Harvest of emperor goose was re-opened in Alaska in 2017 after a 30-year closure, but emperor goose numbers available for a sustainable harvest remain limited. Harvest data are needed to document uses of resources, assess effects of harvest on populations, solve allocation issues, and support sustainable harvest opportunities. The objective of this study was to complement bird harvest data within the emperor goose distribution range in Alaska, since data for the Kodiak Archipelago and Aleutian-Pribilof Islands regions were scarce.



#### METHODS

We surveyed households to quantify the harvest of birds and eggs by nine communities in the Kodiak Archipelago (Larsen Bay, Port Lions, Kodiak City, Womens Bay, and Mill Bay and Balance of Kodiak Island Borough) and Aleutian-Pribilof Islands (Adak, Akutan, Sand Point, and Saint Paul) (Table 1). Participation of communities and households in the survey was voluntary. Community consent was granted by tribal councils and local organizations. Household harvest data were anonymous and confidential.

Data were collected in March–June 2021 and represented the regulatory period 2 April 2020–9 March 2021. Seasons were considered as spring (2 April–30 June), summer (1 July–31 August), fall (1 September–31 October), and winter (1 November–9 March). This study documented harvests by resident households, including their harvests that may have happened outside the limits of their community of residence. In each community, contracted local research assistants distributed surveys to households and assisted with communication and outreach. Households completed surveys on their own and returned completed surveys using a postage-paid envelope. Project staff complemented sample sizes with phone interviews. A total of 570 surveys were completed in all surveyed communities: 76% were returned by mail and 24% completed by phone (Table 1).

Data from surveyed households were extrapolated to estimate harvest at the community and region levels. Data for Akhiok, Old Harbor, and Unalaska collected by other projects conducted by the ADF&G Division of Subsistence complemented the dataset.

#### RESULTS

The total bird harvest in the Aleutian-Pribilof Islands region in 2020 was 2,858 birds (Table 2). The seasonal distribution of harvests was 33% in spring-summer and 67% in fall-winter. The total egg harvest was 1,264 eggs. Aleutian-Pribilof Islands residents reported harvesting 52 emperor geese leading to an estimated (extrapolated) harvest of 210 geese.

The total bird harvest in the Kodiak Archipelago region in 2020 was 14,327 birds (Table 3). The seasonal distribution of harvests was 28% in spring-summer and 72% in fall-winter. The total egg harvest was 3,718 eggs. Residents of the Kodiak Archipelago reported harvesting 26 emperor geese leading to an estimated harvest of 244 geese.

Table 1. Demographic and sampling information for communities in the Aleutian-Pribilof Islands and Kodiak Archipelago regions.

Regions and communities	Population <sup>a§</sup>	American Indian and Alaska Native <sup>a§*</sup>	Total households	Surveys completed	Sampling rate
<b>Aleutian-Pribilof Islands</b>					
Adak City <sup>♦</sup>	114	47%	38 <sup>b</sup>	25	66%
Akutan City <sup>♦</sup>	113	81%	27 <sup>b</sup>	22	81%
Atka City	53	98%	14 <sup>a</sup>	–	–
Cold Bay City	42	60%	21 <sup>a</sup>	–	–
False Pass City	59	80%	13 <sup>a</sup>	–	–
King Cove City	427	90%	165 <sup>a</sup>	–	–
Nelson Lagoon CDP	41	93%	20 <sup>a</sup>	–	–
Nikolski CDP	39	72%	22 <sup>a</sup>	–	–
St. George City	67	94%	26 <sup>a</sup>	–	–
Saint Paul City <sup>♦</sup>	376	100%	113 <sup>b</sup>	28	25%
Sand Point City <sup>♦</sup>	531	71%	201 <sup>b</sup>	86	43%
Unalaska City <sup>◇</sup>	1,677	22%	998 <sup>c</sup>	114 <sup>c</sup>	11% <sup>c</sup>
<b>Kodiak Archipelago</b>					
Akhiok City <sup>◇</sup>	63	89%	14 <sup>d</sup>	11 <sup>d</sup>	79%
Karluk CDP	27	96%	14 <sup>a</sup>	–	–
Larsen Bay City <sup>♦</sup>	34	82%	17 <sup>b</sup>	16	94%
Old Harbor City <sup>◇</sup>	216	86%	67 <sup>d</sup>	30 <sup>d</sup>	45% <sup>d</sup>
Ouzinkie City	109	77%	45 <sup>a</sup>	–	–
Port Lions City <sup>♦</sup>	170	65%	65 <sup>b</sup>	35	54%
Aleneva CDP	5	0%	2 <sup>a</sup>	–	–
Chiniak CDP	61	36%	22 <sup>a</sup>	–	–
Kodiak City <sup>♦</sup>	5,482	16%	1,403 <sup>e</sup>	222	15%
Kodiak Station CDP	1,367	5%	387 <sup>e</sup>	–	–
Womens Bay CDP <sup>♦</sup>	743	19%	281 <sup>b</sup>	58	21%
Mill Bay CDP and Balance of Kodiak Island Borough <sup>♦</sup>	4,385	22%	1,074 <sup>a,e</sup>	78	6%

Source: (a) U.S. Census Bureau (2021); (b) this study; (c) Keating et al. (2020); (d) Sill et al. (2021); (e) Keating et al. (In prep). §: "Population" and "American Indian and Alaska Native" excluded population in group quarters. \*: Race alone or in combination. ♦: Communities surveyed in this study. ◇: Additional 2018 (Sill et al. 2021) and 2020 (Keating et al. In prep) data used in region harvest estimates.

Naves LC and Mengak LF (2023) Bird and egg harvest on the Aleutian-Pribilof Islands and the Kodiak Archipelago, 2020. Alaska Department of Fish and Game Division of Subsistence, Technical Paper No. 493, Anchorage. For more information: 907-267-2302, liliana.naves@alaska.gov.

**Acknowledgements:** We are grateful to all households that reported bird harvests. We thank the tribal and city councils for their support and guidance: Adak City Council; Native Village of Akutan; Native Village of Unga, Pauloff Harbor Village, and Qagan Tayagungin Tribe of Sand Point; Aleut Community of Saint Paul Island; Native Village of Larsen Bay; Native Village of Port Lions; and Tangirnaq Native Village, Native Village of Afognak, and Sun'aq Tribe of Kodiak. We are thankful to the local research assistants for their work in data collection and local communication: Kimberly (Mik) Turnbull (Adak); Carmen Bereskin (Akutan); Michelle Gronholdt (Sand Point); Aaron Lestenkof and Paul Melovidov (Saint Paul); Marilyn Henson (Larsen Bay); Renae Kewan (Port Lions); Dahlia Berns, Danielle Butts, and Daniel Hernandez (Kodiak City); Alicia Short-McEwan (Womens Bay); and Emilia Bartnick (Mill Bay and Borough Balance). We thank the ADF&G staff and local research assistants for their work in the surveys conducted in Akhiok, Old Harbor, and Unalaska.

**Funding:** U.S. Fish and Wildlife Service Pittman-Robertson Federal Aid in Wildlife Restoration Act (grant F19AF00506) and Alaska Department of Fish and Game-Division of Subsistence  
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Table 2. Estimated bird and egg harvest, Aleutian-Pribilof Islands region, 2020. CIP: Confidence interval as percentage of the estimated yearly bird harvest. This table lists species for which harvest was larger than zero.

Species	Yearly bird reported harvest	Yearly bird estimated harvest	CIP	Spring estimated bird harvest	Summer estimated bird harvest	Fall estimated bird harvest	Winter estimated bird harvest	Yearly egg estimated harvest
American wigeon	5	16	87%	8	0	0	8	0
Gadwall	2	18	185%	0	0	9	9	0
Teal	103	529	71%	78	56	139	256	0
Mallard	43	208	55%	43	0	68	97	0
Northern shoveler	1	9	185%	0	0	9	0	0
Black scoter	12	26	92%	17	0	0	9	0
Surf scoter	6	13	123%	0	0	0	13	0
Bufflehead	4	11	122%	0	0	0	11	0
Goldeneye	13	29	93%	0	0	0	29	0
Canvasback	5	25	133%	0	0	0	25	0
Scaup	1	9	185%	0	0	0	9	0
Common eider	6	19	88%	0	0	8	11	0
King eider	16	109	95%	4	0	0	105	0
Spectacled eider	1	4	126%	0	0	4	0	0
Harlequin duck	88	198	72%	64	0	39	95	0
Long-tailed duck	6	33	113%	28	0	0	5	0
Merganser	15	70	124%	0	0	9	61	0
Duck (unidentified)	3	26	185%	0	0	0	26	0
Black brant	28	114	80%	37	8	0	69	0
Canada goose	2	14	134%	14	0	0	0	0
Emperor goose	52	210	76%	16	0	13	181	0
Black-legged kittiwake	3	21	134%	21	0	0	0	49
Red-legged kittiwake	73	513	81%	141	281	91	0	0
Large gull	0	0		0	0	0	0	659
Murre	0	0		0	0	0	0	197
Puffin	33	72	109%	34	4	34	0	51
Black oystercatcher	0	0		0	0	0	0	309
Wilson's snipe	10	88	185%	35	0	53	0	0
Ptarmigan	92	474	53%	61	0	137	276	0
Total	623	2,858	38%	600	350	612	1,296	1,264

Table 3. Estimated bird and egg harvest, Kodiak Archipelago region, 2020. CIP: Confidence interval as percentage of the estimated yearly bird harvest. This table lists species for which harvest was larger than zero.

Species	Yearly bird reported harvest	Yearly bird estimated harvest	CIP	Spring estimated bird harvest	Summer estimated bird harvest	Fall estimated bird harvest	Winter estimated bird harvest	Yearly egg estimated harvest
American wigeon	13	55	121%	5	0	16	33	0
Gadwall	52	287	127%	10	0	54	224	0
Teal	120	1,053	107%	171	0	269	613	0
Mallard	249	1,361	54%	164	13	449	735	0
Northern pintail	14	90	77%	31	0	0	59	0
Black scoter	242	1,917	129%	825	0	368	724	56
Surf scoter	81	674	107%	334	0	34	306	11
White-winged scoter	58	459	98%	197	0	39	222	17
Bufflehead	122	917	82%	200	3	179	535	34
Goldeneye	310	1,418	53%	216	6	162	1,034	84
Scaup	184	1,569	108%	483	0	84	1,002	0
King eider	1	6	163%	0	0	0	6	0
Harlequin duck	220	2,221	113%	888	37	564	733	0
Long-tailed duck	69	489	73%	193	0	67	230	0
Merganser	24	132	126%	5	0	39	88	30
Black brant	4	21	125%	0	0	15	6	0
Canada goose	47	331	89%	78	0	43	210	0
Emperor goose	26	244	125%	16	0	0	229	0
Tern	0	0		0	0	0	0	636
Black-legged kittiwake	0	0		0	0	0	0	344
Mew gull	0	0		0	0	0	0	371
Large gull	0	0		0	0	0	0	1,990
Puffin	6	44	168%	44	0	0	0	73
Black oystercatcher	0	0		0	0	0	0	71
Other/unknown bird	10	30	133%	0	0	30	0	0
Ptarmigan	126	1,008	90%	57	0	204	747	0
Total	1,978	14,327	83%	3,917	59	2,617	7,734	3,718

Updated 18 May 2023