Technical Paper No. 436

DRAFT: Subsistence Harvests of Pacific Halibut in Alaska, 2016

by
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Alaska Department of Fish and Game

Division of Subsistence

Symbols and Abbreviations

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

Weights and measures (metric)

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

Weights and measures (English)

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

Time and temperature

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

Physics and chemistry

all atomic symbols

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

General

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

Measures (fisheries)

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

Mathematics, statistics

all standard mathematical signs, symbols and abbreviations

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

TECHNICAL PAPER NO. 436

DRAFT: SUBSISTENCE HARVESTS OF PACIFIC HALIBUT IN ALASKA, 2016

by

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

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

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TABLE OF CONTENTS

TABLE OF CONTENTS CONTINUED

LIST OF TABLES

LIST OF FIGURES

LIST OF FIGURES CONTINUED

LIST OF APPENDICES

ACKNOWLEDGMENTS

First and foremost, we thank the thousands of individuals who took the time to voluntarily respond to the mailed survey form or to be interviewed. This report would not be possible without their cooperation.

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ABSTRACT

This report describes the results of a project to estimate the subsistence harvest of Pacific halibut *Hippoglossus stenolepis* in Alaska in 2016. The National Marine Fisheries Service adopted rules governing subsistence halibut fishing in 2003. Data were collected through a voluntary survey mailed to all holders of Subsistence Halibut Registration Certificates (SHARCs), supplemented by interviews in 5 communities. The survey response rate was 66% (5,862 surveyed of 8,925 potential halibut fishers). An estimated 4,408 individuals participated in the subsistence fishery for halibut in 2016, down slightly from 4,506 in 2014. The estimated harvest in 2016 was 36,815 halibut, comprising 727,178 lb (net weight; ±3.0%). This compares to a high of 1,193,162 lb (± 1.5%) in 2004 and a low of 686,991 lb (±2.9%) in 2012. Of the total subsistence halibut harvested in 2016, 75% were harvested with setline gear and 25% with hand-operated gear. As in 2003–2012 and 2014, the largest portion of the Alaska subsistence halibut harvest in 2016 occurred in Regulatory Area 2C (Southeast Alaska), 60%, followed by Area 3A (Southcentral Alaska), 31%. Subsistence harvests represented about 2.3% of the total halibut removals in Alaska in 2016. The harvest estimates based on the surveys for 2003–2012, 2014, and 2016 serve as a basis for understanding the overall harvest, annual variability in catch, and trends in harvests since implementation of the 2003 regulations. Due to budget constraints, surveys to estimate subsistence halibut harvests in Alaska in 2013 and 2015 did not take place and a survey will not occur for 2017. The report recommends that monitoring of the subsistence harvest of halibut in Alaska be resumed in the future.

Key words: Pacific halibut, *Hippoglossus stenolepis*, subsistence harvests, Alaska

1. BACKGROUND AND METHODS

Background

The primary goal of this project was to estimate the subsistence harvests of Pacific halibut *Hippoglossus stenolepis* in Alaska in 2016 through a survey mailed to registered subsistence halibut fishers; the survey was supplemented by interviews in selected communities. This was the 12th year for which this research was conducted. (See Fall et al. [2004] for the results for 2003, Fall et al. [2005] for the results for 2004, Fall et al. [2006] for the results for 2005, Fall et al. [2007] for the results for 2006, Fall and Koster [2008] for the results for 2007, Fall and Koster [2010] for the results for 2008, Fall and Koster [2011] for the results for 2009, Fall and Koster [2014] for the results for 2010, Fall and Koster [2013] for the results for 2011, Fall and Koster [2014] for results for 2012, and Fall and Lemons [2016] for results for 2014.) Due to lack of funds, harvest estimates were not developed for 2013 or 2015. The Alaska Department of Fish and Game (ADF&G) Division of Subsistence administered the project through a grant from the National Oceanic and Atmospheric Administration (NOAA) (award number NA16NMF4370166).

In Alaska's coastal areas, subsistence halibut fisheries are local, noncommercial, customary and traditional food fisheries, as noted by Wolfe (2002) and described in *Environmental Assessment/Regulatory Impact Review/Initial Regulatory Flexibility Analysis for a Regulatory Amendment for Defining a Halibut Subsistence Fishery Category* (an "EA/RIR/IRFA") by the North Pacific Fishery Management Council (NPFMC), ADF&G, International Pacific Halibut Commission (IPHC), and the National Marine Fisheries Service (NMFS), August 11, 2000 (National Marine Fisheries Service 2000); see also North Pacific Fishery Management Council [2003]). The EA/RIR/IRFA summarizes information about the subsistence halibut fishery in Alaska. This background information is not repeated here but provided the basis for the NPFMC's recommendation for subsistence halibut fishing regulations in Alaska. Figure 1 illustrates IPHC halibut regulatory areas in Alaska.

In April 2003, the NMFS, Alaska Region, published federal regulations implementing a subsistence halibut fishery for qualified individuals in the waters in and off Alaska (68 FR 18145, April 15, 2003; see http://www.fakr.noaa.gov/frules/fr18145.pdf). Current regulations state that persons eligible to subsistence halibut fish include: 1) residents of rural communities with customary and traditional uses of halibut (rural); and 2) members of federally recognized Alaska Native tribes with customary and traditional uses of halibut (tribal). In total, residents of 118 rural communities and members of 123 Alaska Native tribes are eligible to participate in the fishery.[1] (See Appendix A for a list of eligible tribes and communities as they appeared in the Federal Register in 2003.) On November 4, 2009, the U.S. Department of Commerce published a final rule (74 FR 57105, November 4, 2009), effective December 4, 2009, modifying eligibility requirements for participation in the Alaska subsistence halibut fishery. The action allowed rural residents who live outside the boundaries of the specified 118 communities to participate if they live within the boundaries of rural areas defined in §300.65(g)(3).

Subsistence halibut fishers are required to obtain a Subsistence Halibut Registration Certificate (SHARC) from the Restricted Access Management (RAM) Program office of NMFS prior to fishing.[2] Federal regulations (50 CFR Part 300.65(h)(4)) also authorize periodic surveys of SHARC holders in order to

1. In December 2004, the NPFMC adopted a recommendation to the Secretary of Commerce to add Naukati Bay to the original list of 117 eligible rural communities. Regulations implementing this change went into effect in 2008, resulting in 118 rural communities eligible for a portion of 2008 and all of 2009. Also, note that the Northern Pacific Halibut Act of 1982, under which the Alaska subsistence halibut fishery regulations are authorized, provides for fair and equitable allocations of halibut among U.S. fishers, but does not establish priorities for those allocations (70 FR 16742, April 1, 2005; see http://www.fakr.noaa.gov/frules/70fr16742.pdf, page 16,747).

2. The subsistence rules were amended in 2005 by regulations published in the Federal Register at 70 FR 16742, April 1, 2005. Among other things, this amendment provides for obtaining Community Harvest Permits, Ceremonial Permits, and Educational Permits.

estimate annual subsistence harvests and related catch and effort information. The regulation states that, "Responding to a subsistence halibut harvest survey will be voluntary."

Table 1 provides population estimates for the eligible rural communities for 2000 and 2010 based on the federal decennial censuses. The total population of these communities in 2000 was 82,707, of which 38,990 were Alaska Natives (47%). For 2010, the federal census reported a total population of 84,353 for eligible rural communities and areas, including 40,053 Alaska Natives (47%) (U.S. Census Bureau 2011). In addition, the nonrural communities of Juneau and the Ketchikan Gateway Borough (excluding Saxman, whose residents are eligible) in 2010 had Alaska Native populations of 6,005 and 2,625, respectively (Alaska Department of Labor and Workforce Development 2011), most of whom were eligible to participate in the federal subsistence halibut fishery through their tribal membership. Also, an unknown number of eligible tribal members lived in other nonrural communities, such as Anchorage and places within the Kenai Peninsula Borough. Table 1 shows that Alaska Department of Labor and Workforce Development population estimates for eligible communities and areas for 2016 total 86,525.

Project Objectives

The primary goal of the project was to estimate the subsistence harvest of halibut in Alaska in the calendar year 2016. Funding for 2016 totaled $129,000, the same as study years 2012 and 2014. In addition to 3 rounds of survey mailings, outreach and supplemental interviewing occurred in Sitka in Area 2C, Unalaska/Dutch Harbor and Akutan in Area 4A, and Toksook Bay and Tununak in Area 4E. The project objectives for 2016 were:

1. Produce an estimate of the subsistence harvest of halibut in Alaska in 2016 by community, tribe, gear type, and IPHC regulatory area, along with an estimate of the number of individuals who subsistence fished for halibut in 2016.
2. Produce an estimate of the harvest of halibut by SHARC holders while sport fishing in 2016.

An objective from previous study years to estimate lingcod and rockfish harvests by subsistence halibut fishers was dropped for 2014 and 2016.

Data Collection Methods

Public Outreach

Information about the project was available on the NMFS website for subsistence halibut fishing in Alaska (see http://www.fakr.noaa.gov/ram/subsistence/halibut.htm).

For additional outreach, division staff traveled to Sitka in Southeast Alaska (Area 2C), 2 Aleutian Islands (Area 3B) communities (Unalaska/Dutch Harbor and Akutan), and 2 Western Alaska (Area 4E) communities (Toksook Bay and Tununak). Meetings took place with tribal officials about the importance of the survey as well as the SHARC program. In addition, staff provided information about the SHARC program during household surveys.

Postal Household Survey

As recommended by Wolfe (2002) the survey methodology was based upon a registration system for subsistence halibut fishers, which requires fishers to obtain a SHARC before fishing under federal subsistence halibut regulations. In total, 8,779 individual SHARCs and 2 community or ceremonial permits were issued for 2016 (see section "Sample Achievement" below). All individuals who held a SHARC for any portion of 2016 were mailed a retrospective recall survey covering a 12-month harvest period: calendar year 2016. Data from the 2 community permits were returned directly to the RAM Program, and are included in these study findings.

The 2016 survey instrument was very similar to the form used in past study years. It is based on recommendations by Wolfe (2002:Appendix A), with slight modifications, such as project year and return address. (See Appendix B in this report for a copy of the 2016 survey instrument.) Wolfe (2002:15–18)

provided justification for the kinds of data to be collected, which include name and address of the fisher; halibut harvests in numbers and pounds round (whole) weight by gear type in 2016; and number of hooks usually set. Questions about harvests of lingcod and rockfish taken while subsistence fishing for halibut, asked for 2003–2012, were excluded from the 2016 form (as they were for 2014). In 2003, a question addressing the water body fished (primary location) while subsistence fishing was added at the recommendation of NMFS staff. This question was retained for 2004–2012, 2014, and 2016. Another survey question was added in 2004 to record the location of sport halibut fishing by SHARC holders. The survey was designed to reduce the potential double counting of halibut taken with rod and reel gear, which could be reported in both the subsistence survey and in the ADF&G Division of Sport Fish *Statewide Harvest Survey* (Wolfe 2002:19). For 2009, a new question was added about the number of trips taken for subsistence halibut fishing in the study year. This question was retained for 2010–2012, 2014, and 2016.

A short explanatory letter with instructions on the back for completing the survey was included in the mailings (Appendix B). The survey was designed so that it could be directly returned to the Division of Subsistence, postage paid.

Presently under IPHC regulations, Community Development Quota (CDQ) fishers may retain halibut under 32 inches (U32; formerly called "sublegal" or "shorts") while commercial CDQ fishing in areas 4D and 4E only. These regulations require the CDQ organization to report this harvest to the IPHC. To avoid double counting, subsistence fishers were instructed not to include these fish on their subsistence halibut survey.

Table 2 provides a chronology of key activities during the project. Table 3 provides a summary of response rates by mailing, SHARC type (rural or tribal), and place of residence. The first mailing to 8,779 SHARC holders occurred on January 5, 2017. The second mailing to 4,482 SHARC holders occurred on March 8, 2017, and a third mailing to 3,132 SHARC holders occurred on May 10, 2017.

The Division of Subsistence created a dedicated e-mail address that recipients of the postal survey could use if they had questions about how to respond. Also, the RAM Program set up a toll-free telephone number (1-800-304-4846) to provide information about the subsistence halibut program, including the harvest assessment program. Both the e-mail address and toll-free telephone number appeared on the survey. A set of "frequently asked questions" and responses was developed by ADF&G and NMFS staff members to guide staff responses to telephone calls and e-mail inquiries about how to fill out the survey form (Appendix C [FAQ]; Appendix B [survey]).

Community Visits and In-Person Surveys

Because the response rates to the postal survey vary by community and tribe, the mailings were again supplemented in selected communities with household surveys conducted by local research assistants (LRAs) hired through subcontracts with Alaska Native tribes or by division staff. Because of the large number of eligible communities and tribes, it was not possible to conduct surveys in most communities.

Sitka

In Southeast Alaska (Area 2C), surveys were administered in Sitka with SHARC holders who had not returned the mailed form. A cooperative agreement with the Sitka Tribe of Alaska supported this interviewing. Subsistence Resource Specialist (SRS) Lauren Sill traveled to Sikta in April to review the survey form and list of SHARC holders with tribal staff. The surveys were administered face-to-face or by telephone. Most of the surveys took place during May and June.

Unalaska/Dutch Harbor and Akutan

Prior to traveling to Unalaska/Dutch Harbor, researchers contacted the Qawalangin Tribe of Unalaska in March 2017 by phone to describe the project and provide an opportunity for the tribe to ask questions about the research. After approving the project, the tribe provided recommendations for LRAs to aid in the survey effort.

Before traveling to Akutan, researchers teleconferenced with the Native Village of Akutan on March 15, 2017, to introduce the project, ask about the best dates to travel to Akutan, and solicit recommendations for an LRA. Approval to conduct the research was obtained.

SRS Bronwyn Jones and volunteer Travis Smith traveled to Akutan in early April. With the help of LRA Nikita Bereskin, they interviewed SHARC holders and completed SHARC renewal forms with a few local residents. Jones and Smith then traveled to Unalaska/Dutch Harbor. Working with LRA Andrey Olson, they interviewed SHARC holders who had not returned the survey by mail, and helped several local residents renew their SHARCs. Olson completed additional surveys after division staff left the community.

Tununak and Toksook Bay

Division of Subsistence staff met by teleconference with the Nunakauyak Traditional Council (TC) (Toksook Bay) and the Tununak Indian Reorganization Act (IRA) Council in March 2017 to discuss the division's plan to conduct subsistence halibut harvest surveys in their communities. Each council approved the proposed research. Prior to deployment, research staff contacted each council's tribal administrator (TA) to discuss potential LRAs, and requested household lists for each community.

SRS Anna Godduhn and Fish and Wildlife Technician Kathleen Roush arrived in Toksook Bay on April 17, and moved on to Tununak on April 21. Upon arrival, division staff made a VHF announcement in each community to introduce the field staff and let people know that halibut surveys would be happening. They contracted 2 LRAs in Toksook Bay (Sam Wiseman and Margaret Felix) who were recommended by the Nunakauyak TA, and 2 LRAs in Tununak (Lucy Sampson and Leona Flynn) who were recommended by local residents. Training and orientation took place in Toksook Bay on the morning of April 17, and in Tununak on the morning of April 21. During the trainings, division staff introduced the subsistence halibut program, including the registration requirements for Alaska Native tribal members and rural resident subsistence halibut fishers. Research staff described the goals of the harvest assessment program, the purpose of completing subsistence halibut harvest surveys, and the methods by which researchers would conduct surveys. Household lists were acquired from the City of Toksook Bay and the Tununak IRA Council. During each training, the town was geographically split between the LRAs; surveys commenced in the afternoon. Division staff also contacted the Lower Kuskokwim School District (LKSD) site administrators at the Toksook Bay and Tununak schools and obtained from each a list of names of LKSD staff residing in district housing in the communities. Names of these individuals were added to the household lists obtained from local government offices. Researchers used these lists to assist in identifying and contacting all potential subsistence halibut fishers in each community. LRAs aided researchers in logistical planning and accompanied division staff during all survey activities.

Two teams comprised of one Division of Subsistence researcher and one LRA deployed to complete surveys in Toksook Bay April 17–20 and in Tununak April 21–23. Research teams approached every residence in each community and attempted to contact all residents who were active subsistence halibut fishers in 2016. Upon receiving consent, research teams completed a survey with each respondent. If a potential respondent was determined to be under the age of 18 years, researchers completed a survey only in the presence of that fisher's parent or legal guardian and only with the parent's or guardian's consent. Through discussions with LRAs and other residents in each household, researchers determined whether there were additional subsistence halibut fishers who were not present at the time of first contact by the research teams. Researchers made up to 3 attempts to survey all subsistence fishers in each household. A fisher was recorded as unavailable to be surveyed after the third failed attempt to contact, and no further attempts were made to survey that person.

It was a very busy time on Nelson Island because conditions were good for hunting and butchering seals, especially in Toksook Bay; thus many active subsistence harvesters and processors were unavailable for the survey. The LRAs were also obliged to participate in these activities, limiting their availability to conduct surveys.

At the time of each contact, research teams offered copies of the Application for Subsistence Halibut Registration Certificate, either the Alaska Native Tribal Member form or Rural Resident form as specified by

each person. Research teams gave each interested person the option to complete an application immediately for submission to Division of Subsistence staff for forwarding to NMFS, or to do so at their convenience and mail the completed application to NMFS.

Comprehensive Surveys

In addition, while engaged in other projects, division staff collected harvest information from SHARC holders who had not returned surveys by mail in the southwestern Alaska communities of Cold Bay, Sand Point, and King Cove.

Sample Achievement

Table 3 reports sample achievement by tribe, rural community, and community of residence. Overall, 5,862 surveys were completed by 8,925 potential participants in the fishery, including SHARC holders, 2 returned special permits, and identified potential halibut fishers who did not hold SHARCs in 4 communities. The response rate was 66% (Figure 2). For residents of the 118 eligible rural communities and eligible rural areas who did not register as tribal members, 4,362 of 5,754 potential surveys were completed (76%) (tables 3 and 4). As shown in Figure 3, in 2016 there were 11 communities with more than 100 nontribal SHARC holders, accounting in total for 85% of all nontribal SHARCs issued in rural communities. Return rates were 64% or more in all 11 of these communities.

Of the 3,171 tribal members who were listed as potential participants in the fishery in 2016, 1,500 (47%) were surveyed. As shown in Figure 3, there were 14 tribes with more than 60 potential subsistence fishers. Return rates for these 14 tribes varied widely, from 72% in Wrangell to 12% for the Pauloff Harbor Tribe of King Cove. In total, these 14 tribes accounted for 68% of all tribal SHARCs and potential fishers.

Figure 4 illustrates survey response rates by place of residence of SHARC holders for the 20 communities with 100 or more SHARC holders in 2016. These communities accounted for 84% of all potential fishers and 85% of all returned surveys. Response rates were 50% or higher in all but 5 of these communities; in 12 of these communities, response rates exceeded 60%.

Figure 5 shows the survey return rate by response category (see also Table 3). After the first mailing, 4,249 surveys were returned—a response rate of 48%. Responses to the second mailing added 915 surveys, and the third mailing produced 444 responses, for a total response to the postal survey of 5,608 surveys, or 63% of all potential respondents. In addition, surveys administered by representatives of tribes and ADF&G staff added 254 surveys. This brought the total response to 5,862 surveys, 66% of the sampling goal. The overall response rate for the survey for 2016 increased slightly from 65% in 2014, but was lower than the 71% response rate achieved in 2012 and the 68% response rathe achieved in 2011. The response rate in 2016 was the third-highest of the 12 study years.

The number of surveys returned as "undeliverable" was 723 in 2016 (Table 3). Subtracting "undeliverables" from the mailed survey target of 8,779 gives a response rate by mail of 70% in 2016, compared to 68% in 2014, 70% in 2012 (the highest for any survey year), and 68% in 2011. Removing "undeliverables" from the total survey goal (8,925) results in a response rate of 71%.

Data Analysis

Data Entry

All returned surveys were reviewed for completeness prior to data entry. Responses were coded following standardized conventions used by the Division of Subsistence. Staff within the Information Management Section of the division set up database structures within Microsoft (MS) SQL Server[3] at ADF&G in Anchorage to hold the survey data. The database structures included rules, constraints, and referential integrity to ensure that data were entered completely and accurately. Data entry screens were available on a secure internet website. Daily incremental backups of the database occurred, and transaction logs were

3. Product names are included for scientific completeness and do not constitute an endorsement.

backed up hourly. Full backups of the database occurred twice weekly. This ensured that no more than 1 hour of data entry would be lost in the unlikely event of a catastrophic failure.

Survey responses were manually entered twice, and survey forms were electronically scanned. All data were compared programmatically for inconsistent data entry. Double data entry ensured a more accurate transfer of information from the coded survey forms into the database, and is a standard Division of Subsistence practice. Data did not pass to the processing phase until inconsistencies within the twice-entered data set were eliminated. The scanned survey forms also facilitated efficient data correction and editing.

Information was processed and analyzed using MS SQL programming. Initial processing included the performance of standardized logic checks of the data. Logic checks are often needed in complex data sets where rules, constraints, and referential integrity do not capture all of the possible inconsistencies that may appear.

Analysis: Development of Harvest Estimates

Analysis included review of raw data frequencies, cross tabulations, table generation, and estimates of population parameters. Missing information was dealt with on a case-by-case basis. The Division of Subsistence has standard practices for dealing with missing information, such as minimal value substitution or use of an average response for similarly characterized households or communities. Typically, missing data are an uncommon, randomly occurring phenomenon in household surveys conducted by the division, as was the case in this project.

In general, estimates of harvests, levels of participation, and other findings were calculated based upon the application of weighted means (Cochran 1977). These calculations are standard methods for extrapolating sampled data. In this project, each tribe and rural community was a separate stratum for purposes of estimating total harvests. In most cases, the mean for returned SHARC surveys was applied to the total number of SHARCs issued for the tribe or community to calculate the estimated harvest. The formula for standard expansion of community harvests is:

$$H_t = \sum H_i \tag{1}$$

$$\text{where } H_i = h_i W_i \tag{2}$$

$$\text{and } W_i = \frac{N_i}{n_i} \text{ (Harvest weight factor per strata } i\text{)} \tag{3}$$

Where

H_t = the total harvest (numbers of fish or pounds),

H_i = the total harvest, numbers or pounds, for tribe or community i

W_i = the weight factor for tribe or community i,

h_i = the total harvest, numbers or pounds, reported in returned surveys for tribe or community,

n_i = the number of returned surveys in each tribe or community, and

N_i = the number of SHARCs issued for tribe or community.

The following instances are exceptions. First, 47 SHARCs were held by eligible tribal members living outside of Alaska. Of these, 20 postal surveys were returned from this group, and only 6 of these returned surveys indicated any subsistence fishing activity. Rather than assign the mean value for their tribe (which would likely result in an overestimate of the harvest), all nonreturned surveys for SHARC holders with out-of-state addresses were coded as "did not fish."

Second, all SHARC holders were divided into 2 categories based upon the expiration date of their SHARC. SHARCs having an expiration date falling within the project period and that were not renewed were treated

as separate strata from other SHARCs for the purpose of generating harvest estimates. This was done to account for potential bias and resulting overestimation of harvests for SHARCs that were fished for only part of the year. During 2016, 1,004 rural and 496 tribal SHARCs expired and were not renewed; of those, 498 (50%) rural SHARCs and 153 (31%) tribal SHARCs participated in the survey. Of those survey respondents with rural SHARCs that expired, 27% participated in the subsistence fishery, as did 21% of survey respondents with expired tribal SHARCs.

The RAM Program issued 2 community or ceremonial permits for 2016; both were returned with data. Harvests from the 2 permits were added to the estimates for the tribe of the permit holders because they are not reported by individuals in their response to the SHARC postal survey. Data from these permits were returned directly to RAM Program, and RAM Program provided the data to ADF&G for the analysis. They are classified as "returned through staff" in Table 3.

It should also be noted that not every individual who obtained a SHARC as a tribal member resided in the community where his or her tribe's headquarters is located. Therefore, the sum of harvest estimates for tribal SHARC holders and rural resident SHARC holders does not necessarily equal the halibut harvest for particular communities of residence. Rather, an additional analysis was necessary to estimate harvests by community of residence that assigned tribal SHARC holders to a community based on their mailing addresses. Appendix tables D-2, D-3, and D-4 report project results by place of residence of the SHARC holders.

The standard deviation (*SD*; or Variance [*V*], which is the *SD* squared) of the harvest was calculated with the raw, unexpanded data. The standard error (*SE*), or *SD* of the mean, was also calculated for each community or tribe. This was used to calculate the relative precision of the mean, or the likelihood an unknown value falls within a certain distance from the mean. In this project, the relative precision of the mean is shown in the tables as a confidence interval (*CI*), expressed as a percentage. Once the standard error was calculated, the *CI* was determined by multiplying the SE by a constant that reflected the level of significance desired, based on a normal distribution. The constant for 95% confidence intervals is 1.96. Though there are numerous ways to express the formula below, it contains the components of a *SD*, *V*, and *SE*.

Relative precision of the mean (*CI*%):

$$CI\%(\pm) = \frac{t_{\alpha/2} \times \frac{s}{\sqrt{n}} \times \sqrt{\frac{N-n}{N-1}}}{\overline{x}} \tag{4}$$

$$s = \sqrt{\sum_{i=1}^{n} \frac{\sum(x_i - \overline{x})^2}{n-1}} \tag{5}$$

Where

s = sample standard deviation

x_i = reported amount harvested by individual SHARC holders

$\overline{x}$ = mean harvest

n = total sample size

N = total population size

n_i = tribal or community sample size

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

Project staff explored the possibility of nonresponse bias for returned mail-out surveys and its effect on harvest estimates (see Appendix F in Fall and Koster [2014] for further discussion of responses by response category for previous study years). However, it was determined that responses to the survey, including harvest levels and involvement in the fishery, were not notably different between any of the response categories (responses to the first mailing, the second mailing, the third mailing, and staff-administered surveys).

As noted above, survey respondents provided harvest estimates in pounds round (whole) weight. For ease of comparison with estimates of halibut removals in other fisheries, we have converted these estimates to pounds net (dressed, head off) weight, where 0.75 × round weight = net weight.[4]

Products

The public review draft of this final report was completed in November 2017 and circulated for review and comments. The draft report was also posted at the Division of Subsistence website. A presentation of the project findings and recommendations occurred at the December 2017 meeting of the NPFMC in Anchorage, Alaska. The final report was revised in consideration of comments and suggestions received from reviewers of the public review draft. In addition to the final report, a short findings summary was prepared (Appendix E). The summary was sent to tribal government representatives and other interested individuals and groups. This report was posted on the Division of Subsistence website and the RAM Program website in PDF format for downloading and printing by the public. Printed copies of this report were sent to the Alaska Resources Library and Information Services as well as the Alaska State Library.

4. The factor of 0.75 for converting halibut round weight to net weight is the standard used by the IPHC and ADF&G Division of Sport Fish. Division of Subsistence studies, as reported in the Technical Paper series and in the Community Subsistence Information System (CSIS)*, generally use a factor of 0.72 for converting halibut round weights to net weights, based on Crapo et al. (1993:7), who reported that, on average, the weight of a dressed halibut with the head removed is 72% of the round weight, with a range of 68% to 80%. In Division of Subsistence Technical Papers, "net" weight (dressed, head off) is usually referred to as "usable weight."

* CSIS: http://www.subsistence.adfg.state.ak.us/CSIS/. The CSIS was formerly the Community Profile Database (referred to as CPDB) (Scott et al. Unpublished).

2. FINDINGS

Subsistence Halibut Harvests In 2016

Estimated Number of Subsistence Halibut Fishers

Of the 8,925 individuals who were potential subsistence halibut fishers in 2016, an estimated 4,408 (49%) participated in the subsistence halibut fishery (Table 4; Figure 6). Of the 3,171 individuals who were members of an eligible tribe, an estimated 1,352 participated in the fishery (43%). Of the 5,754 individuals who qualified as residents of rural communities, an estimated 3,056 (53%) participated in the subsistence fishery for halibut in 2016. The estimated total of 4,408 subsistence halibut fishers in 2016 is the second-lowest estimate since the SHARC program began in 2003, and a slight decrease from the estimate of 4,506 fishers in 2014 (Figure 6).

Alaska Native tribes with the most subsistence halibut fishers in 2016 included the Central Council of Tlingit and Haida Indians (179 subsistence halibut fishers), the Ketchikan Indian Corporation (148), the Native Village of Toksook Bay (95), the Sitka Tribe of Alaska (88), the Qagan Toyagungin Tribe of Sand Point (69), the Native Village of Tununak (63), the Sun'aq Tribe of Kodiak (45), the Metlakatla Indian Community (44), Pauloff Harbor Village (41), the Hydaburg Cooperative Association (36), the Hoonah Indian Association (34), the Wrangell Cooperative Association (29), the Craig Community Association (26), the Organized Village of Kake (26), and the Yakutat Tlingit Tribe (24). Of the non-tribal residents of eligible rural communities, the most subsistence fishers lived in Sitka (592), followed by Kodiak (580), Petersburg (317), Haines (238), Wrangell (238), Cordova (181), and Craig (150). Appendix Table D-1 provides details for each tribe and community regarding participation in the subsistence fishery and subsistence halibut harvests in 2016.

As noted above, not every tribal SHARC holder lives in his or her tribe's headquarters community. After assigning tribal members to a community based on their place of residence, an estimate of participation in the subsistence halibut fishery in 2016 by community can be obtained. Appendix tables D-2, D-3, and D-4 provide project findings based on place of residence. Communities with 100 or more participants in the subsistence halibut fishery in 2016 were Sitka (688), Kodiak (627), Petersburg (338), Wrangell (278), Haines (253), Craig (217), Cordova (198), Ketchikan (191), and Sand Point (108). Of the 9 Alaska communities with 100 or more subsistence halibut fishers in 2016, 6 had about the same or slightly more fishers than in 2014 (+1% to +11%) (Figure 7). The estimated number of subsistence halibut fishers in Kodiak and Petersburg decreased by 18% and 10%, respectively. There was a large increase in the estimated number of subsistence halibut fishers in Sand Point, from 64 in 2014 to 108 in 2016 (+70%) (Figure 7). Six non-Alaska-resident tribal SHARC holders subsistence fished for halibut in Alaska in 2016, compared to a high of 24 in 2005 and low of zero (0) in 2004 and 2007.

As illustrated in Figure 8[5] (see also Table 5), the largest number of Alaska subsistence halibut fishers in 2016 fished in waters of Regulatory Area 2C (Southeast Alaska)—2,706 (61%).[6] There were 1,287 subsistence halibut fishers (29%) who fished in Regulatory Area 3A (Southcentral Alaska); 199 (5%) in Area 4E (East Bering Sea Coast); 166 (4%) in Regulatory Area 3B (Alaska Peninsula); and 69 (2%) in Regulatory Area 4A (Eastern Aleutians). Additionally, there were 27 (<1%) subsistence halibut fishers in the 2 other regulatory areas (4B and 4C), and none in Area 4D. As also shown in Figure 8, the distribution of subsistence fishers

5. In reports for study years prior to 2011, the data in figures equivalent to Figure 8 were based on the location of the tribe or place of residence of the SHARC holder. For reports for the 2011, 2012, 2014, and 2016 study years, we have revised the figure to report fishers by location in which the fishing took place. Estimates of the number of subsistence halibut fishers fishing within each regulatory area are not available for 2003 or 2004; the data in Figure 8 for those years remain based on the location of the tribe or place of residence of the SHARC holder.

6. Because some SHARC holders fished in more than one regulatory area, the sum of fishers for each area exceeds the state total.

by regulatory area in 2016 was mostly similar to that of 2003–2012 and 2014. From 2008 through 2012, there was a sharp decrease in the estimated number of halibut fishers in Area 4E, but the estimate of 257 fishers for 2014 and 199 in 2016 reversed this trend. As discussed in Chapter 3, for the Area 4E case study communities of Toksook Bay and Tununak these changes were most likely caused by subsistence fishers failing to renew SHARCs plus a new sampling method employed in 2014 and 2016, rather than an increase or decrease in subsistence halibut fishing. The estimated number of subsistence halibut fishers in Area 4C (Pribilof Islands) dropped as well from 105 in 2003 to 9 in 2012, 12 in 2014, and 25 in 2016. The study finding of no subsistence halibut fishers in Area 4D is likely a result of non-renewal of SHARCs rather than a lack of fishing effort.

Estimated Alaska Subsistence Halibut Harvests in 2016 by SHARC Type and IPHC Regulatory Area

Table 4 reports estimated Alaska subsistence halibut harvests for 2016 by SHARC type, IPHC regulatory area, and gear type (see also Appendix Table D-1 for detail by tribe and rural community, and also confidence intervals). The total estimated subsistence halibut harvest in Alaska in 2016 was 36,815 fish (±3.1%) for 727,178 lb (net weight; ±3.0%).[7] As estimated in pounds net weight, 60.3% of the subsistence halibut harvest (438,594 lb [±3.3%]) was taken by fishers registered with tribes or rural communities in Regulatory Area 2C (Southeast Alaska) (Figure 9; Table 4). (Note that because some SHARC holders may fish in a regulatory area different from the location of their tribal headquarters or rural community of registration, the area totals in Table 4 do not precisely represent harvest locations. See the section on harvests by location, below.) Fishers from Area 3A (Southcentral Alaska) tribes and rural communities harvested 218,947 lb (±5.8%; 30.1% of the state total). For Regulatory Area 4E (East Bering Sea Coast),[8] the estimated harvest for tribal and rural SHARC holders was 40,723 lb (±17%; 5.6% of the net harvest weight). Harvests totaled 15,684 lb (±32.3%; 2.2%) for communities and tribes of Regulatory Area 3B (Alaska Peninsula). For tribal and rural SHARC holders in Area 4A (Eastern Aleutians), the estimated harvest was 8,686 lb (±21.1%; 1.2% of the net harvest weight). For Regulatory Area 4C (Pribilof Islands), the estimated harvest for tribal and rural SHARC holders was 4,544 lb (±69.2%; 0.6% of the net harvest weight). No subsistence harvests of halibut were reported through the survey by tribes and communities in 4D (Central Bering Sea) or 4B (Western Aleutians) (Table 4).

The estimated subsistence harvest of 727,178 lb of halibut in 2016 represents a decrease of 4.4% compared to the estimated harvest of 760,469 lb in 2014 (Figure 10, Figure 17). Harvests by tribal SHARC holders decreased by 6.8% from 274,952 lb in 2014 to 256,249 lb in 2016. Tribal SHARC holders harvested 35% of the Alaska subsistence halibut harvest in 2016, compared to 36% in 2014. Subsistence halibut harvests by nontribal, rural resident SHARC holders decreased by 3.0% from 485,517 lb in 2014 to 470,929 lb in 2016. This group accounted for 65% of the statewide subsistence halibut harvests in 2016, compared to 64% in 2014.

Members of 58 Alaska tribes harvested subsistence halibut in 2016. In 2 others, SHARC holders fished but had no harvest. In 14 others, tribal members obtained SHARCs and returned surveys, but no one fished. Members of 14 other tribes held SHARCS, but no one returned a survey form. No one in the remaining 35 eligible tribes held a valid SHARC in 2016. As shown in Figure 11, members of the 16 tribes with harvests of about 5,000 lb or more accounted for 79% of the total subsistence halibut harvest by tribal members in

7. This approximates 969,571 lb round (live or whole) weight. See footnote 4 in Chapter 1 for an explanation of the factor used to convert round weight to net weight.

8. Community Development Quota (CDQ) organizations operating exclusively in areas 4D and 4E may retain U32 halibut (under 32 inches in length) from their commercial catches for home use. In 2016, a total of 5,457 lb net weight of halibut was retained by 2 organizations: the Bristol Bay Economic Development Corporation (3,456 lb) and the Norton Sound Economic Development Corporation (2,001 lb) (Erikson 2017:70). The IPHC includes these fish within the "personal use" removal category, a category that also includes subsistence harvests (Gilroy and Williams 2015). See also the section in Chapter 3, "Comparisons with Nonsubsistence Harvests."

2016. These 16 tribes accounted for 67% of eligible tribal members (2,139 of 3,171) (Table 3). Members of the other 42 tribes with harvests accounted for about 21% of the total harvest by tribal members (Figure 11).

Residents of 55 eligible rural communities harvested subsistence halibut in 2016.[9] In one other community, SHARC holders fished but were unsuccessful. In 7 others, individuals obtained SHARCs but no one fished. Residents of 6 other eligible rural communities obtained SHARCs, but no one returned a survey form. No one in the remaining 49 eligible rural communities held a valid SHARC as a nontribal member in 2016.[10] As shown in Figure 12, 12 rural communities with harvests of over 10,000 lb accounted for 82% of the subsistence halibut harvest by the holders of rural (nontribal) SHARCs in 2016. Residents of the other 43 eligible rural communities with harvests accounted for 18% of the total harvest by rural SHARC holders.

As also shown in Figure 12, rural SHARC holders from 2 communities accounted for 39% of the total harvest by this group in 2016: Kodiak (21%) and Sitka (18%). Adding Petersburg, the next highest rural community harvest at 9%, the top 3 rural communities accounted for 47% of the rural community (nontribal) subsistence halibut harvest in Alaska in 2016.

Estimated Alaska Subsistence Halibut Harvests in 2014 by Harvest Location

Survey respondents were asked to report the "water body, bay, or sound [that they] usually fished" for subsistence halibut in 2016. Multiple responses were permitted. In Table 5, estimated subsistence halibut harvests are reported for the 8 Alaska halibut regulatory areas and 18 subdivisions within these areas. It should be noted that regulatory area totals in Table 5 differ slightly from those reported in Table 4 because not all SHARC holders fished within the regulatory area in which their tribal headquarters or residence is located.

Subsistence halibut harvests in Regulatory Area 2C (Southeast Alaska) accounted for 60% of the Alaska subsistence halibut harvest in 2016 (436,464 lb [net weight]) (Figure 13; Table 5). Also, as shown in figures 14 and 15, the 3 geographic subareas with the largest subsistence halibut harvests in 2016 were in Area 2C: southern Southeast Alaska (239,316 lb [net weight]; 33% of the state total); the northern Southeast Alaska area other than the Sitka Local Area Management Plan (LAMP) area (100,247 lb; 14%), and the Sitka LAMP area (96,901 lb; 13%).[11] Regulatory Area 3A (Southcentral Alaska) ranked second, with 31% of the state's total subsistence halibut harvest (222,454 lb [net weight]) (Figure 13; Table 5). Waters bordering the Kodiak Island road system (including Chiniak Bay) (within Area 3A) ranked fourth among subareas, with a subsistence halibut harvest of 63,841 lb (9% of the state total), and other Kodiak Island waters not along the road system area ("Kodiak Island–Other") ranked fifth (57,184 lb; 8%) (figures 14 and 15). Harvests within Cook Inlet waters of Area 3A accounted for 6% of the state total (45,643 lb; ranking sixth), those within Prince William Sound added 32,690 lb (4% of the statewide total; ranking eighth), and the Yakutat Area added 23,096 lb (3%). Among regulatory areas, Area 4E (East Bering Sea Coast) ranked third with 41,370 lb (6%) (Figure 13). Most of the harvest in Area 4E came from the Yukon–Kuskokwim Delta area (39,351 lb; ranking seventh among subareas), with a smaller amount from Norton Sound and Bristol Bay (Table 5; Figure 15). Area 3B (Alaska Peninsula, including the Chignik Area) ranked fourth among regulatory areas with 2% of the Alaska total (14,242 lb) (Figure 13). Area 4A (Eastern Aleutian Islands) ranked fifth with 8,054 lb (1%), and Area 4C (Pribilof Islands) ranked sixth with 4,300 lb (less than 1%). Area 4B (Western

9. In this tally, Chiniak, listed separately in tables in this report, is counted as part of Kodiak, as it is for eligibility. Dutch Harbor is counted as part of Unalaska for the same reason. Because some residents of eligible rural areas had mailing addresses in non-eligible communities, 2 non-eligible communities are listed as "rural communities" in Table 3. These were Ketchikan (34 SHARCs), and Ward Cove (2 SHARCs). These 2 places are not included in this count of participating communities.
10. Note that residents of these communities may have obtained SHARCs as tribal members.
11. For this project, "northern Southeast Alaska" includes those waters of Regulatory Area 2C north of Frederick Sound, including waters surrounding Baranof Island and excluding the Sitka LAMP area. For a description of the Sitka LAMP area, see FR 68 18156, April 15, 2003, § 300.65(d)(1). The remaining waters of Area 2C are referred to as "southern Southeast Alaska" in this report.

Aleutian Islands) added 294 lb (less than 1%). No subsistence halibut harvests were reported for Area 4D (Central Bering Sea).

Figure 16 reports estimated harvests in pounds net weight by location fished at the regulatory area level in 2003–2012, 2014, and 2016. Table 6 compares estimated subsistence halibut harvests by regulatory area and geographic area in 2016 with those estimated for 2003–2012 and 2014, and for the 11-year average from 2003–2012 and 2014. As noted previously, for the state overall, the estimated harvest in pounds decreased by about 4% in 2016 from 2014 (Figure 17; Table 6). The estimated harvest in 2016 was 22% lower than average for the previous 11 subsistence halibut harvest annual estimates (Figure 18; Table 6).

Estimated subsistence halibut harvests increased in 5 of the 8 regulatory areas in 2016 compared to 2014, and decreased in the other 3 (Figure 16; Figure 17; Table 6). As in the previous 11 years of the project, Area 2C (Southeast Alaska) accounted for the most subsistence halibut harvests in 2016 (436,464 lb; 60% of the state total); this harvest represents an increase of 3% compared to 2014 (Table 6; Figure 16; Figure 17), but a 13% decrease compared to the 11-year average from 2003–2012 and 2014 (Figure 18). Harvests in the Sitka LAMP Area were up by 19% compared to 2014 (Table 6). Harvests decreased slightly in the other 2 subareas within Area 2C: the remainder of northern Southeast by 1.5%, and the southern Southeast Alaska subarea by 0.3%. Harvests in 2016 were lower in all 3 Southeast subareas compared to recent 11-year averages: 13% in southern Southeast Alaska, 14% in the Sitka LAMP area, and 13% in the remainder of northern Southeast Alaska. The reasons for these changes in Area 2C are likely complex and beyond the scope of this report.[12]

Estimated harvests in Area 3A (Southcentral Alaska) dropped for the ninth straight study year. The 2016 harvest of 222,454 lb was a decline of 8% from the 2014 harvest of 241,369 lb. The estimated subsistence halibut harvest in Area 3A in 2016 was 32% lower than the previous 11-year average, and was the lowest estimate of any study year (Figure 18; Table 6). Area 3A accounted for 31% of the statewide subsistence halibut harvest in 2016, a drop of about 5 to 7 percentage points compared to most other study years between 2005 and 2012 (Table 6). In Area 3A in 2016 compared to 2014, subsistence halibut harvests increased in the Yakutat subarea by 91%, and were the second-highest of any study year (harvests totaled 36,515 lb in 2005). Harvests dropped in the other 4 subareas: Prince William Sound, down 25%; Cook Inlet, down 9%; the waters of Kodiak Island along the road system, down 11%; and the remainder of the Kodiak Island area, down 10%. Harvests in 2016 were lower than the previous 11-year averages in all Area 3A subareas except Yakutat, where the 2016 harvest exceeded the 11-year average by 26%.

In Area 3B (Alaska Peninsula), harvests increased from 13,378 lb in 2014 to 14,242 lb in 2016 (up 6%) (Figure 16; Figure 17; Table 6). However, in Area 3B, the 2016 estimated harvest was the second-lowest of the 12 years of the project, 55% below the previous 11-year average, and notably below the estimates for 2005 (46,225 lb), 2006 (48,547 lb), and 2007 (47,748 lb) (Table 6; Figure 16; Figure 18). Earlier reports (e.g., Fall and Koster [2012:12]) suggested that improved participation in the SHARC program in 2005–2008 accounted for some of the increase in the estimated harvests in Area 3B in those years, compared to 2003 and 2004, the first 2 years of the harvest monitoring program. However, the number of SHARC holders for Area 3B tribes and rural communities decreased from 606 in 2008 to 369 in 2009, 369 in 2010, 358 in 2011, 338 in 2012, and 298 in 2014; this decline in program participation may partially explain the lower harvest estimates for 2009–2012 and 2014 (see discussion of Sand Point in Fall and Lemons [2016:19–20]; Table 6). However, the increase in SHARC enrollment for this area in 2016 to 441 did not result in a corresponding increase in the estimated subsistence halibut harvest.

Estimated subsistence halibut harvests in Area 4A (Eastern Aleutians) increased 4% from 2014 (7,727 lb) to 2016 (8,054 lb). However, the harvest in Area 4A in 2016 was 61% lower than the previous 11-year average (Figure 18). There are only 3 communities in Area 4A: Akutan, Nikolski, and Unalaska/Dutch Harbor. Therefore, harvest estimates for individual communities strongly shape the area estimate. For example, previous reports have discussed how sampling achievement in Akutan evidently affected the area's harvest

12. Further discussion of differences between harvest estimates for 2003–2012, 2014, and 2016 appears in Chapter 3 and Chapter 4.

estimate (Fall and Koster 2010:13). No Akutan residents returned SHARC surveys for 2012 or 2014. As discussed in Chapter 1, for the 2016 study year, staff traveled to Akutan and surveyed 5 of the 6 SHARC holders living in the community; the estimated harvest was 910 lb (see further discussion in Chapter 3). For 2009, an increased harvest by SHARC holders living in Unalaska/Dutch Harbor, from 13,710 lb in 2008 to 29,306 lb in 2009, accounted for most of the change in the regulatory area's estimate between those 2 years, but estimated harvests in that community dropped to 13,081 lb for 2010, 12,257 lb for 2011, 10,059 for 2012, and 8,887 for 2014 (Table 9). Staff surveyed resident SHARC holders in Unalaska/Dutch Harbor; of 142 SHARC holders, surveys were obtained for 96, resulting in an estimated subsistence halibut harvest of 7,776 lb, the lowest of any study year (see further discussion in Chapter 3).

In Area 4B (Western Aleutians), the estimated harvest of 294 lb was an increase of 16% from the estimate of 254 lb in 2014 (Table 6; Figure 16; Figure 17). Estimated harvests in this area dropped after 2008, when the estimate of 4,737 lb was 147% higher than the previous 5-year average (Fall and Koster 2010:92). This increase in 2008 was likely due in part to the larger reported average size of halibut harvested in this area in that year (30.5 lb [net weight] per fish; see Table 9 in Fall and Koster [2010:66]) compared to earlier years (19.5 lb [net weight] per fish in 2007 [Fall and Koster 2008:71]). The estimated harvest for Area 4B in 2016 was 83% below the previous 11-year average (Figure 18), and the second- lowest of any year of the harvest monitoring program (Table 6). Notably, no members of the Atka Tribe (the only eligible tribe in Area 4B) returned surveys for 2016.

Estimated subsistence harvests of halibut in Area 4C (Pribilof Islands) increased, by 27%, in 2016 to 4,300 lb, from 3,389 lb in 2014 (Figure 16; Figure 17; Table 6). The 2016 estimate was 49% below the previous 11-year average and the fourth-lowest since the SHARC program began in 2003 (Figure 18; Table 6). As noted in reports for previous project years (Fall et al. 2005:15; Fall and Koster 2008:15), a high response rate to the survey, based upon follow-up household surveys and inseason data collection by the Central Bering Sea Fishermen's Association, likely produced very reliable harvest estimates for St. Paul, the largest community in Area 4C, after the first project year of 2003. However, due to funding reductions, this work did not take place for 2008–2012, 2014, or 2016. The number of valid SHARCs held by St. Paul residents dropped from 246 in 2007 to an average of 43 for 2008–2011 and just 12 in 2012, increasing to 27 in 2014 and 30 in 2016. The response rate to the survey declined from 83% in 2007 to 45% in 2008, 34% in 2009, 29% in 2010, 35% in 2011, 25% in 2012, 30% in 2014, and 20% in 2016. The estimated number of subsistence halibut fishers in the community was 22 in 2016, compared to 17 in 2014, 12 in 2012 and a range of 14–19 in 2007–2010 that then dropped to 11 in 2011. In addition, only 3 residents of St. George held SHARCs in 2016. The extent to which the decline in SHARC enrollment or the survey response rate has affected harvest estimates for Area 4C is uncertain.

No returned surveys reported subsistence halibut harvests in Area 4D (Central Bering Sea) in 2016; therefore the harvest estimate for 2016 is 0. The subsistence halibut harvest estimate for 2014 of 54 lb was 92% lower than the estimate of 672 lb for 2012. The 2014 estimate was 99% lower than the previous 10-year average for Area 4D, and by far the lowest annual estimate for the area since the SHARC program began in 2003 (Fall and Lemons [2016:14]; Table 6). It is likely that this sharp drop in the harvest estimate for Area 4D since 2008 is the result of nonrenewal of SHARCs by subsistence fishers. The number of SHARCs held by residents of Savoonga, the principal halibut harvesting community in Area 4D, dropped from 43 in 2007, with an estimated 15 subsistence halibut fishers, to 17 SHARC holders in 2009, with an estimated 7 subsistence halibut fishers, 17 SHARC holders in 2010 with 6 fishers, 17 SHARC holders and 9 fishers in 2011, 6 SHARC holders and 5 fishers in 2012, 6 SHARC holders and 1 fisher in 2014, and 1 SHARC holder and no fishers in 2016.

For Area 4E (East Bering Sea Coast), the estimated subsistence harvest of halibut of 41,370 lb in 2016 was a 42% decrease from the 71,327 lb estimated for 2014, but was 20% higher than the 11-year average from 2003–2012 and 2014 (Figure 16; Figure 17; Figure 18; Table 6). The 2016 estimated harvest was substantially higher than the estimates for 2008 through 2012. The report for 2012 (Fall and Koster 2014:13–14) suggested that the drop in SHARC renewals and survey response rates from 2008 through 2012 accounted for a likely large underestimate of subsistence halibut harvests in Area 4E. SHARC

registrations dropped from 1,191 in 2007 to 421 in 2008, 374 in 2009, 286 in 2010, 291 in 2011, and 185 in 2012. Also, unlike 2003–2007, no outreach, face-to-face interviewing, or telephone calls took place in Area 4E communities in 2008–2012, resulting in lower response rates compared to previous years. As noted in Chapter 1, outreach and interviewing of likely subsistence halibut fishers who did not hold SHARCs took place in Toksook Bay and Tununak for 2016, as it did for 2014. Thus the harvest estimates for Area 4E for 2014 and 2016 likely are based on a far more complete sample of halibut fishers than was achieved for 2008 through 2012.

Figure 19 illustrates the average subsistence halibut harvest in pounds net weight for those SHARC holders who subsistence fished in 2016. Figure 20 illustrates the average harvest per fisher in numbers of halibut. For the state overall, the average subsistence halibut fisher harvested 165 lb net weight (compared to 169 lb in 2014) or about 8.4 halibut in 2016. Average harvests per fisher at the regulatory area level (excluding Area 4D) ranged from 86 lb (net weight) in Area 3B to 208 lb per fisher in Area 4E. Average subsistence halibut harvests have ranged from 8.1 halibut per fisher in 2011 to 9.9 halibut per fisher in 2005, and from 148 lb per fisher in 2011 to 211 lb per fisher in 2003 (Fall and Koster [2012:14, 2013:14]; see also Table 11).

Subsistence Halibut Harvests by Place of Residence

As shown in Figure 21, there were 26 Alaska communities whose residents had combined estimated subsistence halibut harvests of approximately 5,000 lb or more (net weight) in 2016. In this figure, community totals include harvests of all SHARC holders living in the community, regardless of type of SHARC (tribal or rural) or tribal affiliation.[13] Residents of these communities accounted for 89% of the total Alaska subsistence halibut harvest in 2016. Residents of Kodiak (Kodiak includes the city of Kodiak and other portions of the Kodiak Island Borough connected to it by roads) ranked first with 14.9% of the total Alaska harvest, and Sitka ranked second with about 14.8%. With 12,798 and 8,920 residents, respectively, these 2 communities included about 25.1% of the population of rural communities eligible to participate in the subsistence fishery. There were 55 other Alaska communities with at least 1 resident who participated in the subsistence halibut fishery in 2016. The total harvest for these other communities represented about 11% of the state total.

For 2016, 47 SHARC holders provided out-of-state addresses from 42 communities in 21 states, provinces, and territories.[14] Six non-Alaska-resident SHARC holders subsistence fished for halibut in 2016, with a harvest of 19 fish and 703 lb (0.1% of the state total) (Appendix Table D-2). This level of involvement by non-Alaska residents in the subsistence halibut fishery in 2016 is similar to that of other study years (Fall and Koster 2012:14).

Subsistence Harvests by Gear Type

Table 4 and Figure 22 report the estimated subsistence harvests of halibut in Alaska in 2016 by gear type and regulatory area fished. In total, 548,153 lb (75%) of halibut (net weight) were harvested using setline (stationary) gear (i.e., longlines, or "skates," sometimes set with a power winch attached to a vessel), and 179,025 lb (25%) were harvested using hand-operated gear (i.e., handlines or lines attached to a rod or pole). As in past years, there were notable differences between regulatory areas (Table 4; Figure 22). Harvests using setline gear predominated in Area 2C (Southeast Alaska; 84% of the area's total subsistence harvest), 3A (Southcentral Alaska; 73%), 4A (Eastern Aleutian Islands; 66%); and 4B (Western Aleutian Islands; 100%). In Area 4C (Pribilof Islands), harvests were about equally split between setline gear (51%) and hand-operated gear (49%). In Area 3B (Alaska Peninsula), 64% of the subsistence halibut harvest was taken with handlines. As in past years, most halibut in Area 4E (East Bering Sea Coast; 91%) were harvested with handlines.

13. Note that nonrural places, such as Anchorage, Juneau, Ketchikan, and Valdez, appear in Figure 21 and in appendix tables D-2,D-3, and D-4 because members of eligible Alaska Native tribes may participate in the fishery regardless of where they live, and because some eligible residents of rural areas have mailing addresses in nonrural places.
14. Note that members of eligible tribes may obtain SHARCs regardless of their place of residence.

Number of Hooks Fished with Setline Gear

Respondents who fished with setline (stationary) gear (longline or skate) were asked to report how many hooks they "usually set" in 2016. The findings by regulatory area are reported in Table 7. For the fishery overall, most setline fishers (41%) used 30 hooks, the maximum number allowed by regulation in areas 2C, 3A, 3B, 4A, and 4B (there is no hook limit in areas 4C, 4D, and 4E) (Figure 23). The next most frequently reported number was 20 hooks, usually used by 15% of the fishers who used setline gear. Fifteen hooks (13%) ranked third, followed by 25 hooks (8%) and 10 hooks (4%). This pattern is similar to that of all previous study years (Fall and Koster 2014:14–15).

Thirty was the most frequently used number of hooks with setline gear in the 6 regulatory areas in which survey respondents reported subsistence fishing (Table 7): 2C (Southeast Alaska), 39%; 3A (Southcentral Alaska), 48%; 3B (Alaska Peninsula), 31%; 4A (Eastern Aleutian Islands), 46%; 4C (Pribilof Islands), 62%; and 4E (East Bering Sea Coast), 40%.

Number of Subsistence Halibut Fishing Trips

For 2016, for the sixth time in the harvest survey program, respondents were asked to report the number of subsistence fishing trips they took for halibut in the study year. The average number of trips for subsistence halibut fishers was 4.6, very similar to other study years (Fall and Koster 2013:15), with those holding tribal SHARCs averaging 5.3 trips and those holding rural SHARCs averaging 4.2 trips. In most regulatory areas, the average subsistence fisher took between 4 and 5 trips, with a higher average in Area 4E (average of 7.3 trips) (Figure 24). As shown in Figure 25, about 78% of fishers took 5 or fewer trips, and about 16% took between 6 and 10 trips. About 5 percent took between 11 and 20 trips, and about 1% took more than 20 trips.

The average number of subsistence halibut harvested per fishing trip in 2016 was 1.8 (compared to 1.8 in 2009, 2010, and 2011, 1.9 in 2012, and 2.0 in 2014), with tribal SHARC holders averaging 1.9 fish and rural SHARC holders averaging 1.8 fish. The highest average harvests per trip occurred in Area 4C (2.8 fish per trip) and Area 4E (2.3 halibut per trip) (Figure 26).

Sport Harvests of Halibut by SHARC Holders

Survey respondents were asked to report the number of halibut and pounds of halibut they harvested "while sport fishing during 2016." They were instructed not to include fish they considered sport caught as part of their subsistence halibut harvest. The goal of this question was to avoid double counting harvested halibut in this survey and in the statewide survey of sport fishers administered by the Division of Sport Fish of ADF&G. Answering this question required respondents to classify their hand-operated gear (i.e., hook and line and rod and reel) harvests as either subsistence or sport; these gear types are legal gear for both sport fishing and subsistence fishing. Fish reported in the survey as "sport harvests" are not included in the estimated subsistence harvests discussed above. If SHARC holders also received the sport fish survey for 2016, they would be expected to report only their sport-caught halibut and not include any halibut they reported as subsistence harvests, even if taken with rod and reel or handheld line with 2 or fewer hooks. Note that the project findings do not represent the total recreational halibut harvest by residents of eligible communities and tribes in 2016 because individuals from these tribes and communities who did not obtain SHARCs could have sport fished.

As shown in Table 4 and Table 5, the estimated total sport halibut harvest by holders of SHARCs in 2016 was 7,814 fish and 144,638 lb (net weight). By area fished, most of the sport halibut harvest by SHARC holders occurred in Area 2C (Southeast Alaska) (84,668 lb; 59%) and Area 3A (Southcentral Alaska) (55,370 lb; 38%) (Table 5). In total, an estimated 2,127 SHARC holders (24%) reported that they sport fished for halibut in 2016 (Table 5). A large proportion of these fishers fished in either Area 2C (1,311; 62%) or Area 3A (775; 36%) (Table 5). (See Appendix Table D-5 for estimated sport halibut harvests by tribe and nontribal rural community SHARC holders.)[15]

15. The ADF&G postal survey did not investigate the criteria by which survey respondents classified their rod and reel (hook and line attached to a rod or pole) halibut harvests as subsistence or sport. However, a supplemental mailing to 1,098 SHARC holders from Kodiak and Sitka who fished for halibut in 2004 asked respondents to provide

Estimated Average Net Weights of Subsistence- and Sport-Caught Halibut

Table 8 reports the average net weight of subsistence- and sport-caught halibut by SHARC holders in 2016, based upon estimates provided by survey respondents. For the state, the estimated average net weight of subsistence-caught halibut was 19.8 lb and the average net weight of sport-harvested halibut by SHARC holders was 18.5 lb. For all halibut reported as harvested by SHARC holders in 2016, the average net weight per harvested halibut was 19.5 lb. Between regulatory areas, there was a range of average weights per halibut. Halibut harvested in the subsistence fishery in Areas 4B (30.8 lb per fish), 4A (23.4 lb per fish), and 2C (22.2 lb) were larger than the state average. In 2016, in Area 4E, halibut harvested in the subsistence fishery averaged 12.6 lb, 64% of the statewide average subsistence-harvested halibut. Halibut harvested in Area 4C, with an average net weight of 13.8 lb per fish, were 70% of the state average.

The average weight of halibut harvested in the Alaska subsistence fishery declined steadily over the first 6 years of this project, from 23.7 lb per fish in 2003 to 18.2 lb per fish in 2008. This decline leveled off in 2009 when the average subsistence-harvested halibut weighed 19.0 lb, then 18.4 lb per fish in 2010, 18.3 lb per halibut in 2011, 18.5 lb in 2012, and 18.7 lb in 2014 (Fall and Koster 2014:16; Fall and Lemons 2016:17). The average of 19.8 lb per fish in 2016 may be an indication of an increase in weight at age of halibut in Alaska.

reasons for classifying their halibut harvests as sport or subsistence. For a discussion of the findings, see Fall et al. (2006:19–20, 123–138). In short, the primary factor (for 69% of respondents) was the gear used to harvest the fish: respondents viewed rod and reel as "sport gear" and setline gear as "subsistence gear." Another factor, reported by 12%, concerned the composition of the fishing group. If the SHARC holders had fished with relatives or friends who did not possess a SHARC, they classified their fishing as recreational. Harvest amounts were also a consideration: harvests of 1 or 2 halibut with a rod and reel were considered "sport" by some respondents, but if they harvested more than 2 fish with rod and reel in 1 day, they classified the harvest as subsistence. Finally, about 19% of the respondents gave reasons related to the uses of the fish or other cultural and lifestyle explanations.

3. DISCUSSION

Comparisons With Other Harvest Estimates

As discussed in the first report for the SHARC survey project (Fall et al. 2004:19–22), comparing the statewide subsistence halibut harvest estimates generated by the SHARC survey with subsistence halibut harvest estimates from projects conducted before 2003 is difficult. The primary reason, as noted in Chapter 1, is that the regulations that allow subsistence halibut fishing in Alaska waters using traditional gear, such as longlines with more than 2 hooks, and that removed the restrictive daily harvest limit of 2 fish, have only been in place since May 2003. Methodological differences also create challenges for comparison. For example, comprehensive community harvest surveys attempt to estimate halibut harvests for home use conducted under sport fishing rules and harvests removed from commercial fisheries for home use, as well as those taken under subsistence regulations. The statewide subsistence halibut harvest estimates from the SHARC postal survey from 2003 through 2012, 2014, and 2016 include only those subsistence harvests by individuals who obtained SHARCs.

The report for the first year of this project discussed previous efforts to estimate subsistence halibut harvests at the regional and statewide levels. The report concluded that the 2003 SHARC survey estimates were not markedly different from estimates based on Division of Subsistence household survey data as reported in the CSIS. We will not repeat that full discussion here.[16] However, the report also concluded that because of the limitations associated with the previous subsistence harvest estimates at the statewide level, until a time series was developed based upon the SHARC survey results, a discussion of harvest trends in the subsistence halibut fishery was speculative. After 10 years of data for the subsistence halibut fishery were available, a comparison of the project findings across study years appeared in the final report for 2012 (Fall and Koster 2014:31–35).

Community Case Studies

Previous overviews of annual subsistence halibut harvests discussed findings for 9 communities to represent communities of similar size and location. Data for these 9 communities are updated in Table 9. In this report, discussion is limited to 2 communities for which new outreach efforts took place for the 2016 harvest year, Akutan and Unalaska/Dutch Harbor, and 2 communities in which household surveys included halibut fishers who were not enrolled in the SHARC program, Toksook Bay and Tununak. Data for Akutan were added to Table 9, because trends for this community had not been discussed in previous reports. Appendix tables D-2, D-3, and D-4 report project results for 2016 for all communities, based upon residence of SHARC holders.

16. For example for 2000, the IPHC estimated 439,000 lb net weight for Alaska "personal use" (noncommercial, nonrecreational) harvests (Wolfe 2001). The IPHC estimate is based upon a methodology described by Trumble (n.d.). The IPHC method assumed that 50% of Alaska Native rod and reel halibut harvests, as reported in ADF&G household surveys, are "sport" and 50% "personal use," and that 75% of the non-Native rod and reel harvests are "sport" and 25% "personal use" (Trumble n.d.:62). No justification for these assumptions is provided, and changing these sport-to-personal-use ratios can result in a very different estimate for the "personal use" halibut harvest. In a report to the Alaska Board of Fisheries in May 2001, using the same data source as the IPHC, Wolfe (2001) estimated that the subsistence halibut harvest in Alaska "probably ranges between 400,000 and 1,000,000 pounds (round weight) annually," based on harvest data in the CSIS/CPDB. This is an estimated harvest of 300,000 to 750,000 lb net weight. See Fall et al. (2004:19–21) for discussion of Wolfe's methods. In the original analysis for the subsistence halibut program, the NPFMC estimated the Alaska subsistence halibut harvest at 1.5 million pounds net weight (68 FR 18145, April 15, 2003, EA/RIR; North Pacific Fishery Management Council [2003]).

Akutan (Regulatory Area 4A)

The population of Akutan in 2010 was 1,027, but 937 lived in group quarters (a fish processing facility). The community of Akutan itself had 90 residents, 76 of whom were Alaska Natives; the estimated population in 2016 excluding group quarters was 63 (Table 1).

The only estimate of halibut harvests for home use by Akutan residents based on Division of Subsistence household surveys prior to 2003 is for 1990 (CSIS). For that year, comprehensive harvest surveys were conducted with 25 of 31 households (81%). An estimated 80% of households fished for halibut, including 48% of all households that removed halibut for home use from their commercial harvests, 8% that fished with rod and reel, and 60% that fished with "other gear" (most likely longlines). An estimated 2,200 lb of halibut was retained from commercial harvests. Noncommercial harvests totaled 6,489 lb; of this, 412 lb were harvested with rod and reel and 6,077 lb with "other gear."

For the first 5 years of the SHARC program, a large percentage of the population of Akutan obtained SHARCs (between 46 and 50 SHARCs issued) (Table 9). For the first 4 years of the survey, estimated harvests (subsistence and sport) ranged between about 12,000 lb and 15,000 lb (annual average 12,577 lb), substantially higher than the 1990 estimate. However, these estimates were based on low survey response rates (27% or less); a comparison with other survey years suggests that active fishers may have been overrespresented in the sample, resulting in an overestimate of participation rates and harvests.

Community outreach and household interviews took place in Akutan for the 2007 study year. Of 46 SHARC holders, surveys were obtained for 34 (74%). An estimated 16 residents fished for halibut, compared to an annual average estimate of 42 for 2003–2006 (Table 9). The estimated total halibut harvest was 3,603 lb, just 29% of the average of the previous 4 years. In 2008, the number of SHARC holders in Akutan dropped to 17 as the first set of tribal SHARCs expired and most were not renewed. For that year, all 17 SHARC holders were interviewed as part of a comprehensive survey conducted by the division in the community (Fall et al. 2012). The halibut harvest for home use totaled 7,863 lb; of all the SHARC survey estimates for Akutan, this estimate for 2008 most closely matches that for 1990. In 2009–2011, response rates dropped (to between 25%–41%), as did estimated harvests. By 2012, only 6 SHARC holders lived in Akutan, and none returned surveys for that study year; only 1 of 5 SHARC holders in Akutan responded to the survey for 2014, and reported no fishing effort. Therefore, no subsistence halibut harvest estimates are available for Akutan 2012 or 2014.

As noted in Chapter 1, division staff traveled to Akutan in April 2017 and interviewed 5 of 6 SHARC holders (none had responded to the mail survey). The estimated subsistence halibut harvest of 910 lb (there was no sport harvest) was the lowest ever recorded for Akutan.

Interpretation of study results for Akutan is complicated by inconsistent registration in the SHARC program and poor response rates for most study years. However, the household survey effort for 2016 suggests that a sharp decline in participation in the subsistence halibut fishery and corresponding sharp drops in harvests have occurred in the community since 2007 and 1990. Reasons for this decline are likely complex and require further investigation.

Unalaska/Dutch Harbor (Regulatory Area 4A)

The city of Unalaska (which includes Dutch Harbor) had a population of 4,376 in 2010, including 355 Alaska Natives; the estimated 2016 population was 4,448 (Table 1). The Division of Subsistence conducted a household harvest survey in Unalaska/Dutch Harbor for the 1994 data year and estimated that the total halibut harvest was 97,601 lb (net weight; 3,049 fish; ±34%), excluding 10,606 lb (331 fish) removed from commercial catches for home use. Of the 700 households in the community, an estimated 398 (56.8%) had at least one member who fished for halibut in 1994. Most of the noncommercial harvest, 88,142 lb (90%), was taken with rod and reel (CSIS).

By the close of 2003, only 92 residents of Unalaska and Dutch Harbor had obtained SHARCs (Table 9). Notably, only 14 members of the Qawalangin Tribe of Unalaska obtained SHARCs in 2003. These numbers increased in subsequent years, peaking at 176 Unalaska/Dutch Harbor SHARC holders in 2007, including

46 Qawalangin Tribe members. In 2012, the total was 141 SHARCs for all residents of Unalaska/Dutch Harbor and 27 Qawalangin Tribe members. In 2014, 159 Unalaska/Dutch Harbor residents held SHARCs, as did 23 members of the Qawalangin Tribe. SHARC totals for 2016 were 142 for Unalaska/Dutch Harbor and 26 for the Qawalangin Tribe.

As discussed in Chapter 1, division staff traveled to Unalaska/Dutch Harbor in April 2017 to interview SHARC holders and enhance the response rate for the harvest survey. Twenty-seven surveys were administered, adding in those that were returned by mail resulted in 96 surveys for the community, a response rate of 68%.

In 2016, an estimated 64 Unalaska/Dutch Harbor SHARC holders participated in the subsistence halibut fishery, an estimated 39 sport fished, and an estimated 77 participated in either fishery (Table 9). These were generally lower levels of participation than previous study years except 2003, 2011, and 2012. For example, in 2010, an estimated 92 Unalaska/Dutch Harbor SHARC holders subsistence-fished for halibut, and 103 engaged in either the subsistence or sport fishery (Table 9).

In 2016, SHARC holders in Unalaska/Dutch Harbor harvested an estimated 7,776 lb of halibut in the subsistence fishery. Of this, 5,193 lb was harvested with setlines (67%) and 2,583 lb (33%) with hand-operated gear. Additionally, they harvested 3,444 lb of halibut in the sport fishery, for a total noncommercial harvest of 11,220 lb (Table 9).

The 2016 harvest for Unalaska/Dutch Harbor was similar to the estimate for 2014 (11,186 lb in the subsistence and sport fisheries), but was lower than the harvest for all other study years, which ranged between about 14,000 lb and 31,000 lb. The 2016 harvest estimate was 64% below the highest estimate for the community, 31,167 lb in 2009, and was the second-lowest estimate of any study year (Table 9).

The 2009 noncommercial halibut harvest by Unalaska/Dutch Harbor SHARC holders, by far the highest for the 12 study years, represents just 32% of the harvest estimate for 1994. Similarly, the 2016 estimate was 11% of the 1994 estimate. There are at least 5 explanations for these differences. First, actual noncommercial halibut harvests in Unalaska may have declined since 1994, although a decline of this magnitude is probably unlikely. Second, if many fishers are not obtaining SHARCs, the SHARC survey may have underestimated the subsistence halibut harvest. A third explanation is that the 1994 survey may have overestimated the halibut harvest. A fourth explanation is that many halibut fishers in Unalaska may prefer to harvest halibut under sport fishing regulations and therefore do not obtain SHARCs. A fifth possibility that may account for a decline in subsistence halibut harvests is a decline in stock abundance. The IPHC has noted a decline in abundance in Area 4A since 1994 (Gregg Williams, IPHC, personal communication, 2005). A combination of all 5 factors could be responsible for the unexpectedly low subsistence halibut harvest estimated for Unalaska from the SHARC surveys in all 12 study years. Further outreach in Unalaska is clearly appropriate, as well as additional research to better understand patterns of halibut fishing in the community.

Toksook Bay (Regulatory Area 4E)

Toksook Bay had a population of 590 in 2010 and 656 in 2016 (Table 1). The number of valid SHARCs held by Toksook Bay residents dropped from 533 (approximating the community's total population) in 2007 to 34 in 2008, and just 7 in 2012 and 2014, but rose to 20 in 2016. Very few SHARCs that had been obtained in 2003 and that expired at the close of 2007 were renewed. The Division of Subsistence has not conducted a household harvest survey in this community. Wolfe (2002) estimated a subsistence halibut harvest of 12,600 lb (net weight; 16,800 lb round weight) for this community for 2000, based upon a 1986 per capita estimate for the neighboring community of Tununak. During SHARC project years from 2003–2007, Division of Subsistence staff, with the assistance of the Toksook Bay tribal government, evaluated the list of SHARC holders in the community, estimated the total number of subsistence halibut fishers, and conducted interviews with likely fishers. Based on the results of this collaboration with the tribal government, it is highly likely that most community residents who subsistence fished for halibut in 2003–2007 provided harvest data through the SHARC survey. Therefore, harvest estimates for Toksook Bay for 2003–2007 represent the harvests reported by respondents to the survey and are not expanded to the total number of SHARC holders in the community. Project staff consider harvest data for these years to

be reliable. In 2008–2012, however, no outreach or interviewing occurred in Toksook Bay. Of 34 SHARC holders in 2008, 11 (32%) responded to the mailed survey, as did 13 (39%) of 33 in 2009, 12 (38%) of 32 in 2010, and 13 (41%) of 32 in 2011. Of the 7 SHARC holders in 2012, 6 (86%) returned the mailed survey. Unlike 2003–2007, returned survey data were expanded to estimate 2008–2012 halibut harvests in Toksook Bay.

The annual report for study year 2010 (Fall and Koster 2014:32–34) presented an overview of harvests and participation levels in the subsistence halibut fishery for Toksook Bay for 2003 through 2010, as well as U32 (under 32 inches in length) halibut retained for home use from commercial harvests by members of the Coastal Villages Regional Fund Community Development Quota (CDQ) group, the majority of which are landed at Toksook Bay. As summarized in Table 9, from 2003 through 2007, subsistence halibut harvests ranged widely, from 6,596 lb in 2004 to 36,481 lb in 2006. The number of subsistence halibut fishers in Toksook Bay ranged from 54 in 2003 to 113 in 2006. In all study years, hand-operated gear accounted for most of the harvest.

As noted above, the number of valid SHARCs for Toksook Bay dropped to 34 in 2008. Based on the SHARC survey returns (11 of 34; 32%), it is likely that many active halibut fishers in the community did not renew their SHARCs and therefore were not part of the SHARC survey, resulting in underestimates of participation in the fishery and in estimated harvests. For example, based on the survey results, just 9 Toksook Bay residents participated in the subsistence halibut fishery in 2008, compared to an average of 79 for the previous 5 years (range 54 to 113; Table 9). The estimated subsistence harvest was 2,143 lb in 2008, while the previous 5-year average was 18,074 lb (range 6,596 to 36,481 lb). Results for 2009 were similar to those of 2008 and results for 2010 and 2011 continued trends observed for 2008 and 2009 (Table 9).

In 2012, only 7 SHARCs were active in Toksook Bay, again suggesting that many subsistence fishers were not participating in the program. Based on returned surveys (6 of 7; 86%), the estimated subsistence halibut harvest was 294 lb, with just 154 lb (52%) taken with hand-operated gear. This harvest was just 2% of the annual average from 2003–2007 (18,074 lb). The estimated number of subsistence halibut fishers in Toksook Bay in 2012 was 5, compared to 113 in 2006 and an average of 79 from 2003–2007.

The final report for 2012 concluded that "without renewed registrations in the SHARC program and outreach in the community, it is unlikely that a mail survey alone will provide reliable harvest estimates for the subsistence halibut fishery in Toksook Bay in the future" (Fall and Koster 2014:28). Therefore for 2014, division staff traveled to Toksook Bay and, with the assistance of the tribal government and key respondents, identified all potential subsistence halibut fishers in the community, only 7 of whom held SHARCs in 2014. A sample of 76% was achieved for the finalized list of potential subsistence halibut fishers after outreach occurred. The estimated subsistence harvest was 32,023 lb by 121 fishers. The 2014 estimated harvest was the second highest since 2003 and similar to the 36,481 lb harvest for 2006 when household surveys were also conducted. The estimated number of fishers was similar to those of 2006 and 2007 (Table 9). These findings confirm that harvest estimates from 2008 through 2012 based on SHARC registrations alone significantly underestimated halibut harvests in the community.

As discussed in Chapter 1, division staff traveled to Toksook Bay in April 2017 and, with the help of local research assistants, identified 104 potential subsistence halibut fishers for 2016, only 20 of whom held SHARCs (Table 9). Of these, surveys were obtained for 45 (43%). The estimated subsistence halibut harvest was 25,361 lb, down 21% from 2014 but within the range of harvest estimates for 2003–2006.

Fishers in Toksook Bay, as well as Tununak, often reported more difficulty catching halibut in 2016 compared to other recent years because Pacific cod were more abundant while halibut were less so; indeed, some respondents reported that they had not fished for halibut in 2016 because others had experienced little to no success.

In both Toksook Bay and Tununak, respondents cited by-catch of halibut in Bering Sea commercial groundfish fisheries as the ongoing primary cause of scarce halibut. A prominent elder in Toksook Bay described finding halibut floating in the water, dead—he assumed from prior capture in commercial groundfish fisheries in Kuskokwim Bay.

With respect to the lack of renewals of SHARCs, a likely primary cause is a general lack of conviction that harvest data are important; additional outreach is necessary to explain the role of harvest data in fishery management and allocations. Further, internet access for renewals is extremely challenging for most households in these communities. Enrollment, and participation in annual harvest monitoring, would likely improve if the communities were responsible for providing paper copies of SHARC applications and collecting the harvest information. Maintaining confidentiality and anonymity for harvest data is also essential for achieving participation in harvest monitoring programs in these communities.

Tununak (Regulatory Area 4E)

Tununak had a population of 327 in 2010, with 314 Alaska Natives; the population estimate was 387 in 2016 (Table 1). The Division of Subsistence conducted a comprehensive household harvest survey in Tununak in 1986, which provides the only estimate of subsistence halibut harvests for the community prior to the adoption of the 2003 subsistence regulations. The harvest estimate for 1986 was 1,532 fish and 30,643 lb (net [dressed] weight), with a 95% confidence limit of ±26%. The harvest per capita was 93 lb (net weight) (CSIS).

No residents of Tununak obtained SHARCs in 2003,[17] and the Traditional Elders' Council in Tununak did not approve Division of Subsistence plans to conduct interviews with potential subsistence halibut fishers for 2003. Therefore, there is no subsistence halibut harvest estimate for this community for 2003. By the close of 2004, however, 70 residents of Tununak had obtained SHARCs (Table 9). Because only 9 SHARC holders responded to the postal survey (13%), harvest estimates for Tununak for 2004 are based on a very low sample achievement. The estimated total subsistence halibut harvest was 1,954 lb (net weight) by 31 fishers, 878 lb harvested with setline gear and 1,076 lb with hand-operated gear. No Tununak SHARC holders reported sport fishing activity in any study year.

The tribal government supported Division of Subsistence interviewing of subsistence halibut fishers in Tununak for the 2005 project year (Fall et al. 2006:5). Completed surveys were obtained for 33 of 70 SHARC holders (47%). As in Toksook Bay, reported harvests were not expanded for Tununak for the 2005 project year because most known halibut fishers were interviewed. The total subsistence harvest of halibut was 2,661 lb by 20 fishers. Most of the harvest (88%) was taken with hand-operated gear (Table 9).

In 2006, 70 Tununak residents held SHARCs. No interviewing took place in the community, but division staff attempted to contact SHARC holders by telephone. Sample achievement was low (10 of 70 SHARC holders; 14%). Based on this limited sample, the estimated subsistence halibut harvest at Tununak in 2006 was 4,032 lb by 33 subsistence fishers. Almost all of this harvest (3,808 lb; 94%) was with hand-operated gear (Table 9).

In 2007, 69 Tununak residents held SHARCs for a part of the year. With the support of a short-term contract with the division, staff of the Tununak IRA council conducted interviews in their community to supplement SHARC survey data. The estimated subsistence harvest in Tununak in 2007 was 7,015 lb by 38 fishers. Most of this harvest (5,479 lb; 78%) was taken with hand-operated gear (Table 9).

In 2008, 68 Tununak residents held SHARCs. No outreach or supplemental interviewing took place in the community in 2008. The response rate to the mailed survey was 10% (7 of 68 SHARC holders). Estimated harvests based on this sample were by far the lowest of any project year up to that point: 1,296 lb, all with hand-operated gear by an estimated 8 fishers (Table 9). This was almost certainly a large underestimation of the subsistence harvest of halibut in Tununak in 2008.

Few of the SHARCs active in 2008 in Tununak were renewed and only 11 were active in 2009; 6 (55%) responded to the survey. An estimated 7 subsistence fishers harvested 488 lb of halibut in 2009, all with hand-operated gear (Table 9). Due to the very limited participation in the SHARC program and based on results from 2004–2007, it is highly likely that a reliable estimate of subsistence halibut harvests in Tununak was not obtained for 2009.

17. One tribal member obtained a SHARC, but this person was not a resident of Tununak.

As in 2009, only 11 SHARCs were active in Tununak in 2010; 3 (27%) responded to the survey. An estimated 9 subsistence fishers harvested 576 lb of halibut in 2010, all with hand-operated gear (Table 9). Due to the very limited participation in the SHARC program and based on results from 2004–2007, it is highly likely that, as for 2009, a reliable estimate of subsistence halibut harvests in Tununak was not obtained for 2010.

Similarly, only 11 SHARCs were active in Tununak in 2011. An estimated 4 SHARC holders fished, for an estimated harvest of 84 lb, all with hand-operated gear. In 2012, 11 Tununak residents had SHARCs. An estimated 3 SHARC holders fished for halibut, with an estimated harvest of 173 lb, all with hand-operated gear (Table 9). As for 2008–2010, it is unlikely that study results for 2011 and 2012 provide a reliable estimate of subsistence halibut harvests in the community.

Compared to the results of the 1986 survey, the harvest estimates for Tununak for 2004 through 2012 appear low. The low response to the mailed SHARC surveys plus a lack of outreach or follow-up interviews likely resulted in a large underestimation of the harvests. The final report for 2012 concluded that "several additional years of harvest data collection plus renewed outreach and community support will be necessary to adequately document subsistence halibut harvest trends in Tununak" (Fall and Koster 2014:29).

For the 2014 study year, division researchers traveled to Tununak and with the assistance of key respondents, identified 81 potential subsistence halibut fishers, only 5 of whom held a SHARC in 2014. Based on a 77% sample, the estimated subsistence halibut harvest was 27,951 lb, far exceeding any other estimate since 2003 (the previous high was 7,015 lb in 2007), and approaching the 30,643 lb harvest based on household surveys for 1986 (Table 9; CSIS). This result suggests that subsistence halibut harvests in Tununak have been substantially underestimated since the SHARC program began in 2003.

As discussed in Chapter 1, division staff again traveled to Tununak to conduct subsistence halibut harvest surveys for 2016. Local research assistants helped identify 65 potential halibut fishers, 42 (65%) of whom were surveyed. Only 6 of these potential fishers held SHARCs. Estimated subsistence harvests totaled 11,000 lb, just 39% of the 2014 total. See the discussion of Toksook Bay, above, for observations about reasons for lower subsistence halibut harvests and low enrollments in the SHARC program at Tununak.

Comparisons With Nonsubsistence Removals In 2016

As reported in Table 10, the preliminary estimated total halibut removal in Alaskan waters in 2016 was 32,426,635 lb (net weight) based on data compiled by the IPHC (Erikson 2017; Goen 2017) and this project. In this total, the removal of 5,457 lb of U32 (under 32 inches in length) halibut for personal use by CDQ organizations in Area 4D and Area 4E has been added to the subsistence harvest category. Commercial harvests accounted for 54.5% of halibut removals in Alaska in 2016 (Figure 27). Bycatch mortality of halibut in various other commercial fisheries ranked second, with 20.8% of the statewide removals. Sport fisheries (harvests and other mortalities) ranked third, with 17.9%. Non-harvest mortalities (formerly called "wastage") in the commercial halibut fishery added 2.8% to the total halibut removals, and IPHC research accounted for 1.8%. The subsistence fishery accounted for 2.3% of the total removals of halibut in Alaska waters in 2016.

Halibut harvests by fishery in 2016 at the regulatory area level did not differ substantially from the statewide pattern (Table 10; Figure 28). In all regulatory areas, commercial harvests accounted for 49% or more of the total pounds net weight of halibut removals. In Area 2C (Southeast Alaska) and Area 3A (Southcentral Alaska), sport fisheries took 32.5% and 25.9%, respectively, of the halibut harvest in 2016; however, sport fisheries were just 0.1% of the total harvest in Area 3B (compared to 0.4% for the subsistence harvest) and in Area 4 just 0.2%, compared to subsistence harvests of 0.8%. Commercial bycatch accounted for 46.6% of halibut removals in Area 4. As a percentage of the total removal, subsistence halibut harvests were largest in Area 2C at 6.4% of the total (although they were about 20% of the sport harvest and 11% of the commercial harvest) and in Area 3A at 1.6%.

4. CONCLUSIONS AND RECOMMENDATIONS

Summary And Conclusions

New federal regulations governing subsistence halibut fishing in Alaska went into effect in May 2003. The 2016 calendar year was the 12th for which a program was implemented to estimate the subsistence harvest of halibut under these regulations. Based upon survey return rates, the program was a success. Of 8,925 potential halibut fishers, 5,862 (66%) voluntarily provided information about their subsistence halibut fishing activities in 2016 by responding to the mail survey or agreeing to be interviewed. This was the third-highest response rate for the program, which has ranged from 58% in 2007 to 71% in 2012 (Table 11).

In 2016, the number of potential subsistence halibut fishers (8,925) dropped 8% from the number of valid SHARCs for 2014, and was 27% lower than the 11-year average from 2003–2012 and 2014 (Table 11). The 2016 total includes potential subsistence fishers in 2 communities who did not hold SHARCS; there were 8,779 valid SHARCs in 2016, a drop of 7% from 2014 (9,474 SHARCs). See Fall and Koster (2014:33–35) for a discussion of SHARC renewal patterns for 2003–2012.

Based on the survey returns, an estimated 4,408 individuals participated in the Alaska subsistence halibut fishery in 2016. This is a 2% decrease from 2014, and is 16% lower than the 11-year average from 2003–2012 and 2014. However, 49% of potential halibut fishers participated in the fishery in 2016, the highest percentage of any study year. The estimated subsistence harvest of halibut in Alaska in 2016 is 36,815 fish and 727,178 lb, 4% lower than 2014 but higher than either 2011 or 2012. However, as measured in pounds, the 2016 subsistence halibut harvest was the third-lowest of any study year and 22% lower than the 11-year average from 2003–2012 and 2014 (Table 11). The total estimated harvests for 2003–2012, 2014, and 2016 are below the 1.5 million net pounds estimated for the Alaska subsistence halibut harvest when the current regulations were developed by the North Pacific Fishery Management Council (see http://www.fakr.noaa.gov/frules/70fr16742.pdf, page 16748; North Pacific Fishery Management Council [2003]). The larger estimated harvest in 2004 compared to 2003 most likely corresponded to the greater number of individuals who held SHARCs through December 2004 and a proportional increase in the number of individuals who subsistence fished for halibut. The leveling off and slight decline in the harvests in 2006 and 2005, compared to 2004, are consistent with the leveling-off of the number of individuals who held SHARCs for at least a portion of these years. However, harvests as estimated in pounds dropped in 2007 despite an increase in individuals who held a SHARC for at least part of the year. In 2008, estimated harvests dropped by 14% and the number of SHARC holders dropped by 23%; in 2009, the number of SHARC holders rose slightly (1.5%) while the harvest dropped by 3%; in 2010 both the number of SHARC holders and the harvest dropped by about 7% compared to the previous year. Study year 2011 continued the trend of lower harvests begun in 2004, and was 13% below the estimated harvest for 2010 despite a 2% increase in the number of SHARC holders. In 2012, the number of SHARCs dropped 11% while the estimated harvest declined 2%. The higher estimates for 2014 and 2016 were in part a result of outreach and household surveys in 2 key fishing communities in Area 4E. Without this outreach, harvest estimates for Area 4E and the state overall in 2014 and 2016 would likely have been very close to the low estimates for 2011 and 2012.

Average harvests per fisher in the subsistence halibut fishery in 2016 at 8.4 fish and 165 lb declined slightly from the 9.0 fish and 169 lb estimated for 2014. The average harvest per fisher in pounds was 7% below the average of the previous 11 annual estimates, during which, on average, subsistence fishers harvested between 148 lb (in 2011) and 211 lb (in 2003) (Table 11).

Over the 12 project years, the average weight of subsistence-caught halibut declined from 23.7 lb in 2003 to 18.2 lb in 2008 (a decline of 23%), rose slightly to 19.0 lb in 2009, and then leveled off at 18.4 lb per fish in 2010, 18.3 lb in 2011, 18.5 lb in 2012, and 18.7 lb in 2014 (Table 11). The average weight of a subsistence-caught halibut dropped 21% from 2003 to 2014. However, in 2016, this average rose to 19.8 lb, the highest since 2006.

After 12 years of the harvest assessment program, it appears likely that the overall larger statewide harvest estimates in 2004, 2005, and 2006, compared to 2003, were, at least in part, a consequence of increased participation of subsistence fishers in the SHARC program after 2003 and, perhaps, an increase in trust on the part of subsistence fishers in the survey. The lower harvest estimates for 2008–2012, 2014, and 2016 are likely in part a consequence of reduced participation in the SHARC program, especially among eligible tribal members and especially in Area 4. As community case studies demonstrate (Fall and Koster 2014:20–29), however, a number of factors, some of them methodological, appear to have caused the differences in harvest estimates over the 12 project years. On the other hand, decreases in subsistence halibut harvests in Area 2C through 2012 appear to reflect declining success in harvests and smaller fish. Survey results for 2014 and 2016 for Area 2C, with higher harvests and larger average fish size, might indicate a reversal of these trends for the Southeast Alaska subsistence halibut fishery.

In 2016, most subsistence halibut were harvested with setline (stationary) gear (75%) and the rest with hand-operated gear (25%) (Table 5). The portion of the subsistence halibut harvested with setlines has ranged since 2003 from 69% in 2007 to 77% in 2010 and 2011 and 78% in 2012.

The largest portion of the Alaska subsistence halibut harvest in 2016 occurred in Regulatory Area 2C (Southeast Alaska), at 60% (436,464 lb), followed by Area 3A (Southcentral Alaska) at 31% (222,454 lb), Area 4E (East Bering Sea Coast) at 6% (41,370 lb), Area 3B (Alaska Peninsula) at 2% (14,242 lb), Area 4A (Eastern Aleutian Islands) at 1% (8,054 lb), Area 4C (Pribilof Islands) less than 1% (4,300 lb), and Area 4B (Western Aleutian Islands) at less than 1% (294 lb) (figures 13 and 16). No harvests were reported for Area 4D (Central Bering Sea) (Table 6; Figure 16). In 2003–2012 and 2014, Area 2C (Southeast Alaska) and Area 3A (Southcentral Alaska) also accounted for most of the subsistence harvests (Figure 16) . The portion of the estimated subsistence halibut harvest from Area 4E (East Bering Sea Coast) ranged from about 1% to 2% from 2008 through 2012, but harvest estimates for this area for those years were likely too low. Area 4E accounted for between 2% and 6% of the statewide harvest from 2003 through 2007, 9% in 2014, and 6% in 2016 (Table 6).

The proportion of the statewide subsistence halibut harvest occurring in Area 2C (Southeast Alaska) ranged from 60% in 2003 and 2016, 58% in 2012, and 57% in 2004, to between 51% and 56% from 2005 through 2011. The portion occurring in Area 3A (Southcentral Alaska) ranged from 27% in 2003 to between 31% and 39% from 2004 through 2012, 2014, and 2016 (Table 6). Subsistence harvests accounted for 2.3% of the total halibut removals in Alaska waters in 2016 (Table 10), compared to between 1.2% (in 2009) and 2.3% (in 2014).

As discussed above, although comparisons of the 2003–2012, 2014, and 2016 harvest estimates with those from previous research by the Division of Subsistence are complicated by different research methods, such comparisons may still be instructive. Subsistence harvest estimates for most of the larger communities (combining tribal and rural SHARC holders) such as Sitka, Petersburg, and Kodiak for the first several years of the SHARC surveys were not markedly different from the range of earlier estimates based on household surveys. This is significant in that these communities account for a very large percentage of the total harvest. On the other hand, registration in the SHARC program and survey response rates have declined in several key halibut-fishing communities in Area 4, resulting in underestimated subsistence harvests for that regulatory area. Declining numbers of SHARCs issued in the other regulatory areas also raise questions about trends in participation in the SHARC program, including the survey. We conclude, however, that the 12 years of the survey of SHARC holders produced sound estimates of subsistence harvests of halibut in Alaska based on a scientific sample and a relatively high response rate in Areas 2C and 3A, where approximately 85% to 90% of the subsistence halibut fishing in the state occurs. Future documentation of the subsistence harvests will be necessary for any meaningful discussion of long-term patterns and trends in the fishery.

Recommendations

As noted in Chapter 1, 2016 marked the 12th year of documentation of the subsistence halibut harvests in Alaska, with no harvest estimates available for 2013 or 2015. Due to budget constraints, the project will

not continue for the 2017 harvest year. We conclude this report with the following recommendations for potential future research based on experiences during the 12 years of this project.

1. The estimates of subsistence halibut harvests in Alaska documented by this program should be updated in the future. As discussed, estimated harvest estimates declined over the first 10 years of the monitoring program, increased slightly in 2014, and then dropped slightly in 2016. Reasons for annual changes and longer trends are likely complex and have not been explored thoroughly. For example, the number of valid SHARCs has declined, and analysis suggests that a significant number of active subsistence halibut fishers have not renewed their SHARCs. This has resulted in underestimated harvests in the later years of the program in some communities, but may also be evidence that fewer people are participating in the fishery in other communities. Declines in the harvestable surplus of halibut leading to lower catch rates is an additional possible explanation for lower harvests.

3. Over the 12 years of the project, 89,561 SHARC surveys were returned (Table 11). Analysis of this database could reveal patterns in renewals, participation in the fishery, and harvest levels that could be applied to future harvest monitoring efforts. Linked to this analysis could be a systematic survey of a sample of SHARC holders and harvest survey respondents to explore topics such as reasons for renewing or not renewing SHARCs, factors affecting participation in the fishery, and factors influencing harvest rates.

4. Linked to this quantitative analysis, ethnographic investigations should take place in a sample of key halibut fishing communities to evaluate the effects of the 2003 subsistence fishing regulations on fishing patterns as well as patterns of involvement during the first 14 years that the regulations have been in effect. These studies would entail more detailed interviewing of fishers regarding changes in gear choice, fishing effort, harvest amounts, or other fishing activities that have resulted from the regulatory changes, as well as reasons for renewing or not renewing SHARCs. These interviews could also investigate traditional and local knowledge about halibut stocks that might prove useful to agencies, communities, and tribes for future management of the subsistence, sport, and commercial halibut fisheries in Alaska. In addition, participant observation of subsistence halibut fishing could provide important information about the fishery. Findings of these ethnographic investigations should be applied to assist in designing future harvest monitoring programs for the fishery.

5. A recommendation in the final report for the third year of the program was that "implementation of a program to collect harvest data inseason in selected communities should be considered on a trial basis to help supplement and evaluate the data collected through the postal survey" (Fall et al. 2006:37). The Division of Subsistence conducted an inseason harvest monitoring project for the subsistence halibut fishery in Sitka and Kodiak in 2006 with funding provided by NMFS. Findings were presented in Special Publication No. 2009-06 (Fall et al. 2009:37). Consideration should be given in the future to inseason monitoring programs in other communities as a method to compare harvest estimates with those from mailed surveys.

6. Further evaluation of several years of sport fishing harvest data achieved through the postal *Statewide Harvest Survey* administered by the Division of Sport Fish could take place for the larger rural communities participating in the subsistence halibut fishery. (Analysis of these data for Sitka was conducted as a pilot effort for 2004; see Fall et al. [2005:22–24]). As discussed in Chapter 2 and Chapter 3, many SHARC holders also reported that they sport fished for halibut in 2003–2012, 2014, and 2016. It would be instructive to learn if a shift in harvest from the "sport" category to the "subsistence" category, or in the other direction from

subsistence to sport, has occurred, in order to evaluate trends in the subsistence fishery and the effect of the new subsistence halibut regulations on fishing patterns.

7. Even without harvest monitoring, additional or renewed outreach is needed in a number of communities with historically high subsistence harvests of halibut but low or declining numbers of SHARCs issued. Contracts with tribal governments could facilitate this outreach.
8. In summary, the results of a quantitative analysis of the 12 years of survey data, systematic interviews, ethnographic research, and inseason harvest monitoring should be evaluated to design a sustainable harvest monitoring program for the Alaska subsistence halibut fishery consistent with available long-term funding. Such a program could be based on a postal survey linked with other data gathering methods in selected communities or regulatory areas, such as face-to-face interviews, calendars, or limited inseason monitoring. Outreach about the subsistence halibut regulations, including the requirement to obtain a SHARC, should be part of any future harvest monitoring program.

Table 1.–Population of rural communities eligible to participate in the Alaska subsistence Pacific halibut fishery, 2000, 2010, and 2016.

Community[a]	Regulatory area	Population				
		2000		2010		2016
		Total	Alaska Native	Total	Alaska Native	Total
Angoon	2C	572	419	459	405	408
Coffman Cove	2C	199	12	176	10	204
Craig	2C	1,397	432	1,201	378	1,102
Edna Bay	2C	49	2	42	0	41
Elfin Cove	2C	32	0	20	6	13
Gustavus	2C	429	32	442	30	558
Haines	2C	1,811	332	1,713	278	1,744
Hollis	2C	139	13	112	10	112
Hoonah	2C	860	597	760	502	793
Hydaburg	2C	382	342	376	324	404
Hyder	2C	97	4	87	5	84
Kake	2C	710	530	557	449	605
Kasaan	2C	39	19	49	22	89
Klawock	2C	854	496	755	446	814
Klukwan	2C	139	123	95	86	95
Metlakatla	2C	1,375	1,125	1,405	1,245	1,467
Meyers Chuck	2C	21	2			
Naukati Bay	2C	135	13	113	9	104
Pelican	2C	163	42	88	36	78
Petersburg	2C	3,224	388	2,948	390	2,935
Point Baker	2C	35	3	15	2	14
Port Alexander	2C	81	11	52	3	58
Port Protection	2C	63	7	48	13	51
Saxman	2C	431	302	411	276	418
Sitka	2C	8,835	2,178	8,881	2,184	8,920
Skagway	2C	862	44	920	52	1,004
Tenakee Springs	2C	104	5	131	5	140
Thorne Bay	2C	552	27	471	23	532
Whale Pass	2C	58	2	31	1	45
Wrangell	2C	2,308	550	2,369	582	2,458
Census area balances[d]	2C			1,230		1,236
Subtotal, Area 2C[e]		**25,956**	**8,052**	**25,957**	**7,772**	**26,526**
Akhiok	3A	80	75	71	62	97
Chenega Bay	3A	86	67	76	46	72
Cordova	3A	2,454	368	2,239	344	2,386
Karluk	3A	27	26	37	35	24
Kodiak[b]	3A	12,973	1,697	12,824	1,872	0

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Table 1.–Page 2 of 4.

Community[a]	Regulatory area	Population 2000 Total	2000 Alaska Native	2010 Total	2010 Alaska Native	2016 Total
Larsen Bay	3A	115	91	87	66	77
Nanwalek	3A	177	165	254	227	300
Old Harbor	3A	237	203	218	194	231
Ouzinkie	3A	225	197	161	140	159
Port Graham	3A	171	151	177	160	167
Port Lions	3A	253	163	194	119	177
Seldovia	3A	286	66	420	121	383
Tatitlek	3A	107	91	88	58	90
Yakutat	3A	680	375	662	330	594
Census area balances[d]	3A					
Subtotal, Area 3A		**17,871**	**3,735**	**17,508**	**1,415**	**2,178**
Chignik	3B	79	48	91	56	96
Chignik Lagoon	3B	103	85	78	58	85
Chignik Lake	3B	145	127	73	70	64
Cold Bay	3B	88	15	108	20	59
False Pass	3B	64	42	35	27	42
Ivanof Bay	3B	22	21	7	7	7
King Cove	3B	792	379	938	384	923
Nelson Lagoon	3B	83	68	52	40	34
Perryville	3B	107	105	113	110	110
Sand Point	3B	952	421	976	417	943
Census area balances[d]	3B			5		0
Subtotal, Area 3B		**2,435**	**1,311**	**2,476**	**1,189**	**2,363**
Akutan	4A	713	117	1,027	76	1,000
Nikolski	4A	39	27	18	17	13
Unalaska	4A	4,283	397	4,376	355	4,448
Census area balances[d]	4A			178		178
Subtotal, Area 4A		**5,035**	**541**	**5,599**	**448**	**5,639**
Adak	4B	316	118	326	46	309
Atka	4B	92	84	61	58	65
Census area balances[d]	4B					
Subtotal, Area 4B		**408**	**202**	**387**	**104**	**374**
St George Island	4C	152	140	102	92	72
St Paul Island	4C	532	460	479	417	397
Census area balances[d]	4C					
Subtotal, Area 4C		**684**	**600**	**581**	**509**	**469**

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Table 1.–Page 3 of 4.

Community[a]	Regulatory area	Population 2000 Total	2000 Alaska Native	2010 Total	2010 Alaska Native	2016 Total
Gambell	4D	649	622	681	654	721
Savoonga	4D	643	614	671	637	729
Diomede	4D	146	137	115	110	88
Census area balances[d]	4D					
Subtotal, Area 4D		**1,438**	**1,373**	**1,467**	**1,401**	**1,538**
Alakanuk	4E	652	638	677	660	707
Aleknagik	4E	221	187	219	185	217
Brevig Mission	4E	276	254	388	366	418
Bethel	4E	5,471	3,719	6,080	4,334	6,244
Chefornak	4E	394	386	418	403	442
Chevak	4E	765	734	938	912	1,030
Clark's Point	4E	75	69	62	55	54
Council ANVSA[c]	4E	0	0	0	0	0
Dillingham	4E	2,466	1,503	2,329	1,549	2,316
Eek	4E	280	271	296	289	341
Egegik	4E	116	89	109	51	85
Elim	4E	313	297	330	305	339
Emmonak	4E	767	720	762	737	856
Golovin	4E	144	133	156	148	182
Goodnews Bay	4E	230	216	243	232	265
Hooper Bay	4E	1,014	971	1,093	1,070	1,188
King Salmon	4E	442	133	374	132	316
Kipnuk	4E	644	631	639	626	673
Kongiganak	4E	359	349	439	430	520
Kotlik	4E	591	568	577	563	621
Koyuk	4E	297	280	332	319	331
Kwigillingok	4E	338	331	321	310	385
Levelock	4E	122	116	69	62	87
Manokotak	4E	399	378	442	425	496
Mekoryuk	4E	210	203	191	185	215
Naknek	4E	678	319	544	283	494
Napakiak	4E	353	341	354	344	355
Napaskiak	4E	390	383	405	393	458
Newtok	4E	321	311	354	343	372
Nightmute	4E	208	197	280	266	285
Nome	4E	3,505	2,057	3,598	2,348	3,777

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Table 1.–Page 4 of 4.

Community[a]	Regulatory area	Population 2000 Total	2000 Alaska Native	2010 Total	2010 Alaska Native	2016 Total
Oscarville	4E	61	61	70	67	50
Pilot Point	4E	100	86	68	57	74
Platinum	4E	41	38	61	57	48
Port Heiden	4E	119	93	102	87	98
Quinhagak	4E	555	540	669	650	735
Scammon Bay	4E	465	453	474	472	528
Saint Michael	4E	368	343	401	379	417
Shaktoolik	4E	230	218	251	242	281
Nunam Iqua	4E	164	154	187	174	201
Shishmaref	4E	562	531	563	540	597
Solomon ANVSA	4E	4	3	0	0	0
South Naknek	4E	137	115	79	66	64
Stebbins	4E	547	518	556	530	630
Teller	4E	268	248	229	220	263
Togiak	4E	809	750	817	767	893
Toksook Bay	4E	532	519	590	555	656
Tuntutuliak	4E	370	366	408	396	454
Tununak	4E	325	315	327	314	387
Twin Hills	4E	69	65	74	72	85
Ugashik	4E	11	9	12	9	15
Unalakleet	4E	747	655	688	574	758
Wales	4E	152	137	145	136	167
White Mountain	4E	203	175	190	167	209
Census area balances[d]	4E			398		382
Subtotal, Area 4E		**28,880**	**23,176**	**30,378**	**24,856**	**34,077**
Grand Total		**82,707**	**38,990**	**84,353**	**37,694**	**73,164**

Sources U.S. Census Bureau (2001; 2011) for 2000 and 2010 population estimates and Alaska Department of Labor and Workforce Development (2017) for 2016 population estimates.

a. Alaska Native Village Statistical Area populations were used whenever no city or census designated place (CDP) populations were present in the census.

b. Total population for Kodiak Island road system area; includes Kodiak City, Kodiak Station, Chiniak, and other areas on the road system.

c. There is no census table for a Council CDP or municipality in 2000. The Council ANVSA table indicated that all 40 housing units were vacant in 2000.

d. Population living outside incorporated places and census designated places but eligible for participation in the subsistence halibut fishery as of December 4, 2009.

e. Non-tribal residents of Naukati Bay were not eligible for SHARCs until 2008. This community was not included in population estimates for previous study years.

Table 2.–Project chronology, 2016.

Date	Event/Action
October 1, 2016	NOAA Grant Award No. NA16NMF4370166 between NMFS and ADF&G in effect to support the research for study year 2016
January 5, 2017	First mailing of survey forms
March 8, 2017	Second mailing of survey forms
May 10, 2017	Third mailing of survey forms
April through June, 2017	Administration of surveys in Sitka, Toksook Bay, Tununak, Unalaska, and Akutan
April 17, 2017	Submission of semi-annual report on project progress to NMFS
October 20, 2017	Submission of semi-annual report on project progress to NMFS
November 30, 2017	Release of public review draft of final report
December 6, 2017	Presentation of study findings, NPFMC, Anchorage
January 16, 2018	Completion of revised, final report; distribution of findings summary
January 24, 2018	Presentation of 2016 study findings at IPHC annual meeting, Portland, OR

Table 3.–Sample achievement, 2016.

Tribal name	Regulatory area	First mailing: Surveys mailed	First mailing: Surveys returned	First mailing: Surveys returned undeliverable	Second mailing: Surveys mailed	Second mailing: Surveys returned	Second mailing: Surveys returned undeliverable	Third mailing: Surveys mailed	Third mailing: Surveys returned	Third mailing: Surveys returned undeliverable	Totals: SHARCs issued	Totals: Returned by mail	Totals: Returned through staff	Totals: Response	Totals: Response rate	Totals: Undeliverable
Angoon Community Association	2C	45	14	6	27	3	2	24	4	3	45	21	0	21	46.7%	9
Central Council Tlingit And Haida Indian Tribes	2C	413	136	50	245	32	27	180	15	7	413	183	2	185	44.8%	81
Chilkat Indian Village	2C	8	3	0	6	0	0	5	0	0	8	3	0	3	37.5%	0
Chilkoot Indian Association	2C	41	23	1	19	3	0	14	6	0	41	32	0	32	78.0%	1
Craig Community Association	2C	42	16	4	26	4	1	18	1	0	42	21	0	21	50.0%	5
Douglas Indian Association	2C	6	1	1	4	0	1	3	2	0	6	3	0	3	50.0%	2
Hoonah Indian Association	2C	96	35	3	58	6	2	51	7	1	96	48	0	48	50.0%	6
Hydaburg Cooperative Association	2C	71	12	1	63	4	2	52	6	0	71	22	0	22	31.0%	3
Ketchikan Indian Corporation	2C	428	142	54	248	47	12	180	15	5	428	204	1	205	47.9%	68
Klawock Cooperative Association	2C	48	11	4	34	9	2	22	1	0	48	21	0	21	43.8%	6
Metlakatla Indian Community, Annette Island Reserve	2C	135	27	1	117	9	2	97	1	0	135	37	0	37	27.4%	3
Organized Village of Kake	2C	72	32	1	43	6	1	35	3	0	72	41	0	41	56.9%	2
Organized Village of Kasaan	2C	5	3	2	1	0	0	0	0	0	5	3	0	3	60.0%	2
Organized Village of Saxman	2C	15	1	1	14	1	0	12	0	2	15	2	0	2	13.3%	3
Petersburg Indian Association	2C	58	29	4	27	2	0	23	8	0	58	39	1	40	69.0%	4
Sitka Tribe of Alaska	2C	201	68	40	103	17	3	76	8	1	203	93	15	108	53.2%	43
Skagway Village	2C															
Wrangell Cooperative Association	2C	60	32	4	29	8	1	18	2	1	60	42	1	43	71.7%	6
Subtotal Area 2C		**1,746**	**586**	**177**	**1,065**	**152**	**56**	**810**	**79**	**20**	**1,748**	**817**	**20**	**837**	**47.9%**	**244**
Kenaitze Indian Tribe	3A	105	33	10	67	19	0	48	6	0	105	58	0	58	55.2%	10
Lesnoi Village (Woody Island)	3A	14	2	2	10	0	0	10	1	0	14	3	0	3	21.4%	2
Native Village of Afognak	3A	16	9	0	7	2	0	5	2	0	16	13	0	13	81.3%	0
Native Village of Akhiok	3A	19	0	4	15	3	1	11	0	1	19	3	0	3	15.8%	6
Native Village of Chenega	3A	16	3	3	10	5	0	6	0	0	16	8	0	8	50.0%	3
Native Village of Eyak	3A	47	18	4	26	7	3	16	1	0	47	26	0	26	55.3%	7
Native Village of Karluk	3A	14	4	2	8	2	0	6	0	0	14	6	0	6	42.9%	2
Native Village of Larsen Bay	3A	40	15	1	26	7	2	15	2	1	40	24	0	24	60.0%	4
Native Village of Nanwalek	3A	42	7	1	34	8	0	27	3	2	42	18	0	18	42.9%	3
Native Village of Ouzinkie	3A	21	8	2	11	0	0	11	0	0	21	8	0	8	38.1%	2
Native Village of Port Graham	3A	33	12	2	19	6	0	13	0	0	33	18	0	18	54.5%	2
Native Village of Port Lions	3A	24	13	1	13	3	0	8	3	0	24	19	0	19	79.2%	1
Native Village of Tatitlek	3A	12	4	1	9	0	0	7	0	0	12	4	0	4	33.3%	1
Ninilchik Village	3A	54	32	1	26	4	0	17	0	0	54	36	0	36	66.7%	1
Seldovia Village Tribe	3A	51	26	2	27	10	0	14	3	0	51	39	0	39	76.5%	2
Sun'aq Tribe of Kodiak (formerly Shoonaq')	3A	94	47	3	48	5	0	41	5	0	94	57	0	57	60.6%	3
Village of Kanatak	3A	5	0	4	1	0	1	0	0	0	5	0	0	0	0.0%	5
Village of Old Harbor	3A	28	13	1	14	0	0	14	2	0	28	15	0	15	53.6%	1
Village of Salamatoff	3A	23	6	3	15	3	1	11	3	0	23	12	0	12	52.2%	4
Yakutat Tlingit Tribe	3A	38	12	0	30	2	0	25	2	0	38	16	0	16	42.1%	0
Subtotal Area 3A		**696**	**264**	**47**	**416**	**86**	**8**	**305**	**33**	**4**	**696**	**383**	**0**	**383**	**55.0%**	**59**
Agdaagux Tribe of King Cove	3B	35	18	0	17	4	0	13	0	0	35	22	0	22	62.9%	0
Chignik Lake Village	3B	9	2	2	6	2	0	3	1	0	9	5	0	5	55.6%	2
Ivanoff Bay Village	3B															
Native Village of Belkofski	3B															
Native Village of Chignik Lagoon	3B	7	2	0	5	2	0	5	0	0	7	4	0	4	57.1%	0
Native Village of False Pass	3B	11	2	0	9	0	0	9	0	0	11	2	0	2	18.2%	0
Native Village of Nelson Lagoon	3B															
Native Village of Perryville	3B	15	5	1	10	2	1	7	0	0	15	7	0	7	46.7%	1
Native Village of Unga	3B	8	2	0	6	4	0	2	0	0	8	6	0	6	75.0%	0
Pauloff Harbor Village	3B	66	4	5	58	4	0	54	0	2	66	8	0	8	12.1%	7

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Table 3.–Page 2 of 7.

Tribal name	Regulatory area	First mailing			Second mailing			Third mailing			Totals					
		Surveys mailed	Surveys returned	Surveys returned undeliverable	Surveys mailed	Surveys returned	Surveys returned undeliverable	Surveys mailed	Surveys returned	Surveys returned undeliverable	SHARCs issued	Returned by mail	Returned through staff	Response	Response rate	Undeliverable
Qagan Toyagungin Tribe of Sand Point Village	3B	246	45	22	180	7	2	171	4	1	246	56	1	57	23.2%	24
Subtotal Area 3B		**406**	**83**	**30**	**297**	**26**	**3**	**269**	**5**	**3**	**406**	**114**	**2**	**116**	**28.6%**	**34**
Native Village of Akutan	4A	7	1	0	6	0	0	1	0	0	7	1	5	6	85.7%	0
Qawalangin Tribe of Unalaska	4A	26	9	0	17	1	2	9	0	0	26	10	6	16	61.5%	2
Subtotal Area 4A		**33**	**10**	**0**	**23**	**1**	**2**	**10**	**0**	**0**	**33**	**11**	**11**	**22**	**66.7%**	**2**
Native Village of Atka	4B															
Subtotal Area 4B																
Pribilof Islands Aleut Community of St. George	4C															
Pribilof Islands Aleut Community of St. Paul	4C	29	5	1	25	1	0	22	0	0	29	6	0	6	20.7%	1
Subtotal Area 4C		**31**	**6**	**1**	**26**	**1**	**0**	**23**	**0**	**1**	**31**	**7**	**0**	**7**	**22.6%**	**2**
Native Village of Diomede (Inalik)	4D															
Native Village of Savoonga	4D															
Subtotal Area 4D																
Chevak Native Village (Kashunamiut)	4E															
Chinik Eskimo Community	4E															
King Island Native Community	4E															
King Salmon Tribal Council	4E															
Manokotak Village	4E															
Naknek Native Village	4E															
Native Village of Aleknagik	4E															
Native Village of Council	4E															
Native Village of Dillingham (Curyung)	4E	8	2	1	5	1	0	4	0	0	8	3	1	4	50.0%	1
Native Village of Eek	4E	9	3	0	6	3	0	3	0	0	9	6	0	6	66.7%	0
Native Village of Ekuk	4E															
Native Village of Hooper Bay	4E															
Native Village of Kanakanak	4E															
Native Village of Kipnuk	4E															
Native Village of Kongiganak	4E															
Native Village of Koyuk	4E															
Native Village of Kwigillingok	4E															
Native Village of Mekoryuk	4E															
Native Village of Nightmute	4E															
Native Village of Scammon Bay	4E															
Native Village of Toksook Bay (Nunakauyak)	4E	20	6	0	14	1	0	13	0	0	100	7	34	41	41.0%	0
Native Village of Tununak	4E	6	0	0	6	1	0	5	0	0	63	1	39	40	63.5%	0
Native Village of Unalakleet	4E															
Newtok Village	4E	0	0	0	0	0	0	0	0	0	1	0	1	1	100.0%	0
Nome Eskimo Community	4E	7	1	0	6	0	1	5	1	0	7	2	0	2	28.6%	1
Orutsararmuit Native Village	4E	8	6	0	2	1	0	1	0	0	9	7	1	8	88.9%	0
Platinum Traditional Village	4E															
Stebbins Community Association	4E	5	5	0	0	0	0	0	0	0	5	5	0	5	100.0%	0
Traditional Village of Togiak	4E															
Village of Alakanuk	4E															
Village of Chefornak	4E	0	0	0	0	0	0	0	0	0	2	0	2	2	100.0%	0
Village of Clark's Point	4E															
Subtotal Area 4E		**109**	**39**	**4**	**71**	**9**	**1**	**60**	**6**	**1**	**251**	**54**	**79**	**133**	**53.0%**	**6**
Tribal subtotal		**3,027**	**990**	**260**	**1,901**	**275**	**70**	**1,480**	**123**	**29**	**3,171**	**1,388**	**112**	**1,500**	**47.3%**	**348**

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Table 3.–Page 3 of 7.

Rural community	Regulatory area	First mailing: Surveys mailed	First mailing: Surveys returned	First mailing: Surveys returned undeliverable	Second mailing: Surveys mailed	Second mailing: Surveys returned	Second mailing: Surveys returned undeliverable	Third mailing: Surveys mailed	Third mailing: Surveys returned	Third mailing: Surveys returned undeliverable	Totals: SHARCs issued	Totals: Returned by mail	Totals: Returned through staff	Totals: Response	Totals: Response rate	Totals: Undeliverable
Angoon	2C	18	8	1	10	0	1	8	2	0	18	10	0	10	55.6%	2
Coffman Cove	2C	36	17	1	18	8	1	10	5	0	36	30	0	30	83.3%	2
Craig	2C	289	150	9	146	43	3	93	25	6	289	218	0	218	75.4%	17
Edna Bay	2C	20	9	0	15	4	0	9	1	1	20	14	0	14	70.0%	1
Elfin Cove	2C	12	7	2	3	0	0	3	1	0	12	8	0	8	66.7%	2
Gustavus	2C	54	34	0	23	8	1	13	4	0	54	46	0	46	85.2%	1
Haines	2C	392	251	9	161	47	2	97	25	1	392	323	1	324	82.7%	12
Hollis	2C	21	11	0	12	5	1	5	1	1	21	17	0	17	81.0%	2
Hoonah	2C	83	46	2	38	11	0	29	7	0	83	64	1	65	78.3%	2
Hydaburg	2C	13	6	1	7	1	0	5	0	1	13	7	0	7	53.8%	2
Hyder	2C	19	10	1	8	6	0	6	0	0	19	16	0	16	84.2%	1
Kake	2C	34	26	1	9	3	1	4	0	0	34	29	0	29	85.3%	1
Kasaan	2C	5	2	0	3	1	1	1	1	0	5	4	0	4	80.0%	1
Ketchikan	2C	34	14	5	17	4	0	11	1	1	34	19	0	19	55.9%	6
Klawock	2C	121	57	7	64	10	1	49	10	2	121	77	0	77	63.6%	10
Klukwan	2C															
Metlakatla	2C	21	10	0	12	2	0	9	0	0	21	12	0	12	57.1%	0
Meyers Chuck	2C	10	9	0	3	0	0	2	0	0	10	9	0	9	90.0%	0
Naukati Bay	2C	36	14	2	21	9	0	13	4	1	36	27	0	27	75.0%	3
Pelican	2C	24	10	1	16	5	0	9	1	0	24	16	0	16	66.7%	1
Petersburg	2C	722	468	13	297	80	4	180	38	2	722	586	1	587	81.3%	17
Port Alexander	2C	22	15	2	6	2	0	3	1	0	22	18	0	18	81.8%	2
Port Protection	2C	11	6	1	4	0	0	4	1	0	11	7	2	9	81.8%	1
Pt. Baker	2C	11	7	1	3	0	0	3	1	0	11	8	0	8	72.7%	1
Saxman	2C	8	1	4	3	0	0	3	0	0	8	1	0	1	12.5%	4
Sitka	2C	1,144	614	75	512	104	21	340	45	14	1,144	763	109	872	76.2%	107
Skagway	2C	59	29	4	32	8	0	21	8	0	59	45	0	45	76.3%	4
Tenakee Springs	2C	43	33	0	15	3	0	9	2	0	43	38	0	38	88.4%	0
Thorne Bay	2C	124	81	4	48	20	1	23	4	2	124	105	0	105	84.7%	7
Ward Cove	2C															
Whale Pass	2C	9	6	2	2	1	0	1	0	0	9	7	0	7	77.8%	2
Wrangell	2C	428	261	11	175	55	3	113	25	0	428	341	0	341	79.7%	14
Subtotal, Area 2C		**3,826**	**2,215**	**159**	**1,684**	**440**	**41**	**1,077**	**213**	**32**	**3,826**	**2,868**	**114**	**2,982**	**77.9%**	**225**
Akhiok	3A	10	5	2	3	0	0	3	0	0	10	5	0	5	50.0%	2
Chenega Bay	3A	6	3	0	3	0	0	3	0	0	6	3	0	3	50.0%	0
Chiniak	3A	11	10	0	1	0	0	1	0	0	11	10	0	10	90.9%	0
Cordova	3A	382	227	16	167	41	2	104	24	5	382	292	2	294	77.0%	23
Kodiak	3A	1,072	583	69	487	103	12	324	55	17	1,072	741	2	743	69.3%	97
Larsen Bay	3A	6	4	0	4	0	0	2	1	0	6	5	0	5	83.3%	0
Nanwalek	3A	7	3	0	5	1	0	3	1	0	7	5	0	5	71.4%	0
Old Harbor	3A															
Ouzinkie	3A	8	5	0	4	3	0	2	0	0	8	8	0	8	100.0%	0
Port Graham	3A	10	4	0	6	2	0	5	0	1	10	6	0	6	60.0%	1
Port Lions	3A	11	4	0	8	3	0	5	1	0	11	8	0	8	72.7%	0
Seldovia	3A	110	60	4	51	14	1	32	11	0	110	85	0	85	77.3%	5
Tatitlek	3A	9	3	0	7	0	0	7	3	0	9	6	0	6	66.7%	0
Yakutat	3A	68	31	3	39	11	0	24	3	0	68	45	0	45	66.2%	3
Subtotal, Area 3A		**1,713**	**944**	**94**	**786**	**178**	**15**	**516**	**100**	**23**	**1,713**	**1,222**	**4**	**1,226**	**71.6%**	**131**
Cold Bay	3B	15	11	0	4	2	0	2	1	0	15	14	0	14	93.3%	0
False Pass	3B															
King Cove	3B	14	7	1	10	3	1	3	0	0	14	10	0	10	71.4%	1
Sand Point	3B	5	4	1	0	0	0	0	0	0	5	4	0	4	80.0%	1
Subtotal, Area 3B		**35**	**23**	**2**	**14**	**5**	**1**	**5**	**1**	**0**	**35**	**29**	**0**	**29**	**82.9%**	**2**
Akutan	4A															

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Table 3.–Page 4 of 7.

Rural community	Regulatory area	First mailing: Surveys mailed	First mailing: Surveys returned	First mailing: Surveys returned undeliverable	Second mailing: Surveys mailed	Second mailing: Surveys returned	Second mailing: Surveys returned undeliverable	Third mailing: Surveys mailed	Third mailing: Surveys returned	Third mailing: Surveys returned undeliverable	Totals: SHARCs issued	Totals: Returned by mail	Totals: Returned through staff	Totals: Response	Totals: Response rate	Totals: Undeliverable
Unalaska	4A	120	48	9	69	9	5	35	4	1	120	61	21	82	68.3%	13
Subtotal, Area 4A		**121**	**48**	**9**	**70**	**9**	**5**	**35**	**4**	**1**	**121**	**61**	**22**	**83**	**68.6%**	**13**
Adak	4B															
Subtotal, Area 4B																
St. George Island	4C															
St. Paul Island	4C															
Subtotal, Area 4C		**6**	**2**	**0**	**4**	**1**	**0**	**3**	**0**	**0**	**6**	**3**	**0**	**3**	**50.0%**	**0**
Alakanuk	4E															
Bethel	4E															
Chevak	4E															
Dillingham	4E	13	10	0	3	2	0	1	0	0	13	12	0	12	92.3%	0
Egegik	4E															
King Salmon	4E															
Manokotak	4E															
Mekoryuk	4E															
Naknek	4E	5	3	0	2	1	0	1	0	0	5	4	0	4	80.0%	0
Nome	4E	16	6	0	11	4	0	7	3	1	16	13	0	13	81.3%	1
Pilot Point	4E															
South Naknek	4E															
Stebbins	4E															
Togiak	4E															
Toksook Bay	4E	0	0	0	0	0	0	0	0	0	1	0	1	1	100.0%	0
Tununak	4E	0	0	0	0	0	0	0	0	0	1	0	1	1	100.0%	0
Unalakleet	4E															
Subtotal, Area 4E		**49**	**25**	**2**	**23**	**7**	**0**	**16**	**3**	**2**	**51**	**35**	**2**	**37**	**72.5%**	**4**
Rural community subtotal		**5,752**	**3,259**	**266**	**2,581**	**640**	**62**	**1,652**	**321**	**58**	**5,754**	**4,220**	**142**	**4,362**	**75.8%**	**375**
Rural/Tribal grand total		**8,779**	**4,249**	**526**	**4,482**	**915**	**132**	**3,132**	**444**	**87**	**8,925**	**5,608**	**254**	**5,862**	**65.7%**	**723**

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Table 3.–Page 5 of 7.

City of residence	State of residence	First mailing: Surveys mailed	First mailing: Surveys returned	First mailing: Surveys returned undeliverable	Second mailing: Surveys mailed	Second mailing: Surveys returned	Second mailing: Surveys returned undeliverable	Third mailing: Surveys mailed	Third mailing: Surveys returned	Third mailing: Surveys returned undeliverable	Totals: SHARCs issued	Totals: Returned by mail	Totals: Returned through staff	Totals: Response	Totals: Response rate	Totals: Undeliverable
Adak	AK															
Akhiok	AK	15	1	3	11	3	0	8	0	0	15	4	0	4	26.7%	3
Akiak	AK															
Akutan	AK	6	0	0	6	0	0	1	0	0	6	0	5	5	83.3%	0
Alakanuk	AK															
Anchor Point	AK	12	10	0	2	1	0	1	0	0	12	11	0	11	91.7%	0
Anchorage	AK	140	60	20	68	11	8	46	5	5	140	76	1	77	55.0%	31
Angoon	AK	78	25	11	45	4	3	39	6	3	78	35	0	35	44.9%	15
Auke Bay	AK															
Bethel	AK	9	5	1	3	1	0	2	0	0	9	6	0	6	66.7%	1
Big Lake	AK															
Chenega Bay	AK	9	3	0	6	2	0	5	0	0	9	5	0	5	55.6%	0
Chevak	AK															
Chignik	AK															
Chignik Lagoon	AK															
Chignik Lake	AK															
Chiniak	AK	17	15	0	2	0	0	2	0	0	17	15	0	15	88.2%	0
Chugiak	AK															
Clarks Point	AK															
Coffman Cove	AK	37	17	2	18	8	1	10	6	0	37	31	0	31	83.8%	3
Cold Bay	AK	18	11	0	7	3	0	4	1	0	18	15	2	17	94.4%	0
Cordova	AK	426	242	21	192	48	5	119	25	5	426	315	3	318	74.6%	31
Craig	AK	379	192	15	196	54	4	126	28	7	379	274	0	274	72.3%	25
Delta Junction	AK															
Dillingham	AK	19	11	0	8	3	0	5	0	0	19	14	1	15	78.9%	0
Douglas	AK	18	5	1	13	2	2	8	1	0	18	8	0	8	44.4%	3
Dutch Harbor	AK	55	18	5	36	7	5	12	2	1	55	27	14	41	74.5%	9
Eagle River	AK	8	5	1	3	1	0	1	1	0	8	7	0	7	87.5%	1
Edna Bay	AK	17	9	0	12	1	0	8	1	1	17	11	0	11	64.7%	1
Eek	AK	8	3	0	5	3	0	2	0	0	8	6	0	6	75.0%	0
Egegik	AK															
Elfin Cove	AK	15	8	4	3	0	0	3	1	0	15	9	0	9	60.0%	4
Emmonak	AK															
Fairbanks	AK															
False Pass	AK	11	3	0	8	0	0	8	0	0	11	3	0	3	27.3%	0
Gustavus	AK	52	34	0	21	7	0	13	4	0	52	45	0	45	86.5%	0
Haines	AK	437	269	10	188	53	2	118	29	2	437	351	1	352	80.5%	14
Homer	AK	20	5	4	12	2	0	9	1	0	20	8	0	8	40.0%	4
Hoonah	AK	182	79	5	100	18	1	84	20	1	182	117	1	118	64.8%	7
Hydaburg	AK	81	16	1	70	3	0	61	5	1	81	24	0	24	29.6%	2
Hyder	AK	19	10	1	8	6	0	6	0	0	19	16	0	16	84.2%	1
Juneau	AK	275	84	29	177	23	16	133	8	3	275	115	1	116	42.2%	46
Kake	AK	101	56	2	49	9	1	36	4	0	101	69	0	69	68.3%	2
Karluk	AK	12	4	0	8	2	0	6	0	0	12	6	0	6	50.0%	0
Kasaan	AK	8	4	2	2	0	1	1	1	0	8	5	0	5	62.5%	3
Kasilof	AK	14	6	2	6	0	0	6	0	0	14	6	0	6	42.9%	2
Kenai	AK	84	27	7	56	12	1	44	7	2	84	46	0	46	54.8%	10
Ketchikan	AK	485	162	55	284	54	9	209	20	8	485	236	2	238	49.1%	72
King Cove	AK	50	25	2	27	5	1	18	0	0	50	30	0	30	60.0%	2
King Salmon	AK															
Kipnuk	AK															
Klawock	AK	167	72	8	92	16	4	70	9	1	167	97	0	97	58.1%	13
Kodiak	AK	1,180	634	71	546	107	12	375	61	18	1,180	802	1	803	68.1%	100
Kongiganak	AK															

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Table 3.–Page 6 of 7.

City of residence	State of residence	First mailing: Surveys mailed	First mailing: Surveys returned	First mailing: Surveys returned undeliverable	Second mailing: Surveys mailed	Second mailing: Surveys returned	Second mailing: Surveys returned undeliverable	Third mailing: Surveys mailed	Third mailing: Surveys returned	Third mailing: Surveys returned undeliverable	Totals: SHARCs issued	Totals: Returned by mail	Totals: Returned through staff	Totals: Response	Totals: Response rate	Totals: Undeliverable
Kwigillingok	AK															
Larsen Bay	AK	40	17	0	27	6	2	15	3	1	40	26	0	26	65.0%	3
Manokotak	AK															
Mekoryuk	AK															
Metlakatla	AK	149	38	0	123	8	2	102	1	1	149	47	0	47	31.5%	3
Meyers Chuck	AK	10	9	0	3	0	0	2	0	0	10	9	0	9	90.0%	0
Naknek	AK	8	3	0	5	1	0	4	0	0	8	4	0	4	50.0%	0
Nanwalek	AK	46	10	0	37	10	0	27	4	0	46	24	0	24	52.2%	0
Naukati Bay	AK	19	8	0	11	8	0	4	2	0	19	18	0	18	94.7%	0
Nikiski	AK	6	1	0	5	0	0	5	1	0	6	2	0	2	33.3%	0
Ninilchik	AK	17	6	0	11	2	0	9	1	0	17	9	0	9	52.9%	0
Nome	AK	18	7	0	12	4	0	8	4	0	18	15	0	15	83.3%	0
North Pole	AK															
Nunapitchuk	AK															
Old Harbor	AK	28	12	0	16	0	0	16	3	0	28	15	0	15	53.6%	0
Ouzinkie	AK	18	10	0	9	2	0	8	0	0	18	12	0	12	66.7%	0
Palmer	AK															
Pelican	AK	27	12	0	19	7	0	10	1	0	27	20	0	20	74.1%	0
Perryville	AK	13	5	0	8	2	0	6	0	0	13	7	0	7	53.8%	0
Petersburg	AK	788	499	18	328	85	3	207	47	1	788	631	1	632	80.2%	20
Point Baker	AK	14	9	1	4	0	0	4	2	0	14	11	0	11	78.6%	1
Port Alexander	AK	23	16	1	8	2	0	4	1	0	23	19	0	19	82.6%	1
Port Graham	AK	34	11	2	21	6	0	16	0	1	34	17	0	17	50.0%	3
Port Lions	AK	29	16	0	17	4	0	11	2	0	29	22	0	22	75.9%	0
Port Protection	AK															
Prudhoe Bay	AK															
St. George Island	AK															
St. Paul Island	AK	30	4	1	26	2	0	23	0	0	30	6	0	6	20.0%	1
Sand Point	AK	303	50	23	232	11	2	219	3	3	303	64	0	64	21.1%	27
Savoonga	AK															
Saxman	AK															
Seldovia	AK	128	70	7	58	15	1	36	13	0	128	98	0	98	76.6%	8
Seward	AK	7	2	0	5	2	0	3	0	0	7	4	0	4	57.1%	0
Sitka	AK	1,335	677	116	609	122	25	409	48	15	1,337	847	127	974	72.8%	152
Skagway	AK	61	30	4	33	10	0	20	8	0	61	48	0	48	78.7%	4
Soldotna	AK	46	18	5	29	12	0	14	0	0	46	30	0	30	65.2%	5
South Naknek	AK															
Stebbins	AK															
Sterling	AK	5	1	1	3	0	0	3	1	0	5	2	0	2	40.0%	1
Sutton	AK															
Tatitlek	AK	10	3	0	8	0	0	7	1	0	10	4	0	4	40.0%	0
Tenakee Springs	AK	43	34	0	14	2	0	8	2	0	43	38	0	38	88.4%	0
Thorne Bay	AK	122	79	4	48	21	1	22	4	2	122	104	0	104	85.2%	7
Togiak	AK															
Toksook Bay	AK	20	6	0	14	1	0	13	0	0	104	7	38	45	43.3%	0
Tununak	AK	6	0	0	6	1	0	5	0	0	65	1	41	42	64.6%	0

-continued-

Table 3.–Page 7 of 7.

City of residence	State of residence	First mailing: Surveys mailed	First mailing: Surveys returned	First mailing: Surveys returned undeliverable	Second mailing: Surveys mailed	Second mailing: Surveys returned	Second mailing: Surveys returned undeliverable	Third mailing: Surveys mailed	Third mailing: Surveys returned	Third mailing: Surveys returned undeliverable	Totals: SHARCs issued	Totals: Returned by mail	Totals: Returned through staff	Totals: Response	Totals: Response rate	Totals: Undeliverable
Unalakleet	AK															
Unalaska	AK	87	38	3	48	3	1	31	1	0	87	42	13	55	63.2%	4
Valdez	AK	22	7	2	14	3	0	11	2	0	22	12	0	12	54.5%	2
Ward Cove	AK	42	12	9	25	5	3	16	1	1	42	18	0	18	42.9%	11
Wasilla	AK	30	6	7	18	4	2	11	1	0	30	11	0	11	36.7%	9
Whale Pass	AK															
Willow	AK															
Wrangell	AK	508	304	18	210	64	8	133	27	2	508	395	1	396	78.0%	28
Yakutat	AK	103	43	3	65	11	0	47	7	0	103	61	0	61	59.2%	3
Subtotal, Alaska		**8,732**	**4,236**	**515**	**4,454**	**910**	**127**	**3,117**	**442**	**87**	**8,878**	**5,588**	**254**	**5,842**	**65.8%**	**708**
Subtotal, non-Alaska		**47**	**13**	**11**	**28**	**5**	**5**	**15**	**2**	**0**	**47**	**20**	**0**	**20**	**42.6%**	**15**
City grand total		**8,779**	**4,249**	**526**	**4,482**	**915**	**132**	**3,132**	**444**	**87**	**8,925**	**5,608**	**254**	**5,862**	**65.7%**	**723**

Note To protect confidentiality, data for tribes and communities with 5 or fewer SHARCs issued are not reported in this table. Subtotals include all tribes and communities.

Table 4.–Estimated subsistence harvests of halibut, by SHARC type and regulatory area, 2016.

SHARC type[a]	Regulatory area	Return rate			Subsistence fished halibut		Subsistence halibut harvest		Sport fished halibut		Sport halibut harvest	
		SHARCs issued[b]	Surveys returned	Percent	Estimated number respondents	Percent of SHARCs	Estimated number fish	Estimated number pounds[d]	Estimated number respondents	Percent of SHARCs	Estimated number fish	Estimated number pounds[d]
Tribal[c]	2C	1,748	837	47.9%	690	39.5%	6,767	145,842	316	18.1%	1,077	19,226
Tribal	3A	696	383	55.0%	287	41.2%	3,087	53,620	122	17.5%	459	8,111
Tribal	3B	406	116	28.6%	162	39.9%	650	13,072	17	4.2%	59	978
Tribal	4A	33	22	66.7%	15	46.5%	64	2,012	5	14.8%	3	146
Tribal	4B	3		0.0%	0	0.0%	0	0		0.0%		
Tribal	4C	31	7	22.6%	19	62.4%	276	3,687	7	22.0%	4	90
Tribal	4D	3	2	66.7%	0	0.0%	0	0	0	0.0%	0	0
Tribal	4E	251	133	53.0%	178	70.9%	3,121	38,017	12	4.8%	67	980
Subtotal, tribal		**3,171**	**1,500**	**47.3%**	**1,352**	**42.6%**	**13,964**	**256,249**	**479**	**15.1%**	**1,668**	**29,531**
Rural[c]	2C	3,826	2,982	77.9%	2,028	53.0%	13,108	292,752	1,004	26.2%	3,408	65,498
Rural	3A	1,713	1,226	71.6%	931	54.3%	9,063	165,327	598	34.9%	2,592	46,022
Rural	3B	35	29	82.9%	17	48.1%	152	2,613	8	24.2%	14	189
Rural	4A	121	83	68.6%	55	45.6%	310	6,674	34	27.8%	126	3,298
Rural	4B	2	2	100.0%	0	0.0%	0	0	0	0.0%	0	0
Rural	4C	6	3	50.0%	6	100.0%	51	857	0	0.0%	0	0
Rural	4D	0	0	0.0%	0	0.0%	0	0	0	0.0%	0	0
Rural	4E	51	37	72.5%	20	38.3%	167	2,706	4	8.6%	6	100
Subtotal, rural		**5,754**	**4,362**	**75.8%**	**3,056**	**53.1%**	**22,851**	**470,929**	**1,648**	**28.6%**	**6,146**	**115,108**
All[c]	2C	5,574	3,819	68.5%	2,718	48.8%	19,875	438,594	1,320	23.7%	4,485	84,724
All	3A	2,409	1,609	66.8%	1,218	50.5%	12,150	218,947	720	29.9%	3,051	54,133
All	3B	441	145	32.9%	179	40.6%	801	15,684	25	5.8%	73	1,166
All	4A	154	105	68.2%	70	45.8%	374	8,686	39	25.0%	129	3,444
All	4B	5	2	40.0%	0	0.0%	0	0	0	0.0%	0	0
All	4C	37	10	27.0%	25	68.5%	327	4,544	7	18.5%	4	90
All	4D	3	2	66.7%	0	0.0%	0	0	0	0.0%	0	0
All	4E	302	170	56.3%	197	65.4%	3,288	40,723	16	5.4%	72	1,081
Total		**8,925**	**5,862**	**65.7%**	**4,408**	**49.4%**	**36,815**	**727,178**	**2,127**	**23.8%**	**7,814**	**144,638**

Source ADF&G Division of Subsistence SHARC surveys, 2017.

a. Subsistence Halibut Registration Certificate (SHARC).

b. Includes all individuals who held SHARCs for at least a portion of 2016 plus potential subsistence fishers who did not hold SHARCs in selected communities.

c. "Tribal" includes individuals who obtained SHARCs as members of an eligible tribe, sorted by location of tribal headquarters. "Rural" includes individuals who obtained SHARCs as residents of an eligible rural community. "All" is the sum of tribal and rural SHARC holders for a regulatory area based on location of tribal headquarters or rural community. Because some SHARC holders may fish in regulatory areas other than the location of the area of their tribal headquarters or rural residence, area totals in this table differs lightly from those in tables 5 and 6.

d. Pounds net (dressed) weight = 75% of round (whole) weight.

Table 5.–Estimated subsistence harvests of halibut in number of fish and pounds net (dressed, head off) weight, by regulatory area and subarea, 2016.

			Estimated subsistence harvest by gear type									Estimated sport harvest		
			Setline gear[a]			Hand-operated gear[a]			All gear					
Subarea	Regulatory area	Number of SHARCs subsistence fished[c]	Estimated number respondents fished[c]	Estimated number halibut harvested	Estimated pounds halibut harvested[b]	Estimated number respondents fished[c]	Estimated number halibut harvested	Estimated pounds halibut harvested[b]	Estimated number respondents fished[c]	Estimated number halibut harvested	Estimated pounds halibut harvested[b]	Estimated number respondents fished[c]	Estimated number halibut harvested	Estimated pounds halibut harvested[b]
Southern Southeast Alaska	2C	1450	1,230	8,335	196,329	553	2,162	42,987	1,450	10,497	239,316	808	2,809	53,352
Sitka LAMP Area	2C	668	619	3,750	87,378	184	488	9,523	668	4,238	96,901	241	651	13,613
Northern Southeast Alaska	2C	674	609	4,138	84,459	181	804	15,788	674	4,941	100,247	308	968	17,704
	2C Totals	**2,706**	**2,386**	**16,222**	**368,166**	**878**	**3,454**	**68,298**	**2,706**	**19,676**	**436,464**	**1,311**	**4,428**	**84,668**
Yakutat Area	3A	92	74	786	17,363	40	265	5,733	92	1,051	23,096	42	153	2,916
Prince William Sound	3A	245	208	1,458	25,540	114	384	7,151	245	1,842	32,690	139	318	6,183
Cook Inlet	3A	205	126	1,907	28,630	138	1,300	17,013	205	3,206	45,643	116	564	6,709
Kodiak Island–road system	3A	446	388	2,599	51,000	191	705	12,841	446	3,304	63,841	339	1,396	26,106
Kokiak Island–other	3A	446	353	2,290	40,672	215	751	16,512	446	3,040	57,184	251	742	13,456
	3A Totals	**1,287**	**1,010**	**9,040**	**163,204**	**624**	**3,404**	**59,250**	**1,287**	**12,443**	**222,454**	**775**	**3,173**	**55,370**
Chignik Area	3B	18	17	66	1,177	9	26	573	18	92	1,750	5	1	24
Lower Alaska Peninsula	3B	149	64	229	3,945	120	435	8,547	149	664	12,492	19	66	971
	3B Totals	**166**	**81**	**296**	**5,122**	**128**	**461**	**9,119**	**166**	**756**	**14,242**	**23**	**67**	**995**
Eastern Aleutians–east	4A	63	50	225	4,889	25	93	2,539	63	318	7,429	33	88	2,459
Eastern Aleutians–west	4A	10	7	19	461	6	7	165	10	26	626	6	9	415
	4A Totals	**69**	**54**	**244**	**5,350**	**29**	**100**	**2,704**	**69**	**344**	**8,054**	**34**	**97**	**2,874**
Western Aleutians–east	4B	2	2	10	294	0	0	0	2	10	294	0	0	0
	4B Totals	**2**	**2**	**10**	**294**	**0**	**0**	**0**	**2**	**10**	**294**	**0**	**0**	**0**
St. George Island	4C	6	3	5	113	6	16	257	6	21	370	0	0	0
St. Paul Island	4C	22	13	189	2,077	18	102	1,853	22	291	3,930	5	0	0
	4C Totals	**25**	**13**	**194**	**2,190**	**21**	**118**	**2,110**	**25**	**312**	**4,300**	**5**	**0**	**0**
	4D Totals	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Bristol Bay	4E	11	11	35	395	6	8	101	11	42	496	1	0	0
Yukon–Kuskokwim Delta	4E	180	16	91	1,910	174	3,055	37,441	180	3,145	39,351	5	49	732
Norton Sound	4E	7	7	86	1,522	0	0	0	7	86	1,522	0	0	0
	4E Totals	**199**	**35**	**211**	**3,827**	**179**	**3,062**	**37,542**	**199**	**3,274**	**41,370**	**6**	**49**	**732**
Grand total		**4,408**	**3,545**	**26,216**	**548,153**	**1,831**	**10,598**	**179,025**	**4,408**	**36,815**	**727,178**	**2,127**	**7,814**	**144,638**

Source ADF&G Division of Subsistence, SHARC surveys, 2017.

a. "Setline" = longline or skate. "Hand-operated gear" = rod and reel, or handline.

b. Weights given are "net weight." Pounds net (dressed, head off) weight = 75% of round (whole) weight.

c. Because fishers may fish in more than one area, subtotals for regulatory areas and the state total might exceed the sum of the subarea values.

Table 6.–Alaska subsistence halibut harvests, by geographic area fished, 2003–2012, 2014, and 2016.

	Subsistence halibut harvests, net weight (pounds)												Percent change between years		Percentage of state total									
Geographic area	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2014	2016	2014 to 2016	11-year average to 2016	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2014	2016
Southern Southeast Alaska	290,443	369,319	328,658	307,921	283,422	254,510	262,046	254,366	204,062	237,905	239,976	239,316	-0.3%	-13.2%	27.9%	31.0%	27.9%	27.4%	27.5%	28.7%	30.4%	31.9%	29.2%	34.6%	31.6%	32.9%
Sitka LAMP Area	173,323	147,312	133,545	147,526	132,190	104,973	89,812	76,988	83,436	74,514	81,193	96,901	19.3%	-14.4%	16.6%	12.3%	11.3%	13.1%	12.8%	11.8%	10.4%	9.7%	12.0%	10.8%	10.7%	13.3%
Northern Southeast Alaska	159,772	160,453	135,869	124,670	109,286	98,877	105,139	93,464	99,470	83,624	101,802	100,247	-1.5%	-13.3%	15.3%	13.4%	11.5%	11.1%	10.6%	11.1%	12.2%	11.7%	14.3%	12.2%	13.4%	13.8%
Subtotal, Area 2C	**623,538**	**677,084**	**598,072**	**580,117**	**524,897**	**458,360**	**456,997**	**424,818**	**386,967**	**396,043**	**422,971**	**436,464**	**3.2%**	**-13.5%**	**59.9%**	**56.7%**	**50.8%**	**51.6%**	**50.8%**	**51.7%**	**53.1%**	**53.3%**	**55.5%**	**57.6%**	**55.6%**	**60.0%**
Yakutat Area	11,198	20,153	36,515	19,187	17,516	16,084	14,390	18,064	15,762	20,113	12,082	23,096	91.2%	26.4%	1.1%	1.7%	3.1%	1.7%	1.7%	1.8%	1.7%	2.3%	2.3%	2.9%	1.6%	3.2%
Prince William Sound	28,409	58,429	68,063	47,965	52,407	47,112	33,796	42,279	32,822	27,873	43,805	32,690	-25.4%	-25.5%	2.7%	4.9%	5.8%	4.3%	5.1%	5.3%	3.9%	5.3%	4.7%	4.1%	5.8%	4.5%
Cook Inlet	52,609	83,939	79,024	59,965	75,623	76,795	81,043	65,809	60,337	65,100	50,365	45,643	-9.4%	-33.1%	5.1%	7.0%	6.7%	5.3%	7.3%	8.7%	9.4%	8.3%	8.6%	9.5%	6.6%	6.3%
Kodiak Island–road system	114,028	129,145	134,849	140,388	130,538	96,872	108,049	103,066	79,907	72,516	71,538	63,841	-10.8%	-40.5%	11.0%	10.8%	11.4%	12.5%	12.6%	10.9%	12.5%	12.9%	11.5%	10.6%	9.4%	8.8%
Kodiak Island–other	79,256	111,944	110,824	111,752	96,206	100,540	91,202	83,432	77,276	67,914	63,578	57,184	-10.1%	-36.7%	7.6%	9.4%	9.4%	9.9%	9.3%	11.3%	10.6%	10.5%	11.1%	9.9%	8.4%	7.9%
Subtotal, Area 3A	**285,500**	**403,610**	**429,275**	**379,258**	**372,289**	**337,403**	**328,480**	**312,650**	**266,104**	**253,516**	**241,369**	**222,454**	**-7.8%**	**-32.2%**	**27.4%**	**33.8%**	**36.4%**	**33.7%**	**36.1%**	**38.0%**	**38.1%**	**39.2%**	**38.1%**	**36.9%**	**31.7%**	**30.6%**
Chignik Area	10,500	12,053	14,783	17,780	15,397	11,842	5,889	5,857	3,621	2,795	1,577	1,750	11.0%	-81.1%	1.0%	1.0%	1.3%	1.6%	1.5%	1.3%	0.7%	0.7%	0.5%	0.4%	0.2%	0.2%
Lower Alaska Peninsula	16,977	21,467	31,442	30,767	32,351	30,406	19,603	17,152	18,390	13,164	11,801	12,492	5.9%	-43.6%	1.6%	1.8%	2.7%	2.7%	3.1%	3.4%	2.3%	2.2%	2.6%	1.9%	1.6%	1.7%
Subtotal, Area 3B	**27,477**	**33,519**	**46,225**	**48,547**	**47,748**	**42,248**	**25,492**	**23,009**	**22,011**	**15,959**	**13,378**	**14,242**	**6.5%**	**-54.7%**	**2.6%**	**2.8%**	**3.9%**	**4.3%**	**4.6%**	**4.8%**	**3.0%**	**2.9%**	**3.2%**	**2.3%**	**1.8%**	**2.0%**
Eastern Aleutians–east	19,345	26,715	33,882	25,993	12,753	19,043	33,090	13,343	12,816	9,061	7,647	7,429	-2.9%	-61.8%	1.9%	2.2%	2.9%	2.3%	1.2%	2.1%	3.8%	1.7%	1.8%	1.3%	1.0%	1.0%
Eastern Aleutians–west	1,852	2,162	1,734	1,069	2,193	509	409	1,205	790	482	80	626	678.9%	-44.9%	0.2%	0.2%	0.1%	0.1%	0.2%	0.1%	0.0%	0.2%	0.1%	0.1%	0.0%	0.1%
Subtotal, Area 4A	**21,197**	**28,877**	**35,615**	**27,062**	**14,946**	**19,553**	**33,499**	**14,548**	**13,606**	**9,543**	**7,727**	**8,054**	**4.2%**	**-60.8%**	**2.0%**	**2.4%**	**3.0%**	**2.4%**	**1.4%**	**2.2%**	**3.9%**	**1.8%**	**2.0%**	**1.4%**	**1.0%**	**1.1%**
Western Aleutians–east	2,582	916	1,351	2,761	1,997	4,737	1,175	450	537	1,698	254	294	15.5%	-82.5%	0.2%	0.1%	0.1%	0.2%	0.2%	0.5%	0.1%	0.1%	0.1%	0.2%	0.0%	0.0%
Subtotal, Area 4B	**2,582**	**916**	**1,351**	**2,761**	**1,997**	**4,737**	**1,175**	**450**	**537**	**1,698**	**254**	**294**	**15.5%**	**-82.5%**	**0.2%**	**0.1%**	**0.1%**	**0.2%**	**0.2%**	**0.5%**	**0.1%**	**0.1%**	**0.1%**	**0.2%**	**0.0%**	**0.0%**
St. George Island	2,042	1,823	2,145	3,443	3,736	1,150	700	720	490	0	0	370		-75.0%	0.2%	0.2%	0.2%	0.3%	0.4%	0.1%	0.1%	0.1%	0.1%	0.0%	0.0%	0.1%
St. Paul Island	20,839	7,911	5,571	5,085	11,342	4,507	5,623	10,139	1,158	1,176	3,389	3,930	16.0%	-43.7%	2.0%	0.7%	0.5%	0.5%	1.1%	0.5%	0.7%	1.3%	0.2%	0.2%	0.4%	0.5%
Subtotal, Area 4C	**22,881**	**9,734**	**7,716**	**8,527**	**15,077**	**5,657**	**6,323**	**10,859**	**1,648**	**1,176**	**3,389**	**4,300**	**26.9%**	**-49.1%**	**2.2%**	**0.8%**	**0.7%**	**0.8%**	**1.5%**	**0.6%**	**0.7%**	**1.4%**	**0.2%**	**0.2%**	**0.4%**	**0.6%**
St. Lawrence Island	4,380	10,923	5,848	8,297	3,204	3,131	644	1,171	615	672	54	0	-100.0%	-100.0%	0.4%	0.9%	0.5%	0.7%	0.3%	0.4%	0.1%	0.1%	0.1%	0.1%	0.0%	0.0%
Subtotal, Area 4D	**4,380**	**10,923**	**5,848**	**8,297**	**3,204**	**3,131**	**644**	**1,171**	**615**	**672**	**54**	**0**	**-100.0%**	**-100.0%**	**0.4%**	**0.9%**	**0.5%**	**0.7%**	**0.3%**	**0.4%**	**0.1%**	**0.1%**	**0.1%**	**0.1%**	**0.0%**	**0.0%**
Bristol Bay	435	203	2,169	1,336	2,116	84	0	0	403	329	1,160	496	-57.2%	-33.8%	0.0%	0.0%	0.2%	0.1%	0.2%	0.0%	0.0%	0.0%	0.1%	0.0%	0.2%	0.1%
Yukon–Kuskokwim Delta	53,284	28,298	51,950	69,407	50,019	14,669	7,468	9,484	5,283	7,239	69,765	39,351	-43.6%	18.0%	5.1%	2.4%	4.4%	6.2%	4.8%	1.7%	0.9%	1.2%	0.8%	1.1%	9.2%	5.4%
Norton Sound	56	0	0	0	0	1,145	1,281	571	482	816	403	1,522	277.9%	252.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.2%
Subtotal, Area 4E	**53,775**	**28,501**	**54,119**	**70,743**	**52,135**	**15,898**	**8,749**	**10,055**	**6,168**	**8,384**	**71,327**	**41,370**	**-42.0%**	**19.8%**	**5.2%**	**2.4%**	**4.6%**	**6.3%**	**5.1%**	**1.8%**	**1.0%**	**1.3%**	**0.9%**	**1.2%**	**9.4%**	**5.7%**
Total[a]	**1,041,330**	**1,193,162**	**1,178,222**	**1,125,312**	**1,032,293**	**886,988**	**861,359**	**797,560**	**697,656**	**686,991**	**760,469**	**727,178**	**-4.4%**	**-22.0%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

a. The sum of the harvests by geographic areas for 2003 reported here differs slightly from that reported in Table 8 in Fall et al. (2004:50) due to rounding.

Table 7.–Number of hooks usually fished, setline (stationary) gear, Alaska halibut subsistence fishery, 2016.

Regulatory area	SHARC holders		Number of hooks[b]																															Total[a]
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	Missing	
2C	No.	5,574	5	7	5	4	10	6	1	6	0	109	1	35	17	14	425	5	0	13	0	330	2	6	2	15	187	41	15	106	38	924	64	2,395
	Pct.		0.2	0.3	0.2	0.2	0.4	0.3	0.1	0.3	0.0	4.5	0.1	1.5	0.7	0.6	17.8	0.2	0.0	0.5	0.0	13.8	0.1	0.2	0.1	0.6	7.8	1.7	0.6	4.4	1.6	38.6	2.7	
3A	No.	2,409	5	1	1	6	3	3	0	0	1	38	2	18	0	0	33	1	0	4	0	181	3	0	0	11	101	3	7	41	13	469	24	969
	Pct.		0.5	0.1	0.1	0.6	0.3	0.3	0.0	0.0	0.1	4.0	0.2	1.8	0.0	0.0	3.4	0.1	0.0	0.4	0.0	18.6	0.3	0.0	0.0	1.1	10.4	0.3	0.7	4.2	1.4	48.4	2.5	
3B	No.	441	17	0	0	0	0	0	0	2	0	0	0	0	0	0	1	0	0	0	0	12	0	0	0	0	2	0	0	1	0	25	22	81
	Pct.		20.6	0.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0	0.0	0.0	0.0	14.9	0.0	0.0	0.0	0.0	2.0	0.0	0.0	1.6	0.0	31.0	26.6	
4A	No.	154	0	0	0	0	0	0	0	0	0	1	0	0	0	0	3	0	0	1	0	11	0	0	0	1	1	0	0	1	0	26	9	56
	Pct.		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.6	0.0	0.0	0.0	0.0	5.2	0.0	0.0	2.6	0.0	20.4	0.0	0.0	0.0	2.6	2.1	0.0	0.0	2.6	0.0	45.7	16.0	
4B	No.	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Pct.																																	
4C	No.	37	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	5	13
	Pct.		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	61.8	38.2	
4D	No.	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Pct.																																	
4E	No.	302	1	4	0	1	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	2	0	0	0	0	1	0	0	0	0	13	8	32
	Pct.		3.1	12.4	0.0	3.5	0.0	0.0	0.0	0.0	0.0	6.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.5	0.0	0.0	0.0	0.0	3.9	0.0	0.0	0.0	0.0	40.1	24.3	
Alaska	No.	8,925	28	12	6	11	13	9	1	8	1	151	3	53	17	14	462	7	0	19	0	536	5	6	2	27	292	43	21	150	52	1,465	132	3,545
	Pct.		0.8	0.3	0.2	0.3	0.4	0.2	0.0	0.2	0.0	4.2	0.1	1.5	0.5	0.4	13.0	0.2	0.0	0.5	0.0	15.1	0.1	0.2	0.0	0.8	8.2	1.2	0.6	4.2	1.5	41.3	3.7	

Source ADF&G Division of Subsistence, SHARC surveys, 2017.

a. Number of fishers using setline (fixed) gear. Based on location of tribe or rural community of SHARC holder.

b. The column for 30 hooks includes those fishers who reported using more than 30. There is no 30-hook limit in Areas 4C, 4D, or 4E.

Table 8.–Average net weight of subsistence and sport halibut harvests, by regulatory area fished, 2016.

	Subsistence methods			Sport harvest[a]			Total halibut			
Area[b]	Number	Net weight (lb)	Average per fish	Number	Net weight (lb)	Average per fish	Number	Net weight (lb)	Average per fish	Percentage of sport harvest
2C	19,676	436,464	22.2	4,428	84,668	19.1	24,104	521,132	21.6	58.5%
3A	12,443	222,454	17.9	3,173	55,370	17.5	15,616	277,824	17.8	38.3%
3B	756	14,242	18.8	67	995	14.8	824	15,237	18.5	0.7%
4A	344	8,054	23.4	97	2,874	29.7	441	10,928	24.8	2.0%
4B	10	294	30.8	0	0		10	294	30.8	0.0%
4C	312	4,300	13.8	0	0		312	4,300	13.8	0.0%
4D	0	0		0	0		0	0		0.0%
4E	3,274	41,370	12.6	49	732	15.0	3,322	42,101	12.7	0.5%
Alaska	**36,815**	**727,178**	**19.8**	**7,814**	**144,638**	**18.5**	**44,629**	**871,816**	**19.5**	**100.0%**

Source ADF&G Division of Subsistence, SHARC surveys, 2017.

a. Sport harvest of halibut by SHARC holders.

b. Area totals are based on the location of the harvest (see also tables 5 and 6).

Table 9.–Estimated harvests of halibut by gear type and participation, subsistence and sport fisheries, selected Alaska communities, 2003–2012, 2014, and 2016.

			Subsistence harvests									
			Setline (fixed) gear		Hand-operated gear		Total subsistence		Sport harvest[d]		All harvests	
Community[a]	Year	Number of SHARC holders[b]	Estimated number fished	Estimated pounds harvested	Estimated number fished	Estimated pounds harvested	Estimated number fished	Estimated pounds harvested	Estimated number fished	Estimated pounds harvested	Estimated number fished	Estimated pounds harvested
Akutan	2003	50	7	231	36	9,381	39	9,612	12	450	42	10,062
	2004	50	0	0	36	11,239	36	11,239	9	945	41	12,184
	2005	49	11	1,242	42	13,769	47	15,011	17	273	47	15,284
	2006	47	5	1,008	38	11,404	38	12,412	5	367	38	12,779
	2007	46	3	431	16	3,173	16	3,603	0	0	16	3,603
	2008	17	7	2,186	11	3,843	13	6,029	3	1,834	13	7,863
	2009	17	5	1,733	7	1,260	9	2,993	0	0	9	2,993
	2010	16	3	147	9	1,512	9	1,659	0	0	9	1,659
	2011	16	4	630	7	945	7	1,575	0	0	7	1,575
	2012	6										
	2014	5										
	2016	6	2	350	2	560	3	910	0	0	3	910
Cordova	2003	358	68	7,613	40	7,885	102	15,498	144	11,534	194	27,032
	2004	526	174	29,693	97	10,946	262	40,640	174	12,149	325	52,789
	2005	602	238	34,907	104	12,234	281	47,141	179	10,519	358	57,660
	2006	607	202	21,059	125	7,968	248	29,027	152	7,020	301	36,047
	2007	615	233	21,683	128	7,033	282	28,716	123	4,203	315	32,919
	2008	587	231	22,301	95	5,246	254	27,547	126	5,562	292	33,109
	2009	599	201	17,766	103	5,598	234	23,364	118	3,868	269	27,232
	2010	557	207	22,579	121	5,849	235	28,428	106	5,837	261	34,265
	2011	529	175	17,023	79	4,765	198	21,789	175	3,029	228	24,818
	2012	470	185	16,105	75	3,312	202	19,417	95	3,017	227	22,434
	2014	450	175	21,346	97	9,858	197	31,204	95	4,827	242	36,031
	2016	426	168	19,788	96	6,513	198	26,301	106	4,236	245	30,537
Kodiak	2003	1,320	438	101,575	278	51,678	646	153,254	498	68,170	858	221,424
	2004	1,561	554	131,719	335	55,605	802	187,214	581	73,181	971	260,395
	2005	1,741	650	146,781	398	64,047	871	210,828	669	82,455	1,116	293,283
	2006	1,716	684	142,326	497	63,496	961	205,822	562	64,320	1,092	270,142
	2007	1,880	707	135,351	486	58,282	945	193,633	648	68,556	1,157	262,189
	2008	1,725	763	128,226	479	49,108	963	177,334	693	72,915	1,213	250,249
	2009	1,826	749	130,802	433	46,966	923	177,769	619	64,034	1,139	241,803
	2010	1,702	747	127,816	374	36,275	900	164,092	539	47,646	1,074	211,738
	2011	1,660	686	106,609	378	31,739	837	138,348	513	45,725	1,009	184,073

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Table 9.–Page 2 of 4.

Community[a]	Year	Number of SHARC holders[b]	Subsistence harvests: Setline (fixed) gear: Estimated number fished	Setline (fixed) gear: Estimated pounds harvested	Hand-operated gear: Estimated number fished	Hand-operated gear: Estimated pounds harvested	Total subsistence: Estimated number fished	Total subsistence: Estimated pounds harvested	Sport harvest[d]: Estimated number fished	Sport harvest[d]: Estimated pounds harvested	All harvests: Estimated number fished	All harvests: Estimated pounds harvested
	2012	1,503	619	93,417	345	32,403	769	125,820	499	44,041	967	169,861
	2014	1,375	653	89,773	321	28,350	763	118,123	460	31,744	943	149,867
	2016	1,180	548	86,565	250	21,563	627	108,127	439	35,883	810	144,010
Petersburg	2003	1,047	330	41,704	138	14,013	415	55,718	268	19,611	523	75,329
	2004	1,187	322	53,885	206	17,900	482	71,784	351	26,408	617	98,192
	2005	1,197	338	44,050	175	17,321	436	61,372	312	23,289	569	84,661
	2006	1,082	300	35,608	222	18,075	426	53,682	246	17,351	529	71,033
	2007	1,123	274	32,026	191	15,491	386	47,517	264	15,177	516	62,694
	2008	985	285	31,077	207	15,523	393	46,600	279	17,506	515	64,106
	2009	1,041	323	30,105	224	16,661	418	46,766	247	13,619	513	60,385
	2010	961	323	33,951	209	13,315	409	47,266	256	13,251	501	60,517
	2011	976	271	27,775	194	12,312	370	40,087	209	13,096	459	53,183
	2012	917	315	34,066	175	10,845	383	44,912	263	14,936	510	59,848
	2014	863	289	34,161	189	14,214	375	48,375	242	16,021	495	64,396
	2016	788	255	32,167	145	11,870	338	44,037	227	14,414	453	58,451
Port Graham	2003	52	10	4,398	28	7,056	35	11,454	3	156	36	11,610
	2004	57	15	4,425	31	4,755	42	9,181	11	850	42	10,031
	2005	52	8	7,938	18	3,190	18	11,127	9	488	18	11,615
	2006	50	9	2,397	24	3,797	30	6,194	2	0	30	6,194
	2007	59	22	5,347	28	3,146	36	8,493	4	233	36	8,726
	2008	48	13	6,896	23	2,200	30	9,097	2	51	30	9,148
	2009	47	22	1,454	31	4,973	35	6,426	9	197	35	6,623
	2010	47	23	5,011	18	2,211	30	7,222	5	267	30	7,489
	2011	46	13	2,569	9	1,059	15	3,638	0	0	15	3,638
	2012	32	10	1,677	11	1,783	18	3,460	5	44	19	3,503
	2014	34	12	1,935	9	650	15	2,585	5	155	17	2,739
	2016	34	14	7,964	16	1,548	23	9,512	7	469	23	9,981
Sand Point	2003	73	15	3,409	11	1,410	21	4,819	11	410	21	5,229
	2004	351	25	4,360	74	6,996	109	11,355	50	1,384	121	12,739
	2005	321	35	12,201	77	9,700	100	21,901	23	1,281	105	23,182
	2006	365	59	7,406	87	12,809	133	20,214	29	6,300	140	26,514
	2007	364	49	13,278	113	11,337	138	24,615	16	3,034	138	27,649

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Table 9.–Page 3 of 4.

Community[a]	Year	Number of SHARC holders[b]	Subsistence harvests: Setline (fixed) gear: Estimated number fished	Setline (fixed) gear: Estimated pounds harvested	Hand-operated gear: Estimated number fished	Hand-operated gear: Estimated pounds harvested	Total subsistence: Estimated number fished	Total subsistence: Estimated pounds harvested	Sport harvest[d]: Estimated number fished	Sport harvest[d]: Estimated pounds harvested	All harvests: Estimated number fished	All harvests: Estimated pounds harvested
	2008	342	71	15,766	88	9,247	130	25,013	19	2,195	132	27,208
	2009	137	28	3,987	58	7,772	70	11,759	19	2,665	70	14,424
	2010	130	22	3,408	50	3,898	61	7,306	18	1,129	67	8,435
	2011	136	51	7,358	74	6,039	85	13,397	23	1,243	87	14,640
	2012	136	30	3,401	46	2,307	61	5,708	32	1,280	75	6,989
	2014	139	33	4,046	37	2,341	64	6,387	3	0	64	6,387
	2016	303	38	1,218	93	6,468	108	7,686	4	324	108	8,010
Sitka	2003	1,639	760	155,276	160	19,604	821	174,880	401	32,408	956	207,288
	2004	1,871	714	151,660	147	14,739	904	166,474	412	25,829	1,026	192,303
	2005	1,974	738	126,426	172	19,893	814	146,319	417	55,913	987	202,232
	2006	1,895	809	145,542	297	17,830	915	163,372	395	23,032	1,036	186,404
	2007	1,954	839	115,162	270	26,886	921	142,049	315	16,200	1,010	158,249
	2008	1,662	784	96,314	232	13,266	845	109,581	307	13,055	932	122,636
	2009	1,731	774	86,219	265	11,205	844	97,424	265	10,516	941	107,940
	2010	1,635	700	74,394	218	8,334	755	82,728	228	9,257	849	91,985
	2011	1,658	739	84,426	159	8,604	784	93,030	249	8,336	867	101,366
	2012	1,570	659	71,261	168	7,445	697	78,706	237	9,096	799	87,802
	2014	1,530	600	81,452	182	9,657	644	91,109	262	14,900	769	106,009
	2016	1,337	635	98,185	184	9,404	688	107,589	235	13,433	783	121,022
Toksook Bay	2003	532	8	3,790	47	20,709	54	24,500	0	0	54	24,500
	2004	529	7	859	44	5,737	56	6,596	0	0	56	6,596
	2005	522	5	602	60	14,269	61	14,870	2	98	62	14,968
	2006	533	6	2,333	112	34,149	113	36,481	0	0	113	36,481
	2007	533	17	1,451	100	6,469	112	7,921	0	0	112	7,921
	2008	34	6	707	8	1,436	9	2,143	0	0	9	2,143
	2009	33	3	266	10	789	10	1,055	0	0	10	1,055
	2010	32	5	315	10	560	10	875	0	0	10	875
	2011	32	2	378	7	219	8	597	0	0	8	597
	2012	7	1	140	4	154	5	294	0	0	5	294
	2014	115	0	0	121	32,023	121	32,023	0	0	121	32,023
	2016	104	5	284	95	25,077	98	25,361	5	732	98	26,093

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Table 9.–Page 4 of 4.

Community[a]	Year	Number of SHARC holders[b]	Subsistence harvests: Setline (fixed) gear: Estimated number fished	Setline (fixed) gear: Estimated pounds harvested	Hand-operated gear: Estimated number fished	Hand-operated gear: Estimated pounds harvested	Total subsistence: Estimated number fished	Total subsistence: Estimated pounds harvested	Sport harvest[d]: Estimated number fished	Sport harvest[d]: Estimated pounds harvested	All harvests: Estimated number fished	All harvests: Estimated pounds harvested
Tununak	2003	0										
	2004	70	16	878	23	1,076	31	1,954	0	0	31	1,954
	2005	70	3	332	18	2,329	20	2,661	0	0	20	2,661
	2006	70	7	224	33	3,808	33	4,032	0	0	33	4,032
	2007	69	14	1,536	38	5,479	38	7,015	0	0	38	7,015
	2008	68	0	0	8	1,296	8	1,296	0	0	8	1,296
	2009	11	0	0	7	488	7	488	0	0	7	488
	2010	11	0	0	9	576	9	576	0	0	9	576
	2011	11	0	0	4	84	4	84	0	0	4	84
	2012	11	0	0	3	173	3	173	0	0	3	173
	2014	81	7	3,710	80	24,241	82	27,951	0	0	82	27,951
	2016	65	5	35	65	10,965	65	11,000	0	0	65	11,000
Unalaska[c]	2003	92	39	6,713	31	4,146	50	10,860	33	5,519	70	16,379
	2004	131	43	9,557	39	5,973	81	15,530	34	2,165	93	17,695
	2005	150	60	9,573	57	8,535	88	18,108	28	2,439	97	20,547
	2006	171	53	7,526	47	8,805	81	16,331	50	3,768	101	20,100
	2007	176	67	9,012	38	4,238	83	13,250	33	2,287	92	15,537
	2008	173	59	7,293	42	6,417	87	13,710	43	2,962	101	16,672
	2009	164	56	19,204	54	10,102	76	29,306	45	1,861	98	31,167
	2010	155	58	7,417	60	5,663	92	13,081	54	2,730	103	15,811
	2011	141	33	4,449	50	7,808	65	12,257	27	3,030	75	15,287
	2012	141	41	5,342	41	4,717	62	10,059	44	4,221	83	14,280
	2014	159	57	6,277	48	2,610	74	8,887	37	2,299	93	11,186
	2016	142	51	5,193	25	2,583	64	7,776	39	3,444	77	11,220

Source ADF&G Division of Subsistence, SHARC surveys, 2004–2012, 2015, and 2017.

a. For data on all communities for 2016, see Appendix Tables D-2, D-3, and D-4.

b. SHARC = Subsistence halibut registration certificate; for 2003–2012, includes all SHARC holders living in the community. For 2014, for Sand Point, Toksook Bay, and Tununak, and in 2016 for Toksook Bay and Tununak, totals include SHARC holders and others identified as potential halibut fishers during household surveys. For 2014, the number of SHARC holders was 92 in Sand Point, 7 in Toksook Bay, and 5 in Tununak. For 2016, the number of SHARC holders was 20 in Toksook Bay and 6 in Tununak.

c. Includes Dutch Harbor.

d. Sport harvests by SHARC holders only.

Table 10.–Halibut removals in Alaska, by regulatory area, 2016.

	Pounds net weight						
Area	Commercial landings[a]	Sport[b]	Subsistence[c]	Commercial mortality	Bycatch mortality	IPHC research	Total
2C	3,891,000	2,213,000	436,464	120,000	30,000	119,000	6,809,464
3A	7,256,000	3,560,000	222,454	375,000	2,040,000	266,000	13,719,454
3B	2,637,000	5,000	14,242	234,000	979,000	109,000	3,978,242
4	3,893,000	12,000	59,475	183,000	3,691,000	81,000	7,919,475
Alaska	17,677,000	5,790,000	732,635	912,000	6,740,000	575,000	32,426,635

Sources Goen (2017:6); Erikson (2017:70); ADF&G Division of Subsistence, SHARC surveys, 2017.

a. Commercial catch includes the Metlakatla fishery catch in Area 2C.

b. Projected harvests; includes sport landings and sport mortality.

c. Includes 5,457 pounds of U32 (sublegal) halibut legally retained by CDQ organizations in areas 4D and 4E for personal use. The subsistence harvest by SHARC holders was 727,178 pounds, including 54,018 pounds in Area 4.

Table 11.–Comparison of selected SHARC survey results, 2003–2012, 2014, and 2016.

	Study years												Percent change: 2016 compared to…	
	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2014	2016	2014	Previous 11-year average
Response to survey														
Number of SHARCs issued[a, b]	11,635	13,813	14,306	14,206	15,047	11,565	11,733	10,953	11,145	9,944	9,719	8,925	-8.2%	-26.8%
Number of surveys returned	7,593	8,524	8,565	8,426	8,682	7,316	6,944	6,670	7,589	7,054	6,336	5,862	-7.5%	-23.0%
Response rate	65.3%	61.7%	59.9%	59.3%	57.7%	63.3%	59.2%	60.9%	68.1%	70.9%	65.2%	65.7%	0.7%	4.5%
Subsistence halibut fishing														
Estimated number of subsistence halibut fishers	4,942	5,984	5,621	5,909	5,933	5,303	5,296	4,991	4,705	4,394	4,506	4,408	-2.2%	-15.8%
Percent of all SHARC holders subsistence fishing	42.5%	43.3%	39.3%	41.6%	39.4%	45.9%	45.1%	45.6%	42.2%	44.2%	46.4%	49.4%	6.5%	14.3%
Estimated number of subsistence halibut	43,926	52,412	55,875	54,089	53,697	48,604	45,434	43,332	38,162	37,093	40,698	36,815	-9.5%	-21.1%
Estimated net pounds of subsistence halibut	1,041,330	1,193,162	1,178,222	1,125,312	1,032,293	886,988	861,359	797,560	697,656	686,991	760,469	727,178	-4.4%	-22.0%
Average weight of subsistence-harvested halibut	23.7	22.8	21.1	20.8	19.2	18.2	19.0	18.4	18.3	18.5	18.7	19.8	5.7%	-0.7%
Average harvest per fisher, fish	8.9	8.8	9.9	9.2	9.1	9.2	8.6	8.7	8.1	8.4	9.0	8.4	-7.5%	-6.1%
Average harvest per fisher, net pounds	210.7	199.4	209.6	190.4	174.0	167.3	162.6	159.8	148.3	156.3	168.8	165.0	-2.3%	-6.8%
Sport halibut fishing by SHARC holders														
Estimated number of sport halibut fishers	2,580	3,107	3,147	2,894	2,566	2,609	2,528	2,297	2,070	2,231	2,228	2,127	-4.5%	-17.2%
Percent of all SHARC holders sport fishing	22.2%	22.5%	22.0%	20.4%	17.1%	22.6%	21.5%	21.0%	18.6%	22.4%	22.9%	23.8%	4.0%	12.5%
Estimated number of sport halibut	10,784	12,530	14,096	11,219	10,959	11,427	9,938	8,651	8,235	8,727	8,543	7,814	-8.5%	-25.3%
Estimated net pounds of sport halibut	245,947	251,092	293,415	223,639	196,198	197,760	165,318	149,241	135,224	146,174	150,717	144,638	-4.0%	-26.2%
Average weight of sport-harvested halibut	22.8	20.0	20.8	19.9	17.9	17.3	16.6	17.3	16.4	16.7	17.6	18.5	4.9%	0.1%
Average harvest per fisher, fish	4.2	4.0	4.5	3.9	4.3	4.4	3.9	3.8	4.0	3.9	3.8	3.7	-4.2%	-9.5%
Average harvest per fisher, net pounds	95.3	80.8	93.2	77.3	76.5	75.8	65.4	65.0	65.3	65.5	67.6	68.0	0.5%	-9.6%
Total number of halibut fishers														
Estimated number of fishers, subsistence or sport	5,941	6,980	6,876	6,899	6,787	6,202	6,153	5,835	5,496	5,358	5,570	5,341	-4.1%	-13.7%
Percent of total SHARC holders who fished	51.1%	50.5%	48.1%	48.6%	45.1%	53.6%	52.4%	53.3%	49.3%	53.9%	57.3%	59.8%	4.4%	16.9%

Sources Fall and Lemons (2016); ADF&G Division of Subsistence, SHARC surveys, 2017.

a. In 2014, equals total SHARCs issued (9,474) plus potential subsistence halibut fishers in 4 study communities.

b. In 2016, equals total SHARCs issued (8,779) plus potential subsistence halibut fishers in 2 study communities.

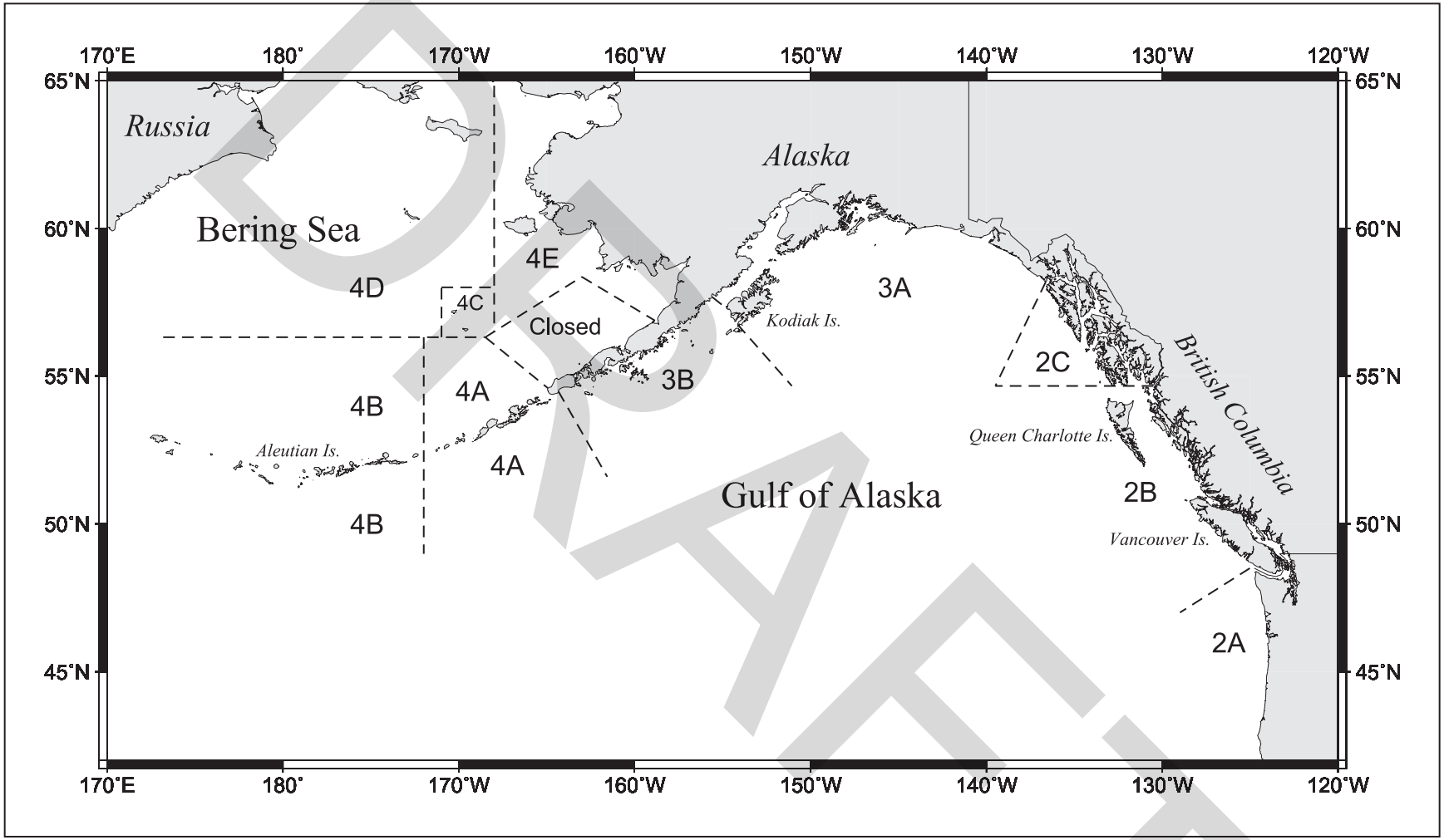


Figure 1.–Regulatory areas for the halibut fishery.

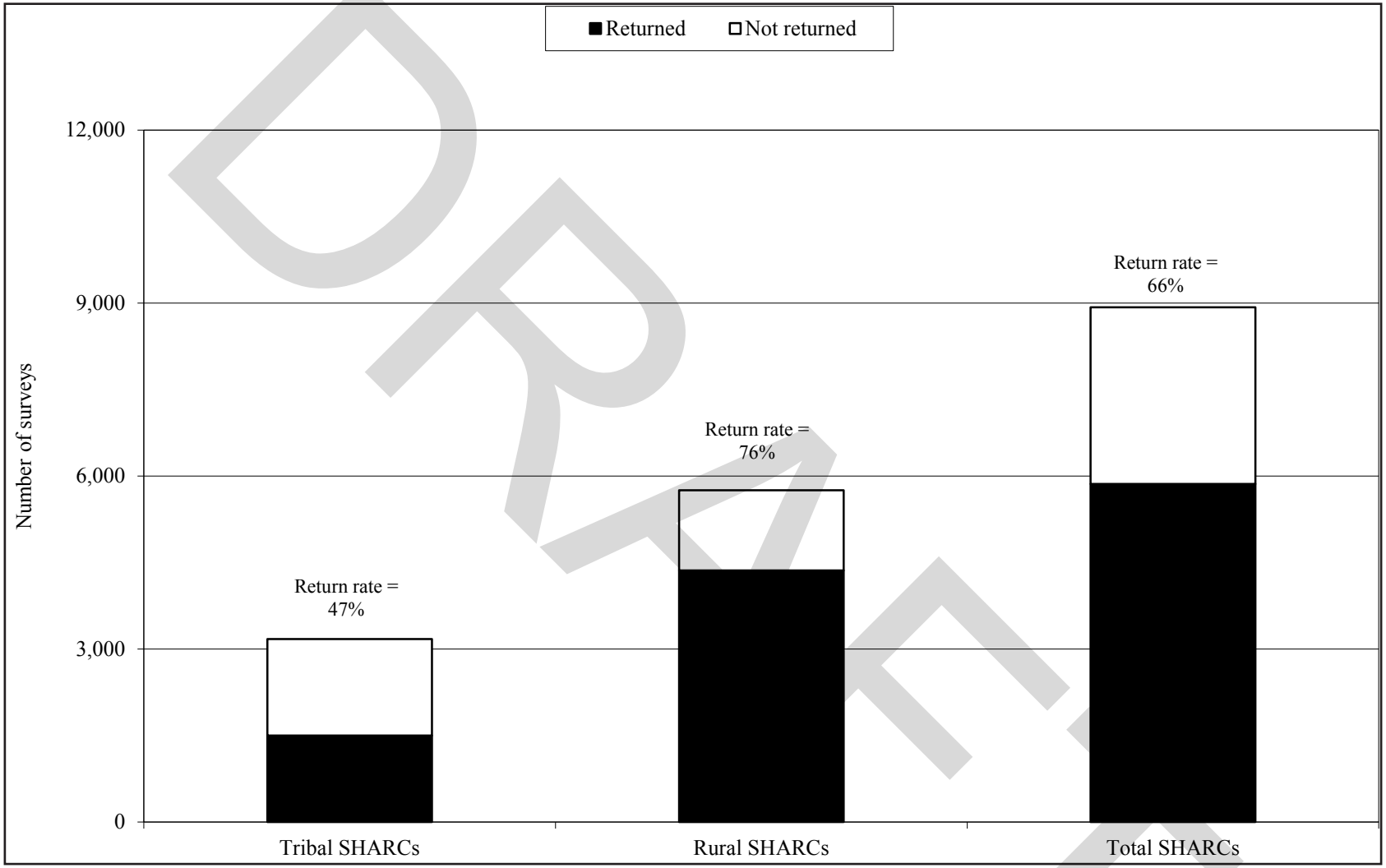


Figure 2.–Number of surveys returned and return rates for subsistence halibut surveys, by SHARC type, 2016.

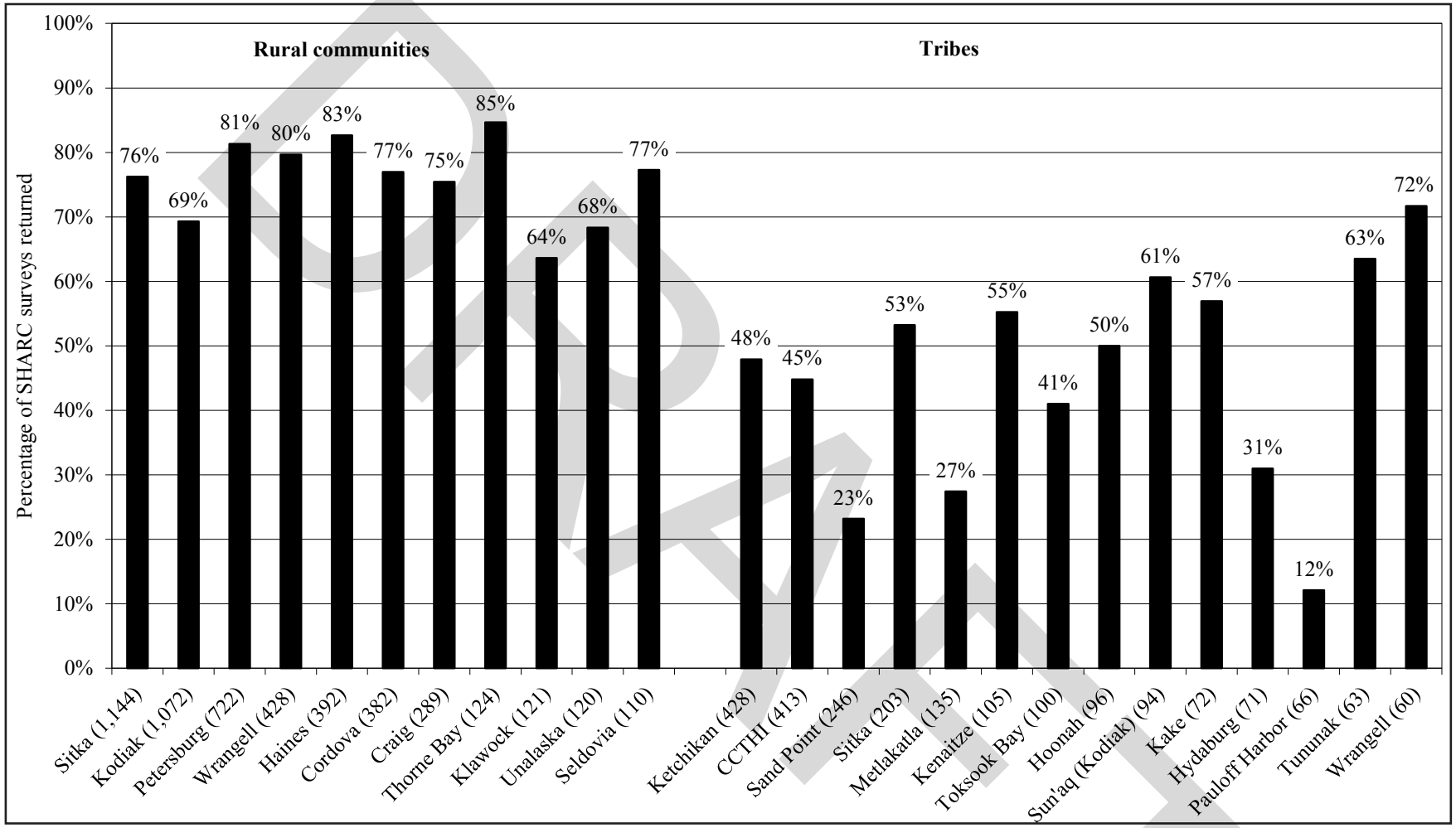


Figure 3.–SHARC survey return rates, communities with more than 100 SHARCs issued and tribes with more than 60 SHARCs issued, 2016.

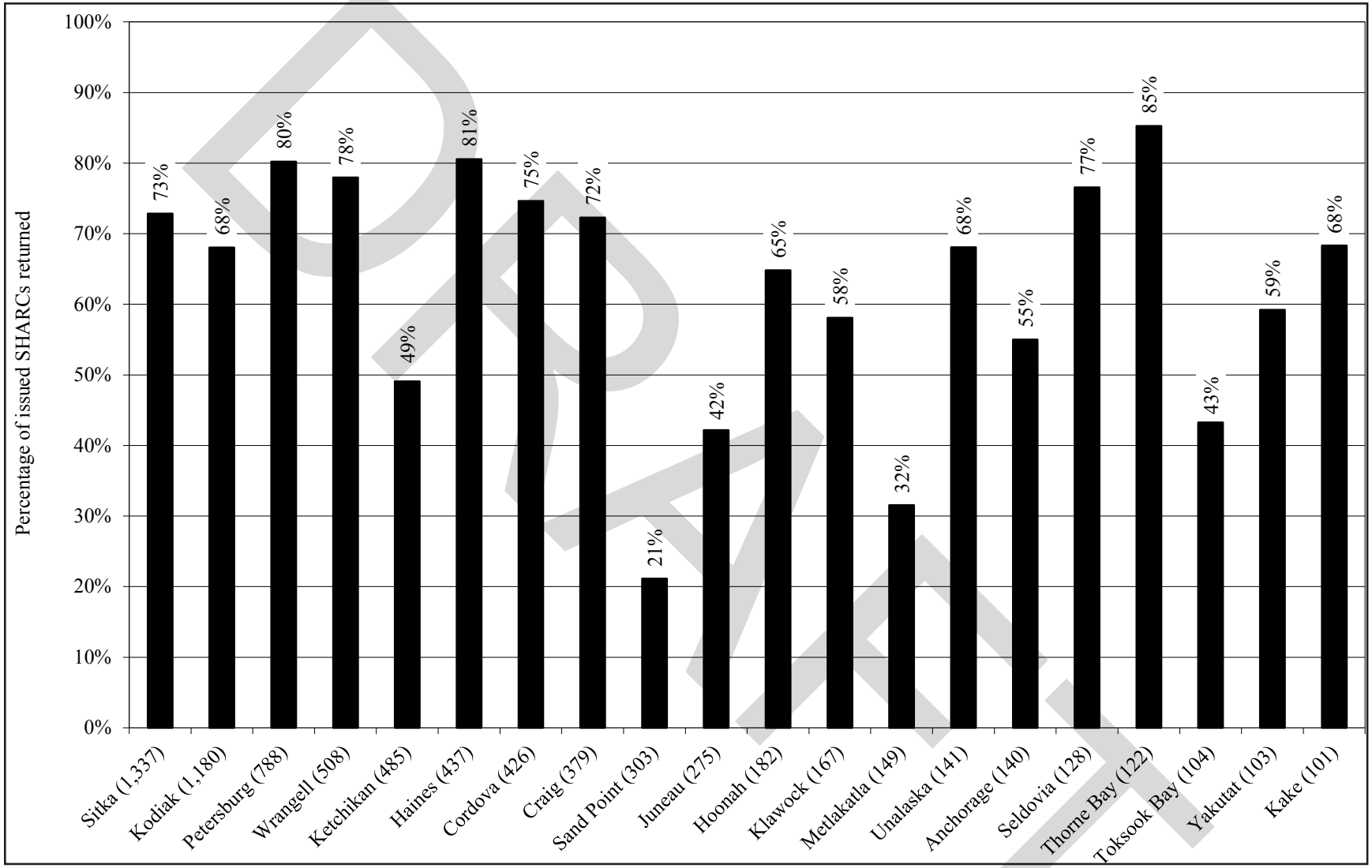


Figure 4.–Return rate by place of residence, communities with 100 or more SHARCs, 2016.

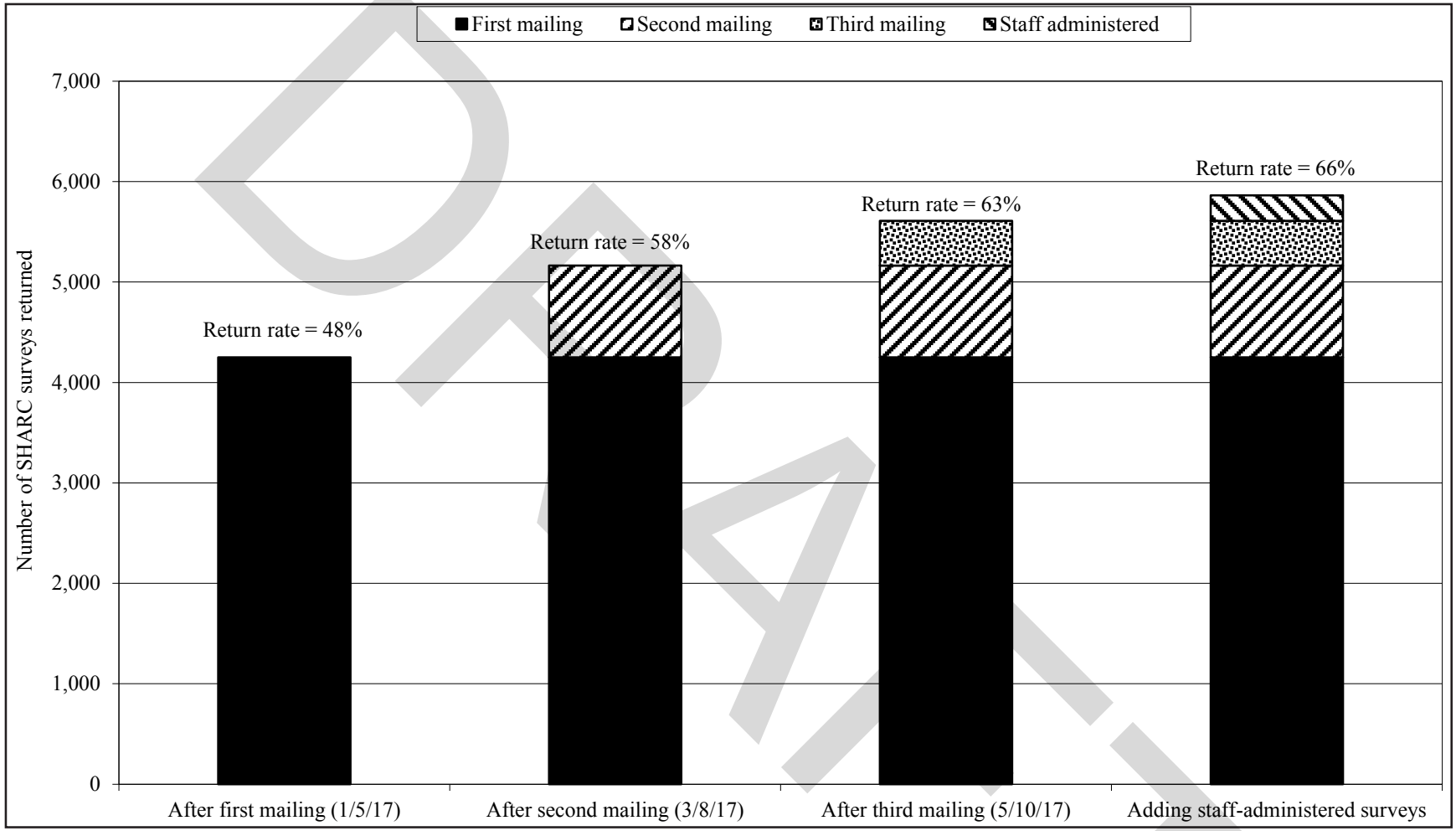
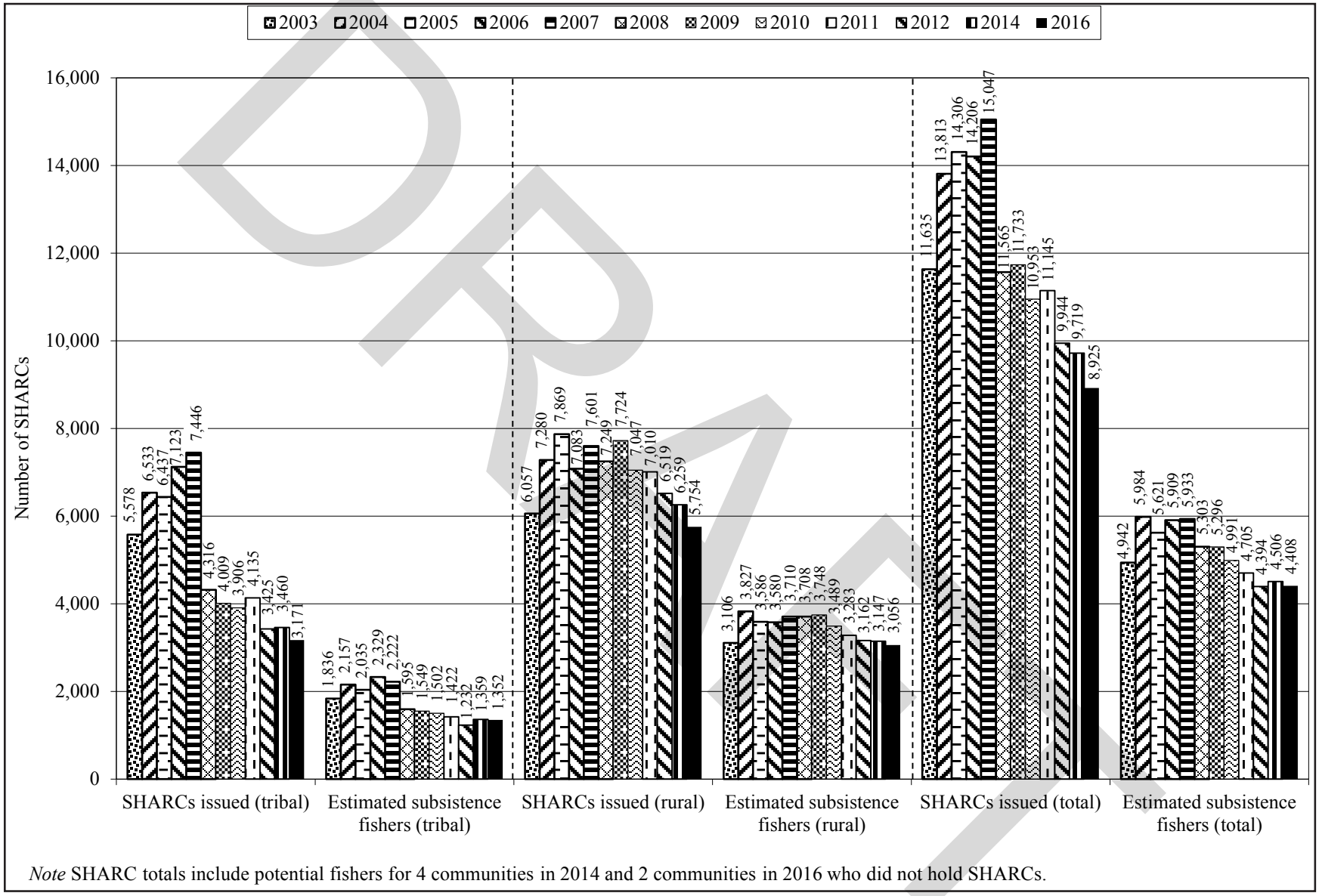


Figure 5.–Number of survey responses by response category, 2016.



Note SHARC totals include potential fishers for 4 communities in 2014 and 2 communities in 2016 who did not hold SHARCs.

Figure 6.–Number of SHARCs issued and estimated number of halibut fishers by SHARC type, 2003–2012, 2014, and 2016.

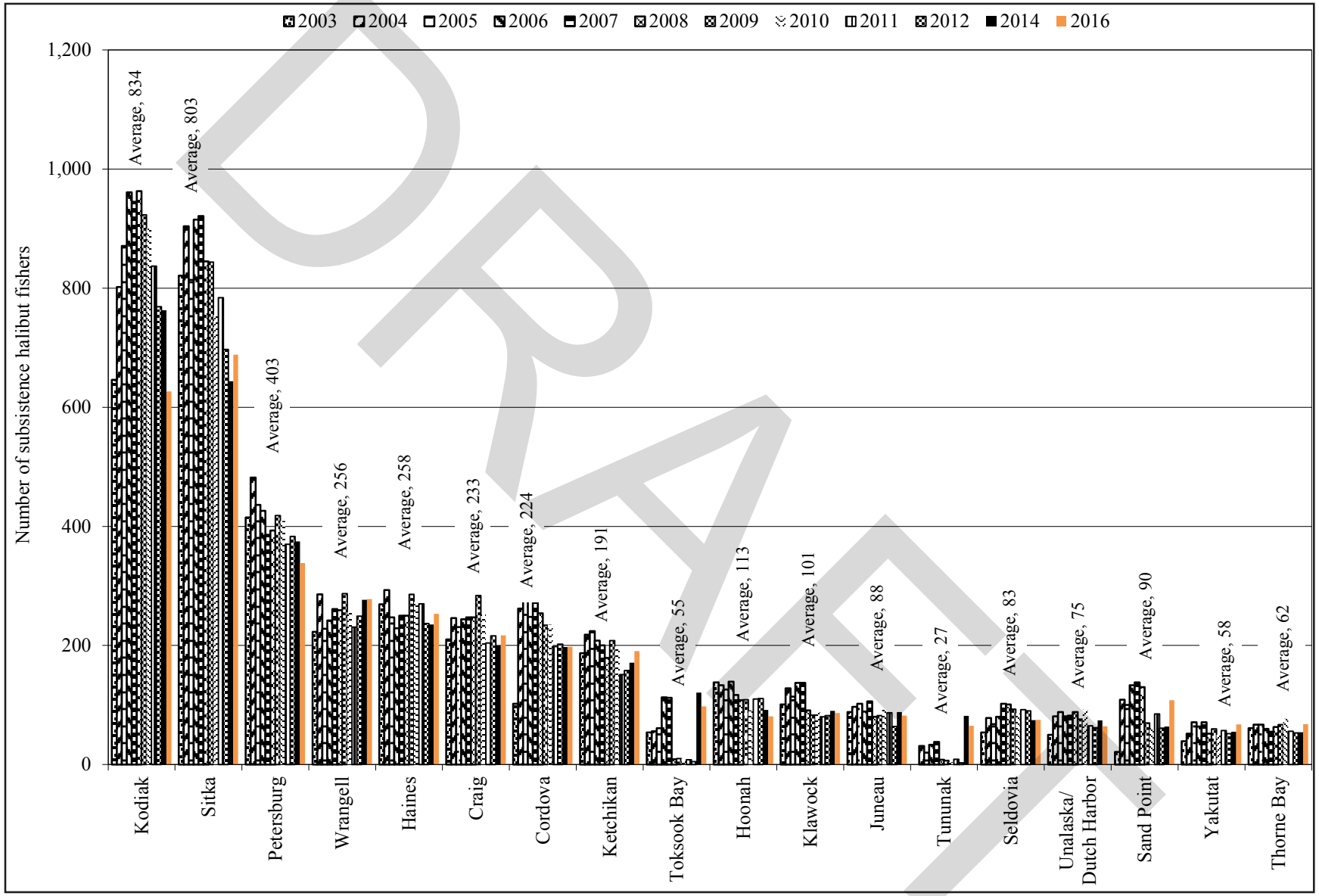


Figure 7.–Number of fishers by residence, 2003–2012, 2014, and 2016.

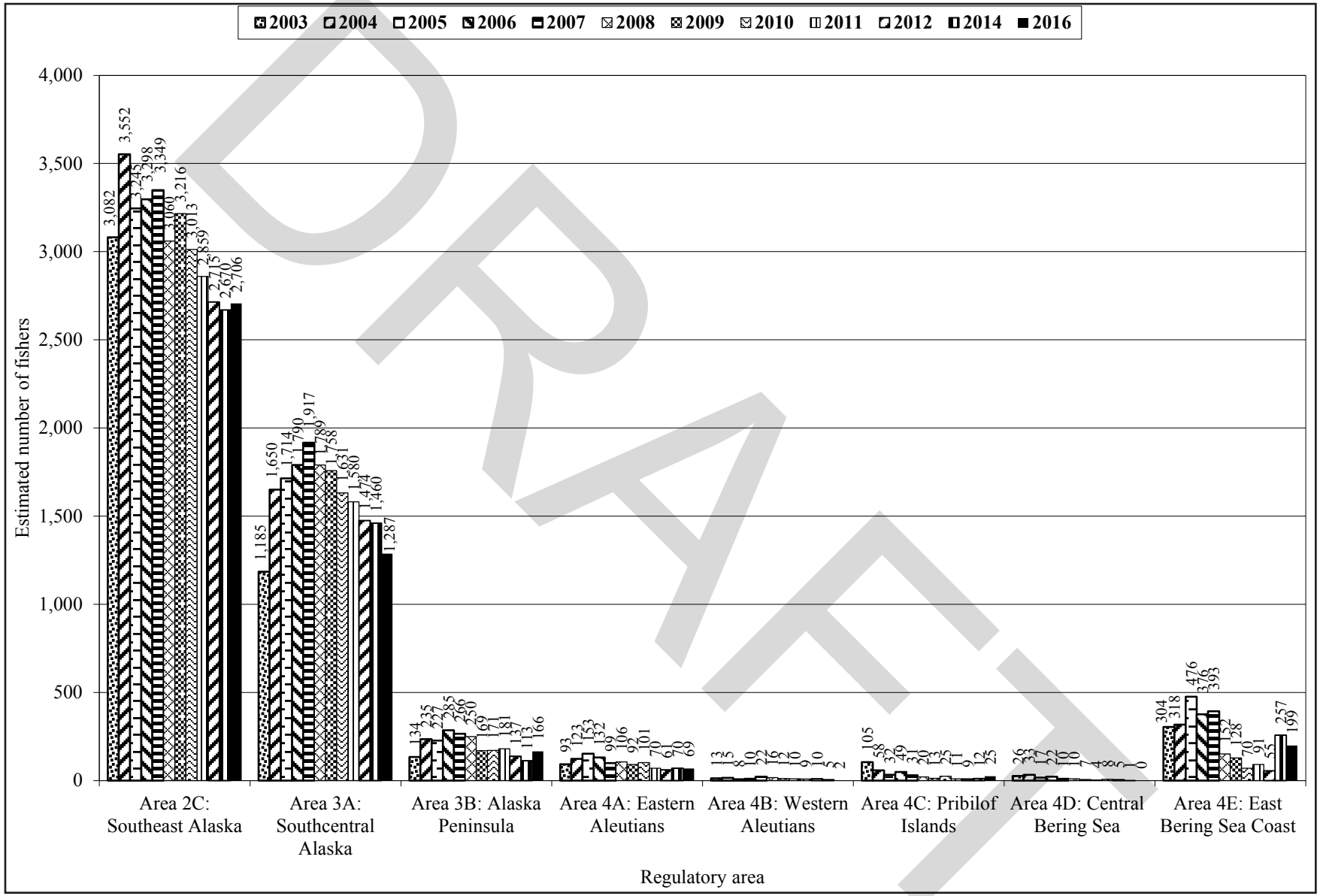


Figure 8.–Estimated number of Alaska subsistence halibut fishers, by regulatory area fished, 2003–2012, 2014, and 2016.

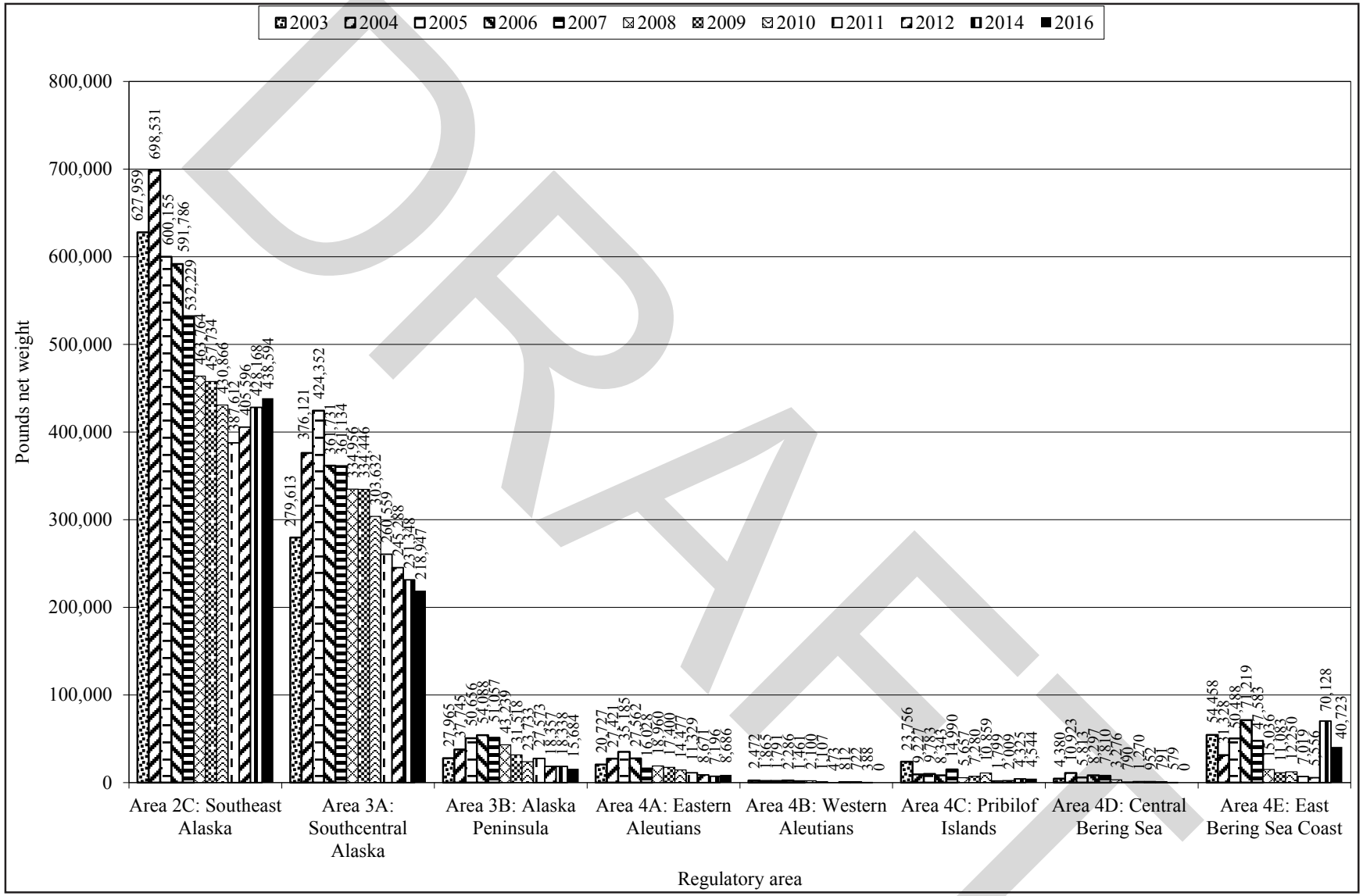


Figure 9.–Estimated subsistence halibut harvests, pounds net weight, by regulatory area of tribe and rural community, 2003–2012, 2014, and 2016.

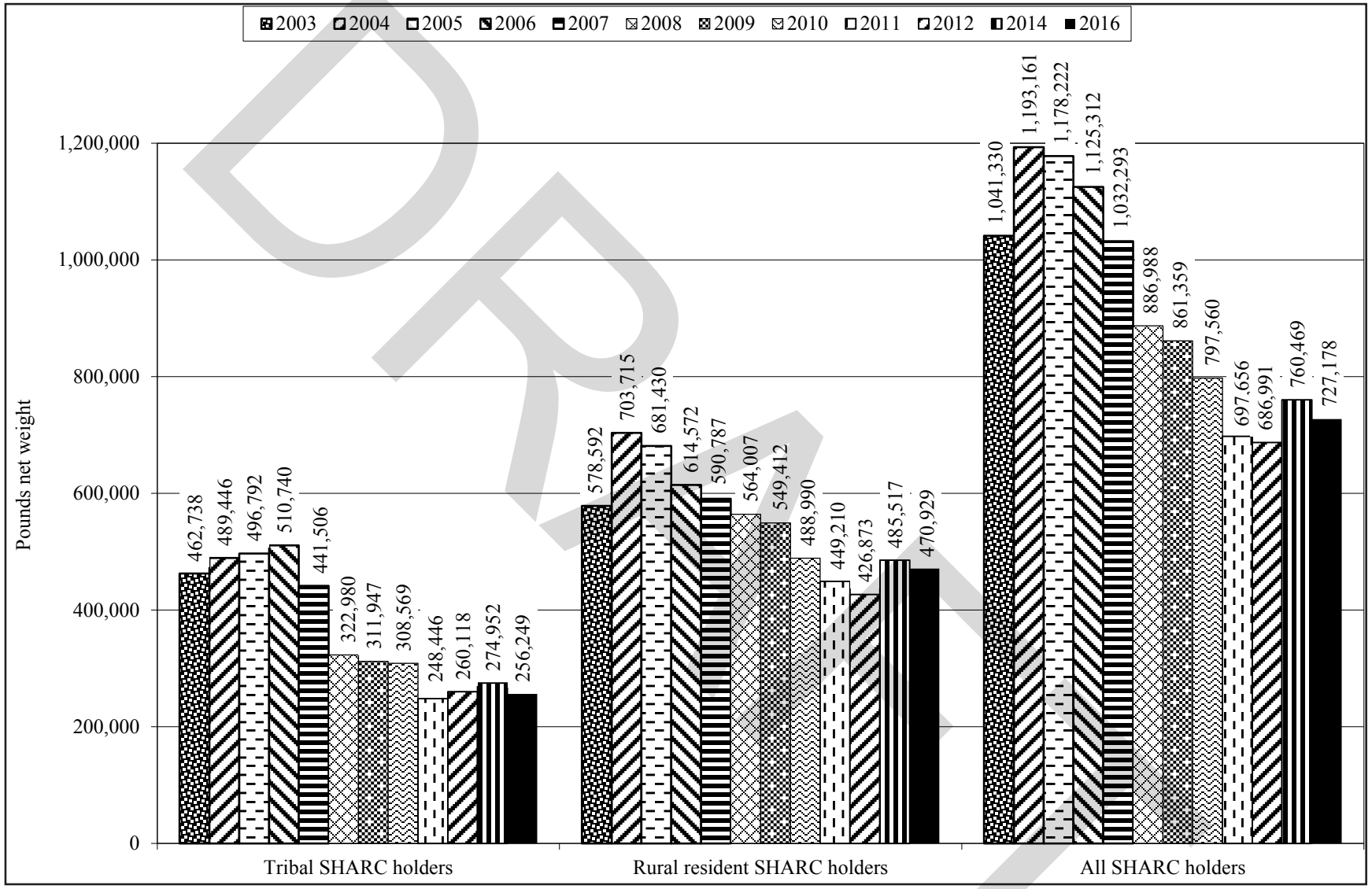


Figure 10.–Estimated Alaska subsistence halibut harvests, pounds net weight, by SHARC type, 2003–2012, 2014, and 2016.

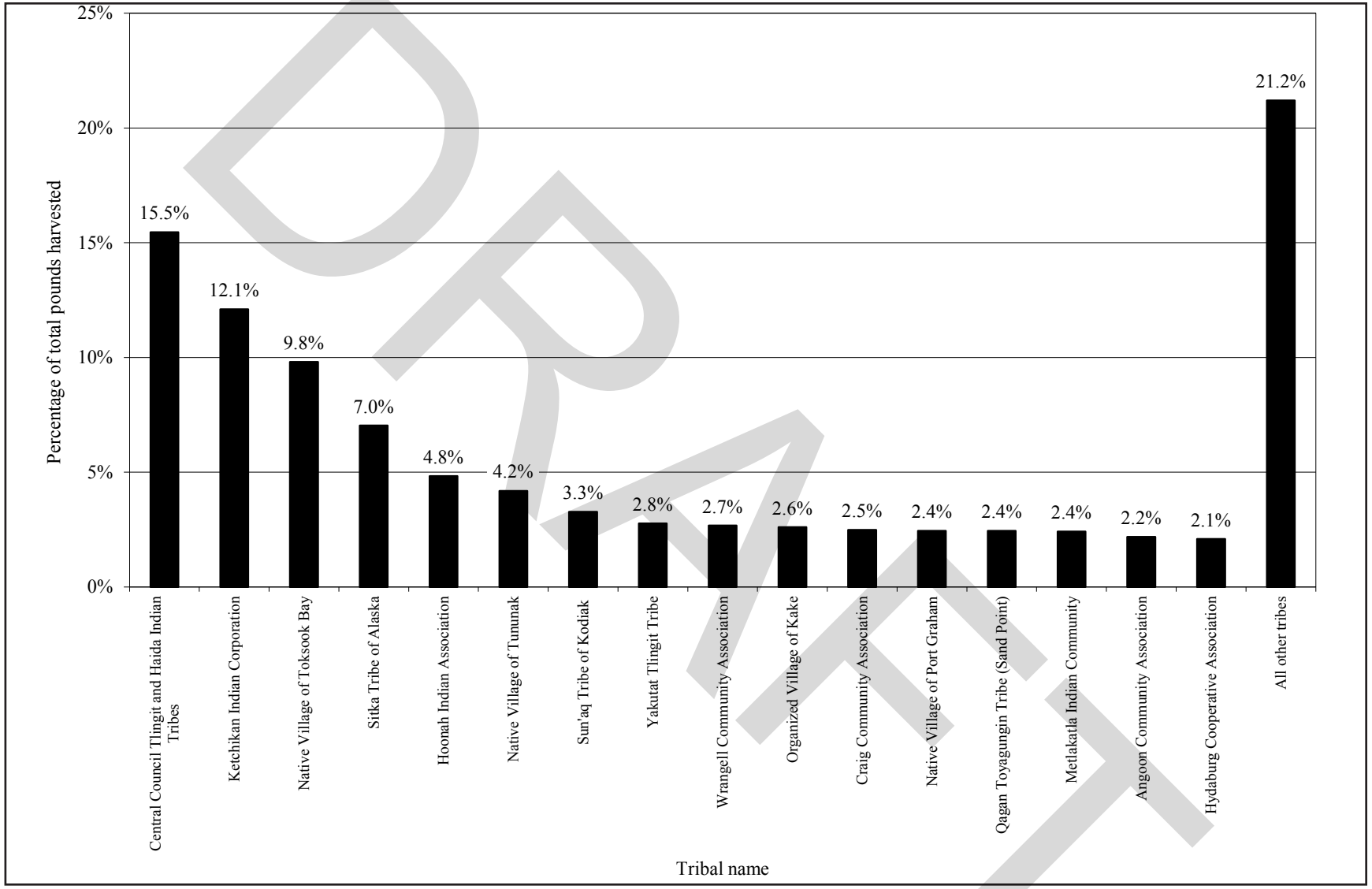


Figure 11.–Percentage of tribal subsistence halibut harvest by tribe, 2016.

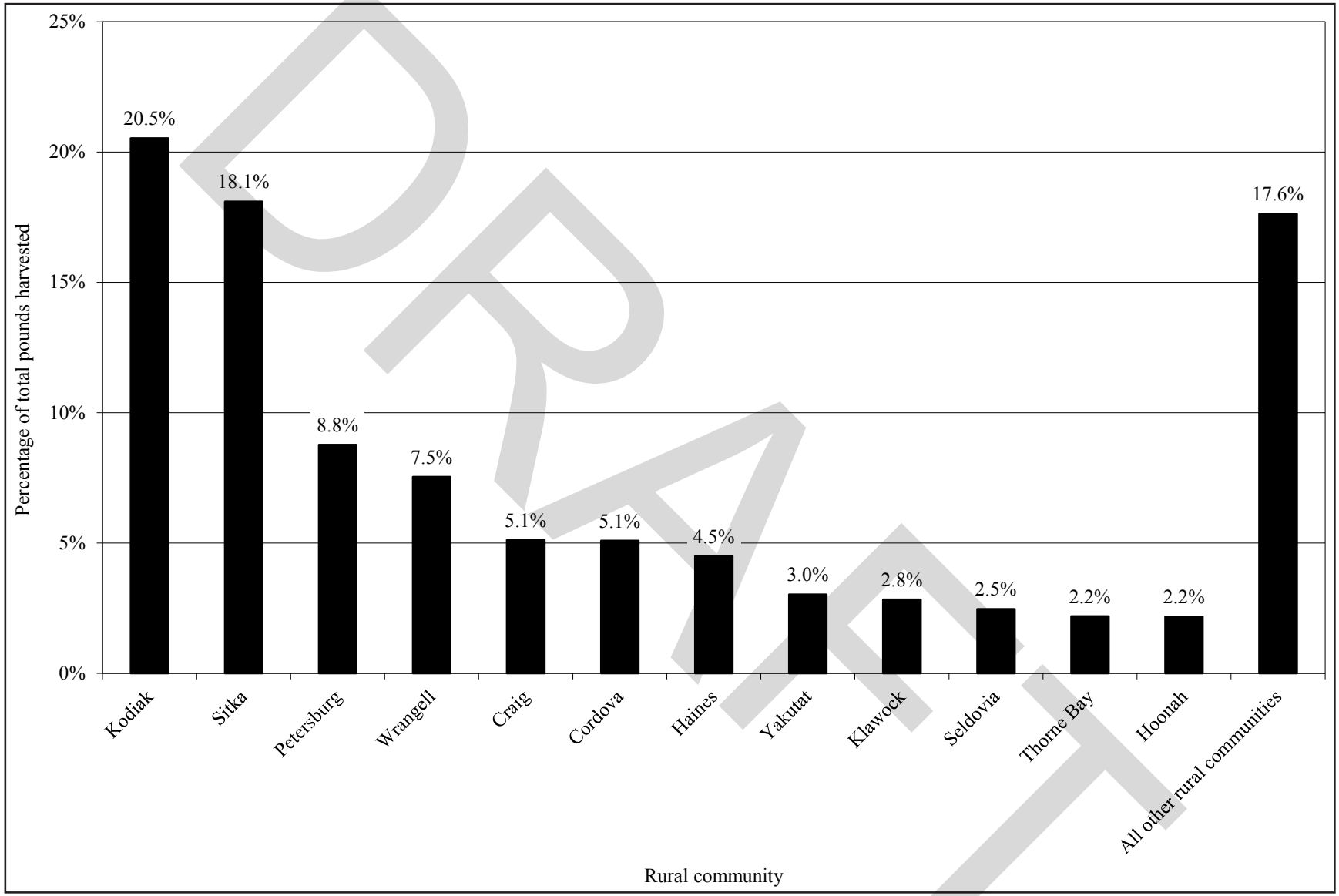


Figure 12.–Percentage of rural community subsistence halibut harvest by community, 2016.

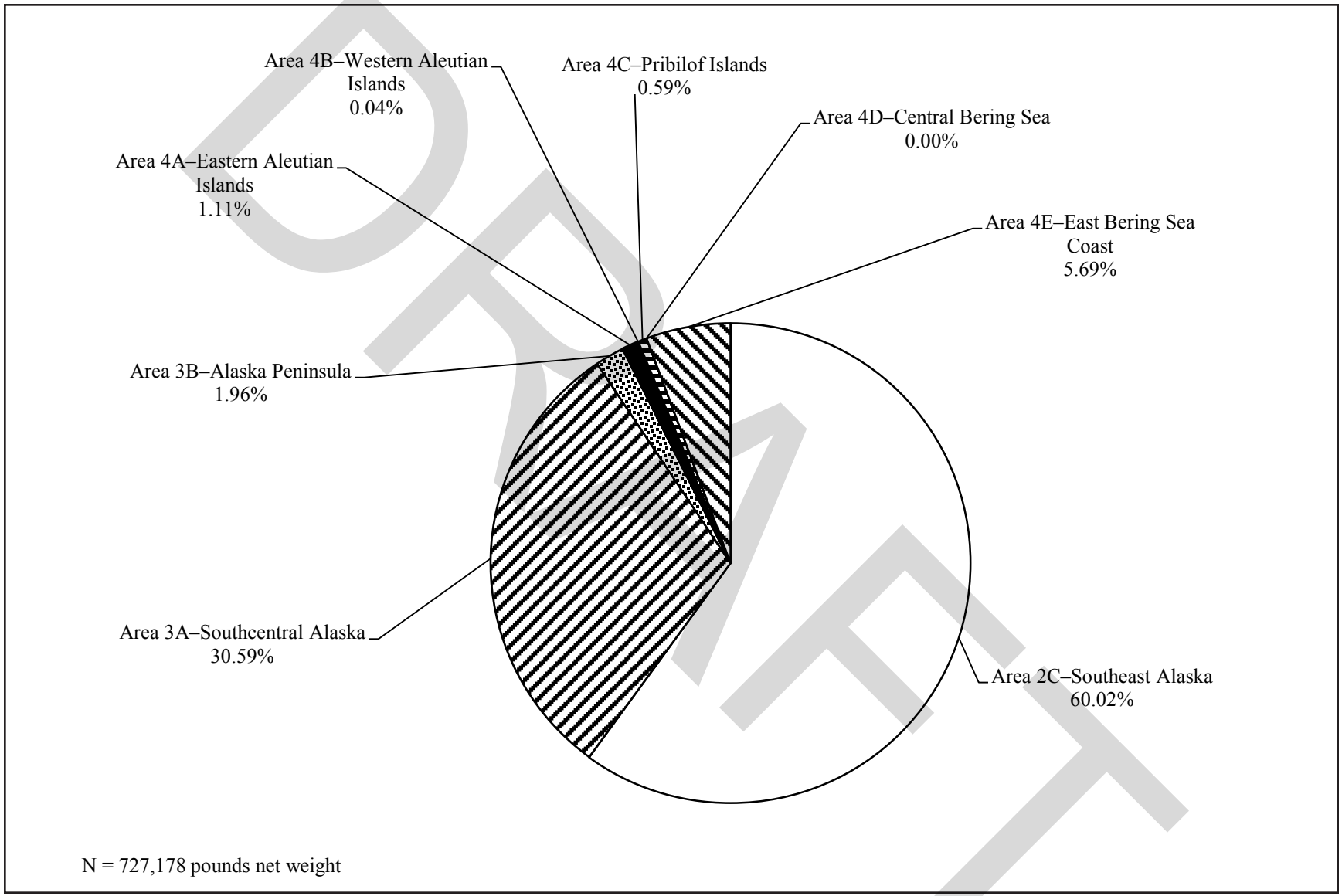


Figure 13.–Percentage of subsistence halibut harvest, by regulatory area fished, 2016.

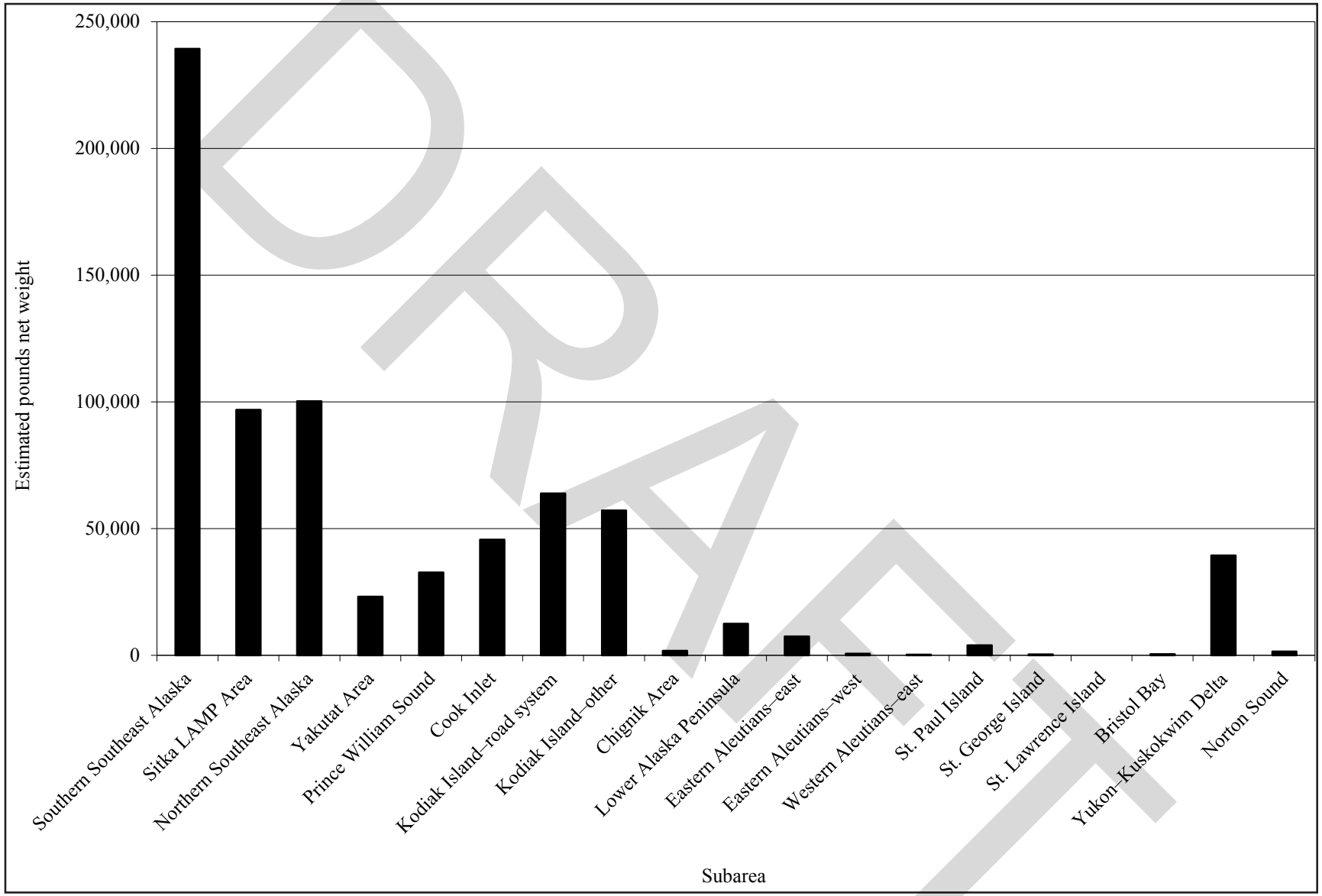


Figure 14.–Alaska subsistence harvests by geographic area, 2016.

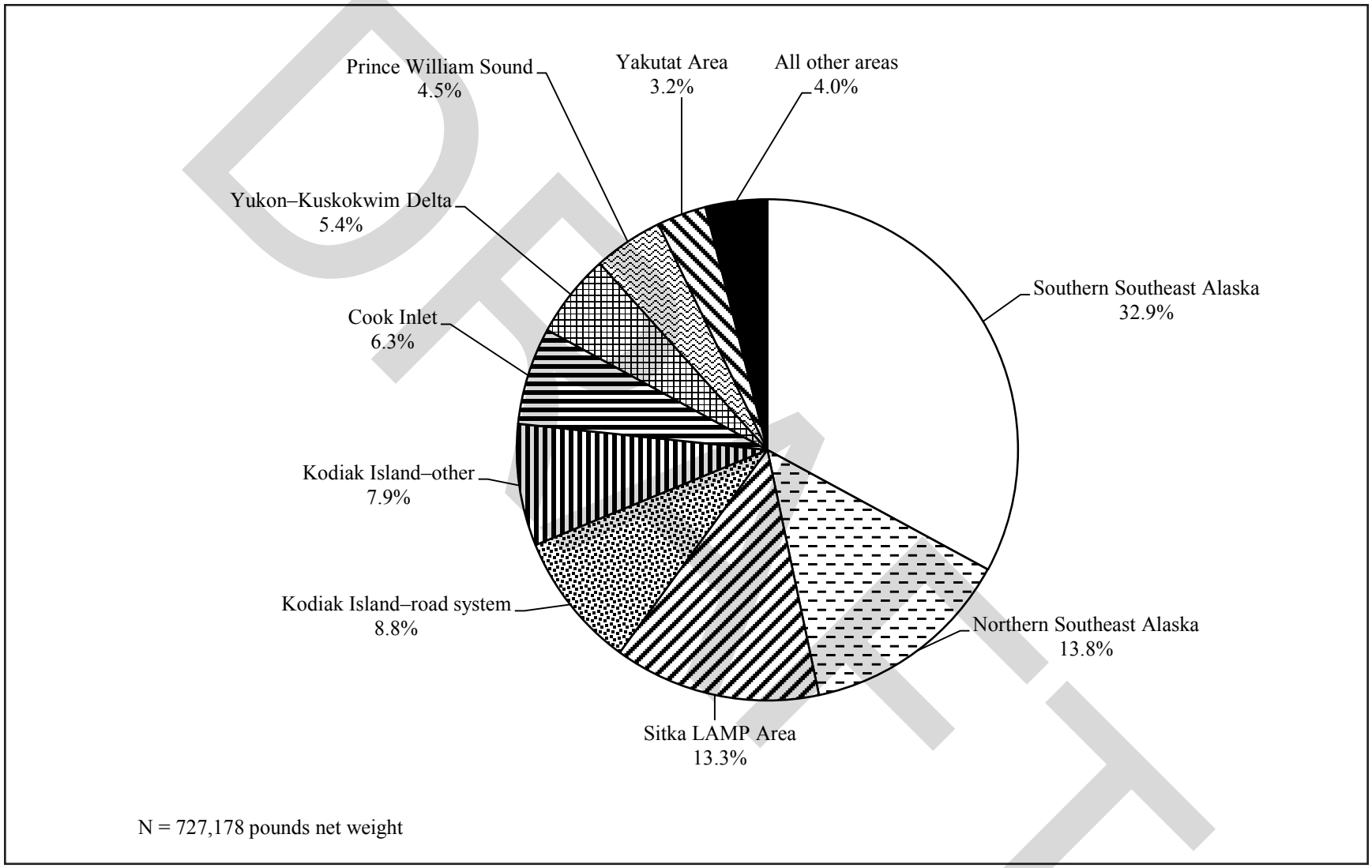


Figure 15.–Percentage of Alaska subsistence halibut harvest by geographic area, 2016.

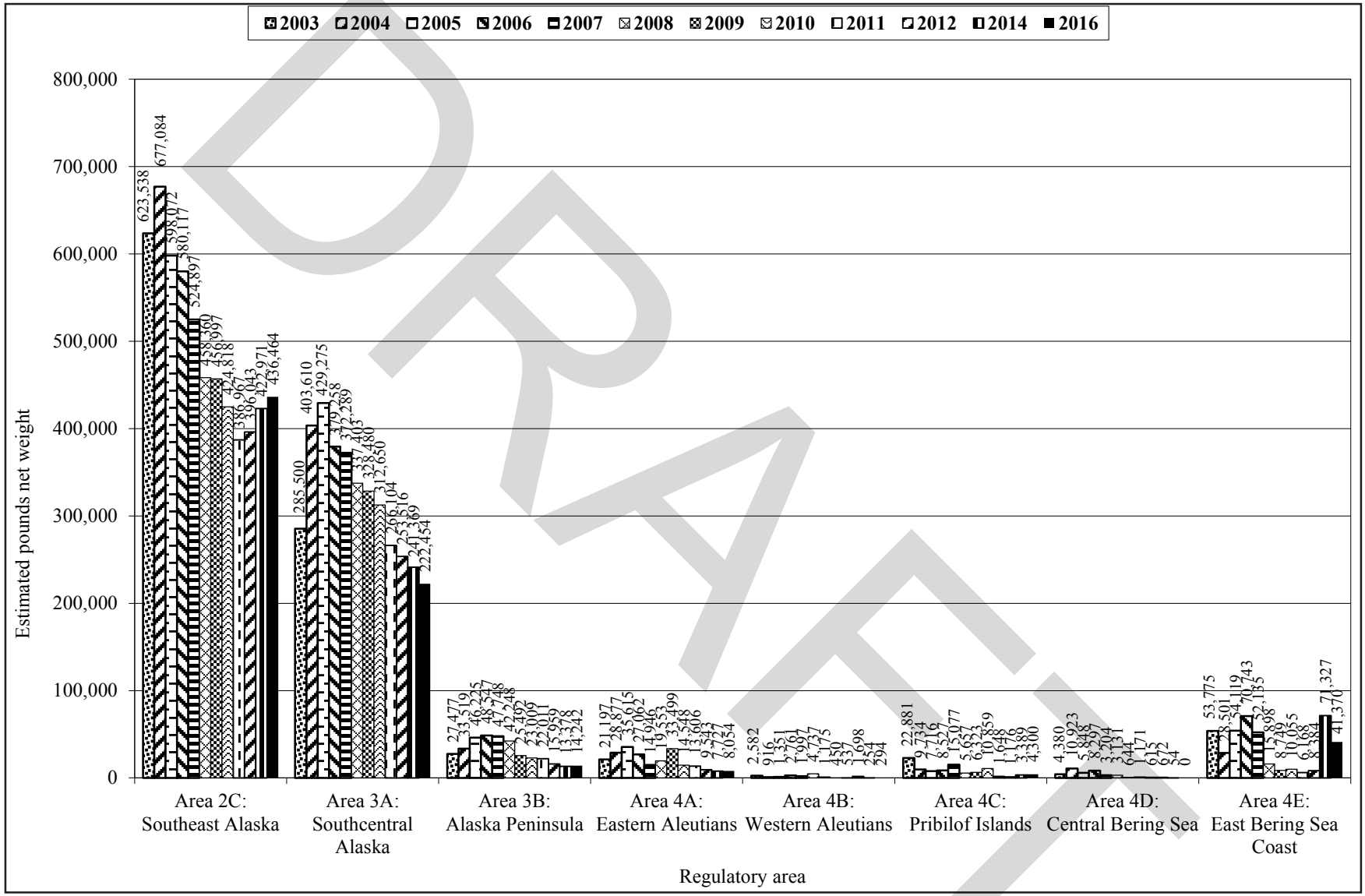


Figure 16.–Estimated subsistence halibut harvests, pounds net weight, by regulatory area fished, 2003–2012, 2014, and 2016.

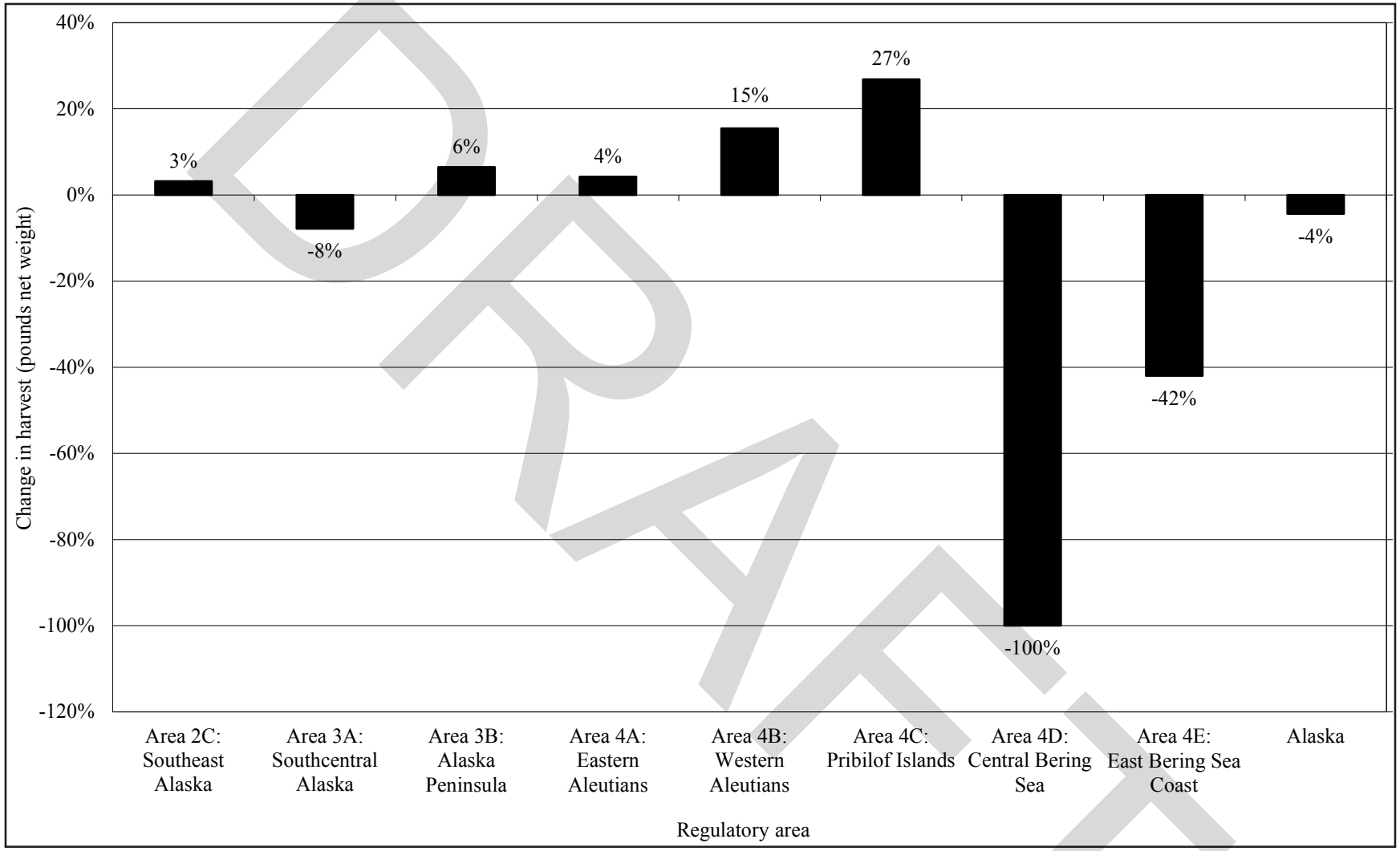


Figure 17.–Change in Alaska subsistence halibut harvests, by regulatory area fished, from 2014 to 2016.

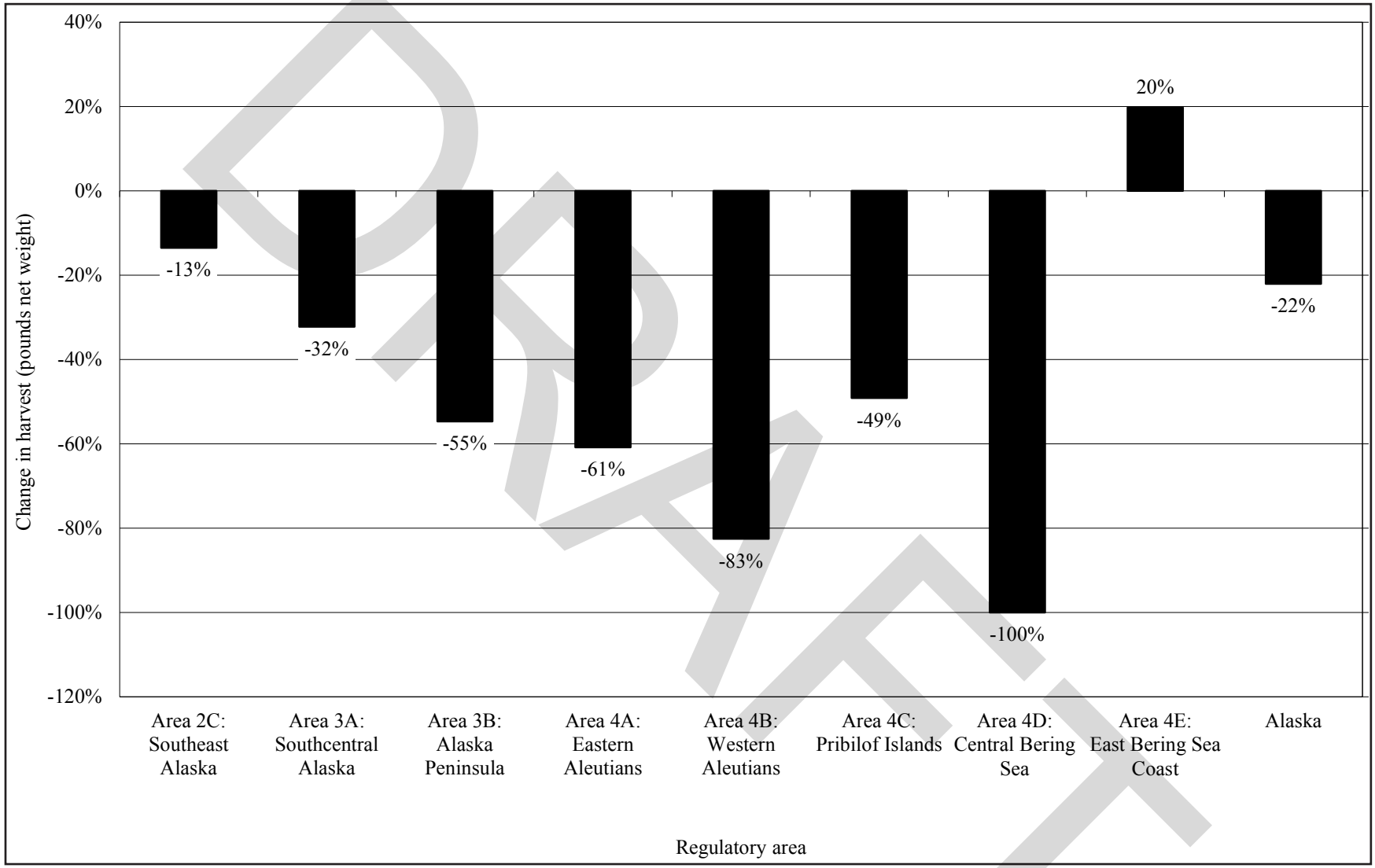


Figure 18.–Change in Alaska subsistence halibut harvests, by regulatory area fished, in 2016 compared to recent 11-year average (2006–2012, and 2014).

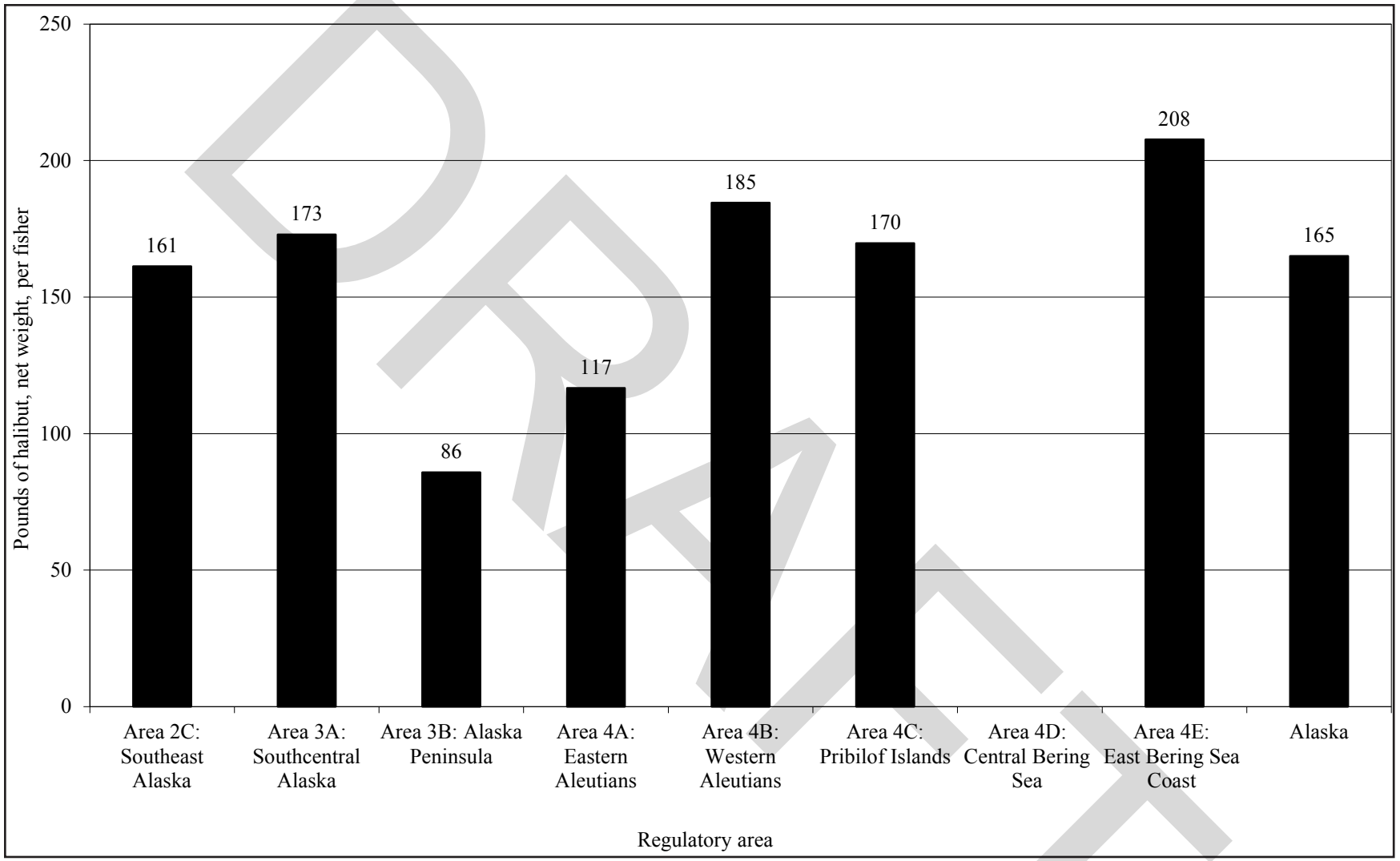


Figure 19.–Average subsistence harvest of halibut per fisher in Alaska, in pounds net weight, by regulatory area, 2016.

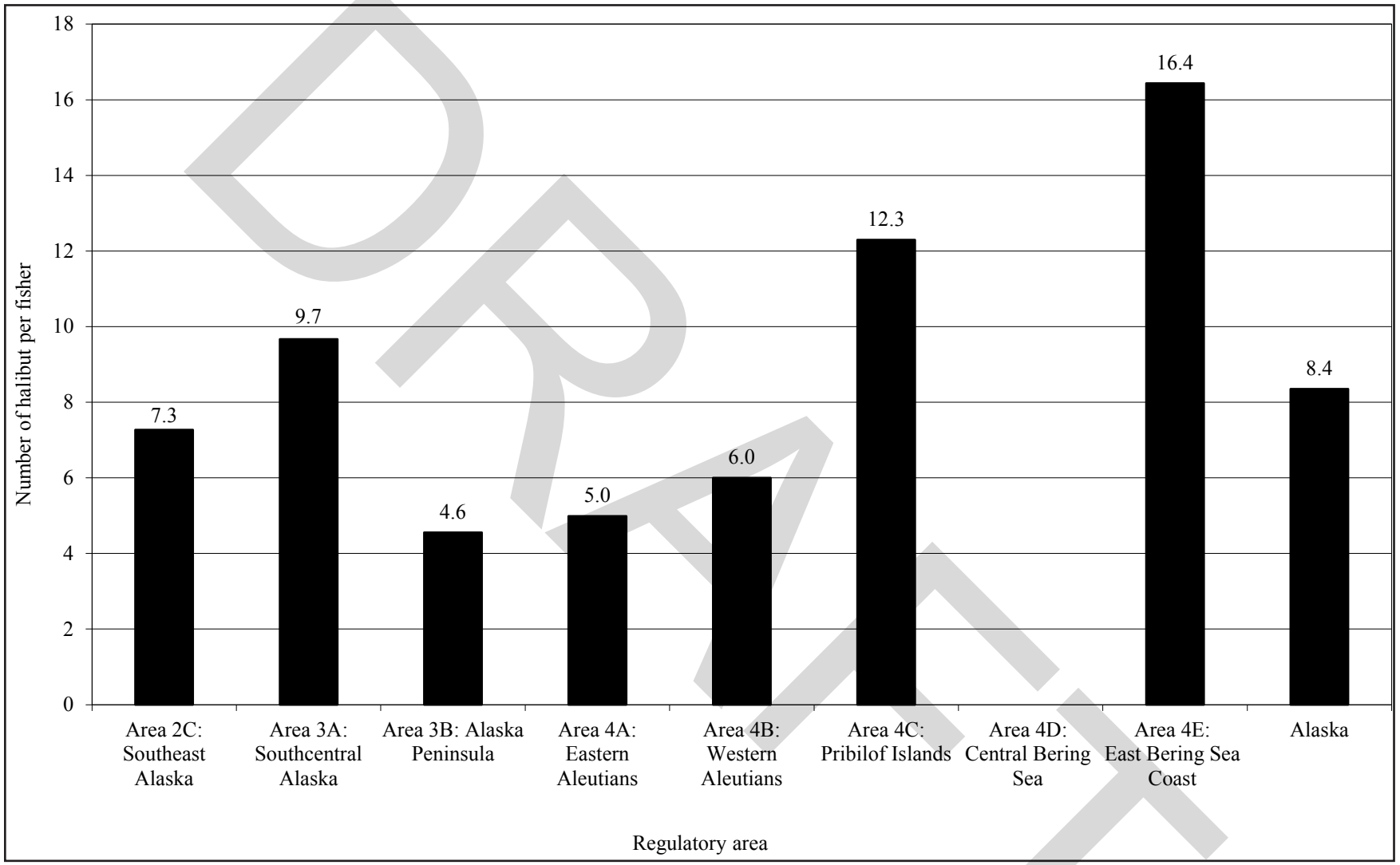


Figure 20.–Average subsistence harvest of halibut per fisher in Alaska, in number of fish, by regulatory area, 2016.

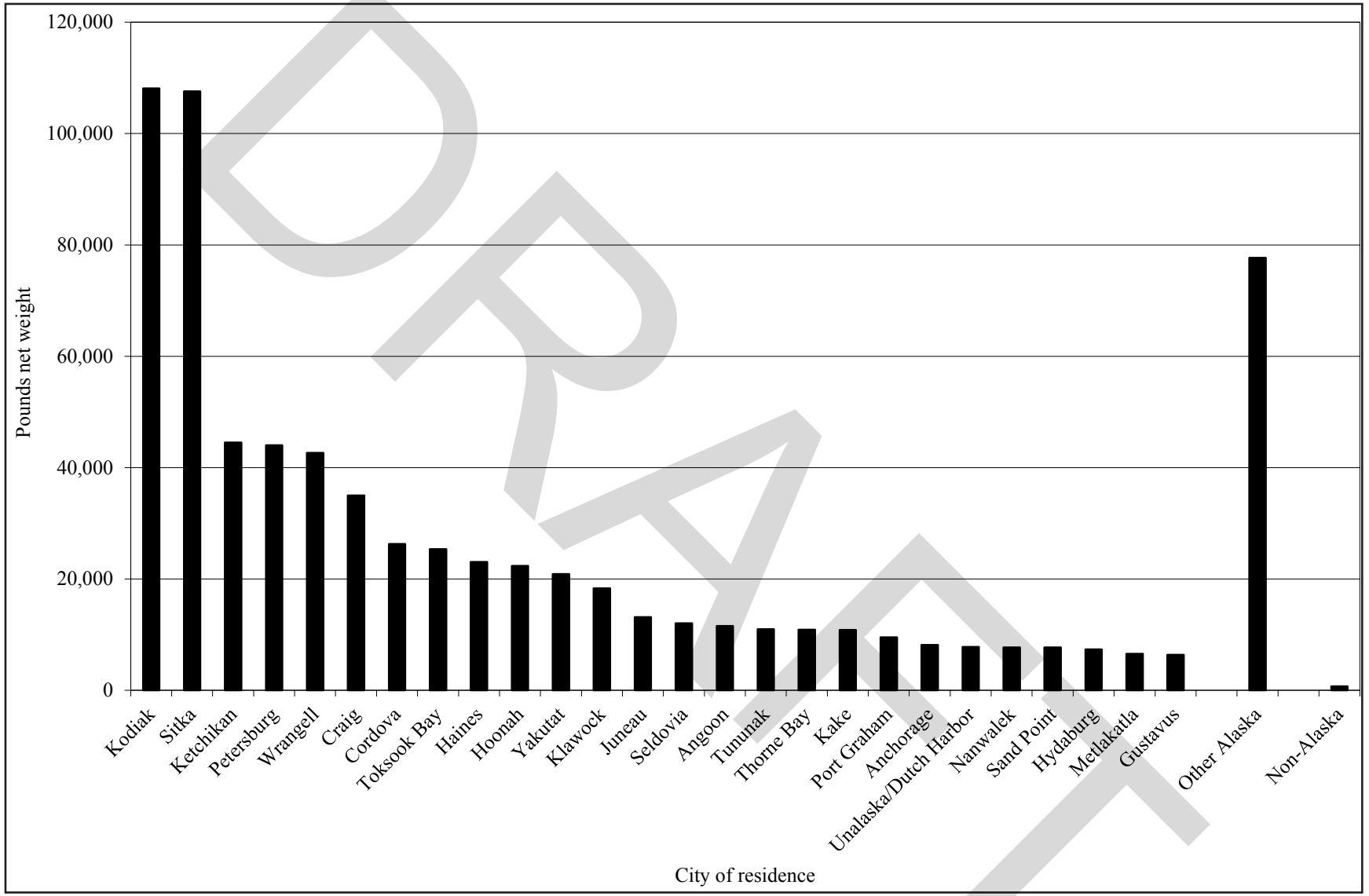


Figure 21.–Alaska subsistence halibut harvests by place of resience, 2016.

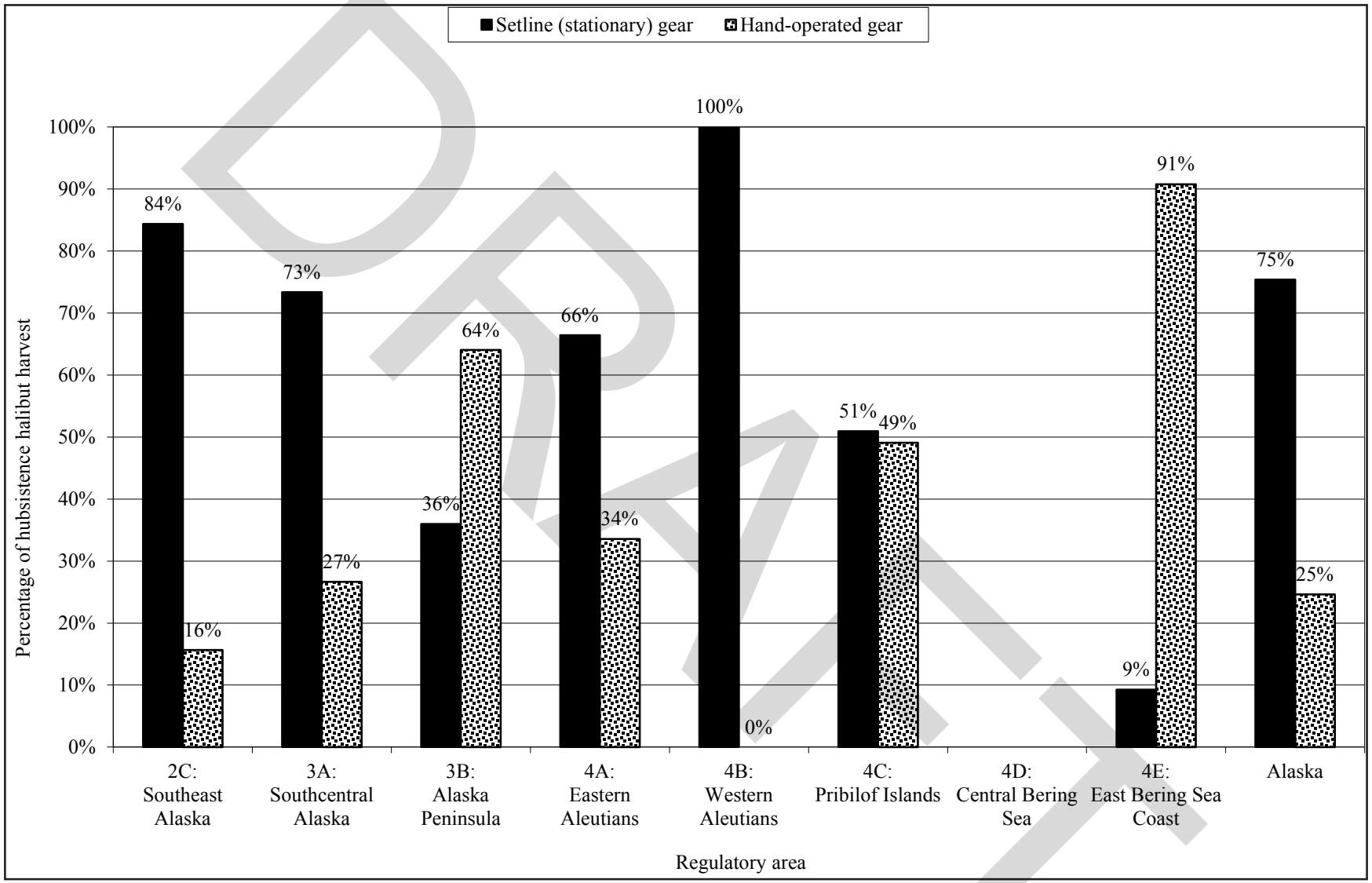


Figure 22.–Percentage of subsistence halibut harvest by gear type, by regulatory area, 2016.

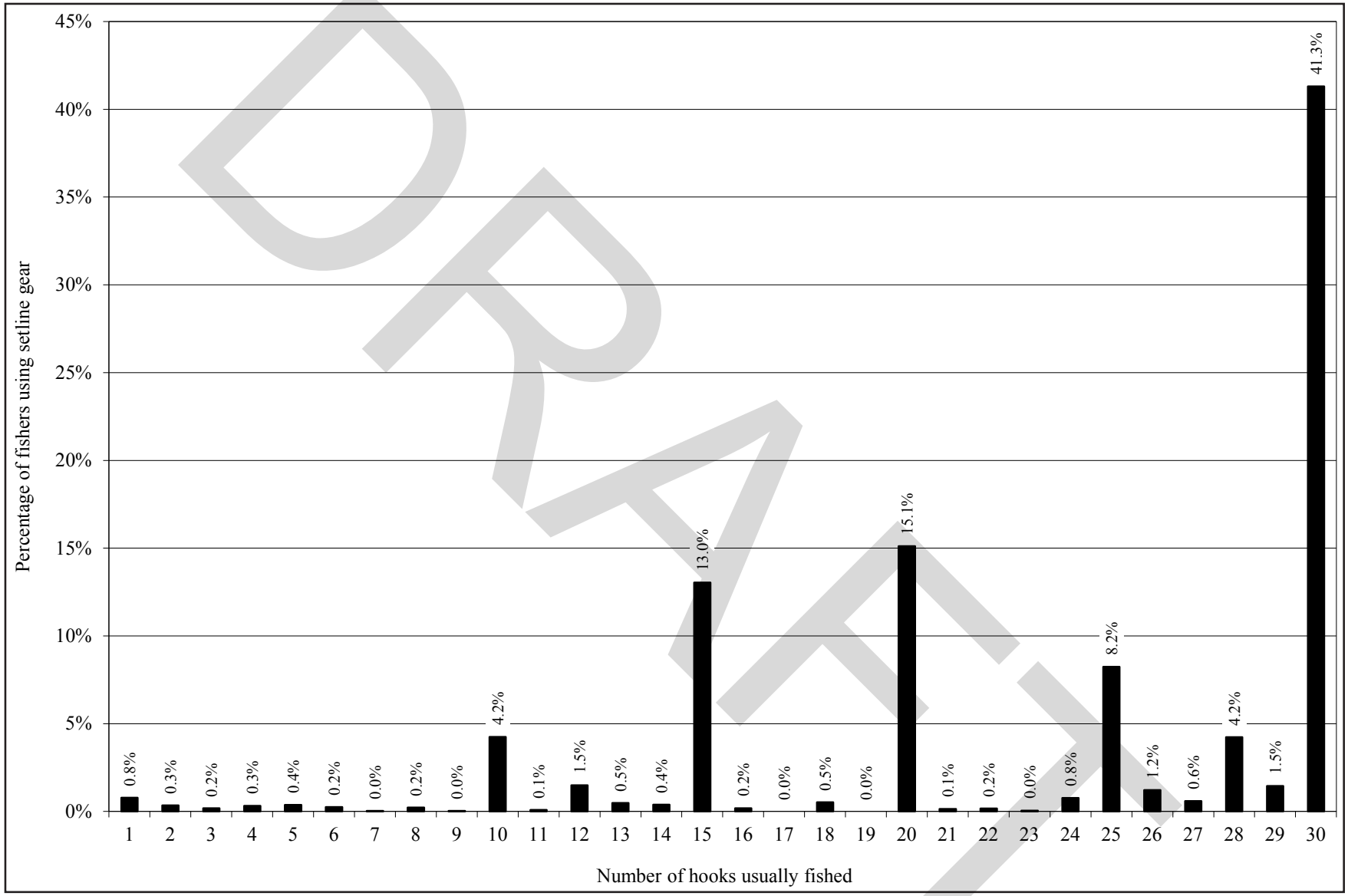


Figure 23.–Number of hooks usually fished, setline (stationary) gear, Alaska, subsistence halibut fishery, 2016.

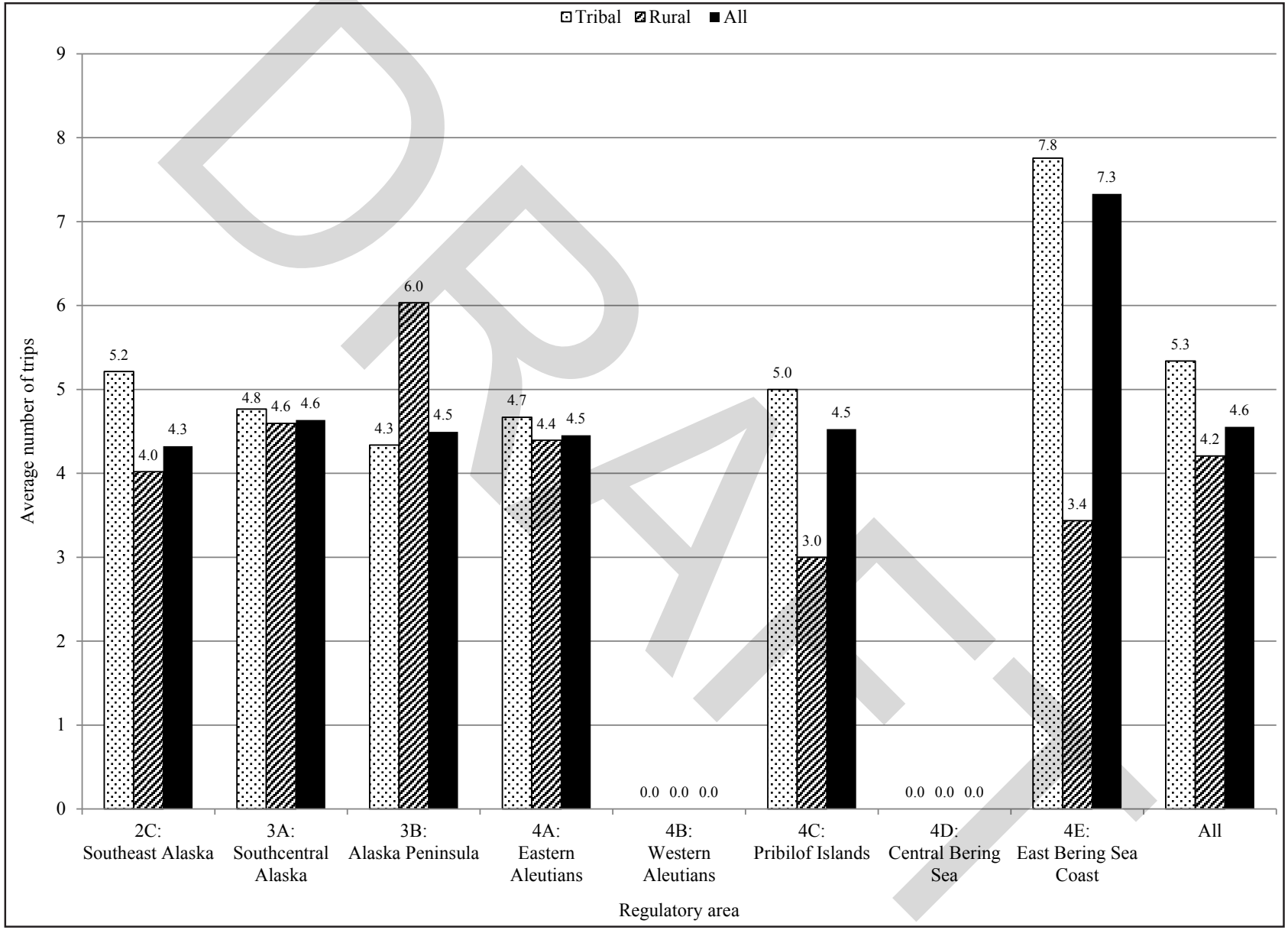


Figure 24.–Average number of subsistence fishing trips for halibut, by regulatory area and SHARC type, 2016.

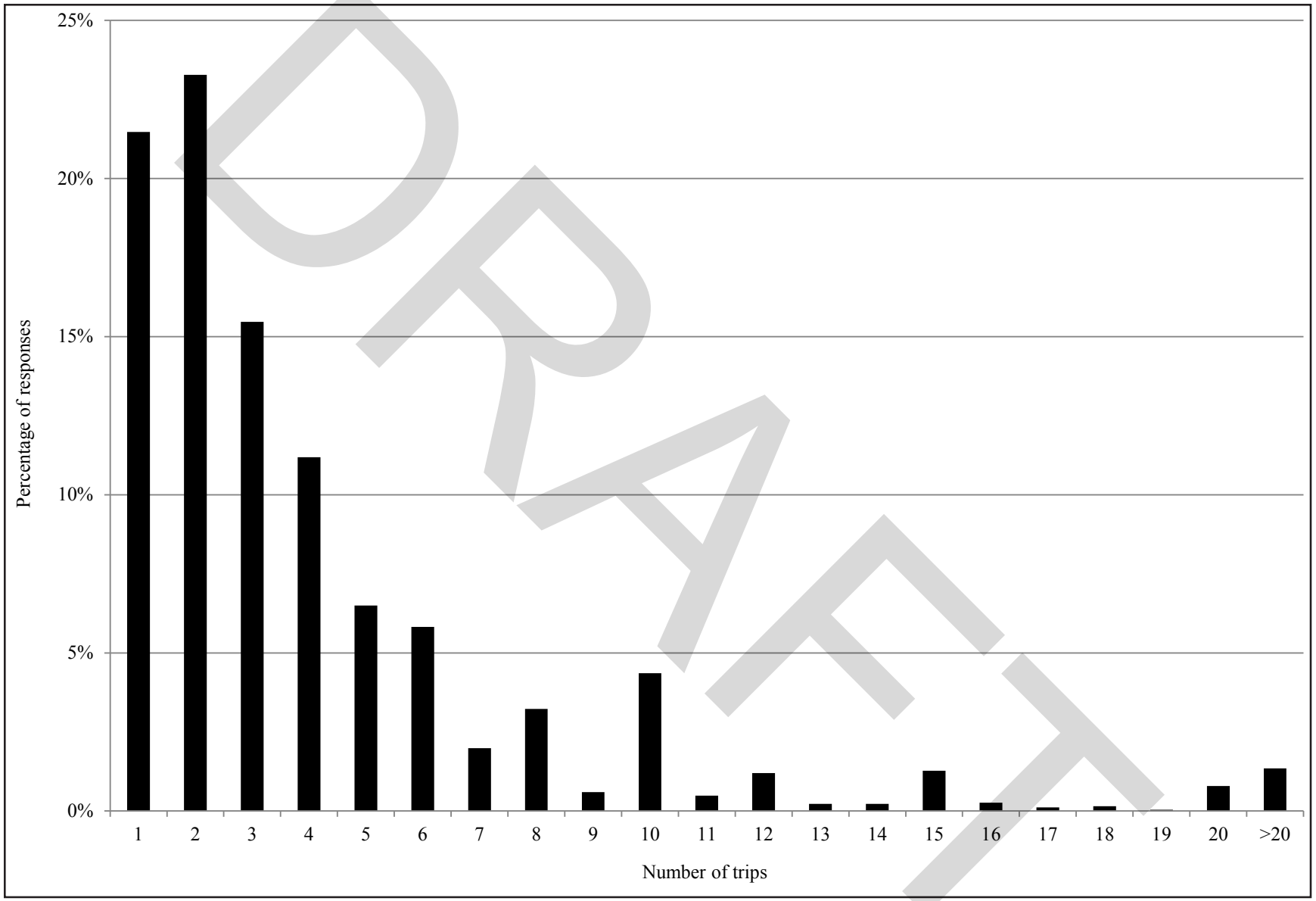


Figure 25.–Number of subsistence fishing trips for halibut, by percentage of total reported trips, 2016.

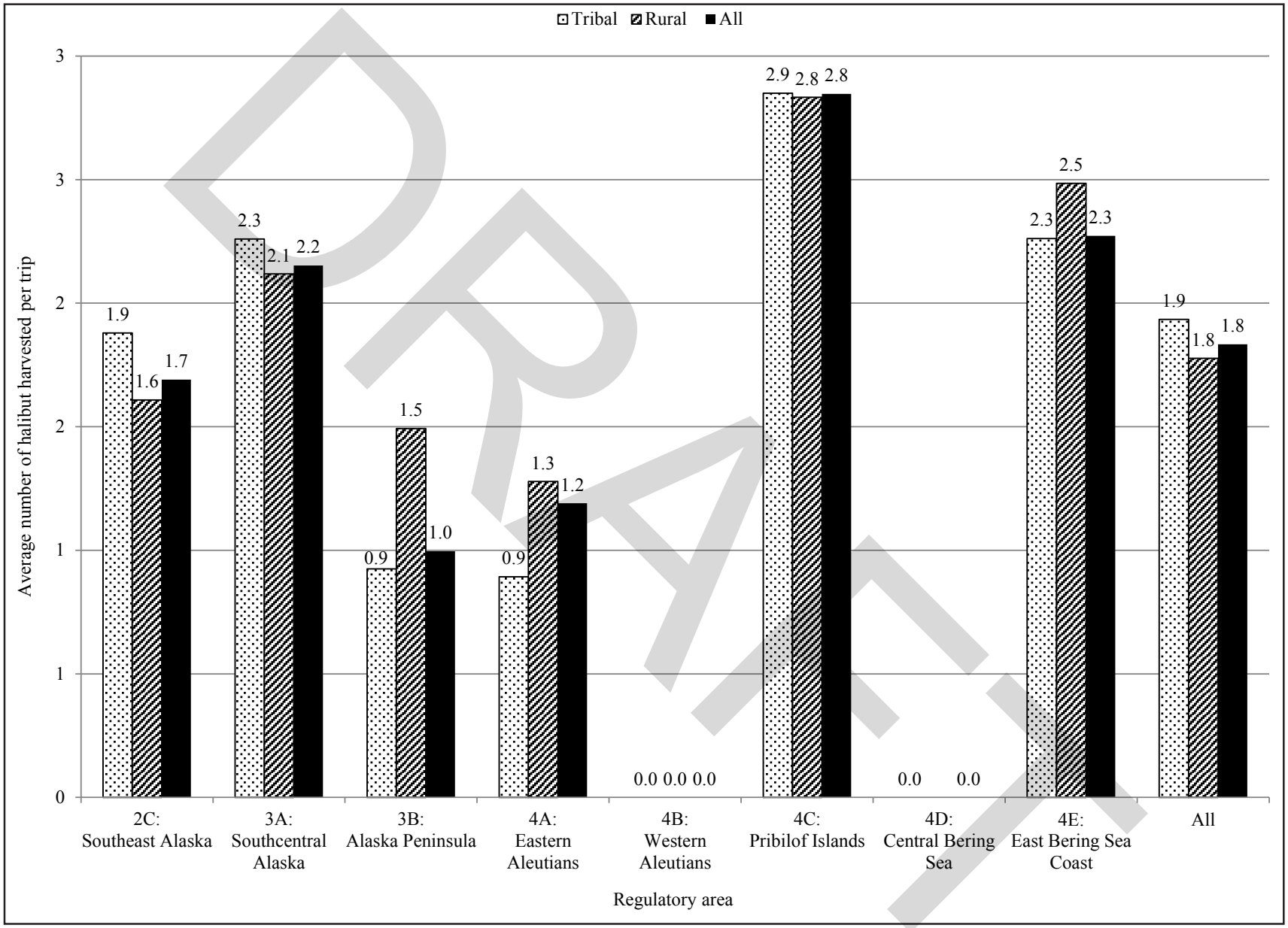


Figure 26.–Average number of halibut harvested per subsistence fishing trip, by regulatory area and SHARC type, 2016.

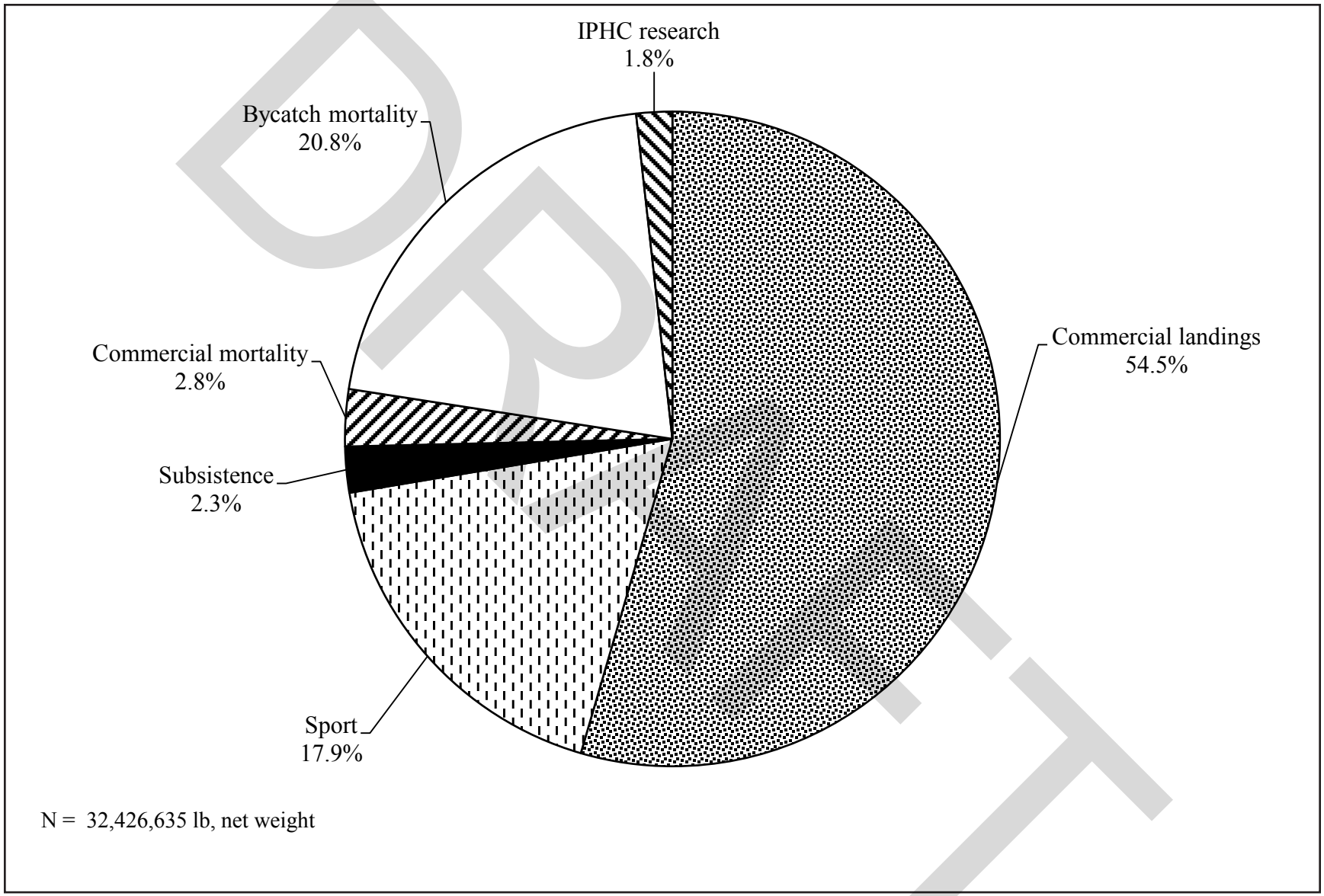


Figure 27.–Halibut removals, Alaska, 2016.

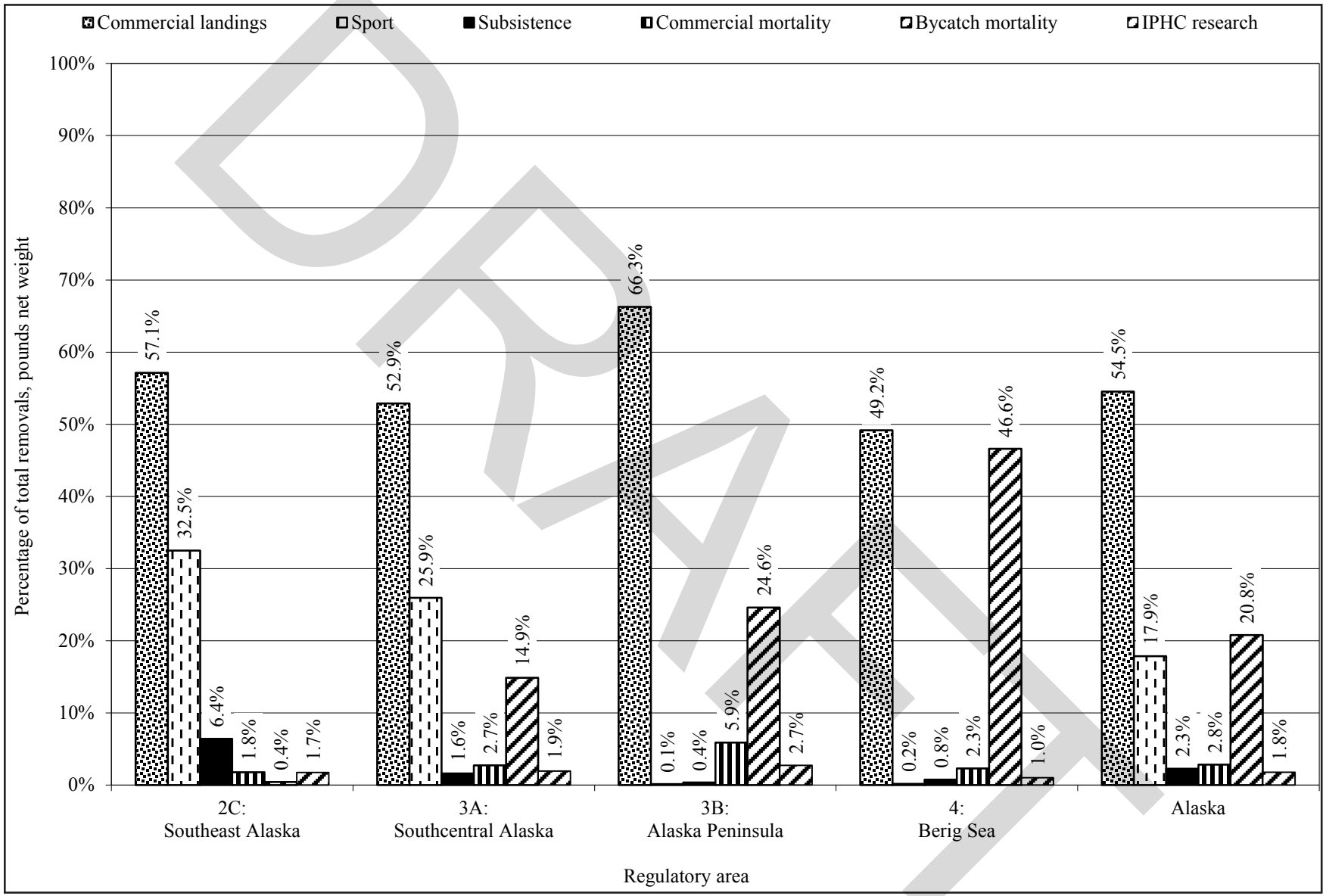


Figure 28.–Halibut removals in Alaska, by regulaotry area and removal category, 2016.

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APPENDIX A–LIST OF ELIGIBLE TRIBES AND RURAL COMMUNITIES, 2003 (FROM FEDERAL REGISTER)

Chichagof Island at 57°22′03″ N. lat., 135°43′00″ W. long., and

(B) A line from Chichagof Island at 57°22′35″ N. lat., 135°41′18″ W. long. to Baranof Island at 57°22′17″ N. lat., 135°40′57″ W. lat.; and

(C) That is enclosed on the south and west by a line from Sitka Point at 56°59′23″ N. lat., 135°49′34″ W. long., to Hanus Point at 56°51′55″ N. lat., 135°30′30″ W. long.,

(D) To the green day marker in Dorothy Narrows at 56°49′17″ N. lat., 135°22′45″ W. long. to Baranof Island at 56°49′17″ N. lat., 135°22′36″ W. long.

(2) A person using a vessel greater than 35 ft (10.7 m) in overall length, as defined at 50 CFR 300.61, is prohibited from fishing for IFQ halibut with setline gear, as defined at 50 CFR 300.61, within Sitka Sound as defined in paragraph (d)(1)(i) of this section.

(3) A person using a vessel less than or equal to 35 ft (10.7 m) in overall length, as defined at 50 CFR 300.61:

(i) Is prohibited from fishing for IFQ halibut with setline gear within Sitka Sound, as defined in paragraph (d)(1)(ii) of this section, from June 1 through August 31; and

(ii) Is prohibited, during the remainder of the designated IFQ season, from retaining more than 2,000 lb (0.91 mt) of IFQ halibut within Sitka Sound, as defined in paragraph (d)(1)(ii) of this section, per IFQ fishing trip, as defined in 50 CFR 300.61.

(4) No charter vessel, as defined at 50 CFR 300.61, shall engage in sport fishing, as defined at 50 CFR 300.61(b), for halibut within Sitka Sound, as defined in paragraph (d)(1)(ii) of this section, from June 1 through August 31.

(i) No charter vessel shall retain halibut caught while engaged in sport fishing, as defined at 50 CFR 300.61(b), for other species, within Sitka Sound, as defined in paragraph (d)(1)(ii) of this section, from June 1 through August 31.

(ii) Notwithstanding paragraphs (d)(4) and (d)(4)(i) of this section, halibut harvested outside Sitka Sound, as defined in (d)(1)(ii) of this section, may be retained onboard a charter vessel engaged in sport fishing, as defined in 50 CFR 300.61(b), for other species within Sitka Sound, as defined in paragraph (d)(1)(ii) of this section, from June 1 through August 31.

(e) Sitka Pinnacles Marine Reserve. (1) For purposes of this paragraph (e), the Sitka Pinnacles Marine Reserve means an area totaling 2.5 square nm off Cape Edgecumbe, defined by straight lines connecting the following points in a counterclockwise manner:

56°55.5′N lat., 135°54.0′W long;
56°57.0′N lat., 135°54.0′W long;
56°57.0′N lat., 135°57.0′W long;
56°55.5′N lat., 135°57.0′W long.

(2) No person shall engage in commercial, sport or subsistence fishing, as defined at § 300.61, for halibut within the Sitka Pinnacles Marine Reserve.

(3) No person shall anchor a vessel within the Sitka Pinnacles Marine Reserve if halibut is on board.

(f) *Subsistence fishing in and off Alaska.* No person shall engage in subsistence fishing for halibut unless that person meets the requirements in paragraphs (f)(1) or (f)(2) of this section.

(1) A person is eligible to harvest subsistence halibut if he or she is a rural resident of a community with customary and traditional uses of halibut listed in the following table:

HALIBUT REGULATORY AREA 2C

Rural Community	Organized Entity
Angoon	Municipality
Coffman Cove	Municipality
Craig	Municipality
Edna Bay	Census Designated Place
Elfin Cove	Census Designated Place
Gustavus	Census Designated Place
Haines	Municipality
Hollis	Census Designated Place
Hoonah	Municipality
Hydaburg	Municipality
Hyder	Census Designated Place
Kake	Municipality
Kasaan	Municipality
Klawock	Municipality
Klukwan	Census Designated Place
Metlakatla	Census Designated Place
Meyers Chuck	Census Designated Place
Pelican	Municipality
Petersburg	Municipality
Point Baker	Census Designated Place
Port Alexander	Municipality
Port Protection	Census Designated Place
Saxman	Municipality
Sitka	Municipality
Skagway	Municipality
Tenakee Springs	Municipality
Thorne Bay	Municipality
Whale Pass	Census Designated Place
Wrangell	Municipality

HALIBUT REGULATORY AREA 3A

Rural Community	Organized Entity
Akhiok	Municipality
Chenega Bay	Census Designated Place
Cordova	Municipality

HALIBUT REGULATORY AREA 3A—Continued

Rural Community	Organized Entity
Karluk	Census Designated Place
Kodiak City	Municipality
Larsen Bay	Municipality
Nanwalek	Census Designated Place
Old Harbor	Municipality
Ouzinkie	Municipality
Port Graham	Census Designated Place
Port Lions	Municipality
Seldovia	Municipality
Tatitlek	Census Designated Place
Yakutat	Municipality

HALIBUT REGULATORY AREA 3B

Rural Community	Organized Entity
Chignik Bay	Municipality
Chignik Lagoon	Census Designated Place
Chignik Lake	Census Designated Place
Cold Bay	Municipality
False Pass	Municipality
Ivanof Bay	Census Designated Place
King Cove	Municipality
Nelson Lagoon	Census Designated Place
Perryville	Census Designated Place
Sand Point	Municipality

HALIBUT REGULATORY AREA 4A

Rural Community	Organized Entity
Akutan	Municipality
Nikolski	Census Designated Place
Unalaska	Municipality

HALIBUT REGULATORY AREA 4B

Rural Community	Organized Entity
Adak	Census Designated Place
Atka	Municipality

HALIBUT REGULATORY AREA 4C

Rural Community	Organized Entity
St. George	Municipality
St. Paul	Municipality

HALIBUT REGULATORY AREA 4D

Rural Community	Organized Entity
Gambell	Municipality
Savoonga	Municipality

HALIBUT REGULATORY AREA 4D—Continued

Rural Community	Organized Entity
Diomede (Inalik)	Municipality

HALIBUT REGULATORY AREA 4E

Rural Community	Organized Entity
Alakanuk	Municipality
Aleknegik	Municipality
Bethel	Municipality
Brevig Mission	Municipality
Chefornak	Municipality
Chevak	Municipality
Clark's Point	Municipality
Council	Census Designated Place
Dillingham	Municipality
Eek	Municipality
Egegik	Municipality
Elim	Municipality
Emmonak	Municipality
Golovin	Municipality
Goodnews Bay	Municipality
Hooper Bay	Municipality
King Salmon	Census Designated Place
Kipnuk	Census Designated Place
Kongiganak	Census Designated Place
Kotlik	Municipality
Koyuk	Municipality
Kwigillingok	Census Designated Place
Levelock	Census Designated Place
Manokotak	Municipality
Mekoryak	Municipality
Naknek	Census Designated Place
Napakiak	Municipality
Napaskiak	Municipality
Newtok	Census Designated Place
Nightmute	Municipality
Nome	Municipality
Oscarville	Census Designated Place
Pilot Point	Municipality
Platinum	Municipality
Port Heiden	Municipality
Quinhagak	Municipality
Scammon Bay	Municipality
Shaktoolik	Municipality
Sheldon Point (Nunam Iqua).	Municipality
Shishmaref	Municipality
Solomon	Census Designated Place
South Naknek	Census Designated Place
St. Michael	Municipality
Stebbins	Municipality
Teller	Municipality
Togiak	Municipality
Toksook Bay	Municipality
Tuntutuliak	Census Designated Place
Tununak	Census Designated Place

HALIBUT REGULATORY AREA 4E—Continued

Rural Community	Organized Entity
Twin Hills	Census Designated Place
Ugashik	Census Designated Place
Unalakleet	Municipality
Wales	Municipality
White Mountain	Municipality

(2) A person is eligible to harvest subsistence halibut if he or she is a member of an Alaska Native tribe with customary and traditional uses of halibut listed in the following table:

HALIBUT REGULATORY AREA 2C

Place with Tribal Headquarters	Organized Tribal Entity
Angoon	Angoon Community Association
Craig	Craig Community Association
Haines	Chilkoot Indian Association
Hoonah	Hoonah Indian Association
Hydaburg	Hydaburg Cooperative Association
Juneau	Aukquan Traditional Council
	Central Council Tlingit and Haida Indian Tribes
	Douglas Indian Association
Kake	Organized Village of Kake
Kasaan	Organized Village of Kasaan
Ketchikan	Ketchikan Indian Corporation
Klawock	Klawock Cooperative Association
Klukwan	Chilkat Indian Village
Metlakatla	Metlakatla Indian Community, Annette Island Reserve
Petersburg	Petersburg Indian Association
Saxman	Organized Village of Saxman
Sitka	Sitka Tribe of Alaska
Skagway	Skagway Village
Wrangell	Wrangell Cooperative Association

HALIBUT REGULATORY AREA 3A

Place with Tribal Headquarters	Organized Tribal Entity
Akhiok	Native Village of Akhiok
Chenega Bay	Native Village of Chanega

HALIBUT REGULATORY AREA 3A—Continued

Place with Tribal Headquarters	Organized Tribal Entity
Cordova	Native Village of Eyak
Karluk	Native Village of Karluk
Kenai-Soldotna	Kenaitze Indian Tribe
	Village of Salamatoff
Kodiak City	Lesnoi Village (Woody Island)
	Native Village of Afognak
	Shoonaq' Tribe of Kodiak
Larsen Bay	Native Village of Larsen Bay
Nanwalek	Native Village of Nanwalek
Ninilchik	Ninilchik Village
Old Harbor	Village of Old Harbor
Ouzinkie	Native Village of Ouzinkie
Port Graham	Native Village of Port Graham
Port Lions	Native Village of Port Lions
Seldovia	Seldovia Village Tribe
Tatitlek	Native Village of Tatitlek
Yakutat	Yakutat Tlingit Tribe

HALIBUT REGULATORY AREA 3B

Place with Tribal Headquarters	Organized Tribal Entity
Chignik Bay	Native Village of Chignik
Chignik Lagoon	Native Village of Chignik Lagoon
Chignik Lake	Chignik Lake Village
False Pass	Native Village of False Pass
Ivanof Bay	Ivanoff Bay Village
King Cove	Agdaagux Tribe of King Cove
	Native Village of Belkofski
Nelson Lagoon	Native Village of Nelson Lagoon
Perryville	Native Village of Perryville
Sand Point	Pauloff Harbor Village
	Native Village of Unga
	Qagan Toyagungin Tribe of Sand Point Village

HALIBUT REGULATORY AREA 4A

Place with Tribal Headquarters	Organized Tribal Entity
Akutan	Native Village of Akutan
Nikolski	Native Village of Nikolski
Unalaska	Qawalingin Tribe of Unalaska

HALIBUT REGULATORY AREA 4B

Place with Tribal Headquarters	Organized Tribal Entity
Atka	Native Village of Atka

HALIBUT REGULATORY AREA 4C

Place with Tribal Headquarters	Organized Tribal Entity
St. George	Pribilof Islands Aleut Communities of St. Paul Island and St. George Island
St. Paul	

HALIBUT REGULATORY AREA 4D

Place with Tribal Headquarters	Organized Tribal Entity
Gambell	Native Village of Gambell
Savoonga	Native Village of Savoonga
Diomede (Inalik)	Native Village of Diomede (Inalik)

HALIBUT REGULATORY AREA 4E

Place with Tribal Headquarters	Organized Tribal Entity
Alakanuk	Village of Alakanuk
Aleknagik	Native Village of Aleknagik
Bethel	Orutsararmuit Native Village
Brevig Mission	Native Village of Brevig Mission
Chefornak	Village of Chefornak
Chevak	Chevak Native Village
Clark's Point	Village of Clark's Point
Council	Native Village of Council
Dillingham	Native Village of Dillingham
	Native Village of Ekuk
	Native Village of Kanakanak
Eek	Native Village of Eek
Egegik	Egegik Village
	Village of Kanatak
Elim	Native Village of Elim
Emmonak	Chuloonawick Native Village
	Emmonak Village
Golovin	Chinik Eskimo Community
Goodnews Bay	Native Village of Goodnews Bay
Hooper Bay	Native Village of Hooper Bay
	Native Village of Paimiut
King Salmon	King Salmon Tribal Council
Kipnuk	Native Village of Kipnuk
Kongiganak	Native Village of Kongiganak
Kotlik	Native Village of Hamilton
	Village of Bill Moore's Slough
	Village of Kotlik
Koyuk	Native Village of Koyuk
Kwigillingok	Native Village of Kwigillingok
Levelock	Levelock Village
Manokotak	Manokotak Village
Mekoryak	Native Village of Mekoryak
Naknek	Naknek Native Village
Napakiak	Native Village of Napakiak
Napaskiak	Native Village of Napaskiak
Newtok	Newtok Village
Nightmute	Native Village of Nightmute
	Umkumiute Native Village
Nome	King Island Native Community
	Nome Eskimo Community
Oscarville	Oscarville Traditional Village
Pilot Point	Native Village of Pilot Point
Platinum	Platinum Traditional Village
Port Heiden	Native Village of Port Heiden
Quinhagak	Native Village of Kwinhagak
Scammon Bay	Native Village of Scammon Bay
Shaktoolik	Native Village of Shaktoolik
Sheldon Point (Nuna Iqua).	Native Village of Sheldon's Point
Shishmaref	Native Village of Shishmaref
Solomon	Village of Solomon
South Naknek	South Naknek Village
St. Michael	Native Village of Saint Michael
Stebbins	Stebbins Community Association
Teller	Native Village of Mary's Igloo
	Native Village of Teller
Togiak	Traditional Village of Togiak
Toksook Bay	Native Village of Toksook Bay
Tuntutuliak	Native Village of Tuntutuliak
Tununak	Native Village of Tununak
Twin Hills	Twin Hills Village
Ugashik	Ugashik Village
Unalakleet	Native Village of Unalakleet
Wales	Native Village of Wales
White Mountain	Native Village of White Mountain

(g) *Limitations on subsistence fishing.* Subsistence fishing for halibut may be conducted only by persons who qualify for such fishing pursuant to paragraph (f) of this section and who hold a valid subsistence halibut registration certificate in that person's name issued by NMFS pursuant to paragraph (h) of this section, provided that such fishing is consistent with the following limitations.

(1) Subsistence fishing is limited to setline gear and hand-held gear, including longline, handline, rod and reel, spear, jig and hand-troll gear.

(i) Subsistence fishing gear must not have more than 30 hooks per person registered in accordance with paragraph (h) of this section and on board the vessel from which gear is being set or retrieved.

(ii) All setline gear marker buoys carried on board or used by any vessel regulated under this section shall be marked with the following: first initial, last name, and address (street, city, and state), followed by the letter "S" to indicate that it is used to harvest subsistence halibut.

(iii) Markings on setline marker buoys shall be in characters at least 4 inches (10.16 cm) in height and 0.5 inch (1.27 cm) in width in a contrasting color visible above the water line and shall be maintained so the markings are clearly visible.

(2) The daily retention of subsistence halibut in rural areas is limited to no more than 20 fish per person eligible to conduct subsistence fishing for halibut under paragraph (g) of this section,

APPENDIX B–SURVEY INSTRUMENT

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Fold on the dotted lines to mail in your survey

NO POSTAGE
NECESSARY
IF MAILED
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UNITED STATES

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AK DEPT OF FISH AND GAME
SUBSISTENCE DIVISION
333 RASPBERRY RD
ANCHORAGE AK 99518-9961

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Tape Closed

SUBSISTENCE HALIBUT HARVEST SURVEY 2016

National Marine Fisheries Service &
AK Dept. Fish & Game/Division of Subsistence
(please make address changes as needed)

2016

SHARC Holder's Name

First Name M.I. Last Name

Mailing Address

Number and street or PO Box City State Zip code

Community of Residence | Daytime Telephone | SHARC Number

Tribe (if you are on a tribal role) | Exp. Date:

Please answer each question to the best of your knowledge

1. Did you **subsistence** fish for halibut during 2016? ☐ **Yes** ☐ **No**
   (Please check one. If No, skip to question #5)

2. How many halibut did you harvest with set hook gear (long-line, skate) while subsistence fishing during 2016?
   ("Set hook gear" is hook-and-line set with anchors and buoys. Please write in both the number and pounds of halibut. Pounds should be round (live) weight.)

   2a. Number of halibut | 2b. Pounds of halibut | 2c. How many hooks did you usually set? | 2d. Water body, bay or sound usually fished

3. How many halibut did you harvest with hook-and-rod or hand-held lines while subsistence fishing during 2016?
   (Please write in both the number and pounds of halibut. Do not count fish reported in Question 6. Pounds should be round (live) weight.)

   3a. Number of halibut | 3b. Pounds of halibut | 3c. Water body, bay or sound usually fished

4. How many trips did you take to fish for subsistence halibut in 2016?
   (Please include trips where halibut was targeted but none were caught)

5. Did you sport fish for halibut during 2016? (Please check one) ☐**Yes** ☐**No**

6. How many halibut did you harvest while **sport fishing** during 2016?
   (Please write in both the number and pounds of halibut. Do not count fish reported in Question 3. Pounds should be round (live) weight.)

   6a. Number of Halibut | 6b. Pounds of Halibut | 6c. Water body, bay or sound usually fished

THANK YOU!

Please mail the completed survey to:
Subsistence Halibut Harvest Survey
Alaska Dept. Fish & Game/Div. of Subsistence
333 Raspberry Road
Anchorage AK 99518-1599

QUESTIONS?

Regarding the survey: ADF&G 1-907-267-2353
Regarding your SHARC card: NMFS at 1-800-304-4846
(option 2) dfg.sub.halibut@alaska.gov

Under AS 16.05.815, Alaska state law prevents the transfer of certain information based on confidentiality. Such information includes, but is not limited to, personal information contained in fish and wildlife harvest and usage data; fish tickets; fish ticket computer runs; intents to operate; processor annual reports; log books or other catch records; and individual or vessel harvest records that are correlated to their harvest or effort. Individual data collected in this survey is confidential under this statute.

INSTRUCTIONS FOR SUBSISTENCE HALIBUT HARVEST SURVEY, 2016

TO AVOID FUTURE NOTIFICATIONS, PLEASE RESPOND NOW. PLEASE COMPLETE AND RETURN THE SURVEY EVEN IF YOUR SHARC HAS EXPIRED.

Question 1.

- Mark "yes" even if you fished but were unsuccessful

Questions 2 and 3.

- Include only those fish harvested by you, the individual fisher (SHARC holder). If you fished with someone else and split the catch, count only your share of the catch. Other household members who harvested halibut should fill out their own forms.
- Include fish that you harvested and kept for your household's use AND fish you harvested and gave away or traded. DO NOT include fish that you received from someone else.
- Identify both the number and pounds of halibut harvested; if you cannot provide both, please provide what you are able. Pounds should be **ROUND (LIVE) WEIGHT**. If you only know the dressed weight of your halibut harvest, record that number and make a note of "dressed, head on" (equals about 88% of round weight) or "dressed, head off" (equals about 75% of round weight).
- Number of hooks: write in the number that you use most often each time you set a line. That is, the number of hooks you usually have on your longline/skate.
- Water body, bay, or sound: record the general location where you did most of your subsistence halibut fishing (for example, "Chiniak Bay," "Sitka Sound"). If you used more than one general area for a significant portion of your catch, please provide the portion of your harvest from each.

Question 4.

- Enter the number of trips taken for subsistence halibut. Please include all trips where you subsistence fished for halibut, even if you were not successful.

Questions 5 and 6.

- Sport fishing for halibut requires an Alaska sport fishing license. Sport fishers for halibut must fish with a line attached to a rod or pole. There is a limit of two hooks. The daily bag limit is two halibut and the possession limit is four halibut.

Do you still have questions?

Call the National Marine Fisheries Service at: 1-800-304-4846 (option 2);
Or visit http://www.fakr.noaa.gov/ram/subsistence/halibut.htm;
Or call ADF&G Division of Subsistence at: 907-267-2353;
Or contact the Division of Subsistence via e-mail at: dfg.sub.halibut@alaska.gov.

THANK YOU FOR PARTICIPATING IN THIS SURVEY!

ALASKA DEPARTMENT OF FISH & GAME
Subsistence Halibut Survey
Division of Subsistence
333 Raspberry Rd.
Anchorage, Alaska 99518-1599

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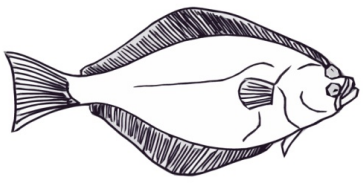
«CITY» «STATE» «ZIP»

SUBSISTENCE HALIBUT HARVEST SURVEY 2016
NATIONAL MARINE FISHERIES SERVICE &
ALASKA DEPARTMENT OF FISH & GAME/DIVISION OF SUBSISTENCE



2016

APPENDIX C–SET OF FREQUENTLY ASKED QUESTIONS AND RESPONSES

RAM
FAQ's for Subsistence Halibut Harvest Survey

The following is a list of standard responses that may be given to common questions regarding the Subsistence Halibut Harvest Survey. Any question that cannot be answered by the responses below or by other personnel in RAM division may be directed to ADF&G Division of Subsistence at the phone number(s) indicated at the bottom of the page.

1. I got my SHARC from NMFS. Why is this survey being done by ADF&G?

- NMFS contracted with ADF&G Division of Subsistence to conduct this survey because the Division of Subsistence has a lot of experience in collecting and analyzing subsistence harvest data. They have staff who are familiar with local communities and subsistence harvest patterns.

2. What happens to this information after I send it in?

- The survey responses are entered into a database by ADF&G. They will use the responses to estimate and report subsistence harvests at a community level. NMFS will receive a report from ADF&G with the survey results. The report will not include individual responses.

3. Why do you need my birth date?

- ADF&G needs birth date only to distinguish between individuals who may have the same name. For instance, there may be many John Smith's in area 2C. Providing birth date prevents ADF&G from counting the same person more than once or even counting multiple people as the same person. However, ADF&G is required to maintain birth date confidential under the Privacy Act.

4. I live in an isolated area near [insert]. What do I put down as my Community of Residence?

- Your Community of Residence is defined as the geographical location of your home. If you live in a remote location, you may list the community nearest your home. "Community of residence" is not necessarily the same as where you receive your mail.

5. The survey asks me to put down Pounds of Halibut. Does this mean I should weigh all my halibut on a scale?

- No. While an actual weight using a scale would be helpful to ADF&G, you only need to estimate the total pounds of halibut you harvested. If you know how many halibut you harvested, but have no idea how much they weighed, leave the "pounds" area blank. If you know about how many pounds you harvested but have no idea how many fish you caught, leave the "number" area blank. We will calculate the pounds or number based on standard conversion factors. However, we prefer that you do your best to provide an estimate of both numbers and pounds, because this information is lacking for the subsistence fishery.

6. Should I record the weight of my halibut before or after I process them?

- The survey asks for **ROUND WEIGHT**, which is the weight of the fish BEFORE it is gutted and beheaded. If you only know the approximate weight of the fish after you gutted them, write "dressed, head on" next to the weight (this equals about 88% of round/live weight). If you only know the approximate weight of the fish after you gutted and beheaded them, write "dressed, head off" next to the weight (this equals about 72% of round/live weight).

7. I fish near [insert]. What is the water body, bay, or sound?

- The water body, bay, or sound is the area in which you subsistence fished for halibut. For instance, a subsistence fisher from Sitka might put down that he subsistence fished for halibut in Sitka *Sound* or a subsistence fisher from Kodiak might put down that he subsistence fished for halibut in Chiniak *Bay*. However, a subsistence fisher from Akutan might put down that he subsistence fished for halibut in Unimak Pass, which is neither a bay nor sound but would be classified as a *water body*. Likewise, a subsistence fisher from St. Paul might put down that he subsistence fished for halibut in the Bering Sea, which is also a *water body*. However, the more specific the description, the more helpful it will be to ADF&G.

8. What is a lingcod?

- A lingcod is a relatively long fish that ranges from black, to grey, to greenish, to bluish-purple, usually with dark brown or copper blotches arranged in clusters, and has a large mouth with 18 large teeth. For a more accurate description and local or tribal names, you can refer to the sheet distributed by ADF&G in the original mailing that also contained your Subsistence Halibut Harvest Survey or visit the NMFS website http://www.afsc.noaa.gov/race/media/photo_gallery/fish_by_family.htm.

9. What is a rockfish?

- These fish are characterized by having bony plates or spines on the head and body and a large mouth. Some species are brightly colored, and many are difficult to distinguish from one another. They are also known as sea bass, black bass, and red snapper. For a more accurate description and local or tribal names, you can refer to the instruction sheet distributed by ADF&G in the original mailing that also contained your Subsistence Halibut Harvest Survey or visit the NMFS website http://www.afsc.noaa.gov/race/media/photo_gallery/fish_by_family.htm.

10. What is "sport fishing"?

- Sport fishing is defined as all fishing other than commercial fishing, personal use fishing, and subsistence fishing. Typically, sport fishing is conducted with a rod and reel using no more than 2 hooks under ADF&G regulations.

11. Why do I need to report my sport-caught halibut on this subsistence harvest survey form (Question 6)?

- The survey is designed to prevent double-counting of harvested halibut. If you fish for halibut with a rod and reel and have a sport fishing license, you may include your harvests in Question 2 if you consider your activity to be subsistence fishing, or under Question 6 if you consider it sport fishing. DO NOT INCLUDE THE SAME FISH IN YOUR REPSONSES TO QUESTIONS 2 AND 6. We will exclude responses to Question 6 from our estimate of subsistence halibut harvests. Holders of sport fishing licenses may receive a survey from ADF&G about their sport harvests. If you do, you should report the halibut you record in Question 6 in that survey too, but do not include the halibut you record in Question 2.

All other inquiries regarding the survey should be directed to ADF&G Division of Subsistence at (907) 267-2353 (Anchorage) or 907-465-3617, or e-mail at subsistence_halibut@fishgame.state.ak.us

APPENDIX D–ADDITIONAL TABLES

Appendix Table D-1.– Estimated subsistence harvests of halibut by gear type, 2016.

Tribal name	Regulatory area	Number of SHARCs issued[a]	Setline gear[b]			Hand-operated gear[c]			All gear				
			Estimated number respondents fished	Estimated number halibut harvested	Estimated pounds halibut harvested	Estimated number respondents fished	Estimated number halibut harvested	Estimated pounds halibut harvested	Estimated number respondents fished	Estimated number halibut harvested	Confidence interval for number of halibut	Estimated pounds halibut harvested	Confidence interval for pounds of halibut
Angoon Community Association	2C	45	17	204	4,956	4	21	643	17	225	65.2%	5,599	68.1%
Central Council Tlingit and Haida Indian Tribes	2C	413	152	1,621	31,332	60	438	8,271	179	2,058	27.5%	39,602	28.3%
Chilkat Indian Village	2C	8	3	0	0	0	0	0	3	0	0.0%	0	0.0%
Chilkoot Indian Association	2C	41	17	97	2,249	5	10	365	17	108	27.3%	2,614	35.0%
Craig Community Association	2C	42	22	314	5,568	8	44	810	26	358	82.2%	6,378	69.4%
Douglas Indian Association	2C	6	2	4	120	0	0	0	2	4	263.5%	120	263.5%
Hoonah Indian Association	2C	96	28	530	8,774	14	156	3,608	34	686	39.9%	12,381	45.5%
Hydaburg Cooperative Association	2C	71	36	171	5,252	6	3	97	36	174	61.2%	5,349	55.0%
Ketchikan Indian Corporation	2C	428	121	1,054	24,720	56	390	6,278	150	1,445	22.6%	30,998	21.7%
Klawock Cooperative Association	2C	48	18	66	2,451	7	0	0	18	66	66.6%	2,451	66.8%
Metlakatla Indian Community, Annette Island Reserve	2C	135	44	226	6,045	15	7	137	44	234	63.4%	6,182	58.6%
Organized Village of Kake	2C	72	26	249	6,378	9	9	296	26	258	45.5%	6,674	49.3%
Organized Village of Kasaan	2C	5	2	5	81	0	0	0	2	5	272.1%	81	272.1%
Organized Village of Saxman	2C	15	0	0	0	0	0	0	0	0	0.0%	0	0.0%
Petersburg Indian Association	2C	58	15	86	1,812	9	25	549	19	110	30.1%	2,361	36.4%
Sitka Tribe of Alaska	2C	203	81	675	17,068	21	41	959	88	716	28.1%	18,026	28.9%
Skagway Village	2C	2											
Wrangell Cooperative Association	2C	60	24	271	5,876	17	45	984	29	315	32.4%	6,860	34.7%
Subtotal, Area 2C		**1,748**	**606**	**5,573**	**122,682**	**232**	**1,194**	**23,160**	**690**	**6,767**	**12.3%**	**145,842**	**12.0%**
Kenaitze Indian Tribe	3A	105	4	89	903	5	87	2,612	9	176	78.3%	3,515	98.8%
Lesnoi Village (Woody Island)	3A	14	0	0	0	0	0	0	0	0	0.0%	0	0.0%
Native Village of Afognak	3A	16	2	6	138	2	4	60	4	10	61.5%	198	66.5%
Native Village of Akhiok	3A	19	6	0	0	13	51	1,663	19	51	215.1%	1,663	203.4%
Native Village of Chenega	3A	16	4	32	330	2	2	15	4	34	136.6%	345	143.9%
Native Village of Eyak	3A	47	16	121	1,837	16	31	620	18	152	49.0%	2,457	46.7%
Native Village of Karluk	3A	14	0	0	0	14	58	1,510	14	58	64.2%	1,510	86.7%
Native Village of Larsen Bay	3A	40	7	20	213	20	98	2,238	23	118	49.7%	2,450	47.6%
Native Village of Nanwalek	3A	42	16	261	2,921	19	149	1,383	23	411	85.0%	4,303	46.8%
Native Village of Ouzinkie	3A	21	8	92	2,244	5	29	571	11	121	114.5%	2,815	111.4%
Native Village of Port Graham	3A	33	9	253	4,707	13	101	1,565	17	354	59.2%	6,271	84.6%
Native Village of Port Lions	3A	24	15	90	1,743	3	8	242	15	97	23.8%	1,985	21.2%
Native Village of Tatitlek	3A	12	6	51	1,069	0	0	0	6	51	154.6%	1,069	153.7%
Ninilchik Village	3A	54	8	51	497	11	95	450	14	146	45.6%	947	42.0%
Seldovia Village Tribe	3A	51	18	184	2,610	7	81	824	20	265	29.4%	3,434	23.5%
Sun'aq Tribe of Kodiak (formerly Shoonaq')	3A	94	38	320	6,559	18	86	1,837	45	406	33.0%	8,396	32.6%
Village of Kanatak	3A	5	0	0	0	0	0	0	0	0	0.0%	0	0.0%
Village of Old Harbor	3A	28	7	119	2,461	11	58	937	13	177	77.8%	3,398	69.7%
Village of Salamatoff	3A	23	2	10	144	8	157	1,632	10	167	65.1%	1,775	60.3%
Yakutat Tlingit Tribe	3A	38	21	268	6,519	5	26	570	24	295	50.1%	7,089	55.9%
Subtotal, Area 3A		**696**	**188**	**1,968**	**34,895**	**171**	**1,120**	**18,726**	**287**	**3,087**	**15.0%**	**53,620**	**15.6%**
Agdaagux Tribe of King Cove	3B	35	14	83	1,660	16	75	1,080	21	158	30.4%	2,740	33.8%
Chignik Lake Village	3B	9	0	0	0	0	0	0	0	0	0.0%	0	0.0%
Ivanoff Bay Village	3B	4											
Native Village of Belkofski	3B	2											
Native Village of Chignik Lagoon	3B	7	0	0	0	2	4	131	2	4	208.3%	131	208.3%
Native Village of False Pass	3B	11	0	0	0	11	61	1,196	11	61	522.4%	1,196	435.9%

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Appendix Table D-1.–Page 2 of 5.

Tribal name	Regulatory area	Number of SHARCs issued[a]	Setline gear[b]			Hand-operated gear[c]			All gear				
			Estimated number respondents fished	Estimated number halibut harvested	Estimated pounds halibut harvested	Estimated number respondents fished	Estimated number halibut harvested	Estimated pounds halibut harvested	Estimated number respondents fished	Estimated number halibut harvested	Confidence interval for number of halibut	Estimated pounds halibut harvested	Confidence interval for pounds of halibut
Native Village of Nelson Lagoon	3B	3	0	0	0	2	2	11	2	2	733.6%	11	733.6%
Native Village of Perryville	3B	15	13	45	699	6	0	0	13	45	67.5%	699	72.8%
Native Village of Unga	3B	8	1	1	33	1	3	90	3	4	87.8%	123	93.5%
Pauloff Harbor Village	3B	66	8	0	0	33	66	1,794	41	66	103.2%	1,794	110.9%
Qagan Toyagungin Tribe of Sand Point Village	3B	246	30	78	1,327	60	229	4,930	69	306	58.3%	6,257	60.9%
Subtotal, Area 3B		**406**	**68**	**212**	**3,839**	**131**	**438**	**9,233**	**162**	**650**	**34.2%**	**13,072**	**33.6%**
Native Village of Akutan	4A	7	1	4	88	1	12	298	2	15	73.6%	385	73.9%
Qawalangin Tribe of Unalaska	4A	26	10	26	1,048	7	23	579	13	49	53.8%	1,627	56.8%
Subtotal, Area 4A		**33**	**11**	**30**	**1,136**	**8**	**34**	**876**	**15**	**64**	**42.9%**	**2,012**	**43.6%**
Native Village of Atka	4B	3											
Subtotal, Area 4B		**3**											
Pribilof Islands Aleut Community of St. George	4C	2											
Pribilof Islands Aleut Community of St. Paul	4C	29	10	184	1,965	15	92	1,722	19	276	125.0%	3,687	119.0%
Subtotal, Area 4C		**31**	**10**	**184**	**1,965**	**15**	**92**	**1,722**	**19**	**276**	**111.2%**	**3,687**	**106.3%**
Native Village of Diomede (Inalik)	4D	1											
Native Village of Savoonga	4D	2											
Subtotal, Area 4D		**3**											
Chevak Native Village (Kashunamiut)	4E	1											
Chinik Eskimo Community	4E	1											
King Island Native Community	4E	1											
King Salmon Tribal Council	4E	1											
Manokotak Village	4E	2											
Naknek Native Village	4E	4											
Native Village of Aleknagik	4E	4											
Native Village of Council	4E	4											
Native Village of Dillingham (Curyung)	4E	8	2	0	0	0	0	0	2	0	0.0%	0	0.0%
Native Village of Eek	4E	9	0	0	0	5	15	428	5	15	96.6%	428	100.6%
Native Village of Ekuk	4E	1											
Native Village of Hooper Bay	4E	1											
Native Village of Kanakanak	4E	1											
Native Village of Kipnuk	4E	1											
Native Village of Kongiganak	4E	4											
Native Village of Koyuk	4E	3											
Native Village of Kwigillingok	4E	1											
Native Village of Mekoryuk	4E	3											
Native Village of Nightmute	4E	2											
Native Village of Scammon Bay	4E	4											
Native Village of Toksook Bay (Nunakauyak)	4E	100	5	20	284	93	2,163	24,851	95	2,183	29.3%	25,134	31.2%
Native Village of Tununak	4E	63	5	2	35	63	772	10,702	63	773	27.7%	10,738	26.1%
Native Village of Unalakleet	4E	1											
Newtok Village	4E	1											
Nome Eskimo Community	4E	7	0	0	0	0	0	0	0	0	0.0%	0	0.0%
Orutsararmuit Native Village	4E	9	1	23	169	2	28	253	2	51	69.4%	422	62.8%
Platinum Traditional Village	4E	1											
Stebbins Community Association	4E	5	0	0	0	0	0	0	0	0	0.0%	0	0.0%

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Appendix Table D-1.–Page 3 of 5.

Tribal name	Regulatory area	Number of SHARCs issued[a]	Setline gear[b] Estimated number respondents fished	Setline gear[b] Estimated number halibut harvested	Setline gear[b] Estimated pounds halibut harvested	Hand-operated gear[c] Estimated number respondents fished	Hand-operated gear[c] Estimated number halibut harvested	Hand-operated gear[c] Estimated pounds halibut harvested	All gear Estimated number respondents fished	All gear Estimated number halibut harvested	All gear Confidence interval for number of halibut	All gear Estimated pounds halibut harvested	All gear Confidence interval for pounds of halibut
Traditional Village of Togiak	4E	1											
Village of Alakanuk	4E	1											
Village of Chefornak	4E	2											
Village of Clark's Point	4E	4											
Subtotal, Area 4E		**251**	**16**	**70**	**747**	**173**	**3,051**	**37,270**	**178**	**3,121**	**18.7%**	**38,017**	**18.7%**
Tribal subtotal		**3,171**	**899**	**8,035**	**165,262**	**730**	**5,929**	**90,987**	**1,352**	**13,964**	**9.1%**	**256,249**	**8.8%**

Rural community	Regulatory area	Number of SHARCs issued[a]	Setline gear[b] Estimated number respondents fished	Setline gear[b] Estimated number halibut harvested	Setline gear[b] Estimated pounds halibut harvested	Hand-operated gear[c] Estimated number respondents fished	Hand-operated gear[c] Estimated number halibut harvested	Hand-operated gear[c] Estimated pounds halibut harvested	All gear Estimated number respondents fished	All gear Estimated number halibut harvested	All gear Confidence interval for number of halibut	All gear Estimated pounds halibut harvested	All gear Confidence interval for pounds of halibut
Angoon	2C	18	7	184	2,160	9	133	2,241	9	317	65.1%	4,401	63.0%
Coffman Cove	2C	36	14	70	1,598	12	76	1,359	20	145	19.4%	2,957	17.2%
Craig	2C	289	133	961	20,084	44	163	4,022	151	1,124	10.7%	24,106	9.4%
Edna Bay	2C	20	10	44	2,040	6	16	693	14	60	39.2%	2,733	35.4%
Elfin Cove	2C	12	6	18	439	0	0	0	6	18	57.0%	439	59.7%
Gustavus	2C	54	26	188	4,081	15	83	1,893	35	271	14.7%	5,974	15.7%
Haines	2C	392	232	973	20,131	39	50	1,071	238	1,022	7.0%	21,202	7.1%
Hollis	2C	21	15	74	1,946	5	15	246	16	89	21.4%	2,192	25.3%
Hoonah	2C	83	38	425	8,377	17	66	1,865	47	492	15.8%	10,242	21.1%
Hydaburg	2C	13	7	56	1,999	0	0	0	7	56	76.0%	1,999	82.4%
Hyder	2C	19	14	55	1,329	5	7	134	14	62	39.9%	1,462	31.8%
Kake	2C	34	14	104	3,214	5	29	695	16	134	30.4%	3,909	31.3%
Kasaan	2C	5	3	9	319	1	0	0	3	9	83.8%	319	84.7%
Ketchikan	2C	34	9	39	725	5	27	1,020	14	66	63.3%	1,745	66.7%
Klawock	2C	121	57	451	10,978	27	171	2,369	66	622	20.1%	13,347	18.1%
Klukwan	2C	1											
Metlakatla	2C	21	5	12	560	5	14	163	9	26	71.1%	723	103.0%
Meyers Chuck	2C	10	10	42	1,221	2	3	63	10	46	20.9%	1,283	22.0%
Naukati Bay	2C	36	28	171	6,095	12	16	325	28	187	27.9%	6,420	18.9%
Pelican	2C	24	14	74	2,349	5	14	397	15	87	32.2%	2,746	32.7%
Petersburg	2C	722	239	1,365	29,991	137	587	11,321	317	1,952	6.0%	41,312	6.1%
Port Alexander	2C	22	16	141	3,227	2	6	422	17	147	23.0%	3,648	21.5%
Port Protection	2C	11	7	34	710	5	15	481	10	49	41.4%	1,191	34.4%
Pt. Baker	2C	11	6	12	418	3	3	83	6	15	53.5%	500	56.0%
Saxman	2C	8	0	0	0	0	0	0	0	0	0.0%	0	0.0%
Sitka	2C	1,144	548	3,345	77,008	157	439	8,229	592	3,784	5.8%	85,237	5.6%
Skagway	2C	59	26	85	1,965	9	12	201	29	97	21.4%	2,165	24.2%
Tenakee Springs	2C	43	22	114	2,762	7	26	454	23	140	13.8%	3,216	15.7%
Thorne Bay	2C	124	63	287	8,812	27	77	1,532	67	364	15.4%	10,344	15.1%
Ward Cove	2C	2											
Whale Pass	2C	9	6	22	1,003	3	6	159	8	28	36.2%	1,162	45.5%
Wrangell	2C	428	213	1,421	29,885	84	272	5,639	238	1,693	7.6%	35,524	7.5%
Subtotal, Area 2C		**3,826**	**1,789**	**10,782**	**245,678**	**647**	**2,327**	**47,074**	**2,028**	**13,108**	**2.9%**	**292,752**	**2.8%**
Akhiok	3A	10	4	20	450	4	8	188	6	28	148.2%	638	146.6%
Chenega Bay	3A	6	4	64	2,100	4	20	689	6	84	121.0%	2,789	76.8%

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Appendix Table D-1.–Page 4 of 5.

Rural community	Regulatory area	Number of SHARCs issued[a]	Setline gear[b] Estimated number respondents fished	Setline gear[b] Estimated number halibut harvested	Setline gear[b] Estimated pounds halibut harvested	Hand-operated gear[c] Estimated number respondents fished	Hand-operated gear[c] Estimated number halibut harvested	Hand-operated gear[c] Estimated pounds halibut harvested	All gear Estimated number respondents fished	All gear Estimated number halibut harvested	All gear Confidence interval for number of halibut	All gear Estimated pounds halibut harvested	All gear Confidence interval for pounds of halibut
Chiniak	3A	11	8	79	1,011	7	11	173	8	90	26.6%	1,183	22.1%
Cordova	3A	382	153	1,096	18,096	78	342	5,894	181	1,438	9.3%	23,989	9.3%
Kodiak	3A	1,072	502	4,116	76,630	235	1,060	20,066	580	5,177	7.1%	96,696	7.0%
Larsen Bay	3A	6	0	0	0	1	4	90	1	4	113.3%	90	113.3%
Nanwalek	3A	7	4	182	2,940	6	22	455	6	204	108.4%	3,395	105.7%
Old Harbor	3A	3											
Ouzinkie	3A	8	7	46	1,127	3	6	128	8	52	0.0%	1,255	0.0%
Port Graham	3A	10	8	345	7,056	7	60	550	10	405	80.4%	7,606	93.4%
Port Lions	3A	11	1	4	93	1	8	103	3	12	86.6%	196	81.0%
Seldovia	3A	110	47	480	6,457	43	421	5,190	71	901	15.2%	11,647	14.6%
Tatitlek	3A	9	8	57	1,294	2	9	225	9	66	37.6%	1,519	44.1%
Yakutat	3A	68	33	460	11,616	18	131	2,649	41	591	29.5%	14,264	32.7%
Subtotal, Area 3A		**1,713**	**780**	**6,950**	**128,869**	**410**	**2,113**	**36,457**	**931**	**9,063**	**5.7%**	**165,327**	**5.9%**
Cold Bay	3B	15	8	51	691	1	6	64	8	58	19.9%	755	19.1%
False Pass	3B	1											
King Cove	3B	14	3	21	531	4	62	1,167	6	83	58.8%	1,698	63.4%
Sand Point	3B	5	3	8	117	3	4	42	4	11	90.8%	159	98.7%
Subtotal, Area 3B		**35**	**13**	**80**	**1,340**	**8**	**72**	**1,273**	**17**	**152**	**23.5%**	**2,613**	**27.2%**
Akutan	4A	1											
Unalaska	4A	120	44	212	4,144	22	78	2,004	54	290	23.4%	6,149	23.8%
Subtotal, Area 4A		**121**	**45**	**222**	**4,407**	**23**	**88**	**2,267**	**55**	**310**	**23.6%**	**6,674**	**24.6%**
Adak	4B	2											
Subtotal, Area 4B		**2**											
St. George Island	4C	3											
St. Paul Island	4C	3											
Subtotal, Area 4C		**6**	**3**	**15**	**338**	**6**	**36**	**520**	**6**	**51**	**156.5%**	**857**	**148.8%**
Alakanuk	4E	1											
Bethel	4E	1											
Chevak	4E	1											
Dillingham	4E	13	2	3	34	1	0	0	2	3	43.8%	34	45.5%
Egegik	4E	2											
King Salmon	4E	2											
Manokotak	4E	1											
Mekoryuk	4E	1											
Naknek	4E	5	4	3	64	3	3	52	4	5	164.3%	115	164.3%
Nome	4E	16	9	98	1,845	0	0	0	9	98	55.5%	1,845	48.1%
Pilot Point	4E	1											
South Naknek	4E	1											
Stebbins	4E	1											
Togiak	4E	1											
Toksook Bay	4E	1											
Tununak	4E	1											
Unalakleet	4E	2											
Subtotal, Area 4E		**51**	**17**	**132**	**2,259**	**9**	**35**	**448**	**20**	**167**	**60.6%**	**2,706**	**53.8%**
Rural subtotal		**5,754**	**2,646**	**18,181**	**382,891**	**1,102**	**4,670**	**88,038**	**3,056**	**22,851**	**2.7%**	**470,929**	**2.6%**

-continued-

Appendix Table D-1.–Page 5 of 5.

Totals	Regulatory area	Number of SHARCs issued[a]	Setline gear[b] Estimated number respondents fished	Setline gear[b] Estimated number halibut harvested	Setline gear[b] Estimated pounds halibut harvested	Hand-operated gear[c] Estimated number respondents fished	Hand-operated gear[c] Estimated number halibut harvested	Hand-operated gear[c] Estimated pounds halibut harvested	All gear Estimated number respondents fished	All gear Estimated number halibut harvested	All gear Confidence interval for number of halibut	All gear Estimated pounds halibut harvested	All gear Confidence interval for pounds of halibut
	2C	**5,574**	**2,395**	**16,355**	**368,360**	**878**	**3,520**	**70,234**	**2,718**	**19,875**	**3.4%**	**438,594**	**3.3%**
	3A	**2,409**	**969**	**8,917**	**163,764**	**581**	**3,233**	**55,183**	**1,218**	**12,150**	**5.6%**	**218,947**	**5.8%**
	3B	**441**	**81**	**292**	**5,178**	**139**	**509**	**10,506**	**179**	**801**	**32.1%**	**15,684**	**32.3%**
	4A	**154**	**56**	**252**	**5,543**	**31**	**122**	**3,143**	**70**	**374**	**20.8%**	**8,686**	**21.1%**
	4B	**5**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0%**	**0**	**0.0%**
	4C	**37**	**13**	**199**	**2,302**	**21**	**128**	**2,242**	**25**	**327**	**73.2%**	**4,544**	**69.2%**
	4D	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0%**	**0**	**0.0%**
	4E	**302**	**32**	**202**	**3,005**	**182**	**3,086**	**37,718**	**197**	**3,288**	**17.0%**	**40,723**	**17.0%**
Grand total		**8,925**	**3,545**	**26,216**	**548,153**	**1,831**	**10,598**	**179,025**	**4,408**	**36,815**	**3.1%**	**727,178**	**3.0%**

a. To protect confidentiality data for tribes and communities with 5 or fewer SHARCs issued are not reported in this table. Subtotals include all tribes and communities. Includes potential fishers in Toksook Bay and Tununak who did not hold SHARCs in 2016. Blank cells indicate redacted data.

b. "Setline" = longline or skate.

c. "Hand-operated gear" = rod and reel, or handline.

Appendix Table D-2.– Estimated subsistence harvests of halibut by place of residence, 2016.

City	State	Number of SHARCs issued[a]	Subsistence fished	Subsistence harvest		Sport fished	Sport harvest	
			Estimated number respondents	Estimated number halibut	Estimated pounds halibut	Estimated number respondents	Estimated number halibut	Estimated pounds halibut
Adak	AK	3						
Akhiok	AK	15	19	51	1,663	2	4	90
Akiak	AK	1						
Akutan	AK	6	3	35	910	0	0	0
Alakanuk	AK	1						
Anchor Point	AK	12	8	95	1,383	9	63	932
Anchorage	AK	140	41	362	8,148	27	103	1,711
Angoon	AK	78	31	629	11,566	9	58	979
Auke Bay	AK	3						
Bethel	AK	9	0	0	0	0	0	0
Big Lake	AK	1						
Chenega Bay	AK	9	8	90	2,834	2	30	788
Chevak	AK	1						
Chignik	AK	2						
Chignik Lagoon	AK	3						
Chignik Lake	AK	4						
Chiniak	AK	17	12	110	1,613	5	12	241
Chugiak	AK	3						
Clarks Point	AK	3						
Coffman Cove	AK	37	23	187	4,014	15	55	1,107
Cold Bay	AK	18	13	85	1,026	9	18	315
Cordova	AK	426	198	1,580	26,301	106	237	4,236
Craig	AK	379	217	1,701	34,990	113	599	10,017
Delta Junction	AK	2						
Dillingham	AK	19	4	3	34	2	2	65
Douglas	AK	18	7	98	1,652	9	42	593
Dutch Harbor	AK	55	32	160	3,592	20	69	2,234
Eagle River	AK	8	6	39	438	4	8	102
Edna Bay	AK	17	13	53	2,519	1	1	117
Eek	AK	8	5	15	428	0	0	0

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Appendix Table D-2.–Page 2 of 4.

City	State	Number of SHARCs issued[a]	Subsistence fished	Subsistence harvest		Sport fished	Sport harvest	
			Estimated number respondents	Estimated number halibut	Estimated pounds halibut	Estimated number respondents	Estimated number halibut	Estimated pounds halibut
Egegik	AK	2						
Elfin Cove	AK	15	8	30	889	5	11	169
Emmonak	AK	2						
Fairbanks	AK	2						
False Pass	AK	11	11	61	1,196	0	0	0
Gustavus	AK	52	36	338	6,384	27	99	1,830
Haines	AK	437	253	1,096	23,058	79	117	2,762
Homer	AK	20	4	44	644	2	0	0
Hoonah	AK	182	81	1,143	22,349	36	201	3,999
Hydaburg	AK	81	40	230	7,348	4	0	0
Hyder	AK	19	14	62	1,462	6	4	82
Juneau	AK	275	82	758	13,139	64	279	4,248
Kake	AK	101	45	406	10,850	11	36	1,001
Karluk	AK	12	14	58	1,510	0	0	0
Kasaan	AK	8	3	9	319	4	8	199
Kasilof	AK	14	6	39	372	2	18	134
Kenai	AK	84	12	216	3,993	16	90	1,150
Ketchikan	AK	485	191	2,027	44,513	133	498	9,677
King Cove	AK	50	25	231	4,144	7	33	373
King Salmon	AK	2						
Kipnuk	AK	1						
Klawock	AK	167	87	726	18,324	57	235	4,305
Kodiak	AK	1,180	627	5,711	108,127	439	1,929	35,883
Kongiganak	AK	3						
Kwigillingok	AK	1						
Larsen Bay	AK	40	23	123	2,524	6	58	844
Manokotak	AK	3						
Mekoryuk	AK	3						
Metlakatla	AK	149	45	252	6,577	16	40	810

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Appendix Table D-2.–Page 3 of 4.

City	State	Number of SHARCs issued[a]	Subsistence fished: Estimated number respondents	Subsistence harvest: Estimated number halibut	Subsistence harvest: Estimated pounds halibut	Sport fished: Estimated number respondents	Sport harvest: Estimated number halibut	Sport harvest: Estimated pounds halibut
Meyers Chuck	AK	10	10	46	1,283	1	1	17
Naknek	AK	8	4	5	115	0	0	0
Nanwalek	AK	46	29	615	7,698	1	4	37
Naukati Bay	AK	19	19	126	3,807	11	33	819
Nikiski	AK	6	2	10	144	0	0	0
Ninilchik	AK	17	2	12	208	5	11	174
Nome	AK	18	9	98	1,845	1	2	28
North Pole	AK	3						
Nunapitchuk	AK	1						
Old Harbor	AK	28	15	145	2,320	8	40	402
Ouzinkie	AK	18	11	64	1,423	3	6	75
Palmer	AK	4						
Pelican	AK	27	19	120	3,462	7	10	112
Perryville	AK	13	13	45	699	2	0	0
Petersburg	AK	788	338	2,081	44,037	227	846	14,414
Point Baker	AK	14	10	49	1,120	2	4	71
Port Alexander	AK	23	18	150	3,812	5	10	351
Port Graham	AK	34	23	594	9,512	7	50	469
Port Lions	AK	29	15	91	1,518	12	52	1,094
Port Protection	AK	1						
Prudhoe Bay	AK	1						
St. George Island	AK	3						
St. Paul Island	AK	30	22	321	4,418	5	0	0
Sand Point	AK	303	108	349	7,686	4	17	324
Savoonga	AK	1						
Saxman	AK	3						
Seldovia	AK	128	75	927	12,020	35	207	2,418
Seward	AK	7	0	0	0	0	0	0
Sitka	AK	1,337	688	4,611	107,589	235	644	13,433

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Appendix Table D-2.–Page 4 of 4.

City	State	Number of SHARCs issued[a]	Subsistence fished	Subsistence harvest		Sport fished	Sport harvest	
			Estimated number respondents	Estimated number halibut	Estimated pounds halibut	Estimated number respondents	Estimated number halibut	Estimated pounds halibut
Skagway	AK	61	32	121	2,665	20	35	924
Soldotna	AK	46	12	204	1,584	13	24	384
South Naknek	AK	1						
Stebbins	AK	1						
Sterling	AK	5	0	0	0	0	0	0
Sutton	AK	1						
Tatitlek	AK	10	6	45	1,328	0	0	0
Tenakee Springs	AK	43	22	134	3,088	16	45	602
Thorne Bay	AK	122	68	364	10,896	56	136	2,797
Togiak	AK	2						
Toksook Bay	AK	104	98	2,204	25,361	5	49	732
Tununak	AK	65	65	783	11,000	0	0	0
Unalakleet	AK	2						
Unalaska	AK	87	32	179	4,183	18	60	1,211
Valdez	AK	22	11	90	1,816	8	22	259
Ward Cove	AK	42	7	62	1,420	4	8	251
Wasilla	AK	30	4	34	264	2	0	0
Whale Pass	AK	3						
Willow	AK	1						
Wrangell	AK	508	278	2,041	42,665	124	328	7,816
Yakutat	AK	103	68	938	20,869	30	136	2,553
Alaska subtotal		**8,878**	**4,402**	**36,796**	**726,475**	**2,120**	**7,764**	**143,170**
Non-Alaska subtotal		**47**	**6**	**19**	**703**	**7**	**50**	**1,468**
Grand total		**8,925**	**4,408**	**36,815**	**727,178**	**2,127**	**7,814**	**144,638**

a. To protect confidentiality data for tribes and communities with 5 or fewer SHARCs issued are not reported in this table. Subtotals include all tribes and communities. Includes potential fishers in Toksook Bay and Tununak who did not hold SHARCs in 2016. Blank cells indicate redacted data.

Appendix Table D-3.– Estimated subsistence harvests of halibut by gear type and place of residence, 2016.

			Estimated harvest by gear type								
			Setline gear[b]			Hand-operated gear[c]			All gear		
City	State	Number of SHARCs issued[a]	Estimated number respondents fished	Estimated number fish harvested	Estimated pounds fish harvested	Estimated number respondents fished	Estimated number fish harvested	Estimated pounds fish harvested	Estimated number respondents fished	Estimated number fish harvested	Estimated pounds fish harvested
Adak	AK	3									
Akhiok	AK	15	6	0	0	13	51	1,663	19	51	1,663
Akiak	AK	1									
Akutan	AK	6	2	14	350	2	22	560	3	35	910
Alakanuk	AK	1									
Anchor Point	AK	12	8	95	1,383	0	0	0	8	95	1,383
Anchorage	AK	140	29	259	5,632	19	102	2,516	41	362	8,148
Angoon	AK	78	29	465	8,456	16	164	3,110	31	629	11,566
Auke Bay	AK	3									
Bethel	AK	9	0	0	0	0	0	0	0	0	0
Big Lake	AK	1									
Chenega Bay	AK	9	6	68	2,130	6	22	704	8	90	2,834
Chevak	AK	1									
Chignik	AK	2									
Chignik Lagoon	AK	3									
Chignik Lake	AK	4									
Chiniak	AK	17	12	99	1,440	8	11	173	12	110	1,613
Chugiak	AK	3									
Clarks Point	AK	3									
Coffman Cove	AK	37	18	119	2,880	11	67	1,134	23	187	4,014
Cold Bay	AK	18	12	77	950	3	8	76	13	85	1,026
Cordova	AK	426	168	1,208	19,788	96	372	6,513	198	1,580	26,301
Craig	AK	379	190	1,450	29,542	69	251	5,448	217	1,701	34,990
Delta Junction	AK	2									
Dillingham	AK	19	4	3	34	1	0	0	4	3	34
Douglas	AK	18	4	65	1,005	2	33	647	7	98	1,652
Dutch Harbor	AK	55	23	110	2,220	12	50	1,372	32	160	3,592
Eagle River	AK	8	6	30	410	2	9	28	6	39	438
Edna Bay	AK	17	9	37	1,826	6	16	693	13	53	2,519
Eek	AK	8	0	0	0	5	15	428	5	15	428
Egegik	AK	2									
Elfin Cove	AK	15	8	24	664	2	6	225	8	30	889
Emmonak	AK	2									
Fairbanks	AK	2									
False Pass	AK	11	0	0	0	11	61	1,196	11	61	1,196
Gustavus	AK	52	27	232	4,323	17	106	2,060	36	338	6,384
Haines	AK	437	248	1,061	22,153	38	35	905	253	1,096	23,058
Homer	AK	20	1	16	173	3	28	472	4	44	644
Hoonah	AK	182	66	921	16,877	31	222	5,472	81	1,143	22,349

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Appendix Table D-3.–Page 2 of 3.

City	State	Number of SHARCs issued[a]	Estimated harvest by gear type: Setline gear[b] Estimated number respondents fished	Setline gear[b] Estimated number fish harvested	Setline gear[b] Estimated pounds fish harvested	Hand-operated gear[c] Estimated number respondents fished	Hand-operated gear[c] Estimated number fish harvested	Hand-operated gear[c] Estimated pounds fish harvested	All gear Estimated number respondents fished	All gear Estimated number fish harvested	All gear Estimated pounds fish harvested
Hydaburg	AK	81	40	227	7,251	3	3	97	40	230	7,348
Hyder	AK	19	14	55	1,329	5	7	134	14	62	1,462
Juneau	AK	275	74	631	11,635	18	127	1,504	82	758	13,139
Kake	AK	101	43	373	9,939	12	33	912	45	406	10,850
Karluk	AK	12	0	0	0	14	58	1,510	14	58	1,510
Kasaan	AK	8	3	9	319	1	0	0	3	9	319
Kasilof	AK	14	2	6	113	6	33	260	6	39	372
Kenai	AK	84	0	0	0	12	216	3,993	12	216	3,993
Ketchikan	AK	485	158	1,482	34,498	81	544	10,015	191	2,027	44,513
King Cove	AK	50	16	94	1,897	20	136	2,246	25	231	4,144
King Salmon	AK	2									
Kipnuk	AK	1									
Klawock	AK	167	79	572	16,035	31	154	2,289	87	726	18,324
Kodiak	AK	1,180	548	4,591	86,565	250	1,120	21,563	627	5,711	108,127
Kongiganak	AK	3									
Kwigillingok	AK	1									
Larsen Bay	AK	40	5	20	213	19	103	2,311	23	123	2,524
Manokotak	AK	3									
Mekoryuk	AK	3									
Metlakatla	AK	149	42	231	6,277	16	21	300	45	252	6,577
Meyers Chuck	AK	10	10	42	1,221	2	3	63	10	46	1,283
Naknek	AK	8	4	3	64	3	3	52	4	5	115
Nanwalek	AK	46	21	443	5,861	24	172	1,837	29	615	7,698
Naukati Bay	AK	19	17	109	3,403	7	17	404	19	126	3,807
Nikiski	AK	6	2	10	144	0	0	0	2	10	144
Ninilchik	AK	17	2	9	158	2	3	51	2	12	208
Nome	AK	18	9	98	1,845	0	0	0	9	98	1,845
North Pole	AK	3									
Nunapitchuk	AK	1									
Old Harbor	AK	28	8	91	1,481	15	54	839	15	145	2,320
Ouzinkie	AK	18	8	29	724	8	35	698	11	64	1,423
Palmer	AK	4									
Pelican	AK	27	15	101	2,854	7	19	607	19	120	3,462
Perryville	AK	13	13	45	699	6	0	0	13	45	699
Petersburg	AK	788	255	1,470	32,167	145	612	11,870	338	2,081	44,037
Point Baker	AK	14	10	45	1,021	4	4	99	10	49	1,120
Port Alexander	AK	23	17	144	3,390	2	6	422	18	150	3,812
Port Graham	AK	34	14	455	7,964	16	139	1,548	23	594	9,512

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Appendix Table D-3.–Page 3 of 3.

City	State	Number of SHARCs issued[a]	Estimated harvest by gear type: Setline gear[b] Estimated number respondents fished	Setline gear[b] Estimated number fish harvested	Setline gear[b] Estimated pounds fish harvested	Hand-operated gear[c] Estimated number respondents fished	Hand-operated gear[c] Estimated number fish harvested	Hand-operated gear[c] Estimated pounds fish harvested	All gear Estimated number respondents fished	All gear Estimated number fish harvested	All gear Estimated pounds fish harvested
Port Lions	AK	29	14	75	1,241	4	15	277	15	91	1,518
Port Protection	AK	1									
Prudhoe Bay	AK	1									
St. George Island	AK	3									
St. Paul Island	AK	30	13	199	2,302	18	122	2,116	22	321	4,418
Sand Point	AK	303	38	61	1,218	93	288	6,468	108	349	7,686
Savoonga	AK	1									
Saxman	AK	3									
Seldovia	AK	128	51	506	6,830	43	421	5,190	75	927	12,020
Seward	AK	7	0	0	0	0	0	0	0	0	0
Sitka	AK	1,337	635	4,116	98,185	184	495	9,404	688	4,611	107,589
Skagway	AK	61	26	85	1,965	12	36	700	32	121	2,665
Soldotna	AK	46	4	55	579	12	149	1,006	12	204	1,584
South Naknek	AK	1									
Stebbins	AK	1									
Sterling	AK	5	0	0	0	0	0	0	0	0	0
Sutton	AK	1									
Tatitlek	AK	10	6	45	1,328	0	0	0	6	45	1,328
Tenakee Springs	AK	43	20	108	2,634	7	26	454	22	134	3,088
Thorne Bay	AK	122	63	287	9,364	28	77	1,532	68	364	10,896
Togiak	AK	2									
Toksook Bay	AK	104	5	20	284	95	2,185	25,077	98	2,204	25,361
Tununak	AK	65	5	2	35	65	782	10,965	65	783	11,000
Unalakleet	AK	2									
Unalaska	AK	87	27	128	2,972	14	51	1,211	32	179	4,183
Valdez	AK	22	10	70	1,350	3	20	466	11	90	1,816
Ward Cove	AK	42	7	62	1,420	0	0	0	7	62	1,420
Wasilla	AK	30	2	23	63	2	11	201	4	34	264
Whale Pass	AK	3									
Willow	AK	1									
Wrangell	AK	508	242	1,698	35,622	107	344	7,043	278	2,041	42,665
Yakutat	AK	103	58	747	16,646	25	191	4,223	68	938	20,869
Alaska subtotal		**8,878**	**3,543**	**26,210**	**547,838**	**1,827**	**10,586**	**178,636**	**4,402**	**36,796**	**726,475**
Non-Alaska subtotal		**47**	**2**	**6**	**315**	**4**	**13**	**388**	**6**	**19**	**703**
Grand total		**8,925**	**3,545**	**26,216**	**548,153**	**1,831**	**10,598**	**179,025**	**4,408**	**36,815**	**727,178**

a. To protect confidentiality data for tribes and communities with 5 or fewer SHARCs issued are not reported in this table. Subtotals include all tribes and communities. Includes potential fishers in Toksook Bay and Tununak who did not hold SHARCs in 2016. Blank cells indicate redacted data.

b. "Setline" = longline or skate.

c. "Hand-operated gear" = rod and reel, or handline.

Appendix Table D-4.– Estimated number of respondents that subsistence or sport fished by place of residence, 2016.

City	State	Number of SHARCs issued[a]	Estimated number subsistence or sport fished
Adak	AK	3	
Akhiok	AK	15	21
Akiak	AK	1	
Akutan	AK	6	3
Alakanuk	AK	1	
Anchor Point	AK	12	15
Anchorage	AK	140	57
Angoon	AK	78	36
Auke Bay	AK	3	
Bethel	AK	9	0
Big Lake	AK	1	
Chenega Bay	AK	9	8
Chevak	AK	1	
Chignik	AK	2	
Chignik Lagoon	AK	3	
Chignik Lake	AK	4	
Chiniak	AK	17	15
Chugiak	AK	3	
Clarks Point	AK	3	
Coffman Cove	AK	37	27
Cold Bay	AK	18	20
Cordova	AK	426	245
Craig	AK	379	274
Delta Junction	AK	2	
Dillingham	AK	19	5
Douglas	AK	18	11
Dutch Harbor	AK	55	37
Eagle River	AK	8	8
Edna Bay	AK	17	14
Eek	AK	8	5
Egegik	AK	2	
Elfin Cove	AK	15	8
Emmonak	AK	2	
Fairbanks	AK	2	
False Pass	AK	11	11
Gustavus	AK	52	44
Haines	AK	437	280
Homer	AK	20	6
Hoonah	AK	182	98

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Appendix Table D-4.–Page 2 of 3.

City	State	Number of SHARCs issued[a]	Estimated number subsistence or sport fished
Hydaburg	AK	81	40
Hyder	AK	19	15
Juneau	AK	275	123
Kake	AK	101	48
Karluk	AK	12	14
Kasaan	AK	8	5
Kasilof	AK	14	6
Kenai	AK	84	29
Ketchikan	AK	485	254
King Cove	AK	50	27
King Salmon	AK	2	
Kipnuk	AK	1	
Klawock	AK	167	111
Kodiak	AK	1,180	810
Kongiganak	AK	3	
Kwigillingok	AK	1	
Larsen Bay	AK	40	25
Manokotak	AK	3	
Mekoryuk	AK	3	
Metlakatla	AK	149	51
Meyers Chuck	AK	10	10
Naknek	AK	8	4
Nanwalek	AK	46	30
Naukati Bay	AK	19	23
Nikiski	AK	6	2
Ninilchik	AK	17	6
Nome	AK	18	10
North Pole	AK	3	
Nunapitchuk	AK	1	
Old Harbor	AK	28	17
Ouzinkie	AK	18	11
Palmer	AK	4	
Pelican	AK	27	19
Perryville	AK	13	13
Petersburg	AK	788	453
Point Baker	AK	14	10
Port Alexander	AK	23	20
Port Graham	AK	34	23

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Appendix Table D-4.–Page 3 of 3.

City	State	Number of SHARCs issued[a]	Estimated number subsistence or sport fished
Port Lions	AK	29	20
Port Protection	AK	1	
Prudhoe Bay	AK	1	
St. George Island	AK	3	
St. Paul Island	AK	30	22
Sand Point	AK	303	108
Savoonga	AK	1	
Saxman	AK	3	
Seldovia	AK	128	83
Seward	AK	7	0
Sitka	AK	1,337	783
Skagway	AK	61	36
Soldotna	AK	46	21
South Naknek	AK	1	
Stebbins	AK	1	
Sterling	AK	5	0
Sutton	AK	1	
Tatitlek	AK	10	6
Tenakee Springs	AK	43	32
Thorne Bay	AK	122	85
Togiak	AK	2	
Toksook Bay	AK	104	98
Tununak	AK	65	65
Unalakleet	AK	2	
Unalaska	AK	87	41
Valdez	AK	22	13
Ward Cove	AK	42	12
Wasilla	AK	30	6
Whale Pass	AK	3	
Willow	AK	1	
Wrangell	AK	508	328
Yakutat	AK	103	81
Alaska subtotal		**8,878**	**5,328**
Non-Alaska subtotal		**47**	**13**
Grand total		**8,925**	**5,341**

a. To protect confidentiality data for tribes and communities with 5 or fewer SHARCs issued are not reported in this table. Subtotals include all tribes and communities. Includes potential fishers in Toksook Bay and Tununak who did not hold SHARCs in 2016. Blank cells indicate redacted data.

Appendix Table D-5.– Estimated subsistence harvests of halibut by gear type SHARC type, and regulatroy area, 2016.

Tribal name[b]	Regulatory area	Return rate: SHARCs issued[a]	Return rate: Surveys returned	Return rate: Percent	Subsistence fished halibut: Estimated number respondents	Subsistence fished halibut: Percent of SHARCs	Subsistence halibut harvest: Estimated number fish	Subsistence halibut harvest: Estimated number pounds	Sport fished halibut: Estimated number respondents	Sport fished halibut: Percent of SHARCs	Sport halibut harvest: Estimated number fish	Sport halibut harvest: Estimated number pounds
Angoon Community Association	2C	45	21	46.7%	17	38.1%	225	5,599	2	4.8%	11	193
Central Council Tlingit and Haida Indian Tribes	2C	413	185	44.8%	179	43.2%	2,058	39,602	100	24.3%	391	5,438
Chilkat Indian Village	2C	8	3	37.5%	3	33.3%	0	0	3	33.3%	3	68
Chilkoot Indian Association	2C	41	32	78.0%	17	40.6%	108	2,614	4	9.4%	6	115
Craig Community Association	2C	42	21	50.0%	26	61.9%	358	6,378	4	9.5%	8	240
Douglas Indian Association	2C	6	3	50.0%	2	33.3%	4	120	0	0.0%	0	0
Hoonah Indian Association	2C	96	48	50.0%	34	35.4%	686	12,381	10	10.4%	80	1,508
Hydaburg Cooperative Association	2C	71	22	31.0%	36	50.0%	174	5,349	6	9.1%	10	290
Ketchikan Indian Corporation	2C	428	205	47.9%	150	35.1%	1,445	30,998	111	25.9%	401	7,195
Klawock Cooperative Association	2C	48	21	43.8%	18	38.1%	66	2,451	9	19.0%	14	257
Metlakatla Indian Community, Annette Island Reserve	2C	135	37	27.4%	44	32.4%	234	6,182	11	8.1%	29	547
Organized Village of Kake	2C	72	41	56.9%	26	36.6%	258	6,674	2	2.4%	0	0
Organized Village of Kasaan	2C	5	3	60.0%	2	33.3%	5	81	2	33.3%	2	59
Organized Village of Saxman	2C	15	2	13.3%	0	0.0%	0	0	0	0.0%	0	0
Petersburg Indian Association	2C	58	40	69.0%	19	32.5%	110	2,361	13	22.5%	16	277
Sitka Tribe of Alaska	2C	203	108	53.2%	88	43.5%	716	18,026	23	11.1%	53	1,348
Skagway Village	2C	2										
Wrangell Cooperative Association	2C	60	43	71.7%	29	48.8%	315	6,860	17	27.9%	54	1,690
Subtotal, Area 2C		**1,748**	**837**	**47.9%**	**690**	**39.5%**	**6,767**	**145,842**	**316**	**18.1%**	**1,077**	**19,226**
Kenaitze Indian Tribe	3A	105	58	55.2%	9	8.6%	176	3,515	16	15.5%	29	649
Lesnoi Village (Woody Island)	3A	14	3	21.4%	0	0.0%	0	0	5	33.3%	14	315
Native Village of Afognak	3A	16	13	81.3%	4	23.1%	10	198	4	23.1%	4	74
Native Village of Akhiok	3A	19	3	15.8%	19	100.0%	51	1,663	0	0.0%	0	0
Native Village of Chenega	3A	16	8	50.0%	4	25.0%	34	345	0	0.0%	0	0
Native Village of Eyak	3A	47	26	55.3%	18	38.5%	152	2,457	13	26.9%	22	370
Native Village of Karluk	3A	14	6	42.9%	14	100.0%	58	1,510	0	0.0%	0	0
Native Village of Larsen Bay	3A	40	24	60.0%	23	58.3%	118	2,450	5	12.5%	10	169
Native Village of Nanwalek	3A	42	18	42.9%	23	55.6%	411	4,303	0	0.0%	0	0
Native Village of Ouzinkie	3A	21	8	38.1%	11	50.0%	121	2,815	0	0.0%	0	0
Native Village of Port Graham	3A	33	18	54.5%	17	50.0%	354	6,271	4	11.1%	7	151
Native Village of Port Lions	3A	24	19	79.2%	15	63.2%	97	1,985	9	36.8%	40	801
Native Village of Tatitlek	3A	12	4	33.3%	6	50.0%	51	1,069	0	0.0%	0	0
Ninilchik Village	3A	54	36	66.7%	14	25.0%	146	947	20	36.1%	113	1,762
Seldovia Village Tribe	3A	51	39	76.5%	20	38.5%	265	3,434	9	17.9%	51	432
Sun'aq Tribe of Kodiak (formerly Shoonaq')	3A	94	57	60.6%	45	47.4%	406	8,396	23	24.6%	94	2,164
Village of Kanatak	3A	5	0	0.0%	0	0.0%	0	0	0	0.0%	0	0
Village of Old Harbor	3A	28	15	53.6%	13	46.7%	177	3,398	7	26.7%	39	504
Village of Salamatoff	3A	23	12	52.2%	10	41.7%	167	1,775	6	25.0%	19	187
Yakutat Tlingit Tribe	3A	38	16	42.1%	24	62.5%	295	7,089	2	6.3%	17	534
Subtotal, Area 3A		**696**	**383**	**55.0%**	**287**	**41.2%**	**3,087**	**53,620**	**122**	**17.5%**	**459**	**8,111**
Agdaagux Tribe of King Cove	3B	35	22	62.9%	21	59.1%	158	2,740	5	13.6%	32	400

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Appendix Table D-5.–Page 2 of 5.

Tribal name[b]	Regulatory area	Return rate: SHARCs issued[a]	Return rate: Surveys returned	Return rate: Percent	Subsistence fished halibut: Estimated number respondents	Subsistence fished halibut: Percent of SHARCs	Subsistence halibut harvest: Estimated number fish	Subsistence halibut harvest: Estimated number pounds	Sport fished halibut: Estimated number respondents	Sport fished halibut: Percent of SHARCs	Sport halibut harvest: Estimated number fish	Sport halibut harvest: Estimated number pounds
Chignik Lake Village	3B	9	5	55.6%	0	0.0%	0	0	0	0.0%	0	0
Ivanoff Bay Village	3B	4										
Native Village of Belkofski	3B	2										
Native Village of Chignik Lagoon	3B	7	4	57.1%	2	25.0%	4	131	0	0.0%	0	0
Native Village of False Pass	3B	11	2	18.2%	11	100.0%	61	1,196	0	0.0%	0	0
Native Village of Nelson Lagoon	3B	3										
Native Village of Perryville	3B	15	7	46.7%	13	85.7%	45	699	2	14.3%	0	0
Native Village of Unga	3B	8	6	75.0%	3	33.3%	4	123	1	16.7%	1	60
Pauloff Harbor Village	3B	66	8	12.1%	41	62.5%	66	1,794	0	0.0%	0	0
Qagan Toyagungin Tribe of Sand Point Village	3B	246	57	23.2%	69	28.1%	306	6,257	9	3.5%	26	518
Subtotal, Area 3B		**406**	**116**	**28.6%**	**162**	**39.9%**	**650**	**13,072**	**17**	**4.2%**	**59**	**978**
Native Village of Akutan	4A	7	6	85.7%	2	33.3%	15	385	0	0.0%	0	0
Qawalangin Tribe of Unalaska	4A	26	16	61.5%	13	50.0%	49	1,627	5	18.8%	3	146
Subtotal, Area 4A		**33**	**22**	**66.7%**	**15**	**46.5%**	**64**	**2,012**	**5**	**14.8%**	**3**	**146**
Native Village of Atka	4B	3										
Subtotal, Area 4B		**3**										
Pribilof Islands Aleut Community of St. George	4C	2										
Pribilof Islands Aleut Community of St. Paul	4C	29	6	20.7%	19	66.7%	276	3,687	5	16.7%	0	0
Subtotal, Area 4C		**31**	**7**	**22.6%**	**19**	**62.4%**	**276**	**3,687**	**7**	**22.0%**	**4**	**90**
Native Village of Diomede (Inalik)	4D	1										
Native Village of Savoonga	4D	2										
Subtotal, Area 4D		**3**										
Chevak Native Village (Kashunamiut)	4E	1										
Chinik Eskimo Community	4E	1										
King Island Native Community	4E	1										
King Salmon Tribal Council	4E	1										
Manokotak Village	4E	2										
Naknek Native Village	4E	4										
Native Village of Aleknagik	4E	4										
Native Village of Council	4E	4										
Native Village of Dillingham (Curyung)	4E	8	4	50.0%	2	25.0%	0	0	2	25.0%	0	0
Native Village of Eek	4E	9	6	66.7%	5	50.0%	15	428	0	0.0%	0	0
Native Village of Ekuk	4E	1										
Native Village of Hooper Bay	4E	1										
Native Village of Kanakanak	4E	1										
Native Village of Kipnuk	4E	1										
Native Village of Kongiganak	4E	4										
Native Village of Koyuk	4E	3										
Native Village of Kwigillingok	4E	1										
Native Village of Mekoryuk	4E	3										

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Appendix Table D-5.–Page 3 of 5.

Tribal name[b]	Regulatory area	Return rate: SHARCs issued[a]	Return rate: Surveys returned	Return rate: Percent	Subsistence fished halibut: Estimated number respondents	Subsistence fished halibut: Percent of SHARCs	Subsistence halibut harvest: Estimated number fish	Subsistence halibut harvest: Estimated number pounds	Sport fished halibut: Estimated number respondents	Sport fished halibut: Percent of SHARCs	Sport halibut harvest: Estimated number fish	Sport halibut harvest: Estimated number pounds
Native Village of Nightmute	4E	2										
Native Village of Scammon Bay	4E	4										
Native Village of Toksook Bay (Nunakauyak)	4E	100	41	41.0%	95	95.1%	2,183	25,134	5	4.9%	49	732
Native Village of Tununak	4E	63	40	63.5%	63	100.0%	773	10,738	0	0.0%	0	0
Native Village of Unalakleet	4E	1										
Newtok Village	4E	1										
Nome Eskimo Community	4E	7	2	28.6%	0	0.0%	0	0	0	0.0%	0	0
Orutsararmuit Native Village	4E	9	8	88.9%	2	25.0%	51	422	1	12.5%	11	169
Platinum Traditional Village	4E	1										
Stebbins Community Association	4E	5	5	100.0%	0	0.0%	0	0	0	0.0%	0	0
Traditional Village of Togiak	4E	1										
Village of Alakanuk	4E	1										
Village of Chefornak	4E	2										
Village of Clark's Point	4E	4										
Subtotal, Area 4E		**251**	**133**	**53.0%**	**178**	**70.9%**	**3,121**	**38,017**	**12**	**4.8%**	**67**	**980**
Tribal subtotal		**3,171**	**1,500**	**47.3%**	**1,352**	**42.6%**	**13,964**	**256,249**	**479**	**15.1%**	**1,668**	**29,531**

Rural community[b]	Regulatory area	Return rate: SHARCs issued[a]	Return rate: Surveys returned	Return rate: Percent	Subsistence fished halibut: Estimated number respondents	Subsistence fished halibut: Percent of SHARCs	Subsistence halibut harvest: Estimated number fish	Subsistence halibut harvest: Estimated number pounds	Sport fished halibut: Estimated number respondents	Sport fished halibut: Percent of SHARCs	Sport halibut harvest: Estimated number fish	Sport halibut harvest: Estimated number pounds
Angoon	2C	18	10	55.6%	9	50.0%	317	4,401	7	40.0%	47	786
Coffman Cove	2C	36	30	83.3%	20	56.7%	145	2,957	13	36.7%	53	1,007
Craig	2C	289	218	75.4%	151	52.3%	1,124	24,106	91	31.7%	520	8,756
Edna Bay	2C	20	14	70.0%	14	71.4%	60	2,733	4	21.4%	17	395
Elfin Cove	2C	12	8	66.7%	6	50.0%	18	439	5	37.5%	11	169
Gustavus	2C	54	46	85.2%	35	65.2%	271	5,974	25	45.7%	88	1,746
Haines	2C	392	324	82.7%	238	60.8%	1,022	21,202	74	18.8%	114	2,627
Hollis	2C	21	17	81.0%	16	76.5%	89	2,192	6	29.4%	20	199
Hoonah	2C	83	65	78.3%	47	56.9%	492	10,242	27	32.3%	176	3,545
Hydaburg	2C	13	7	53.8%	7	57.1%	56	1,999	4	28.6%	0	0
Hyder	2C	19	16	84.2%	14	75.0%	62	1,462	6	31.3%	4	82
Kake	2C	34	29	85.3%	16	48.3%	134	3,909	11	31.0%	53	1,352
Kasaan	2C	5	4	80.0%	3	50.0%	9	319	3	50.0%	6	141
Ketchikan	2C	34	19	55.9%	14	42.1%	66	1,745	14	42.1%	20	764
Klawock	2C	121	77	63.6%	66	54.5%	622	13,347	49	40.3%	273	4,888
Klukwan	2C	1										
Metlakatla	2C	21	12	57.1%	9	41.7%	26	723	5	25.0%	11	263
Meyers Chuck	2C	10	9	90.0%	10	100.0%	46	1,283	1	11.1%	1	17
Naukati Bay	2C	36	27	75.0%	28	77.8%	187	6,420	21	59.3%	47	1,165

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Appendix Table D-5.–Page 4 of 5.

Rural community[b]	Regulatory area	Return rate: SHARCs issued[a]	Return rate: Surveys returned	Return rate: Percent	Subsistence fished halibut: Estimated number respondents	Subsistence fished halibut: Percent of SHARCs	Subsistence halibut harvest: Estimated number fish	Subsistence halibut harvest: Estimated number pounds	Sport fished halibut: Estimated number respondents	Sport fished halibut: Percent of SHARCs	Sport halibut harvest: Estimated number fish	Sport halibut harvest: Estimated number pounds
Pelican	2C	24	16	66.7%	15	62.5%	87	2,746	3	12.5%	3	42
Petersburg	2C	722	587	81.3%	317	44.0%	1,952	41,312	212	29.3%	817	13,944
Port Alexander	2C	22	18	81.8%	17	77.8%	147	3,648	6	27.8%	10	351
Port Protection	2C	11	9	81.8%	10	88.9%	49	1,191	4	33.3%	5	105
Pt. Baker	2C	11	8	72.7%	6	50.0%	15	500	0	0.0%	0	0
Saxman	2C	8	1	12.5%	0	0.0%	0	0	0	0.0%	0	0
Sitka	2C	1,144	872	76.2%	592	51.7%	3,784	85,237	213	18.6%	594	11,922
Skagway	2C	59	45	76.3%	29	48.9%	97	2,165	20	33.3%	35	924
Tenakee Springs	2C	43	38	88.4%	23	52.6%	140	3,216	15	34.2%	45	602
Thorne Bay	2C	124	105	84.7%	67	54.3%	364	10,344	57	45.7%	150	3,063
Ward Cove	2C	2										
Whale Pass	2C	9	7	77.8%	8	85.7%	28	1,162	3	28.6%	6	140
Wrangell	2C	428	341	79.7%	238	55.7%	1,693	35,524	108	25.2%	284	6,506
Subtotal, Area 2C		**3,826**	**2,982**	**77.9%**	**2,028**	**53.0%**	**13,108**	**292,752**	**1,004**	**26.2%**	**3,408**	**65,498**
Akhiok	3A	10	5	50.0%	6	60.0%	28	638	2	20.0%	4	90
Chenega Bay	3A	6	3	50.0%	6	100.0%	84	2,789	2	33.3%	30	788
Chiniak	3A	11	10	90.9%	8	70.0%	90	1,183	3	30.0%	9	203
Cordova	3A	382	294	77.0%	181	47.3%	1,438	23,989	97	25.5%	236	4,618
Kodiak	3A	1,072	743	69.3%	580	54.1%	5,177	96,696	408	38.1%	1,840	34,019
Larsen Bay	3A	6	5	83.3%	1	20.0%	4	90	2	40.0%	48	675
Nanwalek	3A	7	5	71.4%	6	80.0%	204	3,395	1	20.0%	4	37
Old Harbor	3A	3										
Ouzinkie	3A	8	8	100.0%	8	100.0%	52	1,255	4	50.0%	12	225
Port Graham	3A	10	6	60.0%	10	100.0%	405	7,606	7	66.7%	50	469
Port Lions	3A	11	8	72.7%	3	25.0%	12	196	4	37.5%	17	364
Seldovia	3A	110	85	77.3%	71	64.7%	901	11,647	35	31.8%	204	2,423
Tatitlek	3A	9	6	66.7%	9	100.0%	66	1,519	3	33.3%	9	56
Yakutat	3A	68	45	66.2%	41	60.0%	591	14,264	27	40.0%	119	2,018
Subtotal, Area 3A		**1,713**	**1,226**	**71.6%**	**931**	**54.3%**	**9,063**	**165,327**	**598**	**34.9%**	**2,592**	**46,022**
Cold Bay	3B	15	14	93.3%	8	50.0%	58	755	4	28.6%	10	121
False Pass	3B	1										
King Cove	3B	14	10	71.4%	6	40.0%	83	1,698	4	30.0%	4	68
Sand Point	3B	5	4	80.0%	4	75.0%	11	159	0	0.0%	0	0
Subtotal, Area 3B		**35**	**29**	**82.9%**	**17**	**48.1%**	**152**	**2,613**	**8**	**24.2%**	**14**	**189**
Akutan	4A	1										
Unalaska	4A	120	82	68.3%	54	45.1%	290	6,149	34	28.0%	126	3,298
Subtotal, Area 4A		**121**	**83**	**68.6%**	**55**	**45.6%**	**310**	**6,674**	**34**	**27.8%**	**126**	**3,298**
Adak	4B	2										
Subtotal, Area 4B		**2**										
St. George Island	4C	3										

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Appendix Table D-5.–Page 5 of 5.

Rural community[b]	Regulatory area	Return rate: SHARCs issued[a]	Return rate: Surveys returned	Return rate: Percent	Subsistence fished halibut: Estimated number respondents	Subsistence fished halibut: Percent of SHARCs	Subsistence halibut harvest: Estimated number fish	Subsistence halibut harvest: Estimated number pounds	Sport fished halibut: Estimated number respondents	Sport fished halibut: Percent of SHARCs	Sport halibut harvest: Estimated number fish	Sport halibut harvest: Estimated number pounds
St. Paul Island	4C	3										
Subtotal, Area 4C		**6**	**3**	**50.0%**	**6**	**100.0%**	**51**	**857**	**0**	**0.0%**	**0**	**0**
Alakanuk	4E	1										
Bethel	4E	1										
Chevak	4E	1										
Dillingham	4E	13	12	92.3%	2	16.7%	3	34	2	16.7%	2	65
Egegik	4E	2										
King Salmon	4E	2										
Manokotak	4E	1										
Mekoryuk	4E	1										
Naknek	4E	5	4	80.0%	4	75.0%	5	115	0	0.0%	0	0
Nome	4E	16	13	81.3%	9	53.8%	98	1,845	1	7.7%	2	28
Pilot Point	4E	1										
South Naknek	4E	1										
Stebbins	4E	1										
Togiak	4E	1										
Toksook Bay	4E	1										
Tununak	4E	1										
Unalakleet	4E	2										
Subtotal, Area 4E		**51**	**37**	**72.5%**	**20**	**38.3%**	**167**	**2,706**	**4**	**8.6%**	**6**	**100**
Rural community subtotal		**5,754**	**4,362**	**75.8%**	**3,056**	**53.1%**	**22,851**	**470,929**	**1,648**	**28.6%**	**6,146**	**115,108**
Tribal/rural grand total		**8,925**	**5,862**	**65.7%**	**4,408**	**49.4%**	**36,815**	**727,178**	**2,127**	**23.8%**	**7,814**	**144,638**

a. To protect confidentiality data for tribes and communities with 5 or fewer SHARCs issued are not reported in this table. Subtotals include all tribes and communities. Includes potential fishers in Toksook Bay and Tununak who did not hold SHARCs in 2016. Blank cells indicate redacted data.

b. "Tribal" = individuals who obtained SHARCs as members of an eligible tribe, sorted by location of tribal headquarters. "Rural" = individuals who obtained SHARCs as residents of an eligible rural community. "All" = sum of tribal and rural SHARC holders for a regulatory area based on location of tribal headquarters or rural community. Because some SHARC holders may fish in regulatory areas other than the location of the area of their tribal headquarters or rural residence, area totals in this table differ slightly from those in tables 5, 6, and 8.

APPENDIX E–SUMMARY

SUBSISTENCE HARVESTS OF PACIFIC HALIBUT IN ALASKA, 2016

Division of Subsistence, Alaska Department of Fish and Game
333 Raspberry Road, Anchorage, AK 99518
January 2018

Through a grant from the National Marine Fisheries Service (NMFS), the Alaska Department of Fish and Game (ADF&G) Division of Subsistence conducted a study to estimate the subsistence harvests of Pacific halibut in Alaska in 2016. The full results of the study appear in the division's Technical Paper No. 436, "Subsistence Harvests of Pacific Halibut in Alaska, 2016" (January 2018). Key points in the report include the following:

- In May 2003, the NMFS published final federal regulations for a subsistence halibut fishery in Alaska. Residents of 118 rural communities and designated rural areas, and members of 123 tribes are eligible to participate. Fishers must obtain a subsistence halibut registration certificate (SHARC) from NMFS before fishing (www.fakr.noaa.gov/ram/subsistence/halibut.htm; 800-304-4846).
- 2016 was the 14th year in which subsistence halibut fishing took place under these regulations, with harvest estimates available for every year but 2013 and 2015. Information about subsistence halibut harvests in 2003–2012 and 2014 is reported in Division of Subsistence Technical Papers 288, 304, 320, 333, 342, 348, 357, 367, 378, 388 and 414, respectively.
- To estimate the 2016 harvests, a one-page survey form was mailed to SHARC holders in early 2017 or administered in person in 5 communities. After 3 mailings and community visits, 5,862 of 8,925 potential subsistence halibut fishers (66%) responded. Participation in the survey was voluntary.
- An estimated 4,408 individuals subsistence fished for halibut in 2016 (Figure 8).
- The estimated subsistence harvest was 36,815 halibut for 727,178 pounds net weight.
- Of this total, 75% was harvested with setline (stationary) gear (longline or skate) and 25% was harvested with hand-operated gear (handline or rod and reel).
- The largest subsistence harvests occurred in Southeast Alaska (Halibut Regulatory Area 2C), at 60% of the total, followed by Southcentral Alaska (Area 3A) at 31%, and East Bering Sea Coast (Area 4E) at 6%. Table 5 and Figure 16 from the final report give more details on harvests by gear type and area.
- Based on place of residence of SHARC holders, communities with the largest subsistence halibut harvests in 2016 were Kodiak and Sitka (the largest eligible communities) (Figure 21).
- Based on preliminary data from the International Pacific Halibut Commission and this study, the estimated halibut removal in Alaska in 2016 was 32.427 million pounds, net weight. Subsistence harvests accounted for 2.3% of this total (Figure 27).
- The report concludes that the project was a success, with good response rates and a reliable estimate of subsistence halibut harvests. However, analysis suggests that active fishers in some communities have not renewed their SHARCs. Additional outreach among eligible tribes and in rural areas is necessary to maximize enrollment of fishers in the SHARC program and involvement in the post-season harvest survey.
- Due to budget constraints, a survey to estimate subsistence halibut harvests in Alaska in 2017 will not take place. The report recommends that monitoring of the Alaska subsistence halibut harvest resume in the future to evaluate trends in the fishery.

For a copy of the full report, go to http://www.adfg.alaska.gov/sf/publications/, or call the Division of Subsistence of ADF&G at 907-267-2353 (Anchorage) or 907-465-4147 (Juneau).

Table 5.–Estimated subsistence harvests of halibut in number of fish and pounds net (dressed, head off) weight, by regulatory area and subarea, 2016.

			Estimated subsistence harvest by gear type									Estimated sport harvest		
			Setline gear[a]			Hand-operated gear[a]			All gear					
Subarea	Regulatory area	Number of SHARCs subsistence fished[c]	Estimated number respondents fished[c]	Estimated number halibut harvested	Estimated pounds halibut harvested[b]	Estimated number respondents fished[c]	Estimated number halibut harvested	Estimated pounds halibut harvested[b]	Estimated number respondents fished[c]	Estimated number halibut harvested	Estimated pounds halibut harvested[b]	Estimated number respondents fished[c]	Estimated number halibut harvested	Estimated pounds halibut harvested[b]
Southern Southeast Alaska	2C	1450	1,230	8,335	196,329	553	2,162	42,987	1,450	10,497	239,316	808	2,809	53,352
Sitka LAMP Area	2C	668	619	3,750	87,378	184	488	9,523	668	4,238	96,901	241	651	13,613
Northern Southeast Alaska	2C	674	609	4,138	84,459	181	804	15,788	674	4,941	100,247	308	968	17,704
	2C Totals	**2,706**	**2,386**	**16,222**	**368,166**	**878**	**3,454**	**68,298**	**2,706**	**19,676**	**436,464**	**1,311**	**4,428**	**84,668**
Yakutat Area	3A	92	74	786	17,363	40	265	5,733	92	1,051	23,096	42	153	2,916
Prince William Sound	3A	245	208	1,458	25,540	114	384	7,151	245	1,842	32,690	139	318	6,183
Cook Inlet	3A	205	126	1,907	28,630	138	1,300	17,013	205	3,206	45,643	116	564	6,709
Kodiak Island–road system	3A	446	388	2,599	51,000	191	705	12,841	446	3,304	63,841	339	1,396	26,106
Kokiak Island–other	3A	446	353	2,290	40,672	215	751	16,512	446	3,040	57,184	251	742	13,456
	3A Totals	**1,287**	**1,010**	**9,040**	**163,204**	**624**	**3,404**	**59,250**	**1,287**	**12,443**	**222,454**	**775**	**3,173**	**55,370**
Chignik Area	3B	18	17	66	1,177	9	26	573	18	92	1,750	5	1	24
Lower Alaska Peninsula	3B	149	64	229	3,945	120	435	8,547	149	664	12,492	19	66	971
	3B Totals	**166**	**81**	**296**	**5,122**	**128**	**461**	**9,119**	**166**	**756**	**14,242**	**23**	**67**	**995**
Eastern Aleutians–east	4A	63	50	225	4,889	25	93	2,539	63	318	7,429	33	88	2,459
Eastern Aleutians–west	4A	10	7	19	461	6	7	165	10	26	626	6	9	415
	4A Totals	**69**	**54**	**244**	**5,350**	**29**	**100**	**2,704**	**69**	**344**	**8,054**	**34**	**97**	**2,874**
Western Aleutians–east	4B	2	2	10	294	0	0	0	2	10	294	0	0	0
	4B Totals	**2**	**2**	**10**	**294**	**0**	**0**	**0**	**2**	**10**	**294**	**0**	**0**	**0**
St. George Island	4C	6	3	5	113	6	16	257	6	21	370	0	0	0
St. Paul Island	4C	22	13	189	2,077	18	102	1,853	22	291	3,930	5	0	0
	4C Totals	**25**	**13**	**194**	**2,190**	**21**	**118**	**2,110**	**25**	**312**	**4,300**	**5**	**0**	**0**
	4D Totals	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Bristol Bay	4E	11	11	35	395	6	8	101	11	42	496	1	0	0
Yukon–Kuskokwim Delta	4E	180	16	91	1,910	174	3,055	37,441	180	3,145	39,351	5	49	732
Norton Sound	4E	7	7	86	1,522	0	0	0	7	86	1,522	0	0	0
	4E Totals	**199**	**35**	**211**	**3,827**	**179**	**3,062**	**37,542**	**199**	**3,274**	**41,370**	**6**	**49**	**732**
Grand total		**4,408**	**3,545**	**26,216**	**548,153**	**1,831**	**10,598**	**179,025**	**4,408**	**36,815**	**727,178**	**2,127**	**7,814**	**144,638**

Source ADF&G Division of Subsistence, SHARC surveys, 2017.

a. "Setline" = longline or skate. "Hand-operated gear" = rod and reel, or handline.

b. Weights given are "net weight." Pounds net (dressed, head off) weight = 75% of round (whole) weight.

c. Because fishers may fish in more than one area, subtotals for regulatory areas and the state total might exceed the sum of the subarea values.

Figure 8.–Estimated number of Alaska subsistence halibut fishers, by regulatory area fished, 2003–2012, 2014, and 2016.

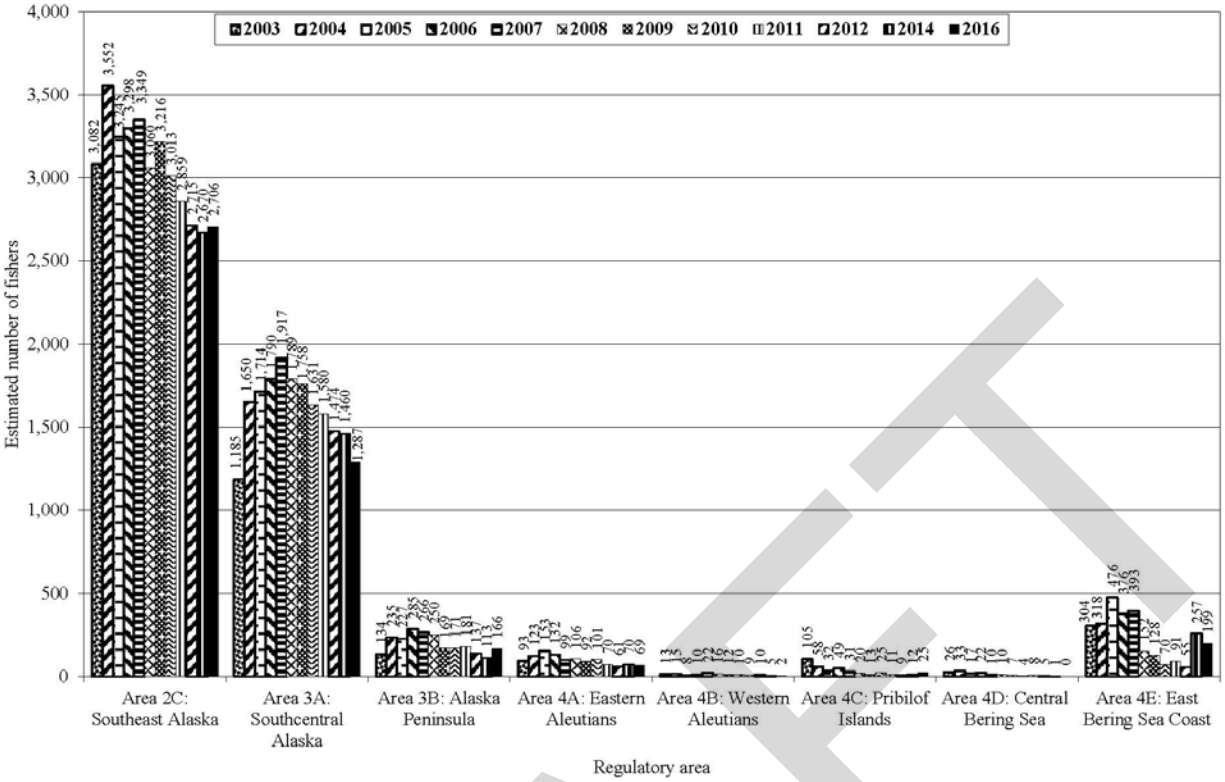

Figure 16.–Estimated subsistence halibut harvests, pounds net weight, by regulatory area fished, 2003–2012, 2014, and 2016.

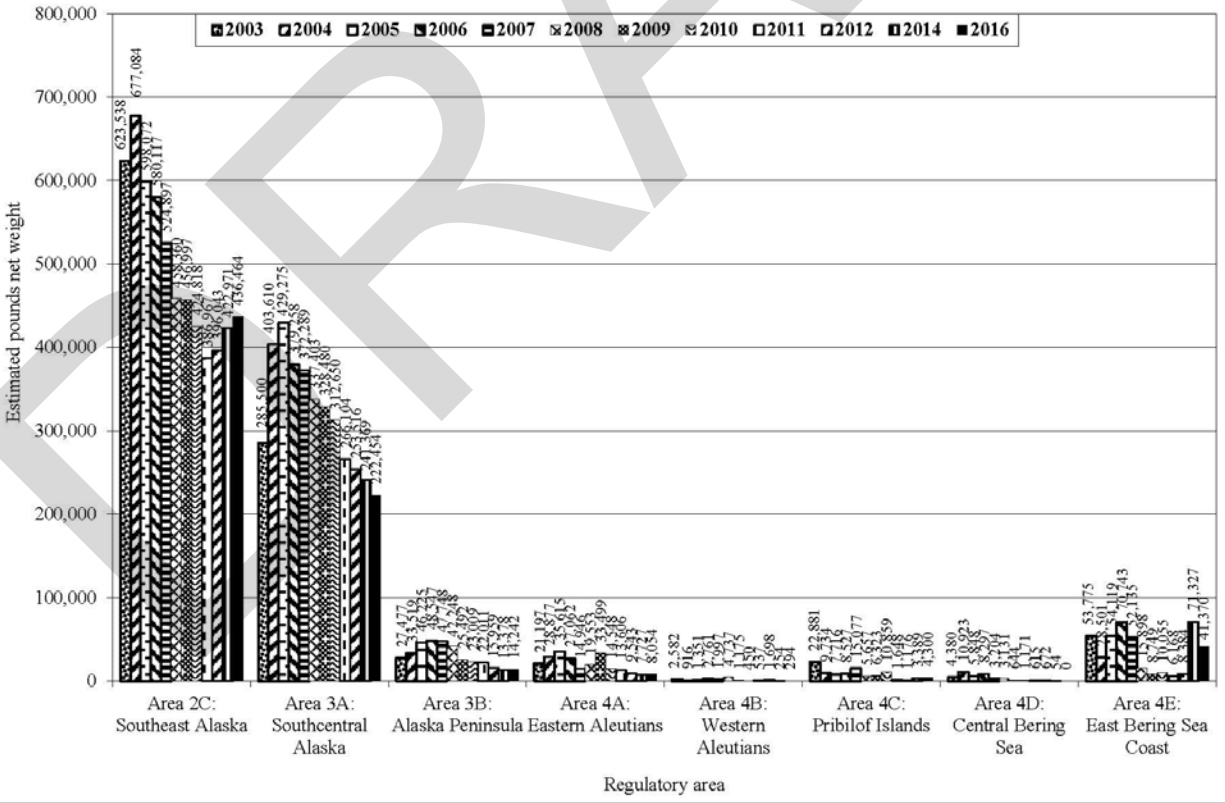

Figure 21.–Alaska subsistence halibut harvests by place of residence, 2016.

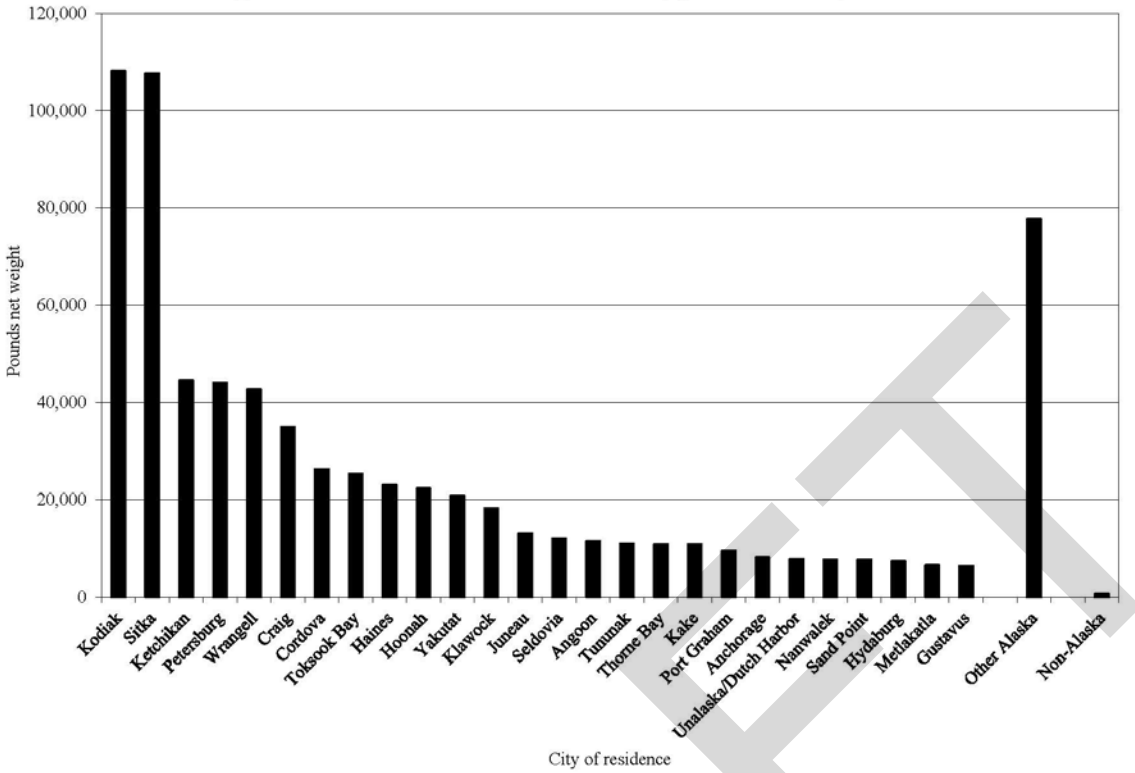

Figure 27.–Halibut removals, Alaska, 2016.