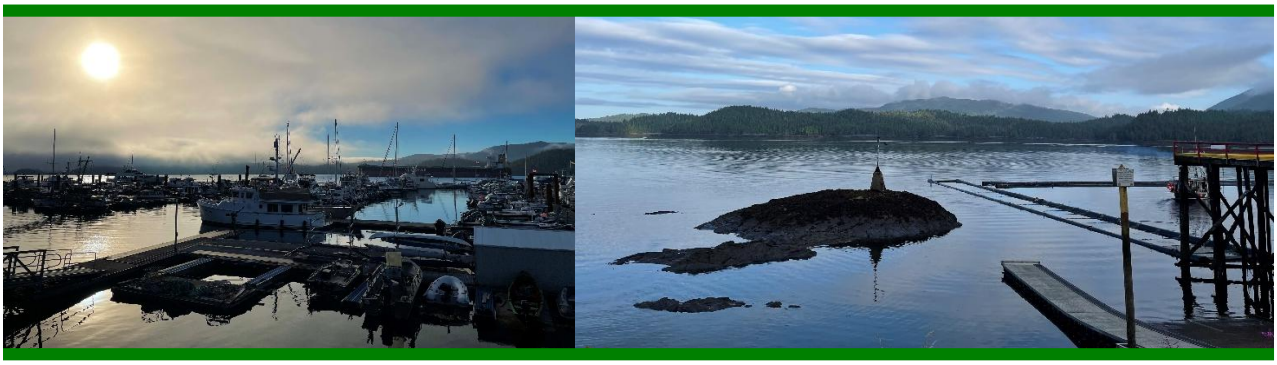
EA4332

North Coast (Areas 3 & 4) Recreational Angling Creel Survey 2022

FINAL REPORT



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EXECUTIVE SUMMARY

Due to the potential impact on multiple transboundary stocks of salmon, the North Coast (Areas 3 and 4) recreational fishery presents as a high priority for monitoring. Effort and harvest data, as well as biological samples and genetic information, are required for management of fisheries and monitoring of indicator stocks. The North Coast Skeena First Nations Stewardship Society (NCSFNSS) has operated this program since 2015, with support from the Pacific Salmon Commission Northern Fund. The survey consists of access point angler interviews and aerial overflights, typically for the months of June through August but also including May since 2019. Lodge-based recreational harvest and effort are monitored by DFO via a voluntary logbook program. Survey design and implementation, and analytical methods are similar to and consistent with those used in Area 3 and 4 creel survey monitoring since 2008.

From 1 May to 31 August 2022, a total of 2,301 vessel interviews (involving 7,074 anglers) were collected by staff stationed at one of three access points (located in Prince Rupert or Port Edward) during 235 survey shifts. 32 aerial effort surveys were conducted. High priority was placed on gathering biosamples and fin-clip incidence rates from Chinook (*Oncorhynchus tshawytscha*) and Coho (*O. kisutch*) salmon. When possible, length measurements were collected from Pacific Halibut (*Hippoglossus stenolepsis*). Survey effort was adequate, as relatively good precision was achieved for the harvest estimates for most of the main taxa (all precision goals were met).

Total fishing effort was estimated to be 11,624 vessel trips. In total, an estimated 14,444 Chinook Salmon were caught, with 4,432 fish kept and 10,012 released. No Chinook Salmon were harvested during the non-retention period from 15 June - 15 July 2021. It was estimated that 34,597 Coho Salmon were caught, with 31,620 fish kept and 2,978 released. Total Pacific Halibut catch was estimated to be 22,792 individuals, with 15,125 fish kept (biomass estimated at 92.5 net tonnes) and 7,667 released. Total harvest estimates included 9,147 Lingcod (*Ophiodon elongates*), 19 Yelloweye Rockfish (*Sebastes ruberrimus*), 6,009 other rockfishes (*Sebastes* spp.), and 2,390 groundfish other than Pacific Halibut and Lingcod.

Creel surveyors biosampled 416 Chinook Salmon, collecting length measurements (median 71 cm), adipose fin-clip incidence rates (8.2% were clipped), and scale samples. For Coho Salmon, 957 fish were biosampled (median fork length 65 cm; 0.7% adipose clipped). Heads were collected from 33 Chinook Salmon and six Coho Salmon for submission to the Salmon Head Recovery Program. Biosampled Pacific Halibut (n=1,423) had a median length of 81 cm, and average net weights of 6.0 kg and 6.2 kg in Areas 3 and 4, respectively.

During the month of May, fishing effort and Chinook Salmon harvest were estimated at 1,587 boat trips (14% of the May-August effort), and 1,428 fish (32% of the May-August harvest). The Department of Fisheries and Oceans Canada (DFO) expressed interest in a May creel survey because genetic samples would help them resolve stock composition and determine exploitation rates on early-run-timing stocks. During the month of May 2022, we biosampled 216 Chinook Salmon, taking 194 scale samples, and processed 11 tagged heads.

Recreational fishing effort and salmon catch in Areas 3 & 4 have been increasing over the last 28 years, in some cases dramatically. Despite the long-term trend, effort from 2020 to 2022 was below the predicted value, likely as a result of COVID-19. Despite reduced effort, Coho Salmon harvests were close to that predicted by the long-term increasing trend. Chinook Salmon harvests were lower than expected, likely as a result of the no-retention period. Pacific Halibut harvest did not show a strong among-year trend, likely the result of effective management measures that reduced daily bag limits and imposed maximum size limits. While the increasing trends highlight the need for continued monitoring of this fishery into the future, there is evidence that management measures can keep harvest under control.

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INTRODUCTION

The North Coast recreational fishery (in DFO's Pacific Region, Management Areas 3 and 4) harvests multiple species, mainly targeting Chinook (*Oncorhynchus tshawytscha*) and Coho (*O. kisutch*) salmon, but also Pacific Halibut (*Hippoglossus stenolepsis*), Lingcod (*Ophiodon elongates*), and other groundfish, rockfishes (*Sebastes* spp.), and invertebrate species. Residents and tourists alike enjoy sport fishing on the North Coast, and over the past 25 years fishing effort has increased substantially (Robichaud and Addison 2022). In light of increasing pressure, and of conservation concerns for some target stocks, there is a need to understand harvest from the Area 3 and 4 recreational fishery, with respect to catch rates and stock origins. Harvested salmon can originate from Canadian or US (enhanced and wild) stocks, hence there is a critical need for this creel program to determine B.C. fishery impacts, especially for stocks of concern.

The creel survey program helps the Pacific Salmon Commission develop improved information for resource management, including better stock assessment, data acquisition, and improved scientific understanding of factors that might limit salmon production. In addition to producing harvest and effort estimates with known error, this creel program has the added benefit of collecting direct field observations of catch, which allows for species identifications and harvest quantities to be verified, and biological samples to be collected from Chinook and Coho salmon. For example, CWT data, which are important components of the annual stock assessment data, and are required to monitor trends and manage the fisheries for Nass and Skeena river Chinook and Coho salmon stocks, come from the heads that our observers collect from randomly sampled adipose-clipped Chinook and Coho salmon.

The Area 3 and 4 creel survey program has operated during each recreational fishing season since 2008, estimating fishing effort and species-specific catch rates (Van Tongeren and Winther 2010, Robichaud and Addison 2022). Starting in 2015, the responsibility for carrying out the creel survey shifted from Fisheries and Oceans Canada (Prince Rupert) to the North Coast Skeena First Nations Stewardship Society (NCSFNSS), with support from the Pacific Salmon Commission Northern Fund. NCSFNSS's creel survey (Robichaud et al. 2016) followed a design similar to that used in the past by Fisheries and Oceans Canada, which, in turn, was based on an adaptation of the Strait of Georgia Creel Survey design, developed in 1982 by LGL Limited (English et al. 2002).

This report documents the 2022 recreational catch and effort statistics for fishing activities in Pacific Fishery Management Areas 3 and 4, and describes the program activities, data collection methodology and the analytical approaches that were used to generate the estimates.

SCOPE

The geographic scope of the creel survey was the same as in the previous twelve years (Van Tongeren and Winther 2010, Robichaud et al. 2016, 2017, Robichaud and Addison 2018, 2019, 2020, 2021, 2022), i.e., Management Areas 3 and 4 (from Portland Inlet, through Chatham Sound to Porcher Island (Figure 1). For the purposes of data collection and analysis, the study area was divided into 12 geographic strata ('subareas'), including three subareas in Area 3 (3I-3K) and nine subareas in Area 4 (4A-4H, and 4L).

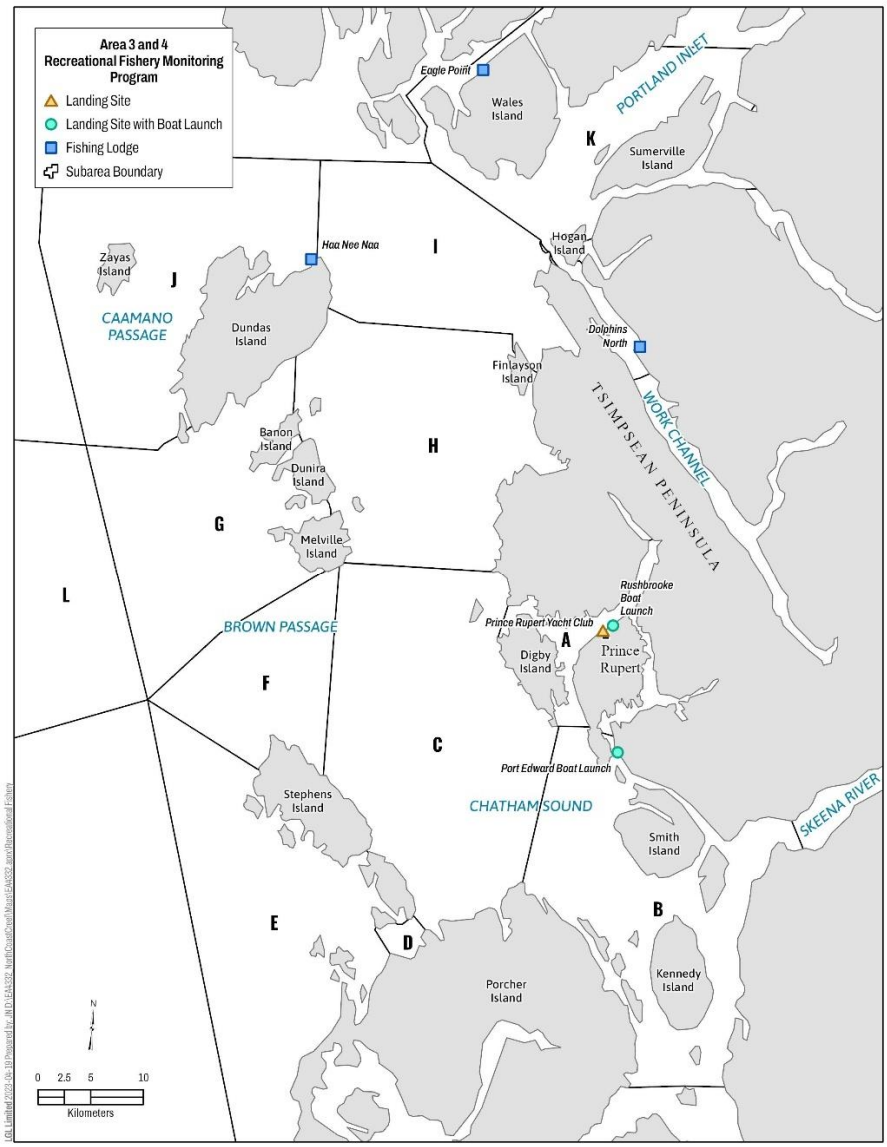


Figure 1. Map of the North Coast study area, showing the major landing sites, fishing lodges, and the boundaries of the subareas that were used as spatial strata in the creel survey design.

The temporal scope of the full study was from 1 May through 31 August 2022. Survey schedules were designed to provide sufficient data to derive statistically robust catch and efforts estimates for each month and subarea. However, mid-season it was decided to use five temporal strata, termed "periods", which better coincided with changes in the management measures regulating the fishery than did the biologically 'arbitrary' calendar months. For ease of among-year comparison, the period-specific data were reconstituted into monthly summaries (Table 1) wherever possible. For this reason, the third period was sometimes divided into two sub-periods (Table 1): one sub-period for the June days (15 -30 June), and the other sub-period for the July days (1-15 July).

The study included creel analysis of all major local sportfish species, with greater emphasis placed on Chinook and Coho salmon, Pacific Halibut and Lingcod.

Table 1. Delineations of temporal strata. The five Periods coincided with changes in the fishery regulations. Periods were further divided into six Sub-periods to allow data to be easily grouped into four Months.

Period	*Sub-period*	*Month*
1-31 May	*1-31 May*	*May*
1-14 June	1-14 June	June
15 June - 15 July	15-30 June	
	1-15 July	July
16-31 July	16-31 July	
1-31 August	1-31 August	August

GOAL AND OBJECTIVES

The goal of this study was to conduct a creel survey of the North Coast (Areas 3 and 4) recreational fishery following the design and methodology used recently by DFO (Van Tongeren and Winther 2010), for the purpose of producing estimates of effort and catch of all species targeted by the recreational fishery. The creel survey included aerial effort counts and access point angler interviews, conducted throughout Areas 3 and 4 from May through August 2022. The precision goal for the study was to estimate total harvests of large components (such as Chinook Salmon) within 15% of the true value 19 times out of 20. Creel survey strata included temporal separation by month (or period) and day type (weekdays vs. weekend days). Spatial stratifications were based on creel survey subareas. All local fishing areas (i.e., those accessed from major boat launches in the area) were included in our survey design.

The seven objectives for this study were:

1. Maintain software for data management and analysis comparable to DFO's CREST program;
2. Provide monthly (May-August) estimates of the catch and effort of all salmon species targeted by the recreational fishery and associated estimates of precision;
3. Provide DFO and PSC with monthly in-season catch estimates for all salmon species harvested in the North Coast recreational fishery;
4. Provide communication materials to recreational harvesters to convey the usefulness and importance of their catch data in fisheries management;
5. During angler interviews, collect biological data from a representative subsample of the landed harvest, including fin clip incidence, lengths, and scale or tissue samples for Coho and Chinook salmon;
6. Produce a final written report to be available to a technical audience; and
7. Present creel survey findings at the North Coast salmon post-season review meeting to a broad audience of commercial, recreational interests, and First Nations.

Objective 1 was addressed over the course of the study period, and included the need to stratify data by management period instead of by month. Objectives 2 and 6 were met by completing this report. Objective 3 was met throughout the study period by providing timely and complete summaries of the monthly survey activities (with complete creel analyses done for each update report). Objective 4 will be met subsequent to the finalization of this report, as its contents will be based on the results presented herein. Objective 5 was met by biosampling fish at access points throughout the study period: fish were measured for length and sexed, scale or tissue

samples and adipose fin clip incidence data were collected for Coho and Chinook salmon, heads were collected from adipose-clipped fish, and all biological data were submitted to DFO at the end of study period. Objective 7 was met in on 1 December 2022 at the DFO IHPC Post-Season Review meeting.

METHODS

A complete census of catch and effort was available for lodge-based anglers. However, the remainder of the recreational fishery occurred over too large an area to completely census catch and effort. Instead, statistically robust methods were used to estimate catch by multiplying estimates of *angler effort* by estimates of *catch per unit of effort*. Separate estimates were generated for each creel monitoring subarea, month, day type (weekday vs. weekend), and species.

For each creel subarea during each period and day type, fishing effort was estimated by counting boats that were actively fishing during overflight surveys (sub-area counts were reduced by the number of lodge-based boats thought to have been visible to the aircraft). Catch per unit of effort for non-lodge boats was estimated from interviews (see data forms in Appendix 1) conducted at known access points. During interviews, anglers were asked about their catch, effort, and fishing locations. They were also asked about their hourly fishing activity patterns.

Data collected during interviews included:

- Date;
- Number of anglers in party;
- Whether or not the trip was guided by a professional;
- Subarea angler activity – for each subarea, the hours during which angling activity was conducted;
- Subarea catch – the number of fish kept and the number released by species and subarea;
- Subarea gear – the amount and type of fishing gears used to catch each species in each subarea;
- Subarea targets – the number of hours spent targeting each species in each subarea (anglers that targeted only shellfish were noted);
- Biosampling – if allowed by the anglers, harvested Chinook and Coho salmon were measured (nose to fork length), sexed, checked for adipose clips and, if clipped and permission given, heads were collected for the Salmon Head Recovery Program. Scale samples were taken from Chinook Salmon, and tissue samples (fin clips) from Coho Salmon. Chinook Salmon were also examined for flesh colour. Pacific Halibut were measured (total length);
- Refusals – whether or not the anglers refused an interview, allowed catch to be observed, or allowed catch to be biosampled; and
- Weather conditions.

The analytical methods used, similar to those used in previous years (e.g., Robichaud and Addison 2022), provided a statistically unbiased estimate of catch per effort, assuming the anglers interviewed were representative of the entire non-lodge recreational fishery. Interviews were conducted at the three main access locations: Port Edward and Rushbrooke boat launches, and Prince Rupert Yacht Club. The locations surveyed were selected from all available access

points, based on their geographical distribution and the amount of fishing activity that is typically conducted from that site, in order to maximize the number of interviews obtained. This approach was based on two important observations: 1) the variability in CPE (catch-per-effort) among fishing parties landing at a single access point tends to be as great as the variability in CPE among different access points within a geographic area; and 2) CPE and effort can vary substantially both within and between days at a single site (English et al. 2002). Under these conditions it is better to obtain a large number of interviews covering all temporal strata for a small number of sites than to sample a larger number of sites and obtain fewer interviews and less complete temporal coverage for any specific site.

During an observer shift, attempts were made to interview all anglers returning to the access location on that day, but some were missed (it is assumed that a random process dictated whether a boat was missed or interviewed), and some anglers refused to participate (it is not clear how the angling behaviour of the refusals differed from that of the participants). Ideally, interviews would capture data about angler activity in all creel subareas, but the statistical subarea where the anglers fished dictated the geographic distribution of our samples. It is assumed that the geographic distribution of fish sampled at the access locations was random relative to the fish harvested by the fishery.

The frequency of interview shifts was planned with the target of sampling 20% of estimated effort, while attempting to have "hands on" and direct observations of (and biological samples from) as many fish as possible meant allocating adequate time to each interview. The interview schedule was designed to capture data from representative angler parties in both day types, and over all time periods of the day. Interviewing sessions were separated into AM and PM shifts, with AM shifts occurring between 7:00 and 15:00, and PM shifts from 13:00 to 21:00. In total, 235 shifts were worked.

Fishing effort was estimated from boat-counts made during overflights. Overflights were conducted on 3 weekend days and 5 weekdays each month. Mid-season, in response to the announcement of Chinook Salmon management measures[1], we partitioned our temporal strata into five 'periods' (rather than the typical four months), which meant that period-specific sample sizes were lower than what they would have been had we generated *monthly* effort estimates). Timing of the overflights was targeted for peak fishing periods (11 AM to 1 PM), and in 2022 most flights occurred at target times. However, there were a few fog, mechanical, or logistic delays which meant that flights ended after 1 PM (four flights were over by 1:30 PM; one flight on 18 May ran from 11:51 AM to 1:36 PM; one flight on 30 May ran from 12:00 PM to 2:01 PM; and one flight on 25 August left as the target window ended at 1 PM, and ran until 2:36 PM). Analytical methods accommodate the occasional off-peak flight but can result in increased uncertainty in the effort estimate.

Angler Activity Patterns

Two weighting factors were used together with the interview-derived angling activity data to estimate the daily non-lodge fishing activity pattern (English et al. 2002). The first weighting

[1] Salmon management measures are sometimes released in June or July, and implementation of measures and restrictions can vary among years, thus requiring us to respond *in season* with modifications to our study design.

factor, $W1$, expanded the numbers of days spent interviewing at each landing site to account for the total number of days available for sampling. That is, it was assumed that the daily activity pattern recorded during the interview shifts at landing site a, were consistent for landing site a, even during the days when no interviews occurred. A specific $W1$ was calculated for each landing site during each period and day type:

$$W1_{pda} = \frac{N_{pd}}{K_{pda}}, \qquad \text{(Equation 1)}$$

where N_{pd} was the total number of type d days in period p; and K_{pda} was the number of days during which interviews occurred at landing site a, on type d days during period p.

The second weighting factor, $W2$, expanded the numbers of interviews conducted, to account for the recreational fishing boats that were *not* interviewed. Some recreational fishing boats were not interviewed because of refusals, and some boats returned during periods of high traffic volume when it was not possible to interview all returning vessels. Some returning vessels were not doing recreational fishing at all (e.g., pleasure cruisers, Food-Social-Ceremonial harvesters). For the recreational fishing vessels, it was assumed that the activity pattern recorded during the interview shifts also held for those anglers that were not interviewed. A specific $W2$ was calculated for each surveyor (u) operating on each surveying date (k) at each landing site (a):

$$W2_{aku} = \frac{LF_{aku} + LM_{aku}\left(\frac{LF_{aku}}{LF_{aku}+LN_{aku}}\right)}{LF_{aku} - ri_{aku}} \qquad \text{(Equation 2)}$$

where LF_{aku} was the number of interviewed boats that were fishing (a subset of these, ri_{aku}, refused an interview, or had an incomplete interview that could not be used), LN_{aku} was the number of interviewed boats that were not fishing, and LM_{aku} was the number of boats that were not interviewed by surveyor u, during surveying date k, at landing site a. This equation incorporates the assumption that interviewed boats were representative, allowing us to estimate the portion of missed boats that were fishing.

Table 2. The amount of data (number of complete interviews) available to estimate non-lodge angler activity patterns, for all levels of each factor, 2022.

		Subarea												TOTALS		
Period	*Day Type*	*3I*	*3J*	*3K*	*4A*	*4B*	*4C*	*4D*	*4E*	*4F*	*4G*	*4H*	*4L*	*Area 3*	*Area 4*	*Overall*
May	*WD*	3	4	6	66	56	44	13	1	52	2	11	1	13	246	259
	WE	1	7	3	90	41	69	17	2	74	5	15	4	11	317	328
	Total	4	11	9	156	97	113	30	3	126	7	26	5	24	563	587
1-14 June	*WD*	1	18	9	77	13	32	15	2	69	3	12	3	28	226	254
	WE	3	18	4	55	21	18	13	1	27	11	7	0	25	153	178
	Total	4	36	13	132	34	50	28	3	96	14	19	3	53	379	432
15 June - 15 July	*WD*	9	54	3	183	18	60	17	8	94	30	42	22	66	474	540
	WE	18	37	5	133	19	40	6	6	51	24	33	5	60	317	377
	Total	27	91	8	316	37	100	23	14	145	54	75	27	126	791	917
16-31 July	*WD*	11	20	5	82	22	55	23	0	79	23	35	6	36	325	361
	WE	6	38	4	66	23	36	30	1	96	13	20	2	48	287	335
	Total	17	58	9	148	45	91	53	1	175	36	55	8	84	612	696
August	*WD*	19	26	16	88	29	72	56	0	96	7	19	6	61	373	434
	WE	22	14	7	86	15	39	26	2	59	3	24	1	43	255	298
	Total	41	40	23	174	44	111	82	2	155	10	43	7	104	628	732
GRAND TOTAL		93	236	62	926	257	465	216	23	697	121	218	50	391	2,973	3,364

We used the term $A_{pdsakut}$ to denote the number of non-lodge boats reporting activity during time-block *t*, as interviewed by surveyor *u* on survey date *k*, at landing site *a*, in subarea *s*, during period *p*, and on day type *d* (n_{pdsaku} was used to denote the total number of boats that reported activity during *any* time-block). The two correction factors were applied, and the data were summed over surveyors, survey dates and landing sites:

$$A'_{pdst} = \sum_k \sum_u \sum_a (W1_{pda} \cdot W2_{aku} \cdot A_{pdsakut}). \qquad \text{(Equation 3)}$$

Summing the adjusted number of anglers over the hourly time-blocks gave:

$$T'_{pds} = \sum_t A'_{pdst}\ . \qquad \text{(Equation 4)}$$

The proportion of non-lodge boats (P_{pdst}) that were actively fishing during each of the hourly time-blocks (*t*) was calculated for each period, day type, and subarea:

$$P_{pdst} = \frac{A'_{pdst}}{\sum_k \sum_u \sum_a (W1_{pda} \cdot W2_{aku} \cdot n_{pdsaku})} \qquad \text{(Equation 5)}$$

Using this method, 120 unique angler activity patterns were to be estimated (i.e., 5 periods × 2 day types × 12 subareas). To reliably describe angler activity, a relatively large number of boats (~60) needed to be interviewed in each of the 120 blocks. In the end, some blocks contained too few interviews (Table 2), so it was decided to pool activity data over subarea. The equation for non-lodge angler activity was thus:

$$P_{pdt} = \frac{\sum_s A'_{pdst}}{\sum_s \sum_k \sum_u \sum_a (W1_{pda} \cdot W2_{aku} \cdot n_{pdsaku})} \qquad \text{(Equation 6)}$$

and the associated variance was:

$$S^2_{P_{pdt}} = \frac{(P_{pdt})(1 - P_{pdt})}{\sum_s \sum_k \sum_u \sum_a (W1_{pda} \cdot W2_{aku} \cdot n_{pdsaku})} \qquad \text{(Equation 7)}$$

Catch Per Effort Estimation

Catch per effort (numbers of fish kept or released per boat trip) of non-lodge boats was estimated for each species from interviews of non-lodge anglers. Catch per effort was calculated separately for guided and non-guided boats, and overall; but only the overall estimates were used in subsequent calculations. For each interview (*i*), the guided status (*g*), period (*p*), and the catch (*C*) of each species (*r*) in each subarea (*s*) was recorded. Given that each interview represented one boat trip, then catch per effort (CPE), in terms of catch per boat trip, was calculated as:

$$CPE_{psrgi} = \frac{C_{psrgi}}{1} \quad \text{where } g \in \{\text{all, guided, not-guided}\} \qquad \text{(Equation 8)}$$

Mean *CPE* was calculated as the average catch, over all n_{psg} boat trips:

$$C\hat{P}E_{psrg} = \frac{\sum_{i=1}^{n_{psg}} C_{psrgi}}{n_{psg}} \qquad \text{(Equation 9)}$$

The variance for the estimate of mean catch per effort was calculated as:

$$S^2_{C\hat{P}E_{psrg}} = \frac{\sum \left(CPE_{psrgi} - C\hat{P}E_{psrg}\right)^2}{(n_{psg} - 1)} \qquad \text{(Equation 10)}$$

In the event that a period/subarea-specific sample size was < 5, adjacent subareas would be pooled together as follows:

- if n for 3I, 3J or 3K was too low, then it was combined with the other two subareas, along with data from ambiguous parts of Area 3 ("3?") to give a 3?IJK regional average CPE;
- if n for 4A, 4B or 4C was too low, then it was combined with the other two to give a 4ABC regional average CPE;
- if n for 4D, 4E or 4F was too low, then it was combined with the other two to give a 4DEF regional average CPE; and
- if n for 4G, 4H or 4L was too low, then it was combined with the other two to give a 4GHL regional average CPE.

Similar methods were used to calculate the average number of fish harvested (retained) per boat trip (HPE), and the average number of fish released per boat trip (RPE).

Angler Effort Estimation

To obtain statistically valid estimates of non-lodge fishing effort, boats were counted during overflight surveys conducted from a fixed-wing aircraft traveling along a set path over the study area (see Figure 2). In order to calculate the non-lodge effort, the estimated counts of active lodge boats needed to be subtracted from the overflight counts for that particular day.

Lodge Effort Census

A complete census of lodge-based angling effort was collected from lodge logbooks by DFO personnel. DFO used the following procedure to estimate the number of active lodge vessels that would have been available to be observed during the flights: 1) Lodge based vessels were considered unavailable to the flights on change-over days (days when the lodges received new clients; on typical change-over days, departing clients leave before the flight and new clients arrive after the flight). Change-over days occurred twice a week but timing was often different for each lodge, making 29% (2/7) of the lodge effort not visible to flights due to change-over days. 2) Lodges reported their lunchtime activity to DFO, which ranged from virtually always going in for a mid-day break to rarely leaving the water during the day. Thus, approximately 60% of the remaining vessel activity was available to the flight counts on 'regular' days (i.e., not change-over). 3) Vessels on mid-day break or on change-over days were excluded from the numbers of vessels visible to the flights. All of the lodge catch was reported from Area 3, without subarea-specific effort information. Thus, lodge effort was partitioned among the Area 3 subareas, see below.

Non-lodge Effort Surveys

Table 3 shows the number of overflight surveys scheduled for each day type and period. Each survey was designed to allow visual inspection of the subareas through which the aircraft passed. Each time the aircraft entered a subarea, the start and end times were recorded, along with the numbers of small (< 30 ft) and large (≥ 30 ft) recreational vessels that were observed, tallied separately depending on whether or not they were actively fishing at the time.

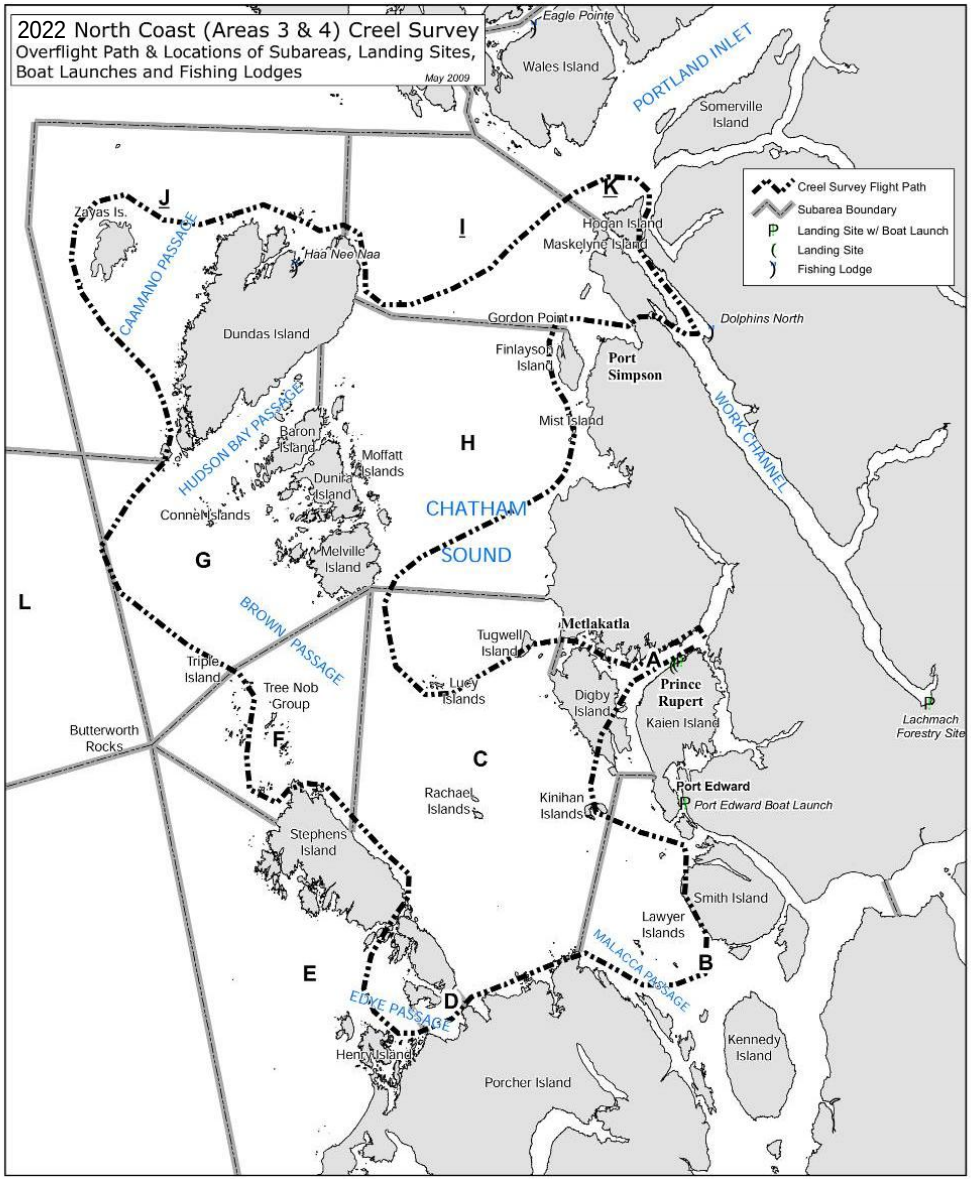


Figure 2. **Map showing planned flight path of effort survey overflights. Letters indicate subareas. Flights originated and ended in Prince Rupert and flew in the clockwise direction. On good weather days, the flights also included a foray into subarea 4L (path not shown).**

Table 3. **Overflight sampling effort (number of flights shifts) by day type and month (left) or period (right), 2022.**

Month	*Weekday*	*Weekend/ Holiday*	*Total*
May	5	3	8
June	5	3	8
July	5	3	8
August	5	3	8
Total	20	12	32

Month	*Weekday*	*Weekend/ Holiday*	*Total*
1-31 May	5	3	8
1-14 June	2	2	4
15 June - 15 July	6	1	7
16-31 July	2	3	5
1-31 August	5	3	8
Total	20	12	32

During survey *o* (conducted during period *p* and on day type *d*), observers tallied the total number of recreational boats that were actively fishing at time *t* on their i^{th} pass over subarea *s*, V_{pdsoit}. For each visit to a subarea within Management Area 3, the relative proportion of boats was calculated, ρ_{pdsoit}, and the total number of lodge boats (λ_{pdo}) apportioned accordingly:

$$\lambda_{pdsoit} = \rho_{pdsoit} \cdot \lambda_{pdo} \ . \qquad \text{(Equation 11)}$$

The number of non-lodge boats was hence:

$$\nu_{pdsoit} = V_{pdsoit} - \lambda_{pdsoit} \ . \qquad \text{(Equation 12)}$$

Since angling occurs over the course of the entire day, the number of non-lodge boats that were observed was divided by the proportion of average daily number of boats active (P_{pdst}) during the time block when the observations were recorded. Since the flight path (Figure 2) brought the observers into some subareas more than once during the survey (covering different ground, thus the tallies were considered additive), the adjusted tallies were summed over all visits, to calculate the total number of active non-lodge fishing boats on the day of the survey, by subarea, B_{pdso}:

$$B_{pdso} = \sum_i \frac{\nu_{pdsoit}}{P_{pdst}} \ . \qquad \text{(Equation 13)}$$

The variance of B_{pdso} was calculated using the standard formulas for combining the variance of products and quotients of two independent random variables (Goodman 1960):

$$\begin{aligned} &\text{if } z = x/y, Var(z) = (y^{-2})Var(x) + (x^2y^{-4})Var(y) \ ; \\ &\text{if } z = xy, Var(z) = (y^2)Var(x) + (x^2)Var(y) \ ; \text{ and} \\ &\text{if } z = qx, Var(z) = (q^2)Var(x) \quad \text{where } q \text{ is a constant.} \end{aligned} \qquad \text{(Equation 14)}$$

Since there was no variance associated with the boat counts, it followed that

$$S^2_{B_{pdso}} = (\nu_{pdsoit})^2 (P_{pdst})^{-4} S^2_{P_{pdst}} \ . \qquad \text{(Equation 15)}$$

Next, the survey-specific 'daily effort' estimates were averaged over the number of surveys conducted, n_{pds}, as:

$$\hat{B}_{pds} = \frac{\sum_{o=1}^{n_{pds}} B_{pdso}}{n_{pds}} \qquad \text{(Equation 16)}$$

with a variance of:

$$S^2_{\hat{B}_{pds}} = (n_{pds})^{-2} S^2_{B_{pdso}} \ . \qquad \text{(Equation 17)}$$

Total fishing effort for each sub-period was calculated for each subarea by multiplying the period-specific average daily effort (e.g., $\hat{B}$ for the '15 June – 15 July' period was applied to both the '15-30 June" and '1-15 July' sub-periods, see Table 1) by the number days of day type *d* that occurred in sub-period *c*:

$$E_{cds} = \hat{B}_{pds} \cdot N_{cd} \ , \qquad \text{(Equation 18)}$$

which was then summed over day type to give:

$$E_{cs} = \sum_d \hat{B}_{pds} \cdot N_{cd} \ , \qquad \text{(Equation 19)}$$

with a variance of:

$$S^2_{E_{cs}} = \sum_d S^2_{\hat{B}_{pds}} \cdot N^2_{cd} \ . \qquad \text{(Equation 20)}$$

Total monthly fishing effort was calculated by summing over the appropriate sub-periods (i.e., total effort for July was the sum of effort in the '1-15 July' and '16-31 July' sub-periods). As always, variances for sums were additive (Goodman 1960).

Because of inclement weather, not all overflights surveyed every subarea. Especially for the more exposed subareas, it was possible to have no overflight data in a given combination of period and day type. In this event, subarea-specific effort was scaled using: 1) the proportion of effort in that subarea, relative to that in a three-subarea cluster (see pooling of adjacent subareas

for CPE estimation, above), measured during overflights for which all three subareas were surveyed; and 2) the effort in the cluster's other two subareas, estimated for the combination of period and day type during which the data gap occurred.

Catch and Harvest Estimation

Total catch was calculated for each sub-period, subarea, and species by multiplying sub-period-specific angling effort by period-specific catch per effort, and then summing over day type:

$$C_{csr} = \sum_d \left(E_{cds} \cdot \hat{CPE}_{psrg} \right) \qquad \text{(Equation 21)}$$

where g = 'all' (see Equation 8). The standard errors for these catch estimates were:

$$S_{C_{csr}} = \sqrt{\sum_d \left(E_{cds}^2 \frac{S_{CPE_{psrg}}^2}{n_{psg}} + CPE_{psrg}^2 \frac{S_{E_{cds}}^2}{n_{pds}} + \frac{S_{CPE_{psrg}}^2}{n_{psg}} \frac{S_{E_{cds}}^2}{n_{pds}} \right)} \qquad \text{(Equation 22)}$$

where n_{pds} and n_{psg} are the sample sizes for E and CPE estimates, respectively. Total monthly catch was calculated by summing over the appropriate sub-periods, with additive variances.

Similar methods were used to estimate monthly numbers of fish harvested, and monthly numbers of fish released by replacing CPE with HPE or with RPE in Equations 21 and 22.

Biosampling

When given permission by the anglers, surveyors collected biological data from Chinook and Coho salmon and Pacific Halibut. Biosampled species were sexed when they were intact. Chinook and Coho salmon were examined for clipped adipose fins (mark rate data used by DFO for coded wire tag analyses) and when possible, heads from clipped fish were collected. The flesh color was noted for Chinook Salmon. Scale samples were collected from Chinook Salmon, and tissue samples (fin clips) were collected from Coho Salmon (used by DFO to determine age, and to carry out genetic stock identification).

Ideally, all anglers would allow their catch to be biosampled, and the examined fish would represent an unbiased sample of all harvested fish. But Robichaud et al. (2016) theorized that the interview protocol, used until the end of 2015, may have resulted in bias. The protocol had surveyors ask anglers about adipose clips before asking permission to observe the fish. Anglers were often engaged in a conversation about the purpose of the fin-clips and how the data would be used, and it appeared that anglers with clipped fish were more likely to permit handling and biosampling of catch than when no clipped fish were present. To avoid this bias, we modified our data collection protocol in 2016 so that anglers were asked if their catch could be biosampled before any other interactions took place. Also starting 2016, no fin clip data were accepted on the word of the anglers: the only fin-clip data we used were those which came from observers when they handled and inspected the catch.

Biomass of Harvested Pacific Halibut

Halibut lengths were converted to weights using the International Pacific Halibut Commission (Clark 1992) regression equations:

$$\text{Weight(lb)}_{\text{net}} = 6.921\times10^{-6} \times \text{FL(cm)}^{3.24}$$
$$\text{Weight(lb)}_{\text{round}} = 9.166\times10^{-6} \times \text{FL(cm)}^{3.24} \qquad \text{(Equation 23)}$$

Converting average length to average weight allowed harvested biomass to be calculated from harvested fish counts.

Statistical Analyses

For each fish taxa, differences in CPE among periods were examined using Kruskal Wallis tests (Zar 1984), whereas differences between trip-types (guided vs. non-guided) were examined using paired t-tests (i.e., the difference between guided vs unguided catch for a given subarea and period was tested against a null of zero; Sokal and Rohlf 1995). Kruskal Wallis tests were used to examine the effects of period and day type on effort, and the effects of month on catch and harvest. When statistically significant effects were observed, *post-hoc* Kruskal-Wallis tests were used to compare between each possible pair, where the false discovery rate was controlled using the Benjamini–Hochberg procedure (Benjamini and Hochberg 1995).

Trailer Census

Starting at the beginning of May, the total number of parked trailers at the landing locations was recorded daily during the peak of the activity timing window (i.e., between noon and 2 PM; similar to the targeted timing of aerial overflights). Theoretically, trailer counts could be used as an index of fishing effort, are more economical than overflights, and are not weather dependant, though no sub-area-specific effort data are collected. DFO has been collecting trailer count data for years and we are maintaining the time series. Linear regression was used to determine the relationship between trailer counts and fishing effort. A data point was generated each time a trailer census occurred on the same day as an overflight. For the regression analysis, the location-specific trailer counts and non-lodge boat counts were used as the independent and dependent variables, respectively.

RESULTS

Angler Interviews

Over the four month study period, there were 235 observer shifts, during which 2,301 interviews were conducted, involving 7,074 non-lodge anglers (Figure 3; Table 4). July was the busiest month, with 799 interviews conducted (average 13.3 interviews per shift), which represented 35% of the total number of study period interviews (Table 4).

Non-lodge boat trip activity was unevenly distributed among the subareas, with 4A and 4F being the favourites (Table 5). Subarea 4C was the next most likely area for anglers to have reported activity, followed by 4B, 4D, 3J, and 4H. The subareas with the lowest number of trips reporting activity were 4E and 4L. Only 110 interviews were of parties that only targeted shellfish, and those were overwhelmingly in subarea 4A (Table 6).

On average, 36% of the non-lodge boat trips were guided by a professional. The guiding rate varied by landing site. Only 30 of 501 trips (6.0%) interviewed at Port Edward were guided, whereas trips departing from Rushbrooke and Prince Rupert Yacht Club were guided 28% and 63% of the time, respectively (Table 7).

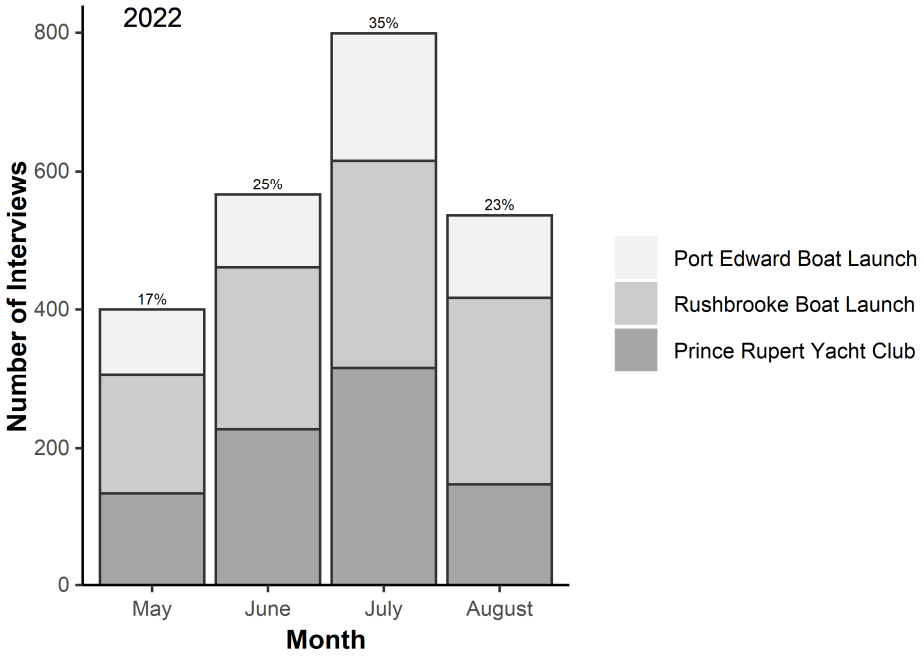


Figure 3. Number of interviews conducted at each of three landing sites, by month, 2022.

In all there were 14 refusals (Table 5), or 0.6% refusal rate. The highest refusal rate (1.0%) was at the Prince Rupert Yacht Club, where 57% of the refusals occurred. The refusal rates for the Port Edward and Rushbrooke boat launches were both 0.4% (14% and 29% of the refusals), respectively.

Angler Activity Patterns

Non-lodge angler activity pattern estimates varied little among periods (Figure 4). There was virtually no difference between the weekday and weekend/holiday activity patterns, except for a slightly greater tendency for weekend anglers to be active during the peak times in May, as compared to weekday anglers. Timing of our overflights lined up with peak activity levels for all but the last hour of one weekday flight (25 August 2022) that occurred at an off-peak time (1 PM to 2:36 PM) as a result of fog earlier in the day.

Table 4. Monthly number of shifts, and numbers of boats interviewed per landing site, 2022. Non-lodge effort is expressed in units of boat trips. Sampling efficiency is also calculated.

	May				*June*				*July*			
Landing Site	*# ints*	*# anglers*	*# stints*	*ints/stint*	*# ints*	*# anglers*	*# stints*	*ints/stint*	*# ints*	*# anglers*	*# stints*	*ints/stint*
Port Edward Boat Launch	94	221	20	4.7	104	302	21	5.0	184	530	20	9.2
Prince Rupert Yacht Club	134	407	20	6.7	227	761	22	10.3	316	1076	20	15.8
Rushbrooke Boat Launch	172	406	20	8.6	235	698	20	11.8	299	964	20	15.0
TOTAL	400	1,034	60	6.7	566	1,761	63	9.0	799	2,570	60	13.3
% of Total Interviews		17%				25%				35%		
Estimated Non-lodge Effort		1,276				2,091				3,391		
% of Non-lodge Effort		14%				22%				36%		
% of Effort Sampled		31%				27%				24%		

	August				*TOTAL*			
Landing Site	*# ints*	*# anglers*	*# stints*	*ints/stint*	*# ints*	*# anglers*	*# stints*	*ints/stint*
Port Edward Boat Launch	119	357	17	7.0	501	1410	78	6.4
Prince Rupert Yacht Club	147	495	15	9.8	824	2739	77	10.7
Rushbrooke Boat Launch	270	857	20	13.5	976	2925	80	12.2
TOTAL	536	1,709	52	10.3	2,301	7,074	235	9.8
% of Total Interviews		23%						
Estimated Non-lodge Effort		2,639				9,397		
% of Non-lodge Effort		28%						
% of Effort Sampled		20%				24%		

Table 5. Fishing locations as reported by interviewed non-lodge parties, by month and subarea, 2022. For interviews that reported activity in multiple subareas, the boat trip tally was evenly partitioned among the subareas visited.

	Subarea															
Month	*3I*	*3J*	*3K*	*4A*	*4B*	*4C*	*4D*	*4E*	*4F*	*4G*	*4H*	*4L*	*3?*	*4?*	*Refusal*	*TOTAL*
May	4	7	6	89	77	80	24	3	88	4	15	2			2	400
June	11	48	11	165	44	74	22	5	115	29	38	6				566
July	21	76	11	158	43	104	59	9	183	47	61	18		3	7	799
August	30	31	19	98	33	80	67	2	123	8	32	4	2	4	5	536
TOTAL	65	161	47	510	197	338	171	18	508	87	146	29	2	7	14	2,301

Table 6. Numbers of non-lodge boat trips that reported only fishing for shellfish, by month and subarea, 2022.

	Subarea														
Month	*3I*	*3J*	*3K*	*4A*	*4B*	*4C*	*4D*	*4E*	*4F*	*4G*	*4H*	*4L*	*3?*	*4?*	*TOTAL*
May	0	0	1	19	4	1	0	0	1	0	0	0	0	0	26
June	0	0	0	30	1	3	0	0	0	1	1	0	0	0	36
July	0	0	0	22	2	0	0	0	0	0	3	0	0	0	26
August	0	0	0	20	0	1	0	0	0	0	0	0	0	1	22
TOTAL	0	0	1	91	7	5	0	0	1	1	4	0	0	1	110

Table 7. Numbers of guided (i.e., led by professional guides) and unguided boat trips, by landing site, 2022.

	Trip Type		
Landing Site	*Guided*	*Unguided*	*% guided*
Port Edward Boat Launch	30	471	6.0%
Prince Rupert Yacht Club	520	304	63%
Rushbrooke Boat Launch	277	699	28%
TOTAL	827	1,474	36%

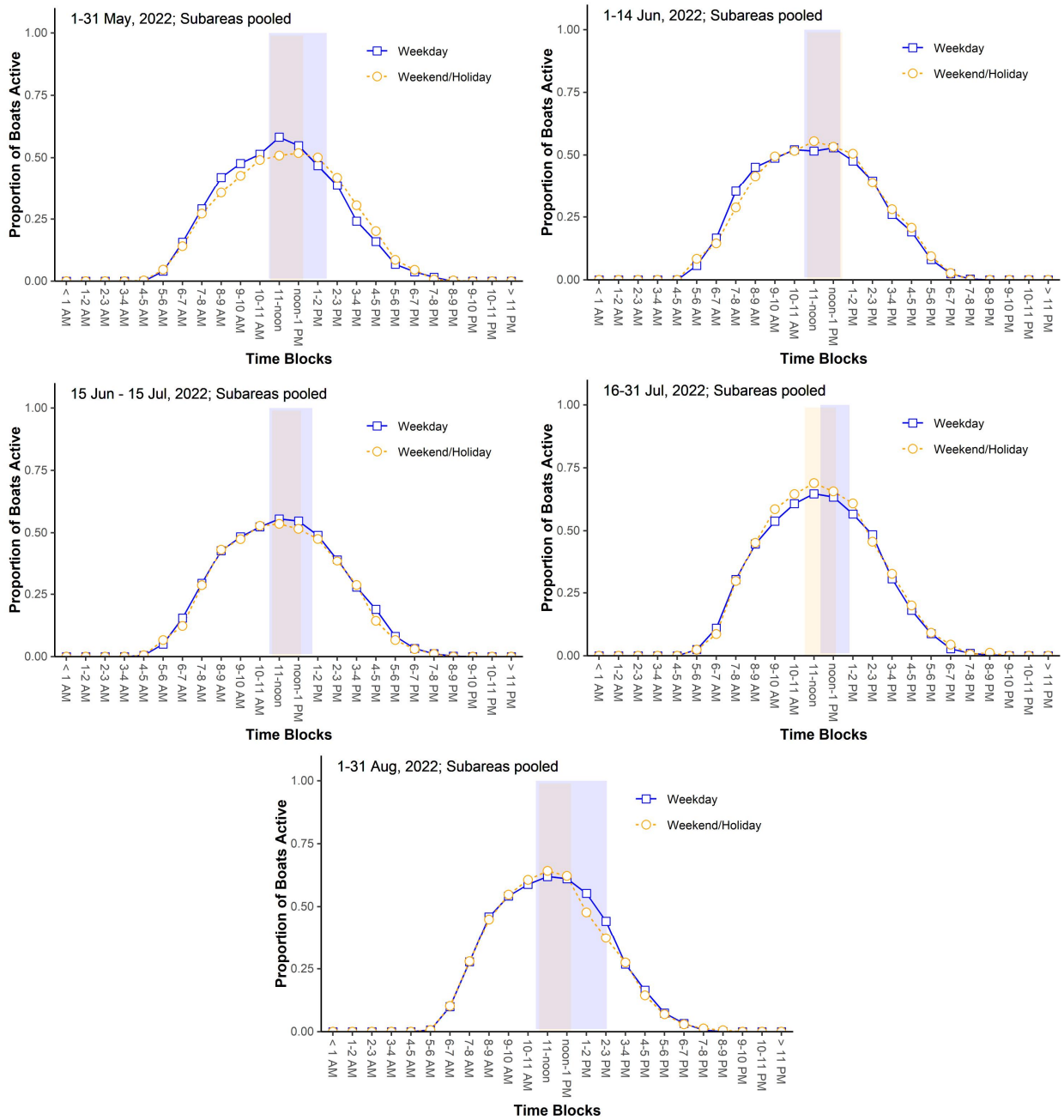


Figure 4. Angler activity pattern (proportion recreational angling boats that were actively fishing during each hour-long time block) by day type and period, pooled over all subareas, 2022. Shaded regions bound the earliest and latest flight times for each day type (blue = weekday; orange = weekend/holiday) and period.

Catch Per Effort Estimates

Sample sizes were adequate (n >=5) to produce reliable estimates of non-lodge CPE in most combinations of periods and creel study sub-areas, (Table 8) except in subareas 3I and 3J in May and early June, in subarea 4E in all periods except 15 June to 15 July, and in subarea 4L in early June. However, when the interview data were split between guided and non-guided groups, period-specific sample sizes did not suffice for several more combinations of period and management area (Table 8). In those cases where sample sizes were limited, data from three adjacent subareas were pooled together for CPE calculations (Table 9).

Average number of fish harvested per non-lodge boat trip (HPE) was calculated for each species by period, subarea, and by trip type (Appendix 2).

HPE varied significantly among periods (Figure 5, Table 10) for Chinook (χ^2 = 42.6, df = 4, P < 0.0001), Coho (χ^2 = 38.3, df = 4, P < 0.0001) and Pink salmon (*Oncorhynchus gorbuscha*, χ^2 = 40.2, df = 4, P < 0.0001). Chinook Salmon HPE increased from May into the start of June, but was zero during the non-retention period (15 June - 15 July). After the fishery re-opened, HPE increased but not to levels seen before the closure. Among-period statistical comparisons yielded complex results (Table 10; Figure 5). For Coho and Pink salmon, median HPE increased over the course of the study period (Table 10; Figure 5), with statistical differences between after mid-June and after mid-July. HPE for Sockeye Salmon (*Oncorhynchus nerka*), Pacific Cod (*Gadus macrocephalus*), Black Rockfish (*Sebastes melanops*), and Yelloweye Rockfish (*S. ruberrimus*) also varied significantly among periods (Table 10), but the among period differences were not statistically significant after controlling for the rate of false positives. There were no significant differences for any other species examined (including Pacific Halibut and Lingcod; Figure 5).

Guided trips typically had higher HPE than non-guided trips, and the differences were statistically significant for a variety of species (Table 11). In particular, guided trips harvested 0.3 more Chinook Salmon (t_{59} = 3.5, P = 0.001), and 1.5 more Coho Salmon (t_{59} = 5.2, P < 0.0001) than unguided trips. In addition, guided trips harvested 0.9 more Lingcod (t_{59} = 5.3, P < 0.0001), 0.1 more Pacific Cod (t_{59} = 2.6, P = 0.013), and 1.1 more Pacific Halibut per trip (t_{59} = 7.0, P < 0.0001) than unguided trips. Guided trips also harvested significantly more Quillback (*Sebastes maliger*), Tiger (*S. nigrocinctus*), and Yelloweye rockfish than unguided trips.

For lodge boat trips, HPE (and RPE for Chinook Salmon) values are shown in Table 12.

Table 8. Sample sizes for CPE (harvest per effort) estimates by period, for guided and not guided non-lodge boat trips, 2022.

		Subarea											
Period	*Trip Type*	*3I*	*3J*	*3K*	*4A*	*4B*	*4C*	*4D*	*4E*	*4F*	*4G*	*4H*	*4L*
May	*Guided*	1	6	2	67	12	25	7	1	41	4	6	4
	Unguided	3	5	7	89	85	88	23	2	85	3	20	1
	Combined	4	11	9	156	97	113	30	3	126	7	26	5
1-14 June	*Guided*	0	24	11	80	4	15	12	1	41	5	11	3
	Unguided	4	12	2	52	30	35	16	2	55	9	8	0
	Combined	4	36	13	132	34	50	28	3	96	14	19	3
15 June - 15 July	*Guided*	13	65	2	216	2	25	10	5	82	28	52	23
	Unguided	14	26	6	100	35	75	13	9	63	26	23	4
	Combined	27	91	8	316	37	100	23	14	145	54	75	27
16-31 July	*Guided*	7	30	2	95	1	27	1	0	77	14	22	6
	Unguided	10	28	7	53	44	64	52	1	98	22	33	2
	Combined	17	58	9	148	45	91	53	1	175	36	55	8
August	*Guided*	22	21	8	100	13	35	17	0	61	2	22	7
	Unguided	19	19	15	74	31	76	65	2	94	8	21	0
	Combined	41	40	23	174	44	111	82	2	155	10	43	7

Table 9. Subarea data (pooled over several adjacent areas, in some cases) used to calculate CPE in each period and subarea, for guided and not guided non-lodge boat trips, 2022.

		Subarea											
Period	*Trip Type*	*3I*	*3J*	*3K*	*4A*	*4B*	*4C*	*4D*	*4E*	*4F*	*4G*	*4H*	*4L*
May	*Guided*	3?,I,J,K	3J	3?,I,J,K	4A	4B	4C	4D	4D,E,F	4F	4G,H,L	4H	4G,H,L
	Unguided	3?,I,J,K	3J	3K	4A	4B	4C	4D	4D,E,F	4F	4G,H,L	4H	4G,H,L
	Combined	3?,I,J,K	3J	3K	4A	4B	4C	4D	4D,E,F	4F	4G	4H	4L
1-14 June	*Guided*	3?,I,J,K	3J	3K	4A	4A,B,C	4C	4D	4D,E,F	4F	4G	4H	4G,H,L
	Unguided	3?,I,J,K	3J	3?,I,J,K	4A	4B	4C	4D	4D,E,F	4F	4G	4H	4G,H,L
	Combined	3?,I,J,K	3J	3K	4A	4B	4C	4D	4D,E,F	4F	4G	4H	4G,H,L
15 June - 15 July	*Guided*	3I	3J	3?,I,J,K	4A	4A,B,C	4C	4D	4E	4F	4G	4H	4L
	Unguided	3I	3J	3K	4A	4B	4C	4D	4E	4F	4G	4H	4G,H,L
	Combined	3I	3J	3K	4A	4B	4C	4D	4E	4F	4G	4H	4L
16-31 July	*Guided*	3I	3J	3?,I,J,K	4A	4A,B,C	4C	4D,E,F	4D,E,F	4F	4G	4H	4L
	Unguided	3I	3J	3K	4A	4B	4C	4D	4D,E,F	4F	4G	4H	4G,H,L
	Combined	3I	3J	3K	4A	4B	4C	4D	4D,E,F	4F	4G	4H	4L
August	*Guided*	3I	3J	3K	4A	4B	4C	4D	4D,E,F	4F	4G,H,L	4H	4L
	Unguided	3I	3J	3K	4A	4B	4C	4D	4D,E,F	4F	4G	4H	4G,H,L
	Combined	3I	3J	3K	4A	4B	4C	4D	4D,E,F	4F	4G	4H	4L

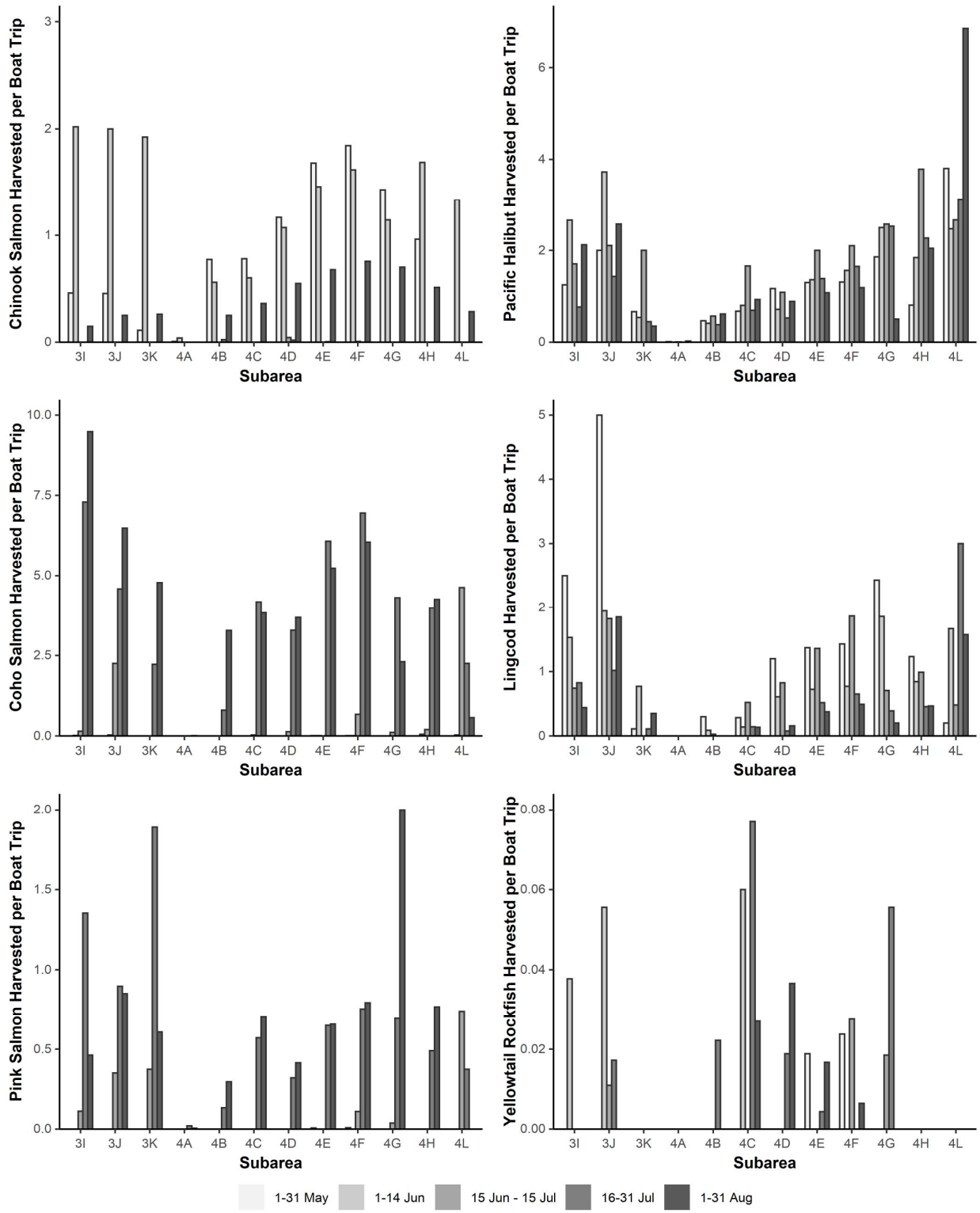


Figure 5. Average number of fish harvested per non-lodge boat trip, for six sportfish species, by period and subarea, 2022. Data are for guided and unguided trips combined. Note that Y axis scale varies among plots.

Table 10. Kruskal-Wallis tests for differences in HPE (fish harvested per non-lodge boat trip) among periods, by species, 2022. Subareas treated as replicates. Red letters indicate statical differences within species (periods not connected by a common letter were statistically different).

		Kruskal-Wallis Statisitics			*Median HPE*				
Species		χ^2	*df*	*P*	*May*	*1-14 June*	*15 June-15 July*	*16-31 July*	*August*
Chinook Salmon	*Oncorhynchus tshawytscha*	42.6	4	< 0.0001	0.8 AB	1.4 A	0 C	0 C	0.3 B
Chum Salmon	*Oncorhynchus keta*	2.3	4	0.68	0	0	0	0	0
Coho Salmon	*Oncorhynchus kisutch*	38.3	4	< 0.0001	0 C	0.004 C	0.1 B	4.1 A	4.0 A
Pink Salmon	*Oncorhynchus gorbuscha*	40.2	4	< 0.0001	0 C	0 C	0.02 B	0.6 A	0.6 A
Sockeye Salmon	*Oncorhynchus nerka*	13.5	4	0.009	0	0	0	0	0
Arrow-tooth Flounder	*Atheresthes stomias*	8.9	4	0.06	0	0	0	0	0
Big Skate	*Beringraja binoculata*	6.3	4	0.18	0	0	0	0	0
Cabezon	*Scorpaenichthys marmoratus*	6.3	4	0.18	0	0	0	0	0
Pacific Spiny Dogfish	*Squalus suckleyi*	2.1	4	0.72	0	0	0	0	0
English Sole	*Parophrys vetulus*	4.0	4	0.41	0	0	0	0	0
Greenlings	*Hexagrammos* spp.	7.9	4	0.09	0	0	0	0	0
Lingcod	*Ophiodon elongatus*	5.1	4	0.27	1.2	0.8	0.7	0.4	0.4
Pacific Cod	*Gadus macrocephalus*	10.3	4	0.035	0.01	0.08	0.3	0.1	0.1
Pacific Halibut	*Hippoglossus stenolepis*	3.4	4	0.49	1.2	1.5	2.0	1.1	1.0
Pacific Sanddab	*Citharichthys sordidus*	0.0	4	1	0	0	0	0	0
Spotted Ratfish	*Hydrolagus colliei*	8.1	4	0.09	0	0	0	0	0
Red Irish Lord	*Hemilepidotus hemilepidotus*	0.0	4	1	0	0	0	0	0
Pacific Rock Sole	*Lepidopsetta bilineata*	3.8	4	0.44	0	0	0	0	0
Sablefish	*Anoplopoma fimbria*	2.6	4	0.62	0	0	0	0	0
Starry Flounder	*Platichthys stellatus*	8.1	4	0.09	0	0	0	0	0
Black Rockfish	*Sebastes melanops*	12.5	4	0.014	0.08	0.2	0.1	0.05	0.03
Boccacio Rockfish	*Sebastes paucispinis*	2.4	4	0.66	0	0	0	0	0
Canary Rockfish	*Sebastes pinniger*	2.5	4	0.64	0	0	0	0	0
China Rockfish	*Sebastes nebulosus*	5.4	4	0.24	0.02	0	0.02	0	0.02
Copper Rockfish	*Sebastes caurinus*	7.7	4	0.10	0.02	0.04	0.01	0	0
Dusky Rockfish	*Sebastes ciliatus*	6.3	4	0.18	0	0	0	0	0
Quillback Rockfish	*Sebastes maliger*	4.8	4	0.31	0.2	0.2	0.2	0.2	0.03
Redbanded Rockfish	*Sebastes babcocki*	8.7	4	0.07	0	0	0	0	0
Redstripe Rockfish	*Sebastes proriger*	8.4	4	0.08	0	0	0	0	0
Tiger Rockfish	*Sebastes nigrocinctus*	5.3	4	0.26	0	0.04	0	0	0.01
Widow Rockfish	*Sebastes entomelas*	0.0	4	1	0	0	0	0	0
Yelloweye Rockfish	*Sebastes ruberrimus*	11.5	4	0.021	0	0	0	0	0
Yellowtail Rockfish	*Sebastes flavidus*	3.4	4	0.49	0	0	0	0.002	0

Table 11. Paired t-tests for differences in HPE (fish harvested per non-lodge boat trip) between guided and non-guided boats, by species, 2022. May (when too few guided trips were recorded) data are excluded. Periods and subareas treated as replicates.

	Paired t-test Statistics			*Median HPE*		*Paired Mean*
Species	*t*	*df*	*P*	*Guided*	*Not*	*Difference*
Chinook Salmon	3.5	59	0.001	0.2	0.2	0.3
Chum Salmon	-0.9	59	0.36	0	0	-0.0026
Coho Salmon	5.2	59	< 0.0001	0.08	0.02	1.5
Pink Salmon	-0.4	59	0.68	0	0	-0.0213
Sockeye Salmon	0.9	59	0.37	0	0	0.001
Arrow-tooth Flounder	-1.7	59	0.09	0	0	-0.0029
Big Skate	0.9	59	0.35	0	0	0.001
Cabezon	0.7	59	0.46	0	0	0.010
Pacific Spiny Dogfish	1.2	59	0.24	0	0	0.007
English Sole	1.0	59	0.32	0	0	0.0006
Greenlings	1.2	59	0.24	0	0	0.006
Lingcod	5.3	59	< 0.0001	0.8	0.4	0.9
Pacific Cod	2.6	59	0.013	0.08	0.08	0.1
Pacific Halibut	7.0	59	< 0.0001	2.1	0.8	1.1
Pacific Sanddab	0.0	59	1	0	0	0
Spotted Ratfish	-1.2	59	0.24	0	0	-0.0051
Red Irish Lord	0.0	59	1	0	0	0
Pacific Rock Sole	-0.6	59	0.56	0	0	-0.0008
Sablefish	0.6	59	0.56	0	0	0.007
Starry Flounder	-0.8	59	0.42	0	0	-0.0006
Black Rockfish	1.2	59	0.23	0.09	0.06	0.06
Boccacio Rockfish	1.8	59	0.07	0	0	0.02
Canary Rockfish	1.8	59	0.08	0	0	0.01
China Rockfish	0.5	59	0.59	0	0	0.006
Copper Rockfish	0.7	59	0.47	0	0	0.007
Dusky Rockfish	1.5	59	0.14	0	0	0.010
Quillback Rockfish	3.0	59	0.004	0.2	0.08	0.09
Redbanded Rockfish	0.5	59	0.65	0	0	0.0004
Redstripe Rockfish	-1.1	59	0.29	0	0	-0.0060
Tiger Rockfish	3.3	59	0.001	0	0	0.03
Widow Rockfish	0.0	59	1	0	0	0
Yelloweye Rockfish	-2.3	59	0.026	0	0	-0.0051
Yellowtail Rockfish	-1.8	59	0.09	0	0	-0.0096

Table 12. Average number of harvested fish (and for Chinook Salmon, released) per boat trip, by month, from the census of Area 3 lodges, 2022.

Species	*May*	*June*	*July*	*August*	*Total*
Chinook Salmon:					
retained	0.2	0.6	0	0.3	0.3
released	0.05	0.7	2.0	0.2	0.8
Coho Salmon	0	0.4	2.6	3.7	2.0
Pink Salmon	0	0.003	0.03	0.02	0.01
Chum Salmon	0	0.001	0.007	0	0.002
Sockeye Salmon	0	0	0	0	0
Pacific Halibut	0.4	0.6	0.8	0.8	0.7
Lingcod	0.7	1.1	0.9	0.6	0.9
Other Groundfish	0	0	0	0	0
Yelloweye Rockfish	0	0	0	0	0
Other Rockfish	0	0.1	0.2	0.8	0.3

Angler Effort Estimates

Over the four month study period, a total of 32 effort surveys were conducted, including 20 weekday surveys and 12 conducted on weekends/holidays (Table 3, Appendix 3). The numbers of lodge boats that were visible during the overflights (Appendix 3) were partitioned among the subareas in Management Area 3, and subtracted from the overflight counts of small boats. The remaining small boat counts ("the non-lodge small boat counts") were significantly correlated to trailer counts at both survey launch sites (Rushbrooke: $F_{1,30} = 95.3$, $P < 0.0001$; Port Edwards: $F_{1,30} = 183.1$, $P < 0.0001$), and when the two launch sites were combined ($F_{1,30} = 151.5$, $P < 0.0001$). The fit of the Port Edward regression (Port Edward $R^2 = 0.85$) was higher than that of the Rushbrooke regression ($R^2 = 0.75$) or that of combined-site regression ($R^2 = 0.83$; Figure 6).

The non-lodge boat counts were adjusted for non-lodge angler effort patterns in order to estimate the total monthly non-lodge angling effort for each subarea in 2022 (Table 13, Figures 7 and 8). Median daily non-lodge effort on weekdays (3.5 trips per day per subarea) was lower than on weekends/holidays (5.3 trips per day per subarea) but the effect was not statistically significant ($\chi^2 = 2.4$, df = 1, $P = 0.12$). Effort varied among periods, ranging from 1.6 trips per day per

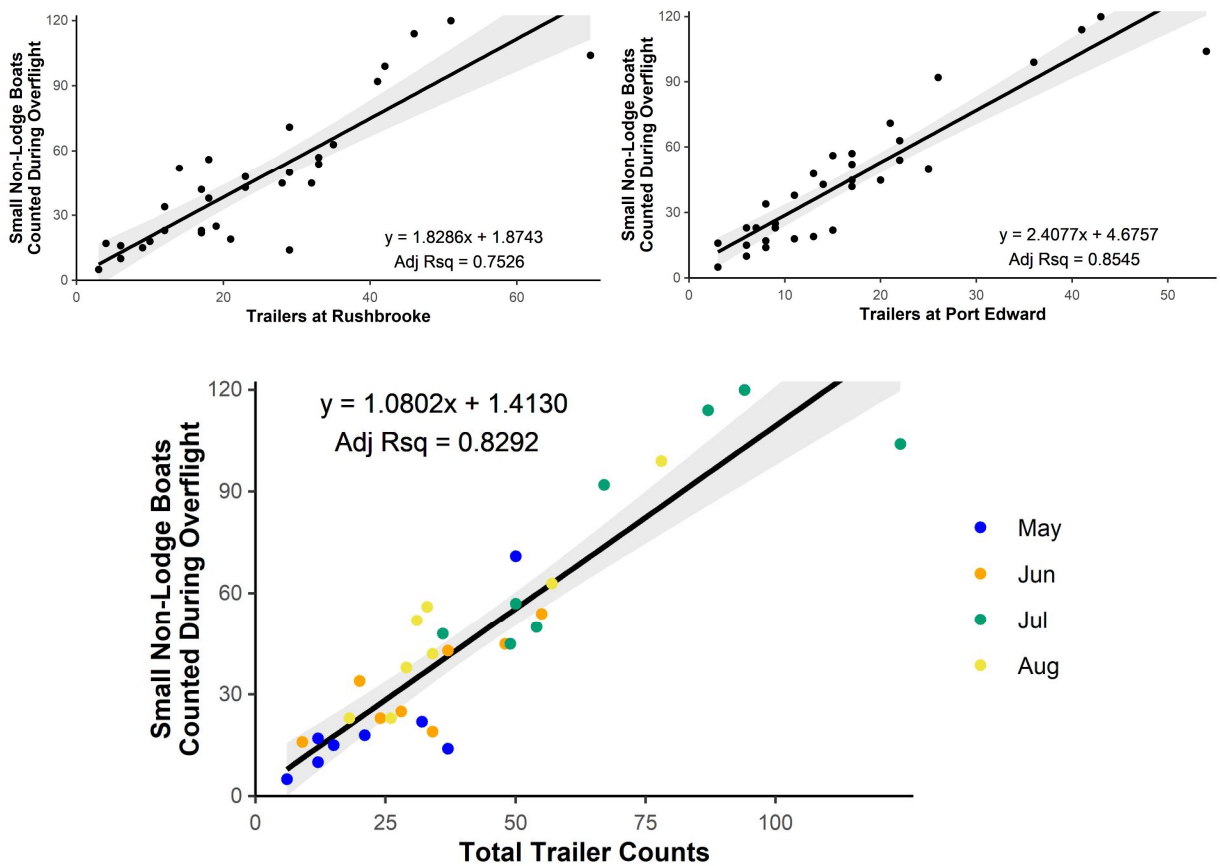
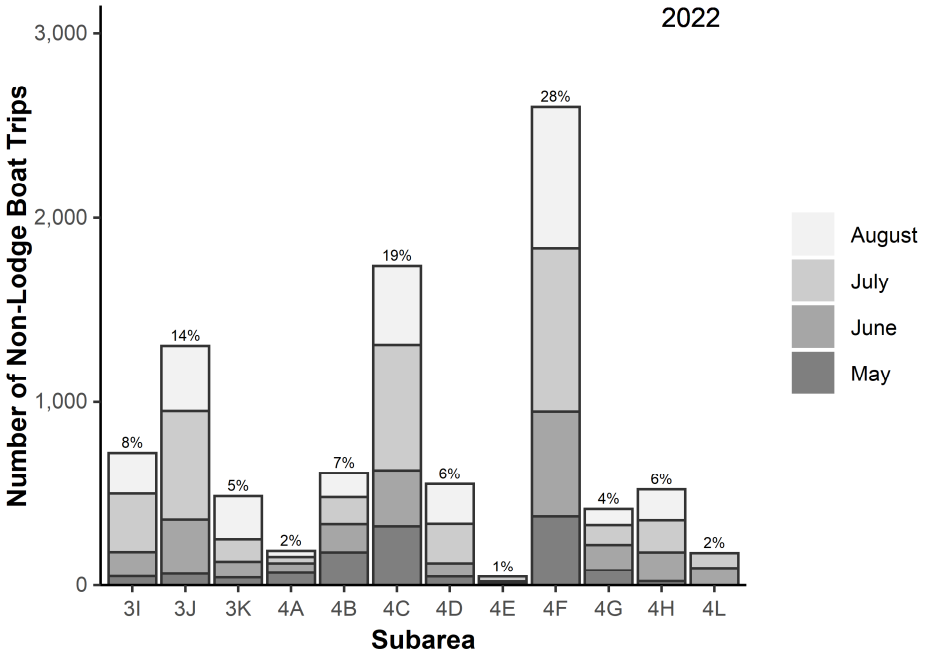


Figure 6. Linear regressions showing the relationships between small non-lodge boats counted during overflights and trailers concurrently counted at landing sites. Shaded area shows the 95% confidence interval of the predicted values. Note that X axis scale varies among plots.

Table 13. Lodge, non-lodge, and total effort estimates (boat trips per month), by month and subarea, 2022.

		Subarea												TOTALS			SE of the Totals		
Month		3I	3J	3K	4A	4B	4C	4D	4E	4F	4G	4H	4L	Area 3	Area 4	Overall	Area 3	Area 4	Overall
May	Creel Estimate	49.9	64.5	43.0	69.8	182.7	324.1	48.3	6.6	378.7	85.2	23.1	0.0	157	1,118	1,276	2	13	13
	Lodge Report	98.6	127.4	85.0										311	0	311			
	TOTAL MAY	148.4	191.9	128.0	69.8	182.7	324.1	48.3	6.6	378.7	85.2	23.1	0.0	468	1,118	1,587	2	13	13
	SE	0.8	1.7	1.4	1.5	3.4	4.8	1.1	0.3	10.3	4.1	0.6	0.0						
June	Creel Estimate	134.9	297.9	89.4	54.8	154.6	305.7	75.3	14.4	567.6	138.1	159.6	98.1	522	1,568	2,091	6	13	14
	Lodge Report	160.4	354.2	106.3										621	0	621			
	TOTAL JUNE	295.4	652.2	195.8	54.8	154.6	305.7	75.3	14.4	567.6	138.1	159.6	98.1	1,143	1,568	2,712	6	13	14
	SE	4.1	4.3	1.7	0.9	3.6	3.7	1.7	0.3	10.0	2.7	4.4	2.1						
July	Creel Estimate	318.9	588.2	122.6	34.4	146.3	681.4	215.2	28.5	890.4	108.4	175.4	81.6	1,030	2,362	3,391	9	15	17
	Lodge Report	201.0	370.7	77.3										649	0	649			
	TOTAL JULY	519.8	958.9	199.8	34.4	146.3	681.4	215.2	28.5	890.4	108.4	175.4	81.6	1,679	2,362	4,040	9	15	17
	SE	5.9	6.8	1.5	0.6	1.6	7.3	2.9	0.4	10.8	1.5	5.1	1.7						
August	Creel Estimate	221.3	354.2	233.8	33.6	133.1	430.2	217.0	0.0	761.1	87.4	167.5	0.0	809	1,830	2,639	6	12	13
	Lodge Report	176.7	282.8	186.6										646	0	646			
	TOTAL AUGUST	398.0	637.0	420.4	33.6	133.1	430.2	217.0	0.0	761.1	87.4	167.5	0.0	1,455	1,830	3,285	6	12	13
	SE	2.6	4.5	2.7	0.8	1.7	4.3	2.9	0.0	10.4	1.1	2.5	0.0						
FULL SEASON TOTAL		1,362	2,440	944	193	617	1,741	556	49	2,598	419	526	180	4,746	6,878	11,624	13	26	29
FULL SEASON SE		8	9	4	2	5	10	5	1	21	5	7	3						



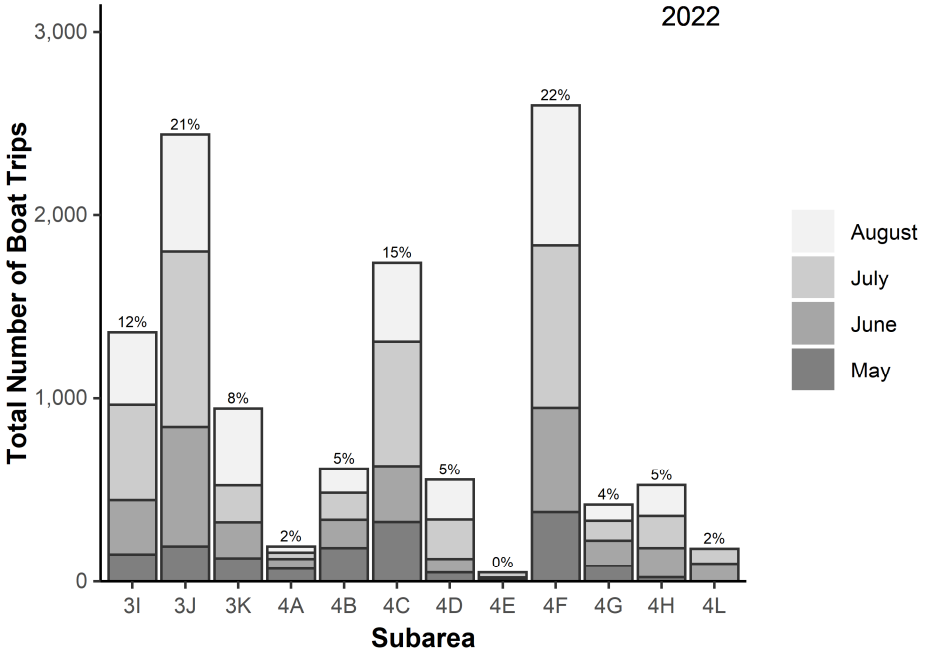


Figure 7. Total estimated numbers of boat trips, by month and subarea, 2022. Upper panel: estimated monthly non-lodge boat trips. Lower panel: total effort, calculated as the sum of lodge and non-lodge boat trips.

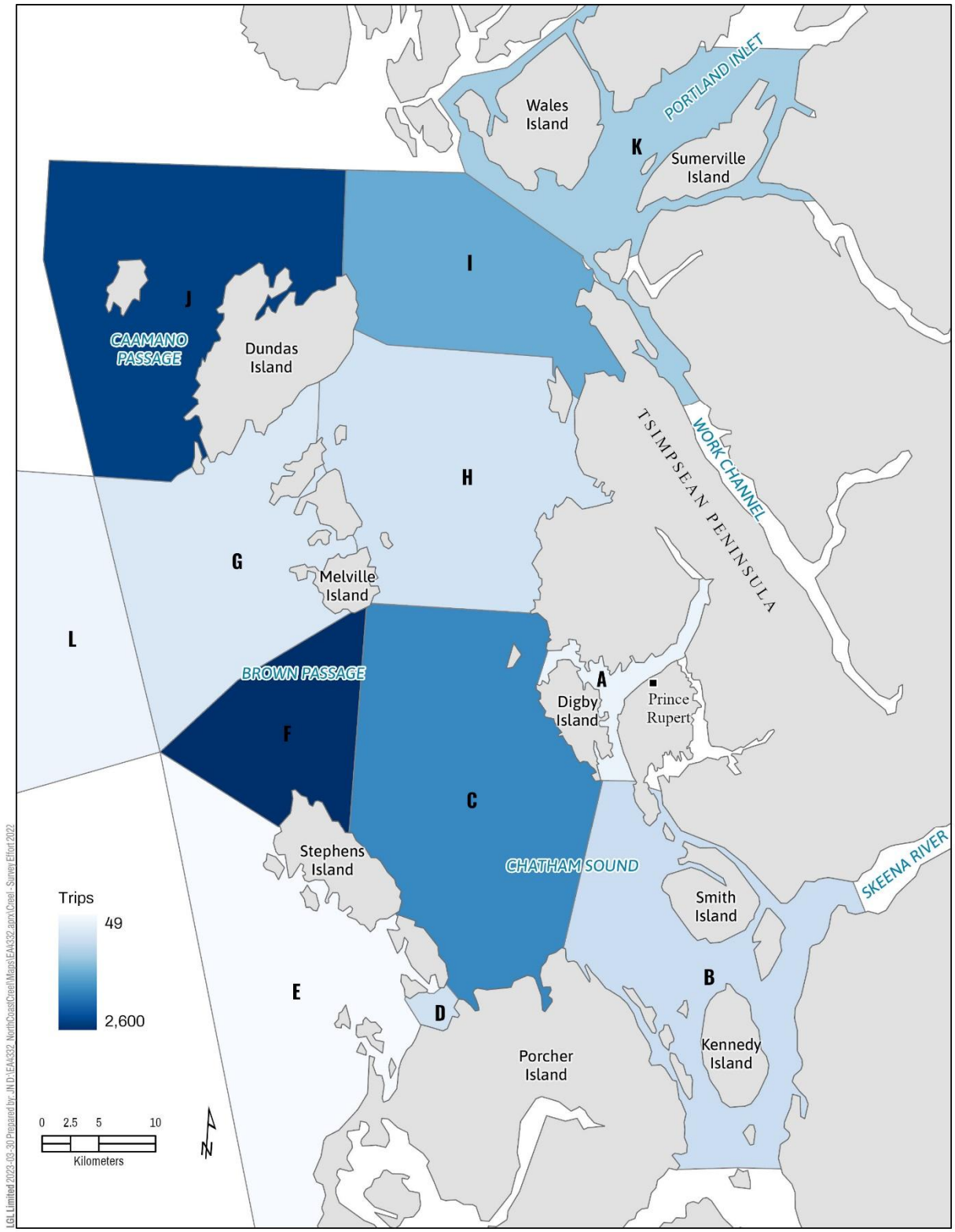


Figure 8. Heat map showing the estimated total effort (numbers of boat trips, lodge + non-lodge) in each subarea in 2022. See Table 13 for details.

subarea in May to 5.5 trips per day per subarea in August, though the differences were not statistically significant (χ^2 = 6.2, df = 4, P = 0.18).

Total lodge effort in 2022 was 2,227 boat trips (311 in May, 621 in June, 649 in July, and 646 in August; Table 13). To calculate total (lodge + non-lodge) fishing effort by subarea, we distributed the lodge boat trips among the three subareas in Management Area 3, according to the relative non-lodge effort in each (Table 13; Figure 7). In all, there were 1,587 (SE = 13) boat trips in May, 2,712 (SE = 14) boat trips in June, 4,040 (SE = 17) boat trips in July, and 3,285 (SE = 13) boat trips in August. The full-season (May-August) Area 3-4 effort estimate for 2022 was 11,624 boat trips (SE = 29). For comparison with our previous study years, which did not include surveys in May, the June-August effort total was 10,037 boat trips (SE = 26).

Catch Estimates

Monthly and full-season estimates were made of the numbers of fish released and retained, by species (Tables 14-23; Appendix 4). Non-lodge estimates were generated from the product of effort and CPE estimates. Lodge catches were extracted from census documents that were submitted to DFO by the lodges, and which were then presented by DFO to NCSFNSS with identifying information removed for Privacy Act reasons. The results presented in this section are total (lodge + non-lodge) numbers of fish retained and released.

An estimated 4,432 (SE = 142) Chinook Salmon were retained by anglers in Areas 3 or 4 during the 2022 study period (Table 15; Figure 9). The largest proportional harvest came from subareas 4F (40%), 3J (14%), and 4C (11%). Harvest differed markedly over the study period, with significantly lower harvest in July (χ^2 = 18.4, df = 3, P = 0.0004; Table 24). During the study, the number of released Chinook Salmon was estimated at 10,012 (SE = 472), or 69% of the total catch. Percent retention (calculated for non-lodge anglers) was 72% in May, 38% in June, 0% in July, and 59% in August (Appendix 4).

The salmonid that was harvested in the greatest numbers during the 2022 study period was, by far, Coho Salmon (31,620 fish retained, SE = 665; Table 16; Figure 10). The largest proportional harvest came from subarea 4F (30%), followed by subareas 3J (23%), 3I (16%), and 4C (11%). Harvest differed significantly among months: harvest in May was significantly lower than all other months, and that in June was significantly lower than July or August (χ^2 = 23.3, df = 3, P < 0.0001; Table 24). During the study period, an estimated 2,978 (SE = 355) Coho Salmon were released by anglers (9% of the total catch).

Pink salmon was the least likely salmonid to be retained in 2022 (Table 17). We estimate that 16,973 (SE = 1,050) fish were caught, of which 23% were retained (3,986 fish, SE = 265), and 77% were released (12,987 fish, SE = 1,016). Harvest of Pink Salmon varied significantly among months (χ^2 = 24.2, df = 3, P = 0.0001; Table 24): harvest in May and June was significantly lower than in July or August.

Very few Chum (50 fish, SE = 23) or Sockeye (42 fish, SE = 13) salmon were harvested in Area 3 and 4 during the study period (Tables 18 and 19). No harvested fish in 2022 were recorded as unknown salmon species.

Table 14. Total (lodge + non-lodge) estimated harvest, by subarea, for popular sportfish taxa, 2022.

	Subarea												TOTALS			SE of the Totals		
Species	*3I*	*3J*	*3K*	*4A*	*4B*	*4C*	*4D*	*4E*	*4F*	*4G*	*4H*	*4L*	*Area 3*	*Area 4*	*Overall*	*Area 3*	*Area 4*	*Overall*
Chinook Salmon	268	629	358	1	230	467	216	16	1,794	265	178	10	1,255	3,178	4,432	54	131	142
Coho Salmon	5,168	7,221	1,881	0	509	3,604	1,366	118	9,631	405	930	785	14,270	17,350	31,620	473	468	665
Pink Salmon	405	811	338	0	52	568	144	13	1,170	210	149	126	1,554	2,432	3,986	182	193	265
Chum Salmon	1	36	0	0	0	0	0	0	13	0	0	0	37	13	50	21	9	23
Sockeye Salmon	5	18	0	0	0	5	0	0	13	0	1	0	23	19	42	11	7	13
Unknown Salmon	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pacific Halibut	1,562	3,769	448	1	305	1,719	459	80	3,986	829	1,487	481	5,779	9,346	15,125	235	265	354
Lingcod	979	3,745	218	0	66	450	199	49	2,457	467	409	110	4,942	4,205	9,147	272	208	343
*Other Groundfish **	342	367	79	0	72	397	106	3	421	114	466	23	787	1,603	2,390	93	122	153
Rockfish †	454	1,546	337	3	121	812	380	24	1,630	269	405	46	2,338	3,690	6,028	141	166	218

* includes Big and Longnose skates, Pacific Spiny Dogfish, Pacific Cod, Sablefish, Cabezon, Red Irish Lord, greenlings, Spotted Ratfish, Arrow-tooth and Starry flounders, Pacific Sanddab, Pacific Rock and English soles, and unknown groundfish

† includes Black, Boccacio, Canary, China, Copper, Dusky, Quillback, Redband, Redstripe, Tiger, Widow, Yelloweye, Yellowtail and unknown rockfish

Table 15. Total (lodge + non-lodge) estimated Chinook Salmon catch, by subarea, shown separately for released and retained fish by month, 2022.

	Subarea												TOTALS			SE of the Totals		
Month / Catch Type	*3I*	*3J*	*3K*	*4A*	*4B*	*4C*	*4D*	*4E*	*4F*	*4G*	*4H*	*4L*	*Area 3*	*Area 4*	*Overall*	*Area 3*	*Area 4*	*Overall*
May																		
Retained	50.5	64.8	10.6	0.4	141.3	252.4	56.3	11.0	697.3	121.7	22.2	0	126	1,303	1,428	23	88	91
Released	12.7	26.9	7.3	0	111.1	100.4	32.2	3.7	213.4	24.3	3.5	0	47	489	536	14	55	57
June																		
Retained	146.0	368.4	212.4	0.8	53.9	60.0	35.5	5.2	520.4	82.2	69.8	9.6	727	837	1,564	31	57	65
Released	227.6	644.5	327.2	0.2	72.4	184.5	60.9	3.6	411.1	124.1	151.1	90.0	1,199	1,098	2,297	101	87	133
July																		
Retained	0	0	0	0	2.0	0	5.2	0.1	1.5	0	0	0	0	9	9	0	3	3
Released	1646.6	1711.4	317.2	0	61.6	613.4	285.1	28.1	1155.3	128.6	192.9	73.0	3,675	2,538	6,213	405	139	429
August																		
Retained	71.6	195.7	134.8	0	33.3	155.0	119.1	0	574.5	61.2	85.7	0	402	1,029	1,431	37	79	88
Released	49.5	27.1	279.7	0	54.4	174.4	129.7	0	181.7	26.2	42.8	0	356	609	966	106	82	134
TOTAL																		
Retained	268	629	358	1	230	467	216	16	1,794	265	178	10	1,255	3,178	4,432	54	131	142
Released	1,936	2,410	931	0	300	1,073	508	35	1,961	303	390	163	5,278	4,734	10,012	431	192	472
Catch	2,204	3,039	1,289	1	530	1,540	724	52	3,755	568	568	173	6,532	7,911	14,444	435	232	493

Table 16. Total (lodge + non-lodge) estimated Coho Salmon catch, by subarea, shown separately for released and retained fish by month, 2022.

	Subarea												TOTALS			SE of the Totals		
Month / Catch Type	*3I*	*3J*	*3K*	*4A*	*4B*	*4C*	*4D*	*4E*	*4F*	*4G*	*4H*	*4L*	*Area 3*	*Area 4*	*Overall*	*Area 3*	*Area 4*	*Overall*
May																		
Retained	0	0	0	0	0	0	0	0.0	3.0	0	0	0	0	3	3	0	2	2
Released	0	0	0	0	1.9	0	0	0	0	0	0	0	0	2	2	0	1	1
June																		
Retained	22.7	699.2	0	0	0	6.2	5.7	0.0	168.1	7.3	25.8	421.2	722	634	1,356	89	110	141
Released	7.6	33.0	0	0	0	6.2	1.9	0	15.3	0	1.6	30.3	41	55	96	16	21	26
July																		
Retained	2123.1	3219.7	271.4	0	73.3	1950.8	561.6	118.3	4859.1	196.4	191.6	363.9	5,614	8,315	13,929	262	299	397
Released	20.6	144.9	56.6	0	0	67.9	53.1	2.9	83.0	0	3.3	25.3	222	235	457	73	44	85
August																		
Retained	3022.7	3301.9	1609.4	0.4	435.5	1647.2	799.2	0	4601.0	201.1	712.8	0	7,934	8,397	16,331	383	343	514
Released	286.1	557.9	162.6	0.4	24.2	174.4	156.1	0	967.3	0	93.5	0	1,007	1,416	2,423	253	234	344
TOTAL																		
Retained	5,168	7,221	1,881	0	509	3,604	1,366	118	9,631	405	930	785	14,270	17,350	31,620	473	468	665
Released	314	736	219	0	26	248	211	3	1,066	0	98	56	1,269	1,708	2,978	263	239	355
Catch	5,483	7,957	2,100	1	535	3,853	1,578	121	10,697	405	1,029	841	15,539	19,058	34,597	541	525	754

Table 17. Total (lodge + non-lodge) estimated Pink Salmon catch, by subarea, shown separately for released and retained fish by month, 2022.

	Subarea												TOTALS			SE of the Totals		
Month / Catch Type	*3I*	*3J*	*3K*	*4A*	*4B*	*4C*	*4D*	*4E*	*4F*	*4G*	*4H*	*4L*	*Area 3*	*Area 4*	*Overall*	*Area 3*	*Area 4*	*Overall*
May																		
Retained	0	0	0	0	0	0	0	0.0	3.0	0	0	0	0	3	3	0	2	2
Released	0	0	0	0	0	0	0	0.1	6.0	0	0	0	0	6	6	0	4	4
June																		
Retained	11.6	76.9	15.1	0	0	0	0	0	27.2	2.4	0	67.4	104	97	201	25	35	43
Released	0	14.1	0	0	0	0	0	0	5.1	0	0	3.4	14	8	23	7	5	9
July																		
Retained	288.9	427.7	177.7	0.1	12.2	266.1	54.3	12.7	535.4	32.9	20.3	58.3	894	992	1,887	125	88	153
Released	176.3	976.2	235.7	0	6.1	823.8	54.3	28.8	1249.7	44.0	72.3	12.2	1,388	2,291	3,679	259	258	365
August																		
Retained	104.5	306.8	145.0	0.2	39.3	302.3	90.0	0	604.0	174.9	128.5	0	556	1,339	1,895	129	169	212
Released	1095.8	1585.2	2185.2	0	154.3	957.3	325.5	0	2101.6	192.3	681.7	0	4,866	4,413	9,279	851	416	948
TOTAL																		
Retained	405	811	338	0	52	568	144	13	1,170	210	149	126	1,554	2,432	3,986	182	193	265
Released	1,272	2,576	2,421	0	160	1,781	380	29	3,362	236	754	16	6,269	6,718	12,987	890	490	1,016
Catch	1,677	3,387	2,759	0	212	2,349	524	42	4,532	447	903	141	7,823	9,150	16,973	908	526	1,050

Table 18. Total (lodge + non-lodge) estimated Chum Salmon catch, by subarea, shown separately for released and retained fish by month, 2022.

	Subarea												TOTALS			SE of the Totals		
Month / Catch Type	*3I*	*3J*	*3K*	*4A*	*4B*	*4C*	*4D*	*4E*	*4F*	*4G*	*4H*	*4L*	*Area 3*	*Area 4*	*Overall*	*Area 3*	*Area 4*	*Overall*
May																		
Retained	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Released	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
June																		
Retained	0.7	2.7	0	0	0	0	0	0	1.7	0	0	0	3	2	5	2	2	3
Released	0	0	4.9	0	0	0	0	0	0	4.9	0	0	5	5	10	4	4	5
July																		
Retained	0	33.6	0	0	0	0	0	0	1.5	0	0	0	34	1	35	21	1	21
Released	0	0	4.7	0	0	0	0	0	0	4.8	0	0	5	5	9	3	3	5
August																		
Retained	0	0	0	0	0	0	0	0	9.8	0	0	0	0	10	10	0	8	8
Released	10.8	0	0	0	0	0	0	0	0	0	0	0	11	0	11	9	0	9
TOTAL																		
Retained	1	36	0	0	0	0	0	0	13	0	0	0	37	13	50	21	9	23
Released	11	0	10	0	0	0	0	0	0	10	0	0	20	10	30	10	5	11
Catch	12	36	10	0	0	0	0	0	13	10	0	0	58	23	80	23	10	25

Table 19. Total (lodge + non-lodge) estimated Sockeye Salmon catch, by subarea, shown separately for released and retained fish by month, 2022.

	Subarea												TOTALS			SE of the Totals		
Month / Catch Type	*3I*	*3J*	*3K*	*4A*	*4B*	*4C*	*4D*	*4E*	*4F*	*4G*	*4H*	*4L*	*Area 3*	*Area 4*	*Overall*	*Area 3*	*Area 4*	*Overall*
May																		
Retained	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Released	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
June																		
Retained	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Released	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
July																		
Retained	0	0	0	0	0	5.1	0	0.2	7.8	0	0.8	0	0	14	14	0	5	5
Released	0	0	0	0	0	5.1	0	0	0	2.4	0	0	0	8	8	0	4	4
August																		
Retained	5.4	17.7	0	0	0	0	0	0	4.9	0	0	0	23	5	28	11	4	12
Released	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL																		
Retained	5	18	0	0	0	5	0	0	13	0	1	0	23	19	42	11	7	13
Released	0	0	0	0	0	5	0	0	0	2	0	0	0	8	8	0	4	4
Catch	5	18	0	0	0	10	0	0	13	2	1	0	23	26	49	11	8	14

Table 20. Total (lodge + non-lodge) estimated Pacific Halibut catch, by subarea, shown separately for released and retained fish by month, 2022.

	Subarea												TOTALS			SE of the Totals		
Month / Catch Type	*3I*	*3J*	*3K*	*4A*	*4B*	*4C*	*4D*	*4E*	*4F*	*4G*	*4H*	*4L*	*Area 3*	*Area 4*	*Overall*	*Area 3*	*Area 4*	*Overall*
May																		
Retained	97.5	201.6	44.8	0.4	84.8	218.0	56.3	8.5	495.9	158.2	18.6	0	344	1,041	1,385	45	134	141
Released	83.1	234.4	0	0	1.9	100.4	4.8	2.4	165.3	24.3	4.4	0	318	304	621	96	54	110
June																		
Retained	343.0	1002.0	139.0	0.1	72.7	421.5	70.2	26.5	1020.1	350.1	523.7	260.3	1,484	2,745	4,229	86	125	151
Released	284.0	497.2	89.5	0.5	32.7	405.8	13.7	27.1	540.8	194.1	361.7	253.7	871	1,830	2,701	137	228	266
July																		
Retained	483.2	1325.7	153.7	0.1	65.7	680.5	139.4	45.0	1566.1	277.0	601.5	220.2	1,963	3,595	5,558	127	135	185
Released	316.0	577.2	33.0	0.2	32.1	476.4	63.1	28.6	578.8	174.2	388.3	207.1	926	1,949	2,875	153	208	258
August																		
Retained	638.1	1239.5	110.5	0.8	81.7	399.2	193.2	0	903.5	43.7	342.8	0	1,988	1,965	3,953	173	135	220
Released	59.4	717.3	10.2	0	9.1	112.4	63.5	0	255.3	8.7	233.7	0	787	683	1,470	287	132	315
TOTAL																		
Retained	1,562	3,769	448	1	305	1,719	459	80	3,986	829	1,487	481	5,779	9,346	15,125	235	265	354
Released	743	2,026	133	1	76	1,095	145	58	1,540	401	988	461	2,901	4,765	7,667	366	340	499
Catch	2,304	5,795	581	2	381	2,814	604	138	5,526	1,230	2,475	941	8,680	14,112	22,792	435	431	612

Table 21. Total (lodge + non-lodge) estimated Lingcod catch, by subarea, shown separately for released and retained fish by month, 2022.

	Subarea												TOTALS			SE of the Totals		
Month / Catch Type	*3I*	*3J*	*3K*	*4A*	*4B*	*4C*	*4D*	*4E*	*4F*	*4G*	*4H*	*4L*	*Area 3*	*Area 4*	*Overall*	*Area 3*	*Area 4*	*Overall*
May																		
Retained	185.4	479.3	7.1	0	54.6	91.8	57.9	9.0	541.0	206.8	28.4	0	672	990	1,661	88	124	152
Released	66.5	175.8	9.6	0	9.4	20.1	3.2	1.8	123.2	12.2	4.4	0	252	174	426	73	49	88
June																		
Retained	249.6	1098.8	76.3	0	10.1	121.0	55.4	17.3	706.3	180.2	151.5	55.8	1,425	1,297	2,722	74	105	129
Released	16.9	53.9	3.8	0.2	0	14.4	0	1.1	80.9	1.2	29.9	3.4	75	131	206	18	31	36
July																		
Retained	400.2	1199.7	14.9	0	1.5	178.7	50.8	22.3	836.1	62.4	151.0	53.9	1,615	1,357	2,972	162	104	192
Released	60.2	54.9	0	0	0	20.2	6.4	1.4	62.2	1.2	35.5	3.5	115	130	246	39	30	49
August																		
Retained	143.4	967.4	120.0	0	0	58.1	34.4	0	373.2	17.5	77.9	0	1,231	561	1,792	185	79	201
Released	10.8	26.6	0	0	0	0	2.6	0	9.8	0	0	0	37	12	50	19	9	20
TOTAL																		
Retained	979	3,745	218	0	66	450	199	49	2,457	467	409	110	4,942	4,205	9,147	272	208	343
Released	154	311	13	0	9	55	12	4	276	15	70	7	479	448	927	87	66	109
Catch	1,133	4,056	232	0	76	504	211	53	2,733	482	479	117	5,421	4,653	10,074	285	219	359

Table 22. Total (lodge + non-lodge) estimated catch of other groundfish by subarea, shown separately for released and retained fish by month, 2022. Included are Big and Longnose skates, Pacific Spiny Dogfish, Pacific Cod, Sablefish, Cabezon, Red Irish Lord, greenlings, Spotted Ratfish, Arrow-tooth and Starry flounders, Pacific Sanddab, Pacific Rock and English soles, and other miscellaneous groundfishes.

	Subarea												TOTALS			SE of the Totals		
Month / Catch Type	*3I*	*3J*	*3K*	*4A*	*4B*	*4C*	*4D*	*4E*	*4F*	*4G*	*4H*	*4L*	*Area 3*	*Area 4*	*Overall*	*Area 3*	*Area 4*	*Overall*
May																		
Retained	6.2	17.6	0	0	18.8	43.0	9.7	0.8	42.1	12.2	0.9	0	24	127	151	14	31	34
Released	2.1	5.9	0	0.4	7.5	80.3	19.3	0.8	24.0	0	1.8	0	8	134	142	5	23	23
June																		
Retained	76.3	106.1	9.9	0.1	32.8	117.0	34.9	0.4	82.9	61.9	141.4	14.7	192	486	679	39	54	66
Released	15.8	16.5	4.9	0.2	37.4	199.2	0	0.9	45.7	20.8	67.0	4.2	37	375	413	12	60	61
July																		
Retained	135.2	189.8	28.3	0.1	11.7	139.9	29.2	2.0	139.3	39.8	160.2	8.4	353	531	884	55	57	79
Released	17.6	46.7	4.7	0.2	39.6	344.7	6.4	4.4	190.7	27.6	79.7	3.5	69	697	766	22	86	88
August																		
Retained	124.2	53.1	40.7	0	9.1	96.9	31.8	0	157.1	0	163.6	0	218	458	676	63	88	108
Released	151.1	8.9	20.3	0.6	54.4	65.9	37.0	0	68.7	35.0	15.6	0	180	277	458	74	47	87
TOTAL																		
Retained	342	367	79	0	72	397	106	3	421	114	466	23	787	1,603	2,390	93	122	153
Released	187	78	30	1	139	690	63	6	329	83	164	8	294	1,484	1,778	78	117	141
Catch	529	444	109	2	211	1,087	168	9	751	197	630	31	1,082	3,086	4,168	122	169	208

Table 23. Total (lodge + non-lodge) estimated rockfish catch, by subarea, shown separately for released and retained fish by month, 2022. Included are Black, Boccacio, Canary, China, Copper, Dusky, Quillback, Redband, Redstripe, Tiger, Widow, Yelloweye, and Yellowtail rockfish, and other miscellaneous rockfishes.

	Subarea												TOTALS			SE of the Totals		
Month / Catch Type	*3I*	*3J*	*3K*	*4A*	*4B*	*4C*	*4D*	*4E*	*4F*	*4G*	*4H*	*4L*	*Area 3*	*Area 4*	*Overall*	*Area 3*	*Area 4*	*Overall*
May																		
Retained	12.5	35.2	0	2.7	49.0	172.1	30.6	4.3	258.5	0	15.1	0	48	532	580	11	47	48
Released	72.7	99.6	38.2	2.2	154.4	309.8	114.3	9.7	483.9	133.8	39.0	0	211	1,247	1,458	51	160	168
June																		
Retained	128.2	428.2	7.7	0	44.7	163.2	72.9	6.3	472.6	164.3	144.8	27.4	564	1,096	1,660	49	81	95
Released	72.3	322.7	51.0	0.4	35.6	179.7	45.5	32.7	574.5	91.3	155.8	46.4	446	1,162	1,608	60	109	124
July																		
Retained	105.8	609.7	0	0	21.6	340.8	117.9	13.2	609.7	104.4	159.4	18.3	716	1,385	2,101	88	101	134
Released	317.3	463.7	37.7	0.1	40.2	534.2	81.1	40.4	887.5	101.4	178.7	36.5	819	1,900	2,719	162	210	265
August																		
Retained	207.9	473.3	329.8	0	6.0	135.7	158.8	0	289.7	0	85.7	0	1,011	676	1,687	98	92	134
Released	16.2	256.8	40.7	1.0	24.2	147.3	124.4	0	476.3	17.5	50.6	0	314	841	1,155	100	115	152
TOTAL																		
Retained	454	1,546	337	3	121	812	380	24	1,630	269	405	46	2,338	3,690	6,028	141	166	218
Released	479	1,143	168	4	254	1,171	365	83	2,422	344	424	83	1,789	5,151	6,939	206	308	370
Catch	933	2,689	505	6	376	1,983	745	107	4,053	613	829	129	4,127	8,840	12,967	249	350	430

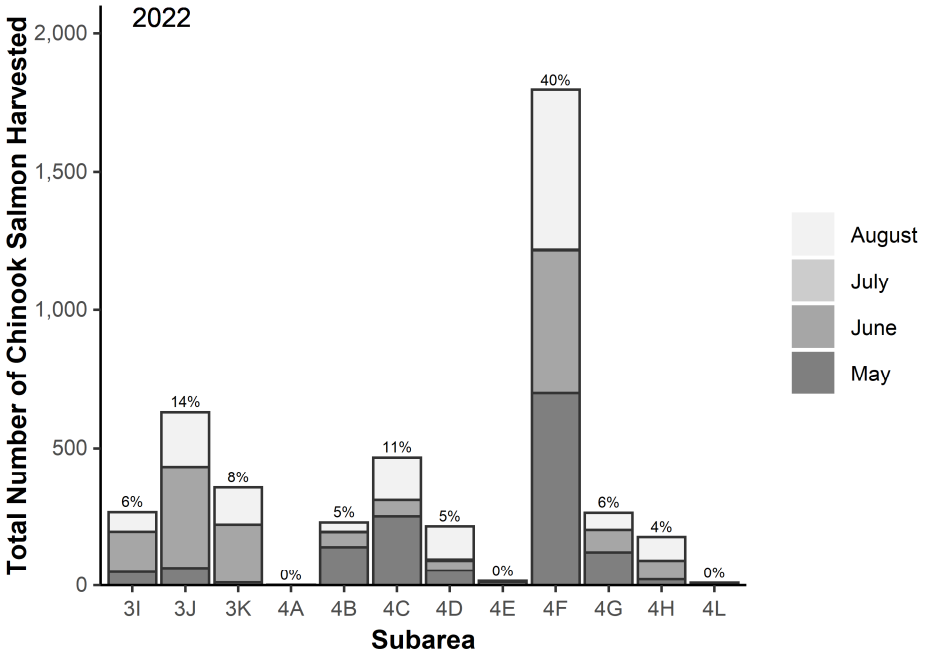


Figure 9. Total (lodge + non-lodge) estimated Chinook Salmon harvest, by month and subarea, 2022.

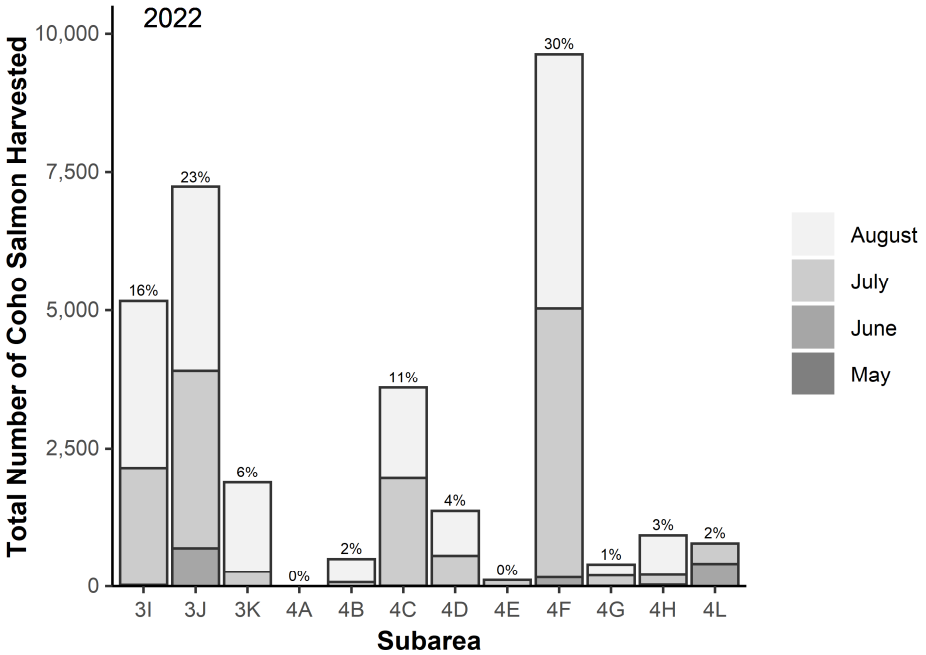


Figure 10. Total (lodge + non-lodge) estimated Coho Salmon harvest, by month and subarea, 2022.

Table 24. Kruskal Wallis tests for differences in harvest (fish caught per boat trip per subarea) among months, by species, 2022. Subareas treated as replicates. Red letters indicate statistical differences within species (months not connected by a common letter were statistically different).

	Kruskal-Wallis Statisitics			*Median Monthly Harvest*			
Species	χ^2	*df*	*P*	*May*	*June*	*July*	*August*
Chinook Salmon	18.4	3	0.0004	26.1 A	63.0 A	0 B	61.1 A
Chum Salmon	3.5	3	0.32	0	0	0	0
Coho Salmon	23.3	3	< 0.0001	0 C	6.8 B	280.2 A	756.0 A
Pink Salmon	24.2	3	< 0.0001	0 B	1.2 B	56.3 A	115.6 A
Sockeye Salmon	8.1	3	0.043	0	0	0	0
Arrow-tooth Flounder	2.3	3	0.51	0	0	0	0
Big Skate	2.2	3	0.53	0	0	0	0
Cabezon	6.0	3	0.11	0	0	0	0
Pacific Spiny Dogfish	2.0	3	0.56	0	0	0	0
English Sole	2.0	3	0.56	0	0	0	0
Greenlings	0.9	3	0.83	0	0	0	0
Lingcod	1.5	3	0.67	56.3	88.4	58.2	46.3
Pacific Cod	11.2	3	0.011	0 B	31.1 A	32.7 A	19.9 AB
Pacific Halibut	5.8	3	0.12	59.3	260.8	248.6	137.4
Pacific Sanddab	0.0	3	1	0	0	0	0
Spotted Ratfish	6.1	3	0.11	0	0	0	0
Red Irish Lord	0.0	3	1	0	0	0	0
Pacific Rock Sole	5.9	3	0.12	0	0	0	0
Sablefish	4.2	3	0.24	0	0	0	0
Starry Flounder	4.3	3	0.23	0	0	0	0
Black Rockfish	6.4	3	0.09	2.6	26.5	23.1	5.3
Boccacio Rockfish	9.3	3	0.025	0	0	0	0
Canary Rockfish	1.0	3	0.81	0	0	0	0
China Rockfish	1.1	3	0.78	0.2	3.3	3.7	4.4
Copper Rockfish	8.9	3	0.031	1.8	7.7	3.9	0
Dusky Rockfish	4.3	3	0.23	0	0	0	0
Quillback Rockfish	6.0	3	0.11	5.2	21.8	34.6	0
Redband Rockfish	4.3	3	0.23	0	0	0	0
Redstripe Rockfish	6.0	3	0.11	0	0	0	0
Tiger Rockfish	1.2	3	0.75	0	0.8	0.3	0
Widow Rockfish	0.0	3	1	0	0	0	0
Yelloweye Rockfish	8.1	3	0.044	0	0	0	0
Yellowtail Rockfish	4.3	3	0.23	0	0	1.1	0

An estimated 15,125 (SE = 354) Pacific Halibut were harvested in Areas 3 or 4 during the 2022 study period (Table 20; Figure 11). Most of the harvest could be attributed to effort in 4F (25%) and 3J (25%), and in subareas 3I, 4C, and 4H (together another 32%). Harvest varied among months (lowest in May, highest in July), but the effect was not statistically significant (χ^2 = 5.8, df = 3, *P* = 0.12; Table 24). We estimated that 7,667 (SE = 499) Pacific Halibut were released (34% of the total catch).

From May to August 2022, an estimated 9,147 (SE = 343) Lingcod were harvested, occurring mainly from subareas 3J (41%) and 4F (27%), followed by 3I (11%). There was relatively low harvest in May and August (18% and 20%) as compared to July and August (30% and 32%), though the differences were not statistically significant. (χ^2 = 1.5, df = 3, *P* = 0.67; Table 21; Figure 12). Of the captured Lingcod, 9% were released (927 fish, SE = 109).

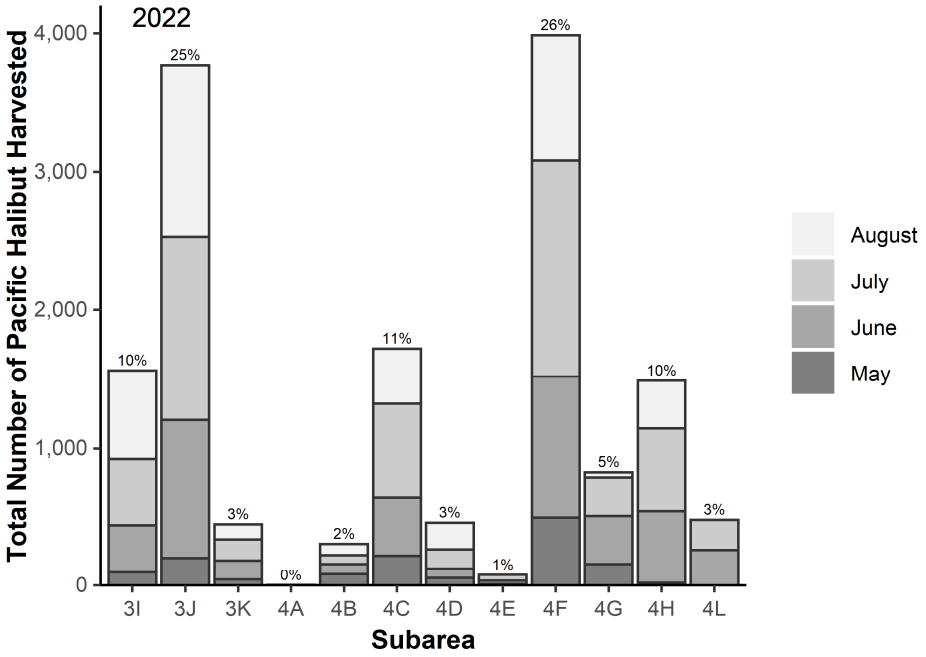


Figure 11. Total (lodge + non-lodge) estimated Pacific Halibut harvest, by month and subarea, 2022.

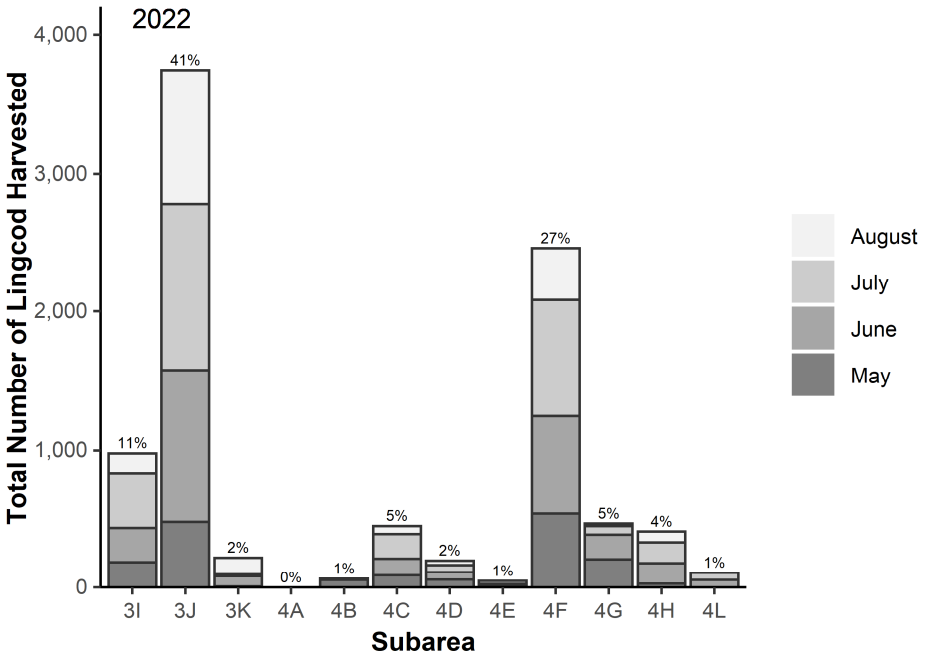


Figure 12. Total (lodge + non-lodge) estimated Lingcod harvest, by month and subarea, 2022.

An estimated 2,390 (SE = 153) fish from other groundfish species were harvested from May to August 2022, of which 84% (i.e., 1,999 fish, SE = 142) were Pacific Cod. The remaining harvest included greenlings (*Hexagrammos* spp.; 5%), Sablefish (*Anoplopoma fimbria*; 3%), Cabezon (*Scorpaenichthys marmoratus*, 3%), and a variety of other species (< 50 individuals retained per species). Over the study period, it is estimated that 491 (SE = 65) Pacific Cod were released (20% of the total catch of Pacific Cod).

Rockfish harvest was estimated at 6,028 fish (SE = 218; Table 23), composed mostly of Quillback (30%), Black (24%), China (*Sebastes nebulosus*, 5%), Tiger (5%), Copper (*S. caurinus*, 4%), unknown (28%) and seven other rockfish species. In all, 6,939 (SE = 370) were released. Of the 1,377 Yelloweye Rockfish caught, all but 19 (99%) were released.

Biosampling

During interviews, observers were told about 1,141 retained Chinook Salmon, and were permitted to handle 416 fish. Too few fish were sexed (n=15) to provide a robust estimate of sex ratio (Table 25). The median fork length of biosampled Chinook Salmon (n = 379) was 71 cm (95% of observations were between 54 and 94 cm; Figure 13). In all, 39 adipose-clipped individuals were encountered (Table 25), including 25 from standardized sampling methods (complete samples collected from anglers who were asked if their catch could be biosampled before any other interactions took place; Appendix 5) and 14 from non-standard interactions ("non-standard interactions" were interviews for which anything other that complete access was given to all harvested fish). Of the 39, 85% (n=33) had their heads collected and labelled for submission to the Salmon Head Recovery Program (Table 25). Of the standardized samples (n=304), 8.2% were adipose-clipped (Appendix 5). Scale samples were obtained from 91% (n=377) of the biosampled Chinook Salmon (Table 25).

For Coho Salmon, observers were told about 5,887 retained fish, and were permitted to handle 957 fish. Too few fish were sexed (n=4) to provide a robust estimate of sex ratio (Table 25). The median Coho Salmon fork length (n = 957) was 65 cm (95% of observations were between 54 and 73 cm; Figure 13). In all, 8 adipose-clipped individuals were encountered (Table 25), including four from standardized sampling interviews. Of the eight, six heads (75%) were collected for submission to the Salmon Head Recovery Program (Table 25). Of the standardized samples (n=553), four (0.7%) were adipose-clipped (Appendix 5). Tissue samples were obtained from 99.8% (n=955) of the biosampled Coho Salmon (Table 25).

Of the 3,650 Pacific Halibut that anglers reported as retained, 1,423 were handled (Table 25). All were measured, but none were sexed. The median size was 81 cm (95% of observations were between 61 and 126 cm; Figure 13). Average net and round weights, calculated from average lengths using regression formulas, were 6.0 kg (13.3 lb) and 8.0 kg (17.6 lb) in Area 3, and 6.2 kg (13.6 lb) and 8.2 kg (18.0 lb) in Area 4, respectively (Table 26).

Table 25. Biosampling results, 2022.

	Chinook Salmon		*Coho Salmon*		*Pacific Halibut*	
	Number	*Percent*	*Number*	*Percent*	*Number*	*Percent*
Number Examined	416		957		1423	
Subarea						
3I	10	2%	74	8%	36	3%
3J	29	7%	115	12%	182	13%
3K	10	2%	26	3%	12	1%
4A	6	1%			6	0%
4B	70	17%	27	3%	50	4%
4C	76	18%	120	13%	226	16%
4D	40	10%	78	8%	74	5%
4E					23	2%
4F	162	39%	402	42%	439	31%
4G	11	3%	43	5%	79	6%
4H	2	0%	37	4%	214	15%
4L			31	3%	68	5%
Sex						
Male	2	13%	3	75%		
Female	13	87%	1	25%		
Undeterminable	1					
Unknown	400		953		1423	
Trip Type						
Guided	138	33%	603	63%	715	50%
Unguided	278	67%	354	37%	708	50%
Adipose Clips						
Clipped	39	9%	8	1%		
Unmarked	375	91%	933	99%		
Unknown						
Head Tagged						
Yes	33	8%	6	1%		
No	383	92%	951	99%		
Scale Samples			*Whatman Samples*			
Yes	377	91%	955	100%		
No	39	9%	2	0%		
Flesh Colour						
Red	251	97%				
White	9	3%				
Marble						
Unknown						

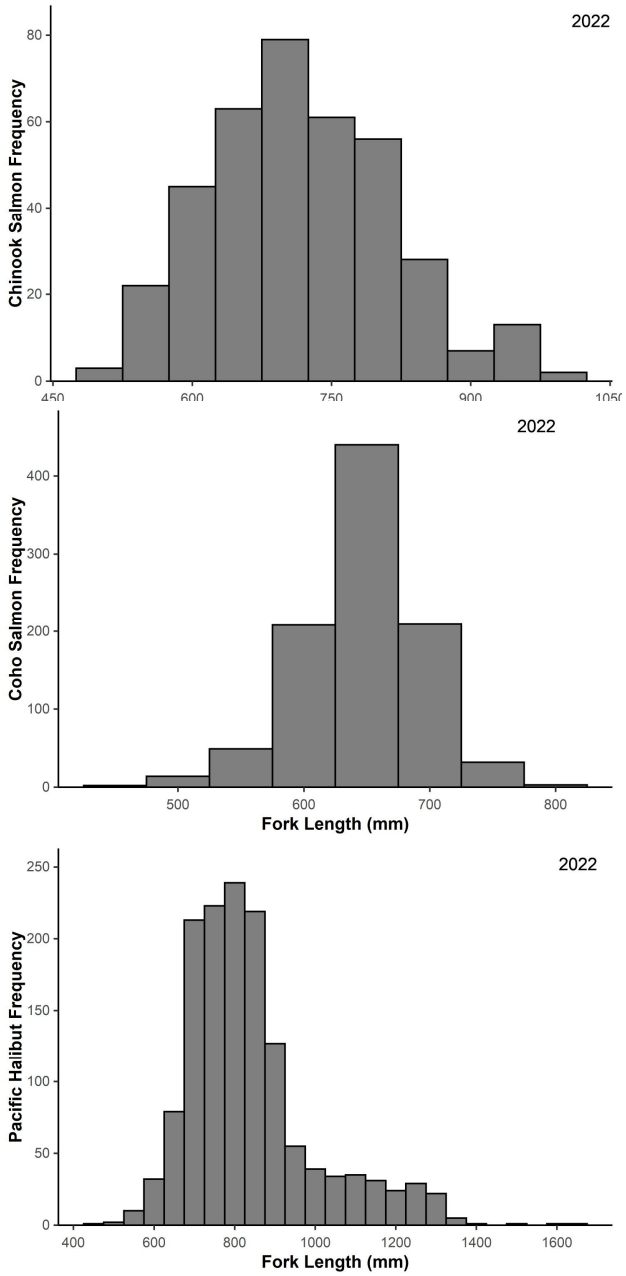


Figure 13. Length-frequency distributions of biosampled Chinook (n = 379) and Coho (n = 957) salmon, and Pacific Halibut (n = 1,423), 2022. Note that X and Y axis scales vary among plots.

Table 26. Average weight, and harvest (numbers and biomass) of Pacific Halibut in Area 3 and 4, 2022.

	Stat Area 3				*Stat Area 4*			
	Net Weight		*Round Weight*		*Net Weight*		*Round Weight*	
	kg	*lb*	*kg*	*lb*	*kg*	*lb*	*kg*	*lb*
Creel Interview (Non-Lodge) Average Weights								
Guided	6.4	14.0	8.4	18.6	6.6	14.7	8.8	19.4
Unguided	5.2	11.5	6.9	15.3	5.8	12.7	7.6	16.9
Overall	6.0	13.3	8.0	17.6	6.2	13.6	8.2	18.0
Estimated Non-lodge Harvest (number of fish)								
Overall	4,258				9,346			
Estimated Lodge Harvest (number of fish)								
Overall	1,521				0			
Biomass Harvested								
Non-lodge	25,637	56,520	33,953	74,853	57,746	127,308	76,477	168,603
Lodge	9,159	20,191	12,129	26,741	0	0	0	0
Overall	34,796	76,711	46,082	101,594	57,746	127,308	76,477	168,603

Harvested Halibut Biomass

Based on the average weights of biosampled Pacific Halibut, and the estimated harvest, it was estimated that total harvested Pacific Halibut net biomass was 92.5 tonnes (204,019 lb), including 34.8 t (76,711 lb) in Area 3 and 57.7 t (127,308 lb) in Area 4. In terms of round weight, Pacific Halibut harvest was 122.6 t (270,198 lb) including 46.1 t (101,594 lb) in Area 3 and 76.5 t (168,603 lb) in Area 4 (Table 26).

DISCUSSION

Creel Estimates

In general, recreational fishing effort and salmon catch in Areas 3 & 4 have been increasing over the last 28 years (Tables 27 and 28). Using published creel data collected since 1995, we found 14 years (1995-96, 2001-02, 2008-09 [2], and 2015-2022) for which effort data were collected in June, July, and August (Van Tongeren and Winther 2010, Robichaud et al. 2016, 2017, Robichaud and Addison 2018, 2019, 2020, 2021, 2022), and we have therefore limited this meta analyses to those three months. Meta-analysis revealed (Figure 14) that fishing effort has increased steadily (by 195 trips per year on average) since 1995. Effort since 2020 has been lower than what would have been predicted from the long-term trend, possibly attributable to the international and domestic travel restrictions and reservations associated with the COVID-19 pandemic.

[2] Creel data from 2010-2014 were collected and analyzed by DFO, and preliminary results were presented as part of their post-season review process. We based our meta-analysis on published accounts (written accounts showing methods, results, and discussing the caveats of the results), and hence have not included data from these years.

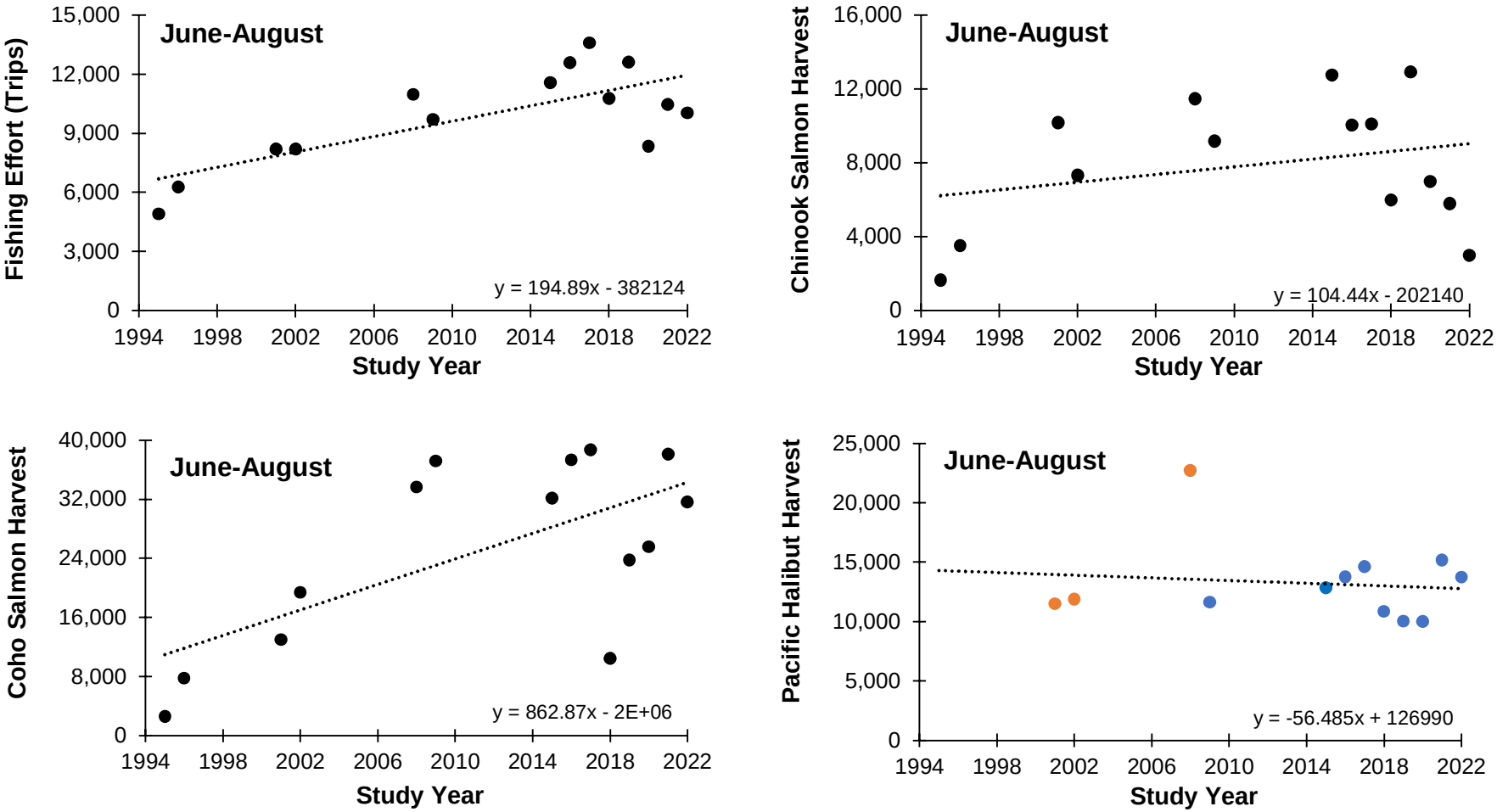


Figure 14. Fishing effort, and harvest of Chinook and Coho salmon, and Pacific Halibut from 1995 to 2022. Annual estimates only include data from June, July and August. Only years with data from all three months are included. Linear regression equations are shown in the lower right of each panel. For Pacific Halibut, bag limits changed after 2008 from two fish per day (orange dots) to one fish per day (blue dots).

Table 27. Monthly recreational fishing effort (boat trips) in Area 3 and 4 from 1995 to 2022, as estimated using creel survey methods.

	Year																
Month	*1995*	*1996*	*1998*	*2000*	*2001*	*2002*	*2006*	*2008*	*2009*	*2015*	*2016*	*2017*	*2018*	*2019*	*2020*	*2021*	*2022*
May	965	391	--	--	449	960	--	983	--	--	--	--	--	1,553	1,320	1,785	1,587
June	1,590	2,490	--	--	3,801	3,463	--	4,696	3,043	3,424	3,961	4,574	2,873	3,790	1,970	2,507	2,712
July	1,394	2,385	1,307	1,842	2,588	2,892	--	3,750	3,804	4,279	5,295	6,044	4,593	4,644	3,745	4,318	4,040
Aug	1,927	1,400	1,351	1,327	1,808	1,843	2,593	2,529	2,865	3,881	3,325	2,980	3,304	4,175	2,631	3,642	3,285
Sept	864	488	504	954	540	676	758	394	817	--	--	--	--	--	--	--	--
TOTAL	6,740	7,154	3,162	4,123	9,186	9,834	3,351	12,352	10,529	11,585	12,581	13,598	10,770	14,163	9,665	12,252	11,624

Table 28. Monthly Chinook Salmon, Coho Salmon and Pacific Halibut harvest in the Area 3 and 4 recreational fishery from 1995 to 2022, as estimated using creel survey methods.

	Year																
Month	*1995*	*1996*	*1998*	*2000*	*2001*	*2002*	*2006*	*2008*	*2009*	*2015*	*2016*	*2017*	*2018*	*2019*	*2020*	*2021*	*2022*
Chinook Salmon Harvest																	
May	141	45	--	--	509	522	--	474	--	--	--	--	--	2,234	1,256	1,580	1,428
June	907	2,165	--	--	6,630	4,028	--	7,708	4,797	7,071	5,678	5,229	1,273	5,675	2,574	1,834	1,564
July	505	1,097	254	1,611	3,260	2,822	--	3,080	3,873	4,016	3,474	3,800	2,964	4,806	2,856	2,797	9
Aug	245	257	35	108	299	474	1,207	688	503	1,669	891	1,078	1,593	2,437	1,560	1,172	1,431
Sept	15	62	6	93	61	59	203	20	4	--	--	--	--	--	--	--	--
TOTAL	1,813	3,626	295	1,812	10,759	7,905	1,410	11,970	9,177	12,756	10,043	10,108	5,997	15,152	8,247	7,383	4,432
Coho Salmon Harvest																	
May	0	0	--	--	0	0	--	0	--	--	--	--	--	29	0	0	3
June	335	474	--	--	1,771	1,332	--	3,913	3,686	4,436	4,389	1,839	126	1,475	1,006	3,038	1,356
July	402	3,565	1,937	568	4,736	9,798	--	15,982	17,043	15,101	21,761	22,871	5,758	10,341	16,304	17,685	13,929
Aug	1,907	3,771	1,500	2,125	6,488	8,292	15,647	13,791	16,459	12,612	11,200	14,004	4,580	11,974	8,288	17,403	16,331
Sept	1,115	1,417	79	790	1,006	1,010	3,215	733	3,136	--	--	--	--	--	--	--	--
TOTAL	3,759	9,227	3,516	3,483	14,001	20,432	18,862	34,419	40,324	32,148	37,350	38,713	10,464	23,820	25,599	38,126	31,620
Pacific Halibut Harvest																	
May	--	--	--	--	281	467	--	1,435	--	--	--	--	--	941	867	1,499	1,385
June	--	--	--	--	4,872	3,912	--	8,367	3,029	3,551	4,032	4,632	3,407	2,698	2,344	3,725	4,229
July	--	--	--	3,963	3,535	4,716	--	8,507	4,466	4,096	6,069	6,563	4,263	3,894	4,150	6,518	5,558
Aug	--	--	1,801	2,530	3,085	3,247	8,178	5,865	4,142	5,201	3,670	3,410	3,183	3,435	3,504	4,929	3,953
Sept	--	--	328	1,224	222	615	1,812	774	1,205	--	--	--	--	--	--	--	--
TOTAL	--	--	2,129	7,717	11,995	12,957	9,990	24,948	12,842	12,848	13,771	14,606	10,853	10,967	10,865	16,671	15,125

Over the same period, Chinook and Coho salmon harvests have increased by 104 and 863 fish per year, on average (Table 28, Figure 14). Chinook Salmon harvest in 2022 was low relative to expectations given the observed level of effort, probably resulting from the management measures which imposed a non-retention period from 15 June to 15 July 2022. The 2022 Coho Salmon harvest was close to that expected given the long-term trend, which is concerning given the lower-than-expected effort observed in 2022.

The Lingcod harvest (June to August) in 2022 was the highest observed for the available time series. In general, the harvest from 2018 to 2022 (4,270 in 2018, 4,295 in 2019, 4,064 in 2020, 6,165 in 2021, and 7,486 in 2022) was higher than in other recent years (3,052 in 2015, 1,803 in 2016, and 2,772 in 2017). This, despite a coast-wide reduction in the Lingcod bag limit from three to two fish starting in May 2018. While harvest levels appeared to have been relatively stable since 2018 (despite a general trend toward increasing effort), the elevated harvest value from 2021 and 2022 could potentially cause concern.

Pacific Halibut harvest did not show a strong among-year trend (Figure 14). While fishing effort increased over the 28-year period, the total harvest of Pacific Halibut in recent years (2009, 2015-2022) has been very similar to that from 2001-2002; Table 28). This is very likely the result of effective management measures that were enacted between 2008 and 2009 (including the reduction in the daily bag limit from two to one), that appeared to have reduced the catch of halibut by nearly 50% (Figure 14).

The meta-analysis results make two important points: 1) the effort and CPUE of certain species has increased tremendously over the past 28 years (even despite the COVID-19 pandemic), potentially imperilling stocks if left unchecked; and 2) management decisions for Pacific Halibut appear to have been effective, indicating that effective tools are available to keep effort and CPUE increases from going unchecked.

May Effort

In our report for the 2018 study year (Robichaud and Addison 2019), we made the case that substantial angling activity was being missed by starting the creel survey in June each year. Surveys in 1995 and 1996 (Van Tongeren and Winther 2010) included May, which accounted for 14% and 5% of the May-August effort, and for 8% and 1% of the May-August Chinook harvest. May surveys occurred again in 2001, 2002, and 2008, representing 5%, 10%, and 8% of the May-August effort, respectively (and 5%, 7%, and 4% of the May-August Chinook harvest). Beginning in 2019, we did start the survey in May, and found that May effort (1,553 boat trips in 2019, 1,320 in 2020, 1,785 in 2021, and 1,587 in 2022) accounted for 11-15% of the May-August total. May effort from 2019 to 2021 accounted for 15-21% of the May-August total Chinook Salmon harvest, whereas effort in May 2022 accounted for 32% of the Chinook Salmon harvest.

Much of the early season angling targets Chinook Salmon, and occurs during a period in which the Area 3 and 4 stock composition is unknown or poorly resolved. As such, the Department of Fisheries and Oceans Canada (DFO) expressed interest in a May creel survey because genetic samples collected from Chinook Salmon would help them resolve stock composition and help determine exploitation rates on early-run-timing Chinook Salmon stocks. In 2019, during the

month of May, 269 Chinook Salmon were biosampled, including 230 scale samples, and 22 tagged heads. In 2020, 144 Chinook Salmon scale samples were collected in May, more than in the following three months combined. In 2021, 145 Chinook Salmon scale samples were collected in May, which represented 33% of the annual total, and submitted 15 tagged heads to the Salmon Head Recovery Program. In 2022, 216 Chinook Salmon were biosampled in May, of which 194 had scale samples taken, more (51.5% of the annual total) than in the following three months combined. May also accounted for 11 of the 33 tagged heads submitted to the Salmon Head Recovery Program.

Precision of the Results

Overall, our level of survey effort, both for CPE and Effort estimation, were adequate, as evidenced by the relatively good precision of the harvest estimates for most of the taxa surveyed. In 2022 our precision goal was to estimate total harvests within 15% of the true value 19 times out of 20, for the main taxa (Chinook Salmon, Coho Salmon and Pacific Halibut), for which harvest estimates were precise to within 4-6%. Pink Salmon, Lingcod, rockfish, and other groundfish estimates were precise to within 13%, 7%, 7%, and 13%, respectively. Chum and Sockeye salmon estimates were not precise to within 15%, though the survey was not designed to meet any level of precision for these last species.

The precision of our harvest estimates depended largely on the variability in the CPE and effort data. Differing levels of angler expertise, and day-to-day changes in abundance of the target species, fishing effort, weather, or fishing conditions mean that fishing trips have a wide range of outcomes. Similarly, day-to-day differences in weather or other factors (such as leisure time, day of week, the price of gasoline, etc.) affect the number of anglers that decide to go out on the water on any given day, resulting in variability within the boat-count dataset. Sampling error is another main source of estimation imprecision; and by meeting our precision goals we have demonstrated that we are sampling an adequate proportion of the population.

Accuracy of the Results

The accuracy of the results depends on the quality of data provided by the anglers to the interviewers. This is partly why we have a target to sample 20% of estimated effort. Even so, each time an angler is relied upon for unconfirmed data, there is opportunity for results to become inaccurate. For example, in this study, 962 of the 1,141 Chinook Salmon (84%) and 5,173 of the 5,887 Coho Salmon (88%) reported as kept during angler interviews were recorded as observed by the interviewer, and 416 and 957 (36% and 16%) were handled for biosampling. While not every fish can be observed[3], each one that goes unconfirmed is nevertheless a possible source of inaccuracy in the reported harvest totals.

In this study, the angler effort estimates depend on the accuracy of the aerial survey boat counts and the activity patterns for each month. For example, we have no estimate of the proportion of

[3] Fish may not be observed when anglers refuse to provide access to their fish storage containers for various reasons. Reluctance to provide access may be due to fish already being processed and packed in ice, boat launch traffic congestion causing tension, or COVID-19 concerns, among other reasons.

angling boats that are missed during overflights, where missed boats would contribute to the underestimation of recreational fishing effort. Also, we do not know if all fishing areas are adequately covered by the current flightpath – perhaps there are fishing locations that are hidden behind islands (e.g., Dunira Island or the Moffat Islands), too far from the flightpath for the surveyors to see active fishing boats. On the other hand, our estimate of fishing effort may be overestimated due to our inability to survey and count boats on foggy or bad weather days. We know that during bad weather, fewer anglers go out on the water; yet these same conditions can cause flights to be cancelled, and thus the lowest effort values are sometimes not sampled.

Another potential source of inaccuracy is the removal of lodge boats from the overflight counts. There is uncertainty around whether all of the active lodge boats were observed by the overflights (e.g., vessels outside of the survey area). There is also uncertainty around the proportion of lodge vessels that were active during the overflights. These factors may influence the accuracy of the estimates of non-lodge fishing effort. It may

RECOMMENDATIONS

- The catch and effort estimates for the Area 3 and 4 recreational creel surveys for 2010-2014 should be compiled and included in summary tables similar to Table 27 and 28 in this report. If sufficient funding can be obtained, the results from 2010-14 surveys should be compiled into a manuscript report. This additional information will help provide context for the current results, and help clarify how rates of effort and harvest have changed in recent years.
- We recommend that future surveys continue to run for four months (May to August) rather than three (June to August). May surveys will help document and quantify angling effort and harvest during that month. The Department of Fisheries and Oceans Canada (DFO) has expressed interest in a May creel survey because genetic samples collected from Chinook Salmon will help resolve the currently unknown early-season Area 3 and 4 stock composition, which will help determine exploitation rates on early-run-timing Chinook Salmon stocks.
- Trailer counts should be conducted in April 2023 for comparison with April trailer counts in 2019-2020 and continued throughout the creel survey season as in recent years.

ACKNOWLEDGEMENTS

We would like to thank the creel surveyors (Anke De Wit, Calvin Jonathan, Brent Merriam, Hannah McDonald, and Jackie Goetz) for collecting large amounts of data and bio-samples from anglers, despite COVID-related risks. Thanks to Pacific Salmon Commission, who provided support for this work through the Northern Fund. Thanks to Chelsea May, Darren Chow and Ryan Whitmore for acting as liaison between our team and DFO. Thanks also go to the administrative staff at LGL and NCSFNSS, whose work made it possible for this study to be conducted. We also would like to thank Karl English for providing useful comments and edits on previous drafts of this report. Last but not least, we thank the many anglers, charter operators, and fishing lodges who participated in the survey.

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APPENDICES

APPENDIX 1: DATA FORMS

2022 AREA 3/4 CREEL SURVEY
AERIAL SURVEY VESSEL ENUMERATION FORM

DATE:_____ FLIGHT#:_____

SURVEYOR:_____

Note: only survey shaded subareas when conditions permit

Sub Area	RIGHT FRONT COUNT				TOTAL COUNT				FLIGHT TIME		SEA STATE (1-4)
	SPORT *(Fishing)*	SPORT *(Moving)*	COMM. *(Fishing)*	COMM. *(Moving)*	S *(F)*	S *(M)*	C *(F)*	C *(M)*	START	FINISH	
A											
C											
B											
C											
D											
E											
C											
F											
E											
F											
G											
L											
G											
J											
I											
K											
I											
H											
C											
A											

WEATHER / SEA STATE / COMMENTS:_____

_____

_____

_____

_____

_____

_____

SIGNATURE:_____

SHIFT SUMMARY SHEET

Landing Site: _____ **Interviewer Name:** _____

Interviewer Code: _____ **Date:** _____

Shift Code: _____ **Shift Times:** _____

Time Blocks	
From - To	TB
Before 7:00	1
7:00 - 7:59	2
8:00 - 8:59	3
9:00 - 9:59	4
10:00 - 10:59	5
11:00 - 11:59	6
12:00 - 12:59	7
13:00 - 13:59	8
14:00 - 14:59	9
15:00 - 15:59	10
16:00 - 16:59	11
17:00 - 17:59	12
18:00 - 18:59	13
19:00 - 19:59	14
20:00 - 20:59	15
21:00 - 21:59	16

* Fill in using numbers only.

Time Block	Fishing Conditions	Boats Missed	Not Fishing	Fishing
Totals:				

Comments: _____

_____

_____

Trailer Count: _____ **Time:** _____

Database Tally # :	(office use only)

2022 Area 3 and 4 Creel Survey

Site#_____ Obs# _____ Date ___/___/___ (DD/MM/YY) Interview# _____

# of Anglers:_____ Guided?:__Y__N__ Depart. Time:_____ Land Time:_____

Pick ONE
- ☐ Refusal ☐ Partial
- ☐ Catch data given by angler (Catch not verified)
- ☐ Fish observed (Catch & Species verified)
- ☐ Adipose checked by interviewer
- ☐ Fish biosampled (e.g., length, sex, scales, etc.)

Pick ONE Target
- ☐ Shellfish Only
- ☐ Finfish Only
- ☐ Finfish and Shellfish

North Coast - Skeena First Nations Stewardship Society

Subarea:_____ Total Hours:_____

Species	Kept	Released Legal	Released Non-legal	Gear	# of Lines/ Traps

Target	Hours	Subarea	Site

- ☐ Before 1 AM
- ☐ 0100 - 0159
- ☐ 0200 - 0259
- ☐ 0300 - 0359
- ☐ 0400 - 0459
- ☐ 0500 - 0559
- ☐ 0600 - 0659
- ☐ 0700 - 0759
- ☐ 0800 - 0859
- ☐ 0900 - 0959
- ☐ 1000 - 1059
- ☐ 1100 - 1159
- ☐ 1200 - 1259
- ☐ 1300 - 1359
- ☐ 1400 - 1459
- ☐ 1500 - 1559
- ☐ 1600 - 1659
- ☐ 1700 - 1759
- ☐ 1800 - 1859
- ☐ 1900 - 1959
- ☐ 2000 - 2059
- ☐ 2100 - 2159
- ☐ 2200 - 2259
- ☐ After 11 PM

Subarea:_____ Total Hours:_____

Species	Kept	Released Legal	Released Non-legal	Gear	# of Lines/ Traps

Target	Hours	Subarea	Site

- ☐ Before 1 AM
- ☐ 0100 - 0159
- ☐ 0200 - 0259
- ☐ 0300 - 0359
- ☐ 0400 - 0459
- ☐ 0500 - 0559
- ☐ 0600 - 0659
- ☐ 0700 - 0759
- ☐ 0800 - 0859
- ☐ 0900 - 0959
- ☐ 1000 - 1059
- ☐ 1100 - 1159
- ☐ 1200 - 1259
- ☐ 1300 - 1359
- ☐ 1400 - 1459
- ☐ 1500 - 1559
- ☐ 1600 - 1659
- ☐ 1700 - 1759
- ☐ 1800 - 1859
- ☐ 1900 - 1959
- ☐ 2000 - 2059
- ☐ 2100 - 2159
- ☐ 2200 - 2259
- ☐ After 11 PM

Chinook, Coho, and Halibut				Chinook and Coho only		Chinook only		
Species	Sub Area	Fork Length (mm)	Sex N/C=0 Male=1 Female=2 Unable=9	Adipose Clip N=0, Y=1, N/C=9	Head Tag #	Scale Book #	Column # (Fish #)	Flesh Colour R=0, W=1, M=2

Weather Conditions:_____

Comments:_____

Signature:_

APPENDIX 2: HPE ESTIMATES (AVERAGE NUMBER OF FISH HARVESTED PER NON-LODGE BOAT TRIP) BY PERIOD, TRIP TYPE, SUBAREA AND SPECIES.

Average number of salmon harvested per boat trip in May 2022, by trip type and subarea. Zeros hidden.

	Subarea											
Species / Trip Type	*3I*	*3J*	*3K*	*4A*	*4B*	*4C*	*4D*	*4E*	*4F*	*4G*	*4H*	*4L*
Chinook Salmon												
Guided	0.22		0.22		2.00	2.20	2.71	2.90	3.00	1.64	3.33	1.64
Unguided	0.60	1.00		0.01	0.60	0.38	0.70	1.14	1.28	0.50	0.25	0.50
Combined	0.46	0.45	0.11	0.01	0.77	0.78	1.17	1.68	1.84	1.43	0.96	
Chum Salmon												
Guided												
Unguided												
Combined												
Coho Salmon												
Guided												
Unguided								0.01	0.01			
Combined								0.01	0.01			
Pink Salmon												
Guided								0.02	0.02			
Unguided												
Combined								0.01	0.01			
Sockeye Salmon												
Guided												
Unguided												
Combined												
Unknown Salmon												
Guided												
Unguided												
Combined												

Average number of salmon harvested per boat, 1-14 June 2022, by trip type and subarea. Zeros hidden.

	Subarea											
Species / Trip Type	*3I*	*3J*	*3K*	*4A*	*4B*	*4C*	*4D*	*4E*	*4F*	*4G*	*4H*	*4L*
Chinook Salmon												
Guided	2.37	2.58	1.91		0.16	0.73	1.50	1.80	1.93	0.40	2.27	1.42
Unguided	1.33	0.83	1.33	0.10	0.47	0.54	0.75	1.21	1.38	1.56	0.88	1.24
Combined	2.02	2.00	1.92	0.04	0.56	0.60	1.07	1.46	1.61	1.14	1.68	1.33
Chum Salmon												
Guided												
Unguided	0.06		0.06									
Combined	0.02											
Coho Salmon												
Guided	0.03	0.04									0.09	0.05
Unguided								0.01	0.02			
Combined	0.02	0.03						0.01	0.01		0.05	0.03
Pink Salmon												
Guided												
Unguided												
Combined												
Sockeye Salmon												
Guided												
Unguided												
Combined												
Unknown Salmon												
Guided												
Unguided												
Combined												

Average number of salmon harvested per boat trip, 15 June - 15 July 2022, by trip type and subarea. Zeros hidden.

	Subarea											
Species / Trip Type	*3I*	*3J*	*3K*	*4A*	*4B*	*4C*	*4D*	*4E*	*4F*	*4G*	*4H*	*4L*
Chinook Salmon												
Guided												
Unguided							0.08		0.02			
Combined							0.04		0.01			
Chum Salmon												
Guided		0.02	0.01						0.01			
Unguided												
Combined		0.01							0.01			
Coho Salmon												
Guided		3.02	2.45		0.01	0.12	0.30		0.91	0.07	0.17	5.43
Unguided	0.29	0.35							0.35	0.15	0.26	0.19
Combined	0.15	2.25				0.03	0.13		0.67	0.11	0.20	4.63
Pink Salmon												
Guided	0.08	0.37	0.35						0.12	0.07		0.87
Unguided	0.14	0.31							0.10			
Combined	0.11	0.35	0.38						0.11	0.04		0.74
Sockeye Salmon												
Guided												
Unguided												
Combined												
Unknown Salmon												
Guided												
Unguided												
Combined												

Average number of salmon harvested per boat trip, 16-31 July 2022, by trip type and subarea. Zeros hidden.

	Subarea											
Species / Trip Type	*3I*	*3J*	*3K*	*4A*	*4B*	*4C*	*4D*	*4E*	*4F*	*4G*	*4H*	*4L*
Chinook Salmon												
Guided					0.01							
Unguided							0.02	0.01				
Combined					0.02		0.02	0.00				
Chum Salmon												
Guided												
Unguided		0.14										
Combined		0.07										
Coho Salmon												
Guided	9.71	5.93	6.59		1.67	7.59	9.81	9.81	9.84	6.07	6.00	3.00
Unguided	5.60	3.14	1.29		0.82	2.73	3.21	4.14	4.67	3.18	2.64	2.75
Combined	7.29	4.59	2.22		0.80	4.18	3.28	6.07	6.95	4.31	3.98	2.25
Pink Salmon												
Guided	1.57	0.90	1.18		0.26	1.19	0.95	0.95	0.94	0.50	0.50	0.50
Unguided	1.20	0.89	1.29	0.06	0.14	0.31	0.29	0.50	0.61	0.82	0.48	0.60
Combined	1.35	0.90	1.89	0.02	0.13	0.57	0.32	0.65	0.75	0.69	0.49	0.38
Sockeye Salmon												
Guided							0.03	0.03	0.03		0.05	
Unguided						0.02						
Combined						0.01		0.01	0.01		0.02	
Unknown Salmon												
Guided												
Unguided												
Combined												

Average number of salmon harvested per boat trip in August 2022, by trip type and subarea. Zeros hidden.

	Subarea											
Species / Trip Type	*3I*	*3J*	*3K*	*4A*	*4B*	*4C*	*4D*	*4E*	*4F*	*4G*	*4H*	*4L*
Chinook Salmon												
Guided	0.27	0.14	0.13		0.77	0.54	0.76	0.73	0.72	0.65	0.64	0.29
Unguided		0.37	0.33		0.03	0.28	0.49	0.65	0.78	0.38	0.38	0.38
Combined	0.15	0.25	0.26		0.25	0.36	0.55	0.68	0.75	0.70	0.51	0.29
Chum Salmon												
Guided								0.03	0.03			
Unguided												
Combined								0.01	0.01			
Coho Salmon												
Guided	13.05	6.71	5.75		7.85	8.03	6.18	7.77	8.21	4.84	6.23	0.57
Unguided	5.37	6.21	4.27	0.03	1.35	1.89	3.03	4.00	4.64	1.75	2.19	2.07
Combined	9.49	6.48	4.78	0.01	3.27	3.83	3.68	5.23	6.05	2.30	4.26	0.57
Pink Salmon												
Guided	0.41	0.95	0.50		0.38	0.97	0.06	0.33	0.41	0.42	0.50	
Unguided	0.53	0.74	0.67	0.01	0.26	0.58	0.51	0.81	1.04	2.25	1.05	1.38
Combined	0.46	0.85	0.61	0.01	0.30	0.70	0.41	0.66	0.79	2.00	0.77	
Sockeye Salmon												
Guided		0.05						0.01	0.02			
Unguided	0.05	0.05										
Combined	0.02	0.05						0.00	0.01			
Unknown Salmon												
Guided												
Unguided												
Combined												

Average number of groundfish harvested per boat trip in May 2022, by trip type and subarea. Zeros hidden.

	Subarea											
Species / Trip Type	*3I*	*3J*	*3K*	*4A*	*4B*	*4C*	*4D*	*4E*	*4F*	*4G*	*4H*	*4L*
Arrow-tooth Flounder												
Guided												
Unguided												
Combined												
Big Skate												
Guided												
Unguided								0.01	0.01			
Combined								0.01	0.01			
Cabezon												
Guided	0.33	0.50	0.33									
Unguided								0.01	0.01			
Combined	0.13	0.27						0.01	0.01			
Pacific Spiny Dogfish												
Guided												
Unguided												
Combined												
English Sole												
Guided												
Unguided												
Combined												
Greenlings												
Guided							0.14	0.02		0.07		0.07
Unguided					0.09		0.22	0.05	0.01			
Combined					0.08		0.20	0.04	0.01	0.14		
Lingcod												
Guided	5.56	8.17	5.56		1.58	0.72	2.14	1.88	1.83	2.07	2.67	2.07
Unguided	0.67	1.20	0.14		0.12	0.16	0.91	1.15	1.24	0.88	0.80	0.88
Combined	2.50	5.00	0.11		0.30	0.28	1.20	1.37	1.43	2.43	1.23	0.20
Pacific Cod												
Guided						0.08				0.07	0.17	0.07
Unguided					0.02	0.15		0.10	0.13	0.04		0.04
Combined					0.02	0.13		0.07	0.09		0.04	0.20
Pacific Halibut												
Guided	3.00	3.50	3.00		1.00	1.04	2.43	2.08	2.02	2.43	0.83	2.43
Unguided	0.20	0.20	0.14	0.01	0.39	0.57	0.78	0.95	0.96	0.79	0.80	0.79
Combined	1.25	2.00	0.67	0.01	0.46	0.67	1.17	1.30	1.31	1.86	0.81	3.80
Pacific Sanddab												
Guided												
Unguided												
Combined												
Spotted Ratfish												
Guided												
Unguided												
Combined												
Red Irish Lord												
Guided												
Unguided												
Combined												
Pacific Rock Sole												
Guided												
Unguided												
Combined												
Sablefish												
Guided												
Unguided												
Combined												
Starry Flounder												
Guided												
Unguided												
Combined												
Unknown Groundfish												
Guided												
Unguided												
Combined												

Average number of groundfish harvested per boat trip, 1-14 June 2022, by trip type and subarea. Zeros hidden.

	Subarea											
Species / Trip Type	*3I*	*3J*	*3K*	*4A*	*4B*	*4C*	*4D*	*4E*	*4F*	*4G*	*4H*	*4L*
Arrow-tooth Flounder												
Guided												
Unguided												
Combined												
Big Skate												
Guided												
Unguided												
Combined												
Cabezon												
Guided												
Unguided								0.01	0.02	0.33		0.18
Combined								0.01	0.01	0.21		0.08
Pacific Spiny Dogfish												
Guided												
Unguided												
Combined												
English Sole												
Guided												
Unguided												
Combined												
Greenlings												
Guided												
Unguided												
Combined												
Lingcod												
Guided	1.89	2.33	0.91		0.06	0.40	0.42	0.61	0.68	3.40	0.73	2.26
Unguided	0.83	1.17	0.83		0.10	0.03	0.75	0.81	0.84	1.00	1.00	1.00
Combined	1.53	1.94	0.77		0.09	0.14	0.61	0.72	0.77	1.86	0.84	1.67
Pacific Cod												
Guided	0.03	0.04						0.06	0.07		0.73	0.42
Unguided					0.37	0.11	0.25	0.08	0.04	0.22	0.88	0.53
Combined	0.02	0.03			0.32	0.08	0.14	0.07	0.05	0.14	0.79	0.47
Pacific Halibut												
Guided	3.34	4.58	0.64		0.16	0.73	0.50	1.93	2.32	3.00	1.91	2.89
Unguided	1.33	2.00	1.33		0.30	0.83	0.88	0.95	1.00	2.22	1.75	2.00
Combined	2.66	3.72	0.54		0.41	0.80	0.71	1.36	1.56	2.50	1.84	2.47
Pacific Sanddab												
Guided												
Unguided												
Combined												
Spotted Ratfish												
Guided												
Unguided							0.25	0.05				
Combined							0.14	0.03				
Red Irish Lord												
Guided												
Unguided												
Combined												
Pacific Rock Sole												
Guided												
Unguided							0.06	0.01				
Combined							0.04	0.01				
Sablefish												
Guided										0.60		0.16
Unguided												
Combined										0.21		0.08
Starry Flounder												
Guided												
Unguided												
Combined												
Unknown Groundfish												
Guided												
Unguided												
Combined												

Average number of groundfish harvested per boat trip, 15 June - 15 July 2022, by trip type and subarea. Zeros hidden.

	Subarea											
Species / Trip Type	*3I*	*3J*	*3K*	*4A*	*4B*	*4C*	*4D*	*4E*	*4F*	*4G*	*4H*	*4L*
Arrow-tooth Flounder												
Guided												
Unguided											0.04	0.02
Combined											0.01	
Big Skate												
Guided		0.06	0.05									
Unguided						0.01						
Combined		0.04				0.01						
Cabezon												
Guided		0.02	0.01						0.05			
Unguided		0.08										
Combined		0.03							0.03			
Pacific Spiny Dogfish												
Guided												
Unguided				0.01								
Combined				0.00								
English Sole												
Guided											0.04	
Unguided												
Combined											0.03	
Greenlings												
Guided	0.15		0.03						0.01	0.04		
Unguided		0.12				0.01						
Combined	0.07	0.03				0.01			0.01	0.02		
Lingcod												
Guided	0.77	2.11	1.84		0.15	1.44	1.40	1.60	2.35	1.07	1.13	0.57
Unguided	0.71	1.12			0.03	0.21	0.38	1.22	1.22	0.31	0.65	0.43
Combined	0.74	1.82			0.03	0.52	0.83	1.36	1.86	0.70	0.99	0.48
Pacific Cod												
Guided	1.23	0.51	0.61		0.11	1.00	1.30		0.34	0.46	0.85	0.13
Unguided	0.14		0.33			0.32			0.05	0.08	0.91	0.43
Combined	0.67	0.36	0.25		0.03	0.49	0.57		0.21	0.28	0.87	0.11
Pacific Halibut												
Guided	1.69	2.42	2.31		0.25	2.16	2.40	4.20	2.68	3.71	4.37	2.70
Unguided	1.71	1.35	1.67	0.01	0.40	1.49	0.08	0.78	1.35	1.35	2.48	1.92
Combined	1.70	2.11	2.00	0.00	0.57	1.66	1.09	2.00	2.10	2.57	3.79	2.67
Pacific Sanddab												
Guided												
Unguided												
Combined												
Spotted Ratfish												
Guided												
Unguided												
Combined												
Red Irish Lord												
Guided												
Unguided												
Combined												
Pacific Rock Sole												
Guided												
Unguided									0.02			
Combined									0.01			
Sablefish												
Guided		0.02	0.01									
Unguided						0.03						
Combined		0.01				0.02						
Starry Flounder												
Guided											0.02	
Unguided										0.04		0.02
Combined										0.02	0.01	
Unknown Groundfish												
Guided												
Unguided												
Combined												

Average number of groundfish harvested per boat trip, 16-31 July 2022, by trip type and subarea. Zeros hidden.

	Subarea											
Species / Trip Type	*3I*	*3J*	*3K*	*4A*	*4B*	*4C*	*4D*	*4E*	*4F*	*4G*	*4H*	*4L*
Arrow-tooth Flounder												
Guided												
Unguided												
Combined												
Big Skate												
Guided												
Unguided												
Combined												
Cabezon												
Guided												
Unguided								0.01	0.01			
Combined								0.00	0.01			
Pacific Spiny Dogfish												
Guided											0.09	
Unguided												
Combined											0.04	
English Sole												
Guided												
Unguided												
Combined												
Greenlings												
Guided		0.07	0.05							0.07		
Unguided												
Combined		0.03								0.03		
Lingcod												
Guided	2.00	1.77	1.72		0.03	0.15	0.79	0.79	0.81	0.71	0.36	3.83
Unguided		0.21	0.14			0.14	0.08	0.37	0.53	0.18	0.52	0.39
Combined	0.82	1.02	0.11			0.14	0.08	0.52	0.65	0.39	0.45	3.00
Pacific Cod												
Guided	0.29	0.33	0.33		0.01	0.04	0.12	0.12	0.12	0.86	1.77	
Unguided	0.20	0.07	0.14		0.09	0.06	0.02	0.09	0.12	0.14	0.21	0.18
Combined	0.24	0.21	0.22		0.09	0.05	0.02	0.10	0.12	0.42	0.84	
Pacific Halibut												
Guided	1.29	2.07	1.87		0.09	0.41	2.06	2.06	2.09	4.64	2.95	3.67
Unguided	0.40	0.75	0.29		0.39	0.81	0.54	1.03	1.31	1.18	1.82	1.56
Combined	0.76	1.43	0.44		0.38	0.69	0.53	1.38	1.65	2.53	2.27	3.13
Pacific Sanddab												
Guided												
Unguided												
Combined												
Spotted Ratfish												
Guided												
Unguided												
Combined												
Red Irish Lord												
Guided												
Unguided												
Combined												
Pacific Rock Sole												
Guided											0.05	
Unguided												
Combined											0.02	
Sablefish												
Guided												
Unguided					0.02							
Combined					0.02							
Starry Flounder												
Guided												
Unguided												
Combined												
Unknown Groundfish												
Guided												
Unguided												
Combined												

Average number of groundfish harvested per boat trip in August 2022, by trip type and subarea. Zeros hidden.

	Subarea											
Species / Trip Type	*3I*	*3J*	*3K*	*4A*	*4B*	*4C*	*4D*	*4E*	*4F*	*4G*	*4H*	*4L*
Arrow-tooth Flounder												
Guided												
Unguided						0.09	0.02	0.01				
Combined						0.06	0.01	0.00				
Big Skate												
Guided												
Unguided												
Combined												
Cabezon												
Guided												
Unguided												
Combined												
Pacific Spiny Dogfish												
Guided						0.34						
Unguided												
Combined						0.11						
English Sole												
Guided												
Unguided												
Combined												
Greenlings												
Guided		0.05				0.03	0.06	0.01				
Unguided							0.02	0.01				
Combined		0.03				0.01	0.02	0.01				
Lingcod												
Guided	0.64	2.81	0.88			0.29	0.06	0.64	0.80	0.74	0.55	1.57
Unguided	0.21	0.79	0.07			0.07	0.18	0.25	0.29	0.25	0.38	0.34
Combined	0.44	1.85	0.35			0.14	0.16	0.38	0.49	0.20	0.47	1.57
Pacific Cod												
Guided	0.50		0.25		0.15			0.24	0.31	1.00	1.36	0.14
Unguided	0.42	0.26			0.03	0.07	0.14	0.14	0.14		0.57	0.41
Combined	0.46	0.13	0.09		0.07	0.05	0.11	0.17	0.21		0.98	0.14
Pacific Halibut												
Guided	2.41	3.81	0.25			1.37	1.35	1.59	1.66	3.26	2.41	6.86
Unguided	1.79	1.21	0.40	0.05	0.87	0.72	0.77	0.83	0.88	0.63	1.67	1.38
Combined	2.12	2.58	0.35	0.02	0.61	0.93	0.89	1.08	1.19	0.50	2.05	6.86
Pacific Sanddab												
Guided												
Unguided												
Combined												
Spotted Ratfish												
Guided												
Unguided												
Combined												
Red Irish Lord												
Guided												
Unguided												
Combined												
Pacific Rock Sole												
Guided												
Unguided												
Combined												
Sablefish												
Guided												
Unguided	0.21		0.13									
Combined	0.10		0.09									
Starry Flounder												
Guided												
Unguided												
Combined												
Unknown Groundfish												
Guided												
Unguided												
Combined												

Average number of rockfish harvested per boat trip in May 2022 by trip type and subarea. Zeros hidden.

	Subarea											
Species / Trip Type	*3I*	*3J*	*3K*	*4A*	*4B*	*4C*	*4D*	*4E*	*4F*	*4G*	*4H*	*4L*
Black Rockfish												
Guided	0.11	0.17	0.11		0.33	0.12		0.10	0.12			
Unguided					0.08	0.16	0.09	0.26	0.32	0.17	0.20	0.17
Combined	0.04	0.09			0.11	0.15	0.07	0.21	0.25		0.15	
Boccacio Rockfish												
Guided												
Unguided												
Combined												
Canary Rockfish												
Guided							0.29	0.04				
Unguided						0.02		0.02	0.02			
Combined						0.02	0.07	0.03	0.02			
China Rockfish												
Guided	0.22	0.33	0.22									
Unguided						0.05	0.04	0.07	0.08			
Combined	0.08	0.18				0.04	0.03	0.05	0.06			
Copper Rockfish												
Guided	0.11	0.17	0.11		0.08			0.02	0.02			
Unguided					0.04	0.05	0.04	0.01		0.13	0.15	0.13
Combined	0.04	0.09			0.04	0.04	0.03	0.01	0.01		0.12	
Dusky Rockfish												
Guided							0.29	0.04				
Unguided												
Combined							0.07	0.01				
Quillback Rockfish												
Guided	0.22	0.33	0.22			0.36		0.06	0.07	0.57	0.67	0.57
Unguided					0.07	0.17	0.30	0.25	0.25	0.13	0.15	0.13
Combined	0.08	0.18			0.06	0.21	0.23	0.19	0.19		0.27	0.80
Redband Rockfish												
Guided												
Unguided												
Combined												
Redstripe Rockfish												
Guided												
Unguided												
Combined												
Tiger Rockfish												
Guided					0.33	0.04		0.06	0.07			
Unguided						0.01	0.04	0.07	0.08			
Combined					0.04	0.02	0.03	0.07	0.08			
Widow Rockfish												
Guided												
Unguided												
Combined												
Yelloweye Rockfish												
Guided												
Unguided								0.03	0.04			
Combined								0.02	0.02			
Yellowtail Rockfish												
Guided												
Unguided								0.03	0.04			
Combined								0.02	0.02			
Unknown rockfish												
Guided						0.08	0.43	0.14	0.10			
Unguided				0.07	0.01	0.06				0.13	0.15	0.13
Combined				0.04	0.01	0.06	0.10	0.04	0.03		0.12	

Average number of rockfish harvested per boat trip, 1-14 June 2022, by trip type and subarea. Zeros hidden.

	Subarea											
Species / Trip Type	*3I*	*3J*	*3K*	*4A*	*4B*	*4C*	*4D*	*4E*	*4F*	*4G*	*4H*	*4L*
Black Rockfish												
Guided	1.31	1.92			0.05	0.33	0.08	0.17	0.12		0.18	0.11
Unguided	0.22	0.33	0.22		0.27	0.06	0.06	0.16	0.20	1.33		0.71
Combined	0.94	1.39			0.24	0.14	0.07	0.17	0.17	0.86	0.11	0.39
Boccacio Rockfish												
Guided	0.03	0.04										
Unguided												
Combined	0.02	0.03										
Canary Rockfish												
Guided							0.17	0.04				
Unguided												
Combined							0.07	0.02				
China Rockfish												
Guided								0.02	0.02			
Unguided	0.11	0.17	0.11			0.06		0.01	0.02			
Combined	0.04	0.06				0.04		0.02	0.02			
Copper Rockfish												
Guided	0.09	0.13						0.07	0.10			
Unguided	0.17		0.17		0.10			0.10	0.13			
Combined	0.11	0.08	0.15		0.09			0.09	0.11			
Dusky Rockfish												
Guided												
Unguided												
Combined												
Quillback Rockfish												
Guided	0.14	0.21			0.05	0.33	0.17	0.19	0.15	0.40	0.27	0.26
Unguided	0.39	0.50	0.39		0.03	0.11		0.18	0.24			
Combined	0.23	0.31			0.03	0.18	0.07	0.18	0.20	0.14	0.16	0.14
Redband Rockfish												
Guided												
Unguided												
Combined												
Redstripe Rockfish												
Guided												
Unguided												
Combined												
Tiger Rockfish												
Guided	0.06	0.08			0.01	0.07		0.06	0.07	0.40		0.11
Unguided	0.06	0.08	0.06			0.03	0.06	0.03	0.02			
Combined	0.06	0.08				0.04	0.04	0.04	0.04	0.14		0.06
Widow Rockfish												
Guided												
Unguided												
Combined												
Yelloweye Rockfish												
Guided								0.02	0.02			
Unguided	0.06	0.08	0.06			0.03						
Combined	0.02	0.03				0.02		0.01	0.01			
Yellowtail Rockfish												
Guided												
Unguided	0.11	0.17	0.11			0.09						
Combined	0.04	0.06				0.06						
Unknown rockfish												
Guided	0.14	0.21					1.00	0.35	0.17			0.79
Unguided	0.17	0.25	0.17		0.03			0.01				
Combined	0.15	0.22			0.03		0.43	0.16	0.07			0.42

Average number of rockfish harvested per boat trip, 15 June - 15 July 2022, by trip type and subarea. Zeros hidden.

	Subarea											
Species / Trip Type	*3I*	*3J*	*3K*	*4A*	*4B*	*4C*	*4D*	*4E*	*4F*	*4G*	*4H*	*4L*
Black Rockfish												
Guided	0.08	0.34	0.29		0.00	0.04	1.10		0.48	0.75	0.21	0.22
Unguided	0.14	0.08			0.06	0.11	0.15	0.22	0.16	0.54		0.26
Combined	0.11	0.26			0.05	0.09	0.57	0.14	0.34	0.65	0.15	0.19
Boccacio Rockfish												
Guided					0.00	0.04						
Unguided									0.03			
Combined						0.01			0.01			
Canary Rockfish												
Guided	0.08		0.01				0.10		0.02			
Unguided							0.08		0.05			
Combined	0.04						0.09		0.03			
China Rockfish												
Guided		0.02	0.01		0.00	0.04			0.02	0.25	0.04	
Unguided	0.14				0.03	0.01	0.08		0.05		0.04	0.02
Combined	0.07	0.01			0.03	0.02	0.04		0.03	0.13	0.04	
Copper Rockfish												
Guided		0.06	0.05		0.01	0.08	0.30		0.04	0.14	0.10	
Unguided						0.04	0.08		0.02	0.08		0.04
Combined		0.04				0.05	0.17		0.03	0.11	0.07	
Dusky Rockfish												
Guided												
Unguided												
Combined												
Quillback Rockfish												
Guided	0.46	0.52	0.50		0.01	0.08	0.50		0.40	0.54	0.42	0.04
Unguided	0.29	0.38			0.06	0.28	0.08		0.43	0.04	0.26	0.13
Combined	0.37	0.48			0.05	0.23	0.26		0.41	0.30	0.37	0.04
Redband Rockfish												
Guided		0.02	0.01						0.01	0.04		
Unguided									0.03			
Combined		0.01							0.02	0.02		
Redstripe Rockfish												
Guided												
Unguided								0.33	0.05			
Combined								0.21	0.02			
Tiger Rockfish												
Guided		0.05	0.04						0.12	0.04		
Unguided						0.03			0.02			
Combined		0.03				0.02			0.08	0.02		
Widow Rockfish												
Guided												
Unguided												
Combined												
Yelloweye Rockfish												
Guided												
Unguided												
Combined												
Yellowtail Rockfish												
Guided									0.01			
Unguided		0.04							0.05	0.04		0.02
Combined		0.01							0.03	0.02		
Unknown rockfish												
Guided					0.05	0.44			0.01		0.69	
Unguided						0.04	0.08		0.21		0.09	0.04
Combined						0.14	0.04		0.10		0.51	

Average number of rockfish harvested per boat trip, 16-31 July 2022, by trip type and subarea. Zeros hidden.

	Subarea											
Species / Trip Type	*3I*	*3J*	*3K*	*4A*	*4B*	*4C*	*4D*	*4E*	*4F*	*4G*	*4H*	*4L*
Black Rockfish												
Guided	0.14	0.37	0.31		0.03	0.15	0.08	0.08	0.08	0.21	0.05	
Unguided		0.11				0.05	0.04	0.11	0.14	0.05	0.03	0.04
Combined	0.06	0.24				0.08	0.04	0.10	0.11	0.11	0.04	
Boccacio Rockfish												
Guided	0.29		0.05							0.07		
Unguided												
Combined	0.12									0.03		
Canary Rockfish												
Guided												
Unguided					0.02							
Combined					0.02							
China Rockfish												
Guided					0.04	0.19	0.04	0.04	0.03			
Unguided												
Combined						0.05	0.02	0.01	0.01			
Copper Rockfish												
Guided												
Unguided					0.02	0.02	0.04	0.01				
Combined					0.02	0.01	0.04	0.01				
Dusky Rockfish												
Guided					0.01					0.29		
Unguided					0.02							
Combined					0.04					0.11		
Quillback Rockfish												
Guided		0.73	0.56		0.02	0.11	0.29	0.29	0.29	0.36	0.09	0.17
Unguided		0.14			0.05	0.23	0.23	0.25	0.26		0.12	0.09
Combined		0.45			0.04	0.20	0.25	0.26	0.27	0.14	0.11	0.25
Redband Rockfish												
Guided												
Unguided												
Combined												
Redstripe Rockfish												
Guided							0.01	0.01	0.01			
Unguided						0.02						
Combined						0.01		0.00	0.01			
Tiger Rockfish												
Guided					0.02	0.07	0.06	0.06	0.06	0.21		
Unguided							0.02	0.01	0.01			
Combined						0.02	0.02	0.03	0.03	0.08		
Widow Rockfish												
Guided												
Unguided												
Combined												
Yelloweye Rockfish												
Guided												
Unguided										0.05		0.02
Combined										0.03		
Yellowtail Rockfish												
Guided		0.03	0.03							0.14		
Unguided					0.02	0.11	0.02	0.01				
Combined		0.02			0.02	0.08	0.02	0.00		0.06		
Unknown rockfish												
Guided		0.20	0.15				0.05	0.05	0.05			
Unguided						0.03		0.11	0.17		0.06	0.04
Combined		0.10				0.02		0.09	0.12		0.04	

Average number of rockfish harvested per boat trip in August 2022, by trip type and subarea. Zeros hidden.

	Subarea											
Species / Trip Type	*3I*	*3J*	*3K*	*4A*	*4B*	*4C*	*4D*	*4E*	*4F*	*4G*	*4H*	*4L*
Black Rockfish												
Guided		0.33	0.13					0.05	0.07	0.10	0.14	
Unguided	0.05					0.05	0.03	0.07	0.11		0.05	0.03
Combined	0.02	0.18	0.04			0.04	0.02	0.07	0.09		0.09	
Boccacio Rockfish												
Guided										0.13		0.57
Unguided												
Combined												0.57
Canary Rockfish												
Guided		0.14										
Unguided							0.02	0.01				
Combined		0.08					0.01	0.00				
China Rockfish												
Guided		0.10	0.25					0.01	0.02			
Unguided		0.16			0.06	0.04	0.06	0.02			0.05	0.03
Combined		0.13	0.09		0.05	0.03	0.05	0.02	0.01		0.02	
Copper Rockfish												
Guided						0.17				0.06	0.09	
Unguided											0.05	0.03
Combined						0.05					0.07	
Dusky Rockfish												
Guided												
Unguided												
Combined												
Quillback Rockfish												
Guided	0.18						0.24	0.13	0.10	0.06		0.29
Unguided	0.05	0.11				0.03	0.17	0.20	0.22			
Combined	0.12	0.05				0.02	0.18	0.18	0.17			0.29
Redband Rockfish												
Guided												
Unguided							0.02	0.01				
Combined							0.01	0.00				
Redstripe Rockfish												
Guided												
Unguided												
Combined												
Tiger Rockfish												
Guided		0.29	0.13				0.06	0.04	0.03	0.03		0.14
Unguided		0.11				0.01						
Combined		0.20	0.04			0.01	0.01	0.01	0.01			0.14
Widow Rockfish												
Guided												
Unguided												
Combined												
Yelloweye Rockfish												
Guided												
Unguided												
Combined												
Yellowtail Rockfish												
Guided						0.09		0.01	0.02			
Unguided							0.05	0.02				
Combined						0.03	0.04	0.02	0.01			
Unknown rockfish												
Guided	0.36	0.14				0.29	0.35	0.08		0.06	0.09	
Unguided		0.21	0.47			0.08	0.42	0.25	0.15		0.57	0.41
Combined	0.20	0.18	0.30			0.14	0.40	0.20	0.09		0.33	

APPENDIX 3: COUNTS OF ACTIVELY FISHING SPORT VESSELS IN EACH SUBAREA, BY DATE

Counts of actively fishing sport vessels in each subarea, by date, 2022, along with numbers that were estimated to be lodge boats. Weekend and holiday flights are shaded.

		Subarea												Area 3
Month	*Date*	*3I*	*3J*	*3K*	*4A*	*4B*	*4C*	*4D*	*4E*	*4F*	*4G*	*4H*	*4L*	*Lodge Boats*
May	*5 May 2022*	2	0	0	0	3	4	1	0	4	0	0	0	0
	8 May 2022	2	2	2	2	5	6	0	0	4	0	0	0	4
	11 May 2022	2	0	0	1	1	0	1	0	2	0	0	0	4
	15 May 2022	0	1	0	1	2	10	1	0	1	0	0	0	0
	18 May 2022	4	1	1	2	4	7	1	0	1	0	1	0	4
	20 May 2022	1	0	0	0	8	7	0	0	7	0	1	0	0
	28 May 2022	3	11	4	1	3	11	3	1	31	13	1	0	11
	30 May 2022	1	2	3	2	0	1	0	0	5	0	0	0	0
June	*2 Jun 2022*	1	11	7	0	3	5	1	0	18	4	0	0	13
	5 Jun 2022	1	12	3	1	13	6	2	0	14	5	0	0	9
	9 Jun 2022	3	7	3	1	1	2	0	0	6	0	2	0	9
	12 Jun 2022	11	3	10	2	3	3	4	1	10	4	6	2	12
	17 Jun 2022	1	8	4	0	0	4	0	1	6	0	0	0	4
	22 Jun 2022	3	4	2	0	3	0	0	0	12	1	5	0	7
	25 Jun 2022	14	8	2	1	2	14	3	0	2	3	11	0	6
	29 Jun 2022	5	8	2	3	0	4	0	0	6	4	0	0	7
July	*6 Jul 2022*	2	9	0	0	1	11	0	1	13	4	3	17	12
	8 Jul 2022	0	15	0	2	5	5	6	1	17	3	1	8	4
	13 Jul 2022	2	30	4	2	3	3	0	0	10	0	0	0	6
	16 Jul 2022	9	47	7	1	4	14	11	1	22	2	1	0	8
	17 Jul 2022	12	55	2	0	5	12	6	2	41	1	1	2	12
	20 Jul 2022	18	14	5	0	3	20	6	1	35	1	2	0	11
	23 Jul 2022	9	16	5	0	9	38	6	1	46	4	0	0	11
	28 Jul 2022	6	7	6	0	2	12	7	0	11	2	2	0	8
August	*4 Aug 2022*	8	15	5	2	2	20	5	0	48	4	5	0	12
	7 Aug 2022	11	11	10	0	1	12	8	0	20	2	2	0	11
	10 Aug 2022	6	5	8	0	0	10	6	0	19	2	7	0	11
	14 Aug 2022	1	9	10	4	2	13	9	0	0	0	3	0	11
	22 Aug 2022	11	22	6	0	6	6	0	0	4	5	0	0	4
	25 Aug 2022	8	13	6	0	4	2	6	0	12	0	5	0	12
	27 Aug 2022	3	6	6	0	5	3	1	0	7	0	0	0	8
	30 Aug 2022	4	3	11	0	1	3	1	0	5	0	1	0	6

APPENDIX 4: RETAINED AND RELEASED FISH (LODGE REPORTS AND NON-LODGE CREEL ESTIMATES) BY MONTH, SUBAREA, AND SPECIES.

Estimated numbers of Chinook Salmon retained by lodge and non-lodge anglers, by month, 2022.

	Subarea												
Month / Catch Type	*3I*	*3J*	*3K*	*4A*	*4B*	*4C*	*4D*	*4E*	*4F*	*4G*	*4H*	*4L*	*TOTAL*
May													
Creel Estimate	22.9	29.3	4.8	0.4	141.3	252.4	56.3	11.0	697.3	121.7	22.2	0	1,359
Lodge Report	27.7	35.5	5.8	0	0	0	0	0	0	0	0	0	69
MAY RETAINED	50.5	64.8	10.6	0.4	141.3	252.4	56.3	11.0	697.3	121.7	22.2	0	1,428
SE	9.3	21.2	3.6	0.3	19.1	33.6	9.5	1.2	57.3	52.2	7.7	0	91
June													
Creel Estimate	66.1	166.7	96.1	0.8	53.9	60.0	35.5	5.2	520.4	82.2	69.8	9.6	1,166
Lodge Report	80.0	201.7	116.3	0	0	0	0	0	0	0	0	0	398
JUNE RETAINED	146.0	368.4	212.4	0.8	53.9	60.0	35.5	5.2	520.4	82.2	69.8	9.6	1,564
SE	7.4	24.2	17.4	0.4	12.3	13.2	8.0	0.6	42.3	29.8	14.7	2.6	65
July													
Creel Estimate	0	0	0	0	2.0	0	5.2	0.1	1.5	0	0	0	9
Lodge Report	0	0	0	0	0	0	0	0	0	0	0	0	0
JULY RETAINED	0	0	0	0	2.0	0	5.2	0.1	1.5	0	0	0	9
SE	0	0	0	0	1.5	0	2.7	0.1	1.3	0	0	0	3
August													
Creel Estimate	32.4	88.6	61.0	0	33.3	155.0	119.1	0	574.5	61.2	85.7	0	1,211
Lodge Report	39.2	107.2	73.8	0	0	0	0	0	0	0	0	0	220
AUGUST RETAINED	71.6	195.7	134.8	0	33.3	155.0	119.1	0	574.5	61.2	85.7	0	1,431
SE	10.2	27.5	23.4	0	11.1	24.6	16.4	0	57.7	37.2	23.4	0	88
TOTAL													
Creel Estimate	121	285	162	1	230	467	216	16	1,794	265	178	10	3,745
Lodge Report	147	344	196	0	0	0	0	0	0	0	0	0	687
TOTAL RETAINED	268	629	358	1	230	467	216	16	1,794	265	178	10	4,432
SE	16	42	29	0	25	44	21	1	92	71	29	3	142

Estimated numbers of Chinook Salmon released by lodge and non-lodge anglers, by month, 2022.

	Subarea												
Month / Catch Type	*3I*	*3J*	*3K*	*4A*	*4B*	*4C*	*4D*	*4E*	*4F*	*4G*	*4H*	*4L*	*TOTAL*
May													
Creel Estimate	8.3	17.6	4.8	0	111.1	100.4	32.2	3.7	213.4	24.3	3.5	0	519
Lodge Report	4.4	9.3	2.5	0	0	0	0	0	0	0	0	0	16
MAY RELEASED	12.7	26.9	7.3	0	111.1	100.4	32.2	3.7	213.4	24.3	3.5	0	536
SE	5.2	12.7	3.6	0	32.3	18.3	9.4	0.7	30.9	24.4	1.9	0	57
June													
Creel Estimate	148.8	421.5	214.0	0.2	72.4	184.5	60.9	3.6	411.1	124.1	151.1	90.0	1,882
Lodge Report	78.7	223.0	113.2	0	0	0	0	0	0	0	0	0	415
JUNE RELEASED	227.6	644.5	327.2	0.2	72.4	184.5	60.9	3.6	411.1	124.1	151.1	90.0	2,297
SE	49.8	69.7	54.0	0.1	27.0	29.8	11.5	2.3	54.9	26.8	35.5	28.5	133
July													
Creel Estimate	1076.9	1119.2	207.5	0	61.6	613.4	285.1	28.1	1155.3	128.6	192.9	73.0	4,942
Lodge Report	569.7	592.1	109.7	0	0	0	0	0	0	0	0	0	1,272
JULY RELEASED	1646.6	1711.4	317.2	0	61.6	613.4	285.1	28.1	1155.3	128.6	192.9	73.0	6,213
SE	371.2	153.6	55.1	0	20.0	74.4	46.0	2.9	92.7	21.4	42.2	23.8	429
August													
Creel Estimate	32.4	17.7	182.9	0	54.4	174.4	129.7	0	181.7	26.2	42.8	0	842
Lodge Report	17.1	9.4	96.8	0	0	0	0	0	0	0	0	0	123
AUGUST RELEASED	49.5	27.1	279.7	0	54.4	174.4	129.7	0	181.7	26.2	42.8	0	966
SE	15.0	14.8	103.6	0	25.1	43.8	35.4	0	47.1	16.8	20.0	0	134
TOTAL													
Creel Estimate	1,266	1,576	609	0	300	1,073	508	35	1,961	303	390	163	8,186
Lodge Report	670	834	322	0	0	0	0	0	0	0	0	0	1,826
TOTAL RELEASED	1,936	2,410	931	0	300	1,073	508	35	1,961	303	390	163	10,012
SE	375	170	129	0	53	93	60	4	122	45	59	37	472

Estimated numbers of Coho Salmon retained by lodge and non-lodge anglers, by month, 2022.

	Subarea												
Month / Catch Type	*3I*	*3J*	*3K*	*4A*	*4B*	*4C*	*4D*	*4E*	*4F*	*4G*	*4H*	*4L*	*TOTAL*
May													
Creel Estimate	0	0	0	0	0	0	0	0.0	3.0	0	0	0	3
Lodge Report	0	0	0	0	0	0	0	0	0	0	0	0	0
MAY RETAINED	0	0	0	0	0	0	0	0.0	3.0	0	0	0	3
SE	0	0	0	0	0	0	0	0.0	2.2	0	0	0	2
June													
Creel Estimate	15.8	485.7	0	0	0	6.2	5.7	0.0	168.1	7.3	25.8	421.2	1,136
Lodge Report	6.9	213.5	0	0	0	0	0	0	0	0	0	0	220
JUNE RETAINED	22.7	699.2	0	0	0	6.2	5.7	0.0	168.1	7.3	25.8	421.2	1,356
SE	9.8	88.4	0	0	0	3.2	2.2	0.0	41.5	2.1	11.9	101.0	141
July													
Creel Estimate	1474.9	2236.6	188.6	0	73.3	1950.8	561.6	118.3	4859.1	196.4	191.6	363.9	12,215
Lodge Report	648.2	983.0	82.9	0	0	0	0	0	0	0	0	0	1,714
JULY RETAINED	2123.1	3219.7	271.4	0	73.3	1950.8	561.6	118.3	4859.1	196.4	191.6	363.9	13,929
SE	162.7	192.8	71.2	0	19.1	185.2	60.1	5.1	206.1	23.2	28.9	84.4	397
August													
Creel Estimate	2099.8	2293.7	1118.0	0.4	435.5	1647.2	799.2	0	4601.0	201.1	712.8	0	13,909
Lodge Report	922.9	1008.1	491.4	0	0	0	0	0	0	0	0	0	2,422
AUGUST RETAINED	3022.7	3301.9	1609.4	0.4	435.5	1647.2	799.2	0	4601.0	201.1	712.8	0	16,331
SE	186.9	296.1	156.0	0.3	75.8	152.0	64.6	0	260.5	76.9	104.6	0	514
TOTAL													
Creel Estimate	3,590	5,016	1,307	0	509	3,604	1,366	118	9,631	405	930	785	27,263
Lodge Report	1,578	2,205	574	0	0	0	0	0	0	0	0	0	4,357
TOTAL RETAINED	5,168	7,221	1,881	0	509	3,604	1,366	118	9,631	405	930	785	31,620
SE	248	364	172	0	78	240	88	5	335	80	109	132	665

Estimated numbers of Coho Salmon released by lodge and non-lodge anglers, by month, 2022.

	Subarea												
Month / Catch Type	*3I*	*3J*	*3K*	*4A*	*4B*	*4C*	*4D*	*4E*	*4F*	*4G*	*4H*	*4L*	*TOTAL*
May													
Creel Estimate	0	0	0	0	1.9	0	0	0	0	0	0	0	2
Lodge Report	0	0	0	0	0	0	0	0	0	0	0	0	0
MAY RELEASED	0	0	0	0	1.9	0	0	0	0	0	0	0	2
SE	0	0	0	0	1.4	0	0	0	0	0	0	0	1
June													
Creel Estimate	7.6	33.0	0	0	0	6.2	1.9	0	15.3	0	1.6	30.3	96
Lodge Report	0	0	0	0	0	0	0	0	0	0	0	0	0
JUNE RELEASED	7.6	33.0	0	0	0	6.2	1.9	0	15.3	0	1.6	30.3	96
SE	6.2	14.5	0	0	0	2.5	1.4	0	7.6	0	1.2	18.8	26
July													
Creel Estimate	20.6	144.9	56.6	0	0	67.9	53.1	2.9	83.0	0	3.3	25.3	457
Lodge Report	0	0	0	0	0	0	0	0	0	0	0	0	0
JULY RELEASED	20.6	144.9	56.6	0	0	67.9	53.1	2.9	83.0	0	3.3	25.3	457
SE	11.6	58.8	41.2	0	0	26.9	17.7	0.7	26.1	0	2.0	15.7	85
August													
Creel Estimate	286.1	557.9	162.6	0.4	24.2	174.4	156.1	0	967.3	0	93.5	0	2,423
Lodge Report	0	0	0	0	0	0	0	0	0	0	0	0	0
AUGUST RELEASED	286.1	557.9	162.6	0.4	24.2	174.4	156.1	0	967.3	0	93.5	0	2,423
SE	102.0	217.7	77.5	0.3	11.7	44.6	38.6	0	219.5	0	52.4	0	344
TOTAL													
Creel Estimate	314	736	219	0	26	248	211	3	1,066	0	98	56	2,978
Lodge Report	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL RELEASED	314	736	219	0	26	248	211	3	1,066	0	98	56	2,978
SE	103	226	88	0	12	52	43	1	221	0	52	24	355

Estimated numbers of Pink Salmon retained by lodge and non-lodge anglers, by month, 2022.

	Subarea												
Month / Catch Type	*3I*	*3J*	*3K*	*4A*	*4B*	*4C*	*4D*	*4E*	*4F*	*4G*	*4H*	*4L*	*TOTAL*
May													
Creel Estimate	0	0	0	0	0	0	0	0.0	3.0	0	0	0	3
Lodge Report	0	0	0	0	0	0	0	0	0	0	0	0	0
MAY RETAINED	0	0	0	0	0	0	0	0.0	3.0	0	0	0	3
SE	0	0	0	0	0	0	0	0.0	2.2	0	0	0	2
June													
Creel Estimate	11.4	75.5	14.8	0	0	0	0	0	27.2	2.4	0	67.4	199
Lodge Report	0.2	1.4	0.3	0	0	0	0	0	0	0	0	0	2
JUNE RETAINED	11.6	76.9	15.1	0	0	0	0	0	27.2	2.4	0	67.4	201
SE	6.9	21.7	11.3	0	0	0	0	0	8.2	1.8	0	33.6	43
July													
Creel Estimate	283.5	419.7	174.4	0.1	12.2	266.1	54.3	12.7	535.4	32.9	20.3	58.3	1,870
Lodge Report	5.4	8.0	3.3	0	0	0	0	0	0	0	0	0	17
JULY RETAINED	288.9	427.7	177.7	0.1	12.2	266.1	54.3	12.7	535.4	32.9	20.3	58.3	1,887
SE	81.1	68.0	67.1	0.1	7.4	63.4	13.5	1.2	51.0	9.5	5.5	28.1	153
August													
Creel Estimate	102.6	301.1	142.3	0.2	39.3	302.3	90.0	0	604.0	174.9	128.5	0	1,885
Lodge Report	2.0	5.7	2.7	0	0	0	0	0	0	0	0	0	10
AUGUST RETAINED	104.5	306.8	145.0	0.2	39.3	302.3	90.0	0	604.0	174.9	128.5	0	1,895
SE	34.3	111.7	55.4	0.1	12.8	53.7	16.4	0	115.4	99.5	43.2	0	212
TOTAL													
Creel Estimate	397	796	332	0	52	568	144	13	1,170	210	149	126	3,957
Lodge Report	8	15	6	0	0	0	0	0	0	0	0	0	29
TOTAL RETAINED	405	811	338	0	52	568	144	13	1,170	210	149	126	3,986
SE	88	133	88	0	15	83	21	1	126	100	44	44	265

Estimated numbers of Pink Salmon released by lodge and non-lodge anglers, by month, 2022.

	Subarea												
Month / Catch Type	*3I*	*3J*	*3K*	*4A*	*4B*	*4C*	*4D*	*4E*	*4F*	*4G*	*4H*	*4L*	*TOTAL*
May													
Creel Estimate	0	0	0	0	0	0	0	0.1	6.0	0	0	0	6
Lodge Report	0	0	0	0	0	0	0	0	0	0	0	0	0
MAY RELEASED	0	0	0	0	0	0	0	0.1	6.0	0	0	0	6
SE	0	0	0	0	0	0	0	0.1	4.4	0	0	0	4
June													
Creel Estimate	0	14.1	0	0	0	0	0	0	5.1	0	0	3.4	23
Lodge Report	0	0	0	0	0	0	0	0	0	0	0	0	0
JUNE RELEASED	0	14.1	0	0	0	0	0	0	5.1	0	0	3.4	23
SE	0	7.2	0	0	0	0	0	0	3.6	0	0	3.4	9
July													
Creel Estimate	176.3	976.2	235.7	0	6.1	823.8	54.3	28.8	1249.7	44.0	72.3	12.2	3,679
Lodge Report	0	0	0	0	0	0	0	0	0	0	0	0	0
JULY RELEASED	176.3	976.2	235.7	0	6.1	823.8	54.3	28.8	1249.7	44.0	72.3	12.2	3,679
SE	60.3	228.8	104.9	0	4.4	171.9	20.8	4.3	188.9	14.2	21.0	9.1	365
August													
Creel Estimate	1095.8	1585.2	2185.2	0	154.3	957.3	325.5	0	2101.6	192.3	681.7	0	9,279
Lodge Report	0	0	0	0	0	0	0	0	0	0	0	0	0
AUGUST RELEASED	1095.8	1585.2	2185.2	0	154.3	957.3	325.5	0	2101.6	192.3	681.7	0	9,279
SE	235.5	457.1	678.4	0	51.8	148.2	54.3	0	292.9	121.2	212.3	0	948
TOTAL													
Creel Estimate	1,272	2,576	2,421	0	160	1,781	380	29	3,362	236	754	16	12,987
Lodge Report	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL RELEASED	1,272	2,576	2,421	0	160	1,781	380	29	3,362	236	754	16	12,987
SE	243	511	687	0	52	227	58	4	349	122	213	10	1,016

Estimated numbers of Chum Salmon retained by lodge and non-lodge anglers, by month, 2022.

	Subarea												
Month / Catch Type	*3I*	*3J*	*3K*	*4A*	*4B*	*4C*	*4D*	*4E*	*4F*	*4G*	*4H*	*4L*	*TOTAL*
May													
Creel Estimate	0	0	0	0	0	0	0	0	0	0	0	0	0
Lodge Report	0	0	0	0	0	0	0	0	0	0	0	0	0
MAY RETAINED	0	0	0	0	0	0	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0	0	0	0	0	0	0
June													
Creel Estimate	0.6	2.4	0	0	0	0	0	0	1.7	0	0	0	5
Lodge Report	0.1	0.4	0	0	0	0	0	0	0	0	0	0	0
JUNE RETAINED	0.7	2.7	0	0	0	0	0	0	1.7	0	0	0	5
SE	0.5	1.9	0	0	0	0	0	0	1.6	0	0	0	3
July													
Creel Estimate	0	29.1	0	0	0	0	0	0	1.5	0	0	0	31
Lodge Report	0	4.5	0	0	0	0	0	0	0	0	0	0	5
JULY RETAINED	0	33.6	0	0	0	0	0	0	1.5	0	0	0	35
SE	0	20.8	0	0	0	0	0	0	1.3	0	0	0	21
August													
Creel Estimate	0	0	0	0	0	0	0	0	9.8	0	0	0	10
Lodge Report	0	0	0	0	0	0	0	0	0	0	0	0	0
AUGUST RETAINED	0	0	0	0	0	0	0	0	9.8	0	0	0	10
SE	0	0	0	0	0	0	0	0	8.4	0	0	0	8
TOTAL													
Creel Estimate	1	31	0	0	0	0	0	0	13	0	0	0	45
Lodge Report	0	5	0	0	0	0	0	0	0	0	0	0	5
TOTAL RETAINED	1	36	0	0	0	0	0	0	13	0	0	0	50
SE	0	21	0	0	0	0	0	0	9	0	0	0	23

Estimated numbers of Chum Salmon released by lodge and non-lodge anglers, by month, 2022.

	Subarea												
Month / Catch Type	*3I*	*3J*	*3K*	*4A*	*4B*	*4C*	*4D*	*4E*	*4F*	*4G*	*4H*	*4L*	*TOTAL*
May													
Creel Estimate	0	0	0	0	0	0	0	0	0	0	0	0	0
Lodge Report	0	0	0	0	0	0	0	0	0	0	0	0	0
MAY RELEASED	0	0	0	0	0	0	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0	0	0	0	0	0	0
June													
Creel Estimate	0	0	4.9	0	0	0	0	0	0	4.9	0	0	10
Lodge Report	0	0	0	0	0	0	0	0	0	0	0	0	0
JUNE RELEASED	0	0	4.9	0	0	0	0	0	0	4.9	0	0	10
SE	0	0	3.8	0	0	0	0	0	0	3.6	0	0	5
July													
Creel Estimate	0	0	4.7	0	0	0	0	0	0	4.8	0	0	9
Lodge Report	0	0	0	0	0	0	0	0	0	0	0	0	0
JULY RELEASED	0	0	4.7	0	0	0	0	0	0	4.8	0	0	9
SE	0	0	3.4	0	0	0	0	0	0	3.4	0	0	5
August													
Creel Estimate	10.8	0	0	0	0	0	0	0	0	0	0	0	11
Lodge Report	0	0	0	0	0	0	0	0	0	0	0	0	0
AUGUST RELEASED	10.8	0	0	0	0	0	0	0	0	0	0	0	11
SE	8.9	0	0	0	0	0	0	0	0	0	0	0	9
TOTAL													
Creel Estimate	11	0	10	0	0	0	0	0	0	10	0	0	30
Lodge Report	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL RELEASED	11	0	10	0	0	0	0	0	0	10	0	0	30
SE	9	0	5	0	0	0	0	0	0	5	0	0	11

Estimated numbers of Sockeye Salmon retained by lodge and non-lodge anglers, by month, 2022.

	Subarea												
Month / Catch Type	*3I*	*3J*	*3K*	*4A*	*4B*	*4C*	*4D*	*4E*	*4F*	*4G*	*4H*	*4L*	*TOTAL*
May													
Creel Estimate	0	0	0	0	0	0	0	0	0	0	0	0	0
Lodge Report	0	0	0	0	0	0	0	0	0	0	0	0	0
MAY RETAINED	0	0	0	0	0	0	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0	0	0	0	0	0	0
June													
Creel Estimate	0	0	0	0	0	0	0	0	0	0	0	0	0
Lodge Report	0	0	0	0	0	0	0	0	0	0	0	0	0
JUNE RETAINED	0	0	0	0	0	0	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0	0	0	0	0	0	0
July													
Creel Estimate	0	0	0	0	0	5.1	0	0.2	7.8	0	0.8	0	14
Lodge Report	0	0	0	0	0	0	0	0	0	0	0	0	0
JULY RETAINED	0	0	0	0	0	5.1	0	0.2	7.8	0	0.8	0	14
SE	0	0	0	0	0	3.7	0	0.1	3.9	0	0.7	0	5
August													
Creel Estimate	5.4	17.7	0	0	0	0	0	0	4.9	0	0	0	28
Lodge Report	0	0	0	0	0	0	0	0	0	0	0	0	0
AUGUST RETAINED	5.4	17.7	0	0	0	0	0	0	4.9	0	0	0	28
SE	4.4	10.3	0	0	0	0	0	0	4.2	0	0	0	12
TOTAL													
Creel Estimate	5	18	0	0	0	5	0	0	13	0	1	0	42
Lodge Report	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL RETAINED	5	18	0	0	0	5	0	0	13	0	1	0	42
SE	4	10	0	0	0	4	0	0	6	0	1	0	13

Estimated numbers of Sockeye Salmon released by lodge and non-lodge anglers, by month, 2022.

	Subarea												
Month / Catch Type	*3I*	*3J*	*3K*	*4A*	*4B*	*4C*	*4D*	*4E*	*4F*	*4G*	*4H*	*4L*	*TOTAL*
May													
Creel Estimate	0	0	0	0	0	0	0	0	0	0	0	0	0
Lodge Report	0	0	0	0	0	0	0	0	0	0	0	0	0
MAY RELEASED	0	0	0	0	0	0	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0	0	0	0	0	0	0
June													
Creel Estimate	0	0	0	0	0	0	0	0	0	0	0	0	0
Lodge Report	0	0	0	0	0	0	0	0	0	0	0	0	0
JUNE RELEASED	0	0	0	0	0	0	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0	0	0	0	0	0	0
July													
Creel Estimate	0	0	0	0	0	5.1	0	0	0	2.4	0	0	8
Lodge Report	0	0	0	0	0	0	0	0	0	0	0	0	0
JULY RELEASED	0	0	0	0	0	5.1	0	0	0	2.4	0	0	8
SE	0	0	0	0	0	3.7	0	0	0	1.7	0	0	4
August													
Creel Estimate	0	0	0	0	0	0	0	0	0	0	0	0	0
Lodge Report	0	0	0	0	0	0	0	0	0	0	0	0	0
AUGUST RELEASED	0	0	0	0	0	0	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL													
Creel Estimate	0	0	0	0	0	5	0	0	0	2	0	0	8
Lodge Report	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL RELEASED	0	0	0	0	0	5	0	0	0	2	0	0	8
SE	0	0	0	0	0	4	0	0	0	2	0	0	4

Estimated numbers of unknown salmon retained by lodge and non-lodge anglers, by month, 2022.

	Subarea												
Month / Catch Type	*3I*	*3J*	*3K*	*4A*	*4B*	*4C*	*4D*	*4E*	*4F*	*4G*	*4H*	*4L*	*TOTAL*
May													
Creel Estimate	0	0	0	0	0	0	0	0	0	0	0	0	0
Lodge Report	0	0	0	0	0	0	0	0	0	0	0	0	0
MAY RETAINED	0	0	0	0	0	0	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0	0	0	0	0	0	0
June													
Creel Estimate	0	0	0	0	0	0	0	0	0	0	0	0	0
Lodge Report	0	0	0	0	0	0	0	0	0	0	0	0	0
JUNE RETAINED	0	0	0	0	0	0	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0	0	0	0	0	0	0
July													
Creel Estimate	0	0	0	0	0	0	0	0	0	0	0	0	0
Lodge Report	0	0	0	0	0	0	0	0	0	0	0	0	0
JULY RETAINED	0	0	0	0	0	0	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0	0	0	0	0	0	0
August													
Creel Estimate	0	0	0	0	0	0	0	0	0	0	0	0	0
Lodge Report	0	0	0	0	0	0	0	0	0	0	0	0	0
AUGUST RETAINED	0	0	0	0	0	0	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL													
Creel Estimate	0	0	0	0	0	0	0	0	0	0	0	0	0
Lodge Report	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL RETAINED	0	0	0	0	0	0	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0	0	0	0	0	0	0

Estimated numbers of unknown salmon released by lodge and non-lodge anglers, by month, 2022.

	Subarea												
Month / Catch Type	*3I*	*3J*	*3K*	*4A*	*4B*	*4C*	*4D*	*4E*	*4F*	*4G*	*4H*	*4L*	*TOTAL*
May													
Creel Estimate	0	0	0	0	0	0	0	0	0	0	0	0	0
Lodge Report	0	0	0	0	0	0	0	0	0	0	0	0	0
MAY RELEASED	0	0	0	0	0	0	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0	0	0	0	0	0	0
June													
Creel Estimate	0	0	0	0	0	0	0	0	0	0	0	0	0
Lodge Report	0	0	0	0	0	0	0	0	0	0	0	0	0
JUNE RELEASED	0	0	0	0	0	0	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0	0	0	0	0	0	0
July													
Creel Estimate	0	0	0	0	0	0	0	0	0	0	0	0	0
Lodge Report	0	0	0	0	0	0	0	0	0	0	0	0	0
JULY RELEASED	0	0	0	0	0	0	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0	0	0	0	0	0	0
August													
Creel Estimate	0	0	0	0	0	0	0	0	0	0	0	0	0
Lodge Report	0	0	0	0	0	0	0	0	0	0	0	0	0
AUGUST RELEASED	0	0	0	0	0	0	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL													
Creel Estimate	0	0	0	0	0	0	0	0	0	0	0	0	0
Lodge Report	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL RELEASED	0	0	0	0	0	0	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0	0	0	0	0	0	0

Estimated numbers of Pacific Halibut retained by lodge and non-lodge anglers, by month, 2022.

	Subarea												
Month / Catch Type	*3I*	*3J*	*3K*	*4A*	*4B*	*4C*	*4D*	*4E*	*4F*	*4G*	*4H*	*4L*	*TOTAL*
May													
Creel Estimate	62.3	128.9	28.7	0.4	84.8	218.0	56.3	8.5	495.9	158.2	18.6	0	1,261
Lodge Report	35.1	72.7	16.2	0	0	0	0	0	0	0	0	0	124
MAY RETAINED	97.5	201.6	44.8	0.4	84.8	218.0	56.3	8.5	495.9	158.2	18.6	0	1,385
SE	17.4	37.2	17.7	0.3	14.5	28.0	10.6	1.1	53.9	118.3	4.3	0	141
June													
Creel Estimate	261.2	763.0	105.8	0.1	72.7	421.5	70.2	26.5	1020.1	350.1	523.7	260.3	3,875
Lodge Report	81.8	239.0	33.2	0	0	0	0	0	0	0	0	0	354
JUNE RETAINED	343.0	1002.0	139.0	0.1	72.7	421.5	70.2	26.5	1020.1	350.1	523.7	260.3	4,229
SE	44.3	66.3	31.9	0.1	17.5	37.4	11.3	8.0	84.2	55.0	40.1	43.7	151
July													
Creel Estimate	355.6	975.8	113.2	0.1	65.7	680.5	139.4	45.0	1566.1	277.0	601.5	220.2	5,040
Lodge Report	127.5	349.9	40.6	0	0	0	0	0	0	0	0	0	518
JULY RETAINED	483.2	1325.7	153.7	0.1	65.7	680.5	139.4	45.0	1566.1	277.0	601.5	220.2	5,558
SE	71.0	100.2	30.8	0.1	12.6	61.5	25.9	7.0	99.3	24.2	42.7	36.6	185
August													
Creel Estimate	469.6	912.2	81.3	0.8	81.7	399.2	193.2	0	903.5	43.7	342.8	0	3,428
Lodge Report	168.5	327.3	29.2	0	0	0	0	0	0	0	0	0	525
AUGUST RETAINED	638.1	1239.5	110.5	0.8	81.7	399.2	193.2	0	903.5	43.7	342.8	0	3,953
SE	71.5	154.3	31.4	0.4	21.5	53.2	29.6	0	103.8	17.6	55.2	0	220
TOTAL													
Creel Estimate	1,149	2,780	329	1	305	1,719	459	80	3,986	829	1,487	481	13,604
Lodge Report	413	989	119	0	0	0	0	0	0	0	0	0	1,521
TOTAL RETAINED	1,562	3,769	448	1	305	1,719	459	80	3,986	829	1,487	481	15,125
SE	111	199	57	1	34	94	42	11	175	134	81	57	354

Estimated numbers of Pacific Halibut released by lodge and non-lodge anglers, by month, 2022.

	Subarea												
Month / Catch Type	*3I*	*3J*	*3K*	*4A*	*4B*	*4C*	*4D*	*4E*	*4F*	*4G*	*4H*	*4L*	*TOTAL*
May													
Creel Estimate	83.1	234.4	0	0	1.9	100.4	4.8	2.4	165.3	24.3	4.4	0	621
Lodge Report	0	0	0	0	0	0	0	0	0	0	0	0	0
MAY RELEASED	83.1	234.4	0	0	1.9	100.4	4.8	2.4	165.3	24.3	4.4	0	621
SE	37.0	88.4	0	0	1.4	29.2	2.5	0.8	42.4	15.7	2.0	0	110
June													
Creel Estimate	284.0	497.2	89.5	0.5	32.7	405.8	13.7	27.1	540.8	194.1	361.7	253.7	2,701
Lodge Report	0	0	0	0	0	0	0	0	0	0	0	0	0
JUNE RELEASED	284.0	497.2	89.5	0.5	32.7	405.8	13.7	27.1	540.8	194.1	361.7	253.7	2,701
SE	92.1	85.7	54.6	0.3	18.7	75.1	5.7	16.6	101.6	50.9	58.9	171.1	266
July													
Creel Estimate	316.0	577.2	33.0	0.2	32.1	476.4	63.1	28.6	578.8	174.2	388.3	207.1	2,875
Lodge Report	0	0	0	0	0	0	0	0	0	0	0	0	0
JULY RELEASED	316.0	577.2	33.0	0.2	32.1	476.4	63.1	28.6	578.8	174.2	388.3	207.1	2,875
SE	116.9	96.6	20.9	0.2	16.8	86.4	22.3	13.9	88.9	42.8	68.1	142.6	258
August													
Creel Estimate	59.4	717.3	10.2	0	9.1	112.4	63.5	0	255.3	8.7	233.7	0	1,470
Lodge Report	0	0	0	0	0	0	0	0	0	0	0	0	0
AUGUST RELEASED	59.4	717.3	10.2	0	9.1	112.4	63.5	0	255.3	8.7	233.7	0	1,470
SE	36.6	284.2	7.9	0	5.2	38.8	15.6	0	95.4	7.9	79.7	0	315
TOTAL													
Creel Estimate	743	2,026	133	1	76	1,095	145	58	1,540	401	988	461	7,667
Lodge Report	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL RELEASED	743	2,026	133	1	76	1,095	145	58	1,540	401	988	461	7,667
SE	158	324	59	0	26	124	28	22	171	69	120	223	499

Estimated numbers of Lingcod retained by lodge and non-lodge anglers, by month, 2022.

	Subarea												
Month / Catch Type	*3I*	*3J*	*3K*	*4A*	*4B*	*4C*	*4D*	*4E*	*4F*	*4G*	*4H*	*4L*	*TOTAL*
May													
Creel Estimate	124.7	322.3	4.8	0	54.6	91.8	57.9	9.0	541.0	206.8	28.4	0	1,441
Lodge Report	60.7	157.0	2.3	0	0	0	0	0	0	0	0	0	220
MAY RETAINED	185.4	479.3	7.1	0	54.6	91.8	57.9	9.0	541.0	206.8	28.4	0	1,661
SE	36.2	79.8	3.6	0	18.2	25.1	17.2	1.4	64.0	100.0	9.5	0	152
June													
Creel Estimate	125.7	553.5	38.4	0	10.1	121.0	55.4	17.3	706.3	180.2	151.5	55.8	2,015
Lodge Report	123.9	545.3	37.9	0	0	0	0	0	0	0	0	0	707
JUNE RETAINED	249.6	1098.8	76.3	0	10.1	121.0	55.4	17.3	706.3	180.2	151.5	55.8	2,722
SE	21.9	65.2	27.3	0	4.7	27.6	14.5	8.0	71.6	55.6	29.0	31.1	129
July													
Creel Estimate	252.7	757.7	9.4	0	1.5	178.7	50.8	22.3	836.1	62.4	151.0	53.9	2,377
Lodge Report	147.4	442.1	5.5	0	0	0	0	0	0	0	0	0	595
JULY RETAINED	400.2	1199.7	14.9	0	1.5	178.7	50.8	22.3	836.1	62.4	151.0	53.9	2,972
SE	107.0	121.7	6.9	0	1.1	32.8	14.6	6.8	86.6	8.9	32.7	27.5	192
August													
Creel Estimate	97.2	655.3	81.3	0	0	58.1	34.4	0	373.2	17.5	77.9	0	1,395
Lodge Report	46.3	312.0	38.7	0	0	0	0	0	0	0	0	0	397
AUGUST RETAINED	143.4	967.4	120.0	0	0	58.1	34.4	0	373.2	17.5	77.9	0	1,792
SE	39.2	174.9	47.7	0	0	16.4	9.6	0	69.2	10.5	30.0	0	201
TOTAL													
Creel Estimate	600	2,289	134	0	66	450	199	49	2,457	467	409	110	7,228
Lodge Report	378	1,456	84	0	0	0	0	0	0	0	0	0	1,919
TOTAL RETAINED	979	3,745	218	0	66	450	199	49	2,457	467	409	110	9,147
SE	122	237	56	0	19	52	28	11	147	115	54	42	343

Estimated numbers of Lingcod released by lodge and non-lodge anglers, by month, 2022.

	Subarea												
Month / Catch Type	*3I*	*3J*	*3K*	*4A*	*4B*	*4C*	*4D*	*4E*	*4F*	*4G*	*4H*	*4L*	*TOTAL*
May													
Creel Estimate	66.5	175.8	9.6	0	9.4	20.1	3.2	1.8	123.2	12.2	4.4	0	426
Lodge Report	0	0	0	0	0	0	0	0	0	0	0	0	0
MAY RELEASED	66.5	175.8	9.6	0	9.4	20.1	3.2	1.8	123.2	12.2	4.4	0	426
SE	27.8	66.8	7.1	0	3.6	6.6	2.3	0.9	46.7	12.2	3.4	0	88
June													
Creel Estimate	16.9	53.9	3.8	0.2	0	14.4	0	1.1	80.9	1.2	29.9	3.4	206
Lodge Report	0	0	0	0	0	0	0	0	0	0	0	0	0
JUNE RELEASED	16.9	53.9	3.8	0.2	0	14.4	0	1.1	80.9	1.2	29.9	3.4	206
SE	7.3	16.2	2.7	0.1	0	6.3	0	0.8	23.3	0.9	18.9	3.4	36
July													
Creel Estimate	60.2	54.9	0	0	0	20.2	6.4	1.4	62.2	1.2	35.5	3.5	246
Lodge Report	0	0	0	0	0	0	0	0	0	0	0	0	0
JULY RELEASED	60.2	54.9	0	0	0	20.2	6.4	1.4	62.2	1.2	35.5	3.5	246
SE	35.6	16.3	0	0	0	7.7	4.6	0.7	17.0	0.9	22.8	2.9	49
August													
Creel Estimate	10.8	26.6	0	0	0	0	2.6	0	9.8	0	0	0	50
Lodge Report	0	0	0	0	0	0	0	0	0	0	0	0	0
AUGUST RELEASED	10.8	26.6	0	0	0	0	2.6	0	9.8	0	0	0	50
SE	8.9	16.3	0	0	0	0	1.9	0	8.4	0	0	0	20
TOTAL													
Creel Estimate	154	311	13	0	9	55	12	4	276	15	70	7	927
Lodge Report	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL RELEASED	154	311	13	0	9	55	12	4	276	15	70	7	927
SE	47	73	8	0	4	12	5	1	56	12	30	4	109

Estimated numbers of other groundfish retained by lodge and non-lodge anglers, by month, 2022. Included are Big and Longnose skates, Pacific Spiny Dogfish, Pacific Cod, Sablefish, Cabezon, Red Irish Lord, greenlings, Spotted Ratfish, Arrow-tooth and Starry flounders, Pacific Sanddab, Pacific Rock and English soles, and other miscellaneous groundfishes.

	Subarea												
Month / Catch Type	*3I*	*3J*	*3K*	*4A*	*4B*	*4C*	*4D*	*4E*	*4F*	*4G*	*4H*	*4L*	*TOTAL*
May													
Creel Estimate	6.2	17.6	0	0	18.8	43.0	9.7	0.8	42.1	12.2	0.9	0	151
Lodge Report	0	0	0	0	0	0	0	0	0	0	0	0	0
MAY RETAINED	6.2	17.6	0	0	18.8	43.0	9.7	0.8	42.1	12.2	0.9	0	151
SE	5.0	12.7	0	0	7.0	16.0	4.2	0.4	22.3	12.2	0.7	0	34
June													
Creel Estimate	76.3	106.1	9.9	0.1	32.8	117.0	34.9	0.4	82.9	61.9	141.4	14.7	679
Lodge Report	0	0	0	0	0	0	0	0	0	0	0	0	0
JUNE RETAINED	76.3	106.1	9.9	0.1	32.8	117.0	34.9	0.4	82.9	61.9	141.4	14.7	679
SE	27.8	26.4	7.5	0.1	17.4	30.5	10.7	0.2	25.4	19.4	21.0	7.6	66
July													
Creel Estimate	135.2	189.8	28.3	0.1	11.7	139.9	29.2	2.0	139.3	39.8	160.2	8.4	884
Lodge Report	0	0	0	0	0	0	0	0	0	0	0	0	0
JULY RETAINED	135.2	189.8	28.3	0.1	11.7	139.9	29.2	2.0	139.3	39.8	160.2	8.4	884
SE	39.6	36.5	11.4	0.1	6.1	34.0	10.5	0.6	32.2	11.5	27.5	6.2	79
August													
Creel Estimate	124.2	53.1	40.7	0	9.1	96.9	31.8	0	157.1	0	163.6	0	676
Lodge Report	0	0	0	0	0	0	0	0	0	0	0	0	0
AUGUST RETAINED	124.2	53.1	40.7	0	9.1	96.9	31.8	0	157.1	0	163.6	0	676
SE	44.9	37.6	22.2	0	5.2	40.5	11.1	0	49.1	0	59.8	0	108
TOTAL													
Creel Estimate	342	367	79	0	72	397	106	3	421	114	466	23	2,390
Lodge Report	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL RETAINED	342	367	79	0	72	397	106	3	421	114	466	23	2,390
SE	66	60	26	0	20	63	19	1	68	26	69	10	153

Estimated numbers of other groundfish released by lodge and non-lodge anglers, by month, 2022. Included are Big and Longnose skates, Pacific Spiny Dogfish, Pacific Cod, Sablefish, Cabezon, Red Irish Lord, greenlings, Spotted Ratfish, Arrow-tooth and Starry flounders, Pacific Sanddab, Pacific Rock and English soles, and other miscellaneous groundfishes.

	Subarea												
Month / Catch Type	*3I*	*3J*	*3K*	*4A*	*4B*	*4C*	*4D*	*4E*	*4F*	*4G*	*4H*	*4L*	*TOTAL*
May													
Creel Estimate	2.1	5.9	0	0.4	7.5	80.3	19.3	0.8	24.0	0	1.8	0	142
Lodge Report	0	0	0	0	0	0	0	0	0	0	0	0	0
MAY RELEASED	2.1	5.9	0	0.4	7.5	80.3	19.3	0.8	24.0	0	1.8	0	142
SE	1.7	4.2	0	0.3	3.4	18.1	9.8	0.4	8.8	0	1.4	0	23
June													
Creel Estimate	15.8	16.5	4.9	0.2	37.4	199.2	0	0.9	45.7	20.8	67.0	4.2	413
Lodge Report	0	0	0	0	0	0	0	0	0	0	0	0	0
JUNE RELEASED	15.8	16.5	4.9	0.2	37.4	199.2	0	0.9	45.7	20.8	67.0	4.2	413
SE	9.9	6.3	3.8	0.1	10.7	52.9	0	0.8	15.4	9.8	18.9	3.5	66
July													
Creel Estimate	17.6	46.7	4.7	0.2	39.6	344.7	6.4	4.4	190.7	27.6	79.7	3.5	766
Lodge Report	0	0	0	0	0	0	0	0	0	0	0	0	0
JULY RELEASED	17.6	46.7	4.7	0.2	39.6	344.7	6.4	4.4	190.7	27.6	79.7	3.5	766
SE	12.1	18.0	3.4	0.1	10.7	70.3	3.3	1.1	40.5	9.5	22.6	2.9	88
August													
Creel Estimate	151.1	8.9	20.3	0.6	54.4	65.9	37.0	0	68.7	35.0	15.6	0	458
Lodge Report	0	0	0	0	0	0	0	0	0	0	0	0	0
AUGUST RELEASED	151.1	8.9	20.3	0.6	54.4	65.9	37.0	0	68.7	35.0	15.6	0	458
SE	72.6	7.4	11.1	0.4	24.9	17.8	9.7	0	22.1	24.9	8.3	0	87
TOTAL													
Creel Estimate	187	78	30	1	139	690	63	6	329	83	164	8	1,778
Lodge Report	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL RELEASED	187	78	30	1	139	690	63	6	329	83	164	8	1,778
SE	74	21	12	1	29	92	14	1	49	28	31	5	141

Estimated numbers of other groundfish retained by lodge and non-lodge anglers, by taxon, 2022.

	Taxon															
Month / Catch Type	*Arrow-tooth Flounder*	*Big Skate*	*Cabezon*	*Spiny Dogfish*	*English Sole*	*Greenlings*	*Longnose Skate*	*Pacific Cod*	*Pacific Sanddab*	*Spotted Ratfish*	*Red Irish Lord*	*Pacific Rock Sole*	*Sablefish*	*Starry Flounder*	*Unknown / Other*	*TOTAL*
May																
Creel Estimate	0	3.0	26.9	0	0	40.2	0	81.2	0	0	0	0	0	0	0	151
Lodge Report	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MAY RETAINED	0	3.0	26.9	0	0	40.2	0	81.2	0	0	0	0	0	0	0	151
SE	0	2.2	13.8	0	0	14.5	0	27.3	0	0	0	0	0	0	0	34
June																
Creel Estimate	1.6	11.5	33.3	0.1	3.2	19.6	0	576.6	0	4.6	0	2.8	22.5	2.8	0	679
Lodge Report	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
JUNE RETAINED	1.6	11.5	33.3	0.1	3.2	19.6	0	576.6	0	4.6	0	2.8	22.5	2.8	0	679
SE	1.2	7.9	13.1	0.1	2.4	8.8	0	62.6	0	3.4	0	1.8	11.5	1.5	0	66
July																
Creel Estimate	1.8	10.8	16.3	1.6	3.6	34.8	0	801.2	0	0	0	2.2	8.5	3.0	0	884
Lodge Report	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
JULY RETAINED	1.8	10.8	16.3	1.6	3.6	34.8	0	801.2	0	0	0	2.2	8.5	3.0	0	884
SE	1.5	6.9	6.3	0.2	2.9	14.1	0	77.3	0	0	0	1.5	3.8	1.7	0	79
August																
Creel Estimate	29.8	0	0	46.5	0	18.0	0	540.2	0	0	0	0	41.9	0	0	676
Lodge Report	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AUGUST RETAINED	29.8	0	0	46.5	0	18.0	0	540.2	0	0	0	0	41.9	0	0	676
SE	17.9	0	0	35.2	0	8.4	0	97.5	0	0	0	0	23.7	0	0	108
TOTAL																
Creel Estimate	33	25	76	48	7	113	0	1,999	0	5	0	5	73	6	0	2,390
Lodge Report	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL RETAINED	33	25	76	48	7	113	0	1,999	0	5	0	5	73	6	0	2,390
SE	18	11	20	35	4	24	0	142	0	3	0	2	27	2	0	153

Estimated numbers of other groundfish released by lodge and non-lodge anglers, by month, 2022.

	Taxon															
Month / Catch Type	*Arrow-tooth Flounder*	*Big Skate*	*Cabezon*	*Spiny Dogfish*	*English Sole*	*Greenlings*	*Longnose Skate*	*Pacific Cod*	*Pacific Sanddab*	*Spotted Ratfish*	*Red Irish Lord*	*Pacific Rock Sole*	*Sablefish*	*Starry Flounder*	*Unknown / Other*	*TOTAL*
May																
Creel Estimate	2.9	5.9	9.0	18.5	0	20.1	0	45.2	7.9	32.7	0	0	0	0	0	142
Lodge Report	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MAY RELEASED	2.9	5.9	9.0	18.5	0	20.1	0	45.2	7.9	32.7	0	0	0	0	0	142
SE	2.0	3.0	4.8	8.6	0	9.3	0	13.9	4.5	11.2	0	0	0	0	0	23
June																
Creel Estimate	6.3	42.1	30.9	130.2	0	21.6	0	125.5	0	40.3	3.7	4.1	6.3	1.7	0	413
Lodge Report	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
JUNE RELEASED	6.3	42.1	30.9	130.2	0	21.6	0	125.5	0	40.3	3.7	4.1	6.3	1.7	0	413
SE	4.4	12.3	21.8	46.1	0	8.0	0	25.6	0	15.6	2.7	2.0	3.4	1.2	0	61
July																
Creel Estimate	7.8	62.2	34.6	257.9	0	10.2	0	267.0	0	77.8	3.6	4.3	10.4	17.2	12.6	766
Lodge Report	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
JULY RELEASED	7.8	62.2	34.6	257.9	0	10.2	0	267.0	0	77.8	3.6	4.3	10.4	17.2	12.6	766
SE	4.8	16.9	23.6	56.7	0	4.7	0	55.7	0	20.5	2.6	2.2	4.7	8.3	8.3	88
August																
Creel Estimate	49.4	46.0	7.6	215.5	0	2.6	0	53.8	0	60.3	0	0	18.5	3.9	0	458
Lodge Report	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AUGUST RELEASED	49.4	46.0	7.6	215.5	0	2.6	0	53.8	0	60.3	0	0	18.5	3.9	0	458
SE	27.7	13.5	4.6	77.4	0	1.9	0	15.5	0	19.3	0	0	8.5	2.9	0	87
TOTAL																
Creel Estimate	66	156	82	622	0	55	0	491	8	211	7	8	35	23	13	1,778
Lodge Report	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL RELEASED	66	156	82	622	0	55	0	491	8	211	7	8	35	23	13	1,778
SE	29	25	33	107	0	13	0	65	5	34	4	3	10	9	8	141

Estimated numbers of rockfish retained by lodge and non-lodge anglers, by month, 2022. Included are Black, Boccacio, Canary, China, Copper, Dusky, Quillback, Redband, Redstripe, Tiger, Widow, Yelloweye, Yellowtail, and other miscellaneous rockfishes.

	Subarea												
Month / Catch Type	*3I*	*3J*	*3K*	*4A*	*4B*	*4C*	*4D*	*4E*	*4F*	*4G*	*4H*	*4L*	*TOTAL*
May													
Creel Estimate	12.5	35.2	0	2.7	49.0	172.1	30.6	4.3	258.5	0	15.1	0	580
Lodge Report	0	0	0	0	0	0	0	0	0	0	0	0	0
MAY RETAINED	12.5	35.2	0	2.7	49.0	172.1	30.6	4.3	258.5	0	15.1	0	580
SE	4.0	10.0	0	1.7	10.4	30.3	6.8	0.7	32.9	0	4.6	0	48
June													
Creel Estimate	113.1	371.5	7.7	0	44.7	163.2	72.9	6.3	472.6	164.3	144.8	27.4	1,588
Lodge Report	15.1	56.8	0	0	0	0	0	0	0	0	0	0	72
JUNE RETAINED	128.2	428.2	7.7	0	44.7	163.2	72.9	6.3	472.6	164.3	144.8	27.4	1,660
SE	19.6	44.9	5.5	0	13.9	20.2	17.6	2.8	56.0	38.4	28.0	14.6	95
July													
Creel Estimate	105.8	485.9	0	0	21.6	340.8	117.9	13.2	609.7	104.4	159.4	18.3	1,977
Lodge Report	0	123.8	0	0	0	0	0	0	0	0	0	0	124
JULY RETAINED	105.8	609.7	0	0	21.6	340.8	117.9	13.2	609.7	104.4	159.4	18.3	2,101
SE	29.3	83.2	0	0	4.5	47.0	21.9	2.8	77.8	15.2	33.4	11.8	134
August													
Creel Estimate	75.6	283.4	111.8	0	6.0	135.7	158.8	0	289.7	0	85.7	0	1,147
Lodge Report	132	190	218	0	0	0	0	0	0	0	0	0	540
AUGUST RETAINED	207.9	473.3	329.8	0	6.0	135.7	158.8	0	289.7	0	85.7	0	1,687
SE	37.6	74.4	51.2	0	4.7	30.4	32.5	0	67.8	0	43.1	0	134
TOTAL													
Creel Estimate	307	1,176	119	3	121	812	380	24	1,630	269	405	46	5,292
Lodge Report	147	371	218	0	0	0	0	0	0	0	0	0	736
TOTAL RETAINED	454	1,546	337	3	121	812	380	24	1,630	269	405	46	6,028
SE	52	121	52	2	19	67	44	4	122	41	61	19	218

Estimated numbers of rockfish released by lodge and non-lodge anglers, by month, 2022. Included are Black, Boccacio, Canary, China, Copper, Dusky, Quillback, Redband, Redstripe, Tiger, Widow, Yelloweye, Yellowtail, and other miscellaneous rockfishes.

	Subarea												
Month / Catch Type	*3I*	*3J*	*3K*	*4A*	*4B*	*4C*	*4D*	*4E*	*4F*	*4G*	*4H*	*4L*	*TOTAL*
May													
Creel Estimate	72.7	99.6	38.2	2.2	154.4	309.8	114.3	9.7	483.9	133.8	39.0	0	1,458
Lodge Report	0	0	0	0	0	0	0	0	0	0	0	0	0
MAY RELEASED	72.7	99.6	38.2	2.2	154.4	309.8	114.3	9.7	483.9	133.8	39.0	0	1,458
SE	24.5	40.5	18.2	1.6	31.2	39.3	43.3	2.2	77.9	122.4	14.2	0	168
June													
Creel Estimate	72.3	322.7	51.0	0.4	35.6	179.7	45.5	32.7	574.5	91.3	155.8	46.4	1,608
Lodge Report	0	0	0	0	0	0	0	0	0	0	0	0	0
JUNE RELEASED	72.3	322.7	51.0	0.4	35.6	179.7	45.5	32.7	574.5	91.3	155.8	46.4	1,608
SE	16.1	52.4	23.3	0.2	9.3	38.5	15.6	20.8	77.2	24.1	50.1	23.9	124
July													
Creel Estimate	317.3	463.7	37.7	0.1	40.2	534.2	81.1	40.4	887.5	101.4	178.7	36.5	2,719
Lodge Report	0	0	0	0	0	0	0	0	0	0	0	0	0
JULY RELEASED	317.3	463.7	37.7	0.1	40.2	534.2	81.1	40.4	887.5	101.4	178.7	36.5	2,719
SE	136.6	84.0	20.7	0.1	10.9	156.6	23.1	17.5	119.1	21.6	60.4	19.9	265
August													
Creel Estimate	16.2	256.8	40.7	1.0	24.2	147.3	124.4	0	476.3	17.5	50.6	0	1,155
Lodge Report	0	0	0	0	0	0	0	0	0	0	0	0	0
AUGUST RELEASED	16.2	256.8	40.7	1.0	24.2	147.3	124.4	0	476.3	17.5	50.6	0	1,155
SE	9.8	94.8	31.5	0.4	9.3	41.9	23.3	0	98.1	15.7	30.4	0	152
TOTAL													
Creel Estimate	479	1,143	168	4	254	1,171	365	83	2,422	344	424	83	6,939
Lodge Report	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL RELEASED	479	1,143	168	4	254	1,171	365	83	2,422	344	424	83	6,939
SE	140	143	48	2	36	171	57	27	189	128	85	31	370

Estimated numbers of rockfish retained by lodge and non-lodge anglers, by taxon, 2022.

	Taxon														
Month / Catch Type	*Black Rockfish*	*Boccacio Rockfish*	*Canary Rockfish*	*China Rockfish*	*Copper Rockfish*	*Dusky Rockfish*	*Quillback Rockfish*	*Redband Rockfish*	*Redstripe Rockfish*	*Tiger Rockfish*	*Widow Rockfish*	*Yelloweye Rockfish*	*Yellowtail Rockfish*	*Unknown rockfish*	*TOTAL*
May															
Creel Estimate	181.8	0	15.1	50.3	34.3	3.3	186.9	0	0	45.4	0	9.1	9.1	44.4	580
Lodge Report	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MAY RETAINED	181.8	0	15.1	50.3	34.3	3.3	186.9	0	0	45.4	0	9.1	9.1	44.4	580
SE	29.1	0	5.6	12.5	8.9	2.3	28.1	0	0	10.7	0	6.6	6.6	13.7	48
June															
Creel Estimate	584.8	8.4	18.4	55.9	113.4	0	510.6	8.7	7.4	69.2	0	8.3	22.2	181.1	1,588
Lodge Report	0	0	0	0	0	0	0	0	0	0	0	0	0	71.9	72
JUNE RETAINED	584.8	8.4	18.4	55.9	113.4	0	510.6	8.7	7.4	69.2	0	8.3	22.2	253.0	1,660
SE	67.9	3.9	6.6	10.9	18.8	0	47.6	4.2	5.3	13.6	0	3.5	7.3	35.5	95
July															
Creel Estimate	496.0	29.8	17.7	76.6	63.1	9.0	876.0	7.7	15.4	69.0	0	1.2	59.5	255.9	1,977
Lodge Report	0	0	0	0	0	0	0	0	0	0	0	0	0	123.8	124
JULY RETAINED	496.0	29.8	17.7	76.6	63.1	9.0	876.0	7.7	15.4	69.0	0	1.2	59.5	379.8	2,101
SE	67.5	17.6	6.3	17.2	11.6	4.0	92.6	3.5	6.4	15.5	0	0.9	20.3	58.4	134
August															
Creel Estimate	182.7	0	29.2	101.7	34.9	0	224.7	2.6	0	97.4	0	0	24.5	448.9	1,147
Lodge Report	0	0	0	0	0	0	0	0	0	0	0	0	0	540	540
AUGUST RETAINED	182.7	0	29.2	101.7	34.9	0	224.7	2.6	0	97.4	0	0	24.5	989.2	1,687
SE	61.4	0	16.4	31.8	19.1	0	43.1	1.9	0	36.9	0	0	10.6	96.3	134
TOTAL															
Creel Estimate	1,445	38	80	285	246	12	1,798	19	23	281	0	19	115	930	5,292
Lodge Report	0	0	0	0	0	0	0	0	0	0	0	0	0	736	736
TOTAL RETAINED	1,445	38	80	285	246	12	1,798	19	23	281	0	19	115	1,666	6,028
SE	117	18	20	40	31	5	116	6	8	44	0	7	25	119	218

Estimated numbers of rockfish released by lodge and non-lodge anglers, by taxon, 2022.

	Taxon														
Month / Catch Type	*Black Rockfish*	*Boccacio Rockfish*	*Canary Rockfish*	*China Rockfish*	*Copper Rockfish*	*Dusky Rockfish*	*Quillback Rockfish*	*Redband Rockfish*	*Redstripe Rockfish*	*Tiger Rockfish*	*Widow Rockfish*	*Yelloweye Rockfish*	*Yellowtail Rockfish*	*Unknown rockfish*	*TOTAL*
May															
Creel Estimate	157.6	3.0	21.3	73.9	64.6	0	207.9	0	0	0	0	166.9	14.2	748.3	1,458
Lodge Report	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MAY RELEASED	157.6	3.0	21.3	73.9	64.6	0	207.9	0	0	0	0	166.9	14.2	748.3	1,458
SE	35.4	2.2	11.8	21.6	20.2	0	37.6	0	0	0	0	43.0	8.6	150.4	168
June															
Creel Estimate	154.3	10.1	18.6	73.0	55.0	0	223.2	0	37.8	15.6	2.1	517.2	2.4	498.7	1,608
Lodge Report	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
JUNE RELEASED	154.3	10.1	18.6	73.0	55.0	0	223.2	0	37.8	15.6	2.1	517.2	2.4	498.7	1,608
SE	42.3	10.1	7.1	22.9	20.5	0	48.7	0	25.5	5.7	1.5	69.6	1.8	68.0	124
July															
Creel Estimate	145.5	8.4	5.1	92.1	54.2	0	576.2	3.8	78.4	51.3	10.1	598.7	2.4	1092.7	2,719
Lodge Report	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
JULY RELEASED	145.5	8.4	5.1	92.1	54.2	0	576.2	3.8	78.4	51.3	10.1	598.7	2.4	1092.7	2,719
SE	40.7	8.4	3.7	21.6	18.6	0	148.3	3.3	37.5	27.2	5.7	83.6	1.7	191.3	265
August															
Creel Estimate	8.7	0	0	175.2	0	0	250.3	0	0	9.8	0	75.4	11.0	624.6	1,155
Lodge Report	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AUGUST RELEASED	8.7	0	0	175.2	0	0	250.3	0	0	9.8	0	75.4	11.0	624.6	1,155
SE	5.0	0	0	86.8	0	0	72.2	0	0	5.9	0	23.7	6.3	99.2	152
TOTAL															
Creel Estimate	466	22	45	414	174	0	1,257	4	116	77	12	1,358	30	2,964	6,939
Lodge Report	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL RELEASED	466	22	45	414	174	0	1,257	4	116	77	12	1,358	30	2,964	6,939
SE	69	13	14	95	34	0	176	3	45	28	6	119	11	271	370

APPENDIX 5: ADIPOSE FIN-CLIP INCIDENCE

Incidence of fin clipping observed in biosamples, by species, month, and subarea, in 2022. Excludes any interviews for which observers were not able to confirm adipose status, or for which biosampling was not a complete sample of fish kept.

Species		*Subarea*														
Month	*Adipose*	*3I*	*3J*	*3K*	*3?*	*4A*	*4B*	*4C*	*4D*	*4E*	*4F*	*4G*	*4H*	*4L*	*4?*	*TOTAL*
Chinook Salmon																
May	*Clipped*	0	0	0	0	0	3	2	2	0	2	0	0	0	0	9
	Not Clipped	2	0	1	0	1	47	38	16	0	48	3	0	0	0	156
	Percent Clipped	0%	-	0%	-	0%	6%	5%	11%	-	4%	0%	-	-	-	5%
June	*Clipped*	0	0	0	0	1	0	4	1	0	9	0	0	0	0	15
	Not Clipped	8	11	6	0	4	4	18	13	0	45	3	1	0	0	113
	Percent Clipped	0%	0%	0%	-	20%	0%	18%	7%	-	17%	0%	0%	-	-	12%
July	*Clipped*	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Not Clipped	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
	Percent Clipped	-	-	-	-	-	-	-	0%	-	-	-	-	-	-	0%
August	*Clipped*	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1
	Not Clipped	0	2	0	0	0	0	6	0	0	1	0	0	0	0	9
	Percent Clipped	-	0%	-	-	-	-	0%	-	-	50%	-	-	-	-	10%
Total	*Clipped*	0	0	0	0	1	3	6	3	0	12	0	0	0	0	25
	Not Clipped	10	13	7	0	5	51	62	30	0	94	6	1	0	0	279
	Percent Clipped	0%	0%	0%	-	17%	6%	9%	9%	-	11%	0%	0%	-	-	8.2%
Coho Salmon																
May	*Clipped*	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Not Clipped	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Percent Clipped	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
June	*Clipped*	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Not Clipped	0	0	0	0	0	0	0	0	0	4	2	0	0	0	6
	Percent Clipped	-	-	-	-	-	-	-	-	-	0%	0%	-	-	-	0.0%
July	*Clipped*	0	1	0	0	0	0	1	1	0	0	0	0	0	0	3
	Not Clipped	42	45	12	0	0	12	43	61	0	116	9	23	26	4	393
	Percent Clipped	0%	2%	0%	-	-	0%	2%	2%	-	0%	0%	0%	0%	0%	0.8%
August	*Clipped*	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
	Not Clipped	4	32	1	0	0	0	52	2	0	58	1	0	0	0	150
	Percent Clipped	0%	3%	0%	-	-	-	0%	0%	-	0%	0%	-	-	-	0.7%
Total	*Clipped*	0	2	0	0	0	0	1	1	0	0	0	0	0	0	4
	Not Clipped	46	77	13	0	0	12	95	63	0	178	12	23	26	4	549
	Percent Clipped	0%	3%	0%	-	-	0%	1%	2%	-	0%	0%	0%	0%	0%	0.7%