Analysis of Management Options for the Area 2C and 3A Charter Halibut Fisheries for 2025

A Report to the North Pacific Fishery Management Council

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1.0 Introduction

The International Pacific Halibut Commission (IPHC) approves catch limits for Pacific halibut each year for Regulatory Areas in Alaska. In IPHC Regulatory Areas 2C and 3A, which roughly correspond with Southeast and Southcentral Alaska, these catch limits are allocated between the commercial longline fishery and the sport charter fishery. The allocations are specified in the North Pacific Fishery Management Council's Halibut Catch Sharing Plan (CSP)[1]. The allocations vary with the magnitude of the overall catch limit, such that the percentage allocated to the charter sector increases slightly as catch limits decrease. The CSP also specifies that release mortality will count toward the sector's allocation. The CSP further specifies that, effective in 2014, charter harvest accounting will be based on numbers of halibut reported harvested in Alaska Department of Fish and Game (ADF&G) saltwater guide logbooks.

The charter fishery in Areas 2C and 3A is managed under regulations reviewed and recommended each year by the North Pacific Fishery Management Council (Council) and approved and published by the IPHC and NOAA as annual management measures. As the first step in this process, the Council's Charter Halibut Management Committee met October 25, 2024, to develop alternative management measures for analysis by the ADF&G for the 2025 season. ADF&G staff provided preliminary estimates of charter harvest and release mortality for the 2024 season to committee members prior to the meeting. In Area 2C, electronic reporting of trips using eLogbook became mandatory in 2021; therefore, logbook data for all trips that were submitted prior to September 27th, 2024, were used for preliminary estimates. In recent years, no harvest was reported in Area 2C after October 15th. In Area 3A, where use of paper logbooks is still widespread, the preliminary estimates were based on logbook data for trips through August 31st, 2024. Estimates will be finalized by fall of 2025 once all logbook data are entered and edited.

At the time of the October meeting, the 2024 preliminary reported harvest in Area 2C for the charter fishery was 89,303 halibut with an estimated average net weight of 9.07 lb (St. Saviour 2024). The Area 2C preliminary estimate of charter removals was 0.843 million pounds (Mlb), including an estimated 0.032 Mlb of release mortality. The preliminary estimate of charter removals was 4.0% over the 0.810 Mlb allocation. Charter halibut regulations in 2C included a one-fish bag limit, a reverse slot limit allowing for harvest of fish less than or equal to 40 inches or greater than or equal to 80 inches (U40O80) February 1st through July 14th. From July 15th through December 31st, the slot limit was decreased to less than or equal to 36 inches and greater than or equal to 80 inches (U36O80). Fridays were closed to halibut retention from July 19th through September 13th.

In Area 3A, an estimated 161,439 halibut were harvested with an average weight of 9.85 lb (St. Saviour 2024) when preliminary estimates were reported to the Charter Halibut Management Committee in October. The preliminary estimate of charter removals for Area 3A was 1.607 Mlb, including 0.017 Mlb of release mortality. The preliminary estimate was 15.0% under the allocation of 1.89 Mlb. Charter regulations in 3A included a two-fish bag limit of which one fish could be any size and the second must be less than or equal to 28 inches, no harvest of halibut on Wednesdays, a limit of one trip per vessel per day, and a limit of one trip per Charter Halibut Permit (CHP) per day.

[1] Catch Sharing Plan regulations are at: https://www.federalregister.gov/documents/2013/12/12/2013-29598/pacific-halibut-fisheries-catch-sharing-plan-for-guided-sport-and-commercial-fisheries-in-alaska

The Charter Committee considered the performance of last year's measures, and in light of recent trends in effort, numbers of halibut harvested by charter anglers, average weight of halibut, halibut abundance, and economic considerations, identified the following measures for analysis for 2025:

Area 2C (all options include a one-fish bag limit and inflation factor for release mortality):

- Reverse Slot ranging from 35 – 50 inches on the low end and 50 – 80 inches on the upper end.
- Reverse Slot confined to ranges of 35 – 40 inches on the low end and 80 inches on the upper end and a limit of one trip per vessel and one trip per permit per day.
- Reverse Slot with day closures on Tuesday, Thursday, and Saturday with savings in removals displayed for each day of closure.
    a. Analyzed for each day from May 15 – September 15 or for the entire season
    b. Analyzed for lower slot limits ranging from 32 inches to 50 inches, and an upper slot limit of 80 inches.
    c. Include results as an excel workbook so members of the CHMC can select different closure day combinations or date range combinations and determine removals.
- Reverse Slot with day closures confined to ranges of 32 – 42 inches on the low end and 80 inches on the upper end and a limit of one trip per vessel and one trip per permit per day.

- Differential Reverse Slot displayed in removals.
    a. Analyzed for lower slot limits ranging from 38-42 inches at the beginning of the season, changing to a range of 32-38 inches for the end of the season, and an upper slot limit of 80 inches throughout the season.
    b. Analyzed to change lower slot limits on July 1, July 15, and August 1.

Area 3A (all options include, unless otherwise noted, a two-fish bag limit with a maximum size limit of 28 inches on one fish and one fish of any size, one trip per vessel and one trip per CHP per day, and all Wednesdays closed to retention of halibut):

- Day of the week closures on Wednesdays[2] from June 4 – Sept 3 or for the entire season;
- Day of the week closures on Tuesdays from June 3 – Sept 2 or for the entire season;
- Maximum size limits of 26 – 32 inches on one fish;
- Annual limits of 2 – 4 fish; and
- Any combination of the above management measures.

This analysis provides information to stakeholders and the Council to assist them in selecting management measures likely to keep total charter removals within their allocations. The charter allocations will be derived from catch limits determined by the IPHC at their Annual Meeting in January 2025. The charter allocations will not be known when the Council is expected to make its recommendations in December 2024. It is recommended that the Council include contingencies to accommodate adoption of a range of catch limits.

The IPHC's 2024 stock assessment results were made available to the public on November 22nd. There are no Regulatory Area TCEYs to use as reference points for the analyses for the 2C and 3A charter

[2] Analysis of day of the week closures on Wednesdays also evaluates Wednesdays being open.

management measures; still, there are several reference points that the Council may wish to consider in making recommendations for 2025:

- The Coastwide TCEY in 2024 was 35.28 Mlb.
- The 2024 Stock Assessment estimated a 3-year surplus TCEY for of 37.4 Mlb;
- The TCEY at the reference fishing intensity ($F_{43\%}$) is estimated to be 39.8 Mlb.

Updated estimates of the commercial fishery CPUE in recent years were lower than previously estimated and resulted in a 17% decrease to the spawning biomass compared to what was estimated at the end of 2023. The estimated spawning biomass increased slightly from 145 Mlb at the beginning of 2024 to 147 Mlb at the beginning of 2025 due to the continued maturation of the 2012 year-class and the onset of maturity of the 2016 year-class.

In addition to the Coastwide TCEY the Council may wish to consider changes in the stock distribution as estimated by the IPHC's Fishery Independent Setline Survey. While modelled numbers-per-unit-effort (NPUE) of all sizes were up from 2023 to 2024 by +11% in Region 2 and +1% in Region 3, weight-per-unit-effort (WPUE) of halibut over 32' (O32) was down -6% in 2C and -18% in 3A. In 2024, modelled stock distribution continued to increase in Region 2 to 27% of the coastwide total and decreased slightly in Region 3 to 44% of the coastwide total. In recent years, distribution procedures have considered the distribution of O32 biomass among Regulatory Areas, in addition to other factors such as relative harvest rates, socio-economic considerations, international agreements, and both survey and fishery CPUE when determining Regulatory Area TCEYs.

Considering the paucity of information on 2025 catch limits and distribution to Regulatory Areas, we have used the 2024 allocations as reference points for the 2025 charter management measures. Results presented here are within the context of allocations set for 2024:

IPHC Area	2024 Allocation (Mlb)
2C	0.81
3A	1.89

This analysis projects total charter fishery removals under the current (status quo) charter fishery regulations in each Regulatory Area. As shown below, under current regulations the projected charter removal in 2025 for Area 2C is 0.883 Mlb. The projected removal for Area 3A is 1.763 Mlb.

Area	Projected Status Quo Charter Removals (Mlb)	Status Quo TCEY Difference (Mlb) (2025 Projection - 2024 Allocation)
2C	0.883	+ 0.073
3A	1.763	- 0.127

For consistency with analyses reported in recent years, the analyses included in this report generally follow previously reported methods (Webster and Powers 2018, 2019, and 2020; Webster, Jevons, and Powers 2021; King, Webster, and Jevons 2022; and Bowman, Webster, Carr, and Jevons 2023). The analyses cover a range of alternatives as proposed by the Charter Halibut Management Committee to allow stakeholders, the Council, and the IPHC to select the desired management measures to meet the

charter allocation for each Area. Where applicable, results reference candidate measures that result in projected charter removals within the 2024 allocation.

2.0 General Methods

2.1 Definitions and Basic Calculations

Throughout this analysis, the term "harvest" means the number of halibut killed and landed in the charter fishery. "Yield" is the harvest expressed in units of weight. "Release mortality" refers to halibut that die as a result of stress or injury from being caught and then released and is expressed in units of weight. Finally, "removals" refers to all halibut killed in the sport fishery, including harvest and release mortality, and is measured in units of weight. Weight is based on length data from harvested halibut sampled at ports and the length-weight relationship developed by IPHC (Webster and Stewart 2022). Removals are generally projected from harvest, average weight, and release mortality as follows:

$$Harvest(no.fish) = Effort\ (angler\ days) \times HPUE\ (harvest\ per\ angler\ day),$$

$$Yield(lb) = Harvest \times AverageNetWeight(lb), \text{ and}$$

$$Removals\ (lb) = Yield(lb) \times r(lb)$$

where *r* is the release mortality expansion factor.

In prior years, in IPHC Area 2C the release mortality expansion factor was estimated as a function of the lower limit of the reverse slot limit. It was noted that the strength of this correlation has decreased steadily and there no longer appears to be a meaningful relationship between estimated release mortality and the lower reverse slot limit. Therefore, Area 2C and Area 3A release mortality was forecast as the 5-year average ratio of estimated release mortality to estimated yield in each respective area:

$$r(lb)=1+[ReleaseMortality(lb)/Yield\ (lb)]$$

which for 2024 is 1.042 in Area 2C and 1.008 in Area 3A.

2.2 Calculations by Subarea

All calculations for Area 2C and Area 3A were done by Subarea and then summed to obtain yield estimates for each Regulatory Area. Analyses were done at the Subarea level because many of the variables analyzed (harvest, effort, average weight, etc.) vary substantially by Subarea.

There are six Subareas in Area 2C and eight Subareas in Area 3A (Table 2C.1 and Table 3A.10, Figure 1). With few exceptions, the Subareas correspond to ADF&G sport fishery management areas as well as the reporting areas used for the ADF&G Statewide Harvest Survey (SWHS, mail survey of sport fishing). The Juneau and Haines/Skagway Areas were combined because the Haines/Skagway Area is not sampled for average weight and harvests are quite small. SWHS Area J is split into three Subareas: Eastern Prince William Sound (EPWS), Western Prince William Sound (WPWS), and the North Gulf Coast (NG). Likewise, Cook Inlet (SWHS Area P) is split into Central Cook Inlet (CCI) and Lower Cook Inlet (LCI) Subareas. These SWHS areas were split into Subareas such that the landings in each Subarea could be matched to estimates of average weight from port sampling. ADF&G obtained length measurements from harvested halibut and interviewed anglers and charter captains in at least one port in each Subarea. In addition, SWHS Area G (Glacier Bay) is divided into the 2C and 3A portions using statistical areas reported during biological sampling and in saltwater guide logbooks.

2.3 Harvest Forecasts

Time series methods are used to forecast harvest per unit effort (HPUE) in both Areas. Effort is measured in angler days; any days when bottomfish hours or bottomfish statistical areas were recorded in the logbook or halibut were harvested are considered days with halibut effort, permitting that day was open to harvest of halibut. Forecasts are inherently uncertain because they rely only on past data, which are not necessarily indicative of future trends. Time series forecasts can't be used in all instances because they assume that the same underlying processes are in place as those that generated the historical data.

Therefore, recent regulation changes or social/economic conditions may bias a forecast or render it unsuitable for other regulatory scenarios. Time series methods used in this report include simple and double exponential smoothing models using SAS/ETS™[3] software. Simple exponential models have a single parameter representing the level of the estimate and typically fit best to data without a clear trend. Double exponential models have a parameter for level and a parameter for trend, and typically fit best to data with a trend. Both models contain a smoothing weight, the value of which determines how much weight is given to more recent observations. The smoothing weights are optimized to minimize one-step-ahead prediction errors over the entire time series. Generally, the stronger the trend and lower the variability, the higher the smoothing weight and the more emphasis is placed on recent observations. Generally, both simple and double exponential models were run for each time series and the forecasts with the smallest AICc value (Akaike Information Criterion, corrected for small sample size) were selected.

For Area 2C, there was a significant change in how effort is managed when day closures to halibut retention were implemented in 2023 and 2024. This was the first time that days have been closed in this area. This disruption in the time series, therefore, did not allow us to forecast for effort in 2024 as was done in the past. Therefore, the preliminary estimates of effort for 2024 were used as the best indication of status quo effort for 2025. Harvest forecasts for 2025were calculated for each Subarea as the product of the effort and HPUE forecasts.

Simple exponential and double exponential forecasts were generated for 2025 HPUE using logbook data for 2009- 2024. The years 2020 and 2021 were omitted from all Areas due to the impacts of COVID-19 on recreational fishing practices during that period. Simple exponential models were used for all Areas except for the Area EF HPUE forecast.

In 3A, there were substantial and incremental changes in regulations over recent years that specifically targeted fishing effort including vessel trip limits, CHP trip limits, closing days to halibut retention, and annual limits. Therefore, the 2024 estimate of effort in 3A was assumed as the status quo effort for 2025 as has been the practice in recent years. In addition, implementation of the first size limits in Area 3A in 2014 resulted in a marked decline in the proportion of the charter halibut harvest made up of second fish in the bag limit. The largest decreases were in Subareas with the highest average weights (Glacier Bay and Yakutat). In other words, at ports with large halibut available, fewer anglers harvested a second fish, preferring instead to focus on harvesting one large fish. The decrease in retention of a second fish by anglers caused HPUE to decline as well (Figure 3). However, the areawide proportion of second fish retained continued to decline every year through 2019 even though changes in size limits and annual limits were quite minor. In 2020, the proportion of second fish in the harvest increased in all 3A ports and remained high in 2021. Areawide, HPUE was likely impacted by the regulations implemented in response to the COVID-19 pandemic in both 2020 and 2021, therefore, forecasts were generated for HPUE using logbook data for 2009-2019 and 2022-2024 for all Subareas in Area 3A (Table 3A.12, Figure 3).

2.4 Accounting for Release Mortality of Halibut

Under the CSP, the charter halibut allocation includes total removals by the charter sector, including harvest and release mortality. All sizes of release mortality have been estimated for 2013-2024 for inclusion in the IPHC's annual stock assessment as part of sport fishery removals. Estimation methods are documented in Webster and Buzzee (2020) and in ADF&G's annual reports to the IPHC[4].

The numbers and average weight of released fish are expected to vary with the regulations (e.g., types of size limits, bag limits, annual limits). For example, anglers would be expected to release more fish under a one-fish bag limit than a two-fish bag limit as they search for the largest fish possible to retain. The

[3] SAS/ETS™ software, Version 9.4, SAS System for Windows, Copyright © (2002-2024), SAS Institute, Inc.
[4] The ADF&G annual reports to the IPHC are available for download at https://www.npfmc.org/fisheries-issues/fisheries/halibut-fisheries/halibut-recreation/

average weight of released fish would be expected to be higher under maximum size limits or reverse slot limits than under a minimum size limit, because more of the released fish would be large. On the other hand, the number of fish released is likely to be higher under a minimum than maximum size limit because smaller fish are relatively more abundant and more likely to be caught. Under reverse slot limits, the amount of release mortality would be expected to vary with the sizes and range of the protected slot. A wide protected slot would likely result in more released fish than a narrow slot, and a higher protected slot would result in a higher average weight of released fish. Under annual limits, both the number of fish and average weight of released fish would likely increase as annual limits are made more restrictive. Seasonal or daily closures will also increase the total number of released fish.

Previously in Area 2C, under reverse slot limits, the ratio of release mortality to charter yield (in pounds) showed a strong correlation to the lower bound of the reverse slot limit, and a linear regression model was used to determine release mortality inflation factors. Recently, however, the strength of the correlation has decreased. For 2025, a 5-year average of the ratio of release mortality to charter yield. Under status quo regulations, the predicted 2025 ratio of release mortality to harvested halibut is 0.042.

In Area 3A, the ratio of release mortality to charter yield has generally decreased over time, mostly due to a decrease in the number of released fish rather than to changes in the average weight of released fish. The ratio was 0.018 in 2013, and then decreased steadily from 0.022 in 2014 to 0.006 in 2023. For 2025 projections, the 5-year average of 0.008 was applied to yield to account for release mortality under the status quo management measures.

3.0 Area 2C Management Measures

3.1 Status Quo Forecast of the Number of Fish Harvested

Status quo measures for Area 2C include a one-fish bag limit, a U40O80 reverse slot limit through July 14th and a U36O80 reverse slot limit July 15th onward, and closed Fridays July 18th and through September 12th. The best forecast for effort in 2C in 2025 is the status quo management measures is the current year's effort. HPUE is predicted to increase slightly in all ports. The 2025 status quo effort forecast for Area 2C is 118,831 angler-days, the weighted average HPUE forecast is 0.775 halibut per angler-day, and the harvest forecast is 92,040 halibut, with a 95% margin of error (±2 standard errors) of ± 2,520 fish (Table 2C.3).

3.2 Reverse Slot Limit

3.2.1 Approach

Reverse slot size limits have been used to manage the Area 2C charter fishery since 2012. The goal of the reverse slot limit is to control the average weight of the harvest by requiring retained fish to be either below a lower size limit or above an upper size limit. The reverse slot size limit functions mostly as a maximum size limit, while still preserving the opportunity for anglers to retain exceptionally large fish. The charter industry and the Council have recommended reverse slot size limits because they effectively control average weight without severely impacting angler demand under a one-fish bag limit, thus preserving charter revenues in the face of restrictions.

Average weight under reverse slot limits was predicted using the same methods used for 2014-2024. Briefly, this procedure fixes the proportion of harvest above the upper size limit equal to the proportion in 2010, the last year without a size limit. The proportion of harvest below the lower size limit is assigned the remainder. Average weight is then estimated as a weighted mean of the average weight of fish above and below the upper and lower limits in 2010, where the weighting factors are the respective proportions of harvest above and below those limits. All estimates of average weight were adjusted to account for the updated length-weight relationship in all 2C analyses.

Average weights estimated from the fishery in 2021-2024 were compared to the 2010 predicted average weights for the size limits that were in place at the time. The average weights estimated from the fishery included any illegally harvested fish in the protected size slot between the lower and upper size limits (illegal-size fish made up an estimated 0.3% to 1.6% of the Area 2C harvest each year). Errors in predicted average weights since 2021 ranged from -3.2% to +73.7% for individual Subareas. Predicted average weight errors were highly variable among years and among Subareas. Correction factors were developed for the predicted average weights for each Subarea. The correction factors were based on the average ratio of the predicted and observed average weights from all years and ranged from 0.64 to 1.00 among Subareas.

This analysis assumes that there are no day of the week closures for 2025. To add the harvest from closed Fridays back in, the proportional reduction of harvest by Subarea was determined for days of the week closed in 2022. The year 2022 was used because it is the most recent year with finalized data with all days open. This proportional reduction of harvest by Subarea for nine Fridays was then added back in to the 2025 status quo forecast of harvest.

Total charter removals were projected for 2025 under a range of reverse slot limits with lower limits ranging from 32 to 50 inches and upper limits ranging from 50 to 80 inches. Projections of charter removals include the correction factors for bias in estimation of average weight as well as an inflation factor for predicted release mortality based on the lower slot limit.

3.2.2 Results

The projected charter removal under the status quo size limit of U40O80is 1.070 Mlb (Table 2C.4). Projections ranged from 0.757 to 2.110 Mlb. Most options for reverse slot limits were above the 2024

allocation of 0.810 Mlb. The status quo size limit of U40O80 would not be within the 2024 allocation. The most liberal combinations of reverse slot limits that were below the 2024 allocation are shaded in (Table 2C.4). Limiting this analysis to U35O80 to U40O80 and a limit of one trip per vessel and one trip per permit per day resulted in a range of projections from 0.853 to 1.053 Mlb (Table 2C.5)

3.3 Reverse Slot Limit with Day of the Week Closures and one-trip per vessel and permit per day (presented as Savings Per Day)

3.3.1 Approach

Harvest was projected with day of the week closures in Area 2C with reverse slot limits ranging from a lower limit of 32 to 50 inches and with the upper limit fixed at 80 inches. The potential effect of closing days on each day from May 13th through September 9th was estimated (Table 2C.6). To give decision makers more flexibility, the information is presented as savings per day in lbs. Removals can be calculated by subtracting the amount saved by closing each individual day from the estimated removals with no days closed at a given lower slot limit. The analysis relied on complete logbook data for 2023. This analysis entailed estimating the proportional effect of each day closure in 2023 and applying those to the harvest forecast for 2025, adjusted to assume all days are open to fishing, as described in section 3.2.1.

The first step was to identify dates that would be closed in 2025. Once the specific closed dates were identified, the corresponding dates were identified from the 2023 data set for analyses, assuming the same day of the week. The analysis assumed that the proportion of harvest occurring on each day in 2023 would be eliminated if those days were closed. In other words, the harvest that occurred on those days represented the maximum potential change in harvest if those days were closed. All analyses were done by Subarea to account for differences in the structure of the charter fleet among Subareas. The total annual harvest under each scenario of closed days was compared to the harvest scenario of no closed days to estimate the proportional change in harvest for 2025.

To estimate the effect of one trip per vessel and permit per day, the proportion of halibut retained on second+ trips in a day 2021 through 2023 was subtracted from harvest estimates used in the "Day of the week closure" analyses.

A day of the week closure would be unlikely to achieve the estimated maximum reductions in halibut harvest because of the potential for displaced clients to book on alternate dates. We do not have sufficient information to accurately estimate the effect of a day of the week closure; we can only say that it would reduce halibut harvest by no more than the presented maximum reductions, and that the reduction would likely be less.

3.3.2 Results

Implementation of a daily closure on a single day of the week alone could not be used to bring the projected removals below the 2024 allocation of 0.810 Mlb. An approximation of status quo reverse slot limit of U40O80 changing to U36O80 midseason is U38O80. The total removals without day closures at U38O80 is estimated to be 1.003 Mlb (Table 2C.6). Of the days analyzed, the maximum projected savings is on Tuesdays. Closing all Tuesdays is projected to save 162,648 lb and would still be over the 2024 allocation by 30,779 lb. A closed day in combination with another management measure would be needed to bring the 2C removals below the 2024 allocation.

Limiting trips to one per day reduces the number of halibut retained by 2.8%. Total removals without day closures at U38O80 is estimated to be 0.977 Mlb (Table 2C.7). Closing all Tuesdays in conjunction with a 1-trip limit is projected to save 158,425 lb and would be over the 2024 allocation by 8,793 lb.

3.4 Differential Reverse Slot Limit

This management measure would allow for a mid-season change to the lower limit in the reverse slot limit.

3.4.1 Approach

This management measure would allow for a mid-season change to the lower limit in the reverse slot limit. Three dates for changing the size limits were evaluated: July 1, July 15, and August 1. The analysis evaluated a range of initial lower slot limits of 38-42 inches and ending lower slot limits of 32-38 inches. All analyses assumed an upper limit of 80 inches for the entire season.

The analysis used harvest data from 2022 and evaluated the proportion of harvest prior to the requested date of regulation change in each area. The year 2022 was used as the base year because it is the most recent year without a mid-season change. Further, the proportion of harvest occurring in the early part of the season has declined, likely from a reduction in overall sport fishing effort due to changes in regulations in other fisheries that limit opportunities during the early part of the season. The proportion of harvest before and after each date in 2022 was used to estimate the harvest during that portion of the season in 2025; this was done by Subarea to account for differences in timing of the fishery. Mean weights were estimated using the same methods as described in section 3.2.1.

All projections include an inflation factor for predicted release mortality and a correction for average weight as described in previous sections.

To estimate the effect of one trip per vessel and permit per day, the proportion of halibut retained on second+ trips in a day 2021 through 2023 was subtracted from harvest estimates used in the "Differential Reverse Slot Limit" analyses.

Such a management measure could have an impact on the effort and proportion of harvest before and after the date of regulation change. It is possible that there would be an increase in effort before the date of regulation change, shifting in the distribution of effort within the year. The scale of this impact cannot be predicted with available data.

3.4.2 Results

The lowest removal forecast uses a U38O80 reverse slot progressing to a U32O80 reverse slot limit on July 1 and would results in 0.834 Mlb of removals. It's noted that this is not within the 2C 2024 allocation. Removals under this analysis ranged from 0.834 to 1.088 Mlb (Table 2C.8). Combining this analysis with one-trip per vessel and permit per day reduces the range of removals to 0.834 to 1.059 Mlb (Table 2C.9).

4.0 Area 3A Management Measures

4.1 Status Quo Forecast of the Number of Fish Harvested

The status quo measures for Area 3A included a two-fish bag limit with a maximum size limit of 28 inches on one fish, no retention of halibut on Wednesdays, and limits of one trip per vessel and one trip per CHP per day. The status quo effort forecast for Area 3A for 2025 is 107,393 angler-days, with a weighted average HPUE of 1.519 halibut per angler-day, and the harvest forecast is 163,135 halibut with a 95% margin of error (± 2 standard errors) of 4,745 fish (Table 3A.12).

4.2 Forecast of the Average Weight in each Subarea

4.2.1 Approach

Average weight was calculated as a weighted mean of the fish of any size and the fish subject to a maximum size limit. Calculations were done for each Subarea, then aggregated to Area 3A. The average weight for the fish of any size was assumed to be the overall average weight in 2013, the last year without a size limit in Area 3A. The average weight for size-restricted fish was calculated as the average weight of fish less than or equal to the specified size limit in 2013 (28 inches under status quo, size limits from 26 to 32 inches were all evaluated). These average weights were then weighted by the 2025 projected proportions of harvest made up of "first" and "second" fish in an angler's bag limit. These terms do not refer to the order in which the fish were caught, but rather to whether the fish came from limits of one or two fish. For example, if an angler kept only one halibut on a trip, the fish was designated a "first" fish. If an angler kept two halibut, one was designated "first" and the other "second." The proportions of "second" fish in the harvest were forecasted for 2025 from 2010-2019 and 2022-2024 logbook data using the exponentially weighted time series models described in Section 2.3. Data from 2020 and 2021 were excluded to mimic the methods used to forecast HPUE and because the substantial increase seen in second fish in 2020 and 2021 was likely a result of regulations reflective of pandemic conditions. HPUE forecasts ranged from 0.94 in subarea H to 1.84 in subarea CCI (Figure 3).

The average weights predicted using this method for each size limit differed from average weights observed under those size limits in past years. Factors contributing to those differences include changes since 2013 in the size distribution of the population, changes in the sizes of fish anglers are willing to keep given annual limits, and changes in the proportions of first and second fish in the harvest. Therefore, the predicted average weights were corrected, or adjusted to match current average weights. Bias corrections were based on the difference between predicted and estimated (observed) average weights for 2019-2024. Predicted average weights for past years tended to be underestimated for most Subareas, ranging from 40.5% below to 58.6% above observed values across all Subareas and years. Correction factors, based on the average ratio of the predicted and observed average weights, ranged from 0.803 to 1.213 among Subareas.

4.2.2 Results

The status quo forecast of average weight in 3A is 10.72 lbs. Status quo is based on a two fish bag limit with one fish of any size and a maximum size limit of 28 inches on one fish, and Wednesday closures. This is above the 2024 preliminary average weight estimate of 9.85 lbs. Estimated removals, including yield and release mortality, under status quo regulations is 1.764 Mlb and is below the 2024 allocation of 1.890 Mlb.

4.3 Maximum Size Limit on One Fish Combined with day closures

4.3.1 Approach

Charter removals were projected under maximum size limits ranging from 26 to 32 inches on the second fish and Tuesday closures from June 4–September 3 or for the entire season were explored for flexibility in recommending management measures. Projected removals include a 0.8% inflation factor to account for release mortality and a correction for the average weight as described above. These projections

incorporate all other status quo measures. Wednesday closures were also projected for the same size limits June 4th -September 3rd and for the entire season. In this case, closed Wednesdays closed were status quo, so effectively, this analysis provides information on opening Wednesdays. This analysis used data from 2014 to determine the proportion of halibut that were harvested on each Wednesday in that year and applied those proportions to the 2025 forecasted harvest. 2014 was used as a reference year because that was the most recent year without Wednesday closures. Closing Wednesdays June 4th -September 3rd is projected to increase the harvest by 3.8% relative to status quo. Opening all Wednesdays is projected to increase harvest by 18% (Table 3A.13).

The analysis for Tuesday closures relied on logbook data from 2024, the most recent year in which the fishery was open on all Tuesdays and closed on Wednesdays. The analysis proceeded by estimating the proportional effect of each Tuesdays in 2024 and applying those proportional effects to the harvest forecast for 2025. The first step was to identify the dates of specific Tuesdays that would be closed in 2024 under each possible number of closed days. A range of 13 Tuesday closures during the period June 3rd – September 2nd, 2025, and all Tuesdays from February – December 2025 were evaluated (Table 3A.14). Once the specific closed Tuesdays were identified, the corresponding Tuesday to each of those dates was identified from 2024. The analysis assumed the proportions of harvest occurring on each Tuesday in 2024 would be added or eliminated if those days were opened or closed, respectively. Closing all Tuesdays beyond the June 3rd – September 2nd period would reduce harvest by 13.3% (Table 3A.14).

As outlined in the 2C analysis of daily closures, the harvest reductions (relative to all Tuesdays open) under each scenario represent the maximum expected reduction in the number of fish harvested. A day of the week closure would be unlikely to achieve the maximum reduction in halibut harvest because of the potential for displaced anglers to book on alternate dates. We do not have sufficient information to accurately estimate the effect of a day of the week closure; we can only say it would reduce halibut harvest by no more than the presented maximum reductions, and that the reduction would likely be less.

Average weight under each size limit from 26 to 32 inches was calculated as a weighted mean of the fish of any size and the fish subject to a maximum size limit as outlined in section 4.2.1.

4.3.2 Results

Removal estimates for combinations of closed Wednesdays and size limits on one fish ranged from 1.677 Mlb for a 26-inch fish with all Wednesdays closed to 2.289 Mlb for a 32-inch fish with no Wednesdays closed (Table 3A.15). Combinations of size limits and closed days that were below the 2024 allocation of 1.89 Mlb ranged from 28 to 31 inches and 7 to All closed Wednesdays.

Removal estimates for combinations of closed Tuesdays, status quo (closed Wednesdays), and size limits on one fish ranged from 1.425 Mlb for a 26-inch fish with all Tuesdays closed to 1.19 Mlb for a 32-inch fish with no Tuesdays closed (Table 3A.16). Combinations of size limits and closed days that were below the 2024 allocation of 1.89 Mlb ranged from 28 to 32 inches and zero to All closed Tuesdays.

4.4 Maximum Size Limit on One Fish Combined with Annual Limits

4.4.1 Approach

Combinations of other size limits and annual limits were explored to provide the Council flexibility in recommending management measures. Charter removals were projected under maximum size limits ranging from 26 to 32 inches on the second fish and annual limits of two to four fish. Projected removals include a 0.8% inflation factor to account for release mortality. These projections incorporate all other status quo measures, including the charter vessel trip limit, permit trip limit, and a Wednesday closure for the entire year.

Average weight under each size limit was calculated as described in section 4.2.1.

The effects of various annual limits on harvest were estimated using charter logbook data that summarized the distribution of annual harvests by individual licensed anglers from 2023. Calculations of

annual harvests could not be done for youth anglers because they are not required to be licensed, and therefore harvest cannot be assigned to individuals. Youth accounted for 5.6% of charter effort in Area 3A in 2023. Because the proportion of youth effort was relatively low, we assume that leaving youth anglers out of the calculations did not bias estimates of the effects of implementing annual limits.

For each Subarea, harvests under each proposed annual limit were estimated by truncating the annual harvest of each angler during 2023 at the given annual limit. For example, if 500 anglers harvested four fish each in 2023 (2,000 fish total), then under an annual limit of three fish, that group of 500 anglers would only harvest 1,500 fish. The number of anglers that would be affected by each annual limit was calculated as the number of anglers that harvested more than the given annual limit in 2023. In the example above, all 500 anglers harvested more than three fish and would be affected by a three-fish annual limit, but anglers that harvested three or fewer fish would be unaffected. Using this approach, the annual harvest by licensed anglers was calculated over a range of annual limits and the percentage reduction in harvest was calculated by comparison to their total harvest with no annual limit. All calculations were done by Subarea and summed to obtain the harvests under each annual limit in Area 3A.

Doing the calculations by Subarea slightly underestimates the harvest reductions associated with annual limits because some anglers fish in multiple Subareas within a year. For example, if an individual angler caught two fish in each of two Subareas in the base year, the analysis by Subarea would indicate that a three-fish annual limit would have no effect on that angler's annual harvest in either Subarea. In reality, the limit would cut that angler's annual harvest by 25 percent. The degree of underestimation depends on how many anglers fished multiple Subareas in a year. The magnitude of this error was evaluated by comparing the percentage harvest reductions estimated from Subarea and areawide data. The Subarea method underestimated the reductions in harvest by 3.5% to 0.5% percentage points for annual limits from two to four fish, respectively. The underestimation caused by anglers fishing multiple Subareas was considered negligible. Furthermore, because this underestimated the reduction of harvest, results are considered conservative estimates.

4.4.2 Results

The effects of annual limits varied by Subarea, with the largest effects in the Kodiak Subarea (Table 3A.17). Areawide, application of annual limits to the harvest would result in harvest reductions of 3.6% to 15.1% with four to two fish annual limits. With all other status quo measures in effect (and all Tuesdays open), implementing a two to four-fish annual limit is estimated to reduce the harvest by 25,861 to 5,827 halibut (Table 3A.17).

A 32-inch size limit on the second fish combined with a four-fish annual limit is forecast to constrain removals to just below the 2024 allocation of 1.89 Mlb; options for smaller size limits and more restrictive annual limits are also available (Table 3A.18).

5.0 Implementation Considerations

5.1 Size Limits

There are no anticipated problems associated with implementation of a reverse slot limit in Area 2C or maximum size limit on the second fish in Area 3A. Size limits have been used successfully in both Regulatory Areas for several years. Maximum size limits and reverse slot limits are implemented for the charter halibut fishery to control the average weight of harvested fish. This type of regulation increases the number of fish released thereby increasing removals associated with release mortality. Not only do these size limits generate additional regulatory (versus voluntary) release of halibut, but they also increase the average weight of released fish. The relative impact of size limits, in terms of release mortality and angler satisfaction, is expected to vary by Subarea due to variation in the availability of large fish caught. For example, clients fishing in Subareas where large fish are commonly caught would likely end up releasing relatively more fish above the maximum size limit or in the protected slot, and those fish would likely be larger. Although release mortality is likely higher under size limits, it is included in the estimates of removals and is accounted for in the charter sector allocation.

5.2 Annual Limits

Annual limits were implemented in Area 3A in 2015– 2019. If annual limits are recommended for the charter fishery, it is crucial for enforcement purposes to ensure that the regulation is accompanied by a recording requirement like that implemented in past years. Specifically, immediately upon retaining a halibut, charter anglers must record, the date, location (IPHC area), and species (halibut) on their harvest record. Enforcement of the annual limit consists of checking anglers with halibut to make sure the harvest is recorded. It is expected that Guided Angler Fish (GAF) taken under the CSP would be exempt from the recording requirement as these harvests accrue toward the IFQ fishery allocation.

Halibut harvest accounting by individual anglers would be implemented through ADF&G charter logbooks as was done in past years. Logbooks require reporting the number of halibut kept and released by individual anglers, as well as the angler's name and fishing license/ID number. No number can be recorded for youth anglers as they are not required to be licensed. Under the CSP, all anglers (including youth) are required to certify in the logbook that the reported number of halibut kept and released is correct.

Another concern with annual limits is that compliance may be low among youth anglers. Youth anglers are not required to be licensed but are still required to complete a harvest record upon harvesting halibut. Although enforcement in the field would be no different for youth anglers, their annual harvests cannot be evaluated post-season using logbook data. However, youth anglers comprised only 5.5% of angler-days in Area 3A in 2023, so harvest by youth anglers beyond the annual limit is unlikely to be substantial.

5.3 Daily Closures

As mentioned earlier, the primary issue with daily closures is that the effect cannot be accurately predicted or evaluated. Daily closures are expected to reduce effort, and therefore their effect is confounded with any factors that affect effort (e.g., trip limits, economic trends, or client changeover days at lodges). This analysis could only estimate the maximum potential change in halibut harvest but cannot predict possible changes in angler behavior, such as anglers booking alternate days. Closure of days during the peak season (June through August) may be more effective than closure of a day or two here and there. With each additional day closed, there would be fewer days available to rebook and fewer charters available to take the displaced anglers. The effectiveness of day of the week closures in Area 2C is expected to be similar to those seen in Area 3A. However, differences in business models and angler behavior between the Areas may impact the effectiveness of this management measure.

Another impact of daily closures is the potential increase in the harvest of other species such as salmon, rockfishes, sablefish, and lingcod. Some charter businesses are able to book anglers to catch other species, particularly salmon. Increases in harvest may intensify conservation concerns for these stocks.

5.4 Mid-season Changes

A mid-season change from a higher to lower slot limit could potentially encourage fishers to shift their effort to the beginning of the season prior to the date when the slot limit changes. Additionally, anglers may shift their effort towards other species later in the season. The issues in anticipating changes in effort outlined under section 5.4 above could possibly be applied to a mid-season change management measure.

This could also result in an increase in releases later in the season once the lower slot limit is decreased. Similar issues regarding release mortality outlined in section 5.1 may apply to a mid-season change management measure. It is possible that a shift in effort combined with increased releases later on in the season could negate savings calculated, but by what magnitude is difficult to determine.

6.0 References

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Table 2C.1: Subareas of IPHC Areas 2C, ports where ADF&G halibut sampling occurs, and Subarea abbreviations used in tables and figures in this report.

IPHC Area	Subarea	Ports with Sampling and Angler Interviews	Abbreviations
2C	Ketchikan	Ketchikan	Ketch, A
	Prince of Wales Island	Craig, Klawock	PWalesI, PWI, B
	Petersburg/Wrangell	Petersburg, Wrangell	Pburg, C
	Sitka	Sitka	D
	Juneau, Haines, Skagway	Juneau	Jun, E, EF
	Glacier Bay (2C portion)	Gustavus, Elfin Cove	GlacB, GlacB-2C, G2C

Table 2C.2: Charter logbook effort, harvest per unit effort, and harvest of halibut in IPHC Area 2C, 2015 - 2024. Preliminary numbers for 2024 (in italics) are based on logbook data for charter trips entered as of November 6th, 2024.

	Subarea						
Year	Ketch	PWI	Pburg	Sitka	Jun	GlacB-2C	Total 2C
Effort (angler-days)*							
2015	16,685	21,931	3,071	31,113	11,391	10,613	94,804
2016	16,595	23,440	3,373	31,093	12,069	9,694	96,264
2017	18,678	25,466	3,133	33,481	13,729	9,786	104,273
2018	21,661	25,708	3,538	32,394	13,993	11,396	108,690
2019	20,998	24,412	3,194	33,057	14,674	10,414	106,749
2020	4,521	12,644	1,934	16,605	4,089	5,133	44,926
2021	13,536	26,082	3,303	33,689	12,112	12,618	101,340
2022	21,223	28,486	3,293	37,044	12,965	13,761	116,772
2023	25,240	27,772	3,302	33,862	12,717	13,100	115,993
2024	*26,005*	*27,750*	*2,635*	*33,692*	*13,313*	*12,477*	*115,872*
Halibut Harvest per Angler-Day (HPUE)							
2015	0.465	0.744	0.691	0.759	0.675	0.768	0.693
2016	0.507	0.725	0.621	0.789	0.633	0.667	0.687
2017	0.460	0.753	0.630	0.777	0.592	0.692	0.677
2018	0.440	0.729	0.606	0.751	0.572	0.637	0.644
2019	0.439	0.742	0.523	0.766	0.615	0.699	0.661
2020	0.776	0.771	0.768	0.834	0.854	0.783	0.804
2021	0.674	0.794	0.668	0.806	0.718	0.786	0.768
2022	0.480	0.794	0.610	0.807	0.689	0.706	0.714
2023	0.533	0.814	0.631	0.824	0.741	0.721	0.732
2024	*0.587*	*0.870*	*0.687*	*0.839*	*0.777*	*0.794*	*0.775*
Harvest (number of halibut)							
2015	7,762	16,322	2,121	23,611	7,687	8,153	65,656
2016	8,414	16,999	2,095	24,528	7,642	6,469	66,147
2017	8,590	19,173	1,975	26,018	8,123	6,769	70,648
2018	9,530	18,731	2,143	24,327	7,998	7,255	69,984
2019	9,217	18,105	1,672	25,306	9,020	7,280	70,600
2020	3,507	9,750	1,485	13,848	3,490	4,020	36,100
2021	9,125	20,706	2,206	27,155	8,692	9,919	77,803
2022	10,177	22,608	2,009	29,693	8,928	9,721	83,136
2023	13,454	22,618	2,082	27,896	9,419	9,442	84,911
2024	*15,270*	*24,145*	*1,809*	*28,281*	*10,343*	*9,904*	*89,752*

*Effort is defined as an angler-day on open days with recorded bottomfish hours or harvest of at least one halibut.

Table 2C.3. Forecasts of effort, halibut harvest per unit effort (HPUE), and harvest (numbers of halibut) for Area 2C in 2025 under status quo regulations, with associated standard errors. Status quo regulations include a one-fish bag limit, a U40O80 reverse slot size limit through July 14th, a U36O80 reverse slot size limit after July 14th, and Fridays closed beginning on July 19th through September 13th.

Subarea	Effort (angler-days)**	HPUE	Std Error	Harvest (no. halibut)	Std Error
Ketch	26,005	0.587	0.045	15,264	1,162
PWI	27,750	0.869	0.044	24,127	1,225
Pburg	2,635	0.687	0.047	1,810	123
Sitka	33,692	0.834	0.045	28,090	1,519
Jun	13,313	0.817	0.045	10,872	596
GlacB-2C	12,477	0.767	0.057	9,564	712
Area 2C	115,872	0.775	*	89,727	2,457

*This SE cannot be calculated because unlike effort and harvest, HPUE is not expected to additive across subareas.

**2C regulations in 2023 measures aimed to reduce effort through day closures. For this year, preliminary effort data for 2024 was used in the 2025 forecasts.

Table 2C.4. Projected charter removals (Mlb, includes release mortality) for Area 2C in 2025 under reverse slot limits ranging from U32O50 to U50O80 with a 1-fish bag limit. Shaded cells represent projections for the most liberal combinations that do not exceed the 2024 allocation of 0.810 Mlb. All values in the table include corrections for errors in estimation of average weight and inflation factors for release mortality. The harvest projection is for all days open throughout the season. The last column is the discard mortality estimate (Mlb) for the UXO80 removal estimates.

Harvest = 104,354

Lower Limit (in)	Upper Length Limit (in) 50	52	54	56	58	60	62	64	66	68	70	72	74	76	78	80	*Amount of discard mortality at uXo80*
32	1.568	1.454	1.370	1.274	1.207	1.145	1.057	0.974	0.927	0.890	0.854	0.830	0.796	0.775	0.773	0.757	0.031
33	1.599	1.487	1.403	1.309	1.241	1.179	1.093	1.010	0.963	0.926	0.890	0.866	0.832	0.812	0.809	0.794	0.032
34	1.636	1.525	1.442	1.349	1.282	1.221	1.134	1.052	1.005	0.969	0.933	0.909	0.875	0.855	0.852	0.837	0.034
35	1.663	1.553	1.471	1.379	1.313	1.251	1.166	1.084	1.037	1.001	0.966	0.941	0.907	0.887	0.885	0.869	0.035
36	1.708	1.600	1.519	1.428	1.363	1.302	1.217	1.136	1.090	1.054	1.018	0.994	0.960	0.940	0.938	0.922	0.037
37	1.735	1.628	1.548	1.458	1.393	1.333	1.248	1.167	1.121	1.086	1.050	1.026	0.992	0.972	0.970	0.954	0.038
38	1.775	1.671	1.592	1.503	1.439	1.379	1.295	1.215	1.169	1.134	1.099	1.075	1.041	1.021	1.019	1.003	0.040
39	1.806	1.703	1.625	1.536	1.472	1.413	1.330	1.250	1.205	1.169	1.134	1.110	1.077	1.057	1.055	1.039	0.042
40	1.831	1.729	1.652	1.564	1.501	1.442	1.359	1.280	1.235	1.200	1.165	1.141	1.108	1.088	1.086	1.070	0.043
41	1.861	1.761	1.685	1.598	1.536	1.477	1.395	1.316	1.271	1.236	1.202	1.178	1.145	1.125	1.123	1.107	0.045
42	1.881	1.782	1.707	1.621	1.559	1.501	1.419	1.341	1.296	1.261	1.227	1.203	1.170	1.150	1.148	1.133	0.046
43	1.903	1.806	1.731	1.645	1.584	1.527	1.445	1.367	1.323	1.288	1.254	1.230	1.197	1.178	1.175	1.160	0.047
44	1.935	1.839	1.766	1.681	1.621	1.564	1.483	1.406	1.361	1.327	1.293	1.269	1.236	1.217	1.214	1.199	0.048
45	1.970	1.876	1.803	1.720	1.660	1.603	1.523	1.446	1.402	1.368	1.334	1.311	1.278	1.258	1.256	1.241	0.050
46	1.993	1.900	1.829	1.746	1.687	1.631	1.551	1.475	1.431	1.397	1.363	1.340	1.307	1.288	1.285	1.270	0.051
47	2.025	1.934	1.864	1.782	1.723	1.668	1.588	1.513	1.469	1.436	1.402	1.379	1.346	1.327	1.324	1.309	0.053
48	2.048	1.958	1.888	1.807	1.749	1.694	1.615	1.540	1.497	1.463	1.429	1.406	1.374	1.354	1.352	1.337	0.054
49	2.085	1.997	1.928	1.848	1.791	1.736	1.658	1.584	1.541	1.507	1.474	1.451	1.419	1.399	1.397	1.382	0.056
50	2.110	2.024	1.956	1.877	1.820	1.766	1.689	1.615	1.572	1.539	1.506	1.483	1.451	1.431	1.429	1.414	0.057

Table 2C.5. Projected charter removals (Mlb, includes release mortality) for Area 2C in 2025 under reverse slot limits ranging from U35O80 to U40O80 with a 1-fish bag limit *and* a limit of **one trip per vessel and one trip per permit per day.** All values in the table include corrections for errors in estimation of average weight and inflation factors for release mortality. The harvest projection is for all days open throughout the season.

Harvest = 101,419

	Upper Length Limit (in)
	80
35	0.853
36	0.905
37	0.937
38	0.986
39	1.022
40	1.053

Lower Length Limit (in)

Table 2C.6. Projected charter **savings per day** (lbs) for Area 2C in 2025 under reverse slot limits with lower limits of the protected slot ranging from 32 to 50 inches and an upper limit of 80 inches with with days closed between May 15 and September 15 for **Tuesday, Thursday, and Saturday.** All values in the table include corrections for errors in estimation of average weight and inflation factors for release mortality. To determine removals from a closed day(s), take the total removals for a given lower slot limit and subtract the savings from a date(s) in that row.

a. Tuesday closures

Lower Length Limit (in)	Closed Tuesdays																		Projected removals (O80)
	September 9	September 2	August 26	August 19	August 12	August 5	July 29	July 22	July 15	July 8	July 1	June 24	June 17	June 10	June 3	May 27	May 20	May 13	
32	2,062	4,812	7,160	8,919	7,197	9,944	10,348	9,613	8,675	10,426	7,510	9,251	8,575	6,041	5,191	3,432	2,464	1,054	757,074
33	2,179	5,042	7,508	9,348	7,544	10,422	10,845	10,068	9,076	10,924	7,861	9,688	8,981	6,309	5,449	3,594	2,579	1,109	793,513
34	2,308	5,331	7,911	9,837	7,945	10,983	11,421	10,605	9,548	11,499	8,270	10,209	9,469	6,649	5,753	3,803	2,734	1,182	836,654
35	2,410	5,543	8,219	10,221	8,260	11,415	11,862	11,020	9,920	11,951	8,578	10,602	9,850	6,911	5,996	3,964	2,849	1,232	869,245
36	2,583	5,892	8,717	10,827	8,749	12,102	12,568	11,678	10,498	12,664	9,054	11,229	10,446	7,330	6,400	4,235	3,046	1,325	922,192
37	2,682	6,117	9,016	11,196	9,058	12,533	12,999	12,088	10,865	13,098	9,345	11,624	10,816	7,601	6,644	4,404	3,165	1,378	954,452
38	2,842	6,443	9,478	11,773	9,542	13,191	13,663	12,712	11,418	13,771	9,813	12,221	11,389	7,979	6,998	4,633	3,329	1,452	1,003,427
39	2,955	6,680	9,814	12,185	9,876	13,659	14,143	13,160	11,817	14,255	10,137	12,649	11,794	8,269	7,271	4,817	3,462	1,513	1,039,276
40	3,071	6,883	10,107	12,553	10,180	14,073	14,556	13,555	12,168	14,692	10,408	13,013	12,171	8,521	7,528	4,986	3,584	1,567	1,070,197
41	3,202	7,137	10,457	12,994	10,557	14,581	15,059	14,033	12,592	15,206	10,751	13,468	12,614	8,813	7,811	5,168	3,713	1,625	1,107,387
42	3,290	7,312	10,693	13,292	10,808	14,924	15,396	14,364	12,892	15,566	10,969	13,773	12,932	9,043	8,028	5,320	3,822	1,669	1,132,821
43	3,380	7,495	10,949	13,621	11,080	15,298	15,766	14,720	13,218	15,951	11,206	14,106	13,253	9,280	8,253	5,468	3,923	1,710	1,160,092
44	3,518	7,748	11,318	14,073	11,447	15,805	16,285	15,208	13,646	16,490	11,555	14,561	13,717	9,590	8,563	5,677	4,078	1,782	1,199,140
45	3,653	8,037	11,705	14,542	11,835	16,350	16,834	15,734	14,111	17,052	11,918	15,059	14,205	9,950	8,897	5,916	4,253	1,861	1,240,960
46	3,753	8,248	11,972	14,860	12,103	16,726	17,208	16,100	14,430	17,442	12,162	15,403	14,565	10,212	9,139	6,100	4,394	1,925	1,270,234
47	3,894	8,503	12,343	15,326	12,493	17,250	17,735	16,600	14,871	17,991	12,528	15,870	15,040	10,514	9,439	6,293	4,535	1,988	1,309,284
48	3,993	8,686	12,603	15,638	12,746	17,603	18,098	16,942	15,166	18,367	12,770	16,189	15,368	10,736	9,661	6,447	4,652	2,044	1,336,964
49	4,122	8,974	13,031	16,189	13,201	18,217	18,721	17,533	15,710	19,011	13,216	16,749	15,905	11,111	9,986	6,657	4,798	2,099	1,382,050
50	4,240	9,188	13,336	16,588	13,537	18,666	19,160	17,959	16,099	19,479	13,503	17,141	16,308	11,384	10,256	6,829	4,918	2,146	1,414,321

Table 2C.6. (continued)

b. Thursday closures

Lower Length Limit (in)	Closed Thursdays																		Projected removals (O80)
	September 12	September 5	August 29	August 22	August 15	August 8	August 1	July 25	July 18	July 11	July 4	June 27	June 20	June 13	June 6	May 30	May 23	May 16	
32	966	3,132	6,365	8,633	7,897	9,315	10,152	10,172	10,790	9,567	7,125	9,336	8,450	6,837	5,325	3,339	2,402	1,749	757,074
33	1,024	3,295	6,688	9,029	8,268	9,754	10,630	10,658	11,306	10,012	7,476	9,775	8,850	7,147	5,588	3,507	2,517	1,832	793,513
34	1,092	3,499	7,063	9,504	8,703	10,268	11,200	11,225	11,909	10,536	7,887	10,301	9,324	7,535	5,901	3,710	2,669	1,944	836,654
35	1,140	3,644	7,345	9,857	9,037	10,658	11,621	11,656	12,362	10,942	8,200	10,701	9,685	7,828	6,143	3,873	2,778	2,025	869,245
36	1,223	3,894	7,822	10,416	9,553	11,280	12,300	12,346	13,082	11,578	8,705	11,331	10,263	8,300	6,553	4,162	2,973	2,170	922,192
37	1,269	4,050	8,111	10,758	9,878	11,663	12,713	12,768	13,521	11,967	9,013	11,715	10,624	8,603	6,806	4,328	3,087	2,254	954,452
38	1,349	4,282	8,544	11,284	10,390	12,246	13,346	13,419	14,212	12,566	9,494	12,313	11,169	9,034	7,162	4,549	3,241	2,365	1,003,427
39	1,402	4,449	8,864	11,666	10,742	12,671	13,807	13,887	14,700	13,000	9,834	12,740	11,563	9,360	7,440	4,743	3,371	2,462	1,039,276
40	1,454	4,595	9,142	11,977	11,052	13,025	14,186	14,287	15,115	13,380	10,139	13,117	11,902	9,635	7,686	4,925	3,482	2,546	1,070,197
41	1,517	4,781	9,480	12,361	11,440	13,461	14,653	14,778	15,631	13,829	10,510	13,565	12,318	9,965	7,969	5,104	3,599	2,630	1,107,387
42	1,554	4,901	9,704	12,619	11,695	13,753	14,964	15,106	15,966	14,145	10,757	13,877	12,602	10,208	8,178	5,261	3,696	2,704	1,132,821
43	1,587	5,026	9,954	12,898	11,973	14,077	15,299	15,465	16,329	14,480	11,019	14,196	12,911	10,467	8,404	5,419	3,788	2,771	1,160,092
44	1,655	5,209	10,298	13,303	12,355	14,527	15,792	15,969	16,858	14,958	11,398	14,675	13,333	10,809	8,704	5,643	3,935	2,883	1,199,140
45	1,718	5,413	10,669	13,740	12,760	15,011	16,321	16,506	17,412	15,463	11,795	15,179	13,792	11,204	9,040	5,888	4,103	3,009	1,240,960
46	1,770	5,566	10,924	14,039	13,038	15,336	16,687	16,872	17,793	15,814	12,075	15,543	14,109	11,484	9,276	6,073	4,233	3,109	1,270,234
47	1,840	5,750	11,267	14,447	13,442	15,791	17,180	17,385	18,338	16,297	12,465	16,028	14,538	11,822	9,565	6,269	4,361	3,204	1,309,284
48	1,891	5,885	11,511	14,733	13,706	16,105	17,529	17,737	18,708	16,632	12,732	16,369	14,834	12,065	9,779	6,434	4,473	3,290	1,336,964
49	1,944	6,069	11,890	15,237	14,194	16,660	18,119	18,347	19,349	17,213	13,165	16,928	15,347	12,480	10,104	6,636	4,605	3,384	1,382,050
50	1,991	6,218	12,181	15,562	14,533	17,036	18,510	18,772	19,786	17,616	13,486	17,319	15,712	12,776	10,363	6,816	4,707	3,460	1,414,321

Table 2C.6. (continued)

c. Saturday closures

Lower Length Limit (in)	Closed Saturdays																		Projected removals (O80)
	September 13	September 6	August 30	August 23	August 16	August 9	August 2	July 26	July 19	July 12	July 5	June 28	June 21	June 14	June 7	May 31	May 24	May 17	
32	618	1,447	4,757	7,502	8,134	3,022	9,466	8,822	10,016	9,530	7,963	6,315	8,910	6,524	5,402	4,164	1,307	1,968	757,074
33	656	1,529	4,995	7,845	8,524	3,145	9,923	9,257	10,490	9,983	8,346	6,623	9,341	6,839	5,661	4,387	1,370	2,062	793,513
34	702	1,630	5,276	8,257	8,990	3,301	10,454	9,754	11,058	10,514	8,796	6,986	9,847	7,218	5,969	4,649	1,450	2,187	836,654
35	730	1,697	5,471	8,566	9,326	3,429	10,853	10,129	11,473	10,913	9,134	7,259	10,229	7,502	6,206	4,854	1,508	2,276	869,245
36	783	1,827	5,807	9,053	9,874	3,610	11,491	10,743	12,143	11,540	9,666	7,711	10,851	7,976	6,603	5,228	1,608	2,437	922,192
37	810	1,903	6,010	9,358	10,206	3,737	11,876	11,109	12,552	11,919	9,993	7,986	11,225	8,258	6,842	5,447	1,665	2,530	954,452
38	858	2,010	6,316	9,821	10,722	3,924	12,484	11,675	13,182	12,526	10,515	8,395	11,796	8,677	7,183	5,739	1,749	2,652	1,003,427
39	891	2,095	6,542	10,155	11,091	4,053	12,914	12,089	13,636	12,950	10,875	8,701	12,217	8,996	7,452	5,989	1,815	2,760	1,039,276
40	918	2,162	6,712	10,431	11,389	4,171	13,284	12,439	14,006	13,315	11,187	8,961	12,577	9,272	7,685	6,218	1,874	2,852	1,070,197
41	954	2,247	6,940	10,774	11,769	4,316	13,738	12,864	14,470	13,764	11,580	9,273	13,008	9,589	7,947	6,459	1,936	2,943	1,107,387
42	971	2,299	7,072	11,006	12,007	4,428	14,033	13,141	14,772	14,057	11,832	9,487	13,301	9,818	8,142	6,650	1,985	3,024	1,132,821
43	985	2,356	7,228	11,260	12,267	4,544	14,352	13,450	15,097	14,367	12,100	9,720	13,616	10,056	8,353	6,855	2,031	3,098	1,160,092
44	1,025	2,445	7,455	11,612	12,659	4,681	14,824	13,896	15,581	14,837	12,495	10,049	14,075	10,409	8,645	7,133	2,109	3,221	1,199,140
45	1,063	2,546	7,705	11,997	13,079	4,840	15,313	14,361	16,102	15,321	12,908	10,405	14,562	10,788	8,965	7,442	2,191	3,361	1,240,960
46	1,094	2,620	7,869	12,261	13,367	4,952	15,650	14,674	16,463	15,659	13,195	10,651	14,900	11,062	9,189	7,666	2,256	3,471	1,270,234
47	1,133	2,701	8,094	12,618	13,762	5,102	16,132	15,121	16,950	16,142	13,609	10,975	15,356	11,401	9,465	7,915	2,327	3,574	1,309,284
48	1,166	2,769	8,257	12,864	14,042	5,194	16,464	15,434	17,295	16,473	13,886	11,208	15,682	11,656	9,673	8,118	2,386	3,668	1,336,964
49	1,193	2,842	8,517	13,312	14,504	5,398	17,024	15,951	17,872	17,037	14,363	11,581	16,207	12,037	9,994	8,367	2,458	3,774	1,382,050
50	1,212	2,903	8,688	13,607	14,807	5,540	17,409	16,313	18,252	17,417	14,693	11,852	16,579	12,315	10,234	8,597	2,512	3,856	1,414,321

Table 2C.7. Projected charter **savings per day** (lbs) for Area 2C in 2025 under reverse slot limits with lower limits of the protected slot ranging from 32 to 42 inches and an upper limit of 80 inches with days closed between May 15 and September 15 for **Tuesday, Thursday, and Saturday *and* a limit of one trip per vessel and one trip per permit per day** All values in the table include corrections for errors in estimation of average weight and inflation factors for release mortality. To determine removals from a closed day(s), take the total removals for a given lower slot limit and subtract the savings from a date(s) in that row.

a. Tuesday closures

Lower Length Limit (in)	Closed Tuesdays																		Projected removals (O80)
	September 9	September 2	August 26	August 19	August 12	August 5	July 29	July 22	July 15	July 8	July 1	June 24	June 17	June 10	June 3	May 27	May 20	May 13	
32	1,993	4,685	6,972	8,679	6,988	9,672	10,075	9,364	8,460	10,158	7,297	9,005	8,350	5,926	5,078	3,376	2,425	1,033	737,602
33	2,106	4,908	7,309	9,096	7,323	10,135	10,556	9,805	8,850	10,642	7,637	9,428	8,744	6,188	5,329	3,534	2,538	1,087	772,973
34	2,230	5,189	7,701	9,570	7,711	10,679	11,116	10,328	9,309	11,201	8,033	9,934	9,218	6,522	5,627	3,740	2,690	1,158	814,905
35	2,329	5,396	8,001	9,944	8,017	11,099	11,546	10,732	9,672	11,641	8,331	10,317	9,589	6,780	5,864	3,898	2,804	1,207	846,682
36	2,496	5,736	8,485	10,533	8,492	11,768	12,233	11,373	10,236	12,336	8,793	10,928	10,170	7,191	6,260	4,165	2,997	1,299	898,267
37	2,592	5,954	8,776	10,892	8,792	12,186	12,652	11,772	10,594	12,759	9,075	11,311	10,530	7,457	6,499	4,331	3,115	1,351	929,685
38	2,747	6,270	9,225	11,452	9,260	12,824	13,296	12,377	11,132	13,412	9,528	11,891	11,086	7,827	6,844	4,555	3,276	1,423	977,217
39	2,856	6,502	9,552	11,852	9,584	13,279	13,763	12,815	11,520	13,885	9,843	12,308	11,480	8,112	7,112	4,738	3,407	1,483	1,012,175
40	2,968	6,700	9,838	12,211	9,880	13,683	14,167	13,201	11,864	14,311	10,106	12,663	11,848	8,361	7,364	4,904	3,527	1,536	1,042,390
41	3,095	6,947	10,177	12,639	10,244	14,176	14,654	13,665	12,276	14,810	10,438	13,104	12,278	8,646	7,640	5,083	3,653	1,592	1,078,479
42	3,181	7,118	10,409	12,931	10,490	14,511	14,985	13,989	12,570	15,163	10,651	13,403	12,590	8,872	7,853	5,232	3,762	1,636	1,103,438

Table 2C.7. (continued)

b. Thursday closures

Lower Length Limit (in)	Closed Thursdays																		Projected removals (O80)
	September 12	September 5	August 29	August 22	August 15	August 8	August 1	July 25	July 18	July 11	July 4	June 27	June 20	June 13	June 6	May 30	May 23	May 16	
32	924	3,035	6,190	8,416	7,672	9,076	9,891	9,902	10,487	9,332	6,920	9,094	8,231	6,689	5,209	3,298	2,367	1,727	737,602
33	980	3,192	6,504	8,801	8,031	9,502	10,355	10,373	10,986	9,764	7,260	9,520	8,620	6,992	5,465	3,463	2,480	1,810	772,973
34	1,045	3,389	6,867	9,263	8,452	10,002	10,909	10,924	11,571	10,274	7,658	10,031	9,080	7,371	5,772	3,665	2,629	1,920	814,905
35	1,090	3,529	7,142	9,608	8,777	10,382	11,320	11,344	12,011	10,670	7,963	10,420	9,433	7,658	6,009	3,825	2,737	2,000	846,682
36	1,170	3,772	7,606	10,152	9,278	10,989	11,981	12,015	12,710	11,291	8,453	11,034	9,996	8,121	6,410	4,111	2,929	2,143	898,267
37	1,214	3,923	7,887	10,485	9,593	11,361	12,383	12,426	13,136	11,670	8,752	11,408	10,347	8,417	6,657	4,275	3,042	2,227	929,685
38	1,291	4,147	8,306	10,996	10,088	11,927	12,997	13,057	13,805	12,252	9,217	11,988	10,876	8,838	7,004	4,494	3,192	2,336	977,217
39	1,341	4,309	8,618	11,368	10,431	12,341	13,446	13,513	14,279	12,676	9,547	12,405	11,260	9,157	7,277	4,685	3,321	2,432	1,012,175
40	1,391	4,451	8,889	11,673	10,732	12,688	13,816	13,904	14,683	13,047	9,844	12,772	11,592	9,427	7,518	4,865	3,431	2,515	1,042,390
41	1,452	4,631	9,217	12,046	11,107	13,111	14,269	14,380	15,183	13,484	10,203	13,207	11,995	9,748	7,794	5,042	3,546	2,598	1,078,479
42	1,487	4,748	9,437	12,299	11,357	13,397	14,574	14,701	15,510	13,794	10,445	13,513	12,273	9,988	8,000	5,197	3,642	2,671	1,103,438

Table 2C.7. (continued)

c. Saturday closures

Lower Length Limit (in)	Closed Saturdays																		Projected removals (O80)
	September 13	September 6	August 30	August 23	August 16	August 9	August 2	July 26	July 19	July 12	July 5	June 28	June 21	June 14	June 7	May 31	May 24	May 17	
32	590	1,405	4,618	7,315	7,906	2,953	9,200	8,583	9,748	9,263	7,727	6,157	8,683	6,374	5,292	4,094	1,281	1,946	737,602
33	626	1,484	4,848	7,648	8,284	3,074	9,643	9,005	10,206	9,702	8,096	6,455	9,101	6,680	5,545	4,312	1,343	2,038	772,973
34	670	1,582	5,120	8,049	8,735	3,226	10,157	9,487	10,758	10,216	8,532	6,809	9,593	7,050	5,847	4,569	1,421	2,161	814,905
35	696	1,647	5,310	8,351	9,062	3,352	10,545	9,852	11,162	10,604	8,859	7,075	9,965	7,328	6,079	4,771	1,478	2,249	846,682
36	747	1,772	5,635	8,826	9,594	3,528	11,165	10,449	11,813	11,213	9,375	7,516	10,572	7,791	6,469	5,139	1,576	2,409	898,267
37	772	1,847	5,832	9,123	9,917	3,652	11,538	10,804	12,211	11,580	9,692	7,783	10,936	8,067	6,703	5,354	1,632	2,501	929,685
38	818	1,950	6,128	9,572	10,416	3,835	12,127	11,353	12,821	12,167	10,197	8,181	11,491	8,475	7,036	5,640	1,714	2,621	977,217
39	849	2,033	6,347	9,898	10,775	3,962	12,545	11,756	13,263	12,579	10,546	8,480	11,901	8,787	7,301	5,886	1,779	2,728	1,012,175
40	876	2,098	6,513	10,168	11,065	4,077	12,905	12,097	13,624	12,935	10,849	8,734	12,253	9,057	7,529	6,112	1,837	2,819	1,042,390
41	909	2,180	6,732	10,501	11,432	4,219	13,345	12,510	14,074	13,369	11,228	9,038	12,671	9,366	7,785	6,348	1,898	2,909	1,078,479
42	926	2,231	6,862	10,729	11,666	4,328	13,633	12,780	14,370	13,656	11,474	9,247	12,958	9,592	7,978	6,538	1,946	2,989	1,103,438

Table 2C.8. Projected removals (Mlb) for changing the lower slot limit from a range of 38-42 inches at start of the season to 32-38 inches after July 1, July 15, and August 1. All analyses assume an upper slot limit of 80 inches and all days of the season open to fishing and include corrections for errors in estimation of average weight and inflation factors for release mortality.

		Removals		
Starting Lower Slot Limit	Ending Lower Slot Limit	1-Jul	15-Jul	1-Aug
38	32	0.834	0.870	0.917
	33	0.859	0.890	0.930
	34	0.889	0.913	0.945
	35	0.911	0.931	0.956
	36	0.948	0.959	0.975
	37	0.970	0.977	0.986
	38	1.003	1.003	1.003
39	32	1.003	0.887	0.940
	33	0.871	0.906	0.953
	34	0.900	0.930	0.968
	35	0.923	0.947	0.980
	36	0.959	0.976	0.998
	37	0.981	0.993	1.010
	38	1.015	1.020	1.027
40	32	0.856	0.901	0.960
	33	0.881	0.921	0.973
	34	0.911	0.944	0.988
	35	0.933	0.962	1.000
	36	0.969	0.990	1.018
	37	0.991	1.008	1.030
	38	1.025	1.034	1.047
41	32	0.867	0.918	0.985
	33	0.893	0.938	0.997
	34	0.922	0.961	1.012
	35	0.945	0.979	1.024
	36	0.981	1.007	1.042
	37	1.003	1.025	1.054
	38	1.037	1.052	1.071
42	32	0.876	0.930	1.001
	33	0.901	0.950	1.014
	34	0.931	0.973	1.029
	35	0.953	0.991	1.040
	36	0.989	1.019	1.059
	37	1.011	1.037	1.070
	38	1.045	1.063	1.088

Table 2C.9. Projected removals (Mlb) for changing the lower slot limit from a range of 38-42 inches at start of the season to 32-38 inches after July 1, July 15, and August 1 *and* **a limit of one trip per vessel and one trip per permit per day**. All analyses assume an upper slot limit of 80 inches and all days of the season open to fishing and include corrections for errors in estimation of average weight and inflation factors for release mortality.

		Removals		
Starting Lower Slot Limit	Ending Lower Slot Limit	1-Jul	15-Jul	1-Aug
38	32	0.813	0.848	0.893
	33	0.837	0.867	0.906
	34	0.866	0.890	0.920
	35	0.888	0.907	0.931
	36	0.923	0.934	0.949
	37	0.944	0.951	0.961
	38	0.977	0.977	0.977
39	32	0.977	0.864	0.916
	33	0.848	0.883	0.928
	34	0.877	0.906	0.943
	35	0.899	0.923	0.954
	36	0.934	0.951	0.972
	37	0.956	0.968	0.983
	38	0.988	0.993	1.000
40	32	0.834	0.878	0.936
	33	0.858	0.897	0.948
	34	0.887	0.920	0.963
	35	0.909	0.937	0.974
	36	0.944	0.965	0.992
	37	0.965	0.982	1.003
	38	0.998	1.007	1.020
41	32	0.845	0.895	0.959
	33	0.870	0.914	0.971
	34	0.898	0.936	0.986
	35	0.920	0.954	0.997
	36	0.955	0.981	1.015
	37	0.977	0.998	1.026
	38	1.010	1.024	1.043
42	32	0.853	0.906	0.975
	33	0.878	0.926	0.988
	34	0.907	0.948	1.002
	35	0.928	0.965	1.013
	36	0.964	0.993	1.031
	37	0.985	1.010	1.043
	38	1.018	1.036	1.059

Table 3A.10: Subareas of IPHC Area 3A, ports where ADF&G halibut sampling occurs, and Subarea abbreviations used in tables and figures in this report.

IPHC Area	Subarea	Ports with Sampling and Angler Interviews	Abbreviations
3A	Glacier Bay (3A portion)	Gustavus, Elfin Cove	GlacB, GlacB-3A, G3A
	Yakutat	Yakutat	Yak, H
	Eastern Prince William Sound	Valdez	EPWS
	Western Prince William Sound	Whittier	WPWS
	North Gulf	Seward	NGulf, NGC
	Lower Cook Inlet	Homer	LCI
	Central Cook Inlet	Anchor Point, Deep Creek	CCI
	Kodiak	Kodiak	Kod, QR

Table 3A.11. Charter logbook effort, harvest per unit effort, and harvest of halibut in IPHC Area 3A, 2015 - 2024. Preliminary estimates for 2024 (in italics) are based on logbook data for charter trips through August 31, 2024, entered as of November 6th, 2024.

	Subarea								
Year	GlacB-3A	Yak	EPWS	WPWS	NGulf	CCI	LCI	Kod	Tot 3A
Effort (angler-days)									
2015	1,852	3,267	3,527	3,484	30,864	19,882	33,011	8,756	104,643
2016	1,887	3,382	4,126	4,094	33,007	16,865	36,978	8,427	108,766
2017	2,211	3,405	3,579	3,679	27,934	17,330	35,426	7,899	101,463
2018	2,739	4,412	4,045	3,955	27,535	16,871	33,723	8,476	101,756
2019	2,094	4,365	4,653	4,764	29,889	15,184	33,663	8,961	103,573
2020	958	1,994	3,495	3,770	20,694	10,773	24,250	5,851	71,745
2021	1,282	4,220	4,940	4,721	32,297	17,284	46,506	12,628	123,878
2022	1,130	4,130	4,718	4,597	30,120	15,897	42,965	12,385	115,942
2023	1,046	2,874	3,925	4,730	26,020	12,840	39,899	11,778	103,112
2024	*1,136*	*3,106*	*4,052*	*5,222*	*27,321*	*12,136*	*41,180*	*10,614*	*104,767*
Halibut Harvest per Angler-Day (HPUE)									
2015	0.746	0.983	1.218	1.330	1.501	1.802	1.791	1.010	1.564
2016	0.757	0.964	1.149	1.096	1.294	1.705	1.741	1.001	1.455
2017	0.728	0.939	1.143	1.016	1.166	1.665	1.718	0.983	1.406
2018	0.688	0.980	1.187	1.088	1.056	1.670	1.668	0.883	1.340
2019	0.755	0.985	1.103	1.094	1.143	1.660	1.642	0.916	1.343
2020	0.899	1.157	1.379	1.296	1.212	1.779	1.744	1.227	1.486
2021	0.981	1.116	1.431	1.138	1.177	1.831	1.759	1.154	1.489
2022	0.662	0.888	1.364	0.936	1.225	1.795	1.746	1.129	1.463
2023	0.598	1.020	1.240	1.073	1.279	1.820	1.766	1.204	1.508
2024	*0.613*	*0.921*	*1.314*	*1.178*	*1.269*	*1.840*	*1.807*	*1.230*	*1.527*
Harvest (number of halibut)*									
2015	1,381	3,210	4,296	4,635	46,321	35,834	59,110	8,845	163,632
2016	1,428	3,259	4,742	4,487	42,721	28,747	64,392	8,438	158,214
2017	1,609	3,196	4,090	3,737	32,576	28,850	60,845	7,761	142,664
2018	1,884	4,322	4,803	4,302	29,068	28,183	56,262	7,488	136,312
2019	1,582	4,301	5,132	5,214	34,171	25,200	55,274	8,208	139,082
2020	861	2,308	4,882	4,887	25,078	19,094	42,299	7,180	106,589
2021	1,257	4,709	7,070	5,371	38,000	31,640	81,825	14,569	184,441
2022	748	3,668	6,437	4,304	36,909	28,534	75,015	13,977	169,592
2023	626	2,707	4,867	5,076	33,262	23,245	70,809	14,054	154,646
2024	*703*	*2,835*	*5,293*	*6,181*	*34,711*	*22,334*	*74,392*	*12,950*	*159,399*

*Effort is defined as an angler-day on open days with recorded bottomfish hours or harvest of at least one halibut.

Table 3A.12. Forecasts of effort (angler-days), halibut harvest per unit effort (HPUE), and harvest (numbers of halibut) for Area 3A in 2025 under status quo regulations, with associated standard errors. Status quo regulations include a two-fish bag limit with a maximum size limit of 28 inches on one of the fish, no retention of halibut on Wednesdays, CHP trip limits, and vessel trip limits.

Subarea	Effort (angler-days)	Std Error	HPUE	Std Error	Harvest (no. halibut)	Std Error
CCI	12,277	69	1.840	0.117	22,590	1,445
EPWS	3,974	46	1.300	0.136	5,167	543
GlacB	1,136	9	0.613	0.158	696	180
Yak	3,384	126	0.942	0.139	3,190	485
LCI	42,153	436	1.807	0.072	76,186	3,145
NGulf	27,572	257	1.269	0.100	34,980	2,777
Kod	11,877	213	1.230	0.108	14,604	1,308
WPWS	5,021	102	1.140	0.146	5,722	740
Area 3A	107,393	69	1.519	NA	163,135	4,745

Table 3A.13. Area 3A projected harvest, change in harvest, and specified dates with status quo (grey) management measures combined with Wednesday openings.

Number of Closed Wednesdays	Beginning and Ending Dates	Percentage change in harvest	Projected Harvest (no. Fish	Projected Removals (Mlb) (Size limit of 2nd fish is 28")
0	NA	18.0%	192,362	2.079
1	July 30	16.7%	190,323	2.057
2	July 30 - Aug 6	16.2%	189,608	2.049
3	July 23 - Aug 6	15.6%	188,490	2.037
4	July 16 - Aug 6	14.8%	187,345	2.024
5	July 16 - Aug 13	14.1%	186,199	2.011
6	July 9 - Aug 13	13.2%	184,681	1.995
7	July 2 - Aug 13	12.0%	182,675	1.973
8	July 2 - Aug 20	10.8%	180,856	1.953
9	June 25 - Aug 20	9.4%	178,643	1.929
10	June 18 - Aug 20	7.9%	176,089	1.901
11	June 18 - Aug 27	6.9%	174,529	1.884
12	June 11 - Aug 27	5.2%	171,707	1.854
13	June 4 - Aug 27	3.5%	168,857	1.824
14	June 4 - Sept 3	3.8%	166,225	1.830
48	Feb 01 - Dec 31	0.0%	163,135	1.762

Table 3A.14. Area 3A projected harvest, change in harvest, and specified dates with status quo (grey) management measures combined with Tuesday closures.

Number of Closed Tuesdays	Beginning and Ending Dates	Percentage change in harvest	Projected Harvest (no. Fish	Projected Removals (Mlb) (Size limit of 2nd fish is 28")
0	NA	0.0%	138,670	1.762
1	July 29	-1.2%	140,684	1.741
2	July 29 - Aug 5	-1.9%	142,234	1.728
3	July 22 - Aug 5	-3.4%	163,135	1.703
4	July 15 - Aug 5	-4.9%	161,059	1.677
5	July 15 - Aug 12	-6.2%	159,993	1.653
6	July - Aug 12	-7.4%	157,579	1.632
7	July 1 - Aug 12	-8.4%	155,238	1.614
8	July 1 - Aug 19	-9.3%	152,970	1.599
9	June 24 - Aug 19	-10.2%	151,017	1.582
10	June 17 - Aug 19	-11.1%	149,242	1.568
11	June 17 - Aug 26	-11.5%	147,921	1.560
12	June 10 - Aug 26	-12.3%	146,356	1.545
13	June 3 - Sept 2	-13.3%	144,961	1.528
48	Feb 01 - Dec 31	-14.6%	144,281	1.506

Table 3A.15. Area 3A projected harvest (upper table) and removals (lower table) for 2025 under a range of maximum size limits on one fish in the bag limit and **Wednesday closures**. Projected removals assume the following status quo measures: two fish bag limit – one of any size, one under X inches, limit of one trip per vessel and one trip per permit per day. All values in the table include corrections for errors in estimation of average weight and inflation factors for release mortality. Shaded cells represent projections that do not exceed the 2024 allocation of 1.89 Mlb.

Projected Harvest (number of fish)

	Number of Wednesday Closures															
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	All (SQ)
Harvest	163,135	166,225	168,857	171,707	174,529	176,089	178,643	180,856	182,675	184,681	186,199	187,345	188,490	189,608	190,323	192,362

Projected Charter Removals (Mlb)

	Number of Closed Wednesdays															
Size limit	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	All (SQ)
26	1.979	1.958	1.949	1.938	1.926	1.913	1.898	1.878	1.859	1.836	1.809	1.793	1.764	1.736	1.709	1.677
27	2.018	1.997	1.988	1.977	1.964	1.951	1.936	1.915	1.895	1.872	1.845	1.829	1.799	1.770	1.743	1.710
28	2.079	2.057	2.049	2.037	2.024	2.011	1.995	1.973	1.953	1.929	1.901	1.884	1.854	1.824	1.796	1.762
29	2.119	2.096	2.087	2.075	2.062	2.049	2.033	2.010	1.990	1.965	1.937	1.920	1.889	1.859	1.830	1.796
30	2.175	2.152	2.144	2.131	2.118	2.104	2.088	2.065	2.044	2.019	1.989	1.972	1.940	1.909	1.879	1.844
31	2.214	2.191	2.182	2.169	2.155	2.141	2.124	2.101	2.080	2.054	2.025	2.007	1.974	1.942	1.912	1.877
32	2.289	2.265	2.231	2.218	2.204	2.190	2.173	2.149	2.127	2.101	2.070	2.052	2.019	1.986	1.956	1.919

Table 3A.16. Area 3A projected harvest (upper table) and removals (lower table) for 2025 under a range of maximum size limits on one fish in the bag limit and **Tuesday closures**. Projected removals assume the following status quo measures: two fish bag limit – one of any size, one under X inches, limit of one trip per vessel and one trip per permit per day, and Wednesday closure all year. All values in the table include corrections for errors in estimation of average weight and inflation factors for release mortality. Shaded cells represent projections that do not exceed the 2024 allocation of 1.89 Mlb.

Projected Harvest (number of fish)

	Number of Tuesday Closures														
	0 (SQ)	1	2	3	4	5	6	7	8	9	10	11	12	13	All
Harvest	163,135	161,059	159,993	157,579	155,238	152,970	151,017	148,817	147,419	145,804	144,353	143,622	142,234	140,684	138,670

Projected Charter Removals (Mlb)

	Number of Closed Tuesdays														
Size limit	0 (SQ)	1	2	3	4	5	6	7	8	9	10	11	12	13	All
26	1.677	1.657	1.645	1.620	1.596	1.573	1.553	1.531	1.517	1.500	1.486	1.478	1.464	1.447	1.425
27	1.710	1.690	1.677	1.652	1.627	1.604	1.584	1.562	1.546	1.530	1.515	1.507	1.492	1.475	1.453
28	1.762	1.741	1.728	1.703	1.677	1.653	1.632	1.609	1.593	1.576	1.561	1.553	1.538	1.520	1.497
29	1.796	1.774	1.761	1.735	1.709	1.684	1.663	1.639	1.624	1.606	1.590	1.582	1.567	1.549	1.525
30	1.844	1.822	1.809	1.782	1.755	1.729	1.708	1.684	1.667	1.649	1.633	1.625	1.609	1.591	1.566
31	1.877	1.854	1.840	1.813	1.786	1.760	1.738	1.713	1.697	1.678	1.662	1.653	1.637	1.619	1.594
32	1.919	1.896	1.882	1.854	1.826	1.800	1.777	1.752	1.735	1.716	1.699	1.690	1.674	1.655	1.630

Table 3A.17. Estimated effects of **annual limits of two to four halibut** on Area 3A anglers and projected harvest for 2025 under status quo measures. Status quo regulations include a two-fish bag limit with a maximum size limit of 28 inches on one of the fish, no retention of halibut on Wednesdays, CHP trip limits, and vessel trip limits. The percent of affected anglers is the portion of individual anglers that harvested more than each specified annual limit in 2023.

Annual Limit	Subarea								
	CCI	EPWS	GlacBay	Yak	LCI	NGulf	Kod	WPWS	Area 3A
				Estimated percent of anglers affected by an annual limit:					
2	14.0%	8.6%	8.9%	20.5%	15.0%	10.3%	44.1%	5.5%	15.1%
3	12.1%	4.7%	1.2%	11.2%	12.2%	7.5%	32.4%	2.3%	11.7%
4	2.9%	0.8%	0.0%	4.7%	2.8%	2.1%	17.3%	0.2%	3.5%
				Estimated percent change in harvest relative to no annual limit:					
2	-15.1%	-8.2%	-6.9%	-21.8%	-15.0%	-11.1%	-39.0%	-5.2%	-15.9%
3	-8.9%	-3.4%	-0.8%	-11.2%	-8.3%	-5.9%	-24.1%	-1.7%	-8.9%
4	-3.6%	-0.8%	0.0%	-5.4%	-2.8%	-2.1%	-13.1%	-0.2%	-3.6%
				Projected harvest (number of halibut):					
2	19,180	4,744	648	2,494	64,777	31,094	8,910	5,426	137,274
3	20,578	4,991	690	2,834	69,878	32,913	11,089	5,626	148,599
4	21,785	5,125	696	3,019	74,049	34,236	12,688	5,710	157,308
No Annual Limit	22,590	5,167	696	3,190	76,186	34,980	14,604	5,722	163,135

Table 3A.18. Area 3A projected harvest (upper table) and removals (lower table) for 2025 under a range of maximum size limits on one fish in the bag limit and for **annual limits ranging from two to four fish** per year. Projected removals assume the following status quo measures: two fish bag limit, limit of one trip per vessel and one trip per permit per day, and a Wednesday closure all year. All values in the table include corrections for errors in estimation of average weight and inflation factors for release mortality.

Projected Harvest (number of fish)

	Annual Limit (number of halibut)		
Year	2	3	4
2025	137,273	148,599	157,308

Projected Charter Removals (Mlb)

	Annual Limit (number of halibut)		
Size Limit (in)	2	3	4
26	1.407	1.527	1.616
27	1.435	1.557	1.647
28	1.479	1.604	1.698
29	1.507	1.634	1.730
30	1.548	1.679	1.777
31	1.575	1.708	1.808
32	1.611	1.747	1.849

Table 3A.19. Area 3A projected harvest and removals for 2025 under annual limits with a range of maximum size limits on one fish in the bag limit and Tuesday closures. Projected removals assume the following status quo measures: two fish bag limit – one of any size, limit of one trip per vessel and one trip per permit per day, Wednesday closure all year. All values in the table include corrections for errors in estimation of average weight and inflation factors for release mortality. Shaded cells represent projections that do not exceed the 2024 allocation of 1.89 Mlb.

a. Four-fish annual limit

		Number of Tuesday Closures														
		0	1	2	3	4	5	6	7	8	9 (SQ)	10	11	12	13	All
	Harvest	169,830	167,617	165,477	163,010	160,779	160,189	158,382	156,556	154,994	152,943	150,959	149,743	148,172	146,835	143,608
Size Limit (in)	26	1.728	1.705	1.684	1.659	1.636	1.630	1.611	1.593	1.578	1.557	1.537	1.524	1.508	1.495	1.460
	27	1.761	1.738	1.717	1.691	1.667	1.661	1.643	1.624	1.609	1.587	1.567	1.554	1.538	1.524	1.489
	28	1.816	1.793	1.770	1.744	1.720	1.713	1.694	1.675	1.659	1.637	1.616	1.602	1.586	1.571	1.535
	29	1.850	1.826	1.803	1.776	1.751	1.745	1.725	1.706	1.690	1.667	1.646	1.632	1.615	1.600	1.564
	30	1.899	1.874	1.851	1.823	1.798	1.791	1.771	1.751	1.735	1.712	1.689	1.676	1.658	1.643	1.605
	31	1.932	1.907	1.883	1.855	1.829	1.822	1.802	1.781	1.765	1.741	1.719	1.705	1.687	1.671	1.633
	32	1.975	1.950	1.925	1.897	1.870	1.863	1.842	1.821	1.804	1.780	1.757	1.743	1.725	1.709	1.670

b. Three-fish annual limit

		Number of Tuesday Closures														
		0	1	2	3	4	5	6	7	8	9 (SQ)	10	11	12	13	All
	Harvest	161,092	158,989	156,957	154,611	152,492	151,937	150,219	148,482	147,008	145,055	143,166	142,017	140,519	139,246	136,191
Size Limit (in)	26	1.640	1.619	1.599	1.575	1.552	1.547	1.529	1.512	1.498	1.478	1.459	1.447	1.432	1.418	1.386
	27	1.672	1.650	1.629	1.605	1.582	1.577	1.559	1.541	1.527	1.506	1.487	1.475	1.459	1.446	1.413
	28	1.724	1.701	1.680	1.655	1.632	1.626	1.608	1.589	1.575	1.553	1.533	1.521	1.505	1.491	1.457
	29	1.756	1.733	1.711	1.686	1.662	1.656	1.637	1.618	1.604	1.582	1.562	1.549	1.532	1.518	1.484
	30	1.802	1.779	1.757	1.730	1.706	1.700	1.681	1.662	1.646	1.624	1.603	1.590	1.573	1.559	1.523
	31	1.834	1.810	1.787	1.760	1.736	1.729	1.710	1.690	1.675	1.652	1.631	1.618	1.600	1.586	1.550
	32	1.875	1.850	1.827	1.800	1.775	1.768	1.748	1.728	1.712	1.689	1.667	1.654	1.636	1.621	1.585

Table 3A.19. (continued)

c. Two-fish annual limit

Size Limit (in)	Number of Tuesday Closures														
	0	1	2	3	4	5	6	7	8	9 (SQ)	10	11	12	13	All
Harvest	149,557	147,599	145,710	143,525	141,554	141,045	139,448	137,828	136,464	134,640	132,874	131,815	130,415	129,224	126,403
26	1.516	1.496	1.478	1.455	1.435	1.430	1.414	1.397	1.385	1.366	1.348	1.337	1.323	1.310	1.281
27	1.545	1.525	1.506	1.483	1.462	1.457	1.441	1.424	1.411	1.392	1.374	1.363	1.348	1.336	1.305
28	1.593	1.573	1.553	1.530	1.508	1.503	1.486	1.469	1.455	1.436	1.417	1.405	1.390	1.378	1.346
29	1.623	1.602	1.582	1.558	1.536	1.530	1.513	1.496	1.482	1.462	1.443	1.431	1.416	1.403	1.371
30	1.666	1.645	1.624	1.600	1.577	1.571	1.554	1.536	1.522	1.501	1.482	1.470	1.454	1.441	1.408
31	1.695	1.673	1.652	1.627	1.605	1.599	1.581	1.563	1.548	1.527	1.507	1.495	1.479	1.465	1.432
32	1.733	1.711	1.689	1.664	1.640	1.634	1.616	1.598	1.583	1.562	1.541	1.529	1.512	1.498	1.465

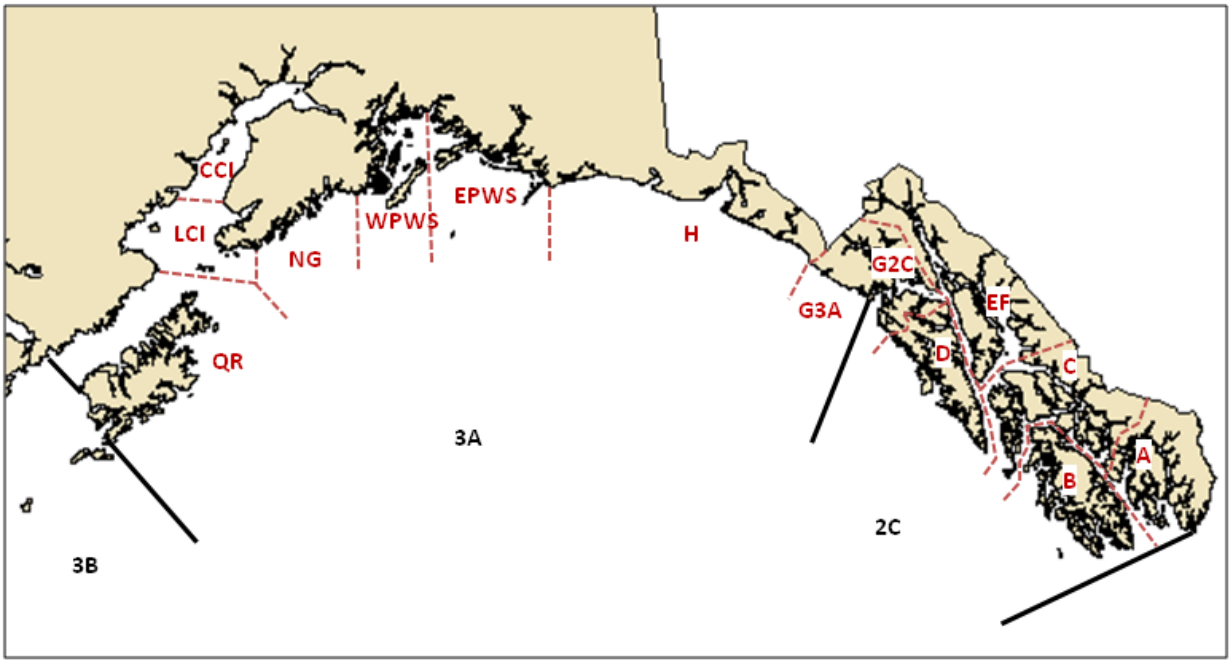

Figure 1. Subareas of IPHC Areas 2C and 3A used for analysis and reporting. A – Ketchikan; B - Prince of Wales (Craig, Klawock); C - Petersburg, Wrangell; D – Sitka; EF - Juneau, Haines, Skagway; G2C - Glacier Bay, Elfin Cove (2C areas); G3A - Glacier Bay, Elfin Cove (3A Areas); H – Yakutat; EPWS - Eastern Prince William Sound (Valdez, Cordova); WPWS - Western Prince William Sound (Whittier); NG - North Gulf (Seward); CCI - Central Cook Inlet (Deep Creek, Anchor Point); LCI - Lower Cook Inlet (Homer); QR – Kodiak.

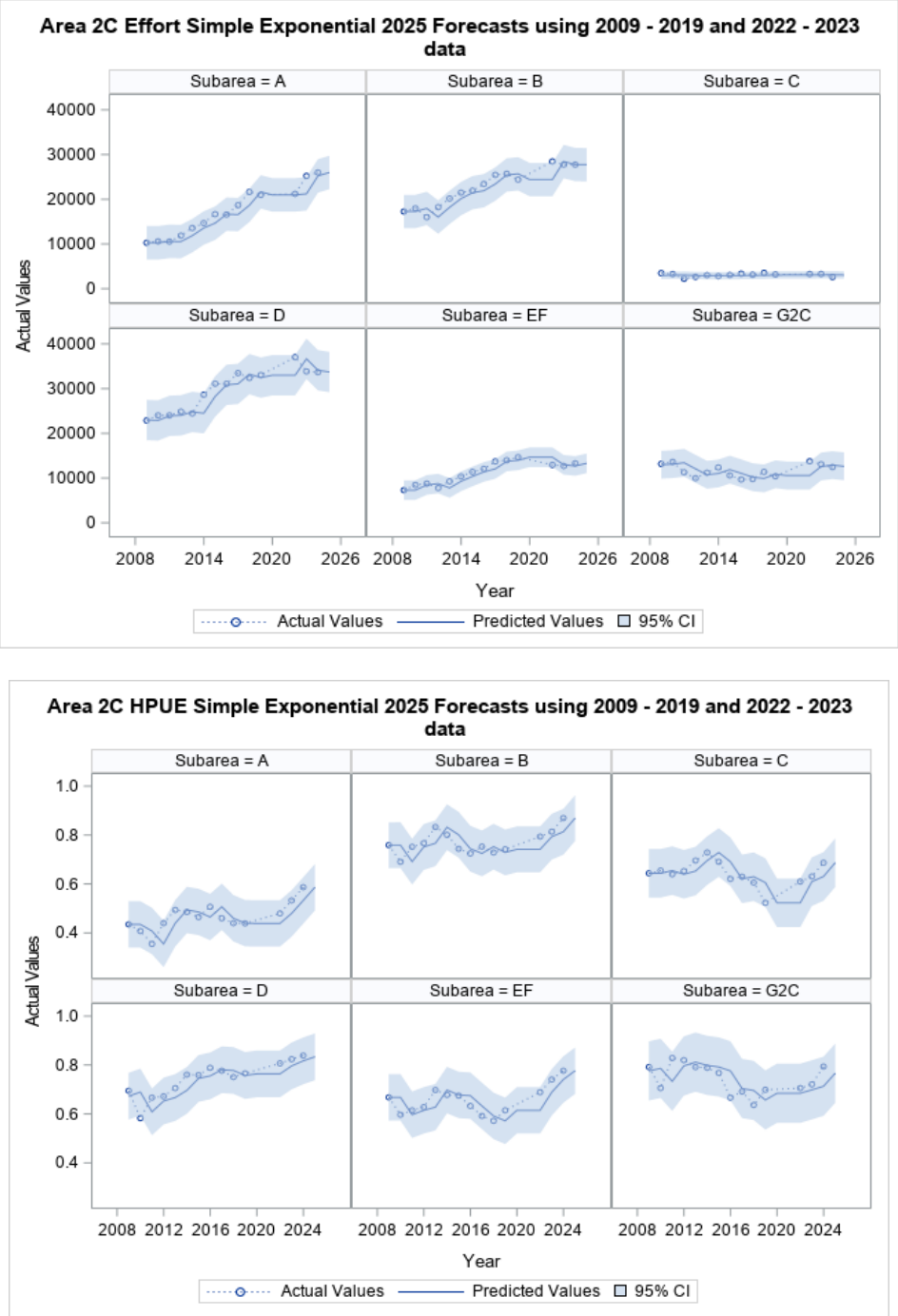

Figure 2 Time series of charter effort (upper) and HPUE (lower) by subarea of Area 2C, with predicted values and 2025 forecasts of HPUE only. No time series forecasts were made for effort. Shaded bands indicate 95% confidence intervals for the forecasts. (Source: ADF&G charter logbook).

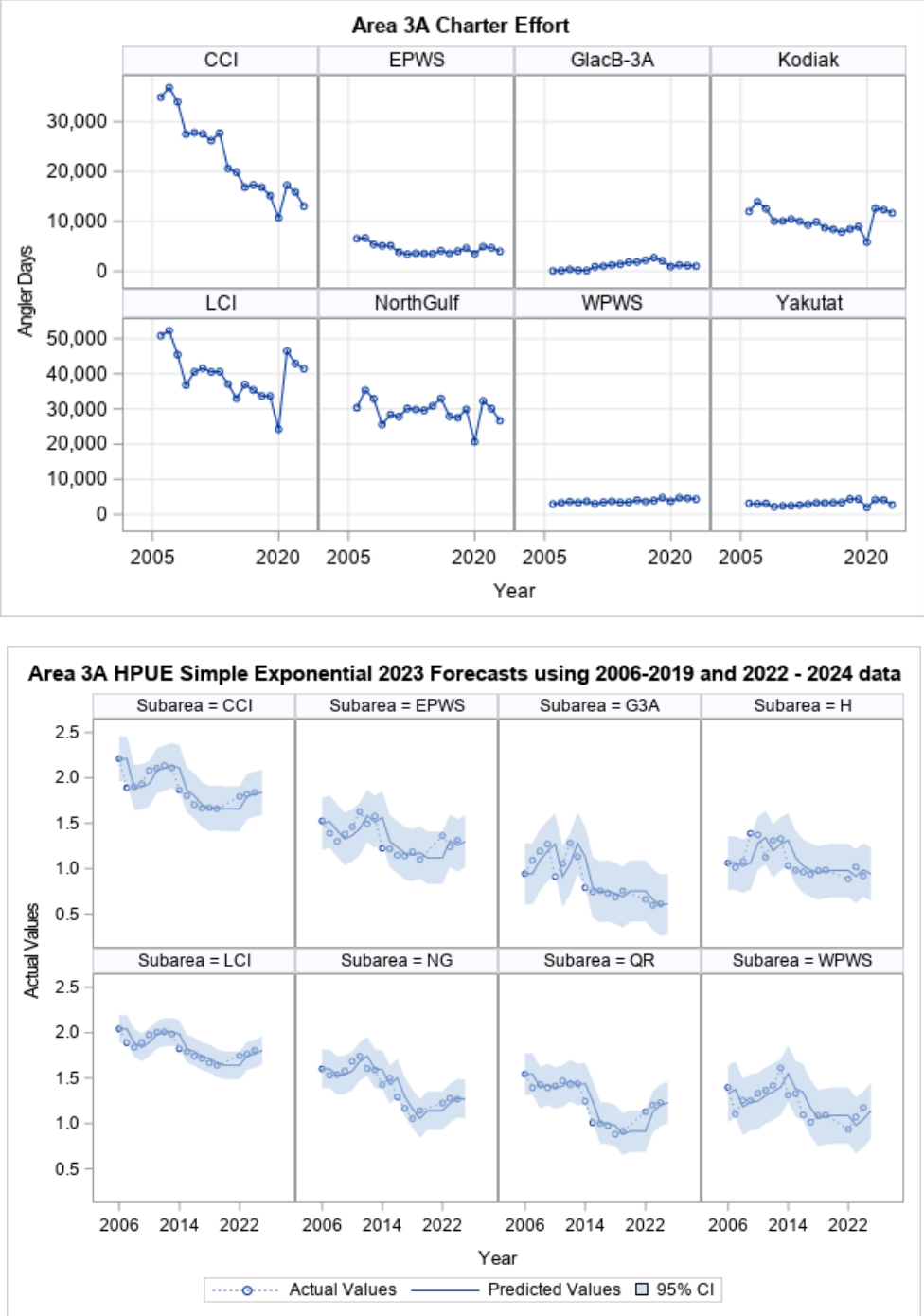

Figure 3 Time series of charter effort (upper) and HPUE (lower) by subarea of Area 3A, with predicted values and 2025 forecasts of HPUE only. No time series forecasts were made for effort. Shaded bands indicate 95% confidence intervals for the 2023 HPUE forecasts. (Source: ADF&G charter logbook).