

Marine Recreational Information Program
Alaska Regional Implementation Plan 2023 – 2028

List of Included Acronyms

ADF&G – Alaska Department of Fish and Game

AKFIN – Alaska Fishery Information Network

DAV – Disabled Alaskan Veteran (License for disabled veterans with Alaskan residency)

IPHC – International Pacific Halibut Commission

MRIP – Marine Recreational Information Program

NMFS – National Marine Fisheries Service (formerly NOAA Fisheries)

NPFMC – North Pacific Fisheries Management Council

PID – Permanent Identification Card (License for age 60+ Alaskan residents)

PSC – Pacific Salmon Commission

SEAK – Southeast Alaska

SCAK – Southcentral Alaska

SWHS – Alaska Sport Fishing Survey (Statewide Harvest Survey)

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Background

The Alaska Department of Fish and Game (ADF&G) has a long history of data collection, management, and analyses, including coordination and dissemination of statistical results and information on marine recreational fisheries in state and federal waters off the coast of Alaska. This document provides information for the National Marine Fisheries Service (NMFS) Alaska Region to fulfill requirements of the Marine Recreational Information Program (MRIP) for a regional implementation plan. MRIP was developed in 2008 to improve survey methods for collecting saltwater recreational fishery data to estimate fishery catch, harvest, and effort for use by stock assessment scientists and marine fishery managers.

Alaska's 40,544 miles of coastline make up 40 percent of the total U.S. coastline (NOAA Fisheries n.d.) and provide diverse recreational fishing opportunities in marine waters. In 2019, anglers took approximately 938 thousand saltwater trips and harvested approximately 1.4 million fish in marine waters off Alaska (Romberg et al. *in prep*). Commonly caught sport fish species include Pacific halibut (*Hippoglossus stenolepis*), rockfishes (*Sebastes* spp.), Pacific Cod (*Gadus macrocephalus*), lingcod (*Ophiodon elongatus*), sablefish (*Anoplopoma fimbria*), and all five species of Pacific salmon (*Oncorhynchus* spp.): Chinook, chum, coho, pink, and sockeye (Romberg et al. *in prep*). In marine waters, Pacific halibut is the most commonly harvested recreational species accounting for 25% – 31% of the total marine harvest (in terms of numbers) from 2010 – 2019 (Romberg et al. *in prep*).

Each year, ADF&G provides removal biomass estimates of Pacific halibut to the International Pacific Halibut Commission (IPHC) and North Pacific Fisheries Management Council (NPFMC), provides estimates of harvest in numbers of fish for all 5 species of Pacific salmon to the Pacific Salmon Commission (PSC) and NPFMC, and harvest biomass estimates of sablefish, Pacific cod, sharks, and rockfishes to NMFS. Additional data on recreationally caught marine species are provided to international, federal, and state fishery managers as necessary for stock assessments and management decisions. Estimation of removals requires data on effort, catch, and harvest, and from biological samples to characterize the composition of harvest.

The purpose of the Alaska MRIP Implementation Plan is to summarize current programs to assess marine recreational fisheries in Alaska, evaluate existing recreational data collections and data needs, identify areas for potential improvement and expansion, and estimate funding needed to implement programmatic changes or expansions.

Baseline Assessment of Current Data Collection Programs

ADF&G has four programs to assess recreational fishing effort, harvest, and catch composition: Southeast Alaska Marine Boat Sport Fishery Harvest Studies, Assessment of Recreational Halibut and Groundfish Harvest in Southcentral Alaska, Alaska Saltwater Guide Logbook, and Statewide Harvest Survey (SWHS, Alaska Sport Fishing Survey). All four programs are administered by the ADF&G Division of Sport Fish (ADF&G–DSF) as outlined below.

Timeliness of data availability is highly dependent upon the program. Angler interview and biological data (e.g., species, age, sex, length) from the two dockside sampling programs are available as requested throughout the sampling season. Preliminary data for the full season are available mid-September and final data are typically available mid-winter. Timeliness of data from the dockside sampling programs generally fits well with inseason management needs; for example, taking inseason action through issuing an emergency order to restrict or liberalize a fishery.

Logbooks used to record and report guided (for-hire, charter) angler-trips are available in both paper and electronic (eLogbook) form. Logbook data must be submitted on a weekly schedule during the bulk of the fishing season. In 2018, the eLogbook became available as an alternative to paper logbooks for all guided recreational fishing boats. ADF&G–DSF mandated use of eLogbook in Southeast Alaska (SEAK) beginning in 2021. Throughout the rest of the state most guide businesses continue to use paper logbooks. Preliminary logbook data are typically available in mid-October following the summer fishing season and final data are available by summer of the subsequent year. In SEAK, eLogbook data are reviewed by staff inseason to monitor Chinook salmon harvest for Pacific Salmon Treaty obligations. Paper logbook pages submitted directly to local offices may also be reviewed by staff for inseason monitoring before submission to the Logbook Program office. Prior to examination and editing by Program staff, these data are subject to error and are often incomplete due to numerous submission options (in person, mail, or electronic).

The SWHS is sent to approximately 47,000 households each fall with additional mailings to non-respondents throughout the winter. Survey responses are collected and entered through mid-spring, then edited and analyzed. The survey requires intensive staff time for mailings, scanning, data entry, data editing, and data analysis. Due to the timing of the mailings and the staff time required to produce results, final SWHS estimates are not available until September of the following year.

Southeast Alaska Marine Boat Sport Fishery Harvest Studies

The Southeast Alaska (SEAK) Marine Boat Sport Fishery Harvest Studies (SEAK—MHS) Program conducts angler interviews and collects associated biological data to characterize the harvest of all primary species of salmon and bottomfish in the SEAK marine recreational fishery (Jaenicke et al. 2022). The SEAK-MHS program works in conjunction with the two statewide recreational assessment programs (SWHS, Guide Logbook) by providing underlying biological or angler-specific information on the catch or aspects of the fishing trip. The program collects catch and harvest information on all primary species, but biological data is constrained to Chinook salmon, coho salmon, Pacific halibut, rockfishes, lingcod, and sablefish. Interviews and biological samples are typically collected from late April to early September from returning marine boat anglers at 10 ports: Ketchikan, Craig, Klawock, Wrangell, Petersburg, Sitka, Juneau, Gustavus, Elfin Cove, and Yakutat; although Elfin Cove was eliminated in 2020 and 2021 due to funding shortfalls and COVID-19 safety concerns, it was reinstated in 2022 as one of the 10 ports actively sampled by the SEAK—MHS program. The MHS program’s study design includes selected docks and harbors (both public and private) at 10 ports in the region; it is assumed that effort and catch/harvest patterns of sampled and unsampled ports in the region are similar as the waters/areas fished are the same for sampled and

unsampled anglers. The number of samplers varies in proportion to the historical annual trends in fishing activity in each port and ranges from one to eight individuals per port. In most ports, samplers are scheduled to intercept anglers for 6.5 hours each shift and work five randomly assigned days per week.

In addition to effort, harvest, and catch data from interviews, the program also collects length data for all sampled species, sex data for lingcod and salmon, age data for salmon, and in Sitka collects sex, fecundity information, and aging structures from black rockfish. Coded wire tag data are collected from Chinook and coho salmon and genetic data from Chinook and coho salmon and black and yelloweye rockfish (in select ports). Age structures (otoliths) were collected from Pacific halibut in Ketchikan, Juneau, and Elfin Cove for the first time in 2022 through a NOAA Grant. The SEAK—MHS program’s data are the only source of biological data for marine recreational fisheries in the region. All data are recorded electronically on tablets (iPad) using an application designed for the region’s sampling program. Length data for bottomfish are converted via established species-specific length-weight relationships to estimate average weight by species, port, and sector (guided or unguided). Certain catch characteristics, such as species composition of rockfishes, are also only available through the SEAK—MHS program. Precision targets vary by data type, species, and sector. Notably, average net weight precision targets for halibut and rockfishes are for the estimates to fall within 20-40% of the true value 90% of the time for each user group at each port. Additional precision targets and details of study design are available in Jaenicke et al. (2022).

All data are evaluated at the port level and as needed at the sector (guided or unguided) level. Preliminary biological data for the sampling season are available in October, immediately after the field season. Final data are available by spring of the following year. While the SWHS and the Guide Logbook often represent the authoritative source of data on total effort, harvest, and catch, these statistics are estimated by the SEAK—MHS program biweekly and allow for inseason and post season preliminary estimates that are available sooner than provided by the other statewide programs. When necessary, data from the SEAK—MHS program may be used to support inseason management of marine recreational fisheries.

The SEAK Marine Harvest Studies Program is supported through a combination of Dingell-Johnson Act funding, Department of Fish and Game Funds, State of Alaska General Funds, and other federal grants generally tied to obligations of the Pacific Salmon Commission (PSC). A NOAA grant also provided funding to enhance data collection in several ports in 2022 and 2023. The annual costs of the program are approximately \$1,200,000.

Assessment of Recreational Halibut and Groundfish Harvest in Southcentral Alaska

The Assessment of Recreational Halibut and Groundfish Harvest in Southcentral Alaska (SCAK) Program is a catch monitoring program and evaluates age, size, and sex characteristics of Pacific halibut, rockfishes, lingcod, and sharks in SCAK (Schuster and Ford 2022). Data are collected from returning marine boat anglers through a combination of interviews and biological sampling at five ports: Valdez, Whittier, Seward, Homer, and Kodiak. Sampling is conducted at harbors, boat ramps, beach launching sites, and military recreation facilities. The program runs from late May through early September, a period that covers approximately 90% of the annual harvest of halibut and rockfish. A single port sampler works in each port with a randomized schedule of five days per week. Samplers work 7-hour shifts during peak return time of completed angler-trips.

The SCAK port sampling program collects the only biological data for marine recreational fisheries in the region. Biological sampling targets are developed for halibut, rockfishes, and lingcod at each port. There are no biological targets for sharks due to the low encounter rates throughout the region. Other groundfish species (e.g., sablefish, Pacific cod) may also be sampled opportunistically. If a boat is selected for sampling

of a species (or species assemblage in the case of rockfish), all harvested fish of that species or assemblage must be sampled. Port samplers work to sample as many different boats as possible throughout the season to get representative samples of all fishing activity, recognizing that boats that fish more often and on days with less fishing activity are subject to higher rates of sampling. Length data are converted via established species-specific length-weight relationships to estimate average weight by species, port, and sector.

Catch and effort data from angler interviews include numbers of fish harvested and released by species, hours fished, spatial distribution of fishing, depth of capture, target species, fishing gear, and proportion of fish by species cleaned at sea. Port samplers use tablets or handheld computer devices (Juniper Systems, Allegro Field PC®) to record interview data, depending on the technological capabilities at their location.

Data are evaluated at the port level and at the sector level as necessary. Most preliminary data from the SCAK port sampling program are available in mid-September, immediately after the field season. Age data are available in early spring of the following year. Finalized data are available by late spring of the following year. Precision targets for estimates of age, length, and sex composition of rockfishes and lingcod, length composition of Pacific halibut, species composition of rockfish, and geographic distribution of groundfish effort and harvest are for the estimate to fall within 20% of the true values at least 95% of the time.

The SCAK port sampling program is supported through a combination of Dingell-Johnson Act funding and Department of Fish and Game Funds. Annual operating costs for the program are approximately \$385,000.

Saltwater Guide Logbook Programs

In 1998, the Alaska Board of Fisheries adopted regulations requiring logbook use in the guided sector to collect data statewide on saltwater guided recreational fishing participation, effort, and harvest. Since then, ADF&G–DSF, NPFMC, NMFS, IPHC, and PSC have all relied on data from the Guide Logbook Program for stock assessments and management of marine finfish.

Since 1998, the logbook program has gone through several revisions. The current logbook requires reporting at both trip and individual angler levels. Reporting at the trip level includes information on guides, vessels, permits, areas fished, and hours fished. Reporting at the individual angler level includes license information; harvest and release of Pacific halibut, Chinook salmon, lingcod, pelagic rockfishes, yelloweye rockfish, nonpelagic rockfishes, and sablefish; harvest of coho salmon, sockeye salmon, other salmon, and salmon shark; harvest of halibut retained under the Guided Angler Fish (GAF) program; and signatures for anglers who retained halibut. Summarized data include reports on participation, spatial information of fishing effort, and numbers of fish kept and released by species (Powers 2015).

A logbook record is required for every guided saltwater trip and each trip is associated with a registered business and a registered guide. This information is used for regulatory decisions, the development and management of fisheries, project evaluation, and formulation of department policies and priorities that reflect angler needs, concerns, and preferences. By regulation, logbook data must be submitted to ADF&G weekly. Because logbook reporting is mandatory, the reporting process is considered a census of all guided angler trips. Logbooks are the primary data source used for effort, harvest, catch, and participation information in the guided recreational sector in Alaska for Pacific halibut and are an important component in estimating salmon harvest in SEAK and species-specific rockfish harvest throughout the state. Finalized logbook data for the calendar year are typically available the following summer, though preliminary summaries may be available sooner.

In 2017, ADF&G implemented a pilot program to test the efficacy of an electronic logbook (eLogbook). In 2018, the eLogbook became available as an alternative to paper logbooks for all guided recreational fishing

boats and in 2021 became mandatory in SEAK waters. The eLogbook is composed of two business-specific web-based applications that work in tandem to allow operators to record, submit, edit, and review guided trip information. Trip data can be recorded offline and uploaded when an operator returns to cellular or internet connectivity. The eLogbook collects the same information as a paper logbook, while additionally allowing operators to review and generate reporting summaries for their own use. It is anticipated that the eLogbook will gain popularity throughout the rest of the state in the coming years and will ultimately lead to cost savings for the department and the ability to produce more timely reports.

The Saltwater Guide Logbook Program is funded by Alaska Department of Fish and Game Funds and a PSC grant. Development of the eLogbook was funded partially through an MRIP grant and a NOAA grant provided funding to support continued eLogbook outreach in 2022 and 2023. Annual operating costs for the guide registration and logbook program are approximately \$620,600.

Statewide Harvest Survey (SWHS)

Since 1977, ADF&G has conducted an annual mail survey to estimate sport fishing participation (number of anglers, days fished) and harvest (fish kept) statewide by Alaska areas, regions, and species. Since 1990, catch (fish harvested plus fish released) has also been estimated. This survey covers all recreational fishing, both freshwater and marine, throughout Alaska. The survey also incorporates information on residency and fishing by sector.

Each year survey questionnaires are mailed to a stratified random sample of households, both resident and nonresident, having at least one person with an Alaska sport fishing license, Permanent Identification Card (PID), or Disabled Veteran Card (DAV). In 2019, the survey was sent to 47,000 households. Response rates from 2010 – 2019 ranged from 35 – 42%. From 2010 – 2019 precision for estimates of statewide effort were around 2% and for commonly harvested species (e.g., Chinook, coho, sockeye, halibut, lingcod, rockfish) ranged from 3 – 10% (Romberg et al. *in prep*). Estimates are produced annually and are typically available in September of the following year.

Data from the SWHS are used by the IPHC, NOAA, NPFMC, and PSC for assessment and management of Pacific halibut, Pacific cod, sharks, sablefish, rockfishes, and salmon. For Pacific halibut, the SWHS is the primary data source used to estimate harvest and release information in the unguided recreational sector and is used as a secondary source of information on harvest and release for the guided recreational sector. For other groundfish species and salmon, the SWHS is the primary source of harvest and release information for both sectors.

The SWHS is currently funded through a combination of Dingell-Johnson Act funding and Department of Fish and Game Funds. The annual costs of the program are approximately \$919,400.

Description of Regional Needs for Recreational Fishing Statistics

The Alaska Region Implementation Team identified the following list of data and program needs:

- Support for Current Programs;
- Statewide Harvest Survey Program Modernization;
- Development of data storage and assimilation structure and policy;
- Saltwater Guide Electronic Logbook Support and Outreach;
- Expansion of both dockside sampling programs;
- Improve recreational release mortality data for a) Pacific halibut and b) rockfish.

Each identified need is described below in more detail to provide justification for the regional importance along with the approach for implementation and the estimated annual costs. Some needs have associated MRIP- certified methodologies and some are included for purposes of discussion and future research. The Alaska Team will continue to update this plan as new methods are certified or as regional needs change. Costs of implementation may come in a form of tradeoffs other than dollars.

Support for Current Programs

As outlined above, the total operating cost for the four primary recreational saltwater data collection programs is approximately \$3,000,000. These programs are supported through a combination of State of Alaska general funds, Department of Fish and Game Funds acquired through license sales, Dingell-Johnson Federal Aid in Sport Fish Restoration funds, Pacific Salmon Commission grants, and NOAA grants. In recent years, funding for these projects has decreased or remained flat despite increased costs associated with personnel, materials, travel, and inflation, at times resulting in reduced capacity and delays in data availability. Nevertheless, demands on these projects continue to increase as new initiatives are explored for recreational halibut management, meeting Pacific salmon treaty obligations, and with growing concerns for several species including Pacific halibut, chinook salmon, and yelloweye rockfish.

In addition to the costs directly associated with program budgets, these projects rely on a substantial number of personnel including biometricians, analysts, programmers, research staff, and administrative staff that are not supported by the projects, as well as non-Personnel related costs such as software, materials, training fees, and equipment. Current demand on these additional staff members and their programs often exceeds capacity, resulting in further reductions and delays in project outputs.

In particular, as projects modernize and the use of technology increases, the demands on Analyst Programmer staff also increase. The State is requesting funding for one of our current Analyst Programmer staff to reflect the increased demands of project modernization and increased use of technology. These modernizations result in increased timeliness and fewer errors in recreational fisheries data for both State and Federal use and this funding request reflects increased demands for federal requirements (e.g. charter halibut reporting requirements).

ADF&G–DSF also has a need for additional technical expertise associated with rockfish stock assessments. The State is requesting half-time funding for one of our current Biometrician staff to allow for specialization in rockfish stock assessment. Dedicated funding will provide research and management biologists with technical expertise required to complete sound stock assessments for application in fisheries management.

Cost estimate: Funding for one full time Analyst Programmer is approximately \$131,000 annually. Funding for 6 months of Biometrician time is approximately \$65,000 annually.

Statewide Harvest Survey Program Modernization

ADF&G–DSF anticipates modernizing the SWHS. The current mail survey is conducted annually in the fall and winter and requires considerable staff time for mailing preparation, data entry, error checking, and data analysis. In recent years, response rate has declined, increasing concerns about reduced precision and various response-related biases impacting both accuracy and precision of estimates. Other biases, not related to response rate, are also expected to impact estimate accuracy including recall bias. As internet connectivity and digital capabilities improve across Alaska, SWHS staff often receive feedback suggesting considerable numbers of non-respondents may respond if an electronic mode of completing the survey instrument were available. Mobile technologies are used increasingly in fisheries surveys and data collection. These technologies, if designed properly, allow for more efficient data recording and transfer. As mobile devices increase in use and wireless coverage becomes more widespread, electronic submission of fisheries data and surveys becomes a more viable and often preferred option. For mobile reporting options to be successful, careful planning, revision, verification, and outreach are necessary. Additionally, survey feedback suggests respondents struggle to accurately recall effort, harvest, and catch of all household members for the entire calendar year, indicating recall bias may be impacting estimate accuracy. The modernization is intended to incorporate electronic submission methods and re-evaluate sampling timeframe and estimation procedures to reduce both forms of potential bias.

ADF&G–DSF intends for a panel of experts in human dimension surveys and online survey methodology to initiate planning for the SWHS modernization process. Developed methods will undergo peer review prior to implementation. The anticipated inclusion of electronic response options will accommodate households who prefer this means of communication while also reducing both the need for data entry and amount of time needed for error checking, thereby improving response rate and timeliness of data availability. Historically, fishing licenses were sold solely using paper forms which required additional data entry and made a relatively complete sample frame of the data unavailable until late summer. Because nearly all license sales now occur electronically, sport fishing license data are available earlier and survey waves may be incorporated into the sampling timeframe (e.g., quarterly) to improve response rate and reduce recall bias. Collectively these adjustments are expected to improve accuracy, precision, and timeliness of estimates.

Once a modernized survey method has been finalized, it will be implemented concurrently with the current methods for at least 2 – 3 annual cycles to compare annual estimates generated through each survey strategy. Following analysis of side-by-side comparison results, models may be developed, tested, and implemented to convert legacy SWHS estimates based on new methods. This process will likely be similar to the MRIP efforts to convert estimates on the Atlantic and Gulf coasts based on Coastal Household Telephone Survey responses and Fishing Effort Survey responses.

Cost Estimate: The first phase of modernization of the SWHS is expected to take one to two years and will entail working with managers to evaluate data gaps in and potential improvements to the current survey, working with experts in human dimensions surveys and online surveys to redesign questionnaires and determine modes for survey distribution, and working with survey experts and biometricians to evaluate sample frames and sampling waves implemented under the new survey methods. Costs for this phase will be directed towards staff time, consultant fees, and travel for workshops, and will be approximately \$185,000. Additional phases of implementation and associated costs are expected (e.g. development, testing, concurrent surveys) and will result in amendments to this identified need. Long-term costs associated with maintaining the survey will exist and may result in additional amendments or updates to future implementation plans and may be offset by reduced costs associated with the current survey (e.g. printing, mailing, and data entry).

Develop Data Storage and Assimilation Structure and Policy

ADF&G is currently developing policies for data storage. In addition to these policies, an important consideration is to establish the structure of future databases. Currently, several different programs collect data on recreational fishing in marine waters, including the dockside sampling programs, guide logbooks, SWHS, and other research activities. Research, management, and enforcement staff from ADF&G and agency partners frequently require current and historical data from various programs for analyses, reports, presentations, and investigations; however, with the current lack of a centralized data repository, staff and agency partners must submit special requests to fulfill these data needs. Many of these data sets are currently stored only in individual staff files such as excel workbooks, SAS datasets, or text files. Requests are often further complicated by the use of multiple databases and servers for unique programs. Data that overlap between programs (e.g., a logbook trip that was sampled by one of the dockside sampling programs) are useful for verifying estimation methods and techniques, but it can be difficult to assimilate these data without a centralized system. The lack of a centralized repository can delay important work and fulfilling requests requires substantial program staff time.

With additional funding, ADF&G–DSF would develop data storage structures that allow better integration of data from various programs and improve access for staff and partner agency inquiries. The ADF&G, Division of Commercial Fisheries currently uses a software program (OceanAK) developed for their data storage and assimilation needs. The ADF&G–DSF could develop a similar program for recreational fisheries data. Ideally, such a system will allow staff and partners to query the database(s) directly rather than request desired data from specific program personnel. It will be imperative that historical data are integrated and policies are developed to ensure timely addition of data to the database(s). This project will improve timeliness of requests, save staff time, and facilitate data analysis and report writing.

Initially, this project will require additional staff time to analyze current data structure and determine business needs for databases. Once that phase is complete, funding will be required for Analyst Programmers, other IT staff, and/or contractors to develop databases and data storage policies and to cover fees associated with cloud based storage and software. Once operational, funding will cover maintaining the database, amending the database considering evolving business needs, evolving software needs, and cloud fees.

Cost Estimate: Development of an ADF&G–DSF data storage application will require 12 months of Analyst/Programmer time. Data rescue and assimilation will require 1 year of Biologist staff time plus some funding for travel associated with meeting area research staff although we expect data rescue and assimilation to extend over several years. The initial cost for an ADF&G–DSF data storage application would be approximately \$250,000 reducing to approximately \$125,000 in subsequent years.

Saltwater Guide Electronic Logbook Support and Outreach

The Guide Logbook Program is in the process of modernization. Use of paper logbooks requires a substantial amount of staff time for data entry and error checking. Current mandatory use of eLogbook in SEAK with anticipated increased use by most other guide businesses in SCAK should reduce staff time necessary for data entry of paper logbooks and will eliminate the potential for transcription errors. Improved timeliness of data availability allows program staff the ability to examine more logbook data inseason for better post season estimation and data availability to management staff.

As the eLogbook user base continues to grow, there will be a need for additional staff time to support the transition to eLogbook. ADF&G–DSF will need to expand on our eLogbook outreach and education initiatives to bring awareness and support to guide businesses, other ADF&G–DSF staff, law enforcement, and federal fisheries managers. Logbook Program staff will need to travel to additional communities to demonstrate use of eLogbook and make themselves available for questions at guide association meetings, ADF&G meetings, and federal fisheries management meetings around the state. Staff will need to update and amend how-to videos, accessed through the ADF&G website, and create additional content as the applications develop and new features are added. Introductory materials using other platforms (e.g., paper, social media) need to be developed and made accessible to new users. Staff will need to be available during expanded business hours to support the application and ensure that guides are able to operate legally using eLogbook. Enhanced outreach and education will continue to be necessary as the eLogbook is updated, improved, and the user base expands.

ADF&G–DSF continues to solicit input and feedback from eLogbook users to improve the use and function of the applications and ensure all data are recorded properly. Among other things, eLogbook allows users to generate reports useful for business owners, and ADF&G–DSF looks to develop additional tools within the app that encourage transition to eLogbook. It is anticipated eLogbook will need a considerable amount of work and support as the applications are refined and use increases. Although the application will require changes over time as regulations and data needs change, it is expected that there will be fewer demands on programmers as the applications functions are improved and user feedback is incorporated. As the eLogbook gains support, it is expected to lead to cost savings for ADF&G, increase efficiency and timeliness, and decrease the potential for data entry errors.

ADF&G Saltwater Charter Logbooks are also a regulatory requirement under NMFS guided sport (charter) halibut regulations (CFR 300.65(d)(4)), and as such are subject to the Paperwork Reduction Act and the Government Paperwork Elimination Act. Expanding the use of electronic logbooks supports the efficiency and accuracy of this information collection, and ultimately reduces the paperwork burden.

Cost Estimate: Continued development, support, and outreach for the eLogbook program will require program staff time, development of education materials, and travel for outreach and education activities. Annual costs associated with maintaining, supporting, and providing outreach for the eLogbook are approximately \$55,750. Some of the costs may be offset by reduced costs associated with the use of paper logbooks (e.g. printing and data entry).

Expansion of Southeast Marine Harvest Studies Program

The NPFMC and IPHC request recreational harvest information on Pacific halibut, and NMFS requests harvest information on marine species including rockfishes, sablefish, sharks, and Pacific cod, and the PSC request harvest information for salmon from SEAK for respective stock assessments and incorporation into management. The SEAK—MHS program collects data on Chinook salmon, coho salmon, Pacific halibut, rockfishes, lingcod, and sablefish to characterize harvest in the marine recreational fishery through angler interviews and biological sampling. Length data are collected for all targeted species, age data are collected for salmon and black rockfish, and sex data are collected for salmon and lingcod. Black rockfish age data are collected only at the port of Sitka. Stock assessment biologists and managers have requested consistent sample collection of age and sex for halibut and rockfish and to the extent practicable for other species; this is funded for the 2022 and 2023 seasons through a NOAA grant (for halibut and rockfish at 4 select ports), but more consistent funding is necessary to continue these efforts. In addition, there are efforts underway to collect black and yelloweye rockfish maturity data in Ketchikan to support work on rockfish stock assessments through improved understanding of regional differences in Rockfish life history. Additional funding is needed to both maintain and expand the scope of this study to other ports and species of rockfish. Currently, there are no biological data collected for sharks and Pacific cod in the SEAK—MHS program; management planning and stock assessment evaluations for these species therefore relies on stock status and biological information from other regions of the state where they are sampled or from published literature. Incorporation of these species into the MHS program would improve the estimates and associated assessment by eliminating potential sources of bias.

Cost Estimate: Annual needs associated with continuing to collect requisite biological information from halibut and rockfish include additional ‘creel’ staff, sampling supplies, electronic data collection devices (iPad), and database maintenance and are approximately \$40,000; expanding this effort to additional ports will increase costs by about \$10,000 for each port (\$80,000 Regional total). Annual costs associated with collecting Rockfish maturity and fecundity data in Ketchikan include staff time (field for data collection; lab for processing/aging), instate travel to assemble sampling teams, contractual needs related to shipping samples to department age/maturity laboratory and for chartering a boat sampling platform, and sampling supplies and marine boat fuel and are approximately \$30,000 and if expanded to other ports could be as much as \$100,000 for the Region.

Expansion of Southcentral Port Sampling

The NPFMC and IPHC request recreational harvest information on Pacific halibut and NMFS requests harvest information on marine species including rockfishes, sablefish, sharks, and Pacific cod from SCAK for respective stock assessments and incorporation into management. Currently, the SCAK dockside sampling program identifies target sample sizes for halibut, lingcod, and rockfishes. Biological data collection for sharks is also a priority but is opportunistic due to low encounter rates by port samplers. Other marine species are not included in sampling plans and are only sampled opportunistically.

There currently are no biological data on salmon collected from the SCAK marine recreational fishery and SCAK waters are not currently included in the Pacific Salmon Treaty. From 2014 – 2017, port sampling data on Chinook salmon were collected from marine recreational fishers in Cook Inlet at Homer, Whiskey Gulch, Anchor Point, and Deep Creek. Sample collection produced data on age, sex, length, maturity, genetic origin, and hatchery origin (coded wire tags). Resumption of biological data collection for Chinook salmon would improve ability to manage these highly migratory species.

Also, there are currently no biological data on shellfish collected from the SCAK marine recreational fishery. Existing fisheries in SCAK include razor clams (Cook Inlet), tanner crab (Homer) and shrimp (Valdez and Whittier).

Resuming sampling at Deep Creek would facilitate data collection for Chinook salmon, razor clams, and halibut. Providing additional staff in Homer, Seward, Whittier and Valdez, and associated materials, would increase the precision of estimates for all currently targeted species. Encounters of less abundant species would still be infrequent. Sampling of shellfish and Chinook salmon fisheries would benefit management by further characterizing the harvest. Many of these species have been closed to retention frequently in recent years, and any sampling design would need to be adjusted for that season's regulations.

Cost Estimate: Annual needs associated with increased sampling and ageing at existing ports and resuming sampling at Deep Creek are approximately \$205,000. Annual costs associated with collecting shrimp biological data in Whittier and Valdez are approximately \$30,000. Annual costs associated with collecting Tanner crab biological data in Homer are approximately \$33,000.

Improve Recreational Release Data

In response to stock declines, fishery managers typically take regulatory steps and management actions to reduce harvest in recreational fisheries. These can include imposition of size limits, bag limits, annual limits, seasonal closures, and area closures to ensure harvest levels do not exceed management targets. Management actions such as these can translate to a higher portion of recreational catch released at sea. The Guide Logbook and SWHS programs collect data on the number of released fish (generally by assemblage) but very little data are collected to further characterize releases. Types of data associated with released fish that may be of benefit to stock assessments and management include the size (measured length; estimated weight), release mortality rates, depth of capture or release (especially for rockfish), proportion of releases caught by recreational gear type (e.g., bait, hook type, hook size), condition of released fish, and for rockfish the species of released fish.

Pacific Halibut

Data on released fish is of particular importance for the Pacific halibut fishery, where release mortality is included in annual allocations to the guided sector in SEAK and SCAK through a catch sharing plan and to regulatory area catch limits established by the IPHC. While release mortality represents only a small portion of the total removals, the inclusion of these data in allocations has implications on regulations including size limits, annual limits, trip limits, and seasonal closures. The SEAK—MHS program collects limited information on the size of released halibut relative to the size limits in place for the fishery. The size distribution of most released halibut is estimated using a logistic curve that represents the probability of retaining an individual halibut as a function of its length and the length distribution of retained fish. The curve is fit to two empirical data points derived from fisheries for other species where both retained and released fish were measured (see Webster and Buzzee [2020] for detailed information on estimation methods). Mandatory releases due to size restrictions in Southeast are assumed to have the same size distribution as harvested fish in the same size category in 2010, the most recent year without size limits. No empirical studies have been done to validate these estimation methods. Validation would likely require a combination of dockside interviews and onboard sampling of length of released halibut.

Release mortality rates are assumed to be 5 – 7% and are reflective of the hook type used which varies by sector and area (Meyer 2007). The IPHC is currently conducting research on release mortality rates in the guided recreational halibut fishery in Seward and Juneau caught on circle hooks and for fish released in excellent condition. Results from this IPHC study estimate a 1.35% release mortality rate for fish released in excellent condition using circle hooks and may be limited in their application to the entire recreational sector. Removal estimates would benefit from an expanded study to address some of the uncertainty in applying results from the IPHC study to the entire recreational fishery, to all gear types, and for fish in all conditions. Additional research on the size of released fish, which may vary by sector and location, will also be necessary.

Improved understanding of the size of released fish and release mortality rates will facilitate our ability to manage the Pacific halibut fishery to an allocation.

Rockfish

Pacific rockfish frequently experience barotrauma in sport fisheries due to rapid decompression during hook-and-line capture and are often unable to resubmerge when released at the surface. Survival rates can be highly variable among species and release method (Blain-Roth *in prep*). Since 2020, a statewide regulation has mandated that deepwater release mechanisms are carried onboard all boats sport fishing in marine waters of Alaska and that all rockfish are released at 100 ft. or at depth of capture. Researchers are currently working to derive species-specific release mortality rates for black and yelloweye rockfish that

are informed by depth of capture and release technique. However, these data are not available in all parts of the state and efforts to derive release mortality rates for other species of rockfish is limited. Current efforts do not incorporate depth of release or information on hook type and size which may also be important to release mortality rates. Additional dockside sampling is needed to better understand rockfish release techniques. This research may also benefit from onboard sampling to improve understanding of the characteristics of released rockfish (i.e. species, size, depth of capture and release). Finally, the research would benefit from additional tagging studies to improve our understanding of release mortality rates relative to a host of covariates.

There is a paucity of data to speciate most rockfish releases. For the unguided sector, the SWHS collects data to estimate total number of rockfish (un-speciated; only recorded at the rockfish assemblage level) released by area. For the guided sector, logbooks collect and provide more accurate and detailed information than the SWHS on the pelagic, non-yelloweye nonpelagic, and yelloweye releases. The SEAK—MHS program collects rockfish release data at the species level, when available. Finally, the SCAK dockside sampling program collects data on pelagic, non-yelloweye nonpelagic, and yelloweye releases. Aside from yelloweye releases in the guided sector, black and yelloweye releases are estimated using the estimated proportion of harvest of each species from the dockside sampling programs. The number of releases of other unique species is not currently estimated. Additional research on species-specific releases and standardization/expansion upon the current estimation methods is needed statewide.

Improved understanding of the release mortality rates and species composition of releases will facilitate our ability to manage the sport rockfish fisheries.

Cost Estimate for SEAK: This research will require, at a minimum, additional staff capacity and may require instate travel, technician housing, boat time, sampling materials, and tagging materials. Estimated annual costs of expanding the collection of data on released fish is dependent on many factors but the overall costs are minimized by leveraging current staffing and logistics of the SEAK—MHS program. For Pacific halibut, a figure of approximately \$10,000 per port and between \$50,000-75,000 Regionally would be sufficient to greatly expand this program to address questions on release and total mortality. For Rockfish, a figure of approximately \$25,000 regionally would be sufficient to expand this program to address questions on release and total mortality of rockfish by species and would involve primarily extra technicians and technician time at selected ports. Any onboard observer program is likely to entail an additional \$25,000 or more.

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Appendix

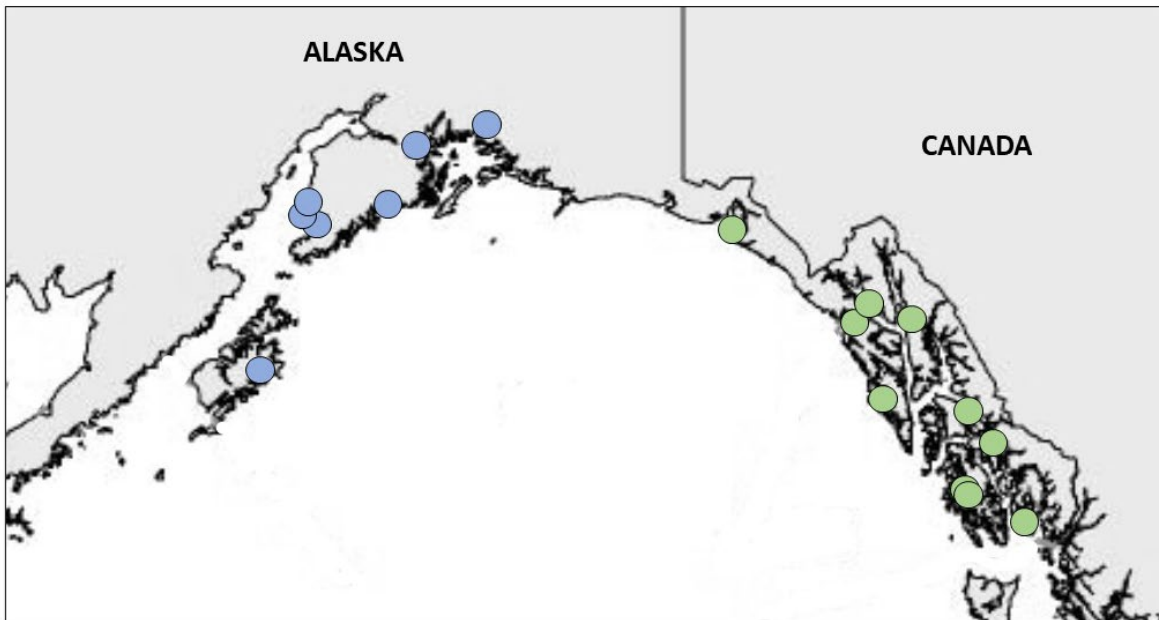


Figure 1. Location of ports sampled by SCAK Groundfish Port Sampling Program (blue circles, west to east: Kodiak, Anchor Point, Deep Creek, Homer, Seward, Whittier, and Valdez) and SEAK – MHS program (green circles, west to east: Yakutat, Elfin Cove, Gustavus, Sitka, Juneau, Craig, Klawock, Petersburg, Wrangell, Ketchikan).