

STATE OF ALASKA
GROUNDFISH FISHERIES

ASSOCIATED INVESTIGATIONS IN 2001

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STATE OF ALASKA GROUND FISH FISHERIES AND ASSOCIATED INVESTIGATIONS IN 2001

AGENDA ITEM VII. REVIEW OF AGENCY GROUND FISH RESEARCH, STOCK ASSESSMENT, AND MANAGEMENT

A. Agency Overview

1. Description of the State of Alaska commercial groundfish fishery program:

The Alaska Department of Fish and Game (ADF&G) has jurisdiction over all commercial groundfish fisheries within the internal waters of the state and to three miles offshore along the outer coast. A provision in the federal, Gulf of Alaska (GOA) Groundfish Fishery Management Plan (FMP) gives the State of Alaska limited management authority for demersal shelf rockfish in federal waters east of 140° W. longitude. North Pacific Fisheries Management Council (NPFMC) action in 1997 removed black and blue rockfish from the Gulf of Alaska FMP thus the state manages these species in both state and federal waters (of the GOA). The state also manages the lingcod resource in both state and federal waters of Alaska. Other groundfish fisheries in Alaskan waters are managed by the federal government, or in conjunction with federal management of the adjacent Exclusive Economic Zone (EEZ). The information related in this report is from the state-managed groundfish fisheries only.

The State of Alaska is divided into three maritime regions for marine commercial fisheries management. The Southeast Region extends from the Exclusive Economic Zone (Equi-distant line) boundary in Dixon Entrance north and westward to 144° W. longitude and includes all of Yakutat Bay. This is a change from recent years when the Central Region began at 140° W. longitude. The Central Region includes the internal waters of Prince William Sound (PWS), Cook Inlet, and Bristol Bay and the Outer District off the Kenai Peninsula. The Westward Region includes all territorial waters of the Gulf of Alaska west of Cape Douglas and includes North Pacific Ocean waters adjacent to Kodiak, and the Aleutian Islands as well as all U.S. territorial waters of the Bering, Beaufort, and Chukchi Seas.

a. Southeast Region

The Southeast Region Commercial Fisheries Groundfish Project is based in Sitka with the groundfish project leader, assistant project leader and 2 port biologists located there. Seasonal port samplers and data entry staff were employed in Petersburg, Ketchikan, Sitka, Craig and Douglas. The project also received biometrics assistance from the regional office in Douglas.

The Southeast Region's groundfish project has responsibility for research and management of all commercial groundfish resources in the territorial waters of the Eastern Gulf of Alaska. The project also cooperates with the federal government for management of the waters of the adjacent EEZ and the project leader participates as a member of the North Pacific Fisheries Management Council's Gulf of Alaska Groundfish Plan Team, and produces the annual stock assessment for demersal shelf rockfish for consideration by the North Pacific Fishery Management Council.

Project activities center around fisheries monitoring, resource assessment, and in-season management of the groundfish resources. In-season management decisions are based on data collected from the fisheries and resource assessment surveys. Primary tasks include fish ticket collection, editing, and data entry for both state and federal-managed fisheries; dockside sampling of sablefish, lingcod, Pacific cod, and rockfish landings; skipper interview and logbook collection and data entry; and biological studies of important commercial species. Five resource assessment surveys were conducted during 2001. Funding for the Southeast Groundfish project comes from NOAA Grants NA16FN1273 and NA77FM0209 and NA97FN0121, CFDA 11-437.

b. Central Region

Central Region groundfish staff is headquartered in Homer and is comprised of a regional groundfish management biologist, a regional shellfish/groundfish research project leader, a groundfish sampling coordinator, a groundfish fish ticket entry position, and one seasonal commercial catch sampler. An area management biologist is also located in Cordova, a seasonal part-time sampler is in Seward, and regional support comes from Anchorage. The research project leader also functions as a member of the North Pacific Fishery Management Council's Gulf of Alaska Groundfish Plan Team. The R/V *Pandalus*, home ported in Homer, and the R/V *Montague*, home ported in Cordova, conduct a variety of groundfish-related activities in Central Region waters.

Groundfish responsibilities in Central Region include research and management duties for most groundfish species occurring in territorial waters of Central Region. Within Central Region, groundfish species of primary interest include sablefish, rockfish, pollock, Pacific cod, and lingcod. Stock assessment data are collected through port sampling, acoustic surveys, and through ADF&G trawl and longline surveys. Commercial harvest data (fish

tickets) are processed in Homer for state and federal fisheries landings to Central Region ports.

c. Westward Region

The Westward Region Shellfish management and research staff is located in Kodiak and Dutch Harbor, with seasonal dockside sampling in Chignik, Sand Point, King Cove, and Adak. The R/V Resolution and R/V K-Hi-C are home ported in Kodiak and conduct a variety of groundfish related activities in the waters around Kodiak, the south side of the Alaska Peninsula, and in the eastern Aleutian Islands.

Major groundfish activities include: fish ticket editing and entry for approximately 11,000 tickets from both state and federal fisheries, analysis of data collected on an annual multi-species trawl survey encompassing the waters adjacent to the Kodiak archipelago, Alaska Peninsula and Eastern Aleutians, management of black rockfish, state-waters Pacific cod, lingcod, and Aleutian Island state-waters sablefish fisheries, conducting dockside interview and biological data collections from commercial groundfish landings, and a number of research projects. In addition, the Westward Region has a member on the North Pacific Fisheries Management Council's Bering Sea/Aleutian Island Groundfish Plan Team (Ivan Vining) and the Gulf of Alaska Groundfish Plan Team (David Jackson).

d. Headquarters

ADF&G personnel continued to collect, review, edit and amend, data capture, and archive all ADF&G fish tickets submitted to local offices. These tickets include those required as well as tickets voluntarily submitted by EEZ operators.

In 1998 ADF&G entered into a contract with the Pacific States Marine Fisheries Commission to expand previous data collection and management duties previously carried out under PACFIN. This new contract, which funds most of the ground fish fisheries data collection and analysis by ADF&G, is part of the Alaska Fisheries Information Network (AKFIN). It supports the enhancement of the fish ticket information collection effort and also includes; GIS database development and fishery data analysis, catch and production database development and access, the age reading laboratory, database management and administration, Bering sea crab data collection and reporting, various fishery economic projects and regional fishery monitoring and data management.

Local ADF&G personnel in nine locations throughout the state of Alaska (Craig, Ketchikan, Petersburg, Sitka, Juneau, Seward, Homer, Cordova, Kodiak, and Dutch Harbor) maintain close contact with fishers, processors and enforcement to maintain a high quality of accuracy in the submitted fish ticket records. Following processing, the electronic data is transferred to Headquarters on a regularly scheduled basis. The research analyst working with this project works as part of a team to maintain a master statewide groundfish fish ticket database. Data

feeds to Headquarters are merged to this master database. Data is routinely reviewed for accuracy with corrections applied as required. Within the confines of confidentiality agreements, raw data is distributed to the National Marine Fishery Service (both NMFS-ARO and NMFS-AFSC), the North Pacific Fishery Management Council (NPFMC), the Commercial Fisheries Entry Commission (CFEC), the Pacific States Fisheries Information Network (PACFIN) and the AKFIN Support Center on a regularly scheduled basis. Summary groundfish catch information is also provided back to regional ADF&G offices as well as to the State of Alaska Board of Fish, NMFS, NPFMC and the AKFIN Support Center.

The ADF&G Gene Conservation Laboratory continued studies on genetic diversity and gene flow for a variety of groundfish species in 2001. Efforts focused on black rockfish, light and dark dusky rockfish, and pollock.

Age Determination Unit

The ADFG's centralized, statewide age reading program at the Age Determination Unit (ADU) in Juneau, continued with baseline improvements to physical work spaces, project and report completion, strengthening reader skills, and production reading. In 2001, eight people were directly employed for approximately 36 work months to read groundfish and invertebrate age structures and substantial associated work (sample prep, data entry, archiving). Only two of these eight individuals are year-round staff of the ADU. Two additional age readers were hired late in 2001. An additional position is to be created in 2002.

A substantial amount of time is spent in training age readers, in an attempt to prevent lapses in data quality during initial production reading of new readers. The time it takes for individuals to become fully trained on any one species is highly variable, for each individual and for each species. For example, it generally takes two months of training and an additional two months of close monitoring (100% second reading by experienced staff) for readers to be marginally productive reading yelloweye rockfish. A semi-experienced reader may require several months to achieve production on Pollock. Substantially more time may be required to achieve production on more difficult species like shortraker, rougheye, sablefish, and pacific cod. Therefore, any fluctuations in staff have immediate and profound effects on production.

Quality of age data is routinely assessed through second-reading 20% of the sample, either by the initial-reader (if they have demonstrated consistency in the past) or by an experienced second-reader. If species-specific control limits are transgressed, additional specimens are reviewed and resolved. Annual and quintennial within and between-reader testing occurs for all readers, to assess drift in application of criteria over time.

Much effort was made in reconciling concerns in age-reading of pollock and Pacific cod. Pronounced differences were observed between ADFG-Juneau and other ADFG reading

locations (Kodiak/Homer) and a non-state agency, in how to interpret growth patterns in these species. Conventional interpretation of growth patterns by other reading locations/agencies obviates radiometric validation because measurement of radioisotope proportions of ^{226}Ra : ^{210}Pb has a threshold of 22.4 years, and the age range produced by other labs is consistently less than 18 years. Age range for both Pollock and pacific cod determined by ADU criteria consistently encounters fish in excess of 20 years. At present, the ADU has produced substantial preliminary data for both Pollock and pacific cod. Specimens will be selected for coring and submitted for radiometric validation. Four groups for each species will be pulled: age-1 juveniles, age 20-somethings location A, age 20-somethings location B, and age (20-somethings/2) location A. Additional work is being undertaken to describe otolith attributes, which reveal or support older estimates. From all of this work there are preliminary conclusions: a) pacific cod and pollock are older than past – prior to year 2000 - descriptions of age; b) that pollock are moderately difficult and pacific cod very difficult to age; c) that growth for both species can be highly variable, with generally rapid growth the first year, variably transitioning after age 2 or 3 to moderate or very slow growth (not unlike sablefish); d) that there are differences in growth between locations or populations; e) that within populations, there are pronounced interannual growth fluctuations which make for an extremely complex growth pattern.

The ADU planned to substantially complete an Oracle based database in 2001, however with departure of the lead programmer zero progress was made.

e. Description of the State of Alaska recreational groundfish fishery program (Sport Fish Division)

ADF&G has jurisdiction over all recreational groundfish fisheries within the internal waters of the state, in coastal waters out to three miles offshore, and throughout the EEZ. The Alaska Board of Fisheries extended existing state regulations governing the sport fishery for all marine species into the waters of the EEZ off Alaska in 1998. This was done under provisions of the Magnuson-Stevens Fishery Conservation and Management Act, which stipulate that states may regulate fisheries that are not regulated under a federal fishery management plan or other applicable federal regulations.

Most management and research efforts are directed at halibut, rockfish, and lingcod, the primary species targeted by the recreational fishery. Statewide data collection programs include an annual mail survey to estimate overall harvest (in number) of halibut, rockfish, lingcod, and sharks, and a mandatory logbook to assess harvest of the same species in the charterboat fishery. The Assistant Director of the Division of Sport Fish (Rob Bentz), located in Juneau, takes the statewide lead in federal-state jurisdictional management issues.

Regional programs with varying objectives address estimation of recreational fishery statistics including harvest and release magnitude and biological characteristics such as species, age, size, and sex composition. There are essentially two maritime regions for marine sport fishery

management in Alaska. The Southeast Region extends from the Exclusive Economic Zone (Equi-distant line) boundary in Dixon Entrance north and westward to Cape Suckling, at approximately 144° W. longitude. The Southcentral Region includes state and federal waters from Cape Suckling to Cape Newenham, including Prince William Sound (PWS), Cook Inlet, Kodiak, the Alaska Peninsula, and Bristol Bay.

1. Southeast Region Sport Fish

Regional staff in Douglas coordinates a data collection program for halibut and groundfish in conjunction with a regionwide Chinook salmon harvest studies project. The project leader is Mike Jaenicke while assistant project biologists are also located in Ketchikan (Dennis Hubartt) and in Juneau (Bruce White). About 20 technicians at major ports in the Southeast region interview both anglers and charter operators and then collect data from sport harvests of halibut and groundfish while also collecting data on sport harvests of salmon. Data collected on groundfish are limited to species composition, length of halibut and lingcod, and sex of lingcod; no otoliths or other age structures are collected. Data are provided to the Alaska Board of Fisheries, other ADF&G staff, the public, and a variety of other agencies such as the NPFMC.

Area management biologists in Yakutat, Haines, Sitka, Juneau, Petersburg, Klawock, and Ketchikan are responsible for groundfish management in those local areas. In general, sport fisheries for groundfish are not actively managed inseason.

2. Southcentral Region Sport Fish

The Southcentral Region groundfish staff is headquartered in Homer, and consists of the management and research biologist (Scott Meyer) and harvest assessment project assistant (Charlie Stock). The project biometrician (Pat Hansen) is located in Anchorage. Six seasonal technicians collected data, from the sport harvest, at major ports in the region. Two technicians located in Homer read all rockfish and lingcod age structures collected from the recreational fishery.

Southcentral region staff is responsible for research on sport halibut and groundfish fisheries and management of groundfish fisheries in state and federal waters. For all species, the lack of stock assessment information has precluded development of abundance-based fishery objectives. As a result, management is based on building a long-term, sustainable regulatory framework and inseason management action has generally been unnecessary.

Ongoing assessment of sport harvest and fishery characteristics at major ports throughout the region is the primary activity. Staff collects data from harvested halibut, rockfishes, lingcod, and sharks, and interview anglers and charter boat operators. All age reading is done in Homer using project funds, and the project leader and assistant are active participants in the Committee of Age Reading Experts (CARE). Normal duties also include providing sport halibut harvest statistics to the International Pacific Halibut Commission (IPHC) and NPFMC, coordinating development

and analysis of the statewide charter logbook program and statewide harvest survey, working with Alaska Board of Fisheries, advisory committees, and local fishing groups to develop local area management plans (LAMPs), drafting and reviewing proposals for recreational groundfish regulations, and dissemination of information to the public.

B. By Species

1. Pacific cod

a. Research

Catch rate and biological information is gathered from fish ticket records, port sampling programs, a tagging program, and during stock assessment surveys for other species. A mandatory logbook program was initiated in 1997 for the state waters of SE Alaska, to provide a relative index of CPUE. Commercial landings in SE, Central Region and the Westward Region are sampled for length, weight, age, sex, and stage of maturity.

The Westward Region has continued the cod-tagging program that was initiated in 1997 in the Central and Western Gulf of Alaska. Approximately 1,200 fish were tagged in 2001, bringing the total number of tags released to 7,800. By year's end, over 500 tags had been recovered. This project is scheduled to continue for one more summer. Results to date show that while the vast majority of Pacific cod are recovered within 15 km of their tagging location, much longer recapture distances are possible. Several fish were recaptured more than 500 km from their tagging location. Recapture locations in 2001 showed for the first time movement of fish from the Shumagin Islands into the Bering Sea. Movements from Kodiak Island to southeast Alaska have not yet been confirmed. ADF&G also cooperated with the National Marine Fisheries Service (NMFS) in the deployment of 230 archival tags on Pacific cod in the Kupreanof Strait area of Kodiak Island in November of 2001. These tags are capable of recording the time and depth of fish movements. In another joint project with NMFS, cod captured in November 2001 were returned to the NMFS facility in Kodiak in an attempt to record spawning behavior, raise juvenile cod for use in micro-otolith analysis, and also use oxytetracycline marking to validate aging procedures on the adult cod.

b. Management

Regulations adopted by the Alaska Board of Fisheries during November 1993 established a guideline harvest range (GHR) of 340 to 570 mt for Pacific cod in the internal waters of SE Alaska. The GHR was based on average historic harvest levels rather than on a biomass-based ABC estimate.

Cod along the outer coast are managed in conjunction with the Total Allowable Catch (TAC) levels set by the federal government for the adjacent EEZ. However, there are gear

restrictions in state waters in PWS, lower Cook Inlet, and around Kodiak Island to reduce crab bycatch.

In 1996, the Alaska Board of Fisheries adopted state water Pacific cod Management Plans for fisheries in 5 groundfish areas, Prince William Sound, Cook Inlet, Kodiak, Chignik and South Alaska Peninsula. Under these plans, participation is not restricted to vessels qualified under the federal moratorium program. Included within the plans were season, gear and harvest specifications. The fishing seasons are prosecuted after the initial federal season, which generally closes in late February to early March. The state fisheries are restricted to pot or jig gear and the guideline harvest levels (GHL) are allocated by gear type. The annual GHL's are based on the estimate of allowable biological catch (ABC) of Pacific cod as established by the NPFMC. The initial GHLs were set at 15% of the Western Gulf ABC to be reserved for the South Alaska Peninsula Area, 15% of the Central Gulf ABC to be apportioned between the Kodiak, Chignik and Cook Inlet Areas and 25% of the Eastern Gulf ABC for the Prince William Sound Area.

Additional regulations include a 58' vessel size limit in the Chignik and South Alaska Peninsula Areas and allocations between gear types in Kodiak, Cook Inlet and Prince William Sound. The fishery management plans also provided for removal of restrictions on exclusive area registrations, vessel size and gear limits after October 31 to increase late season production

Efforts have increased to collect biological data through port sampling. In addition, observers are used on day-trips to document catches and at-sea discards in the nearshore pot fisheries.

c. Fisheries

Most of the Pacific cod harvested in Southeast Alaska, and the North Gulf District of the Cook Inlet Area is taken by longline gear. Pots are the dominant gear in the Cook Inlet District and in the Prince William Sound area. In the Westward Region, trawl gear takes over 60% of the harvest, with the remainder split between longline, jig, and pot gear. Prior to 1993 much of the cod taken in Southeast was utilized as bait in fisheries for other species. Pacific cod harvested since that time is roughly evenly divided between bait use and human consumption. In other areas of the state, Pacific cod are harvested in both state and federal waters and utilized primarily as food fish. Harvests of Pacific cod totaled 142mt in the SE state-managed fisheries during 2001. The 2001 GHL's for the Cook Inlet and Prince William Sound state-managed Pacific cod harvest were set at 871 mt and 1,188 mt, respectively. Harvest from these Central Region state-managed Pacific cod fisheries totaled 871 mt from Cook Inlet and 0.1 mt from PWS. There was no effort by pot vessels and extremely limited effort by jig vessels in the PWS Area in 2001. Harvest from the 2001 state managed fishery in the Kodiak Area totaled 2,504 mt, while 1,087 mt of cod were harvested in the Chignik Area, and the South Alaska Peninsula Area harvest totaled 6,078 mt. The Kodiak and South Alaska Peninsula Areas obtained their maximum GHL

‘step up’ provisions for 2000 and all subsequent years. The Kodiak Area will receive 12.5% of the Central Gulf ABC and the South Alaska Peninsula will receive 25% of the Western Gulf ABC in 2000 and all future years. Prince William Sound, Chignik, and Cook Inlet will remain at their current percentages of the Federal TAC for 2002.

2. Rockfishes

Rockfishes are managed under three assemblages: demersal shelf (DSR), pelagic shelf (PSR), and slope rockfish. Demersal Shelf Rockfish include the following species: yelloweye, quillback, china, copper, rosethorn, canary, and tiger. Pelagic shelf rockfish (PSR) include black, blue, dusky, yellowtail, and widow. Black and blue rockfish were removed from the PSR assemblage in the federal fisheries management plan and placed totally under state management in 1998. Slope rockfish contain all other *Sebastes* species.

a. Research

Detecting spatial structure in the genetic variation of some marine fishes is challenging as populations are often closely related through high gene flow and the relationships between populations may change over years. However, recent advances in molecular markers provide a large array of potentially valuable approaches to address these questions. The Alaska Department of Fish and Game Gene Conservation Laboratory is currently conducting studies of spatial and temporal variation black rockfishes using analyses of microsatellite DNA.

Studies of black rockfish are investigating the spatial structure throughout the range of the species from the Pacific Northwest through the Bering Sea. Sample collection efforts were largely completed in 2001. Sites range from Oregon through the Alaska Peninsula. Ten individual collections were analyzed for eight microsatellite loci derived from black and quillback rockfishes. Loci were highly variable with an average heterozygosity of 0.748. Preliminary statistical analyses indicate small but significant differences among collections. F_{st} values by locus varied from 0.001 to 0.020. A manuscript and final report are in preparation (contact Lisa Seeb).

ADF&G port sampling, skipper interview, and logbook programs for rockfish fisheries continued in Southeast Alaska in 2001. The logbook and interview programs are designed to furnish detailed catch and effort information, to estimate at-sea discards, and to obtain more detailed information regarding specific harvest location. The port sampling program provides species composition from the landed catch and an opportunity to collect biological samples. Otoliths were obtained from principal demersal shelf rockfish species and black and dusky rockfishes and sent to the age-reading laboratory in Juneau for age determination. Data from these programs is entered onto a database in Sitka. In 2001, 1,478 yelloweye, 1,011 quillback, 571 dusky, 175 roughey rockfish, and 101 black rockfish were sampled for age, weight, length, sex, and maturity (Contact Mike Vaughn).

Multibeam bathymetric and backscatter data were collected for a portion of the CSEO and SSEO sections in the summer of 2001. These data have not yet been fully analyzed but preliminary review yields an estimate of 223 km² of rock habitat. To date we have mapped over 2000 square kilometers of seafloor. This represents 7% of the total habitat inside the 100 fm contour along the outer coast of Southeast. More importantly, we have mapped 980km² of rocky habitat, approximately 32% of what is estimated to occur. We plan to multibeam survey the east bank of Fairweather Ground in June of 2002. Ultimately, our ocean mapping efforts will provide a permanent record of the seafloor for use in the management of living resources within the region.

Skipper interviews and port sampling of commercial rockfish deliveries in Central Region during 2001 occurred in Homer, Seward, Whittier, and Cordova. Efforts during the first half of the year primarily sampled slope and demersal species, however, during the last half of the year, sampling focused primarily on pelagic rockfish. Additional sampling occurred during the Cook Inlet and PWS trawl and sablefish longline surveys. Sample data collected included date and location of harvest, species, length, weight, sex, and gonad condition. Otoliths were collected from most sampled fish. Homer office staff determined ages of pelagic and demersal rockfish otoliths. Otoliths from all other rockfish species were sent to the Age Determination Unit (contact Willy Dunne).

The Westward Region continued its port sampling of the commercial rockfish harvest in 2001. Most dockside sampling looked at black rockfish, and light and dark dusky rockfish. Opportunistic sampling on additional *Sebastes* species occurred as well. Skippers were interviewed for information on effort, location, and bycatch. Length, weight, gonadal and ovarian maturity and otolith samples were collected (contact Carrie Worton). Staff from the Kodiak office is currently aging otoliths collected during the 2001 season.

The Westward Region also initiated a study in the Western Gulf of Alaska to increase our knowledge of the natural mortality and growth parameters of black rockfish from adjacent virgin and exploited stocks in the Shumagin Islands and the Sandman Reef/Sanak Island areas. Otoliths, weights, lengths, stomach samples and exact capture location were gathered from approximately 900 fish from each area. In addition, similar information was gathered from approximately 500 of the co-occurring dark dusky rockfish in an effort to determine niche separation of these co-generes. This work was funded through a Nearshore Marine Fisheries Research grant. Work in 2002 will return to the Shumagin/Sanak area, as well as Chignik and eastern Aleutian Island waters (Contact Dan Urban).

The Division of Sport Fish—Southcentral Region continued collection of harvest and fishery information on rockfish as part of the harvest assessment program. The objectives of this program include estimation of 1) species, age, sex, and size composition of recreational rockfish harvests at major Gulf of Alaska ports, and 2) the geographic distribution of harvest by each fleet. Ports sampled in 2000 included Seward, Valdez, Whittier, Kodiak, and Homer. In 2001, 828 black rockfish, 601 yelloweye rockfish, and 400 rockfish of other species were sampled for age, weight, length, sex, and maturity data. Port samplers in Valdez and Whittier also collected

genetics samples from black rockfish for ADF&G genetics staff in Anchorage (Contact: Scott Meyer)

The Division of Sport Fish—Southeast Region continued to collect catch and harvest data from rockfish as part of a marine harvest onsite survey program with rockfish harvests tabulated back to 1978 in some selected ports. Data collected in the program include statistics on effort, catch, and harvest of the primary rockfish species commonly taken by Southeast Alaska anglers. Ports sampled in 2001 included Juneau, Sitka, Craig/Klawock, Wrangell, Petersburg, and Ketchikan. Primary species harvested in Southeast Alaska included yelloweye, black, and quillback rockfish (Contact: Mike Jaenicke).

b. Stock Assessment

ADF&G used line transect methods conducted from a submersible to collect density estimates of yelloweye rockfish. Biomass is the product of; density x average weight x square kilometer rock habitat. In the Southeast District, the NSEO section was the only area surveyed during 2001. The weather was poor during the survey period and only six line transects were run, with a total of 30 yelloweye rockfish observed on these transects. The density estimate was 1,420 adult yelloweye/km². This increased the density estimate for this area 40% over the 1999 survey data (1995 assessment) and brings the area estimate more in line with density estimates from the rest of Southeast Outside. The NSEO section is a small area and has only been surveyed twice: in 1994 and 2001. Survey techniques were substantially changed in 1995 and it is reasonable to expect that new density estimates would be higher than those from 1994. The exploitable biomass estimate for yelloweye rockfish in the Eastern Gulf of Alaska for 2002 is 15,616 mt. Yelloweye rockfish average weight and standard error data were updated using 2000 port samples.

The total exploitable biomass in the eastern Gulf of Alaska for 2001 is estimated to be 15,616 mt (based on the sum of the lower 90% confidence limits of biomass estimates from each management area), up slightly (6%) over the 2000 estimate. The allowable biological catch (ABC) for demersal shelf rockfish (DSR) was set at 330 mt. Multibeam bathymetric and backscatter data were collected for a portion of the CSEO and SSEO sections in the summer of 2001. These data have not yet been analyzed.

Beginning in 2000, Central Region groundfish staff has undertaken a three-year project designed to develop and implement a sampling approach for estimating black rockfish abundance in specific nearshore habitats of Southcentral Alaska along the Northern Gulf of Alaska. Harvest guidelines are currently based on long-term harvest patterns of all rockfish species in aggregate and have not been established to reflect changes either in the abundance of individual species or in fishing patterns. Black rockfish comprises the largest component of rockfish harvests along the northern Gulf of Alaska. This project will use tagging and SCUBA to explore habitat-based assessment of black rockfish. The first field season occurred in the summer of 2001 and involved two 10-day cruises. A pilot study

during June 24 – July 2 was used to develop sampling approaches and conduct a coarse scale analysis along the outer Kenai Peninsula. A second cruise during August 1-10 focused on Harris Bay, which has approximately 49 kilometers of shoreline, as divers swam 32 line transect legs for a total transect length of 5,045 meters of planer distance. Rockfish are also being tagged during these cruises (contact Bill Bechtol).

c. Management

The DSR assemblage is the component of the rockfish complex most actively managed by the state in Southeast Alaska at this time. Rockfish management for this group is based upon a combination of guideline harvest ranges, gear restrictions, and trip limits. The state has management authority for demersal shelf rockfish in both state and federal waters of Southeast Alaska. Directed harvest of demersal shelf rockfish is restricted to hook-and-line gear. Separate harvest ranges have been established for each of six Southeast Alaska management areas based upon the best available information on the condition of rockfish stocks in each area. Regulations adopted in 1994 include a reduced GHR in internal waters, reduced weekly trip limits from 7,500 pounds per vessel to 6,000 pounds per vessel (12,000 pounds in EYKT), and added a requirement that logbook pages must be submitted with fish tickets from each fishing trip. The 2001 TAC for DSR was 330 mt in Southeast Outside. The directed DSR fishery quota is now allocated with 2/3 of the quota apportioned to the January 1- March 15 season and 1/3 of the quota apportioned to the November 16- December 31 season (Contact Tory O'Connell). A significant portion of the harvest is taken as bycatch mortality during the halibut fishery and 211 mt of the TAC was reserved for landed and unreported bycatch. An additional 50 mt of DSR are allowed for the directed harvest in the SE inside waters. In Southeast Alaska all other rockfish are managed under an area-wide annual harvest limit of 500 mt.

The Alaska Board of Fisheries adopted several new regulations regarding rockfish during their 2000 meeting cycle. Full retention of rockfish is now required in all commercial fisheries in the internal waters of Southeast Alaska. All rockfish taken on commercial gear in internal waters of Southeast Alaska must be retained, weighed and documented on a fish ticket. Profits from fish in excess of legal limits (and bycatch limits) must be forfeited to the State. Full retention of rockfish in outer coastal waters is limited to the demersal shelf rockfish assemblage. This was in an effort to keep regulations consistent with federal regulations in areas where fisheries overlap. Further, the BOF prohibited live fish fisheries for groundfish in Southeast. The Department had originally proposed prohibiting live fish fisheries for rockfish only, but the BOF extended the prohibition to all groundfish species.

Rockfish in Central Region's Cook Inlet and PWS Areas are managed under their respective Rockfish Management Plans. Plan elements include a directed fishery GHL of 68 mt followed by a bycatch-only fishery, and 5-day trip limits of 0.5 mt in the Cook Inlet District, 1.8 mt in the North Gulf District, and 1.4 mt in PWS. Regulations for rockfish have undergone significant changes beginning in 1996 when the Alaska Board of Fisheries

formalized the 68 mt GHL into a 68 mt harvest cap for all rockfish species in Cook Inlet and PWS and a 5% rockfish bycatch limit for jig gear during the state waters Pacific cod season. In 1998 the board adopted a directed rockfish season opening date of July 1 for the Cook Inlet Area and restricted legal gear to jigs, primarily because this fishery typically targets pelagic rockfish species. At the spring 2000 meeting, the board closed directed rockfish fishing in the PWS area and established a bycatch-only fishery with mandatory full retention of all incidentally harvested rockfish. Rockfish bycatch levels were also set at 20% during sablefish and 10% during other directed fisheries. Proceeds from rockfish landed in excess of the allowable 10% bycatch level, go to the State of Alaska. (Contact Charlie Trowbridge)

The Westward Region has attempted to conservatively manage black rockfish since 1997, when management control was relinquished to the State of Alaska. Area guideline harvest levels were set at 75% of the average production from 1978-1995 and sections were created to further distribute effort and thereby lessen the potential for localized depletion. Since 1997, section GHL's have been reduced in some areas that have received large amounts of effort. In 1999, 90 mt of black rockfish were harvested from the seven sections comprising the Kodiak Area. The vast majority of this harvest came from directed fisheries or as bycatch in the state managed Pacific cod fishery. The 2001 black rockfish harvest in the Chignik Area totaled 45 mt and totaled 44 mt in the South Alaska Peninsula Area. The staff of the Westward region is currently seeking an economically feasible and statistically valid means to conduct stock assessments on the rockfish resources of the region. A voluntary logbook program was initiated in 2000 in the hope of obtaining CPUE estimates as well as more detailed harvest locations. The detailed harvest location may be useful in tracking age composition in small habitat areas. Several department proposals to the Alaska Board of Fisheries have been submitted for the 2001-02 cycle. These proposals seek to implement conservative rockfish harvest trip limits, require a more specific registration, and make jig gears the only legal gear for directed rockfish effort. Additional public proposals relating to Westward Region black rockfish fisheries will also be heard (contact Dave Jackson).

Given the lack of quantitative stock assessment information for much of Alaska, sport fishery managers have established conservative harvest strategies for recreational rockfish fisheries. Recreational seasons and bag and possession limits for rockfish in Alaska are among the most restrictive on the West Coast.

In most of the fisheries in Southcentral Alaska, the majority of rockfish are taken incidental to the recreational halibut fishery or while trolling for salmon. Bag limits in most areas have been designed to discourage targeting of rockfish yet allow for retention of incidental harvest. Bag limits in most areas are five fish daily and the harvest of non-pelagic (DSR and slope) rockfish is further restricted to one or two fish per day. The Alaska Board of Fisheries has allowed more liberal bag limits in the Kodiak and Alaska Peninsula areas

because of lower levels of effort and predominance of pelagic species in the catch (Contact Scott Meyer).

In Southeast Alaska, sport bag limits consist of 5 pelagic rockfish and 5 non-pelagic rockfish per day of which only 2 may be yelloweye rockfish. In addition, bag limits in areas near Ketchikan and Sitka are limited to 3 non-pelagic rockfish, only 1 of which may be a yelloweye rockfish.

d. Fisheries

Reported harvest of rockfishes from state-managed commercial fisheries in Southeast totaled 627 mt in 2001; of which 392 mt was directed DSR and 9 mt was black rockfish. The majority of the remaining rockfish taken in the Southeast district were shortraker and roughey landings made in conjunction with the NSEI sablefish fishery. All rockfish harvested in state-managed fisheries in SE is taken by hook-and-line gear either in directed fisheries or incidental to fisheries for other species.

The 2001 Cook Inlet Area directed rockfish fishery opened July 1 and closed August 29 with a total harvest of 53 mt. This was the second year that the jig-only gear restriction was in place. Total harvest for the PWS Area rockfish bycatch was 33 mt.

Recreational rockfish harvest is typically estimated in numbers of fish. Estimates of the 2001 harvest are not yet available from the statewide mail survey, but the average estimated annual harvest for the period 1996-2000 was 51,600 fish in Southeast Alaska and 49,800 fish in Southcentral Alaska.

3. Sablefish

a. Research

In 2001, sablefish longline surveys were conducted in the two Southeast Alaska state-managed sablefish fishery management areas, Southern Southeast Inside (SSEI) and Northern Southeast Inside (NSEI). These surveys are designed to measure trends in relative abundance and biological characteristics of the sablefish population. Biological data collected in the survey include length, weight, sex and maturity stage. Otoliths are collected and sent to the ADF&G age reading laboratory in Juneau for age determination. The cost of these surveys is offset by the sale of the fish landed. The fish are dressed and iced according to industry standards and the state receives all the revenues from the sale of the fish.

In the SSEI survey, the overall CPUE (fish/hook) in 2001 was 0.16, 24% lower than the CPUE in 2000 (0.22) and 27% lower than 1999 (0.22). The overall CPUE based on biomass was 0.39 kg/hook in 2001 compared to 0.43 in 2000 and 0.41 in 1999. Although the bycatch species composition varied widely between stations, spiny dogfish (*Squalus acanthias*) dominated the

bycatch in all areas surveyed. In the NSEI survey, the 2001 mean CPUE based on fish/hook (0.37) showed a 32% increase from 2000 (0.27) and a 27% decline from 1999 (0.27). Biomass/hook was 1.10 kg/hook in 2001 compared to 0.82 in 2000 and 0.84 in 1999. Thornyhead rockfish dominated the bycatch in all areas except the northern-most statistical area. Thornyhead catch rates were half as high in 2001 compared to 2000, 1704 and 2491 fish respectively.

The on-going mandatory logbook program in the sablefish fisheries provides catch and effort data by date, location, and set. In the SSEI sablefish fishery, overall pounds/hook in vessels using conventional gear declined 20% in 2001 (0.36 rd. lbs./hook) compared to 0.45 rd. lbs./hook in 2000 and 25% lower than 1999 (0.48 rd. lbs./hook). In the NSEI fishery (for vessels using conventional gear), rd. lbs./hook was 0.58 in 2001, 10% higher than in 2000 (0.52).

In 2001, ADF&G continued the mark/recapture study in NSEI, double marking and releasing 5,768 sablefish using pot gear to capture the fish 1.5 months prior to the fishery opening September 1, 2001. The external tags are also a part of the on-going study to describe movement patterns between the Gulf of Alaska and the inside waters of Southeast Alaska. Fish were caught with pot gear this year to minimize the apparent “hook shyness” pattern of tag returns observed in 1997, 1998 and 1999. Tag returns from the fishery in 2000 were significantly higher than in previous years. This suggests that using different gear to capture the fish and extending the time period between capture and recapture may have minimized the “hook shyness” phenomenon. The higher returns could also be a result of a higher exploitation of fish in 2000 compared to 1998 and 1997. The department is investigating the use of PIT tags in sablefish to determine population size and exploitation rate (contact Dave Carlile).

In 1999, ADF&G initiated limited a mark-recapture study in PWS using the biennial bottom trawl survey as the capture vehicle. Tagging was continued in the 2001 PWS bottom trawl survey (contact Bill Bechtol).

Skipper interviews and port sampling occurred in Whittier, Cordova and Seward for the PWS Area fishery and in Seward and Homer for the Cook Inlet Area fishery. Data obtained included date and location of harvest, length, weight, sex, and gonad condition. Otoliths were removed and sent to the Age Determination Unit (contact Willy Dunne).

b. Stock Assessment

In Southeast, prior to 1997, trends in catch rates in the longline research survey biological data, and fishery performance data were the primary information used to set quotas in the sablefish fisheries. In 1997, we developed an age-structured analysis (ASA) and began a mark recapture study in an attempt to estimate absolute abundance in NSEI. The ASA model output has been problematic because of the wide range of biomass estimated depending on the data used. Also the age distributions in NSEI do not appear to track cohorts from year to year. Apparent hook shyness and gear selectivity problems in the mark recapture study in 2001 continue to complicate

efforts to estimate biomass using a Peterson estimator. Despite some problems, mark recapture methods seem to have sufficient potential to provide estimates of abundance, exploitation rates and movement that we plan to continue this effort. The return of the external, t-bar tags in the commercial fishery allowed us to estimate exploitation rates, weighted by fish size and area catch rates in the fishery. A scientific review panel comprised of Bruce Leaman, Mark Saunders, Mike Sigler, Jeff Fujioka and Gordon Kruse was convened in Juneau in February 2002 to evaluate the NSEI Sablefish assessment program. Copies of the Report are Available from the Alaska Department of Fish and Game.

A longline survey has been conducted in PWS annually since 1996 using ADF&G vessels. Mean CPUE has ranged from 0.07 fish/hook in 1997 to 0.13 fish/hook in 1999. Longline survey effort was recently extended into the North Gulf District in 1999 and 2000, yielding mean CPUE of 0.10 fish/hook from Resurrection Bay in 1999 and 0.02 fish/hook from Nuka Bay in 2000. The 2001 PWS survey focused on the northwest and southwest PWS. Relative to recent surveys, catch rates among strata (and not weighted for available habitat) decreased slightly for sablefish. Survey costs are offset by the sale of the fish (contact Bill Bechtol).

c. Management

There are three separate internal water areas in Alaska, which are managed exclusively by the state. The Northern Southeast Inside Subdistrict (NSEI), the Southern Southeast Inside Subdistrict (SSEI), and the Prince William Sound District each have separate seasons and guideline harvest ranges. Sablefish fisheries in outer coastal state waters (0-3 miles) have been managed in conjunction with the federal-managed fishery in the EEZ. In some areas of the Gulf, the state opens the fishery concurrent with the EEZ opening. These fisheries, which occur in the North Gulf District of Cook Inlet and the Aleutian Island District, are open access in state waters, as the state cannot legally implement IFQ management at this time. The quotas are based on historic catch averages and closed once these have been reached. There is no open-access sablefish fishery in the Southeast Outside district as there are limited areas that are deep enough to support sablefish populations inside state waters.

The GHL for the North Gulf District is set using an historic baseline harvest level adjusted annually by the same relative reduction to the TAC in the Central Gulf Area. The 2001 fishery GHL was 30 mt. The sablefish fishery in PWS has occurred under limited entry since 1996. Permit holders are restricted to gear and vessel size classes. Additionally a commissioner's permit, which stipulates a logbook and catch reporting requirements, must be obtained prior to participation in the fishery. The fishery GHL is set at 110 mt, which is the midpoint of the harvest range set by a habitat-based estimate. Central Region staff annually conducts post fishery dockside interviews and samples landings in the ports of Cordova, Whittier, and Seward.

Since 1984 both SSEI and NSEI sablefish fisheries have been managed under a license limitation program. Because of increased vessel efficiency the season for the NSEI Subdistrict had been

reduced to a 24-hour per year “derby” style fishery by 1987. Even in that short season, the pre-season harvest objectives set by ADF&G had been consistently exceeded. Beginning in 1994 a new management strategy was adopted for the NSEI Subdistrict sablefish fishery. The Alaska Board of Fisheries (BOF) adopted regulations implementing an equal share quota system where the annual guideline harvest level was divided equally between permit holders and the season was extended to allow for a more orderly fishery. In 1997 the BOF adopted this equal share system as a permanent management measure for both the NSEI and SSEI sablefish fisheries. Due to declines in fishery CPUE and preliminary results from our mark recapture work ADF&G reduced the quota 35% in 1999 to 3,120,000 pounds. The 2001 quota in NSEI decreased significantly from the 2000 quota, 2.18 and 3.12 million round pounds respectively. The SSEI quota was 0.696 million round lbs. in 2000, and remained the same in 2001. In 2000, the Board of Fish extended the SSEI sablefish fishery season until August 15, increasing the season an additional month.

d. Fisheries

The NSEI sablefish fishery landed a total of 972 mt by 111 permits, averaging 8.8 mt per permit between September 1 and November 15, 2001. In the SSEI Subdistrict, a total of 295 mt was landed by 29 permits, averaging 10.2 mt per permit between June 1 and August 15, 2001 (contact Tory O’Connell).

The 2001 open access sablefish fishery in the North Gulf District was open from July 15 – 21 and harvested 61 mt. Catch rates in the fishery were significantly higher than years when the fishery occurred during the March through May period and effort increased from 16 vessels in 2000 to 21 vessels in 2001. During the 2001 season in the Prince William Sound area, a 32-hr fishery opened on May 1 and resulted in a harvest of 141 mt. Several factors contributed to the harvest exceeding the GHL. These included a shift to fixed gear from snap gear, which allowed fishermen to fish more hooks and relatively high catch rates. Similar to 2000, post-fishery interviews and port sampling data indicated a relatively strong recruit class of young sablefish (contact Charlie Trowbridge).

Within the Westward region, only the Aleutian Islands have sufficient habitat to support mature sablefish populations of sufficient magnitude to permit commercial fishing. All other sections within the region are closed on an annual basis by Emergency Order to avoid the potential for localized depletion from the small amounts of habitat within the jurisdiction of the state. Bycatch from the areas closed to directed fishing is limited to 1%. The 2001 Aleutian Island fishery opened on May 15, 2001. Historically, this fishery had opened concurrently with the Federal IFQ season, however the season was recently changed by the Alaska Board of Fisheries. Additional requirements for the fishery include registration and logbook requirements. The GHL was set at 193 mt for the state managed fishery. The preliminary harvest from the 2001 Aleutian Islands sablefish fishery was 209 mt. (contact Mike Calvin).

4. Flatfish

a. Research

No research was conducted on flatfish during 2001. The shellfish program biologist plans to look at bycatch in the shrimp beam trawl fishery using insitu cameras during 2002.

b. Stock Assessment

No stock assessment programs were active for flatfish during 2001.

c. Management

Trawl fisheries for flatfish are allowed in three small areas in the internal waters of Southeast Alaska under a special permit issued by the department. The permits are generally issued for no more than a month at a time and specify the area fished and may restrict the type of gear used. Mandatory logbooks are required and some areas cannot be fished unless there is an ADF&G observer on board. This restrictive management is necessary because of reduced flatfish stocks and because of a history of very high prohibited species bycatch rates, particularly crab and halibut, in flatfish trawl fisheries conducted in the internal waters of the state. New regulations adopted in November 1993 implemented a 20,000-pound maximum weekly trip limit in the trawl fishery. This was an industry proposal, the intent of which was to keep large catcher-processor vessels out of this fishery. In 1997 a different industry proposal to the BOF requesting an increase in weekly trip limit was rejected.

d. Fishery

The Southeast Alaska inside area flatfish trawl fishery was restricted to three small areas during the 2000-01 season with a harvest objective set for each area. There has been almost no effort in the Southeast fishery for the past five years, with no harvest reported for the 2000-2001 season. Most of the Southeast harvest is starry flounder and is used for bait in other groundfish fisheries while the Prince William Sound harvest is a mixture of shallow-water species. The BOF restricted the Southeast flatfish trawl fishery to the use of beam trawl only. The Southeast flatfish trawl areas are also the site of a shrimp beam trawl fishery.

5. Pollock

a. Research

Pollock continue to be a dominant species in the Central Region ecosystems. Due to uncertainty about the appropriate harvest level for the PWS pollock fishery, assessment in 2001 included commercial fishery catch sampling, collection of samples for genetic and isotope analysis, acoustic surveys of the spawning population, and bottom trawl surveys of the summer (post-spawning) population. In 1996, interactions between pollock, herring, and juvenile salmon were also examined as part of Sound Ecosystem Assessment (SEA) funded by the *EXXON Valdez* Oil Spill Restoration.

In pollock we are testing for spatial patterns of genetic variation in six population samples from three regions: North America – Gulf of Alaska; North America – Bering Sea; Asia – East Kamchatka. We tested for annual stability of the genetic signal in replicate samples from three of the North American populations. These studies, begun in 1998 and 1999, continued into 2000. A manuscript documenting the findings is under internal review. Allozyme and mtDNA markers provide concordant estimates of spatial and temporal genetic variation. These data show significant genetic variation between North American and Asian pollock as well as evidence that spawning aggregations in the Gulf of Alaska, such as Prince William Sound, are genetically distinct and may merit management as distinct stocks. These data also provide evidence of inter-annual genetic variation in two of three North American populations. Gene diversity values show this inter-annual variation is of similar magnitude to the spatial variation among North American populations, suggesting the rate and direction of gene flow among some spawning aggregations is highly variable.

b. Assessment

Hydroacoustic surveys, with sample collection by mid-water trawl, were conducted in PWS in the winters of 1995, 1997, 1998, 2000, and 2001. Biomass estimates of prespawning pollock aggregations have been relatively stable with the exception of 1998. The department also conducts biennial bottom trawl survey during the summer in PWS, using pollock biomass estimates to establish the harvest guideline for the winter commercial fishery. This is because a significant portion of the spawning population targeted by the winter fishery is thought to have immigrated from federal waters, whereas the summer population is not assessed by the NMFS summer survey. The 2001 survey biomass estimate was 7,664 mt (Contact Bill Bechtol).

c. Management

Prince William Sound pollock fishery regulations include a commissioner's permit and a registration deadline of January 13. The permit stipulates logbooks, catch reporting, and accommodation of a department observer upon request. Vessels are required to check in

and check out of the area and fishery as well as contact the department daily to report catch, effort, and fishing location. In 2001 new regulations were adopted dividing the PWS Inside District into three sections (Port Bainbridge, Knight Island, and Hinchinbrook) and limited harvest to a maximum of 40% of the GHL from any section (Contact Bob Berceli).

d. Fisheries

The 2001 fishery opened on January 20 with a GHL of 1420 mt. Catch and effort remained low until late February when aggregations of pollock in the Hinchinbrook section increased resulting in achievement of the 40% harvest level for that section. The section closed by emergency order on March 9. Subsequently, fishing improved in the Knight Island and Bainbridge sections, which closed on March 25 when the GHL was attained. As in past years fishery bycatch was dominated by squid at 14 mt, sharks and rockfish comprised the second most abundant bycatch component at 2 mt each. Salmon bycatch totaled 0.3mt for the fishery.

6. Sharks

a. Research

The relative catch rate of spiny dogfish is monitored in the Southern Southeast Inside area in conjunction with the annual sablefish survey in that area. Commercially landed dogfish are sampled for length, weight, sex and spines taken for aging.

Spiny dogfish and Pacific sleeper sharks have been tagged annually since 1997 as part of the PWS longline survey for sablefish, and since 2000 during bottom trawl surveys in Cook Inlet and PWS. Through 2001, 334 spiny dogfish and 330 Pacific sleeper sharks have been tagged. To date, seven tagged sleeper sharks have been recovered from PWS; maximum time-at-large was 1,259 days and most sharks moved less than 20 km between tagging and recapture locations. In 2001, 64 spiny dogfish were sacrificed and the posterior dorsal spine removed for age determination. In addition, 10-15 sleeper sharks were sacrificed in 2000 and 2001 for parasite and contaminant analysis (contact Bill Bechtol).

b. Assessment

Sharks are caught in the PWS longline survey. Catch per unit effort for Pacific sleeper shark increased from 1.1 fish/set in 1996 to 2.8 fish/set in 2001. Spiny dogfish CPUE has ranged from 0.9 to 9.2 fish/set except for a dramatic increase to 51.3 fish per set in 1998. The high catch rates of spiny dogfish in 1998 appear to have been an anomaly (contact Bill Bechtol).

c. Management

The Alaska Board of Fisheries prohibited all directed fisheries for sharks in 1998. In 2000 the BOF increased the bycatch allowance for dogfish taken while longlining for other species to 35% round weight of the target species and also allowed full retention of dogfish bycatch in the salmon setnet fishery in Yakutat. This action was an effort to minimize waste of dogfish in these two fisheries and to encourage sale of bycatch. In Central Region, bycatch is set by regulation at 20% of the round weight of the directed species on board.

7. Lingcod

a. Research

Three lingcod research surveys were conducted during 2001 to tag fish for a movement and migration study and to estimate exploitation rate, and two trips were made to tag fish with sonic tags. A total of 1,114 lingcod were tagged during the 2001 reporting period: 753 lingcod were tagged using dinglebar gear, 30 were tagged as bycatch during a black rockfish survey, and sport fishermen tagged 201 young fish. Length and sex were recorded for all tagged fish and subsamples of biological specimens were taken for age, growth, and sexual maturity analysis. Over the past six years 6,351 lingcod have been tagged and 164 fish recovered. We plan to continue tagging lingcod in 2002 (Contact Cleo Brylinsky).

In the Central Region, skipper interviews and port sampling occurred in Cordova, Whittier, Seward and Homer. Data obtained included date and location of harvest, length, weight, and sex. Gonad condition was generally not determined as nearly all fish delivered were already gutted. Both otoliths and finray sections were collected for age determination. Finrays were prepared and ages assigned by Homer staff. Otoliths were sent to the Age Determination Unit. Finray and otolith age estimates will be compared to determine differences between methods and aid in assessing which method is preferable (contact Willy Dunne).

The Division of Sport Fish—Southeast Region continued to collect catch, harvest, and biological data from lingcod as part of a marine harvest survey program with lingcod harvests tabulated back to 1987 in some selected ports. Data collected in the program include statistics on effort, catch, and harvest of lingcod taken by Southeast Alaska sport anglers. Ports sampled in 2001 included Juneau, Sitka, Craig/Klawock, Wrangell, Petersburg, Yakutat, and Ketchikan. Length and sex data were collected from 634 lingcod in 2001.

The Division of Sport Fish—Southcentral Region continued collection of harvest and fishery information on lingcod through the groundfish harvest assessment program. The objectives of this program include estimation of 1) the age, sex, and size composition of lingcod harvests at selected Gulf of Alaska ports and 2) the geographic distribution of harvest by each fleet. Ports sampled in 2001 included Seward, Valdez, Whittier, Kodiak, and Homer. In combination, these ports represent the primary areas of recreational lingcod harvest in Southcentral Alaska. Approximately 660 lingcod were sampled for length, age, and sex data in 2001.

The Division of Sport Fish—Southcentral Region also has collected fishery-independent stock assessment data on lingcod on an intermittent basis to assess recruitment in the northern Gulf of Alaska. The last survey was conducted in 1998 to assess changes since 1994 in the relative abundance and length composition of lingcod in waters near Seward. The survey indicated continued very low abundance of lingcod in Resurrection Bay and recommended continuing the sport and commercial fishery closure of those waters. Survey results also indicated a relative downward shift in the size distribution in waters just outside Resurrection Bay (Contact: Scott Meyer).

c. Management

The BOF made significant changes in lingcod management in the Southeast District during 2000. These changes included a total winter closure for all users except longliners between December 1 and May 15 in an effort to protect nest-guarding males. Guideline harvest limits were greatly reduced in all areas and allocations made between directed commercial fishery, sport fishery, longline fisheries, and salmon troll fisheries. The 27" minimum size limit remains in effect and fishermen must keep their lingcod with the head on, and proof of gender to facilitate biological sampling of the commercial catch. Vessel registration and trip limits are allowed when needed to stay within allocations.

Regulations for the Central Region lingcod fishery include open season dates of July 1 to December 31 and a minimum size limit of 35 inches (89 cm) overall or 28 inches (71 cm) from the front of the dorsal fin to the tip of the tail. More recently, the Board of Fisheries adopted a jig only gear requirement for lingcod in the Cook Inlet Area. These regulatory changes were adopted to reduce the harvest and effort from previous levels in the Central Region. Beginning in 1997, the department set commercial lingcod fishery GHL's for the Central Region at 50% of the average harvest for the period 1987 to 1996. However, in 2001 the GHL for the PWS Area was increased to 75% of this average.

In 2000, sport harvests of lingcod in Southeast Alaska were incorporated into a region wide lingcod management plan, which set GHL's for 7 areas, and sport harvest in pounds was allocated for each of these 7 areas. The opening date of the lingcod sport fishery as of 2000 was also moved back about 2 weeks from May 1, and is now open from May 16 through November 30. The bag and possession limits of 2 and 4 lingcod were reduced to 2 and 1 in Southeast Alaska in 2001 to reduce harvests in this area to meet allocation guidelines. Lingcod caught by guided and nonresident anglers in 2001 were restricted to harvesting fish with a minimum size of 39 inches in northern Southeast Alaska (including Yakutat) and a 34 inch minimum size along the outer coast of Prince of Wales Island; furthermore, all lingcod caught by guided and nonresident anglers in these two areas with minimum size restrictions in 2001 could only be landed by hand or landing net. There was no minimum size limit in the inner area of southern Southeast Alaska for guided and nonresident anglers. Resident anglers fishing from private

vessels throughout Southeast Alaska could retain lingcod of any size. Since the department wished to increase biological sampling of lingcod for better determination of length and sex composition, heading or filleting of lingcod prior to offloading was also prohibited in all sampled ports to enable the department to maximize fishery information obtained. The only area totally closed to lingcod sport fishing was the Pinnacles area near Sitka, which is closed to sport fishing year-round for all groundfish (Contact: Tom Brookover).

Conservative harvest strategies have been established for recreational lingcod fisheries in Southcentral Alaska in light of the lack of quantitative stock assessment information. Seasons and bag and possession limits are among the most restrictive on the West Coast. Resurrection Bay is closed to lingcod fishing year-round, and the fishery is managed in most areas under a spawning/nest guarding season closure through June, a minimum size limit of 35 inches to protect spawning females, and bag and possession limits of 2 fish or less daily (Contact: Scott Meyer).

d. Fishery

Lingcod are the target of a "dinglebar" troll fishery in Southeast Alaska. Dinglebar troll gear is salmon power troll gear modified to fish for groundfish. Additionally lingcod are landed as significant bycatch in the DSR longline fishery and as a limited bycatch in the halibut fishery. In 1997 the Board of Fisheries adopted a regulation that would allow longliners fishing for demersal shelf rockfish to retain 35% lingcod, by weight of their target catch. The directed fishery landed 87 mt of lingcod in 2001 and an additional 97 mt was landed as bycatch in other fisheries. The halibut longline fishery accounted for roughly 60% of lingcod bycatch in the Southeast Region and the salmon troll fishery accounted for 13%.

Central Region lingcod harvests have primarily occurred in the North Gulf District of Cook Inlet and the Outside District of PWS. The North Gulf GHF was 16mt and the PWS GHF was 11mt in 2001. Cook Inlet Area lingcod harvest totaled 19 mt and PWS reached 12 mt.

Recreational lingcod harvest is typically estimated in numbers of fish. Estimates of the 2001 harvest are not yet available from the statewide mail survey, but the average estimated annual harvest for the period 1996-2000 was 19,500 fish in Southeast Alaska and 9,200 fish in Southcentral Alaska.

8. Other species

In 1997 the BOF based a new policy that would strictly limit the development of fisheries for other groundfish species in SE. Fishermen are required to apply for a "permit for miscellaneous groundfish" for all fisheries that do not already have specific regulations and permits do not have to be issued if there are management and conservation concerns. At this time that includes all species except sablefish, rockfish, lingcod, flatfish, and Pacific

cod. At this time most other groundfish species taken in state waters are taken as bycatch in fisheries for other more valuable groundfish and halibut. The State also has a regulation that requires that the bycatch rate of groundfish be set by fishery annually by emergency order unless otherwise specified in regulation.

Regulations adopted by the BOF in 1998 restricted all shark fisheries to bycatch-only and skate to directed harvest under a commissioner's permit. The Board also adopted a management plan governing the recreational fisheries for salmon and other sharks. This plan includes a statewide annual bag limit of 1 and a statewide annual limit of 2 sharks. In 2000 the BOF prohibited the practice of "finning", requiring that all shark retained must be sold or utilized and have fins, head, and tail attached at the time of landing. "Utilize" means use of the flesh of the shark for human consumption, for reduction to meal for production of food for animals or fish, for bait, or for scientific, display, or educational purposes.

In recent years, a small recreational fishery targeting primarily salmon sharks has developed in the Gulf of Alaska and Prince William Sound. Little information is available to assess the status or structures of targeted stocks. In an attempt to collect information, the Division of Sport Fish initiated a modest cooperative tagging program with a few charterboat operators in 1998 and continues to collect biological data on all sharks harvested in the sport fishery through the port sampling program. Sport Fish Division staff in Homer also continued joint research efforts aimed at stock assessment of salmon and sleeper sharks by providing salmon and sleeper shark stomachs and other tissues to NMFS-Auke Bay Lab staff, and providing salmon and sleeper shark vertebrae to the Virginia Institute of Marine Science (VIMS).

A commissioner's permit is required before a directed fishery may be prosecuted for skates and rays. This permit may restrict depth, dates, area, and gear, establish minimum size limits, and require logbooks and/or observers, or any other condition determined by the commissioner to be necessary for conservation and management purposes. A commissioner's permit is also required before any trawl fishery besides the existing beam trawl fishery for flatfish may be prosecuted in the Southeast District.

A "Developing Fisheries" policy is being drafted for new fisheries which will reduce the possibility that a fishery can escalate beyond management control and will also outline which species may be restricted from being harvested in a directed fishery.

The recreational halibut fishery is the focus of a statewide research and management effort. Data on the recreational fishery and harvest are collected through port sampling effort in Southcentral Alaska and creel surveys and port sampling in Southeast Alaska. These data are provided annually to the International Pacific Halibut Commission for use in an annual stock assessment, and to the North Pacific Fishery Management Council. The council has used the information in the design and analysis of regulations governing the sport charter fishery.

As stated earlier in this report, the BOF took action in 2000 prohibiting the development of a live fish fishery for groundfish in the Southeast District.

C. Other Related Studies

The Department of Fish and Game manage state groundfish fisheries under regulations set triennially by the Board of Fisheries. The department announces the open and closed fishing periods consistent with the established regulations, and has authority to close fisheries at any time for justifiable conservation reasons. The department also cooperates with NMFS in regulating fisheries in the offshore waters.

By regulation, fish tickets are required for all shore-based landings in Alaskan ports and for all landings from state-managed fisheries. The catch data from the fish tickets is used as the primary means of tracking the in-season harvest levels. Groundfish fish tickets are collected from as many as thirty or more processors within the state. The fish tickets are edited for accuracy and the data is entered on microcomputers in Petersburg, Sitka, Ketchikan, Homer, Kodiak, and Dutch Harbor. Because of the intensity of many of the groundfish fisheries, a "soft data" accounting system using processor contacts is also utilized, when necessary, to track landings during a fishery.

In 1997 at the Southeast Groundfish meeting, the Board of Fisheries adopted a regulation that requires all groundfish fishermen to complete mandatory logbook pages while fishing. These logbook pages must be submitted as part of their landing record and attached to their fish ticket at delivery. The Board also requires that fishermen obtain a conditional use permit when fishing for any species for which specific regulatory language is not in effect. This will allow ADF&G to deny permits for some species and allow exploratory or controlled fishing for others.

Dixon Entrance Area

Total removals from the Dixon Entrance area (Alaska statistical areas 325431, 315431, 325401, and 315401) have declined in recent years, due mostly to reductions in sablefish quotas. The table below lists the catch by species group from 1988 through 2001 rounded to the nearest mt.

Year	# Permits	# Landings	DSR	Other Rock	Sablefish	Other	Total
1988	20	25	3	3	82	3	136
1989	8	7	1	1	20	0	37
1990	16	17	3	5	182	1	224
1991	24	21	6	12	150	2	215
1992	19	19	3	5	150	1	197
1993	27	26	6	14	232	1	306
1994	27	26	1	20	216	2	292
1995	21	18	0	20	137	0	196
1996	16	14	1	12	83	0	126
1997	37	30	1	18	103	0	189
1998	26	23	1	8	95	0	153
1999	23	24	0	7	71	0	125
2000	27	22	0	14	49	0	112
2001	23	29	1	14	86	0	150

Marine Reserves

In September of 1997 the ADF&G submitted proposals to both the BOF and the NPFMC requesting that they implement a small no-take marine reserve in Southeast. The purpose of these proposals was to permanently close a 3.2 sq. mile area off Cape Edgecumbe to all bottomfish and halibut fishing (including commercial, sport, charter, bycatch and subsistence) and anchoring to prevent over-fishing and to create a groundfish refuge. Two large volcanic pinnacles that have a diversity and density of fishes not seen in surrounding areas dominate the Edgecumbe Pinnacles Marine Reserve. The pinnacles rise abruptly from the seafloor and sit at the mouth of Sitka Sound where ocean currents and tidal rips create massive water flows over this habitat. These two pinnacles provide a very unique habitat of rock boulders, encrusted with *Metridium*, bryozoans and other fragile invertebrate communities, which attracts and shelters an extremely high density of juvenile rockfishes. The area is used seasonally by lingcod for spawning, nest-guarding, and post-nesting feeding. Yelloweye rockfish and pelagic rockfish species as well as large numbers of prowfish and Puget Sound rockfish also densely inhabit the pinnacles. This closure protects the fragile nature of this rare habitat, and prevents the harvest or bycatch of these species during critical portions of their life history. In February 1998 the BOF approved of the reserve and the NPFMC approved of the reserve at their June 1998 meeting. The NPFMC recommended to the BOF that they consider closure of the area to salmon trolling which would make the area a complete-no take zone. In February 2000 the BOF rejected closing the area to salmon trolling. The area is an important “turn-around” area for commercial trollers and the BOF

did not believe there was sufficient conservation benefit to warrant closing the area to salmon fishing.

User Pay/ Test Fish Programs

The state of Alaska Department of Fish and Game receives receipt authority from the state legislature that allows us to conduct stock assessment surveys by recovering costs through sale of fish taken during the surveys. Receipt authority varies by region. In Southeast Alaska we have several projects that are funded through test fish funds (total allocation approximately 300k), notably the sablefish longline assessments, the king crab survey, and the herring fishery and dive surveys. Also in 1995 the Southeast Region was given a separate receipt authority for \$250,000 to conduct sea urchin research using test fish funds. In the case of sea urchins the industry placed bids on the right to harvest and market sea urchins. The low bidder was responsible for paying for the department's expenses in research and management of this fishery and was limited to a 12% profit after state expenses were paid.

GIS

ADFG CF is currently using ArcView version 3.x and MapInfo version 4.5 and 5.1 for general map production, project planning and spatial analysis. More advanced spatial analyses are performed using ArcView's Spatial Analyst and MapInfo's Vertical Mapper and Arc/Info.

The Division currently maintains its basemaps in both ArcView and MapInfo format; however, beginning in 2002 the ArcView shapefile format will be the Division's standard data distribution format. The Division is also supporting data in both the NAD27 and NAD83 datums. The NAD27 datum is primarily used for terrestrial-based mapping and the NAD83 datum is used for marine-based mapping. Because the Division's managed fisheries span both the terrestrial and marine environments, both datums will be supported. Basemaps, which originated in the NAD27 datum, are being converted to the NAD83 datum. Most of the conversion was completed by mid-2001.

In 2000, the Division developed new hardcopy and digital groundfish and shellfish statistical area charts. These charts became effective January 1, 2001, and hardcopy charts were distributed to processors in early January. Digital versions of the charts are available in two forms. Adobe PDF versions of the charts can be viewed or downloaded at <http://www.cf.adfg.state.ak.us/geninfo/statmaps/charts.htm>. ArcView- and MapInfo-compatible charts can be downloaded from the ADF&G CF GIS Maps and Data Server at <http://maps.cf.adfg.state.ak.us>. This server will be the home for all publicly available GIS maps developed by the division. In the future this server will also feature online maps using ESRI's ArcIMS (Internet Map Server) software (contact Tim Haverland).

Logbooks

In 1997 logbooks became mandatory for all state-managed commercial fisheries in SE Alaska. Logbooks for rockfish and lingcod had been mandatory for a number of years. All usable longline and jig logbook data through 2000 has been entered.

Since 1998, marine recreational charter operators have been required to log port of landing, effort and harvest, and ADF&G statistical area for every charter trip made. The 2001 logbook was similar to the 2000 logbook format. Data collected for each vessel trip included port of landing, location(s) fished, angler residency, effort for salmon and bottomfish, and harvest and release (in numbers) of salmon, halibut, pelagic rockfish, other rockfish, lingcod, and salmon sharks. A copy of this logbook page and the associated instructions are appended to this document. In 2001 the Sport Fish Division conducted an initial evaluation of the 1998-2000 charter logbook data, including comparisons of data from the logbook, the statewide mail survey, and on-site interviews.

Number of commercial fishery logbooks collected by fishery, target species, and year.

SE	Longline					Jig/dinglebar			
Year	DSR	Pcod	Slope Rock	PSR	Sablefis h	Ling	Black rock	DSR	PSR
1986	21	1							
1987	25								
1988	20								
1989	19								
1990	50	1	2						
1991	232	8	1						
1992	259	7							
1993	190	8							
1994	197	9	3			108			
1995	140	13		6		215			
1996	261	8		5		252	31	6	
1997	204	98	4	0	466	177	64	8	1
1998	177	135	15		552	153	70	3	4
1999	165	223	9	0	405	89	21	1	1
2000	153	97	4	0	421	153	30		
2001	128	48	2		332	44	2	2	

Web Pages

ADF&G Home Page

<http://www.state.ak.us/local/akpages/FISH.GAME/adfghome.htm>

Commercial Fishery Division Home Page

: http://www.cf.adfg.state.ak.us/cf_home.htm
News Releases: http://www.cf.adfg.state.ak.us/region1/news/news_rel.htm
Sport Fish Division Home Page:
http://www.state.ak.us/local/akpages/FISH.GAME/sportf/sf_home.htm
Tag Lab Home Page: <http://tagoweb.adfg.state.ak.us/>
Commercial Fisheries Entry Commission: <http://www.cfec.state.ak.us>
State of Alaska home page: <http://www.state.ak.us/>
Gene Conservation Laboratory Home Page:
<http://www.cf.adfg.state.ak.us/geninfo/research/genetics/genetics.htm>
11th Western Groundfish Conference Abstracts:
<http://www.cf.adfg.state.ak.us/region1/finfish/grndfish/wgcprgrm.pdf>
Adobe PDF versions of groundfish charts can be viewed or downloaded at
<http://www.cf.adfg.state.ak.us/geninfo/statmaps/charts.htm>.
ArcView- and MapInfo-compatible charts can be downloaded from the ADF&G CF GIS Maps and Data Server at <http://maps.cf.adfg.state.ak.us>. This server will be the home for all publicly available GIS maps developed by the division. In the future this server will also feature online maps using ESRI's ArcIMS (Internet Map Server) software (contact Tim Haverland).

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APPENDIX I

ALASKA DEPARTMENT OF FISH AND GAME PERMANENT FULL-TIME GROUND FISH STAFF DURING 1998

COMMERCIAL FISHERIES DIVISION HEADQUARTERS

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State of Alaska
Department of Fish & Game
Division of Sport Fish

Vessel Name:

2001 Saltwater Charter Vessel Logbook

Any person in possession of an Alaska Department of Fish and Game Saltwater Sportfishing Charter Vessel logbook must show that logbook to any local representative of the department or to any peace officer of the state upon request.



State of Alaska
Department of Fish & Game
Division of Sport Fish - RTS

2001 Saltwater Charter Vessel Logbook Sign-Out
For ADF&G Use Only

INSTRUCTIONS TO ADF&G REPRESENTATIVE: Please forward the white copy of this form to Sport Fish Research & Technical Services, 333 Raspberry Rd., Anchorage, AK 99518. ADF&G area offices may keep the pink copy.

Name of person to whom this logbook was issued: _____

BUSINESS INFORMATION (for this logbook)

Name of Sport Fishing Business: _____

ADF&G BUSINESS Registration Number: 01-B- _____

Business Mailing Address: _____

Business Phone Number: _____

VESSEL INFORMATION (for this logbook)

Vessel Name: _____ ADF&G No. (CFEC Triangle): _____
(Put vessel name on cover also)

Alaska Home Port during 2001: _____

Date Logbook Issued: _____

Signature of ADF&G Representative: _____ Area Office: _____

Comments:

☐ Check here if these data were entered at the ADF&G area office.

11

INSTRUCTIONS FOR COMPLETING THE 2001 WEEKLY LOGBOOK FORMS

COMPLETE LOGBOOKS DAILY.

During the period April 23-September 30, 2001, once a vessel has been used for charter fishing, the logbook must be completed daily (including inactive days) through the last trip of the season. It is not necessary to start logbook entries until the vessel is actually used for a charter fishing trip during 2001.

The owner or agent of the business operating this vessel is required to make an entry into this logbook per the following schedule.

RETURNING TO A DOCK

- FISH KEPT**
Complete the logbook before offloading any clients ~~or~~ fish.
- NO FISH KEPT**
Complete the logbook before the operator leaves the vessel.

NO DOCKING FACILITIES (e.g., trailered vessels)

- FISH KEPT**
Complete the logbook before the vessel ~~or~~ operator departs the landing site and before offloading any fish.
- NO FISH KEPT**
Complete the logbook before the vessel ~~or~~ operator departs the landing site.

MULTIPLE TRIPS PER DAY

Complete the logbook at the end of each trip, as described above.

MULTIPLE DAY TRIPS

Complete the logbook at day's end for each day of the trip; complete the last day's activity as described above.

PERIODS OF INACTIVITY

Once a vessel has been used for a charter trip between April 23-Sept 30, 2001, the logbook must be completed daily to report inactivity or fishing trips. A logbook sheet must be submitted weekly, even if no trips were taken for the entire week. Trips taken before April 23 and after Sept 30, 2001 should be recorded on the Supplemental sheets provided in the logbook.

Please be complete and write legibly. You may be contacted in person or by mail if forms are delinquent, missing, incomplete, or illegible.

RETURN LOGBOOK REPORTS WEEKLY.

Once a vessel has been used for a charter fishing trip, the logbook must be completed daily, and returned per the schedule printed on each logbook sheet until a sheet is submitted indicating that the vessel has taken its last trip for the year.

WEEKLY & SUPPLEMENTAL SHEETS

Weekly Logbook Sheets should be used to report charter fishing trips and inactive days between April 23 and September 30, 2001.

Supplemental Logbook Sheets should be used to report charter fishing activity before April 23 or after September 30, or to report trips in addition to the first two trips taken on any day.

Supplemental Logbook Sheets used prior to April 23 should be postmarked by May 6.

Supplemental Logbook Sheets used after April 23 should be submitted when a form is full or when you are through fishing for the season (whichever comes first).

Supplemental Logbook Sheets may be adapted to special needs. For example, two trips are taken in a day then the vessel departs on a multi-day trip. Use the Supplemental Form to report the first day of the multi-day trip.

Additional Supplemental Logbooks Sheets beyond the five in this logbook are available from local ADF&G offices.

CERTIFICATION SIGNATURE DEADLINE

Each Weekly Logbook Sheet and each Supplemental Logbook Sheet must be legibly signed and dated by the owner or agent of the business operating the vessel to which the logbook has been assigned.

Any 2001 logbook sheets received after January 15, 2002 will not be entered into the ADF&G 2001 logbook database nor counted towards a vessel's total.

LOGBOOK DATA

The 5-digit vessel number assigned by the Commercial Fisheries Entry Commission (CFEC). A vessel must have a number plate and current license tab securely fastened to the port side of the vessel.

The Vessel Name or identity, as it corresponds to the ADF&G No. issued by the CFEC.

Dates are printed on the weekly sheets from April 23 through September 30. You must write the date on Supplemental Logbook Sheets.

Check Inactive if the vessel is not used for charter fishing on a given date.

A Trip starts when the vessel leaves a dock, port, or launch site with clients on board to go sport fishing. A trip typically ends when the vessel returns to a dock, port, or site of landing to offload clients and fish. A trip may cover part of one day, one day, or multiple days.

Do NOT sum information for two or more trips: each trip must be reported separately in the Logbook.

The first two trips on a day should be reported on the Weekly Logbook Sheets; all additional trips for the day would be reported in the Supplemental Logbook Sheets.

Write the date and trip number on the Supplemental Logbook Sheet.

This applies to trips that span two or more calendar days (see definition of Trip above). A "1" would be entered for the first day of a trip, "2" would be written for the second day, and so on until the trip is completed.

The port (or site) where clients and/or fish are offloaded at the conclusion of the trip.

The number of clients and crew who fished any part of the trip, whether or not they landed a fish. If crew do not fish, leave crew blank. Do NOT add crew information to client information.

ADF&G No.	Name	Date	Inactive (X)	Trip No.	Day of Multi-Day Trip	Port of Landing	Number of Clients and Crew Fishing
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INSTRUCTIONS FOR COMPLETING THE 2001 WEEKLY LOGBOOK FORMS

LOGBOOK	SALMON
Primary Set Area Fished	The 6-digit area code where you caught most of the salmon on this trip. If you fished for salmon, but caught none, write the code for the location fished the most time on this date and trip.
Maximum Rods Fished	The maximum number of rods/lines fished for salmon at any one time during this trip. Record client rods separate from crew rods.
No. Boat Hours Fished	The number of boat hours at least one rod/line was fishing for salmon. This is NOT the number of hours the boat was on the water. DO NOT include the time it took to run to the fishing grounds from port. Round to the nearest whole hour.
Fish Kent & Released	The total number of fish kent and released by client and crew as indicated. Do NOT combine client and crew information.

LOGBOOK	BOTTOMFISH
Primary Set Area Fished	The 6-digit area code where you caught most of the bottomfish on this trip. If you fished for bottomfish, but caught none, write the code for the location fished the most time on this date and trip.
Maximum Rods Fished	The maximum number of rods/lines fished for bottomfish at any one time during this trip. Record client rods separate from crew rods.
No. Boat Hours Fished	The number of boat hours at least one rod/line was fishing for bottomfish. This is NOT the number of hours the boat was on the water. DO NOT include the time it took to run to the fishing grounds from port. Round to the nearest whole hour.
Fish Kent & Released	The total number of fish kent and released by client and crew as indicated. Do NOT combine client and crew information.

SPECIAL NOTES: RODS, BOAT HOURS.	
What rods were targeted?	An operator must decide if gear and fishing methods were effectively targeting salmon, bottomfish, or both species groups.
BASIC RULE	Simply write the number of rods and boat hours under each target species group. The sum of targeted boat hours may or may not exceed the hours the boat was engaged in fishing (see below)
EXAMPLE:	IF SALMON were targeted, write the number of rods and number of boat hours under the SALMON section, even if no salmon were caught or kept.
SALMON OR BOTTOMFISH	Do NOT report rods and boat hours under the species group that was NOT targeted.
TWO TARGETS	IF BOTH salmon and bottomfish were targeted on a trip, write the targeted rods and boat hours of targeted effort under EACH species group section.
SALMON AND BOTTOMFISH	It is possible that the sum of salmon boat hours and bottomfish boat hours will not exceed the number of hours the boat was engaged in fishing.
Incidental Catches (same guidelines for both salmon and bottomfish)	Yet it is also possible that the sum of salmon boat hours and bottomfish boat hours will exceed the number of hours the boat was engaged in fishing (e.g., different anglers target different species groups during the same time, or when gear used targeted both species groups equally at the same time). Record all fish kent and released, as indicated. Do NOT include rods or boat hours for a species group that was NOT targeted, even if fish of that group were caught and kept.
	EXAMPLE: If a salmon was caught while targeting bottomfish, record the salmon as kent and/or released, but do NOT record salmon rods or boat hours for that fish.

SPECIAL NOTES: SPECIES	
"Salmon"	Chinook (king) salmon that are under the 28" minimum size (only in the Southeast Region) that must be released upon capture, unless caught in designated terminal harvest areas.
Rockfish	Includes black and dusky rockfish (commonly called "black bass") and yellowtail rockfish.
Non-Rockfish	These species of rockfish are uniformly gray, green, brown, or black (see rockfish ID chart in your regulation booklet).
Salmon Shark	All other rockfish not mentioned above. Includes yelloweye (commonly called "red snapper"), quillback, and conner rockfish, as well as numerous other species.
	This is a single species <i>Lamna ditropis</i> . These sharks are firm, dark brown or black on top, bellies white with black blotches.

VIOLATION WARNING

Failure to comply with any of the above requirements could be grounds for a citation. If you require clarification of logbook requirements, contact your local ADF&G office.

INSTRUCTIONS: Mark each inactive date. Mail white copy to ADF&G; keep pink copy for your records.
Return signed sheets for ALL days, active and inactive, between your first and last 2001 charter trips.

WEEK OF: April 23-April 29, 2001. This sheet must be postmarked by May 6, 2001.

ADF&G No. (CFBC Triangle) 1 2 3 4 5 Vessel Name My Boat

Day No. of Multi- Day Trip	Port or Site of Off-Loading	Date												Vessel Name
		1	2	3	4	5	6	7	8	9	10	11	12	
1	Sitka	113412 C R E W I S												113416 C R E W
		<div style="border: 1px solid black; border-radius: 50%; padding: 5px; width: fit-content; margin: 0 auto;"> Note: 1 crew member did not fish for salmon, but did target bottomfish. </div>												
2	Sitka	113416												113416
		<div style="border: 1px solid black; border-radius: 50%; padding: 5px; width: fit-content; margin: 0 auto;"> Note: incidental catch of salmon (not a target so rods and boat hours are not recorded). </div>												
1	Sitka	113412 4 6 2												113412 4 2 8 4
		<div style="border: 1px solid black; border-radius: 50%; padding: 5px; width: fit-content; margin: 0 auto;"> Note: Crew did not fish; each client fished for salmon and bottomfish. </div>												
2	Sitka	113412 4 4												113412 4 4 4 2
		<div style="border: 1px solid black; border-radius: 50%; padding: 5px; width: fit-content; margin: 0 auto;"> Note: All clients targeted both salmon and bottomfish for the entire 4 hour trip. This could occur if a technique targets both species groups (e.g., "mooching"). </div>												
1	Sitka	113412 4 4												113412 4 4 4 2
		<div style="border: 1px solid black; border-radius: 50%; padding: 5px; width: fit-content; margin: 0 auto;"> Remember to mark the first and last trips of the season. </div>												

CERTIFICATION: X I, M. J. M. Skipper, am the Skipper of this vessel. Check if this is your: FIRST ☒ or LAST ☐ trip of the season.

5/1/2001