Fishery Management Report No. 06-02

2002–2005 Report to the Alaska Board of Fisheries, Groundfish Fisheries, Region 1: Southeast Alaska – Yakutat

by

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Alaska Department of Fish and Game **Divisions of Sport Fish and Commercial Fisheries**

Symbols and Abbreviations

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Weights and measures (metric)

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

Weights and measures (English)

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

Time and temperature

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

Physics and chemistry

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

General

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

Measures (fisheries)

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

Mathematics, statistics

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

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by

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The Division of Sport Fish Fishery Management Reports series was established in 1989 for the publication of an overview of Division of Sport Fish management activities and goals in a specific geographic area. Since 2004, the Division of Commercial Fisheries has also used the Fishery Management Report series. Fishery Management Reports are intended for fishery and other technical professionals, as well as lay persons. Fishery Management Reports are available through the Alaska State Library and on the Internet: http://www.sf.adfg.state.ak.us/statewide/divreports/html/intersearch.cfm. This publication has undergone regional peer review.

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ABSTRACT

This report includes summaries of reported catch and effort information and management actions for the period 2002–2005 for the groundfish fisheries managed by the Alaska Department of Fish and Game (ADF&G) in the Eastern Gulf of Alaska (EGOA). State-managed groundfish were demersal shelf rockfish (DSR) *Sebastes spp*, black rockfish *Sebastes melanops*, and lingcod *Opiodon elongates* in state and federal waters and all groundfish harvest in internal state waters. In 2005 there were directed fisheries for sablefish (*Anaploploma fimbria*), DSR, black rockfish, lingcod, and Pacific cod *Gadus macrocephalus*. Reported harvest of groundfish in Southeast Alaska totaled 4,872,825 round lbs in 2002, 4,735,826 round lbs in 2003, 4,885,477 round lbs in 2004, and 4,333,610 round lbs in 2005. The estimated ex-vessel value ranged from $7.2 million to $7.9 million, with a value of $7.6 million in 2005. Sablefish accounted for 84% of the ex-vessel value. In addition to groundfish landed in groundfish and halibut fisheries, 50,767 round lbs of groundfish (primarily lingcod and black rockfish) were landed in salmon fisheries and 144,688 round lbs of groundfish (primarily sablefish) were landed in testfish fisheries conducted by ADF&G and the International Pacific Halibut Commission (IPHC).

Key words: Sablefish, rockfish, lingcod, Pacific cod, flatfish, longline, dinglebar, Southeast Alaska, commercial fishing, Alaska Board of Fisheries, groundfish.

INTRODUCTION

The Eastern Gulf of Alaska regulatory area for groundfish management encompasses all waters surrounding the Alexander Archipelago from Dixon Entrance (54°30' N. latitude) northwestward along the outer coast to 144° W. longitude (Figure 1).

Seven state groundfish management areas have been established in Southeast Alaska (Figure 1). These areas encompass the Southeast District (SE). The Icy Bay Subdistrict (IBS), 144° to 140° including Yakutat Bay three-miles seaward of a line from Ocean Cape was added to the Southeast Region in 1999. Four of the areas, East Yakutat (EYKT) section, Northern Southeast Outside (NSEO) section, Central Southeast Outside (CSEO) section, and Southern Southeast Outside section (SSEO), are along the outer coast and make up the Southeast Outside (SEO) district. The remaining two areas, Northern Southeast Inside (NSEI) Subdistrict and Southern Southeast Inside (SSEI) Subdistrict, are in internal waters. For the purposes of lingcod management the southern areas are redefined as two sectors, Southern Southeast Internal Waters (SSEIW) and Southern Southeast Outer Coast (SSEOC) (Figure 2).

The Alaska Department of Fish and Game (ADF&G) has management jurisdiction over all groundfish resources within state waters in the EGOA area. State waters include all internal waters of Southeast Alaska and Yakutat Bay, and waters within three miles of shore along the outer coast. In addition, a provision in the Gulf of Alaska Federal Groundfish Fisheries Management Plan (FMP) authorizes the state to execute in-season management of Demersal Shelf Rockfish (DSR) in both state and federal waters in the SEO district (outer coastal waters east of 140° W. longitude). Black and blue rockfishes and lingcod are under state jurisdiction in both state and federal waters because they are not defined as a groundfish under the FMP.

In addition to having direct management responsibility for certain groundfish species, the Region I Groundfish Project provides harvest information and other resource data from the adjacent Exclusive Economic Zone (EEZ) to the National Marine Fisheries Service (NMFS) and North Pacific Fishery Management Council (NPFMC) under the terms of a cooperative agreement with NMFS. Under this agreement, ADF&G staff has the responsibility of collecting, editing, and entering all fish tickets from the domestic harvest of groundfish in Alaska waters. The state is also involved in the management of groundfish in the EEZ through the groundfish project leader's participation on the Gulf of Alaska Groundfish Plan Team.

This document details information on reported harvest, effort, and management for the state-managed groundfish fisheries in Southeast for the period 2002 through November 2005. There is no at-sea observer coverage so data on at-sea discards is not available. Catch and effort data included in this document detail the DSR, black rockfish, and lingcod harvest for the entire EGOA and all groundfish species harvested in NSEI and SSEI. The primary state-managed fisheries within the region include sablefish, demersal shelf rockfish, black rockfish, lingcod, and Pacific cod. By regulation, sablefish can be fished only with longline and pot gear, and state-managed rockfish and lingcod fisheries are restricted to hook and line gear in the Southeast District. Fisheries targeting sablefish or demersal shelf rockfish almost exclusively use longline gear and directed lingcod fisheries use primarily dinglebar troll gear. Flatfish *Platichthys*, *Lepidopsetta* and *Pleuronectes spp* are harvested with beam trawl gear in limited areas of NSEI and SSEI. Other trawl gear is prohibited unless specified in a commissioner's permit.

A 3.2 nm square area surrounding the Cape Edgecumbe pinnacles was closed to all removals of groundfish by the BOF in 1998 and to all halibut and groundfish by the NPFMC in 1999. This represents the first no-take groundfish marine reserve in Alaska.

Harvest of state-managed groundfish reported in commercial groundfish and halibut fisheries in Southeast Alaska totaled 4,872,852 round lbs in 2002, 4,735,826 round lbs in 2003, 4,885,477 round lbs in 2004, and 4,333,610 round lbs in 2005 (Table 1). The estimated ex-vessel value has ranged from $7.2 million (2004) to $7.9 million (2003) with a value of $7.6 million in 2005 (Table 1). In addition to groundfish landed in groundfish and halibut fisheries, 50,767 round lbs of groundfish (primarily lingcod and black rockfish) were landed in salmon fisheries and 144,688 round lbs of groundfish (primarily sablefish) were landed in testfish fisheries conducted by ADF&G and the IPHC (Table 2 and 3).

LINGCOD

Lingcod are the largest member of the greenling family, attaining a maximum length of 5 feet (Figure 3) This cold-water species occurs from the intertidal to depths of 270 fm from northern Baja, California to the Bering Sea. Adults tend to be resident although they exhibit some seasonal movement related to spawning and individual fish occasionally move great distances. Females attain a greater size and age than males. Lingcod live to a maximum age of at least 20 years; maximum age estimated for SE is 35 years[1]. Greenlings have an unusual reproductive strategy. Male lingcod move into nearshore rocky areas in the fall and set up territories. Females move into this area just prior to spawning in the winter. The females lay large egg masses and the males, after fertilizing the eggs, guard the egg mass from predation until hatching, generally from 7 to 11 weeks. During the nest-guarding period, males are particularly susceptible to harvest.

FISHERIES DEVELOPMENT AND HISTORY

Prior to 1987, lingcod taken in the Southeast District were landed incidentally in fisheries targeting other species (Gordon 1994). Lingcod are a significant bycatch in the longline fishery for DSR. In some areas and seasons, bycatch rates of lingcod taken in the DSR fishery have exceeded 50%, by weight, of the DSR catch. Lingcod have also been taken as bycatch in the salmon troll and halibut longline fisheries.

[1] Unpublished data, Kristen Munk, ADF&G Age Determination Unit, Juneau, Alaska.

The directed lingcod fishery has developed steadily since its inception in 1987 when a small fleet using dinglebar gear harvested 163,500 lbs of lingcod from the NSEO and the northern portion of CSEO. In 1991, the directed fishery catch of 490,873 round lbs accounted for almost half of the total catch (Table 4). The directed fishery occurred primarily out of Sitka with major fishing grounds off the outer coasts of Baranof, Chichagof, and Kruzof islands. In 1995, there was a major expansion of the directed fishery to the EYKT, primarily the Fairweather Ground. The peak directed fishery harvest occurred in 1995, with 665,860 round lbs taken. The total harvest of lingcod was highest in 1991, with 1,058,611 round lbs landed by all commercial gears (Table 5). The directed fishery consistently accounts for well over half of the ex-vessel value of commercial lingcod landings (Table 4).

Current fisheries for lingcod include allocations for directed fishing (dinglebar gear), sport fishing, and bycatch in the longline, jig and salmon troll fisheries (Table 6), with the most commercial annual harvest objective (AHO) allocated to the EYKT fisheries (Table 7).

REGULATION DEVELOPMENT

The Board of Fisheries (BOF) first addressed Southeast Alaska lingcod management at its 1989 meeting when they implemented a size limit of 27" for lingcod in an attempt to prevent harvest of sexually immature females. In 1991 a guideline harvest limit of 300,000 to 500,000 lbs was established for the Southeast District (east of 137° W. longitude) based on catch histories in the CSEO fishery. In addition, a winter closure inside the surf line was implemented from January 1 through May 31 in an attempt to protect nest-guarding males.

In 1994, the department met with industry representatives, including directed fishers, longliners, and trollers, and developed a lingcod management plan to present to the BOF. The board adopted an interim management strategy for Southeast lingcod in 1994. Using a habitat-based approach, GHL ranges were set between 0.25 mt/nm^2 and 0.50 mt/nm^2 of rocky habitat for each management area. Seasonal and area allocations were also set for the directed and troll fisheries in CSEO and NSEO. The seasonal closure in waters of Alaska was changed to December 1 through April 30 and the closure line was extended out to three miles offshore. A mandatory logbook program was established and legal gear types were defined as hook and line only.

In 1997, the BOF imposed additional gear restrictions, changed bycatch levels, and created year-round closures in two small areas. Longline gear was prohibited in the directed fishery and the percent bycatch in the DSR longline fishery was increased from 20 to 35%. The Sitka Sound area was closed to the retention of lingcod except in the halibut longline fishery and the pinnacle area off of Cape Edgecumbe was permanently closed to the taking of lingcod by all users. Beginning in 1997, the winter closure of the waters of Alaska was extended until May 16 by emergency order to further protect nest-guarding males.

In 2000, the BOF took significant actions regarding lingcod fishery management including AHO reductions, inclusion of the sport harvest in the total AHO, and allocation of lingcod between fishing sectors and areas (Table 6). They also defined an additional subdistrict (IBS), and two sectors in the Southeast District. The western boundary of the Eastern Gulf of Alaska (Southeast District) was extended from 140° W. longitude to 144° W. longitude. The IBS comprises all waters between 140° and 144° W. longitude including Yakutat Bay three-miles seaward of a line from Ocean Cape at 59°30' W. latitude. The new sectors redefine the Southern Southeast area as follows: SSEOC-all waters of the SSEO and all waters of the SSEI that are south of 56° N. latitude, and west of Prince of Wales Island, or, if south of 54°43' N. latitude, that are west of

132° W. longitude; SSEIW Sector- all waters of the SSEI Subdistrict not included in the SSEOC Sector (Figure 2).

Other lingcod regulations adopted by the BOF at the 2000 meeting:

1. In the directed lingcod fishery, the vessel owner or the owner's agent must register the vessel with the department before directed fishing for lingcod.
2. Trip limits may be imposed in the directed lingcod fishery by emergency order to promote an orderly fishery and to conserve the stocks.
3. Lingcod may be taken in a directed lingcod fishery only from May 16 through November 30.
4. Lingcod may be taken in a directed lingcod fishery only by mechanical jigging machines, dinglebar troll gear, and hand troll gear.
5. Lingcod may only be taken as bycatch with hook and line gear (no pots, trawls or other net gears).
6. Trollers may only retain lingcod from May 16 through November 30.

In 2003, the BOF took the following action regarding lingcod:

1. Allow the department to set groundfish bycatch in troll fisheries by Emergency Order (therefore ensuring that salmon trollers have an opportunity to harvest their lingcod allocation).
2. Allowed for the development of a directed fishery in the IBS by combining the commercial catch allocation into one allocation of 66.66 percent combined for longline bycatch, salmon troll bycatch, and directed commercial fishing.
3. Established IBS as a super-exclusive registration area for directed lingcod fishing.
4. Provided for a small allocation of lingcod to the black rockfish jig fishery.

STOCK ASSESSMENT AND MANAGEMENT

The Southeast Region is not currently able to reliably estimate lingcod biomass or abundance. Lacking abundance estimates, and given the complex life history and behavior of lingcod, impacts to lingcod populations from fishing are difficult to assess. Analysis of catch per unit effort data (CPUE), in terms of fish per hook-hour for 1988–1998, showed that CPUE had declined between 21 to 62% in areas where a directed fishery and increased recreational catch had developed. Consequently, the quota for lingcod was reduced in all areas in 1999. Commercial logbook data for the period 1999-2005 shows a recent increasing trend in CSEO and NSEO beginning in 2000 (Figure 4). CPUE is level in the EYKT, although at a higher level than in CSEO and NSEO.

Research surveys to obtain catch per unit effort independent of the fishery were conducted seasonally between 1993 and 2002. Catch per unit effort data from these surveys indicates a moderate increase in 2002 in CSEO. Because the movement of local stocks of lingcod in Southeast Alaska is not well understood, a tagging study was launched in the spring of 1996. To date, over 8,780 lingcod have been tagged and 345 tags have been recovered.

Management of lingcod in Southeast Alaska is based upon a combination of guideline harvest ranges, season and gear restrictions. The state has management authority for lingcod in both

state and federal waters. Regulations include a winter closure for all users except longliners between December 1 and May 15 to protect nest-guarding males. Guideline harvest limits were greatly reduced in 2000 in all areas and allocations made between directed commercial fishery, sport fishery, longline fisheries, and salmon troll fisheries. This was the first time sport catch was included in a quota allocation. The 27" minimum commercial 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. In 2003 the Board of Fish established a super-exclusive directed fishery for lingcod in the IBS Subdistrict.

2002-2005 SEASON SUMMARY

In the Southeast District the total reported commercial harvest of lingcod declined approximately 10% between 2002 and 2005 (408,188 vs. 347,878 round lbs) with reductions occurring primarily in the longline and salmon troll sectors (Tables 2 and 8). Longline bycatch of lingcod was reduced in part due to management actions in the DSR fishery. There was no DSR fishery in EYKT in 2002 and 2003 and no DSR fishery in CSEO and SSEO in 2005, reducing the opportunity for lingcod longline bycatch.

The directed fishery was similar in total landings between 2002 and 2005 but there was a shift in effort with increased landings in IBS and decreased landings in SSEOC. The CSEO and NSEO areas also continue to have low effort with considerable AHO remaining at the end of each year in the reporting period (Table 8). Excellent trolling seasons and high salmon prices play a role in reducing participation levels in the directed lingcod fishery. Also, for the first time in the past 5 years ADF&G was able to control harvest to the AHO in the EYKT directed fishery. In past years there have been substantial over runs in harvest in this area.

ROCKFISHES AND THORNYHEADS

More than 30 species of rockfishes from two genera (*Sebastolobus* and *Sebastes*) are landed in Region I groundfish fisheries. Shortspine thornyhead rockfish *Sebastolobus alascanus* inhabit the continental slope in waters as deep as 6,000 feet. The *Sebastes* rockfishes are divided into three assemblages for management purposes because cohabitating species groups are generally caught together. The assemblages are based on habitat preference and behavior: The Demersal Shelf Rockfish assemblage is comprised of seven species of nearshore, bottom-dwelling species and includes yelloweye rockfish *S. ruberrimus*. The Pelagic Shelf Rockfish (PSR) assemblage is comprised of five nearshore schooling species including black rockfish and dusky rockfish *S. ciliatus*. The Slope rockfish assemblage is found along the edge of the continental shelf and on the continental slope in depths as great as 400 fm. This group contains all remaining species of rockfish. Rougheye rockfish *S. aleutianus*, shortraker rockfish *S. borealis*, and redbanded rockfish *S. babcocki* are the predominant commercial species in this group. For the purposes of this report, catch of shortspine thornyhead is included in the slope rockfish assemblage.

DEMERSAL SHELF ROCKFISHES

The assemblage definition for DSR has changed three times since its inception because of new information. The current DSR assemblage comprises seven species including yelloweye rockfish, quillback rockfish *S. maliger*, tiger rockfish *S. nigrocinctus*, china rockfish *S. nebulosus*, canary rockfish *S. pinniger*, copper rockfish *S. caurinus*, and rosethorn rockfish *S. helvomaculatus*.

All DSR are considered highly K selective, exhibiting slow growth and extreme longevity (Adams 1980, Gunderson 1980, Archibald et al. 1981). Estimates of natural mortality are very low. These types of fishes are very susceptible to over-exploitation and are slow to recover once driven below the level of sustainable yield (Leaman and Beamish 1984; Francis 1985). An acceptable exploitation rate is assumed to be very low (Dorn 1999).

Yelloweye rockfish, the dominant species in the DSR assemblage (in terms of catch and biomass), occur in nearshore waters to 200 fm (although commonly to 100 fm) from northern Baja California to the Aleutian Islands (Figure 3). These fish are habitat specific, occurring on rocky reefs, ridges, and pinnacles and are residential, with some seasonal movement but no migrations This behavior, in combination with their life history characteristics make the stock susceptible to localized depletion. Yelloweye rockfish attain a maximum length of 36 inches and maximum reported age of 118 years (O'Connell and Funk 1986) although a yelloweye from SSEI was recently aged at 121 years (O'Connell et al. 2005). They are slow growing, late maturing, and ovoviviparous or viviparous (Adams 1980, Gunderson 1980, Archibald et al. 1981, Boehlert and Yoklavich 1984, Boehlert et al. 1986).

FISHERY DEVELOPMENT AND HISTORY

DSR have been the target of a directed shore-based longline fishery in Southeast Alaska since the late 1970s. The fishery began in the Sitka Sound area as a small family-run, fresh-fish business, catching primarily black rockfish using skiffs and automatic jigging machines. By 1982 longline gear had replaced jigging machines and with the change in gear type the dominant species caught became yelloweye and quillback rockfish. Harvest increased six-fold in five years with total catch exceeding one million round lbs in 1986. Prior to 1984 well over half of the total Southeast Alaska rockfish landings were reported from CSEO. As effort and harvest continued to increase much of the effort shifted into SSEI followed by a shift in the late 1980s to SSEO. A directed DSR fishery developed in EYKT in 1991, primarily targeting yelloweye on the Fairweather Ground.

The directed fishery catch has ranged from 2.7 million round lbs worth $1.4 million in 1987 to 105,685 round lbs worth $180,729 through November 2005 (Table 9). The directed fleet size has ranged between 149 permits (1992) and 14 permits (2005). Total reported landings of DSR have ranged between 3.3 million round lbs worth $1.65 million in 1987 to 602,079 round lbs worth $549,784 in 2005. The majority of the DSR harvested in Southeast Alaska has been in EYKT, CSEO, and SSEO, with little effort and harvest in the inside waters, although recently the directed fishery in CSEO and SSEO has been pre-empted (Figure 5).

The state has not opened the directed fishery in NSEO since 1994 when the stock assessment survey in that area indicated a low abundance of fish. The EYKT fishery was not opened in 2002 and 2003 because of high levels of estimated DSR mortality in the halibut fishery. The CSEO and SSEO fisheries were not opened in 2005 because of high levels of sport fish catch of yelloweye (see season synopsis section below).

REGULATION DEVELOPMENT

The DSR fishery has been intensively managed since 1989 (O'Connell and Brylinsky 2001). Prior to 1989, the fishery occurred primarily in CSEO where a 1.3 million pound harvest cap was placed in 1984. In 1987 a draft management plan was written and AHOs were set for five

management areas. A portion of Sitka Sound was closed, by emergency order, to directed commercial fishing after public testimony underscored the concern regarding localized stock depletion.

ADF&G, concerned about the rapid increase in catch and effort, co-sponsored an industry workshop with the Commercial Fisheries Entry Commission (CFEC) and the Pacific States Marine Fisheries Commission (PSMFC), exploring management options for this fishery. The workshop was funded through PSMFC. Several recommendations for management actions came from this working group and were implemented at the 1989 BOF meeting.

In the 1980s the fishery was managed with an October 1 start date. In 1989 regulations were passed to retain the small boat, fresh-product nature of the fishery. These regulations included providing for a three-period, split season to facilitate marketing of fresh product over an extended portion of the year, and imposing a trip limit of 7,500 round lbs per five-day period. Legal gear for DSR was defined as hook and line only. The AHOs were reduced substantially in all areas and closures to directed commercial fishing were implemented for areas surrounding the ports of Sitka, Craig, and Ketchikan. In addition, logbooks were required by fishers directed fishing for DSR. A DSR directed fishery CFEC permit card for Southeast Alaska was introduced in 1990. Harvesters making directed landings from EYKT did not use this card until 1991 when EYKT was included in the SEO district.

The directed fishery season was curtailed in the summer of 1990 and again in the summer and fall of 1991 when the prohibited species cap for halibut (halibut mortality cap in non-halibut fisheries) was met. In 1991, the NPFMC set aside a separate allocation of halibut mortality for the DSR fishery that prevents the directed DSR fishery from being impacted by excessive halibut bycatch in other Gulf of Alaska fisheries.

Bycatch and wastage of DSR in other fisheries is a concern because these species often die when brought to the surface, making release ineffective. Consequently, a regulation was passed that allowed for unlimited retention of all DSR landed incidentally during the halibut fisheries. This was to minimize wastage of bycatch that occurred during the historic 24-hour halibut fisheries. Additionally, fishers may no longer target DSR while fishing for bait, and no more than 10% by weight of bait catch may be DSR.

In 1991, the NPFMC extended the SEO, and the State's management authority for DSR, from 137° W. longitude to 140° W. longitude. Further regulation changes were made at the 1993 meeting, largely drafted by the Sitka Rockfish Working Group to reflect changes in the nature of the fishery. Reapportionment of DSR by season was made to allow for more product to be taken in the winter season when the price was best. New, lower guideline harvest limits were adopted for DSR and a directed fishery harvest limit for DSR in EYKT was implemented. Trip limits were set at 12,000 round lbs for EYKT and reduced from 7,500 to 6,000 round lbs in the other management areas.

In 1997, the BOF changed the DSR directed fishery season by regulation to reflect the way the fishery had been managed since the implementation of the halibut IFQ fishery. Sixty-seven percent of the annual TAC was allocated to the winter season and 33 percent to the fall season. In addition, the board set the lingcod bycatch to 35% in the longline fisheries, set opening and closing time to daylight hours, added dinglebar troll gear as legal gear for targeting DSR, clarified trip limits, and changed the directed fishery AHO for SSEI and NSEI to 50 mt in each

area. Regulations also set the directed fishery AHO for the SEO by allocation of the remainder of the ABC after accounting for an estimate of unreported mortality in the halibut fishery.

In 2000, the BOF adopted regulations requiring full retention of DSR in all state waters of Southeast. A CFEC permit holder must retain, weigh, and report all DSR taken. All DSR in excess of the allowable bycatch limits shall be reported as bycatch overage on the fish ticket. If the fish are sold, proceeds from the sale of fish must be forfeited to the State of Alaska. During the directed DSR fishery fishermen are also required to retain, weigh and report all DSR. Proceeds from the sale of fish in excess of trip limits of DSR will go to the State.

In 2003, the BOF adopted regulations requiring permit holders to register prior to participating in the directed DSR fishery.

STOCK ASSESSMENT AND MANAGEMENT

The state conducts a multi-year stock assessment survey for DSR in the SEO. Biomass is estimated as the product of density/km^2 collected during line transect surveys, the area of rocky habitat within the 100 fm contour, and the average weight by management area (O'Connell and Carlile 1993, O'Connell et al. 2005). The NPFMC system requires that allowable biological catch levels (ABC) and overfishing levels be set based on a six-tier system. DSR falls under the fourth tier, where a reliable point estimate of B (biomass), $F_{30\%}$ (fishing mortality rate, F, equal to 30% of the biomass per recruit), and $F_{40\%}$ (F equal to 40% of the biomass per recruit) are available. Allowable biological catch for the SEO is set by multiplying the lower bound of the 90% confidence interval of biomass for yelloweye rockfish by the natural mortality rate (0.02) and adjusting for the 4.2% of other species landed in the assemblage. This is more conservative than using the $F_{40\%}$. The overfishing level is set using a rate of $F_{30\%}$. There is no stock assessment information available for NSEI and SSEI and these harvest levels are set at 55,125 round lbs each.

New density surveys were conducted during 2005 in SSEO. Yelloweye rockfish density for this stock assessment is based on the last best estimate by management area. The EYKT and CSEO areas were last surveyed in 2003 and NSEO was surveyed in 2001. Density estimates by area range from 463 to 1,420 adult yelloweye per mi^2. The total exploitable biomass for 2006 is estimated to be 43.12 million round lbs.

Allowable biological catch levels (ABC) and total allowable catch levels (TAC) are now set annually for the SEO as part of the NPFMC Fishery Evaluation and Stock Assessment process and are biomass-based. Bycatch needs for other fisheries are estimated first (including an estimate of unreported mortality) and taken off the TAC prior to setting directed fishing levels in SEO. This is because DSR have a closed swim bladder and suffer embolism mortality when caught. Therefore, at-sea discards should count towards fishing mortality. Prior to the 2005 stock assessment this estimated mortality did not include sport fish catch.

Although management of this stock has been conservative, there was a decline in the density estimates in the CSEO area between 1997 and 2003 that may be an indication of localized overfishing. Harvest limits are set by management area based on density and habitat. Our harvest strategy suggests we are taking 2% of the exploitable biomass per year and this level is sustainable. Yelloweye tend to be resident and tag return information indicates that adult fish stay in the same area over years (O'Connell 1991). Catch curve analysis of age data from CSEO suggests that total mortality is approaching 6% (natural mortality is estimated at 2% annually)

(O'Connell et al. 2005). Catch curves are problematic for fish with variable recruitment, however, catch curves from the SSEO and EYKT areas suggest harvest rate more in line with the harvest policy with Z estimated at 4% or less (O'Connell et al. 2005). It is possible that mortality associated with the halibut fishery has been underestimated in CSEO. Alternately, a recent review of available sport fish catch data indicates that fishery is a source of significant and increasing exploitation. Sport fish harvest has not previously been accounted for in total catch statistics or TAC setting.

2002-2005 SEASON SYNOPSIS

The total DSR harvest in the Southeast District from 1,076,598 round lbs in 2002 to 602,079 round lbs in 2005 (Table 9). Directed fishery AHOs (round lbs) totaled 396,125 in 2002, 352,800 in 2003, 452,025 in 2004, and 202,860 in 2005 (Table 10). The ex-vessel value in the directed fishery decreased from $666,206 in 2002 to $180,729 in 2005. Maximum price per pound continues to increase, with early season deliveries obtaining more than $2.00 per pound. The number of directed fishing permits fishing decreased from 63 in 2002 to 14 in 2005 (Table 9).

The directed fishery AHO for DSR in the SEO district decreased to 396,750 rounds lbs in 2002 because the directed fishery was pre-empted by the halibut fishery in the EYKT. The IPHC catch data indicated 12% of the area 3A halibut quota was taken in EYKT. Using the proposed 2002 halibut quota for 3A, the associated DSR mortality in EYKT was estimated to be 216,090 round lbs, 11,000 round lbs greater than the area-specific TAC for this management area (O'Connell and Brylinsky 2001). A similar situation occurred in EYKT in 2003.

The CSEO and SSEO fisheries were not opened in 2005 because of high levels of sport fish catch of yelloweye. Before 2005, the sport fish data was not available for DSR and had not been considered in estimating total mortality. In late fall of 2004 the 2003 sport fish data was tabulated and it was determined that the combined harvest of DSR in the halibut fishery, directed commercial fishery, and the sport fish fishery would result in localized over-harvest in the SSEO and CSEO areas. The directed commercial fishery was closed in these two areas.

Management actions included area AHOs, seasonal allocations, and in-season small area closures to distribute effort. The directed fishery in CSEO continued to close within the first few days of the winter and fall season with a 4 day winter season in 2002, 2003, and 2004 and a 2-day fall season in 2002 and 2003. The concentrated effort and short season in CSEO is due primarily to the close proximity of good fishing grounds to Sitka, a primary port of landing. The pace of the fishery in other areas varied. In EYKT, inclement weather often limits fishing opportunity. In 2004 the EYKT season lasted 34 days in the winter and 8 days in the fall opening. In 2005 the EYKT fishery was limited to 6 days in the winter. The SSEO area lasted 25 days in the winter and 24 days in the fall during 2002, 11 days in the winter of 2003, and 16 days in the winter of 2004. The inside areas closed in February in 2002 and 2003 due to concentrated effort by a few boats, otherwise these areas were open all season. No directed fishing was allowed in NSEO.

2006 SEASON OUTLOOK

In 2005 sport fish harvest data (2004 data) was included in the stock assessment for DSR for the first time (O'Connell et al. 2005). The inclusion of the sport fish data results in a combined harvest exceeding the regional ABC for DSR. Consequently, in 2006 the directed fishery was not opened in any area of the SEO. The directed DSR fishery usually opens on January 1. In order

for this closure to not be allocative, management action must also be taken in the sport fish fishery to prevent directed fishing of DSR and reduce catch. Because the majority of the DSR sport catch is taken by the charter sector, and this fishery begins in May, it was decided that the BOF would address the sport fish issue at the February 2006 meeting.

PELAGIC SHELF, SLOPE ROCKFISHES, AND SHORTSPINE THORNYHEADS

FISHERY DEVELOPMENT AND HISTORY

The PSR group includes black rockfish, dusky rockfish, widow rockfish, yellowtail rockfish, and blue rockfish. Pelagic shelf rockfish are taken as bycatch in longline and troll fisheries in NSEI and SSEI (Table 11). A small black rockfish directed fishery developed in the early 1980s but was short lived. A directed fishery using mechanical jigging machines developed rapidly in Southeast in 1992 and peaked in 1997 before becoming annually variable due to fluctuating effort. In 1999, the NPFMC removed black and blue rockfish from the FMP. The State of Alaska now has sole management and assessment responsibilities for these species in state and federal waters. Black rockfish harvest in SEO has ranged from 91,676 round pounds (88,467 from directed) in 2003 to 9,037 round lbs (6,514 directed) in 2005 (Table 12).

Slope rockfish include all deepwater species of rockfish not included in the DSR and PSR assemblages. Shortspine thornyhead catches are included with this group although they are not rockfish. Slope rockfishes and thornyheads are taken as bycatch in longline fisheries for sablefish, halibut, and DSR with the majority of the catch associated with the SSEI and NSEI sablefish fisheries (Table 13). In addition to the bycatch landings, a few longline fishermen targeted slope rockfish prior to 2003 (Table 1). Shortspine thornyhead accounts for nearly half of the landed catch, followed by shortraker rockfish, rougheye rockfish, and redbanded rockfish.

REGULATIONS

In 2003 the Board if Fisheries made shortspine thornyhead, longspine thornyhead, rougheye rockfish, shortraker rockfish and redbanded rockfish bycatch only species. A directed fishery for bBlack rockfish is allowed in some areas of SEO and is managed using small area GHL's, vessel registrations, gear restrictions and small area closures. All other non-DSR rockfish are managed under the terms of a Commissioner's permit. Harvest of rockfishes is limited to hook and line gear and longline gear is not a legal gear for directed fishing for PSR.

Full retention regulations passed at the 2000 BOF meeting require that all rockfish caught be weighed and accounted for on fishtickets. Proceeds of sales in excess of legal landing limits are forfeited to the State of Alaska.

STOCK ASSESSMENT AND MANAGEMENT

The directed fishery for black rockfish focuses on fishing in nearshore, shallow water rock "reef" habitat, an area traditionally very difficult to assess. In 1999, the department conducted a pilot study to evaluate the feasibility of a combination depletion experiment/mark-recapture survey for assessing nearshore black rockfish stocks. The pilot study focused on developing appropriate field methods, including the use of underwater cameras. Based on experiences in 1999, a revised study was conducted in 2000. The department concentrated effort on two areas with high black rockfish abundance. A total of 2,483 black rockfish were tagged and released during the 2000 field season. Additionally, 20-tagged fish were recaptured, 17 had been released in 1999, and

three had been released in 2000. During 2002, the department conducted additional black rockfish stock assessment surveys. Three separate trips were made, two for the purpose of locating and sampling unfished stocks of black rockfish, and one trip to locate schools of fish in water deeper than is customarily fished with mechanical jigging machines. In addition, historical catch data will be integrated with logbook and fish ticket data into a GIS application to estimate the number of removals in specific locations within the study area (Tydingco and Brylinsky 1999).

There are no assessment surveys for slope rockfishes and thornyheads although they are caught as a bycatch on the annual longline surveys. Data on length and age are collected for these species.

2002–2005 Season Summary

The PSR reported catch for NSEI and SSEO remained at low levels with about 5,000 round lbs landed each year between 2003 and 2005 (Table 11). In 2002 there were 14,236 round lbs landed, with this catch being largely black rockfish. Black rockfish catches from the SEO have varied considerably during the reporting period, ranging from a high of 91,676 round lbs in 2002 to a low of 9,037 in 2005 (Table 12). The majority of catches came from CSEO and were from the directed fishery. In 2002, for the first time, in-season management was taken in the directed black rockfish fishery. Two statistical areas in the CSEO closed in-season in an effort to prevent local over harvest and disperse effort.

The total catch of slope rockfishes and thornyheads has declined from 349,328 round lbs in 2002 to 258,031 round lbs in 2005 (Table 13). The BOF closed the directed fishery for slope rockfish in 2003.

2006 Season Outlook

The large reduction in black rockfish harvested in 2005 is largely attributed to the low prices for black rockfish combined with the high salmon price and excellent salmon fishing in 2004 and 2005. It is difficult to predict the interest in directed black rockfish fishing in 2006.

SABLEFISH

Sablefish occur only in the Bering Sea and the North Pacific Ocean and adjacent waters from Hokkaido, Japan to Baja California with the greatest abundance in the Gulf of Alaska (Figure 3). Adult sablefish inhabit the deep-water areas of the continental shelf, the slope, and the deep-water coastal fjords. Most adults live in depths of 200 to 500 fm although they have been found in less than 100 fm and greater than 1,000 fm (Allen and Smith 1988). In NSEI the average age from survey samples of this long-lived species is estimated at 15 years, with a range of 1-88 years of age (Carlile et al. 2002).

Sablefish is one of the most valuable finfish in Southeast Alaska. The ex-vessel value of sablefish continued to increase in, peaking at an average price of $2.40 per round lb in 2005. These numbers are likely underestimates of price-per-pound as retroactive payment information is not included in these calculations.

Fishery Development and History

Sablefish have been harvested in the internal waters of Southeast Alaska since the early 1900s. The fishery is split into two areas: NSEI, where fishing occurs primarily in Chatham Strait, and

SSEI, where fishing occurs primarily in Clarence Strait and the adjacent waters of Dixon Entrance.

Prior to the 1940s, sablefish were primarily landed as bycatch in the halibut fishery. Halibut longline gear was modified in the late 1940s to target sablefish. Until the 1970s, harvest levels fluctuated widely due to low price and better opportunities in other fisheries. Pot gear was first introduced in 1970 in the SSEI and Dixon Entrance areas, and accounted for 33% of the harvest in the early 1970s. By 1979, pot gear accounted for less than 5% of the catch.

Season limitations were first imposed in 1945 for NSEI, and in 1982 for SSEI (Bracken 1983). Seasons were shortened as effort escalated in the 1970s and 1980s. Guideline harvest ranges (GHR) based on historic catches were established for both areas in 1980. Fleet effort and efficiency continued to increase dramatically and in NSEI the season was reduced to five days by 1984 (Table 14). In 1985, a limited entry program was implemented for the sablefish fishery in both NSEI and SSEI. However, the number of vessels and overall operating efficiency of the longline fleet increased significantly after the limited entry program was implemented. In order to stay within GHRs, the department continued to reduce the number of fishing days in both areas. In NSEI, the number of fishing days fell from 76 in 1980 to one in 1987. A one-day opening continued through 1993. In that year, the fleet harvested 3,640,000 dressed lbs, 2,140,000 lbs over the upper bounds of the 1,500,000 dressed lbs GHR. In an effort to improve management, the BOF adopted an equal quota share system (EQS) for NSEI in 1994. This system had been recommended by a working group of industry representatives and state fisheries managers. In SSEI, the number of fishing days declined from 200 days in 1980 to two days in 1996 (Table 15). In 1997, at industry's request, the BOF adopted a similar EQS system for SSEI. In addition to minimizing the risk of overharvest and loss of gear, the EQS allowed the five limited-entry pot permits to re-enter the fishery. These pot permits had been functionally excluded due to the short season in recent years.

REGULATIONS

Management regulations, including guideline harvest limits (GHL), fishing seasons, and gear specifications, are defined separately for the NSEI and SSEI sablefish fisheries. The EQS system requires the department to divide the AHO equally among the CFEC permits eligible for each fishery. The GHL's are set based on information available to the department, including estimates of sablefish biomass. Only longline gear can be used to take sablefish in the NSEI fishery. Both longline and pot gear are legal in the SSEI fishery and pot gear may be longlined. There is no sablefish fishery in the state-managed 0-3 mile zone in outside coastal waters of Southeast.

The NSEI fishery is open between August 15 and November 15. In 2003 new regulations allowed for an off-season fishery in the NSEI area in an effort to collect biological data on sablefish residing in Chatham straits during winter and spring months. The SSEI fishery is open for longline gear between June 1 and August 15, and for pot gear from September 1 to November 15. The SSEI seasons are split to avoid possible gear conflicts.

Also in 2003 the BOF adopted regulations allowing carry forward of a 5% overage or underage of the EQS in an effort to reduce discard mortality and to acknowledge the difficulties in landing exact amounts of fish. Sablefish may no longer be taken for use as bait.

STOCK ASSESSMENT AND MANAGEMENT

In 1988, ADF&G began annual longline research surveys in both NSEI and SSEI to assess the relative abundance of sablefish over time. Previous research indicates some movement of sablefish into and out of NSEI and substantial movement into and out of SSEI. The extent of movement is unknown, therefore, department surveys are conducted a few weeks prior to the start of each fishery to examine stock condition of sablefish near the time of these fisheries. Fixed sampling stations were randomly assigned within statistical areas in both Chatham and Clarence Strait, where the majority of fleet fishing effort is focused. Once established, the same stations are fished in a similar manner each year to estimate change in relative abundance over time. A general linear multivariate model (GLMM) has been used to detect significant CPUE trends over time. Biological data collected during the surveys include length, weight, sex, stage of maturity and otoliths (aging structures). This data is used to describe the age and size structure of the populations and detect recruitment events.

In 1997, ADF&G changed the survey design (Cartwright 2000). Prior to this year, the survey gear was retrieved one hour after it was deployed. There were concerns that a 1-hour soak in certain depths and tidal/current conditions might not adequately represent relative abundance. Therefore, a 3 to 11 hour soak time for longline survey gear was implemented beginning in 1997. At the same time, we standardized our survey methods with the National Marine Fisheries Service (NMFS) survey (3-hour minimum soaks, squid bait, and 70" hook spacing). In 2000 the department constructed and purchased survey gear to ensure standardization between survey vessels.

In 1997 and 1998, a mark-recapture study was conducted to estimate absolute abundance in NSEI (single event-Petersen method). We tagged and released over 5,000 sablefish in the NSEI survey each year and a small proportion of the tags were recaptured in the fishery. Preliminary results suggested “hook shyness” might be present which may result in overestimates of abundance. In 2000, the department began using pot gear for initial capture and tagging, to reduce the chance of hook shyness and thereby promote more accurate estimates of abundance (Richardson 2001). Preliminary results indicate that hook-shyness has decreased with this new approach. Tags may also be useful to estimate an annual exploitation rate and to describe movement patterns of sablefish between the internal waters of Alaska, the Gulf of Alaska, and British Columbia. Application of an age-structured model (ASA) using fishery and survey data is also being explored to estimate abundance of sablefish. The NMFS uses an ASA for the Bering Sea and Gulf of Alaska sablefish assessment. However, several assumptions necessary to use an ASA appear to be violated with the NSEI sablefish data (Carlile et al. 2002).

In the past, the department set the AHOs for the sablefish fisheries after the survey was completed, just prior to the opening of the fishery. Because the tagging and the age structure data cannot be analyzed until after the NSEI fishery has been prosecuted, the department will set the overall AHO for a given year prior to the survey, using the survey and fishery data from the previous years.

In February of 2002, the Alaska Department of Fish and Game convened a multi-agency panel to conduct an independent review of the stock assessment program for the NSEI sablefish fishery. A report detailing past stock assessment and management programs was prepared and given to the review committee in advance of the panel meeting (Carlile et al. 2002). The panel met with ADF&G staff to discuss the stock assessment report and to gain further insight into the details of

the fishery and assessment. They then convened privately to draft recommendations for consideration (Leaman et al. 2002). Based, in part, on this review and on additional assessment data available in 2002, the department took a new approach for setting the AHO for NSEI sablefish. The AHO was set based on a harvest rate applied to an estimate of biomass. A Peterson estimator applied to mark-recapture data from tail-clipped fish was calculated (Seber 1982). Previous AHOs have been set based on historical catch levels and evaluation of fishery and survey data.

The abundance of sablefish in the NSEI is estimated using mark-recapture methods. For example, based on Chapman's modification of the Petersen estimator, there were an estimated 2,675,118 sablefish in the NSEI Management Area at the time of the 2004 fishery. The 90% confidence interval for the sablefish abundance estimate is 2,501,350-2,872,325 sablefish. The estimated number of sablefish is decremented to account for natural mortality and then the exploitable numbers and biomass of sablefish for 2005 was forecast. The forecast for 2005 was 2,434,552 sablefish and 18,612,498 round lbs of sablefish. Natural mortality (M = 0.1) was accounted for and then an $F^{40\%}$ (0.138) harvest rate was applied to the lower 90% confidence limit of the 2004 abundance estimate to yield a preliminary ABC of 2,255,115 pounds for the 2005 NSEI sablefish fishery. The estimated bycatch and discard mortality of sablefish was then deducted from the ABC to allocate the directed fishery AHO.

SSEI is assessed for change in relative abundance of sablefish using survey and fishery CPUE data as well as age and length frequency distributions. Sablefish appear to move in and out of this area, which violates assumptions of a closed population. Consequently, Peterson mark-recapture estimates of abundance or exploitation rate are not possible for this fishery.

2002-2005 SEASON SUMMARY

The total reported sablefish landings from both state-managed fisheries were 2.7 million round lbs in 2002, 2003, and 2005 and 2.9 million round lbs in 2004 (Table 1). The average ex-vessel price per round pound of sablefish increased from $2.29 per round lb in 2002 to $2.40 in 2005.

NSEI

The NSEI sablefish fishery AHO was 2.005 million pounds in 2002, and 2003, 2.245 million round lbs in 2004, and 2.053 million round lbs in 2005 (Table 14). The AHO is set The Commercial Fisheries Entry Commission (CFEC) issued 109 permits in 2002, 108 permits in 2003 and 2004, and 106 permits in 2005). The EQS increased slightly from 18,400 round lbs in 2002 and 2003 to 20,787 in 2004 and 19,400 round lbs in 2005

The commercial catch rates (standardized for hook spacing) were stable over the reporting period, ranging between 0.60 and 0.76. These rates are considerably higher than those reported for 1998-2001 (Figure 6).

During 2004 and 2005, ADF&G issues permits to allow permit holders to fish outside of the regular season. Vessels participating in this program were required to take an ADF&G biologist on the trip and data regarding catch rates, bycatch, and biological samples were taken. In 2004 One vessel fished in early February and 5 vessels (7 permits) fished in late April. In 2005, 3 vessels fished in mid-February, 2 vessels (3 permits) fished in mid March, and 5 vessels (6 permits) fished in late April. In general, catch rates were low in February and there were very high bycatch rates of dogfish. The CPUE improved by mid-March and was strong in April as well.

SSEI

The SSEI sablefish fishery was managed within the AHO of 696,000 round lbs in each of the years from 2002-2005 (Table 15). The EQS was 24,000 round lbs in 2002 and increased to 24,860 round lbs in 2003-2005. There were 24 longline permits and 4 pot permits in 2005 (Table 15). During this reporting period, the survey CPUE in round lbs per hook was similar between 2002 and 2004 with CPUE of 0.98, 1.10, and 1.10. There was no survey conducted in 2005 due to restrictions on testfish funding. The longline catch rates, standardized to hook spacing, were also similar between 2002 and 2004 (0.41, 0.45, 0.40) and increased substantially in 2005 to 0.522, the highest rate in at least 8 years (Figure 7).

2006 SEASON OUTLOOK

NSEI

The abundance and biomass of sablefish in NSEI during 2005 will be estimated using Chapman's modification of the Peterson estimator and use to forecast the biomass for the 2006 season. This number should be available in early January 2006.

SSEI

The 2006 AHO is expected to be 696,000 round pounds. The department anticipates running a survey in May of 2006.

PACIFIC COD

Pacific cod are found from the northern Yellow Sea in China through the Bering Sea as far north as the Chukchi Sea, and south along the Gulf of Alaska and the coast of North America to Monica Bay, California (Love 1991; Westrheim 1996). Pacific cod inhabit the waters of the continental shelf and the upper continental slope waters (Bakkala et al. 1984; Westrheim 1996).

FISHERY DEVELOPMENT AND HISTORY

It is difficult to piece together the catch history of the directed Pacific cod fishery in the inside waters of Southeast Alaska, because there are limited landing records for the fishery. Much of the catch is used as bait in other fisheries and fishticket-reporting compliance of bait catch has been poor. Also, Pacific cod is landed on a miscellaneous finfish card (M) and bycatch of Pacific cod harvested in other fisheries can be landed on the M card.

Total annual reporting landings of Pacific cod from NSEI and SSEI have ranged from 142,405 round lbs (1985) to 778,413 round lbs (1997) with most of this harvest landed on M cards (Table 16). Between 26 and 179 M card permits have landed Pacific cod in any year between 1985 and 2005 (Table 16).

ADF&G sets the AHO at 1,000,000 round lbs, the mid-point of the GHR. The reported landings of Pacific cod from NSEI and SSEI have varied widely over the past ten years with the highest catches in the mid 1990's (Table 16). The increase in catch in the mid 1990s was due to the development of a food market for Pacific cod. This market has been supplied in recent years by catches in the Central and Western Gulf.

Longline gear is the primary gear used in the directed Pacific cod fishery, which takes place in the internal waters of SE, although pots and other hook and line gear such as jig and dinglebar

are also legal. The directed fishery for Pacific cod has remained open year round in state waters since the adoption of the GHR in 1993.

REGULATIONS

In 1991, the BOF implemented a regulation setting a guideline harvest range for Pacific cod at 750,000 to 1,250,000 round lbs round weight. In 2000 the BOF limited lawful gear for the harvest of Pacific cod to longline, dinglebar troll gear, hand troll, gear, mechanical jigging machines, and pots.

STOCK ASSESSMENT AND MANAGEMENT

There are no stock assessment surveys for Pacific cod. Landed Pacific cod are sampled for biological data including length, sex, maturity, and otoliths. Aging of Pacific cod is problematic and estimated ages are not yet used for assessing stock condition.

A large portion of the Pacific cod taken in Southeast is used for bait in other fisheries, and is not reported on fishtickets. The implementation of additional bait regulations, including the requirement that a fish ticket be submitted to the department detailing bait catches, have largely been unsuccessful in increasing the reporting of bait taken for personal use.

2002-2005 SEASON SYNOPSIS

Pacific cod landings were lower in 2002 than in the previous 5 years but have steadily increased in the last three years, 251,751 round lbs reported in 2002 to 4,568,265 round lbs through November 2005 (Table 16). As in the past, the majority of the harvest (95%) was taken in NSEI. In 2005, the area around Fredrick Sound was closed to directed fishing in April in order to distribute directed fishery effort. At that time over one third of the annual AHO had been taken in this area and there was concern this might be too much pressure on spawning stocks in Frederick Sound. This closure had the effect of reducing total landings as some of the vessels fishing Frederick Sound were delivering into Wrangell and fishing elsewhere was logistically and economically difficult.

2006 SEASON OUTLOOK

Pacific cod continues to be an important food and bait fish and remains one of the few open access fisheries in Alaska. It is anticipated that as Groundfish rationalization occurs in the federal waters of the Gulf there may be increased interest in the Southeast Pacific cod fishery.

FLATFISH

Starry flounder *Platichthys stellatus* are the primary species targeted in the beam trawl fishery for flatfish in SE. They occur in soft-bottomed, shallow water estuaries generally shallower than 100 m, from the Beaufort Sea to Southern California and from the East Siberian Sea south to the Sea of Okhotsk and to the Sea of Japan off Korea (Mecklenburg et al. 2002).

FISHERY DEVELOPMENT AND HISTORY

There is relatively limited estuarine habitat in Southeast Alaska where trawl fisheries are likely to target flounder. A trawl fishery for flatfish was already established in the inside waters of Southeast Alaska by 1960 when landings of flatfish began to be documented. Between 1960 and 1965 approximately 40,000 round lbs of flatfish were harvested annually from Port Camden and delivered to the Yukon Fur Farm on Kupreanof Island for use as mink food. ADFG reporting records beginning in 1970, show a substantial increase from this annual harvest to just under

1 million round lbs by 1973 with the harvest dropping substantially by 1980. The harvest in these early years came primarily from Port Camden, Level Island, and the Stikine Flats. These fish were primarily delivered south, often in chill-vans, which kept the product live. The fishery again escalated from minimal reported landings in the early 1980s to landings approaching nearly 800,000 round lbs, consisting primarily of starry flounder and some rocksole *Lepidopsetta spp.* All the flatfish harvested in 1996 and 1997 were processed in Southeast Alaska, a significant change from previous years. Harvests remained high for few years and then fell substantially to less than 10,000 round lbs by 1992 and since that time have remained less than 20,000 round lbs per season (Table 17). The GHRs are low in all areas due to limited habitat and high bycatch of crab, shrimp, and halibut (Bracken et al. 1991).

Trip limits of 20,000 round lbs were implemented by the BOF in 1993. These trip limits made it uneconomical for large trawl vessels traveling south from the Western Gulf to make a season end trip to SE, something they had historically done. Since that time the fishery has remained a small local fishery with very few participants. The recent harvest has been used locally in Wrangell and not all catches have been reported.

REGULATIONS

The trawl fishery for flatfish is limited to four areas: the Stikine Flats, Level Island, Port Camden, and Anita Bay, although Stikine Flats has been closed to directed fishing since 1989. The beam trawl fishery targets pre-spawning concentrations of flatfish, hence fishing is productive over only a portion of the year. Fishing seasons are October 1 through April 15 for the Anita Bay area and October 15 through November 15 and February 15 through April 15 in the Port Camden and Level Island Fisheries. In 1993 the BOF implemented a 20,000 round lbs weekly trip limit that is intended to prevent overharvest of the small AHOs in this fishery. In 1997, the BOF rejected a proposal to increase the weekly trip limit to 35,000 lbs. Legal gear for directed flatfish fishing in Southeast was limited to beam trawl gear beginning in 2001.

ADF&G-issued permits are required to participate in the directed beam trawl flatfish fishery. The conditions of this permit require the operator to keep a detailed logbook. Open areas, gear restrictions, and reporting requirements are outlined in the individual permits. Permits are issued for 30 days and are renewable at the department's discretion. ADF&G may also require on-board observer coverage.

STOCK ASSESSMENT AND MANAGEMENT

There are no stock assessment surveys for flatfish. Previously on-board observers collected information on CPUE and biological characteristics of the stock. Samples collected in 1988 indicated that the mature flatfish stock in the Stikine Flats area was in very poor condition and the fishery was in danger of recruitment overfishing (Bracken et al. 1991). Consequently, this area was closed to directed fishing in 1989 and has remained closed. There is no current onboard observer coverage of this fishery given the very low levels of effort in recent years.

The most recent management action for the flatfish fishery occurred in April of 1998 when ADF&G closed the Anita Bay area to directed trawl fishing when the area AHO had been met. There has been no directed fishing since 1998 in any area.

ADF&G currently knows little about the current condition of the flatfish resource in southeast as there have been no fishery independent surveys or any commercial fishery in recent years.

2002-2005 SEASON SYNOPSIS

There was no participation in the directed flatfish fishery at any time during the reporting period. No one had registered to fish as of November 30 for the 2005-2006 season.

2006 SEASON OUTLOOK

ADF&G has proposed removing the regulations regarding directed trawl flatfish fishing. This proposal will be reviewed at the February 2006 meeting. If adopted harvesters would need to apply for a Miscellaneous Groundfish Permit to participate in this fishery. The department will issue permits if requested with an emphasis on collecting biological data on flatfish as well as bycatch information.

OTHER SPECIES

Landings of other groundfish species in NSEI and SSEI continue to be low. The majority of other species are discarded at sea and not reported on fishtickets. Primary discards include sleeper sharks, dogfish, ratfish, skates, arrowtooth flounder, hagfish, and grenadiers. During the reporting period minimal amounts of arrowtooth flounder, skates, and grenadier were landed.

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TABLES AND FIGURES

Table 1.–Round lbs and report catch and ex-vessel value for state-managed groundfish taken in groundfish and halibut fisheries, Region I, 1993- November 2005.

	Lingcod Southeast	Flatfish NSEI/SSEI	DSR Southeast	PSR NSEI/SSEI	Black SEO	Slope NSEI/SSEI	Pacific Cod NSEI/SSEI	Sablefish NSEI/SSEI	Total
1993 lbs	950,562	23,259	1,563,811	18,092		175,694	962,434	6,619,985	10,313,837
1993 Value	$390,836	$4,652	$834,344	$5,605		$66,764	$394,598	$6,437,864	$8,134,663
1994 lbs.	786,766	11,375	1,619,214	16,920		331,568	402,475	5,580,340	8,748,658
1994 Value	$346,177	$2,389	$858,680	$4,907		$192,309	$148,916	$10,210,439	$11,763,817
1995 lbs	829,629	22,016	747,872	9,237		426,904	339,312	5,221,110	7,596,080
1995 Value	$481,185	$4,403	$781,092	$2,771		$273,219	$115,366	$9,045,576	$10,703,612
1996 lbs	755,771	1,185	1,008,417	8,365		510,210	639,343	5,176,160	8,099,451
1996 Value	$377,886	$273	$923,641	$3,011		$321,432	$326,065	$10,807,647	$12,759,955
1997 lbs	612,950	5,614	913,492	15,105		622,581	778,033	5,478,464	8,426,239
1997 Value	$330,993	$1,067	$973,727	$3,927		$397,774	$326,774	$13,153,151	$15,187,413
1998 lbs	581,364	14,631	953,538	6,740		905,127	647,940	5,266,064	8,375,404
1998 Value	$308,881	$2,634	$919,950	$2,022		$534,025	$233,258	$8,316,809	$10,317,579
1999 lbs	515,291	12,968	969,777	49,833	42,957	654,469	823,342	3,704,697	6,773,334
1999 Value	$319,632	$2,464	$1,019,155	$16,770	$14,587	$412,315	$279,936	$7,838,126	$9,902,985
2000 lbs	481,034	4,418	786,706	44,375	36,782	733,227	593,104	3,672,579	6,352,225
2000 Value	$327,726	$499	$959,146	$16,110	$13,898	$445,289	$231,311	$8,570,766	$10,564,745
2001 lbs	330,569	1,392	860,958	22,533	17,288	487,407	356,790	2,793,295	4,870,232
2001 Value	$166,371	$0	$971,431	$5,879	$3,716	$264,544	$121,309	$5,813,074	$7,346,324
2002 lbs	351,421	2371	1,076,598	96,883	84,754	349,328	251,751	2,659,719	4,872,825
2002 Value	$208,136	$237	$1,027,351	$33,781	$27,024	$191,941	$100,700	$6,102,368	$7,691,538
2003 lbs	393,371	1124	800,892	96,690	91,676	306,946	386,548	2,658,579	4,735,826
2003 Value	$258,264	$112	$935,865	$42,838	$41,104	$161,873	$150,754	$6,316,033	$7,906,843
2004 lbs	360,682	802	874,526	50,981	45,458	222,781	451,446	2,878,801	4,885,477
2004 Value	$232,010	$0	$1,076,852	$19,001	$16,938	$149,319	$186,483	$5,563,286	$7,243,889
2005 lbs	322,509	1779	602,079	4,734	9,037	258,031	468,975	2,666,466	4,333,610
2005 Value	$220,051	$0	$594,755	$2,645	$4,996	$156,795	$208,384	$6,399,622	$7,587,248

Table 2.–Groundfish bycatch (round lbs) reported in southeast Alaska troll fishery and Yakutat setnet fishery, 1981–November 2005.

Year	DSR	Pelagic	Slope	Pacific cod	Lingcod	Spiny Dogfish	Total Round lbs.	Total Value	Total permits
1981	27,657	0	0	1,637	27,525	0	56,819	$19,915	496
1982	5,236	0	0	1,176	38,658	0	45,070	$14,573	429
1983	2,380	7	0	25	17,522	0	19,902	$6,956	245
1984	3,734	20	0	165	24,742	0	28,641	$12,428	323
1985	1,161	46	0	17	20,709	0	21,870	$6,130	316
1986	188	4	13	0	3,984	0	3,984	$5,411	83
1987	6,839	900	32	511	65,645	0	73,895	$24,817	542
1988	3,498	1,370	192	67	69,695	0	74,755	$27,412	542
1989	2,195	694	68	237	94,806	0	96,932	$33,222	533
1990	2,284	1,059	222	0	79,914	0	83,479	$26,869	520
1991	1,524	4,834	223	4	66,898	0	73,479	$28,520	496
1992	1,099	5,368	553	28	43,578	0	50,598	$16,226	432
1993	3,425	4,636	1,133	0	50,530	0	59,724	$17,362	394
1994	2,641	3,356	1,283	0	44,630	0	51,910	$18,625	318
1995	2,006	14,836	2,754	33	63,903	0	83,499	$40,675	422
1996	1,162	9,205	1,232	0	36,600	0	48,199	$20,239	280
1997	1,864	13,573	1,208	17	30,606	0	47,251	$19,394	314
1998	2,314	15,445	1,926	274	28,343	0	48,302	$18,868	310
1999	971	13,297	1,053	523	21,772	0	37,616	$15,643	277
2000	1,481	13,846	2,294	164	32,545	35,881	86,211	$27,518	376
2001	1,470	12,875	1,761	0	21,533	91,411	129,050	$21,071	278
2002	5,117	19,354	4,359	60	57,317	1,256	87,463	$35,940	246
2003	3,602	18,938	3,265	0	33,495	0	59,300	$26,259	231
2004	4,793	19,235	2,662	345	34,856	0	61,891	$32,524	234
2005	2,593	20,703	1,867	33	25,571	0	50,767	$21,045	209

Table 3.–Testfish landings (round lbs) and ex-vessel values for ADF&G and IPHC surveys, by group and year for state-managed species.

		Management Group						
Year	**Data**	**PSR**	**DSR**	**Lingcod**	**Pacific cod**	**Sablefish**	**Slope Rock**	**Grand Total**
1999	Round lbs	26	5,813		1,028	93,044	6,205	106,115
	Value	$9	$6,009		$285	$167,226	$2,757	$176,286
2000	Round lbs		18,379		413	128,421	4,967	152,181
	Value		$19,035		$83	$287,345	$2,424	$308,887
2001	Round lbs	826	16,944	1,038	514	145,966	6,692	171,980
	Value	$202	$17,422	$448	$90	$285,952	$1,981	$306,096
2002	Round lbs	2,104	6,438		214	137,654	5,528	151,939
	Value	$561	$8,314		$21	$284,358	$2,618	$295,873
2003	Round lbs	62	18,076	1,739	2,125	151,755	9,958	183,715
	Value	$23	$23,917	$1,127	$84	$321,984	$3,854	$350,988
2004	Round lbs	4	6,956		1,232	139,976	4,900	153,068
	Value	$1	$6,680		$20	$264,182	$1,744	$272,628
2005	Round lbs	19	11,899		709	128,044	4,017	144,688
	Value	$5	$9,190		$177	$317,005	$1,474	$327,849

Table 4.–The Southeast district lingcod reported harvest, effort, and ex-vessel value for lingcod taken in commercial groundfish and halibut fisheries, 1987–November 2005.

Year	Directed Harvest Round lbs	Directed Value	Directed Permits	Total Harvest Round lb	Total Value	Total Permits
1987	163,305	$70,493	35	463,932	$194,951	435
1988	249,295	$118,849	59	589,930	$250,128	562
1989	180,516	$94,094	40	543,725	$208,865	602
1990	312,820	$157,298	46	688,723	$278,192	635
1991	490,873	$231,589	57	966,842	$393,755	646
1992	457,801	$194,380	61	929,640	$317,785	680
1993	496,771	$248,730	64	964,671	$392,551	577
1994	419,291	$216,110	72	796,774	$345,951	603
1995	665,860	$405,392	83	856,641	$481,185	474
1996	525,510	$262,068	101	772,488	$379,283	462
1997b	421,262	$234,817	60	642,385	$331,606	442
1998	370,739	$213,784	52	564,222	$308,881	429
1999	276,707	$191,051	39	495,652	$319,632	478
2000	306,658	$229,968	35	481,115	$327,726	427
2001	137,290	$79,781	25	328,918	$166,371	421
2002	178,892	$125,763	28	351,387	$208,136	397
2003	243,926	$178,544	33	394,913	$258,264	377
2004	164,639	$124,800	28	359,510	$232,010	329
2005	177,527	$146,860	26	319,736	$220,051	289

Table 5.–The southeast district lingocd report harvest (round lbs) for commercial groundfish, halibut and salmon troll fisheries, by gear, 1990 –November 2005.

Year	Directed	Salmon Troll	Longline	Jig bycatch	Total
1990	312,820	110,647	357,988	18,319	799,774
1991	490,873	93,751	462,269	11,718	1,058,611
1992	457,801	67,288	460,265	5,506	990,860
1993	496,771	71,788	465,386	4,377	1,038,323
1994	419,291	94,768	378,886	881	893,826
1995	665,860	89,219	189,068	213	944,360
1996	525,510	49,771	235,755	318	811,354
1997	421,262	42,508	213,261	61	677,092
1998	370,739	39,365	196,304	2,632	609,041
1999	276,707	30,220	233,682	660	541,269
2000	306,658	43,326	173,374	1,000	524,358
2001	137,290	27,753	190,376	186	355,605
2002	178,892	56,766	171,519	1,011	408,188
2003	243,926	33,434	148,986	366	426,711
2004	164,639	34,856	194,754	869	395,118
2005	177,525	25,369	144,852	132	347,878

Table 6.–Lingcod guideline harvest limits and allocations between sectors.

	Icy Bay	East Yakutat	NSEO	CSEO	SSEOC	SSEIW	NSEI
GHL	**0-100,000**	**0-200,000**	**0-40,000**	**0-240,000**	**0-167,000**	**0-52,000**	**0-32,000**
Sector	Percent allocation						
Sport Fishery	33%	2%	22%	30%	44%	92%	50%
Directed Fishery		43%	43%	36%	30%	0%	0%
Longline Bycatch	67%	47%	27%	23%	17%	4%	30%
Salmon Troll Bycatch		8%	8%	7%	2%	4%	20%
Hand troll & Jig Bycatch	0	0	0	4%	7%	0	0

Table 7.–Commercial lingcod annual harvest objective by fishery and management area.

	2005 Annual Harvest Objective			
Management Area	**Directed**	**Salmon troll**	**Longline**	**Total**
IBS	66,660			66,660
EYKT	86,000	16,000	94,000	196,000
NSEO	17,200	3,200	10,800	31,200
CSEO	86,400	16,800	55,200	158,400
SSEOC	50,100	3,340	28,390	81,830
NSEI	0	6,400	9,600	16,000
SSEIW	0	2,080	2,080	4,160
Total				554,250

Table 8.–The Southeast district lingcod reported harvest (round lbs) for commercial groundfish, halibut fisheries, and salmon troll fisheries by management area, 2002—November 2005, blank cells represent no allocation.

Year	Fishery	CSEO	EYKT	IBS	NSEI	NSEO	SSEIW	SSEOC	Grand Total
2002	directed	60,162	93,173			15,264		10,260	178,892
	salmon	13,472	29,249	2,137	1,787	9,393		684	56,766
	longline	55,995	41,240	20,412	8,607	15,878	2,876	26,475	171,484
2002 Total		129,629	163,662	22,549	10,394	40,535	2,876	37,418	407,142
2003	directed	75,659	101,419	3,594		14,491		48,762	243,926
	salmon	12,649	12,649	confidential	1,614	3,825	1,997	3,194	33,434
	longline	45,016	43,320	10,601	9,773	13,322	2,749	25,842	150,622
2003 Total		133,325	157,388	14,195	11,387	31,638	4,746	77,798	427,982
2004	directed	23,088	100,890	28,846		2,609		9,206	164,639
	salmon	8,373	11,012	6,555	440	4,218	679	3,534	34,876
	longline	38,406	91,477	11,767	9,984	12,399	1,943	28,025	194,002
2004 Total		69,867	203,379	47,168	10,424	19,226	2,622	40,766	393,517
2005	directed	54,034	80,084	40,748		2,660		0	177,525
	salmon	8,781	5,299	3,436	1,195	3,894	381	2,383	25,369
	longline	19,459	64,142	21,223	10,959	10,931	2,655	12,708	142,078
2005 Total		82,274	149,525	65,407	12,154	17,485	3,036	15,091	344,973
Grand Total		415,094	615,745	137,323	39,358	87,812	10,223	161,448	1,467,003

Table 9.–The Southeast District demersal shelf rockfish reported harvest, effort, and value for DSR taken in commercial groundfish and halibut fisheries, 1987– November 2005.

Year	Directed Harvest round lbs	Directed Value	Total Permits	Total Harvest round lbs	Total Value	Total Permits
1987[a]	2,745,762	$1,427,763		3,300,563	$1,650,282	646
1988[a]	1,555,607	$777,804		1,935,895	$1,065,043	819
1989[a]	997,388	$498,694		1,400,966	$768,302	833
1990[a]	690,253	$403,752	144	1,122,095	$600,190	789
1991[b]	1,147,267	$734,251	136	1,484,328	$777,496	862
1992[b]	1,087,554	$626,336	149	1,591,020	$768,960	919
1993[b]	976,368	$657,066	122	1,563,811	$834,344	834
1994[b]	982,745	$680,863	133	1,619,214	$858,680	847
1995[b]	398,401	$442,783	66	747,872	$781,092	811
1996[c]	782,776	$787,585	125	1,008,417	$923,641	736
1997[c]	651,346	$828,122	105	913,492	$973,727	718
1998[c]	622,289	$749,599	88	953,538	$919,950	733
1999[c]	593,638	$727,855	83	969,777	$1,019,155	851
2000[c]	473,385	$706,842	59	786,706	$959,146	774
2001[c]	457,980	$673,231	55	860,958	$971,431	774
2002[c]	413,792	$666,206	63	1,076,598	$1,027,351	768
2003[c]	336,572	$494,761	60	800,892	$935,865	819
2004[c]	437,079	$660,923	45	874,526	$1,076,852	740
Through Nov 2005[c]	105,685	$180,729	14	602,079	$549,784	718

Note: Directed fishery permit was implemented in 1990 in all areas, but EYKT (1992) used M cards with >40% DSR for target prior to Y permits; dinglebar gear card was implemented in 1997.

[a] Demersal Shelf Rockfish assemblage includes: Bocaccio, Canary, China, Copper, Quillback, Redstripe, Rosethorn, Silvergray, Tiger, Yelloweye, and Unspecified DSR.

[b] Demersal Shelf Rockfish assemblage includes: Canary, China, Copper, Quillback, Redbanded, Rosethorn, Tiger, Yelloweye, and Unspecified DSR.

[c] Demersal Shelf Rockfish assemblage includes: Canary, China, Copper, Quillback, Rosethorn, Tiger, Yelloweye, and Unspecified DSR.

Table 10.–Directed fishery allocation and catch for DSR by management area and year, 2002-Nov 2005.

	2005 (< November)		2004		2003		2002	
Management Area	**allocation**	**catch**	**allocation**	**catch**	**allocation**	**catch**	**allocation**	**catch**
EYKT	92,610	90,897	176,400	183,785	0	0	0	0
NSEO	0	0	0	0	0	0	0	0
CSEO	0	0	99,225	132,969	154,350	140,232	154,300	166,667
SSEO	0	0	66,150	55,049	88,200	84,082	132,200	133,003
NSEI	55,125	5,879	55,125	40,480	55,125	52,819	55,125	50,456
SSEI	55,125	8,653	55,125	24,797	55,125	59,439	55,125	63,666
Total	202,860	105,429	452,025	437,079	352,800	336,572	396,125	413,792

Table 11.–The pelagic shelf rockfish reported harvest, effort, and value landed from NSEI and SSEI, for commercial groundfish and halibut fisheries, 1987–Nov 2005.

Year	Total Harvest round lbs	Total Value	Total Permits
1987	7,206	$3,243	36
1988	17,989	$5,397	44
1989	9,532	$2,764	57
1990	5,220	$1,357	67
1991	9,906	$3,170	58
1992	26,315	$7,105	83
1993	18,092	$5,605	57
1994	16,920	$4,907	53
1995	9,237	$2,771	46
1996	8,365	$3,011	57
1997	15,105	$3,927	61
1998	6,740	$2,022	58
1999	7,619	$2,396	66
2000	7,602	$2,212	70
2001	6,077	$1,619	56
2002	14,236	$7,290	44
2003	5,049	$1,743	42
2004	4,677	$1,593	38
2005	4,734	$1,593	32

Table 12.–Black rockfish harvest and ex-vessel value, directed and total commercial landings for the Southeast outside district, 1999–Nov 2005.

Year	Directed Harvest round lbs	Directed value	Directed permits	Total Harvest round lbs	Total value	Total permits
1999	35,653	$12,381	10	42,957	$14,587	105
2000	31,258	$12,140	8	36,782	$13,898	84
2001	10,439	$2,228	5	17,288	$3,716	69
2002	81,771	$26,073	8	84,754	$27,024	67
2003	88,467	$40,057	9	91,676	$41,104	72
2004	45,458	$16,938	7	45,458	$16,938	58
2005	6,514	$4,313	8	9,037	$4,996	45

Table 13.–Slope rockfish and shortspine thornyhead reported harvest, ex-vessel value, and effort in NSEI and SSEI groundfish and halibut fisheries, 1985–Nov 2005.

Year	Directed Harvest round lbs	Directed Value	Miscellaneous Finfish Permits	Total Harvest round lbs	Total value	Total Permits
1985	13,937	NA	20	24,318	NA	61
1986	30,669	$13,188	22	56,321	$21,965	50
1987	16,901	$7,436	42	52,181	$25,569	127
1988	15,108	$6,799	43	77,685	$35,735	146
1989	18,459	$7,014	42	102,053	$37,760	189
1990	11,347	$3,745	28	91,045	$39,149	192
1991	40,801	$16,728	30	147,386	$66,324	232
1992	35,914	$11,852	46	153,449	$56,776	249
1993	52,359	$19,373	58	175,694	$66,764	243
1994	73,198	$46,115	48	331,568	$192,309	247
1995	150,625	$88,868	91	426,904	$273,219	369
1996	271,250	$160,038	136	510,210	$321,432	452
1997	369,785	$218,173	156	622,581	$379,774	504
1998	531,426	$292,284	161	905,127	$534,025	597
1999	365,389	$219,233	170	654,469	$412,315	628
2000	494,703	$285,803	159	733,227	$445,289	575
2001	268,479	$140,273	128	487,407	$264,544	545
2002	150,023	$66,256	81	349,328	$191,941	479
2003	91,108	$36,972	41	306,946	$161,873	454
2004	NA	NA	NA	222,781	$149,319	450
2005	NA	NA	NA	258,031	156,795	446

Table 14.–The annual harvest objective, equal quota share, reported harvest, ex-vessel value, and effort for the directed commercial NSEI sablefish fishery, 1985–Nov 2005.

Year	Annual Harvest Objective round lbs	Equal Quota Share	Harvest (round lbs)	Ex-vessel value	No. of Permits	No. of Days
1985	2,380,952		2,951,056	$2,005,394	105	3
1986	2,380,952		3,874,269	$2,866,959	138	2
1987	2,380,952		3,861,546	$3,514,006	158	1
1988	2,380,952		4,206,509	$4,543,029	149	1
1989	2,380,952		3,767,518	$2,900,988	151	1
1990	2,380,952		3,281,393	$3,543,904	121	1
1991	2,380,952		3,955,189	$6,882,028	127	1
1992	2,380,952		4,267,781	$4,907,948	115	1
1993	2,380,952		5,795,974	$5,622,094	120	1
1994	4,761,905	38,889	4,713,552	$9,144,290	121	30
1995	4,761,905	38,889	4,542,348	$7,721,991	121	30
1996	4,761,905	38,889	4,673,701	$9,908,246	121	61
1997	4,800,000	39,300	4,753,394	$11,550,747	122	76
1998	4,800,000	41,700	4,688,008	$7,360,172	116	76
1999	3,120,000	28,000	3,043,273	$6,634,335	112	76
2000	3,120,000	28,600	3,082,159	$7,394,890	111	76
2001	2,184,000	19,600	2,142,617	$4,563,774	111	76
2002	2,005,000	18,400	2,009,380	$4,814,718	109	76
2003	2,005,000	18,565	2,001,643	$4,809,492	108	93
2004	2,245,000	20,787	2,229,956	$4,532,611	108	93
2005	2,053,000	19,400	2,026,225	$5,028,503	106	93

Table 15.–The annual harvest objective, equal quota share, reported harvest, ex-vessel value, and effort for the directed commercial SSEI sablefish fishery, 1985-Nov 2005, number of permits in 1985 represents permits fished, limited entry was implemented in 1986.

			Longline Fishery				Pot Fishery			
Year	Annual Harvest Objective	Equal Share Quota	Harvest Round lbs	Ex-vessel value	No. of permits	No. of days	Harvest Round lbs	Ex-vessel value	No. of permits	No. of days
1985	790,000		511,617	$322,319	43	7				
1986	790,000		554,121	$260,436	78	7	Confidential	Confidential	18	7
1987	790,000		435,501	$291,785	78	5	Confidential	Confidential	18	5
1988	790,000		712,787	$719,914	38	5	Confidential	Confidential	9	5
1989	790,000		952,231	$714,173	36	5	Confidential	Confidential	7	5
1990	790,000		758,663	$553,823	32	3			7	3
1991	790,000		679,623	$625,253	32	2.4	Confidential	Confidential	6	2.4
1992	790,000		936,811	$936,811	31	2.4	Confidential	Confidential	6	2.4
1993	790,000		824,011	$815,770	31	2.4			5	2.4
1994	790,000		866,788	$1,066,149	31	2.4			5	2.4
1995	790,000		678,762	$1,323,585	30	22			5	2.4
1996	790,000		502,459	$899,401	30	2			5	2
1997	790,000	23,200	608,786	$1,344,446	30	45	116,281	$256,981	5	76
1998	632,000	20,400	496,210	$696,292	29	45	81,846	$155,037	4	76
1999	720,000	24,000	565,190	$995,741	26	45	96,234	$193,703	4	76
2000	696,000	24,000	495,394	$966,355	25	76	96,287	$187,419	4	76
2001	696,000	24,000	554,490	$1,064,243	25	76	96,188	$184,679	4	76
2002	696,000	24,000	554,074	$1,074,666	25	76	96,265	$203,983	4	76
2003	696,000	24,860	557,102	$1,251,970	24	76	99,834	$216,,521	4	76
2004	696,000	24,860	552,276	$872,612	24	76	98,373	$158,986	4	76
2005	696,000	24,860	539,251	$1,127,533	24	76	100,468	$223,957	4	76

Table 16.–Pacific cod reported harvest, ex-vessel value, and effort, NSEI and SSEI groundfish and halibut fisheries, 1985–Nov 2005.

Year	Directed Harvest Round lbs	Directed Value	Directed permits	Total Harvest Round lbs	Total Value	Total Permits
1985	132,915	$31,001	42	142,405	$35,601	61
1986	318,312	$79,578	99	338,145	$84,536	123
1987	724,781	$231,930	179	781,487	$250,076	259
1988	474,359	$166,026	156	522,964	$177,808	278
1989	311,255	$124,502	102	380,070	$140,626	318
1990	218,120	$80,704	74	309,919	$102,273	338
1991	504,036	$191,534	88	589,376	$212,175	322
1992	780,265	$335,514	141	886,243	$354,497	377
1993	889,676	$382,561	133	962,434	$394,598	319
1994	346,663	$138,665	77	402,475	$148,916	220
1995	285,363	$105,584	92	339,312	$115,366	237
1996	592,090	$313,808	129	639,343	$326,065	281
1997	722,814	$310,810	138	778,413	$326,933	298
1998	585,573	$216,662	106	647,940	$233,258	301
1999	724,089	$260,672	132	823,342	$279,936	356
2000	529,267	$219,583	107	593,104	$231,311	304
2001	312,714	$109,450	78	356,790	$121,309	237
2002	211,109	$90,777	48	251,751	$100,700	193
2003	328,253	$134,584	50	386,548	$150,754	211
2004	408,995	$176,708	41	451,446	$186,483	166
2005	423,513	$204,140	26	468,265	$208,207	169

Table 17.–Flatfish reported harvest, ex-vessel value, and effort, NSEI and SSEI, 1987-1988 through 2004–2005.

Season (10/1–0/30)	Trawl Harvest Round lbs	Directed Value	Directed Permits	Total Harvest Rounds lbs	Total Value	Total Permits
1987–1988	861,349	$215,337	7	863,679	$215,920	15
1988–1989	532,918	$138,559	4	533,333	$138,667	11
1989–1990	278,671	$66,881	2	283,006	$67,921	6
1990–1991	340,633	$78,346	7	341,061	$78,444	11
1991–1992	58,854	$8,240	5	59,118	$8,277	6
1992–1993	Confidential	Confidential	2	23,259	$4,652	8
1993–1994	Confidential	Confidential	1	11,375	$2,389	3
1994–1995	Confidential	Confidential	2	22,016	$4,403	14
1995–1996	0	0	0	1,185	$273	10
1996–1997	0	0	0	5,614	$1,067	14
1997–1998	Confidential	Confidential	1	14,631	$2,634	17
1998–1999	Confidential	Confidential	1	12,968	$2,464	12
1999–2000	0	0	0	4,418	$499	11
2000–2001	0	0	0	1,392	$0	13
2001–2002	0	0	0	2,371	$237	7
2002–2003	0	0	0	1,124	$112	5
2003–2004	0	0	0	802	0	4
2004–2005	0	0	0	1,779	0	6

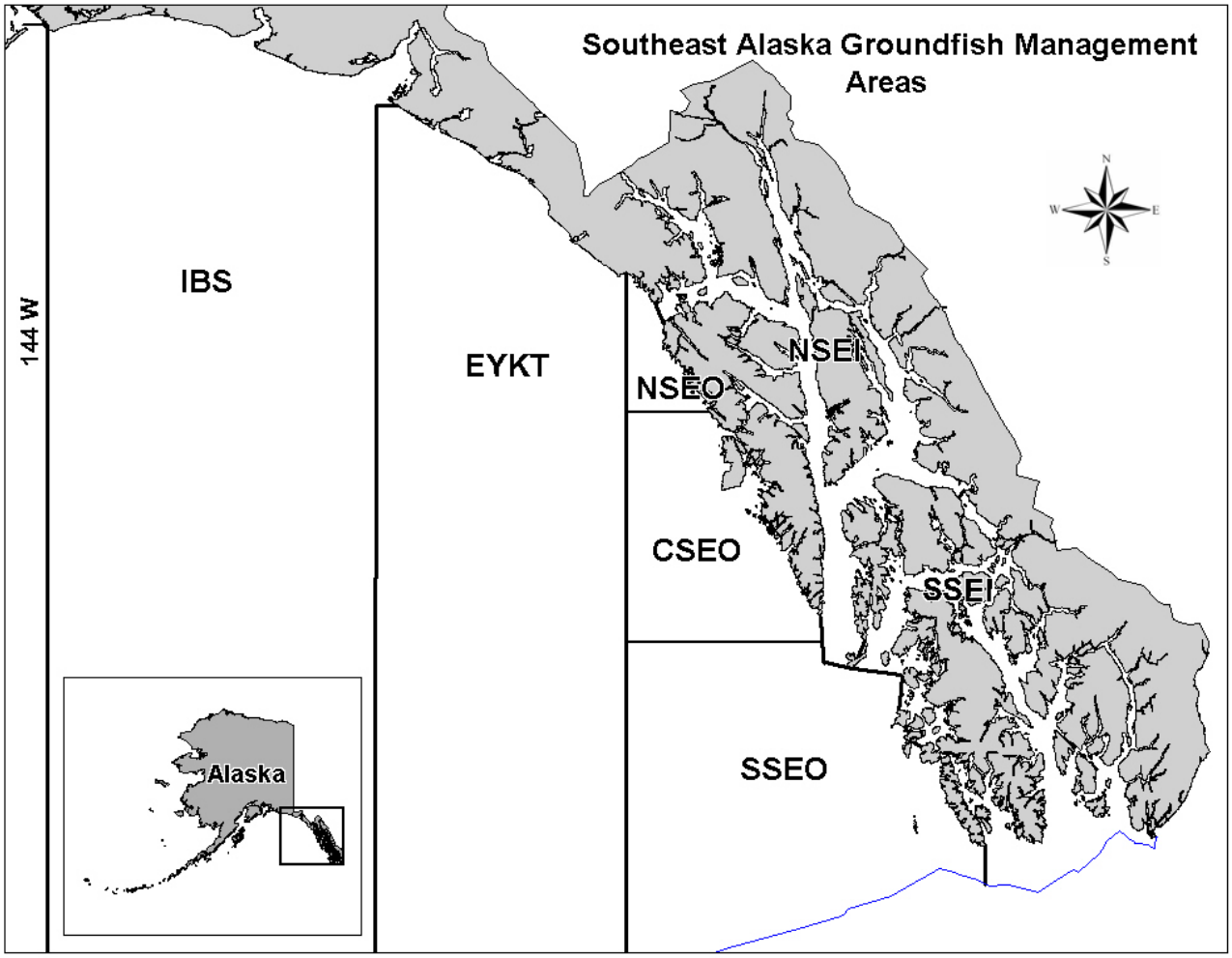


Figure 1.–Southeast region groundfish management areas.

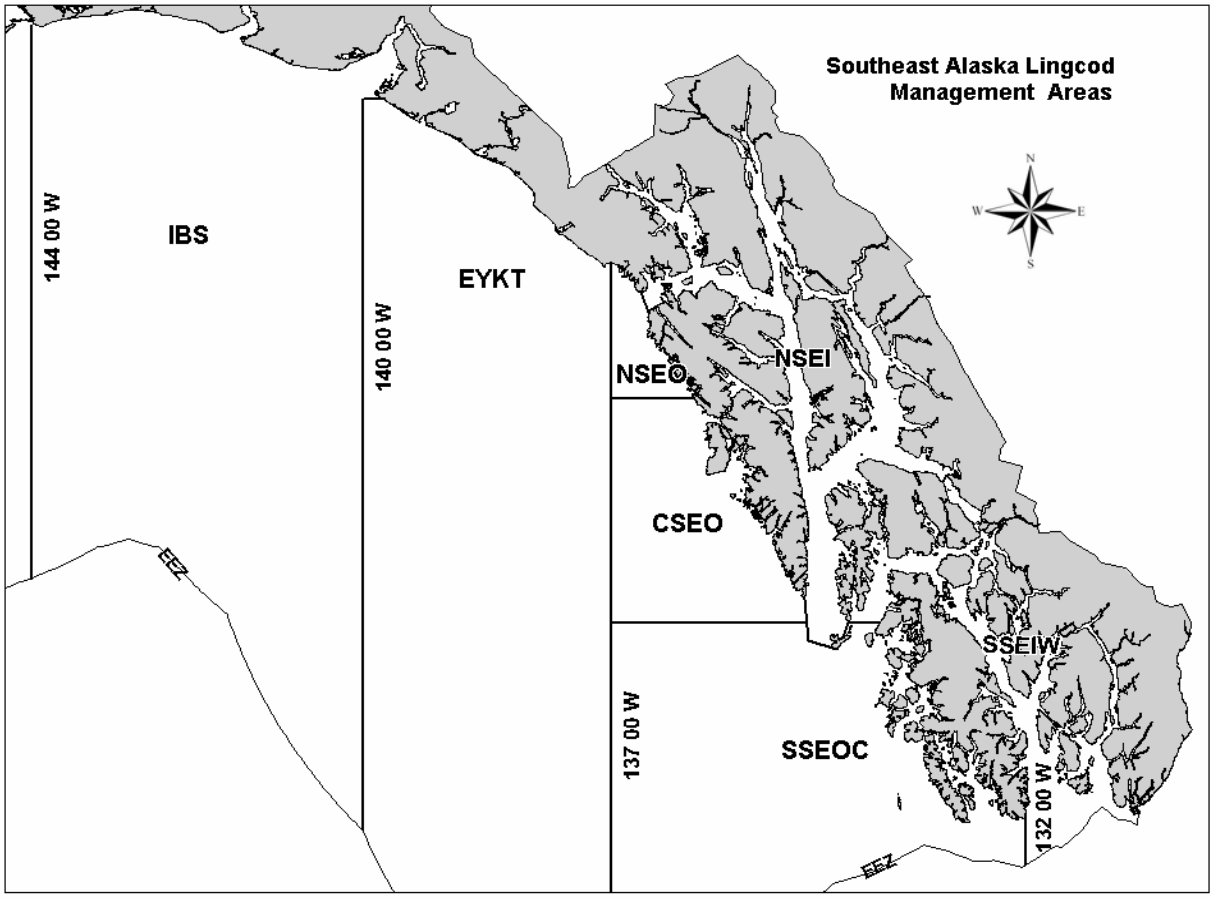


Figure 2.–Southeast Alaska lingcod management areas.

Figure 3.–Photographs of select groundfish species: lingcod (left, upper row, photo by R. Curran), yelloweye rockfish (right, upper row, photo by C. Brylinsky), sablefish (left, lower row, photo by P. Malecha NMFS), and Pacific cod (right, lower row, photo by V. O'Connell).

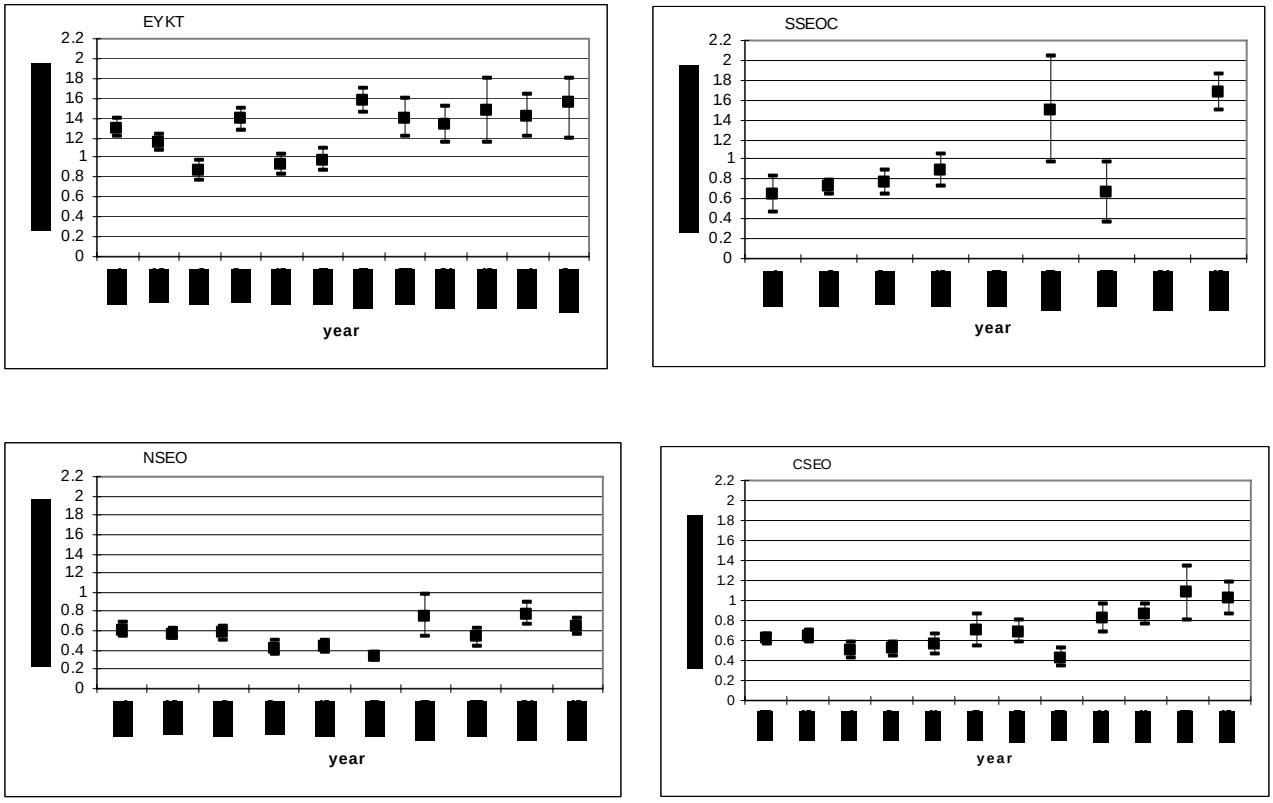
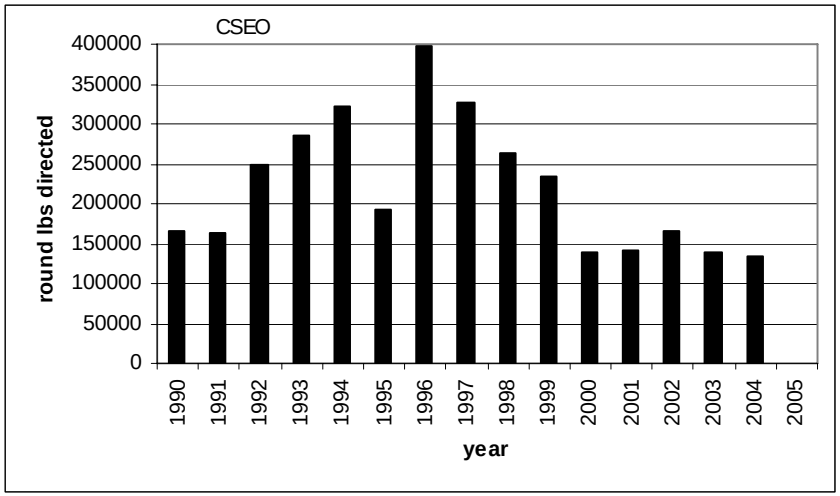
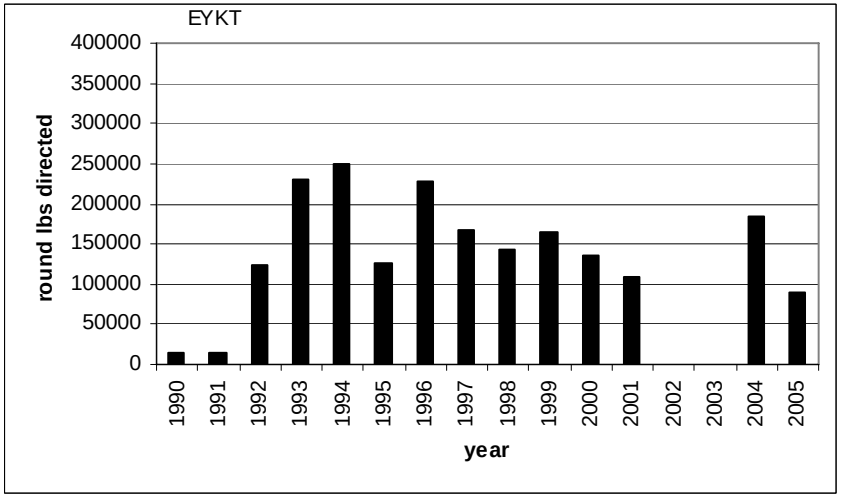
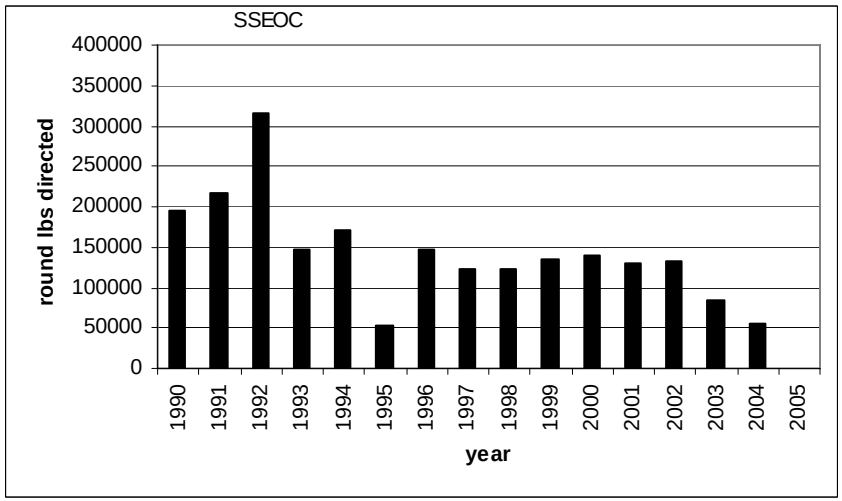


Figure 4.–Lingcod directed commercial fishery CPUE (retained lingcod/hook hours) by management area and year.







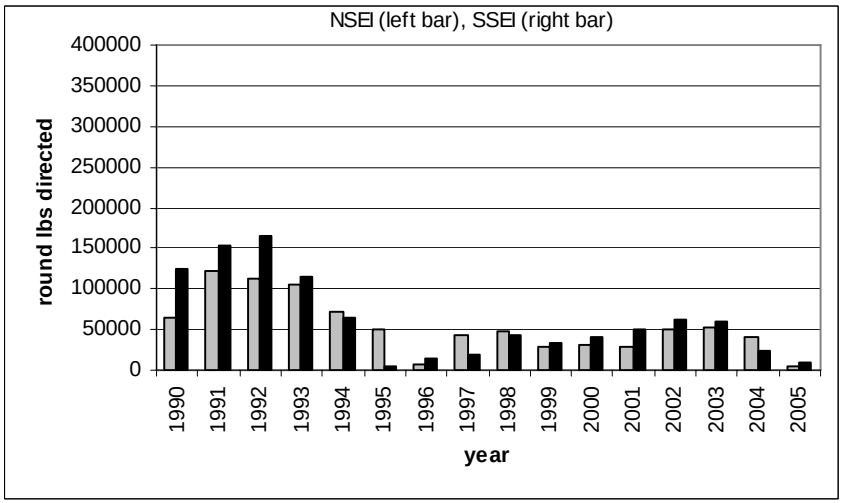


Figure 5.–Directed DSR landings, round lbs, by management area by year, 1990–Nov 2005.

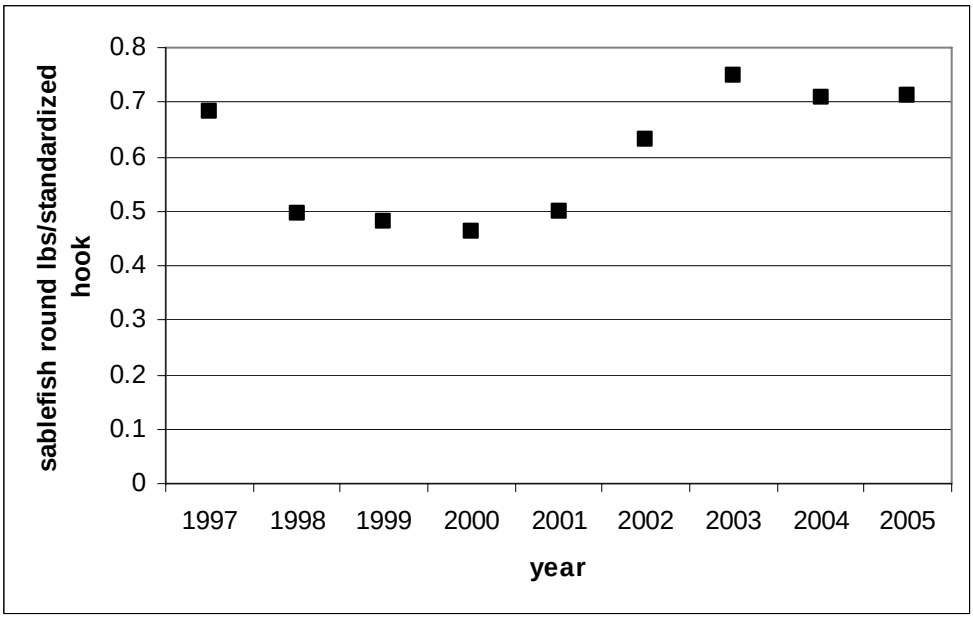


Figure 6.–Commercial sablefish fishery CPUE (sablefish round lbs/standardized hook) for NSEI, by year.

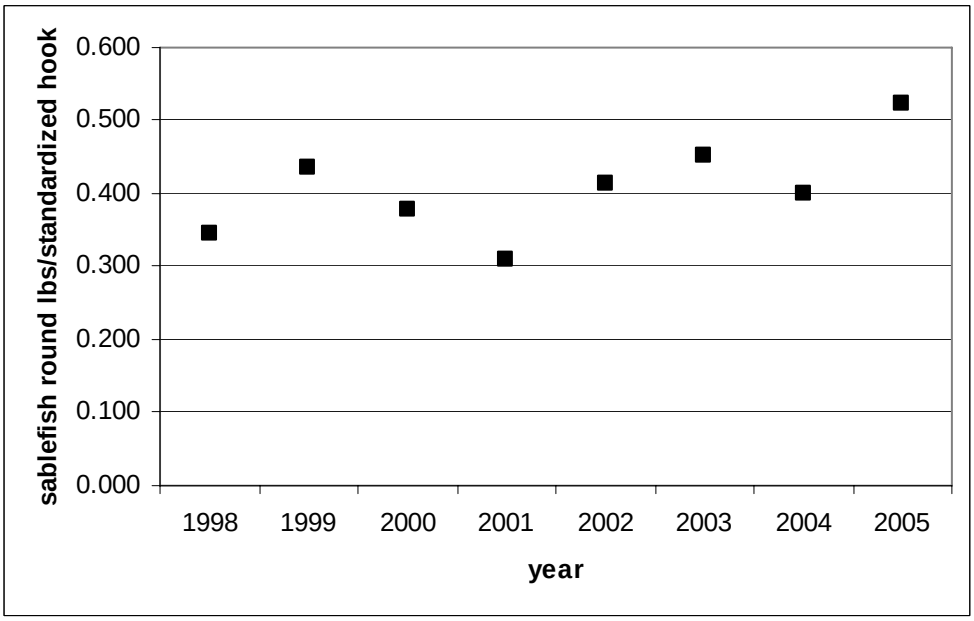


Figure 7.–Commercial sablefish fishery CPUE (sablefish round lbs/standardized hook) for SSEI, by year.