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Overview of the Sport Fisheries for Groundfish in Southeast Alaska through 2011

by

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and

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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)		General		Mathematics, statistics	
centimeter	cm	Alaska Administrative Code	AAC	<i>all standard mathematical signs, symbols and abbreviations</i>	
deciliter	dL	all commonly accepted abbreviations	e.g., Mr., Mrs., AM, PM, etc.	alternate hypothesis	H_A
gram	g	all commonly accepted professional titles	e.g., Dr., Ph.D., R.N., etc.	base of natural logarithm	e
hectare	ha	at	@	catch per unit effort	CPUE
kilogram	kg	compass directions:		coefficient of variation	CV
kilometer	km	east	E	common test statistics	(F, t, χ^2 , etc.)
liter	L	north	N	confidence interval	CI
meter	m	south	S	correlation coefficient	
milliliter	mL	west	W	(multiple)	R
millimeter	mm	copyright	©	correlation coefficient	
		corporate suffixes:		(simple)	r
Weights and measures (English)		Company	Co.	covariance	cov
cubic feet per second	ft ³ /s	Corporation	Corp.	degree (angular)	°
foot	ft	Incorporated	Inc.	degrees of freedom	df
gallon	gal	Limited	Ltd.	expected value	E
inch	in	District of Columbia	D.C.	greater than	>
mile	mi	et alii (and others)	et al.	greater than or equal to	≥
nautical mile	nmi	et cetera (and so forth)	etc.	harvest per unit effort	HPUE
ounce	oz	exempli gratia	e.g.	less than	<
pound	lb	(for example)		less than or equal to	≤
quart	qt	Federal Information Code	FIC	logarithm (natural)	ln
yard	yd	id est (that is)	i.e.	logarithm (base 10)	log
		latitude or longitude	lat. or long.	logarithm (specify base)	log ₂ , etc.
Time and temperature		monetary symbols		minute (angular)	'
day	d	(U.S.)	\$, ¢	not significant	NS
degrees Celsius	°C	months (tables s and figures): first three letters	Jan,...,Dec	null hypothesis	H_0
degrees Fahrenheit	°F	registered trademark	®	percent	%
degrees kelvin	K	trademark	™	probability	P
hour	h	United States	U.S.	probability of a type I error	
minute	min	(adjective)		(rejection of the null hypothesis when true)	α
second	s	United States of America (noun)	USA	probability of a type II error	
		U.S.C.	United States Code	(acceptance of the null hypothesis when false)	β
Physics and chemistry		U.S. state	use two-letter abbreviations (e.g., AK, WA)	second (angular)	"
all atomic symbols				standard deviation	SD
alternating current	AC			standard error	SE
ampere	A			variance	
calorie	cal			population	Var
direct current	DC			sample	var
hertz	Hz				
horsepower	hp				
hydrogen ion activity	pH				
(negative log of)					
parts per million	ppm				
parts per thousand	ppt,				
volts	V				
watts	W				

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**OVERVIEW OF THE SPORT FISHERIES FOR GROUND FISH IN
SOUTHEAST ALASKA THROUGH 2011**

by

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ABSTRACT

The primary purpose of this report is to provide an overview of the sport fisheries and associated management for rockfish (*Sebastes spp.*) and lingcod (*Ophiodon elongates*) in Southeast Alaska. Catch and harvest information relative to rockfish and lingcod are summarized for these fisheries, and a history of management actions involving these fisheries is provided. In addition, fishery management issues, in particular regarding current proposals to the Board of Fisheries affecting these fisheries, are discussed.

Key words: rockfish, lingcod, sport fishery, Alaska Board of Fisheries, Southeast Alaska.

INTRODUCTION

The Alaska Department of Fish and Game (department) has jurisdiction over all groundfish fisheries within the internal waters of the state, in coastal waters out to 3 miles offshore, and throughout the Exclusive Economic Zone (EEZ). The Alaska Board of Fisheries (board) 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 already specified under a federal fishery management plan or other applicable federal regulations. In Southeast Alaska, rockfish (*Sebastes spp.*, especially yelloweye rockfish, *Sebastes ruberrimus*) and lingcod (*Ophiodon elongates*) are the primary groundfish species (other than Pacific halibut, *Hippoglossus stenolepis*) harvested by sport fisheries.

This report, prepared by the department, updates a similar report prepared for the board's February 2009 meeting in Sitka (McCurdy et al. 2009). The objective of this report is to provide an overview of the sport fishery for rockfish and lingcod in Southeast Alaska. Specifically, this report will detail:

1. fishery monitoring and briefings on the biology and functional groupings of rockfish;
2. the history of sport fisheries regulations for rockfish and lingcod and implementation of the various regulations;
3. rockfish harvests broken down by area, residency of angler, and type of angler (guided or unguided); and
4. a discussion of the management issues to be decided by the Board of Fisheries.

FISHERIES MONITORING TOOLS

The department monitors sport fisheries harvest of rockfish and lingcod via three primary sampling programs: the Statewide Harvest Survey (SWHS), sport charter vessel logbooks, and onsite creel surveys. Each program's sampling methods has its uses and limitations.

Statewide Harvest Survey

The SWHS is an annual postal survey sent to a random sample of sport fishing license holders (Jennings 2011). It provides estimates of harvest for rockfish and lingcod for the primary sport fishery management areas (Figure 1). The benefits of the SWHS are that it provides a consistent annual estimate of all sport harvest that can be further divided into harvests by resident and nonresident anglers, as well as charter and non-charter anglers. However, the SWHS is conducted after the fishing season has ended resulting in estimates not being available until the following year. Furthermore, harvest estimates for fish species where there are many varieties such as rockfish cannot be subdivided into those smaller groupings or split out by species (e.g.

pelagic vs. non-pelagic rockfish). Evaluation of the SWHS compared to other dockside sampling reveals that it also cannot provide accurate estimates of released fish or biological characteristics of the catch (e.g. species composition).

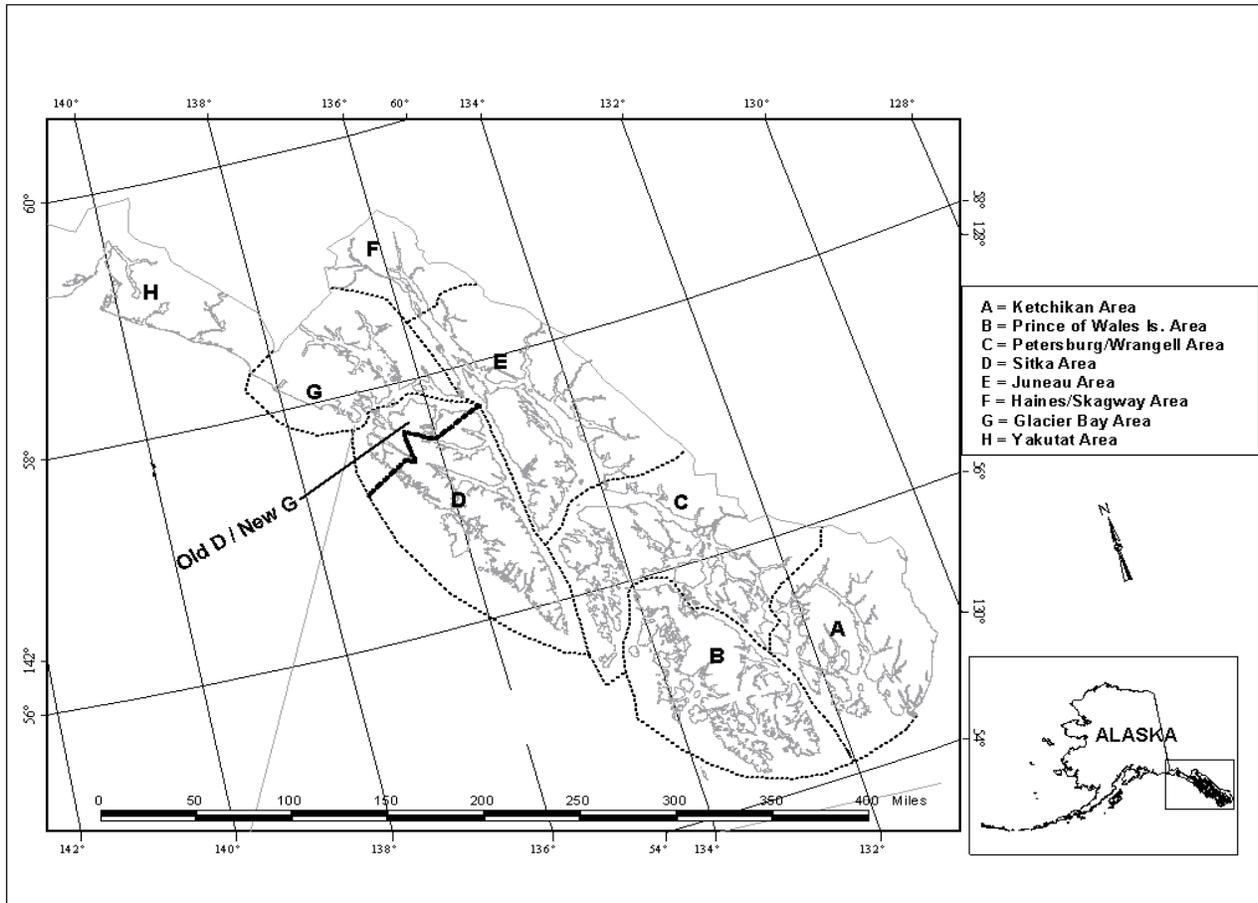


Figure 1.–Map of Southeast Alaska showing boundaries of the Statewide Harvest Survey.

Charter Vessel Logbooks

Charter vessel logbooks (logbooks) have been required in Southeast Alaska since 1998 (Sigurdsson and Powers 2011). All charter operators who take clients fishing are required to report harvest and fishing effort in a logbook that must be filled out on a trip-by-trip basis. In 2011, daily logbook pages for the week (ending on Sunday) were required to be returned (or postmarked) within 8 days. Operators were required to provide the number of anglers fishing and their residency, license number or permanent license number, as well as the number of lingcod, sablefish, pelagic rockfish, yelloweye rockfish and other non-pelagic rockfish harvested, and the number released.

Onsite Creel Surveys

Onsite creel surveys are conducted on the recreational fisheries occurring in Southeast Alaska during the summer months and are designed to collect data that provides information on the effort, catch, and harvest of the sport fishery as well as describe the biological characteristics of the harvest such as species, age, size, and sex composition (Wendt and Jaenicke 2011). Onsite creel surveys occur in the major fishing ports in Southeast Alaska (including Ketchikan, Craig,

Petersburg, Wrangell, Sitka, Elfin Cove, Gustavus, Juneau, Haines, and Yakutat). Sport anglers are surveyed at the completion of their fishing trip by department creel technicians. Since inception, the primary focus of the onsite creel survey program has been to collect data on the sport salmon harvest of the region; however catch and harvest information on rockfish and lingcod are also obtained at the same time. Biological data collected on rockfish and lingcod is limited to species composition of harvested fish; length and weight; and sex (limited to lingcod).

A combination of the three fishery monitoring methods for the sport fishery is often used to generate different types of fisheries metrics such as harvest, biomass and total mortality. For rockfish, the department estimates the annual biomass of demersal shelf rockfish (DSR) removed by the sport fishery by summing the estimated biomass of both the harvest as well as fish caught and released (catch) by area. Harvested biomass of DSR is estimated by multiplying the total number of all rockfish harvested by the percentage of DSR species observed in harvest (by area) and their average weight (by respective area) where harvest is estimated from the SWHS (and species composition and weight are both estimated from creel survey programs. Similarly, released DSR biomass is estimated by the same method but uses catch estimates from the SWHS which includes released fish which may be overestimating total mortality since the fish being released are likely smaller than ones kept as harvest. The biomass of the lingcod harvested is estimated by multiplying the number of lingcod harvested in each lingcod management area (estimated from the SWHS) by their average weight for each lingcod management area which is estimated from onsite creel survey programs by area.

ROCKFISH

Rockfish are found in marine waters throughout Southeast Alaska and are slow- growing and long-lived with age observations being as old as 120 years (O'Connell et al. 2006). They are believed to be very susceptible to overharvest with slow population recovery once overharvest occurs. Rockfish have closed gas filled swim bladders that expand when brought to the surface from deep water. Expanded gases reabsorb into their tissue at a relatively slow rate, so swimming back to depth is difficult, often leaving them floating on the surface or leaving them with significant tissue damage. Mortality occurs from injuries sustained due to the rapid pressure change, and from post release predation since they are more vulnerable. As a result, the department considers the mortality rate to be 100% for all released demersal shelf rockfish (DSR) when calculating the total biomass removal of DSR by the sport fishery.

Rockfish are grouped into 3 assemblages for commercial management purposes in the eastern Gulf: Pelagic Shelf Rockfish, Demersal Shelf Rockfish (DSR), and Slope Rockfish. Pelagic shelf rockfish include dark (*S. ciliatus*), dusky (*S. variabilis*), widow (*S. entomelas*), yellowtail (*S. flavidus*), black (*S. melanops*), and blue (*S. mystinus*) rockfish. The DSR component contains yelloweye rockfish and 6 other species: canary (*S. pinniger*), China (*S. nebulosus*), copper (*S. caurinus*), quillback (*S. maliger*), rosethorn (*S. helvomaculatus*), and tiger (*S. nigrocinctus*) rockfish. Based on evaluation on anglers bag during dockside sampling, yelloweye rockfish generally account for up 65% to 79% of the annual sport biomass removals of DSR. Slope rockfish are defined as any species of the genus *Sebastes* not specified as being in either of the other two assemblages.

DSR are managed by area (Figure 2). The East Yakutat section (EYKT), Northern Southeast Outside section (NSEO), Central Southeast Outside section (CSEO) and Southern Southeast Outside Coast section (SSEO) areas make up the Southeast Outside Subdistrict (SEO, Figure 2).

For the SEO, a total allowable catch level (TAC) is set annually as part of the North Pacific Fisheries Management Council (NPFMC) stock assessment process (O'Connell et al. 2006). After the subsistence harvest of DSR has been subtracted from the TAC, the board has allocated this TAC for DSR between sport and commercial fisheries.

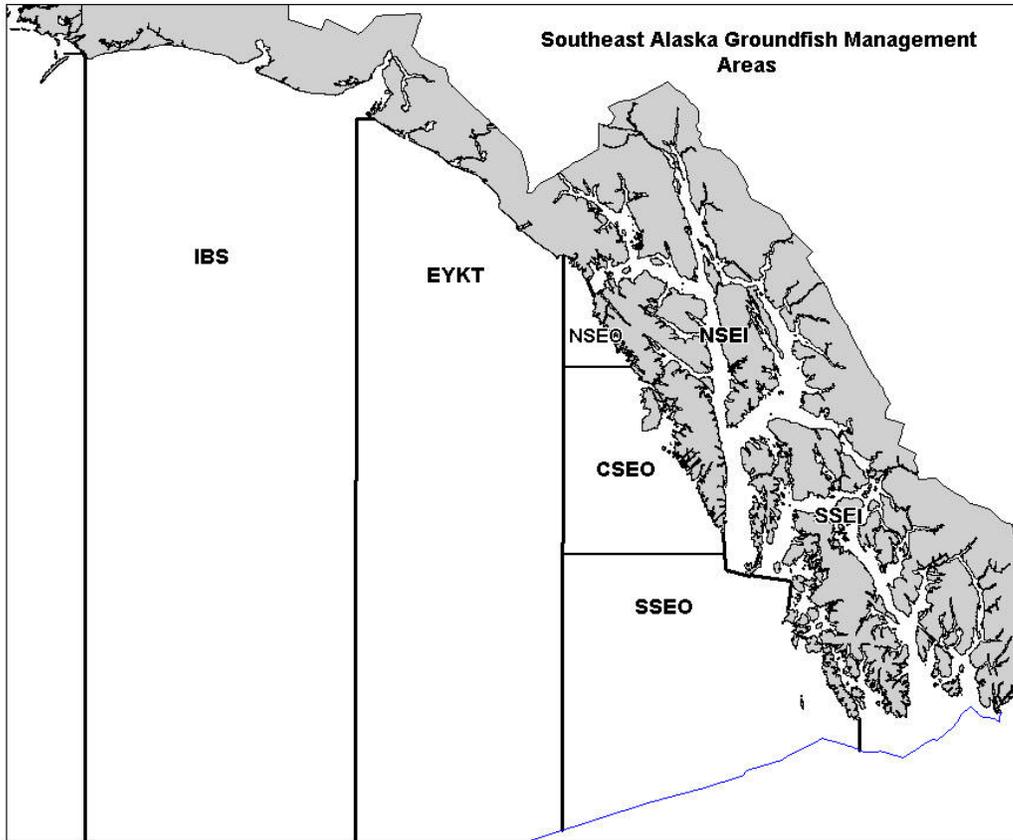


Figure 2.—Map of Southeast Alaska groundfish management areas (the Southeast Outside Subdistrict consist of management areas EYKT = East Yakutat, NSEO = Northern Southeast Outside, CSEO = Central Southeast Outside, and SSEO = Southern Southeast Outside).

Assemblages of rockfish species are defined slightly different for management of sport fisheries. The assemblage of “pelagic rockfish” contains the same species as those defined in Pelagic Shelf Rockfish for commercial management purposes listed above. “Non-pelagic” rockfish” are defined as all rockfish species in the genus *Sebastes spp.* that are not defined as pelagic rockfish. The assemblage or grouping of non-pelagic rockfish contains more species than the grouping of DSR; however, the contributions from each grouping to the overall estimate of biomass harvested for the sport fishery is basically the same. The department modifies sport fishing regulations using management measures defined by the board for non-pelagic rockfish to not exceed the sport fishery allocation for DSR established by the board and does so using Emergency Order (EO) authorities.

REGULATION HISTORY IN THE SPORT FISHERY

Sport fishing regulations for rockfish in Southeast Alaska south of Cape Fairweather were first established in 1989 and consisted of harvest limits of 5 rockfish per day and 10 in possession, of which only 2 per day and 4 in possession could be yelloweye rockfish (Table 1). Prior to 1989,

there were no bag or possession limits established for rockfish in Southeast Alaska. Exceptions to the regionwide limits were enacted in 1989 for the Ketchikan and Sitka areas, where the bag and possession limits were set at 3 rockfish, of which only 1 could be a yelloweye rockfish.

Table 1.—Summary of sport fish regulations for rockfish in Southeast Alaska, 1989–2011.

Year	Bag, possession and annual limits	
1989–1993	All rockfish: daily bag limit of five, of which only two may be a yelloweye rockfish, possession limit of 10, of which only four may be a yelloweye rockfish.	
1994–2005	Pelagic rockfish: daily bag limit of five fish per day, 10 fish in possession; Non-pelagic rockfish: daily bag limit of five fish of which only two may be a yelloweye rockfish, possession limit of 10 fish of which only four may be a yelloweye rockfish.	
2006 ^a	Pelagic rockfish: daily bag limit of five fish per day, 10 fish in possession; Non-pelagic rockfish: daily bag limit of three fish of which only one may be a yelloweye rockfish, possession limit of six fish of which only two may be a yelloweye rockfish.	
2007–2010 ^a	Pelagic rockfish: daily bag limit of five fish per day, 10 fish in possession; Non-pelagic rockfish:	Nonresident bag limit of two fish only one of which can be a yelloweye rockfish, possession limit of four which only two may be a yelloweye rockfish; annual limit of two yelloweye rockfish.
2011 ^a	Resident Southeast Outside waters: bag limit of two fish only one of which may be a yelloweye rockfish; possession limit of four fish of which only two may be a yelloweye rockfish. Southeast Inside waters: bag limit is three fish only one of which may be a yelloweye rockfish; possession limit of six fish of which only two may be a yelloweye rockfish.	Nonresident Southeast Outside waters: bag limit of two fish only one of which can be a yelloweye rockfish, possession limit of four fish of which only one may be a yelloweye rockfish; annual limit of one yelloweye rockfish. Southeast Inside waters: bag limit is two fish only one of which can be a yelloweye rockfish, possession limit of four fish of which only two may be a yelloweye rockfish; annual limit of two yelloweye rockfish.

Note: Pelagic rockfish bag and possession limits are in regulation. Non-pelagic bag and possession limits from 1994 to 2005 were by regulation. Since 2006 non-pelagic regulations have been implemented by emergency order.

^a 2006–2011-all non-pelagic rockfish caught must be retained until the bag limit is reached and charter operators and crew members may not retain nonpelagic rockfish while clients are on board the vessel.

In 1994, the Southeast Alaska regionwide regulations for rockfish were modified by the board to provide specific bag limits for “pelagic” species and for “non-pelagic” species including yelloweye rockfish. Harvest limits for pelagic species were set at 5 per day and 10 in possession, and the limits for other species were also 5 per day and 10 in possession, of which only 2 per day and 4 in possession could be yelloweye rockfish. These Southeast Alaska regionwide regulations were also extended to include the Yakutat area. The specific exceptions for the Ketchikan and Sitka areas were maintained and have remained in place since they were adopted in 1989. However, since 2006 these regulations have been superseded by EO that implemented more restrictive regulations prior to commencement of the fishing season.

In 2006, the board allocated 16% of the TAC of DSR in the Southeast Outside District (CSEO, SSEO, NSEO, and EYKT) to the sport fishery. DSR are a subset of the “non-pelagic” rockfish assemblage and account for over 95% of the sport fish harvest of non-pelagic rockfish. The board outlined a series of management measures that the Commissioner may implement by EO to modify existing sport fish regulations to keep the sport fishery within its allocation (5 AAC 47.065). These measures include:

1. reduced bag and possession limits for nonresident anglers;
2. retention of all DSR caught by a nonresident angler is required until the nonresident bag limit is reached;
3. charter operators and crewmembers may not retain DSR while clients are on board the vessel;
4. annual limits for DSR for nonresident anglers;
5. reduce the bag and possession limits for resident anglers;
6. retention of all DSR caught by a resident angler is required until the resident angler’s bag limit is reached;
7. annual limits for DSR for resident anglers; and
8. time and area closures.

The department has used management measures 1–6 outlined by the board annually since 2006 (Table 1) to modify the sport fishing regulations for non-pelagic rockfish, and has done so to ensure the sport fish harvest was within the sport allocation of DSR.

Estimates of rockfish harvest have been obtained via the SWHS since 1977 (Table 2). Total harvest of all rockfish (pelagic and non-pelagic combined) increased steadily from 1977 until they peaked at 57,000 in 1988. With the implementation of bag limits for rockfish in 1989, harvest declined and remained relatively constant at about 30,000 to 40,000 fish until 1999. In 1999 there was an increase in rockfish harvest followed by 4 years of declining harvest, and an increase occurring again in 2004 to a peak harvest of 119,000 rockfish in 2008 (Figure 3). In 2009 the rockfish harvest declined to 94,000 fish then increased to 106,000 fish in 2010.

Since 1996, the SWHS has provided estimates of harvest that further partitions the harvest into that taken by resident and nonresident anglers. Since that time, the proportion of the sport fishery harvest taken by nonresidents has varied between 63% and 86%, with a large increase in the proportion harvested by nonresidents starting in 2004 (Figure 3). In the last 5 years, nonresidents have taken an average of 82% of the total rockfish sport harvest in Southeast Alaska.

The charter logbook program provides more detailed information on harvest as well as catch-and-release estimates of pelagic and non-pelagic rockfish taken in the charter fishery. Rockfish harvest reported on logbooks has increased from 31,000 in 1999 to a peak of 108,000 in 2008, followed by lower harvest levels in 2009 and 2010 of 71,000 and 95,000, respectively (Figure 4). Prior to 2006, the “non-pelagic” component of the charter harvest was slightly larger than the harvest of pelagic rockfish. Since then, the harvest of pelagic rockfish has nearly doubled while the harvest of non-pelagic rockfish has remained constant with the exception of the lower harvest observed in 2008.

Since 2006, guided anglers fishing from charter vessels (as estimated from logbooks) harvested an average of 86% of all rockfish taken in Southeast Alaska, ranging from 77% in 2006 to 91% in 2008. The majority of charter clients are nonresidents and the proportion of the harvest reported in logbooks is similar to the nonresident harvest figures obtained from the SWHS (Figure 3).

Table 2.—Statewide Harvest Survey (SWHS) estimates of the number of rockfish harvested in Southeast Alaska, 1997–2010. PWI = Prince of Wales Island.

Year	Ketchikan	PWI	Petersburg	Sitka	Juneau	Haines/Skagway	Glacier Bay	Yakutat	Total
1977	834	571	762	3,635	2,996	130	34	0	8,962
1978	6,898	2,504	2,106	2,784	2,169	362	63	0	16,886
1979	8,491	1,882	1,881	8,372	9,627	364	182	182	30,981
1980	18,415	4,968	2,841	8,481	6,724	319	43	0	41,791
1981	20,581	4,544	1,937	11,837	5,649	820	259	44	45,671
1982	21,023	8,027	1,581	13,027	6,141	1,583	168	52	51,602
1983	18,824	12,040	1,008	9,855	7,859	168	409	105	50,268
1984	16,295	5,197	2,265	6,375	5,978	558	85	146	36,899
1985	16,632	4,168	2,663	5,085	4,704	315	472	0	34,039
1986	17,861	9,841	2,106	5,997	4,847	794	78	44	41,568
1987	18,231	9,984	2,525	5,944	4,709	289	307	272	42,261
1988	26,378	8,692	480	9,319	10,224	854	801	91	56,839
1989	17,159	8,955	1,726	6,196	4,638	465	357	8	39,504
1990	9,043	9,062	1,150	3,948	1,881	488	306	81	25,959
1991	8,504	7,200	1,222	4,879	3,408	415	936	264	26,828
1992	9,927	7,968	1,838	6,852	3,532	181	501	414	31,213
1993	6,764	9,589	2,070	6,622	5,717	569	448	251	32,030
1994	11,741	12,122	2,298	13,446	3,271	157	881	490	44,406
1995	7,984	11,915	1,870	7,968	3,438	233	355	584	34,347
1996	7,092	9,446	1,085	10,728	3,008	329	599	599	32,886
1997	8,156	10,804	1,760	12,078	4,735	323	836	1,396	40,088
1998	5,133	11,759	2,678	16,281	5,570	214	1,283	1,224	44,142
1999	10,538	23,667	3,778	22,306	8,379	233	1,816	772	71,489
2000	12,318	17,152	4,103	18,439	9,685	117	6,477	858	69,149
2001	8,540	17,161	2,461	16,444	8,857	138	3,309	668	57,578
2002	7,077	15,189	2,531	15,856	5,768	19	2,572	737	49,749
2003	7,321	15,518	1,940	16,212	8,649	44	4,095	1,615	55,394
2004	13,805	27,027	3,712	30,239	6,753	566	4,148	1,413	87,663
2005	13,136	23,617	3,598	31,984	8,412	277	6,595	2,371	89,990
2006	13,473	23,425	2,437	34,160	3,913	291	4,986	2,800	85,485
2007	15,522	25,371	4,190	38,264	5,323	90	3,765	2,013	94,538
2008	14,763	30,891	5,329	53,414	6,344	28	5,592	2,636	118,997
2009	16,742	23,767	4,623	30,601	9,683	140	5,823	2,372	93,751
2010	12,552	25,254	3,111	44,381	10,005	14	6,525	3,723	105,565

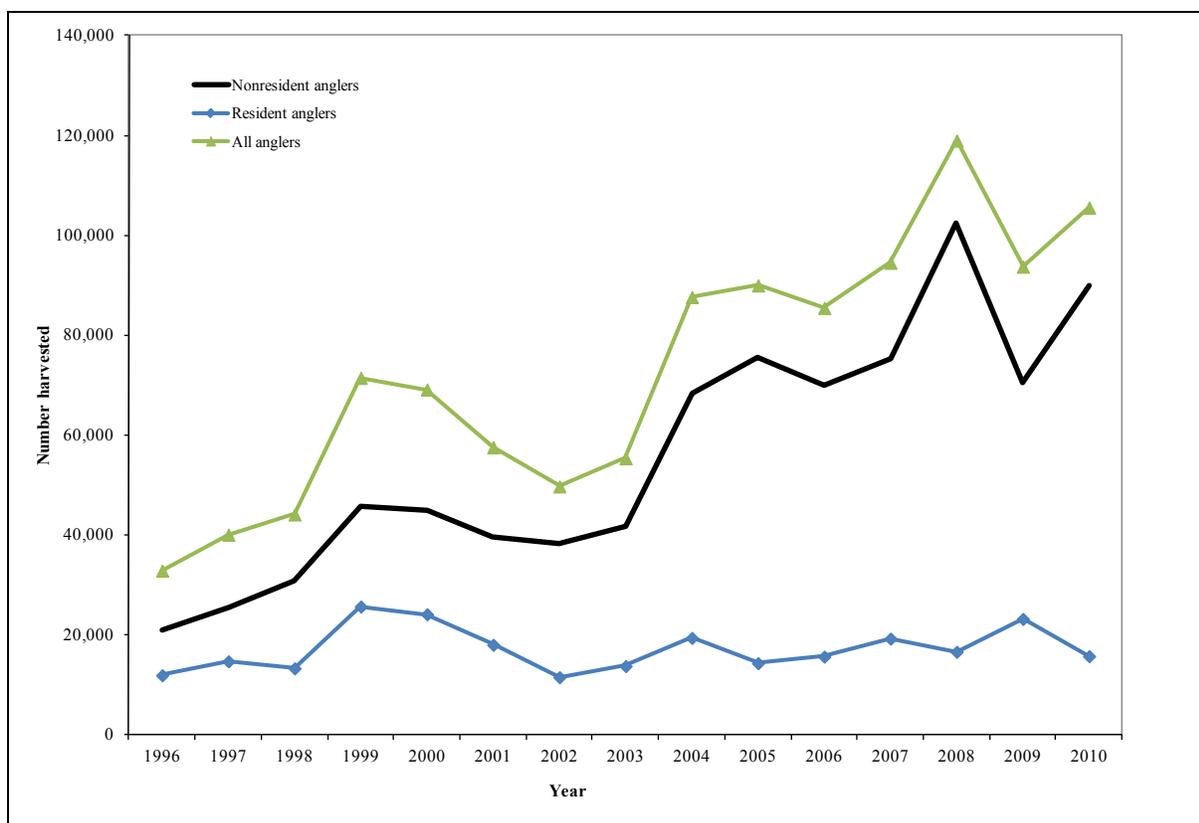


Figure 3.—Estimated harvest of rockfish in sport fisheries of Southeast Alaska as estimated from the Statewide Harvest Survey by angler residency for years 1996–2010.

Prior to 2006, “non-pelagic” rockfish were retained at a higher rate (75%) by charter clients than pelagic rockfish (50%; Figure 4). The relatively large size of some non-pelagic rockfish (particularly yelloweye) may have made them more desirable thus retained by anglers. The retention rate for non-pelagic rockfish has risen to an average of about 89% since 2006 based on charter vessel logbooks. Yelloweye rockfish accounted for about half of all non-pelagic rockfish harvested by charter clients from 2006 to 2009 (average = 51%, range 47% to 56%). In 2010 yelloweye rockfish comprised 41% of the non-pelagic rockfish harvested by charter clients. The release rate of yelloweye rockfish from 2006 to 2009 by charter clients has remained relatively constant at 8% (average = 8%, range 7% to 10%) indicating that they are a highly desired species by sport anglers.

The majority of rockfish harvest in Southeast Alaska, as well as the majority of the recent increase in rockfish harvest, has primarily come from three sport fish harvest areas on the outer coast: Prince of Wales Island (Area B), Sitka (Area D) and Glacier Bay (Area G). These three areas accounted for 70% of the average regional rockfish harvest for the last five years (Figure 5). These areas correspond roughly to the three commercial fisheries management areas: Southern Southeast Outside Section (SSEO), Central Southeast Outside Section (CSEO), and Northern Southeast Outside Section (NSEO), respectively.

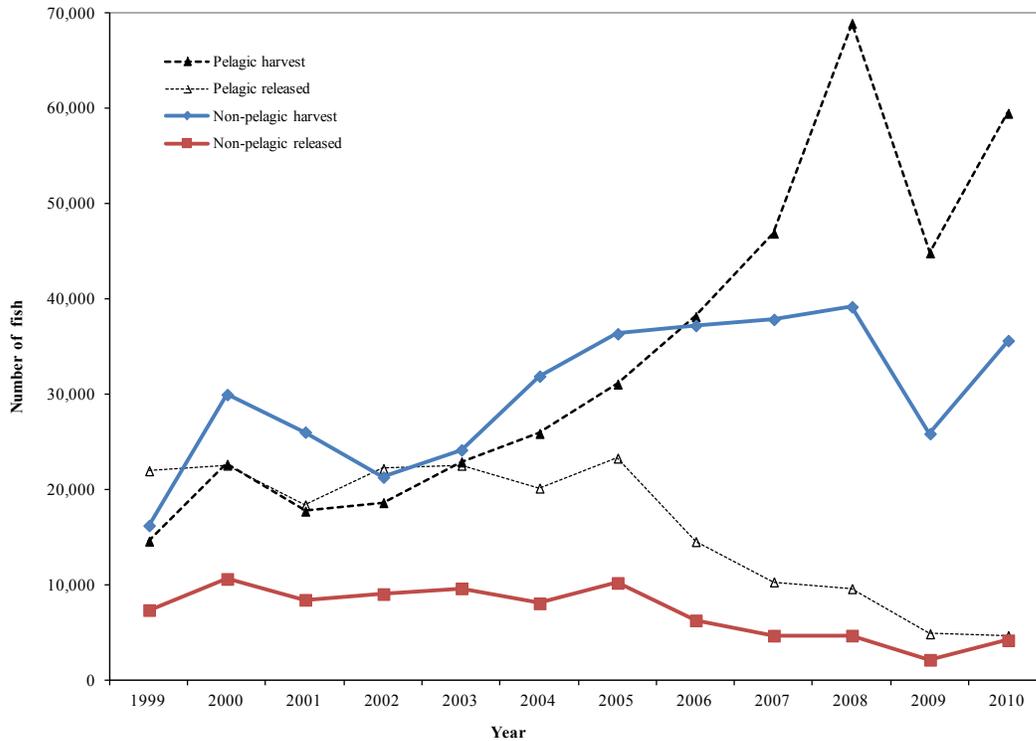


Figure 4.—Number of harvested and released pelagic and non-pelagic rockfish as reported on charter vessel logbooks in Southeast Alaska during 1999–2010.

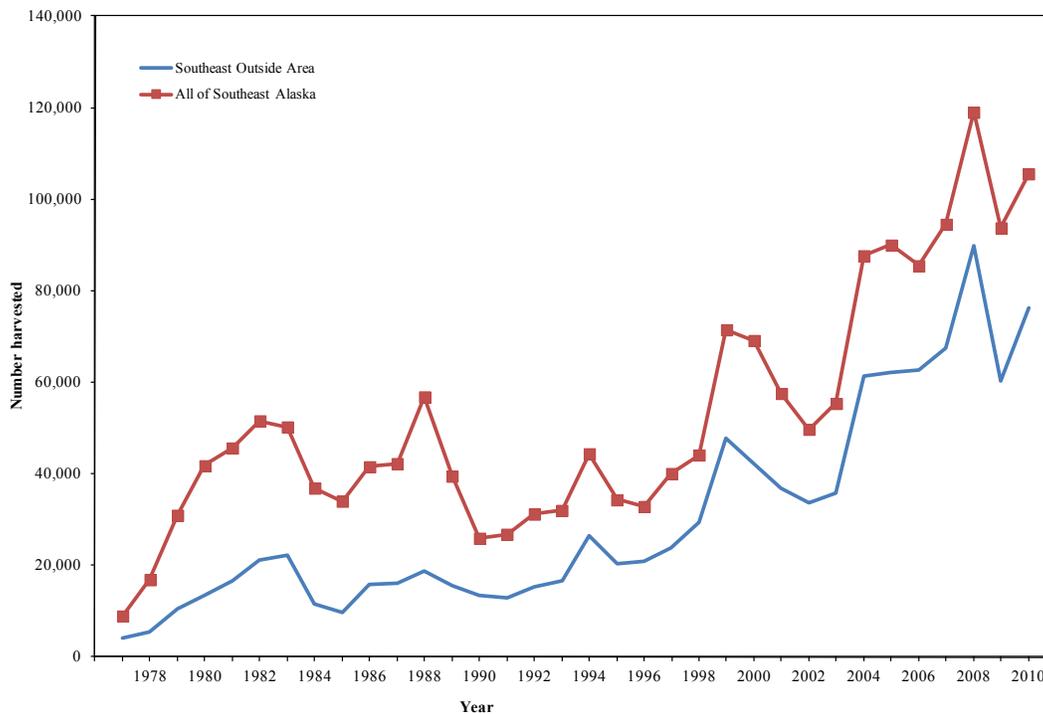


Figure 5.—Statewide Harvest Survey (SWHS) estimates of total rockfish harvest in sport fisheries in Southeast Alaska during 1977–2010, and includes harvests from the three Statewide Harvest Survey outside areas of Prince of Wales Island (G), Sitka (D), and Glacier Bay (B) (these areas combined are basically equivalent to the Southeast Outside (SEO) subdistrict).

FISHERY MANAGEMENT ISSUES

The department annually manages fishing mortality of DSR in the SEO Subdistrict, described in 5 AAC 28.105(a)(4), to stay within the TAC which as mentioned earlier is set by the NMFS. The department uses fishery data, mortality estimates, growth parameters, age composition, and abundance survey information to determine a sustainable harvest level. The TAC has varied between 295 and 960 metric tons (mt) between 1988 and 2008 (Table 3).

DSR are harvested in the directed commercial fishery, the sport fishery, the subsistence fishery, and as bycatch and unreported mortality in the commercial groundfish and halibut fisheries (Figure 6). In most years the majority of the TAC is taken as bycatch and unreported mortality in the halibut and groundfish fisheries and has averaged 62% since 2001. The recent year average (2005–2010) has been 49%. The department estimates DSR mortality in the sport fishery by using a combination of SWHS estimates of harvest, creel and logbook estimates of catch and release, and onsite creel survey sampling for species composition. The biomass of DSR removed in the sport fishery averaged 85 mt from 2001–2005 but has declined to an average of 58 mt during the period 2006 through 2010 (Table 3).

Table 3.—Total allowable catch (TAC) and mortality by fishery of demersal shelf rockfish in the Southeast Outside Subdistrict (SEO), 1982–2011.

Year	TAC (mt) ^a	Directed fishery	Halibut fishery ^b	Halibut discard mortality ^c	Sport mortality ^d	Subsistence	Total SEO mortality	Sport percent of TAC
1982	-nd	106	14	-nd	28	-nd	148	-nd
1983	-nd	161	15	-nd	29	-nd	205	-nd
1984	-nd	543	20	-nd	15	-nd	578	-nd
1985	-nd	395	100	-nd	13	-nd	512	-nd
1986	-nd	451	43	-nd	20	-nd	514	-nd
1987	-nd	803	52	-nd	18	-nd	873	-nd
1988	660	515	37	-nd	21	-nd	573	3.2%
1989	420	356	119	-nd	15	-nd	490	3.6%
1990	470	207	136	-nd	17	-nd	360	3.6%
1991	425	386	119	-nd	18	-nd	523	4.2%
1992	550	364	189	-nd	16	-nd	569	2.9%
1993	800	345	272	-nd	20	-nd	637	2.5%
1994	960	283	154	175	34	-nd	646	3.5%
1995	580	177	112	108	25	-nd	422	4.3%
1996	945	345	85	179	28	-nd	637	3.0%
1997	945	267	87	217	38	-nd	609	4.0%
1998	560	241	117	190	47	-nd	595	8.4%
1999	560	235	112	174	73	-nd	594	13.0%
2000	340	183	94	148	80	-nd	505	23.5%
2001	330	172	147	122	71	-nd	512	21.5%
2002	350	136	153	140	87	-nd	516	24.9%
2003	360	102	174	107	74	-nd	457	20.6%
2004	450	173	155	179	104	23	611	23.1%
2005	410	42	195	162	90	16	489	22.0%
2006	410	0	205	21	77	24	303	18.8%
2007	410	0	198	20	60	21	278	14.6%
2008	382	42	148	15	68	8	275	17.8%
2009	362	76	141	14	36	7	274	9.9%
2010	295	30	136	14	51	6	237	17.3%
2011	300	22	86	9	39 ^e	- ^f	157	13.0%

^a There was no TAC prior to 1988.

^b Halibut fishery “landings” for 2006–2008 also include landings from all other non demersal shelf rockfish directed groundfish and test fisheries.

^c Estimated based on National Marine Fisheries Service test fishing.

^d Estimated using Statewide Harvest Survey harvest estimates, creel species composition sampling, and catch estimates from creel sampling and logbooks.

^e Preliminary estimate.

^f Data unavailable at time of publication.

The department implemented a series of fishery regulations by EO from 2006 through 2011 in an attempt to reduce mortality levels in the sport fishery (Table 1). Those regulations included uses of the following measures: bag limit reductions, annual limits for nonresidents, non retention by charter operators and crew, and requirements that all fish be retained until bag limits are reached. These regulations proved to be effective in reducing the total mortality in the sport fishery downwards from the higher levels seen in 2004 and 2005 (Table 3), however the sport fishery allocation of DSR in the SEO was exceeded in 3 out of the 6 years (Figure 7). In 2006, total mortality in the sport fishery was estimated at 77 mt exceeding the sport fishery allocation of 66 mt by 17%. In 2007, total mortality in the sport fishery was an estimated 60 mt, 9% below the allocation of 66 mt. In 2008 the estimated total mortality in the sport fishery was 68 mt, or 11% above the sport fishery allocation of 61 mt. In 2009, total mortality in the sport fishery was estimated at 36 mt, 39% below the allocation of 58 mt. In 2010, total mortality in the sport fishery was estimated at 51 mt, 12% above the allocation of 46 mt. In 2011 the total mortality in the sport fishery (preliminary estimate) was 39 mt, or 17% below the sport fishery allocation of 47 mt.

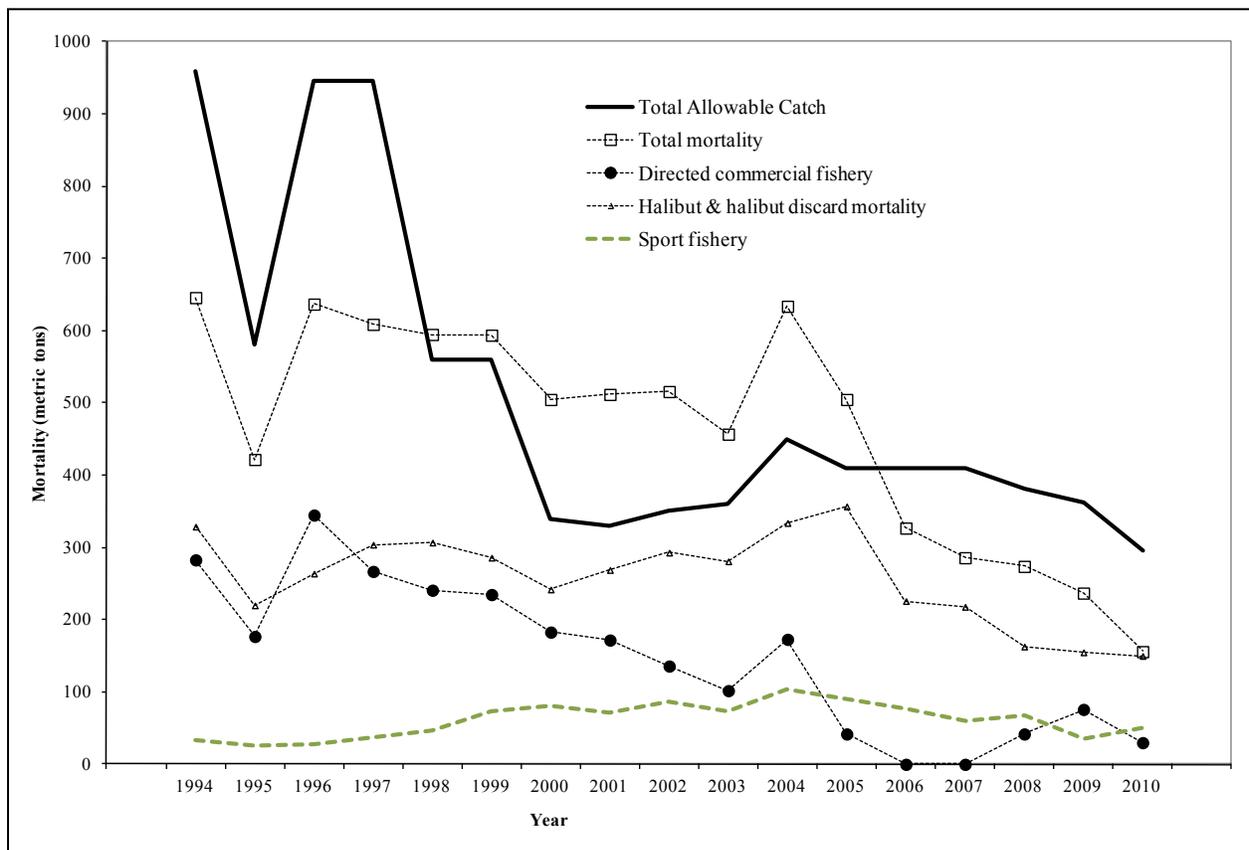


Figure 6.—Total allowable catch (TAC) and mortality by fishery and year of demersal shelf rockfish (DSR) in the Southeast Outside (SEO) subdistrict, 1994–2010.

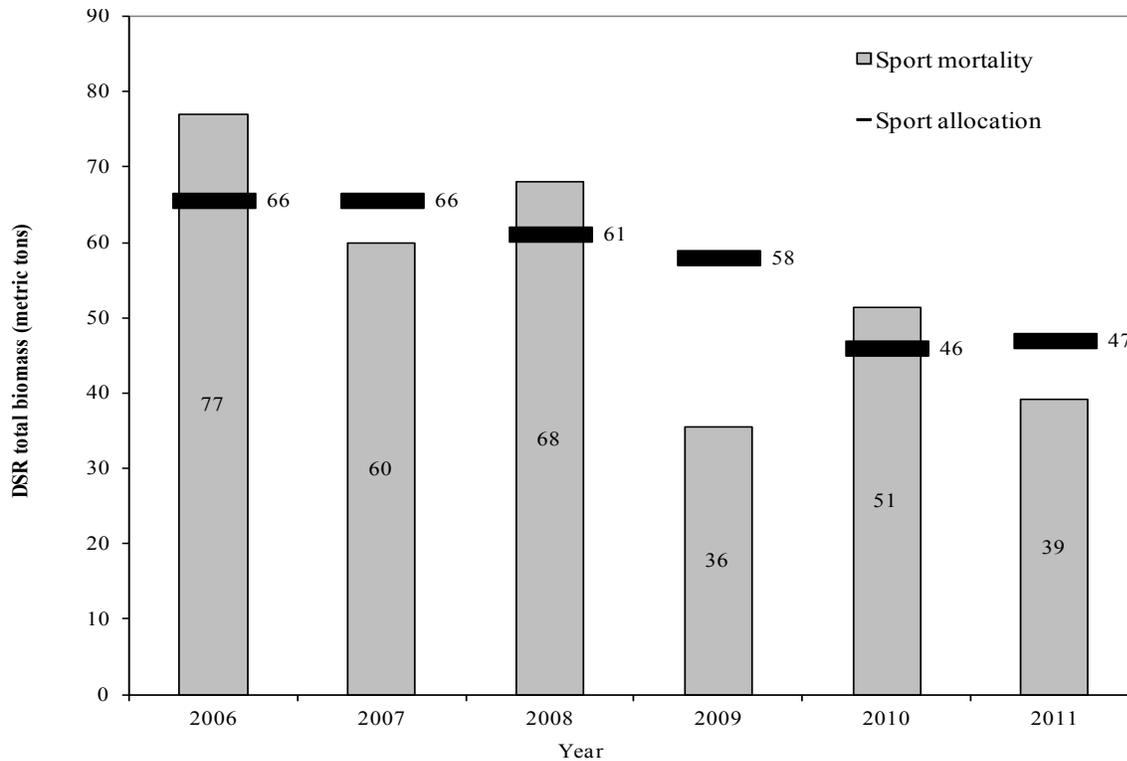


Figure 7.—Demersal shelf rockfish (DSR) allocation and mortality in the sport fishery from the Southeast Outside subdistrict during 2006–2011.

2011 ROCKFISH PROPOSALS

Five proposals dealing with rockfish management have been submitted to the board, four of which would affect the sport fishery. Proposal 212 would change the allocation of DSR between sport and commercial fisheries. Proposal 213 would replace the daily bag and possession limits for pelagic and non-pelagic rockfish regulations with a point system that assigns specific point values to different species of rockfish, and a maximum number of daily rockfish points that an angler may not exceed. Two proposals would require releasing sport caught non-pelagic rockfish at a depth of at least 40 feet (proposal 211), or at a depth sufficient to allow recompression (proposal 210).

Non-pelagic rockfish including those in the DSR assemblage live in deep water and associated high pressures. These species are subject to high mortality rates when released at the surface due to tissue and organ injuries sustained by pressure differences (barotrauma) and from positive buoyancy caused by expansion of swim bladder gases when the fish is brought to the surface. Barotrauma injuries include crushed, displaced, or ruptured internal organs, embolisms (air bubbles in blood), and exophthalmia (bulging eye) and detached retina. Fish are often time unable to return to depth on their own volition if released at the surface due to increased buoyancy caused by barotrauma injuries. Pelagic species also incur these injuries, but to a lesser extent due to physiological and behavioral differences for buoyancy regulation and preferences for shallower water. When calculating sport fishery removals, mortality is assumed to be 100% for non-pelagic rockfish released at the surface. However recent studies in Oregon and Alaska indicate that some portion of rockfish released at the surface are able to submerge on their own but it does vary by species and depth of capture. The research has focused on ways to reduce the

effects of barotrauma by forcing released fish back to deep water quickly after capture. Various recompression devices can be made from common materials and have been marketed to release fish at the depth of capture as quickly as possible.

The department has reviewed current scientific literature on survival of rockfish species released at depth (Table 4) as well as recently completed its own study in 2011 (Hochhalter and Reed 2011). The Alaska study assessed the effectiveness of using deepwater release devices on common non-pelagic rockfish species in a field setting and deployed the devices mimicking techniques most likely to be used by the common angler. This study suggests survival of released yelloweye rockfish could be increased from about 20% to over 95% by using these simple devices. Survival of other rockfish species released in the Alaska study has not been estimated, but other studies in the scientific literature (Berry 2001; Hannah and Rankin 2011; Jarvis and Lowe 2008; Parker et al. 2006; Pribyl 2010) demonstrate substantial increases in survival following deepwater release for numerous rockfish species.

Table 4.–List of references for barotrauma studies on rockfish species that look at survival when returned to depth.

Author/Citation	Species of rockfish studied	Depth of study	Location	Method summary	Survival rate examined	Survival rate reported	Species examined exists in Alaska sport fishery
Hochhalter and Reed 2011, NAJFM 31:852-860	Yelloweye	18 to 72 meters	Alaska	Released fish in environment directly as anglers would likely use recompression devices.	Yes	17-day survival of 98.8%	Yes
Jarvis and Lowe 2008, CJFAS 65:1286-1296	Vermillion, bocaccio, flag, squarespot, and honeycomb	55 to 89 meters	California	Released fish into cages first.	Yes	2-day survival of 62-73%; 690- day survival detected	Yes but small sample sizes (17-73 per species)
Pribyl. 2010, PhD Dissertation, OSU.	Black rockfish	35 meters	Oregon	Compression chamber in laboratory.	Yes	31-day survival of 100%	Yes
Parker et al. 2006. TAFS 135:1213-1223	Black rockfish	up to 30 meters	Oregon	Used compression chamber in laboratory only. Used pressures up to 4 atmospheres equivalent to 30 meters depth.	Yes	9-day survival of 97%	Yes
Hannah and Rankin 2011, NAJFM 31:483-494	Canary, yelloweye, quillback, China, copper	20 to 69 meters	Oregon	Surgically implanted acoustic tags in fish and released at depth.	Yes, inferred from those individuals that displayed movement throughout duration of the study	30+ day survival of 70-100%	Yes but very small sample sizes (1-23 per species).
Berry 2001. Report for Fisheries Renewal BC and Science Council of BC	Quillback	Unknown	British Columbia	Released fish with cages at 15 meters no information on depth of capture given.	Yes	35-day survival of 86%	Yes

LINGCOD

Lingcod, the largest member of the greenling family, are unique to the west coast of North America and are found throughout the marine waters of Southeast Alaska. Lingcod are predatory and commonly grow to over 50 pounds in weight, and thus are targeted by sport anglers. As with rockfish, lingcod are relatively sedentary, relatively easy to locate and catch, and subject to overharvest. Unlike rockfish, lingcod have a lower rate of mortality after release because they have an open air bladder and not as susceptible to barotrauma. They are also not as long-lived as rockfish.

Prior to 2000, Southeast Alaska trends in catch per unit effort (CPUE) in the directed commercial lingcod fishery indicated that stock abundance may have been declining. Additionally, there was little evidence of large-scale recruitment into the population. In light of these trends and substantial population declines in British Columbia, off the West Coast of the U.S., and Resurrection Bay near Seward, the department was concerned that existing levels of exploitation at that time in Southeast Alaska may have been too high to sustain lingcod abundance in some areas. The department is not currently able to reliably estimate lingcod biomass or abundance in Southeast Alaska. Lacking abundance estimates, and given the complex life history and behavior of lingcod, impacts to lingcod populations from fishing are difficult to assess. Commercial logbook data for the period 1994–2011 shows an increasing trend in CPUE for the CSEO management area through 2007, and a declining trend between 2008 and 2011. In NSEO and SSEOC there have been few participants in the directed commercial fishery and CPUEs are shown only for years with three or more vessels so as to not reveal proprietary information. CPUE in NSEO is fairly stable and relatively low, while CPUE in SSEOC is highly variable. Since 2000, when the guideline harvest level (GHL) was reduced in EYKT, CPUE has remained stable and is high relative to other management areas and likely due to higher abundances of lingcod in this area. In the Icy Bay Section (IBS), the directed fishery was opened in 2003; however, data for that season are confidential due to the limited number of participants. CPUE in IBS was stable between 2004 and 2009 and increased in 2010 and 2011. Recent increases in CPUE may indicate an increase in lingcod stocks or a result of changing fishery dynamics as vessel participation has decreased but the remaining participants are more experienced fishermen.

REGULATION DEVELOPMENT IN THE SPORT FISHERY

In February 2000, the board substantially changed the management of lingcod fisheries in Southeast Alaska by adopting a new Southeast Alaska lingcod management plan for sport as well as commercial fisheries. In this plan, the board established a guideline harvest level (GHL) management approach for sport and commercial fisheries in Southeast Alaska, and allocated the GHL among sport and commercial fisheries in the following seven management areas: Icy Bay Subdistrict (IBS), East Yakutat Section (EYKT), Northern Southeast Outside Section (NSEO), Central Southeast Outside Section (CSEO), Southern Southeast Outer Coast Sector (SSEOC), Southern Southeast Internal Sector (SSEIW), and Northern Southeast Inside Subdistrict (NSEI) (Figure 2). The department manages CSEO and NSEO for a combined allocation. The allowable harvests were reduced by setting the GHL lower than prior levels in each area, and the seasons for sport and directed commercial fisheries were also reduced in this plan.

Under this approach, the sport fishery was to be managed to maintain lingcod harvests at or below harvest guidelines (lbs.) in each management area. In addition to the normal authority to

restrict time and area in the sport fishery, the department uses authority granted from the board to implement size limits and annual limits for guided and nonresident anglers to achieve the desired guideline harvest allocations for each area (Table 5).

Given the department's limited ability to assess sport harvest inseason, the department informed the board that changes to the sport fishery would not be made inseason. After each season, harvest trends for that year compared to the historical would be evaluated to determine whether management action would be necessary prior to the following season. If harvest substantially exceeded the GHF in an area, restrictions would be applied prior to the next season to reduce harvests below the GHF. Likewise, if harvests fell well below harvest guidelines, restrictions would be eased prior to the next season. Since 2000, department staff have established regulations annually for the sport fishery by projecting a harvest for the coming season in each area, determining whether a reduction or increase relative to recent harvest levels was needed in each area, and, if so, how much reduction or increase was needed.

The SWHS provides lingcod harvest estimates, in number of fish, by SWHS area (areas roughly comparable to, but not identical to, groundfish management areas) since 1977. On-site creel surveys are conducted at major ports in Southeast Alaska and provide estimates of harvest and average length for lingcod taken by anglers returning to those ports. Since 1998, charter vessel logbooks have provided harvest estimates for guided anglers. Creel survey results become available before the next season, but SWHS results can take up to 1 year before available for use. The SWHS is the only source of complete harvest estimates because creel surveys are not conducted in every location where sport harvest is unloaded; additionally, charter vessel logbook reports are available only for guided anglers.

The GHF approach requires harvest estimates, in pounds of round weight, for each management area. At the nine ports in Southeast Alaska with on-site sport fish creel survey programs, the length of harvested lingcod is measured to the nearest centimeter (cm), and the angler type (resident or non-resident) is recorded. The length data is then converted into round weight estimates, based upon the length-weight relationship utilized by the department. The average round weight is then calculated for each angler type (resident or non-resident) for each port where on-site sampling occurs.

The estimated average round weights of harvested lingcod for each angler type (resident or non-resident) are multiplied by the SWHS harvest estimates for each angler type to obtain estimated harvest, in pounds, for each angler type. The estimated harvest (lbs) from each angler type (resident or non-resident) is then added together to come up with the overall harvest estimates for each lingcod management area.

Harvest guidelines established by the board in 2000 were 39% less than the 1997–1998 sport harvest estimates in CSEO/NSEO and NSEI, but similar (-1% to +14%) in other areas. In an attempt to reduce harvest by 39% in 2000, a series of bag limit reductions and minimum length limit regulations were implemented by EO (Table 5). These regulations proved to be ineffective in reducing the total weight of the sport harvest (Figure 8). The primary reason these regulations were ineffective was related to the observed increase in average size despite the lower number of fish harvested.

Table 5.–Summary of sport fish regulations for lingcod in Southeast Alaska’s lingcod management areas by year. SSEI = Southern Southeast Inside, SSEO = Southern Southeast Outside, CSEO = Central Southeast Outside, NSEO = Northern Southeast Outside, NSEI = Northern Southeast Inside, EYKT = East Yakutat.

Year	SSEI	SSEO	CSEO/NSEO/NSEI	EYKT
Before 2000	Season: May 1–Nov 30 2 fish per day, 4 in possession	Season: May 1–Nov 30 2 fish per day, 4 in possession	Season: May 1–Nov 30 2 fish per day, 4 in possession	Season: May 1–Nov 30 2 fish per day, 4 in possession
2000	Season: May 16–Nov 30 2 fish per day, 4 in possession No size limit	Season: May 16–Nov 30 2 fish per day, 4 in possession No size limit	Season: May 16–June 15, Aug 16–Nov 30 2 per day, 4 in possession prior to June 6, 2000 After June 6: 1 per day, 2 in possession and: Non-Guided residents: No size limit Guided and Nonresidents: 38 in minimum size	Season: May 16–Nov 30 2 fish per day, 4 in possession No size limit
2001	Season: May 16–Nov 30 1 per day, 2 in possession No size limit	Season: May 16–Nov 30 1 per day, 2 in possession Non-Guided residents: No size limit Guided and Nonresidents: 34 in minimum size	Season: May 16–June 15, Aug 16–Nov 30 1 per day, 2 in possession Non-Guided residents: No size limit Guided and Nonresidents: 39 in minimum size	Season: May 16–June 15, Aug 16–Nov 30 1 per day, 2 in possession Non-Guided residents: No size limit Guided and Nonresidents: 39 in minimum size
2002	Season: May 16–Nov 30 1 per day, 2 in possession No size limit	Season: May 16–June 15, Aug 16–Nov 30 1 per day, 2 in possession Non-Guided residents: No size limit Guided and Nonresidents: 30 in–40 in slot limit	Season: May 16–June 15, Aug 16–Nov 30 1 per day, 2 in possession Non-Guided residents: No size limit Guided and Nonresidents: 30 in–40 in slot limit	Season: May 16–Nov 30 1 per day, 2 in possession Non-Guided residents: No size limit Guided and Nonresidents: 32 in–42 in slot limit
2003	Season: May 16–Nov 30 1 per day, 2 in possession Non-Guided residents: No size limit Guided and Nonresidents: 30 in–40 in slot limit	Season: May 16–June 15, August 16–Nov 30 1 per day, 2 in possession Non-Guided residents: No size limit Guided and Nonresidents: 30 in–40 in slot limit	Season: May 16–June 15, August 16–Nov 30 1 per day, 2 in possession Non-Guided residents: No size limit Guided and Nonresidents: 30 in–40 in slot limit	Season: May 16–Nov 30 1 per day, 2 in possession Non-Guided residents: No size limit Guided and Nonresidents: 32 in–42 in slot limit

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Table 5.–Page 2 of 3.

Year	SSEI	SSEO	CSEO/NSEO/NSEI	EYKT
2004–2005	Season: May 16–Nov 30 1 per day, 2 in possession No size limit	Season: May 16–Nov 30 1 per day, 2 in possession Non-Guided residents: No size limit Guided and Nonresidents: 30 in–40 in slot limit	Season: May 16–June 15, August 16–Nov 30 1 per day, 2 in possession Non-Guided residents: No size limit Guided and Nonresidents: 30 in–40 in slot limit	Season: May 16–Nov 30 1 per day, 2 in possession Non-Guided residents: No size limit Guided and Nonresidents: 32 in–42 in slot limit
2006	Season: May 16–Nov 30 1 per day, 2 in possession No size limit Guided and Nonresidents: annual limit of 2 No retention by charter operators/crew	Season: May 16–Nov 30 1 per day, 2 in possession Non-Guided residents: No size limit Guided and Nonresidents: 30 in–40 in slot limit Guided and Nonresidents: annual limit of 2 No retention by charter operators/crew	Season: May 16–June 15, August 16–Nov 30 1 per day, 2 in possession Non-Guided residents: No size limit Guided and Nonresidents: 30 in–40 in slot limit Guided and Nonresidents: annual limit of 2 No retention by charter operators/crew	Season: May 16–Nov 30 1 per day, 2 in possession Non-Guided residents: No size limit Guided and Nonresidents: 32 in–42 in slot limit No retention by charter operators/crew
2007–2008	Season: May 16–Nov 30 Non-Guided resident: 1 per day, 2 in possession Non-Guided residents: No size limit Guided and Nonresidents: 30 in–40 in slot limit Guided and Nonresidents: annual limit of 1 No retention by charter operators/crew	Season: May 16–Nov 30 Non-Guided resident: 1 per day, 2 in possession Non-Guided residents: No size limit Guided and Nonresidents: 30 in–35 in slot limit Guided and Nonresidents: annual limit of 1 No retention by charter operators/crew	Season: May 16–June 15, August 16–Nov 30 Non-Guided resident: 1 per day, 2 in possession Non-Guided residents: No size limit Guided and Nonresidents: 30 in–35 in slot limit Guided and Nonresidents: annual limit of one No retention by charter operators/crew	Season: May 16–Nov 30 1 per day, 2 in possession Non-Guided residents: No size limit Guided and Nonresidents: 32 in–42 in slot limit No retention by charter operators/crew
2009	Season: May 16–Nov 30 Non-guided resident: 1 per day, 2 in possession Non-guided residents: no size limit Non-resident angler annual limit of two lingcod, one of which is 30–35 inches in length and one that is 55 inches or greater in length, harvest record required No retention by charter operators/crew	Season: May 16–Nov 30 Non-guided resident: 1 per day, 2 in possession Non-guided residents: no size limit Nonresident angler annual limit of two lingcod, one of which is 30–35 inches in length and one that is 55 inches or greater in length, harvest record required No retention by charter operators/crew	Season: May 16–June 15, August 16–Nov 30 Non-guided resident: 1 per day, 2 in possession Non-guided residents: no size limit Non-resident angler annual limit of two lingcod, one of which is 30–35 inches in length and one that is 55 inches or greater in length, harvest record required No retention by charter operators/crew	Season: May 16–Nov 30 1 per day, 2 in possession Non-guided residents: no size limit Non-resident angler annual limit of two lingcod, one of which is 30–35 inches in length and one that is 55 inches or greater in length, harvest record required No retention by charter operators/crew

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Table 5.–Page 3 of 3.

Year	SSEI	SSEO	CSEO/NSEO/NSEI	YAK
2010	<p>Season: May 16–Nov 30</p> <p>Non-guided resident: 1 per day, 2 in possession</p> <p>Non-guided residents: no size limit</p> <p>Non-resident angler annual limit of two lingcod, one of which is 30-35 inches in length and one that is 55 inches or greater in length, harvest record required</p> <p>No retention by charter operators/crew</p>	<p>Season: May 16–Nov 30</p> <p>Non-guided resident: 1 per day, 2 in possession</p> <p>Non-guided residents: no size limit</p> <p>Non-resident angler annual limit of two lingcod, one of which is 30–35 inches in length and one that is 55 inches or greater in length, harvest record required</p> <p>No retention by charter operators/crew</p>	<p>Season: May 16–June 15, August 16 - Nov 30</p> <p>Non-guided resident: 1 per day, 2 in possession</p> <p>Non-guided residents: no size limit</p> <p>Non-resident angler annual limit of two lingcod, one of which is 30–35 inches in length and one that is 55 inches or greater in length, harvest record required</p> <p>No retention by charter operators/crew</p>	<p>Season: May 16–Nov 30</p> <p>1 per day, 2 in possession</p> <p>Non-guided residents: no size limit</p> <p>Non-resident angler annual limit of two lingcod, one of which is 30–40 inches in length and one that is 55 inches or greater in length, harvest record required</p> <p>No retention by charter operators/crew</p>
2011	<p>Season: May 16–Nov 30</p> <p>Non-guided resident: 1 per day, 2 in possession</p> <p>Non-guided residents: no size limit</p> <p>Non-resident angler annual limit of two lingcod, one of which is 30-40 inches in length and one that is 55 inches or greater in length, harvest record required</p> <p>No retention by charter operators/crew</p>	<p>Season: May 16–Nov 30</p> <p>Non-guided resident: 1 per day, 2 in possession</p> <p>Non-guided residents: no size limit</p> <p>Nonresident angler annual limit of two lingcod, one of which is 30-40 inches in length and one that is 55 inches or greater in length, harvest record required</p> <p>No retention by charter operators/crew</p>	<p>Season: May 16–June 30, August 1 - Nov 30</p> <p>Non-guided resident: 1 per day, 2 in possession</p> <p>Non-guided residents: no size limit</p> <p>Non-resident angler annual limit of two lingcod, one of which is 30-35 inches in length and one that is 55 inches or greater in length, harvest record required</p> <p>No retention by charter operators/crew</p>	<p>Season: May 16Nov 30</p> <p>1 per day, 2 in possession</p> <p>Non-guided residents: no size limit</p> <p>Non-resident angler annual limit of two lingcod, one of which is 30-45 inches in length and one that is 55 inches or greater in length, harvest record required</p> <p>No retention by charter operators/crew</p>

Note: whenever an annual limit regulation is in place, a harvest record is required, and when a size limit or slot limit regulation is in place, all lingcod must be landed by hand or landing net.

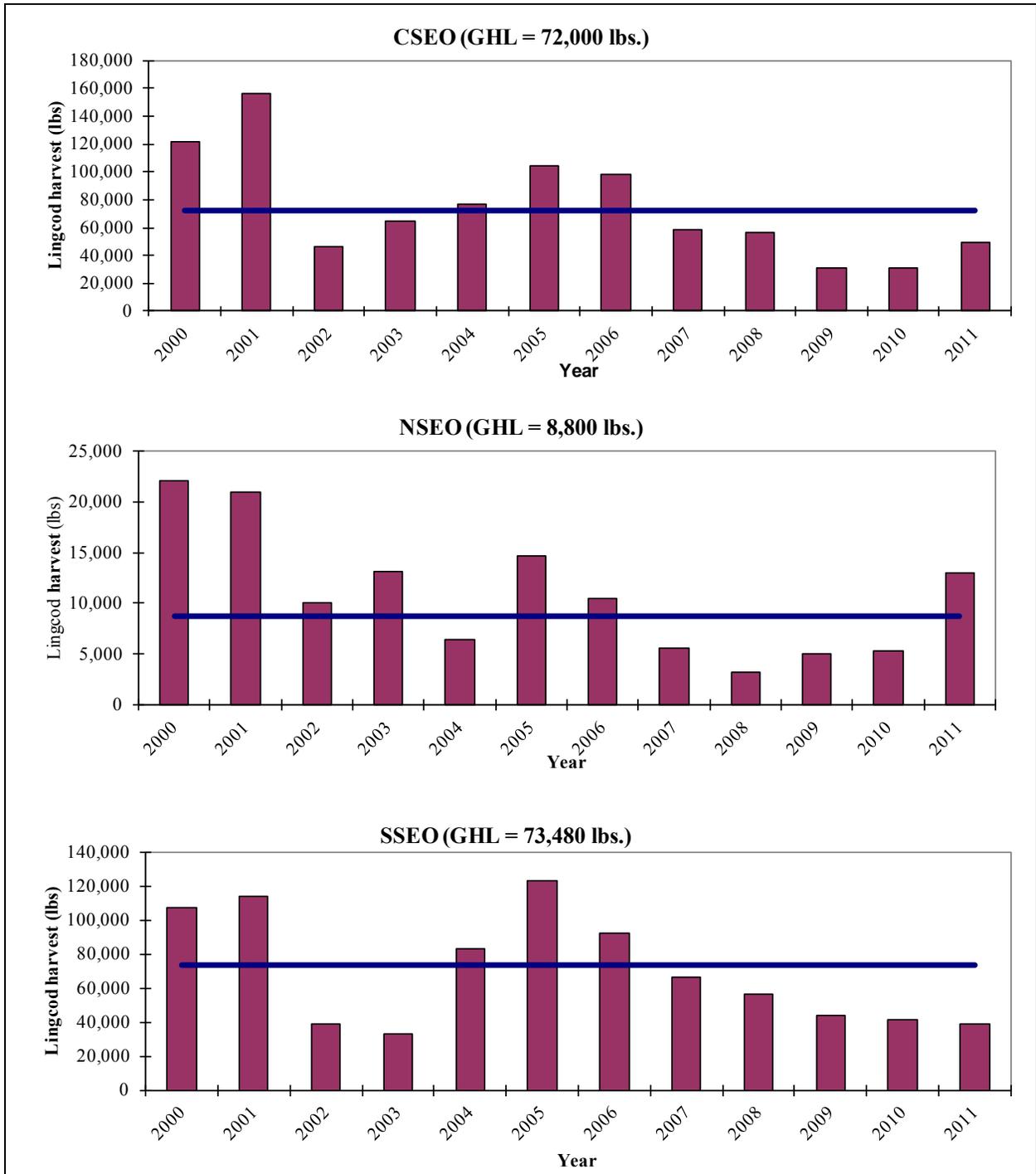


Figure 8.–Lingcod harvests in the Central Southeast Outside (CSEO), Northern Southeast Outside (NSEO), Southern Southeast Outside (SSEO), Northern Southeast Inside (NSEI), Southern Southeast Inside (SSEI), and Icy Bay/East Yakutat subdistrict (IBS/EYKT) areas. Estimates for 2011 are preliminary.

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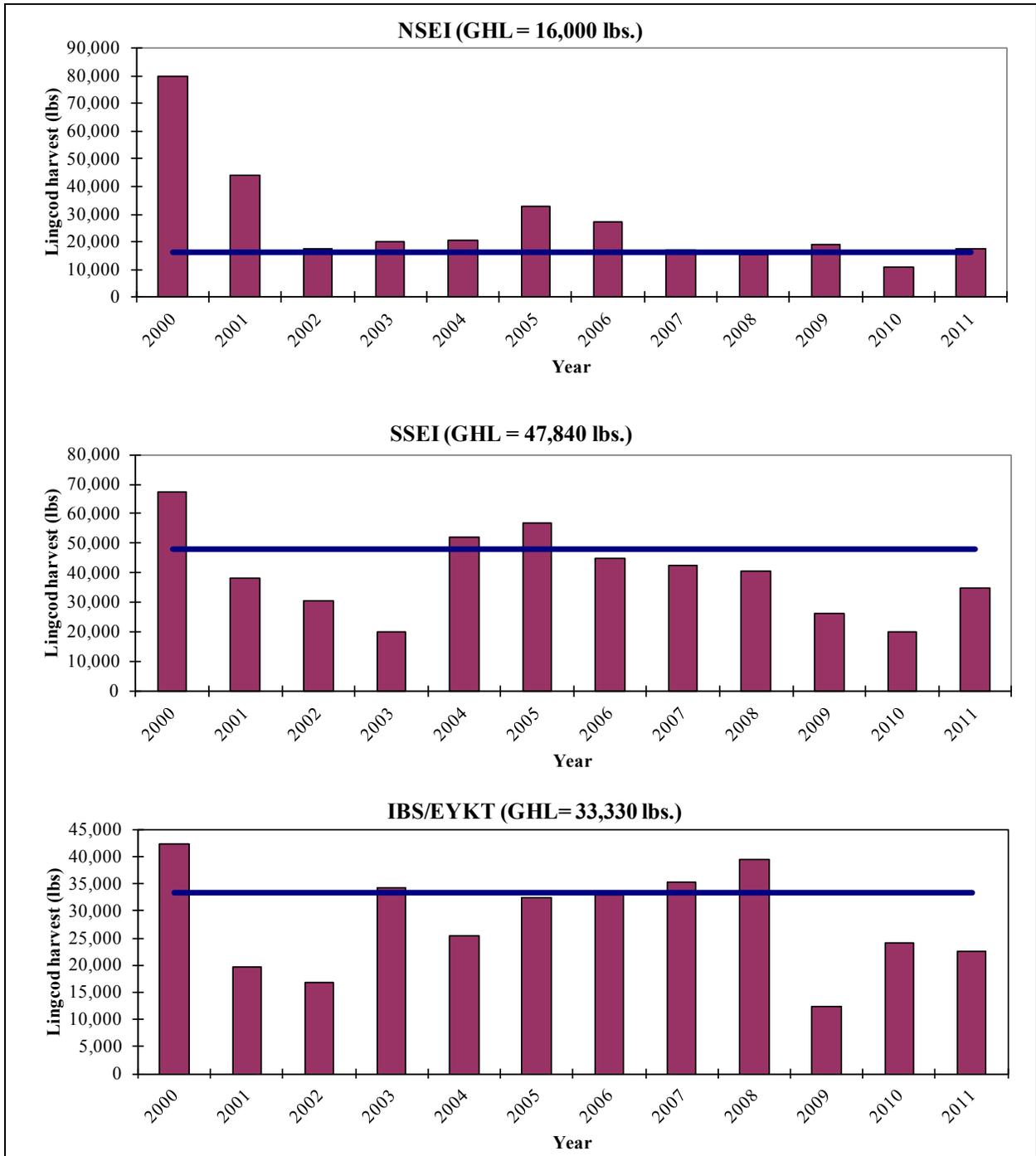


Figure 8.–Page 2 of 2.

From 2001 through 2005, the department implemented various regulations by EO including: minimum length limits; slot limits; and periods closed to fishing (Table 5). These regulations were generally effective in constraining the sport fishery harvest to below the GHF in 2001–2003. However, in 2004 and 2005, the GHF was exceeded in the CSEO/NSEO, SSEOC, SSEIW, and NSEI areas (Figure 8). The amount of the overage in the sport fishery appeared to be generally increasing during that time period. The increase may have been due to increased effort and efficiency as well as a trend for resident charter operators and crewmembers to retain larger lingcod.

From 2006 through 2008, the department implemented additional regulations by emergency order including annual limits for nonresidents and guided anglers, and prohibitions on charter operators and crew from retaining lingcod while clients were on board. In addition, some slot limits were added or made more restrictive; seasons, and gear restrictions remained in place. These regulations were generally effective in restricting the sport fishery harvest to near the GHF in 2007 and 2008 in most of the management areas (Figure 8).

In 2009, the board directed the department to manage anglers by angler residency rather than by whether or not they were guided. Also beginning in 2009, sport harvest was classified into Alaska resident or non-resident categories rather than non-guided residents, guided, and non-residents. Additionally, regionwide regulations allowed for an additional lingcod 55 inches or greater in length to be kept as a trophy fish by non-residents.

From 2006 through 2011, more conservative regulations have been generally successful in keeping the sport lingcod harvest within its allocation. In 2010 the non-resident slot limit in EYAK was changed from 30–35 inches to 30–40 inches, and in 2011 the slot limit further relaxed to 30–45 inches. In 2011 in CSEO/NSEO and NSEI the season was extended by 4 weeks from May 16-June 15 to May 16-June 30, and Aug 16-Nov 30 to Aug 1-Nov 30.

2012 LINGCOD PROPOSALS

Eight proposals dealing with lingcod management have been submitted to the board for consideration in February 2012, one of which (proposal 221) would affect the sport fishery by changing the allocation of lingcod between sport and commercial fisheries. The department is neutral on the allocation aspects of this proposal.

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