Special Publication No. 15-01

Overview of the Sport Fisheries for Groundfish in Southeast Alaska through 2014: A Report to the Board of Fisheries

by

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and

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February 2015

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

Symbols and Abbreviations

The following symbols and abbreviations, and others approved for the Système International d'Unités (SI), are used without definition in the following reports by the Divisions of Sport Fish and of Commercial Fisheries: Fishery Manuscripts, Fishery Data Series Reports, Fishery Management Reports, and Special Publications. All others, including deviations from definitions listed below, are noted in the text at first mention, as well as in the titles or footnotes of tabless, and in figure or figure captions.

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 s 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)

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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OVERVIEW OF THE SPORT FISHERIES FOR GROUNDFISH IN SOUTHEAST ALASKA THROUGH 2014: A REPORT TO THE BOARD OF FISHERIES

by

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February 2015

Development and publication of this manuscript were partially financed by the Federal Aid in Sport Fish Restoration Act (16 U.S.C.777-777K) and State of Alaska, Fish and Game funds.

The Special Publication series was established by the Division of Sport Fish in 1991 for the publication of techniques and procedures manuals, informational pamphlets, special subject reports to decision-making bodies, symposia and workshop proceedings, application software documentation, in-house lectures, and became a joint divisional series in 2004 with the Division of Commercial Fisheries. Special Publications are intended for fishery and other technical professionals. Special Publications are available through the Alaska State Library, Alaska Resources Library and Information Services (ARLIS) and on the Internet: http://www.adfg.alaska.gov/sf/publications/. This publication has undergone editorial and peer review.

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This document should be cited as:
Chadwick, B., B. Frenette, and T. Tydingco. 2015. Overview of the sport fisheries for groundfish in Southeast Alaska through 2014: a report to the Board of Fisheries. Alaska Department of Fish and Game, Special Publication No. 15-01, Anchorage.

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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.*), lingcod (*Ophiodon elongates*), and other groundfish, excluding halibut (*Hippoglossus stenolepis)*, 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, groundfish, Alaska Board of Fisheries, Southeast Alaska.

INTRODUCTION

The Alaska Department of Fish and Game (department) has jurisdiction over all groundfish fisheries management within the internal waters of the state, in coastal waters out to 3 miles offshore, and for certain groundfish species within the Exclusive Economic Zone (EEZ), which extends out to 300 miles offshore. 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 (MSFCMA), which stipulates 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 2012 meeting in Ketchikan (Chadwick and Frenette 2011). 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 the following:

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.

FISHERIES MONITORING TOOLS

The department monitors the sport harvest of groundfish via three primary sampling programs: the Statewide Harvest Survey (SWHS), sport charter vessel logbooks, and on-site creel surveys. Each program's sampling methods has its utilities and limitations.

Statewide Harvest Survey

The SWHS is an annual mailout postal survey sent to a random sample of sport fishing license holders (Jennings et al. 2011) and provides estimates of sport harvests of rockfish and lingcod (as well as for other species) in the primary 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 well after the fishing season has concluded, thus 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 (e.g., pelagic vs. non-pelagic rockfish) or split out by species (e.g., yelloweye vs. rougheye *S. aleutianus*). 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, length, or weight).

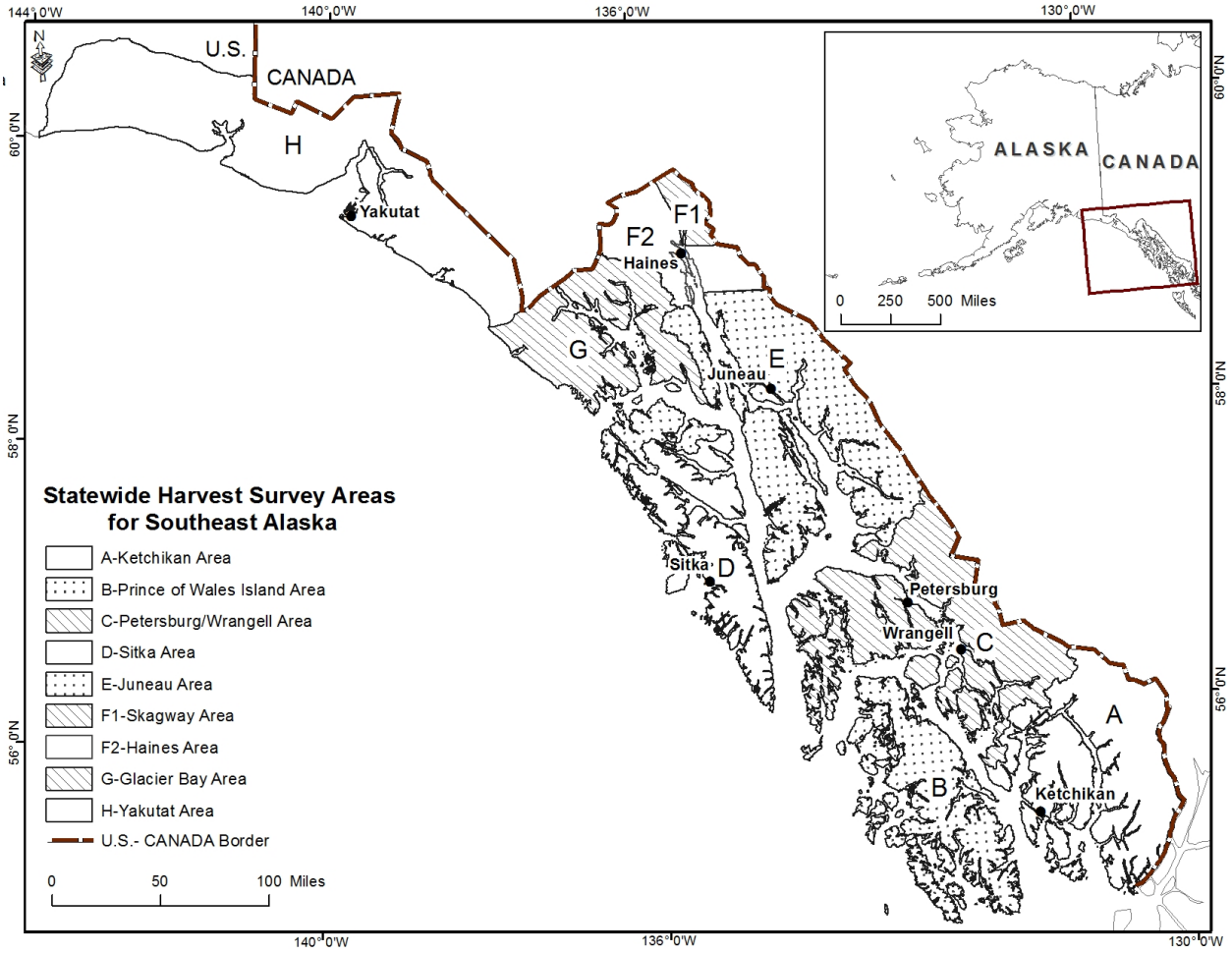

Figure 1.–Map of Southeast Alaska showing boundaries of the Statewide Harvest Survey.

Charter Vessel Logbooks

Charter vessel logbooks (logbooks) have been required in Southeast Alaska since 1998 (Sigurdsson and Powers 2014). 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. 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 along with their residency, license number (or permanent license number), as well as the number of lingcod, sablefish (*Anoplopoma fimbria*), pelagic rockfish, yelloweye rockfish, and other non-pelagic rockfish harvested including numbers released.

On-site Creel Surveys

On-site creel surveys occur during the summer months and are designed to collect data that provide information on the effort, catch, and harvest by the sport fishery as well as describe the biological characteristics of the harvest such as species, age, size, and sex composition (Jaenicke et al. 2014). On-site creel surveys occur in the major fishing ports of Yakutat, Haines, Gustavus, Elfin Cove, Juneau, Sitka, Petersburg, Wrangell, Craig, and Ketchikan. Sport anglers are surveyed at the completion of their fishing trip by department personnel. Since inception, the primary focus of the on-site 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 identification (limited to lingcod).

A combination of the three fishery monitoring methods is often used to generate different types of fisheries metrics such as harvest, biomass, and total mortality. For rockfish, estimates of the demersal shelf rockfish (DSR) biomass removed by the sport fishery is generated 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 biomass of all rockfish harvested by the percentage of DSR species observed in harvest by area. 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. 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 found in marine waters throughout Southeast Alaska are slow-growing and long-lived with age observations up to 120 years old (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 once released 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 at the water surface. Chartered anglers are required to release non-pelagic rockfish at depth, thereby increasing survival. As a result, the department considers the mortality rate to be 20% (beginning in 2013) for all chartered sport fishery released DSR and 100% for non-charter releases when calculating the total biomass removal of DSR (Green et al. 2014; Jarvis and Lowe 2008; Hochhalter and Reed 2011; Hannah et al. 2012; GMT 2014).

Rockfish are grouped into three 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 six other species: canary (*S. pinniger*), China (*S. nebulosus*), copper (*S. caurinus*), quillback (*S. maliger*), rosethorn (*S. helvomaculatus*), and tiger (*S. nigrocinctus*) rockfish.

Assemblages of rockfish species are defined differently 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. "Non-pelagic rockfish" contains more species than the grouping of DSR; but there are very few non-pelagic, non-DSR rockfish harvested in the sport fishery. Non-pelagic, non-DSR rockfish are considered to be slope rockfish. The department modifies sport fishing regulations via Emergency Order (EO) using management measures defined by the board for non-pelagic rockfish.

Based on evaluation of angler harvests during dockside sampling, yelloweye rockfish account for an average 72% (2009-2013) of the annual sport biomass removals of DSR in Southeast Outside Waters.

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 Fishery Management Council (Council) stock assessment process (Green et al. 2014). After the subsistence harvest of DSR has been subtracted from the TAC, the board allocates the remainder of the TAC between sport and commercial fisheries.

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 (Appendix A). Prior to 1989, there were no sport bag or possession limits established for rockfish taken 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.

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 (pelagic species limits set in 1994 are still current). 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.

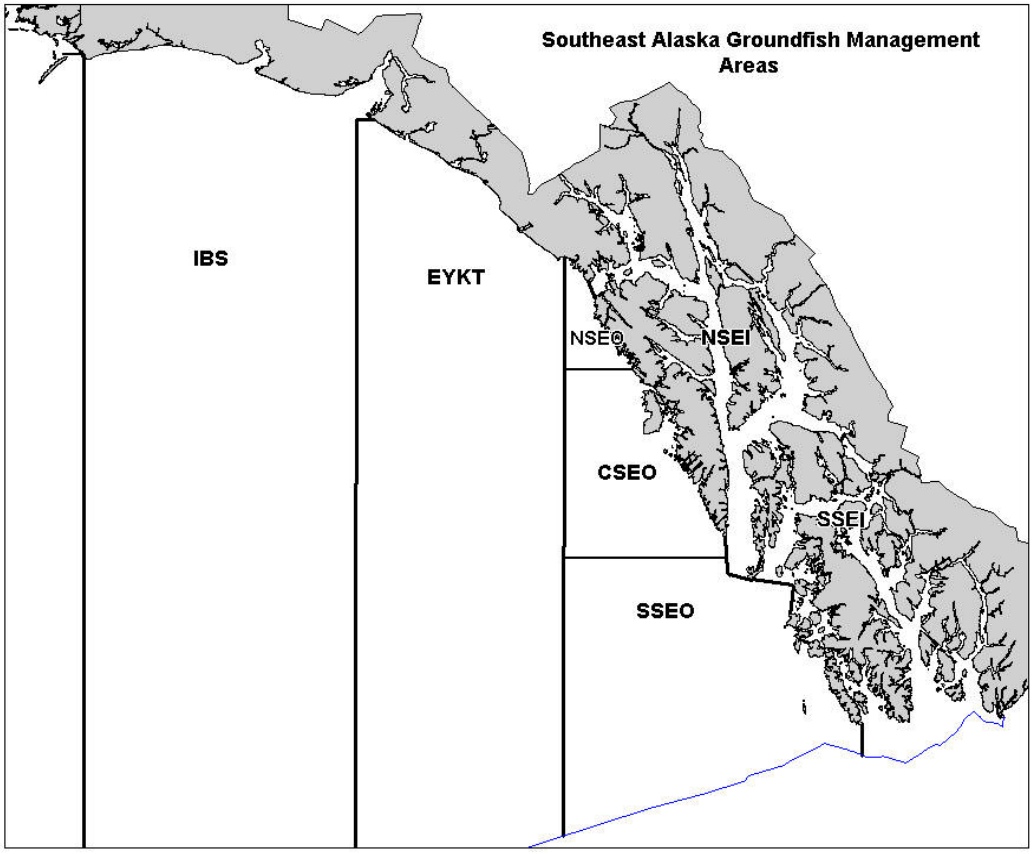

Figure 2.–Map of Southeast Alaska groundfish management areas (the Southeast Outside Subdistrict consist of management areas EYKT = East Yakutat, NSEO = Northern Southeast Outside, CSEO = Central Southeast Outside, and SSEO = Southern Southeast Outside).

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. Given that DSR account for over 95% of non-pelagic rockfish harvest taken in the sport fishery, 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 the following:

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. reduced 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 (Appendix A) 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 1)[1]. Total harvest of all rockfish (pelagic and non-pelagic combined) increased steadily from 1977, peaking 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 and has since increased annually to nearly 140,000 fish in 2013.

Since 1996, the SWHS has provided estimates of harvest that further partitions the harvest by resident and nonresident anglers. The proportion of the sport fishery harvest taken by nonresidents has varied between 63% and 89%, with a large increase in the proportion harvested by nonresidents starting in 2004 (Figure 3). In the last 5 years (2009–2013), nonresidents have taken an average of 85% 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 108,000 in 2008, followed by lower harvest levels in 2009 of 71,000 and in 2010 of 95,000, and then increasing to 127,000 in 2013 (Figure 4). Prior to 2006, the "non-pelagic" component of the charter harvest was slightly larger than the harvest of pelagic rockfish (Figure 4). Since then, the harvest of pelagic rockfish has doubled, while the harvest of non-pelagic rockfish has remained constant with the exception of the lower harvest observed in 2009.

Guided anglers fishing from charter vessels (as estimated from logbooks) harvest 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).

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 they were retained by anglers. The retention rate for non-pelagic rockfish has risen to an average of about 91% 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%), but between 2010 and 2013 yelloweye only accounted for an average 33% (range=42% to 29%) of the total non-pelagic harvest. The release rate of yelloweye rockfish for this same time period by charter clients has averaged 11% (range 8% to 13%), indicating that they are a highly desired species by sport anglers. Pelagic rockfish harvest has increased steadily since the late 1990s from about 15,000 fish in 1999 to 89,000 fish in 2013. This could be due to changes in angler preference as well as anglers modifying behaviors due to changes in other fisheries (e.g., reductions in halibut bag and size limits).

[1]Alaska Sport Fishing Survey database [Internet]. 1996– . Anchorage, AK: Alaska Department of Fish and Game, Division of Sport Fish (cited December 5, 2014). Available from: http://www.adfg.alaska.gov/sf/sportfishingsurvey/.

Table 1.–Statewide Harvest Survey (SWHS) estimates of the number of rockfish harvested in Southeast Alaska, 1997–2013.

Year	Ketchikan	PWI[a]	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
2011	9,233	28,637	3,786	51,514	5,309	29	7,939	2,710	109,157
2012	11,673	26,902	6,196	62,239	9,225	68	8,485	3,634	128,422
2013	17,232	27,334	4,471	60,322	12,502	277	13,253	4,518	139,909

[a] PWI = Prince of Wales Island.

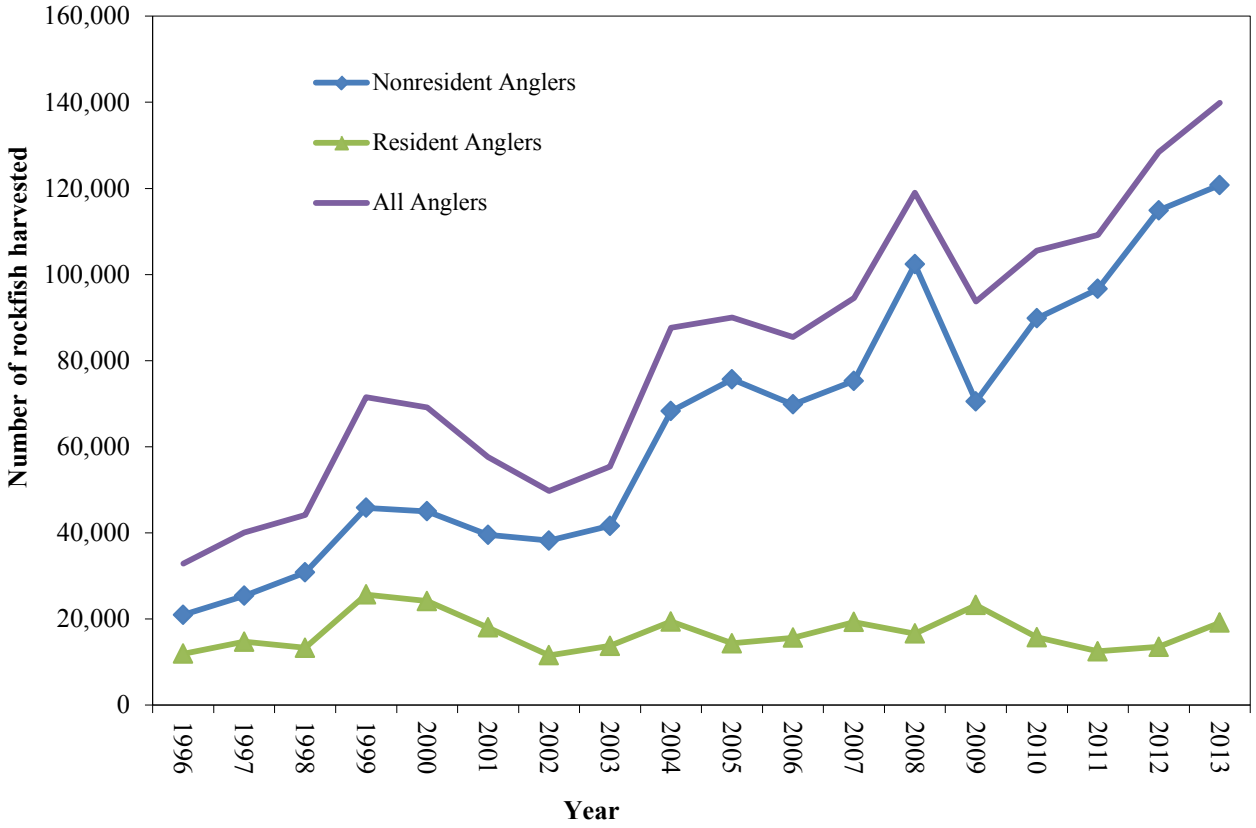

Figure 3.–Estimated harvest of rockfish in sport fisheries of Southeast Alaska as estimated from the Statewide Harvest Survey by angler residency for years 1996–2013.

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 75% of the average regional rockfish harvest over the last 5 years (Figure 5). These areas correspond roughly to the three commercial fisheries management areas of Southern Southeast Outside Section (SSEO), Central Southeast Outside Section (CSEO), and Northern Southeast Outside Section (NSEO).

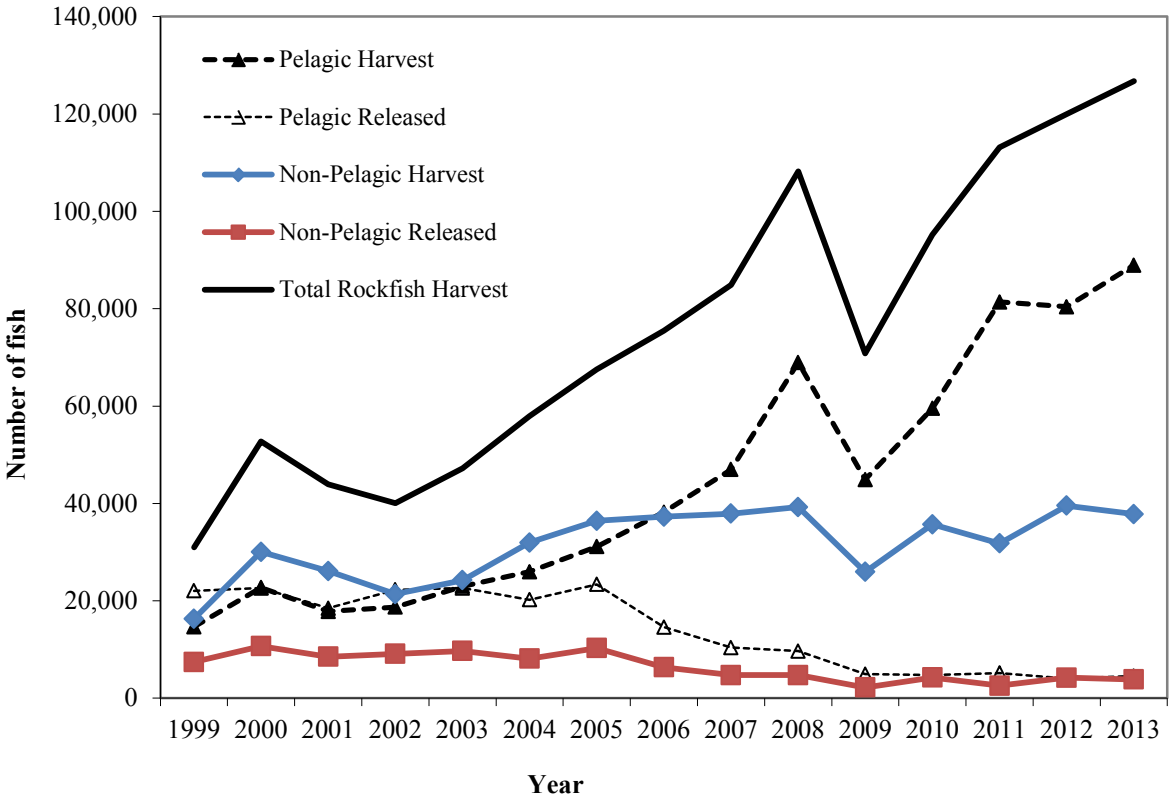

Figure 4.–Number of harvested and released pelagic and non-pelagic rockfish as reported on charter vessel logbooks in Southeast Alaska during 1999–2013.

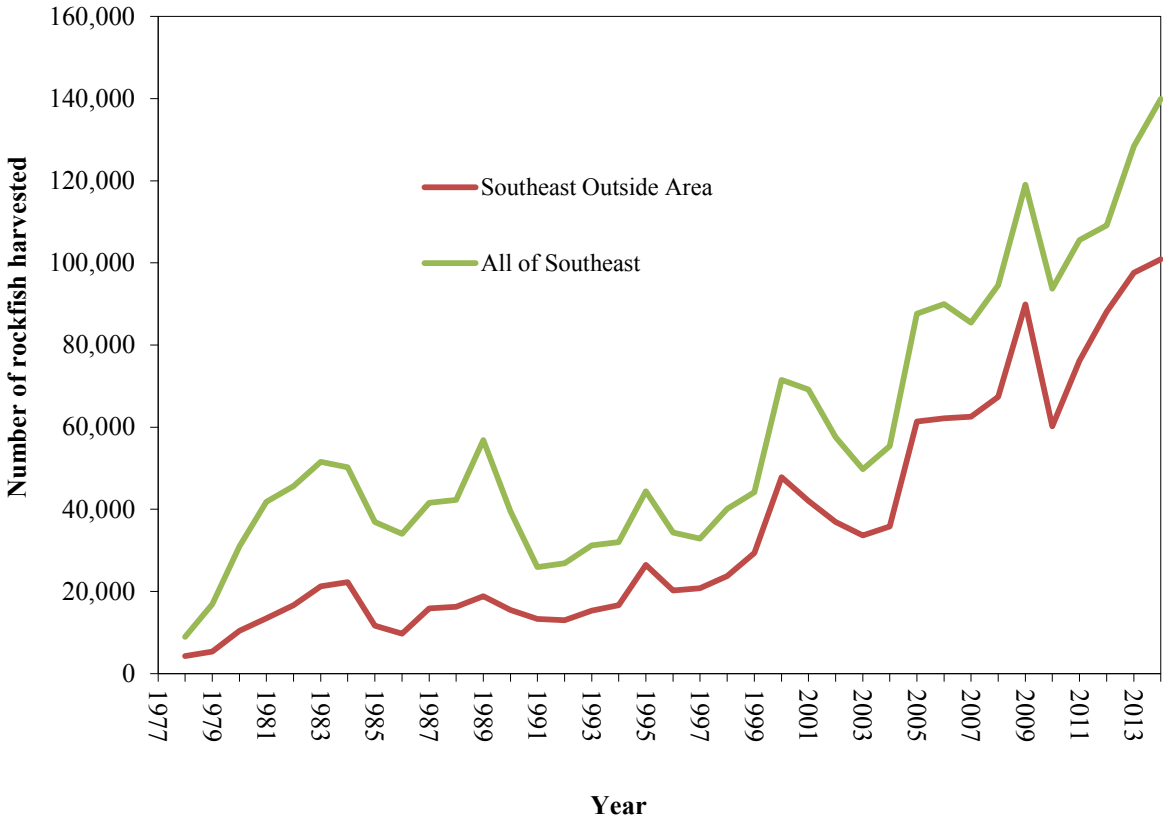

Figure 5.–Statewide Harvest Survey estimates of total rockfish harvest (pelagic and non-pelagic) in sport fisheries in Southeast Alaska during 1977–2013. Includes harvests from the three Statewide Harvest Survey outside areas of Prince of Wales Island (G), Sitka (D), and Glacier Bay (B) (these areas combined are basically equivalent to the Southeast Outside [SEO] subdistrict).

FISHERY MANAGEMENT

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 mentioned earlier, and set by the National Marine Fisheries Service (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 267 and 960 metric tons (mt) between 1988 and 2014 (Table 2).

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 57% since 2001. The recent 4-year average (2010–2013) has been 48%. 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 determining species composition. The biomass of DSR removed in the sport fishery averaged 74 mt from 2001–2009 but has declined to an average of 40 mt during the period 2010 through 2014 (Table 2).

Table 2.–Reported landings of demersal shelf rockfish (t) from research, incidental commercial, directed commercial, recreational, and subsistence fisheries in the Southeast Outside Subdistrict (SEO), 1988–2014[a], acceptable biological catch (ABC), Overfishing Level (OFL), and total allowable catch (TAC) for commercial and recreational sectors combined.

Year	Research	Directed	Incidental	Sport[b]	Subsistence[c]	ABC[d]	OFL	TAC
1988				21		660		660
1989				15		420		420
1990				17		470		470
1991				18		425		425
1992			119	16		550		550
1993	13		188	20		800		800
1994	4		219	34		960		960
1995	13		103	25		580		580
1996	11	344	81	28		945		945
1997	16	267	97	38		945		945
1998	2	241	118	47		560		560
1999	2	235	125	73		560		560
2000	8	183	104	80		340		340
2001	7	173	144	71		330		330
2002	2	136	147	87		350	480	350
2003	6	102	167	74		390	540	390
2004	2	174	153	104	23	450	560	450
2005	4	42	191	90	16	410	650	410
2006	2	0	203	66	24	410	650	410
2007	3	0	196	60	8	410	650	410
2008	1	42	152	68	6	382	611	382
2009	2	76	139	36	7	362	580	362
2010	7	30	131	51	6	295	472	295
2011	5	22	87	36	6	300	479	294
2012	4	105	76	46	7	293	467	286
2013	4	129	83	34	7	303	487	296
2014		33	60	34[e]	7	274	438	267

[a] Landings from departmental Southeast Region fish ticket database and NMFS weekly catch reports through October 19, 2014.

[b] Sport fish catch from 2006 to 2008 includes EYKT and IBS. These data are not available prior to 2006.

[c] Projected subsistence catch for the fishery year (i.e., 2010) is for the 2010 fishery. These data were not available or deducted from the ABC prior to 2009.

[d] No ABC prior to 1988; 1988–1993 ABC is for CSEO, NSEO, and SSEO only (not EYKT).

[e] The 2014 estimate is preliminary.

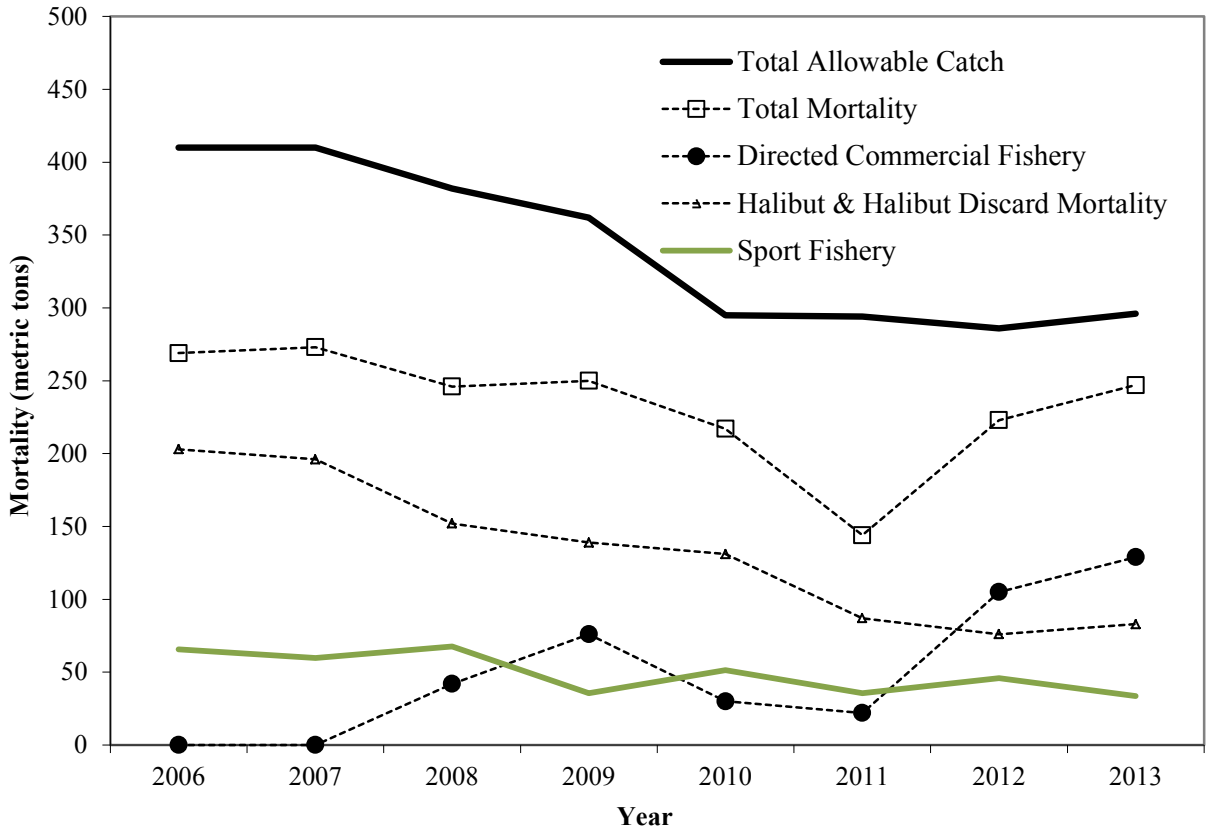

Figure 6.–Total allowable catch (TAC) and mortality by fishery and year of demersal shelf rockfish (DSR) in the Southeast Outside (SEO) subdistrict, 2006–2013.

The department implemented a series of fishery regulations by EO from 2006 through 2014 in an attempt to reduce mortality levels in the sport fishery (Appendix A). Those regulations included uses of the following measures: bag limit reductions, annual limits for nonresidents, non-retention by charter operators and crew, and requirements to retain all fish until bag limits are reached. These regulations proved to be effective in reducing the total mortality in the sport fishery from the higher levels seen in 2004 and 2005 (Table 2). The sport fishery has been near or under its allocation since 2009 (Figure 7). In 2009, total mortality in the sport fishery (36 mt) was 38% below the sport fishery allocation of 58 mt. In 2010 total mortality in the sport fishery was an estimated 51 mt, 12% above the allocation of 46 mt. In 2011 the estimated total mortality in the sport fishery was 36 mt, 24% below the sport fishery allocation of 47 mt. In 2012 both total mortality and allocation were at 46 mt. In 2013 total mortality in the sport fishery was estimated at 34 mt, 29% below the allocation of 47 mt. In 2014 the preliminary estimate of total mortality in the sport fishery was 34 mt, 21% below the allocation of 43 mt.

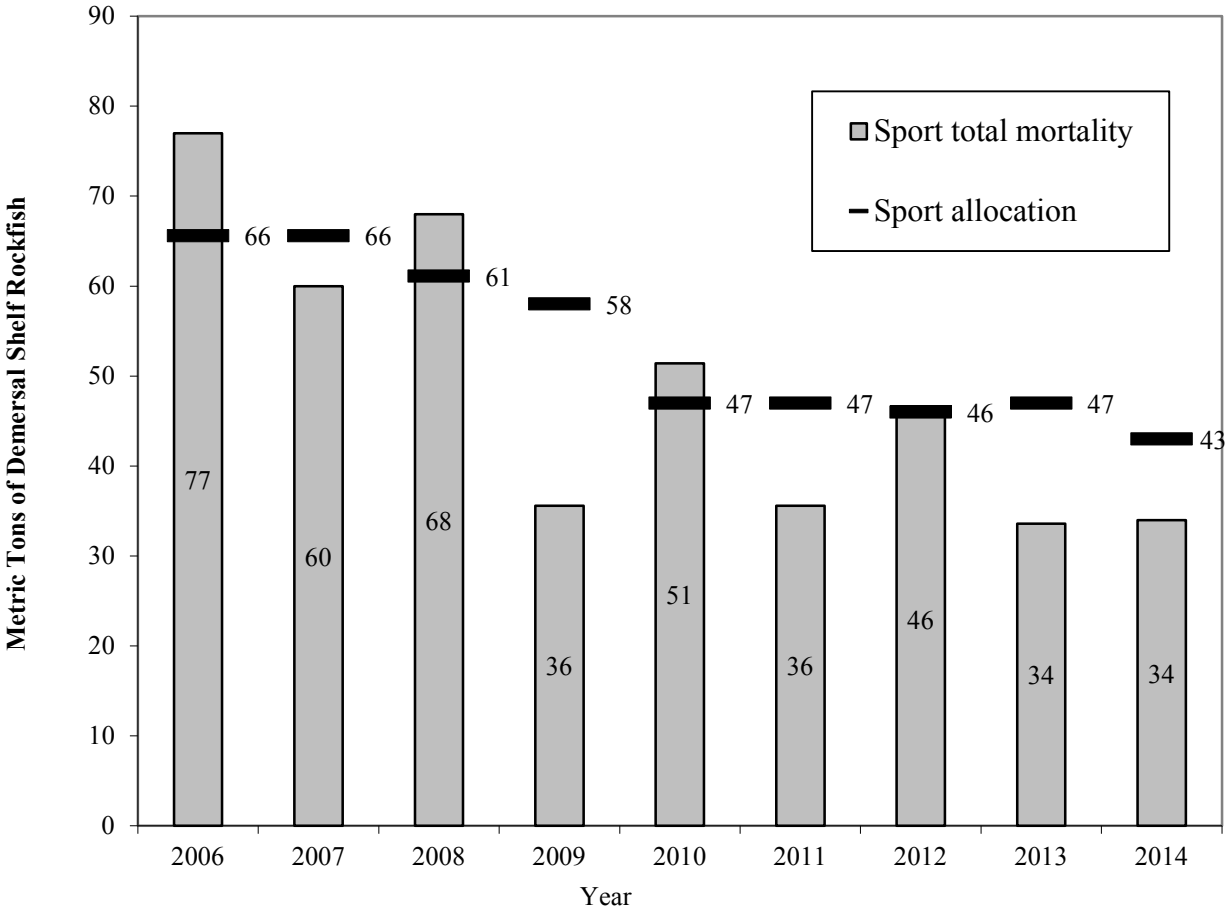

Figure 7.–Demersal shelf rockfish (DSR) allocation and mortality in the sport fishery from the Southeast Outside subdistrict during 2006–2014.

2015 ROCKFISH PROPOSALS

Three proposals dealing with rockfish management have been submitted to the board for consideration in 2015, all of which would affect the sport fishery.

Proposal 143 would require all anglers releasing non-pelagic rockfish to release them at depth and require at least 1 deep water release mechanism on board vessels used by sport anglers. Proposal 144 would repeal the mandatory retention requirements for non-pelagic rockfish. Proposal 145 would repeal the Sitka Sound Special Use Area and Ketchikan Area non-pelagic rockfish regulations.

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 eyes) and detached retina. Fish are often times 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 in the past, mortality was assumed to be 100% for non-pelagic rockfish released at the surface. The department has reviewed the current scientific literature on survival of rockfish species released at depth (Appendix B) and has recently completed its own study in 2011 (Hochhalter and Reed 2011). Recent studies in California, 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 Alaska study (Hochhalter and Reed 2011) 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. Collectively, this 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.

Beginning in 2012, the department began a focused outreach program to encourage public awareness of rockfish biology and management with special focus on the susceptibility of rockfish to barotrauma injuries. The department developed a communication plan and educational materials to improve public understanding of non-pelagic rockfish concerns. In concert with the communication plan, the department developed a video (available on the Sport Fish website here: http://www.adfg.alaska.gov/index.cfm?adfg=fishingsportfishinginfo.rockfishconservation) showing rockfish release mechanisms and their applied uses in the field. Creel staff were instructed to promote deepwater rockfish release during interaction with the angling public dockside. Additionally, the Sport Fish Regulatory Summary contains information

dedicated to deepwater release procedures and mechanisms. In addition, department offices display and demonstrate deepwater release mechanisms and provide a pamphlet describing the mechanisms and the benefits of their use. Sport Fish staff opportunistically promote strategies for deepwater release of rockfish at public meetings, informational events, advisory committee meetings, and at local offices. Beginning in 2012 all charter logbooks issued also include an informational pamphlet that promotes rockfish release at depth.

In 2013, the non-pelagic rockfish harvest and catch by non-guided anglers represented approximately half (50%) of the harvest and catch of non-pelagic rockfish in the SEAK sport fishery in both numbers of fish and mt's. The number of released non-pelagic rockfish by non-guided anglers in 2013 was approximately 2,300 fish that totaled just over 4.0 mt. If non-guided anglers would have released these fish at depth and incurred a 20% to 50% mortality rate, the total mortality (i.e., harvest plus release mortality) of non-pelagic rockfish in the SEAK sport fishery would decrease by 1.3 mt to 0.8 mt in the Southeast Outside Area—this represents a decrease of 4% to 2% for combined guided and non-guided total removals and a 10% to 6% decrease for non-guided total removals.

LINGCOD

Lingcod are the largest member of the greenling family and 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 are targeted by sport anglers. As with rockfish, lingcod are relatively sedentary and relatively easy to locate and catch, and therefore subject to overharvest. But unlike rockfish, lingcod have a lower rate of mortality after release because they have an open air bladder, and therefore not as susceptible to barotrauma. They are also not as long-lived as rockfish.

The department does not have a stock assessment for lingcod and 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 their population numbers due to fishing are difficult to assess. Analysis of catch per unit effort data (CPUE), in terms of fish per hook hour for 1988–1998, showed a decline in CPUE in the directed fishery ranging from 21% to 62% in areas where a directed fishery and increased recreational catch had developed. As a result, the guideline harvest ranges (GHRs) for lingcod were reduced in all areas beginning as early as 1995.

Current lingcod GHRs were established by the board in 2000. After reductions, CPUE began to increase in CSEO until around 2007; since then CPUE has decreased. CPUE has been generally stable in NSEO since the reductions in GHRs, and in SSEOC, the CPUE was highly variable from 1994 to 2003. Since then, data are only available for 3 years (2006, 2010, and 2012) as participation in this fishery is too variable to accurately characterize the CPUE in SSEOC. In EYKT, CPUE was variable between 1994 and 2000, while harvest fluctuated dramatically; during this time, CPUE dropped in years following high harvests. After the GHR was reduced in 2000, the CPUE was fairly stable in EYKT; however, in the last 3 years, the CPUE has been the lowest since 2000. The CPUE in EYKT is high relative to other management areas, likely because directed fishing is concentrated in a smaller area where there are typically higher abundances of lingcod (i.e., the Fairweather Grounds). In the Icy Bay Subdistrict (IBS), the directed fishery was opened in 2003; however, data for that season are confidential due to the very few participants in the fishery. The CPUE in IBS was stable between 2004 and 2009 and

increased from 2010 to 2014. Recent increases in CPUE in IBS may indicate an increase in lingcod stocks or may be a result of changing fishery dynamics—vessel participation has decreased while more experienced fishermen have remained in this area.

REGULATION DEVELOPMENT IN THE SPORT FISHERY

In February 2000, the board substantially changed 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 GHR management approach for sport and commercial fisheries in Southeast Alaska and allocated the GHR 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 GHR 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 would be managed to maintain lingcod harvests at or below harvest guidelines (in pounds) in each management area. In addition to the normal authority to restrict time and area in the sport fishery, the department uses authority granted by the board to implement size limits and annual limits for guided and nonresident anglers to achieve the desired guideline harvest allocations for each area (Appendix C).

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, and compared to the historical, would be evaluated to determine whether management action would be necessary prior to and applied in the following season. If harvest substantially exceeded the GHR in an area, restrictions would be applied prior to the next season to reduce harvests below the GHR. In contrast, 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. They do so 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) back to 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 harvests are landed; additionally, charter vessel logbook reports are available only for guided anglers.

The GHR approach requires harvest estimates, in round pounds, for each management area. At the 9 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

nonresident) is recorded. The length data is then converted into round weights based upon the length-weight relationship employed by the department. The average round weight is then calculated by angler type (resident or nonresident) for each port where on-site sampling occurs.

The estimated average round weights of harvested lingcod for each angler type (resident or nonresident) are multiplied by the SWHS harvest estimates for each angler type to obtain estimated harvest (in pounds). The estimated harvest (in pounds) from each angler type (resident or nonresident) 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 (Appendix C). These regulations proved to be ineffective in reducing the total weight of the sport harvest (Figure 8), so increasingly restrictive measures were implemented though 2008, after which harvest in most areas was near or within the recommended GHRs. Beginning in 2009 and continuing through 2014, small measures have been taken to liberalize the sport fisheries (size limit liberalization and season extensions) in some areas while staying within the GHRs.

From 2001 through 2005, the department implemented various regulations by EO including: minimum length limits, slot limits, and periods closed to fishing (Appendix C). These regulations were generally effective in constraining the sport fishery harvest to below the GHR in 2001–2003. However, in 2004 and 2005, the GHR 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 EO, 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, while seasons and gear restrictions remained in place. These regulations were generally effective in restricting the sport fishery harvest to near the GHR in 2007 and 2008 in most of the management areas (Figure 8).

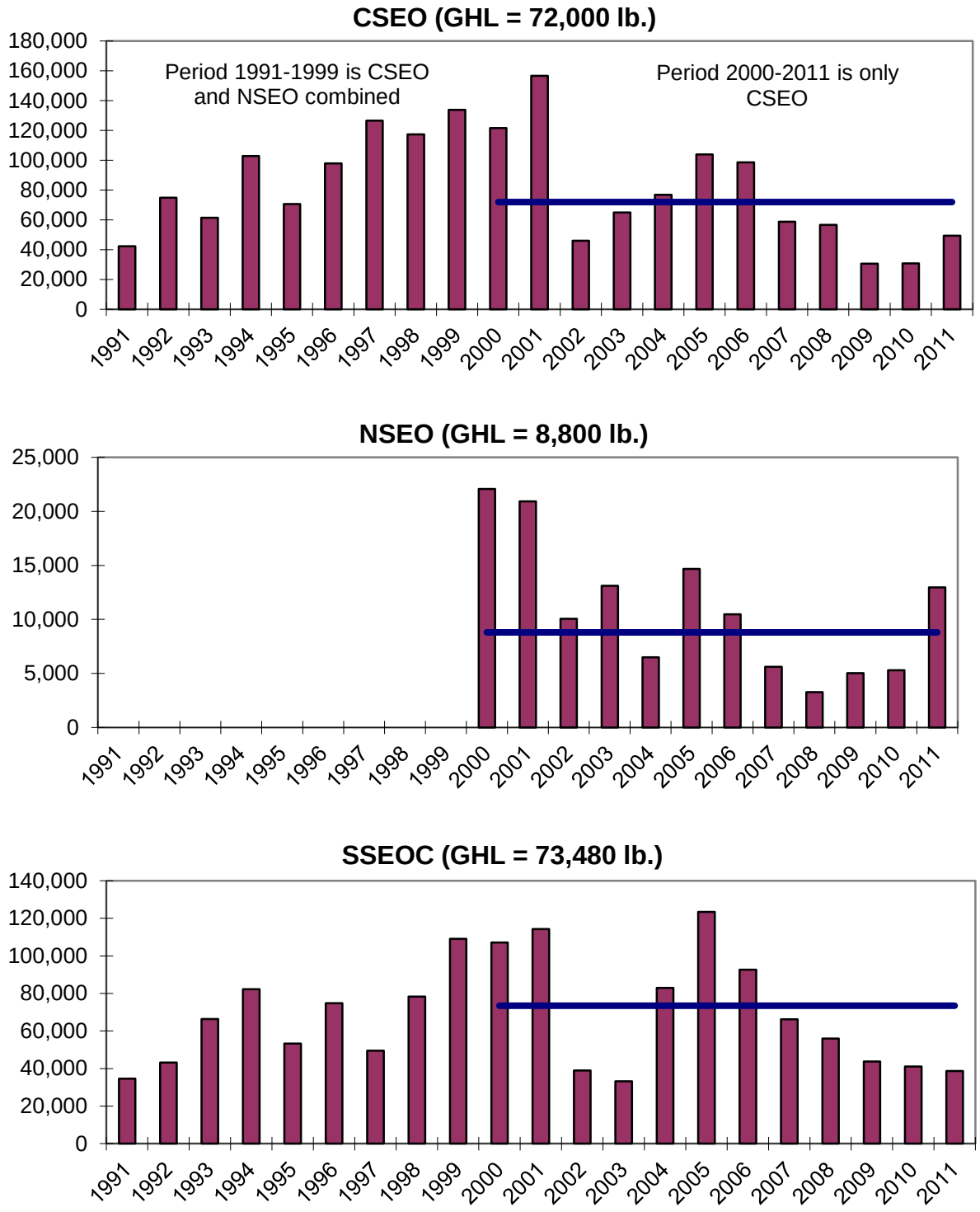

Figure 8.–Lingcod harvests in the Central Southeast Outside (CSEO), Northern Southeast Outside (NSEO), Southern Southeast Outside (SSEO), Northern Southeast Inside (NSEI), Southern Southeast Inside (SSEI), and Icy Bay/East Yakutat subdistrict (IBS/EYKT) areas. Estimates for 2014 are preliminary.

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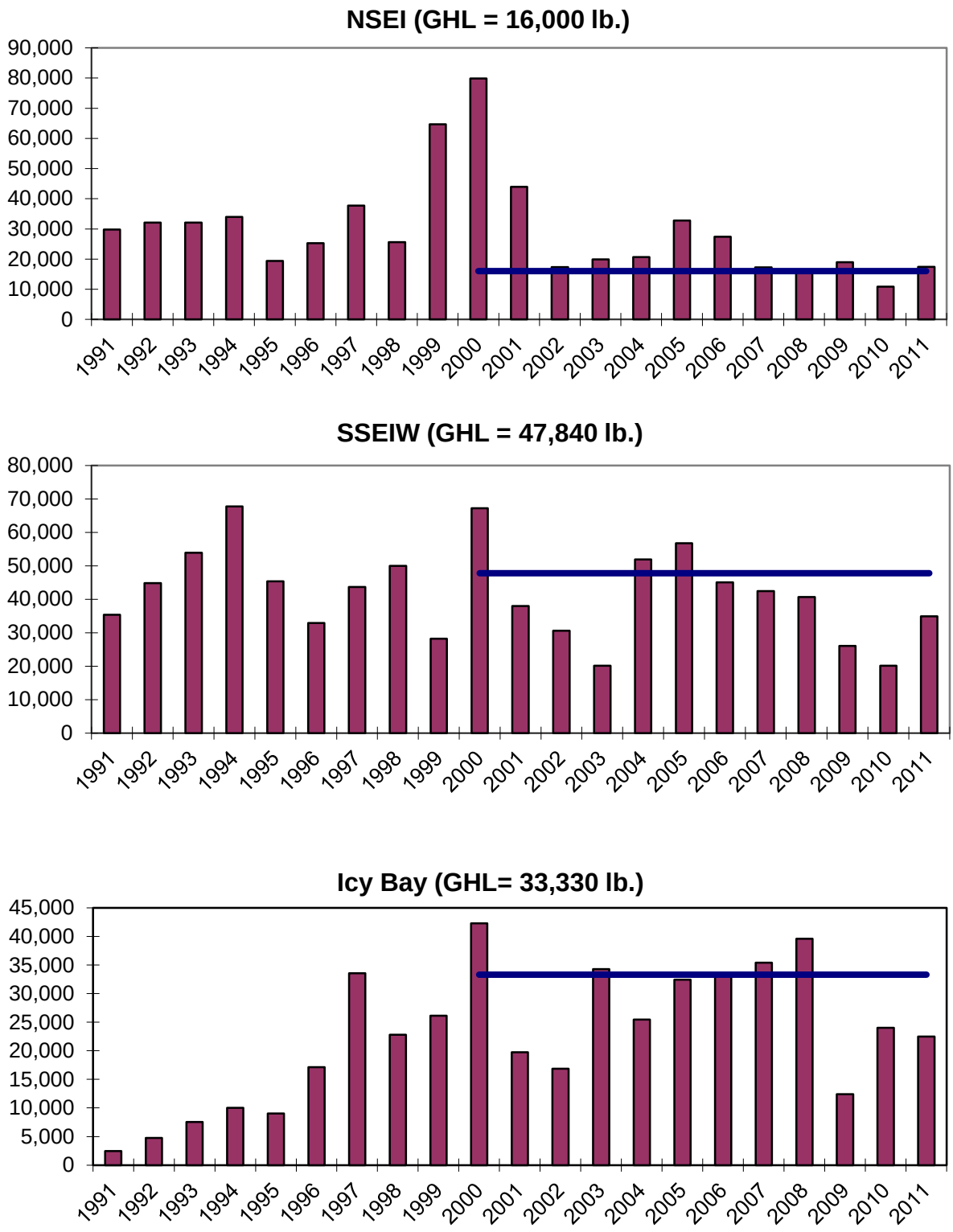

Figure 8.–Page 2 of 2.

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 nonresident categories rather than non-guided residents, guided, and nonresidents. Additionally, regionwide regulations allowed for an additional lingcod 55 inches or greater in length to be kept as a trophy fish by nonresidents.

From 2006 through 2011, more conservative regulations were generally successful in keeping the sport lingcod harvest within its allocation. In 2010 the nonresident 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 within CSEO/NSEO and NSEI areas, the season was extended by 4 weeks from May 16–June 15 to May 16–June 30 and from August 16–November 30 to August 1–November 30.

In 2012 and continuing through 2014, the slot limit in SSEI and SSEO was relaxed from 30–40 inches to 30–45 inches, and the season in CSEO/NSEO and NSEI was changed from May 16–June 30 and August 1–November 30 to open continuously May 16–November 30.

2015 LINGCOD PROPOSALS

Three proposals dealing with lingcod management have been submitted to the board for consideration in February 2015, one of which would affect the sport fishery. Proposal 142 (submitted by the department) would eliminate lingcod regulations specific to Sitka Sound that are no longer necessary because of superseding current regional regulations that are more restrictive.

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APPENDIX A

Appendix A.–Summary of sport fish regulations for non-pelagic rockfish in Southeast Alaska, 1989-2014.

Year	Bag, possession and annual limits	
1989-1993	Daily bag limit of 5 fish (all rockfish), of which only 2 may be a yelloweye rockfish, possession limit of 10, of which only 4 may be a yelloweye rockfish.	
1994-2005	Daily bag limit of 5 fish, of which only 2 may be a yelloweye rockfish, possession limit of 10 fish, of which only 4 may be a yelloweye rockfish.	
2006[ab]	Daily bag limit of 3 fish, of which only 1 may be a yelloweye rockfish, possession limit of 6 fish, of which only 2 may be a yelloweye rockfish.	
	Resident	Nonresident
2007-2010[ab]	Bag limit of 3 fish, only 1 of which may be a yelloweye rockfish; possession limit of 6.	Bag limit of 2 fish, only 1 of which can be a yelloweye rockfish, possession limit of 4, of which only 2 may be a yelloweye rockfish; annual limit of 3 yelloweye rockfish.
	Resident	Nonresident
2011-2012[ab]	Southeast Outside Waters: bag limit of 2 fish, only 1 of which may be a yelloweye rockfish; possession limit of 4 fish, of which only 2 may be a yelloweye rockfish.	Southeast Outside Waters: bag limit of 2 fish, only 1 of which can be a yelloweye rockfish, possession limit of 4 fish, of which only 1 may be a yelloweye rockfish; annual limit of 1 yelloweye rockfish.
	Southeast Inside Waters: bag limit is 3 fish, only 1 of which may be a yelloweye rockfish; possession limit of 6 fish, of which only 2 may be a yelloweye rockfish.	Southeast Inside Waters: bag limit is 2 fish, only 1 of which can be a yelloweye rockfish, possession limit of 4 fish, of which only 2 may be a yelloweye rockfish; annual limit of 2 yelloweye rockfish.
	Resident	Nonresident
2013-2014[abc]	Southeast Outside Waters: bag limit of 2 fish, only 1 of which may be a yelloweye rockfish; possession limit of 4 fish, of which only 2 may be a yelloweye rockfish.	Southeast Outside Waters: bag limit of 2 fish, only 1 of which can be a yelloweye rockfish, possession limit of 4 fish, of which only 1 may be a yelloweye rockfish; annual limit of 1 yelloweye rockfish.
	Southeast Inside Waters: bag limit is 3 fish, only 1 of which may be a yelloweye rockfish; possession limit of 6 fish, of which only 2 may be a yelloweye rockfish.	Southeast Inside Waters: bag limit is 2 fish, only 1 of which can be a yelloweye rockfish, possession limit of 4 fish, of which only 2 may be a yelloweye rockfish; annual limit of 2 yelloweye rockfish.

[a] Charter operators and crew are not allowed to retain non-pelagic rockfish.

[b] All non-pelagic rockfish caught must be retained until the bag limit is reached.

[c] Persons sport fishing from a charter vessel when releasing non-pelagic rockfish, (e.g., after an angler reaches their bag limit), must be in possession of and utilize a deepwater release mechanism to return the fish to the depth it was hooked or to a depth of at least 100 feet.

APPENDIX B

Appendix B.–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).
GMT 2014 report to Pacific Fishery Management Council.	Cowcod, canary, yellowye	0-75 fathoms		Examined use of Release Devices.	Yes	Yes	Yes
Hannah and Rankin 2014, Fisheries Research 157:106-112	Canary, yelloweye			Post recompression of rockfish 2-days.	Yes	90-100%	Yes
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

APPENDIX C

Appendix C.–Sport lingcod regulations through 2014.

Year	SSEI	SSEO	CSEO/NSEO/NSEI	YAK
Prior to 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
2004	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

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Appendix C.–Page 2 of 4.

Year	SSEI	SSEO	CSEO/NSEO/NSEI	YAK
2005	Season: May 16–Nov 30	Season: May 16–Nov 30	Season: May 16–June 15, August 16–Nov 30	Season: May 16–Nov 30
	1 per day, 2 in possession	1 per day, 2 in possession	1 per day, 2 in possession	1 per day, 2 in possession
	No size limit	Non-guided residents: no size limit	Non-guided residents: no size limit	Non-guided residents: no size limit
		Guided and nonresidents: 30 in-40 in slot limit	Guided and nonresidents: 30 in-40 in slot limit	Guided and nonresidents: 32 in-42 in slot limit
2006	Season: May 16–Nov 30	Season: May 16–Nov 30	Season: May 16–June 15, August 16–Nov 30	Season: May 16–Nov 30
	1 per day, 2 in possession	1 per day, 2 in possession	1 per day, 2 in possession	1 per day, 2 in possession
	No size limit	Non-guided residents: no size limit	Non-guided residents: no size limit	Non-guided residents: no size limit
	Guided and nonresidents: annual limit of two	Guided and nonresidents: 30 in-40 in slot limit	Guided and nonresidents: 30 in-40 in slot limit	Guided and nonresidents: 32 in-42 in slot limit
	No retention by charter operators/crew	Guided and nonresidents: annual limit of two	Guided and nonresidents: annual limit of two	No retention by charter operators/crew
		No retention by charter operators/crew	No retention by charter operators/crew	
2007-	Season: May 16–Nov 30	Season: May 16–June 15, August 16–Nov 30	Season: May 16–June 15, August 16–Nov 30	Season: May 16–Nov 30
2008	Non-guided resident: 1 per day, 2 in possession	Non-guided resident: 1 per day, 2 in possession	Non-guided resident: 1 per day, 2 in possession	1 per day, 2 in possession
	Non-guided residents: no size limit	Non-guided residents: no size limit	Non-guided residents: no size limit	Non-guided residents: no size limit
	Guided and nonresidents: 30 in-40 in slot limit	Guided and nonresidents: 30 in-35 in slot limit	Guided and nonresidents: 30 in-35 in slot limit	Guided and nonresidents: 32 in-42 in slot limit
	Guided and nonresidents: annual limit of 1	Guided and nonresidents: annual limit of 1	Guided and nonresidents: annual limit of 1	No retention by charter operators/crew
	No retention by charter operators/crew	No retention by charter operators/crew	No retention by charter operators/crew	

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Year	SSEI	SSEO	CSEO/NSEO/NSEI	YAK
2009	Season: May 16–Nov 30	Season: May 16–Nov 30	Season: May 16–June 15, August 16–Nov 30	Season: May 16–Nov 30
	Resident: 1 per day, 2 in possession, no size limit	Resident: 1 per day, 2 in possession, no size limit	Resident: 1 per day, 2 in possession, no size limit	Resident: 1 per day, 2 in possession, no size limit
	Nonresidents: 1 per day, 1 in possession, 30-35 in slot limit OR 55 inches or greater. Must land lingcod by hand or with a landing net	Nonresidents: 1 per day, 1 in possession, 30-35 in slot limit OR 55 inches or greater. Must land lingcod by hand or with a landing net	Nonresidents: 1 per day, 1 in possession, 30-35 in slot limit OR 55 inches or greater. Must land lingcod by hand or with a landing net	Nonresidents: 1 per day, 1 in possession, 30-35 in slot limit OR 55 inches or greater. Must land lingcod by hand or with a landing net
	Nonresident angler annual limit of two lingcod, 1 of which is 30-35 inches in length and 1 that is 55 inches or greater in length	Nonresident angler annual limit of two lingcod, 1 of which is 30-35 inches in length and 1 that is 55 inches or greater in length	Nonresident angler annual limit of two lingcod, 1 of which is 30-35 inches in length and 1 that is 55 inches or greater in length	Nonresident angler annual limit of two lingcod, 1 of which is 30-35 inches in length and 1 that is 55 inches or greater in length
	No captain/crew lingcod retention while clients are on board the vessel	No captain/crew lingcod retention while clients are on board the vessel	No captain/crew lingcod retention while clients are on board the vessel	No captain/crew lingcod retention while clients are on board the vessel
2010	Season: May 16–Nov 30	Season: May 16–Nov 30	Season: May 16–June 15, August 16–Nov 30	Season: May 16–Nov 30
	Resident: 1 per day, 2 in possession, no size limit	Resident: 1 per day, 2 in possession, no size limit	Resident: 1 per day, 2 in possession, no size limit	Resident: 1 per day, 2 in possession, no size limit
	Nonresidents: 1 per day, 1 in possession, 30-35 in slot limit OR 55 inches or greater. Must land lingcod by hand or with a landing net	Nonresidents: 1 per day, 1 in possession, 30-35 in slot limit OR 55 inches or greater. Must land lingcod by hand or with a landing net	Nonresidents: 1 per day, 1 in possession, 30-35 in slot limit OR 55 inches or greater. Must land lingcod by hand or with a landing net	Nonresidents: 1 per day, 1 in possession, 30-40 in slot limit OR 55 inches or greater. Must land lingcod by hand or with a landing net
	Nonresident angler annual limit of two lingcod, 1 of which is 30-35 inches in length and 1 that is 55 inches or greater in length	Nonresident angler annual limit of two lingcod, 1 of which is 30-35 inches in length and 1 that is 55 inches or greater in length	Nonresident angler annual limit of two lingcod, 1 of which is 30-35 inches in length and 1 that is 55 inches or greater in length	Nonresident angler annual limit of two lingcod, 1 of which is 30-40 inches in length and 1 that is 55 inches or greater in length
	No captain/crew lingcod retention while clients are on board the vessel	No captain/crew lingcod retention while clients are on board the vessel	No captain/crew lingcod retention while clients are on board the vessel	No captain/crew lingcod retention while clients are on board the vessel

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Year	SSEI	SSEO	CSEO/NSEO/NSEI	YAK
2011	Season: May 16–Nov 30	Season: May 16–Nov 30	Season: May 16–June 30, August 16–Nov 30	Season: May 16–Nov 30
	Resident: 1 per day, 2 in possession, no size limit	Resident: 1 per day, 2 in possession, no size limit	Resident: 1 per day, 2 in possession, no size limit	Resident: 1 per day, 2 in possession, no size limit
	Nonresidents: 1 per day, 1 in possession, 30-40 in slot limit OR 55 inches or greater. Must land lingcod by hand or with a landing net	Nonresidents: 1 per day, 1 in possession, 30-40 in slot limit OR 55 inches or greater. Must land lingcod by hand or with a landing net	Nonresidents: 1 per day, 1 in possession, 30-35 in slot limit OR 55 inches or greater. Must land lingcod by hand or with a landing net	Nonresidents: 1 per day, 1 in possession, 30-45 in slot limit OR 55 inches or greater. Must land lingcod by hand or with a landing net
	Nonresident angler annual limit of two lingcod, 1 of which is 30-40 inches in length and 1 that is 55 inches or greater in length	Nonresident angler annual limit of two lingcod, 1 of which is 30-40 inches in length and 1 that is 55 inches or greater in length	Nonresident angler annual limit of two lingcod, 1 of which is 30-35 inches in length and 1 that is 55 inches or greater in length	Nonresident angler annual limit of two lingcod, 1 of which is 30-45 inches in length and 1 that is 55 inches or greater in length
	No captain/crew lingcod retention while clients are on board the vessel	No captain/crew lingcod retention while clients are on board the vessel	No captain/crew lingcod retention while clients are on board the vessel	No captain/crew lingcod retention while clients are on board the vessel
2012-2014	Season: May 16–Nov 30	Season: May 16–Nov 30	Season: May 16–Nov 30	Season: May 16–Nov 30
	Resident: 1 per day, 2 in possession, no size limit	Resident: 1 per day, 2 in possession, no size limit	Resident: 1 per day, 2 in possession, no size limit	Resident: 1 per day, 2 in possession, no size limit
	Nonresidents: 1 per day, 1 in possession, 30-45 in slot limit OR 55 inches or greater. Must land lingcod by hand or with a landing net	Nonresidents: 1 per day, 1 in possession, 30-45 in slot limit OR 55 inches or greater. Must land lingcod by hand or with a landing net	Nonresidents: 1 per day, 1 in possession, 30-35 in slot limit OR 55 inches or greater. Must land lingcod by hand or with a landing net	Nonresidents: 1 per day, 1 in possession, 30-45 in slot limit OR 55 inches or greater. Must land lingcod by hand or with a landing net
	Nonresident angler annual limit of two lingcod, 1 of which is 30-45 inches in length and 1 that is 55 inches or greater in length	Nonresident angler annual limit of two lingcod, 1 of which is 30-45 inches in length and 1 that is 55 inches or greater in length	Nonresident angler annual limit of two lingcod, 1 of which is 30-35 inches in length and 1 that is 55 inches or greater in length	Nonresident angler annual limit of two lingcod, 1 of which is 30-45 inches in length and 1 that is 55 inches or greater in length
	No captain/crew lingcod retention while clients are on board the vessel	No captain/crew lingcod retention while clients are on board the vessel	No captain/crew lingcod retention while clients are on board the vessel	No captain/crew lingcod retention while clients are on board the vessel