

Review of Council Action on Overfished Species QS Initial Allocation Formula (for non-whiting)

or, where are we and how did we get here?

Let's start with some history

- In the Fall of 2007, the TIQC met
- The TIQC recommended an approach for allocating overfished species that was not based on landings history
- In a nutshell, the concern was that allocating overfished species based on landings history would not be appropriate for today's fishery
 - Many overfished species were targeted in the fishery in the past

The basic concept

To develop an initial allocation approach that would acknowledge the constraints of the current fishery under rebuilding plans.

- Try to respond to what fishermen might need by allocating overfished species quota in ways that:
 - Acknowledge variations in spatial fishing patterns
 - Acknowledge variations in spatial differences in overfished species abundance
 - Acknowledge variations in the amount of target species QS each permit would receive

Sources of information used in the approach

1. Aggregated West Coast Groundfish Observer Program Data
 1. Informs spatial differences in overfished species abundance
2. West coast trawl logbooks
 1. Informs spatial variations in fishing patterns for each vessel/permit
3. Initial allocations of target species
 1. Provides estimates for the amount of target species each permit will receive

How the information is used...generally

- Start with initial allocation estimates of target species for each permit
- Break apart those estimates into several different areas
 - Done by using a vessel's logbook records to show where target species catch has occurred
- Overlay WCGOP bycatch data onto each of those areas
- The result gives you estimates of overfished species based on:
 - The amount of target species quota
 - Where the vessel associated with that permit prefers to fish

Some basic decision points

1. How finely should we divide up the coast?
 - Initial recommendation from TIQC was to create 4 areas along the coast
 - North and south of 40 deg 10 min N lat
 - Deeper and shallower than the RCA

2. What logbook years should we use to determine where people prefer to fish?
 - Initial recommendation from TIQC on logbooks was to use 1994 to 2003
 - Idea was that 1994 to 2003 logbooks would be consistent with the fishing practices for the initial allocation window period (which is 94 to 03)

GAC consideration of logbook years

Initial GAC discussions of the approach primarily focused on the choice of logbook years

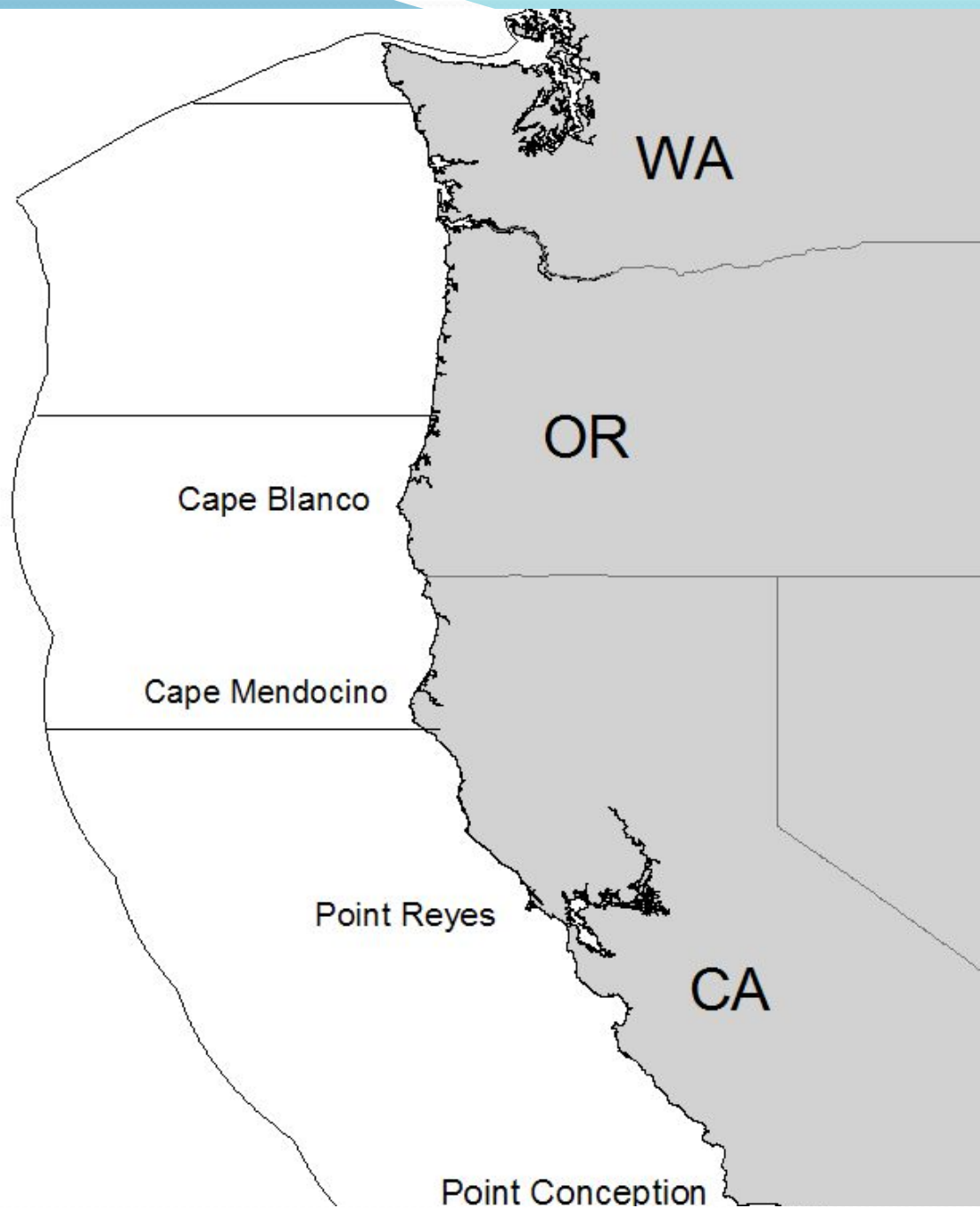
GAC recommended that the logbook years used in the formula be 2003 to 2006, rather than 1994 to 2003

- Idea is that using 2003 to 2006 is more reflective of fishing practices under the constraints of rebuilding plans. Those rebuilding plans are likely to stay in place for some time

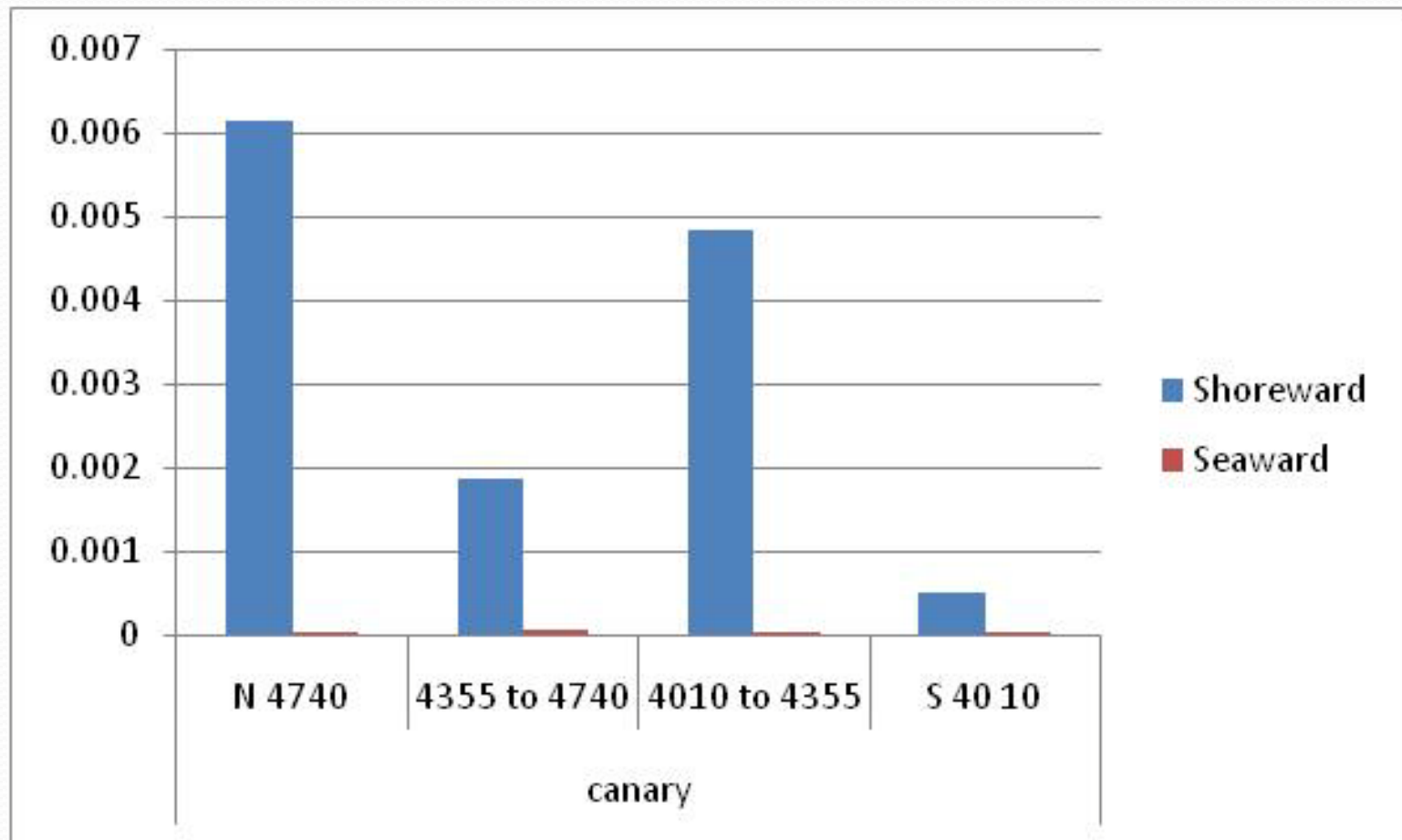
Council adopted the GAC recommendation in November 2007

GAC discussion of number of areas

- At the May 2008 GAC meeting, the GAC asked staff for more information on the number of areas used in the formula
- Staff provided analysis at June 2008 Council meeting showing varying bycatch rates up and down the coast
- In November of 2008 the Council adopted “finer area rates” in the allocation formula
 - Instead of using latitudes stratified north and south of 40 deg 10' N lat, lines were used at
 - 40 deg 10' N lat
 - 43 deg 55' N lat
 - 47 deg 40' N lat
 - Created 8 areas rather than 4 in the formula



Example: Canary bycatch rates used for initial allocation estimates



Example calculation (first step)

	Shoreward Catch Percentage	Seaward Catch Percentage
Dover	48%	52%
Longspine	5%	95%
Shortspine	12%	88%
Sablefish	11%	89%
Petrals	22%	78%
Other Flatfish	98%	2%
English sole	95%	5%
Splitnose	35%	65%
Pacific cod	88%	12%
Slope Rockfish	3%	97%
Arrowtooth	12%	88%

Area	Species	Quota Share to Permit X	Shoreward Share	Seaward Share
North of 47 40	Dover	1%	48%	52%
	Longspine	2%	5%	95%
	Shortspine	3%	12%	88%
	Sablefish	3%	11%	89%
	Petrale	1%	22%	78%
	Other Flatfish	1%	98%	2%
	Pacific cod	1%	88%	12%
	English sole	1%	95%	5%
	Splitnose	0%	0%	0%
	Slope			
	Rockfish	4%	3%	97%
	Arrowtooth	3%	12%	88%

Area	Species	Shoreward Share	Seaward Share	Implementation Year Trawl Allocation (mt)	Shoreward Lbs	Seaward Lbs
North of 47 40	Dover	48%	52%	16000	169,315	183,424
	Longspine	5%	95%	2000	4,409	83,776
	Shortspine	12%	88%	1200	9,524	69,842
	Sablefish	11%	89%	2600	15,763	127,537
	Petrals	22%	78%	2500	12,125	42,990
	Other Flatfish	98%	2%	7000	151,237	3,086
	Pacific cod	88%	12%	1000	19,401	2,646
	English sole	95%	5%	14000	293,214	15,432
	Splitnose	0%	0%	460	-	-
	Slope Rockfish	3%	97%	800	1,852	59,877
	Arrowtooth	12%	88%	10000	79,366	582,020

Species	Shoreward Lbs	Seaward Lbs	Shoreward drkbltch rate	Seaward drkbltch rate	Shorwrđ Drkbltch lbs	Seaward Drkbltch lbs	Total	Fleet total	Drkbltch QS
Dover	169,315	183,424	0.0001	0.02	17	3,668			
Longspine	4,409	83,776	0.0001	0.02	0	1,676			
Shortspine	9,524	69,842	0.0001	0.02	1	1,397			
Sablefish	15,763	127,537	0.0001	0.02	2	2,551			
Petrale	12,125	42,990	0.0001	0.02	1	860			
Other Flatfish	151,237	3,086	0.0001	0.02	15	62			
Pacific cod	19,401	2,646	0.0001	0.02	2	53			
English sole	293,214	15,432	0.0001	0.02	29	309			
Splitnose	-	-	0.0001	0.02	-	-			
Slope Rockfish	1,852	59,877	0.0001	0.02	0	1,198			
Arrowtooth	79,366	582,020	0.0001	0.02	8	11,640			
							23,488	705,478	3%

Average Allocation of Overfished Species QS to Permits by Region (FPA)

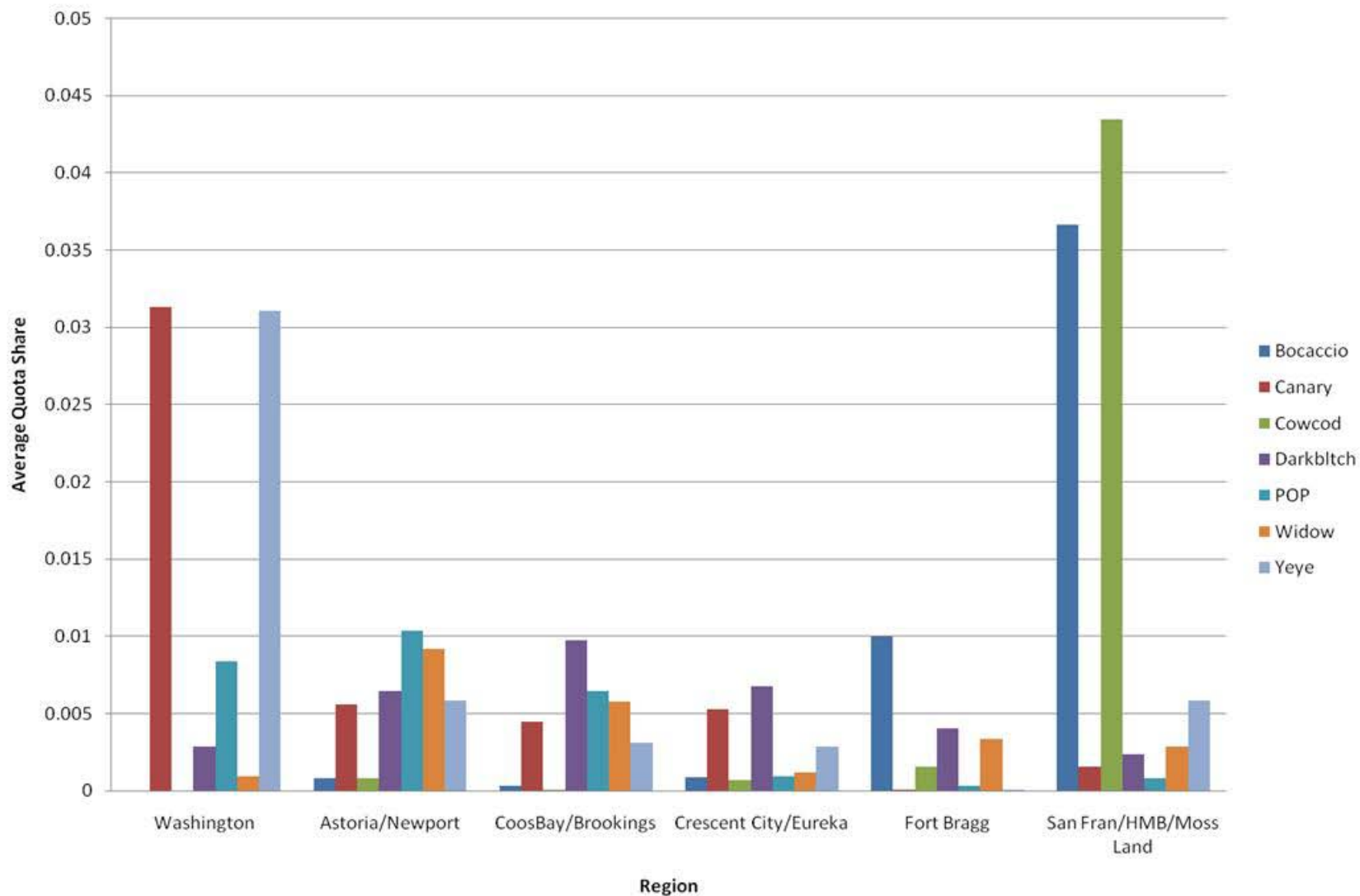


Figure shows correlation between sablefish and darkblotched QS

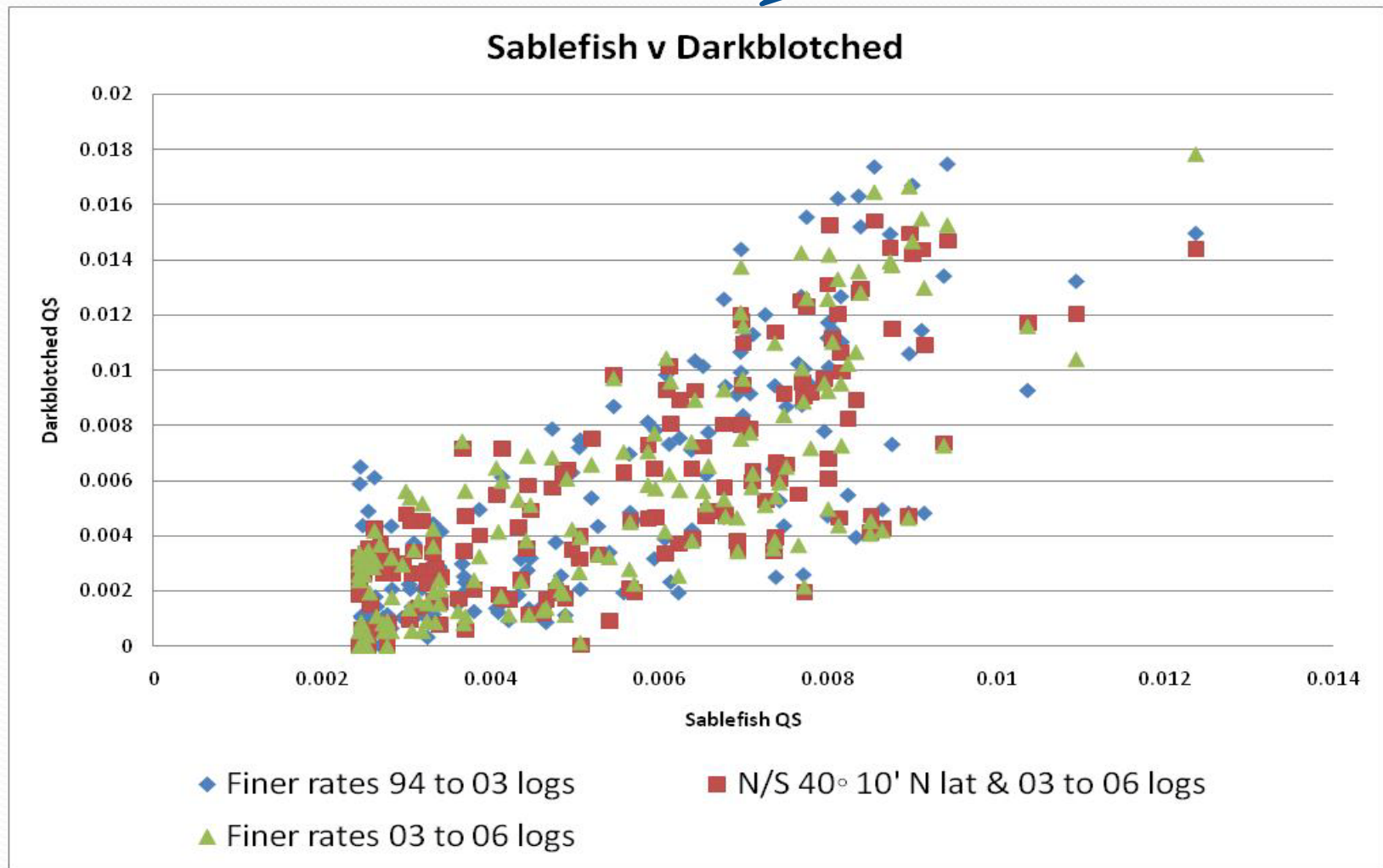
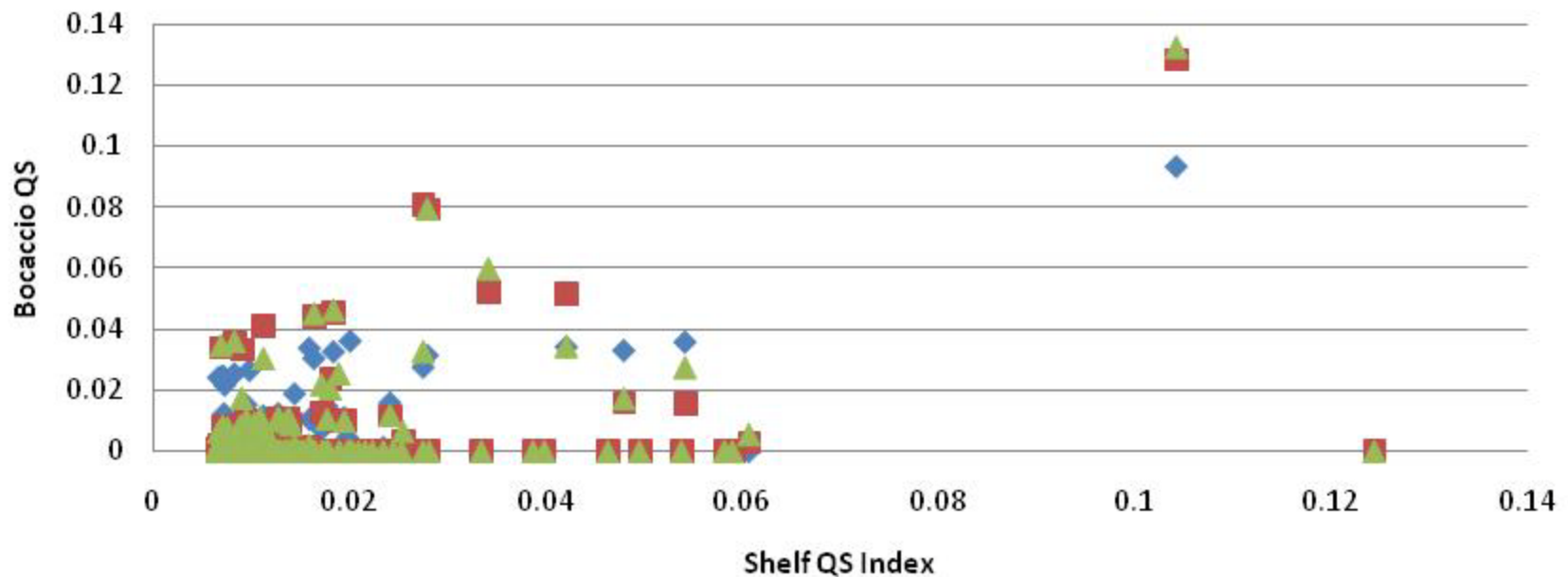


Figure shows limited correlation between shelf target sp and bocaccio QS. Explained by latitudinal difference in bocaccio abundance

Bocaccio QS v Shelf Target Index



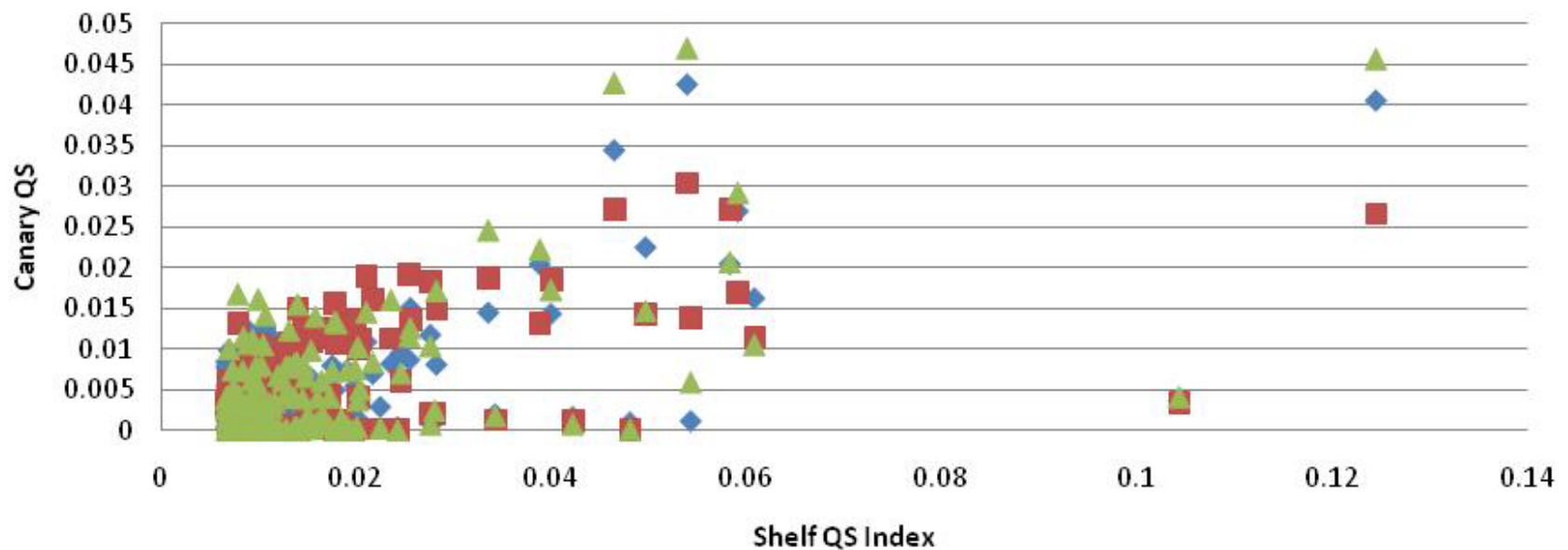
◆ Finer rates 94 to 03 logs

■ N/S 40° 10' N lat & 03 to 06 logs

▲ Finer rates 03 to 06 logs

Figure shows limited correlation between shelf target QS and canary QS. Explained by latitudinal difference in canary abundance

Canary QS v Shelf Target Index

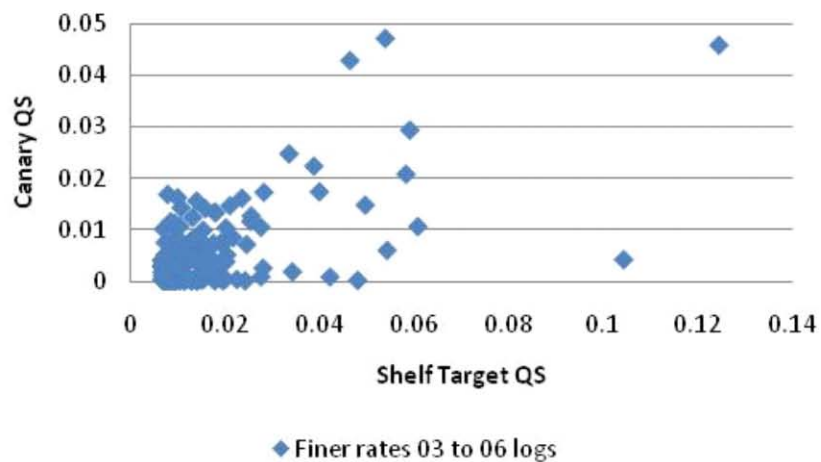


◆ Finer rates 94 to 03 logs

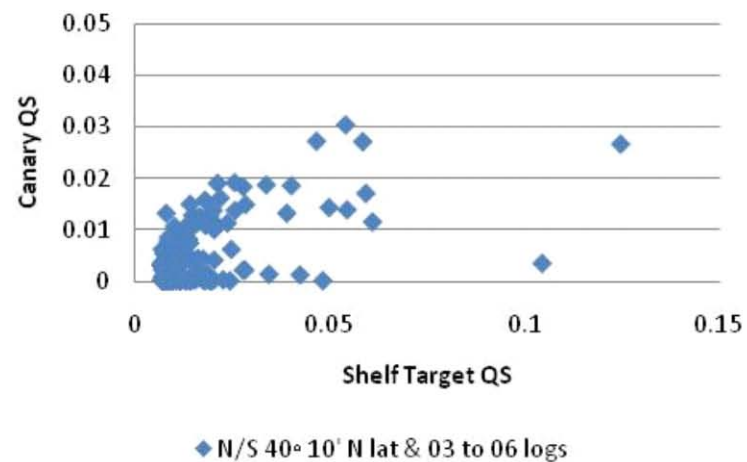
■ N/S 40° 10' N lat & 03 to 06 logs

▲ Finer rates 03 to 06 logs

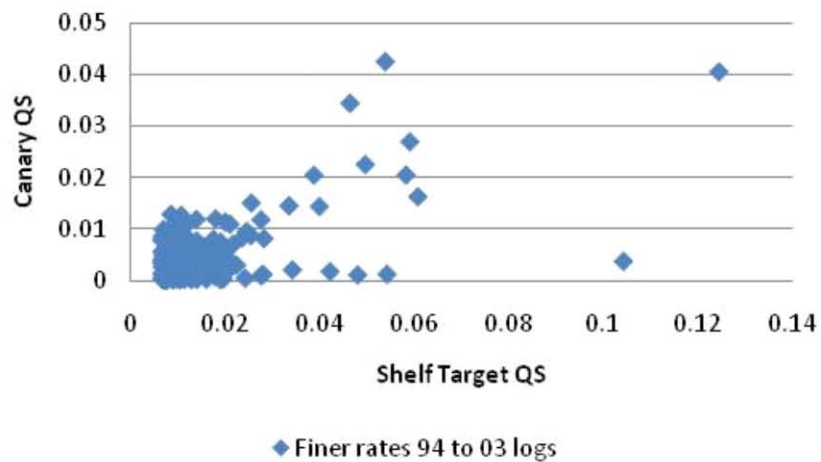
Canary v Shelf Target



Canary v Shelf Target



Canary v Shelf Target



PROPOSED AGENDA
Special Open Session on Catch Share Allocation

Pacific Fishery Management Council

Groundfish Advisory Subpanel
Balboa-Columbus Ballroom
Crowne Plaza Hotel

SATURDAY, SEPTEMBER 12, 2009, 8:00 A.M.

A. Call to Order

1. Welcome and Opening Remarks Tom Ancona
2. Purpose and Agenda Don Hansen and Don McIsaac

Note: Questions of clarity only on the presentations in Agenda Items B, C, and D will be taken after each presentation; comments and questions related to the implications of the presentations will be addressed under Agenda Item E.

B. Review of Final Council Action on Quota Share (QS) Allocation Formulas (informational)

1. Non-overfished species Jim Seger
2. Overfished species Merrick Burden

C. Quota Pound Estimates Provided In Mailing to Permit Holders (informational)

Jim Seger

D. Response to Written Questions and Concerns about Initial Allocation of QS

1. Most permit holders will get substantially less fish than they have taken in recent years
2. The equal sharing provision adversely affects many permit holders
3. Fishermen are concerned that their initial allocation of overfished species QS will not match up well with their initial allocation of target species
4. Port-by-port information on QS distribution needs to be considered and made available to permit holders

E. Open Question and Answer Period on Allocation Formula Choices and Concerns

F. Next Steps – public comment periods in the Council process and National Marine Fisheries Service review process

ADJOURN

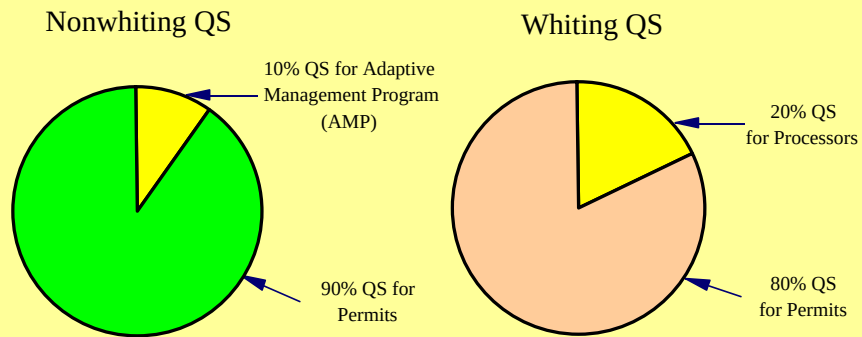
PFMC
09/04/09

B. Review of Final Council Action on Quota Share (QS) Allocation Formulas

Initial Allocation of QS

- Focus
 - Allocation of QS to Permits
 - Shoreside Sector
 - Will not cover QS allocations for shoreside processors or allocation to mothership co-op permits

How much is available for allocation to permits?



What are the basic elements of the allocation formula?

Species and Sector	Formula
All Species on Nonwhiting Trips Except Incidental Overfished	Equal Sharing and Permit History
Incidental Overfished Species on Nonwhiting Trips	Proportional to Target Species QS Using Logbooks & Bycatch Rates
Whiting	Equal Sharing and Permit History
Bycatch on Whiting Trips (including overfished species)	Proportional to Whiting QS

Example

- Permit with both nonwhiting and whiting trips.
- 1st Calculation of QS for nonwhiting trips and whiting trips
- 2nd Adjustments:
 - Combine shoreside nonwhiting and whiting
 - Subtract QS for Adaptive Management Program and processors

Basic Elements of Allocation Formula By Species And Sector

Species and Sector	Formula
All Species on Nonwhiting Trips Except Incidental Overfished	Equal Sharing and Permit History <i>e.g. Sablefish (north)</i>
Incidental Overfished Species on Nonwhiting Trips	Proportional to Target Species QS Using Logbooks & Bycatch Rates
Whiting	Equal Sharing and Permit History
Bycatch on Whiting Trips (including overfished species)	Proportional to Whiting QS

Equal Sharing Portion of Formula

$$= \frac{\text{Total 1994-2003 Weight by Buyback Permits}}{\text{Total 1994-2003 Weight by Fleet}}$$

$$13,100 \text{ mt buyback} \div 28,100 \text{ mt fleet} = 47\%$$

Assume 169 permits = **0.276%** sablefish QS
per permit (before adjustments)

Basic Elements of Allocation Formula By Species And Sector

Species and Sector	Formula
All Species on Nonwhiting Trips Except Incidental Overfished	Equal Sharing and Permit History Total Sablefish QS = 0.276 + ???
Incidental Overfished Species on Nonwhiting Trips	Proportional to Target Species QS Using Logbooks & Bycatch Rates
Whiting	Equal Sharing and Permit History
Bycatch on Whiting Trips (including overfished species)	Proportional to Whiting QS

Permit History Portion of Formula

- 1994-2003
- Measure history as annual share of landings
 - a permit's landings for each year divided by the fleet's landings
 - also termed "relative pounds"
- Drop 3 worst years

Permit History

- Northern Sablefish

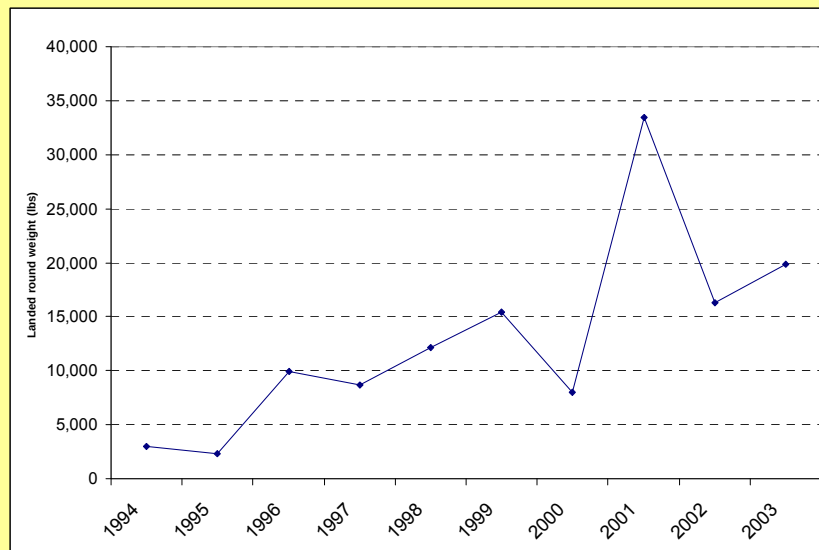
Example Landing History	
Year	Pounds
1994	2,992
1995	2,344
1996	9,913
1997	8,631
1998	12,169
1999	15,392
2000	7,997
2001	33,450
2002	16,335
2003	19,848

Convert Permit History to Shares

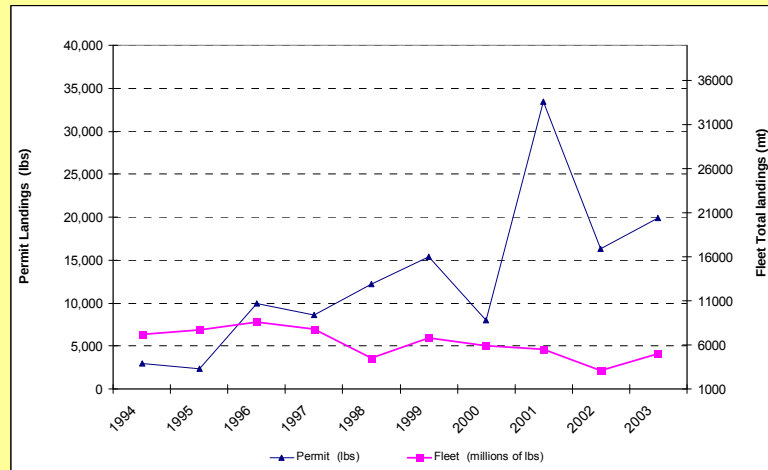
- Northern Sablefish
- Permit History/Fleet Landings

	Example Permit (lbs)	Fleet (million lbs)	Example Permit Share
1994	2,992	7.2	0.04%
1995	2,344	7.7	0.03%
1996	9,913	8.6	0.11%
1997	8,631	7.8	0.11%
1998	12,169	4.5	0.27%
1999	15,392	6.8	0.23%
2000	7,997	5.9	0.14%
2001	33,450	5.5	0.61%
2002	16,335	3.1	0.53%
2003	19,848	5.0	0.40%

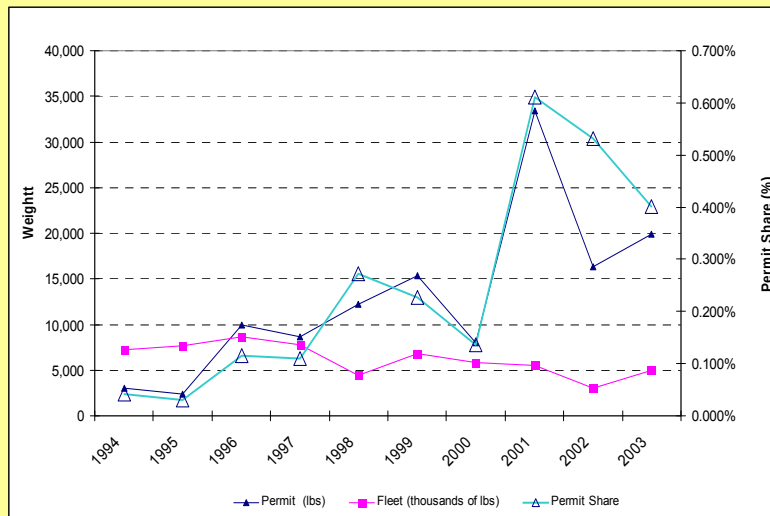
Graphically: Permit Landed Pounds



Graphically: Permit and Fleet Landings



Graphically: Permit Share of Fleet Total



Drop 3 Worst Years and Sum

- Permit History/Fleet Landings
- Drop 3 worst years
- $2.292\% \div 451\% = 0.51\%$
- Do for all permits, result adds to 100%

	Example Permit (lbs)	Fleet (million lbs)	Example Permit Share	Sum Shares of All Permits (excl buyback)
1994	2,992	7.2		
1995	2,344	7.7		
1996	9,913	8.6	0.11%	
1997	8,631	7.8		
1998	12,169	4.5	0.27%	
1999	15,392	6.8	0.23%	
2000	7,997	5.9	0.14%	
2001	33,450	5.5	0.61%	
2002	16,335	3.1	0.53%	
2003	19,848	5.0	0.40%	
Total			2.292%	451%

Scale Back History Result Because of Equal Allocation

- 47% of sablefish north QS will be allocated equally.
- 53% will be allocated based on catch history.
- Therefore 0.51% needs to be reduced:
 $53\% \times 0.51\% = 0.27\%$

Basic Elements of Allocation Formula By Species And Sector

Species and Sector	Formula
All Species on Nonwhiting Trips Except Incidental Overfished	Equal Sharing and Permit History Total Sablefish QS = 0.276% + 0.27% = 0.542% (before adjustments)
Incidental Overfished Species on Nonwhiting Trips	Proportional to Target Species QS Using Logbooks & Bycatch Rates
Whiting	Equal Sharing and Permit History
Bycatch on Whiting Trips (including overfished species)	Proportional to Whiting QS

Basic Elements of Allocation Formula By Species And Sector

Species and Sector	Formula
All Species on Nonwhiting Trips Except Incidental Overfished	Equal Sharing and Permit History Total Sablefish QS = 0.276% + 0.27%=0.542% (before adjustments)
Incidental Overfished Species on Nonwhiting Trips	Proportional to Target Species QS Using Logbooks & Bycatch Rates
Whiting	Equal Sharing and Permit History
Bycatch on Whiting Trips (including overfished species)	Proportional to Whiting QS

Whiting

- Same formula as for nonwhiting except:
 - Drop 2 years instead of 3 years
- Equal Allocation for Whiting:
 $57,500 \text{ mt buyback} / 742,500 \text{ mt fleet} = 7.74\%$

 Assume 169 permits = **0.046%** whiting QS per permit
- Landing History: For this permit **0.15%** whiting based on landing history.
- Total Whiting QS = $0.046\% + 0.15\% = 0.196\%$ (before adjustments)

Basic Elements of Allocation Formula By Species And Sector

Species and Sector	Formula
All Species on Nonwhiting Trips Except Incidental Overfished	Equal Sharing and Permit History Total Sablefish QS = $0.276\% + 0.27\% = 0.542\%$ (before adjustments)
Incidental Overfished Species on Nonwhiting Trips	Proportional to Target Species QS Using Logbooks & Bycatch Rates
Whiting	Equal Sharing and Permit History Total Whiting QS = $0.046\% + 0.15\% = 0.196\%$ (before adjustments)
Bycatch on Whiting Trips (including overfished species)	Proportional to Whiting QS

Basic Elements of Allocation Formula By Species And Sector

Species and Sector	Formula
All Species on Nonwhiting Trips Except Incidental Overfished	Equal Sharing and Permit History Total Sablefish QS = 0.276% + 0.27%=0.542% (before adjustments)
Incidental Overfished Species on Nonwhiting Trips	Proportional to Target Species QS Using Logbooks & Bycatch Rates
Whiting	Equal Sharing and Permit History Total Whiting QS = 0.046% + 0.15% = 0.196% (before adjustments)
Bycatch on Whiting Trips (including overfished species)	Proportional to Whiting QS

Basic Elements of Allocation Formula By Species And Sector

Species and Sector	Formula
All Species on Nonwhiting Trips Except Incidental Overfished	Equal Sharing and Permit History Total Sablefish QS = 0.276% + 0.27%=0.542% (before adjustments)
Incidental Overfished Species on Nonwhiting Trips	Proportional to Target Species QS Using Logbooks & Bycatch Rates
Whiting	Equal Sharing and Permit History Total Whiting QS = 0.046% + 0.15% = 0.196% (before adjustments)
Bycatch on Whiting Trips (including overfished species)	Proportional to Whiting QS = 0.196% of whiting sector allocation of sablefish (north)

Final Adjustments

1. Bring nonwhiting trip and whiting trip QS together as a single sector allocation.
2. Make deductions for allocation of QS to adaptive management program (AMP) and processors.

Combine Sablefish QS for Each Sector to Get Combined Shoreside Sector Sablefish QS

	Nonwhiting Trips	Whiting Trips	Shoreside Total
Sablefish (North) Permit Shares	0.542%	0.196%	
Sablefish (North) Sector Allocation	2,971 mt	54 mt	3,025 mt
Sablefish (North) Permit QP	16.10 mt	0.106 mt	16.20 mt
QS for combined shoreside sector (Permit QP total divided by sector allocation total.)			16.3/3,025= 0.536%

Basic Elements of Allocation Formula By Species And Sector

Species and Sector	Formula
Sablefish QS (all permits sum to 100%)	Equal Sharing and Permit History Total Sablefish QS = 0.536%
Nonwhiting Trips Incidental Overfished	Proportional to Target Species QS Using Logbooks & Bycatch Rates
Whiting (all permits sum to 100%)	Equal Sharing and Permit History Total Whiting QS = 0.196%

Deduct for AMP and Processor Allocation

	Sablefish QS	Whiting QS
Shoreside QS	0.536%	0.196%
Deduction for Adaptive Mangement Program	10%	-
Deduction for Processor Allocation	-	20%
Amount Deducted	0.0536%	0.0392%
<i>Final QS Amount for Permit</i>	0.4822%	0.1568%

Basic Elements of Allocation Formula By Species And Sector

Species and Sector	Formula
Sablefish QS (all permits sum to 100%)	Equal Sharing and Permit History Total Sablefish QS = 0.4822%
Nonwhiting Trips Incidental Overfished	Proportional to Target Species QS Using Logbooks & Bycatch Rates
Whiting (all permits sum to 100%)	Equal Sharing and Permit History Total Whiting QS = 0.1568%

C. Quota Pound Estimates Provided in Mailing to Permit Holders

Example provided to give a feel
for meaning of QS percent.

Calculation of QP Estimates

Each Permit's Quota Share
x Trawl Allocation
Permit Quota Pounds

Trawl Allocation Used for Example

- Example based on
 - Council's 2010 OYs and trawl allocation decisions from this spring
 - For species for which an allocation decision has yet to be made, used estimates of trawl catch for 2010.

Estimates Provided as An Example

- A guess as to what might have happened in 2010 if the IFQ program had been in place.
- Many uncertainties
 - future status of stocks
 - how Council might or might not adjust OYs and reserves given 100% observer coverage and IFQ program flexibility which may allow trawlers to take more of the available catch.

- Table will be provided showing the assumed total trawl allocations on which QP estimates were provided.
- Here we'll provide examples for three species for which some other assumptions might have been made about the 2010 harvest levels.
 - Dover sole, chilipepper, and bocaccio

Dover Sole Alternate

	ABC (Allowable)	OY (Optimum)	Trawl Allocation
2010	28,582 mt	16,500 mt	15,260 mt
Maximum Possible (at overfishing level threshold)		28,582 mt	26,520 mt
			1.74 times more

Chilipepper Alternate

	ABC (Allowable)	OY (Optimum)	Trawl Allocation
2010	2,576 mt	2,447 mt	1,823 mt
Maximum Possible (at overfishing level threshold)		2,576 mt	1,919 mt
			1.05 times more

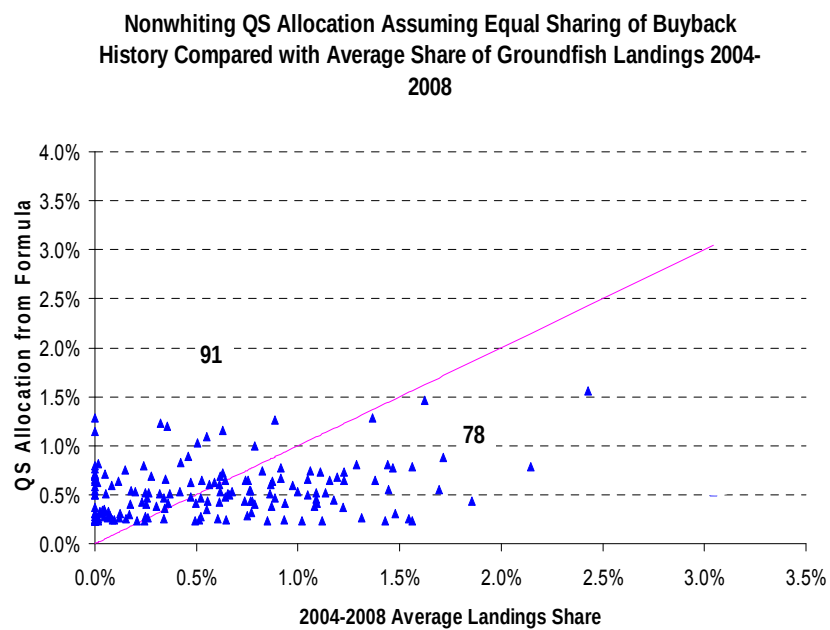
Bocaccio Alternate

	ABC	OY	Projected Catch Others	Projected Catch Trawl	Projected Unused
2010	793 mt	288 mt	91.3 mt	12.3 mt	184.4 mt
Assume 50% of Unused to Trawl				92.2 mt	
Total for Trawl				104.5 mt	
				8.56 times more	

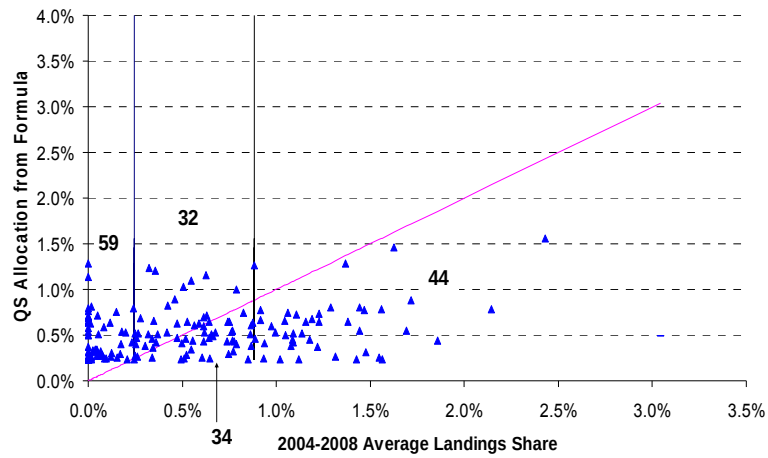
Conclusion

- Don't know exactly what future harvest levels will be.
- We've provided some example possible outcomes to help interpret what the QS percentages might mean.
- Here we provided a few examples of some other outcomes to give more of a feel for possibilities and bracket a range.

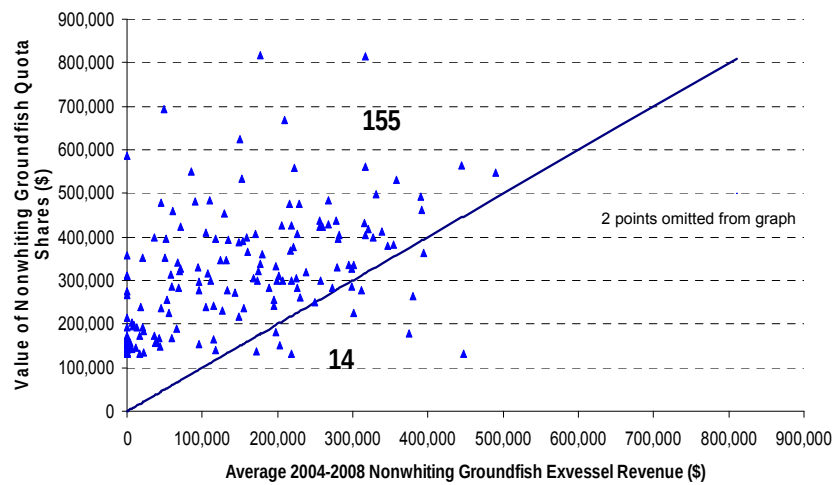
D.1. Comparison to Recent Years

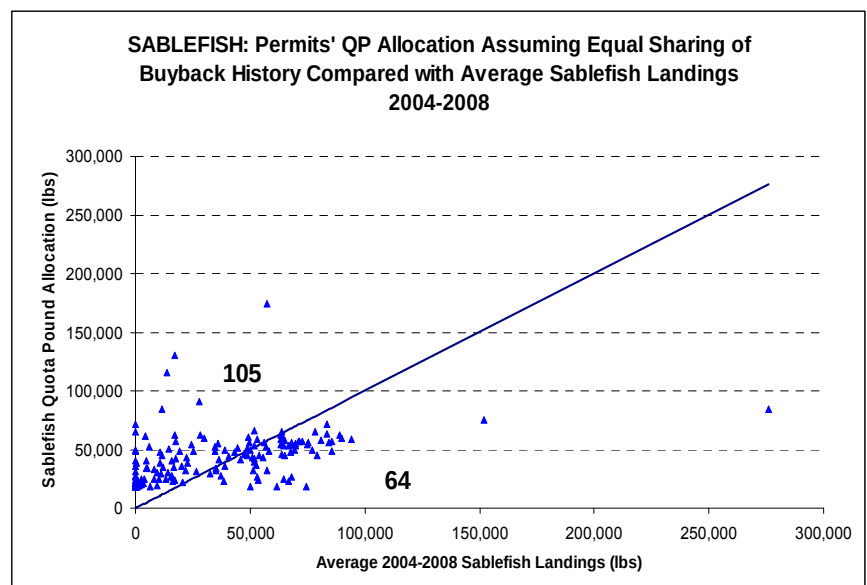
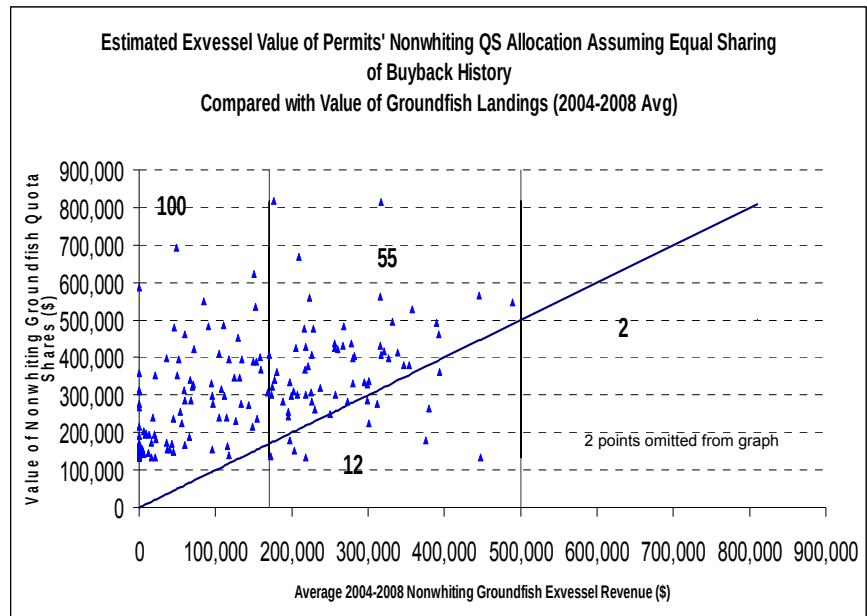


**Nonwhiting QS Allocation Assuming Equal Sharing of Buyback History
Compared with Average Share of Groundfish Landings 2004-2008**

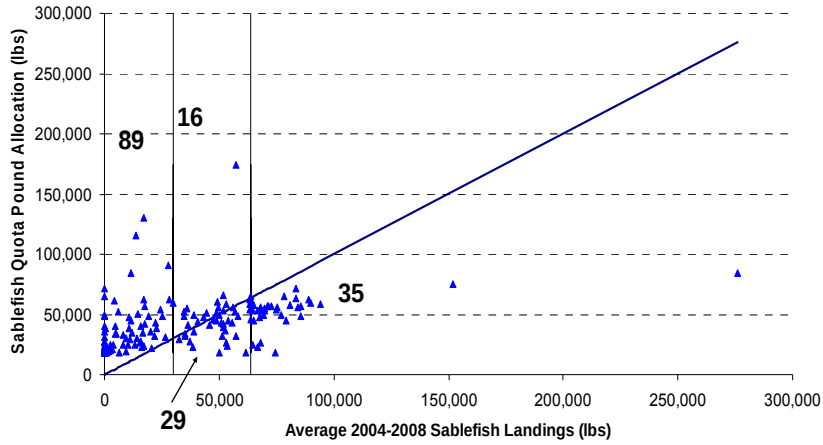


**Estimated Exvessel Value of Permits' Nonwhiting QS Allocation
Assuming Equal Sharing of Buyback History
Compared with Value of Groundfish Landings (2004-2008 Avg)**

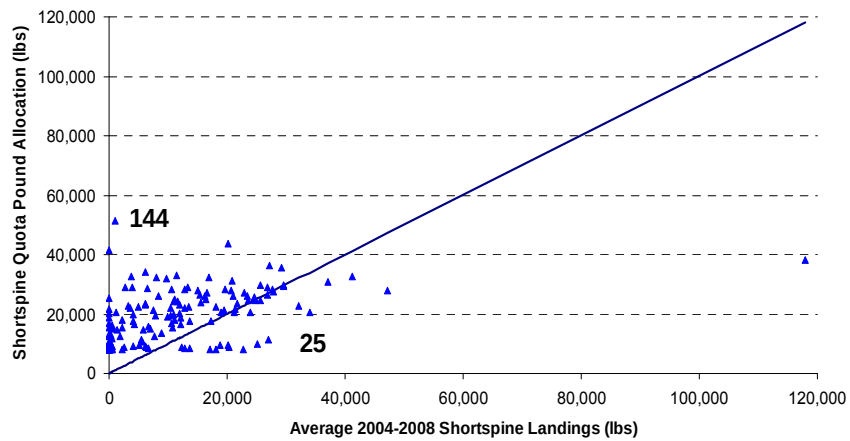




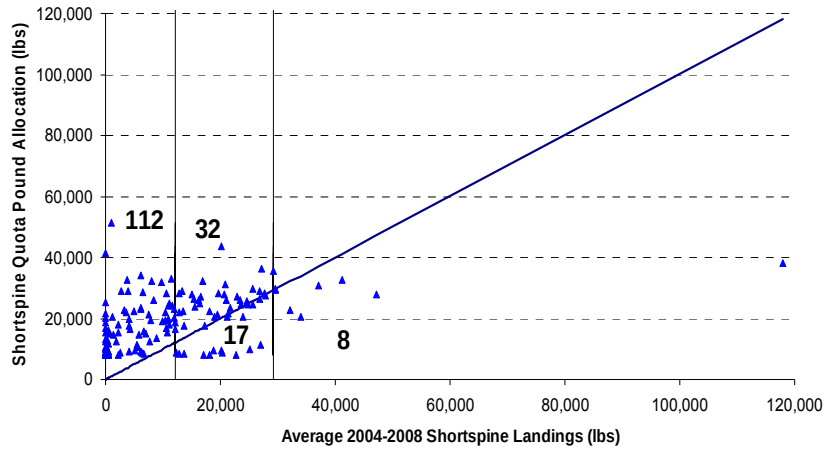
SABLEFISH: Permits' QP Allocation Assuming Equal Sharing of Buyback History Compared with Average Sablefish Landings 2004-2008



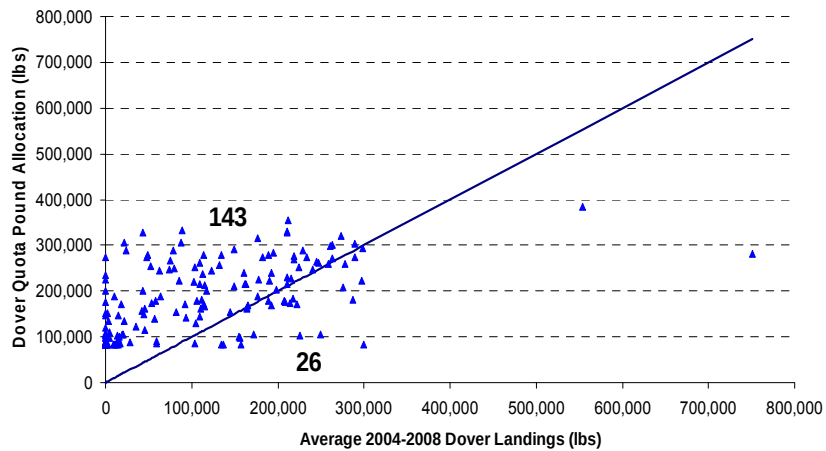
SHORTSPINE: Permits' QP Allocation Assuming Equal Sharing of Buyback History Compared with Average Shortspine Landings 2004-2008



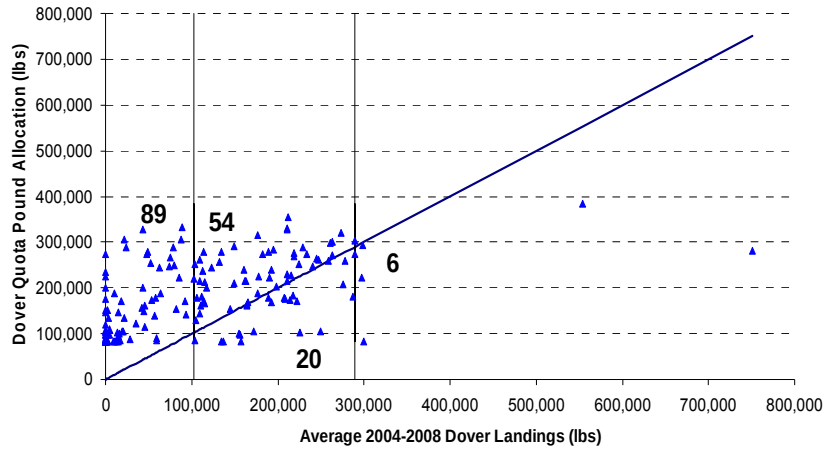
SHORTSPINE: Permits' QP Allocation Assuming Equal Sharing of Buyback History Compared with Average Shortspine Landings 2004-2008



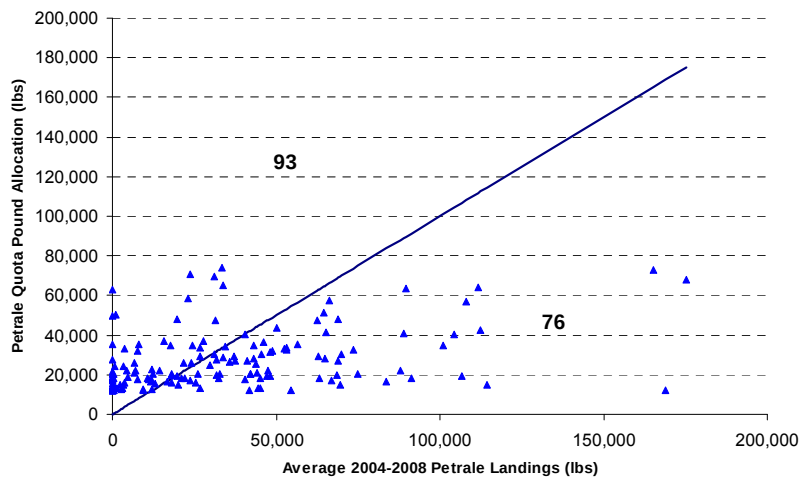
DOVER: Permits' QP Allocation Assuming Equal Sharing of Buyback History Compared with Average Dover Landings 2004-2008 (15,260 mt trawl allocation)

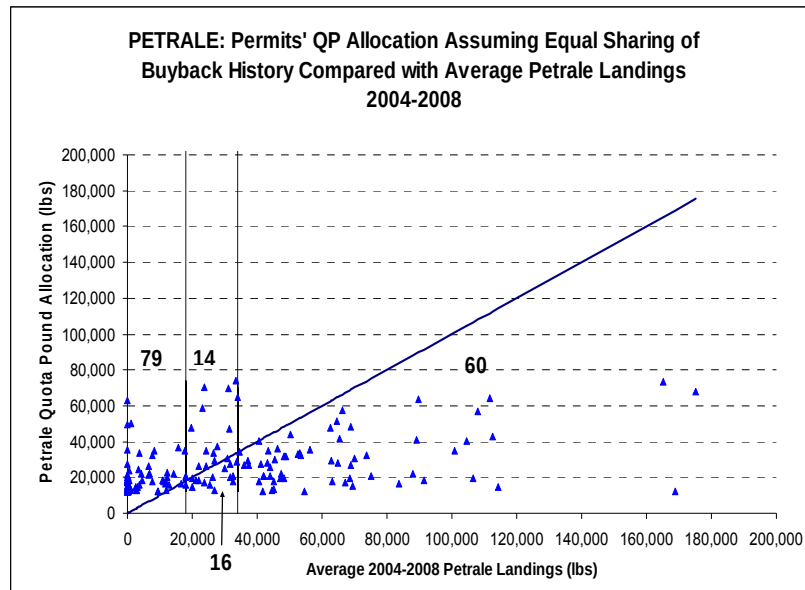


**DOVER: Permits' QP Allocation Assuming Equal Sharing of Buyback History Compared with Average Dover Landings
2004-2008 (15,260 mt trawl allocation)**



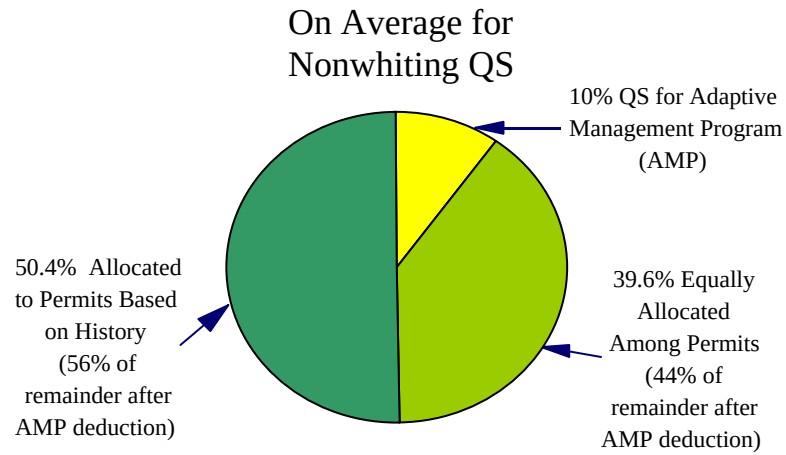
**PETRALE: Permits' QP Allocation Assuming Equal Sharing of Buyback History Compared with Average Petrale Landings
2004-2008**



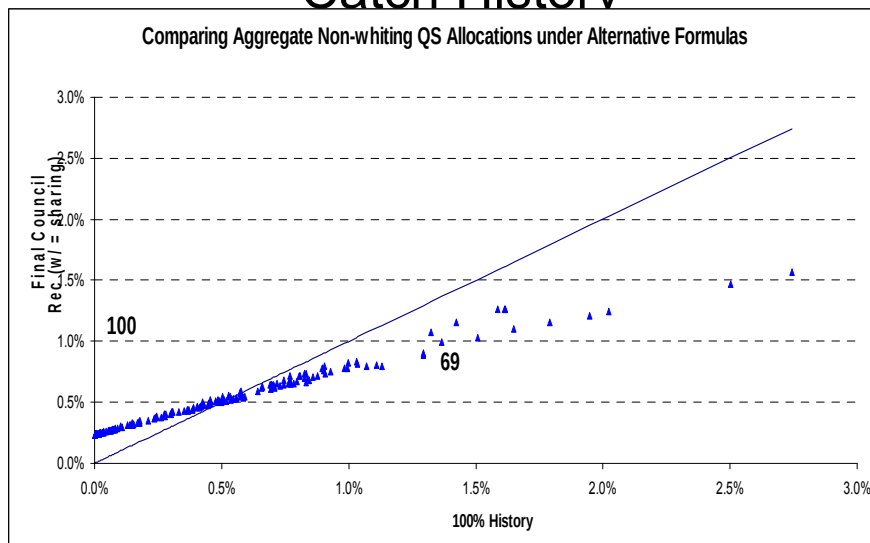


D.2. Effect of Equal Sharing

Equal Sharing: Goes to All Catcher Vessel Permits

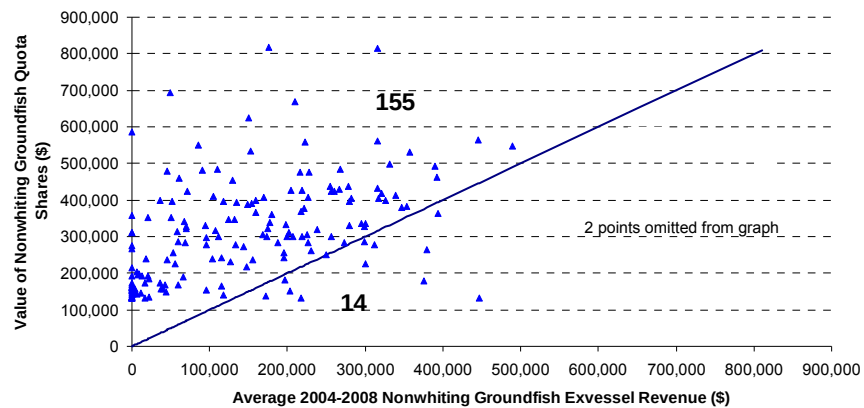


Equal Sharing vs. 100% Based on Catch History



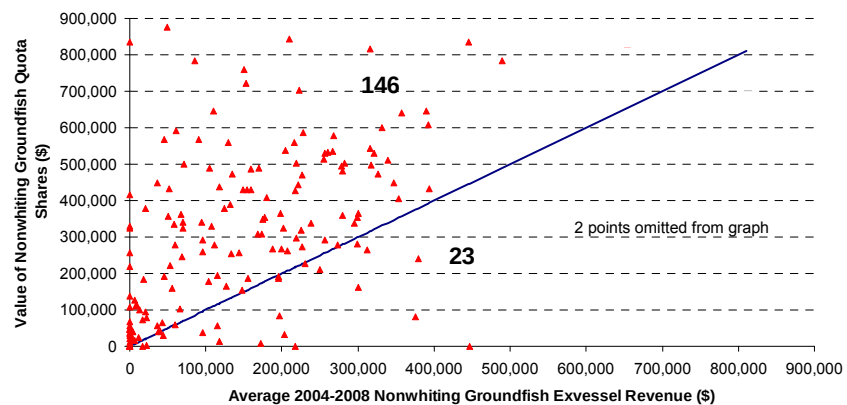
Value Comparison (w/=)

Estimated Exvessel Value of Permits' Nonwhiting QS Allocation
Assuming Equal Sharing of Buyback History
Compared with Value of Groundfish Landings (2004-2008 Avg)

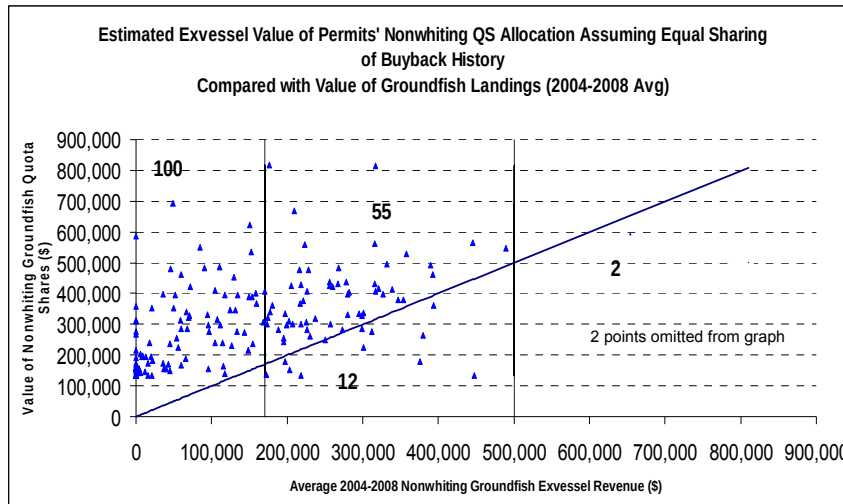


Value Comparison (no =)

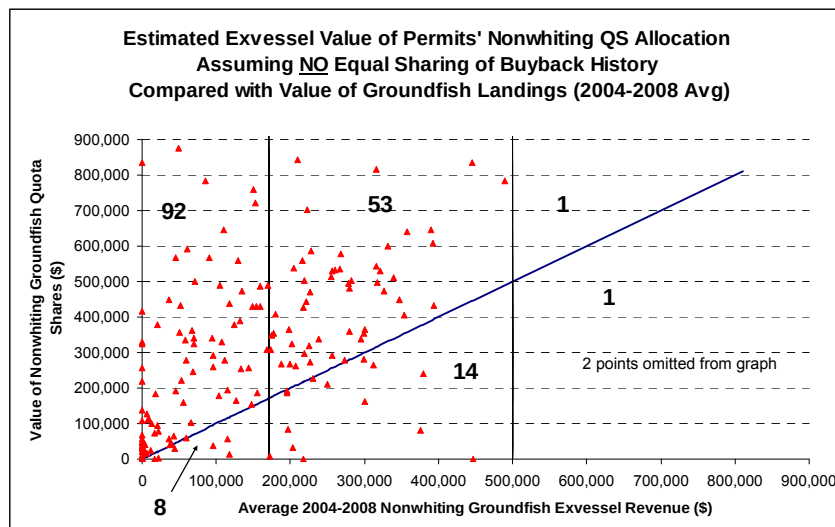
Estimated Exvessel Value of Permits' Nonwhiting QS Allocation
Assuming **NO** Equal Sharing of Buyback History
Compared with Value of Groundfish Landings (2004-2008 Avg)



Value Comparison (w/=) (breakdown)

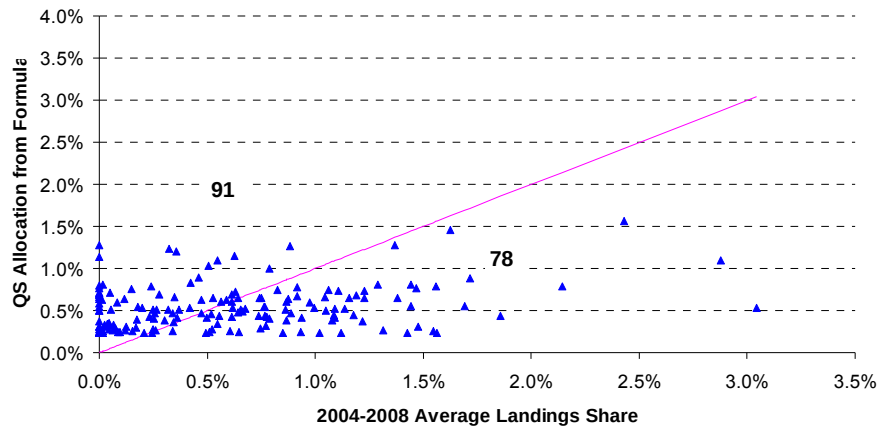


Value Comparison (no =) (breakdown)



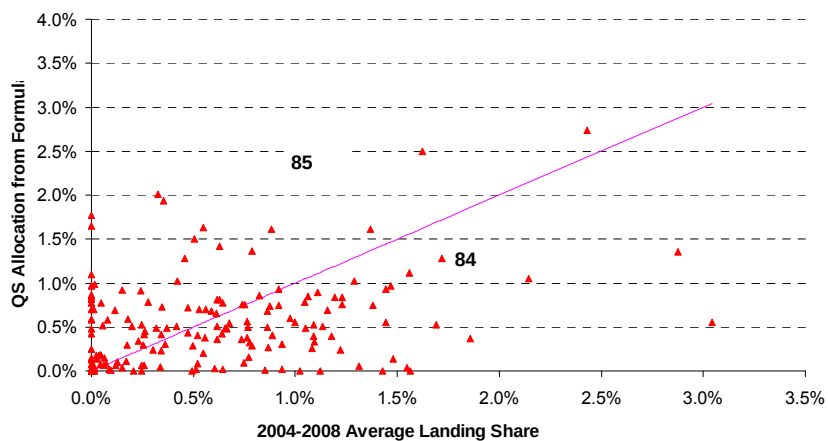
Share Comparison (w/=)

Nonwhiting QS Allocation Assuming Equal Sharing of Buyback History Compared with Average Share of Groundfish Landings 2004-2008



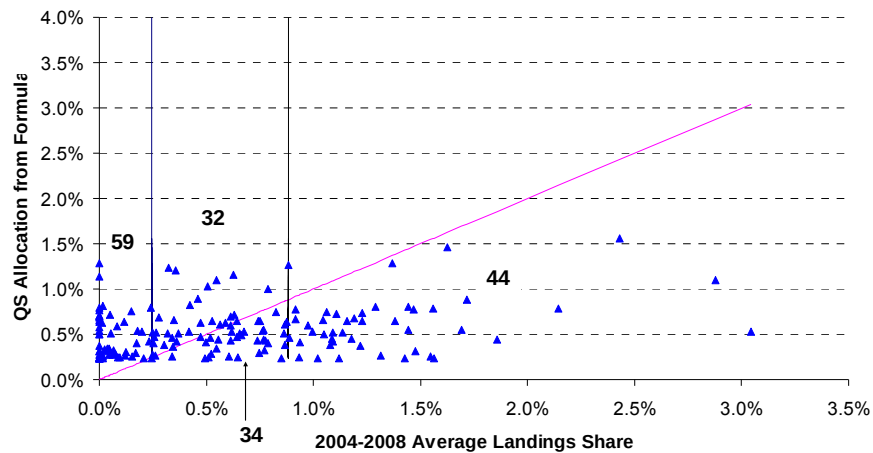
Share Comparison (no =)

Nonwhiting QS Allocation Assuming No Equal Sharing of Buyback History Compared with Average Share of Groundfish Landings 2004-2008



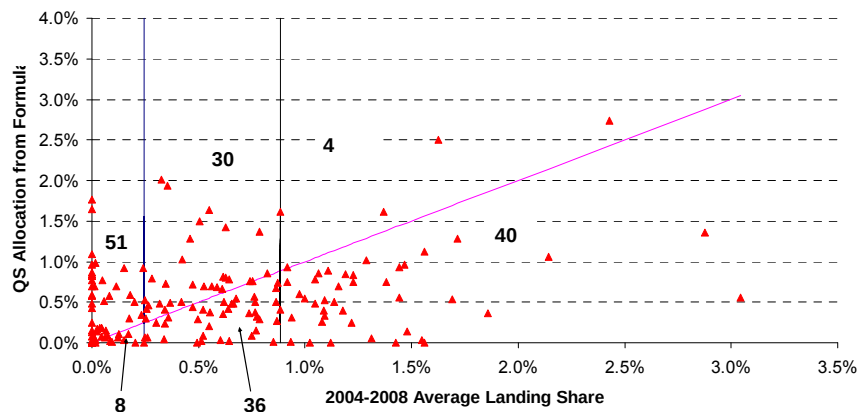
Share Comparison (w/=) (breakdown)

Nonwhitng QS Allocation Assuming Equal Sharing of Buyback History
Compared with Average Share of Groundfish Landings 2004-2008



Share Comparison (no =) (breakdown)

Nonwhitng QS Allocation Assuming No Equal Sharing of Buyback
History Compared with Average Share of Groundfish Landing 2004-
2008



B.1 Allocating Overfished Species on a Bycatch Rate (Proxy Species)

B.1.1 Introduction

This document describes a proposed methodology for allocating overfished species quota to LE trawl permits in the non-whiting sector based on a bycatch rate. This concept was originally proposed by the Groundfish Management Team as a mechanism to allocate overfished species in a manner that would allow for the prosecution of current fishing practices given the constraints overfished species place on access to target species.

Empirical evidence from other quota programs throughout the world have shown that initial allocations of IFQ that differ substantially from current or recent fishing practices result in some negative consequences during the initial years of the program (dislocation of fishermen, high discard rates). Over time these consequences are fixed through the natural trading of quota on the market, but a more refined initial allocation may still be able to avoid such negative consequences in the first place.

Preliminary analysis of initial allocation options has shown that, in general, if allocations of overfished species are made based on landings history, the distribution of overfished species quota would be heavily weighted toward a relatively few number of permits. This is because those were the permits that had previously targeted those species when they were abundant, and because under more recent regulations catch of overfished species in the shoreside non-whiting fishery has been largely discarded rather than landed. For the foreseeable future, overfished species will be a constraint to the access of target species, so an argument can be made for a more refined and equitable distribution of overfished species in order to allow permits to gain access to target species. While the market is likely to end up making necessary adjustments to the ownership of quota, overfished species quota is likely to be extremely costly because it will constrain access to target species. This means that those permits not receiving enough overfished species quota would be forced to essentially buy-in to the fishery again at a high cost, or leave the fishery all together. Allocating overfished species based on a bycatch rate is an attempt at making the initial allocation more equitable and avoiding such negative consequences.

B.1.2 General Description

The objective of allocating based on a bycatch rate is to allocate those species in a way that accommodates the current and recent spatial fishing patterns of LE non-whiting trawl vessels, to the extent possible. The bycatch rate of overfished species exhibit clear patterns across depth and latitude, and matching those patterns in the bycatch rate against relevant target fishing patterns can result in allocations that better accommodate recent fishing practices. Several sources of information are available for making allocations in a manner that accommodates these fishing practices:

- Logbooks are required of LE trawl vessels that deliver shoreside. Logbook information shows location, depth, and quantity of species that have been harvested by a particular vessel, among other things.
- The West Coast Groundfish Observer program samples the LE trawl fishery and records depth and location of species caught in observed fisheries.
- Information from these two data sets can be merged to allocate overfished species based on the spatial distribution of catch by LE trawl vessels and the corresponding spatial bycatch rates as estimated from WCGOP data.

During a 2007 meeting of West Coast fisheries management agencies, it was revealed that logbook compliance in the shoreside trawl fishery was over 90 percent in recent years for all three West Coast states. This information was contrary to the belief that logbook compliance was around 60-70 percent in

some cases. Based on this information, the GMT recommended using permit-specific logbook information to determine a vessel's spatial and temporal catch history in recent years. In cases where there are no logbook records for a particular permit, then the fleet average would be used.

B.1.3 Data used in Application

The information used in this application includes fish ticket data, logbook data, and overfished species bycatch rates from the observer program. Fish ticket data is used because it is treated as the record of landed catch made by a vessel. Logbook data is used to stratify landed catch recorded on fish tickets into shoreward or seaward of-the-RCA locations for use in applying an overfished species bycatch rate, and to also identify the latitudinal area of catch. Observer program data is used for estimating shoreward and seaward bycatch rates of overfished species that are differentiated by latitudinal area. Several different latitudinal areas were considered including: 1) stratifying north and south of 40° 10' North latitude and south of 40° 10' North latitude, and 2) stratifying at 47° 40' North latitude, 43° 55' North latitude, 40° 10' North latitude, and 38° North latitude. The Council's decision resulted in a hybrid of those two options, using latitudinal stratifications at 47° 40' North latitude, 43° 55' North latitude, and 40° 10' North latitude.

Logbook records are used for estimating the location of catch. Location of catch in this case is defined as a latitudinal area, and whether that location was shoreward or seaward of the RCA. These estimates of catch location are developed for those species categorized as "target species" in existing trawl management. Hypothetical catch location percentages (in terms of seaward and shoreward of the RCA) are shown in the table below.

Table Error! No text of specified style in document.-1. Hypothetical percentage of target species catch that were caught shoreward and seaward of the RCA (2003-06)

	Shoreward Catch Percentage	Seaward Catch Percentage
Dover	48%	52%
Longspine	5%	95%
Shortspine	12%	88%
Sablefish	11%	89%
Petrale	22%	78%
Other Flatfish	98%	2%
English sole	95%	5%
Splitnose	35%	65%
Pacific cod	88%	12%
Slope Rockfish	3%	97%
Arrowtooth	12%	88%

B.1.4 Model Development and Application

The model for this approach uses fish ticket data during the qualifying period, logbook data from 2003–06, and observer data from 2003–06. Quota shares of target species are first calculated from the fish ticket data, then target species quota shares are split by latitudinal area and by shoreward and seaward amounts based on catch depth recorded in 2003–06 logbook data. This information is then multiplied by the trawl allocation amount of target species in place during the implementation year to get an estimate of

implementation year quota pounds that are stratified by latitudinal area, and by seaward and shoreward of the RCA. These depth-stratified quota pounds are then multiplied by West Coast Groundfish Observer Program bycatch rates that are stratified by latitudinal area and by shoreward and seaward of the RCA for the years 2003–06. The result is then converted to an overfished species quota share by dividing each permit’s overfished species calculation by the sum of all non-whiting overfished species calculations.

1. The first step is to estimate each permit’s target species quota shares.
2. The second step is to estimate the latitudinal area and depth of target species catch from logbooks for determining what each permit has caught by area over the period 2003-2006.
3. The third step is to stratify each permits’ target species quota shares by latitudinal area and shoreward and seaward catch amounts based on each permits’ depth stratified catch from step 1.
4. The fourth step is to multiply the depth and area stratified quota shares by the trawl allocation amounts during the initial implementation year to get quota pounds for the initial implementation year.
5. The fifth step is to multiply the corresponding latitudinal area and shoreward and seaward fleet average overfished species bycatch rates by the implementation year quota pounds of target species given to each permit.
6. The final step is to calculate overfished species quota shares by summing together the shoreward and seaward implementation year quota pounds for each permit and dividing that amount by the total non-whiting trawl sector amount of implementation year quota pounds for those overfished species. This final step calculates the overfished species share.

The following tables illustrate the development and application of the proposed method. The table above (Table **Error! No text of specified style in document.-1**) shows the first step in the model. The second step is to stratify each permit’s target species quota shares into shoreward and seaward of the RCA portions and then estimate shoreward and seaward implementation year quota pounds. The following table shows an example of splitting quota shares for a hypothetical permit into seaward and shoreward areas.

Table Error! No text of specified style in document.-2. Derivation of seaward and shoreward quota shares to a hypothetical permit.

Area	Species	Quota Share to Permit X	Shoreward Share	Seaward Share
North of 47 40	Dover	1%	48%	52%
	Longspine	2%	5%	95%
	Shortspine	3%	12%	88%
	Sablefish	3%	11%	89%
	Petrals	1%	22%	78%
	Other Flatfish	1%	98%	2%
	Pacific cod	1%	88%	12%
	English sole	1%	95%	5%
	Splitnose	0%	0%	0%
	Slope			
	Rockfish	4%	3%	97%
	Arrowtooth	3%	12%	88%

The table below shows hypothetical quota shares for a permit that has only caught fish north of 47° 40' N latitude. Target species quota shares are differentiated by seaward and shoreward of the RCA from logbook information as shown in the table above. The trawl allocation is then multiplied by those shares to derive an implementation year quota poundage of target species for that permit. This amount is shown in the right two columns of the table.

Table Error! No text of specified style in document.-3. Hypothetical development of seaward and shoreward implementation year target species quota pounds.

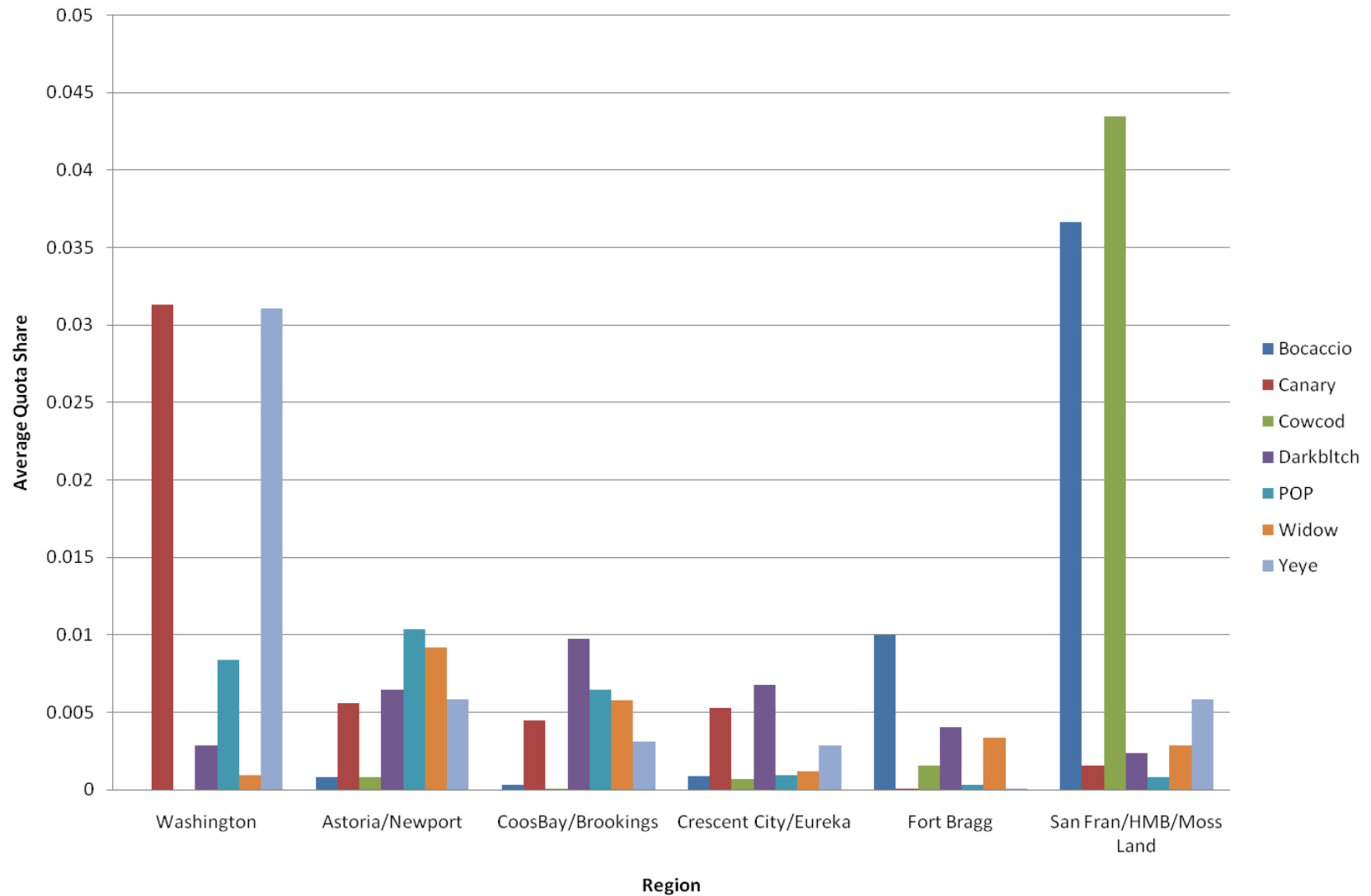
Area	Species	Shoreward Share	Seaward Share	Implementation Year Trawl Allocation (mt)	Shoreward Lbs	Seaward Lbs
North of 47 40	Dover	48%	52%	16000	169,315	183,424
	Longspine	5%	95%	2000	4,409	83,776
	Shortspine	12%	88%	1200	9,524	69,842
	Sablefish	11%	89%	2600	15,763	127,537
	Petrals	22%	78%	2500	12,125	42,990
	Other Flatfish	98%	2%	7000	151,237	3,086
	Pacific cod	88%	12%	1000	19,401	2,646
	English sole	95%	5%	14000	293,214	15,432
	Splitnose	0%	0%	460	-	-
	Slope Rockfish	3%	97%	800	1,852	59,877
	Arrowtooth	12%	88%	10000	79,366	582,020

After determining a seaward and shoreward implementation year quota poundage, seaward and shoreward bycatch rates are applied to determine hypothetical darkblotched poundage. That poundage is then divided by the sum of all permits' poundage to derive a quota share of overfished species. The following table illustrates this method by continuing the use of shoreward and seaward implementation year quota pounds. Hypothetical darkblotched bycatch rates are multiplied by this amount in order to determine a darkblotched poundage. That poundage is then divided by a hypothetical fleetwide poundage to derive that permits quota shares of darkblotched rockfish.

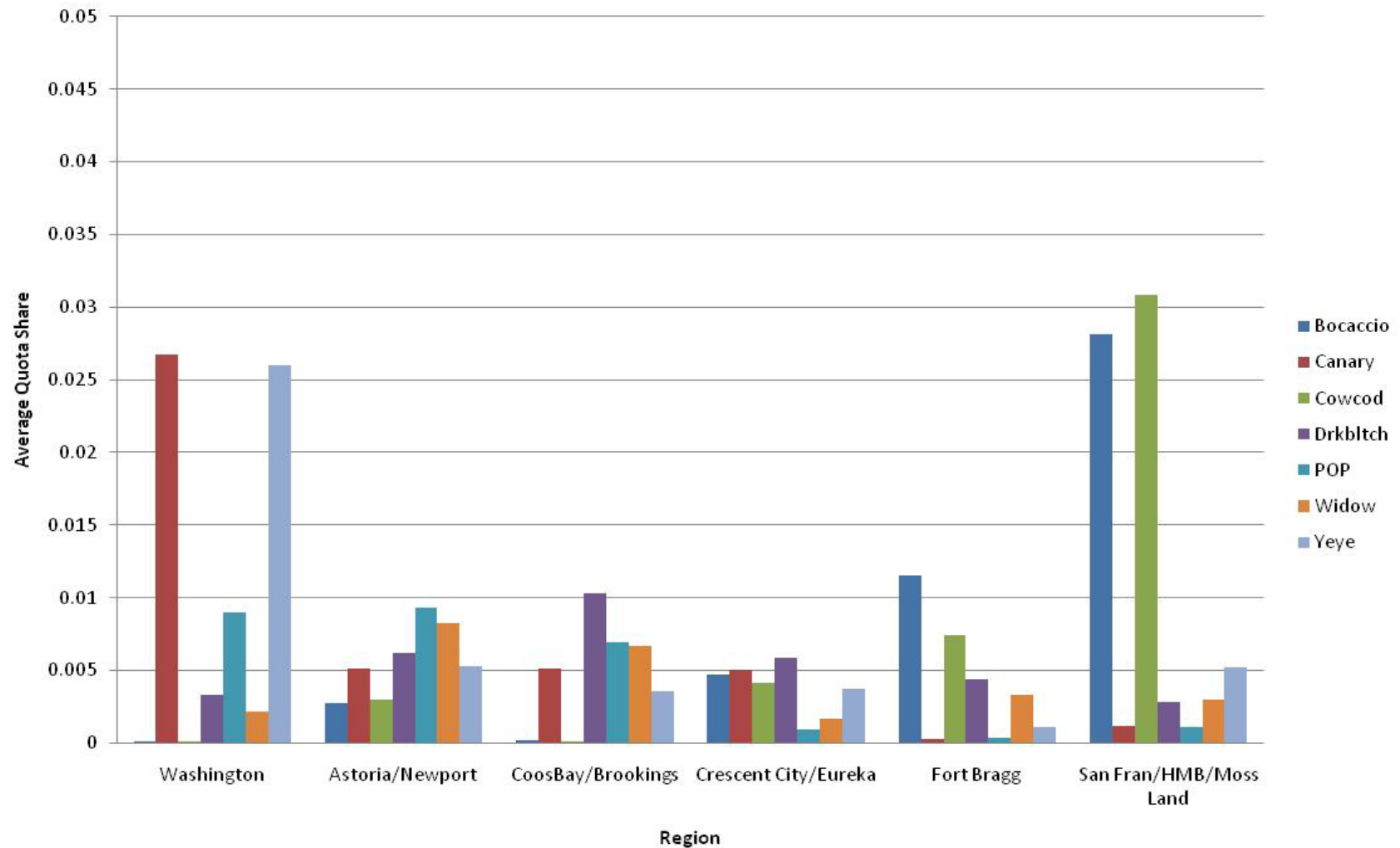
Table Error! No text of specified style in document.-4. Hypothetical derivation of darkblotched quota shares using proposed method.

Area	Species	Shoreward Lbs	Seaward Lbs	Shoreward bycatch rate	Seaward bycatch rate	Shoreward Drkbltchl bs	Seaward Drkbltch lbs	Total	Fleet total	Darkblotched QS
North of 47 40	Dover	169,315	183,424	0.0001	0.02	16.93	3,668.49			
	Longspine	4,409	83,776	0.0001	0.02	0.44	1,675.51			
	Shortspine	9,524	69,842	0.0001	0.02	0.95	1,396.85			
	Sablefish	15,763	127,537	0.0001	0.02	1.58	2,550.75			
	Petrale	12,125	42,990	0.0001	0.02	1.21	859.80			
	Other Flatfish	151,237	3,086	0.0001	0.02	15.12	61.73			
	Pacific cod	19,401	2,646	0.0001	0.02	1.94	52.91			
	English sole	293,214	15,432	0.0001	0.02	29.32	308.65			
	Splitnose	-	-	0.0001	0.02	-	-			
	Slope Rockfish	1,852	59,877	0.0001	0.02	0.19	1,197.55			
	Arrowtooth	79,366	582,020	0.0001	0.02	7.94	11,640.39			
								23,488	705,478	3%

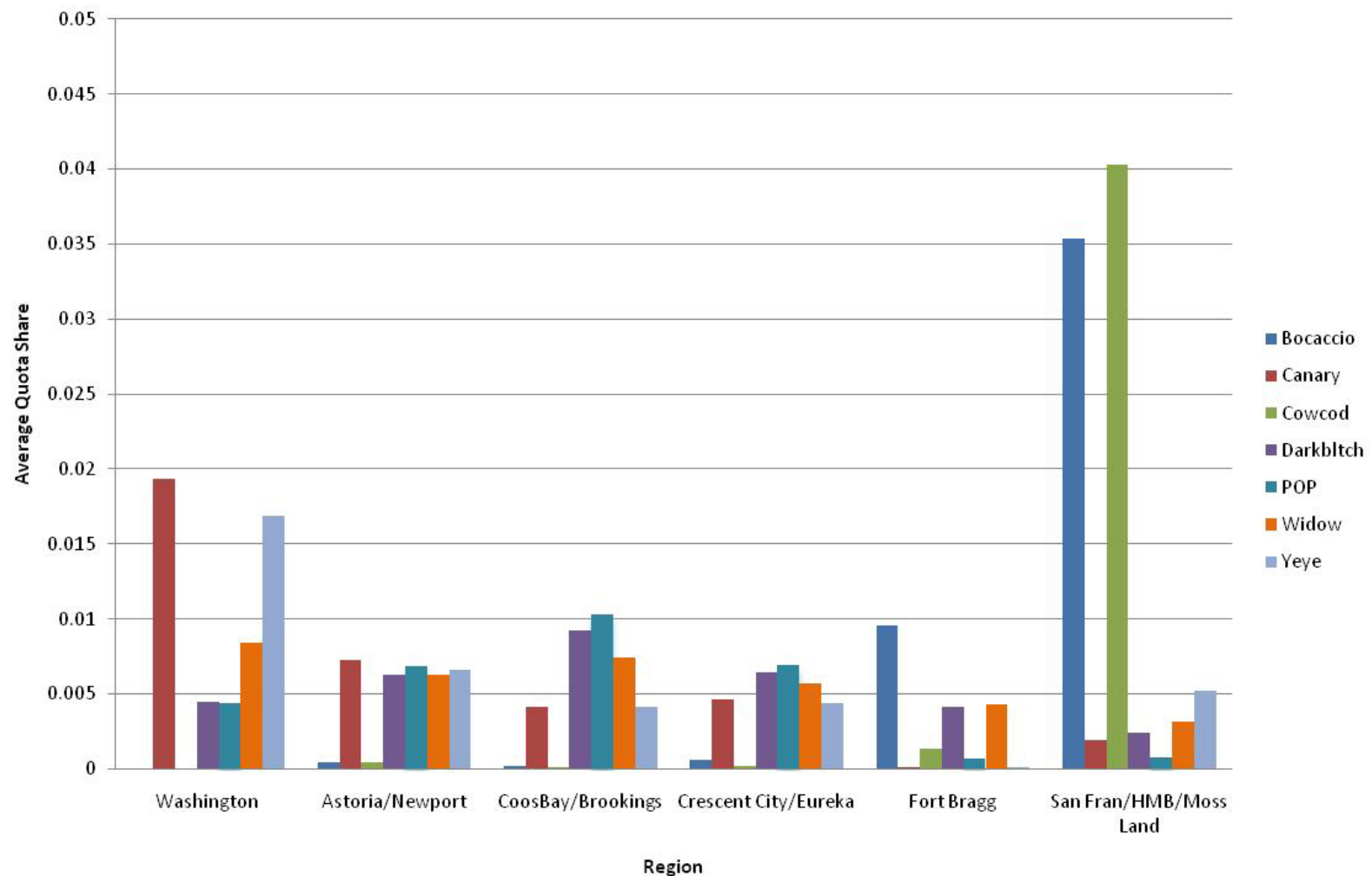
Average Allocation of Overfished Species QS to Permits by Region (FPA)



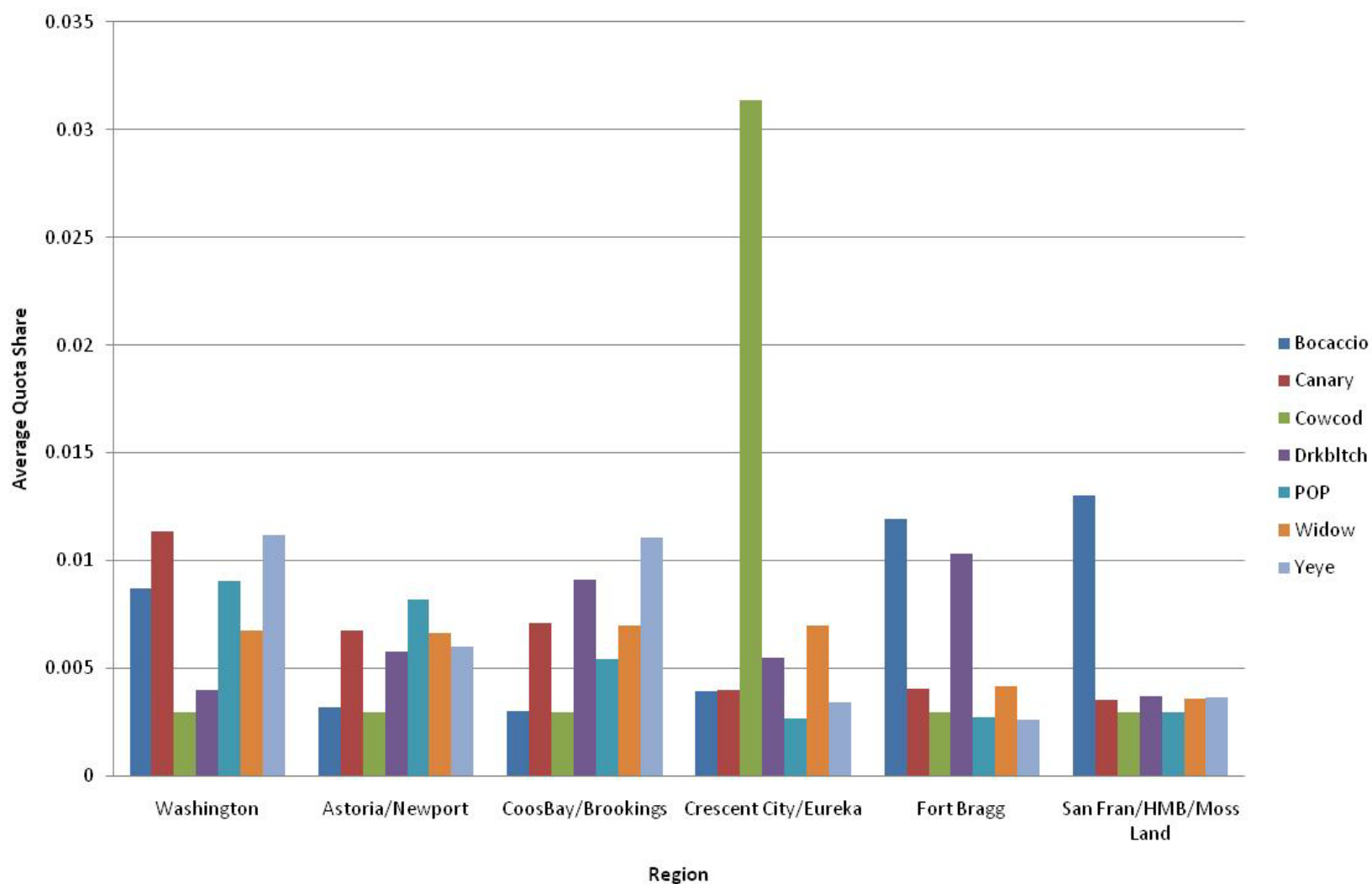
Average Allocation of Overfished Species QS to Permits by Region (94 to 03 logbooks, finer area rates)



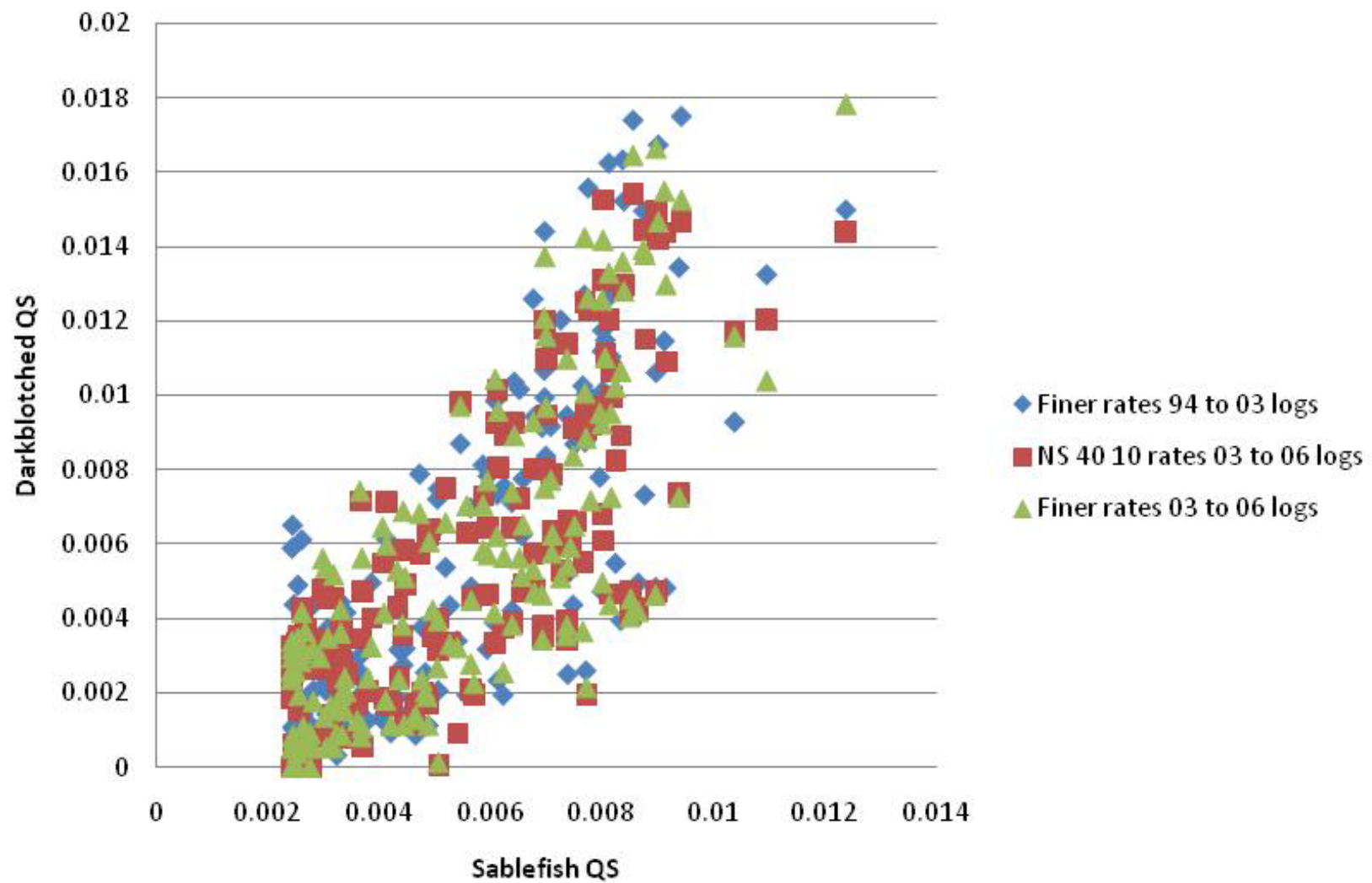
Average Allocation of Overfished Species QS to Permits by Region (03 to 06 logbooks, broader latitude rates)



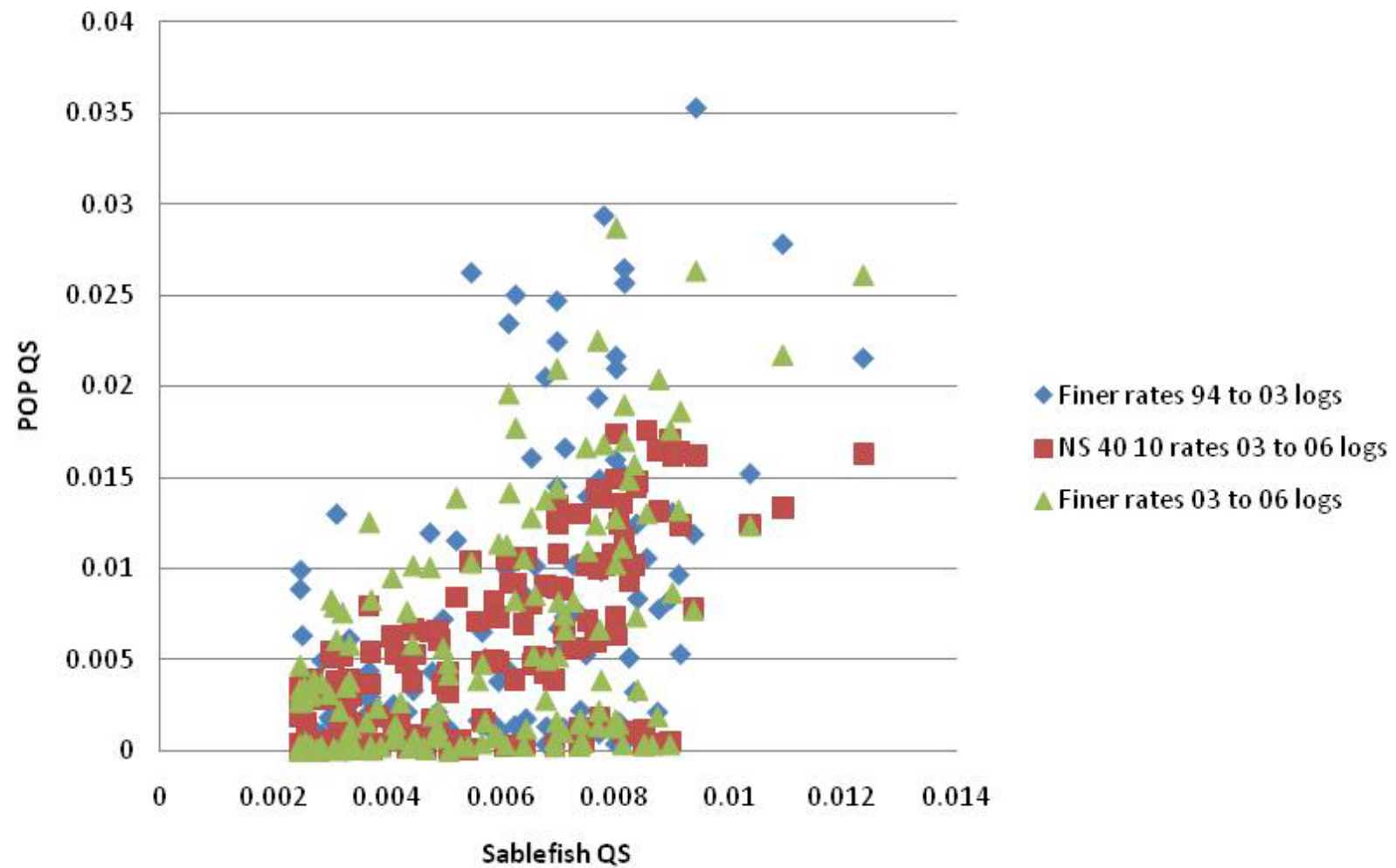
Average Allocation of Overfished Species QS to Permits by Region (OFS Landings history plus equal sharing of OFS buyback history)



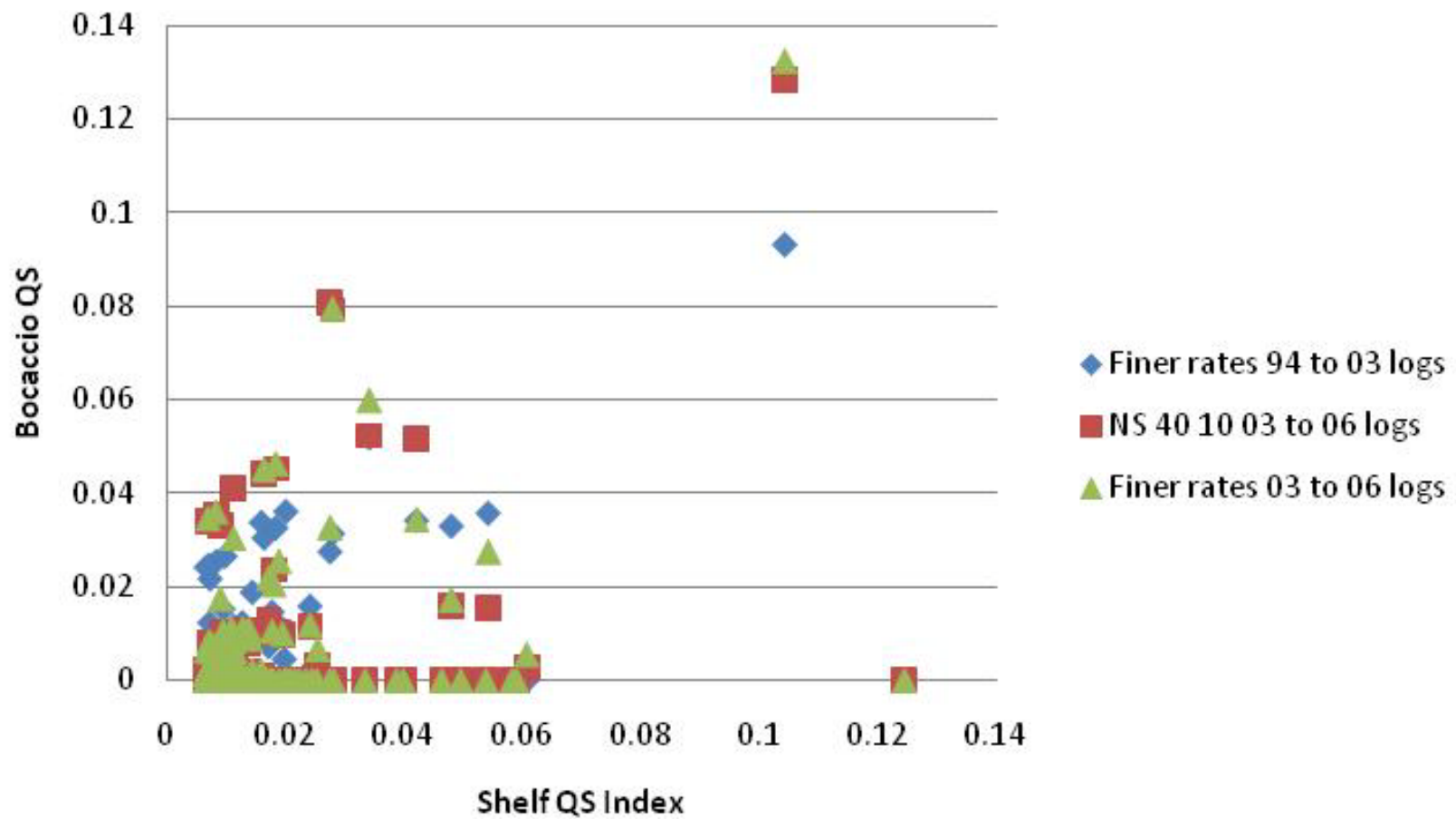
Sablefish v Darkblotched



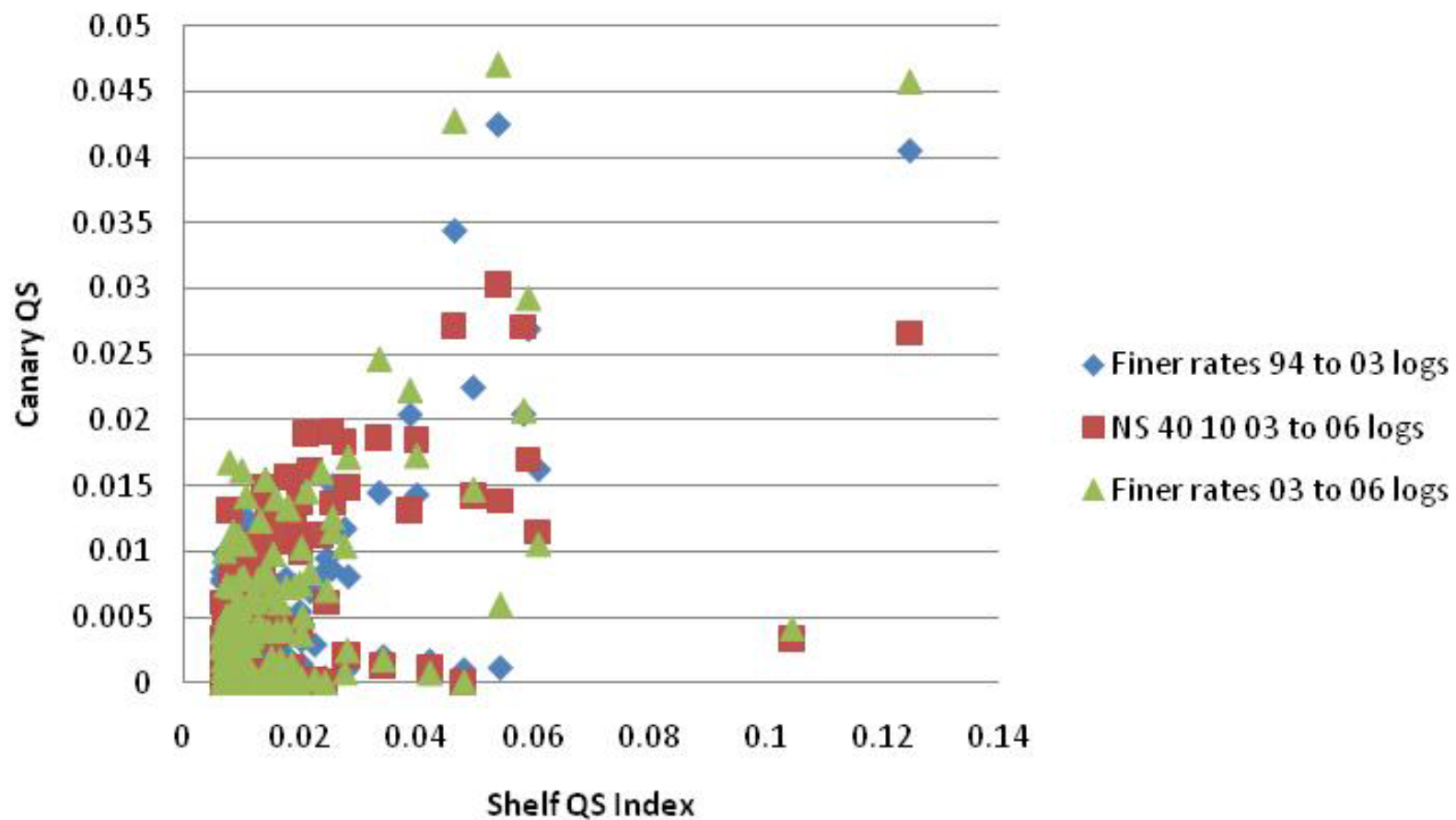
Sablefish v POP



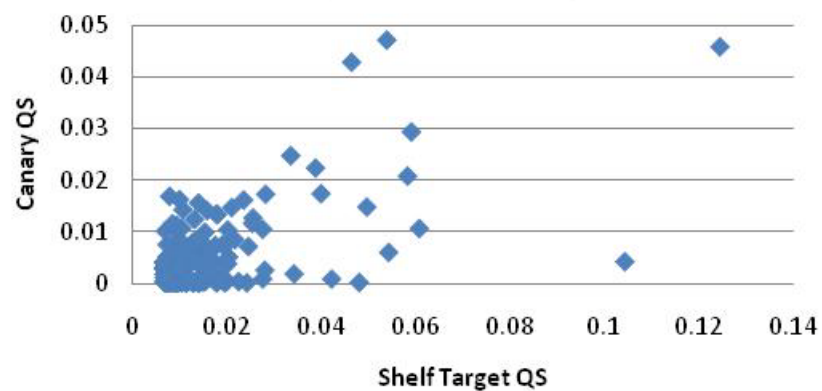
Bocaccio QS v Shelf Target Index



Canary QS v Shelf Target Index

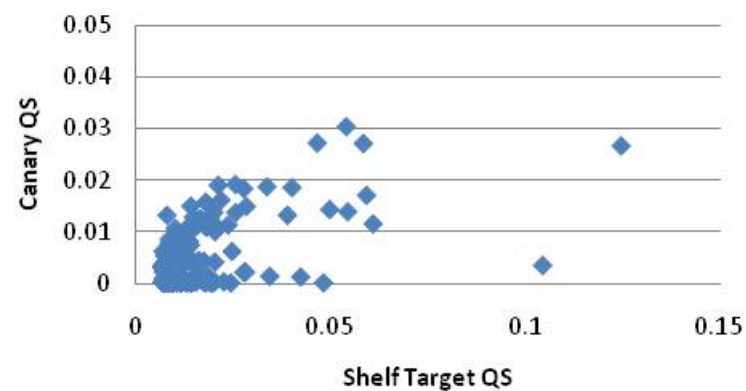


Canary v Shelf Target



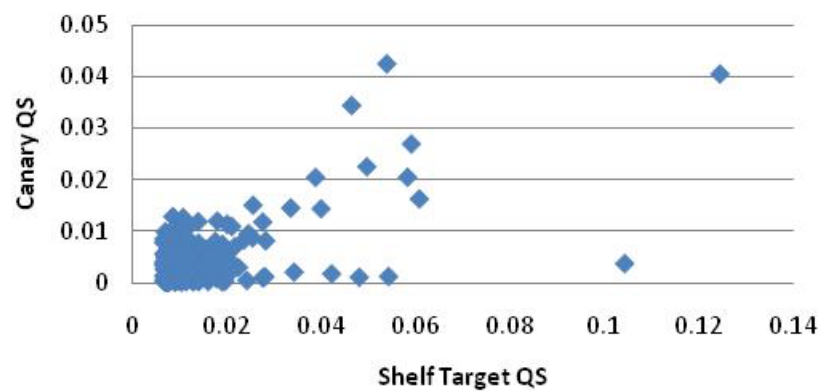
◆ Finer rates 03 to 06 logs

Canary v Shelf Target



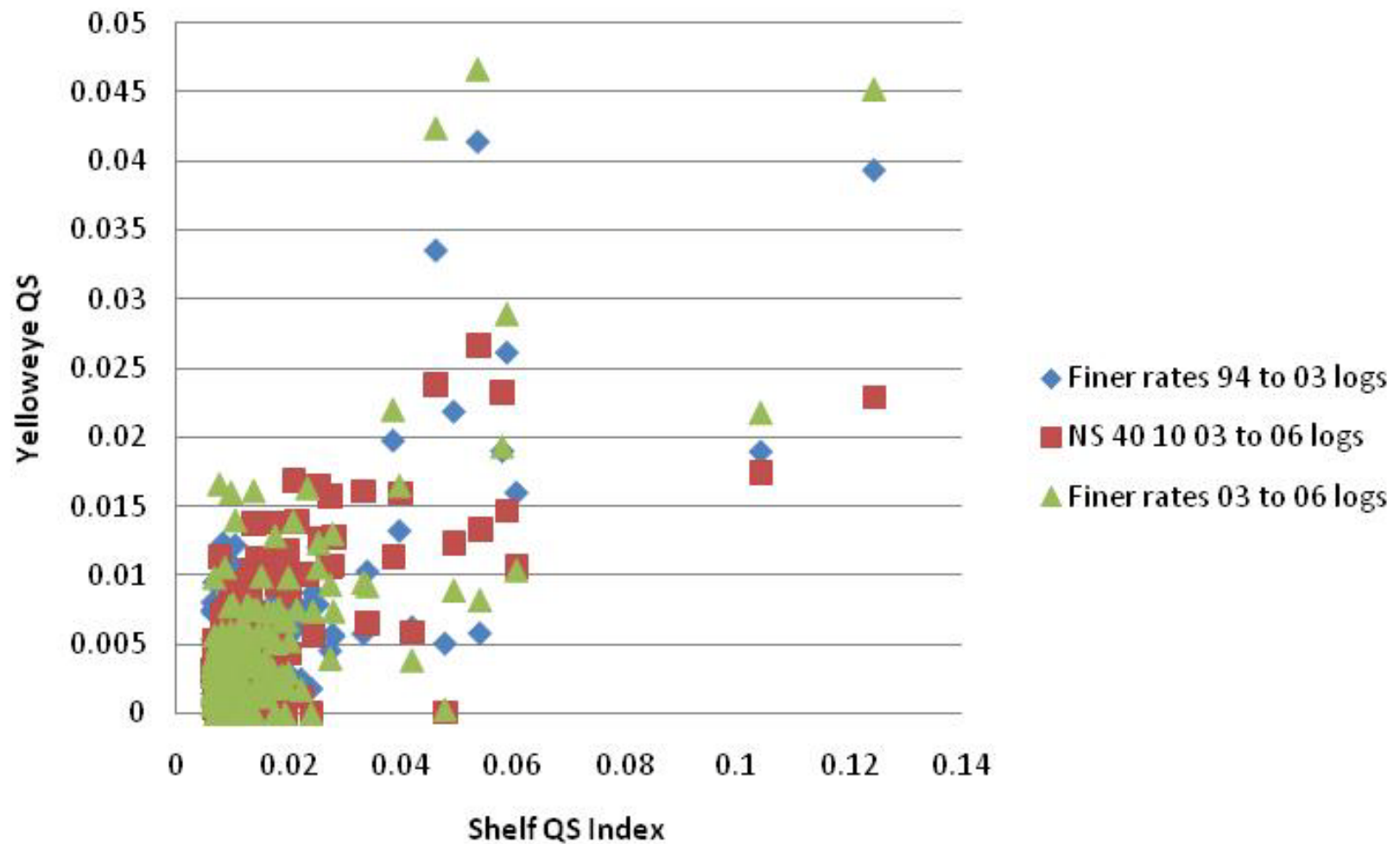
◆ N/S 40° 10' N lat & 03 to 06 logs

Canary v Shelf Target



◆ Finer rates 94 to 03 logs

Yelloweye v Shelf Target Index



Open Session on Initial Allocation for Trawl Rationalization
September 2009

Table C.1. Total metric tons for the shoreside trawl fishery using 2010 OYs together with an alternate scenario for selected species.

	Base Estimate	Alternate Scenario for Trawl Allocation	Factor (Alternate as a Multiple of Base Estimate)
Total Nonwhiting Groundfish	59,400		
Lingcod Coastwide	2,042		
Pacific Cod	1,089		
Pacific Whiting	37,389		
Sablefish			
Sablefish N. of 36° (Monterey north)	3,025		
Sablefish S. of 36° (Conception area)	527		
POP	163		
Widow Rockfish	293		
Canary Rockfish	23		
Chilipepper	1,823	1,919	1.05
Bocaccio	12	105	8.56
Splitnose Rockfish	437		
Yellowtail Rockfish	3,409		
Shortspine Thornyhead			
Shortspine Thornyhead - N. of 34°27'	1,484		
Shortspine Thornyhead - S. of 34°27'	50		
Longspine Thornyhead - N. of 34°27'	2,039		
Cowcod	1		
Darkblotched Rockfish	252		
Yelloweye Rockfish	1		
Minor Rockfish North - Shelf Species	671		
Minor Rockfish North - Slope Species	909		
Minor Rockfish South - Shelf Species	97		
Minor Rockfish South - Slope Species	394		
Dover Sole	15,260	26,520	1.74
English Sole	8,988		
Petrale Sole (coastwide)	2,172		
Arrowtooth Flounder	9,430		
Starry Flounder	529		
Other Flatfish	4,279		
Mothership Whiting (Catcher Vessels)	26,707		
Nothern Area Pacific Halibut IBQ	59		

Table D.2. Equal allocation amounts of quota shares and quota pounds (using the trawl allocation scenario based on 2010).

	Equal Allocation for Fleet	Equal Allocation QS Per Permit	Trawl Allocation (mt)	Equal Allocation QP Per Permit (based on 2010 assumptions)	Factor for Alternate Scenario
Lingcod Coastwide	44.96%	0.27%	2,042	12,155	
Pacific Cod	52.43%	0.31%	1,089	7,444	
Pacific Whiting	7.74%	0.05%	42,063	46,366	
Sablefish N. of 36° (Monterey north)	46.68%	0.28%	3,025	18,674	
Sablefish S. of 36° (Conception area)	36.78%	0.22%	527	2,555	
Chilipepper	20.03%	0.12%	1,823	4,822	1.05
Splitnose Rockfish	24.97%	0.15%	437	1,445	
Yellowtail Rockfish	44.06%	0.26%	3,409	19,543	
Shortspine Thornyhead - N. of 34°27'	45.73%	0.27%	1,484	8,833	
Shortspine Thornyhead - S. of 34°27'	45.10%	0.27%	50	298	
Longspine Thornyhead - N. of 34°27'	46.41%	0.27%	2,039	12,135	
Minor Rockfish North - Shelf Species	45.78%	0.27%	671	3,994	
Minor Rockfish North - Slope Species	45.44%	0.27%	909	5,411	
Minor Rockfish South - Shelf Species	25.24%	0.15%	97	320	
Minor Rockfish South - Slope Species	33.32%	0.20%	394	1,739	
Dover Sole	46.24%	0.27%	15,260	90,837	1.74
English Sole	39.27%	0.23%	8,988	45,572	
Petrale Sole (coastwide)	47.72%	0.28%	2,172	13,408	
Arrowtooth Flounder	54.52%	0.32%	9,430	66,524	
Starry Flounder	12.20%	0.07%	529	817	
Other Flatfish	33.60%	0.20%	4,279	18,869	

Table D.4 Estimated quota share initial allocations and permit counts by non-whiting principal port (04-06) or zip* of permit owner.	Blaine	Bellingham	Seattle	Neah Bay	Westport	Ilwaco	Astoria	Tillamook	Newport
<i>No. of permits receiving Initial Allocations</i>	<i>1</i>	<i>4</i>	<i>6</i>	<i>5</i>	<i>8</i>	<i>2</i>	<i>34</i>	<i>1</i>	<i>25</i>
Aggregate non-whiting Groundfish QS	1.5%	2.9%	3.0%	2.5%	2.8%	0.8%	22.0%	0.3%	10.2%
Lingcod - coastwide	1.0%	3.2%	3.4%	3.2%	3.1%	0.9%	22.9%	0.3%	14.6%
N. of 42° N (OR & WA)	1.1%	3.0%	3.7%	3.6%	3.3%	0.9%	24.8%	0.3%	16.0%
S. of 42° N (CA)	0.2%	4.7%	1.5%	1.1%	1.9%	0.6%	11.4%	0.2%	6.0%
Pacific Cod	4.1%	4.0%	3.2%	17.5%	3.1%	1.2%	21.2%	0.3%	7.6%
Shoreside whiting	0.0%	3.9%	6.5%	0.2%	6.9%	0.5%	13.8%	0.0%	32.6%
Sablefish (Coastwide)	0.6%	2.5%	3.0%	1.7%	2.7%	0.9%	17.7%	0.2%	11.9%
N. of 36° N (Monterey north)	0.6%	2.8%	3.3%	1.8%	2.9%	0.7%	19.6%	0.3%	13.1%
S. of 36° N (Conception area)	0.2%	0.9%	1.2%	1.0%	1.6%	1.6%	6.8%	0.2%	5.1%
Chilipepper Rockfish	0.1%	2.6%	0.9%	0.5%	1.0%	0.3%	7.0%	0.1%	7.9%
Splitnose Rockfish	0.1%	1.1%	0.8%	0.7%	1.2%	0.5%	9.0%	0.1%	5.2%
Yellowtail Rockfish	1.5%	3.5%	4.8%	3.5%	3.2%	1.1%	29.4%	0.2%	15.4%
Shortspine Thornyhead - coastwide	0.4%	2.4%	3.3%	1.4%	2.4%	0.7%	17.4%	0.2%	11.9%
Shortspine Thornyhead - N. of 34°27' N	0.4%	2.5%	3.3%	1.4%	2.4%	0.7%	17.7%	0.2%	12.1%
Shortspine Thornyhead - S. of 34°27' N	0.2%	1.0%	1.4%	1.2%	1.9%	0.5%	8.2%	0.2%	6.0%
Longspine Thornyhead - coastwide	0.4%	2.6%	2.7%	1.2%	2.4%	0.6%	18.3%	0.2%	10.7%
Longspine Thornyhead - N. of 34°27' N	0.4%	2.6%	2.7%	1.2%	2.4%	0.6%	18.3%	0.2%	10.7%
Minor Rockfish North									
Shelf Species	2.0%	4.2%	3.1%	1.9%	2.6%	1.3%	23.9%	0.2%	13.9%
Slope Species	0.9%	3.6%	3.3%	1.7%	2.6%	1.0%	26.1%	0.2%	16.7%
Minor Rockfish South									
Shelf Species	0.1%	4.0%	1.0%	0.7%	1.2%	0.7%	8.0%	0.1%	4.7%
Slope Species	0.2%	6.4%	1.2%	0.9%	1.5%	0.5%	7.6%	0.2%	5.0%
Dover Sole	0.5%	2.1%	2.7%	1.5%	2.8%	0.8%	20.4%	0.3%	10.2%
English Sole	1.1%	2.3%	1.8%	5.1%	3.1%	0.5%	23.3%	0.4%	8.5%
Petrale Sole (coastwide)	1.4%	2.9%	2.8%	2.1%	3.1%	1.0%	21.1%	0.4%	10.6%
Arrowtooth Flounder	5.6%	5.8%	5.0%	1.9%	3.0%	1.1%	28.3%	0.3%	9.2%
Starry Flounder	0.1%	0.3%	3.5%	1.2%	2.5%	0.1%	61.5%	0.3%	3.2%
Other Flatfish	0.2%	1.0%	1.5%	1.5%	2.2%	0.4%	15.6%	0.3%	6.3%
BOCACCIO	-	-	1.6%	0.2%	0.3%	-	1.2%	0.2%	2.6%
CANARY ROCKFISH	3.2%	7.2%	4.8%	7.8%	5.4%	1.0%	21.9%	0.3%	15.2%
COWCOD - Conception and Monterey	-	-	1.5%	0.2%	0.3%	-	0.7%	0.2%	2.7%
DARKBLOTCHED	0.6%	1.5%	3.1%	0.7%	2.3%	0.3%	19.7%	0.3%	17.0%
PACIFIC OCEAN PERCH	1.8%	4.5%	3.4%	1.0%	3.2%	0.2%	32.3%	0.3%	23.7%
WIDOW ROCKFISH	0.1%	1.7%	4.3%	0.3%	5.3%	1.2%	26.8%	0.2%	26.5%
YELLOW EYE	4.7%	8.6%	3.4%	11.3%	4.1%	1.1%	24.8%	0.4%	5.9%
Pacific halibut IBQ	5.4%	6.1%	4.3%	2.0%	2.8%	0.7%	25.8%	0.3%	8.8%

*For permits not active from 2004-2006, permit owners zip code was used.

Table D.4 Estimated quota share initial allocations and permit counts by non-whiting principal port (04-06) or zip* of permit owner.	Coos Bay	Brookings	Crescent City	Eureka	Fort Bragg	Bodega Bay	San Francisco	Princeton	Other San Fran Ports
<i>No. of permits receiving Initial Allocations</i>	<i>20</i>	<i>7</i>	<i>4</i>	<i>14</i>	<i>8</i>	<i>1</i>	<i>7</i>	<i>7</i>	<i>2</i>
Aggregate non-whiting Groundfish QS	11.2%	3.2%	1.7%	6.2%	5.2%	0.2%	5.3%	3.2%	0.8%
Lingcod - coastwide	13.1%	3.4%	1.3%	5.4%	3.6%	0.3%	3.4%	1.9%	0.7%
N. of 42° N (OR & WA)	13.9%	3.4%	1.0%	4.6%	2.1%	0.2%	1.8%	1.7%	0.7%
S. of 42° N (CA)	8.2%	3.1%	2.9%	9.8%	12.6%	0.3%	12.7%	2.6%	0.4%
Pacific Cod	5.8%	2.0%	1.1%	7.8%	2.3%	0.3%	2.0%	2.0%	0.8%
Shoreside whiting	4.0%	3.9%	0.1%	1.9%	0.3%	0.0%	3.1%	0.3%	0.1%
Sablefish (Coastwide)	12.4%	4.4%	2.2%	6.9%	5.9%	0.2%	4.3%	2.0%	0.9%
N. of 36° N (Monterey north)	12.4%	4.6%	2.0%	7.6%	6.2%	0.2%	3.9%	2.1%	1.0%
S. of 36° N (Conception area)	12.7%	3.1%	3.2%	2.7%	4.1%	0.2%	6.7%	1.6%	0.4%
Chilipepper Rockfish	6.1%	1.2%	1.4%	4.7%	15.9%	0.1%	18.9%	3.2%	0.2%
Splitnose Rockfish	4.9%	2.0%	2.7%	3.8%	14.7%	0.1%	21.6%	2.1%	0.3%
Yellowtail Rockfish	8.7%	2.8%	0.9%	5.0%	1.9%	0.2%	2.2%	1.5%	0.9%
Shortspine Thornyhead - coastwide	12.6%	4.5%	2.0%	6.9%	6.5%	0.2%	4.6%	1.8%	0.9%
Shortspine Thornyhead - N. of 34°27' N	12.2%	4.6%	2.0%	7.1%	6.7%	0.2%	4.7%	1.8%	0.9%
Shortspine Thornyhead - S. of 34°27' N	21.8%	1.7%	1.0%	3.4%	1.9%	0.2%	1.7%	1.7%	0.5%
Longspine Thornyhead - coastwide	13.4%	4.9%	2.3%	8.0%	7.6%	0.2%	4.1%	1.8%	0.9%
Longspine Thornyhead - N. of 34°27' N	13.4%	4.9%	2.3%	8.0%	7.6%	0.2%	4.1%	1.8%	0.9%
Minor Rockfish North									
Shelf Species	14.8%	3.4%	1.6%	6.0%	2.4%	0.2%	2.1%	1.7%	0.8%
Slope Species	13.1%	3.3%	1.2%	5.9%	2.2%	0.2%	1.8%	1.7%	0.8%
Minor Rockfish South									
Shelf Species	9.0%	1.7%	1.9%	4.9%	12.4%	0.2%	21.1%	3.3%	0.3%
Slope Species	7.6%	2.1%	3.6%	5.4%	13.1%	0.2%	14.5%	2.7%	0.4%
Dover Sole	12.6%	4.2%	2.2%	7.0%	6.7%	0.3%	4.9%	2.2%	0.9%
English Sole	11.0%	2.4%	1.5%	6.0%	4.9%	0.3%	6.9%	4.3%	0.5%
Petrale Sole (coastwide)	14.2%	3.7%	1.8%	5.8%	4.0%	0.3%	5.8%	2.9%	0.7%
Arrowtooth Flounder	8.3%	2.2%	1.2%	6.3%	2.6%	0.3%	2.1%	2.0%	0.9%
Starry Flounder	10.8%	0.5%	0.7%	1.1%	0.5%	0.1%	1.0%	0.9%	0.1%
Other Flatfish	13.5%	2.4%	1.4%	5.2%	4.0%	0.2%	10.2%	13.7%	0.5%
BOCACCIO	1.2%	0.3%	0.6%	1.2%	8.0%	0.2%	15.5%	34.1%	0.5%
CANARY ROCKFISH	7.1%	3.1%	1.6%	5.6%	0.1%	0.2%	1.6%	1.3%	0.7%
COWCOD - Conception and Monterey	0.4%	0.3%	0.3%	0.9%	1.3%	0.1%	14.2%	45.5%	0.5%
DARKBLOTCHED	17.7%	5.3%	2.0%	8.5%	3.1%	0.3%	2.8%	0.6%	0.9%
PACIFIC OCEAN PERCH	12.3%	1.5%	0.6%	1.3%	0.3%	0.3%	0.9%	0.7%	0.9%
WIDOW ROCKFISH	9.6%	2.0%	0.6%	1.8%	2.0%	0.2%	2.8%	0.8%	0.6%
YELLOWEYE	5.6%	1.7%	1.3%	3.9%	0.0%	0.3%	2.1%	6.3%	0.9%
Pacific halibut IBQ	9.9%	2.7%	1.2%	6.1%	3.1%	0.3%	3.2%	2.3%	0.9%

Table D.4 Estimated quota share initial allocations and permit counts by non-whiting principal port (04-06) or zip* of permit owner.	Santa Cruz	Moss Landing	Monterey	Morro Bay	Avila	Total
No. of permits receiving Initial Allocations	1	5	1	5	1	169
Aggregate non-whiting Groundfish QS	0.3%	3.3%	0.4%	2.4%	0.6%	90.0%
Lingcod - coastwide	0.2%	2.1%	0.3%	1.6%	0.3%	90.0%
N. of 42° N (OR & WA)	0.2%	1.5%	0.2%	1.5%	0.2%	90.0%
S. of 42° N (CA)	0.3%	6.3%	0.8%	2.3%	0.3%	90.0%
Pacific Cod	0.3%	1.6%	0.3%	1.4%	0.3%	90.0%
Shoreside whiting	0.0%	1.6%	0.0%	0.2%	0.0%	80.0%
Sablefish (Coastwide)	0.2%	2.3%	0.3%	5.2%	1.5%	90.0%
N. of 36° N (Monterey north)	0.2%	2.6%	0.4%	1.4%	0.3%	90.0%
S. of 36° N (Conception area)	0.2%	1.0%	0.2%	27.0%	8.5%	90.0%
Chilipepper Rockfish	0.1%	13.4%	1.5%	2.2%	0.9%	90.0%
Splitnose Rockfish	0.1%	11.0%	1.6%	4.2%	2.1%	90.0%
Yellowtail Rockfish	0.2%	1.7%	0.2%	1.1%	0.2%	90.0%
Shortspine Thornyhead - coastwide	0.2%	3.5%	0.5%	4.6%	1.0%	90.0%
Shortspine Thornyhead - N. of 34°27' N	0.2%	3.5%	0.5%	3.6%	1.0%	90.0%
Shortspine Thornyhead - S. of 34°27' N	0.2%	1.2%	0.2%	33.7%	0.2%	90.0%
Longspine Thornyhead - coastwide	0.2%	3.2%	0.5%	2.9%	0.8%	90.0%
Longspine Thornyhead - N. of 34°27' N	0.2%	3.2%	0.5%	2.9%	0.8%	90.0%
Minor Rockfish North						
Shelf Species	0.2%	1.7%	0.3%	1.2%	0.3%	90.0%
Slope Species	0.2%	1.6%	0.2%	1.2%	0.2%	90.0%
Minor Rockfish South						
Shelf Species	0.1%	10.5%	0.7%	2.8%	0.5%	90.0%
Slope Species	0.2%	5.5%	0.5%	5.2%	5.8%	90.0%
Dover Sole	0.2%	3.3%	0.4%	3.2%	0.8%	90.0%
English Sole	0.3%	3.3%	0.4%	1.9%	0.3%	90.0%
Petrable Sole (coastwide)	0.3%	2.4%	0.4%	1.9%	0.4%	90.0%
Arrowtooth Flounder	0.3%	1.6%	0.3%	1.5%	0.3%	90.0%
Starry Flounder	0.3%	0.6%	0.1%	0.5%	0.1%	90.0%
Other Flatfish	0.3%	6.8%	0.4%	1.8%	0.5%	90.0%
BOCACCIO	3.6%	9.8%	3.0%	4.9%	0.9%	90.0%
CANARY ROCKFISH	0.1%	1.4%	0.1%	0.3%	0.0%	90.0%
COWCOD - Conception and Monterey	4.8%	9.4%	3.7%	2.9%	0.1%	90.0%
DARKBLOTCHED	0.0%	1.4%	0.1%	1.4%	0.3%	90.0%
PACIFIC OCEAN PERCH	0.0%	0.5%	0.0%	0.4%	0.0%	90.0%
WIDOW ROCKFISH	0.0%	1.9%	0.1%	1.0%	0.2%	90.0%
YELLOW EYE	0.6%	2.0%	0.5%	0.6%	-	90.0%
Pacific halibut IBQ	0.3%	1.7%	0.3%	1.6%	0.3%	90.0%