Agenda Item F.3.c
Additional Analysis
November, 2008

ADDITIONAL ANALYSIS ON TRAWL RATIONALIZATION

This document includes

Accumulation Limits

Setting Control Limits Lower Than Vessel Limits

The accumulation limit options include separate accumulation limits for control and vessels, and it has been proposed that the control limits be set lower than the vessel limits. The decision to set the control limits less than vessel limits, when combined with certain rules intended to assist in the effective implementation of the control limits, creates certain practical problems. In this section we identify

- the rules intended to assist in implementation and note that those rules, while helpful, are not necessary to sustain the underlying intent to limit control,
- the practical problem created by the rules when control limits are set below vessel limits, and
- ways to accommodate control limits less than vessel limits by modifying those rules without changing the underlying control limit.

Implementing the Control Limits

Control is very broadly defined for the purpose of the control accumulation limits. Some specific rules have been developed to assist in effective application of the control limit.

1. The limits apply both to the control of QS and QP. This approach was proposed as a means of reducing the opportunity for a person to attempt to circumvent detection of control limit violations by indirectly controlling a number of different QS accounts but having the QP issued to that account directed to that person's business.
2. QP in a vessel account is under the harvester's control and will count toward the harvester's control limit.

3. One type of control, “ownership” will be measured by the “individual and collective rule.” Under this rule, the QS a person owns counts against that person’s accumulation limit as well as the QS owned by any entity in which the person has an ownership interest in proportion to that ownership interest.

These three general rules are intended to make it easier to effectively monitor control and detect violations. However, any one or all of these rules could be eliminated without changing an underlying intent and rule, i.e. that control of QS, however it is exerted, not exceed a certain percent.

The Practical Problem

The practical problem created by these rules occurs when they are combined with the rule that specifies that each vessel will have a vessel account to which QP must be transferred in order to be used. The intent has been that QP in a vessel account would not be distinguished based on its source. This approach is intended to reduce costs of tracking the QP as they transfer between accounts and costs that would otherwise be entailed in dividing a landing up and counting it against QP from different sources. This means that all QP transferred to the vessel account comes under the control of the harvester. Therefore, since QP counts toward control accumulation limits, it would be impossible to have vessel limits above control accumulation limits since accumulating QP up to the vessel limit would, by definition, exceed the control limit.

Approaches to a Solution

There are a number of solutions to this problem, including the possibility of setting the control limits equal to the vessel limits. However, setting a vessel limit above the control limit promotes efficiency gains from trawl rationalization by allowing consolidation of harvest on fewer vessels, while at the same time ensuring that the benefits of QS ownership are distributed among more entities. Absent this differential, more compromise would be needed either on the efficiency objective or the social objective related to distribution.

Other solutions involve modifying the rules intended to assist in implementation. The most straight forward modification would be to not count QP ownership against the control accumulation limits, or to not count QP ownership in a vessel account against control accumulation limits. This would not exempt harvesters from the control accumulation limits but might make it somewhat easier for them to hide control. While easier to hide, if a level of control that exceeds limits were detected it would still be a violation of the control accumulation limit. The narrower approach in this regard would be to continue to count both QP and QS ownership against the control limits but to exempt the vessel account from the control limit.

Setting Accumulation Limit Percentages

Appendix A provides two basic kinds of quantitative information that are relevant to the selection of percentages for the accumulation limits.

1. Initial allocations of QS in comparison to accumulation limit percentages
2. Permit and entity recent and historic shares of fleet landings relative to accumulation limit percentages

Permit/vessel level information is provided for evaluating the vessel limits, and
Entity level aggregations are provided for evaluating the control limits.

The information on the initial allocation of QS in comparison to accumulation limits is provided to assist in understanding how the percentages selected for the accumulation limits interact with the decision on whether or not to have a grandfather clause. The degree of efficiency advantages or redistribution and equity issues related to the decision on the grandfather clause depend on the level at which the accumulation limits are set relative to the initial allocations. However, basing the accumulation limits on the initial QS allocations presents certain challenges to the development of a clear rationale. For example, if the control accumulation limits are set to the maximum amount that any one permit would be allocated, then the level of rationalization in the fleet would be driven by decisions that were not made with the intent of constraining rationalization. The decision to allocate nearly half the QS equally, the decision to allocate 20% to processors, the decision to allow harvesters to drop their two or three worst years all had the effect of reducing the maximum allocations going to any one permit. The equal allocation component of the formula is driven by the buyback permit share of history, thus even the level at which Congress chose to fund the buyback program and the history of the permits that decided to sell-out in the program would be playing roles in determining the minimum size of the fleet that would be allowed to operate.

While comparing the accumulation limits to the QS allocation is important for understanding the impacts of the accumulation limits, it might be easier to construct a rationale for the decision on the accumulation limits by relating the limits to recent or historic shares of harvest in the fishery. To that end, Appendix A provides tables which compare the accumulation limits to recent annual shares (2004-2006, for vessels and entities) and historic shares (1994-2003, for vessels) (Tables A-82 through A-83 and A-105 through A-109 in Appendix A). For vessels, the absolute maximum pounds from 1994-2003 are translated to shares of the 2004-2006 annual harvest to determine the limits that would be required to allow vessels to harvest at levels that were experienced in the 1990s (Table A-83). While for most species such harvest levels of the 1990s would not be achievable, for a few important target species reasonable limits might be set on this basis. For example, for sablefish and Dover sole limits, about 3% would allow vessels to achieve the maximum individual vessel harvest poundages seen in the 1990s. However, thornyhead limits would have to be substantially greater. An aggregate nonwhiting vessel limit of 5.9% would allow a vessel to take the maximum nonwhiting poundage seen in the 1990s. The maximum vessel limit being considered by the Council is 6%.

Figure 2 through Figure 37 show each permit's maximum share of harvest in any one year from 2004 through 2006. The permits were put into three groups and within each group were sorted from the lowest to highest maximum. The order of the permits is not changed from one graph to the next. The first group, displayed on the left side of each graph, are the permits that only participated in the shoreside whiting fishery during the most recent period; the second group are those that participated in both the shoreside whiting and nonwhiting fisheries; and the last group are those permits that participated only in the nonwhiting fishery.

For each figure, the relevant vessel and control limits are provided. If control limits are below the vessel limits and the maximum points are above the control limits, then this illustrates the amount of co-operation among QS owners that would be required for those permits to achieve their historic share of harvest. For an entity to operate more than one vessel at close to the maximum vessel accumulation limits without violating control limits it would need to acquire a substantial amount of QP from other sources every year. Figure 1 shows that in the current fishery most entities own only 1 permit. Table A-75 in Appendix A indicates that since the fall of 2006 two entities have each acquired one additional permit and one entity divested itself of a permit.

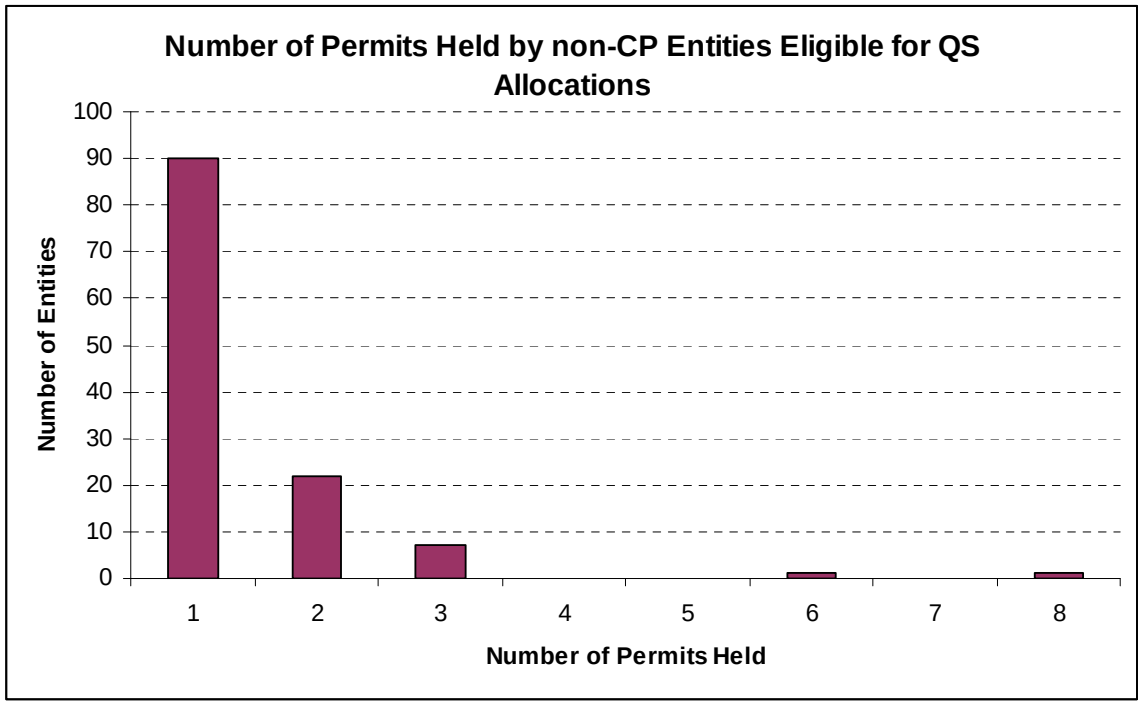

Figure 1. Number of entities holding the number of permits indicated on the horizontal axis as of the fall of 2006, catcher-processors excluded.

The GAC requested a table displaying the number of entities at the accumulation limits when there is no grandfather clause and 100% is allocated to permits (Table 0-1). Appendix A, Table A-95 (page A-296) provides the corresponding results for the same allocation formula with a grandfather clause. Table A-95 shows 14 entities above the limit and Table 0-1 shows 17 entities pushed up to the limit as a result of the grandfather clause. For individual species the number of entities at the limit with no grandfather clause (Table 0-1) is higher or lower than the number above the limit with a grandfather clause (Table A-95) depending on the strength of the

effect of the aggregate limit applied in the absence of a grandfather clause in pushing individual entities below the limit for a particular species and the amount of reallocation which occurred for that species (with no grandfather clause). For example, several entities that are over the limit on sablefish (6 in Table A-95) were pushed below the limits as a result of the aggregate constraint; and those receiving the reallocated pounds did not receive enough to push many back up to the sablefish limit (only 2 are at the limit in Table 0-1). These tables provide information on the control limit Options 1 and 2. Option 3 varies from Option 2 only in that it has higher aggregate nonwhiting groundfish control limits (3%) and higher whiting control limits. Under Option 3 there are 148 entities receiving allocations. With no grandfather clause 5 would be capped at the aggregate nonwhiting control limit. The Option 3 whiting limits were not constraining.

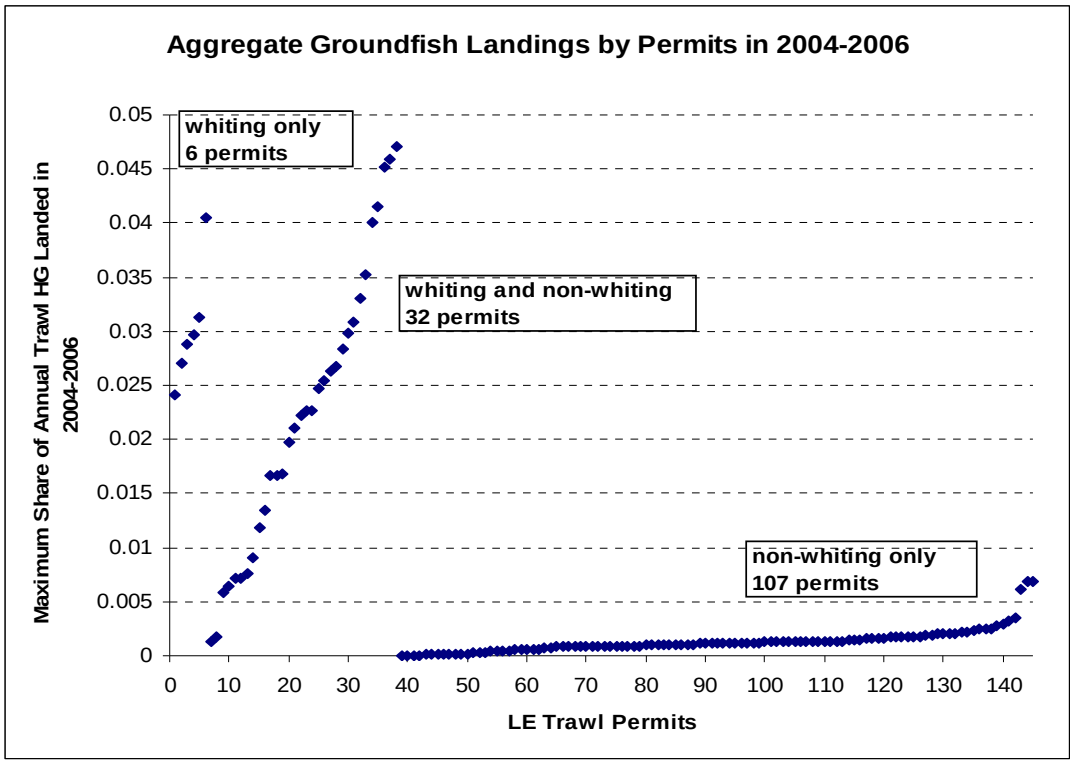

Figure 2. Maximum annual share of groundfish landings for each permit active in the shoreside whiting or nonwhiting fisheries from 2004-2006.

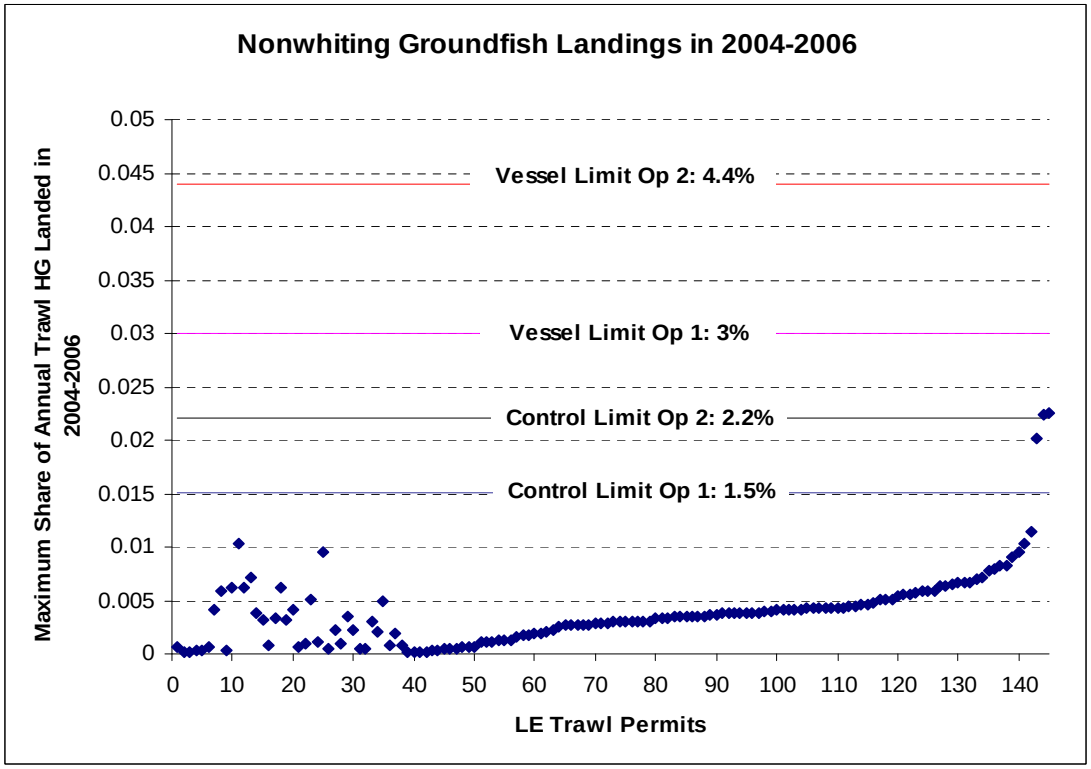

Figure 3. Maximum annual share of nonwhiting groundfish landings for each permit active in the shoreside whiting or nonwhiting fisheries from 2004-2006.

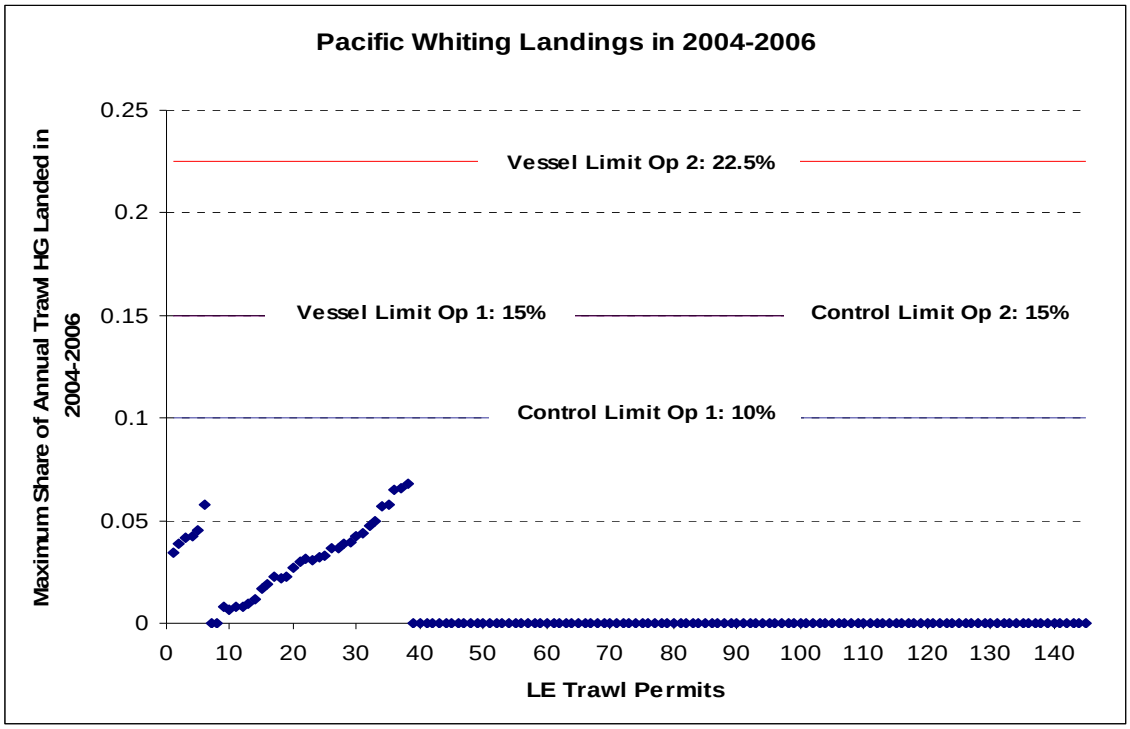

Figure 4. Maximum annual share of Pacific whiting landings for each permit active in the shoreside whiting or nonwhiting fisheries from 2004-2006.

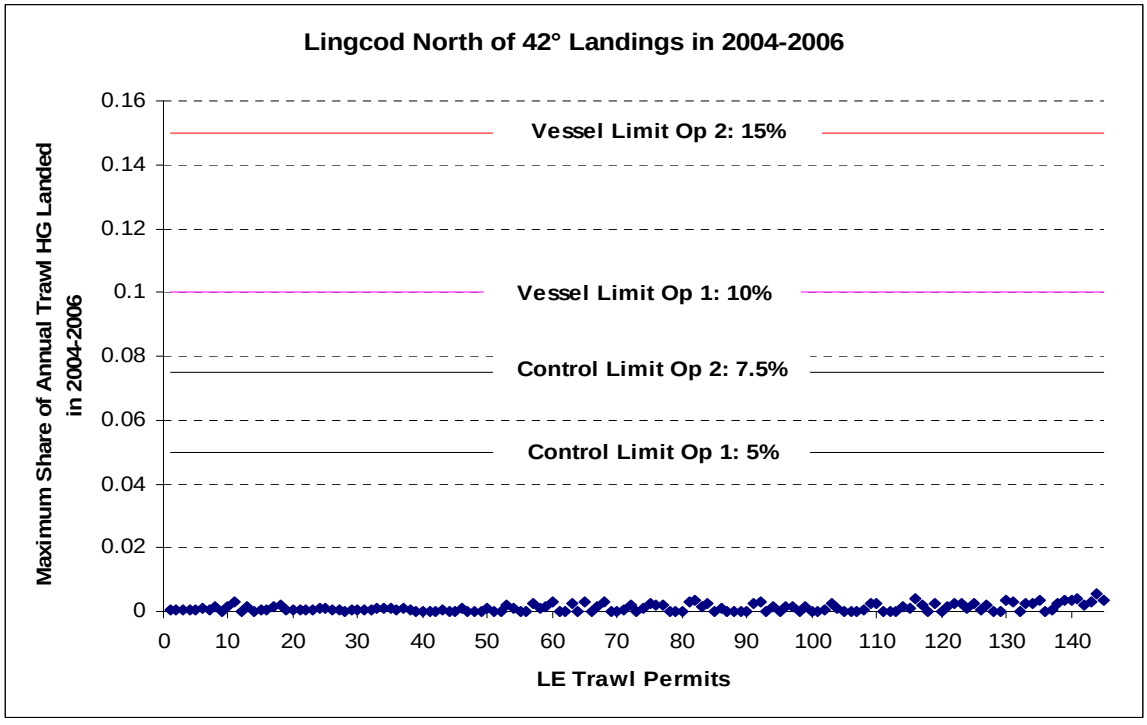

Figure 5. Maximum annual share of lingcod north landings for each permit active in the shoreside whiting or nonwhiting fisheries from 2004-2006.

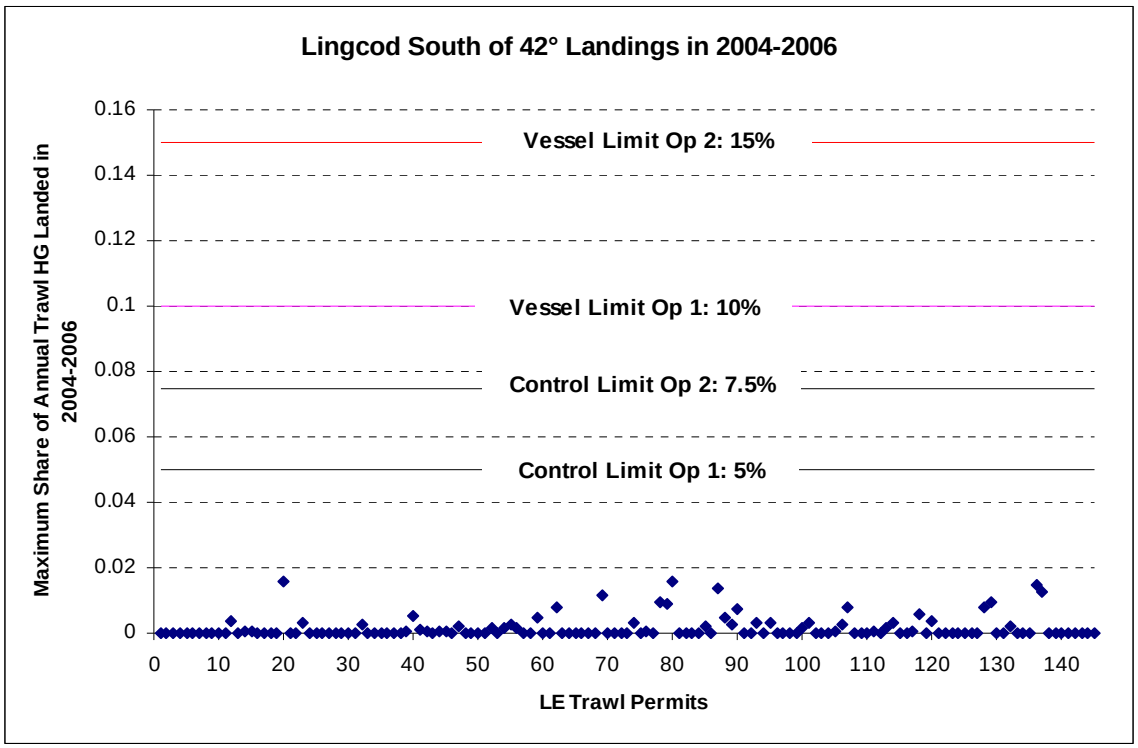

Figure 6. Maximum annual share of lingcod south landings for each permit active in the shoreside whiting or nonwhiting fisheries from 2004-2006.

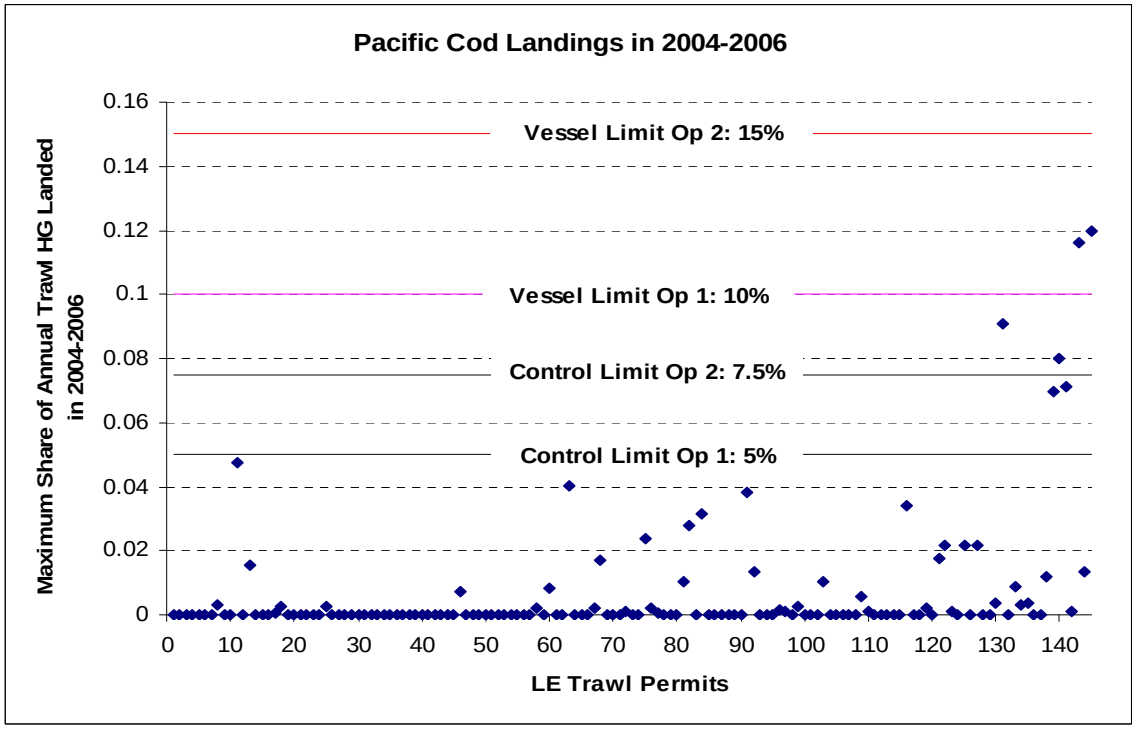

Figure 7. Maximum annual share of Pacific cod landings for each permit active in the shoreside whiting or nonwhiting fisheries from 2004-2006.

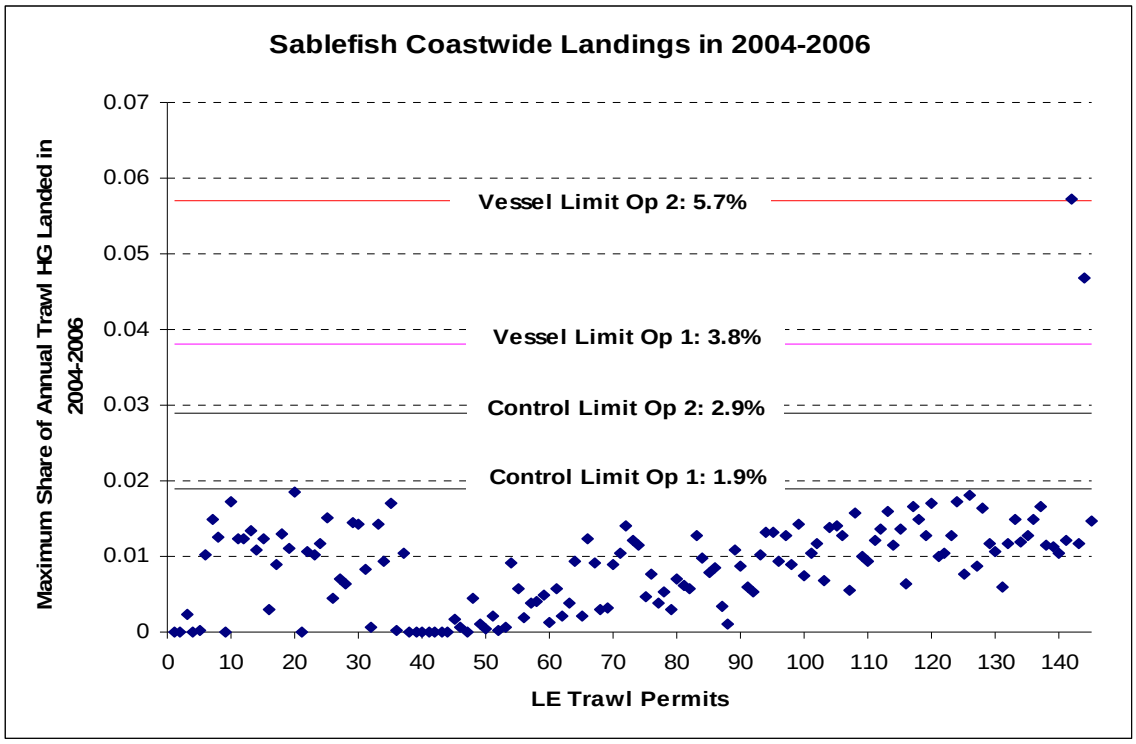

Figure 8. Maximum annual share of coastwide sablefish landings for each permit active in the shoreside whiting or nonwhiting fisheries from 2004-2006.

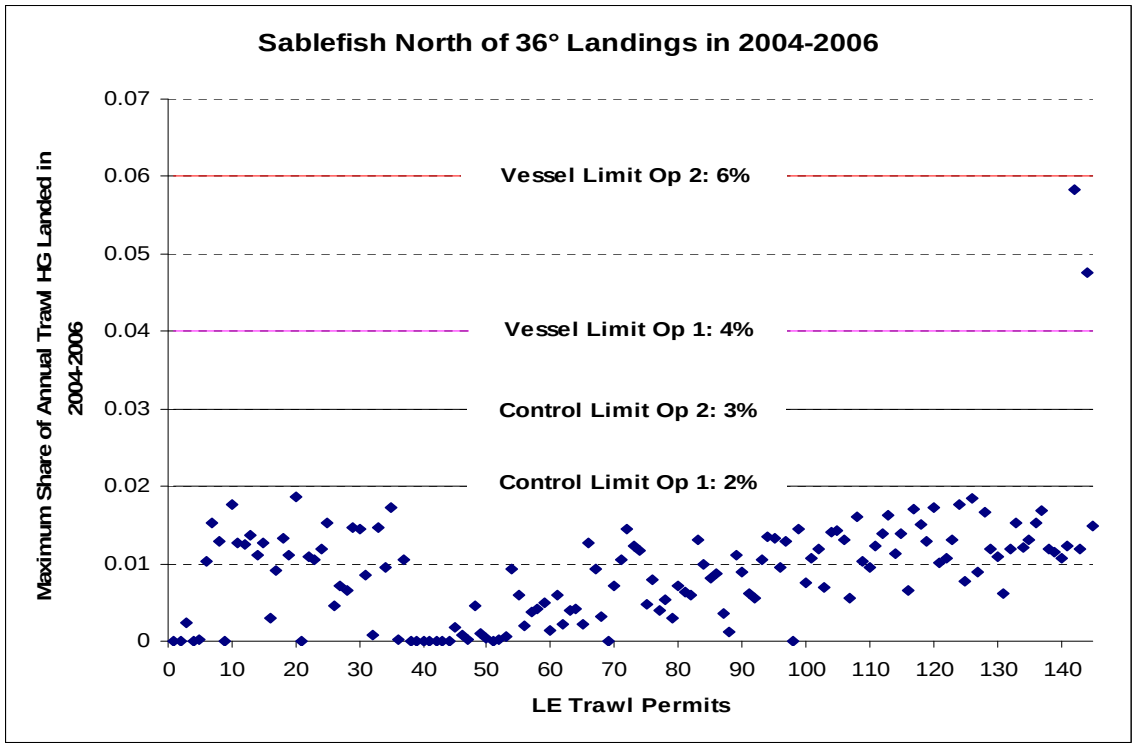

Figure 9. Maximum annual share of sablefish north landings for each permit active in the shoreside whiting or nonwhiting fisheries from 2004-2006.

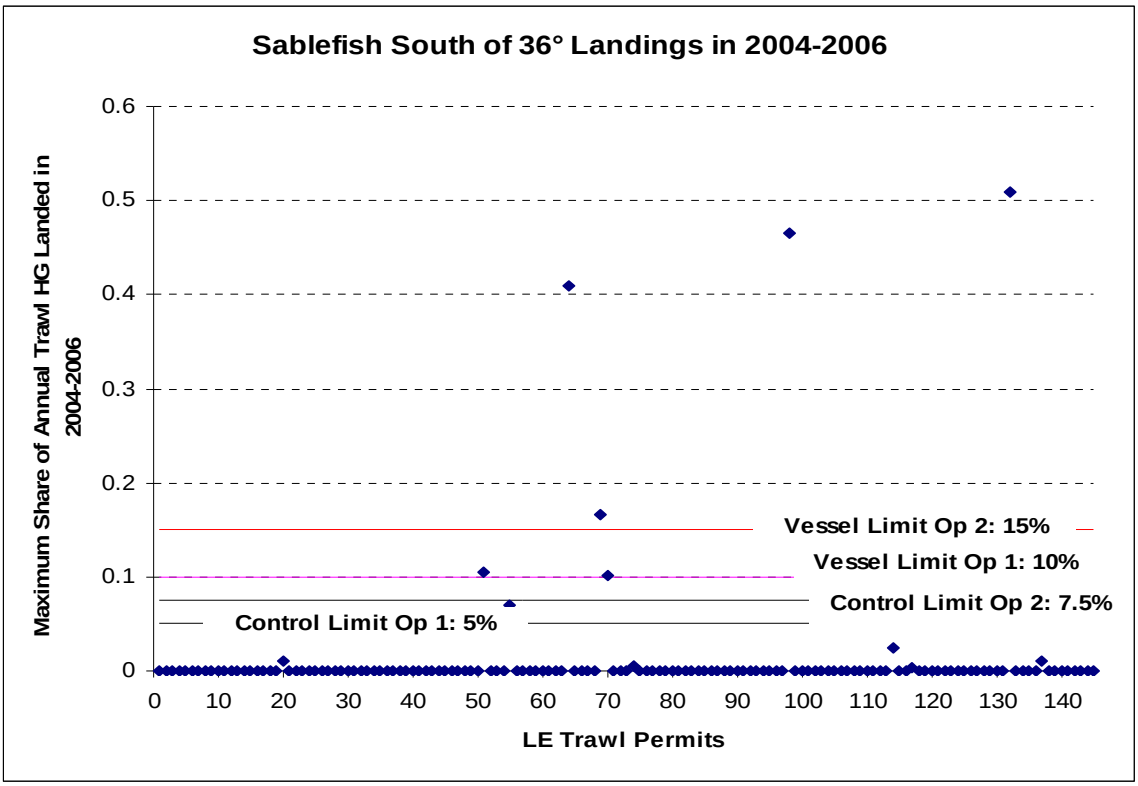

Figure 10. Maximum annual share of sablefish south landings for each permit active in the shoreside whiting or nonwhiting fisheries from 2004-2006.

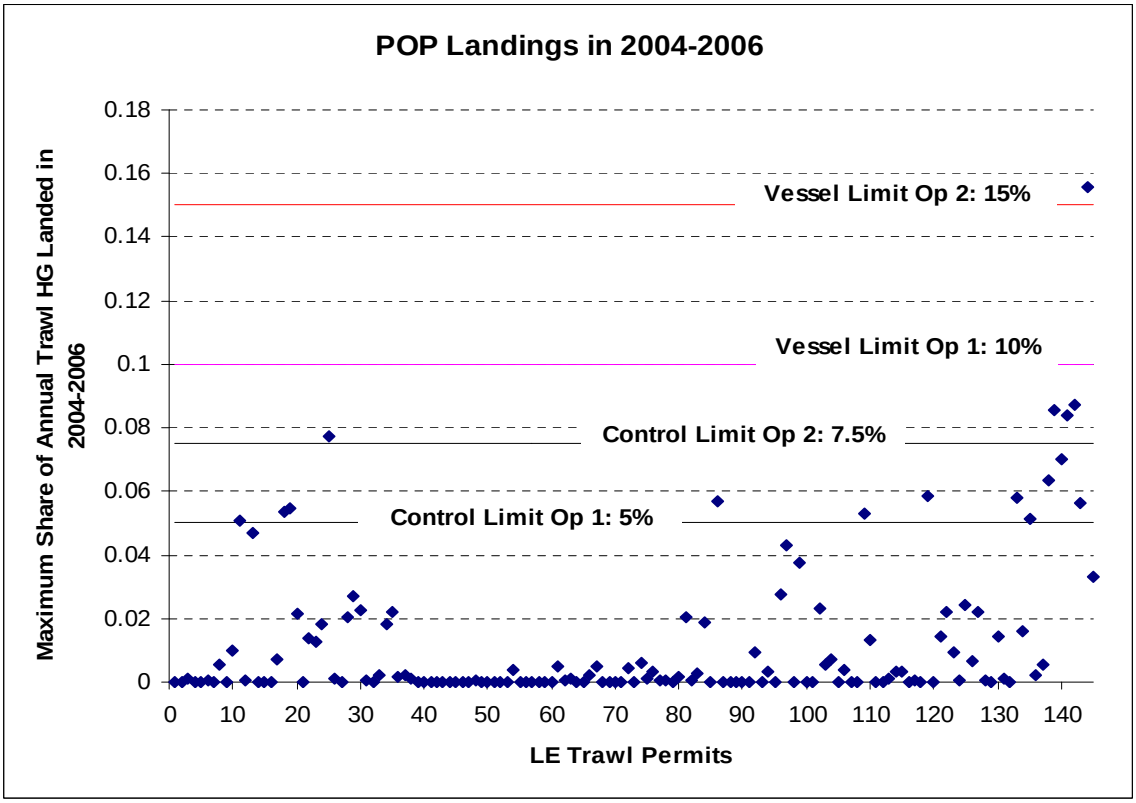

Figure 11. Maximum annual share of Pacific Ocean perch landings for each permit active in the shoreside whiting or nonwhiting fisheries from 2004-2006.

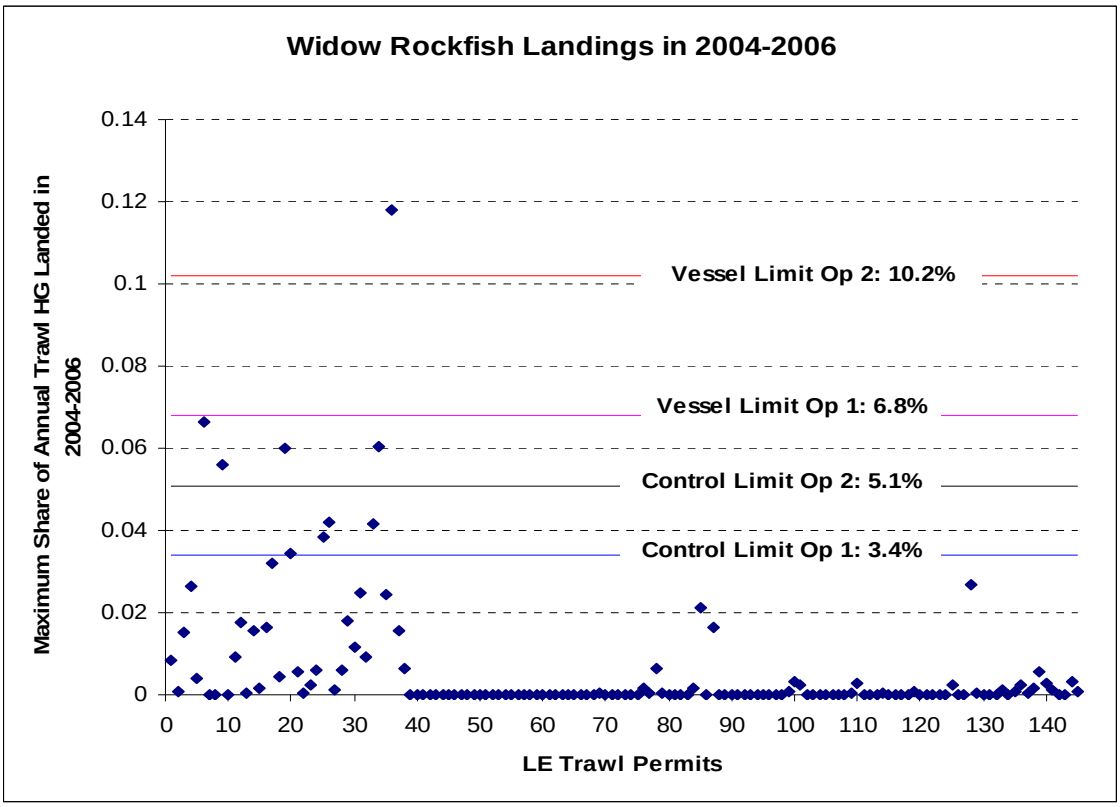

Figure 12. Maximum annual share of widow rockfish landings for each permit active in the shoreside whiting or nonwhiting fisheries from 2004-2006.

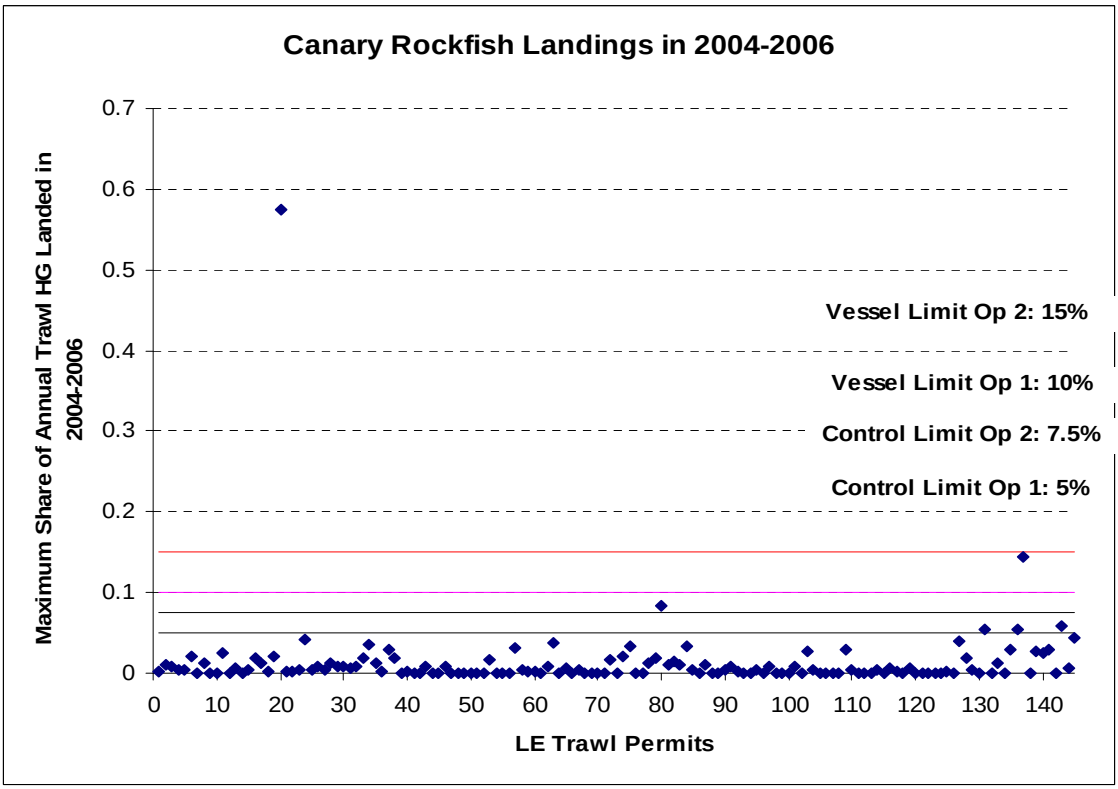

Figure 13. Maximum annual share of canary rockfish landings for each permit active in the shoreside whiting or nonwhiting fisheries from 2004-2006.

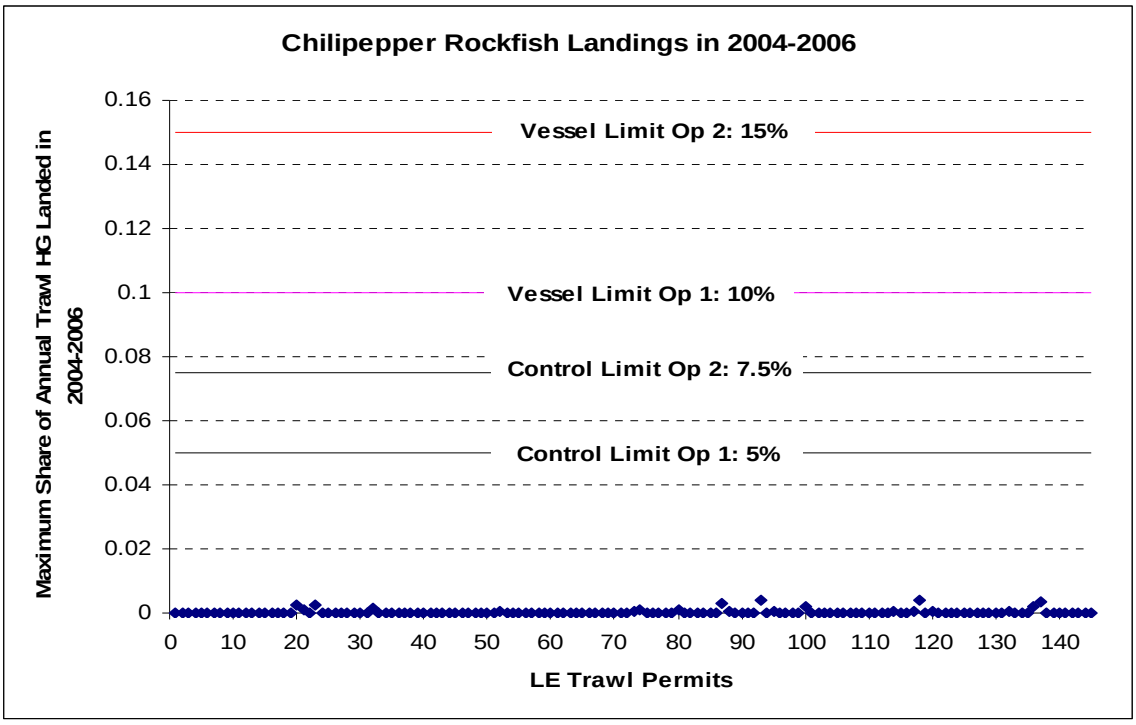

Figure 14. Maximum annual share of chilipepper rockfish landings for each permit active in the shoreside whiting or nonwhiting fisheries from 2004-2006.

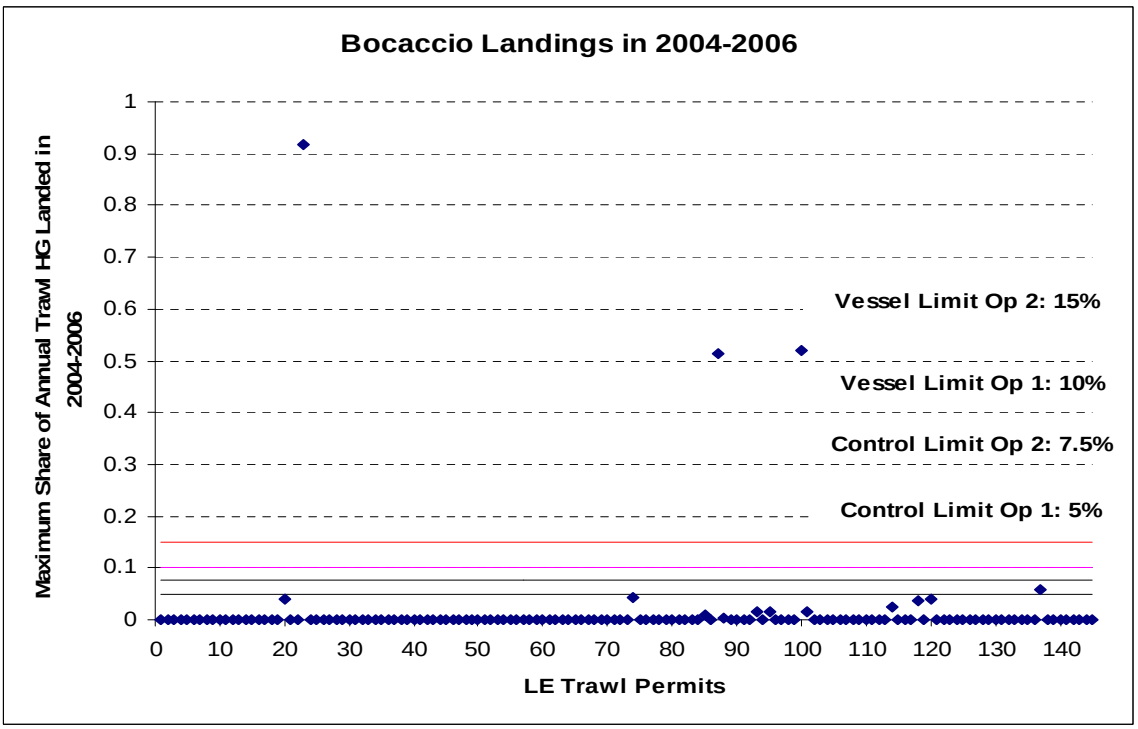

Figure 15. Maximum annual share of Bocaccio rockfish landings for each permit active in the shoreside whiting or nonwhiting fisheries from 2004-2006.

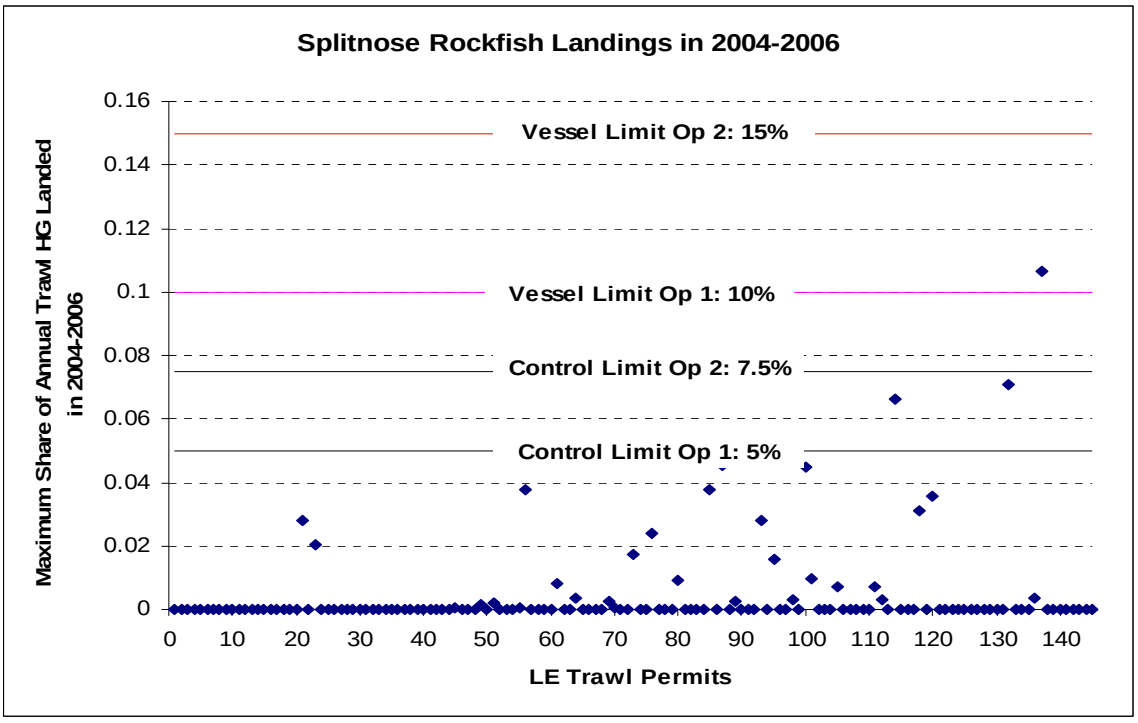

Figure 16. Maximum annual share of splitnose rockfish landings for each permit active in the shoreside whiting or nonwhiting fisheries from 2004-2006.

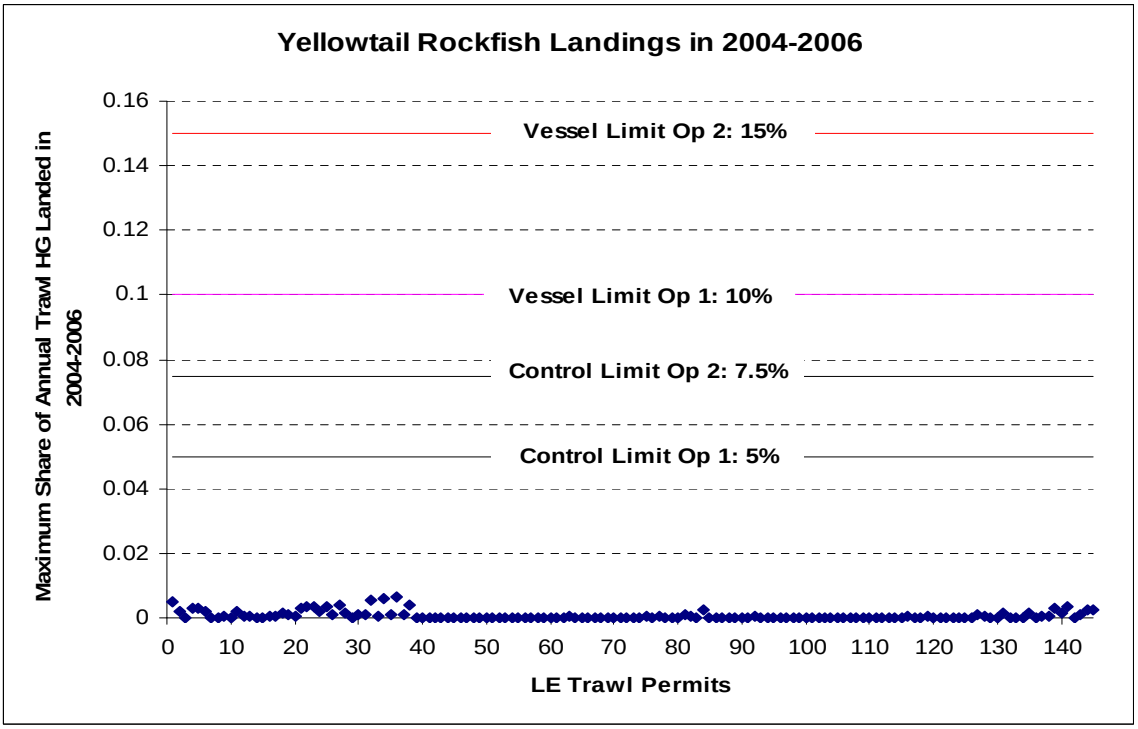

Figure 17. Maximum annual share of yellowtail rockfish landings for each permit active in the shoreside whiting or nonwhiting fisheries from 2004-2006.

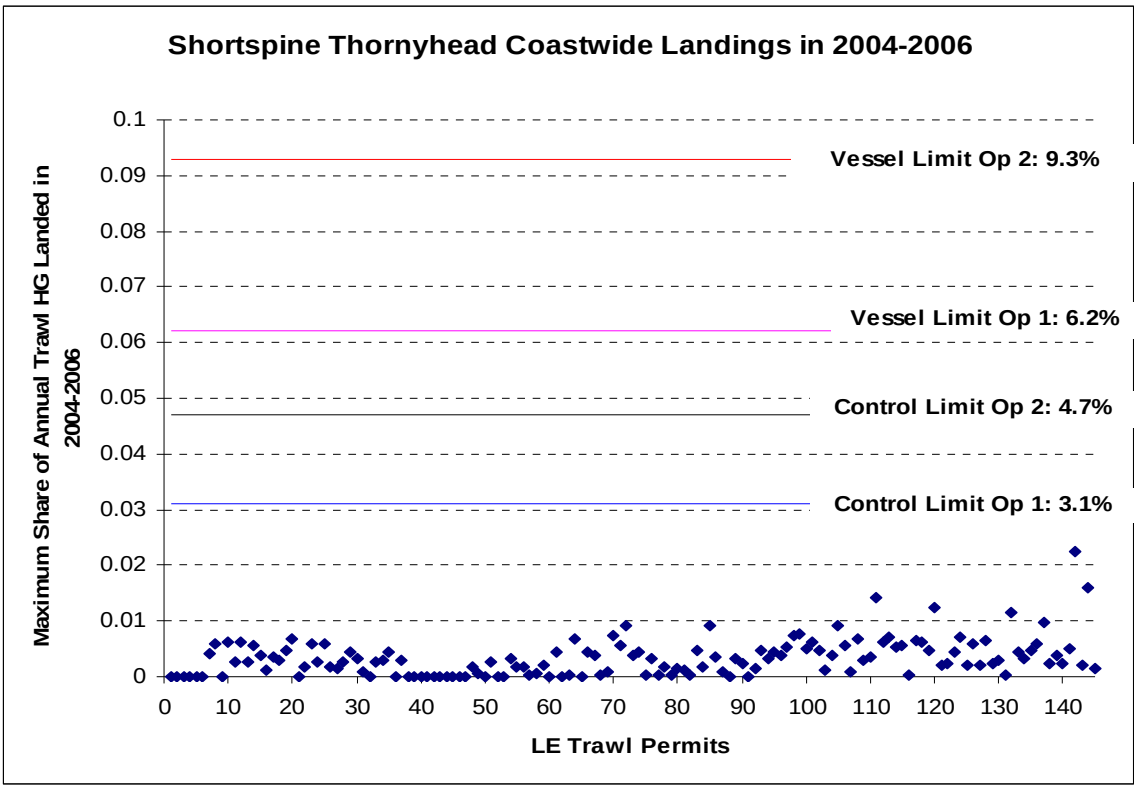

Figure 18. Maximum annual share of shortspine thornyhead rockfish coastwide landings for each permit active in the shoreside whiting or nonwhiting fisheries from 2004-2006.

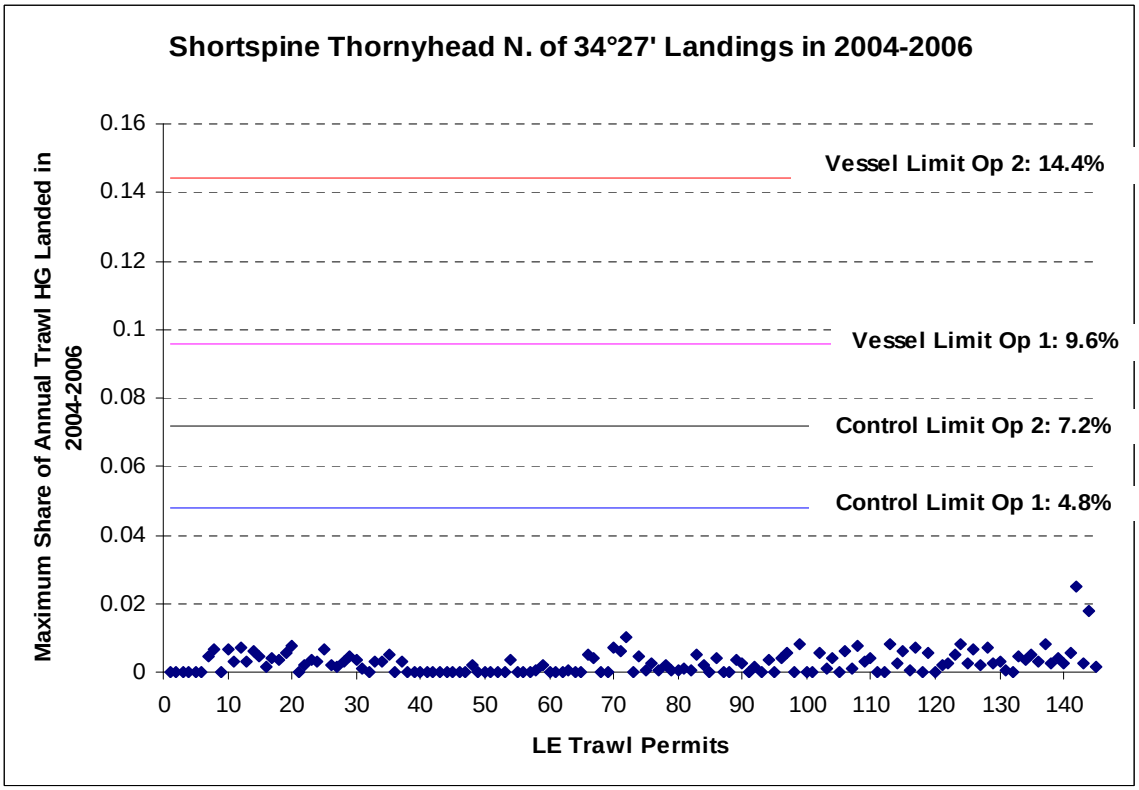

Figure 19. Maximum annual share of shortspine thornyhead rockfish north landings for each permit active in the shoreside whiting or nonwhiting fisheries from 2004-2006.

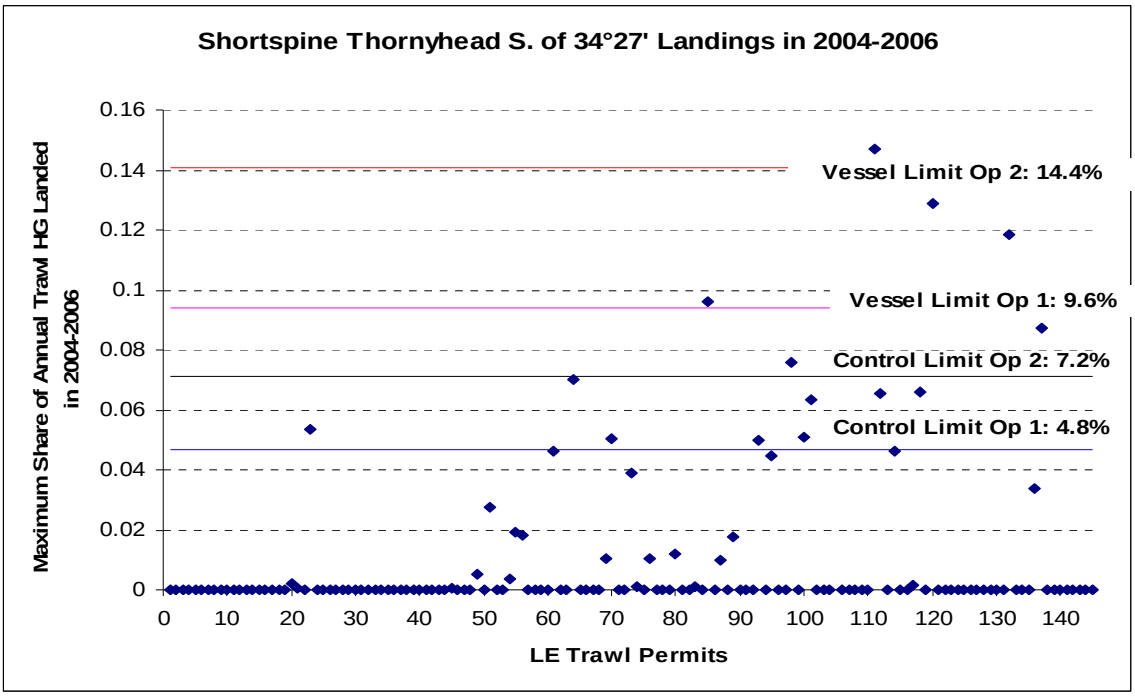

Figure 20. Maximum annual share of shortspine thornyhead rockfish south landings for each permit active in the shoreside whiting or nonwhiting fisheries from 2004-2006.

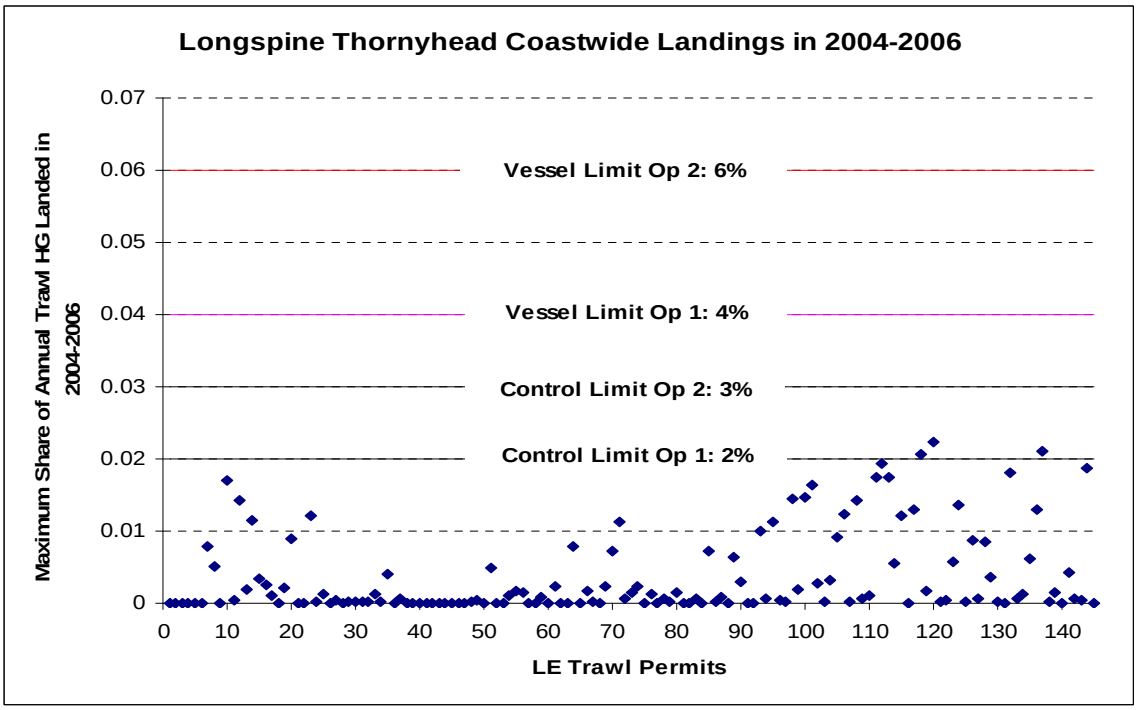

Figure 21. Maximum annual share of longspine thornyhead rockfish coastwide landings for each permit active in the shoreside whiting or nonwhiting fisheries from 2004-2006.

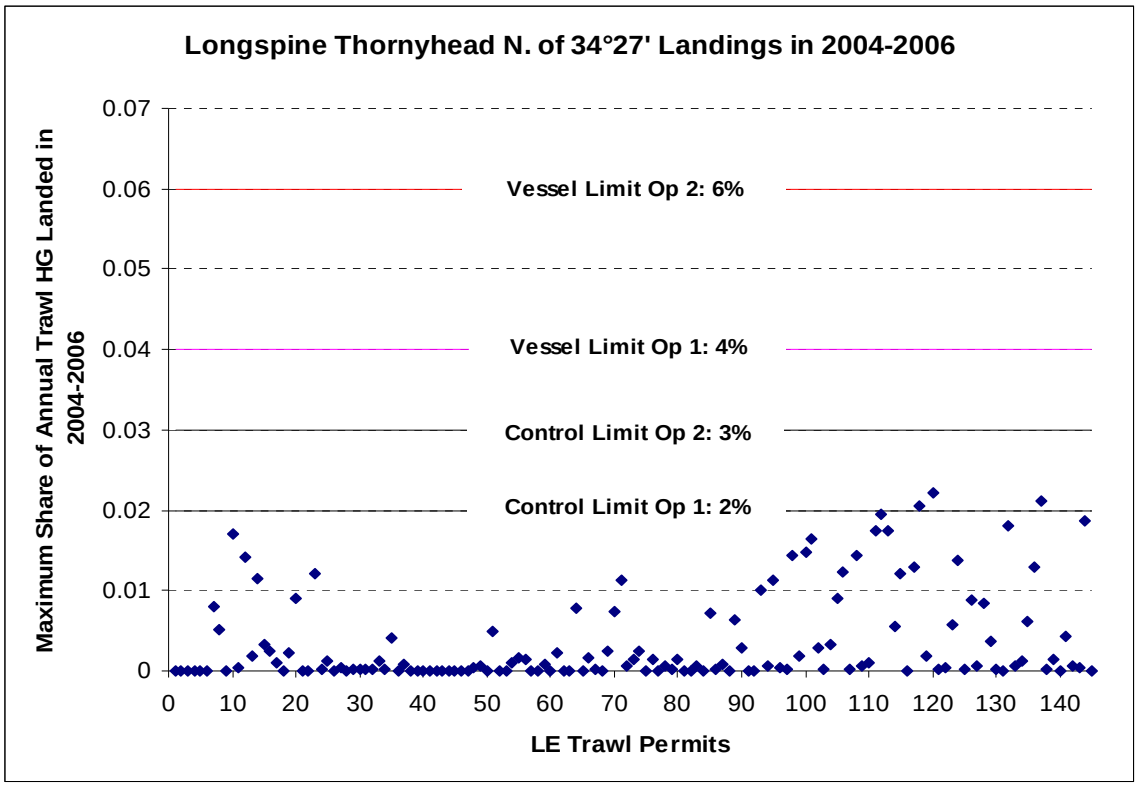

Figure 22. Maximum annual share of longspine thornyhead rockfish south landings for each permit active in the shoreside whiting or nonwhiting fisheries from 2004-2006.

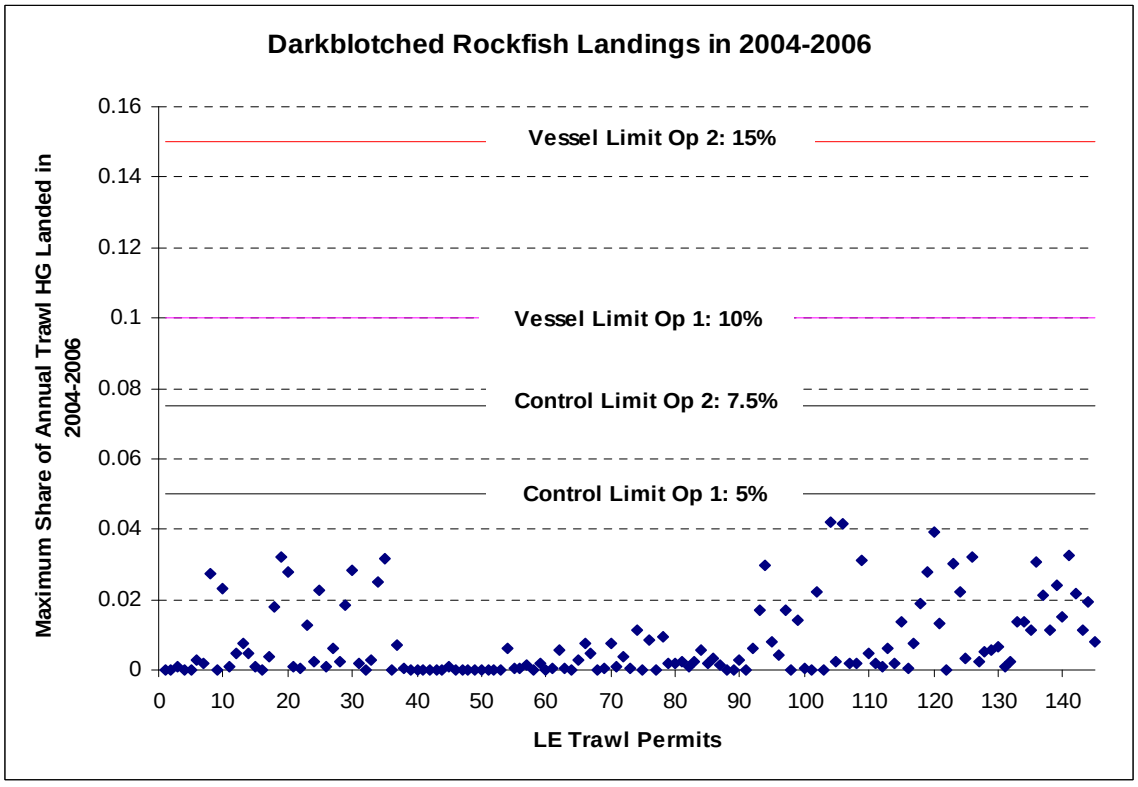

Figure 23. Maximum annual share of darkblotched rockfish landings for each permit active in the shoreside whiting or nonwhiting fisheries from 2004-2006.

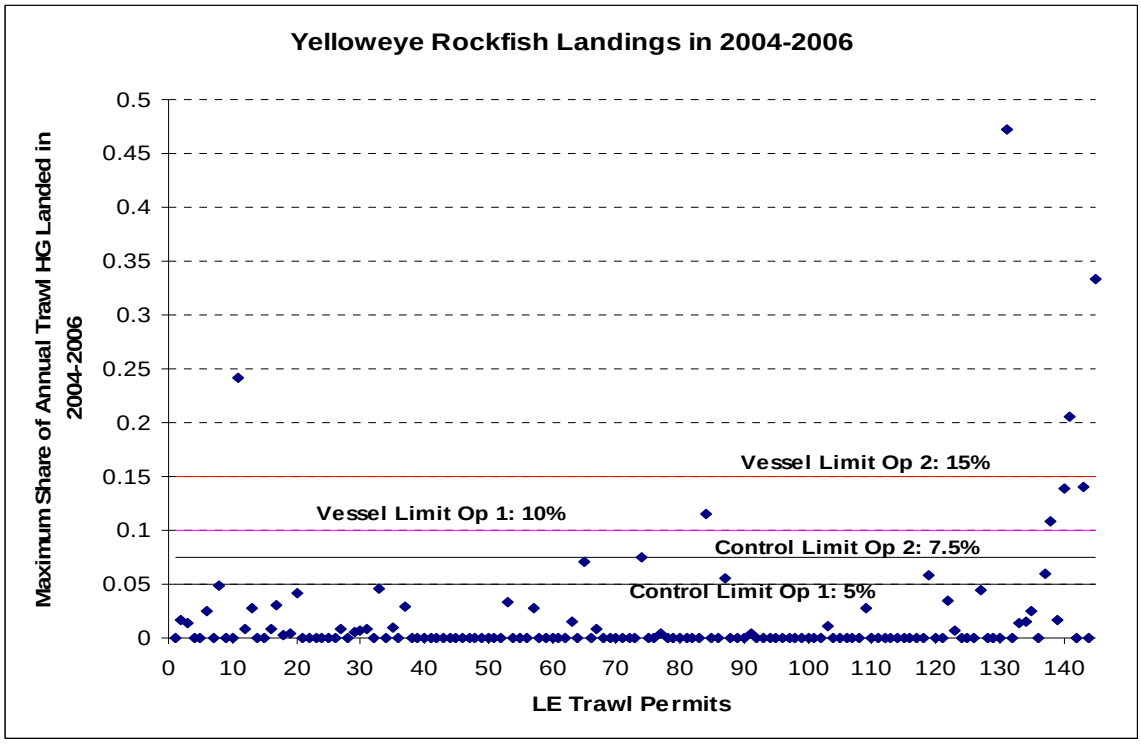

Figure 24. Maximum annual share of yelloweye rockfish landings for each permit active in the shoreside whiting or nonwhiting fisheries from 2004-2006.

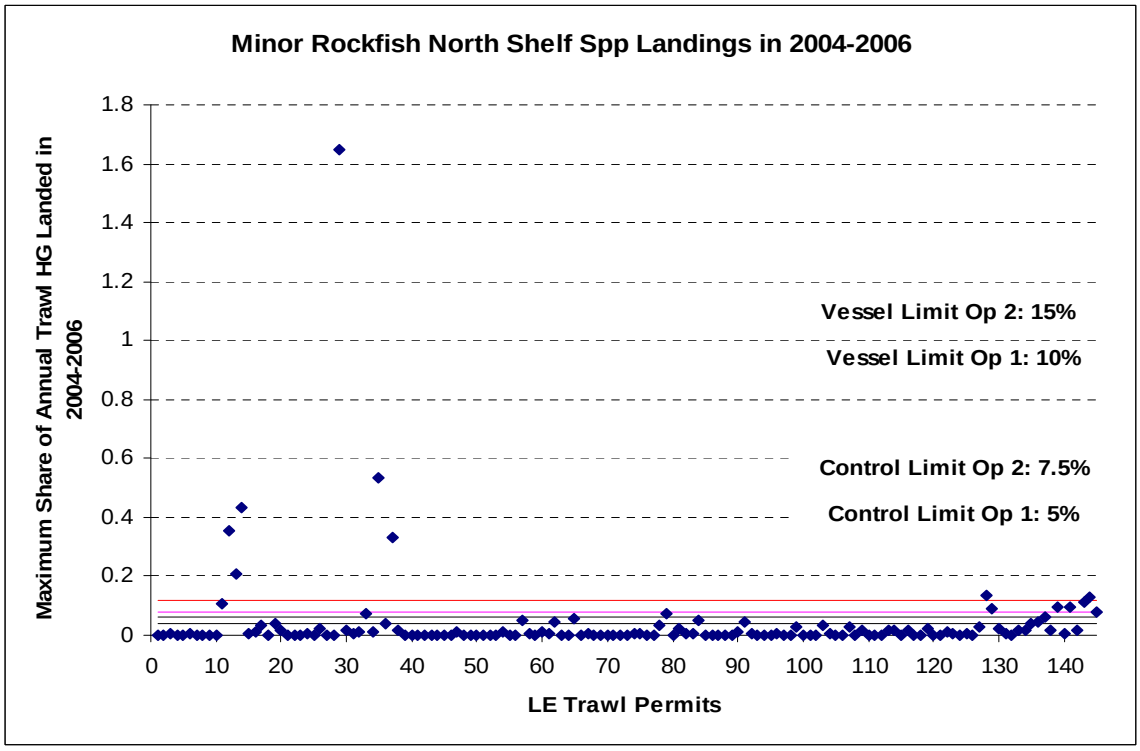

Figure 25. Maximum annual share of minor rockfish north shelf species landings for each permit active in the shoreside whiting or nonwhiting fisheries from 2004-2006.

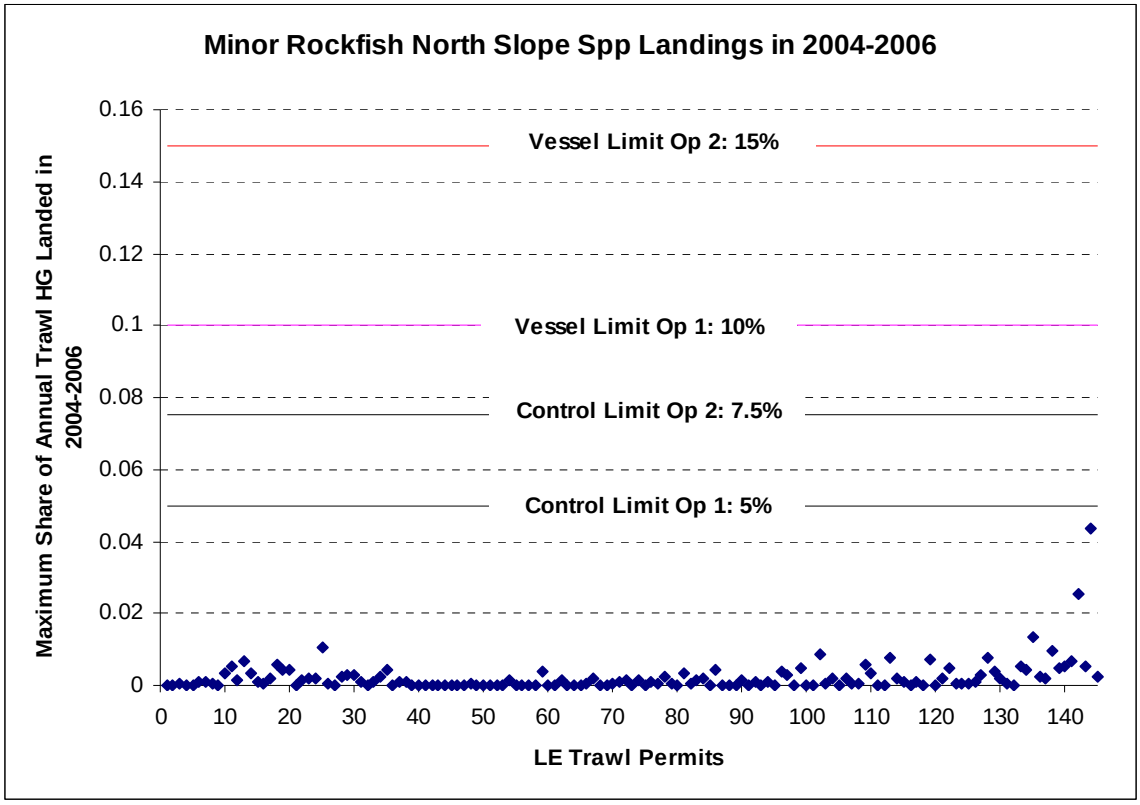

Figure 26. Maximum annual share of minor rockfish north slope species landings for each permit active in the shoreside whiting or nonwhiting fisheries from 2004-2006.

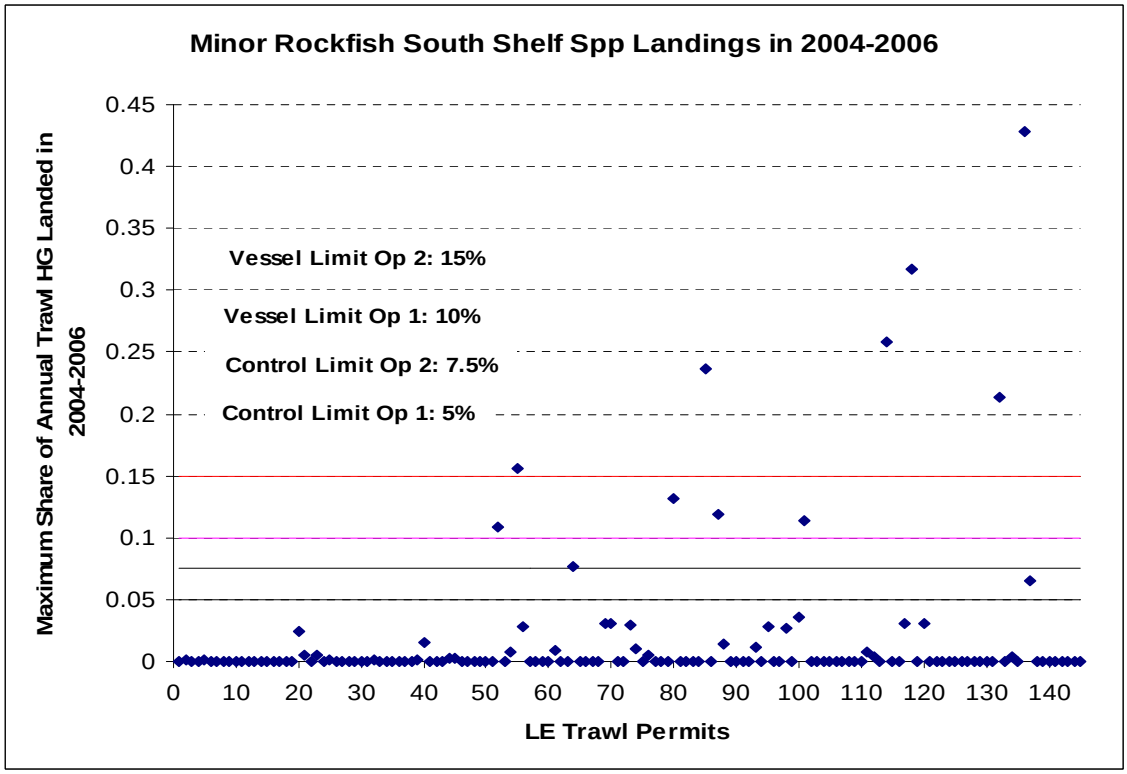

Figure 27. Maximum annual share of minor rockfish south shelf species landings for each permit active in the shoreside whiting or nonwhiting fisheries from 2004-2006.

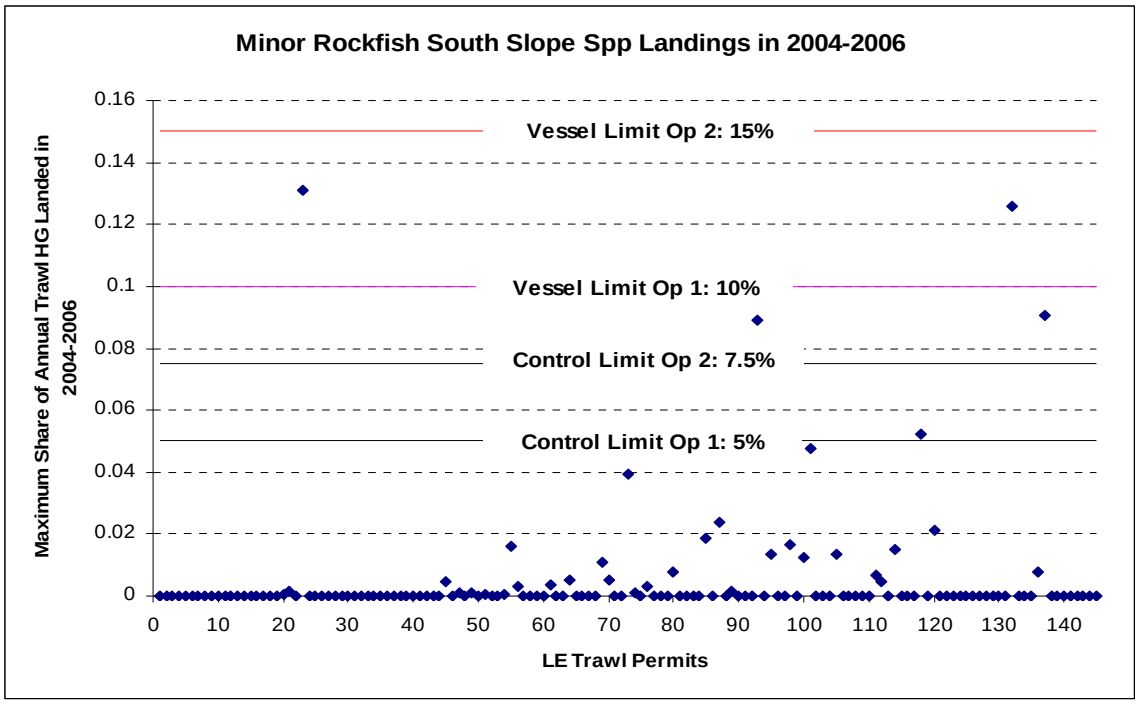

Figure 28. Maximum annual share of minor rockfish south slope species landings for each permit active in the shoreside whiting or nonwhiting fisheries from 2004-2006.

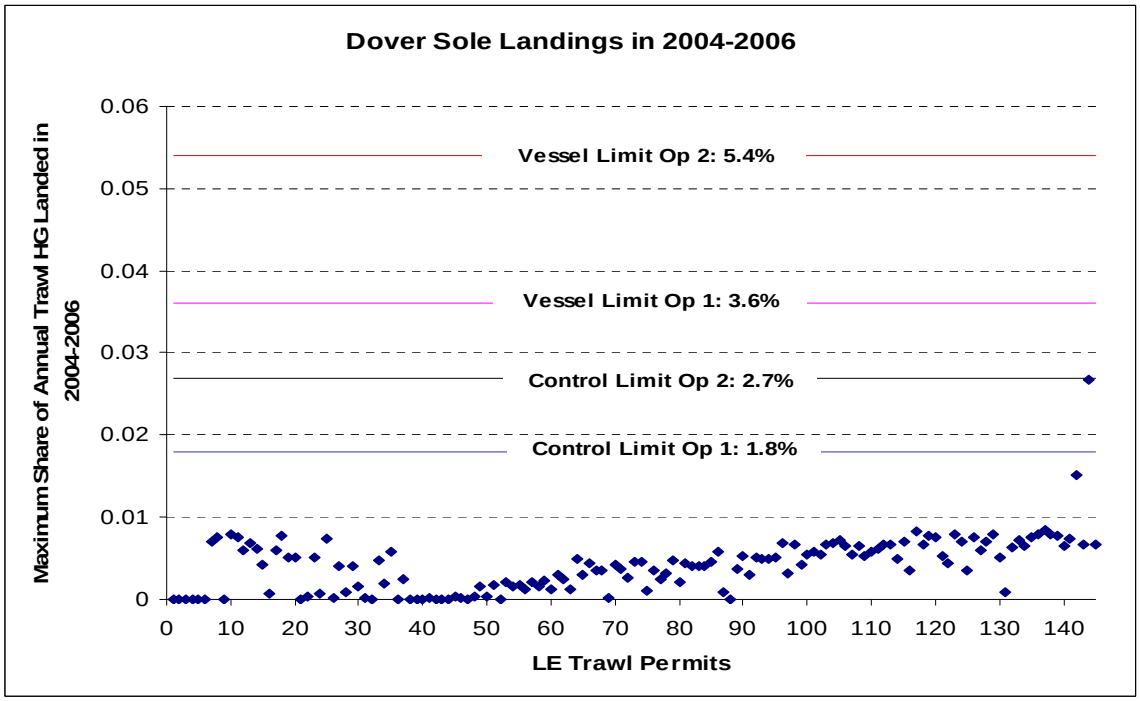

Figure 29. Maximum annual share of Dover sole landings for each permit active in the shoreside whiting or nonwhiting fisheries from 2004-2006.

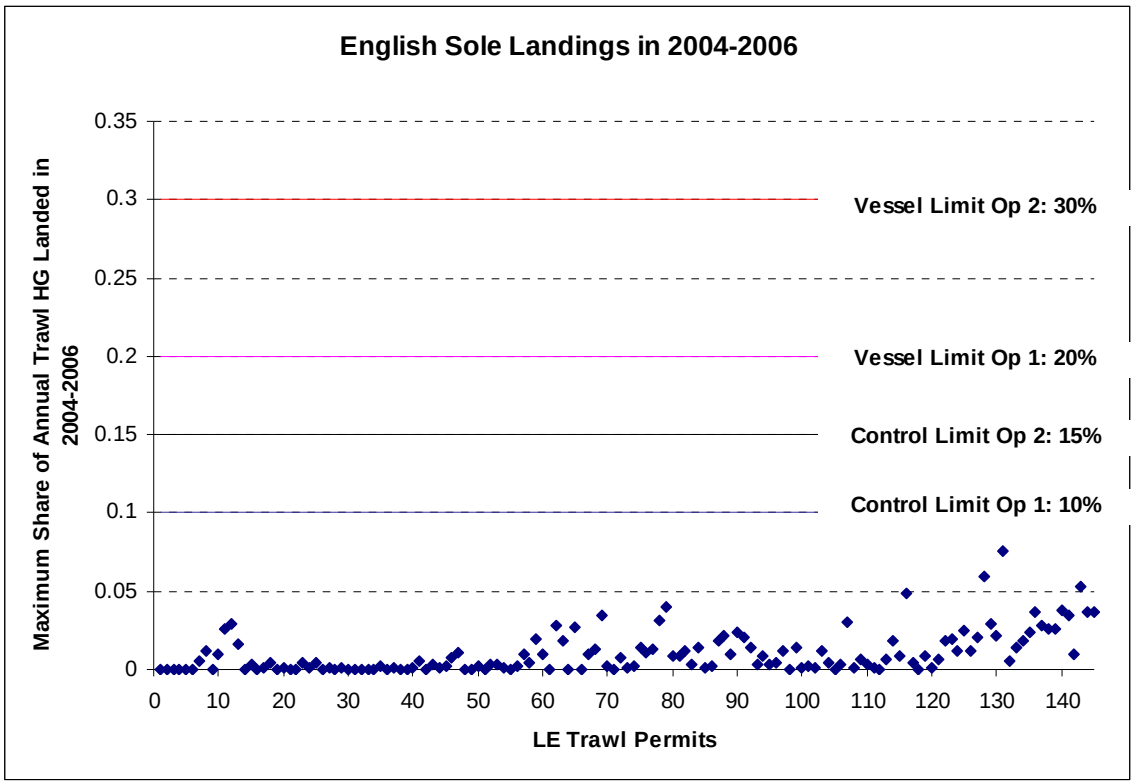

Figure 30. Maximum annual share of English sole landings for each permit active in the shoreside whiting or nonwhiting fisheries from 2004-2006.

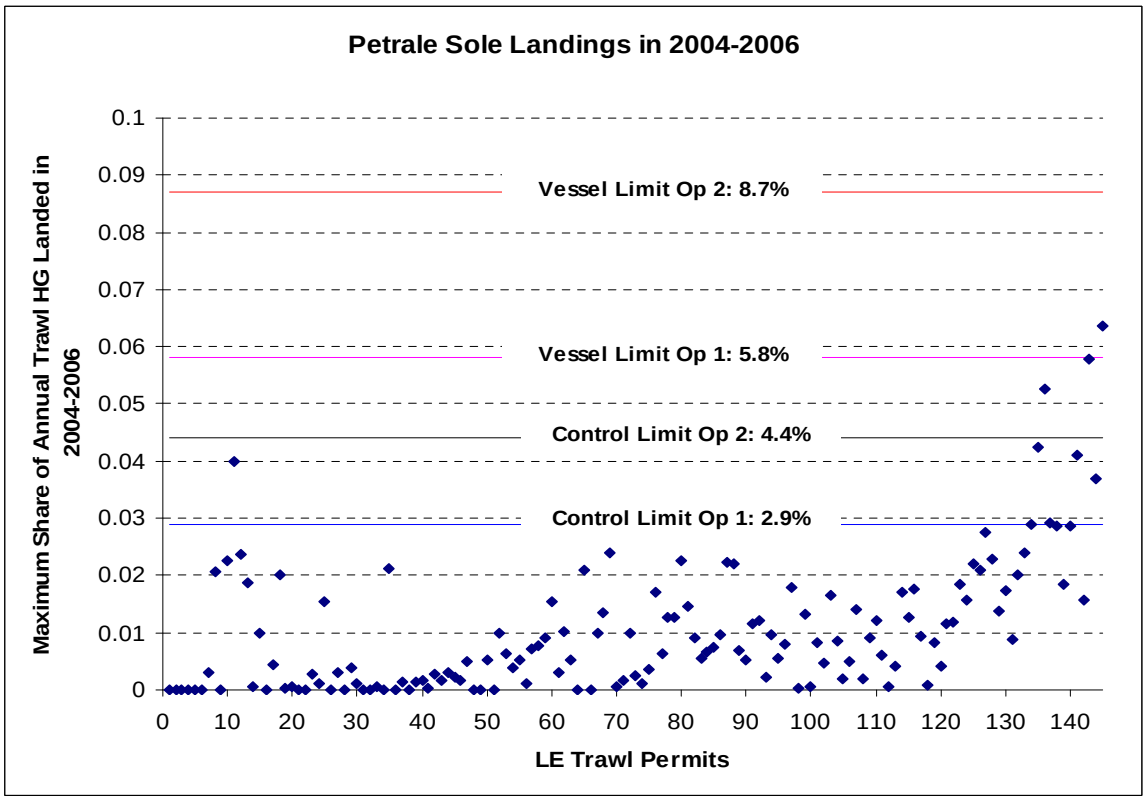

Figure 31. Maximum annual share of Petrale sole landings for each permit active in the shoreside whiting or nonwhiting fisheries from 2004-2006.

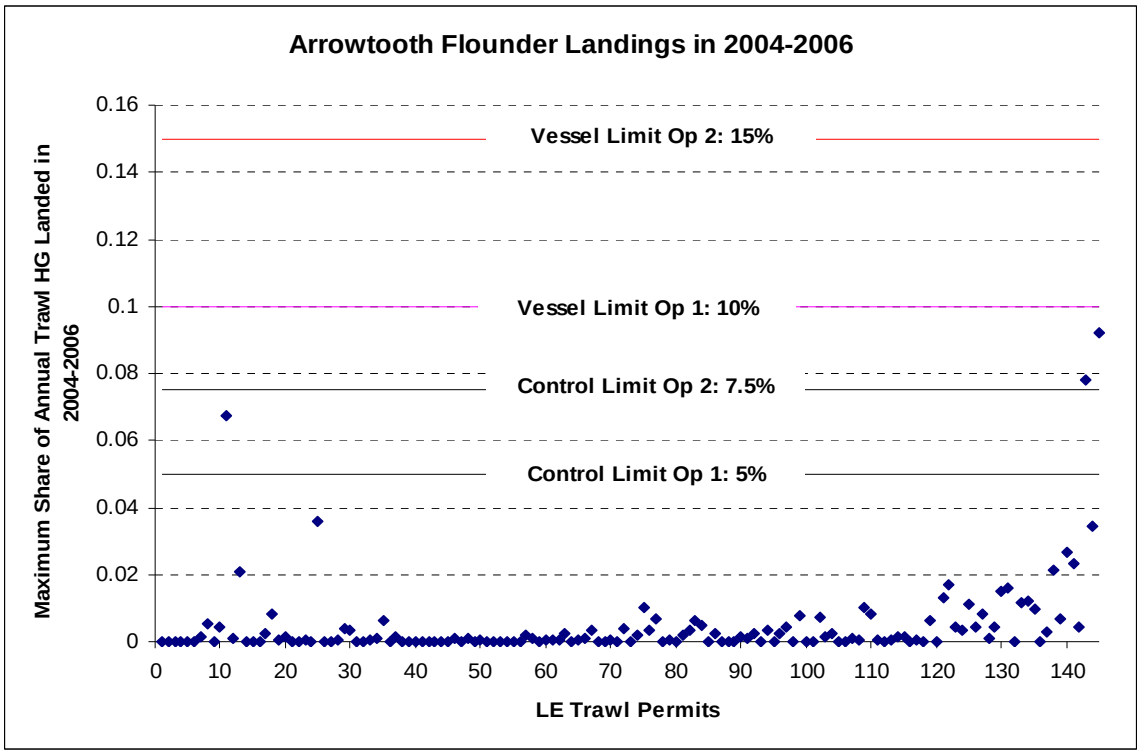

Figure 32. Maximum annual share of arrowtooth flounder landings for each permit active in the shoreside whiting or nonwhiting fisheries from 2004-2006.

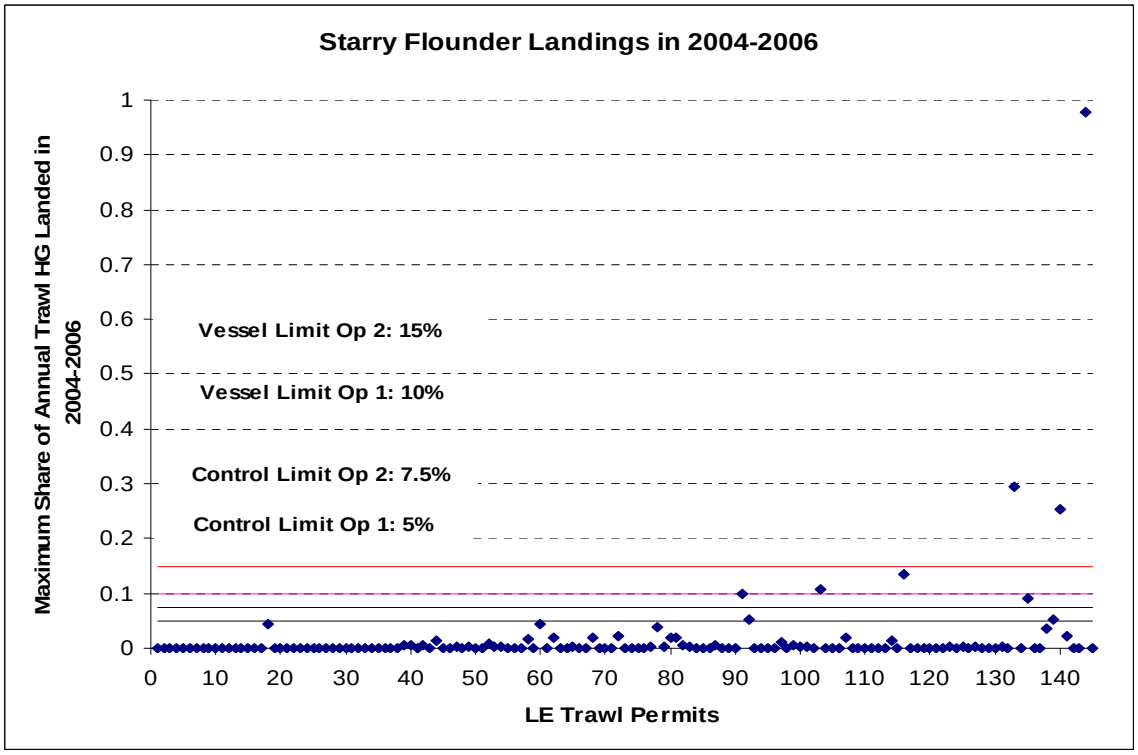

Figure 33. Maximum annual share of starry flounder landings for each permit active in the shoreside whiting or nonwhiting fisheries from 2004-2006.

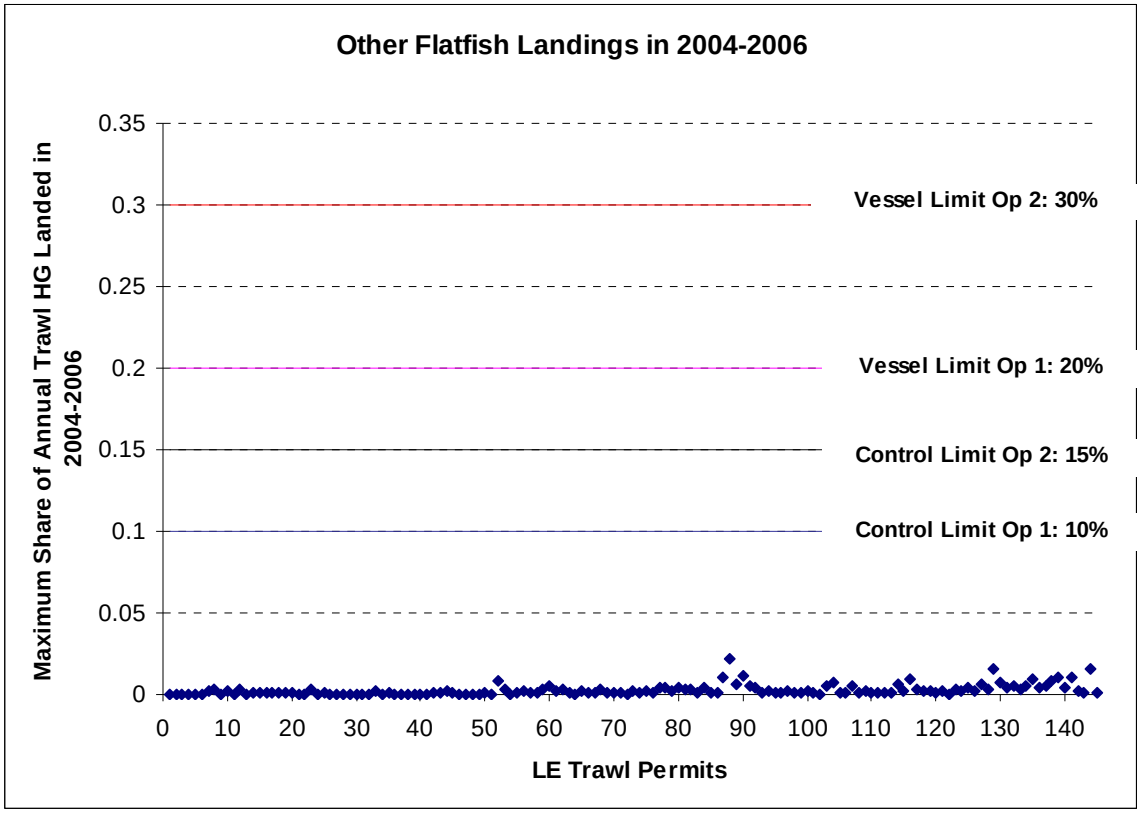

Figure 34. Maximum annual share of other flatfish landings for each permit active in the shoreside whiting or nonwhiting fisheries from 2004-2006.

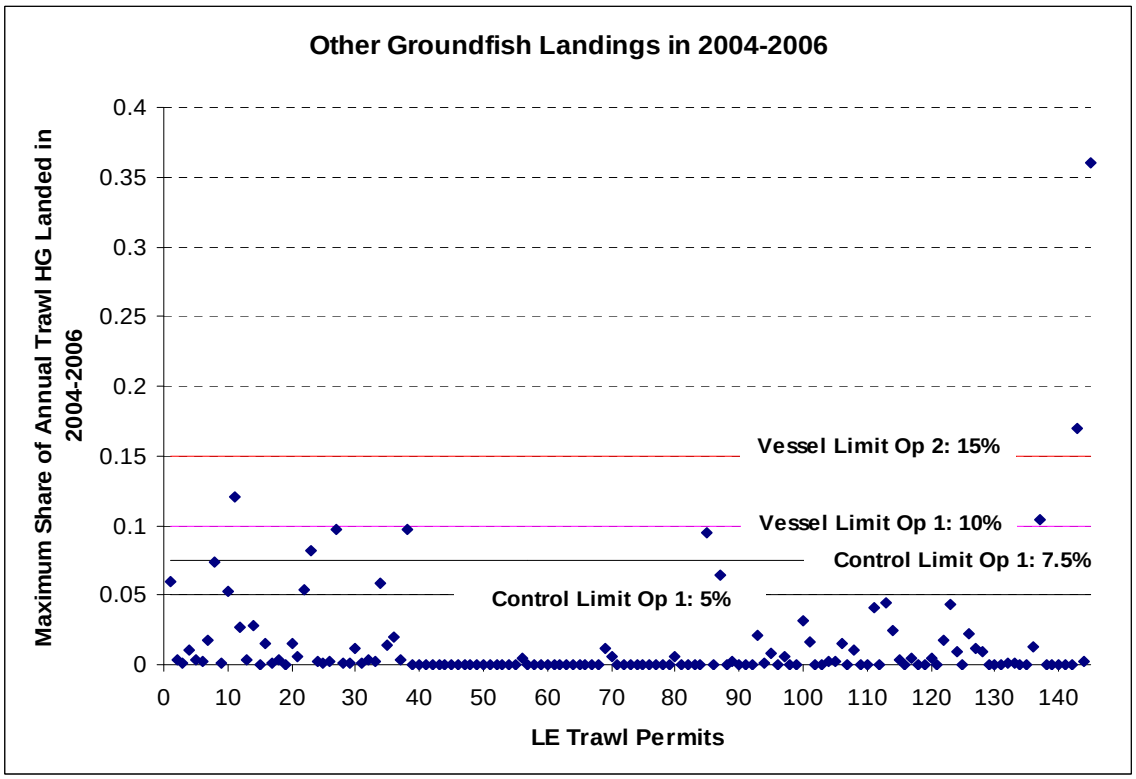

Figure 35. Maximum annual share of other groundfish landings for each permit active in the shoreside whiting or nonwhiting fisheries from 2004-2006.

Table 0-1. Comparison of control limits to allocations: QS allocated 100% based on harvest history with equal sharing; bycatch rate-based allocation of OF spp and no grandfather clause.

Stock	Entities with Allocation		Maximum Allocation (%)	Control Limit Option 1 (%)	Number of Entities At Limit	Total QS for Those at Limit (%)		Maximum Allocation (%)	Control Limit Option 2 (%)	Number of Entities at Limit	Total QS for Those at Limit (%)
All nonwhiting groundfish (in aggregate)	121		1.50	1.5	17	25.50		2.20	2.2	6	13.20
Lingcod - coastwide c/	121		2.40	5	0	0.00		2.90	7.5	0	0.00
N. of 42° N (OR & WA)	121		2.90	5	0	0.00		3.50	7.5	0	0.00
S. of 42° N (CA)	121		5.00	5	1	5.00		4.80	7.5	0	0.00
Pacific Cod	121		5.00	5	4	20.00		7.50	7.5	1	7.50
Pacific Whiting											
Shoreside Sector	121		10.70	10	0	0.00		10.70	15	0	0.00
Mothership Sector	121		9.50	10	0	0.00		9.50	15	0	0.00
Catcher Processors				50					55		
All Whiting Sectors Combined				15					22.5		
Sablefish (Coastwide)	121		2.00	1.9	2	3.80		2.50	2.9	0	0.00
N. of 36° N (Monterey north)	121		2.00	2	2	4.00		2.60	3	0	0.00
S. of 36° N (Conception area)	121		5.00	5	6	30.00		7.50	7.5	3	22.50
PACIFIC OCEAN PERCH	121		3.20	5	0	0.00		4.20	7.5	0	0.00
Shortbelly Rockfish	121		5.00	5	2	10.00		7.50	7.5	1	7.50
WIDOW ROCKFISH	121		2.20	3.4	0	0.00		2.80	5.1	0	0.00
CANARY ROCKFISH	121		3.80	5	0	0.00		3.60	7.5	0	0.00
Chilipepper Rockfish	121		5.00	5	5	25.00		7.50	7.5	3	22.50
BOCACCIO	121		5.00	5	9	45.00		7.60	7.5	5	37.50
Splitnose Rockfish	121		5.00	5	7	35.00		7.50	7.5	4	30.00
Yellowtail Rockfish	121		4.20	5	0	0.00		4.00	7.5	0	0.00
Shortspine Thornyhead - coastwide	121		2.40	3.1	0	0.00		2.90	4.7	0	0.00
Shortspine Thornyhead - N. of 34°27' N	121		2.60	4.8	0	0.00		3.10	7.2	0	0.00
Shortspine Thornyhead - S. of 34°27' N	121		4.70	4.7	1	4.70		7.10	7.1	1	7.10
Longspine Thornyhead - coastwide	121		2.00	2	6	12.00		2.90	3	0	0.00
Longspine Thornyhead - N. of 34°27' N	121		2.00	2	6	12.00		2.90	3	0	0.00
Longspine Thornyhead - S. of 34°27' N	121		5.00	5	1	5.00		7.50	7.5	1	7.50
COWCOD - Conception and Monterey	121		5.00	5	9	45.00		7.50	7.5	8	60.00
DARKBLOTCHED	121		2.80	5	0	0.00		4.20	7.5	0	0.00
YELLOWEYE g/	121		3.30	5	0	0.00		3.20	7.5	0	0.00
Black Rockfish	121		4.90	5	0	0.00		7.40	7.5	0	0.00
Black Rockfish (WA)	121		5.00	5	3	15.00		7.50	7.5	2	15.00
Black Rockfish (OR-CA)	121		5.00	5	4	20.00		7.50	7.5	3	22.50
Minor Rockfish North	121		3.70	5	0	0.00		3.70	7.5	0	0.00
Nearshore Species	121		5.00	5	3	15.00		7.50	7.5	1	7.50
Shelf Species	121		3.50	4	0	0.00		3.80	6	0	0.00
Slope Species	121		3.70	5	0	0.00		3.70	7.5	0	0.00
Minor Rockfish South	121		5.00	5	2	10.00		7.50	7.5	1	7.50
Nearshore Species	121		5.00	5	6	30.00		7.50	7.5	3	22.50
Shelf Species	121		5.00	5	5	25.00		7.50	7.5	3	22.50
Slope Species	121		5.00	5	2	10.00		7.50	7.5	1	7.50
California scorpionfish	121		5.00	5	2	10.00		7.50	7.5	2	15.00
Cabezon (off CA only)	121		5.00	5	2	10.00		7.50	7.5	2	15.00
Dover Sole	121		1.80	1.8	6	10.80		2.60	2.7	0	0.00
English Sole	121		4.00	10	0	0.00		3.80	15	0	0.00
Petrale Sole (coastwide) c/	121		2.20	2.9	0	0.00		3.20	4.4	0	0.00
Arrowtooth Flounder	121		5.00	5	2	10.00		6.60	7.5	0	0.00
Starry Flounder	121		5.00	5	8	40.00		7.50	7.5	4	30.00
Other Flatfish	121		9.20	10	0	0.00		9.80	15	0	0.00
Other Fish	121		4.20	5	0	0.00		5.90	7.5	0	0.00

Summary Results from Chapter 4

1. Fleet Consolidation
   - Non-whiting: from 100-120 to 40-60 vessels
   - Shoreside whiting: from 37 to approximately 23 vessels
   - Mothership whiting: from 20 to approximately 14 vessels

2. Processor Consolidation
   - Shoreside whiting: need for processing capital may decline by 30 – 50%
   - Mothership whiting: need for processing capital may decline by 40%
   - Non-whiting: need for processing capital may increase by 12 – 35%

3. Vertical Integration
   - Shoreside Whiting
     - 3 permits owned by processing companies
       - Less than 10% of active vessels in any year
       - These 3 permits comprise approximately 5.7% of shoreside whiting harvest in recent years
     - May receive 3.7% of initial allocation
   - Non-Whiting
     - 17 permits owned by processing companies
       - Represents 14 – 17% of active vessels in any year
     - Recent landings represent approximately 9% of sector landings
     - These permits may receive up to 11.6% of initial allocation
   - Mothership
     - 5 permits owned by processing companies
       - Approximately 25% of vessels in any year
       - Anecdotal information also suggests partial ownership of vessels by processing companies exists
     - Recent catch of 5 permits represents approximately 27% of sector catch in recent years
     - These permits could receive up to 22% of initial allocation

4. Geographic Distribution of Quota – Whiting Ports and Nonwhiting Groundfish Ports

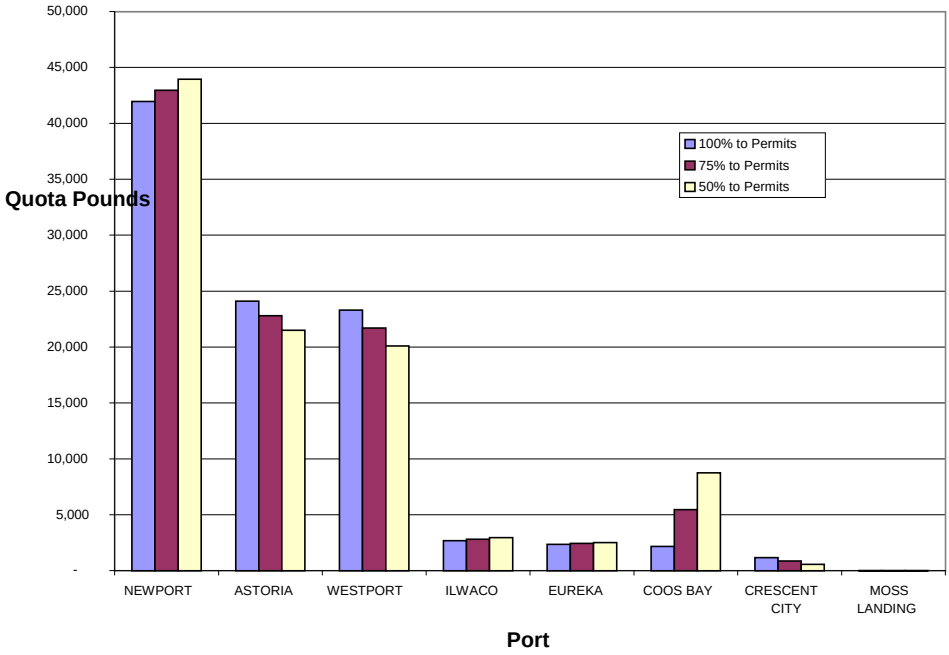

Figure 36 Shoreside Whiting Allocation by Port and Allocation Formula

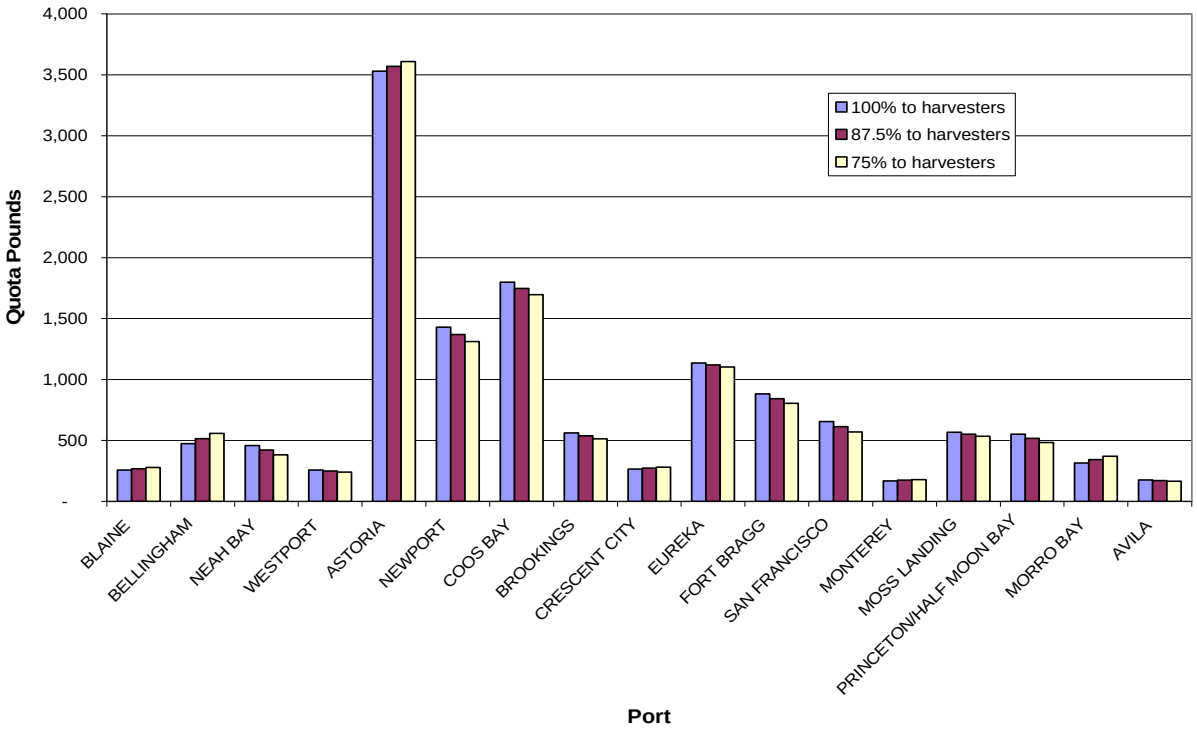

Figure 37 Non-Whiting Allocation by Port and Allocation Formula

Executive Summary from Appendix F:

Economic and Policy Analysis of a Fixed Term Auction-Based

This report analyzes the Pacific Fishery Management Council's preferred option for the West Coast Limited Entry Groundfish Trawl Fishery rationalization plan against a non-preferred alternative that combines a fixed term privilege (15/16 years) with post-term biennial auctions for up to 20% of quota shares. Our analysis looks at 5% or 20% auctions of quota shares for comparative purposes. The report includes 1) a description of the fishery, processors, and communities; 2) a review of literature on fixed term systems and auctions for fisheries and other natural resources; 3) an analysis of the preferred option relative to the fixed term/auction options on fishery rents, resource stewardship, and communities; 4) an analysis of the preferred option relative to the fixed term/auction options on key groundfish management objectives; and, 5) a summary of the impacts of the alternative options on 37 related groundfish management goals, objectives, and standards.

The literature review demonstrates that fixed term tenure systems and auctions can be successfully used in allocating and managing natural resources depending on management objectives, resource characteristics, and design of the tenure and auction systems. Fixed term privileges can provide management flexibility and perception of public ownership but can reduce incentives for long term investment and resource stewardship. Auctions can be an efficient mechanism for allocating homogeneous resources and collection of royalties, but may be more difficult to employ when equity and social objectives are important objectives. Fixed term privileges combined with auctions, however, are not commonly used in fisheries management. Auctions are rarely used in allocating fishery assets due ostensibly to the heterogeneity and complexity of fishery resources, uncertain status of fishery stocks, number of management goals, and unpopularity of auctions by resource users. The review suggests that combining fixed privileges with post tenure auctions may reinforce the weaknesses of each approach, particularly for multispecies fisheries.

Analysis of the Council's preferred option relative to the combined fixed term/auction options reveals that the preferred option generates greater benefits across almost the entire range of management objectives. These results are influenced by key characteristics of the West Coast Limited Entry Groundfish Trawl Fishery including: 1) the large number and complexity of assemblages and species; 2) stock rebuilding and bycatch constraints; 3) management focus on protecting small firms; 4) effects of the self-financed buyout program; and, 5) number and diversity of dependent/engaged communities. The Council's preferred option results in higher rents and economic efficiency through incentives for entrepreneurial innovation and reduction in risk. In contrast, the fixed term/auction alternatives generate less profit and rent and lead to greater risk due to "wasting effects" and disincentives for rent creation. These effects are magnified over time due to the inherent challenges in managing asset portfolios in a complex multispecies fishery. In addition, the reduction in asset values undermines the ability of family-owned firms to finance operations and manage risk. The fixed term/auction alternatives reduce incentives for stewardship, and negatively impacts communities by increasing risk and inhibiting long term contracting. The auction system may provide for moderate gains in new entrants and price discovery but this is a benefit only if secondary quota markets are failing to function efficiently. The review of the summary results for 37 groundfish management goals, objectives, and standards reveals that the fixed term/auction alternatives have a moderate to significant negative effect on 22 objectives, a slight negative or zero effect on 14 objectives, and a positive effect on only one potential objective (royalty payments).