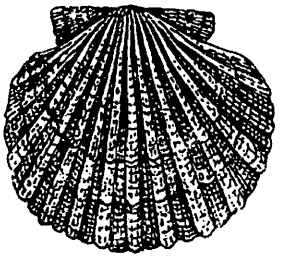
Public Review Draft

ENVIRONMENTAL ASSESSMENT
for proposed amendment

TO THE FISHERY MANAGEMENT PLAN FOR THE SCALLOP FISHERY OFF ALASKA

to comply with Annual Catch Limit requirements



Abstract: This environmental assessment analyses a range of alternatives to implement Annual Catch Limits (ACLs) in the Alaskan Scallop Fishery to meet regulatory requirements. Four alternatives are examined: Alternative 1: Status Quo, Alternative 2: Set ACL equal to the upper end of the Guideline Harvest Ranges (GHRs) ; Alternative 3: Set ACL equal to 90% of the upper end of the GHR and Alternative 4: Set ACL equal to 75% of the upper end of the GHR. For alternatives 2-4 two options are considered for each, establishing a statewide ACL and establishing ACLs by region. Three additional options are included for the treatment of non-target scallop stocks. These include: option 1: remove non-target stocks from the FMP; option 2: move non-target scallop stocks to an ecosystem component category under the FMP (and do not establish ACLs for these stocks); and option 3: Set ACLs for non-target scallop stocks. The impacts of the alternatives upon scallop resources, fishery participants, habitat, marine mammals, and other groundfish resources are discussed in the analysis.

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September 2010

Executive Summary

The Fishery Management Plan (FMP) for Alaskan Scallops governs scallop fisheries in federal waters off the State of Alaska. The FMP management unit is the U.S. exclusive economic zone (EEZ) of the Bering Sea, Aleutian Islands, and the Gulf of Alaska, and includes weathervane scallops and other scallop species not currently exploited.

There are five alternatives for setting annual catch limits (ACLs) and three options for treatment of non-target stocks contained in this analysis. The proposed action is to establish ACLs to meet the requirements of the revised Magnuson Stevens Fishery Conservation and Management Act (MSA). These ACLs are to be established based upon acceptable biological catch (ABC) control rules which account for the uncertainty in the overfishing limit (OFL) point estimate. To meet the ACL requirements, ABCs will be established under the Scallop FMP such that ACL = ABC and the guideline harvest levels (GHLs) must be established sufficiently low so as not to exceed the ACL. Determinations of GHLs are delegated to the State following the criteria in the FMP. Under the proposed action, the delegation to the State to determine GHLs would be subject to the additional condition that the GHL may not exceed the ACL.

This action must be implemented prior to the start of the 2011 fishing year on July 1, 2011. Management actions for the Alaskan scallop fisheries must comply with applicable Federal laws and regulations.

This environmental assessment analyzes a range of alternatives to implement Annual Catch Limits (ACLs) in the Alaskan Scallop Fishery to meet regulatory requirements. Five alternatives are examined: Alternative 1: Status Quo; Alternative 2: Set ACL equal to the upper end of the Guideline Harvest Ranges (GHRs) plus estimated discard mortality; Alternative 3: Set ACL equal to 90% of the upper end of the GHR plus estimate discard mortality; Alternative 4: Set ACL equal to 75% of the upper end of the GHR plus estimated discard mortality. For Alternatives 2–4, the OFL was redefined to include estimates of discard mortality in the directed scallop fishery, the groundfish fisheries, and agency surveys. Alternatives 2–4 also include two options: establishing a statewide ACL and establishing ACLs by region. Three additional options are considered for the treatment of non-target scallop stocks. These include: option 1 – remove non-target stocks from the FMP; option 2 – move non-target scallop stocks to an ecosystem component category under the FMP (and do not establish ACLs for these stocks); and option 3 - Set ACLs for non-target scallop stocks.

The impacts of the alternatives upon scallop resources, fishery participants, habitat, marine mammals, and other groundfish resources are discussed in the analysis. Based on historical catch patterns, Alternatives 2 through 4 are unlikely to constrain the fishery when ACLs are applied statewide, but may constrain the fishery in some regions at times of high scallop abundance when region-specific ACLs are applied. To determine the relative risk of overfishing by each of the alternatives, a probability approach was employed to estimate the relative risk of exceeding the OFL under each of alternatives 2-4. This approach also considers additional, unmeasured scientific uncertainty and its relative impact on the perceived overfishing.

The requirement to account for all removals necessitates taking into account the scallop discard mortality in directed and non-directed fisheries. The combination of progressively more conservative ACLs (moving from Alternative 2 to Alternative 4), combined with providing a sufficient buffer to allow for incidental catch not to exceed the ACL, would provide additional conservation against overfishing for the scallop resource but has greater potential to constrain the scallop fishery. Alternatives 3 and 4 provide for additional conservatism by further buffering against the uncertainty in the estimation of the OFL. None of the alternatives are likely to impact other groundfish resources, habitat, or prohibited species.

bottom trawl surveys have also produced some data on the abundance and distribution of non-target scallop species, although species identification has been inconsistent over time; most of the non-target species encountered by these survey platforms are likely *Chlamys* sp. In addition, samples sizes on which to establish ACLs for non-target species is sparse, represented by an annual average survey catch of 1 lb from Region 1, 23 lbs from Region 2, and 67 lbs from Region 4 for a statewide total of 91 lbs annually among all ADF&G and NMFS trawl survey platforms since 1998 (Table 3-4).

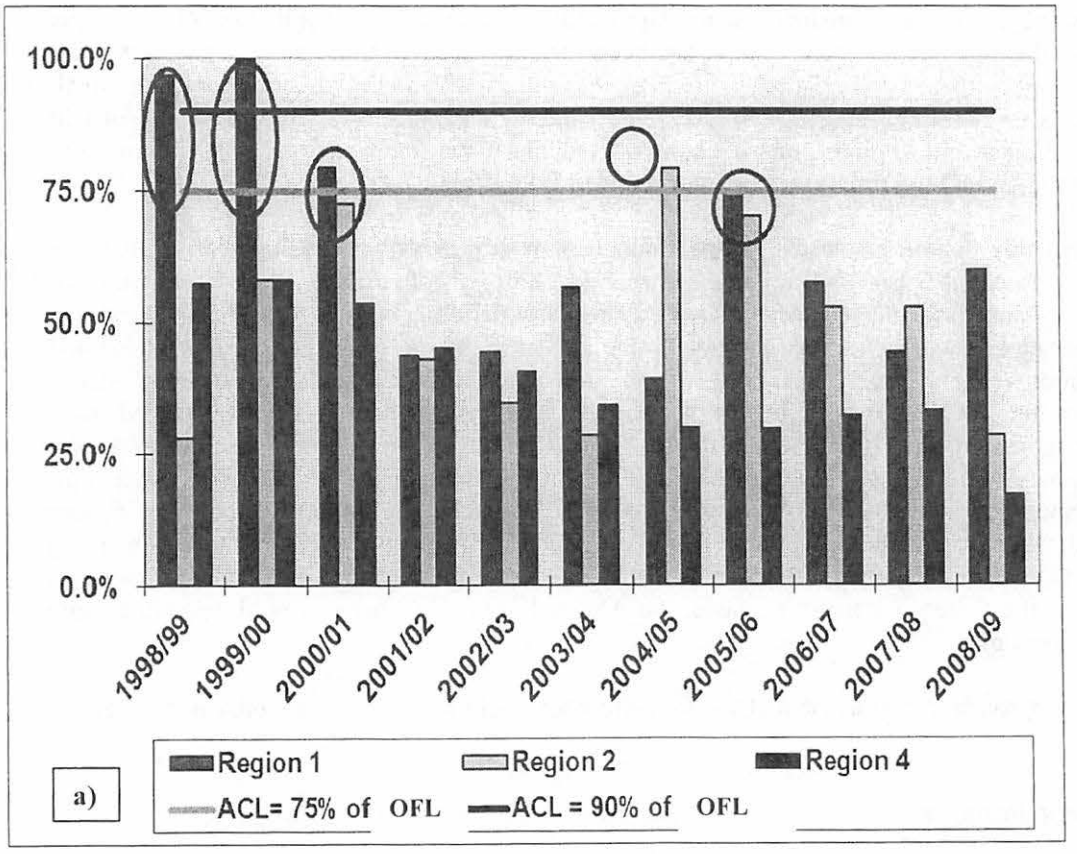
In the event that this option is selected by the Council, it is expected that development of ACLs in anticipation of a potential fishery will involve a concerted effort by both ADF&G and NMFS staff for data compilation, analysis, and technical review, as well as periodic updates of data and analysis. Although both state and federal waters contribute to the greater population, the species composition and spatial distribution remains largely unknown. In addition to the Council process to develop ACLS, determination of the TAC/GHL would involve virtually all of the management measures identified under Option 1 as being implemented by ADF&G. In essence, measures to be developed by the State of Alaska would include, but not limited to, legal gear, harvest area, harvest limits, bycatch considerations, and in-season management measures such as observer and reporting requirements. In the event of rapid fishery development for non-target scallop species, the State would implement the High Impact Emerging Fishery Policy to constrain fishery development until additional management measures are developed. As understanding of the fishery potential increases, the Alaska Board of Fisheries would develop a more refined management plan.

Three proposed approaches to establish an OFL for non-target stocks in aggregate are provided in Section 2.1.4.3.

4.7 Economic Impacts

4.7.1 Direct effects

This section provides preliminary analysis of the potential economic direct effects that the ACL alternatives may have on the scallop fishery. This analysis compares the ACL levels, as a percent of the OFL, with the percent that harvest has represented by region and statewide from the 1998/99 season through the 2008/09 season. The information contained in this section comes fromTable 3-6 as well as from economic price and revenue data contained in the 2010 Scallop SAFE report (NPFMC 2010b). This retrospective analysis shows what would have occurred, in terms of forgone revenue, had the ACL levels been in place during this time frame.



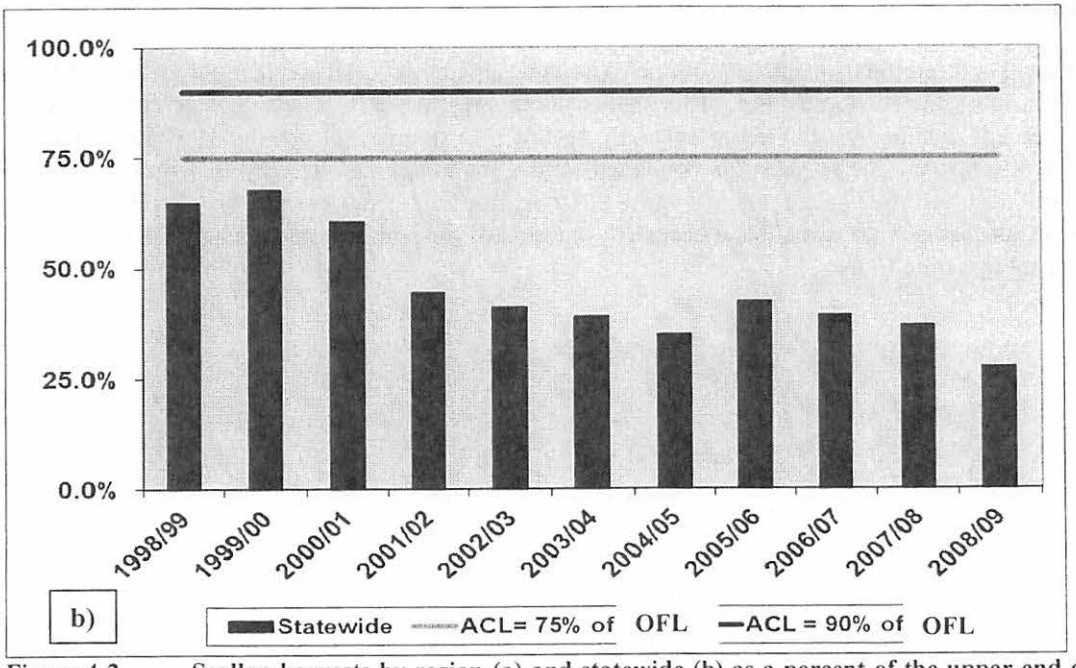


Figure 4-2 Scallop harvests by region (a) and statewide (b) as a percent of the upper end of the GHR, compared to ACL levels.

Figure 4-2 provides an historical overview that identifies seasons when the scallop harvests, statewide and by region, would have exceeded the ACL levels of 75 percent and 90 percent of the OFL. This figure makes it clear that were the ACL set at a statewide level there would historically have been no impact because the statewide harvests, since inception of the current MSY of 1.24 million pounds, have always been below both the 75 percent and 90 percent levels of the OFL. This figure does; however, point out that were the ACL set regionally at 75 percent of the OFL, the ACL would historically have been exceeded, or nearly so, for Region 1 in each of the seasons of 1998/99, 1999/00, 2000/01, and 2005/06 (each instance is circled). This is also true for Region 2 in 2000/01 and 2004/05. An ACL set at 90 percent of the OFL would have been exceeded in 1998/99, 1999/00 in Region1. In contrast, Region 4 harvests have not historically exceeded 60 percent of the upper end of the regional GHR and would not have been affected by ACLs set at either the 75 percent or 90 percent of the OFL level.

It is possible to quantify the impacts shown in this retrospective analysis by simply subtracting the ACL percentage of the upper range of the GHR, either 75 percent or 90 percent, from the percentage that each annual harvest quantity is of the upper end of the GHR. This yields a retrospective percent of harvest, and thereby revenue, that would have been forgone were the ACL rule in place. These percentages can then be multiplied by real (inflation adjusted) annual average scallop prices in order to estimate forgone revenue. Scallop prices along with overall revenue estimates by region and statewide and are presented in Table 4-5.

Table 4-5 Alaska scallop first wholesale value per pound with total revenue (in dollars) by region and season.

Year	Real Price ($/lb.)	Value of Annual harvest			
		Region			
		1	2[a]	4	Statewide
1998/99	$7.94	$2,190,098	$156,021	$4,034,449	$6,380,568
1999/00	$7.63	$2,169,247	$310,732	$3,913,740	$6,393,719
2000/01	$6.60	$1,495,580	$335,161	$3,123,331	$4,954,072
2001/02	$6.14	$762,576	$184,753	$2,446,501	$3,393,830
2002/03	$6.04	$763,474	$146,361	$2,167,273	$3,077,108
2003/04	$5.88	$952,501	$117,482	$1,779,088	$2,849,072
2004/05	$6.00	$668,280	$332,622	$1,588,662	$2,589,564
2005/06	$8.03	$1,710,398	$395,116	$2,113,103	$4,218,617
2006/07	$8.10	$1,331,600	$299,619	$2,317,313	$3,948,531
2007/08	$5.98	$754,317	$221,888	$1,764,507	$2,740,712
2008/09	$6.34	$1,085,884	$127,054	$958,094	$2,171,032

Alternative 2a would set a statewide ACL as the sum of the upper end of the GHRs among regions. As shown in both Figure 4-2 and previously in Table 4-1, this alternative would historically have had no direct effects because the statewide harvest has not exceeded 70 percent of the upper range of the GHR and has been considerably lower than that percentage in recent years.

Alternative 2b would set the regional ACLs as the upper end of the GHRs in each individual region. As shown in both Figure 4-2 and previously in Table 3-6, this alternative would historically have had no direct effects because regional harvests have not exceeded the upper range of the GHR in recent years, although Region 1 harvests were within two tenths of a percentage point of achieving the upper range of the GHR in the 1999/00 season.

Alternative 3a would establish a statewide ACL that would be 90 percent of the sum of the upper end of the regional GHRs. As shown in Table 4-6, a statewide ACL set at 90 percent of the upper end of the statewide GHR would not have resulted in forgone revenue in any of the seasons since 1998/99, when the 1.24 million pound MSY was first implemented. A review of Table 4-1 and Figure 4-2 shows that the greatest statewide harvest, as a percentage of GHR, occurred in 1999/00 at 67.6 percent of the upper end of the statewide GHR and has trended downward in recent years.

Alternative 3b would set regional ACLs at 90 percent of the OFL in each individual region. As shown in Table 4-6, Region 1 would historically have had forgone harvest and revenue of 6.8 and 9.8 percent in 1998/99 and 199/00 respectively. This translates into $148,927 and $212,586 of forgone revenue in 1998/99 and 199/00 respectively. The other regions would historically not have been affected by this alternative.

Table 4-6 Percent of harvest and revenue (upper) that would historically have been forgone under ACL=90% of GHR along with estimated historic forgone revenue (dollars, lower)

Year	Percent of harvest forgone with ACL=90% of OFL			
	Region 1	Region 2	Region 4	Statewide
1998/99	6.8	0	0	0
1999/00	9.8	0	0	0
2000/01	0	0	0	0
2001/02	0	0	0	0
2002/03	0	0	0	0
2003/04	0	0	0	0
2004/05	0	0	0	0
2005/06	0	0	0	0
2006/07	0	0	0	0
2007/08	0	0	0	0
2008/09	0	0	0	0
Year	Forgone Revenue with ACL=90% of OFL			
1998/99	$148,927	$0	$0	$0
1999/00	$212,586	$0	$0	$0
2000/01	$0	$0	$0	$0
2001/02	$0	$0	$0	$0
2002/03	$0	$0	$0	$0
2003/04	$0	$0	$0	$0
2004/05	$0	$0	$0	$0
2005/06	$0	$0	$0	$0
2006/07	$0	$0	$0	$0
2007/08	$0	$0	$0	$0
2008/09	$0	$0	$0	$0

Alternative 4a would establish a statewide ACL that would be 75 percent of the OFL. As shown inTable 4-7, a statewide ACL set at 75 percent of the OFL would not have resulted in forgone revenue in any of the seasons since 1998/99, when the 1.24 million pound MSY was first implemented. A review of Table

4-1 and Figure 4-2, shows that the greatest statewide harvest, as a percentage of GHR, occurred in 1999/00 at 67.6 percent of the upper end of the statewide GHR and has trended downward in recent years.

Alternative 4b would set regional ACLs at 75 percent of the OFL in each individual region. As shown inTable 4-7, Region 1 would historically have had forgone harvest and revenue of 21.8 percent, 24.8 percent, and 4.5 percent in 1998/99, 199/00, and 2000/01 respectively. This translates into $477,441, $537,973, and $67,301 of forgone revenue in 1998/99, 199/00, and 2000/01 respectively. In addition, Region 2 would have had forgone harvest and revenue of 4.2 percent, or $13,970, in the 2004/05 season. Region 4 would historically not have been affected by this alternative.

Table 4-7 Percent of harvest and revenue (upper) that would historically have been forgone under ACL=75% of GHR along with estimated historic forgone revenue (dollars, lower)

Year	Percent of harvest forgone with ACL=75% of OFL			
	Region 1	Region 2	Region 4	Statewide
1998/99	21.8	0	0	0
1999/00	24.8	0	0	0
2000/01	4.5	0	0	0
2001/02	0	0	0	0
2002/03	0	0	0	0
2003/04	0	0	0	0
2004/05	0	4.2	0	0
2005/06	0	0	0	0
2006/07	0	0	0	0
2007/08	0	0	0	0
2008/09	0	0	0	0
Year	Forgone Revenue with ACL=75% of OFL			
1998/99	$477,441	$0	$0	$0
1999/00	$537,973	$0	$0	$0
2000/01	$67,301	$0	$0	$0
2001/02	$0	$0	$0	$0
2002/03	$0	$0	$0	$0
2003/04	$0	$0	$0	$0
2004/05	$0	$13,970	$0	$0
2005/06	$0	$0	$0	$0
2006/07	$0	$0	$0	$0
2007/08	$0	$0	$0	$0
2008/09	$0	$0	$0	$0

4.7.2 The Economic Benefits of ACL Management

Annual Catch Limits are intended to reduce the probability that overfishing could occur, and thereby improve the likelihood that Optimum Yield (OY) is achieved for the fishery as a whole. The achievement of OY is a major tenant of fisheries management under the national standards prescribed in the Magnuson-Stevens Act.

For fish stocks that are not undergoing overfishing, such as Alaska scallop stocks, ACL requirements still might require catch targets slightly less than current catch quotas if there is a demonstrated risk of overfishing. In general, management via ACLs should contribute to the conservation of stocks through

more rapid rebuilding of overfished stocks and preventing overfishing, even in stocks not presently overfished.

Alaska Scallops are presently being harvested at levels that are considerably below the MSY for this fishery (Table 4-1). Historically, the fishery has not exceeded 70 percent of statewide MSY. This is largely due to conservative management by ADF&G, which sets GHLs that are below the upper end of the GHR range. Further, the fishery has 100 percent observer coverage, although coverage may be waived in the Cook Inlet area at the discretion of ADF&G staff. Thus, management of the fishery, via closures, is quite timely and results in catch that does not generally exceed the GHLs, which are set below the upper end of the GHRs (Table 4-3).

Chapter 5 Other Marine Resources and Habitat

Bycatch in the scallop fishery includes prohibited species, other commercially important species of fish and invertebrates, miscellaneous non-commercial species, and natural and man-made debris (e.g., Barnhart and Rosenkranz 2003). Prohibited species include king crab (*Paralithodes camtschaticus*), Tanner crab (*Chionoecetes bairdi*), snow crab (*C. opilio*), Dungeness crab (*Cancer magister*), and Pacific halibut (*Hippoglossus stenolepis*). Although a variety of marine vertebrates, invertebrates, and debris are caught incidentally in the scallop fishery dredges, weathervane scallops comprise the bulk of haul composition samples. During the 2000/01–2007/08 seasons, the most common items, by percent weight, have been weathervane scallops (84%), twenty-arm sea stars *Pycnopidia helianthoides* (4%), natural debris such as kelp and wood (3%), and assorted skate species (2%) (NPFMC 2010b). Gorgonian (hard) corals are infrequently encountered in observer samples; corals were observed in only 11 of 15,836 sampled tows.

5.1 Impacts of Alternatives on Groundfish Stocks and Fisheries

Pacific cod has typically comprised <0.5% of scallop fisheries catch biomass (e.g., Rosenkranz and Burt 2009). Because a single Pacific cod weighs substantially more than a single scallop, on average, observer estimates of Pacific cod bycatch by weight represent relatively few individual Pacific cod compared to weathervane scallops. Under current scallop fishery in-season management strategies in which ADF&G targets a GHL that is typically well below any of the proposed alternative ACLs, adoption of any of the proposed alternatives is not expected to substantially affect the Pacific cod fisheries. Although the potential exists for shifts in a species spatial distribution due to aspects such as global warming or changes in inter-specific competition (e.g., Perry et al. 2005), it is still unlikely that Pacific cod would develop substantial spatial overlap with weathervane scallops given different habitat preferences.

The scallop fishery bycatch extrapolation of observer samples in the NMFS catch accounting program indicates bycatch of bivalves, including scallops, in the Pacific cod fishery (J. Gasper, NMFS, Juneau, pers. comm.). This is based on the occurrence of bivalves observed on top of retrieved pots, clamped onto retrieved longlines, or in the dump of a trawl tow. Under the current management approach and proposed ACL alternatives, estimates of the anticipated bycatch of weathervane scallops in the Pacific cod fisheries are deducted from the scallop fishery ABC(s) under the ABC control rule applicable for the alternative considered. Although this essentially redistributes the burden for scallop bycatch in the Pacific cod fisheries to the scallop fisheries, the bycatch redistribution is not limiting to the scallop fishery based on the current approach to specifying ABC and the available data for scallop bycatch in the Pacific cod fishery.

Skates have become a species of concern due to life history characteristics and an uncertainty in the catch composition (Ormseth and Matta 2009). Skates comprise ~2% of historical catch biomass in observed

DRAFT Scallop Plan Team Report
September 28, 2010
Hilton Hotel, Fireweed Room
Anchorage Alaska.

Plan Team members present: Diana Stram (NPFMC) co-chair, Gregg Rosenkranz (ADF&G Kodiak)-co-chair, Scott Miller (NMFS Juneau) rapporteur, Jie Zheng (ADF&G Juneau), Rich Gustafson (ADF&G), Ryan Burt ADF&G), Joseph Stratman (ADF&G).

New member: Peggy Murphy (NMFS Juneau).

Public and agency personnel present (for some or all of meeting): Jim Stone (Alaska Scallop Association), Doug Woodby (ADF&G), Karla Bush (ADF&G), Chris Oliver (NPFMC).

Administrative Issues:

New members: The team welcomed new member Peggy Murphy (NMFS) and looks forward to her participation on the team.

SPT meeting 2011: The SPT chose March 7th and 8th of 2011 for its annual meeting. Place TBD (Anchorage area).

Minutes: The team reviewed and approved minutes from the March SPT meeting with no changes.

Introduction: (Diana Stram, presenter)

The purpose of this meeting is to go over the EA for Scallop ACL analysis for plan team to provide review and recommendations to the Council prior to final action. The team may also wish to review its research priorities as provided in the meeting minutes from our previous meeting. These research priorities will be considered by the SSC and that the plan team can revise them at this meeting.

Doug Woodby pointed out that the NPRB would also review these research priorities next summer so the team can make recommendations for NPRB review. Further, the Council's priorities will be of higher priority but the NPRB will also consider specific recommendations from the plan teams as well as reviewing their minutes. The plan team agreed to review the research priorities at the end of the meeting.

Overview of Revisions to the EA for Scallop ACLs:

The public review draft of the EA has been modified in several ways since the SPT reviewed it in March. These changes include revision to the 100% discard mortality assumption (20%) and that the MSY (upon which OFL is defined) now includes estimated discards. In addition, a P* analysis has been added. The Council took initial review of the document in June. At that time the Council did not identify a preferred alternative, but did request that document identify where status quo addressed MSA and NS1 guideline provisions. This draft also contains those changes as well as resulting correspondence between NPFMC and ADF&G staff since June 2010.

MSA and NS1 Guideline Provisions:

Diana reviewed the requirements (and resulting alternative modifications) as it relates to amending the FMP. These were summarized as the following:

1. ABC control rule specification: ACL cannot exceed ABC and we have assumed it will be equal to ABC. ACL is set to account for estimated uncertainty in OFL. Our historical period is 1990-97, dropping 1995, to estimate OFL. The OFL estimate now includes discards.

2. Accountability measures and overages specification: Management of scallop is precise due to 100% observer coverage. Thus, the likelihood of exceeding an ACL due to discard mortality is very small.

3. Scientific Uncertainty: The revised EA includes an estimated P* approach to estimate how different buffer levels under consideration relate to an estimated probability of overfishing. The ABC control rule must account for scientific uncertainly; ABC=OFL would indicate no scientific uncertainty in the OFL estimate.

4: SSC must recommend the ABC: Language identifying this requirement has been added under item 4 on page 5 and Diana explained the process of the SSC recommending the ABC and that it would not present a timing constraint with regard to the SSC recommendation in conjunction with the current timing of the annual SPT meeting and scallop SAFE report.

5. The Scallop FMP must describe MSY and specify OY; MSY and OY would need to be specified for non–weathervane stocks if an ACL is specified for these stocks. On an aside, the MSY has been re-estimated for this analysis to include discards.

The SPT then had a discussion of the options for defining the stocks. Diana Stram reviewed the different options we have for non-weathervane stocks (page14-15), including defining ACLs, which is problematic due to lack of information on stock biomass, removing from the FMP, and moving to the ecosystem component of the FMP.

Review of Alternatives:

Alternative 1: No Action: Present management remains the same. Information on annual GHLs is included by reference to the scallop SAFE report.

Alternatives 2-4: These alternatives establish an ABC control rule. The analysis only looks at fixed buffers because the OFL is based on average catch. The buffers range from 0-25% of the OFL.

Jim Stone requested clarification on whether the Council could select a different percentage buffer than those in the analysis. Diana Stram clarified that yes the Council can choose from anywhere in between amongst the range analyzed. The analysis includes buffers ranging from 0 and 25% of the OFL. The key is that the Council must understand the implication and effects within this range of numbers.

The document provides regional management information so that the Council could consider dividing management into two tiers, one with survey information, and a second with fishery dependent data only (observer data). Diana explained how these tiers could allow the Council to set different buffers for different tiers due to the level of available information. This would be unnecessary if statewide management is chosen. Each alternative includes options for statewide or regional management.

Diana Stram reviewed Table 2-1 to show the potential harvest constraints of each of the alternatives and noted that the SSC can recommend lower ABC control rules if they felt it necessary and that ability, on the part of the SSC, is identified as an accountability measure.

Non-weathervane Stocks: This section discusses the options of removing other stocks from the FMP, move to ecosystem component, or set ACLs for the stocks. There followed an extensive discussion of the potential ramifications of these options.

Diana reviewed the section in the document describing the associated risks, likelihood of fishery-development and conservation concerns associated with removing non-weathervane stocks from the FMP. Considerable detail has been added to this section of the document by NMFS and ADF&G staff to assist in describing the relative management and enforcement issues. She reviewed the provisions of moving non-weathervane stocks to the ecosystem component including the list of requirements, of which a key component is that they are "not generally retained for sale or personal use." Once moved into the EC component, if a target fishery becomes desirable for these non-weathervane stocks then an FMP amendment would be necessary to move them into the fishery and establish ACLs.

Several options are identified for setting the OFL for these stocks, these include extrapolation of area-swept estimates to population estimates, using a fixed proportion of average annual catch, and setting non- weathervane OFL in relationship to estimated discard mortality needs. It was noted that there are several technical difficulties with each of these methods including that annual average catch is only from 124,000 lbs documented in 1991-92, which is subject to considerable uncertainty and that historical discard data is also problematic due to uncertainty in the historic data.

Selecting a Preferred Alternative

Summary table 2-2 describes where each of the alternatives addressed the MSA and NS1 Guidelines requirements based on the three main decision-points: establishing the ABC control rule, accountability measures, and defining stocks in and out of the fishery.

New Section on page 20: Diana Stram reviewed a new section added which reviews the decision points for Council Action:

1: ABC control rule and spatial management

2: Accountability measures

3: Management options for non-weathervane stocks.

Alternatives considered but not carried forward: This section is largely the same as before but new language on scallop complex alternative has been added to define a way to add everything to the fishery but you would have to set ACL for all stocks based on the biomass of weathervane scallops. This would allow harvest of non-weathervane stocks (without non-weathervane specific ACLs), but was believed to be a conservation concern and so was not carried forward.

Discussion jumped to page 49, on non-weathervane species to discuss the realities of removing non-weathervane stocks from the FMP. This section identifies how the LLPs would apply and that there is no federal permit requirement, observer requirement, or VMS requirement for a vessel fishing non-weathervane scallops. The section on page 49 lays out the risks of possible directed fishing of non-weathervane scallops. The bullets on page 50 highlight these issues.

General Discussion: There was much discussion of the issue of what would happen if a non-weathervane scallop fishery started up. One issue is the concern that any non-weathervane fishery would have bycatch of weathervanes that would have to be accounted for in the weathervane catch. That could cause

problems for the weathervane permit holders. The Scallop Plan Team then discussed the relative merits and issues of removing non-weathervane stocks from the FMP vs. moving them into the ecosystem component. What was made clear was that if in the ecosystem component the Council would have to initiate an FMP amendment to establish an ACL for a non-weathervane stock if a target fishery were to occur, while if the non-weathervane stocks were removed from the FMP there are risk of non-permitted fishing and associated weathervane bycatch. The Scallop Plan Team also discussed the realities of setting non-biomass based OFLs for the non-weathervane stocks. It could be done, but with considerably uncertainty.

The question of what would happen if non-weathervane stocks were in the ecosystem component but someone began to retain substantial quantities was also discussed. The SPT also noted that we would recommend tracking those catches annually and/or review it at each Scallop Plan Team meeting to monitor it. Peggy Murphy noted that a Commissioners permit would be necessary to target these species. Doug Woodby further clarified that while an exploratory fishery would require a Commissioner's permit, if the fishery develops a program must be put in place, possibly including high impact emerging fisheries regulations in order to give the Department time to establish a management program. Thus, regardless of whether or not the species are in the FMP, the State would still have to follow its regulations.

The team had a fairly extensive and wide ranging discussion of the ramifications of an experimental fishery emerging for an ecosystem component species and how that would affect management of weathervanes and the other scallop stock now being targeted. The conclusion of this discussion was a general consensus that it would be fairly obvious to ADF&G and NMFS if retention began to occur (Doug Woodby later added, based on table 4-4 that if removed from the FMP, NMFS enforcement could step in if they felt retention was above incidental catch). The plan team also discussed state regulations on retention of incidental catch and the need to clarify some of the language in table 4-4. The team reviewed the FR notice (page 3179) which defines the "Stocks in the Fishery" vs. the "Ecosystem Component" for more clarity on what moving a non-weathervane stock into the ecosystem component would mean.

Karla Bush noted that the prohibition on mechanical shuckers, and maximum crew size limits apply only to the weathervane scallop fishery. The SPT was concerned that this fact (lack of crew size limit or prohibition on mechanical shuckers on non-weathervane stocks) may increase the risk of unregulated fishing in Federal waters on the non-weathervane stocks if they are removed from the FMP.

The team noted that removal from the FMP would create the risk, albeit seemingly small at present, that non-permitted (e.g. Mr. Big) fishing could occur on the non-weathervane stock if outside of the FMP.

Methodology:

Diana updated the team on the changes to this analysis, as follows:

Discard Mortality: The analysis previously assumed 100% discard mortality by default, but plan team requested a review of discard mortality in other regions (e.g. New England). In New England, there is a 20% discard mortality applied so that is what has been applied in this new analysis. This new discard mortality goes into the estimate of total mortality, which is used in setting the ACLs.

Adjustment to the OFL: OFL=MSY, which is based on the 1.24 million lbs calculated historically. The plan team recommended previously that an estimate of discards be applied to adjust the OFL to account for additional mortality. Bill Bechtol did an analysis of historic discards, finding that the discard mortality is approximately 3.6%, which raises the OFL to 1.28 million pounds. This adjustment to OFL has been made in the analysis.

The plan team discussed the methodology used to establish this number and discussed whether this information is adequate to establish this adjustment to OFL. The plan team debated the issue of using different years for estimating discards than the years over which the MSY is estimated. The SPT feels that the OFL adjustment is appropriate given the best available information.

Methodology to evaluate overfishing: Diana Stram provided an overview of the effects of fixed buffers on OFL and the following section on analysis of additionally uncertainty using the P* methods. Diana outlined the statistical methods used (equation 4) and the output of the analysis of the P* method shown in table 3-7. This analysis is provided to identify, to the best of the analyst's ability, what the effect of uncertainty is on estimated P* with the understanding that uncertainty in the Scallop OFL is not known. This analysis is provided for information purposes but the P* analysis does not provide any decision points for Council action.

Discussion:

Recognizing that stock structure information is limited and that registration area management is key to preventing localized depletion the Scallop Plan Team came to the general consensus that lacking any additional information, that may indicate otherwise, the weathervane scallop stock is presently, based on best available information, considered to be a statewide stock. Further, the Scallop Plan Team does not feel that the present registration areas would likely define regionalized stocks.

Impacts of the Alternatives:

The SPT reviewed the summary information on impacts, by alternative, presented in Table 4-2. Diana Stram presented the results of the analysis and discussed the effects of the revised OFL that is estimated with the new discard mortality analysis. Table 4-2 also shows the estimated probability of overfishing, the ACL for each alternative, and the estimated maximum GHL for each alternative. The team then reviewed table 4-3 to see what percentage of regional GHL has historically been harvested and the percentage of years in which a regional GHL was exceeded (e.g. status quo conditions).

Section 4.7 has a formatting error as some of the tables and figures and will be revised by Diana and Scott for an errata for the Council notebooks: Scott Miller went over the economic impact tables and identified that, based on an historical retrospective analysis, control rules applied at the regional level would have had impacts on harvest and revenue while those applied at a statewide level would not. Specifically, were the ACL set at a statewide level there would historically have been no impact because the statewide harvests, since inception of the current MSY of 1.24 million pounds, have always been below both the 75 percent and 90 percent levels of the OFL. The analysis points out that were the ACL set regionally at 75 percent of OFL it would historically have been exceeded, or nearly so, for region one in each of the seasons of 1998/99, 1999/00, 2000/01, and 2005/06. This is also true for region 2 in 2000/01 and 2004/05. An ACL set at 90 percent of the OFL would have been exceeded in 1998/99, 1999/00 in region1. In contrast, Region 4 harvests have not historically exceeded 60 percent of the upper end of the Region 4 OFL and would not have been affected by ACLs set at either the 75 percent or 90 percent of OFL level.

Discussion of OFL based on average catch.

The plan team returned to the issue of OFL estimation and acknowledges the inherent weakness of using historic annual catch data to estimate OFL; however, average catch is the only indicator of stock size available for all management areas. Thus, the SPT, while recognizing this limitation, feels that this data represents the best available information, at present, upon which to manage this fishery.

Scallop Plan Team Recommendations on ACLs:

The SPT concluded that the approach outlined to revise the OFL estimate to account for estimated discards is appropriate.

The SPT recommends that setting ACLs for non-weathervane species not be attempted at this time. The team, recognizing the need for a future FMP amendment to be able to target non-weathervane scallops, recommends moving non-weathervane scallop species into the ecosystem component of the Scallop FMP. Further, if ACLs are to be set in the future, non-weathervane scallops stocks could be grouped as a separate complex for the purpose of setting ACLs. The team also identified a need, if non-weathervane stocks are moved into the ecosystem component of the FMP, to annually report catch of these non-weathervane stocks in the scallop SAFE.

The Scallop Plan Team does not have a recommendation on the appropriate buffer level, noting that such a determination is a policy decision for the Council to make. However, the Scallop Plan Team recommends that the ABC control rule be applied at a statewide level.

Research Priorities

The SPT reviewed research priorities from our previous minutes and revised our listing as follows (in order of prioritization):

1. Stock structure:
    a. Sources and sinks of scallop larvae unknown to verify to what extent it is a single statewide stock. Need for better understanding of larval movements in scallops.
    b. Additional genetic studies are needed for more information related to stock structure. Current genetic study shows that stocks appear to be connected with limited degree of separation (Stew Grant paper in press indicates limited genetic variability).
2. Stock Assessment:
    a. Vessel of opportunity research to tow camera sleds. Additional camera sled survey information on areas closed to scallop fishing with known scallop beds. Habitat-based assessment approach possibility for pooling camera sled research and broadscale assessment statewide for statewide biomass estimate.
    b. Mark-recapture-tagging studies to look at mortality, intact discards, scallop movement, growth
    c. Fishery-independent stock assessment in Yakutat

3. Continue research on weak meats and scallop quality. Environmental parameters should be studied coincident with determining cause of weak meats.

The meeting adjourned at 4:15pm.

2.1.5 ABC recommendation annually by SSC

Included under all alternatives (with the exception of status quo) will be a review of ACLs annually by the SSC (in April) with a resulting recommendation for the upcoming fishing year. The SSC annually reviews the status of statewide scallop stocks at the April SSC meeting. In conjunction with amending the FMP to annually establish ACLs for scallop stocks by one of the alternatives as listed above, the SSC will annually recommend an ABC (and thus an ACL) to the Council for scallop stocks. This will not change the timing of scallop management and annual establishment of GHLs by the State. The GHL(s) must be established at or below the annual ACL, with sufficient buffer below the ACL(s) to allow for any incidental catch of scallops in either directed or non-directed fisheries.

2.2 Selecting a preferred alternative

This analysis is scheduled for final action by the Council in October 2010. The Council took initial review in June 2010 and requested that staff amplify the discussion of where the status quo (no action) meets the required provisions of MSRA and the NS1 guideline provisions. A summary table is provided (Table 2-2) which details the requirements and where the current suite of alternatives address these requirements. Communication between NPFMC and the State of Alaska regarding the required provisions and the management of scallop (and crab) stocks by the State of Alaska are contained in Appendix 1. The Council did not identify a preliminary preferred alternative (PPA) in June.

Table 2-2 Summary of Federal requirements and how each Alternative (1-4) Addresses these requirements

Requirement: MSA or NS1 guidelines	How addressed under each alternative: Note all of the alternatives retain current Category 1 harvest level (GHL) recommendations by the State.			
	Alternative 1-Status quo	Alternative 2	Alternative 3	Alternative 4
1- **Establish ACLs:** **'establish a mechanism for specifying ALCs ...'** (MSA section 303(a)(15)) to **Prevent overfishing:** **'...at a level such that overfishing does not occur...'** ((MSA section 303(a)(15)) FMP must describe '***mechanisms for specifying ACLs...in relationship to the [ABC]*** (50 C.F.R. § 600.310(c)(4). "***The ACL cannot exceed the ABC ..***" 50 C.F.R. § 600.310(f)(5). **ABC Control rule:** ***"...must evaluate and describe [an ABC control rule] in their FMPs amend the FMPs, if necessary, to align their management objectives to end or prevent overfishing"*** 50 C.F.R. § 600.310(f). ***'must establish an ABC control***	NA: The FMP does not establish a mechanism for specifying ACLs. The FMP does not establish an ABC control rule or otherwise provide for ABC. The FMP does defer to the State to set GHLs, the sum of which may not exceed OFL.	Yes a mechanism is specified; ABC control rule where ACL = ABC=OFL (adjusted). However here the ABC is set = OFL whereby OFL has been adjusted to account for discards occurring over the time frame of the current OFL. Selection of this alternative would indicate that there is no uncertainty in the OFL	Yes a mechanism is specified; ABC control rule where ACL = ABC=90% of OFL (adjusted). Here the 10% buffer establishes some accounting for the potential uncertainty in the OFL to avoid overfishing. Note NS1 guidelines on how to select maximum	Yes a mechanism is specified; ABC control rule where ACL = ABC=90% of OFL (adjusted). Here the 10% buffer establishes some accounting for the potential uncertainty in the OFL to avoid overfishing. Note NS1 guidelines on how to select maximum level The SSC would annually recommend an ABC to the Council.

rule based on scientific advice from its SSC" 50 C.F.R. 600.310 (f)(4) where it is possible to assess the probability that a catch equal to the ABC will result in overfishing ***"[t]his probability that overfishing will occur cannot exceed 50 percent and should be a lower value."*** 50 C.F.R. § 600.310 (f)(4) the ABC control rule "***must articulate how the ABC will be set compared to the OFL based on . . . the scientific uncertainty in the estimate of OFL and any other scientific uncertainty***." 50 C.F.R. § 600.310 (f)(4)		estimate and annual catches equal to the (new) OFL would not result in overfishing. NS1 Guidelines state that the Secretary may assume that such catch limits would not prevent overfishing, absent sufficient analysis and justification. The P* analysis contained in this document indicates that by definition ACL = OFL would lead to a 50% chance of overfishing. Note NS1 guidelines on how to select maximum level. The SSC would annually recommend an ABC to the Council.	level The SSC would annually recommend an ABC to the Council.	

2-**Accountability Measures:** '...**including measures to ensure accountability'** 303(a)(15) When an ACL has been exceeded, "AMs must be triggered and implemented as soon as possible to correct the operational issue that caused the ACL overage as well as any [known] biological consequences to the stock or stock complex resulting from the overage[.]" 50 C.F.R. § 600.310 (g)(3)	NA: The FMP does not establish a mechanism for specifying AMs. The FMP does not specify measures that will be triggered in the event of an overage of ACL.	Overages relative to the GHL in the directed fishery are unlikely due to management precision but have occurred historically by region. This is less likely due to the formation of the voluntary cooperative but is nonetheless possible. Some accounting for discards however must be taken in setting the GHL below the levels whereby the sum of GHLs would reach the ACL (under the Statewide spatial scale) or by region (for regional option).
3- **Defining stocks as 'in the fishery' and establish OY, MSY, ABC, ACL and AMs for those stocks** 50 C.F.R. §§ 600.310 (c)(1)-(2), (f) & (g)	NA: The FMP contains an OY and MSY for weathervane scallop stocks only. No MSY or OY are contained for pink, spiny or rock scallops yet these stocks are also contained under this FMP.	Three options are provided to meet these requirements: Option 1-remove form FMP; Option 2-Move to Ecosystem Component; and Option 3-Set ACLs for non-target stocks. One of these options must be selected by the Council at final action in order to address this requirement.

At final action the Council must select a preferred alternative (PA). There are three decision points for the Council in selecting a PA. These are the following:

1- Select an ABC Control Rule (and option for spatial management)

Four alternatives are contained for selection of an ABC control rule: Alternative 1-status quo management whereby no ABC control rule is specified (nor recommended by the SSC); Alternative 2-ABC control rule set equal to the OFL (i.e., sum of the upper ends of the GHRs including estimated discards); Alternative 3-ABC control rule set equal to the OFL (i.e., sum of the upper ends of the GHRs including estimated discards); and Alternative 4-ABC control rule set equal to the OFL (i.e., sum of the upper ends of the GHRs including estimated discards). Implicit under Alternatives 2-4 is the recognition that the ABC control rule would be annually recommended by the SSC and that the OFL upon which the ABC control rule calculation is made is redefined to include discards during the historical period upon which the average catch calculation was made.

Options are also contained under Alternatives 2-4 for regional or statewide management of ACLs. In selecting any of these alternatives the Council must also indicate the spatial scale of management of the resulting ACL.

2- Select appropriate Accountability Measures

Section 2.1.3 described the accountability measures under consideration in the event of an overage. The main recourse for an overage is defer measures to the State with Federal oversight. Here the annual SAFE report would indicate whether an overage occurred and if so what action was taken by the State. If information indicated that adverse biological consequences would exist, notwithstanding action taken by the State to correct an apparent overage, and it was considered to be a biological conservation issue, the SSC could annually recommend an ABC lower than that resulting from the application of the ABC control rule. Should the Council wish to modify these default measures or craft additional AMs they could do so at final action. Depending on the measures selected by the Council it is possible that a follow-up amendment analysis would be necessary.

3- Select a management option for non-target stocks

Three options are indicated for management of non-target stocks. These are the following: Option 1-remove form FMP; Option 2-Move to Ecosystem Component; and Option 3-Set ACLs for non-target stocks. One of these options must be selected by the Council at final action.

2.3 Alternatives considered and not carried forward for analysis

In the development of this analysis, several alternatives were considered but not carried forward due to a lack of available information upon which to base ACLs. In addition to the constant buffer approach in the alternatives for analysis, two measures were recommended during the NPFMC's ACL workshop in May 2009 (NPFMC 2009c). These were to re-estimate MSY based upon the older catch history time frame and to estimate scallop density in unfished areas using trawl survey and other scallop survey information.

The current proxy MSY is based on historical average catch by ADF&G registration area, but excluding years of fishery development, considered to over-estimate productivity, and also years when catches were extremely low, considered to under-estimate productivity (Kruse 1994; NPFMC 2006). If an older estimate of average catch were considered, it would include years when the fishery was developing, which could over-estimate productivity. Based on more recent information, including fishery performance, observer sample, and survey data, GHLs implemented by the state have resulted in catches substantially less than the proxy MSY, suggesting that the existing proxy MSY may be overly optimistic under current environmental conditions. Tools such as the video imaging system currently being developed to provide distribution and density data (Rosenkranz et al. 2008) or development of age-structured models (Bechtol 2000) would improve our understanding of weathervane scallop stocks and

C-4 Scallop ACLs

The Council adopts the purpose and need statement as amended and the following preferred alternatives for final action, as specified below. Revisions to language in the October 2010 analysis are underlined (additions) and in strikethrough (deletions).

Action 1: Establish Annual Catch Limits (ACLs) for Scallops

On January 16, 2009, NMFS issued final guidelines for National Standard 1 of the Magnuson-Stevens Fishery Conservation and Management Act (MSA). They provide guidance on how to comply with new annual catch limit (ACL) and accountability measure (AM) requirements for ending overfishing of fisheries managed by federal fishery management plans. Annual catch limits are amounts of fish allowed to be caught in a year. A legal review of the Alaskan Scallop FMP found there were inadequacies in the FMP texts that need to be addressed. Several work groups (e.g., ABC/ACT Control Rules, Vulnerability Evaluations) have been created to produce reports on how to carry out the more technical components of the NS 1 guidelines. Statutory deadlines require compliance with the MSA by the start of the 2011 fisheries ~~although these reports have not been finalized~~.

This action is necessary to facilitate compliance with requirements of the MSA to end and prevent overfishing, rebuild overfished stocks and achieve optimum yield.

Alternative 3: ABC control rule = 90% of OFL

Alternative 3a: Statewide ACL with the OFL redefined to include all estimated sources of fishing mortality (OFL = 1.29 million pounds).

Accountability Measures

The annual GHL for each scallop management area will be established by the State of Alaska at a level sufficiently below the ACL so that the sum of the estimated discard mortality in directed scallop and groundfish fisheries as well as the directed scallop fishery removals does not exceed the ACL. Anytime an ACL is exceeded the overage will be accounted for through a downward adjustment to the GHL during the fishing season following the overage.

Options for non-target stocks

Option 2: Move to the Ecosystem component