AGENDA C-3(a)
DECEMBER 2008

MEMORANDUM

TO: Council, SSC and AP Members

FROM: Chris Oliver
Executive Director

ESTIMATED TIME
4 HOURS
(Al C-3 items)

DATE: December 3, 2009

SUBJECT: Final GOA Groundfish Specifications for 2009 and 2010

ACTION REQUIRED
Review and approve GOA SAFE report (including Ecosystem and Economic SAFEs) and approve final GOA Harvest Specifications for 2010-2011 including:

1. Acceptable Biological Catch (ABC), and annual Total Allowable Catch (TAC).
2. TAC considerations for the State Pacific cod fishery.
3. Prohibited Species Catch Limits.

BACKGROUND

At this meeting, the Council makes final recommendations on groundfish and bycatch specifications as listed above to manage the 2010 and 2011 Gulf of Alaska (GOA) groundfish fisheries.

GOA SAFE Document
The groundfish Plan Teams met in Seattle November 16-20, 2009 to prepare the final SAFE reports and to review the status of groundfish stocks. The GOA SAFE report forms the basis for the recommended GOA groundfish specifications for the 2010 and 2011 fishing years. Note that there are three volumes to the SAFE report: a stock assessment volume, a fishery evaluation volume ("economic SAFE"), and an ecosystems considerations volume. The introduction to the GOA SAFE report was mailed to the Council and Advisory Panel in late November 2009. The full GOA SAFE report, the economic SAFE report and the ecosystem considerations volume were mailed to the SSC. The Joint Plan Team and GOA Plan Team minutes are attached as Item C-3(a)(1) and Item C-3(a)(2), respectively. An overview of the GOA SAFE report and ecosystem considerations volume will be provided to you at the meeting.

Two year OFL and ABC Determinations
Amendment 48/48 to the GOA and BSAI Groundfish FMPs, implemented in 2005, made two significant changes with respect to the stock assessment process. First, annual assessments are no longer required for rockfishes, flatfish, and Atka mackerel since new data during years when no groundfish surveys are conducted are limited. For example, since 2008 was an off-year for the NMFS GOA groundfish trawl survey, only summaries for these species were produced.

The second significant change is that the proposed and final specifications are to be specified for a period of up to two years. This requires providing ABC and OFL levels for 2010 and 2011. In the case of stocks managed under Tier 3, 2010 and 2011 ABC and OFL projections are typically based on the output for Scenarios 1 or 2 from the standard projection model using assumed (best estimates) of actual catch levels.

In 2009 (a survey year), the 2010 and 2011 projections for stocks managed under Tiers 4-5 will incorporate the latest survey data. In off years (even years) in the case of stocks managed under Tiers 4-6, projections are set equal to the Plan Team's recommended values for the last full assessment presented.

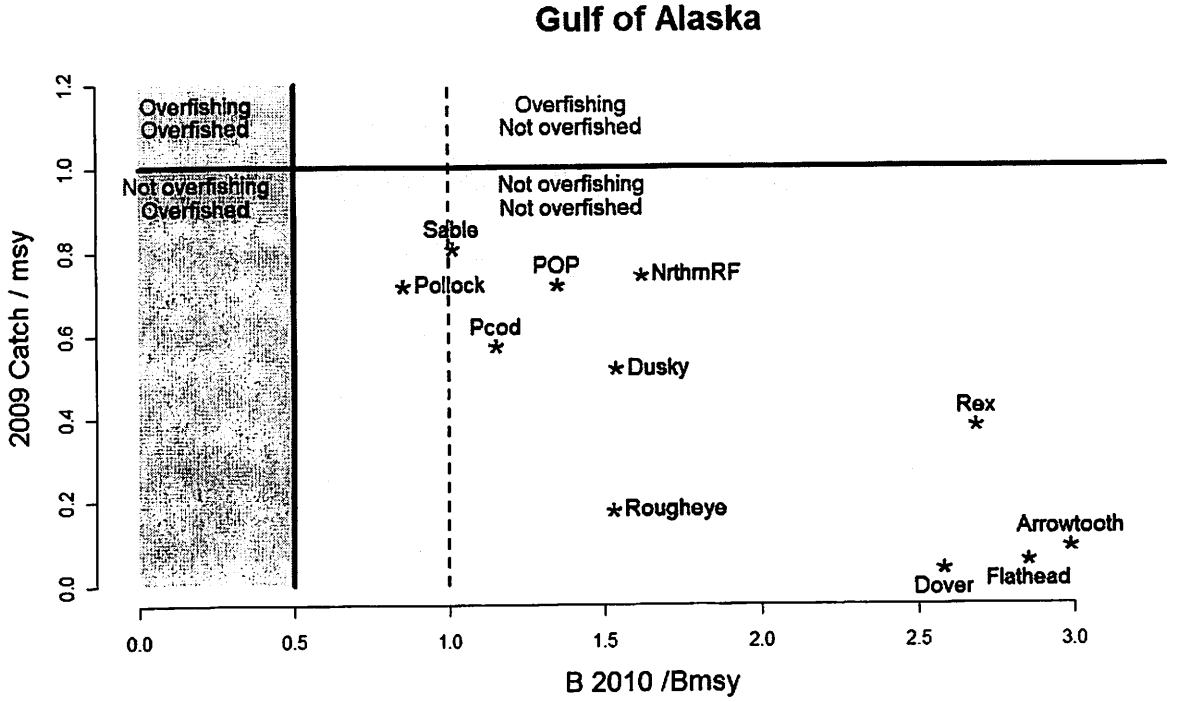
The 2011 ABC and OFL values recommended in next year's SAFE report are likely to differ from this year's projections for 2011, for the same reasons that the 2010 projections in this SAFE report differ from the projected values from last year's SAFE report.

ABCs, TACs, and Apportionments

At this meeting, the Council will establish final catch specifications for the 2009 and 2010 fisheries. The SSC and AP recommendations will be provided to the Council during the meeting. Item C-3(a)(3) lists the 2009 specifications and catch (through November 7, 2009) and GOA Plan Team recommendations for OFLs and ABCs for 2009 and 2010. The sum of the preliminary 2010, 2011 ABCs for target species are 565,499 t (2010), 605,086 t (2011) which are within the FMP-approved optimum yield (OY) of 116,000 - 800,000 t for the Gulf of Alaska. The sum of 2010 and 2011 OFLs are 693,253 t and 743,559 t, respectively. The Team notes that because of halibut bycatch mortality considerations in the high-biomass flatfish fisheries, an overall OY for 2010 will be considerably under this upper limit. For perspective, the sum of the 2009 TACs was 242,727 t, and the sum of the ABCs was 516,055 t.

The sum of the ABCs increased by 9% (49,444 t) compared with last year. This is primarily driven by increases in pollock 34,845 t (70%) and Pacific cod 23,800 t (43%). Sablefish declined by 790 t (-7%). ABC levels decreased in deep water flatfish 2,978 t (32%) and flathead sole 958 t (2%). Arrowtooth flounder was down by 5,630 t (2%). The ABC level increased for Pacific ocean perch (2,473 t or 16%) and for aggregate other species (535 t or 8%). The ABC for northern rockfish increased by 738 t (17%), while demersal shelf rockfish ABC dropped by 18% and other slope rockfish by 13%. Big skates remained relatively constant while Longnose skates declined slightly.

The current status of individual groundfish stocks managed under the FMP is summarized in this section. The abundances of Pacific cod, Dover sole, flathead sole, arrowtooth flounder, Pacific ocean perch, rougheye and blackspotted rockfish, northern rockfish, and dusky rockfish are above target stock size. The abundances of Pollock and sablefish are below target stock size (see figure below). The target biomass levels for other deep-water flatfish, shallow-water flatfish, rex sole, shortraker rockfish, demersal shelf rockfish, other pelagic shelf rockfish, other slope rockfish, thornyhead rockfish, Atka mackerel, skates, sculpins, squid, octopus, and sharks are unknown.



Summary status of age-structured GOA species relative to 2009 catch levels (vertical axis) and projected 2010 spawning biomass relative to B_{MSY} levels. Note that the 2009 MSY level is defined as the 2009 catch at F_{OFL}.

TAC Considerations for State Pacific Cod Fishery

Since 1997, the Council has reduced the GOA Pacific cod TAC to account for removals of not more than 25% of the Federal P. cod TAC from the state parallel fisheries. The relative percentage in the Central GOA was increased by the Board of Fisheries in March 2005 from 24.25 in 2004 to 25%. Using the area apportionments of the 2010 and 2011 P. cod ABC recommended by the Plan Team, the Federal TAC for P. cod would be adjusted as listed below.

Plan Team recommended 2010 Gulf of Alaska Pacific cod ABCs, and resulting TACs and state Guideline Harvest Levels (GHLs) (t).

Specifications	Western	Central	Eastern	Total
ABC	27,685	49,042	2,373	79,100
State GHL	6,921	12,260	237	19,418
(%)	25	25	10	24.4
Federal TAC	20,764	36,782	2,136	59,682

Plan Team recommended 2011 Gulf of Alaska Pacific cod ABCs, and resulting TACs and state Guideline Harvest Levels (GHLs) (t).

Specifications	Western	Central	Eastern	Total
ABC	34,265	60,698	2,937	97,900
State GHL	8,566	15,174	294	24,032
(%)	25	25	10	24.4
Federal TAC	25,699	45,524	2,643	73,866

Prohibited Species Catch Limits

In the GOA, Prohibited Species Catch (PSC) limits are established for halibut. Since 1995, total halibut PSC limits for all fisheries and gear types have totaled 2,300 t. This cap was reduced from 2,750 t after the sablefish IFQ fishery was exempted from the halibut PSC requirements in 1995. The halibut PSC apportionments recommended based upon the 2009 apportionments for the Gulf of Alaska groundfish fisheries are shown below.

GOA Pacific halibut PSC Limits

2010-2011Trawl		2010-2011 Hook and Line		
Jan 20 - Apr 1	550 t	1st trimester	Jan 1 - Jun 10	250 t
Apr 1 - Jul 1	400 t	2nd trimester	Jun 10 - Sep 1	5 t
Jul 1 - Sep 1	600 t	3rd trimester	Sept 1 - Dec 31	35 t
Sept 1 - Oct 1	150 t			
Oct 1 - Dec 31	300 t	DSR	Jan 1 - Dec 31	10 t
TOTAL	2,000 t			300 t

Trawl fishery categories			
Season	Shallow Water	Deep Water	Total
Jan 1 - Apr1	450 t	100 t	550 t
Apr 1 - Jul 1	100 t	300 t	400 t
Jul 1 - Sep 1	200 t	400 t	600 t
Sep 1 - Oct 1	150 t	any rollover	150 t
Oct 1 - Dec 31	*no apportionment*		300 t
TOTAL	900 t	800 t	2,000 t

Pacific Halibut Discard Mortality Rates

Halibut discard mortality rates (DMRs) are set by the Council on a 3-year cycle based on recommendations by International Pacific Halibut Commission staff. Current rates will expire at the end of 2009; new rates are needed for 2010 -2012. This procedure will be repeated in 2012 for 2013-2015. The recommended rates are based on an average of annual DMRs from the previous 10 years. The GOA Plan Team endorsed IPHC staff recommendations for DMRs for the GOA groundfish fisheries for 2010 - 2012.

Recommended Pacific halibut discard mortality rates (DMR) for 2010-2012 GOA groundfish fisheries.

Gear	Target	Recommendation
Trawl	Bottom pollock	59
	Pacific cod	62
	Deepwater flatfish	48
	Shallow water flatfish	71
	Rockfish	67
	Flathead sole	65
	Mid water pollock	76
	Sablefish	65
	Arrowtooth flounder	72
	Rex sole	64
Pot	Pacific cod	17
Longline	Pacific cod	12
	Rockfish	9

Minutes of the Joint Plan Teams for the Groundfish Fisheries of the Gulf of Alaska (GOA) and Bering Sea Aleutian Islands (BSAI)

November 2009

North Pacific Fishery Management Council
605 W 4th Avenue, Suite 306
Anchorage, AK 99501

The Joint meeting of the BSAI and GOA groundfish Plan Teams convened Monday, November 16th at 9:00 am at the Alaska Fisheries Science Center in Seattle, Washington.

Members of the Plan Teams present for the meeting included:

Loh-Lee Low	AFSC REFM (BSAI chair)	Jim Ianelli	AFSC REFM (GOA co-chair)
Mike Sigler	AFSC (BSAI Vice chair)	Diana Stram	NPFMC (GOA co-chair)
Kerim Aydin	AFSC REFM	Sandra Lowe	AFSC REFM
Lowell Fritz	AFSC NMML	Jeff Fujioka	AFSC ABL
David Carlile	ADF&G	Jon Heifetz	AFSC ABL
Alan Haynie	AFSC REFM	Mike Dalton	AFSC REFM
Jane DiCosimo	NPFMC (Coordinator)	Cleo Brylinsky	ADF&G
Yuk. W. Cheng	WDFW	Tom Pearson	NMFS AKRO Kodiak
Brenda Norcross	UAF	Nick Sagalkin	ADF&G
Mary Furuness	NMFS AKRO Juneau	Paul Spencer	AFSC
Grant Thompson	AFSC REFM	Leslie Slater	USFWS
Dave Barnard	ADF&G	Nancy Friday	AFSC NMML
Leslie Slater	USFWS	Yuk. W. Cheng	WDFW
Dana Hanselman	AFSC ABL	Ken Goldman	ADF&G
		Bob Foy	AFSC Kodiak
		Sarah Gaichas	AFSC REFM

Steven Hare (IPHC, GOA team) was unable to attend.

Members of the public, State and agency staff in attendance for all or part of the meeting included:
Agency: Dana Seagars, Anne Hollowed, Jennifer Stahl, Kalei Shotwell, Lisa Kafferman, Karla Bush, Diana Evans, Steve Whitney, Steve Barbeaux, Karla Bush, Craig Faunce, Lisa Rodderick, Scott Miller, Steve Davis, Bill Wilson, Neal Williamson, Stephanie Zador, Patrick Russler, Dan Nichol, Peter Munro, Bob Lauth, Taina Honkalehto, Pat Livingston, Jack Turnock, Lou Rugolo, Tom Wilderbuer, Teresa A'Mar, Phil Rigby, Kaja Brix, Chris Lunsford, Beth Matta, Buck Stockhausen, many others

Public: Frank Kelty, Jim Hamilton, Dick Curran, Tory O'Connell, Leonard Herzog, Kenny Down, Julie Bonney, Gerry Merrigan, Jan Jacobs, Donna Parker, Dave Wood, Tom Gemmell, Brad Warren, Paul Peyton, Lori Swanson, John Gruver, John Gauvin, Ed Richardson, Paul MacGregor, Anne Vanderhoeven, Jon Warrenchuk, Karl Haflinger, Mike, Jan Jacobs, Tim Tuttle, Gary Stauffer, Jim McManus, Ed Melvin, Brent Paine, Donna Parker, Frank Kelty, Ron Rogness, Glenn Reed, Brad Warren, Paul Peyton, Tim Thomas, Dave Fraser, Neil Rodriguez, Larson Hunter, Mike Szymanski, many others.

1. Introduction

The attached agenda was agreed upon for the meeting.

Council actions: Jane DiCosimo briefed the teams on the Council's preferred alternative for BSAI skate management, noting that next year recommendations for separate specifications will be needed for BSAI skates for 2011/2012.

EFH review: The minutes for each team will include a separate section on EFH by species and any recommendations. Diana Evans provided an overview of the task for plan teams in their reviews of the revised FMP text by species as well as comments on process. While sablefish was discussed jointly the specific minutes and recommendations for sablefish are contained primarily in the GOA EFH discussion section and noted in the BSAI table.

Update on the Plan Team Economists meeting: Per discussion at the September Joint Plan Team meeting, the economists on all Council plan teams met to discuss improved means of working together and improving their contributions to their respective plan teams. A report from that meeting is appended to this report.

SAFE reports and summaries: The teams discussed report summaries, minutes, and summary assignments. The teams agreed that all outstanding requests to authors will be consolidated in a separate section in the November minutes of each team.

2. Sablefish

Dana Hanselman provided an overview of the sablefish stock assessment. A modeling/data workshop is planned for winter 2010.

The teams discussed the similarities in trawl, longline and IPHC survey trends. This is the first time the assessment has evaluated the CPUE of sablefish in IPHC survey data. Team members requested clarification on why the CIE panel recommended retaining commercial CPUE. Dana clarified that the panel indicated the dataset was substantial and available so there did not seem much utility in disregarding, noting that the large increase in RPW had limited impact on results, given that it is only one of 6 indices in model with similar weighting applied to each. It was suggested by the CIE that perhaps the calculation of fishery RPW could be improved by using GLMs to capture effects of temporal and spatial changes in effort.

The model is fitting longline survey ages better now than in the recent past years. Trends in fishery logbook CPUE and observer data agree everywhere but the AI. Notable areal trends in fishery CPUE are that the CPUE in the Bering Sea has gone up over last 5 years, and that while the trend is similar in WGOA, logbook CPUE is higher than observer CPUE. Contribution of 4-9 year old to the fishery catch is decreasing. CGOA fishery and observer CPUE are both down.

Concerns were expressed regarding the reliance on only a few year classes for spawning. The 2000 year class is contributing 23% to spawning biomass and the 1997 year class contributes 12% to spawning biomass.

Members of the public noted that the current survey stations were initially picked by Japanese fishing masters as habitat for large sablefish. The commercial fishery is seeing larger fish, and

there is concern that since these stations will have the biggest fish they will mask any recruitment. Authors noted that this is true but likewise these stations will be the last to show the decline of fish. Likewise, if there were many large fish occupying hooks, it could mask smaller fish, but there is a decline in fish of all sizes. The authors also noted that the models account for the fact that year-classes are not seen immediately by the survey, but will show up as they become susceptible to the gear. Also there were previously additional stations that were chosen randomly and compared to the standard stations to see if there was a bias and there was no significant difference when compared to each other. 20 random stations were selected and showed no significant difference when compared to the closest Japanese stations.

Hook occupancy on the longline survey has been low in recent years. This suggests there is less concern that larger sablefish are outcompeting smaller fish at these stations as many baited hooks are retrieved. Another consideration is that even though the longline stations were originally chosen in areas of high sablefish abundance, the stations are set perpendicular to the slope from depths of 200-1000m rather than parallel to the depth contours (as with fishing). Therefore, multiple habitats at all depth ranges are sampled at each individual station.

The teams expressed continued concerns regarding whale depredation and the lack of information on sperm whale abundance. Staff of NMML noted that there is no update on sperm whale population estimates given a lack of funding to estimate abundance. Thus there are no PBRs defined for sperm whales.

Members of the public requested suggestions on how to explain the upward trend of industry CPUE. This appears to be a result of local knowledge of the best spots with fishermen still catching fish even in a downward trend. The fishery is currently focused on two year classes and those year-classes are producing a large bump in CPUE.

Members of the public asked if landings information could be used for additional information. The authors noted that this was discussed at the CIE to see if size gradings could be used to evaluate year classes. However, this was attempted in the late 90s and it proved impossible to line up processor size gradings. Those categories are not discreet, but overlap. However with new electronic recording it might be possible. The authors were unsure how this would give a better indication of year class strength, in comparison to observer collected data, but could be looked at to see if some large discrepancy exists. A better standardization of size grading is needed, but possibly observer sampled lengths in conjunction with size gradings could be correlated with processor size gradings.

The ABC for 2010 =5% decrease from 2009. The teams noted that this may continue to decline with no additional new year classes present.

The authors plan to hold a workshop in winter 2010 to address CIE suggestions and industry concerns which will include but not be limited to spatial models, revisions to the fishery and survey indices, and potential implementation of SS3.

The team appreciated the look at the IPHC survey sablefish CPUE and other additional indices and how these correspond closely to the trends seen in the model. The incorporation of economic data was good. The Teams support the modeling workshop idea. The authors did a good job demonstrating low recruitment.

The teams expressed confidence in the model and in the author's recommendations and commended him for adequately supporting his recommendation and for the use of supporting

evidence from multiple sources. The teams accept ABCs and OFLs as recommended and apportionments for 2010 and 2011. The Teams note that it is unlikely that specifications will increase in the near future absent additional above-average year classes..

Requests for the next assessment:

1. The author should contact the IPHC about getting them to collect length and weight data for sablefish on their surveys, and to evaluate the data to see if the distribution of those data are similar to the longline surveys.
2. Evaluate additional statistical methods for consideration of whale depredation issue.
3. Evaluate recalculating the RPW in the BS due to potential for inflation of biomass in that region from the extrapolation from a limited number of stations.
4. Include additional information in assessment on prohibited species bycatch, particularly of golden king crab in the pot fishery.

2. Grenadiers

Chris Lunsford presented updated information on grenadiers. This presentation was prepared by Dave Clausen who participated in the meeting by phone. Currently these species are included in the "nonspecified" category by the North Pacific Fishery Management Council. Full assessments were presented in 2006 and 2008 which included a recommendation to move grenadiers into the Fishery Management Plan (as a managed species; alternatively, grenadiers could be included in a new ecosystem category). Since ages are now available, there is potential to move giant grenadier to Tier 4 if they were included in the FMP.

Grenadier catches are significant and all are discarded. For example, their catch level in the Gulf of Alaska is only slightly less than sablefish catches. The primary species caught is giant grenadier and most of the fishery and survey information is for this species. Species caught in much lower numbers are Pacific and popeye. An update of the assessment uses the Tier 5 rule to recommend ABC values for the Eastern Bering Sea, Aleutian Islands and Gulf of Alaska. The update of the Tier 5 ABC values uses a new estimate of natural mortality provided by Dave Clausen and Cara Rodgveller. Current catches are substantially less than these ABC values. The reasons for moving grenadiers into the other species classification are that they figure prominently in the ecosystem based on their numbers, and they have economic potential though not generally targeted by any Alaska-based fishery.

Jane DiCosimo requested that the authors revise their management recommendation so that it conforms to the proposed classification scheme proposed by the NPFMC to implement groundfish Annual Catch Limits. The "other species" category, which the authors previously recommended for grenadiers, will disappear under the new rules. In response, Dave Clausen recommended classifying the three main species (Pacific, popeye and giant grenadiers) as "in the fishery," while the remaining grenadier species would be moved to the Ecosystem Component category as an "other grenadier" complex. The team concurred with that recommendation.

Recommendation to Include Grenadiers in the FMPs
Grenadiers are presently listed as "nonspecified" and thus are not managed in either the BSAI or GOA groundfish FMPs. The teams reiterated their recommendations that grenadiers should be managed under catch specifications. Previously, the teams concurred with the lead author that it would be more appropriate for grenadiers to be managed under the "other species" category. The

"other species" category is defined by the NPFMC as species that have "only slight economic value and are generally not targeted upon, but which are either significant components of the ecosystem or have economic potential". In contrast, "nonspecified" species are a "residual category of species and species groups of no current or foreseeable economic value or ecological importance, which are taken in the groundfish fishery as accidental bycatch and are in no apparent danger of depletion" and for which "virtually no data exists (that) would allow population assessments". Based on these definitions, grenadiers should be managed similarly to the groups included in the "other species" assemblage; however since NMFS guidelines for implementing annual catch limits no longer permit management of disparate species or groups under an assemblage, the teams have recommended that the component groups and grenadiers be managed under separate ACLs (squids and octopus were also recommended for consideration under a new ecosystem component category). Because of their abundance on the continental slope, giant grenadier are of great ecological importance in this habitat, and they also hold economic potential. In addition, considerable information now exists on giant grenadier that can be used for population assessment. This includes a technique to assess the age structure of grenadiers. The information is such that we may be able to move grenadiers from tier 5 to tier 4 in future assessments. Therefore, the teams are very supportive of the proposal to move grenadiers from the "nonspecified" to a managed group and recommend that this proposal be implemented.

3. Steller Sea Lion survey update

Lowell Fritz presented an overview of the results of the 2009 Alaska aerial survey and the status of the western distinct population segment (DPS) and eastern DPS. The draft report is scheduled to be presented to the Council in conjunction with the NMFS Protected Resources report in December. He noted that NMFS staff were not able to fly out to western AI in 2009; thus results are summarized from photographs taken in 2008 to characterize that area. There is no estimate of uncertainty of sampling error.

Questions were posed as to why western rookery numbers are so low but declining while the eastern rookery numbers are much higher and increasing. The combination of the two areas led to a 1% increase overall that is statistically not significant. It may be that movement early in the seasons affected non-pup counts last year (2008). There is no indication that western trends are indicative of movement between rookeries (no branding). Telemetry has not yet been used for adults, just for pups and juveniles for only one year, so results are not yet available. Observed trends are not indicative of large scale movements. Internal production is most likely reason for observed changes.

Trends were also presented for Russian stocks. The Asian stock is increasing but the western stock (i.e., stock more genetically similar to WAI) is not recovering. Team members questioned the cause. The decline since 1982 seems to reflect the observed decline of AI stocks. There are no rookeries in Eastern Kamchatka and no observed increase in the Russian stock.

4. Halibut discard mortality rates (DMRs)

Gregg Williams summarized the appendix to the SAFE Report, which provides IPHC staff recommendations for discard mortality rates (DMRs) for GOA groundfish fisheries and BSAI CDQ and non-CDQ groundfish fisheries for 2010-2012. The rates are set every three years, based on the average rate for the past ten years. This is the first time that the BSAI CDQ rates follow this method because ten years of CDQ fishing rates are now available. The methodology previously was approved by the SSC. The Team accepted the IPHC staff recommendations.

The teams also requested that, in the future, comparative rates be included with the old rates in the table when modifications are made.

5. Ecosystem Considerations

Stephani Zador and Kerim Aydin gave an overview of new contributions to the chapter since September 2009. The website has a new design, and the data and contributions will be updated. Contributions to the chapter will be available in December, and time series data will be more accessible.

Highlights of the new contributions and a discussion of area-specific trends as relevant are contained in the introductions to each of the SAFE report.

Kerim provided an overview of changes to the Ecosystem Assessment since September 2009. Time series were presented in an updated format reflecting comments provided by the Plan Team in September. For the EBS and GOA, all species included in food web models (Aydin et al. 2007) were aggregated into 12 guilds by trophic role. For each guild, time trends of biomass are presented for 1977-2009, updated with assessments presented in the current SAFE report. Catch and exploitation rate (catch/biomass) are presented for guilds with exploitation rates exceeding 0.0001. Differences in time series data availability led to different methods for EBS and GOA ecosystem guild analysis. EBS biomass trends are summed stock assessment model estimates or scaled survey data, where available, for each species within the guild. If neither time series is available, the species is assumed to have a constant biomass equal to the mid-1990s mass balance level estimated in Aydin et al. (2007). Inconsistencies in the GOA trawl survey time series in depth and area surveyed made ecosystem model fits to trends more reasonable than summing scaled survey data. The GOA ecosystem model was forced by stock assessment model estimates where available for each species within the guild, and fit to survey time series, catch data, groundfish diet data, and the mid-1990s mass balance for all other species. In both regions, catch data were directly taken from the Catch Accounting System and/or stock assessments for historical reconstructions. Pie charts indicate the relative contribution of each data type to the average biomass within each guild. For 2010-2011 projections, the stock assessment authors' recommended catch and estimated biomass time series were used in both regions.

Apex predators are declining in EBS due largely to a decline in Pacific cod. Pelagic foragers are also down due to pollock's low and decreasing biomass. Other key trends are summarized in the Ecosystem Assessment. Any updates from Plan Team will be incorporated for the final draft. Questions from the public included: Do we call fish going to meal discards? No, those are under retained. Are we tracking ocean acidification? Not yet, so far we have only one estimate in each Alaskan sea, we are trying to get info, and might be able to track it in the future. The Seward line is most likely to be measured first for Ocean Acidification monitoring in the GOA.

6. Pacific cod

Grant Thompson presented a joint review of the cod assessments for both BSAI and GOA. The teams spent considerable time discussing use of the age data in the models for each area. Concerns were expressed that there might be a serious bias in age data, which may not be constant across ages. It is not currently possible to estimate bias within the model, except iteratively. Therefore bias correction is incorporated into the ageing error matrix. Concerns were expressed over how this is accomplished. One alternative could be to use only length-based models. One of the issues noted with using the age data is that, while the ageing error variance is

externally estimated, the bias correction is based upon the best fit of the model. However, the cohort variation in growth seems reasonable, but likely interacts with this bias correction. This is the first time cohort-specific growth and ageing bias has been included in the model.

The teams discussed the pros and cons of using the age data versus defaulting to a length-based model only (noting that a pure length-based model was not available in the GOA). There is a high correlation between observed and estimated size at age 1 in the BSAI but not in GOA (however, the GOA model does achieve a high correlation between observed and estimated size at age 2). Size-at-age data are included in models B1 and B2. Plan team members suggested that it is inconsistent to use some, but not all, of the age data.

Comments from the public suggested that ageing bias may be better for mean size at age data than for composition data. Modes present in survey data often fail to match observed size at age data. However, the model-estimated sizes at age can match the modes if bias is included. It was noted that the ageing error variance may be confounded with the ageing error bias. The ageing-error variance is included, but unadjusted after estimating the bias iteratively. This raises the possibility that the ageing error variance or the bias estimates may be incorrect.

Individual model choices, recommendations for the subsequent assessment and specifications for BSAI and GOA are contained in the individual team minutes.

Additional comments regarding models and OFL and ABC recommendations are summarized in the minutes of each Plan Team.

November 10th 2009 version

Draft Agenda November 2009 Groundfish Plan Teams

Draft Agenda and Schedule

	Joint Groundfish Plan Teams Traynor room 2076 AFSC	BSAI Groundfish Plan Team AFSC Traynor Room 2076	GOA Plan Team Observer Room 1055
Monday Nov 16th	9am Introductions, adoption of agenda, Council actions, Review of report summaries, minutes, assignments EFH FMP review plan Sablefish Grenadiers		
	1pm 2009 SSL survey update Halibut DMRs Ecosystem assessment report		
		3pm Greenland Turbot	Skates, Atka mackere
Tues Nov 17th		9am Pollock: Aleutian Islands Bogoslof EBS	Arrowtooth flounder, flathead sole, shallow-water flatfish
		1pm Atka mackerel Off year reports other rockfish, POP, Northern rockfish, red rockfish	Deep-water flats (Dover sole), rex sole, demersal shelf rockfish thornyhead rockfish
Wed Nov 18th		9am Yellowfin sole, rock sole, flathead sole, Alaska plaice, arrowtooth flounder, other flatfish	GOA pollock
		1pm Skates, sharks, sculpins, octopus, squids	Pacific ocean perch, northern rockfish, shortraker, rougheye, other slope rockfish, pelagic shelf rockfish (PSR)
Thurs Nov 19th	9am Pacific cod		
		1pm Table preparation, report writing report finalization	Other species: sharks, squid, sculpin, octopus
Fri Nov 20th		9am Continue as needed	Table preparation, report writing report finalization

NOTE: The above agenda items may not be taken in the order in which they appear and are subject to change

Plan Team Economists Workgroup Meeting
November 13, 2009
AFSC Seattle

November meeting attendees
Mike Dalton (GOA Groundfish)
Brian Garber-Yonts (Crab)
Joshua Greenberg (Crab) – via telephone
Alan Haynie (BSAI Groundfish)
Scott Miller (Scallop)

In September, the Joint Plan Team heard discussion from Plan Team economists about ways for economists to work together to improve their contributions to the Plan Teams (see text from the September meeting minutes at the end of this document). Economists serving on all four of the NPFMC's Plan Teams held an all-day meeting on November 13, 2009 prior to the November Groundfish Plan Team meetings to expand on what this ad hoc group will do over the next year to most constructively contribute to the Plan Team process.

This is an informal group which is expected to evolve over time. The group agreed to concentrate its efforts on the following three areas:

1. Directly provide economic information important to the Plan Team process.
    a. Make recommendations to stock assessment authors on how economic information from the Economic SAFE might be included in each species stock assessment.
    b. Examine key regulations that affect fisheries (e.g., rationalization, area closures, whale predation). Economists will work with stock assessment scientists to best determine how to incorporate this information into stock assessments.
    c. Help to evaluate how industry might react to ABC choices. For example, changes in ABC/TAC have the potential to lead to fishing effort being shifted by fisheries into other target species and this should be analyzed if significant ABC changes occur.
    d. Identify current trends in
        i. Markets / prices
        ii. Processor or fishery consolidation
        iii. Permit or quota prices, where applicable and where information is available.
    e. Conduct additional economic analysis with Economic SAFE data. The group of plan team economists would serve as a peer-review body for this type of analysis.
    f. Provide an opportunity for stock assessment authors to raise questions about economic considerations of fisheries.

2. Propose and discuss the methods that are used in economic analysis to better inform the plan team process
    a. Examine and provide on-going peer-review input for economic documents for inclusion in the Economic SAFE reports. For example, other economists will provide collaborative input into Brian Garber-Yonts's development of the crab SAFE.
    b. Provide peer-review and discussion body for the examination and consideration of economic methods for application to problems.
    c. In the future, provide a forum for the consideration of the role of non-economic social sciences in the Plan Team process.

3. Provide resources to help non-economists on the plan team and elsewhere to better utilize and understand economic data in the Economic SAFE and other economic information that is commonly presented in the Council process.
    a. Write an overview of how to better understand the role of economics in the plan team process
    b. Work with Plan Team and others to help ensure that fisheries managers have the knowledge and tools available to interpret economic data.

Provisional Group Calendar
The group has proposed the provision calendar for the group's activities.

- *January: proposed workgroup planning meeting.* Workgroup members will meet to discuss plans for the year and will communicate the results to Plan Team chairs. Additionally, prior to this meeting we will make a formal request to stock assessment authors whether there are particular economic issues for which they would like assistance.
- Spring plan team meetings – members will contribute as appropriate
    - February – Scallop PT
    - March 29, Crab PT 1
    - May 10, Crab PT2
- *Early summer (June?) workgroup call or meeting.* The group will review current work and make plans for September presentations.
- *September –Joint Plan Team Meeting.* Workgroup members will present output to the Joint and separate plan teams, as relevant.
- *November Groundfish Plan Team Meetings.* Information from the September plan team meeting would be revised and/or expanded.

Current Contributions
Members of the workgroup are currently working on the following plan team related work:
- Contributions to the Economic SAFE
- Vector auto-regression (VAR) Groundfish price predictions
- Decomposition of changes in revenues in response to Joint Plan Team Input.
- Crab rebuilding analysis
- Crab Economic SAFE in development
- Members of group working with crab stock assessment authors to consider how economic content might potentially be considered in the incorporation of management uncertainty into ACL/ACT.

Notes from the September Joint Plan Team Minutes

Role of economists in Council plan teams

Mike Dalton and Alan Haynie presented a proposal from the current plan team economists for an approach to incorporating greater socioeconomic analysis into the plan team process and reports. Noting that a substantial quantity of social and economic analysis is performed in the course of Council decision-making, the SAFE documents themselves are comprised almost entirely of stock assessment material. In response to SSC recommendations made about the 2007 Economic SAFE, a variety of directives in both the BSAI Crab and BSAI/GOA Groundfish FMP's, and

NMFS FMP and national standards guidelines, greater development of a socioeconomic fishery evaluation component of the respective SAFE documents is needed. Although this has been recognized for some time, progress has been limited due to the time constraints in the plan teams' schedules. There is also a lack of critical mass of social/economic scientists on any one plan team, and lack of specificity in regard to scientific and analytical objectives for fisheries evaluation relative to the biological metrics specified in the stock assessment process. To improve this process, the plan team economists propose that they form a working group to provide guidance to the plan teams on specific economic and social science products to be included in the SAFE documents and to serve as a technical review panel for socioeconomic science in the plan team process. It is anticipated that the ecosystem considerations appendices to the SAFE chapters will be used initially as a model for social and economic analyses to be produced for the plan teams. The working group will meet in November to develop a work plan and schedule for the next year, and will meet periodically as needed to complete analytical and reporting tasks on an annual basis. It is likely that the efforts of the group will be produced for the September plan team meeting, but more consideration will be given to the most effective timing of the group's efforts.

Minutes of the Plan Team for the Groundfish Fisheries of the Gulf of Alaska

AGENDA C-3)(a)(2)
DECEMBER 2009

November 2009

North Pacific Fishery Management Council
605 W 4th Avenue, Suite 306
Anchorage, AK 99501

The meeting of the Gulf of Alaska groundfish Plan Team convened on November 16th, 2009 at 3pm at the Alaska Fishery Science Center, Seattle, WA. Members of the GOA Plan Team in attendance included:

Jim Ianelli	NOAA/AFSC REFM (GOA co-chair)
Diana Stram	NPFMC (GOA co-chair)
Sandra Lowe	NOAA AFSC REFM
Jeff Fujioka	NOAA AFSC ABL
Jon Heifetz	NOAA AFSC ABL
Nancy Friday	NOAA AFSC NMML
Cleo Brylinsky	ADF&G
Tom Pearson	NOAA AKRO
Nick Sagalkin	ADF&G
Mike Dalton	NOAA AFSC REFM
Leslie Slater	USFWS
Paul Spencer	NOAA AFSC REFM
Ken Goldman	ADF&G
Sarah Gaichas	NOAA AFSC REFM
Bob Foy	NOAA AFSC RACE

Team member Steven Hare (IPHC) was absent while Joint Plan Team member Yuk Cheng attended primarily the BSAI Plan Team meeting. Approximately 10 state and agency staff and members of the public also attended. The agenda and attendance for this meeting is attached to the Joint Plan Team report.

General Plan Team recommendations

The GOA Plan Team recommends the following for future developments of the SAFE report chapters (applicable to all assessments unless noted otherwise):

1. That the AFSC coordinate with the Regional Office a source for catch data to ensure that authors use the same set of reports for recent years (e.g., for the current and previous year). This also applies for prohibited species catch (PSC) tables as well as non-target species catch.
2. Resolve discrepancies in use of terms 'bycatch' and 'incidental catch' in each assessment. These terms have different perceptions and care should be taken for correct and consistent use of terminology.
3. For fisheries where bycatch in halibut fisheries apply, authors are requested to coordinate with the Regional Office or other appropriate agency to account for these removals.
4. Some rockfish assessments may have revised maturity estimates and the Team would like to review comparisons of these studies in September 2010. In particular, locations and timing of samples, and recommendations from assessment authors for approaches to modifying assessments.

Economic overview

Mike Dalton presented an overview for the SAFE introduction of changes in first wholesale revenues across species and product groups in BSAI and GOA groundfish fisheries from 2007-08. This summary of economic information represents a new contribution for the SAFE. The Plan Team questioned to what extent these trends might hold up at the ex-vessel level as well as the reported first wholesale level and noted this would be worth evaluating in the future. All data were extracted from COAR and WPR reports and reflect only annual price changes (i.e., seasonal effects are aggregated because COAR is an annual report and the WPRs do not contain information on prices or revenues). Plan Team members questioned the sensitivity of the results to the residual term used and the way it was apportioned to separate effects. Mike noted this is only an issue with respect to the sensitivity of the magnitude of each effect, and only if the residual term is large. A robust result was that price and quantity effects usually have opposite signs, presumably due to demand-side effects, which may act generally to cushion the impacts on producers of a reduction in TAC, or conversely, offset some of the benefits of increased catch. Plan Team members commented that resolution of these effects at the individual species level would be interesting. In 2007-08, total wholesale revenues from Alaska groundfish increased despite substantial reductions in pollock TACs. The increase in first-wholesale groundfish revenues in 2007-08 was seen to be driven by a strong positive first-wholesale price response for pollock surimi. The Plan Team raised questions about the role of yen-dollar exchange rates in this result. In particular, the yen strengthened against the dollar in 2008. Mike indicated that he would follow up on those questions after the meeting. An analysis of exchange rates and the Japanese surimi market in 2008 is included as an addendum at the end of these minutes.

1. Walleye Pollock

FOCI recruitment forecast model

Bern Megrey provided an overview of the recruitment forecast model for the 2009 year class of GOA pollock which included discussion of the input data to the model, the forecasting process, and new initiatives for the project. Input data include age-2 pollock abundance, spawning biomass, and physical variables. A conceptual model from adults to recruits is used with estimates of mortality (not constant). In 2009, the GOA freshwater input index, which positively corresponds to eddy formation and larval concentration in Shelikof, indicated slightly above average recruitment. Wind mixing, which corresponds to increased primary production and favorable first feeding, predicted slightly below average recruitment

for the 2009 year class. One hypothesis posits that before 2000 the environment controlled recruitment whereas predation is now the primary controller of larval pollock survival. Recruitment appears to be about average based on time series of larval abundance and distribution and the recruitment time series. The transition probability is derived from a S-R model. Weighted average of all these data elements suggests that recruitment is average to slightly below average in 2009. A number of methods have been used over the years but the forecast accuracy has been only about 60-70% using these analyses. The future plan is to make the recruitment estimation dynamic where the initial recruitment estimation is constantly refined throughout the year as data becomes available. Additional experimental work and a life stage recruitment model are being planned. The Team appreciated the presentation but noted in later discussions that this prediction had no impact on decisions made by the assessment author for management guidance. The Team noted that the FOCI work may be better applied toward medium or long-term guidance in general expectations of recruitment and asks that the SSC weigh in on the perceived value of the FOCI work on fisheries management.

Nick asked about specific data source locales and how they apply over the entire region. Jim asked and there was a discussion about the importance of a temperature inversion in the surface waters in 2007 and 2009 surveys (referencing this year's Ecosystem Considerations section). Bern said that it was not clear if the recruitment forecast was sensitive to this phenomenon.

GOA Pollock Assessment

Martin Dorn presented the stock assessment for GOA pollock. New data included updated fishery 2008 total catch and catch at age, winter 2009 Shelikof EIT survey with the Oscar Dyson correction, summer 2009 NMFS bottom trawl and ADFG survey. The 2009 NMFS bottom trawl survey biomass estimate was double the estimate from the 2007 survey. The 2009 ADFG survey biomass also increased by 43% over the 2008 estimate. The winter spawning surveys indicated a modest increase but still at near historically low levels.

Bycatch and incidental catch: the pollock target fishery catch of FMP species is mostly (95%) pollock. Bycatch of non-target species in 2009 were dominated by eulachon, grenadier, and "other". Bycatch of PSC species included halibut and salmon at levels consistent with previous years.

Trends: Biomass and yield projections indicate increases due to recent data. The initial estimate of the 07 years class is 1.7 times the average but this estimate has substantial uncertainty. The time series of total catch has been close to the TAC since the early 80s.

Spatial distribution: The 2008 fishery indicated that 4 year old pollock were mainly in area 620 whereas three-year olds dominated the catch elsewhere. There appears to be a slight upturn in Shelikof, Shumagins, and Sanak, but not in Chirikof. NMFS bottom trawl survey showed typical distributions of pollock but a general increase over recent years. ADFG survey size data indicate larger fish than normal.

Fishery catch: the trend in the percentage of females and mean age of the catch was similar to recent years whereas the proportion of age 8 and older abundance is increasing. The age-diversity was stable relative to the past year. The question arose if changes in survey availability may be due to changes in temperature. There was speculation that the temperature inversion may affect fish distribution but further investigations are needed.

There was some discussion about the pollock catch in the fishery at mouth of Shelikof and the likely substantial movement of the stock in the area.

A clarification on the increased levels of 2008 discards in Table 1 from area 610 than in previous years. It was checked and that this was from the Pacific cod fishery and perhaps from extrapolations from limited observer data. Also, industry representatives noted that in Kodiak discards (mostly flatfish) occur due to regulations. It was also noted that pollock was commonly taken incidentally in the POP and flatfish

fisheries. Trip limit regulations on pollock may also affect discards. Regulations went into effect in C and D seasons. Initially the rule was 300,000 lbs per trip. This changed so that the limit is per day and if that catch is exceeded, discards will result. The Team would like to see an accounting of the discard by gear and target to better understand sources of discards.

Model structure

Martin used an age structured model coded in ADMB as in past years. This model has been extensively evaluated under a Management Strategy Evaluation that was completed in 2009 (Dr. T. Amar's PhD dissertation). Natural mortality was fixed at 0.3. Recent annual estimates of maturity curves have been close to the long term average. In 2009 it was low for smaller animals but then tracked the long term average so the long term average was used in the model. A question was raised about why maturation schedules are different in the EBS compared to the GOA with the age at 50% mature being 1-1.5 years older in the GOA. Density dependence may play a role in addition to growth characteristics. However, the underlying cause for the difference is unknown.

Variance assumptions and statistical weighting: Future analyses may focus on assessment of effective N for specific data sets. Sampling errors alone were used to weight the survey biomass estimates. The Team asked the author to look at the difference sample sizes used for variance assumption among the likelihood components.

Model fits: Fishery Age composition predicted vs observed fit well. Survey age composition fits are more noisy. EIT survey biomass fit is outside the 95 % CI in recent years. Bottom trawl survey fits are lower than the survey. Martin experimented with forcing the model to fit the 2009 bottom trawl survey estimate but it resulted in a very poor fit to the Shelikof Strait data set. Fishery selectivity shifted with fishery changes in mid 80s but has been fairly stable.

Martin looked at the assumption of fixed q via likelihood profiles. Results indicate that a somewhat lower q results in better fits to the data, but only modestly so. As with previous assessments, a conservative approach was adopted which fixed q at a value of 1.0 for the preferred model.

Model performance: Spawning biomass has been stable in recent years and is slightly below $B_{35\%}$. The 2-year old recruitment appears to be increasing in recent years and the retrospective patterns appear to be balanced.

The Team inquired about data sources that support increases in 2 year olds compared to the 2008 assessment. Martin responded that the data is coming mainly from the Shelikof Strait survey. The Team noted that there are data on maturation rates by age for a number of years but that for reference points, a constant average was used. The author noted that annual estimates are variable. The Team asked about PWS data and if they were included and were informed that the data were included and in future, these data will appear in the Federal Catch Accounting System. The 2010 PWS GHL was rolled over from 2009 due to changes in the ADFG trawl survey. A winter acoustic survey will be done in PWS and Kenai Peninsula this next year to look at relative numbers.

Pollock ABC recommendations

The Team endorsed the author's recommended ABC of 77,150 t (up from 43,000 t in 2008) and OFLs for 2010 and 2011 noting the ABC recommendation incorporates fixed trawl catchability at 1.0, uses the average recruitment instead of the model estimate for the 2007 year class, and considers a different harvest control rule that

The ADFG GHL for PWS is 1,650 t so the actual 2009 recommended ABC is 75,500 t.

Southeast Alaska assessment:

A Tier 5 calculation is employed for the Southeast Alaska portion of the stock. The size composition was dominated by smaller fish, there is no fishery, and the biomass trend is stable.

Area apportionment

The allocation is based on the distribution from the trawl survey. A four year average is used. Chirikof numbers went up in 07 and 09 compared with Shumagin and Kodiak. Relative portion of 2+ biomass at spawning assessed in each survey and then totaled to get the apportionment by management area.

Plan Team recommendations for the next assessment:

1. The Team agreed that someone should look at impact trawling of the gear as a research priority.
2. The Team would like to see an accounting of the discard by gear and target to better understand the source of changes in recent years in the Shumagins and Kodiak.
3. The Team asked the author to look at the difference in data input sample sizes used for variance assumption among the likelihood components.
4. Continue to evaluate estimating survey catchability
5. Reevaluate bottom trawl selectivity
6. Start model at age -1 rather than age-2 (to allow for better treatment of recruitment than currently)
7. Incorporate ADF&G information on PWS as available.

2. Pacific cod

Grant Thompson provided a review of ageing data as implemented in GOA Pacific cod assessment. In September, Tom Helser presented issues surrounding age-determinations including the "edge-effect." This effect deals with otolith growth past the deposition of an annulus. This information led the Plan Team in September to ask Grant to apply a bias correction term to better accommodate using age data, which he did. In the 2008 assessment, the age data for most models were heavily down-weighted. The Team discussed developments of the model and endorsed B1, which did not down-weight the age data, for ABC recommendation purposes. The category of "A" models retained a number of issues identified last year (though the Team appreciated having them presented for comparative purposes).

Paul Spencer noted that the bias correction factor estimate may not be having the desired effect and may be due to spurious model factors rather than specific age-error bias. The Team encouraged pursuit of age-validation studies for young Pacific cod so that the correction factor can be better evaluated.

The Team discussed key differences from the "A" set of models including: cohort-specific growth, not allowing selectivity to be estimated in final year. The Team's choice of model B1 was due to discomfort in ignoring age data (particularly since some resolution of the edge-effect has been achieved). While the bias correction as applied may be imperfect, the Team recognizes this is a step in the right direction and works within the constraints of the software being used. The Team anticipates future work with ageing and application of the age data.

Population trends indicate that, based on survey results and anecdotal reports, the abundance of pre-recruit-sized Pacific cod is high. As such, the near term projections are for an increasing population biomass.

Grant provided ideas for model evaluations in future: to re-evaluate q and M (jointly), investigate alternative stock-recruit relationships, evaluate fuller specifications of process errors, and examine weights given to datasets. Mark Maunder commented on whether redefining harvest control rules so that harvest rate remained constant was tenable since if the goal of attaining $B_{40\%}$ (or B_{msy}) should occur without changing the harvest rate. This may be a Tier 1 qualification issue but could also be reexamined in conjunction with revised control rules for ACL analysis (anticipated to occur in the next few years).

The Team recommends use of model B1 for specifications for 2010 and 2011. The Team recommends use of the same apportionment methodology as per previous years by averaging the biomass distribution from the three most recent surveys.

Plan Team recommendations for the next assessment:

1. Include a model run without age data. It was noted that developing a totally age-free model may be difficult and that some things may require constraining (e.g., variability in length-at-age).
2. As a low priority, it may be useful to evaluate a model run from the preferred configuration but only advanced by one year for comparison with projections. For example, for the preferred 2010 assessment model, re-run with (expected) catch for 2010 and 2011 as new data inputs as if the assessment was being conducted in 2011. The idea being to compare projected numbers at age (for the same catch assumptions) with modeled numbers at age in 2011.

3. Sablefish

Discussion of sablefish are presented in the Joint groundfish Plan Team minutes.

4. Deep water flatfish complex (Dover sole and others)

Buck Stockhausen provided an overview of the GOA deepwater flats assessment. The deepwater flatfish complex includes Dover sole, Greenland turbot, and deepsea sole. The catch for the complex has been well below ABC and TAC. Proposed ABC and OFL are lower for 2010 based on the same model used in 2007 for Dover sole with updated data, largely driven by a change in the estimated survey selectivities from new survey age data.

The catch in the complex is almost entirely Dover sole, with some catch of deepsea sole each year and intermittent catches of turbot. Buck noted that the 8 t of deepsea sole caught was in excess of a Tier 6 OFL of 6 t for this species, but the Team commented that this is not a "functional" OFL because it is only one component in the total OFL for the complex and the complex is managed on the basis of the total OFL, not OFL's for individual species. Catch of the complex has been concentrated in CGOA. Most catches for Dover sole have been off Kodiak in 2008-09, but there were also some in the EGOA during 2007. Dover sole size compositions from the fishery have not been well sampled in recent years (and there are no fishery age compositions for any of the deepwater flatfish). The fishery size sample for 2009 was somewhat improved over 2005-2008, but coverage was still spotty. There is very little prohibited species bycatch in this fishery.

The groundfish surveys sample Dover sole well, but sample Greenland turbot and deepsea sole poorly. Size compositions from surveys for Dover sole do not show many modes indicating recruitment. Age compositions from the 2003-2007 surveys show the 2000 year class moving through the age compositions. Recent age compositions have decreased the estimate of the magnitude of the 2000 year class. Survey biomass distributions show a fairly large pool in the northeastern GOA which was not targeted by the fishery off Kodiak this year.

The model used for Dover sole was similar to that shown for flathead sole, including the new male selectivity scaling option, but also added double normal functions for selectivity options. There is no stock recruitment relationship in the model; fits are to catch history, survey biomass, size comps for fishery and survey, and age comps for the survey. Age comps from 1987 and 2007 surveys were added this year. Size comps for years with age data are downweighted. The double normal, a flexible but parametric way of describing selectivity curves that go up to asymptote but then decrease for higher ages, was used to test dome shaped selectivity functions for fishery and survey data. Seven different model configurations were examined, all with different forms for selectivity patterns. Freeform selectivities are unconstrained parametrically, smoothly varying with estimated parameters at each age. The model software (AD Model

Builder) could not calculate Hessian matrices for the models with freeform selectivities, so no estimates of uncertainty were available for models using that (perhaps flawed) approach. For the remaining models where the hessian was valid, at least one parameter ran to the bounds set on it; the base and scaled logistic models hit bounds with slopes of logistic selectivity curves, going almost vertical. Double normal models also hit parameters bounds in differing respects. Buck ended up going with the base model, although it had the worst overall likelihood, because it was the preferred model from the last full assessment (2007) and he had highest comfort level with it. Fishery selectivity curves in the base model are essentially step functions. Separate selectivity curves were estimated for shallow and deep surveys. Males were estimated to be fully selected at much younger ages than females in surveys. This pattern is the same for shallow and full (deep) surveys.

Because the recommended (base) model has parameters hitting bounds, uncertainties are underestimated. Despite differences in selectivities, all of the models estimated fairly similar trends in biomass and recruitment. Overall levels of biomass do change between models. The base model is most conservative in terms of low biomass estimates and F as well as overall model development, so the author picked that one for management recommendations. The model is predicting flat total biomass, and a spawning biomass that has been declining but has now apparently bottomed out. New parameters estimated for selectivity based on updated age data brought the whole biomass trend down even though the model is identical to the model used in the previous full assessment. Fishery selectivity curves were similar but survey curves were different between assessment years. Plan Team members asked why the shallow surveys' selectivities were asymptotic when you might expect that one to be dome shaped if they go deeper with age. Recruitment patterns are similar but the current assessment has overall lower mean than past two and the 2002 or 2003 recruitment was estimated to be smaller than previously. Dover sole are not experiencing overfishing and are not overfished.

The Plan Team discussed using Tier 5 as an alternative if selectivity issues were considered important. Tier 5 for Dover sole would be less than Tier 3 using the same M and biomass. Tier 5 estimates might also be investigated for Greenland turbot and deepsea sole. For these two species, there were concerns as to whether the bottom trawl survey would see them regularly (i.e., reliability) or whether they are at the edge of their ranges (turbot). Under ACLs these two species would not qualify as ecosystem components if they are regularly caught. The Plan Team discussed whether the standard Tier 6 catch history was meant to be over a period where we didn't have a directed fishery (as is the case for deepsea sole and Greenland turbot in the GOA). Julie Bonney remarked that there is not much of a market for Dover sole, and no real targeting on the entire complex. The Plan Team was concerned that we have a perception problem if we exceed the OFL with the catch for a subcomponent.

The Plan Team and author discussed alternative methods for selectivity estimation within the Dover sole model, and had recommendations for the author (see below). Comments on other models included discussion of whether freeform and double normal selectivity estimates are saying something dome shaped is going on in the fishery, and is there a biological basis to support this? How are assessments done for Dover sole on the West Coast? Is there any evidence that there is dome shaped selectivity or suspect a change in selectivity beyond age 20. The Team suggested trying runs with selectivity fixed for older age group or giving a rationale why it would change between age 30 and 40. Alternatively, something simpler with limited data might be good for (base model) fishery selectivity, such as fixing the slope and then estimating the inflection. The Team would like to see a model that where the parameters are away from the bounds and the Hessian matrix inverts successfully.

Plan Team recommendations for the next assessment:

1. Attempt to include fishery age data in the model where available.

2. Explore simplifications such as setting fishery selectivity to equal survey selectivity, estimating inflection parameters given a fixed slope parameter, and estimating slope parameters in later phases.
3. Investigate the interaction between the selectivity and any potential mis-specificaton of the age transition matrix.
4. Next full assessment should include survey CVs for all years as well as estimates of M (or appropriate proxies) for Greenland turbot and deepsea sole for consideration in Tier 5 calculation.

5. Shallow water flatfish

Jack Turnock presented an overview of the shallow water flatfish complex assessment. This is a managed complex of Tier 4 and Tier 5 stocks. The decrease in recommended ABCs and OFLs is due to a lower survey biomass estimate in 2009. It was noted that Dr. Teresa A'mar (recent AFSC hire) will likely be taking over the assessment next year and will be splitting out northern and southern rocksole from the remaining species in this group. Catches for rocksole were split out from survey in 1996, however splitting catch prior to this might need to be done.

Plan Team members questioned the assumed values for $F=M$ for the other species in the complex and asked what it is actually based on. No ages are available specific to those species so a default value is used. It was not yet determined how the subsequent assessment and management would be done, i.e. whether or not modeling would then be managed within complex (as per Dover sole in DWFs complex) or if rocksole would then be a separate managed category. There were questions raised on the ability to identify northern and southern rock sole. This is purportedly easier in survey identification but there may be possible complications in fishery catch identification.

Plan Team recommendations for the next assessment:

1. Include table of bycatch/incidental catch from directed fishery (see also general recommendations for all assessments).

6. Rex Sole

Buck Stockhausen presented an overview of the rex sole assessment. This assessment employs the same model and approach as for flathead sole. There are indications of observed changes in growth trends between eastern and central GOA. The author recommended the base case model but evaluated alternative models with similar male selectivity scaling as with flathead sole.

The SSC previously recommended using the maturity curve as fishery selectivity for both sexes. This results in an apparent Tier 3 calculation. The Team discussed whether there is a reliable $F_{40\%}$ using a selectivity pattern equal to the maturity. It is difficult to defend that fisheries would necessarily have a selectivity pattern approaching the maturity curve. If selectivity was a result of availability then selectivity would not change no matter how hard they fish (i.e., small fish unavailable). The Team discussed the use of a Tier 5 calculation using the modeled adult biomass (rather than survey biomass) for harvest specification purposes, or a straight Tier 5 calculation on the estimate of survey biomass.

The Team agreed that reliable reference fishing mortality rates ($F_{40\%}$, $F_{35\%}$) are not available. The Team recommends specifications based on a similar approach used the previous year with a Tier 5 calculation based the model results of adult biomass.

Plan Team recommendations for the next assessment:

1. Fishery age-data should be included in the model. Prioritization should be given to evaluate selectivity by age rather than size.

7. Arrowtooth flounder

Jack Turnock presented an overview of the arrowtooth flounder assessment. There were no changes to the assessment model. 2009 survey biomass and length data were added to model. No new age data were available. Population biomass estimates for the stock are finally starting to level off resulting in a slight decline in ABCs and OFLs. The Team concurred with the author's recommendation for ABCs and OFLs.

Plan Team members questioned whether there were any changes in retention in the fishery? Julie Bonney noted that due to the combination of groundfish retention standard requirements in the Bering Sea combined with amendment 80 fishing practices, vessels are retaining more flatfish in the Bering thus demand for GOA arrowtooth has declined due to higher market value for Kamchatka flounder in the Bering Sea. The Team discussion theorized that arrowtooth in the GOA might be reaching its carrying capacity. Bob Foy noted recent studies indicating potential temperature effects.

8. Flathead Sole

Buck Stockhausen presented the assessment for flathead sole. No major observed changes in the spatial distribution of the stock in the last 5 years. Size compositions have been downweighted for years where age compositions are available. Survey catchability was fixed at 1. Size compositions are consistent among years; there is no indication of recent recruitment into fishery. Age compositions from the 1990, 1999, and 2007 surveys have been added.

The Team discussed changes in selectivity and particularly the new option presented for male scaling. The base case model is the 2007 preferred model with the same asymptotic selectivity for both males and females, versus a scaling selectivity for males (fishery and survey). There are noted issues of timing of the survey vs. the fishery with the fishery occurring at different locations and times resulting in potential differences in selectivity patterns. Males appear more available to the fishery than to the survey relative to females. The estimated $F_{40\%}$ is unaffected however because it is based only on females not males.

The Team noted that alternative model 1 (with scaled male selectivity) resulted in improved fits to male size and age compositions relative to the base model. There are large changes to model by virtue of change in selectivity scaling. This was a concern to the Team as it is a borderline new model, and the Team expressed concern with the lack of age data for fishery. The author noted his plan in the future to have length or size-based selectivity curve for next assessment. The Team noted that concurring with the author's preferred model choice would be essentially an interim model in this year only with plans for another model for next year's consideration.

The Team was very interested in the new changes as shown in the assessment and the implications for selectivity changes. However, while the Team commends author for work on the model, the Team recommends the use of the base model for specifications, until a new model is developed more fully and looks forward to inclusion of additional data and model changes next year. The Team would like to review this new model iteration in September.

Plan Team recommendations for the next assessment:

1. Use of a length-based selectivity curve. The mechanism for differences in selectivity is unclear.
2. Need to obtain and utilize ages from fishery.
3. The new model should be run on the previous year's data to best represent a true retrospective comparison.
4. Evaluate fixing Q for males and solving for females as well as fixing female selectivity at 1 and scaling both males and females in the survey.

Slope Rockfish

9. Pacific ocean perch

An overview of the POP assessment was presented with an extensive change in how selectivity was modeled. The authors modeled selectivity in three time stanzas based on evidence presented for changes in the fishery. This change resulted in a better fit to fishery ages, had nine fewer parameters, and survey catchability reduced below a value 2.

The Team discussed the catch by depth, noting that depth of fishery affects age-availability of the survey (with younger fish tending shallower). In recent years, the distribution of the species appears more wide-spread in the surveys. Consequently, the survey CVs are lower (i.e., no longer dominated by few large tows). The Team discussed how survey biomass precision could affect the perception of trends.

The Team concurs with the author's changes in the model, noting this has a large effect on the reference rates. The author plans to use this model for the 2011 assessment. The projected catch for 2010 and 2011 accounts for the the TAC being unharvested in SE GOA. The Team concurs with ABCs and OFLs for 2010-2011 and apportionments based on weighted averages of survey biomass estimates.

Plan Team recommendations for the next assessment:

1. Show comparisons of ages by depth and vessel types
2. Modify figure 9-23 so clear that control changes rates at 40% (not 35% as appears).
3. Include fishery age composition by depth.
4. Evaluate potential to estimate catch uncertainty (future assessments) in management uncertainty.

10. Northern Rockfish

Dana Hanselman presented the GOA Northern rockfish assessment. This assessment featured an update to the 2007 assessment model, and updated 2008 catch data and 2009 survey biomass data.

The biomass estimate was down but there are usually highly variable surveys for northern rockfish. Catch before and after the rockfish pilot program has a similar distribution, perhaps more inshore, and the fishery was generally catching less northern rockfish since the pilot program began. Age compositions show a couple of big year classes, but we don't see young fish early on, and as with other rockfish the length frequencies are not informative. Trawl survey biomass estimates in 1999 and 2001 were driven by huge single tows. In 2003 CVs were lower with only a medium spike in catch. In 2005 and 2007 also had huge single tows, but the biomass was spread out over more stations in 2009. The age compositions suggest that old fish are relatively abundant, which could reflect poor recruitment or that fishing mortality was low enough to ensure survival of older fish.

The Northern rockfish model has changed approaches in recent years with respect to how the multinomial likelihoods are weighted (via effective sample sizes). The basic issue is due to sampling, because almost all the ages or lengths were taken from a few hauls. Previously approaches that used hauls as the sample size or the number of ages and lengths were inconsistently applied. This year a hybrid approach was adopted and standardized for all components. Haul and total sample size were included by taking the square root of the product of the two, then scaling to a maximum of 50. The change resulted in a better balance on age and length composition fitting, and the survey data fit slightly better (but still quite poor). Selectivities were specified to be logistic. The Team noted that age and length data were fitting ok, but that plus groups show a strange pattern. The effective N was closer to input for fishery and survey age comps, a bit off for fishery size comp, but overall better balance. The model fits the smaller more precise survey estimates well. Catch data fits well. Recruitment estimates show that 1984 and 1994 year classes were strong,

however a big plus group in age compositions may hide other recruitment information. The authors might try to move the plus group to 30 or more instead of 23, to get more recruitment info.

Model estimated total biomass dipped in the 1970s, peaked in the 1990s, and with not a lot of apparent new recruitment is dropping slowly at present. Roughly decadal recruitments have been observed but not yet in the 2000s. The swath plot incorporating model uncertainty suggests just as much uncertainty in the present as in the future, unlike for other stocks.

The authors recommend and the Plan Team agrees with using the new model to balance size and age comp weights. The 2010 ABC of 5,100 t is higher than last year, but given model projections we are expecting a decline in 2011. A new maturity publication was brought to the attention of the authors (during crunch time) which suggests that the age at maturity is much younger than that used in the model. Paul Spencer commented that AI northern rockfish and POP also have new maturity curves. This will be evaluated in full during the coming years as the information was received too late this year.

Plan Team recommendations for the next assessment:

1. The Plan Team supports the assessment authors' suggestion to change the plus group for age compositions from 23 to 30 years.
2. The Plan Team also supports investigating a recent publication which suggests changes to the maturity curve for northern rockfish, which might be considered in an upcoming model.
3. The Plan Team encourages the authors to bring relevant age data analyses and maturity comparisons forward next September during the off year for this assessment.

11. Rougheye and blackspotted rockfish

Kalei Shotwell presented an overview of the assessment for the rougheye and blackspotted rockfish complex. She noted that due to continued lack of confidence in field identification between the two species they cannot yet manage under separate specifications.

Team members expressed concern that species-specific identification data are in the survey database and that does not account for potential mis-identification. There is a clear high potential for misunderstanding recent survey data in the database (due to this mid-identification) as well as the fact that it is not clear that previous years 'rougheye' as indicated in the database included both species.

Team members questioned why rougheye catch is lower recently. Julie Boney indicated that the fleet is fishing off-bottom more now and rougheye is a bycatch species.

Plan Team recommendations for the next assessment:

1. Go through the stock structure template for rougheye and blackspotted species
2. Evaluate to what extent bycatch in the halibut fishery is an issue in terms of total removals. Note to coordinate with other authors regarding appropriate methodology for estimating bycatch from this fishery.
3. Note that a research priority should be to analyze genetic samples from the 2009 trawl survey.

12. Shortraker rockfish and other slope rockfish

Kalei Shotwell presented the assessment for shortraker rockfish and other slope rockfish. An aging methodology for shortraker rockfish has been developed in recent years, and age compositions from three GOA trawl surveys are now available. However, there is much uncertainty concerning the aging procedure, and an attempt in 2008 to validate the ages was unsuccessful. Consequently, production aging

has now been put on hold, and age-structured modeling for this species is not recommended until we have better confidence in the ages.

Shortraker rockfish and other slope rockfish are managed as bycatch only throughout the year. In recent years, catches have been less than TACs for both management categories. For other slope rockfish, TAC in the EGOA is set much lower than ABC to cover incidental catch needs only. Most of the biomass of other slope rockfish occurs in the EGOA. Team members questioned whether increases in biomass for shortraker rockfish over the past 15 years could be explained by low catches.

When shortraker rockfish were in a complex with rougheye/blackspotted rockfish, there was a higher economic incentive to take shortaker rockfish. The catch composition within the complex would likely find a higher proportion of shortraker in those years (prior to 2005).

The Team approved the author's Tier 5 recommendations for ABCs and OFLs for 2010-2011.

Plan Team recommendations for the next assessment:

1. Same recommendation for consideration of bycatch in halibut fishery as with rougheye and blackspotted rockfish.

13. Pelagic shelf rockfish

Chris Lunsford presented an overview of the pelagic shelf rockfish assessment. Changes in the assessment were in the modification in catch weighting, with more weight assigned to the more recent catch period. A split-catch weighted model for dusky is recommended. The Plan Team recommends reorganization of future chapters to pull dusky out as a separate assessment and move yellowtail and widow into an 'other rockfish' category.

The Team discussed the potential problems in future management under ACLs in that complexes must have similar life-history characteristics. The Team recommends the use of the vulnerability analysis to assist in grouping similar species. It was also noted that the minor species are primarily located in the eastern GOA and by default protected under trawl ban. Furthermore, moving yellowtail and widow in with other slope rockfish would effectively prohibit targeting on this species. Assessment would track individual species catch against species-specific ABCs and OFLs.

Plan Team recommendations for the next assessment:

The Team recommends reorganizing PSR assessment and management such that separate specifications would be established for dusky and consideration given to best groupings of complexes for the remaining species.

14. Demersal shelf rockfish

Cleo Brylinsky presented the DSR assessment overview. This is a habitat-based stock assessment. Abundance is estimated by the product of the number of adult yelloweye per square km times average weight of adult yelloweye times the total habitat area.

Surveys were conducted in EYKT during spring 2009. Survey results were used to update yelloweye density estimates in this area to 1,930 adults/square km, which is a decrease of 46% relative to the previous density estimate of 3,557 adults/square km from surveys conducted in 2003. Uncertainty estimates for density estimates (CVs) are reported in appendix B to the assessment. The assessment authors explored 2 possible reasons for this decrease. First, the 2003 surveys included only 29 transects whereas 37 transects were used in the 2009 surveys, representing a larger geographic area. However a subset comparison using the 2009 survey data did not reveal much sensitivity to the increase in area. Second, the 2009 surveys were conducted in May but previous surveys were done later in the year, in June or July. An analysis of month

to month variability did not rule out a lower density in May in comparison to the summer months. The general conclusion seems to be that EYKT could be more variable or the density actually did decline from 2003 levels. Because April-May may be a "deep period" for yelloweye, seasonal movement across habitats is possible, the Team recommends that future surveys aim for July if possible.

Data on yelloweye weights in the directed-fishery and incidental catch in halibut fishery were used to estimate average weight. The estimate of average weight increased by a small amount in EYKT and exhibits some variation in other regions, nothing too surprising.

The 2009 TAC is 362 and includes 3% for other DSR. The Alaska Board of Fisheries: subsistence 8mt, and a 84/16 commercial/sport split which implies 241mt for commercial sector. The Team notes that it recommends an ABC and the final TAC is determined at the December Council meetings. The allocation to subsistence, commercial, and sport sectors is a matter left to the state.

For incidental catch, a ratio estimator of yelloweye per halibut caught is derived from unfiltered halibut logbooks & surveys. These are stratified by depth.

The Team notes that most of the fishery occurs outside of state waters but the state is responsible for managing the fishery and conducting stock assessments. The sources of funding for surveys and other elements of the assessment have changed over time. Funding from federal government sources ended several years ago at which time the state of Alaska took it over. However federal funds are returning. Assessment author noted that more could be if funding were more secure. For example, there was a regular cycle of density surveys and mapping when federal funding was more secure.

There was a 40% decline in Fairweather density from the previous estimate in 2003. The previous biomass estimates were based on old data. The Team questioned whether that decline reflected a change in the entire population. However, the 2007 survey in the central region exhibited a roughly 12% decline which was understandable because this area is fished intensively relative to the other areas.

A recent change in State regulations for sport fishing require keeping the first 3 pelagic yelloweye. However no change in catch is evident in data from the sport sector which could be because discard is still possible. The Team questioned whether the habitat-based DSR assessment had ever been directly compared to results from an age-structured assessment model for yelloweye.

Plan Team recommendations for the next assessment:

1. Consider scheduling surveys later in summer in case that females are deeper or in different habitat at that time.
2. Consider possibility of an age-structured model for future

15. Thornyheads

Sandra Lowe presented an overview of the thornyhead rockfish assessment. There were no methodology changes from previous assessment. She provided an update on the contracted age study, noting the difficulty in aging thornyheads. Production aging is unlikely, but further aging work is necessary to estimate a reliable maximum age for natural mortality estimates. There is the possibility that production aging for younger individuals may be feasible.

The Team approved of the authors recommendation for OFL and ABC for 2010 and 2011.

Plan Team recommendations for the next assessment:

1. Consider possibility of an age-structured model for future

16. Atka mackerel

Sandra Lowe provided an overview of the Atka mackerel assessment. This remains a Tier 6 stock. Some 2 year olds were obtained in the age distribution data in 2008 (2006 year-class) similar to what was observed in the AI. The majority (99%) of the survey biomass estimate is from the Shumagin area, and was obtained in 2 hauls only. Some separation with larger females observed in the GOA that are not seen in AI.

Tier 6 is again recommended for this stock as the GOA survey biomass estimates are considered unreliable. The team continues to recommend a minimal TAC to allow for bycatch needs and minimal targeting. The catch in 2009 exceeded the TAC. It was noted that due to the rockfish pilot program, CPs in the POP fishery in the WGOA can remain in the area after the fishery closes and this contributes to the increased catch. Increased incidental catch was also in the pollock fishery in the Shumagins. Beth Stewart noted anecdotally that increased Atka mackerel catch is also prevalent in salmon fisheries There are some nesting sites in the WGOA, speculation that the increases are a result of both spawning and spill-over from the AI.

The team notes that there remains a prohibition on targeting due to SSL regulations. Team members commented that perhaps the MRA of 20% may be too low but no recommendations are made for any changes at this time.

The Team agrees with authors recommendation for 2010-2011 ABCs and OFLs and continues to recommend a TAC sufficient to meet bycatch only needs.

17. Skates

Olav Ormseth made the presentation on the GOA skate assessments. There were changes to biomass, catch, fishery retention data, and updated length compositions. A major new effort was a preliminary analysis of skate bycatch rates in the halibut fishery.

Total skate biomass increased slightly in the 2009 survey, but the 4 survey year average of biomass resulted in an ABC and OFL slightly lower than the last assessment. Using the groundfish catch data and the new preliminary halibut fishery estimates, it is unlikely the skate OFL was exceeded in 2008, but we can't determine overfished status for Tier 5 groups. Big skates still dominate the biomass in the WGOA, and there is more species diversity in WGOA. There was little change in the species composition of the biomass by area in the GOA over the past few surveys. Plan Team member asked whether species compositions were similar to the EBS. Olav said species composition is totally different in the EBS which is dominated by Alaska skates and with few big and longnose skates. In the AI biomass is dominated by white-blotched and Aleutian skates. In the GOA, longnose skates are widespread, while big skates dominate the western and central GOA biomass and are more patchy. Other skates (*Bathyraja spp.*) are widespread, mostly along the slope. Survey biomass trends for skates are fairly flat since 2005, and despite a small increase in 2009, have not hit the highs of 1999-2003.

The fishery is still catching big skates more than longnose skates, and both Raja species more than other skates, with catches holding fairly steady but with a slight increase since 2004 (the biggest fishery catch is still 2003). Most catch is still around Kodiak. Total catch is observed catch on maps, not extrapolated. Observed retention rates were reviewed, and have remained above 50% in most years. There is still a market for skates in the GOA with skate wings showing up in local markets around Seattle. A state waters 2009 skate fishery was held in the inside and outside districts of Prince William Sound. Big skate catch exceeded the established GHL, with harvests of 21.4 and 37.6 tons, for inside and outside respectively, compared to the GHL of 9.1 and 13.6 t for those regions. Ken Goldman reported that 3 observers rotated around vessels in that fishery, which was divided into three types: directed skate fishers, halibut IFQ holders targeting halibut, and halibut IFQ holders intending to target skates. Length data from that fishery is being worked up and will be provided. The Plan Team discussed whether the state water catches come

off the federal catch. It doesn't currently, but this could be changed for the future. This is a new issue for the Team which has never been discussed before as a directed state waters fishery is a new development.

Length distribution patterns were examined in detail in the assessment. The big skate length frequency is diffuse overall, with no apparent modes, but some possible differences between GOA areas. Longnose skates, in contrast, do show a mode across areas but not patterns by area. Fishery length compositions have shown apparent selection for larger skates relative to lengths in survey data. A past comparison of 2003 length frequencies from port sampling and some at sea sampling during target fisheries showed a tendency towards larger big skates in particular. New data was taken in 2009 on lengths of incidentally caught skates. Fisheries not targeting skates appear to get all skate sizes. Observer sampling would be likely to miss incidental catch in the small boat sector, so it was suggested that Olav look at fish ticket information for that fleet. It was estimated that only 2% of longline catch is observed, but it accounts for 25% of the cod quota. It was suggested that authors could explore different size measurements instead of total length, such as the interorbital distance, which is reportedly stable.

Olav reported that he and Cindy Tribuzio tried a new method for estimating the incidental catch of skates in the halibut fishery using the IPHC longline survey data. The first change in methodology from previous assessments is to stratify by area and depth. The second change is to filter the survey data by using only survey stations with upper 1/3 of halibut cpue. The idea is that the fishery operates in high halibut catch rate areas, so this filtering is intended to achieve incidental catch rates that would be most representative of what the fishery is doing. The Plan Team was informed later that the top 1/3 of stations is used by the IPHC in estimating the bycatch rate of sublegal halibut for their stock assessment. However, the Plan Team was uncomfortable with using this reportedly arbitrary rationale to represent incidental skate catch for the purposes of our assessment, especially given the large discrepancy between this and previous estimates using all IPHC survey stations. Cleo reported that the DSR assessment does area/depth stratify, but does not filter the IPHC survey stations in their area. The Plan Team suggested that the authors examine other information to determine whether and how to filter the IPHC survey data, such as the geographic distribution of halibut fishery, and or statistical distribution of halibut fishery CPUEs and take the halibut survey stations that match that most closely.

The Plan Team discussed the necessity for reliable estimates of incidental catch of skates in the halibut fishery for two reasons. First, the previously estimated catch of skates in the halibut fishery was so high that it would clearly exceed the ABC in any given year, so skates have been placed on "bycatch only" status at the start of the fishing year. The estimates from the new method would not allow "bycatch only" status to begin at the start of the year. Julie Bonney commented that small (<60 ft LOA) longliners have targeted skates before and are interested in doing it again. Therefore, if the fishery were to open for directed fishing it is likely there would be participants. Due to the uncertainty in the total catch, the Plan Team continues to recommend that skates be placed on "bycatch only" status. Second, under ACL management we will need to account for all removals of skates, but the discrepancies between the estimates do not allow this. The Plan Team suggested exploring multiple estimates and including results from a graduated approach, where there was no stratification, then with depth and area stratification, then with different methods of filtering the IPHC longline survey stations. Ultimately observers are needed in halibut fisheries.

Because information on stock structure is lacking, and adult survival is most important to stabilizing populations, area specific ABCs and OFLs were again recommended by the authors to minimize localized depletion. The Plan Team and public discussed again which other species have area specific OFLs (POP only) and why we don't have them for all species (some think we should). Given that there is currently no target fishery developing for skates, and that more information on incidental catch in halibut fisheries will be forthcoming, the Plan Team repeated previous recommendations on Gulfwide OFL and area specific ABCs for skates.

Plan Team recommendations for the next assessment:

1. Examine fish ticket information as well as observer catches for spatial distribution of skate catch.
2. Explore alternative methods for collecting length data that might increase sample size by improving efficiency of measurements during fishery operations.
3. Continue to develop alternative estimates for skate incidental catch in halibut target fisheries, including: exploring multiple estimates and including results from a graduated approach, where there was no stratification, then with depth and area stratification, then with different methods of filtering the IPHC longline survey stations (e.g., examining the geographic distribution of halibut fishery, and or statistical distribution of halibut fishery CPUEs and take the halibut survey stations that match that most closely).

18. Other Species

The other species complex in the GOA contains the following species groups: sculpins, squids, sharks, and octopus. In the past, assessments for these species in the GOA were done periodically since ABCs and OFLs were not specified, and provided as appendices to the SAFE report. The TAC calculation for other species (previously TAC=5% of the sum of target TACs), was modified in 2005 such that the Council may recommend a TAC at or below 5% of the sum of the target species TACs during the annual specifications process. Amendment 79 to the GOA FMP which is pending, provides for the specification of ABC and OFL for the other species complex. Until this is implemented, assessments are presented in the SAFE report to be used for the setting of harvest specifications for the other species complex which are the sums of the ABCs and OFLs of the individual species groups. The Plan Team encourages assessment authors to coordinate efforts for consistency in estimation methods of incidental catch in the halibut fishery.

18a. Sharks

Jon Heifetz presented an overview of the shark assessment. The Team discussed whether or not the observed decline in survey biomass of spiny dogfish is indicative of a true decline in abundance or a change in the availability to survey (between 2007 and 2009). An updated catch time series is used which results in large difference in catch in some years (especially in 2004). Bycatch in halibut fisheries was not included in official catch estimates.

The Team discussed whether to update average catch calculation to 2008 or stop at 2007. It was noted that the ACL amendment will establish individual specifications for sharks. Concerns were expressed on the potential for constraining fisheries. The Team noted that this highlights the importance of moving sharks out of Tier 6. The PWS sport fishery for salmon sharks is to be accounted for in ACLs.

Plan Team recommendations for the next assessment:

1. Need to clarify the amount of sportfish catch in state waters and whether or not it counts against ACLs
2. Evaluate how to better estimate bycatch by using both fishery and survey data from halibut (fishery and surveys).
3. Examination of raw observer data of catch (especially 2004) be done prior to extrapolation given variability in catch records.
4. Evaluate potential for a Tier 5 assessment for spiny dogfish and sleeper sharks. Note that no M estimate for sleeper sharks currently.

18b. Squid

Olav Ormseth presented an overview of the squid assessment. Biomass estimates for squid are considered unreliable. Catch is variable by year with a high percentage retained. Tom Pearson noted that often retention is due primarily to difficulty in sorting from pollock catch. Increasing trend in retention since 2004.

The Team discussed that for this complex, the trawl survey biomass estimate would represent a minimum biomass estimate, but that this is not sufficient (reliable) under the current Tier system for consideration under Tier 5. The Team recommended Tier 6 (maximum catch option) over the time period 1997-2007. The Team discussed that a rationale for Tier 6 management is that this amount of catch has been taken previously and was not a concern for the productivity of this stock.

18c. Octopus

Liz Conners presented an overview of the octopus assessment. The 2009 GOA survey biomass of 3,791 t is the largest ever recorded, but survey biomass estimates are still considered highly unreliable. There is a large differential of sizes caught in survey and the fishery. Much larger sizes are caught in fishery. Most (almost all) of the bycatch is in the Pacific cod pot fisheries. Most of the bycatch is probably giant octopus. Liz noted that there is some potential for future market interest. Some octopus are caught and retained and sold. So for classification purposes under ACLs, octopus shouldn't be taken out of the FMP. Octopuses may be a candidate for Ecosystem Component (EC) classification under new guidelines, but one of the criteria for EC is that there should be only minimal amounts for sale. Whether octopus meet this "minimal" criterion is not yet clear.

NPRB has funded a study on octopus which has 3 components 1) life history (reproductive seasons), 2) habitat pot gear trials, and 3) tagging pilot study. A new field guide has been published by Elaina Jorgenson. An observer special project is being conducted and observers are collecting weights, lengths and sex on octopus. Dr David Scheel of Alaska Pacific U. will be submitting an NPRB proposal for genetics studies to be conducted for stock structure information. Liz is also planning to continue discard mortality studies. Pot mortality is very low (possibly <5%) and pots are the major gear that octopuses are caught in. Tier 5 calculations are provided based on survey biomass and an estimate of M from the Hoenig method. Liz considers the biomass and the estimate of M to be unreliable. Tier 6 calculations for a 12 year period 1997-2008 provide an average catch = 205 t and a maximum catch = 339 t (2008 catch). These values were presented as 2 options for OFL. Liz recommended the maximum catch option which provides an ABC = 254 t. The Team agrees with the Tier 6 maximum catch option, but using the 1997-2007 time period for consistency. This time period was used for sharks and squid. Therefore, the recommended 2010 OFL is 298 t and the 2010 ABC is 224 t. The Plan Team discussed dropping the year 2008 which excludes the highest catch in the time series and affects maximum catch. The Team reiterated that Tier 6 is problematic.

18d. Sculpins

Olav Orsmeth reviewed the sculpin assessment. Survey biomass estimates are up from 2007; 31,330 t in 2007 to 40,950 t in 2009. Sculpins are assessment and managed under Tier 5. Yellow Irish lord are the most abundant species and most of the observed increase in the survey biomass is due to increases in Yellow Irish lords. Catches have been increasing due to catches in the shallow water flatfish fishery. The Team commented that there should be using a consistent method to estimate discard rates from the CAS or directly from the observer data base. Lengths will be obtained from the fishery in the future for plain sculpin, great sculpin and yellow Irish lord. Survey length compositions are very stable over time.

The Plan Team approved of the recommended ABC which uses F= 0.75M =0.143. This is the most conservative of the M's. The recommended ABC and OFL are higher than last year using the last 4 survey estimates for biomass estimates.

Forage fish

Olav Ormseth presented an overview of the forage fish (as an executive summary in Appendix 4) assessment. Catch of forage fish species were down from last year in the federal fishery. Olav noted plans to evaluate trends in eulachon abundance relative to pollock abundance. Forage fish are likely candidates to move to the ecosystem component under future actions to comply with new ACL requirements. Improved data and assessment of eulachon are likely to forthcoming through both the GOA IERP as well as the FATE proposal on forage fish energetics.

Essential Fish Habitat

Stock assessment authors reviewed current FMP text relating to EFH for each species or species complex and reported new habitat information available since the 2005 EFH EIS. The Plan Teams were requested to assist the Council in two ways. First, the Plan Team was asked to indicate whether the author's review is complete, and consider author recommendations on including new information since the 2005 EFH analysis. Second, the Teams were asked to assist the Council with its evaluation of whether the new information warrants Council action to initiate an FMP amendment(s). The Teams reviewed brief summaries of author recommendations on potential HAPC or EFH conservation recommendations and summaries of proposed revisions to FMP text. A summary of the EFH recommendations is contained in the attached table, and further explanation of recommendations for each species (as noted in table) is contained below.

Pollock:

The Team concurred with the author's recommendation for an FMP update for clarification and updates but low priority based on lack of changes to management.

The Team also concurs with authors recommended research priority for conducting research on impacts of trawling using mid-water gear on benthic habitats.

Sablefish:

The Teams concurred with the author's proposed changes to EFH description by the authors and its resulting prioritization for amendment analysis. The Teams discussed the need for additional research on the recovery rates of sensitive habitat features and their role in the survival and growth of the early juvenile life stage of sablefish and other species that inhabit those areas. This is particularly important in light of recent stock trends for sablefish and concerns with sablefish recruitment. The Teams noted that if impacts to habitat are impacting survival of younger sablefish then this would be important information, and noted that fishing intensity, especially on the Bering Sea shelf, is very high. In light of this discussion, the Teams concurred with the HAPC recommendation that small unobtrusive research closures in areas of extensive and intensive bottom trawling (i.e., trawling that hits the bottom) would be a responsible step for determining whether EFH is adversely affected. The Teams recommended this as a high priority for Council consideration.

Shallow water flatfish:

The Team discussed the recommendation to remove the AK Plaice and yellowfin sole descriptions from the GOA FMP. The Team questioned the purpose of defining EFH as to whether it is for all species in the FMP or only target species. Diana Evans clarified that the life history information currently included in

the GOA FMP for yellowfin sole is copied from the BSAI FMP and thus would need to be either removed or revised.

The Team did not believe it was appropriate to remove the EFH description and recommends updating the descriptions for both yellowfin sole and AK Plaice. Yellowfin sole was previously an abundant component of the shallow water flatfish complex, which is now in a declining trend. The Team noted that should the GOA fisheries ever become rationalized, there could be a greater ability to target these species in the future.

The Team received a verbal update on plans for modification of EFH for rocksole species. Previously under the EFH amendment in 2005 there was only one rocksole species identified, now this has been split into northern and southern rocksole. These two species have different early life histories. While the Team did not have a written recommendation from the author on the EFH changes necessary (and thus could not recommend prioritization) it seemed that these would represent a major change and would like be elevated in priority.

Deepwater flatfish:

The Team reviewed the nature of the proposed changes to Dover sole EFH including larval distribution updates, biological updates, and updates to age at maturity, spawning season, predators and prey, and updated literature citations. There were no major proposed changes to evaluation of fishing effects. These updates were considered a moderate priority for FMP amendments due primarily to the elevated priority conferred regarding larval distribution updates as this impacts actual EFH designation for this life-history stage.

The Team concurred with author's recommendation for Greenland turbot EFH deletion because it is sporadically present in the GOA and on the edge of its range.

Rex sole:

The Team recommended this as a moderate priority for an amendment analysis, primarily due to the need to update the larval distribution map. This could have broader implications for designation of EFH for this life history stage than the other minor proposed changes to EFH for this species.

Arrowtooth flounder:

The Team did not have written documentation of proposed EFH changes for arrowtooth flounder but were provided a verbal update on proposed changes. Based on this it did not sound as though major changes to EFH text were likely to be recommended, but rather minor updates to text and updated references.

Flathead sole:

The Team concurred with the author's proposed changes including: updating larvae distribution map from EcoFOCI; updates to habitat and predator prey associations, updates to spawning substrate; updates to the fishery description; updated juvenile distribution; but no changes to the evaluation of fishing effects. Team recommends this as a moderate priority for EFH, primarily due to the implications of the modifications to the EFH distribution of the larval life-history stage.

Atka mackerel:

The Team concurred with the author's proposed updates to nesting sites, habitat, biological and prey associations for various life history stages. The Team concurred that the nature of these revisions elevates this as a higher priority FMP amendment.

The Team discussed the fishing effects on habitat and the ability to assess relative impacts on stocks. This relates to the conclusions of no relative impact on Atka mackerel populations. This conclusion (from EFH

EIS) is based on increases in Atka population. Atka mackerel are associated with living structure but current information is not available to understand the linkages between habitat and requirements for feeding, growth, and spawning for Atka mackerel, hence the assumption is that impacts on living structure as it relates to Atka mackerel EFH is minimal and temporary.

The Team discussed the relative question of EFH research, and to what extent we are currently doing enough to identify and protect habitat, and if there are fishing impacts on habitat, are we doing enough to mitigate that effect. The Team recommends further studies on habitat impacts but in particular studies on the linkages of habitat to species productivity. Current studies do not seem to focus on this linkage.

Paul Spencer noted that Atka mackerel would be a good candidate to look at stock structure with the new stock structure template. The Team suggested the assessment author pursue this.

Shortraker rockfish, rougheye rockfish, blackspotted rockfish:

Previously Shortraker rockfish and rougheye rockfish EFH was defined together in the FMP. Under the author's revisions, they have been separated with separate maps and EFH descriptions by species. The Team recommends this as a higher priority for an FMP amendment as it requires specifying EFH for species for which it was not previously specified.

Octopus:

The author noted substantial EFH updates. Information for defining EFH for octopus however is still insufficient. The Team recommends this as a moderate priority for an EFH FMP updates. The Team was unclear as to whether or not adding general distribution maps changes the level of available from 'no information' to level 1 information. The authors noted however that general distribution maps are still insufficient information for designating EFH for octopus.

Forage fish:

The Team had a similar discussion as with octopus relative to the level of available distributional information necessary to designate as EFH for species rather than just providing an overview of distribution (i.e. to move from 0 to 1 in terms of availability of information). The Team recommends this as a higher priority amendment depending upon the availability of information to describe spawning streams and EFH for forage fish species.

Species/ complex as identified in GOA SAFE report	Species/ complex for which EFH is defined in GOA FMP	Plan Team review			
		Is review complete?	Recommendations for Council action		Other recommendations
			FMP amendment?	Priority?	
pollock	pollock	Y	Y	low	See discussion in text
pacific cod	pacific cod	Y	Y	low	Minor changes to FMP text,
sablefish	sablefish	Y	Y	high	See discussion in text
shallow water flatfish	yellowfin sole	N		high	Verbal update, see discussion in text
	Northern rock sole[1]	N			
	Southern rock sole[1]	N			
	Alaska plaice	N			
deep water flatfish	Dover sole	Y	Y	moderate	See discussion in text
	Greenland turbot				
rex sole	rex sole	Y	Y	moderate	See discussion in text
arrowtooth flounder	arrowtooth flounder	N			Verbal update provided, assumed minor edits
flathead sole	flathead sole	Y	Y	moderate	See discussion in text
Pacific ocean perch	Pacific ocean perch	Y	Y	low	Minor changes to FMP text
northern rockfish	northern rockfish	Y	Y	low	Minor changes to FMP text
shortraker rockfish	shortraker/ rougheye rockfish	Y	Y	high	See discussion in text
blackspotted/ rougheye rockfish					
pelagic shelf rockfish	dusky rockfish	Y	Y	low	Minor changes to FMP text
demersal shelf rockfish	yelloweye rockfish	Y	Y	low	Minor changes to text and tables
thornyhead rockfish	thornyhead rockfish	Y	Y	low	Minor changes to text and tables
Atka mackerel	Atka mackerel	Y	Y	high	See discussion in text
skates	skates	Y	Y	low	Minor changes to FMP text, unlikely to affect management
other species	octopus	Y	Y	moderate	See discussion in text
	sharks	Y	Y	high	Need to describe shark EFH
	sculpins	Y	Y	low	Minor changes to FMP text,
	squid	Y	Y	low	Minor changes to FMP text,
forage fish	forage fish complex	Y	Y	moderate	See discussion in text

[1] Note, the GOA FMP currently defines EFH for rock sole, and does not distinguish between northern and southern, as is being suggested in this review.

ADDENDUM TO ECONOMIC SUMMARY OF THE BSAI AND GOA COMMERCIAL GROUNDFISH FISHERIES IN 2007-08: CHANGES IN THE 2008 JAPANESE SURIMI MARKET AND THE EFFECT OF MARKET EXCHANGE RATES ON JAPANESE PRICES FOR U.S. SURIMI PRODUCTS

December 1, 2009

M. Dalton, AFSC

Changes in the 2008 Japanese Surimi Market

According to data from the 2009 Economics SAFE report, the average first-wholesale price of pollock surimi increased from 2.24 $/kg (1.02 $/lb) in 2007 to 4.51 $/kg (2.05 $/lb) in 2008. For these years, the market exchange rate between the Japanese yen and the U.S. dollar decreased from 119 ¥/$ in 2007 to 105 ¥/$ in 2008 (these rates are January-March averages using the Japan/U.S. foreign exchange rate series EXJPUS from the Board of Governors of the Federal Reserve System, see Table 60 in the Economics SAFE report). Based on these exchange rates (and ignoring transport margins), the average first-wholesale price for U.S. surimi in yen was 267.23 ¥/kg (121.22 ¥/lb) in 2007 and 474.32 ¥/kg (215.15 ¥/lb) in 2008. A natural question is whether this change in the U.S. first-wholesale price comports with documented changes in the Japanese market for pollock surimi in 2008.

The Food and Agriculture Organization (FAO) of the United Nations publishes a monthly groundfish market report (http://www.globefish.org). The report from July 2009 documents changes in the Japanese surimi market during 2008:

> *In last 'A' season, the import prices of US 'A' season surimi surged by JY130-150 per kilo, rising by a further JY90-100 in the 'B' season in the latter half of the year. These price hikes were due to pollock quota cutbacks in the U.S which pushed up prices of surimi from other countries as well as Japanese-produced surimi. The higher US prices stimulated producers in Japan and Asian countries to boost their surimi production.*

In other words, according to the FAO report, the Japanese import price for U.S. surimi increased by as much as 250 ¥/kg over the course of pollock A and B seasons in 2008.

For a somewhat crude comparison in dollars, this price increase is converted using the 2008 exchange rate (the average exchange rates during pollock A and B seasons are approximately the same in 2008, 105.2 ¥/$ in Jan-March and 105.9 ¥/$ in June-Oct) and then added to the 2007 average first-wholesale price of pollock surimi, giving a value of 4.61 $/kg (2.09 $/lb). This indirect value, obtained by adding documented price increases in the Japanese surimi market to the 2007 average U.S. first-wholesale price for surimi, is very close to the 2008 average U.S. first-wholesale price for surimi of 4.51 $/kg (2.05 $/lb) from the 2009 Economics SAFE report. The difference could easily be due to trade margins which have been ignored here.

Effect of Market Exchange Rates on Japanese Prices for U.S. Surimi Products in 2008

The decomposition methodology described in the appendix to GOA plan team's November 2009 report can be applied to the crude first-order approach above that treats Japanese import prices as the product of the U.S. first-wholesale price times the market exchange rate (i.e., ignoring trade margins). Instead of comparing quantity and price effects, here the comparison is between a market exchange rate effect and a U.S. price effect on the 2007-08 change in the Japanese import price. Explicitly, For the Japanese import price P^{JP} is the product of the U.S. first-wholesale price P^{US} and the market exchange rate M such that $P^{JP} = M\,P^{US}$. Let $\Delta P^{JP} = P^{JP}_{2008} - P^{JP}_{2007}$, and apply the same notation and corresponding time subscripts to P^{US} and M. Then, a "complete decomposition model" is represented by the following algebraic identity:

$$\Delta P^{JP} = (P^{US}_{2007}\,\Delta M) + (M_{2007}\,\Delta P^{US}) + (\Delta P^{US}\,\Delta M).$$

The first term is the exchange rate effect, the second is the U.S. price effect, and the third is the residual. As before, the principle of jointly created and equally distributed production justifies assigning half of the residual to each effect.

Values above for the U.S. average first-wholesale price of pollock surimi ($/kg) and the Japanese yen/U.S. dollar market exchange rate (¥/$) are used in the decomposition formula. These imply a total change in the Japanese import price (i.e., the left-hand side of the equation) of 207 ¥/kg, which decomposes into a U.S. first-wholesale price effect of 255 ¥/kg and a market exchange rate effect of -48 ¥/kg. To summarize, the first-wholesale price effect in 2007-08 was more than five times larger than the exchange rate effect in those years.

Surimi Prices in 2009

The market price of U.S. surimi products decreased in 2009 from its peak in 2008. This decrease can be attributed to i) the global recession curbing Japanese demand, ii) the 2008 price increase for U.S. surimi product had the effect of increasing supply of lower-grade products from Asia, and iii) increased supply of Russian pollock (e.g., cheap twice frozen fillet products from China).

Gulf of Alaska Groundfish Plan Team recommendations for 2009 - 2011 OFLs and ABCs.
2009 OFLs, ABCs, TACs, and 2009 catches (reported through November 7th, 2009).

Stock/ Assemblage		2009				2010		2011	
	Area	OFL	ABC	TAC	Catch	OFL	ABC	OFL	ABC
Pollock	W (61)		15,249	15,249	14,935		26,256		34,728
	C (62)		14,098	14,098	14,006		28,095		37,159
	C (63)		11,058	11,058	12,135		19,118		25,287
	WYAK		1,215	1,215	1,221		2,031		2,686
	Subtotal	58,590	41,620	41,620	42,297	103,210	75,500	135,010	99,860
	EYAK/SEO	11,040	8,280	8,280		12,326	9,245	12,326	9,245
	Total	69,630	49,900	49,900	42,297	115,536	84,745	147,336	109,105
Pacific Cod	W		21,567	16,175	14,243		27,685		34,265
	C		31,521	23,641	23,380		49,042		60,698
	E		2,212	1,991	778		2,373		2,937
	Total	66,600	55,300	41,807	38,401	94,100	79,100	116,700	97,900
Sablefish	W		1,640	1,640	1,341		1,660		1,488
	C		4,990	4,990	4,780		4,510		4,042
	WYAK		1,784	1,784	1,774		1,620		1,450
	SEO		2,746	2,746	2,803		2,580		2,320
	Total	13,190	11,160	11,160	10,698	12,270	10,370	11,008	9,300
Deep-water Flatfish	W		706	706	8		521		530
	C		6,927	6,927	428		2,865		2,928
	WYAK		997	997	4		2,044		2,089
	EYAK/SEO		538	538	2		760		778
	Total	11,578	9,168	9,168	442	7,680	6,190	7,847	6,325
Shallow-water flatfish	W		26,360	4,500	96		23,681		23,681
	C		29,873	13,000	8,195		29,999		29,999
	WYAK		3,333	3333	1		1,228		1,228
	EYAK/SEO		1,423	1,423			1,334		1,334
	Total	74,364	60,989	22,256	8,292	67,768	56,242	67,768	56,242
Rex sole	W		1,007	1,007	342		1,543		1,521
	C		6,630	6,630	4,162		6,403		6,312
	WYAK		513	513	1		883		871
	EYAK/SEO		846	846			900		888
	Total	11,756	8,996	8,996	4,505	12,714	9,729	12,534	9,592
Arrowtooth Flounder	W		30,148	8,000	1,517		34,773		34,263
	C		164,251	30,000	22,813		146,407		144,262
	WYAK		14,908	2,500	56		22,835		22,501
	EYAK/SEO		12,205	2,500	52		11,867		11,693
	Total	261,022	221,512	43,000	24,438	254,271	215,882	250,559	212,719
Flathead Sole	W		13,010	2,000	303		16,857		17,520
	C		29,273	5,000	3,115		27,124		28,190
	WYAK		3,531	3,531			1,990		2,068
	EYAK/SEO		650	650			1,451		1,508
	Total	57,911	46,464	11,181	3,418	59,295	47,422	61,601	49,286

Stock/ Assemblage	Area	2009 OFL	2009 ABC	2009 TAC	2009 Catch	2010 OFL	2010 ABC	2011 OFL	2011 ABC
Pacific ocean perch	W	4,409	3,713	3,713	3,805	3,332	2,895	3,220	2,797
	C	9,790	8,246	8,246	8,027	12,361	10,737	11,944	10,377
	WYAK		1,108	1,108	1,147		2,004		1,937
	SEO		2,044	2,044	1		1,948		1,882
	E(subtotal)	3,741	3,152	3,152	1,148	4,550		4,396	
	Total	17,940	15,111	15,111	12,980	20,243	17,584	19,560	16,993
Northern rockfish[3]	W		2,054	2,054	1,946		2,703		2,549
	C		2,308	2,308	1,942		2,395		2,259
	E								
	Total	5,204	4,362	4,362	3,888	6,070	5,092	5,730	4,802
Rougheye	W		125	125	80		80		81
	C		833	833	100		862		869
	E		326	326	100		360		363
	Total	1,545	1,284	1,284	280	1,568	1,302	1,581	1,313
Shortraker	W		120	120	151		134		134
	C		315	315	192		325		325
	E		463	463	207		455		455
	Total	1,197	898	898	550	1,219	914	1,219	914
Other slope[3]	W		357	357	401		212		212
	C		569	569	385		507		507
	WYAK		604	604	82		273		273
	EYAK/SEO		2,767	200	11		2,757		2,757
	Total	5,624	4,297	1,730	879	4,881	3,749	4,881	3,749
Pelagic Shelf rockfish	W		819	819	716		650		607
	C		3,404	3,404	2,143		3,249		3,035
	WYAK		234	234	177		434		405
	EYAK/SEO		324	324	1		726		680
	Total	5,803	4,781	4,781	3,037	6,142	5,059	5,739	4,727
Demersal rockfish	Total	580	362	362	137	472	295	472	295
Thornyhead Rockfish	W		267	267	230		425		425
	C		860	860	275		637		637
	E		783	783	152		708		708
	Total	2,540	1,910	1,910	657	2,360	1,770	2,360	1,770
Atka mackerel	Total	6,200	4,700	2,000	2,221	6,200	4,700	6,200	4,700
Big Skate	W		632	632	68		598		598
	C		2,065	2,065	1,656		2,049		2,049
	E		633	633	87		681		681
	Total	4,439	3,330	3,330	1,811	4,438	3,328	4,438	3,328
Longnose Skate	W		78	78	62		81		81
	C		2,041	2,041	880		2,009		2,009
	E		768	768	175		762		762
	Total	3,849	2,887	2,887	1117	3,803	2,852	3,803	2,852
Other skates	Total	2,806	2,104	2,104	1,007	2,791	2,093	2,791	2,093
Other Species	Total	8720	6,540	4,500	2,327	9,432	7,075	9,432	7,075
Total		**632,498**	**516,055**	**242,727**	**163,382**	**693,253**	**565,499**	**743,559**	**605,086**

PUBLIC TESTIMONY SIGN-UP SHEET

Agenda Item: C-3(A) GOA Specifications

	NAME *(PLEASE PRINT)*	TESTIFYING ON BEHALF OF:
1	Jon Warrenchuk	Oceana
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NOTE to persons providing oral or written testimony to the Council: Section 307(1)(I) of the Magnuson-Stevens Fishery Conservation and Management Act prohibits any person " to knowingly and willfully submit to a Council, the Secretary, or the Governor of a State false information (including, but not limited to, false information regarding the capacity and extent to which a United State fish processor, on an annual basis, will process a portion of the optimum yield of a fishery that will be harvested by fishing vessels of the United States) regarding any matter that the Council, Secretary, or Governor is considering in the course of carrying out this Act.