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Template for PSEIS SIR – review of conclusions in 2004 PSEIS

draft 6/19/13

What resource component is this review for? EBS Pollock

What sections of the PSEIS were reviewed? 4.9.1.1

Please answer the following questions with respect to the resource component in question.

- Please provide rationale and discussion of your response, while at the same time keeping it fairly succinct.
- Where appropriate, reference other documents where analysis can be found in detail.
- Responses can be written out, or in bullets.
- In most cases, we are expecting something in the range of 2-5 pages for a particular resource component.

1 Has management of the resource changed?

The control rules governing the over-arching management regulations are unchanged relative to those analyzed in 2004. The principal factors affecting pollock fishery management include: seasonal apportionments (40% during the winter, 60% from June 10-October 31st), bycatch of pollock in other fisheries (count against the TAC), the sector-specific TAC allocations (i.e., CDQ, mother-ship, catcher-processors, and shore-based catcher boats), the 2-million t OY cap (which limits pollock TAC to about 1.5 million t), the “Tier 1” ABC/OFL control rules (amendment 56) from the single species assessment, and salmon bycatch avoidance. The control rule (which explicitly takes into account uncertainty in estimation of F_{MSY}) constrained the TAC for a couple of years (2009 and 2010) during a period when the stock dropped below the target level (and the upper limit of the harvest rate was required to be adjusted downwards). Specific management actions affect the EBS pollock fishery includes Amendment 91 (implemented in 2011) which set a cap for the number of Chinook salmon that can be taken incidentally. The indirect effect of this measure has amounted to shifts to fishing earlier in the B-season since bycatch rates (in terms of numbers of Chinook salmon per ton of pollock) increases in late September through October. Also, within-industry measures to close salmon bycatch “hot-spots” have affected the areas where pollock fishing can occur.

2 Has the status of the resource changed?

The status of the pollock stocks have fluctuated over time since the 2004 PSEIS but remains within the expected range of stock variability estimated at that time. As noted above, the stock has dropped below the target level in the past 10 years but this is as expected.

3 Is there new information regarding the impacts of the groundfish fisheries on the resource?

The observer coverage for the entire fleet switched to 100% in 2011 as part of the salmon bycatch measures. Previously the shore-based catcher vessels smaller than 125 feet had about 50% of their operations covered by scientific observers (even though the legal mandate was to have only 30% coverage in each quarter of the year).

In addition to the annual bottom-trawl surveys that cover the period 1982-2012, the supplemental dedicated acoustic-trawl surveys ran each summer 2006-2010 as part of a large-scale Bering Sea Integrated Ecosystem Research Program (BSIERP) funded by the North Pacific Research Board (NPRB). Prior to 2006 this acoustic survey ran (typically) every other year. This survey provides valuable direct observations on pre-recruit pollock and improves the information available to make near-term projections

of fishing conditions and stock status (for spawning biomass conservation measures). Additionally, these added survey years allowed the development of valuable opportunistic data collection programs. These opportunistic acoustic data are presently collected on the chartered bottom-trawl survey vessels to provide an alternative index in years that the dedicated research vessel is unavailable. Also, acoustic data are collected from commercial vessels and have proven valuable for evaluating the turnover-rate of pollock abundance during the winter season. This study is of particular importance to help provide information on the forage available to Steller sea lions during their over-wintering period within their critical habitat. This information improves NMFS ability to evaluate fishery impacts and to provide better more-timely advice on stock status and catch limit recommendations.

4 Are there new methods of analysis or protocols for evaluating impacts?

The main assessment methodology is similar to that done for the 2004 PSEIS. However, the data collection and evaluations have improved on comprise new methods (e.g., developing an index from opportunistically collected acoustic data). Techniques to test assessment-management approaches which involve the development of operating models is underway and have been applied (e.g., decision tables, climate change effects etc.). The technical interactions model used for the PSEIS remains unchanged but presently research is underway to improve that approach and update the data streams used for that model.

5 Would a new analysis using the latest methods and information reach a seriously different conclusion?

Results from new analyses using an updated technical interaction model would likely be provide a similar conclusions. Anticipated differences would include added complexity to the management (e.g., due to salmon bycatch regulation changes). Difficulties in appropriately mimicking the TAC setting process may also be greater than in the past due to the larger number of constraints and having information that would predict recent trends (e.g., using different gear configurations to avoid salmon and/or crab and halibut).

PSEIS SIR – review of conclusions in 2004 PSEIS

Draft ~6/19/13

What resource component is this review for? BSAI Pacific cod
What sections of the PSEIS were reviewed? 4.9.1.2

1 Has management of the resource changed?

The only two FMP amendments since 2004 (inclusive) that reference Pacific cod explicitly are Amendments 77 and 85.

Amendment 77 was implemented January 1, 2004. This amendment revised Amendment 64. It implemented a Pacific cod fixed gear allocation between hook and line catcher processors (80 percent), hook and line catcher vessels (0.3 percent), pot catcher processors (3.3 percent), pot catcher vessels (15 percent), and catcher vessels (pot or hook and line) less than 60 feet (1.4 percent).

Amendment 85 was partially implemented on March 5, 2007. This amendment superseded Amendments 46 and 77. It implemented a gear allocation among all non-CDQ fishery sectors participating in the directed fishery for Pacific cod. After deduction of the CDQ allocation, the Pacific cod TAC is apportioned to vessels using jig gear (1.4 percent); catcher processors using trawl gear listed in Section 208(e)(1)-(20) of the AFA (2.3 percent); catcher processors using trawl gear as defined in Section 219(a)(7) of the Consolidated Appropriations Act, 2005 (Public Law 108-447) (13.4 percent); catcher vessels using trawl gear (22.1 percent); catcher processors using hook-and-line gear (48.7 percent); catcher vessels $\geq 60'$ LOA using hook-and-line gear (0.2 percent); catcher processors using pot gear (1.5 percent); catcher vessels $\geq 60'$ LOA using pot gear (8.4 percent); and catcher vessels $< 60'$ LOA that use either hook-and-line gear or pot gear (2.0 percent).

Attachment 2.3 to the 2012 BSAI Pacific cod assessment describes regulations specific to the BSAI Pacific cod fisheries.

2 Has the status of the resource changed?

Relative to MSST, the status of BSAI Pacific cod remains the same, qualitatively speaking. Based on the 2012 stock assessment, projections for the 2013-2017 time period are fairly similar to the projections for 2007 contained in the 2004 PSEIS. For example, projected total biomass is within 10-19% of the value projected previously under PA.1 and within 12-21% of the value projected previously under PA.2, projected spawning biomass is within 5-11% of the value projected previously under PA.1 and within 7-9% of the value projected previously under PA.2, projected fishing mortality is within 8% of the value projected previously under PA.1 and within 14% of the value projected previously under PA.2, and projected average age (exclusive of age zero) is within 2-11% of the value projected previously under PA.1 and within 3-10% of the value projected previously under PA.2.

A related issue is how “the resource” should be defined in the case of BSAI Pacific cod. Although BSAI Pacific cod has, and continues to be, managed as a unit stock, recent research suggests that AI Pacific cod would be more appropriately managed as a separate stock, and it is likely that management will be split into separate EBS and AI units in the very near future. However, no age-structured model of the AI stock has been accepted by the SSC, and stock status continues to be determined on a BSAI-wide basis at the present time.

3 Is there new information regarding the impacts of the groundfish fisheries on the resource?

New information regarding impacts of the groundfish fishery on the resource is incorporated annually in the stock assessment. This new information consists primarily of total catch weight (including discards), stratified by year, season, and gear; and catch length composition, stratified by the same three factors. In addition, research by Ingrid Spies (PhD dissertation, in prep.) is evaluating potential impacts of differential fishing mortality rates on Pacific cod in the EBS and AI.

4 Are there new methods of analysis or protocols for evaluating impacts?

The model used in the stock assessment has changed considerably since 2002. These changes are documented in the 2012 stock assessment, beginning on page 254.

5 Would a new analysis using the latest methods and information reach a seriously different conclusion?

I doubt it. Of course, it is not possible to predict the results of a future analysis based on a yet-to-be-developed age-structured model for the AI stock.

Template for PSEIS SIR – review of conclusions in 2004 PSEIS

draft 5/30/2013

What resource component is this review for? ___Sablefish
What sections of the PSEIS were reviewed? ___4.9.1.3

Please answer the following questions with respect to the resource component in question.

- Please provide rationale and discussion of your response, while at the same time keeping it fairly succinct.
- Where appropriate, reference other documents where analysis can be found in detail.
- Responses can be written out, or in bullets.
- In most cases, we are expecting something in the range of 2-5 pages for a particular resource component.

1 Has management of the resource changed?

A minor change in gear restrictions occurred in 2008, when the pot fishing ban was repealed for the Bering Sea during June 1-30 (74 FR 28733). This should have no significant impact on the resource.

2 Has the status of the resource changed?

The status of the sablefish stock is similar to the status during the 2004 PSEIS and within the range of variability of the estimates at that time.

3 Is there new information regarding the impacts of the groundfish fisheries on the resource?

There was an increase in the BSAI fisheries in the use of pot gear to catch sablefish during 2004-2008, which has recently decreased again. The catch from pot gear was analyzed and shown to have minimal differences from longline gear and size of fish harvested (Sablefish SAFE, Hanselman et al. 2009).

4 Are there new methods of analysis or protocols for evaluating impacts?

The methodology is similar to the 2004 PSEIS.

5 Would a new analysis using the latest methods and information reach a seriously different conclusion?

No. The current analysis uses modern methods and the sablefish assessment model is relatively robust to the assumptions of the analysis.

Template for PSEIS SIR – review of conclusions in 2004 PSEIS

draft 6/5/2013

What resource component is this review for? **BSAI Atka mackerel**

What sections of the PSEIS were reviewed? **Section 4.9.1.4 Atka Mackerel**

Please answer the following questions with respect to the resource component in question.

- Please provide rationale and discussion of your response, while at the same time keeping it fairly succinct.
- Where appropriate, reference other documents where analysis can be found in detail.
- Responses can be written out, or in bullets.
- In most cases, we are expecting something in the range of 2-5 pages for a particular resource component.

1 Has management of the resource changed?

The management of the BSAI Atka mackerel fishery changed significantly in 2011 due to the implementation of Reasonable and Prudent Alternatives included in the 2010 Biological Opinion which required changes in groundfish fishery management in Management Sub-areas 543, 542, and 541 in the Aleutian Islands Management Area. In area 543, retention of Atka mackerel and Pacific cod is prohibited. In area 542, the TAC for Atka mackerel is set to no more than 47 percent of the Area 542 acceptable biological catch (ABC). Additionally, there are year round closures to directed fishing for Atka mackerel in defined areas of critical habitat and limits within defined areas of critical habitat for vessels participating in harvest cooperatives or CDQ fisheries. In area 541 the Bering Sea subarea is closed to year round fishing for the directed Atka mackerel fishery.

Amendment 80 to the BSAI Groundfish FMP was adopted by the Council in June 2006 and implemented for the 2008 fishing year. This action allocated several BSAI non-pollock trawl groundfish species among trawl fishery sectors, and facilitated the formation of harvesting cooperatives in the non-American Fisheries Act (non-AFA) trawl catcher/processor sector. Bering Sea/Aleutian Islands Atka mackerel is one of the groundfish species directly affected by Amendment 80.

2 Has the status of the resource changed?

The status of the BSAI Atka mackerel stock is higher than the status described in the 2004 PSEIS due to the impact of strong year classes, most notably the 1999, 2000, 2001, and 2006 year classes. Also, due to changes in the stock assessment model configuration since 2004, our knowledge and perception of the stock status has improved. The status of the BSAI Atka mackerel stock is within the range of variability estimates at that time.

3 Is there new information regarding the impacts of the groundfish fisheries on the resource?

The BSAI Atka mackerel fishery changed significantly since 2004 due to the implementation of Reasonable and Prudent Alternatives included in the 2010 Biological Opinion which required changes in groundfish fishery management in Management Sub-areas 543, 542, and 541 in the Aleutian Islands Management Area. The fishery and the impacts of the fishery were analyzed in the 2010 Biological Opinion and in the Draft Stellar Sea Lion Protection Measures Environmental Impact Statement (SSL EIS). Changes to the fishery have been described and modeled in the BSAI stock assessment on an annual basis.

4 Are there new methods of analysis or protocols for evaluating impacts?

The basic methodology for evaluating impacts (age-structured model) is similar to the 2004 PSEIS.

5 Would a new analysis using the latest methods and information reach a seriously different conclusion?

New and updated fishery information and improvements to the age structured model are incorporated into the stock assessment, but has not resulted in a different conclusion about the effect of the groundfish fisheries on the resource.

Template for PSEIS SIR – review of conclusions in 2004 PSEIS

draft 6/13/13

What resource component is this review for? ___ Gulf of Alaska walleye pollock

What sections of the PSEIS were reviewed? ___ 4.9.1.1

1 Has management of the resource changed?

There have been no changes to the harvest control rules specifying the OFL harvest rate, the maximum acceptable ABC, and the author's recommended ABC since the 2002 stock assessment for GOA pollock. Other features of the management system, such as the B20% limit for the target fishery, and the procedure for spatially and temporally allocating the ABC are also unchanged. Additional survey information is available for allocating the ABC between areas during the winter fishery (A and B seasons). Since the harvest control rule depends on estimated quantities from the stock assessment (such as mean recruitment, weight at age, and fishery selectivity), the values used to specify the harvest control rule, such as B35%, F40%, have changed. However the process used to calculate them has not.

With respect to in-season management of the pollock fishery, the trip limit regulation for the pollock target fishery in the GOA was fine-tuned to better achieve its original intent. Also Chinook salmon bycatch limits were established for the GOA pollock fishery by FMP Amendment.

2 Has the status of the resource changed?

The current status of the Gulf of Alaska walleye pollock stock is similar to the status during the 2004 PSEIS, and is within the range of variability of the estimates at that time. In the 2002 assessment, pollock was estimated to be at 28% of unfished spawning biomass in 2003. In the 2012 assessment, GOA pollock was estimated to be at 35.1% of unfished spawning biomass. Pollock biomass has been relatively stable during the last decade, but in the last couple of years has shown an increasing trend.

3 Is there new information regarding the impacts of the groundfish fisheries on the resource?

Ongoing fishing impacts on groundfish EFH were evaluated during the 5-year EFH review. Results of this analysis may be useful in future EIS evaluations.

4 Are there new methods of analysis or protocols for evaluating impacts?

Methods are being developed at AFSC to explore the implications of incorporating stock-specific uncertainty buffers to establish ABCs.

Teresa A'mar completed her dissertation in 2009 on a Management Strategy Evaluation of GOA pollock. Her work evaluated the performance of the current stock assessment methodology and management system (references below).

No new methods of analysis have been used in NEPA analyses of management actions.

References for the management strategy evaluation for GOA pollock

A'mar, Z.T., A.E. Punt, and M.W. Dorn. 2008. The Management Strategy Evaluation Approach and the Fishery for Walleye Pollock in the Gulf of Alaska. Pages 317-346. In: Kruse, G.H., Drinkwater, K.,

Ianelli, J.N., Link, J.S., Stram, D.L., Wespestad, V., and Woodby, D. [Eds.] Proceedings of 24th Lowell Wakefield Fisheries Symposium: Resiliency of Gadid Stocks to Fishing and Climate Change. Alaska Sea Grant College Program, University of Alaska Fairbanks, AK.

A'mar, Z.T., A.E. Punt, and M.W. Dorn. 2009. The evaluation of two management strategies for the Gulf of Alaska walleye pollock fishery under climate change. *ICES Journal of Marine Science*, 66: 1614-1632.

A'mar, Z.T., A.E. Punt, and M.W. Dorn. 2009. The impact of regime shifts on the performance of management strategies for the Gulf of Alaska walleye pollock fishery. *Canadian Journal of Fisheries and Aquatic Sciences*, 66(12): 2222-2242.

A'mar, Z.T., A.E. Punt, and M.W. Dorn. 2010. Incorporating ecosystem forcing through predation into a Management Strategy Evaluation for the Gulf of Alaska walleye pollock (*Theragra chalcogramma*) fishery. *Fisheries Research*, 102(1-2): 98-114.

5 Would a new analysis using the latest methods and information reach a seriously different conclusion?

It is difficult to say what the outcome of a new analysis would be. The GOA pollock MSE mentioned above did not find any serious failings of the current assessment and management system. In general, groundfish fisheries in the Gulf of Alaska have been fairly stable since 2002, and the changes that have been implemented were contemplated by two bookend alternatives in the PSEIS. Therefore it might be reasonable to expect that a new analysis would reach similar conclusions to the 2004 PSEIS.

There two changes in the GOA ecosystem that may merit further evaluation. The first is the continued increase in abundance of arrowtooth flounder, a major predator of pollock in the GOA. The second is the resurgence of large whales in the GOA ecosystem, in particular, humpback whales (*Megaptera novaeangliae*).

PSEIS SIR – review of conclusions in 2004 PSEIS

draft 6/13/13

What resource component is this review for? ___GOA Pacific cod

What sections of the PSEIS were reviewed? ___4.9.1.2

Please answer the following questions with respect to the resource component in question.

- Please provide rationale and discussion of your response, while at the same time keeping it fairly succinct.
- Where appropriate, reference other documents where analysis can be found in detail.
- Responses can be written out, or in bullets.
- In most cases, we are expecting something in the range of 2-5 pages for a particular resource component.

1 Has management of the resource changed?

An adjustment among gear and operational sectors occurred in 2012, when Amendment 83 of the GOA Groundfish FMP was enacted. This should have no significant impact on the resource.

2 Has the status of the resource changed?

The status of the GOA Pacific cod stock is similar to the status during the 2004 PSEIS and within the range of variability of the estimates at that time.

3 Is there new information regarding the impacts of the groundfish fisheries on the resource?

The fisheries observer program was restructured in 2013. This change will result in differences in the fishery data collected, and the significance of these changes for the GOA Pacific cod stock will not be determined for several years.

4 Are there new methods of analysis or protocols for evaluating impacts?

The methodology is similar to the 2004 PSEIS.

5 Would a new analysis using the latest methods and information reach a seriously different conclusion?

No. The current analysis uses modern methods and the GOA Pacific cod assessment model is relatively robust to the assumptions of the analysis.

Template for PSEIS SIR – review of conclusions in 2004 PSEIS

draft 6/5/13

What resource component is this review for? **GOA Atka mackerel**

What sections of the PSEIS were reviewed? **Section 4.9.1.4 Atka Mackerel**

Please answer the following questions with respect to the resource component in question.

- Please provide rationale and discussion of your response, while at the same time keeping it fairly succinct.
- Where appropriate, reference other documents where analysis can be found in detail.
- Responses can be written out, or in bullets.
- In most cases, we are expecting something in the range of 2-5 pages for a particular resource component.

1 Has management of the resource changed?

No, Gulf of Alaska (GOA) Atka mackerel has been managed under Tier 6 specifications since 1996 due to the lack of reliable estimates of current biomass. Gulf of Alaska Atka mackerel are managed as a bycatch species. The total allowable catch (TAC) for GOA Atka mackerel is intended to provide for anticipated bycatch needs of other fisheries, principally for Pacific cod, rockfish and pollock, and to only allow for minimal targeting. The TACs for 2004-2005 were 600 t, 1,500 t for 2006-2008, and have been set at 2,000 t for 2009 to 2013.

Gulf of Alaska Atka mackerel has been moved to a biennial stock assessment schedule to coincide with the availability of new survey data from the biennial trawl survey. A full assessment is presented in odd years. On alternate (even) years an executive summary is presented with updated catch, the previous year's key assessment parameters, any significant new information available in the interim, and projections for the upcoming year.

2 Has the status of the resource changed?

Information for GOA Atka mackerel is very limited and consists of catch information and small samples of age data. The data show fluctuations in the catches and distribution of GOA Atka mackerel coinciding with strong year classes observed in the Aleutian Islands. The strong year classes observed in the Aleutian Islands dominate the limited age compositions of GOA Atka mackerel.

3 Is there new information regarding the impacts of the groundfish fisheries on the resource?

No, there has not been a directed fishery for Atka mackerel since 1996. Annual changes in the GOA Atka mackerel catches reflect shift in catches of other species which catch Atka mackerel as bycatch.

4 Are there new methods of analysis or protocols for evaluating impacts?

No, there have been no changes to the assessment methodology. Gulf of Alaska Atka mackerel have been assessed and managed under Tier 6 specifications since 1996 due to lack of reliable estimates of current biomass.

5 Would a new analysis using the latest methods and information reach a seriously different conclusion?

No, limited new and updated fishery information are discussed in the stock assessment, but has not resulted in a different conclusion about the effect of the groundfish fisheries on the resource.

Template for PSEIS SIR – review of conclusions in 2004 PSEIS

draft 6/3/2013

What resource component is this review for? **BSAI yellowfin sole**

What sections of the PSEIS were reviewed? **Section 4.9.1.5**

Please answer the following questions with respect to the resource component in question.

- Please provide rationale and discussion of your response, while at the same time keeping it fairly succinct.
- Where appropriate, reference other documents where analysis can be found in detail.
- Responses can be written out, or in bullets.
- In most cases, we are expecting something in the range of 2-5 pages for a particular resource component.

1 Has management of the resource changed?

The management of the yellowfin sole fishery changed significantly in 2008 with the implementation of Amendment 80 to the BSAI Fisheries Management Plan. The Amendment directly allocated fishery resources among BSAI trawl harvesters in consideration of their historic harvest patterns and future harvest needs in order to improve retention and utilization of fishery resources by the non-AFA trawl catcher/processor fleet. This was accomplished by extending the groundfish retention standards to all H&G vessels and also by providing the ability to form cooperatives within the newly formed Amendment 80 sector. In addition, Amendment 80 also mandated additional monitoring requirements which included observer coverage on all hauls, motion-compensating scales for weighing samples, flow scales to obtain accurate catch weight estimates for the entire catch, no mixing of hauls and no on-deck sorting. The partitioning of TAC and PSC (prohibited species catch) among cooperatives has significantly changed the way the annual catch has accumulated (slower and more evenly) and the rate of target catch per bycatch ton (less).

2 Has the status of the resource changed?

The status of the BSAI yellowfin sole stock is similar to the status during the 2004 PSEIS, well above the target reference points and within the range of variability of the estimates at that time.

3 Is there new information regarding the impacts of the groundfish fisheries on the resource?

In 2011, a trawl sweep modification requirement was implemented for vessels participating in the Bering Sea flatfish fishery resulting in less impact of the fishery on the seafloor. Elevating devices (e.g., discs or bobbins) are now required to be used on the trawl sweeps, to raise the sweeps off the seabed and limit adverse impacts of trawling on the seafloor. Research has demonstrated that this gear modification reduces unobserved mortality of red king crab, Tanner crab, and snow crab.

4 Are there new methods of analysis or protocols for evaluating impacts?

Since 2004 the yellowfin sole stock assessment analysis has changed from Tier 3 methodology to Tier 1 resulting in differences in the way the productivity of the stock and risk is incorporated into the ABC calculation.

5 Would a new analysis using the latest methods and information reach a seriously different conclusion?

Some new information regarding temperature-dependent growth has become available and is incorporated into the stock assessment but it has not resulted in a different conclusion about the effect of the groundfish fisheries on the resource.

Template for PSEIS SIR – review of conclusions in 2004 PSEIS

draft 6/10/2013

What resource component is this review for? ___ BSAI Greenland turbot
What sections of the PSEIS were reviewed? ___ 4.9.1.9

Please answer the following questions with respect to the resource component in question.

- Please provide rationale and discussion of your response, while at the same time keeping it fairly succinct.
- Where appropriate, reference other documents where analysis can be found in detail.
- Responses can be written out, or in bullets.
- In most cases, we are expecting something in the range of 2-5 pages for a particular resource component.

1 Has management of the resource changed?

There have been no changes to management of the BSAI Greenland turbot stock since 2004.

2 Has the status of the resource changed?

Although the stock spawning biomass has declined the status of the BSAI Greenland turbot is similar to the status during the 2004 PSEIS and within the range of variability of the estimates at that time.

3 Is there new information regarding the impacts of the groundfish fisheries on the resource?

There has been no new information regarding the impacts of the groundfish fisheries on this stock.

4 Are there new methods of analysis or protocols for evaluating impacts?

The methodology is similar to the 2004 PSEIS.

5 Would a new analysis using the latest methods and information reach a seriously different conclusion?

No. The current analysis uses modern methods and the BSAI Greenland turbot assessment model is relatively robust to the assumptions of the analysis.

Template for PSEIS SIR – review of conclusions in 2004 PSEIS

draft 6/10/2013

What resource component is this review for? **BSAI arrowtooth flounder**

What sections of the PSEIS were reviewed? **Section 4.9.1.8**

Please answer the following questions with respect to the resource component in question.

- Please provide rationale and discussion of your response, while at the same time keeping it fairly succinct.
- Where appropriate, reference other documents where analysis can be found in detail.
- Responses can be written out, or in bullets.
- In most cases, we are expecting something in the range of 2-5 pages for a particular resource component.

1 Has management of the resource changed?

No, BSAI arrowtooth flounder were assessed and managed under Tier 3a in 2002 and continue to be managed with this methodology. The same model has been used since 2002.

2 Has the status of the resource changed?

The status of the resource has been consistently increasing since 2002. The spawning biomass of female BSAI arrowtooth flounder was estimated to be 475,900 mt at the beginning of 2002. At the beginning of 2013, female spawning biomass was estimated at 638,377 mt.

2 Is there new information regarding the impacts of the groundfish fisheries on the resource?

The model estimates the fishing mortality rate on arrowtooth flounder by the fishery, both as a targeted fishery and as bycatch. The estimated fishing mortality rate was 0.015 in 2002 and 0.014 in 2013, and remained stable during the intervening period. Only a fraction of the recommended ABC is taken in the fishery; the estimated catch from 2002 – 2013 has been less than 20,000 mt even though the ABC has been over 100,000 mt for each of those years.

New information from NMFS research surveys and fishery length data are used in the assessment; EBS slope survey was conducted in 2002 2004 2008 2010 2012, the Aleutian Islands survey was conducted in 2002 2004 2006 2010 2012, and the EBS shelf survey was conducted every year since 2002. New fishery length data is incorporated from each year since 2002.

3 Are there new methods of analysis or protocols for evaluating impacts?

No significant new analyses have been implemented to assess the effect of the groundfish fishery on arrowtooth flounder.

4 Would a new analysis using the latest methods and information reach a seriously different conclusion?

Recently, a new maturity ogive was published for female arrowtooth flounder (Stark, J. 2008. Age- and length-at-maturity of female arrowtooth flounder (*Atheresthes stomias*) in the Gulf of Alaska. Fish. Bull. 106: 328–333). This work motivated a re-analysis of the estimated arrowtooth flounder biomass using the current model with several different maturity ogives. Although maturity ogives have a significant effect

on the estimate of female spawning biomass, all estimates were well above $B_{40\%}$ and all showed an increasing trend in arrowtooth female spawning biomass since 2002.

Template for PSEIS SIR – review of conclusions in 2004 PSEIS

draft 6/3/2013

What resource component is this review for? **BSAI Kamchatka flounder**

What sections of the PSEIS were reviewed? *Section 4.9.1.8*

Please answer the following questions with respect to the resource component in question.

- Please provide rationale and discussion of your response, while at the same time keeping it fairly succinct.
- Where appropriate, reference other documents where analysis can be found in detail.
- Responses can be written out, or in bullets.
- In most cases, we are expecting something in the range of 2-5 pages for a particular resource component.

1 Has management of the resource changed?

The management of the Kamchatka flounder fishery has changed significantly since 2004. In the eastern part of their range, Kamchatka flounder overlap with arrowtooth flounder (*Atheresthes stomias*) which are very similar in appearance and were not routinely distinguished in the commercial catches until 2007. Until about 1992, these species were also not consistently separated in trawl survey catches and were combined in the arrowtooth flounder stock assessment (Wilderbuer et al. 2009). However, managing the two species as a complex became undesirable in 2010 due to the emergence of a directed fishery for Kamchatka flounder in the BSAI management area. Since the ABC was determined by the large amount of arrowtooth flounder relative to Kamchatka flounder (complex is about 93% arrowtooth flounder) the possibility arose of an overharvest of Kamchatka flounder as the *Atheresthes sp.* ABC exceeded the Kamchatka flounder biomass. Arrowtooth and Kamchatka flounder have been managed separately since 2011.

2 Has the status of the resource changed?

The status of the BSAI Kamchatka flounder stock is similar to the status during the 2004 PSEIS as indicated by the results of the Bering Sea shelf, slope and Aleutian Islands surveys. The stock biomass is estimated to have increased or remained at the same level in all three areas and remains within the range of variability of the estimates from 2004.

3 Is there new information regarding the impacts of the groundfish fisheries on the resource?

In 2011, a trawl sweep modification requirement was implemented for vessels participating in the Bering Sea flatfish fisheries resulting in less impact to the seafloor. Elevating devices (e.g., discs or bobbins) are now required to be used on the trawl sweeps, to raise the sweeps off the seabed and limit adverse impacts of trawling on the seafloor. Research has demonstrated that this gear modification reduces unobserved mortality of red king crab, Tanner crab, and snow crab.

4 Are there new methods of analysis or protocols for evaluating impacts?

The Kamchatka flounder assessment is presently a Tier 5 assessment reliant upon survey biomass estimates and an estimate of natural mortality to set the annual ABC and OFL levels. Work is progressing to elevate the assessment to a Tier 3 level for the 2014 fishing season by utilizing age, size, growth, maturity and improved natural mortality information as well as survey abundance and fishery catch.

5 Would a new analysis using the latest methods and information reach a seriously different conclusion?

Although new information and modeling techniques will improve the stock assessment it is not expected that a seriously different conclusion regarding stock condition will result since the fishery-independent information is on the same order as before and the fisheries mortality remains at a moderate level.

Template for PSEIS SIR – review of conclusions in 2004 PSEIS

draft 6/3/2013

What resource component is this review for? **BSAI northern rock sole**

What sections of the PSEIS were reviewed? *Section 4.9.1.6*

Please answer the following questions with respect to the resource component in question.

- Please provide rationale and discussion of your response, while at the same time keeping it fairly succinct.
- Where appropriate, reference other documents where analysis can be found in detail.
- Responses can be written out, or in bullets.
- In most cases, we are expecting something in the range of 2-5 pages for a particular resource component.

1 Has management of the resource changed?

The management of the northern rock sole fishery changed significantly in 2008 with the implementation of Amendment 80 to the BSAI Fisheries Management Plan. The Amendment directly allocated fishery resources among BSAI trawl harvesters in consideration of their historic harvest patterns and future harvest needs in order to improve retention and utilization of fishery resources by the non-AFA trawl catcher/processor fleet. This was accomplished by extending the groundfish retention standards to all H&G vessels and also by providing the ability to form cooperatives within the newly formed Amendment 80 sector. In addition, Amendment 80 also mandated additional monitoring requirements which included observer coverage on all hauls, motion-compensating scales for weighing samples, flow scales to obtain accurate catch weight estimates for the entire catch, no mixing of hauls and no on-deck sorting. The partitioning of TAC and PSC (prohibited species catch) among cooperatives has significantly changed the way the annual catch has accumulated (slower and more evenly) and the rate of target catch per bycatch ton (less).

2 Has the status of the resource changed?

The status of the BSAI northern rock sole stock is similar to the status during the 2004 PSEIS, well above the target reference points and within the range of variability of the estimates at that time.

3 Is there new information regarding the impacts of the groundfish fisheries on the resource?

In 2011, a trawl sweep modification requirement was implemented for vessels participating in the Bering Sea flatfish fishery resulting in less impact of the fishery on the seafloor. Elevating devices (e.g., discs or bobbins) are now required to be used on the trawl sweeps, to raise the sweeps off the seabed and limit adverse impacts of trawling on the seafloor. Research has demonstrated that this gear modification reduces unobserved mortality of red king crab, Tanner crab, and snow crab.

4 Are there new methods of analysis or protocols for evaluating impacts?

Since 2004 the northern rock sole stock assessment analysis has changed from a Tier 3 methodology to a Tier 1 approach resulting in differences in the way the productivity of the stock and risk is incorporated into the ABC calculation (northern rock sole SAFE, Wilderbuer et al. 2012).

5 Would a new analysis using the latest methods and information reach a seriously different conclusion?

Some new information regarding temperature-dependent growth has become available for northern rock sole and is planned be incorporated into the stock assessment but it is unlikely that it will result in a different conclusion about the effect of the groundfish fisheries on the resource.

Review of Conclusions in 2004 PSEIS

draft 6/19/2013

What resource component is this review for? **BSAI flathead sole**

What sections of the PSEIS were reviewed? **Section 4.9.1.7**

Please answer the following questions with respect to the resource component in question.

- Please provide rationale and discussion of your response, while at the same time keeping it fairly succinct.
- Where appropriate, reference other documents where analysis can be found in detail.
- Responses can be written out, or in bullets.
- In most cases, we are expecting something in the range of 2-5 pages for a particular resource component.

1 Has management of the resource changed?

The management of the flathead sole fishery changed significantly in 2008 with the implementation of Amendment 80 to the BSAI Fisheries Management Plan. The Amendment directly allocated fishery resources among BSAI trawl harvesters in consideration of their historic harvest patterns and future harvest needs in order to improve retention and utilization of fishery resources by the non-AFA trawl catcher/processor fleet. This was accomplished by extending the groundfish retention standards to all H&G vessels and also by providing the ability to form cooperatives within the newly formed Amendment 80 sector. In addition, Amendment 80 also mandated additional monitoring requirements which included observer coverage on all hauls, motion-compensating scales for weighing samples, flow scales to obtain accurate catch weight estimates for the entire catch, no mixing of hauls and no on-deck sorting. The partitioning of TAC and PSC (prohibited species catch) among cooperatives has significantly changed the way the annual catch has accumulated (slower and more evenly) and the rate of bycatch per target catch ton (less).

2 Has the status of the resource changed?

Total biomass of the BSAI flathead sole stock at the beginning of 2013 (Stockhausen and Nichol, 2012) was projected in 2012 to be ~750,000 t, almost 50% larger than that considered in the 2004 PSEIS (513,000 t). Female spawning biomass in 2013 was projected in 2012 (Stockhausen and Nichol, 2012) to be almost 250,000 t, whereas the spawning biomass considered in the 2004 PSEIS was approximately 230,000 t. Thus, both spawning biomass and total biomass are currently larger than that considered in the 2004 PSEIS. In addition, spawning biomass is substantially larger than $B_{35\%}$ for this stock. Qualitatively, then, the status of the resource has not changed since the 2004 PSEIS.

3 Is there new information regarding the impacts of the groundfish fisheries on the resource?

In 2011, a trawl sweep modification requirement was implemented for vessels participating in the Bering Sea flatfish fishery resulting in less impact of the fishery on the seafloor. Elevating devices (e.g., discs or bobbins) are now required to be used on the trawl sweeps to raise the sweeps off the seabed and limit adverse impacts of trawling on the seafloor. Research has demonstrated that this gear modification reduces unobserved mortality of red king crab, Tanner crab, and snow crab.

4 Are there new methods of analysis or protocols for evaluating impacts?

Yes. For the purposes of the 2004 PSEIS, BSAI flathead sole was evaluated as a Tier 4 stock. Beginning in 2004, and in subsequent years, flathead sole was evaluated as a Tier 3 stock (e.g., Stockhausen and Nichol, 2012). As such, reliable estimates of $B_{35\%}$ (i.e., a proxy for B_{msy}) are now available that were not at the time of the 2004 PSEIS. However, similar conclusions would be reached with these (Tier 3) methods as were reached in the 2004 PSEIS.

5 Would a new analysis using the latest methods and information reach a seriously different conclusion?

No.

Citations

Stockhausen, W. and D. Nichol. 2012. Chapter 9: Assessment of the Flathead Sole Stock in the Bering Sea and Aleutian Islands. *In*: Stock Assessment and Fishery Evaluation Report for the Groundfish Resources of the Bering Sea/Aleutian Islands Region. North Pacific Fishery Management Council, P.O. Box 103136, Anchorage, Alaska 99510. <http://www.afsc.noaa.gov/REFM/Docs/2012/BSAIfathead.pdf>

Template for PSEIS SIR – review of conclusions in 2004 PSEIS

draft 6/3/2013

What resource component is this review for? **BSAI Alaska plaice**

What sections of the PSEIS were reviewed? *Section 4.9.1.10*

Please answer the following questions with respect to the resource component in question.

- Please provide rationale and discussion of your response, while at the same time keeping it fairly succinct.
- Where appropriate, reference other documents where analysis can be found in detail.
- Responses can be written out, or in bullets.
- In most cases, we are expecting something in the range of 2-5 pages for a particular resource component.

1 Has management of the resource changed?

The management of the Alaska plaice fishery changed significantly in 2008 with the implementation of Amendment 80 to the BSAI Fisheries Management Plan. The Amendment directly allocated fishery resources among BSAI trawl harvesters in consideration of their historic harvest patterns and future harvest needs in order to improve retention and utilization of fishery resources by the non-AFA trawl catcher/processor fleet. This was accomplished by extending the groundfish retention standards to all H&G vessels and also by providing the ability to form cooperatives within the newly formed Amendment 80 sector. In addition, Amendment 80 also mandated additional monitoring requirements which included observer coverage on all hauls, motion-compensating scales for weighing samples, flow scales to obtain accurate catch weight estimates for the entire catch, no mixing of hauls and no on-deck sorting. The partitioning of TAC and PSC (prohibited species catch) among cooperatives has significantly changed the way the annual catch has accumulated (slower and more evenly) and the rate of target catch per bycatch ton (less).

2 Has the status of the resource changed?

The status of the BSAI Alaska plaice stock is similar to the status during the 2004 PSEIS, well above the target reference points and within the range of variability of the estimates at that time.

3 Is there new information regarding the impacts of the groundfish fisheries on the resource?

In 2011, a trawl sweep modification requirement was implemented for vessels participating in the Bering Sea flatfish fishery resulting in less impact of the fishery on the seafloor. Elevating devices (e.g., discs or bobbins) are now required to be used on the trawl sweeps, to raise the sweeps off the seabed and limit adverse impacts of trawling on the seafloor. Research has demonstrated that this gear modification reduces unobserved mortality of red king crab, Tanner crab, and snow crab.

4 Are there new methods of analysis or protocols for evaluating impacts?

The stock assessment methods and protocols in the latest assessment do not differ substantially from those used in 2004. The annual trawl survey was extended into the northern Bering Sea in 2010 and indicated about 38% of the Bering Sea resource inhabit the northern waters which are currently unavailable to the fishery.

5 Would a new analysis using the latest methods and information reach a seriously different conclusion?

No. The current analysis uses modern methods to assess the Alaska plaice resource which is high in abundance and lightly harvested.

Template for PSEIS SIR – review of conclusions in 2004 PSEIS

draft 6/3/2013

What resource component is this review for? **BSAI Other flatfish**

What sections of the PSEIS were reviewed? **Section 4.9.1.10**

Please answer the following questions with respect to the resource component in question.

- Please provide rationale and discussion of your response, while at the same time keeping it fairly succinct.
- Where appropriate, reference other documents where analysis can be found in detail.
- Responses can be written out, or in bullets.
- In most cases, we are expecting something in the range of 2-5 pages for a particular resource component.

1 Has management of the resource changed?

The management of the Alaska plaice fishery changed significantly in 2008 with the implementation of Amendment 80 to the BSAI Fisheries Management Plan. The Amendment directly allocated fishery resources among BSAI trawl harvesters in consideration of their historic harvest patterns and future harvest needs in order to improve retention and utilization of fishery resources by the non-AFA trawl catcher/processor fleet. This was accomplished by extending the groundfish retention standards to all H&G vessels and also by providing the ability to form cooperatives within the newly formed Amendment 80 sector. In addition, Amendment 80 also mandated additional monitoring requirements which included observer coverage on all hauls, motion-compensating scales for weighing samples, flow scales to obtain accurate catch weight estimates for the entire catch, no mixing of hauls and no on-deck sorting. The partitioning of TAC and PSC (prohibited species catch) among cooperatives has significantly changed the way the annual catch has accumulated (slower and more evenly) and the rate of target catch per bycatch ton (less). Although the species of this complex are not directly targeted, the increased observer information should guard against the unintended consequences of managing a complex of species where disproportionate harvest can occur.

2 Has the status of the resource changed?

The status of the BSAI Other flatfish complex is similar to the status during the 2004 PSEIS, both in terms of biomass and catch levels.

3 Is there new information regarding the impacts of the groundfish fisheries on the resource?

In 2011, a trawl sweep modification requirement was implemented for vessels participating in the Bering Sea flatfish fishery resulting in less impact of the fishery on the seafloor. Elevating devices (e.g., discs or bobbins) are now required to be used on the trawl sweeps, to raise the sweeps off the seabed and limit adverse impacts of trawling on the seafloor. Research has demonstrated that this gear modification reduces unobserved mortality of red king crab, Tanner crab, and snow crab.

4 Are there new methods of analysis or protocols for evaluating impacts?

The stock assessment methods and protocols in the latest assessment do not differ substantially from those used in 2004. The present assessment using survey averaging of the past 7 years to calculate the ABC compared to using just the present year as was done in 2004.

5 Would a new analysis using the latest methods and information reach a seriously different conclusion?

No. The current analysis uses annual survey methods to assess the BSAI Other flatfish resource which is lightly harvested, primarily as bycatch in pursuit of other targeted species.

Template for PSEIS SIR – review of conclusions in 2004 PSEIS

draft 6/10/2013

What resource component is this review for? **GOA arrowtooth flounder**

What sections of the PSEIS were reviewed? **Section 4.9.1.8**

Please answer the following questions with respect to the resource component in question.

- Please provide rationale and discussion of your response, while at the same time keeping it fairly succinct.
- Where appropriate, reference other documents where analysis can be found in detail.
- Responses can be written out, or in bullets.
- In most cases, we are expecting something in the range of 2-5 pages for a particular resource component.

1 Has management of the resource changed?

GOA arrowtooth flounder were assessed and managed under Tier 3a in 2002 and continues to be managed with this methodology. The same model has been used since 2002. In 2006, the Gulf of Alaska arrowtooth flounder (*Atheresthes stomias*) stock was moved to a biennial stock assessment schedule to coincide with new survey data.

2 Has the status of the resource changed?

The status of the resource has been consistently increasing since 2002. The estimated total biomass of GOA arrowtooth flounder was estimated to be 1,816,000 mt at the beginning of 2002. Total biomass has been consistently increasing since that time and was estimated to be 2,055,560 mt at the beginning of 2013.

2 Is there new information regarding the impacts of the groundfish fisheries on the resource?

The Gulf of Alaska NMFS research survey takes place on a biennial basis; therefore, new survey information is available in even years. These surveys are expected to reflect the impact of groundfish fisheries on the resource. New fishery length data has been incorporated each year since 2002.

3 Are there new methods of analysis or protocols for evaluating impacts?

No significant new analyses have been implemented to assess the effect of the groundfish fishery on arrowtooth flounder.

4 Would a new analysis using the latest methods and information reach a seriously different conclusion?

No.

Template for PSEIS SIR – review of conclusions in 2004 PSEIS

draft 6/13/13

What resource component is this review for? ___GOA northern and southern rock sole

What sections of the PSEIS were reviewed? ___4.9.1.6

Please answer the following questions with respect to the resource component in question.

- Please provide rationale and discussion of your response, while at the same time keeping it fairly succinct.
- Where appropriate, reference other documents where analysis can be found in detail.
- Responses can be written out, or in bullets.
- In most cases, we are expecting something in the range of 2-5 pages for a particular resource component.

1 Has management of the resource changed?

The GOA northern and southern rock sole stocks were moved from NPFMC Tier 4 to Tier 3 in 2012. This change should have no significant impact on the resource, as the stocks are still managed as part of the GOA shallow-water flatfish complex.

2 Has the status of the resource changed?

The status of the GOA northern and southern rock sole stocks is similar to the status of the GOA shallow-water flatfish complex during the 2004 PSEIS and within the range of variability of the estimates at that time.

3 Is there new information regarding the impacts of the groundfish fisheries on the resource?

There are length and age composition data from the GOA NMFS bottom trawl survey for northern and southern rock sole for all survey years, although the data before 1996 are for undifferentiated rock sole. In addition, the fisheries observer program was restructured in 2013. This change will result in differences in the fishery data collected, and the significance of these changes for the GOA northern and southern rock sole stocks will not be determined for several years.

4 Are there new methods of analysis or protocols for evaluating impacts?

The methodology is similar to the 2004 PSEIS.

5 Would a new analysis using the latest methods and information reach a seriously different conclusion?

No. The current analysis uses modern methods and the GOA northern and southern rock sole assessment model is relatively robust to the assumptions of the analysis.

Review of Conclusions in 2004 PSEIS

draft 6/11/2013

What resource component is this review for? **GOA flathead sole**

What sections of the PSEIS were reviewed? **Section 4.9.1.7**

Please answer the following questions with respect to the resource component in question.

- Please provide rationale and discussion of your response, while at the same time keeping it fairly succinct.
- Where appropriate, reference other documents where analysis can be found in detail.
- Responses can be written out, or in bullets.
- In most cases, we are expecting something in the range of 2-5 pages for a particular resource component.

1 Has management of the resource changed?

Amendment 75 to the GOA Groundfish FMP (implemented June, 2005) revised the FMP to require that TACs be set equal or less than ABC (FMP Appendices, 2012). Amendment 87 (implemented Nov., 2010) revised the FMP to require annual catch limits (ACLs) and the use of accountability measures to ensure that ACLs are not exceeded, in accordance with National Standard 1 guidelines.

2 Has the status of the resource changed?

Based on a Tier 3 analysis, total biomass of the GOA flathead sole stock at the beginning of 2012 was projected in 2011 to be ~325,000 t, while female spawning biomass was projected to be almost ~110,000 t. The latter is almost $3x B_{35\%}$ (a proxy for B_{msy}) for this stock. Similar values were not available for the 2004 PSEIS, thus a determination of whether the stock was “overfished” could not be made. However, estimates of the trend ion survey biomass indicate that the population has increased since the 2004 PSEIS.

The catch taken in 2010 (3,842 t) was less than 10% of the ABC (47,422 t). While larger than the catch taken in 2002 (2,000 t; 2004 PSEIS, Section 4.9.1.7), the catch in 2010 was also well below the ABC, indicating that the stock continues to be only lightly exploited.

Qualitatively, then, it seems almost certain that the status of the resource has not changed since the 2004 PSEIS.

3 Is there new information regarding the impacts of the groundfish fisheries on the resource?

Yes. Estimates of total biomass and spawning biomass, as well as age and size composition, were not available for GOA flathead sole in the 2004 PSEIS. Estimates of these quantities are now available (Stockhausen et al., 2011).

4 Are there new methods of analysis or protocols for evaluating impacts?

Yes. For the purposes of the 2004 PSEIS, GOA flathead sole was evaluated as a Tier 4 stock. Beginning in 2003, and in subsequent years, GOA flathead sole has been evaluated as a Tier 3 stock (Stockhausen et al., 2011). As such, reliable estimates of $B_{35\%}$ (i.e., a proxy for B_{msy}) are now available that were not at the time of the 2004 PSEIS. However, GOA flathead sole is lightly exploited and similar conclusions would be reached with these (Tier 3) methods as were reached in the 2004 PSEIS.

5 Would a new analysis using the latest methods and information reach a seriously different conclusion?

No.

Citations

NPFMC. 2012. Fishery Management Plan for Groundfish of the Gulf of Alaska: Appendices. http://www.fakr.noaa.gov/npfmc/PDFdocuments/fmp/GOA/GOA_appdcs.pdf

Stockhausen, W. M.E. Wilkins and M.H. Martin. 2011. Chapter 8: Assessment of the Flathead Sole Stock in the Gulf of Alaska. *In: Stock Assessment and Fishery Evaluation Report for the Groundfish Resources of the Gulf of Alaska Region*. North Pacific Fishery Management Council, P.O. Box 103136, Anchorage, Alaska 99510. <http://www.afsc.noaa.gov/REFM/docs/2011/GOAflathead.pdf>

Template for PSEIS SIR – review of conclusions in 2004 PSEIS

draft 6/27/2013

What resource component is this review for? **GOA shallow water flatfish**

What sections of the PSEIS were reviewed? *Section 4.9.1.8*

Please answer the following questions with respect to the resource component in question.

- Please provide rationale and discussion of your response, while at the same time keeping it fairly succinct.
- Where appropriate, reference other documents where analysis can be found in detail.
- Responses can be written out, or in bullets.
- In most cases, we are expecting something in the range of 2-5 pages for a particular resource component.

1 Has management of the resource changed?

GOA shallow-water flatfish are managed as a complex, however species ABC's are determined under different tiers. The majority of the biomass is northern and southern rock sole which have been moved to Tier 3 in 2012 with the development of an assessment model. Other species in the complex are managed under Tier 5.

2 Has the status of the resource changed?

Rock sole survey biomass increased to 2009, then decreased in 2011. Other flatfish in the complex have generally been increasing or show no trend since 2004.

2 Is there new information regarding the impacts of the groundfish fisheries on the resource?

The Gulf of Alaska NMFS research survey takes place on a biennial basis. These surveys are expected to reflect the impact of groundfish fisheries on the resource.

3 Are there new methods of analysis or protocols for evaluating impacts?

No significant new analyses have been implemented to assess the effect of the groundfish fishery on the GOA shallow-water complex.

4 Would a new analysis using the latest methods and information reach a seriously different conclusion?

No.

Review of Conclusions in 2004 PSEIS

draft 6/11/2013

What resource component is this review for? **GOA deepwater flatfish**

What sections of the PSEIS were reviewed? **Section 4.9.1.9**

Please answer the following questions with respect to the resource component in question.

- Please provide rationale and discussion of your response, while at the same time keeping it fairly succinct.
- Where appropriate, reference other documents where analysis can be found in detail.
- Responses can be written out, or in bullets.
- In most cases, we are expecting something in the range of 2-5 pages for a particular resource component.

1 Has management of the resource changed?

Yes. Amendment 75 to the GOA Groundfish FMP (implemented June, 2005) revised the FMP to require that TACs be set equal or less than ABC (FMP Appendices, 2012). Amendment 87 (implemented Nov., 2010) revised the FMP to require annual catch limits (ACLs) and the use of accountability measures to ensure that ACLs are not exceeded, in accordance with National Standard 1 guidelines.

2 Has the status of the resource changed?

No. Although an age-structured assessment model now exists for GOA rex sole, this stock remains a Tier 5 species because a reliable estimate for $F_{35\%}$ does not exist--the fishery is selective only for mature fish and this renders an estimate of $F_{35\%}$ highly uncertain. Estimates of the trends in total and spawning biomass, as well as survey biomass from the GOA groundfish trawl survey, indicate that the population has increased since the 2004 PSEIS (Stockhausen et al., 2011). The catch taken in 2010 (3,636 t) was less than the ABC (9,729 t). While larger than the catch taken in 2002 (3,000 t; 2004 PSEIS, Section 4.9.1.10), the catch in 2010 was also well below the ABC, indicating that the stock continues to be only lightly exploited. Qualitatively, then, it seems almost certain that the status of the resource has not changed since the 2004 PSEIS.

3 Is there new information regarding the impacts of the groundfish fisheries on the resource?

Yes. Estimates of current total biomass and spawning biomass, as well as age and size composition, were not available for GOA rex sole in the 2004 PSEIS. Estimates of these quantities are now available (Stockhausen et al., 2011).

4 Are there new methods of analysis or protocols for evaluating impacts?

Yes. Subsequent to the 2004 PSEIS, an age-structured assessment model was developed for GOA rex sole. This model provides time series estimates of total and spawning stock biomass. Current year estimates of total and spawning stock biomass are both currently at high levels relative to estimates for 2004.

5 Would a new analysis using the latest methods and information reach a seriously different conclusion?

No. The GOA deepwater flatfish stock complex is lightly exploited and similar conclusions would be reached with the current methods as were reached in the 2004 PSEIS.

Citations

NPFMC. 2012. Fishery Management Plan for Groundfish of the Gulf of Alaska: Appendices. http://www.fakr.noaa.gov/npfmc/PDFdocuments/fmp/GOA/GOA_appdcs.pdf

Stockhausen, W. M.E. Wilkins and M.H. Martin. 2011. Chapter 6: Assessment of the Rex Sole Stock in the Gulf of Alaska. *In*: Stock Assessment and Fishery Evaluation Report for the Groundfish Resources of the Gulf of Alaska Region. North Pacific Fishery Management Council, P.O. Box 103136, Anchorage, Alaska 99510. <http://www.afsc.noaa.gov/REFM/docs/2011/GOArex.pdf>

Review of Conclusions in 2004 PSEIS

draft 6/11/2013

What resource component is this review for? **GOA rex sole**

What sections of the PSEIS were reviewed? **Section 4.9.1.10**

Please answer the following questions with respect to the resource component in question.

- Please provide rationale and discussion of your response, while at the same time keeping it fairly succinct.
- Where appropriate, reference other documents where analysis can be found in detail.
- Responses can be written out, or in bullets.
- In most cases, we are expecting something in the range of 2-5 pages for a particular resource component.

1 Has management of the resource changed?

Yes. Amendment 75 to the GOA Groundfish FMP (implemented June, 2005) revised the FMP to require that TACs be set equal or less than ABC (FMP Appendices, 2012). Amendment 87 (implemented Nov., 2010) revised the FMP to require annual catch limits (ACLs) and the use of accountability measures to ensure that ACLs are not exceeded, in accordance with National Standard 1 guidelines.

2 Has the status of the resource changed?

No. Although an age-structured assessment model now exists for GOA rex sole, this stock remains a Tier 5 species because a reliable estimate for $F_{35\%}$ does not exist--the fishery is selective only for mature fish and this renders an estimate of $F_{35\%}$ highly uncertain. Estimates of the trends in total and spawning biomass, as well as survey biomass from the GOA groundfish trawl survey, indicate that the population has increased since the 2004 PSEIS (Stockhausen et al., 2011). The catch taken in 2010 (3,636 t) was less than the ABC (9,729 t). While larger than the catch taken in 2002 (3,000 t; 2004 PSEIS, Section 4.9.1.10), the catch in 2010 was also well below the ABC, indicating that the stock continues to be only lightly exploited. Qualitatively, then, it seems almost certain that the status of the resource has not changed since the 2004 PSEIS.

3 Is there new information regarding the impacts of the groundfish fisheries on the resource?

Yes. Estimates of current total biomass and spawning biomass, as well as age and size composition, were not available for GOA rex sole in the 2004 PSEIS. Estimates of these quantities are now available (Stockhausen et al., 2011).

4 Are there new methods of analysis or protocols for evaluating impacts?

Yes. Subsequent to the 2004 PSEIS, an age-structured assessment model was developed for GOA rex sole. This model provides time series estimates of total and spawning stock biomass. Current year estimates of total and spawning stock biomass are both currently at high levels relative to estimates for 2004.

5 Would a new analysis using the latest methods and information reach a seriously different conclusion?

No. The GOA rex sole stock is lightly exploited and similar conclusions would be reached with the current methods as were reached in the 2004 PSEIS.

Citations

NPFMC. 2012. Fishery Management Plan for Groundfish of the Gulf of Alaska: Appendices. http://www.fakr.noaa.gov/npfmc/PDFdocuments/fmp/GOA/GOA_appdcs.pdf

Stockhausen, W. M.E. Wilkins and M.H. Martin. 2011. Chapter 6: Assessment of the Rex Sole Stock in the Gulf of Alaska. *In*: Stock Assessment and Fishery Evaluation Report for the Groundfish Resources of the Gulf of Alaska Region. North Pacific Fishery Management Council, P.O. Box 103136, Anchorage, Alaska 99510. <http://www.afsc.noaa.gov/REFM/docs/2011/GOArex.pdf>

Template for PSEIS SIR – review of conclusions in 2004 PSEIS

Draft ~6/19/13

What resource component is this review for? **BSAI Pacific ocean perch (POP)**

What sections of the PSEIS were reviewed? *Section 4.9.1.11*

Please answer the following questions with respect to the resource component in question.

- Please provide rationale and discussion of your response, while at the same time keeping it fairly succinct.
- Where appropriate, reference other documents where analysis can be found in detail.
- Responses can be written out, or in bullets.
- In most cases, we are expecting something in the range of 2-5 pages for a particular resource component.

1 Has management of the resource changed?

The management several BSAI trawl fisheries changed in 2008 with the implementation of Amendment 80 to the BSAI Fisheries Management Plan. The Amendment directly allocated fishery resources among BSAI trawl harvesters in consideration of their historic harvest patterns and future harvest needs in order to improve retention and utilization of fishery resources by the non-AFA trawl catcher/processor fleet. This was accomplished by extending the groundfish retention standards to all H&G vessels and also by providing the ability to form cooperatives within the newly formed Amendment 80 sector. The partitioning of TAC among cooperatives has allowed fishing for POP to occur more gradually throughout the year.

2 Has the status of the resource changed?

The estimated biomass of the BSAI Pacific ocean perch stock has approximately doubled since the 2004 stock assessment, due to high recent survey biomass estimates and evidence of relatively large recent year classes.

3 Is there new information regarding the impacts of the groundfish fisheries on the resource?

There is new scientific information indicating that the population structure for Pacific ocean perch may be at a smaller spatial scale (70 – 400 km; Palof et al. 2011) than the spatial scale for defining the stock or spatially allocating the ABC, which could potentially lead to reductions in yield and biomass if harvest was spatially disproportionate to biomass.

4 Are there new methods of analysis or protocols for evaluating impacts?

In 2010, a Plan Team –SSC stock structure committee developed a template for evaluating the types of information to be considered when defining the spatial bounds of “stocks” (Spencer et al 2010). Part of this template consists of evaluating spatial harvest patterns and whether disproportionate spatial harvesting patterns, if they exist, pose concerns regarding the impact of the fishery within management subareas.

5 Would a new analysis using the latest methods and information reach a seriously different conclusion?

The stock structure template has not been applied to BSAI POP, in part because the ABC for this stock has a higher degree of spatial partitioning than other BSAI rockfish stocks, which have thus received higher priority for application of the template. Given the sharp rise in biomass in recent years (which has occurred across all spatial subareas), it appears unlikely that conclusions from 2004 PSEIS would be affected from the new information. A full analysis of the impact of disproportionate harvest on yield and biomass for stock stocks which exhibit spatial structure would require population models that accounted for connectivity of populations of fish between subareas, and would be more complex than the models used for the 2004 PSEIS. However, work has begun on developing these types of models to simulate the types of impacts of disproportionate harvesting upon yield and stock size (I. Spies, AFSC, in prep).

References

- Palof, K.J., J. Heifetz, and A.J. Gharrett. 2011. Geographic structure in Alaskan Pacific ocean perch (*Sebastes alutus*) indicates limited lifetime dispersal. *Mar. Biol.* 158:779-792.
- Spencer, P., M. Canino, J. DiCosimo, M. Dorn, A.J. Gharrett, D. Hanselman, K. Palof, and M. Sigler. 2010. Guidelines for determination of spatial management units for exploited populations in Alaskan fishery groundfish management plans. Paper prepared for the September 2010 NPFMC Plan Team meeting.

Template for PSEIS SIR – review of conclusions in 2004 PSEIS

Draft ~6/19/13

What resource component is this review for? **BSAI Northern rockfish**

What sections of the PSEIS were reviewed? **Section 4.9.1.13**

Please answer the following questions with respect to the resource component in question.

- Please provide rationale and discussion of your response, while at the same time keeping it fairly succinct.
- Where appropriate, reference other documents where analysis can be found in detail.
- Responses can be written out, or in bullets.
- In most cases, we are expecting something in the range of 2-5 pages for a particular resource component.

1 Has management of the resource changed?

The management several BSAI trawl fisheries changed in 2008 with the implementation of Amendment 80 to the BSAI Fisheries Management Plan. The Amendment directly allocated fishery resources among BSAI trawl harvesters in consideration of their historic harvest patterns and future harvest needs in order to improve retention and utilization of fishery resources by the non-AFA trawl catcher/processor fleet. This was accomplished by extending the groundfish retention standards to all H&G vessels and also by providing the ability to form cooperatives within the newly formed Amendment 80 sector. BSAI northern rockfish are harvested largely as bycatch in the Atka mackerel fishery, which has been affected by Amendment 80. In 2010, the western Aleutian Islands subarea was closed for harvesting Atka mackerel, which has substantially reduced northern rockfish harvest in this area.

2 Has the status of the resource changed?

Northern rockfish were classified in Tier 5 when analysis for the 2004 PSEIS occurred, so status relative to stock size reference points were not available at that time. Beginning in 2004, northern rockfish have been classified in Tier 3 and an age-structure model has been used for their assessment. The estimated stock size has been relatively flat since 2000, with the stock size exceeding $B_{40\%}$ and the fishing mortality rates less than $F_{40\%}$.

3 Is there new information regarding the impacts of the groundfish fisheries on the resource?

There is new scientific information indicating that the population structure for BSAI northern rockfish may be at a smaller spatial scale (100 – 200 km; Gharrett et al. 2012) than the spatial scale for defining the stock or spatially allocating the ABC, which could potentially lead to reductions in yield and biomass if harvest was spatially disproportionate to biomass.

4 Are there new methods of analysis or protocols for evaluating impacts?

In 2010, a Plan Team –SSC stock structure committee developed a template for evaluating the types of information to be considered when defining the spatial bounds of “stocks” (Spencer et al. 2010). Part of this template consists of evaluating spatial harvest patterns and whether disproportionate spatial harvesting patterns, if they exist, pose concerns regarding the impact of the fishery within management subareas. This template was applied to BSAI northern rockfish in 2012, and indicated that disproportionate harvesting has occurred in some years in the central and eastern Aleutian Islands (Appendix A in Spencer and Ianelli 2012).

5 Would a new analysis using the latest methods and information reach a seriously different conclusion?

The 2004 PSEIS evaluated the impact of spatial concentration of the catch with respect to, in part, reductions in “genetic diversity”. Given that reductions in genetic diversity would be expected to occur at very low stock sizes, it is not clear that the conclusions from the 2004 PSEIS using this criterion would be affected from new information on stock structure. However, in developing the stock structure template, Spencer et al. (2010) focused on the potential loss of biomass and yield that may occur from harvests that are spatially disproportionate for biomass for stocks that exhibit spatial structure. Under this criterion, it would be expected that consistent disproportionate spatial harvesting would be expected to result in reductions of biomass and yield in subareas with high exploitation rates. A full analysis of these impacts would require population models that accounted for connectivity of populations of fish between subareas, and would be more complex than the models used for the 2004 PSEIS. However, work has begun on developing these types of models to simulate the types of impacts of disproportionate harvesting upon yield and stock size (I. Spies, AFSC, in prep).

In 2013, a workshop was held to discuss how information on stock structure could be used to inform management decisions, with consideration to a variety of risks to the underlying stock and the resource users. The report from this workshop will hopefully provide some guidance for how to evaluate our management policy for stocks like BSAI northern rockfish, which exhibit stock structure at spatial scales smaller than our current management units, and have occasionally shown disproportionate harvesting patterns.

References

- Gharrett, A.J., R.J. Riley, and P.D. Spencer. 2012. Genetic analysis reveals restricted dispersal of northern rockfish along the continental margin of the Bering Sea and Aleutian Islands. *Trans. Am. Fish. Soc.* 141:370-382.
- Spencer, P.D., and J.N. Ianelli. 2012. Assessment of the northern rockfish stock in the eastern Bering Sea and Aleutian Islands. In *Stock assessment and fishery evaluation report for the groundfish resources of the Bering Sea/Aleutian Islands regions*, pp. 1349-1422. North Pacific Fishery Management Council, 605 W. 4th Ave, suite 306. Anchorage, AK 99501.
- Spencer, P., M. Canino, J. DiCosimo, M. Dorn, A.J. Gharrett, D. Hanselman, K. Palof, and M. Sigler. 2010. Guidelines for determination of spatial management units for exploited populations in Alaskan fishery groundfish management plans. Paper prepared for the September 2010 NPFMC Plan Team meeting.

Template for PSEIS SIR – review of conclusions in 2004 PSEIS

Draft ~6/19/13

What resource component is this review for? **BSAI Shortraker rockfish**
 What sections of the PSEIS were reviewed? *Section 4.9.1.13*

Please answer the following questions with respect to the resource component in question.

- Please provide rationale and discussion of your response, while at the same time keeping it fairly succinct.
- Where appropriate, reference other documents where analysis can be found in detail.
- Responses can be written out, or in bullets.
- In most cases, we are expecting something in the range of 2-5 pages for a particular resource component.

1 Has management of the resource changed?

Shortraker rockfish are harvested as bycatch in other target fisheries, primarily the BSAI POP fishery. The management of the BSAI POP, and several other BSAI trawl fisheries, changed in 2008 with the implementation of Amendment 80 to the BSAI Fisheries Management Plan. The Amendment directly allocated fishery resources among BSAI trawl harvesters in consideration of their historic harvest patterns and future harvest needs in order to improve retention and utilization of fishery resources by the non-AFA trawl catcher/processor fleet. This was accomplished by extending the groundfish retention standards to all H&G vessels and also by providing the ability to form cooperatives within the newly formed Amendment 80 sector. These management changes have affected the seasonal distribution of harvest, with relatively more harvest occurring in the fall than in previous years.

Additionally, BSAI shortraker rockfish were managed as part of the BSAI rougheye/shortraker species complex when the 2004 PSEIS was completed, and are now managed within their own single-species management category.

2 Has the status of the resource changed?

Shortraker rockfish are managed under Tier 5, and the 2004 PSEIS states that reliable estimates of total and spawning biomass are not available. However, estimates of biomass are obtained from the Tier 5 stock assessments, and are based on smoothing survey biomass estimates. The estimated biomass for 2012 (17,000 t) is a slight decrease from the estimate for 2004 (20,000 t).

3 Is there new information regarding the impacts of the groundfish fisheries on the resource?

There is no new information regarding the impacts of the groundfish fisheries on BSAI shortraker rockfish.

4 Are there new methods of analysis or protocols for evaluating impacts?

In 2010, a Plan Team –SSC stock structure committee developed a template for evaluating the types of information to be considered when defining the spatial bounds of “stocks” (Spencer et al 2010). Part of this template consists of evaluating spatial harvest patterns and whether disproportionate spatial harvesting patterns, if they exist, pose concerns regarding the impact of the fishery within management subareas. This template is scheduled to be applied to BSAI shortraker rockfish in 2013.

5 Would a new analysis using the latest methods and information reach a seriously different conclusion?

The 2004 PSEIS evaluated the impact of spatial concentration of the catch with respect to, in part, reductions in “genetic diversity”. Given that reductions in genetic diversity would be expected to occur at very low stock sizes, it is not clear that the conclusions from the 2004 PSEIS using this criterion would be affected from new information on stock structure. However, in developing the stock structure template, Spencer et al. (2010) focused on the potential loss of biomass and yield that may occur from harvests that are spatially disproportionate for biomass for stocks that exhibit spatial structure. Under this criterion, it would be expected that consistent disproportionate spatial harvesting for stocks with spatial structure would be expected to result in reductions of biomass and yield. Limited genetic samples currently exist for BSAI shortraker rockfish.

In 2013, a workshop was held to discuss how information on stock structure could be used to inform management decisions, with consideration to a variety of risks to the underlying stock and the resource users. The report from this workshop will hopefully provide some guidance for how to evaluate our management policy for BSAI rockfish.

References

Spencer, P., M. Canino, J. DiCosimo, M. Dorn, A.J. Gharrett, D. Hanselman, K. Palof, and M. Sigler. 2010. Guidelines for determination of spatial management units for exploited populations in Alaskan fishery groundfish management plans. Paper prepared for the September 2010 NPFMC Plan Team meeting.

Template for PSEIS SIR – review of conclusions in 2004 PSEIS

Draft ~6/19/13

What resource component is this review for? **BSAI Blackspotted/rougheye rockfish**
What sections of the PSEIS were reviewed? *Section 4.9.1.13*

Please answer the following questions with respect to the resource component in question.

- Please provide rationale and discussion of your response, while at the same time keeping it fairly succinct.
- Where appropriate, reference other documents where analysis can be found in detail.
- Responses can be written out, or in bullets.
- In most cases, we are expecting something in the range of 2-5 pages for a particular resource component.

1 Has management of the resource changed?

Blackspotted/rougheye rockfish are harvested as bycatch in other target fisheries, primarily the BSAI POP fishery. The management of the BSAI POP, and several other BSAI trawl fisheries, changed in 2008 with the implementation of Amendment 80 to the BSAI Fisheries Management Plan. The Amendment directly allocated fishery resources among BSAI trawl harvesters in consideration of their historic harvest patterns and future harvest needs in order to improve retention and utilization of fishery resources by the non-AFA trawl catcher/processor fleet. This was accomplished by extending the groundfish retention standards to all H&G vessels and also by providing the ability to form cooperatives within the newly formed Amendment 80 sector. These management changes have affected the seasonal distribution of harvest, with relatively more harvest occurring in the fall than in previous years. However, in 2010 the western Aleutian Islands was closed for harvesting Atka mackerel, and many of the vessels that target Atka mackerel also target POP. This has resulted in harvesting of western Aleutian Islands POP, and thus the bycatch of blackspotted/rougheye, primarily during the summer in recent years in this subarea.

Additionally, BSAI blackspotted/rougheye rockfish were managed as part of the BSAI rougheye/shorthead species complex when the 2004 PSEIS was completed, and are now managed within their own management category. Fish formerly referred to as rougheye rockfish were found to comprise two species, with the new species blackspotted rockfish being identified. Finally, in 2010 the BSAI ABC for blackspotted/rougheye was partitioned between a Western and Central AI ABC, and an Eastern AI and EBS ABC.

2 Has the status of the resource changed?

Blackspotted/rougheye rockfish were classified in Tier 5 when analysis for the 2004 PSEIS occurred, so status relative to stock size reference points were not available at that time. Beginning in 2009, blackspotted/rougheye rockfish have been classified in Tier 3 and an age-structure model has been used for their assessment. The estimated BSAI stock size has increased since 2000, based largely upon the age and size composition data indicating relatively strong recent year classes.

3 Is there new information regarding the impacts of the groundfish fisheries on the resource?

There is new scientific information indicating that the population structure for BSAI blackspotted rockfish may be at a smaller spatial scale (< 500 km; Appendix A in Spencer and Rooper 2010) than the spatial scale of the BSAI area, and this information led to the partitioning the ABC within the BSAI. Subsequent analyses (Appendix A in Spencer and Rooper 2012) have revealed disproportionate

harvesting and a consistent pattern of high exploitation rates in the western Aleutian Islands that exceed those corresponding to the $F_{40\%}$ reference points. Since 2004, approximately 43% of the Aleutian Islands blackspotted/rougheye harvest has occurred in the western Aleutian Islands, an area with approximately 8% of the AI survey biomass. A decline in the western AI survey biomass has occurred since the early 1990s; each of the biomass estimates from 2000 – 2010 (averaging 1,059 t) is below each of the biomass estimates from 1991-1997 (averaging 3,156 t), and the 2012 survey estimate has declined to 335 t, the lowest value on record for this subarea.

4 Are there new methods of analysis or protocols for evaluating impacts?

In 2010, a Plan Team –SSC stock structure committee developed a template for evaluating the types of information to be considered when defining the spatial bounds of “stocks” (Spencer et al. 2010). This template was applied to BSAI blackspotted/rougheye rockfish in 2010, and documents existing genetic information that indicates that the spatial structure is estimated to not exceed ~ 500 km. Additional analyses (Appendix A in Spencer and Rooper 2012) have generated area-specific exploitation rates, and reference exploitation rates that correspond harvesting at $F_{40\%}$.

5 Would a new analysis using the latest methods and information reach a seriously different conclusion?

The 2004 PSEIS evaluated the impact of spatial concentration of the catch with respect to, in part, reductions in “genetic diversity”. Given that reductions in genetic diversity would be expected to occur at very low stock sizes, it is not clear that the conclusions from the 2004 PSEIS using this criterion would be affected from new information on stock structure. However, in developing the stock structure template, Spencer et al. (2010) focused on the potential loss of biomass and yield that may occur from harvests that are spatially disproportionate to biomass for stocks that exhibit spatial structure. Under this criterion, it would be expected that consistent disproportionate spatial harvesting would be expected to result in reductions of biomass and yield in subareas with high exploitation rates. A full analysis of these impacts would require population models that accounted for connectivity of populations of fish between subareas, and would be more complex than the models used for the 2004 PSEIS. However, work has begun on developing these types of models to simulate the types of impacts of disproportionate harvesting upon yield and stock size (I. Spies, AFSC, in prep).

In 2013, a workshop was held to discuss how information on stock structure could be used to inform management decisions, with consideration to a variety of risks to the underlying stock and the resource users. The report from this workshop will hopefully provide guidance for how to evaluate our management policy for stocks like BSAI blackspotted/rougheye rockfish, which exhibit: 1) stock structure at spatial scales smaller than our current management units; 2) disproportionate harvesting patterns and high subarea exploitation rates; and 3) declines in subarea population abundance.

References

- Spencer, P.D., and C.N. Rooper. 2012. Assessment of the blackspotted and rougheye rockfish complex in the eastern Bering Sea and Aleutian Islands. In Stock assessment and fishery evaluation report for the groundfish resources of the Bering Sea/Aleutian Islands regions, pp. 1423-1496. North Pacific Fishery Management Council, 605 W. 4th Ave, suite 306. Anchorage, AK 99501
- Spencer, P.D., and C.N. Rooper. 2010. Assessment of the blackspotted and rougheye rockfish complex in the eastern Bering Sea and Aleutian Islands. In Stock assessment and fishery evaluation report for the groundfish resources of the Bering Sea/Aleutian Islands region as projected for 2011, pp.

1127-1194. North Pacific Fishery Management Council, 605 W. 4th Ave, suite 306. Anchorage, AK 99501

Spencer, P., M. Canino, J. DiCosimo, M. Dorn, A.J. Gharrett, D. Hanselman, K. Palof, and M. Sigler. 2010. Guidelines for determination of spatial management units for exploited populations in Alaskan fishery groundfish management plans. Paper prepared for the September 2010 NPFMC Plan Team meeting.

Template for PSEIS SIR – review of conclusions in 2004 PSEIS

Draft ~6/19/13

What resource component is this review for? **BSAI other rockfish**

What sections of the PSEIS were reviewed? *Section 4.9.1.13*

Please answer the following questions with respect to the resource component in question.

- Please provide rationale and discussion of your response, while at the same time keeping it fairly succinct.
- Where appropriate, reference other documents where analysis can be found in detail.
- Responses can be written out, or in bullets.
- In most cases, we are expecting something in the range of 2-5 pages for a particular resource component.

1 Has management of the resource changed?

Since the 2004 PSEIS, there has not been substantial management changes that has affected BSAI Other Rockfish.

2 Has the status of the resource changed?

BSAI Other Rockfish are managed under Tier 5, and the 2004 PSEIS states that reliable estimates of total and spawning biomass are not available. However, estimates of biomass are obtained from the Tier 5 stock assessments, and are based on smoothing survey biomass estimates. The AI survey biomass estimate for Other Rockfish in 2012 is similar to estimates in the early 2000s, whereas the estimates from the EBS slope survey have increased from 17,000 t in 2002 to 30,000 t in 2012.

3 Is there new information regarding the impacts of the groundfish fisheries on the resource?

There is no new information regarding the impacts of the groundfish fisheries on BSAI Other Rockfish.

4 Are there new methods of analysis or protocols for evaluating impacts?

There are no new methods for evaluating fishery impacts upon BSAI Other Rockfish.

5 Would a new analysis using the latest methods and information reach a seriously different conclusion?

Given the criteria used for the 2004 PSEIS and the absence of new information for BSAI Other Rockfish, it is unlikely that a reanalysis would yield a seriously different conclusion regarding the impact to the stock.

Template for PSEIS SIR – review of conclusions in 2004 PSEIS

draft 6/13/13

What resource component is this review for? ___ Gulf of Alaska Pacific ocean perch
 What sections of the PSEIS were reviewed? ___ 4.9.1.11

Please answer the following questions with respect to the resource component in question.

- Please provide rationale and discussion of your response, while at the same time keeping it fairly succinct.
- Where appropriate, reference other documents where analysis can be found in detail.
- Responses can be written out, or in bullets.
- In most cases, we are expecting something in the range of 2-5 pages for a particular resource component.

1 Has management of the resource changed?

In November, 2006, NMFS issued a final rule to implement Amendment 68 of the GOA groundfish Fishery Management Plan for 2007 through 2011. This action implemented the Central GOA Rockfish Pilot Program (RPP). The intention of this program is to enhance resource conservation and improve economic efficiency for harvesters and processors in the rockfish fishery. This should spread out the fishery in time and space, allowing for better prices for product and reducing the pressure of what was an approximately two week fishery in July. In a comparison of catches in the four years before the RPP to the four years after, it appears some effort has shifted to area 620 (Chirikof) from area 630 (Kodiak).

In 2012 this was implemented permanently as the Rockfish Program. The Rockfish Program assigns quota shares for primary rockfish species and secondary target species. Primary rockfish species are northern rockfish, Pacific ocean perch, and pelagic shelf rockfish (now dusky rockfish). Secondary target species are Pacific cod, rougheye/blackspotted rockfish, shortraker rockfish, sablefish, and thornyhead rockfish. Each year the quota shares are assigned to a rockfish cooperative. Each rockfish cooperative receives an annual cooperative fishing quota, which is an amount of primary and secondary rockfish species the cooperative is able to harvest in that fishing year. Halibut Prohibited Species Catch is also allocated to participants based on historic halibut mortality rates in the primary rockfish species fisheries. Shore-based processors receiving rockfish quota share must be located within the boundaries of the City of Kodiak. The rockfish cooperative fishing season is authorized May 1 through November 15 of each year, whereas in the past, a very short season in July was prosecuted.

2 Has the status of the resource changed?

The status of the GOA Pacific ocean perch stock is similar to the status during the 2004 PSEIS and within the range of variability of the estimates at that time.

3 Is there new information regarding the impacts of the groundfish fisheries on the resource?

Use of pelagic trawl gear has increased gradually over time and is now 31% of effort for POP in the Gulf of Alaska (GOA POP SAFE, Hanselman et al. 2011). This should reduce any potential effects of the POP fishery on habitat suitability for GOA POP. Several genetic analyses of POP stock structure have suggested that POP are at risk of localized depletion because of very low estimated lifetime movement potential. However, an analysis of localized depletion using fishery catch-per-unit effort data showed that large areas filled back in with similar amounts of fish in subsequent years. The rockfish fishery, which is the main source of mortality for GOA POP, is prosecuted over a longer period of time.

4 Are there new methods of analysis or protocols for evaluating impacts?

The stock assessment and projection models are similar to those used in the PSEIS.

5 Would a new analysis using the latest methods and information reach a seriously different conclusion?

No. The previous analysis in the 2004 PSEIS was based on the standard projection model which is still used, and the stock assessment that the projection was based on is similar to the one used now.

Template for PSEIS SIR – review of conclusions in 2004 PSEIS

draft 6/13/13

What resource component is this review for? ___ Gulf of Alaska northern rockfish
What sections of the PSEIS were reviewed? ___ 4.9.1.13

Please answer the following questions with respect to the resource component in question.

- Please provide rationale and discussion of your response, while at the same time keeping it fairly succinct.
- Where appropriate, reference other documents where analysis can be found in detail.
- Responses can be written out, or in bullets.
- In most cases, we are expecting something in the range of 2-5 pages for a particular resource component.

1 Has management of the resource changed?

In November, 2006, NMFS issued a final rule to implement Amendment 68 of the GOA groundfish Fishery Management Plan for 2007 through 2011. This action implemented the Central GOA Rockfish Pilot Program (RPP). The intention of this program is to enhance resource conservation and improve economic efficiency for harvesters and processors in the rockfish fishery. This should spread out the fishery in time and space, allowing for better prices for product and reducing the pressure of what was an approximately two week fishery in July. In a comparison of catches in the four years before the RPP to the four years after, it appears that average catches have increased overall (although, this may be due to increased observer coverage) and have spread out spatially in the western and central Gulf.

In 2012 this was implemented permanently as the Rockfish Program. The Rockfish Program assigns quota shares for primary rockfish species and secondary target species. Primary rockfish species are northern rockfish, Pacific ocean perch, and pelagic shelf rockfish (now dusky rockfish). Secondary target species are Pacific cod, rougheye/blackspotted rockfish, shortraker rockfish, sablefish, and thornyhead rockfish. Each year the quota shares are assigned to a rockfish cooperative. Each rockfish cooperative receives an annual cooperative fishing quota, which is an amount of primary and secondary rockfish species the cooperative is able to harvest in that fishing year. Halibut Prohibited Species Catch is also allocated to participants based on historic halibut mortality rates in the primary rockfish species fisheries. Shore-based processors receiving rockfish quota share must be located within the boundaries of the City of Kodiak. The rockfish cooperative fishing season is authorized May 1 through November 15 of each year, whereas in the past, a very short season in July was prosecuted.

2 Has the status of the resource changed?

The status of the GOA northern rockfish stock is similar to the status during the 2004 PSEIS and within the range of variability of the estimates at that time.

3 Is there new information regarding the impacts of the groundfish fisheries on the resource?

Use of pelagic trawl gear has increased gradually over time in the Gulf of Alaska (GOA Northern rockfish SAFE, Huslon et al. 2011). This should reduce the chance for any effects on habitat suitability from the GOA northern rockfish fishery.

4 Are there new methods of analysis or protocols for evaluating impacts?

The methodology is similar to the 2004 PSEIS.

5 Would a new analysis using the latest methods and information reach a seriously different conclusion?

No. The current analysis uses modern methods and the Gulf of Alaska northern rockfish assessment model indicates that the conclusions of the 2004 PSEIS are still valid.

Template for PSEIS SIR – review of conclusions in 2004 PSEIS

draft 6/13/13

What resource component is this review for? ___ Gulf of Alaska shortraker rockfish

What sections of the PSEIS were reviewed? ___ 4.9.1.13

Please answer the following questions with respect to the resource component in question.

- Please provide rationale and discussion of your response, while at the same time keeping it fairly succinct.
- Where appropriate, reference other documents where analysis can be found in detail.
- Responses can be written out, or in bullets.
- In most cases, we are expecting something in the range of 2-5 pages for a particular resource component.

1 Has management of the resource changed?

In November, 2006, NMFS issued a final rule to implement Amendment 68 of the GOA groundfish Fishery Management Plan for 2007 through 2011. This action implemented the Central GOA Rockfish Pilot Program (RPP). The intention of this program is to enhance resource conservation and improve economic efficiency for harvesters and processors in the rockfish fishery. This should spread out the fishery in time and space, allowing for better prices for product and reducing the pressure of what was an approximately two week fishery in July.

In 2012 this was implemented permanently as the Rockfish Program. The Rockfish Program assigns quota shares for primary rockfish species and secondary target species. Primary rockfish species are northern rockfish, Pacific ocean perch, and pelagic shelf rockfish (now dusky rockfish). Secondary target species are Pacific cod, rougheye/blackspotted rockfish, shortraker rockfish, sablefish, and thornyhead rockfish. Each year the quota shares are assigned to a rockfish cooperative. Each rockfish cooperative receives an annual cooperative fishing quota, which is an amount of primary and secondary rockfish species the cooperative is able to harvest in that fishing year. Halibut Prohibited Species Catch is also allocated to participants based on historic halibut mortality rates in the primary rockfish species fisheries. Shore-based processors receiving rockfish quota share must be located within the boundaries of the City of Kodiak. The rockfish cooperative fishing season is authorized May 1 through November 15 of each year, whereas in the past, a very short season in July was prosecuted.

Starting in 2005, Gulf of Alaska shortraker rockfish was separated from the shortraker and rougheye rockfish complex. Shortraker is a stand-alone Tier 5 assessment because of its relatively high value, but is not able to be elevated to a higher tier, primarily because of uncertainty in the validity of age readings. There is no target fishery for shortraker rockfish, but they are retained in the Rockfish program and by longliners fishing sablefish.

2 Has the status of the resource changed?

Because the shortraker rockfish stock is in Tier 5, its stock status cannot be determined. As in the 2004 PSEIS, overfishing is not occurring for the GOA shortraker rockfish stock.

3 Is there new information regarding the impacts of the groundfish fisheries on the resource?

Yes, the stock is now managed separately so catch is better accounted for and impact of the fishery can be is monitored more closely.

4 Are there new methods of analysis or protocols for evaluating impacts?

There has been additional work on determining age compositions of shortraker rockfish and there is also potential to attempt length-based methods to be able to better assess stock status.

5 Would a new analysis using the latest methods and information reach a seriously different conclusion?

No. Since the fishery is not opened as a target fishery, it is unlikely that a conservation concern has developed since the 2004 PSEIS.

Template for PSEIS SIR – review of conclusions in 2004 PSEIS

draft 6-13-13

What resource component is this review for? ___ Gulf of Alaska rougheye/blackspotted rockfish
What sections of the PSEIS were reviewed? ___ 4.9.1.13

Please answer the following questions with respect to the resource component in question.

- Please provide rationale and discussion of your response, while at the same time keeping it fairly succinct.
- Where appropriate, reference other documents where analysis can be found in detail.
- Responses can be written out, or in bullets.
- In most cases, we are expecting something in the range of 2-5 pages for a particular resource component.

1 Has management of the resource changed?

In November, 2006, NMFS issued a final rule to implement Amendment 68 of the GOA groundfish Fishery Management Plan for 2007 through 2011. This action implemented the Central GOA Rockfish Pilot Program (RPP). The intention of this program is to enhance resource conservation and improve economic efficiency for harvesters and processors in the rockfish fishery. This should spread out the fishery in time and space, allowing for better prices for product and reducing the pressure of what was an approximately two week fishery in July.

In 2012 this was implemented permanently as the Rockfish Program. The Rockfish Program assigns quota shares for primary rockfish species and secondary target species. Primary rockfish species are northern rockfish, Pacific ocean perch, and pelagic shelf rockfish (now dusky rockfish). Secondary target species are Pacific cod, rougheye/blackspotted rockfish, shortraker rockfish, sablefish, and thornyhead rockfish. Each year the quota shares are assigned to a rockfish cooperative. Each rockfish cooperative receives an annual cooperative fishing quota, which is an amount of primary and secondary rockfish species the cooperative is able to harvest in that fishing year. Halibut Prohibited Species Catch is also allocated to participants based on historic halibut mortality rates in the primary rockfish species fisheries. Shore-based processors receiving rockfish quota share must be located within the boundaries of the City of Kodiak. The rockfish cooperative fishing season is authorized May 1 through November 15 of each year, whereas in the past, a very short season in July was prosecuted.

Starting in 2004, shortraker and rougheye rockfish were divided into separate subgroups and assigned individual ABCs and TACs. In 2005, rougheye was moved to Tier 3 status as an age structured model was accepted for determining ABC and OFL. It can now be identified that overfishing is not occurring for this stock, and that the stock is not overfished. In 2008, the rougheye rockfish was formally identified as a complex of two sibling species called rougheye (*Sebastes aleutianus*) and blackspotted (*S. melanostictus*) rockfish. They continue to be assessed as a Tier 3 stock complex.

2 Has the status of the resource changed?

Because the rougheye and blackspotted complex is in Tier 3, it can now be identified that overfishing is not occurring, and the stock is not overfished. This status would have been unknown during the 2004 PSEIS.

3 Is there new information regarding the impacts of the groundfish fisheries on the resource?

Yes, the complex is now managed separately from shortraker rockfish so catch is better accounted for and impact of the fishery can be monitored more closely.

4 Are there new methods of analysis or protocols for evaluating impacts?

The 2004 PSEIS used a projection model for Tier 3 stocks. The rougheye/blackspotted assessment is now an age-structured stand-alone assessment in Tier 3, so impacts of the fishery on the resource can be better monitored and the 2004 projection analysis could be repeated including the RE/BS complex.

5 Would a new analysis using the latest methods and information reach a seriously different conclusion?

Yes. The change in biomass category could be changed from “unknown” to “insignificant” for both direct/indirect and cumulative effects.

Template for PSEIS SIR – review of conclusions in 2004 PSEIS

draft 6/13/13

What resource component is this review for? ___ Gulf of Alaska dusky rockfish
 What sections of the PSEIS were reviewed? ___ 4.9.1.13

Please answer the following questions with respect to the resource component in question.

- Please provide rationale and discussion of your response, while at the same time keeping it fairly succinct.
- Where appropriate, reference other documents where analysis can be found in detail.
- Responses can be written out, or in bullets.
- In most cases, we are expecting something in the range of 2-5 pages for a particular resource component.

1 Has management of the resource changed?

In November, 2006, NMFS issued a final rule to implement Amendment 68 of the GOA groundfish Fishery Management Plan for 2007 through 2011. This action implemented the Central GOA Rockfish Pilot Program (RPP). The intention of this program is to enhance resource conservation and improve economic efficiency for harvesters and processors in the rockfish fishery. This should spread out the fishery in time and space, allowing for better prices for product and reducing the pressure of what was an approximately two week fishery in July. In a comparison of catches in the four years before the RPP to the four years after, it appears that average catches have increased overall (although, this may be due to increased observer coverage) and have spread out spatially in the western and central Gulf.

In 2012 this was implemented permanently as the Rockfish Program. The Rockfish Program assigns quota shares for primary rockfish species and secondary target species. Primary rockfish species are northern rockfish, Pacific ocean perch, and pelagic shelf rockfish (now dusky rockfish). Secondary target species are Pacific cod, rougheye/blackspotted rockfish, shortraker rockfish, sablefish, and thornyhead rockfish. Each year the quota shares are assigned to a rockfish cooperative. Each rockfish cooperative receives an annual cooperative fishing quota, which is an amount of primary and secondary rockfish species the cooperative is able to harvest in that fishing year. Halibut Prohibited Species Catch is also allocated to participants based on historic halibut mortality rates in the primary rockfish species fisheries. Shore-based processors receiving rockfish quota share must be located within the boundaries of the City of Kodiak. The rockfish cooperative fishing season is authorized May 1 through November 15 of each year, whereas in the past, a very short season in July was prosecuted.

For 2012, widow and yellowtail rockfish were removed from the pelagic shelf rockfish complex effectively leaving dusky rockfish as a stand-alone Tier 3 species. Widow and yellowtail rockfish were moved to a new “Other rockfish” category with the old “Slope rockfish” category species. Because dusky rockfish is in Tier 3, it can now be identified that overfishing is not occurring, and the stock is not overfished.

2 Has the status of the resource changed?

Because dusky rockfish is in Tier 3, it can now be identified that overfishing is not occurring, and the stock is not overfished. This status would have been unknown during the 2004 PSEIS.

3 Is there new information regarding the impacts of the groundfish fisheries on the resource?

Bycatch estimates decreased for the majority of species in the Central GOA following the implementation of the Rockfish Pilot Program. Use of pelagic trawl gear has increased gradually over time in the Gulf of Alaska (GOA dusky rockfish SAFE, Lunsford et al. 2011). This should reduce the chance for any effects on habitat suitability from the GOA dusky fishery.

4 Are there new methods of analysis or protocols for evaluating impacts?

The 2004 PSEIS used a projection model for Tier 3 stocks. The dusky rockfish assessment is now an age-structured stand-alone assessment in Tier 3, so impacts of the fishery on the resource can be better monitored and the 2004 projection analysis could be repeated including the GOA dusky rockfish stock.

5 Would a new analysis using the latest methods and information reach a seriously different conclusion?

Yes. The change in biomass category could be changed from “unknown” to “insignificant” for both direct/indirect and cumulative effects.

Template for PSEIS SIR – review of conclusions in 2004 PSEIS

draft 3/13/14

What resource component is this review for? Demersal Shelf Rockfish
What sections of the PSEIS were reviewed? 4.9.1.13

Please answer the following questions with respect to the resource component in question.

- Please provide rationale and discussion of your response, while at the same time keeping it fairly succinct.
- Where appropriate, reference other documents where analysis can be found in detail.
- Responses can be written out, or in bullets.
- In most cases, we are expecting something in the range of 2-5 pages for a particular resource component.

1 Has management of the resource changed?

In 1998 the NPFMC passed an amendment to require full retention of DSR in federal waters. Seven years later, in mid-season 2005, the final rule was published and fishermen must now retain and report all DSR caught in federal waters; any poundage above the 10% bycatch allowance may be donated or kept for personal use but may not enter commerce. The requirement for full retention of rockfish in both federal and state waters allows for better accounting of total mortality.

In 2006 the Alaska Board of Fisheries implemented a regulation to allocate the DSR Total Allowable Catch (TAC) as follows: 16% to the recreational fishery, and 84% to the commercial fisheries.

In 2009, the Alaska Board of Fisheries implemented a regulation that required the estimated harvest of DSR subsistence catch to be deducted from the acceptable biological catch (ABC) of DSR prior to allocation of the TAC.

2 Has the status of the resource changed?

As in 2004, DSR remains in Tier 4, thus stock status cannot be determined. As in the 2004 PSEIS, overfishing is not occurring for the DSR. However, survey estimates have indicated a decline in population biomass despite the continued use of a harvest rate lower than the maximum allowed under Tier 4. Under Tier 4 definitions for setting ABC, $F_{40\%}=0.026$ would be used, but we continue to use a more conservative approach ($F=M=0.02$).

3 Is there new information regarding the impacts of the groundfish fisheries on the resource?

A large proportion of the DSR total mortality is from bycatch in the IFQ halibut fishery. Decreasing halibut quotas in area 3A and 2C have reduced the DSR bycatch in these fisheries as well. New information from the expanded observer program may shed light on whether the full retention rockfish regulation is being complied with.

4 Are there new methods of analysis or protocols for evaluating impacts?

Historically, and at the time of the 2004 PSEIS, the R/V *Delta*, a manned submersible, was used to assess DSR during line transect surveys. Since 2012, the submersible has been replaced with a Remote Operated Vehicle (ROV) since the *Delta* is no longer available for charter. We are using the same survey

techniques and survey design with the new vehicle, however we will be including both the submersible and ROV data survey estimates, total catch, and biological data into an age structured assessment (ASA) model is for the 2014 assessment cycle. If this ASA model is accepted it is likely the DSR complex would be moved to Tier 3 and impacts of the fishery on the resource can be better assessed. The ROV is outfitted with a pair of stereo cameras, which allows us to record fish length from the survey, which was previously unavailable.

Also, additional habitat mapping has been conducted since 2004 which allows us to better refine our rockfish habitat estimation.

5 **Would a new analysis using the latest methods and information reach a seriously different conclusion?**

The current analyses indicates that the conclusions of the 2004 PSEIS are still valid, however if DSR are moved to a different Tier status after review of the ASA model in 2014, then it is possible that the Category “change in biomass level” could change from unknown to a different rating.

Template for PSEIS SIR – review of conclusions in 2004 PSEIS

draft 6/13/13

What resource component is this review for? Gulf of Alaska thornyhead rockfish complex
 What sections of the PSEIS were reviewed? 4.9.1.12

Please answer the following questions with respect to the resource component in question.

- Please provide rationale and discussion of your response, while at the same time keeping it fairly succinct.
- Where appropriate, reference other documents where analysis can be found in detail.
- Responses can be written out, or in bullets.
- In most cases, we are expecting something in the range of 2-5 pages for a particular resource component.

1 **Has management of the resource changed?**

In November, 2006, NMFS issued a final rule to implement Amendment 68 of the GOA groundfish Fishery Management Plan for 2007 through 2011. This action implemented the Central GOA Rockfish Pilot Program (RPP). The intention of this program is to enhance resource conservation and improve economic efficiency for harvesters and processors in the rockfish fishery. This should spread out the fishery in time and space, allowing for better prices for product and reducing the pressure of what was an approximately two week fishery in July. In 2012 this was implemented permanently as the Rockfish Program. The Rockfish Program assigns quota shares for primary rockfish species and secondary target species. Primary rockfish species are northern rockfish, Pacific ocean perch, and pelagic shelf rockfish (now dusky rockfish). Secondary target species are Pacific cod, rougheye/blackspotted rockfish, shortraker rockfish, sablefish, and thornyhead rockfish. Each year the quota shares are assigned to a rockfish cooperative. Each rockfish cooperative receives an annual cooperative fishing quota, which is an amount of primary and secondary rockfish species the cooperative is able to harvest in that fishing year. Halibut Prohibited Species Catch is also allocated to participants based on historic halibut mortality rates in the primary rockfish species fisheries. Shore-based processors receiving rockfish quota share must be located within the boundaries of the City of Kodiak. The rockfish cooperative fishing season is authorized May 1 through November 15 of each year, whereas in the past, a very short season in July was prosecuted.

Starting in 2004, Gulf of Alaska thornyhead rockfish complex was downgraded from Tier 3 to Tier 5, primarily because of uncertainty in the validity of age readings for shortstpine thornyhead . There is no target fishery opened for thornyhead rockfish, but they are retained in the Rockfish program and by longliners targeting sablefish.

2 **Has the status of the resource changed?**

Because the thornyhead complex is now in Tier 5, it can no longer be identified whether the stock is overfished. For 2004 PSEIS, the thornyhead complex was identified as not overfished.

3 **Is there new information regarding the impacts of the groundfish fisheries on the resource?**

No.

4 Are there new methods of analysis or protocols for evaluating impacts?

There has been additional tag recovery data collected and there is potential to attempt length-based methods to be able to better assess stock status.

5 Would a new analysis using the latest methods and information reach a seriously different conclusion?

Yes. Since the fishery is now a tier 5 stock the conclusions reached for the categories **change in biomass, spatial/temporal concentration of catch-change in genetic structure, spatial/temporal concentration of catch-change in reproductive success, change in prey availability, and change in habitat** would be moved from a finding of “Insignificant” to a finding of “Unknown”. However, it is unlikely that a conservation concern has developed since the 2004 PSEIS.

Template for PSEIS SIR – review of conclusions in 2004 PSEIS

draft 6/13/13

What resource component is this review for? ___ Gulf of Alaska other rockfish

What sections of the PSEIS were reviewed? ___ 4.9.1.13

Please answer the following questions with respect to the resource component in question.

- Please provide rationale and discussion of your response, while at the same time keeping it fairly succinct.
- Where appropriate, reference other documents where analysis can be found in detail.
- Responses can be written out, or in bullets.
- In most cases, we are expecting something in the range of 2-5 pages for a particular resource component.

1 Has management of the resource changed?

In November, 2006, NMFS issued a final rule to implement Amendment 68 of the GOA groundfish Fishery Management Plan for 2007 through 2011. This action implemented the Central GOA Rockfish Pilot Program (RPP). The intention of this program is to enhance resource conservation and improve economic efficiency for harvesters and processors in the rockfish fishery. This should spread out the fishery in time and space, allowing for better prices for product and reducing the pressure of what was an approximately two week fishery in July.

In 2012 this was implemented permanently as the Rockfish Program. The Rockfish Program assigns quota shares for primary rockfish species and secondary target species. Primary rockfish species are northern rockfish, Pacific ocean perch, and pelagic shelf rockfish (now dusky rockfish). Secondary target species are Pacific cod, rougheye/blackspotted rockfish, shortraker rockfish, sablefish, and thornyhead rockfish. Each year the quota shares are assigned to a rockfish cooperative. Each rockfish cooperative receives an annual cooperative fishing quota, which is an amount of primary and secondary rockfish species the cooperative is able to harvest in that fishing year. Halibut Prohibited Species Catch is also allocated to participants based on historic halibut mortality rates in the primary rockfish species fisheries. Shore-based processors receiving rockfish quota share must be located within the boundaries of the City of Kodiak. The rockfish cooperative fishing season is authorized May 1 through November 15 of each year, whereas in the past, a very short season in July was prosecuted.

Starting in 2012, Gulf of Alaska “Slope rockfish” and the remainder of the “Pelagic shelf rockfish” complex after removing dusky rockfish were reorganized under a new management group called “Other Rockfish”. This group is a catch-all for the remainder of Gulf of Alaska rockfish that are in Tiers 4 and 5. There is a range of life history variants in this complex, and the complex composition changes over geographic clines.

2 Has the status of the resource changed?

Because the other rockfish complex has stocks in Tiers 4 and 5, its stock status cannot be determined. As in the 2004 PSEIS of “Slope rockfish”, overfishing is not occurring for the GOA other rockfish stock complex.

3 Is there new information regarding the impacts of the groundfish fisheries on the resource?

Improvements in the observer program and catch accounting have yielded better estimates of minor rockfish species catches.

4 Are there new methods of analysis or protocols for evaluating impacts?

Data for most “other rockfish” species is sparse and survey biomass estimates are too imprecise to further develop new more detailed assessments.

5 Would a new analysis using the latest methods and information reach a seriously different conclusion?

No. Since the fishery is not opened as a target fishery, it is unlikely that a conservation concern has developed since the 2004 PSEIS.

Template for PSEIS SIR – review of conclusions in 2004 PSEIS ~6/19/2013

What resource component is this review for? GOA & BSAI squids
 What sections of the PSEIS were reviewed? 4.9.3

1 Has management of the resource changed?

Management of squids in the BSAI has not changed since 2004; they continue to be managed as a separate stock. In the GOA, squids are now also managed as a separate stock as a result of NPFMC Amendment 87 (<http://www.fakr.noaa.gov/sustainablefisheries/amds/95-96-87/amd87.pdf>). In both the BSAI and GOA, squids are managed under Tier 6. The OFL in the BSAI is the average catch from 1978-1995; the OFL in the GOA is the maximum catch during 1997-2007.

2 Has the status of the resource changed?

As described in the 2004 PSEIS (section 3.5.3.1), very little information is available regarding the status of squid populations. Catches of squids have been relatively low since 2013 in both areas, but this likely reflects fishery behavior rather than changes in abundance.

3 Is there new information regarding the impacts of the groundfish fisheries on the resource?

Beginning in 2009, the fishery observer program records lengths of squids caught incidentally in groundfish fisheries. This has allowed a better understanding of which species/ life stages are most likely to be caught incidentally. Otherwise, the assessment of impacts in the PSEIS remains unchanged.

4 Are there new methods of analysis or protocols for evaluating impacts?

The development of ecosystem models for the BSAI and GOA has allowed greater exploration of how various ecosystem impacts might affect squid stocks and their predators. In addition, the establishment of a separate squid complex in the GOA allows an evaluation of whether overfishing is occurring.

5 Would a new analysis using the latest methods and information reach a seriously different conclusion?

It is unlikely that a new analysis would reach a seriously different conclusion. It is likely that many of the potential benefits of Preferred Alternative 2 (which included separate specifications for species groups within the “Other Species” group) will be realized under the new management approach in the GOA.

PSEIS SIR – review of conclusions in 2004 PSEIS

~6/19/2013

What resource component is this review for? **BSAI and GOA Octopus** _____

What sections of the PSEIS were reviewed? **4.9.3 Other Species**, including

- **Table 4.1-1 for Significance rating criteria for target species, other species*, forage fish, non-specified species, Pacific halibut, and Pacific herring**
- **Table 4.9-2 Significance ratings for prohibited, other*, forage, and non-specified species under Preferred Alternative PA.1 and PA.2**
- **Table 4.10-2b PA.1 and PA.2-impacts of Preferred Alt example FMP bookends**

1 Has management of the resource changed?

There have been substantial changes in management and monitoring of this species assemblage. The “other species” group has been removed from the FMP and replaced with separate regulation for sculpins, sharks, squids, skates, and octopus. The octopus complex, which includes all species of octopus, is now managed as a separate category in the FMPs and has its own annual OFL, ABC, and TAC limits. This management change was implemented in both the BSAI and GOA in 2012. Separate catch accounting for the octopus assemblage has been conducted since 2003. Identification of octopus on AFSC bottom trawl surveys has been improved to the species level, and more data has been collected on size ranges (in weight) of the different species. Identification of octopus in observer and fish ticket data is still collected at the assemblage level (all octopus), but special projects have provided data that indicate that the majority of the commercial catch is one species, *Enteroctopus dofleini*, which is used as the indicator species for the assemblage.

It is unknown whether this management change has affected the resource. Both reporting rates of incidental catch and retention of catch for sale and bait are believed to have increased over the period 2004-2012, but overall incidental catch rates are still believed to be very low in relation to population biomass (see BSAI and GOA SAFEs).

2 Has the status of the resource changed?

No. The status of the resource is still unknown, as listed for the entire “other species” complex in 2004 (Table 9.4-2). While knowledge of the indicator species has improved since 2004, there is still no reliable estimate of biomass for the assemblage or time series of abundance indicators. There is still little information on overall mortality or on changes in biomass, habitat, reproductive success, or genetic structure.

3 Is there new information regarding the impacts of the groundfish fisheries on the resource?

There is substantial new information about the biology of the indicator species for the assemblage, due to completed and ongoing directed research (see the BSAI and GOA Octopus SAFE; NPRB projects 906, 1005, and 1203; and NOAA Cooperative research projects for 2009, 2012, and 2013). None of the new information suggests any change in effects of the fishery on the resource, as fishery practices have changed only slightly since the mid- 1990s (there is no directed fishing for octopus). Since the status of the resource is unknown, the effect of the fishery on the resource remains unknown.

4 Are there new methods of analysis or protocols for evaluating impacts?

Recent information on the discard mortality of octopus suggests that current catch accounting practices (100% mortality assumed) are highly conservative for this assemblage, which would suggest that impacts of the fishery on the resource have been overestimated. This is true for both the period of review for the 2004 PSEIS and the period 2004-2013. In both cases, there is no reason to expect any increase in fishery impacts on the assemblage since 2004

5 Would a new analysis using the latest methods and information reach a seriously different conclusion?

No. Since the status of the resource is unknown, the effect of the fishery on the resource remains unknown. If new information on discard mortality were used, the estimated fishing mortality of the assemblage would be reduced, but the overall mortality rate for the assemblage is still unknown.

Template for PSEIS SIR – review of conclusions in 2004 PSEIS

draft 6/12/13

What resource component is this review for? ___**Sharks**

What sections of the PSEIS were reviewed? ___**Section 4.9.3**

Please answer the following questions with respect to the resource component in question.

- Please provide rationale and discussion of your response, while at the same time keeping it fairly succinct.
- Where appropriate, reference other documents where analysis can be found in detail.
- Responses can be written out, or in bullets.
- In most cases, we are expecting something in the range of 2-5 pages for a particular resource component.

1 **Has management of the resource changed?**

As part of the reauthorization of the Magnuson Stevens Fishery Conservation and Management Act, the NPFMC passed amendment 87 (<http://www.fakr.noaa.gov/sustainablefisheries/amds/95-96-87/amd87.pdf>), which dissolved the Other Species Complex. Sharks are now managed as a separate complex. The effect of this is that the shark complex has a separate ABC set for it.

2 **Has the status of the resource changed?**

The status of the shark complex in the PSEIS was determined to be unknown. Currently, the shark complex is composed of Tier 6 species and the status of the stock cannot be determined. As in the 2004 PESIS of Other Species/Sharks, overfishing is not occurring in either the GOA or BSAI shark stocks.

3 **Is there new information regarding the impacts of the groundfish fisheries on the resource?**

Yes, the sharks are now a separate complex. Restructuring of the observer program (which began in 2013) improved observer coverage of fisheries that encounter sharks and will likely result in better catch accounting of this complex.

4 **Are there new methods of analysis or protocols for evaluating impacts?**

At the time of the 2004 PSEIS the shark stock assessments were based only on catch history. Now, spiny dogfish (*Squalus suckleyi*) is assessed using survey biomass. Modeling methods are being evaluated for spiny dogfish to better assess the status of the stock.

5 **Would a new analysis using the latest methods and information reach a seriously different conclusion?**

No. The previous status of the sharks was “unknown”. The shark complex is on a bycatch only status and it is unlikely that a conservation concern has developed since the 2004 PESIS.

Template for PSEIS SIR – review of conclusions in 2004 PSEIS

draft 6/10/2013

What resource component is this review for? **BSAI sculpins**
 What sections of the PSEIS were reviewed? **Section 4.9.3**

Please answer the following questions with respect to the resource component in question.

- Please provide rationale and discussion of your response, while at the same time keeping it fairly succinct.
- Where appropriate, reference other documents where analysis can be found in detail.
- Responses can be written out, or in bullets.
- In most cases, we are expecting something in the range of 2-5 pages for a particular resource component.

1 Has management of the resource changed?

Historically, sculpins have been managed as part of the BSAI Other Species complex (sculpins, skates, sharks, and octopus). Specifications for this group were set by summing the individual ABCs and OFLs for each species group to create an aggregate OFL, ABC, and TAC. In 2010, the North Pacific Fishery Management Council passed amendment 87 to the BSAI Fishery Management Plan, which separated the Other Species complex into its constituent species groups. Since that time, BSAI sculpins have been managed as an independent complex with its own harvest specifications.

2 Has the status of the resource changed?

The status of the BSAI sculpin complex is similar to the status during the 2004 PSEIS, based on research survey estimates. The sculpin complex in the BSAI includes 48 species, but the six of the largest species comprise over 85% of the total sculpin biomass (bigmouth (*Hemitripteris bolini*), great (*Myoxocephalus polyacanthocephalus*), plain (*Myoxocephalus jaok*), threaded (*Gymnocanthus pistilliger*), warty (*Myoxocephalus verrucosus*), and yellow Irish lord (*Hemilepidotus jordani*)). These six species are also assumed to have higher catchabilities than the remaining species because smaller species are likely to pass through the net and are difficult to assess in NMFS research surveys. Estimates of the abundance of each of these species, as well as the overall sculpin complex biomass, have not changed significantly since 2004.

2 Is there new information regarding the impacts of the groundfish fisheries on the resource?

BSAI sculpins were not assessed as a separate complex until 2010. Information on the impact of the groundfish fisheries on the resource comes directly from observer data. Two analyses performed on survey data and observer data were highly consistent: 1. length frequencies and 2. relative abundance of each species relative to the total sculpin abundance of the six species, specifically bigmouth (*Hemitripteris bolini*), great (*Myoxocephalus polyacanthocephalus*), plain (*Myoxocephalus jaok*), threaded (*Gymnocanthus pistilliger*), warty (*Myoxocephalus verrucosus*), and yellow Irish lord (*Hemilepidotus jordani*). This suggests that data used in the assessment accurately captures the impacts of the groundfish fisheries on this resource.

3 Are there new methods of analysis or protocols for evaluating impacts?

Since 2010 the sculpin stock assessment has been performed under Tier 5 methodology, and protocols have remained consistent for the 2010-2012 assessments.

4 Would a new analysis using the latest methods and information reach a seriously different conclusion?

No. The current assessment uses a weighted average of sculpin survey biomass from the past three years in which all three BSAI surveys were performed. Alternative methods were explored, including a weighted average of the most three recent years of each survey and a random effects model, but the resulting ABC and TAC were not significantly different than that achieved with the current methodology.

Template for PSEIS SIR – review of conclusions in 2004 PSEIS

draft 6/10/2013

What resource component is this review for? **GOA sculpins**

What sections of the PSEIS were reviewed? **Section 4.9.3**

Please answer the following questions with respect to the resource component in question.

- Please provide rationale and discussion of your response, while at the same time keeping it fairly succinct.
- Where appropriate, reference other documents where analysis can be found in detail.
- Responses can be written out, or in bullets.
- In most cases, we are expecting something in the range of 2-5 pages for a particular resource component.

1 Has management of the resource changed?

Historically, sculpins have been managed as part of the GOA Other Species complex (sculpins, skates, sharks, squid, and octopus). Specifications for this group were set by summing the individual ABCs and OFLs for each species group to create an aggregate OFL, ABC, and TAC. In 2010, the North Pacific Fishery Management Council passed amendment 87 to the GOA Fishery Management Plan, which separated the Other Species complex into its constituent species groups. Since that time, GOA sculpins have been managed as an independent complex with its own harvest specifications.

2 Has the status of the resource changed?

The status of the GOA sculpin complex is similar to the status during the 2004 PSEIS, based on research survey estimates. The sculpin complex in the GOA includes 48 species, but the four largest species comprise over 95% of the total sculpin biomass (bigmouth (*Hemitripterus bolini*), great (*Myoxocephalus polyacanthocephalus*), plain (*Myoxocephalus jaok*), and yellow Irish lord (*Hemilepidotus jordani*)). These four species are also assumed to have higher catchabilities than the remaining species because smaller species are likely to pass through the net and are difficult to assess in NMFS research surveys. Estimates of the abundance of each of these species, as well as the overall sculpin complex biomass, have not changed significantly since 2004.

2 Is there new information regarding the impacts of the groundfish fisheries on the resource?

GOA sculpins were not assessed as a separate complex until 2010. Information on the impact of the groundfish fisheries on the resource comes directly from observer data. Two analyses performed on survey data and observer data were highly consistent: 1. length frequencies and 2. relative abundance of each species relative to the total sculpin abundance of the four species, specifically bigmouth (*Hemitripterus bolini*), great (*Myoxocephalus polyacanthocephalus*), plain (*Myoxocephalus jaok*), and yellow Irish lord (*Hemilepidotus jordani*). This suggests that data used in the assessment accurately captures the impacts of the groundfish fisheries on this resource.

3 Are there new methods of analysis or protocols for evaluating impacts?

Since 2010 the sculpin stock assessment has been performed under Tier 5 methodology, and protocols have remained consistent for the 2010-2012 assessments.

4 Would a new analysis using the latest methods and information reach a seriously different conclusion?

No. The current assessment uses a weighted average of sculpin biomass from the past three years in which all three GOA surveys were performed. A random effects model was recently explored as an alternative to the current methodology, but the resulting ABC and TAC were not significantly different than currently estimated.

Template for PSEIS SIR – review of conclusions in 2004 PSEIS

Draft ~6/19/2013

What resource component is this review for? BSAI skates
 What sections of the PSEIS were reviewed? 4.9.3

1 Has management of the resource changed?

In 2011, the “Other Species” category was broken up and a separate skate complex was established (<http://www.fakr.noaa.gov/sustainablefisheries/amds/95-96-87/amd87.pdf>). A single set of harvest specifications is applied to the entire skate complex. Assessment of the Alaska skate (*Bathyraja parmifera*, which constitutes over 90% of the BSAI skate biomass) is achieved using an age-structured model, allowing a Tier 3 determination of harvest specifications for that species. The remaining skate species (“other skates”) are managed under Tier 5. The Tier 3 and Tier 5 specifications are combined to create a single skate complex set of specifications.

2 Has the status of the resource changed?

The 2004 PSEIS documented the difficulty of studying trends in the status of skate species in the BSAI, due to a general lack of biological information on skates and a specific lack of species identification for skates in the trawl survey before 2000 (PSEIS section 3.5.3.4). Skate biomass increased dramatically in the BSAI during the 1980s, and has since then remained relatively stable. Current survey methods and catch reporting allow enhanced monitoring of skate populations in the BSAI, but the conclusions in the PSEIS regarding the status of skates remain essentially unchanged.

3 Is there new information regarding the impacts of the groundfish fisheries on the resource?

The fisheries that affect skates in the BSAI remain largely the same as in 2004. Skate catches likely depend mainly on the scale of the target fisheries where they are incidentally caught, i.e. the Pacific cod and flatfish fisheries.

4 Are there new methods of analysis or protocols for evaluating impacts?

The changes in BSAI skate assessment and management allow an improved monitoring of skate stock status. The Alaska skate model permits an evaluation of both overfishing and whether the population is overfished; the Tier 5 status of “other skates” permits an evaluation of overfishing. The Alaska skate stock is not in an overfished condition and no skates have experienced overfishing since the new management measures were adopted.

5 Would a new analysis using the latest methods and information reach a seriously different conclusion?

The 2004 PSEIS listed the potential impacts on skate stocks (as part of “Other Species”) as “unknown”. It is likely that a new analysis would be able to provide a more detailed description of such impacts. However, due to the remaining uncertainties regarding bycatch and stock status, **it is unlikely that a new analysis would reach a seriously different conclusion.** It is likely that many of the potential benefits of Preferred Alternative 2 (which included separate specifications for species groups within the “Other Species” group) will be realized under the new management approach.

Template for PSEIS SIR – review of conclusions in 2004 PSEIS

~6/19/2013

What resource component is this review for? GOA skates
 What sections of the PSEIS were reviewed? 4.9.3

1 Has management of the resource changed?

There have been numerous changes to the management of skates in the GOA since the PSEIS was published (see the 2011 GOA skate SAFE at www.afsc.noaa.gov/refm/stocks/2011_assessments.htm). In 2004, big skates (*Raja binoculata*) and longnose skates (*Raja rhina*) were moved to a separate management category and managed together under a single TAC in the Central GOA where a directed skate fishery had emerged in 2003. The remaining skates were managed as an “other skates” species complex in the Central GOA, and all skates including big and longnose skates were managed as a single skate complex in the Western and Eastern GOA. In 2005, the current management scheme was established:

- Big and longnose skates are each managed as single stocks, with harvest specifications for each stock.
- Separate ABCs and TACs for big and longnose skates are established for each GOA regulatory area.
- Big and longnose OFLs are established on a GOA-wide basis.
- The remaining skate species in the skate complex are managed as a single “other skates” stock, with GOA-wide specifications.
- Directed fishing is prohibited for all skate species in the GOA

2 Has the status of the resource changed?

The 2004 PSEIS documented the difficulty of studying trends in the status of skate species in the GOA, due to a general lack of biological information on skates and a specific lack of species identification for skates in the trawl survey before 2000 (PSEIS section 3.5.3.4). In general, skate species increased during the 1980s and the various populations have remained relatively stable since then. Current survey methods and catch reporting allow enhanced monitoring of skate populations in the GOA, but the conclusions in the PSEIS regarding the status of skates remain essentially unchanged.

3 Is there new information regarding the impacts of the groundfish fisheries on the resource?

The fisheries that affect skates in the GOA remain largely the same as in 2004, with the exception that directed fishing for skates is currently prohibited. A small-scale state-waters fishery was conducted in 2009 & 2010, but has been discontinued. There continues to be interest in developing a directed skate fishery in the GOA. As described in the 2004 PSEIS, incidental catches of skates in the IPHC halibut fishery continue to be a large source of uncertainty regarding total skate catches. As described in the 2011 GOA skate SAFE, an analysis that applied IPHC longline survey species composition data to IPHC halibut catch records estimated a substantial amount of halibut fishery bycatch; however this analysis was deemed insufficient for inclusion in the official catch reporting. Changes to the fishery observer program implemented in 2013 will likely enhance the accounting of skate bycatch in the GOA. Other than those changes, the information regarding potential impacts on GOA skates remains unchanged from the 2004 PSEIS.

Template for PSEIS SIR – review of conclusions in 2004 PSEIS

Draft 18 March 2014
compiled by IPHC staff

What resource component is this review for? Pacific Halibut

What sections of the PSEIS were reviewed? _____

Please answer the following questions with respect to the resource component in question.

- Please provide rationale and discussion of your response, while at the same time keeping it fairly succinct.
- Where appropriate, reference other documents where analysis can be found in detail.
- Responses can be written out, or in bullets.
- In most cases, we are expecting something in the range of 2-5 pages for a particular resource component.

1 Has management of the resource changed?

Have there been substantial changes in the management program that have affected the resource, since the 2004 PSEIS (e.g., species is now managed independently, rather than as part of a complex; implementation of catch share privileges or closure areas affecting fisheries targeting resource)?

The most significant change has been the implementation of (1) a license limited access program for the halibut sport guided (charter) fishery in IPHC Areas 2C (southeast Alaska) and 3A (southcentral Alaska) (2011), and (2) a Catch Sharing Plan between commercial and guided recreational halibut harvesters for Areas 2C and 3A, beginning in 2014. Management measures to restrict harvest within the guided sector included both size limits and daily effort controls.

2 Has the status of the resource changed?

Is the status of the resource different than described in the 2004 PSEIS, and if so, how? What has affected the change in status? Is the current status within the range of variability analyzed in the 2004 PSEIS?

The resource has declined from historic high levels in the late 1990s and is now near the long-term average abundance for the stock. The decrease in abundance is largely related to the passing through the stock of extremely strong cohorts generated in the late 1980s. Subsequent recruitments have been average to below-average, resulting in the stock returning to average levels. Current status is within the range of historic assessments.

3 Is there new information regarding the impacts of the groundfish fisheries on the resource?

Are the fisheries affecting the resource differently than described in the 2004 PSEIS? Is this difference within the range of variability analyzed in the 2004 PSEIS? Has the difference been analyzed in a subsequent NEPA analysis (e.g., the difference in impact is the result of a management change for which an EA or EIS was written)? Is there new scientific information or research indicating or suggesting a change in our understanding of the impact of the fisheries on the resource?

Impacts of groundfish fisheries on the halibut resource are believed to have decreased since 2004, due to reductions in estimated halibut mortality in groundfish trawl fisheries. Most of this decline is associated with improved bycatch controls in the Bering Sea/Aleutian Islands Amendment 80 trawl fleet, through the use of fishery cooperatives, which include bycatch mortality pools. The International Pacific Halibut

Commission conducted additional analyses of the impacts of trawl bycatch mortality on lost yield and spawning biomass for the halibut stock.

4 Are there new methods of analysis or protocols for evaluating impacts?

Has a new methodology been developed for better understanding or evaluating impacts of the fisheries on the resource? Has that methodology been used in NEPA analyses of management actions affecting the resource, since the 2004 PSEIS?

The International Pacific Halibut Commission analyses referred to item 3 helped inform the reduction in halibut PSC limits for the Gulf of Alaska, scheduled for implementation over the 2014-2016 period. That information was included in the NEPA analysis conducted as part of GOA FMP Amendment 95.

5 Would a new analysis using the latest methods and information reach a seriously different conclusion?

If new information is available, consider whether taking that information into account would cause you to reach a different conclusion about the effect of the groundfish fisheries on the resource. Provide a rationale if you conclude that it would not or some discussion if you think this issue needs further investigation. We are not asking for the new analysis to be undertaken, only for you to provide a discussion of whether it is merited.

No new information concerning bycatch impacts is currently available; however, the relationship of bycatch mortality to long-term yield from the halibut resource is currently being investigated within a Management Strategy Evaluation. It is uncertain at this point whether the impact of the halibut bycatch mortality will be less or more but that evaluation is being undertaken as a part of the International Pacific Halibut Commission's ongoing research. Although the IPHC includes all sources of mortality in annual stock assessments, and therefore accounts for bycatch in estimated fishery yields, mortality of halibut <26 inches is not included in IPHC's annual limits. The degree that this source of mortality has become more influential in population trends is largely unknown; however, bycatch of all sizes currently comprises a larger fraction of the total mortality than in previous analyses (20% of the projected 2014 removals from all sources). There is the potential, even under current PSC limits, that bycatch mortality could preclude all directed fishery activities in specific regulatory areas if further declines in apportioned biomass estimates are observed.

Template for PSEIS SIR – review of conclusions in 2004 PSEIS

Jeff Guyon – June 10, 2013

NMFS/AFSC/ABL

What resource component is this review for? Prohibited Species

What sections of the PSEIS were reviewed? 4.9.2.2 Pacific Salmon or Steelhead Trout

Please answer the following questions with respect to the resource component in question.

- Please provide rationale and discussion of your response, while at the same time keeping it fairly succinct.
- Where appropriate, reference other documents where analysis can be found in detail.
- Responses can be written out, or in bullets.
- In most cases, we are expecting something in the range of 2-5 pages for a particular resource component.

1 Has management of the resource changed?

Since the 2004 PSEIS, the following fishery management plan amendments have been made regarding the salmon bycatch:

1. Amendment 91 to the Fishery Management Plan for Groundfish of the Bering Sea and Aleutian Islands Management Area (implemented in 2011) and
2. Amendment 93 to the Fishery Management Plan for Groundfish of the Gulf of Alaska (implemented in 2012).

These amendments set a cap for the number of Chinook salmon that can be caught as bycatch in both the Bering Sea and the Gulf of Alaska.

2 Has the status of the resource changed?

The 2004 PSEIS focuses on both Chinook and chum salmon and specifically highlights issues for western Alaska. Since 2004, Yukon and Kuskokwim River Chinook salmon escapements have declined through 2011 to about a third of what they were in 2004 (2012 ADF&G Chinook Research Plan – see Figures 13 and 14 in http://www.adfg.alaska.gov/static/home/news/hottopics/pdfs/chinook_research_plan.pdf).

Federal commercial fishing disaster declarations have been issued for Yukon River Chinook salmon for each year through 2008-2012. Other disaster declarations have also been issued for the Kuskokwim and Cook Inlet areas.

The Upper Yukon stock of chum salmon, also known as the fall stock, is a general indicator species which is monitored for treaty purposes. Since 2004 when the run size was 614 thousand fish, the estimated run size for fall Yukon River chum salmon has varied significantly with the run peaking over 2.3 million fish in 2005, but generally trending back to 2004 levels in more recent years (The United States and Canada Yukon River Joint Technical Committee – Yukon River Salmon 2011 Season Summary and 2012 Season Outlook -Table 18 in <http://yukonriverpanel.com/salmon/wp-content/uploads/2009/03/jtc-report-summary-2011-preseason-2012.pdf>)

3 Is there new information regarding the impacts of the groundfish fisheries on the resource?

In 2004, there was limited stock composition information available for both the Chinook and chum salmon bycatch in the Bering Sea and Gulf of Alaska trawl fisheries. Since then, there have been a number of genetic stock composition analyses completed for sample sets from the 2005-2011 Bering Sea Chinook salmon bycatch, 2010-2011 Gulf of Alaska Chinook salmon bycatch (very limited sample sets),

and 2005-2011 Bering Sea chum salmon bycatch. These analyses were completed using more refined baselines than available in 2004. In addition, coded wire tags (CWTs) recovered from Chinook salmon caught in the trawl bycatch have been analyzed each year through 2012. Additionally, for 2011, the North Pacific Observer Program instituted a systematic random sampling protocol for the collection of genetic and CWT samples in the Bering Sea. This has produced the most representative genetic sample set available to date for understanding the stock composition of the Chinook and chum salmon bycatch in the Bering Sea.

4 Are there new methods of analysis or protocols for evaluating impacts?

Since 2004, the impacts of the both the Bering Sea Chinook and chum salmon bycatch relative to escapement and maturity have been completed and incorporated into the associated EIS (Chinook salmon) and draft EA (chum salmon).

5 Would a new analysis using the latest methods and information reach a seriously different conclusion?

There has been a considerable amount of information learned since 2004 about the stock origin of salmon caught in the Alaska groundfish trawl bycatch. For the PSEIS, the impacts for chum salmon could be updated using the most current impact analysis drafted for the Environmental Assessment. In addition, the Gulf of Alaska salmon bycatch for both Chinook and chum salmon was thought in 2004 to be composed of a similar stock origin as that in the Bering Sea. We now know that the stock origins for Chinook salmon are very different between these two areas. Consequently, this section could be updated to include the most current information and assessments.

Review of Conclusions in 2004 PSEIS

What resource component is this review for? **BSAI king crab**
 What sections of the PSEIS were reviewed? **Section 4.5.2.4 and 4.9.2.4**

Please answer the following questions with respect to the resource component in question.

- Please provide rationale and discussion of your response, while at the same time keeping it fairly succinct.
- Where appropriate, reference other documents where analysis can be found in detail.
- Responses can be written out, or in bullets.
- In most cases, we are expecting something in the range of 2-5 pages for a particular resource component.

1 Has management of the resource changed?

The management measures regulating BSAI king crab as a prohibited species in groundfish fisheries are unchanged since 2004. BSAI king crab remains a Prohibited Species in the BSAI groundfish fisheries. However, implementation of Amendment 80 to the BSAI Groundfish FMP has had some impact on the bycatch of BSAI king crab. Amendment 80 directly allocated fishery resources among BSAI trawl harvesters in consideration of their historic harvest patterns and future harvest needs in order to improve retention and utilization of fishery resources by the non-American Fisheries Act (AFA) trawl catcher/processor fleet. This was accomplished by providing the ability to form cooperatives within the newly formed Amendment 80 sector. The partitioning of PSC (prohibited species catch) among the fishery cooperatives has reduced the rate of bycatch per target catch ton.

In 2011, a trawl sweep modification requirement was implemented for vessels participating in the Bering Sea flatfish fishery to reduce impact of the fishery on the seafloor. Elevating devices (e.g., discs or bobbins) are now required to be used on the trawl sweeps to raise the sweeps off the seabed and limit adverse impacts of trawling on the seafloor. Research has demonstrated that this gear modification reduces unobserved mortality of red king crab, southern Tanner crab, and snow crab.

New overfishing definitions and total catch accounting for BSAI crab stocks were implemented in 2008 with Amendment 24. Reference points and biomass values for BSAI king crab are estimated using an assessment model and a 5 Tier system. Starting in 2011, with the implementation of Amendment 38, annual catch limits are set for BSAI crab stocks in addition to OFLs.

2 Has the status of the resource changed?

BSAI king crab species include red king crab (*Paralithodes camtschaticus*), blue king crab (*Paralithodes platypus*), and golden (or brown) king crab (*Lithodes aequispinus*). The status of these stocks are evaluated and reported annually in the Council's SAFE report. Although abundance has been variable since 2004, the status of the majority of these king crabs relative to the status determination criteria has not changed, with the exception of St Matthew blue king crab, which was declared rebuilt in 2009 (NPFMC 2013). Pribilof Islands blue king crab, which was subject to a rebuilding plan, failed to rebuild within the ten year time frame ending in 2011.

3 Is there new information regarding the impacts of the groundfish fisheries on the resource?

In 2012, a Council discussion paper considered the importance of trawl effort on Bristol Bay red king crab to assess the essential fish habitat of red king crab. The Council recommended continued research on

the definition of red king crab habitat at multiple life stages and also continued evaluation of existing Bristol Bay red king crab closure areas.

The Council is also assessing the historical bycatch of crab stocks by groundfish fisheries by gear and the measures currently employed under the BSAI FMP and NMFS regulations to limit the bycatch by crab stock. In February 2014, the Council reviewed a discussion paper that evaluates the existing closure areas for Bristol Bay red king crab, Bering Sea Tanner crab, Bering Sea snow crab, and St. Matthew blue king crab, including information on recent stock distribution and the distribution and amount of crab bycatch in the trawl and fixed gear groundfish fisheries. The discussion paper included review of the proportion of bycatch by trawl and fixed gear fisheries inside and outside of the closure areas and a more detailed history of the closures to help identify the fraction of historical fisheries that occurred in these areas as well as their crab bycatch. This discussion paper is intended to assist the Council in deciding what, if any, action to take to modify the existing management measures for these 4 stocks.

4 Are there new methods of analysis or protocols for evaluating impacts?

No. Since 2004, the stock assessment models have improved greatly. Crab bycatch is accounted for in the estimate of total catch used in the stock assessment models and to evaluate total catch relative to the annual catch limits.

5 Would a new analysis using the latest methods and information reach a seriously different conclusion?

No.

Citations

NPFMC. 2013. Stock Assessment and Fishery Evaluation Report for the King And Tanner Crab Fisheries of the Bering Sea and Aleutian Islands Regions: 2013 Crab SAFE. North Pacific Fishery Management Council, 605 W. 4th Avenue, #306, Anchorage, AK 99501.

NPFMC. 2014. Crab PSC in the Bering Sea/Aleutian Islands Fisheries. Discussion paper. January. North Pacific Fishery Management Council, 605 W. 4th Avenue, #306, Anchorage, AK 99501.

Review of Conclusions in 2004 PSEIS

draft 6/19/2013

What resource component is this review for? **BSAI Snow crab**

What sections of the PSEIS were reviewed? **Section 4.9.2.4**

Please answer the following questions with respect to the resource component in question.

- Please provide rationale and discussion of your response, while at the same time keeping it fairly succinct.
- Where appropriate, reference other documents where analysis can be found in detail.
- Responses can be written out, or in bullets.
- In most cases, we are expecting something in the range of 2-5 pages for a particular resource component.

1 Has management of the resource changed?

From the perspective of the BSAI Groundfish FMP, management of the BSAI snow crab is qualitatively unchanged. BSAI snow crab remains a Prohibited Species in the BSAI groundfish fisheries. However, implementation of Amendment 80 to the BSAI FMP has had some impact on the bycatch of BSAI snow crab. The Amendment directly allocated fishery resources among BSAI trawl harvesters in consideration of their historic harvest patterns and future harvest needs in order to improve retention and utilization of fishery resources by the non-AFA trawl catcher/processor fleet. This was accomplished by extending the groundfish retention standards to all H&G vessels and also by providing the ability to form cooperatives within the newly formed Amendment 80 sector. The partitioning of PSC (prohibited species catch) among the fishery cooperatives has reduced the rate of bycatch per target catch ton. New overfishing definitions and total catch accounting for BSAI crab stocks were implemented in 2008 with Amendment 24. Reference points and biomass values for BSAI snow crab are estimated using an assessment model and a 5 Tier system, where snow crab is a Tier 3 stock (Turnock and Rugolo 2011). ABC values are now established for BSAI crab stocks in addition to OFL starting in 2011 with the implementation of Amendment 38.

2 Has the status of the resource changed?

The status of the BSAI snow crab resource has changed since the 2004 PSEIS. BSAI snow crab was considered overfished prior to the 2004 PSEIS and the directed fishery for this stock was under a rebuilding plan. In 2011, the stock was declared rebuilt based on a new assessment model (Turnock and Rugolo, 2011).

3 Is there new information regarding the impacts of the groundfish fisheries on the resource?

In 2011, a trawl sweep modification requirement was implemented for vessels participating in the Bering Sea flatfish fishery resulting in less impact of the fishery on the seafloor. Elevating devices (e.g., discs or bobbins) are now required to be used on the trawl sweeps to raise the sweeps off the seabed and limit adverse impacts of trawling on the seafloor. Research has demonstrated that this gear modification reduces unobserved mortality of red king crab, Tanner crab, and snow crab.

4 Are there new methods of analysis or protocols for evaluating impacts?

No.

5 Would a new analysis using the latest methods and information reach a seriously different conclusion?

No.

Citations

Turnock, B.J. and L.J. Rugolo. 2011. 2011 Stock Assessment of Eastern Bering Sea Snow Crab. In: Stock Assessment and Fishery Evaluation Report for the King And Tanner Crab Fisheries of the Bering Sea and Aleutian Islands Regions: 2011 Crab SAFE. North Pacific Fishery Management Council, 605 W. 4th Avenue, #306, Anchorage, AK 99501. pp. 37-168.

Review of Conclusions in 2004 PSEIS

draft 6/19/2013

What resource component is this review for? **BSAI Tanner crab**

What sections of the PSEIS were reviewed? **Section 4.9.2.4**

Please answer the following questions with respect to the resource component in question.

- Please provide rationale and discussion of your response, while at the same time keeping it fairly succinct.
- Where appropriate, reference other documents where analysis can be found in detail.
- Responses can be written out, or in bullets.
- In most cases, we are expecting something in the range of 2-5 pages for a particular resource component.

1 Has management of the resource changed?

From the perspective of the BSAI Groundfish FMP, management of the BSAI bairdi Tanner crab is qualitatively unchanged. BSAI bairdi Tanner crab remains a Prohibited Species in the BSAI groundfish fisheries. However, implementation of Amendment 80 to the BSAI FMP has had some impact on the bycatch of BSAI bairdi Tanner crab. The Amendment directly allocated fishery resources among BSAI trawl harvesters in consideration of their historic harvest patterns and future harvest needs in order to improve retention and utilization of fishery resources by the non-AFA trawl catcher/processor fleet. This was accomplished by extending the groundfish retention standards to all H&G vessels and also by providing the ability to form cooperatives within the newly formed Amendment 80 sector. The partitioning of PSC (prohibited species catch) among the fishery cooperatives has reduced the rate of bycatch per target catch ton.

In addition, Amendment 24 (June, 2008) to the BSAI Crab FMP established a 5-tier system for determining the status of crab stocks managed under the FMP, including BSAI bairdi Tanner crab stock. It also established a process for assigning each managed crab stock to a tier and for setting overfishing and overfished levels based on the assigned tier. BSAI bairdi Tanner crab is currently in Tier 3 and is not overfished, nor is overfishing occurring (Rugolo and Turnock, 2012).

2 Has the status of the resource changed?

The technical status of the BSAI bairdi Tanner crab resource has changed since the 2004 PSEIS, although its effective status remains the same. BSAI bairdi Tanner crab was considered overfished prior to the 2004 PSEIS and the directed fishery for this stock was closed (1997/98-2004/05). Subsequently, the directed fishery has been both open (2005/06-2009/10) and closed (2010/11-2011/12). In 2012, the stock was declared rebuilt based on a new assessment model (Rugolo and Turnock, 2012). However, stock abundance remains relatively low compared with historic levels and the State of Alaska did not allow a directed fishery in 2012/13.

3 Is there new information regarding the impacts of the groundfish fisheries on the resource?

In 2011, a trawl sweep modification requirement was implemented for vessels participating in the Bering Sea flatfish fishery resulting in less impact of the fishery on the seafloor. Elevating devices (e.g., discs or bobbins) are now required to be used on the trawl sweeps to raise the sweeps off the seabed and limit adverse impacts of trawling on the seafloor. Research has demonstrated that this gear modification reduces unobserved mortality of red king crab, Tanner crab, and snow crab.

4 Are there new methods of analysis or protocols for evaluating impacts?

No.

5 Would a new analysis using the latest methods and information reach a seriously different conclusion?

No.

Citations

Rugolo, L.J. and B.J. Turnock. 2012. 2012 Stock Assessment and Fishery Evaluation Report for the Tanner Crab Fisheries of the Bering Sea and Aleutian Islands Regions. In: Stock Assessment and Fishery Evaluation Report for the King And Tanner Crab Fisheries of the Bering Sea and Aleutian Islands Regions: 2012 Crab SAFE. North Pacific Fishery Management Council, 605 W. 4th Avenue, #306, Anchorage, AK 99501. pp. 267-416.

Review of Conclusions in 2004 PSEIS

What resource component is this review for? **GOA king and Tanner crab**
What sections of the PSEIS were reviewed? **Section 4.9.2.4**

1 Has management of the resource changed?

Crab remain a Prohibited Species in the GOA groundfish fisheries. Additionally, the Council approved an area closure in Marmot Bay in 2010, to protect Tanner crab from impacts of the groundfish trawl fisheries (implemented in 2014).

Also in 2014, a trawl sweep modification requirement was implemented for vessels participating in the GOA flatfish fishery to reduce impact of the fishery on the seafloor. Elevating devices (e.g., discs or bobbins) are now required to be used on the trawl sweeps to raise the sweeps off the seabed and limit adverse impacts of trawling on the seafloor.

2 Has the status of the resource changed?

The GOA red king crab species remains at historically low levels, and the Tanner crab stock continues to show high variability in recruitment. Little is known about golden or blue king crab. There have been no changes to the state assessment methodology, and no regulatory changes to the harvest strategy or management structure. The prevailing conditions identified in the 2004 document that likely drive these trends remain unchanged.

3 Is there new information regarding the impacts of the groundfish fisheries on the resource?

There is no substantive new information regarding the impacts of the groundfish fisheries on the resources with respect to state-managed fisheries. More observer coverage is available under the federal restructured observer program. The Council analyzed impacts of the GOA groundfish fisheries on Tanner crab in two NEPA analyses, and instituted a trawl-gear area closure, and the trawl sweep modification requirement in the GOA flatfish fishery. Research has demonstrated that this gear modification reduces unobserved mortality of king and Tanner crab.

4 Are there new methods of analysis or protocols for evaluating impacts?

No. There have been no changes to the state assessment methodology, and no regulatory changes to the harvest strategy or management structure.

5 Would a new analysis using the latest methods and information reach a seriously different conclusion?

No. The abundance of GOA crab stocks is similar to that reported in the 2004 PSEIS.

Template for PSEIS SIR – review of conclusions in 2004 PSEIS ~6/19/2013

What resource component is this review for? BSAI & GOA forage fishes
What sections of the PSEIS were reviewed? 4.9.4

1 Has management of the resource changed?

Forage fish management has not changed in either the BSAI or GOA, except in the way that they are designated in the FMP: they are now listed as “Ecosystem Components” and explicitly removed from the requirement for harvest specifications. As described in the 2004 PSEIS, directed fishing for forage fishes is prohibited and there are strict limits on retention and processing. There are now forage fish reports for both the BSAI and GOA that are published on a biennial basis as appendices to the SAFE documents.

2 Has the status of the resource changed?

As described in the 2004 PSEIS, very little information exists regarding the status of forage fishes (section 3.5.4). While the forage fish reports have been improved with substantial amounts of new information, there remain no reliable estimates of forage fish abundance. The available evidence suggests that forage fish abundance fluctuates independent of fishery activities.

3 Is there new information regarding the impacts of the groundfish fisheries on the resource?

The forage fish reports now include more detailed information regarding state-waters removals of eulachon; as estimated in the original PSEIS these removals are on a small scale. The eulachon population in the Pacific Northwest has been declared “threatened” under the Endangered Species Act (75 FR 13012). The causes of eulachon declines in the PNW are unknown but are thought to include habitat destruction, overfishing, and climate change effects. Although the threatened population is thought to be discrete from eulachon stocks in Alaska, this development emphasizes the importance of continuing the conservation measures established in the BSAI and GOA FMPs.

4 Are there new methods of analysis or protocols for evaluating impacts?

No new methodologies exist for evaluating impacts. It is hoped that current research regarding forage fish abundance and distribution will provide a better understanding of forage fish populations, but it is unlikely that a reliable index of status will be available in the near future.

5 Would a new analysis using the latest methods and information reach a seriously different conclusion?

It is unlikely that a new analysis would reach a seriously different conclusion. Forage fishes continue to be caught only incidentally, and there are no new data to suggest that their status has changed.

Template for PSEIS SIR – review of conclusions in 2004 PSEIS

draft 6/7/13

What resource component is this review for? non-specified

What sections of the PSEIS were reviewed? 4.9.5

Please answer the following questions with respect to the resource component in question.

- Please provide rationale and discussion of your response, while at the same time keeping it fairly succinct.
- Where appropriate, reference other documents where analysis can be found in detail.
- Responses can be written out, or in bullets.
- In most cases, we are expecting something in the range of 2-5 pages for a particular resource component.

1 Has management of the resource changed?

There have been no changes to the management of non-specified species. Unofficial Stock Assessment and Fishery Evaluation Reports (SAFEs) have been prepared for grenadiers since 2006. These have undergone annual review by the Plan Team and SSC, but the recommendations are not used for management.

2 Has the status of the resource changed?

The status of unspecified species was unknown due to a lack of data in the PSEIS in 2004. In the unofficial grenadier SAFE reports conducted since 2006, catch, biomass, fishery and survey length frequencies, and indices of abundance are tracked. These data indicate that population trends are stable; catch relative to abundance is < 2%. There is disproportionate catch of females in surveys and in the fishery; however, all data indicate that catch of grenadier has not affected the stock status. Catch of giant grenadier continue to be the vast majority of the grenadier catch.

Age at maturity and natural mortality information is now available for grenadiers. Natural mortality is low, the species are long-lived (at least 58 years maximum age), and the age at which 50% of females are mature is older than most groundfish (23 years).

3 Is there new information regarding the impacts of the groundfish fisheries on the resource?

Since grenadiers are caught primarily in the sablefish longline fishery and the ABCs and TACs for sablefish have decreased in recent years, the impacts of groundfish fisheries have decreased.

4 Are there new methods of analysis or protocols for evaluating impacts?

In the unofficial grenadier SAFE reports catch, biomass, fishery and survey length frequencies, and indices of abundance are now tracked.

5 Would a new analysis using the latest methods and information reach a seriously different conclusion?

There is no new information available currently. With the implementation of the observer restructuring in 2013, more information on catch on smaller vessels as well as catch in the Pacific halibut fishery will be available. Since catch has been very low compared to the estimated biomass for grenadier, adding these new catch estimates should not change the conclusion of no observed impact of groundfish fisheries on grenadiers.

Template for PSEIS SIR – review of conclusions in 2004 PSEIS

draft 6/5/13

What resource component is this review for? Marine Mammals

What sections of the PSEIS were reviewed? Steller sea lions western and eastern population segments

Please answer the following questions with respect to the resource component in question.

- Please provide rationale and discussion of your response, while at the same time keeping it fairly succinct.
- Where appropriate, reference other documents where analysis can be found in detail.
- Responses can be written out, or in bullets.
- In most cases, we are expecting something in the range of 2-5 pages for a particular resource component.

1 Has management of the resource changed?

Have there been substantial changes in the management program that have affected the resource, since the 2004 PSEIS (e.g., species is now managed independently, rather than as part of a complex; implementation of catch share privileges or closure areas affecting fisheries targeting resource)?

Yes, With regard to western dps of Steller sea lions there was a recent change in fisheries management due to the conclusions of the 2010 Ground fish biological opinion which found that the management regimes in place at the time “were likely to adversely modify the designated critical habitat for the western DPS of Steller sea lion”

(http://alaskafisheries.noaa.gov/protectedresources/stellers/esa/biop/final/biop1210_chapters.pdf). This included new closures and restrictions on atka mackerel and Pacific cod fisheries in areas 541 – 543. There is currently a new EIS and likely a new biological opinion due out in the next six months that will again review these closures and potentially propose new fishery regulations. The most up to date source for all of this will be the draft environmental impact statement for the Bering Sea and Aleutain Islands Management Area. (<http://alaskafisheries.noaa.gov/newsreleases/2013/sslpmeis051413.htm>). Once a preferred alternative is chosen, a new biological evaluation may also be released (depending on whether the chosen alternative is different from the status quo) which will again incorporate all recent information pertinent to this topic.

There has not been a change in management of the eastern DPS however it should be noted that the eastern dps has been proposed for de-listing from the endangered species list (<http://alaskafisheries.noaa.gov/newsreleases/2012/ssledps041812.htm>). The final decision on this proposal is expected sometime in the summer of 2013.

Overall, these two documents should serve to update virtually everything in this PEIS review given that they have been put together in the last 12 months and are by far the most comprehensive and up to date sources of information for the western stock of Steller sea lions. In addition the Steller Sea Lion Recovery Plan was re-written in 2008.

2 Has the status of the resource changed?

Is the status of the resource different than described in the 2004 PSEIS, and if so, how? What has affected the change in status? Is the current status within the range of variability analyzed in the 2004 PSEIS?

Yes, the status has changed with regard to the abundance and regionally with regard to the trends. This is all reported in both the EIS and Biop noted above for the western DPS and in the delisting information

for the eastern DPS. Both stocks have increased in number overall. This change in abundance will have a concurrent change in PBR (See 2012 Stock Assessment Report, Allen and Angliss, 2013, <http://www.nmfs.noaa.gov/pr/sars/pdf/ak2012.pdf>)

3 Is there new information regarding the impacts of the groundfish fisheries on the resource?

Are the fisheries affecting the resource differently than described in the 2004 PSEIS? Is this difference within the range of variability analyzed in the 2004 PSEIS? Has the difference been analyzed in a subsequent NEPA analysis (e.g., the difference in impact is the result of a management change for which an EA or EIS was written)? Is there new scientific information or research indicating or suggesting a change in our understanding of the impact of the fisheries on the resource?

Yes, based on the conclusions of the 2010 Groundfish Biological Opinion, the fisheries were affecting the resource differently in 2010. This may again be changing depending on the final EIS of 2013 and the subsequent Biological Opinion of 2014. Both of these documents should be used to guide this particular topic when necessary. For example, a paper by Zeppelin et al. In 2004 demonstrated that there was, "Considerable overlap (>51%) in the size of walleye pollock and Atka mackerel taken by Steller sea lions and found in scat, and the sizes of these species caught by the commercial trawl fishery" (Zeppelin et al. 2004).

4 Are there new methods of analysis or protocols for evaluating impacts?

Has a new methodology been developed for better understanding or evaluating impacts of the fisheries on the resource? Has that methodology been used in NEPA analyses of management actions affecting the resource, since the 2004 PSEIS?

There are no new methods per se but there have been more recent analyses using conventional methods since this document was written. In addition, there have been a number of publications on food habits, abundance, foraging behavior, contaminants, and vital rates since 2004. These and others are all summarized in the EIS and BiOp noted above.

5 Would a new analysis using the latest methods and information reach a seriously different conclusion?

If new information is available, consider whether taking that information into account would cause you to reach a different conclusion about the effect of the groundfish fisheries on the resource. Provide a rationale if you conclude that it would not, or some discussion if you think this issue needs further investigation. We are not asking for the new analysis to be undertaken, only for you to provide a discussion of whether it is merited.

Possibly, As noted previously, there has been quite a bit of information gathering completed on western DPS Steller sea lions especially since 2004 and is all summarized in the EIS and 2010 BiOp and will be again in the 2014 BiOp. I would suggest a review of those documents rather than a new analysis. A Status Review of the eastern DPS has also been completed as well as a draft Post-delisting Monitoring Plan. These documents should be sufficient for updating this particular document.

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Template for PSEIS SIR – review of conclusions in 2004 PSEIS
draft 6/5/12

What resource component is this review for? Marine Mammals

What sections of the PSEIS were reviewed? Northern Fur Seals

Please answer the following questions with respect to the resource component in question.

- Please provide rationale and discussion of your response, while at the same time keeping it fairly succinct.
- Where appropriate, reference other documents where analysis can be found in detail.
- Responses can be written out, or in bullets.
- In most cases, we are expecting something in the range of 2-5 pages for a particular resource component.

1 Has management of the resource changed?

Have there been substantial changes in the management program that have affected the resource, since the 2004 PSEIS (e.g., species is now managed independently, rather than as part of a complex; implementation of catch share privileges or closure areas affecting fisheries targeting resource)?

*No, the management program has not changed, but the population has continued to decline. The Eastern Pacific stock of northern fur seals are still considered depleted under the Marine Mammal Protection act and still declining at just under 5% annually (between 1998 – 2012; Towell et al. 2013 (<http://www.afsc.noaa.gov/nmml/pdf/2012-nfs-pup-adult-counts-pribs.pdf>). In 2007 NMFS published a new conservation plan (National Marine Fisheries Service. 2007. Conservation plan for the Eastern Pacific stock of northern fur seal (*Callorhinus ursinus*)) that summarized all relevant information to date at the time. National Marine Fisheries Service, Juneau, Alaska. In addition, the 2012 Stock Assessment Report. Subsistence harvest has declined significantly since the dates listed in the 2004 version of this document. In 2012 less than 500 sub adult males were taken for the subsistence harvest in the Pribilof Islands.*

A recent petition to change the harvest regulations for both islands would, if approved, potentially increase the number of harvested fur seals on both islands. This is most notable by the request to harvest fur seal pups on both islands (<http://alaskafisheries.noaa.gov/protectedresources/seals/fur/analysis/ea0412.pdf>).

2 Has the status of the resource changed?

Is the status of the resource different than described in the 2004 PSEIS, and if so, how? What has affected the change in status? Is the current status within the range of variability analyzed in the 2004 PSEIS?

Yes, the status has changed with regard to the abundance with significant declines on both Pribilof islands in the last 15 years. This decline for the stock has been partially offset by an increase in abundance on Bogoslof Island where an annual rate of increase of 38% has occurred since 1980 and the population estimate of almost 23,000 pups now exceeds that of St. George Island (Towell and Ream, 2012, http://www.afsc.noaa.gov/nmml/PDF/BogPupMem11_final.pdf) I cannot tell given the information provided if this change in status is within the range of variability analyzed in the 2004 PSEIS nor is there definitive information as to what may have affected this change in status or what caused it.

3 Is there new information regarding the impacts of the groundfish fisheries on the resource?

Are the fisheries affecting the resource differently than described in the 2004 PSEIS? Is this difference within the range of variability analyzed in the 2004 PSEIS? Has the difference been analyzed in a subsequent NEPA analysis (e.g., the difference in impact is the result of a management change for which an EA or EIS was written)? Is there new scientific information or research indicating or suggesting a change in our understanding of the impact of the fisheries on the resource?

It is unknown if the fisheries are affecting northern fur seals differently now than in 2004 but there is additional published literature available indicating similar habitat and prey use by both consumers (see list below). To my knowledge there has not been subsequent NEPA analysis. A paper published in 2006 by C. Gudmundson et al described an analysis of northern fur seal prey habits that included scat and spew samples. This study found that prey remains from adult pollock did not appear as often in the scat as in spew samples. “The differences in walleye pollock age classes between scat and spew samples seem to indicate that size estimations of pollock consumed by northern fur seals have likely been underestimated in previous studies using G.I. tracts and scat” (Gudmundson et al. 2006). In fact the study reported that the percent overlap between age classes of walleye Pollock caught by the commercial trawl fishery and those found in northern fur seal scat on the Pribilof Islands was between 4 – 15% while it was between 89 – 95% for spews.

4 Are there new methods of analysis or protocols for evaluating impacts?

Has a new methodology been developed for better understanding or evaluating impacts of the fisheries on the resource? Has that methodology been used in NEPA analyses of management actions affecting the resource, since the 2004 PSEIS?

There are no new methods per se but there have been more recent analyses using conventional methods since this document was written. In addition, there have been a number of publications on food habits, abundance, foraging behavior, and disease since 2004 (see list below). I don’t know of any new NEPA analysis of management actions since the 2004 PSEIS.

Would a new analysis using the latest methods and information reach a seriously different conclusion? If new information is available, consider whether taking that information into account would cause you to reach a different conclusion about the effect of the groundfish fisheries on the resource. Provide a rationale if you conclude that it would not, or some discussion if you think this issue needs further investigation. We are not asking for the new analysis to be undertaken, only for you to provide a discussion of whether it is merited.

Possibly. If an analysis were to be completed that showed a strong link between commercial fisheries and the decline of northern fur seals it would likely have some effect on management decisions. There is ongoing research looking at this topic or at least looking for correlates and associations that would lead to further examination. Currently the cause of the ongoing decline is unknown.

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Template for PSEIS SIR – review of conclusions in 2004 PSEIS

draft 6/24/13

What resource component is this review for? Marine Mammals

What sections of the PSEIS were reviewed? Harbor seals, Other Pinnipeds (but only the four ice-associated seals: bearded, ribbon, ringed and spotted. Not walrus, elephant seals or sea otters).

Please answer the following questions with respect to the resource component in question.

- Please provide rationale and discussion of your response, while at the same time keeping it fairly succinct.
- Where appropriate, reference other documents where analysis can be found in detail.
- Responses can be written out, or in bullets.
- In most cases, we are expecting something in the range of 2-5 pages for a particular resource component

1 Has management of the resource changed?

Have there been substantial changes in the management program that have affected the resource, since the 2004 PSEIS (e.g., species is now managed independently, rather than as part of a complex; implementation of catch share privileges or closure areas affecting fisheries targeting resource)?

Harbor seals: Yes, in 2010 the three previously recognized stocks of harbor seals in Alaskan waters were subdivided into twelve stocks (Allen and Angliss 2012).

Ice-associated seals: In October, 2006, NMFS entered into an agreement with the Ice Seal Committee, an Alaska Native Organization representing five coastal regions of communities that use ice-associated seals for nutritional and cultural purposes. Also, see #2 for the potential for critical habitat designation for bearded and ringed seals.

2 Has the status of the resource changed?

Is the status of the resource different than described in the 2004 PSEIS, and if so, how? What has affected the change in status? Is the current status within the range of variability analyzed in the 2004 PSEIS?

Harbor seals: Prior to subdividing the three stocks into twelve (see #1), harbor seals in Bristol Bay, the Pribilof Islands and Lake Iliamna, AK were part of a single Bering Sea stock. Harbor seals in Lake Iliamna have recently been petitioned for listing as “threatened” or ‘endangered’ under the Endangered Species Act (ESA), and the NMFS is currently preparing a Status Review of that population to aid in a listing decision. Harbor seals in the Aleutian Islands have declined substantially since the early 1980s, especially in the western Aleutians (Small et al. 2008).

Ice-associated seals: Mostly out of concerns about effects of climate change on sea ice habitat, all four ice-associated seal species were the subjects of petitions for listing under the ESA. The NMFS prepared Status Reviews on each of the four species and determined that:

- 1) **Ribbon seals** should not be listed under the ESA (Boveng et al. 2008). However, NMFS is currently revisiting this determination (National Marine Fisheries Service 2011) and will publish an updated Status Review and proposed decision in July, 2013.
- 2) **Spotted seals** should not be listed in Alaskan waters, but a small Asian population was listed as “threatened” (Boveng et al. 2009, National Marine Fisheries Service 2010).
- 3) The Arctic subspecies of **ringed seals** (*P. h. hispida*) including all ringed seals in Alaskan waters, was listed as “threatened” (Kelly et al. 2010, National Marine Fisheries Service 2012a). The NMFS is currently considering critical habitat designations.

- 4) The “Beringia” Distinct Population Segment (DPS) of **bearded seals**, including the Bering, Chukchi, Beaufort, and East Siberian Seas, was listed as “threatened” (Cameron et al. 2010, National Marine Fisheries Service 2012b). The NMFS is currently considering critical habitat designations.

3 Is there new information regarding the impacts of the groundfish fisheries on the resource?

Are the fisheries affecting the resource differently than described in the 2004 PSEIS? Is this difference within the range of variability analyzed in the 2004 PSEIS? Has the difference been analyzed in a subsequent NEPA analysis (e.g., the difference in impact is the result of a management change for which an EA or EIS was written)? Is there new scientific information or research indicating or suggesting a change in our understanding of the impact of the fisheries on the resource?

Harbor seals: Splitting the three stocks into twelve led to individual stocks with lower abundance. For example, the Pribilof Island stock of harbor seals (which used to belong to the larger Bering Sea stock) is small, with a population estimate of only 232 (Allen and Angliss 2012). Such a low population suggests the potential for groundfish fisheries to have significant impacts on this stock, but there is no new information on the issue or management plan. Declines of harbor seals in the Aleutian Islands show the same geographic pattern as declines in Steller sea lions, with the strongest declines in the west, and less severe declines to the East. Although the cause of these declines has not been determined, the geographic pattern suggests a possible connection to the mechanism(s) responsible for the sea lion decline.

Ice-associated seals: Although not “new” information, the Status Reviews referenced in #2 were more comprehensive summaries of the available literature on the food habits of ice-associated seals. For example, in contrast to the PSEIS, the status reviews indicate that various species of demersal/groundfish are important to both ribbon and bearded seals, at least in some areas, seasons and/or years.

4 Are there new methods of analysis or protocols for evaluating impacts?

Has a new methodology been developed for better understanding or evaluating impacts of the fisheries on the resource? Has that methodology been used in NEPA analyses of management actions affecting the resource, since the 2004 PSEIS?

No. New and unique analyses are not required; the need is for good data. New field efforts are required.

5 Would a new analysis using the latest methods and information reach a seriously different conclusion?

If new information is available, consider whether taking that information into account would cause you to reach a different conclusion about the effect of the groundfish fisheries on the resource. Provide a rationale if you conclude that it would not, or some discussion if you think this issue needs further investigation. We are not asking for the new analysis to be undertaken, only for you to provide a discussion of whether it is merited.

Harbor seals: Given the paucity of information about the foraging ecology of this species, especially in the Aleutian Islands, it is unlikely that new methods of analysis would lead to a different conclusion about the effects of groundfish fisheries..

Ice-associated seals: The “new” information referenced in #3 is limited (e.g., small sample sizes, little to no indication of size/age of prey taken, contrasting study results), so firm conclusions would be difficult or impossible to develop. But given the more comprehensive, and in some cases differing, reviews of food habits presented in the status reviews, a re-analysis may be warranted.

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Template for PSEIS SIR – review of conclusions in 2004 PSEIS

draft 6/4/13

What resource component is this review for? Marine Mammals

What sections of the PSEIS were reviewed? Killer whale (transients), Other toothed whales, Baleen whales

Please answer the following questions with respect to the resource component in question.

- Please provide rationale and discussion of your response, while at the same time keeping it fairly succinct.
- Where appropriate, reference other documents where analysis can be found in detail.
- Responses can be written out, or in bullets.
- In most cases, we are expecting something in the range of 2-5 pages for a particular resource component.

1 Has management of the resource changed?

Have there been substantial changes in the management program that have affected the resource, since the 2004 PSEIS (e.g., species is now managed independently, rather than as part of a complex; implementation of catch share privileges or closure areas affecting fisheries targeting resource)?

No

2 Has the status of the resource changed?

Is the status of the resource different than described in the 2004 PSEIS, and if so, how? What has affected the change in status? Is the current status within the range of variability analyzed in the 2004 PSEIS?

Killer Whale (Transients):

In January 2004 the North Gulf Oceanic Society (NGOS) and the National Marine Mammal Laboratory (NMML) held a joint workshop to match identification photographs of transient killer whales from this population. That analysis of photographic data resulted in the following minimum counts for ‘transient’ killer whales belonging to the Gulf of Alaska, Aleutian Islands, and Bering Sea Transient stock. A total count of 552 individual whales have been identified in the Gulf of Alaska, Aleutian Islands, and Bering Sea transient killer whale stock (Allen and Angliss, 2013). Line transect surveys from 2001-2003 estimated transient killer whale abundance at 249 (CV = 0.50), with 95% confidence interval of 99-628 (Zerbini et al. 2007). Unclear how this new information would affect the analysis in the 2004 PSEIS.

AT1 transients: At least 11 animals were alive in 1998, but it appears that as of 2009, only 7 individuals remain alive. The AT1 group has been reduced to 32% (7/22) of its 1984 level (Matkin et al. 2008). This should not change the conclusions reached in the 2004 PSEIS.

Other Toothed Whales:

The Alaska Resident stock of killer whales in general continues to increase in population size. However, a few pods in Prince William Sound have declined by a few animals (i.e., AB25, AE, AN20, AS30, AY: Allen and Angliss, 2013). Unclear how this new information would affect the analysis in the 2004 PSEIS.

Harbor porpoise: Because the most recent abundance estimates are 11-13 years old and information on incidental harbor porpoise mortality in commercial fisheries is not well understood, all Alaska stocks of harbor porpoise (Gulf of Alaska, Bering Sea, and Southeast) are classified as strategic stocks. Unclear how this new information would affect the analysis in the 2004 PSEIS.

In the 2004 PSEIS, Cook Inlet belugas were listed as depleted under the MMPA. The population has continued to decline. Cook Inlet beluga whales were listed as a Distinct Population Segment under the Endangered Species Act in 2008 and Critical Habitat was designated throughout much of Cook Inlet in 2011. This change in status may require reanalysis.

The Bristol Bay beluga stock continues to increase in size. The Alaska Department of Fish and Game and the Alaska Beluga Whale Committee conducted beluga surveys in Bristol Bay in 1999, 2000, 2004 and 2005, with maximum counts of 690, 531, 794, and 1,067 (Lowry et al. 2008). Using the correction factors described above and the maximum counts for 2004 and 2005 gives population estimates of 2,455 and 3,299 (L. Lowry, University of Alaska Fairbanks, pers. comm.).

No new information on Pacific white-sided dolphins, Dall's porpoise, sperm whales, or beaked whales (Allen and Angliss, 2013).

Baleen Whales:

Humpback whales: A large-scale study of humpback whales throughout the North Pacific was conducted in 2004-06 (the Structure of Populations, Levels of Abundance, and Status of Humpbacks (SPLASH) project). Initial results from this project (Calambokidis et al. 2008, Barlow et al. 2011), including abundance estimates and movement information, have been reported in Baker et al. (2008), and are also summarized in Fleming and Jackson (2011); however, these results are still being considered for stock structure analysis (Allen and Angliss, 2013). This may require reanalysis.

North Pacific right whales were relisted under the ESA as a species in 2008 and Critical Habitat was designated in the Bering Sea and Gulf of Alaska in 2006. Abundance estimates as of 2008 indicate fewer than 60 whales in Alaska waters (Wade et al., 2011). This change in status should not affect the conclusions reached in the 2004 PSEIS.

The Western Arctic bowhead whale stock has been increasing in recent years; the estimate of 12,631 (in 2004) is between 22% and 124% of the pre-exploitation abundance (estimates ranging roughly from 10,000 to 55,000), and this stock may now be approaching its carrying capacity (Brandon and Wade 2004, 2006). This should not affect the conclusions reached in the 2004 PSEIS.

For Eastern North Pacific gray whale, the most recent estimate of abundance is from the 2006/2007 southbound survey, or 19,126 (CV=7.1%) whales (Laake et al. 2009). Because of observed interannual differences in correction factors used to correct for bias in estimating pod size (Rugh et al. 2008), the time series of abundance estimates dating back to 1967 was reanalyzed. Laake et al. (2009) developed a more consistent approach to abundance estimation that used a better model for pod size bias and applied their estimation approach to reestimate abundance for all 23 surveys. This reanalysis did not change the current status of Eastern North Pacific gray whales which is continuing to increase at about 3.2% per year (Punt and Wade 2010). This should not affect the conclusions reached in the 2004 PSEIS. However, three gray whales from the western North Pacific that were tagged with satellite transmitters (one in 2010, two in 2011) migrated from Russian waters crossing the Bering Sea and Gulf of Alaska after passing through Unimak and Umnak passes, following eastern North Pacific gray whales during their southbound migration to Mexico (see Mate et al. 2011; Mate and Ilyashenko, unpublished data, <http://mmi.oregonstate.edu/sakhalin2010Map>). On the northward migration, the one whale still transmitting locations followed the coastline from Mexico to Alaska before entering the Bering Sea

through Unimak Pass then returning along the ice edge to Russian waters. Since this discovery additional photographic matches have been found between whales observed off Sakhalin Island, Russia, and in the Mexico lagoons. The western population of North Pacific gray whales (WGW), once thought extinct, is now estimated at 130 individuals and feeds primarily off northeastern Sakhalin Island, Russia, during summer.

No new information on fin whales, sei whales, minke whales (Allen and Angliss, 2013) or blue whales (Carretta et al. 2012).

3 Is there new information regarding the impacts of the groundfish fisheries on the resource?

Are the fisheries affecting the resource differently than described in the 2004 PSEIS? Is this difference within the range of variability analyzed in the 2004 PSEIS? Has the difference been analyzed in a subsequent NEPA analysis (e.g., the difference in impact is the result of a management change for which an EA or EIS was written)? Is there new scientific information or research indicating or suggesting a change in our understanding of the impact of the fisheries on the resource?

Killer Whale (Transients):

In previous assessments, there were six different federal commercial fisheries in Alaska that could have had incidental serious injuries or mortalities of killer whales and were observed. In 2004, the definitions of these fisheries were changed to reflect target species; these new definitions have resulted in the identification of 22 observed fisheries that use trawl, longline, or pot gear. Of these fisheries, there were two which incurred serious injury and mortality of killer whales (any stock) between 2007 and 2009: the BSAI flatfish trawl and the BSAI Greenland turbot longline. The mean annual (total) mortality rate for all fisheries for 2007-2009 was 1.5 (CV =0.19) (note: This does not include the AT1 pod with a known range limited to waters of Prince William Sound and Kenai Fjords where there are no federally managed commercial fisheries). Unclear how this new information would affect the analysis in the 2004 PSEIS.

Other Toothed Whales:

Over the past few years, observers have collected tissue samples of many of the killer whales which were killed incidental to commercial fisheries. Genetics analyses of samples from the killer whales have indicated that the mortalities incidental to the BSAI flatfish trawl and the BSAI Pacific cod fisheries are of the “resident” type, and mortalities incidental to the BSAI pollock trawl fishery are of the “transient” type (M. Dahlheim, pers. comm., National Marine Mammal Laboratory, Alaska Fisheries Science Center, 7600 Sand Point Way, NE, Seattle, WA 98105). The mean annual estimated level of serious injury and mortality of Alaska resident killer whales is 1.49/year (Allen and Angliss, 2013). There are many reports of killer whales consuming the processing waste of Bering Sea groundfish trawl fishing vessels (Perez 2006). However, the ‘resident’ stock of killer whales is most likely to be involved in such fishery interactions since these whales are known to be fish eaters, while ‘transient’ whales have only been observed feeding on marine mammals. Recently, several fisheries observers reported that large groups of killer whales in the Bering Sea have followed vessels for days at a time, actively consuming the processing waste (Fishery Observer Program, unpubl. data, Alaska Fisheries Science Center, 7600 Sand Point Way NE, Seattle, WA 98115). On some vessels, the waste is discharged in the vicinity of the vessel’s propeller (NMFS unpublished data); consumption of the processing waste in the vicinity of the propeller may be the cause of the propeller-caused mortalities of resident killer whales in the BSAI flatfish trawl fishery. Unclear how this new information would affect the analysis in the 2004 PSEIS.

One harbor porpoise mortality was observed in 2007 in the Bering Sea/Aleutian Islands flatfish trawl, which is the only harbor porpoise mortality observed during the 2007-2010 period. Therefore, the mean

annual (total) mortality rate resulting from observed mortalities was 0.53 (Allen and Angliss, 2013). Because the abundance estimates are 13 years old and information on incidental mortality in commercial fisheries is sparse, the Bering Sea stock of harbor porpoise is classified as a strategic stock. Unclear how this new information would affect the analysis in the 2004 PSEIS.

Between 2007 and 2010, there was one observed serious injury of a sperm whale in the Gulf of Alaska sablefish longline fishery (Allen and Angliss, 2013). This animal was designated as seriously injured because it became caught in the gear, and was released alive with trailing gear. Unclear how this new information would affect the analysis in the 2004 PSEIS.

There were no serious injuries or mortalities incidental to observed commercial fisheries reported for Pacific white-sided dolphins, beluga whales, or any of the beaked whales (Perez 2006; Allen and Angliss, 2013). However, for Bristol Bay belugas it is unknown whether the U. S. commercial fishery-related mortality level is insignificant and approaching zero mortality and serious injury rate (i.e., 10% of PBR; less than 4.9 per year) because a reliable estimate of the mortality rate incidental to commercial fisheries is currently unavailable. Similarly, current observer data on fisheries within Cook Inlet are lacking; however, no mortalities in U. S. commercial fisheries have been reported for this beluga stock. Thus annual mortality levels are considered insignificant and approaching zero mortality and serious injury rate, although the lack of recent fisheries data is a concern for this small population.

Baleen Whales:

Humpback whales: For the Western North Pacific stock, the estimated human-related mortality rate based solely on mortalities that occurred incidental to U. S. commercial fisheries is 0.37; therefore, the estimated fishery mortality and serious injury rate exceeds 10% of the PBR (0.2) and cannot be considered insignificant and approaching zero (Allen and Angliss, 2013). This may require reanalysis.

No mortalities or serious injuries by groundfish commercial fisheries were reported for fin whales, minke whales, North Pacific right whales, bowhead whales (Allen and Angliss, 2013), gray whales, or blue whales (Carretta et al. 2012). However, there is little information on western gray whales that may migrate through Alaska waters during the winter months.

4 Are there new methods of analysis or protocols for evaluating impacts?

Has a new methodology been developed for better understanding or evaluating impacts of the fisheries on the resource? Has that methodology been used in NEPA analyses of management actions affecting the resource, since the 2004 PSEIS?

No

5 Would a new analysis using the latest methods and information reach a seriously different conclusion?

If new information is available, consider whether taking that information into account would cause you to reach a different conclusion about the effect of the groundfish fisheries on the resource. Provide a rationale if you conclude that it would not, or some discussion if you think this issue needs further investigation. We are not asking for the new analysis to be undertaken, only for you to provide a discussion of whether it is merited.

Potentially for Cook Inlet beluga whales now listed as a DPS under ESA.

Also, Bering Sea harbor porpoise, Western North Pacific stock of humpback whales, western gray whales, and killer whales (see notes above).

Citations

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Template for PSEIS SIR – review of conclusions in 2004 PSEIS

What resource component is this review for? Marine Mammals – Sea otters

What sections of the PSEIS were reviewed? 4.9.8.9

Please answer the following questions with respect to the resource component in question.

- Please provide rationale and discussion of your response, while at the same time keeping it fairly succinct.
- Where appropriate, reference other documents where analysis can be found in detail.
- Responses can be written out, or in bullets.
- In most cases, we are expecting something in the range of 2-5 pages for a particular resource component.

1 Has management of the resource changed?

Yes. On August 9, 2005, U.S. Fish and Wildlife Service (USFWS) published a final rule (70 FR 46366) to list the southwest Alaska Distinct Population Segment (DPS) of the northern sea otter (*Enhydra lutris kenyoni*) as threatened under the Endangered Species Act.

On October 8, 2009, the USFWS published a final rule designating 15,164 square kilometers (5,855 square miles) as critical habitat for the southwest Alaska DPS of the northern sea otter (74 FR 51988). The critical habitat rule became effective on November 9, 2009. The critical habitat is designated in five units: the Western Aleutian Unit; the Eastern Aleutian Unit; the South Alaska Peninsula Unit; the Bristol Bay Unit; and the Kodiak, Kamishak, Alaska Peninsula Unit. Within these units, critical habitat occurs in nearshore marine waters ranging from the mean high tide line seaward for a distance of 100 meters, or to a water depth of 20 meters. While sea otter critical habitat predominately occurs within state waters, DOI has designated some critical habitat within federal waters where water depth is 20 meters or less.

On September 6, 2013, the USFWS announced the availability of the recovery plan for the southwest Alaska DPS of the northern sea otter (78 FR 54905). The recovery plan describes the status, current management, recovery objectives and criteria, and specific actions needed to enable us to delist the southwest Alaska DPS of the northern sea otter (USFWS 2013a).

2 Has the status of the resource changed?

Yes. The southwest Alaska DPS of the northern sea is now listed as threatened under the Endangered Species Act. However, based on the most recent comprehensive assessment of the northern sea otter status in the 2013 Recovery Plan, the population abundance and trends have generally not notably changed since the early 2000s (USFWS 2013a).

3 Is there new information regarding the impacts of the groundfish fisheries on the resource?

Yes. In 2006, NMFS and the USFWS consulted on the southwest Alaska DPS of the northern sea otter and the consultation concluded that the groundfish, crab, and scallop fisheries are not likely to adversely affect sea otters.

In response to the designation of critical habitat, NMFS reinitiated Section 7 consultation. The biological assessment evaluated the potential effect of the BSAI Groundfish and GOA Groundfish FMPs on the southwest Alaska DPS of the northern sea otter and its critical habitat. The analysis concluded that the Alaska federally managed fisheries authorized by the FMPs and State of Alaska parallel groundfish

fisheries are not likely to adversely affect the southwest Alaska DPS of the northern sea otter or its designated critical habitat. On July 10, 2013, the USFWS concurred with NMFS's determination that authorization of the specified fisheries is not likely to adversely affect the southwest Alaska DPS of the northern sea otter and will not result in adverse modification of sea otter critical habitat (NMFS 2013, USFWS 2013b).

4 Are there new methods of analysis or protocols for evaluating impacts?

No.

5 Would a new analysis using the latest methods and information reach a seriously different conclusion?

No. NMFS conducted a new analysis for the Biological Assessment and arrived at a practically similar conclusion (NMFS 2013).

6 References:

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USFWS. 2013a. Southwest Alaska Distinct Population Segment of the Northern Sea Otter (*Enhydra lutris kenyoni*) - Recovery Plan. U.S. Fish and Wildlife Service, Region 7, Alaska. 171pp. URL:
<http://www.fws.gov/alaska/fisheries/mmm/seaotters/pdf/Recovery%20Plan%20SW%20AK%20DPS%20Sea%20Otter%20Aug13.pdf>

USFWS. 2013b. Letter Re: Statewide NMFS groundfisheries (Consultation Number 2011-0180). From Ellen W. Lance, Endangered Species Branch Chief, to NMFS. URL:
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Template for PSEIS SIR – review of conclusions in 2004 PSEIS

draft 7/17/13

What resource component is this review for? [Seabirds](#)

What sections of the PSEIS were reviewed? [Short-tailed Albatross; Laysan and Black-footed Albatross; shearwaters; Northern fulmars; Species of management concern \(Red-legged Kittiwakes, Marbled and Kittlitz’s murrelets\); Other piscivorous species \(most alcids, gulls, and cormorants\); other planktivorous species \(Storm-petrels and most Auklets\); Spectacled Eiders and Steller’s Eiders](#)

Please answer the following questions with respect to the resource component in question.

- Please provide rationale and discussion of your response, while at the same time keeping it fairly succinct.
- Where appropriate, reference other documents where analysis can be found in detail.
- Responses can be written out, or in bullets.
- In most cases, we are expecting something in the range of 2-5 pages for a particular resource component.

1 Has management of the resource changed?

Have there been substantial changes in the management program that have affected the resource, since the 2004 PSEIS (e.g., species is now managed independently, rather than as part of a complex; implementation of catch share privileges or closure areas affecting fisheries targeting resource)?

The primary management action affecting seabird resources was the requirement for longline vessels to use seabird mitigation measures (i.e., streamer lines). This was implemented in February 2004, just before release of the PSEIS. The Freezer Longline fleet had largely adopted the practice of deploying streamer lines in 2002, taking advantage of free streamer lines supplied first by the US Fish and Wildlife Service and later by NOAA Fisheries. Use of seabird avoidance gear has likely reduced overall bycatch by 100,000 birds since implementation (Fitzgerald, pers comm). An analysis of the reduced overall bycatch and reduction in bycatch rates is currently underway at the AFSC in partnership with Washington Sea Grant Program. Another management change – implementation of the restructured observer program in 2013 – will allow a better evaluation of total fishery impacts on the resource in the future.

2 Has the status of the resource changed?

Is the status of the resource different than described in the 2004 PSEIS, and if so, how? What has affected the change in status? Is the current status within the range of variability analyzed in the 2004 PSEIS?

Status of the various seabird species groups remains unchanged. The short-tailed albatross population continues to grow at an ca 7.5% rate and is currently estimated to be 4,023 individuals (STAL Recovery Team information). The USFWS and Japanese counterparts have spent 5 years rearing and fledging translocated Short-tailed albatross chicks on Mukojima Island. The project translocated 70 chicks and 69 fledged. In 2012/13 one nesting attempt occurred but failed. This was a 2008 bird. Re-establishing a colony on the island is a goal of the Short-tailed albatross recovery team. The USFWS was petitioned to list the Black-footed albatross as threatened under the ESA. A review was completed on 7 October, 2011 where the FWS determined that listing was not warranted at the time (Federal Register Vol 76, No. 195: 62504-62565). Populations of other birds, such as Northern Fulmars, are extremely difficult to survey and assess due to the remote locations and difficult terrain of their colonies. Trend information for many of these species is not available.

Review of conclusions in 2004 PSEIS SIR

~6/19/2013

What resource component is this review for? Habitat

What sections of the PSEIS were reviewed? 3.6, 4.1 4.4

Please answer the following questions with respect to the resource component in question.

- Please provide rationale and discussion of your response, while at the same time keeping it fairly succinct.
- Where appropriate, reference other documents where analysis can be found in detail.
- Responses can be written out, or in bullets.
- In most cases, we are expecting something in the range of 2-5 pages for a particular resource component.

1 Has management of the resource changed?

Have there been substantial changes in the management program that have affected the resource, since the 2004 PSEIS (e.g., species is now managed independently, rather than as part of a complex; implementation of catch share privileges or closure areas affecting fisheries targeting resource)?

Substantial changes to the management of habitat have included implementation of regulations to protect habitat that provides structural relief and gear modifications to limit adverse impacts of trawling on the seafloor. In 2005 in the Aleutian Islands, closure areas that prohibit all bottom trawling in the Aleutians, except in small discrete “open” areas were implemented, and Habitat Conservation Zones with high density coral and sponge habitat were closed to all bottom-contact fishing gear. In 2008 in the Bering Sea, measures were enacted to conserve benthic fish habitat by “freezing the footprint” of bottom trawling by limiting trawl effort only to those areas more recently trawled. A deep slope and basin area and three habitat conservation areas around St Matthew Island, St Lawrence Island were closed to bottom trawling. In 2005 in the Gulf of Alaska several new HAPCs were implemented; the Slope Habitat Conservation Areas, Seamount Habitat Protection Areas, and the Gulf of Alaska Coral Habitat Protection Areas. In 2011 for the Bering sea flatfish fishery elevating devices (e.g., discs or bobbins) are required to be used on the trawl sweeps, to raise the sweeps off the seabed and limit adverse impacts of trawling on the seafloor.

For more information see

<http://alaskafisheries.noaa.gov/npfmc/conservation-issues/habitat-protections.html>

and

<http://alaskafisheries.noaa.gov/npfmc/conservation-issues/gear-mods.html>

2 Has the status of the resource changed?

Is the status of the resource different than described in the 2004 PSEIS, and if so, how? What has affected the change in status? Is the current status within the range of variability analyzed in the 2004 PSEIS?

The status or condition of habitat described in the PSEIS was rated as “conditionally significant adverse”. This status was based on the conclusion that, coupled with historical impacts, impacts to long-lived slow growing species (i.e. corals) could cause long-term damage and possibly irreversible loss of living habitat. The word “conditionally” was used to indicate that a significant impact is based on credible scientific information and professional judgement, but more complete information is need for certainty. The current status of habitat is the same as in the 2004 PSEIS because long lived slow growing species have

likely not recovered from the impacts of historical fishing and impacts continue in areas that are open to bottom trawling.

3 Is there new information regarding the impacts of the groundfish fisheries on the resource?

As mentioned in the PSEIS, a separate analysis of Essential Fish Habitat (EFH) overlapped PSEIS development. This analysis, resulting in the 2005 EFH EIS, carried out many of the overarching policies anticipated in the preferred alternative. It updated and detailed the designation of EFH for all species managed under the Management Plans, established a process for considering proposed habitats for designation as Habitats of Particular Concern (HAPC), analyzed the effects of fisheries on EFH, and proposed precautionary actions to minimize those effects. That analysis and its subsequent reconsideration in 2009 clearly represent new information regarding the impacts of groundfish fisheries on habitat.

Some additional research on effects of fishing

Additional research on the habitat requirements of different species
EFH funded habitat research – e.g., flatfish juvenile habitat

Research and development of modifications to trawl gear to reduce effects on habitat
Bottom trawl sweep modifications to reduce effects on structure and epifauna, implemented through regulations for Bering Sea and GOA flatfish fisheries.

Limited additional research on the recovery of habitat from damage due to trawl gear
Some EFH funded research
Revisiting sites that were trawled 13 years ago in the eastern Gulf of Alaska to evaluate long term effects of trawling on sponge habitat

Improved resolution of data on the distribution of fishing effort due to broader implementation of VMS in Alaska fisheries.

Vast majority of fishing effort is now tracked with VMS, providing much higher resolution of the footprint of those efforts. Full use of such data would likely indicate more area unaffected by fishing but fished areas having higher fishing intensities over analyses based on averaging effort over larger spatial scales. The net effect would be a lowering of LEI estimates, albeit likely small.

Additional information on the distribution of habitat types and features
Efforts to provide better technology for characterizing habitats
Detailed habitat mapping in the Gulf of Alaska and Aleutian Islands in the vicinity of fishing activities and for studies of corals

Development of an Alaska Essential Fish Habitat Research Plan (Sigler et al 2012)

Consideration of the EFH EIS analysis resulted in a number of precautionary management actions to reduce the effects of fishing on habitat. This included a number of new areas closed to fishing, particularly bottom trawling, and modifications to fishing gear, specifically trawl sweeps. The existence of those actions will also affect any new analysis of the effects of fishing on habitat.

4 Are there new methods of analysis or protocols for evaluating impacts?

The 2005 EFH EIS included a detailed analysis of the effects of fishing on EFH of Alaska marine species managed under FMPs. This analysis, described in Appendix B of the EIS, included 1) an analysis of the

distribution and intensity of the effects of fishing on classes of features that function as habitat for fish (infaunal prey, epifaunal prey, biological structure and non-living structure) and 2) expert assessments of the potential for that distribution of effects to affect the life history functions of spawning, breeding, feeding, and growth to maturity for each of the managed species. Those assessments were made against the standard of whether they exceeded effects that were ‘more than minimal and not temporary’.

The effects of fishing analysis was based on a model developed by Jeff Fujioka (Fujioka 2006), that considered the combination of fishing intensity, sensitivity of habitat features to fishing, and recovery rates of habitat features to estimate a long-term effects index (LEI), representing the proportional reduction in the habitat feature from the unfished state should that fishing intensity be continued indefinitely. The spatial distribution of LEI values for each habitat features class provided a useful and accessible description of fishing’s effects on habitat, which could then be considered by experts on each managed species to assess the potential for significant effects on life-history processes. A significant limitation on this assessment was the lack of comprehensive data to map the distribution of functional habitat features or the distribution of their use by each life-history stage of the species. These limited the assessment to use of a map of the proportional reduction of such features (LEI) and expert knowledge of the biological needs of each species.

Although this methodology for evaluating impacts is different from that used in the PSEIS, it is important to note that the scope of PSEIS is broader than the EFH EIS. The EFH EIS considered impacts of fishing on benthic marine habitat from the perspective of managed species that are dependent on habitat features. The scope of the PSEIS was broader and considered adverse impacts to marine benthic habitat from the perspective of ecosystem structure and function, as well as managed species.

Other models for the effects of fishing have been proposed and applied in different areas. Such models either provide less specific information or require information that is not available for Alaska fisheries e.g., distribution of habitat features or growth rates of such features). At this point, the Fujioka model remains a good fit for analysis of the effects of Alaska’s fisheries on EFH. Nevertheless, the next cyclical reassessment of the EFH EIS analysis has just begun and may identify an improved or superior model.

Fujioka, J.T. 2006. A model for evaluating fishing impacts on habitat and comparing fishing closure strategies. *Can. J. Fish. Aquat. Sci.* 63:2330-2342

5 Would a new analysis using the latest methods and information reach a seriously different conclusion?

By and large, analyses and research subsequent to the PSEIS have confirmed its general conclusions. In fact, the PSEIS used much of the same fishing data and an early version of the Fujioka model in its analyses. Both the PSEIS and the EFH EIS identified that fishing reduced habitat features.

The EFH EIS also assessed whether the distribution and intensity of those effects matched with life-history requirements of managed species in a way that indicated that their habitat was affected in a way that was more than minimal and not temporary. That assessment, and a subsequent reassessment in 2009, identified few places indicating that standard had been exceeded. (A specific area of concern for red king crab in the Amak Island area is receiving further review). Appropriately, many assessments indicated substantial uncertainty, primarily due to lack of specific knowledge of the distribution of fish use of habitat features, particularly for juveniles and spawning concentrations. This uncertainty motivated precautionary management actions to reduce fishing effects on habitat. Those actions, and a general reduction in fishing intensity, if anything, may result in some reduction of the estimated effects on reanalysis.

In a similar way, further research studies on the processes that underlie the effects of fishing on benthic habitat, while increasing the specificity and certainty of knowledge, have not demonstrated any

substantial errors in the information used in the 2005 EFH EIS or the PSEIS analysis. A subsequent analysis will provide more specific estimates with less uncertainty, but is not likely reach seriously different conclusions.

Template for PSEIS SIR – review of conclusions in 2004 PSEIS

draft 6/5/13

What resource component is this review for? Socioeconomics

What sections of the PSEIS were reviewed? 4.9-235 through 4.9351; Table 4.10-2b; Table 4.9-6; Table 4.2-2

Please answer the following questions with respect to the resource component in question.

- Please provide rationale and discussion of your response, while at the same time keeping it fairly succinct.
- Where appropriate, reference other documents where analysis can be found in detail.
- Responses can be written out, or in bullets.
- In most cases, we are expecting something in the range of 2-5 pages for a particular resource component.

1 Has management of the resource changed?

Have there been substantial changes in the management program that have affected the resource, since the 2004 PSEIS (e.g., species is now managed independently, rather than as part of a complex; implementation of catch share privileges or closure areas affecting fisheries targeting resource)?

The document (Section 4.9, Socioeconomics pages 235-351, in particular) makes references to increasing the number of fisheries that will be rationalized in the coming years. Since 2004, we have seen the rationalization of AM80 groundfish, the rockfish fishery, and the P. cod freezer longliners. BSAI crab has also been rationalized, though it is obviously not part of the groundfish FMP, but references are made to crab stocks at points throughout this resource component and to excess capacity in the crab fisheries (now essentially gone). As such, much of the speculation about potential rationalization programs, or unrealized benefits or costs of such programs, can be better articulated at this time. Accordingly, statements about unrealized benefits and the amount of those benefits should probably be toned down a bit, as fishery rationalization has already occurred in many fisheries and there is not nearly as much unexplored territory as back in 2004.

Bycatch management in this document could be updated to reflect the new Chinook salmon bycatch IPA's and hard cap as well as Steller sea lion closures.

2 Has the status of the resource changed?

Is the status of the resource different than described in the 2004 PSEIS, and if so, how? What has affected the change in status? Is the current status within the range of variability analyzed in the 2004 PSEIS?

The document makes reference to projected trends in particular species repeatedly in different parts of this section (there are too many instances to mention; this document restates much of the same information and conclusions in each section of the Socioeconomics portion). Basically, you'll need to read through the specific references to species trends and see if the projected trends based upon the information in 2004 have played out. Similarly, references are made to the impacts of climate change and I believe we have seen more of the impacts of climate change since this document was published.

Specific statements that appear repeatedly and should be checked include:

- *Downward trends in salmon and crab fisheries
- *Significant decreases in sablefish and rockfish
- *Large increases in catch of P.cod expected

3 Is there new information regarding the impacts of the groundfish fisheries on the resource?

Are the fisheries affecting the resource differently than described in the 2004 PSEIS? Is this difference within the range of variability analyzed in the 2004 PSEIS? Has the difference been analyzed in a subsequent NEPA analysis (e.g., the difference in impact is the result of a management change for which an EA or EIS was written)? Is there new scientific information or research indicating or suggesting a change in our understanding of the impact of the fisheries on the resource?

There are some impacts that the document doesn't address which have become issues of concern for the public and considered by the Council. For example, in the analysis of the preferred alternatives in Section 4.9.9.1.1, there is no discussion of the impacts of rationalization on crew and the concerns that have arisen about the way in which high lease rates affect the financial return or average daily wages for crew members aboard vessels. Sections about "Employment and Payments to Labor" assume impacts are insignificant. It is sort of assumed that crew are not adversely impacted but I think we have seen many crew feel as though their compensation has decreased per day. This may be true and it may be due to excess crew labor relative to boats on the water, but it should be addressed in the document or at least acknowledged.

This section repeatedly makes reference to "model results" that predict changes in vessel landings, by species, with accompanying estimates of changes in catch and revenue. It seems as though whatever model generated these predictions could be updated to reflect data covering the last 7 or so years. I doubt any of the specific estimates (e.g., P.cod is expected to increase by about 29%, 44% or 49% -- different numbers are given in two paragraphs on page 4.9-301 and on page 4.9-321) are likely to be accurate today (errors notwithstanding). It's probably worthwhile noting that the P.cod longline CP fleet has been rationalized.

Comments are also made about decreases in ex-vessel value occurring with rockfish and sablefish, but this doesn't appear to be accurate. There is no recognition of rockfish being rationalized.

Comments are made on 49-308 about what will happen if head-and-gut fisheries are rationalized (and they were through AM80) and one should check to see if the species-specific predictions listed there are accurate or can be updated.

4.9-313 comments about significant reductions in excess capacity among CPs seems overstated, as nearly all CPs are rationalized at this point.

Impacts of salmon closures on Average Cost sections of the document should be included/addressed.

The entire section on Regional Socioeconomic Effects beginning on page 4.9-325 makes very specific statements about community impacts coming from a model. I would recommend running this model with newer data to see if the same trends arise. Given the specificity here, it's likely to be stale.

4 Are there new methods of analysis or protocols for evaluating impacts?

Has a new methodology been developed for better understanding or evaluating impacts of the fisheries on the resource? Has that methodology been used in NEPA analyses of management actions affecting the resource, since the 2004 PSEIS?

You may want to check with AKR staff, but I believe Ben Muse has developed economic impact models for the most recent Steller sea lion closures. The Biop has also been released. There are also published papers describing the impacts of crab rationalization:

Abbott, Joshua K.; Garber-Yonts, Brian; Wilen, James E.; Marine Resource Economics, 2010, v. 25, iss. 4, pp. 333-54

Matulich, Scott C.; Marine Resource Economics, 2009, v. 24, iss. 2, pp. 187-93

Matulich, Scott C.; Marine Resource Economics, 2008, v. 23, iss. 3, pp. 253-71

I recognize that crab is not part of this PSEIS, but there are interesting insights into effects of rationalization on various groups.

5 Would a new analysis using the latest methods and information reach a seriously different conclusion?

If new information is available, consider whether taking that information into account would cause you to reach a different conclusion about the effect of the groundfish fisheries on the resource. Provide a rationale if you conclude that it would not, or some discussion if you think this issue needs further investigation. We are not asking for the new analysis to be undertaken, only for you to provide a discussion of whether it is merited.

I don't believe the fundamental impacts of rationalizing fisheries or closing areas to fishing are incorrect in this document. I believe that the Council has essentially slowly implemented many of the policies laid out in this document and that the basic understanding of the effects of rationalization on overcapacity, efficiency, and the nature of the jobs is correct. However, the document seems to reflect the understanding a decade ago of who would win and lose as a result of rationalization; there are some relatively specific predictions about regional economies and how crew and vessel owners will be affected. There are also very specific model results and statements about species trends that could be updated. I believe that given the number of rationalization programs that have been implemented we don't need to rely on those predictions as heavily today, and could likely appeal to actual results rather than predictions. I think the magnitude of the benefits of the preferred alternatives is likely much smaller today given how much of the fishery has already been rationalized, and we also have a better idea of the economic costs of spatial closures due to work done by regional economists estimating, for example, the costs of Steller sea lion closures.

Template for PSEIS SIR – review of conclusions in 2004 PSEIS

draft 6/6/13

What resource component is this review for? Ecosystems

What sections of the PSEIS were reviewed? 4.9.10

Please answer the following questions with respect to the resource component in question.

- Please provide rationale and discussion of your response, while at the same time keeping it fairly succinct.
- Where appropriate, reference other documents where analysis can be found in detail.
- Responses can be written out, or in bullets.
- In most cases, we are expecting something in the range of 2-5 pages for a particular resource component.

1 Has management of the resource changed?

No.

2 Has the status of the resource changed?

The Ecosystem Indicators of status, including energy flow, diversity, aggregate top predators, and forage fish have been monitored through the annual publication of the Ecosystem Chapter in the SAFE (e.g. Zador et al. 2012). This has monitored short-term changes in properties – for example, forage fish biomass was significantly below average for 2004-2008, and has since returned towards average. There is no evidence that these variations are outside short or medium-term (3-5 year) range of natural variability as measured over the last 30 years.

3 Is there new information regarding the impacts of the groundfish fisheries on the resource?

There has been substantial new world-wide research (e.g. comparisons between ecosystems) on energy flow within ecosystems, for example, the importance of trophic structure or necessary minimum forage fish biomass required to feed top predators within ecosystems. However, this information does not suggest that impacts of the groundfish fishery on the Alaska ecosystems specifically (BSAI and GOA) have significantly changed. Impacts on ecosystems have been analyzed in multiple EAs on specific management changes and no significant differences have been noted in those EAs.

4 Are there new methods of analysis or protocols for evaluating impacts?

Significant improvements have been made to monitoring critical aspects of the ecosystem through the development of annual Ecosystem Assessments and Report Cards (e.g. Zador et al. 2012). Furthermore, these improvements have been carried forward into Management Strategy Analyses (MSEs) of the impacts of management strategies on different ecosystem aspects. The ecosystem research is currently being developed within the Alaska Fisheries Science Center as an extended Integrated Ecosystem Assessment (IEA) program to provide data for ‘end to end’ models that connect climate variability to groundfish and salmon (Chinook and chum; prohibited species catch) recruitment. The modeling effort and ecosystem data provide a formal method for evaluating climate impacts on Alaska’s large marine ecosystems.

5 Would a new analysis using the latest methods and information reach a seriously different conclusion?

No. The new research and information will enable improved monitoring of the ecosystem research, but to date does not suggest that the conclusions of section 4.9.10 would differ substantially.

Ref: Zador et. al. 2012. Ecosystem Considerations. *In*: Stock assessment and fishery evaluation report for the groundfish resources of the Bering Sea/Aleutian Islands regions. North. Pac. Fish. Mgmt. Council, Anchorage, AK.