North Pacific Fishery Management Council

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Certified:_____
Date:_____

SCIENTIFIC AND STATISTICAL COMMITTEE
to the
NORTH PACIFIC FISHERY MANAGEMENT COUNCIL
October 3-5, 2005

The Scientific and Statistical Committee met during October 3-5, 2005 at the Hilton Hotel in Anchorage, AK. Members present were:

Terry Quinn II, Acting Chair *University of Alaska Fairbanks*	Pat Livingston, Vice Chair *NOAA Fisheries—AFSC*	Keith Criddle *Utah State University*
Steven Hare *International Pacific Halibut Commission*	Mark Herrmann *University of Alaska Fairbanks*	Anne Hollowed *NOAA Fisheries—AFSC*
Seth Macinko *University of Rhode Island*	Ken Pitcher *Alaska Department of Fish and Game*	David Sampson *Oregon State University*
Farron Wallace *Washington Dept of Fish and Wildlife*	Doug Woodby *Alaska Department of Fish and Game*	

Members absent:

Sue Hills *University of Alaska Fairbanks*	George Hunt *University of California, Irvine*	Gordon Kruse *University of Alaska Fairbanks*
Franz Mueter *University of Washington*		

B-1 Operations

Information Quality Act – Independent Scientific Peer Review

The SSC received a report by Bubba Cook (NMFS) with recommendations for twelve steps to be taken to ensure that the SSC's peer review functions are in compliance with the Information Quality Act (IQA) and the OMB Peer Review Bulletin. Chris Oliver (Executive Director of the NPFMC) provided a response suggesting how the SSC process might be modified to comply with each of the twelve steps. No public comment was received.

The peer review requirements of the Information Quality Act (also known as the Data Quality Act) apply to "influential scientific information" (ISI, defined as *scientific information that the agency can determine will have or does have a clear and substantial impact on important public policies or private sector decisions*) and "highly influential scientific assessments" (HISA, defined as *(i) having a potential impact of more than $500 million in any year, or (ii) is novel, controversial, or precedent-setting or has significant interagency interest*). An approved peer review process for HISA was required as of June 16, 2005, and for ISI as of December 16, 2005.

Acknowledging that virtually any analysis that comes before the SSC is potentially ISI (because it certainly has "*a clear and substantial impact on important public policies*"), **the SSC will adopt the 12 steps for all documents and analyses that come before the committee.** This ensures that if an issue rises to the ISI level after SSC review, then the history of appropriate review and comment will already be in place. The only exceptions would be procedural matters such as approval of nominations for council committees and panels.

Determinations of ISI and HISA

The SSC has previously addressed peer review requirements of the Information Quality Act in minutes for the December 2003 and April 2005 meetings. In the April 2005 minutes, the SSC identified several concerns for which we now have resolution:

1. Determinations of which documents passing through the Council process are ISI or HISA will be made by NMFS Headquarters subject to OMB concurrence.
2. The SSC can potentially be deemed the appropriate peer review body for ISI, but not for HISA. HISAs are to be reviewed by the National Academy of Sciences or the Center of Independent Experts.

To date, two items have been deemed ISI by NMFS HQ:

1. Crab Rationalization 18 month review with economic analysis
2. GOA and BSAI Groundfish SAFE reports

Gulf Rationalization EIS is a likely candidate for ISI, as well.

In regard to the determination of what qualifies as ISI or HISA, the SSC has several concerns. **The first concern is that the Council process is likely to be impeded if this determination is not made early in the consideration of analyses and supporting documents.** If this determination is not made until mid-way through the Council process, or near the end of the process, additional peer review may be needed to comply with OMB requirements. For example, if the Information Quality Act requirements for peer review had been in place at the time that the Steller sea lion issue was at the forefront of the Council process, a belated determination of ISI or HISA would have caused considerable delay in the Council process, preventing timely Council action.

A second concern in regard to ISI and HISA determination is that it is not clear how the $500 million threshold for HISA is to be calculated. Is the threshold a marginal value or a total value, and are multiplier effects to be considered? **The SSC suggests that the Council seek guidance on the criteria used in making the determinations.**

Third, the SSC is concerned that individuals who are only remotely associated with North Pacific fisheries, such as officials with OMB, may not make informed determinations regarding this classification of scientific information.

In regard to HISA, the SSC notes that it is not clear how the outside review panels will interface with the SSC and Council. Typically, NAS or CIE panels review a document and then leave it to the scientists to address their comments. In the case of the NPFMC, the SSC typically reviews the results of the outside peer review and provides recommendations to the Council.

The Twelve Step Program

While the SSC is concerned about impacts on its operations from the IQA requirements, the SSC expresses its gratitude to Mr. Cook and Mr. Oliver for their efforts to craft a solution to achieve the goal of ensuring that the SSC remains the primary scientific peer review body for NPFMC. The solution offered by Mr. Cook involves the following twelve steps:

1. Post biographical information for each SSC member on the Council website that describes the expertise, experience, skills, and diversity of the SSC membership:
2. Include a brief statement along with the biographical information that describes any real or perceived conflicts of interest;
3. Consider allowing a scientific or professional society to nominate individuals or a pool of nominees for one or more "at-large" members on the SSC;
4. Adopt or adapt the NAS policy for evaluating conflicts of interest;
5. Consider a system for recusal for those instances where an SSC member clearly cannot meet the Bulletin's conflict of interest standards;
6. Remind NMFS employees serving as SSC members to review Federal ethics requirements prior to reviewing ISI;
7. Require NMFS employees serving on the SSC to submit a statement addressing NAS criteria described on p. 6-7 of Cook's memo;
8. Encourage the SSC to document a procedure for conducting regular rotation of members on ISI subcommittees;
9. Adapt the SSC minutes into a peer review report according to the criteria on p. 7-8 of this paper and post the report on the Council website;
10. Provide a time and method for public comment prior to, during, or immediately following the panel review, include all comments in the peer review report, make any peer review materials available to the public and provide written responses to any public comments in the peer review report;
11. Ensure that all information circulated prior to official dissemination bears the appropriate pre-dissemination disclaimer described on p. 8-9 of this paper;
12. Review potential ISI on a semiannual basis in conjunction with a Council meeting.

Mr. Oliver's response identified items 1, 5, 6, 7, 11, and 12 as not posing major problems for the SSC and Council; and the SSC agrees.

For items 2 and 4, **the SSC believes that the NAS policy for conflicts of interest could be adapted, provided that the privacy of SSC members is respected.** It should be noted that the NAS process for disclosing conflicts is closed to the public and conflict forms are never released or published. The publication of CVs of SSC members in item 1 should go a long way to provide adequate disclosure. NOAA Fisheries is currently working on a conflict of interest form, and the SSC requests that it be allowed to comment on this form when it is ready.

In regard to item 3, 11 out of 15 seats on the SSC are at-large seats already; these fulfill the roles of breadth of scientific expertise and independence. There is already a call for SSC nominations each year in the Council newsletter. Perhaps the American Fisheries Society would be willing to publish this call on its website to meet the intent of item 3. If OMB does not consider this arrangement satisfactory, then a broader call for nominations could be entertained.

The SSC agrees with Mr. Oliver that that the rotational requirements of item 8 are now being met for the following reasons: 1) the current practices of the SSC allows for rotation of responsibilities for leadership on issues, 2) while individuals receive assignments for a specific subject the entire SSC has the responsibility to review the documents, and 3) there is considerable turnover in membership on the SSC as suggested by the table of membership terms below.

Number of scientists	Number of years
8	0-4
5	5-9
1	9-14
1	15+

Regarding the use of public comment (item 10), the SSC has always provided for extensive public comment at its meetings. The new requirement in item 10 to respond in detail to public comment is unprecedented, because it has almost never been a part of a scientific review process. For example, the NAS seeks public comment at committee meetings, but it does not require its committees to respond to comments. This requirement has the potential to usurp the limited time and energy of SSC members and Council staff without any improvement in the quality of the peer review process. The SSC already has a tradition of responding to public comment when such comment provides new and cogent information relevant to a scientific analysis. In this light, the SSC can clarify its existing policy on public comment with regard to the IQA as follows:

> The SSC usually calls for public comment on each agenda item immediately following the staff presentation on that agenda item. The SSC encourages testimony that directly addresses the technical issues of concern to the SSC; testimony that focuses on the desirability of alternative actions rather than the accuracy and completeness of analyses of those alternatives is discouraged and may be curtailed. In general, the time allowed for public testimony before the SSC is 5 minutes for individuals and 10 minutes for representatives of industry associations, community organizations, or NGOs; presentations lasting more than ten minutes will require prior approval from the chair. On occasion, when the SSC agenda cannot accommodate extensive public testimony, the time constraints for public testimony may be further limited by the SSC chair. The SSC report to the Council represents a peer review of the documents prepared to inform Council decision-making. Where public testimony provides relevant novel concerns regarding the accuracy and completeness of background documents, those concerns will be reflected in SSC discussions and addressed in the SSC report to the Council.

This statement can replace the one that currently goes out with the Council agenda, and we believe this substitution satisfies the intent of item 11.

The SSC wishes to emphasize, in relation to items 6 and 7,that employees of the National Marine Fisheries Service are extremely valuable members of the SSC and their continued participation on the SSC is essential.

In conclusion, the SSC calls attention to a recent article by D. Michaels in Scientific American (June 2005, p. 96-101, partially excerpted in an Appendix to this report) titled “Doubt is Their Product.” On the last page of that article, Michaels presents the Data Quality Act as a tool used by industry to slow or stop attempts at regulation by undercutting scientific reports, He recounts the scientific community’s response to OMB’s 2003 proposal for “Peer Review and Information Quality” that would exclude all scientists who receive grants or contracts from an affected agency. He writes:

> “Enough was enough. In November 2003 the usually quiescent scientific community finally rose up in protest at a meeting sponsored, at the OMB’s request, by the National Academy of Sciences. In the face of this opposition, - dozens of organizations fired off scathing letters to the White House - the OMB retreated and implemented a less onerous program that did not exclude the most qualified scientists from the peer-review process.”

The SSC is heartened to know that the proposed process we have today is less onerous than it perhaps might have been. **We recommend the adoption of the 12 proposed actions as described herein to ensure that the SSC review process complies with the OMB requirements.**

Plan Team Membership

The SSC reviewed the qualifications of the nominees for GOA and BSAI Groundfish Plan teams and recommends that the Council approve the nominations of Dr. Kenneth J. Goldman of ADF&G to the GOA Groundfish Plan Team and Dr. Tien-Shui Tsou as the WDFW representative on the BSAI and GOA groundfish plan teams. They are both very well qualified and will provide strong scientific support to these teams.

C-2(a) EA/RIR/IRFA for Management of CDQ Groundfish Reserves

Obren Davis (NMFS) presented an overview of the initial review draft of an EA/RIR/IRFA focused on a potential regulatory amendment to modify the management of the community development quota (CDQ) program groundfish reserves. There was no public testimony on this item. The proposed amendment considers alternatives to the status quo management regime that would permit quota transfers and quota pooling between and among the six CDQ groups.

The SSC recommends that the document go out for public review, subject to a thorough editorial review before it is released and that the following issues be addressed during that review:

- The presentation of what is essentially a single alternative (to the status quo) with "mix and match" options/sub-options as distinct alternatives is overly complicated; **the analysis and choices would be more easily understood by the public if they were presented as a single alternative to the status quo with three options that could be adopted in any combination.** An alternative structure for the analysis would be to define 4 alternatives to the status quo: alternatives 2 through 4 would consist of the individual components currently presented as arbitrary combinations in the 3 alternatives presented in the current draft EA/RIR. The fifth alternative could then be defined as any combination of the three components represented individually in the other 3 alternatives.
- **A short section entitled "Alternatives Not Considered" should be added** explaining that obvious alternatives (such as rethinking the allocation of incidental species) were not considered because the goal of this action is to provide operational flexibility without overhauling the basic management structure of the CDQ program.
- Normative statements should be eliminated or rewritten as positive statements to reduce the seeming advocacy for management actions, such as a reallocation of bycatch caps, that are not part of the options or alternatives considered in this EA/RIR.

Finally, the SSC notes that a number of actions currently before the Council involve the allocation of "incidental" species to the CDQ program (e.g., this action and Amendment 80). In the future, it would be useful for the analysts to consider presenting an analysis of catch ratios (incidental species/target species) for various target fisheries. Such an analysis could inform future considerations of how to allocate incidental species to the CDQ program.

C-3 IR/IU—BSAI Groundfish FMP Amendment 80

John McCracken and Darrell Brannan (NPFMC) provided the SSC with an overall briefing of the initial review draft of an EA/RIR/IRFA to amend the BSAI groundfish FMP to allow cooperatives in the non-AFA trawl catcher-processor sector. Jason Anderson (NMFS Sustainable Fisheries Division) provided an overview of portions of the draft EA/RIR/IRFA that address enforcement and monitoring requirements. Public testimony was provided by Lori Swanson (Groundfish Forum), Teressa Kandianis (Kodiak Fish Company), Julie Bonney (Alaska Groundfish Databank), Arni Thomson (Alaska Crab Coalition), and Bob Alverson (Seattle Fishing Vessel Owners Association).

The SSC commends the preparers of the draft EA/RIR/IRFA for endeavoring to address our concerns with the preliminary review draft and for other improvements incorporated in the current draft. We recommend that the draft EA/RIR/IRFA be released for public review after it has been revised to the extent practicable to address the following additional issues:

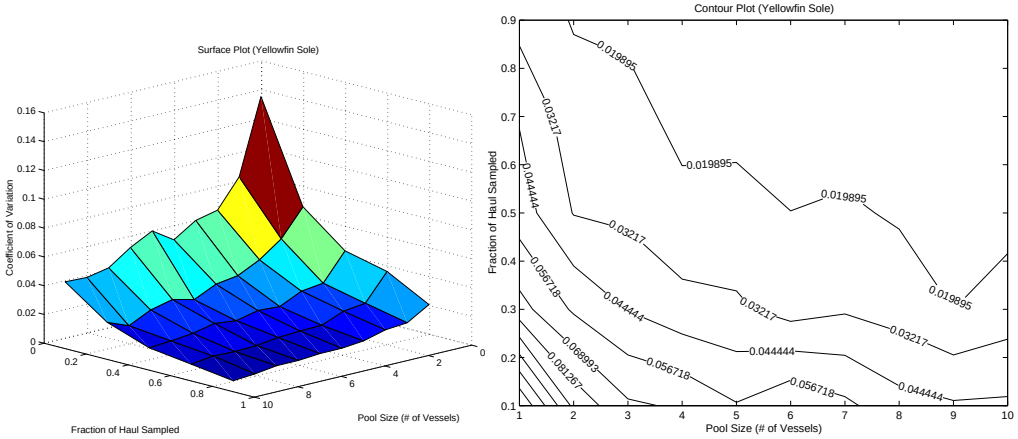
1. Although the discussion of PSC allocations has been much improved, **the text is still somewhat unclear regarding how PSC would be partitioned between H&G and non-H&G vessels** under the various alternatives as well as the economic implications of the alternatives and options for partitioning PSC. A careful editorial review and the judicious inclusion of specific examples that walk readers through what is at stake should help clarify this section for the Council and public.

2. **The draft EA/RIR/IRFA should be updated to include information about the 2003 and, where available, 2004 fisheries.**

3. The discussion of product markets should include reference to recent work completed by economists at AFSC on groundfish product markets.

4. **The discussion on PSC allocation reduction (page 108) needs to be revised to recognize that historic bycatches may or may not be a good proxy for the minimum practicable level of bycatch incidental to harvesting target catches.** Because the historic record does not include periods of fishing under organizational structures that encourage cooperation among harvesters and because the historic record does not include periods of fishing subject to substantially reduced PSCs, there is little factual basis for asserting that restrictive PSCs will prevent the target fishery from harvesting the TAC.

5. The proposed changes for monitoring catches and bycatches are much better motivated, however, it would be helpful if additional information could be provided about the specific target levels for Type I and Type II error for estimates of overage of catch, bycatch, and PSC limits for individual vessels or vessel pools. A clearer identification of these targets would improve the ability of the SSC to judge whether the proposed sampling/observer deployment strategy is likely to provide sufficient precision. For example, the following figure[1] illustrates the tradeoff between the number of vessels pooled in a catch estimate, the fraction of a haul sampled, and the coefficient of variation associated with the catch estimate.



If the target level of precision were cv=0.02, the combinations of the number of vessels pooled and the fraction of a haul sampled would be represented by the upper rightmost contour line.

6. The reference section is incomplete and should be revised to include all of the sources cited in the text.

[1] From: Jensen LS, J Koebbe and KR Criddle. 2004. Pooled and Individual Bycatch Quotas: Exploring tradeoffs between observer coverage levels, bycatch frequency, pool size, and the precision of bycatch estimates. Economic Research Institute paper ERI 04-21, Utah State University, Logan, UT.
19p.

7. The new supplement on Mandatory Data Collection provides a useful description of the constraints associated with collection of economic data and a helpful discussion of data collection programs that are operational in other council regions. As noted in our June 2005 minutes,

   > **… economic and socioeconomic data are absolutely necessary to determine whether regulatory actions are compliant with National Standard 1.** Experience with voluntary data reporting programs in the North Pacific region and in other regions suggests that such programs are inadequate. **Therefore, it would be irresponsible to eliminate the data** collection **requirement from the proposed amendment.** Moreover, the SSC notes that without economic and socioeconomic data, it will not be possible to determine the extent to which this amendment is successful at addressing the Council's problem statement, which specifies that the intent of this amendment is to "…reduce bycatch, minimize waste, and improve utilization of fish resources to the extent practicable in order to provide the maximum benefit to present generations of fishermen, associated fishing industry sectors, communities, and the nation as a whole."

8. The SSC notes that while the Council's problem statement addresses bycatch utilization/retention and bycatch reduction, some of the alternatives do not assure bycatch reduction.

C-4(a) BSAI Salmon Bycatch

The SSC received presentations from Diana Stram (council staff) and Scott Miller (NMFS) on the public review draft EA/RIR/IRFA to modify existing Chinook and chum salmon savings area (proposed Amendment 84). This agenda item is scheduled for final action before the Council. Public testimony was provided by Karl Haflinger (SeaState). A presentation on genetic stock identification of chum salmon in the Bering Sea and Gulf of Alaska was provided by Drs. Jim and Lisa Seeb (ADF&G).

Bycatch of Chinook and chum salmon in the "A" and "B" Pollock seasons greatly increased in 2003 and 2004 over levels seen in the previous 5 years. That situation is even more exacerbated in 2005. As summarized in the SSC minutes from both the April 2005 and June 2005 meetings, bycatch of salmon has triggered closures of the salmon savings areas (SSA). There is some evidence that the closures are not effective at reducing bycatch and a re-evaluation of the current SSA is warranted. At the December 2004 Council meeting, a problem statement was drafted and several alternatives identified. The alternatives that were drafted were split into two Amendment packages. Package A (the subject of the present EA) was set on a fast track for analysis and implementation and a secondary package B on a slower pace pending developments in package A. The SSC received the preliminary EA/RIR/IRFA in June 2005 and provided a detailed list of recommendations to be addressed in the final EA/RIR/IRFA.

Three alternatives are included in the Amendment Package: a no action alternative; an alternative to eliminate the SSA closures; and an alternative to suspend the SSA closures and allow Pollock cooperatives and CDQ groups to institute a voluntary rolling hot spot (VRHS) closure program. Alternative 3 has 2 options dealing with actions to take in the event of noncompliance with the VRHS program plus a suboption to extend exemption of the chum SSA area closure to vessels in the trawl cod and/or flatfish targets.

The SSC wishes to acknowledge the responsiveness of Council staff to the lengthy list of recommendations included in the June 2005 minutes. It was also greatly appreciated that the final document was received well in advance of the meeting, allowing adequate time for review. In particular, the final report contained sections providing bycatch rate information inside and outside the SSAs, frequency diagrams of individual haul bycatch rates, run size information for Western Alaska chum and Chinook stocks, and information on hatchery releases around the Pacific Rim.

To its credit, the industry has taken the initiative to develop an adaptive response to the situation. The VRHS closure program that is being proposed has been implemented on a voluntary basis with nearly full participation by the affected industry. **The SSC supports the action but there remain a few caveats we wish to highlight.**

1. **The SSC would like to see objective criteria for selection of the base bycatch rates.**
2. **While there is a limit on the maximum size of the area closures when the base rate is exceeded, there is no minimum size.** Thus, while the necessary conditions to implement a closure are spelled out, there is no guarantee that a closure will actually be implemented or that it will be of a sufficient size to be effective.
3. The SSC believes that the annual review is extremely important; **however, it will be difficult to determine with any certainty the effectiveness of the VRHS closures without clear objectives and criteria for determining whether the objectives are met.** The apparent objective is to achieve a lower bycatch using the VRHS closures than would be expected through closure of the salmon savings areas. In this case, a defensible (but impractical) approach would be to conduct a parallel experiment measuring salmon bycatch inside and outside of the savings areas.
4. The SSC notes that in adopting the VRHS closure program, the Council will be vesting much of the incentive for salmon conservation with the Inter cooperative Agreement group. It is worth noting that the ICA includes western Alaskan salmon interests, and that the group is also bearing much of the cost of monitoring and closure imposition.

The SSC looks forward to the analysis of alternatives for package B and the potential for salmon bycatch caps.

C-6 GOA Groundfish Rationalization

Council members Diane Stram provided the SSC with a preliminary analysis of crab and salmon bycatch (C-6c), Nicole Kimball presented a preliminary analysis of community programs (C-6a), and Mark Fina provided the SSC with a review of options and alternatives for GOA Groundfish rationalization (C-6b1). **The SSC appreciates the thoroughness of these analyses and found the early discussion of this information to be very helpful.** There was no public testimony.

For document C-6(b)(1) the SSC suggests that in anticipation of the considerable scrutiny that this proposed management change will generate that the following should be undertaken:

1. The document should include a separate discussion section on exvessel price formation (relative bargaining strength) for each alternative.
2. The document needs to be expanded to discuss the ability of managers to enforce regulations on discards and highgrading for small quotas allocated to unobserved or 30% observed vessels.
3. The discussion of GOA Groundfish rationalization must draw upon the results of crab rationalization. To the extent possible, data collected in the crab rationalization program should be analyzed. This should include estimates of the size and distribution of rents, changes in the participation of processors, harvesters and crew, and changes in the economic impacts to communities. This information should supplement anticipated post-rationalization information resulting from the halibut/sablefish IFQs and AFA.
4. In anticipation of the lack of data to perform a comprehensive analysis of the effects of the crab rationalization program the SSC encourages Council staff to poll processors, harvesters and crew to include the following open-ended questions.
    a. Are you better or worse off under the current (post-rationalization) management regime then you were under pre-rationalization management. Why.

b. Do you feel like your exvessel price bargaining position in relation to the processors (or harvesters) has (i) strengthened, (ii) weakened, or (iii) remained unchanged relative to prior management. Why.

5. Because of the unique options associated with GOA Groundfish rationalization, such as harvester share reductions for moving between processors, allocation of harvester shares to processors and Coop linkages with processors, **the SSC feels that rigorous analysis of these options are needed. One avenue for this is experimental economics.** The SSC notes that this was performed for crab rationalization and would be helpful here after more detail is fleshed out in the options. It was noted that Nobel Laureate Vernon Smith is on an appointment at UAA and has expressed interest in extending his groundbreaking experimental economic studies to fisheries.

D-1 National Standard 1 guidelines

Dr. Grant Thompson (Alaska Fisheries Science Center) provided an overview of the revised guidelines for National Standard 1 (NS1).

The subcommittee of the NPFMC SSC met by videoconference/teleconference on August 10, 2005. Participating were SSC members Anne Hollowed, Gordon Kruse, and Terry Quinn. Other participants were Jane DiCosimo, Martin Dorn, Dana Hanselman, Jim Ianelli, Chris Oliver, Phil Rigby, Kalei Shotwell, Diana Stram, Grant Thompson, and Dave Witherell. The SSC approved the comments with a few minor modifications. **The SSC recommends that the NPFMC should forward the following comments to the NMFS.**

The following are the SSC members' comments on the proposed rule for revision of the National Standard 1 guidelines.

Throughout

1) Notation should be consistent to the extent possible. In particular, B_{lim} should be the long-term expected stock size resulting from fishing at F_{lim}, as opposed to the biomass level below which the stock is determined to be depleted. The biomass level below which the stock is determined to be depleted should be labeled "B_{dep}" instead of "B_{lim}."

2) The phrase "OY control rule" should be replaced with "target control rule," with the understanding that the target control rule does not *define* the annual OY but rather sets an *upper bound* on the annual OY (see comment on (d)(4)(i) below). The reasons for this suggestion are threefold: First, the OY specification must consider all relevant social, economic, and ecological factors, the entire array of which would be extremely difficult, if not impossible, to encapsulate in a harvest control rule. Second, Councils should have the flexibility to specify a target control rule at the single stock level while specifying OY for the fishery (or fisheries) as a whole. Referring to a target control rule as an "OY control rule" in such cases will prove confusing. Third, the Bering Sea/Aleutian Islands and Gulf of Alaska groundfish FMPs, which have already proven extremely effective in accomplishing the purposes the proposed rule is intended to achieve, would have to be modified substantially if the proposed requirements regarding use of OY control rules are interpreted strictly. The features of the harvest control system used in these two FMPs are compared and contrasted with the approach mandated by the proposed rule in Attachment 1. Some possible options for implementing a target control rule that serves as an upper bound on the annual OY while satisfying the underlying objectives of the proposed rule are described in Attachment 2.

3) The Supplementary Information section on page 36240 states, "Fishery management plans (FMPs) *may* be revised so that species/stocks may be classified as 'core' stocks or stocks falling within a 'stock assemblage' for each FMP…" (emphasis added) and in (b)(4) the proposed rule states, "A stock identified as a regulated stock *should* be designated as a core stock and/or a member of a stock assemblage…"

(emphasis added), implying that identification of core stocks and assemblages is desirable but not required. However, much of the proposed rule presumes that such identification will necessarily take place, as the phrase "core stock" occurs 56 times in the proposed revision of §600.310. For example, in (b)(2)(iii) and (d)(4)(i), the proposed rule *requires* specification of an OY control rule for each core stock. If a Council simply chooses not to identify core stocks and assemblages, how will the NS1 guidelines apply to that Council's FMPs?

4) The proposed rule's suggestion to replace the term "overfished" with "depleted" is a much-needed and welcome improvement. Given that "overfished" and "overfishing" are just two forms of the same verb but have been given entirely different meanings in the current NS1 guidelines, it has proven extremely difficult to communicate effectively using these terms. Also, as the proposed rule correctly notes, a stock's biomass can fall to low levels for reasons other than fishing, so it is misleading to label all stocks exhibiting low biomass as being "overfished."

Page 36250

(b)(2)(i) The proposed rule states, "Compliance with the guidelines requires specification of two SDC." This is not accurate, as exceptions are given in (e)(2)(ii)(B) and (e)(2)(ii)(C). The text should be changed to something like, "With limited exceptions, compliance with the guidelines requires specification of two SDC."

Page 36251

(b)(3)(xi) The definition of "Fishery management unit" reads, "Fishery management unit (FMU) means a list of fish species or stocks in an FMP that have been determined to be in need of conservation and management. These stocks constitute the FMP's set of regulated stocks and are the stocks for which MSY, OY, and SDC are required." Two aspects of this definition need to be clarified: First, would an FMP amendment be required in order to include a new stock in a managed fishery, or can the list of stocks be descriptive (e.g., "all resident populations of the genus *Sebastes* located in the management area")? Second, in stating that the list constitutes "the stocks" for which MSY, OY, and SDC are required, does the proposed rule imply that these quantities need to be specified for each individual stock, each core stock and assemblage, each FMU, in aggregate for the entire set of fisheries managed under the FMP, or something else?

(b)(3)(xxvi) The proposed rule states, "*Rebuilding plan* means a revision of an OY control rule that addresses the management objective to rebuild a depleted (i.e., previously called "overfished") stock's abundance…." However, as noted in (e)(2)(ii)(B), it is possible for an existing OY control rule to be fully adequate as a rebuilding plan. Therefore, the definition should be changed by inserting the phrase "an OY control rule or" after "means."

Page 36252

(b)(4) The proposed rule states, "A fishery means one or more stocks of fish that can be treated as a unit for purposes of conservation and management." However, this omits half the definition given in the MSFCMA, namely that "fishery" can also refer to any fishing for such stocks. Both parts of the legal definition are very relevant to the NS1 guidelines. For example, suppose that a target fishery exists for cod, no target fishery exists for capelin, and capelin is taken as bycatch in the target fishery for cod. In the context of computing B_{lim}, the term "cod fishery" would most appropriately refer to the cod stock itself. On the other hand, in setting a bycatch limit designed to protect the capelin stock from incidental effects resulting from fishing for cod, the term "cod fishery" would most appropriately refer to the act of fishing for cod. If the guidelines state that a fishery can *only* mean a stock or group of stocks, the range of allowable actions to protect the marine ecosystem would be far too limited.

(b)(4) The proposed rule states, "The SDC of NS1 are applied to the regulated stocks listed in the FMUs of an FMP. A stock identified as a regulated stock should be designated as a core stock and/or a member of a stock assemblage." While the acknowledgement that an FMP can contain more than one FMU is an important and helpful clarification, the relationships between the terms "FMP," "FMU," "fishery," "core stock," and "assemblage" remain unclear. The guidelines should clarify that simply mentioning a stock in an FMP does not thereby make that stock a "fishery." Neither does mentioning a stock transform the FMP into an FMP *for* that stock. Councils should be encouraged to distinguish between those stocks that are targets of a fishery managed under the FMP and other nontarget stocks that may be impacted by a fishery managed under the FMP, with the understanding that it is permissible to regulate the impacts of a target fishery on a nontarget stock without first declaring the existence of a "fishery" for that nontarget stock. One place where such encouragement could be given is in the "Transitional Steps" section of the preamble on page 36247. Some possible text for inclusion in that section is contained in Attachment 3.

(b)(4) The proposed rule states, "It is the goal to acquire sufficient scientific information to attain a known status for each core stock and to assign all other managed stocks to a stock assemblage." It is not clear whether the phrase "all other managed stocks" necessarily includes all bycatch species, for example bycatch species managed under other FMPs.

Page 36254

(d)(4)(i) The proposed rule states, "In most cases, only a few factors can be quantified in the OY control rule, but the FMP still must address all relevant factors in its demonstration that the targeted management actions will achieve OY for the fishery while preventing overfishing." The first part of this sentence is certainly true, but the second half of the sentence seems to contradict the first half. How will a Council ever be able to demonstrate that incorporating only a few factors in the OY control rule will achieve the same OY that would be prescribed by considering *all* relevant factors? Similar problems regarding the relationship between the OY control rule and OY itself are evident throughout the middle portion of this paragraph. Specifically, sentences 4 through 9 of this paragraph should be replaced with something like the following: "To assist in specifying OY and preventing overfishing, each FMP must include a target control rule for each core stock and for each assemblage or indicator stock within an assemblage. The harvest level associated with the target control rule must be less than the harvest level associated with the fishing mortality limit. The target control rule serves as an upper bound on the annual OY. The probability of exceeding the OY in any given year should not exceed 50 percent."

(d)(5)(i) The proposed rule states, "These measures should allow for practical and effective implementation and enforcement of the management regime, so that the harvest is allowed to achieve OY, but should result in at least a 50-percent probability of the fishing mortality being below F_{lim}." The latter part of this sentence seems superfluous. If the expected value of the actual F does not exceed F_{target} (as (d)(4)(i) says it should not), then F_{target} can be set arbitrarily close to, but below, F_{lim} and still maintain greater than a 50% chance of the actual F falling below F_{lim}. In mathematical terms, if $Pr(F_{actual} \leq F_{target}) \geq 0.5$ and $F_{target} < F_{lim}$, it follows automatically that $Pr(F_{actual} < F_{lim}) > 0.5$.

Page 36255

(e)(1)(ii) The proposed rule states, "The capacity of a stock to produce MSY depends on the reproductive potential of the stock when its abundance is near B_{MSY}." This is not true. While the derivation of MSY clearly depends on the productivity of a stock when its abundance is near B_{MSY}, the capacity of a stock to produce MSY depends on the stock's current biomass.

(e)(2) The proposed rule states, "In all cases, SDC (both F_{lim} and B_{lim} or their proxies) should be specified…." However, because (e)(2)(ii)(B) and (e)(2)(ii)(C) list exceptions to the requirement for specification of B_{lim}, the text should be modified accordingly.

(e)(2)(ii)(B) Providing this exception to the requirement for specification of B_{lim} (viz., when a highly precautionary target control rule has already been specified) is a much-needed and welcome improvement. This provision holds considerable promise for increasing efficiency and predictability in the management system by allowing for legally acceptable rebuilding plans to be built into the target control rules from the beginning.

Page 36256

(e)(2)(ii)(D) The proposed rule states, "In the case of some species, such as some penaeid shrimp, squid, and Pacific salmon, that have very short life spans and may have extreme year-to-year fluctuations in stock abundance, the definition of B_{lim} can be based on the stock abundance in more than 1 consecutive year." Because some long-lived species can also have extreme year-to-year fluctuations in stock size, the phrase "have very short life spans and may" should be omitted from this sentence.

(e)(3)(iv) The proposed rule states, "Councils *must* build into the specification of OY and OY control rules available data on the fishing communities affected by the specific fishery being considered" (emphasis added). This sentence is worded much too strongly. A requirement to build the available data on affected fishing communities into the OY control rule for every core stock and stock assemblage would be daunting, to say the least, and seems to contradict the language in (d)(4)(i) that states, "To the extent possible, the OY control rule for each core stock or stock assemblage *should* quantify the relevant social, economic, and ecological factors used to reduce MSY to get OY" (emphasis added). The sentence could be omitted entirely, given that the requirement for considering social and economic factors in the specification of OY is already detailed in (d)(3)(i) and (d)(3)(ii). If it is to be retained, it should be modified so as to be more realistic.

(e)(4) The proposed rule states, "MSY and OY control rules must be designed and calculated for prevailing environmental, ecosystem, and habitat conditions…." This sentence should be clarified by inserting the phrase, "including biotic factors such as the abundance of predator and prey species, and climate variability" after "conditions."

(e)(4)(ii) The proposed rule states, "Suitable evidence for a relevant environmental shift could include scientific information for a long-term change in an environmental, ecosystem, or habitat condition that has been demonstrated to directly and plausibly relate to stock productivity. The justification for an environmentally based change in the SDC must adequately demonstrate that the environmental change is substantially more persistent than the environmental fluctuations normally experienced by each generation of fish." The wording of the second sentence is confusing. Perhaps it is intended to imply the following algorithm:

1) Find an environmental variable that has been directly and plausibly related to stock productivity.
2) Compute the average length of the anomalies for that environmental variable over the most recent generation.
3) If the length of the current anomaly is substantially greater than the average anomaly length computed in (2), this constitutes a relevant environmental shift.

If the above algorithm is what the proposed rule is intended to describe, some difficulties are apparent. In particular, tying the average anomaly length to the most recent generation may result in a very small sample size for the anomaly lengths, meaning that an anomaly whose length is less than average from a historical perspective could be substantially longer than the average anomaly for the most recent generation. If the second sentence quoted above is to be retained, it should be prefaced by "For example" and the "must" should be changed to "could." Alternatively, it could be modified to read, "The justification for an environmentally based change in the SDC must adequately demonstrate that the environmental change is persistent on a time scale that is meaningful to the dynamics of the stock."

Page 36257

(f)(4)(ii) The proposed rule states, "The rebuilding plan represents a temporary modification of the long-term OY control rule in order to rebuild the stock to B_{MSY}; at which time the target fishing mortality level of the fishery would switch to that determined by the long-term OY control rule." However, as noted in (e)(2)(ii)(B), it is possible for an existing OY control rule to be fully adequate as a rebuilding plan. Therefore, the sentence quoted above should be changed by inserting the phrase, "Except in cases where it is demonstrated that the existing OY control rule is sufficiently precautionary that it obviates the need for a separate rebuilding plan," at the beginning.

(f)(4)(ii)(A) The proposed rule states, "A number of factors *may* be taken into account in the specification of the time period for rebuilding" (emphasis added), after which a list of six items follows. The first five items in the list recapitulate the list of factors given in §304(e)(4)(A)(i) of the Magnuson-Stevens Act. This is problematic because the Magnuson-Stevens Act states that these factors "shall" (not "may") be taken into account. The sixth item on the list repeats §304(e)(4)(A)(ii) of the Magnuson-Stevens Act. Like the first five items, this one is not an option but a requirement. However, unlike the first five items, this one is a constraint rather than a factor and should be listed separately (which would also improve the grammatical structure of the sentence).

Page 36258

(f)(5)(i) The guidelines should mention the statutory requirement to review rebuilding progress "at routine intervals that may not exceed two years" (§304(e)(7)).

(f)(5)(ii) and (f)(5)(iii) What does "substantially" mean? One possible definition of a "substantial change" would be any change that results in less than a 50% chance of the stock or assemblage being rebuilt by T_{max}.

(f)(5)(ii)(B) and (f)(5)(iii)(B) Maintaining the fishing mortality targets and lengthening the time horizon should not be an option unless fishing mortality is already zero. Some reduction in fishing mortality rates should be required whenever possible and some sort of constraint should be placed on a Council's ability to extend the time horizon. Possibilities include the following:

1) The time horizon should be extendable only up to the new T_{max}.
2) Lengthening of the time horizon should be used only as a last resort.
3) Any lengthening of the time horizon must be accompanied by an analysis showing why this produces greater net benefits to the Nation than a reduction in fishing mortality.
4) Any lengthening of the time horizon must be accompanied by a commensurate reduction in fishing mortality.

Attachment 1: Harvest Control in Alaska Groundfish Management

In the FMPs for the groundfish fisheries of the Bering Sea/Aleutian Islands and Gulf of Alaska (hereafter "the Alaska system"), the primary control on fishing mortality is an annually specified "total allowable catch" (TAC). TAC is set either for individual stocks or groups of stocks (e.g., the Bering Sea walleye pollock stock has its own TAC, but the group of Bering Sea rockfish stocks known as "other rockfish" have an aggregate, group-wide TAC). The individual stocks function like "core stocks" and the groups of stocks function like "assemblages," even though they are not designated by those names in the FMPs. Although TAC provides the primary control on fishing mortality in the Alaska system, it does so in the context of several other reference points. The full set of reference points may be described hierarchically as follows:

1) First, an "overfishing level" (OFL) is set for each individual stock or group of stocks. The OFL is derived from a limit control rule that defines the "overfishing" mortality rate as an explicit function of spawning biomass or proxy thereof. The "overfishing" mortality rate serves the same purpose as F_{lim} in the proposed rule. The limit control rule in the Alaska system does not allow fishing mortality to exceed the MSY rate under any circumstance and requires substantial reductions below the MSY rate when spawning biomass is close to or below the MSY level (the lower the biomass, the greater the reduction).
2) A "maximum acceptable biological catch" (maxABC) is then set for each individual stock or group of stocks. The maxABC is derived from a second control rule that is more conservative throughout its range than the limit control rule used to derive OFL (except at very low stock sizes, where OFL and maxABC both equal zero).
3) An "acceptable biological catch" (ABC) is then set for each individual stock or group of stocks. The ABC is never greater than the corresponding maxABC, and is often less. The amount by which ABC is reduced from maxABC is determined on a case by case basis. No single harvest control rule governs these reductions.
4) A TAC is then set for each individual stock or group of stocks. The TAC is never greater than the corresponding ABC, and is often less. The amount by which TAC is reduced from ABC is determined on a case by case basis. No single harvest control rule governs these reductions. TACs are also constrained by the requirement that their sum (across individual stocks and assemblages) must fall within the OY range specified in the FMP. Each year, catches are carefully monitored throughout the fishing season. A fishery is closed when the corresponding TAC has been taken or when it appears likely that further fishing will result in the TAC being exceeded. Therefore, the sum of the catches is typically less than the sum of the TACs, which in turn is typically below the sum of the ABCs, which in turn is typically below the sum of the maxABCs, which in turn is always below the sum of the OFLs.

It is difficult to point to any single item in the Alaska system that matches the exact definition of an "OY control rule." In the Alaska system, OY is specified as a fixed range of aggregate catches (across individual stocks and assemblages), so the OY specification implies at most a fuzzy, aggregate sort of control rule with no direct relationship to the explicit control rules that apply to the individual stocks and assemblages. However, because the actual management of the fisheries is based on stock-specific or assemblage-specific TACs that are highly constrained by sets of explicit control rules and other considerations that always result in TAC being less than or equal to the maxABC, it is clear that the various features of the Alaska system work together to serve the same purpose as the OY control rule required by the proposed rule.

Attachment 2: Some possible options for using target and limit control rules to set a target catch

The main objectives of the proposed rule appear to include the following:

1) Achieving OY while preventing overfishing.
2) Achieving widespread use of limit control rules (LCRs) to define overfishing.
3) Achieving widespread use of annually specified target catch levels.
4) Achieving widespread use of target control rules (TCRs) to help define target catch.

The above objectives can be fully attained while still allowing Councils some degree of flexibility in defining the relationship between target catch and the TCR and the relationship between target catch and OY. Specifically, Councils could be given two lists of three options, from which they could choose one option apiece:

List A: Options relating target catch to the TCR.

- Option A1) The TCR defines target catch in each year.
- Option A2) The LCR constrains target catch in each year and the TCR defines target catch on average.
- Option A3) The TCR constrains but does not define target catch in each year.

List B: Options relating target catch to OY.

- Option B1) Target catch in each year should approximate OY.
- Option B2) Target catch on average should approximate OY.
- Option B3) Target catch in each year should be no greater than OY.

With respect to the options in List B, it would be a straightforward exercise to provide a more detailed list covering issues such as whether OY is constant or specified annually and whether target catch and OY are specified at the same or different levels of species aggregation.

Attachment 3: Possible substitute for paragraphs 4 and 5 of the "Transitional Steps" section of the Preamble on page 36247

The transition toward distinguishing between core stocks and assemblages should proceed in two major steps:

First, Councils are encouraged to re-evaluate their existing specifications of FMUs ("fisheries" in the terminology of the Magnuson-Stevens Act). The Magnuson-Stevens Act mandates that a Council's FMPs be of sufficient breadth to manage "each fishery under its authority that requires conservation and management" (Section 302(h)). The following points are important to bear in mind when considering this requirement:

A) It is not necessary for every stock within a Councils' geographical area of authority to be managed under an FMP, because not all stocks are the subjects of fisheries (e.g., it would probably not be necessary for a stock of tubeworms to be managed under an FMP if no fishermen are interested in harvesting tubeworms).

B) It is not necessary for every fishery within a Councils' geographical area of authority to be managed under an FMP, because not all fisheries require conservation and management (e.g., if a single fisherman started an artisanal tubeworm fishery, it may have such small impacts on the tubeworm stock that Federal management would not be required).

C) If a stock is not the subject of any fishery or if a fishery for that stock exists but is so small that Federal management is not required, this does not obviate the Council's responsibility to ensure that its FMPs provide due protection for the marine environment, including those stocks that are incidentally impacted by the fisheries managed under the FMPs (e.g., a Council could require that impacts on tubeworms be held to ecologically safe levels, by designating closed areas or gear restrictions or by other means).

D) It is permissible for an FMP to require collection of data pertaining to certain "unmanaged" stocks without thereby engendering a requirement to specify MSY, OY, and status determination criteria for such stocks (e.g., requiring collection of bycatch data on tubeworms does not mean that the Council must also specify status determination criteria for tubeworms).

Second, the Council should determine how to partition stocks into the "core" and "assemblage" categories. The following two situations are likely to predominate:

A) In some cases (e.g., the Mid-Atlantic Council's Spiny Dogfish FMP, the New England Council's Atlantic Sea Scallops FMP, and the Gulf of Mexico Council's Stone crab FMP), an FMP manages a single fishery for a single stock, so it is obvious that the single stock is a core stock. In straightforward cases such as these, the stock should be designated officially as a core stock the next time the FMP is amended.

B) In other cases (e.g., Pacific Coast Groundfish FMP, Bering Sea and Aleutian Islands Groundfish FMP, Gulf of Alaska Groundfish FMP), an FMP manages multiple fisheries for multiple stocks, specifying individual catch limits at the level of the single stock in some instances and at an aggregate (group of stocks) level in other instances. Rather than move immediately to a designation of "core" for all stocks with individual catch limits and "assemblage" for all groups of stocks with aggregate catch limits, Councils should take the opportunity to re-evaluate their current stock groupings, or lack thereof. Councils may choose to undertake such re-evaluation one stock or assemblage at a time (e.g., as rebuilding plans are developed or modified) or in one comprehensive effort. In particular, if a stock is found to be the subject of a fishery requiring conservation and management but specification of meaningful status determination criteria for the stock is not feasible due to limitations of data, consideration should be given to the possibility of merging the stock into a suitable assemblage for which meaningful status determination criteria can be specified.

D-1(a) Bering Sea Stock Assessments

Dr. Grant Thompson (Alaska Fisheries Science Center) presented the following new assessments to the SSC: Bering Sea and Aleutian Islands sculpins, Bering Sea Aleutian Islands octopus, Bogoslof Island pollock, and Bering Sea Aleutian Islands P. cod.

Sculpin

The SSC commends the authors for developing a SAFE chapter for sculpins. The SSC notes that current regulations do not allow specification of a sculpin specific ABC and OFL. However, the SSC views development of this appendix to the Other Species SAFE chapter as a pro-active step that will be useful in deliberations regarding the implications of dividing the Other Species chapter into finer species assemblages.

The SSC requests that the author provide a rationale for splitting the complex into a shelf and slope complex in the Bering Sea. If the complex is lightly harvested the SSC questions whether spatial management is necessary at this time. The SSC encourages the authors to further their analysis of the implications of managing sculpins as Aleutian Island and Bering Sea assemblages. The difference in species composition between the Aleutian Islands region and the Bering Sea region provides a rationale for further consideration of this division. The SSC also notes that the plan to develop a pilot fishery ecosystem plan for the Aleutian Island region may provide an additional reason for considering separate management for the two regions.

While the SSC endorsed the use of a natural mortality rate of 0.19 for sculpins in the December 2004 minutes, the SSC requests that the authors further explain their rationale for selecting the lowest estimate of M for use in setting the tier 5 calculations.

The SSC requests that the authors consider the implications of adopting species specific ABCs and OFLs with respect to CDQs and changes to monitoring programs that may be required to adequately manage the sculpin assemblages.

Octopus

The SSC commends the authors for developing a SAFE chapter for octopus. The SSC notes that current regulations do not allow specification of an ABC and OFL for octopus. However, the SSC views development of this appendix to the other species SAFE chapter as a pro-active step that will be useful in deliberations regarding the implications of dividing the other species chapter into finer species assemblages.

The SSC requests that the authors provide more information on spatial distribution of different species of octopus. The SSC acknowledges that there could be difficulties associated with developing a fishery independent survey for this species group. The SSC also notes that this group of species represents an important prey for Steller sea lions and thus merit caution in management of this species group.

The SSC recommends that the authors review the literature to evaluate whether a tier 5 management approach is appropriate for terminal spawners. The SSC recommends that the authors reconsider their recommendation to shift from tier 6 to tier 5 given the observed differences in the selectivity of the survey and fishery gears. The SSC questions the statement that trawl survey may underestimate biomass because of this difference in selectivity. One intermediate solution would be to perform tier 5 calculations based on biomass of length modes likely to be captured by pots.

Bogoslof Island pollock

The SSC considers this assessment a substantial improvement on past assessments. The SSC notes that the model represents a good fit to the survey and composition data and that the data inputs are of high quality. Consequently, q and M are well-estimated because there is a long time series of survey age composition under no-fishing. Thus, the SSC accepts the model as the best representation of the current condition of the stock. Based on the model output, the SSC has the following observations, questions, and suggestions:

The SSC is concerned about using total biomass as the main abundance output from the model. There is no reason why the EIT survey would miss fish at age 5 or 6, as indicated by the selectivity pattern in Figure 7. More likely, selectivity represents the lack of availability in the Bogoslof area, in which the unavailable fish are on the shelf or in the Aleutians area and migrate to Bogoslof. **Thus, the SSC recommends examining the use of available or exploitable biomass** (the sum of selectivity times biomass over age) as a better measure of biomass for the tier 5 estimates of ABC and OFL.

The SSC was informed that the donut hole catches were not included in the model runs. **The SSC would like to see runs that include the donut hole catches** – attempts have been made to estimate what fraction of the catches are from the Bogoslof Island stock

The model suggests that total biomass can reach the 4 million metric ton level, which is in line with the SSC estimate of 2 million metric tons as a target stock size (roughly equal to 50% of pristine biomass).

For the purposes of establishing OFL and ABC, the SSC believes the current approach of using a biomass – adjusted harvest rate rule should be continued. The OFL and ABC derived directly from the age structured model are clearly too high because they are of the same magnitude as the observed survey biomass in the area. Given the uncertainty about stock structure, the lack of knowledge of where young fish reside, and the novelty of the age-structured model, it is prudent to continue setting conservative levels.

BSAI Pacific cod

The SSC appreciates the hard work and careful analysis that went into the revised P. cod assessment.
The SSC endorses the use of SS2 for this assessment because it provides the ability to track uncertainty and it is more likely than SS1 to find a global minimum in the fitting procedure. The author encountered major problems in the implementation of this new software due to the complexity of his model but was able to make it work with substantial manual tuning. The SSC encourages the author to implement the stock assessment model directly into ADMB to attain greater flexibility in modeling. The author may wish to contact Dr. Yong Chen of the University of Maine, who has developed a length-based stock assessment, coded in ADMB, for lobster. The techniques used in the lobster model may be useful to the author.

Given the amount of time required to update the Bering Sea model, the feasibility of implementing a Gulf area model in SS2 this year is unclear. Nevertheless, the SSC encourages development of the Gulf model in SS2 for comparability with the Bering Sea assessment.

The SSC requests a more detailed description of J. Stark's maturity analysis.

D-1(b) EA and Initial Specifications for 2006 & 2007

The SSC received a presentation from Ben Muse (NMFS) regarding the proposed groundfish harvest specifications for 2006 and 2007. The SSC received no public comment on this issue.
The process for developing the revised OFL and ABC values was described. For stocks in Tiers 1 to 3, estimated fishing mortality rates for 2005 were used in stock projection models to estimate OFLs and ABCs for 2006, and estimated TACs for 2006 were derived based on ABC constraints and past Council actions. The estimated 2006 TACs then were treated as the projected 2006 mortality to derive estimates of OFLs and ABCs for 2007. For stocks in Tiers 4 to 6, for which there are no population projection models, the OFL and ABC values from 2005 were rolled forward to 2006 and 2007.

While a logical methodology and system has been used for developing the projected harvest specifications, this is the first time through the new biennial cycle and **the process probably could benefit from further refinement. In particular, it would be useful for the stock assessment authors**

and Plan Teams to review the projection results and identify aspects of the projection methodology and process that might be improved.

The SSC heard from Diana Stram (NPFMC) that the Plan Teams in November would examine the OFL and ABC projections relative to the revised stock assessment advice presented in the November SAFE document; the SSC endorses this decision. Diana noted that projections for stocks managed in Tiers 4 and 5 will likely change in November.

The SSC notes that under the preferred alternative the specified GOA pollock harvests are projected to increase by approximately 13,000 t in 2006. The SSC notes that two of the large rookeries in the Gulf (Sugar Loaf and Marmot Island) continue to be depressed and female fecundity appears to be reduced. Pollock are a principal prey of Steller sea lions in this region. The Shelikof Strait population of spawning pollock has historically attracted large concentrations of Steller sea lions. Thus there may be a concern that expanded pollock harvest could cause an adverse impact. This should be discussed during the review of 2006 harvest specifications.

In future harvest specification EAs the SSC requests that gross revenue estimates include confidence limits so that readers may better gauge the estimated economic impacts of the different alternatives.

The SSC greatly appreciates the improvements that have been made this year to the EA/IRFA document, particularly the appendices containing details of the methodology and responses to previous SSC comments that appear in Appendix I.

The SSC reviewed the proposed harvest specifications and EA/IRFA for the 2006 and 2007. The EA/IRFA document is well structured and complete, and the SSC agrees that the document is ready for release and public review.

D-1(b) SAFE Ecosystem Chapter

The SSC received a presentation from Jennifer Boldt (NMFS/AFSC) summarizing the draft "Ecosystem Considerations for 2006" and describing a new website that will make the ecosystem information more easily accessed. The SSC heard testimony from Ed Richardson (Pollock Conservation Cooperative) regarding the usefulness of the Ecosystem Considerations Chapter in providing access to oceanographic data that would otherwise have been inaccessible.

It has been an enormous task to compile and organize the vast quantities of information on ecosystem processes and trends in the Bering Sea and Gulf of Alaska; the SSC commends the efforts by Dr. Boldt and the numerous researchers who contributed to this work.

The Ecosystems Considerations document includes an Executive Summary of Recent Trends that provides a useful and concise overview of recent conditions and trends in the stocks and the environment in the Bering Sea and Gulf of Alaska. The SSC encourages further development of this form of synthesis of the varied and numerous sources of information that comprise the main body of the document. It might be useful to frame the synthesis in terms of the effects that humans have on the ecosystem versus the effects of the ecosystem on humans. Also, because some of the information in the document will change infrequently, whereas other items will be updated regularly, each section of the report (and website) should indicate when it was last updated. In the future the chapter (and website) should link stock assessment results with updates to the ecosystem assessment and consideration should be given to incorporating the climate information into stock assessments and the ecosystem assessment.

D-1(c) Rockfish Management

The SSC received a presentation from Jane DiCosimo (NPFMC) on issues relating to the management of target and non-target rockfish in the North Pacific. The SSC also received a presentation from Grant Thompson (NMFS/AFSC) on a tool for evaluating which species within a management assemblage are most likely to need additional protection. Diana Stram (NPFMC) reported on recent Plan Team discussions on an EFP using hook and line gear to target sliver-grey rockfish. Dorothy Childers (Marine Conservation Council), John Warrenchuck (Oceana), and Julie Bonney (Alaska Groundfish Databank) provided public testimony.

The SSC recommends that the stock assessment authors complete the Fishery Impact Assessment of Concern (FIAC) questionnaire. In addition, the questionnaire should include information on fecundity when available. Comparison of results across a wide variety of target and non-target species, with varying degrees of exploitation, should make it possible to evaluate whether the FIAC approach provides a useful method for identifying species of concern. The SSC recommends a summary of the information and evaluation at its February meeting by Council staff and/or Groundfish Plan Team Chair(s). The SSC emphasizes the need for this to be a transparent process and as such, invites comments and evaluation from all levels.

The SSC notes that there has been considerable attention on management of rockfish stocks in the North Pacific based the evaluation of low stock productivity in Pacific rockfish. AFSC scientists provided analyses to test the robustness of CHS (Current Harvest Strategy) to various uncertainties and results have not supported the contention that North Pacific stocks are less productive than currently estimated, nor have the results indicated that the CHS is inappropriate. To further explore suitability of CHS, the SSC recommends AFSC scientists to conduct a management strategy evaluation (MSE) for BSAI and GOA POP and Northern rockfish stocks where recruitments are assumed to undergo reductions relative to those observed in Pacific rockfish stocks. This may give us some insight into population responses (and sensitivity) to environmental conditions not conducive to rockfish recruitment.

At the Plan Team meeting the fishing industry expressed interest in further development of directed fisheries for silver grey rockfish. **SSC recommends thorough analyses and cautious approval of any additional fisheries targeting rockfish in the North Pacific. The SSC does concur with the Plan team for extension of the current experimental fishing permit (EFP) in an effort to gather additional information on this fishery and silver grey rockfish.**

D-2 Ecosystem Approaches to Management

The SSC received a status report and update from Diana Evans (NPFMC) on the progress to date with Council development of an Ecosystem Approach to Management (EAM) and a proposal for an Aleutian Islands Fisheries Ecosystem Plan (FEP). Public testimony was given by John Warrenchuck (Oceana).
With regard to the development of an Ecosystem Forum, consisting of interagency representatives, the SSC recommended the development of a charter for such a group before any workshops be held so that the group's purpose would be well-defined and it would be clearer what kinds of issues it would consider.

With regard to the development of a Fishery Ecosystem Plan for the Aleutians, the SSC recommended emphasizing the new aspects of what might be covered in such a plan compared with what is being done, particularly under groundfish management in the status quo. The aggregate nature of fisheries impacts (across FMPs and state-managed fisheries) and external factors such as pollution, consideration of non-FMP species, etc. are important factors for such a plan and ecosystem team to consider. The constitution of the team being proposed seems to be broad enough that it could deal with a broad approach to ecosystem management (EAM) in addition to ecosystem approaches to fisheries management (EAF) and even deal with issues beyond the Aleutian Islands region that is part of

this initial proposal. In addition, the Ecosystem Considerations section of the groundfish SAFE contains information that would be of use in this context and should be presented to the team.

Particularly, revisions of the discussion paper on Area-Specific Management for the Aleutian Islands should emphasize in the purpose and need section 4, the need to look at aggregate effects of all fisheries, external non-fishery factors, and coordinate actions across fisheries as reasons for going forward with this concept. **Issues that an Aleutian Island FEP should consider (Section 6.3.2) should also emphasize these aggregate, cumulative impacts on the Aleutian Islands ecosystem.**

The SSC noted that new initiatives at the national and international level are being initiated to assist in defining ecoregions. NOAA will be holding a workshop in the near future to get experts together to outline factors that should be considered in defining ecosystem and subecosystem boundaries. PICES will be holding a topic session at its next annual science meeting (October 2006 in Yokohama) that similarly deals with how such regions are being delineated by the international community. Outcomes from these activities should be considered by Council groups involved in Aleutian Islands ecosystem planning.

The SSC recommended that the Council consider reviewing at some point in the future after this activity has been implemented, what has been gained from this exercise that was new relative to what was already being done by the Council with regard to an ecosystem-approach to fisheries management.

Overall, the SSC was very positive towards this approach and looks forward to more progress in implementation by the Council. Once implemented, the Gulf of Alaska might be considered as the next most interesting region to be considered in a FEP.

D-3 Crab Plan Team Report and draft 2005 SAFE.

The SSC received a presentation from Bob Otto (NMFS/AFSC), with assistance from Forrest Bowers (ADF&G), on the Plan Team report and draft 2005 Crab SAFE document. Jack Turnock (NMFS) gave an additional presentation on issues that currently are hindering progress by the Overfishing Working Group. The SSC received no public testimony on this item.

The SSC notes that the Crab SAFE includes a substantially improved economic summary of the crab fisheries (Chapter 7) and an analysis of market relationships (supply and demand) for snow crab (Chapter 8). In the December 2004 SSC minutes the SSC encouraged authors of economic SAFE documents to report analyses of product markets and regional impacts. We commend the preparers of the Crab SAFE for their responsiveness to our request.

The SSC, as it has done in the past, supports the Crab Plan Team's call for a reversal of the National Marine Service decision to discontinue its collection of cold storage holdings in 2002. The SSC agrees that the rigorous market analysis provided in the Crab SAFE will no longer be possible because of the NMFS decision. Further, the SSC notes that other countries, such as Japan, collect extensive cold storage holdings for their fisheries and rigorous market models are now likely to focus on Japan instead of the Unites States. The importance of this issue cannot be understated and the SSC commends the Crab Plan team for its work in this regard.

The SSC has concerns about shifts in the spatial coverage of some of the crab surveys and requests that the SAFE document include better documentation regarding changes in the survey design and methods. In particular the Plan Team should document what triggers a decision to conduct an expanded survey and how survey results from different years are combined into a time series when some years include expanded survey coverage.

The SSC is very troubled that the Overfishing Working Group has been unable to resolve disagreements among its members over technical modeling issues and may be unable to complete its work on developing a new set of overfishing definitions and harvest control rules for the crab FMP. This work is scheduled for SSC review in April 2006. The Working Group has requested an external review of its work, but the SSC does not think that such an approach would fully resolve the impasse. **The SSC suggests that the Working Group focus on developing a general framework plan for the overfishing definitions and leave certain details of the definition (e.g., whether spawning biomass includes males as well as females) to the stock assessment authors. Further, the SSC recommends that the Council's Executive Director organize a meeting of the SSC Chair, the Plan Team Chair and Working Group Chair to discuss the possible reconstitution of the Working Group, addition of new members, or some other mechanism for resolving the disagreements.**

Other SSC Items: February Meeting Planning

The SSC discussed the format for a modeling workshop at its February 2006 meeting in Seattle that would be a follow-on to the modeling workshop held in February 2005. The latter workshop provided an opportunity for the SSC to review progress of the AFSC with regard to multispecies and ecosystem models that primarily focus on upper trophic species of concern to managers. Since climate and lower trophic level processes are potentially important factors in determining production of these species it would also be important to review the status of these models. The SSC agreed that it would be useful to have another one-day workshop at the February meeting, perhaps occurring on Monday of that week, to hear presentations on the present state of these circulation and lower trophic level models for linking to upper trophic level models. Having the workshop prior to the SSC meeting will allow the SSC to consider these types of models when developing the list of research priorities. Pat Livingston will work with AFSC staff to develop the agenda for this workshop for consideration by the SSC. In addition, presentations by the AFSC on its new cross-cutting Habitat and Ecological Processes program would be useful as part of the SSC's research priorities agenda item.

Appendix. Excerpt from Scientific American article about the motivation for the Data Quality Act.

David Michaels, June 2005. Doubt is their product. Scientific American

lished in 2002 in the *Journal of the American Medical Association*, federal judges have barred respected researchers from testifying in drug lawsuits because their evidence—such as medical case reports and toxicological studies on animals—did not meet the strict new standards. Corporate defendants have become increasingly emboldened to challenge any expert testimony on the grounds that it is based on "junk science."

DataQuality

INDUSTRY GROUPS have tried to manipulate science no matter which political party controls the government, but the efforts have grown more brazen since George W. Bush became president. I believe it is fair to say that never in our history have corporate interests been as successful as they are today in shaping science policies to their desires. In 2002, for example, the Bush administration remade a committee that advises the CDC on the issue of childhood lead poisoning. Secretary of Health and Human Services Tommy Thompson replaced prominent researchers with individuals more likely to side with the lead industry. (One new member had testified on behalf of the lead paint industry in a suit brought by the state of Rhode Island to recover the costs of treating children with lead poisoning and cleaning contaminated homes.) Since then, the CDC has not moved to strengthen the federal standards for lead poisoning despite research showing that even very low levels of lead in the blood can sharply reduce a child's IQ.

What is more, this administration has tried to facilitate and institutionalize the corporate strategy of manufacturing uncertainty. Its most significant tool is the Data Quality Act (DQA), a midnight rider attached to a 2001 appropriations bill and approved by Congress without hearings or debate. The DQA authorized the development of guidelines for "ensuring and maximizing the quality, objectivity, utility, and integrity of information." This sounds harmless, even beneficial; who wouldn't want to ensure the quality of government-disseminated information? In practice, however, industry groups use the DQA to slow or stop attempts at regulation by undercutting scientific reports. The law gives corporations an established procedure for killing or altering government documents with which they do not agree. It has been used by groups bankrolled by the oil industry to discredit the National Assessment on Climate Change, a federal report on global warming; by food industry interests to attack the World Health Organization's dietary guidelines, which recommend lower sugar intake to prevent obesity; and by the Salt Institute to challenge the advice of the National Institutes of Health that Americans should reduce their salt consumption.

Even better for industry would be a way to control information *before* it becomes part of an official government document. To accomplish this tantalizing goal, in August 2003 the Office of Management and Budget (OMB) rolled out a new proposal entitled "Peer Review and Information Quality." Under the plan, all covered information would undergo some form of peer review before being issued by a government agency, and any information that might affect major regulations or that could have a "substantial impact" on public policies or private-sector decisions would be put through a cumbersome system in which the information was reviewed by experts independent of the agency. Because the proposed peer-review process would exclude all scientists receiving grants or contracts from the agency, it seemed designed to maximize the ability of corporate interests to manufacture and magnify scientific uncertainty.

Enough was enough. In November 2003 the usually quiescent science community finally rose up in protest at a meeting sponsored, at the OMB's request, by the National Academy of Sciences. In the face of this opposition—dozens of organizations fired off scathing letters to the White House—the OMB retreated and implemented a less onerous program that did not exclude the most qualified scientists from the peer-review process.

A new regulatory paradigm is needed, but the Bush administration is heading in the WRONG DIRECTION.

A new regulatory paradigm is clearly needed, but the Bush administration is heading in the wrong direction. Instead of encouraging industry groups to revise the reports of government scientists, agencies should be focusing more scrutiny on the data and analyses provided by corporate scientists and product-defense firms. And instead of allowing uncertainty to be an excuse for inaction, regulators should return to first principles: use the best science available but do not demand certainty where it does not exist.

A good example of such an approach is the program to provide compensation for weapons workers sickened after exposure to radiation or chemicals at DOE sites. (I helped to design the initiative, which was enacted by Congress in 2000.) Because it is impossible to definitively determine whether a particular cancer has been caused by radiation exposure, the program estimates probabilities based on the cancer rates among survivors of the nuclear blasts at Hiroshima and Nagasaki. The model is not perfect, but the estimates are as accurate as the available data and methods allow.

In that case, we did the right thing. Now it is time for industry to do the right thing. We need a better balance between health and money. ■

MORE TO EXPLORE

Deceit and Denial: The Deadly Politics of Industrial Pollution. Gerald Markowitz and David Rosner. University of California Press, 2002

Science for Judges I–III. Edited by Margaret Berger. *Journal of Law and Policy*, Vols. 12–13, 2003–2005. Available online at www.brooklaw.edu/students/journals/jlp.php

More information about the use of scientific evidence in public policy is available at www.DefendingScience.org