


MEMORANDUM

ESTIMATED TIME
8 HOURS

TO: Council, SSC, and AP Members

FROM: Chris Oliver 
Executive Director

DATE: September 30, 2002

SUBJECT: Improved Retention and Utilization (IR/IU) for flatfish

ACTION REQUIRED

- (a) Receive report from IR/IU Technical Committee
- (b) Final action on amendment package for flatfish requirements
- (c) Provide direction on trailing amendments

BACKGROUND

In June the Council reviewed an analysis of potential adjustments to IR/IU requirements for flatfish, which are currently scheduled for implementation in January 2003. Potential adjustments include partial retention requirements (as opposed to 100% retention), a delay in implementation for one to three years, and exemptions from the requirements for fisheries with less than 5% bycatch of the subject flatfish species. Final action is scheduled for this meeting.

A critical part of the Council's action in June was to appoint an IR/IU Technical Committee to examine PSC bycatch cooperatives for the flatfish fleet, as a means to accomplish bycatch reductions and facilitate reductions in flatfish discards. The Committee's progress on such a management program may influence the Council's action on the primary IR/IU decision at this meeting. As such, it makes sense to receive the Committee's report at this time. That written report, along with a discussion paper from NMFS on a potential groundfish retention standard, is attached as Item C-4(a).

Following the Committee report, the Council will receive the staff report on the IR/IU amendment package. Depending on the Council's action on that amendment package, further direction to the Committee and/or staff will likely be appropriate, including approval of alternatives and options for formal analysis. The Executive Summary for that analysis is under C-4(b).

Letter received on these issues are under C-4(c).

Minutes of the IRIU Technical Committee Meeting

The IRIU Technical Committee met at the National Marine Fishery Service Alaska Fishery Science Center in Seattle, Washington on August 28-9, 2002.

All members of the committee attended including Dave Hanson (Chairman), Matt Dougherty, Geoff Shester, John Henderschedt, Donna Parker, Kent Lind, Bill Orr, Teressa Kandianis, Susan Robinson, and Michelle Ridgway.

The committee was assisted by several staff members including: Chris Oliver, Kent Lind, Marcus Hartley, Bob Trumble, Joe Terry, and Garland Walker.

Members of the audience included: Dave Benson, John Gruver, Lori Swanson, Jan Jacobs, Dave Wood, John Gauvin, Eric Hollis, Paul MacGregor; Thorn Smith; Russel Pritchett, Rudy Peterson.

The meeting began with an introduction by Dave Hanson and a discussion of the operating protocols of the committee. The committee operated on a consensus basis, however when a consensus was not attainable the "sense" of the committee was forwarded as its recommendation and objections noted.

Chris Oliver then presented the goal and objectives of the committee; specifically that they were tasked with fleshing out the proposed trailing amendments that could accompany a potential decision to delay implementation of IRIU regulations for flatfish, or which could be used in conjunction with existing IRIU Regulations. The goal of the trailing amendments would be to assure the Council, NOAA Fisheries, and the Public that further action on bycatch (discard) reduction will occur even if a delay is approved. A lengthy discussion of the committee's purpose followed, and the committee agreed that they were not constrained to the two trailing amendments proposed in the June Council action. The committee was also assured that the potential of an emergency action to delay implementation would be included on the Council October meeting agenda, as necessary

Kent Lind provided input on the potential goals and objectives of monitoring programs that might accompany the trailing amendments and urged the committee and the Council to develop a monitoring program (including quantitative standards and changes to the observer program) that were specifically tailored to goals and objectives.)

Garland Walker of NOAA GC, provided a legal review of PSC cooperatives relative to the exemptions to the IFQ prohibitions in the MSA. His opinion was that the PSC cooperative program as proposed appeared to meet the criteria in the MSA, for bycatch specific programs, but that it would be critical that the program reduce "actual" bycatch as indicated in Section 319 of the MSA. A discussion followed as to whether "reduce" implied a reduction in the actual amount of bycatch or whether a reduction in bycatch rates that would allow a higher overall harvest with the same amount of bycatch would be allowed. It pointed out that a reduction of actual bycatch in one fishery could free up PSC for use in another fishery would could lead to greater economic benefits from the marine resources. It was also pointed out that the legality of bycatch cooperatives were not fully resolved and remains an issue on which a legal opinion from NOAA GC will be necessary.

The discussion of the legal issued led to additional discussion of the purpose of the committee. The general sense of the committee was that its overarching purpose was to craft options and alternatives that would reduce bycatch (discards) in the flatfish fisheries. It was agreed that in addition to the two trailing amendments proposed by the Council in June, other options would be discussed including a proposal by Fisherman's Finest, a total groundfish retention standard, and a proposal to reduce bycatch of coral and sponges. It was also pointed out that the Council had also tasked the committee with looking at proposal to broaden the scope of IRIU regulations for flatfish to include not only rock sole, yellowfin sole and shallow-water flatfish, but all flatfish with the exception of arrowtooth flounder.

The committee then heard the proposal from Fisherman's Finest. This proposal would be similar to the Prohibited Species cooperatives included in the Council trailing amendment A, but create a single "winter PSC halibut cap" for a multi-species Pacific cod and rock sole fishery. In the discussion that followed it was indicated that this proposal could be subsumed into the overall discussion the PSC cooperative program that was the subject of the decision point document developed by Northern Economics, Inc.

At that point Marcus Hartley of Northern Economics, Inc. presented an overview of the decision point document concerning the two trailing amendments. It was decided that the committees best action at that point would be to go step-by-step through the decision point document for both trailing amendments. The committee's discussion would be melded into the decision point document, which would then be the basis of the committee's report to the Council.

In addition to the decision frameworks for the two trailing amendments, the committee asked Kent Lind to develop a decision framework for an additional alternative that would impose retention standards for all groundfish to the IRIU regulations. This third decision framework would also be included with the committee's minutes, and would constitute a third trailing amendment proposal.

One other proposal was submitted to the committee. This proposal would develop a bycatch cap for corals and sponges in the Aleutian Islands. The sense of the committee (with one objection) was that the proposal not be forwarded to the Council because it was outside the purview of the committee.

Final discussions of the committee focused on the advantages of working in a cooperative framework to achieve bycatch reduction goals. The sense of the committee was that reduction of PSCs, the discard cap proposal and the minimum retention standard for groundfish fisheries would be counterproductive without cooperatives. With cooperatives the goals and objectives of the bycatch reduction programs could be achieved without intensifying the race for fish.

Decision Framework for Reviewing and Revising the Trailing Amendments

The following is the generalized decision framework for three proposed trailing amendments that would follow a potential Council decision to delay implementation of IRIU for flatfish, or that could be applied in conjunction with IRIU regulations if they are implemented. The first of the amendments addresses prohibited species bycatch by creating a process by which bycatch reduction cooperatives can be formed. The second amendment would impose a cap on the amount of flatfish discards in flatfish fisheries. The third amendment would impose a minimum groundfish retention standard as an alternative to flatfish retention requirements. The IRIU Technical Committee has reviewed and adopted the decision frameworks for the first two amendments and requested that the third be developed and forwarded to the Council at its October meeting. The Committee urges the Council to use these frameworks as a guide in further refining the trailing amendments. Possible areas in each amendment that may require clarification and/or revision are identified as decision points. Text has been added to clarify the purpose of the amendments and the problems they address. In addition the committee and staff have added comments to decision points—these are shown in italicized font.

Amendment A. Establish Prohibited Species Bycatch Reduction Cooperatives

The purpose of this amendment is to reduce bycatch of prohibited species by creating regulations that facilitate the creation of Prohibited Species Bycatch Reduction Cooperatives (PSBRC). The problem with the current regulations is that they create a disincentive to reduce bycatch—rational fishers are discouraged from reducing bycatch because the benefits derived from the cost they personally incur, are dissipated across all participants in the fishery regardless of whether other fishers have taken actions to reduce their bycatch.

The goal of the PSBRCs will be to create rational incentives for participants to reduce bycatch of prohibited species. Fishers that choose to reduce their prohibited species bycatch are likely to incur costs in terms of reduced catches, more expensive gear, or longer search times for clean fishing grounds. Fishers who choose not to avoid bycatch do not incur these costs. However, because all PSB in a particular fishery are currently counted against the same cap, clean fishers are shut down at the same time as less-clean fishers. This amendment provides for the allocation of PSC limits between two pools of vessels—one pool for vessels wishing to participate in PSBRCs, and one pool for vessels wishing to remain under the current “race for fish” regime. Vessels in a given pool will be allowed to continue to participate in target fisheries subject to PSC limits as long as the pool’s PSC limits have not been attained. Once a pool has attained a particular PSC limit, vessels in that pool will be restricted as per existing PSC regulations.

Vessels participating in the PSBRC will agree to abide by all cooperative rules and requirements. Vessels participating in the open access pool will be subject only to current PSC regulations.

Decision Point 1. Determine the PSC limits that will be included in the PSBRC Program.

- 1.1 BSAI Trawl CP Multi-Species Halibut Cap consisting of an apportionment of the current Pacific cod trawl cap and the caps for the flatfish fisheries.
- 1.2 BSAI Trawl CP Multi-species Red King Crab Cap consisting of an apportionment of the current Pacific cod trawl cap and the caps for the flatfish fisheries.

- 1.3 BSAI Trawl CP Multi-species Snow crab (*c. opilio*) Cap consisting of an apportionment of the current Pacific cod trawl cap and the caps for the flatfish fisheries (includes apportionments of the trawl sablefish/turbot/arrowtooth limits).
- 1.4 BSAI Trawl CP Multi-species Tanner crab (*c. Bairdi*) Zone 1 Cap consisting of an apportionment of the current Pacific cod trawl cap and the caps for the flatfish fisheries.
BSAI Trawl CP Multi-species Tanner crab (*c. Bairdi*) Zone 2 Cap consisting of an apportionment of the current Pacific cod trawl cap and the caps for the flatfish fisheries.

The IRIU Technical Committee indicated its preference that the PSBRC program be limited to BSAI trawl fisheries for Pacific cod and flatfish, and therefore only PSC limits that are relevant to those fisheries would be included. The committee recognized that the PSC limits for halibut in the Pacific cod fishery would need to be explicitly divided between trawl catcher vessels and trawl catcher processors. The committee also discussed the need to further split the Pacific cod limit for halibut into "multi-species" and "single-species" limits for CPs—this split would recognize the different operating patterns of H&G trawl CPs and other trawl CPs (AFA trawl CPs).

The committee indicated the need to create an aggregate PSC limit that would combine apportionments of the halibut cap that are currently made for the various flatfish fisheries and a new CP apportionment for Pacific cod—the newly created aggregate limit would be applied to the trawl CP "multi-species" flatfish and Pacific cod fisheries. Similar changes would be made for crab PSC limits as appropriate. Salmon and herring limits would not be affected because they are not binding constraints on the affected fisheries. If at some point in the future, salmon and herring do become more of a constraint on the multi-species fisheries then those PSC limits should be considered for inclusion.

Decision Point 2. How will the PSBRC Program accomplish actual reductions in the amount of prohibited species bycatch?

- 2.1 Reductions in PSC limits would be accomplished in the normal specification process.
- 2.2 Reductions in PSC limits would be built into the regulations implementing the program.
 - 2.2.1 A 5 percent reduction in PSC limits would be part of the initial program; or
 - 2.2.2 A 5 percent reduction in PSC limits would be imposed in the second year of the program

This decision point addresses concerns that the PSBRC program may not result in actual reductions in prohibited species bycatch. The original proposal indicated the willingness of PSBRC participants to accept a 5 percent reduction in their apportionment of PSCs. The committee added specific suboptions to the second option that reflects the original proposal's language to incorporate a 5 percent reduction of PSC into the program. One committee formally objected to the lack of a specific option with a schedule of PSC reductions over the duration of the program.

Decision Point 3. How will vessels indicate whether they wish to operate in a PSBRC?

- 3.1 The decision to participate in the PSBRC will be made annually. Vessels will indicate whether they will participate in a PSBRC within 10 business days of the final specification of PSC limits by the NPFMC, and will not be allowed to switch between a PSBRC and the PSC-Race during the fishing year.
 - 3.1.1 Catch history of owners that do not indicate they will participate in one or the other pool in the annual process will not be included in the calculation of the PSC apportionments.

- 3.1.2 Catch history of owners that do not indicate they will participate in one or the other pool in the annual process will be included in the open access PSC apportionments.
- 3.1.3 Catch history of owners that do not indicate they will participate in one or the other pool in the annual process will be included in the PSBRC PSC apportionments.

Other options discussed would 1) require a decision to join prior to the final specification were set, or 2) require a one-time decision to participate for the duration of the program.

The suboptions shown were implicit in the committee's discussions of the transferability of catch history (Decision Point 8).

Decision Point 4. What is the minimum level of participation in the PSBRC?

- 4.1 At least 25 percent of the participants in the "multi-species" fishery are required to participate. AFA-CPs that choose to participate are not included in this calculation.
- 4.2 At least 50 percent of the participants in the "multi-species" fishery are required to participate. AFA-CPs that choose to participate are not included in this calculation.
- 4.3 At least 75 percent of the participants in the "multi-species" fishery are required to participate. AFA-CPs that choose to participate are not included in this calculation.
- 4.4 A minimum percentage of the participants in the "multi-species" fishery are required to participate—the appropriate percentage would be determined during the final decision process and would rely on information contained in the analysis.

It is assumed that the percentages in the option pertain to number of vessels in the coop compared to the total number of vessels in the multi-species fishery. An alternative method to calculate participation would be based on the percent of historical catch in the coop and in the fishery as a whole.

Decision Point 5. How will the allocation of PSC limits between PSBRC pools and PSC-Race pools be determined?

- 5.1 The allocation of PSC limits between pools would be proportional to the total retained catch of groundfish in the multi-species target fisheries of the vessels included in each pool. The catch histories of each vessel that may be able to join the PSBRC will be set at the time of implementation. Those histories will then be applied to whichever pool the vessel in participating.
 - 5.1.1 Total retained catch from 1995-2002 will be used in the calculation
 - 5.1.2 Total retained catch from 1995-2002 will be used in the calculation—each vessel will be allowed to drop its worst year.
 - 5.1.3 Total retained catch from 1995-2002 will be used in the calculation—each vessel will be allowed to drop its worst two years.
 - 5.1.4 Total retained catch from 1999-2002 will be used in the calculation.
 - 5.1.5 Total retained catch from 1995-1997 will be used in the calculation.
 - 5.1.6 Total retained catch from 1995-1998 will be used in the calculation.

There are many ways to set the allocation between PSBRC and PS-Race pools, including purely subjective and purely quantitative methods. The committee favored quantitative methods as in the

original proposal. One member of the IRIU Technical Committee could not agree to the inclusion of suboptions 5.1.5 or 5.1.6.

The following is an hypothetical example of the PSC apportionment method envisioned by the committee based on suboption 5.1.1:

Assume that 15 of the 25 catcher processors in the multi-species fisheries decide to join the PSBRC. From 1995-2002, vessels in the PSBRC retained 592,165 mt of groundfish in multi-species fisheries, while vessels choosing not to participate in the PSBRC had 465,273 mt of retained groundfish. Overall, the PSBRC vessels accounted for 56 percent of the retained catch in multi-species fisheries from 1995-2002. The newly created multi-species halibut PSC cap is set at 2,310 mt (hypothetically calculated as 45 percent of the original trawl halibut PSC cap for Pacific cod for 2001 and the 100 percent of the halibut PSC cap for yellowfin sole, rock sole, and other flatfish). The PSBRC would be allocated 56 percent of the multi-species halibut PSC cap (1,294 mt), and the "open access" vessels would be allocated 44 percent (1,017 mt).

Decision Point 6. Determination of Vessels to be included in the multi-species catch history pools.

- 6.1 All catch histories of all vessels that have participated in multi-species fisheries during the catch history period (Decision Point 5) will be included in the multi-species catch history pool. Annual decision to participate will be determined as in Decision Point 3.
- 6.2 During implementation of the PSBRC Program NMFS will conduct an application process. Owners of record of all vessels that have participated in multi-species fisheries will be asked to submit an application to have their catch history counted in one or the other multi-species pool. Catch histories of vessel owners that do not submit an application will not be included in the multi-species catch history pools. Catch history of owners that do not indicate they will participate in one or the other pool in the annual process will not be included in the calculation of the PSC apportionments.

This decision point provides an avenue to include or exclude catch histories of vessels that are no longer participating in the multi-species fisheries. Additional options that would require recent participation were not explicitly discuss by the committee, but potentially could be added. This decision point was not explicitly discussed by the committee but was implicit in discussion of catch history transfers (Decision Point 8).

Decision Point 7. Can a vessel participate in a PSBRC for one fishery and a PS-Race for a different fishery?

Creation of multi-species PSC limits for pacific cod and flatfish fisheries essentially eliminates this potential problem. However, appropriate measures would be needed to assure that PSBRC vessels that also participate in other target fisheries such as the Atka mackerel fishery and rockfish fisheries in the BSAI, or that also participate in the GOA, are not able to negatively affect those fisheries. The PSBRC would likely include some AFA-CP vessels that participate in the "single species" Pacific cod fishery as well as the yellowfin sole fishery, and therefore some measures made be necessary for spillover effects created by these vessels.

Decision Point 8. Transferability of Catch History and Decapitalization.

Vessels with catch history included in the multi-species fishery can elect not to participate in the multi-species fisheries. When deciding to exit the fisheries a vessel owner may transfer the vessel's catch history to the owner of a participating vessel. The allocation of these transferred catch histories will be included in one pool or the other pool as per Decision Point 3, however the new owner, rather than the former owner, will be asked to decide the pool to which the catch history will be applied.

The committee viewed the transfers of catch histories as desirable, particularly within the PSBRC.

Decision Point 9. Is it likely that the PSBRCs will have negative impacts on fisheries that are not included in the program? If so, what measures will be used to curtail or mitigate these impacts?

- 9.1 Sideboards on harvesting for participating members would be set in regulations, using the same years as used to calculate the apportionment of PSC between the PSBRC and the open access pools.
- 9.2 Require the PSBRC to have language in contracts that prohibit participants from exceeding their maximum percent of harvests in other target fisheries. Sideboards would not be set in regulation. This part of the program would be discussed in the annual PSBRC report and would be a major component of the review of program by the Council and NOAA Fisheries.

Decision Point 10. PSBRC Internal Rulemaking and Allocations

NOAA Fisheries will establish standards for Internal Cooperative Rulemaking. Evidence of binding private contracts and remedies for violations of contractual agreements must be provided to NOAA Fisheries for the PSBRC to be approved. Participants in the PSBRC must demonstrate an adequate system for the estimation, monitoring, reporting and overall accounting of the PSC available to the PSBRC.

Decision Point 11. Reporting, Monitoring and Enforcement Requirements and Observer Protocols.

11.1 Specific rules and regulations for monitoring and enforcing PSC limits including observer coverage, sampling protocols, and vessels reporting and record-keeping requirements will be developed in normal rulemaking processes and will not be the purview of the PSBRC. Three components of the program will be developed in separate processes to ensure that goal and objectives of the program are met in a cost effective manner.

11.1.1 inseason monitoring

11.1.2 program evaluation

The committee generally agreed that it is not clear that any changes will be necessary to the current program, but if it is determined that, for example, additional observer coverage will be necessary, then options will be developed as appropriate. Kent Lind advised the committee that the appropriate way to determine observer coverage was to first determine the goals and objectives of the observer program for the PSBRC. Following the determination of goals and objectives it is appropriate to examine the costs and benefits of any additional observer coverage. Lind also indicated (and the committee concurred) that it may be appropriate to examine observer coverage requirements from two different perspectives:

- 1) *Observer coverage rules would be based, as in the current system on a boat-by-boat basis, in which each vessel is required to have observers on board for fixed percentage of the time (i.e. 30%, 100%, or 200%--2 observers).*
- 2) *Observer coverage rules would be based on an objective that a pre-determined percentage of the aggregate catch would be observed. For example, the program objective might be that 67 percent of the hauls within the PSBRC program are observed, and deployment of observers would be developed to meet that objective.*

The committee also discussed the use of alternative monitoring methods. For example, rather than requiring observers to monitor whether or not PSCs were being discarded, video systems could be developed that would automatically transmit recordings on a real-time basis.

Decision Point 12. Review of the PSBRC program

Review of the PSBRC program will be accomplished by requiring a detailed annual report from the PSBRC. NOAA fisheries and the NPFMC will review the annual report and determine if the program is functioning as desired. An in-depth assessment of the PSBRC will be undertaken under the auspices of the Council/NOAA Fisheries after the third year of the program. The study will report the accomplishment of the program and indicate whether any changes are necessary.

12.1 To facilitate review of the program real-time posting of data from the PSBRC will be required.

12.2 To facilitate review of the program, the council should consider recommendations of the economic data committee established for the crab rationalization program.

The technical committee considered review of the program mandatory, however, real-time posting of PSBRC data and collection of economic data were viewed as an optional components of the review program.

Amendment B: Create Bycatch Caps (Discard Caps) for the Flatfish Fisheries

The **purpose** of this amendment is to ensure that bycatch (discards)¹ of flatfish does not increase. In addition, the amendment provides a mechanism whereby bycatch of flatfish in the flatfish fisheries can be systematically reduced over time, while continuing to allow the economic benefits of the fisheries to occur. The NPFMC while, wishing to continue its efforts to reduce bycatch, has determined that imposing 100 percent retention of certain flatfish species is likely to cause significant economic harm to current participants. This amendment will address the **problem** of conflicting goals by creating bycatch limits for flatfish—once a limit is attained, 100% retention would be required.

Decision Point 1. How will specific flatfish bycatch limits be set?

- 1.1 A schedule of specific limits into the future will be determined within the amendment.
- 1.2 In the annual specification process

Option 1.1 would create a fixed schedule for flatfish bycatch reduction, while Option 1.2 would provide more latitude for changing conditions.

Decision Point 2. What criteria will be used in setting specific flatfish bycatch limits?

- 2.1 Historical bycatch and trends
- 2.2 Biologically based target
- 2.3 Economically based targets

Decision Point 3. Flatfish discard limits will a part of the following FMPs

- 3.1 The BSAI Groundfish FMP
- 3.2 The GOA Groundfish FMP
- 3.3 Both the BSAI and the GOA Groundfish FMPs.

Decision Point 4. The flatfish discard limits apply to

- 4.1 Only those fisheries in which flatfish are the target using current target definitions.
- 4.2 All multi-species fisheries in which flatfish are at least:
 - 4.2.1 5 percent of the total catch.
 - 4.2.2 10 percent of the total catch
 - 4.2.3 20 percent of the total catch
 - 4.2.4 30 percent of the total catch
- 4.3 All fisheries in which flatfish are caught.

Option 4.1 would exempt multi-species Pacific cod target fisheries from the bycatch limits, while Option 4.3 would include all fisheries, even those in which flatfish incidental catch is de minimus.

¹ In order to be consistent with the MSA, this decision framework uses the term bycatch as defined in the MSA, i.e., that bycatch is fish that is discarded, rather than delivered or processed.

Decision Point 5. Which flatfish species will be included in the flatfish bycatch limits

- 5.1 All flatfish
- 5.2 All flatfish except arrowtooth flounder
- 5.3 Yellowfin sole, rock sole, and flathead sole in the BSAI, and all flatfish in the shallow and deep-water complexes (including flathead sole) in the GOA.
- 5.4 IRIU flatfish (Yellowfin sole and rock sole in the BSAI and Shallow-water flatfish in the GOA).
- 5.5 The council would determine which flatfish species are included in the flatfish bycatch limits during the annual specification process.

Option 5.1 includes arrowtooth flounder in the bycatch limits even though there are extremely limited markets for arrowtooth. Option 5.3 includes the principle flatfish target species complexes. Option 5.4 includes only those flatfish species included under the current IRIU program. The intent of Option 5.5 is the assignment of included fisheries can be changed as appropriate over time.

Decision Point 6. Will the flatfish limits be aggregate limits or species specific?

- 6.1 One aggregate bycatch limit is set for all included flatfish species
- 6.2 Bycatch limits are set independently for each included species.

Species specific bycatch limits may be more difficult to monitor and enforce than aggregate limits. The committee discussed the need to aggregate cap lower than what might be the sum of individual caps, but no consensus was reached. This issue should be part of the analysis.

Decision Point 7. The flatfish bycatch limits will ...

- 7.1 Not be apportioned.
- 7.2 Be apportioned to relevant target fisheries as necessary from Decision Point 4.
- 7.3 Be apportioned by season.

Apportioning the bycatch limits may ease concerns that fisheries that occur early in the year will generate enough bycatch that fisheries later in the year will be forced into retain 100 percent retention. The committee discussed the concept of apportioning bycatch caps by FMP sub-areas, and indicated their desire to see bycatch data reported by subarea. However, the committee did not wish to see a specific suboption to apportion bycatch cap by subarea.

Decision Point 8. The system for the estimation, monitoring and reporting of flatfish discards uses

- 8.1 The current level of observer coverage, sampling protocols and vessel reporting and record-keeping requirements for:
 - 8.1.1 inseason monitoring
 - 8.1.2 compliance to full retention standards after the bycatch limit is met
 - 8.1.3 program evaluation
- 8.2 Alternative levels of observer coverage, sampling protocols and/or vessel reporting and record-keeping requirements, using boat-by-boat coverage levels for:
 - 8.2.1 inseason monitoring
 - 8.2.2 compliance to full retention standards after the bycatch limit is met
 - 8.2.3 program evaluation

- 8.3 Alternative levels of observer coverage, sampling protocols and/or vessel reporting and record-keeping requirements, using on an aggregate coverage level basis for:
 - 8.3.1 inseason monitoring
 - 8.3.2 compliance to full retention standards after the bycatch limit is met
 - 8.3.3 program evaluation

Aggregate coverage level imply that NMFS would set observer requirement such that a minimum percentage of the applicable catch was observed.

Decision Point 8 addresses concerns of NOAA Fisheries regarding monitoring and enforcement of flatfish discards. Kent Lind suggested that goals and objectives of the monitoring program be specified for three components: 1) inseason monitoring, 2) compliance to full retention standards after the bycatch limit is met, and 3) program evaluation—the committee recommended these three components be included as suboptions for each option with the idea that the council could pick and choose among the available options.

Decision Point 9. Can the flatfish bycatch limits be allocated to certain groups or pools

- 9.1 Allow flatfish bycatch limits to be allocated to pools
- 9.2 Do not allow flatfish bycatch limits to be allocated to pools

This decision point is included because it is possible that in establishing bycatch limits for flatfish, the same types of problems as seen with PSC limits will arise. These problems may be avoided by treating the flatfish bycatch limits similar to PSC limits and allocating them to groups or pools such as envisioned in the PSBRC Program. The committee discussed the concept of discard cap management pools, and asked NOAA General Council to review the MSA and prohibitions and exception on IFQs. Marcus Hartley will work with Garland Walker (of NOAA GC) to be sure that the appropriate questions are asked.

Amendment C: A Minimum Groundfish Retention Standard as an Alternative to Flatfish Retention Requirements

Developing a retention requirement for flatfish species has proven problematic. Analyses have concluded that 100% retention requirements are unviable economically while species-specific partial retention standards are likely to be impossible to monitor or enforce.

One alternative approach would be to establish a minimum groundfish retention standard. Under such a standard, each vessel would be required to retain a certain percentage of their total catch regardless of the species composition of the catch. For example, if the minimum retention standard was set at 75%, then for each 100 mt of groundfish harvested the vessel must produce a quantity of products that equal 75 mt in round-weight equivalents. The vessel would be free to choose which suite of species and products to retain in order to meet the minimum standard.

Such an alternative would be far simpler to monitor and enforce because every vessel must already log the total weight of each haul and must also provide detailed production reports. There would be no need to rely on observer sampling data to monitor compliance because the species composition of the haul would be irrelevant. Compliance monitoring would simply involve comparing the total catch against the vessel's total production for a given period of time.

A minimum groundfish retention standard that is monitored by comparing total catch to total production would create the following incentives in the groundfish fisheries off Alaska, all of which are consistent with the Council's objectives for the IR/IU program:

Increased selectivity in fishing practices. Vessel operators would have a powerful incentive to avoid catching unwanted groundfish species because they would be held accountable for retaining a percentage of their total catch.

Increased utilization of target and non-target species. A general retention standard would encourage vessel operators to find uses for all groundfish species that are currently discarded. In contrast to the existing 100% retention requirement for rock sole and yellowfin sole, which creates no incentive to retain and utilize any other groundfish species, a general retention standard would provide an incentive for vessel operators to retain all of the groundfish species that are practicable for them to retain.

Increased productivity and recovery rates. If the minimum retention standard is enforced using NMFS standard product recovery rates (PRRs), then vessel operators would have an incentive to refine production techniques in an attempt to achieve higher recovery rates than the published standard. Vessels that achieve higher actual PRRs would have higher apparent retention rates than vessels with lower actual PRRs.

Increased incentive to avoid prohibited species. If the minimum retention standard is based on a comparison of total catch to retained products then vessel operators would have increased incentive to avoid PSC. This is because the total weight of PSC in the catch would be counted as part of the total catch weight and a vessel with a high percentage of PSC in the catch would need to retain a higher percentage of groundfish to meet the standard than a vessel that catches little or no PSC.

Objectives of the IR/IU program and original problem statement

The objective of the Council in developing the original IR/IU program centered on the concern that, under present regulations, groundfish catches are "underutilized," resulting in discard levels which are

perceived to be unacceptably high. According to the 1997 final EA/RIR/IRFA prepared for IR/IU Amendments 49/49, the IR/IU program would be expected to, "provide an incentive for fishermen to avoid unwanted catch, increase utilization of fish that are taken, and, thus, reduce discards of whole fish."

At its December 1995 meeting, the Council adopted an IR/IU problem statement. That statement reads as follows:

"In managing the fisheries under its jurisdiction, the North Pacific Fishery Management Council is committed to: (1) assuring the long-term health and productivity of fish stocks and other living marine resources of the North Pacific and Bering Sea ecosystem; and (2) reducing bycatch, minimizing waste, and improving utilization of fish resources in order to provide the maximum benefit to present generations of fishermen, associated fishing industry sectors, communities, consumers, and the nation as a whole. These commitments are also reflected in the Council's CRP problem statement.

The Council's overriding concern is to maintain the health of the marine ecosystem to ensure the long-term conservation and abundance of the groundfish and crab resources. As a response to this concern, a program to promote improved utilization and effective control/reduction of bycatch and discards in the fisheries off Alaska should address the following problems:

- 1. Bycatch and discard loss of groundfish, crab, herring, salmon, and other non-target species.*
- 2. Economic loss and waste associated with the discard mortality of target species harvested but not retained for economic reasons.*
- 3. Inability to provide for a long-term, stable fisheries-based economy due to loss of fishery resources through wasteful fishing practices.*
- 4. The need to promote improved retention and utilization of fish resources by reducing waste of target groundfish species to achieve long-term sustainable economic benefits to the nation."*

This problem statement does not focus specifically on the four species that were ultimately adopted as IR/IU species (pollock, Pacific cod, rock sole, and yellowfin sole) but takes a more comprehensive approach to groundfish discards. The species-specific approach was ultimately adopted in an attempt to first address those target fisheries that had the highest discard rates and highest volumes of discards.

Current groundfish retention rates for selected BSAI and GOA target fisheries

The following tables provide the aggregate groundfish retention rates during 2001 for selected BSAI and GOA target fisheries. In the BSAI, groundfish retention rates ranged from a low of 48% for the trawl 'other flatfish' target fishery to a high of 100% for the jig target fisheries. In the GOA, groundfish retention rates ranged from a low of 51% for the trawl 'other flatfish' target to a high of 100% for the jig fisheries.

Table 1. 2001 Groundfish retention rates for selected Bering Sea and Aleutian Islands target fisheries.

<i>Gear</i>	<i>Target</i>	<i>Total groundfish in metric tons</i>			<i>Retention rate</i>
		<i>Discard</i>	<i>Retained</i>	<i>Total</i>	
Hook & Line	Pacific cod	17,146	101,756	118,902	86%
	Turbot	889	2,737	3,626	76%
	Sablefish	703	1,387	2,090	66%
Jig	Pacific cod	0	72	72	100%
	Atka mackerel	0	2	2	100%
Pot	Pacific cod	643	16,398	17,040	96%
	Sablefish	15	133	148	90%
Trawl	Pollock (midwater)	5,085	1,193,810	1,198,895	100%
	Pollock (bottom)	1,596	22,886	24,482	94%
	Yellowfin sole	27,040	72,344	99,384	73%
	Atka mackerel	11,004	53,421	64,425	83%
	Pacific cod	11,736	39,188	50,924	77%
	Rock sole	9,484	21,121	30,606	69%
	Flathead sole	11,114	19,153	30,267	63%
	Rockfish	1,256	8,457	9,713	87%
	Arrowtooth flounder	789	2,499	3,287	76%
	Other flatfish	501	456	957	48%

Table 2. 2001 Groundfish retention rates for selected Gulf of Alaska target fisheries.

<i>Gear</i>	<i>Target</i>	<i>Total groundfish in metric tons</i>			<i>Retention rate</i>
		<i>Discard</i>	<i>Retained</i>	<i>Total</i>	
Hook & Line	Sablefish	2,214	12,600	14,814	85%
	Pacific cod	1,412	9,723	11,135	87%
	Rockfish	335	1,135	1,470	77%
Jig	Rockfish	0	201	201	100%
	Pacific cod	0	143	143	100%
Pot	Pacific cod	291	7,081	7,371	96%
Trawl	Pollock (midwater)	442	43,598	44,040	99%
	Pollock (bottom)	1,212	29,849	31,061	96%
	Pacific cod	5,103	24,375	29,478	83%
	Rockfish	3,107	18,591	21,698	86%
	Shallow water flatfish	3,047	5,233	8,280	63%
	Arrowtooth flounder	1,952	3,627	5,580	65%
	Other flatfish	748	788	1,535	51%
	Deep water flatfish	506	670	1,177	57%

Decision Point 1. To which fisheries would the standard apply?

- 1.1 General retention standard would apply to all fisheries.
- 1.2 General retention standard would apply to selected fisheries or gear types.

The first decision point in establishing a general groundfish retention standard is determining which fisheries would be subject to the standard. Applying a minimum retention rate to all fisheries would prevent strategic target switching by vessel operators. From the 2001 retention rates displayed in tables 1 and 2, it would appear that the flatfish trawl fisheries of the BSAI and GOA have the lowest retention rates at present. Consequently, any retention rate standard that is economically practicable for the flatfish trawl fisheries to meet is likely to be easily achievable for other fisheries.

Decision Point 2. Single standard or multiple standards?

- 2.1 Establish a single minimum retention rate for all target fisheries to which the retention requirement applies.
- 2.2 Establish a different standard for each target fishery.

Establishing a single minimum retention rate for all target fisheries to which the minimum retention requirement applies has the advantage of simplicity and would avoid any potential for strategic target switching by vessel operators who are attempting to avoid the higher retention rate standard of a particular target fishery. In addition, a single minimum retention rate standard would be far simpler for vessel operators and enforcement officers to track and monitor. The accounting would become significantly more complex if a vessel is operating in multiple target fisheries, each of which has a different minimum groundfish retention standard.

Decision Point 3. On what basis should minimum retention rate standards be set?

- 3.1 Based on a consideration of catch composition and target retention rates for each species harvested in a target fishery.
- 3.2 To achieve objective of reducing existing discards by a certain tonnage or percentage relative to status quo.

At least two different methods could be used to establish a minimum groundfish retention rate standard. Under the first option, a minimum retention rate standard for a particular fishery could be established by examining the average catch composition for that fishery and assigning target retention rates for each species. The target retention rates could be weighted and averaged to determine an overall minimum retention rate for that fishery.

A second option would be to establish target reductions in discard rates or discard tonnages for specific fisheries, or for the groundfish fisheries as a whole, and then determine what minimum retention rate is necessary to achieve the objective. Analysis could determine what level of discard reductions could be achieved with different minimum retention rate standards.

Decision Point 4. What should the minimum utilization standard be?

- 4.1 15% (current standard for pollock, Pacific cod, and flatfish starting in 2003)
- 4.2 Some other minimum utilization standard.

The current 15% minimum utilization standard was established in 1997 based primarily on a consideration of range of published PRR for pollock primary products. At that time, the lowest

published PRR for a primary pollock product was 16% for deep-skin fillets and a 15% minimum utilization standard was thought to be reasonable. This same 15% minimum utilization standard could be applied to retained groundfish in general, or a different minimum utilization rate could be established. Any analysis of a general groundfish minimum retention rate should explore the issue of minimum utilization rates as well. A minimum utilization rate would be easily enforced and monitored. For example, a 15% minimum utilization rate would simply require that for every 100 mt of groundfish harvested, a vessel would be required to produce at least 15 mt of product.

Decision Point 5. Over what period of time and how would the standard be enforced.

- 5.1 Daily
 - 5.1.1 Cumulative running total for the day
 - 5.1.2 Final total for the day
- 5.2 Weekly
 - 5.2.1 Cumulative running total for the week
 - 5.2.2 Final total for the week
- 5.3 Fishing trip
 - 5.3.1 Cumulative running total for the trip
 - 5.3.2 Final total for the trip
- 5.4 Monthly or Quarterly
 - 5.4.1 Cumulative running total for the month or quarter
 - 5.4.2 Final total for the month or quarter

Because daily catch and production records are maintained on a quarterly basis, the period of time for which the standard would apply could range from daily to quarterly or any period in between. A daily standard would imply that the vessel operator is responsible for achieving the minimum retention rate during every single fishing day. A quarterly retention standard would mean that monitoring and enforcement is based on quarterly catch and production totals without regard to what happened on a particular day or week.

A standard based on cumulative running totals would require that the vessel is in compliance at all times. In other words, it could not start off with retention rates below the standard and catch up later. A standard based on final totals for a period of time would allow a vessel to drop below the standard for a period of time as long as it was able to catch up later.

A daily standard is likely to be unpractical because of the normal lag time between when harvesting and production. Fish harvested on one day are often not processed until the following day, which means that there is no direct relationship between daily catch and daily production on a catcher/processor. Minimum retention standards that are applied over longer periods of time would provide industry with greater flexibility to meet the standard by moving to new fishing areas or changing fishing techniques. Because target fishery categories are determined on a weekly basis, a standard based on different retention rates for different target fisheries would likely need to be applied on a weekly basis to simplify monitoring. However, a uniform standard that applied to all target fisheries could be monitored over any period of time for which records are maintained on board the vessel.

Monitoring and enforcement issues

Monitoring compliance with a general groundfish minimum retention standard would require tracking two pieces of information on each vessel: total catch and total production. All vessels are currently required to log total catch and total production in their daily fishing logs and catcher/processors are also required to submit weekly production reports electronically. In addition, observers also make total catch estimates for hauls that they sample.

Obviously if the minimum retention rate standard is difficult for a particular vessel to meet, that vessel would have an incentive to either under-report total catch or over-report production in order to appear compliant with the standard. Therefore, some level of compliance monitoring is necessary to ensure that vessel operators are neither under-reporting total catch or over-reporting total production.

Monitoring total catch. Over the past decade, various programs have been implemented in different fisheries to improve total catch accounting. Flow scales are required on all AFA and CDQ vessels and other catch estimation methods such as certified bin volumes have been used to estimate total catch. Subsection 313(h) of the Magnuson-Stevens Act also requires the Council to implement measures to ensure total catch measurement in each fishery under its jurisdiction. Any analysis of a minimum groundfish retention standard should examine current methods of total catch measurement in the groundfish fisheries to which the standard would apply to determine whether total catch measurement techniques are adequate to prevent under-reporting.

Monitoring total production. Catcher/processors currently must submit weekly electronic reports of their total production by product and species. In addition, catcher/processors are required to submit product transfer reports each time product is transferred off the vessel. While vessel operators could over-report production in order to appear in compliance with the standard, this could be monitored by comparing a vessel's weekly production reports against its product transfer reports to determine if the vessel is reporting more production than can be accounted for by product transfers. A vessel also could over-report product transfers, however one consequence of doing so would be an increase in the vessel's landing tax liability. In addition, catcher/processors that base crew shares on the vessel's total production during a fishing trip could also find themselves liable for increased crew payments if they over-report total production. Therefore, most catcher/processors probably have a financial incentive not to over-report their total production. Any analysis of a general groundfish minimum retention and utilization standard should examine the current system of production reporting to determine if it is adequate to prevent over-reporting of production.

Executive Summary

Foreword

This report provides a revised analysis of alternatives to implementing Improved Retention / Improved Utilization (IRIU) regulations for rock sole (RSOL) and yellowfin sole (YSOL) in the Bering Sea and Aleutian Islands (BSAI) and for shallow-water flatfish (SFLT) in the Gulf of Alaska (GOA). None of the issues or alternatives is entirely new to the NPFMC—all of the major alternatives have been reviewed by the NPMFC in one form or another. A draft of the “Assessment of Processing Sideboards, Changes in Flatfish IRIU Requirements, and Changes in BSAI Trawl Halibut Mortality Rates and Limits” was reviewed by the North Pacific Fishery Management Council during its April 2002 meeting.

As a result of the April review, the Council adopted a motion specifying several revisions and additions to the analysis. The Council directed that the structure of the document and the alternatives under consideration be revised. The Council chose to eliminate the imposition of AFA-Processing Sideboards Limits from consideration as an alternative. In addition, the draft analysis of the HMAP program raised many issues regarding how the program might be defined, enacted, and enforced. Resolution of these issues was beyond the scope of the draft analysis. Thus, the Council directed that the HMAP program be referred to a working group. This working group was formed and tasked with formulation and analysis of bycatch reduction options. Given the potential linkages between the HMAP program and Halibut PSC limits, the council also elected to refer the Halibut PSC limits analysis to the working group. To incorporate these Council directives, this document has been revised by eliminating AFA sideboards as an alternative and removal of the HMAP and Halibut PSC analyses for referral to the working group. The Council also identified additional alternatives for consideration. These include a one, two or three-year delay in implementation of the IRIU flatfish rule, and an exemption from the rule of fisheries with less than 5 percent bycatch of IRIU flatfish. These additional analyses have been incorporated into this document.

At its June 2002, meeting the Council reviewed the revised draft analysis and requested additional changes. In particular, the Council adopted a Problem Statement reflecting its assessment that implementation of IRIU regulations for flatfish would exact significant economic hardship on participants in these fisheries. The Council reiterated its belief that alternative means to reduce bycatch of flatfish could be developed that would allow the economic benefits derived from the flatfish fisheries to continue. Two such measures were attached as trailing amendments to Alternative 3, which would delay IRIU Implementation. The measures, would 1) facilitate the development of prohibited species bycatch reduction cooperatives in the flatfish and multi-species trawl fisheries, and 2) impose strict limits on the amount of IRIU flatfish discards in the flatfish fisheries that could occur during the fishing year—once the limit is reached no further discards of IRUI flatfish in flatfish fisheries would be allowed.

Introduction

This Executive Summary (ES) provides a summary of the assessment of impact of four alternatives regarding implementation of IRIU regulations for flatfish (Section 1.2). The ES also contains a map indicating the how the main document is structured.

Impacts of Improved Retention and Improved Utilization Alternatives

Four alternatives for implementing IRIU for flatfish were studied:

Alternative 1: The Status Quo—implement existing IRIU regulation for flatfish in the BSAI and GOA beginning in 2003. The regulation would require that all RSOL and YSOL in the BSAI and all SFLT in the GOA be retained, and that processors create products that yield at least 15 percent from each fish harvested.

Alternative 2: Revise IRIU Retention Regulations for Flatfish—regulations would allow some discards of the three species. The percent retention requirement would be set independently for each species and would range from 50 to 90 percent. In addition, the alternative would consider either dropping the retention requirements entirely, or requiring 100 percent retention.

Alternative 3: Delay Implementation of IRIU Regulations—implementation would be delayed for up to three years. Trailing amendments would 1) provide for the allocation of Prohibited Species Catch (PSC) limits between two pools of vessels—a Bycatch Reduction Cooperative and “open access” pool; and 2) create flatfish discard caps for the flatfish fisheries—upon triggering a cap, 100 percent retention would be required.

Alternative 4: Exempt Fisheries with IRIU Flatfish Bycatch less than 5 Percent—Implementation of IRIU in 2003 would take place but would apply only to fisheries in which catch of IRIU flatfish species is greater than 5 percent of total catch.

Alternative 1: Status Quo Analysis Summary

The assessment the status quo alternative examines anecdotal evidence of the potential costs and benefits that are thought likely to occur with implementation of IRIU regulations for flatfish. The assessment also examines catch and bycatch data from recent years and summarizes potential impacts based on these data.

Anecdotal Evidence Summary

Anecdotal evidence collected in informal interviews with representatives of the head & gut catcher-processor sector revealed that BSAI YSOL, BSAI RSOL and PCOD provide the majority of revenue for participants in this sector. Participants in this sector feel that the additional flatfish they will be required to retain under IRIU rules will have no market value because they are either too small for the market, or of low quality. In the case of BSAI RSOL the primary market is for females with roe, and discards are typically males for which there is only a limited market. Most participants feel that IRIU rules will cause negative effects on their operations due to cost of processing low value fish. Many respondents have no idea what they will do with the additional product they will be required to retain and utilize.

In general, all respondents regardless of the size of their vessel felt that per trip value would decrease under IRIU flatfish rules due to processing costs, displacement of valuable product space in the hold,

disposal costs for IRIU flatfish product, but also due to affects on wholesale prices that the IRIU rules will have. In general, respondents felt that IRIU rules would lower the value of their existing production due to a flooding of the market with low quality and/or low value product.

Interview respondents were asked what affect IRIU rules would have on their participation in the IRIU flatfish target fisheries and in other fisheries that they currently tend to target. Responses tended to vary by vessel size with those operating smaller vessels indicating they will exit the IRIU flatfish either target fisheries or decrease participation. Most said they would not change their participation because they have no choice and nowhere else to go. Many, however, indicated that they would increase participation in the PCOD, Atka mackerel, and rockfish target fisheries in response to IRIU rules. All respondents felt that the IRIU rules would make them less competitive, and disproportionately so for smaller vessels. All respondents felt that fishmeal on board their vessels was not possible due to size and/or load line and class restrictions. All respondents felt the fishmeal processing at sea was not feasible.

In the BSAI YSOL target fishery, about half of the respondents would exit the fishery at retention levels of between 50 percent and 65 percent. As retention requirements rise to 80 percent, more than three-quarters of respondents indicated they would exit the BSAI YSOL target fishery. The remaining respondents indicated they would exit if retention were required at 90 to 100 percent. In the BSAI RSOL target fishery, about half of the respondents would exit the fishery at retention rates of between 45 percent and 55 percent. At a 75 percent retention requirement, more than three-quarters of respondents indicated they would exit the fishery. None of the respondents would continue to target BSAI RSOL if retention requirements are greater or equal to 85 percent. Respondents did not have a clear idea of how the rules would affect their activity in the GOA SFLT target fishery. When asked whether they would halt all operations in the North Pacific because of IRIU rules, approximately 20-25 percent of interview respondents indicated that they would halt operations if the IRIU rules were not revised.

Summary of The Economic Costs and Consequences of Processing Valueless IRIU Flatfish

Imposition of the IRIU flatfish retention and utilization rules will impose direct increases in operating costs for both catcher-processors and shore-based processors. The increased tonnage that will be retained must be processed in some form. In the case of BSAI rock sole and yellowfin sole, discards have exceeded 50 and 25 percent respectively in the sectors most affected by the IRIU rules. If variable processing costs are assumed constant on a per ton basis, retention of these discards could increase total variable processing costs 50 and 25 percent respectively in the BSAI rock and yellowfin sole target fisheries.

In non-target fisheries, such as Pacific Cod and Pollock, catcher-processors will face the added costs of holding IRIU flatfish until they can justify making a line conversion from processing roundfish to processing flatfish. In addition to the cost associated with taking time out from processing their target fish they could potentially experience "scaling" problems associated with mixing flatfish with roundfish in the RSW tanks. Catcher-vessels will also have potential decreases in quality of roundfish from flatfish scaling. To decrease the "scaling" vessels may require hold modifications, such as bulkhead installation to segregate flatfish from roundfish, that could cost as much as \$50,000 for some vessels.

An alternative to utilization at the 15 percent level is 100 percent utilization as round frozen product. This represents the method that would create the least cost of processing. A difficulty with processing valueless IRIU flatfish as whole frozen product (100 percent utilization) is that it creates a large amount of tonnage with little or no value that will displace revenue tonnage in the holds of vessels and in freezers at shore plants. Catcher processors must find a balance between the cost of processing

and the loss of revenue tonnage. The balance between processing costs and displaced revenue tonnage will depend on many things. Vessel size may be one of the most important elements as it dictates such things as hold space, daily processing capacity, and the speed with which the vessel can run to port to offload and return to the grounds to attempt to cover revenue lost on previous trips. Catcher-vessels will also experience displacement of revenue tonnage when required to retain IRIU flatfish and the severity of the displacement will depend on vessel size and trip length.

Larger catcher processors will also experience several indirect costs even if they have hold space sufficient to handle the extra product volumes. The increased retained tonnage will require more time to process. Assume processing capacity does not increase they may find it necessary to spend more time on the grounds in order to fill their hold with the same amount of product value. In a race for fish and/or a fishery where roe quality is important, this time may represent a substantial opportunity cost to operators and they will have to balance that with cost of processing. They may try to offset these costs by making additional trips to try to recover some of their lost revenue. However, time spent running to a roadstead to offload and then return to the grounds is time that could be spent locating and harvesting the best quality fish. Thus, additional trips will result in both added cost of operation and potentially in significant opportunity costs. Delivery of valueless IRIU product to a location for disposal will also create operational and opportunity costs.

If the product produced from previously discarded flatfish has little or no value, a major problem could be finding a disposal method for valueless products. Indications from interviews with shore based processors are that meal processing capacity at shore plants is limited and is not feasible on board most of the catcher-processors that target IRIU flatfish. If meal plants cannot handle the IRIU flatfish, it will have to be transported to some location for reprocessing, rendering, or landfilling provided a landfill would accept it. The costs associated with such transport from Dutch Harbor could be in the millions of dollars depending on shipping method, commodity, timing, and quantity.

Shore based processing plants that will be required to accept valueless IRIU flatfish from catcher vessels will also experience several cost impacts. These will likely include the cost of labor to offload IRIU flatfish from vessels, storage costs, and meal processing costs. If shore plants cannot process these fish into meal, they may face delivery costs for shipment to some disposal site. Other costs that could affect shore plants are increased costs associated with applying for additional discharge capacity under the NPDES program. They could also face increased capital costs if they must add meal processing capacity. The ability of shore plants to recover these costs will depend on whether they can earn enough revenue from marketable IRIU flatfish and potentially fish meal to cover costs.

IRIU flatfish rules are also likely to have impacts on market prices for IRIU flatfish. Industry representatives estimate that BSAI YSOL and RSOL short-term wholesale prices will decrease possibly by as much as 40 percent and 50 percent respectively. Few respondents estimated any affect on GOA SFLT. In the long term, most felt that long-term wholesale prices would also be lower. However, some felt that several vessels would cease to operate under IRIU rules and that in the long-term decreases in capacity might push prices up.

Harvest history and energy flow information from NMFS-AFSC scientists leads to several conclusions regarding optimal yields and conservation principles with respect to IRIU flatfish. All three IRIU flatfish species have historical harvests below TACs, ABCs and OFLs. The fact that harvests of IRIU flatfish species are currently below these management levels leads to the conclusion that these species are not currently overfished. Further, discards of IRIU flatfish do not appear likely to create significant impacts on region-wide total energy flows.

A review of the economic cost and consequences of disposal of IRIU flatfish found that most of the catcher-processor vessels that target IRIU flatfish cannot process meal and will have to transport product to shore based plants if they are to utilize meal processing. However, shore based meal

processing capability is currently fully utilized and expansion of capacity is subject to NPDES permitting requirements as well as construction costs. Further, it is not clear that meal production from IRIU flatfish will be economically viable and shore based plants may have no interest in developing capabilities for such processing for that reason. It is not apparent that valueless IRIU flatfish could be donated to a food bank given the product form. It is also not likely that valueless IRIU flatfish could be disposed of in a landfill within the region and doing so outside the region involves the cost of transport and may also be restricted by local, state, and/or federal laws and permitting requirements depending on the jurisdiction. Further, disposal by dumping at sea is restricted under federal law and is subject to a permitting process. Thus, if no markets can be found, valueless IRIU flatfish may have to be transported to some form of rendering facility. Where such disposal might take place and what use the IRIU flatfish might be put to is unknown

Analysis of the justifications for prosecuting fisheries with high rates of discards of the target species finds several pros and cons to be considered. On the positive side are the economic benefits to operators, crew, and communities that prosecuting a fishery yields. Opportunities for harvesting and processing capacity utilization are also a benefit and operators who target IRIU flatfish have indicated that they depend on these fisheries to keep their boats and crews maintained and operating when other fisheries are closed. Consumers also benefit from the supply of high quality fish products that are made available, however, the net national benefits criterion would include only benefits for domestic consumers. To the extent that the fishery is being harvested sustainably with respect to ABC and TAC there is little difference in the stock effects of removal with or without high rates of discard. If however, live discards could be documented then discarding fish that are too small may actually be better for stocks than full retention and utilization as fish meal or simply disposed of in some way provided that they survive. Further, if the discards do not have a significant negative effect on the regional energy flow, then the discards may not pose significant problems and the energy returned to the ocean may be absorbed in the food web. IRIU flatfish are currently being harvested below TAC and the total contribution of natural sources of energy flow in the BSAI may be as much as 100 times the amount of the IRIU discards in that region.

On the negative side of prosecuting fisheries with high rates of discard of the target species are several fundamental issues. Perhaps the most obvious is the concept that discards represent waste of publicly owned fishery resources and that such waste is seen as morally wrong and potentially harmful to the ecosystem. Underlying this concept is the philosophy that all fish caught should be utilized and that if utilization is not possible the industry should not harvest fish it cannot utilize. Directly related to the issue of waste is the issue of economic loss that occurs from that waste. Simply put, the wasted resource provides no economic value and represent an economic loss of publicly owned resources. However, from the perspective of maximizing net national benefits from publicly owned resources, the potential economic loss from discards must be balanced against the potential economic costs associated with retention and utilization of those discards. An analysis of the potential costs and benefits must also consider whether discards have biological impacts. High rates of discards of target species will have ecosystem effects. The discards could affect scavenger and predator populations by increasing the available food supply. Discards will contribute to the total energy flow and though they may be small when compared to the total flow, their effect is cumulative with other forms of energy flow such as offal production from processing and naturally occurring detritus. To the extent that discards are concentrated in one area they could create localized ecosystem effects. The potential for such effects may require consideration of local energy flows rather than region wide energy flow from offal production or other natural sources. Such localized ecosystem effects may not be well understood and may be an area worthy of scientific study.

Summary of Analysis of the Status Quo for Catcher Vessels and Catcher Processors

Catcher Vessel Impacts

The analysis of the status quo for catcher vessels has shown that all catcher vessels that catch IRIU flatfish species will be affected by the status quo—whether they are targeting IRIU flatfish or if they catch them as bycatch. However, as seen in section 2.3.1, the trawl CVs are the only CV sectors that currently have more than minimal catches of IRIU flatfish. In 2000, there does not appear to have been any CV target fisheries for RSOL or YSOL in the BSAI, although there have been some shore based target fisheries for these fisheries in the past. In the GOA there is a regular trawl SFLT target fishery prosecuted by CVs that occurs around Kodiak. The primary sources of bycatch of IRIU flatfish by trawl CV are the trawl PCOD fisheries in the GOA and BSAI.

In summary, it appears that potential impacts for catcher vessels are greatest in the BSAI PCOD target fishery. Discards as a percent of retained catch (DPR) of all groundfish exceed 14 percent in a majority of years in this fishery for all categories except the TCV<60 category, which records zero values in all years because, according to available data, this sector did not participate in the BSAI PCOD fishery. The GOA SFLT target fishery appears to have slightly smaller impacts resulting from IRIU rules than seen in the BSAI PCOD fishery. The GOA PCOD fishery appears to generate relatively low impacts across all catcher vessel categories with DPR values less than 3 percent in all years for all categories.

Processor Impacts

The analysis of the status quo for catcher processors has found that the potential impacts of IRIU rules for BSAI RSOL, as measured by discards as a percent of product tons (DPP) is in excess of 10 percent for nearly all years and affected sector/target combinations. In several sectors, the scale of impacts is much larger with the largest value at nearly 120 percent. IRIU rules for BSAI YSOL would also result in DPP scale impacts in excess of 10 percent for most years in most affected sector/targets with the exception of head & gut-trawl catcher-processors in the PCOD target fishery. There also appears to be a downward trend in the value of scale impacts in recent years for BSAI YSOL. IRIU rules for GOA SFLT also result in potential impacts in excess of 10 percent for most years in most affected sector/targets with the exception of head & gut-trawl catcher-processors in the PCOD target fishery.

Table ES-1 provides a summary of the impact analysis of IRIU rules for BSAI rock sole on head & gut catcher-processors in target fisheries where impacts have been determined to be likely. This summary provides data for the year 2000 as an example of conditions in the most recent year where data is available. Additionally, the summary includes data on participation, wholesale values, and total catch to provide context for the impact analysis.

The last, or bottom line, of the table shows the discards as a percent of product tons values for each target fishery. Recall that this can be interpreted as a displacement of revenue tonnage. This summary shows that HT-CP RSOL DPP is highest in the rock sole target fishery where it is nearly 120 percent. The next highest DPP, of nearly 41 percent is recorded in the Pacific cod target fishery where rock sole is caught as bycatch. The BSAI yellowfin sole target fishery had a DPP of 10.25 percent in 2000 and the other flatfish fishery had a value of just over 9 percent. The pollock target fishery had a DPP of only 1.22 percent.

There were 24 catcher-processors participating in the head and gut fleet in 2000 and nearly all participated in the other flatfish, Pacific cod, rock sole, and yellowfin sole target fisheries. Further, these target fisheries account for over 65 percent of the wholesale value earned by the head and gut fleet. Data on discards show that discard rates were above 50 percent in each of these target fisheries

but were much smaller as a percent of total catch in all of the target fisheries other than the rock sole target. This summary table shows that the HT-CP sector is highly dependent on target fisheries that exhibit the potential for significant economic impacts due to the IRIU rules for BSAI rock sole.

Table ES-1. BSAI RSOL Year 2000 Impact Analysis Summary for the HT-CP Sector

	HT-CP				
	OFLT	PCOD	PLCK	RSOL	YSOL
Participants	24	22	9	23	23
Wholesale Value (\$millions)	23.35	21.09	1.06	21.30	31.82
Percent of Sector Value Over all Targets	15.42	13.92	0.70	14.06	21.00
Total Catch in Target (1,000 mt)	45.65	29.53	2.45	45.90	104.94
Product tons (1000's)	15.79	9.45	1.15	12.09	37.04
RSOL Catch Tons (1000's)	2.41	6.35	0.02	28.58	6.62
Total Retained Catch Tons (1000's)	28.80	18.83	2.30	24.29	71.82
RSOL Discard Tons (1000's)	1.43	3.87	0.01	14.43	3.80
RSOL Discard % of RSOL Catch	59.33	60.93	66.35	50.50	57.36
RSOL Discard % of Total Catch	3.13	13.11	0.57	31.44	3.62
RSOL DPP	9.04	40.94	1.22	119.39	10.25

Source: NPFMC Sector Profiles Database, 2001

Note: OFLT is an aggregate of non-IRIU flatfish fisheries in the BSAI including fisheries for flathead sole, Greenland turbot, arrowtooth flounder and other flatfish.

Table ES-2 provides a summary of the impact analysis of IRIU rules for BSAI rock sole for sectors other than the HT-CP sector. The RSOL DPP numbers for these sectors are much lower than for the HT-CP sectors but still show potential displacement of revenue tons of almost 15 percent for ST&FT-CP, and almost 9 and 5 percent for Bering Sea Pollock shore plants and Alaska Peninsula and Aleutian Islands shore plants respectively. The percent of wholesale value earned by the ST&FT-CP sector in the Pacific cod target fishery is less than 1.0 percent, and in the rock sole target is less than 0.2 percent. However, Bering Sea Pollock shore plants (BSP-SP) and Alaska Peninsula and Aleutian Islands shore plants (APAI-SP) respectively earned more than 12 and 18 percent of their total wholesale value from all groundfish fisheries in the Pacific cod target. Of note is that RSOL discards rates are very high in the Pacific Cod target fishery because retention of flatfish in this target fishery can reduce the quality of the Pacific cod and requires line conversions to process. Given that Pacific cod is a much higher valued species, retention and processing of rock sole in the Pacific cod target fishery would create significant opportunity costs. However, it is important to consider that while the retention of rock sole in the Pacific cod target fishery is very low, RSOL discards represent less than 3 percent of total catch for these sectors in this fishery.

Table ES-2. BSAI RSOL Year 2000 Impact Analysis Summary for Sectors Other Than HT-CP

	ST&FT-CP		BSP-SP	APAI-SP
	PCOD	RSOL	PCOD	PCOD
Participants	4	4	5	8
Wholesale Value (\$millions)	3.78	0.25	48.25	8.59
Percent of Sector Value Over all Targets	0.94	0.19	12.36	18.40
Total Catch in Target (1,000 mt)	4.90	1.05	44.63	6.04
Product tons (1000's)	0.97	0.38	14.57	2.85
RSOL Catch Tons (1000's)	0.16	0.46	1.26	0.15
Total Retained Catch Tons (1000's)	4.22	0.06	36.92	5.16
RSOL Discard Tons (1000's)	0.14	0.40	1.26	0.14
RSOL Discard % of RSOL Catch	86.95	12.36	99.71	87.88
RSOL Discard % of Total Catch	2.90	5.40	2.82	2.25
RSOL DPP	14.70	15.03	8.63	4.76

Source: NPFMC Sector Profiles Database, 2001

Table ES-3 provides a summary of the impacts analysis of IRIU rules for BSAI yellowfin sole. Two sectors, ST&FT-CP, and HT-CP were found to have significant potential impacts. For HT-CP, the potential impacts occur in the other flatfish, Pacific cod, rock sole, and yellowfin sole target fisheries. In contrast, the ST&FT-CP sector impacts are limited to the yellowfin sole target fishery and those impacts appear small considering that YSOL DPP is less than 2 percent and the percentage of total wholesale value earned by the ST&FT-CP sector in the yellowfin sole target fishery is less than one percent. Impact for the HT-CP sector are larger with YSOL DPP numbers of more than 25 percent in the yellowfin sole target, and more than 10 percent in the other flatfish target. In the Pacific cod and rock sole targets, YSOL DPP for the HT-CP sector was found to be nearly 9 and 6 percent respectively. A review of percent of sector total value shows that the HT-CP sector earns about 65 percent of its wholesale values in target fisheries likely to be significantly affected by the IRIU rules for yellowfin sole.

Table ES-3. BSAI YSOL Year 2000 Impact Analysis Summary

	ST&FT-CP		HT-CP		
	YSOL	OFLT	PCOD	RSOL	YSOL
Participants	4	24	22	23	23
Wholesale Value (\$millions)	2.44	23.35	21.09	21.30	31.82
Percent of Sector Value Over all Targets	0.61	15.42	13.92	14.06	21.00
Total Catch in Target (1,000 mt)	9.42	45.65	29.53	45.90	104.94
Product Tons (1000's)	4.14	15.79	9.45	12.09	37.04
YSOL Catch Tons (1000's)	7.27	6.56	1.07	2.59	62.68
Total Retained Catch Tons (1000's)	8.97	28.80	18.83	24.29	71.82
YSOL Discard Tons (1000's)	0.07	1.67	0.81	0.69	9.53
YSOL Discard % of YSOL Catch	0.98	25.50	75.88	26.49	15.20
YSOL Discard % of Total Catch	0.75	3.67	2.76	1.50	9.08
YSOL DPP	1.72	10.60	8.61	5.68	25.73

Source: NPFMC Sector Profiles Database, 2001

Note: OFLT is an aggregate of non-IRIU flatfish fisheries in the BSAI including fisheries for flathead sole, Greenland turbot, arrowtooth flounder and other flatfish.

Table ES-4 provides a summary of the impact analysis of IRIU rules for GOA shallow water flatfish. Potential impacts in GOA shallow water flatfish are limited to the HT-CP sector in the Pacific cod target fishery and shallow water flatfish fisheries and to Kodiak shore plants in the shallow water flatfish target. Participation numbers for the HT-CP sector show that 22 of 24 sector participants were active in the Pacific cod target. In contrast, too few were active in the shallow water flatfish fishery to use 2000 or 1999 data so 1998 data is presented. Seven Kodiak shore plants are active in the shallow water flatfish fishery.

The HT-CP sector in the Pacific cod target is likely to be the more affected sector/target with SFLT DPP of over 24 percent. In contrast, the SFLT DPP numbers for HT-CP in the shallow water flatfish target are just over 3 percent and are about 6 percent of Kodiak shore plants. Percent of wholesale value, however, for Kodiak shore plants is just over 9 percent. In contrast, the wholesale values earned by the HT-CP sector in the Pacific cod and shallow water flatfish targets are just over 1.5 percent and only .12 percent respectively. Discard rates show that discards are highest in the Pacific cod target where nearly 70 percent of the shallow water flatfish caught is discarded. However, these discards represent only 1.19 percent of the total catch of the HT-CP sector in the Pacific cod target fishery. Discard rates in the shallow water flatfish target fishery are just over three percent and are less than 2 percent of total catch for the HT-CP and Kodiak shore plant sectors.

Table ES-4. GOA SFLT Year 2000 Impact Analysis Summary

	PCOD	HT-CP SFLT**	K-SP SFLT
Participants	22	5	7
Wholesale Value (\$millions)	2.38	0.14	8.27
Percent of Sector Value Over all Targets	1.57	0.12	9.23
Total Catch in Target (1,000 mt)	3.17	0.23	9.75
Product Tons (1000's)	1.02	0.08	2.42
SFLT Catch Tons (1000's)	0.36	0.08	4.72
Total Retained Catch Tons (1000's)	1.70	0.14	7.46
SFLT Discard Tons	0.24	0.003	0.14
SFLT Discard % of SFLT Catch	67.52	3.28	3.02
SFLT Discard % of Total Catch	7.73	1.13	1.46
SFLT DPP	24.05	3.28	5.91

Source: NPFMC Sector Profiles Database, 2001

** 1998 data is used instead of 2000 data due to confidentiality restrictions

Alternative 2: Revised Retention Rules Analysis Summary

Catcher Vessel Impacts

The analysis of retention alternatives for catcher vessels shows that virtually 100 percent of the catch of BSAI RSOL in CV categories where BSAI RSOL is caught is discarded. The data also show that from 1997 through 2000 virtually 100 percent of the catch of BSAI YSOL in CV categories where BSAI YSOL is caught is discarded. Thus, reductions in the retention requirement to even 50 percent will only serve to halve the scale of potential impacts on affected catcher vessels of IRIU rules for BSAI YSOL and BSAI RSOL.

Discards of GOA SFLT as a percent of total catch for GOA trawl CV's in the PCOD fishery vary by CV category. The data show that in the TCV BSP \geq 125 feet category virtually 100 percent of GOA SFLT has been discarded in 1999 through 2000. Thus, reductions in the retention requirement to even 50 percent will only serve to halve the scale of potential impacts of IRIU rules for GOA SFLT for this CV category. In the TCV BSP 60-124 category, discard percentages have been greater than 50 percent in recent years, indicating that even a 50 percent retention requirement would result in impacts. In the TCV Div. AFA and TCV Non-AFA categories, an alternative retention level of 75 percent would have reduced impacts to zero or near zero in several years. However, the TCV < 60 feet category has had discard percentages of near or greater than 50% in many of the years from 1992 through 2000. Thus, even a 50 percent retention rate would create some impacts in this CV category.

In contrast, data on discards of GOA SFLT as a percent of total catch for GOA trawl CV's in the GOA SFLT fishery show that, in recent years, discard rates are either zero or have fallen below ten percent for each catcher vessel category. Based on 1998 through 2000 data this means that a 90 percent retention alternative for GOA SFLT would result in no impacts to catcher vessels in the SFLT fishery.

Processor Impacts

The analysis of alternatives for catcher processors shows how DPP changes as retention requirements are reduced. This analysis shows that the retention requirement for BSAI RSOL would have to be reduced to 50 percent in order to eliminate potential impacts in the BSAI RSOL target fishery.

However, discard rates of BSAI RSOL in the non-BSAI RSOL target fisheries tend to be higher than within the target fishery. Thus, even a 50 percent retention requirement creates potential impacts in the target fisheries other than BSAI RSOL. In contrast, a retention requirement of 75 percent would eliminate potential impacts in the target fishery for BSAI YSOL, while still creating the potential for impacts in the non-BSAI YSOL target fisheries. A retention requirement of 90 percent would eliminate potential impacts in the target fishery for GOA SFLT based on data from recent years.

These findings are summaries in Table ES-5 through Table ES-8. Table ES-5 provides a summary of the analysis of the effect of IRIU retention alternatives on rock sole discards as a percent of product tons for the HT-CP sector. This summary uses year 2000 data and shows how RSOL DPP changes as the retention requirement is decreased. Recall that RSOL DPP can be interpreted as the percentage decrease in revenue tons that might be experienced due to retention of IRIU flatfish at each retention percentage. What is immediately clear is that even a 60 percent retention alternative results in significant potential impacts to the HT-CP sector in both the Pacific cod and rock sole target fisheries. In the Pacific cod target, the 50 percent alternative will still cause RSOL DPP of over 7 percent.

Table ES-5. BSAI RSOL Year 2000 Alternatives Analysis Summary for the HT-CP Sector

2000	HT-CP				
	OFLT	PCOD	PLCK	RSOL	YSOL
RSOL DPP	9.04	40.94	1.22	119.39	10.25
90 Percent Alternative	7.52	34.22	1.04	95.75	8.47
85 Percent Alternative	6.75	30.86	0.95	83.93	7.57
75 Percent Alternative	5.23	24.14	0.76	60.29	5.79
60 Percent Alternative	2.95	14.06	0.49	24.82	3.10
50 Percent Alternative	1.42	7.34	0.30	1.18	1.32

Source: NPFMC Sector Profiles Database, 2001

Table ES-6 provides a summary of the analysis of the effect of IRIU retention alternatives on rock sole discards as a percent of product tons for sectors other than the HT-CP sector. Similar to the alternatives analysis for the HT-CP sector, each of the sectors shown here would continue to have measurable impacts even at the 50 percent retention alternative. Considering this summary and the summary for the HT-CP sector, it appears that the status quo, or 100 percent retention, would cause significant impacts and though decreased, those impacts persist at even a 50 percent retention requirement for BSAI rock sole.

Table ES-6. BSAI RSOL Year 2000 Alternatives Analysis Summary for Sectors Other Than HT-CP

2000	ST&FT-CP	BSP-SP	APAI_SP
	PCOD	PCOD	PCOD
RSOL DPP	14.70	8.63	4.76
90 Percent Alternative	13.01	7.76	4.22
85 Percent Alternative	12.16	7.33	3.95
75 Percent Alternative	10.47	6.46	3.41
60 Percent Alternative	7.94	5.17	2.60
50 Percent Alternative	6.25	4.30	2.05

Source: NPFMC Sector Profiles Database, 2001

Table ES-7 provides a summary of the analysis of alternative retention levels for BSAI yellowfin sole. Several of the sectors and target fisheries found to have significant impacts in the status quo analysis have discard rates of less than 25 percent. As a result, those sectors/targets that currently

discard less than would be allowed under the alternative retention percentage would not be required to retain more than they currently retain. In such circumstances, the YSOL DPP number associated with the alternative retention level would be zero because the sector is already complying with that retention requirement and no added burden would be created by the rule. This is the case for the ST&FT-CP sector in the yellowfin sole target fishery at a 90 percent or lower retention alternative. For the HT-CP sector this is the case at a 60 percent retention alternative for both the other flatfish and rock sole fisheries and at a 75 percent level in the yellowfin sole target fishery. What is made clear by the alternatives summary is that a 75 percent retention alternative for BSAI yellowfin sole would eliminate nearly all impacts with the exception of the HT-CP sector in the Pacific cod target fishery where YSOL DPP would still be nearly 6 percent.

Table ES-7. BSAI YSOL Year 2000 Alternatives Analysis Summary

2000	ST&FT-CP		HT-CP		
	YSOL	OFLT	PCOD	RSOL	YSOL
YSOL DPP	4.14	10.60	8.61	5.68	25.73
90 Percent Alternative	0.00	6.44	7.48	3.54	8.81
85 Percent Alternative	0.00	4.36	6.91	2.46	0.34
75 Percent Alternative	0.00	0.21	5.77	0.32	0.00
60 Percent Alternative	0.00	0.00	4.07	0.00	0.00
50 Percent Alternative	0.00	0.00	2.94	0.00	0.00

Source: NPFMC Sector Profiles Database, 2001

Table ES-8 provides a summary of the alternatives analysis for GOA shallow water flatfish. In the shallow water flatfish target fishery, neither the HT-CP or Kodiak shore plant sectors are currently discarding more than 10 percent of GOA shallow water flatfish. Thus, a 90 percent retention alternative would eliminate economic impacts for these two sectors in the shallow water flatfish target fisher. In the Pacific cod target fishery, the HT-CP sector would experience significant impacts at even a 60 percent alternative where DPP of nearly 10 percent is evident.

Table ES-8. GOA SFLT Year 2000 Alternatives Analysis Summary

2000	HT-CP		K-SP
	PCOD	SFLT**	SFLT
SFLT DPP	24.05	3.28	5.91
90 Percent Alternative	20.49	0.00	0.00
85 Percent Alternative	18.71	0.00	0.00
75 Percent Alternative	15.15	0.00	0.00
60 Percent Alternative	9.80	0.00	0.00
50 Percent Alternative	6.24	0.00	0.00

Source: NPFMC Sector Profiles Database, 2001

** 1998 data is used instead of 2000 data due to confidentiality restrictions

Alternative 3: Delayed Implementation Analysis Summary

This alternative would delay implementation of IRIU flatfish rules for up to 3 years. Trailing amendments would 1) provide for the allocation of Prohibited Species Catch (PSC) limits between two pools of vessels—a Bycatch Reduction Cooperative and “open access” pool; and 2) create discard caps for the flatfish fisheries—upon triggering a cap, 100 percent retention would be required. The BRC would be structured to provide incentives for cooperative participants to employ fishing practices that result in lower levels of PSC or in lower levels of the mortality of prohibited species. The establishment of discard caps for the flatfish fisheries represents one possible measure to reduce bycatch in these fisheries.

Delayed implementation of the IRIU flatfish rules will provide several economic benefits and opportunities to address potential impacts. However, the delay will not be without cost or consequences. The primary benefit to be gained is the continuation of economic activity within sectors of the BSAI and GOA trawl fishery most likely to be seriously impacted by the IRIU rules. It is possible that as many as a quarter of the operators in the head and gut trawl catcher-processor sector will cease all operations in the North Pacific if the IRIU rules are not revised. Many others may choose to stop targeting IRIU flatfish altogether due to the full retention rules because of the economic burden the rules may cause. Delaying implementation will postpone these severe economic consequences and will allow the benefits of economic activity associated with these operations to accrue to vessel operators, crew, and fishing communities for the period of the delay.

A delay in implementation could provide time for assessment of the potential for rationalization within the IRIU flatfish fisheries. These fisheries are characterized by a "race for fish" mode of operation, which exacerbates the economic impacts of the IRIU rules. Rationalization may ease some aspects of the "race for fish" operational mode but may not eliminate all aspects because IRIU flatfish are targeted during specific roe seasons and times of highest quality. Temporal targeting may not be changed by rationalization, however, possibilities for fleet consolidation or cooperative operations that might ease the economic burden of IRIU flatfish rules could be explored during a delay in implementation.

In the past several years, discards of GOA shallow water flatfish and BSAI yellowfin sole have been trending downward. Industry sources indicate that they have been doing all that they can to utilize all the IRIU flatfish that they harvest and are developing markets for smaller fish. It is possible that this trend could continue during a delay in implementation.

A significant difficulty faced by both catcher-processors and shore based processors is finding something to do with the valueless IRIU flatfish they will be required to retain and process under the IRIU rules. Meal processing is reportedly at capacity in shore based operations and most of the catcher-processors that target IRIU flatfish do not have meal processing capability and cannot add such capacity due to size and legal constraints. At present, no clear method of disposal has been identified. Delayed implementation would allow time for development of additional meal processing capacity and/or development of new technologies such as fish protein powder processing.

Enforceability of IRIU retention alternatives other than 100 percent have been found to be problematic. The difficulty centers on a lack of observer coverage in some parts of the fleet and the sampling methods used to estimate harvest and product recovery. NMFS has expressed a willingness to work toward a solution to the enforcement difficulties. Thus, a delay in implementation could allow time to form a working group tasked with identifying viable and enforceable IRIU alternatives.

It is not clear what proportion, if any, of IRIU flatfish that are discarded survives. Discard methods that improve survivability of discarded IRIU flatfish could help to further define the discard mortality. Conducting study of IRIU flatfish mortality and/or developing methods to reduce discard mortality would take time to implement, carry out, and evaluate. Delayed implementation of the IRIU flatfish rules could provide the time necessary if a commitment were made to undertake such activities.

Contrary to the potential benefits of a delay in implementation are several potential costs. Administratively, each of the potential benefits will carry burdens of management and potentially of funding for working groups, scientific studies, and analysis that might be necessary to realize these benefits if a delayed implementation is adopted. Further, a delay would allow discards to continue for the period of the delay, which may be contrary to the Council's goals of reducing bycatch.

Delayed implementation may raise questions of why the initial five-year delay in implementation of IRIU rules was not enough. The public may ask why, for instance, has the industry failed to eliminate discards on its own in the past five year? Will the industry be able to reduce discards in the next three

years? Can the industry find markets for male rock sole in the next three years given that they have failed to do so in the past five years? These questions and many others would likely be raised if a delayed implementation alternative were adopted.

Alternative 4: 5 Percent Bycatch Exemption Analysis Summary

This section examines the option of exempting various fisheries from regulations that require retention of IRIU flatfish species—fisheries with bycatch of IRIU flatfish less than 5 percent would not be required to meet IRIU retention and utilization rules. While this option appears to be relatively straightforward, the assessment of impacts is complicated by three key decision points:

- 1) How is “bycatch” to be defined
- 2) How are “fisheries” to be defined
- 3) The time-period over which bycatch rates are measured.

At its June meeting the Council clarified its intent on these questions by indicating that “bycatch” is to be defined to mean discards as in the MSA, and that the IRIU flatfish bycatch rate is the calculated as the IRIU flatfish bycatch in a fishery divided by the total catch of all groundfish in the fishery. The Council also indicated that fishery would be defined as in the TAC specification process, but that they would like to see suboptions that would further define fisheries by 1) FMP subarea, 2) by catcher vessels and catcher processors, and 3) by AFA and non-AFA sectors. Finally, the Council indicated that the bycatch rate measurement period would be a rolling average of rates combining the previous 1 to 3 years. The annual assessment of exemptions is expected to provide an incentive for further reductions in IRIU flatfish bycatch.

Summary of Findings:

The base-case analysis assumes that weighted average bycatch rates for a 3-year period from 1999-2001 are used to determine which fisheries, as defined by the TAC specification process, are initially exempt from IRIU rules for flatfish. The exemptions would be re-assessed annually using a 3-year rolling average. The base-case assessment shows that all fisheries in the GOA would be exempt including the shallow-water flatfish fishery. All fisheries in the BSAI that catch IRIU flatfish as bycatch would be exempt from IRIU rules except the following:

- BSAI Trawl CV Pacific cod (non-CDQ)
- BSAI Trawl CP Pacific cod (non-CDQ)
- BSAI Flathead Sole (CDQ & non-CDQ)
- BSAI Rock Sole (CDQ & Non-CDQ)
- BSAI Yellowfin Sole (CDQ and Non-CDQ)

In the BSAI “exempt” fisheries caught an average of 3,517 mt of IRIU flatfish each year from 1999-2001, and discarded 63.3 percent or 2,226 mt. During the same period, “non-exempt” fisheries in the BSAI caught an average of 108,322 mt of IRIU flatfish, and discarded 30,098 mt or 27.8 percent. All GOA fisheries would be “exempt” having discarded an average of 12.1 percent of the 5,208 mt of IRIU flatfish harvested annually—less than 0.3 percent of the average groundfish catch in the GOA.

Suboption—Use Alternate Fishery Definitions

If AFA/Non-AFA status is used to define catcher processors operating in the BSAI Pacific cod fisheries, then AFA-CPs would be exempt and non-AFA CPs would not be exempt. AFA-CPs had 3-year average IRIU flatfish bycatch rates of 2.9 percent in the BSAI Pacific cod fishery from 1999-2001, while non-AFA CP in the fishery had rates of 12.8 percent during the same period.

Defining fisheries by CV/CP status combine with gears, in fisheries which are not currently apportioned in this manner would change the exempt/non-exempt status of Pacific cod fisheries in Western and Central GOA Pacific cod fisheries. Currently these fisheries are apportioned by inshore

and offshore status without gear allocation, and under this definition, all fisheries in the GOA would be exempt. However, if fisheries were redefined, then Trawl CPs in the Western and Central GOA would be non-exempt under the three-year rolling average. Fixed-gear CPs Pacific cod fisheries would remain exempt as would all CV Pacific Cod fisheries in the GOA.

Suboption—Use the Previous Year or Previous Two Years to Measure Exemption Status

If the previous year is used to measure exemption status, (rather than the three previous years), the trawl CV Pacific cod fishery in the BSAI and the CDQ and non-CDQ flathead sole fisheries would be exempt from IRIU retention rules—these fisheries were non-exempt using the three year average. If a two-year average is used the flathead sole fisheries would not be exempt, but the trawl CV Pacific cod fishery would be exempt.

The measure period for exemption would also affect the status of the Trawl CP Pacific cod fisheries in the Western and Central Gulf. With a one-year period, the fisheries would be exempt, but with a two-year period the fisheries would be non-exempt.

Document Map

This section provides a “map” of the main document to aid the reader in finding certain topics or to aid in understanding the organization of the document. Each major heading in the document is listed and a short paragraph that describes the contents under that heading is provided.

Section 1.0 Introduction

This chapter provides a suite of introductory information relevant to the analysis. This information includes an historical overview of issues and alternatives and describes the proposed alternatives.

Section 1.1 Historical Overview of Issues and Previous Actions

This section provides a historical overview of the issues and alternatives under consideration. None of the issues or alternatives is entirely new to the NPFMC—all of the major alternatives have been reviewed by the NPMFC in one form or another. The historical overview is divided into three sections discussing 1) AFA Processing Sideboards, 2) IRIU for Flatfish, and 3) HMAP and Halibut PSC limits. The historical overview concludes with a discussion of April 2002 Council action to re-define that alternative for analysis.

Section 1.2 Description of the Proposed Alternatives

This section provides a detailed description and definition of the proposed alternatives. The Council has indicated that their primary decision involves the appropriate means of protecting non-AFA processors. As a result of April 2002 Council action, there are three primary alternatives to maintaining the status quo—revise IRIU regulations for flatfish, delay implementation of IRIU flatfish rules, and exempt fisheries with less than 5 percent bycatch of IRIU flatfish from the rules.

Section 2.0 Environmental Assessment

This section develops an environmental assessment. The purpose of this EA is to analyze the environmental impacts on the human and marine environments and provide sufficient evidence to determine the level of significance of the proposed Federal actions to some combination of: 1) revising the Improved Retention and Improved Utilization (IRIU) regulations for BSAI flatfish and for the GOA shallow water flatfish for all gear types, vessels, and processors, and/or 2) delaying implementation of IRIU flatfish rules for one, two, or three years, and 3) exempting fisheries with less than 5 percent bycatch of IRIU flatfish. These actions are considered to be subject to the requirements of NEPA to prepare an Environmental Assessment since it proposes to amend proposed regulations that may impact the human environment.

Section 2.1 Related NEPA Documents

This section provides an overview of the related NEPA documents used in the EA.

Section 2.2: Marine Environment

The section describes elements of the marine environment that may be affected by the alternatives. Included in this section are discussions of target and prohibited species, and other marine organisms.

Section 2.3 Human Environment

This section contains discussions of the existing conditions of affected portions of the human environment. The section focuses on existing conditions relevant to IRIU flatfish alternatives.

Section 2.3.1 Conditions of Particular Relevance to IRIU Alternatives

This section provides a summary of fishery-wide data as an overview of existing conditions in the fisheries with a focus on issues related to the IRIU rules. This overview will be followed by a sector-level analysis of catch and discards of the three IRIU flatfish species. The sector-level analysis will identify sectors and target fisheries that have not had catch and/or discards of IRIU flatfish in recent years. Such sectors and targets will be eliminated from further analysis. Following the sector-level analysis is a summary of an analysis of fixed-gear catcher vessels and finally an analysis of discards as a percent of product tons. The result of the analyses presented in this section will be identification of the sectors and target fisheries likely to be affected by IRIU flatfish rules. The impacts of changes to IRIU rules on these sectors will be examined in Chapter 3.

Section 3.0 Analysis of Alternatives.

Section 3.1 Assessment of Alternative 1—The Status Quo

The assessment of the status quo attempts to project how the fishing and processing industry will respond to the enforcement of IRIU regulations on flatfish. The impact assessment begins with a summary of anecdotal evidence of status quo impact gathered through interviews with industry members in affected sectors. The interview summary is followed by an examination of several quantitative measures of impacts in affected fisheries and sectors. The section then provides an analysis of the status quo for catcher vessels, catcher processors, and shore-based plants. The quantitative measures used in this analysis are based on historical discard levels compared to total product amounts for processors and historical discards compared to total catch for catcher vessels.

Section 3.2 Assessment of Alternative 2—Revise or Rescind IRIU Regulations for Flatfish

This section develop an analysis of the effects of revising IRIU flatfish retention regulations. The alternatives would relax 100 percent retention requirement for IRIU flatfish and would allow the NPFMC to set other retention standards for each of the three affected species: rock sole and yellowfin sole in the BSAI and shallow-water flatfish in the GOA. The analysis examines a range of retention percentages for each of the species. A comprehensive summary of the findings of the IRIU Impacts Analysis is also provided.

Section 3.3 Assessment of Alternative 3—Delayed Implementation of IRIU Flatfish Rules

This section discusses the three delayed implementation options for IRIU flatfish rules under consideration—a one, two, or three-year delay. The potential benefits and costs of a delay in implementation are essentially the same for each of the options. However, the likelihood and extent to which such benefits and cost might be realized will be greater as the delay is increased. Thus, the discussion applies to each option and the potential for greater costs and/or benefits from a longer delay is highlighted as appropriate.

Section 3.4 Assessment of Alternative 4—Exemption of Fisheries With Less Than 5 Percent Bycatch of IRIU Flatfish.

This section examines the option of exempting various fisheries from regulations that require retention of IRIU flatfish species—fisheries with bycatch of IRIU flatfish less than 5 percent would not be required to meet IRIU retention and utilization rules.

Oceana - The Ocean Conservancy - National Environmental Trust

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September 24, 2002

RE: Implementation of IR/IU

Dear Chairman Benton and Dr. Balsiger,

Thank you for the opportunity to comment on the IR/IU requirements scheduled for implementation January 1, 2003. Full implementation of IR/IU requirements as currently scheduled is not sufficient to address the conservation concerns we have with these fisheries. As you know, IR/IU requirements will only require the retention and utilization of BSAI yellowfin sole, BSAI rock sole, and GOA shallow water flatfish. However, these fisheries also have unreasonably high levels of other groundfish species bycatch and major habitat impacts. Table 1 below shows some examples of fisheries with high total groundfish. The Magnuson-Stevens Act requires that the Council address the high levels of discards of all groundfish species, not just yellowfin sole, rock sole, and shallow water flatfish. 16 U.S.C. § 1853(a)(11).

Table 1. Total groundfish discard rates and pounds by gear type and target fishery, Bering Sea/ Aleutian Islands 2000

Gear	Target	Groundfish Discard Rate	Groundfish Discards (lbs.)
Factory Trawl	Yellowfin Sole	29.2%	73,575,000
Factory Trawl	Rock Sole	46.3%	47,810,000
Factory Longline	Pacific Cod	14.7%	33,148,000
Factory Trawl	Flathead Sole	37.8%	31,638,000
Factory Trawl	Pacific Cod	34.3%	24,388,000
Trawl catcher vessel	Pacific Cod	19.5%	18,394,000
Factory Trawl	Atka mackerel	15.0%	16,496,000
Factory Trawl	Other Flatfish	42.9%	3,125,000

Source: FIS 2002. Discards in the Groundfish Fisheries of the Bering Sea/ Aleutian Islands and the Gulf of Alaska, 1998- 2000. May 2002. Alaska Department of Fish and Game.

Impacts to other important species such as crabs are also unreasonably high, especially in flatfish trawl fisheries, as shown in Table 2 below.

Table 2. Bycatch of crab by year for three factory trawl fisheries in the Bering Sea/Aleutian Islands.

Year	Yellowfin Sole	Flathead Sole	Rock Sole	Combined
1998	3,253,789 crabs	880,164 crabs	705,093 crabs	4,539,046 crabs
1999	1,020,719 crabs	494,372 crabs	280,540 crabs	1,795,631 crabs
2000	2,868,179 crabs	536,136 crabs	404,696 crabs	3,809,011 crabs

In 1999, The January 2001 Draft Programmatic SEIS showed that Flatfish & Pacific cod trawl fisheries together had an average annual Bycatch of 704,262 lbs of coral/sponge from 1997-99 (Tables 4.7-4 and 5). According to these tables, this amount was about 70% of all coral and sponge caught in the North Pacific. The Committee refused to include any alternative in the analysis that dealt with this problem. It bears noting that coral and sponge fall within the definition of "fish" in the Magnuson-Stevens Act and the obligation to minimize the bycatch of these species is just as great as it is for the flatfish species. 16 U.S.C. §§ 1802(2) & (12), 1853(a)(11).

The alternatives to full implementation of IR/IU requirements are even less sufficient to deal with the problem at hand. Alternative 2 would further delay implementation of the requirements from one to three years. It is unacceptable that the Council would even consider this option given the fact that implementation has already been delayed by five years. If the fishing industry cannot come up with a reasonable alternative to reduce discards in five years, it is unlikely that it ever will. The Council took a large amount of public credit for imposing IR/IU requirements for flatfish five years ago. A reversal of this decision sends an inappropriate message to the American public that now five years after the issue was high in the public eye, the Council can quietly reconsider its position. Additional delay simply cannot be countenanced, given that the Council is nearly four years over the deadline imposed by the Sustainable Fisheries Act amendments for achieving compliance with the MSA's bycatch reduction mandates. P.L. 104-297 § 108(b), 16 U.S.C. § 303 note.

Instead of addressing the flatfish discard issue, Alternative 3A, the Prohibited Species Bycatch Reduction Coop, focuses on the reduction of halibut bycatch for a limited segment of the fleet. PSC caps for halibut currently limit the catch of flatfish, so it is likely that a more efficient use of the PSC by the co-op would increase the total catch of flatfish. Therefore, even if the rate of flatfish discards was decreased, the actual tonnage of discards would likely increase. Mr. Garland of NOAA General Counsel advised the committee on this matter that the Magnuson-Stevens Fishery Management and Conservation Act requires a minimization in the amount of bycatch, not in the fishery-specific rate of bycatch. Although this alternative may reduce the "race for bycatch," it contains no requirement or incentive to reduce flatfish discards.

Furthermore, as explained at the Committee meeting, this alternative would not be implemented until 2005. It would be preposterous for the Council to repeal IR/IU requirements in favor of an alternative that would likely increase groundfish discards. For these reasons, Alternative 3A is unacceptable if implemented without additional measures to reduce discards.

Alternative 3B is simply a relaxed version of IR/IU requirements that are currently scheduled to go into effect this January. Instead of a full retention requirement, it allows a specified level of discards, which when reached, requires full retention. The current version of Alternative 3B drafted by the IR/IU Committee is insufficient in several ways. Most importantly, the current purpose is "to ensure that bycatch (discards) of flatfish does not increase". This alternative would be acceptable to address the conservation problems with these fisheries only if all of the following applied:

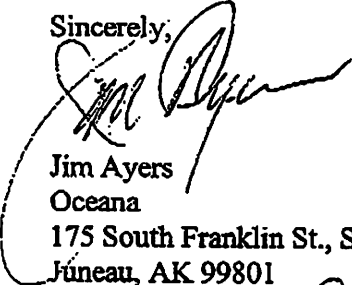
1. The purpose of the Amendment is to systematically reduce the discards of groundfish over time to target levels;
2. The discard caps apply to all discards in these fisheries;
3. The discard caps shut down the fisheries when exceeded;
4. The discard caps are set through a predetermined schedule of specific caps into the future that decrease every year to the maximum extent practicable. These must be built into the amendment;
5. At least 100% observer coverage is required on all vessels to ensure adequate monitoring, reporting, and enforcement;
6. Caps on coral and sponge bycatch are included in the Amendment; and
7. This amendment goes into effect January 1, 2003, when current IR/IU flatfish requirements are scheduled to go into effect.

Alternative 4, which would exempt fisheries with less than 5% bycatch of the designated flatfish species is insufficient as well. If the purpose is to reduce discards, it seems problematic to require some fisheries to reduce discards, while exempting others. Furthermore, this alternative also neglects other discards besides IR/IU flatfish and the severe damage these fisheries have on seafloor habitat.


When managing fisheries with as many conservation problems as those that the IR/IU requirements attempt to address, it is imperative that the Council act comprehensively to clean up these fisheries, which are easily the dirtiest in the North Pacific. The Council has already delayed implementation of IR/IU for five years and there is no information to suggest that further delay will lead to the creation of any reasonable alternatives to IR/IU.

For these reasons, the Council must ensure that whatever management action is taken has equal or greater bycatch reduction to full implementation of IR/TU requirements. The Council should also consider additional measures to fully address the other discard and habitat problems caused by these fisheries.

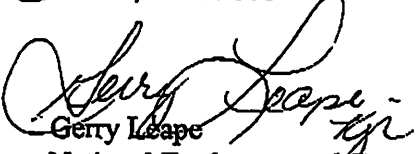
Sincerely,



Jim Ayers
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The Ocean Conservancy
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CC: Jack Sterne, Trustees For Alaska



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David Benton, Chairman
North Pacific Fishery Management Council
605 W. 4th Ave., Suite 306
Anchorage, AK 99501-2252

September 24, 2002

Dear Chairman Benton,


Thank you for the opportunity to serve on the IR/IU Technical Committee. I agreed to be a member because I believe we can help restore and maintain the health of our oceans and specific ecosystems by preventing or reducing bycatch. After attending this committee, I would like to reemphasize the recommendations in the letter from several conservation organizations regarding IR/IU implementation, of which Oceana is a signatory. As a member of the IR/IU technical committee, I cannot support any alternatives to the full implementation of IR/IU for flatfish drafted by the Committee because they are insufficient to address the high amount of discards in the flatfish and Pacific cod trawl fisheries.

In an effort to provide an option that would significantly reduce the habitat damage and bycatch caused by the flatfish and cod factory trawl fisheries, I submitted a proposal for an alternative to establish bycatch caps for corals and sponges. I was disappointed with the Committee's reasoning that our proposal was out of the purview of the Committee. This is disappointing for two reasons. First, the Council motion specifically called for additional proposals from the Committee beyond Alternatives 3A and 3B. Second, the halibut bycatch coop sought to address halibut bycatch, not directly address flatfish discards. The flatfish factory trawl fisheries have many conservation problems including flatfish bycatch, crab bycatch, other groundfish discards, coral and sponge bycatch, and other destructive habitat impacts. If the Council continues to address each of these issues separately, it will be ignoring the cumulative impacts of these fisheries on the North Pacific ecosystem. Considering the heavy economic dependence Alaska has on healthy oceans and fisheries, it is crucial that the Council take a strong stance to clean up these wasteful and destructive fisheries.

Geoff Shester
September 24, 2002

While serving on the IR/TU Technical Committee, it quickly became apparent to me that the majority of the Committee was not focused on the reduction of discards, but rather how to actually catch more fish within existing regulations by creating a halibut bycatch co-op. I strongly recommend that the Council establish and empower a Bycatch Committee and immediately implement regulations that reduce the bycatch of groundfish and the habitat impacts in these factory trawl fisheries.

Sincerely,



Geoff Shester, Fisheries Conservation Coordinator
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C-4
Dorothy
Childers

Agenda item C-4: IR/IU

AMCC does not support a three-year delay for implementing a new plan for reducing the high bycatch in Bering Sea bottom trawl fisheries. Industry has had five years to adapt to IR/IU. To delay action on this bycatch issue for another three years is too much and not consistent with the Council's promise to address bycatch in these fisheries. Another three-year delay would postpone this major bycatch program for a full 10 years since the Magnuson-Stevens Act was amended with 1) National Standard 9 to "minimize bycatch to the extent practicable," and 2) a specific mandate to reduce economic discards in the North Pacific. Magnuson-Stevens Act §301 (9) and §313(f).

Recommendations:

- 1. Bifurcate the halibut PSC cooperatives from the decision about how to resolve IR/IU.**
 - We support incentives and tools to assist industry in managing and reducing halibut bycatch, however that alone does not address the problem of high groundfish discards some fisheries.
 - A halibut PSC cooperative requires a longer timeframe to develop because of complexities inherent in allocation of histories, necessary changes in observer procedures, etc. Dealing with a halibut PSC program should not slow down implementation on a program to reduce groundfish discards.
- 2. AMCC urges the Council to either implement current IR/IU regulations in January as intended for the past five years or expedite a replacement within one year. We support analysis of Alternative C (require 75% retention of all groundfish) as a substitute for IR/IU as long as it is expedited to be in place within 1 year. This would mean discard cooperatives would most likely have to come later since cooperatives require considerably more time to develop.**
 - Alternative C is the most streamline approach to implement and monitor and could be developed and put into place within a shorter timeframe than Alternative B or any alternative involving cooperatives.
 - Alternative C would raise fisheries with the highest bycatch to an improved level. The Council could also raise the retention standard gradually over a period of years as the fleet develops more experience with markets for these fish and with techniques to avoid unwanted catch.
- 3. Support AP recommendation to adopt the original IR/IU purpose to "provide an incentive for fishermen to avoid unwanted catch, increase utilization of fish that are taken, and, thus, reduce discards of whole fish." Amendments 49/49 EA/RIR/IRFA.**
 - Currently the purpose of the trailing amendments is to "not increase discards." AMCC urges the Council to create programs that actually reduce the total amount of bycatch as prescribed in the Magnuson-Stevens Act.

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11/15/2

The first part of the report discusses the general situation of the country and the progress made in the various fields of activity. It is noted that the government has been successful in maintaining a stable and peaceful environment, which is a prerequisite for economic development. The report also mentions the importance of the agricultural sector and the need for modernization of the rural areas.

In the second part of the report, the author analyzes the economic situation and the role of the state in the economy. It is argued that the state should play a leading role in the development of the economy, particularly in the areas of infrastructure and industry. The report also discusses the need for a more diversified economy and the importance of the private sector.

The third part of the report deals with the social and cultural aspects of development. It is noted that the government has made significant progress in the area of social services, particularly in the fields of education and health. The report also discusses the need for a more equitable distribution of income and the importance of social justice.

In the fourth part of the report, the author discusses the international situation and the role of the country in the world. It is noted that the country has been successful in maintaining good relations with its neighbors and in participating in international organizations. The report also discusses the need for a more active role in international affairs and the importance of cooperation with other countries.

The fifth part of the report discusses the future prospects of the country and the challenges that lie ahead. It is noted that the country has a bright future and that the government has a clear vision for the future. The report also discusses the need for a more participatory and democratic system of government and the importance of the role of the citizen.

In conclusion, the report is a comprehensive and well-written document that provides a clear and concise overview of the country's development. It is a valuable resource for anyone interested in the country's progress and future prospects.

The report is a valuable document that provides a clear and concise overview of the country's development. It is a valuable resource for anyone interested in the country's progress and future prospects.

PUBLIC TESTIMONY SIGN-UP SHEET FOR
AGENDA ITEM IR 10 C-4

Oct 2002

PLEASE SIGN ON THE NEXT BLANK LINE.
LINES LEFT BLANK WILL BE DELETED.

1.	NAME	AFFILIATION
2.	Teresa Kandianis	Kodink Fish Co.
3.	John Gauvin	Scientific Forum
4.	Dorothy Childers	Aurice
5.	John GRUBER	UNITED CATFISH BOATS
6.	Geoff Shester	OCEANA
7.	PAUL Mac GREGOR	At-Sea Purse
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