


MEMORANDUM

TO: Council, SSC and AP Members

FROM: Clarence G. Pautzke
Executive Director 

DATE: June 3, 1996

SUBJECT: Improved Retention and Utilization (IR/IU)

ESTIMATED TIME
6 HOURS

ACTION REQUIRED

Review draft analysis of proposed BSAI IR/IU program for public review.

BACKGROUND

In April the Council discussed the IR/IU program and reviewed a lengthy report from its appointed industry IR/IU Committee which met in February and March. The Council requested that the analysis continue, including the adoption of several recommendations of the Committee. One of the key recommendations was to reject the alternative of a target fishery-based retention requirement, and focus on the species-based alternative - the four program species (pollock, Pacific cod, rock sole, and yellowfin sole) would be retained whenever and wherever they are caught, unless disallowed by regulatory prohibitions on retention. The draft analysis mailed to you last week relates to the Bering Sea/Aleutian Islands only, with the Gulf of Alaska to be addressed in a later analysis. Implementation of the program, possible for 1998, could be concurrent for both the GOA and the BSAI.

Though the Council has narrowed the retention alternatives of this program, there are still three major alternatives regarding the utilization of fish that are retained. In summary, these are: (1) Subject species may be processed into any form; (2) a minimum percentage of the subject species must be processed into human consumptive product forms (options include 50%, 70%, and 90%); and, (3) amount of subject species which may be processed into meal is limited to 50%, 30%, or 10%. A potential phase-in period for flatfish species is also included as an alternative. The Committee's report from April is included for reference under Item C-5(a). Dr. Lew Queirolo, lead analyst on this initiative, will present the draft analysis.

A final decision on this issue is scheduled for September. The analysts will have some time after this meeting to finalize the analysis prior to public review, depending on revisions or additions from the Council, SSC, and AP.

EXECUTIVE SUMMARY

IMPROVED RETENTION/UTILIZATION COMMITTEE REPORT

(full report is attached)

The primary purpose of this Committee was to work through the implementational issues which have been identified for the proposed alternatives, to identify any additional implementational issues which need to be considered, and to provide information and industry perspective to the analysts working on this project. Pervasive throughout our meetings was a recognition by Committee members of the necessity of addressing the waste and discard issue, and a hope that this can be accomplished in a way that the industry can live with. The Committee believes that this initiative, and the attendant analyses, need to be considered in a comprehensive manner, keeping all other major Council initiatives and regulations in mind as we develop the specifics of the IR/IU program. Examples of considerations include observer program requirements and VIP program.

For specific implementation issues, the following recommendations are made:

Bleeding or dumping of codends

The consensus of the Committee is that all 'dumping' or 'bleeding' of codends in IR/IU regulated fisheries should be prohibited. If bleeding is necessary to avoid placing a vessel in peril, due to safety or stability considerations, each occurrence must be logged in the vessel's permanent record, along with the extenuating circumstances necessitating the event. An estimate of the quantity and species composition of the groundfish should also be provided. Hook shaking and outright dumping of codends would be prohibited. No similar type of implementation issue can be envisioned for pot gear fisheries at this time.

Retention Options - target vs species based

The firm consensus of the Committee is that Retention Option 2 is the way to go, that the target based retention options should be eliminated from further consideration, and that the analysis should proceed with only Retention Option 2 - the 4 species would be retained regardless of target fishery. The Committee believes that the information provided to date allows for this decision to be made up front, prior to completion of the formal analyses of the overall program. In fact, making this decision up front will allow for timely completion of a more thorough analysis of the overall program.

Monitoring and Enforcement

The consensus of the Committee is that we have to accept the fact that only a base level enforcement program is likely to be doable, so that's what we will have to live with. Under this scenario, current observer requirements will be what is used for purposes of this program, and the Committee recommends that any additional observer requirements be analyzed not in the context of this program alone, but in the context of all other fisheries management programs and regulations. This is essentially the status quo in terms of observer coverage. Enforcement and monitoring would consist

of back-calculated PRRs and other secondary data for estimating catch and discards. This implies largely voluntary compliance, particularly for unobserved vessels, though this is not really any different from other regulations.

Interaction with Regulatory Discards

The Committee concurred with the conclusion that Directed Fishing Standards (DFS) shall always supersede "retention" requirements. When any of these four species is designated to be in a "bycatch only" status, as defined under DFS, then all catches of the designated species must be retained up to specified bycatch amounts. The balance of the catch of species so designated must be discarded in compliance with DFS requirements. When any of these four species is in "*prohibited*" status, under DFS, all catches of that (those) species must be discarded. Therefore, any apparent conflict between IR requirements to "retain" and DFS requirements to "discard" will be resolved by requiring retention to the maximum extent consistent with DFS discard requirements.

Contaminated or Damaged Fish

The Committee believes that an outright prohibition on discards, whether damaged or contaminated, is the only way to proceed. With respect to relatively minor "leakage", such as the occasional fish mangled by processing machinery, the apparent consensus was that, "no accounting was practical, nor needed". For larger losses, for example, if a hydraulic line were to break, spraying a load of fish with fluid, these fish might be discarded (perhaps subject to EPA or DEQ limits, due to the oiling). In such an instance, the discard event would have to be logged in the vessel's logbook, along with the quantity, species composition, and extenuating circumstances.

Defining Utilization

This was the single major issue with which the Committee grappled. Central to the discussions were the issues of: (1) where fish meal fits into the overall definition of utilization, (2) the appropriateness and benefits of requiring specific product forms for human consumption, (3) the ability of individual vessels/plants to conform to retention and utilization requirements, (4) ultimate disposition of fish and fish products, and (5) methods for determining compliance with whatever option is eventually chosen by the Council.

If vessels are strictly prohibited from discarding P.cod, pollock, rock sole, or yellowfin sole, then it follows logically that processors (e.g., motherships, shoreside plants) will be required to accept any deliveries of these four species offered to them. If this is not the case, then rejection of a delivery would be effectively "discarding". There has to be at least a "primary" point of delivery opportunity, otherwise the IR/IU proposal is potentially meaningless.

The Committee was divided on the fundamental policy question of whether utilization should be defined in terms of human consumption (Utilization Option 2), whether there should be limits on meal production (Option 3), or whether each operation should be allowed to define utilization in their own terms (Option 1). The detailed report contains a list of several points which the Committee feels need to be considered in arriving at that decision. The Committee spent much of its time developing

approaches to deal with whichever option is chosen by the Council. The following paragraphs summarize these approaches:

Relevant to Option 1, a basic 15% PRR would be applied to determine compliance. This number was chosen because it represents the PRR for pollock deep-skin fillets, and is one of the lowest of all primary product forms. Under Option 3, the same 15% could be applied to all product other than the allowable meal percentage, though the Committee's discussions assumed that this Option would simply place some limit on the amount of meal, and not mandate the 15% PRR for the remainder. For Option 2, which necessitates an explicit list of acceptable products, the primary product list from Dr. Queirolo's draft analysis would be used as the starting point for acceptable products. The associated (in regulation) PRRs for each product form would be used to backcast compliance for both the retention and utilization aspects of this program.

Further, the Committee discussed the issue of what must be done with that product once a vessel has satisfied the utilization requirement. For example, we cannot force someone to buy all of these products, nor can we force the product to be stored indefinitely. Enforcement representatives advised the Committee that tracking the utilization requirement would likely end at the point of the verification of utilization- they cannot track it all the way into households, for example. The recommendation of the Committee is that we go so far as to say that the product must be either transferred to another vessel for transshipment out of the EEZ, or delivered on-shore.

Potential Phase-in for Flatfish

Although the Council has identified four species for inclusion in this program, the Committee discussed at length some potential implementation problems for the flatfish species. While there are generic implementation problems which cut across all four species, there are additional, specific problems associated with the flatfish species. After lengthy discussions, which included enforcement considerations, the Committee recommends to the Council that we move as quickly as is feasible with Improved Retention/Utilization, that the Committee has identified factors which may impede effective implementation for some species (particularly flatfish), and we recommend that the Council weigh these factors in deciding how fast and fully to proceed with each of the four species in question. One approach could include a phase-in for the flatfish species over a period of 2-5 years, while implementation of 100% retention moves forward for pollock and cod. An alternate approach would be to simply delay implementation of the flatfish portion for some period of time, though the Committee did not necessarily endorse this approach.

Limited Processing Allowance for Catcher Vessels

Some Committee members feel that this issue should be dealt with as part of this package, not as a follow-up analysis, though the consensus of the Committee is that it could be dealt with separately, and should not hold up the basic IR/IU program implementation. As a Committee, we feel that the only really viable option is Option 3, which allows a very specific amount of processing.

Additional Issues Identified

One of the other primary objectives of the Committee was to identify any additional implementation concerns, or issues, which should be addressed in the analyses. These are detailed in the final section of the full report. Some of the major issues are summarized here:

1. Interaction with the moratorium/License limitation program, particularly regarding the ability to upgrade/expand vessel to accommodate meal plants or other processing/storage requirements. The analysts indicate that the upgrade provisions of the moratorium and License Limitation program will be assumed to be in place for purposes of evaluating this program.
2. Desire to look at underlying philosophy of DAP development - the concern here is that this program could encourage shipment of fish overseas, discard overseas, reduction in value added processing, and an employment transfer overseas.
3. Impacts to VIP program - VIP implications should be examined comprehensively; i.e., in terms of the IR/IU program and other management actions.
4. Potential unintended consequence related to PSC management - PSC monitoring is by target fishery, while this program will result in targets changing relative to what otherwise would have occurred (they are now forced to retain everything, thereby changing their target designation). The Committee feels that this is a significant issue, and requests that the NMFS in-season management division help the analysts in addressing this issue. We need some idea of how this issue might play out, and how we might adjust the program to accommodate this concern.
5. The issue of whether onshore processors are under federal jurisdiction in the context of IR/IU regulations was raised by the Committee. The Committee assumes that the State of Alaska will implement mirror regulations to accomplish the intent of this program.
6. Potential impacts to the GOA fisheries by making fishing in the BSAI relatively more expensive. It is possible that this program, if applied to only the BSAI, could result in substantial impacts to the GOA fisheries.
7. In terms of pollock fisheries, the most impacted sector is likely to be smaller (200') fillet CPs without meal plants. Generally speaking, the smaller H&G CPs will be the most adversely affected industry sector under this program - they do not have the capacity to meal their fish, and in the case of rock sole for example, they have no markets for small male rock sole. The relative disadvantage would be exacerbated if others are allowed to simply meal their additional fish.

NPFMC's IMPROVED RETENTION/UTILIZATION COMMITTEE

Detailed Report to the Council

February 27-28 and March 25-27, 1996

The Committee met twice since the January 1996 Council meeting and this report covers the findings across both meetings - major points of discussion and Committee recommendation are found in bold print; the following persons were in attendance at one or both of the meetings:

Committee Members Present:

Joe Kyle, Chairman	Chris Blackburn	Paul MacGregor	Arni Thompson
John Henderschedt	Lisa Polito	Bob Mikol	Steve Hughes
Thorn Smith	John Iani	Vince Curry	

Staff/Agency Present:

Clarence Pautzke	Chris Oliver	Lew Queirolo	Jay Ginter
Dave Colpo	Steve Meyer	Bill Karp	Bill Anderson
Pat Livingston	Earl Krygier	Seth Macinko	Connie Sathre

Other Attendees:

Craig Cross	Brent Paine	Pete Nicklason	Todd Clark
Jim McManus	Mike Szymanski	Jan Jacobs	Mark Kandianis
John Gauvin	Bill Atkinson	Peter Richardson	John Bruce
Laure Jansen	Tim Meintz	Sewall Maddocks	Ron Rogness
Denise Fredette	Teresa Kandianis	Janet Smoker	Don Iverson
Rob Gudmundson	Christian Asay		

INTRODUCTION

Chairman Joe Kyle called the meeting to order at 9:00 am on February 27, starting with a discussion of the purpose and scope of this Committee meeting. Council Executive Director Clarence Pautzke provided an overview for the Committee including the history of the IR/IU issue, the list of current alternatives being evaluated, and the primary task for the Committee - to work through the implementational issues which have been identified for the proposed alternatives, to identify any additional implementational issues which need to be considered, and to provide information and industry perspective to the analysts working on this project.

Committee members each provided their general thoughts on this issue as a prelude to detailed discussions on specific topics. Pervasive throughout our meetings was a recognition by Committee members of the necessity of addressing the waste and discard issue, and a hope that this can be accomplished in a way that the industry can live with. The Committee believes that this initiative, and the attendant analyses, need to be considered in a comprehensive manner,

keeping all other major Council initiatives and regulations in mind as we develop the specifics of the IR/IU program. Examples of considerations include observer program requirements and VIP program.

Dr. Lew Queirolo then provided the Committee with an overview of the implementation issues identified to date, and potential options for dealing with those implementation issues. These issues fell generally into two categories, retention and utilization issues, with some overlap between the two. The Committee discussed each of these in detail - a summary of the major points of discussion, and Committee recommendations on each issue follows. In general, monitoring and enforcement were preeminent issues underlying the entire program, and therefore seemed to dictate some options over others in our discussions.

IMPLEMENTATION ISSUES - RETENTION ASPECT

Bleeding of codends/shaking of hooks

Bleeding of codends occurs primarily for reasons of (1) exceeding 'intended catch', or exceeding the hold capacity of the vessel, (2) the net is simply too heavy to be raised to the deck, or (3) vessel safety/stability. It was noted that bleeding of codends is partially a function of the race for fish, and usually occurs only when fishing is very good. It is primarily a concern for smaller catcher vessels, and only during pollock fishing, so overall it is not a significant source of total discards; however, the vessels which are more prone to bleed codends have limited observer coverage currently. The Committee noted that outright dumping can, at times, have advantages - for example, if a test tow comes up with a large number of halibut or other PSC species, it might be prudent to dump the entire bag, thereby minimizing PSC mortality. However, the Committee felt that an allowance for such situations would create an unacceptable loophole.

The consensus of the Committee is that all 'dumping' or 'bleeding' of codends in IR/IU regulated fisheries should be prohibited. If bleeding is necessary to avoid placing a vessel in peril, due to safety or stability consideration, each occurrence should be logged in the vessel's permanent record, along with the extenuating circumstances necessitating the event. An estimate of the quantity and species composition of the groundfish should also be provided. It may not always be clear that an emergency exists. It may be hard to determine when there is or is not a vessel safety issue. Only the skipper, not an observer, may be in a position to make this call. A regulation prohibiting the practice would provide some incentive (that is not currently there) to not overfill a net, or to not put that last tow in the water to begin with. Enforcement of a bleeding prohibition will be tough - it is basically an honor system. An investigation will be mounted by NMFS Enforcement if and when it appears appropriate, in response to evidence that indicates there was no real safety issue.

Hook shaking and outright dumping of codends would be prohibited. No similar type of implementation issue can be envisioned for pot gear fisheries at this time.

Defining participation in IR/IU fisheries

Because some of the main alternatives stipulate retention only while engaged in target fishing for a particular species, this issue is of critical importance; i.e., how does NMFS determine whether and when a vessel is subject to the retention requirement, and for what species? Dr. Queirolo explained an assumed protocol which would be used for defining targets (see Attachment 1). This is a bit different than is done currently, and would ultimately require a regulation change. It was pointed out that, because some options do not apply to all species, these options could increase discards of non-subject species in an attempt to 'get the right catch composition'; i.e., strategic behavior by the fleet has to be considered. However, because we're dealing with the 'big 4', in terms of species covered by the program, it may be difficult to strategically monkey with the system. NMFS Enforcement and Coast Guard representatives advised the Committee that Retention Option 2 (species as opposed to target based - all four species must be retained wherever they occur) makes the most sense, and is by far the most efficient and least costly option to monitor and enforce (as well as to analyze).

The firm consensus of the Committee is that Retention Option 2 is the way to go, that the target based retention options should be eliminated from further consideration, and that the analysis should proceed with only Retention Option 2 - the 4 species would be retained regardless of target fishery.

The Committee believes that the information provided to date allows for this decision to be made up front, prior to completion of the formal analyses of the overall program. In fact, making this decision up front will allow for timely completion of a more thorough analysis of the overall program. The question arose whether IFQ fisheries for halibut and sablefish would be included, noting that there is already a retention mandate for cod and rockfish in those fisheries. The assumption of the Committee is that this program would apply to all BSAI groundfish fisheries, including sablefish, and BSAI halibut IFQ fisheries.

Monitoring and enforcement

The Committee recognizes that this may be the most critical issue to deal with in making this program work. For the Committee (and likely for the Council) the issue largely boils down to the question "Are we willing to live with a simple enforcement system which catches only egregious violators, or, do we want to strive for perfection?" Intrinsic to this question is who is going to monitor and enforce the provisions, at what cost, and who will pay those costs. NMFS current policy is that observers will not be tasked with monitoring compliance of this program, and we may need to assume that separate compliance monitors will be needed for purposes of this program. It may be that some form of 'hybrid' observer/monitor position can be created to accomplish basic observer program objectives as well as compliance with the IR/IU program. Whether they are separate monitors or cross-trained observers, the number of positions and attendant costs will increase.

The consensus of the Committee is that we have to accept the fact that only a base level enforcement program is likely to be doable, so that's what we will have to live with. Under this scenario, current observer requirements will be what are used for purposes of this program, and the Committee recommends that any additional observer requirements be analyzed not in the context of this program alone, but in the context of all other fisheries management

programs and regulations.

This is essentially the status quo in terms of observer coverage. Enforcement and monitoring would consist of back-calculated PRRs and other secondary data for estimating catch and discards. This implies largely voluntary compliance, particularly for unobserved vessels, though this is not really any different from other regulations. Some concern is expressed that this might be creating a 'double standard'; i.e., those with greater observer coverage may be held to a higher standard. At this end of the monitoring spectrum, retention compliance would be monitored, using current practices and resources, primarily through the use of "secondary" data sources. That is, when a vessel is boarded logbooks will be inspected and compared to catch (and product) onboard, or reported as transferred. In the case of product, by utilizing standard NMFS PRRs, a round-weight-equivalent catch estimate will be derived. If the several catch estimates are in agreement, "retention" compliance is assumed. Additionally, NMFS will screen observer catch estimate and vessel catch reports to identify "possible" violations of the retention requirement for further investigation. (See also discussion of Compliance with IU.)

Notwithstanding the discussion above, the Committee requests that the analyses continue to examine a range of potential enforcement plans for this program. In this case the analysis would examine the following ends of the spectrum: (1) the basic plan relying on PRRs that catches the 'egregious' violators, and (2) a 'cadillac' plan which essentially doubles the current coverage levels (currently at 30% and 100%). The latter plan should not be identified as a Committee recommendation, and may not be feasible, but is put forward in order to provide an upper bound reference point. The Committee also discussed the possibility of an iron-clad program with at-sea monitors that provide 100% coverage (of all hauls and sets) for all vessels (or increased observer coverage up to that level). Such a program would obviously constitute the 'upper bound' in terms of the possible range of monitoring programs; however, there was a recognition by the Committee that this extreme is not likely to be a viable alternative at this time.

There was also discussion of how the additional coverage would/should be distributed. For example, it may be that there are certain fisheries which need the additional coverage more than, say, mid-water pollock fisheries. The Committee recognized that this may be a follow-up issue for future discussions, but did not attempt to resolve the distribution on coverage issue at this time.

Conflicts with existing regulatory discard rules

Obvious contradictions will arise between current regulations and those imposed to implement the IR/IU program, such as a Catch 22 situation where you may be required to discard and retain at the same time. **The Committee concurred with the conclusion that Directed Fishing Standards (DFS) shall always supersede "retention" requirements.** Specifically, whenever fishing for P.cod, pollock, rock sole, or yellowfin sole is "open", all catches of any of these four species must be retained. When any of these four species is designated to be in a "bycatch only" status, as defined under DFS, then all catches of the designated species must be retained up to specified bycatch amounts. The balance of the catch of species so designated must be discarded in compliance with DFS requirements. When any of these four species is in "prohibited" status, under DFS, all catches of that (those) species must be discarded. Therefore, any apparent conflict between IR requirements

to "retain" and DFS requirements to "discard" will be resolved by requiring retention to the maximum extent consistent with DFS discard requirements. The Committee notes that this situation somewhat reduces the potential 'savings' from this program.

Dealing with Contaminated or Damaged fish

There will be instances where fish are spoiled or otherwise contaminated, or damaged beyond salvage, and there needs to be some allowance to discard in these situations. The magnitude of this type of discard is expected to be very low, and may only constitute 'noise in the system'; however, there needs to be an established mechanism to address the issue. **The Committee believes that an outright prohibition on discards, whether damaged or contaminated, is the only way to proceed.** With respect to relatively minor "leakage", such as the occasional fish mangled by processing machinery, the apparent consensus was that, "no accounting was practical, nor needed". For larger losses, for example, if a hydraulic line were to break, spraying a load of fish with fluid, these fish might be discarded (perhaps subject to EPA or DEQ limits, due to the oiling). In such an instance, the discard event would have to be logged in the vessel's logbook, along with the quantity, species composition, and extenuating circumstances.

IMPLEMENTATION ISSUES - UTILIZATION ASPECT

A general discussion of the utilization aspect of this program preceded discussions of the specific implementational issues and included the following themes: (1) It was clarified by Committee that offal (frames, heads, guts, etc) is not considered discards, and does not have to be further processed or retained. The retention/utilization initiative is directed at whole fish currently being entirely discarded. (2) Actual facts and realities of the fisheries should constitute the frame of reference for developing the specifics of this program - not the plethora of mis-information currently circulating in the press and other venues. (3) In terms of defining utilization, rather than mandate specific product forms, or human consumptive forms, it may be better to allow each operation some flexibility to respond to the general requirements in the best way for that operation (there was not consensus on this issue - see further discussion under 'Defining Utilization'). (4) Depending on the specifics of the retention/utilization requirements, the program could work to the disadvantage of smaller operations (and the advantage of large operators) and not be very effective in actually slowing down the fisheries.

Need for Additional Processing capacity

Many vessels do not currently 'process', based on definitions of processing, but if required to do so would invoke load line requirements, and the question of whether processing capacity could be added (noting that delivery for onshore processing is an option under this program). In either case, additional hold capacity could be required, bringing up some of the same concerns. These concerns are also valid for existing processing vessels. Moratorium/License Limitation upgrade restrictions are also a concern, given that those programs may limit the ability of a vessel to make the necessary modifications to comply with the IR/IU requirements.

The addition of a meal plant is a primary issue, but there are other alternatives to meal, such as whole

freezing, other processing, etc., which raise similar concerns. In all cases, whether meal or other product form is produced, the issue of additional storage is considered to be a major problem for many vessels. In connection with this capacity issue (and related to jurisdiction over onshore processors) arises another issue which has to be considered. Specifically, if vessels are strictly prohibited from discarding P.cod, pollock, rock sole, or yellowfin sole, then it follows logically that processors (e.g., motherships, shoreside plants) will be required to accept any deliveries of these four species offered to them. This was discussed and recognized by the Committee, though concern was expressed that we could not mandate payment by the processor for that fish. If this is not the case, then rejection of a delivery would be effectively "discarding". There has to be at least a "primary" point of delivery opportunity, otherwise the IR/IU proposal is potentially meaningless.

DEFINING UTILIZATION

The Committee grappled with the fundamental issue of defining 'utilization', and related to that concept, the definition of 'suitable for human consumption'. For example, is utilization based on some level of processing, some specific product form, and does it also imply some final disposition such as delivery or sale? The Committee was divided on the fundamental policy question of whether utilization should be defined in terms of human consumption (Utilization Option 2), whether there should be limits on meal production (Option 3), or whether each operation should be allowed to define utilization in their own terms (Option 1). Fundamental to this discussion is the issue of fish meal (and bait), and whether utilization Options 2 and 3 (which either mandate a minimum for human consumption or limit the amount of meal produced) should seriously be pursued any further. Currently, everything other than meal or bait is regarded as 'for human consumption'. It is difficult to predict what will be produced in the future by individual operations (its a moving target) - some members argued that we should leave it at some commercial use, which would allow for meal and/or other products. On the other hand, the issue in the press is meals, not meal - therefore we should adopt human consumption standards. There was no agreement by the Committee on this critical issue, but a recognition that the analysis should go forward with all of the options at this time. As such, the Committee spent their time developing approaches which would work under either of the options, and identifying the pros and cons of either option.

Points for consideration

The following points were made by Committee members, relative to the issue of defining human consumption:

1. If you do not mandate human product forms, then the playing field is uneven; i.e., some small operations cannot make fish meal, and would be forced to make human consumptive products, while others can continue to simply make fish meal (for these vessels, discarding is the equivalent of making meal). This gets back to the issue of generally disadvantaging small vessels, and reallocating to large offshore vessels or to vessels which deliver onshore (not just small CPs, but catcher vessels as well may not have anyone willing to take everything they bring in). So, those with access to meal plants win, but at a loss of value added. These vessels could become catcher vessels, but there are not necessarily buyers for them, not to mention the radical business/economic changes this would impose to those vessels.

2. The State of Alaska already has a 'policy', if not a regulation, relative to the roe-stripping amendment which says we must "maximize" the human consumptive products from pollock. This statute allows for meal production, but also differentiates between human consumptive forms and fish meal.
3. Simply allowing it all to go to meal may not reduce the pace of the fishery, but will disadvantage many of the smaller Catcher Processors, particularly H&G vessels.
4. Mandating specific product forms would inhibit development of new and additional uses.
5. If we do not mandate human consumptive forms, meal output is self-regulating for the onshore sector. If we do, then we would be regulating that amount.
6. Requiring and specifying human consumptive form does not guarantee it will be sold and ultimately used as such.
7. If specific product forms are mandated, small catcher vessels are also disadvantaged in the sense that they will be required to sort species in a way that they currently do not (this is related to the overall flexibility issue as well).
8. Other jurisdictions may have to be considered in terms of regulating product forms by fishermen for sale. FDA does apply now in the form of seafood inspectors, and stricter rules apply for domestic markets than for foreign markets. However, this is really inspecting for contamination, not for specific product forms. There is a list of products for export purposes (cod stomachs was recently added to this list). Differences in foreign and domestic may be important; for example, fish meal is used for human consumption in some countries. Further, the guidelines and regulations for processing are vastly different for fish meal, and on various grades of meal, depending on whether it is for human consumption or not.
9. There is an argument that meal is indirectly for human consumption, in that it goes into aquaculture operations, for example. Pet food may be another option to consider.
10. One of the primary reasons the Council has embarked on this initiative is to force operations to do something other than what is purely economical - this tends to support the idea of dictating product forms.

The remainder of this section describes a mechanism by which the utilization standard would be 'enforced'. The Committee believes that this approach will work for any of the Options - 1, 2, or 3. Regardless of the amount which might be allowed to go to fish meal, the concept of utilization still needs to be defined relative to the remaining, non-meal (or non-bait) product. For example, could a vessel simply freeze fish in a block (a legal form of processing) and then throw it over the side? The Committee believes this type of activity would be contrary to the intent and spirit of the program and has to be prohibited. The Committee originally discussed the idea of applying a 15% PRR, for each of the subject species, but across all product forms, to determine whether an operation had satisfied the utilization aspect of this program. However, after further discussion, and in order to better

accommodate the Options which specify acceptable product forms, the Committee recommends the following:

Relevant to Option 1, the basic 15% PRR would be applied to determine compliance. Under Option 3, the same 15% could be applied to all product other than the allowable meal percentage, though the Committee's discussions assumed that this Option would simply place some limit on the amount of meal, and not mandate the 15% PRR for the remainder. For Option 2, which necessitates an explicit list of acceptable products, the primary product list from Dr. Queirolo's draft analysis would be used as the starting point for acceptable products. The associated (in regulation) PRRs for each product form would be used to backcast compliance for both the retention and utilization aspects of this program.

The following simplified example may help illustrate the concept:

100 mt total of fish brought on board, with 4 associated primary products and their PRRs:

50 mt	H&G	@	50%	=	25 mt
25 mt	fillets	@	20%	=	5 mt
10 mt	mince	@	25%	=	2.5 mt
15 mt	round	@	100%	=	15 mt
100 mt					49.5 mt

Monitoring of compliance for both retention and utilization can be accomplished via the numbers above. Two aspects of the utilization monitoring and enforcement issue were discussed at length by the group. The first involved the procedures surrounding at-sea boardings or plant inspections. In the case of an enforcement boarding, round weights reported in the vessel/plant log would be compared to the round weight equivalent catch estimates obtained by boarding officers through the "back casting" from primary product weights using standardized PRRs. If the two sources of catch estimates for the species of concern were within acceptable error limits, retention compliance would be confirmed. Given that 'retention' compliance, compliance with utilization requirements would be assessed as follows: the sum of all primary product forms, by species, is compared to the estimated total round weight of catch (either from logbook or 'retention' backcast) using the authorized PRRs for each primary product form. If the product weight exceeds the combined percentage of estimated round weight catch, 'utilization' compliance is assumed (15% PRR overall for Option 1). Under Option 2, the specific PRR for each primary product form would have to be satisfied.

The second mechanism for monitoring IU compliance would rest upon the use of secondary data. NMFS Weekly Product Reports, by processor, would be evaluated, using standardized PRRs, to derive round weight catch estimates for the species of concern. It has been proposed that these catch estimates would be compared to the equivalent NMFS Blend estimates for each processor. If deviations, beyond some expected level, appear between the two estimates, NMFS enforcement would undertake an investigation to assess the reason for the inconsistency, and take any appropriate administrative or legal action.

One concern with the use of this indirect method is that roughly half of the catch estimates in the

NMFS Blend files are composed of data provided by the processor, itself. Therefore, reliance on the Blend to reveal utilization inconsistencies may be unreliable, since presumably a processor would not knowingly report to NMFS substantially different estimates of catch and production, given that the two estimates would inevitably be the basis for monitoring comparisons. Therefore, if this secondary monitoring procedure is to be employed, it will be necessary to employ the "observer catch estimate", in place of the Blend estimate, whenever IU monitoring is done. The obvious shortcoming of this requirement is that, not all operations required to adhere to IR/IU standards have observer coverage. Under the Committee's 'cadillac' monitoring proposal, this would be somewhat less of a problem than under the status quo, since the former calls for '200%' on all vessels currently required to have 100% coverage, and 60% coverage on all vessels which currently have 30% coverage. Still, all boats under 60' remain unobserved (and thus unmonitorable via secondary data) and vessels over 60' but 125' or less are unobserved (and thus unmonitored) for 40% of the time. The working group (and the Council) may wish to give this issue additional thought.

Further, the Committee discussed the issue of what must be done with that product once a vessel has satisfied the utilization requirement. For example, we cannot force someone to buy all of these products, nor can we force the product to be stored indefinitely. Enforcement representatives advised the Committee that tracking the utilization requirement would likely end at the point of the verification of utilization- they cannot track it all the way into households, for example. The recommendation of the Committee is that we go so far as to say that the product must be either transferred to another vessel for transshipment out of the EEZ, or delivered on-shore.

POTENTIAL PHASE-IN FOR FLATFISH SPECIES

Although the Council has identified four species for inclusion in this program, the Committee discussed at length some potential implementation problems for the flatfish species. For example, while pollock and cod retention has no insurmountable obstacles, the flatfish fleet gets a 'double whammy' - they have to keep all their pollock and cod, and all their previously discarded flatfish. A phase-in period for flatfish, where something less than 100% retention is required, may make more sense, even with the imperfect enforcement considerations. While there are generic implementation problems which cut across all four species, there are additional, specific problems associated with the flatfish species. As discussed by the Committee, a phase-in for flatfish would mean only a phase-in for retention of flatfish - they would still be required to retain pollock and cod for example. Enforcement representatives reiterated their earlier concerns with a phase-in approach - i.e., the ability to tell whether they have met whatever retention percentage is required. With an outright ban on discarding, it is much easier to tell if someone has violated the regulations.

Because a large part of enforcement will be based on observations (from observers, crew, other vessels, flyovers, etc.) anything less than 100% will reduce the enforceability of this program. Counter to this point is the fact that many vessels will be unobserved anyway, the program will likely only catch egregious violators, and a reduced level of enforceability for flatfish fisheries may not be an unacceptable situation. It is also pointed out that flatfish, unlike pollock and cod, are not fully utilized species at the current time, and that there are limited markets available. Finally, some of these flatfish species could be returned to the water alive. All of this discussion resulted in the following recommendation from the Committee:

The Committee recommends to the Council that we move as quickly as is feasible with Improved Retention/Utilization, that the Committee has identified factors which may impede effective implementation for some species (particularly flatfish), and we recommend that the Council weigh these factors in deciding how fast and fully to proceed with each of the four species in question. One approach could include a phase-in for the flatfish species over a period of 2-5 years, while implementation of 100% retention moves forward for pollock and cod.

An alternate approach would be to simply delay implementation of the flatfish portion for some period of time, though the Committee did not necessarily endorse this approach.

Limited Processing Allowance for Catcher Vessels

When the Council approved the License Limitation program they imposed license designations of 'catcher vessel' and 'catcher/processor vessel', based on activities in 1994 and 1995. They further requested that the issue of allowing some amount of processing by catcher vessels be considered in the context of the IR/IU proposal. A preliminary examination of issues was prepared by NMFS for the Council's December 1995 meeting, but was not addressed by the Council. Because the analysts need direction on several policy aspects, the Committee was advised by the analysts that the issue of allowing limited processing by catcher vessels would not be dealt with in the current analysis, but would have to be dealt with in a subsequent analysis. Council staff advised that, under this scenario, the issue could be dealt with in time for 1998 implementation, in conjunction with the License Limitation program.

However, some Committee members feel that this issue should be dealt with as part of this package, not as a follow-up analysis, though the consensus of the Committee is that it could be dealt with separately, and should not hold up the basic IR/IU program implementation. As a Committee, we feel that the only really viable option was Option 3, which allows a very specific amount of processing.

ADDITIONAL CONCERNS IDENTIFIED BY COMMITTEE

One of the other primary objectives of the Committee was to identify any additional implementation concerns, or issues, which should be addressed in the analyses. The following is a list of those items:

1. Interaction with the moratorium/License limitation program, particularly regarding the ability to upgrade/expand vessel to accommodate meal plants or other processing/storage requirements. It may be that some vessels will need to undergo modification in order to comply with the provisions of Improved retention and utilization. The analysts indicate that the upgrade provisions of the moratorium and License Limitation program will be assumed to be in place for purposes of evaluating this program.
2. Desire to look at DAP development and how the underlying philosophy relates to the current issue, particularly the freezing of fish blocks and shipping to Korea for processing (and

subsequent discard outside the U.S.). The concern here is that this program could encourage shipment of fish overseas, discard overseas, reduction in value added processing, and an employment transfer overseas.

3. Impacts to VIP program if one fleet response is to use larger mesh; related to this is NMFS' ability to implement the revised VIP standards currently being considered - that is based on retained catch. VIP implications should be examined comprehensively; i.e., in terms of the IR/IU program and other management actions.
4. Somewhat analogous to the VIP issue, is a potential unintended consequence related to PSC management. PSC monitoring is by target fishery, while this program will result in targets changing relative to what otherwise would have occurred (they are now forced to retain everything, thereby changing their target designation). **The Committee feels that this is a significant issue, and requests that the NMFS in-season management division help the analysts in addressing this issue. We need some idea of how this issue might play out, and how we might adjust the program to accommodate this concern.**
5. The issue of whether onshore processors are under federal jurisdiction in the context of IR/IU regulations was raised by the Committee. A letter was sent to NOAA-GC on this issue, and the NOAA-GC representative at this meeting reaffirmed the earlier finding that onshore processors would have to be regulated by the State of Alaska, perhaps through mirror regulations.
6. Potential impacts to the GOA fisheries by making fishing in the BSAI relatively more expensive. In a related discussion, the Committee notes that boats that fish in the BSAI and deliver to the GOA would still be required to conform to the IR/IU regulations - it is assumed these regulations would apply to fish caught in the BSAI. It is possible that this program, if applied to only the BSAI, could result in substantial impacts to the GOA fisheries.
7. The Committee notes that some sectors may not be fully represented on the Committee, particularly the 'pocket freezer trawlers' under 125'. Some industry members from that sector were in attendance at this meeting and will continue to be notified of future meetings and developments.
8. In terms of pollock fisheries, the most impacted sector is likely to be smaller (200') fillet CPs without meal plants. Generally speaking, the smaller H&G CPs will be the most adversely affected industry sector under this program - they do not have the capacity to meal their fish, and in the case of rock sole for example, they have no markets for small male rock sole. The relative disadvantage would be exacerbated if others are allowed to simply meal their additional fish. Retaining pollock or cod in a flatfish fishery, for example, will also change the target fishery designation with potentially significant PSC implications as discussed above.
9. The Committee discussed the legalities of dictating which product forms can, or must, be produced by a fishing/processing operation. No resolution of this question was made, but the Committee wishes for this issue to be noted.

10. Because an information gathering exercise by the analysts was cancelled due to OMB concerns, the Committee discussed the implications of this lack of data to the analysis. The Committee recognizes that, without this detailed information which includes costs of operations and capacity projections for each sector, the analysis will have to make certain assumptions and be more of a qualitative treatment than would otherwise have occurred. The Committee supports a more long-term, institutionalized data collection effort to support all future analyses of proposed management programs. Such a data collection program should be designed with the input of the industry to avoid unnecessary paperwork.

PRELIMINARY DRAFT FOR COUNCIL REVIEW

EXECUTIVE SUMMARY

of the

**ENVIRONMENTAL ASSESSMENT/REGULATORY IMPACT REVIEW/
INITIAL REGULATORY FLEXIBILITY ANALYSIS
FOR
AMENDMENT OF THE FISHERY MANAGEMENT PLAN FOR THE GROUND FISH
FISHERY OF THE BERING SEA AND ALEUTIAN ISLANDS AREA
TO IMPLEMENT AN
IMPROVED RETENTION - IMPROVED UTILIZATION
GROUND FISH MANAGEMENT PROGRAM**

Prepared by

**National Marine Fisheries Service
Alaska Fisheries Science Center
Alaska Region**

June 9, 1996

1.0 Improved Retention/Improved Utilization

The Council has proposed that commercial groundfish fisheries be required to reduce discards by retaining species which have historically not been retained. The objective of the Council in undertaking an examination of "Improved Retention/Improved Utilization" (IR/IU) regulations centers on the concern that, under present regulations, groundfish catches are "underutilized", resulting in discard levels which are perceived to be unacceptably high. An IR/IU amendment 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."

1.1 The Species-Based IR Option

The IR/IU proposal was amended at the April 1996 Council meeting, re-focussing the analysis on two "Retention Alternatives", i.e., the requisite "status quo" alternative and a "species-based" approach. It retained three "Utilization Options" (in addition to the no-action "status quo" alternative), each dictating, to a greater or lesser degree, the form and extent of processing which must be applied to the retained catch.

The proposal extends IR/IU to all gear-types, and requires 100% retention of four groundfish species; i.e., *Alaska pollock*, *rock sole*, *Pacific cod*, and *yellowfin sole*. In the case of the two flatfish species, the proposal contains provisions for either, 1) incrementally "phasing-in" 100% retention over a fixed period of time [either 2- or 5-years], or 2) "delaying" implementation of the 100% retention requirement until a date-certain in the future. In either case, however, 100% retention of pollock and P.cod would be mandated for all operations beginning as soon as possible (presumably, January 1, 1998).

1.2 Improved Utilization Requirement

The Council's IR/IU proposal contains a total of three Utilization Options (plus the status quo alternative). Options 2 and 3 each contain three suboptions. The family of options and suboptions is intended to define the uses which may be made of "retained" catches of the four species of concern, under IR/IU. As such, they pertain only to the use of these four groundfish species, allowing all other groundfish species to be used (or discarded) at the discretion of the operator.

Under the current Magnuson Act, the Secretary does not have authority to directly regulate on-shore processing, including requiring the processing of fish into certain product forms.¹ (Nevertheless, the Council has requested an analysis of extending IR/IU regulations to this sector.)

This becomes particularly significant as it pertains to the relationship between the processing plant and the delivering vessel. It is necessary that an IR/IU program require a processor to accept all pollock, P.cod, yellowfin, and/or rock sole offered for delivery by vessels operating in IR/IU regulated BSAI fisheries. If such a requirement does not exist, rejection of deliveries would constitute effective discarding of IR/IU regulated species by the processor. (This requirement would apply equally to shoreside plants, motherships, and catcher/processors receiving deliveries from catcher vessels).

¹ See discussion in section 8.0 Legal Authority in the EA/RIR/IRFA.

1.2.1 Utilization Option 1

Utilization Option 1 can be characterized as potentially the *least restrictive* of the three options under consideration. It provide that the retained catch of the four groundfish species of concern may be processed into any form, regardless of whether or not the resulting product is suitable for direct "human consumption".²

1.2.2 Utilization Option 2

Utilization Option 2 is potentially the *most restrictive* of three options. It requires that all retained *pollock, P.cod, yellowfin sole, and rock sole* be processed into a product form for "direct human consumption", based upon a percentage of total round weight of harvest of each respective species of concern. The three suboptions under Option 2 specify the *minimum* percentage of the retained catch of the species of concern which must be processed for "direct human consumption". The respective suboption thresholds are: Suboption A - 50%; Suboption B- 70%; and Suboption C - 90%.

1.2.3 Utilization Option 3

Utilization Option 3 provides that reduction of *pollock, P.cod, yellowfin sole, and rock sole* to meal be limited to a *maximum* percentage of the retained catch of that species. The three suboptions establish these maximum meal rates as follows: Suboption A - 50%; Suboption B - 30%; Suboption C - 10%.

2.0 Environmental Impacts of IR/IU

Possible ecological impacts of IR/IU relative to the status quo would primarily occur through the decrease in the amounts of walleye pollock, Pacific cod, yellowfin sole and rock sole that are returned to the sea. Stock assessments of pollock, cod, yellowfin sole and rock sole already assume 100% mortality of the discards of these species so no change in the population status of these species is anticipated due to any of the proposed options. However, the decrease in discards returned to the sea could result in a decrease in the amount of food available to scavengers and produce a decline in growth or reproductive output of species that rely on discards for a major portion of their food intake. Also, changes in energy flow to the detritus and local enrichment through an increase in processing waste (offal) could occur.

Groundfish species likely to benefit from offal production and presumably also from whole discards include: Pacific cod, walleye pollock, arrowtooth flounder, flathead sole, yellowfin sole, Pacific halibut and skates. Other upper-trophic level scavenger species that consume offal and discards include sculpins, crabs, other predatory invertebrates, marine mammals (particularly pinnipeds), and marine birds such as gulls, kittiwakes, and fulmars. The amount of offal and discards under the status quo option is an order of magnitude less than the total consumptive capacity of scavenging birds, groundfish, and crab in the eastern Bering Sea. This is an indication that the current levels of offal and discards are not a significant source of energy for these populations. The range of possible decline in the amount of dead organic matter returned to the sea under IR option 1, given a range of product recovery rates of 15% to 100%, is 2% to 11%, respectively. It is likely that adoption of IR Option 1 would not cause a large decline in the amount of dead organic matter returned to the sea and would have no significant positive or negative impacts on scavenger species. Analysis also suggests that offal and discards as a percent of total detrital flow under all the alternatives is 1% or less, evidence of no significant impact on

² At present, only "meal", "bait" and "offal" are regarded as outputs "not-for-human-consumption", with the offal not qualifying as a "product" form, but rather as "processing waste".

detrital flow. Finally, the small estimated change in total offal production relative to current shoreside offal production in the eastern Bering Sea under the proposed IR/IU options are an indication of no significant impact due to a change in local enrichment.

3.0 Improved Retention: Alternative One and its Suboptions

Catch and discard data from NMFS Alaska Region Blend Estimates, and NMFS Weekly Production Reports, have been employed in evaluating IR Option 1, with suboptions A & B, and contrasting each with the status quo alternative. The fishing years 1994 and 1995 were selected with the expectation that they most nearly reflect the current pattern of catch, utilization, and discards in the fisheries under consideration.

3.1 IR Option 1

The analysis of Retention Option 1 retains the effort-apportioning criteria employed in the standard Alaska Region target definitions and contained in the NMFS Blend files. Adoption of the "species-based" retention option would have a broad potential impact on the groundfish fisheries of the BSAI. This is so because, IR Option 1 requires that, for any groundfish fishery operating in the BSAI management area, 100% of the *pollock*, *P.cod*, *yellowfin sole*, and *rock sole* contained in the catch be retained. Any other groundfish species present in the catch could be retained or discarded at the discretion of the operator.^{3 4}

The potentially affected vessels, by size, operating mode, and fishery are identified in the following tables. The indicated "Significant Impact" of IR Option 1 reflects the *fleet-wide* response (i.e., assumes all vessels operate at the mean). There will be individual differences in the relative "compliance-burden" among vessels within any given target fishery. For example, in a fishery in which the "fleet-as-a-whole" will (likely) experience significant compliance impacts attributable to IR/IU, one or more *individual* vessels may not. Alternatively, in a fishery that, on-average, is not expected to incur significant impacts, there may be an individual vessel which will find compliance difficult. These preliminary findings do not reflect these potential differences, within a fleet.

³ Subject, of course, to compliance with any other prevailing regulation or statute, e.g. EPA discharge requirements, NMFS Directed Fishing Standards.

⁴ To the extent that harvesters are able to avoid bycatches of unwanted fish, these discard estimates may be further reduced by imposition of a "retention" requirement. At present, no empirical data are available with which to assess this potentiality. Presumably, adjustments to a "retention" requirement would occur over time as fishermen learn new techniques, or adjust fishing practices, patterns, and areas. It may require the observation of these operations over several seasons under a "retention" requirement before such information could be obtained, however.

Trawl Vessel Count by Target, Vessel Length, and Processor Class

(Target is based on retained catch by processor, week, area, gear.)

	Mother ships	Catcher/processors	Catchers boats			Unknown length	Significant Impact of Compliance (Y/N)	
	Greater than 124	Greater than 124	60 to 124 feet	Greater than 124	60 to 124 feet			Less than 60
1994								
Pollock								
bottom	3	41	-	6	31	-	2	N
pelagic	3	36	-	26	79	-	12	N
Sablefish	-	6	1	-	1	-	-	N
Pacific cod	4	33	7	11	57	3	5	Y ^{1/}
Rock sole	3	27	3	-	1	-	1	Y
Turbot	-	8	3	1	6	-	-	N
Yellowfin	2	32	3	4	12	-	4	Y
Flat, other	-	13	4	-	2	-	-	Y
Rockfish	-	13	-	-	-	-	-	N
Atka mack	-	14	1	-	-	-	-	N
1995								
Pollock								
bottom	4	39	1	3	22	-	1	N
pelagic	4	38	1	24	102	5	11	N
Sablefish	-	1	1	-	2	-	-	N
Pacific cod	4	33	7	16	74	-	3	Y ^{1/}
Flathead	-	17	2	-	-	-	-	Y
Rock sole	2	28	8	1	3	-	-	Y
Turbot	2	16	5	4	10	-	-	N
Yellowfin	4	38	6	4	30	-	-	Y
Flat, other	1	16	6	1	2	-	-	Y
Rockfish	-	14	-	-	-	-	-	N
Atka mack	-	17	-	-	-	-	-	N

^{1/} Catcher/processor vessels in this fishery with the capability to "fillet" product will face "no significant burden" in complying with the IR provisions (according to the Council's IR/IU Industry Working Group). Vessels limited to "H&G" operation may be "significantly disadvantaged" by the retention requirement.

Non-trawl Vessel Count by Target, Vessel Length, and Processor Class

(Target is based on retained catch by processor, week, area, gear.) 1/

	Catcher/ processors			Catchers boats			Unknown length	Significant Impact of compliance (Y/N)
	Greater than 124	60 to 124 feet	Less than 60	Greater than 124	60 to 124 feet	Less than 60		
1994								
Sable fish								
Longline	4	13	-	-	1	7	1	N
Pot	-	1	-	-	-	-	-	N
Pacific cod								
Jig	-	-	-	-	1	35	3	N
Longline	28	19	1	-	1	6	1	N
Pot	3	2	-	5	21	6	2	N
Turbot								
Longline	5	5	-	-	1	-	1	N
1995								
Sable fish								
Longline	4	9	-	-	11	7	5	N
Pacific cod								
Jig	1	2	1	-	2	38	3	N
Longline	28	14	2	-	3	11	2	N
Pot	5	5	1	17	80	11	2	N
Turbot								
Longline	16	7	-	-	1	1	1	N

Source: NMFS Alaska region blend, ADFG fishtickets, and NORPAC.
All targets calculated by AFSC staff.

1/ Note, one mothership was reported to have participated in the 1994 P.cod pot fishery and was greater than 124' in length. No other motherships participated in any non-trawl BSAI groundfish fishery during 1994 or 1995, according to "blend", NORPAC, or ADF&G fishticket records.

3.1.1

The Potential Aggregate Effect on Discards

Taken as a whole, the target fisheries identified above, accounted for an estimated total groundfish catch in 1994 of approximately 1.99 mmt. In 1995, that total was estimated to be 1.92 mmt. These fisheries collectively discarded an estimated 282,574 mt of groundfish (or approximately 14.5% of total catch) in 1994, and 272,995 mt (or about 14% of total catch) in 1995. Had IR Option 1 been in effect in these fisheries in these years, aggregate discards could have *potentially* been reduced by approximately 74% (assuming discards of IR regulated species were not substantially offset by discards of previously retained unregulated species). This upper-bound estimate of bycatch savings would have represented about 11% of the total BSAI groundfish TAC in these two years.

Most of the discards of *target* species are composed of fish which are, by current standards, "unmarketable" (except perhaps as meal). A share of the remaining discards are presumed to be damaged, or otherwise unsuitable for retention and processing. As a result, it seems likely that the amount of additional product deriving from IR induced reductions in discards, under Option 1, will be substantially smaller than the additional retained catch tonnage of the *target species* might suggest.

3.2

Suboption A - "Phase-in"

From early in the IR/IU development process, the concept of a "phase-in" of the retention requirement has been under consideration. The preliminary findings of the Implementation Issues Assessment, prepared for the Council in March 1995, suggested that, "*monitoring and enforcing anything short of a 100% retention requirement, for any given species, is impracticable*".

Nonetheless, at its April 1996 meeting, the Council reaffirmed its desire to examine a modified "phase-in" program for improved retention in the BSAI groundfish fisheries. Under this proposal, 100% retention of pollock and cod would be *required* in all BSAI groundfish fisheries beginning immediately upon implementation of the IR/IU program (e.g., January 1, 1998). Retention of rock sole and yellowfin sole would be "phased-in", starting at 60% retention in the first year, and increasing in fixed increments until 100% retention was achieved.

The rationale for this approach centers on concerns about the market limitations which currently exist for small (and/or male) rock sole and yellowfin sole and the burden their required retention could impose. To accommodate these concerns, the Council has proposed two alternative "phase-in" rates for rock sole and yellowfin sole under the IR proposal.

A Rock sole and Yellowfin "Phase-in" Schedule ⁵
(assumes 1995 catch levels)

Year	Species	Percent Retention Required	Retention Required (mt)	Net Change from Status Quo (mt)	Net Change from Status Quo (percent)
1	RS	60%	32,700	11,100	20%
	YS	60%	70,800	(19,200)	none
2	RS	70%	38,220	16,620	30%
	YS	70%	82,600	(7,400)	none
3	RS	80%	43,700	22,100	40%
	YS	80%	94,400	4,400	5%
4	RS	90%	49,100	27,540	50%
	YS	90%	106,200	16,200	18%
5	RS	100%	54,600	33,000	60%
	YS	100%	118,000	28,000	31%

Because the retention requirements will apply across all BSAI groundfish fisheries in which any of the four species of concern are present in the catch, the implications for reduction in bycatch savings in response to a variable "phase-in" schedule can be examined on the basis of aggregate retention/discard performance under the successive annual retention rates. That is, despite the fact that IR/IU will have a potentially significant impact on the individual "target" fisheries, as they are currently defined and understood, since the retention rates apply across targets, it is the aggregate effect that is reported here. (As time permits, a target-fishery by target-fishery examination of the "phase-in" schedule will be undertaken.)

3.2.1 A Two-year "phase-in"

Using the 1995 catch and discard blend data as an example, the following conclusions can be drawn about the two "phase-in" schedules. In 1995, total discards of all groundfish species in potentially IR regulated target fisheries were approximately 273,000 mt. Pollock and P.cod accounted for approximately 52% of all discards of allocated groundfish species in these fisheries. Rock sole discards accounted for an estimated 12%, or 33,000 mt, while yellowfin sole made up slightly more than 10%, or 28,000 mt, of total groundfish discards.

Had the proposed IR/IU program been in place in that year, and assuming 100% retention of all pollock, P.cod, yellowfin, and rock sole, total groundfish discards in the BSAI groundfish fisheries could have potentially been reduced by approximately 74%, as compared to the status quo.

If a two year "phase-in" schedule on retention of rock sole and yellowfin sole had, instead, been in place, assuming approximately constant catch totals and species composition, 60% of the catch of rock sole and 60% of the catch of yellowfin sole would have been required to be retained in the first year; 80% of the catch of each in the second year; 100% in the third year. Based upon total catch estimates for each of these species, this

⁵ This implicitly assumes that all vessels operate at the "mean", e.g., they all have identical catch composition and retention rates. To the extent that this is not so, the required increase in retention is *understated*.

schedule would have required retention of 32,700 mt of the 54,600 mt rock sole total catch, and 70,800 mt of the 118,000 mt yellowfin total catch in the first year. In the second year, 43,700 mt of the 54,600 mt rock sole catch, and 94,400 mt of the 118,000 mt yellowfin total catch would have been required to be retained. In the third year, all 54,600 mt of rock sole and 118,000 mt of yellowfin would have been required to be retained.

Over all, in 1995, approximately 40% of the total rock sole catch in all BSAI groundfish fisheries was "retained" (approximately 21,600 mt of the 54,600 mt total). Thus, the proposed two year "phase-in" would require an additional 20% retention of rock sole catch in the first year and an additional 40% in the second year, *ceteris paribus*.

For yellowfin sole, approximately 76% of total catch was "retained" in 1995 (90,000 mt of a 118,000 mt total catch). Therefore, assuming these catch levels prevail, the two year "phase-in" schedule would require no increase in retention of this species in the first year and only an additional 5% retention in the second, *ceteris paribus*.

3.2.2 A Five-year "phase-in"

Using again the 1995 catch and discard data as a basis, and referring to the table above, the five year "phase-in" schedule would suggest the following results. As in the two year schedule, the first year of the five year plan would require an additional 20% retention of rock sole catch over that observed under the status quo (or 32,700 mt of the 54,600 mt total catch). When the retention performance of the fishery is taken as a whole, it would require no additional retention of yellowfin sole. In the second year, 38,220 mt of rock sole would be required to be retained. Again, yellowfin retention would be unaffected. In the third year, rock sole retention would be required to increase by an additional 22,100 mt (to 49,100 mt), or a 40% increase in retention from the status quo. Yellowfin retention would be required to increase by approximately 4,400 mt (or 5% over the status quo). Year four would mandate rock sole retention totaling 49,100 mt (up 27,540 mt from the status quo), while yellowfin retention would be required to increase to 106,200 mt (16,200 mt above the status quo level). In year five, 100% retention is required. This suggests, in this example, that rock sole retention would rise by 33,000 mt (up by 60% over the status quo). Yellowfin retention would have been required to reach 118,000 mt, a net increase of 28,000 mt from the status quo.

Again, these represent "aggregate" performance figures, i.e., summed across all potentially affected BSAI groundfish fisheries. The potential impacts of a "phase-in" schedule for rock sole and yellowfin on any individual sector would be expected to vary across "target" fisheries, generally in direct proportion to the relative quantities of these two species in the catch, and inversely with the size and capacity of the operations affected. That is, many fisheries will not incur significant direct costs in complying with this rule (e.g., they catch relatively few rock sole or yellowfin sole and/or they have the production capacity to deal with the increase). Others, especially those with the highest rates of rock sole and yellowfin sole catches will likely be adversely impacted. However, even within this latter group, the impacts will likely be greatest for the smaller, less mobile, and least operationally diversified vessels, and least burdensome for the larger, more mobile, and most operationally diversified operations.

It appears that monitoring and enforcement of either "phase-in" program will *exceed* the capabilities of the available NMFS and Coast Guard resources. Given current levels of observer and enforcement coverage, the complexity of the observer's present task load, and the nature of monitoring "discard rates", a phase-in procedure for implementation of retention standards does not appear practical. Therefore, on the advice of NMFS Observer and Enforcement Offices, and representatives of the U.S. Coast Guard, it appears that enforcement of an IR/IU "phase-in" program would be *impracticable*.

Industry members have argued, nonetheless, that simply having these "phase-in" targets on the books will facilitate successful transition to a 100% retention requirement. They propose that, by explicitly specifying incrementally increasing retention targets, the industry will be able to better maintain its attention and focus on the inevitable requirement of 100% retention of all yellowfin and rock sole. Furthermore, they argue, by having the retention schedule as leverage, they may be more successful in opening or expanding markets for these fish. They identify both these aspects of a "phase-in" schedule for flatfish as clear "benefits".

3.3 Suboption B - "Delayed Implementation"

As an alternative to a "phase-in" program for retention of yellowfin and rock sole, it was suggested that implementation of the 100% retention requirement be *postponed* for a given period. For purposes of the analysis, the Council suggested that the "delay" extend for two or five years.

A quantitative analysis of the impacts of delaying IR/IU implementation for rock sole and yellowfin is necessarily limited by the data and "response" information available. As with the "phase-in" assessment, one may project the probable "discard savings" that, in theory, accrue from such a proposal. In this case, if the IR/IU requirement was delayed for two years, rock sole discards could potentially continue at "status quo" levels for two successive seasons after implementation of the 100% retention requirement was adopted for pollock and P.cod. If all else is assumed constant, this means that approximately 66,000 mt of rock sole (33,000 mt each year) could be legally discarded during the "delay". Similarly, 56,000 mt of yellowfin (approximately 28,000 mt per year) could legally be discarded during the implementation "delay".

If the postponement extended to five years, i.e., with 100% retention beginning in the fifth year, the reduction in "savings" over the immediate 100% retention requirement could be 132,000 mt (or 33,000 mt each year) for rock sole, 112,000 mt (i.e., 28,000 mt) for yellowfin sole.

These are very crude estimates which do not account for possible adjustments by the industry to the eventual 100% retention requirement. However, testimony by industry sources before the Council at its April meeting suggested that if implementation of the retention requirement were simply delayed for some period, industry would not have the impetus necessary to carry out the market development, structural changes, and operational adjustments required to comply with IR/IU when adopted. That is, they reported that, "unless the Council keeps the industry's feet to the fire..." (presumably with a "phase-in" schedule) the industry will be as unprepared to comply with a 100% retention requirement following the implementation "delay" as it would be if 100% retention for rock sole and yellowfin were effective simultaneously with pollock and P.cod.

On the other hand, a "delay" in implementation, rather than a "phase-in", would accommodate the monitoring and enforcement concerns expressed by the agency and the Coast Guard, and avoid placing the Council (and Secretary) in the position of adopting regulations, i.e., a phase-in for flatfish, which they have acknowledged probably cannot be monitored or enforced.

4.0 Target Switching Impacts of IR/IU

One significant, but perhaps unanticipated, impact of IR/IU concerns "target switching". BSAI groundfish fisheries are largely managed, monitored, and defined on the basis of retained catch composition (the only exception, at present, being pelagic pollock). Therefore, anything which changes the retained catch composition of an operation could shift it (and its performance indicators) into or out of a given "target" fishery category. Thus, the requirement that any operator catching any amount of pollock, P.cod, yellowfin, and/or rock sole must retain that catch, means that the species composition upon which the "target" is assigned could be altered.

On the basis of 1994 and 1995 catch data, and assuming 100% retention of each of the four species of concern, the following patterns of "target switching" would have been predicted as a result of mandatory changes in "retained" catch composition.

Target Switching
Number of Processors by BSAI Regional Office and AFSC IR/IU
Targets, Processing Mode and Target, 1994

	<u>w/o IR</u>	<u>w/ IR</u>	<u>Duplicate</u>	<u>Exited</u>	<u>Entered</u>
Motherships					
Bottom pollock	9	6	5	4	1
Pacific cod	6	5	5	1	0
Pelagic pollock	15	15	15	0	0
Rock sole	3	4	3	0	1
Yellowfin sole	3	3	3	0	0
Catcher/Processors					
Atka Mackerel	16	15	15	1	0
Bottom pollock	42	54	35	7	19
Pacific cod	90	86	80	10	6
O. flats	21	13	10	11	3
Rockfish	14	14	14	0	0
Pelagic pollock	36	39	36	0	3
Rock sole	32	30	28	4	2
Sablefish	24	24	24	0	0
Greenland turbot	21	21	21	0	0
Yellowfin sole	35	35	35	0	0
Discards	6	0	0	6	0
Shore plants					
Bottom pollock	2	6	1	1	5
Pacific cod	16	17	16	0	1
Rockfish	2	2	2	0	0
Pelagic pollock	9	9	9	0	0
Sablefish	6	6	6	0	0
Greenland turbot	5	5	5	0	0
Yellowfin sole	4	4	4	0	0

Target Switching
Number of Processors by BSAI Regional Office and AFSC IR/IU
Targets, Processing Mode and Target, 1995

	<u>w/o IR</u>	<u>w/ IR</u>	<u>Duplicate</u>	<u>Exited</u>	<u>Entered</u>
Motherships					
Bottom pollock	16	13	11	5	2
Pacific cod	15	15	15	0	0
O. flats	1	1	1	0	0
Pelagic pollock	26	26	26	0	0
Rock sole	3	3	2	1	1
Greenland turbot	3	3	3	0	0
Yellowfin sole	7	7	7	0	0
Discards	2	0	0	2	0
Catcher/Processors					
Atka Mackerel	17	17	17	0	0
Bottom pollock	39	53	34	5	19
Pacific cod	92	90	88	4	2
O. flats	21	19	16	5	3
Rockfish	16	16	16	0	0
Flathead sole	20	0	0	20	0
Other	1	0	0	1	0
Pelagic pollock	39	39	39	0	0
Rock sole	36	36	35	1	1
Sablefish	15	15	15	0	0
Greenland turbot	44	42	42	2	0
Arrowtooth	3	2	2	1	0
Yellowfin sole	44	44	44	0	0
Discards	7	0	0	7	0
Shore plants					
Bottom pollock	5	6	4	1	2
Pacific cod	16	16	16	0	0
Rockfish	1	0	0	1	0
Other	1	1	1	0	0
Pelagic pollock	8	8	8	0	0
Rock sole	0	1	0	0	1
Sablefish	14	14	14	0	0
Greenland turbot	6	6	6	0	0
Yellowfin sole	2	2	2	0	0

5.0 Alternative means of IR Compliance Monitoring

Accumulating empirical evidence from the NMFS observer program suggests that the level of compliance with any retention regulation may be expected to vary directly with the level of observer coverage. Significant portions of the industry are, at present, either unobserved or have an observer onboard only 30% of the time. Even operations classified as having "100% observer coverage" do not, in fact, have all hauls (lifts) or deliveries monitored. Typically an observer samples the catch of only a portion of the hauls (lifts) that the vessel makes. Further, because discards can take place at various sites on a vessel and at various times, it is not reasonable to expect an "on-duty" observer to monitor all discards.

In the face of reduced staff and increasing workloads, the NMFS observer program is having difficulty carrying out current scientific and monitoring responsibilities. However, no additional resources are expected in the near future. Therefore, active NMFS-observer monitoring of the Council's IR Option cannot be accomplished without additional observers and support personnel, or a significant reallocation of existing resources and priorities (although re-prioritization could undermine the observer program's ability to provide "primary" information for science and management).

Without adequate observer monitoring of discards, NMFS expects to be unable to assure strict "real-time" (field-based) compliance with the increased retention regulations, as proposed.

5.1 Monitoring Alternative 1:

Depending upon the level of monitoring which is defined as "adequate", the proposed IR management action could necessitate greater direct observation of fishery participants. At one extreme, the proposed IR program could require multiple observers on *all vessels, at all times*, whenever participating in any IR regulated BSAI groundfish fishery. This would include coverage onboard those vessels which are currently unobserved. Even without a quantitative estimate, it is apparent that this level of monitoring, while perhaps technically feasible, would be prohibitively costly and unnecessarily burdensome, as compared to the probable benefits, as measured in discard savings through retention compliance. This conclusion was independently confirmed by the Council's IR/TU Working Group (per. comm., IR/TU Industry Working Group, March 26, 1996).

5.2 Monitoring Alternative 2:

A relatively more modest approach to real-time, on-site monitoring of the retention requirement (proposed by the Council's IR/TU Industry Working Group) would be to effectively "double" observer coverage onboard vessels which currently carry observers, and at plants which are now required to have NMFS-observer coverage. That is, for example, all vessels (and presumably plants) which are currently required to have "100% observer coverage" would, under this proposal, be required to have two NMFS-certified observers present when participating in any IR regulated fishery. Likewise, any vessel (or plant) which is currently required to have an observer present 30% of the time would, under this proposal, have to have NMFS-observer coverage during 60% of its operating period, while participating in any IR regulated fishery.

These levels will not assure compliance with the proposed 100% retention requirement, since not all haul, lifts, (deliveries) or hooks can be monitored for observed operations, even at this level of coverage. (Furthermore, all operations which are currently "unobserved" would remain so under this proposal.) However, the increased presence of monitors can reasonably be expected to *improve* the rate of compliance by increasing the risk of detection of violations.

The NMFS Observer program estimates that adoption of IR Monitoring Alternative 2 would significantly increase the cost of providing observer services for both the fishing industry and NMFS. Specifically, it is

estimated that the number of "deployment days" will nearly double, from 21,861 to 42,442 days per year.⁶ If a "cost per deployment day" of \$201 is used, adoption of Monitoring Alternative 2 would increase annual industry costs for observer coverage in the BSAI from \$4.4 million to \$8.5 million⁷.

The additional observer coverage in the BSAI groundfish fisheries, outlined above, is estimated to increase the number of deployed observers by about 40% (e.g., from 567 in 1995 to 794). This increase in the number of observers and its associated increase in the amount of data collected is estimated to raise overall NMFS Observer Program annual costs by about 33%, from \$1.8 million to \$2.4 million. This budgetary increase can be attributed to additional staffing and augmented spending for observer sampling equipment and data entry contracts.

Thus, initial estimates of the aggregate cost per year attributable to adoption of IR Monitoring Alternative 2, as compared to retention of the Status Quo, place the figure at approximately \$10.9 million (*or an increase of \$4.7 million per year above the status quo cost*).

5.3 Monitoring Alternative 3:

At the other end of the spectrum of possible monitoring programs for the proposed IR management action would be one based principally upon the examination of "secondary" data to confirm retention compliance. Under this approach, *retention* compliance would be evaluated primarily in two ways. The first involves the procedures for verifying IR compliance during random at-sea boardings by the Coast Guard and NMFS Enforcement Officers.

In the case of an enforcement boarding, catch round weights reported in the vessel's fishing log would be compared to the round weight equivalent catch estimates obtained by "back casting" from primary product weights, using standard product recovery rates (PRRs), published by NMFS. If the two sources of catch estimates, for each species of concern, are within acceptable limits, to be specified by NMFS in the enabling regulations, compliance with *retention* requirements would be confirmed.⁸⁹

The second means of monitoring retention compliance under this alternative could review catch and production reports, submitted by industry to the agency, along with the associated observe catch records. On the basis of these reports, NMFS could derive estimates of total catch, by species of concern, both from catch records and

⁶ Figures are based on an average of 1994 and 1995 data. In addition, since vessels operating under a CDQ quota currently carry two observers, it was assumed that increased coverage would not be required for these operations.

⁷ The \$201 estimate was derived from 1995 observer cost data which were compiled for Research Plan fee collection purposes and was used in the April 4, 1996 "EA/RIR for Implementation of a North Pacific Observer Program to Replace the North Pacific Fisheries Research Plan" (draft for Council review). It is considered the most current and accurate estimate of cost per deployment day for observer services.

⁸ There may be some practical difficulties with relying on hold-counts at sea. Although a volumetric hold count may be sufficient for giving a general idea of the amount of product onboard a vessel, it is not exact. Bulkheads, conveyor belts, and other obstructions can undermine accuracy. If the logbook and volumetric hold count do not match, then a case-by-case count must be conducted in order to substantiate a violation. For a variety of reasons, including safety considerations, a case-by-case count will likely not be conducted at sea.

⁹ One of the most serious potential shortcomings of this approach is the reliance upon fixed PRRs. There is considerable evidence that PRRs can vary, not only between operations, but within any single operation, over the course of the season. This could result in issuance of a citation-of-violation and (potentially) an unjustified economic and/or legal penalty. NMFS PRRs were never intended for use in monitoring the production performance of individual operators. Thus, fundamental difficulties with the use of a standardized PRR may require that NMFS adopt a reasonably large degree of latitude when specifying IR compliance standards.

by use of standard PRRs applied to reported product. These estimates could then be compared to observer catch estimates, for the same operation and period. If the two estimates agree, within some reasonable limit (to be specified in the enabling regulations), retention compliance would be assumed.

This monitoring system has several difficulties. First, it relies on combining catch estimate information from different sources (observer and processor) which will lead to conflicting conclusions in some cases. Another difficulty in this method is that observer estimates of total catch and species composition are made on a haul-by-haul basis. Production data is recorded daily and is not required to be tied to a specific haul, although record keeping and reporting requirements could be changed. Nonetheless, with existing observer coverage levels, it will be possible to apply this method *only* to the observed hauls and not to all catch of the vessel (or delivered to a plant).¹⁰

In practice, the "risk" of detection of even relatively significant violations of the retention requirement will depend, in large part, upon random boardings and audits of the data and, thus, will vary directly with the level of resources dedicated to these enforcement functions.

As proposed, this alternative would rely primarily upon existing observer, enforcement, and management staff and resources.¹¹ Therefore, if adopted as proposed, there would be *no significant additional cost* attributable to IR Compliance Monitoring Alternative 3.

6.0 Conflicts with Other Regulatory Requirements and IR/IU

IR/IU could be in conflict with a number of existing management practices, regulations, and Federal statutes. These conflicts present a range of challenges for the design and implementation of a "workable" retention/utilization program.

6.1 Directed Fishing Standards (maximum retainable bycatch amounts)

NMFS annually assesses each groundfish TAC to determine how much of a species' TAC is needed as bycatch in other groundfish fisheries. The remainder is made available as a directed fishing allowance. Directed fishing is defined in regulations as, "*any fishing activity that results in the retention of an amount of a species or species group onboard a vessel that is greater than the maximum retainable bycatch (MRB) amount for that species or species group.*"

The MRB amount is calculated as a percentage of the species closed to directed fishing relative to the amount of other species retained onboard the vessels that are open for directed fishing. Current regulations prohibit the retention of a species closed to directed fishing in amounts that exceed the MRB percentage, and excess catch must be discarded.

The MRB percentages established in regulations serve as a management tool to slow down the rate of harvest of a species placed on "bycatch-only" status and to reduce the incentive to fishing vessels to target on the species. Nonetheless, vessels may "top off" their retained catch of species open to directed fishing with a species on bycatch status, up to the MRB amount.

¹⁰ Observers sample about 60 percent of hauls on observed trawl vessels.

¹¹ If, however, no additional resources, e.g., FTE, are forthcoming in connection with adoption of IR/IU, diversion of staff and resources from other functions to monitor, investigate, and prosecute IR/IU cases will mean reduced efforts being applied to those other programs.

During the course of a fishing year, NMFS routinely closes "directed fishing" for specified groundfish species. Directed fishing closures occur because, 1) a fishery has reached a halibut, crab, salmon, or herring bycatch allowance, 2) the directed fishing allowance for a target groundfish species has been attained, or 3) because of overfishing concerns for another groundfish species taken as bycatch. If TAC is reached, however, the species becomes "*prohibited*", and all catch of the species must be discarded.

6.1.1 Interactions of MRB percentages and IR/IU

The complexity associated with monitoring and enforcing compliance with the Council's IR/IU proposal is increased if mandatory retention of pollock, P.cod, rock sole, or yellowfin sole is secondary to NMFS regulations that require discard of the portion of the catch of these species that exceed MRB amounts (or prohibit their retention when on "*prohibited*" status).

Perhaps the only alternative to directed fishing closures that would still allow for full retention under the proposed IR/IU program would be a program that required full retention of designated species, without triggering a directed fishing closure, as TAC is approached. Such a program would, however, also require that once a species' TAC is reached, all gear/area fishing operations that would be expected to take any additional amounts of that species would be prohibited, i.e., complete fishery closures. This option could be expected to result in significant foregone harvesting opportunities, with substantial economic and socioeconomic consequences for affected sectors, dependent communities, and the Nation, as a whole.

6.2 VIP Bycatch Rates

Under the IR/IU proposal, vessels would have greater incentive to undertake action to be more selective in what they catch. Avoidance of certain fishing grounds or fishing depths and gear modifications are obvious means to increase selectivity of catch. Some gear modifications, such as increased codend mesh size, could increase bycatch *rates* of prohibited species such as halibut or crab. This could occur because small-sized fish escape through the trawl/codend mesh, thus reducing the absolute amount of groundfish harvested per unit of time; yet the bycatch amount of halibut or crab would remain relatively unchanged.

Concerns about increased bycatch *rates* of halibut and crab have been voiced by trawl industry members as the industry continues to pursue voluntary measures to reduce bycatch discard amounts via the use of large mesh codends in the pollock, P.cod, and rock sole fisheries. This concern is particularly relevant in view of VIP bycatch rate standards. Under the VIP, bycatch rate standards are based on the composition of catch, *not* on what is retained. Vessels that exceed these standards are subject to prosecution.

Because total catch, *not* retained catch, is considered the basis for the bycatch rate, the denominator of the VIP compliance calculation is the weight of all groundfish in the sample. Vessels that undertake action to be more "*selective*", in terms of their groundfish catch composition, under the IR/IU program could increase their vulnerability to higher bycatch rates of halibut and crab, and thus of prosecution under the VIP.

The most obvious response to this concern would be to increase bycatch rate standards to provide trawl vessel operators greater latitude to explore gear modifications to increase species or size selectivity. This could undermine the objectives of VIP. Alternatively, some have suggested specifying increased VIP bycatch rate standards in terms of *retained* catch. The option of redesigning the VIP using bycatch rate standards based on retained catch rather than total catch poses prohibitive difficulties, unless all groundfish catch is retained.

6.3

At-sea Weighing as a Tool to Monitor Retention or Utilizations Standards

Current methods for estimating discards and options for monitoring retention and utilization standards are discussed in Section 1.8 (Estimating Catch and Discards), Section 4.0 (Monitoring Compliance with Increased Retention Standards), and Section 6.0 (Increased Utilization) of the EA/RIR/IRFA. The use of scales would not alleviate most of the monitoring and enforcement difficulties identified in these sections. For example, while scales may provide a more accurate estimate of total catch weight, current procedures for using observer data to determine species composition and the proportion of a particular species retained or discarded would not change with a requirement to weigh total catch.

Scales would not provide direct measurement of discards, nor would they alleviate the uncertainty associated with verifying compliance with retention requirements by comparing observers' total catch weight estimates with the round weight equivalent of processed product (see Section 4.2.3).

Furthermore, it is not possible to assess the potential cost of acquiring, installing, maintaining, and operating scales (or certified bins) on all potentially affected vessels, at this time. It is, however, reasonable to assume that these costs would be significant. Because, it appears, total enumeration of catch will not substantially enhance monitoring and enforcement of IR/IU, there would be no commensurate off-setting benefit from requiring use of these technologies, under this action.

6.4

Moratorium on Entry

A temporary moratorium on the entry of new vessels into the groundfish and crab fisheries under Federal jurisdiction was implemented January 1, 1996, and will remain in effect through December 31, 1998, unless it is superseded by the license limitation program (see Section 5.6). The moratorium limits access to the groundfish and the Bering Sea and Aleutian Islands Area crab resources off Alaska.

Moratorium qualified vessels are issued a "*maximum length overall*" (MLOA). The MLOA of a moratorium qualified vessel is based on the length overall (LOA) of the original qualifying vessel on June 24, 1992. The reconstruction or replacement of a moratorium qualified vessel is then limited by its issued MLOA. The MLOA of a vessel with an original qualifying LOA of 125' or less is 1.2 times the original qualifying LOA, or 125', whichever is less. The MLOA of a vessel with an original qualifying LOA of more than 125' is equal to its original qualifying LOA. This provision, known as the "20% rule," allows smaller vessels to be reconstructed or replaced by slightly larger vessels (e.g., to increase safety margins), but prevents larger vessels from increasing in length, precluding significant increases in the fishing capacity of the overall fleet.

6.4.1

Interaction with IR/IU

The requirements of IR/IU can potentially adversely impact vessels currently under the moratorium on entry. Vessel upgrades, which may become necessary because of the requirements of IR/IU, are limited by the 20% rule. Vessels unable to upgrade because of the moratorium length restrictions necessarily would have to curtail or cease operations.

6.5

License Limitation Program

The license limitation program (LLP) has been proposed by the Council as another step in developing a comprehensive and rational management program for the fisheries in the U.S. EEZ off Alaska. Like the moratorium on entry, LLP would establish a MLOA for a qualified vessel that will be based on the length overall (LOA) of that vessel on June 24, 1992. The same 20% rule also would apply, except that the LLP would also require that a vessel remain within a specified vessel length class based on its June 24, 1992 LOA. This added limitation would exacerbate the problem of upgrading a vessel to meet the requirements of IR/IU, cited above.

6.5.1

Interaction with IR/IU

The requirements of IR/IU, i.e., retention and utilization of 100% of specific groundfish species, can potentially impact vessels that would be under the future LLP, if it is approved. The LLP currently is scheduled for implementation in 1998. Vessel upgrades, which may become necessary because of the requirements of IR/IU, are limited by the length restrictions and the specific vessel classes of the LLP. These restrictions can adversely impact vessels that lack sufficient size to meet the new retention and utilization requirements.

Vessels unable to upgrade because of the length restrictions will necessarily curtail or cease operations. Unlike the moratorium on entry, however, a vessel under the LLP must be specifically classified as a catcher/processor to process. This requirement could cause a direct conflict with any utilization option that requires processing, further limiting an operator's ability to adjust optimally to the IR/IU requirements. Vessels classified as catcher vessels would be prohibited from processing under the LLP.

The vessel length and processing limitations of the LLP may impact an operator's ability to upgrade a vessel in order to comply with the new retention and utilization requirements of the above options, thereby affecting the behavior of the operator, either by reducing or eliminating the viability of the fishing operation because of the inability to upgrade. This impact, however, is potentially somewhat ameliorated by the fact that a person can upgrade by obtaining a license of sufficient length and processing capability by transfer. The number of such licenses is, however, limited.

6.6

Loadline and Vessel Classification

There are other federal requirements which may impose significant adverse economic impacts on some segments of the industry, as a direct consequence of retention and utilization mandates.

Three principal requirements may impose significant barriers to IR/IU compliance for some (primarily the smallest) operations currently participating in the BSAI groundfish fisheries. These include, 1) "Certificate of Compliance" [46 CFR sec. 28.710]; 2) "Loadline Certification" [46 CFR sec. 41-47, subsec. "e"]; and 3) "Survey and Class" certification [46 CFR sec. 28.720].¹² Not every vessel would be required to acquire each of these certifications. However, each of these certifications have the potential to impose significant costs on any operation which finds it necessary to obtain one or more of these.¹³

For fishing vessels that wish to do *any* "processing" onboard (as defined by the U.S.C.G.), the operation *must* be both "loadlined" and "classed". The American Bureau of Shipping (ABS) estimates that the cost of obtaining "loadline" certification for a vessel of the type cited above would be, at a *minimum*, \$35,000, plus \$500 per year for the required annual inspection (assuming the vessel is currently capable of meeting the loadline standards. If not, add to this estimate the cost of any structural changes which are required to meet these minimums. For some existing vessels, it may not be possible, short of rebuilding the boat from the keel up, to meet these minimum requirements).

"Class" certification could be expected to cost, at a *minimum*, an additional \$70,000 to obtain (again assuming the vessel currently meets the "classification" threshold standards. If not, add to this the cost of bringing all systems up to those minimums).

¹² Per. comm., Lt. Cmd. Mike Gardiner, U.S. Coast Guard, Juneau, AK., April 1996.

¹³ Per. comm., Michael Macri, American Bureau of Shipping, Seattle, WA., April 1996.

For the type of vessel in question, "Certificate of Compliance" costs could be expected to be between \$500 and \$1,000, assuming the vessel meets the required standards (otherwise, add the cost of upgrading to these minimums).

While the direct costs, cited above, to acquire the necessary certifications can be roughly approximated, the economic impacts of "down-time"¹⁴, as well as the re-fitting costs associated with extensive structural, technical, and/or mechanical modification, have not been accounted for in these estimates, since they would vary from case to case. Nonetheless, the forgoing should be regarded as the "lower bound" estimate of the cost of obtaining these mandatory certifications, for vessels compelled to add capacity to their current operations to comply with the proposed IR/IU action.

6.7 Economic Versus Regulatory Discards

The two general categories of groundfish discards, "economic" and "regulatory," are discussed above under Section 1.7. A preliminary determination of the proportions of each category relative to the total amount of recorded discards in 1994 and 1995, however, produced questionable results due to a simplifying assumption used to speed the analysis. A more in depth analysis of the available discard data will be necessary to properly distinguish the two categories of groundfish discards. This analysis will not be completed before September 1996.

7.0 Economic and Socioeconomic Impacts of Improved Utilization

At its April 1996 meeting, the Council reaffirmed its commitment to examine three "utilization" options (each alternative to the Status Quo). The three address the objective of obtaining more complete use of retained bycatch, each in a different way. The options are treated, in order, below.

7.1 Monitoring IU Compliance

The ability of NMFS to monitor any utilization requirement will be *quite limited*. The risk of detection of an IU compliance violation will likely be substantially smaller even than that of detecting an IR compliance violation. This is so for several reasons.

First, "leakage"¹⁵ will be unavoidable. Some fish are inevitably damaged beyond use in both the fishing and processing activities of any operation and, therefore, will not be utilized, in the sense of producing a final product.

Second, use of PRRs to monitor compliance on an individual operation basis is expected to present serious difficulties (see the discussion of PRRs in the EA/RIR/IRFA). Their usefulness at the individual operator level is, as previously noted, doubtful.

Third, no monitoring is possible beyond the "primary" processing level, constraining further the ability to assure IU compliance. NMFS-certified observers are not generally able to provide a level of coverage of the processing operation of a vessel that could be said to represent a systematic monitoring program, given their other duties and priorities. Establishing a corps of "utilization monitors" was contemplated by the Council's IR/IU Industry

¹⁴ These could include, potentially, loss of fishing time, resulting in foregone revenues, lost employment of crew, etc., as well as transit time and expense to and from a shipyard, among others.

¹⁵ Leakage, in this context, is defined as whole fish which are not processed, as required under IU.

Working Group, but rejected as too costly and burdensome for the improvement in compliance that might reasonably be expected.

7.2 Improved Utilization

The effect of Directed Fishing Standards on retention and utilization may be very substantial. Unfortunately, it has not been possible to complete the analysis of "regulatory" discards in time for their inclusion in this draft analysis. Therefore, the following estimated "discard savings" and "retained product" values should be regarded as preliminary *upper-bound estimates* of the potential increase in output attributable to adoption of the competing IU options. In fact, the actual savings may be substantially lower if "regulatory" discards account for a significant portion of total discards. That analysis is expected to be completed by the September 1996 Council meeting.

7.2.1 Contrasting the IU Options

Within these constraints, and under the assumptions cited above, the following preliminary impacts can be projected for the IU options under consideration.¹⁶ IU Option 1 is, as anticipated, the *least burdensome* of the three options in as much as it does not specify, or otherwise constrain, the manner in which an operator may comply with the utilization requirement. That is, by providing the maximum flexibility to the operator to "optimize" production, within the constraints of its own physical plant, while achieving the objectives of utilizing all retained catch, this option is the least costly of the three solutions under consideration. IU Option 1 also happens to produce the largest value from the additional retained and processed product, e.g. \$143.4 million in "discard savings value", based on 1994 catch estimates. In 1995, the same estimate is \$137.5 million. Add to these, the "retained product value" (\$692.6 million in 1994; \$728.2, in 1995) from the species/quantities historically retained and the total output value under IU Option 1 would have been approximately \$836.0 million in 1994, \$865.7 million in 1995, all else equal.

Within the limiting assumptions of this analysis, IU Option 2 is confirmed to be the *most restrictive* of the three options, imposing strict product-form requirements on all retained catch of the four species of concern, including "discard savings" output. Each of the three suboptions have a differential impact on fishery performance and value. In 1994, for example, under "suboption A" (i.e. 50% primary product requirement), none of the potentially impacted fisheries appear to be in jeopardy of non-compliance. The estimated value of all product deriving from "discard savings", when production is in compliance with the 50%-criteria, is estimated at \$135.4 million.¹⁷ Under this scenario, the value of the traditionally "retained product" was estimated at \$692.6 million, for 1994 catch levels. The total output value, for all potentially IR/IU impacted fisheries (based on 1994 data), would have been \$828.0 million.¹⁸

Under "suboption B" (i.e., a 70% compliance limit), using the 1994 example, two fisheries would have been below the *minimum* primary product threshold. These two fisheries were 'shoreside' P.cod, which failed to meet

¹⁶ Note that it is implicit in these estimates that no operational adjustments are made in response to the IU requirements. That is, we have not attempted to predict the response of the industry.

¹⁷ This assumes no physical constraints on processing and hold capacity.

¹⁸ The requirement that a fixed percentage of the total retained catch be processed into one or more "authorized" product forms actually resulted in a slightly lower aggregate output value than the unconstrained option. In part, this is due to the weighted average price used for "authorized" and "unconstrained" product outputs. These were derived from 1994 price and production records (1994 prices and 1995 production for 1995) and are therefore assumed to be a reasonable approximation of gross product price.

the requirement on rock sole bycatch, and 'shoreside' Greenland turbot, which also failed on rock sole. If these two fisheries cannot adjust (and no other operations increase their catch proportionally) the potential loss to "discard savings" output is \$1.6 million.¹⁹ The value of the "retained product" of these two fisheries is also potentially put in jeopardy (but not necessarily completely foregone). These results do not imply that these target fisheries will necessarily be closed down if IU Option 2 is adopted. Only that, at the 70% threshold compliance level, these two fisheries would have been in "non-compliance", all else equal, and could have faced a range of economic, logistical, and legal difficulties. The correct interpretation of these results would be that a "red flag" should be raised, alerting one to a *potential* problem here. The reductions in the aggregate value estimates reflect the retained product values and discard savings values at-risk for the species which causes the compliance crisis, e.g., rock sole in these cases. In reality, the entire target fishery's output could theoretically be placed in jeopardy due to compliance failure. Under these circumstances, the distinctions between suboptions would be much greater. In any event, however, either estimate should only serve to focus attention on target fisheries which might be at-risk.

"Suboption C", which sets the primary product compliance threshold at 90%, obviously puts significantly more target fisheries at jeopardy due to "non-compliance" (see suboption C total in Table 6B).

[Note: the *ordering* of suboption A & C, under IU Option 3, was inadvertently reversed in Table 6C, Section 6.3.1 of the analysis. The percentages and estimates are correct, as reported below, however, suboption A was originally defined in Section 1.6.3 of the EA/RIR, as mandating a maximum 50% meal limit, while suboption C was set at 10% maximum meal. These are reversed in the EA/RIR/IRFA table.]

IU Option 3 is intermediate between 1 and 2 with respect to the potential impact it may have on utilization compliance. Like IU Option 2, as the threshold level is increased, fewer fisheries are able to successfully comply, and thus the *risk* of imposing a significant economic burdens increases. For example, if the compliance threshold is set at 50%, i.e., up to 50% of the retained catch of each species of concern may be converted to meal, the estimated discard savings value is \$143.4 million (incidentally, the same as under IU Option 1). The "retained product" value was \$692.6 million, for a total product value of \$836.0 million. Referring to the last column in Table 6C, "*Percent Meal*", it appears that no target fishery would have a problem meeting the 50% threshold (on the basis of the 1994 example). If the threshold were, instead 30% maximum meal production, and assuming no other operator increased catch proportionately and no other adjustment is made, the value of the "discard savings" would decline to \$141.9 million (the "retained catch" value also declined slightly), indicating, in this case, two target fisheries ('shoreside' P.cod and turbot, the same two cited as 'at risk' under option 2) could *potentially* find compliance a problem. At a 10% maximum meal threshold the discard savings value estimate would decline even further, and many more of the target fisheries would be *potentially* at risk due to an inability to meet this standard (see Table 6C, any meal percentage greater than 10% would fail this compliance test).

Clearly, these are crude, highly simplified estimates of the potential impacts that adoption of one of the IU options could impose on the several target groundfish fisheries that will be regulated by and IR/IU amendment. For example, it is *assumed* that, 1) no adjustments in product mix will be made, 2) no other fisheries increase catch to absorb the foregone catch of the potentially non-compliant fisheries, 3) product and hold capacity are not constraining, and 4) all vessels in a fishery operate at the mean, e.g., are identical with respect to catch composition, product mix, PRRs, etc. The first two assumptions may overstate impacts, the third may overstate the discard savings yield, and the fourth may understate discard savings.

¹⁹ It is important to emphasize that these are "fishery-wide" estimates. Within any given target fishery some individual operations may be expected to have little or no difficulty meeting the threshold, even though in the aggregate their "target" appears to be in jeopardy, while others may be unable to achieve the compliance minimum.

One could expect that, in the face of constraints on utilization of retained catch, some adjustments would be made to lessen these projected impacts. But it is unlikely, given the capacity and nature of the existing industry, that all of these adverse impacts can be ameliorated, at least in the short run. Certainly, the potential loss associated with foregone production can be decreased, but not without increasing harvest and production costs.

On the basis of the foregoing preliminary analysis (and within the limitations of the simplifying assumptions made), it appears that, of the three IU options under consideration, IU Option 1 imposes the least economic and operational burden on the industry, may produce the largest "discard savings value", and retains the maximum possible flexibility for the industry to respond to changing markets, while achieving the Council's basic objectives of reducing discards and more fully utilizing retained catch. IU Option 1 also provides each operation the opportunity to "optimally" utilize its existing physical plant to comply with the IR/IU requirements, thus reducing potential short term adjustment costs. Since these adjustment cost could be expected to be most burdensome for the smallest, least mobile, and least operationally diversified participants in the fishery, the distributional effects of IU Option 1 are also likely smallest among the three IU options.

8.0 Improved Utilization and the Marketplace

Markets are dynamic organizations which respond to numerous and varied forces. Unfortunately, very little analysis is presently available regarding market characteristics for most of the principal groundfish products derived from the BSAI fisheries. Notwithstanding these limitations, several qualitative observations concerning the probable response of the market to IR/IU can be made.

Some products from the BSAI fisheries represent only a small part of the total supply within a global market, e.g., fishmeal, mince. In these cases, changes in output which might reasonably be anticipated in response to IR/IU requirements may have very little discernable impact on the market, as a whole, although they may affect U.S. market-share²⁰.

Other product forms produced from these fisheries may represent a very substantial share of the total supply entering the market, e.g., deep-skin fillets, certain grades of pollock surimi. As a result, significant changes in supply may induce equivalently large responses in price and even market structure (e.g., substitution effects). In general, the more generic the product form and the larger the range of potential substitutes available in the marketplace, the smaller will be the expected market response to changes in supply. The more specialized the product form and more narrow the market, the greater the probable market response to supply changes, all else equal.

The ability of the U.S. fishing and processing sectors to remain competitive in the world seafood marketplace will largely depend upon its capacity to respond "optimally" to dynamic international market forces. Without such flexibility, market opportunities may be foreclosed, to the detriment of the individual U.S. fisherman/processor, the domestic fishing and processing sector, and the Nation, as a whole.²¹

²⁰ If the entire quantity of discards of the four species of concern in all potentially impacted fisheries were converted into any single product form, e.g., fishmeal, the market for that product would clearly be expected to react, perhaps dramatically. However, given the capacity limitations which prevail in the BSAI domestic groundfish fishing and processing sectors, this extreme response to IR/IU, and the attributable market effect, is not feasible.

²¹ The United States benefits from export trade. The U.S. is also a major importer of groundfish products. Any reduction in "market-share" within the world seafood market could adversely impact the Nation by negatively impacting its relative balance-of-trade.

These conclusions tend to support the position of the Council's IR/IU Industry Working Group which advocated providing the "maximum" opportunity for flexibility on the part of the individual operator to respond quickly and efficiently to market signals, while adhering to the spirit of the IR/IU proposal to reduce discards of whole fish and improve recovery of useable products from bycatch species. This, again suggests that IU Option 1 may be the least potentially burdensome of the three "utilization" options under consideration, while achieving the Council's objectives of, *"provide an incentive for fishermen to avoid unwanted catch, increase utilization of fish that are taken, and, thus, reduce discards of whole fish."*