


MEMORANDUM

TO: Council, SSC and AP Members

FROM: Clarence G. Pautzke   
Executive Director

DATE: September 12, 1997

SUBJECT: Vessel Bycatch Allowances (VBAs)

ESTIMATED TIME 2 HOURS
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**ACTION REQUIRED**

Review Committee report and provide further direction to Committee and staff.

**BACKGROUND**

In February 1997, the Council appointed an industry Committee to further develop a 'strawman' VBA program for consideration. A related task of the Committee was to identify, and resolve where possible, a variety of monitoring, enforcement, and legal issues surrounding VBA program development. In April, the Committee reported back to the Council with a preliminary list of alternatives, elements, and options, as well as a discussion of the monitoring, enforcement, and legal considerations.

The Committee met again in August to further flesh out a VBA program. A summary of the proceedings from the meeting are attached as Item C-9(a). Chairman Steve Hughes will be available to report on the Committee's progress.

**VBA Committee**  
**DRAFT Summary of Proceedings, August 21-22, 1997**

Members Present:

Steve Hughes (NRC/UCB, Chairman)  
Bob Alverson (FVOA)  
Chris Blackburn (AGDB)  
dave fraser (F/V Muir Milach)  
John Gauvin (Groundfish forum)

Shari Gross (HANA)  
Carl Mercurieff (CBSFA)  
Gary Painter/Tom Casey (AFCG)  
Beth Stewart (AEB)  
Paul MacGregor (for C. Cross)

The vessel bycatch accountability (VBA) committee met in Seattle on August 21-22. The objective of the meeting was to further flesh out details of a VBA program for Council consideration. The meeting began with introductions and a review of the draft agenda. The committee then discussed and approved the summary of the April meeting, and reviewed VBA issues that had been resolved. The following is a summary of discussions under each issue.

**Objectives of VBA Program**

A VBA program proposal is intended to be consistent with the revisions to the Magnuson-Stevens Act and addresses the prohibited species bycatch problem by meeting the following three objectives:

1. Decrease the bycatch of prohibited species.
2. Decrease the cost of controlling bycatch in part by increasing the ability of the groundfish fleet to take the groundfish TACs without exceeding the PSC limits.
3. Produce a more equitable distribution of bycatch costs.

Problem Statement and Objectives - The committee developed a draft problem statement based on a draft provided by the Council for review. The committees revised problem statement is as follows:

*National concerns regarding impacts of bycatch are reflected in the new Magnuson-Stevens Act. The Magnuson-Stevens Act calls for the reduction and minimization of bycatch to the extent practicable (with specific guidance for the North Pacific in Section 313), while at the same time achieving OY. In order to address these national mandates, the Council will develop specific bycatch reduction measures, which may include programs to promote individual vessel accountability.*

*For several years, the Council has been frustrated in its attempts to increase the level of individual vessel responsibility for prohibited species bycatch and bycatch reduction. Requiring the overcapitalized fleet to operate within the current bycatch cap program not only has resulted in a race for fish for the directed fisheries, but also for the PSC species. This has resulted in the inability to achieve OY, increased rate of PSC catches, and resulted in*

*discards of all types. The problem with the current system is that the common PSC cap system fails to provide incentives for individuals to minimize bycatch and maximize catch per unit of available PSC bycatch. Under the status quo, individuals' fishing opportunities are not affected by their own relative use of PSCs, and this does not create strong incentives to minimize bycatch and maximize catch per unit of PSC bycatch.*

A VBA program has been proposed to address this problem. Objectives of this program were outlined by the committee, as shown in the above box. Tom Casey noted that peer pressure was another option to a VBA program. Others on the committee disagreed because the industry has exerted increasing amounts of peer pressure and this has not modified the behavior of some companies.

**VBA Species**

Halibut (BSAI, GOA)  
Crab (BSAI)

VBA Species - The committee agreed at its first meeting to include halibut and crab in a VBA program. VBA crab species for the BSAI would include halibut, Bristol Bay red king crab, Bering Sea Tanner crab (*C. bairdi*), and Bering Sea snow crab (*C. opilio*). Limits for crab would apply to the bycatch zones, and halibut would apply to the entire BSAI and GOA by FMP areas. The committee felt that salmon and

herring should be excluded from this program because the caps are small and currently the bycatch of these species is principally a random event over which fishermen have limited control.

**Fisheries**  
All Trawl Fisheries (BSAI, GOA)  
Longline ?? (BSAI)

VBA Fisheries - The committee agreed that a VBA program could apply to all trawl fisheries. An option of leaving out the midwater pollock fishery should be considered. It was noted that some groundfish longline vessel representatives had expressed an interest in a VBA program for their gear type. Several Bering Sea freezer longliner companies were present at this meeting and asked to be

included in a VBA program.

**Fishery Specific VBAs**  
Option 1: VBAs not specific to target fishery  
Option 2: VBAs target fishery specific.  
Option 3: A portion of VBAs be target fishery specific for a period of time.

Fishery specific VBAs - The committee continued its discussion on how VBAs would be applied to groundfish fisheries. Two options were developed at the previous meeting. Option 1 would be to divide the total cap and allow vessel operators to determine best use of their VBA allocation. That is, their use would not be fishery specific. Option 2 would be divide the total cap by fishery cells (as we do now in the BSAI), and then lock the VBA allocations into specific target fisheries. That is, their use would be fishery specific. Committee members expressed different concerns and opinions about the benefits of these options. Some members felt that if VBAs are target specific (Option 2), many potential benefits of the program would be lost and the OY

objectives not met. Others felt that even with non-specific VBAs (Option 1), there will still be a race for fish species that are currently fully utilized and constrained by TAC (such as Atka mackerel and POP). There was concern that this could cause effort shifts among some fisheries, so an additional Option 3 was suggested. This option would require that a percentage of PSC must be used in the "cell" it was obtained, and percentage requirement could diminish over time. That is, their use of a declining proportion of the VBAs would be fishery specific.

**Use of VBAs**  
individual vessels  
pooled vessels  
default pool

Use of VBAs - The committee continued its discussion of how a VBA program would be structured. VBAs can be used by individual vessels or pooled vessels. Vessel groups would need to submit a vessels group bycatch monitoring plan for NMFS approval. Non-participating vessels would be part of a default (open-access) pool, which would operate like the current system.

A concern was raised that many of the dirty fishers would choose to remain in the open access pool, and could act as "predatory vessels" by using up a disproportionate amount of PSC. It was suggested that impacts from these vessels would be reduced if the open access pool VBA was stratified by length category (e.g., <60', 60-125', >125').

**Transfers of VBA**  
Among vessels within/across pools  
Vessel-sale related transfers

Transferability - The committee discussed how VBAs would be transferred within a pool, among pools, and when a vessel gets sold. It was felt that transfers within a pool are essentially a redistribution, and would not require tracking. On the other hand, transfers among pools would require some type of registration system to track these transfers.

NOAA GC had previously advised the committee that VBAs were not property, and could not be sold or transferred for money. Questions remain regarding transfers, as VBAs may have value depending on the situation. For example, can VBA be transferred via barter as opposed to cash? It was noted that in the CDQ program, there will be a one time trade of PSC allowed to rationalize the program.

The committee recognized that annual VBA allocations could be to vessel owners and thus would not be vessel specific. Therefore, the sale of a vessel could occur with or without the transfer of either an annual VBA allocation or the catch history on which subsequent VBA allocations would be based. The status of VBA at the

time of sale would not change due to the sale. VBA that had been transferred to a voluntary pool of the default pool would remain in that pool subject to the same rules that apply to other VBA in that pool. For VBA that had been transferred to a voluntary pool, the pool's rules would determine if a vessel that had been sold could continue to participate in the pool. This means that the VBA allocation (or what's left) goes with the boat, unless previously surrendered to a pool.

The committee recognized the difficulty of separating the monetary value of the vessel from any value of the VBA allocation or VBA related catch history when either both are transferred with the sale of a vessel. The committee recognized the need to develop a system that would allow convenient tracking by NMFS RAM division. One idea to deal with these transfers would be to tie the VBA to a federal fisheries permit. These permits are issued to vessel owners, and can't be transferred for money.

**Retention of VBA Species**

- Option 1: no retention allowed
- Option 2: careful release; then retention allowed.

Retention of VBA species - At its first meeting, the committee discussed the options of no retention and retention only after all attempts had been made at careful return to the sea within a set time period. Committee members did not want to initiate a VBA program to decrease bycatch, and then turn around and increase the mortality factor by increasing deck time. It was felt that a balance should be struck between accurate bycatch estimation and quick return to the sea.

**Monitoring and Enforcement**

- Option 1: status quo coverage, with extrapolation of data.
- Option 2: full observer coverage; every haul sampled.

Monitoring and Enforcement Issues - The committee continued discussions on monitoring and enforcement. It was felt that vessels unable to afford the required observer coverage will remain in a default pool. Monitoring of PSC catches in the default pool would be based on whatever sampling is done with extrapolation to all vessels within the default pool. NMFS would monitor the PSC taken by pools, individual vessels, and the default pool. An audit would occur when any pool or individual has used 75% of its VBA based on the NMFS *estimate*. A

PSC closure would also occur when an individual or pool used 100% of its VBA based on an *estimate* (not proven #). Such closures would be zone specific for BSAI crab, and GOA or BSAI-wide for halibut.

Martin Leofflad of the Observer Program noted several issues regarding the observer program. First, fleet behavior can change with an observer onboard (both good and bad). Second there may be sampling/estimation problems unless fully enumerated (counted), but this comes at a high cost. So we are left with sampling estimates or blend estimates. The third problem is sampling expectations versus reality. Fishermen in a rush to process the catch, yet they expect the observer to generate accurate catch estimates. Similarly, fishermen want to get halibut PSC back into the water to reduce mortality, yet are prevented from doing so until counted by an observer.

The committee reviewed monitoring requirements proposed for the expanded CDQ program, noting that this has received tacit approval from NOAA GC. Based on the proposed rule, vessels <60 feet would not require an observer, but would be required to retain all salmon and herring PSC for counting when landed and to report halibut and crab PSC. Vessels over 60 feet would require 1 observer on trawl, longline, or pot catcher vessels and 2 observers on catcher-processors and motherships. All hauls must be observed. Catcher vessels would be required to retain everything (all CDQ species plus herring and salmon) except halibut and crab. Catcher-processors and motherships will also be required to have certified scales for measuring total catch weight. The monitoring plan also specifies the maximum number of hauls per day and the maximum amount of time an observer can work. Four additional NMFS management personnel and 3 additional observer program personnel will be hired to monitor the CDQ program, at an estimated cost of \$700,000 per year. Enforcement would be after the fact. That is, penalties would be imposed on a CDQ group that exceeded one or more of its groundfish or PSC quotas but NMFS would not immediately remove a CDQ's group's vessels from the fishery once a quota is met. That would be the responsibility of each CDQ.

The level of observer coverage required for a VBA program has yet to be ascertained. Committee members felt that vessels operating under a VBA program would need to provide quality data, at least as good as the current system. The question remains: what level of observer coverage is required to make the system work? Would 100% coverage be required, or would 30% coverage be sufficient if vessels were in a pool? Based on observer coverage required for the CDQ program monitoring, observer costs may be prohibitive for many vessels (particularly the smaller ones). Costs for management, monitoring, and enforcement of a VBA program could be recovered via the IFQ/CDQ fee collection program (up to 3% of ex-vessel value) required under the Magnuson-Stevens Act.

**Initial Allocation of VBAs**

- Option 1: Based on catch history
- Option 2: Based on effort history
- Option 3: Based on vessel category

Initial Allocation of VBAs - The committee discussed three options for initial allocation of VBAs based on catch history, effort history, or vessel category. Alternatives discussed range from equal allocation among all vessels to rewarding those vessels with low bycatch rates. **The committee strongly recommends that the Council only consider catch or effort history prior to August 22, 1997.** The possibility of including future catch or effort into a VBA program could

cause great disruption next season.

Allocation based on catch history could be based on total catch of groundfish, retained catch of groundfish, retained catch of target species (with option of 5% minimum threshold), retained catch of target species not made into fishmeal, catch as discounted by PSC bycatch performance (applicable to all options), and catch discounted from weeks when the fleet had high bycatch rates. The idea of using retained catch, rather than total catch, is to not reward vessels for discarding. One possible problem for analyzing catch histories is that fish tickets may not be available for vessels delivering at sea.

Initial allocation based on effort history could be based on the number of fleet days or weeks in a directed TAC fishery (with no double crediting; i.e., one target fishery per week), vessel pro-rated effort share, or a vessel pro-rated PSC share. In order to keep from rewarding vessels with high bycatch rates, the allocation could be discounted by vessel /weeks above VIP standards. Dave Fraser provided an allocation scheme for VBAs based on the number of weeks of effort in a target fishery. Vessels would receive a pro-rated share of that fisheries PSC allocation based on this participation. It was suggested that scalars could be added to adjust for capacity (based on length, horsepower, tonnage).

Initial allocation of VBA could also be made based on vessel category. Such an allocation could be based on a system of vessel capacity ratings by gear type. Capacity rates could be generated from data ( length, horsepower, tonnage) reported on federal fishery permits. Alternatively, an equal allocation of VBAs could be made to all vessels within a size class. Under either of these alternatives, it was suggested that an option be added to include gear and species endorsements (using target criteria and minimum catch thresholds).

The committee had some general discussions about eligibility; that is, who can apply for initial allocation. It was

felt that two alternatives be considered: Option 1 is that any vessel with a groundfish limited entry licence could participate. Option 2 is that only vessels meeting some minimum landing requirements or participate within a qualifying time period could be eligible for VBA allocation. The committee decided to work out additional details of eligibility at its next meeting.

**Annual Allocation of VBAs**

- Target specific, with options
- Option 1: Based on rolling 3-year catch history.
- Option 2: Based on target species retained catch multiplied by the VIP rate.
- Option 3: Based on pro-rated share of PSC cap by target species.

Annual Allocation of VBAs - The committee discussed several options for annual allocation (allocations after the first year of the program). The options, as listed in the adjacent box, are all based on groundfish catch history. Option 1 would require a 1-year startup lag time. Hence, allocation in year 2 of the program would be the same as year 1, but

after that catch history during the program would begin to replace the year one allocation. For example, in year 3, two-thirds of the allocation would be based on the initial year allocation, and one-third on catch during year 1. And in year 5, the allocations would be based on the catch during years 1, 2, and 3 of the VBA program. Therefore, beginning in year 5, the year 1 allocation would not be used in determining the annual allocation. The remaining options are strictly based on what occurred in the previous year or the year before that.

#### **Bycatch Reduction**

- Option 1: Status quo  
unused PSC = savings
- Option 2: Reduction by schedule
  - a) 10% per year for 5 yrs
  - b) biomass based schedule
- Option 3: Ratchet reduction system based on annual savings
  - a) up to 10% per year
  - b) biomass based schedule

Bycatch Reduction - The committee had a lively discussion about bycatch reduction issues. The Magnuson-Stevens Act allows for a VBA system provided that it results in an actual reduction in regulatory discards. Some felt that this mandated a reduction schedule, whereas others felt that a VBA program would result in overall PSC savings without a mandated schedule (e.g., accumulation of "unused" PSC, particularly in situations where VBA transfers were limited). It was pointed out that reductions in bycatch is not a conservation issue, but a reallocation of the resource to other gear types. Nevertheless, most committee members agreed that VBA program could result in large PSC savings. One member suggested that the goal should be a 50% reduction in the current crab and halibut PSC limits. Several members stated that PSC reduction schedules should be established in accord

with the biomass of crab and halibut resources. Questions concerning whether the Act requires a reduction in bycatch of each PSC species or a reduction in all PSC species (in aggregate) and whether the reduction is from the levels of bycatch that occurred in the past or would occur in the future in the absence of a VBA program still need to be addressed.

#### **Specific GOA Issues**

- Halibut only, no crab caps.
- Economics of observer coverage.
- Mixed fisheries.
- Effort shifts to GOA from BSAI.
- Area and gear specific VBAs?
- Include State waters in program?

Specific GOA Issues - Chris Blackburn conveyed her concerns about applying a VBA program to Gulf of Alaska trawl fisheries. There are not crab caps in the GOA, so a program would apply only to halibut. Observer coverage is limited for trawlers in the GOA (many 30% boats), and due to their small size and marginal nature of some fisheries, a VBA program requiring 100% coverage may be prohibitive. Additionally, much of the GOA groundfish harvest is taken in mixed fisheries, and that is why halibut is currently allocated into deepwater targets (rex sole, dover sole, arrowtooth, rockfish) and shallow water targets (flathead sole, shallow water flatfish, pollock, P. cod, Atka

mackerel). Development of VBA allocation and use provisions should take this into account. Chris and others were concerned that vessels that had historically fished in the Bering Sea would fish in the GOA prior to fishing under a VBA program in the BSAI. A similar concern exists for the western/central GOA areas. An interesting possibility was raised about trawl vessels using their VBA allocation with another gear type. Also, would harvest in State waters apply to a VBA program?

- #### **Issues for Further Discussion**
- eligibility
  - due process
  - underages/overages
  - annual allocation of VBA

Issues Needing Further Discussion - There remains a number of issues for the committee to address, including due process, underages and overages of VBA by a individual or pool, and annual allocation of VBAs. Additionally, the committee intends to continue its discussions on all details of a VBA program.

The committee recognizes the need for input from General Counsel. That input includes responding to questions posed by the committee and staff and guidance in designing options that will increase the efficacy of a VBA program. Recall that in February 1997, the Council recommended that not staff time be obligated to VBA's until the legal concerns are addressed.

Committee members who strongly favor a VBA program and are frustrated with current bycatch management under the VIP program, remain realistically concerned about the cost of a good VBA program, NMFS ability to manage a VBA program, and NMFS funding and added manpower that will be required by NMFS to staff a VBA program. The committee feels strongly that NMFS should address these issues with the Council so that development of a VBA program may continue knowing that such a program can be administered. If not, we should all be advised of the limitations, and move forward accordingly.

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*Others in attendance at the VBA meetings were:*

*Thorn Smith  
Mike Szymanski  
Brent Paine  
John Hendershedt  
Martin Loefflad  
Joe Terry  
Denise Fredett  
Bob Trumble*

*Tom Casey  
Joel Caughlin  
Arni Thomson  
Seth Macinko  
Jon Iani  
Rob Gunderson  
Dave Witherell (staff)*

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## Groundfish Data Bank

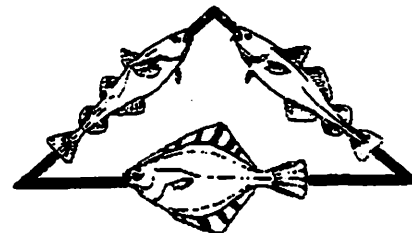
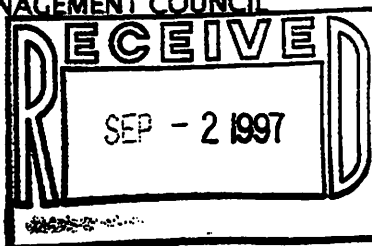
P.O. Box 2298 • Kodiak,

TO: RICK LAUBER, CHAIRMAN, CHAIRMAN  
NORTH PACIFIC FISHERY MANAGEMENT COUNCIL

RE: PROPOSED VBA PROGRAM

DATE: AUGUST 31, 1997

SENT BY FAX: 3 PP



## COMMENTS REGARDING THE PROPOSED VESSEL BYCATCH ALLOCATION PROGRAM

## SUBMITTED BY ALASKA GROUND FISH DATA BANK

As a member of the NPFMC's VBA committee I attended the August meeting and want to compliment Chairman Steve Hughes on running a good and productive meeting.

These comments are to emphasize the comments I made at the VBA Committee meeting regarding the difficulties of applying VBA's to the Gulf of Alaska and, should VBA's be implemented in any Bering Sea fisheries, the necessity for including a "buffer" between the Gulf and Bering Sea.

AGDB is raising these issues early in the VBA process so that they may be addressed directly during the process to assure the best possible attention, analysis and consideration by industry and the NPFMC.

## I. EXPENSE MAY EXCEED VESSELS' ABILITY TO PAY

Based on the proposed observer requirements for the CDQ multi-species fisheries, which we feel may be the precedent for a VBA program, it appears that a VBA program may well require two observers on board each VBA vessel. Most Gulf of Alaska trawl vessels currently carry 30% observer coverage. Meeting a coverage requirement of 200% observer coverage would increase costs 660% - a cost increase which, for many Gulf vessels, may eliminate the ability to generate profits.

## II. PROPOSED RESTRAINTS ON OBSERVER WORKLOAD MAY BE COUNTER-PRODUCTIVE

The proposed CDQ regulations regarding observer work loads specify that observers will sample no more than 3 hauls a day. This restraint precludes vessels from making test tows to assess the halibut (or crab) bycatch in an area before making a full production tow. It also precludes making a number of short tows to reduce halibut or crab mortality. This proposed regulation, if approved for the CDQ program and used for a VBA program, may not only negate any halibut savings that could be realized from a VBA program, but could actually increase halibut bycatch rates.



**AGDB VBA COMMENTS - AUGUST 31, 1997 - PAGE 2 OF 3****III. NOT ALL TARGET FISHERIES IN THE GULF WILL BENEFIT FROM A VBA****Pacific cod and Pollock**

In the Gulf of Alaska the pollock target fishery uses less than 5% of the trawl halibut cap and Pacific cod uses slightly more than 10% of the trawl halibut cap. These are the two most lucrative shorebased trawl fisheries in the Gulf. The cost, however, of a 660% increase in observer costs far exceeds the value of any halibut which might be saved through implementation of a VBA program.

**IV. Rockfish and Flatfish**

Rockfish and flatfish targets use about 80% of the trawl halibut bycatch cap in the Gulf of Alaska. Both of these fisheries are financially marginal for catcher vessels, but create substantial work in the Kodiak processing plants and for vessel crews as well as cash flow through the community.

Ironically, these are the fisheries in which a VBA program could show the greatest results, but they are also the fisheries most likely to be precluded, at least for shorebased operations, due to the observer costs, assuming 100 or 200% observer coverage is required.

**V. EFFECT OF A GULF VBA PROGRAM ON TRAWL SABLEFISH, SHORTRAKER/ROUGHEYE AND THORNYHEADS MAY BE COUNTER-PRODUCTIVE**

All three of these species are valuable, sought after by the Gulf trawl fleet and, in the case of shortraker/rougheye and thornyheads, also valued by the longline fleets. All three of these species are also small quota species.

This year to prevent trawl sablefish from reaching PSC in third quarter the MRB was reduced, at industry request, from 15% to 7.5%. Under a VBA program there is the potential for vessels to "race for the sablefish" since once the vessel's VBA is reached the potential for catching more sablefish is also gone. The bycatch of shortraker/rougheye and thornyheads seems to be related to the bycatch of sablefish and these two species of rockfish could also be negatively impacted by a VBA program.

We recommend that if a trawl VBA program is implemented in the Gulf of Alaska, sablefish, shortraker/rougheye and thornyheads be included.

**VI. EFFECT OF A VBA PROGRAM ON EFFORT DISTRIBUTION MAY BE COUNTER-PRODUCTIVE**

Currently the at sea and shorebased fleets fishing flatfish and rockfish work together in an effort to spread effort between the Bering Sea and Gulf of Alaska to reduce the effort in each quota area and enhance management's ability to monitor and manage the fisheries. If a VBA program allows vessels to use their VBA's in any VBA fishery, then a race for the most valuable fish restrained by quota, not by bycatch, is inevitable.

**VII. EFFORT CHANGES BETWEEN THE GULF OF ALASKA AND BERING SEA MAY BE A PROBLEM IF ANY VBA PROGRAM IS IMPLEMENTED**

If a VBA program is implemented only in the Bering Sea, then vessels which reach their VBA will still be able to move to the Gulf of Alaska and continue fishing. The Gulf is not thrilled by the idea of becoming home to "dirty" vessels. Also, for those fisheries in which quota is not a constraint, such as yellowfin sole, vessels holding VBA's may find it advantageous to fish the Gulf of Alaska openings and fish the Bering Sea between Gulf openings. This would increase effort in the Gulf and undo years of work on reducing effort.

We suggest that if VBA's are implemented in the Bering Sea, that vessels in VBA fisheries be prohibited from fishing in the Gulf of Alaska.

There is a small fleet of at sea vessels which regularly fish the Gulf for rock sole and rockfish, we assume some provisions would need to be made for these vessels to continue their traditional fisheries.

AGDB VBA COMMENTS - AUGUST 31, 1997 - PAGE 3 OF 3**VIII. ALLOCATION OF VBA'S APPEARS TO DISADVANTAGE THE RESIDENT GULF OF ALASKA TRAWLERS**

The allocative formula for initial allocations of VBA's recommended by the VBA Committee is probably the most reasonable formula. However, this formula appears to disadvantage the resident Gulf fishermen.

The number of factory trawlers fishing in the Gulf of Alaska in any one year is a function of openings and closures in the Bering Sea. In rockfish alone the number of factory trawlers varies from 16 to 8 depending on the year. This situation appears similar to the IFQ programs which left many vessels with less IFQ's than their historic average would have indicated because the overall pool receiving IFQ's was larger than the pool in any single year. Because the resident fishermen fish every year, they stand to be the most disadvantaged.

Because the VBA's must be non-transferable, there is no way vessels which might hold Gulf VBA's but prefer to stay in the Bering Sea could release their Gulf VBA's to Gulf users.

Thank you for your consideration of our comments.



Chris Blackburn, Director  
Alaska Groundfish Data Bank