

M E M O R A N D U M

TO: Council, AP and SSC Members
FROM: Clarence G. Pautzke *Clarence*
Executive Director
DATE: April 4, 1988
SUBJECT: Sablefish Management

ACTION REQUIRED

- (a) Report on sablefish management workshops - information only.
- (b) Further development of management strategies.

BACKGROUND

(a) Summary of Workshops

Workshops on limited entry alternatives for the sablefish longline fishery in the Alaskan EEZ were held in Seattle on February 23-24, in Homer on March 14-15, in Kodiak on March 17-18, in Petersburg on March 22-23, and in Sitka on March 25-26. Dr. John Harville will review the workshops for the Council and Advisory Panel on April 13 at 7:00 p.m. in the Kuskokwim Room and offer alternative approaches for further development.

(b) Development of Management Strategies

In light of the workshop report, the Council should select a set of limited entry options for further analysis and public review. As reported to the Council in January, the schedule for this work is as follows:

April 13-15, 1988	Council reviews report from workshops and selects a set of limited entry options for further analysis, and public review.
June 20-24, 1988	Council reviews report on selected option and adopts preferred management method.
June 25 - July 31, 1988	Plan teams and Council staff prepare further analysis on preferred management method. Analysis released for public review.
September 26-30, 1988	Council takes final action and, if necessary, FMP amendment process begins.

IFQ - Opposed, but if considered

a. It should be clearly presented to the public what is meant by a fishermens permit. The public should be told the council want input on if the ownership of the permit should be to the operator or owner of the vessel.

b. There should be a cap but no fixed amount should be stipulated until a data base is created.

c. Management area. Shares should be allocated on historical *regulatory* areas fished. 100 percent of someones shares should not be given to one area. The existing proposal is confusing.

Lic ense or permit

a. who gets the permit needs to be clearly presented to the public.

b. additional options ;of 5000, 10,000 and 1987

c. licened to areas should be dropped as it will only lock in any existing problems.

Multipul choice drop^{ped} as it is not realistic to expect industry to embrace .

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NPFC SABLEFISH LONGLINE FISHERY WORKSHOPS--SUMMARY OF OUTCOMES

Preface

In Feb.-March, 1988, the North Pacific Fishery Management Council conducted a series of five discussion-centered workshops to review alternative methods for limiting access to the sablefish longline fisheries off Alaska. Workshop locations were selected to sample a wide range of industry interests and concerns; also because they are home ports to significant numbers of longline vessels (Seattle, Feb. 23-24; Homer, March 14-15; Kodiak, March 17-18; Petersburg, March 22-23; and Sitka, March 25-26).

Some 150 participants attended these workshops. Most were fishermen, although in Homer and Kodiak only a few were active sablefish longliners. Two represented processor interests. Unfortunately, the unusually heavy winter workload on Council staff did not permit earlier scheduling of these workshops. The March dates were so close to sablefish and herring season openings that many fishermen were busy working on boats and gear. Attendance therefore fell far below expectations.

I. Problems of the Fishery, and Goals for Improved Management.

On an opinionnaire at the beginning of each workshop, participants priority-rated their perception of problems besetting the sablefish longline fishery, and most important goals for improved management of that fishery.

1. Most participants at all workshops indicated little concern for problems of product quality, processing bottlenecks, or "highgrading" of catch.
2. All participants gave highest priority to goal of conserving fish stocks--managing for long-term sustained yield.
3. Kodiak participants saw no shortened season problem; gave highest priority to maintaining diversified fishing strategies; expressed major concerns for potential loss of jobs under any fleet reduction through access controls.
4. General concensus of participants in areas other than Kodiak:
 - a. The urgent request to the Council to take action now to resolve the shortened season problem--to proceed vigorously on commitment for action by the 1989 season.

Shortened fishing seasons are seen the most serious problem impacting fishermen; reducing the number of boats is the correction measure of highest priority.

- b. Major problems resulting from severely shortened seasons:
 - * the competitive race for fish creates safety hazards;

- * excessive gear losses occur, and
- * a decrease in net profits per vessel result.

Goals should address these problems (lengthen seasons).

c. Other high priority goals generally were:

- * encourage economic efficiency--decreased costs and increased net returns to the fisherman;
- * foster secure investments and occupational tenure for professional fishermen;
- * stabilize regulations over time--minimize changes in management goals and regulations;
- * devise regulatory strategies requiring minimal (least) regulations necessary.

II. Regional Differences Affecting Concerns and Responses.

A. Differing reductions in sablefish longline seasons.

Kodiak participants do not consider shortened seasons to be a significant problem. However, participants in all other areas consider it the most significant problem of the fishery.

1. The 1987 season in the Central Gulf lasted 59 days, in the W. Gulf 68 days. Thus Kodiak fishermen feel no pinch from severely shortened seasons; see stocks and prices high, no reason for effort controls of any kind.
2. By contrast, S.E./E. Yakutat fisheries have been reduced from 150 days in 1984 to only 10 days in 1987. Eastern Gulf fishermen consider this impact devastating.

B. Most Kodiak participants pursue multiple fisheries; sablefish only one of their targets. For most participants in other areas, sablefish and other longline species are major targets.

C. Meetings prior to workshops locked-in some positions in advance of workshop option reviews and discussions.

- * Kodiak position opposed any form of access controls.
- * FVOA in Seattle voted in advance to support only license limitation. One discussion group voted not to discuss any alternative except license limitation.
- * However, in all areas, fishermen agreed to participate in the workshop processes, and in constructive exchanges of views.

D. The discussion format in Seattle proved difficult, not permitting adequate attention to IFQ strategies. The format was modified significantly for use in subsequent workshops.

III. Workshop Discussion Outcomes.

Note: Reports from discussion groups in all five workshops have been reviewed as basis for this consolidated summary. Arguments favoring and opposing major positions, or addressing alternatives, are summarized. This review is divided into four sections. First, concerns about any form of access control (principally from Kodiak) are noted. (Other opinions are added in parentheses). Following sections address IFQ strategies, license limitation strategies, and "two-tier" or mixed approaches to access management.

A. CONCERNS ABOUT (AND OPPOSITION TO) ANY ACCESS LIMITATION.

1. Some believe no short season problem exists; thus no action is needed (cf. earlier review of regional differences).
2. Many are concerned that access management will change a cherished way of life--force competitive risk-accepting fisherman-entrepreneurs to focus more on business considerations--fishing will become "just another business". (Others emphasize that with most fisheries approaching full-utilization, times are changing from the pioneering open-access fishery-development period, and it is high time to approach fishing as a business proposition.)
3. Limiting access to the sablefish resource will inhibit ability of fishermen to move freely (at no cost) from one fishery to another, thus to continue diversified fishery operations. [Others disagree, noting that extending season length could enhance opportunities to select chosen fishing strategies and diversify; also could reduce waste resulting when short seasons for related fisheries (e.g., halibut and sablefish) do not overlap, and valuable bycatch must be discarded.]
4. The sablefish fishery is still developing in the Central and Western Gulf; access controls will prevent further entry by Alaskans without major costs. (Others note that season reductions already have been necessary in those areas, also that entry into any new business has costs.)
5. Reductions in fleet size will cost jobs, at sea and ashore. (Others agree, but note that those remaining will be the solid professionals, assured of reasonable opportunities to be economically efficient.)
6. Limiting access to sablefish will impact other fisheries. (Clearly no action in any fishery is isolated in effect. Fishermen displaced will seek other targets, and any system that proves effective may be considered for wider application. The task of the FOG group is relevant.)
7. Any program will provide major windfall benefits to those initially included, as has been the case with Alaskan license limitation programs. (Others believe systems

can incorporate mechanisms to limit these windfalls, particularly under IFQ approaches.)

8. Any system will engender governmental expansion, increased public costs for improved data management and enforcement, and added paperwork for all concerned, with major reporting burdens on fishermen. (Others believe appropriate procedures can minimize added costs and complexity, and can produce cost-effective benefits by improving the economic efficiency of the fishing enterprise. Attempting to control effort by ever more restrictive regulatory inefficiencies is a poor alternative. Possibilities of a greater role for the private sector also can be seen.)

B. INDIVIDUAL FISHING QUOTAS (IFQ's)

1. Arguments favoring the IFQ approach and strategy.

Following 1-1/2 days of review and discussion, most participants in Sitka, Petersburg, and Homer favored the IFQ approach as the best available strategy for lengthening seasons and solving other identified problems. Reasons include:

- a. The IFQ approach will remove the need to shorten seasons to reduce effort; therefore season length probably would be limited only by biological considerations. On the other hand, license limitations have never succeeded in reducing effort; additional regulated inefficiencies inevitably have been required to protect stocks from overharvest.
- b. Market factors will drive effort reduction, with marginal operators tending to sell or lease their IFQ's. Thus need for government intervention is reduced.
- c. Will enable individual fisherman to fish according to personal strategies and economic considerations, including time and area for fishing, choice of vessel size, amount of gear, choice of markets, etc.--
 - 1) avoiding hazardous weather and sea conditions;
 - 2) reducing excessive investments in vessel and gear presently needed to compete in the race for fish;
 - 3) selecting best market period for harvest--e.g., Aug.-Sept. when fish are largest, best quality;
 - 4) opportunity to integrate sablefish harvests with other longline fishing; avoid discard wastage.
- d. Longer harvest period will spread out product at processor docks; this will improve product quality, market value, and ultimately prices paid.

- e. Longer seasons will permit test fishing and choice of grounds producing best quality and largest fish; also will reduce loss of gear due to race for fish, with resultant stock losses from "ghost-fishing".
- f. Assured harvest rights through IFQ's will strengthen fisherman concern for long-term stock well-being; thus greater care in discard handling. All these positive factors should more than balance losses due to any "highgrading" that may occur with longer seasons.

Additionally, the IFQ approach makes initial allocations easier to establish and more fair to all past participants:

- * can include all with reasonable claims, since market factors eventually will reduce number of participants;
- * can allow for division of allocation between absentee vessel owner and fisherman;
- * will permit new entry at reasonable (by the share) prices;
- * all the above should increase political acceptability.

2. Concerns about (or opposition to) the IFQ Approach expressed particularly in Seattle, Kodiak, and Homer included:

- a. IFQ's not adequately tested and unfamiliar; inadequate data and no economic models for evaluation.
- b. IFQ's will force fishermen to become accountants to determine economic pros and cons of share sale or lease.
- c. Could lead to monopoly--share controls gathered in a few corporations or individuals; even foreign control. Also will confer windfall benefits to original recipients.
- d. Management complexity and potential costs. Concern that innovative nature of IFQ's makes timely implementation unlikely. Fishery needs action now!
- e. Option to fish at leisure through long season may risk overfishing some easily accessible stocks.

3. Preferred elements for an IFQ system and strategy, based on discussions in Seattle, Homer, Petersburg, and Sitka.

- a. Assignment to individual fishermen will keep fishery in hands of fishermen; most boats are owner-operated. IFQ holders should be U.S. citizens, and aboard vessels during fishing and at time of landing catch. (Fishermen participating clearly desire to retain owner-fisherman character of sablefish longline fishery.)

However, past capital investments by non-fisherman owners should be recognized and accommodated in initial allocations, perhaps by division of IFQ's-- e.g., 50% to owner-investor; 50% to fisherman. (Significant concerns about corporate ownership of IFQ's and risks of foreign control, buildup of monopolies.)

- b. Perpetual life to IFQ's would assure continued value in the marketplace; also build longterm commitment by owners. [Shorter term (and perhaps non-transferable) IFQ's might provide mechanism for including some past participants not qualifying for perpetual allocations.]
- c. Full transferability by lease or sale will provide for market-controlled regulation of effort over time; also for entry of new participants able to lease or buy a few shares at costs far below license transfers. However, some conditions and limits should apply:
 - 1) A cap or ceiling must be placed on IFQ holdings (owned or leased) by any entity, to prevent control of the fishery from becoming consolidated in too few hands. Diversified nature of the longline fleet must be protected, maintained. Leasing IFQ's must not become a subterfuge for corporate controls, reducing fishermen to "sharecropper" status.
 - * cap might be of order of 1%; or
 - * cap might approximate the largest years landing of any single participant in the qualifying years.
 - * if cap is below those maximum landings, a grace period should provide time for orderly cutback.
 - 2) Many believed IFQ's should apply EEZ-wide, to maximize individual choice of fishing strategy.

Others argued that IFQ,s be assigned by management area since harvest quotas are by area; and otherwise excessive effort could flood easily accessible areas (e.g., S.E./East Yakutat) and again shorten seasons.
- d. Past performance records should determine initial allocations of IFQ's. Criteria can afford to be more liberal than for license allocation in view of market factor impacts on eventual fleet size, etc.
 - 1) Cutoff date should be late enough to accommodate all serious (non-speculative) fishermen and reduce opposition to institution of the system.
 - * Dec. 1987 favored by some to cut out speculators.
 - * Dec. 1988 would provide maximum inclusions.

- 2) 3 to 5 years prior to cutoff date encompasses years since foreign fishing phase-out. (Some favor using all years prior to cutoff, to assure full consideration for early "pioneers" in the fishery.)
- 3) Best year's documented landing would be most generous measure of fisherman's initial IFQ. Average of best 2 out of total years counted might be better measure of actual performance.

Longline sablefish landings only are considered.

- 4) IFQ's should be expressed as percentage of TAC, recognizing that annual poundage equivalents will vary with stock strength. (Initial allocation in pounds rejected by all since requires annual governmental intervention to balance with TAC's.)
- 5) Consideration of factors other than documented landings and special case exemptions.

Most participants desired initial allocations to be based on documented landings data, believing that adjudicative factors such as economic dependency, and special cases such as investments prior to cutoff date, need not be considered. Alaska's Limited Entry Commission problems with these adjudicative issues should be avoided.

However, all recognized fairness and political difficulties in ruling out these other factors. Examples cited included:

- * possibility that length of time in the fishery should be a modifier on actual landings;
 - * problem of vessel-owner who trawled for sablefish in early 1980's; helped move toward full U.S. utilization and end of foreign fishing, yet would have no longline landing record.
 - * good-faith prior investments in vessels & gear.
- 6) Most participants preferred allocations to all having significant past landings, rather than need for complex adjudicative or appeals processes. Precise specifications will reduce appeals problems.
- e. Mechanisms for effort adjustment such as a buyback program should not be needed, given market-driven forces acting on effort under the IFQ approach.
 - f. Governmental services must involve an effective Federal-State partnership. State managers are more accessible and can act without excessive delays; Federal oversight and funding also are required.

Confidence in the integrity of the total management system must be assured. Needed improvements:

- 1) maximum accuracy of stock assessments to sharpen pre-season TAC estimates as basis for IFQ poundage; (essential requirement in any management system)
 - 2) improved fisherman and processor records to track landings against fisherman IFQ share of total TAC; must include accurate catcher-processor records (seen as important gap in present data system);
 - 3) Stringent enforcement and severe penalties against lawbreakers, with special concern for potential for "black market" sales and for fish wastage.
- g. Private Sector role could be increased by:
- 1) contracting for data management--e.g., tracking landings and charging them against IFQ allocations (analogous to checking account management);
 - 2) expecting private brokers to handle mechanics of sale or lease of IFQ's (government oversight only).

C. LICENSE LIMITATION SYSTEM

1. Arguments favoring a License Limitation approach and strategy.

- a. License limitation is well-understood in Alaska, has an established track record of performance, and would place an immediate cap on further entry to the fishery. Effort reduction can be achieved if initial allocation criteria are sufficiently stringent, and/or through a buyback program. Improved traditional management measures can be developed and applied to protect stocks and spread out harvest periods.
- b. Because of this familiarity, prompt implementation can be expected, without need for development of the new procedures required for IFQ's. Action now!
- c. Other "concerns about the IFQ approach" (p.5, sec. 2) are arguments favoring the license limitation approach.

2. Concerns about (or opposition to) License Limitation (as opposed to IFQ's) expressed principally at Homer, Petersburg, and Sitka.

- a. Under already existing license limitation systems:
 - 1) fishing power and total effort tend to increase as fishermen in the system improve methods and gear;

- 2) fishing seasons continue to get shorter due to imbalance of effort and stock strengths; managers expand regulatory inefficiencies to protect stocks.
 - b. Fully transferable licenses confer excessive windfall benefits on recipients of initial allocations.
 - c. High costs of later license purchase make later entry very expensive. Because the license "package" is large as compared with IFQ shares, no easy divisions can be made for small-scale entry.
3. Preferred Elements of a License Limitation System and Strategy based on discussions at all five workshops.
- a. Assignment: Participants were divided on this issue, recognizing that vessel owners have committed the capital and initiative needed to develop the fishery. Where vessels are owner-operated (as in most longliners), assignment to the vessel owner is the obvious choice. However, particularly in non-owner-operated vessels, fishermen have invested time, know-how, and in some cases, capital, which should be recognized.
 - 1) Some favor assignment to vessel owner. Some also favored provision for inclusion of fishermen of vessels not owner-operated, perhaps by a 50%-50% division.
 - 2) Some favor assignment to fishermen who have committed time and personal risk to the fishery; and to keep the fishery in the hands of active fishermen. They also recognize need for shared assignment for absentee owners (perhaps 50-50 as above).
 - 3) Consensus that only one license should be issued per vessel or fisherman in the original assignment.
 - b. Transferability. Many favor a dual class system (modeled after the fishing industry proposal) with fully transferable perpetual licenses for those clearly qualified as significant participants, and non-transferable shorter-term licenses for those having lesser qualifications.
 - 1) Some (Kodiak) favor non-transferability for all, to avoid excessive windfall benefits.
 - 2) General concern expressed for potential increases in fishing power by upgrading vessels. Therefore many favor licensing by vessel size (per fishing industry proposal) with provision for vessel upgrade requiring combining two smaller-vessel permits. Some oppose any provision for upgrading, to preserve existing character of the fleet.

- 3) Concerns expressed about corporate ownership and risks of controls passing away from fishermen.
 - 4) Most favor only one permit per entity, to prevent consolidation of control over the fishery (but with opportunity to upgrade per fishing industry proposal).
 - 5) Considerable support for area licensing, to spread the fishery throughout the EEZ. Some proposed limiting licensees to single management area; others objected to this limitation on fishing strategies.
 - 6) Consensus against "use it or lose it", but most favored requiring licensee to be aboard vessel.
 - 7) No transfer of licenses under litigation.
- c. Past performance records should determine initial license assignments. Criteria need to be as rigorous as feasible to reduce numbers and total effort.
- 1) Many favor area licensing, with earlier cutoff date for areas with mature fishery (e.g., S.E./Yak) and later date for still developing areas westward. Others believe licensing should be EEZ-wide.

No consensus on appropriate cutoff date overall or by management areas as proposed above. Sept. 26, 1985, favored by many supporting the fishing industry two-level proposal, to reduce the fleet and reward long-time fishermen; however, this will be unfair to some, and politically difficult.

Dec. 31, 1986 could be more widely acceptable, and still not include later "hopefuls" and speculators.

Some preferred even later dates (e.g. Dec.31, 1987), Dec. 31, 1988, or date of final Council action) to avoid conflicts. (However, these would maintain very high effort level; appear to be self-defeating.)

- 2) three to five years prior to cutoff date should be the period for determination of license eligibility.
- 3) Most believe landings in more than one year out of period should be required, above a minimum poundage. (suggested levels ranged from 1,000 to 50,000 lbs.) If a two-level permit system is adopted, requirements could be less strict for lower class.
- 4) Consideration of factors other than documented landings, and special case exemptions.

Most felt that if the above requirements are strict enough, economic dependence and other adjudicative

factors would be adequately accounted for. Special provisions should be avoided to reduce adjudicative problems. However, political acceptability may require inclusion of special consideration for:

- * cases requiring shared ownership (e.g., absent owner and fisherman-skipper;
 - * economic dependency (Kodiak participants believe this should be on all fisheries, not only sablefish.)
 - * prior investments in vessel purchase, etc.
- 5) Careful specifications should help to reduce, though can't prevent, appeals problems and delays .

d. Mechanisms for effort adjustment

- 1) Keep initial qualifications stringent, to hold down numbers of initial allocations.
- 2) Employ strict penalties for infractions, including loss of license, to eliminate malactors from fishery; reduce effort through attrition.
- 3) Little confidence expressed in buyback feasibility. If utilized, should be industry funded and managed.

e. Government services. Federal-State partnership providing improved governmental services noted for IFQ's (p. 7 Sec. f). Since license limitation will not of itself reduce or spread out effort, additional management measures will be required, such as:

- 1) Sequential short seasons rather than only one.
- 2) At least one opening late in the year (Aug.-Sept.) to take advantage of larger size, better quality.
- 3) Trip limits, but only during final "cleanup" opening, with one delivery per vessel.
- 4) Gear restrictions (very hard to enforce) might include:
 - * circle hooks only to reduce discard mortality;
 - * #5 hook size max. when halibut season closed.
- 5) Area registration.

NOTE: Participants pointed out that these management measures also would be those to be advocated for better controlling effort in the absence of access limitation (i.e., "modified status quo").

D. TWO-TIER OR MIXED SYSTEM AND STRATEGY

Limited time and data permitted only a brief introduction to a few of the available options, whereby TAC could be divided so that:

- * An IFQ system is combined with open access, each applying to different areas and/or vessel sizes (as in the Australian bluefin tuna fishery, and Eastern Canada's Enterprise Allocation system).
- * License limitation is combined with IFQ's, so that each may address different seasons, areas, and/or vessel sizes, and fishermen can make annual choices of either system for their operations that year. (as in the Michigan chub fishery).

Some participants saw significant promise in these options as a means to provide strategy choices to fishermen, or to maintain an open access portion of the fishery for small operators, new entries, etc. They recommended further analysis and development of models for careful study, noting that information at hand was inadequate for decisions at this time.

Others were concerned about apparent complexity of any dual system, and the increases in administrative burdens and attendant costs required for management. They reiterated the need for prompt action in the interests of stabilizing the sablefish longline fishery.

Suggested Alternatives for Controlling Access to the Sablefish Longline Fishery in the EEZ off Alaska¹

As next step toward implementation of improved management of the sablefish longline fishery off Alaska, the Council may wish to direct its staff to develop specifications and analyze impacts of selected alternatives for access management in that fishery. These materials could be reviewed by the Council at its June meeting, and if considered a satisfactory basis for public input, incorporated into a proposed amendment package for public review and comment, with consideration for action at the September meeting.

The following four alternative access management strategies should provide the Council and the public with a sufficiently broad array of choices for specific analysis and comment. This array of alternatives takes into account the divergence of views expressed at the recent sablefish workshops, and where possible, incorporates points of relatively general agreement.

1. An Individual Fishing Quota (IFQ) Approach and Strategy.

Assignment to fishermen (permit holders) and owners of vessels having documented longline sablefish landings in excess of 1,000 lbs. in any of the years 1984 through 1987.

Perpetual and Fully Transferable by lease or sale, but with cap on control ~~by any single entity of 1%, and with provision for "grandfathering" 1984-87 levels above 1%.~~

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approx. equivalent to the max. landings in a mgmt area by any single permit holder to date.

Limited to Management Area of major past landings for major portion of season; applicable EEZ-wide thereafter.

Past Performance Criteria for initial allocation:

Average pounds per year for best two years 1984-1987 determine initial IFQ shares.

IFQ's expressed as a percentage of TAC.

Governmental Actions to implement IFQ system:

Review season considerations to reduce bycatch wastage in overlapping fisheries; other biological factors.

Assess changes in enforcement procedures, penalties, necessary to prevent abuses under an IFQ system.

Design data tracking procedures for IFQ monitoring.

Investigate contracting with the private sector for IFQ landings data management (e.g., checking account approach). Determine private sector interest in brokering IFQ leases and sales.

¹ recommendations for Council consideration by John P. Harville

2. A License Limitation Approach and Strategy--a dual-level licensing system modified from the fishing industry proposal.

Level I Transferable License, perpetual; issued to vessels making documented longline sablefish landings of 5,000 pounds or more in any one of the base years 1984 through 1986.

Licenses issued by vessel size class (four classes in the fishing industry proposal--by gross registered tons). Can be transferred between vessels in same size class; upgrading in size possible only by combining two licenses from a smaller size class.

Level II Non-transferable License, good for two years; issued to vessels making documented longline sablefish landings, but not totalling 5,000 pounds in any of the base years 1984 through 1986; or making first landings in 1987.

One license per vessel owner (except for vessel upgrade).

Limited to management area of major past landings for major portion of season; thereafter applicable EEZ-wide.

Governmental Actions to supplement license limitation system:

Review seasons, enforcement, penalties (as for IFQ option).

Consider sequential shorter seasons and other management measures to spread out effort over time (lengthen seasons).

3. Two-tier Approaches and Strategies should be modeled, if not for immediate use, at least to broaden understanding of the range of options for longer-term consideration. The two options below merit consideration. Either would add valuable scope to the review process. (Both might overtax staff capabilities.)

a. One tier is a license limitation or IFQ system for professional fishermen, to which is allocated most of the TAC. The second tier is an open access system to protect opportunities for small-scale fishermen and new entries. The open access tier has a small TAC allocation and limits on vessel annual landings.

b. Fishermen retain an annual choice of fishing strategies. Fishermen hold both licenses and IFQ's (per systems for each). Before each season begins, each fisherman chooses which system he will use. The IFQ quotas of all deciding to fish under the license system revert to a common pool, which becomes the quota for that fishery. Their season ends when that quota is taken. IFQ fishermen fish against their individual quotas, per the IFQ rationale and strategy.

4. Improved Management Without Access Controls (modified "status quo").

Proposals for sequential short seasons, trip limits, area registration, or other management measures designed to spread out the fishery in time and space.

AGENDA C-6(a)
APRIL 1988

MATERIALS USED FOR SABLEFISH WORKSHOPS

North Pacific Fishery Management Council

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NEWS RELEASE

FOR IMMEDIATE RELEASE
February 4, 1988

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NORTH PACIFIC COUNCIL ANNOUNCES SABLEFISH MANAGEMENT WORKSHOPS

The North Pacific Fishery Management Council has scheduled five sablefish management workshops as detailed below:

Seattle, WA	NMFS Montlake Laboratory Auditorium	T/W	February 23-24
Homer, AK	Elks Club	M/T	March 14-15
Kodiak, AK	Senior Citizen's Hall	Th/F	March 17-18
Petersburg, AK	ANB Hall	T/W	March 22-23
Sitka, AK	Sheldon Jackson College	F/S	March 25-26

All workshops start at 1:30 p.m. on the first day and continue from 9 a.m. through the afternoon of the second day.

These workshops are essential steps in carrying forward the NPFMC Statement of Commitment made at the September 1987 Council meeting. That statement was:

"Expansion of the domestic fleet harvesting fish within the EEZ off Alaska has made compliance with the MFCMA's National Standards and achievement of the Council's comprehensive goals more difficult under current management regimes. The North Pacific Fishery Management Council therefore is committed to pursue alternate management methods that will support the Comprehensive Goals adopted by the Council and achieve more productive and rational effort and harvest levels in the groundfish fishery.

-M O R E-

To fulfill this commitment the Council will:

1. Develop strategies for license limitation or use of individual transferable quotas in the sablefish longline fishery. The process will begin at the September 1987 meeting and the Council intends to implement the selected management strategy for the 1989 season."

The workshops will begin with afternoon sessions to review objectives and procedures and to discuss various methods of access limitation. The following morning small groups will meet to discuss different types of programs and develop recommendations for the Council on what they believe is the best type of system. The discussion groups will look for areas of consensus. If consensus is not possible, the groups are expected to develop alternative positions. In the afternoon the groups will meet to compare views developed in the separate discussion groups and look for areas of agreement.

#

TO: Sablefish Longline Fishery Workshop Participants
FROM: NPFMC Workshop Staff: John P. Harville, Coordinator
RE: Attached two "opinion papers" and agenda for this meeting

We wish to learn **YOUR VIEWS** concerning two areas of importance in considering alternatives for access controls in the Alaskan sablefish longline fishery. Please complete the following two "opinionnaires" at the beginning of this first session, and return them to our staff members. We will tally your input and provide you with a summary of opinions of this workshop group when we reconvene tomorrow morning.

The first "opinion paper" seeks your views concerning the **major problems** facing the sablefish fishery now and in the years ahead. This list has been compiled from various sources as a "straw man" for your consideration. Please give us **your opinion** of the relative importance of these problems. In your view is each problem of major, lesser, or little importance--or none at all? If problems important to you have not been included, please add them on the back of the sheet.

The second "opinion paper" asks your priorities concerning **goals** which should guide development of strategies for improved management of Alaska's sablefish fisheries. Again we ask that you give us **your opinions** concerning the relative importance of each of these goals. Add any important goals not included on the back of the sheet.

We hope that your identification of major problems in the fishery, and of priority goals for managing access to that fishery will provide useful guidance for tomorrow's small-group discussions.

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Following is an outline of the agenda for this plenary session.

- a. Introduction and overview
- b. Review of issues common to all access control strategies
- c. Exploration of representative license limitation strategies
(break--15 min.)
- d. Exploration of representative individual fishing quota strategies
- e. Consideration of "two-tier" or "mixed" alternatives
- f. Brief overview of tomorrow's schedule and goals

After his presentation, each speaker will attempt to respond to questions for clarification of information only. Maintaining our tight time schedule requires that discussion and development of opinions be held for the small-group discussion sessions tomorrow.

WHAT DO YOU CONSIDER TO BE THE MAJOR PROBLEMS OF THE LONGLINE SABLEFISH FISHERY?

Because of a variety of concerns expressed by fishermen and managers, the North Pacific Fishery Management Council has made a commitment to:

"develop strategies for license limitation or individual transferable quotas in the sablefish longline fishery . . .and to implement the selected management strategy for the 1989 season."

Listed below are some of the problems which have been cited, and which helped to generate this Council action. Please give us your personal assessment of their relative importance, using the code numbers below in the blanks provided. Add any not included which you consider important on the back of this page.

- 1 if you consider it a problem of major importance;
- 2 if you consider it of lesser (secondary) importance;
- 3 if you consider it of little importance;
- D if you disagree totally that this is a problem.

- a. Are shortened fishing seasons a serious problem? _____
- b. Does the competitive race for fish create safety problems? _____
- c. Can both of the above lead to excessive gear losses? _____
- d. Can all of above seriously reduce net profits per vessel? _____
- e. Do processing bottlenecks occur too often? _____
- f. Under present management of seasons, does product quality suffer with resultant price losses? _____
- g. Does the short season significantly reduce opportunity for fishermen to choose their best fishing strategy (time, area, etc.) for operations? _____
- h. Does rapid harvest over a short season reduce opportunity for selective taking of larger, more valuable fish? _____
- i. Is "highgrading" and wastage of small fish presently a significant problem in the sablefish fishery? _____
- j. If fleet size is reduced by limiting access to the fishery, is a resultant loss of jobs a serious concern? _____

Please check the most appropriate blocks below to indicate your areas of interest in the sablefish fishery.

vessel owner _____
owner-skipper _____
skipper _____
crew member _____
} longliner _____ trawler _____ pot fisherman _____

processor _____ products: sablefish _____ halibut _____ salmon _____ other _____

WHAT SHOULD BE THE GOALS OF LIMITED ACCESS FOR THE SABLEFISH FISHERY?

What do you consider to be the important goals for managing the sablefish fishery, with access control as an additional management tool?

Give your view of the importance of each, using numbers and letters below.

- 1 if you consider it a goal of major importance;
- 2 if you consider it of lesser (secondary) importance;
- 3 if you consider it of little importance;
- D if you disagree totally that this is an appropriate management goal or objective for the sablefish fishery.

a. conserve stocks--manage for long-term sustained yield _____

b. minimize role of government in the management process _____

c. minimize public costs of management _____

d. encourage and foster increased economic efficiency in the fishing process--decreased costs and increased net returns to the fisherman _____

e. in support of (d), restrain fishing effort by: _____

1) reducing total amount of effort over the season _____

2) reducing amount of effort per unit of time for example, in first few days of the season) _____

3) reducing total number of boats in the fleet _____

f. Enhance fisherman earnings and working conditions by: _____

1) stabilizing regulations over time--minimizing changes in management goals and regulations _____

2) designing regulatory strategies that: _____

* are minimal--least regulation necessary _____

* enhance operational safety (minimize pressures to operate in bad weather, without rest, etc.) _____

* encourage individual freedom of choice in fishing strategy--develop new methods or gear, choose gear, time and place to fish, etc. _____

3) fostering a secure tenure in the fishery for fishermen committed to that fishery _____

4) minimizing fisherman conflicts (gear, space, etc.) _____

g. minimize negative impacts of access controls on fishermen not qualifying (opportunities in alternate fisheries etc). _____

h. foster increased efficiency in sablefish processing by extending the fishing season to reduce vessel congestion at the dock for deliveries, loading supplies, etc. _____

Figure 1

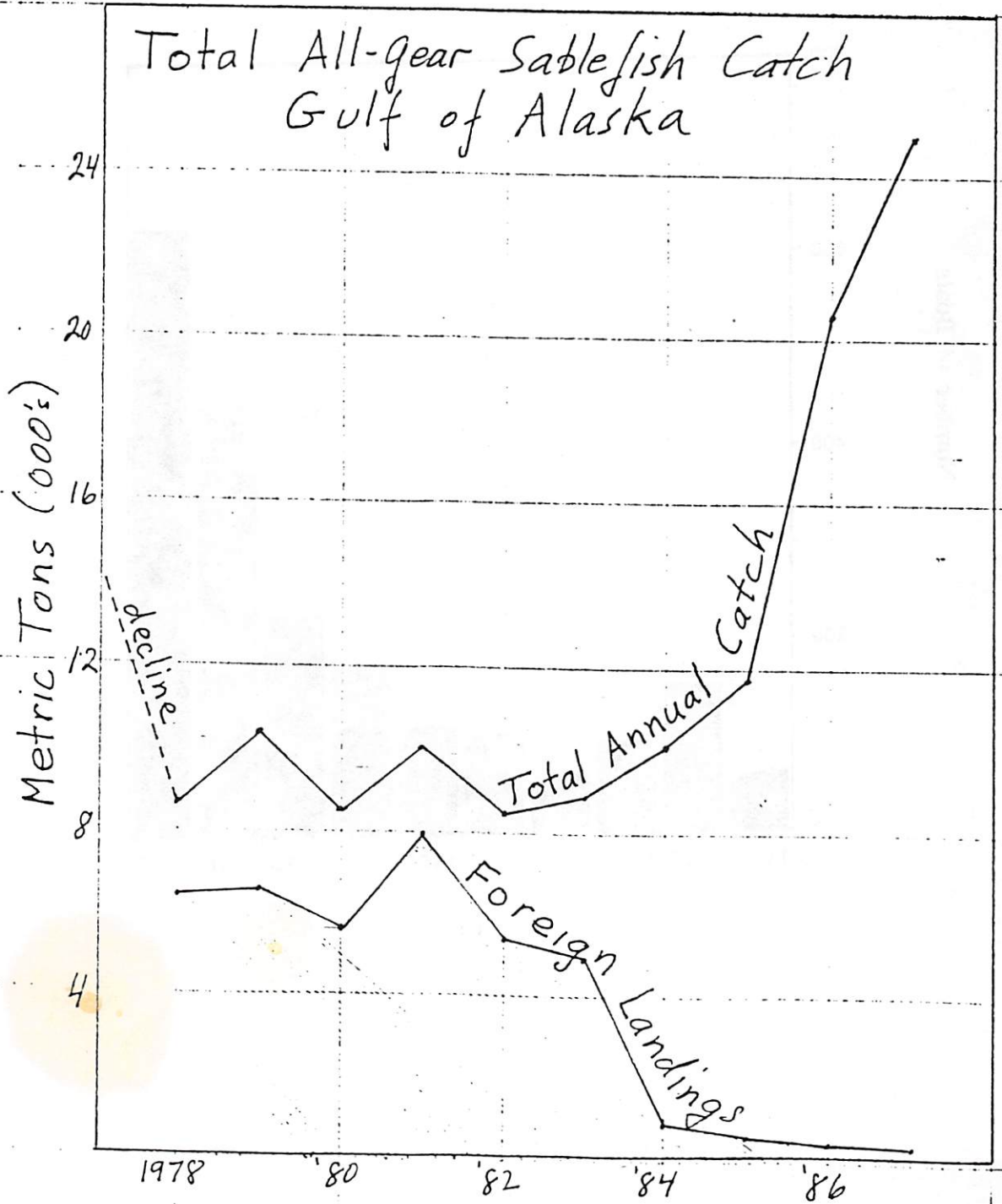


Fig. 2

NUMBER OF LONGLINE BOATS LANDING SABLEFISH

FROM THE BS/AI AND GOA, 1978-1987

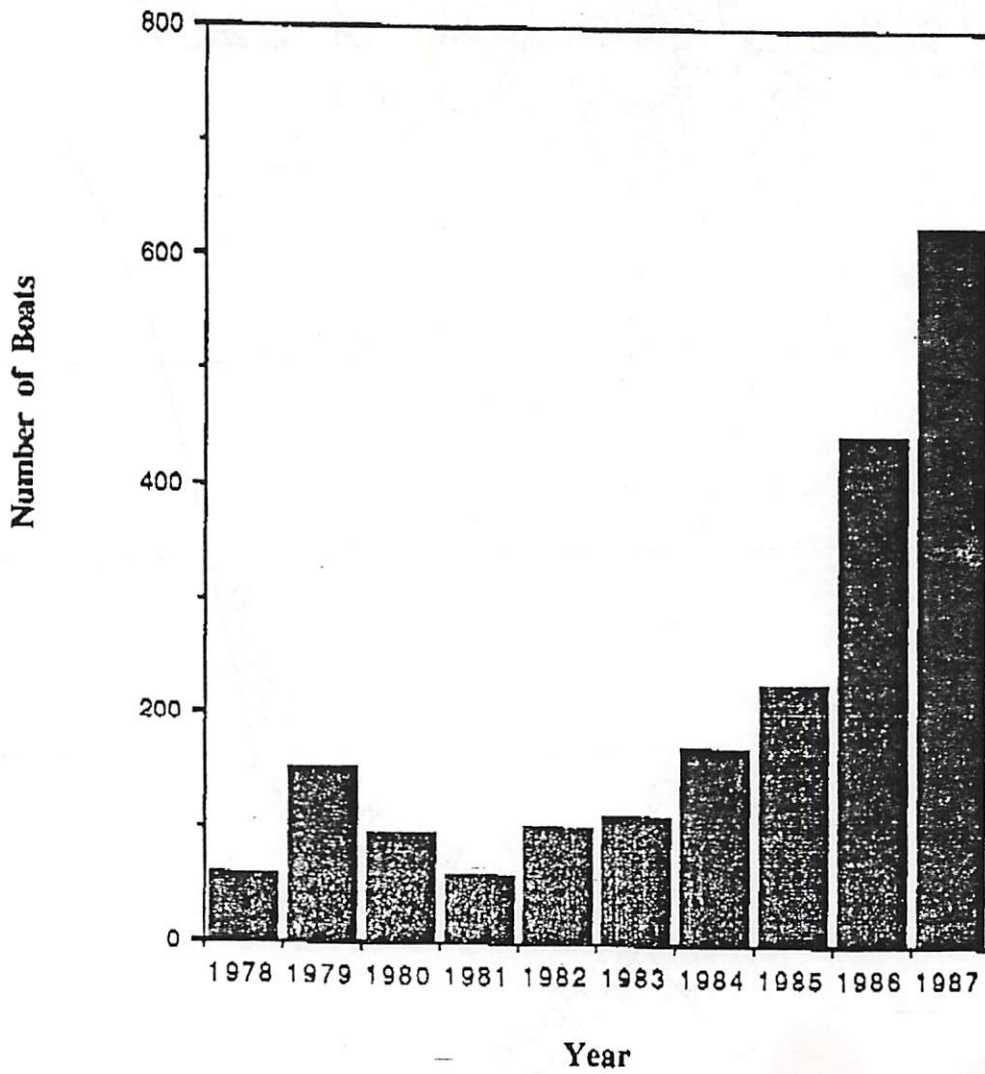


Fig. 3
 SABLEFISH LONGLINE SEASON LENGTH IN
 THE GULF OF ALASKA, 1984-1987

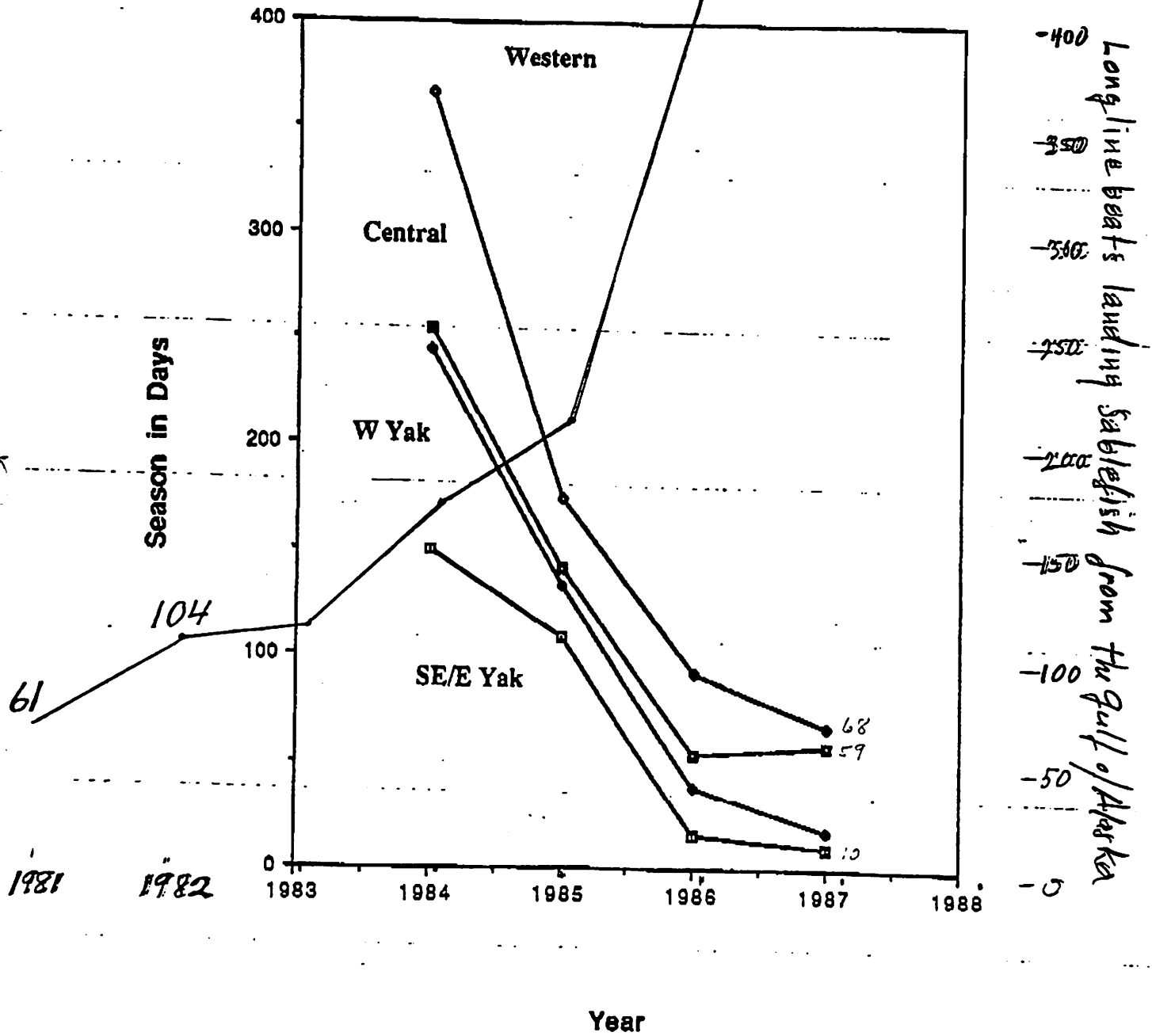


Fig. 4

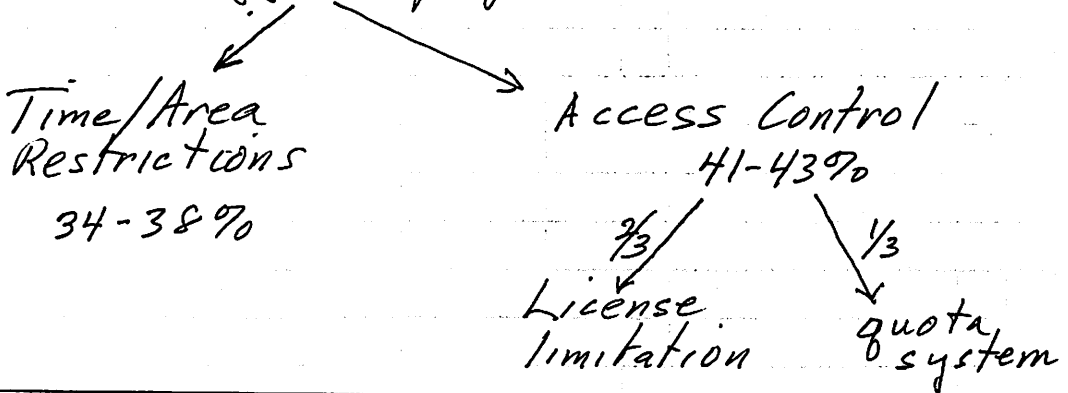
All Groundfisheries (Dittman/Graystar)

Problems: "Too much effort; too many boats."
(leading to)

"Depletion of stocks; overfishing; waste."

Solution: "Limit number of fishermen"

To control effort, preferences are:



Sablefish Permit Holders

Question: Should Limited entry be:

Considered?

Yes	No	Survey
70%	29%	(L) ▽

Implemented?

51%	49%	(F)
-----	-----	-----

Would you support?

37%	25%	(L)
-----	-----	-----

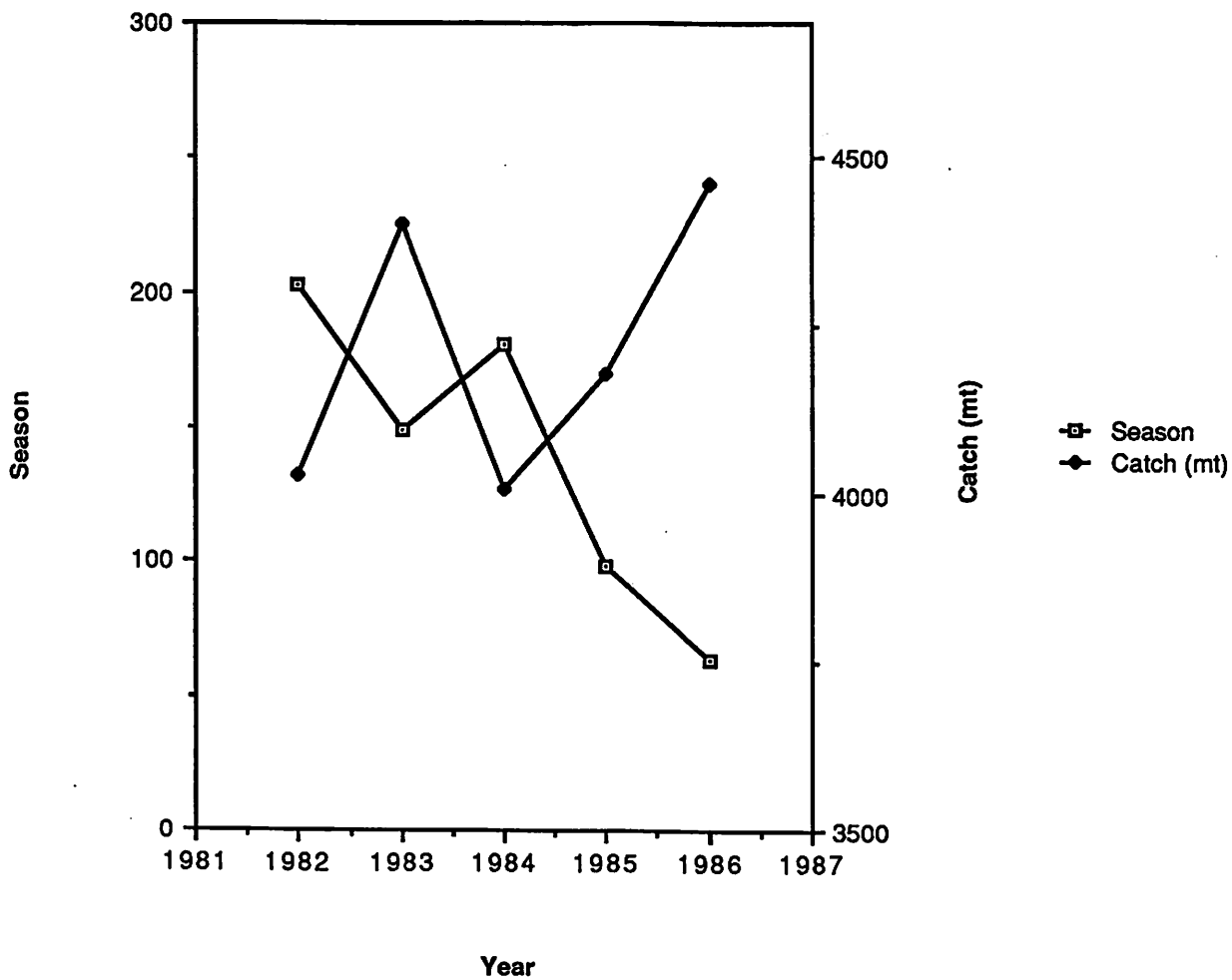
$\frac{3}{4}$ license limitation
 $\frac{1}{4}$ shares

Survey Source:

North Pacific Longline Coalition (L)

North Pacific Fishery Coalition (F)

British Columbia Sablefish Fishery Under License Limitation



**ALASKA EEZ LONGLINE SABLEFISH FISHERY
1975-1985
NUMBER OF UNIQUE PARTICIPANTS BY TIME PERIOD**

<u>Time Period</u>	<u>Number of Participants</u>
1985	246
1984 through 1985	322
1983 through 1985	361
1982 through 1985	396
1981 through 1985	411
1980 through 1985	444
1979 through 1985	516
1978 through 1985	529
1977 through 1985	561
1976 through 1985	581
1975 through 1985	599

Source: Commercial Fisheries Entry Commission

PERMIT EXAMPLE 1

- Recipient: Vessel.
- Eligibility: Legal landings between Jan 1-Dec 31, 1987.
- Permit conditions:
 - (1) Transferable.
 - (2) Alaskan EEZ wide
 - (3) 1 per person.
- Number of permits: 680 *
- Administration & enforcement: Council/NMFS

* Preliminary

PERMIT EXAMPLE 2

- Recipient: Fisherman.
- Eligibility: Legal landings before Sept. 26, 1985.
- Permit conditions:
 - (1) Transferable.
 - (2) Alaskan EEZ wide.
 - (3) 1 per person.
 - (4) Permit holder onboard.
- Number of permits: 599
- Administration & enforcement: Council/NMFS

PERMIT EXAMPLE 3

Two-Permit System

Permit 1

- Recipient: Fisherman.
- Eligibility: First legal landings between Jan. 1-Dec. 31, 1987.
- Permit conditions:
 - (1) Permits valid only for 1st and 2nd years of program.
 - (2) Nontransferable.
- Number of permits: 341

IFO EXAMPLE USING 1988 QUOTA

GULF OF ALASKA

- STATISTICS:

	<u>1985</u>	<u>1986</u>	<u>1987</u>
# OF BOATS	219	440	660
TOTAL CATCH (000 LBS)	11,638	31,268	41,523

CUMULATIVE NUMBER OF BOATS: 720 (approximately).

TOTAL OF EACH BOAT'S BEST YEAR
(estimated) 44,000,000 LBS

1988 LONGLINE QUOTA: 49,383,000 LBS

- HYPOTHETICAL BOAT LANDINGS:

	<u>1985</u>	<u>1986</u>	<u>1987</u>
BOAT A	54,000	100,000	100,000
BOAT B	47,000	50,000	10,500
BOAT C	0	0	28,000
BOAT D	0	800	1,000
BOAT E	150,000	250,000	225,000

IFQ CONDITIONS AND ENTITLEMENTS

- RECIPIENT: BOAT OWNER.
- ELIGIBILITY: LEGAL LANDINGS IN 1985-1987.
- IFQ BASED ON BOAT'S BEST YEAR IN BASE PERIOD.
- IFQ IN % OF TAC.
- SALEABLE AND LEASABLE.
- MAXIMUM LIMIT OF CONTROL.
- SEPARATE FOR GULF OF ALASKA AND BERING SEA.
- HYPOTHETICAL 1988 IFQ ENTITLEMENTS:

BOAT A	112,200
BOAT B	56,200
BOAT C	31,400
BOAT D	1,100
BOAT E	280,600

TWO-TIER EXAMPLES

Open Access System - Optional IFQ

- SET 25% OF TAC INTO IFQ SYSTEM.
- USE IFQ SYSTEM AS DESCRIBED.
- IFQ OPTIONAL TO EACH OWNER ON YEARLY BASIS.
- CAN FISH IN OPEN FISHERY OR WITH IFQ.

Revised, March 4, 1988

DISCUSSION GUIDELINES:

**OPTIONS FOR CONTROLLING ACCESS IN THE
ALASKAN LONGLINE SABLEFISH FISHERY**

General Instructions to Moderators, Recorders, and Participants:

The following discussion topics/questions should focus on the Alaskan sablefish longline fishery, and be addressed in the order presented. It will be important to keep discussions on target, and to budget time among the major sections in order to cover all topics adequately.

As our primary objective, discussions of each topic should seek to establish a reasonable understanding of the issue, and of the rationale for the various alternatives. This is basically a "learning together" process.

As a secondary objective, for certain key topics we shall wish to determine provisional Participant preferences among alternatives available. ("Which alternative do you favor, and why?") Where a clear consensus emerges (general concurrence, though not necessarily unanimity), principal supporting arguments should be recorded. Where no clear consensus exists, major alternatives should be clearly stated, and supportive arguments recorded for each. In these non-consensus areas, an approximate "vote" should be recorded.

Moderators and Participants should assist their Recorders to make adequate records of their tentative conclusions as input to the discussions in our concluding group-of-the whole session, where we will attempt to consolidate views from all discussion groups.

It is important that we limit our discussions to the charge given us by the North Pacific Fishery Management Council--to explore the kinds of decisions to be made for use of license limitations or individual fishing quotas as management strategies for controlling access to the sablefish longline fishery. This workshop is not to become a forum for debate concerning desirability of access controls for the sablefish fishery. The Council has already indicated intent to implement such controls in its statement of commitment at the September 1987 meeting:

Expansion of the domestic fleet harvesting fish within the EEZ off Alaska has made compliance with the MFCMA's National Standards and achievement of the Council's comprehensive goals more difficult under current management regimes. The North Pacific Fishery Management Council therefore is committed to pursue alternative management methods that will support the Comprehensive Goals adopted by the Council and achieve more productive and rational effort and harvest levels in the groundfish fishery.

To fulfill this commitment the Council will:

1. Develop strategies for license limitation or use of individual transferable quotas in the sablefish longline fishery. The process will begin at the September 1987 meeting, and the Council intends to implement the selected management strategy for the 1989 season.

**ALTERNATIVE MEASURES AND CONSIDERATIONS FOR ACCESS CONTROLS
IN THE ALASKAN LONGLINE SABLEFISH FISHERY.**

**A. INDIVIDUAL FISHING QUOTA (IFQ) STRATEGIES AND METHODS:
Issues, measures, and problems to be considered.**

Note: Major issues to be considered may be grouped under the following headings (in bold type in the following pages):

- * assignment and transferability of IFQ's
- * initial allocation of IFQ's: "fresh start" or based on past participation--and by what criteria?
- * adjustment of effort/fishing power levels
- * administrative and management considerations

1. Assignment and transferability of IFQ's

a. Assignment of IFQ's: Should they be:

1) assigned by vessel (owner) [as are licenses in Canadian troll salmon and sablefish fisheries].

2) assigned to the individual fisherman [as are licenses in Alaska's salmon fisheries].

?) Which alternative do you favor, and why?

b. Transferability by lease or sale of IFQ's: Should they be:

1) fully transferable by lease or sale on the open marketplace, with no limit to the amount one individual, corporation, or other entity can control (as is the case for IFQ's generally in other fisheries).

Should they be perpetual (no time of expiration), as is the case for Alaskan salmon licenses?

2) transferable, but with some limitations such as:

Should an upper limit be placed on individual holdings to prevent excess concentration of IFQ's--keeping in mind the MFCMA requirement [Sec.301(a)(4)(C)] that management be "carried out in such a manner that no individual, corporation, or other entity acquires an excessive share of such privileges".
Should they be valid only for specified number of years; or transfer approval required by governing body; etc.

3) non-transferable (but might revert to governing body for reissue after lapsing).

4) Should we consider some mixture of the above-- e.g., with fully-transferable perpetual IFQ's for long-time professional fishermen, and non-transferable shorter-term IFQ's for those less qualified?

?) Which alternative do you favor, and for what reasons?

2. Initial allocation of IFQ's

Some general background notes:

The most difficult task facing any new access control system is determining which fishermen shall receive the initial allocations. Any proposed access control system must take into full account the equity rights of individual fishermen and their investments in the fishery. At the same time, the system must attempt to hold down the level of total effort and fishing power which will be established by these initial allocations. The higher that level of total effort, the less will be the potential economic benefits to individual fishermen holding fishing rights/privileges.

Based on the history of IFQ systems established elsewhere, criteria for initial allocation of IFQ's may not need to be quite so rigorous as for license limitation systems. Where IFQ's are readily transferable, each IFQ holder can choose whether to fish for his quota, or to lease or sell it to another fisherman. Experience indicates that for economic reasons, many marginal operators will choose to sell or lease their IFQ's to more efficient operators. In this manner, market factors over time tend to reduce the number of vessels on the grounds.

Market considerations also can influence fishing periods and seasons. An IFQ holder is assured access to an assigned quota of product, based on his number of shares. This assurance allows him to select his own fishing strategies in terms of his own personal convenience and his anticipation of market benefits (e.g., time and area to fish, choice of gear, selection of market, etc.).

"Fresh Start", or Past Participation?

a. A "Fresh Start" approach to initial allocations.

In most other fisheries, past participation (however defined) has been the basis for initial allocations of fishing privileges. However, alternatives which might be considered would "start fresh", with no credit for past participation. Would you favor this "fresh start" approach, and if so, by which of the following alternatives? For what reasons?

- 1) Sale at set price of IFQ's.
- 2) Auction to highest bidder of IFQ's.
- 3) Some form of lottery distribution of IFQ's.

b. Past Participation in the fishery as basis for Initial Allocation of IFQ's. (as has been the basis for initial allocation in most other fisheries under some form of access management).

If past participation is your preferred basis for initial allocation, what criteria should be used, and for what reasons? [see next page]

- 1) Preferred cut-off date for fully credited participation:
 - a) Sept.26, 1985 (date previously established by NPFMC), or
 - b) date of final Council action on access limitation, or
 - c) some other date (which, and how determined?)

- 2) What years in the fishery should count as "participation"--the qualifying period?
 - a) total years before the cut-off date?
 - b) for those qualified, total years before & after the cut-off date?
 - c) other: (e.g., 2 out of 3 years, 1983-85)
[perhaps of some relevance, domestic longline sablefish landings from the EEZ jumped from 2,100 mt. in 1983 to 6,009 mt. in 1984--the year foreign sablefish fishing was phased down to bycatch only.

?) For cutoff date and qualifying period (1 & 2 above), which alternatives do you prefer and why?

- 3) Years for which documented pounds landed establish each fisherman's initial IFQ level
 - a) His best year over the qualifying period.
 - b) The average of his best "x" years (two or three?) out of the qualifying period.
 - c) His landings for a designated year, or his average landings for two (or more?) designated years.

?) which do you prefer and why? (fill in missing numbers!)

4. Should IFQ's be expressed as percentages or as pounds?
 - a) IFQ's as a percentage of the allowable harvest (thus pounds harvestable per IFQ share vary yearly as stock strengths change).
 - b) IFQ's as pounds (which would require developing some mechanism to buy up or "bank" IFQ's in low stock years to avoid overharvest).

?) Which do you prefer, and why? If pounds, what should be the "buy-up" entity and its funding?

Note that the foregoing elements of initial entitlement (cutoff date, qualifying period, and level of landings) constitute documented facts derived from the record--and are legislative rather than adjudicative.

By contrast, the following (other factors, and special case exemptions) require judgement to apply; therefore are adjudicative, and can add greatly to the time and resources required for final disposition--and hence to the need for an effective appeals process.

- 4) Other factors: (i.e., commercial fisherman status).
(Note that rigorous entitlement criteria in legislative areas automatically will give preference to professional fishermen, and thus to some extent take these "others" into account). However, should additional weight be given these factors, and if so, for what reasons?
 - a) percentage of income dependency on the fishery;
 - b) investments in vessel, gear, etc.
 - c) anything else that should be specified?

- 5) Special case exemptions: Should provision be made for "hardship case" exemptions from the qualifications required above, as documented by (for example):
 - a) illness/injury/vessel layup during qualifying period;
 - b) prior investments in vessel construction, gear, etc.
 - c) other special factors (what are they?)? should any of the special case exceptions (previous page) be permitted? if so, which ones?

- 6) Appeals Process Where should the ultimate authority reside for handling appeals?
As noted earlier, if adjudicative factors are included [e.g., as reviewed in sections 4) and 5) above], an enormous and complex case-load can be anticipated.

3. Adjustment of effort/fishing power levels

Once initial allocations of fishing privileges have been made, and the fishery has somewhat stabilized, it may be desirable to adjust access/effort levels. Which mechanisms would you favor for doing so, and for what reasons?

[next page]

- a. For reducing total effort in the fishery--the usual ultimate goal of any access limitation program--should we:
 - 1) depend mainly on attrition and market forces? (e.g., IFQ's forfeited as penalties for law violations; termination of non-transferable holdings; removal of marginal producers through sale or lease of IFQ's).
 - 2) develop an IFQ buyback program? if so, how funded?
- b. For increasing total effort, (an unlikely possibility, but one which later conditions, such as major gains in stock strength might justify, should new IFQ's be:
 - 1) sold at auction or through other market process?
 - 2) distributed by lottery to qualified applicants?
 - ?) What alternatives do you prefer for a. and b. above?

4. Administrative and management considerations.

- a. Governmental services: Probably we can assume governmental responsibility for initial allocation of IFQ's, and for continued stock assessments, determination of ABC's and total allowable harvests, data collection, and enforcement of regulations. For these ongoing related management functions, what changes or improvements from current capabilities would appear necessary to make an IFQ system effective, with respect to:
 - 1) stock assessments
 - 2) landings data--timeliness and accuracy
 - 3) enforcement mechanisms and capabilities--will special provisions to control "highgrading be required?
 - 4) other management functions.
- e. Other administrative services: Other elements of ongoing administration might be governmental, or be undertaken by a cooperative entity or other element of the private sector. Which would be preferred, and under what guidelines, with respect to the following kinds of administrative actions?
 - 1) oversight/management of ITQ sales and leases.
 - 2) maintenance of individual "bank accounts" if required to adjust "poundage IFQ's" to annual shifts in stock strengths.
 - 3) clearing house for acquisition of IFQ's to reduce total effort (and for redistribution if appropriate).
 - 4) other functions?

ALTERNATIVE MEASURES AND CONSIDERATIONS FOR ACCESS CONTROLS
IN THE ALASKAN LONGLINE SABLEFISH FISHERY (continued)

B. LICENSE LIMITATION STRATEGIES AND METHODS:

Issues, measures, and problems to be considered.

Note: Major issues to be considered may be grouped under the following headings (in bold type in the following pages):

- * assignment and transferability of licenses
- * initial allocation of licenses: "fresh start" or based on past participation--and by what criteria?
- * adjustment of effort/fishing power levels
- * administrative and management considerations

1. Assignment and transferability of licenses

a. Assignment of licenses: Should they be:

- 1) assigned by vessel (owner)
[as in Canadian troll salmon and sablefish fisheries]
- 2) assigned to the individual fisherman
[as in Alaska's salmon fisheries].

?) Which alternative do you favor, and why?

b. Transferability of licenses: Should they be:

- 1) fully transferable on the open marketplace (as for Alaskan salmon), with no ownership limits? If so, should they be perpetual (no time of expiration), as is the case for Alaskan salmon licenses?
- 2) transferable, but with some limitations (e.g., upper limit placed on individual holdings to prevent concentration of licenses--keeping in mind the MFCMA requirement [Sec.301(a)(4)(C) that management be "carried out in such a manner that no individual, corporation, or other entity acquires an excessive share of such privileges"; or valid only for specified number of years; or approval required by governing body; or no increase allowed in harvest capacity: etc.)
- 3) non-transferable (but might revert to governing body for reissue after lapsing).
- 4) Should we consider some mixture of the above-- e.g., with fully-transferable perpetual licenses for long-time professional fishermen, and limited transferability and/or shorter-term licenses for those not qualifying for fully transferable licenses?

?) Which alternative do you favor, and for what reasons?

2. Initial allocation of licenses

Some general background notes:

The most difficult task facing any new access control system is determining which fishermen shall receive the initial allocations. Any proposed access control system must take into full account the equity rights of individual fishermen and their investments in the fishery. At the same time, the system must attempt to hold down the level of total effort and fishing power which will be established by these initial allocations. The higher that level of total effort, the less will be the potential economic benefits to individual fishermen holding fishing rights/privileges.

License limitation systems for salmon in Alaska and for sablefish in British Columbia have not been able to achieve either reductions in total fleet effort and fishing power, or lengthening fishing seasons. Initial qualifications for licenses were quite generous, and barriers excluded new entries. However, fishermen holding licenses upgraded their vessels, gear, and fishing techniques, so that total fleet fishing power actually has increased, and in most cases, managers have been forced to shorten seasons to protect stocks from overfishing.

Therefore, if goals for the sablefish longline fishery are to include reduction in fleet fishing effort and fishing power, lengthened seasons, and reduced concentration of vessels on the grounds, innovative approaches to initial allocations (this Section) and to other management actions (Sections 3a & 4b, pp. 9 & 10) must be considered.

a. "Fresh Start" approach to initial allocations.

In most other fisheries, past participation (however defined) has been the basis for initial allocations of fishing privileges. However, alternatives which might be considered would "start fresh", with no credit for past participation. Would you favor this "fresh start" approach, and if so, by which of the following alternatives? For what reasons?

1) Auction to highest bidder of licenses.

2) Lottery distribution of licenses.

b. Past Participation in the fishery as basis for Initial Allocation of Licenses. If past participation is to be the basis for initial allocation (as in most other fisheries under some form of access control), what criteria should be used, and for what reasons?

1) Preferred cut-off date for fully credited participation:

a) Sept. 26, 1985 (date previously established by NPFMC), or

b) date of final Council action on access limitation, or

c) some other date (which, and how determined?)

- 2) What years in the fishery should count as "participati
 - a) total years before the cut-off date?
 - b) for those qualified, total years before & after the cut-off date?
 - c) other: (e.g., 2 out of 3 years, 1983-85)

?) For cutoff date and years participation (1 & 2 above), which alternatives do you prefer and why?
- 3) documented landings within years specified:
 - a) any (one or more over the entire period);
 - b) any in "x" out of a "y" year period [e.g., two landings out of three countable years?]
 - c) some minimum poundage (rather than only a landing) for years specified (what pounds & what years?).

?) which do you prefer and why? (fill in missing numbers!)

Note that the above (cutoff date, years in the fishery, and level of landings) constitute documented facts derived from the record--and are legislative rather than adjudicative.

By contrast, the following (other factors, and special case exemptions) require judgement to apply; therefore are adjudicative, and can add greatly to the time and resources required for final disposition--and hence to the need for an effective appeals process.

- 4) Other factors: (i.e., commercial fisherman status). (Note that rigorous entitlement criteria in legislative areas automatically will give preference to professional fishermen, and thus to some extent take these "others" into account). However, should additional weight be given these factors, and if so, for what reasons?
 - a) percentage of income dependency on the fishery;
 - b) investments in vessel, gear, etc.
 - c) anything else that should be specified?
- 5) Special case exemptions: Should provision be made for "hardship case" exemptions from the qualifications required above, as documented by (for example):
 - a) illness/injury/vessel layup during qualifying period
 - b) prior investments in vessel construction, gear, etc.
 - c) other special factors (what are they?)

?) should any of the special case exceptions (previous page) be permitted? if so, which ones?

- 6) Appeals Process Where should the ultimate authority reside for handling appeals? As noted earlier, if adjudicative factors are included (e.g., as reviewed in the two prior sections), an enormous and complex case-load can be anticipated.

3. Adjustment of effort/fishing power levels

Once initial allocations of fishing privileges have been made, and the fishery has somewhat stabilized, it may be desirable to adjust access/effort levels. What mechanisms would you favor for doing so, and for what reasons?

- a. For reducing total effort in the fishery--the usual ultimate goal of any access limitation program--should we:
- 1) depend mainly on attrition? (e.g., fishing rights/privileges taken away as penalties for law violations; termination of non-transferable holdings).
 - 2) develop a buyback program? if so, how funded?

In view of the difficulties in reducing effort under a license limitation program, do you still consider your criteria for initial allocation of fishing rights and privileges to be stringent enough? (cf. Sec. 2.b. pp. 7-8)

What about limits on transferability to restrict increased vessel size and resulting fishing power? (cf. Sec. 1.b, p.6)

- b. For increasing total effort, (an unlikely possibility, but one which later conditions, such as major gains in stock strength might justify), should new licenses be:
- 1) sold at auction or through other market process?
 - 2) distributed by lottery to qualified applicants?
- ?) What alternatives do you prefer for a. and b. above?

4. Administrative and management considerations. Based on the Alaskan license limitation experience, or on other considerations, what administrative and management changes would you consider essential to make a license limitation system function effectively for the Alaskan sablefish longline fishery?

- a. What governmental agency should administer the license limitation program--initial allocation of licenses, control of transfers, etc.?

[continued next page]

Might any aspect of these services be turned over to a designated entity in the private sector (e.g. a co-op, a hired manager, etc.) If so, which functions?

- b. To help achieve overall management goals (lengthened seasons, less crowding on the grounds, etc.), what supplemental management measures should be used to spread out effort in time and space?
 - 1) gaps in annual season--a series of openings and closures?
 - 2) area licensing and restrictions?
 - 3) gear limitations--skate length, no. & type of hooks, etc.?
 - 4) some other means?
 - ?) which do you favor, and why?

C. "TWO-TIER" OR OTHER MIXED STRATEGY FOR ACCESS CONTROL

License limitation and/or an IFQ system can be combined with each other or with open access (OA) for management of a fishery. Such a combination could be undertaken to obtain some of the benefits from each type of system, while reducing some of the disadvantages of each.

For example, the TAC could be divided so that:

- a. License limitation is combined with open access, each having different seasons, areas, and/or vessel sizes.
- b. License limitation is combined with IFQ's, again with different seasons, areas, and/or vessel sizes (as in the Michigan chub fishery).
- c. IFQ system is combined with open access, again with different seasons, areas, and/or vessel sizes (as in the Australian bluefin tuna fishery and Eastern Canada's Enterprise Allocation system).

Some form of mixed system and strategy may have clear socio-political advantages--retaining open access for local fishermen having limited fishing power, also providing easier access for new entries to the fishery. Further, this approach would permit "easing in" to access control, rather than all or none.

If, on the basis of information presently available, you see value to more extensive evaluation and consideration of such a mixed approach, what combination would you recommend for study, and for what general reasons and purposes?

**PROVISIONAL ASSESSMENT OF MAJOR ALTERNATIVES FOR
CONTROLLING ACCESS IN THE ALASKAN SABLEFISH LONGLINE FISHERIES**

On the basis of information presently available to you, what are your views concerning each of the following management strategies? (for purposes of improved economic opportunities for fishermen, and overall improved management of the sablefish fishery)

- * Individual Fishing Quotas (IFQ's)
- * license limitation
- * A "Two-Tier" or Mixed strategy and system

License Limitation and Individual Transferable Quotas
for the
Alaska Longline Sablefish Fishery

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INTRODUCTION

By adopting the Statement of Commitment at the September 23-25, 1987 Council meeting, the North Pacific Fishery Management Council committed to developing strategies for license limitation and individual transferable quotas in the sablefish longline fishery. The Council intends final implementation of the selected management strategy for the 1989 season.

Since September, Council staff has developed basic structures for sample license limitation and individual transferable quota systems. The full analysis of any limited access system requires the ability to accurately anticipate individual and group decisions. It is also necessary to collate and analyze data concerning the numbers of boats and fishermen involved, pounds and value of the landings, cost of vessel operations, etc. While many of the data requirements are achievable it is not possible to determine, in anything but qualitative terms, what the behavior of boat owners, fishermen and processors will be. Not only does this hinder the analysis of a limited access system, it precludes a quantitative analysis. With this caveat in mind, general descriptions follow of the sablefish longline fishery, as well as a discussion of elements common to any limited entry scheme, potential license limitation and share quota systems.

This paper should be read in conjunction with North Pacific Fishery Management Council discussion paper 87-1, "Limited Access in Alaskan Fisheries: Some Options."

I. GENERAL DESCRIPTIONS

The number of vessels landing sablefish in the Alaska EEZ longline fishery from 1975 through 1987 is shown in Table 1. Figure 1 depicts the number of active vessels relative to the duration of the season for much of the same period in the East Yakutat area.

Not all vessels permitted to fish with longlines in the Alaska EEZ do so for sablefish. The potential active fleet size, based on federal permits, from 1981 through 1987 is presented by length, tonnage, and state of residence in Table 2. The vessels from 1986 and 1987 are shown by harvester and harvester/processor in the same categories in Table 3.

COMMON ELEMENTS

Whether the limited entry entitlement issued is a license or individual quota, certain elements are common to all the access limitation systems discussed in this paper. Those elements are:

1. Entitlement Recipient
2. Eligibility Criteria
3. Entitlement Conditions
4. Program Administration

Following is a general discussion of these issues.

Table 1

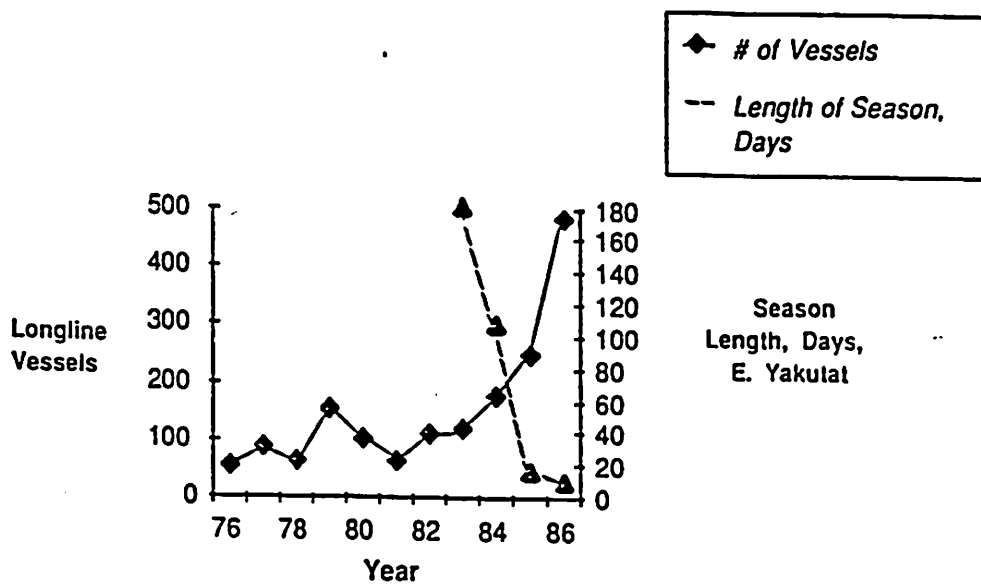
Number of sablefish longline vessels participating
in the Alaska EEZ, 1975-1987.

Year	Number of Vessels
1975	67
1976	59
1977	84
1978	61
1979	152
1980	96
1981	61
1982	104
1983	112
1984	170
1985	227
1986	445
1987*	628

Note: 1987 data is preliminary.

Source: Commercial Fisheries Entry Commission, State of Alaska.

FIGURE 1 : Gulf of Alaska Sablefish Fishery



Source: Dr. J. Harville

Table 2

Number of federal longline permits issued by vessel length, vessel tonnage, residence, and year, Alaska EEZ Total, 1981-1987.

		Year						
		81	82	83	84	85	86	87
Length	0-60 ft.	125	136	218	599	780	846	1,234
	60-85 ft.	19	25	41	76	87	109	144
	86-110 ft.	3	6	8	16	20	32	46
	111-135 ft.	1	2	2	4	4	4	8
	136-160 ft.	0	0	1	1	1	0	1
	161-200 ft.	0	0	0	0	0	0	0
	201 + ft.	0	0	0	0	0	0	0
	ALL	148	169	270	696	892	991	1,433
Tonnage	0-5 tons	18	21	29	196	238	190	243
	6-15 tons	40	43	78	191	256	294	413
	16-30 tons	52	56	85	160	200	250	393
	31-70 tons	30	38	60	106	140	181	263
	71-130 tons	7	9	12	27	39	52	78
	131 + tons	1	2	6	16	19	24	43
	ALL	148	169	270	696	892	991	1,433
Residence	Alaska	110	120	199	574	756	830	1,176
	Washington	33	42	60	103	115	124	208
	Oregon	3	3	6	10	12	29	39
	Other	2	4	5	9	9	8	10
	ALL	148	169	270	696	892	991	1,433

Source: Based on data from Federal Registration File, National Marine Fisheries Service, Alaska Region.

Table 3

Number of federal longline permits issued by vessel length, vessel tonnage, residence, year, and vessel purpose, Alaska EEZ Total, 1986-1987.

		1986		1987	
		Harv. Only	Harv/ Proc.	Harv. Only	Harv/ Proc.
Length	0-60 ft.	672	174	1,078	156
	60-85 ft.	86	23	111	33
	86-110 ft.	25	7	34	12
	111-135 ft	2	2	2	6
	136-160 ft.	0	0	0	1
	161-200 ft.	0	0	0	0
	201 + ft.	0	0	0	0
	ALL	785	206	1,225	208
Tonnage	0-5 tons	157	33	218	25
	6-15 tons	232	62	353	60
	16-30 tons	198	52	348	45
	31-70 tons	140	41	223	40
	71-130 tons	42	10	62	16
	131 + tons	16	8	21	22
	ALL	785	206	1,225	208
Residence	Alaska	667	163	1,014	162
	Washington	86	38	167	41
	Oregon	25	4	35	4
	Other	7	1	9	1
	ALL	785	206	1,225	208

Note: Harvester/processors include heading and gutting, filleting, and freezing.

Source: Based on data from Federal Registration File, National Marine Fisheries Service, Alaska Region.

Entitlement Recipient

After a management agency decides to create fishery entitlements (licenses or individual quotas through limited entry, it must then decide the class of recipients of these entitlements: fishermen, vessels or vessel owners. The State of Alaska issues limited licenses to fishermen with landings recorded in their name, but entitlements could be "tied" to a specific vessel, or issued to the vessel owner without being linked to the vessel. Issuing an entitlement to a fisherman with recorded landings in his name would be easier administratively than to a vessel since the landing records for individual fishermen are more complete than those for vessels and vessels may have sunk or otherwise been removed from the fishery; however, issuing licenses to individual fishermen may actually result in an expansion in the number of units of gear since multiple fishermen may have recorded landings on the same vessel during the eligibility period. A comparison of Tables 4 and 5 demonstrates this point.

Issuing entitlements to fishermen may also seem to disenfranchise vessel owners who leased their vessels on a share basis, or hired skippers to operate the vessels. Issuing an entitlement to the skipper in those instances could be viewed as rewarding the employee of the owner while the owner bore the greater financial risk.

Issuing entitlements to vessels may be difficult if a boat has sunk or been scrapped. In that instance it may be more reasonable to issue entitlements to vessel owners and not tie them to specific vessels.

There may also be problems in the case of multiple vessels owned by the same owner, be it an individual, partnership or corporation. In the case of ownership of multiple entitlements, some guidance is provided by the MFCMA. Section 301(a)(4) states in part, "If it becomes necessary to allocate or assign fishing privileges among various United States fishermen, such allocation shall be . . . (C) carried out in such a manner that no particular individual, corporation, or other entity acquires an excessive share of such privileges." (emphasis added) No definition is provided in the Act for "excessive share" but a limit on entitlement ownership must be considered by the Council before implementing any access limitation scheme.

Eligibility Criteria

Generally, limited entry systems are "grandfathering" systems that include in the program a class of entitlement recipient with a previous connection to the fishery. That connection may be demonstrated in many ways:

1. past and/or present participation
2. investment in the fishery
3. economic dependence upon the fishery.

The MFCMA provides some direction in this area. The Act lists certain criteria that must be considered during the development of any limited entry system. Under Section 303(b)(6) of the Act, before establishing limited access, a Council or the Secretary of Commerce must, "take into account -

- (A) present participation in the fishery,
- (B) historical fishing practices in, and dependence on, the fishery,

- (C) the economics of the fishery,
- (D) the capability of fishing vessels used in the fishery to engage in other fisheries,
- (E) the cultural and social framework relevant to the fishery, and
- (F) any other relevant considerations. . ."

These criteria need not be specifically accommodated by a limited access system established under the Act if there is a reasonable basis for basing the system upon other criteria.

Additional MFCMA guidance is found in the National Standards enumerated in Section 301. Although any Council fishery management plan, or regulation implementing a plan, must conform with the seven Standards, Standard 4 has particular relevance when considering criteria for limited access, or an allocation of harvest rights. Standard 4 states, "Conservation and management measures shall not discriminate between residents of different states. If it becomes necessary to allocate or assign fishing privileges among various United States fishermen, such allocation shall be (A) fair and equitable to all such fishermen; (B) reasonably calculated to promote conservation; and (C) carried out in such a manner that no particular individual, corporation, or other entity acquires an excessive share of such privileges."

In determining eligibility criteria consideration must be given to the matter of administrative appeals because the nature of the criteria may determine whether a large volume of appeals is generated. Neither the Council nor NOAA has budgetary or personnel resources to conduct a large number of administrative appeals by those excluded from the fishery.

In recognition of these fiscal limits, the Council's proposed halibut moratorium in 1983 contained no appeals provision. The reason for this was that eligibility for inclusion under the moratorium was based upon "legislative" facts rather than "adjudicative" facts.

Trial-type hearings are not required when the dispute concerns only legislative facts. Eligibility for participation during the halibut moratorium was based on the legal harvest and commercial sale of halibut, and the legal reporting of the sale, at any time between January 1, 1978 and December 31, 1982. The only question to be decided regarding a particular applicant was whether that person fished during the five-year base period. If they legally harvested and sold halibut and reported the sale during the period in question they were included under the moratorium; if they did not, they were excluded. Nothing would have been accomplished by conducting an administrative hearing for someone with no documented history of legal harvest and sale during the relevant period. Legal harvest and sale, and reporting the sale were legislative facts supported by official records.

Examples of adjudicative facts included as eligibility criteria in a limited entry system may be found in the first salmon and herring fisheries the State of Alaska placed under limitation. That system allowed applicants to claim participation credit if they had been prevented from fishing by "unavoidable circumstances" or circumstances beyond their control. An unavoidable circumstance is an adjudicative fact, a question of "who, what, when, how and why" relating to a specific fisherman. Claims of unavoidable circumstances gave rise to a substantial portion of the administrative hearings the Alaska

Commercial Fishery Entry Commission has held since 1974. Often the only evidence offered in support of an unavoidable circumstance, or any adjudicative fact, is oral testimony.

Entitlement Conditions

Conditions may be attached to a fishery entitlement for social, economic or biological reasons. Following is a discussion of the major issues in this area.

A. Transferability. In many discussions of access limitation, objections are raised to the possibility that fishermen initially issued entitlements are recipients of government-created wealth if these entitlements are freely transferable. It is often proposed that entitlements be nontransferable and should be returned to the issuing authority for subsequent reissue should the holder die or retire from the fishery.

The issue of transferability requires a balancing of equity and administrative considerations: Should fishermen be rewarded for the number of years they have spent in the fishery much in the same manner as homesteaders are rewarded with transferable title after proving up their claim? Would a fisherman who wished to retire from the fishery be able to receive fair market value for his vessel if he were not able to sell a permit in conjunction with the vessel? Should the marketplace decide who replaces a fisherman in the fishery or should it be a government agency?

A system with freely transferable entitlements would be easier to administer than one with nontransferable interests. If the marketplace decides who receives a freely transferable permit or share after initial issuance, the management agency need only oversee the transfer to ensure official records of ownership are properly maintained and the MFCMA's mandate against ownership of an excessive amount of fishing privileges is met. Should entitlements be nontransferable and revert back to the issuing agency for subsequent reissue, the agency would be required to maintain an application review and entitlement issuing process for the entire life of the program.

B. Area Restrictions. It may be decided to restrict the use of an entitlement to the area within which the qualifying participation took place, i.e., those that fished in the Eastern Gulf of Alaska would be issued entitlements for that area. This could be for social reasons - to protect the character of a local fishery, or for economic reasons - to slow the expansion of effort subsequent to license limitation. The cost of expanding an individual unit of effort into other areas could be substantial since separate entitlements must be acquired for each target area.

C. Gear Restrictions. Entitlements may be issued by gear type to protect the social and economic nature of a fleet or to protect the health of the resource. By restricting entitlements to the prevailing gear type the character of the current fleet would be maintained. If the use of a particular type of gear could prove detrimental to a stock by taking large numbers of sub-legal fish the entitlement could be restricted to more selective gear.

D. Vessel Size Restrictions. Issuing limited entry entitlements classified by vessel size categories is not unheard of but is rational only in license limitation systems. The main reason for this type of condition is to slow expansion in harvest capacity subsequent to access limitation. In an individual quota system, an increase in vessel size without an increase in quota would make little economic sense and would not affect other units of effort in the fishery.

With transferable vessel size-specific licenses, the management authority would be required to inspect transferee vessels to ensure compliance with the size restrictions. A review and inspection process of this type is required by the Mid-Atlantic surf clam license limitation program for permits transferred from vessels which involuntarily leave the fishery.

Administration

Any limited access system adopted by the Council will require an agency for administration to determine eligibility, litigation, tracing of permit and landing data, any permit transfers which are allowed, and other related matters. The State of Alaska uses the Commercial Fisheries Entry Commission for this purpose. The Commission employs 30-40 people with an annual budget that fluctuates from \$1.5-2 million to administer 40 fisheries with a total of 12,754 permanent permits.

II. SABLEFISH LICENSE LIMITATION

This section reviews fundamental considerations that would be before the Council if it chooses to restrict access in the sablefish longline fishery through license limitation. Three possible permit systems are discussed in the summary of this section.

Number of Permits

Once the decision was made to implement license limitation in the sablefish longline fishery, the next step would be to decide the number of permits for issuance. Other actions, such as determining eligibility criteria would, in large part, be ancillary to establishing the number of licenses.

Several approaches may be taken to this question. Two such approaches would be to freeze harvest effort at a level tied to a specific point in time, or to determine the optimum number of units of gear for the fishery and then issue only that number of licenses. The former method would include all participants during the relevant period and could reduce the potential opposition to implementation. The latter system excludes participants and would face more opposition than the former, but may provide a method of rationalizing the fishery.

To freeze the fleet or number of participants at a specific size such as the number of vessels or fishermen that fished in 1987 or before the September 26, 1985 cut-off date, the Council need only prohibit the commercial harvest and sale of longline caught sablefish by a vessel, or person, unless that vessel, or person, had lawfully harvested and sold sablefish in the Alaska EEZ during 1987 or before the cut-off date. This would be a relatively simple method of permit issuance, but would do nothing to address problems in the fishery such as contracting seasons.

If the decision were to issue permits to all vessels with sablefish longline landings from the Alaska EEZ between January 1, 1987 and December 31, 1987, 628^{1/2} permits could be issued. If the Council wished to issue permits to fishermen with recorded participation before the September 26, 1985 cut-off date, at least 599^{2/3} permits could be issued. These examples are discussed further in the summary.

In implementing license limitation the Council may choose as a goal the extension of the season over a longer period of time than the 1985 or the 1987 seasons. The Council may also wish to provide opportunities for those who remain in the fishery after license limitation to realize maximum benefits from the harvest and sale of sablefish. Such decisions would, necessarily, require the Council to determine the optimum harvest level and issue the number of permits reflective of that level. In such an instance, the number of permits would probably be below the current number of licenses and would require exclusion of some fishermen. Stricter eligibility criteria would be required than for a simple moratorium.

As stated in Section I, eligibility could be based upon such criteria as the number of years in the fishery, investment in the fishery, economic dependence on the fishery, participation in other fisheries, and social or cultural dependence on the fishery. These elements may be considered alone or in any combination.

Data is provided below to give the Council some indication of the possible size of the sablefish longline fleet should licenses be issued based upon consideration of the number of years in the fishery. Assuming the Council used September 26, 1985 as the cut-off date for participation credit, Table 4 reflects the number of fishermen and Table 5 the number of vessels that could receive permits if the Council based eligibility solely on participation during certain years over the period 1975-1985.

Table 4
ALASKA EEZ LONGLINE SABLEFISH FISHERY
1975-1985
NUMBER OF UNIQUE PARTICIPANTS BY TIME PERIOD

<u>Time Period</u>	<u>Number of Participants*</u>
1985	246
1984 through 1985	322
1983 through 1985	361
1982 through 1985	396
1981 through 1985	411
1980 through 1985	444
1979 through 1985	516
1978 through 1985	529
1977 through 1985	561
1976 through 1985	581
1975 through 1985	599

Source: Commercial Fisheries Entry Commission

*The number of fishermen with at least one legal landing in the fishery during the relevant time period.

Table 5
ALASKA EEZ LONGLINE SABLEFISH FISHERY
NUMBER OF UNIQUE VESSELS BY TIME PERIOD*
1975-1985

<u>Time Period</u>	<u>Number of Vessels*</u>
1985	227
1984 through 1985	302
1983 through 1985	341
1982 through 1985	378
1981 through 1985	397
1980 through 1985	431
1979 through 1985	505
1978 through 1985	516
1977 through 1985	549
1976 through 1985	573
1975 through 1985	590

Source: Commercial Fisheries Entry Commission

*The number of vessels with at least one legal landing in the fishery during the relevant time period.

Another method of reducing effort to an optimum level may be to initially issue permits to all those with a history of participation in the fishery, establish an optimum number of permits for the fishery, and institute a buy-back program that would reduce the number of permits to the optimum level. Buy back could be funded by the government or the fleet. It is unlikely that federal funds would be available for fleet reduction in the foreseeable future.

Pros/Cons of License Limitation

License limitation systems, generally, may be more acceptable to the industry than other forms of limited entry because it is similar to the present system of management in most fisheries in this country, i.e., the licensing of fishermen and/or vessels. It is also a known entity in this region because of limitation programs in Alaska and Washington State. Enforcement of a permit system is relatively straightforward. The "tracking system" necessary for individual quotas would not be required for permits.

License limitation in conjunction with inefficiency regulations, i.e., gear and vessel restrictions, may slow down overcapitalization but would not prevent an expansion of harvest capacity. Consequently, a fishery under license limitation would still be subject to the "race for fish" common to open fisheries.

Fixing the fleet size or the number of participants at current levels avoids the immediate social and political problems of fleet reduction. Including all current participants in a license limitation program reduces the number of opponents that could lobby against the program's implementation, but would do nothing to halt the contraction of seasons or to rationalize product flow to markets. Subsequent fleet reductions may be beneficial but would require funding by the government or the industry.

An example of a sablefish fishery under license limitation that is still experiencing contracting seasons is the British Columbia sablefish fishery. That fishery was placed under license limitation in 1979 when 48 transferable licenses were issued. The following table reflects the fishery profile over the latest five year period for which reliable participation data is available.

Table 6

BRITISH COLUMBIA SABLEFISH FISHERY
1982-1986

<u>Year</u>	<u>Season Length (days)</u>	<u>Active Vessels</u>	<u>TAC (mt)</u>	<u>Catch (mt)</u>
1982	203	22	3,500	4,027
1983	149	23	3,500	4,402
1984	181	20	3,500	4,009
1985	98	28	4,000	4,180
1986	64	39	4,000	4,460

Source: Canada Department of Fisheries and Oceans.

SUMMARY

EXAMPLE 1. Transferable licenses issued to vessels with participation in 1987
- 628 permits could be issued.

Eligibility. A vessel is eligible for a permit to harvest sablefish with hook and line gear in the EEZ off Alaska if that vessel lawfully harvested and sold sablefish from those waters between January 1, 1987 and December 31, 1987. Permits will be issued by the Alaska Regional Director, NMFS (Regional Director) upon the receipt of a completed application submitted by the owner of an eligible vessel during the specified application period.

Permit Conditions. A permit to harvest sablefish with hook and line gear in the EEZ off Alaska may be transferred between vessels provided the owner of the transferee vessel does not already own such a permit. Permit transfers are to be completed through the office of the Regional Director on forms provided for that purpose.

Appeals. Any applicant denied a permit or a transfer by the Regional Director may appeal in writing to the Assistant Administrator for Fisheries, NOAA, for a review of the denial. The decision of the Assistant Administrator will be the final decision of the Department of Commerce.

EXAMPLE 2. Transferable permits issued to fishermen with participation at any time between 1975 and the September 26, 1985 cut-off date - 599 permits could be issued.

Eligibility. An individual is eligible for a permit to harvest sablefish with hook and line gear in the EEZ off Alaska if that person lawfully harvested and sold sablefish from those waters any time between January 1, 1975 and September 26, 1985. Permits will be issued by the Alaska Regional Director, NMFS (Regional Director) upon receipt of a completed application submitted by an eligible individual within the specified application period.

Permit Conditions. A permit to harvest sablefish with hook and line gear in the EEZ off Alaska may be transferred between individuals provided the proposed transferee does not already own such a permit. Permit transfers are to be completed through the office of the Regional Director on forms provided for that purpose.

After the date of implementation of the permit program, a permit holder must be on board each vessel engaged in the harvest and sale of sablefish with hook and line gear in the Alaska EEZ.

Appeals. Any applicant denied a permit or a transfer by the Regional Director may appeal in writing to the Assistant Administrator for Fisheries, NOAA, for a review of the denial. The decision of the Assistant Administrator will be the final decision of the Department of Commerce.

EXAMPLE 3. Industry Proposal. Several longline associations submitted a proposal for a sablefish limited entry system that called for:

1. Two-year nontransferable permits issued to those with participation in the fishery for the first time in 1987.

2. Transferable permits issued to longline vessels with a record of a minimum number of pounds of sablefish landed in 1985 or 1986. (FVOA did not specify the minimum poundage.)

3. The transferable permits are classified as follows:

Class A Licenses - Vessels less than 20 gross registered tons (grt).
Class B Licenses - Vessels at least 20 grt but less than 35 grt.
Class C Licenses - Vessels at least 35 grt but less than 70 grt.
Class D Licenses - Vessels 70 grt and over.

4. After implementation, two "A Licenses" could be used to introduce a "B" class vessel into the fishery in lieu of a "B" license, two "B Licenses" would qualify a "C" class vessel and two "C" licenses could qualify a "D" class vessel.

Under the industry proposal 341^{3/} two-year nontransferable licenses could be issued. The proposal did not specify a minimum tonnage, but the number of unique vessels with a record of participation at some time in the fishery during the period 1985-86 is 504. The numbers of vessels by individual category eligible for transferable permits appear below:

Table 7
ALASKA EEZ SABLEFISH LONGLINE FISHERIES
NUMBER OF VESSELS, BY GROSS TONNAGE, WITH LANDINGS IN 1985 OR 1986

<u>Vessel Gross Tons Category</u>	<u>Number of Vessels</u>
Unspecified gross tons	51
01 to 19 gross tons	87
20 to 34 gross tons	105
35 to 69 gross tons	153
70 or more gross tons	<u>108</u>
Total	504

Source: Commercial Fisheries Entry Commission

Assuming, for the sake of example only, the landing threshold was 1,000 lbs. in 1985 or 1986, the following number of permits could be issued:

Table 8
ALASKA EEZ SABLEFISH LONGLINE FISHERIES
NUMBER OF VESSELS, BY GROSS TONNAGE,
WITH LANDINGS OF 1,000 POUNDS OR MORE IN 1985 OR 1986

<u>Vessel Gross Tons Category</u>	<u>Number of Vessels</u>
Unspecified gross tons	45
01 to 19 gross tons	71
20 to 34 gross tons	95
35 to 69 gross tons	145
70 or more gross tons	<u>102</u>
Total	458

Source: Commercial Fisheries Entry Commission

The 1,000 lb. minimum landing requirement in 1985 or 1986 would reduce the number of eligible vessels by 46 (504-458). The number would be further

reduced by requiring minimum landings in both 1985 and 1986. Two examples follow:

Table 9

ALASKA EEZ SABLEFISH LONGLINE FISHERIES
NUMBER OF VESSELS, BY GROSS TONNAGE,
WITH LANDINGS OF 1,000 POUNDS OR MORE IN 1985 AND 1986

<u>Vessel Gross Tons Category</u>	<u>Number of Vessels</u>
Unspecified gross tons	9
01 to 19 gross tons	18
20 to 34 gross tons	35
35 to 69 gross tons	60
70 or more gross tons	<u>33</u>
Total	155

Source: Commercial Fisheries Entry Commission

Table 10

ALASKA EEZ SABLEFISH LONGLINE FISHERIES
NUMBER OF VESSELS, BY GROSS TONNAGE, WITH LANDINGS
OF 5,000 POUNDS OR MORE IN BOTH 1985 AND 1986

<u>Vessel Gross Tons Category</u>	<u>Number of Vessels</u>
Unspecified gross tons	5
01 to 19 gross tons	9
20 to 34 gross tons	26
35 to 69 gross tons	57
70 or more gross tons	<u>32</u>
Total	129

Source: Commercial Fisheries Entry Commission

III. SABLEFISH SHARE QUOTAS

Share quota systems are used by several nations. These systems include EAs (enterprise allocations) in the eastern Canadian groundfish fishery, vessel quotas in the Icelandic demersal fishery, and ITQs (individual transferable quotas) in the New Zealand groundfish and Australian tuna fisheries. These programs have minimized or eliminated the "race for fish" associated with open

access fisheries but have not solved all of the management problems of the fisheries. The systems may promote highgrading and discard of the bycatch and each one has other, system specific problems.

Any share quota system chosen for the sablefish longline fishery would share many similar impacts. This section deals with these impacts while plan specific impacts will be discussed with each example. Due to the data constraints and the uncertainty involved, as noted earlier, it is not possible to quantify these changes. In the last portion of this section seven examples of individual quota systems are provided.

General Benefits and Costs

A share quota system for longlined sablefish would be expected to have the following advantages over the present system of open access (status quo): stop the race for fish with its associated problems of gear loss, fish wastage, short openings, pressure to fish in adverse weather conditions, and processing bottlenecks; increased data reporting; reduced enforcement costs in some areas such as at-sea enforcement; and allow for innovative technological advances without putting pressure on the stocks. It would generally have the following disadvantages over the present system of open access: administrative costs would increase; some enforcement costs dockside and record checking would increase; and highgrading of catch would waste fish.

The overall effect of a share quota system would be to decrease the effort, specifically the number of boats and fishermen, involved in longlining for sablefish over time (holding the TAC constant). This would free capital and labor resources to be used elsewhere in the economy. Another effect would be the reduced local spending by these surplus units for goods and services now purchased.

As these extra resources of capital and labor were redistributed in the economy the marginal cost of producing longline caught sablefish would decrease. Under normal circumstances, such a reduction in marginal costs would result in increased entry. However, since entry would be restricted to fishermen able to acquire quota, the level of new entry would be less in this case. Instead, the profits of individual operations would increase. As these profits increased, the individual fishermen would make decisions concerning whether or not they wished to catch more sablefish (acquire more quota), fish for other species (acquire more gear), invest in other business enterprises, or have more leisure time (spend more money on secondary services).

The effect of the redistribution of the capital and labor referred to above would be felt in the communities and ports which service and supply the fishing vessels. The decreased expenditures on sablefish fishing might be offset by increased spending on other fisheries. To the extent that this is not the case, the expenditures would be spent elsewhere in the economy in different business ventures. Likewise, the labor force would be dispersed. Since many of the fishermen are from populous areas such as the greater Seattle area they would have a larger job market to enter than would those living in remote towns. It is expected that the effect of an increase in the available labor supply would be small (provided that there was equilibrium between the areas in terms of the number of people who cease fishing).

Such a system would enable processors to reduce the rush now experienced during the limited fishing season. Since the fish could be caught at almost any time during the year the processors would probably not be required to hire extra workers or work existing workers overtime. These reductions in labor would reduce the processing costs and free investments for elsewhere. Processing workers might work the same number of hours but receive less wages (reduced overtime) or, more likely, work less overtime hours but be more productive during periods which are currently slow. The result would be less wages for workers and a small potential decrease in their number but more stable employment for those working.

The main market for sablefish is Japan, estimated by some in the industry to be about 90% of the Alaska harvest. Analysis of the Japanese market (Jacobson, 1982)^{4/} indicated that the price of sablefish was more responsive to Japanese consumer income and the price of substitute fish (certain salmon species) rather than the amount of sablefish on the market. Prices paid to U.S. processors and harvesters are directly dependent on what Japanese wholesalers offer. In the past few years the change in the Yen-dollar exchange rate has contributed to the documented increase in prices paid to U.S. processors and harvesters.

In Japan, sablefish are most often eaten in the fall and early winter. The market is for frozen fish rather than fresh. Therefore, the sablefish are frozen after harvest and stored in either the U.S. or Japan until the retail market is ready.

In recent years, exvessel and wholesale prices in the U.S. decreased during the fishing season only to increase again after the season ended and the actual size of the harvest was known. Part of this price fluctuation could be attributed to both uncertainty on the part of Japanese wholesalers as to the source and condition of their supplies and to uncertainty on the part of U.S. processors concerning marketing opportunities after the season ended.

The year round availability of sablefish under a share quota system would allow the processors to improve marketing arrangements with Japanese wholesalers. Instead of a flood of fish on the market in the early summer, product flow could be prearranged for a time most profitable for processors. These arrangements would take into account the change in quality of the fish throughout the year, marginal processing costs, frozen storage costs, anticipated demand, currency fluctuations, and other factors. While it is not possible to estimate the change in export revenues and profits it is probable that they will be positive.

All vessels which longline for sablefish are capable of fishing for other species. Those boats designed specifically for longlining have fewer alternatives available than do boats designed to handle multiple gear. The distribution of the fleet between these categories is unknown. Due to the current expansion of the fishing industry in the EEZ off Alaska, it is probable that most if not all displaced fishermen and boats could find employment in the fishing industry. Longlining only boats could fish for halibut (a fishery that may not provide a suitable alternative due to the extremely short seasons) or Pacific cod. Boats designed for multiple gear could fish for groundfish, crab, or salmon although the small size of some boats may be limiting.

Small communities that supply the fishing fleet, process sablefish, and where sablefish longliners live would potentially be the most affected by share quotas. To the extent that the fishermen and boats displaced by a share quota system could find other work and still live or purchase supplies in the same area the monetary change would be measured as the difference in cash flow generated between sablefish longlining and the alternative employment. There would also be a social change to the participants and community which could leave them better or worse off. It would be possible for communities to assist in reducing any local displacement caused by a share quota system by encouraging shares to be purchased or transferred locally rather than outside the community.

Large communities potentially affected by such a system would be primarily the Anchorage and Seattle areas. The increased supply of labor in either of these areas would be negligible considering the size of their work forces. The effect of a reduction in the number of active boats that would be retired from fishing is unknown but not expected to be great based on only a sablefish longline share quota system.

Regardless of the particular share system chosen in sablefish longlining, certain enforcement and wastage concerns may still exist. One of the major concerns is highgrading or the discarding of lesser valued fish. Sablefish bring three different market prices depending on their size (3-4 lbs, 4-5 lbs, and 5-7 lbs). With a share system the fishermen would have an incentive to land only the larger sablefish and thereby maximize their revenues. This would be moderated only if it became cost effective to land small fish or if market prices changed. One way to lessen this effect might be to require landings to be composed of certain size percentages with stiff penalties or fines if they exceeded certain bounds, although this is a factor which varies by area and season. Another method might be to issue shares for different sized fish although this would be cumbersome to track and enforce and would encourage wastage when only one or two size quotas are filled. A share quota system with the shares denominated in value of landings might also reduce wastage since the size category would become unimportant in terms of what was landed.

Should a share quota system be implemented a new list of violations and penalties would need to be formulated. Since the shares represent harvest rights, it might be possible for some of the penalties to involve seizure or forfeiture of these rights. The Icelandic government has found it efficient to revoke a share right for sufficient quota violations (Arnason, 1986).⁵¹

In order to track the landings and harvest rights of a share system it would probably be necessary to track fish from the harvesting vessel through processing to the wholesale market. In New Zealand a three tiered reporting system is used with harvesters, fish buyers, and processors all filling out forms and sending copies to the government. Such a system might be desirable with a sablefish share quota system. Sablefish are primarily an export species thereby simplifying the tracking of fish through the processing sector. In New Zealand, auditors are a primary facet of enforcement, a radical change from present practices in the U.S. If a similar system were to be implemented here, new regulations concerning the government's ability to track fish sales and product flow would be needed.

If shares are nonleaseable or nontransferable or if the share owner must be present on the boat the enforcement effort may be greater than if this were not the case because shares and permits will have to be matched to fishermen. In general, the greater the latitude given to fishermen in terms of business decisions the less the enforcement burden will be.

If quota shares were given only to boat owners or operators or if the share holder were required to be on the harvesting vessel the structure of the processing industry may experience more rapid change toward longline catcher/processors. If the share holder were not required to be on the vessel and processors were allowed to purchase or lease quota, then they could attempt to ensure their own source of supply.

The charge ^{6/}to the Council in its governing legislation and subsequent requirements^{6/} is to consider the impact of regulations as they apply to society. This perspective mandates that all communities and resources of the U.S. be considered when analyzing costs and benefits of management measures, although considerations of local effects are important to the Council.

Based on this perspective, any redirection of expenditures and employment from sablefish longlining to other sectors would be considered a transfer. Costs or negative impacts would consist of the idling of usable boats and machinery, increases in unemployment, reductions in social well-being, and/or reductions in efficiency. Likewise, positive impacts would consist of increases in efficiency, social well-being, export profit, and/or stability throughout society.

A major problem with share quota systems is the granting of windfall profits with the allocation of shares. This has been more fully discussed in previous Council documents. Who receives the shares determines not only who receives the windfall but also which group(s) has the most control over the direction of the development of the fishery. Changes in equity can occur depending on the system chosen and the method of allocation of shares.

Examples

In order to demonstrate how a share quota system would operate and its effect on the fishery it is necessary to structure a system from the myriad choices available. Eight share quota systems have been proposed by the public during the 1987 public comment period (Table 11). None of these were fully developed with regards to the number of choices necessary to design a system. Based on these public recommendations two different examples are given below. In addition, five examples are given to demonstrate the versatility of share quota systems. The first is based on the ITQ system in New Zealand, the second on the vessel quota system in Iceland, the third is designed to show certain versatilities of the system, the fourth demonstrates a system allowing the status quo and a share system to coexist, and the fifth provides a combination of a license limitation and share quota system. All percentages and numbers used in these five examples are arbitrary and for purposes of example only. It should also be remembered that these later five are for demonstration purposes only and that other possible systems merit examination as well.

The consequences of a share quota system can only be speculative since it is not possible to accurately anticipate the actions of each individual. However, it is probable that when such a system was first implemented no one, especially those receiving no shares or shares for less than they had previously utilized, would feel that they had an adequate amount of harvest guaranteed. While this would be initially disconcerting it would lead to arrangements between fishermen, boat owners, and processors to ensure adequate supplies for each. Of course, fishermen must have access to shares to land fish. If shares were readily transferable, some might initially sell shares or lease them. By the end of the year all of the sablefish would have been caught and processed but probably by fewer boats and fishermen.

The working relationships set up during the first year would probably continue to be based on existing industry agreements and would probably change as currently happens. Fishermen would probably no longer be able to get into the fishery just by owning or leasing a boat and gear and going fishing. If shares were transferable, they would also have to arrange to lease quota for some mutually agreed price or purchase quota outright. Leasing quota would require a marginal cost like fuel while purchasing quota would require capital investment similar to buying gear. If shares were not transferable, new entrants' options would be fewer and would probably consist of working for someone else rather than owning and/or captaining their own boat.

The absolute number of eligible entities for initial allocations are unknown at this time. The data required to determine these numbers and the allocations each entity would receive are confidential and stored in State of Alaska files. Negotiations are currently underway to obtain access to these files. At such time as they are available a more thorough analysis can be conducted of any system proposed.

EXAMPLE 1.

The first example is proposal 5 from Table 11. It is a share quota system with the shares distributed to fishermen based on two of three recent years participation. The shares would be denominated in 100 lb lots, be distinct for each fishing area, and individual holdings could not exceed 2% of the quota for any area. In addition, the holder of quota would be required to be on board the boat when landings are made.

The proposal does not stipulate whether or not the fishermen must have been permit holders or only crew. Issuing shares to all fishermen who participated would require an administrative review of each permit to verify its authenticity. It would also require that criteria (i.e. number of years, number of trips, pounds assisted in landing, etc.) would have to be determined.

The shares would be denominated in actual poundage so measures would have to be taken, on a yearly basis, to adjust the outstanding number of shares for each increase or decrease in the overall and area TACs. The method of this adjustment is not specified in the proposal. It is not mentioned whether or not the shares would be transferable or leasable. If they were not, enforcement costs would be increased more than if they were. The administering authority would also have to determine a policy for reissuing shares unless market transactions were anticipated.

EXAMPLE 2.

The second proposal to be examined is proposal 6 from Table 11. It is a share quota system with the shares distributed to boat owners based on participation in 1986. A limit of 2% of the quota would apply to all share holders.

It would be possible to cross reference State of Alaska and Coast Guard files to determine the owner of each boat which landed sablefish by longline in 1986. Many of the owners would be partnerships or corporations although that would probably not cause any difficulty under this system. When accessing the files it would be possible to determine if any owner landed more than 2% of the quota in 1986.

This proposal leaves many important points undecided. The criteria to be used for allocation of shares, other than participation, is unclear. Similarly the questions of transferability, leasability, type of share (pounds or percentage), and management areas are not addressed.

EXAMPLE 3.

One possible system is that which has the least controls and allows the greatest degree of latitude for business decisions. Shares would be given to owners of boats based on two years landing records between 1984 and 1987. The shares would be issued in pounds and would be freely tradeable and leaseable with an overall limit placed at a level which would preclude market manipulation (perhaps 15% of the TAC). No formal arrangement would be made for adjustment of quota with changing TAC so the industry would have to make its own adjustments.

Records would have to be kept by all share holders and submitted to NMFS within one month of landing. It would be up to the industry and quota holders themselves to arrange sales and leases of shares and to report them to NMFS. All share holders would have to report each year on the total amount of quota they controlled (owned or leased) during the year, who landed their quota, when, and where.

Since there are greater concentrations of share control allowed in this example than in others described, there would probably be fewer boats fishing. Since the market would eventually shrink it would become more difficult for new entrants to obtain quota. However, the system would also allow cooperatives and community organizations to acquire quota in order to assist local fishermen.

EXAMPLE 4.

Another system which would grant initial allocations to only one class of entrants would be one where the shares, denominated in pounds, were given to boat owners. The initial allocation would be based on the best one of three previous years landings. The shares would be issued to the boat owners on a yearly basis although the quantity of shares would remain the same each year. The shares would be leasable but not saleable. Enforcement would be increased and new regulations issued to ensure compliance and to permanently remove quota allocations from serious offenders.

Table 11

1987 Public Proposals for Sablefish Management as They Apply to Share Quotas

Measure	Recommendation Number						
	1	2	3	4	5	6	7
Recipients	unk	unk	unk	fisherman	fisherman	owner	fisherman
Type	unk	unk	unk	share or %	100 lb	unk	unk
Limits	unk	unk	unk	unk	2% of quota	2% of quota	unk
Extent	unk	unk	unk	unk	each area	unk	unk
Date	1987	1987	recent years	past participation	recent years	1986	unk
Lottery	participants	participants	participants	participants	participants	participants	participants
Criteria	vessel share system	participation, pounds or production	largely on participation	participation	best 2 of 3 years	1986 participation	5 or 10 year base period
Transferable	unk	yes	yes	unk	unk	unk	unk
Exchange	unk	unk	unk	unk	unk	unk	unk
Restrictions	unk	1986 & earlier, permanent; 1987 temporary	US citizens only	not to vessel	Holder on board	unk	unk
Leasable	unk	unk	unk	unk	unk	unk	unk
Administration	unk	unk	unk	unk	unk	unk	unk

Note: Only 8 public proposals relating to share quota management of sablefish were received by the Council during the 1987 comment period. One proposal was only general.

The shares would be issued to boat owners each year in the same quantity. The owners would then have the option of fishing all of their quota, leasing it to others, leasing more to fish themselves, or letting it sit idle. All owners would be required to have their own boat fish a nominal amount of the quota or forfeit future allocations. If a partnership or corporation which owned shares lost over 50% of its original membership their quota would not be reissued in subsequent years.

The issuance of new shares would be done by NMFS if the TAC increased. New shares would be issued to a random selection of boats fishing in the previous year with a limited number of shares to each. If it was necessary to reduce the quota, shares would be reduced proportionally unless the industry could reduce the overall number itself.

EXAMPLE 5.

Share quota systems are can be modified to fit different circumstances. Example 5 is designed to demonstrate how the initial granting of shares could be more equitable in terms of who receives an initial windfall profit and how the windfall could be lessened. This example is based on shares denominated in a percentage of the total TAC initially distributed to fishermen (fishing permit holders) and boat owners. An overall ownership or harvesting limit of 2% of the total TAC is allowed with the shares being freely transferable and leasable. Initial allocations would be based on the best two of five years performance in the fishery. Eligible entities must have operated before 1987 and the five years performance would be 1982 through 1986. Allocations would be reissued every seven years based on the best of the three years previous landings.

The initial allocation would be assigned to each industry group such that each pound landed counted two times. The shares would then become transferable so that they were not attached to any one industry group. After seven years the shares would all be recalled and reissued in the same manner to the initial two groups and also to previous share holders. The fact that shares would be reissued would allow for new entrants to acquire their own shares, provide for detailed data reporting in at least three of the years, and reduce the sale (as opposed to lease) price of quota.

EXAMPLE 6.

The use of a share quota system does not preclude the existence of an open access fishery for the same species. Example 6 is designed to show how both could coexist in the same fishery. The system would be based on an optional share quota system which allows the fishing boat owner to choose, on a yearly basis, to be included or to fish in the open access portion of the fishery. The shares would be issued based on historical landings and be in a percentage of the TAC. Those boats included in the share quota portion would be able to lease quota on a yearly basis. There would be no restrictions on boat replacement or on entry into the open access fishery although boats could only fish in one or the other. The ownership of the shares would be nontransferable and return to the government when the owner retired from the fishery. All shares would be leased privately with all holders reporting landings and leases to NMFS.

Initially, and yearly thereafter, all boat owners in the open access fishery would be notified of their potential share holdings as a percentage of TAC. Those who chose the share quota option would receive that same percentage each year while those in the open access portion would be reevaluated each year. There would be free movement between the systems. When the open access fishery contained only 10% of the quota allocated to the longline fishery no new shares would be issued. As shares were retired new shares would be issued on the basis of the most senior, valid application on file.

This system would not restrict entry to the fishery and would allow a new generation to enter with no additional cost. Since the permits would be nontransferable, there would be no granting of instant wealth by the government. Share holders could, however, earn yearly income from leasing most of their shares. Since an open access fishery would still exist there would continue to be seasons and other restrictions on those participating in it. Those holding permits would be allowed to catch sablefish throughout the year (barring closures for biological reasons) and schedule their fishing themselves.

EXAMPLE 7.

Another example of a possible share quota system is a "competitive" one. Under this example the fleet would be frozen at a particular level, either the number of boats or participants, and individual shares would be issued based on percentages caught by boats during a the past three years. Annually, the TAC would be divided into halves, the first half of the TAC would go into a common "pool" from which any share holder could harvest. After the common "pool" was harvested, the share holders would begin harvesting their individual allocations.

The shares would be transferable with a limit set on total control by one share holder. One entitlement would include access to the common "pool" and individual shares. These entitlements could be split with one transferee receiving the access to the common "pool" and another the shares. All allocation transfers would be conducted privately and reported to NMFS.

This type of system could preserve the competitive element of the fishery that is important to fishermen. In addition, it could provide for rational product flow to market and reduce the opportunities for capital stuffing.

FOOTNOTES:

1. Preliminary figure.
2. Based upon CFEC catch data for the period 1975-1985. Individual catch records in the fishery before 1975 may be unreliable. (If the decision were made to issue permits to longline vessels with sablefish landings before the cut-off date, 590 such permits could be issued.)
3. Preliminary figure.
4. R.P. Jacobson. 1982. A bio-economic analysis of the Gulf of Alaska Sablefish Fishery. Masters Thesis. University of Washington. 77 p.
5. R. Arnason. 1986. In Management of Icelandic Demersal Fisheries. N. Mollett [ed]. Fishery Access Control Programs Worldwide. Alaska Sea Grant Report No. 86-4, pp. 83-101.
6. MFCMA, 1976; E.O. 12291, 1981.

Limited Access in Alaskan Fisheries:
Some Options

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LIMITED ACCESS IN ALASKAN FISHERIES: SOME OPTIONS

I. INTRODUCTION

The Policy and Planning Committee of the North Pacific Fishery Management Council, in consideration of the rapid Americanization of groundfish fisheries off Alaska and recent problems with the "olympic system" for joint ventures, wishes to reexamine long-term management strategies. The committee is conducting this re-examination to avoid some of the problems that have occurred in fisheries around the world as an ever-increasing number of vessels compete for finite amounts of fish.

The committee directed that, prior to the Council's September 23-25, 1987, meeting, a discussion paper or papers be prepared which would 1) outline the foreseeable difficulties in continuing the status quo; 2) examine future management in light of the Council's goals and objectives and the National Standards of the MFCMA; and 3) present, for discussion purposes, some examples of alternative management strategies.

This paper is the second of two discussion papers prepared by direction of the committee for Council review. The first, "Long-range Goals, Objectives, and Techniques for Managing North Pacific Groundfish Fisheries" addresses items 1) and 2) while this paper focuses only on item 3), alternative management strategies. The scope of the paper is further narrowed to concentrate primarily on describing limited access management, not because conventional management measures are inappropriate for future management, but because limited access is less well understood by the fishing industry and the public.

Organization of the paper is as follows. Section II presents definitions and Section III discusses the use of conventional management measures in an open access fishery. Presented in this section is the argument that the problems that have occurred in fully developed fisheries are often a result of the open access nature of the fishery. Section IV considers management using nonconventional methods. The first of the approaches is the use of license fees, taxes or royalties on fish landed, the second is limiting access through license limitation, and the third is controlling the fisheries via individual transferable quotas (ITQ).

In Section IV, license fees or taxes on fish or fishermen are dismissed as administratively impractical and unauthorized under current law. Therefore, the section is primarily a discussion of license limitation and ITQ approaches, particularly the "nuts and bolts" of each. For each method, strategies for initial allocation of fishing rights, questions of program administration, approaches to buy-back programs (license limitation) and quota adjustment (ITQ), and issues of enforcement are addressed.

Although examples focus on particular fisheries it should be noted that the issues, problems and questions to be resolved are generally applicable to any fishery where management by limiting access is contemplated.

II. DEFINITIONS

Common property, common resources, property rights and use rights

In discussions of open access fisheries and the need to limit access, the terms "common property resource," "privatized resource," and "property rights to the resource" are often used. These terms may be misleading since it is a well established precept in U.S. common law that migratory or free roaming wild animals such as fish, or birds, cannot be considered property, and therefore, cannot be owned by anyone until "reduced to possession by skillful capture."¹ Although fishery resources in public waters are not property before capture, the states and federal government may, as trustees of a common resource, regulate the harvest of those resources found within their respective boundaries. In this position as trustee, a state or the federal government may grant use rights.

It is important to recognize that property and use rights are the core issues of open or limited access. The Magnuson Fishery Conservation and Management Act (MFCMA) declares that the United States will exercise control over the ocean's fishery resources that occur from 3 to 200 miles of the U.S. coast² and, by inference, that those resources are to be managed for the benefit of all U.S. citizens. The position of the United States with regard to fishermen's rights to use these resources determines the kind of access (open, limited) and rules (fees, taxes, etc.) that may occur.

Open access fishery

An open access fishery is one in which anyone with a registered vessel may participate. Normally, annual harvest amounts are limited by use of quotas, e.g. total allowable catch (TAC). Other measures often employed for limiting catch, in conjunction with quotas, are short openings, time/area restrictions, gear restrictions and gear allocations. These traditional management methods tend to raise fishermen's costs by limiting efficiency or restricting freedom of action, however, there is no barrier to new entrants to the fishery. In the context of use rights discussed above, there is no assignment of rights by the management authority.

Limited access fishery

Technically, limited access imposes some barrier to entry into a fishery. The two general methods of limiting access are license limitation and individual transferable quotas (both are defined below). A third approach, license fees, taxes or royalties, does not formally limit access at all, although the fees or taxes may be set so high as to create a disincentive to entry. Rather, it is a method to correct the open access problem, by forcing fishermen to recognize the cost their fishing activity has on other fishermen and society.

1. Douglas v. Sea Coast Products, Inc., 431 U.S. 265, 284 (1977); Missouri v. Holland, 252 U.S. 416, 434 (1920).

2. With the exception of highly migratory species. MFCMA, §102.

License limitation

Under this type of management regime, participation in a fishery is limited to those owning a license or permit. On the western coast of the United States this limited access system has become synonymous with the term "limited entry".^{3/} Traditionally, at start-up, licenses are granted based upon a history of participation in the fishery. No additional licenses are granted, and new entrants must purchase an existing permit in order to participate. It has often been the case that, after initial issuance, a future reduction in permit holders is prescribed through a buy-back program.

Individual Transferable Quotas

Management by individual transferable quota (ITQ) is a limited access scheme based on the principle that the available catch (annual quota) is allocated to individual users (usually a vessel owner, a vessel captain, or a vessel). The quota holder may harvest this amount of the resource and the owner may trade quota shares on the open market. Traditionally, when an ITQ system is put in place, fishermen who have established historical participation in the fishery are given an initial allocation of some portion of the overall quota. The allocation may be a certain share of the overall quota (e.g. 1%) or a fixed amount (e.g. 100 mt). The individual quota amount is available to the fishermen in perpetuity but it may, of course, be augmented through purchase or lease or decreased through sale or lease to others. Thus, the ITQ system may not limit participants per se but only the initial distribution of quota. After start-up the ITQ may be traded freely. The development and nature of the market for quota will be discussed below.

III. CONVENTIONAL MANAGEMENT MEASURES AND THE OPEN-ACCESS PROBLEM

The open-access problem, as it applies to fisheries, was first described more than thirty years ago (Gordon, 1954; Scott, 1955). The problem is, since no use rights are assigned to the fishery, anyone may participate, and a "race for fish" develops since there is no incentive to preserve any part of the common pool of fish for future harvesting. To refrain from fishing would likely lead to someone else catching the fish. Participating fishermen are then forced to invest in increasing their ability to catch fish quickly, by purchasing larger vessels, more gear, better technology, etc. Fishermen who wish to compete in the race must also get on the grounds earlier to insure a share of the catch. This often means that fishermen must fish regardless of weather, thereby leading to increased safety and operational costs.

From an economic perspective, an open access fishery is characterized by increasing costs for the fishermen as more and more capital is invested so that the participant may hold his ground in the face of increasing numbers of participants, TAC reduction, or both. If the fishermen passes these costs

3. Therefore, to avoid confusion, we will not use the term "limited entry" in this paper, but, instead, rely on the generic term, "limited access," or the specific term, "license limitation."

on to the processor, wholesaler and retailer, the price of fish to the consumer increases. This is undesirable from a national perspective since the consumer could, in the absence of these increased costs, purchase fish more cheaply and use remaining income for other purchases. Increased prices are undesirable also from a marketing perspective as buyers will reduce, or eliminate, their purchase of fish if prices become too high.

Of course, not passing on the cost increases due to the "race-for-fish" will reduce the profits of the fishermen. In the long run, if profits continue to decline, only the largest and most efficient operations will be able to survive.

It is not necessarily this end result that troubles resource users and managers (though the capital and labor resources of the fishery may be more efficiently used elsewhere in the economy) but rather the disruption that occurs in arriving at the reduced fishery (i.e., the "shakeout" that occurs with attendant economic dislocations and bankruptcies). In the process of rationalization much capital and labor will be needlessly wasted, fishermen will face business failure and career changes, the economies and social structures of fishing communities may be adversely affected, and, from a management perspective, there will be increased pressure to raise quotas, thereby increasing the likelihood of overfishing and stock collapse.

Traditional management measures used to control the fisheries harvest around the world and in Alaska (short openings, time/area closures, gear limits/allocations) are measures designed to slow or prevent this costly transition. Generally, these measures have not worked as increased pressures on the resource (more boats, more gear, more efficient gear, more effective political pressure) have either led to an overfishing situation or to a situation where the risk of a stock collapse has increased.^{4/}

That is not to say conventional management measures should not be used in fisheries management; however, when practiced alone, they fail to adequately protect the economic, and sometimes biological, well being of fisheries. The balance of this paper considers nonconventional management methods, specifically limited access methods.

IV. LIMITED ACCESS OPTIONS

License fees, taxes or royalties

Theory

Fishermen are motivated in part by economic objectives. For example a harvester may try to minimize costs, maximize profits, or maximize revenue. In an open access fishery, a fisherman will consider only his own economic position and will tend to ignore the costs and revenues of others. However, one fisherman's operation may increase the costs to another fisherman. An obvious example is that of gear conflict where one harvester's activity leads to gear damage or loss on the part of another fisherman. Another example is

4. See the discussion paper, "Long-range Goals, Objectives and Techniques for Managing North Pacific Groundfish Fisheries."

the incidental catch of a species other than the target species; this bycatch has negative consequences for the fisherman who wished to target on that species.

In more general terms, in an open access system all harvesting activity raises the cost to all other harvesters simply because the removal of some portion of the stock makes it harder (i.e., more expensive) for others to catch fish. In the extreme, where a serious "race-for-fish" has developed, all operators must get on the grounds and fish with the maximal amount of the most efficient gear in order to compete. Each year they are forced to spend more to catch the same amount of fish.

The rationale for imposition of a fee or taxation system is that since fishermen do not recognize these external costs they fish in a suboptimal way (they are making decisions without all available information). Therefore, if the magnitude of these external costs can be determined and the fishermen made to pay a tax equal to the costs, these previously hidden costs will be revealed to the fisherman and the fisherman held accountable. In sum, fishermen will be made to absorb the costs of stock declines or stock deterioration and will therefore account properly (through the tax) for the fishing activity of others.

Administrative and legal problems of fees

Although taxes or royalties on landings or license fees levied on vessels, gear, or fishermen could limit entry into a fishery since those who are unable or did not wish to pay these costs would be discouraged from participating, the primary impact of the method is an increase in operating costs. Since the royalties go to the managing entity (State or Federal government), the public would benefit from the reduced public outlay.

Fishermen may not be in a noticeably better position under a fee system in terms of greater profits, but their situation in the long term would not be worse than under an open access system. Also, since marginal operations may be forced out of the fisheries the annual catch would be taken over a longer period of time, using less overall harvest effort, thereby decreasing costs and increasing profits to the remaining fishermen.

While landing taxes, royalties, or fees may have some attraction from a societal perspective; specifically, the generation of revenues from the use of a common resource, their negative administrative and legal aspects may well serve as roadblocks to implementation. Because of natural fluctuations that occur in any fishery, a fishery management regime must be flexible to be effective. It could, therefore, prove to be a difficult administrative task to constantly adjust tax or royalty schedules to reflect changes in exvessel fish prices, supply, demand, and resource conditions. If these adjustments were not made, product price increases or cost decreases could be an incentive to new entry into the fishery. Conversely, price decreases, or cost increases (perhaps due to stock decline) would leave the fee too high.

The discretionary authority to charge fees to domestic fishermen under a fishery management plan is clearly set out in Section 303(b)(1) of the Act; however, the Act also limits the level of those fees to the administrative

costs of issuing domestic fishing permits.^{5/} If fees on domestic fishing in the EEZ are to be levied under the authority of the MFCMA, they may not be set at a level that would have any limiting effect on harvesting effort. The effort reduction principle of the landings fee is thus rendered useless. Fees at a level above those administrative costs would only be possible with an amendment to the law; a change that would be widely opposed by the harvesting industry.

A system of taxes or royalties on landings is therefore: 1) administratively burdensome; 2) inflexible; and 3) not authorized under the current language in the MFCMA. For these reasons, fees or royalties are dismissed as currently impractical.

Limited Access - Some General Considerations

The following two sections present issues specific to license limitation and to an individual transferable quota system -- issues which must be resolved prior to implementation of either approach.

Before that specific discussion, however, it may be useful to mention two general areas of concern. The first is the potentially high administrative cost of an appeal and adjudication system should either the license limitation or ITQ system contemplate barring current participants from the fishery. An example of such a system is the State of Alaska's Limited Entry Commission. These kinds of systems are common under license limitation but also occur under management by ITQ. The potential volume of trial-type administrative adjudications may be substantially reduced under either a license limitation or ITQ system if harvest rights are assigned based on general "legislative" facts supported by official written records rather than specific "adjudicative" facts. Legislative facts are general facts relating to the political, economic or social situation an agency is attempting to affect. Adjudicative facts are facts about individuals who are subject to a particular agency action.^{6/} Trial-type hearings are not required when the dispute concerns only legislative facts.

To illustrate the difference between legislative and adjudicative facts one need only compare the Council's proposed 1983 halibut moratorium and the State of Alaska's initial limited entry regime. Eligibility for participation during the halibut moratorium was based on the legal harvest and commercial sale of halibut at any time between January 1, 1978 and December 31, 1982 as demonstrated by official documents of sale. The only question to be decided regarding a particular applicant was whether he/she fished during the five-year base period. If he/she legally harvested and sold halibut during the period in question, they were included under the moratorium; if they did not fish during that time period they were excluded. Nothing would have been accomplished by conducting an administrative hearing for someone with no history of legal harvest and sale during the relevant five-year period. The question of a legal harvest and sale was a legislative fact supported by official records.

5. See Section 304(d) of the MFCMA.

6. Travers, 1983.

The first fisheries the State of Alaska placed under limitation allowed an applicant to claim participation credit if he/she had been prevented from fishing by "unavoidable circumstances" or circumstances beyond their control. This provision gave rise to a substantial portion of the administrative hearings the Alaska Commercial Fisheries Entry Commission has held since 1974. Often the only evidence offered in support of an unavoidable circumstance claim is oral testimony. An unavoidable circumstance is an adjudicative fact, or a question of, "who, what, when, how and why" relating to a specific fisherman.

The second area of concern is the possibility that the transition to limited access will disrupt or isolate small fishing communities. The probability of this occurring is enhanced when a license reduction program is mandated with licenses concentrating in one area or with one owner. Local economic disruption is also likely during the initial phase of an ITQ management system when quota held by marginal operations is bought up by other operations.

There appears to be some protection in the MFCMA against the concentration of licenses or shares in one owner. Section 301(a)(4) states in part, "If it becomes necessary to allocate or assign fishing privileges among various United States fishermen, such allocation shall be (A) fair and equitable to all such fishermen; (B) reasonably calculated to promote conservation; and (C) carried out in such a manner that no particular individual, corporation, or other entity acquires an excessive share of such privileges." (Emphasis added.) No definition is provided for "excessive share" but, as in any Council regulation, a Council-established limit would be approvable by the Secretary of Commerce if the Council demonstrated a reasonable basis for its decision and that decision met the requirements of the MFCMA and other applicable law.

The potential problem of harvest right migration out of small fishing communities may well be more difficult, if not impossible, for the Council to address than the monopoly question. The Council could not favor Alaska communities over communities outside the state because of Constitutional guarantees of equal protection and the MFCMA's mandate that, "Conservation and management measures shall not discriminate between residents of different states." Section 301(a)(4). The social engineering necessary to prevent harvest right out-migration might well be beyond the scope of the Council's charge under the MFCMA.

License Limitation

The most commonly employed form of access limitation is license limitation. The issues to be resolved in establishing such a system are 1) access (grandfathering, historical participation, etc.); 2) license reduction to optimal effort level (buy back); and, 3) the use of other conventional management methods (quota, gear restrictions, etc.).

Access

One way of deciding the access question is to grant a limited access license to all those current participating in the fishery. This is a form of moratorium on new entry. This type of system usually requires a subsequent reduction in units of gear to an optimum level of effort, generally, through a

buy-back program often funded by a government entity. A freezing of the fleet at its current level and buyback may be more politically acceptable to fishermen than many other forms of access limitation since no current participant is excluded outright and the fishermen, as beneficiaries of the subsequent fleet reduction, do not bear the costs of the buyback program.

In the existing Alaska license limitation system for salmon and herring, access is based upon the degree of economic hardship a person would suffer if excluded from a fishery. Applicants are ranked under a point system based upon their history of participation in, and economic dependence upon, a fishery. A maximum number of permits are established for each fishery based upon recent participation patterns in that fishery. After the applicants are ranked, permits are issued, first to the highest ranked and then down the list until all permits are issued with enough permits reserved to accommodate any applicants challenging their rankings. If more applicants are ranked at a particular point level than permits available, those permits are to be issued under a lottery system.⁷

Permit Reduction

The Alaska system also provides for reduction in permits through a buy-back program. After the maximum number of permits for a fishery are issued the law requires the state to establish an optimum number of permits for a fishery based upon a "reasonable balance" of economic considerations and the effort level needed for an orderly and efficient harvest of the resource.⁸ If the optimum number is less than the number of permits issued, the state is to initiate a buy-back of permits down to the optimum level. The buy-back is to be funded by an assessment of up to 7% of the gross fishing income for each permit holder in the relevant fishery.⁹ The State of Alaska has yet to initiate a buy-back program since it is still issuing permits for fisheries placed under limitation in 1973.

Because the Alaska license limitation system does not attempt to control harvest effort at the individual level, there is still a need for conventional efficiency limitations such as time and gear restrictions. These regulations are adopted by the Alaska Board of Fisheries and implemented by the Alaska Department of Fish and Game.

MFCMA Considerations

While the Alaska license limitation system may serve as an example for the Council in its review of the mechanics of establishing an access limitation regime, the MFCMA lists certain criteria that must be considered during the development of such a system, be it license limitation or ITQs. Under Section 303(b)(6) of the Act, before establishment of limited access, a Council or the Secretary of Commerce must, "take into account -

- (A) present participation in the fishery,
- (B) historical fishing practices in, and dependence on, the fishery,
- (C) the economics of the fishery;

7. A.S. 16.43.010, et seq. and Title 20, Alaska Administrative Code, Chapter 05.

8. A.S. 16.43.290

9. A.S. 16.43.310

- (D) the capability of fishing vessels used in the fishery to engage in other fisheries,
- (E) the cultural and social framework relevant to the fishery, and
- (F) any other relevant considerations. . ."

These criteria need not be specifically accommodated by a limited access system established under the Act if there is a reasonable basis for predicating the system upon other criteria.^{10/}

Additional MFCMA guidelines are found in the National Standards enumerated in Section 301. Although any Council fishery management plan, or regulation implementing a plan, must conform with the seven Standards, Standards 4 and 5 have particular relevance when considering limited access, or an allocation of harvest rights. Standard 4 states, "Conservation and management measures shall not discriminate between residents of different states. If it becomes necessary to allocate or assign fishing privileges among various United States fishermen, such allocation shall be (A) fair and equitable to all such fishermen; (B) reasonably calculated to promote conservation; and (C) carried out in such a manner that no particular individual, corporation, or other entity acquires an excessive share of such privileges." Standard 5 provides, "Conservation and management measures shall, where practical, promote efficiency in the utilization of fishery resources; except that no such measures shall have economic allocation as its sole purpose." (Emphasis added.)

Disadvantages

One of the advantages of a license limitation system is its similarity to the traditional method of management in most fisheries in this country, i.e., the licensing of fishermen and vessels. There is a basic weakness in this system, however, that renders it useless in reducing overcapitalization and spreading fishing effort over time. License limitation, alone, provides no direct control of harvest effort by those with licenses. Since fish harvesting is multi-faceted, restrictions on one dimension of effort would not halt an expansion in overall harvest capacity. If fleet prices rise or harvesting costs decrease, there will be incentive to increase harvest capacity through substitution of unrestricted dimensions for restricted dimensions. An example of this may be seen in the British Columbia salmon fishery. A licensing and buy-back system in the fishery initially limited the number of vessels participating. The fleet responded by replacing older vessels with newer, larger vessels. This move led to a new restriction allowing vessel replacement on a ton-for-ton basis only. The harvest effort continued to grow through improvements in gear and the fleet called for a second buy-back program.

Recent developments in other Canadian fisheries further demonstrate the inability of a license limitation system to prevent a "race for fish". The British Columbia sablefish fishery was placed under limitation in 1979. The season length has decreased from 246 days in 1981 (catch - 3,830 mt) to 64 days in 1986 (catch - 4,460 mt).

^{10.} Travers, 1983.

In 1979 the British Columbia halibut fishery was also placed under license limitation. In 1980 the Canadian halibut fleet harvested 5.2 million pounds in 61 days with 360 vessels. In 1986, 11.2 million pounds of halibut were harvested off British Columbia in 15 days with 355 vessels. Even with a form of limited access, the British Columbia fishermen saw a contraction in season length at a time of expanding quotas. A major factor contributing to this contraction was the introduction of an unrestricted input -- the highly efficient circle hook. Further shortening of seasons may be expected if the B.C. fleet adopts other gear efficiencies, such as auto-longlining, on a large scale.

It might be possible for a license limitation system to restrict all inputs or dimensions of harvest effort, but such a system would have to limit the number of licenses issued, the size of vessels, engines and crews, restrict the time and area of harvest, and regulate harvesting and electronic gear. Administration and enforcement of such a regime would be prohibitively expensive.

In general, the administrative costs of a license limitation system will depend on access criteria: if all participants are allowed access, administration will entail the creation and maintenance of a permit holder recordkeeping system; if participants are ranked according to historical participation, and, especially, if some participants will not be allowed access, a complex system for scoring, awarding, and administering will need to be established.

Conclusion

A license limitation system, therefore, has the following advantages: It is well understood by the industry and there is precedent in the Alaskan fisheries for imposition of such a system. A cap on licenses will potentially "freeze" the rate of overcapitalization and prevent the worsening of the difficulties arising from the open access nature of the fishery. Fixing the fleet size at current levels avoids the immediate problem of fleet size reduction and its attendant economic and social consequences. Under a successful buy-back program fleet overcapitalization may be reduced and an orderly rationalization of the fishery may occur. Enforcement of the permit system is straightforward.

License limitation has the major disadvantage, however, that a cap on licenses (or even a reduction in licenses) may not correct the fundamental problem motivating imposition of limited access since harvesters may add gear, invest in more efficient gear, or otherwise increase catching capacity; in short, overcapitalize the individual fishing operation instead of overcapitalizing the fleet. Controls on other inputs such as gear, vessel size, horsepower, etc., create an administrative system which is burdensome and impractical.

Individual Transferable Quotas

Before implementation, several issues relating to the establishment and administration of the system of management by individual transferable quota must be resolved. Initial concerns are the determination of the scope of the system and the mechanism for determining the initial allocation of quota. Questions of administration -- how the overall quota level is established, how it might be adjusted, and how the market for quota would be expected to

develop -- also need to be addressed. Last, problem areas specific to an ITQ system need to be discussed.

Scope

The first decision to be made is one of application, that is, what fishery or fisheries will be placed under the system. For example, two well known southern hemisphere ITQ systems are the Australian southern bluefin tuna fishery and the New Zealand groundfish fishery. The first is limited in scope to bluefin tuna while the latter encompasses all marine species. The examples presented at the end of this section assume that the scope of the system is the British Columbia sablefish fishery.

Initial allocation

The next question, and certainly the most difficult and controversial, is how an initial allocation of quota (a distribution of quota shares) is to be made. Shares may be based on historical catches, investment, years of participation, other measures of past fishery performance, or some combination of these factors. In practice it may be useful to explore several options for initial distribution with allowance made for public review and comment. One particularly effective method has been to solicit the industry's preferences, determine the "best" set of alternatives, and, for each of those alternatives, for each potential participant in the program, calculate the initial quota. The potential participants are then mailed the results of the simulation for review (D.F.O., 1987).

Since the initial allocation is the only time that management intervenes in the individual allocation process and since an initial allocation is in itself an assignment of harvest rights or "wealth," the allocation process involves much public discussion and debate. That process may, therefore, last a year or more.

The market for quota

Once initial assignment of quota occurs, a market where quota is traded will develop. If an operator determines that his initial allocation is insufficient relative to his current needs he will attempt to purchase or lease quota from an operator who has excess quota. Conversely, if, during the fishing year, the fisherman discovers that he has quota in excess of his needs he may offer that quota for sale or lease.

Given that quota needs to be traded on an orderly and timely basis some system of exchange will develop. One possibility is that fishermen will organize to create a market for quotas. Another is that some third party will create (and charge for) a quota exchange. A third possibility is that the government or the management agency will develop a trading system where individual shares may be bought, sold, and leased.

A government trading system has been developed in New Zealand. In that country the system is much like a brokerage for commodities such as grain and precious metals. Processors and fishermen access the commodity exchange via computer terminal and are able to conduct transactions in real time. Some fishermen even have computer terminals on the fishing vessel so that, should

they encounter a target of opportunity while fishing, but not hold quota for that species, they can purchase additional shares while on the grounds. Likewise, should the bycatch rate in a particularly profitable fishery become such that bycatch quota will be exhausted, they may purchase additional shares of the bycatch species to allow continuation of the target fishery.

The flexibility engendered by rapid and orderly quota adjustment is the primary advantage of an ITQ system. The management agency need not regulate bycatch rates, individual vessel performance, gear limitations or restrictions, short seasons, etc. This is because the market for quota reflects the current and correct value of the various species at all times. The management agency need only concern itself with maintenance of the overall quota and with enforcement.

Control of the overall quota

Setting a total quota for a species under an ITQ system is no different than the current Council approach to the annual establishment of a TAC. As stated earlier, quota shares may be either rights to harvest some fixed proportion of the catch in a fishery, for example 1% of the TAC, or they may be some fixed amount of catch, such as 100 mt. For the former, quota adjustment is straightforward; the TAC is set annually and the fisherman becomes entitled to a quota equal to the TAC multiplied by his share percentage. Obviously, the amount of quota rises and falls with the TAC, lending some uncertainty with regard to future harvest levels, and with regard to the value of the quota held.

Under a fixed amount system the individual harvest allowed may change should the TAC change. Should the biomass of a species increase such that an increase in quota is warranted, the management agency can make additional quota available for purchase. The situation where declines in the stock lead to a reduction in quota is much more difficult to manage. One possibility is an across-the-board reduction in the value of a quota share in proportion to the quota reduction. For example, if it is necessary to reduce the overall TAC for a stock of fish by 10%, all shares which are currently equal to 1 mt of sablefish would be worth 0.9 mt after the reduction. This value adjustment is analogous to changes in the value of holdings due to currency fluctuations or to a loss of real value through inflation. Another mechanism for quota reduction, when amounts are fixed, is for either the management agency or an industry association to purchase and remove from the market quota excess to the new biological limit to harvest.

In New Zealand, the government has purchased and held quota when reduction has been necessary. This is possible, philosophically, because the government assumed property rights to the resource, viewing the fishing fleet as lessees of those rights. It is possible, operationally, because the government made a financial commitment to fund the administration of the program and to make funds available for quota buy-back (Crothers, 1987).

Recently, in Australia it became necessary to reduce the quota for southern bluefin tuna for 1987 by devaluing the value of a quota "unit" (Robinson, pers. comm.). Since that country's government had made no philosophical or financial commitment to holding quotas, and since the reduction proposed was in the order of 21%, the situation seemed grim; however, the Australian Tuna

Boat Owners' Association intervened by purchasing the excess quota. Should the quota subsequently increase, the association plans to release the held quota to its members.

Thus, in terms of both the individual and overall quota, the individual transferable quota system allows orderly and timely adjustments. This is the strength of the system. At the same time, imposition, and maintenance of an ITQ system presents a somewhat unique set of problems,^{11/} which are discussed below.

Administration

Relative to the commitment of the government or management agency to holding and trading quota, some institutional arrangement for quota transactions will need to be established. If the commodity market for quota is publicly held (i.e., a government agency), the public will incur the cost of a large and complex administrative system for managing the quota. In the case of the Alaskan fisheries it will be necessary to create an entirely new infrastructure capable of handling real time purchase/sale/lease of quota, of providing accurate and timely information to the fishermen concerning quota availability and price, and capable of providing real time accounting of the flow of fishery products from fishermen to processors to wholesalers. Clearly, this will necessitate an extensive computer terminal network. Such a system will not only be expensive but will require considerable time and effort for installation and performance evaluation.

It is also possible, in the absence of government intervention, for a quota trading agency to arise. In this case the public would not bear the administrative cost of the system but fishermen would, presumably, have to pay a commission on all transactions. Under the private commodity market alternative it will still be necessary for the management agency to have access to the accounting part of the system to give the enforcement authority the ability to monitor "paper" versus actual performance.

Offsetting the increased costs necessary for system administration will be cost reductions for pre-season and in-season management, since, in general, less management intervention will occur.

Enforcement

Given a quota tracking system, processing performance can be monitored. The crucial enforcement issue under an ITQ system, however, is at-sea enforcement at the harvesting level. First, in terms of target quota, there will be a tendency to overharvest the quota, particularly for high-valued species. This may be dealt with by fines, forfeiture of overage, reduction of an ITQ for an overage in a preceding year, or by some allowance for harvest over quota.^{12/}

11. See Copes, 1987, for a more complete discussion of practical problems under an ITQ system.

12. New Zealand, for example, allows vessel to land 110% of its quota with the excess quota forfeited to the government. The quota for that species for that vessel is then reduced in the following year.

Second, there is a tendency to "high-grade," that is, discard smaller sized or lower valued fish over the side so as to maximize the value of the landed catch. High grading is not unique to a fishery managed by ITQ but the fact that all fish will be counted against quota when landed leads to its prevalence.

Third, the problem of incidental catch or bycatch may be exacerbated by an ITQ. In one sense there may be no bycatch problem under an individual transferable quota system since all species may be subject to quota and since the share price will appropriately reflect the value of that fish, be it a target species or a bycatch species. In practice, however, it will be necessary to count the bycatch species at sea as there will be a tendency to discard bycatch whether retention is allowed or whether discard is required. Administrative and enforcement problems under an ITQ system are not qualitatively different than those under conventional management. However, the cost of the administrative and enforcement systems may be considerably greater than under conventional management if the government manages the quota market and if discard of incidental catch is allowed. If the market for quota is privatized, government administrative costs may be similar to status quo costs.

An Example

The most difficult issue in establishing an ITQ management system, however, will be the initial allocation of quota shares. A set of examples from the proposed ITQ system for sablefish off British Columbia is presented to illustrate some of the possibilities for initial allocation.^{13/}

Suppose initial allocations are to be based on an individual's

- 1) past performance (historical catches),
- 2) past participation (days fished),
- 3) past investment (using a proxy for investment of boat length),

or,

- 4) that shares should be equally divided among all potential participants.

The proposed ITQ system for the British Columbia sablefish fishery selected four alternatives for initial allocation of quota shares. The alternatives used one or more of the four considerations listed above and are:

- 1) 100% performance - initial share distribution is based entirely on past performance using the last four years of catch for each boat (1983-86), selecting the two best years from that four-year record, and computing the average annual catch from the best two years.
- 2) 73% performance, 27% equal - 73% of the ITQ is based on a share as calculated in 1), while 27% of the quota is distributed equally to all license holders.

13. Taken from: Department of Fisheries and Oceans, Canada. 1987. "Fishermen's Discussion paper on Individual Transferable Quota (ITQ) in the Sablefish Fishery," unpub. mss., 12 pp. (March).

- 3) 77% performance, 13% participation, 5% investment, 5% equal - past performance, as calculated above, accounts for 77% of the initial share of the quota; 13% is based on participation using the total number of days fished between 1983 and 1986 in relation to the total days fished by the entire fleet over the same period; 5% is based on investment by computing the vessel's "share" of total boat length; the remaining 5% is shared equally among all licensees.
- 4) 40% performance, 20% participation, 20% investment, 20% equal - as in 3) except the relative weighting of performance, participation, investment and equal shares is modified as indicated.

The Canadian discussion paper continues by calculating the initial quota allocation for each vessel in the fishery (48 licensees) for each of the four scenarios, producing a table of allocations unique to each vessel. The vessel owners were then mailed an individualized copy of the discussion paper. The results for a representative vessel are reported below.

Table 1. Vessel Description
Length: 21.0 meters, 69'^{1/2}

	<u>Catch History</u>				
	<u>1983</u>	<u>1984</u>	<u>1985</u>	<u>1986</u>	<u>Average</u>
Days fished	62	88	51	45	62
Catch, mt	33.68	77.43	42.25	29.31	45.67
<hr/>					
Best 2 years, catch, mt	-	77.43 (1984); 42.25 (1985)			
" average	-	59.84			
" share	-	1.1%			

1. Taken from Table 1. op. cit., p.5.

Table 2. Initial allocations for vessel above
under four alternatives^{1/}

	Alternative ^{2/}			
	1	2	3	4
Vessel Quota (ITQ), mt	34.37	27.84	29.93	44.76
Gain/(Loss), mt (compared to 1986)	5.06	(1.47)	0.62	15.45
Gain/(Loss), percent	17.3%	(5.0%)	2.1%	52.7%

1. Taken from Table 2, op. cit., p.5.

2. See text for a discussion of the four alternatives examined.

The hypothetical vessel described in Table 1 tends to gain the most (relative to 1986) under Alternative 4 (40% performance, 20% participation, 20% investment, 20% equal), and lose the most under Alternative 2 (77% performance, 13% participation, 5% investment, 5% equal) (Table 2). That vessel would most likely favor Alternative 4. It is not yet known what alternative, if any, the majority of Canadian license holders tends to favor.

Through exercises like this it may be possible for the industry to reach consensus for initial allocation of quota.

Conclusion

An ITQ system is one of the more direct harvest controls available to the fishery manager. Under ITQs, there would be greater freedom to determine both the level of harvest effort needed and the timing of the harvest since fishermen would only be entitled to catch an assigned share of the quota. Regulations on input such as vessel and gear would be unnecessary because there would be no incentive to bring more harvesting capacity to the fishery than that required to harvest a particular share. Fishermen and processors would be able to contract with one another to schedule deliveries in a manner that improves the marketing of the fish, reduces the cost of production, or both.

Quota share systems tend to lower the costs of production, both on the harvesting and processing sides, by stabilizing employment patterns and moderating the peak production periods that accompany many of our fisheries as currently prosecuted. These lowered costs would translate to increased competitiveness of American products in our own and world markets, which (other things being equal) would tend to help redress our fisheries trade imbalance. To the extent that year-round production is possible, the consumer would benefit from increased availability and possibly decreased price.

If the government manages the quota market, and if increased enforcement is necessary to ensure compliance, the administrative and enforcement costs borne by government may increase. A private market for quota would greatly reduce the potential administrative costs.

By reducing the incentive for fishermen to fish rapidly in order to increase his share of a fixed quota, the rate of harvest would be slowed and the effort which managers devote to inseason monitoring of the fishery could be reduced.

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