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The Evolution of Sablefish, *Anoplopoma fimbria*, Fisheries Management off Alaska: From Open Access To IFQ's¹

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ABSTRACT

The sablefish fishery off Alaska has been characterized by a rapid Americanization over the past 10 years in both the Gulf of Alaska and the Bering Sea/Aleutian Islands. Predominately foreign until the passage of the Magnuson Act in 1976, the fishery has evolved rapidly since then, becoming totally domesticated by the mid-1980's. Landings of sablefish off Alaska averaged around 36,000 metric tons (t) annually from 1968 through 1977, almost all by foreign fisheries. From 1977 to the mid-1980's, annual landings decreased to around 13,000 t as foreign fisheries were phased out. Since 1985, annual landings have climbed back to around 30,000 t in a wholly domestic fishery.

Beginning in the early 1980's, the rapid domestication of this increasingly valuable fishery created a number of challenges for managers. Gear conflicts, allocation competition between gear types, rapid expansion of effort in the longline fishery, and ever-shortening fishing seasons have been at the forefront of issues addressed by federal managers over the past 10 years. By 1987, it was apparent that this fishery, in particular the longline fishery in the Gulf of Alaska, was quickly becoming similar to the halibut 'derby' fishery, which had one or two 24-h openings each year, with thousands of boats converging on limited fishing grounds. For example, the number of vessels fishing for sablefish in the Gulf of Alaska increased from 200 in 1984 to nearly 800 in 1994, while season lengths decreased from nearly year-round to only a few weeks in some areas.

In an effort to head off serious problems in the sablefish fishery, the North Pacific Fishery Management Council began considering limited-entry management alternatives. After several years of analyses, public hearings, and often bitter debate, the Council adopted an individual fishing quota (IFQ) management program on December 8, 1991. That program has since been approved by the U.S. Secretary of Commerce, and implementation is scheduled for 1995. Throughout consideration of this management option, the Council grappled with issues of initial allocation of fishing rights, transferability of those rights, potential monopolies of power, and the possible social and economic effects of an IFQ program. In this paper, I examine the overall development of the program as well as how the Council decided some of its specific elements. I also look at some of the pitfalls encountered and lessons learned in development of a large-scale limited-entry program.

Management Background _____

Americanization of the Fishery

Two of the most important objectives of the Magnuson Fishery Conservation and Management Act of 1976 (Magnuson Act) were to allow depressed fish stocks to rebuild and to provide an opportunity for U.S. domestic fisheries to expand and replace foreign and joint-venture fisheries. Both objectives have been met in the Alaskan sablefish fishery, which became one of the first

to be fully utilized by domestic harvesters and processors, both in the Gulf of Alaska and the Bering Sea/Aleutian Islands. The transition from a foreign to a domestic fishery was completed by 1995.

¹ This paper borrows heavily from Oliver, C. W., M. Hartley, and J. Terry. 1992. Supplemental environmental impact statement/regulatory impact review/initial regulatory flexibility analysis for the proposed sablefish and halibut IFQ program off Alaska, prepared for the N. Pac. Fish. Manage. Council, 605 W. 4th Ave., Ste. 306, Anchorage, AK 99501-2252.

Since the mid-1980's, the sablefish fishery has been the single most important groundfish fishery in the Gulf of Alaska, both in numbers of participants and value of the catch. Ex-vessel value of sablefish landings in the gulf has increased from about \$6.6 million in 1984 to \$65.4 million in 1988 (Kinoshita et al., 1993). In recent years values have leveled off somewhat, with annual harvests of 20,000 to 25,000 t, which still exceed \$50 million annually. Landings and value of the sablefish resource in the Bering Sea/Aleutian Islands are considerably smaller, in the vicinity of 3,000 to 4,000 t annually.

The Americanization of the fishery has not been without problems for fishermen and fisheries managers, with the domestic capacity exceeding the amount necessary to fully utilize the resource, and continuing to grow. The first serious problems between competing domestic fishermen resulted in Amendment 14 to the Gulf of Alaska Fishery Management Plan (FMP) in 1985. This amendment allocated specific percentages of the sablefish resource among user groups (trawl and longline fishermen) and phased out pot gear in the Gulf of Alaska for harvesting sablefish. In 1989, gear allocations were extended to the Bering Sea/Aleutian Islands management area.

Problems in the Fishery

At about the same time that Amendment 14 was being developed, the North Pacific Fishery Management Council (hereafter, the Council) and the industry began considering solutions to the ever-growing problems in the fixed-gear sablefish fishery. The vast majority of the overall sablefish quotas at this point are allocated to fixed gear, primarily in the Gulf of Alaska. Although a higher percentage of the quotas in the Bering Sea and Aleutian Islands are allocated to trawl gear, the relatively low quotas in these areas do not allow for a substantial trawl fishery. Thus the IFQ program was developed specifically for the fixed-gear fishery, and the remainder of this discussion applies only to that fishery. The IFQ program involves only those portions of the total quotas that are allocated to fixed gear.

As early as 1983, some industry participants asked the Council to ensure that the sablefish fishery did not turn into the kind of derby exhibited in the halibut fishery. The sablefish fishery was already beginning to show some signs of such an evolution, with seasons becoming shorter and the number of participants growing rapidly. The Council identified ten specific problems in the sablefish fishery as a result of this growing effort: allocation conflicts, gear conflict, deadloss, bycatch loss, discard mortality, excess harvesting capacity, product quality, safety, decreased economic stability in fisheries and communities, and inhibited rural community de-

velopment. In 1985 discussion of a moratorium on further entry into the fishery began.

Proposed Solutions

In 1985, pursuant to Amendment 14, the regional director of the National Marine Fisheries Service (NMFS), at the request of the Council, implemented a September 26, 1985, cutoff date for the sablefish fishery, stating that there was sufficient harvesting capacity to catch all of the optimum yield (OY) for sablefish in the waters off Alaska. The purpose of this cutoff date was to notify industry that participation in the fishery after that date might not count toward credit in future limited-entry programs that might be implemented. After establishing this cutoff date, the Council appointed a Sablefish Management Committee (later renamed the Fishery Planning Committee and given a broader mandate which included all groundfish species for future management planning) to examine alternative management methods for the sablefish fishery.

The Council served notice at this time that the industry would be expected to play a leading role in developing a management alternative that was supported and accepted by the industry. In 1986 and 1987, industry surveys were conducted by the Council and by independent industry groups to ascertain a preferred approach for managing this fishery. The responses to these surveys covered a wide range of sentiment, but a common thread among the majority of those surveyed was that some type of limited-access program should at least be considered.

In 1987, the Council also solicited proposals for management recommendations specific to the sablefish fishery. The Council's solicitation generated 59 proposals from industry, with recommendations ranging from continuing the status quo to the use of traditional management tools to some type of limited-entry program. Based on the responses to this solicitation, as well as the results of the surveys mentioned above, the Council, in September 1987, adopted a Statement of Commitment which read, in part:

Expansion of the domestic fleet harvesting fish within the EEZ off Alaska has made compliance with the Magnuson Act's National Standards and achievement of the Council's comprehensive goals more difficult under current management regimes. The 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 efforts and harvest levels in the groundfish fisheries.

The statement went on to say that, in order to fulfill this commitment, the Council will

Develop strategies for license limitation or use of individual fishing quotas (IFQ's) in the sablefish longline fisheries. The process will begin at the September 1987 meeting, and the Council intends to implement the selected management strategy for the 1989 season.

Although the Council's projected date for implementation has proven to be quite ambitious, this action set in motion the development of the IFQ program, which was nearly 10 years in the making and is now scheduled for implementation in March 1995.

Individual Fishing Quota Program Development

Taking the Plunge

Following its 1987 Statement of Commitment, the Council sponsored a series of public workshops to gather further input from the public and industry on limited-entry management alternatives. These workshops were held in the spring of 1988 in Homer, Kodiak, Petersburg, Sitka, and Seattle, the major centers of involvement by the sablefish longline fleet. The aim of these meetings was to define acceptable limited-access programs.

In April of 1988, the Council initiated formal analyses to evaluate a range of management alternatives for the sablefish longline fishery. Staff began developing five major management options for this fishery: 1) status-quo open access, 2) open access, to include sablefish and halibut as bycatch in other longline fisheries, 3) IFQ's, 4) license limitation, and 5) a program combining permits, IFQ's, and open access.

From this initial investigation, the Council determined that continued open access was an unacceptable alternative for managing the sablefish fishery, and that the staff should focus on the license-limitation and IFQ alternatives. A third alternative, annual fishing allotments, was added in 1989; it was a combined system incorporating a partial open-access fishery. In November 1989, these alternatives were made available for public review and became the basis for the Council's next round of decision making.

After consideration of these management alternatives in January 1990, the Council determined that neither annual fishing allotments nor license limitation were appropriate for solving the problems facing the fishery. Annual fishing allotments would combine open access with a form of IFQ's, resulting in a more complicated management program that would not eliminate the problems associated with open-access management and the derby style of fishery. Likewise, it was determined that license limitation in itself would not address

the derby nature of the fishery, nor would it address the other problems in the fishery without a great reduction in the current size of the fleet. At this time the Council began to focus its efforts on developing some type of IFQ program as the preferred management alternative for the fishery.

Throughout 1990 and 1991 the Council, its Fishery Planning Committee, its staff, and the fishing industry worked on refining various IFQ programs. In early 1991 the Council also began developing similar IFQ alternatives for the halibut fishery, with the goal of ultimately melding the two programs into a single IFQ program for sablefish and halibut. In December 1991, the Council tentatively approved a preferred IFQ alternative for both fisheries. Approval was contingent upon the completion of a further staff study to examine the interactions of the two fisheries under a single IFQ program, and to provide additional information about the IFQ program's potential socioeconomic effects on coastal communities.

After reviewing this final analysis, the Council gave its final approval to the IFQ program at its April 1992 meeting. In all, this issue had been on the Council's agenda for 27 meetings, including every meeting since 1988. Following the Council's approval, the program was submitted for additional public comment through the National Environmental Protection Act (NEPA) review process, and then for review by the Secretary of Commerce. Final, formal approval by the Secretary came on November 9, 1993, after the proposal had proved to be one of the most complicated and controversial fishery management programs ever enacted in the United States.

In the rest of this discussion, I will look at some of the program's specific provisions and why they had to be included in order to make the program acceptable to a majority of the industry.

Developing the Specific Elements of the Program

Industry Involvement

Critical to the success of the overall program, as well as to the development of its specifics, was participation by the fishing industry in the developmental stages. Certainly, not all sectors of the industry supported this program, though unanimous support was not necessary for the program to succeed. However, it was critical to involve even those who did not support the program, because they would have to live and fish under the program once it was put into place.

The Council process is a very public process with close involvement by members of the fishing industry

and their representatives. This is particularly true in the North Pacific, where fishermen exhibit an unusual amount of business and political savvy about fisheries management. A long-term interest in the health of the resource has been the basis for management decisions in the North Pacific, at both the Council and the industry levels. The type of vesting created by an IFQ program goes hand-in-glove with the attitudes exhibited by the fishing industry in the North Pacific.

Throughout the process of IFQ program development, the Council received input from thousands of industry participants in the form of letters, participation in public workshops, and oral testimony at Council meetings. Indeed, the various alternative IFQ programs examined by the Council were a product of the industry itself. Shaping the final preferred alternative required compromise by various segments of the industry until a program emerged that was acceptable to the majority of those directly involved.

A vital aspect of the industry's involvement in the process took the form of an industry panel appointed by the Council to act as a sounding board on specific elements of the program, particularly as they related to its administration, monitoring, and enforcement. The IFQ Industry Implementation Team consisted of various representatives of the fishing industry, and worked closely with agency personnel in developing a system of monitoring and enforcement that would accomplish the goals of the Council and NMFS, while at the same time recognizing the realities of the fisheries. Even after approval of the program, this group continues to meet and advise the Council on various aspects of the program as it evolves into actual implementation. Once up and running, the program will continue to benefit from the guidance of this industry panel as, undoubtedly, numerous bugs are worked out of the system.

Initial Allocation—Who Gets to Fish?

Not surprisingly, one of the most contentious aspects of the IFQ program was determining who would receive the fishing privileges created by the management regime. The Council was very cognizant that windfalls might be created as it privatized the sablefish (and halibut) fisheries and assigned indefinite harvest rights. With nearly 800 vessels and thousands of individual participants involved in the sablefish longline fishery, there was no shortage of persons seeking a claim to the IFQ's to be allocated. Vessel owners, vessel operators, and crew members all made convincing arguments as to their stakes. Ultimately, the Council decided to award the initial allocations of IFQ's to vessel owners or to leaseholders of vessels under bareboat charter agreements. In bareboat charters, a vessel is leased by a

fisherman who assumes all responsibilities of operation, including furnishing his own gear and provisions and assuming all other business aspects of the operation such as hiring and paying crew, filing tax or other business forms, and marketing the catch.

Though other fishery participants certainly had a legitimate involvement in and dependence on the fishery, it was the vessel owners who had taken the primary financial risk in Americanizing the fishery. Certainly other problems would have been associated with awarding to IFQ's to crew members, for example, a lack of verifiable records of length and magnitude of involvement in the fishery. The fact that catch records are available for specific vessels convinced the Council that it would be best to award IFQ's to vessel owners.

Having decided to allocate the IFQ's to vessel owners and leaseholders, the Council was still concerned about windfall profits. Although the Magnuson Act does not allow for fees beyond those necessary for licensing vessels, the Council proceeded with the program with the acknowledgement that the Magnuson Act could be amended in the future to allow collection of fees to manage and enforce the program. The Magnuson Act does require that recent participation, as well as past fishing patterns and dependence on the fishery, be taken into account when establishing limited-entry programs. Thus the Council established a recent-participation window as a means to qualify for quota shares (QS) upon which annual IFQ's would be based. Although the program was not finally approved by the Council until 1992, the participation window stipulated that a person must have made legal fixed-gear sablefish landings in any of the three years 1988, 1989, or 1990 in order to qualify for the IFQ program. The cutoff date of 1990 was established early in the development of the program in order to head off further, speculative entry into the fishery. (This date is different from the September 26, 1985, cutoff date referred to earlier. Though established for similar purposes, the 1985 cutoff date was abandoned because of the amount of time elapsed during development of the program.) By stipulating this three-year window, the Council attempted to ensure that only currently active fishermen would qualify for the program.

If a person qualified, however, actual catch histories would be considered. The program stipulates that a person would use his best five of six years' landings from 1985 to 1990 as the basis for QS calculation. One year could be dropped from the calculation for whatever reason. Thus a fisherman would not be penalized for one bad year. In designing the program this way, the Council awarded fishing privileges to active fishermen, but also recognized long-term participation and dependence on the fishery.

It is important to note that the method for QS/IFQ calculation effectively awards a percentage of the avail-

able quota of fish in a given management area, as opposed to allocating a fixed poundage. The Council was acutely aware of the experience in the New Zealand IFQ program, where the allocation of fixed amounts of fish resulted in a government buy-back program of over \$50 million when the amount of fish allocated greatly exceeded that available. Under the Council's sablefish IFQ program, individual poundages of fish will vary each year with the overall total allowable catch (TAC).

Socioeconomic Safeguards

Among the Council's major concerns when structuring this program were its potential sociocultural effects, particularly on Alaskan coastal communities which rely on this fishery as a large part of their economic base. Many of these communities have fleets comprising predominately smaller vessels which deliver their catch to shoreside plants. A major fear of opponents of the program (as well as supporters) was that the fleets of small boats and the communities in which they are based would suffer as larger vessels with superior bargaining power bought up the QS/IFQ's.

Several safeguards were built into the program to address these concerns. QS/IFQ's would be designated for vessel categories based on vessel size and could not be traded outside these categories. This would ensure that the original amount allocated to each category would remain forever in that category, though fleet consolidation within a particular category could still occur.

The categories were 1) vessels under 60' in length, 2) vessels over 60', and 3) any vessel categorized as a freezer vessel. The categories for the halibut IFQ's are further broken down for socioeconomic reasons particular to that fishery. The basic intent of these vessel categories was to maintain, to some degree, the current fleet structure while still allowing consolidation, and therefore protecting coastal community interests.

Similarly, a "block" plan has recently been adopted to further ensure the continued viability of the small boat fleet in Alaska. This amendment will lock some of the IFQ's issued to individuals into blocks which can only be traded as blocks, with the stipulation that no one can own more than two blocks in a particular management area. Any initial IFQ allocations of less than 20,000 pounds will be deemed a block, and can only be traded as such, within the appropriate vessel category.

In addition to the vessel categories and block provisions, ownership and use caps prevent any one person or entity from acquiring too large a share of the resource. For example, unless it is initially allocated, no one can acquire more than 1% of the total available QS, nor can anyone catch more than 1% of the resource on a single vessel in a given year. These provi-

sions are designed to further ensure against monopolies in the fishery.

Finally, and perhaps most important, specific provisions restrict the sale or transfer of QS/IFQ's to prevent absentee ownership of the resource. In other words, the Council wanted to ensure that the fishing privileges stay in the hands of fishermen, as opposed to speculative investors. The Council accomplished this goal by requiring that anyone purchasing QS/IFQ's after the initial allocation (except for freezer vessel QS/IFQ's) be an individual with experience in the fisheries. This person would then have to be on the vessel fishing the IFQ and must sign the fish ticket upon landing. In this way, the fishing privileges should, for the most part, remain in the hands of people actually on the fishing grounds.

The provisions outlined above seem overly restrictive and unnecessary to some, though they were critical to the overall acceptability of the program, particularly to fishermen residing in Alaska's smaller coastal communities. Political acceptability of this type of program is necessary for its success. Similarly, the Community Development Quotas (CDQ's) created by this program were another key part of its overall acceptability. The CDQ program sets aside percentages of both the sablefish and halibut resources in the Bering Sea for economically disadvantaged coastal communities in western Alaska. Predominately native communities will benefit from a direct allocation of the resource to further their initiatives for developing fisheries.

I have discussed only a few of the many provisions of the program, but they represent some of the major considerations leading to its overall approval. The program could have been developed in a much simpler, more straightforward manner, but doing so would likely have alienated many of those in the industry whose support was necessary to move the program from the drawing board to reality.

Administration and Enforcement

Another major issue in the development of the sablefish IFQ program was monitoring and enforcement. The potential for highgrading, black marketing, and overall quota busting gave rise to very serious concerns over the conservation of the resource. The program would surely fail if an adequate monitoring and enforcement regime were not developed. Though the specifics of the enforcement regime are beyond the scope of this paper, enforcement is a critical and necessary part of the overall program. The NMFS has established a series of requirements for operators and fish processors to report and account for their catches under the program. Industry cooperation and involve-

ment in the development of this monitoring program were critical to its acceptance by industry.

In essence, each operator will be issued a quota card which functions much like a bank card at an automatic teller machine. As with a bank account, a computerized system will track account information for each card holder. When a landing is made, at registered processors only, this system will verify the balance in a card holder's account to ensure that the designated balance is not exceeded. The amount of the landing will be automatically deducted from the existing balance until a person's IFQ for the year is exhausted. Because of the difficulty of matching landings exactly to an IFQ account, there will be a provision for slight overages. With permanent enforcement in the major ports and spot checks in many of the smaller ports, there is general confidence that the program can be implemented without substantial cheating and overharvest. Severe penalties for violation of the program will serve as an added deterrent.

It is estimated that the program will cost about \$2.5 million per year to monitor and enforce, beyond the costs of fishery management programs currently in place. As noted earlier, it is possible that the costs of this program may be borne in the future by the fishermen who benefit from the program—the holders of the IFQ fishing privileges.

Some Lessons Learned Along the Way _____

The development of this program has been a slow, arduous process, partly because of its complicated nature, and partly because it is a new and different approach to fishery management, an approach not embraced by all sectors of the industry. One of the lessons from this process is the necessity of bringing all sectors of the public and industry on board in the development of such a program. Without the intimate involvement of the fishermen themselves, this program would never have made it from the drawing board to the fishing grounds. Though intuitively obvious, the necessity of this process of compromise and fine tuning cannot be over-emphasized. Many of the other lessons learned in this process are less obvious, but perhaps equally important to fishery managers and fishermen who may be looking at IFQ's as a management alternative for other fisheries.

Timing

When the Council first announced that it was seriously considering limited entry in 1987, it served notice of intent to have a program implemented by 1989, a mere two years in the future. In actuality, the process took

closer to nine years, with implementation now scheduled for 1995. The factor of timing in the process needs to be viewed from two perspectives: 1) the amount of time necessary to develop a program that is acceptable to the fishing industry and the agencies responsible for managing the fishery, and 2) the amount of time that may lapse between approval of such a program and its actual implementation.

Enough has probably been said regarding the first aspect of timing: it does take a long time to develop a program acceptable to enough of the participants in a fishery. The second aspect is less obvious, but carries some significant implications. Under the authority of the Magnuson Act and other regulatory jurisdictions in the United States, it may take quite some time for a program to go from Council and industry acceptance to actual implementation. The timing of secretarial review makes up one part of this gap; another is getting the infrastructure in place to administer, monitor, and enforce the program. This can take from several months to several years. In the case of the sablefish program, the Council approved the program in April of 1992, and the Secretary made final approval in November of 1994, a year and a half later.

Actual implementation will occur yet another year and a half later, to allow for the application, appeals, and issuance process for the IFQ program. During this three-year gap between Council and industry approval and actual implementation, many aspects of the fishery may change, potentially affecting the original program's specific provisions. Changing technologies, gear types, ownership structures, and even the biology of the fish themselves may affect the workings of the program. Keeping in mind the time required to get this type of program in place and assessing potential changes in the nature of the fishery can undoubtedly further the development of the program.

Data Considerations

Under current management practices in most of the major U.S. fisheries, the primary objective is to monitor overall catch levels of fish and ensure that they do not exceed levels deemed acceptable by stock-assessment scientists. Thus the management and information gathering relative to these fisheries is not geared to a transition to privatization. This becomes particularly relevant when the program, like that for sablefish, is based on past catch histories of individual operators within a given fishery. The questions of who gets to fish and how much are usually traced back through individual records of participation in the fishery, either by relative landings, time in the fishery, vessel size, or some combination thereof. The difficulties in tracing this type of

individual track record may become apparent only when the agency attempts to piece it together.

It is critically important that any fishing industry that may foresee IFQ's in its future determines early in the process what the allocation criteria will be, and then starts collecting and assembling the necessary information. One of the major hurdles in developing this program was simply reconstructing the individual catch data for thousands of participants over a period of several years. Such reconstruction promises to be an even greater challenge as we consider limited-entry programs for all groundfish and crab fisheries in the North Pacific. In many cases, it may be wise to ascertain early on whether the necessary data exist to carry out the specifics of a program, particularly as they relate to the initial allocation of fishing privileges. A central, comprehensive database became a critical component in both the development and implementation phases of the sablefish IFQ program.

Summary

Whether IFQ's prove to be the solution for management of the sablefish fixed-gear fishery remains to be seen. With implementation beginning in 1995, it will probably be a few years before the verdict is in. This type of program seems successful for the Canadian sablefish fishery, though the structure of the Alaskan fishery is very different. With the Council considering IFQ's as a management option for all other groundfish and crab fisheries, all eyes will be focused on this program as a major test case for large U.S. fisheries.

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