

INITIAL ALLOCATION OF INDIVIDUAL TRANSFERABLE QUOTAS IN THE US SURF CLAM AND OCEAN QUAHOG FISHERY

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1. THE MID-ATLANTIC SURF CLAM AND OCEAN QUAHOG FISHERY: FROM MORATORIUM TO ITQS

The Mid-Atlantic Fishery Management Council (MAFMC, or the Mid-Atlantic Council) is one of eight regional councils responsible for managing United States fisheries in the 3 - 200 nm zone of federal jurisdiction under the framework of the *Magnuson-Stevens Fishery Conservation and Management Act* (Public Law 94-265), which went into effect in 1977. The surf clam (*Spisula solidissima*) fishery, which is under the jurisdiction of the Mid-Atlantic Council, was the first federal fishery subject to restrictions on entry. (The states have jurisdiction from 0-3 nm; there were some limited entry systems in state fisheries prior to 1976; in 1977 the State of New Jersey also imposed limited entry on the surf clam fishery prosecuted in its waters.) Beginning in 1978 a moratorium was imposed, limiting the fishery to the existing vessels which then numbered 184, a number adjusted to 142 because of inactivity (MAFMC 1990). An annual total allowable catch (TAC) was set and divided into quarterly quotas. Limits on fishing-time (per vessel) were also established to encourage and balance distribution of fishing effort throughout the year and stabilize the supply to processors. The MAFMC eventually agreed upon an explicit policy to set the TAC at a level which allowed for a ten-year supply of surf clams based on the then present standing stock. A similar TAC-setting process occurred for the closely related fishery for ocean quahogs (*Arctica islandica*) but without fishing-time restrictions and for a 30-year supply horizon. In September 1989 the Mid-Atlantic Council voted to create individual transferable quotas in both the surf clam and the ocean quahog fisheries. The ITQs went into effect 1 October 1990 (National Research Council 1999, McCay and Creed 1994).

2. THE NATURE OF THE HARVESTING RIGHT

2.1 Prior to the introduction of ITQs

Before 1978 the harvesting right in surf clamming was free and open to anyone willing and able to acquire a vessel to prosecute the fishery, which takes place offshore and requires heavy hydraulic dredges as well as access to markets. The raw product harvested by the fishery is processed into frozen or canned items before it reaches consumers.

In 1978 the rights were restricted to the owners of vessels then in the surf clam fishery through a moratorium on new vessels in the fishery. At that time there was no significant ocean quahog fishery. Only permitted vessels were allowed to catch and sell surf clams. Entry into the fishery depended on ownership of one of the permitted vessels or their replacements. Replacement of vessels that were severely damaged or lost at sea was allowed, with a 10% leeway in their capacity. There were no restrictions on sale or purchase of these vessels, and capitalized values of moratorium permits were very high, estimated at between \$50 000 and \$150 000 (MAFMC 1990). Many old vessels remained nominally in the fishery because of this. Harvesting rights were conditional upon a modest permit fee, detailed logbook reporting requirements, and many restrictions on fishing time and, for a while, the size of clams. Fishing time was progressively reduced during this period, as catch per unit of effort increased and the TAC stayed roughly the same.

In the ocean quahog fishery, which developed in the early 1980s, harvesting rights remained free and open, subject to a modest permit fee and detailed logbook reporting requirements. There were no restrictions on time or clam size, and the TAC was never reached (market demand for ocean quahogs improved during this period but remained lower than demand for surf clams).

2.2 After the introduction of ITQs

With the introduction of ITQs in October 1990, the harvesting right was no longer associated with vessel ownership but rather with ownership or lease rights to shares of the TAC. For both surf clams and ocean quahogs – which are part of the same fishery management plan but managed separately – the ITQ is a percentage of the TAC. The ITQ has two components: (a) the “quota share,” expressed in percentages of the TAC, which can be transferred permanently, and (b) the “allocation permit”, which takes the physical form of a set of tags that are allocated at the beginning of each calendar year to the ITQ holders. These coded tags must accompany the 32-bushel steel mesh cages in which the clams and quahogs are moved from the vessel to the processing plants. They

can be transferred only within a calendar year. The amount of the allocation permit is calculated by multiplying the individual quota share by the TAC, or allowable harvest, in bushels. Bushel allocations are then divided by 32 to yield the number of cages allotted, for which cage tags are issued. Cage tags may be sold to other individuals but they are valid for only one calendar year.

The minimum holding of ITQs is five cages (160 bushels); there is no maximum holding and no limit to accumulation except as might be determined by application of U.S. antitrust law. By law the ITQ is not a property right; it is designated revokable privilege.

3. METHOD OF ALLOCATION

3.1 Policy objectives for the allocation

3.1.1 Procedural objective

The initial allocation of ITQs was divided among owners of all permitted vessels that harvested surf clams or ocean quahogs between 1 January 1979 and 31 December 1988. Logbook data on landings were available for this period of time enabling the use of historical landings as well as other criteria in the allocation formula. The ITQ went to the owner of a vessel at the time of the allocation, and that vessel's history and dimensions were factored into the allocation irrespective of who owned and crewed the vessel in the past. Subsequent to the initial allocation, any person who meets the U.S. requirements for owning a fishing vessel may purchase or lease ITQ, whether or not that person owns a fishing vessel or has any other qualifications. Entities with majority foreign ownership are excluded.

A primary objective for the initial allocation appears to have been to reproduce the *status quo* in terms of shares of the catch as much as possible (McCay and Creed 1994, Creed 1991). Finding a formula that came close to the *status quo* was important in order to gain support for ITQs in the context of widespread industry concern about possible "winners" and "losers" as a consequence of the process.

3.1.2 Formal objectives

The formal policy objectives of the ITQ system are:

- i. "...[C]onserve and rebuild Atlantic surf clam and ocean quahog resources by stabilizing annual harvest rates throughout the management unit in a way that minimizes short-term economic dislocations"
- ii. "Simplify...the regulatory requirement of clam and quahog management to minimize the government and private cost of administering and complying"
- iii. "...[P]rovide the opportunity for the industry to operate efficiently, consistent with the conservation of clam and quahog resources, which will bring harvesting capacity in balance with processing and biological capacity and allow industry participants to achieve economic efficiency including efficient utilization of capital resources by the industry" and
- iv. "A management regime and regulatory framework which is flexible and adaptive to unanticipated short-term events or circumstances and consistent with overall plan objectives and long-term industry planning and investment needs" (MAFMC 1988, p.1; MAFMC 1996, p.3).

3.2 Process of determining the allocation

The allocation method was determined through a participatory process within the Mid-Atlantic Council. The Council's Surf Clam Committee, staff members of the Council, of the National Marine Fisheries Service, and a Plan Development Team, held consultations with an Industry Advisory Committee over a period of about two years after the decision had been made to use something like ITQs in these fisheries and before the final plan was adopted. This was the end point of a process that had begun in 1978, involving a search for alternatives to the vessel moratorium, which preserved the situation of over-capitalization reached by the late 1970s, and the increasingly complicated and cumbersome system of quarterly quotas, fishery closures and time limits. By the mid-1980s surf clam vessels were lucky to be allowed to fish six hours every three weeks despite increased growth of certain year-classes of clams and improved harvesting technology (for example, enlarged hydraulic hoses and dredges), because of the uncertainty about the abundance of future year-classes being sufficient to maintain even a low TAC.

The idea of "stock certificates" was discussed as early as 1978. However, from 1978 to about 1987 most discussion concerned per-vessel quota allocations, or "vessel allocations," with limited rights to "consolidate" the allocations of several vessels on one. The industry structure was asymmetric, with a few vertically-integrated firms that dominated by harvesting and processing and many owner-operator vessels plus small firms dependent on them, as well as a few processing firms without vessels. Concentration of ownership and hence control over market share and prices was a major issue, and it proved extremely difficult to come to an agreement (McCay and Creed 1990, McCay and Creed 1994, Marvin 1992, MAFMC 1990). In September 1989 the Mid-Atlantic Council voted for the plan amendment that created ITQs for both surf clams and ocean

quahogs, believing that there was enough industry agreement to justify this. Disgruntled processors and vessel owners filed a law suit to stop the plan amendment, but the court upheld the Council, and the ITQ system went into effect in October 1990.

3.3 Allocation method chosen

The formula finally chosen regarding surf clams for vessels coming from ports in the Mid-Atlantic area – the vast majority of vessels in the fishery – was primarily based on the vessel's average historical catch between 1979 and 1988. The last four years were counted twice and the two worst years were excluded. The resulting figures were summed and divided by the total catch of all harvesters for the period. Eighty percent of a vessel's allocation came from this ratio. A second ratio was computed on the basis of the vessel's cubic capacity (length times width times depth); it accounted for 20% of the vessel's initial allocation. This was in response to complaints by younger and newer participants in the fishery who had invested in larger (replacement) vessels that did not have strong historical landings, and/or had large vessel mortgages. It was called a "cost factor," and it was a key element in coming to agreement (Creed 1991).

The allocation method chosen for ocean quahog vessels (which might be surf clam vessels as well) and for surf clam vessels coming from New England ports (a distinct minority) was simpler. It was determined from the average historical catch for the years actually fished between 1979 and 1988, excluding the year of the lowest catch.

4. DATA REQUIREMENTS AND COMPUTATIONAL PROCESS

For the initial allocations the data required were the historical landings and the vessel size. Vessel-size data were readily available through National Marine Fisheries Service and U.S. Coast Guard registries. Historical landings data were readily available because of the logbook requirements during the moratorium – which applied to ocean quahog fishing as well as surfclammng – even though there was no moratorium on ocean quahog vessels. This was, and is, an unusually detailed record of the fishing history of individual vessels. The accuracy of the logbook records was a matter of great dispute and was one of the reasons for delay in agreeing on ITQs. Nonetheless, these data were used in the initial allocations. Computer workstations and desktop computers were adequate for the task of computing the initial allocations.

5. APPEALS PROCESS

There was no formal appeals process. By the time ITQs and the method of initial allocation had been agreed upon, every vessel owner in the industry had had several opportunities to object, based on computer printouts of what a particular formula would mean to him. However, politicians and the law courts became major arenas for appeal. Informal appeals also occurred in attempts to increase allocations.

6. ADMINISTRATION OF THE ALLOCATION PROCESS

Administration of the allocation process was handled by the Northeast Division of the National Marine Fisheries Service, located in Gloucester, Massachusetts.

7. EVALUATION OF THE INITIAL ALLOCATION PROCESS

7.1 Success in achieving initial policy objectives

It is difficult to assess the policy-related outcomes of the initial allocation process independently from the effects of the entire ITQ system and process. The initial allocation by itself had nothing to do with the formal policy objectives of: stabilizing annual harvest rates, simplifying regulatory requirements, fostering efficient operations, or establishing a flexible and adaptive management regime (see Section 3.1.2 above). One might argue that its emphasis on reproducing the *status quo* helped meet the objective of minimizing "short-term economic dislocations" while accomplishing other objectives (3.1.2.(i)). An analysis of the first four years of the ITQ fishery showed that the size of the initial allocation did have a statistically significant effect on which firms were still in the fishery by 1993 and 1994 – the larger the initial allocation, the greater the likelihood that a firm was still in the fishery (Weisman 1997). However, when disaggregated, this effect turned out to be restricted to the ocean quahog fishery and not the surf clam fishery, where the allocational formula was designed to maintain the *status quo*. The initial allocation process was fairly successful in achieving political acceptability of ITQs, by developing and using an allocation formula that came close to replicating the *status quo* within the surf clam industry. This did not happen within the ocean quahog part of the industry, resulting in a law suit (see below).

7.2 Satisfaction of the rights-holders with the process

By-and-large the rights-holders – that is, those who owned surf clam and, or, ocean quahog fishing vessels between 1979 and 1988 – were and are satisfied with the allocation process. The formula used for surf clams in particular resulted in allocations that came close to the preceding *status quo*, in terms of which vessel caught how many clams. Subsequently, many rights-holders have become very wealthy individuals, taking advantage of the ITQ system to reduce their investment in harvesting vessels (even to the point of withdrawing from the fishery altogether even gaining value by leasing their annual allocation permits) and increase their profits.

However, there were some “victims” of the system, and some “villains” among the rights-holders. Among the alleged villains were vessel owners who had high allocations based on historical landings records, at least some of which were due to flagrantly illegal fishing. Reportedly, even vessel owners who were caught and fined for illegal fishing (undersized clams, fishing in closed areas, fishing outside the allowed times) received credit for the clams they caught illegally, in the reckoning of the initial allocation. (This issue was also a major point of debate in the years prior to 1990). Alleged victims were small-scale owner-operators who had had trouble finding markets for their clams, competing with the larger firms and the vertically-integrated processors; in this business, there are no landings unless there is a market. It should be noted that some of the large firms felt potentially victimized by competition from other firms that had amassed quota share by accumulating marginal, non-fishing, and sometimes truly “ghost” vessels in anticipation of a system like ITQs that would allow them to consolidate their harvesting rights onto fewer vessels (Marvin 1992).

There were other equity concerns. For example, data-accuracy issues surfaced after ITQs were promulgated. One of the lawsuits that occurred after October 1990 was on behalf of ocean quahog vessel-owners who claimed that having ITQs for ocean quahogs had not been intended, and that it was a surprise when it occurred. For this reason, they had not taken care to record their ocean quahog landings accurately, in contrast with surf clam landings, and were disadvantaged in the initial allocation. However, the court upheld the Mid-Atlantic Council and the National Marine Fisheries Service.

7.3 Views of other members of the community

The major source of dissatisfaction with the allocation system is the large group of people who worked in the industry but were not vessel owners between 1979 and 1988, and therefore were not eligible to receive quota share. The exclusive, transferable rights created by ITQs were assigned only to vessel owners. The surf clam and ocean quahog fisheries were heavily dependent on hired captains, and during the 1980s many of the owner-operator vessels had been sold to become parts of large fleets. No matter how long they had worked in the industry and how much they had contributed to the historical records of the vessels, the hired captains received no quota share. Nor did other members of the crew – unless, of course, they were vessel owners – which was unlikely. Moreover, because the most direct response to ITQs was to reduce the number of vessels in the fishery, many captains, mates and deckhands lost their jobs (McCay and Creed 1994). Knowledge of these problems spread rapidly and contributed to the development of a fervent “anti-ITQ” movement in the United States, which led to a Congressional moratorium on new ITQ systems, that went into effect in 1995 and will continue to 2002 (Creed and McCay 1996).

7.4 Assessment of the process in hindsight

The highly participatory nature of the decision-making process for surf clam and ocean quahog management, within a democratic “council” system of management, contributed to the care that was given to designing the initial allocation formulas. The appointed Mid-Atlantic Council members voted in favor of the fishery management plan amendment that introduced ITQs to these fisheries, only when they knew that there was widespread, nearly unanimous, agreement. Gaining that agreement depended on an approach to the initial allocation that was perceived as equitable. Hence the long search for formulas acceptable to the majority in the industry.

However, the social structure of the fishery favored vessel-owners. Most of the participation – in industry advisory meetings, at Council meetings, at special industry-run conferences – involved the owners or their representatives. Non-owning captains and crew members did not feel free to express their opinions or desires, given their vulnerability to being unemployed at a time – the 1980s – when vessel-owners were reducing their crewing because of the shorter periods of time that the boats were allowed to fish clams (McCay and Creed 1987). Consequently, for this fishery there were no attempts to address the question of the rights of non-owners to ITQ. Again, a result was strong anti-ITQ sentiment for other fisheries in the United States.

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9. LITERATURE CITED

- Creed, C.F. 1991. Cutting Up the Pie: Private Moves and Public Debates in the Social Construction of a Fishery. Unpub. Ph.D. dissertation, Department of Anthropology, Rutgers the State University of New Jersey.
- Creed, C.F. and B.J. McCay 1996. Property Rights, Conservation and Institutional Authority: Policy Implications of the Magnuson Act Reauthorization for the Mid-Atlantic Region. *Tulane Environmental Law Journal* 9(2): 245-256.
- MAFMC - Mid-Atlantic Fishery Management Council 1988. Amendment #8, Fishery Management Plan for the Atlantic Surf Clam and Ocean Quahog Fishery. July 1988; draft 14 December 1989. Dover, Delaware: Mid-Atlantic Fishery Management Council in cooperation with the National Marine Fisheries Service and the New England Fishery Management Council.
- MAFMC - Mid-Atlantic Fishery Management Council 1990. Amendment #8, Fishery Management Plan for the Atlantic Surf Clam and Ocean Quahog Fishery. June 20 1990. Dover, Delaware: Mid-Atlantic Fishery Management Council in cooperation with the National Marine Fisheries Service and the New England Fishery Management Council.
- MAFMC - Mid-Atlantic Fishery Management Council 1996. Amendment #9, Fishery Management Plan for the Atlantic Surf Clam and Ocean Quahog Fisheries. April 1996. Dover, Delaware: Mid-Atlantic Fishery Management Council in cooperation with the National Marine Fisheries Service and the New England Fishery Management Council.
- Marvin, K.A. 1992. Protecting Common Property Resources Through the Marketplace: Individual Transferable Quotas for Surf Clams and Ocean Quahogs. *Vermont Law Review* 16: 1127-1168.
- McCay, B.J. and C.F. Creed 1987. Crews and Labor in the Surf Clam and Ocean Quahog Fleet of the Mid-Atlantic Region. A Report to the Mid-Atlantic Fisheries Management Council, October 1987. Dover, Delaware: Mid-Atlantic Fisheries Management Council.
- McCay, B.J. and C.F. Creed 1990. Social Structure and Debates on Fisheries Management in the Mid-Atlantic Surf Clam Fishery. *Ocean & Shoreline Management* 13: 199-229.
- McCay, B.J. and C.F. Creed 1994. Social Impacts of ITQs in the Sea Clam Fishery. Final Report to the New Jersey Sea Grant College Program, New Jersey Marine Sciences consortium. February 1994.
- National Research Council 1999. *Sharing the Fish; Toward a National Policy on Individual Fishing Quotas*. Washington, D.C.: National Academy Press.
- Weisman, D. 1997. An Economic Analysis of the Mid-Atlantic Surf Clam and Ocean Quahog Fishery Using Logit, Hazard and Survival Rate Functions. Unpublished M.S. thesis, Department of Agricultural Economics and Marketing, Rutgers University, New Brunswick, New Jersey.