NOTE

PROTECTING COMMON PROPERTY RESOURCES THROUGH THE MARKETPLACE: INDIVIDUAL TRANSFERABLE QUOTAS FOR SURF CLAMS AND OCEAN QUAHOGS*

INTRODUCTION

The conservation and management of unowned or commonly owned natural resources, such as fish or clean air, is a major challenge for American law. Common resources tend to be overexploited because in each case the benefits of exploitation go entirely to an individual, while the costs are shared by all.[1] Viewed another way, those who sacrifice for the sake of conservation are not the ones who benefit from the sacrifice.[2] The task facing legal and regulatory authorities is difficult because of the strength of the economic forces driving the depletion of common resources.

The issues of common property resources are starkly apparent in the context of ocean life, where marine resources such as fish stocks are under great pressure from the fishing industries of many nations. Even within areas such as the American Exclusive Economic Zone,[3] where fishing industries are under the jurisdiction and control of the United States, the common property nature of the resource makes conservation and management particularly difficult. Many American fisheries are in crisis, while at the same time harvesting capacity tends to be much higher than the stocks can support.[4] Often, traditional approaches to fishery management,

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1. Garrett Hardin referred to this phenomenon as "the tragedy of the commons," in his article of the same name. Garrett Hardin, *The Tragedy of the Commons*, 162 SCIENCE 1243 (1968). *See infra* notes 142-50 and accompanying text.

2. The author vividly remembers the first time she heard the argument framed in this way. The speaker was a New England lobsterman addressing the need for regulation to conserve lobsters. *See also* RICHARD POSNER, ECONOMIC ANALYSIS OF LAW § 3.2, at 34 (3d ed. 1986) (discussing the same analysis with respect to beaver hunters).

3. The Exclusive Economic Zone is a two hundred mile limit marked from the coast of the United States. The Magnuson Fishery Conservation and Management Act, § 101, 16 U.S.C.A. § 1802 (6) (West 1985 & Supp. 1991).

4. *See generally Fisheries in Crisis: A Call for Limited Entry to Solve Overfishing*

such as setting minimum sizes and closed areas to fishing, are not successful in preventing overfishing.[5]

One promising alternative which uses individual transferable allocations to address both conservation and economic concerns has recently been adopted by the National Marine Fisheries Service[6] and the Mid-Atlantic Fishery Management Council.[7] An individual transferrable allocation gives the holder a right to take a certain percentage of the resource each year. The allocation may be traded on the open market. This is the heart of the recently adopted Amendment Eight to the Surf Clam and Ocean Quahog Fishery Management Plan.[8] An interesting aspect of this particular regulation is the government's decision to allocate ocean quahogs along with surf clams, largely in anticipation of spill-over effects from the allocation of surf clams.

Surf clams and ocean quahogs are two different species of offshore clam[9] which are harvested and marketed by the same indus-

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Problems, NAT'L FISHERMAN, Sept. 1990, at 12 [hereinafter *Limited Entry*]; Todd Campbell, *Fisheries in Crisis: Storm Warning for North Pacific Fleet*, NAT'L FISHERMAN, Dec. 1990, at 17; Russ Fee, *Fisheries in Crisis: Southern Fishermen Look to Limited Access*, NAT'L FISHERMAN, Oct. 1990, at 24; Susan Pollack, *Fisheries in Crisis: Finding a Fix for Northeast Groundfish*, NAT'L FISHERMAN, Nov. 1990, at 12.

5. For example, the New England groundfish fishery, which has been in decline throughout the 1980s, is regulated by a combination of mesh sizes, fish sizes, and area closures. Pollack, *supra* note 4, at 13-14. Mesh sizes and minimum fish sizes limit the size of the fish caught, while area closures prohibit fishing in depleted areas. *Id.* at 14. These regulations have failed to conserve fish stocks and have probably reached the limits of their utility. *See id.* at 14. One groundfisherman notes that increasing mesh size one-half inch above its present limit would result in catching no fish at all. *Id.* Others attribute the failure of these regulations to noncompliance and lack of enforcement. *Id.*

6. The National Marine Fisheries Service is a division of the National Oceanic and Aeronautic Administration, in the United States Department of Commerce.

7. The Magnuson Act established the Regional Fishery Management Councils to manage the fisheries. 16 U.S.C.A. § 1851 (West 1985 & Supp. 1991).

8. MID-ATLANTIC FISHERY MANAGEMENT COUNCIL IN COOPERATION WITH THE NAT'L MARINE FISHERIES SERV. AND THE NEW ENGLAND FISHERY MANAGEMENT COUNCIL, AMENDMENT EIGHT FISHERY MANAGEMENT PLAN FOR THE ATLANTIC SURF CLAM AND OCEAN QUAHOG FISHERY (1989) [hereinafter AMENDMENT EIGHT]. As adopted by the Secretary of Commerce, the actual regulations appear at Atlantic Surf Clam & Ocean Quahog Fisheries, 50 C.F.R. § 652 (1991). The regulations are promulgated to implement Amendment Eight. *See infra* note 16. Copies of Amendment Eight may be obtained from John C. Bryson, Executive Director, Mid-Atlantic Fishery Management Council, Room 2115, Frear Federal Building, 300 South New Street, Dover, Delaware, 19901-6790.

9. *Spisula solidissima* and *arctica islandica*, respectively. AMENDMENT EIGHT, *supra* note 8, at 3, 17. Ocean quahogs are sometimes known as mahogany quahogs. *See* NEW ENGLAND FISHERY MANAGEMENT COUNCIL, SUMMARY MINUTES 21 (Aug. 8-9, 1990). They should not be confused with the more familiar northern quahog, also known as cherrystone, littleneck, or hard clam. The latter is *mercenaria mercenaria*. 3 THE NEW ENCYCLOPEDIA

try.[10] In 1977, the United States Department of Commerce began regulating both species as one under the Magnuson Fishery Conservation and Management Act.[11] At that time, the surf clam resource was rapidly becoming depleted and the industry was turning to ocean quahogs as a substitute for surf clams. The regulations in force before the adoption of Amendment Eight included total industry quotas,[12] size limits,[13] industry closures,[14] and restrictions on fishing time.[15] These regulations succeeded in rebuilding the depleted surf clam resource and in preserving ocean quahog stocks, but in spite of a moratorium on the entry of new surf clam vessels, they failed to address the underlying problem of overcapacity in the industry. The existing fleet was grossly out of proportion to the size of the resource. The annual quota for the entire industry could have been caught by a small percentage of the permitted vessels. These vessels had to race one another to take as many clams as possible while the fishery remained open. Each vessel had a strong incentive to increase their harvesting speed. The old regulations, therefore, encouraged further overcapacity by spurring more investment in rapid harvesting equipment.

The new regulation, Amendment Eight to the Surf Clam and Ocean Quahog Fishery Management Plan (Amendment Eight),[16]

BRITANNICA 343 (15th ed. 1985).

10. Much of the information for this note is drawn from the author's knowledge obtained from working in the industry.

11. 16 U.S.C.A. §§ 1801-1882 (West 1985 & Supp. 1991); Surf Clam and Ocean Quahog Industries Fishery Management Plan, 42 Fed. Reg. 60,437 (1977).

12. A total industry quota sets a limit on the amount of clams the entire industry may catch, but does not specify how much an individual participant may take. Individual transferable allocations are often referred to as individual transferable quotas (ITQ's). This use of the word *quota* is ambiguous, as it refers to both the individual catch limit, and to the total allowable catch for the industry as a whole. To avoid confusion the author will reserve the word *quota* for the total industry quota, and refer to individual quotas as individual allocations.

13. Size limits mandate that clams under a certain size must be thrown back into the ocean. Clams are measured along the longest dimension of the shell.

14. Industry closures are periods during which the entire industry is shut down, and no one may fish for clams.

15. The fleet as a whole was allowed to fish for only 144 hours out of the year. Susan Pollack, *Individual Quotas for Surf Clammers, Quahoggers*, NAT'L FISHERMAN, Feb. 1990, at 10 [hereinafter *Quahoggers*].

16. Strictly speaking Amendment Eight is not a regulation, but rather an amendment to a Fishery Management Plan. It was adopted by the Mid-Atlantic Fishery Management Council, and approved by the Secretary of Commerce in accord with requirements of the Fishery Conservation and Management (Magnuson) Act, 16 U.S.C.A. §§ 1852-1854 (West 1985 & Supp. 1991). The Fishery Management Plan is implemented by regulations written by the National Marine Fishery Service (NMFS, pronounced *nimfs* or *nims)*. It is these

became effective on September 30, 1990.[17] It assigns individual, transferable catch allocations to vessels participating in the fishery.[18] The allocations limit the number of surf clams and quahogs each permit holder may take. In this manner, overcapacity is mitigated by eliminating the need for vessels to catch as many clams as quickly as possible. Additionally, the transferability provision allows vessels to consolidate their catch to fewer boats, reducing the existing overcapacity. Conservation is achieved by specifying the total allowable catch.

Amendment Eight is a limited entry or limited access management scheme. The total number of allocation permits is fixed, and one must have an allocation permit in order to fish for surf clams or ocean quahogs. The federal law which authorizes this regulation, the Magnuson Act, expressly authorizes Fishery Management Plans (FMP's) which limit access to a fishery.[19] Because of the controversial nature of limited entry[20] and the greater potential for individual hardship under such a regime,[21] the Magnuson Act requires that a limited entry system meet stricter standards than other FMP's. Limited entry systems must be "fair and equitable,"[22] "promote conservation,"[23] prevent the acquisition of "excessive share[s],"[24] and take into account such factors as present and historical participation and practices in the fishery.[25] The Magnuson Act also requires that all FMP's must, "where practicable, promote efficiency,"[26] but may not have "economic allocation" as their sole purpose.[27]

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regulations which are legally enforced. *See* 16 U.S.C.A. § 1857(1)(A); *see also* Washington Trollers Assoc. v. Kreps, 466 F. Supp. 309, 312 (W.D. Wash. 1979), *rev'd on other grounds*, 645 F.2d 684 (9th Cir. 1981) ("[T]he plan itself does not adversely affect anyone . . . . Any adverse effect results only from the regulations adopted to promulgate the plan . . . .").

17. Atlantic Surf Clam and Ocean Quahog Fishery, 55 Fed. Reg. 24,184 (1990).

18. AMENDMENT EIGHT, *supra* note 8, at 4-6, 55-56.

19. 16 U.S.C.A. § 1853(b)(6).

20. *See, e.g.*, *Limited Entry*, *supra* note 4.

21. There is a greater potential for hardship because limited entry may foreclose to some the opportunity to fish. *See* S. REP. No. 416, 94th Cong., 1st Sess. (1975), *reprinted in* THE COMM. ON COMMERCE AND THE NAT'L OCEAN POLICY STUDY. LEGISLATIVE HISTORY OF THE FISHERY CONSERVATION AND MANAGEMENT ACT OF 1976, at 691-92 (1976) (discussing various ways limited entry may foreclose fishing opportunity) [hereinafter LEGISLATIVE HISTORY].

22. 16 U.S.C.A. § 1851(a)(4)(A) (West 1985 & Supp. 1991).

23. *Id.* § 1851(a)(4)(B).

24. *Id.* § 1851(a)(4)(C).

25. *Id.* § 1853(b)(6)(A)-(B).

26. *Id.* § 1851(a)(5).

27. *Id.* A management measure designed to conserve fish may promote economic efficiency where practical, but a measure motivated solely by economic considerations with no

One of the most controversial aspects of the new regulation is the inclusion of ocean quahogs in the same allocation scheme as surf clams. Although both species have historically been managed together, ocean quahogs were previously regulated far less stringently than surf clams. This disparity was due to the fact that surf clams have been, and would continue to be, overfished in the absence of regulation.[28] As ocean quahogs are a much less desirable species from the industry's point of view, however, fishing pressure on them is much lower. The annual industry quota for quahogs has never been caught.[29] For these reasons, people have questioned the rationale for allocating ocean quahogs along with surf clams. Nevertheless, the new regulation has been upheld in court,[30] and a close examination of the economic connections between the two species demonstrates the wisdom of allocating both together.

To explain the rationale for allocating ocean quahogs along with surf clams, it is necessary to describe the fishery in some detail, and to trace the development of the regulations that preceded Amendment Eight. The essence of these regulations was the total industry quota—probably the most effective conservation measure there is for managing a natural resource. The industry quotas are set annually at a level to best conserve and rebuild the stocks. These quotas succeeded in rebuilding and conserving surf clam stocks, but created other problems which made the system increasingly unworkable. Amendment Eight retains the total annual quotas, and also addresses other problems associated with a quota management system. Furthermore, by allocating quahogs, it prevents the same problems from arising in the ocean quahog industry that arose in the surf clam industry.[31]

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other motive is illegal. *See infra* note 101.

28. *See infra* notes 74-79 and accompanying text.

29. AMENDMENT EIGHT, *supra* note 8, at 41, 80. The terminology here may be a little confusing. Catching or taking the quota means that the industry's total aggregate catch is equal to the total allowable catch set for that year by NMFS.

30. Sea Watch Int'l v. Mosbacher, 762 F. Supp. 370 (D.D.C. 1991). In addition to the decision to allocate ocean quahogs, the plaintiffs challenged Amendment Eight on a number of general grounds. *Id.* The ocean quahog issue was sufficiently important that one of the two summary judgment briefs submitted by the plaintiffs was devoted entirely to that question. *See* Memorandum of Plaintiffs in Support of Motion for Partial Summary Judgment, Seawatch Int'l v. Mosbacher, 762 F. Supp. 370 (D.D.C. 1991) (No. 90-1616 JHG).

31. *See infra* notes 268-79 and accompanying text.

I. BACKGROUND

A. Surf Clams and Ocean Quahogs

Surf clams (*spisula solidissima*) are also known as bar clams, hen clams, sea clams, beach clams, or skimmer clams.[32] They are large bivalves distributed along the continental shelf of North America from the southern Gulf of St. Lawrence in the Canadian Maritimes to Cape Hatteras off the coast of North Carolina.[33] The great bulk of the resource is located in the Mid-Atlantic region.[34] At least half the resource occurs off the coast of the Delmarva peninsula,[35] and there is a significant concentration off northern New Jersey, as well.[36] A very rough estimate of the Mid-Atlantic biomass in 1986 was 1.2 billion pounds.[37]

Surf clams reach sexual maturity in their second year,[38] but older clams make a considerably greater contribution to reproduction than younger and smaller clams.[39] The stocks off northern New Jersey and Delmarva are dominated by plentiful 1976 and 1977 year classes,[40] respectively. There have been significant increases in the Mid-Atlantic surf clam stock as these year classes have matured.[41] However, there has been no significant spawning since 1978, and no strong year classes have appeared since then.[42]

Ocean quahogs (*arctica islandica*), sometimes referred to as mahogany quahogs,[43] are the only living member of the family *Arc-*

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32. Surf Clam and Ocean Quahog Industries Fishery Management Plan, 42 Fed. Reg. 60,437, 60,442 (1977).

33. AMENDMENT EIGHT, *supra* note 8, at 17.

34. AMENDMENT EIGHT, *supra* note 8, at 28.

35. AMENDMENT EIGHT, *supra* note 8, at 19. The Delmarva peninsula is the land east of the Chesapeake Bay. The peninsula consists of most of Delaware, and the "eastern shores" of Maryland and Virginia. The name Delmarva comes from combining the names of the three states.

36. AMENDMENT EIGHT, *supra* note 8, at 19.

37. AMENDMENT EIGHT, *supra* note 8, at 25, 91.

38. AMENDMENT EIGHT, *supra* note 8, at 20.

39. AMENDMENT EIGHT, *supra* note 8, at 23. Both surf clams and ocean quahogs reproduce by spawning. AMENDMENT EIGHT, *supra* note 8, at 22-23.

40. AMENDMENT EIGHT, *supra* note 8, at 21. A year class refers to all the clams spawned in a particular year, which move through their life cycle together. Surf clam fishermen are fishing almost exclusively on the 1976 and 1977 year classes.

41. AMENDMENT EIGHT, *supra* note 8, at 21.

42. AMENDMENT EIGHT, *supra* note 8, at 21.

43. *See* NEW ENGLAND FISHERY MANAGEMENT COUNCIL, SUMMARY MINUTES 21 (Aug. 8-9, 1990).

ticidae.[44] They should not be confused with the more familiar northern quahog (*mercenaria mercenaria*), also known as cherrystone, littleneck, or hard clam.[45] Ocean quahogs are found from Newfoundland to Cape Hatteras,[46] and also inhabit the waters off Greenland and Scandinavia.[47] They prefer water temperatures below sixty degrees Fahrenheit, and therefore occur further offshore in the Mid-Atlantic, which is the southern part of their range.[48] The minimum population estimate for ocean quahogs off the coast of the United States is 2.6 billion pounds.[49]

Ocean quahogs are very long-lived.[50] It is estimated that sixteen to seventeen percent of the Mid-Atlantic resource is over one hundred years old, but most of the Mid-Atlantic resource is between twenty and one hundred years old.[51] They reach sexual maturity at eight to eleven or more years old.[52]

Ocean quahogs are abundant; there has been no detectable decline in the stocks over the Mid-Atlantic region as a whole.[53] There is, however, evidence of decline in discrete, heavily fished areas.[54] At the same time, there is a lack of young quahogs in the Mid-Atlantic.[55] The ocean quahog resource must be carefully managed for the following reasons: the age of the resource; the present dearth of young quahogs; and the amount of time required for young ocean quahogs to grow.[56]

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44. 42 Fed. Reg. 60,442.

45. 3 THE NEW ENCYCLOPEDIA BRITANNICA 343 (15th ed. 1985). Northern quahogs are smaller and live much closer to shore. They can be harvested simply by digging in a mud flat with a shovel or a rake.

46. AMENDMENT EIGHT, *supra* note 8, at 17.

47. AMENDMENT EIGHT, *supra* note 8, at 17-18.

48. AMENDMENT EIGHT, *supra* note 8, at 17.

49. AMENDMENT EIGHT, *supra* note 8, at 86.

50. AMENDMENT EIGHT, *supra* note 8, at 22.

51. AMENDMENT EIGHT, *supra* note 8, at 22.

52. AMENDMENT EIGHT, *supra* note 8, at 20. More precisely, half of male ocean quahogs reach sexual maturity in eight years, and half of female ocean quahogs reach sexual maturity by their eleventh year. *Id.*

53. AMENDMENT EIGHT, *supra* note 8, at 28.

54. AMENDMENT EIGHT, *supra* note 8, at 27.

55. AMENDMENT EIGHT, *supra* note 8, at 22, 122.

56. 42 Fed. Reg. 60,441; *see also* AMENDMENT EIGHT, *supra* note 8, at 28.

B. The Surf Clam and Ocean Quahog Industry

The surf clam and ocean quahog fishery is entirely domestic and commercial.[57] Both species of clam are used by the same industry.[58] The industry processes both species in similar plants, and markets both as similar end products. They are processed on land,[59] and used for canned clam products such as chowders. In the case of surf clams they are also used for fried clam strips.[60]

The principal products of the industry are fresh and frozen shucked[61] meats, canned clam products, and breaded fried clams.[62] Canned clam products are typically clam chowders and sauces,[63] or chopped and minced clams,[64] which are used by restaurants and food manufacturers as ingredients for chowders, sauces, and other similar foods. Breaded clam products are the most profitable for the industry, and can only be made from large surf clams.[65] Canned products are generally made from surf clam "salvage,"[66] ocean quahog meat,[67] and smaller surf clams caught in the state waters of New Jersey and Long Island Sound. Ocean quahogs and surf clams are market substitutes for each other in all canned clam products, but canned surf clam products command a higher price because of their higher quality.[68]

Both species are harvested by hydraulic dredges towed across the ocean floor.[69] The equipment required to harvest either species

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57. AMENDMENT EIGHT, *supra* note 8, at 45.

58. *See* AMENDMENT EIGHT, *supra* note 8, at 51; Surf Clam and Ocean Quahog Industries Fishery Management Plan, 42 Fed. Reg. 60,437, 60,441 (1977).

59. Several attempts have been made to shuck ocean quahogs at sea. One of the most controversial aspects of Amendment Eight was the shucking at sea provisions. *See infra* note 253.

60. AMENDMENT EIGHT, *supra* note 8, at 51.

61. Shucking is the process of taking the meat out of the shell.

62. AMENDMENT EIGHT, *supra* note 8, at 51.

63. AMENDMENT EIGHT, *supra* note 8, at 51.

64. AMENDMENT EIGHT, *supra* note 8, at 51.

65. AMENDMENT EIGHT, *supra* note 8, at 51.

66. AMENDMENT EIGHT, *supra* note 8, at 51. Surf clam salvage refers to the meats left over after the pseudopod, which in industry is called the tongue because of its shape, is taken out for fried clam strips.

67. AMENDMENT EIGHT, *supra* note 8, at 51.

68. AMENDMENT EIGHT, *supra* note 8, at 52. Surf clams have a sweeter taste. *See* 42 Fed. Reg. 60,457. Ocean quahogs have a stronger taste and a darker color than surf clams, which makes the quahogs less desirable. *Id.* This source states that the color and flavor problems associated with the ocean quahog were "resolved," but it would be more accurate to say improved, as ocean quahogs command a lower price than surf clams.

69. The author worked for a number of years in the marine division of a large firm, and

is substantially similar, although there are subtle differences. A vessel rigged for clamming has one or two dredges, a water pump, a pump engine for each dredge,[70] and it frequently has automated deck machinery for sorting and handling the product. The specialized nature of clamming gear makes outfitting a vessel for clamming a complex and expensive undertaking. With new technology, however, it has become relatively easy to switch from surf clams to ocean quahogs or from quahogs to surf clams. In addition, a vessel can be easily outfitted to fish for both species using the same gear.[71]

Surf clams and ocean quahogs are brought to shore in the shell, and sold to processors who use automated machinery to remove the meat in a process called shucking.[72] Most processors are moderately large operations.[73] Certain types of shucking machines

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is therefore familiar with these dredges. Hydraulic dredges operate by pumping a stream of water into the ocean floor in order to liquefy it. This allows a large steel rake, called a knife carrier, to be towed through the top 6 to 9 inches of the ocean floor. Behind the knife carrier is the dredge, a large steel box with slatted sides and an open back. Attached to the back is a chain bag, made of interlocking steel rings in which the clams are caught. A typical dredge is 7 to 10 feet wide, 15 to 20 feet long, and 2 to 3 feet high. It weighs from 4 to 6 tons when empty.

70. The water pump forces ocean water from the surface down through a large rubber hose to the ocean floor. This hose is typically 6 to 10 inches in diameter and 100 to 300 feet long. The pumps usually require their own engines because their power requirements are too high for the vessel's main engine to run both the boat and the pumps.

71. In the 1970s and early 1980s, quahog and surf clam dredges often had different bottoms because of the different size and shape of the two species. Since 1985, however, vessels have begun to modify their dredges to fish for either species, and to adapt the deck sorting machinery to handle surf clams as well as ocean quahogs. *See* AMENDMENT EIGHT, *supra* note 8, at 104. In 1986 and 1987, almost half of the active vessels in the fleet were landing both species. This rose from a third in 1979 and 1980, although less than a quarter of the fleet fished for both in 1983. *See id.* The trend is probably more pronounced than these figures indicate because many ocean quahog vessels fished for surf clams once a year to maintain their surf clam permits. In spite of fishing almost exclusively for ocean quahogs, these vessels were counted as dual-species vessels. In the latter 1980s, however, many became truly dual-species vessels, landing significant quantities of both species of clam. *See* Katharine Marvin, *How Limited Is Limited Entry: The Vertically Integrated Perspective*, *in* PROCEEDINGS FROM THE NEW ENGLAND/MID-ATLANTIC CONFERENCE ON MATCHING CAPITAL TO RESOURCES IN THE FISH HARVESTING INDUSTRY: LIMITED ENTRY AND/OR OTHER ALTERNATIVES 52-53 (Barry Bainton ed., 1987) [hereinafter MATCHING CAPITAL].

72. AMENDMENT EIGHT, *supra* note 8, at 40. The industry has attempted to develop a vessel capable of shucking surf clams and ocean quahogs at sea. Under the new regulation, shucking at sea will not be permitted, except under tightly controlled conditions which guarantee that NMFS can accurately monitor the catch. *See* AMENDMENT EIGHT, *supra* note 8, at 58. This provision is controversial because a number of industry participants are hoping to develop processor vessels. *See infra* note 253.

73. *See* DAVID R. KEIFER, CHANGING CIRCUMSTANCES IN THE RESOURCE AND FISHERY RELATIVE TO VESSEL ALLOCATIONS 2 (Aug. 24, 1990) ("The surf clam and ocean quahog fishery is

are more appropriate to one species than the other. For this reason, many processors operate separate shucking lines or even separate shucking establishments for each species. Some shucking machines, however, are suitable for use with either species.

C. The History of Surf Clamming and Ocean Quahogging

Neither surf clam nor ocean quahog fishing has a long history. Surf clams were sold commercially in New England as bait in the nineteenth century, but it was not until after World War II that surf clams began to be caught in significant quantities for human consumption. At that time they were used primarily in chowders.[74] In the early 1970s, the demands of the clam industry generated very high surf clam catches. The boom prompted the entry of more vessels into the fishery, improved harvesting techniques, and the discovery of virgin clam beds.[75] In 1974, surf clam landings peaked at ninety-six million pounds.[76] Surf clam vessels had been harvesting well above the sustainable level of the resource. It was only the discovery of untapped clam beds which allowed the high catch rates to continue throughout the early 1970s.[77] When the industry reached the southern boundaries of the resource, the fishery began to collapse.[78] Landings decreased dramatically in spite of the newer and larger vessels entering the fishery.[79]

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really a mining operation that supplies raw material to fairly significant industrial establishments.") (available from David R. Keifer, Deputy Director, Mid-Atlantic Fishery Management Council, Room 2115, Frear Federal Building, 300 South New Street, Dover, Delaware 19901-6790).

74. Surf Clam and Ocean Quahog Industries Fishery Management Plan, 42 Fed. Reg. 60,437, 60,457 (1977).

75. *Id.*

76. AMENDMENT EIGHT, *supra* note 8, at 79. Surf clam and ocean quahog catches are usually measured in either bushels or pounds of shucked meats. Bushel figures give the total volume of raw shellstock—the animal in its shell. One clam bushel is approximately 1.5 U.S. bushels. Pounds of shucked meats are calculated using a conversion factor of 17 pounds per bushel for surf clams, and 10 pounds per bushel for ocean quahogs. AMENDMENT EIGHT, *supra* note 8, at 26, 41. These standardized yields are not necessarily the yields actually experienced by processors, which is an important factor in the processing at sea controversy. *See infra* note 253.

77. AMENDMENT EIGHT, *supra* note 8, at 40; Panel Statement of James E. Douglas, Jr., *in* LIMITED ENTRY AS A FISHERY MANAGEMENT TOOL 46-47 (R. Bruce Rettig & Jay J. C. Ginter eds., 1978).

78. AMENDMENT EIGHT, *supra* note 8, at 40; 42 Fed. Reg. 60,453, 60,458; Douglas, *supra* note 77, at 46-47 ("I guess we should have realized that those surf clams did not go all the way to the South Pole and that some day we were going to run out of them.").

79. 42 Fed. Reg. 60,462; Douglas, *supra* note 77, at 47; AMENDMENT EIGHT, *supra* note 8, at 41, 79.

In 1976, the situation was exacerbated by a major anoxia event off the coast of New Jersey.[80] This event, caused by a large-scale algal bloom and an unusual combination of other factors, killed a significant number of the bottom dwelling organisms in the region.[81] The New Jersey surf clam biomass decreased by 78.5%, while the New Jersey ocean quahog biomass experienced a 7.1% decrease.[82] By 1976, surf clam landings were down to forty-nine million pounds.[83]

The ocean quahog resource never suffered similar declines. Fishing for ocean quahogs began during World War II off Rhode Island's coast.[84] Ocean quahogs were not popular because of their strong taste and dark color.[85] In the late 1970s, with the surf clam resource declining, the clam industry developed technology which made ocean quahogs more palatable. The technology established ocean quahogs as a substitute for surf clams.[86] Ocean quahog landings began to increase in 1976 as New Jersey surf clam vessels went into ocean quahogging.[87] Total ocean quahog landings[88] went from one million pounds in 1975 to thirty-four million pounds in 1980.[89]

II. Legislation and Management

A. *The Magnuson Fishery Conservation and Management Act*

In 1976, Congress passed the Magnuson Fishery Conservation and Management Act (the Magnuson Act or Act),[90] asserting control over fisheries within two hundred miles of the United States

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80. 42 Fed. Reg. 60,445; Amendment Eight, *supra* note 8, at 30. Anoxia is a severe deficiency of oxygen reaching the tissue of an organism which results in permanent damage or death. *See* Webster's Third New International Dictionary 89, 1117 (1986).

81. 42 Fed. Reg. 60,455.

82. Amendment Eight, *supra* note 8, at 30.

83. 42 Fed. Reg. 60,462; Amendment Eight, *supra* note 8, at 79.

84. 42 Fed. Reg. 60,457.

85. *Id.*

86. *Id.*

87. 42 Fed. Reg. 60,459.

88. Total ocean quahog landings include both landings from the Exclusive Economic Zone (EEZ) and inshore landings from state waters such as Rhode Island's and Maine's. Virtually all ocean quahog landings come from the EEZ. *See* Amendment Eight, *supra* note 8, at 80.

89. Amendment Eight, *supra* note 8, at 80.

90. Magnuson Fishery Conservation and Management Act, Pub. L. No. 94-265, 90 Stat. 331 (codified as amended at 16 U.S.C.A. §§ 1801-1882 (West 1985 & Supp. 1991)).

coastline.[91] The Act was intended "to conserve and manage the fishery resources" off United States coasts.[92] At the time the Magnuson Act was passed, the greatest concern was the impact foreign fishing fleets had on the fisheries. Domestic fishing was not considered a serious threat.[93] However, the Act also recognized the potential need for management of domestic fisheries,[94] and empowers the Department of Commerce to regulate fisheries.[95]

The Act establishes eight Regional Fishery Management Councils,[96] which are charged with preparing and amending Fishery Management Plans (FMP's) for each fishery "that requires conservation and management."[97] FMP's are subject to review and approval by the Secretary of Commerce (the Secretary).[98] FMP's themselves, however, are not enforceable. After approving the FMP, the Secretary issues the regulations necessary to implement it.[99] It is the Secretary's regulations that are enforceable under the Magnuson Act.[100]

The Magnuson Act requires that all FMP's meet certain standards of conservation, science, fairness, and efficiency.[101] The Act

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91. *Id.* § 1811.

92. *Id.* § 1801(b)(1).

93. *See, e.g.*, Campbell, *supra* note 4, at 17; M. Estellie Smith, *Fisheries Management: Intended Results and Unintended Consequences, in* MODERNIZATION AND MARINE FISHERIES POLICY 64-65 (John R. Maiolo & Michael K. Orbach eds., 1982).

94. 16 U.S.C.A. § 1801(b)(3).

95. *Id.* § 1802(23).

96. *Id.* § 1852(a). Council members are people familiar with the fisheries and fishing industries. Some are appointed by the Secretary of Commerce and some by state governors. *Id.*

97. *Id.* § 1852(h)(1).

98. *Id.* § 1854 (a)-(b). The Act also allows the Secretary of Commerce to write his or her own plan if a Regional Council fails to act. *Id.* § 1854(c). If the Secretary of Commerce fails to act, the plan will automatically go into effect. *Id.* § 1854(b)(2)(D).

99. *Id.* § 1855(c).

100. *See id.* § 1854(a)-(b); *see also supra* note 16.

101. These standards, known as the National Standards, read as follows:

> Any fishery management plan prepared, and any regulation promulgated to implement any such plan, pursuant to this subchapter shall be consistent with the following national standards for fishery conservation and management:
>
> (1) Conservation and management measures shall prevent overfishing while achieving, on a continuing basis, the optimum yield from each fishery for the United States fishing industry.
>
> (2) Conservation and management measures shall be based on the best scientific information available.
>
> (3) To the extent practicable, an individual stock of fish shall be managed as a unit throughout its range, and interrelated

specifies a number of mechanisms which may be used to manage fisheries, including the more traditional mechanisms of closed areas,[102] total quotas,[103] and gear specifications.[104] It also provides for managing fisheries by limited access or limited entry. Any limited access or limited entry scheme must take into account such factors as present and historical participation in the fishery.[105] Historical

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> stocks of fish shall be managed as a unit or in close coordination.
>
> (4) 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 manner that no particular individual, corporation, or other entity acquires an excessive share of such privileges.
>
> (5) Conservation and management measures shall, where practicable, promote efficiency in the utilization of fishery resources; except that no such measure shall have economic allocation as its sole purpose.
>
> (6) Conservation and management measures shall take into account and allow for variations among, and contingencies in, fisheries, fishery resources, and catches.
>
> (7) Conservation and management measures shall, where practicable, minimize costs and avoid unnecessary duplication.

16 U.S.C.A. § 1851(a).

102. Closed areas are specific places in the ocean where no fishing is allowed, usually to protect young or spawning fish. "Any fishery management plan which is prepared by any Council, or by the Secretary, with respect to any fishery, may . . . designate zones where, and periods when, fishing shall be limited, or shall not be permitted . . . ." 16 U.S.C.A. § 1853(b)(2).

103. The word *quota* here refers to the total industry quota, not to individual allocations. "Any fishery management plan . . . may . . . establish specified limitations on the catch of fish (based on area, species, size, number, weight, sex, incidental catch, total biomass, or other factors) . . . ." *Id.* § 1853(b)(3). The surf clam and ocean quahog total industry quotas are based primarily on total biomass, although there are other considerations such as the distribution and age of that biomass.

104. "Any fishery management plan . . . may . . . prohibit, limit, condition, or require the use of specified types and quantities of fishing gear, fishing vessels, or equipment for such vessels . . . ." *Id.* § 1853(b)(4). An example of gear specifications would be minimum mesh size for nets, so that younger, smaller fish can swim through and escape. The Act also provides for other traditional fishery management tools. *See id.* § 1853(b).

105. The Act provides that:

> Any fishery management plan which is prepared by any Council, or by the Secretary, with respect to any fishery, may—
>
> . . .
>
> (6) establish a system for limiting access to the fishery in order to achieve optimum yield if, in developing such system, the Council and the Secretary 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,

participation is often measured by a vessel's past catch history.[106] Until recently, the only limited entry management scheme established under the Magnuson Act was the original Surf Clam and Ocean Quahog FMP and its later amendments. This Plan placed a moratorium on the entry of new vessels into the surf clam fishery.[107] All later amendments retained limited entry by retaining the moratorium until Amendment Eight.[108] Amendment Eight did not retain the moratorium on new entrants, but it nevertheless limits access to the fishery. Amendment Eight creates a limited quantity of allocation permits, and fishermen must have or acquire allocation permits in order to participate.[109]

B. The Surf Clam and Ocean Quahog Fishery Management Plan

The surf clam resource was already in decline when the Magnuson Act was passed.[110] The effects of overfishing were exacerbated by the 1976 clam kill off New Jersey.[111] Because of this decline, the newly organized Mid-Atlantic Council wrote the original Atlantic Surf Clam and Ocean Quahog Fishery Management Plan as its first FMP.[112] The Plan was implemented on an emergency basis in accord with the Magnuson Act's provision for such action.[113] It was amended seven times before the passage of Amendment Eight.[114]

(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.

Id. § 1853(b)(6).

106. The *Sea Watch* plaintiffs challenged Amendment Eight's use of vessel history as a measure of historical participation. *See infra* notes 220-25 and accompanying text.

107. 42 Fed. Reg. 60,438, 60,486; Douglas, *supra* note 77, at 46.

108. AMENDMENT EIGHT, *supra* note 8, at 11-12.

109. AMENDMENT EIGHT, *supra* note 8, at 53-55.

110. Surf Clam and Ocean Quahog Industries Fishery Management Plan, 42 Fed. Reg. 60,437, 60,454 (1977); Douglas, *supra* note 77, at 46-47. The author remembers being told by her father that if the government did not step in, there would be no more surf clams.

111. 42 Fed. Reg. 60,451, 60,455; *see also supra* notes 80-83 and accompanying text.

112. Douglas, *supra* note 77, at 46.

113. 42 Fed. Reg. 60,438; 16 U.S.C.A. § 1855(e). As an emergency action, the Plan became effective before going through a lengthy review process. 16 U.S.C.A. § 1855(e).

114. *See* AMENDMENT EIGHT, *supra* note 8, at 11-12. Many of the plans involved the designation and management of separate areas for New England surf clams. *See* AMENDMENT EIGHT, *supra* note 8, at 9. New England surf clam regulations were extremely complex and subject to constant change. New England surf clams were treated differently because the New England clamming industry was different from the Mid-Atlantic clamming indus-

The objectives of the original FMP were to rebuild the surf clam resource and to conserve and develop the ocean quahog resource, while minimizing economic dislocations.[115] Ocean quahogs were included in the original Plan because of fears that they would be overfished when the industry turned to them as a market substitute.[116] Amendment Three revised these objectives. The revised objectives of Amendment Three were substantially similar to those of the original Plan, except that language was added to encourage efficiency and flexibility, and some language was changed to recognize that the resource was recovering.[117]

The original FMP established total catch quotas on both surf clams and ocean quahogs.[118] These quotas are based on the optimum yield. The optimum yield is determined by applying social, economic, and ecological factors "in a somewhat subjective man-

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try. Until 1985, most of the participants in the New England fishery were actually Mid-Atlantic vessels holding moratorium permits. *See* AMENDMENT EIGHT, *supra* note 8, at 43-44, 104.

115. 42 Fed. Reg. 60,441. The full text of the objectives was:

> 1. Rebuild the declining surf clam populations to allow eventual harvesting approaching the 50 million pound level, which is the present best estimate of the maximum sustainable yield (MSY), based on the average yearly catch from 1960-1976.
>
> 2. Minimize the short-term economic dislocations to the extent possible consistent with objective 1 and promote economic efficiency.
>
> 3. Prevent the harvest of the ocean quahog from exceeding biologically sound sustainable yield levels, and direct the fishery toward maintaining optimum yield.

Id.

116. *Id.*

117. The full text of these objectives read:

> 1. Rebuild the surf clam populations to allow eventual harvest approaching the 50 million pound level, which is the estimate of maximum sustainable yield over the range of the resource, based on the average yearly catch from 1960 to 1976.
>
> 2. Minimize short-term economic dislocations to the extent possible consistent with objective 1.
>
> 3. Prevent the harvest of ocean quahogs from exceeding maximum sustainable yield and direct the fishery toward achieving Optimum Yield.
>
> 4. Provide the greatest degrees of freedom and flexibility to all harvesters of these resources consistent with the attainment of the other objectives of this Plan.
>
> 5. Optimize yield per recruit.
>
> 6. Increase understanding of the conditions of the stocks and fishery.

MID-ATLANTIC FISHERY MANAGEMENT COUNCIL IN COOPERATION WITH THE NAT'L MARINE FISHERIES SERV. AND THE NEW ENGLAND FISHERY MANAGEMENT COUNCIL, AMENDMENT THREE TO THE MANAGEMENT PLAN FOR THE SURF CLAM AND OCEAN QUAHOG FISHERIES AND SUPPLEMENTAL ENVIRONMENTAL IMPACT STATEMENT 6 (1989) [hereinafter AMENDMENT THREE].

118. 42 Fed. Reg. 60,486.

ner" to the maximum sustainable yield (a biologically determined number).[119] The Council's amended Plans specified the actual industry quotas for each year. Amendment Three, however, created a system where a Plan amendment was unnecessary for each time the annual quota was changed. Amendment Three specified a range for the industry quota, allowing the Regional Director of the National Marine Fisheries Service to set the actual annual quota.[120] These total industry quotas were, and continue to be, the essence of the management scheme because the quotas insure that the resource is harvested at sustainable levels.

The original Plan contained a one year moratorium on the entry of new surf clam vessels.[121] The moratorium was temporarily extended on two occasions,[122] and when Amendment Three went into effect, the National Marine Fisheries Service extended it indefinitely.[123] A moratorium on new vessels is a form of limited entry (albeit in its crudest form) because access to the fishery is limited to those who own or purchase vessels holding moratorium permits. Thus, the surf clam side of the fishery has been a limited entry fishery since the original Plan.[124]

To spread the catch across the year and to insure processing plants a steady flow of product,[125] the original FMP provided for effort restrictions. Effort restrictions limit the amount of time a vessel may fish and the actual times in which they are allowed to fish.[126] NMFS had discretion to impose effort restrictions depend-

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119. *Id.* at 60,481. Maximum sustainable yield is the largest catch level which can be sustained by the fishery over time. *See* State of Maine v. Kreps, 563 F.2d 1043, 1046 n.4 (1st Cir. 1977). In other words, it is the catch level where harvesting and mortalities exactly balance recruitment into the fishery. 42 Fed. Reg. 60,481. Maximum sustainable yield is a difficult number to determine, especially for a species like surf clams which have very uneven recruitment from year to year. *Id.*

120. AMENDMENT THREE, *supra* note 117, at 56.

121. 42 Fed. Reg. 60,438, 60,486.

122. AMENDMENT EIGHT, *supra* note 8, at 9; KEIFER, *supra* note 73, at 6-7.

123. AMENDMENT EIGHT, *supra* note 8, at 9; KEIFER, *supra* note 73, at 9-10. Amendment Three contained permit transfer provisions which were intended to replace the moratorium, but the Secretary did not approve this provision. Instead the Secretary extended the moratorium. AMENDMENT EIGHT, *supra* note 8, at 9; KEIFER, *supra* note 73, at 9-10.

124. 42 Fed. Reg. 60,437, 60,482.

125. KEIFER, *supra* note 73, at 2. Even if they paid a higher price for the catch late in the year, processors were unable to spread the catch throughout the year because other processors would have already bought the entire annual quota. Therefore, without regulations to spread the catch through the year, processors had to build up large inventories of finished products during the first part of the year, while lying idle during the last part.

126. 42 Fed. Reg. 60,486.

ing on how fast vessels were harvesting the industry quota.[127] The system required continual tinkering as shifts in the surf clam resource posed new problems for regulators. Thus, the provisions for surf clam effort restrictions became more detailed and complex over time, although the basic concept remained the same.[128]

A regulation from the era before Amendment Eight demonstrates the incredibly complex regulatory web which surf clam effort restrictions created: "The Regional Director [of the National Marine Fisheries Service] will notify each owner or operator of a fishing vessel engaged in the Mid-Atlantic Area surf clam fishery concerning the allowable combinations of fishing periods for varying levels of allowable fishing time."[129] What this regulation means is that the Regional Director will specify allowable surf clam fishing hours per week, month, or calendar quarter,[130] and each vessel in turn will choose which actual day or days it will fish.[131] In 1987, under this regulation, the Regional Director began to specify the number of six-hour fishing trips vessels could take per quarter.[132] The number of six-hour trips allowed in a quarter has gone as low as five,[133] and averaged about six.[134] In the history of the moratorium, there were only four weeks when surf clam vessels were allowed to take the maximum ninety-six hours of fishing time permitted under the FMP.[135]

Similar effort restrictions were provided for ocean quahogs in the event that the catch was likely to exceed the annual quota, or if overfishing required a closure before the end of the year.[136] NMFS has used these provisions only once, in the fall of 1985, when allowable fishing days were reduced from seven to five days

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127. *Id.*

128. KEIFER, *supra* note 73, at 2.

129. 51 Fed. Reg. 17,347 (1986) (previously codified at 50 C.F.R. § 652.22(a)(2)(Oct. 1, 1989 ed.)) (current version at 50 C.F.R. § 652).

130. A calendar quarter is a particular three month period obtained by dividing the calendar year into fourths. Thus, January through March is the first quarter, April through June is the second quarter, etc.

131. 47 Fed. Reg. 4274 (1982) (previously codified at 50 C.F.R. § 652.22(a)(3) (Oct. 1, 1989 ed.)) (current version at 50 C.F.R. § 652).

132. KEIFER, *supra* note 73, at 10.

133. AMENDMENT EIGHT, *supra* note 8, at 103.

134. *See* KEIFER, *supra* note 73, at 10.

135. AMENDMENT EIGHT, *supra* note 8, at 103.

136. 42 Fed. Reg. 60,486; *see also* 47 Fed. Reg. 4274 (1982) (previously codified at 50 C.F.R. § 652.22(c)(2) (Oct. 1, 1989 ed.)) (current version at 50 C.F.R. § 652).

per week.[137]

Other management provisions were included in the original Plan or added in various amendments. These included provisions for closing certain areas to clamming and a size limit for surf clams.[138] Clamming areas could be closed either because they were polluted,[139] or because they contained large numbers of undersized clams.[140] The size limit provision, however, was not implemented to secure sustainability of the resource. Rather, the size limit provision assured a supply of large surf clams for breaded fried clam products.[141]

III. Problems in the Fishery Addressed by Amendment Eight

A. Overcapacity in the Surf Clam Fleet

There is a familiar economic maxim which provides that common resources tend to be depleted because the individuals who exploit them have a greater incentive to maximize their own use of the resource than to conserve it for future use by others.[142] This phenomenon is often referred to as the Tragedy of the Commons after Garret Hardin's article published in *Science* in 1968, although the theory was well understood earlier.[143]

The economic aspect of the problem is fairly simple, although it can be made very complicated. As long as there are profits to be made from exploiting an open-access, common resource, new en-

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137. 42 Fed. Reg. 46,072.

138. 50 Fed. Reg. 11,169 (1985) (previously codified at 50 C.F.R. § 652.25 (Oct. 1, 1989 ed.)) (current version at 50 C.F.R. § 652).

139. 47 Fed. Reg. 4274-75 (1982) (previously codified at 50 C.F.R. § 652.23(a)(Oct. 1, 1989 ed.)) (current version at 50 C.F.R. § 652).

140. *Id.* at 4275 (previously codified at 50 C.F.R. § 652.23(b) (Oct. 1, 1989 ed.)) (current version at 50 C.F.R. § 652).

141. *See* Amendment Three, *supra* note 117, app. II at 40; Amendment Eight, *supra* note 8, at 23.

142. *See, e.g.*, Hardin, *supra* note 1, at 1243-45; *see also* Francis T. Christy, Jr. & Anthony Scott, The Common Wealth in Ocean Fisheries: Some Problems of Growth and Economic Allocation 6 (1965); Geoffrey Waugh, Fisheries Management: Theoretical Developments and Contemporary Applications 1-32 (1984); H. Scott Gordon, *The Economic Theory of a Common Property Resource: The Fishery*, 62 J. Pol. Econ. 124 (1954); Frederick E. Popper, *Fishery Management Concepts and Limited Entry, in* Limited Entry, *supra* note 4, at 5-12.

143. Hardin, *supra* note 1, at 1243. Hardin's article is actually an application of this theory to the question of human population but is often cited for the proposition that common property tends to be overexploited. *See, e.g.*, Natural Resources Defense Council v. Costle, 568 F.2d 1369, 1378 n.19 (D.C. Cir. 1977).

trants will come in.[144] Where the resource is finite, more entrants mean less resource for each of them, and hence lower profits.[145] This process continues until there are no profits and results in an overcapitalized industry which spends too much effort and money for too little resource.[146]

Where there is a limited resource, such as fish in the ocean, the conservation aspect of the problem can be grim. As more individuals or entities enter the industry, those already in the industry are no longer able to acquire the same share of the resource they took in the past. Because they still need that same share to achieve a return on their investment, individuals begin to race each other to take more of the resource before it is taken by others.[147] Thus, both overcapitalization and overcapacity increase, and the resource, however renewable, becomes overexploited and depleted.[148]

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144. James Kirkley, *A Zero Sum Game*, *in* MATCHING CAPITAL, *supra* note 71, at 19-22; Gordon, *supra* note 142, at 124.

145. Kirkley, *supra* note 144, at 19.

146. *Id.*

In the language of economics, common property systems dissipate economic rent and result in a misallocation of society's resources. For a definition of economic rent, see WALTER NICHOLSON, INTERMEDIATE MICROECONOMICS AND ITS APPLICATION 367 (1979). For an application of these economic concepts to the fishery, see Gordon, *supra* note 142; Kirkley, *supra* note 144, at 19-21. In the context of fishing, economic rent is the income a fisherman receives over and above the income necessary to keep him from turning to his next best economic alternative. In a perfectly competitive market all fishermen are paid the price necessary to keep the last fisherman fishing. The last fisherman is the one whose operation has the greatest costs. The other fishermen, however, would have remained in the fishery even at lower prices. These other fishermen are called intramarginal suppliers. The income they collectively receive over and above the lowest price they would individually accept is the industry's economic rent. *See* NICHOLSON, *supra*, at 367. In common property systems, the lack of clear ownership rights to intramarginal factors prevents anyone from appropriating the economic rent. *See* Gordon, *supra* note 142, at 130-32. It is lost to both the individuals exploiting the resource and to the public as a whole. *See id.*

147. CHRISTY & SCOTT, *supra* note 142, at 6-16. At some point, of course, people will drop out of the industry because it is failing to pay off. Economists tell us that the marginal supplier—the fishermen who is receiving just enough income to keep him participating—will drop out when his costs rise. However, where the conversion cost of switching to another industry or means of production is high and where there is an inelastic supply curve of producers, it may take steep declines in return on investment to send participants to another industry. *See* NICHOLSON, *supra* note 146, at 368-69 (discussing the inelasticity of baseball players' supply curve to the baseball industry, and their consequently high economic rent). The high investment required to rig up a vessel for fishing means that there are steep supply curves for fishermen. Even though the fishermen will not enjoy the consequently high economic rent, these steep supply curves tend to mean that it takes equally steep rises in cost before significant numbers of them will leave the industry. This is so, even if the resource's yield has started to decline.

148. CHRISTY & SCOTT, *supra* note 142, at 6-16. Economists refer to this as a free rider problem. *See* PAUL HEYNE, THE ECONOMIC WAY OF THINKING 369-71 (1991). An individual

Conservation measures such as total industry quotas can be imposed which will protect the resource from overexploitation. These measures, however, do not address the economic forces driving the tragedy of the commons in the first place. Although these economic forces continue to operate, they operate to make the conservation measures unworkable rather than operating to deplete the resource. Thus, conservation measures must be continually updated as the economic forces drive the participants to exploit more and more of the resource for themselves. Time restrictions on fishing, for example, must be continually tightened as new entrants come in and old entrants improve their gear. Gear restrictions lose their efficacy as other fishing tools, such as sounders, improve the fisherman's performance in spite of the limits on his gear. The regulators are in a constant race with the ingenuity of the regulated.

Total quota management may actually exacerbate the overcapitalization problem by creating a fixed, artificial limit which is divorced from the increasing cost of appropriating an increasingly scarce resource.[149] Under a total quota management system, the phenomenon of racing other vessels for a greater share of the catch becomes more pronounced.[150] Although limiting the number of entrants may help alleviate some of these problems, this does not eliminate the underlying one. Existing participants will continually improve their standing in the race by investing in more efficient harvesting technology. Capping the number of participants does not eliminate the economic forces driving overfishing, because individual participants still face the same common property dilemma—forbearance on the part of one fisherman enriches all, but the costs go only to one.

In the case of the surf clam industry, both the total catch and the total number of entrants were controlled by regulation. Under this regime, the time required for the industry to catch the total annual quota plummeted, although total industry quotas rose as

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fisherman who throws back a lobster, for example, is making an investment, hoping to catch more lobsters tomorrow in return for the opportunity cost of foregoing one lobster today. With an open-access, common property system, unfortunately, the individual fisherman can expect to receive only a small share of the return on investment, because increases in the common property are shared by all. However, the cost of the investment—the foregone opportunity to sell the first lobster—is borne only by the fisherman who decides to throw the lobster back. For these reasons the fisherman may well decide not to throw the lobster back, after all.

149. Marvin, *supra* note 71, at 51-54.

150. *Id.* at 51-54; AMENDMENT EIGHT, *supra* note 8, at 63.

the 1976 and 1977 year classes grew off New Jersey and the Delmarva Peninsula.[151] Vessels, which were allowed to fish for over 1,700 hours in 1978, were allowed only 150 hours in 1987.[152] Since the original Plan first went into effect, the moratorium prevented the entry of new vessels,[153] but it did not prevent existing vessels from upgrading their dredges, electronics, pumps, and the like.[154] The result was an increasing harvesting capacity in an already overcapitalized fleet, and an increasing difficulty in policing the regulations. These regulations not only created inefficiency in the fleet as a whole, but on the individual level as well. A vessel with a faster harvesting capacity is not a more efficient vessel if improvement in harvesting capacity results in a costlier vessel. At the same time, under these regulations, less fishing time will be available and thus, the vessel may not be able to increase its yield despite the increased capital inputs. New capital inputs may be inefficient on the individual scale, but will still be the best choice for an individual locked into a harvesting race.[155]

The moratorium and effort restrictions created safety concerns as well. Vessels under the moratorium could not be replaced unless they "involuntarily left" the fishery,[156] and the fleet was aging.[157] Although older vessels are not necessarily less seaworthy, they are more costly to maintain and more sensitive to failures in maintenance.[158]

The FMP required an increasing number of detailed changes in order to keep the effort restriction system working.[159] A good example of this was a provision in Amendment Six that permitted

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151. *See* AMENDMENT EIGHT, *supra* note 8, at 21.

152. *See* AMENDMENT EIGHT, *supra* note 8, at 103.

153. Actually, the moratorium did not completely prevent the entry of new vessels, because there were exceptions allowing the replacement of older vessels which "involuntarily left" the fishery. *See* 42 Fed. Reg. 60,486. As time passed, this provision was increasingly interpreted loosely. Marvin, *supra* note 71, at 53. There was a reduction in the fleet because two smaller vessels were often replaced with one larger one. AMENDMENT EIGHT, *supra* note 8, at 43.

154. *See* KEIFER, *supra* note 73, at 6-7.

155. Marvin, *supra* note 71, at 51-54.

156. 47 Fed. Reg. 4271 (1982) (previously codified at 50 C.F.R. § 652.4(b)(1)(iii) (Oct. 1, 1989 ed.)) (current version at 50 C.F.R. § 652). The provision for vessels which involuntarily left the fishery originally meant vessels which sank, but over time it was loosened until vessels which were economically inviable could be replaced as well. *See supra* note 153.

157. AMENDMENT EIGHT, *supra* note 8, at 45.

158. AMENDMENT EIGHT, *supra* note 8, at 45.

159. KEIFER, *supra* note 73, at 11-12.

a vessel to land clams one time on any one fishing trip.[160] In the early to mid-1980s, clam vessels began landing more than one boat load of clams in one day, in what was classified as one fishing trip on the theory that both harvests took place during the vessel's permitted fishing time.[161] Yet the system was becoming more difficult to enforce in spite of such measures. There was widespread cheating.[162] Because of the enforcement problems, the increasing complexity, and the increasing overcapitalization, a sense developed in the industry that almost any other system would be preferable.[163]

B. A Moratorium for Ocean Quahog Permits?

In public meetings on the original Plan, some individuals called for a moratorium on new ocean quahog vessels. They suggested that an ocean quahog moratorium be imposed "to minimize transfers" of vessels from the surf clam fishery to the ocean quahog fishery.[164] Calls for a moratorium have built in recent years because of a fear that the quahog side of the industry was also becoming overcapitalized.[165] The Mid-Atlantic Council's Scientific and Statistical Committee has been recommending a moratorium on ocean quahog vessels for several years. The committee was concerned about the increasing effort to harvest ocean quahog stocks.[166]

Much of this concern arose because of the relatively long time it takes for young ocean quahogs to mature and enter the fishery, and because of the concentrated area of the industry's fishing effort.[167] The FMP set the annual quota at two percent of a conservatively estimated quahog biomass. However, because the fishing effort is concentrated off New Jersey and Delmarva, the industry's annual landings represent at least six percent of the har-

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160. MID-ATLANTIC FISHERY MANAGEMENT COUNCIL IN COOPERATION WITH THE NAT'L MARINE FISHERIES SERV. AND THE NEW ENGLAND FISHERY MANAGEMENT COUNCIL. AMENDMENT SIX FISHERY MANAGEMENT PLAN TO THE ATLANTIC SURF CLAM AND OCEAN QUAHOG FISHERIES 39 (1985) [hereinafter AMENDMENT SIX].

161. AMENDMENT SIX, *supra* note 160, at 8.

162. Pollack, *Quahoggers*, *supra* note 15, at 10; 55 Fed. Reg. 24,186 (1990) (NMFS response to public comment).

163. *See* MID-ATLANTIC FISHERY MANAGEMENT COUNCIL, MINUTES 37, 45 (Oct. 25, 1989).

164. Surf Clam and Ocean Quahog Industries Fishery Management Plan, 42 Fed. Reg. 60,437, 60,495 (1977).

165. *See* AMENDMENT SIX, *supra* note 160, app. III at 2; *see also* Pollock, *Quahoggers*, *supra* note 15, at 11.

166. AMENDMENT EIGHT, *supra* note 8, at 17.

167. *See, e.g.*, AMENDMENT EIGHT, *supra* note 8, at 28.

vestable stock in this area.[168] Of further concern is the lack of young ocean quahogs in this area,[169] indicating that not enough are coming in to replace those taken by fishermen.

Ocean quahog landings have increased steadily since the industry turned to them as substitutes for surf clams in the 1970s.[170] The pattern of ocean quahog landings is directly tied to surf clam landings—in particular to landings of small surf clams from Long Island Sound.[171] Small surf clams cannot be stripped for breaded fried clams, so ocean quahogs are even closer market substitutes for small surf clams than they are for ordinary surf clams.[172] Ocean quahog landings peaked in 1985 and again in 1989.[173] The drops in ocean quahog landings in 1987 and 1990 are attributable to small surf clams from Long Island Sound temporarily saturating the market.[174] Thus, when small surf clams from Long Island Sound flood the market, demand for ocean quahogs decreases. The effect is temporary because Long Island Sound's surf clams are not regulated to prevent overfishing and concentrations of Long Island surf clams tend to be fished out rapidly.

IV. AMENDMENT EIGHT

A. Details of the Plan

The FMP objectives were revised in Amendment Eight[175] to reflect greater concern over the economics of the industry and a

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168. AMENDMENT EIGHT, *supra* note 8, at 28.

169. AMENDMENT EIGHT, *supra* note 8, at 22.

170. AMENDMENT EIGHT, *supra* note 8, at 80, 101.

171. Telephone interview with David Keifer, Deputy Director, Mid-Atlantic Fishery Management Council (Feb. 26, 1991).

172. *See supra* notes 65-68 and accompanying text.

173. AMENDMENT EIGHT, *supra* note 8, at 80, 101 (showing the peak in 1985); Telephone Interview with David Keifer, Deputy Director, Mid-Atlantic Fishery Management Council (Feb. 26, 1991) (NMFS logbook data shows 1988, 1989, and 1990 ocean quahog catches of 4.4, 4.9, and 4.6 million bushels respectively). *But see* Telephone Interview with William Brey, National Marine Fisheries Service Statistician (Feb. 28, 1991) (total ocean quahog landings for 1988, 1989, and 1990 were 46.3, 51.0, and 46.3 million pounds respectively). One bushel is equal to 10 pounds. After converting pounds to bushels, slight differences between William Brey's and David Keifer's statistics remain because they rely on different methods of collecting information, and because Brey's figures include landings of inshore ocean quahogs.

174. Telephone Interview with David Keifer, Deputy Director, Mid-Atlantic Fishery Management Council (Feb. 26, 1991).

175. Amendment Eight went into effect on September 30, 1990. Atlantic Surf Clam and Ocean Quahog Fishery, 50 C.F.R. § 652 (1990).

growing frustration with complex regulatory details.[176] Conserving and rebuilding the resource is still the primary objective, but now the language is more general. In addition, there is greater emphasis on economic efficiency, and the problem of harvesting capacity is specifically included.[177]

Amendment Eight replaces the previous management regime for the surf clam and ocean quahog fishery with a system of individual transferable allocations or individual transferable quotas (ITQ's).[178] Total industry quotas are retained in the new system, but the Council has taken back some of the responsibility for determining them.[179] Other provisions such as size limit and reporting requirements are retained but slightly modified.[180] Effort restrictions are eliminated because they are no longer necessary under the new plan.[181]

Like earlier Plan amendments, Amendment Eight does not specify the total annual quotas. Rather, it provides a mechanism for setting them.[182] Earlier amendments authorized the Regional Director to set the quotas, taking into consideration several factors such as exploitable and spawning biomass, and effort and catch

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176. AMENDMENT EIGHT, *supra* note 8, at 3; KEIFER, *supra* note 73, at 3-4. The full text of the revised objectives reads:

> 1. Conserve 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.
> 2. Simplify to the maximum extent the regulatory requirement of clam and quahog management to minimize the government and private cost of administering and complying with regulatory, reporting, enforcement, and research requirements of clam and quahog management.
> 3. Provide the opportunity for 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.
> 4. Provide 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.

AMENDMENT EIGHT, *supra* note 8, at 3. Notice that surf clams and ocean quahogs are explicitly lumped together throughout these objectives.

177. AMENDMENT EIGHT, *supra* note 8, at 3; KEIFER, *supra* note 73, at 3-4.

178. AMENDMENT EIGHT, *supra* note 8, at 4-5, 55-56.

179. *See* AMENDMENT EIGHT, *supra* note 8, at 3, 53.

180. *See* AMENDMENT EIGHT, *supra* note 8, at 6, 57-58.

181. AMENDMENT EIGHT, *supra* note 8, at 6, 56.

182. AMENDMENT EIGHT, *supra* note 8, at 3, 53.

rates. Under Amendment Eight, in addition to these factors,[183] the Mid-Atlantic Council also considers "the geographical distribution of the resource."[184] The Council then makes a binding recommendation to the regional director. The regional director may then set a different total annual quota only if the Council's recommendation violates either the Plan's standards or the Magnuson Act itself.[185] This cumbersome process allows the Council to control the level of the annual quota, without having to amend the Plan simply to change the annual quota.[186]

Amendment Eight divides the annual industry quotas directly through individual allocations to participants, rather than indirectly through a harvesting race. Individual allocations allow each permit holder to take a certain percentage of the total industry quota for each species.[187] This means that individual allocations are uniformly adjusted to conform to the resource conservation requirements expressed in the annual industry quota. The holder of an allocation certificate retains the right to a fixed percentage of the catch year after year. However, the actual catch one may take varies as the total annual quota changes from year to year.[188] To assign each year's actual bushel quantities to allocation certificate holders, NMFS distributes the proper number of cage tags to the allocation-holder every year.[189]

Both allocation certificates and cage tags are freely transferable, but the transfer must go through NMFS.[190] Allocations may

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183. AMENDMENT EIGHT, *supra* note 8, at 53.

184. AMENDMENT EIGHT, *supra* note 8, at 53. This language is directed at the quahog fishery where most of the fishing is concentrated in one area. *See supra* notes 167-69 and accompanying text.

185. AMENDMENT EIGHT, *supra* note 8, at 53.

186. *Id.*

187. AMENDMENT EIGHT, *supra* note 8, at 4, 55.

188. *See* AMENDMENT EIGHT, *supra* note 8, at 55-56.

189. AMENDMENT EIGHT, *supra* note 8, at 56. The cage tags are the key to enforcing the whole system. Every cage of surf clams or ocean quahogs is required to have a tag showing whose allocation the clams count against, and processors are required to remove the tags and record them for NMFS. AMENDMENT EIGHT, *supra* note 8, at 58.

A cage is the standard industry container for surf clams or ocean quahogs which measures three-by-four-by-five feet. AMENDMENT EIGHT, *supra* note 8, at 59. Amendment Eight requires that all surf clams and ocean quahogs be landed in cages. AMENDMENT EIGHT, *supra* note 8, at 60. The implementing regulations made some exception for vessels incapable of carrying cages, which are required to unload their catch directly into cages on the dock. 50 C.F.R. § 652.8(c)(18) (1990).

190. *See* AMENDMENT EIGHT, *supra* note 8, at 56; 50 C.F.R. § 652.20(f) (1990). This is one of the many provisions insuring that NMFS can keep track of the actual catch and match it against allocations.

either be permanently transferred by selling the allocation certificate, or leased by selling the cage tags and retaining the allocation certificates. It is not necessary to own a vessel to hold an allocation certificate. Thus, processors may buy allocations in order to assure themselves a continuing supply.

The initial allocation is made to vessel owners based on the vessel's historical catch.[191] For surf clam vessels, there is a complicated formula taking into account the vessel's recent catch history, catch history over the course of the surf clam moratorium, and vessel size as a proxy for investment.[192] Eighty percent of a vessel's allocation is based on its historical catch. The years 1985 through 1988 are weighed twice as heavily as other catch years and the vessel's two worst years are excluded.[193] Twenty percent of a vessel's allocation is based on its cubic dimensions relative to the fleet as a whole.[194]

For ocean quahogs the allocation formula is based entirely on the vessel's catch history during the years that the surf clam and ocean quahog FMP was in force. However, the ocean quahog formula includes only history from those years the vessel actually fished, and the vessel's worst catch year is not included.[195] This is referred to as the average of years fished formula.[196] The Mid-Atlantic Council chose this formula in order to avoid penalizing new entrants for not having had longer catch histories.[197]

Amendment Eight requires fishing vessels, processors, and dealers in raw shellstock (clams in the shell) to hold permits.[198] These entities are required to report all the shellstock they handle

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191. AMENDMENT EIGHT, *supra* note 8, at 55-56.

192. AMENDMENT EIGHT, *supra* note 8, at 55-56, app. 2-6.

193. AMENDMENT EIGHT, *supra* note 8, at 55. There is an ambiguity in this formula, especially in the regulations, when a vessel's worst two years both fall between 1985 and 1988. There is a question as to whether only one or both of these years are excluded because they are counted double to begin with. *See* 50 C.F.R. § 652.20(b)(1)(A) (1990). The regulations suggest that only one year's worth of bad catch is excluded if it is a double counted year. That, at any rate, is the way the Mid-Atlantic Council calculated the allocation formula when it received the alternatives. Telephone Interview with David Keifer, Deputy Director, Mid-Atlantic Fishery Management Council (Feb. 26, 1991).

194. AMENDMENT EIGHT, *supra* note 8, at 55. New England surf clam vessels receive allocations based on the same formula as ocean quahog vessels—average of years fished. AMENDMENT EIGHT, *supra* note 8, at 55.

195. AMENDMENT EIGHT, *supra* note 8, at 56.

196. AMENDMENT EIGHT, *supra* note 8, app. 2-4.

197. AMENDMENT EIGHT, *supra* note 8, app. 2-7 to 2-8.

198. AMENDMENT EIGHT, *supra* note 8, at 53-55.

to NMFS, so that NMFS can monitor the actual catch and the compliance with the regulations. Although this seems like a great deal of reporting, these requirements are similar to the reporting requirements previously in force.[199]

B. Legality of Amendment Eight

In *Sea Watch International v. Mosbacher*,[200] a group of processors and vessel owners challenged Amendment Eight soon after it was promulgated. They claimed that the regulation exceeded its statutory authority, and violated the Magnuson Act's standards for FMP's.[201] In addition, they argued that the regulations for ocean quahogs were not supported by the record.[202] The United States District Court for the District of Columbia upheld the regulation and dismissed the plaintiffs' claims.[203]

The Magnuson Act provides for judicial review of the regulations promulgated to implement FMP's, and specifies that the only grounds under which they may be overturned are those found in the Administrative Procedure Act (APA).[204] Only subsections (A), (B), (C), and (D) of section 706 of the APA apply in the case of overturning fishery regulations promulgated under the Magnuson Act.[205] The pertinent section of the APA provides that Agency regulations may be set aside only if they are: "(A) arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law; (B) contrary to constitutional right, power, privilege, or immunity; (C) in excess of statutory jurisdiction, authority, limitation, or short of statutory right; [or] (D) without observance of procedure required by law. . . ."[206]

Courts have been very deferential in reviewing regulations promulgated under the Magnuson Act.[207] They only demand that a

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199. *Compare* 50 C.F.R. §§ 652.6, 652.9 (1991) *with* 53 Fed. Reg. 24,634, 24,656 (1988) (previously codified at 50 C.F.R. § 652.5 (Oct. 1, 1989 ed.)) *and* 47 Fed. Reg. 4270 (1982) (previously codified as amended at 50 C.F.R. § 652.22(a)(2)(ii) (Oct. 1, 1989 ed.)).

200. Sea Watch Int'l v. Mosbacher, 762 F. Supp. 370 (D.D.C. 1991).

201. *Id.* at 373.

202. *Id.*

203. *Id.* at 372.

204. 16 U.S.C.A. § 1855(b) (West Supp. 1991).

205. *Id.* § 1855(b).

206. 5 U.S.C. § 706(2) (1988).

207. Alaska Factory Trawler Ass'n v. Baldridge, 831 F.2d 1456 (9th Cir. 1987); Maine v. Kreps, 563 F.2d 1052 (1st Cir. 1977); Louisiana v. Baldridge, 538 F. Supp. 625 (E.D. La. 1982); Pacific Coast Fed'n of Fisherman's Ass'n v. Secretary of Commerce, 494 F. Supp. 626

reasonable basis exist for the Secretary's conclusion that the FMP was consistent with the requirements of the Magnuson Act.[208] If the plaintiffs challenge the statutory authority of the agency, then the court must determine that the agency action was consistent with the congressional act.[209] When Congress has spoken precisely to the issue, its determination is dispositive.[210] But where the issue is not clear, the court will pay deference to the Agency's interpretation of a statute that it has responsibility to enforce.[211]

Under this standard of review, the court granted summary judgment against the plaintiffs' challenges. First, the plaintiffs alleged Amendment Eight's transferability provision violated the Magnuson Act's prohibition on charging user fees in excess of administrative cost.[212] The Magnuson Act prohibits the Agency from charging fishermen fees in excess of the administrative costs to run the program.[213] Under Amendment Eight, the transferability provision allows fishermen to purchase allocations from other fishermen.[214] The plaintiffs contended that the transferability provision, in effect, charges fees that are in excess of cost. The district court disagreed, holding that the provision did not involve "the agency in raising revenue in excess of cost."[215]

The plaintiffs also argued that Amendment Eight violated the first provision of National Standard Four.[216] This standard requires that allocations to fishermen be "fair and equitable to all . . . fishermen."[217] They argued that Amendment Eight violated this standard for the following reasons: (1) Amendment Eight treats "similarly situated fishermen unequally;"[218] (2) the plan re-

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(N.D. Cal. 1980); Washington Trollers Ass'n v. Kreps, 466 F. Supp. 309 (W.D. Wash. 1979), *rev'd on other grounds*, 645 F.2d 684 (9th Cir. 1981).

208. Louisiana v. Baldridge, 538 F. Supp. 625 (E.D. La. 1982); Pacific Coast Fed'n of Fisherman's Ass'n v. Secretary of Commerce, 494 F. Supp. 626 (N.D. Cal. 1980).

209. Chevron U.S.A. v. Natural Resources Defense Council, 467 U.S. 837, 842-43 (1984).

210. *Id.*

211. *Id.*

212. *Sea Watch*, 762 F. Supp. at 376.

213. 16 U.S.C.A. § 1854(d).

214. AMENDMENT EIGHT, *supra* note 8, at 44.

215. *Sea Watch*, 762 F. Supp. at 376. The Magnuson Act expressly authorizes limited entry systems. 16 U.S.C.A. § 1853(b)(6). The possibility that limited entry might involve individual shares or quotas distributed among fishermen was specifically mentioned in the Senate Committee Report for the Magnuson Act. S. REP. No. 416, 94th Cong., 1st Sess. (1975), *reprinted in* LEGISLATIVE HISTORY, *supra* note 21, at 691-92.

216. *Sea Watch*, 762 F. Supp. at 376.

217. 16 U.S.C.A. § 1851(a)(4) (*see supra* note 101 for quoted text of statute).

218. Thus, treating similarly situated fishermen differently depending on whether or

warded violators of prior regulations because Amendment Eight did not account for cheating when the initial allocations were determined; and (3) the transferability provisions would work to the advantage of large fleet owners.[219] The court was not persuaded by these arguments.

On the first argument, the plaintiffs claimed that fishermen who had a high individual catch history were treated unfairly in the Plan.[220] As discussed above, the allocations were based on the catch history of the vessel. Some fishermen had high individual catch histories, but had purchased new vessels which did not. Their allocation, then, was below their historical catch level. In addition, they argued that this created an unfair advantage to those who had low individual catch histories, but who had recently purchased a new vessel with a high catch history.[221]

The court rejected this argument. First, the historical catch data, collected since the first plan went into effect, was tied to vessels rather than vessel owners or vessel operators.[222] These are not necessarily the same people.[223] The vessel data was the only reliable measure to base the allocation upon.[224] The court, therefore, held that this scheme was "consistent and reasonable."[225]

Second, the plaintiffs argued that basing the present allocation on the vessel's past catch history rewards those vessels who cheated under the prior plan and therefore, would have a larger catch history.[226] This, the plaintiffs asserted, unfairly penalized those who complied with the regulations. But the court found that there was no way to identify which vessels cheated and to what degree, because there was such widespread cheating.[227] The court

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not they had sold a high-catch history vessel.

219. *Sea Watch*, 762 F. Supp. at 376-77. These three issues were, in fact, considered at length in the development and review of Amendment Eight.

220. *Id.* at 377.

221. *Id.*

222. *Id.*

223. *Id.*

224. *Id.*

225. *Id.*

226. *Id.*

227. *Id.* The government makes the cautious and laconic statement that "[t]he number of vessel owners or operators that have violated the regulations at one time or another is considered to be a majority." Atlantic Surf Clam and Ocean Quahog Fishery, 55 Fed. Reg. 24,184, 24,188 (1990). There is a widespread belief in the industry that this "majority" is closer to 100%. *See* Pollack, *Quahoggers*, *supra* note 15, at 10 ("Nobody in the business can say he did not cheat at least once.") (quoting fisherman Joe Garvilla). Of course, most surf

also accepted the government's contention that the only way to address this issue was through Amendment Eight's provision which bases part of a vessel's allocation on its size rather than its catch history.[228]

The plaintiffs' third argument was particularly interesting. Amendment Eight allows vessel owners to consolidate their allocations onto a fewer number of ships. The plaintiffs argued that this provision gave large fleet and vessel owners a competitive advantage because they could easily consolidate their allocations onto their largest, most efficient vessels.[229] Small fishermen, on the other hand, would not be able to afford to purchase enough allocations to run their ships at full capacity.[230]

The court noted, however, that not all small fishermen would be placed at a disadvantage by the FMP.[231] For example, some small fishermen may have a substantial catch history which would allow them to operate at or near full capacity. Moreover, to the extent there was consolidation, small fishermen who exit are compensated because they can easily transfer their allocation. Thus, the court again rejected the plaintiffs' arguments.[232]

Although the Court did not discuss the issue further, Amendment Eight's transferability provisions actually minimize the hardship consolidation could work on small vessel owners. Prior to Amendment Eight, the surf clam fleet was wildly out of proportion to the fishable resource, and effort restrictions, which reduced fishing time to about twelve hours per month, had to be imposed.[233] Vessels have to be consolidated to reduce the fleet's capacity to a more realistic level. Any system of consolidating vessels creates an advantage for persons who own more than one vessel because they escape the transaction costs of finding another vessel owner willing to combine with them.

Amendment Eight, however, provides greater flexibility to the owner of one vessel than any other system. Freely transferable allocations are easily traded, measured, and divided, while other sys-

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clammers follow statements of this nature with the assertion that other clammers were cheating to a much greater degree. *See id.*

228. *Sea Watch*, 762 F. Supp. at 377.

229. *Id.*

230. *Id.* at 377-78.

231. *Id.* at 378.

232. *Id.*

233. *See supra* notes 129-35 and accompanying text.

tems require trading the vessel's whole capacity. For example, under previous FMP's, two vessels might be traded in for a larger one having "substantially similar harvesting capacity."[234] But this concept was nearly impossible to implement in practice. Thus, not only does Amendment Eight solve the overcapacity problem, it allows consolidation of vessels in a manner which is fair and efficient for owners of all sized vessels. As the court noted, the other advantage of Amendment Eight over alternative methods of consolidation is that the individuals who do leave the industry are compensated for their departure by the individuals who stay.[235]

Besides challenging Amendment Eight's allocation provision, the plaintiffs also challenged the inclusion of ocean quahogs in it.[236] In essence, the plaintiffs argued that limiting access to the quahog fishery was not calculated to promote conservation, but rather had economic allocation as its sole motive. They contended that the allocation of ocean quahogs was not necessary because the resource was not in decline, and therefore, the allocation must be purely an economic measure.[237] The court disagreed.[238]

Congress has been ambivalent about the role which economic considerations should play in fisheries regulation. National Standard Five provides that efficiency[239] shall be a goal of Fishery Management Plans, but at the same time prohibits any plan where

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234. Under the old system, a vessel which "involuntarily left" the fishery could be replaced by another of "substantially similar harvesting capacity." Surf Clam and Ocean Quahog Industries Fishery Management Plan, 42 Fed. Reg. 60,437, 60,486 (1977). It sometimes happened that two vessels which "involuntarily left" would be replaced by one vessel of "substantially similar harvesting capacity." Marvin, *supra* note 71, at 53.

But a consolidation system that does not attempt to measure the capacity of vessels entering and leaving the fishery would be even worse than the old system. Overcapacity would be exacerbated because small vessels could be replaced with larger ones.

Amendment Eight avoids the problems associated with both alternatives because it allocates the catch directly, making unnecessary the attempt to measure the harvesting capacity of vessels. In addition, the overcapacity problem is alleviated.

235. *Sea Watch*, 762 F. Supp. at 378.

236. *Id.* at 378-81.

237. *See id.*

238. *Id.* at 379.

239. The Council defines efficiency as follows: "Management regimes that allow a fishery to operate at the lowest possible cost (for example, fishing effort, administration, and enforcement) for a particular level of catch and initial stock size are considered efficient. Restrictive measures that unnecessarily raise any of those costs move the regime toward inefficiency." AMENDMENT EIGHT, *supra* note 8, at 15. The Council interpreted the efficiency requirement of National Standard Five as requiring a management regime to encourage economic efficiency wherever there were no other social or biological objectives in conflict with that goal. *Id.*

economic considerations are the sole motive.[240] The author of this prohibition intended Fishery Management Councils to consider economic factors in exercising their conservation and environmental authority, but they were not to have economic authority.[241]

The plaintiffs argued that because the ocean quahog quota had never been taken, and because shortages of ocean quahogs had yet to develop, regulations limiting entry into the ocean quahog side of the fishery were purely economic and hence illegal.[242] This contention boils down to an assertion that limited entry may not be used in a fishery where problems are anticipated, but only in fisheries where problems have already developed. This interpretation would make it illegal to use limited entry, as here, to preclude spillover effects in one fishery which can be reasonably anticipated from the imposition of a new regulatory scheme on another fishery. In addition, the Agency interpretation of the Act explicitly contemplates situations where limited entry may be imposed on a fishery which is not yet overfished.[243] The court found these arguments dispositive and upheld the inclusion of the ocean quahog fishery in the FMP.[244]

The court's decision could have an impact on other fisheries. Individual transferable allocations are authorized by the Magnuson Act, and may be used to manage fisheries in situations similar to that of the surf clam and ocean quahog fishery. Furthermore, the Magnuson Act permits limited entry and individual transferable quotas for species that are not yet overfished, if there are reasonable grounds to believe they are going to be overfished. This belief may be supported by evidence that spillover effects from regulating one species will threaten the well being of another species which is ecologically or economically related. The policies behind such a scheme should be fully considered because of the potential

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240. 16 U.S.C.A. § 1851(a)(5) (see *supra* note 101 for the quoted text of the statute).

241. LEGISLATIVE HISTORY, *supra* note 21, at 345. Another example of Congress' ambivalence are the provisions of the Magnuson Act which expressly provide for limited entry schemes. From the beginning, Congress recognized limited entry as a management option which would have economic as well as biological objectives. S. REP. No. 416, 94th Cong., 1st Sess. (1975), *reprinted in* LEGISLATIVE HISTORY, *supra* note 21, at 691. Congress' mixed feelings are apparent from the special requirements it added to constrain the limited entry provisions: they must be fair and equitable, promote conservation, and prevent any person from acquiring "an excessive share." 16 U.S.C.A. § 1851(a)(4).

242. *Sea Watch*, 762 F. Supp. at 378.

243. 50 C.F.R. § 602.14(c) (1990).

244. *Sea Watch*, 762 F. Supp. at 380.

application to other fisheries[245] and the very controversial nature of limited entry in general.

V. POLICY

A. Allocation of a Public Property Resource

The *Sea Watch* court determined that Amendment Eight's individual transferable allocation scheme is legal.[246] Whether or not it is desirable did not and could not enter into the legal question before the court. Nevertheless, here it is appropriate to consider policy questions as well as legality.

This individual transferable allocation scheme has been divisive. Many people have suggested individual transferable allocations as a method of managing fisheries because this method would control the total catch from a conservation point of view and because it addresses the economic problems associated with common property resources.[247] Others view individual transferable allocations as a "give-away" of a public resource. They would prefer that people pay for the allocation instead of it being freely assigned.[248] Still others believe that individual allocations, and any form of limited entry, are socialistic.[249]

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245. The government is promoting the individual transferable allocation or ITQ concept for other fisheries. *See* William W. Fox, Jr., *Focus on the Fisheries*, WASH. POST, Aug. 24, 1991, at A26 (Letter to the Editor). Dr. Fox is the Assistant Administrator for Fisheries at the National Oceanic and Atmospheric Administration. *Id.*

An individual transferable allocation Plan for wreckfish has been prepared by the South Atlantic Council and approved by the Secretary, and is scheduled to begin in April 1992. Snapper-Grouper Fishery of the South Atlantic, 57 Fed. Reg. 7886 (1992) (to be codified at 50 C.F.R. § 646).

246. Sea Watch Int'l v. Mosbacher, 762 F. Supp. 370 (D.D.C. 1991).

247. *See, e.g.*, GEOFFREY WAUGH, FISHERIES MANAGEMENT: THEORETICAL DEVELOPMENTS & CONTEMPORARY APPLICATIONS 138-142 (1984); Stan Crothers, *ITQ's: The New Zealand Experience*, *in* MATCHING CAPITAL, *supra* note 71, at 71; Popper, *supra* note 142, at 9; *see also* BEN MUSE & KURT SCHELLE, INDIVIDUAL FISHERMAN'S QUOTAS: A PRELIMINARY REVIEW OF SOME RECENT PROGRAMS (Feb. 1989).

248. *E.g.*, Letter from Harry Keene & W. P. Jensen, Members, Mid-Atlantic Fishery Management Council, to James McHugh, Chairman, Mid-Atlantic Fishery Management Council (Dec. 14, 1989), *reprinted in* AMENDMENT EIGHT, *supra* note 8, (letter attached to cover). The Magnuson Act does not permit the charging of fees in excess of administrative costs. KEIFER, *supra* note 73, at 6.

249. Lee G. Anderson, *Marine Fisheries*, *in* CURRENT ISSUES IN NATURAL RESOURCES LAW 149. 161-65 (Paul Portney, ed., 1982), *reprinted in* JOSEPH J. KALO, COASTAL AND OCEAN LAW 470-73 (1990). This is in some ways a peculiar argument. The traditional open access fishery is "socialistic" because the resource is freely available. An allocation under a limited entry scheme creates a private property right in the resource, and is properly viewed as more capitalistic. *Id.*

Transferable permits create quasi-property rights, so that the same market forces which society uses to allocate other scarce resources and balance other competing goods can be used to allocate environmental resources. To be good policy, the surf clam and ocean quahog allocations must accomplish both the conservation and the economic efficiency aims they were intended to achieve, and they must do so as fairly as possible. There are two important points to be made here. The first is that unlike traditional forms of privatization, the transferable permit approach adopted in Amendment Eight does not remove the government's ultimate control over the resource and its conservation. The second is that any system which attempts to bring economic efficiency to the industry has to allow consolidation of vessels because the industry's capacity is so grossly out of line with the resource's sustainable harvest levels. Each of these points deserves further consideration.

Individual allocations have been characterized as a "giveaway" for which the industry recipients should be charged.[250] It is important to distinguish, however, between traditional forms of property and the sort of transferable allocation created here. The limited property right created by Amendment Eight does not involve the wholesale transfer of control over the resource to the allocation holder. Under Amendment Eight, the Council and NMFS continue to make the essential decision of what the total catch will be because the allocations represent percentages of the total quota rather than specific bushel amounts.[251] In this way the government has reserved to itself the power to make the key conservation decision of how many clams and quahogs will be taken.

The Council and NMFS were careful to make clear that they did not consider Amendment Eight to be forever immutable, nor to create property rights in the sense referred to in the Fifth Amendment's takings clause.[252] The limited property right created by Amendment Eight exists not to grant exclusive control over the resource to the fishermen who have been using it, but instead to eliminate the government's need to continually adjust its regula-

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250. AMENDMENT EIGHT, *supra* note 8, at 12. The Magnuson Act does not permit user fees to be charged in excess of administrative cost. *See supra* note 213 and accompanying text.

251. AMENDMENT EIGHT, *supra* note 8, at 4, 55.

252. *See* Atlantic Surf Clam and Ocean Quahog Fishery, 55 Fed. Reg. 24,184, 24,187 (1990). ("This system . . . does not convey property rights in the resource. . . . The right to . . . an allocation is granted for only as long as the allocation scheme remains in place.").

tory scheme. This makes it easier for the government to control the resource in a way that ensures its conservation, while at the same time permitting efficiency in meeting the government's conservation goals.[253]

Amendment Eight is a conservation measure which reserves the most important conservation question—how many clams and quahogs will be taken every year—to the Mid-Atlantic Fishery Management Council and to NMFS. The transferability provisions are designed to make conservation workable by eliminating the harvesting race and its associated ingenuity race, and permitting the industry to operate efficiently. In the context of the surf clam and ocean quahog industry, this means permitting the industry to consolidate their catch onto one vessel which can then operate at or near full capacity.[254] This is at once the most desirable and the most controversial aspect of Amendment Eight.

Under the previous system, the overcapacity of the fleet caused allowable fishing hours to drop to ridiculously low levels. These restrictions on fishing time became intolerable to industry participants, who began to feel that almost any regulatory system would be an improvement.[255] However, the only cure for the problem would be a system which reduces the existing overcapacity and results in fewer vessels dividing the catch between them.

By permitting vessels to purchase other vessels' catch allocation, Amendment Eight is almost certain to reduce the industry's overcapacity. However, it is likely that the earliest savings under this system will go to multiple boat owners, who can consolidate all

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253. There is one provision of Amendment Eight which does not promote economic efficiency, namely the prohibition on shucking at sea. AMENDMENT EIGHT, *supra* note 8, at 58. This provision generated considerable controversy at public hearing. *See* AMENDMENT EIGHT, *supra* note 8, app. 5-5, app. 5-23, app. 5-31. Many processors have invested in or wish to develop processor vessels, particularly for ocean quahogs because of the high costs of land based shucking plants. In response, NMFS acknowledged these concerns, but pointed out that "[s]hucking at sea would seriously compromise enforcement" because the allocations are measured in bushels and the meat weight yields of shucked shellstock vary considerably. 55 Fed. Reg. 24,185. Amendment Eight does permit shucking at sea if accurate conversion factors can be developed, or if observers on board vessels can accurately measure the bushel catch. AMENDMENT EIGHT. *supra* note 8, at 58-59.

254. For a discussion of the level of overcapacity in the surf clam fleet, see *supra* notes 151-55 and accompanying text.

255. *See, e.g.*, MID-ATLANTIC FISHERY MANAGEMENT COUNCIL, *supra* note 163, at 45 ("Tomorrow I have to go out and try to make 5% of my salary or income in six hours time. We need Amendment Eight and we need it right now. That is it. It's been too long. It's nuts.") (comments of fisherman Bill Avery).

their allocation onto one or two of the boats they already own, and retire the rest.[256] Individual participants who own only one vessel will be able to consolidate, but they will have more difficulty lining up other vessels to join them. This is a disadvantage Amendment Eight shares with any other potential management system which would permit consolidation. A transferable allocation scheme lessens this disadvantage, however, by compensating the individuals who leave. Individuals who leave the fishery can expect to reap rewards by selling their allocation. Unlike almost any other system which would allow consolidation to occur, this system recognizes the time and effort individual fishermen have spent harvesting the common property resource.

B. Determining the Initial Allocation

Perhaps the greatest difficulty with an individual transferable allocation scheme involves assigning the initial allocation.[257] The initial allocation of any transferable allocation scheme always has the potential to create inequitable windfalls and losses, especially since the fairness aspects of such a system must be considered from several points of view. Long-term participants, recent entrants, and potential new entrants all have competing interests in how the allocation is made. The public also has interests in the initial allocation.

Long-term participants have a reliance interest in being able to continue in an industry in which they have invested. The Magnuson Act requires the Councils to take historical catch into consideration when devising a limited access management scheme.[258] Historical performance is probably the simplest and most direct measurement of all aspects of the long-term participant's interest: time and effort spent in the industry, skill, traditional reliance, and financial investment. To a certain extent it also reflects efficiency considerations because the historical participation of industry members over time is related to the efficiency of their performance.

Nevertheless, past performance does not tell the whole story

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256. For the Council's discussion of this issue, see AMENDMENT EIGHT, *supra* note 8, at 65. For the *Sea Watch* court's treatment, see *supra* notes 229-32 and accompanying text.

257. *See* AMENDMENT EIGHT, *supra* note 8, at 12 ("From the industry standpoint, the major problem involves how the initial allocation is made . . . .").

258. 16 U.S.C.A. § 1853(b)(6)(B).

of present reliance, and a system which took account of nothing else would be inappropriate. Recent entrants and potential new entrants also have a reliance interest in being able to enter an open-access, common fishery at any time, and this interest will necessarily be damaged by a transferable permit system. Potential new entrants will face a barrier to entry which was not there before. Recent entrants will be injured by any system which puts a premium on long-term historical performance, just as long-term participants will be injured by any system which does not.[259]

This is particularly problematical in an industry like the clam industry, where all the historical data is tied to vessels rather than participants. There has been a great deal of trade in vessels,[260] so that vessels with high catch histories are not necessarily associated with the fishermen who caught the clams. These considerations argue against a catch allocation based purely on history.

In an attempt to reconcile these conflicting interests, and the requirements of the Magnuson Act as well, the Council elected to make the initial allocation based on vessel history, with certain modifications.[261] The provisions in Amendment Eight which weight recent performance more heavily than earlier performance are there for the sake of recent entrants.[262] The provisions basing twenty percent of the allocation on vessel size are there for the sake of all interests not covered by catch history: new entrants, fishermen who sold vessels with history to buy better vessels without it, and people who were otherwise disadvantaged in the historical allocation.[263]

A further consideration in this respect is that Amendment Eight did not unexpectedly change the market in surf clamming vessels, upsetting fishermen's reliance interest. Industry participants could have expected that future allocations would be based on a vessel's catch history because historical catch allocations were considered for the clam industry for years.[264] Therefore, vessels in

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259. The length of time it took to develop a limited entry system with which to replace the surf clam moratorium exacerbated this conflict, because the interests of long-term participants and recent entrants diverged considerably over the course of time. *See* KEIFER, *supra* note 73, at 11.

260. *See* AMENDMENT EIGHT, *supra* note 8, at 104, table 33.

261. AMENDMENT EIGHT, *supra* note 8, at 5-6, 55-56.

262. AMENDMENT EIGHT, *supra* note 8, at 63-65.

263. *See* AMENDMENT EIGHT, *supra* note 8, at 63.

264. *See* AMENDMENT EIGHT, *supra* note 8, at 11.

the clam industry acquired value not only because they had limited entry permits, but also because they had a good catch history.[265] This meant that when vessels were transferred, the original owner was selling not only a vessel but also a catch history. This was part of the value of the boat, although in the years before Amendment Eight it was speculative.[266] It was partly for this reason that the Council felt that the interests of recent participants and new entrants were stronger in the ocean quahog side of the fishery. Therefore, the Council adopted a different formula for ocean quahogs which valued these interests more importantly.[267]

C. The Allocation of Quahogs

The allocation of ocean quahogs is perhaps the most controversial aspect of Amendment Eight.[268] The argument against the allocation is that it is a purely economic measure and there is no ecological reason to allocate ocean quahogs at this time. This would violate the Magnuson Act's National Standards Four and Five which require that limited entry schemes promote conservation.[269] The Magnuson Act also prohibits management measures which have economic allocation as their sole purpose.[270]

This argument fails to recognize the special vulnerabilities of a long-lived, slow growing species and the economic interplay between the surf clam and ocean quahog sides of the fishery. It cannot be said that the ocean quahog resource is in imminent danger of collapse, as was the surf clam fishery in 1977 when the original FMP went into effect. It is a mistake, however, to assume that a conservation rationale for fisheries management can only exist after the fishery is in decline. The Mid-Atlantic Council recognized in the original FMP that the ocean quahog resource was particularly vulnerable because of the time it would take to restore stocks

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265. *See, e.g.*, Pollack, *Quahoggers*, *supra* note 15, at 11.

266. This value was speculative for two reasons. First, it was not clear that a catch allocation system would ever be instituted at all. Second, there were other initial allocation schemes being suggested and lobbied for, such as an allocation based on the dimensions of the vessel.

267. AMENDMENT EIGHT, *supra* note 8, at 65. The average of years fished formula is designed to prevent injuring recent entrants into the ocean quahog fishery, or those who left and came back, relying on open access in the future. *Id.*

268. Pollock, *Quahoggers*, *supra* note 15, at 11; *see also* AMENDMENT EIGHT, *supra* note 8, app. 5-9.

269. 16 U.S.C.A. § 1851(a)(4)-(5).

270. *Id.* § 1851(a)(5).

of a very slow growing species once it became overexploited.[271]

The trend in ocean quahog landings has been increasing since Mid-Atlantic surf clam vessels began ocean quahogging in the 1970s.[272] At the same time, the ocean quahog resource is vast and it is only a small area that is currently being exploited. Because the industry was concentrating its efforts in such a small area, proponents have argued for tighter control of the resource to prevent depletion in this area.[273] This is sound reasoning. The fact that the industry's effort is concentrated on one relatively small part of the fishery should be cause for concern, not reassurance.

When the surf clam side of the fishery is considered along with the ocean quahogs, the case for allocating ocean quahogs becomes clearer. One anticipated result of Amendment Eight is a reduction of fishing capacity in the surf clam fleet. Fishermen will be able to consolidate their surf clam allocations to fewer vessels. This will free surf clam ships so they can fish for ocean qhahogs. There is nothing speculative about such a shift. It happened in the 1970s before the original Plan went into effect, and in the late 1980s when allowable surf clam hours were so low NMFS eventually had to schedule surf clam trips by calendar quarters.[274]

It is possible that market saturation for ocean quahogs is so high that a shift of large numbers of surf clam vessels to ocean quahogging would have no effect on the resource, but it is unlikely. Because a surf clam vessel is easily rigged for quahogging, there would be little investment needed to enter this fishery. Market saturation due to increased landings of small surf clams from Long Island Sound cannot be relied on to deter overfishing of the quahog resource. Ocean quahogs are market substitutes for surf clams in all canned clam products, though surf clams are preferred.[275] Quahogs and small surf clams are complete market substitutes for each other. For this reason, whenever there is a surge in landings of small surf clams from state waters, landings of ocean quahogs fall off. In 1986 and 1990, there were booms of small surf clam

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271. Surf Clam and Ocean Quahog Industries Fishery Management Plan, 42 Fed. Reg. 60,437, 60,452 (1977).

272. *See* AMENDMENT EIGHT, *supra* note 8, at 80, table 2.

273. *See supra* notes 167-69 and accompanying text; *see also* AMENDMENT EIGHT, *supra* note 8, at 20, 27, 28.

274. *See supra* note 71.

275. AMENDMENT EIGHT, *supra* note 8, at 52.

landings from Long Island Sound.[276] The price and demand for ocean quahogs is directly related to surf clam activities in this area. However, the Long Island Sound resource is especially volatile. As soon as new surf clam beds are found, they are fished to the point of depletion. It would be a mistake to rely on the apparent stabilization of ocean quahog demand when it is really a function of a highly unstable and temporary surf clam resource in the waters of Long Island Sound.

The Mid-Atlantic Council considered one other alternative to creating an individual transferable allocation system for the ocean quahogs. They considered instituting a moratorium on ocean quahog vessels as had been done for surf clams.[277] This would develop catch histories for ocean quahog boats which could be used as a basis for allocations in the future.

This, however, was the same scenario which caused the problems for the surf clammers. The original moratorium adopted in the original FMP was conceived as a temporary measure while the Mid-Atlantic Council developed a better limited entry alternative such as an allocation system.[278] It took ten years to develop a system, and as time passed consensus became harder to achieve because an equitable allocation became harder to formulate. At the same time, the harvesting race drove the system of effort restrictions to the absurdity of scheduling fishing time in six-hour trips per quarter.[279] Fishing trips were limited to an average of six six-hour trips per quarter. No one would be willing to repeat this experience if there was any better alternative. For all of these reasons the management system for ocean quahogs was changed along with the management system for surf clams.

The Council made this decision to conserve the resource and to prevent the same economic inefficiency from arising in the ocean quahog industry as had plagued the surf clam industry. The Mid-Atlantic Council anticipated, with good reason, that a regulation adopted to address problems on the surf clam side of the fishery would cause chaos on the ocean quahog side of the fishery.

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276. Telephone Interview with David Keifer, Deputy Director, Mid-Atlantic Fishery Management Council (Feb. 26, 1991).

277. AMENDMENT EIGHT, *supra* note 8, app. 1-9 to 1-10.

278. 42 Fed. Reg. 60,471; *see also* AMENDMENT EIGHT, *supra* note 8, at 11.

279. *See supra* notes 129-35 and accompanying text.

CONCLUSION

Amendment Eight is in many ways long overdue. It is hard to believe that the temporary moratorium on surf clam vessels endured so long while people engaged in increasingly bitter debate over how to replace it. The individual transferable allocation system will make it possible for the industry to develop some balance between harvesting capacity and the ability of the resource to support the fishermen and processors who depend on it.

The allocation of ocean quahogs is more problematic. Because the annual quota has never been taken, and because effort restrictions have not been necessary to control harvest rates, the need for an allocation system for ocean quahogs is less obvious than it was for surf clams. However, there are real concerns about the vulnerability of the resource because of the slow growth rates and the lack of young ocean quahogs in the New Jersey and Delmarva area. There is further concern because all fishing has been concentrated in the area off New Jersey and Delmarva, making it possible to deplete the resource in this area at catch rates that would not be deleterious if they were spread across the species' entire range.

A further concern involves the relationship between surf clamming and ocean quahogging. As long as surf clam vessels and ocean quahog vessels are easily converted from harvesting one species to another, the enormous excess harvesting capacity of the surf clam fleet can move over into the ocean quahog side. Amendment Eight's management regime will free up many vessels when surf clam vessels are allowed to consolidate their allocations onto fewer vessels. Without Amendment Eight's provisions allocating ocean quahogs as well, the vessels freed from surf clamming would likely swamp the quahog fishery.

The benefits from the individual allocation system are just as applicable to the ocean quahog industry as they are to the surf clam industry. It is unfortunate that there was no way to accomplish these goals without harming some fishermen. Leaving the ocean quahog regulations as they were and waiting for the problems to develop would have been much worse. Imposing a temporary moratorium like the one originally imposed on surf clam

vessels would have been shortsighted. The Council made a wise decision when they allocated ocean quahogs along with surf clams.

Katharine A. Marvin

POSTSCRIPT

Seventeen months after the implementation of Amendment Eight, the system appears to be working smoothly. David Keifer of the Mid-Atlantic Council reports that a market has developed for the allocation.[280] There has been a lot of trading, and allocation certificates are being used as collateral for vessel investments. A number of vessels have dropped out of the fishery, largely due to the consolidation of allocation within preexisting fleets. There have not, however, been many instances of individual fishermen cashing in their allocation in order to leave the fishery. Instead they have preferred to rent their allocation by selling their cage tags while keeping their permanent allocation certificates. According to David Keifer, industry participants are content with the system: "There's been so little complaining [since Amendment Eight took effect] that it's been incredible."[281]

280. Telephone Interview with David Keifer, Deputy Director, Mid-Atlantic Fishery Management Council (Mar. 20, 1992).

281. *Id.*