

ENVIRONMENTAL ASSESSMENT 2000 SURFLAM AND OCEAN QUAHOG QUOTAS

I. INTRODUCTION

This environmental assessment is undertaken to establish quotas for the 2000 Atlantic Surfclam and Ocean Quahog Fisheries. Biological assessments of these resources are conducted by the National Marine Fisheries Service (NMFS) Northeast Region's Stock Assessment Workshop (SAW), which evaluates biological parameters such as overall population size, geographic distribution, age structure, and mortality rates from both natural causes and fishing activities. The most recent complete assessment was published in the Report of the 26th Northeast Regional Stock Assessment Workshop (USDC 1998a) for surfclams and the 27th Northeast Regional Stock Assessment Workshop (USDC 1998b) for ocean quahogs. These two assessments are based on the 1997 clam research survey. Copies of the 1998 assessments are available both from the National Marine Fisheries Service in Woods Hole, MA, and the Mid-Atlantic Fishery Management Council (Council).

II. PURPOSE AND NEED FOR ACTION

The purpose for the action is to establish landing quotas for 2000 for both surfclams and ocean quahogs. Regulations implementing the FMP (50 CFR 648) provide that the Secretary of Commerce (Secretary) will annually specify the quotas. The quota range for surfclams is between 1,850,000 bushels and 3,400,000 bushels. The quota range for ocean quahogs is between 4,000,000 bushels and 6,000,000 bushels. The quota range for the Maine ocean quahog area (both state and federal waters off the eastern coast of Maine north of 43° 50' north latitude) is between 17,000 and 100,000 bushels.

Prior to the beginning of each year, the Council, following an opportunity for public comment, recommends to the Secretary quotas within the ranges specified. In selecting the quotas the Council must consider current stock assessments, catch reports, and other relevant information concerning: exploitable and spawning biomass relative to the optimum yield; fishing mortality rates relative to the optimum yield; magnitude of incoming recruitment; projected effort and corresponding catches; geographical distribution of the catch relative to the geographical distribution of the resource; and status of areas previously closed to surfclam or ocean quahog fishing that are to be opened during the year and areas likely to be closed to fishing during the year.

The Council clarified its quota setting policies for surfclams and ocean quahogs at the April 1998 Council meeting, due to the ambiguity which some individuals associated with the word "demand." The revised Council policies for surfclams and ocean quahogs are:

Council policy is to set the surfclam quota within the OY range (1,850,000 to 3,400,000 bushels) at a level that will allow fishing to continue at that level for at least 10 years, and within the above constraints the quota may be set taking into account economic information to set the quota to consider net economic benefits over time to consumers and producers, within the framework of greatest national benefit.

Council policy is to set the ocean quahog quota within the OY range (4,000,000 to 6,000,000

bushels) at a level that will allow fishing to continue at that level for at least 30 years, and within the above constraints the quota may be set taking into account economic information to set the quota to consider net economic benefits over time to consumers and producers, within the framework of greatest national benefit.

The quota is set at that amount which is most consistent with the objectives of the Fishery Management Plan for the Atlantic Surfclam and Ocean Quahog Fishery. The Secretary may set quotas at quantities different from the Council's recommendations only if he can demonstrate that the Council's recommendations violate the National Standards of the Magnuson Act and the objectives of the Atlantic Surfclam and Ocean Quahog Fishery Management Plan.

The following table presents surfclam and ocean quahog quotas since 1990 and the year 2000 recommendation voted by the Mid-Atlantic Council in August 1999:

	<u>Surfclams</u> <u>(million bushels)</u>	<u>Ocean Quahogs</u> <u>(million bushels)</u>
1990 Quota	2.850	5.300
1991 Quota	2.850	5.300
1992 Quota	2.850	5.300
1993 Quota	2.850	5.400
1994 Quota	2.850	5.400
1995 Quota	2.565	4.900
1996 Quota	2.565	4.450
1997 Quota	2.565	4.317
1998 Quota	2.565	4.000
1999 Quota	2.565	4.500
2000 Recommendation	2.565	4.500

III. MANAGEMENT OBJECTIVES

The objectives of the FMP, since implementation of Amendment 8 (MAFMC 1990), have been and continue to be:

1. Conserve and rebuild Atlantic surfclam 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 surfclam and ocean quahog management to minimize the government and private cost of administering and complying with regulatory, reporting, enforcement, and research requirements of surfclam and ocean quahog management.
3. Provide the opportunity for industry to operate efficiently, consistent with the conservation of surfclam and ocean 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.

The management unit is all surfclams (*Spisula solidissima*) and all ocean quahogs (*Arctica islandica*) in the Atlantic EEZ.

IV. OVERVIEW OF THE SURFLAM RESOURCE AND FISHERY

The 1997 NEFSC clam survey and subsequent assessments of surfclams (USDC 1998a) and ocean quahogs (USDC 1998b) marked a substantial increase in the efforts made to understand the dynamics and quantify the status of the surfclam and ocean quahog resources off the northeastern United States. Industry vessels donated their time in conducting depletion experiments alongside a NMFS research vessel, which served to improve the accuracy of several parameters used in assessment models. Numerous NMFS scientists, other governmental scientists, academics, and industry representatives all significantly contributed to the better and more thorough understanding of the surfclam and ocean quahog resources over the past two years.

Key findings from the 26th SARC Advisory Report (USDC 1998a) included the following:

- The EEZ surfclam resource is at a medium level of biomass and is probably under-exploited overall.
- The vast majority of the catch (>80%) is currently derived from the Northern New Jersey (NNJ) area which contains about 36% of the coast-wide resource. Large fractions of the resource are exploited at low levels (Delmarva containing 25% of the resource) or not at all (Georges Bank containing 26% of the resource).
- From 1991 to 1997, a period for which effort has been reported accurately, landings per unit effort (LPUE) off NNJ declined 30% from 138 to 97 bushels/hr.
- Survey age composition data for NNJ and Delmarva indicate that the populations contain at least 18 cohorts, none of which are dominant.
- There appears to be little scope for increased catches in NNJ, given that the fishery now occurs over the entire range of the NNJ portion of the stock, and catch approximately equals production. The fishery could be expanded in the Delmarva area, since that is the one area in the Mid-Atlantic which has significant annual net production. Careful consideration needs to be given to implementing stock-wide quota increases because the additional catch would likely be taken in the NNJ area to the detriment of that fishery.

It should also be noted that the surfclam and ocean quahog resources on Georges Bank remain closed to fishing due to the presence of Paralytic Shellfish Poisoning toxin.

Key findings of the Quota Recommendations paper (MAFMC 1999a) indicate:

- The soft market that left significant portions of state and federal quotas for surfclams unharvested

in 1997 and 1998 has continued into 1999. A 17% decline in exvessel value is reflected in the most frequently reported 1997 price of \$12.00 per bushel dropping to \$10.00 per bushel in 1998.

- That portion of the federal surfclam quota left unharvested increased from 6% in 1997 to 8% in 1998. The fishery in New York state waters also declined due to market conditions, with its unharvested quota growing from 22% to 55% in 1998. Conditions improved for the New Jersey inshore fishery, however, as the unused portion of its 600,000 bushel annual quota declined from 22% to 5% in the recently completed 1998/1999 season.
- Fleet-wide calculations of Landings Per Unit Effort (LPUE) continued stable in 1998 for the third year in a row. Harvests remain concentrated off the coast of New Jersey, with 46% of the catch coming from the “New Jersey Nearshore” (3973) degree square.
- A major factor behind average catch rates holding steady is that the decline in catch rates for areas off New Jersey and Long Island has started to be offset by high catch rates (in excess of 250 bushels per hour) from under exploited areas off the Delmarva peninsula. The low meat yield from clams in Delmarva have made them less attractive to industry in the past. However, the 263,000 bushel harvest from the “Delaware - Maryland Nearshore” degree square ranks second for the entire East Coast in 1998.

V. LIST OF ALTERNATIVES

V.1. Preferred Alternative - 2.565 Million Bushel Quota for Surfclams

The Council’s preferred alternative quota for the 2000 surfclam fishery is 2.565 million bushels, which is the same as it was for 1999 and as it has been since 1995. This preferred alternative meets the 1998 SARC recommendation “There appears to be little scope for increased catches in NNJ, given that the fishery now occurs over the entire range of the NNJ portion of the stock, and catch approximately equals production. The fishery could be expanded in the Delmarva area, since that is the one area in the Mid-Atlantic which has significant annual net production. Careful consideration needs to be given to implementing stock-wide quota increases because the additional catch would likely be taken in the NNJ area to the detriment of that fishery.”

This level of quota was estimated as corresponding to the fishing mortality rate that would be required to harvest the annual surplus production for Northern New Jersey. The vast majority of the catch (>80%) is currently derived from the Northern New Jersey area, which contains about 36% of the coast-wide resource. Since surfclams reach a harvestable size in 6 to 7 years and recruitment is evident, this level of quota will not harm the long-term sustainability of the resource.

The Sustainable Fisheries Act (SFA) of 1996 significantly altered the requirement of FMPs to address habitat issues. The SFA contains provisions for the identification and protection of habitat essential to the production of federally managed species. The Act requires FMPs to include identification and description of essential fish habitat (EFH), description of non-fishing and fishing threats, and to suggest conservation and enhancement measures. These new habitat requirements, including what little is known about clam gear impacts to the bottom, are addressed in Amendment 12 (MAFMC 1999b).

Since there would be no change from the 1995 through 2000 levels, impacts on bottom habitat would not change. This maintained quota may have no effect on the exvessel market for surfclams, *ceteris paribus*. However, given the current oversupply in the surfclam market, it is possible that without the price support of a quota decrease, the exvessel price of surfclams may continue to decline in the short term (MAFMC 1999c).

Based on the biological data presented in the most recent assessment (USDC 1998a) the surfclam quota could have been increased overall. The Council however chose not to consider an increase for 2000 because of four main factors.

First, although the 1997 survey and subsequent assessments are state-of-the-art, there were numerous changes in the survey technology and the accompanying assessment methodology. Thus, the 1998 assessments represent a point estimate for each species that is not directly comparable to earlier work. The 1999 survey and the upcoming assessments should go far to confirm the 1998 assessments and may allow us to be less risk averse in recommending future quotas.

Second, industry continues to fail to utilize all existing state and federal quotas. Improved harvests of surfclams in the New Jersey inshore fishery must be tempered with the knowledge that 1998 landings in the EEZ were down to their lowest percentage of the quota (92.2%) in a decade. Less than half of the New York inshore quota for surfclams was harvested in 1998, and preliminary data for the first half of 1999 indicate no substantial change in utilization from 1998.

Preliminary harvest totals for the first six months of 1999 in the federal fisheries for surfclams and ocean quahogs were also recently released. While a certain number of late reports can be expected, landing reports received thus far indicate that only 31% of the surfclam quota had been landed and 40% of the ocean quahog quota.

Any consideration of increasing the surfclam quota to accommodate a potential increase in demand must also acknowledge that there is already a substantial surplus on the market, and that increasing quotas may aggravate the financial positions of those with less access to a market.

Third, 1998 LPUE for surfclams remained stable (MAFMC 1999a).

Finally, informal discussions with numerous industry participants indicated that while some processors would favor an increase in at least surfclam quotas for 2000, there is not tremendous support for any type of significant (more than 10%) increase.

The proposed 2000 quota for surfclams of 2.565 million bushels was adopted by the Council at its August 1999 meeting. The Secretary approved (MAFMC 1996) an overfishing definition for surfclams of $F_{20\%}$. This translates roughly to $F = 0.18$ for surfclams. The F in 1997 (no assessment was conducted in 1999 since no survey was performed in 1998) associated with a quota of 2.565 million bushels was approximately 0.04 for the Northern New Jersey area. The specific F associated with the 2000 quota will be able to be calculated when the next assessment is complete, but should be approximately the estimated F in 1997 for Northern New Jersey. Therefore, the proposed quota is below the approved overfishing threshold definition for fishing mortality. A clam survey of the continental shelf between Cape Hatteras and Georges Bank was conducted in the summer of 1999 and a stock assessment is to be developed and

reviewed at the NMFS sponsored Stock Assessment Review Committee (SARC) in December 1999. The Council developed Amendment 12 (MAFMC 1999b) that attempted to expand the 1996 overfishing definitions to include biomass-associated target and threshold estimates, however, the overfishing definition portion of this Amendment was not approved (the definition did not include the entire geographic range of the resource). The Council, working with NMFS, industry, and academia, plans to develop a new overfishing definition at the December 1999 SARC.

The Council continues to assume that none of the Georges Bank resource (approximately one quarter of the resource) will be available during the next 10 years for harvesting because of PSP. For the 1997 quota, both the S&S Committee and the Council Surfclam and Ocean Quahog Committee believed that the reopening of the Georges Bank area was uncertain and too speculative to base quota recommendations upon. The Industry Advisory Group has concurred with this assumption in the recent past. There was no discussion for this 2000 quota about surfclam availability from Georges Bank.

V.2. Alternative 1 - 2.365 Million Bushel Quota for Surfclams

The first non-preferred alternative quota for the 2000 surfclam fishery is 2.365 million bushels. This quota is within the OY range of between 1.850 and 3.400 million bushels as required by the FMP. This alternative would reduce the surfclam quota by 8% in an attempt to match the harvest level reached in 1998 with the quota for 2000 (MAFMC 1999a).

The 2.365 million bushel recommendation for 2000 represents a decrease of 8% from the 2.565 million bushel quota which has been in effect since 1995. The direct impact would be that surfclam allocation owners would each receive 8% fewer cage tags than they had the year before. All allocation owners would be affected proportionally the same, since the harvest right which each individual entity owns is actually a percentage share of the annual quota. If all other aspects of the surfclam fishery were to remain constant, such as ex-vessel prices and the quantity of surfclams supplied from state waters, then the major human consequence of the quota reduction is the near-term decrease in revenues which occurs from postponing a portion of the harvest of surfclams to a later year. It is unlikely, however that all the other conditions which held true in 1998 will pertain again in 2000.

The major reason the Council considered reducing the 2000 quota from the 1999 quota was in order to comply with Council policy about setting the quota to consider net economic benefits over time to consumers and producers, within the framework of greatest national benefit. Landings relative to quota (and showing significant amounts unused) for inshore New York and New Jersey were presented in the Quota Recommendation paper (MAFMC 1999a). A segment of industry has presented their surfclam market analyses, and argued that a decline in consumer demand for surfclam products had led to an increase in inventories, and brought harm to a portion of the industry which had experienced great difficulty in finding market for their surfclams.

In 1998 only 92% of the EEZ quota was landed. Prior to 1997 the previous five years of the ITQ program landed between 99 and 100% of the quota annually. With the EEZ quota at a constant 2.565 million bushels for each of these years, it is believed that market forces are the primary reason behind the EEZ landing decline. Also contributing to the conclusion that market demand is off is the fact that inshore New York and New Jersey landings are significantly below their quotas (MAFMC 1999a).

An 8% reduction in quota for 2000 could possibly benefit the long-term sustainability of the resource,

however there is the offsetting argument that the slow growing clams off of Delmarva may need to be thinned in order to be more productive. (The assessment (USDC 1998a) states: "It is unclear to what degree this is due to density dependence or environmental effects. Therefore, it is unclear whether reducing the density through fishing would improve growth and condition." The Council intends to evaluate this concept in the upcoming year.) The annual impacts on bottom habitat would be slightly lessened with this reduction in quota. This level of quota would likely increase exvessel prices, *ceteris paribus* (MAFMC 1999c).

V.3. Alternative 2 - 2.7 Million Bushel Quota for Surfclams

The second non-preferred alternative quota for the 2000 surfclam fishery is 2.7 million bushels. This quota is within the OY range of between 1.850 and 3.400 million bushels as required by the FMP. This alternative would increase the surfclam quota by 5% in an attempt to allow a slight increase in the catches for industry (MAFMC 1999a).

The 2.7 million bushel recommendation for 2000 represents an increase of 5% from the 2.565 million bushel quota which has been in effect since 1995. The direct impact would be that surfclam allocation owners would each receive 5% more cage tags than they had the year before. All allocation owners would be affected proportionally the same, since the harvest right which each individual entity owns is actually a percentage share of the annual quota. If all other aspects of the surfclam fishery were to remain constant, such as ex-vessel prices and the quantity of surfclams supplied from state waters, then the major human consequence of the quota increase is the near-term increase in revenues which occurs. It is unlikely, however that all the other conditions which held true in 1998 will pertain again in 2000.

The major reason the Council considered increasing the 2000 quota from the 1999 quota was in order to comply with Council policy about setting the quota to consider net economic benefits over time to consumers and producers, within the framework of greatest national benefit. Landings relative to quota (and showing significant amounts unused) for inshore New York and New Jersey were presented in the Quota Recommendation paper (MAFMC 1999a). A segment of industry has presented their surfclam market analyses and stated that they could use an increase to help communicate to the major food processors that the resource is in no danger for a long time.

However, in 1998 only 92% of the EEZ quota was landed. Prior to 1997 the previous five years of the ITQ program landed between 99 and 100% of the quota annually. With the EEZ quota at a constant 2.565 million bushels for each of these years, it is believed that market forces are the primary reason behind the EEZ landing decline. Also contributing to the conclusion that market demand is off is the fact that inshore New York and New Jersey landings are significantly below their quotas (MAFMC 1999a).

A 5% increase in quota for 2000 could possibly benefit the long-term growth of the industry. There is the argument that the slow growing clams off of Delmarva may need to be thinned in order to be more productive or may never become more productive. (The assessment (USDC 1998a) states: "It is unclear to what degree this is due to density dependence or environmental effects. Therefore, it is unclear whether reducing the density through fishing would improve growth and condition." The Council intends to evaluate this concept in the upcoming year.) The annual impacts on bottom habitat would be slightly increased with this increase in quota. This level of quota would likely decrease exvessel prices, *ceteris paribus* (MAFMC 1999c).

V.4. Alternative 3 - 3.4 Million Bushel Quota for Surfclams

The maximum quota allowed under the FMP is 3.4 million bushels. This level of quota would likely require that the risk of paralytic shellfish poisoning from surfclams harvested on Georges Bank would be mitigated by employment of a dockside test for the toxin. The Council assumed none of the surfclam resource on Georges Bank would be available over the next ten years, and thus this quota would have to be viewed as excessive and risky. Given the current condition of the resource this level of quota could adversely affect the long-term sustainability of the stock since the PSP problem has not been resolved and this large amount of quota for surfclams would be harvested from already heavily fished areas. This would be contrary to the recommendation of the SAW (USDC 1998a) about "careful consideration needs to be given to implementing stock-wide quota increases because the additional catch would likely be taken in the Northern New Jersey area to the detriment of that fishery." Increased pressure on bottom habitat would also likely cause adverse effects. This level of quota would place a downward pressure on exvessel price, *ceteris paribus*.

V.5. Alternative 4 - 1.85 Million Bushel Quota for Surfclams

Discounting the availability of the resource on Georges Bank there is still sufficient resource in the Northern New Jersey and Delmarva areas to maintain a quota significantly above this level. The biology of the resource does not warrant constraining the industry to this level at this time. This level of quota may not have significantly different effects on the resource (since more may die of natural mortality), but may have a somewhat more beneficial effect on bottom habitat than the preferred alternative, since there would be less fishing effort. This level of quota would likely increase exvessel prices, *ceteris paribus*.

V.6. Other Management Actions: Suspend Minimum Size Restriction on Surfclams for 2000

The Surfclam and Ocean Quahog FMP includes a provision for a minimum size limit of 4.75 inches on surfclams, which may be used to protect new year classes from harvest before they have reached an optimal size. The provision is written such that a minimum size will automatically be in effect unless the Council takes the active step of suspending it each year.

The current stock is comprised primarily of large, adult individuals, with few small individuals apparent from landings in most areas (USDC 1998a). Reinstating a minimum size under these conditions would result in greater harm than benefit, as it would require the industry to use "sorting" machines which will often damage undersized clams as it routes them back overboard.

It is, therefore, the Council's recommendation that the surfclam minimum size limit be suspended for 2000, as has been done every year since 1990. Continuing the suspension will have no impact on the current fishery.

VI. OVERVIEW OF THE OCEAN QUAHOG RESOURCE AND FISHERY

The 1997 NEFSC clam survey and subsequent assessments of surfclams (USDC 1998a) and ocean quahogs (USDC 1998b) marked a substantial increase in the efforts made to understand the dynamics and quantify the status of the surfclam and ocean quahog resources off the northeastern United States. Industry vessels donated their time in conducting depletion experiments alongside a NMFS research

vessel, which served to improve the accuracy of several parameters used in assessment models.

Numerous NMFS scientists, other governmental scientists, academics, and industry representatives all significantly contributed to the better and more thorough understanding of the surfclam and ocean quahog resources over the past two years.

Key findings from the 27th SARC Advisory Report (USDC 1998b) included the following:

- The ocean quahog resource in surveyed EEZ waters from Southern New England (SNE) to Delmarva (DMV) is at a medium-high level of biomass and, according to the existing overfishing definition, would be considered under-exploited at the scale of the management unit. However, CPUE has declined substantially in localized areas.
- A revised biomass estimate for 1997 indicates that current catch quotas are consistent with a supply policy of 54-76 years, which is substantially more conservative than the present 30-year policy. Quotas consistent with the 30-year policy would be about 8.0 million bushels for 1999 and about 7.8 million bushels for 2000, under the assumption of a survey dredge efficiency of 0.43. However, local declines may occur if the fishery concentrates in certain locations with high biomass. Given the past performance of this fishery, effort is directed away from areas as soon as CPUE declines by 30-40%, so the number of areas profitable for harvesting may become limiting years before the stock undergoes a major decline in biomass.

Key findings of the Quota Recommendations paper (MAFMC 1999a) indicate:

- After two years of harvesting virtually all of the federal ocean quahog quota, the industry left 2.6% of the 1998 quota in the ocean. Exvessel prices remained in the vicinity of \$4.25 per bushel for much of 1997 and 1998, though recent verbal reports from industry indicate that prices have increased in 1999 to reach \$4.75 per bushel.
- Difficulties experienced by the ocean quahog portion of the fishery may be most reflected in vessel participation rates. While the total number of vessels in the federal surfclam and ocean quahog fleet declined 16% from 1996 to 1998 (from 56 to 47 vessels), that portion which participates in the harvest of ocean quahogs dropped by fully one-third over the same interval (from 36 to 24 vessels). Vessel owners have reported difficulty keeping crews on quahog vessels.
- Fleet-wide LPUE for ocean quahogs continued its slow decline, falling 2.4% in 1998.
- Harvests of ocean quahogs continue to be distributed over a larger geographic area than surfclams, though over one-third of the 1998 catch came from a single degree square off of eastern Long Island (4072).
- Ocean quahog harvests in most other areas declined from prior years. The areas south of Martha's Vineyard and Block Island saw modest increases in LPUE, while the important areas south of Nantucket Shoals (4069) and in the New Jersey Nearshore (3973) region saw sharp declines in productivity.

- Limits on the continued movement of the fleet eastward are still impeded by the closure of surfclam and ocean quahog beds east of the 69 degree line, due to the presence of PSP toxin.
- The concern for the ocean quahog fishery is economic, not biological. Its vast size and very slow rate of replacement can be likened to a large oil field, where most of the easy extractions have been made. Large deposits of oil may remain, but when the rate of production falls below an economic threshold, a well will be capped and the rigs will move elsewhere. Improvements in technology and increases in price can lower the threshold and make lean resources viable again. However the risk that these factors will not improve sufficiently over a 10 to 20 year time horizon are real, and must be taken into consideration when the government sets annual quotas that are intended to sustain the resource and a fishery.

VII. LIST OF ALTERNATIVES

VII.1. Preferred Alternative - 4.5 Million Bushel Quota for Ocean Quahogs

The Council proposes a 2000 ocean quahog quota of 4.5 million bushels, the same as 1999. There is no biological reason that the resource can not support this level of quota given the most recent stock assessment (USDC 1998b). The 1997 (4.317 million bushels) and 1998 (4 million bushels) reductions were based on evaluation of the harvest level which would satisfy the Council policy of a harvest level which could be maintained for at least 30 years given the information prior to the 1998 assessment (USDC 1998b). The 1997 quota recommendation assumed that all of the Georges Bank biomass would become available to the fishery over the course of the 30 year harvest period. In making that assumption, however, the Council stated that additional quota reductions would be necessary in the future if demonstrable progress was not made toward a reopening of Georges Bank in the near future. The 1996 SAW did not provide any forecast for ocean quahogs and only provided the management advice that a 30-year supply is possible only if the biomass on Georges Bank and in areas off Southern New England and Long Island, generally too deep to be harvested with current technology, were included.

The Sustainable Fisheries Act (SFA) of 1996 significantly altered the requirement of FMPs to address habitat issues. The SFA contains provisions for the identification and protection of habitat essential to the production of federally managed species. The Act requires FMPs to include identification and description of essential fish habitat (EFH), description of non-fishing and fishing threats, and suggest conservation and enhancement measures. These new habitat requirements, including what little is known about clam gear impacts to the bottom, are addressed in Amendment 12 (MAFMC 1999b). The effect on the bottom habitat of the 4.5 million bushel quota would be the same as is currently occurring with the 4.5 million bushel quota in 1999. This level of quota will not effect the exvessel market, *ceteris paribus*.

Based on the biological data presented in the most recent assessment (USDC 1998b) the ocean quahog quota could have been increased overall. The Council, however, chose to maintain the four and a half-million bushel quota for four main factors. First, the resource is at medium-high level of biomass and is considered under- exploited at the scale of the management unit. Second, 1998 landings were not constraining to industry, and it is likely that the 1999 quota will not be constraining (MAFMC 1999c).

Third, while the 1997 survey and 1998 assessment are state of the art, they represent only one point estimate over time. Significant uncertainties were identified in the assessment (USDC 1998b) and care should always be applied in developing models with one year's worth of input data. Surveys and assessments will be conducted in 1999, and as more information becomes available the magnitude of risk will be better known by the Council. At this time the Council believes that maintaining the ocean quahog quota at 4.5 million bushels presents little biological risk and will benefit the nation best in the long-term.

The Secretary approved Amendment 12 (MAFMC 1999b) with its new overfishing definition in April 1999. The new definition has: a "biomass target" = $\frac{1}{2}$ virgin biomass, "fishing mortality target" = $F_{0.1}$, "biomass threshold" = $\frac{1}{2}$ biomass target, and a "fishing mortality threshold" = to $F_{25\%}$ MSP level yielding $F = 0.04$. The 1997 quota yielded an F of approximately 0.021. The specific F associated with the 2000 quota will be able to be calculated when the new assessment is complete but should be close to the F in 1997 since significant proportions of the biomass are yet exploited. Therefore, the proposed quota is below the approved overfishing definition for fishing mortality.

The 4.5 million bushel recommendation for 2000 is the same as the 1999 level, but represented an increase of 13% from the 4 million bushel quota of 1998. If accepted by the National Marine Fisheries Service (NMFS), the direct impact would be a maintenance of the status quo allocation issued to each allocation owner for 2000. There should be no change in economic impacts since the status quo is maintained.

Maintaining the ocean quahog quota at the 4.5 million bushel level relaxes the binding constraint which has existed on the ocean quahog supply for 1997 and places it at a level which industry members have stated will meet their needs. Given the reassuring news resulting from the latest stock assessment, many would find it unreasonable to restrain the supply of ocean quahogs at a time when the industry has a market for them, and both harvesting and processing capacity are not being fully utilized (MAFMC 1999c).

VII.2. Alternative 1 - 4.0 Million Bushel Quota for Ocean Quahogs

The minimum quota allowed under the OY definition is the alternative for 4 million bushels, which was not chosen by the Council because it was constraining to industry and there is no biological reason to constrain industry at this point. The 4 million bushel level is the level the Council selected in 1998 and was a reduction of 7.3 percent from 1997. With the 1997 survey and 1998 assessment showing that there is sufficient resource, the Council elected to have a slight increase for 1999 and maintain that level for 2000 in order to allow the industry to slightly grow.

The quota reductions which the Council recommended in 1997 and 1998 were in part due to questions about the validity of assuming that all of the Georges Bank biomass would become available to the fishery over the course of the 30 year harvest period. In 1996 when the Council made the assumption of a reopening occurring on Georges Bank, the Council stated that additional quota reductions would be necessary in the future if demonstrable progress was not made toward a reopening of Georges Bank in the near future. The 1996 SAW did not provide any forecast for ocean quahogs and only provided the management advice that a 30 - year supply is possible only if the biomass on Georges Bank and in areas off Southern New England and Long Island, generally too deep to be harvested with current technology, are included.

The 1998 SAW (USDC 1998b) did not question whether Georges Bank would ever be opened. Fully thirty percent of the resource is located on Georges Bank. However, while using the entire resource, a harvest of only 4 million bushels would produce a supply year harvest for 76 years, which is significantly longer than the Council policy of at least 30 years. The resource is of sufficient size overall that the 30 percent that is on Georges Bank is not necessary to meet the Council's 30 supply year policy.

As with the surfclam resource, the vast majority of ocean quahogs which are left unharvested in 2000 will still be available to the same allocation holders in subsequent years. Earnings are simply deferred rather than lost, with the ocean quahogs being stored in the ocean rather than in refrigerated containers or cans.

This level of quota may have a slightly larger beneficial effect on the resource since major recruitment incidents have not been identified for the ocean quahog stock, and these animals may take up to 20 years to reach marketable size depending upon environmental conditions. A return to the 1998 quota level may have a slightly higher beneficial effect on the bottom habitat since less bottom will be exposed to the hydraulic dredging, especially in areas that have been heavily fished. This level of quota will not likely effect the exvessel market, *ceteris paribus*.

VII.3. Alternative 2 - 4.25 Million Bushel Quota for Ocean Quahogs

Splitting the difference between the minimum allowable quota under the OY range and the current quota of 4.5 million bushels, yields a quota of 4.25 million bushels. This is a partial reduction of 6%. This level was not chosen by the Council because it would be likely constraining to industry and there is no biological reason to constrain industry at this point. With the 1997 survey and 1998 assessment showing that there is sufficient resource, the Council elected to have a slight increase for 1999, and maintain that level for 2000, in order to allow the industry to slightly grow.

The quota reductions which the Council recommended in 1997 and 1998 were in part due to questions about the validity of assuming that all of the Georges Bank biomass would become available to the fishery over the course of the 30 year harvest period. In 1996 when the Council made the assumption of a reopening occurring on Georges Bank, the Council stated that additional quota reductions would be necessary in the future if demonstrable progress was not made toward a reopening of Georges Bank in the near future. The 1996 SAW did not provide any forecast for ocean quahogs and only provided the management advice that a 30 - year supply is possible only if the biomass on Georges Bank and in areas off Southern New England and Long Island, generally too deep to be harvested with current technology, are included.

The 1998 SAW (USDC 1998b) did not question whether Georges Bank would ever be opened. Fully thirty percent of the resource is located on Georges Bank. However, while using the entire resource, an interpolation between the actual projections made, indicates that a harvest of only 4.25 million bushels would produce a supply year harvest for about 69 years, which is significantly longer than the Council policy of at least 30 years. The resource is of sufficient size overall that the 30 percent that is on Georges Bank is not necessary to meet the Council's 30 supply year policy.

As with the surfclam resource, the vast majority of ocean quahogs which are left unharvested in 2000 will still be available to the same allocation holders in subsequent years. Earnings are simply deferred rather than lost, with the ocean quahogs being stored in the ocean rather than in refrigerated containers or cans.

This level of quota may have a slightly larger beneficial effect on the resource since major recruitment incidents have not been identified for the ocean quahog stock, and these animals may take up to 20 years to reach marketable size depending upon environmental conditions. A return to the 1998 quota level may have a slightly higher beneficial effect on the bottom habitat since less bottom will be exposed to the hydraulic dredging, especially in areas that have been heavily fished. This level of quota will not likely effect the exvessel market, *ceteris paribus*.

VII.4. Alternative 3 - 4.75 Million Bushel Quota for Ocean Quahogs

This is a 6% increase over the current quota and near the mid-point of the OY range for ocean quahog quotas. An increase in quota of this amount was greeted favorably by some processors in the industry but as a whole industry was willing to maintain the status quo until the results are known from the 1999 survey. Interpolating the projections from the 1998 assessment yields about 58 supply years for this quota. Bottom habitat may be negatively impacted as more ocean quahogs would be removed. Exvessel prices would likely fall as supply would probably exceed demand. For 1999, industry requested the Council raise the quota to 4.5 million bushels as that is what they expect to be able to sell in 1999 and they were willing to maintain the status quo for 2000.

VII.5. Alternative 4 - 6 Million Bushel Quota for Ocean Quahogs

This is the maximum of the OY range for ocean quahog quotas and would be a quota increase of 33% above the status quo. A quota this high may not meet the Council's policy of providing at least a 30-year ocean quahog supply. Bottom habitat would be negatively impacted as roughly 33% more ocean quahogs would be removed. Exvessel prices likely would fall as supply would greatly exceed demand. For 1999, industry requested the Council raise the quota to 4.5 million bushels as that is what they expect to be able to sell in 1999 and they were willing to maintain the status quo for 2000.

VII.6. Other Management Actions: Quota for the Maine Ocean Quahog Fishery

The Council voted to recommend that the Maine ocean quahog quota remain unchanged for 2000 at the initial maximum quota level of 100,000 bushels. This quota pertains to the zone of both state and federal waters off the eastern coast of Maine north of 43 degrees 50 minutes north latitude. Amendment 10 (MAFMC 1998) which established management measures for this small artisanal fishery for ocean quahogs was implemented in May of 1998. Data from the federally managed fishery is just beginning to be compiled and there has been no attempt yet to develop and conduct a scientific survey of the extent of the resource. It does not appear that maintaining the quota at its current level for another year will be constraining to the fishery or endanger the resource.

VIII. IMPACTS ON ENDANGERED SPECIES AND MARINE MAMMALS

Numerous species of marine mammals and sea turtles occur in the northwest Atlantic Ocean. The most recent comprehensive survey in this region was done from 1979-1982 by the Cetacean and Turtle Assessment Program (CETAP), at the University of Rhode Island (University of Rhode Island, 1982), under contract to the Minerals Management Service (MMS), Department of the Interior. The following is a summary of some of the information gathered in that study, which covered the area from Cape Sable, Nova Scotia, to Cape Hatteras, North Carolina, from the coastline to 5 nautical miles seaward of the

1,000 fathom isobath.

Four hundred and seventy one large whale sightings, 1,547 small whale sightings and 1,172 sea turtles were encountered in the surveys. The "estimated minimum population number" for each mammal and turtle, as well as those species the area currently included under the Endangered Species Act were also tabulated.

The CETAP concluded that both large and small cetaceans are widely distributed throughout the study area in all four seasons, and grouped the 13 most commonly seen species into three categories, based on geographical distribution. The first group contains only the harbor porpoise, which is distributed only over the shelf and throughout the Gulf of Maine, Cape Cod, and Georges Bank, and infrequently south to Virginia. The second group contains the most frequently encountered baleen whales (fin, humpback, minke, and right whales) and the white-sided dolphin. These are found in the same areas as the harbor porpoise, and also occasionally over the shelf at least to Florida or out to the shelf edge. The third group "shows a strong tendency for association with the shelf edge" and includes the grampus, striped, spotted, saddleback, and bottlenose dolphins, and the sperm and pilot whales.

Loggerhead turtles were found throughout the study area, but appear to migrate north to about Massachusetts in summer and south in winter. Leatherbacks appear to have a more northerly distribution. The CETAP hypothesized a northward migration in the Gulf Stream with a southward return in continental shelf waters nearer to shore. Both species usually were found over the shoreward half of the slope and in depths less than 200 feet. The study area may be important for sea turtle feeding or migrations, but the nesting areas for these species generally are in the South Atlantic and Gulf of Mexico.

The only other endangered species occurring in the northwest Atlantic is the shortnose sturgeon (*Acipenser brevirostrum*). The Council urges fishermen to report any incidental catches of this species to the Regional Administrator, NMFS, One Blackburn Drive, Gloucester, MA 01930, who can forward the information to the active sturgeon data base.

The range of surfclams, ocean quahogs, and the above marine mammals and endangered species overlap to a large degree, and there always exists some very limited potential for an incidental kill. Except in unique situations (e.g., tuna-porpoise in the central Pacific), such accidental catches should have a negligible impact on marine mammal/endangered species abundances, and the Council does not believe that implementation of these quotas will have any adverse impact upon these populations. While marine mammals and endangered species may occur near surfclam and ocean quahogs beds, it is highly unlikely any significant conflict between the fishermen managed by this FMP and these species would occur. Clam vessels dredge at very slow speeds and healthy animals should have no difficulty avoiding these vessels. Additionally, surfclams and ocean quahogs are benthic organisms, while marine mammals and marine turtles are pelagic and spend nearly all of their time up in the water column or near the surface.

IX. LIST OF AGENCIES AND PERSONS CONSULTED IN FORMULATING THE PROPOSED ACTION

The proposed quota was submitted to the National Marine Fisheries Service (NMFS) by the Mid-Atlantic Fishery Management Council.

X. LIST OF PREPARERS OF THE ENVIRONMENTAL ASSESSMENT

This environmental assessment was prepared by the Mid-Atlantic Council staff of Dr. Thomas B. Hoff and Clayton E. Heaton and is significantly based on information provided by the Northeast Fisheries Science Center through the most recent two stock assessments for surfclams (USDC 1998a) and ocean quahogs (USDC 1998b).

XI. ESSENTIAL FISH HABITAT ASSESSMENT

Introduction

This Essential Fish Habitat (EFH) Assessment is provided pursuant to 50 CFR 600.920 of the Essential Fish Habitat Interim Final Rule to initiate EFH consultation with the National Marine Fisheries Service.

EFH Assessment

Surfclams and ocean quahogs have EFH designated in many of the same bottom habitats that have been designated as EFH for most of the MAFMC managed species of summer flounder/scup/black sea bass, squid/mackerel/butterfish, bluefish, and dogfish, as well as the NEFMC species of groundfish within the Northeast Multispecies FMP, including: Atlantic cod, haddock, monkfish, ocean pout, American plaice, pollock, redfish, white hake, windowpane flounder, winter flounder, witch flounder, yellowtail flounder, Atlantic halibut and Atlantic sea scallops. Numerous species within the NMFS Highly Migratory Species Division and the SAFMC have EFH identified in areas also identified as EFH for surfclams and ocean quahogs. Broadly, EFH is designated as the bottom habitats within the Gulf of Maine, Georges Bank, and the continental shelf off southern New England and the mid-Atlantic south to Cape Hatteras for the juveniles and adults of these two species. Specifically the definitions as approved in Amendment 12 (MAFMC 1999b) are:

Surfclams

Juveniles and adults: Throughout the substrate, to a depth of three feet below the water/sediment interface, within federal waters from the eastern edge of Georges Bank and the Gulf of Maine throughout the Atlantic EEZ, in areas that encompass the top 90% of all the ranked ten-minute squares for the area where surfclams were caught in the NEFSC surfclam and ocean quahog dredge surveys (Figure 16). Surfclams generally occur from the beach zone to a depth of about 200 feet, but beyond about 125 feet abundance is low.

Ocean quahogs

Juveniles and adults: Throughout the substrate, to a depth of three feet below the water/sediment interface, within federal waters from the eastern edge of Georges Bank and the Gulf of Maine throughout the Atlantic EEZ, in areas that encompass the top 90% of all the ranked ten-minute squares for the area where ocean quahogs were caught in the NEFSC surfclam and ocean quahog dredge surveys (Figure 17). Distribution in the western Atlantic ranges in depths from 30 feet to about 800 feet. Ocean quahogs are rarely found where bottom water temperatures exceed 60° F,

and occur progressively further offshore between Cape Cod and Cape Hatteras.

Any mobile gear that comes into contact with the seafloor in surfclam and ocean quahog EFH may potentially have an impact to these immobile benthic organisms (MAFMC 1999b). The gears expected to have the most adverse impact are hydraulic clam dredges and the scallop dredges.

From Auster and Langton (1998) we know that hydraulic clam dredges damage buried bivalves when the dredge does not fully penetrate the bottom to a depth below the horizon where clams occur (Meyer *et al.* 1981). The cutting bar directly breaks clam valves from the force of the dredge moving laterally through the sediments and pushing against high densities of clams. In all studies, the authors made reasonable assumptions regarding levels of damage which will result in direct mortality (e.g., broken hinge, removal of a valve, exposure of soft tissues). However, no studies followed individuals to assess long term mortalities based on damage such as chipped shell margins, which may increase the risk of predation from crustacean predators. The issue of mortality associated with catching but not landing is included in each of the recent stock assessments for surfclams (NEFSC 1998a) and ocean quahogs (NEFSC 1998b).

Assessment of impacts of hydraulic clam dredges in the Middle Atlantic in a closed area with high densities of surfclams by Meyer *et al.* (1981) indicated that when dredge efficiency was low, larger clams which were buried deeper had mortalities as high as 92%. When dredge efficiency was high, mortalities were approximately 30% (in Auster and Langton 1998).

Murawski and Serchuk (1989) studied the short-term impacts on benthic communities of bivalve harvest operations in the Middle Atlantic Bight, including scallop dredge and hydraulic clam dredge on various substrate types. Scallops harvested on soft sediment (sand or mud) had low dredge induced mortality for un-caught animals (less than 5%). Culling mortality (discarded bycatch) was low, approximately 10%. Over 90% of the ocean quahogs that were discarded re-burrowed and survived whereas 50% of the surfclams died. Predators such as crabs, starfish, fish and skates, moved in on the ocean quahogs and surfclams within 8 hours post dredging. Murawski and Serchuk (1989) noted numerous "minute" predators feeding in trawl tracks. Non-harvested animals, sand dollars, crustaceans and worms were significantly disrupted but sand dollars suffered little apparent mortality.

Meyer *et al.* (1981) evaluated clam dredge (harvesting ocean quahogs) efficiency over a transect in Long Island Sound, NY. After the dredge passes, it creates a "windrow of clams." The dredge penetrates up to 12 inches and pushes sediment into track shoulders. After 24 hours the track looks like a shallow depression. Clams can be cut or crushed by dredge with mortality ranging from 7 to 92%, being dependent on size and location along dredge path. Smaller clams survive better and are capable of re-burrowing in a few minutes. Predators such as crabs, starfish and snails, move in rapidly and depart within 24 hours.

MacKenzie (1982) studied the long-term impacts of harvesting ocean quahogs in fine to medium sand areas in Southern New Jersey. In areas that are unfished, recently fished, and currently fished for ocean quahogs using hydraulic dredges invertebrates were sampled with a Smith MacIntyre grab. Few significant differences in numbers of individuals or species were noted, and no pattern suggested any relationship to dredging.

The surfclam and ocean quahog fisheries are ITQ fisheries, and as such there is no reason that fishermen

have a “rush to fish.” One of the great benefits of ITQ fisheries from around the world is that it instills the sense of private property rights and ownership in the resource. Fishermen in these fisheries understand that they are not time driven to rape the resource and that by protecting the resource and its environment they are protecting their long term livelihoods. Unquestionably, ITQs and the way clams are now fished alleviate some environmental damage (Wallace pers. comm.).

The numbers of surfclam and ocean quahog fishermen have also decreased significantly with the implementation of ITQs. In 1979 there were 162 permitted surfclamming vessels. That number had fallen to 135 vessels the year before (1989) implementation of the ITQ program, and by 1995 the number was only 37. For ocean quahogs the number of vessels were: 59 in 1979, 69 in 1989 and 36 in 1995. Many vessels fish for both surfclams and ocean quahogs and in fact the total number of vessels that fished in 1997 was only 47 (MAFMC 1999a). Most of these current vessels also use sorting machines which make it possible to harvest broken clams which are now not discarded.

A brief discussion on the concept of reserves, or areas where clam dredging would not be allowed, occurred at the June 1998 SARC. The idea of reserves was dismissed at this time by the SARC when it was quickly calculated that the greatest possible impact to the bottom, of all the clam dredging for an entire year, would be less than 100 square miles per year. Putting this in context, this 100 square miles is roughly the area of one ten minute by ten minute square. There are over 1200 ten minute squares in the EEZ between Cape Hatteras and Georges Bank.

With the above limited gear impact statements (Auster and Langton 1998), the minimal bottom impact of only 47 vessels, and statements of internationally known invertebrate experts (Drs. Roger Mann of VIMS and Eric Powell of Rutgers who state that the bottom is stirred up more from the average Northeaster than from surfclam dredging) the Council believed that no specific management measures should be proposed for this fishery when Amendment 12 was submitted (MAFMC 1999b). The Council solicited public input on clam dredge gear impact during the public hearing process. No public input was received.

According to section 600.815 (a)(4), fishery management options may include, but are not limited to: (I) fishing equipment restrictions, (ii) time/area closures, and (iii) harvest limits.

According to section 600.815 (a)(3) Councils must act to prevent, mitigate, or minimize adverse effects from fishing, to the extent practicable, if there is evidence that a fishing practice is having an identifiable adverse effect on EFH. Some discussions of various gear impacts on bottom in the Mid-Atlantic region has been presented to the Council over the past several years. It is because of this anecdotal information that the Council is considering that all mobile gear coming into contact with the seafloor within surfclam and ocean quahog EFH is characterized as having a potential impact on their EFH (MAFMC 1999b). However, the effort of these bottom tending gears is largely unquantified from data that are presently collected by the NEFSC as summarized by Auster and Langton (1998) and therefore no management measures will be proposed at this time. Dr. Joe DeAlteris (University of Rhode Island) is presently attempting to synthesize the historical (1983 to 1993) fishing effort data by area and hopes to have this project complete in the next two years. When specific gear-effort data by area are available the Council will review them and consider whether management measures will be useful.

The requirement concerning gear impact management is to the extent practicable given the evidence that the fishing practice is having an identifiable adverse effect. The Council feels strongly that very little evidence was provided in the synthesis document of Auster and Langton (1998) relative to identifiable

adverse effects to EFH in FMPs managed by this Council at this time. Fishing gear impacts along with the description and identification of EFH are frameworked management measures which can easily and readily be changed as more information becomes available (MAFMC 1999b). The Council's Habitat Monitoring Committee (MAFMC 1999b) should be meeting annually and can provide recommendations concerning gear impacts that NMFS and the Council can act on in the future. The Council feels it would be premature, given the lack of identifiable adverse effects of gear impacts to these managed species EFH, to propose gear management measures at this time. It is simply not practicable to impose unwarranted management measures that are unjustifiable. The Council will consider implementing management measures to protect EFH if and when adverse gear impacts are identified.

Many MAFMC, NEFMC, SAFMC, and HMS FMPs for several overfished species include management actions that would effectively reduce gear impacts to bottom habitats by reducing the harvest of the managed species. This reduction in harvesting effort may indirectly benefit EFH by creating an overall reduction of disturbance by a gear type that impacts bottom habitats. Other management actions already in place should control redirection of effort into other bottom habitats. These proposed quotas for 2000 are identical to those for 1999 and therefore should cause no change in any impacts. Therefore, the MAFMC has determined that this action will have no more than minimal adverse impact upon the listed EFH.

XII. FINDING OF NO SIGNIFICANT ENVIRONMENTAL IMPACT

Having reviewed the environmental assessment and the available information relating to the proposed action, I have determined that there will be no significant adverse environmental impact resulting from the action and that preparation of an environmental impact statement on the action is not required by Section 102(2)(c) of the National Environmental Policy Act or its implementing regulations.

Assistant Administrator for
Fisheries, NOAA

Date

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REGULATORY IMPACT REVIEW FOR THE 2000 CATCH SPECIFICATIONS FOR SURFCLAMS AND OCEAN QUAHOGS

1. INTRODUCTION

The National Marine Fisheries Service (NMFS) requires the preparation of a Regulatory Impact Review (RIR) for all regulatory actions that either implement a new Fishery Management Plan (FMP) or significantly amend an existing plan or regulation. The RIR is part of the process of preparing and reviewing FMPs and provides a comprehensive review of the changes in net economic benefits to society associated with proposed regulatory actions. The analysis also provides a review of the problems and policy objectives prompting the regulatory proposals and an evaluation of the major alternatives that could be used to solve the problems. The purpose of the analysis is to ensure that the regulatory agency systematically and comprehensively considers all available alternatives so that the public welfare can be enhanced in the most efficient and cost-effective way.

The RIR addresses many items in the regulatory philosophy and principles of Executive Order (E.O.) 12866. The RIR also serves as the basis for determining whether any proposed regulation is a "significant regulatory action" under certain criteria provided in E.O. 12866.

1.1. Description of User Groups

A detailed description of fishing activities and the history of the surfclam and ocean quahog fisheries are presented in the Council's annual quota paper series and in Amendments 8 and 12 to the Surfclam and Ocean Quahog FMP. An overview of the most recent vessel activities follows.

1.1.1. Harvesting Sector

In 1998 a total of 47 vessels reported harvesting surfclams or ocean quahogs from federal waters under an Individual Transferable Quota (ITQ) system. A ceiling exists on their collective harvests in the form of annual federal quotas, though the quotas were not binding on the industry in 1998. The breakdown of vessel involvement in each fishery was as follows:

<u>Species Harvested</u>	<u>No. Vessels</u>
surfclams only	23
ocean quahogs only	16
<u>both surfclams and ocean quahogs</u>	8
Total	47

All of these vessels were required to hold a valid federal permit for the species they were harvesting, as well as a sufficient number of federally-issued cage tags to cover the quantity harvested on any given trip. Each tag must be fastened to a "cage" (shipping container) containing up to 32 bushels of either species, and allows for the legal transport of that species to a processing facility. Cage tags represent the "currency" of the Individual Transferable Quota system, and can be freely traded among industry participants so they can tailor their harvests to a level which meets their particular needs and business plans.

The annual quota that is specified for each species determines the maximum number of cage tags which will be issued to allocation owners each year, and is equal to the total quota divided by 32.

In addition to the high-volume, ITQ fishery for surfclams and ocean quahogs, there is a small-scale fishery for ocean quahogs operating off the coast of Maine. This fishery makes use of small, dry dredges to harvest ocean quahogs principally for the fresh market, and will land their catch in 1/2 bushel bags.

Amendment 10 specified management measures tailored to the Maine quahog fishery, and took effect on May 21, 1998. The principal management measures included: 1) establishment of a Maine ocean quahog management zone north of 43 degrees 50' N. latitude, 2) establishment of a Maine ocean quahog permit, and 3) establishment of an initial annual quota of 100,000 Maine bushels for the management zone.

In 1998 there were a total of 38 vessels reporting harvests from the Maine fishery in federal clam logbooks.

1.1.2. Processing Sector

In 1998 there were a total of 11 companies which were reported as having made purchases of surfclams or ocean quahogs outside the State of Maine. Dealer reports are required of all entities receiving federal harvests of these two species managed under the ITQ system.

The largest processor is Sea Watch International, based in Milford, Delaware. Listed from north to south, the remaining plants are as follows:

Massachusetts

Fair Tide Shellfish LTD.

Soffron Brothers Inc.

Rhode Island

Blount Seafood Corp.

Galilean Seafood Inc.

New Jersey

Cape May Cannery Inc

Cape May Fisheries CO-OP Inc.

Surfside Products Inc.

Maryland

Mid-Atlantic Foods

Virginia

Eastern Shore Seafood Products

J H Miles & Company Inc.

Ownership of multiple plants results in there effectively being five major processing entities in the industry. There is an increasing trend toward vertical integration, where companies own both vessels and processing facilities. The most recent example is the merger of Sea Watch International and the Truex fleet of vessels in the summer of 1999.

1.2. Management Objectives

The objectives of the FMP are:

1. Conserve and rebuild Atlantic surfclam 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 surfclam and ocean quahog management to minimize the government and private cost of administering and complying with regulatory, reporting, enforcement, and research requirements of surfclam and ocean quahog management.
3. Provide the opportunity for industry to operate efficiently, consistent with the conservation of surfclam and ocean 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.

The management unit is all surfclams (*Spisula solidissima*) and all ocean quahogs (*Arctica islandica*) in the Atlantic EEZ.

2. METHODOLOGY AND FRAMEWORK FOR ANALYSIS

The basic approach adopted in this RIR is an assessment of management measures from the standpoint of determining the resulting changes in costs and benefits to society. The effects of actions were analyzed by employing quantitative approaches to the extent possible. Otherwise, qualitative analysis were conducted.

3. IMPACTS OF PROPOSED ALTERNATIVES

3.1. Proposed Action

Regulations implementing the Fishery Management Plan for the Atlantic Surfclam and Ocean Quahog Fisheries (FMP) prepared by the Council appear at 50 CFR Part 648.71, and state as follows:

Sec. 648.71 Catch quotas.

(a) *Surfclams*. The amount of surfclams that may be caught annually by fishing vessels subject to these regulations will be specified by the Assistant Administrator, on or about December 1 of each year, within the range of 1.85 to 3.4 million bu (98.5 to 181 million liters).

(1) *Establishing quotas*. (i) Prior to the beginning of each year, the MAFMC, following an opportunity for public comment, will recommend to the Assistant Administrator quotas and estimates of DAH and DAP within the ranges specified. In selecting the quota, the MAFMC shall consider current stock assessments, catch reports, and other relevant information concerning:

- (A) Exploitable and spawning biomass relative to the OY.
- (B) Fishing mortality rates relative to the OY.

- (C) Magnitude of incoming recruitment.
- (D) Projected effort and corresponding catches.
- (E) Geographical distribution of the catch relative to the geographical distribution of the resource.
- (F) Status of areas previously closed to surfclam fishing that are to be opened during the year and areas likely to be closed to fishing during the year.
- (ii) The quota shall be set at that amount that is most consistent with the objectives of the Atlantic Surfclam and Ocean Quahog FMP. The Assistant Administrator may set quotas at quantities different from the MAFMC's recommendations only if he/she can demonstrate that the MAFMC's recommendations violate the national standards of the Magnuson Act and the objectives of the Atlantic Surfclam and Ocean Quahog FMP.

And continue in Sec. 648.71 (b):

(b) Ocean quahogs. The amount of ocean quahogs that may be caught by fishing vessels subject to these regulations shall be specified annually by the Assistant Administrator, on or about December 1, within the range of 4 to 6 million bu (213 to 319.4 million liters), following the same procedures set forth in paragraph (a) of this section for surfclams.

3.1.1. Atlantic Surfclams

Council policy is to set the surfclam quota within the OY range (1,850,000 to 3,400,000 bushels) at a level that will allow fishing to continue at that level for at least 10 years, and within the above constraints the quota may be set taking into account economic information to set the quota to consider net economic benefits over time to consumers and producers, within the framework of greatest national benefit.

The following table presents surfclam quotas since 1990 and the 2000 recommendation voted by the Mid-Atlantic Council in August 1999:

	Surfclams (<u>mill. bu.</u>)
1990 Quota	2.850
1991 Quota	2.850
1992 Quota	2.850
1993 Quota	2.850
1994 Quota	2.850
1995 Quota	2.565
1996 Quota	2.565
1997 Quota	2.565
1998 Quota	2.565
1999 Quota	2.565
2000 Recommendation	2.565

3.1.1.1. Biological Status of the Surfclam Resource

A new survey of the surfclam and ocean quahog resources was conducted in the summer of 1999. However, with the substantial time requirements of computerizing and analyzing all the new data,

assessment information based on the new survey will not be available until late 1999 or the year 2000. Therefore, the best available scientific information on which the quotas for 2000 can be based remains the 1997 survey and the subsequent assessments.

The 1997 survey marked a substantial increase in the efforts made to understand the dynamics and quantify the status of the surfclam and ocean quahog resources off the northeastern United States. Industry vessels donated their time in conducting depletion experiments alongside a NMFS research vessel, which served to improve the accuracy of parameters used in assessment models.

Key findings from the 26th SARC Advisory Report included the following (USDC 1998a):

- The EEZ surfclam resource is at a medium level of biomass and is probably under-exploited overall.
- The vast majority of the catch (>80%) is currently derived from the Northern New Jersey (NNJ) area which contains about 36% of the coast-wide resource. Large fractions of the resource are exploited at low levels (Delmarva containing 25% of the resource) or not at all (Georges Bank containing 26% of the resource).
- From 1991 to 1997, a period for which effort has been reported accurately, landings per unit effort (LPUE) off NNJ declined 30% from 1,063 to 745 kg/hr (138 to 97 bushels/hr).
- Survey age composition data for NNJ and Delmarva indicate that the populations contain at least 18 cohorts, none of which are dominant.
- There appears to be little scope for increased catches in NNJ, given that the fishery now occurs over the entire range of the NNJ portion of the stock, and catch approximately equals production. The fishery could be expanded in the Delmarva area, since that is the one area in the Mid-Atlantic which has significant annual net production. Careful consideration needs to be given to implementing stock-wide quota increases because the additional catch would likely be taken in the NNJ area to the detriment of that fishery.

It should also be noted that the surfclam and ocean quahog resources on Georges Bank remain closed to fishing due to the presence of Paralytic Shellfish Poisoning toxin.

3.1.1.2. Recent Performance of the Surfclam Fishery

Coastwide landings of surfclams totaled 3.16 million bushels (bu) in 1998, a decrease of 5.0% from the 3.32 million bu. landed in 1997. This comes on the heels of an 11.2% decline in landings which occurred the previous year. Reported exvessel value declined 14.3% from \$33.8 million to \$29.0 million dollars. As opposed to landings declines which have occurred in prior years, the current decrease is not due to the lowering of either federal or state quotas, nor a decline in the health or availability of surfclam populations. All indications point to difficulties experienced by the processing sector in selling products containing surfclams in quantities comparable to prior years. Without orders from processors to purchase surfclam shell stock, fishermen in turn must reduce their harvests.

In recent years, surfclams have been harvested from four different jurisdictional areas: the federal EEZ, and the state waters of New Jersey, New York, and Massachusetts. All but Massachusetts have established management regimes which include annual quotas and harvest limits for individual vessels. For the past several years, none of the fisheries with quotas caught their allotted amount.

3.1.1.2.1. The New Jersey Inshore Fishery for Surfclams

New Jersey manages the largest state fishery for surfclams, with an annual quota of 600,000 bushels that has been held constant for several years. New Jersey is unique, however, in defining a season which begins in October of one calendar year and closes at the end of May in the next.

New Jersey Surfclam Fishery				
Season (Oct - May)	Quota (bu)	Landings (bu)	Bushels Unharvested	Percent Unharvested
FY 95/96	600,000	566,120	33,880	6%
FY 96/97	600,000	468,377	131,623	22%
FY 97/98	600,000	467,569	132,431	22%
FY 98/99	600,000	570,852	29,148	5%

Source: New Jersey Division of Fish, Game, and Wildlife

Many vessels in the New Jersey inshore fishery for surfclams also participate in the federal fishery. For the recently completed fishing year (May 1999), only five percent of the quota was left unharvested. This represents a significant improvement relative to the prior two seasons, which saw fully 22% of the quota unharvested each year. Fortunately, vessels experienced virtually no problems in selling their catches in the recently completed fishing year (String pers. comm.). There are 57 licenses for inshore New Jersey with each license receiving 330 tags for cages. Up to three licenses can be combined onto one vessel. For the fishing season completed in May 1999, there were 28 vessels that landed surfclams from New Jersey state waters.

3.1.1.2.2. *The New York Inshore Fishery for Surfclams*

New York inshore waters are divided into two segments: Long Island Sound and Atlantic Ocean waters out to three miles. While there are approximately 100 permits for the Long Island Sound area, the quantity of surfclams landed from that area is very small. With attractive shells of a golden-brown color, these surfclams are often harvested by hand, and sold fresh into sushi and premium bait markets.

The vast majority of New York state waters harvest is from the Atlantic Ocean area, for which there are currently 22 moratorium vessel permits, held by 15 owners (Fox pers. comm.). When a moratorium and quota management were instituted in 1994, there were a total of 25 moratorium vessel permits issued. Three of these permits were canceled at the end of 1995 for failing to meet the minimum harvest requirement of 5,000 bushels per year. (This requirement has since been repealed.)

New York Inshore Quotas and Landings of Surfclams			
Year	Quota (bu)	Harvest (bu)	Percent Over or Under Quota
1990	(none)	720,473	
1991	(none)	713,019	
1992	(none)	719,351	
1993	(none)	856,366	

1994	500,000	523,281	5 % over
1995	500,000	420,855	16 % under
1996	500,000	451,492	10 % under
1997	500,000	389,014	22 % under
1998	500,000	227,000	55% under
1999	500,000	120,864 (first half year)	50% under for first half
Source: NY Dept. of Environmental Conservation			

The average catch from New York waters was approximately 173,000 bushels annually for the 20-year period spanning the 1970's and 1980's. Catches soared in 1990 with implementation of ITQ management in the federal surfclam fishery, as surplus vessels sought alternative areas to fish.

Harvests peaked in 1993 at just over 850,000 bushels, and have since trended downwards. With the apparently shrinking market for surfclams, the black, lower-yielding resource off New York's Atlantic coast has most strongly felt the effects. As of July 1999, more than half of the 22 vessel fleet had been idled for the past six months (Fox pers. comm.). Six vessels fishing for one owner and two for another owner were the only vessels that were consistently fishing. Many could be found either sunk, in a land fill, or tied to the dock for more than the past year.

The New York State Department of Environmental Conservation staffer who heads New York's surfclam program is Dick Fox. In a July 1999 contact he emphasized that the landings decline is not due to any problems associated with the resource. The New York surfclam survey was ongoing at the time, and there are "clams everywhere," an outcome which is similar to what their 1996 survey found. Fox believes that the landings for New York are not higher because the market does not need their clams, and that increases in the Federal quota will translate into a further reduction in the demand for New York surfclams.

NY Atlantic Surfclam Landings: Jan - June Comparison			
Year	First Quarter	Second Quarter	Half-Year Total
1994	119,623	119,251	238,874
1995	106,689	105,063	211,752
1996	117,738	119,053	236,791
1997	112,196	109,928	222,124
1998	76,003	59,339	135,342
1999	65,224	55,640	120,864
Source: NY Dept. of Environmental Conservation			

A comparison of the landings for the first half of each year since 1994 indicates that the significant unemployment currently being experienced by the New York fleet is not completely a seasonal phenomenon. Landings in 1998 were down by almost 40 percent from the same period in prior years

with 1999 showing a similar pattern to 1998.

In recognition of the difficulty which fishermen were having finding a market in 1998 the State of New York waived the 5,000 bushel minimum harvest requirement (in order to maintain a moratorium permit).

3.1.1.2.3. The Federal Surfclam Fishery

The federal fishery for surfclams was conducted by a total of 31 vessels in 1998, a decrease of two vessels from the number participating in 1997 (Table 1). Relative to the 128 vessels reporting harvests of surfclams at the initiation of the ITQ program in 1990, this represents a 76% reduction in this sector of the fleet.

- The harvest of surfclams from federal waters totaled 2.365 million bushels in 1998, falling 7.8% short of the 2.565 million bushel quota.
- A 17% decline in exvessel value is reflected in the most frequently reported 1997 price of \$12.00 per bushel dropping to \$10.00 per bushel in 1998.
- Effort was spread across 2,076 individual trips, harvesting an average 1,139 bushels (35.6 cages) per trip.
- A fleet-wide calculation of Landings Per Unit of Effort (LPUE) showed that the industry average continued stable at approximately 113 bushels per hour in 1998 (Table 1). This rate is essentially unchanged from the prior two years.
- Harvests continue to be concentrated off the coast of New Jersey, with 46% of the catch coming from the “New Jersey Nearshore” (3973) degree square (Table 3). Average LPUE for this square declined only slightly again in 1998, though it is still down substantially from catch rates attained in the late 1980's.
- An important reason for average catch rates holding steady is because the decline in catch rates for areas off New Jersey and Long Island has started to be offset by high catch rates (in excess of 250 bushels per hour) from under-exploited areas off the Delmarva peninsula. The low meat yield from clams in Delmarva have made them less attractive to industry in the past. However, the 263,000 bushel harvest from the “Delaware - Maryland Nearshore” degree square ranks second for the entire East Coast in 1998.

3.1.1.3. Differing Perspectives of the Harvesting and Processing Sectors

3.1.1.3.1. Harvesting Sector

For those entities in the harvesting sector that are not vertically integrated, key motivating factors include:

- Harvesting fisheries products efficiently and at the lowest possible cost.
- Obtaining the highest possible price for the products they sell.

- Retaining a skilled crew to operate fishing vessels and minimize the costs associated with high crew turnover.

Those vessel owners that also own a substantial portion of the allocation which they harvest are additionally motivated to ensure that the value of the allocation itself is maintained. Factors which might influence the resale value of an allocation include the depletion of the biological resource which it represents, thus lowering its market value, or a change in demand for the resource, which could increase or decrease its value.

3.1.1.3.2. Processing Sector

The processors of fishery products tend to have a substantially different set of motivating forces in the environment in which they must do business. High among their concerns are:

- Maintaining steady, and reliable sources of raw materials for their production processes, which helps ensure their ability to satisfy customer orders in a timely manner.
- Obtaining raw materials at the lowest possible price.
- Maintain a production schedule which provides stable employment for their workforce, and reduces the costs of idled plant equipment.

For those participants in the surfclam and ocean quahog industry which do not have a “vertically-integrated” operation (owning both fishing vessels and processing plants), a particular dynamic takes shape. First, as in all fisheries, there are inherent, conflicting interests relative to the market selling price. Fishermen are motivated to obtain as high a price as possible for their catch, and processors are motivated to obtain the raw materials for their processing lines at the lowest possible price. In this way each maximizes the profitability of their operations.

3.1.1.3.3. The Effects of Quotas

Quotas tend to be viewed quite differently by the harvesting and processing sectors as well. For fishermen in an ITQ-managed fishery, quotas can be seen as having both positive and negative aspects. In one sense, they represent an unwelcome cap on potential income. Whatever price they receive for their catch multiplied by their bushel share of the quota represents their maximum gross income for the year.

A more welcome aspect of quotas to fishermen is the price support which may result from limits on the supply of a particular product. Tighter supplies of a fisheries product would give the fishermen who possess that product additional leverage when negotiating prices with processors.

Processors, on the other hand, have reason to view quotas as an additional, unwelcome constraint on the raw materials their business requires. In producing any particular product, there will be a range of “ingredients” which may be utilized in the manufacturing process. Their availability and cost may well vary with the season of the year. The profitability of operations can be enhanced when a manufacturer has the greatest flexibility in the choice of ingredients, and their supply is abundant and cheap.

When governmental bodies impose limits on when and how much of a particular fishery resource can be harvested, they also limit the flexibility which manufacturers have in choosing the least expensive

ingredient (that is of acceptable quality) to use in their products. In the coast wide surfclam and ocean quahog fisheries, annual quotas exist for both species in federal waters, as well as in the state jurisdictions of Maine (for ocean quahogs), New York (surfclams) and New Jersey (surfclams). A seasonal limit also exists in New Jersey state waters for surfclams, where harvests are allowed from October through May.

In negotiating purchase prices with vessel and allocation owners, processors will have the strongest bargaining position when quotas are sufficiently high so as to not be a constraint on their businesses.

3.1.1.4. Probable Economic Impacts

At its August 1999 meeting, the Mid-Atlantic Council voted to recommend a quota of 2.565 million bushels for surfclams in federal waters in 2000. If approved, this would be the sixth year the surfclam quota has remained constant at the 2.565 million bushel level. The impact which this quota would likely have on harvests from federal waters is nil, as landings for surfclams have not been constrained by quotas in any jurisdiction for over two years now. The demand for surfclam products has declined, and at the start of 1999 the industry was straining under the weight of unsold inventory. During quota discussions in August 1999, various industry members stated that the inventory situation had improved substantially. However, preliminary landing statistics as of August 15, 1999 indicated that only 47% of the federal surfclam quota had been harvested, while 62% of the year had passed by.

Feeling the brunt of the market decline has been the market for fried clam strips, which many consumers now avoid due to health concerns over deep-fried foods, and the lower quality of current strip products, which tend to be much smaller than a decade ago, and composed mostly of breeding.

Many of the national restaurant chains have dropped fried clams from their menus as a distinct entree item. Those which do serve fried clams at all tend to do so as an appetizer or a low-cost filler on a "fisherman's platter," which combines clams with scallops, shrimp, and other seafood items on the plate.

3.1.1.4.1. Distributional Impacts, Equity, and Industry Concentration

Given that it is very unlikely that a federal surfclam quota of 2.565 million bushels will be constraining on the industry in 2000, the major impact which the quota will have on individuals will be distributional in nature. Only in the past three years has the Council been confronted with a situation where market demand for surfclams is actually less than the level which would be biologically permissible for sustaining harvests over time. For the past two decades, concerns for resource depletion were always at the forefront of surfclam quota decisions. It is only now that the dual factors of reduced demand and a larger estimate of total stock size have combined to yield the conclusion that the surfclam resource is probably under-exploited overall.

This unusual set of circumstances also poses an unaccustomed dilemma for fishery managers, specifically: how to confront the potential negative economic and social consequences of setting the quota for an ITQ-managed species at a level which may be biologically permissible, yet far in excess of the market's ability to absorb.

An example may help in clarifying the situation. It is conceivable that if a large new bed of ocean quahogs were discovered in deep water, a new quota based solely on biological parameters could be twice what is currently harvested and sold. Market reactions would depend on the shape of the short-

term supply and demand curves, (estimates of which are not currently available). However, it is likely that if the quota were suddenly doubled, prices would fall substantially, and a large percentage of allocation owners who have lesser access to markets would be unable to sell their quota at all that year.

The severity of the financial impact on an industry member who is unable to sell quota will depend on that individual's financial health. Those in a weaker position may be forced to sell their allocation permanently, and leave the industry. To the degree this would contribute to increased concentration in the industry, it presents an additional concern to managers and industry members alike. The surfclam and ocean quahog industry has always had a relatively small number of participants compared to other fisheries.

The point to be made is that while there is currently not an enormous imbalance between the demand for surfclams and the supply available through quotas, an imbalance nonetheless exists today, and the most obvious example of this is the 8% of the 1998 surfclam quota which was left on the floor of the ocean, rather than in bank accounts on shore. When market demand is less than biologically-permissible harvest levels, managers must tread a fine line between 1) setting a quota so low as to unnecessarily restrict supply if demand should pick up in the following year, and 2) setting it so high that a large portion of the allocation holders are forced out of business because low market demand renders the shares they are holding worthless. The latter result would lead to greater concentration in the industry, less competition, and could force the government into taking anti-trust action.

3.1.1.4.2. Council Evaluation

Ultimately, the Council chose to accept a compromise position to hold the surfclam quota constant at 2.565 million bushels. Some industry participants would have preferred raising the quota, while others would have preferred that it be lowered during this period of market oversupply.

One argument that was put forward by processors at the past two quota setting meetings was that the surfclam quota should be raised because major efforts to develop new surfclam-based products and markets would not be funded by investors unless there was sufficient surplus quota available to accommodate new market growth.

The Council is in the difficult position of having to weigh such industry statements as these and determine if they may be taken at face value, or if there is an alternative agenda which they might serve. Quotas which are set far above market needs will provide greater flexibility for processors, and tend to depress the prices they must pay for surfclams and ocean quahogs. The August 1999 meeting was the first at which a processor openly asked the Council for assistance in lowering the market price for surfclams by increasing the quota. This request was made at a time when the exvessel price of surfclams had already fallen 17% from the prior year. Whether these lower prices are being passed along to benefit retail consumers is uncertain.

Processors that also own allocation will see the total number of bushels they have rights to increase as the quota increases, which results in the need to buy fewer bushels from third parties to fill their orders.

3.1.1.4.3. Council Recommendation

In making its recommendation to maintain the surfclam quota at its current level, the Council weighed

several other alternative options that are discussed in Section 3.2. Key in its consideration was the fact that although the 1997 survey and subsequent assessments are state-of-the-art, there were numerous changes in the survey technology and the accompanying assessment methodology. Thus, the 1998 assessments represent a point estimate for each species that is not directly comparable to earlier work. The 1999 survey and the upcoming assessments should go far to confirm the 1998 assessments, and reduce the uncertainty surrounding future quota decisions.

When combined with the fact that industry continues to fail to utilize all existing state and federal quotas, the Council concluded that maintaining the current level was the most likely to minimize risks and provide the greatest overall benefit.

3.1.1.5. Environmental Impacts of Maintaining the Current Surfclam Quota

The impacts of maintaining the current surfclam quota are discussed in the companion document: "Environmental Assessment: 2000 Surfclam and Ocean Quahog Quotas."

3.1.2. Ocean Quahogs

Council policy is to set the ocean quahog quota within the OY range (4,000,000 to 6,000,000 bushels) at a level that will allow fishing to continue at that level for at least 30 years, and within the above constraints the quota may be set taking into account economic information to set the quota to consider net economic benefits over time to consumers and producers, within the framework of greatest national benefit.

The following table presents ocean quahog quotas since 1990 and the 2000 recommendation voted by the Mid-Atlantic Council in August 1999:

	Ocean Quahogs (mill. bu.)
1990 Quota	5.300
1991 Quota	5.300
1992 Quota	5.300
1993 Quota	5.400
1994 Quota	5.400
1995 Quota	4.900
1996 Quota	4.450
1997 Quota	4.317
1998 Quota	4.000
1999 Quota	4.500
2000 Recommendation	4.500

3.1.2.1. Biological Status of the Ocean Quahog Resource

Key findings from the 27th SARC Advisory Report included the following (1998b):

- The ocean quahog resource in surveyed EEZ waters from Southern New England (SNE) to Delmarva (DMV) is at a medium-high level of biomass and, according to the existing overfishing definition, would be considered under-exploited at the scale of the management unit. However, CPUE has declined substantially in localized areas.

- A revised biomass estimate for 1997 indicates that current catch quotas are consistent with a supply policy of 54-76 years, which is substantially more conservative than the present 30-year policy. Quotas consistent with the 30-year policy would be about 8.0 million bushels for 1999 and about 7.8 million bushels for 2000, under the assumption of a survey dredge efficiency of 0.43. However, local declines may occur if the fishery concentrates in certain locations with high biomass. Given the past performance of this fishery, effort is directed away from areas as soon as CPUE declines by 30-40%, so the number of areas profitable for harvesting may become limiting years before the stock undergoes a major decline in biomass.

3.1.2.2. Recent Performance of the Ocean Quahog Fishery

Landings of ocean quahogs from the high-volume fishery outside the State of Maine totaled 3.911 million bushels in 1998, a decrease of 8.6% from the prior year. Most of the reduction was due to the federal quota for ocean quahogs being reduced by 7% in 1998. However, a small portion of the federal quahog quota (2.6%) was also left unharvested by the industry. Reported exvessel value declined 7.1% from \$17.7 million dollars to \$16.5 million in 1998.

In contrast to the surfclam component of this industry, the federal ocean quahog quota was binding on the industry in both 1996 and 1997, with 99% harvested. Since there are not significant resources available from state waters, the fleet does not have the additional options which exist in the sources of surfclam supply.

3.1.2.2.1. The Federal Ocean Quahog Fishery

A total of 24 vessels participated in the 1998 fishery for ocean quahogs in federal waters apart from Maine, a surprising drop of 23% from the 31 vessels which were harvesting in 1997. This represents a dramatic continuation in the exodus from the ocean quahog fishery, which has seen the fleet contract by fully one-third in only two years. Federal ocean quahog vessel numbers had been stable at 36 for the prior four years, back to 1993.

- After two years of harvesting virtually all of the federal ocean quahog quota, the industry left 2.6% of the 1998 quota in the ocean. Exvessel prices remained in the vicinity of \$4.25 per bushel for much of 1997 and 1998, though recent verbal reports from industry indicate that prices have increased in 1999 to reach \$4.75 per bushel.
- Effort in 1998 was comprised of 1,957 individual trips, which harvested an average 1,992 bushels (62.3 cages) per trip.
- A fleet-wide calculation of Landings Per Unit of Effort showed that the average yield declined by 2.4% in 1998, from 126 bushels per hour of fishing to 123 (Table 2).
- Harvests of ocean quahogs continue to be distributed over a larger geographic area than surfclams, though over one-third of the 1998 catch came from the degree square off of eastern Long Island (Table 4). LPUE increased modestly in this square, while the total harvest surged more than 530,000 bushels from 1997.
- Quahog harvests in most other areas declined from prior years. The areas south of Martha's Vineyard and Block Island saw modest increases in LPUE, while the traditionally important areas south of Nantucket Shoals (4069) and in the New Jersey Nearshore (3973) region saw sharp declines

in productivity.

- Limits on the continued movement of the fleet eastward are still impeded by the closure of surfclam and ocean quahog beds east of the 69 degree line, due to the presence of PSP toxin. Vessels have responded by pursuing ocean quahogs in the deeper waters further from shore.

3.1.2.3. Probable Economic Impacts

The 4.5 million bushel recommendation for 2000 represents no change from the federal quota set for 1999. The industry did not harvest all of the 1998 quota, and preliminary landing statistics as of August 15, 1999 indicated that only 53% of the federal ocean quahog quota had been harvested, while 62% of the year had passed by. Given these indicators and conditions, it is unlikely that a 2000 quota of 4.5 million bushels will constrain, or have a significant economic impact on the industry.

3.1.2.4. Environmental Impacts

The impacts of increasing the ocean quahog quota to 4.5 million bushels are discussed in the companion document: "Environmental Assessment: 2000 Surfclam and Ocean Quahog Quotas."

3.1.2.5. Quota for the Maine Ocean Quahog Fishery

The Council voted to recommend that the Maine ocean quahog quota remain unchanged for 2000 at the initial maximum quota level of 100,000 bushels. This quota pertains to the zone of both state and federal waters off the eastern coast of Maine north of 43 degrees 50 minutes north latitude. Amendment 10 established management measures for this small artisanal fishery in May of 1998, and specified an initial maximum quota of 100,000 bushels. This same level was continued again in 1999. Representatives of Maine all encouraged the Council to maintain that quota for 2000 as well. Issues of under-reporting of the catches have apparently improved since last fall, when Maine wrote all their permit holders explaining that they needed to report the landings to NMFS. It is hoped that the efforts of ACCSP (Atlantic Coastal Cooperative Statistics Program) will also help improve any misreporting of data.

Landings statistics for the Maine ocean quahog fishery totaled less than 75,000 bushels annually for 1997 and 1998. Preliminary landing statistics as of August 15, 1999 indicated that only 52% of the Maine ocean quahog quota had been harvested, while 62% of the year had passed by. Thus, it does not appear that maintaining the quota at its current level for another year will be constraining to the fishery or endanger the resource. Setting a quota based on a scientific survey of the ocean quahog resource off Maine is highly recommended, however to date, funds have not been available to support such an effort.

3.1.3. Other Management Actions: Suspend Minimum Size Restriction on Surfclams for 1999

The Surfclam and Ocean Quahog FMP includes a provision for a minimum size limit of 4.75 inches on surfclams, which may be used to protect new year classes from harvest before they have reached an optimal size. The provision is written such that a minimum size will automatically be in effect unless the Council takes the active step of suspending it each year.

The current stock is comprised primarily of large, adult individuals, with few small individuals apparent from landings in most areas. Reinstating a minimum size under these conditions would result in greater harm than benefit, as it would require the industry to use "sorting" machines which will often damage

undersized clams as it routes them back overboard.

It is, therefore, the Council's recommendation that the surfclam minimum size limit be suspended for 2000, as has been done since 1990. Continuing the suspension will have no impact on the current fishery.

3.2. Alternatives to the Proposed Actions

3.2.1. Alternative Quotas for the Federal Surfclam Fishery in 2000

The Council staff identified a total of 5 potential surfclam quota alternatives for consideration:

Proposed 2000 Surfclam Quota Alternatives			
	<u>Description</u>	<u>Quota (bushels)</u>	<u>% Change from 1999</u>
Alt. S1	Min. Allowable	1.850 million	28% Decrease
Alt. S2	1998 Harvest Level	2.365 million	8% Decrease
Alt. S3**	Status Quo	2.565 million	No Change
Alt. S4	Slight Increase	2.700 million	5% Increase
Alt. S5	Max. Allowable	3.400 million	33% Increase
** Council and Staff Recommendation			

Summary of Impacts for Proposed 2000 Surfclam Quota Alternatives						
Quota Level (bushels)	% Difference Between Quota and 1998 Actual Harvest	Risk of Biological Overexploitation	Risk to Bottom Habitat from Dredging	Risk of Restraining Harvest Without Offsetting Benefits	Likely Impact on Exvessel Prices	Risk of Business Failure from Unmarketable Allocation
1.850 mill.	- 22%	Very Low	Very Low	High	Increase	Low
2.365 mill.	0%	Very Low	Very Low	Moderate	No Change	Moderate
2.565 mill.**	+ 8%	Low	Low	Low	Decrease	Moderate
2.700 mill.	+ 14%	Low	Low	Very Low	Decrease	High
3.400 mill.	+ 44%	Moderate	Low	None	Large Decrease	Very High
** Council and Staff Recommendation						

3.2.1.1. (Alt. S1) - Minimum Allowable Surfclam Quota - 1.850 Million Bushels

The minimum allowable quota specified in the current OY range is 1.850 million bushels of surfclams. Adoption of this quota would represent a 28% decrease from the current 2.565 million bushel quota, and a 22% decrease from the 1998 harvest level of 2.365 million bushels.

Since the industry has demonstrated that it has the ability to market surfclam products in excess of 1.850 million bushels, adoption of this alternative would clearly be binding on the industry, and result in lower overall harvests. The only positive aspects of such an action are that all allocation holders would be able to market all their surfclams, and these same owners would welcome any increase in exvessel prices that might ensue.

However, a reduction in quota of this magnitude would have a significant negative impact on overall revenues to the harvesting sector, as price increases would not compensate for the reduction in sales volume. The processing sector would not perceive any benefits from a quota this low. Finally, there is no biological basis for such a reduction in landings, as the surfclam resource is not considered to be in danger of overexploitation at current harvest levels.

Therefore, this alternative is not recommended for adoption.

3.2.1.2. (Alt. S2) - 1998 Harvest Level - 2.365 Million Bushels

The reasoning behind this alternative would be to attempt to reduce the oversupply of surfclams by lowering the quota to the last *demonstrated* level of federal surfclam utilization by the industry. A quota of 2.365 million bushels for surfclams equates to the harvest level attained in 1998, the most recently-completed full year.

It is impossible to predict the precise harvest level which industry would be able to utilize in the coming year, leaving no surplus or underage. If this could be done, then there would be no loss of revenue to the industry as a whole by lowering the quota to this point, since the available supply would exactly match what could be utilized by buyers.

However, there would be a distributive impact, in that all allocation holders would have a market for their share of the quota. When the quota is set higher than market needs, then those individuals with preferred contracts or greater access to markets will be able to sell their shares, and less fortunate individuals will not. If the market remains closed to these individuals for a substantial period of time, then they will be forced out of business.

The Council ultimately concluded that the risk of unnecessarily constraining supply was greater than the risk of potential bankruptcies, and voted to maintain the surfclam quota at 2.565 million bushels for 2000.

3.2.1.3. (Alt. S3) - Status Quo Surfclam Quota - 2.565 Million Bushels

The status quo alternative is the preferred alternative recommended by the Council. It is discussed in section 3.1.1.4. of this document.

3.2.1.4. (Alt. S4) - Slight Increase in Surfclam Quota - 2.700 Million Bushels

This alternative would set the surfclam quota at 2.700 million bushels for the year 2000, an increase of 5% over the status quo. The justification for this alternative would be to ensure that surfclam supplies are sufficient to meet a potential surge in demand if one should arrive in the future. Additionally, processors have argued that the surfclam quota should be raised because major efforts to develop new surfclam-based products and markets would not be funded by investors unless there was sufficient surplus

quota available to accommodate new market growth.

The Council ultimately chose not to recommend an increase in the surfclam quota at this time for two principal reasons. First, there continues to be an excess supply of surfclams from all jurisdictions, and an increase could exacerbate the negative distributional effects currently being felt by the industry. Second, the Council is wary of increasing the surfclam quota prior to obtaining the results from the 1999 survey and subsequent assessment. The 1997 survey and assessment utilized new techniques and methodologies that are not comparable to prior years, and hence represent a point estimate in time. Uncertainty relative to the positive biological conclusions resulting from that effort will be much reduced if confirmed by the 1999 survey and subsequent assessment.

3.2.1.5. (Alt. S5) - Maximum Allowable Surfclam Quota - 3.40 Million Bushels

Adopting the maximum allowable quota of 3.40 million bushels for surfclams would allow for a 33% increase in harvest. As described in prior sections, given the current oversupply condition of the surfclam fishery, it is highly unlikely that such a massive increase in the quota could be utilized by the industry. The primary effects would be to further drive down the exvessel price of surfclams, and render a large portion of the 2000 surfclam allocation worthless.

This alternative received virtually no support during quota deliberations, and is not recommended by the Council.

3.2.1.6. Environmental Impacts

The impacts of alternative federal surfclam quotas are discussed in the companion document: "Environmental Assessment: 2000 Surfclam and Ocean Quahog Quotas."

3.2.2. Alternative Quotas for the Federal Ocean Quahog Fishery in 2000

The Council staff identified a total of 5 potential ocean quahog quota alternatives for consideration:

Proposed 2000 Ocean Quahog Quota Alternatives			
	<u>Description</u>	<u>Quota (bushels)</u>	<u>% Change from 1999</u>
Alt. Q1	Min. Allowable	4.000 million	12% Decrease
Alt. Q2	Partial Reduction	4.250 million	6% Decrease
Alt. Q3**	Status Quo	4.500 million	No Change
Alt. Q4	Slight Increase	4.750 million	6% Increase
Alt. Q5	Max. Allowable	6.000 million	33% Increase
** Council and Staff Recommendation			

Summary of Impacts for Proposed 2000 Ocean Quahog Quota Alternatives							
Quota Level (bushels)	% Difference Between Quota and 1998 Actual Harvest	Risk of Biological Overexploitation	Risk to Bottom Habitat from Dredging	Risk of Restraining Harvest without Offsetting Benefits	Likely Impact on Exvessel Prices	Risk of Business Failure from Unmarketable Allocation	Risk of fishery becoming uneconomical due to low resource density
4.000 mill.	+ 3%	Very Low	Very Low	Low - Moderate	Increase	Very Low	Moderate
4.250 mill.	+ 9%	Low	Very Low	Low	Increase	Low	Moderate
4.500 mill.**	+ 16%	Low	Low	Low	No Change	Low	Moderate
4.750 mill.	+ 22%	Low	Low	Very Low	No Change	Moderate	Moderate - High
6.000 mill.	+ 54%	Moderate	Moderate	None	Decrease	Very High	High
** Council and Staff Recommendation							

3.2.2.1. (Alt. Q1) - Minimum Allowable Ocean Quahog Quota - 4.000 Million Bushels

The minimum allowable quota specified in the current OY range is 4.0 million bushels of ocean quahogs. Adoption of this quota would represent a 12% decrease in harvest from the current 4.5 million bushel quota, and a 2.6% *increase* from the 1998 harvest level of 3.897 million bushels.

This alternative would take the most conservative approach to managing the fishery that is currently available to the Council. The justification for such an approach lies first in the fact that there is still significant uncertainty as to how much of the remaining ocean quahog resource will be economical to harvest. While research indicates that vast quantities of ocean quahogs remain in the ocean, we have seen the industry clear a path along the ocean floor, removing the densest concentrations of ocean quahogs, and then moving on to the north and east. They have reached the 69 degree line which marks the area closed for PSP on Georges Bank, and have veered into deeper waters in response. Previously, these deeper waters had not been surveyed by the government, leaving the extent of the ocean quahog resources there as an unknown. However the 1999 survey conducted a series of new tows in water deeper than 40 fathoms. Initial impressions from researchers on the survey indicated that no significant, unexploited beds were discovered.

As a low-priced, bulk food commodity, ocean quahogs must be harvested quickly, efficiently, and in large quantities in order to return a profit to harvesters. As stated in the SARC report, "Given the past performance of this fishery, effort is directed away from areas as soon as CPUE declines by 30-40%, so the number of areas profitable for harvesting may become limiting years before the stock undergoes a major decline in biomass."

Additional constraints on the future harvest of ocean quahogs include the need to return to port before their perishable cargo spoils, thus limiting the ability of a captain to compensate for working on sparser beds by staying on the grounds for a longer period of time. Substantial portions of the ocean quahog beds which have been left untouched are on rocky bottom, which poses the threat of gear damage or loss to vessels.

The second major area of justification for lower ocean quahog quotas lies in uncertainties associated with

the results of the 1997 survey and assessment (USDC 1998b). Specifically:

- Dredge efficiencies for both surfclams and ocean quahogs are calculated only from the 1997 survey year and as such are purely point estimates.
- The spatial extent of the two resources is not fully sampled.
- Recruitment dynamics for both resources are not fully understood.
- Natural mortality is not precisely known and minor changes have major implications.
- Impacts of variations in growth rates throughout the populations are unquantified.
- Small changes in key parameters could significantly alter projection results.

These uncertainties have greater significance for the ocean quahog resource than the surfclam resource because of the differences in their life history. Ocean quahogs are a much longer-lived animal, having been likened to “miniature redwood trees.” Hence, they will take a much longer time to repopulate areas that have been depleted. Thus far, we have seen no evidence of ocean quahog populations rebuilding in areas that have been heavily fished. Industry members also have expressed concern for the ocean quahog resource, indicating that they have not seen evidence of young ocean quahogs on their fishing trips, while their gear is quite capable of collecting small individuals.

The two exceptions to this absence of new ocean quahog recruitment are on Georges Bank, and in the Maine fishery. Young quahogs were discovered on Georges Bank by the 1999 survey vessel (MAFMC 1999b), and have been in evidence off Maine for some time. Georges Bank has been closed to both surfclam and ocean quahog fishing since 1990 due to the presence of PSP toxin.

Ultimately, the Council voted not to recommend a reduction in the ocean quahog quota at this time, but to maintain the status quo for another year, pending the results of the next assessment. That information will be key in reducing the uncertainty surrounding the biological status of the resource.

3.2.2.2. (Alt. Q2) - Partial Reduction in Ocean Quahog Quota - 4.250 Million Bushels

In specifying alternative quota options for the year 2000, one goal was to include options which represented modest changes from the status quo (on the order of 5 to 8 percent), and to allow for increases as well as decreases in an equitable fashion.

The “partial reduction” option chosen for the ocean quahog quota was 4.25 million bushels, which corresponds to the midpoint between the status quo (4.5 million bushels) and the minimum allowable (4.0 million bushels). This alternative represents a 6% reduction from the current quota, and a 9.1% *increase* from the 1998 harvest level.

All of the discussion in the prior alternative relative to reductions of the federal ocean quahog quota are applicable to this alternative as well. Similarly, the Council chose not to recommend a reduction at this time, pending the results of the next assessment.

3.2.2.3. (Alt. Q3) - Status Quo Ocean Quahog Quota - 4.500 Million Bushels

The status quo alternative is the preferred alternative recommended by the Council. It is discussed in section 3.1.2.3. of this document.

3.2.2.4. (Alt. Q4) - Slight Increase in Ocean Quahog Quota - 4.750 Million Bushels

An alternative quota of 4.750 million bushels was specified in order to provide for a "slight increase" in the 2000 ocean quahog quota. It represents a 6% increase above the current quota, and a 22% increase above the 1998 harvest level.

Given the concerns expressed in the prior sections, and the fact that there is little likelihood of the industry being able to utilize an increase in the ocean quahog quota, there was negligible support for this alternative in public quota discussions.

Therefore, this alternative is not recommended for adoption.

3.2.2.5. (Alt. Q5) - Maximum Allowable Ocean Quahog Quota - 6.000 Million Bushels

Adopting the maximum allowable quota of 6.00 million bushels for ocean quahogs would allow for a 33% increase in harvest. As described in prior sections, this alternative would not respond to concerns relative to the longer term economic viability of the ocean quahog fishery, nor the uncertainties relative to the most recent biological assessment. The industry does not have a market available to absorb such a massive increase in landings, and may not have the vessel capacity necessary to bring them all to shore. (Two of the most productive ocean quahog vessels sank in January 1999, and have not been replaced.) The primary effects of a large quota increase would be to place downward pressure on the exvessel price of ocean quahogs, and render a large portion of the 2000 ocean quahog allocation worthless.

This alternative received virtually no support during quota deliberations, and is not recommended by the Council.

3.2.2.6. Environmental Impacts

The impacts of alternative federal ocean quahog quotas are discussed in the companion document: "Environmental Assessment: 2000 Surfclam and Ocean Quahog Quotas."

3.2.3. The Alternative of Not Suspending the Surfclam Minimum Size Limit in 2000

There is only one alternative to suspending the surfclam minimum size limit for 2000, and that is allowing the size limit to take effect. Each year the Council must take the active step of suspension, or a minimum size of 4.75 inches will automatically go into effect as of January 1. The current regulations read as follows:

§ 648.72 Minimum surf clam size.

(a) Minimum length. The minimum length for surf clams is 4.75 inches (12.065 cm).

(b) Determination of compliance. No more than 50 surf clams in any cage may be less than 4.75 inches (12.065 cm) in length. If more than 50 surf clams in any inspected cage of surf clams are less than 4.75 inches (12.065 cm) in length, all cages landed by the same vessel from the same trip are deemed to be in violation of the minimum size restriction.

(c) Suspension. Upon the recommendation of the MAFMC, the Regional Administrator may suspend annually, by publication in the Federal Register, the minimum shell-height standard, unless discard, catch, and survey data indicate that 30 percent of the surf clams are smaller than 4.75 inches (12.065 cm) and the overall reduced shell height is not attributable to beds where the growth of individual surf clams has been reduced because of density dependent factors.

(d) Measurement. Length is measured at the longest dimension of the surf clam shell.

The minimum size provision for the surfclam fishery is a measure that is most appropriate when a large proportion of the resource is comprised of smaller, younger surfclams. Its application can help ensure the continued viability of a young, or recovering resource by delaying their harvest until they have had multiple opportunities to spawn. It is also intended to improve the overall meat yield from a fishery by postponing harvest until after the rapid growth phase which occurs in the adolescence of most species.

The condition of having a large portion of the resource in an immature state occurred in the surfclam fishery following the anoxia event in the summer of 1976. Low levels of dissolved oxygen in the water off the coast of New Jersey killed large portions of the surfclam resource available at the time. In the subsequent years the Mid-Atlantic Council implemented a series of management measures for surfclams. These included quarterly harvest quotas, a moratorium on new vessels entering the fishery, effort limitations, reporting requirements, closed areas, and an initial minimum size limit of 5.5 inches.

Unfortunately, in addition to the desired effect, each of these measures also produced some negative side effects. Quarterly quotas that were shared among all vessels still motivated a race to fish as vessels sought to harvest as much as possible before the quota was reached and the fishery closed. The vessel moratorium made the replacement of ageing vessels difficult and contentious. Effort limitations which limited the amount of time a vessel could operate were expensive to enforce and costly to vessel owners in the forced down-time of their vessels. Closed nursery areas were very expensive to enforce because they required the use of Coast Guard cutters or surveillance aircraft, and it is considered likely that the stunting of the surfclam resource off Chincoteague, Virginia was contributed to by the area closure.

Minimum size limits are also subject to their share of unintended consequences. The minimum size for surfclams was generally favored by processors because it obliged fishermen to bring them the most profitable, high-yielding clams. However, vessel owners were subject to fines if their catches were found to be in violation, and resource benefits are muted when captains are unable to avoid small individuals, and are forced to discard them.

The culling out of small clams is most often accomplished with sorting machines, which will direct clams across a series of parallel metal rollers, allowing the smaller individuals to fall between the rollers and be shunted back overboard. Fracture of the clam shell during this process is common, and a significant portion of the animals returned to the ocean will not survive.

In the 1998 surfclam logbook data, the average reported discard rate was 2%, and the highest reported

rate was 15%. In the last assessment, gear mortality was assumed to be 10% of landings (animals killed from the dredge passing over them), and discard mortality an additional 10% of landings. Numbers of this magnitude are not suggestive of a population dominated by small individuals. Moreover, assessment figures continue to indicate that the stock is comprised primarily of large, adult individuals. Reinstating a minimum size under these conditions would result in greater harm than benefit, because it would result in higher discard mortality through the expanded use of sorters, as vessel owners seek to minimize the risk of fines.

It is, therefore, the Council's recommendation that the surfclam minimum size limit be suspended for 2000, as has been done since 1990. Continuing the suspension will provide substantial benefits through maintaining a low discard mortality rate, while giving up little in the way of increased survival of juveniles.

4. DETERMINATION OF A SIGNIFICANT REGULATORY ACTION

The proposed action does not constitute a significant regulatory action under Executive Order 12866 for the following reasons: (1) It will not have an annual effect on the economy of more than \$100 million. Based on federal logbook reports, the total value of the EEZ surfclam fishery was \$20.2 million in 1998, and the total value of the EEZ ocean quahog fishery was \$18.4 million. Hence, with a total value of \$38.6 million between the two fisheries, it is not possible for any regulation which the federal government might issue to exceed the \$100 million impact threshold. The proposed actions are necessary to maintain the harvest of surfclams and ocean quahogs at sustainable levels. The proposed action benefits in a material way the economy, productivity, competition and jobs. The proposed action will not adversely affect, in the long-term, competition, jobs, the environment, public health or safety, or state, local, or tribal government communities. (2) The proposed actions will not create a serious inconsistency or otherwise interfere with an action taken or planned by another agency. No other agency has indicated that it plans an action that will affect the Atlantic surfclam or ocean quahog fisheries in the EEZ. (3) The proposed actions will not materially alter the budgetary impact of entitlements, grants, user fees, or loan programs or the rights and obligations of their participants. (4) The proposed actions do not raise novel legal or policy issues arising out of legal mandates, the President's priorities, or the principles set forth in this Executive Order.

4.1 Conclusion

Due to the lack of meeting any of the four criteria described above, it is determined that the proposed 2000 quotas for the surfclam and ocean quahog fisheries do not constitute a "significant" regulatory action.

5. REVIEW OF IMPACTS RELATIVE TO THE REGULATORY FLEXIBILITY ACT

5.1. Introduction

The purpose of the Regulatory Flexibility Act (RFA) is to minimize the adverse impacts from burdensome regulations and record keeping requirements on small businesses, small organizations, and small

government entities. The category of small entities likely to be affected by the proposed plan is that of commercial Atlantic surfclam and ocean quahog fishermen. The impacts of the proposed action on the fishing industry and the economy as a whole were discussed above. The following discussion of impacts centers specifically on the effects of the proposed actions on the mentioned small businesses entities.

5.2. Determination of Significant Economic Impact on a Substantial Number of Small Entities

The Small Business Administration (SBA) defines a small business in the commercial fishing sector as a firm with receipts (gross revenues) of up to \$2.0 million. According to federal logbook reports, there were a total of 47 vessels harvesting either surfclams or ocean quahogs in the EEZ outside the State of Maine during 1998. The breakdown of their involvement in each fishery was as follows:

<u>Species Harvested</u>	<u>No. Vessels</u>
surfclams only	23
ocean quahogs only	16
<u>both surfclams and ocean quahogs</u>	<u>8</u>
Total	47

Average 1998 gross income for surfclam harvests was \$650,919 per vessel, and \$685,573 per vessel for ocean quahog harvests. In the small artisanal fishery for ocean quahogs in Maine, 39 vessels reported harvests in the clam logbooks, with an average value of \$48,629 per boat. All of these vessels readily fall within the definition of a small business.

According to guidelines on regulatory analysis of fishery management actions, a "substantial number" of small entities is more than 20 percent of those small entities engaged in the fishery. Since the proposed action will directly and indirectly affect all of these vessels, the "substantial number" criterion will be met.

Economic impacts on small business entities are considered to be "significant" if the proposed action would result in any of the following: a) a reduction in annual gross revenues by more than 5 percent; b) an increase in total costs of production by more than 5 percent as a result of an increase in compliance costs; c) an increase in compliance costs as a percent of sales for small entities at least 10 percent higher than compliance costs as a percent of sales for large entities; d) capital costs of compliance represent a significant portion of capital available to small entities, considering internal cash flow and external financing capabilities; or, e) as a "rule of thumb," 2 percent of small businesses entities being forced to cease business operations.

5.3. Analysis of Economic Impacts

5.3.1. Does this action result in revenue loss of >5% for > 20% of the participants?

5.3.1.1. Atlantic Surfclam Quota

The Mid-Atlantic Council is recommending no change in the 2000 quota for surfclams in federal waters. There continues to be a surplus of surfclam quota available in both state and federal jurisdictions. Vessels are voluntarily leaving this surplus quota unharvested because they have been unable to find a market for it.

Maintaining the quota at its current level will not directly reduce the exvessel revenues of any industry participant through governmental restrictions on access to the resource. Other aspects and implications of the quota action are discussed in Section 5.3.4.

5.3.1.2. Ocean Quahog Quota

The Mid-Atlantic Council is recommending no change in the 2000 quota for ocean quahogs in federal waters. The market for ocean quahogs is in better condition than surfclams, resulting in only a small quantity of unharvested quota in 1998. Maintaining the quota at its current level will not directly reduce the exvessel revenues of any industry participant.

5.3.1.3. Maine Ocean Quahog Management Area

The Mid-Atlantic Council is recommending no change in the 2000 quota for the Maine ocean quahog management area. Currently set at 100,000 bushels, 28% of the 1998 quota was left unharvested. Maintaining the quota at its current level will not directly reduce the exvessel revenues of any industry participant.

5.3.1.4. Suspension of Surfclam Minimum Size Limit

The Mid-Atlantic Council is recommending the continued suspension of the surfclam minimum size limit for 2000. This action should increase the profitability of participating in the surfclam fishery for all vessels, as it eliminates the need to purchase and maintain costly sorting machinery. Discussed in Section 3.2.3., the imposition of a size limit in the surfclam fishery is only advisable when the resource is comprised of predominantly small, juvenile individuals.

5.3.2. Does this action result in an increase in compliance costs (annualized capital, operating, reporting, etc.) of >5% for > 20% of the participants?

5.3.2.1. Atlantic Surfclam Quota

The costs of compliance with these regulations remain unchanged from prior years. Therefore, there should be no increase in compliance costs resulting from the recommended 2000 surfclam quota.

5.3.2.2. Ocean Quahog Quota

The costs of compliance with these regulations remain unchanged from prior years. Therefore, there should be no increase in compliance costs resulting from the recommended 2000 ocean quahog quota.

5.3.2.3. Maine Ocean Quahog Management Area

The costs of compliance with these regulations remain unchanged from prior years. Therefore, there should be no increase in compliance costs resulting from the recommended 2000 Maine ocean quahog area quota.

5.3.2.4. Suspension of Surfclam Minimum Size Limit

The costs of compliance with these regulations remain unchanged from prior years. Therefore, there should be no increase in compliance costs resulting from the recommended 2000 suspension of the surfclam minimum size limit.

5.3.3. Does this action result in 2% of the entities ceasing operations?

5.3.3.1. Atlantic Surfclam Quota

The Mid-Atlantic Council is recommending no change in the 2000 quota for surfclams in federal waters. The weak market for surfclam products resulted in 8% of the 1998 allocation unable to be sold. This inability to sell one's products constitutes a hardship for those affected individuals, which could lead to business failures if the situation persists over a period of time.

Reducing the annual quota could serve to restrict overall supply to the point where no surplus existed, and hence ensure that all quota is marketable. This action would reduce the risk of business failures. However, it would also represent an unwelcome market intrusion by those portions of industry that have greater market access, and the capability of selling higher quotas. It would also have the affect of bolstering exvessel prices for surfclams, which would be viewed favorably by allocation owners, and negatively by processors.

Maintaining the surfclam quota at its current level for 2000 is unlikely to decrease supply sufficiently to alleviate the oversupply condition. Whether this will result in business failures in 2000 is uncertain, and is discussed further in Section 5.3.4.

5.3.3.2. Ocean Quahogs Quota

The Mid-Atlantic Council is recommending no change in the 2000 quota for ocean quahogs in federal waters. Given that there is closer balance between supply and demand in the market for ocean quahog products, it is not anticipated that this action will negatively impact the number of business entities.

5.3.3.3. Maine Ocean Quahog Management Area

The Mid-Atlantic Council is recommending no change in the 2000 quota for the Maine ocean quahog management area. It is not anticipated that this action will negatively impact the number of business entities.

5.3.3.4. Suspension of the Surfclam Minimum Size Limit

It is not anticipated that the suspension of the surfclam minimum size limit will have anything other than a favorable impact on the number of business entities.

5.3.4. 2000 Surfclam Quota Deemed "Not Significant" Impact

The Council is recommending no change in the 2000 quota for surfclams. If all other aspects of the

surfclam fishery were to remain constant as well, such as ex-vessel prices and the quantity of surfclams supplied from state waters, then there would be no economic impact from the quota decision.

As discussed in Section 3, there is substantial uncertainty as to whether all other aspects of the surfclam fishery will remain constant through 2000. An oversupply condition has existed in the market for surfclams for several years, and led to a 17% decrease in exvessel price between 1997 and 1998. Large inventories of surfclams were reported to have build up throughout 1998, but had been largely eliminated by mid-1999. Whether exvessel prices will continue to fall in 2000 is unknown.

One of the questions which the Council faced was whether it should “intervene” in the market for surfclams, and lower the quota for 2000 even though it is not biologically necessary. As discussed in Section 3.2.1., the case for such a decrease lies in the benefits that may result from reducing the oversupply condition which currently exists in the surfclam market. If such an effort were successful, then more of the allocation holders would be able to sell their quota for 2000, and the risk of business failures and an increase in industry concentration would be reduced.

Such an action is opposed by most of the processing sector, as it would tend to support the prices they must pay to vessels for surfclams, and hence increase their costs for raw materials.

The other question facing the Council was whether to increase the federal surfclam quota, in spite of the fact that even the existing quota was not being harvested by the industry. Selected individuals in the processing sector advocated this approach, in an effort to drive down exvessel prices, and theoretically stimulate investment in new surfclam-based products.

Much of the fate of this industry lies outside the control of the government, and in the hands of the processing sector. It has been their failure to produce and successfully market surfclam-based products which has brought about the current oversupply condition, and consequently the possibility of business failures in both the processing and harvesting sectors.

The Council has no ability to forecast the number of entities who may choose to sell their allocations in the surfclam fishery due to the decline in the market which has occurred. Nor could their decision be attributed with any certainty to the 2000 quota decision, as opposed to other factors and expectations in the marketplace.

Therefore, it is concluded that the Council's recommendation of "no change" in the 2000 surfclam quota will have no significant impact on small businesses.

5.3.5. 2000 Ocean Quahog Quota Deemed "Not Significant" Impact

The Mid-Atlantic Council has recommended “no change” in the ocean quahog quota for 2000. As with the quota for surfclams, the industry is currently not utilizing all of the existing quota for ocean quahogs. Therefore, it is concluded that there will be no significant negative impact on small businesses.

5.3.6. 2000 Maine Ocean Quahog Area Quota Deemed "Not Significant" Impact

The Mid-Atlantic Council has recommended “no change” in the Maine ocean quahog area quota for 2000. Therefore, it is concluded that there will be no significant negative impact on small businesses.

5.3.7. Indirect Impacts

A required component for preparation of this analysis under the Regulatory Flexibility Act is identification of the industries and economic sectors that will either be directly or indirectly affected by the proposed regulation. In addition to commercial fishing vessels, this information is specifically provided for the affected economic sectors for the commercial fishing industry in the following Table 1.