

**FINAL**

**FRAMEWORK ADJUSTMENT #1**

**to the**

**SEA SCALLOP FISHERY MANAGEMENT PLAN**

**AS AMENDED**

**March 17, 1994**

**Prepared by**

**New England Fishery Management Council**

**in consultation with**

**Mid-Atlantic Fishery Management Council**

**South Atlantic Fishery Management Council**

**National Marine Fisheries Service**

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## 1.0 BACKGROUND

Amendment #4 to Fishery Management Plan for Atlantic Sea Scallops, Placopecten magellanicus (Gmelin) was approved on November 5, 1993, but its implementation was delayed until March 1, 1994.

The Amendment is designed to enable the plan's objectives to be met. Those objectives are:

- 1) to restore adult stock abundance and age distribution;
- 2) to increase yield per recruit for each stock;
- 3) to evaluate plan research, development and enforcement costs; and
- 4) to minimize adverse environmental impacts on sea scallops.

Amendment #4 changed the primary management strategy from a meat count (size) control to effort control for all resource areas. In place of meat count controls, the amendment controls total fishing effort through limited entry and a schedule of reductions in allowable time at sea. Supplemental measures limit increases in vessel fishing power to control the amount of fishing pressure associated with a day at sea and to help control the size of scallops landed. These measures include gear restrictions, limits on the number of crew members, and vessel restrictions. There are also catch limits for vessels not in the limited access fishery and the amendment includes a framework procedure for adjusting all the management measures in the plan.

## 2.0 PURPOSE AND NEED

### 2.1 Protection of small scallops

Although Amendment #4 has been approved only recently, the Council and NMFS are concerned about the immediate protection of small sea scallops. This concern was reflected in the Regional Director's letter of approval which advised the Council that NMFS would carefully monitor the initial impact of the amendment on fishing mortality of small sea scallops. If fishing mortality increases beyond anticipated levels, the Council is expected to protect sea scallop stocks by immediately implementing adjustments under the framework procedures.

In response to very high levels of recruitment that have been documented in the Mid-Atlantic resource area (Regional Director's Status Report, January 1994) and concern over the effectiveness of the 3¼ inch ring size restriction in reducing fishing mortality on small scallops, the Council is proposing measures to reduce the maximum crew limit and to ensure the adequate escapement of small scallops from dredge gear.

## **2.2 Effort reduction schedule**

Additionally, to ensure that the effort reduction program is implemented on the intended schedule, the Council is proposing a measure that would implement the first year's days at sea reductions on an annual (full-year) rather than on a part-year basis. Because of the way the amendment has been currently implemented, there may be no reduction in fishing effort until the end of 1995. Failing to reduce fishing mortality gradually would impose a larger economic burden on the fishing industry in subsequent years because the marginal changes in allowable fishing effort would be larger.

## **2.3 Other measures**

To allow vessels to operate efficiently the Council is considering a provision that would allow vessels to carry a spare dredge so that they would not be forced to return to port to make major dredge repairs.

## **2.4 Final Rule**

The Council considered the following factors and recommends that NMFS publish the proposed management measures as a final rule.

### **2.4.1 Data availability**

Data availability or the need to have the measures in place for an entire harvesting season were not factors considered by the Council in its decision to recommend publishing the adjusted management measures as a final rule.

### **2.4.2 Opportunity for Public Comment**

There has been adequate notice and opportunity for the public and members of the scallop industry to participate in the development of all five of the Council's recommended management measures. In fact, the gear restrictions and revised crew limits were initiated in response to public comments about potential overharvesting. The framework process began on January 13, 1994 when the Council directed the Scallop Plan Development Team (PDT) to evaluate possible mechanisms to immediately protect concentrations of small scallops in the Mid-Atlantic. The subsequent Scallop Committee meeting on February 14, 1994 where the committee received the PDT's report, provided additional opportunity for public comment.

This information was forwarded to the Council on February 16, 1994, the first of the required public meetings under the framework process as published in 59 FR 30, pp. 6948-6949 on February 14, 1994. A draft document providing the rationale and analytical results of the proposed measures was published on March 9, 1994. This document was

mailed to 259 people on the Scallop Industry Advisory Committee and the Council's interested parties list. Copies were also provided to the NMFS Regional Office and the NMFS Northeast Fishery Science Center. The second and final public meeting was the March 17, 1994 Council meeting. In addition to the Council's normal meeting announcements, public notice of this meeting was given in 59 FR 51, pp. 12265-12266 on March 16, 1994.

### **2.4.3 Need for Immediate Resource Protection**

The need for immediate protection of the resource by reducing the crew limit to seven and by implementing the effort reduction program over a full year, rather than ten months, is described in Section 3.1.1. Due to the current resource condition, it is critical that increased harvesting selectivity induced by reducing the crew limit be realized as soon as possible. This timing consideration would also give fishermen as much time as possible to plan their fishing strategy during the remainder of 1994. Unnecessary delay to make this adjustment would significantly increase the costs to industry.

The urgency for implementing the ring configuration restriction is to protect known aggregations of small scallops from exploitation by gear that has been modified to prevent the escapement of small scallops. The aforementioned small scallops, concentrated in the Mid-Atlantic, could be harvested within several months if the restrictions are not implemented immediately. Delayed implementation of the adjusted gear restrictions also would increase the cost to industry.

The Council strongly recommends that the gear restrictions be published as a final rule because fishermen are now building the dredges and nets that meet the current regulations. Not to implement these gear restrictions immediately may result in fishermen having to again rebuild their dredges and nets and would allow an unacceptable harvest of small scallops in the meantime.

### **2.4.4 Continuing Evaluation**

The Council will continue to evaluate all of the proposed measures. The seven-man crew limit will automatically increase to nine on January 1, 1995 unless the Council takes action to continue it based on further evaluation.

The effectiveness of the other four measures, full-year implementation of the days at sea reduction program and the gear restrictions, will continue to be reevaluated along with all of the other management measures. Additionally, Amendment #4 specifically implements a pause in the mortality reduction schedule during the third year to evaluate the FMP's progress in eliminating overfishing and restoring the resource condition. Subsequently, the Council intends to recommend the necessary adjustments to achieve the FMP's objectives and eliminate overfishing by the seventh year.

### 3.0 FRAMEWORK ADJUSTMENTS AND RATIONALE

#### 3.1 Crew Limits

All limited access vessels (dredge, trawl, and other) will be restricted to a maximum crew of seven while fishing for scallops until December 31, 1994. On January 1, 1995, the crew limit for limited access scallop vessels will revert to nine unless the Council recommends and NMFS approves continuance of the seven member crew limit through the framework adjustment process. The efficacy and need for the proposed seven crew limit will be re-evaluated at the end of 1994 to make future recommendations regarding crew size.

##### 3.1.1 Rationale

Preliminary data from recent sea trials indicate that the use of 3¼ inch rings in dredges rigged to comply with Amendment #4 management measures significantly reduces the efficiency of a scallop dredge to catch small scallops. These data also indicate, however, that the size selectivity may not be as great as anticipated. The Plan Development Team reviewed this data and the updated stock status to report on the effectiveness of Amendment #4's management measures (see Appendix). The lower than expected size selectivity, the high recruitment levels in the Delmarva and the NC-VA survey strata combined with low abundances of harvestable scallops elsewhere, and the potential allocation of twelve months fishing effort (204 days for full time vessels) within a ten month time frame concerned the PDT. It therefore recommended that crew size should be limited to seven, rather than nine, to constrain shucking capacity and reduce fishing pressure on small scallops.

The expected impact of the proposed seven member crew limit was analyzed in Amendment #4 (p A-61). There are two possible ways for fishermen to respond to reduced crew limits. They can try to fish for larger scallops, and if catches are sufficient, land as much weight of scallop meats as with a crew of nine, or they can continue catching and processing fewer small scallops, or a combination of both. Either response effectively reduces the number of scallops harvested by a vessel per day at sea. In order to shuck and land 1,000 pounds (meat weight) per day at sea, seven men need to process scallops that average 40 meats per pound. A crew of nine can process and land greater amounts with average counts as low as 70 meats per pound. Likewise, if a vessel caught and processed scallops that averaged 45 meats per pound, a crew of seven could only process about 900 pounds. A crew of nine, however, would be capable of shucking 1,500 pounds. Although there is some variation in these data, there is approximately a 40 percent reduction in the number of scallops processed and landed in either case. Under ideal conditions, this impact would translate into a 40 percent reduction in fishing mortality.

The preferred alternative for a days at sea reduction schedule was analyzed with two possible gear restrictions: 1) 3" rings in the first two years, and 2) 3-1/4" rings in the first two years (the latter alternative was adopted). Following the second year, the minimum ring size increased automatically to 3½ inches in both cases. The difference between the two fishing mortality schedules arose from the expected increase in size selectivity with the 3¼ inch ring dredge. Both cases assumed a crew limit of nine. Comparison of Tables 2 and 10 in Amendment #4 (pp 228 and 236) indicates that the expected size selectivity would allow fishing mortality to increase 0.13 (an increase of nine percent) if 3¼ inch rings, rather than 3 inch rings, were required. Preliminary data from sea trials show that the size selectivity of allowable dredge configurations under Amendment #4 is not significantly different from 3 inch ring dredges. The Council is therefore recommending a seven member crew limit to meet Amendment #4's original targets.

Although the original PDT recommendation was based in part upon the 10-month days at sea allocation which is being corrected by another framework adjustment, other factors are of equal importance in achieving a sizable reduction in harvesting potential with a reduced crew limit. Discarding is an important source of mortality that is not accounted for in the expected 40 percent mortality reduction. There are three possible operational responses to reduced crew limits and high concentrations of small scallops in the Delmarva and NC-VA regions which affect discard mortality. The most beneficial response that would minimize discard mortality is for fishermen to fish for larger scallops. Fortunately the developing scallop grades and price structure may increase the likelihood of this response. Some fishermen would continue fishing on concentrations of small scallops using traditional fishing methods and tow times. Crews in this case may incompletely process the first haul-back and discard the remainder when the scallops from a second haul-back are ready. Although these vessels would not retain many small scallops, more frequent dredging over the same grounds may increase mortality via repeated catch. Lastly the most damaging response would occur if fishermen deck-load several haul-backs of small scallops, and anchor up or begin drifting until the crew processes the scallops or product quality begins to deteriorate. As a result, any remaining scallops would have been on deck for extended periods and would be discarded dead.

The current stock structure and distribution also calls for more than a nine percent reduction in fishing mortality. According to the Atlantic Sea Scallop Fishery Status Report (NMFS 1994), the abundance of harvestable size scallops on Georges Bank is at a time series record low. The index of pre-recruit scallops is likewise at a time series record low. Within the Mid-Atlantic there are also few scallops of harvestable size, at levels not seen since 1984. Those that occur are widely distributed. On the other hand, pre-recruit scallop abundance is at a record high within the Delmarva and NC-VA survey strata.



This heterogenous distribution of small scallops and the relative absence of large scallops is exactly the type of situation addressed by Caddy (1975). Caddy's theoretical model indicates that equilibrium biological reference points (such as  $F_{5\%}$ ) derived from dynamic pool models which employ a unit stock hypothesis (as used for Amendment #4 analyses) are often overestimated, especially when geographical shifts in fishing effort for aggregations of sedentary specie occur. Although not explicitly stated, the current resource condition (few large scallops in alternative fishing areas and a restricted area of high concentrations of small scallops) was one factor in recommending a crew limit reduction. A 40 percent reduction in harvesting capability achieved by a crew limit of seven is warranted because the management measures may fall short of the first year's fishing mortality target by nine percent, because discarding mortality from fishing for and processing these small scallops is not explicitly taken into account, and because of shortcomings in the unit stock model under this type of resource condition.

### 3.1.2 Biologic response

To estimate the change in net benefits which would result from a seven member crew limit, the yields were forecast for a fifteen year period using the revised fishing mortality schedule and the updated pre-recruit abundance data. The two alternative fishing mortality schedules are shown in Table 1. Table 1 also includes the additional qualifiers that have successfully proven their historic participation as of February 23, 1994 (P. Jones, pers. comm.). The first year's target fishing mortality with a crew limit of nine is 1.69. The revised fishing mortality for a crew limit of seven is estimated to be 40 percent lower, or 1.01. For the reasons discussed above, this revised fishing mortality is probably underestimated. The actual impact of a seven member crew limit is likely to be between these two values and would reduce, but not eliminate, the anticipated net benefits.

Because of the anticipated reduced harvest of scallops with a seven member crew limit and the rapid growth of newly recruited scallops, annual yield from the scallop fishery is expected to decline 25 percent from that produced by limited access vessels with a crew limit of nine during the first year. The same stochastic model used in Amendment #4 was used to derive expected mean yields (Figure 1) and mean spawning stock biomass (Figure 2). The mean yield estimated for 1994 with a crew of nine is 19.9 million pounds. For a crew limit of seven, the projected yield is expected to decline to 14.9 million pounds. During 1995, fishing mortality would revert back to the original schedule with a crew of nine. For the seven member crew alternative, however, the projected yield increases 35 percent to 20.1 million pounds. The conservation benefits of reducing the crew limit to seven for the first year also extend into the third year. The projected yield increases 12 percent over values expected if the crew limit remained at nine during 1994. Beyond year three (1996), however, increases in future yields by conserving scallops during 1994 are negligible.

Similarly, 1994 spawning stock biomass (Figure 2) under a seven member crew limit is more than double the SSB with a crew of nine. This occurs because of the decreased fishing mortality and the rapid growth of recruiting scallops. By the second year (1995), however, most of the conservation benefit is translated into enhanced yield (20.1 million pounds in 1995) and SSB is expected to be only slightly higher than the SSB if no action is taken. After the second year, the differences in projected SSB are negligible.

In summary, a seven member crew limit through December 31, 1994 is expected to increase yield per recruit which would be realized during 1995 and 1996 (Figure 1). Yields would increase 35 and 12 percent, respectively. Spawning stock biomass would be greatly enhanced (Figure 2), but only during 1994. Once the crew limit reverted to nine and fishing mortality rises, the additional stock biomass would be harvested and spawning stock biomass would quickly fall to levels expected with no change in crew limits.

### 3.1.3 Economic response

#### 3.1.3.1 Cost-benefit analysis

The relative costs and benefits arising from crew limits of seven and nine are estimated by applying the economic model presented in Amendment #4, SEIS, section VII.F.3.a. The above yields from the biological model are used in the price model to estimate the ex-vessel prices and revenues (at the 1990 prices) for each alternative. As before, in estimating prices, import prices are assumed to stay constant at their 1992 level.

Figures 3 and 4 show the predicted ex-vessel prices and annual revenues for each option. The seven member crew limit is expected to reduce total landings of sea scallops, especially small sizes, which leads to an increase in ex-vessel prices in 1994 compared to a crew limit of nine. This dampens the first year decline in total fleet revenues. During 1995 and 1996, however, due to the increased landings of sea scallops, ex-vessel revenues for a crew limit of seven exceed the revenues compared to nine member crew option, by 28 percent and 11 percent respectively. After 1996, the difference in ex-vessel revenues are negligible.

Since the total fleet days at sea would remain the same in both cases, operational costs of fishing, such as fuel, oil, and water are unlikely to change assuming trip length remain constant. It is also assumed that there will be no savings to the economy in terms of reduced labor costs, since in the absence of alternative employment, the opportunity costs of labor does not change. The monetary value of the crew's wages and salaries (changes in economic rent to labor) will change, however, as a result of the seven member crew limit.

Estimated fleet profits and crew shares are expected to decline in 1994 because of the predicted reduction in gross stock (i.e. scallop revenues), and will increase beginning in 1995. It is difficult, however, to accurately predict the magnitude of these changes due to the data limitations and uncertainties about the lay systems in use under the two alternatives. In 1989 and 1990, the share of crew wages and salaries were approximately 40 percent of gross stock. When the share of joint expenses is about 20 percent of the gross stock, a 40/60 split of gross revenues between crew and vessel owners produces labor income equivalent to the New Bedford lay system or a 50/50 split of net stock. However, a change in gross revenues or costs will produce different results under each lay system. In the absence of a change in joint expenses, New Bedford lay system (60 percent of gross stock minus joint expenses) will result in higher losses in terms of crew shares, and smaller losses in terms of profits when gross stock declines. This is because, the New Bedford lay system implies that all operational expenses are paid by crew without regard to the total number of crew men employed by the fishing vessel. Since, the future changes in the share system and changes in joint expenses under each option cannot be predicted, the magnitude of the economic benefits captured by crew members and vessel owners is estimated by assuming a crew share system based on a constant proportion of gross stock.

If it is assumed that crew wages and salaries will account for 40 percent of gross stock as they did in 1989-1990, then there will be a 21.4% decline in overall labor incomes in 1994, followed by an 28 percent increase in 1995 and 11.1 percent increase in 1996 (Figure 5). Individual crew shares will probably increase, on the other hand, when total shares are divided among fewer crew members. Figure 5 indicates that the estimated individual shares will increase slightly, about one percent in 1994 when divided among the lower, seven member crew.

To estimate the net change in industry profits, the change in crew shares is deducted from the change in the gross stock.<sup>1</sup> The estimated change in the annual gross profits (before taxes and depreciation) compared to no action is a \$13 million loss in 1994, but positive after the first year, \$14 million in 1995 and \$4 million in 1996 respectively (Figure 6).

The first year reductions in total revenues, labor incomes and profits under a crew limit of seven might be much lower than estimated if the size composition of scallops could

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<sup>1</sup> It is assumed that there will be no changes in the total costs when maximum crew size is limited to seven rather than nine. One cost item that would change is the cost of food. If these expenses are paid by crew, and the estimated crew shares are assumed to include these expenses, then no change in profits would occur. Otherwise, total fleet profits should be revised by adding these food cost savings to the total profits in the first year. If food costs for each individual are \$10 a day then the total food savings alone can be up to \$1 million in 1994 (Total days at sea equals 56,266 and the proposed crew limit is a reduction of two. Thus, the reduction in food costs is 112,532 crew days x \$10 per crewman.).

be taken into account. Imports of inexpensive small scallops may limit the ability of fishermen to sell smaller sizes at a profitable price under the days at sea effort reduction program. Considering the higher costs of processing small sizes, it may also be advantageous for the vessels to fish for larger rather than small scallops to minimize production costs and maximize revenues. The resulting change in the composition of landings may, in turn, increase ex-vessel prices and improve the labor incomes and profits above those predicted by the economic model.

Table 2 summarizes the results in terms of present value of the change in labor incomes and profits assuming a 5 percent discount rate. The cumulative increase in present value of the crew share and salaries for the seven crew member limit is \$3.3 million over the period 1994-2008. The cumulative increase in the present value of profits for the same period is estimated to be \$5.1 million. Again, these are rough estimates based on a 40/60 split of gross stock. The magnitude of the total rents (producer surplus) is independent of the lay system. The distribution of actual benefits between labor incomes (crew shares) and profits, however, will vary according to the future arrangements regarding crew shares.

### 3.1.3.2 Net national benefits

The net national benefits of the proposed reduction in the crew limit are measured by the changes in the consumer and the producer surpluses compared to no action. The change in producer surplus shows the economic benefits to the producers, and is measured by the change in revenues and the corresponding change in variable costs with and without this adjustment. The change in the producer surplus also shows the change in rents derived by vessel owners, captain and the crew as a consequence of seven member crew limit. Consumer surplus, on the other hand, measures the consumer benefits and is defined as the extra amount of income seafood consumers would be willing to spend on scallops compared to what they actually spend. The consumer surplus associated with total scallop landings is calculated from the ex-vessel price model and the estimated landings under both alternatives. Figure 7 shows that, in 1994, consumers would be negatively impacted due to the expected increase in prices and decline in landings. Similarly, the change in producer surplus will be negative in the first year due to the decline in revenues. These negative impacts, however, will be overcome by improvements beginning in 1995. The increase in the scallop landings and revenues in the following years is expected to outweigh the first year losses, producing positive net benefits of \$28 million in 1995, and \$8 million in 1996.

Table 3 summarizes the value and the composition of net benefits with the proposed adjustment to the crew limit. To derive a consistent measure of the total net benefits, annual changes in producer and the consumer surplus (compared to a nine member crew limit) are converted to present values by applying a discount rate of 5 percent. The sum of these values shows the total benefits of the program over 1994-2008. The

proposed action is expected to produce a discounted net benefit of \$9.5 million. Nearly all of this benefit accrues in the first four years. Actual benefits could differ from these values depending on the changes in fishing behavior, in the size composition of scallops, and the changes in the duration and number of trips.

#### 3.1.4 Employment and safety

The proposed reduction in the crew limit potentially reduces employment in the fishery by as much as 850 (2 x 425 vessels). The actual short-term impact, however, is likely to be much less. Due to poor resource conditions, vessels have begun using smaller crews because less shucking and onboard processing is needed (White 1994, see Appendix). Future employment demand, however, is highly dependent on the number of scallops caught per day fished and the price obtained for scallops. When there are high abundances of small scallops, vessels will use more crew to shuck and process scallops if the price is sufficient to pay the larger crew.

Delaying mortality of small scallops by reducing the crew limit is expected to generate large increases in yield and revenue during 1995. In addition to the higher crew limit, these higher yields are expected to increase employment (at-sea, shore-side, and secondary) beyond levels which would have occurred during 1994 with a crew limit of nine.

The safety concerns about operating scallop dredge vessels with a crew of seven was brought to the Council's attention during the first framework hearing. Most fishermen in attendance, some with large scallop vessels, stated that under most conditions a seven member crew was acceptable. They did say, however, that during more severe weather conditions they would prefer carrying a larger crew. The Council considered this information and limited the time when a seven member crew limit would be in effect to December 31, 1994, thereby allowing scallopers to use larger crews during the most hazardous part of the year.

Recognizing these concerns, the Council has sought additional information about the number of crew members aboard scallopers. Two sources of information are available, crew size noted on permit applications and casualty (mishaps requiring U.S. Coast Guard assistance) statistics. These latter data include the number of crew aboard scallopers when the USCG responded and can be used to derive a casualty rate for active scallopers.

Crew information on permit applications does not give precise information about the number of crew members actually present on a trip or an average for all trips, but instead provides gross information about the maximum number of crew members or the number of crew members generally aboard a vessel. These data yield some interesting results when segregated by the type of trips noted in the NMFS weighout (landings)

data (Figure 8). The majority of vessels with scallop permits had no scallop landings recorded in the weighout data, and thus were considered "inactive" in the scallop fishery. There are two reasons for this to occur, a) the vessels did not fish or landed no scallops while fishing for other species and b) their scallop landings were not captured by the NMFS data collection system. It is interesting to note, however, that the crew size indicated on the permit applications is different from those vessels that landed scallops. This could occur because they are primarily vessels that fish for other species with gear that does not require many crew members. Alternatively, it may occur because they are small vessels, possibly using dredge gear, that land in areas not covered by the weighout data system. In either case these vessels had small crews and, if they qualified for a limited access permit, are unlikely to be affected by the proposed crew limit.

More importantly, there is a distinct difference between indicated number of crew members for vessels using dredges as their primary gear versus vessels using otter trawls. The majority of dredge vessels indicated that they carried nine crew members. Trawlers generally indicated using two to five crew members. Few indicated use of more than seven crew members and therefore, these vessels would be unaffected by the proposed limit.

There may be some relationship between vessel size and crew numbers. Crew numbers aboard scallopers, however, are more related to the gear in use, the deck layout and equipment, and the onboard processing (shucking) needs. This observation is supported by the wide size distribution of scallop trawlers (Figure 9) with low crew amounts. For example, the largest category of trawlers ranges from 126 to 150 gross registered tons, but very few trawlers carry nine member crews. Scallop dredge vessels are often larger than trawlers, but this is probably more related to the longer average trip lengths.

There is a highly significant relationship between crew size and trip length for both scallop trawlers and scallop dredges. This possibly arises from factors such as fatigue and manning requirements under adverse conditions. The majority of trawlers (Figure 10), which tend to carry two to five member crews, fish for two to seven days. The few vessels that indicated higher crew amounts on their permits may have intended on using this much crew when using scallop dredges. Average trip length for scallop dredges also shows a highly significant relationship with crew number (Figure 11). The majority of dredge vessels, which tend to use more than six crew members, fished for nine to fourteen days. Trips as long as twenty days are not uncommon. Although there is a strong relationship, it is notable that average trip length only ranges from nine to twelve days for vessels which tend to use crews between six and ten members. Thus, the proposed crew limit is within a range that is unlikely to affect trip length and presumably safety.

During 1993, the USCG responded 79 times to 56 active scallop dredge vessels and three times to two active scallop trawlers. In the accident reports on 79 responses to dredges,

the crew amounts were noted twenty-six times (Figure 12). These casualty<sup>2</sup> reports were classified into "low" (one to six), "medium" (seven to nine), and "high" (more than ten) categories by the amount of crew indicated on each vessel's permit application. Vessels in the "low" category had few casualties where the USCG recorded the amount of crew aboard. For the "medium" category (which contained the majority of scallop dredge vessels), observed crew size ranged from six to nine. It also ranged from six to nine for vessels in the "high" crew number category. The actual number of crew members aboard active scallopers was, therefore, often much lower than indicated on permits. A seven member crew limit is well within the range of observed crews in any category.

The few cases when observed crew amounts were between two and four may represent casualties when the vessel was at port or in transit between docks, thus having fewer crew members aboard. These three observations in the "medium" and "high" categories were excluded from further analysis. One additional observation having seven crew members within the casualty statistics in the "high" category came from a vessel with only four trips. This vessel skewed that data point excessively high and was therefore treated as an anomaly.

The number of casualties and the number of trips taken by vessels in each "observed crew" and "permit crew" category was compared the total number of trips by all vessels to derive a casualty rate for active scallop dredge vessels (Figure 13). The average casualty rates for the "low", "medium", and "high" categories was 1.8%, 1.5%, and 1.9%, respectively. Although this data could be refined to include only casualties when crew was a factor, there is no indication in the aggregate rates that lower crew limits would result in higher casualty rates.

### 3.2 Annual Days at Sea Implementation

The days at sea allocations to individual vessels would be granted on a March 1 through February 28 (29 during leap years) schedule to conform with the March 1, 1994 implementation of Amendment #4 regulations. The revised days at sea schedule is shown in Table 1. "Year 1" would begin on March 1, 1994 and extend twelve months through February 28, 1995. This adjustment is not intended to interfere with the current calendar year schedule for issuing permits and determining compliance. If further adjustment to the days at sea allotment cycle becomes necessary, the Council intends to adjust the annual allocations to conform with the fishing mortality reduction schedule originally proposed in Amendment #4.

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<sup>2</sup> A casualty is defined as an incident to which USCG assistance (search and rescue, medical assistance, tow to port, emergency pump supplied, etc.) was rendered.

The Council's intent for the fishing mortality reduction schedule was to reduce fishing mortality with a series of annual days at sea allocations. Full time vessels were to receive 204 days at sea for the first twelve months and 182 days at sea during the second twelve months. Part time and occasional vessels would likewise receive lesser number of days at sea each year until the fishing mortality targets were met during and beyond the seventh year following implementation. Amendment #4 and the days at sea schedule was expected to be implemented on or about January 1, 1994. Full time vessels would then have received 204 days during 1994, 182 days per year during 1995 and 1996, 164 days during 1997, 142 days per year during 1998 and 1999, and 120 days per year during subsequent years.

The final rule (59 FR 12, p. 2774) allows limited access vessels the full, annual complement of days-at-sea (DAS) during the calendar year 1994. Because the implementation date was delayed from January 5 to March 1, 1994, fishermen would receive more days than originally intended, the amount allocated under the limited access program plus any days at sea that were accrued during January and February 1994. The latter amount is not available and, therefore, the actual fishing mortality rate for the 1994 calendar year cannot be estimated on this basis. During the first twelve months following implementation, however, full time scallopers would receive 234 days, 105 days for part-time vessels, and 21 days for occasional vessels<sup>3</sup>. Such an action would 1) increase effort during the first year, counter to the effort reduction goal of the amendment, and 2) require a much larger, relative decrease in DAS (e.g., from 234 to 182) during the second year, counter to the phased-in reductions contemplated. Hence fishing mortality would be expected to increase from 1.69 to 1.94. This increase would greatly exceed the Council's scheduled mortality and would have less conservation value, especially given the current resource condition. The expected benefits of restoring the Amendment #4 effort reduction schedule are positive and fall within the range of alternatives analyzed within the amendment.

### 3.3 Gear Restrictions

During Amendment #4 implementation, several issues that made it difficult for fishermen to operate under the new regulations came to the Council's attention. Other dredge designs were proposed that, while complying with liberal interpretations of regulations, violated the Council's intent to improve the selectivity of gear used by the fishery. The following three measures address these issues and represent technical adjustments to the regulations. They are being proposed under the routine framework adjustment mechanism.

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<sup>3</sup> Full time scallopers would receive 204 days for the first ten months plus 30 days ( $182/12 * 2$ ) for the next two months. Part-time scallopers would receive  $91 + (82/12 * 2) = 105$  days. Occasional scallopers would receive  $18 + (16/12 * 2) = 21$  days.



### 3.3.1 Ring configuration

Dredge rings may be attached via links to no more than four adjacent rings. Thus, dredge rings will be rigged in a configuration so that when a series of adjacent rings are held horizontally, the neighboring rings form a pattern of horizontal rows and vertical columns (Figure 14).

The final rule (59 FR 12, p. 2772) prohibits dredge and net obstructions (§650.21, paragraph (b)(3)(iii)) such that no material, device, net, or dredge configuration or design shall be used if it results in obstructing the release of scallops that would have passed through a legal size net and dredge that did not have in use any such material, device, or net or dredge configuration or design. Dredge configuration includes restrictions on links between rings, chafing gear, minimum ring size, minimum mesh size, and maximum dredge width.

Even though this regulatory language would prohibit most means of obstructing the dredge, it is ambiguous about how rings may be arranged and attached to one another. The Council has been presented with an example of a "five-legger", a dredge design utilizing single links, with each ring attached to five adjacent rings in star shaped pattern. This configuration greatly reduces the space between the rings, which is an important conduit for scallop escapement. Future use of this design and others like it would allow scallopers to completely circumvent the size selection management measures within Amendment #4. It might even have size selection characteristics with less conservation value than the traditional dredge operated before Amendment #4 implementation. A diagrammatic example of an illegal ring configuration is shown in Figure 15.

If continued use of this type of ring configuration were permitted, it would cause higher mortality on smaller scallops and, therefore, lower biological reference points (i.e.  $F_{5\%}$ ). Ultimately, days at sea allocations would have to be drastically reduced beyond the current schedule to meet the FMP's objectives and avoid overfishing. It also would have a large detrimental impact on yield per recruit, thereby reducing the plan's ability to achieve objective 2 (increase yield per recruit).

The proposed adjustment would change the regulatory language to prohibit dredge alterations intended to reduce scallop escapement through the ring bag. Since the "five-hanger" dredge design is not prevalent and the revised regulation would clarify the Council's intent, no additional analysis is necessary.

### 3.3.2 Ring linkage

Scallop dredges are required to have no more than double linking between rings, except that triple linking is permitted on the bottom half of the dredge bag and the diamonds. Links which are connected to only one ring, i.e. "hangers" are permissible unless they occur between two links that both couple the same two rings (Figure 14). Systematic use of hangers to plug the ring bag is an obstruction to the release of scallops that would have passed through a legal dredge and is prohibited accordingly.

Triple links connecting adjacent scallop dredge rings were prohibited by Amendment #4 to improve scallop size selection by dredges. One impact that the Council did not anticipate was the excessive link wear that occurs within certain parts of the dredge while fishing. Links need to be repaired at sea because they frequently separate from one of the rings and hang from the other ring, i.e. a "hanger". Traditionally, scallopers attached a third link to strengthen the other two. Current regulations, however, require fishermen to remove one of the links prior to replacement. This extra repair work can sometimes be dangerous under adverse conditions.

Gear experts and fishermen have both stated that the majority of scallop escapement occurs on the top of the dredge through the "apron". While the Council cannot provide a definitive assessment of changes in size selectivity in the bottom of the dredge only, there is no reason to doubt the expert advice from both sources. Often hangers will catch other portions of the ring bag and reduce the efficiency of the gear. It is therefore in the best interest of scallopers to remove hangers when fishing and weather conditions permit. Routine occurrence of hangers is not expected to alter the gear's selectivity. The proposed measure is consequently expected to reduce the need for and extent of gear repair at sea without adversely affecting size selectivity. This measure's impact on the benthic environment appears to be negligible compared to the other elements of using dredges and is assessed within the scope of Amendment #4.

### 3.3.3 Spare dredges and nets

A maximum of 30-foot total dredge width (for example, two 15 foot dredges) may be in use at any time. One spare dredge may be aboard the vessel, if it is stored in an unfishable condition. This condition includes the separate stowage of a chain bag and bail. Only one properly stowed spare trawl will be allowed onboard vessels scalloping with nets. It must meet both the mesh size and maximum sweep restrictions of the FMP and be stowed as specified in §650.21, paragraph (a)(2)(iii) of the regulations (59 FR 12 p 2772).

The intent of the management measures in Amendment #4 was to limit the fishing power of a vessel to maintain the effectiveness of days at sea limits. The stowage of a limited amount of spare gear does not increase the fishing power of a vessel, but would

allow scallopers to remain on the fishing grounds in the event of gear loss or extreme damage. Without this provision, scallopers would be forced to return to port for repairs. This is a significant cost to fishermen, especially when their days at sea are limited. It was not the Council's intent to further limit fishing effort by requiring costly transits between fishing grounds and port. This added source of reduced fishing time was not an intended effect of Amendment #4.

This measure, therefore, restores the traditional ability to replace lost gear and continue fishing on a trip. Its impacts fall within the scope of analyses performed to support Amendment #4. On the other hand, it potentially reduces the costs of fishing and improves efficiency. Without this measure, fishermen would be forced to return to port for repair and might be forced to return to fishing grounds under more marginal conditions.

### **3.4 Consistency with National Standards**

Section 301 of the Magnuson Act establishes seven National Standards with which all FMPs must be consistent. The measures and provisions of the Atlantic Sea Scallop Fishery Management Plan were deemed consistent with these standards when Amendment #4 was approved on November 5, 1993. The proposed adjustments are either regulatory corrections to reflect Council intent or are temporary adjustments to preserve the FMPs size selectivity and fishing mortality schedule. As such, these adjustments fall within the scope of issues previously analyzed to determine consistency.

## **4.0 ENVIRONMENTAL ASSESSMENT**

Amendment #4 thoroughly describes the environment that would be affected by scallop fishing. It is not expected that these adjustments will significantly alter the natural or human environment. The environmental consequences of the proposed adjustments, especially beneficial or adverse economic impacts and impacts on public health and safety, fall within the scope of those analyzed, however supplementary analyses are also provided in the above rationale.

The measure to reduce the crew limit to seven will have positive impacts on the natural environment (Section 3.1.2) by reducing the ability of fishermen to land small scallops and therefore decreasing fishing mortality. The impacts on the human environment are evaluated in Sections 3.1.3 and 3.1.4 and are not significant beyond the extent indicated in Amendment #4.

The measure to implement the first year effort reductions over a full year (annual days at sea implementation) will have a positive environmental impact. The current implementation of the days at sea allocations will cause fishing mortality in the first ten

months that would be higher than originally proposed by Amendment #4. Effort levels in the second and subsequent calendar years would be marginally higher for two months than under the current implementation schedule, but there would be an opportunity to make adjustments in the fourth year. The proposed measure will also have a positive impact on the human environment. The revised days at sea allocation schedule will reduce fishing mortality in the first year and is expected to cause higher biomass and larger scallops in year three, when an increase to 3½ inch rings is required. In other words, fishermen will have higher landings in subsequent years. The current implementation of the days at sea schedule has more adverse economic impacts than envisioned by Amendment #4. There are no significant environmental or human impacts from the annual days at sea implementation beyond those which were previously analyzed.

The additional proposed actions to regulate gear also have no significant environmental or human impacts beyond those identified in Amendment #4. They are routine adjustments to ensure that the gear allows the intended escapement of small scallops anticipated by Amendment #4. The restriction on ring configurations has positive environmental impacts because it will help protect small scallops. It also prevents fishermen from deploying unintended ring configurations which have unknown impacts upon marine mammals and endangered species. The impacts of the traditional ring designs were assessed within the Environmental Impact Statement for Amendment #4. The allowances for triple linking the dredge bottom and for carrying a spare dredge are intended to reduce at-sea maintenance of gear. Although triple linking in the dredge bottom may affect scallop selectivity, additional escapement is likely to be minimal because many believe that most scallops escape through the top of the dredge. The proposed actions to regulate gear do not have adverse human impacts because they prevent unforeseen modifications to traditional fishing practices rather than imposing additional restrictions. They also do not require vessel owners and operators to make additional expenditures to comply with the regulations.

## 5.0 REGULATORY IMPACT REVIEW

This section provides the information necessary for the Secretary of Commerce to address the requirements of Executive Order 12866 and the Regulatory Flexibility Act. The purpose and need for management (statement of the problem) is described in Section 2 of this document. The alternative management measures of the proposed regulatory action are described in Section 3. The economic and social impact analysis of the crew limit is in Section 3.1.3 & 3.1.4 and is summarized below. Other elements of the Regulatory Impact Review are included below.

## 5.1 Executive Order 12866

According to the following four criteria the proposed action does not constitute a "significant regulatory action" under Executive Order 12866. It will not have an annual effect on the economy of more than \$100 million (Tables 2 and 3) and it will not adversely affect in a material way the economy (Section 3.1.3), a sector of the economy, productivity, competition, jobs (in-the long-term), the environment, public health or safety (Section 3.1.4), or state, local or tribal governments and communities. It will not create an inconsistency or otherwise interfere with an action taken or planned by another agency. The proposed action will not materially alter the budgetary impact of entitlements, grants, user fees, or loan programs or the rights and obligations of recipients thereof. Lastly, the proposed action does not raise novel legal or policy issues.

## 5.2 Regulatory Flexibility Act

The Atlantic sea scallop fishing industry directly affected by the proposed action is composed primarily of small business entities operating in the New England and Mid-Atlantic areas as far south as North Carolina. The number of operating units (vessels), by permit category, is given in Table 4. There are also two full-time and six part-time permits issued under the small dredge exemption program (§ 650.21(e)). Dealers that process and market sea scallops are unlikely to be affected by the proposed action. The Council has consulted its industry advisors and listened to public comment to assure that no groups within the industry are unduly impacted.

The proposed action will not have a "significant economic impact on small entities" and does not require a Regulatory Flexibility Analysis for the following three reasons. First, the proposed action will not reduce long-term annual gross revenues by more than five percent. Gross revenues from harvesting scallops are expected to decline about 20 percent in the first year. Nevertheless, it is expected to increase gross revenues, industry profits, and overall revenues available for crew shares in 1995-1997 (Figures 5 and 6). It is expected to increase discounted, cumulative industry profits by \$5.1 million (Table 2). Second, the costs of ensuring compliance are not expected to change. The proposed action, therefore, will not increase total costs of production by more than five percent as a result of an increase in compliance costs nor will it increase 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. Third, the proposed action is unlikely to force vessels to cease business operations. Many vessels have carried smaller crews when stock abundance has been low. This change in fishing practice was documented during 1993 by the USCG when they responded to calls for assistance from scallopers (Figure 12).

## 6.0 REFERENCES CITED

- Caddy, J.F. 1975. Spatial model for an exploited shellfish population, and its application to the Georges Bank scallop fishery. *J. Fish. Res. Board Can.* 32: 1205-1328.
- National Marine Fisheries Service (NMFS). 1992. Report of the workshop on consensus assessments for Atlantic sea scallop. Woods Hole, MA:NOAA/NMFS/NEFC Woods Hole Lab. Ref. Doc. In press. 83 pp.
- NMFS. 1994. Status Report, Atlantic Sea Scallop Fishery. Woods Hole, MA. 19 pp.
- White, Natalie. 1994. No fish, bad weather reduce scallop crews. *The Standard-Times*. New Bedford, MA.

## 7.0 TABLES

**Table 1. Vessel allocations of days at sea based on the higher of the modified average<sup>4</sup> of 1985-1990 days at sea or the 1990 days at sea. The number of qualifying vessels has been corrected to include successful appellants since Amendment #4 implementation. Current fishing mortality is estimated to be 1.63 (NMFS 1992). Dredge ring size requirements are 3¼ inches in years one and two, 3½ inches after year two.**

Group	1985 - 1990				Year 1	Years 2 & 3	Year 4	Years 5 & 6	Years 7+
	Mean Days	Number of Vessels	Formula Days	Percent	Fishing Mortality				
					1.69/ 1.01 <sup>5</sup>	1.51	1.33	1.15	0.97
	Days at Sea Limits								
Occasional	18.16	106	1,925	3.3%	18	16	14	12	10
Part Time	86.94	96	8,346	14.3%	91	82	66	57	48
Full Time	215.74	223	48,110	82.4%	204	182	164	142	120
Total Days at Sea			58,381 <sup>6</sup>		56,266	50,284	44,324	38,364	32,403
Qualifying Vessels		425			425	425	425	425	425

<sup>4</sup> Days at sea histories for 1985-1990 were averaged without the highest and lowest years if a vessel had data for four or more years. If a vessel had three years of data, the high and low years were averaged, then that result was averaged with the remaining years. The days at sea history was averaged for vessels having one or two years of data.

<sup>5</sup> The effort allocations for 1994 are based on full time vessel having 204 days at sea. Mortality and days at sea limits are reduced by 11.0% (of 1990 levels) during 1995, then by 11.1% thereafter when a reduction in effort is scheduled.

<sup>6</sup> The total fleet days at sea for 1990 was 48,253 days. The additional qualifiers were estimated to add 6,198 days at sea during 1990.



**Table 2. Discounted (5%) cumulative change in labor incomes and profits for a crew limit of seven, 1994-2008, compared to a nine crew member limit.**

	Cumulative Change (Million)
Crew shares	\$3.3
Profits	\$5.1
Producer surplus	\$8.4

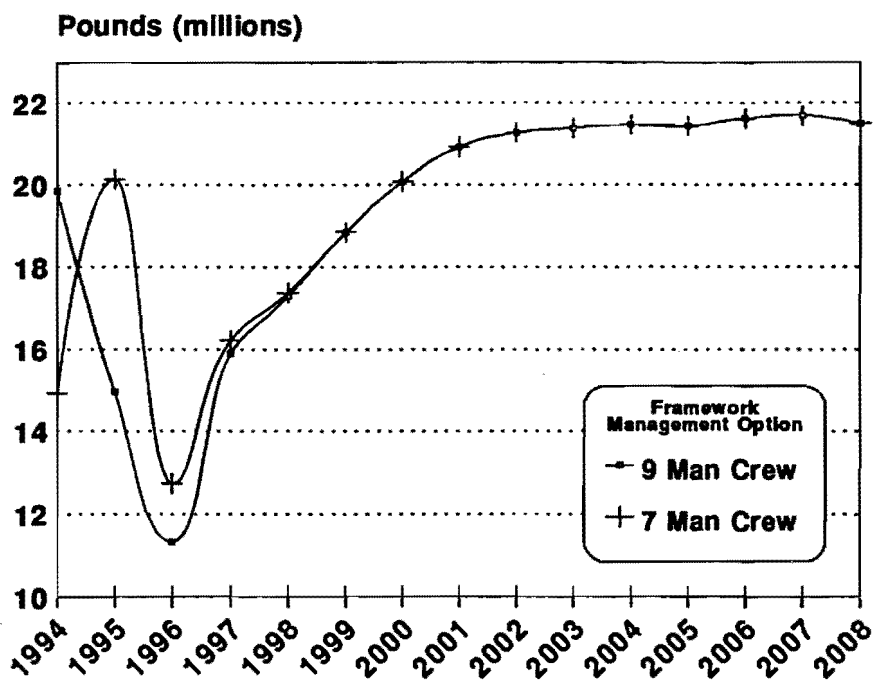
**Table 3. Cost and benefits of a crew limit of seven: Cumulative present value with a 5% discount rate compared to a nine crew member limit, 1994-2008.**

	Cumulative Change (Million)
Consumer surplus	\$1.1
Producer surplus	\$8.4
Net economic benefits	\$9.5

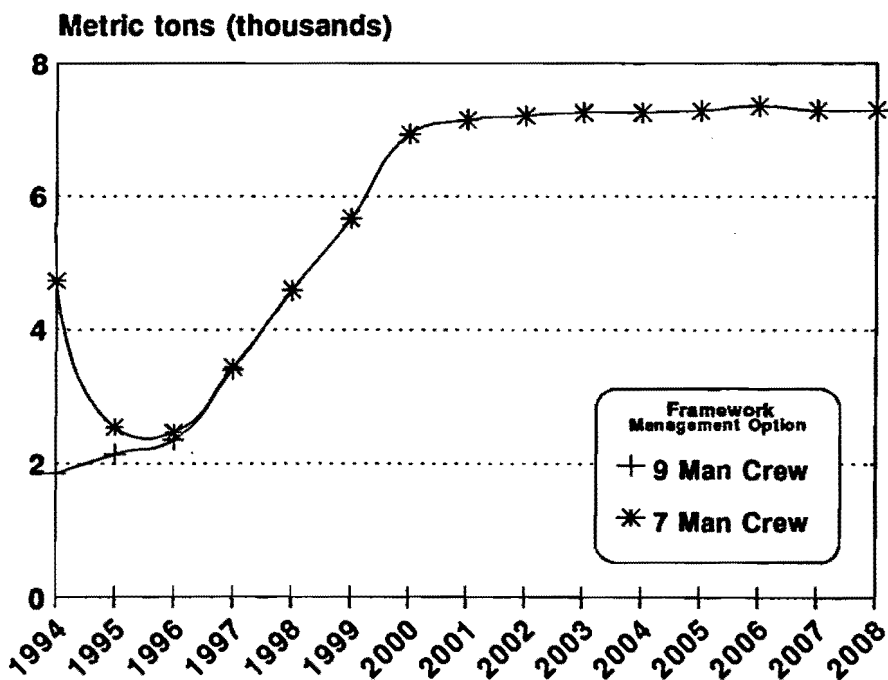
**Table 4. Potential (qualified vessels) and actual (permits issued) number of small entities within the Atlantic sea scallop fishery by permit category.**

	General Access	Limited Access		
		Full-time	Part-time	Occasional
Qualified vessels		223	96	109
Permits issued	973	196	29	18

## 8.0 FIGURES



**Figure 1.** Projected yields, 1994-2008, with mean recruitment and 1990-1993 fishing mortality equal to 1.63. The seven man crew option reverts to a nine man crew limit beginning 1995.



**Figure 2.** Projected spawning stock biomass, 1994-2008, with mean recruitment and current fishing mortality equal to 1.63.

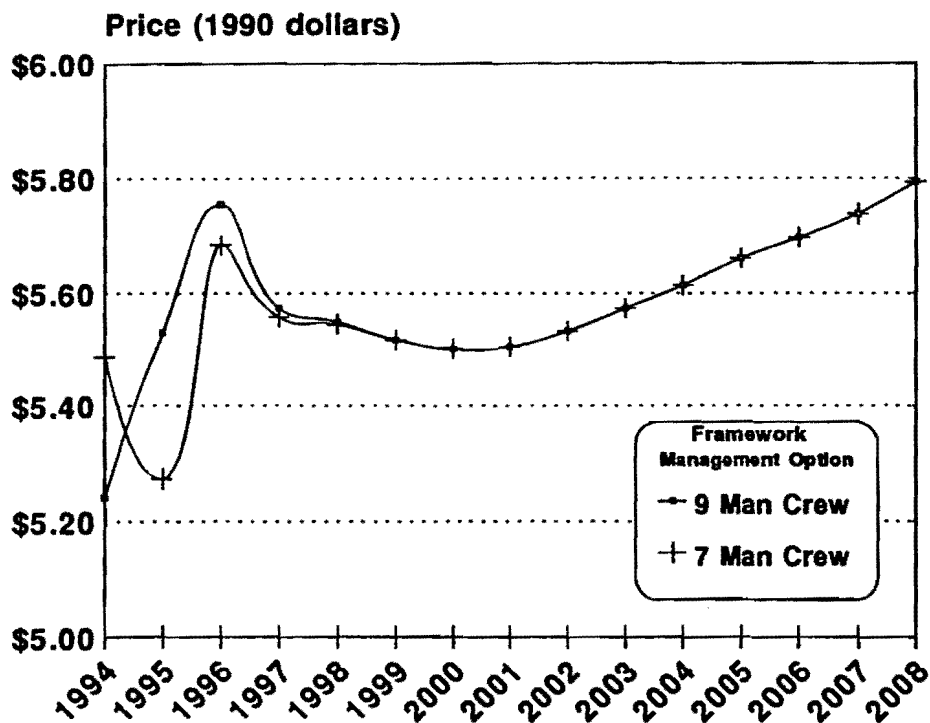


Figure 3. Projected ex-vessel price per pound of scallop meats.

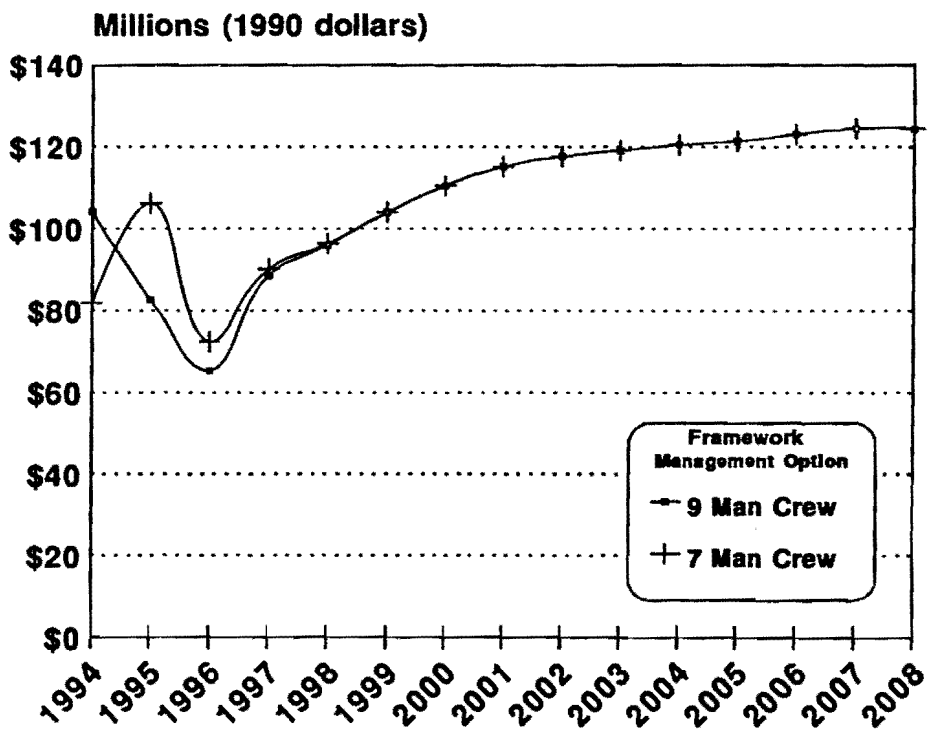


Figure 4. Projected ex-vessel revenues with mean recruitment. The seven man crew option reverts to a nine man crew limit beginning 1995.

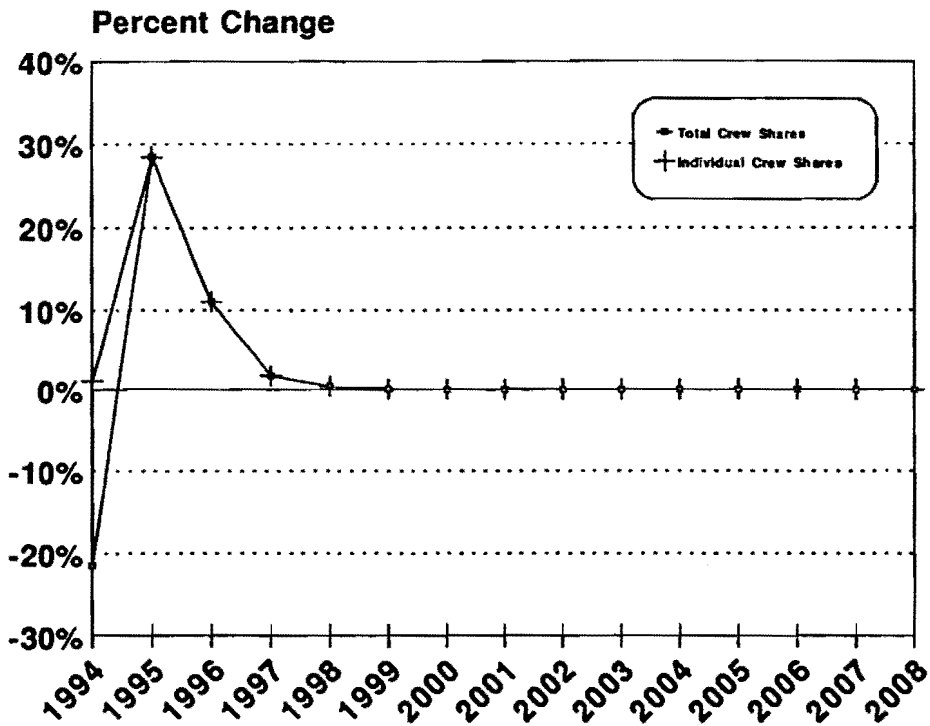


Figure 5. Percent change in crew shares and salaries when set at 40 percent of gross stock.

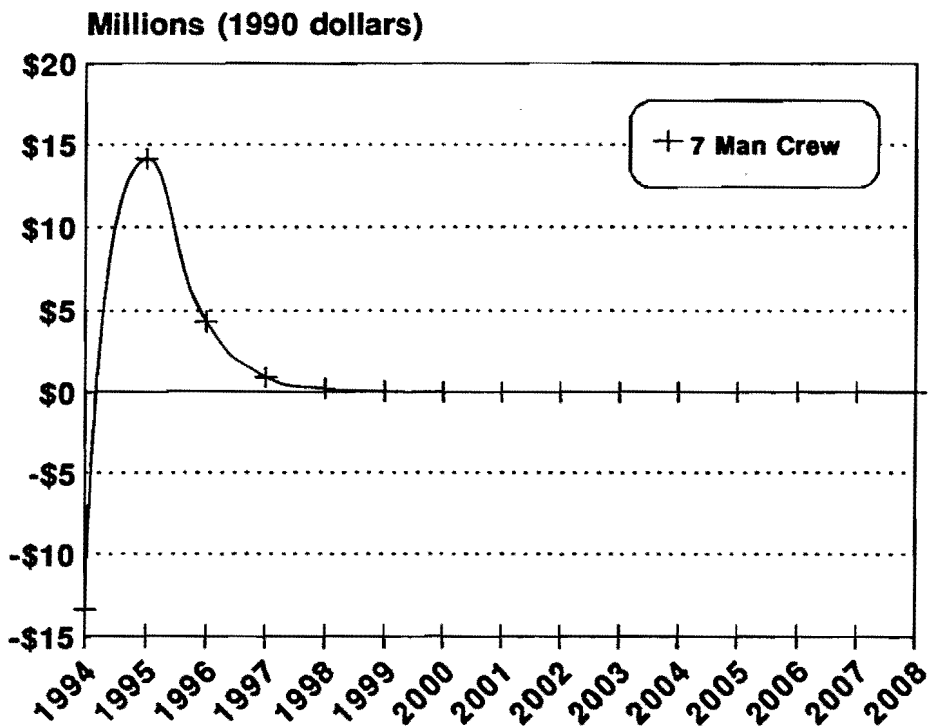
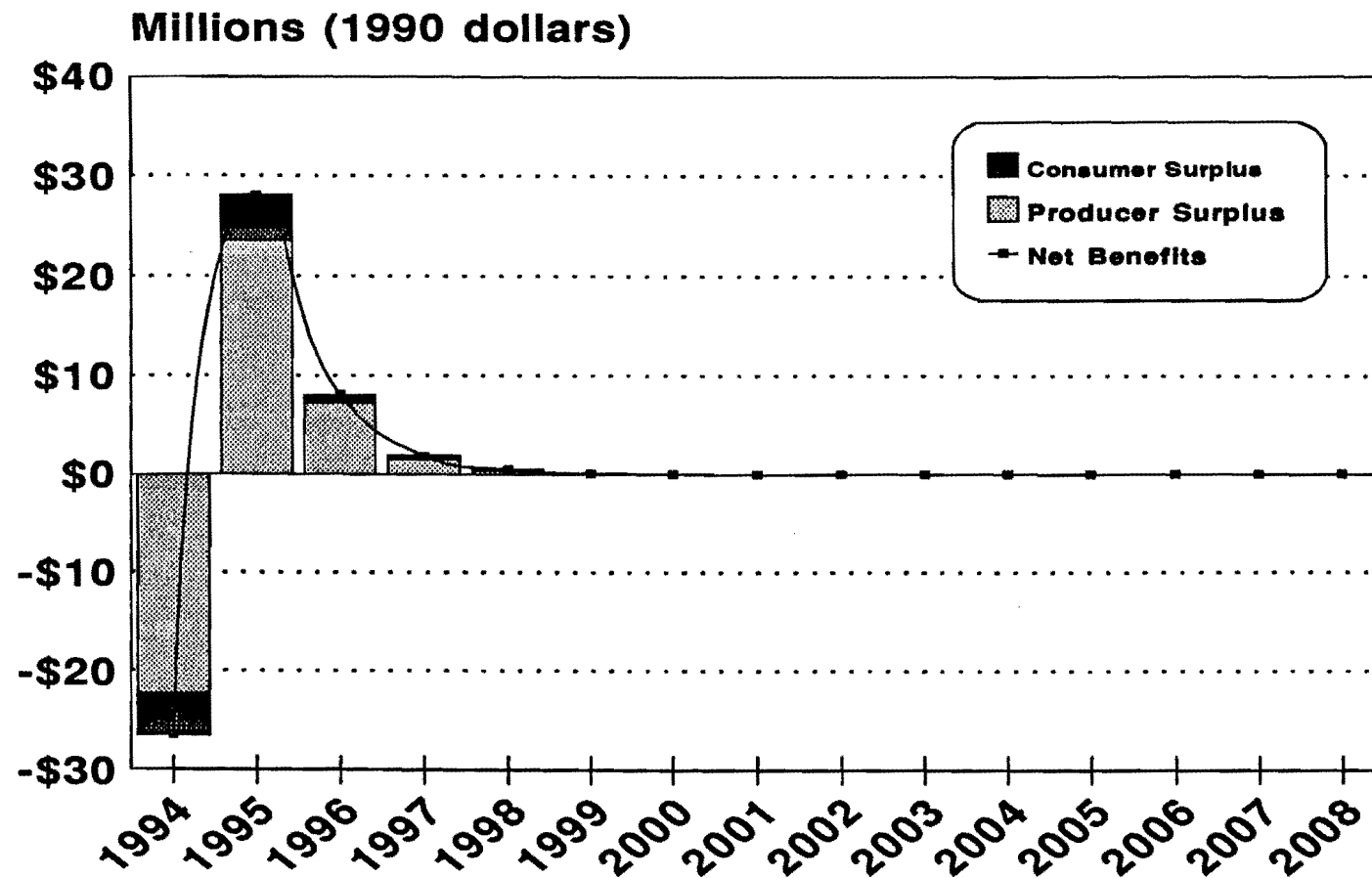
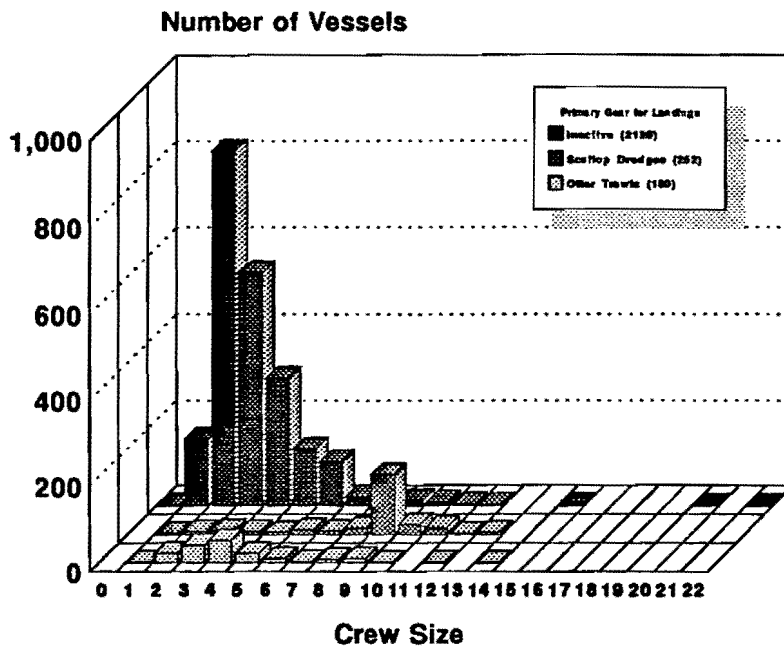


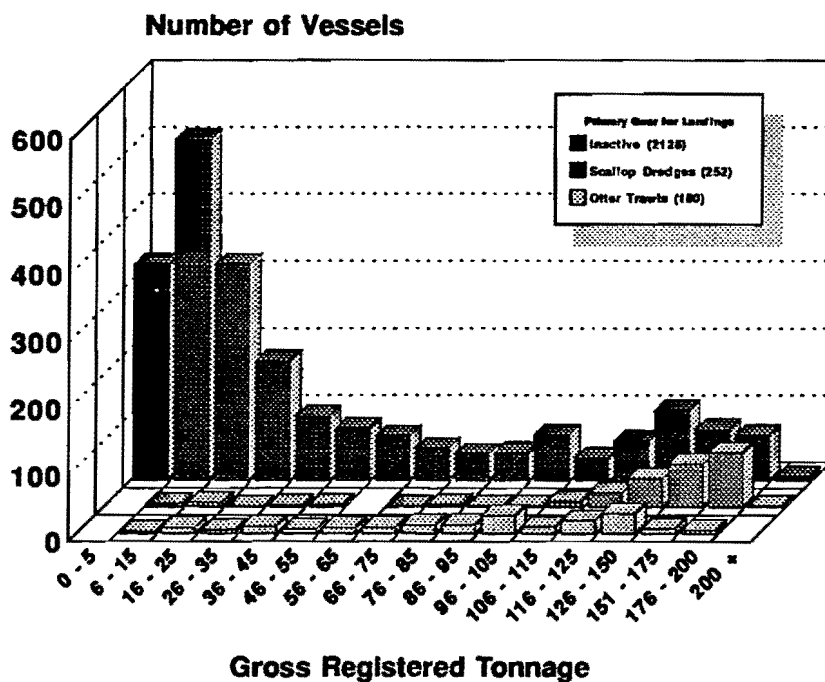
Figure 6. Annual change in profits under a 40/60 split of gross stock.



**Figure 7. Composition of annual net benefits for a seven man crew limit compared to a nine man crew limit. Discount rate equals five percent.**



**Figure 8.** Vessel crew size on 1992 permit applications. Primary gear is the gear which produced the majority of annual revenue. Inactive vessels are scallop permit holders that had no recorded landings in the NMFS weighout data. Source: NMFS permit records.



**Figure 9.** Gross registered tonnage reported on 1992 permit applications by primary gear used. Source: NMFS permit records.

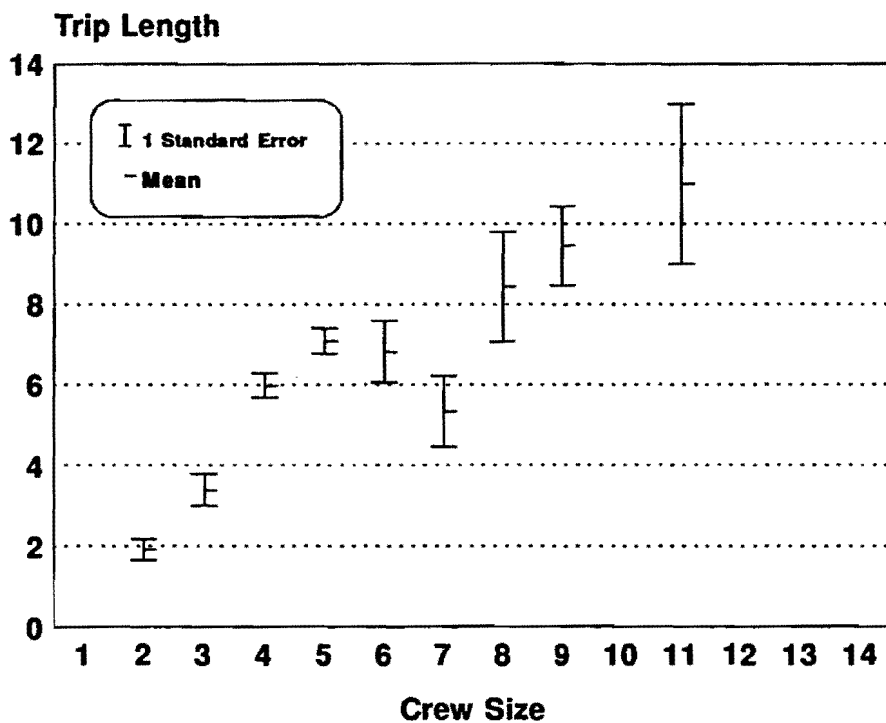


Figure 10. Trip length versus crew size reported on 1992 permit applications for scallop otter trawl vessels.

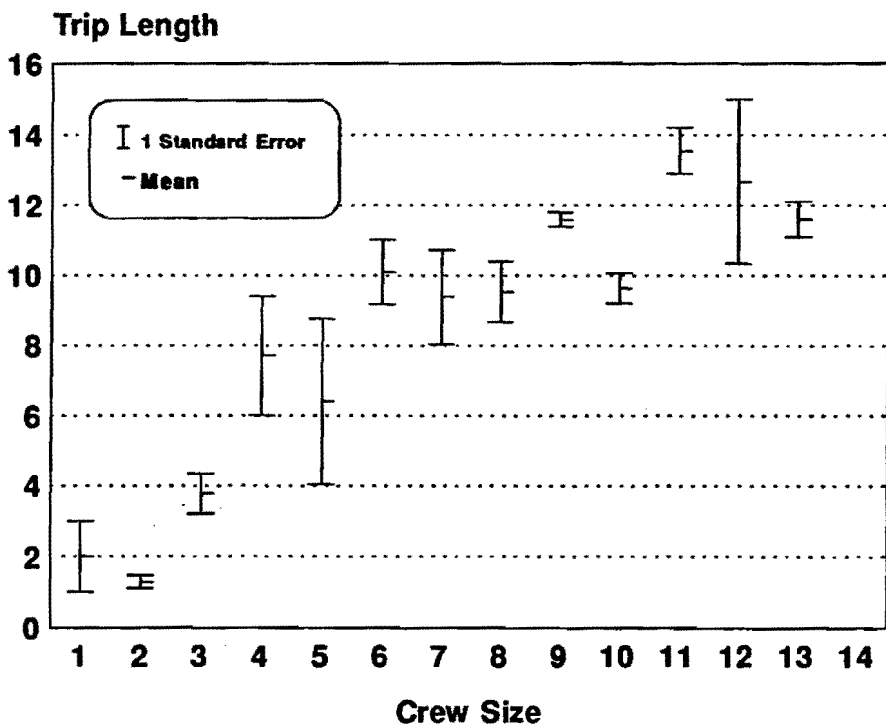
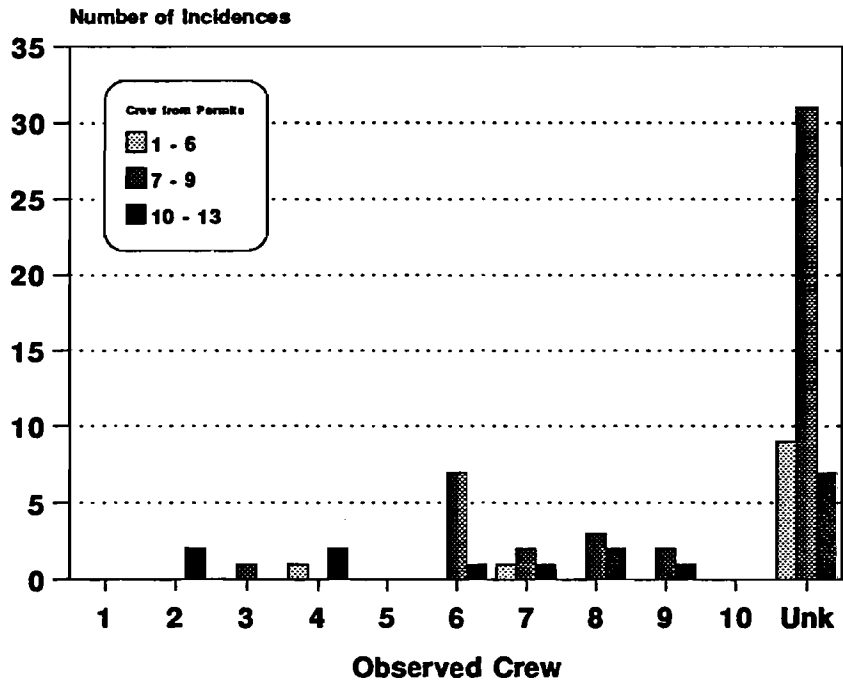
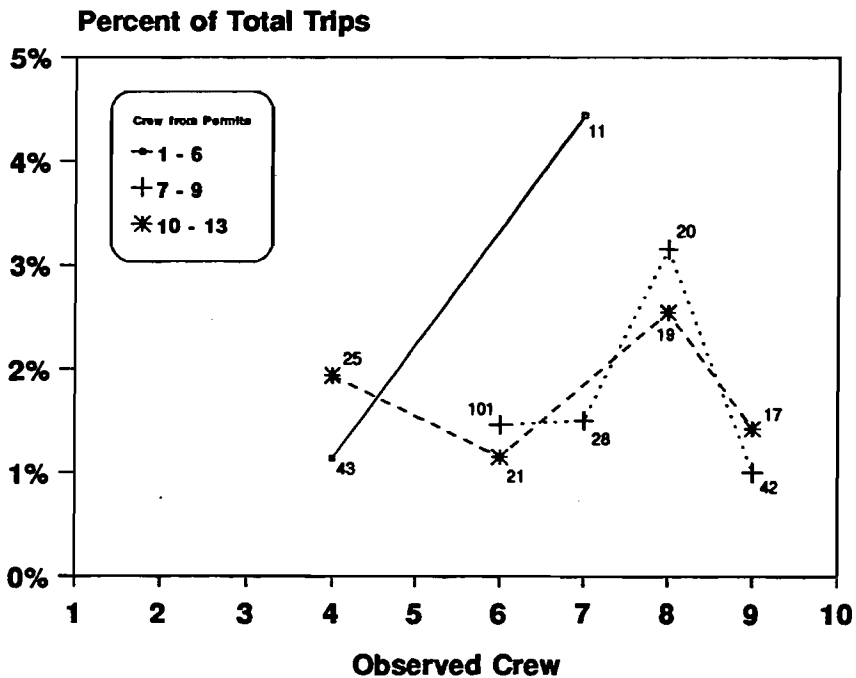


Figure 11. Trip length versus crew size reported on 1992 permit applications for scallop dredge vessels.

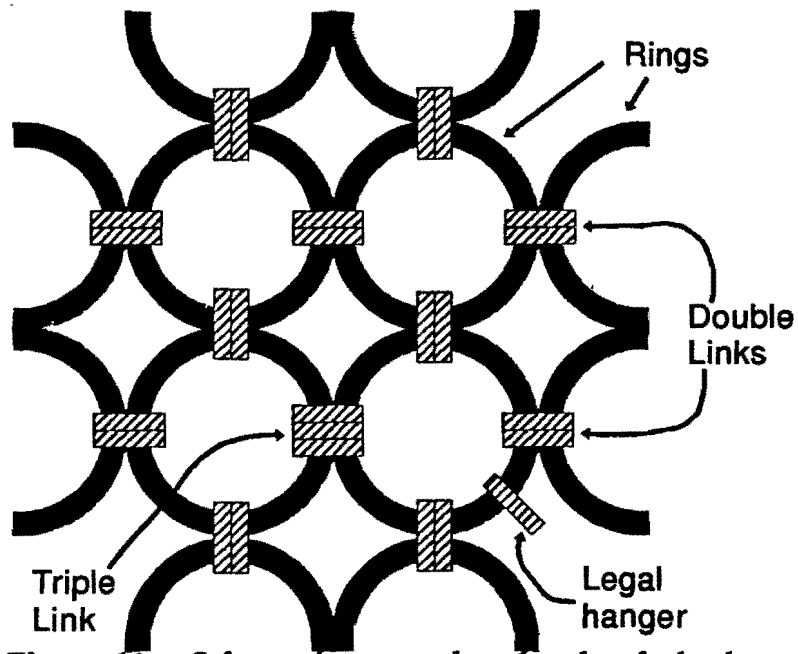




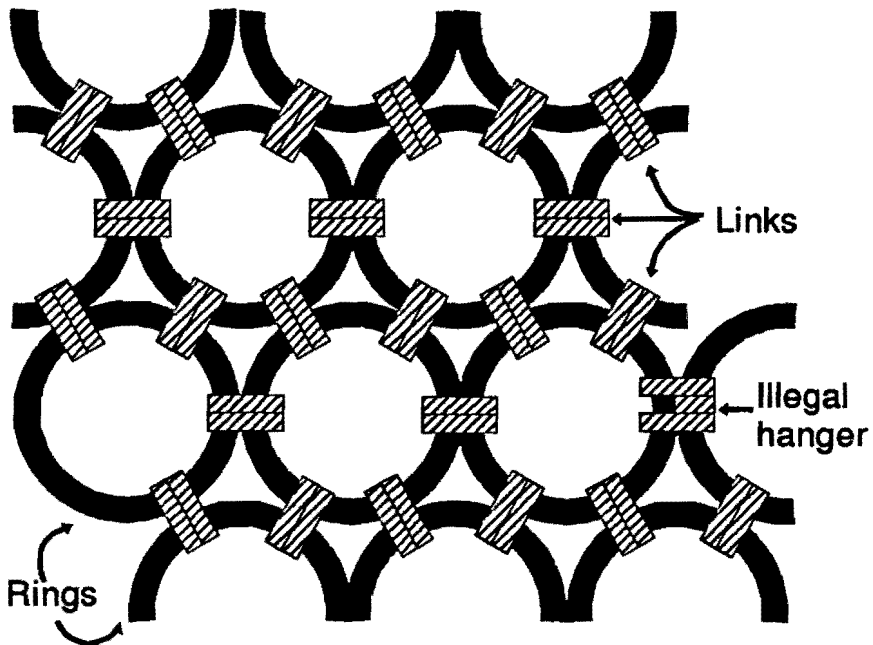
**Figure 12.** Crew size aboard scallop dredge vessels observed by USCG when responding to calls for assistance during 1993, i.e. casualties (Robert Higgins, Fishing Vessel Safety Coordinator, USCG First District, pers. comm.).



**Figure 13.** Casualty rate (incidents per trip) versus observed crew size aboard scallop dredge vessels, 1993. N = total number of trips for vessels having casualties.



**Figure 14.** Schematic example of a legal dredge ring pattern. A triple link is shown that would only be legal in the bottom of the dredge bag and the diamonds. A legal broken link (i.e. hanger) is also shown. Not drawn to scale.



**Figure 15.** Schematic example of an illegal dredge ring pattern. Rings are linked to more than four rings and are hung on the diagonal, significantly reducing scallop escapement. An illegal hanger within a double link is also shown. Not drawn to scale.

## **9.0 AMENDATORY LANGUAGE**

### 9.1 Crew Size

The paragraph on crew limits in §821 is amended as follows:

Crew size: All limited access vessels (dredge, trawl, and other) will be restricted to a maximum crew of *seven through December 31, 1993, and of<sup>7</sup> nine thereafter*, while fishing for scallops. Qualifying vessels that are permitted under the 10.5 foot dredge exception will be restricted to a maximum crew size of five. This limitation includes the captain and all personnel aboard the vessel while fishing, except persons authorized by the Regional Director. Limited access vessels do not have restrictions on crew size while fishing for other species and possessing less than 400 pounds (50 U.S. bushels) of scallops. This measure is intended to help limit efficiency improvements which would tend to mitigate fishing effort reductions.

### 9.2 Days-at-sea Control

The reference to Table 45 in §821 is replaced by Table 1 in Framework Adjustment #1.

### 9.3 Gear Restrictions

The paragraphs on dredge restrictions in §821 are amended as follows:

Dredge restrictions: The escapement of small scallops and by-catch will be enhanced through the following provisions:

All scallop dredges will be required to use at least 3¼" rings upon the date of implementation. At the beginning of year three of the fishing effort reduction schedule, all scallop dredges will be required to use at least 3½" rings. Vessels may not possess rings onboard which are less than these limits.

A maximum 30-foot total dredge width (for example, two 15 foot dredges) ~~will be required onboard~~ *may be in use at any time. One spare dredge may be aboard the vessel, if it is stored in an unfishable condition. This condition includes the separate stowage of a chain bag and bail.* Qualifying vessels may apply for an alternative permit that requires a single ten foot, six inch (10.5 feet) dredge and the applicant will receive a one-category increase in days at sea. This restriction will remain in place until the annual permit expires.

Chafing gear, cookies, or any devices which obstruct the top *half* of the dredge gear are prohibited on any scallop dredge. Scallop dredges are required to have no more than

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<sup>7</sup> New language is italicized and deleted language is struck out.

double linking between rings, *except triple linking is permissible on the bottom half of the dredge bag and diamonds. Damaged links which are connected to only one ring, i.e. "hangers" are permissible unless they occur between two links that both couple the same two rings. Dredge rings may be attached via links to no more than four adjacent rings. Thus, dredge rings will be rigged in a configuration so that when a series of adjacent rings are held horizontally, the neighboring rings form a pattern of horizontal rows and vertical columns (Figure 14, Framework Adjustment #1).*

Additionally, a minimum mesh of 5½" for twine-tops will be required on all dredge gear.

The paragraphs on dredge restrictions in §821 are amended as follows:

Trawl Restrictions: The escapement of small scallops and by-catch will be enhanced through the following provisions:

All trawl vessels which trawl north and east of Hudson Canyon and possess or land more than 400 pounds, 50 U.S. bushels, of scallops will be limited to at least 5½" minimum mesh (throughout the top and bottom), and no chafing gear will be permitted in the top half of the net. Scallopers using trawls south and west of Hudson Canyon are required to use mesh no less than 5". All scallop trawlers will be limited to a 5½" minimum mesh after year two. The Regional Director will establish a line running through Hudson canyon for this purpose and will consider the recommendations of the industry, the U.S. Coast Guard, and the Council.

All trawl vessels which possess or land more than 400 pounds, 50 U.S. bushels, of scallops are limited trawls with a maximum 144-foot sweep. *One properly stowed spare trawl is allowed onboard which meets both of the above mesh size and maximum sweep restrictions.*

## **10.0 PROPOSED REGULATIONS**

**DEPARTMENT OF COMMERCE**

**National Oceanic and Atmospheric Administration**

**50 CFR Part 650**

**Atlantic Sea Scallop Fishery**

**AGENCY:** National Marine Fisheries Service (NMFS), National Oceanic and Atmospheric Administration (NOAA), Commerce.

**ACTION:** Final rule.

**SUMMARY:** NMFS issues this final rule to implement measures contained in Framework Adjustment 1 to the Fishery Management Plan (FMP) for the Atlantic Sea Scallop Fishery as amendment. Amendment 4 substantially revised the management of the Atlantic Sea Scallop Fishery, especially regarding effort control in the fishery, permits, and reporting and recordkeeping requirements. The intent of this Framework Adjustment is to make a temporary adjustment to the maximum crew limit to preserve small scallops and make other technical adjustments to gear requirements and days at sea allocations in 50 CFR Part 650.

**EFFECTIVE DATE:**

**ADDRESSES:** Copies of Amendment 4, its regulatory impact review (RIR), initial regulatory flexibility analysis (IRFA), the final supplemental environmental impact statement (FSEIS), and the supporting documents for Framework Adjustment 1 are available from Douglas Marshall, Executive Director, New England Fishery Management Council, Suntaug Office Park, 5 Broadway (U.S. Route 1), Saugus, MA 01906-1097, telephone 617-565-8937 FIS or 617-231-0422 commercial. Copies of the Finance Handbook may be obtained from Mr. Joseph Giza, Chief, Fiscal Policy and Quality Assurance Branch, NOAA Financial Management Division, Caller Service No. 8025, 20020 Century Boulevard, Germantown, Maryland 20874, telephone 301-443-8795. Comments regarding the burden-hour estimates or any other aspect of the collection-of-information requirements contained in this final rule should be sent to Richard B. Roe, Regional Director, One Blackburn Drive, Gloucester, MA 01930, and the Office of Management and Budget (OMB) (Attention NOAA Desk Officer), Washington, DC 20503.

**FOR FURTHER INFORMATION CONTACT:** Paul H. Jones, Fishery Policy Analyst, 508-281-9273.

**SUPPLEMENTARY INFORMATION:**

Framework Adjustment #1  
Atlantic Sea Scallop FMP

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3/24/94

## Background

Amendment 4 to Fishery Management Plan for Atlantic Sea Scallops, Placopecten magellanicus (Gmelin) was approved on November 5, 1993, but its implementation was delayed until March 1, 1994. The Amendment is designed to enable the plan's objectives to be met. Those objectives are: 1) to restore adult stock abundance and age distribution; 2) to increase yield per recruit for each stock; 3) to evaluate plan research, development and enforcement costs; and 4) to minimize adverse environmental impacts on sea scallops.

Amendment 4 changed the primary management strategy from a meat count (size) control to effort control for all resource areas. In place of meat count controls, the amendment controls total fishing effort through limited entry and a schedule of reductions in allowable time at sea. Supplemental measures limit increases in vessel fishing power to control the amount of fishing pressure associated with a day at sea and to help control the size of scallops landed. These measures include gear restrictions, limits on the number of crew members, and vessel restrictions. There are also catch limits for vessels not in the limited access fishery and the amendment includes a framework procedure for adjusting all the management measures in the plan.

The adjustments being made through the framework process (§ 650.40) are within the scope of analyses contained within Amendment 4 and the FSEIS. Supplemental rationale and analyses of expected biological effects, economic impacts, impacts on employment, and safety concerns are contained within the supporting documents for Framework Adjustment 1 (see ADDRESSES).

### Protection of small scallops

Although Amendment 4 has been approved only recently, the Council and NMFS are concerned about the immediate protection of small sea scallops. This concern was reflected in the Regional Director's letter of approval which advised the Council that NMFS would carefully monitor the initial impact of the amendment on fishing mortality of small sea scallops. If fishing mortality increases beyond anticipated levels, the Council is expected to protect sea scallop stocks by immediately implementing adjustments under the framework procedures.

In response to very high levels of recruitment that have been documented in the Mid-Atlantic resource area (Regional Director's Status Report, January 1994) and concern over the effectiveness of the 3¼ inch ring size restriction in reducing fishing mortality on small scallops, the Council is proposing measures to reduce the maximum crew limit and to ensure the adequate escapement of small scallops from dredge gear.

### Effort reduction schedule

Additionally, to ensure that effort reduction program is implemented on the intended schedule, the Council is proposing a measure that would implement the first year's days



at sea reductions on an annual (full-year) rather than on a part-year basis. Because of the way the amendment has been currently implemented, there may be no reduction in fishing effort until the end 1995. Failing to reduce fishing mortality gradually would impose a large economic burden on the fishing industry in later years as it tried to make up these shortcomings.

#### Other measures

To allow vessels to operate efficiently the Council is considering a provision that would allow vessels to carry a spare dredge so that they would not be forced to return to port to make major dredge repairs.

#### Classification

The Secretary of Commerce (Secretary) determined that the framework adjustments to the Atlantic Sea Scallop FMP that this rule would implement are consistent with the national standards, other provisions of the Magnuson Act, and other applicable law. The Secretary, in making that determination, has taken into account the information, views, and comments received during the two public hearings and the comment period of the FMP's framework adjustment mechanism specified in § 650.40. Considering the opportunity for public comment on the proposed adjustments, the Secretary has waived for good cause the proposed rules and additional comment period.

The Assistant Administrator has determined, based on the Regulatory Impact Review (RIR) prepared for this rule, that this is not a "significant regulatory action" and does not require additional review by the Office of Information and Regulatory Affairs, Office of Management and Budget under E.O. 12866. The proposed action will not have an annual effect on the economy of \$100 million or more, nor will it adversely affect in a material way the economy, a sector of the economy, productivity, competition, jobs, the environment, public health or safety, or State, local or tribal governments or communities. It does not create a serious inconsistency or otherwise interfere with an action taken or planned by another agency, nor does it materially alter the budgetary impact of entitlements, grants, user fees, or loan programs or the rights and obligations of recipients thereof. The proposed action does not raise novel legal or policy issues arising out of legal mandates, the President's priorities, or the principles set forth in E.O. 12866.

NMFS certified to the Small Business Administrations that this rule will not have a significant economic impact on a substantial number of small entities. A copy of the RIR may be obtained from NMFS (see ADDRESSES).

The rule contains no new collection-of-information requirements nor revises any requirements previously approved by OMB under Control Numbers 0648-0202 and 0648-0229 and 0648-0018. OMB approval, therefore, is unnecessary.

**List of Subjects in 50 CFR Part 650**

Fisheries.

Dated:

**Rolland A. Schmitten**

Assistant Administrator for Fisheries, National Marine Fisheries Service

For the reasons set out in the preamble, specific sections of 50 CFR part 650 are revised to read as follows:

**PART 650--ATLANTIC SEA SCALLOP FISHERY**

**Subpart A--General Provisions**

1. Section 650.2 is amended by adding the following:

**§ 650.2 Definitions.**

\* \* \* \* \*

*Dredge bottom* means the rings and links found between the bail of the dredge and the club stick which, when fishing, would be in contact with the sea bed. This definition includes the triangular shaped portions of the ring bag commonly known as "diamonds".

\* \* \* \* \*

*Link* means the material, usually made of a  $\frac{3}{8}$  or  $\frac{7}{16}$  inch diameter metal rod, which joins two adjacent rings within the ring bag of a dredge. Damaged links which are only attached on one ring are not considered to be links for the purposes of § 650.9(b)(15) and § 650.9(c)(6).

\* \* \* \* \*

2. Section 650.9 is amended by revising paragraphs (b) and (c) to read as follows:

**§ 650.9 Prohibitions.**

\* \* \* \* \*

(b) In addition to the prohibitions specified in paragraph (a) of this section, it is unlawful for any person owning or operating a vessel issued a limited access scallop permit under § 650.4(a), or a letter under § 650.4(a)(9)(vi)(D), to do any of the following:

\* \* \* \* \*

(8) Possess more than 40 pounds (18.14 kg) of shucked scallops or 5 U.S. bushels (176.1 l) of in-shell scallops while in possession of, or fish under the DAS allocation program with, trawl nets which do not comply with net stowage requirements specified in § 650.21(a)(2)(iii) and that have a maximum sweep exceeding 144 feet (43.9 m), as

measured by the total length of the footrope that is directly attached to the webbing of the net.

\* \* \* \* \*

(11) Possess more than 40 pounds (18.14 kg) of shucked scallops or 5 U.S. bushels (176.1 l) of in-shell scallops while in possession of, or fish under the DAS allocation program with, fishable dredge gear specified in § 650.21(b)(1) that has a maximum combined dredge width exceeding 31 feet (9.4 m), measured at the widest point in the bail of each dredge.

\* \* \* \* \*

(14) Possess more than 40 pounds (18.14 kg) of shucked scallops or 5 U.S. bushels (176.1 l) of in-shell scallops while in possession of, or fish under the DAS allocation program with, dredge gear that uses illegal links between rings of the gear and does not have ring configurations, both specified in § 650.21(b)(4)(ii).

(15) Possess more than 40 pounds (18.14 kg) of shucked scallops or 5 U.S. bushels (176.1 l) of in-shell scallops while in possession of, or fish under the DAS allocation program with, dredge gear that uses cookies, chafing gear or other gear, means, or devices on the top half of a dredge that obstruct the openings in or between the rings, other than the method of linking rings and the presence of damaged links (i.e. "hangers") as specified and described in § 650.21(b)(4).

(16) Fish under the DAS allocation program with more than the number of persons specified in § 650.21(c), including the operator, on board the vessel, unless otherwise authorized by the Regional Director.

\* \* \* \* \*

(c) In addition to the prohibitions specified in paragraph (a) of this section, it is unlawful for any person owning or operating a vessel issued a general scallop permit under § 650.4(b) to do any of the following:

\* \* \* \* \*

(5) Possess more than 40 pounds (18.14 kg) of shucked scallops or 5 U.S. bushels (176.1 l) of in-shell scallops while in possession of, or fish for scallops with, dredge gear that uses illegal links between rings of the gear and does not have ring configurations, both specified in § 650.21(b)(4)(ii).

(6) Possess more than 40 pounds (18.14 kg) of shucked scallops or 5 U.S. bushels (176.1 l) of in-shell scallops while in possession of, or fish for scallops with, dredge gear that uses cookies, chafing gear or other gear, means, or devices on the top half of a dredge that obstruct the openings in or between the rings, other than the method of linking rings and the presence of damaged links (i.e. "hangers") as specified and described in § 650.21(b)(4).

\* \* \* \* \*

**Subpart B--Management Measures**

3. Section 650.21 is amended by revising paragraphs (a), (b), and (c) to read as follows:

**§ 650.21 Gear and crew restrictions.**

(a) *Trawl vessel gear restrictions.* Trawl vessels in possession of more than 40 pounds (18.14 kg) of shucked scallops or 5 U.S. bushels (176.2 l) of in-shell scallops, trawl vessels fishing for scallops, and trawl vessels issued a limited access scallop permit under § 650.4(a), while fishing under or subject to the DAS allocation program for sea scallops, must comply with the following:

(1) *Maximum sweep.* The trawl sweep of nets in use by or available for immediate use (paragraph (a)(2)(iii) of this section) shall not exceed 144 feet (43.9 m) as measured by the total length of the footrope that is directly attached to the webbing of the net.

\* \* \* \* \*

(b) *Dredge vessel gear restrictions.* All dredge vessels fishing for or in possession of more than 40 pounds (18.14 kg) of shucked scallops or 5 U.S. bushels (176.2 l) of in-shell scallops, and all dredge vessels issued a limited access scallop permit under the DAS Program, with the exception of hydraulic clam dredges and mahogany quahog dredges in possession of 400 pounds or less (181.44 kg) of sea scallops, must comply with the following restrictions:

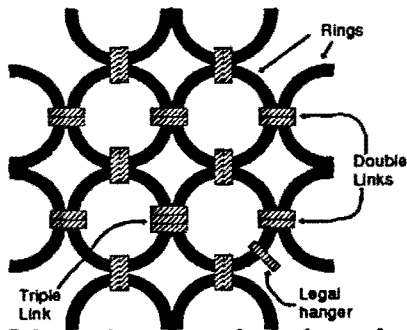
(1) *Maximum dredge width.* The combined dredge width in use by or in possession of such vessels shall not exceed 31 feet (9.4 m) measured at the widest point in the bail of the dredge, except as provided under paragraph (e) of this section or except when one complete set of spare dredge gear is in possession but does not conform with the definition of "dredge or dredge gear" in § 650.2, i.e. the metal ring bag and the mouth frame, or bail, of the dredge are not attached.

\* \* \* \* \*

(4) *Chafing gear and other gear obstructions*

\* \* \* \* \*

(ii) *Link restrictions.* No more than double links between rings shall be used in or on the top and sides of dredge bag. No more than triple linking shall be used on the bottom portion of the dredge bag (see DREDGE BOTTOM defined in § 650.2) and the diamonds. Damaged links which are connected to only one ring, i.e. "hangers", are prohibited in any portion of the ring bag if they occur between two links that both couple the same two rings, i.e. within a double link, or within a triple link on the bottom portion of the dredge bag or the diamonds. Dredge rings may not be attached via links to more than four adjacent rings. Thus, dredge rings will be rigged in a configuration that when a series of adjacent rings are held horizontally, the neighboring rings form a pattern of horizontal rows and vertical columns as follows:



Schematic example of a legal dredge ring pattern. A triple link is shown that is legal only in the dredge bottom. A legal broken link (i.e. hanger) is also shown. Not drawn to scale.

(iii) *Dredge or net obstructions.* No material, device, net, or dredge configuration or design shall be used if it results in obstructing the release of scallops that would have passed through a legal size net and dredge that did not have in use any such material, device, or net or dredge configuration or design. Excessive and systematic use of damaged links, i.e. "hangers", shall not be used to obstruct a dredge.

\* \* \* \* \*

(c) *Crew restrictions.* Limited access vessels fishing under or subject to the scallop DAS allocation program may have no more than seven people until December 31, 1994 and nine people thereafter, including the operator, on board unless fishing under the small dredge program specified in §650.21(e), or otherwise authorized by the Regional Director.

\* \* \* \* \*

4. Section 650.24 is amended by revising paragraph (c) as follows:

§ 650.24 Days-at-sea (DAS) allocations.

\* \* \* \* \*

(c) *DAS allocations.*

\* \* \* \* \*

(1) *Annual DAS allocations.* The annual allocations of DAS of each category of vessel specified in paragraph (a) of this section shall be as follows:

DAS category	Year 1	Years 2&3	Year 4	Years 5&6	Years 7+
Full-time.....	204	182	164	142	120
Part-time.....	91	82	66	57	48
Occasional.....	18	16	14	12	10

"Year 1" shall begin on March 1, 1994 and extend twelve months through February 28, 1995. Subsequent "Years" shall be twelve month periods beginning March 1 of each year.

\* \* \* \* \*



## **11.0 PUBLIC COMMENTS**





11.1 Danvers, MA - February 16, 1993

Seven Crew Member Limit

**Howard Nickerson, Offshore Mariners Assoc:** Anytime there are not enough men on deck there is a problem, I worry that in order to get the few, so called legal scallops, they will have to shovel overboard tons of other scallops. I will read the following statement from the New Bedford scallopers into the record.

We in the New Bedford and Fairhaven port area are very upset that we have a landing sea scallop count of less than 40 meats per pound because they are quality fresh scallops. Frozen scallops, on the other hand, have no count for law enforcement purposes. This means that sea scallops in southern waters can be landed if frozen, fifty to one hundred in count. The whole resource, if left alone and the area closed for two or three years could maintain a high quality legal sea scallops for many year to come. I do not speak only for himself this has been in discussion with some people from Cape May, NJ who feel very strongly also. About six months ago I questioned should the New Bedford fleet install freezer capacity and head south. We have the room and the finances. Personally I am opposed as well as are many of our members. Others feel I gave them questionable advice six months ago and in order to tell them no, you don't need to install a freezer because the Council will do something about these small scallops. Others feel I gave them questionable advice six months ago. In my position, regardless of my personal opinion, I cannot continue to give questionable advice. Why, is this travesty of justice allowed to continue? Frozen versus fresh count that can only ruin a resource badly needed in a few years. I think that is just a way to get around the small size. If you are going to pick over a pile of scallops on deck and shovel two thirds of them over again we are back at the same old position that we have always been in. There seems to be a resentment of saving scallops for the future.

**Harriet Didrikson, Matapoissett scallop boat owner:** I heard someone say that there had been discussion at the oversight meeting that perhaps more men would be needed in the winter, less men in the other months.

**Mr. Coates:** That point was raised by a scalloper that larger crews might be needed in the winter rather than in the summer. We will look at that situation which is why there is a sunset of December 1994.

**Mrs. Didriksen:** The atmosphere in the room still seemed to be that the fishermen would violate the rules. I understand that when the Coast Guard comes on board, everybody is aware that they are there and they are looking at identification and I am disturbed by some of the comments.

Mr. Coates: That was the point that Mr. Austin was trying to make at the committee meeting that they do not anticipate a big problem with this, but if there is a problem they can go to the next level. The Coast Guard also have the responsibility for dealing with alien smuggling and what he was saying to the industry was that they expect the captains were going to comply with this, but if the Coast Guard do detect levels of non-compliance then they would have to go to the next notch up and they could spend all day checking the boat in more detail.

#### Annual Days at Sea Allocation

Mr. Marshall said that if the Council took that action there are many things that would have to be done to get onto a calendar year basis by January 1, 1995.

Mr. Coates said that the motion, as presented by Mr. Allen at the Committee meeting, was to get off the pro-rated system and give the Committee enough time to develop possible mechanisms to create a shift back to a calendar year basis. He said that most people were not fishing the first part of this year and if DAS had been in place, most people would not have opted to use them. That could have been used as a shift or block and we would have had the ability to move 30 days at a time over a two year period to get this thing back in sync.

Mr. Allen said he thought they would need that time to figure out a logical way to get back onto the calendar year if appropriate. He said the basic intent was to start the 365 day year.

Mr. Marshall asked if that implied that they would do nothing between what ever the implementation date was and one full year from that so that you would not start on January 1, 1995 on the next effort reduction level.

Mr. Allen said that when the 365 days was up a fisherman might be entering a different schedule.

Mr. Roe said that he did not think it made any difference because these plans have already been approved and they have set up a staggered process for the scallop permits which will start March 1. He said that there was no difference whether the 365 days are counted in March or February. He said the two glitches that have to be fixed are 1) is that the regulations indicate that for a limited effort permit, the applicant has to apply by December 31 of the year before. That gives NMFS almost three months to process permits if we had a March 1 annual fishery. 2) the small dredge fishery requires an annual declaration. He said the region is already caught in the staggered permitting system.

Mr. Rathbun said that it might be better to have a staggered year. He said that if they went to a calendar year on both, there would be a problem knowing if there were any violations on the boat. He suggested a July 1 start for the fishing year and the January 1 start for the permit.

Mr. Martin said that this seems to be setting up a system where fishermen are having to apply a number of times, depending on which fishery they want to be in. They are not going to be able to apply at once.

Mr. Mirarchi said that the criticisms that he has heard was that everything is happening at once and it might be better to have them staggered. He thought that if no one can find a great administrative hurdle to identify that requires everything coming to a central point at a common time. it was beginning to look as if having staggered cycles for permitting fisheries might be advantageous.

Mrs. Didriksen: I do not understand that if it was gong to be all in the same cycle down the line how can that be done, when you are starting from behind. A person has to have so many DAS and that will take a year if you have them over a twelve month period. Then you want the licensing to come in in January, how can the two every catch up when you start in an off calendar year.

Kirk Larsen, New Jersey scallop boat owner: I have a question about the motion that was made before on the crew size. He asked if he should use his time with the nine man after the first of the year.

He was told that it was up to him.

#### Dredge design and ring configurations

Mrs. Didriksen: There are no three inch rings available. The three and one quarter are not available. People do not have rings to go fishing you are sitting here now saying the new gear may be not much different than the old gear. I hope this is a lesson and maybe something can happen and we can proceed fishing. Its a fishing nightmare. As a seller to people representing a fish channel.....tape ended. The fishermen are buying new gear. We are in financial strife. The old gear might have done the job. I hope that you are taking all this into consideration.

Raymond Starvish, scallop boat owner: I have written to Regional Director Roe and to Washington that the scallopers be allowed to put three links in the bottom of the bag. Can this be incorporated into this motion? The way it works now, it is impossible to repair our gear. I sent rings to Mr. Roe showing him the two worn out links and how we put a brand new one in between. This is the way we have been repairing gear since the beginning of scalloping. The way the regulations are written now at the end of a

trip we will have to strip the bags and diamonds down to rings and redo every single one every trip. The way we do it now, is we get a trip or two with the two links in and then we add one new link in between the two that are worn out and we can go fishing again. By the time that link gets worn out the rings are worn out and we throw the whole thing away. Could that be written into the motion so that when the Coast Guard boards us and they find three links in the ring and only in the bottom of the bag. You are very concerned about escapement and the reason for the two links is that they thought that guys would put four or five links in the three and one quarter inch rings in the apron and thus accomplish what the cookies accomplish—close the space up between. If you could put as many links as you could, right, you could close this space up. I am only talking about the bottom of the bag and the diamonds, not the apron part.

Mr. Coates said they were working on it and discussed it at the committee meeting. He said there was no objection by the committee to incorporate that. The PDT looked at it and I believe they came up with a number of thus allowable links. He said they were not comfortable with that and they planned to ask the industry advisors to develop more specific language. First of all I don't believe the bottom of the bag or the dredges defined in the regulations, so you have to define that and say within that three links could be allowed or something like that. It is being worked on.

Mr. Starvish: Could you add this to the motion, because they would have boats going fishing on March 1.

Mr. Coates said we do not know exactly how to word it except to say "three links would be allowable in the bottom of the chain bag." He thought they would have to come up with more precise language than that.

Mr. Marshall said, he was not sure, but he vaguely remembered that the whole idea of not more than double links came from industry itself. If that is a correct recollection than I don't see why the guys who made it would not have been aware of the problems you are talking about.

Mr. Starvish: This is in the apron part, the top of the bag. The apron is what you are concerned about. The configuration that Mr.Coates is talking about of staggering the rings is not for the chain bag it is for the apron.

Mr. Marshall said he was talking about the double linking.

Mr. Starvish: Yes. 90% of scallop escapement is not through the bottom of the bag but through the top. That is why they put cookies in the top, not in the bottom. The bottom is what wears out. Usually, on normal type fishing, you get two aprons—one apron lasts the length of two or three chain bags. You have to keep repairing. The stuff on the top

of the bag wears out from salt water and decay--the bottom part gets pulled over the bottom and that gets physically worn out, so you have put a new link in between. If we are not allowed to put three links, every time a ring brakes or something, then the Coast Guard will come aboard and say you have too many links here and the scalloper is in more trouble. We have to be able to repair the gear. This is a real problem that is coming up on March 1. Speaking of March 1, boats that go out on February 28 with three-inch rings, do they carry the other ones with them and change over the next day or can they finish their trip?

Mr. Coates said he did not see any final disposition by the committee on the link issue. He said there was discussion and everybody agreed and there was not objection to having three links in the bottom part of the bag if it will accommodate the problem. He said that he could amend the current motion that "triple linking could be allowed in the bottom of the chain bag." He suggested that this could be remanded to the Enforcement Committee for the proper language. He realized that it was a legitimate concern, but he would like to move on.

Provisions for spare dredges

No public comments were made.



## 11.2 Peabody, MA - March 17, 1993

Mr. Coates noted that the Council voted at the February 16, 1994 Council meeting to reduce the crew size from nine man maximum crew which is now authorized under Amendment #4 to a crew of seven. He asked for public comment.

### Reduction of Crew Size

**Roy Enoksen:** I would like to lend my support for whatever it is worth to that concept. I think it is something we need and will limit the amount of small scallops that can be taken. If you don't have the shucking power, you can't bring in a large volume of small scallops. Also as an aside to the problem of small scallops, the pricing structure on the very small ones seems to be already having somewhat of a limiting effect on the landings.

Mr. Allen said to Mr. Enoksen that the Council has received comments in opposition to the reduction in crew size as pertains to the safety factor. He asked for his opinion on the safety of a seven man crew.

**Mr. Enoksen:** I think the perception is going to be that the less people you have the more unsafe it will be. But, if you think back we use to go thirteen men, then eleven and then everybody thought nine men was not enough people. There are different things that have come into the business over the past few years. More automation. You can have pilot house controls on boats. You can do some things to help you in the safety aspects of it. If you think about the number of people, if you don't adhere to safe standards it really doesn't matter how many people you have. If you want to work long watches, your going to work long watches whether you have nine men, ten men or six men. Driggers use to go thirteen men years ago and are now to five or six or four. I don't hear anyone talking about safety any more. If you don't want to adhere to the rules that make sense then your are not going to.

**William Bomster:** I was very pleased to hear Roy's remarks. Seven men disadvantage him substantially as he has some of the biggest boats going and higher horsepower. His equipment will be pulled back to lesser boats and lesser horsepower. I am entirely in favor of seven men and possibly less if its necessary. But, I believe that is the way to go. As for safety precautions, most of the boats in New Bedford this past winter carried a lot less than seven men. Economically, in order to survive its what they had to do. Roy is right about the safety practices, either you practice safety or not. As far as automation of the winches and stuff it is a big help if you can go to the old way of pulling one dredge at a time if that's what necessary with a small crew. There have been scallopers with big boats working with four men crews.

Daniel Cohen: I would also like to speak in favor of limiting the crew to seven men. At any dock in Cape May, NJ right now we are landing significant quantities of small scallops and it makes me sick. I would like to believe that if we could somehow husband that large bed for a few months, they would grow up and maybe a year from now we will have large scallops. If this is one way of effectively conserving that resource including the 3-1/4 inch ring size that's great. I want to dispel one misconception about Chris Garvey's letter from Island Wide Marine. I think he's noting a word of caution. I don't think he is saying that seven men in itself is unsafe, especially seven men.....on a scallop vessel. The reason that I am saying that is that his insurance company insures all my vessels and they are insured for less than seven men and they are scalloping. His insurance company has had no problem with that. I think his fear is a generic fear that there might be some vessel that can't be operated safely in some conditions if you limit the number of men. But, if you look over all the scallops vessels I think everybody can work safely at seven men. Again, if a boat had some unusual circumstances maybe they might have to make some additional investment in their winches. There is no question that seven men is a safe level. We worked all winter with five men and his insurance company insured us.

At this point Mr. Marshall noted that there were letters in the binder under Tab 4 supporting the seven man crew as well as not supporting it.

Mr. Coates noted that there was a sunset provision on this measure of December 1994.

Dan Cohen: Unfortunately Bill DuPaul is not here, but I would disagree with Mr. Coates' last comment in terms of the sunset provision. If anything, if we are going to have a sunset provision, it should be really be March 31 of next year. According to Mr. DuPaul from VIMS, the largest growth spurt is in the months of January, February and March and these will probably achieve 30 to 40 count ..at least 30 count status by next year on April 1. If we want to protect that bed of scallops as long as possible we would probably put a sunset provision in here of at least through end of March of next year. During the winter time for fishing the channel or any where else with the stock we see there now ....last year everybody fished there four or five handed. A seven man crew will not make an effective difference for fishing elsewhere other than in the mid-Atlantic or Virginia so that if there is any intention to let be removed on December 31...I know you will revisit it at that time, but you might want to, even at this time, make it plain that you want to continue at least through this growth cycle. We're finishing a big growth spurt now and the next big growth spurt will be January through March of 1995 if I understand the biology.



## Annual Days at Sea Implementation

Mr. Coates said it was the intention of the Council to go with 365 DAS beginning March 1, 1994 and ending February 28, 1995 for the first year, but eventually get back to a calendar year.

No comments were offered by the public.

## Gear Restrictions

1. **Ring Configuration - Mr. Coates:** This would allow no more than the so-called four link hook up configuration. Dredge rings would be attached by links to no more than four adjacent rings thus prohibiting the so-called five leggers. The dredge rings will be rigged in a configuration and when a series of adjacent rings are held horizontally the neighboring rings form a pattern of horizontal rows and vertical columns.

There were no comments on ring configuration.

2. **Ring Linkage - Mr. Coates:** This came from industry who expressed their concern that our original proposal to prohibit all but double linking would have created real problems and was inconsistent with the traditional pattern of maintaining the dredge during fishing operations where links may wear out and they replace the two worn links with a third new link and they fish that configuration until the whole business wears out. Then, they replace the bag or the rings. Toward that end the Council adjusted the original proposal and recommend that scallop dredges be required to have no more than double linking between rings except triple linking is permitted in the bottom half of the dredge bag and the diamonds.

**Roy Enoksen:** I just received that package today and have not read it, but was the matter of the broken ring, leaving a link hanging, was that addressed?

**Mr. Coates:** I am not sure.

**Mr. Applegate:** The original genesis of this measure was on that basis. Many said that that type of action occurred on the bottom of the dredge due to wear. This was considered by the Committee and they suggested that this measure be phrased this way to allow triple linking on the bottom of the bag and the diamonds. Within this document there is no additional allowance for correcting hangers in other portions of the dredge other than cutting the hanger loose and installing a second link again.

**Roy Enoksen:** But that link doesn't connect two rings, it doesn't do anything. It's going to be just an act of nuisance and maybe a little bit of danger in rough weather if

a fellow brakes a ring in the apron and now he has to cut out eight links before he can put the ring in. Its foolish.

Mr. Coates: Do you think its acceptable to put in an additional sentence that this provision would not apply to unconnected links that might have been left behind in the course of dredge maintenance?

Council members agreed that it was acceptable to put that language in the package. The Regional Director agreed.

3. Spare Dredges and Nets - Mr. Coates: Again, an accommodation at the request of industry and an understandable one if we can allow spare nets in certain fisheries then why shouldn't we allow a broken down dredge, from the point of being disassembled, and toward that end we recommend the following:

a maximum of 30 foot total dredge width, for example two fifteen foot dredges, may be in use at any time. One spare dredge may be aboard the vessel if stored in an unfishable condition. This condition includes a separate storage of a chain bag and bale and only one properly stored spare trawl will be allowed on board and must meet both the mesh size and maximum sweep restrictions of the FMP and be stored as specified in Section 650.21 (a) (2)(iii) of the regulations (59 FR 12 2772).

There were no comments.

### **11.3 Written Public Comments**



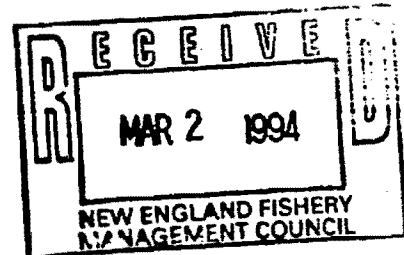
# WELLS *Scallop* COMPANY

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Bill Wells, Jr.  
Bill Wells III

(804) 898-8512

Mr. Doug Marshall  
New England Fishery Management Council  
5 Broadway  
Saugus, Massachusetts 01906-1097



Dear Doug,

I am writing to express my support of the three framework measures approved by the Scallop Oversight Committee on February 14th.

Using days at sea based on a March to March year seems the only way to appropriately implement the plan. In addition, restricting the use of rings to the traditional configuration with rows and columns is easy to support. The correct method would use four links per ring (or eight if double-linked), and a ring would be attached to only four other rings in the chain bag.

Regarding the seven man crew issue, I feel the reduction in crew will restrict shucking capacity. Most boats who operated this winter were using five and six men crews. Many vessels just tied up. In questioning members of the audience, as well as fishermen in my area, I have found only two boats who scalloped with more than seven, one in Cape May, and one in Fall River, Mass. This reduction in crew size would benefit the resource, it is already being practiced in the industry (except on many freezer boats), and it is enforceable.

Thank you for the opportunity to comment.

Sincerely,

A handwritten signature in cursive that reads "Bill Wells".

William S. Wells III

WW/vlb

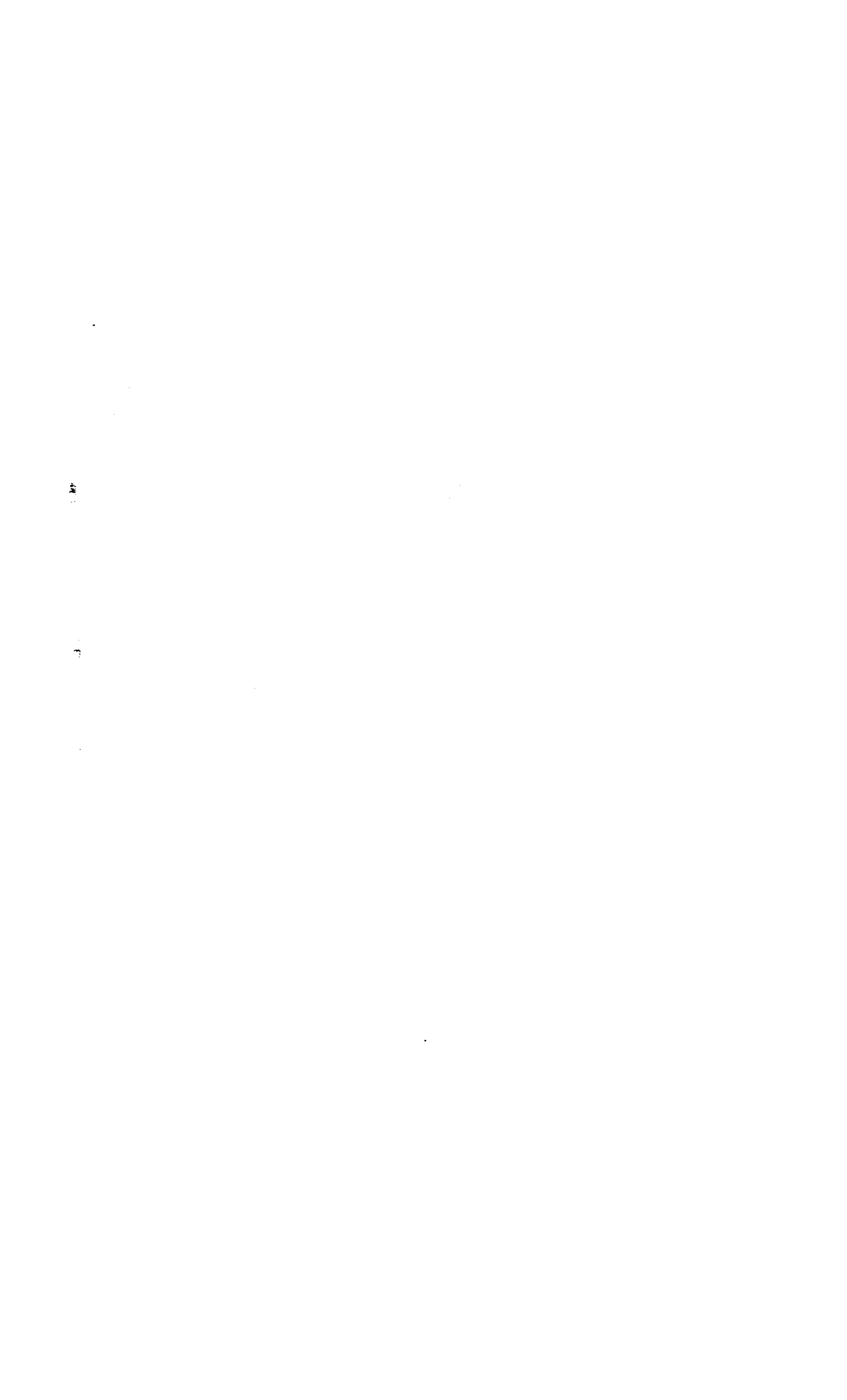
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CAROLINA BREEZE, INC.

CAROLINA CAPES, INC.  
CAROLINA CLIPPER, INC.

CAROLINA GIRL II, INC.  
CAROLINA DREAM, INC.

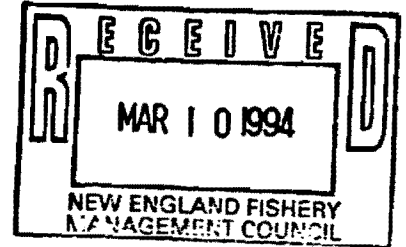
CAROLINA LADY, INC.  
OCEANIC SEAFOOD, INC.

CAROLINA TARHEEL, INC.  
CAROLINA PRINCESS, INC.



INDEPENDENT FISHERMEN'S ASSOCIATION  
P.O. Box 498  
Newport News, Virginia 23607

March 7, 1994



Mr. Douglas G. Marshall, Executive Director  
New England Fisheries Management Council  
Suntaug Office Park, 5 Broadway, Rt 1  
Saugus, Massachusetts 01906

Dear Mr. Marshall,

At a Board of Director's meeting of the Independent Fishermen's Association held on March 4, 1994, in Hampton, Virginia, the members expressed considerable concern over reported proposed changes, specifically closed areas, to Amendment #4 of the Scallop Plan. The consensus of the Board was that no changes should be made until the provisions of Amendment #4 are allowed to work for a reasonable period.

The Board asks that the New England Council keep elements of the industry appraised of its activities which potentially or otherwise will affect that element's well being. The Board firmly supports the Council's democratic process of regulatory and industry cooperation which contributed to a harmonious development of Amendment #4, and requests that it be continued for any proposed changes to the plan.

Sincerely yours,

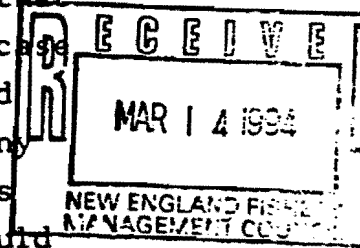
*William Mullis*

William Mullis, President

March 11, 1994

Dear Sirs,

I am writing in response to the proposal that scallop crews be limited to 7 men. I object on the grounds that it is a grave social injustice, particularly in the case of my crew. I have nine men including my brother and me. The other seven members have been with me for anywhere from 2 to 18 years. Everyone of us are fathers and heads of our families. To fire two of my men would be outrageous.



I feel that the new scallop plan is on the right track and that we should see it through and see how it goes. I am sure that some fine tuning in the future will be necessary. If anything we should be looking to increase the number of jobs. As boats are retired or leave the scallop fishery those of us who have suffered because of the failed meat count plan should be able to increase our crews when the recourse improves.

I also feel that seven men will be extremely dangerous since some skippers will overwork their crews and fatigue will cause accidents. The council might even be responsible legally for these accidents by causing a dangerous situation. I recently testified in a case where a boat was sued because it was undermanned.

As a scallop boat captain for 18 years I feel that 10 or 11 men is the safest and we should work towards that number as the scallop stocks improve.

The plan is for nine men so let us explore other options to preserve the set of young scallops off of Virginia. You must outlaw five leggers on the rings for instance.



I just returned from a trip off of Virginia and we did well. Only an idiot would stay in the very small scallops because both production and price fall off dramatically once the count approaches 50. We landed on March 9th and did well working on a better count. The 3½ inch rings fished selectively and I was very pleased. Let us keep the crew size at 9 and give this plan a chance.

Sincerely,

Arthur A. Ochse

Captain

Trawler Christian & Alexa



P.S.

I also think that it's unfair that I who spent \$1,000,000 on a scallop boat with 1,100 HP. pulling 15' dredges would have the same producing power as a boat pulling 10' dredges or 13' dredges.



# WELLS *Scallop* COMPANY

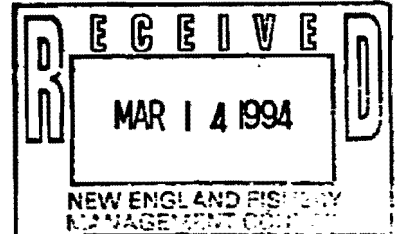
POST OFFICE BOX 600 • SEAFORD, VIRGINIA 23696-0600

Bill Wells, Jr.  
Bill Wells III

(804) 898-8512

March 11 1994

Douglas G. Marshall, Executive Director  
New England Fishery Management Council  
Suntaug Office Park, 5 Broadway (Route 1)  
Saugus, Massachusetts 01906



Dear Mr. Marshall:

In my opinion, the members of our commercial fishing industry are becoming deeply concerned that the current lack of regulation to provide age-at-entry control of the scallop fishery resource is creating both economic disaster for fisherman and destruction of a scallop fishery for the future.

The implementation of Amendment #4 to the Atlantic sea scallop FMP has created situations (some expected and some unforeseen) which require immediate attention and corrective action.

Even though our industry members demanded, and in the development process we were led to believe, that there would be no termination of enforcement of the meat count regulation on all scallop vessels until Amendment #4 was fully implemented, on March 1st Amendment #4 was implemented - not in its entirety. The VTS requirement was deferred before the implementation date. After the implementation date, the requirement to have 3 1/4" rings on dredges was postponed with the stroke of a pen (under the pretense of temporary emergency action, announced by public relations news release). These actions are allowing an onslaught of fisherman from all areas (nearly 100 additional scallop boats being reported) upon the Mid-Atlantic area juvenile scallops (50-60 count landings are becoming the norm with 3 1/4" rings). They also bestow on a part of the industry another discriminating extension of unregulated (frozen-at-sea) harvesting of scallops. It is difficult to believe that effective, if any, enforcement action will be taken in the current 60-day period when no action was taken before implementation to avoid discrimination; and Regional Counsel stated that "it is of paramount importance that we be able to demonstrate clear and convincing harm to the resource perpetrated by the practice of freezing scallops at sea as the basis for an emergency rule." The question arises as to whether the discrimination will broaden under the current meat count umbrella - by use of dredges with 3 1/4" rings rigged in a manner not allowed by Amendment #4 versus use of nets which must comply with Amendment #4 provisions - when it appears that non-availability of materials applies to nets as well as dredge rings.

cc: AJA, LYG

CAROLINA BOY, INC.  
CAROLINA BREEZE, INC.

CAROLINA CAPES, INC.  
CAROLINA CLIPPER, INC.

CAROLINA GIRL II, INC.  
CAROLINA DREAM, INC.

CAROLINA LADY, INC.  
OCEANIC SEAFOOD, INC.

CAROLINA TARHEEL, INC.  
CAROLINA PRINCESS, INC.

We need your help in implementing alternative conservation measures to preserve the sea scallop fishery's future economic viability.

We do not believe adjusting to a 7-man crew will solve the problem because decimation of the resource will continue regardless of crew size. We do believe closing of the fishery is warranted - for 3 or 6 or 9 months - whatever it takes to allow juvenile scallops to reach age-at-entry and produce a sustainable resource for the future livelihood of our fishermen.

Closing certain areas should be considered as an alternative to closing the fishery. A decision to close areas should be based on the best available data and analysis of the resource (continuously updated). It should be directed toward closing areas where there is an abundance of juvenile scallops, without delaying the decision because the juveniles are intermixed with big scallops. I am ready to assist in timely monitoring of the resource by making a fishing vessel available to collect data on a one-trip-per-month basis (costs of fuel and crew to be borne by the agency). I also am willing to have an observer on board the vessel to ensure the data is of proper quality for the decision-making process.

This letter is based on my experience in the Atlantic sea scallop fishery (the middle of three generations of fishermen). I have supported, and continue to support, the regional fishery management council system of which my son, William S. Wells, III, is a member.

On behalf of myself and several other members of the commercial (sea scallop) fishing industry, I am

Sincerely,



William S. Wells, Jr.

cc:

Philip G. Coates, Chairman Sea Scallop Committee  
New England Fishery Management Council  
Suntaug Office Park, 5 Broadway (Route 1)  
Saugus, Massachusetts 01906

Louis Goodreau, Chairman  
Plan Development Team, NEFMC  
Suntaug Office Park, 5 Broadway (Route 1)  
Saugus, Massachusetts 01906

4. Scallops - March 17, 1994

**EAST COAST FISHERIES ASSOCIATION**

192 BALLARD COURT, SUITE 202  
VIRGINIA BEACH, VA 23462  
(804) 456-3402  
FAX (804) 456-3369

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Vice President - William S. Mello, III  
Secretary/Treasurer - A.L. Maynard

**TECHNICAL CONSULTANTS**

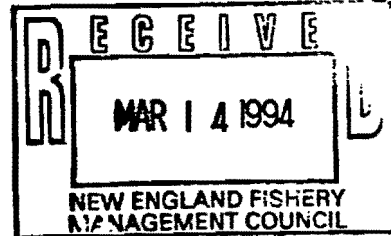
Dr. William B. DuPaul, VIMS  
Dr. James E. Kirkley, VIMS

**LEGAL COUNSEL/REGISTERED AGENT**  
Allison L. Maynard

March 14, 1994

Douglas G. Marshall, Executive Director  
New England Fishery Management Council  
Suntaug Office Park, 5 Broadway (Route 1)  
Saugus, Massachusetts 01906

Richard B. Roe, Regional Director  
NMFS, Northeast Regional Office  
One Blackburn Drive  
Gloucester, MA 01930-2298



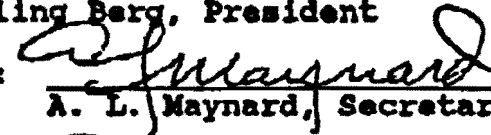
Dear Mr. Marshall and Mr. Roe:

The Board of Directors of East Coast Fisheries Association (ECFA) has become aware of a one-day March 17, 1994 special meeting regarding framework measures to prevent excessive harvest of small sea scallops; however, we have not received a notice, do not know where the meeting will be held, and believe you intend to count the March 17 meeting as the second of two Council meetings required under Amendment #4.

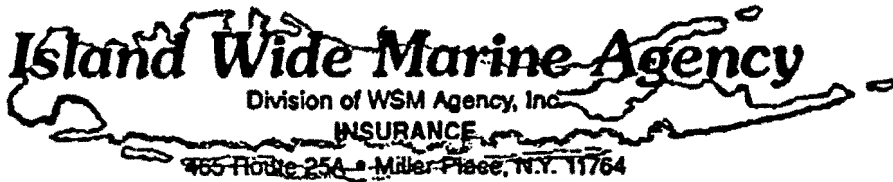
The ECFA position on proposals which are expected to be presented at the meeting is as follows: 1) keep the 9-man crew; i.e., do not cut back the maximum crew allowed on board; and 2) do not prorate days-at-sea; i.e., keep a 12-month management year - March 1 through February 28. The Board deferred taking a position on closed areas pending better definition of areas of juvenile scallop concentration.

On behalf of the ECFA Board of Directors, I am

Very truly yours,  
Erling Berg, President

By:   
A. L. Maynard, Secretary

cc: Chairman, NEFMC Scallop Committee  
Chairman, NEFMC Plan Development Team

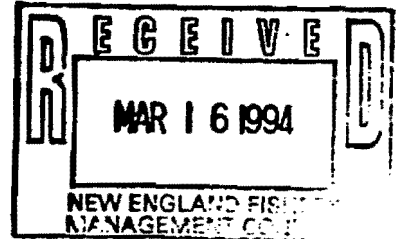


CHRISTIAN J. MAHLSTEDT  
ROB WELLS

(516) 331-5111  
1-800-635-6097  
Fax (516) 331-5878

March 16, 1994

Phil Coates  
New England Fishery Management Council  
5 Broadway  
Saugus, Mass 01905-1097



Dear Phil:

We are very concerned with the Scallop Vessel crew reduction proposal put forth by the Management Council.

As you are aware, Fishing Vessel Safety has been a very active subject in recent years. The Coast Guard, by direction of our Government, has initiated measures that require commercial fishing vessels of various classes to carry safety equipment that will, hopefully, reduce injury and the loss of life aboard these vessels.

However, despite all the equipment mandated, injury and loss of life still occurs. Human error, usually precipitated by fatigue, is, by far, the largest contributor to accidents at sea. As ex-commercial fishermen, we speak from experience on this issue and every Fishing Safety Manual will indicate the same.

Based on the above, it is our opinion that limiting the maximum number of crew on scallop vessels is a most dangerous proposal. Vessels of different design and size require different crew compliments to operate safely. Mandating a crew reduction on a vessel that normally carries in excess of 7 crew exponentially increases the "fatigue factor". As stated in the Vessel Safety Manual "Fatigue and Stress are the enemies of safety".

Considering the above, we are very much against this proposal.

Sincerely,

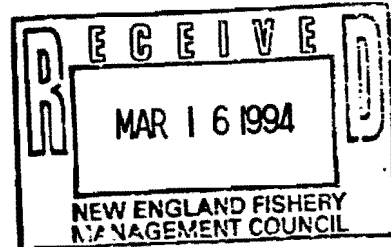
Chris Mahlstedt  
Rob Wells  
Chris Garvey  
For Island Wide Marine Agency



R-1020

From: ZDI (MCT# 61623) 03/16/94 12:12 GRMN=123794796 priority: Normal

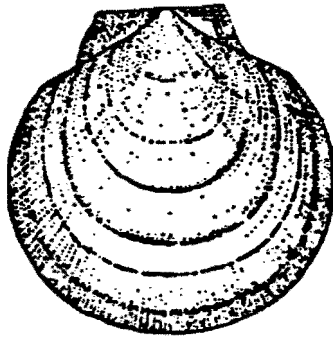
LOU GOODREU, NMFS 6172310422 THE RINGS ALONE ARE WORKING GOOD. MY BAGS ARE CROSS LINKED AND CATCH IS WAY DOWN. I DONT KNOW IF WE COULD STAND REGULAR LINKING. FISHING SIDE BY SIDE WITH BOATS USEING 3" RINGS AND CATCHING 50% LESS IN GOOD WEATHER, WE WONT EVEN TALK ABOUT WHAT HAPPENS IN 30 MILES OF WIND. IT DOESNT JUST ELIMINATE SMALLER SCALLOPS EITHER. IT SEEMS TO KETCH LESS THAN 50% OF THE LARGER ONES COMPARED TO THE 3" RINGS. THANK GOD TH PRICE OF 60CT AND OVER IS \$3.00 AND LESS. MOST OF THE EFFORT SEEMS TO BE ON 55CT BUT THIS REQUIRES DUMPING A BAG FULL ON DECK AND PICKING THE BEST OUT OF IT. IM NOT SURE IF PEOPLE ARE DECKLOADING YET BUT ITS SOON TO COME. THERES TALK OF GOING 9 HANDED NEXT TRIP AND ONCE ONE STARTS WE ALL FOLLOW. IF THIS HAPPENS IT WILL END UP BEING A BIG MISTAKE NOT ALLOWING SORTING MACHINES ONBOARD. IF YOU CAN REMEMBER THE PERSON OPPOSED TO THEM OWNED A COUPLE OF BIG SCALLOPER WITH TOP CREWS ENABLEING HIS OPERATION TO HANDLE THE PRODUCT FASTER THAN OTHERS. SORTING MACHINES WOULD ONLY HELP TO PUT SMALLER SCALLOPS OVER BOARD SOONER. MAYBE WE WOULD HAVE MORE TIME TO CUT THE SORTED BIGGER SCALLOPS BUT I THINK THATS BETER THAN LEAVING THE SMALLER ONES ON DECK UNTIL WE HAVE TIME TO PICK THROUGH THE PILE AND THEN KICKING THEMOVER DEAD LIKE WE DID AT THE SE PARTS. IVE BEEN DOWN AS FAR AS 41700 SEEING TWO AREAS WITH LARGER CONCENTRATIONS. A WELL PLANNED CLOSURE WOULD SEEM TO BE THE BEST CONSERVATION MEASURE. BUT IF NOT POSSIBLE QUICKLY A CREW REDUCTION OF 7 MEN AND REQUIRED SORTING MACHINES WOULD GREATLY HELP. FROM YOUR NOT SO OFTEN CONSULTED ADVISORY COMITTEE MEMBER TIM EILERTSEN PS IF YOU COULD SEE THE TOW ON DECK YOU WOULDNT BE SO CONCERNED WITH CROSSLINKING BUT MORE WITH HOW WERE GOING TO SERVIVE THESE REFORMS. DONT MAKE US ANY LESS EFFICIENT, WE CANT TAKE IT.



TOTAL P.01

## **12.0 APPENDIX**





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## STATUS REPORT

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### ATLANTIC SEA SCALLOP FISHERY

**National Marine Fisheries Service  
Northeast Regional Office in Cooperation  
with the Northeast Fisheries Science Center**

**To:  
New England Fishery Management Council**



**January 1994**

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## **U.S. SEA SCALLOP MANAGEMENT**

The Fishery Management Plan for Atlantic Sea Scallops (FMP) was approved and implemented by emergency regulations effective May 15, 1982 (47 FR 20776). Those regulations continued in effect during a public comment period and were extended through August 12, 1982. On August 13, 1982, final regulations to implement the FMP were issued (47 FR 35990). This report will discuss the fishery since the FMP was implemented, briefly review the status of the resource, and present an outlook on the fishery for 1994. This annual report is required of the Regional Director, according to the provisions of 50 CFR Part 650.22(a). It was prepared in cooperation with the Northeast Fisheries Science Center.

Conservation and management of the sea scallop resource under the FMP relied on a single measure, a meat count/shell height standard. On May 15, 1982, the standard was 40 meats per pound (MPP), with a corresponding 3-1/4 inch shell height. From May 26, 1983, through July 3, 1986, the meat count standard was 35 MPP, with a corresponding shell height requirement of 3-3/8 inches. On July 3, 1986, the MPP standard was reduced to 30 (3-1/2 inch shell height), the final reduction called for in the FMP.

The meat count standard was implemented as a maximum average meat count. This allows for mixing of small and large sea scallops to achieve the standard. The New England Fishery Management Council (Council) determined that excessive proportions of small scallops were taken under this measure. Amendment 1 to the FMP was prepared to replace the average meat count measure with a minimum size standard (approved October 17, 1985).

The amendment established a minimum weight standard, the four-ounce standard, and extended enforcement beyond the point of first transaction to reduce the taking of small sea scallops.

The final rule implementing the amendment was to become effective on January 1, 1986 (50 FR 46069). The New Bedford sea scallop industry, however, expressed concern over the economic impacts of imposing a new size standard and the consequences of enforcing the standard beyond the point of first landing. Because of the extensive controversy generated, NMFS delayed implementation for 90 days to allow the industry to adjust to the proposed changes. Industry objection continued however, and implementation was further delayed until December 29, 1986. Then, at the request of the Council, the Secretary of Commerce (Secretary) prepared a Secretarial Amendment to supersede Amendment 1. This action was effective on December 30, 1986 (52 FR 1462) and established a 30 MPP standard with a shell height equivalent of 3-1/2 inches.

Regulations require the Regional Director to review annually the status of the Atlantic sea scallop resource and to identify any changes needed in the management program. Further, these regulations give authority to the Regional Director to temporarily adjust the meat count/shell height standards upon finding that specific criteria are met. Through this authority, the Council requested that the Regional Director implement a temporary adjustment of the meat count standard from 30 to 33 MPP effective November 18, 1987 to January 31, 1988 (53 FR 44130). The purpose of this temporary adjustment was to account for the natural loss in meat weight during spawning. Simultaneously, the Council was

preparing Amendment 2 to the FMP which incorporates this seasonal adjustment into the management program.

Amendment 2 became effective on July 22, 1988 (53 FR 23634) and specifies a 10 percent increase in the meat count standard during October through January. This amendment also provides a framework mechanism to change the magnitude and/or the timing of the adjustment during the spawning season.

Since 1988, the industry and the Council have been developing a management system to replace the meat count/shell height standards. This system was to be based on measures which control effort in the fishery including a vessel moratorium, with this in mind, the Council established a control date of March 2, 1989 (54 FR 16123) for the sea scallop fishery. The reason for the control date was to inform new entrants into the sea scallop fishery that after this date future access to the fishery is not assured should a management program be implemented that limits the number of participants.

The Council also undertook development of Amendment 3 to the Sea Scallop FMP during 1989. This amendment was adopted in response to reports of significant increases in the landings of undersized scallops. Amendment 3 was implemented on February 5, 1990 (55 FR 433) and requires that sea scallop dredge vessels and vessels landing more than 40 pounds of sea scallops in the shell offload during a designated 12 hour period.

In response to shifts in the size composition of the sea scallop resource toward small scallops

in recent years, the industry and the Council recommended to the Regional Director that relief from the economic burden of complying with the meat count standard was required. The sea scallop regulations provide authority to the Regional Director to adjust the meat count by up to 5 MPP if he finds that certain criteria are met. The Regional Director made this finding and adjusted the meat count/shell height during the following time periods from 1990 through 1994 :

<b>EFFECTIVE DATES</b>	<b>MEAT COUNT</b>	<b>SHELL HEIGHT</b>	<b>FR CITATION</b>
<b>02/26/90 - 04/30/90</b>	<b>33 MPP</b>	<b>3-7/16"</b>	<b>55 FR 4613</b>
<b>05/01/90 - 05/11/90</b>	<b>33 MPP</b>	<b>3-7/16"</b>	<b>55 FR 18604</b>
<b>05/12/90 - 09/30/90</b>	<b>33 MPP</b>	<b>3-7/16"</b>	<b>55 FR 20274</b>
<b>02/01/91 - 06/30/91</b>	<b>35 MPP</b>	<b>3-3/8"</b>	<b>56 FR 3422</b>
<b>07/01/91 - 09/30/91</b>	<b>35 MPP</b>	<b>3-3/8"</b>	<b>56 FR 30514</b>
<b>02/01/92 - 06/30/92</b>	<b>33 MPP</b>	<b>3-7/16"</b>	<b>57 FR 4377</b>
<b>07/01/92 - 09/30/92</b>	<b>33 MPP</b>	<b>3-7/16"</b>	<b>57 FR 21752</b>
<b>02/01/93 - 09/30/93</b>	<b>33 MPP</b>	<b>3-11/16"</b>	<b>58 FR 4944</b>
<b>02/01/94 - 02/28/94</b>	<b>33 MPP</b>	<b>3-11/16"</b>	<b>59 FR 2777</b>

At the May 13, 1993 New England Fishery Management Council meeting the Council voted to approve Amendment 4 for submission to the Secretary of Commerce. The final rule for Amendment 4 was published on January 19, 1994 (59 FR 2757). The intent of the amendment is to reduce the fishing mortality rate to eliminate the overfished condition of Atlantic sea scallops. The new regulations to the FMP substantially revise the management of the Atlantic Sea Scallop Fishery from a meat-count management system to an effort control program by imposing a vessel moratorium and annually allocating day-at-sea (DAS) allocations to three vessel groups (full-time, part-time, occasional). The amendment also

includes limits on crew size; mandatory reporting for vessels and dealers; maximum dredge and trawl sweep sizes restrictions; minimum ring and mesh sizes restrictions; and framework measures to implement adjust to the measures in the amendment and make minor modifications to other provisions in the plan. These new regulations will go into effect on March 1, 1994, and are designed to reduce fishing mortality by reducing effort over a seven-year period.

Fishing effort will be reduced through reductions in the DAS allocations for each category as follows:

<b>DAS CATEGORY</b>	<b>1994</b>	<b>1995-96</b>	<b>1997</b>	<b>1998-99</b>	<b>2000+</b>
Full-time	204	182	164	142	120
Part-time	91	82	66	57	48
Occasional	18	16	14	12	10

Please note: with prior public notice, the New England Fishery Management Council may change these allocations in the future using a process outlined in the scallop regulations.

NMFS remains concerned about the near-term level of protection of small sea scallops and in the regulations implementing the FMP, the Regional Director advised the Council that NMFS will be carefully monitoring the initial impact of the amendment on fishing mortality rates of small sea scallops. If fishing mortality rates increase beyond anticipated levels, the Council is expected to implement immediately adjustments under the framework measures of the amendment to protect sea scallop stocks adequately.

## RESULTS OF 1993 SURVEY:

Catch per tow indices from the 1993 survey are summarized in Tables 1-2. Survey indices were derived for abundance and biomass (meat weight) of pre-recruit scallops (<70 mm shell height), recruit or harvestable-size scallops ( $\geq$  70 mm shell height), and total scallops.

### MID-ATLANTIC

Indices of total abundance and biomass in the 1993 survey increased substantially from the 1992 survey. For the region as a whole, the mean number of scallops per tow more than tripled and mean weight (of meats) per tow increased by 42% (Table 1). Increases in abundance were observed in all subregions of the Mid-Atlantic, but were most apparent in the Delmarva and Virginia-North Carolina regions.

Although total abundance increased, the abundance of harvestable-size scallops in the Mid-Atlantic region was relatively low, similar to 1992 (Figure 1, Table 1). Mean number of harvestable-size scallops per tow showed little change in the New York Bight and Delmarva regions, but doubled in the Virginia-North Carolina region (Table 1). Biomass indices for harvestable-sized scallops for the Mid-Atlantic region as a whole declined to a record-low level (Table 1). Declines in biomass were apparent in the New York Bight and Delmarva regions, whereas in the Virginia-North Carolina region the biomass index increased by about 35%.

The abundance of pre-recruit scallops in the Mid-Atlantic

region was much higher than during the past two years, and was the second highest in the time series (Table 1). Abundance of pre-recruit scallops increased in all subregions within the Mid-Atlantic, but particularly in the Delmarva and Virginia-North Carolina areas. For both of these areas, pre-recruit indices were the highest in the time series (Table 1).

The size structure of scallops in the Mid-Atlantic region is presently dominated by small scallops; over 80% of scallops captured were less than 70 mm shell height (> 80 count; Table 1). Over 44% of the harvestable biomass consists of scallops less than 30 count, but a high fraction (38%) consists of scallops between 80 and 40 count (Figure 3, Table 3).

#### GEORGES BANK

Indices of total abundance and biomass in the 1993 survey declined sharply from the 1992 survey. For the USA portion of Georges Bank, the mean number of scallops per tow declined more than 80% and mean weight (of meats) per tow declined by 75% (Table 2). Declines in abundance were observed in all subregions of the USA portion of Georges Bank (Table 2).

Similar to declines in total abundance, the abundance of harvestable-size scallops on the USA portion of Georges Bank declined over 80% from 1992, reaching a time-series low (Table 2). Declines were observed in all USA subregions of Georges Bank; 86% in the South Channel, 54% in the Southeast Part, and 65% in the USA Northern Edge and Peak. Similarly, the biomass index for



harvestable-size scallops declined by 71% for the USA portion of Georges Bank and is also at a minimum for the survey time series (Table 2).

The abundance and biomass of pre-recruit scallops were also very low in all subregions of Georges Bank (Table 2). For the USA portion of Georges Bank, abundance and biomass were the lowest in the 1985-1993 time series, indicating that incoming year classes are much weaker than those observed during the past several years.

The proportion of small scallops (<70 mm shell height) declined from an average of 65% from 1990-1992 to 44% in 1993. Most (55%) of the harvestable biomass consists of scallops less than 30 count, but a moderate fraction (31%) of the biomass consists of scallops between 80 and 40 count (Figure 4, Table 3).

#### IMPLICATIONS

The results of the 1993 survey indicate that the overall biomass and abundance of harvestable-size scallops in USA waters are at or near all time lows. The decline in harvestable-size scallops is also reflected in the 1993 year-to-date commercial landings, which are approximately 50% lower than in 1992.

The low abundance of harvestable-size scallops combined with the high level of fishing effort in the scallop fishery implies that the fishery will likely continue to focus effort on incoming year classes in 1994, especially if meat count regulations are abolished. The low abundance of pre-recruit sized animals on

Georges Bank, combined with improved pre-recruit abundance in the Mid-Atlantic region will likely result in a concentration of the fleet in southern waters during 1994.

Table 1. USA sea scallop research survey relative abundance indices (standardized stratified mean number and mean weight per tow), (meats only, kg), mean shell height (mm), mean meat weight (g) per scallop, and average meat count (number of scallop meats per pound) of sea scallops from NEFSC surveys in the Mid-Atlantic, 1975, 1977-1993. Data are presented by principal scallop regions in the Mid-Atlantic. Survey indices are presented for pre-recruit (<70 mm shell height), recruit (≥70 mm shell height) and total scallops per tow.

Area	Year	No. of Tows	Standardized Stratified Mean Number Per Tow			Standardized Stratified Mean Weight (kg) Per Tow <sup>2</sup>			Mean Shell Height	Average Meat Count
			Pre-recruit	Recruit	Total	Pre-recruit	Recruit	Total		
New York Bight	1975	28	39.4	34.7	74.1	0.10	0.62	0.72	75.3	46.9
	1977	101	1.4	56.7	58.1	<0.01	1.03	1.03	98.6	25.6
	1978	116	3.3	52.7	56.0	0.01	1.15	1.16	102.8	21.9
	1979	120	5.3	17.6	22.9	0.01	0.43	0.44	93.6	23.7
	1980	121	15.4	15.2	30.6	0.02	0.36	0.38	75.5	35.7
	1981	117	18.8	19.0	37.8	0.03	0.29	0.32	67.7	53.5
	1982	134	10.9	20.9	31.8	0.02	0.33	0.35	78.4	41.2
	1983	136	11.5	14.0	25.5	0.03	0.29	0.32	80.3	36.6
	1984	142	17.4	18.4	35.8	0.03	0.29	0.32	69.2	51.0
	1985	137	47.4	30.9	78.3	0.10	0.43	0.53	65.6	67.1
	1986	152	53.2	49.3	102.5	0.13	0.65	0.78	69.6	59.9
	1987	154	94.5	46.0	140.5	0.18	0.58	0.76	61.7	83.7
	1988	154	75.9	100.5	176.4	0.11	1.25	1.36	68.6	58.9
	1989	157	168.6	81.8	250.4	0.25	0.90	1.15	56.4	99.1
	1990	148	121.1	92.8	213.9	0.35	0.88	1.23	67.2	78.7
	1991	157	22.2	53.7	75.9	0.06	0.67	0.73	78.3	47.3
1992	157	17.7	25.3	43.0	0.04	0.37	0.41	75.5	47.4	
1993	146	46.6	24.0	70.6	0.10	0.30	0.40	63.6	79.5	
Delmarva	1975	15	36.2	24.0	60.2	0.11	0.44	0.55	75.2	49.3
	1977	10	10.7	47.5	58.2	0.03	0.91	0.94	92.2	28.1
	1978	45	27.3	75.8	103.2	0.09	1.58	1.67	91.6	28.0
	1979	43	25.4	64.6	90.0	0.04	0.95	0.99	78.8	41.2
	1980	43	81.1	35.9	117.0	0.13	0.68	0.81	63.3	65.7
	1981	41	4.7	14.3	19.0	0.01	0.32	0.33	90.3	26.2
	1982	44	10.0	18.6	28.6	0.04	0.43	0.47	89.8	27.8
	1983	49	25.7	16.5	42.2	0.09	0.37	0.46	77.0	41.7
	1984	52	19.8	19.3	39.1	0.03	0.38	0.41	69.8	43.7
	1985	54	70.4	35.8	106.2	0.15	0.43	0.58	58.9	82.5
	1986	62	123.5	83.5	207.0	0.37	0.93	1.30	68.5	72.3
	1987	61	52.9	59.5	112.4	0.16	0.74	0.90	74.1	56.7
	1988	62	75.9	39.1	115.0	0.15	0.62	0.77	64.6	67.9
	1989	62	113.1	97.2	210.3	0.24	1.09	1.33	67.5	71.6
	1990	62	27.7	80.9	108.6	0.06	0.87	0.93	76.9	53.0
	1991	61	53.5	29.3	82.8	0.16	0.47	0.63	71.3	59.4
1992	62	20.9	18.8	39.7	0.04	0.33	0.37	71.9	49.0	
1993	58	384.1	20.1	404.2	0.98	0.27	1.25	57.1	146.9	
Virginia-No. Carolina	1975	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
	1977	1	0.0	10.0	10.0	0.00	0.23	0.23	108.0	20.0
	1978	3	15.3	50.3	65.6	0.06	1.10	1.16	91.8	25.7
	1979	3	23.7	22.7	46.4	0.04	0.37	0.41	71.7	51.3
	1980	3	6.6	39.0	45.6	0.02	0.59	0.61	87.6	34.1
	1981	3	0.9	7.6	8.5	<0.01	0.20	0.20	107.7	18.8
	1982	7	0.4	3.7	4.1	<0.01	0.12	0.12	111.5	15.8
	1983	8	25.8	11.7	37.5	0.10	0.36	0.46	78.1	37.2
	1984	9	0.2	14.6	14.8	<0.01	0.27	0.27	98.7	25.3
	1985	10	1.7	7.3	9.0	<0.01	0.23	0.23	104.8	17.8
	1986	10	5.6	1.8	7.4	<0.02	0.04	0.06	69.1	55.9
	1987	10	0.1	2.1	2.2	<0.01	0.04	0.04	93.4	28.3
	1988	10	3.1	11.0	14.1	0.01	0.21	0.22	89.8	28.9
	1989	10	35.7	5.9	41.6	0.07	0.13	0.20	57.9	92.9
	1990	6	36.5	93.1	129.6	0.07	0.88	0.95	73.2	61.7
	1991	10	37.2	32.0	69.2	0.10	0.45	0.55	71.6	57.5
1992	10	4.1	29.2	33.3	0.01	0.39	0.40	85.9	37.7	
1993	10	245.3	59.1	304.4	0.82	0.53	1.35	64.0	103.0	

Table 1. (continued)

Mid-Atlantic (All Areas)	1975	43	38.8	32.6	71.4	0.10	0.59	0.69	75.3	47.2
	1977	112	2.8	55.1	57.9	0.01	1.00	1.01	97.7	25.9
	1978	164	7.8	56.8	64.6	0.02	1.23	1.25	99.4	23.4
	1979	166	9.1	26.2	35.3	0.02	0.52	0.54	86.5	29.8
	1980	167	27.1	19.2	46.3	0.04	0.42	0.46	70.1	45.8
	1981	161	16.1	18.0	34.1	0.02	0.30	0.32	70.1	48.2
	1982	185	10.6	20.3	30.9	0.03	0.34	0.37	80.4	38.1
	1983	193	14.3	14.4	28.7	0.04	0.30	0.34	79.4	37.8
	1984	203	17.6	18.5	36.1	0.02	0.31	0.33	69.5	49.2
	1985	201	51.0	31.5	82.5	0.11	0.43	0.54	64.1	69.8
	1986	224	65.2	54.8	120.0	0.17	0.69	0.86	69.3	63.3
	1987	225	85.7	47.9	133.6	0.17	0.61	0.78	63.6	78.0
	1988	226	74.9	88.3	163.2	0.12	1.12	1.24	68.1	59.9
	1989	229	156.9	83.6	240.5	0.24	0.93	1.17	58.1	93.5
	1990	216	103.2	90.6	193.8	0.29	0.88	1.17	68.2	74.9
	1991	228	28.0	49.0	77.0	0.08	0.63	0.71	76.8	49.4
	1992	229	18.1	24.2	42.3	0.03	0.37	0.40	75.0	47.5
	1993	214	109.9	23.8	133.7	0.27	0.30	0.57	59.7	107.0

<sup>1</sup> New York Bight: Strata 22-31, 33-35; Delmarva: Strata 10-11, 14-15, 18-19; VA-NC: Strata 6-7.

<sup>2</sup> Mean meat weight derived by applying the 1977-1982 USA Mid-Atlantic research survey sea scallop shell height meat weight equation,  $\ln \text{Meat Weight (g)} = -12.1628 + 3.2539 \ln \text{Shell Height (mm)}$  ( $n = 11943$ ,  $r = 0.98$ ) to the survey shell height frequency distributions.

Table 2. USA sea scallop research survey relative abundance indices (standardized stratified mean number and mean weight per tow), [meats only, kg], mean shell height (mm), mean meat weight (g) per scallop, and average meat count (number of scallop meats per pound) of sea scallops from NEFSC surveys on Georges Bank, 1975, 1977-1993. Data are presented by principal scallop regions for the USA sector of Georges Bank<sup>1</sup>. Survey indices are presented for pre-recruit (<70 mm shell height), recruit (>70 mm shell height), and total scallops per tow.

Area	Year	No. of Tows	Standardized Stratified Mean Number Per Tow			Standardized Stratified Mean Weight (kg) Per Tow <sup>2</sup>			Mean Shell Height	Average Meat Count
			Pre-recruit	Recruit	Total	Pre-recruit	Recruit	Total		
South Channel	1975	58	45.1	29.9	75.0	0.11	0.81	0.92	76.4	37.0
	1977	30	6.3	89.1	95.4	0.02	1.94	1.96	101.3	22.1
	1978	46	7.7	49.7	57.4	0.02	1.15	1.17	101.2	22.2
	1979	47	6.8	88.2	95.0	0.01	1.53	1.54	93.2	28.0
	1980	40	79.7	30.2	109.9	0.12	0.55	0.67	58.2	74.6
	1981	56	15.5	36.5	52.0	0.03	0.65	0.68	80.5	34.8
	1982	61	213.8	53.0	266.8	0.49	0.67	1.16	58.6	103.9
	1983	69	19.0	55.8	74.8	0.06	0.77	0.83	81.4	41.0
	1984	69	13.6	17.7	31.3	0.03	0.36	0.39	77.3	36.7
	1985	77	40.3	47.3	87.6	0.11	0.76	0.87	75.0	45.7
	1986	68	115.3	37.0	152.3	0.24	0.58	0.82	59.5	84.2
	1987	86	84.6	56.1	140.7	0.17	0.72	0.89	63.6	71.6
	1988	91	32.5	36.0	68.5	0.08	0.46	0.54	70.6	57.7
	1989	88	21.7	15.1	36.8	0.06	0.27	0.33	72.0	50.5
	1990	76	258.8	49.9	308.7	0.54	0.60	1.14	55.9	122.5
1991	86	432.1	64.2	496.3	0.80	0.71	1.51	52.8	149.5	
1992	85	222.8	171.8	394.6	0.78	1.38	2.16	67.5	82.8	
1993	78	30.4	24.1	54.5	0.11	0.27	0.38	72.6	64.5	
Southeast Part	1975	21	1.8	38.4	40.2	<0.01	1.02	1.02	110.3	17.8
	1977	21	3.2	27.2	30.4	0.01	0.68	0.69	103.6	20.0
	1978	18	2.2	27.1	29.3	<0.01	0.93	0.93	117.2	14.2
	1979	20	7.7	21.2	28.9	0.01	0.71	0.72	99.4	18.2
	1980	20	21.5	41.7	63.2	0.03	0.71	0.74	78.2	38.8
	1981	19	1.4	19.4	20.8	<0.01	0.46	0.46	102.5	20.5
	1982	22	0.8	9.8	10.6	<0.01	0.32	0.32	113.5	15.2
	1983	20	11.3	9.2	20.5	0.02	0.25	0.27	78.1	34.0
	1984	20	4.6	12.9	17.5	0.01	0.23	0.24	85.7	33.0
	1985	28	9.1	11.8	20.9	0.02	0.22	0.24	75.3	39.9
	1986	32	28.9	20.6	49.5	0.05	0.41	0.46	66.2	48.5
	1987	32	23.1	39.6	62.7	0.06	0.60	0.66	79.0	42.8
	1988	32	1.4	16.1	17.5	<0.01	0.32	0.32	96.9	24.6
	1989	31	23.6	11.8	35.4	0.07	0.23	0.30	70.2	54.4
	1990	32	1.6	8.4	10.0	<0.01	0.15	0.15	88.7	30.3
1991	32	18.5	14.1	32.6	0.04	0.21	0.25	65.2	60.2	
1992	32	10.3	20.5	30.8	0.03	0.34	0.37	83.3	37.7	
1993	32	2.4	9.5	11.9	0.01	0.23	0.24	96.7	23.2	
USA Northern Edge and Peak	1985	67	21.8	26.6	48.4	0.06	0.39	0.45	72.2	48.9
	1986	70	45.6	28.6	74.2	0.13	0.48	0.61	70.4	55.2
	1987	71	62.0	54.6	116.6	0.12	0.73	0.85	67.1	62.1
	1988	71	65.8	60.9	126.7	0.15	0.77	0.92	66.4	62.6
	1989	M/S	M/S	M/S	M/S	M/S	M/S	M/S	M/S	M/S
	1990 <sup>4</sup>	65	66.9	196.8	263.7	0.22	1.83	2.05	75.8	58.3
	1991	71	118.7	66.9	185.6	0.31	0.85	1.16	66.1	72.4
	1992	69	26.1	45.0	71.1	0.08	0.60	0.68	77.6	47.3
1993	65	2.9	15.8	18.7	0.01	0.25	0.26	82.1	33.2	
USA Georges Bank	1985	172	26.5	31.8	58.3	0.07	0.50	0.57	74.2	46.4
	1986	170	61.3	28.9	90.2	0.14	0.49	0.63	64.4	64.9
	1987	189	62.6	51.9	114.5	0.12	0.70	0.82	66.8	63.0
	1988	194	38.0	40.8	78.8	0.09	0.54	0.63	69.4	56.6
	1989 <sup>3</sup>	119	22.4	14.0	36.4	0.06	0.26	0.32	71.4	52.3
	1990 <sup>4</sup>	173	135.2	87.8	223.0	0.31	0.89	1.20	63.9	84.1
	1991	189	224.1	54.1	278.2	0.45	0.65	1.10	56.4	114.8
	1992	186	102.7	91.2	193.9	0.36	0.86	1.22	69.4	72.3
1993	175	14.0	17.8	31.8	0.05	0.25	0.30	76.1	47.7	

<sup>1</sup> South Channel: Strata 46-47, 49-55; Southeast Part: Strata 58-60; USA No. Edge & Peak: Strata 61, 621, 631, 651, 662, 71, 72, and 74.

<sup>2</sup> Mean meat weight derived by applying the 1978-1982 USA Georges Bank research survey sea scallop shell height meat weight equation,  $\ln \text{Meat Weight (g)} = -11.7656 + 3.1693 \ln \text{Shell Height (mm)}$  ( $n = 5863$ ,  $r = 0.98$ ) to the survey shell height frequency distributions.

<sup>3</sup> Combined South Channel and Southeast Part regions only.

<sup>4</sup> Stratum 72 not sampled, excluded from analyses.

Table 2. (continued).

Area	Year	No. of Tows	Standardized Stratified Mean Number Per Tow			Standardized Stratified Mean Weight (kg) Per Tow <sup>2</sup>			Mean Shell Height	Average Meat Count
			Pre-recruit	Recruit	Total	Pre-recruit	Recruit	Total		
Canada	1985	41	186.0	460.3	646.3	0.58	4.20	4.78	74.1	61.3
Northern Edge and Peak	1986	146	379.6	466.0	845.6	0.80	6.01	6.81	72.3	56.3
	1987	47	293.0	231.7	524.7	0.59	3.04	3.63	66.9	65.6
	1988	48	153.7	227.1	380.8	0.36	2.77	3.13	72.8	55.3
	1989	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
	1990	41	431.7	287.9	719.6	0.68	3.80	4.48	61.9	72.9
	1991	14	206.4	98.3	304.7	0.53	1.62	2.15	66.7	64.3
	1992	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
	1993	48	19.9	202.1	222.0	0.06	3.24	3.30	93.3	30.5
<b>Total Georges Bank (All Areas)</b>	1975	130	51.7	74.6	126.3	0.13	1.34	1.47	79.9	39.0
	1977	122	34.3	218.3	252.6	0.12	3.18	3.30	87.6	34.7
	1978	140	79.7	184.0	263.7	0.14	3.88	4.02	87.1	29.8
	1979	220	36.6	152.3	188.9	0.10	2.70	2.80	88.6	30.6
	1980	371	377.4	92.3	469.7	0.52	1.37	1.89	53.4	112.6
	1981	176	97.2	152.4	249.6	0.22	1.62	1.84	70.6	61.5
	1982	163	91.0	51.2	142.2	0.22	0.74	0.96	66.5	66.9
	1983	171	31.9	38.2	70.1	0.06	0.63	0.69	73.4	46.3
	1984	171	148.7	34.6	183.3	0.15	0.57	0.72	49.1	114.9
	1985	213	56.3	111.6	167.9	0.17	1.19	1.36	74.1	56.2
	1986	316	129.9	123.0	252.9	0.28	1.68	1.96	70.1	58.5
	1987	236	105.5	85.4	190.9	0.21	1.14	1.35	66.9	64.3
	1988	242	59.5	75.6	135.1	0.14	0.96	1.10	71.2	55.9
	1989 <sup>3</sup>	119	22.4	14.0	36.4	0.06	0.26	0.32	71.4	52.3
	1990 <sup>4</sup>	214	193.6	127.3	320.9	0.38	1.47	1.85	63.0	78.7
	1991	203	220.8	62.3	283.1	0.46	0.83	1.29	58.5	99.2
	1992 <sup>5</sup>	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
	1993	223	15.1	52.1	67.2	0.05	0.81	0.86	86.2	35.4

<sup>1</sup> South Channel: Strata 46-47, 49-55; Southeast Part: Strata 58-60; No. Edge & Peak: Strata 61-662, 71-72, and 74.

<sup>2</sup> Mean meat weight derived by applying the 1978-1982 USA Georges Bank research survey sea scallop shell height meat weight equation,  $\ln \text{Meat Weight (g)} = -11.7656 + 3.1693 \ln \text{Shell Height (mm)}$  ( $n = 5863$ ,  $r = 0.98$ ) to the survey shell height frequency distributions.

<sup>3</sup> Combined South Channel and Southeast Part regions only.

<sup>4</sup> Stratum 72 not sampled, excluded from analyses.

<sup>5</sup> Canadian portion of the Bank not sampled.

Table 3. Percentage distribution of harvestable biomass (meat weight) of sea scallops in the USA Georges Bank and Mid-Atlantic regions, within various meat count intervals. Harvestable biomass is defined as all sea scallops >70 mm shell height (<80 count). Data derived from distribution of standardized stratified mean meat weight per tow in NEFSC 1993 research vessel sea scallop survey.

Area	Percent Harvestable Biomass			
	80-40	40-35	35-30	<30
South Channel	47.8	5.7	4.7	41.8
Southeast Part	6.6	3.1	4.2	86.1
USA No. Edge And Peak	24.5	11.2	7.7	56.6
USA Georges Bank	31.2	7.2	5.7	55.9
New York Bight	38.4	9.3	9.4	42.9
Delmarva	35.3	5.2	5.0	54.5
Virginia-No. Carolina	52.7	5.9	7.9	33.5
Mid-Atlantic	38.2	8.6	8.6	44.6
Total USA Georges Bank and Mid-Atlantic Areas	35.2	7.9	7.4	49.5

# USA SEA SCALLOP RELATIVE ABUNDANCE INDICES

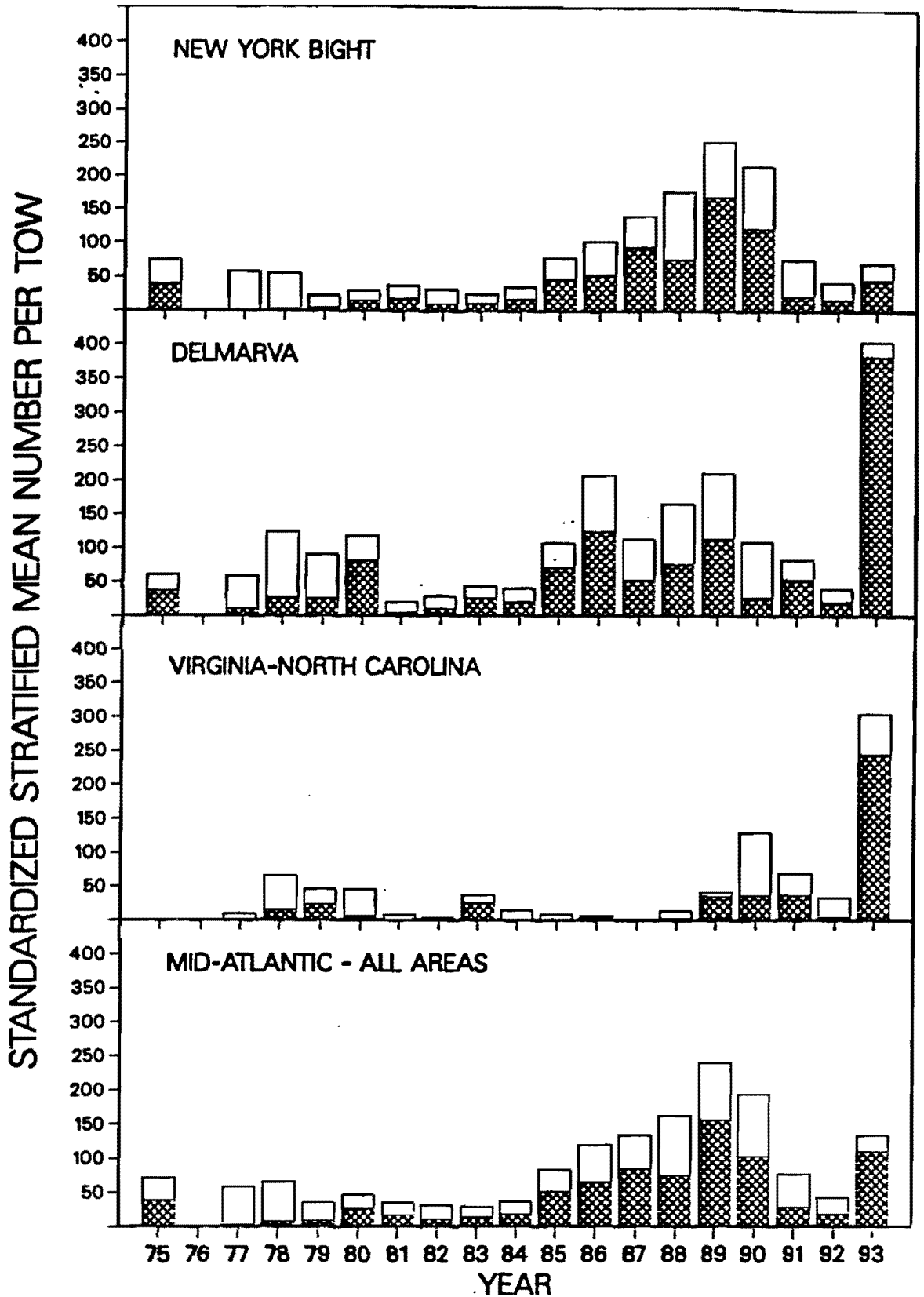


Figure 1. Relative abundance indices of sea scallops, by principal region in the Mid-Atlantic, from USA sea scallop research vessel surveys conducted during 1975 and 1977-1993. The shaded portion of each bar represents the relative abundance of pre-recruit scallops (<70 mm shell height); the upper, non-shaded portion of each bar represents the relative abundance of recruited or harvestable-size scallops (≥70 mm shell height).



# USA SEA SCALLOP RELATIVE ABUNDANCE INDICES

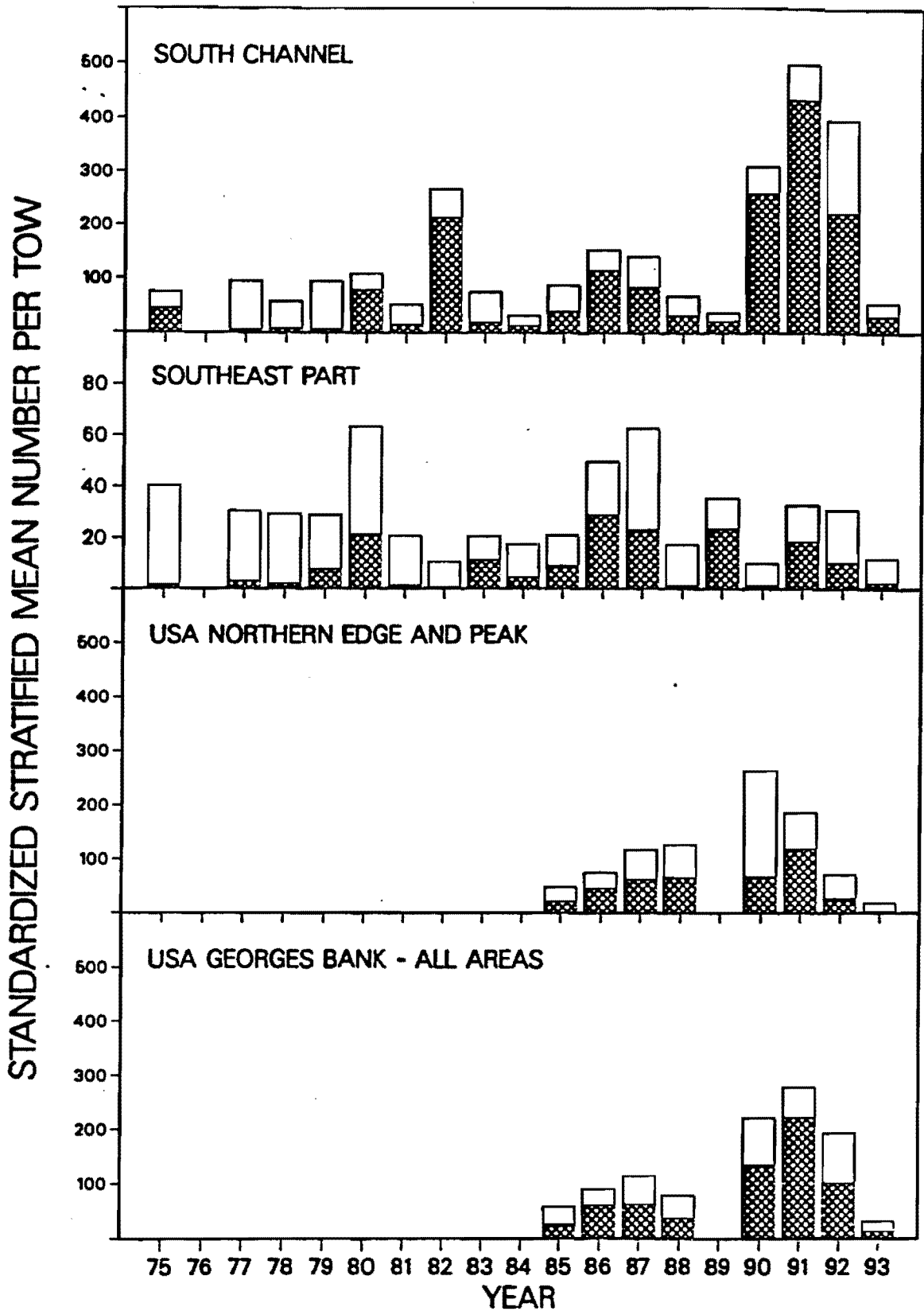


Figure 2. Relative abundance indices of sea scallops, by principal region on USA Georges Bank, from USA sea scallop research vessel surveys conducted during 1975 and 1977-1993. The shaded portion of each bar represents the relative abundance of pre-recruit scallops (<70 mm shell height); the upper, non-shaded portion of each bar represents the relative abundance of recruited or harvestable-size scallops (≥70 mm shell height).

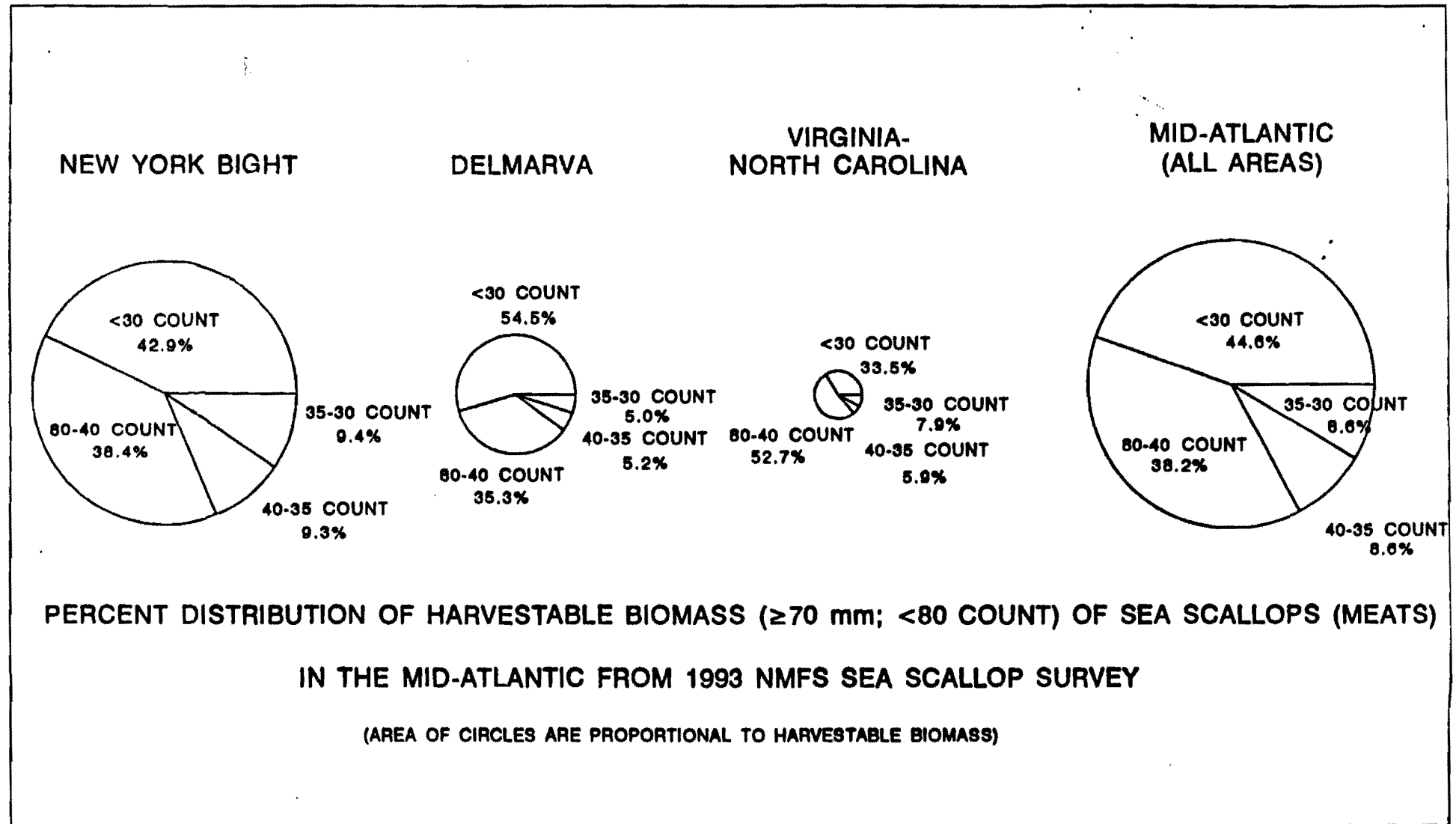


Figure 3. Percentage distribution of harvestable biomass [meat weight] of sea scallops, within various meat count intervals [number of meats per pound], from the 1993 USA sea scallop research vessel survey in the Mid-Atlantic region. Harvestable biomass is defined as all sea scallops  $\geq 70$  mm shell height. Data derived from the 1993 survey distributions of standard stratified mean meat weight per tow.

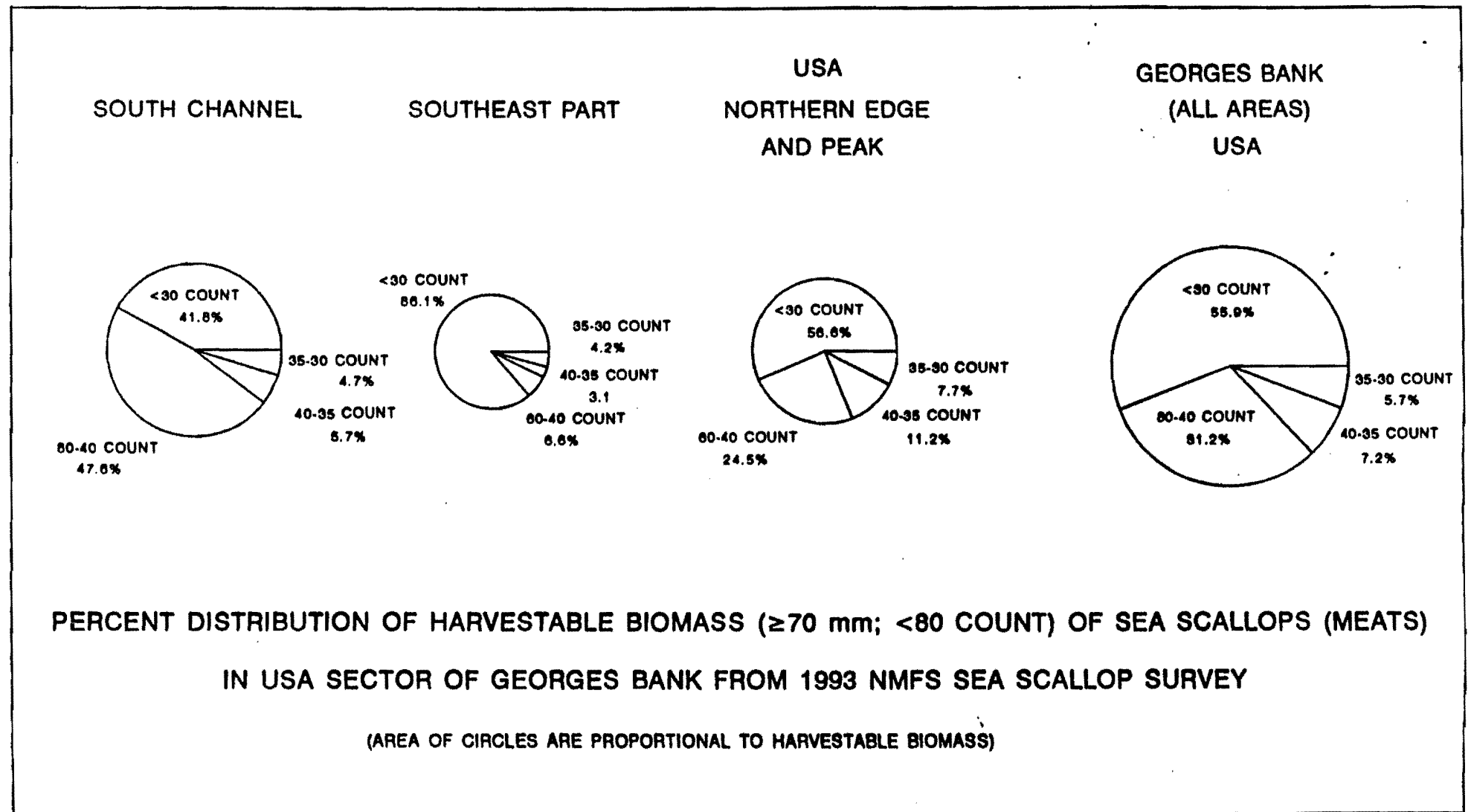


Figure 4. Percentage distribution of harvestable biomass [meat weight] of sea scallops, within various meat count intervals [number of meats per pound], from the 1993 USA sea scallop research vessel survey in the USA portion of the Georges Bank region. Harvestable biomass is defined as all sea scallops  $\geq 70$  mm shell height. Data derived from the 1993 survey distributions of standard stratified mean meat weight per tow.

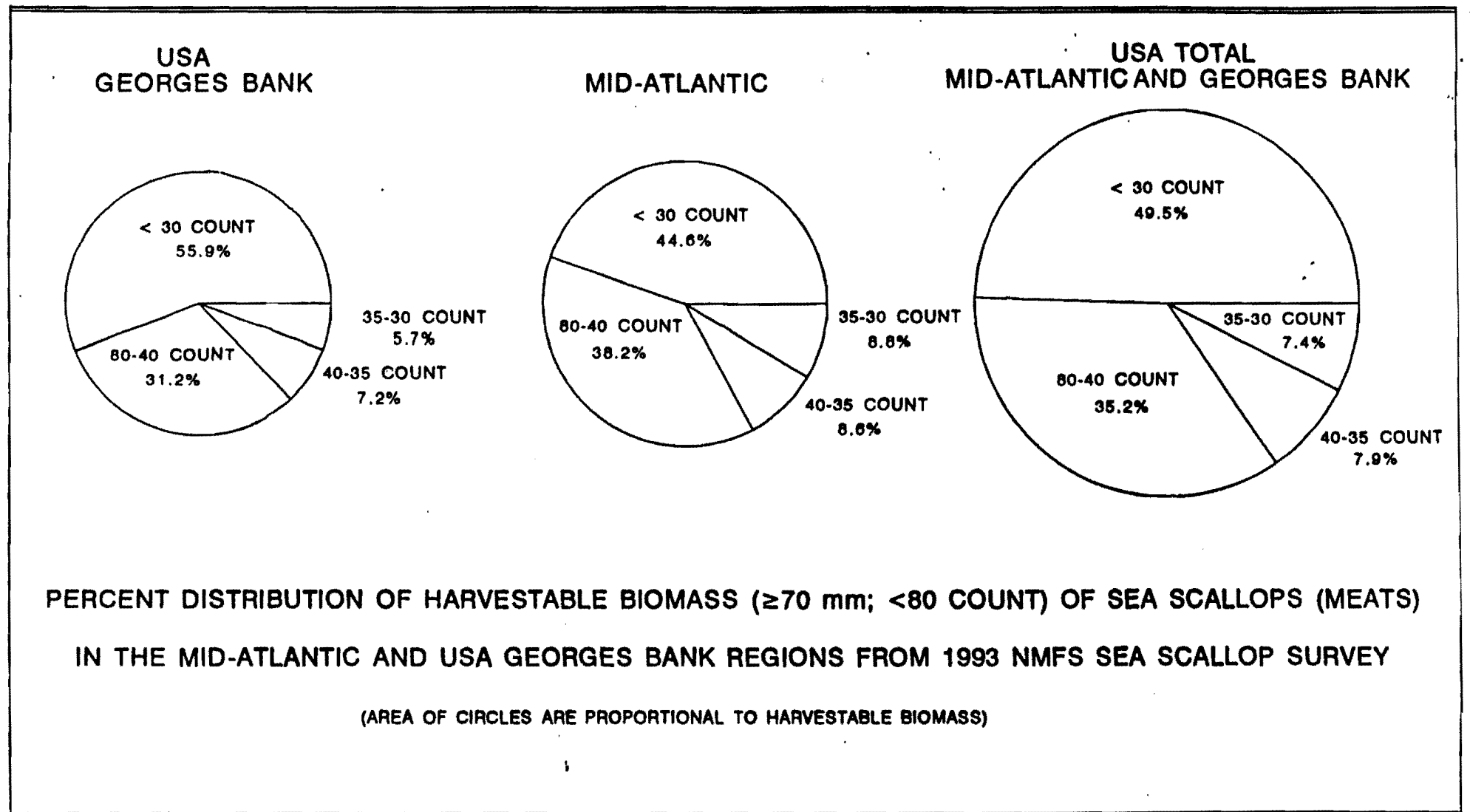


Figure 5. Percentage distribution of harvestable biomass [meat weight] of sea scallops, within various meat count intervals [number of meats per pound], from the 1993 USA sea scallop research vessel survey in the USA portion of the Georges Bank and the Mid-Atlantic region. Harvestable biomass is defined as all sea scallops  $\geq 70$  mm shell height. Data derived from the 1993 survey distributions of standard stratified mean meat weight per tow.

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December 17, 1993

Mr. Lou Goodreau  
New England Fishery Management Council  
Suntaug Office Park  
5 Broadway (Rt. 1)  
Saugus, MA 01906

Dear Lou,

We have just recently completed our third trip using the 3.25 inch ring dredge and are quite concerned about the future of the sea scallop resource and the fishery. We are specifically concerned about the abundance and density of scallop 'seed' or juveniles, the non enforcement of the meat count regulation for frozen product, the likelihood of dredge vessels converting to trawling, and the likely probability that the 3.25-inch rings will not totally prevent the harvesting of 2 to 3-inch scallops in the mid-Atlantic resource areas.

We have also just returned from a meeting with members of the mid-Atlantic sea scallop fishery who indicated a concern about the probable harvesting of juvenile scallops and the non-enforcement of the meat count regulation on frozen sea scallops. In essence, there appears to be a real potential for the decimation of the resource subsequent to implementation of Amendment #4.

As you are aware, the most recent scallop research cruises found little scallop 'seed' or very few areas with concentrations of juveniles on Georges Bank but large concentrations of seed in the Mid-Atlantic area. These conclusions are consistent with data obtained from our Georges Bank cruise in October and Mid-Atlantic cruises in November. The seed is between 2 and 2.5-inches and yields 120 to 160 meats per pound. Between March and May of 1994, these same scallops will probably yield between 60 and 90 meats per pound. Alternatively, they will be cutting size. A nine man crew, working an 18 hour shift per day, will be able to cut approximately 110,400 scallops per day or approximately 1,656,000 scallops for a 16 day trip. Alternatively, a vessel will be able to shuck more than 21,000,000 scallops during the 204 annual days at sea allocation. A 200 vessel full-time fleet will be able to shuck more than 4,000,000,000 scallops per year given the 204 day limit.

It is highly unlikely, however, that the fleet will harvest 4 billion juvenile scallops. We may expect, however, high mortality on the juveniles as occurred several years ago; resource and



cc: [unclear]

economic waste are likely to occur. We can anticipate excessive harvesting of juveniles and foregone long-run revenues.

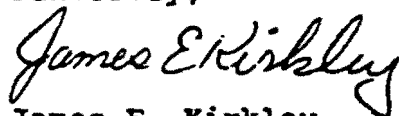
The tremendous quantity of seed may represent the future of the industry and the resource during the next few years. There may or may not be another year class behind the 1991 or 1992 year class; the research dredge and the 3.0-inch ring commercial dredge may not offer a valid indication of the likely abundance of scallops smaller than 1.5 to 2.0 inches. It is our opinion, however, that it would be criminal to allow the unregulated harvesting of juvenile scallops or seed in the Mid-Atlantic area.

We believe juveniles will be harvested once Amendment #4 is implemented. We lack data on total fleet reconfiguration, but we are aware of some vessels already converting from fresh product dredge vessels to frozen product trawl vessels. You may remember the video footage presented in Baltimore in 1986 that indicated what a net vessel could harvest (e.g., 50-75 baskets per haul for a trawl vs. 10-25 for a dredge). We believe that several vessels will convert to trawling for scallops in the mid-Atlantic area. Moreover, given the apparent low abundance of scallops of all sizes on Georges Bank, it is likely that most of the fleet will exploit the mid-Atlantic scallop seed. Thus, there appears to be a strong likelihood that excessive effort will be diverted to harvesting the Mid-Atlantic seed in 1994.

The harvesting of the seed also presents serious short-run economic problems. If 60-90 count scallops hit the market, they will likely compete with Chinese Bay scallops. The net result will be ex-vessel prices between \$2.00 and \$4.00 per pound rather than the \$4.00 to \$6.50 per pound that sea scallops frequently command in the market. This also will allow the Canadians an opportunity to increase their share of the sea scallop market.

Unfortunately, we are only able to identify the potential problems; we cannot offer any solutions. Therefore, it is imperative that a Plan Development Team meeting be held as soon as possible to discuss the potential problems and explore possible solutions. The framework and emergency measures offer possible solutions to mitigate the probability of excessive harvesting of juveniles, but the options need to be explored by the PDT and members of industry.

Sincerely,



James E. Kirkley



William D. DuPaul

cc: Phil Coates  
Douglas Marshall

TO: Phil Coates, Sea Scallop Chairman  
FROM: Louis Goodreau, PDT Chairman  
SUBJECT: PDT Meeting, Preliminary Report - February 4, 1994

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The PDT met on February 4 to assess the extent of problems associated with the harvest of quantities of very small scallops located in the Mid-Atlantic area. The concern was that anticipated reductions in fishing mortality expected during the first year of Amendment #4 would be precluded. The PDT met also to assess the relevance of these concerns and identify any adjustments/additions to the management measures included in the Amendment which might be needed. As a result, two tasks were undertaken: 1) to evaluate preliminary findings from the 3.25" ring-size experiments conducted to date (3 trips); and 2) to review the results of the 1993 NEFSC sea scallop survey.

#### **EFFECT OF 3-1/4" RING SIZE/GEAR RESTRICTIONS**

Drs. DuPaul and Kirkley presented a "Preliminary Assessment of 3.25" Ring Dredge". [The PDT's observations regarding the three ring-size experiments were: 1) relative to a 3" ring, the 3-1/4" ring captures lower quantities of smaller-size scallops but does not markedly shift the size range of scallops caught towards larger scallops; 2) the selectivity results differed between Georges Bank and in the Mid-Atlantic, suggesting that bottom type and scallop population densities affect gear performance, size retention of scallops, and gear efficiency; 3) gear performance can be easily altered by making small changes in gear configuration and gear operations unrelated to ring-size itself; and 4) culling practices will have as much of an impact on the size composition of scallops landed as ring-size controls.] Nevertheless, it is unclear whether the assumptions made in the ring size analyses will be borne out in practice.

Without the meat count, there may be dramatic changes in size composition of the scallop catch. Therefore, it is critical that the length distribution in the catch be measured for further assessment. Landed meat count cannot be used in this regard because of cutting practices, water uptake, and SDP use, although one member dissented from this view.

The PDT's review of the preliminary findings from the three 3.25" gear trials conducted to date suggest that the experimental results are very much in accord with those generally anticipated in PDT Document #7, "Evaluation of 3-1/2" Rings in Scallop Dredges To Enhance Size Selectivity of Sea Scallops", particularly the five points provided under Management Implications of page 4 of that

document. Further, the PDT reiterates its recommendations found in PDT Document #7:

*Introduction of ring-size controls (i.e., 3-1/2" rings) in the scallop fishery would be expected to have a positive impact in reducing the catch of small scallops - if compliance was high. However, quantification of the effects of ring size on fishing mortality is not yet possible; there are too many other variables that affect size selectivity (including culling and mixing practice) to determine, with any precision, expected changes in partial recruitment from ring-size controls. Ring-size restrictions would be insufficient by themselves to prevent overfishing since they do not control the overall level of fishing intensity.*

#### **RESULTS OF THE 1993 SEA SCALLOP SURVEY:**

Dr. Serchuk presented a review of the NEFSC sea scallop survey in August 1993, based on the Report from the Regional Director and the Fisherman's Report (both attached), as well as specially prepared overheads to illustrate geographical distribution and abundance patterns of pre-recruit (<70 mm shell height; herein called small scallops) and harvestable-size (>= 70 mm shell height; herein called large scallops). The PDT's conclusions were as follows: 1) extremely high densities of small scallops were prevalent throughout the Mid-Atlantic region, with the highest concentrations in a rather continuous band between 25-40 fathoms; 2) larger-size scallops were found in the same areas and beds as small scallops; 3) there were no obvious spatial (latitudinal) demarcations in the surveys distribution patterns of small scallops in the Mid-Atlantic region which could be used to objectively define 'closed areas'; and 4) the excellent recruitment of small scallops in the Mid-Atlantic region offered an opportunity 'to restore adult stock abundance and age distribution' and 'to increase yield per recruit' [two of the FMP objectives].

#### **CONCLUSIONS AND RECOMMENDATIONS:**

The PDT was especially concerned that the reductions in fishing mortality envisaged during the first year of Amendment #4 would not be attained because: 1) days-at-sea in 1994 might not be prorated to reflect enactment of the Amendment in March rather than January; and 2) the preliminary data from the ring-size experiments did not indicate a marked shift in the selectivity of small scallops by 3.25" ring gear. The nine-man crew size restriction included in Amendment #4 was considered to be a supplementary but important measure to control the harvesting of small scallops (Amendment #4, Vol. I, p. 30) by constraining 'shucking power'. Anecdotal information provided to the PDT indicates that many vessels in the scallop fleet are now staffed with crews of seven men or less. Given items 1) and 2) above, and the substantial reduction in 'shucking power' of a 7-man crew vs. a 9-man crew



(Amendment #4 , Vol. III, Appenidix VI, p. A-61), the PDT believed that capping crew size at 7-men during the first 10 months of 1994 (March-December)) would be of benefit in controlling the harvest of small (50-80 count) scallops this year. To the extent that many scallop vessels are currently fishing with 7 men or less, enactment of a 7-man crew size limit would not engender reductions in crew size but simply cap crew size at levels now generally prevalent in the fleet. It should be noted that the PDT did not undertake a quantitative evaluation of the overall impact of a 7-man crew limitation (i.e., address safety issues, potential employment, etc.), but concluded that of all the framework adjustment measures specified in Amendment #4 that adjusting crew size to 7-men would be the most expeditious and least disruptive measure in attempting to protect and husband the excellent recruitment of small scallops that now exists in the Mid-Atlantic region. In this context, the PDT advises the Council to give strong consideration to implementing a 7-man crew size cap during March-December 1994, to be reviewed at the end of that time.

cc: PDT members

TO: Phil Coates, Sea Scallop Chairman  
FROM: Louis Goodreau, PDT Chairman  
SUBJECT: PDT Meeting, Preliminary Report - February 4, 1994

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cc: PDT members

## No fish, bad weather reduce scallop crews

By Natalie White  
Standard-Times staff writer

NEW BEDFORD — A few years back at this time, the Contender, Concordia, Sandra Jane and Perseverance provided jobs for about 45 scallopers.

Today, only 25 fishermen ship out on the scallop boats.

"That's almost in half. This is where the job loss comes in. The boats are going out with way less

men because there's not enough to go around. The scallopers are going out with four to six men instead of nine men," said Malvin Kvilhaug of Fairhaven, who owns the boats.

"There's less fish out there. So there's less work. The weather has been very bad this year too," said Mr. Kvilhaug. "Some boats are tied up. And some boats go out but no one gets paid because they can't catch  
(See SCALLOPERS, Page A5)

### ■ Scallopers

(Continued from Page 1)  
enough fish to cover expenses."

Few expect fishing to get much better in the face of restrictive fishing regulations that will go into effect this spring.

"Right now, there are a lot of people just hanging in there. Usually, if the winter is bad it gets better in the spring and summer, but with the new regulations, it doesn't look good," he said.

The job scene is not much better in related industries.

"I'm seeing these boats going through very difficult times. Here, ourselves, we have had to lay off nine people in the last two years," said Joseph Couto, manager of New Bedford Ship Supply. The company used to employ 25 people; now it has only 16 on the payroll.

"The owners are having a difficult

time paying their bills. When the boats hurt, we feel it," Mr. Couto said. "Everyone feels it in the city. That only makes sense. There are all the people who supply the boats with supplies, those who weld on the boats, the people who sell them ice, the fish cutters, and then that affects the restaurants, the grocery stores. All the way down the line. It's not like this just affects 30 or 40 people. This involves thousands and thousands of people."

At Bergie's Seafood, they're feeling the economic pinch too.

"I have half the people working here now than I did this time last year. There's no fish, and the weather is a big part of it this year. Also they close a big fishing area," said owner Mark Bergeron.

Like others, he does not see relief coming soon.

"With the new regulations, I don't know, it could get very much worse before it gets better," he said.