

**AMENDMENT #2 TO THE
FISHERY MANAGEMENT PLAN
FOR
ATLANTIC SEA SCALLOPS**

**INCORPORATING AN
ENVIRONMENTAL ASSESSMENT
AND
REGULATORY IMPACT REVIEW/
INITIAL REGULATORY FLEXIBILITY ANALYSIS**

**Prepared by the
New England Fishery Management Council**

September 1987

Resubmitted March 1988

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I. INTRODUCTION

The New England Fishery Management Council and the Assistant Administrator for Fisheries (NOAA) propose to amend (Amendment #2) the Fishery Management Plan for Atlantic Sea Scallops (Placopecten magellanicus). Amendment #2 seeks to clarify the application of the 30 meat count management standard to account for the natural decrease in meat weight that accompanies spawning, when a significant amount of scallops which have reached harvestable age, lose weight and fall below the 30 meat count standard. The seasonal decrease in meat weight due to spawning was not previously accounted for in establishing the current management standard, and this has resulted in an additional burden on fishermen that was neither intended nor required for the achievement of the management objective of the FMP.

Amendment #2 initially specifies a 10% increase in the meat count standard during the months of October, November, December, and January, the primary period when spawning causes the reduction in individual meat weight to scallops that have reached harvestable age. This seasonal adjustment is intended to remain in effect until a further change may be determined necessary and appropriate by the Council and the Regional Director, in consideration of the management intent of the Council and the most recent scientific information available on the spawning relationship between shell height and meat weight. To facilitate any possible future changes, Amendment #2 provides a framework mechanism to change the magnitude and/or the timing of the adjustment of the meat count standard during the spawning season. When implemented, Amendment #2 will have the effect of enhancing compliance with the management standard, eliminating an economic burden on fishermen that was not intended with the implementation of the 30 meat count standard, and promoting the achievement of the objective of the FMP.

II. PURPOSE AND NEED FOR ACTION

The purpose of this amendment is to revise the meat count standard to allow the harvesting of scallops which have reached harvestable size but which do not meet the 30 meat count standard because of natural weight loss due to spawning. The current meat count standard, which was initially analyzed and implemented on the assumption of non-variable continuous meat growth, is actually more costly to fishermen during the spawning season when scallops lose meat weight in favor of reproductive tissue growth. Because sea scallops actually lose meat weight during the Fall, any fisherman complying with the 30 meat count standard has to leave more harvestable scallops in the ocean than if the standard were adjusted to reflect the reality of the meat weight loss. Thus the vessels' benefits from harvesting the sea scallop resource must, in part, be postponed until mid-winter when meat weight is restored following spawning. Such a postponement disadvantages those scallopers that do not normally operate under severe mid-winter conditions. The effect of this amendment is to provide regulatory relief by restoring the opportunity for all vessels to fish for sea scallops in the fall/early winter season, and assures that these benefits will accrue to all the vessels that have traditionally fished under the preferred operating conditions of the fall. Finally, this Amendment helps to maintain industry compliance with management standards because the standard more reasonably reflects the fact that fishing on 3-1/2 &

4 year old scallops, in combination with older cohorts, is legitimate during the spawning season (FMP section 821).

The sea scallop management program calls for the realization of benefits from the sea scallop resource commensurate with the achievement of about 15 grams of yield from each scallop as it passes through the fishable population. The FMP described this level of productivity as an average of 30 meats-per-pound from each year class that passes through the fishery. The yield analysis that was used to develop the FMP assumes a continuous growth model, and was based primarily on the age-at-entry to the fishery and not from the specific meat counts that derive from the fishery at any point in time. Average meat count is one measure of whether the management program is meeting its objectives. However, the current trip-based meat count management standard forces each trip's landings to average at least 30 count, and thus assures that the year class yield objective is achieved.

The trip-based standard is conservative, in that scallops cannot be captured until either they reach the weight standard, or they can be mixed with larger scallops to achieve the weight standard in aggregate. Thus, the ability to land a given year class, which has reached harvestable age, before it has achieved a 30 count size depends upon the strength of the previous year class. In the absence of a succession of good year classes, which would be the ideal condition for mixing, the actual average meat count of landings from each year class will always be lower than the average 30 standard because fishing mortality is not 100% as each scallop reaches the 30 meat count standard. The latter is the situation currently in the fishery due to the extraordinary strength of the 1982 and 1983 year classes, and the relative weakness of the older year classes. It should also be noted that the subsequent 1984 year class, as three year olds in the 1987/1988 fishery, does not factor into the mixing formula until at least the spring of the year, because at approximately 120 meat count in the beginning of the year, it is too small to be cut and is returned to the sea. Three year old scallops are typically not cut and mixed in with the catch until they reach the 80 count size in the spring.

The analysis used in the original FMP has shown that sea scallops from the continental shelf resource areas that are four years old (scallops are spawned in the Fall of the year) are beginning to contribute significantly to spawning and will increase in size (meat weight) by about 80% over the following 12 months. Four year old continental shelf sea scallops will also reach a size of 15.1 grams, which is equivalent to the average 30 meat count target size that the Council has set as its goal for management. In fact, growth analysis indicates that the average meat weight of these scallops increases from about 11.3 grams (40 count) at age four, to about 20.5 grams (22 count) at age five. Sea scallops in the Gulf of Maine (GOM) exhibit similar growth patterns, but at an age about one year older so that the 30 meat count size is achieved as five year olds.

The Council's original impact analysis was based upon a scallop growth model that assumed a continuous increase in meat weight for each cohort over the year, and did not take into account the weight loss phenomenon associated with spawning. However, when a particular year class reaches harvestable age, meat weight growth appears to be interrupted during spawning season when

energy is directed toward gonad development, even though the shell height remains the same. The consequence is that a 40 meat count does not accurately describe the average scallop at four years old (five years old in the Gulf of Maine). The impact within the management program is that 4 year old scallops, which the Council believes are legitimate to fish in combination with older year classes (see FMP §821 where the management standard is explicitly expressed as the maximum average for a trip), are denied to the fishery until after the spawning period when those scallops have shifted their energy back to non-reproductive growth. Scallops with a shell height of 3-1/2" yield less meat weight in the fall than they did during the previous summer. Therefore, in consideration of this weight loss phenomenon, the Council has decided to make a seasonal adjustment to only the meat count standard.

III. ALTERNATIVES: DESCRIPTION AND ANALYSIS

Alternative A: take no action to amend the FMP

Description: The no action alternative represents a continuation of the current regulatory regime that inadvertently precludes legitimate scallops from being harvested in the fall and early winter of the year, because its major management measure, a fixed 30 meat count trip standard, does not account for the interruption of meat weight growth during the spawning season.

Benefit: In theory this alternative will produce more long-term yield benefits from the resource than were originally calculated by reducing mortality on the entering year class for several months. Scallops that are left in the population will have an extended opportunity to spawn, and more scallops, at a higher average weight, will be available for capture subsequent to the spawning season. This benefit, however, was not anticipated in the design of the original FMP, is in addition to those benefits contemplated in the FMP, and is not necessary to achieve the goals of the management program.

Costs: This alternative does not meet the intent of the management program to provide effective resource management at least cost to the industry, because scallops that would otherwise be available for harvest (but for their loss of weight due to spawning) are technically withheld from the industry for about a four month period until they attain the specified meat count. Although the absolute amount of foregone catch during the months of October through January (the months that bracket the spawning season) cannot be accurately estimated, it is likely that catches would decrease by more than 20% during October and November given current conditions of intense exploitation. A decision to adopt the no action alternative would, in reality, be disruptive to the industry for the following reasons: First, no action imposes a seasonal cost (foregone catch) on all participating fishermen; second, no action preserves an unforeseen inequity among vessels of different sizes by forcing vessels that cannot endure winter weather conditions to be outcompeted for any delayed catch by more durable vessels that can shift their fishing to the later winter months when meat weight recovers; and third, no action promotes non compliance because the alternative facing most vessels in the spawning and post spawning period is to either reduce catch or incur the cost of searching out other fishing grounds. Generally, neither of these options promotes compliance.

Alternative B: PREFERRED ALTERNATIVE- Amend the FMP to appropriately modify the management standard

Description: This alternative specifies adjusted values for the 30 meat count management standard during the months of October through January that are more consistent with the actual, average meat weights during the spawning season, and that serve as better threshold criteria for focusing mortality on age 4 (age 5 in GOM) and older year classes (see Figure 1). Currently, the Council views the best scientific information conservatively, and identifies a four month adjustment of ten percent in the meat count from October 1 through January 31. Monthly changes were deemed inoperable from an enforcement standpoint. Accordingly, the meat count management standard is redefined as follows: the number of scallops in a one-pound sample (on average) must be 30 or less during the months of February through September, and 30+10% or less during the months of October through January. Additionally, the Council intends that the duration and timing of the adjustment be based on the best information available. Currently data collection is underway to augment our understanding of the seasonal variation in meat weight due to spawning. Accordingly, as new information is developed that might affect either the duration (up to 6 months) or the magnitude (up to 30%) of the adjustment, the Council will recommend that the Regional Director make a permanent seasonal adjustment of standards because such information indicates that these changes have occurred. The Council does not propose to change the shell height standard because shell height is not affected by spawning.

Supporting Biological Analysis: Growth equations for sea scallops in the Georges Bank, Mid-Atlantic, inshore Gulf of Maine, and offshore Gulf of Maine resource areas are graphically presented in Figure 1 and in Appendix Figures A1-A3, respectively. These figures illustrate the calculated meat count of scallops at ages 3 through 6 using the average growth model (solid line). The figures also illustrate the meat counts that are expected to occur throughout the year due to the seasonal variation in the meat weight/shell height relationship (dotted line). The curves presented as dotted lines in the figures were calculated from growth analyses presented in NEFC Lab Reference Document 83-35, which were done with particular reference to the Georges Bank population. Based upon the Council's analyses of NEFC growth data, seasonal adjustments in the meat weight-at-age growth curves were obtained by assuming that the adjusted meat weights are 5% greater than the average predicted weights during the months of April through September, 20% less during October, the primary spawning month, and 12% less during the November through March period, resulting in a six month spawning period.

Although the actual onset of sea scallop spawning in specific resource areas may vary somewhat around the October 1st date, the Council has concluded that the analyses are representative of growth patterns throughout the range of the sea scallop fishery. In all cases, the Council's approach to accounting for the discrepancies between actual and predicted meat weights over the critical months when the four year olds (five year olds in the Gulf of Maine) are recruiting to the fishery is to adjust the management standard for the difference between the average predicted meat count and the assumed actual value during the months of October through January. The calculated monthly differences are: October, +20%; November through January, +12%. Based upon these values, and with due consideration for the imprecision of the analysis and complexity of enforcement, the Council has conservatively specified the management standard as presented under the description of this alternative above, reflecting a +10% adjustment from October through January.

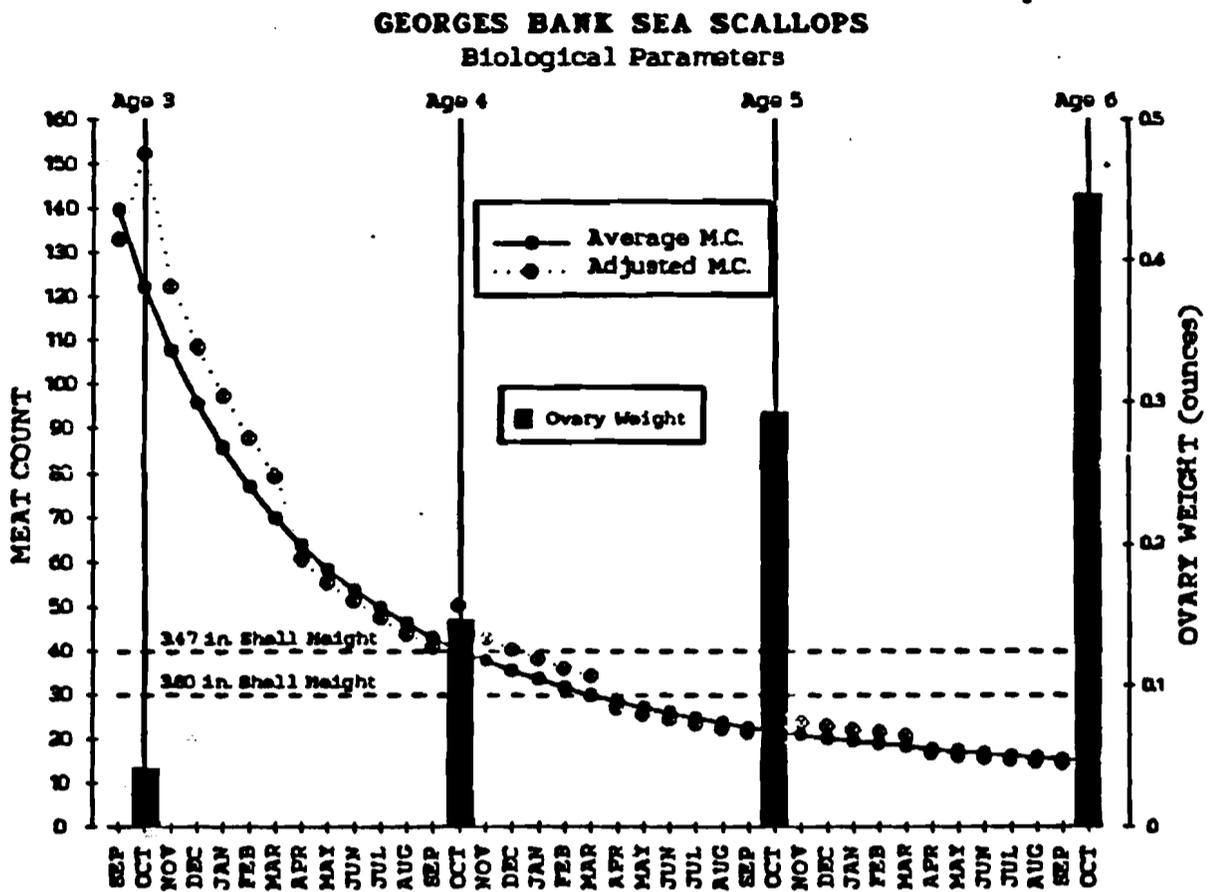


Figure 1. Chronological sequence of changes in biological parameters in Georges Bank sea scallops. Solid line (solid points, ●) indicates the calculated average meat count with growth over time. The dotted line (open points, ○) indicates the seasonally adjusted meat count. The bar graphs represent the spawning potential (ovarian weight). The birthdate of October 1 is universally assumed.

Supporting Economic Analysis: The economic impact analysis of Alternative B utilizes expected changes in prices and revenues from landings (Figure 2.a, Eastern Georges; Figure 2.b, New York Bight) based on the adjusted monthly meat weight, to illustrate the impacts of the preferred alternative compared to no action. In the case of Alternative B (seasonal adjustment) Figures 2.a & 2.b demonstrate the relative gain in landings (striped histogram) during the months of October through January when compared to Alternative A (no action). Notice that Alternative B has the effect of increasing landings during a low point of the year. The long-term benefits of the preferred alternative include mitigation of non-compliance attributable to the spawning weight phenomenon; no action leads to non-compliance when fishermen cannot quickly change their fishing patterns in the fall or believe that they will be outcompeted for landings by larger, more durable vessels in the late winter months. The degree of non-compliance is directly related to long-term benefits (landings & revenues), but this relationship cannot be quantified. It is the judgement of the Council that non-compliance due to the spawning weight phenomenon alone is substantial, and that the implementation of a seasonal adjustment will alleviate that portion of non-compliance. Although the information gained by the Council during the recent period of temporary adjustment (December 1987 through January 1988) cannot be quantified, the Council is aware that industry concerns were satisfied and compliance was enhanced.

Long-term losses in landings & revenues result with the preferred alternative (assuming perfect compliance with no action), because with no action scallops are delayed from recruiting into the fishery for about four months due to spawning and are then harvested at larger sizes. The change in present value (10% discount rate) of exvessel revenues with the preferred alternative over the next eight years is predicted to be -\$5.3 million (-0.5%); consumer expenditures, -\$9.1 million (-0.3%). Additionally, the analysis shows the changes in the present value expected for various permanent seasonal adjustments:

	<u>Exvessel Revenues</u>	<u>Consumer Expenditures</u>
10% Oct-Jan	-\$ 5.3 M (-0.5%)	-\$ 9.1 M (-0.3%)
10% Sep-Feb	-\$10.0 M (-1.0%)	-\$17.3 M (-0.6%)
30% Oct-Jan	-\$19.1 M (-1.8%)	-\$33.0 M (-1.1%)
30% Sep-Feb	-\$28.6 M (-2.7%)	-\$49.4 M (-1.7%)

The greatest possible impact in terms of present value, again assuming perfect compliance, would be with a 30% adjustment to the meat count for 6 months, from September through February for instance, but this would still account for only a 2.7% decrease in exvessel revenues.

The first year (1988/89) impacts, which are part of the present values above, of the proposed action relative to no action are as follows:

	<u>No Action</u>	<u>10% 4 MO (%)</u>	<u>10% 6 MO (%)</u>	<u>30% 4 MO (%)</u>	<u>30% 6 MO (%)</u>
Exvessel \$M	\$103.9	\$106.1(+2.1)	\$108.7(+4.7)	\$115.9(+11.6)	\$123.6(+19.0)
Consumer \$M	\$404.7	\$407.5(+0.7)	\$411.0(+1.5)	\$420.3(+ 3.9)	\$430.5(+ 6.4)
Landings M#	18.16	18.59(+2.4)	19.12(+5.3)	20.58(+13.6)	22.18(+22.2)
Ex. Prices	\$5.72	\$5.70(-0.3)	\$5.68(-0.6)	\$5.63(- 1.6)	\$5.57(- 2.6)
Wh. Prices	\$6.95	\$6.93(-0.2)	\$6.91(-0.5)	\$6.86(- 1.3)	\$6.80(- 2.1)
Rt. Prices	\$10.58	\$10.56(-0.1)	\$10.54(-0.3)	\$10.50(- 0.7)	\$10.45(- 1.2)

First year percent changes with the seasonal adjustment will result in more positive responses (negative price responses) as the upturn expected in landings occurs during October through January. On the other hand, revenues under no action are expected to turn positive, compared with the seasonal adjustment, by the beginning of 1990/91.

Costs and Benefits of the PROPOSED ACTION

1. Benefits: The results of the bio-economic impact analysis may be evaluated in terms of providing regulatory relief to the sea scallop industry, while maintaining the concerns of the Council to enhance yield per recruit and to avoid mixing of small scallops. From the growth pattern in Figure 1, one can see that sea scallops might be expected to fully recruit into the fishery at 40 meat count average size at the beginning of the spawning period in October. However, as spawning approaches, energy is converted into reproductive tissue, resulting in a temporary reduction in the weight of the meat. The impact of the spawning phenomenon on the sea scallop industry is that fishermen must abruptly switch fishing grounds which once held legally catchable scallops, waiting until winter to move back to these abandoned grounds and fish on that particular year class. However, by that time winter weather has usually begun to take a turn for the worse; many boats begin to tie up for the holidays; and many more smaller boats have tied up for the season (see Table 1). Thus comparable fishing effort may not be able to be achieved in winter and landings that would have occurred in October may not be totally made up in winter. Relief from this potential loss in the expected landings and in the necessity to switch fishing grounds in October are the major benefits to the industry that are expected with the seasonal adjustment. Additionally, allowing these extra landings during October through early winter provides a somewhat increased product flow during a natural, seasonal decline in total landings. Fishing mortality removes only a portion of the year class during spawning and this factor has been accounted for in the original biological analysis of the FMP (see sections 240 & 710). Fishing pressure during the spawning period is not expected to impact the success of that spawning nor detract from the Council's objectives for enhancement of yield per recruit and mixing of small scallops. Additionally, the annual average meat count from each recruiting year class is not significantly different from 30, notwithstanding the four month period at 33 count.

2. Costs: Continuation of the present program (no action) would not result in the expected benefits described above (regulatory relief), but would result in some benefits from increased, long-term yield (of scallops not caught during spawning), assuming perfect compliance, relative to the proposed action. The loss of long-term yield benefits constitutes the cost of a seasonal adjustment to account for spawning, but these costs are mitigated based upon the previous discussion of non-compliance. The net present value (10% discount rate) of exvessel revenues with the preferred alternative over the next eight years, compared with the no action alternative, is predicted to be -\$5.3 million (-0.5%); consumer expenditures, -\$9.1 million (0.3%). This includes the \$2.2 million increase in exvessel revenues (\$2.8 million increase in consumer expenditures) in 1988/89 expected with the seasonal adjustment.

Additionally, the seasonal adjustment will be simple to apply and enforce under the current 30 meat count management standard, because administrative and enforcement procedures will remain unchanged. There will be no change in paperwork and recordkeeping requirements.

EASTERN GEORGES BANK SEA SCALLOPS

30 Meat Count Average Over Year 1

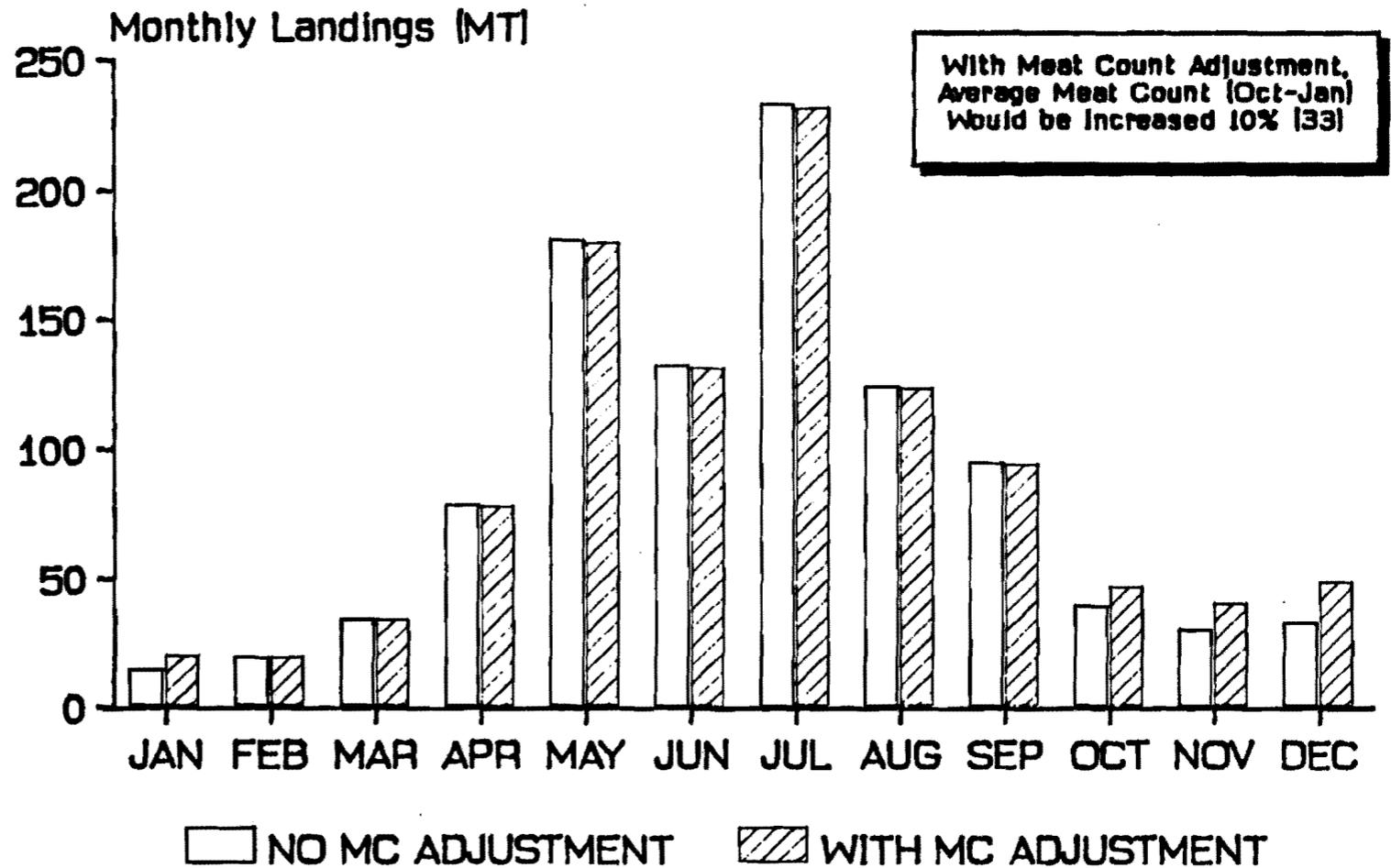


FIGURE 2.a

NEW YORK BIGHT SEA SCALLOPS

30 Meat Count Average Over Year 1

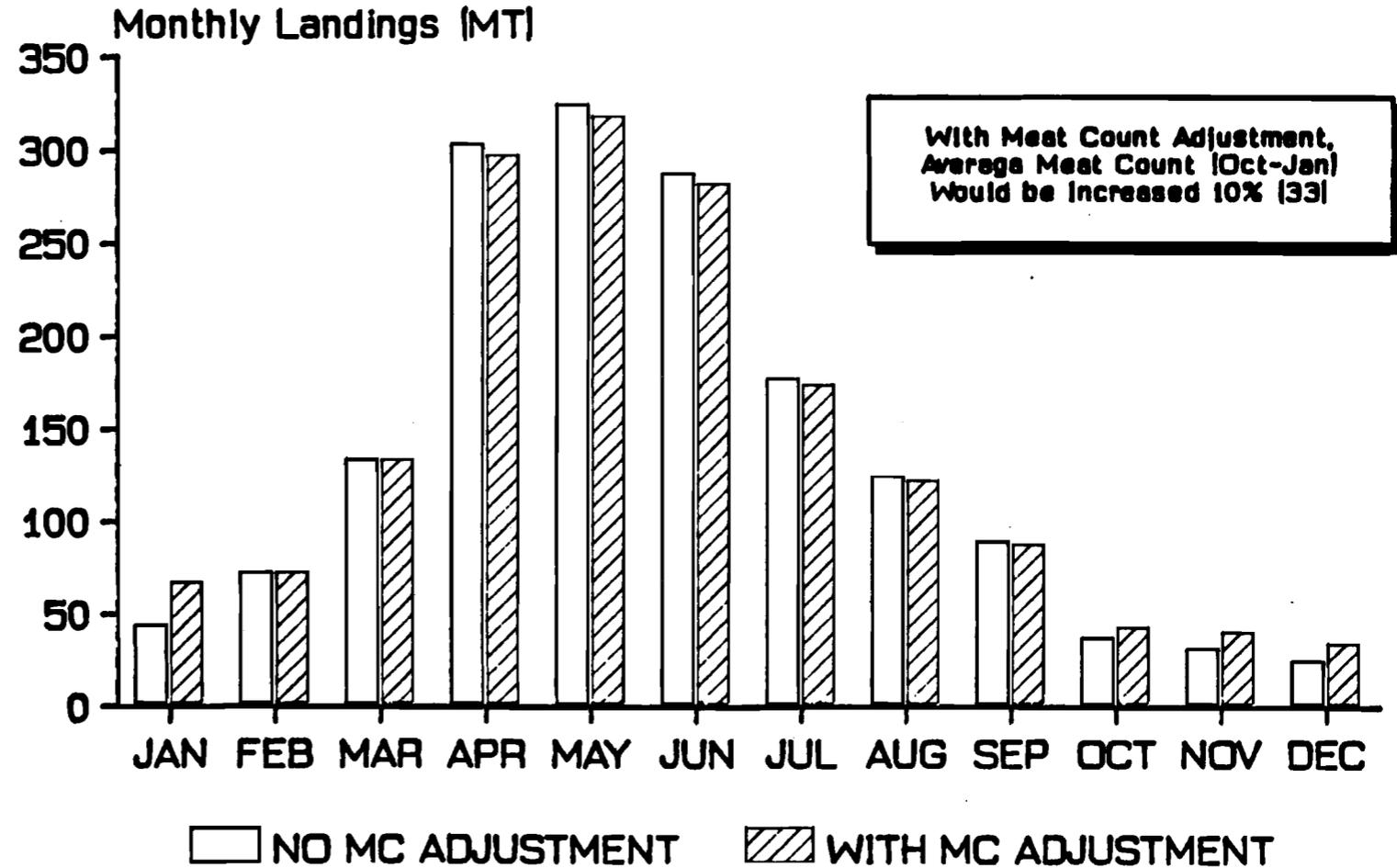


FIGURE 2.b

3. Cost-Benefit Conclusion: Northeast Fisheries Center scientists have indicated that sea scallops will generally grow from about a 120 meat count size to a 40 meat count size within one year (based on Georges Bank and Mid-Atlantic resource data), during which time they recruit into the commercial fishery. These landings currently do not accrue for another four months, however, as a consequence of not allowing for a seasonal adjustment of meat weight. Thus, the Proposed Action (seasonal adjustment) is the preferred alternative because:

- 1) it achieves the objectives of the FMP (long-term benefits with no action are in addition to original calculations in the FMP);
- 2) fishing effort on the recruiting year class (3-1/2 & 4 year olds) can proceed normally, uninhibited by the spawning phenomenon in meat weight;
- 3) landings will increase by 434 thousand pounds and exvessel revenues by \$2.2 million during a seasonal low point in October-January in 1988;
- 4) the relative change in net present value (NPV), -\$5.3 million exvessel, is only a 1/2 of one percent reduction in revenues. The Council is aware that No Action may result in greater non-compliance, because legitimate 4 year old scallops have lost weight during the spawning season, which results in these small scallops being caught anyway. Non-compliance jeopardizes the achievement of the expected benefits which accompany No Action. Accordingly, if No Action results in only a 1% loss in expected PV through non-compliance, the benefit-cost relationship for the Proposed Action turns positive. The Council believes that better compliance with the regulations, hence expected benefits, will be more readily achieved with the Proposed Action and net benefits to society will be maximized;
- 5) the entire dredge industry is capable of fishing and reaping the benefits of the proposed rule in the fall, compared to the limited number of boats which are able to fish in winter weather and which currently harvest these scallops after the spawning season (see Table 1.);
- 6) the amendment provides for greater vessel safety in the Atlantic sea scallop fishery consistent with the intent of §303(a)(6) of the Magnuson Act, as amended by Pub. L. 99-659 (1986).

Regulatory Analysis- Other E.O. 12291 Requirements: E.O. 12291 requires that the following three issues be considered:

- a. Will the Amendment have an annual effect on the economy of \$100 million or more?
- b. Will the Amendment lead to an increase in the costs or prices for consumers, individual industries, Federal, State, or local government agencies or geographic regions?
- c. Will the Amendment have significant adverse effects on competition, employment, investment, productivity, innovation, or on the ability of US based enterprises to compete with foreign based enterprises in domestic or export markets?

As indicated in the Costs section above, the proposed action will result in about \$2.2 million gain in exvessel revenues (\$2.8 million gain in consumer expenditures) in 1988; whereas, no action may result in a \$5.3 million (\$9.1 million) gain in the long run. Even at the upper limit of seasonal adjustment (30%, 6 months) present value is reduced by only 2.7%, or \$28.6 million exvessel (-1.7%, -\$49.4 million retail). Price changes will be immaterial as shown above. Administrative, enforcement, and paperwork & recordkeeping requirements will remain unchanged, thus there are no impacts on Federal, State, or local government agencies. Employment impacts are expected to reflect the revenue changes predicted above. The seasonal adjustment should have no effect on competition, investment or innovation in the fishery; however, productivity will obviously be higher during October through January with the seasonal adjustment. The import market for Canadian landed sea scallops, many of which are seasonally sold in the U.S., may supplant more domestic landings during winter with no action than during October with seasonal adjustment. As a consequence, the foregoing analysis results in a finding that the proposed action does not constitute a "major rule" that would require a regulatory impact analysis under E.O. 12291.

Regulatory Analysis- RFA and PRA Requirements: The proposed action is not expected to have a significant effect on small entities in relation to the Regulatory Flexibility Act. With no action, smaller vessels which are unable to operate during the winter would be at a distinct disadvantage to land those scallops that were not harvested during the October spawning period. The Proposed Action will allow both large and small vessels to land more scallops in the fall. If these scallops are landed in the winter (No Action), then they will not be landed by smaller vessels which are unable to operate in winter weather (14.9% of dredges are considered small). NMFS has issued 1,110 permits to scallop fishing vessels as of December 1984 (all considered small entities). However, only 54 percent of these vessels landed some sea scallops and only 20 percent were considered full-time vessels (based on 1983 data; Report on the Status of the Sea Scallop Fishery, January 1985). About 346 vessels landed sea scallops in 1986 (200 of them were scallop dredges). The average impact on all 346 vessels is +\$6376 in 1988 compared with an average gross revenue of \$280,206 annually (1986). However, these vessels will experience an average loss in net present value of -\$15,373 over the next eight years. It is expected that all vessels operating in the fishery will be affected, as described above for the aggregate, in the same way because all vessels are capable of fishing in the fall. No differential effects should occur relative to competitive position, cash flow and liquidity, or ability to remain in the market. There will be no change in paperwork and reporting requirements.

Table 1 shows the distribution of sea scallop landings by different user groups. The first two user groups in Table 1, small New England dredges and other gear (scuba), both operate in the Gulf of Maine (GOM) during the winter. It is clear that these two groups scallop almost as much during February-March, as they do during October through January. There should be no impact on these two groups either with or without the proposed action, because the same number of vessels are fishing during both periods.

 TABLE 1: Sea Scallop Landings Distribution by User Groups,
1985-1986

<u>GROUP</u>	<u>LANDINGS</u>	<u>% OCT.-JAN.*</u>	<u>% FEB.-MAR.*</u>
N.E. Dredges (under 50 GRT)	639,705	45.6% (11)	43.1% (13)
Other GOM	15,669	47.6% (NA)	43.9% (NA)
N.E. Dredges (over 50 GRT)	10,011,442	20.9% (135)	11.8% (102)
N.E. Trawls (under 50 GRT)	4,498	23.3% (24)	13.9% (18)
N.E. Trawls (over 50 GRT)	77,996	13.8% (48)	4.1% (22)
M.A. Dredges (over 50 GRT)	5,457,564	19.5% (85)	8.7% (58)
Other M.A.	1,908	25.9% (13)	13.8% (12)
M.A. Trawls (under 50 GRT)	4,550	-	2.4% (3)
M.A. Trawls (over 50 GRT)	137,316	11.6% (33)	5.2% (50)
N.C. Dredges	167,871	18.9%	-
N.C. Trawls	325,215	21.0%	0.1%
TOTAL **	16,843,845		

* Number of vessels operating in parentheses.

** Average annual landings for 1985 & 1986.

The two major user groups (large scallop dredges) in Table 1 decrease their activity from the October-January period to the February-March period, presumably due to weather conditions. For instance, large New England dredges, the most important group in terms of landings, show a decline from 135 vessels in October-January to 102 vessels during February-March. This is in contrast to a decline of only 12 vessels from summer to fall. Thus, the proposed action will increase landings in the fall and will benefit more vessels, whereas no action will allow those landings to be made in the winter by a limited number of vessels.

New England trawls (large & small) illustrate a pattern similar to that for the major groups, with declining landings and number of vessels during the winter. Mid-Atlantic trawls, on the other hand, show dissimilar patterns; small trawls have virtually no activity during fall or winter, while larger trawls show proportionately lower landings, but more vessels, during winter. In North Carolina, both dredges & trawls land scallops only in the fall, or the October through January period.

Relationship to the National Standards and Other Applicable Law

National Standards: Section 301 of the Magnuson Act establishes seven National Standards for fishery conservation and management with which all fishery management plans (FMP) and amendments to such plans must be consistent. The consistency of the Preferred Alternative with the National Standard is the same as the consistency of the original measures explained in Section 920 of the FMP and need not be reiterated here.

Coastal Zone Management Act: The Council has determined that the Preferred Alternative is consistent to the maximum extent practicable with the approved coastal zone management programs of Maine, New Hampshire, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Maryland, Delaware, Virginia, and North Carolina. This determination has been submitted for review by the responsible state agencies under Section 307 of the Coastal Zone Management Act.

Finding of No Significant Environmental Impact

In view of the analysis presented above, it is hereby determined that the proposed action in this amendment to the Sea Scallop FMP would not significantly affect the quality of the human environment with specific reference to the criteria contained in NDM 02-10 implementing the National Environmental Policy Act. Accordingly, the preparation of a supplemental EIS on this proposed action is not necessary.

Assistant Administrator
for Fisheries, NOAA

Date

IV. AMENDATORY LANGUAGE

A. Changes as Consequence of the Proposed Action

Section 821 of the FMP is completely replaced by:

§821.1 Except as provided for in §821.2 and §821.3 below, the meat count measure is specified at 30 meats per pound (30 count), which represent a maximum average value for the trip, and is applicable to sea scallops shucked at sea. The corresponding minimum shell size measure is specified at 3 1/2 inches and is applicable to sea scallops in the shell that are either caught recreationally or harvested by the shell-stocking sector of the fishery. The minimum shell size measure is subject to a tolerance of 10% by number less than the specified value.

§821.2 The Regional Director shall have authority to change the meat count and minimum shell size designations upon a finding of fact relevant to the criteria detailed in Part II(C) of Appendix A, and after consultation with the New England, Mid-Atlantic and South Atlantic Fishery Management Councils. A fact-finding process by the Regional Director may be originated either at his initiative or upon a request from the Council. Such changes shall be made only within a range of 25 to 40 meats per pound, with the corresponding shell sizes, and shall not be made in increments greater than five meats per pound.

§821.3 Provision is made in the specification of the meat count standard for meat weight loss during and after spawning. The Council specifies an adjustment of +10% in the prevailing meat count standard during the months of October, November, December, and January, the primary period when spawning causes a reduction in individual meat weight. The adjustment is designed to maintain the proper balance between the fishing mortality at age that was originally analyzed in the FMP and the measure that is used to achieve the management objective. The shell height standard is not adjusted because shell height is not affected by spawning. This adjustment is intended to remain in effect until a further change may be determined necessary and appropriate by the Council and the Regional Director in accordance with §821.4 below.

§821.4 The Regional Director shall have the authority to make modifications to the adjustment in the meat count standard described in §821.3 subject to the following procedure.

- 1) Based upon the best scientific data and information available respecting the growth of sea scallops and/or the timing and duration of sea scallop spawning, the Council may request that the Regional Director take action to modify the meat count adjustment. Such a modification would be permanent until further changed; would be limited to a period of up to six months; would be constrained to begin no earlier than September; and would be limited to a magnitude of up to +30%. These parameters are consistent with the baseline scientific data on sea scallop growth, in particular as it relates to spawning activity, and in general as it relates to the overall scientific analysis presented in this amendment and in the FMP, and summarized in Figure 1.

2) Following a Council request for action, the Regional Director will review all relevant scientific data and prepare a proposed action that is justified with reference to the three criteria below. The relevant scientific data may derive from several federal, state, academic or industry sources, including surveys or other research projects. The quality and significance of the data is judged by the Regional Director in consultation with his scientific advisors.

- a) The new scientific information significantly changes the information already contained within the FMP with respect to sea scallop growth and/or spawning activity as summarized in Figure 1; and
- b) The proposed adjustment is within the ranges of period, starting date, and magnitude noted above; and
- c) The proposed adjustment is consistent with the achievement of the management objectives of the FMP.

3) Prior to proceeding with the proposed action, the Regional Director will receive public input at a hearing held in conjunction with a Council meeting and obtain the concurrence of the Council. The Regional Director may modify the action consistent with the input of the public and the views of the Council and will proceed to implement the modification.

B. Changes for Addressing Habitat Issues

The following discussion constitutes an addendum to Section 220 Description of Habitat, and Section 442 Marine Mammals and Endangered Species, of the Atlantic Sea Scallop Fishery Management Plan:

Legislative amendments in P.L. 99-569 (1986) to the Magnuson Fishery Conservation and Management Act require the Council and NOAA to address habitat issues in all Fishery Management Plans. This amendment represents the earliest opportunity to supplement existing discussion of habitat issues contained in the FMP to complete a comprehensive assessment of:

- readily available information regarding the significance of habitat, or its alteration to the fishery;
- the habitat and its utilization in terms of time, space and function as a basis for evaluation of the effects of habitat alterations;
- the need for measures to preserve, protect and restore habitat required for normal stock functions;
- habitat areas that are currently or potentially threatened by alteration, destruction or degradation and their effects (potential or occurring) on the fishery;
- data, information and research gaps that limit these assessments.

These mandates require that habitat considerations be reviewed and included within FMPs and their amendments. Habitat issues which can impact the achievement of fishery management objectives are identified in order to assist other agencies in their evaluation of all existing and proposed activities affecting the coastal and marine environment.

The Sea Scallop FMP (May 1982) and associated environmental documents include much of the information required in a thorough habitat section. Refer to the section 220 for further information:

- distribution and habitat preferences generally and for specific life stages -- adult and larvae.
- effects of currents and eddies on spatfall and distribution.
- effects of temperature on spatfall and landings.
- fishing grounds or habitats (bottom types) subject to greatest utilization.
- types of activities (dredging) or alterations (oil & gas) most likely to affect scallops and their habitat.
- data, information and research gaps.
- acknowledgment of protected species concerns -- FMP Part 442

Several issues related to scallop habitat or the effect of the fishery on habitats of all species deserve further attention.

Effects of Human Activities on Scallop Habitat Since scallop stocks in the EEZ are widely distributed in the offshore areas of the continental shelf, it is extremely difficult to identify sensitive areas or human activities that may have the greatest potential to degrade scallop habitat. Within the two principal areas of harvest (offshore waters of Georges Bank and the New York Bight) scallops and scallop habitat could be stressed by disposal, discharges, incineration, detonation, or other disturbances.

Projects under serious consideration which may have the greatest potential impact are:

- exploratory and/or production drilling for hydrocarbons and sand and gravel extraction on Georges Bank and the New York Bight
- dredged material disposal at several proposed sites in the EEZ
- toxic ocean discharges from transverse vessels

One potential threat to scallop habitat is the pending OCS Lease Sale 96 on eastern Georges Bank and near Nantucket Shoals. In defense of prime scallop habitat in the shoaler waters of Georges Bank, the Council has in the past recommended that oil and gas exploration in such areas should proceed only under strict controls. The Council has formulated specific recommendations with respect to environmentally sensitive areas included in Lease Sale 96 which are consistent with its Habitat Policy.

Preliminary resource data published by the Bureau of Mines at the request of the Minerals Management Service (MMS) indicates potentially attractive minesites for sand and gravel production in the Boston and New York Bight offshore areas. In a document prepared to provide the public with an early overview of possible OCS mining activities and potential impacts on the environment the MMS has stated that organisms living in the water column are unlikely to be exposed to adverse concentrations of suspended sediments. In the immediate vicinity of mining operations exposure is expected to be brief due to the transient nature of the plume. Organisms living on the ocean floor are the most likely to be affected because of the resedimentation of the benthic plume, the actual destruction of the biota and the change in the character of the seabed. These effects should be fully assessed before such projects are undertaken.

Another source of impact on the habitat which should be quantified on a case-by-case basis concerns ocean disposal of dredged material in the EEZ and coastal waters. Sites off Cape Arundel, ME, Boston, MA, Cape Cod Bay and southern New England are under consideration as interim or permanent dumping grounds. Unpublished results of recent research on currents, water depths and disposal technologies sponsored by the Corps of Engineers at the proposed Boston Foul Area Disposal Site (FADS) concluded that not all particulate matter is retained within dumpsite boundaries. The zone of sedimentation at the FADS site, located at a water depth of 95 m, was at least several hundred meters beyond the site boundaries. Impacts from increased turbidity and altered sediment grain size on scallops are unclear but could pose local problems.

Chemical contamination poses a chronic threat to sea scallops because of the potential of shellfish to bioaccumulate toxic substances well above water column concentrations. Toxics may alter the distribution of individuals by deleteriously affecting the physiology of larvae and increasing mortality.

A 1987 review of available data on the distribution of chemical contaminants conducted by Woods Hole and University of Massachusetts scientists determined that PCB data collected from OCS sites indicates low, but detectable levels in sea scallops. While many chlorinated pesticides have been replaced during the past decade, little information exists on pesticides currently being used. Herbicides and pesticides that are of concern include diazinon, parathion, sevin and malathion.

NOAA's National Status and Trends Program for marine environmental quality (1987 summary) involved preliminary baseline monitoring of pollutants in several northeastern harbors. Results show high levels of certain heavy metals (silver, chromium, cadmium, copper, mercury, and lead), petroleum byproducts, and other pollutants (DDT) in sediments and certain fish, presumably from point (sewage treatment plants, industrial outfalls, vessels) and nonpoint sources (urban and rural runoff, atmospheric deposition and vessel discharges). Comparisons among 50 sites nationwide revealed that several northeast sites had the highest contaminant levels in sediments or fish livers among all samples in the initial survey. Although these early results typify specific inshore sites rather than offshore areas, scallop

stocks could eventually be affected by pollutant migration. Impacts on reproductive success, growth, overall vitality, and survival remain unquantified but worthy of concern. NOAA'S Northeast Monitoring Program is monitoring levels of toxic trace metals and trace organics in coastal and offshore waters of the northeastern United States. Scallops are among the species being used to determine and/or confirm the existing levels, trends and variations in the concentrations of contaminants in biota, and the effects of these substances on living resources.

Evidence indicates that other fisheries, such as clam dredging and bottom trawling have no significant effect on the scallop resource or fishery.

Effects of the Scallop Fishery on the Habitat The scallop resource is harvested with mobile dredges and trawls. Both harvesting techniques have the potential to affect marine habitat. However, NMFS scientists aboard the research submersible DELTA observed commercial sea scallop fishing operations in 175-220 feet of water in the Hudson Canyon area of the Mid-Atlantic Shelf in July, 1987. Their effort revealed that this technique appeared to : (a) capture with high efficiency those scallops which are within the path of the scallop dredge; (b) cause very low mortality among those scallops which are within the path of the dredge, but which are not captured by it; and (c) result in low mortality (i.e. less than 10%) of those scallops which are captured, but which are subsequently discarded.

Scallop dredging may significantly affect the habitat, other benthic organisms and possibly protected or endangered species as described in the FMP. Whales may also be susceptible to entanglement in scallop gear, through accidental encounters. A humpback whale was reported entangled the towing cable of a scallop dredge in the only documented case of this nature.

Research and Information Needs Previous discussion has demonstrated the actual or potential existence of several problems concerning the scallop resource and/or the fishery. For the purpose of clarifying and assessing the importance of these identified issues, this Amendment offers the opportunity to establish data needs to aid in setting priorities for future research.

Some important management issues and data needs have already been identified in the FMP, including: resource problems stemming from oil & gas exploration, sand & gravel mining, offshore dumping of sewage sludge, introduction of offshore power plants, and heavy tanker traffic. Research on these questions, partially addressed in past studies, needs to be continued for definitive results.

Other habitat-related data needs of noteworthy importance include:

- determination of the effect that environmental degradation may have on the physical health of scallop populations, including the contributing factors, incidence rate, and distribution of disease.
- occurrence in offshore scallop populations of physical anomalies such as those that may effect the health and marketability of winter flounder and soft-shell clams in areas of the northeast.

Habitat Recommendations The Council proposes the following recommendations to conserve and protect habitats critical to the survival and continued optimal production of Atlantic Sea Scallop:

1. Consider the research and data needs identified in previous discussions as mandatory needs for successful scallop management. Reiterate to NMFS laboratories, other federal agencies, NOAA Sea Grant Institutions, state fishery management agencies, and others the importance of these data needs.
2. Consistent with its habitat policy, the Council will provide detailed comment and recommendations on a case-by-case basis regarding all proposals to lease OCS tracts for hydrocarbon or mineral extraction. The Council will also make recommendations as appropriate regarding permits issued by the Environmental Protection Agency or Corps of Engineers for discharges, dumping, dredging activities or offshore artificial reefs.
3. Reiterate to NMFS laboratories, other federal agencies, NOAA Sea Grant Institutions, state fishery management agencies, and others the importance of further research into the effects of scallop dredging on both habitat and escaped scallops themselves.

C. Changes for Addressing Safety Issues

In accordance with the Magnuson Act as amended by Pub. L. 99-659 (1986), the following amendatory language was prepared relating to the vessel safety implications of the proposed action identified in this amendment. As discussed below, Amendment #2 provides for greater vessel safety in the Atlantic sea scallop fishery consistent with the intent of §303(a)(6) of the Magnuson Act, as amended.

The Proposed Action is expected to improve the safety of fishing vessels operating in the sea scallop fishery. With No Action, some vessels in the Mid-Atlantic and North Carolina may attempt to operate during the winter, when weather is bad. The Proposed Action will allow all vessels to land more scallops in the fall, before the weather takes a turn for the worse.

Referring to Table 1, small New England dredges and Other gear (scuba), both operate in the Gulf of Maine (GOM) during the winter, where fishing grounds are closer to port. It is clear that these two groups scallop almost as much during February-March, as they do during October through January. There should be no impact on these two groups either with or without the proposed action, because the same number of vessels, in the case of small dredges, are fishing during both periods.

The two major user groups (large scallop dredges in New England and in the Mid-Atlantic) in Table 1 decrease their activity from the October-January period to the February-March period, presumably due to weather conditions. For instance, large New England dredges, the most important group in terms of landings, show a decline from 135 vessels in October-January to 102 vessels during February-March. This is in contrast to a decline of only 12 vessels from summer to fall. Meanwhile, large Mid-Atlantic dredges, with half as much

landings, show a decline of 27 vessels from fall to winter. New England trawls (large & small) illustrate a pattern similar to that for the major groups, with declining landings and number of vessels during the winter. Thus, increased landings in the fall with the proposed action will benefit more vessels, rather than encouraging those landings to be made in the winter when fewer vessels are operating and weather is poor.

Mid-Atlantic trawls show dissimilar patterns; small trawls have virtually no activity during fall or winter, while larger trawls show proportionately lower landings, but more vessels, during winter. The latter indicates that during these six months of the year, scallops are a bycatch of other fisheries. The low landings levels of Other gear in the Mid-Atlantic (surf clam dredges) indicates a bycatch fishery as well. In North Carolina, both dredges & trawls land scallops only in the fall, or the October through January period, because they would have to travel up to the New York Bight during winter in bad weather. Therefore, the proposed action should allow all of these types of vessels to fish during the fall, rather than encourage them to fish in bad winter weather.

V. LIST OF AGENCIES AND PERSON CONSULTED IN FORMULATING THE PROPOSED ACTION**A. Federal Agencies:**

U.S. Environmental Protection Agency (Regions I, II, III)
Mid-Atlantic Fishery Management Council
South Atlantic Fishery Management Council

B. State Agencies:

Maine State Planning Office
New Hampshire Office of State Planning
Massachusetts Executive Office of Environmental Affairs
Rhode Island Coastal Resources Management Council
Connecticut Coastal Zone Management Program
New York Division of Local Government & Community Services
New Jersey Division of Coastal Resources
Maryland Coastal Resources Division
Virginia Council on the Environment
Delaware Department of Natural Resource & Environmental Control
North Carolina Office of Coastal Management

C. Individuals:**Scallop Advisory Subpanel:**

Robert Brieze
Alan Cass
Harriet Didriksen
Roy Enoksen
Lawrence Greenlaw
Alan Guimond
Marc Lareau
Martin Manley
Brian I. Mardero
Harvey Mickelson
Gilbert Rogers
Ellen Skaar
Thomas Wilson

Mid-Atlantic Representatives:

Harry Keene
Richard Stotz
Benny Rose
Brad Brauer
Williams Wells

South Atlantic Representatives:

Bob Mahood
William Smith
Ken Daniels

NMFS/RO FMP Coordinator:

Peter Colosi

VI. LIST OF PREPARERS FOR ENVIRONMENTAL ASSESSMENT AND PLAN AMENDMENT

This Amendment to the Atlantic Sea Scallop Fishery Management Plan (FMP) was prepared by a team of fishery managers and scientists with special expertise in the sea scallop resource.

Scallop Oversight Committee

Patrick Carroll, Chairman
James Costakes
Gail Johnson
Philip Coates

Assisting the Committee

Louis Goodreau, NEFMC Staff
Guy Marchesseault, NEFMC Staff
Howard Russell, NEFMC Staff

VII. RESPONSE TO PUBLIC COMMENTS

The Council had directed that a set of options for amending the Atlantic Sea Scallop FMP be taken to a series of public hearings to receive comment. Amendment #2 proposed four options:

- A. 3-1/2" minimum shell height throughout the fishery.
- B. Staggered closed areas with a 24% reduction in fishing mortality accomplished by reducing days at sea for scallop vessels.
- C. Total closure of the fishery for one or two months with a 30-36% reduction in fishing mortality accomplished by reducing days at sea for scallop vessels.
- D. A continuation of the current 30 meat count average and a 3-1/2 to 4" minimum shell height with some important adjustments (including volumetric measure and seasonal adjustment).

The achievement of an average yield of about 15 grams per scallop was chosen as the operational or proxy objective in the FMP, and is equal to a 30 meat count size. All of the proposed options should achieve the long-term objective of 30 meats per pound and were subject to public comment. A series of 5 public hearings, were held at locations from Portland, ME to Morehead City, NC.

The Council chose to delay refinement the four options taken to public hearings (and develop other types of measures under a new amendment, such as effort controls), and immediately develop a regulatory amendment for the most pressing issues, that is the volumetric measure and seasonal adjustment.

Summaries of the discussions recorded at the 5 public hearings and written comments received were included in the original submission and are not included in this resubmission of Amendment #2. Comments relevant to seasonal adjustment may be found in the Portland (commenting that the 20% reduction shown in Figure 1 of the amendment was too low) and Cape May (noting that reduction in meat weight did indeed accompany spawning) summaries, and in the letter from William Wells (supporting the seasonal adjustment).

APPENDIX A

GROWTH CURVE ILLUSTRATIONS:

Mid-Atlantic Resource Area

Inshore Gulf of Maine Resource Area

Offshore Gulf of Maine Resource Area

MIDDLE ATLANTIC SEA SCALLOPS

Biological Parameters

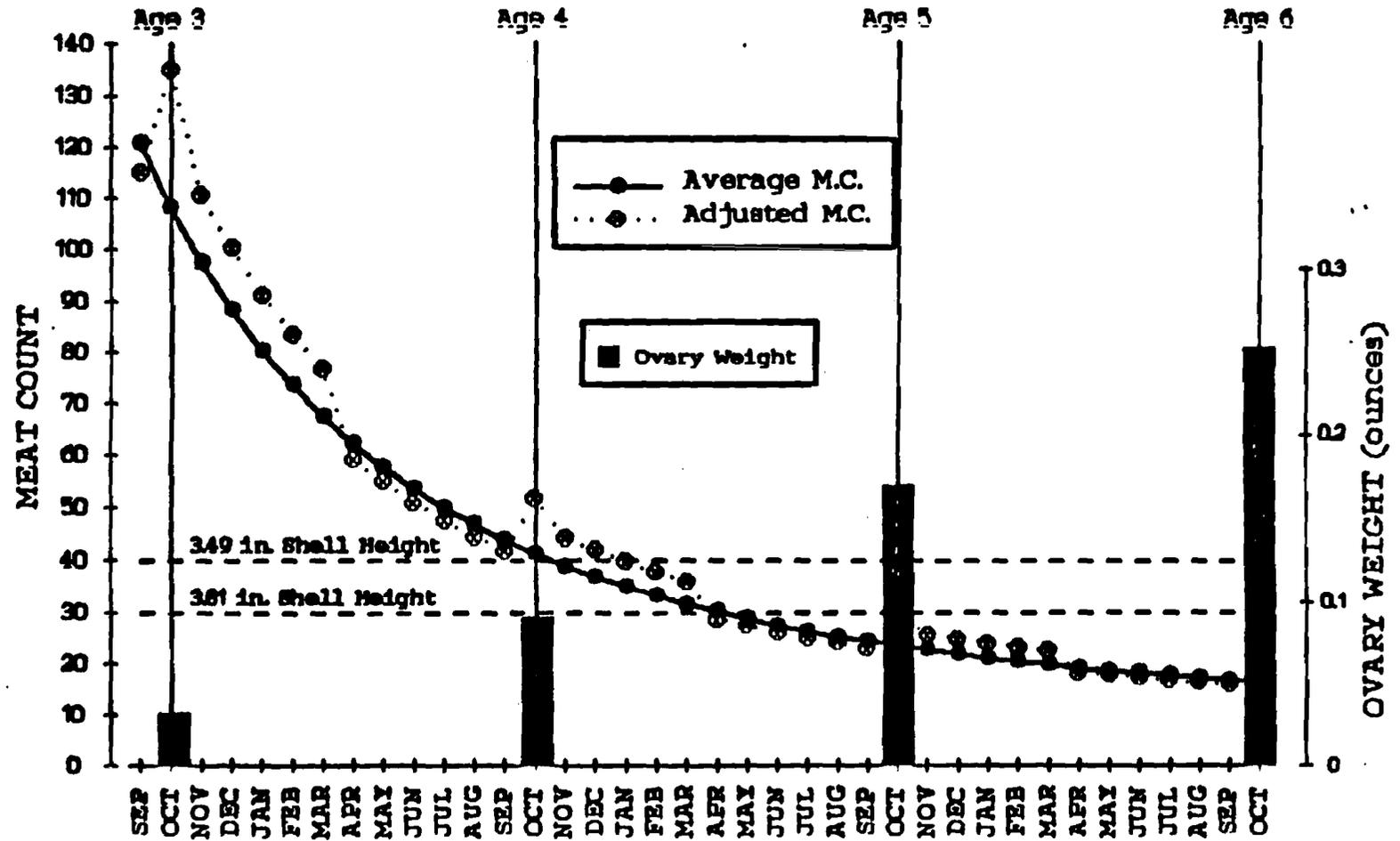


Figure A/ Chronological sequence of changes in biological parameters in Mid-Atlantic sea scallops. Explanation same as that for Figure A1.

INSHORE GULF OF MAINE SEA SCALLOPS
Biological Parameters

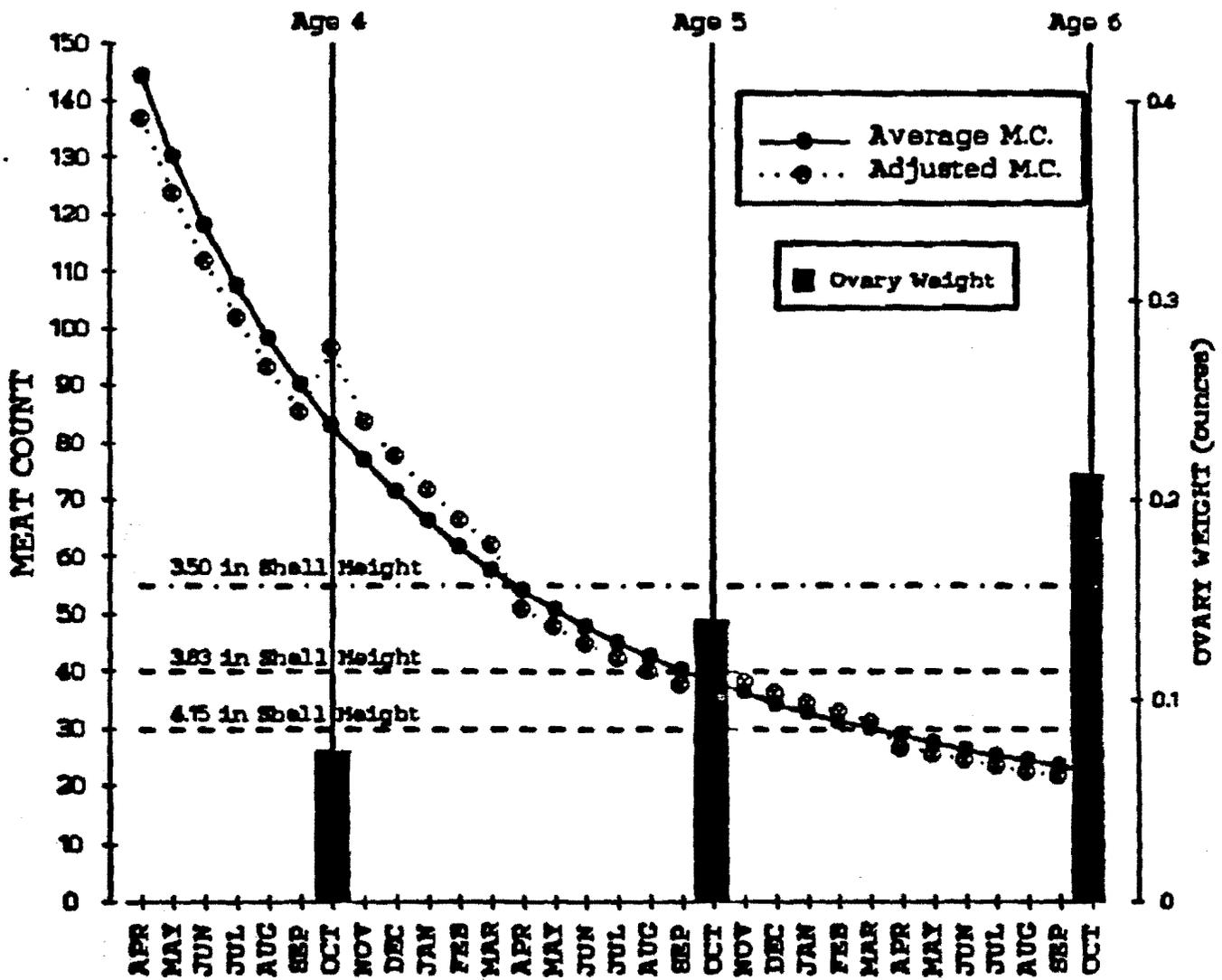


Figure A2 Chronological sequence of changes in biological parameters in Inshore Gulf of Maine (Penobscot Bay) sea scallops. Explanation same as that for Figure A1.

OFFSHORE GULF OF MAINE SEA SCALLOPS
Biological Parameters

