FINAL

FRAMEWORK ADJUSTMENT #4 to the NORTHEAST MULTISPECIES FISHERY MANAGEMENT PLAN

To Reduce the Bycatch of Harbor Porpoise
in the Gulf of Maine Sink Gillnet Fishery

Prepared by the

New England Fishery Management Council
in consultation with the
National Marine Fisheries Service

First Framework Meeting: February 16, 1994
Second Framework Meeting: March 17, 1994
Submitted by NEFMC:
Action by NMFS: May 4, 1994

1.0 Introduction

The New England Fishery Management Council (Council) made a commitment to develop measures to reduce the bycatch of harbor porpoise in the Gulf of Maine sink gillnet fishery and incorporate them into the Northeast Multispecies Fishery Management Plan. As stated in Amendment #5 to the plan, the Council's goal is *"to reduce the annual take of harbor porpoise in the sink gillnet fishery by the end of year four of plan implementation to a level not to exceed two percent of the population based on the best estimates of abundance and bycatch.*

Toward that end, the Council and its Marine Mammal Oversight Committee held a number of meetings during late 1993 and early 1994 and focused efforts on the development of time/area closures as the principal mechanism to accomplish these reductions. Framework Adjustment #4 to the Northeast Multispecies Fishery Management Plan (FMP) was initiated at the February 17, 1994 Council meeting, discussed again at the March 17 Council meeting and finalized at the April 6, 1994 meeting of the full Council.

2.0 Purpose and Need

2.1 Background

The incidental catch of harbor porpoise has been documented in the Gulf of Maine multispecies sink gillnet fishery for a number of years. As a result of the 1988 amendments to the Marine Mammal Protection Act (MMPA) which identified levels of interactions in all U.S. fisheries, the sink gillnet fishery was classified as Category I which denotes "frequent incidental takes of marine mammals".

To estimate the extent of porpoise bycatch in gillnets, the National Marine Fisheries Service (NMFS) initiated an observer program in 1989 and conducted field studies to determine the best methods to assess porpoise abundance in the Gulf of Maine. Bycatch data collected between August, 1989 and July 1990 were reported at a NMFS/International Whaling Commission (IWC) workshop held in October, 1990.

The report of that workshop indicated the rate of porpoise bycatch in the Gulf of Maine gillnet fishery was large relative to available abundance estimates.

In February, 1991, NMFS announced it would conduct a status review of harbor porpoise throughout their North American range and requested information pertaining to the species (56 FR 5684). In September, 1991, the agency received a petition filed by the Sierra Club Legal Defense Fund on behalf of the International Wildlife Coalition and 12 other organizations to list the harbor porpoise in the Gulf of Maine as "threatened" under the Endangered Species Act (ESA). NMFS determined the petition action had merit and solicited further information.

In May, 1992, NMFS convened a scientific workshop which evaluated the status of harbor porpoise populations in eastern North America based on information about the known removals as measured relative to estimated population size, adequacy of regulatory structures, and the ecological role of the species. The bycatch in the U.S. Gulf of Maine sink gillnet fishery in 1990 and 1991 was estimated to have been 5 percent (95 percent CI 2.6 to 10.1 percent) and 4 percent (95 percent CI 1.8 to 7.7 percent) of the estimated abundance, respectively. These rates did not account for bycatch in other fisheries both in the U.S. and in Canada known to kill harbor porpoise and were high relative to the recommendations of the Scientific Committee of the IWC. The workshop recommended that the level of bycatch of harbor porpoise from the Gulf of Maine and Bay of Fundy population be reduced.

2.2 Need for Adjustment

The Council was contacted by NMFS in October, 1992 concerning the development of Amendment #5 to the Northeast Multispecies Fishery Management Plan. Exercising authority under 114(g)(3) of the MMPA, the agency requested that action be taken by the Council to reduce the porpoise bycatch within the context of Amendment #5. NMFS emphasized that regardless of the decision made on the ESA listing, the bycatch of harbor porpoise in the gillnet fishery should be reduced to a level considered sustainable and that a protective regulatory mechanism needed to be implemented.

On January 7, 1993, NMFS did publish a proposed rule (58 FR 3108) to list the Gulf of Maine population of harbor porpoise as threatened under the ESA, due primarily to the the Gulf of Maine bycatch. The rule noted that the current Marine Mammal

Exemption Program for commercial fisheries permits interactions with marine mammals but contains no mechanism to limit bycatch.

Subsequently, the Council agreed to work on a management strategy to reduce porpoise mortality by integrating a plan with fishery management measures. The Council agreed to proceed on the basis that the sink gillnet fishery was subject to regulation under the Multispecies Plan, there were no existing regulatory mechanisms to reduce porpoise takes and the current level of bycatch in the fishery was not sustainable. Because the 1992 abundance and bycatch information was not available until June, 1993, however, development of effective measures lagged behind the formulation of the overall Groundfish Amendment #5 package. The Council did adopt an amendment objective which addressed harbor porpoise: "to reduce the annual take of harbor porpoise in the Gulf of Maine sink gillnet fishery by the end of year four after plan implementation to a level not to exceed two percent of the population based on the best available estimates of abundance and bycatch".

This objective was based on a recruitment rate for harbor porpoise that is between four and five percent, and a conservative fisheries bycatch which should not exceed 50 percent of the recruitment rate for marine mammals. A simple two percent goal for the Gulf of Maine sink gillnet fishery, the Council acknowledged, would not take into account the unknown level of takes in the Mid-Atlantic region and in Canada.

Since it was not possible to develop harbor porpoise measures prior to the Amendment #5 deadline, the Council included a default measure which requires the removal of all sink gillnets from the water during four-day blocks of time each month in year one of the plan. Years two and three of the plan call for eight-day blocks each month, year four requires twelve-day blocks and in year five, a sixteen-day block per month is required. The Council supported the use of blocks of time as an interim measure on the assumption that appropriate time/area management measures would be developed as soon as possible. A framework adjustment mechanism was also included in Amendment #5 to allow harbor porpoise measures to be implemented at any time.

Because of the imprecise nature of the blocks of time and following the receipt of the NEFSC's comprehensive spatial and temporal analysis of the bycatch (see Appendix I, A), the Council began development of a time/area closure management plan. It was also determined that the sink gillnet fleet would not be held responsible for groundfish effort reductions until the harbor porpoise bycatch measures could be evaluated for their impact on fishing activities (approximately one year after plan implementation).

2.3 Need for Final Rule

The Council requests publication of the management measures as a final rule after considering the required factors stipulated under Framework Adjustments to Management Measures in the Multispecies FMP, 50 CFR Section 651.40, and has provided supporting analysis for each factor considered. If the rule is not published prior to May 26, a four-day period during which all gillnets must be removed from the water will be required under the existing regulations. Imposition of a single four-day block will pose an undue economic burden on the gillnet fishery without producing commensurate benefits in the form of protection for harbor porpoise.

Additionally, the Council has taken into account information, views, and comments from the public at six Marine Mammal Committee meetings held between August, 1993 and March, 1994, Council meetings held on February 17, 1994, March 17, 1994 and April 6, 1994 and two public hearings on March 9, 1994, and on March 10, 1994. Considering the need for immediate resource protection as the summer and fall periods of highest porpoise bycatch approach and the provisions for continuing evaluation contained in the framework adjustment, the Council requests waiver of the proposed rule and additional comment period and publication of the proposed management measures as a final rule.

3.0 Proposed Action and Rationale

The following action is proposed under the framework abbreviated rulemaking procedure established by Amendment #5 to the Northeast Multispecies FMP.

To reduce the bycatch of harbor porpoise in the Gulf of Maine sink gillnet fishery, the Council's Marine Mammal Committee recommended a time/area closure program to be phased in over a period of four years. The Council initiated

the first of two meetings required under the Amendment #5 framework adjustment process on February 17, 1994. Two public hearings were subsequently held — on March 9, 1994, in Portsmouth, New Hampshire, and on March 10, 1994, in Ellsworth, Maine. The Council approved time/area closures for the Northeast and Mid-coast Areas at the March 17, 1994 Council meeting. On April 6, 1994, the Council adopted boundaries and a thirty-day closure period for the Massachusetts Bay Area.

3.1 Time/Area Closures

Time/area closures were based on a Northeast Fisheries Science Center analysis of harbor porpoise bycatch using the NMFS weighout database and sea sampling program, information on the distribution of sink gillnet activity and the seasonal and spatial distribution of harbor porpoise in the Gulf of Maine. Discussions among the Council, the fishing industry and scientists led to the proposals outlined below.

For purposes of this plan, the Gulf of Maine is divided into three areas: the Northeast (from Penobscot Bay to Eastport, Maine), Mid-coast (from Cape Ann to Penobscot Bay) and Massachusetts Bay (from Cape Cod to Cape Ann). The Council recommends thirty-day closures for each of these areas. The timing of the closures correspond to periods when porpoise bycatch is most likely to occur. Their duration takes into account for the variability of harbor porpoise movements. NMFS survey data indicates that porpoise usually frequent the same general areas of the Gulf of Maine, but not always at the same time each year. Because of this variability, shorter closures in smaller areas could result in little or no reduction in bycatch if animals are not present during the closure period, possibly resulting in lost fishing time with no benefit.

The Council recognizes that the Mid-coast and Northeast Areas account for much more of the bycatch than Massachusetts Bay. A 30-day closure for all areas, however, distributes the porpoise bycatch reductions equally across regions where takes are known to occur. The closure areas are described below.

A. Northeast Closure Area: from the Maine shore the boundary extends south on 68°55'W to 43°29.6'N then northeast (along the 25680 loran line) to 67°48.7'W, 44°04.4'N (the intersection of the 12320 loran line); the boundary then jogs northwest (along the 12320 line) to 67°52.8'W, 44°06.9'N (the 25700 loran line); then

northeast (along the 25700 loran line) to 67°02.7'W, 44°31.2'N (the Hague Line); the boundary then follows the Hague Line to the shore. The area bounded by these lines and the shore would be closed from August 15 through September 13.

B. Mid-coast Closure Area: the boundary extends from the shore east on 42°45'N to 70°15'W; then on 70°15'W to 43°15'N and east on 43°15'N to 69°00'W; at 69°00'W the boundary extends north to the Maine shore. The area bounded by these lines and the shore would be closed from November 1 through November 30.

C. Massachusetts Bay Closure Area: the boundary extends north from the Massachusetts shore along 71°00'W to 42°30'N; and then east on 42°30'N to 70°30'W; along 70°30'N the boundary extends south to 42°12'W; at 42°12' then east across Massachusetts Bay to 70°00' where it extends south to the shore; at 70°00 the boundary extends west across Cape Cod Bay along 42°00'N. This area would be closed from March 1 to March 30.

D. Open Areas: areas not enclosed by the above described boundary lines would not be subject to closure at this time. Sea sampling and harbor porpoise sighting data indicate that both the occurrence of porpoise and the level of bycatch is low in most offshore areas.

3.2 Phased-in Plan

The Council program calls for a 20 percent reduction in the porpoise bycatch within the Gulf of Maine in year one of plan implementation. To ensure continued efforts to reduce the bycatch, a Harbor Porpoise Review Team, (HPRT) appointed by the Council, will meet by September 15 each year to evaluate the effectiveness of the Council's mitigation measures and if necessary, recommend changes annually based on the goals outlined in this document.

Future management measures would be designed to achieve a 60 percent reduction in the bycatch from current levels over a three year period. In addition to the 20 percent target in year one of the plan, the Council recommends a target of an additional 20 percent for both years two and three. For example, 20 percent of 1,300 (a figure which constitutes a rough average of the bycatch estimates over the last two years) is 260 animals. If this level of reduction is achieved and the year one target is met, not more than 1,040 animals will be caught. Year two would require an

additional 20 percent reduction. In other words, the bycatch in year two should not exceed 780 animals. To meet the year three target, the bycatch should not exceed 520 animals.

Such a reduction schedule might surpass the goal of reducing the porpoise bycatch to *a level not to exceed 2 percent of the estimates of abundance and bycatch* (currently estimated at 39,500 and @ 1,300, respectively). As discussed previously, however, the entire 2 percent bycatch reduction cannot be allocated solely to the Gulf of Maine sink gillnet fleet. The porpoise abundance figure is derived by NMFS from the weighted average abundance estimate for the Gulf of Maine/Bay of Fundy region during the summers of 1991 and 1992 — 47,200 (%CV=19.0, 95% CI 39,500 to 70,600). The use of the lower bound of the 95 percent confidence interval adds a level of conservatism which in part compensates for the issue of the confidence intervals surrounding the bycatch estimates.

A specific target for year four of the plan will be held in abeyance in consideration of previous targets not met in any given year and because of possible increased bycatch reductions required by the 1994 amendments to the Marine Mammal Protection Act. For example, if the 20 percent target is missed in any of the first three years, the program allows the flexibility to add that portion of the reduction not achieved to the target for the next year or defer it until year four of the program. The year four target, however, shall not exceed 20 percent of the total required reduction.

4.0 Alternatives to the Proposed Action

4.1 No Action - Removal of Nets for Blocks of Time

Amendment #5 to the Groundfish Plan requires that all gillnets must be removed from the water during four-day blocks of time each month in year one of the plan. Years two and three of the plan call for eight-day blocks each month, year four requires twelve-day blocks and in year five, a sixteen-day block per month is required. The Council supported the use of blocks of time as an interim measure to address porpoise bycatch reductions on the assumption that appropriate time/area management measures would be developed as soon as possible. This position was

discussed on pages 29-31, Volume I of Amendment #5 to Northeast Multispecies FMP.

The rationale for interim system was based largely on the lack of information about the gillnet fishery. By "masking" out periods of time in all months during which all nets must be taken out of the water, the period during which harbor porpoise would be exposed to gillnet gear would be reduced. In a simulation analyzing the effect of closing the Gulf of Maine sink gillnet fishery for 4 consecutive random days per month, approximately 8.5 percent of the fish would not be landed and 9.3 percent of the harbor bycatch would be avoided. The effect of choosing random days, however, produced very different values of harbor porpoise bycatch for the different trials.

4.2 Other Alternatives

Expanded Boundaries for Time/Area Closures

Although the Council has expressed clear support for the time/area closures, the management options listed below were discussed as alternatives to reduce the Gulf of Maine porpoise bycatch. These or other restrictions may be necessary in the future, depending on the success of the initial program.

At the request of the Council and its Groundfish Plan Development Team (PDT) the NEFSC submitted a report which provided a technical basis for determining initial times and locations of potential management areas to reduce porpoise takes. The Council's Marine Mammal Committee discussed these areas which included significantly larger Northeast and Mid-coast and Massachusetts Bay Areas.

The timing and duration of the closure periods discussed were based on the historic occurrence of bycatch as outlined in the NEFSC report and the likelihood of achieving a measurable reduction in takes. Based on calculations contained in the report, it was estimated that porpoise bycatch reductions of 20 to 40 percent might be realized in the first year of the plan by using the original boundaries and associated 30-day closure periods.

Acoustic Deterrents/Gear Modifications

The Council is aware that initiatives are underway which involve acoustical alarm research and possible modifications to gillnet gear to reduce porpoise bycatch.

If any of these approaches produce scientifically supportable results that can be incorporated into a management strategy, the Council would implement them through a framework adjustment with a minimum of regulatory delay.

5.0 Environmental Assessment

5.1 Purpose and Need for the Proposed Action

See Section 2.0 of this document.

5.2 Description of Proposed and Alternative Actions

See Section 3.0 and 4.0 of this document.

5.3 Description of the Physical Environment

Habitat See Volume I, Final Environmental Impact Statement (FSEIS) for Amendment #5 to the Northeast Multispecies FMP, Section E.6.2, page 105, for a description of the Gulf of Maine.

5.4 Description of the Biological Environment

Marine Mammals and Endangered Species See Volume I, FSEIS for Amendment #5 to the Northeast Multispecies FMP, Section E.6.3, pages 167-168 for a listing of affected species and the associated NMFS Biological Opinion issued on November 30, 1993.

5.5 Description of the Human Environment

Gillnet Fishery See Volume I, FSEIS for Amendment #5 to the Northeast Multispecies FMP, Section E6.4, pages 176-177 for a description of the New England fleet.

Social and Cultural Aspects See Volume I FSEIS for Amendment #5 to the Northeast Multispecies FMP, Section E.6.4.3

5.6 Biological Impacts

Impacts of the Proposed Action on Endangered Species The Council discussed the biological impacts of Amendment #5 in Section E.7.1 of the FSEIS, pages 310-322. NMFS also issued a Biological Opinion to the Council on November 30, 1993, in

accordance with Section 7(a)(2) of the Endangered Species Act. NMFS concluded that existing fishing activities and related Amendment #5 management measures were not likely to jeopardize the continued existence of any threatened or endangered species, and that the default four-day blocks, escalating to eight days in years two and three, would ultimately reduce the probability of whales encountering gillnets. The area closures were discussed but had not developed at the time of the consultation.

The action now proposed represents a change to Northeast Multispecies FMP that is expected to result in greater reductions in porpoise bycatch than the current 4-day block measure. The Council is requesting reinitiation of the Section 7 consultation. It has assessed the impacts of gillnet effort displacement expected from the implementation of 30-day area closures versus the removal of nets for short periods of time and has concluded that the framework adjustment does not change the basis for the NMFS Biological Opinion.

Gillnet effort is not expected to shift in any significant way in the Northeast Area because of limited suitable bottom topography and otter trawl activity. Both of these factors confine gillnet operations to a relatively small territory off the coast of Maine. The fleet in the Northeast Area is comprised of boats that are mostly 45 feet and under, a feature which prohibits vessels from shifting to other productive fishing grounds, none of which are located nearby. Such vessels are more likely to switch gear types or fisheries during the June through September season. Therefore, gillnet gear will not be displaced into any area of high use by whales so that the net effect of these potential changes shouldn't lead to any increased interactions with threatened or endangered species.

There is a band outside the boundary of the Mid-coast Closure Area which encompasses Jeffreys Ledge (Figures 4-7, Appendix I) into which displacement of gillnet gear is likely to occur in November. It is described as east from the shore on 42°30'N to 70°00'W, north along 70°00'W to 43°00'N, on 43°00'N to 69°00'W, then north on 69°00'W to the Maine shore. According to the NMFS database derived from sea sampled trips, porpoise bycatch in this band has been relatively high during the last three years. A potential displacement of fishing effort into this region might account for a harbor porpoise kill rate as high or possibly higher than in previous years. Under this proposal the band will remain open to gillnet fishing in year one of the program, but the Council recommends mandatory observer coverage

for vessels fishing in the area if NMFS funding is available. Annual adjustments to the Council's program would address the necessity for increased take reductions if the problem persists or is exacerbated.

The most common endangered species to inhabit the Jeffreys Ledge area are right, humpback and fin whales The period of highest use, however, is spring and early summer. It is not a higher use area for whales during the November closure period (Figures 10-11, Appendix I) when concentrated gillnet activity would potentially occur. Displacement of gillnet effort, if it occurs ar all will not occur in an area of high whale use in November. Therefore, the probability of entanglements will not change from that described in the Biological Opinion.

The Massachusetts Bay Closure Area accounts for about 4 percent of the Gulf of Maine porpoise mortality. The timing of the bycatch is highly variable and dependent on when animals enter the Gulf of Maine in the spring. The timing and area of right whale use in Massachusetts and Cape Cod Bays is well documented. March and April appear to be the high use months. Whales favor the eastern half of Cape Cod Bay (Figure 9, Appendix I) and the areas immediately to the north and east of Race Point at the tip of Cape Cod. These are regions known for strong tidal currents which are believed to concentrate their planktonic prey. The boundaries of the closure encompass not only the inshore areas where bycatch is most likely to occur, but the area proposed by NMFS to be designated as right whale critical habitat in Cape Cod Bay.

Fishermen, principally from the port of Scituate, sets their nets inshore on a rough bottom region in Massachusetts Bay. The nearest similar fishing grounds are located north of the closure area off Marblehead and Gloucester, or west of Stellwagen Bank and on the outside edge of the tip of Cape Cod. Both trawlers and gillnetters participate in the spring flounder fishery during March and to a greater extent in April and May. Gillnet fishermen, however, operate within the confines of rough bottom areas while otter trawl vessel fish off the soft muddy bottom of Stellwagen Basin. This fishing pattern is illustrated by the landings data in Figures A and B, (Appendix I) which shows that the inside block of the closure area is responsible for the majority of gillnet landings when compared to landings which are harvested from the outside block of the closure area which includes the right whale critical habitat. Little or no effort is likely to be displaced into the whale high

use area given their seasonal distribution and the location of traditional gillnet fishing grounds. The same patterns apply to humpback whales and while there is a potential for more overlap with this species, interactions are not expected to increase under the proposed action.

The Council concludes that displacement of gillnet effort, if it occurs as a result of 30-day area closures, will not occur in a time or area of higher whale use than currently exists. Therefore, the probability of whale entanglements will not change from that level described in the Biological Opinion or will not likely jeopardize the continued existence of any endangered or threatened species. This framework adjustment should not alter the basis for the initial NMFS Biological Opinion. With the submission of this assessment the Council seeks the concurrence of NMFS in this matter.

Impacts of the Proposed Action on Harbor Porpoise

The Council estimated that reductions of 20 to 40 percent might be realized in the first year of the program if the original boundaries discussed in its report (Appendix II, A. Biological Analyses) were used in conjunction with the proposed 30-day closures. The Council's boundary modifications could alter that estimate to some unknown degree because of the potential displacement of gillnet fishing effort to areas where porpoise are still subject to some level of bycatch. However, it is reasonable to anticipate the minimum estimate of approximately 20 percent given that the timing of the closures occurs in seasons of highest bycatch in their respective areas. It is also reasonable to conclude that the annual target reductions may be accomplished by a modification to the same or other appropriate measures.

The Council adopted the approach of integrating effort reductions for key species of groundfish stocks with harbor porpoise bycatch mitigation measures. If the proposed measure developed through the framework adjustment accomplishes this dual purpose, the expected impacts of reducing the harbor porpoise bycatch is not expected to differ from those associated with the effort reduction measures. If the proposed measure, or any future approach that is adopted, accomplishes the harbor porpoise objective without reducing gillnet fishing effort sufficiently to reach the 50 percent effort reduction target, the Council must impose additional fishing restrictions. The impacts of those additional measures would then be evaluated at the time they are proposed.

Impacts of Alternatives

The larger closure alternatives described in (Appendix II, A. Biological Analyses) of this document accounted for most gillnet fishing effort, areas of documented porpoise bycatch and observed porpoise distribution. Consequently, it addressed concerns that vessels could fish in regions adjacent to the closure areas and potentially increase porpoise takes rather than reduce them. This alternative was rejected, however, on the basis that a closure of all traditional gillnet fishing grounds during the most productive fishing seasons was a de facto closure of the fishery. More importantly, participants would have little opportunity to modify fishing practices or develop alternatives in a timely manner. Because of the short time series for both abundance and bycatch estimates and a commitment to phase in future take reductions, the Council believed this approach did not represent a reasonable starting point.

5.7 Economic Impacts

Sink gillnets capture a substantial amount of pollock, cod and white hake, several other groundfish species, and other species such as dogfish and monkfish (goosefish). Over ninety percent of gillnet vessels are less than 50 gross tons and use other gear for about 20 percent of the year, usually otter trawls and shrimp trawls. According to commercial fisheries data more than 42 percent of gillnetters fished in more than one statistical area compared to 24 percent 10 years ago. Annual revenues for the period 1987 through 1992 from gillnetting averaged about $60,000 for vessels less than 50 gross tons and about $83,000 for vessels larger than 50 tons. Individual vessels may have earned substantially more or less than the average. (Status of Fishery Resources off the Northeastern United States for 1993). Average crew sizes range from about 2.7 for smaller vessels to about 4 for vessels over 50 tons.

The proposed framework adjustment (time/area closures) and the no action alternative (the 4-day blocks of time) are compared to no restrictions on groundfish gillnet activity in Appendix III. The results in terms of the expected, first-year change in producer surplus from these alternatives are summarized below.

Table 1. *Change in industry profits[1] from gillnet reduction alternatives*

Four-day blocks of time (status- quo)	- $1,979,000
Proposed time/area closure	- $ 629,000
Change resulting from the change in regulations	$1,350,000

[1]Industry profits are referred to as producer surplus in the economic analysis included in Appendix III.

Impacts in subsequent years cannot be compared because the time/area closures will be modified after the first year. The proposed measure would affect the activities of about 50 vessels in the Northeast Area, about 45 in the Mid-coast Area and about 75 in the Massachusetts Bay Area. The total number of vessels affected by the proposed measures, however, is only 140 because some of these vessels fish in more than one statistical area. About 300 vessels are currently affected by the four-day blocks of time alternative.

A benefit-cost analysis could not be used to evaluate the alternative because the value of harbor porpoise could not be quantified. Instead the analysis shows the most cost-effective approach for reducing the bycatch of harbor porpoise in the first year. The analysis also indicates the level of benefits which would be needed to offset the losses in producer surplus from either strategy. The time/area closure framework adjustment has a positive economic impact when compared to the four-day blocks for a number of reasons:

(l) Under the framework, gillnetters might be able to pursue other fishing opportunities. Under the four-day blocks, gillnetters may not use their gillnets in other areas while the four-day closures are in effect. Also they do not have enough time to switch to other fisheries. For example many gillnetters switch to other types of groundfish gear such as trawl or hook during certain times of the year while others participate in other fisheries such as the lobster or bluefin tuna fisheries during the appropriate season. A system of frequent but short closures makes it more difficult for them to switch into alternative fisheries because of the start-up costs. Entering other fisheries, even on a seasonal basis, requires switching gear and adjusting operations including crew and learning time. The seasons of alternative fisheries are less likely to correspond to blocks of time taken

out of the gillnet fishery on a monthly basis than longer but less frequent closure periods. Additionally, the random selection of the blocks of time prevents fishermen from making consistent alternative plans from year to year.

(2) The time area/closures require the gillnet fleet to lose fewer fishing days. Because the time/areas closures were developed based on information about harbor porpoise distribution, they reduce porpoise takes more efficiently. The closures require the removal of gillnets only in certain areas and they last for only 30 days compared to the total of 48 days for the four-day blocks of time, which covers all gillnet activities of federal multispecies permit holders. As a result about 14,400 days (300 vessels x 48 days) would be lost in the first year under the four-day blocks of time compared to about 4,200 days (140 vessels x 30 days) under the time/area closure alternative. Some of the days lost under the four-day blocks are for non-regulated species such as dogfish and monkfish.

(3) Fishermen have stated that in addition to losing fishing time when they must have gear out of the water, they will lose an additional two days each time they set out and retrieve their nets. This additional cost was not considered in the quantitative economic analysis and its inclusion would increase the benefits that have been calculated for changing to the proposed time/area program from the current measures.

Distribution of Economic Impacts

Although the proposed action results in greater economic benefits, including increased industry profits compared to the four-day blocks of time, the distribution of economic impacts is much more uneven. The proposed action will impact gillnet vessels from the region north of Cape Cod to the Canadian border who fish in the inshore areas of the Gulf of Maine where the time/area closures will take place. These vessels are expected to lose a substantial amount of groundfish revenues while gillnetters fishing farther offshore or south of Cape Cod will not be affected at all. The average economic impacts per vessel (- $4,492) from the time/area closures are estimated to be less than those for the four-day blocks of time (-$6,597). These figures, however, include the economic impact of the reduced opportunity to pursue other fishing activities under the four-day blocks of time. The estimated loss in revenues for only the vessels restricted by the time/area closures, although not

stated in the economic analysis, is probably greater than under the four day blocks of time.

This characterization of the distribution of impacts agrees with the comments of the gillnetters who would be affected by the time/area closures. These gillnetters publicly have supported the time/area closures in preference to the four-day blocks of time, despite the large, negative impacts of the closures on their catch of groundfish. The need to reduce harbor porpoise takes substantially, and therefore as efficiently as possible, and the need to pursue alternative fisheries, have made time area closures economically preferable, despite the uneven distribution of their impacts, to the same vessels which will experience a severe reduction in revenues.

5.8 Social Impacts

The social impacts of 50 percent effort and fishing mortality reductions in the Northeast multispecies fishery are described in Volume I, FSEIS for Amendment #5, Section E.7.4. Because the proposed action has a more positive economic impact on the gillnet fishery than the no-action alternative, the range of social impacts of the proposed action is fully within the range of those described in the social impact analysis of Amendment #5. As mentioned in the analysis of economic impacts, public comment from the gillnet industry has supported the proposed action relative to the four-day blocks of time.

5.9 Finding of No Significant Environmental Impact (FONSI)

NOAA Administrative Order 216-6 provides guidance for the determination of significance of the impacts of fishery management plans and amendments. The five criteria to be considered are addressed below.

1) Can the proposed action be reasonably expected to jeopardize the long-term productive capability of any stocks that may be affected by the action?

One of the principal objectives of Amendment #5 is to reduce the bycatch of harbor porpoise in the sink gillnet fishery. To the extent that the proposed action is effective, the Council expects to protect the Gulf of Maine/ Bay of Fundy porpoise population by reducing interactions with commercial fishing vessels to a level that is sustainable. Other marine mammals stocks may be affected by a

displacement of effort resulting from the constraints on gillnet fishing, but the fleet is still subject to monitoring by onboard observers under the terms of the 1994 MMPA reauthorization. Any increased bycatch of other species, therefore, will be reported and subject to the provisions of the MMPA.

2) *Can the proposed action be reasonably expected to allow substantial damage to the ocean and coastal habitats?*

The proposed action which limits the bycatch of harbor porpoise is not expected to impact coastal or ocean habitat.

3) Can the proposed action be reasonable expected to have an adverse impact on public health or safety?

The measure is not expected to have any impact on public health or safety.

4) Can the proposed action be reasonably expected to have an adverse effect on endangered, threatened species or a marine mammal population?

The NMFS Biological Opinion for Amendment #5, issued under authority of Section 7 (a) (2) of the Endangered Species Act indicated that the "existing fishing activities and related management measures proposed ... are not likely to jeopardize the continued existence of any threatened or endangered species under (NMFS) jurisdiction." The proposed measure does not change that finding.

5) Can the proposed action be reasonably expected to result in the cumulative adverse effects that could have a substantial effect on the target resource species or any related stocks that may be affected?
The proposed action is intended to be a part of the overall groundfish management program implemented through Amendment #5. As such the cumulative effect is expected to be consistent with that of the Multispecies FMP. The proposed action is not expected to add to the effect of the FMP on other stocks.

The guidelines on the determination of significance also identify two other factors to be considered: degree of controversy and socio-economic effects. The socio-economic impacts of the time/area closure program are discussed above and are not considered significant. The time/area closure issue has been debated, but the degree of controversy has been minimal in that most fishermen agree that action to protect harbor porpoise is necessary. It has also been agreed that the only tool currently available to managers is a time and area closure plan.

According to NAO 216-6, no action should be deemed significant solely on the basis of its controversial nature, but that the degree of controversy should be considered in determining the level of analysis needed to comply with NEPA regulations. Based on this guidance and the evaluation of the preceding criteria, the Council proposes a finding of no significant impact.

FONSI Statement

In view of the analysis presented in this document and in the FSEIS for Amendment #5 to the Northeast Multispecies Fishery Management Plan, it is hereby determined that the proposed action 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 Environmental Impact Statement for this proposed action is not necessary.

_____ _____

Assistant Administrator Date for Fisheries, NOAA

6.0 Applicable Law

6.1 Magnuson Fishery Conservation and Management Act Consistency with National Standards

See pages 52-57, Volume I of Amendment #5 to the Northeast Multispecies FMP for a summary of the Council's determination of consistency with the national standards. This framework adjustment is a change to the rules promulgated under that amendment. The Council does not find cause to reconsider that earlier determination.

6.2 National Environmental Policy Act (NEPA)

There are no economic and social impacts from this action beyond the extent of those identified and discussed in the FSEIS included in Amendment #5 and the Environment Assessment contained in this document. The economic and social impacts of the proposed action would be positive compared to the current 4-day blocks of time.

6.3 Regulatory Impact Review

This section provides the information necessary for the Secretary of Commerce to address the requirements of Executive Order 12866, the Regulatory Flexibility Act and the National Environmental Policy Act. The purpose and need for management (statement of the problem) is described in Section 2.0 of this document. The alternative management measures to the proposed regulatory action are described in Section 4.0. The economic and social impact analysis is contained in Sections 5.7 and 5.8 and is summarized below. Other elements of the Regulatory Impact Review are included below.

For the purpose of the Regulatory Impact Review, the proposed action (time/area closures) is compared to the no-action alternative (the blocks of time required out of the gillnet fishery by the regulations implemented under Amendment #5 to the Northeast Multispecies FMP). The goals of the Council's are to provide a greater first-year reduction in the bycatch of harbor porpoise and to lessen the impact of current harbor porpoise reduction measures on the groundfish gillnet industry.

6.4 Executive Order 12866

The proposed action does not constitute a significant regulatory action under Executive Order 12866. (1) It will not have an annual effect on the economy of more than $100 million (see Table 1.). (2) Because the proposed action replaces the current regulations (the four-day blocks of time), it will not adversely affect in a material way the economy, productivity, competition and jobs. (3) It will not affect competition, jobs, the environment, public health or safety, or state, local or tribal governments and communities. The economic analysis shows a positive change in industry profits as the anticipated result of the proposed action when compared to the current system of blocks of time. (4) The proposed action will not create an inconsistency or otherwise interfere with an action taken or planned by another

agency. No other agency has indicated that it plans an action that will affect this fishery. (5) The proposed action will not materially alter the budgetary impact of entitlements, grants, user fees, or loan programs or the rights and obligations of their recipients. (6) The proposed action does not raise novel legal or policy issues. Time/area closures have long been used to manage fisheries in the Northeast.

6.5 Regulatory Flexibility Act

The groundfish gillnet fishery in the Northeast is composed of small business entities operating primarily in New England. There were 532 gillnet vessels that were issued multispecies fishery permits in 1992. Of these, an estimated 300 actively fish with gillnets. About 140 would be restricted by the proposed action and 160 would be affected by no longer having to be subject to the blocks of time effort reduction program. These vessels would not be restricted by the time/are closures because they fish in areas outside of the proposed closure areas, offshore or south of Cape Cod, or on Jeffreys Ledge, (not currently scheduled for closure) or they may fish in seasons not covered by the time/area closures.

Although the proposed action will affect a significant number of small business entities (more than 20% of sink gillnet operations), when compared to the current four-day blocks of time, it will not result in a reduction in annual gross revenues of more than 5 percent, and it will not increase annual compliance costs for small entities by more than five percent. Instead, it is expected to reduce compliance costs by not requiring fishermen to deploy and retrieve all their gillnets every month and by allowing them greater opportunity to earn revenues in other fisheries. It will not increase compliance costs for small entities, compared to large entities because all gillnet operations are small entities. Relative to the four-day-blocks of time, it probably will not cause any vessels to cease operations. The economic analysis shows that implementing the time/area closures would increase industry profits by $1.35 million when compared to the four-day blocks of time for the first year of implementation and therefore would be likely to increase the number of vessels that might be able to continue operations.

The proposed action therefore will not have a significant economic impact on a substantial number of small business entities and a Regulatory Flexibility Analysis is not required.

6.6 Marine Mammal Protection Act and Endangered Species Act

An adequate discussion of protected species is contained in Section E.6.3.4, Endangered Species and Marine Mammals, Volume I of Amendment #5 to the Northeast Multispecies FMP and the associated NMFS Biological Opinion issued on November 30, 1993.

6.7 Coastal Zone Management Act (CZMA)

See Section 8.5, Volume IV of Amendment #5 to the Northeast Multispecies FMP.

6.8 Paperwork Reduction Act (PRA)

Copies of the PRA analysis for Amendment #5 to the Northeast Multispecies FMP are available from the NMFS Regional Office, Gloucester, Massachusetts.

Appendix I
Figures

Mass. Bay Area Closure

Area 1 - Inside Block

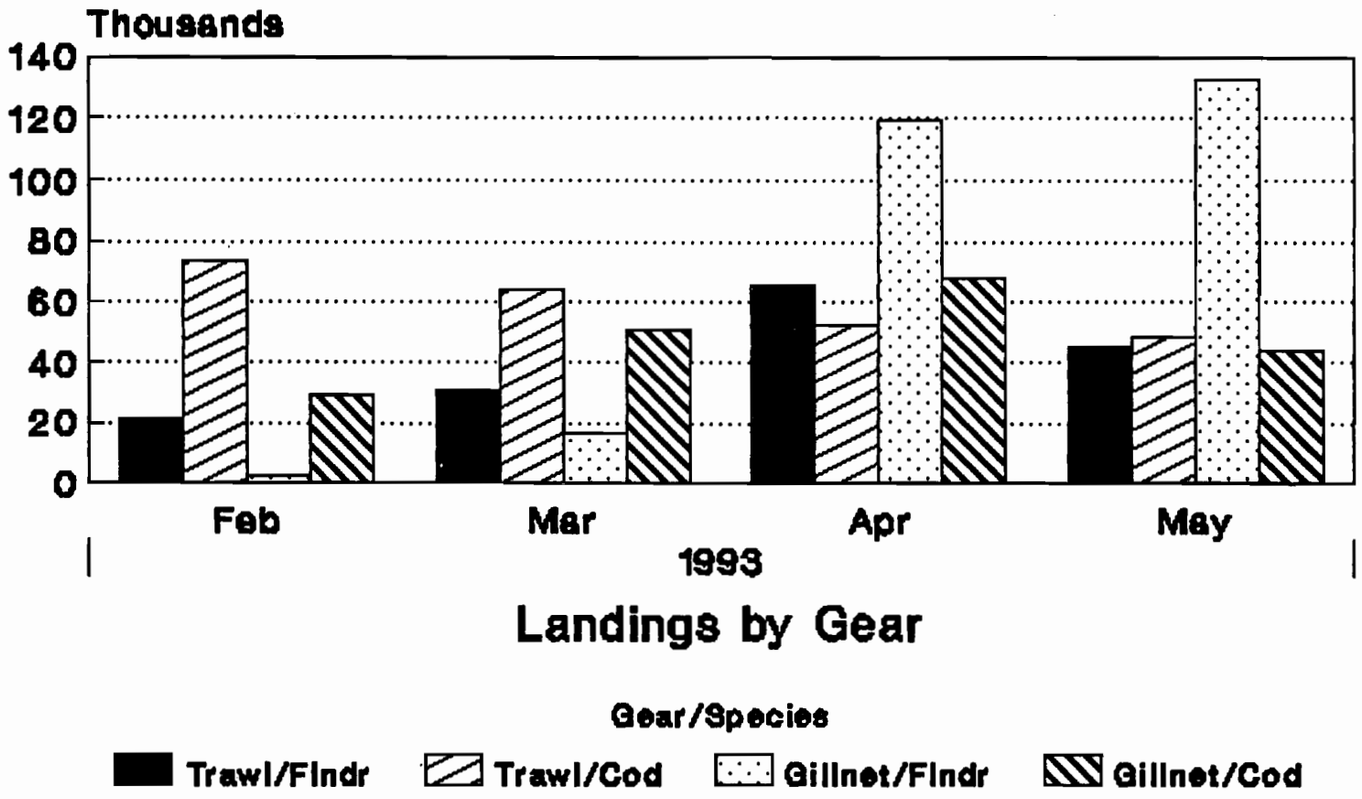


Figure A.

Mass. Bay Area Closure

Area 2 - Outside Block

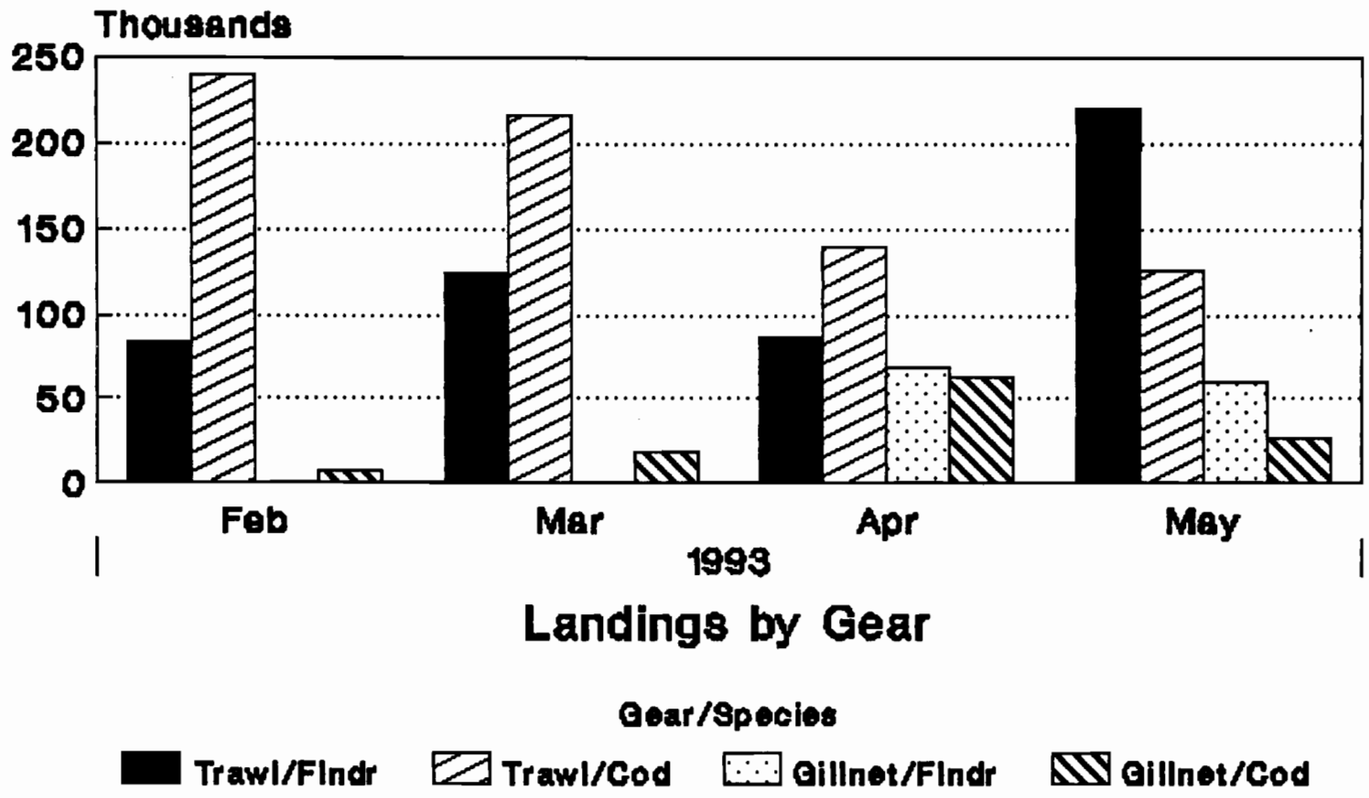


Figure B.

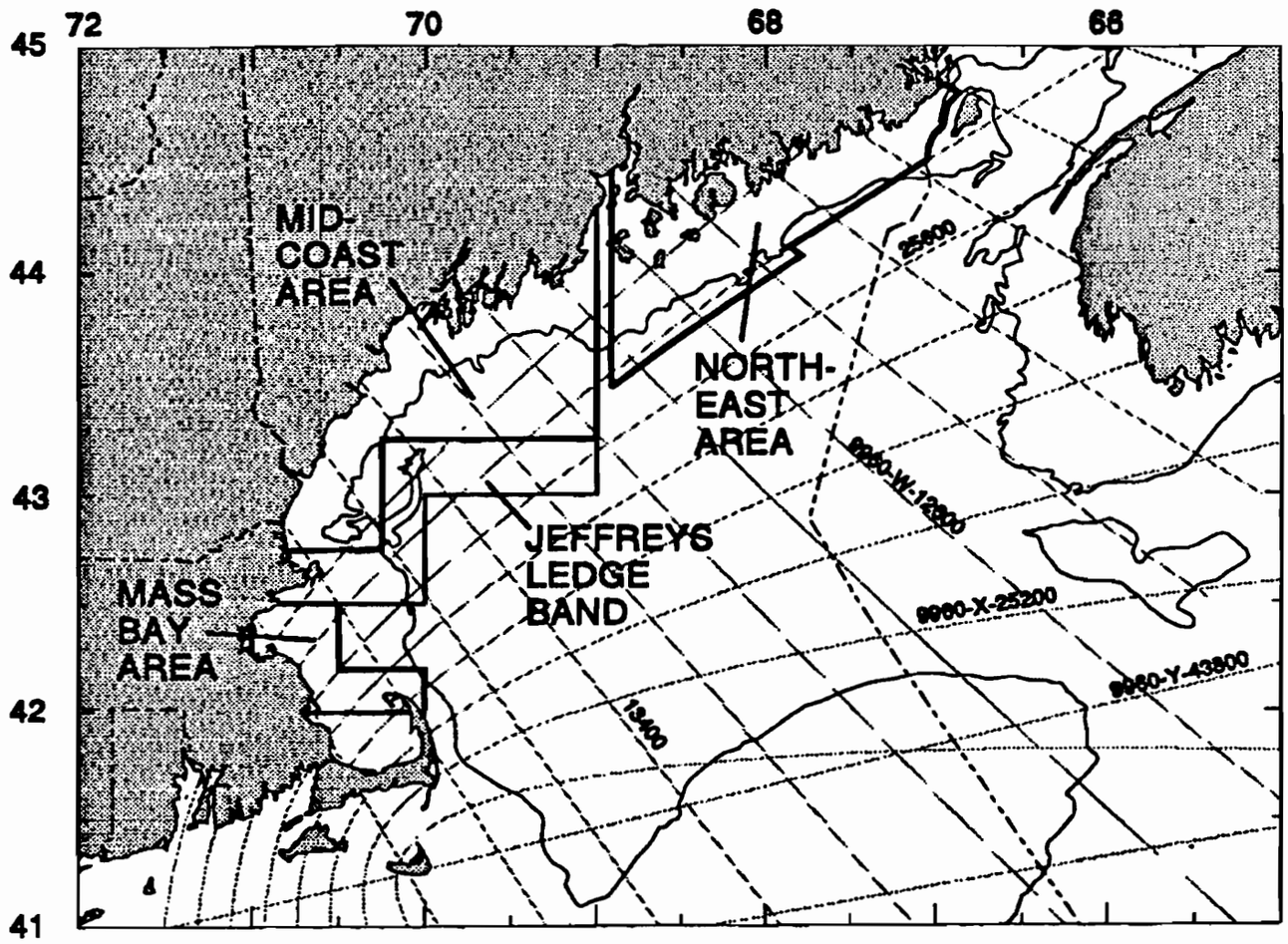
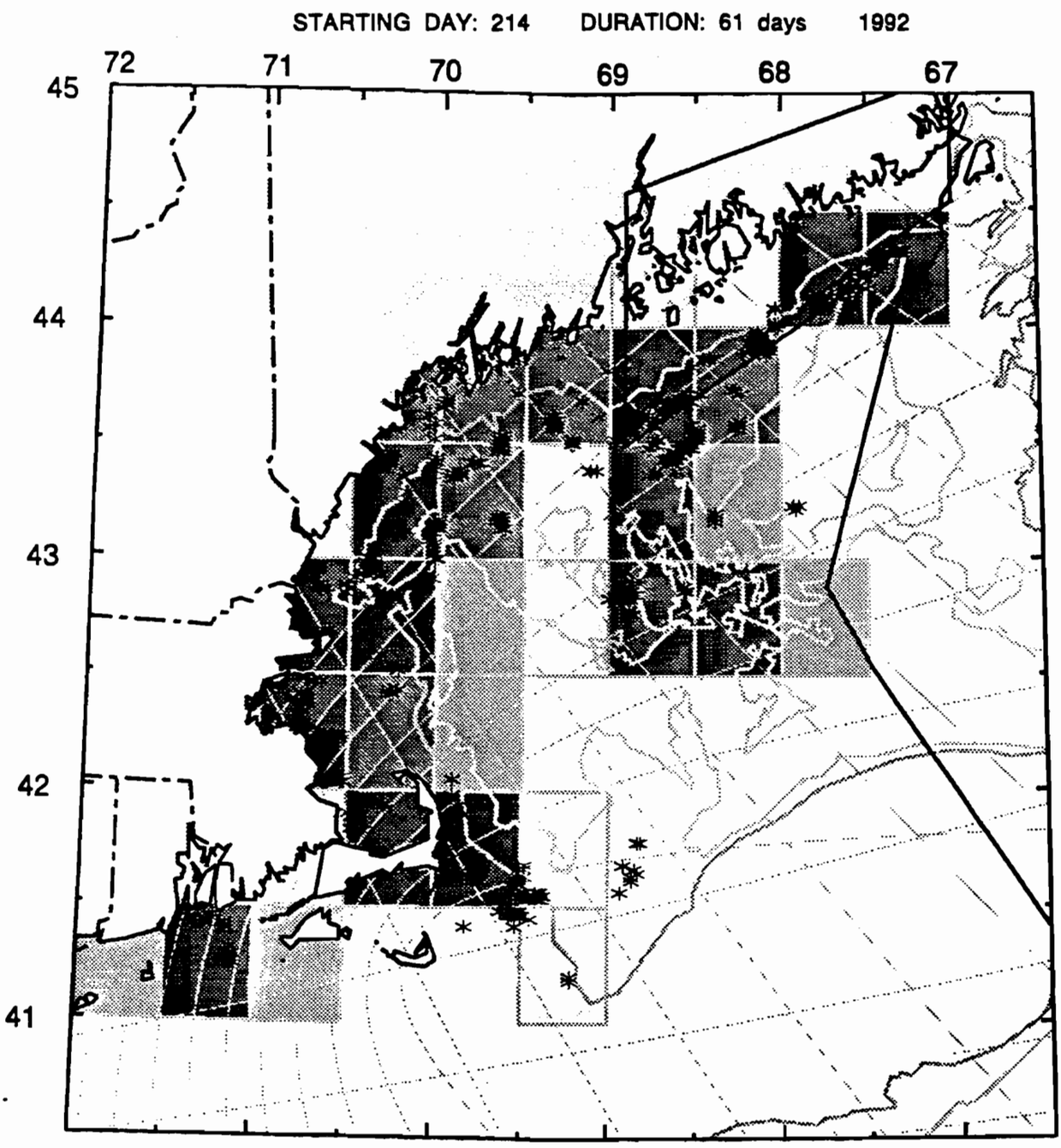


Figure 1. Northeast, Mid-coast and Massachusetts Bay Closure Areas



Number of trips in 30 minute square

	0	to	1
	2	to	5
	6	to	76
	77	to	463

- ● Haul Sites w/ Bycatch
- * Haul Sites w/o Bycatch

Fig. 2 **Northeast**
August & September 1992

ALBERS EQUAL AREA PROJECTION

STARTING DAY: 214 DURATION: 61 days 1992

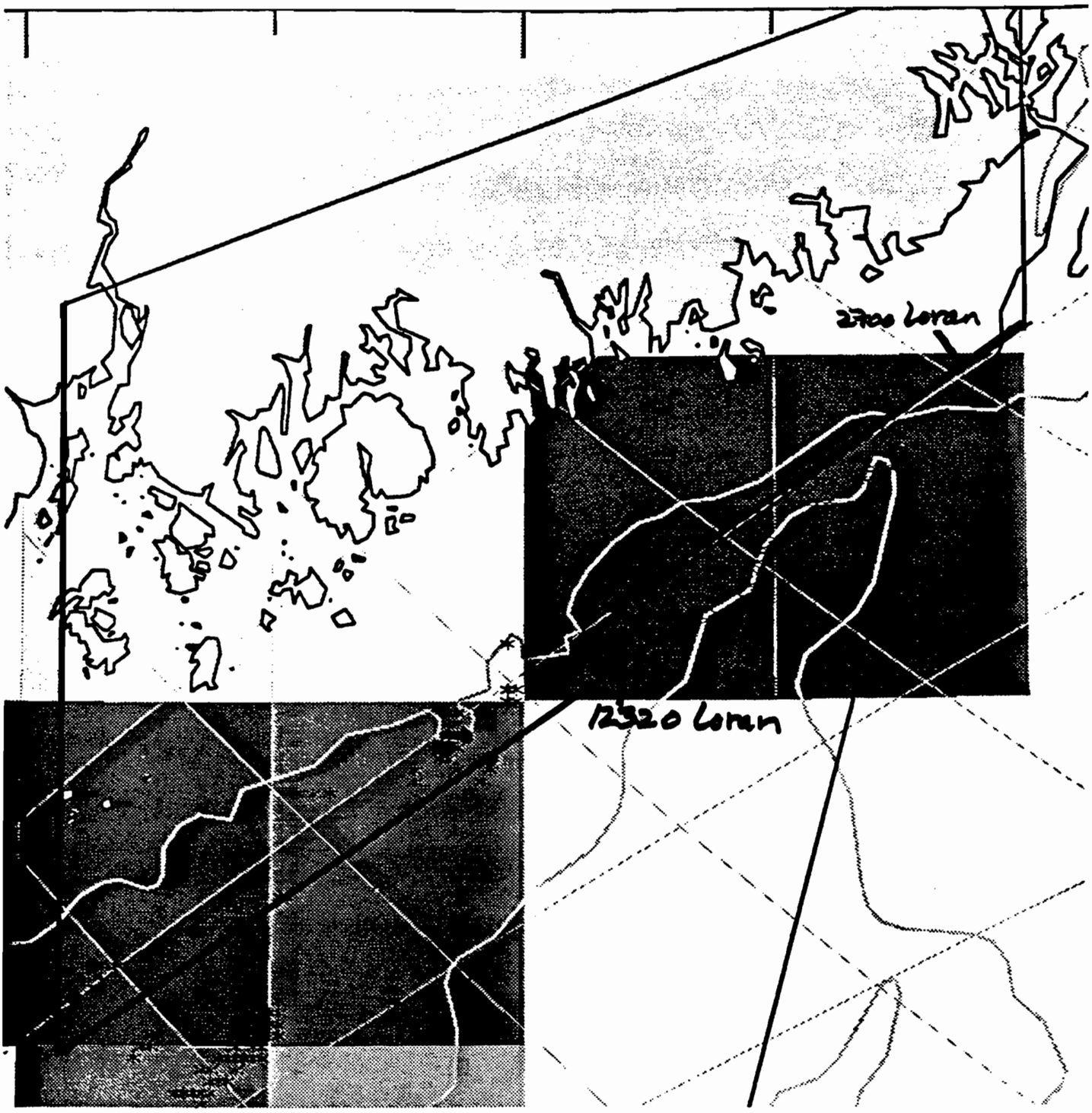
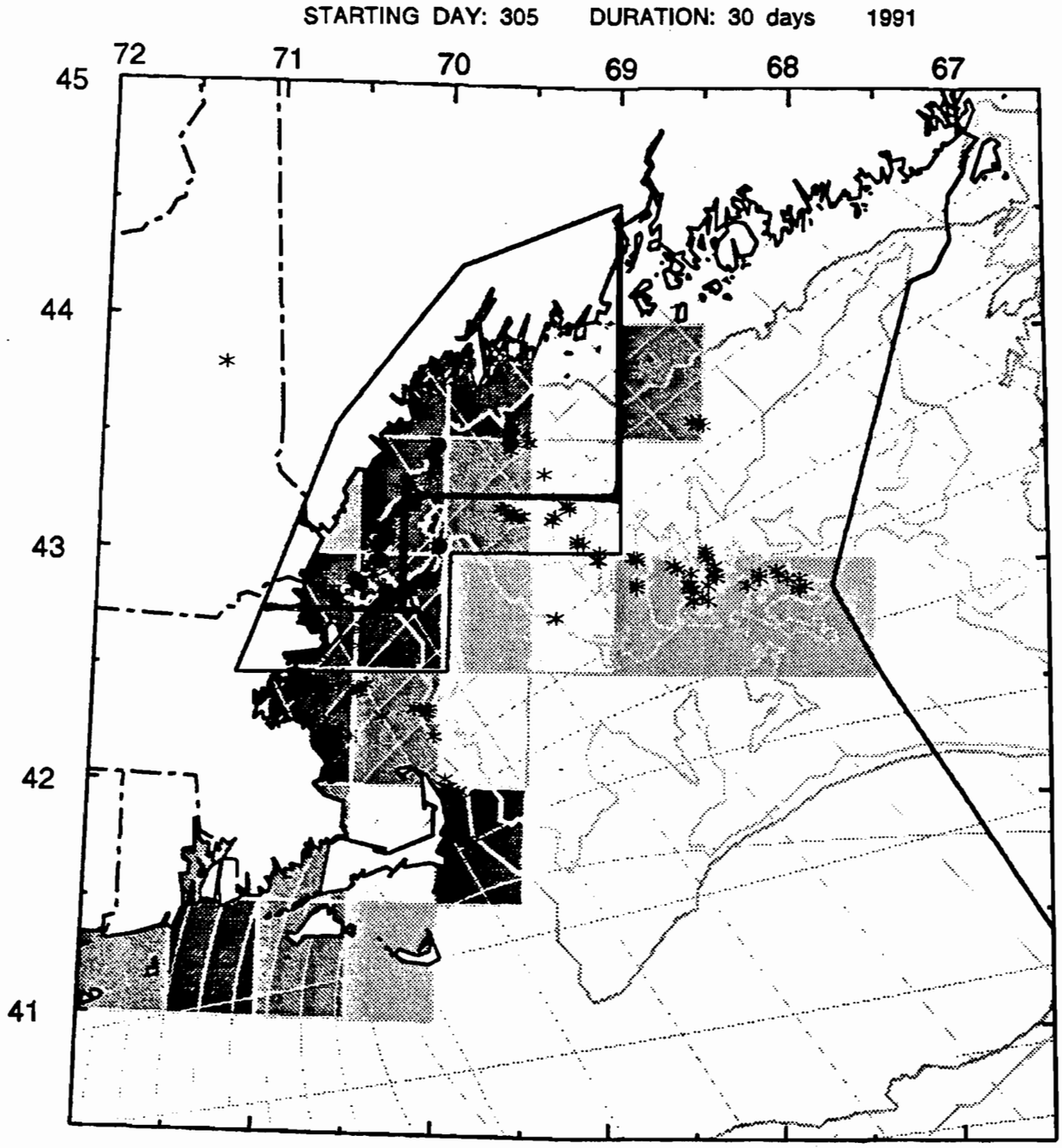


Fig. 3 Zoom of Northeast
August - September 1992



Number of trips in 30 minute square

	0	to	2
	3	to	9
	10	to	33
	34	to	365

- ● Haul Sites w/ Bycatch
- * Haul Sites w/o Bycatch

Fig. 4 **Midcoast November 1991**

ALBERS EQUAL AREA PROJECTION

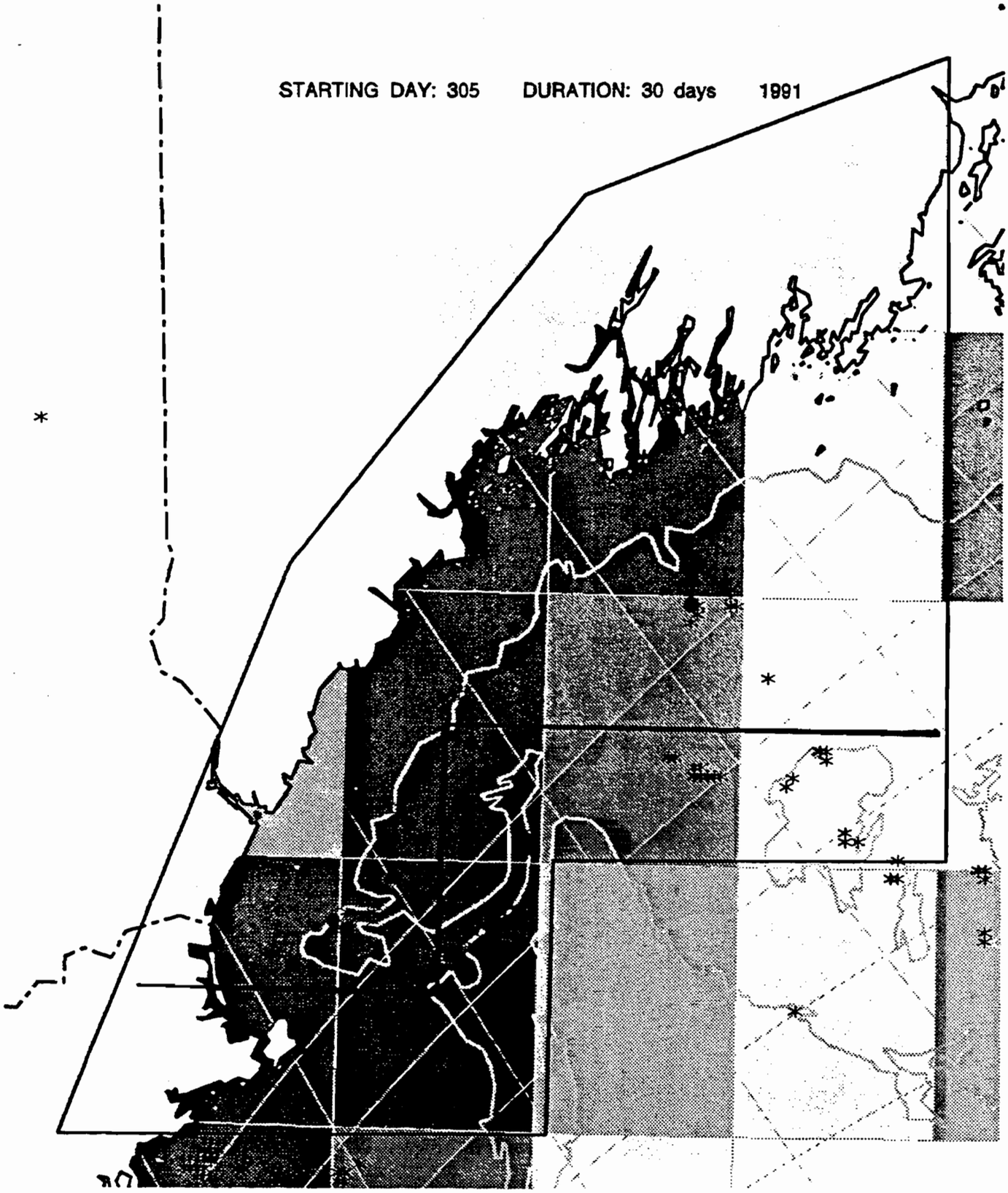
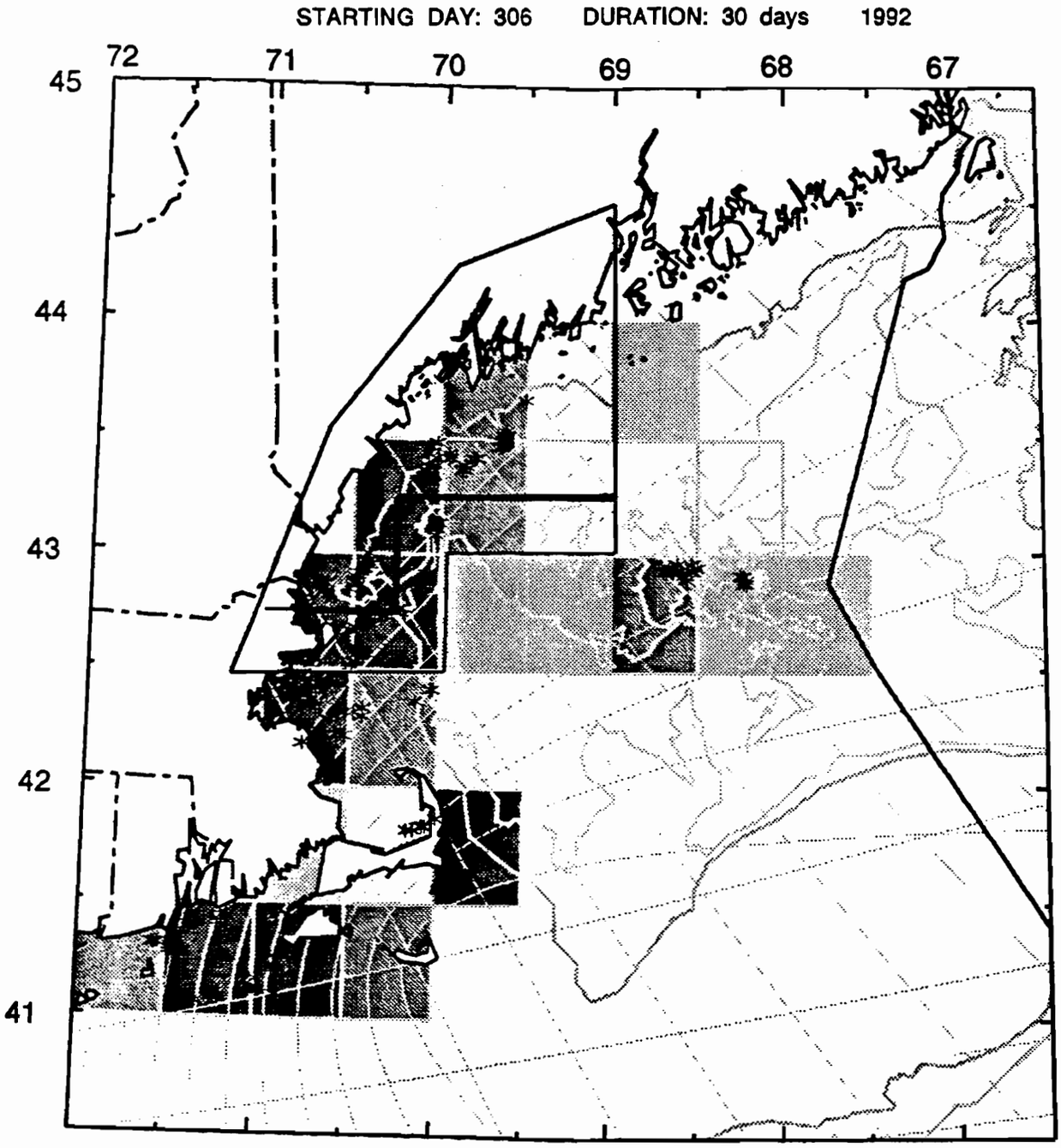


Fig. 5 Zoom of Midcoast
November 1991



Number of trips in 30 minute square

0	to	1	
2	to	6	
7	to	30	
31	to	378	

- ● Haul Sites w/ Bycatch
- * Haul Sites w/o Bycatch

Fig. 6 **Midcoast November 1992**

ALBERS EQUAL AREA PROJECTION

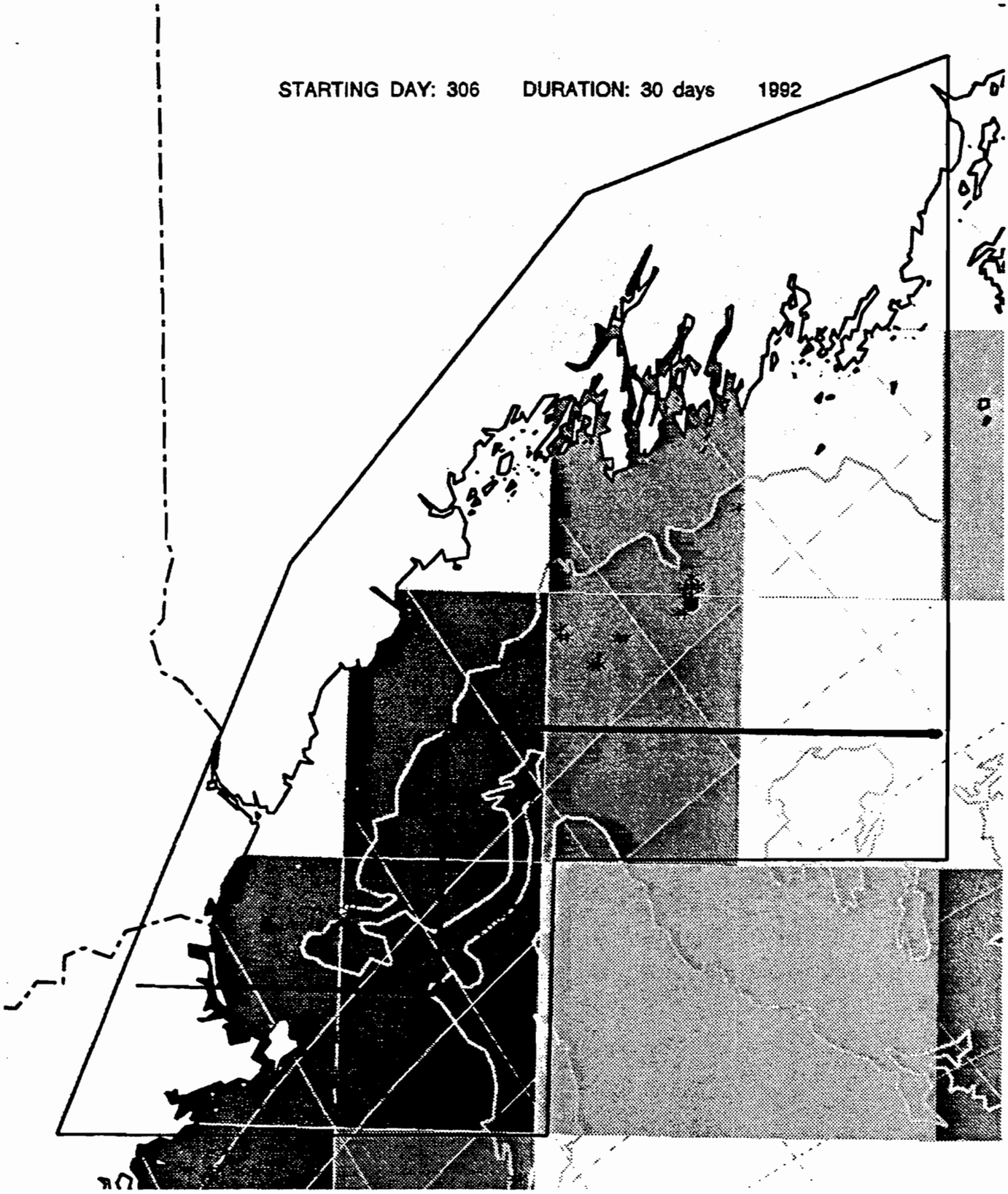


Fig. 7 Zoom of Midcoast November 1992

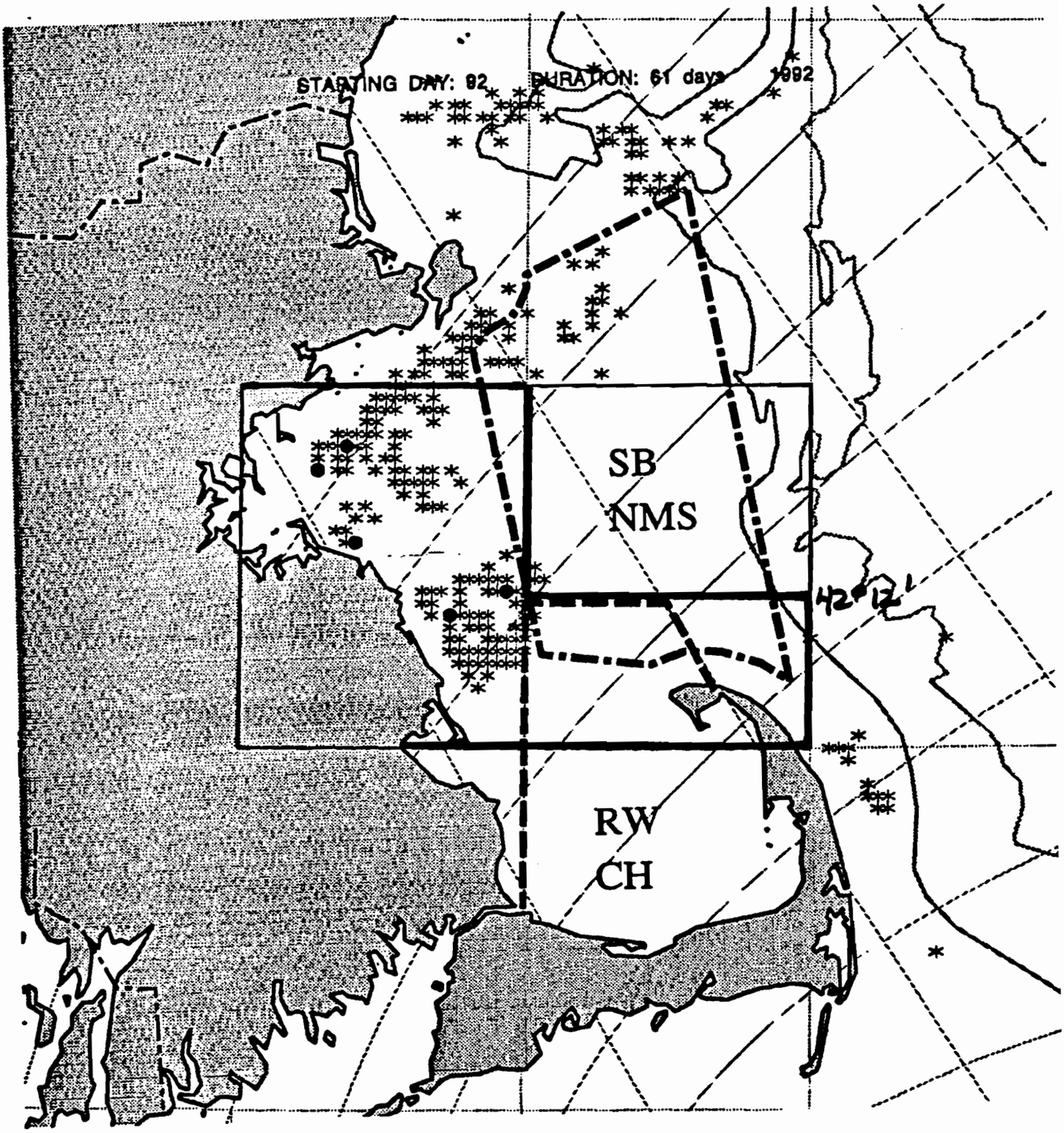
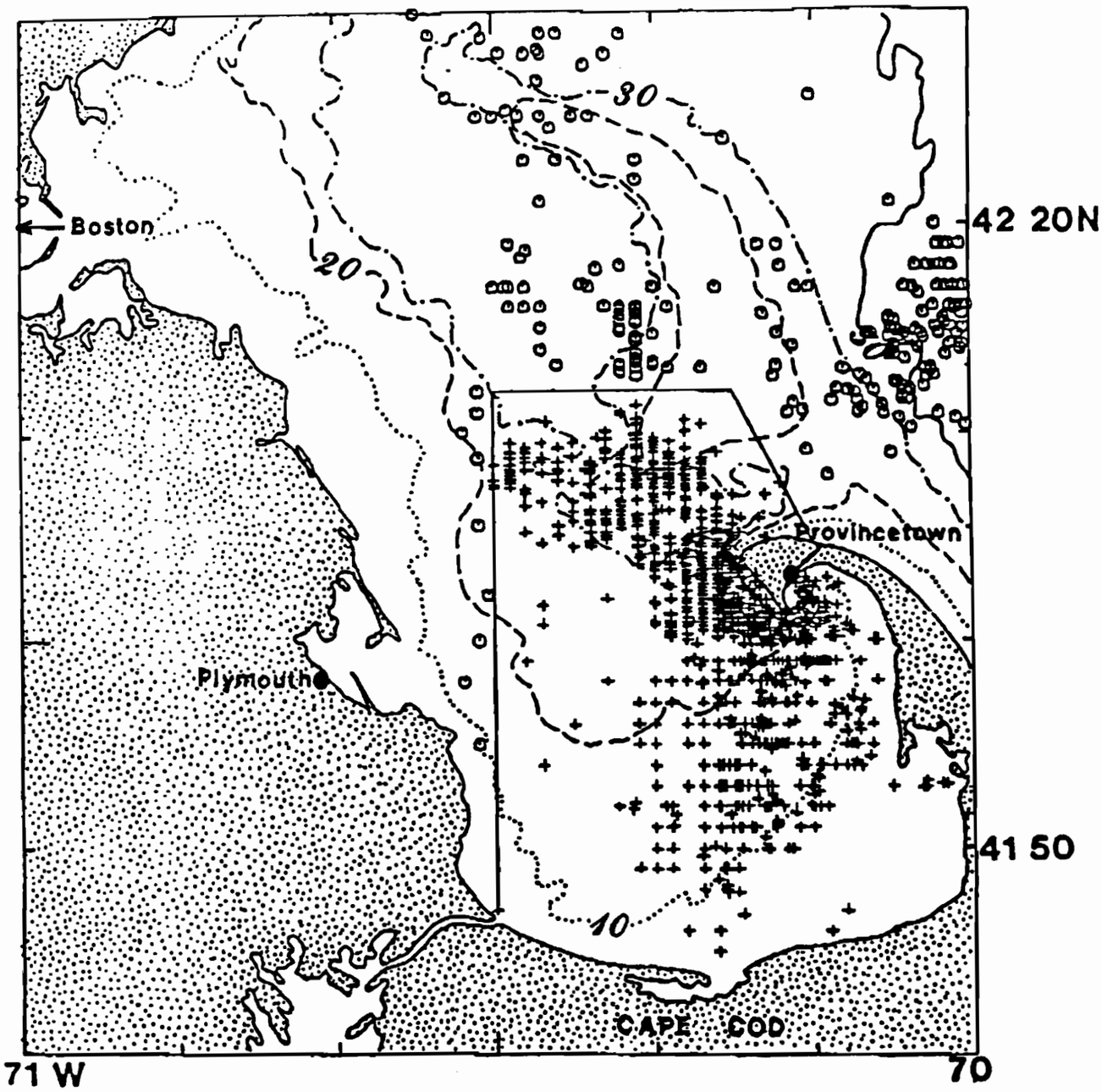
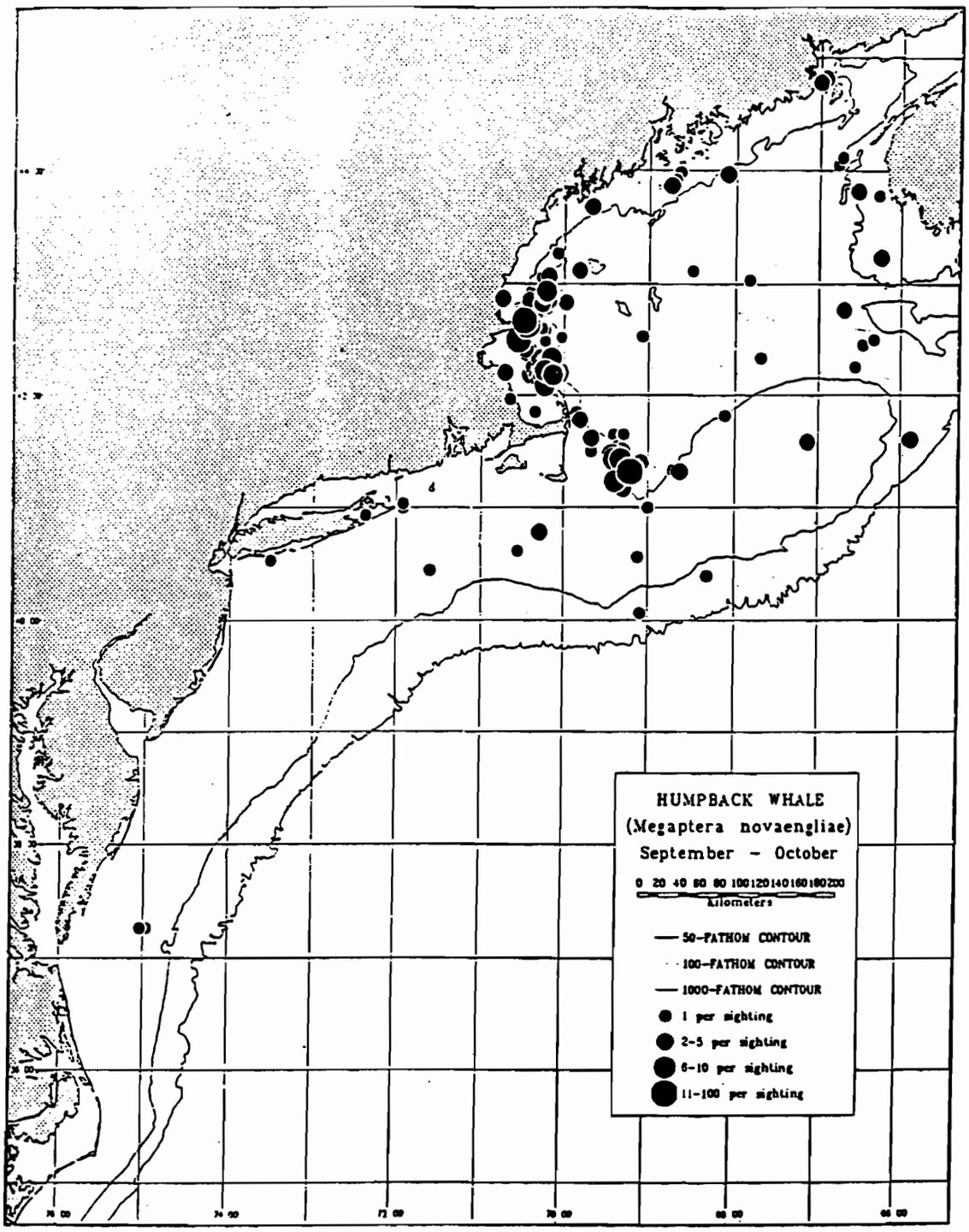


Figure 8. Massachusetts Bay Closure Area (spring) showing Stellwagen Bank Marine Sanctuary (SBMS) and Right Whale Critical Habitat (RWCH)



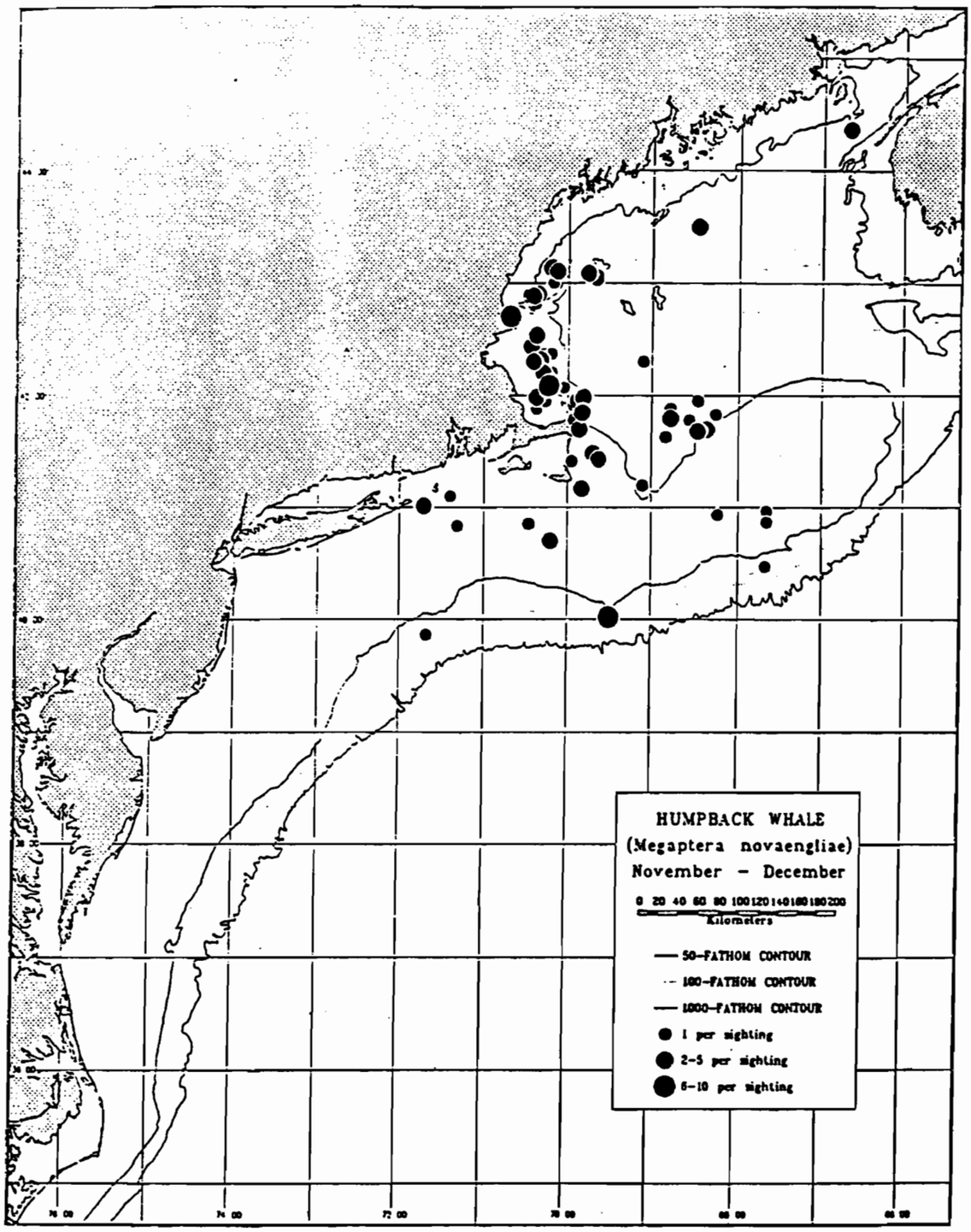
From Kraus, S.D. and R.D. Kenney. 1991. Information on right whales (*Eubalaena glacialis*) in three proposed critical habitats in U.S. waters of the Western North Atlantic Ocean. Final Report to the U.S. Marine Mammal Commission in fulfillment of contracts T-75133740 and T-75133753.

Figure 9. All right whale sightings in and near the proposed Cape Cod Bay critical habitat between 1964 and 1988. Most sightings north and northeast of the proposed boundary are from 1986 and 1987 and considered atypical. Sightings within the proposed critical habitat are shown by '+'; sightings outside by 'o'. Bathymetry shown is in fathoms: N=1665 sightings.



From Payne, P.M., D.W. Heinemann, and L.A. Selzer. Ms. A distributional assessment of cetaceans in shelf/shelf-edge and adjacent slope waters of the northeastern United States based on aerial and shipboard surveys, 1978-1988.

Figure 10. Distribution of humpback whale Megaptera novaeangliae sightings in shelf/ shelf-edge and adjacent slope waters of the northeastern United States during September-October, 1978-1988.



From Payne, P.M., D.W. Heinemann, and L.A. Selzer. Ms. A distributional assessment of cetaceans in shelf/shelf-edge and adjacent slope waters of the northeastern United States based on aerial and shipboard surveys, 1978-1988.

Figure 11. Distribution of humpback whale Megaptera novaeangliae sightings in shelf/ shelf-edge and adjacent slope waters of the northeastern United States during November-December, 1978-1988.

Appendix II
Biological Analyses

A. Seasonal and Spatial Distribution of Harbor Porpoise By-catch and Associated Fishing Effort and Landings in the Gulf of Maine Gill Net Fishery, 1991-1992.

A Report to The Groundfish Plan Development Team

prepared by

The Groundfish PDT Harbor Porpoise Subgroup

September, 1993

Introduction

The Gulf of Maine gillnet fishery targets 3 major groundfish species in order of importance: cod, pollock, white hake; secondarily flatfish: yellowtail flounder, winter flounder, American plaice. Cod and white hake are routinely taken during summer, while pollock are taken more often during late fall-winter. There is also a summer fishery (June-October) for spiny dogfish in the Gulf of Maine and a winter-spring (November-May) fishery in the Southern New England area. The major ports include: Portland ME, Portsmouth, NH, and Gloucester, MA, as well as Scituate MA and numerous outports along the Northeast coast of ME.

Amendment 5 of the Northeast Multispecies Fishery Management Plan includes all of the above except spiny dogfish. Under this amendment, fishing effort on all major groundfish stocks is to be reduced by about 50% for both mobile and fixed gear sectors (with some exceptions). Effort reduction measures for the gillnet sector are being evaluated in order to incorporate protection for harbor porpoises by choosing periods and areas of effort reduction which take into account the migratory patterns of harbor porpoises in order to achieve the greatest potential by-catch reduction per unit of space and time under restriction.

The purpose of this paper is to describe the methods employed to relate observed by-catch of harbor porpoises with fishing effort on a geographic basis and to quantify the potential effect of management measures on reductions in harbor porpoise by-catch and gillnet effort and finfish landings by providing example calculations for a range of areas and combinations of months. In this analysis, six large-scale time/area combinations (Table 1, Figure 1) were chosen to spatially coincide as closely as possible to those outlined in the proposal by the industry, dated 10 December, 1992, modified by our observations of the distribution of gillnet activity and harbor porpoise by-catch as indicated by the weighout and sea sample data. Time periods corresponding to each area were selected based on the observed seasonal/spatial distribution of harbor porpoise in the Gulf of Maine. The spatial resolution of the areas is considered sufficient to account for the observed inter-annual variability in the distribution of harbor porpoise by-catch.

The information presented in this report should serve as a basis for determining the time and location of potential management areas in designing a strategy of season/area restrictions.

Methods and Materials

Information on weight and value of landed finfish is recorded on a trip basis from data received through dealer transaction records. The mean location of all sets is recorded to the nearest 30 min of latitude and longitude for all trips. Effective effort (ie, soak time x amount of gear set) is not available on these records.

A small fraction of trips is interviewed. On these, location information is recorded to the nearest 10 min of latitude and longitude, although effective effort is still not recorded. Variables of interest taken from the port data include: port of landing, date of landing, vessel id, time at sea, approximate soak time of gear, total and species landings and value, mesh size (interviewed only) and latitude and longitude (10 or 30 min resolution).

Interviewed trips are at 10 min resolution and non-interviewed trips are at 30 min resolution. Most (about 2/3) of trips are day trips (= 24 hr temporal resolution); the rest are mostly 2-day trips (= 48 hr resolution). However, many 1-day trips are pooled for a month for a given vessel because dealer records are not maintained by trip, or because many smaller (less than 5 grt) vessels may be grouped into a single unknown vessel category. The catch and effort for multiple trips occurring throughout a given month are therefore combined into a single date of landing on the last day of the month. This has the effect of under-representing activity during the early and middle weeks of the month and over-representing activity during the last week of the month. Thus, the effective resolution of the data is 1 whole calendar month.

A Geographic Information System (GIS) is used to relate by-catch of harbor porpoise recorded on sea sample trips with gillnet fishing effort and catch of groundfish as indicated by the commercial weighout system. Within the GIS system, several proration schemes are used to raise the observed sea sample fish catch, effort and harbor porpoise by-catch data based on the weighout catch and effort obtained in-port for the entire fleet for corresponding temporal and spatial scales. Prorations are performed within the temporal scale defined by the user (for example, the month of October, 1992) over the entire geographic range of the sea sampling coverage for that particular time frame. Once all site specific sea sample data are raised to the fishery totals, the user may define a location and compute the aggregate statistics which summarize the catch, effort and porpoise by-catch.

Prorations are accomplished within a 30-min square (or 10-min square if interviewed port record). This effectively stratifies the fine-scale spatial distribution of the raised sea sample data according to the large-scale distribution of the port data collected for the entire fishery. This effectively weights the spatial distribution of catch and effort according to observed activity as indicated by the weighout records. Thus, any potential spatial bias associated with the sea sample data is limited to a maximum of 30 minutes of latitude and longitude.

Proration calculations were performed:

1) For fish catch:

by computing the ratio of total catch of each species in the sea sample data to total catch of that species in the weighout data, and raising the catch of the species at each sea sample haul site within the square by the inverse of the ratio.

2) For trips:

by computing the fractional trip for each sea sample trip as the inverse of number of sets, and the proportion of fractional trips at each haul site, and the ratio of total fractional sea sample trips to total weighout trips, and applying the proportion of fractional sea sample trips at each site to total weighout trips within the square.

3) For harbor porpoise by-catch:

by computing:

the mean number of sets per sea sample trip within the square,
the total number of weighout sets within the square,
the harbor porpoise by-catch per set within the square,
the total harbor porpoise by-catch raised to total number of weighout trips within the square, and
the proportion and raised harbor porpoise by-catch at each haul site within the square.

Four regions of the Gulf of Maine were described using the GIS system. The overall outline of the four regions follows 30 minute square boundaries in order to include all landings and trips enclosed by the region. Seasonal components of the areas were determined by examining composite annual and monthly distributions of harbor porpoise by-catch from 1990 through 1992.

The four regions and associated seasonal components (Table 1, Figure 1) are as follows:

1) Massachusetts Bay (Cape Cod to Cape Ann) March-April,

2) Mid-Coast (Cape Ann to Penobscott Bay) April-May,
Mid-Coast (Cape Ann to Penobscott Bay) October-December,

3) Offshore (Central Gulf of Maine, including Cashes Ledge) April-May,
Offshore (Central Gulf of Maine, including Cashes Ledge) October-December,

4) Northeast (Penobscott Bay to Eastport) June-September.

Monthly percentages of the number of harbor porpoises taken, the number of gill net trips and the combined weight of cod, haddock, pollock, white hake and yellowtail flounder were computed for each of the six time/area components. Percentages were based on: 1) Gulf-wide annual totals and 2) region-specific annual totals for 1991 and 1992. The Gulf-wide percentages indicate the extent to which the indvidual time/area block accounts for the total annual by-catch, effort and groundfish catch. The regional percentages indicate the extent to which the time period accounts for the region-specific annual by-catch, effort and groundfish catch.

Results

Massachusetts Bay (March-April) (Table 2, Figure 2)

This component accounted for approximately 7% of the Gulf-wide harbor porpoise by-catch in 1992 but no porpoises were observed in 1991. The March-April period accounted for almost 100% of the estimated Massachusetts Bay by-catch in 1992.

The number of trips represented within this component equalled 1.1 and 2.3% of the Gulf-wide total in 1991 and 1992, respectively. The March-April period accounted for 12.3 and 21.2% of the Massachusetts Bay total in 1991 and 1992, respectively.

The combined groundfish catch represented within this component equalled 0.4 and 0.8% of the Gulf-wide total in 1991 and 1992, respectively. The March-April period accounted for 16.8 and 26.8% of the Massachusetts Bay total in 1991 and 1992, respectively.

Mid-coast (April-May) (Table 3, Figure 3)

This component accounted for 3 and 4% of the Gulf-wide harbor porpoise by-catch in 1991 and 1992, respectively. The April-May period accounted for 3.6 and 7.3% of the estimated Mid-coast by-catch in 1991 and 1992, respectively.

The number of trips represented within this component ranged from 8 to 9% of the Gulf-wide total in 1991 and 1992. The April-May period accounted approximately 20% of the Mid-coast total in both years.

The combined groundfish catch represented within this component ranged from 6-8% of the Gulf-wide total in 1991 and 1992. The April-May period accounted for 26.6 and 18.8% of the Mid-coast total in 1991 and 1992, respectively.

Offshore (April-May) (Table 4, Figure 4)

This component accounted for 0.5% of the Gulf-wide harbor porpoise by-catch in 1991 but no by-catch were observed in 1992. The April-May period accounted for 6.8% of the estimated Offshore by-catch in 1991.

The number of trips represented within this component ranged from 0.3 to 0.4% of the Gulf-wide total in 1991 and 1992. The April-May period accounted for approximately 8-9% of the Offshore total in both years.

The combined groundfish catch represented within this component equalled 2.8 and 1.4% of the Gulf-wide total in 1991 and 1992, respectively. The April-May period accounted for 13.7 and 6.2% of the Offshore total in 1991 and 1992, respectively.

Northeast (June-September) (Table 5, Figure 5)

This component accounted for 12.3 and 31.4% of the Gulf-wide harbor porpoise by-catch in 1991 and 1992, respectively. The June-September period accounted for 67.4 and 97.5% of the estimated Northeast by-catch in 1991 and 1992, respectively.

The number of trips represented within this component equalled 10.4% of the Gulf-wide total in 1991 and 1992. The June-September period accounted for 82.7 and 97.5% of the Northeast total in 1991 and 1992, respectively.

The combined groundfish catch represented within this component equalled 17.2 and 20.2% of the Gulf-wide total in 1991 and 1992, respectively. The June-September period accounted for approximately 90% of the Northeast total in both years.

Mid-coast (October-December) (Table 6, Figure 6)

This component accounted for 61.5 and 51.0% of the Gulf-wide harbor porpoise by-catch in 1991 and 1992, respectively. The October-December period accounted for 74.3 and 92.7% of the estimated Mid-coast by-catch in 1991 and 1992, respectively.

The number of trips represented within this component equalled approximately 13% of the Gulf-wide total in 1991 and 1992. The October-December period accounted approximately 30% of the Mid-coast total in both years.

The combined groundfish catch represented within this component ranged from 9-11% of the Gulf-wide total in 1991 and 1992. The October-December period accounted for approximately 34-36% of the Mid-coast total in both years.

Offshore (October-December) (Table 7, Figure 7)

This component accounted for no harbor porpoise by-catch in 1991 and 1992.

The number of trips represented within this component equalled approximately 0.6% of the Gulf-wide total in 1991 and 1992. The October-December period accounted approximately 18-19% of the Offshore total in both years.

The combined groundfish catch represented within this component ranged from 4-5% of the Gulf-wide total in 1991 and 1992. The October-December period accounted for approximately 19-24% of the Offshore total in both years.

Discussion

Results for the six time/area components presented in Tables 2-7 and illustrated in Figures 2-7 indicate consistent patterns of harbor porpoise by-catch in 1991 and 1992. From October through December, the Mid-coast area accounted for 50-60% of the entire Gulf-wide by-catch of harbor porpoise, but very little by-catch during the spring (April-May) period. The Northeast area accounted for an additional 10-30% of the total by-catch. In 1991 and 1992, the time/area blocks as analyzed accounted for 80-90% of the total Gulf-wide by-catch of harbor porpoise, 35% of the effort (trips) and 40-45% of the major groundfish catch. This provides an approximate 2:1 leverage of by-catch reduction relative to gillnet fishing activity.

Further refinements of the time/area schemes are possible within the overall bounds as described above. This can be accomplished by reducing the number of months included in each season and/or by reducing the extent of the area covered. However, as the time/area blocks are reduced in scope, the predictability of the analysis will become less certain.

Table 1.

TIME AND AREAS THAT ENCOMPASS MOST OF THE HARBOR PORPOISE BY-CATCH

AREA	MONTHS
Massachusetts Bay	March April
Mid-Coast	April May
Offshore	April May
Northeast	June July August September
Mid-Coast	October November December
Offshore	October November December

Table 2.
MASS. BAY AREA

Percentage of by-caught harbor porpoises, trips, and landed groundfish with respect to the amount from:

THE ENTIRE YEAR FOR THE GULF OF MAINE REGION.

TIME	% PORPOISE		% TRIPS		% FISH	
	91	92	91	92	91	92
March	0	1.9	0.3	1.4	0.1	0.4
April	0	4.8	0.8	0.9	0.3	0.4
TOTAL	0	6.7	1.1	2.3	0.4	0.8

THE ENTIRE YEAR FOR THE MASS. BAY AREA.

TIME	% PORPOISE		% TRIPS		% FISH	
	91	92	91	92	91	92
March	0	27.2	3.5	12.5	5.7	14.2
April	0	70.6	8.8	8.7	11.1	12.6
TOTAL	0	97.8	12.3	21.2	16.8	26.8

Table 3.
MID-COAST AREA

Percentage of by-caught harbor porpoises, trips, and landed groundfish with respect to the amount from:

THE ENTIRE YEAR FOR THE GULF OF MAINE REGION.

TIME	% PORPOISE		% TRIPS		% FISH	
	91	92	91	92	91	92
April	2.5	2.0	4.1	2.6	2.6	1.2
May	0.5	2.0	5.1	5.8	4.9	4.6
TOTAL	3.0	4.0	9.2	8.4	7.5	5.8

THE ENTIRE YEAR FOR THE MID-COAST AREA.

TIME	% PORPOISE		% TRIPS		% FISH	
	91	92	91	92	91	92
April	3.0	3.6	9.4	6.2	9.2	3.9
May	0.6	3.7	11.7	13.8	17.4	14.9
TOTAL	3.6	7.3	21.1	20.0	26.6	18.8

Table 4.
OFFSHORE AREA

Percentage of by-caught harbor porpoises, trips, and landed groundfish with respect to the amount from:

THE ENTIRE YEAR FOR THE GULF OF MAINE REGION.

TIME	% PORPOISE		% TRIPS		% FISH	
	91	92	91	92	91	92
April	0.5	0	0.1	0.2	0.8	0.6
May	0	0	0.3	0.1	2.0	0.8
TOTAL	0.5	0	0.4	0.3	2.8	1.4

THE ENTIRE YEAR FOR THE OFFSHORE AREA.

TIME	% PORPOISE		% TRIPS		% FISH	
	91	92	91	92	91	92
April	6.8	0	2.5	4.9	3.9	2.7
May	0	0	6.8	3.6	9.8	3.5
TOTAL	6.8	0	9.3	8.5	13.7	6.2

Table 5.
NORTHEAST AREA

Percentage of by-caught harbor porpoises, trips, and landed groundfish with respect to the amount from:

THE ENTIRE YEAR FOR THE GULF OF MAINE REGION.

TIME	% PORPOISE		% TRIPS		% FISH	
	91	92	91	92	91	92
June	5.2	7.4	2.2	2.0	3.9	3.1
July	5.5	1.9	2.6	2.6	5.1	6.6
Aug	0	11.4	3.1	3.3	5.0	6.9
Sept	1.6	10.7	2.5	2.5	3.2	3.6
TOTAL	12.3	31.4	10.4	10.4	17.2	20.2

THE ENTIRE YEAR FOR THE NORTHEAST AREA.

TIME	% PORPOISE		% TRIPS		% FISH	
	91	92	91	92	91	92
June	28.7	23.0	18.1	19.3	19.9	14.0
July	30.0	5.9	20.5	25.0	25.9	30.1
Aug	0	35.4	24.3	31.0	25.6	31.6
Sept	8.7	33.2	19.8	24.2	16.5	16.5
TOTAL	67.4	97.5	82.7	99.5	87.9	92.2

Table 6.
MID-COAST AREA

Percentage of by-caught harbor porpoises, trips, and landed groundfish with resoect to the amount from

THE ENTIRE YEAR FOR THE GULF OF MAINE REGION.

TIME	% PORPOISE		% TRIPS		% FISH	
	91	92	91	92	91	92
Oct	7.5	23.1	4.9	5.1	3.8	4.4
Nov	46.6	20.8	4.8	4.9	3.1	4.4
Dec	7.4	7.1	3.6	2.6	2.7	2.5
TOTAL	61.5	51.0	13.3	12.6	9.6	11.3

THE ENTIRE YEAR FOR THE GULF OF MAINE REGION.

TIME	% PORPOISE		% TRIPS		% FISH	
	91	92	91	92	91	92
Oct	9.1	42.0	11.2	12.1	13.5	14.3
Nov	56.2	37.9	10.8	11.5	11.1	14.1
Dec	9.0	12.8	8.2	6.2	9.5	8.1
TOTAL	74.3	92.7	30.2	29.8	34.1	36.5

Table 7.
OFFSHORE AREA

Percentage of by-caught harbor porpoises, trips, and landed groundfish with respect to the amount from:

THE ENTIRE YEAR FOR THE GULF OF MAINE REGION.

TIME	% PORPOISE		% TRIPS		% FISH	
	91	92	91	92	91	92
Oct	0	0	0.3	0.2	1.6	1.9
Nov	0	0	0.2	0.2	1.2	1.9
Dec	0	0	0.1	0.2	1.1	1.6
TOTAL	0	0	0.6	0.6	3.9	5.4

THE ENTIRE YEAR FOR THE OFFSHORE AREA.

TIME	% PORPOISE		% TRIPS		% FISH	
	91	92	91	92	91	92
Oct	0	0	8.9	5.4	8.0	8.4
Nov	0	0	6.2	6.6	5.9	8.4
Dec	0	0	3.7	6.4	5.4	7.3
TOTAL	0	0	18.8	18.4	19.3	24.1

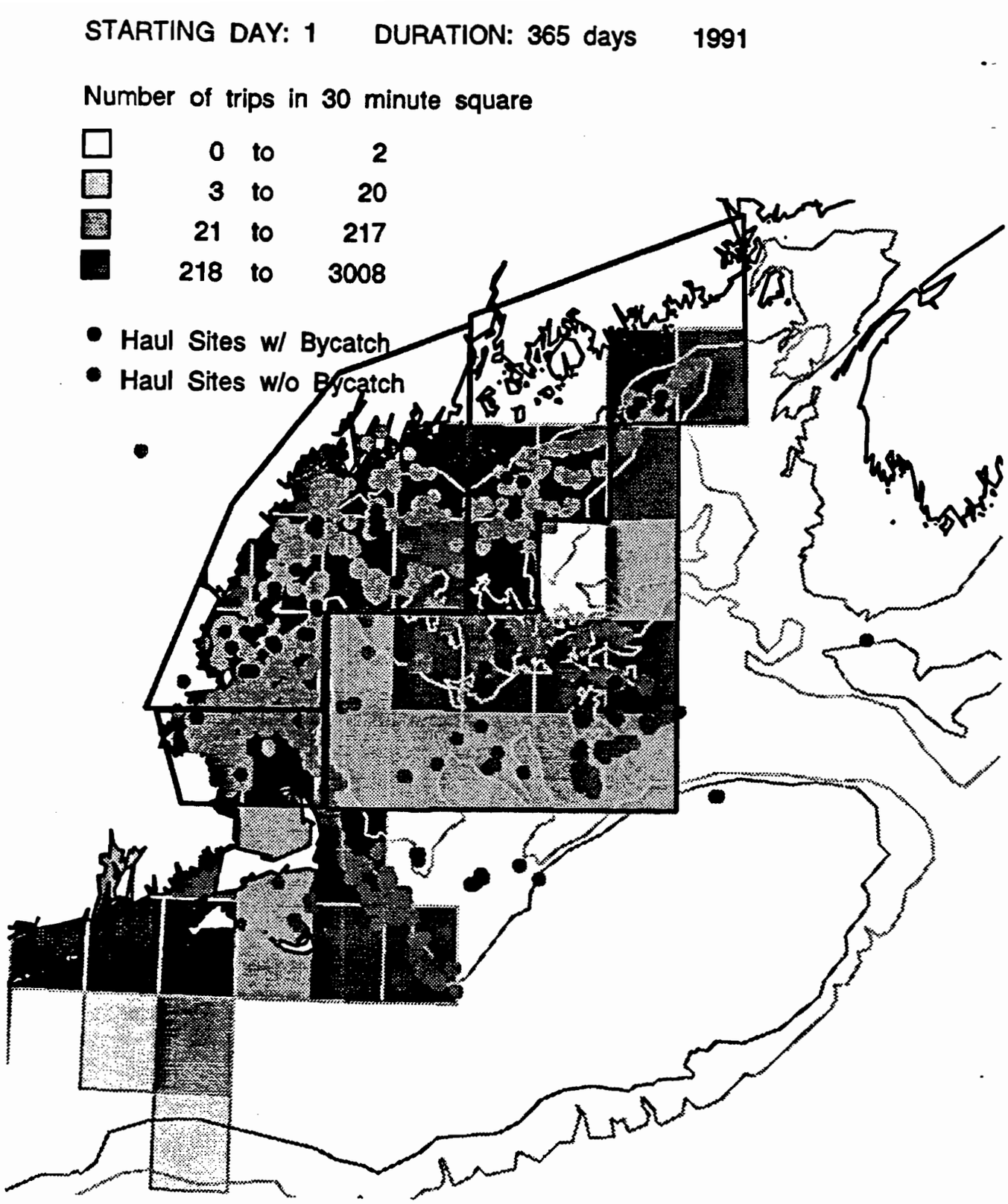


Figure 1a: Spatial Distribution of gill net trips by 30 minute square (shaded), and location of sea sample haul sites (light dots) and harbor porpoise by-catch (dark dots) in 1991.

Outlined Areas: All Season: January-December

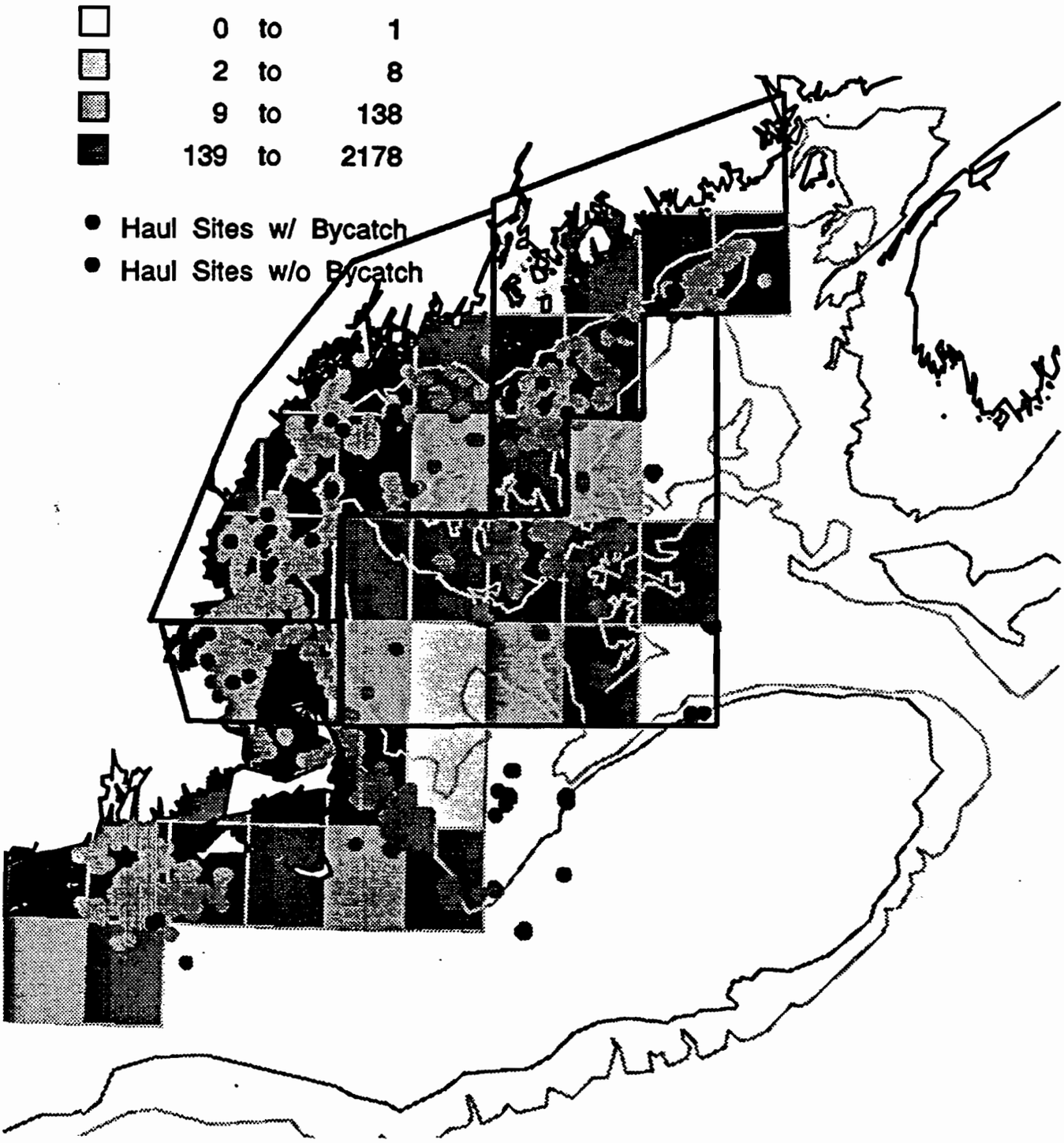


Figure 1b: Spatial distribution of gill net trips by 30 minute square (shaded), and location of sea sample haul sites (light dots) and harbor porpoise by-catch (dark dots) in 1992.

Outlined Areas: All Season: January-December

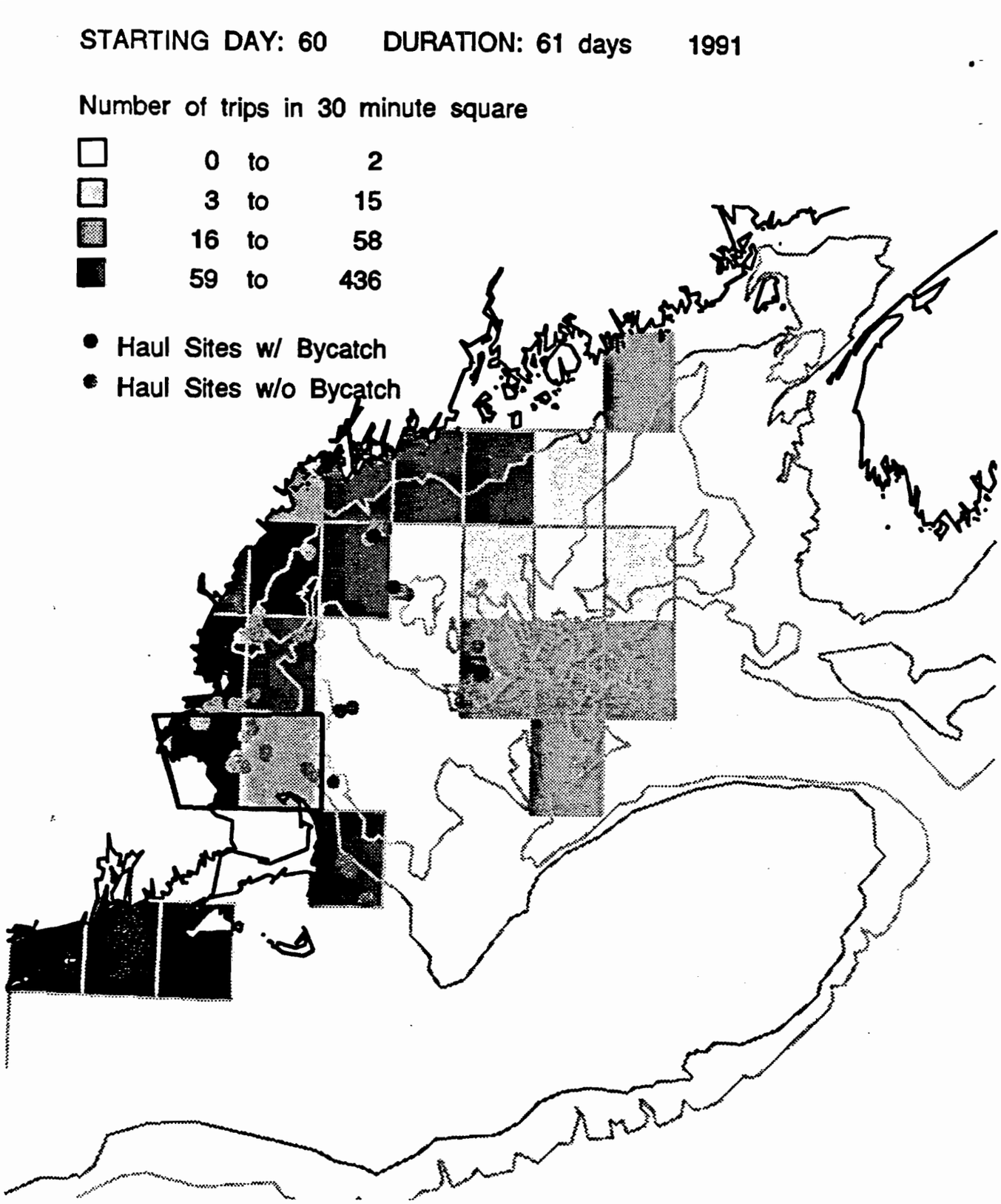


Figure 2a. Spatial distribution of gill net trips by 30 minute square (shaded), and location of sea sample haul sites (light dots) and harbor porpoise by-catch (dark dots) in 1991.

Outlined Area: Mass. Bay Season: March-April

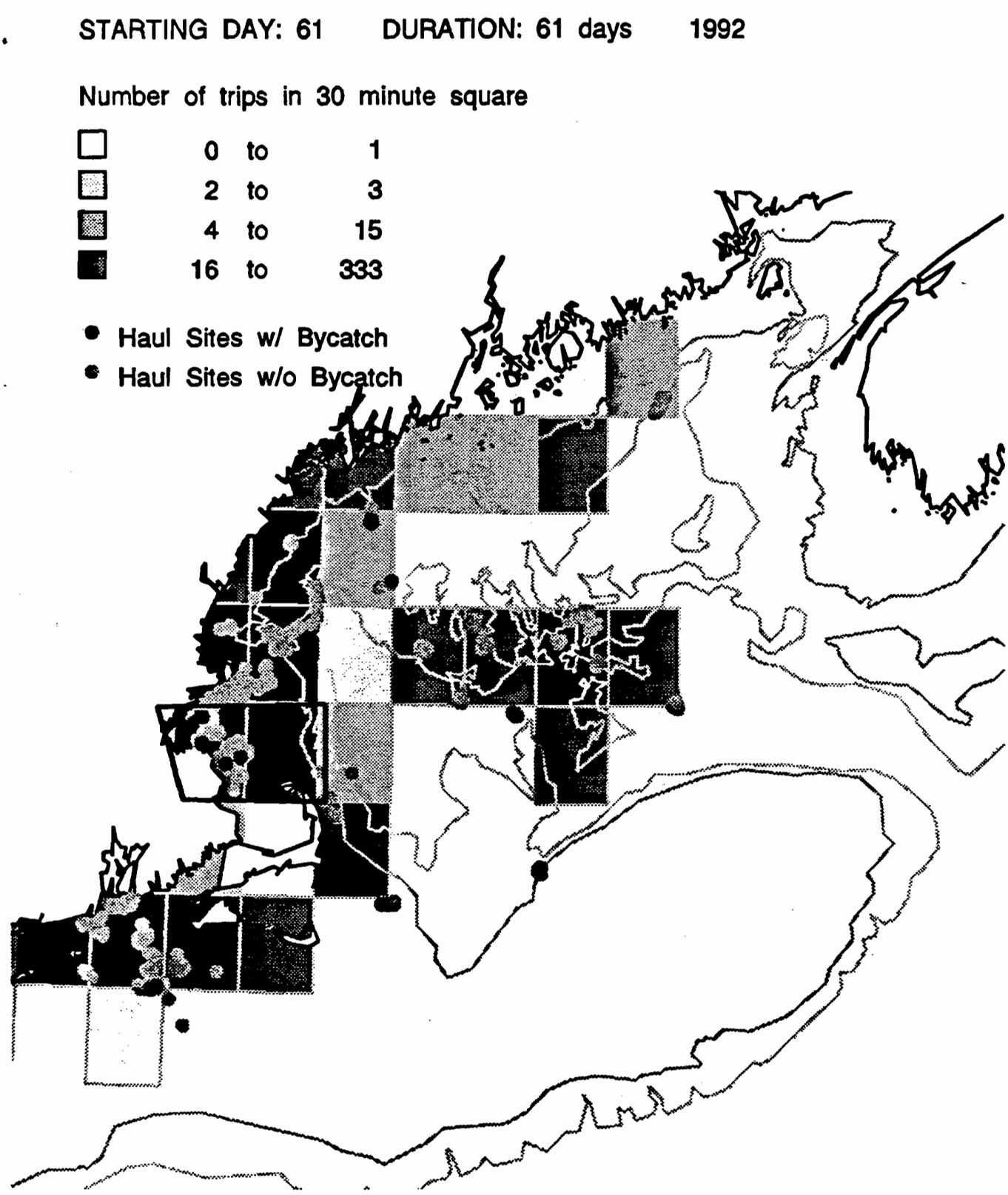


Figure 2b. Spatial distribution of gill net trips by 30-minute square (shaded), and location of sea sample haul sites (light dots) and harbor porpoise by-catch (dark dots) in 1992.

Outlined Area: Mass. Bay Season: March-April

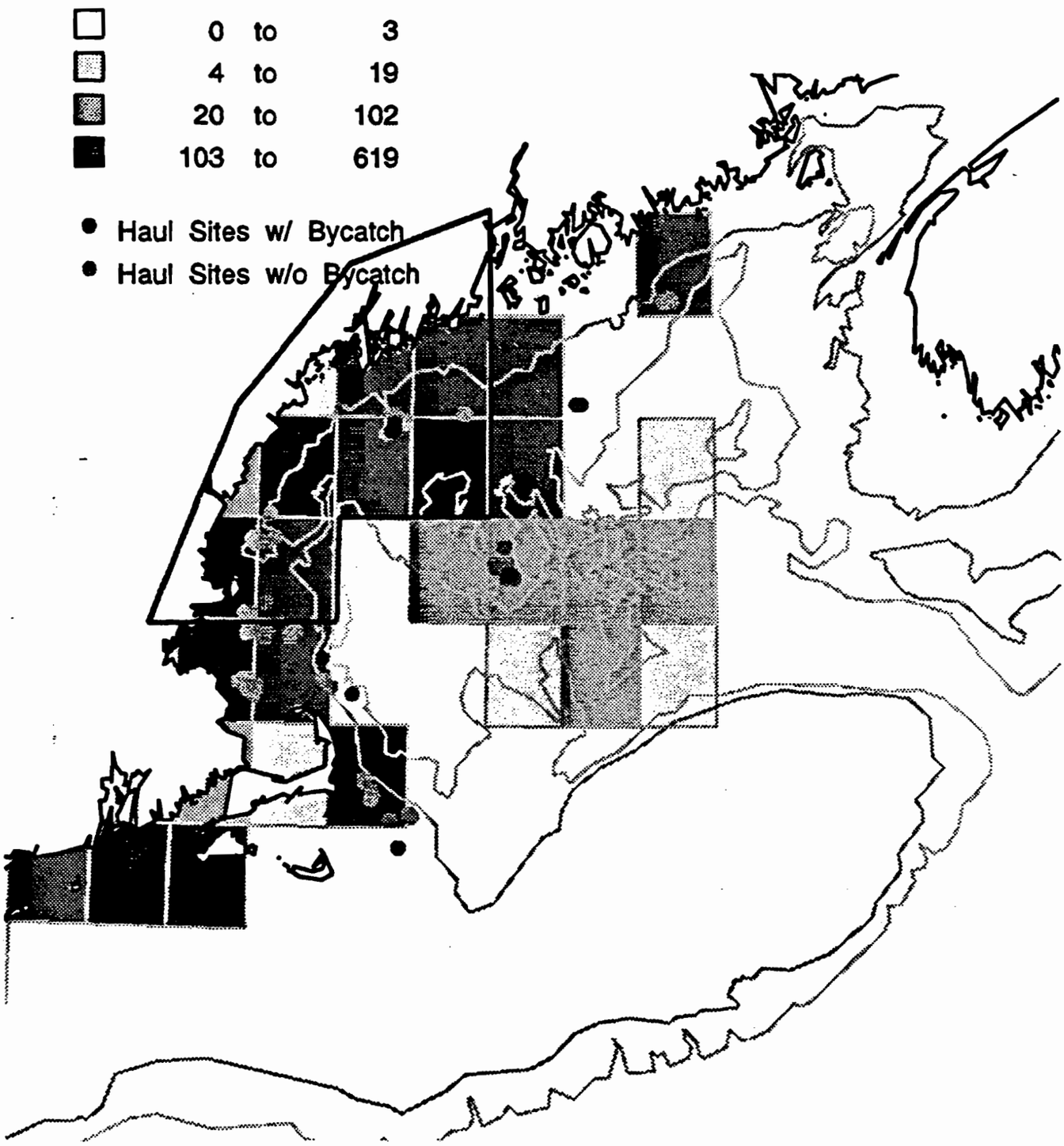


Figure 3a. Spatial distribution of gill net trips by 30 minute square (shaded), and location of sea sample haul sites (light dots) and harbor porpoise by-catch (dark dots) in 1991.

Outlined Area: Mid-coast (Cape Ann to Penobscot Bay)
Season: April-May

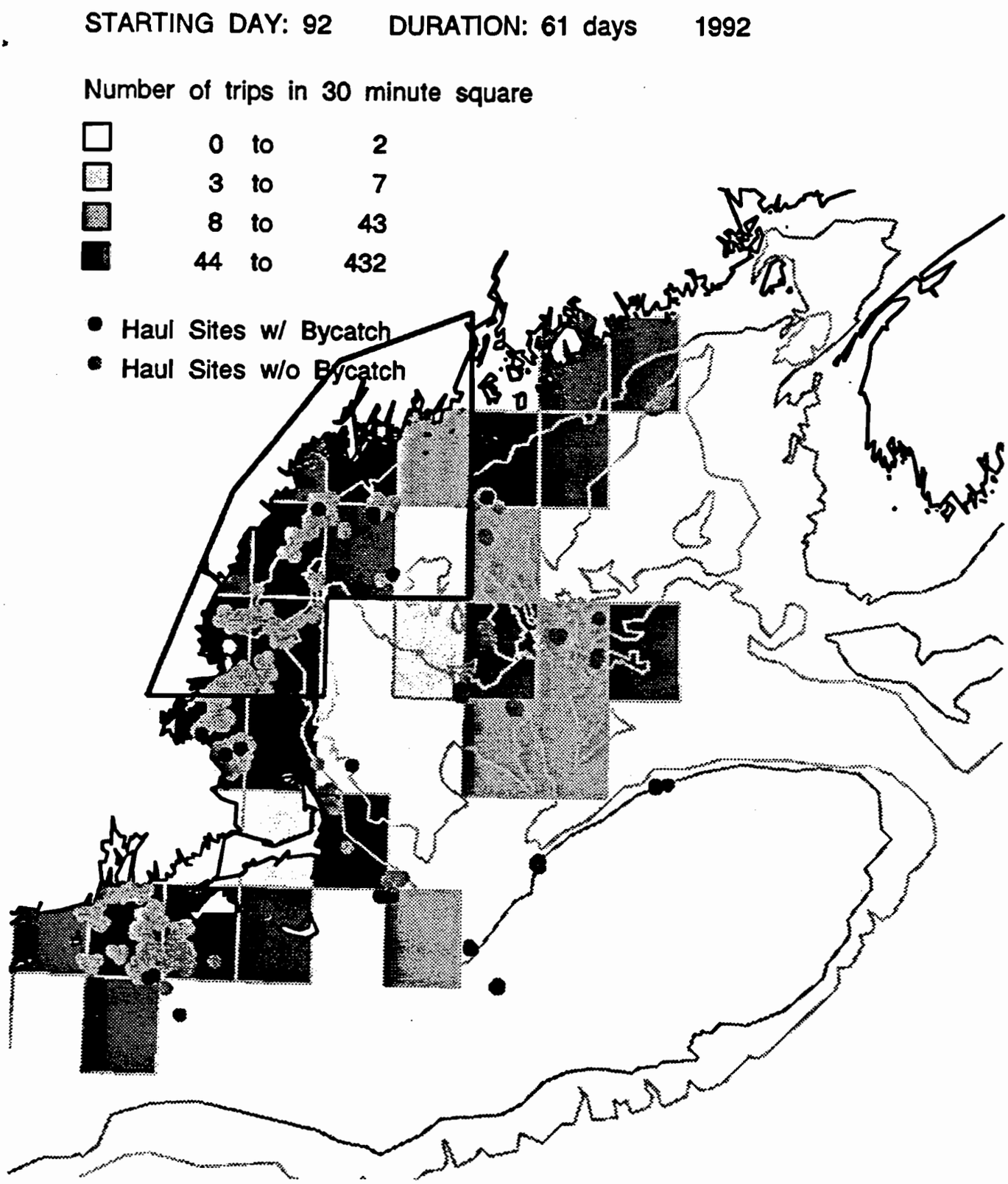


Figure 3b. Spatial distribution of gill net trips by 30 minute square (shaded), and location of sea sample haul sites (light dots) and harbor porpoise by-catch (dark dots) in 1992.

Outlined Area: Mid-coast (Cape Ann to Penobscot Bay)
Season: April-May

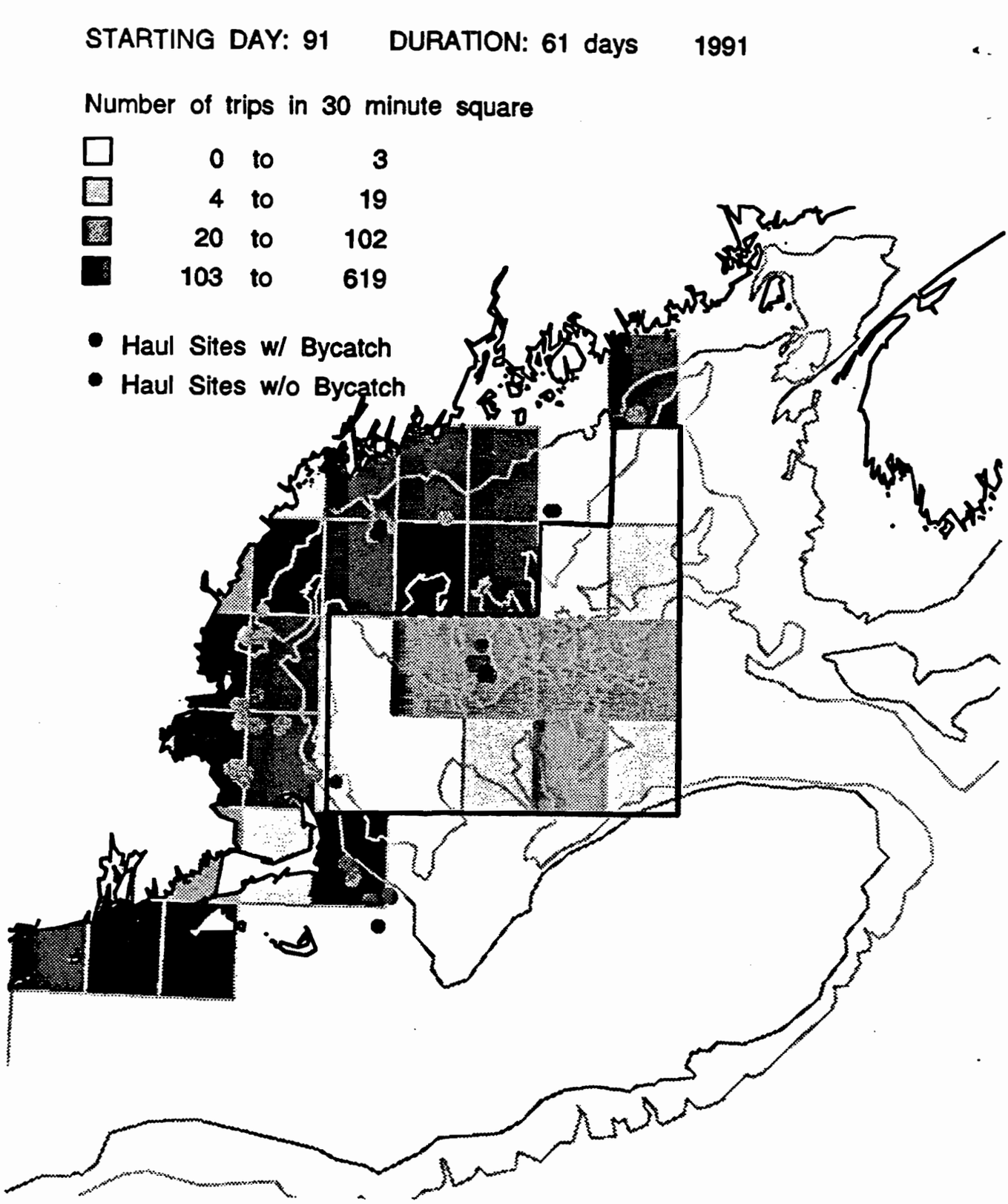


Figure 4a. Spatial distribution of gill net trips by 30 minute square (shaded), and location of sea sample haul sites (light dots) and harbor porpoise by-catch (dark dots) in 1991.

Outlined Area: Offshore (Central Gulf of Maine)
Season: April-May

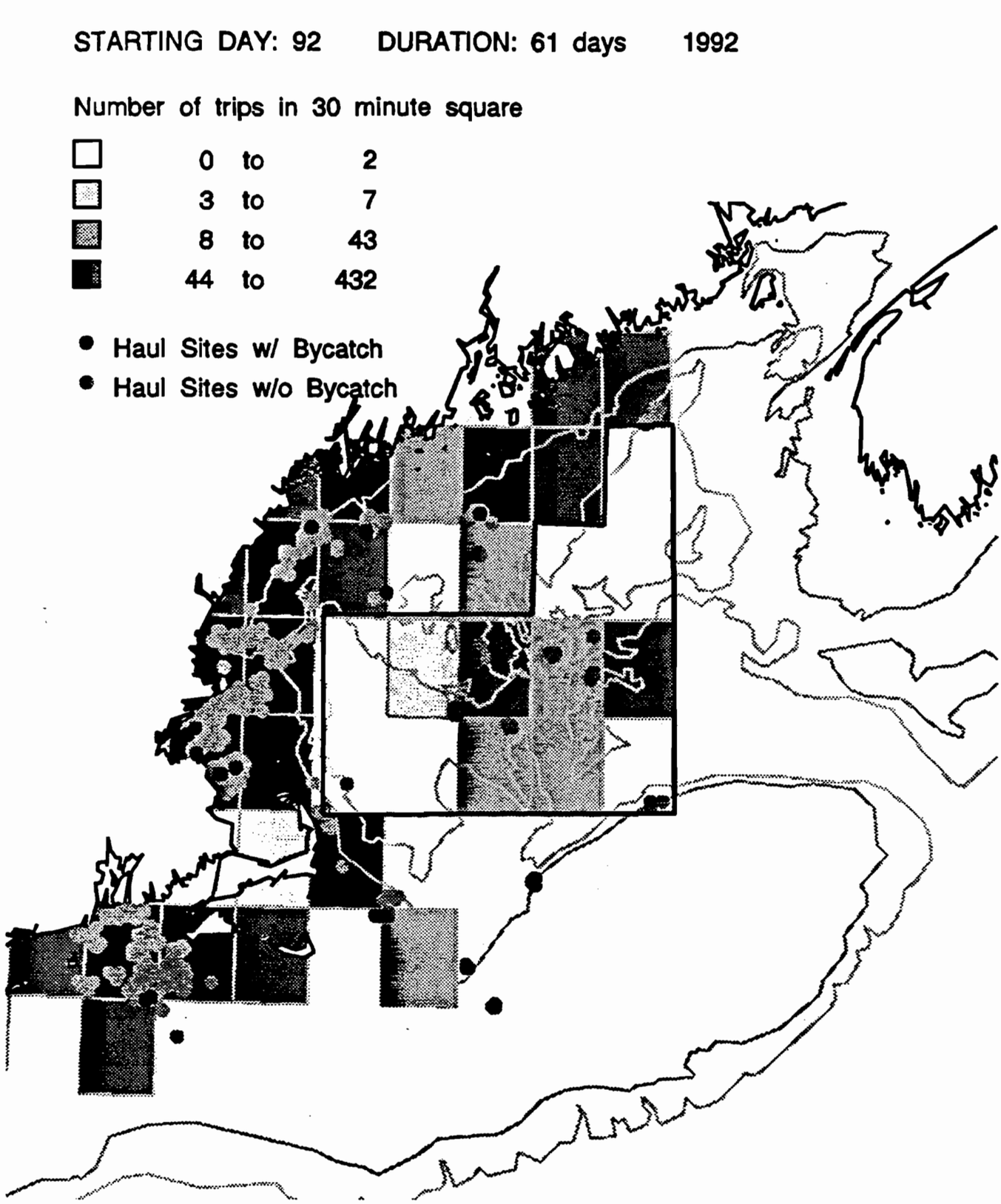


Figure 4b. Spatial distribution of gill net trips by 30 minute square (shaded), and location of sea sample haul sites (light dots) and harbor porpoise by-catch (dark spots) in 1992.

Outlined Area: Offshore (Central Gulf of Maine)
Season: April-May

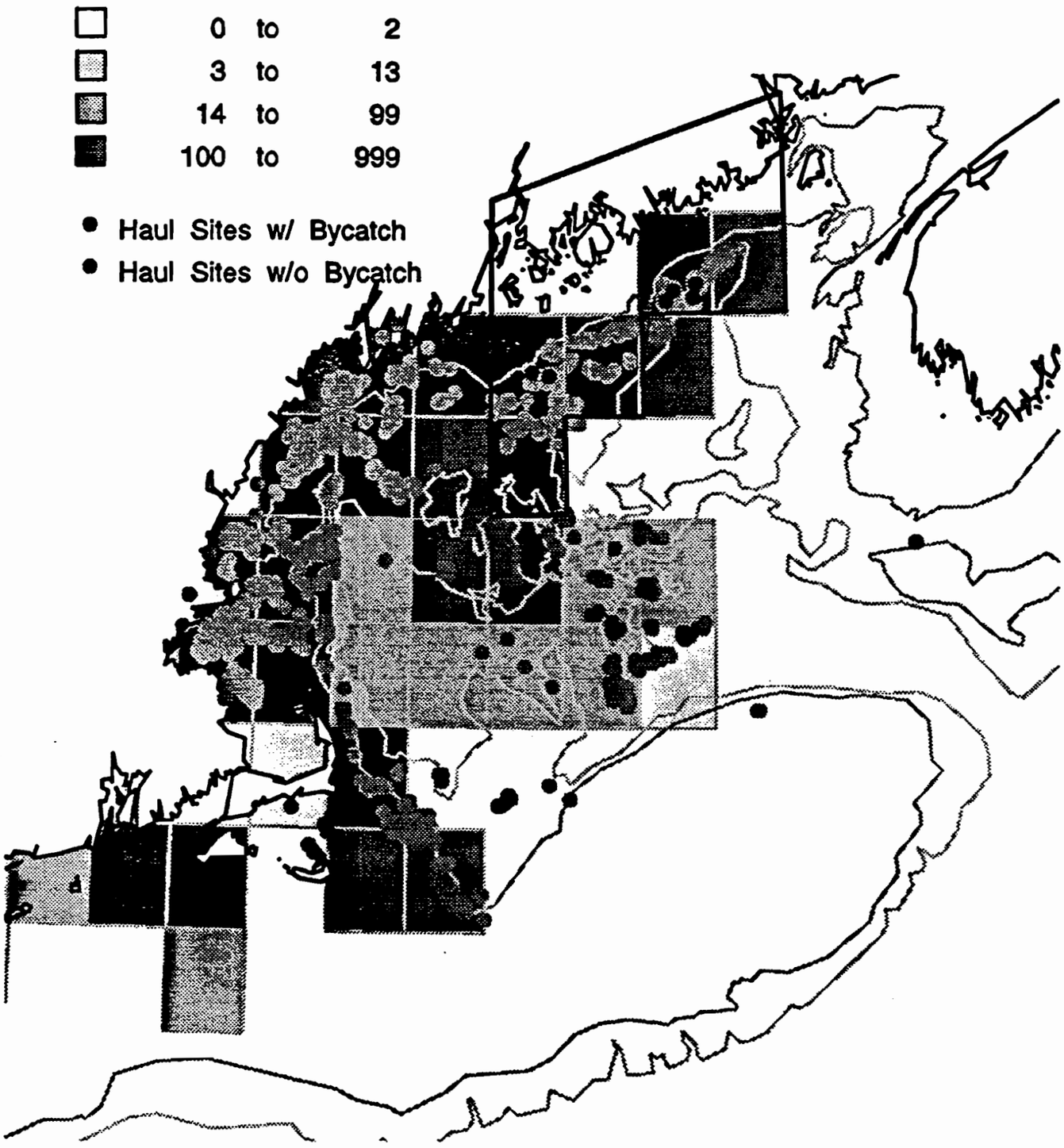


Figure 5a. Spatial distribution of gill net trips by 30 minute square (shaded), and location of sea sample haul sites (light dots) and harbor porpoise by-catch (dark dots) in 1991.

Outlined Area: Northeast (Penobscot Bay to Eastport, Maine)
Season: June-September

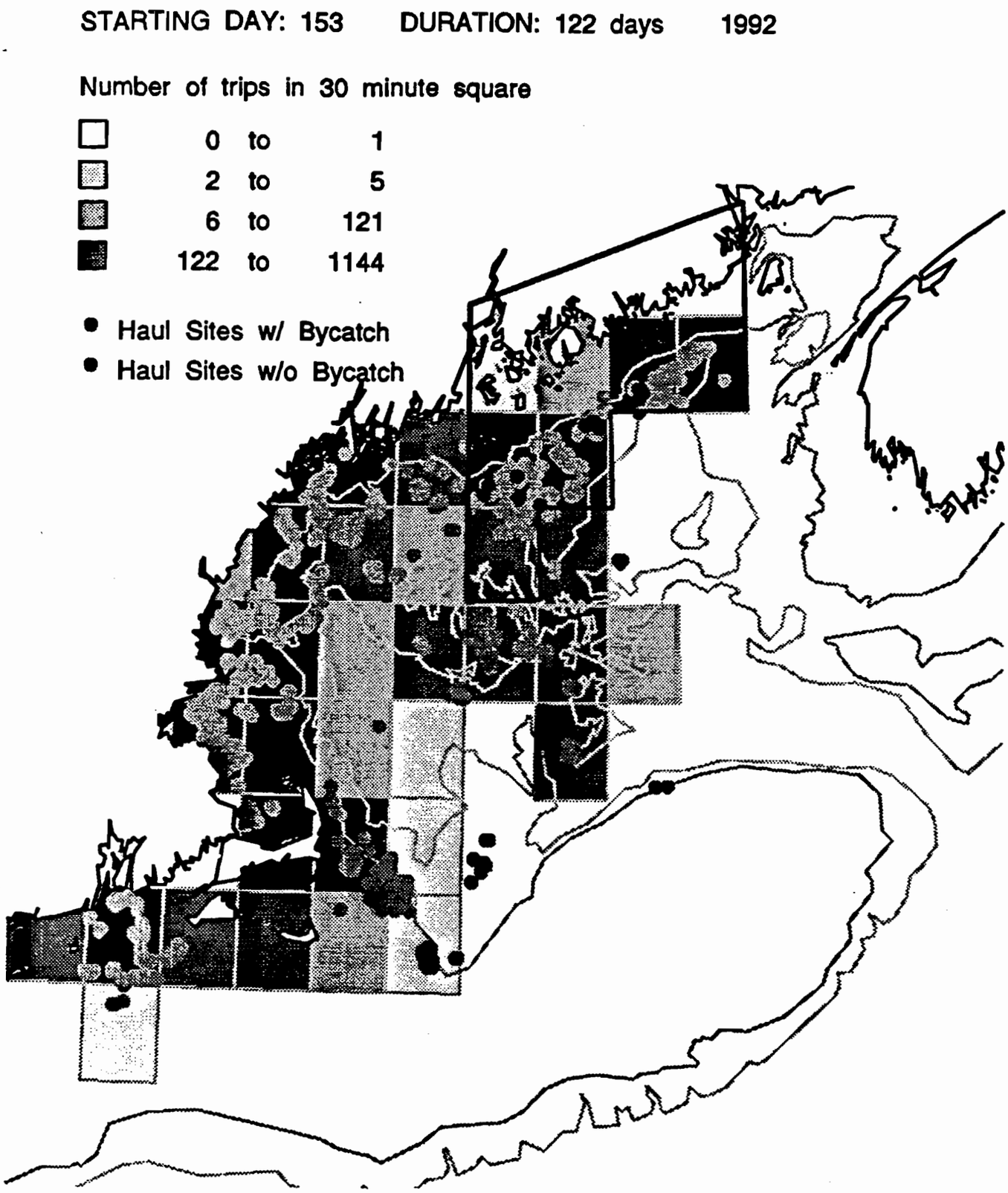


Figure 5b. Spatial distribution of gill net trips by 30 minute square (shaded), and location of sea sample haul sites (light dots) and harbor porpoise by-catch (dark dots) in 1992.

Outlined Area: Northeast (Penobscot Bay to Eastport, Maine)
Season: June-September

STARTING DAY: 274 DURATION: 92 days 1991

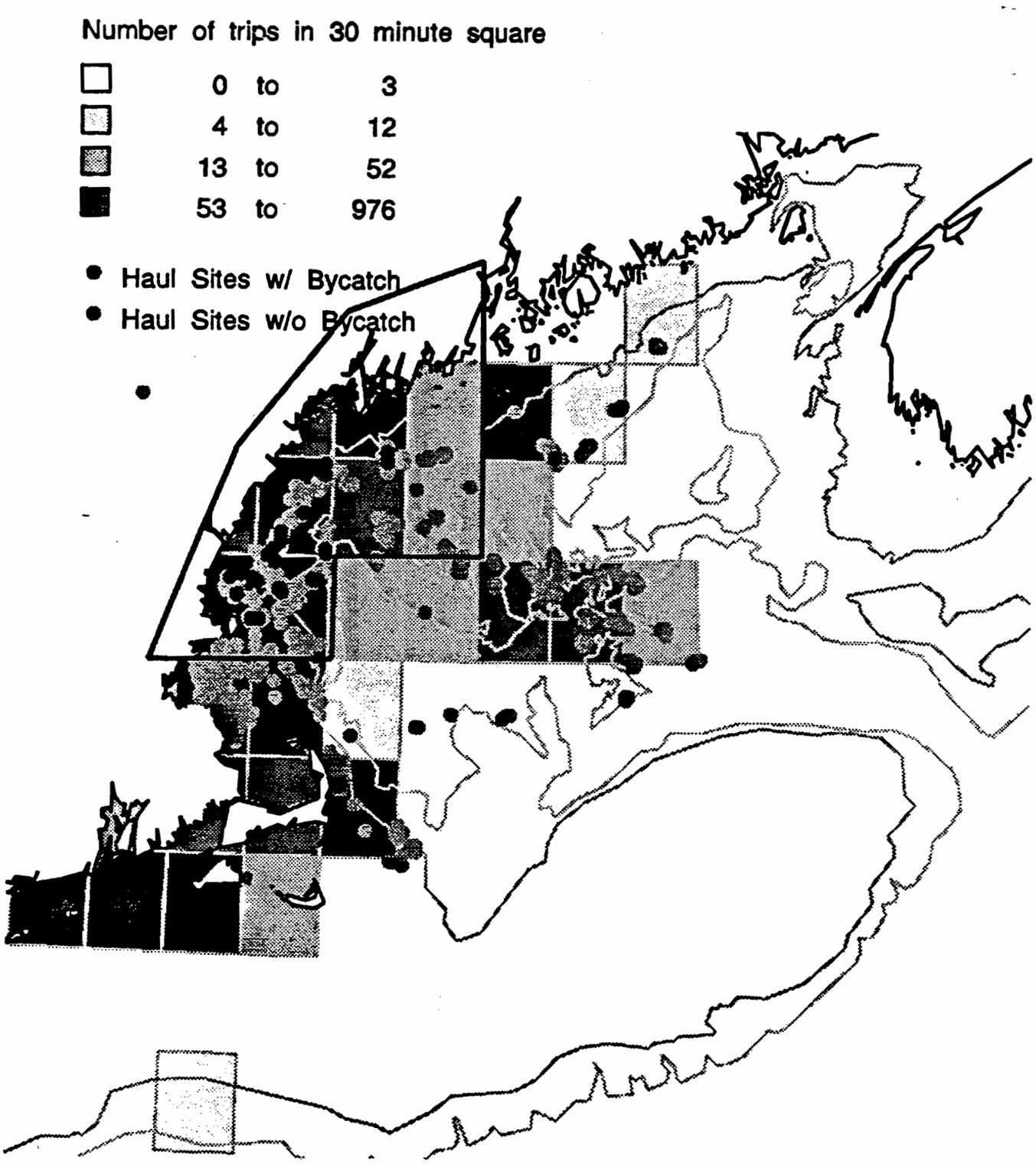


Figure 6a. Spatial distribution of gill net trips by 30 minute square (shaded), and location of sea sample haul sites (light dots) and harbor porpoise by-catch (dark dots) in 1991.

Outlined Area: Mid-coast (Cape Ann to Penobscot Bay)
Season: October-December

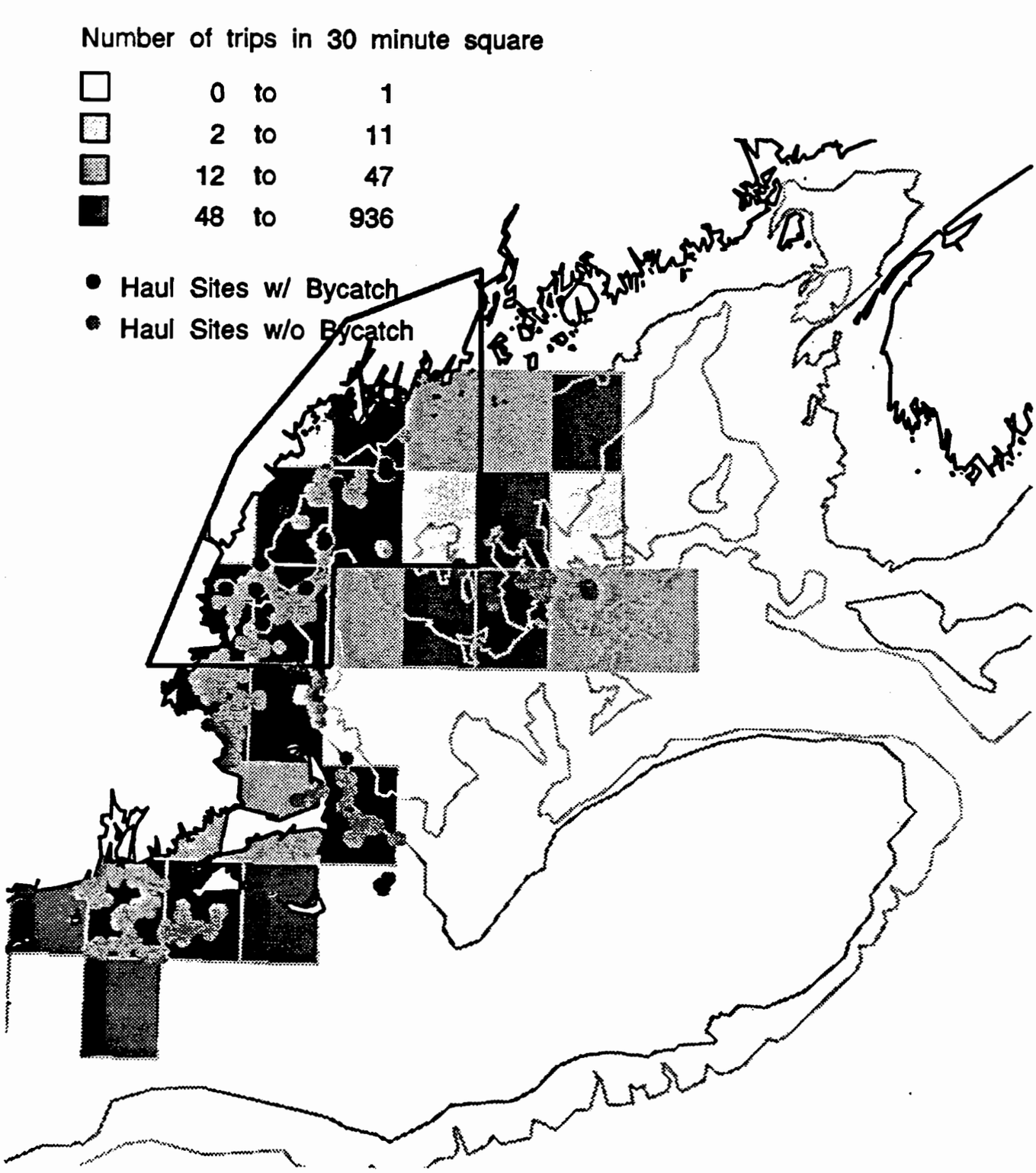


Figure 6b. Spatial distribution of gill net trips by 30 minute square (shaded), and location of sea sample haul sites (light dots) and harbor porpoise by-catch (dark dots) in 1992.

Outlined Area: Mid-coast (Cape Ann to Penobscot Bay)
Season: October-December

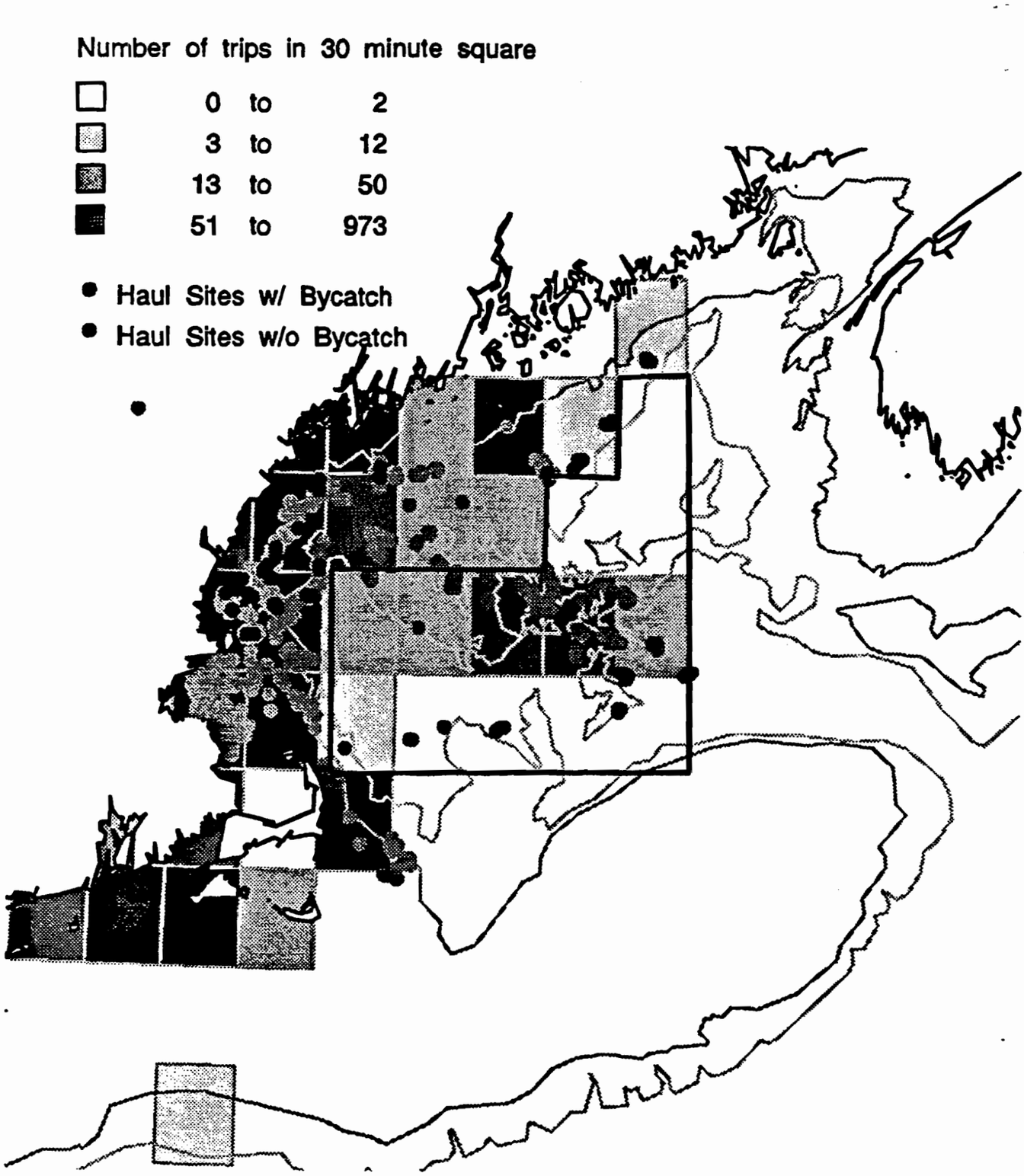


Figure 7a. Spatial distribution of gill net trips by 30 minute square (shaded), and location of sea sample haul sites (light dots) and harbor porpoise by-catch (dark dots) in 1991.

Outlined Area: Offshore (Central Gulf of Maine)
Season: October-December

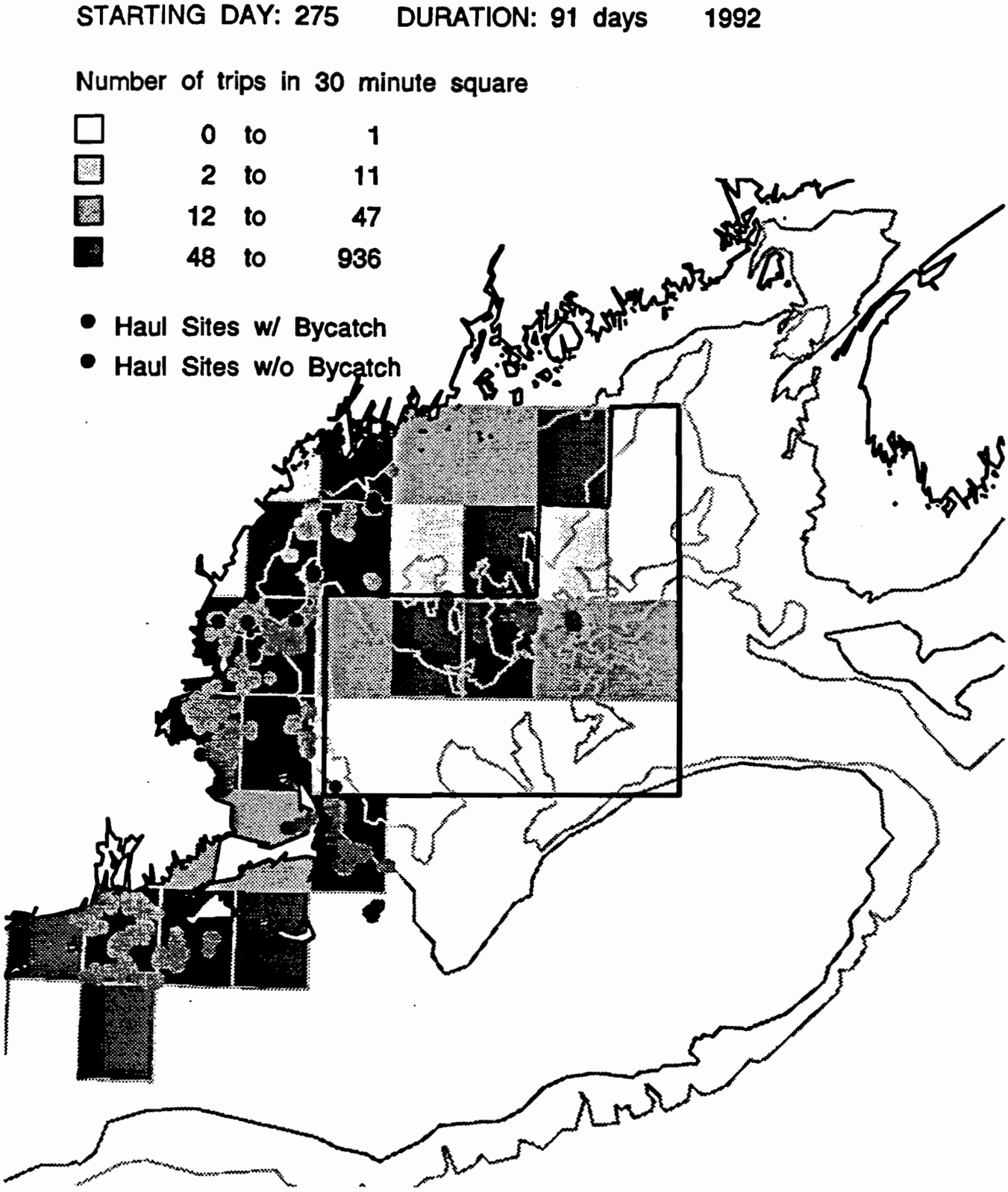


Figure 7b. Spatial distribution of gill net trips by 30 minute square (shaded), and location of sea sample haul sites (light dots) and harbor porpoise by-catch (dark dots) in 1992.

Outlined Area: Offshore (Central Gulf of Maine)
Season: October-December

B.

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Northeast Fisheries Science Center
166 Water Streat
Woods Hole, MA 02543-1097

March 7, 1994

MEMORANDUM FOR: Richard B. Roe
Northeast Regional Director

FROM: Allen E. Peterson, Jr.
Science and Research Director

SUBJECT: Analysis of proposed closed areas and seasons

The proposal for the closed areas and seasons has been developed with considerable interaction between NEFSC staff and NEFMC staff, and reflects a sound analysis of the available information on by-catch rates and fishing effort. The computations to estimate the effect of the closures were done using the SWANTRACKS software developed here over the past year, and provide a reasonable estimate of the range of potential effects assuming that the fishing activity which would have occurred is displaced either entirely or to areas and times where the porpoise by-catch rate is zero.

The specific areas proposed here are somewhat smaller than areas suggested last summer using the same approach, and may not achieve the desired results. Our reservations are expressed in Tim Smith's February 14 memo to Pat Fiorelli (attached). We would suggest that earlier results for the larger areas be reviewed in whatever public hearings are planned so that the groundwork is properly laid. Further, the proposal as we have it does not specifically include information on what closures might look like in successive years. This is a problem in the event that the closures do not achieve the planned reduction. We have some concerns as outlined in detail in the attached memorandum because the smaller areas might allow displacement into areas with non-zero porpoise by-catch rates. The question of subsequent years is also a problem in that greater reductions in the total by-catch may be required to meet requirements under the MMPA and the ESA. We do not have specific advice on how the closures might be adjusted in the future, as the best approach would depend on the specific goals of the NEFMC.

Attachments

cc: Clark, S.
Smith, Terry
Smith, Tim

14 February 1994

MEMORANDUM FOR: Patricia M. Fiorelli
NEFMC

FROM: Tim Smith
Marine Mammals Sub-group of the Planning Development Team

SUBJECT: Comments on the Harbor Porpoise Take Reduction Measures memo from February 10, 1994

The concept of using time/area closures in the Gulf of Maine sink gillnet fisheries to reduce by-catch of harbor porpoises is a workable method. However, small closure areas may present problems. In general, as the size of a closure area decreases, the difference between the anticipated harbor porpoise by-catch reduction and reduction actually achieved will likely increase. Thus, when using the proposed time periods and smaller closure areas, the risk of falling short of the desired amount of by-catch reduction increases. The proposed time periods and lengths seem reasonable.

Three factors which are involved in why the anticipated by-catch may not be achieved when using the smaller proposed closure areas are:

1) because the small proposed areas are within the usual harbor porpoise habitat, harbor porpoises are found outside the closed areas within the specified time periods;
2) some fishing effort that was within the closed areas will be displaced to open areas where porpoises reside;
3) there is a high inter-annual spatial variability in the porpoise distribution.

Unfortunately, the interaction between these factors may result in the amount of addition by-catch increasing disproportionately to the change in area, as a closure area become smaller. Evidence for, the consequences of, and the possible effects of the interaction between these three factors are discussed below.

Evidence of porpoises outside the closed areas:
Porpoises occur outside the proposed small Northeast closure area within the August 15 to September 15 time period. This was documented during sighting surveys performed in August by the NMFS/Northeast Fisheries Science Center. Figures 1 and 2 illustrate that harbor porpoises are found outside the 50 fathom line, which is close to the now proposed outer boundary of the Northeast closure area.

During the November closure time period, harbor porpoises have consistently been seen during

aerial sighting surveys in waters between Jeffreys and Cashes Ledges and on the outside of Cape Cod (Figure 3). These sighting are located in the Offshore, Z-band and in an unnamed region (using the names that were given in the Feb. 10, 1994 memo). The proposed outer boundary of the closure area is within the normal habitat of the harbor porpoises.

During the April 15 to May 15 closure period, harbor porpoises have been seen spread out from Long Island to the Canadian border and beyond (Figure 4).

Consequences of displaced fishing effort:

If fishing effort that used to be in the Northeast closure area is displaced to the area immediately adjacent to the closure boundary, then the number of interactions between harbor porpoises and gillnets may increase over that seen in the adjacent area during the past. Thus, even if the by-catch rate in the open areas which have harbor porpoises is the same as that seen in the past, because the number of nets increase, the number of harbor porpoises caught will also increase. The same thing could occur when the Midcoast area is closed and potentially new and under-utilized fishing grounds in the Z-band and Offshore area are opened to higher fishing effort. Likewise, if the fishing effort in the proposed Mass. Bay closure time/area is reduced and some of that effort is displaced to, say around Cape Ann, then the by-catch during this time period could be as high as that seen in the past.

Some areas which, in the past, were not heavily fished may be used in the future. However, because they were not fished, the number of trips observed by the Sea Sampling Program is small or nonexistent. Therefore, the by-catch rate in these new or under-utilized areas is uncertain. This makes it difficult to predict the effects of displaced fishing effort. However, what can be predicted is the by-catch that what would have happened in the past if various percentages of hauls made in the Midcoast area had moved to the Z-band during the month of November in 1991 and 1992. This has been done using data from the Sea Sampling and Weighout datasets. As a caution, because during the fall closure time, areas adjacent to the Z-band also have harbor porpoises, it is conceivable this concept applies not only to the region within the Z-band but also to other areas.

The predicted by-catch estimates were made by multiplying the observed by-catch rate in the Z-band to the number of additional hauls that are hypothesized to move into the Z-band. This product is an estimate of the number of additional by-caught animals. These additional by-caught animals are then added to the number of by-caught animals that were originally in the Z-band. This sum is the predicted number of by-caught animals, under the fishing restrictions, if the specified number of hauls had moved into the Z-band area. When this sum is divided by the number of actual by-caught animals observed during the whole year in the Gulf of Maine, the percentages in Table 1 are produced. The observed by-catch rate in the Z-band during 1991 was 0.050 porpoises/haul and during 1992 it was 0.0286. The observed by-catch rate in the Midcoast area was 0.099 and 0.0280 during 1991 and 1992, respectively. Because the actual number of hauls that might move from the closed Midcoast area to the open Z-band area is unknown, the whole spectrum was investigated. Table 1 reports the resulting percentage of by-catch when 0, 10%, 30%, 50%, 70%, 90% and 100% of the hauls moved. Thus, if nobody

from the Midcoast area moved to the Z-band area, but instead moved to an area in which no porpoises were caught, then 8% and 7% of the annual by-catch would of been caught in the entire Midcoast and Z-band area during 1991 and 1992, respectively. This is what was actually observed in the Z-band. At the other extreme, if all those in the Midcoast area had moved to the Z-band area, then the by-catch would of been 25% and 22% for 1991 and 1992, respectively. For comparison, the actual percentage of by-catch in the combined Midcoast and Z-band area for 1991 and 1992 were 47% and 21%, respectively. Other percentages of movement are reported in Table 1. These calculations indicate that, even though a large area of the fishing ground was closed and the open area had a lower by-catch rate than that inside the closed area (at least for 1991), the by-catch was still high.

Effect of spatial variability:

To compound the effect of displaced fishing effort, for any time period, the harbor porpoise distribution varies spatially. This is evident by the locations of caught porpoises in 1991 versus 1992 (as seen in the plots in the February 10, 1994 memo) and by the locations of porpoises seen during sighting surveys. Because the proposed closure areas are inside the usual habitat and do not encompass most of the usual habitat, the effect of the spatial variability on the future by-catch is additive to the effect of displaced fishing effort. That is, due to the spatial variability, there will be future years when the by-catch rate outside the closed area will be higher than that seen in the past. So, if the number of hauls outside the closed area also increased, due to displaced fishing effort, then the result would be a by-catch higher than that seen in the past. On the other hand, it is also possible that the future by-catch rate outside the closed area is lower than that seen in the past. But if the number of hauls outside are higher than that seen in the past, then the resulting by-catch will be some intermediate value. In conclusion, one way to incorporate this natural spatial variability and to insure a reduced future by-catch is to use large areas in the closure scheme.

In summary, the effect of using the smaller proposed closure areas is that the anticipated by-catch reduction may not be achieved and there is a risk that future by-catch estimates will be high. How high depends on the amount of displaced fishing effort into areas where porpoises reside and the natural variability of the porpoise distribution.

Table 1

Predicted percentages of by-caught harbor porpoises with respect to the amount from the entire year for the Gulf of Maine when various percentages of the hauls made in the Midcoast area move to the Z-band area.

Percentage of hauls from Midcoast that moved to the Z-band area	Predicted percentage of by-caught harbor porpoises	
	1991	1992
0	8.3	7.1
10	10.0	8.6
30	13.4	11.6
50	16.8	14.6
70	20.2	17.6
90	23.6	20.5
100	25.3	22.0

FIGURE 1

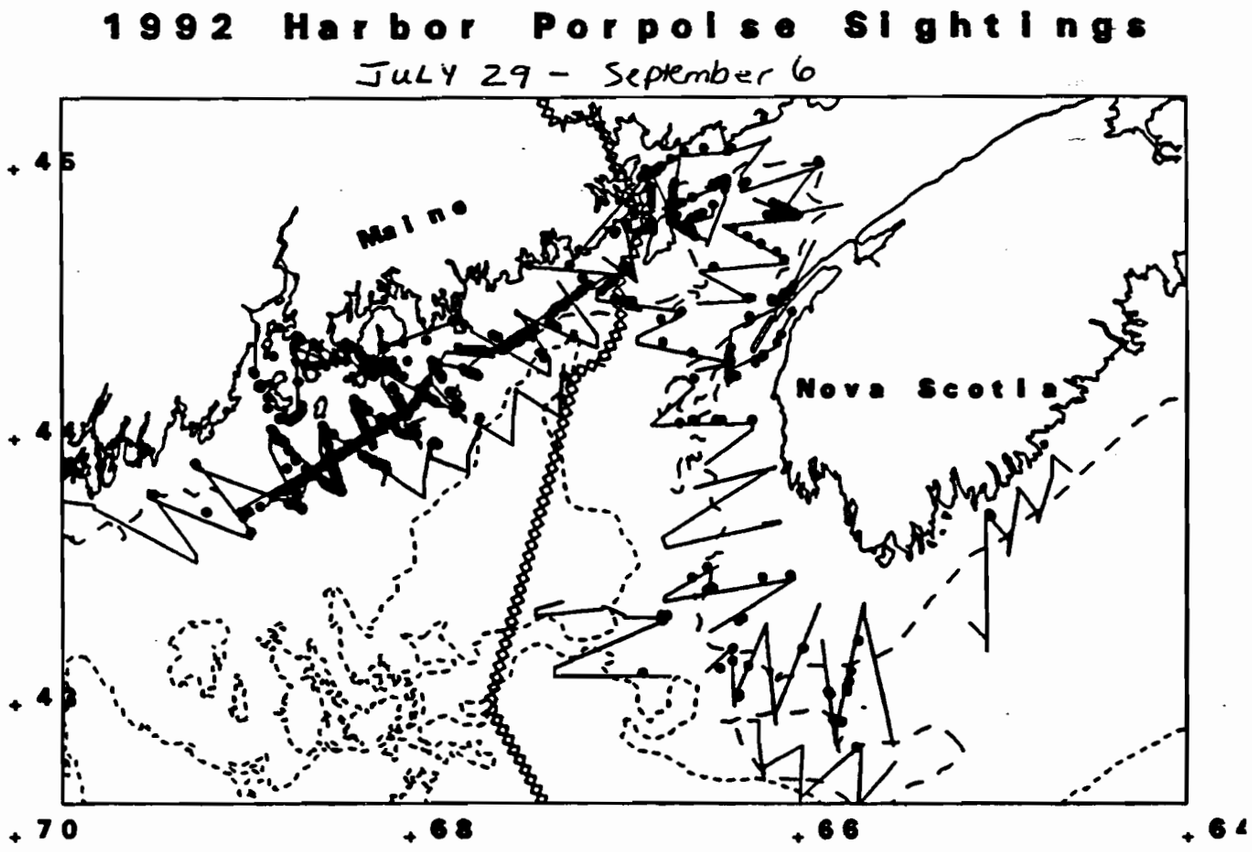

1992 Harbor Porpoise Sightings
JULY 29 - September 6
Maine
Nova Scotia
+45
+44
+43
+70
+68
+66
+64

FIGURE 2

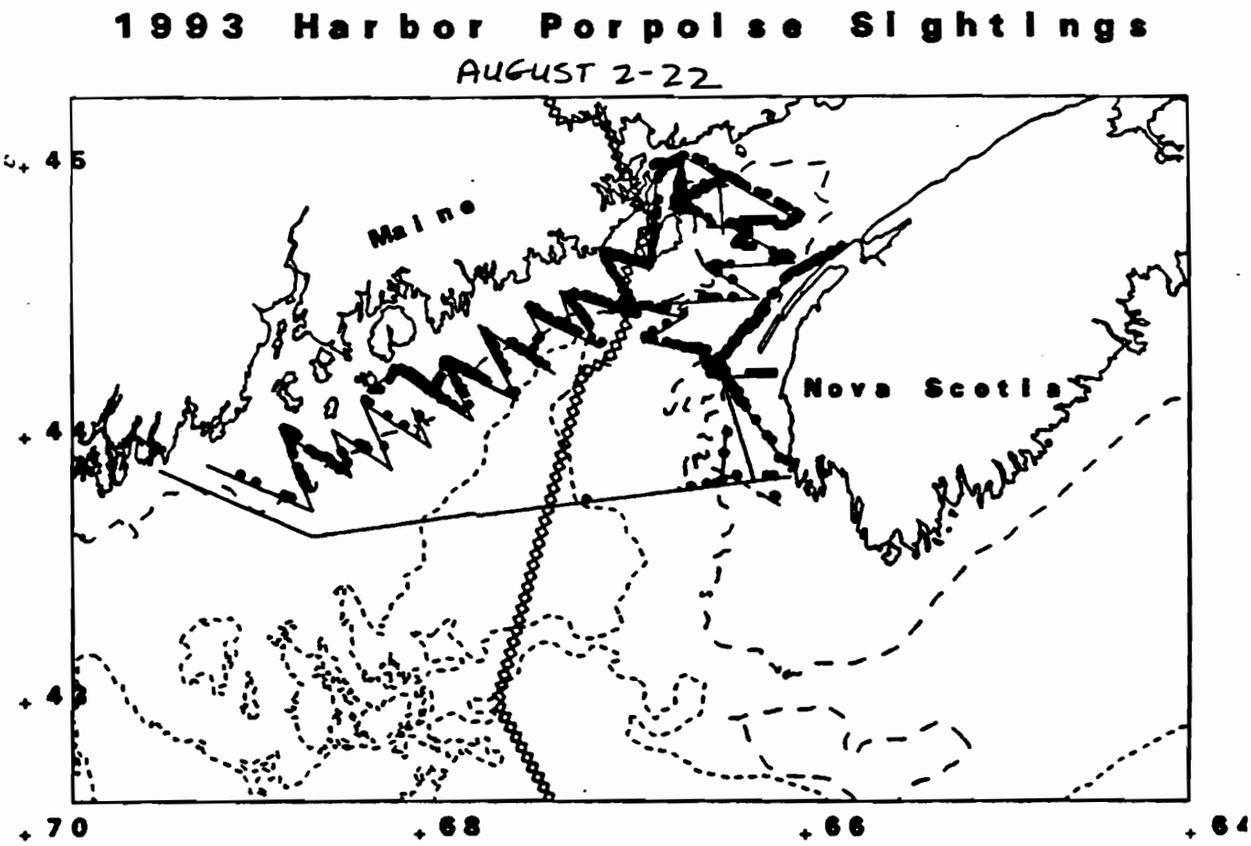

1993 Harbor Porpoise Sightings
AUGUST 2-22
Maine
Nova Scotia
45
70
68
66

FIGURE 2

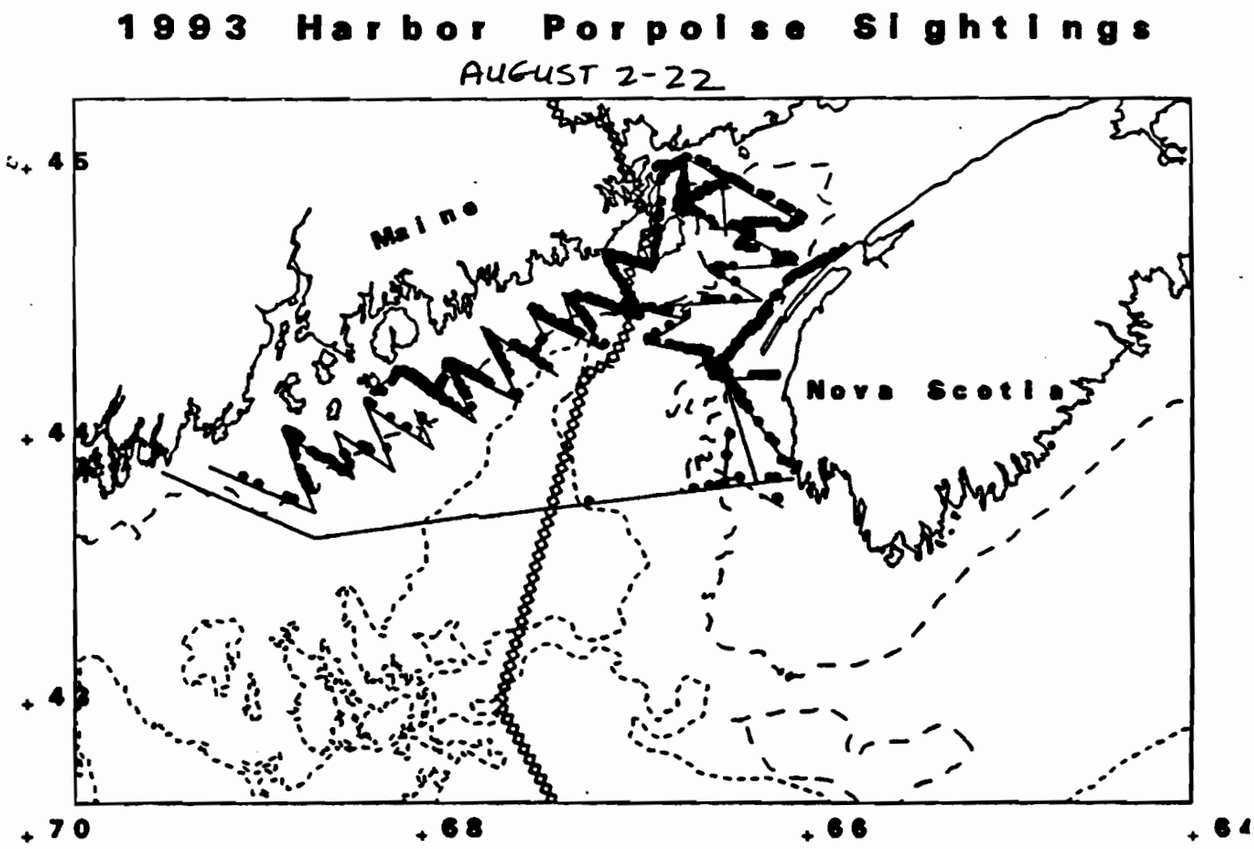

1993 Harbor Porpoise Sightings
AUGUST 2-22
Maine
Nova Scotia
45
70
68
66

FIGURE 3

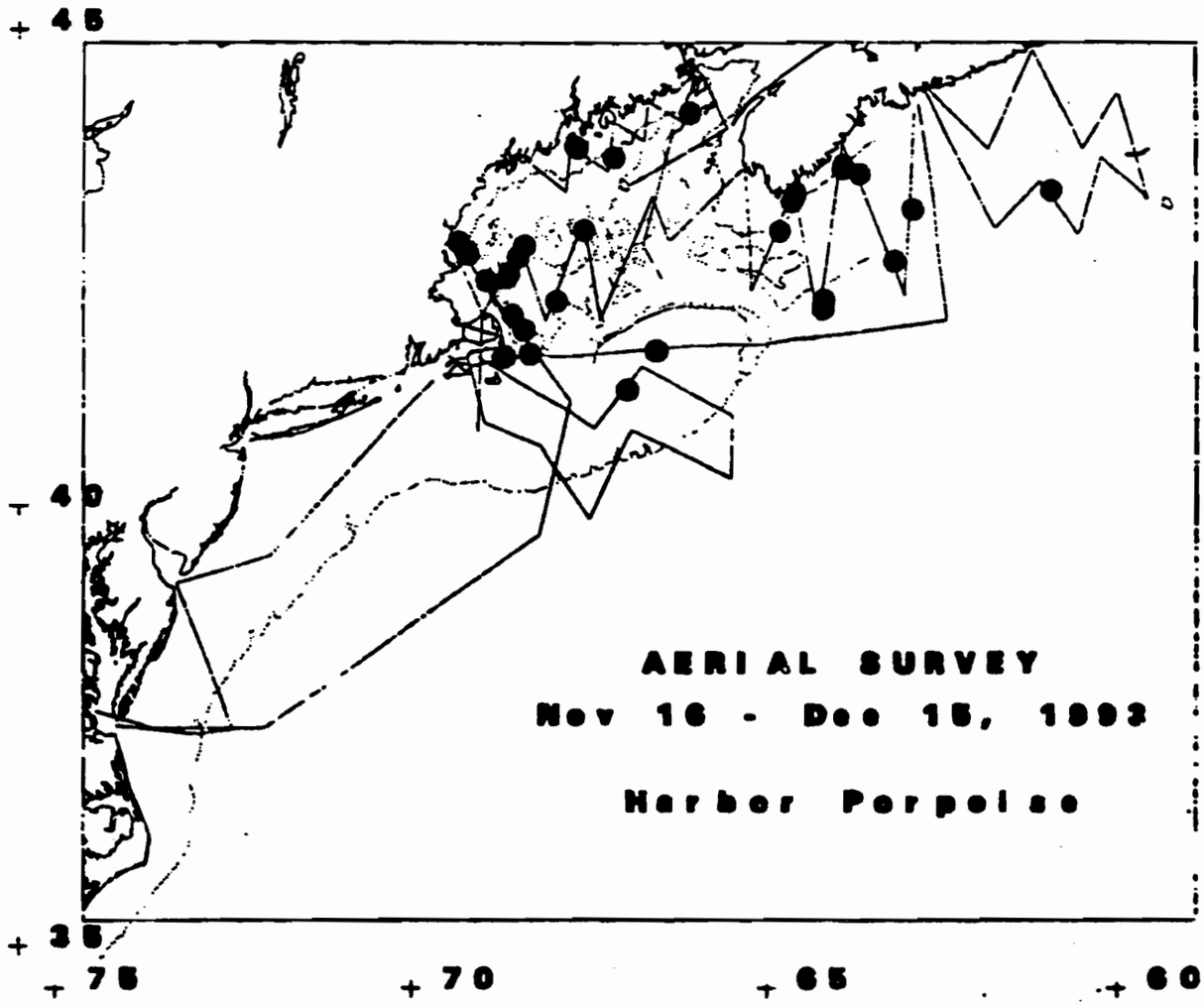
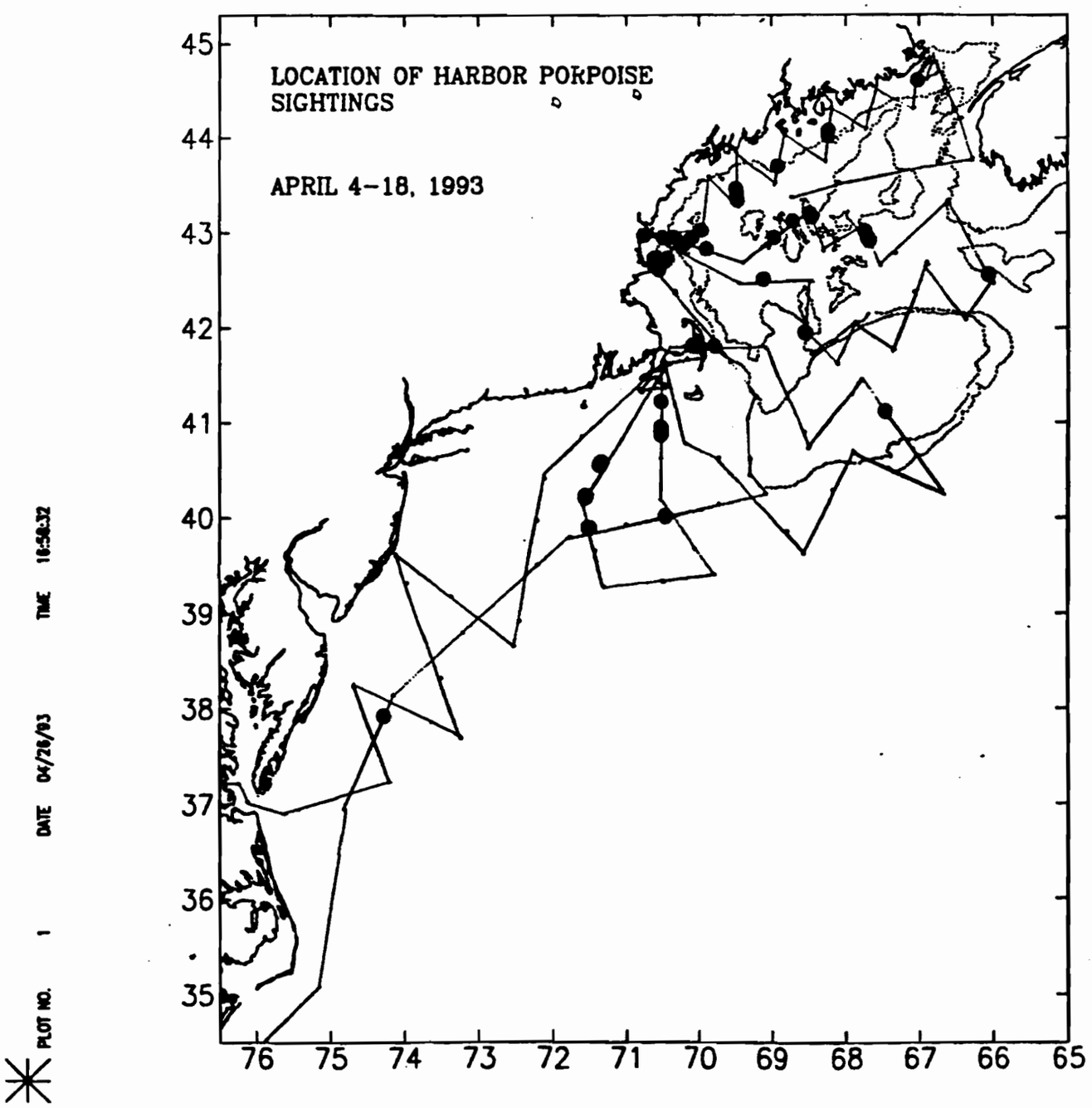

45
40
35
75
70
65
60
AERIAL SURVEY
Nov 16 - Dec 15, 1993
Harbor Porpoise

FIGURE 4


LOCATION OF HARBOR PORPOISE
SIGHTINGS
APRIL 4-18, 1993
45
44
43
42
41
40
39
38
37
36
35
76
75
74
73
72
71
70
69
68
67
66
65
PLOT NO. 1
DATE 04/28/93
TIME 16:58:32

C.

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Northeast Fisheries Science Center
166 Water Street
Woods Hole, MA 02543-1097

March 29, 1994

Douglas G. Marshall, Executive Director
New England Fishery Management Council
5 Broadway
Saugus, MA 01906-1097

Dear Doug:

In a letter dated March 24, 1994 you requested that two analyses be conducted. This memo summarizes the results of those analyses.

1. "Evaluate the porpoise takes and gillnet effort in the Mass. Bay area, using the sea sampler database to determine the optimal 30 day closure period to accomplish a potential reduction in the marine mammal bycatch."

For clarification, the Mass. Bay proposed closure area is within latitudes 42'00 and 42'30 and within longitudes 70'00 and 71'00. The previously proposed closure time period was March 20 to April 20.

Within the time period of January 1 to May 31 and within the Mass. Bay area, there were 14 harbor porpoises caught during observed sea sampled trips during 1990 to 1993 - 4 in 1990, 2 in 1991, 6 in 1992 and 2 in 1993 (Table 1). All the animals were caught between the 5th and 17th week of the year, none in May. There is evidence of inter-annual variability: animals caught in 1991 were caught early in the 5-17 week time period, animals from 1992 were caught late, while animals from 1990 and 1993 were caught in the middle of the time period.

To determine properly the optimal closure period that accomplishes a reduction in marine mammal by-catch, it is necessary to use the sea sampling data to obtain an estimate of by-catch per ton of landed fish and to use the weighout data to obtain the total tons of fish landed from the area corresponding to that in which the by-catch rate was taken from. Multiplying these two numbers results in the estimated total number of by-caught animals. If this total number is calculated on a weekly basis, then the 4 sequential weeks with the highest sum would be the optimal closure period.

Unfortunately, this analysis cannot be performed because the weighout data are not accurate on a weekly basis. The next best thing that can be done is to use weekly by-catch rates from the sea sampling data, and pro-rate weighout monthly total tons of landed fish from statistical area 514 evenly throughout the month. An example of the proration scheme is, for the 4-week period January 22 to February 18, the tons of landed fish would be (10/31 days * January's landed fish total) + (18/28 days * February's landed fish total). The monthly total tons of landed fish that were used in this analysis is the average of 1991 and 1992 weighout data from the respective month. To standardize these predicted number of harbor porpoises caught, the percentage of total harbor porpoises caught in 1992 is presented in Table 2.

The sea sampling data indicate that harbor porpoise by-catch per ton of fish landed for a 4-week period is above 0.3 harbor porpoises per ton of fish from Feb 12 to Apr 28 (Table 2, Figure 1). The 4-week period with the highest by-catch rate is Feb 19 - March 17, the second highest is Feb 26 - March 24. Most of the harbor porpoises caught during these time periods were caught in 1990 and 1991, when there was only 1% sea sampling coverage. The effect of observing an animal caught during this low coverage time could cause exaggerated by-catch rates, but it is not known if these rates are exaggerated. By-catch rates estimated from data collected after June 1991 are more reliable because there was 10% coverage during this time period.

The predicted percentage of harbor porpoises caught is a better indicator of which time period is the optimal closure period because this percentage includes information not only on the by-catch rate but also on fishing effort. The predicted percentage of harbor porpoises caught (Table 2, Figure 1), is highest during the 4-week period April 2 - 29. There are 4 consecutive 4-week periods that have a predicted percentage over 3.0. One of these 4-week periods is that time period previously proposed (March 20 to April 20).

Figure 1 illustrates that, though the by-catch rate is high early in the season (February), there is not much fishing effort and so the predicted total number of harbor porpoises caught is not as high as later in the season (March-April), when the by-catch rate is lower than that during February but fishing effort is higher.

2. "If possible, evaluate whether the takes in Mass. Bay occurred in stand-up or tie-down gillnets (used in the spring flounder fishery) and determine whether the kill rates are similar or not."

Of the 14 observed harbor porpoises takes, 12 of them (86%) were caught in nets in which the target species were flounder, while 2 were caught in nets where the target species was Atlantic cod (animals caught on 28 Jan 91 and 26 Mar 93). Of the flounder target species sets, 6 were winter flounder, 4 were yellowtail flounder and 2 were mixed flounder. For all types of flounder target species combined, the number of harbor porpoises caught/ton of fish landed was 0.248. Combining all cod and mixed groundfish target species, the by-catch rate was 0.074. Again, these numbers are from the sea sampling database, and are only for the Mass. Bay area.

Looking at the weighout database for only the months March and April, the majority of reported landed catch were from trips in which the target species was a flounder species. During 1991, 1992 and 1993, according to the weighout database, the percentage of total fish landed from the Mass. Bay area that were from trips where the target species was some type of flounder were 85%, 88% and 43%, respectively.

In conclusion, most of the gillnet fishing trips in the Mass. Bay area during the months of March and April were targeting flounder and most of the harbor porpoises caught were in nets that were targeting flounder.

Sincerely,

Allen E. Peterson, Jr.
Science & Research Director
Northeast Region

cc: Clark, S.
Roe, R.
Smith, Terry

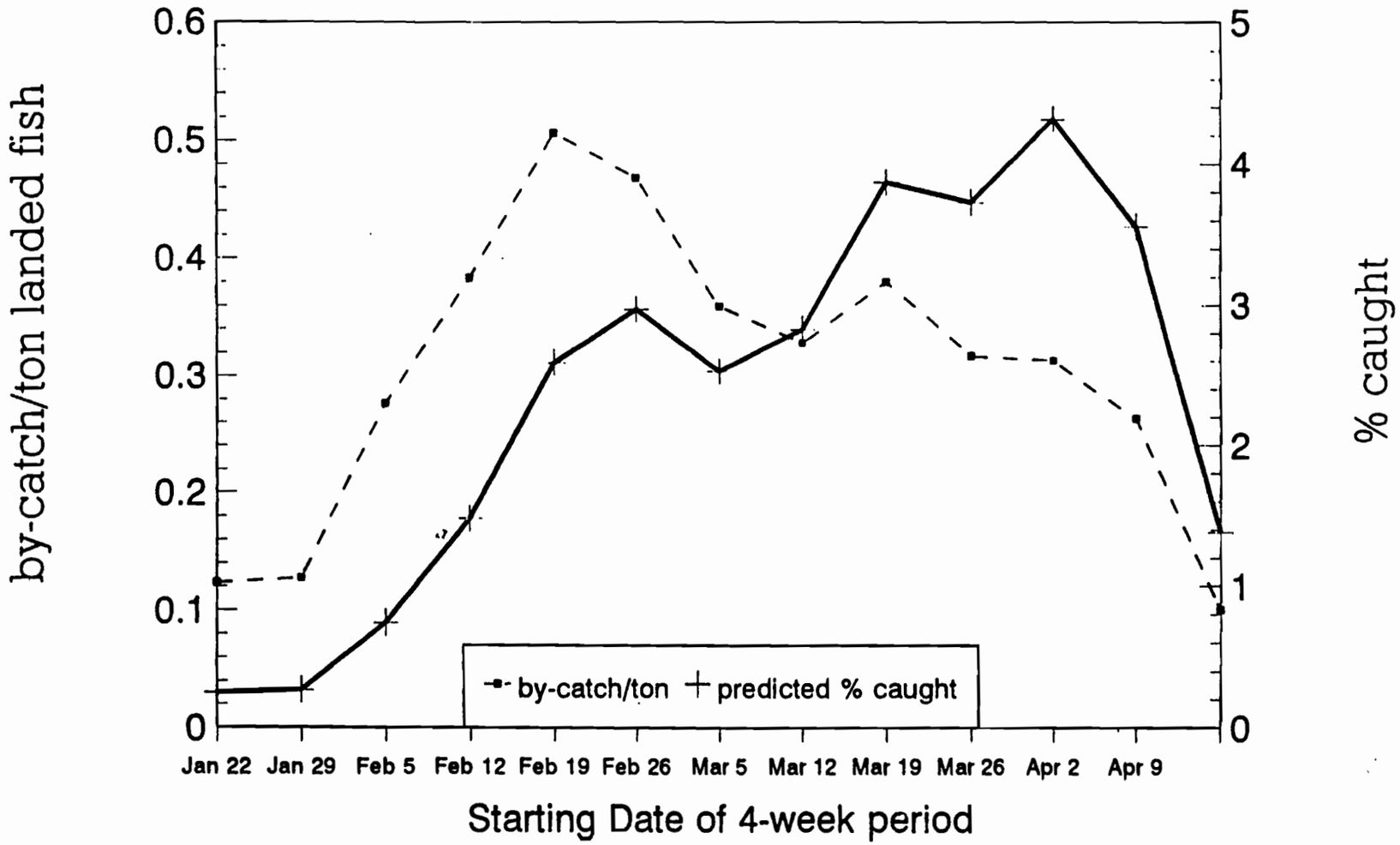
Table 1. Dates and locations of harbor porpoises caught in gillnets during the first 4 months of the years 1990, 91, 92 and 93. Week number is the week in which the harbor porpoise was caught in, where week 1 for each year is January 1-6, week 2 is January 7-13, etc. Latitudes and longitudes are given in degrees and minutes.

DATE	WEEK NUMBER	NUM OF PORPOISES	LATITUDE	LONGITUDE
26 Feb 90	9	1	42 25	70 50
10 Mar 90	10	1	42 29	70 46
11 Mar 90	11	1	42 25	70 28
06 Apr 90	14	1	42 12	70 40
28 Jan 91	5	1	42 09	70 31
27 Feb 91	9	1	42 26	70 50
17 Mar 92	12	1	42 25	70 48
08 Apr 92	15	1	42 13	70 32
09 Apr 92	15	1	42 23	70 52
13 Apr 92	15	1	42 17	70 48
15 Apr 92	16	1	42 11	70 38
22 Apr 92	17	1	42 25	70 49
26 Mar 93	13	1	42 13	70 40
14 Apr 93	15	1	42 13	70 41

Table 2. For various possible 4-week periods, the number of harbor porpoises caught per ton of fish landed (By-catch/ton), using only the sea sampling data and the predicted number of harbor porpoises caught expressed as a percentage of the 1992 total number of by-caught harbor porpoises, using both sea sampling and weighout data.

4-Week Period	By-catch/ton	Predicted % caught
Jan 22 - Feb 18	.123	.25
Jan 29 - Feb 25	.127	.27
Feb 5 - Mar 3	.276	.74
Feb 12 - Mar 10	.383	1.48
Feb 19 - Mar 17	.506	2.59
Feb 26 - Mar 24	.468	2.97
Mar 5 - Apr 1	.359	2.53
Mar 12 - Apr 8	.328	2.83
Mar 19 - Apr 15	.380	3.87
Mar 26 - Apr 22	.317	3.73
Apr 2 - Apr 29	.313	4.32
Apr 9 - May 6	.263	3.56
Apr 15 - May 13	.100	1.38

Figure 1
Harbor Porpoise By-catch
in Mass Bay closure area



Appendix III
Economic Analysis

Economic Implications of Proposed Management Action

Groundfish Plan Development Team
April 08, 1994

Introduction

When the Government proposes a management action, statutory and regulatory requirements call for a benefit-cost analysis to measure the net benefits which result from the action[1]. Although the results can be cause for rejection of a management plan, often they are used along with other factors to determine acceptance or rejection of the plan[2]. Benefit-cost analysis is also used by private industry to accept or reject the undertaking of various projects, although they are interested in profit and not the social welfare criteria that Government agencies examine. Benefit-cost analysis has been written about extensively in the economics literature. Some examples which give a more complete description of benefit-cost analysis can be found in Mishan (1988), Edwards (1990) or Just, Hueth and Schmitz (1982).

This report presents the results of a benefit-cost analysis of the New England Fishery Management Council's proposed regulations to protect Harbor Porpoise and modifies the previous report which was dated March 11, 1984. The previous analysis needed to be modified because the timing of the closure in Massachusetts Bay was changed to included the dates March 1 to March 30, instead of the original dates April 15- May 14. Further information about the mix of species caught by gillnetters was also included in the analysis after input from different fishing groups.

Because Harbor Porpoise are taken incidently in gillnets at a rate thought to be too high, the Council is taking action to reduce porpoise by-catch through time and area closures. The objective of the plan is to reduce bycatch to a level which won't exceed two percent of the population based on the best estimates of abundance and bycatch by the end of year four. In year one of the plan, the objective is to reduce bycatch by 20 percent. Subsequent yearly reductions or time-area closures have not yet been identified by the Council. Therefore, this analysis is for year one only.

Scope

There will be two sets of regulations that will be analyzed. The first is the fall-back provision of four-day blocks of time out of the water throughout the year and the second will be the 30 day closures which have been proposed. The status quo in each situation will be no effort reduction. Benefits and costs are measured as the difference in consumer and producer surplus between various management options and the status-quo. For purposes of analysis, there is assumed to be no difference in consumer surplus generated in the seafood sectors because of this management action. This is because the gillnet fleet's landings are small compared to overall landings and there will likely be no price increases brought about by any reductions in landings.

Benefits generated based on the value of protected harbor porpoise will yield a positive welfare change. However, at this point there are no published studies available to calculate these benefits. There is ongoing research at the University of Maryland which should help answer these questions in the future. However, at this point the value of saved animals cannot be estimated. This reduces the analysis to one which examines changes in producer surplus in the harvest sector between two different alternatives.

Although the plan as now formulated is a four year plan, the analysis presented is for one year only. This is because the management plan is not explicit about what will occur in years two through four. Amendment five, which was recently adopted and is the fall-back management mechanism, is a ten year plan with the reductions in effort occurring in years one through five. The cut-back in effort is explicitly stated for each year of the plan. Examining the proposed time and area closures for a one-year period doesn't allow the harvest sector to realize any benefits from increased fish stocks which may occur in future years.

Methods

The gillnet fleet is a fairly heterogeneous fleet in terms of fishing patterns and alternative activities in which they can engage. This made it possible to account for spatial and temporal heterogeneity by placing vessels in one of nine different "fleets" depending on their homeport. Typical vessel "profiles" were then developed for each representative fleet, on an annual basis, which included total revenue[3], variable cost and fixed cost.

Total revenue per fleet was calculated in the following manner:

$$TR_j = \sum_{i=1}^{n} (\overline{P}_i \times \overline{Q}_i \times \overline{t}_i) \times Vessels_j$$

where

TR_j = *Total revenue from fleet j*

$\overline{P}_i$ = *Average price per pound for species i*

$\overline{Q}_i$ = *Average pounds landed per trip of species i*

$\overline{t}_i$ = *Average number of trips on which species i was landed*

$Vessels_j$ = *Number of vessels in fleet j*

The five species that were used in this calculation were Cod, Pollock, White Hake, Dogfish and Angler[4]. Although the mean catch per trip was used in the calculation of expected total revenue, the distribution around that mean was used later in a Monte Carlo simulation to determine the spread around the expected change in producer surplus. Appropriate distributions were fitted based on the 1992 catch rates per trip in each fleet[5].

Costs for a typical firm are usually placed in the category of "fixed" or "variable". Variable costs change with the level of output (or effort in this case) while fixed costs remain constant at all levels of effort. Trip expenses are usually considered variable, while expenses such as mortgage payments and insurance are considered fixed. Average costs on a trip basis were calculated using data collected over a three year period based on interviews with captains and additional data obtained from tax information filed by vessel owners with National Marine Fisheries Service (NMFS) headquarters. Some expenses such as engine repair and gear expense have both a fixed and variable component, and could be placed in either category. For the purposes of this analysis, gear and engine expense are considered variable costs. There were not enough data available to calculate average costs per "fleet" as total revenue was

calculated. Therefore, annual variable cost per fleet was calculated in the following manner:

$$TVC_j = \overline{AVC} \times \overline{t}_j$$

where:

TVC_j = *Total variable cost of fleet j*

$\overline{AVC}$ = *Average cost per trip*

$\overline{t}_j$ = *Average annual number of trips taken by all vessels of fleet j*

Total short-run producer surplus[6] was then calculated as follows:

$$PS = \sum_{j=1}^{n} (TR_j - TVC_j)$$

The expected change in net benefits from any proposed management action is the difference between short-run producer surplus with and without management action[7].

$$\Delta PS = \sum_{j=1}^{n} (\Delta TR_j - \Delta TVC_j)$$

Technical Details

There were several technical details which needed to be considered in this analysis. Vessels have the opportunity to both switch gear types used and areas fished under the time and area closures that were proposed. Past studies (Walden 1994, DeAlteris and Lazar 1992) found that only 20 to 30 percent of the gillnetters are full-time. The rest of the fleet switches gear types at some point during the year. If these figures hold, then the calculation of the expected net benefits needs to account for gear switching behavior. However, because of data limitations, that information wasn't included in this analysis meaning the expected losses may be overestimated.

Modelling how vessels will switch areas was difficult. The Geographic Information System (GIS) used to develop the time and area closures gave some measure of which ports and vessels would be impacted. However, it didn't allow one to model where vessel would relocate if an area was closed. Under time and area closures, it's possible that vessels could completely relocate their effort by moving to areas which aren't closed.

To calculate the change in total revenue and costs under 30 day closures, assumptions had to be made about effort relocation. The GIS system gave the ports which would be impacted given a closed area during a certain time period. From 1992 catch and effort data, the percent reduction in catch of each species and in the number of trips by each "fleet" could be calculated if 100 percent of their effort was eliminated. However, since vessels can move, it must be assumed that some vessels will relocate their effort. In equation form, the yearly expected catch of each species by each fleet after implementation of the closed areas, given that a certain percentage of effort will be impacted was calculated as follows:

$$Catch_{bj} = Catch_{aj} \times (1-(\%reduction_j \times \%impacted\ effort_j^8))$$

where

$Catch_{bj}$ = Yearly Catch of fleet j after closed areas are implemented.

$Catch_{aj}$ = Yearly catch of fleet j before closed areas are implemented.

$\%reduction_j$ = Percent reduction in annual catch of fleet j if 100% of the effort during a time and area closure was impacted.

$\%impacted\ effort_j$ = Percent of the vessels from fleet j which won't be able to relocate effort.

For example if 20 percent of fleet j's annual catch was taken during a time and area closure and 50 percent of the effort was expected to be impacted, then $catch_{bj}$ would be 90 percent of $catch_{aj}$.

The change in yearly variable costs was calculated in the same manner based on 1992 data. In equation form, the yearly expected variable cost after implementation of closed areas, given that a certain amount of effort will be impacted was calculated as follows:

$$TVC_{bj} = TVC_{aj} \times (1-(\%\text{reduction trips}_j \times \%\text{impacted effort}_j))$$

where

TVC_{bj} = Total variable costs of fleet j after closed areas are implemented.

TVC_{aj} = Total variable costs of fleet j before closed areas are implemented.

Since there were no studies which could predict how many vessels will be impacted and how many will be able to relocate, the percent of impacted effort for each of the affected fleets was simulated. A uniform distribution with endpoints of zero and one was substituted for the "% impacted effort" term and run in a Monte Carlo simulation (Monte Carlo techniques will be discussed below). The expected value of this particular distribution was 50 percent, which effectively meant that half the effort would be impacted. It must be remembered that there is a distribution around that mean which will figure into the final differences in producer surplus. The "fleets" which will be affected by each of the closed areas are discussed below.

Northeast Closure

The northeast closure would impact vessels in Washington, Hancock, Lincoln and Knox county Maine. Cumberland and Northern York county Maine vessels could also be impacted, but it was assumed that these vessels could completely relocate.

Mid-coast Closure

The mid-coast closure would clearly have the greatest impact on vessels fishing from New Hampshire and Southern York County, Maine ports. However, since a substantial area around Jeffrey's ledge was left open it was assumed that there would be no impact on these vessels since Jeffrey's is their traditional fishing grounds. This closure would also impact vessels in Lincoln, Knox, Cumberland and Northern York county, Maine.

Mass Bay Closure

The Mass Bay closure would impact vessels fishing from ports in Essex, Plymouth, Suffolk and Norfolk County, MA. After input from the fishing industry, it was assumed there would be no relocation for vessels fishing from Plymouth, Suffolk and Norfolk counties.

For the four-day blocks of time there is zero effort relocation, meaning 100 percent impacted effort. Therefore, catch and variable costs were reduced by 10 percent from the status quo[9].

Vessel and Labor Surplus

In most firms, labor is treated as a variable cost of production and would factor into the variable cost calculation outlined above. However, in fishing firms, labor is typically paid a share of the catch and also pays for part of the expense. Labor is therefore typically sharing in both the rewards and risk of fishing. Any decrease in fishing effort which led to a decrease in landings means that the payments to crew members decline. Producer surplus was therefore broken into a vessel and crew component in this analysis. Total revenue for the vessel was multiplied by a "vessel share" and a "crew share" to allocate the revenue between capital and labor. Variable costs were then assigned to either the crew or the vessel[10] and subtracted from their respective shares.

Treating labor in this manner is somewhat problematic because it assumes that crew labor is fixed and their opportunity cost is zero. This is an extreme view of how the world operates. The opposite view would be that labor is completely variable, that they just earn their opportunity cost and that no surplus accrues to labor (Herrick et. al, 1993). In reality, the situation is probably somewhere between these two extremes. To account for the uncertainty about the opportunity costs of labor, the crew share was multiplied by a uniform distribution which includes these two endpoints to arrive at the expected loss (gain) which would accrue to labor as a result of the proposed closures.

Monte Carlo Simulation

Because of the variability in the catch rates and the uncertainty surrounding the opportunity cost of labor and the relocation of effort, a Monte Carlo simulation (with 1,000 iterations) was used for the entire analysis. For each

iteration, a value is drawn from the distributions which were used for the uncertain variables (catch rate, effort relocation and crew surplus). Differences in producer surplus are calculated for each iteration. The overall change in producer surplus is now a random variable with its' own distribution. This allows both the reporting of the expected value for that distribution, and the spread of values around the mean.

Results

Reported results are for year one only and two sets of results are presented. The first is for four-day blocks of time out of the water beginning April 1, 1994 and the second is for the proposed time and area closures. The status quo in each case is no effort reduction for gillnetters.

The expected net change in producer surplus of four-day blocks out of the water during year one is -$1,978,501 (figure one). The eighty percent confidence intervals show the expected loss to be between -3,380,090 and -667,553. Results also show that there is zero probability of there being positive producer surplus generated.

The expected change in producer surplus generated as a result of the 30 day closures was -$629,496 (figure two). The eighty percent confidence interval around this value was between -1,236,323 and -122,563. Results also showed virtually zero probability that there would be positive net benefits from this action.

In most instances, a benefit-cost analysis is used to either accept or reject a particular management action. However, because the value of saved harbor porpoise cannot be quantified at this point, the analysis is not strictly a benefit-cost analysis. What the results show is the most cost-effective approach for reducing harbor porpoise takes given that both strategies reduce bycatch equally[11]. The analysis also gives insight about the level of benefits which would need to be generated to offset the losses in producer surplus from either strategy.

Literature Cited

DeAlteris, J and N. Lazar. 1992. Summary of the Survey of the Demersal Gillnet Fishery in the Gulf of Maine and Adjacent Waters. Draft copy, University of Rhode Island, Dept. of Fisheries, Animal and Veterinary Science, Kingston, RI 02281.

Edwards, S.F. 1990. An economic guide to the allocation of fish stocks between commercial and recreational fisheries. National Oceanic and Atmospheric Administration, Technical report 94, Woods Hole, MA 02543

Herrick, S., I. Strand, D Squires, M. Miller, D. Lipton, J. Walden and S. Freese. 1993. Application of Benefit-cost Analysis to Fisheries Allocation Decisions: The Case of Alaska Pollock and Cod. Manuscript submitted to the North American Journal of Fisheries Management.

Just, R.E., D.L. Hueth and A. Schmitz. 1982. Applied welfare economics and public policy. Prentice-Hall Inc., Englewood Cliffs, New Jersey.

Miller, M., S. Herrick, D.Squires, J.Walden, D. Lipton and I.Strand. 1992. A cost-benefit analysis of pollock and cod quota allocations in the Bering Sea/Aleutian Islands and Gulf of Alaska groundfish fisheries. National Marine Fisheries Service, Washington, D.C.

Mishan, E.J. 1988. Cost-benefit analysis, fourth edition. Unwin Hyman Ltd, London.

Walden, J.B. 1994. Determining gillnet fleet size in New England: A report on the special gillnet effort study. Report to the Harbor Porpoise Workshop held in Woods Hole, MA. Feb 23-26, 1994., National Marine Fisheries Service, Woods Hole, MA 02453.

1. These requirements can be found in the Magnuson Fisheries Conservation and Management Act and Executive Order 12291. See Operational Guidelines Fishery Management Plan Process, National Marine Fisheries Service, Silver Springs, MD., October 1992.

2. See Herrick et. al, 1993 and Miller et. al 1992 for an example of a benefit-cost analysis which was used as the basis for rejection of a specific management plan.

3. All price data used in the calculation was deflated to 1987 dollars using the Gross Domestic Product (GDP) implicit price deflator. Similarly, cost data were also deflated to 1987 dollars using the GDP implicit price deflator. Using deflated figures was necessary because cost data were collected over several years making it necessary to use a common base year and remove inflationary trends from the analysis.

4. In addition, Winter Flounder, Witch Flounder, Yellowtail Flounder and American Plaice were included for two of the fleets.

5. The program BESTFIT was used to calculate these distributions.

6. Profit, in this case is being treated as equivalent to producer surplus because there is little data on the opportunity costs of capital and labor available to truly estimate producer surplus. There are rules of thumb which are used in the evaluation of agricultural projects, but none have been developed for fisheries. Additionally, with an overcapitalized fleet, there are technical questions which arise about measuring the opportunity cost of capital.

7. Because fixed costs do not change with the level of production in the short-run, they drop out of the equation used to calculate the change in producer surplus. In the long run, all costs are considered variable.

8. This assumes that the catch rates where effort can relocate to are equivalent to the catch rates in the closed areas.

9. This assumes that the four-day blocks begin in April.

10. This was based on knowledge of "lay" systems used by other types of vessels and interviews with port agents who have daily contact with fishermen.

11. Because of the wide variability in the data, there was difficulty measuring the reductions in harbor porpoise mortality brought about by four day closures. This is why the time and area closures were originally proposed.

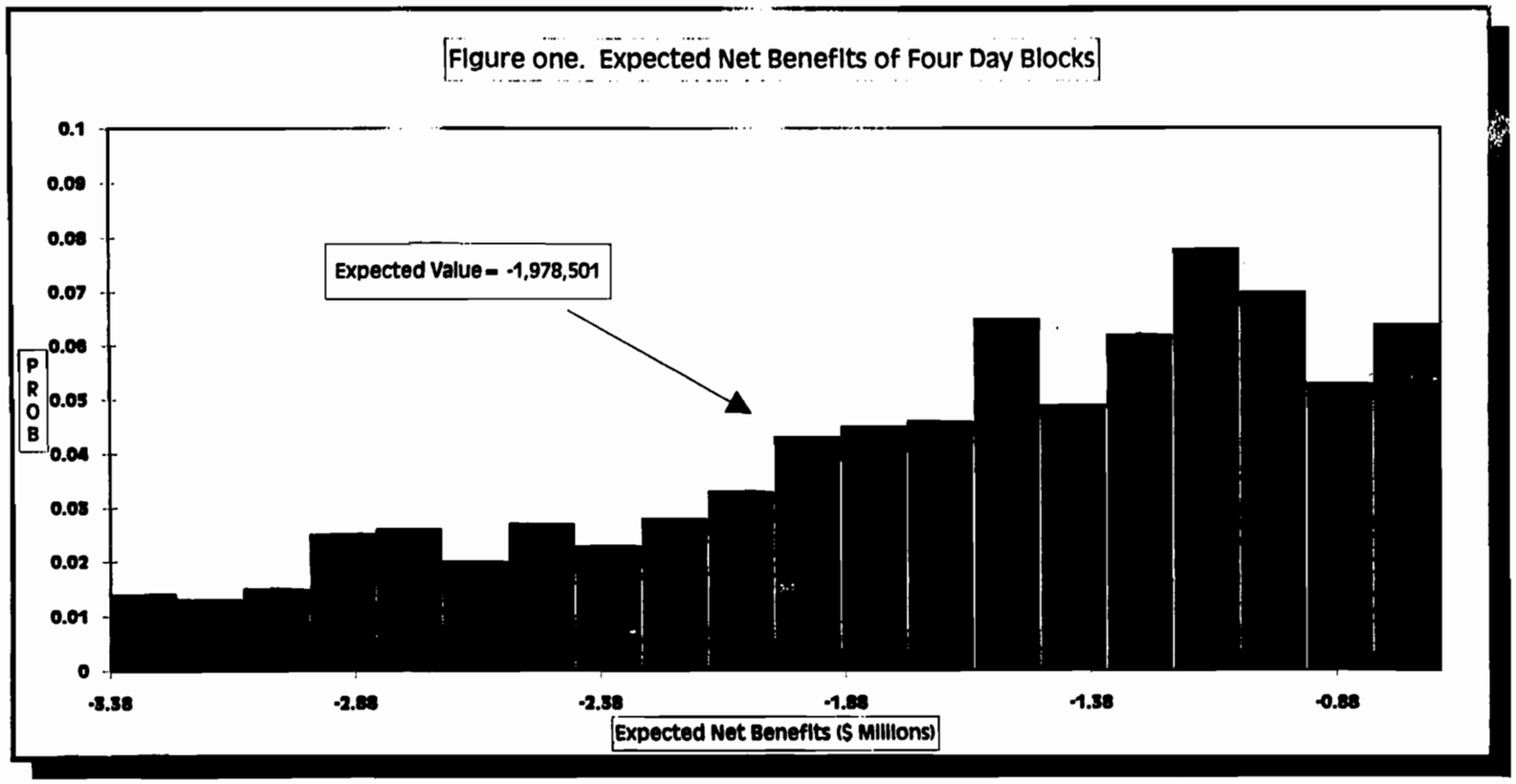


Figure one. Expected Net Benefits of Four Day Blocks
0.1
0.09
0.08
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0
PROB
Expected Value = -1,978,501
-3.38
-2.88
-2.38
-1.88
-1.38
-0.88
Expected Net Benefits ($ Millions)

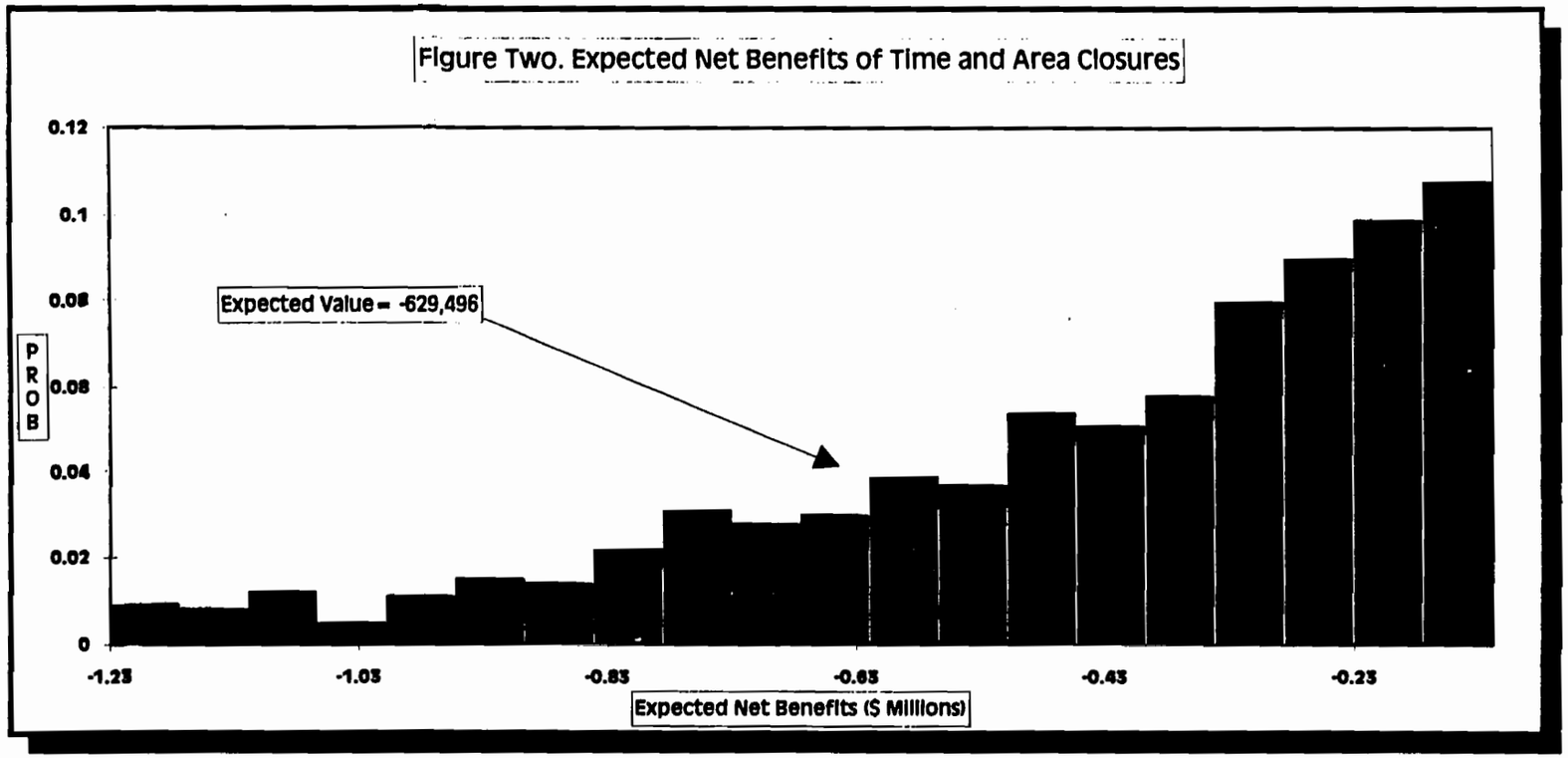


Figure Two. Expected Net Benefits of Time and Area Closures
0.12
0.1
0.08
0.06
0.04
0.02
0
PROB
Expected Value = -629,496
-1.23
-1.03
-0.83
-0.63
-0.43
-0.23
Expected Net Benefits ($ Millions)

Appendix IV
Public Comments

Marine Mammal Committee Report: February 17, 1994 NEFMC Council Meeting

Marine Mammal Committee Chairman Arthur Odlin reviewed discussions held during the February 2, 1994 Committee Meeting. He said that the committee decided on a twenty percent bycatch reduction for harbor porpoise in the first year of the program.

He said there had been no technical review of the most recent boundary modifications and they would be having another Marine Mammal Committee meeting for that purpose. They were still on track for the time/area closures, he added. As soon as the lines get approved, he said, they would still be on their time table to get something in prior to the action on the ESA listing. He asked Mr. Martin if this meeting would be construed as a public hearing for a framework adjustment.

Mr. Gene Martin, NOAA General Counsel, thought that it had been announced at the last Council meeting that this would be the first meeting.

Mr. Martin said that framework doesn't mean that you could only have two meetings -- it meant that there should be two meetings at a minimum. He said, if you can accomplish the objectives and give adequate public notice and opportunity for comment and analysis, approval could take place in as few as two Council meetings and then submitted to NMFS. If they agree that the proposed part of the rule making could be waived then they will concur.

Mr. William Brennan, Council member, reviewed the time frame for the action. He asked if they could begin preparing the necessary language for the public hearing document for the time/area closures that have been agreed upon. He noted that there might be modifications in the Mass. Bay area. He asked if Council action was necessary to initiate this process as they have already voted to initiate the framework and if part of the framework mechanism requires the action taken to public hearings.

Mr. Martin said they were at the stage where they would prepare the public hearing document if the Council wanted to do this in two meetings. He said it was the same as for public hearing documents for amendments in that there is a vote on the measures, the preferred alternatives, etc. that are being proposed -- in this case, for harbor porpoise mitigation. He said he thought there was a need for Council action in the form of a motion to make sure that the Council endorses the recommendations of the committee with respect to these measures.

There was Council discussion on the framework process.

Mr. Brennan suggested that they begin the whole process that day and hear from industry people present.

Mr. Brennan moved and Mr. Rathbun seconded:

that the Council adopt the time/area closures and their provisions of the time/area closures as recommended by the Marine Mammal Committee.

Mr. Martin again said that the Council must endorse all the actions of the Committee.

Mr. Brennan noted that the Committee had agreed on the Northeast lines, the Mid-coast lines and the only area still in question was the Massachusetts Bay area.

Ms. Patricia Fiorelli, NEFMC staff member, said they were talking about the Massachusetts Bay line, but the caveat was that, though the boundaries were established, they were going to be evaluated for the impact on the harbor porpoise reduction target and they said were waiting for the technical review. She said it would be a policy call and they would have to decided how big a bite to take in the first year, second, etc.

Mr. Brennan said that it would be a policy call made in Washington and should not waste their time on wondering what they would say.

Ms. Fiorelli said if they got a resounding "no" in the review she could forward that to the Committee. She expected a response in a few days.

Mr. Richard Allen, Council member, said that Mr. Martin's comments should be added to the motion concerning the analysis and the committee could move ahead and ask for an analysis for the next meeting.

Mr. Mirarchi, Council member, asked if there was any possibility of achieving the closure for this year and if no, what would the Council do for harbor porpoise mitigation in the southern part of the GOM for 1994.

Mr. Richard Roe, Northeast Regional Director, said that the answer to that question was that the plan provides blocks of time out which NMFS would implement. He said that an industry spokesman had given him their suggestions for days out for the next four or five months. He gave them a lot of credit for coming together for this. That's the only game in town, he noted, given that these blocks are not effort control blocks and were really attempts to deal with the harbor porpoise issue which was why NMFS wanted to implement them, despite the fact that industry was not in favor of this. That would send the wrong signal, but a strong signal, to those that want to move forward with listing. If these animals are listed, then he thought there would be major problems for this industry. The only alternative would be the blocks of time which NMFS would move forward with.

Mr. Roe continued, saying, he had a problem with the way that the framework

adjustment was moving and being given to the committee to make the decisions. His idea of the frameworking process was that the Council should make the decisions and it appeared to him that it was being delegated more and more to the committees. He would like to hear comments that day as there needs to be a record made. He thought the Council should deal with this at the next meeting. If this was the first of the two Council meetings, he said, then let's have a record to build on.

It was agreed to have the motion stand.

Ms. Fiorelli gave a presentation of the lines using the charts.

Mr. Brennan noted that there would be adjustments made each year if necessary in both time and area. He said there was a significant probability of expanding the area and the time in the following years. He said this program was to be implemented over a four-year period to achieve a bycatch goal of no more than two percent of the population. He hoped that the technical people would review the figures with the idea that this is for year one and not for the whole four years.

Mr. Brennan noted that the Council should recall that provisions of Amendment #5 do not call for effort reduction of the sink gillnet fishery in year one of the plan. During the course of year one of implementation groundfish effort reductions would be calculated from the measures adopted to mitigate the harbor porpoise bycatch. He said there was no evaluation of the groundfish effort reduction potential being done now nor would it be appropriate to do it now -- only during the course of implementation through the first year.

Ted Ames, Maine Gillnetters Association, said that he was relieved that the Council was looking for a solution to the harbor porpoise bycatch problem. He said days at sea does nothing and he didn't want to look at them at all. He said that they had given those days to Mr. Roe because that gave them some opportunity to adjust them to correspond with market. He said the closed areas were the only way they could actually deal with the problem. One of the things that had been done, both in the Portsmouth area and in the "Downeast" area, was a negotiation for an open area that allows boats to continue fishing without being put out of business. In the Downeast area, he said, there are 12-14 fishermen that would have to travel 70 miles in a small boat in order to gillnet once the "680 line" that was proposed was put in place. What the Maine gillnetters would like to have added to the plan, he said, would be a provision that, if there is no bycatch in certain window areas, that they remain open the following year. He said their concern was that if they go to the effort and expense of obtaining devices that discourage harbor porpoise from entering the nets and if it is successful, that they would still be pushed off the bottom. He said they want to solve the harbor porpoise bycatch problem and rejoin the fishing community. He said they needed, in addition to the provision for closing the bottom, a line in there that says, "if there is no bycatch in the window areas that they have negotiated,

that they remain open." He said if they can come up with the technology that resolves the problem of marine mammal bycatch then they could eliminate the time/area closure on the basis of marine mammals altogether and get on with the effort reduction in another way.

Paul Cohan, Cape Ann Gillnetters Association, said that industry, while not actually embracing the time/area closure concept, had accepted it and had been working hand in hand with the committee and the Harbor Porpoise Working Group to come to grips with this situation. He said they had a serious question as to the effectiveness of the four-day blocks. Industry, he said, finds themselves unable to comply with those requirements, if not unwilling.

Mr. Cohan continued saying he could not understand the appropriateness of snarling up the procedures moving forward by dragging whales into the situation. He did not think the science was there for the whale question as the closure was for the harbor porpoise. He felt that the whale information was anecdotal and should not be considered. He said they wanted action on the four-day blocks of time.

Ms. Fiorelli said that the whale information around the Mass. Bay area was not anecdotal and had been studied for many years and their distribution well known in the springtime. She said she would have this information available for the public hearings.

Eric Anderson, New Hampshire Commercial Fishermen's Association and a gillnetter, said that fishermen have not really embraced the whole time/area package, but consider it the lesser of two evils and a way out of the dilemma they are facing. He said the adjusted areas in the Northeast section and Mid-coast have been negotiated and were a plus in the whole process as the industry worked with the Committee. He said, as far as the industry was concerned, they would like to accelerate the process to eliminate the amount of time when this four-day block program could be in effect. He said that industry always assumed that they were not going to have to deal with the four-day blocks--that something would be substituted prior to the implementation of Amendment #5. He asked if anybody on the committee felt that these four-day closures did any good for harbor porpoise mitigation. He said it would be overwhelming if they were going to have to take their gear out of the water in four-day blocks in March, April, May and possibly June. He asked about the possibility of eliminating the four-day block program.

Mr. Roe said that he thought that Mr. Anderson was asking that these time/area closures be put into place. He said the question had to be directed at the process itself -- there is this meeting, an interim period, then another meeting where the Council makes its final decision possibly at the March special meeting. He asked Mr. Martin about the length of the process after that..

Mr. Martin said that it depends on how fast it goes through the system.

Mr. Roe said if there is no political activity then the ordeal that Mr. Anderson is worried about might only last two months, March and April. He said he was optimistic.

Mr. Brennan said he did not think Mr. Anderson wanted to ask what does it take to eliminate the four-day blocks of time because to eliminate them would be the approval of an alternative and that was already built into the plan. He thought what he really wanted to know was there any administrative or enforcement discretionary means of holding the four-day block program in abeyance until the framework process is completed. He said that there would be havoc out there as they were trying to get the time/area closure agreed to and put into place at the same time that people are being forced to go out for four-day blocks for eight days total. He wanted to know if there was some discretionary process that NMFS could use to delay this.

Mr. Roe said at the moment the answer would have to be no.

In answer to a question from Mr. Allen as to whether the Endangered Species Act listing of harbor porpoise had anything to do with the four-day blocks of time, Ms. Fiorelli said that it was not relevant. She said that people are concerned that some action takes place that deals with the harbor porpoise bycatch problem. Nobody, she said, was pushing four-day blocks because it was put in only as a fall-back so there was something in that slot that would go in when Amendment #5 was submitted. The rationale was that four-day blocks put us on some kind of program that would ultimately lead to reductions. Everybody knew, she said, that the four-day blocks of time in of themselves were not effective--it would get rid of one percent of the bycatch if it was in place for four full months. It could not become effective, she said, until two years down the line when it increases to eight then sixteen days -- then the bycatch would be reduced. She said since they were very close to coming up with something and had made a good faith effort that perhaps Washington would listen.

Mr. Brennan repeated the motion and suggested adding Mr Allen's language that the committee be authorized to review the analysis.

Mr. Odlin wanted to know if it was the intent of the motion that the committee could adjust any of the three lines.

Mr. Brennan said the motion would allow the committee, if it had cause, to make changes in the lines. The intent of the motion maker was that there had been agreement in two of the areas and one other area that might need modifications.

The motion carried unanimously on a voice vote.

Mr. Brennan moved and Mr. Stevens seconded:

that the Council recommends to the Regional Director that the four-day blocks of time be held in abeyance until such time as the time/area program can be put into effect.

Mr. McCauley, Council member, said it was essential that language suggesting a definite time period be included in the motion and suggested May 1, otherwise, it could be a year from now.

Mr. Brennan disagreed because he said they were asking NMFS to utilize their discretion to hold the four-day blocks until the Council can get this put into effect in the next month or two. He said the Council was asking since the final rule had not been published, that NMFS change the final rule to reflect this delay. He said the problem with bureaucrats reviewing this was that it was part of a package and there was no guarantee that the Council would come up with something.

Mr. Haring, NEFMC staff member, noted that the four-day blocks would kick in on May 1 if there was nothing else in place.

Mr. Coates noted that there was no effort reduction in year one in the plan in the sink gillnet fishery presumably because they would be absorbing the impacts of the time/area closures to reduce harbor porpoise bycatch and its equivalency to effort reduction would be measured during that first year. He said if implementation of the plan was delayed until May, it wouldn't effect the time/area closures to the north. He was unsure what the committee had done with regard to the proration because of the delay in implementing the plan. If the plan is going to go 365 days, he said, then the netters would be facing time/area closures at the end of the fishing year. If they compress the year, then there would be no equivalent effort reduction for the gillnetters in the southern part of the boundary because they would have neither absorbed time/area closures nor four-day blocks of time.

Mr. Brennan thought they could get this done under the framework by April 15 which is when that Mass. Bay area would have to close. He said that Mr. Roe had indicated that it was within the realm of possibility. He said the purpose of the motion was not whether or not it was doable, it was to provide a vehicle for the Council collectively to express their view on this issue and leave it to the policy makers to make the decision.

Mr. Zglobicki, Council member, felt there should be a date to delay it to April 15 because that is when the Mass. Bay area closure goes into effect.

Mr. Brennan felt that putting a date into it was irrelevant and was reluctant to put it into the motion because they have been caught on that before. He said the Council

was just asking if NMFS had the discretion to delay the four-day blocks which they would only exercise it if they have a clear view that this time/area closure was going to be put into effect.

Mr. Roe said he was concerned about the motion and agreed with Mr. McCauley and Mr. Zglobicki that there should be a date in the motion. It should be made clear that it was not the intent to delay, but was that the time/area closures would be completed in another month. (The Council nodded their heads in agreement.)

The motion carried with two voting no and one abstention.

Mr. Rathbun, Council member, moved to reconsider the motion on time/area closures. Mr. Zglobicki seconded the motion which carried on a voice vote

Mr. Rathbun moved and Mr. Zglobicki seconded:

to insert an end point of April 15 at the appropriate place in the time/area closure motion.

There was Council discussion on what appropriate date should be put in the motion.

The motion carried on a voice vote with one abstention from Mr. Roe.

This ended the section of the meeting concerning Marine Mammals.

Marine Mammal Committee Report: March 17, 1994 NEFMC Council Meeting

First Session

Mr. Arthur Odlin, Marine Mammal Committee Chairman, reported that the Marine Mammal Committee had met that morning and reviewed the public hearing document contained under Binder Tab 11. He said the goal was the same as in Amendment #5 "to reduce the annual take of harbor porpoise in the sink gillnet fishery by the end of year four of plan implementation to a level not to exceed two percent of the population based on the best estimates of abundance and bycatch."

Mr. Odlin reviewed Map 1B. He said that at the morning committee meeting motions were made to change some of the lines and to change the timeframe from February 22 to March 22, a suggestion from the fishermen present. The line was changed to 70°30' for the eastern side of the closure.

He said at the public hearings held in Portsmouth, NH and Ellsworth, ME there was luke-warm support for the time/areas, but a lot of support for time/area in relation to the four days out of the fishery.

Under "Methods to Achieve Future Reductions" he noted that seminars had been held to study the "pingers" and that was under consideration.

Under II. Additional Measures to Support Time/Area Management - Mandatory Observers", the industry did not think that was a good idea and felt that they have a good working relationship with the observers. Some fishermen he said, reported that the same people take observers all the time and the data might not be as good with such a narrow scope. He said that for the time being, they were not recommending mandatory observers.

He said they put a "Cap on Nets," not as a part of this framework measure but to generate discussion. He said that most present felt that there was no need for a cap as the fishery was self regulating.

Under "III. Other Management Options", the Council has been in support of time/area closures.

Mr. Odlin moved and Mr. Stevens seconded:

> **that the Council recommend that the Regional Director publish rules to implement time/area closures in the Northeast and Mid-coast regions of the Gulf of Maine to reduce harbor porpoise bycatch in the sink gillnet fishery as a framework adjustment to the Multispecies FMP.**

Mr. Coates, Council member, questioned the change of date for the Massachusetts Bay area from April and May to February and March. Mr. Odlin explained that Jan

Anderson had come up with data that did not substantiate the data that the committee had been working with. According to her figures, he said, there were no takes east of the line.

Mr. Coates said he would have to determine the appropriate state action for the Mass. Bay boundary area in response to broader issues than just harbor porpoise such as the right whales.

Mr. Mirarchi, Council member, said he supported the motion. He said the eastern and the southern boundaries particularly in the Mass. Bay zone are essentially, featureless mud bottom with little or no relief that will support a gillnet fishery. He thought the reaction to this would be a shift in gear types rather than putting the existing gear into new areas.

Mr. Odlin said that the committee suggested separating the Mass. Bay area from the Northeast and Mid-coast regions for further analysis and address it at the April Council meeting.

Mr. Brennan said that there was some question as to whether this action would meet the criteria of sufficient public notice.

Mr. Martin, NMFS General Counsel, said his concern was that this action might be a significant enough change from what gone out for public hearing. He noted that it had not been analyzed for public comment. He said there may be a need for further solicitation for public comment particularly for the time and area for the Mass. Bay region. He thought there would be enough time to do that before the four-day block system was implemented. He suggested amending the motion to consider the Mass. Bay area separately.

Ms. Fiorelli, NEFMC staff member, said that public hearings are not required for framework adjustments. The only requirement are two Council meetings. She said that he was correct that this change was a departure from what was discussed, but was less restrictive. It still takes into account the area of bycatch, she said, and they could schedule a hearing in the Scituate area for informational purposes. She said the Center could provide the information in a matter of days and then a meeting could be held for the Mass. Bay area fishermen.

Mr. Martin said that the framework requires that the public have a chance to comment on the proposed measures that have been analyzed. He said that the environmental and conservation groups should also have an opportunity to comment.

Mr. MacKinnon, Massachusetts Commercial Netters Association, said the reasons for the changes was that there had been no harbor porpoise taken except for one over a four year span in April and none in May. He said if harbor porpoise are to be protected, that they should do it at the right time.

David Wiley, International Wildlife Coalition, agreed with Mr. MacKinnnon that they ought to have closures at the right time. However, he had plotted the information that was used to change the proposal in the morning meeting and found that it did not reflect what was put into the proposal. He felt that a closure from February 22 to March 20 would have little impact. He felt that a closure from March 20 to April 20 would better reflect the data from Jan Anderson.

Mr. Hill, Council member, asked why there was a discrepancy in the data.

Mr. Brennan, Council member, asked that NMFS supply the Council with data that shows where the takes are occurring, along with the time and area. He said the Marine Mammal Committee was in the position of making judgements based on competing sources of data.

Terry Smith, Northeast Fisheries Science Center, said that Ms. Fiorelli had worked at the center on this information and had the information with her.

Ms. Fiorelli suggested that a package could be prepared leaving out the Mass. Bay area at this time. She said she would get the information from her office and sit down with Ms. Anderson and other gillnetters, as well as environmental representatives. She felt that they were very close to a compromise. She also said all the data should be the same.

Jan Anderson, Mass. Bay area spokesperson, said she acquired her data which showed 14 harbor porpoise takes by writing under the Freedom of Information Act to NMFS so that they could release the information to her. She said they were observer takes. She then gave an explanation of her charts.

Mr. Brennan felt that the committee and Council was having to make decisions with data that had a disparity of opinion. He said that the data should be reviewed so that everyone would know when the majority of takes was occurring.

Ms. Fiorelli explained that the time/area closures were based on three different things -- takes of harbor porpoise in the sink gillnet fishery, the distribution of the gillnet fishery itself and harbor porpoise distribution. She said, if gillnet effort was displaced in a small area you would simply be displacing it into another area where the bycatch rate would be the same. That is how the committee developed the original large boundaries. By the time it was refined the boundaries were limited to where the takes took place.

Mr. Mirarchi, Council member, asked what effect a delay on the Mass. Bay area section would have on the implementation of the four-day blocks of time for fishermen in the southern range and also what might be the effect on the decision-making process on the listing of harbor porpoise under the Endangered Species Act (ESA).

Mr. Martin said that it might not get into the whole package and submitted as a

time/area closure before the April 15 date. He said he did not know how the delay would effect the rest of the closures and he did not know the effect of the ESA listing in the ESA.

Mr. Richard Roe Northeast Regional Director, supported the motion. He said that the four-day block would not have one iota of effect on harbor porpoise and the time/area closures should be put in place. He said that there was no assurance that whatever the Council did that harbor porpoise, would or would not, be listed in the ESA.

Ms. Fiorelli said that if harbor porpoise gets listed because of the Canadian bycatch she thought that the Council would want to forward some response to NMFS.

Mr. Brennan perfected the motion and added this sentence:

that the time between the end of February and the end of May be analyzed for the Mass Bay area and a 30-day period be selected for year one.

Mr. Martin said the public must have an opportunity to comment on the analyzed data. He asked who would make the decision after the data is analyzed.

Mr. Brennan felt there would be a consensus on the data and a decision could be delegated to the Marine Mammal Committee.

Mr. Roe, Northeast Regional Director, thought the question should be divided and that the question about the Mass. Bay area should go back to the Marine Mammal Committee for a final decision.

It was decided that Ms. Fiorelli and gillnet representatives would meet in a separate room, go over the data and try to reach an agreement before the end of the Council meeting.

There was some Council discussion as to whether this procedure was correct and Mr. Allen, Council member, said that he considered this group a peer group and it would be a peer review. Mr. E. Smith, Council vice-chairman, agreed.

Mr. Brennan moved and Mr. Mirarachi seconded to amend the motion:

that measures for the Northeast and the Mid-coast areas go forward and that the Mass. Bay area be considered separately.

The amendment to the motion carried on a voice vote. The amended main motion carried on a voice vote.

Mr. Martin said he did not agree with the process at all and that it was not what was envisioned for a framework adjustment substituting for proposed rule making. He was registering his concern. Mr. Hill agreed with Mr. Martin. It was agreed that

they would discuss the matter when the group returned to the meeting.

Mr. Allen addressed the Canadian issue again and felt that letters should be sent to the appropriate people requesting coordinated action to address the problem.

This ended the Marine Mammal section of the Council meeting.

Marine Mammal Committee Reports: March 17, 1994 NEFMC Special Council Meeting

Second Session

Mr. MacKinnon, Massachusetts Netters Association, said that industry would like to stay with the original proposal as presented to the Marine Mammal Committee at their March 17, 1994 meeting. This was the proposal approved by the committee to bring to the Council meeting. This proposal was to have the closure from February 22 to March 22 and bringing the line into 70° 30'

Mr. Allen asked if there was a consensus from the industry representatives that had just met or was each group going to speak for themselves.

Ms. Fiorelli said that the discussion among the group had been very difficult. She said the fishermen were correct in that the bycatch is scattered throughout February, March and April with very little in May. To give a better analysis, she said that it would be better to look at the data week by week and did not feel comfortable arriving at a conclusion at this time. The industry, however, did come to a consensus on their position and that was what Mr. MacKinnon was addressing.

Ms. Anderson asked the Council to look at the effort that was going on during the time that the harbor porpoise takes occurred. She hoped it was not weighout data, but if that was all that was available that would do. The other factor she said, was the displacement of effort if the Council goes with a later date in April. She questioned what would happen in that time period that the fishermen are proposing when the takes are happening. She said there will be a heavier fishing effort then. She suggested that the Council ask the fishermen for their input.

Mr. Cohan said they did come to a consensus on those dates even though it took some time. He said they looked at the data which had pretty much identical takes in late February, March and early April. He said when industry considered the fact that there was a lot less gear in the water during the March and February takes then there was during the April take, Ms. Fiorelli figured that we would have to take in the catch per unit of effort (CPUE) to really come up with the most effective time to do this. He said that the quicker that data could be analyzed so we could move on would help.

Mr. Cohan continued, saying that he would like to reiterate the industry's concern about the Canadian situation. If there was anything NMFS or the Council could recommend, he said, to have the weight of our efforts and sacrifices to avoid having the listing not counterweight and balanced against what is or is not going on up in Canada as it is a situation very unfair to us down here. He said that they would be working on it from the political end of things and would ask their representatives to rattle some cages in Washington and take the fight to Ottawa. He said he had

spoken to Representative Tarr who said that they might bring it into the GATT talks between Canada and the US as far as getting some action on them to reduce their take.

Mr. Wylie, International Wildlife Coalition, said they remained in opposition to the industry plan although he was looking forward to the new data. He said that the Council could not ignore the takes occurring in other parts of the population's range. The population is not a political population, he said, and it doesn't matter what your politics are if you have a take. He agreed that the Canadian take is not being addressed and they would be taking steps to try to address that issue. He said that if the species is listed, the efforts of the Council would not be for nothing. A great deal of the things that listing would request are the very things that the Council is putting into place.

Mr. MacKinnon asked if NMFS could draft a letter to the state department showing their concern over the Canadian take and have it reduced.

Mr. Roe said he would raise this issue to Washington and urge that this message be delivered to Canada. He said he would talk to his counterpart in Halifax in the Scotia-Fundy region and see what could be done.

Mr. MacKinnon said there was a section in the MMPA that said that if the US gillnet fishery is shut down because of marine mammals for any reason, that the gillnetters of that region would not be able to send fish down to here.

Mr. Brancaleone Council Chairman, said a letter could be sent to Mr. Tinkham, State Department Fisheries Officer, to that effect.

Mr. Wiley was asked to explain why he was opposed to industry's dates. He said that a great deal of the take in 1992 and 1993 had taken place outside of the time that would be included in those areas, towards the late March and early April timeframe. He said his proposal for a time closure would be from March 20 to April 20. He noted that the original proposal for April 15 to May 15 was to be implemented this year and that was now in question. He said one of the reasons they supported the non-implementation of the four-day blocks in March was because the April 15 - May 15 was going to be instituted. He asked if that was not going to take place what would.

Mr. Roe said there was no sense doing anything in March as the animals were not there. The idea of postponing it until April 15 was because they thought they were working with the original proposal.

Mr. Brennan said they had divided the question and moved the time/area closures for the Downeast and Mid-coast areas. He said it was his assumption that these

areas would go forward to NMFS to adjust the plan under the framework. He asked that if they were unable to come to closure on the Massachusetts Bay area, in relationship to the four-day blocks of time to the March or April, would that jeopardize the whole time area mechanism for the other areas as well. He said that he realized that the listing still loomed out there, but was not answerable at this time.

Mr. Brancaleone said he did not know.

Mr. Brennan felt it was a significant question as he pointed out that the Marine Mammal Committee had been working with industry throughout the range for some time to arrive at the time/area closures that were taken to public hearings. At the public hearings, he said, they heard a recommendation to deal with the line in the Massachusetts Bay area, but this morning was the first time that they had heard anything about the time. He said that he would hate to think that all their effort to get out of the four-day blocks of time goes for nothing because of a last minute effort to make an adjustment. He said he would rather more forward with the original time/area closure as proposed in that area with an adjustment of the line rather than jeopardize the whole program for the entire fishery.

Mr. E. Smith said he was beginning to agree with Mr. Brennan. He said that maybe this year is shot. Rather than loose the whole thing he would rather go with April and May. He said for the long run he would rather compromise and pick something in the middle of those two periods.

Mr. Martin said the danger was of not allowing the framework process to take place, which is getting the proposals finalized and have them analyzed so the public can comment. He said the Council was voting on something without knowing the full impact. He said, what would happen if you don't separate these areas and make it all one package, get an analysis of what the right timeframe is and then loose part or all of this. He said that the Council still has time to consider this and make the final decision at the next Council meeting and still have time to get this framework in. He said, it is taking a risk, but could be done as they have the to the end of April.

Ms. Fiorelli said the Mass. Bay accounts for around 4 percent of the bycatch in the GOM. She said it may be a politically unadvisable to leave the Massachusetts Bay closure out while the proper scenario is being developed, but as far as achieving the overall goal, she thought that area was of small significance.

Mr. Mirarchi said that they decided to omit the offshore area before and maybe they should move ahead with the Downeast and Mid-coast areas and take up the Massachusetts Bay area at the next Council meeting. He recommended moving ahead with the two areas and waiting for the April Council meeting for the Massachusetts Bay area.

Mr. Brennan noted that the whole program was to be phased in over a four year period to achieve a reduction of no more than 2 percent of the population. If there were complete scientific agreement that the better time to close it would be the end of February to the end of March then in reality there would be no closure this year. He suggested that if they do not implement a time/area closure for the Massachusetts Bay area this year the plan does contemplate further reductions and the Council could look forward to achieving a forty percent reduction next year through a combination of time and area closures. He realized that this did not address the listing, but felt that the Council should attempt the most appropriate approach to address the bycatch interaction between the marine mammals and the fishing industry.

Mr. Roe said the best approach would be to implement the original timeframe of April 15 to May 15 and then move forward with all three.

Mr. McCauley asked about just closing down the area if takes occur by emergency action because of the uncertainty of where the harbor porpoise are.

Mr. Hill said his understanding was that they were going to send this back to the Northeast Fisheries Science Center for analysis and make the decision at the April Council meeting.

Mr. Allen said that he noted that language in the public hearing document mentions that there would be a twenty percent reduction in harbor porpoise in year one and an additional twenty percent in year two and twenty percent in year three. He noted that the area and time they are talking about would grow each year. He noted that in the economic analysis it said that vessels fishing in the Maine ports bear the greatest burden under the thirty day closure and those south of Plymouth, Massachusetts bear zero cost. Why would there be the conflict if the boats are going to be better off. He hoped that someone could clear this up the next time it is being considered.

Ms. Anderson said that she had the opportunity to talk with the author of the analysis and he apologized for the quality of the report and said that he was rushed and used weighout data to determine the facts and he would like to do it again. She said that when the Council has industry telling them about something, she hoped they would listen. She suggested that the Council study this for a year and then make a decision.

Terry Smith, NEFSC, said that the author should not apologize for the report and he thought it is a reasonably good analysis. He thought there should be revenues from other groundfish species included in the economic report.

Mr. E. Smith moved and Mr. Sewall seconded:

that this whole plan, vis-a-vis the two northern areas proceed as has been agreed upon. That the staff review the CPUE data and anything they need to and pick a 30-day period between February 20 and May 20 that is the best possible compromise that they can advise us with. The Executive Committee will conference call with this at the earliest possible time and make a decision and go with it so there is no further delay.

After Council discussion Mr. E. Smith said he would remove the Executive Committee conference call language from the motion with the agreement of the seconder.

Mr. E. Smith perfected the motion to add the following language:

that the staff with the Center contribution of effort come forth with the advice needed by the Council to make the decision at the April 6 meeting.

Mr. Sewall said they should let the fishermen know now what they intend to do. If there are not going to be closures this year then they should know that.

Mr. Brennan suggested adding to the motion: If the recommendation for year one of implementation cannot be accomplished that there will be a minimum of forth percent reduction accomplished in year two. No one agreed to this perfection.

The motion now reads:

that this whole plan, vis-a-vis the two northern areas proceed as has been agreed upon. That the staff review the CPUE data and anything they need to and pick a 30-day period between February 20 and May 20 that is the best possible compromise that they can advise us with. The staff, along with the Center, will come forth with the advise needed by the Council to make the decision at the April 6 meeting.

The motion carried unanimously on a voice vote.

A Massachusetts Bay gillnetter said he had been involved with the process for some time. He noted the compromise that the fishermen had made concerning the dates for the time/area closures which was the month of March. He asked what would happen to the planned twenty percent reduction for this year as March was half way over. He also asked if it would be one full year from when the plan was implemented or would it be a calendar year from January 1. He continued saying, based on the calendar year, the way the weather has been between the frozen harbors and the windy February, he would like to see the data from January through the

present date for 1994 compared to the same time period in 1993. He thought they had already exceeded the twenty percent reduction in that area. In that context it was not really a concern to the Massachusetts Bay area fishermen from their experience of meeting the twenty percent either way it fell. He said he would be anxious to see the results would be in the twelfth month for year one versus the first month.

This ended the Marine Mammal section of the Council meeting.

Marine Mammal Committee Report: April 6, 1994 NEFMC Council Meeting

Mr. Odlin moved and Mr. Rathbun seconded:

that the Council approve the Mass Bay closure area boundaries of 42°30′ west, 70°30′ south, 42°12′ west, 70° south from March 15 to April 14.

Jan Anderson, Massachusetts Bay area spokesperson, presented the position of her organization, and asked the Council to consider the time frame they had proposed of February 22 to March 22. She asked the Council members to refer to material under binder tab 10. She noted that she had heard from fishermen who had attended the Marine Mammal Committee meeting that some of the economics were still in question. She asked the Council members to note the figures concerning harbor porpoise bycatch in a letter from NEFSC Director Allen Peterson. "The 4-week period with the highest bycatch rate is Feb 19 - March 17, the second highest bycatch rate is Feb 26 - March 24. Most of the harbor porpoises caught during these time periods, she said, were caught in 1990 and 1991, when there was only 1% sea sampling coverage." She noted that these two dates corresponded very closely to the dates proposed by the fishermen. She said they could not understand why such clear-cut data was not being considered. She noted that the letter also stated "the predicted percentage of harbor porpoises caught is highest during the 4-week period April 2 - 29."

Ms. Anderson noted that the flounder fishing in the Scituate area was very heavy from February through May with 150 to 200 foam-core nets in the water. At a previous Marine Mammal Committee meeting, she said, it was noted that with all the effort there was very little bycatch of harbor porpoise. She said that the amount of heavy effort is offsetting the actual picture of when the harbor porpoise bycatch takes place.

Ms. Anderson said, according to her figures, the economics during this time period of the proposed closure were ten percent of the fishermen's annual income. She visited fish markets in the area and found that fishermen would suffer a loss of 18 percent of their income based on 1992 figures. She said that they did not want to jeopardize the time/area closure proposal for Amendment #5. Her organization believes in the concept and felt it would be helpful to both harbor porpoise reduction in takes and effort. She said that the fishermen are taking much too hard a hit for the amount of harbor porpoise that they are taking.

Ms. Anderson asked the Council to look at her data as they consider the motion. She said the time frame that the PDT proposes was 44 percent of the overall take. The time frame that the fishermen are proposing would be 50 percent of the takes.

Mr. Odlin, Council member, noted that there would be no closure this year as there were only nine days between the end of the proposed closure. He also noted that all

data would be reviewed on an annual basis which meant that before any closure next year, it would be reviewed again and all areas may change.

Mr. Hill, Council member, noted that the staff was writing a letter to Mr. Peterson to request that the take data be made available earlier than the projected end of the year so that the Committee could make an assessment at the annual review in August or September. He said he was confused at the different data being presented. He said his understanding of the data was that of the fourteen takes eight of them occurred during the period that was being considered for closure. Then, he said, the Committee discussed the projected takes as presented by the Center and it appeared that they were highest during that same period. It was his understanding that sixty percent of the takes were during the period that the Committee was considering closing.

Ms. Fiorelli, NEFMC staff member, agreed with Mr. Hill, but asked Mr. Mayo for further information. She said they were weighted according to fishing effort. Ms. Anderson's point, she said, was that the Mass. Bay area was very small and accounts for only 2 - 4 percent of the total bycatch. The bycatch is highly variable between February and mid-April.

Mr. Mayo, Northeast Science Center scientist, explained that whether it be catch or effort that you use to expand the observed takes the same conclusion was reached. He realized that what people want to see was what they actually observed on the sea sampling data. According to the charts accompanying the Peterson letter, there appears to be two trends that are at odds with each other. If the dotted line is to be taken as the kill rate from the sea sampling data alone, there are two points that indicate slightly higher kill rates. From about February through April, he said, they are about the same around--.3 animals per ton of fish landed. However, he said, the fishing effort is going up four-fold between February through April which explained why the whole analysis was weighted towards the later part of the year rather than the early time.

Mr. Mirarchi, Council member, noted that he had been an eyewitness to this fishery for the past fifteen years. He said that the data being presented to the Council did not ring true. He said he understood where the Center was coming from in their calculation of kill per effort. He thought that both the Netters Assn. and the Center were talking through each other. He said that in calculating kills per effort you are using the multiplier of catch to weight kills over time. The fallacy of this is that this concept assumes there is a constant catch per unit effort and that the number of nets was directly proportional to catch. He did not believe that this was not the case. The catch per unit effort goes up almost geometrically later in the season from March to May, tapers off very rapidly after a rapid expansion and then drops to a very low level and concludes. He felt that the fishermen's viewpoint had a lot more validity than the Center was accepting because the actual effort was measured by net set over

days doesn't go up in proportion to the catch, hence there is a disproportionate weighing of derived kills versus observed kills during the later part of the season.

Mr. Allen, Council member, felt that the numbers seemed very low and to base any conclusions on them seemed very troublesome to him. He felt that they could stop the fishermen from fishing for a month with little impact on harbor porpoise. He asked if there had been any statistical analysis of the confidence limits or ranges around which the Council could assume that the graphs are accurate.

Mr. Mayo says that the entire data used to calculate the harbor porpoise bycatch rates were difficult to work with because so few were caught.

Mr. MacKinnon, Massachusetts Netters Association, questioned the figures that Mr. Mayo had presented. He said that 1992 messed up the figures and felt that it was a skewed year with five takes in April. It weren't for that, he said, they would be looking at February or March.

Mr. Hill noted that in 1992 and 1993 all but one of the takes occurred during the time frame in the motion.

Paul Cohan, Cape Ann Gillnetters Association, said that regardless of whether you look at CPUE as far as how many nets are in the water or the pounds landed, you have to realize that one of the major concerns of the Council has been displacement of effort. If you look at the fishermen's viewpoint, there is a group of people that have 365 days to make X amount of money in a given time period. If they are going to get a chunk lopped off of that, particularly a very productive chunk, they are going to try to fish harder at a different time when the grounds are open. If the CPUE goes along with the effort as far as the amount of gear in the water goes and if you take that amount of gear and fish hard in January and February then you will see a lot more takes then you would in the later part of April. He asked that the Council consider that year one of the marine mammal mitigation effort start upon implementation of the program.

Mr. Brennan felt that the Council was having a difficult time understanding all the different numbers being presented. He felt that the Committee was much closer to the situation. He felt that the most important thing said thus far was Mr. Mayo's suggestion that the Council pick a time in the middle. He said the motion before the Council was weighted toward the end of the time period. Industry's suggestion was toward the front end of the period and he suggested that the Council could select a time period between the two.

Mr. Coates noted that the closed area was different than presented before and understood it was because of endangered species. He asked the Council to note the memo from John Walden, NEFSC which charted the important species caught in

Plymouth, Suffolk and Norfolk counties between February and mid May with the higher amount of winter flounder being caught between March 15 and April 15. He said that he was concerned about the ASMFC Winter Flounder Plan which obligated them to achieve certain fishing mortality goals. It stands to reason that the March 15 to April 15 is very attractive from the standpoint of winter flounder catch reduction if the landings come from those counties.

Mr. Rathbun, Council member, felt that the Council could go back about two weeks on the closure.

Mr. Hill, Council member, said they had reached their decision on the best data available. He said the real issue was to mitigate the potential listing of the animal and that was the predominant issue that the Council needed to address. He felt that they should try and take every step possible so that it would not occur. He felt that the arguments before the Council were economically driven and all related to the winter flounder fishery and not related to the harbor porpoise take. He asked if that was going to be considered when people look at it in the review process as a legitimate reason for backing away from the best information that the Council could come up with to change the closure period.

Mr. Mirarchi, Council member, reminded the Council of a policy decision they had taken relative to the take of finfish in Amendment #5. This was that the decision on harbor porpoise mortality mitigation would be made solely on that basis this year and then there would be an assessment on the consequences of whatever that decision would be that would be factored into the year two effort reduction and would be applied to the gillnetters to bring them on track with everyone else in their annual increments of effort reduction. He did not think they should muddy the waters by bringing in the winter flounder question.

Mr. Mirarchi moved to amend the motion and Mr. Odlin seconded:

that the closure take place in the month of March.

Mr. E. Smith agreed with the amendment to the motion.

Mr. Allen, Council member, noted that these regulations were subject to the same review requirements as any of the other requirements such as the EIS. He asked if there had been an economic evaluation of the value of a harbor porpoise.

Ms. Fiorelli said it was not done as part of the economic analysis. One of the environmental groups did discuss how much a harbor porpoise life was worth, but do not have the figures available.

Mr. Brancaleone, Council Chairman, asked if the Council could find out what would be jeopardized by going back to the month of March.

Ms. Fiorelli said that whether this plan succeeds or fails would not hang on Mass. Bay which represents only a minuscule amount of bycatch compared to the other areas.

The motion to amend carried on a voice vote with one no and Mr. Rittgers abstaining.

The main motion carried unanimously on a voice vote.

New England Fishery Management Council
5 Broadway • Saugus, Massachusetts 01906-1097
TEL (617) 231-0422 • FTS 8-617-565-8457
FAX (617) 565-8937 • FTS 8-617-565-8937

Chairman
Joseph M. Brancaleone

Executive Director
Douglas G. Marshall

Memorandum

February 16, 1994

TO: Marine Mammal Committee

FROM: Douglas G. Marshall, Executive Director

SUBJECT: Summary of Public Hearing Comments on Proposed Measures to Reduce the Bycatch of Harbor Porpoise in the Gulf of Maine Sink Gillnet Fishery

Portsmouth, New Hampshire, Wednesday, March 9, 1994

• Fishermen at the Portsmouth hearing were in general support of the time/area closure program and the boundaries proposed for the Mid-coast area. They opposed the blocks-of-time scenario.

• One commenter asked for some sort of exemption for small boat operators who operate inshore only. These fishermen, he said, would be effectively out of the fishery as of the November 1 closure because they are too small to fish in bad weather and in offshore conditions. Another individual suggested that these vessels fish under the 500 pound possession limit.

• Some fishermen felt it was inappropriate to use the harbor porpoise time/area closure plan to protect endangered whales. One fishermen asked the committee to reconsider the Mass Bay Closure Area. He suggested that the southern boundary in the eastern 30 minute square of Mass Bay Area be adjusted to border the northern boundary of the right whale critical habitat area. He pointed out that fishermen use flounder or tie-down nets in the area and that this fishery accounts for about 40 percent of their yearly income.

• Fishermen expressed skepticism and concern over the porpoise abundance estimates and the disparity between the point estimates for 1991 and 1992. They urged the Council to ask NMFS to conduct ongoing surveys in order to better refine the data.

• Nearly all fishermen in Portsmouth strongly supported further pinger experiments and their use as a means to reduce porpoise bycatch.

• There was a request to examine the bycatch rates for tie-down nets relative to the kill rates for stand-up nets.

• Mandatory observer coverage was not supported nor was the use of a cap on the number of nets in use.

• Most fishermen were extremely concerned about the consequences of the Canadian harbor porpoise bycatch and how it would affect the status of the proposed ESA listing.

Ellsworth, Maine, Thursday, March 10, 1994

• A suggestion was made to divide the Northeast Closure Area in half longitudinally or simply make the entire area smaller.

• Concerns about time/area closures centered on closing the Schoodic Ridge area. Fishing activity there represents between 30 and 60 percent of the summer wages of the gillnet fleet in that region, according to one fisherman. Another individual asked that fishermen be compensated financially for lost fishing time.

• Many fishermen supported the use of pingers as a bycatch mitigation measure. A suggestion was made to use pingers in the first year of the program in conjunction with four-day blocks of time, but with no subsequent expansion of the days in future years.

• Fishermen were dismayed that Jeffreys Ledge, an area of high bycatch, was being left open in the first year of the plan. They also were concerned about the future expansion of closures in time and area. By the fourth year of the plan, they explained, most would be out of business.

• Numbers of fishermen had serious concerns about the quality of the data used to determine time/area closures; they additionally expressed doubts about the competence of the observers who collect the sea sampling data.

• Some fishermen were opposed to time/area closures based not only on the quality of the data but what they called the lack of willingness of officials to work with them. Some felt the harbor porpoise reduction program was a mechanism being used to shut down the gillnet fishery.

• Two fishermen expressed support for the time/area closure plan as proposed. In a show of hands, six more fishermen supported that type of management program.

• The four-day block system as proposed in Amendment #5 was opposed by most of the fishermen at the Ellsworth hearing. It was a plan, they maintained, that was not tailored for day boats.

• Mandatory observer coverage was not supported.

• Some present at the hearing were in favor of a cap on nets as a means to achieve groundfish effort reductions.

The larger time/area closures initially considered by the committee were not supported at the Ellsworth hearing.

• A language change was suggested for page 3 of the document: *the Council may alter areas or times of closures,* rather than expand areas or times.

• Gillnet gear should be given credit, fishermen said, for being size selective and a gear type that does not result in discards of juvenile fish.

• There was considerable confusion over how effort reductions would be linked to harbor porpoise bycatch mitigation measures.

As a final comment, one individual requested that local fishermen be given the opportunity to develop their own harbor porpoise bycatch reduction program in the Northeast.

NEW ENGLAND FISHERY MANAGEMENT COUNCIL
5 Broadway
Saugus, MA 01906
617/231-0422 FTS: 617/565-8457

ATTENDANCE

Page _____

Attendance At: Harbor Porpoise Public Hearing

Date: March 10, 1994 **Location:** Holiday Inn, Ellsworth, ME

Certified By: _____

PLEASE PRINT

Name	Mailing Address	Telephone
Artie Crain	NEFMC	
Kim Thourhurst	NFMS/HPRD	(508)281-9138
John Higgins	Com. Fish	207-3676302
Richard Rubin S.	P.O. Box 207 Stonington	207-367-2417
[illegible] MeGA	P.O.B 317 Stonington 04681	207 367 2417
Richard Tinker Sr. MeGA	P.O.B 333 Stonington	207 367-2736
Ted [illegible] MEGA	P.O. Box 155 Stonington	207 367-5907
Bob Bowman	P.O. Box 398 Mt. Desert 04660	207-244-7429
Martie Crane	Rt 1, Box 325 Palermo 04354	207-993-2755
Tom Fernald	RR1 Box 625 Bar Harbor ME 04609	(207) 288-5661
Fred [illegible]	LCA 105 Eden St. Bar Harbor Me 04609	207 288-5644
[illegible]	HCR 62 Box 20 Mt. Desert ME 04660	
Dwight H. Carver	Box 131 Beals Maine 04611	207-497-2895
Sandra Donovan	RR1 Box 12 Penobscot 04476	207-326-9461
Kent Miller	P.O. Box 604 Deer Isle	207-348-6118
Susan Miller	P.O. Box 604 Deer Isle Me	207 348-6119
Stanley Sargent	po Box 264 milbridge me	207-546-2100
Mark Robert	PO Box 99 Jonesport Me	207-497-2649
Scott McClure	PO Box 28 SUNSET ME	207-348-2551
[illegible]	Box 867 Castine me	207-963-7369
[illegible]	Box 66 Birch Harbor Me	207-963-2211
Michael Smith	Box 242 Brooksville Me	207-326-9391
John D Cousins	Box 158 Brooksville Me	207-326-9349
William Smith	Box 204 Jonesport ME	207-497-5696
Bill Lock	Box 11 Beals Is Me	207 497 2834
[illegible]	Maine	

NEW ENGLAND FISHERY MANAGEMENT COUNCIL
5 Broadway
Saugus, MA 01906
617/231-0422 FTS: 617/565-8457

ATTENDANCE

Page _____

Attendance At: Harbor Porpoise Public Hearings

Date: March 9, 1994 **Location:** Urban Forestry Center, Portsmouth, NH

Certified By: _____

PLEASE PRINT

Name	Mailing Address	Telephone
JOHN WILLIAMSON	201 WELLS RD KENNEBUNK ME	207 967 5340
Bill Barker	110 Washington St. Gloucester	508 [illegible]
Bill Muniz	164 prospect St Gloucester	508 283-9856
GEOFF GINN	140 Cochato St PORTS.	603 436 4835
PETER KUEL	NMFS SEA SAMPLING	PO Box 1770 NARRAGANSETT RI 02345 207 658 1635
ROGER HAYMON	16 YARMOUTH RD.	GRAY, ME 04039 207-657-4824
ALAN VANGILE	75 OXFORD AVE	PORTSMOUTH NH 03801 603 436 5031
Peter Lagerstrom	1 Ocean Blvd Hampton N H 03842	926-4655
WAYNE DRISCOLL	422 HIGH ST HAMPTON N.H. 03842	926-8210
STEVE DOUGLAS	366 Ocean Blvd. Hampton N.H. 03842	926-8612
ERIK ANDERSON	38 GEORGES [illegible] TERR. PORTS N.H. 03801	
DOUG BEACH	NMFS, ONE BLACKBURN DR., GLOUC., MA	(508) 281-9254
Peter Fiorio (Morse)	62 Tuttle Ln Greenland N.H. 03840	603-431-1527
BUD FERNANDES	21 Williams Ave Kittery Me 03904	207-439-8805
ARTIE CHAIN	NEFMC	
Bill Brennan	NEFMC	

Appendix V
Written Comments

COMMITTEES:
FOREIGN AFFAIRS
BUDGET COMMITTEE

WASHINGTON OFFICE:
2268 RAYBURN HOUSE OFFICE BUILDING
WASHINGTON, DC 20515-1902
(202) 225-6306

OLYMPIA J. SNOWE
2D DISTRICT, MAINE

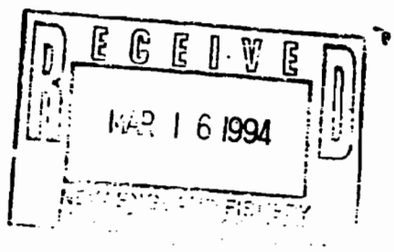
Congress of the United States
House of Representatives
Washington, DC 20515-1902

DISTRICT OFFICES:
ONE CUMBERLAND PLACE
SUITE 306
BANGOR, ME 04401-5000
(207) 945-0432

TWO GREAT FALLS PLAZA
SUITE 7B
AUBURN, ME 04210-6813
(207) 786-2451

188 ACADEMY ST.
PRESQUE ISLE, ME 04769-3186
(207) 764-5124

March 16, 1994



Mr. Joseph Brancaleone
Chairman
New England Fishery Management Council
5 Broadway (Route 1)
Saugus, Massachusetts 01906

Dear Mr. Brancaleone:

I am writing to urge you and the other members of the Council to postpone final action on the harbor porpoise by-catch reduction plan, and to develop an alternative that treats gillnet fishermen in the Down East region of Maine more equitably.

The current by-catch reduction plan would result in a 13% decline in producer surplus for fishermen who fish in the waters off of Washington and Hancock Counties, Maine -- an area that accounts for 20% of the harbor porpoise by-catch. Yet gillnetters who fish in the waters off New Hampshire and Northern Massachusetts -- an area where 70% of the harbor porpoise by-catch takes place -- will experience a 0% reduction in producer surplus. It has been estimated that the current proposal will reduce the earnings of gillnet fishermen in Washington County by 30% to 50%, and in Hancock County by 15% to 20%, even though they account for a notable minority of the total harbor porpoise by-catch.

Clearly, the current proposal misplaces the burden for reducing harbor porpoise by-catch. The plan should instead focus on the regions where the majority of the total by-catch takes place. This matter must be re-negotiated if the Council is going to produce a fair and effective by-catch reduction plan.

I appreciate the Council's attention to my request. Please feel free to distribute copies of this letter to the other members of the Council.

Sincerely,

OLYMPIA J. SNOWE
Member of Congress
2nd District, Maine

INTERNATIONAL WILDLIFE COALITION
IWC
printed on recycled paper

March 19, 1994

Joe Brancaleone, Council Chair
New England Fishery Management Council
5 Broadway
Saugus, Massachusetts 01906

Dear Mr. Brancaleone,

The New England Fisheries Management Council (NEFMC) is in the process of formulating time / area closures to safeguard harbor porpoise (Phocoena phocoena) from incidental entanglement by the New England sink gillnet fishery. As a scientist representing the environmental community, I have participated in a great deal of the discussion surrounding this process. I would like to take this opportunity to state my current position on the program of time / area closures being considered by the NEFMC.

The areas currently proposed for closure are of insufficient size to adequately predict the program's impact on harbor porpoise bycatch. Therefore, further discussion of specific components of this plan involving spatial aspects on the order of miles or temporal aspects on the order of days or weeks is not productive. My past concerns and comment were based on a desire to see the NEFMC institute time / area closures that would be meaningful; and might allow environmental groups to believe that protective measures would be sufficient to obviate the need for a listing of the population under the Endangered Species Act (ESA). Given the program's current inadequacy, the important, but fine scale adjustments that I found myself arguing about at the most recent Council meeting would not have an impact great enough to provide such protection. In addition, the newly recognized high levels of incidental take impacting this harbor porpoise population while in Canadian waters solidifies the need for an ESA listing. Therefore, I:

a) Withdraw my oral comments of 17 March (objections or otherwise) to various industry proposed changes in the design of the time / area closures.
b) Withdraw my support for the NEFMC's program of time / area closures, as it is currently designed.

I continue to support the Council in its belief that time area closures are the most appropriate method of reducing harbor porpoise bycatch in the sink gillnet fishery. The current program was designed with substantial input from the commercial fishing industry. I applaud the industry for its willingness to confront the challenge of reducing its take of harbor porpoise. Unfortunately, I have serious reservations concerning the results that can be expected from the current management plan. If reductions realized from the current design prove inadequate, the Council should be more receptive to future changes recommended by the scientific and environmental communities.

70 East Falmouth Highway (Route 28), East Falmouth, MA 02536-5954
Phone: 508-548-8328 **Fax:** 508-548-8542

In addition to harbor porpoise, the NEFMC would be advised to consider the potential for displaced gillnet effort to impact other species of marine mammals, particularly endangered species such as right, humpback and fin whales.

Sincerely,

David N. Wiley
Senior Scientist

cc: Richard Roe, NMFS
Douglas Beach, NMFS
Robert McKinnon, Massachusetts Bay Gillnetters Association
Ted Ames, Maine Gillnetters Association

March 11, 1994

11 Leonard Lane
Norwell, Massachusetts 02061

New England Fishery Management Council
and Marine Mammal Committee
5 Broadway
Saugus, Massachusetts 01906-1097

RE: Proposed measures to reduce bycatch of harbor porpoise in the G.O.M. gillnet fishery

Dear Marine Mammal Committee and All Council Members;

I have been a member of the Harbor Porpoise Working Group since its inception and am an advisor to the Marine Mammal Committee. I am an officer on the Board of Directors for the Massachusetts Netters Association. Because I have worked for many years to solve the problem of incidental take of Harbor Porpoise in gillnets in the Gulf of Maine, I would be remiss if I did not come forward at this time and say that the Council is on the verge of making a grave mistake in its selection of times in which to close the Massachusetts Bay Area to gillnetting in order to reduce harbor porpoise bycatch.

I have long been an advocate of time/area closures as well as othe effort reduction measures the Council is now considering to reduce fishing effort and porpoise interaction simultaneously for gillnetters, and in no way wish to jeopardize the process of including these measures for gillnetters as an important part of Ammendment Five. It is a good plan, however the times for the Massachusetts Bay Area are incorrect.

Although Mass. Bay accounts for very little of the bycatch, (of all 178 observed takes from 1990-1993, only 14 are from this area) fishermen are willing to accept a thirty day closure for all areas to equally distribute bycatch reduction measures across regions. However, they demand that the Council adhere its own requirements: 1.) that "the timing of the closures correspond to periods when porpoise bycatch is most likely to occur" and 2.) that "little or no reduction in bycatch" could result "if animals are not present during the closure period - resulting in lost fishing time with no benefit".

1. Timing of the closures - The Council is proposing a closure during the last two weeks in April and the first two weeks in May. All recorded takes in May are well North of Mass Bay. The only recorded take during this time is 4/22/92. It is the most northern take in this area and indicative of the populations northern migration. Weighout data has a very low confidence level

due to inaccurate reporting and the absence in key areas of a port agent. There is no consistent data to indicate this is the correct time for a time/area closure. I have spent many hours interviewing fishermen about when harbor porpoise are present. Aside from tying porpoise sightings with the abundance of herring, fishermen consistently report sightings and interaction with harbor porpoise primarily from the end of January through the beginning of March. Observer data indicates the majority of takes occurring during the end of March and beginning of April. Fishermen are willing to accept a closure in March but strongly recommend a closure in late February to early March as a more accurate time of interaction. Ideally, a closure should be triggered by the presence of harbor porpoise. Already, in 1994 the two takes I know of were in late January!

2. Lost fishing time with no benefit - Most gillnetters at this time out of Scituate are engaged in a flounder fishery. This closure is proposed during the middle of this. A closure during this time would shut down the fishery during a time when boats might bring in 35%-50% of their annual income. They are small boats fishing foam core (a net that lies very low on the bottom and probably deters interaction with porpoise). They fish traditional inshore territorial waters and will not travel to another area. After an exceptionally hard winter, I seriously question their ability to survive a closure at this time. This is the grave mistake: that little or no reduction in bycatch could result because animals are not present in signifigant numbers during the closure period, resulting in lost fishing time with no benefit and extreme ecconomic hardship.

I have enclosed some graphics to show where the fourteen takes over a period of four years occurred. I urge you to listen to the wisdom of fishermen; they have been invaluabe in helping solve the harbor porpoise interaction problem.

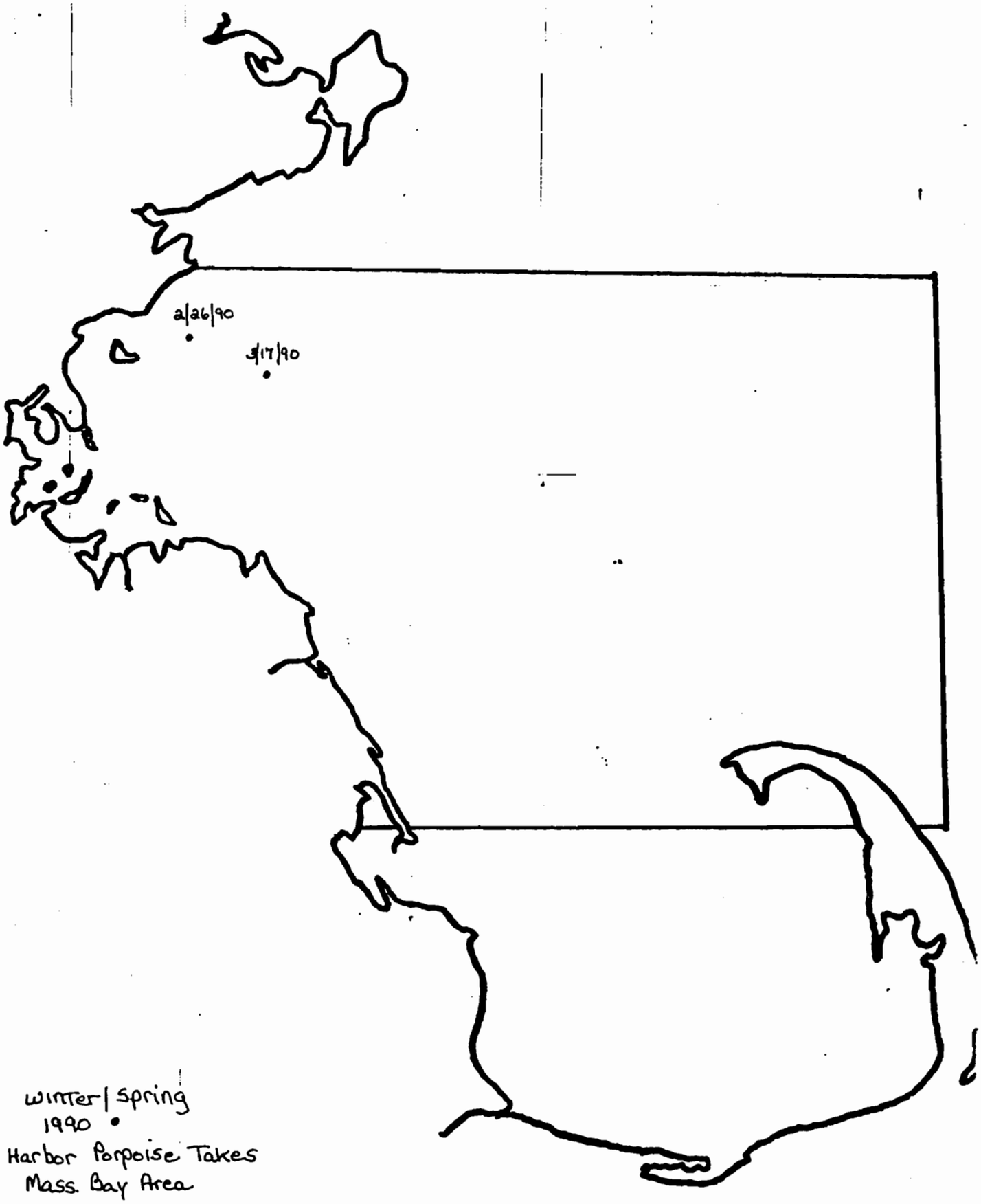
If the "timing and duration of the initial closure was based on the historic occurance of bycatch", why is this time/area closure so far off?

If "sea sampling and harbor porpoise sighting data indicate that both the occurrence of porpoise and the level of bycatch is very low in that region" (Offshore), then why wouldn't the same reasoning apply to eastern areas of Mass Bay. Shouldn't the eastern boundary be moved to the ~~70~~ 70 30 degree line?

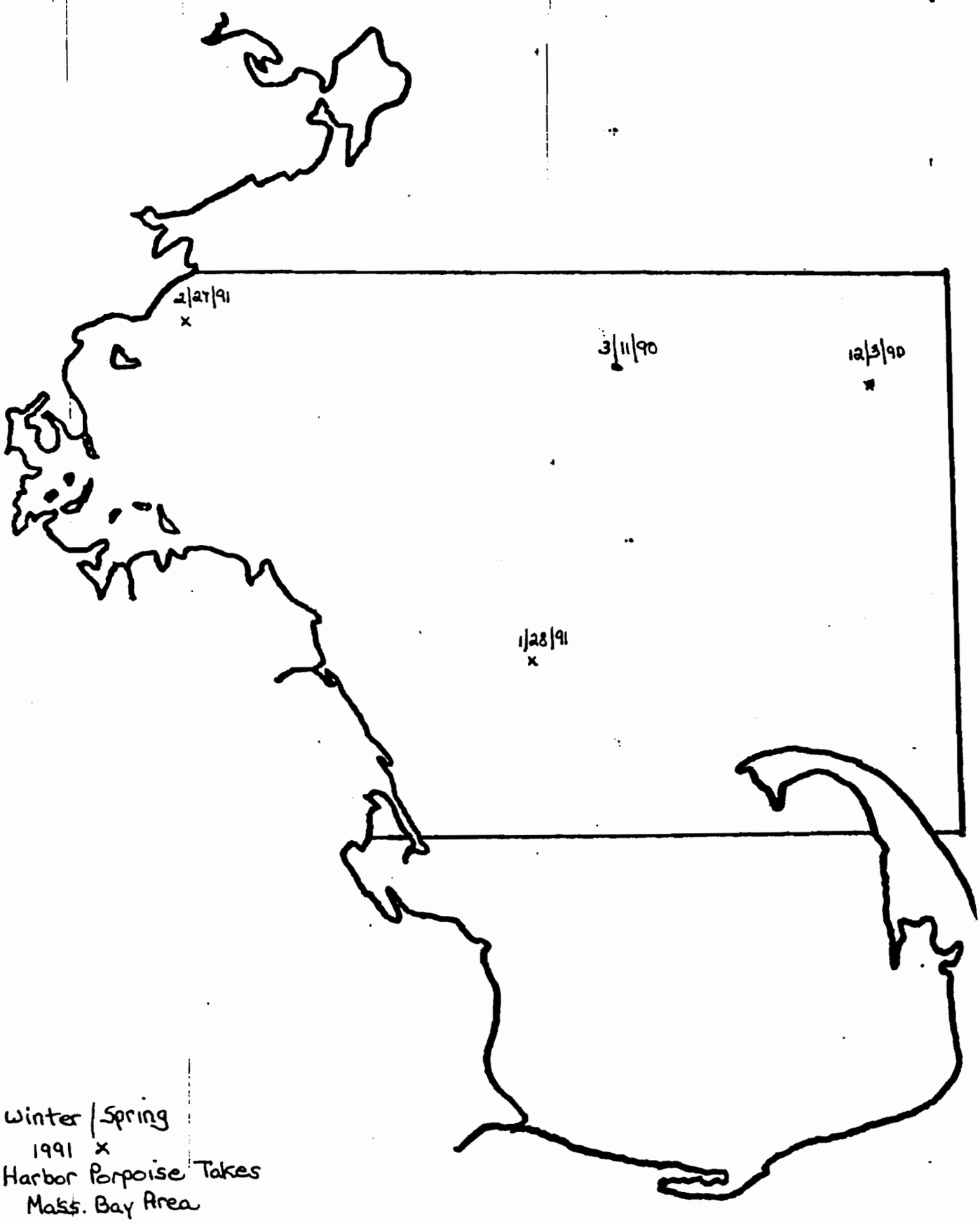
Please give this matter serious consideration. This isn't just number crunching for these fishermen.

Sincerely,

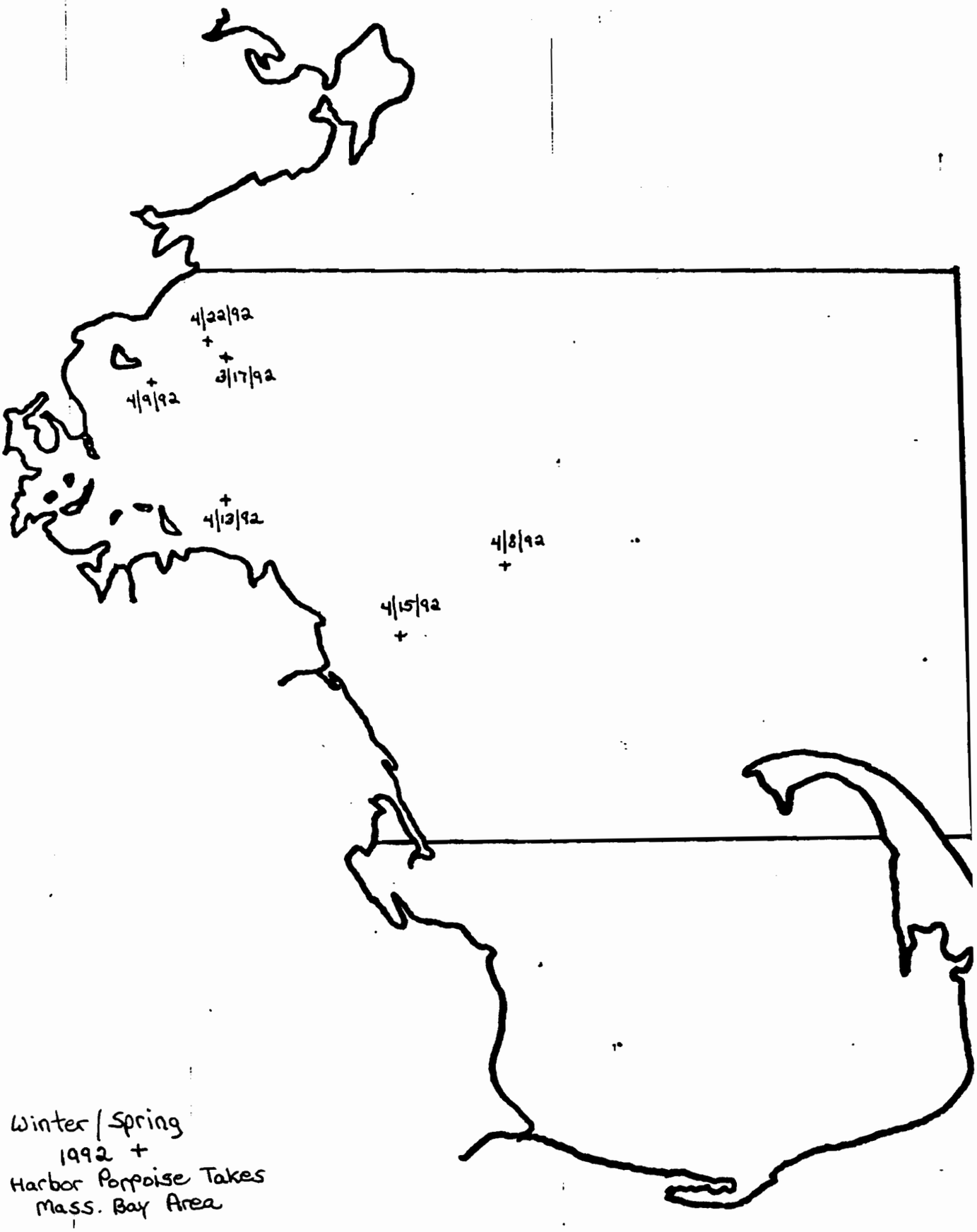
Janice Comeau Anderson
Massachusetts Netters Association



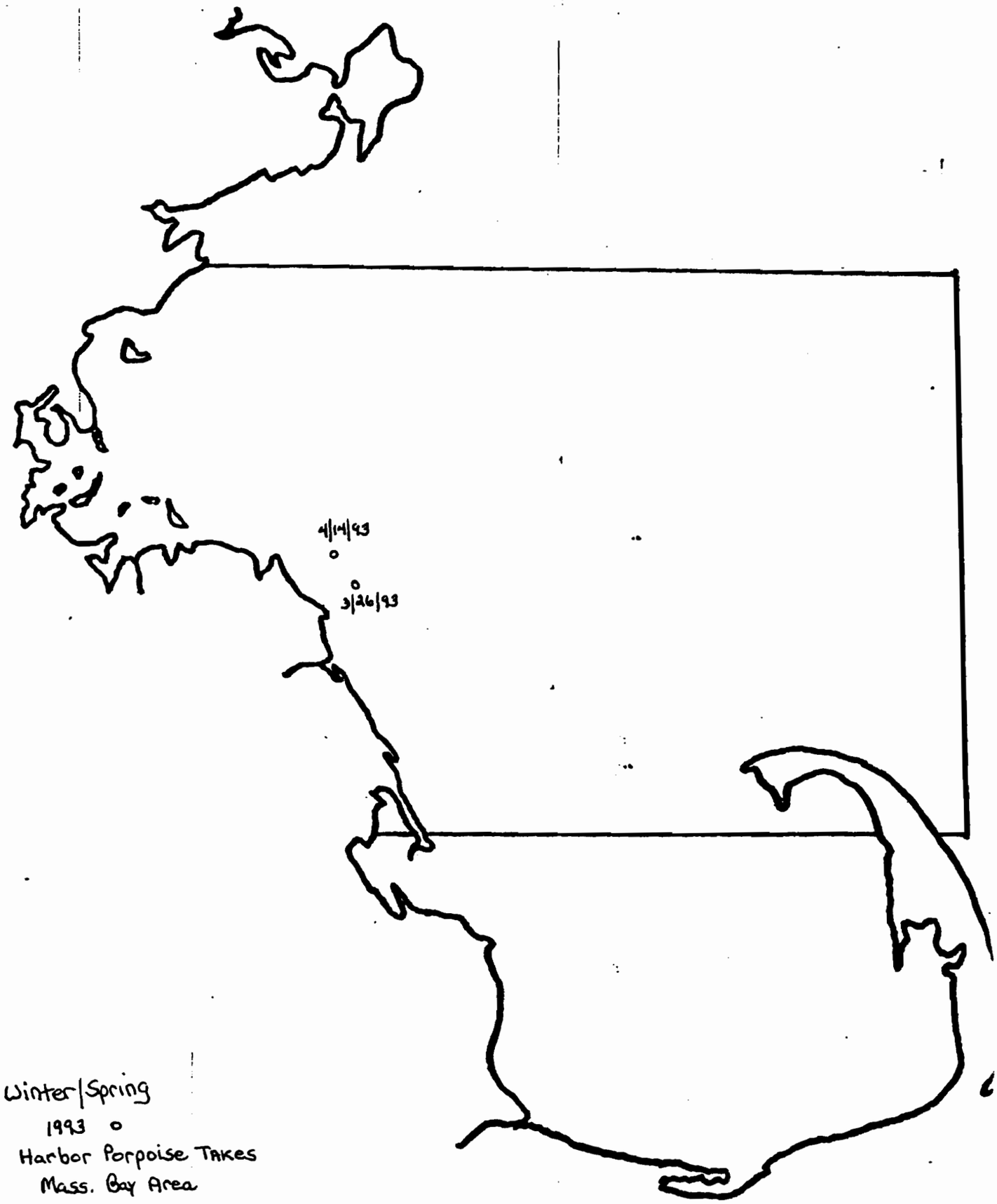
Winter/Spring
1990
Harbor Porpoise Takes
Mass. Bay Area



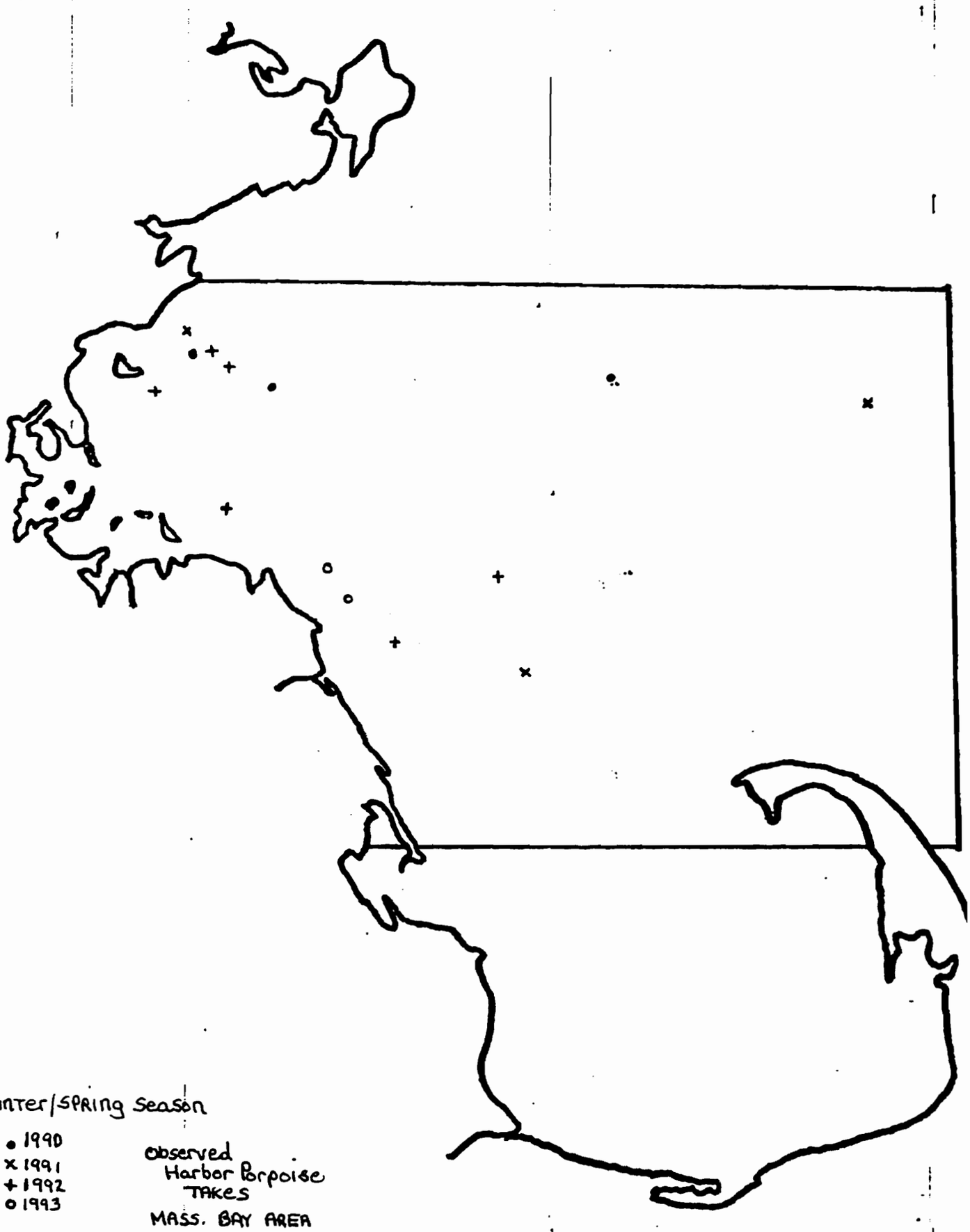
Winter / Spring
1991 ×
Harbor Porpoise Takes
Mass. Bay Area



Winter / Spring
1992 +
Harbor Porpoise Takes
Mass. Bay Area



Winter/Spring
1993 ○
Harbor Porpoise Takes
Mass. Bay Area


WINTER/SPRING Season
• 1990
× 1991
+ 1992
o 1993
Observed
Harbor Porpoise
TAKES
MASS. BAY AREA

To; New England Fishery Management Council
And The Marine Mammal Committee
5 Broadway - Saugus, MA 01906-1097

Subject; Public Hearing on Time/Area Closures Mass. Bay
March 17 1994/Holiday Inn, Peabody MA

From; Robert B. Mac Kinnon
65 Elm St.
Marshfield MA 02050
President Massachusetts Netters Association

I am here today on behalf of the Massachusetts Netters Association to speak out against the dates and the size of the time/area closure for Mass Bay. First, why is the closure to take place in April and May? There are no takes in May, none! In fact there is only one take after April 15 that take occurred on April 22nd 1992, this is according to the best available data. Over two years ago the gillnetters in the Gulf of Maine were willing to close different areas at different times, times when we felt it would be most beneficial, for example the Mass. Netters Asso. was willing to close an area bounded by the following loran lines, 13900 from the 42.00 Long. line to 25750 northward to the 13800 from January 1st to Febuary 15. But unfortunately,like so many other proposals made by industry, it fell on deaf ears! This area and time was based on past experience by netters. This is the time when the herring are most abundant and when the herring are present during this time span, so too are the harbor porpoise.
Secondly, we are talking about harbor porpoise today not whales, there is no need to make the area as big as it is. There are only two takes of harbor porpoise out side the 70.30 line. The facts are that all the takes except for two, occurred inside the 13900 loran line.
The closure line should be from 42 long to 70.30 lat to 42.30 long. The take outside of latitude 70.30 is rare. Again the great majority of harbor porpoise hang close to shore during their migration. This area would also be much easier to monitor for the Coast Guard during closure.
Third, the population of harbor porpoise in the Gulf of Maine may not be of the same population talked about in Canadian waters, there is much confusion over stock structure. Keep in mind, and this is according to the best available data, that the population of harbor porpoise has risen dramatically from a low of 3500 in the early 1980's to approximately 67,500 as of 1992. The facts are that there is not a high amount of takes in the Mass. Bay area.

Over all there have been only 15 observed takes in the Mass. Bay area between 1989 and 1993. Why close down the last two weeks in April and the first two weeks in May

when there was only one observed take during this time span? The netters are willing to close down for a four week period, but for the harbor porpoise sake make it the right time! February would be a far better month to close, even the last two weeks in February and the first two weeks in March would be far more protective for the harbor porpoise. This until we get a gear type that will prevent interaction. One other piece of information I would like to get across to the council and all concerned is that there is a switch over during early January in this area to flounder nets. Many of the nets have no floats using a polyfoam core float line, and many netters use a tie down net for flounders. Using these types of nets reduces the bycatch of harbor porpoise by far. This accounts for this very low take in this area. Again, we are willing to do our part but make it the right time.

Two things would happen if the proposed April/May closure went into effect, it would do nothing to reduce the take of harbor porpoise and the fishermen would be severly impacted economically, this being a time when they account for a substantial amount of there yearly earnings. Again we are willing to work towards a workable solution, a solution that makes sense for the fishermen, and for the harbor porpoise.

Sincerely,

Robert B. Mac Kinnon

MASSACHUSETTS NETTERS ASSOCIATION
65 ELM STREET
MARSHFIELD, MASSACHUSETTS 02050
March 30, 1994

New England Fishery Management Council
and Marine Mammal Committee
5 Broadway
Saugus, Massachusetts 01906-1097

RE: Proposed measures to reduce bycatch of harbor porpoise in the Gulf of Maine

Dear Committee and Council Members;

There was considerable confusion at the last Council meeting as to the correct times for area closure in Massachusetts Bay, as part of the effort reduction/harbor porpoise bycatch reduction plan for Ammendment Five. Because the whole matter was postponed for further examination until the next Council meeting on April 6, 1994, Massachusetts Netters Association would like to offer some insight in hopes of clearing up some of the confusion. We have been working closely with the Council staff to determine the best times for a closure and an appropriate boundary.

Massachusetts Netters Association has been in the forefront in solving the harbor porpoise interaction problem; being a catalyst in forming the Harbor Porpoise Working Group and in providing NMFS with important education on the nature of the sink gillnet fishery. We have long been an advocate of time area closures, as well as other effort reduction measures the Council is now considering, to reduce fishing effort and porpoise interaction simultaneously for gillnetters. In no way do we wish to jeopardize the process of including these measures for gillnetters as an important part of Ammendment Five. We hope the inaccuracy of the initial proposed time for a closure can be rectified and urge the Council to put forward a complete bycatch reduction plan in hopes of heading off a threatened listing.

All parties involved in the discussion of Mass. Bay time area closures are working with the same data. Please be assured that everyone is aware of the same fourteen takes in this area from 1989-1994. After closer analysis of the values appropriate to harbor porpoise observed takes and

with technical review and conservative extrapolations, Mass. Netters wish to present a refined graph which supports the time frame proposed by fishermen for optimum reduction in interaction in Mass. Bay with the least amount of hardship for fishermen and little possibility for net displacement into other sensitive areas: February 22-March 22. (see Attatchment A) It is also important to examine, by observed takes, the presence of harbor porpoise in gillnets from year to year. For instance, harbor porpoise were present in nets in 1991 from December through February; in 1992 interaction occurred in March and April and in 1994, two observed takes occurred on February 22. (see Attatchment B)

The fact remains that there is no substantial information to support a closure in the last two weeks in April and the first two weeks in May. Fishermen steadfastly oppose a closure during this time and ask the Council to strongly consider the proposed closure time of the last week in February through the third week in March. Although a four week closure any time during late February to early April could be significant, we hope the council will consider these important points.

ONLY FOURTEEN OBSERVED TAKES OCCURRED from 1989-1993. (roughly 4%) It is for this reason that IWC has removed its opposition to the proposed closure times. Although the Mass Bay area is fairly insignificant, fishermen support a closure during appropriate times as their contribution to bycatch and effort reduction; however, we feel there are other more important and serious considerations in choosing a time for closure.

Before moving on to another consideration, an examination of the flounder fishery is important. Why is the bycatch in this area small? It is not because the effort is small or because nets are not placed in areas porpoise seem to frequent. The flounder fishery, occuring February-May, involves intense fishing effort as measured by the amount of nets fished during this time. The entire gillnet fleet (made up of mostly small boats ranging from 30'-42' in length) participates. Boats are targeting several species of Mass. Bay flounder, using flounder nets: very light mesh and float line made of foam core. These nets lie low to the bottom; they do not stand up straight and have no floats. Serious consideration should be given to the probability that these nets discourage interaction.

Flounder fishing is a traditional, territorial, very inshore, small boat

fishery. The existence offlounder nets has been documented by observers, but has not been evaluated by NMFS as significant. Why? Massachusetts Netters have always cooperated with the Observer Program. Fishermen are losing faith in the observer data because much important information regarding their fishery is disregarded in Woods Hole. This problem could be alleviated if MNMFS could be convinced of the importance of consulting gillnetters on technical analysis and evaluation and understanding of the fishery. This is the missing link that results in the mistake of recognizing the significance of the inshore flounder fishery, and the larger mistake of an economic impact statement indicating fishermen would suffer no economic impact as a result of a thirty day closure during April or May.

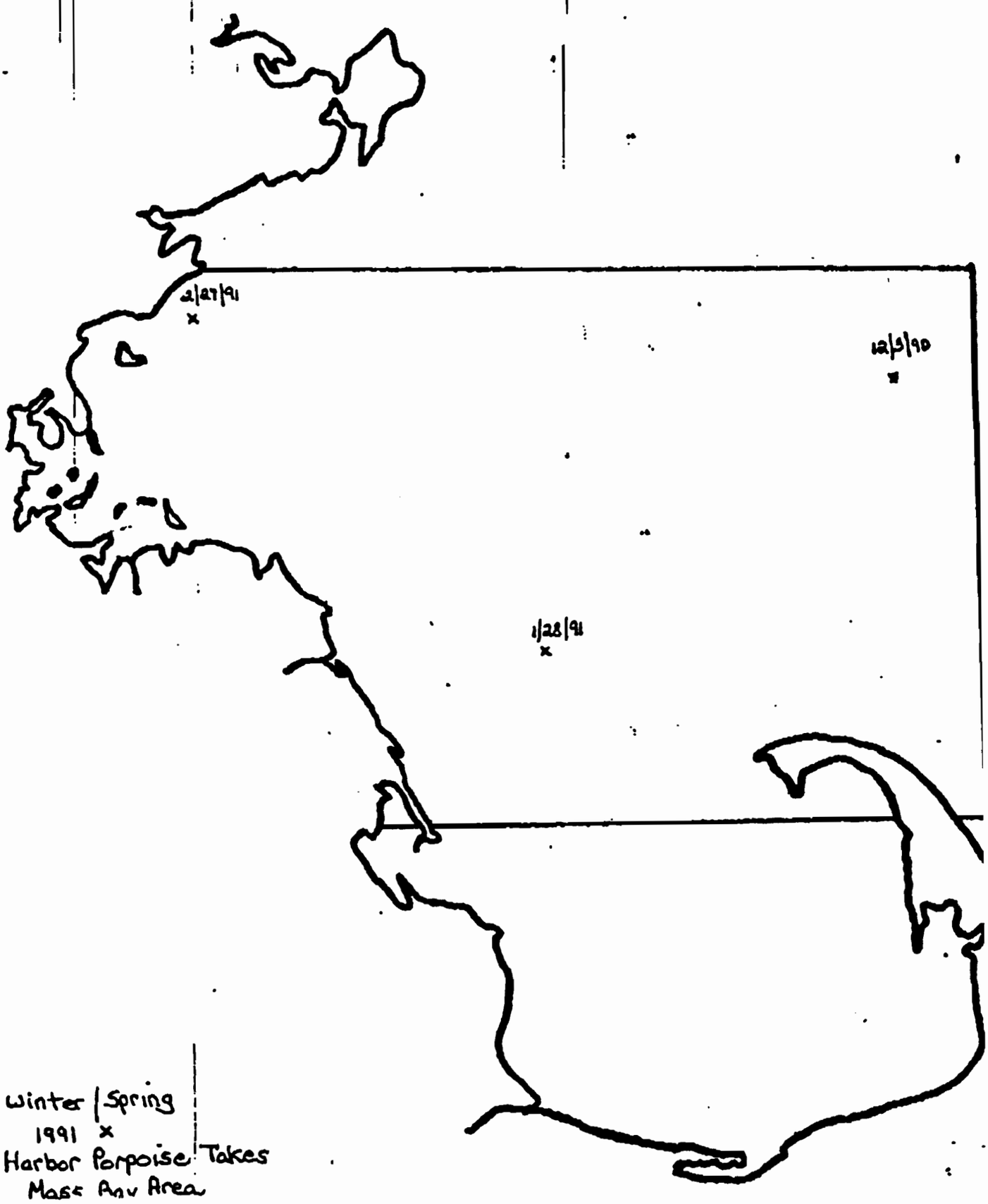
ECCONOMIC IMPACT Fishermen agree that harbor porpoise presence in gillnets should generate appropriate closure times. However, economic impact must be considered when selecting a closure as well. A closure in the middle of their flounder season, February-May, when boats earn 35%-50% of their income, is extremely grave. A closure in the middle of this fishery would make flounder fishing (requiring specific gear) impractical. This closure, coming on the heels of a hard, hard winter would be devastating. A closure nearer to the beginning of floundering, supported by presence of harbor porpoise in gillnets, is logical without being lenient. Fishermen realize that if there is a listing of harbor porpoise as threatened; this economic argument, unfortunately, becomes less substantial. It is important for the Council to take this into consideration when choosing a closure time.

NET DISPLACEMENT Another extremely important consideration in selecting an appropriate time for a closure in Massachusetts Bay is the potential for net displacement into other areas of possible interaction, resulting in little or no decrease, or even increase in harbor porpoise takes. A closure during the last week in February and the first three weeks in March would not allow the majority of boats the flexibility of traveling outside the area due to weather factors and seasonal territorial (dragger bottom) constraints. If a closure were to take place during the time fishermen are proposing, boats in our area would most likely tie up or opt for changing over to hooks. A closure during the proposed time of April/May, however, would allow small boats to travel outside the area proposed for Mass. Bay (North of the boundary where significant presence of harbor porpoise and interaction is documented and South into the area

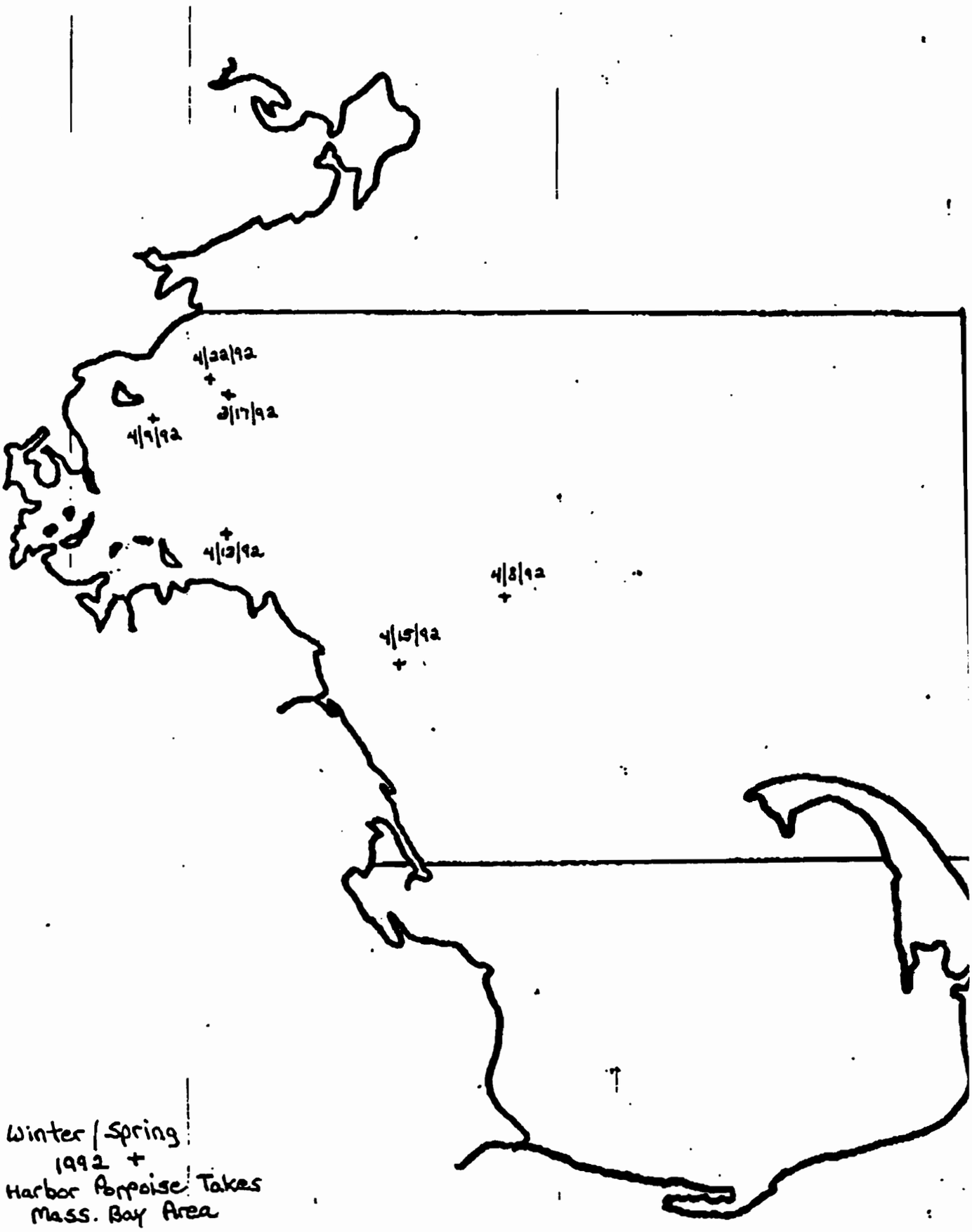
designated as Right Whale Critical Habitat). It is important to remember the fishery during the Spring is a traditional, territorial, shallow water fishery accomodating small boats; carefully intertwined with an inshore mobile gear fishery with little room for expansion into other areas. Gillnetting does not occur now in the area desingated as critical for right whales mainly because this is traditional dragger bottom. Speculated displacement of gillnets into this area is not logical. Gillnetters live with the constant possibility of losing gear to large mobile boats, who in turn discard the nets, creating the real potential to harm endangered whales.

INTERACTION RELATIVE TO SHOALY WATER Lastly, it is important for NMFS to examine the possibility that interaction in this area may be related to water depths. Fishermen contend interaction does not occur west of their proposed boundary for closure mainly for this reason. There seems to be a harbor porpoise presence, as indicated by NMFS survey data, but no interaction in nets. Chatham Boats, fishing east and south of Cape Cod, have no interaction under the same circumstances. Mass. Netters Association urges more research, and consultation with fishermen by NMFS in this area. In Massachusetts Bay, fishermen recommend serious attention be paid to areas inside the 13900 line from 42 degrees longitude Northwest to the 25750 line Northeast to the 13800 line.

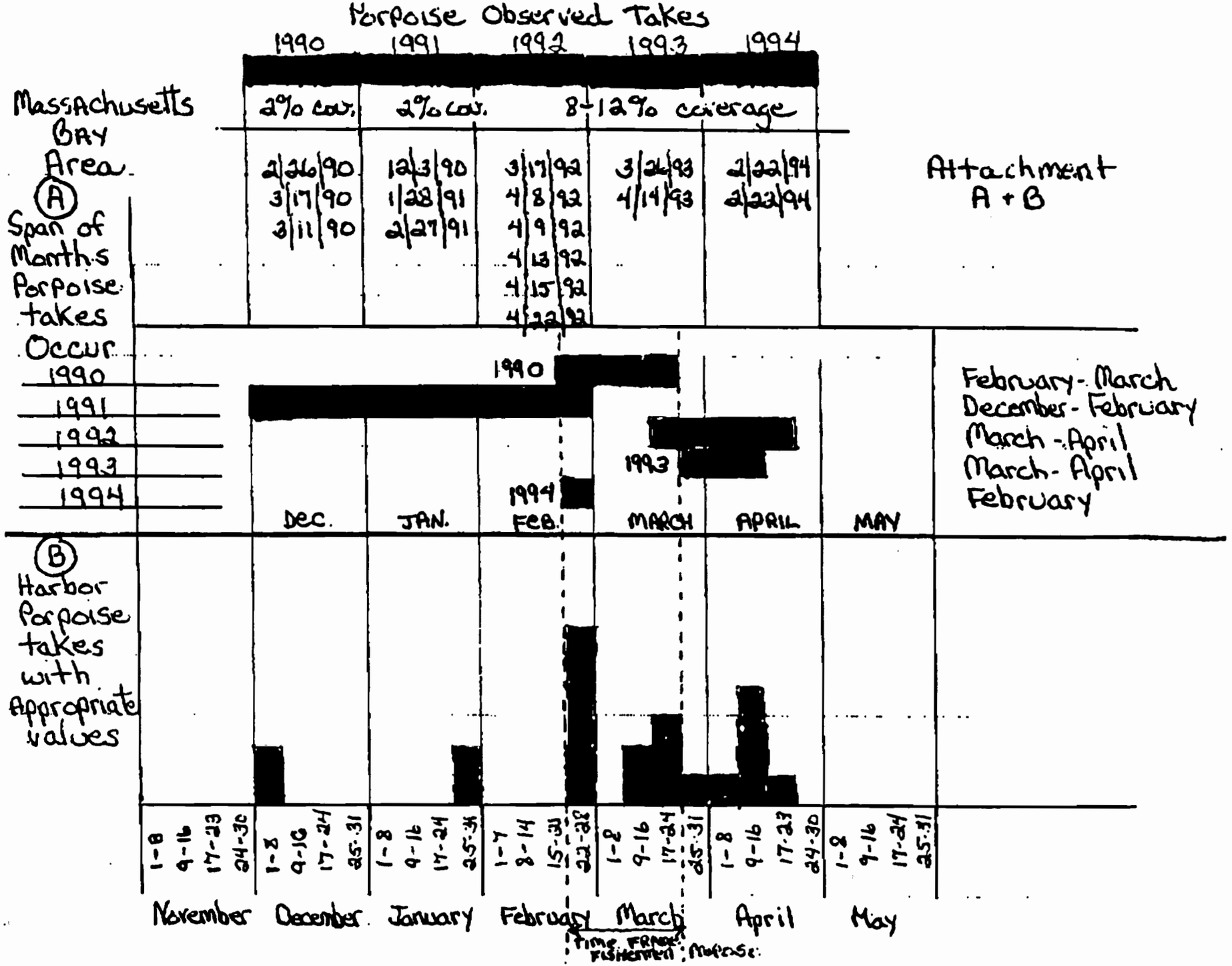
Massachusetts Netters Association has worked hard for five years to address and solve the problem of incidental take of harbor porpoise in gillnets. Our boundary and time for closure are sound. Please give this the attention an organization well versed in the problem and committed to a workable solution deserves. We wholeheartedly support time/area closures, during the most logical times, as the best plan for Ammendment Five. Thank-you.



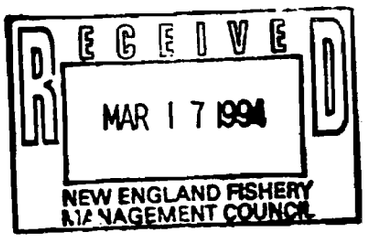
Winter | Spring
1991 ×
Harbor Porpoise Takes
Mass Anv Area



Winter / Spring
1992 +
Harbor Porpoise Takes
Mass. Bay Area


Porpoise Observed Takes
1990
1991
1992
1993
1994
Massachusetts Bay Area
2% cov.
2% cov.
8-12% coverage
2/26/90
3/17/90
3/11/90
12/3/90
1/28/91
2/27/91
3/17/92
4/8/92
4/9/92
4/13/92
4/15/92
4/22/92
3/24/93
4/14/93
2/22/94
2/23/94
Attachment A + B
A
Span of Months Porpoise takes Occur
1990
1991
1992
1993
1994
February - March
December - February
March - April
March - April
February
DEC.
JAN.
FEB.
MARCH
APRIL
MAY
B
Harbor Porpoise takes with appropriate values
1-8
9-16
17-23
24-30
1-8
9-16
17-24
25-31
1-8
9-16
17-24
25-31
1-7
8-14
15-21
22-28
1-8
9-16
17-24
25-31
1-8
9-16
17-23
24-30
1-8
9-16
17-24
25-31
November
December
January
February
March
April
May
Time Frame Fishermen Notified

FILE COPY



Walter Tolley
3 Acorn Hill Drive
P.O. Box 121
YarmouthPort, MA. 02675
Tel.(508)362-6576
March 15, 1994

New England Fishery Management Council
5 Broadway
Saugus, MA. 01906-1097

Dear Council Members,

Your summary of proposed measures to reduce the bycatch of harbor porpoise received March 11,1994. I appreciate your solicitation of public comments.

I support all aspects of your preferred management alternative, time/area closures, proposal. You should exceed your projected mortality reduction if the harbor porpoise adhere to their historic migration pattern. The monthly removal of nets in all areas would be ineffective.

You specifically requested comments on mandatory observer coverage and net utilization. I offer the following suggestions for your consideration.

Our gillnet operation is very selective with no mammal capture and no juvenile groundfish catch/discard, so we consistently accept observers aboard. Vessels are disproportionately sampled because operations with high juvenile discard prefer not to make a negative impression. I believe a mandatory observer program must be implemented for complete and accurate data. Some vessels will comply reluctantly but I see no reason for it to jeopardize existing fishermen/observer relationships.

We fish an average of 80 half-nets (300' each), varying from 6 to 10 strings, and we haul them every day. I feel that vessels with 150 nets probably haul half of them on alternate days. I suggest a maximum cap of 100 nets; a daily tending requirement, weather and/or breakdown permitting; number of strings is irrelevant; minimum mesh size of 7" for sink gillnets regardless of minimum mesh size for draggers. I believe that all further effort reduction for all vessels should be implemented during the spawning season.

Your thorough and sensible harbor porpoise bycatch reduction proposal is commendable.

Sincerely,

Walter Tolley

Walter Tolley

cc: CBK, PEH, PMF

Dear New England fishery maagemt Concil -
my name is Charles Harris and I Have
been in the Gillnet Fishery for the past
15 years and would like to say a few
things that I have been Hearing about.
first I have never got a harbor porpoise during
the time that you want us to shut down.
and also there have only been one porpoise taken
during this time. I have been fishing hard and
have gone by all the laws all my life and
am willing to work with all people. for what
it takes. I will use the net pingers or what
else it will take. Thank you Charles Harris

Charles Harris
83 Hathorly Rd
Scituate MA 02066
617-545-6925

3/16/94

TO: COUNCIL

Your time area closures that the council has adopted are one of the most frustrating and unfair proposals that I have heard or been involved with in my 22 years of being a Commercial Fisherman in the Sink Gillnet business. I have looked over the National Marine Fisheries Service(N.M.F.S) reports and I have found that the true observer data is not being applied fairly to TIME AREA CLOSURE dates. I am willing to work with the N.M.F.S to solve this problem, but please reconsider to make the Time/Area closure date the right time.

I feel that as one of many Commercial Fisherman, we have tried to do the right thing by helping out NOAA. We have been asked to take out observers and give the data needed and we did many times. It is only now that we find out that the N.M.F.S is not using the data correctly. For instance, telling the Commercial Fisherman that they can not fish for 30 days April 15- May 15, when there were no takes on porpoises in May and only 1 after April 15th. It would seem more relevant to apply such a proposal in the months of February or March, when the porpoises take is at it's higher and the weather conditions are far more severe.

It has also been shown that most takes occur inside the 13900 line from the longitude of 42 degrees. It would be appropriate if the eastward latitude line was moved into 70 degrees, 30 minutes. The current area is far too big and does not serve as a relevant zone.

The third issue is that we all use polyfoam core float line which further reduces the take, because it is so slack and it does

not stand up that high as opposed to float gear, which would be more detrimental to the porpoise take.

We are willing to do what has to be done to eliminate the porpoise take, but we feel that there are other ideas that would work as well if not better than closing us down for a month's period. Such as shrinking the zone, so that it is more efficient for the fisherman and the porpoises as well. Another ideas is to continue the testing on the pingers. Commercial Fishing is a way of life and it must not be judged to carelessly. The N.M.F.S and the Commercial Fisherman must work with each other to keep what has been one of Massachusetts longest and economical traditions.

COMMERCIAL FISHERMAN
Brainerd C. Ames Jr
23 NORWELL AVE
SCITUATE, MA 02066

Brainerd C Ames

Mr. Richard Roe
New England Management Council

My Name is Thomas Patterson, I fish out of Scituate, Massachusetts. I have fished over half my life and it is my sole income. I have selected gillnetting because it is size selected/passive fishing. The small fish swim threw and there is very little waste . Gillnets do not ruin the bottom so the fish can come back and have some place to spawn. I think we are all willing to help solve the problem and work with the NMFS, but please make the time/Aria closure the right time. There were no takes in May and only one take after April 15. The most takes occur in March, so lets start with the month with the most takes. Approximately 37% of my total income is made in April and May. If April and May are taken away it would ruin me and alot of other fisherman.

It is proven that the porpoise follow the herring and the herring come in January,Febuaruy and March. Most takes occur inside the 13900 line from long 42% N. If the small boats cant get out past the closure, we will be out of business. If the small boats try to get out past the closure there will be boats sinking and fisherman dying. Shouldn't we put some money into the use of the John Lean Whale Alarms and the pingers to solve the problem rather then to put all the fisherman out of business.

Please take this into consideration it is very important to me and many fisherman that you help save our lively hood. Thankyou.

Sincerely,

Richard Roe and The New England Management Council:

My name is Kevin Shea, I'm a gillnetter out of Scituate Harbor. I have been fishing for 17 years and have been involved in many different fisheries. I choose gillnetting as my primary fishery because it's a good cost effective, fuel efficient way to fish in a small boat like mine. Gillnets don't damage the bottom and they don't catch small fish.

In 1989 the National Marine Fisheries Service required us to take observers on board because of concerns about the take of Harbor Porpois's. This was a problem I never new existed in fact I had never seen a harbor porpois. In the last 5 years I have been taking observers on my boat on a regular basis. I did so in good faith and with the hope that the information that was gathered would only prove what I already knew, that gillnetting is a good clean fishery. Since then I have learned that a survey was conducted and that through transient sightings scientists have come to the conclusion that there are approximately 67,000 Harbor Porpoises in the Gulf of Maine. I find it very difficult to believe that an accurate number of porpoises could be reached through visual sightings as I have not seen a single one in all my years of fishing.

In the area I fish, Mass. Bay there were 15 observed takes over a period of 5 years. There were no takes reported after April 22. The proposed dates of the closure April 15 thru May 15 don't coincide with the data from the observer program. The area you propose to close is so large the small boats would have no alternative but to stay at home and starve.

If we must have a closure at all lets make it at a time when it will do the most good and confine it to the areas where porpoises are known to frequent and the particular time using the information you have obtained and paid for.

It seems there is plenty of money available for porpois counts and the observer program, it would be nice to see the goverment put some funds toward gear research. I understand there is a device called the John Lean wale alarm that might be useful as a deterrent for porpoises.

This has been an extremely hard winter. Storm after storm forced us to remain tied up with the gear on the boat. Most of us have already invested a substantial amount of money to hand the gear for the spring season. April and May are the months when I make a large portion of my annual income. Please take this into consideration.

Amendment 5 will not impose regulations on boats 45 feet and under in other fisheries, yet you have scheduled gillnetters for a 50% effort reduction over the next 5 years.

No-one wants to catch a porpois but lets put this into perspective;

COMMERCIAL FISHERMEN ARE AN ENDANGERED SPIECES!!!!

PLEASE RECONSIDER: KEVIN R. SHEA HARD TIMES F/V.

TO: The New England Fisheries Management Council
and Marine Mammal Committee

As a Massachusetts gillnetter, I am writing to you in regard to the time area closure in Mass. Bay. We are totally in favor of reducing porpoise takes by means of time area closures, but it must be done at the appropriate time to be effective. Your proposal to close down between April 15 and May 15 seems completely out of line due to the fact that there has never been a recorded take in May, and only 1 take in April in that time frame.

Harbor porpoise are most abundant in January and February when schools of herring are located close to shore usually between one and five miles. The vast majority of takes occur inside the 13900 line and take place before the middle of March. Closing the area out to the 70 degree line is far too large.

I suggest a closure between February 15 and March 15 that extends out to the 70 degree 30 min. line. I think this time frame is far more appropriate in reducing harbor porpoise takes.

Thank you,

Thomas J. Bell
22 Ridge Hill Road
Scituate, MA 02066

NEW England Fishries
5 BRADWAY RT 1
SAGUS MASS.

DEAR Council

REASONING FOR NO closure
During the month of April !
M.M

AREA TOO BIG
NO TAKS IN MY 900 LINE WEST
GEAR HUNG LAST FALL FOR USE
IN APRIL & MAY

RESPECTFULLY SUBMITH FOR closure
JAN FEB & MAR

Thank

LARRY DEMONG
FV Tyrucket
SCITUATE MAS