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THE 1991 4T HERRING GILLNET QUESTIONNAIRE

by

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ABSTRACT

A telephone survey obtained information from 340 herring gillnetters about their 1991 fishery in the southern Gulf of St. Lawrence (NAFO Division 4T). The survey gathered data on the fishing effort for abundance estimates, on mesh size distribution for determination of partial recruitment, and on disposition of the catch for validation of purchase slip information. In addition, the gillnetters were asked their opinion on the abundance of herring in 1991. The average number of nets fished per trip (used in the historical effort index) did not change in either the spring or the fall fisheries. The pattern of mesh size distribution has not changed since 1984. In the spring fishery, a large proportion of the catch continued to be kept for personal use. The fall catch is generally all sold to processors. Gillnetters felt that the spring abundance of herring was about the same as in 1990 in all areas except Escuminac (higher) and Quebec, Acadian peninsula, and east P.E.I. (lower). The fall abundance was seen to be at least as good as 1990 only in Escuminac, Nova Scotia, and west P.E.I. On a scale of 1 to 10; the 1991 spring abundance was seen to be about average in all areas except the Acadian peninsula and southeast N.B. (lower) while the 1991 fall abundance was seen to be overall about average except for the Magdalen Islands and east P.E.I. (lower) and Escuminac (higher).

RÉSUMÉ

On a effectué un sondage téléphonique auprès de 340 pêcheurs de hareng au filet maillant afin de recueillir des renseignements sur la pêche de 1991 dans le sud du golfe du Saint-Laurent (division 4T de l'OPANO). On a ainsi obtenu des données sur l'effort de pêche, permettant d'établir des estimations d'abondance, des données sur la répartition des mailles, servant à déterminer le recrutement partiel et des données sur le sort des prises, qui permettent de confirmer les renseignements contenus sur les bordereaux d'achat. De plus, on a sollicité l'opinion de ces pêcheurs au sujet de l'abondance du hareng en 1991. Le nombre moyen de filets utilisés par voyage (chiffre servant à établir l'indice d'effort historique) n'a changé ni dans la pêche de printemps, ni dans celle d'automne. La répartition des mailles est restée la même depuis 1984. Comme à l'accoutumée, une bonne partie des prises de la pêche de printemps était destinée à l'usage personnel. Les prises d'automne sont en général entièrement vendues aux transformateurs. Les participants à la pêche du hareng au filet maillant ont estimé que l'abondance du hareng de printemps était à peu près la même qu'en 1990 dans toutes les zones, sauf à Escuminac (où elle était plus élevée) ainsi qu'au large du Québec et de la péninsule acadienne (où elle était plus basse). À leur avis, l'abondance dans la pêche d'automne était au moins aussi bonne qu'en 1990 à Escuminac, en Nouvelle-Écosse, et à l'ouest de l'I.-P.-E. Ils ont estimé que, selon une échelle de 1 à 10, l'abondance du hareng de printemps correspondait environ à la moyenne dans toutes les zones, sauf à la péninsule acadienne et au sud-est du N.-B. (où elle était plus basse) et que l'abondance d'automne était dans l'ensemble égale à la moyenne, sauf qu'aux Iles-de-la-Madeleine et à l'est de l'I.-P.-E. (où elle était plus basse) et à Escuminac (où elle était plus élevée).

INTRODUCTION

Since 1985, herring gillnetters in the Gulf of St. Lawrence have been interviewed annually to obtain information about the distribution and intensity of fishing effort, the sizes and distribution of meshes fished, and the disposition of the catch. The information is used to calculate the annual index of effort for the assessment of 4T herring, as well as to understand the dynamics of the fishery. This report summarizes the results of the 1991 survey, and presents comparisons with results from previous surveys (Nielsen 1991).

METHODS AND ANALYSIS

Sample Selection

The southern Gulf of St. Lawrence coastline was divided into eight areas of major herring gillnet fishing activity (Table 1, Figure 1). For the Maritime Provinces, lists of licenced gillnetters were compared to purchase slip records to obtain a list of active gillnetters for 1991. A systematic random sample was drawn from this list to obtain a sample with numbers in each area proportional to the number of active gillnetters. As in previous years, purchase slips were not available for Quebec and the Magdalen Islands, so random samples were chosen from the lists of licenced gillnetters. Table 2 summarizes gillnet statistics for 1991.

The interviews were conducted by telephone in the official language of the gillnetters' choice, during January and February 1992. Each respondent was given up to three telephone calls to be contacted.

The Questionnaire

The interview was divided into five sections (detailed in the appendix):

1. The first set of questions situated the respondents in the fishery. The status of the respondents was verified (were they active herring gillnetters in 1991?). Other questions included the number of nets owned and the season(s) fished.
2. The second set of questions dealt with fishing effort. For each season, respondents who had been active in the fishery were asked:
 - their fishing location
 - the total number of days fished and the number of days fished in the peak of the season, where the peak is defined as the part of the season (if any) when the fishing is really good; the existence and timing of a peak is the subjective determination of each respondent
 - the number of nets used during the peak as well as during the non-peak of the season
 - the length of time the nets were immersed in the water before being hauled (soak time) during the peak as well as during the non-peak - the number of times a day the nets were hauled.

Two indices of effort for each area-season combination were calculated and compared to those from previous surveys:

- i. The average number of net-hauls per gillnetter (NHF).
- ii. The average number of net-hauls per gillnetter per day (NHT).

$$i) NHF_i = \frac{1}{n_i} \sum_j (dp_j \times np_j + dnp_j \times nnp_j) \times h_j$$

where n_i = number of responses in area-season i
 dp_j = number of days in the peak for resp. j in area-season i
 np_j = number of nets in the peak for resp. j in area-season i
 dnp_j = number of days in the non-peak for resp. j in area-season i
 nnp_j = number of nets in the non-peak for resp. j in area-season i
 h_j = number of hauls/day for resp. j in area-season i

$$ii) NHT_i = \frac{1}{n_i} \sum_j \frac{(dp_j \times np_j + dnp_j \times nnp_j) \times h_j}{dp_j + dnp_j}$$

3. For each season fished, the number of gillnets fished that were set (both ends anchored to the bottom) and modified (one end attached to the boat), the average length of a net, and mesh sizes and numbers of nets for each mesh size fished were determined.
4. For each season fished, the catch and percent of the catch that was kept for bait, dumped, and sold to processors were recorded.
5. The respondents were asked the number of years they had fished with gillnets in the Gulf of St. Lawrence. In addition, they were asked two questions concerning their feelings about the abundance of herring. The first question asked respondents to compare herring abundance in 1991 versus 1990. On a scale of 0 to 10, the responses mean:
 - 0 = abundance was much less in 1991 than 1990
 - 2½ = abundance was somewhat less in 1991 than in 1990
 - 5 = abundance was the same in 1991 as in 1990
 - 7½ = abundance was somewhat more in 1991 than in 1990
 - 10 = abundance was much more in 1991 than in 1990
 The second question asked gillnetters to rate the abundance of herring in 1991 on a scale of 1 to 10, assuming that 5 is average abundance.

RESULTS AND DISCUSSION

In total, 340 herring gillnetters were interviewed. The area-by-area breakdown of the responses (Tables 3 and 4) shows that all areas and both seasons were covered. Because there were so few CFV's from east P.E.I. in the purchase slip file, it was decided to increase the coverage of that area. The total number (by area) of gillnetters fishing in the spring and fishing in the fall is greater than 340, due to some gillnetters fishing in both seasons and/or in more than one area in a season. In general, the area of fishing is

the same as the area of home port but there was some travelling to other areas, especially in the fall with Acadian peninsula gillnetters fishing close to Quebec. Table 5 summarizes the number fishing in each area by location of home port.

Effort Parameters

The responses to the questions concerning the intensity of effort show large differences among areas and seasons. Comparisons of the fishing effort for 1984-1991 are shown in Figures 2 to 5.

Spring

Since 1987, the total number of days fishing has remained about the same in all areas except Quebec, where it has fluctuated but without a trend. The proportion of days identified as peak fishing, however, varies over time in all areas, with Escuminac, southeast N.B., and west P.E.I. having the highest proportion in recent years. East P.E.I. has the lowest proportion of days identified as peak in the time series.

Since 1984, there has been considerable year to year variation in the number of nets fished both in the peak and in the non-peak season, but no trends are detectable within an area or within a year. From 1990, the number of nets fished is up in some areas, and down in others. Nova Scotia continues to use the fewest nets, while southeast N.B., Escuminac, and west P.E.I. use the most.

Fall

From 1990, the total number of days fished in the fall increased in only two areas - Quebec and Escuminac. The Magdalen Islands, Nova Scotia and east P.E.I. were the only areas to identify a large proportion of the days fished as non-peak in 1991. In 1991 as in 1988, all areas reported fishing activity.

For most areas, the number of nets fished in the fall season (both during the peak and during the non-peak) has not changed greatly since 1984. The exceptions are southeast N.B., which has few gillnetters in some years and none in others, and Escuminac, whose gillnetters used fewer nets in the non-peak in 1991 compared to previous years. In all areas except southeast N.B., the number of nets fished in the peak is similar to the number fished in the non-peak fishery. This is in contrast to the spring fishery, where gillnetters may fish a different number of nets in the peak from in the non-peak.

Net soak and net haul parameters

Information relating to the number of hours that the nets are left in the water (soak time) and the number of times each day that the nets are emptied (hauled) is shown in Figure 6. As in the past, the net soak time in the 1991 spring fishery was very close to 24 hours (both peak and non-peak). In the fall, for all areas except the Magdalen Islands, Quebec, and west P.E.I., the net soak time was less than 4 hours during the peak. The net soak time during the non-peak was less than 13 hours for all areas except west P.E.I. There was little change in the fall peak soak time, except for increases in Quebec and west P.E.I., while for the non-peak, there were increases in Escuminac and west P.E.I., and a decrease in Nova

Scotia from 1990.

The average number of hauls of the nets per day per respondent is more variable in the fall fishery than in the spring fishery. The number of hauls/day in the spring was one for all areas except Escuminac (1.2) and southeast N.B. (1.1) in 1991. In the fall, all areas except the Magdalen Islands reported more than one haul/day; Quebec, the Acadian peninsula, Escuminac and southeast N.B. all reported more than 2 hauls/day.

Effort Indices

The effort indices calculated from survey results are shown in Figures 7 and 8. In both the spring and the fall fisheries, the two indices show the same general trends from 1984 to 1991. As expected, the trend of number of net-hauls/day follows closely the trend of number of nets fished in the spring fishery. This is not true of the fall fishery, in which the number of net-hauls/day is more variable. From 1990, the number of net-hauls/gillnetter is down in all areas except southeast N.B. for the fall. For the spring, some areas show slight increases in the number of net-hauls/gillnetter, while others show slight decreases.

The effort index used in the assessment of 4T herring stocks is the average number of nets fished per trip, assuming one haul of the nets per trip and one trip per day. The spring index is determined by weighting the Acadian peninsula and a combination of the Escuminac, southeast New Brunswick, and partial west P.E.I. averages by the landings in those areas (O'Boyle and Cleary 1981, Cleary 1983, and Chadwick and Cairns 1988). The fall index is set equal to the Acadian peninsula value. The index includes data only for gillnetters who sell at least 50% of their catch to processors. The historic effort index shown in Figure 9 indicates basically no change in either the spring or the fall since 1985.

Abundance Indices

The responses to the questions about relative abundance of herring in 1991 are shown in Figures 10 and 11. Spring abundance in 1991 was rated between 4 and 6 (average) both overall and compared to 1990 except for Quebec (3.4 compared to 1990), the Acadian peninsula (3.5 overall, 2.6 compared to 1990), Escuminac (6.7 overall, 7.8 compared to 1990) and east P.E.I. (3.4 compared to 1990). Since 1987, the spring abundance has been seen to be decreasing in the Acadian peninsula, but to be more or less stable with some fluctuation in the other areas. Fall abundance, both overall and compared to 1990 was rated greater than 6 in Escuminac, but less than 4 in the Magdalen Islands and east P.E.I. Quebec, the Acadian Peninsula and southeast N.B. rated the abundance in 1991 less than in 1990.

Gillnet Mesh Size Distribution

Figures 12 and 13 illustrate the percentage of the gillnet mesh sizes used from 1985 to 1991 that were the predominant mesh size. The distribution of mesh sizes has been quite wide in the spring, but most nets used have been between 2.25 and 2.5 inch mesh. The fall distribution is much narrower, and most nets have been 2.625 inch mesh. The distribution has been fairly constant over time - particularly in the areas with the largest catches (the Acadian peninsula, Escuminac, and southeast N.B. in the spring, and the Acadian peninsula, Nova Scotia, and east P.E.I. in the fall).

The average length of net fished varied from area to area (Table 6), but not within an area between seasons. In 1991, the length of nets used ranged from 15.5 to 24.8 fathoms in the spring, and from 16.8 to 23.4 fathoms in the fall. Nova Scotia used the longest nets in both the spring and the fall; Escuminac used the shortest in the spring, and the Acadian peninsula used the shortest in the fall.

Almost all of the gillnets fished in the spring were set nets (both ends anchored to the bottom) but a large percentage of those used in the fall were modified nets (one end attached to the boat) (Table 7). Nova Scotia, east P.E.I., and west P.E.I. continued to use substantially more set nets than modified nets in the fall. The use of set nets corresponds to soak times of approximately 24 hours and one haul per day, while modified nets soak for less time and are hauled on average more than once a day (Figure 6). The exceptions are Nova Scotia and east P.E.I. in the fall, where set nets are used and the soak time is less than 5 hours.

Use of The Catch

Questions about the percentage of the catch kept for personal use, sold to processors, or dumped, revealed some variability over time - especially in the spring fishery. In the spring, less catch was sold in 1991 than in 1990 in the Acadian peninsula; more in Quebec and west P.E.I. In the fall, the catch continued to be primarily sold to processors in all areas. The amount of catch dumped remains low in all areas for both seasons except west P.E.I. in which 13% of the catch was dumped in the spring. Figure 14 shows the trends in percent sold to processors from 1986 to 1991.

Concluding Remarks

The historical effort index was devised in the late 1970's (O'Boyle and Cleary 1981) as the best information available at the time. The total annual catch is divided by the total annual effort to obtain an index of abundance - catch per unit of effort (cpue). Yearly detailed questioning of the gillnetters is an attempt to arrive at a more accurate reflection of the actual effort expended on the 4T herring. The questionnaire elicits information about peak and non-peak gillnet fishing activity on an area-by-area basis, allowing calculations of fishing effort based on the number of nets or net-hauls. Calculation of effort does not currently take into consideration such factors as restrictions on fishing activity imposed by markets, quotas, weekend closures, or differences in the fisheries (fishing on spawning grounds or migrating stocks).

ACKNOWLEDGEMENTS

Thanks to Stella Langis who interviewed the gillnetters and to Martina Poirier who keypunched and validated the data. Thanks also to two reviewers for their helpful comments. Special thanks to all the gillnetters who took the time to participate in the survey.

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- Nielsen, G. 1991. The 1990 4T herring gillnet questionnaire. CAFSAC Res. Doc. 91/33.
- O'Boyle, R., and L. Cleary. 1981. The herring (*Clupea harengus*) gillnet fishery in the southern Gulf of St. Lawrence, 1970-79. Can. Tech. Rep. Fish. Aquat. Sci. no. 1065. 90pp.

Table 1. Statistical Districts making up the geographic areas for the 8 herring fishing areas of the southern Gulf of St. Lawrence.

| Area | Statistical Districts |
|-------------------|---|
| Magdalen Islands | 26, 27, 28 |
| Quebec | 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15 |
| Acadian Peninsula | 63, 64, 65, 66, 67, 68, 70 |
| Escuminac | 71, 73, 75, 76 |
| Southeast N.B. | 77, 78, 80 |
| Nova Scotia | 45, 46, 1, 2, 3, 10, 11, 12, 13, 14 |
| East P.E.I. | 85, 86, 87, 88 |
| West P.E.I. | 82, 83, 92, 93, 95, 96 |

Table 2. Herring gillnet statistics for the southern Gulf of St. Lawrence in 1991.

| Area | Landings | | Licences | Number of Boats |
|-------------------|----------|-------|----------|-----------------|
| | Spring | Fall | | |
| Magdalen Islands | | | 329 | - |
| Quebec | | | 547 | - |
| Acadian Peninsula | 2427 | 19257 | 609 | 247 |
| Escuminac | 7628 | 1818 | 347 | 143 |
| Southeast N.B. | 3218 | 243 | 247 | 138 |
| Nova Scotia | 3609 | 9749 | 428 | 109 |
| East P.E.I. | 172 | 6528 | 378 | 48 |
| West P.E.I. | 2786 | 5063 | 481 | 258 |
| TOTAL | | | 3366 | 943 |

Table 3. Response to the questionnaire by home area of gillnetter

| Area | Number Selected | Number of surveys | Number of phone problems | Number not contacted | Number not fishing | Number not cooperating |
|-------------------|-----------------|-------------------|--------------------------|----------------------|--------------------|------------------------|
| Magdalen Islands | 36 | 28 | 0 | 5 | 3 | 0 |
| Quebec | 61 | 35 | 7 | 5 | 14 | 0 |
| Acadian Peninsula | 89 | 77 | 4 | 7 | 0 | 1 |
| Escuminac | 46 | 38 | 3 | 4 | 0 | 1 |
| Southeast N.B. | 51 | 44 | 2 | 5 | 0 | 0 |
| Nova Scotia | 39 | 30 | 5 | 3 | 1 | 0 |
| East P.E.I. | 27 | 24 | 1 | 2 | 0 | 0 |
| West P.E.I. | 77 | 64 | 3 | 7 | 2 | 1 |
| TOTAL | 426 | 340 | 25 | 38 | 20 | 3 |

Table 4. Number of respondents fishing in each area in 1991.

| Area | Fishing in the Spring | Fishing in the Fall |
|-------------------|-----------------------|---------------------|
| Quebec | 35 | 20 |
| Acadian Peninsula | 54 | 73 |
| Esuminac | 36 | 12 |
| Southeast N.B. | 48 | 4 |
| Nova Scotia | 18 | 25 |
| East P.E.I. | 8 | 26 |
| West P.E.I. | 61 | 24 |
| TOTAL | 288 | 186 |

Table 5. Number of respondents fishing in each area in 1991 by area of home port.

| Fishing Area - Spring | | | | | | | | |
|-----------------------|--------|-----|--------|-----|---------|------|----------|----------|
| Home Port | Mag Is | Que | Ac Pen | Esc | Se N.B. | N.S. | E P.E.I. | W P.E.I. |
| Que | | 20 | 1 | | | | | |
| Ac Pen | | 4 | 53 | | | | | |
| Esc | | | | 33 | 1 | | | |
| Se N.B. | | | | | 44 | | | |
| N.S. | | | | | | 18 | | |
| E P.E.I. | | | | | | | 8 | 1 |
| W P.E.I. | | | | 3 | 3 | | | 60 |

| Fishing Area - Fall | | | | | | | | |
|---------------------|--------|-----|--------|-----|---------|------|----------|----------|
| Home Port | Mag Is | Que | Ac Pen | Esc | Se N.B. | N.S. | E P.E.I. | W P.E.I. |
| Que | | 10 | 3 | | | | | |
| Ac Pen | | 9 | 70 | | | | | |
| Esc | | | | 12 | | | | 4 |
| Se N.B. | | | | | 4 | | | |
| N.S. | | | | | | 25 | | |
| E P.E.I. | | | | | | | 22 | |
| W P.E.I. | | | | | | | 4 | 20 |

Table 6. Length of gillnets used in the 1991 herring fishery (fathoms)

| | Spring | Fall |
|-------------------|--------|------|
| Quebec | 18.7 | 18.3 |
| Acadian Peninsula | 15.5 | 16.8 |
| Escuminac | 15.5 | 17.5 |
| Southeast N.B. | 17.6 | 17.6 |
| Nové Scotia | 24.8 | 23.4 |
| East P.E.I. | 16.5 | 22.1 |
| West P.E.I. | 16.5 | 16.9 |

Table 7. Percent distribution of gillnet types used in the 1991 herring fishery

| Area | Spring | | Fall | |
|-------------------|--------|----------|------|----------|
| | Set | Modified | Set | Modified |
| Quebec | 92 | 8 | 30 | 70 |
| Acadian Peninsula | 100 | 0 | 3 | 97 |
| Escuminac | 100 | 0 | 51 | 49 |
| Southeast N.B. | 100 | 0 | 39 | 61 |
| Nové Scotia | 89 | 11 | 88 | 12 |
| East P.E.I. | 92 | 8 | 100 | 0 |
| West P.E.I. | 95 | 5 | 94 | 6 |

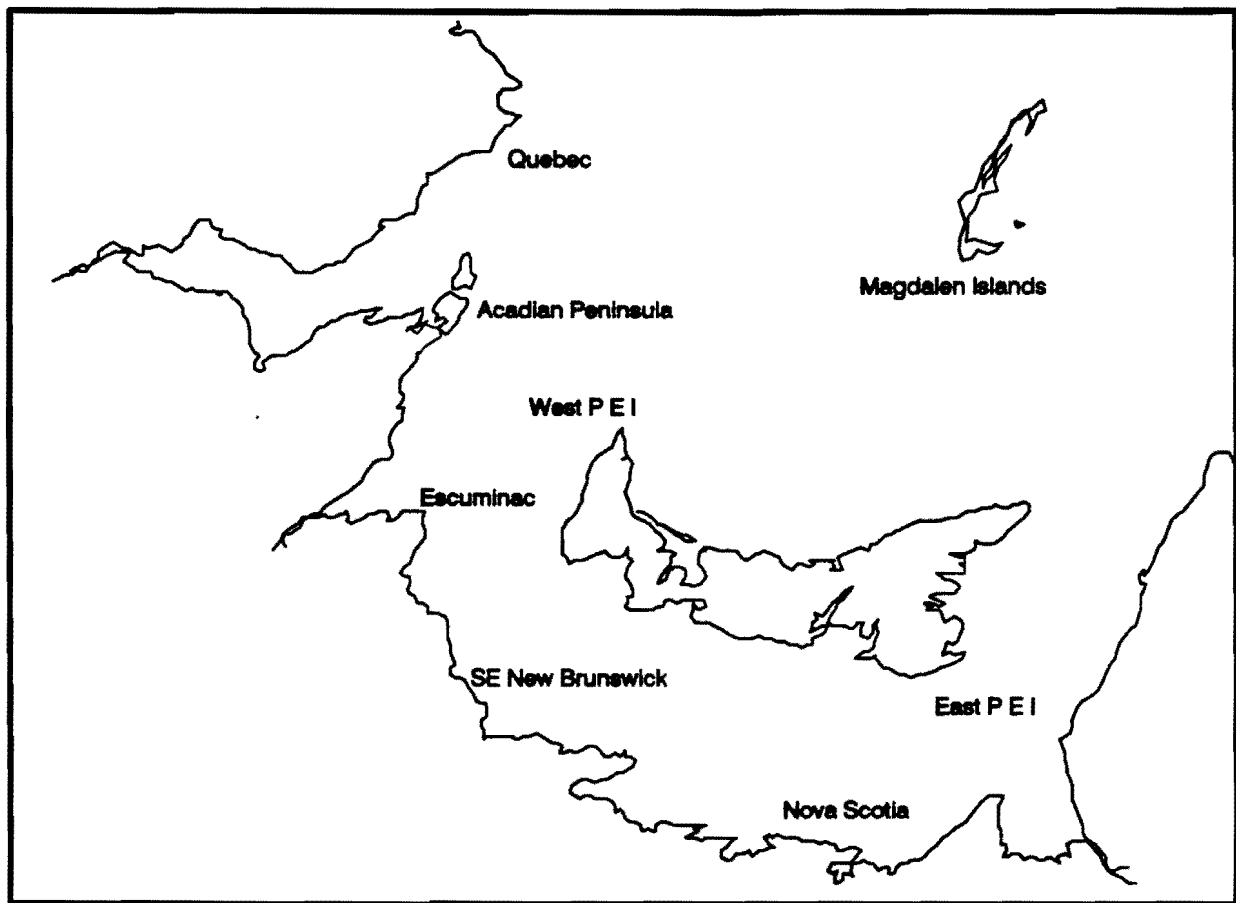


Fig 1. Geographic areas in the southern Gulf of St. Lawrence used in the 1991 herring gillnet survey.

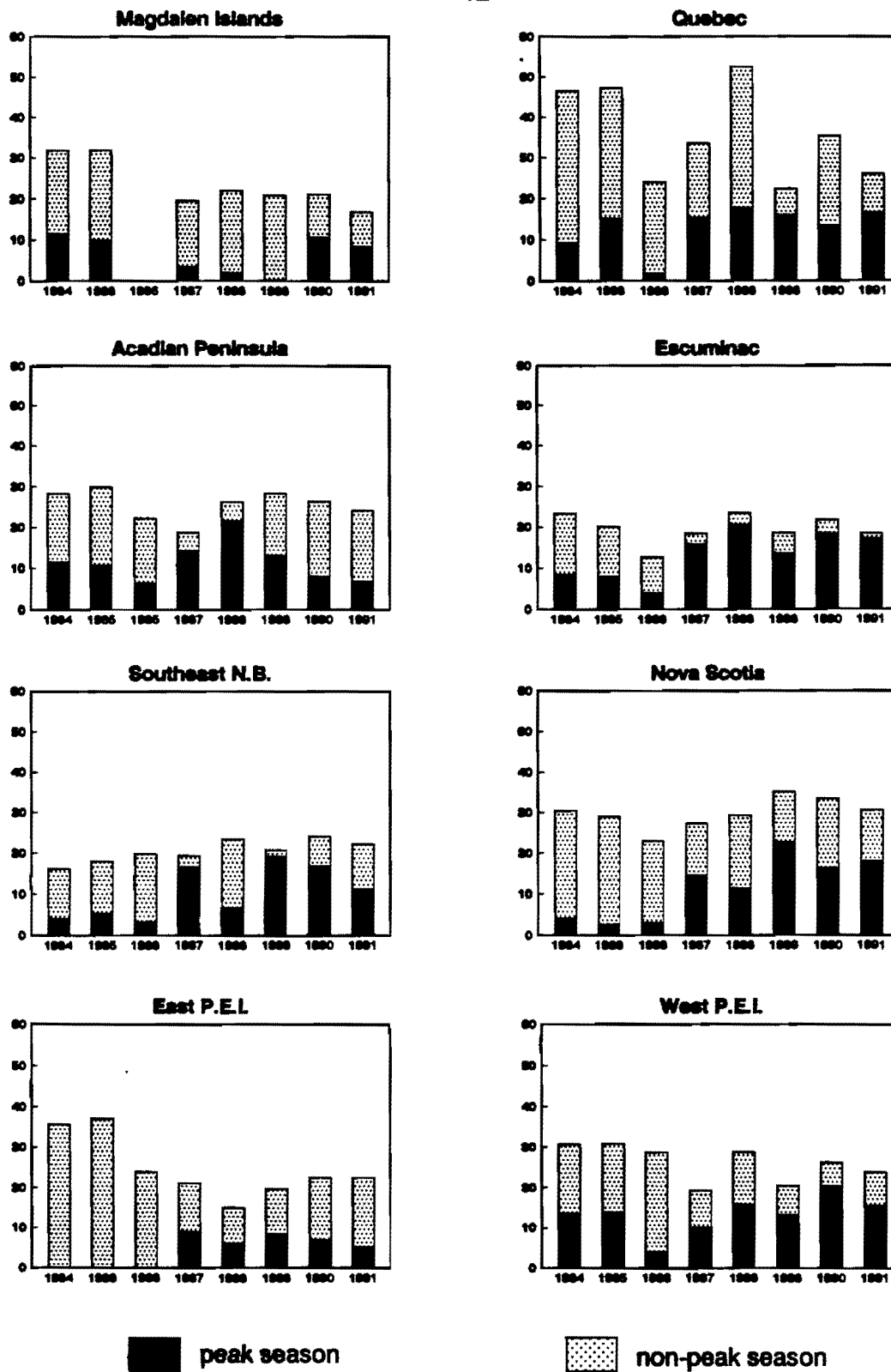


Figure 2. Number of days fished in the 4T spring fishery

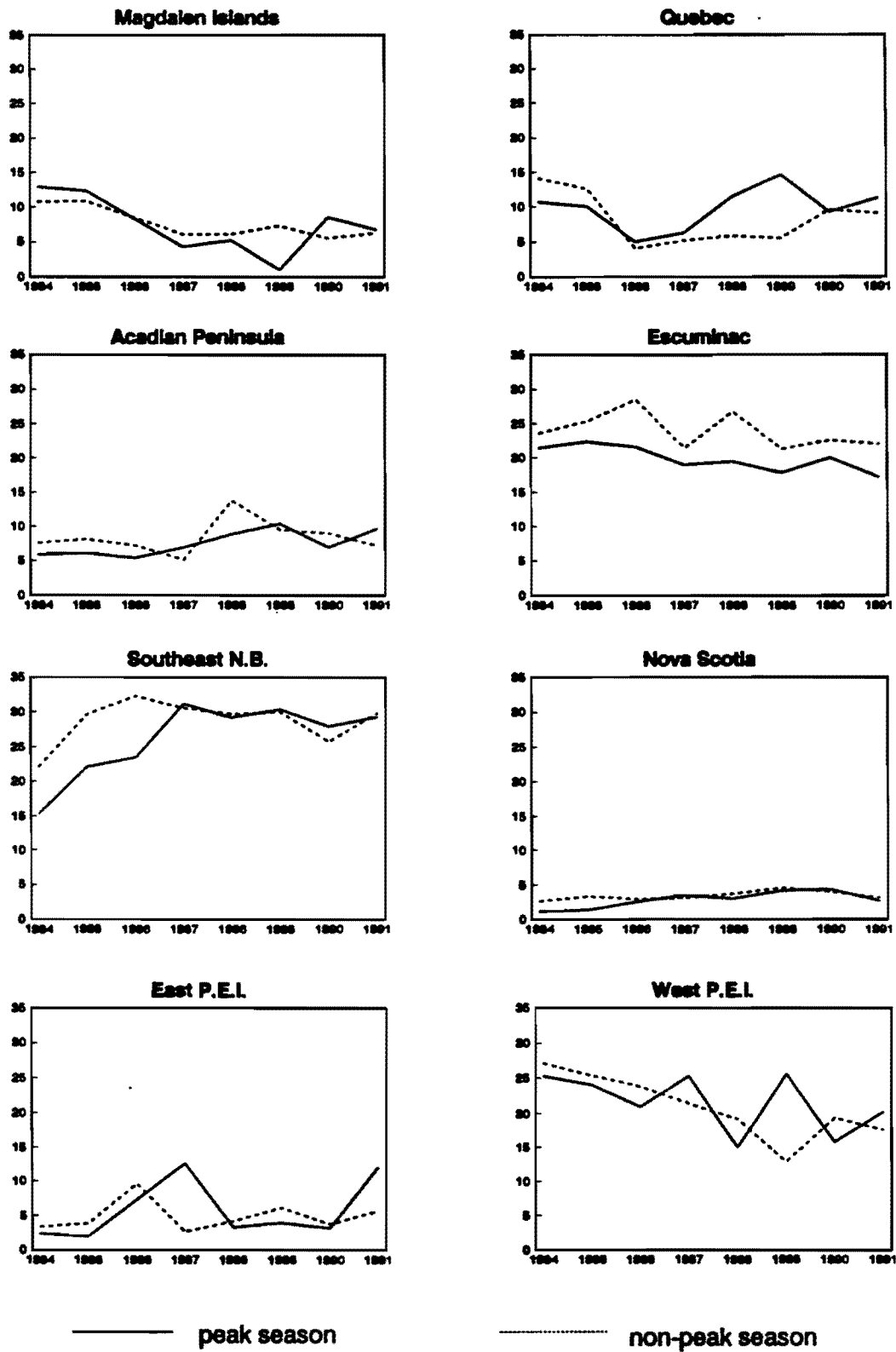


Figure 3. Number of nets fished in the 4T spring fishery

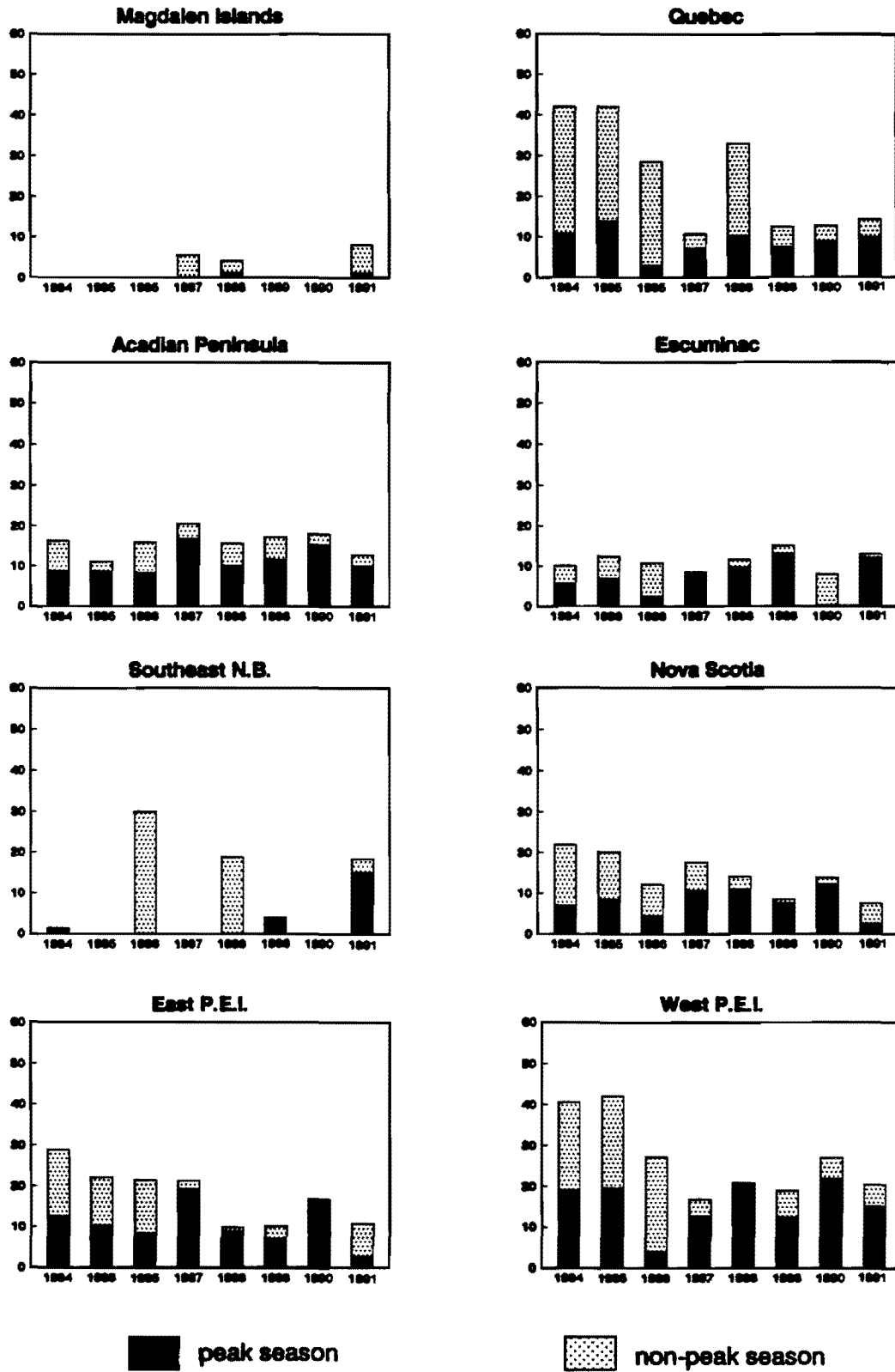


Figure 4. Number of days fished in the 4T fall fishery

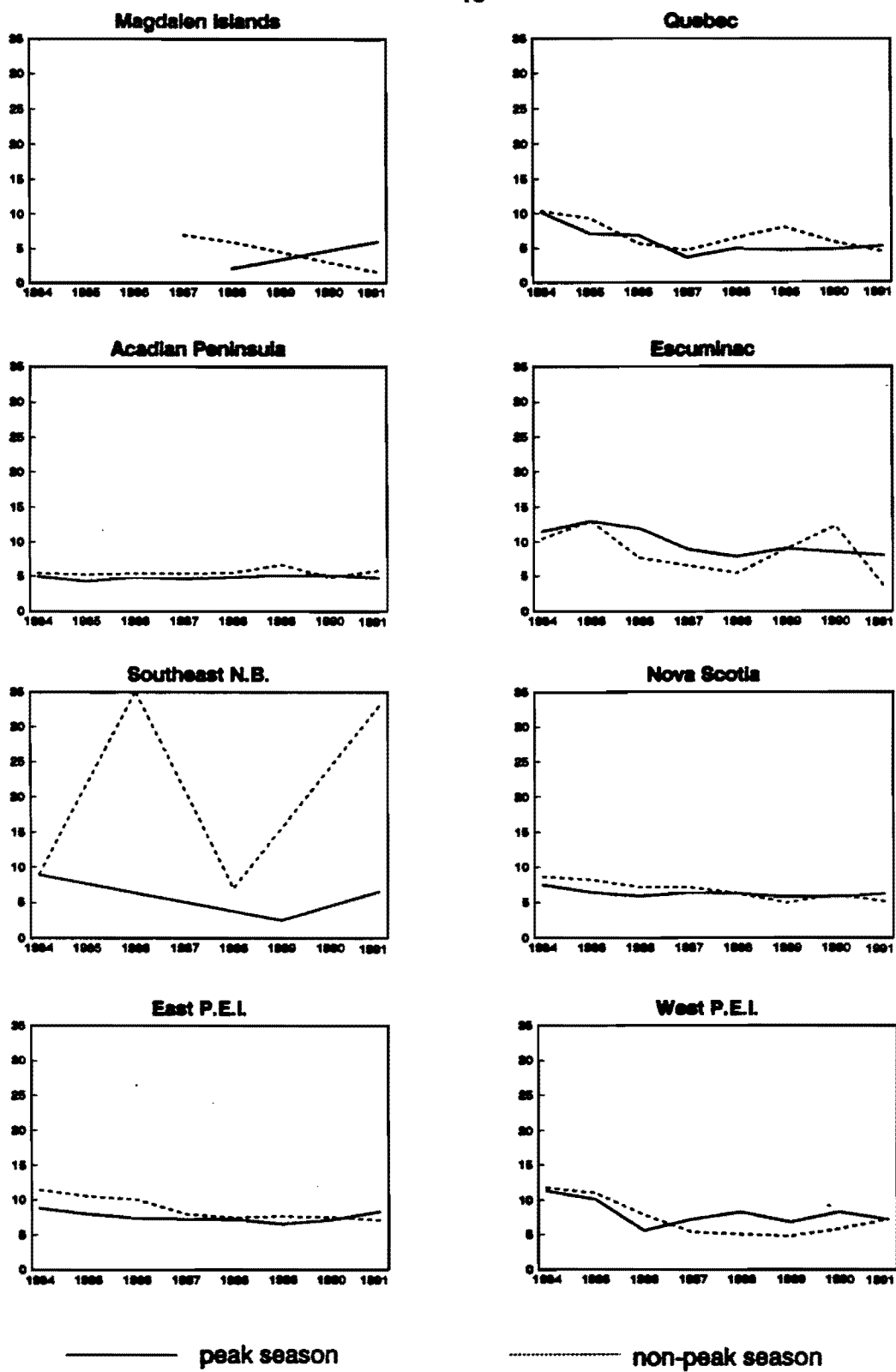


Figure 5. Number of nets fished in the 4T fall fishery

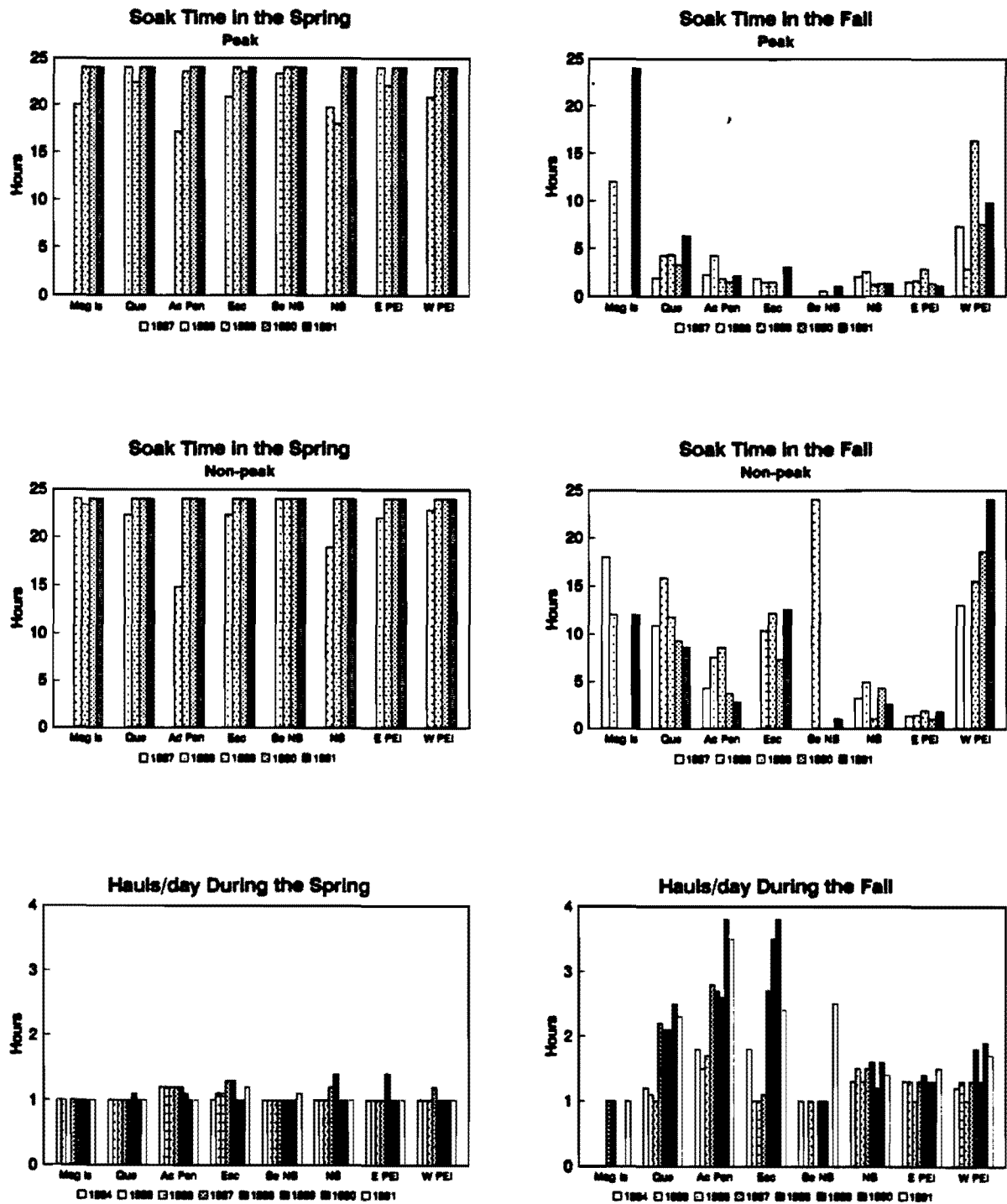


Figure 6. Net soak parameters for the 4T fishery

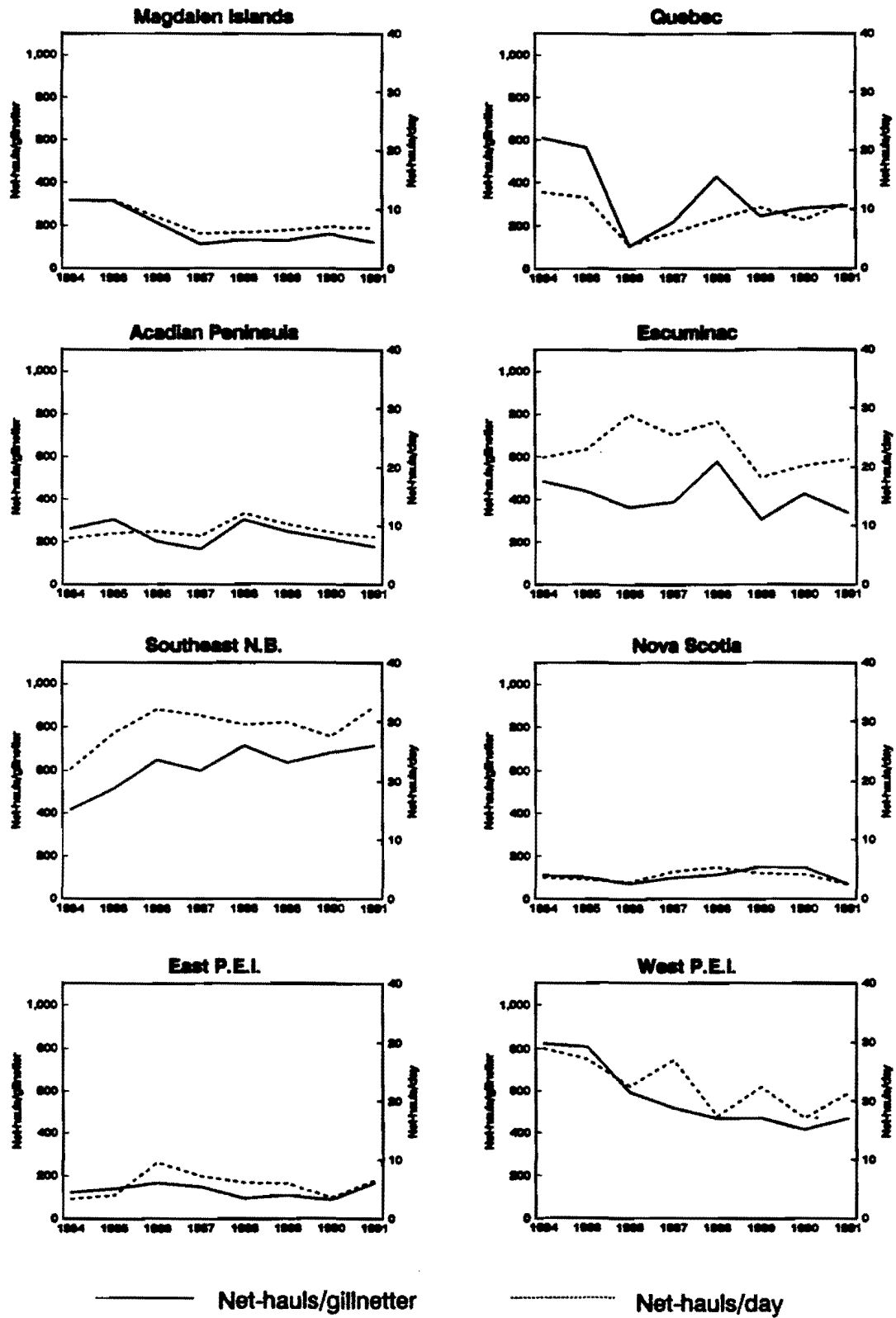


Figure 7. Effort expended in the 4T spring fishery

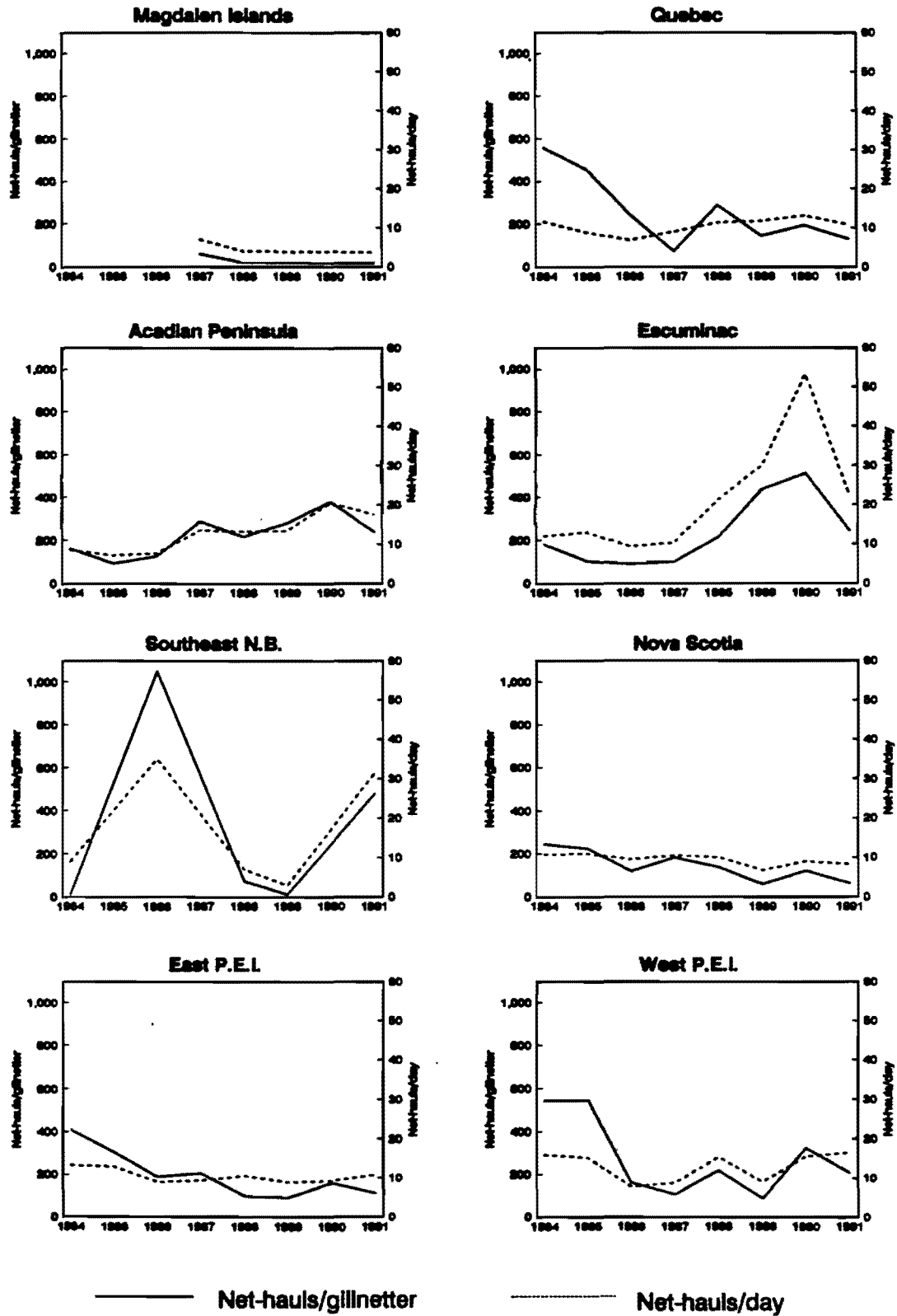


Figure 8. Effort expended in the 4T fall fishery

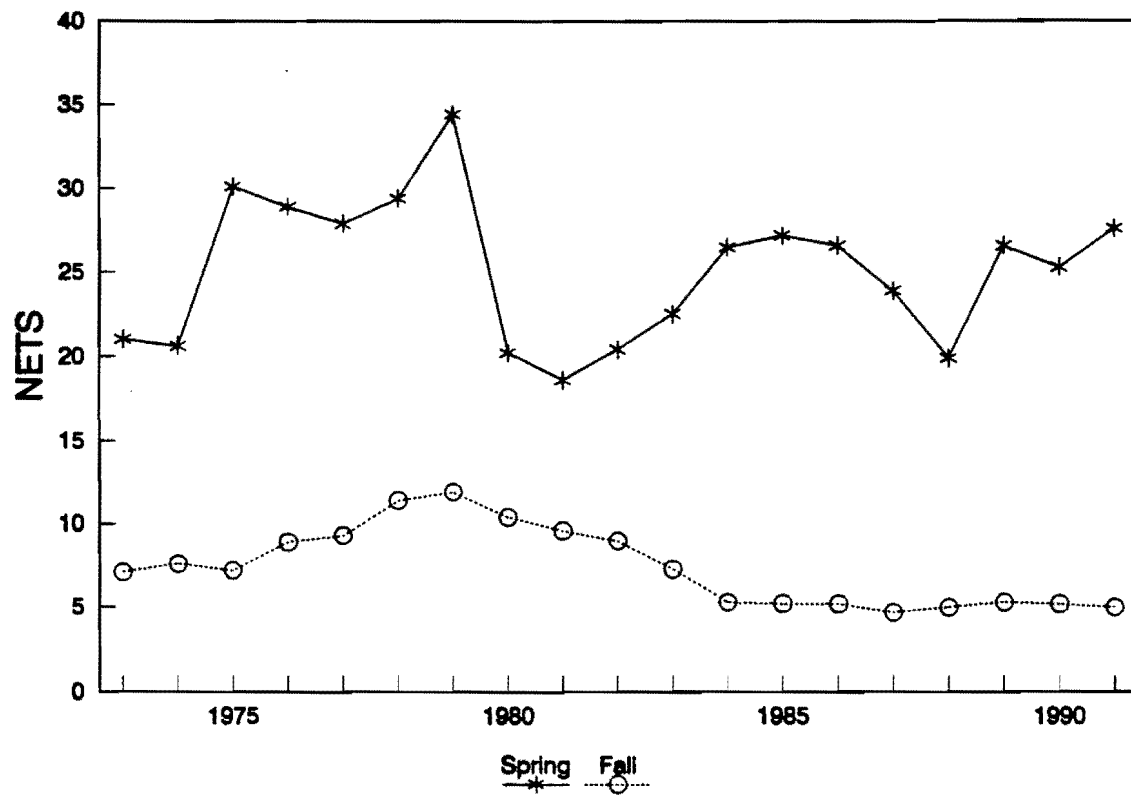


Figure 9. Historical effort index - number of nets fished/trip

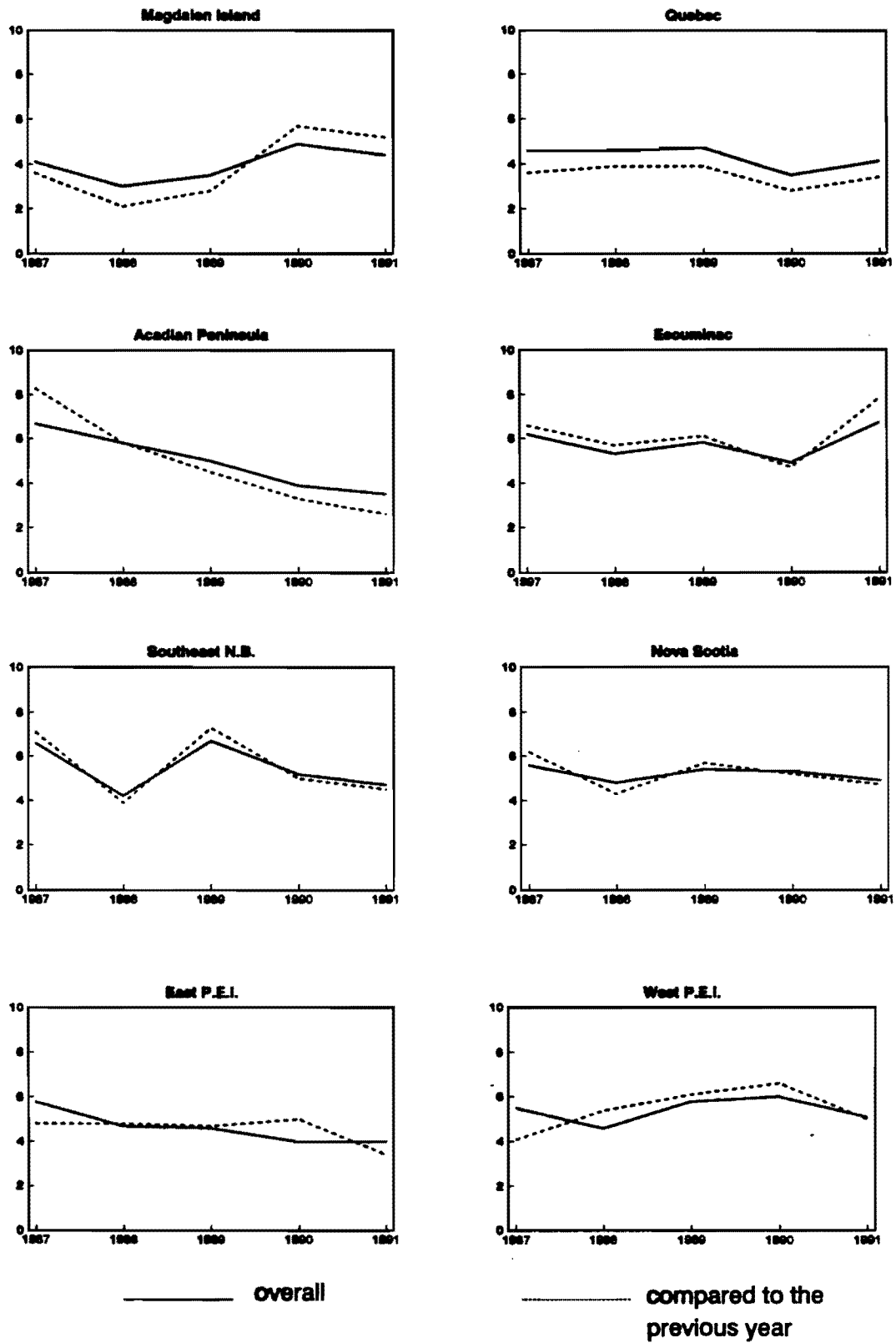


Figure 10. Spring indices of abundance

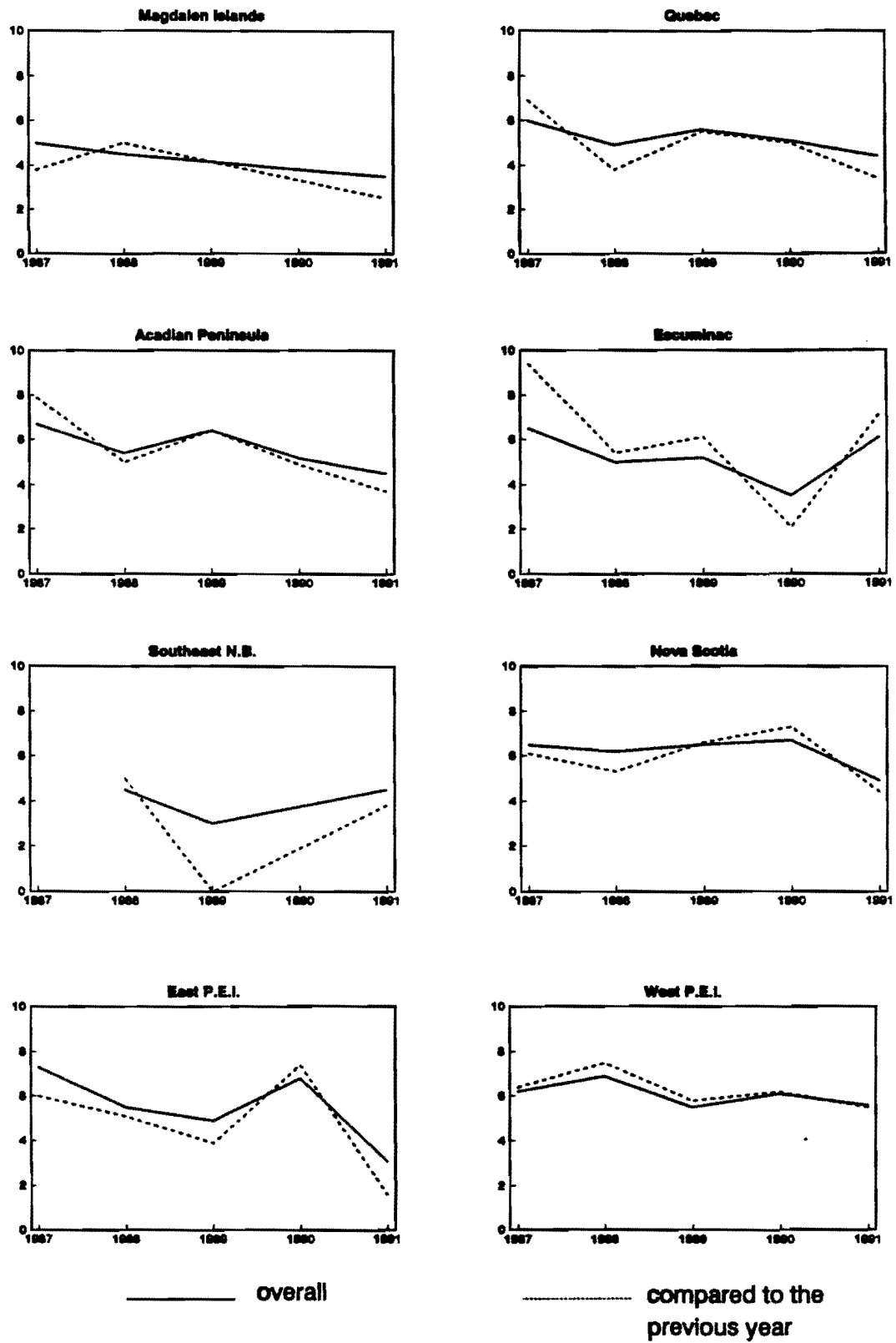


Figure 11. Fall indices of abundance

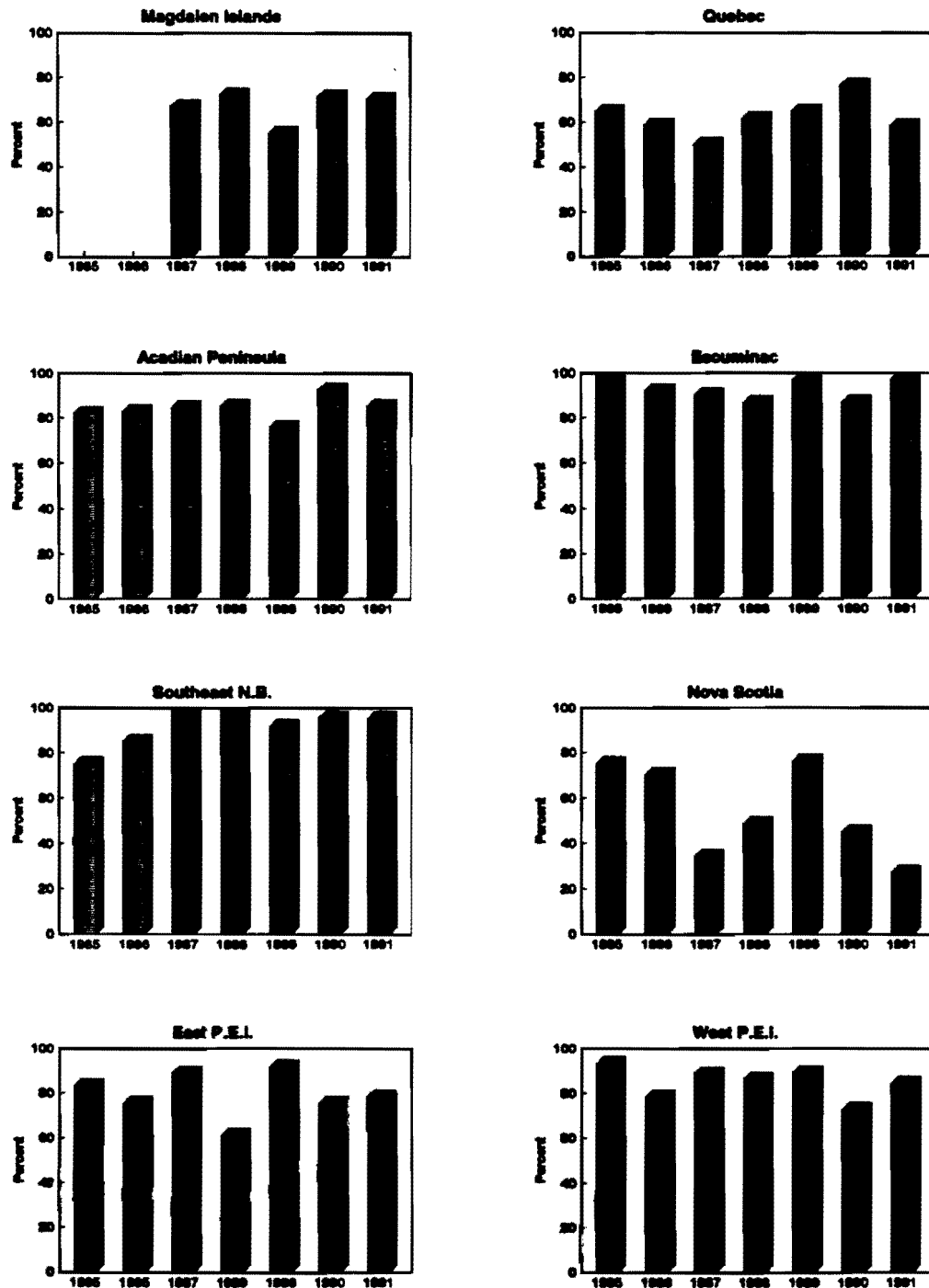


Figure 12. Percent of nets fished that are between 2 1/4" and 2 1/2" mesh in the 4T spring fishery

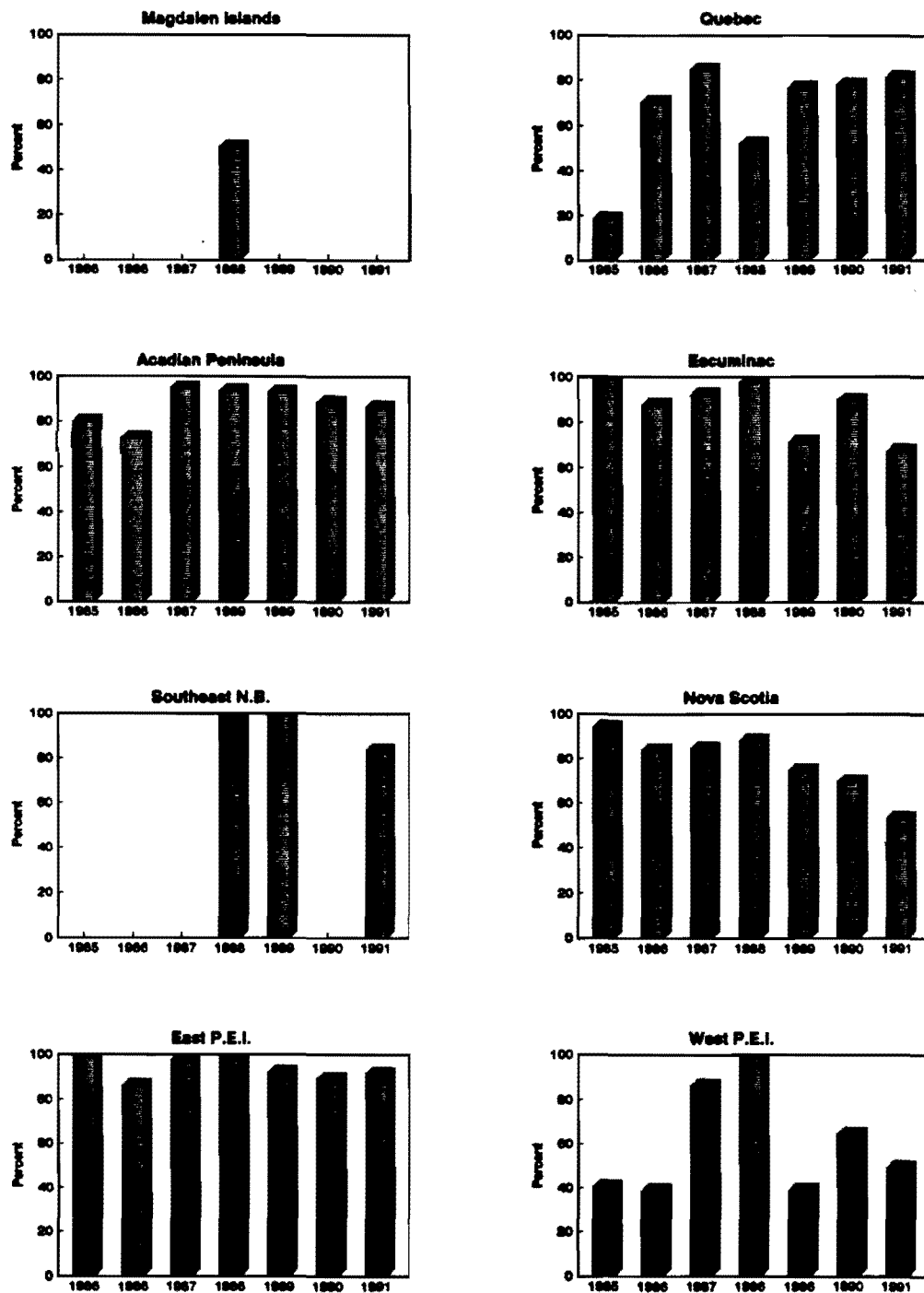
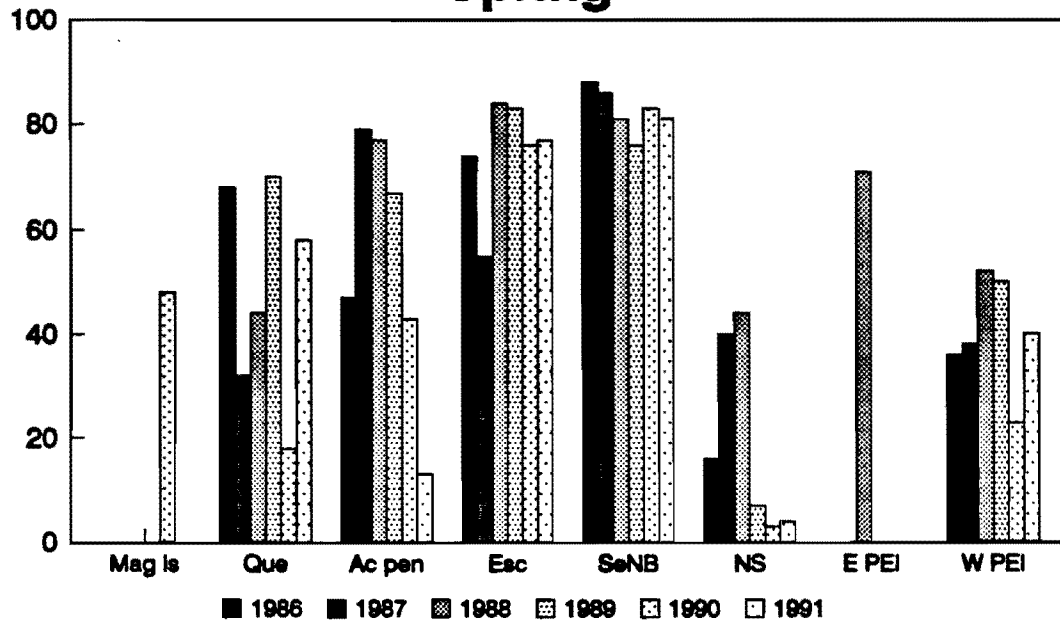


Figure 13. Percent of nets fished that are 2 5/8" mesh in the 4T fall fishery

Spring



Fall

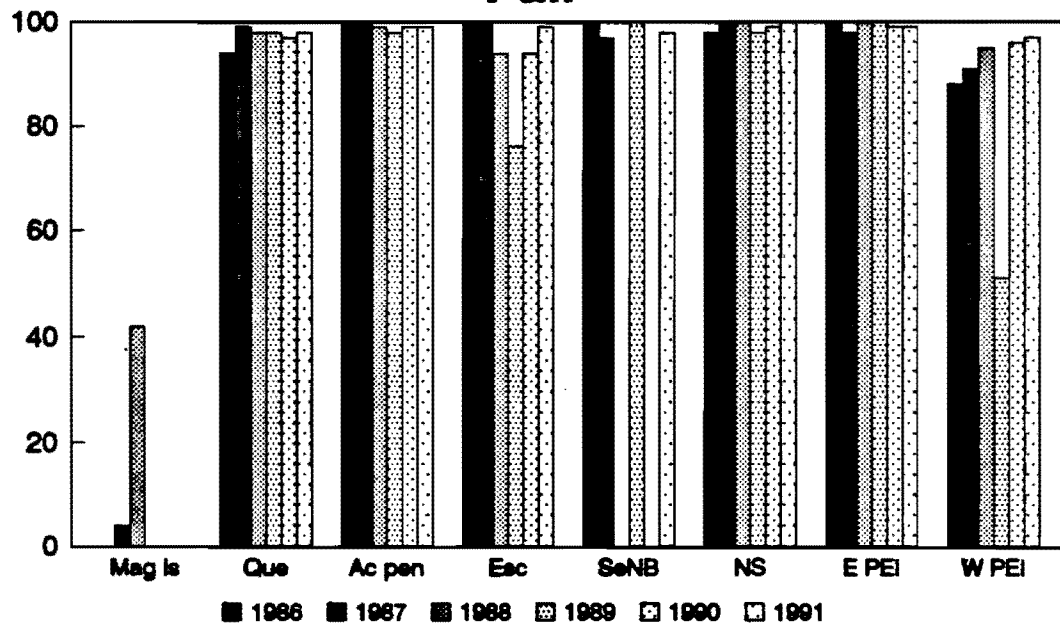


Figure 14. Percent of 4T catch sold to processors

APPENDIX

HERRING GILLNET QUESTIONNAIRE 1991

Interviewer _____

Home Stat Dist _____

Date _____

Resp I.D. _____

Record # 1

1. Did you fish herring with gillnets in 1991? YES _____
 NO _____ (If NO, then end of the questionnaire)

2. How many gillnets do you own? _____

=====

3. Did you fish herring in the spring in 1991? YES _____ (\$)
 NO _____ (If NO, then go to question 22)

(location 1)

(location 2)

4. Where did you fish herring in the spring? _____ () _____ ()

5. How many days did you fish in (each location)? _____

6. Would you say there was a 'peak' in the season YES _____
 (ie. a time when the catches were really good)? NO _____

=====

IF A 'PEAK' WAS IDENTIFIED:

7. About how many days did you fish during the peak? _____

8. How many nets did you fish per day during the peak? _____

9. On average, how many hours did your nets stay in
 the water during the peak period before you
 hauled them? _____

10. How many nets did you fish per day in the non-peak? _____

11. On average, how many hours did your nets stay in
 the water during the non-peak period before you
 hauled them? _____

=====

IF A 'PEAK' WAS NOT IDENTIFIED:

12. How many nets did you fish per day? _____

13. On average, how many hours did your nets stay in
 the water during the peak period before you
 hauled them? _____

=====

14. How many times each day did you empty your nets? _____

15. What is the average length of a single gillnet that you used? _____ fathoms _____ fathoms

16. What are the numbers and sizes of mesh # type
nets that you used in the spring? (in) nets (set/modified) (in) nets (set/modified)

| | | | | | |
|-------|-------|-------|-------|-------|-------|
| _____ | _____ | _____ | _____ | _____ | _____ |
| _____ | _____ | _____ | _____ | _____ | _____ |
| _____ | _____ | _____ | _____ | _____ | _____ |
| _____ | _____ | _____ | _____ | _____ | _____ |
| _____ | _____ | _____ | _____ | _____ | _____ |
| _____ | _____ | _____ | _____ | _____ | _____ |

(A set net is one that is
anchored to the ground
at both ends)

(A modified net is one that
is anchored to the boat
at one end)

17. How many barrels of herring did you catch
during the spring season?

_____ barrels = _____ lbs _____ barrels = _____ lbs

18. Approximately how much of your herring catch
-did you keep for personal use or bait?

_____ lbs = _____ % _____ lbs = _____ %

-did you sell to processors?

_____ lbs = _____ % _____ lbs = _____ %

-were you forced to dump?

_____ lbs = _____ % _____ lbs = _____ %

19. The Department of Fisheries and Oceans is interested in whether gillnetters
think that herring are becoming more or less abundant.

First of all, how long have you been fishing herring in your area in the spring? _____ yrs.

IF FISHING FOR TWO OR MORE YEARS:

20. We would like you to compare the abundance of herring in this year's fall fishery
with abundance in last year's fall fishery.

Would you say that herring this year are: more abundant _____ -> much more _____
little more _____

about the same _____

less abundant _____ -> much less _____
little less _____

()

21. On a scale of 1 to 10, considering 5 as an average year, how would you rate
this year's abundance of herring?

HERRING GILLNET QUESTIONNAIRE 1991

Interviewer _____

Home Stat Dist _____

Date _____

Resp I.D. _____

Record # 2

1. Did you fish herring with gillnets in 1991? YES _____
 NO _____ (If NO, then end of the questionnaire)

2. How many gillnets do you own? _____

22. Did you fish herring in the fall in 1991? YES _____ (F)
 NO _____ (If NO, then end of the questionnaire)

(location 1)

(location 2)

23. Where did you fish herring in the fall? _____ () _____ ()

24. How many days did you fish in (each location)? _____

25. Would you say there was a 'peak' in the season YES _____
 (i.e. a time when the catches were really good)? NO _____

IF A 'PEAK' WAS IDENTIFIED:

26. About how many days did you fish during the peak? _____

27. How many nets did you fish per day during the peak? _____

28. On average, how many hours did your nets stay in
 the water during the peak period before you
 hauled them? _____

29. How many nets did you fish per day in the non-peak? _____

30. On average, how many hours did your nets stay in
 the water during the non-peak period before you
 hauled them? _____

IF A 'PEAK' WAS NOT IDENTIFIED:

31. How many nets did you fish per day? _____

32. On average, how many hours did your nets stay in
 the water during the non-peak period before you
 hauled them? _____

33. How many times each day did you empty your nets? _____

34. What is the average length of a single gillnet that you used? _____ fathoms _____ fathoms

35. What are the numbers and sizes of mesh # type
nets that you used in the fall? (in) nets (set/modified) (in) nets (set/modified)

| | | | | | |
|-------|-------|-------|-------|-------|-------|
| _____ | _____ | _____ | _____ | _____ | _____ |
| _____ | _____ | _____ | _____ | _____ | _____ |
| _____ | _____ | _____ | _____ | _____ | _____ |
| _____ | _____ | _____ | _____ | _____ | _____ |
| _____ | _____ | _____ | _____ | _____ | _____ |
| _____ | _____ | _____ | _____ | _____ | _____ |

(A set net is one that is
anchored to the ground
at both ends)

(A modified net is one that
is anchored to the boat
at one end)

36. How many barrels of herring did you catch
during the fall season?

_____ barrels = _____ lbs

_____ barrels = _____ lbs

37. Approximately how much of your herring catch

-did you keep for personal use or bait? _____ lbs = _____ %

_____ lbs = _____ %

-did you sell to processors? _____ lbs = _____ %

_____ lbs = _____ %

-were you forced to dump? _____ lbs = _____ %

_____ lbs = _____ %

38. The Department of Fisheries and Oceans is interested in whether gillnetters
think that herring are becoming more abundant or less abundant.

First of all, how long have you been fishing herring in your area in the fall? _____ yrs.

IF FISHING FOR TWO OR MORE YEARS:

39. We would like you to compare the abundance of herring in this year's fall fishery
with abundance in last year's fall fishery.

Would you say that herring this year are: more abundant _____ -> much more _____
little more _____
about the same _____

less abundant _____ -> much less _____
little less _____

()

40. On a scale of 1 to 10, considering 5 as an average year, how would you rate
this year's abundance of herring?

QUESTIONNAIRE - HARENG 1991

Interviewer _____

Home Stat Dist _____

Date _____

Resp I.D. _____

Record # 1

1. Avez-vous peche le hareng en 1991 a l'aide de filets maillants? OUI _____
 NON _____ (Si NON, c'est le fin de questionnaire)

2. Combien de filets maillants possédez-vous? _____

=====

3. Avez-vous peche le hareng durant le printemps en 1991? OUI _____
 NON _____ (Si NON, question 22)

(location 1)

(location 2)

4. Du avez-vous peche durant le printemps? _____ () _____ ()

5. Combien de jours avez-vous peche (chaque endroit)? _____

6. D'après vous est-ce qu'il y a eu une période de capture forte (ie. une période lorsque les prises étaient bonnes)? OUI _____
 NON _____

OUI _____
 NON _____

=====

SI UNE PERIODE DE CAPTURE FORTE A ETE IDENTIFIE:

7. Combien de jours avez-vous peche durant la période de capture forte? _____

8. Combien de filets par jour avez-vous peches durant la période de capture forte? _____

9. Durant la période de capture forte, pendant combien d'heures par moyenne est-ce que vos filets ont reste dans l'eau avant qu'ils soient retires? _____

10. Combien de filets par jour avez-vous peches durant le reste de la saison? _____

11. Durant le reste de la saison, pendant combien d'heures par moyenne est-ce que vos filets ont reste dans l'eau avant qu'ils soient retires? _____

=====

SI UNE PERIODE DE CAPTURE FORTE N'A PAS ETE IDENTIFIE:

12. Combien de filets par jour avez-vous peches? _____

13. Par moyenne, pendant combien d'heures est-ce que vos filets ont reste dans l'eau avant qu'ils soient retires? _____

=====

14. Combien de fois par journee avez-vous releve vos filets? _____

15. Quelle etait la longueur moyenne d'un filet maillant que vous utilisiez? _____

brasses

brasses

16. Quelle est la grandeur de mailles des filets et le nombre de filets ce chaque grandeur que vous avez utilisee?

maille
(po)

filets

type
(ancree/modifie)

maille
(po)

filets

type
(ancree/modifie)

(Un filet ancre en est un qui est ancre au fond a chaque bout)

(Un filet modifie est un qui est attache au bateau a un bout)

17. Combien de hareng avez-vous pris?

barils = _____ poids

barils = _____ poids

18. Quel pourcentage de votre prise de hareng

-avez-vous garde pour des fins personnels _____ poids = _____ %

_____ poids = _____ %

ou de la boette?

-avez-vous vendu aux usines de transformation? _____ poids = _____ %

_____ poids = _____ %

-avez-vous du jeter?

_____ poids = _____ %

_____ poids = _____ %

19. Le Ministere de Peches et Oceans veut savoir si les pecheurs a filet maillant

considerent que le hareng devient plus abondant ou moins abondant. Tout d'abord,

depuis combien de temps avez-vous peche du hareng dans votre region durant l'automne? _____ ans.

SI LE REpondant A PECHE LE HARENG DEPUIS DEUX ANS OU PLUS:

20. Pourriez-vous faire une comparaison de l'abondance du hareng dans la peche de ce printemps avec l'abondance du hareng dans la peche du printemps dernier.

Est-ce que vous diriez que l'hareng ce printemps est plus abondant _____ -> beaucoup plus abondant _____
un peu plus abondant _____

a peu pres la meme _____

moins abondant _____ -> beaucoup moins abondant _____

un peu moins abondant _____ ()

21. Sur une echelle de 1 a dix, avec 5 comme annee moyenne, sur quel point

de l'echelle est-ce que vous placeriez l'abondance du hareng cette annee? _____

QUESTIONNAIRE - HARENG 1991

Interviewer _____

Home Stat Dist _____

Date _____

Resp I.D. _____

Record # 2

1. Avez-vous peche le hareng en 1991 a l'aide de filets maillants? OUI _____
NON _____ (Si NON, c'est la fin de questionnaire)

2. Combien de filets maillants possédez-vous? _____

=====

22. Avez-vous peche le hareng durant l'automne en 1991? OUI _____
NON _____ (Si NON, c'est la fin de la questionnaire)

(location 1)

(location 2)

23. Ou avez-vous peche durant l'automne? _____ () _____ ()

24. Combien de jours avez-vous peche (chaque endroit)? _____

25. D'après vous est-ce qu'il y a eu une période de capture forte (ie. une période lorsque les prises étaient bonnes)? OUI _____
NON _____

OUI _____
NON _____

=====

SI UNE PERIODE DE CAPTURE FORTE A ETE IDENTIFIE:

26. Combien de jours avez-vous peche durant la période de capture forte? _____

27. Combien de filets par jour avez-vous peches durant la période de capture forte? _____

28. Durant la période de capture forte, pendant combien d'heures par moyenne est-ce que vos filets ont reste dans l'eau avant qu'ils soient retirés? _____

29. Combien de filets par jour avez-vous peches durant le reste de la saison? _____

30. Durant le reste de la saison, pendant combien d'heures par moyenne est-ce que vos filets ont reste dans l'eau avant qu'ils soient retirés? _____

=====

SI UNE PERIODE DE CAPTURE FORTE N'A PAS ETE IDENTIFIE:

31. Combien de filets par jour avez-vous peches? _____

32. Par moyenne, pendant combien d'heures est-ce que vos filets ont reste dans l'eau avant qu'ils soient retirés? _____

=====

33. Combien de fois par jour avez-vous relevé vos filets? _____

34. Quelle était la longueur moyenne d'un filet maillant que vous utilisiez? _____ brasses _____ brasses

35. Quelle est la grandeur de mailles des filets et le nombre de filets de chaque grandeur que vous avez utilisée?

| | maille (po) | # filets | type (ancrer/modifier) | maille (po) | # filets | type (ancrer/modifier) |
|--|-------------|----------|------------------------|-------------|----------|------------------------|
| | _____ | _____ | _____ | _____ | _____ | _____ |
| (Un filet ancre en est un qui est ancre au fond a chaque bout) | _____ | _____ | _____ | _____ | _____ | _____ |
| | _____ | _____ | _____ | _____ | _____ | _____ |
| (Un filet modifie est un qui est attache au bateau a un bout) | _____ | _____ | _____ | _____ | _____ | _____ |
| | _____ | _____ | _____ | _____ | _____ | _____ |
| | _____ | _____ | _____ | _____ | _____ | _____ |

36. Combien de hareng avez-vous pris? _____ barils = _____ poids _____ barils = _____ poids

37. Quel pourcentage de votre prise de hareng

| | | |
|--|-----------------------|-----------------------|
| -avez-vous garde pour des fins personnels ou de la boette? | _____ poids = _____ % | _____ poids = _____ % |
| -avez-vous vendu aux usines de transformation? | _____ poids = _____ % | _____ poids = _____ % |
| -avez-vous du jeter? | _____ poids = _____ % | _____ poids = _____ % |

38. Le Ministère de Pêches et Océans veut savoir si les pêcheurs à filet maillant considèrent que le hareng devient plus abondant ou moins abondant. Tout d'abord, depuis combien de temps avez-vous pêché du hareng dans votre région durant l'automne? _____ ans.

SI LE RÉPONDANT A PÊCHÉ LE HARENG DEPUIS DEUX ANS OU PLUS:

39. Pourriez-vous faire une comparaison de l'abondance du hareng dans la pêche de cet automne avec l'abondance du hareng dans la pêche de l'automne dernier.

Est-ce que vous diriez que l'hareng cet automne est plus abondant _____ -> beaucoup plus abondant _____
un peu plus abondant _____
à peu près la même _____

moins abondant _____ -> beaucoup moins abondant _____
un peu moins abondant _____ ()

40. Sur une échelle de 1 à dix, avec 5 comme année moyenne, sur quel point de l'échelle est-ce que vous placeriez l'abondance du hareng cette année? _____