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The 1992 Herring Gillnet Questionnaire

by

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¹La présente série documente les bases scientifiques des évaluations des ressources halieutiques sur la côte Atlantique du Canada. Elle traite des problèmes courants selon les échéanciers dictés. Les documents qu'elle contient ne doivent pas être considérés comme des énoncés définitifs sur les sujets traités, mais plutôt comme des rapports d'étape sur les études en cours.

Les documents de recherche sont publiés dans la langue officielle utilisée dans le manuscrit envoyé au secrétariat.

ABSTRACT

A telephone survey obtained information from 359 herring gillnetters about their 1992 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 1992. The average number of nets fished per trip (used in the historical effort index) did not change in fall fishery, but decreased from 27.6 in 1991 to 22.7 in 1992 in the spring fishery. 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 or higher than in 1991 in all areas except Quebec and Nova Scotia. The fall abundance was seen to be at least as good as in 1991 in all areas except southeast N.B. (for which there were only 2 respondents). On a scale of 1 to 10, the 1992 spring abundance was seen to be about average in all areas except the the Magdalen Islands and southeast N.B. (higher) while the 1991 fall abundance was seen to be overall about average except for west P.E.I. and Escuminac (higher).

Résumé

On a effectué un sondage par téléphone pour recueillir des données sur la pêche du hareng dans le sud du golfe du Saint-Laurent (division 4T de l'OPANO) en 1992 auprès des 359 pêcheurs au filet maillant. On a pu ainsi obtenir des renseignements sur l'effort de pêche, sur la répartition des divers maillages et sur le sort des prises, servant respectivement à établir des estimations de l'abondance, à déterminer le recrutement partiel et à contre-vérifier les données figurant sur les récépissés d'achat. De plus, on a sollicité l'opinion des pêcheurs au filet maillant sur l'abondance du hareng en 1992. Le nombre moyen de filets mouillés par voyage (servant à établir l'indice d'effort historique) n'a pas changé en automne, mais a diminué dans la pêche de printemps, passant de 27,6 en 1991 à 22,7 en 1992. La répartition des divers grosseurs de maille n'a pas changé depuis 1984. Par ailleurs, une forte proportion des prises de la pêche de printemps reste réservée à l'usage personnel. Les prises d'automne sont généralement toutes vendues aux transformateurs. Les pêcheurs au filet maillant estimaient que l'abondance du hareng au printemps était comparable ou supérieure à celle de 1991 dans toutes les zones, sauf au Québec et en Nouvelle-Ecosse. De plus, selon eux, le hareng était au moins aussi abondant qu'en 1991 durant la pêche d'automne dans toutes les zones, sauf dans le sud-est du Nouveau-Brunswick (région d'où il n'y avait que deux répondants). L'abondance du hareng était jugée à peu près moyenne (selon une échelle de 1 à 10) partout sauf aux îles-de-la-Madeleine et au sud-est du Nouveau-Brunswick (où elle était supérieure) durant la pêche du printemps 1992 et partout également sauf dans l'ouest de l'île-du-Prince-Edouard et à Escuminac (où elle était supérieure) dans la pêche de l'automne 1991.

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 1992 survey, and presents comparisons with results from previous surveys (Nielsen 1986-1992).

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 gillnetters for 1992. 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 1992.

The interviews were conducted by telephone in the official language of the gillnetters' choice, during December, 1992 and January, 1993. 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 1992?). 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 part of the season (if any) when the fishing is really good (peak of the season)
 - 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).

$$i) NHF_1 = \frac{1}{n_1} \sum_j (dp_j \times np_j + dnp_j \times nnp_j) \times h_j$$

where n_1 = 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

$$ii) NHT_1 = \frac{1}{n_1} \sum_j \frac{(dp_j \times np_j + dnp_j \times nnp_j) \times h_j}{dp_j + dnp_j}$$

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.

3. For each season fished, the numbers of set and modified gillnets fished, 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 about how they felt about the abundance of herring. The first question asked respondents to compare herring abundance in 1992 versus 1991. On a scale of 0 to 10, the responses mean:

- 0 = abundance was much less in 1992 than 1991
- 2½ = abundance was somewhat less in 1992 than in 1991
- 5 = abundance was the same in 1992 as in 1991
- 7½ = abundance was somewhat more in 1992 than in 1991
- 10 = abundance was much more in 1992 than in 1991

The second question asked gillnetters to rate the abundance of herring in 1992 on a scale of 1 to 10, assuming that 5 is average abundance.

RESULTS AND DISCUSSION

In total, 359 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. The total number (by area) of gillnetters fishing in the spring and fishing in the fall is greater than 359, 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 and gillnetters from east P.E.I. fishing close to Nova Scotia. Table 4 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 1984-1992 are shown in Figures 2 to 5.

Spring

There have been large fluctuations since 1984 in the number of days spent fishing by Quebec gillnetters, and a large drop from 1991 to 1992 by eastern Prince Edward Island gillnetters. There appears to be slight downward trends in total day fished per gillnetter in recent years for gillnetters from the three New Brunswick areas. The proportion of days identified as peak fishing 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, but in 1992, identified almost all days as peak.

Since 1984, there has been considerable year to year variation in the average number of nets fished by gillnetters both in the peak and in the non-peak season. There appears to be general downward trends in west P.E.I., and perhaps Escuminac and the Magdalen Islands. From 1991, the number of nets fished per gillnetter is greater in only Nova Scotia in the non-peak. Nova Scotia and east P.E.I. continue to use the fewest nets, while southeast N.B., Escuminac, and west P.E.I. use the most.

Fall

From 1991, the total number of days fished per gillnetter in the fall noticeably decreased in Quebec and southeast N.B., increased in the Acadian peninsula and east P.E.I., and remained fairly stable in the other areas. The Magdalen Island gillnetters were the only ones to identify a large proportion of the days fished as non-peak in 1992. For the second year in a row, all areas reported fishing activity.

For most areas, the number of nets fished per gillnetter 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, and declined to tell us how many nets they used in the fall of 1992 during the non-peak. Only gillnetters in west P.E.I. and those in the Magdalen Islands fishing in the non-peak, used more nets in 1992 than in 1991.

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 1992 spring fishery was very close to 24 hours (both peak and non-peak). In the fall, only the Magdalen Islands, Escuminac, and west P.E.I. had a net soak time in 1992 greater than 4 hours during the peak. During the non-peak, the net soak time in 1992 was greatest in the Magdalen Islands, Quebec, southeast N.B., and west P.E.I.

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 or 1.1 for all areas except southeast N.B. (1.2) in 1992. In the fall, Quebec, the Acadian peninsula, and Escuminac continue to

report the most hauls/day (more than 3), while the remaining areas reported 1.2-1.5 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 1992, except for Quebec in the fall, where the number of net-hauls/gillnetter appears to have declined since 1984, but the number of net-hauls/gillnetter/day has remained stable. As expected, the trend of number of net-hauls/gillnetter/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/gillnetter/day is more variable. From 1991, the value for both indices increased or remained about the same in all areas and both seasons, except in southeast N.B. and east P.E.I. in the spring, and southeast N.B. in the fall (both indices), and Quebec in the fall (number of net-hauls/gillnetter).

The historic effort index shown in Figure 9 indicates some variability in the spring since 1985, but little change in the fall. The spring index decreased in 1992 from 1991 (27.6 to 22.7), while the fall index remained at 5.0.

Abundance Indices

The responses to the questions about relative abundance of herring in 1992 are shown in Figures 10 and 11. Spring abundance in 1992 was rated better than that in 1991 (greater than 6) in the Magdalen Islands, Escuminac, southeast N.B., and west P.E.I., but worse than that in 1991 (less than 4), in Québec and Nova Scotia. Overall, the abundance was considered average except in southeast N.B. (greater than average). Since 1987, the spring abundance has been seen to decreasing in the Acadian peninsula, with an increase in 1992, and increasing in the Magdalen Islands, while remaining more or less stable with some fluctuation in the other areas. Fall abundance compared to 1991 was rated greater than 6 in the Acadian peninsula, Escuminac, Nova Scotia, and west P.E.I., but less than 4 in the southeast N.B. Overall, fall abundance was reported to be average except in Escuminac (7.7) and west P.E.I. (6.5).

Gillnet Mesh Size Distribution

Figures 12 and 13 illustrate the percentage of the gillnet mesh sizes used from 1985 to 1992 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 5), but not within an area between seasons, except for east P.E.I. and southeast N.B., for which there were only 3 respondents in the spring and 2 respondents in the fall, respectively. The length of nets used in 1992 ranged from 15.6 to 21.5 fathoms in the spring, and from 15.6 to 19.1 fathoms in the fall (omitting east P.E.I. in the spring and southeast N.B. in the fall). Nova Scotia, Québec, and the Magdalen Islands used the longest nets in both the spring and the fall. In previous years, almost all of the gillnets fished in the spring were set nets (both ends anchored to the ground) but a large percentage of those used in the fall were modified nets (one end attached to the boat) In 1992, except for east P.E.I. in the spring (3 gillnetters responding to the questionnaire) only Québec and Acadian peninsula fall gillnetters used more than 50 percent modified nets. (Table 6). The use of set nets in the spring corresponds to soak times of

approximately 24 hours and one haul per day, while in the fall, generally more than one haul is made per day whether or not modified nets or set nets are used (Figure 6).

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, only southeast N.B. and Nova Scotia gillnetters sold a smaller percentage of their catch to processors in 1992 than in 1991. The percentage dumped was higher in 1992 than 1991 in Quebec, Escuminac, and southeast N.B., but much less in the Acadaian peninsula. In the fall, the catch continued to be primarily sold to processors in all areas except the Magdalen Islands and southeast N.B. The amount of catch dumped in the fall remained low in all areas. Figure 14 shows the trends in disposition of the catch from 1987 to 1992.

Concluding Remarks

The historical effort index was devised in the late 1970's (O'Boyle and Cleary) 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

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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
Esuminac	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 1992.

Area	Landings		Number of Licences	Number of Boats
	Spring	Fall		
Magdalen Islands				-
Quebec			547	-
Acadian Peninsula	1370	19916	610	261
Escuminac	3933	1634	346	166
Southeast N.B.	2221	121	244	101
Nova Scotia	84	1756	424	68
East P.E.I.	39	2891	379	59
West P.E.I.	2046	2170	482	224

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

Area	Number Selected	Number of completed surveys	Number of phone problems *	Number not contacted	Number not fishing	Number not cooperating
Magdalen Islands	36	26	1	6	3	0
Quebec	61	34	5	6	15	1
Acadian Peninsula	100	93	1	6	0	0
Escuminac	59	55	0	4	0	0
Southeast N.B.	42	35	1	5	1	0
Nova Scotia	24	19	2	2	0	1
East P.E.I.	24	22	1	1	0	0
West P.E.I.	86	75	4	4	0	3
TOTAL	432	359	15	34	19	5

* Examples of phone problems: no known number, disconnected phone

Table 4. Number of respondents fishing in each area in 1992 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	Total
Mag Is	22								22
Que		25							25
Ac Pen		0	63	1					64
Esc				52	2				54
Se N.B.				3	35				38
N.S.						11			11
E P.E.I.							3		3
W P.E.I.				4	2			64	70
Total	22	25	63	60	39	11	3	64	287

Fishing Area - Fall									
Home Port	Mag Is	Que	Ac Pen	Esc	Se N.B.	N.S.	E P.E.I.	W	Total
Mag Is	6								6
Que		4	2						6
Ac Pen		23	74						97
Esc				15				1	16
Se N.B.					2				2
N.S.						12			12
E P.E.I.						10	21		31
W P.E.I.				2				34	36
Total	6	27	76	17	2	22	21	35	206

Table 5. Length of gillnets used in the 1991 herring fishery (fathoms)

Area	Spring	Fall
Magdalen Islands	17.3	
Quebec	21.5	17.8
Acadian Peninsula	16.2	16.9
Escuminac	16.2	15.8
Southeast N.B.	15.6	22.1
Nova Scotia	20.4	19.1
East P.E.I.	11.4	17.0
West P.E.I.	15.8	15.6

Table 6. Percent distribution of gillnet types used in the 1992 herring fishery

Area	Spring		Fall	
	Set	Modified	Set	Modified
Magdalen Islands	100	0	70	30
Quebec	75	25	15	85
Acadian Peninsula	100	0	4	96
Escuminac	97	3	77	23
Southeast N.B.	100	0	100	0
Nova Scotia	92	8	97	3
East P.E.I.	50	50	96	4
West P.E.I.	100	0	100	0

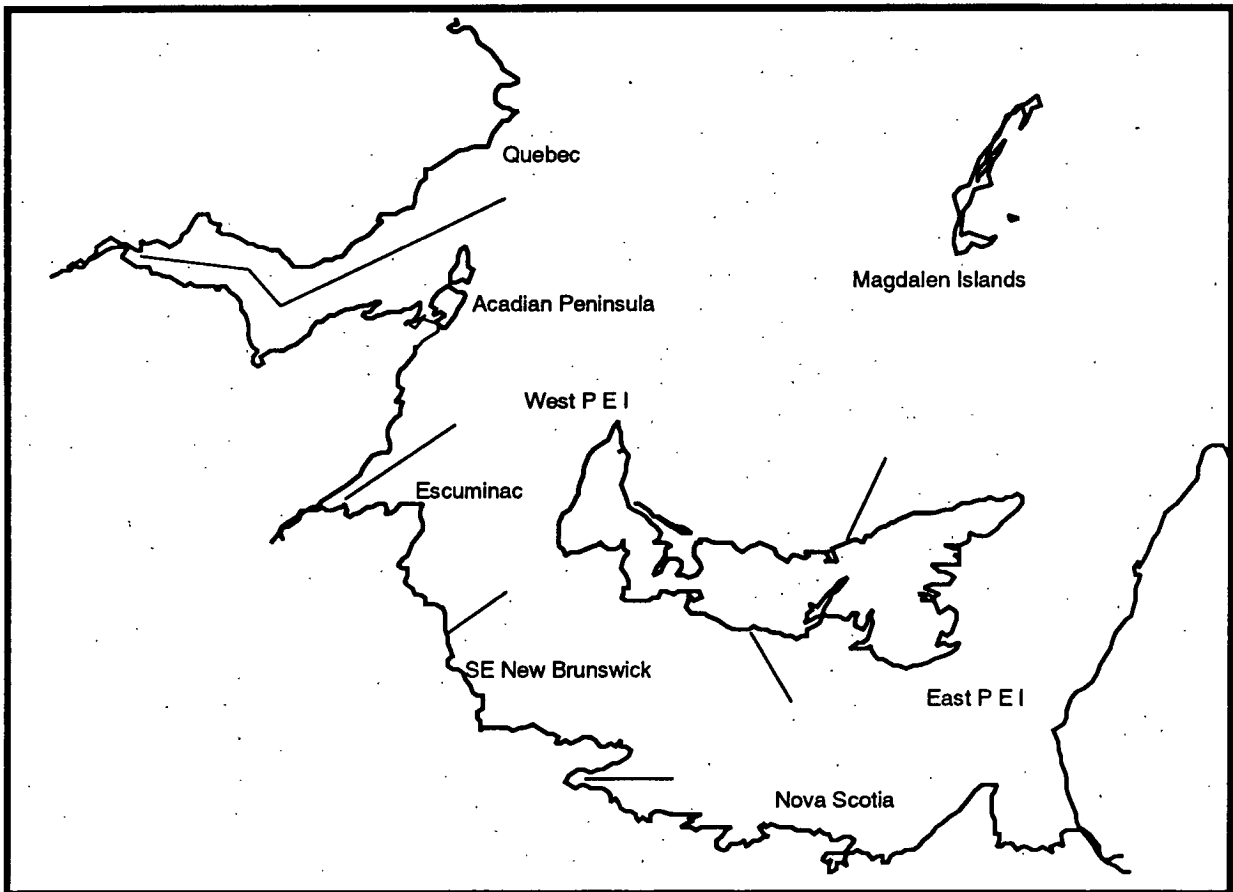


Fig 1. Geographic areas in the southern Gulf of St. Lawrence used in the 1992 herring gillnet survey.

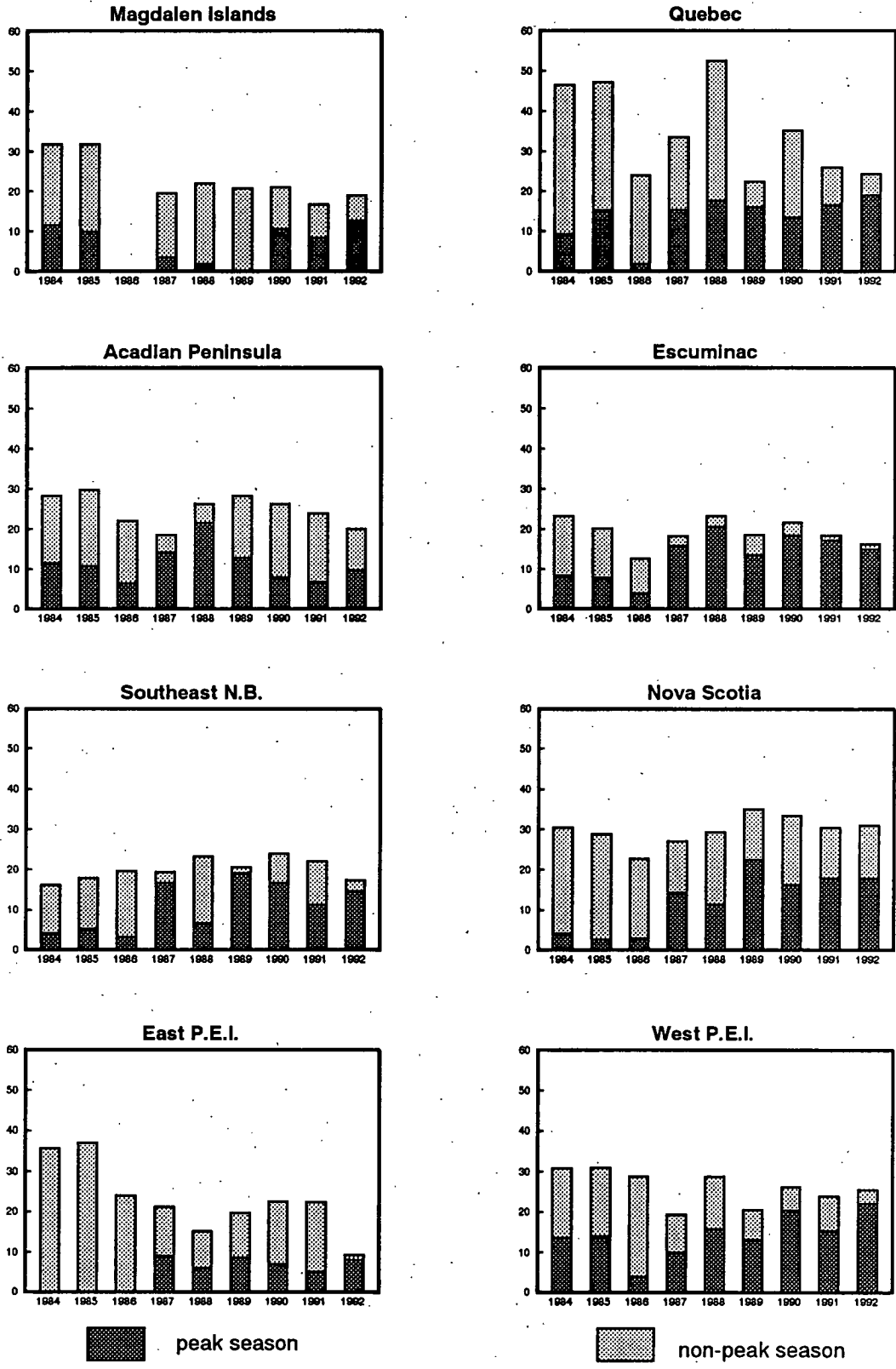


Figure 2. Number of days fished/gillnetter in the 4T spring fishery

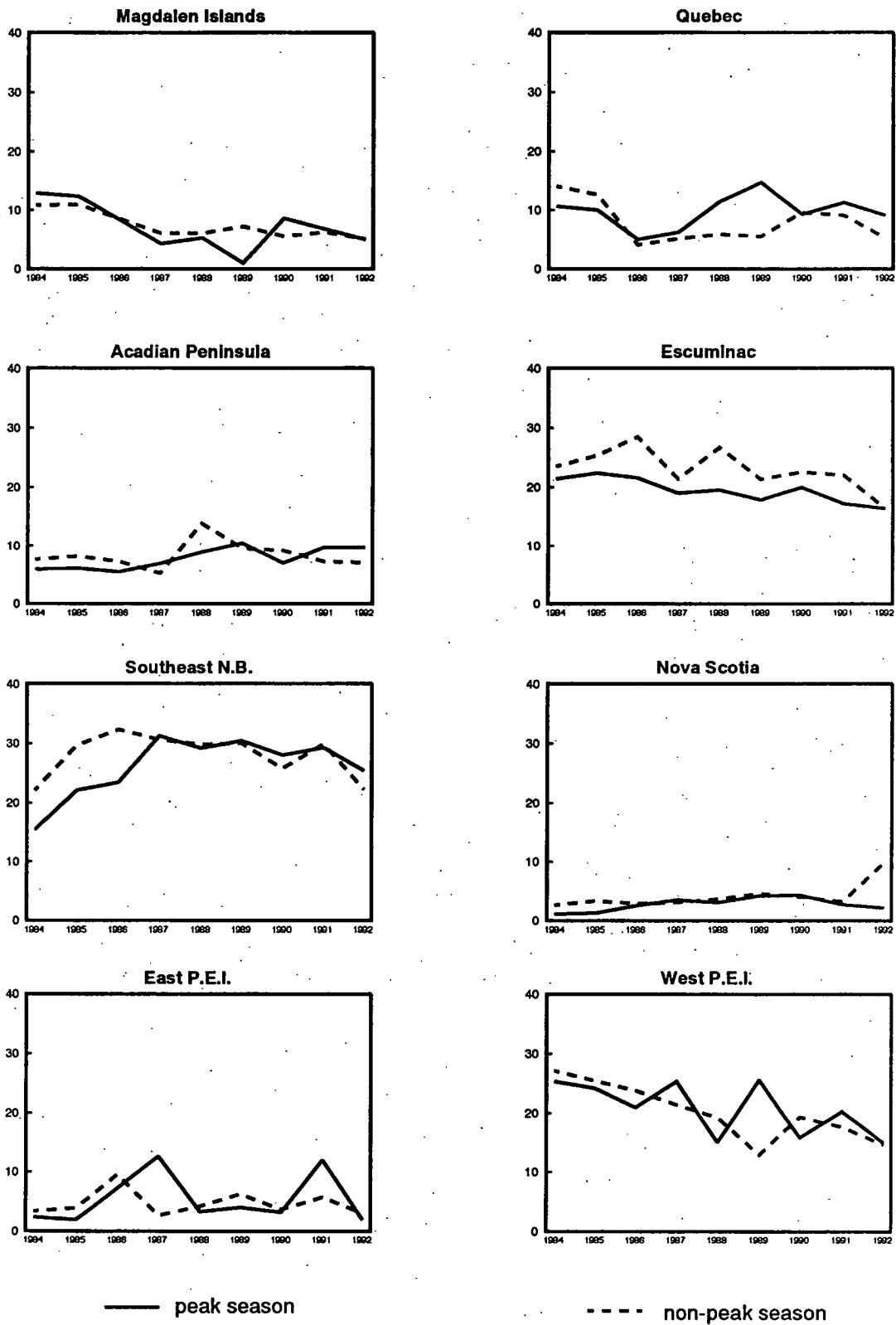


Figure 3. Number of nets fished/gillnetter in the 4T spring fishery

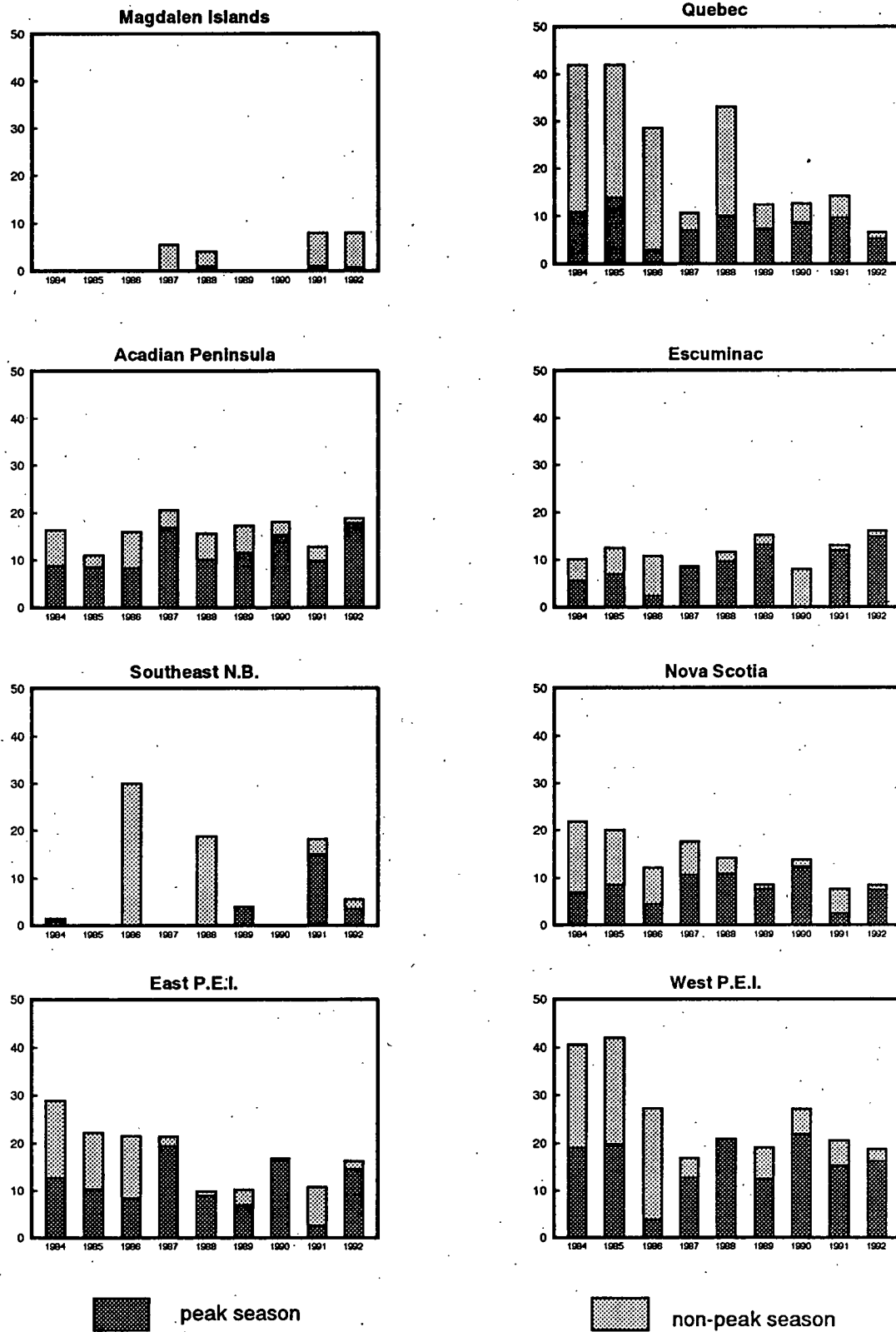


Figure 4. Number of days/gillnetter fished in the 4T fall fishery

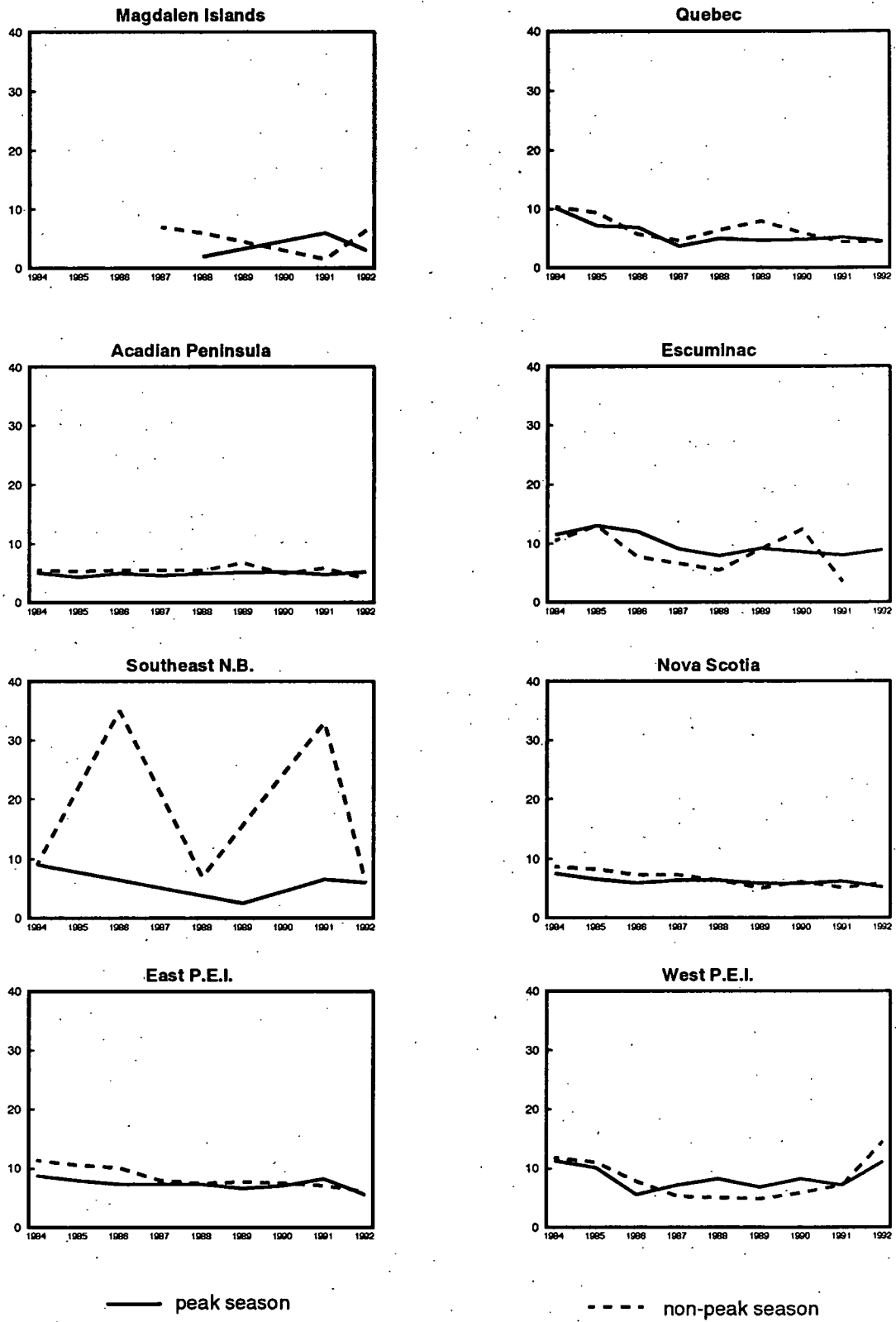


Figure 5. Number of nets fished/gillnetter in the 4T fall fishery

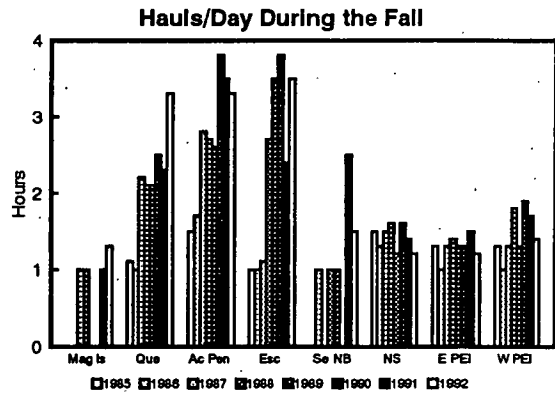
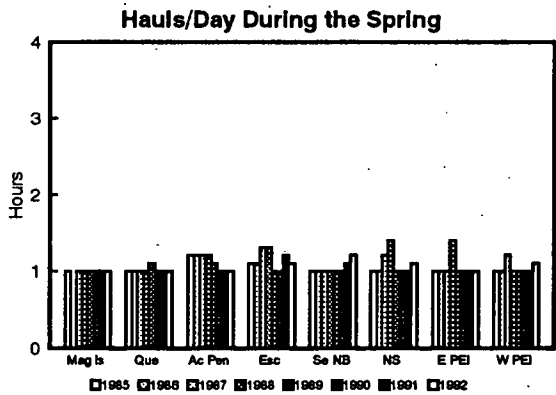
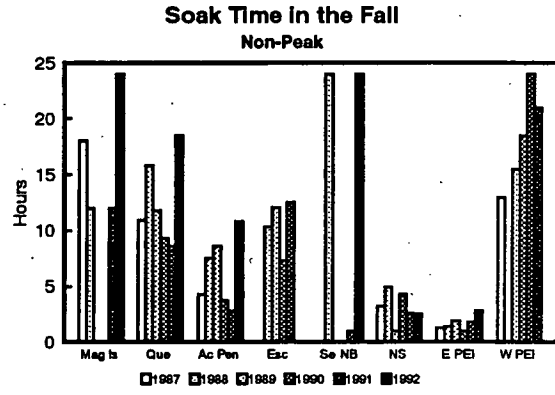
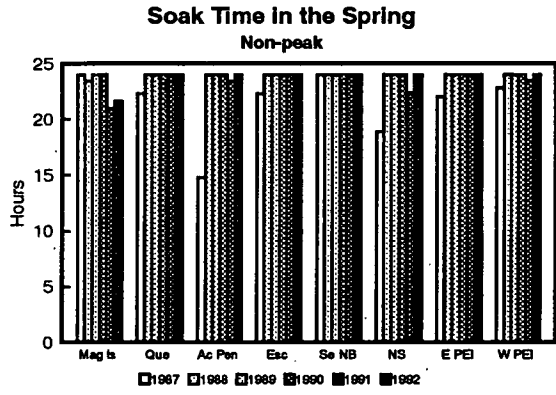
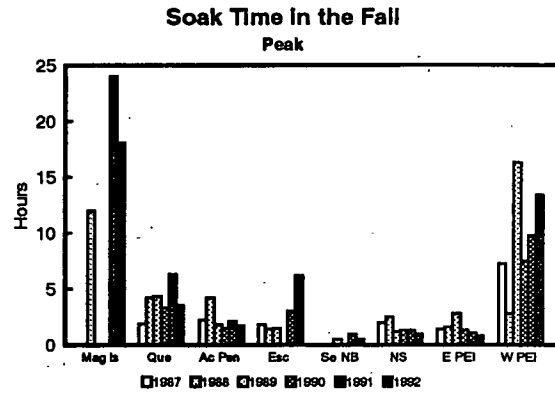
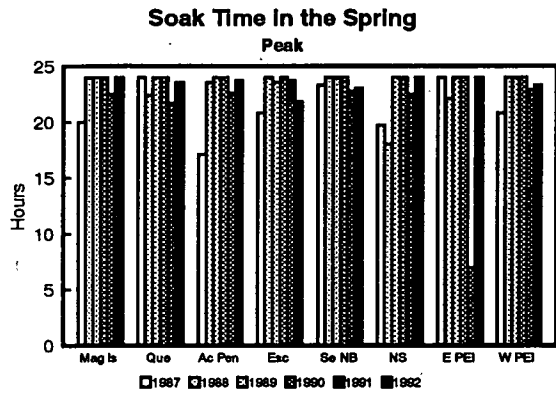


Figure 6. Net soak parameters for the 4T fishery

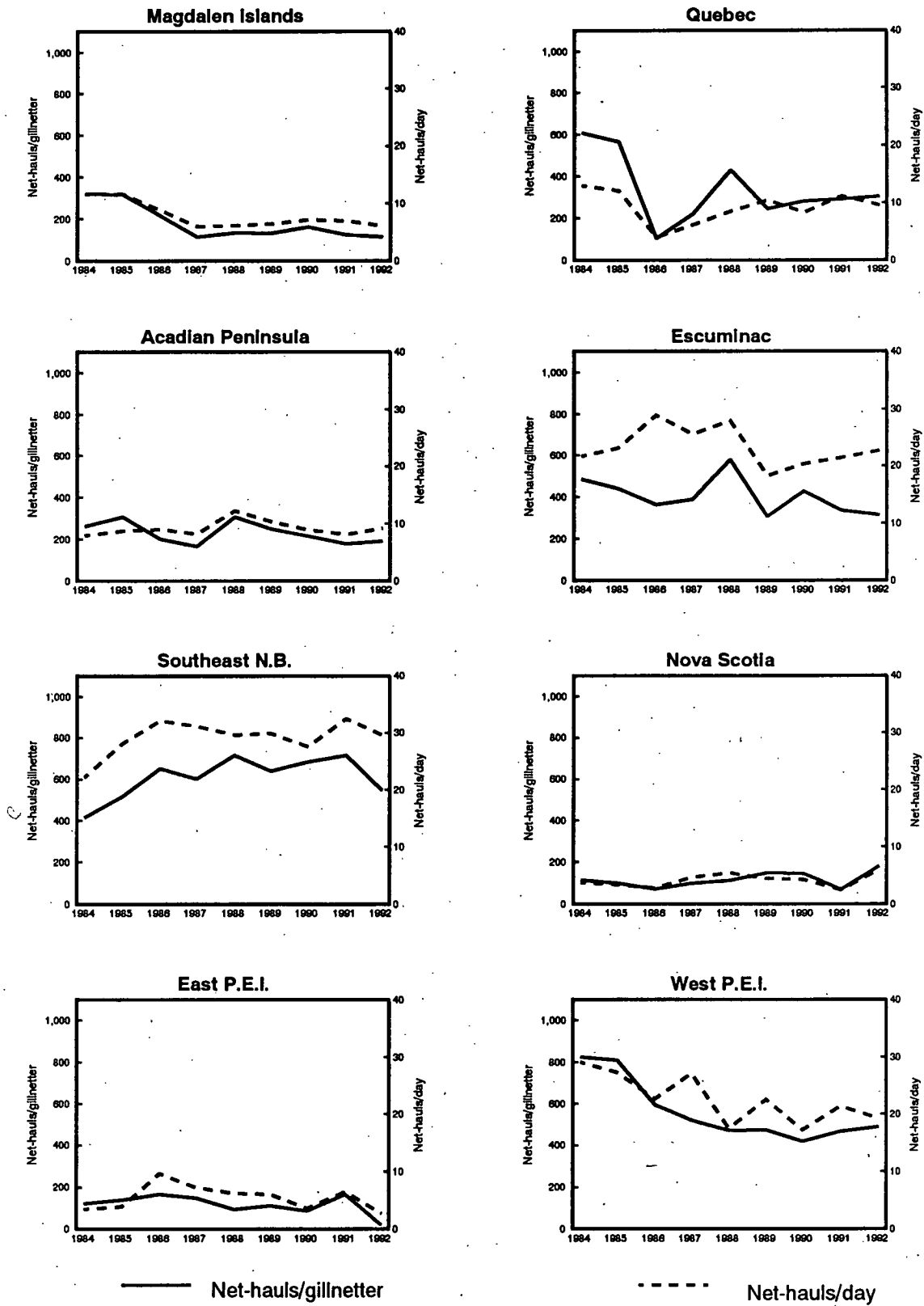


Figure 7. Effort expended in the 4T spring fishery

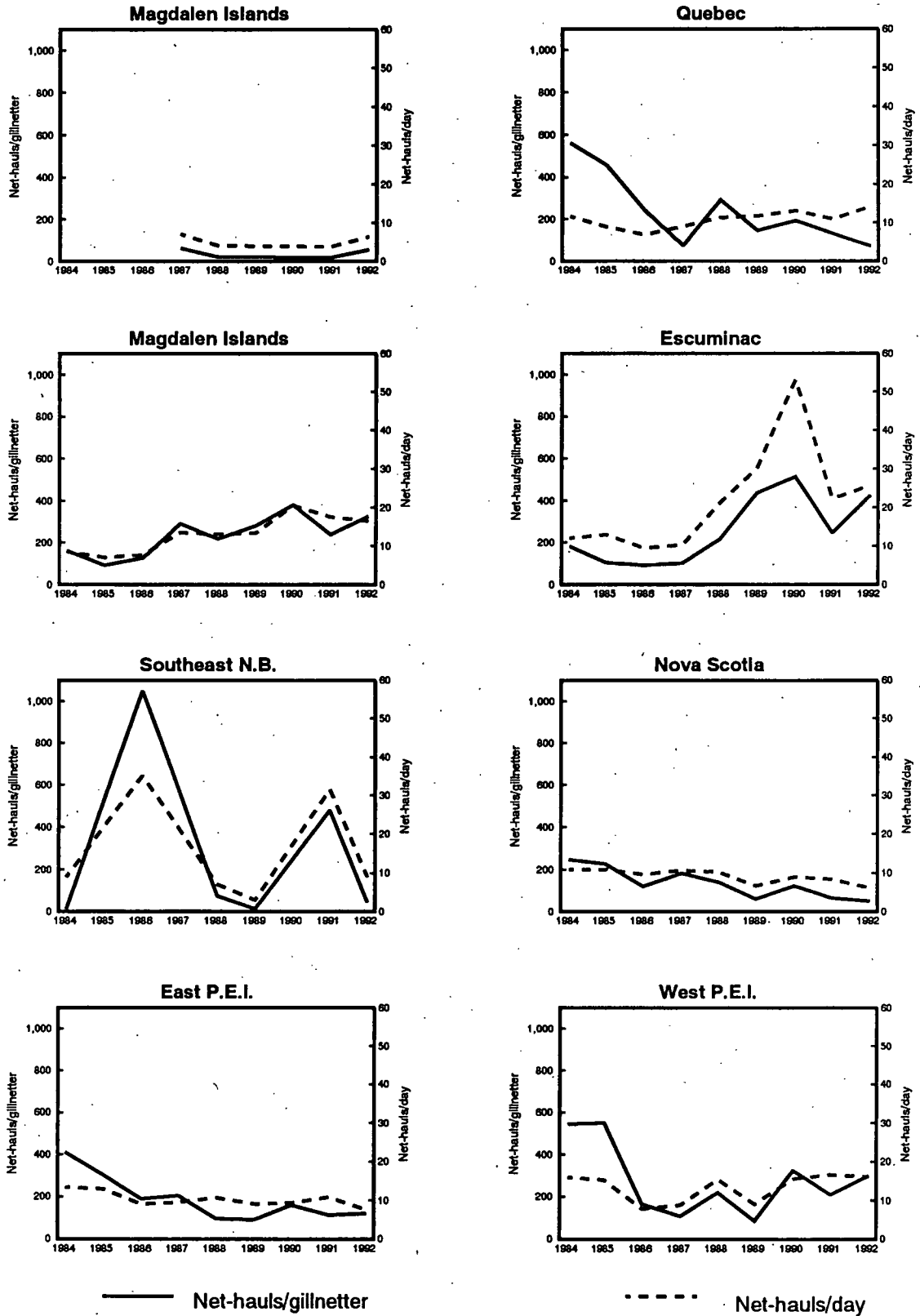


Figure 8. Effort expended in the 4T fall fishery

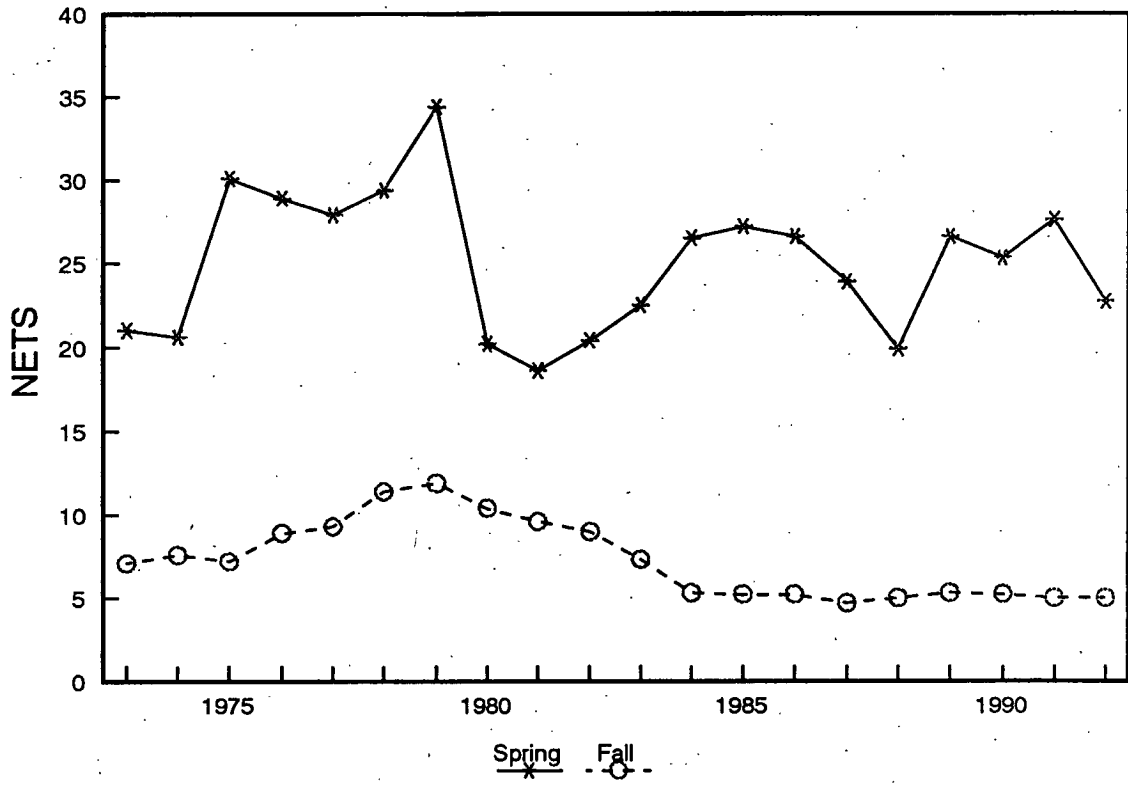


Figure 9. Historical effort index - number of nets fished/trip

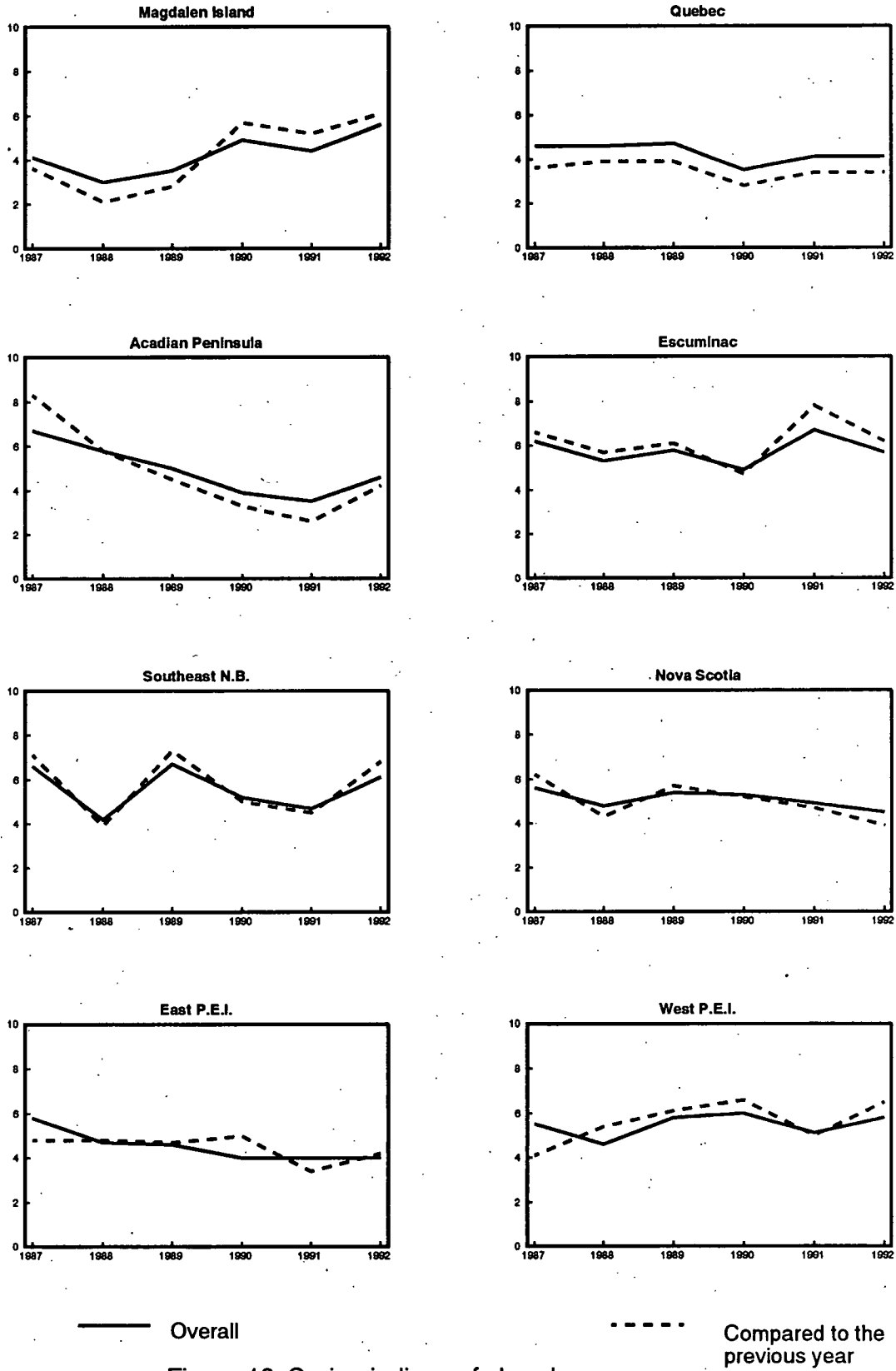
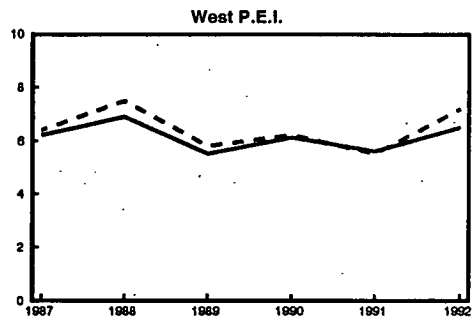
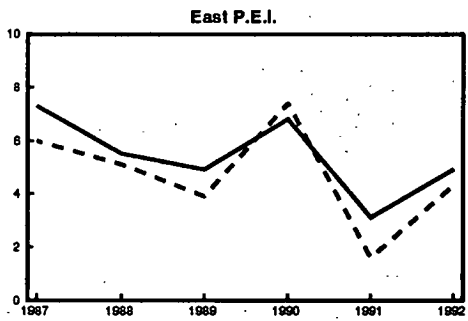
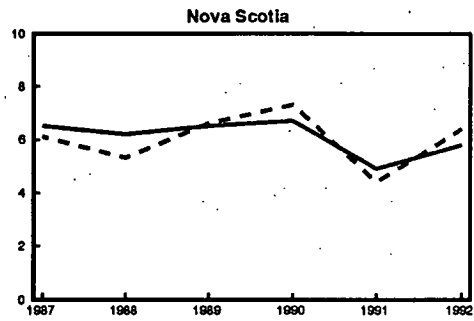
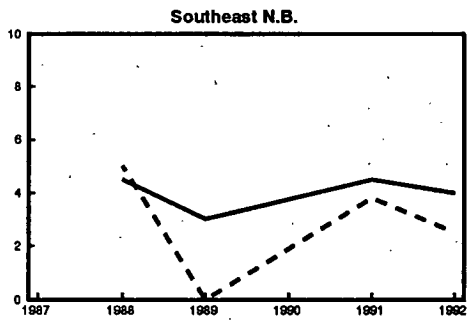
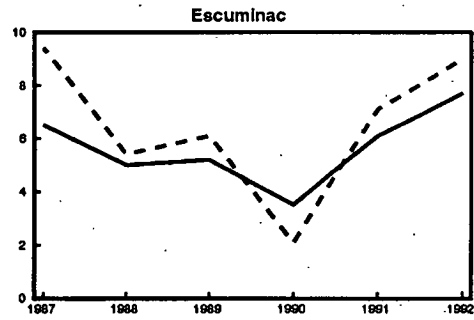
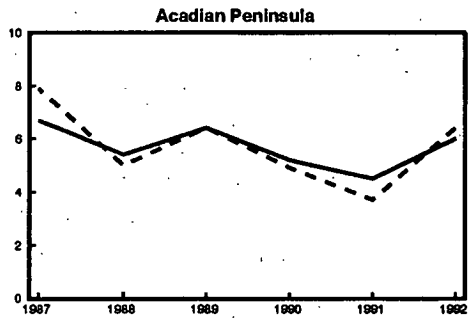
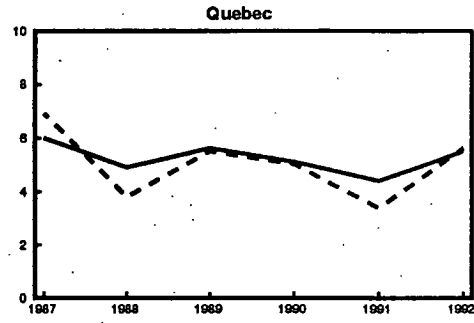
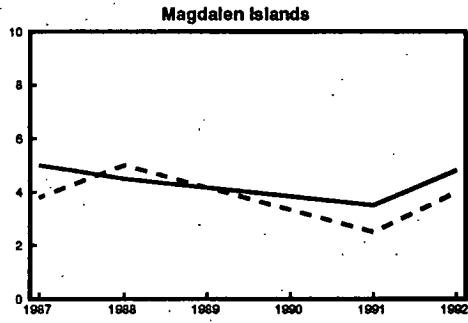


Figure 10. Spring indices of abundance



— Overall

- - - Compared to the previous year

Figure 11. Fall indices of abundance

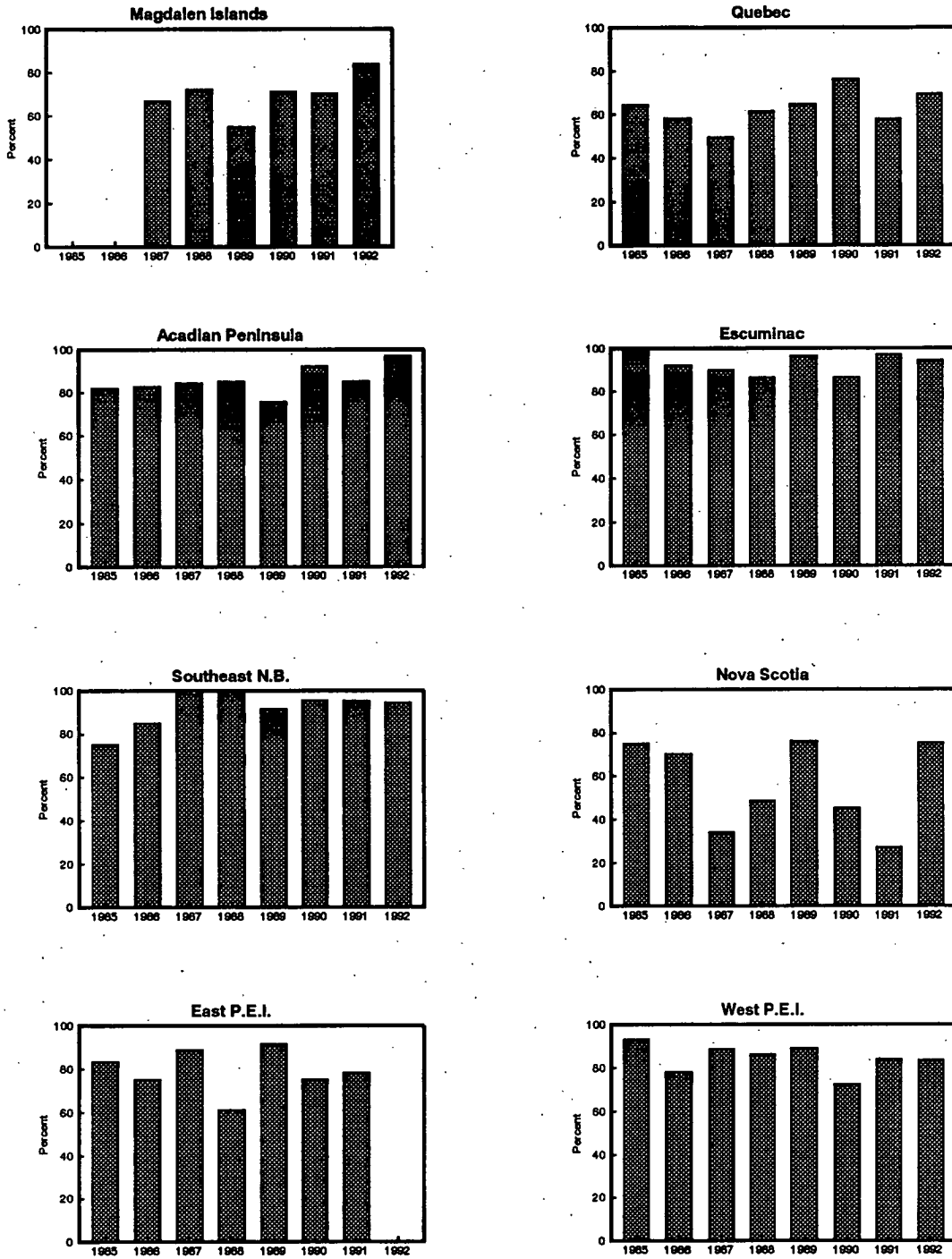


Figure 12. Percent of nets fished that are between 2 1/4 and 2 1/2 mesh in the 4T spring fishery

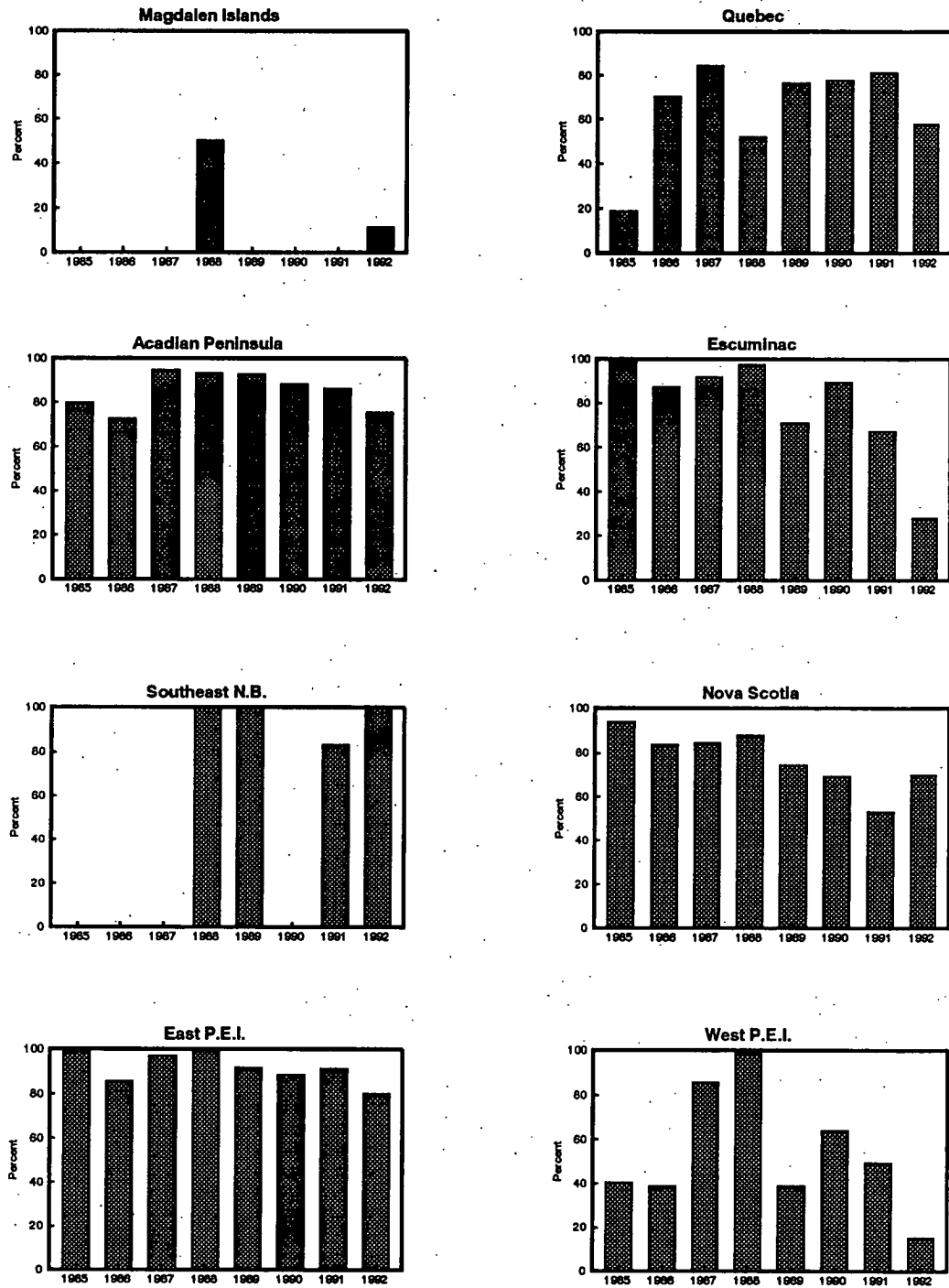


Figure 13. Percent of nets fished that are 2 5/8 " mesh in the 4T fall fishery

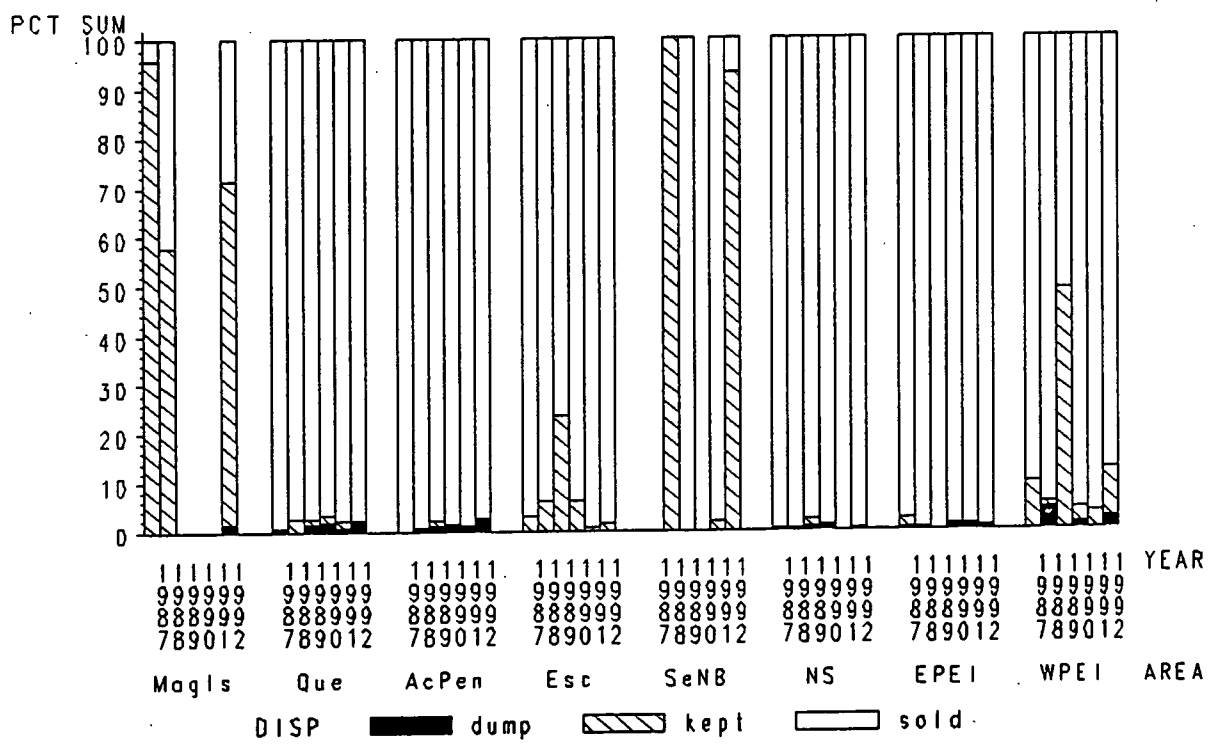
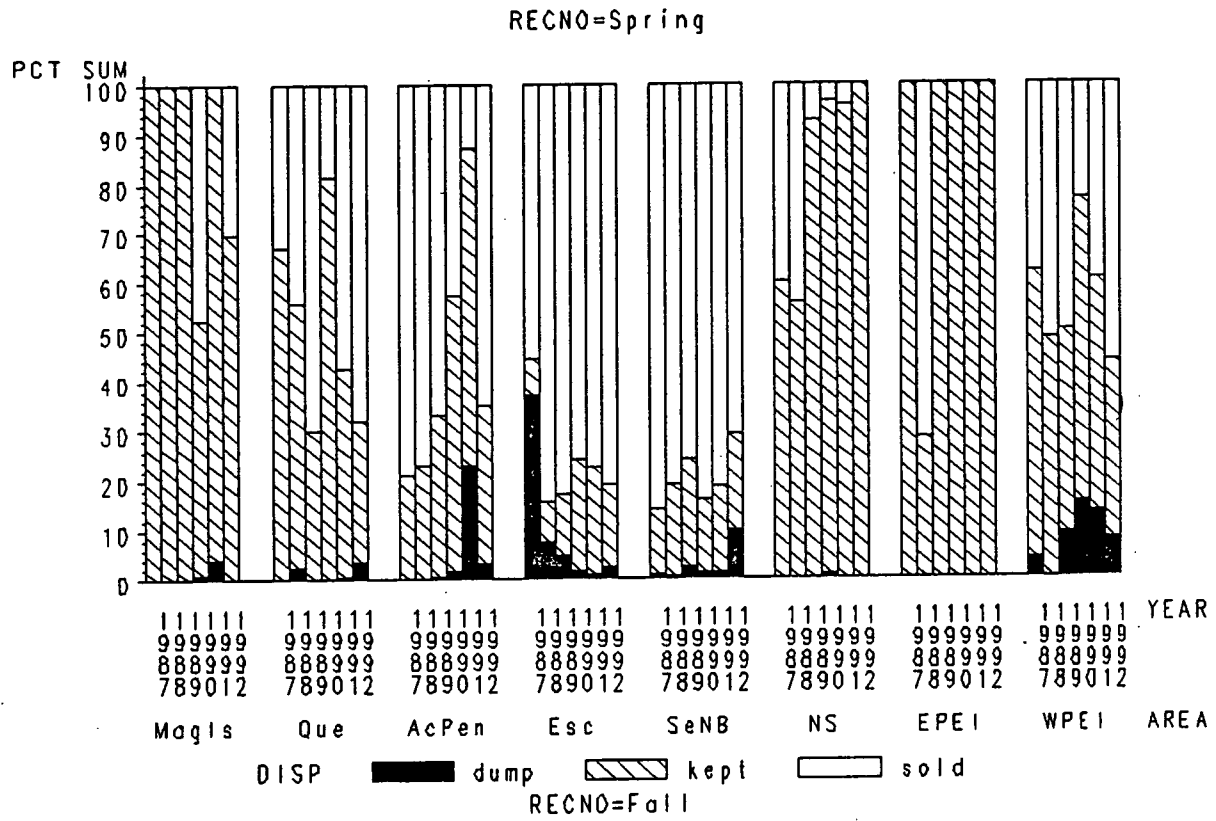


Figure 14. Disposition of the 4T herring catch

Appendix

HERRING GILLNET QUESTIONNAIRE 1992

Interviewer _____

Home Stat Dist _____

Date _____

Resp I.D. _____

Record # 1

1. Did you fish herring with gillnets in 1992? 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 1992? YES _____ (S)
 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 (ie. a time when the catches were really good)? YES _____ YES _____
 NO _____ 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

16. What are the numbers and sizes of nets that you used in the spring?

	mesh (in)	# nets	type (set/modified)	mesh (in)	# nets	type (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)	_____	_____	_____	_____	_____	_____
	_____	_____	_____	_____	_____	_____

(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

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

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

-were you forced to dump? _____ 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 1992

Interviewer _____

Home Stat Dist _____

Date _____

Resp I.D. _____

Record # 2

1. Did you fish herring with gillnets in 1992? 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 1992? 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 (ie. a time when the catches were really good)? YES _____ 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 nets that you used in the fall?

	mesh (in)	# nets	type (set/modified)	mesh (in)	# nets	type (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)	_____	_____	_____	_____	_____	_____
	_____	_____	_____	_____	_____	_____

(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

QUESTIONNAIRE - HARENG 1992

Interviewer _____

Home Stat Dist _____

Date _____

Resp I.D. _____

Record # 1

1. Avez-vous peche le hareng en 1992 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 1992? OUI _____
NON _____ (si NON, question 22)

(location 1)

(location 2)

4. Ou 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 periode de capture forte (ie. une periode lorsque les prises etaient bonnes)? OUI _____
NON _____

OUI _____
NON _____

=====

SI UNE PERIODE DE CAPTURE FORTE A ETE IDENTIFIE:

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

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

9. Durant la periode 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 de chaque grandeur que vous avez utilisee?	maille (po)	# filets	type (ancre/modifie)	maille (po)	# filets	type (ancre/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 ou de la boette? _____ poids = _____ % _____ poids = _____ %
- 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 1992

Interviewer _____

Home Stat Dist _____

Date _____

Resp I.D. _____

Record # 2

1. Avez-vous peche le hareng en 1992 a l'aide de filets maillants? OUI _____
NON _____ (Si NON, c'est le fin de questionnaire)

2. Combien de filets maillants possedez-vous? _____

22. Avez-vous peche le hareng durant l'automne en 1992? 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'apres vous est-ce-qu'il y a eu une periode de capture forte (ie. une periode lorsque les prises etaient bonnes)? OUI _____
NON _____

SI UNE PERIODE DE CAPTURE FORTE A ETE IDENTIFIE:

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

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

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

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 retires? _____

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 retires? _____

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

34. Quelle etait 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 ce chaque grandeur que vous avez utilisee?

maille (po)	# filets	type (ancre/modifie)	maille (po)	# filets	type (ancre/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)

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 _____

_____ poids = _____ %

_____ poids = _____ %

ou de la boette?

-avez-vous vendu aux usines de transformation? _____

_____ poids = _____ %

_____ poids = _____ %

-avez-vous du jeter? _____

_____ poids = _____ %

_____ poids = _____ %

38. 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:

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

Est-ce que vous diriez que l'hareng cet automne est plus abondant _____ -> beaucoup plus abondant _____
un peu plus abondant _____
a peu pres la meme _____

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

40. 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? _____