

Figure 25. Distribution of white hake in the Halibut and ITQ surveys.

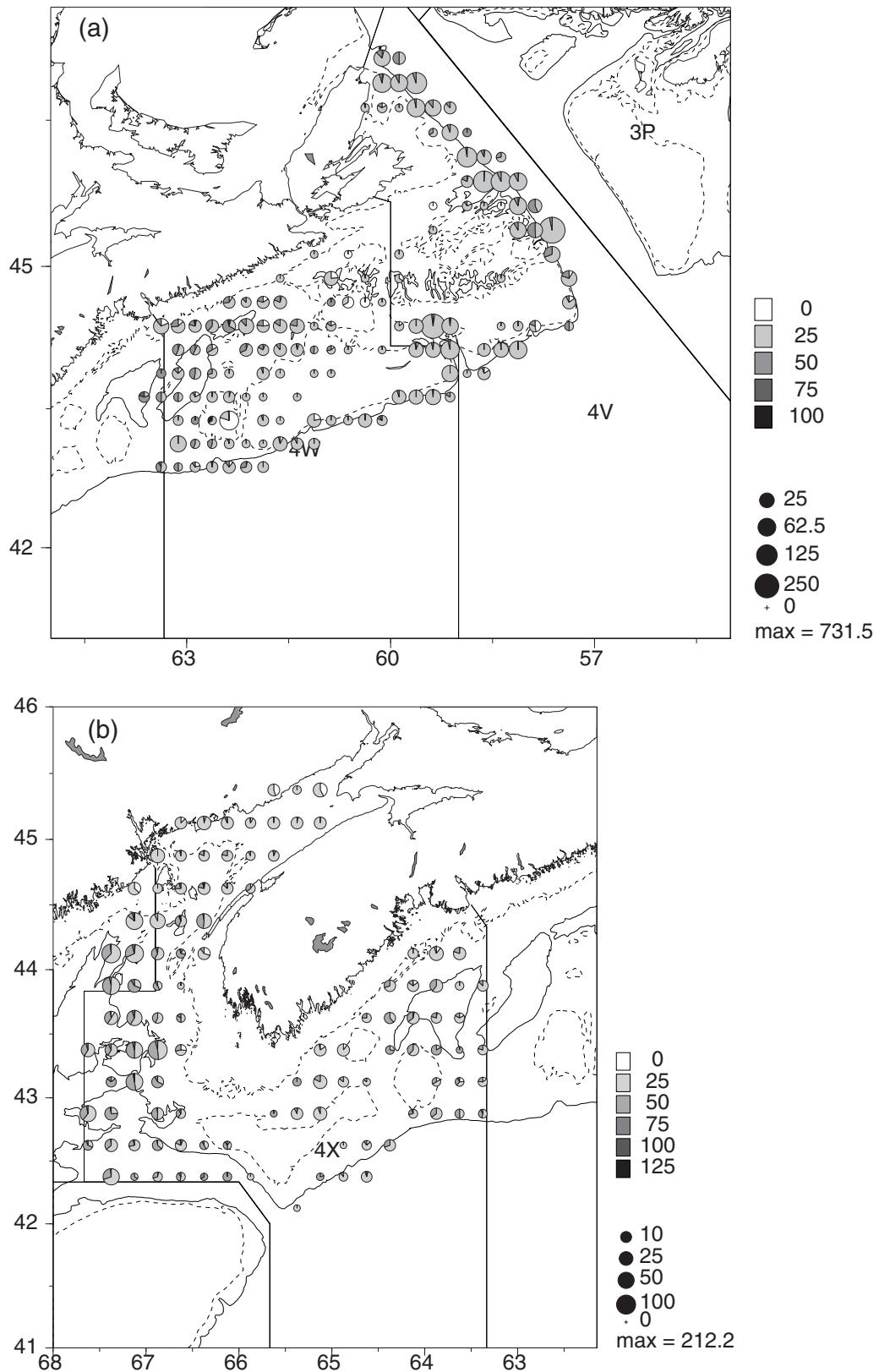


Figure 26. Distribution of white hake by length in (a) 4VW and (b) 4X, 1990-2001, Summer RV Survey.

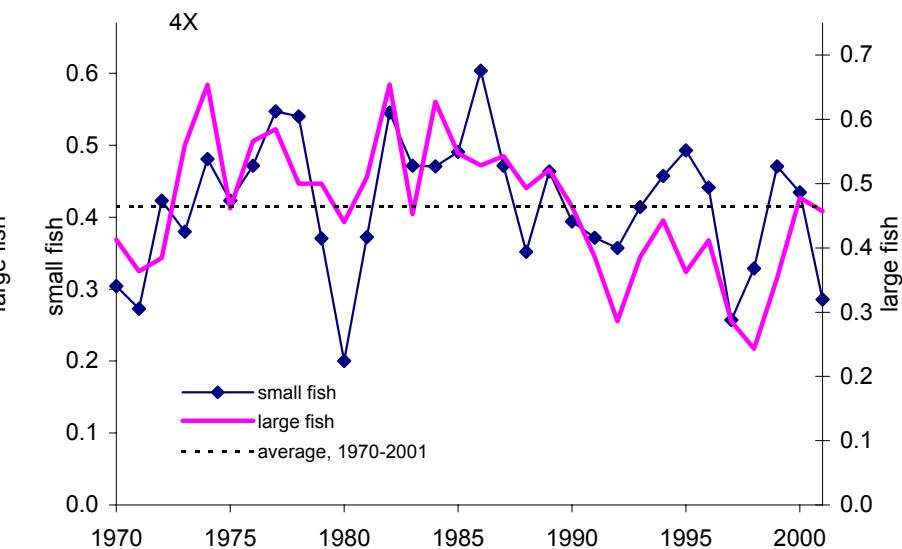
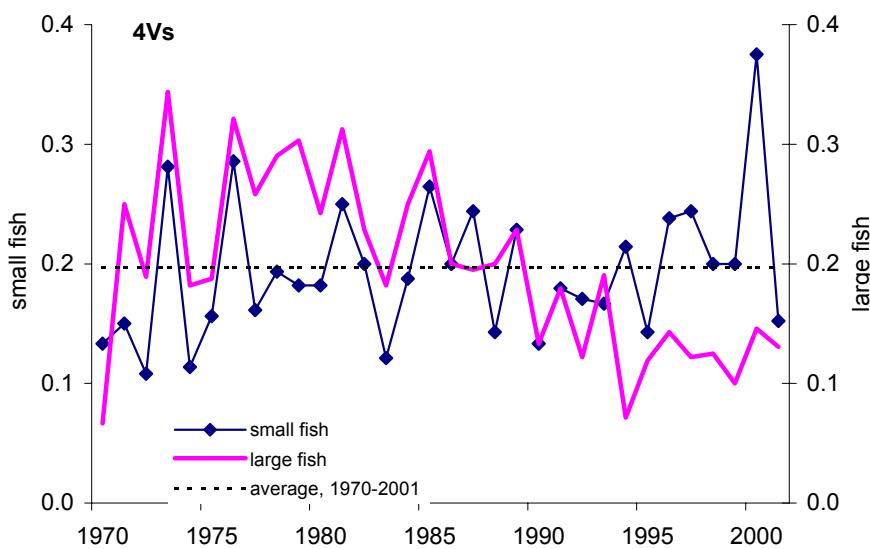
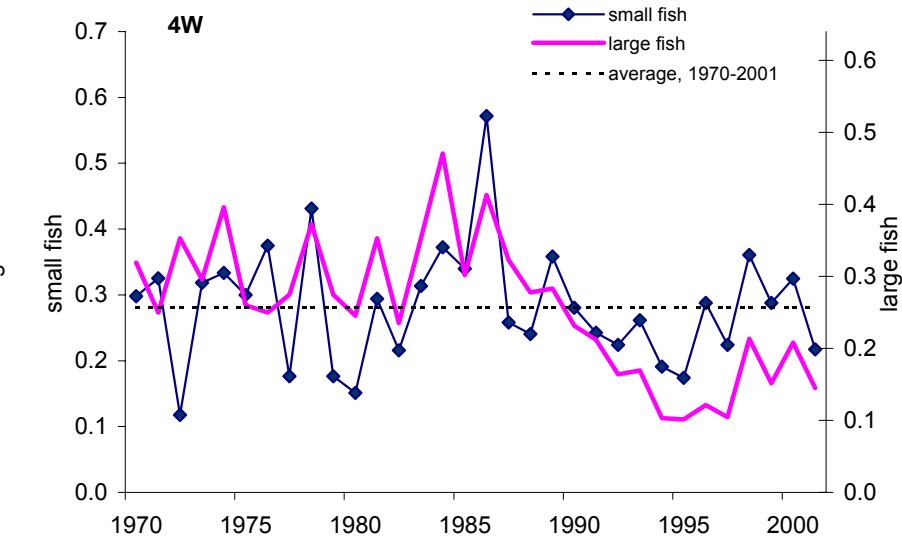
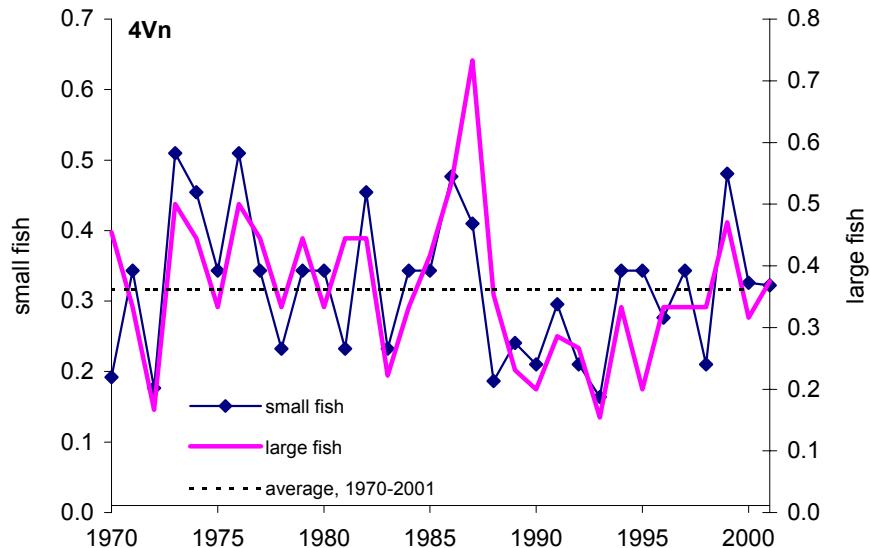


Figure 27. Area occupied (proportion of non-zero sets) in 4Vn, 4Vs, 4W and 4X for large (45+ cm) and small (< 45 cm) fish.

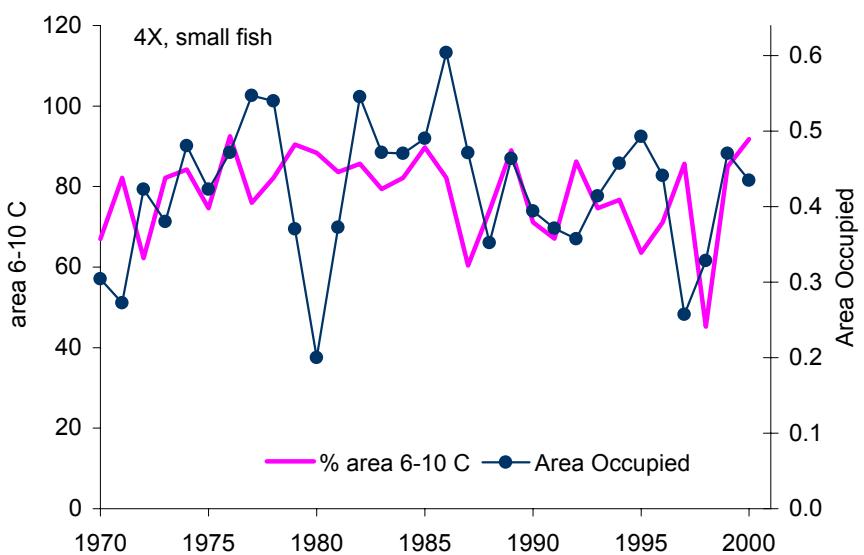
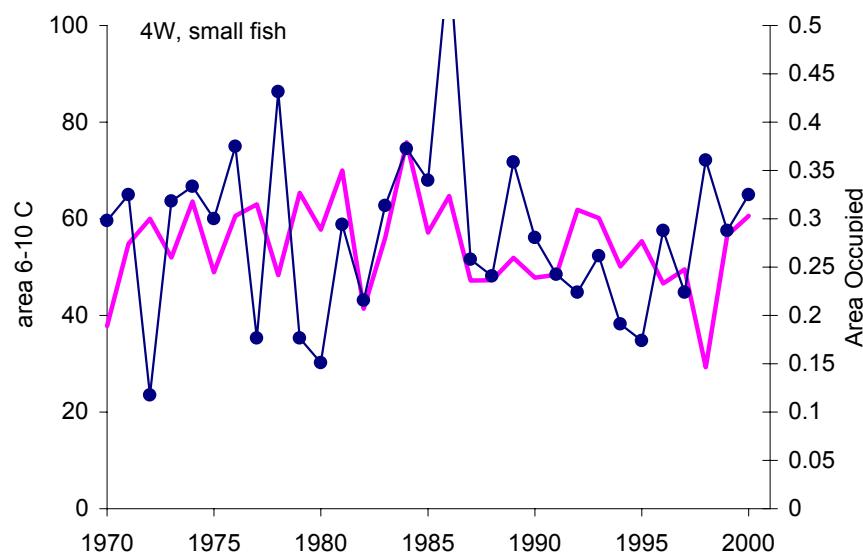
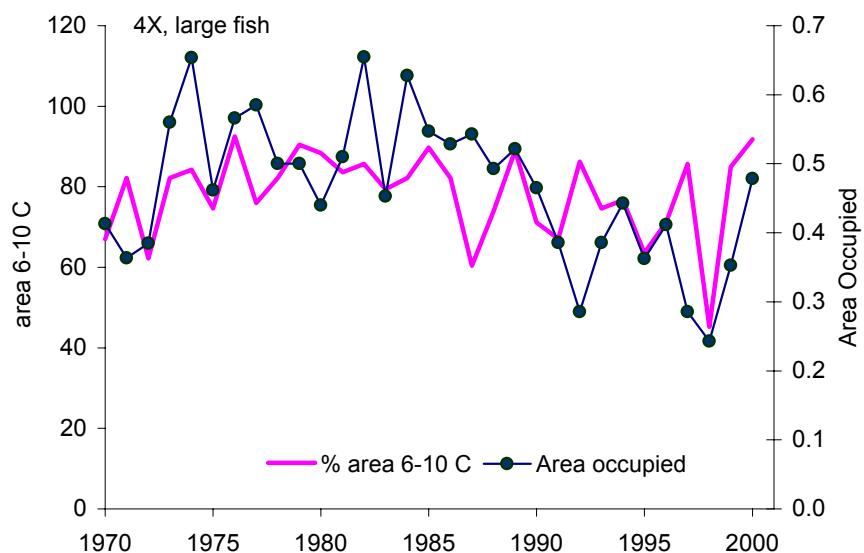
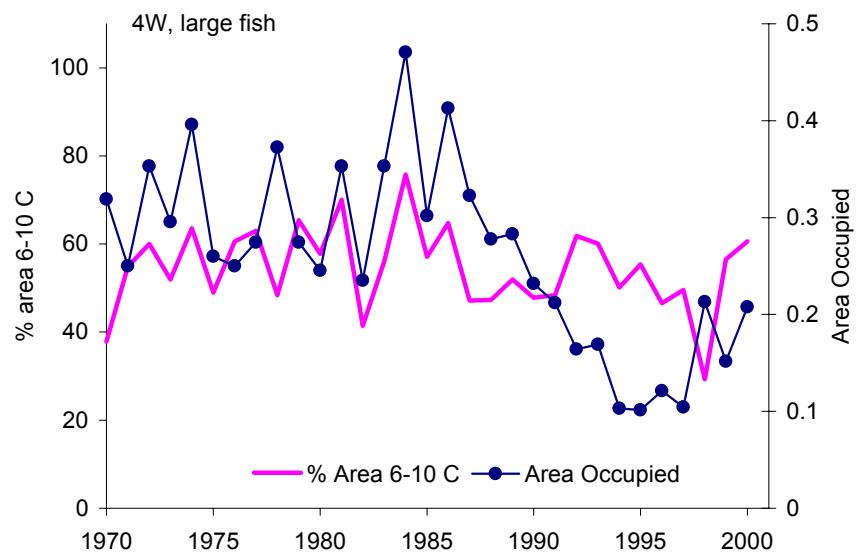


Figure 28. Distribution and temperature as measured by area occupied and the percentage of the bottom waters between 6-10 C.

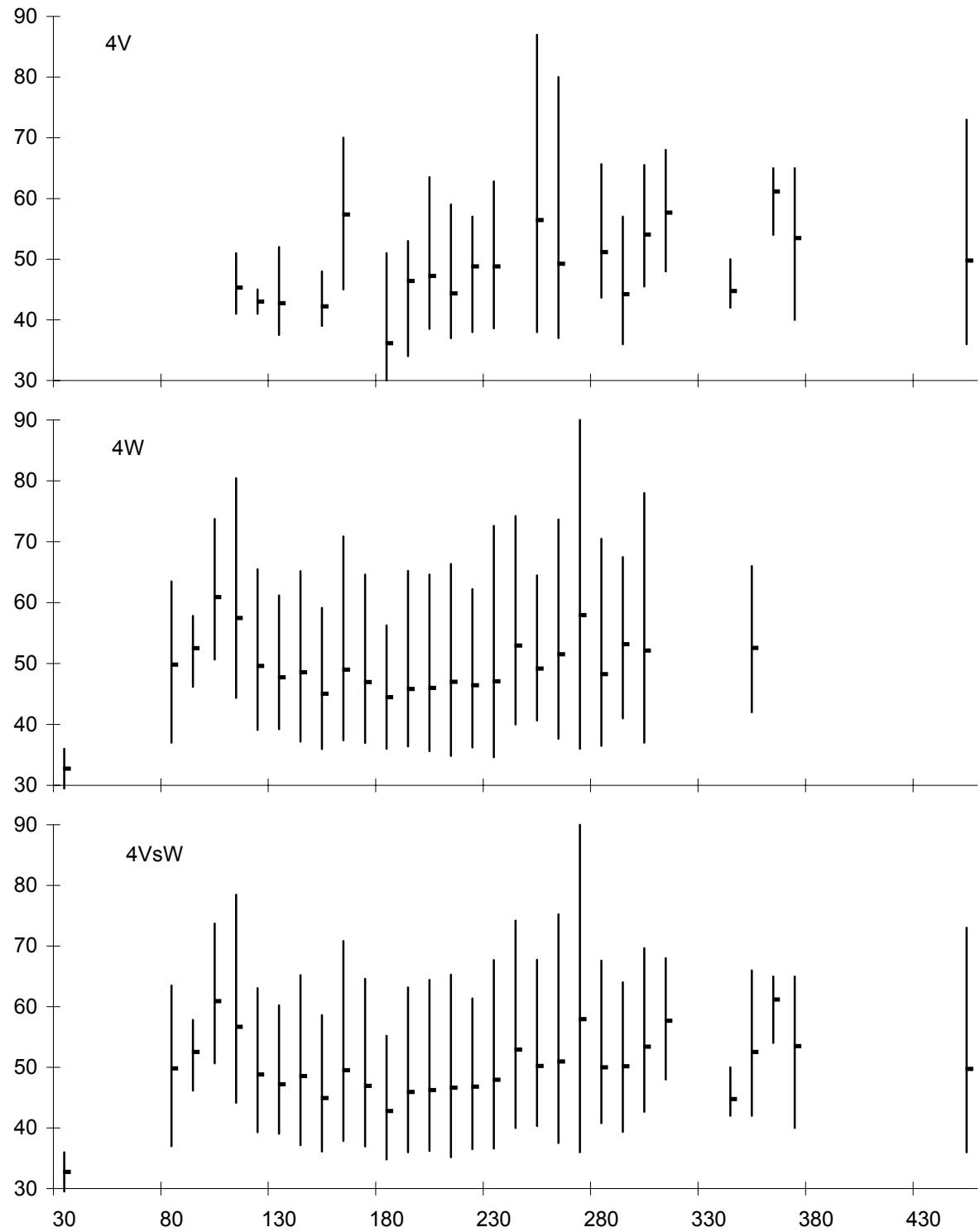


Figure 29. Comparisons of white hake mean length (max/min) at depth from 4VsW Sentinel Survey .

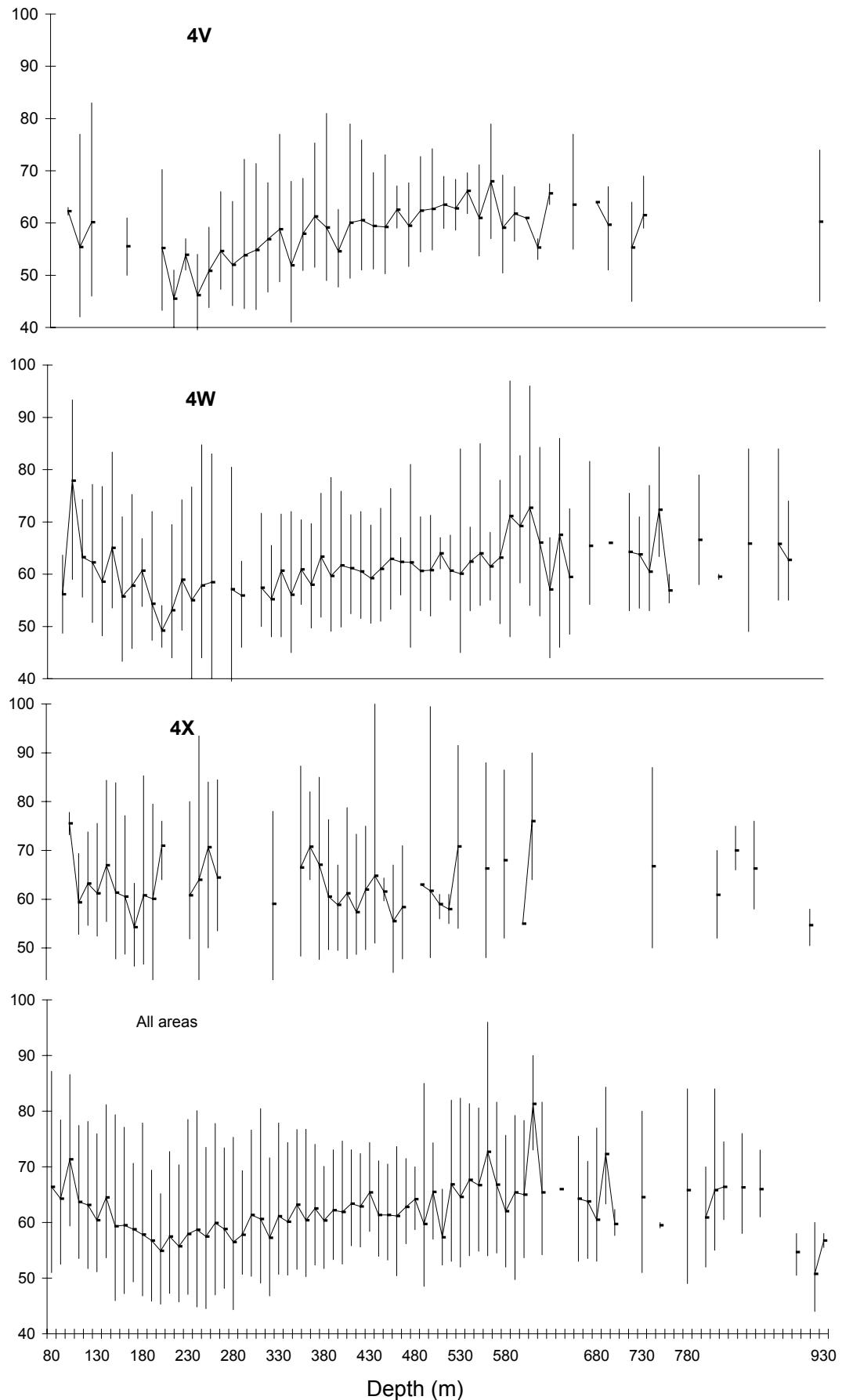


Figure 30. Comparisons of white hake mean length (max/min) at depth from all sets in the Halibut Industry survey. All areas includes the Newfoundland areas of the survey as well.

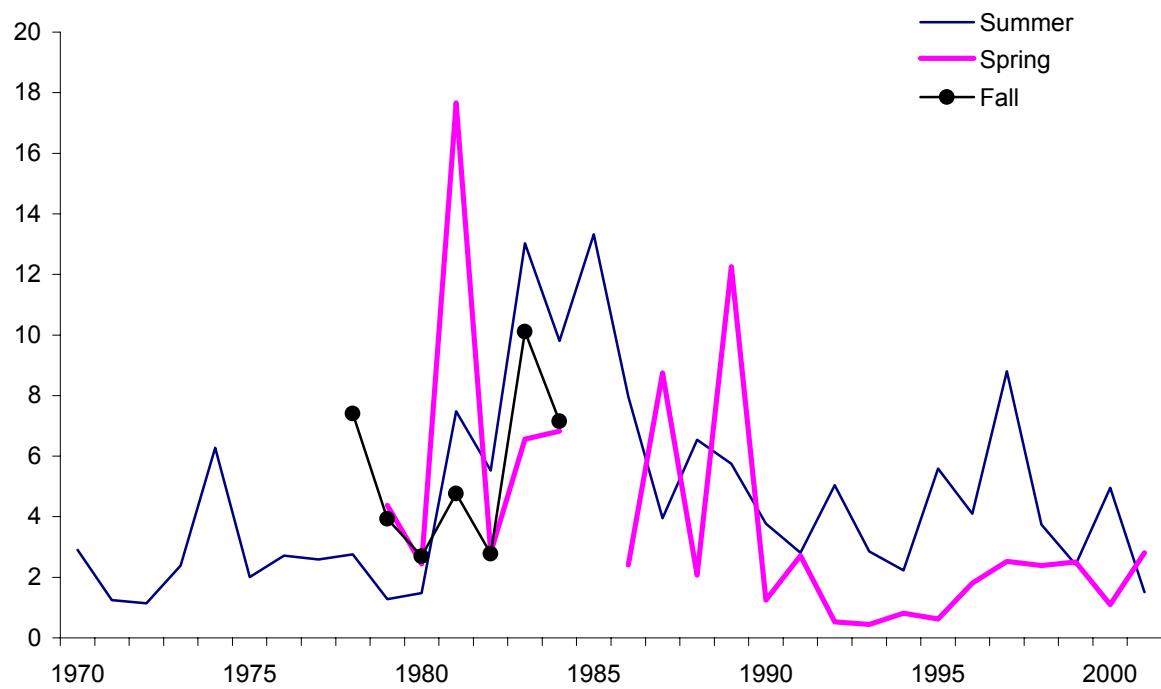


Figure 31. Seasonal variation in 4VsW RV survey mean numbers and weight per tow

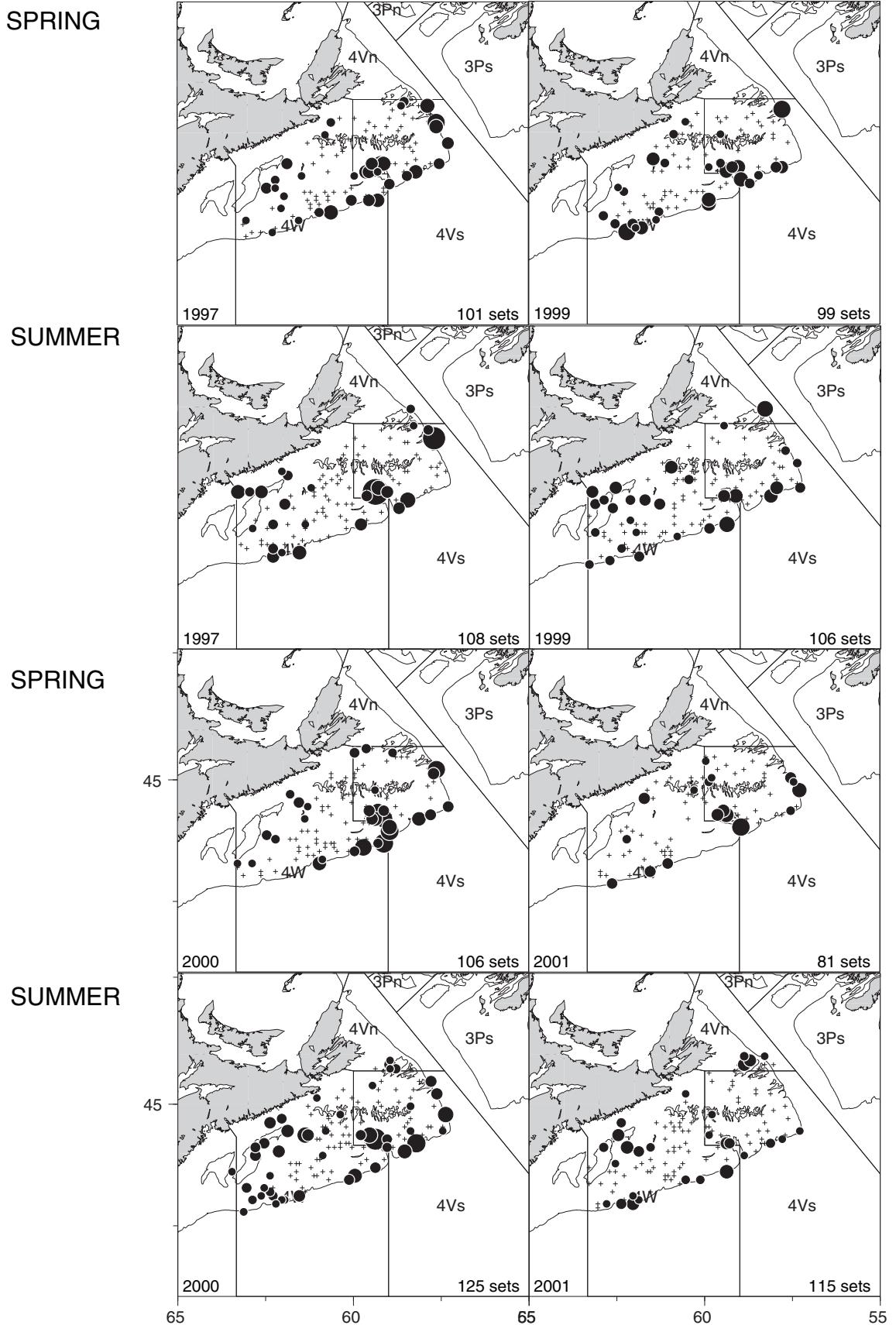


Figure 32. Seasonal distribution of white hake in the Spring RV Survey (4VsW) and the Summer RV Survey (4VW).

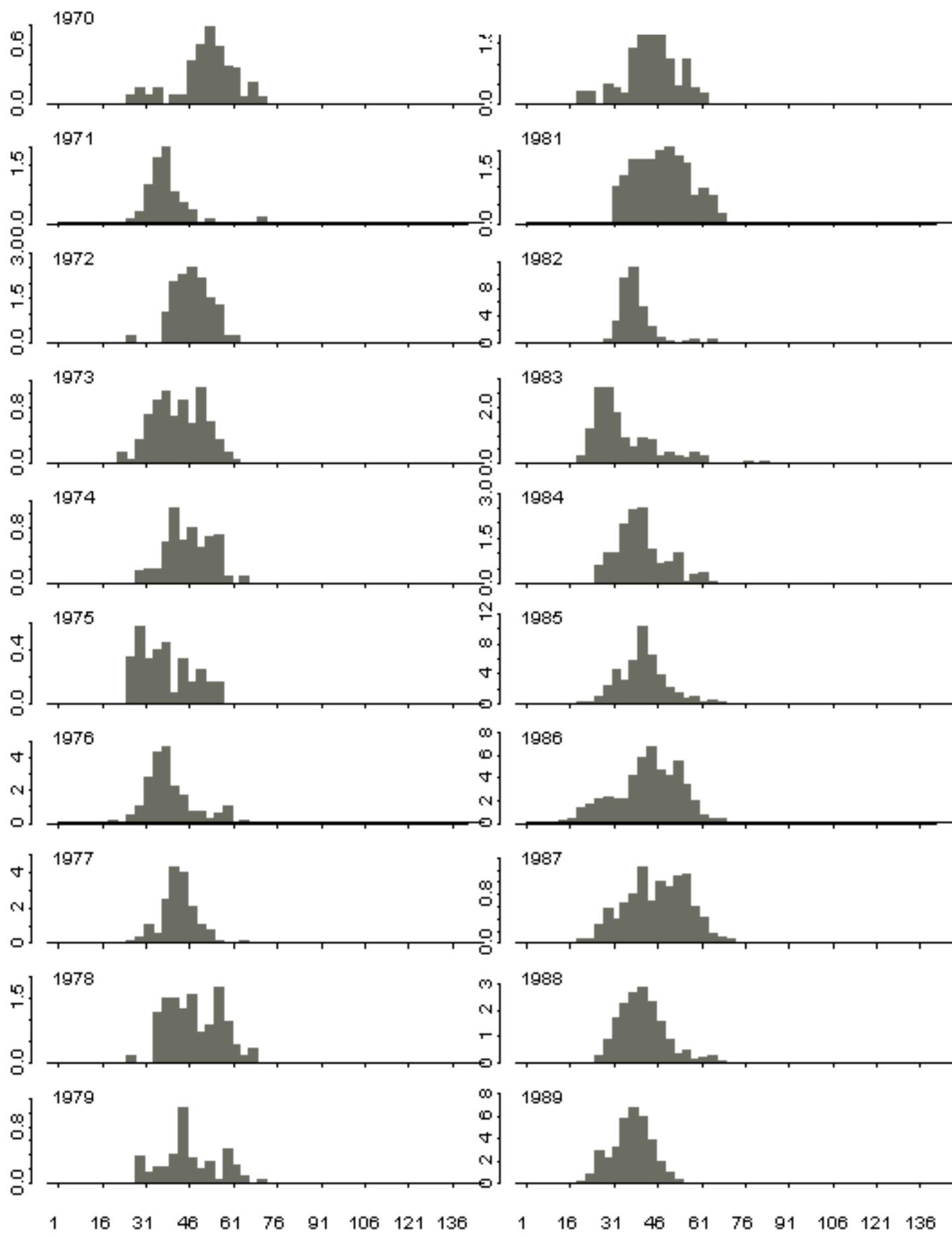


Figure 33. Length frequency of white hake in 4Vn from summer DFO RV surveys.

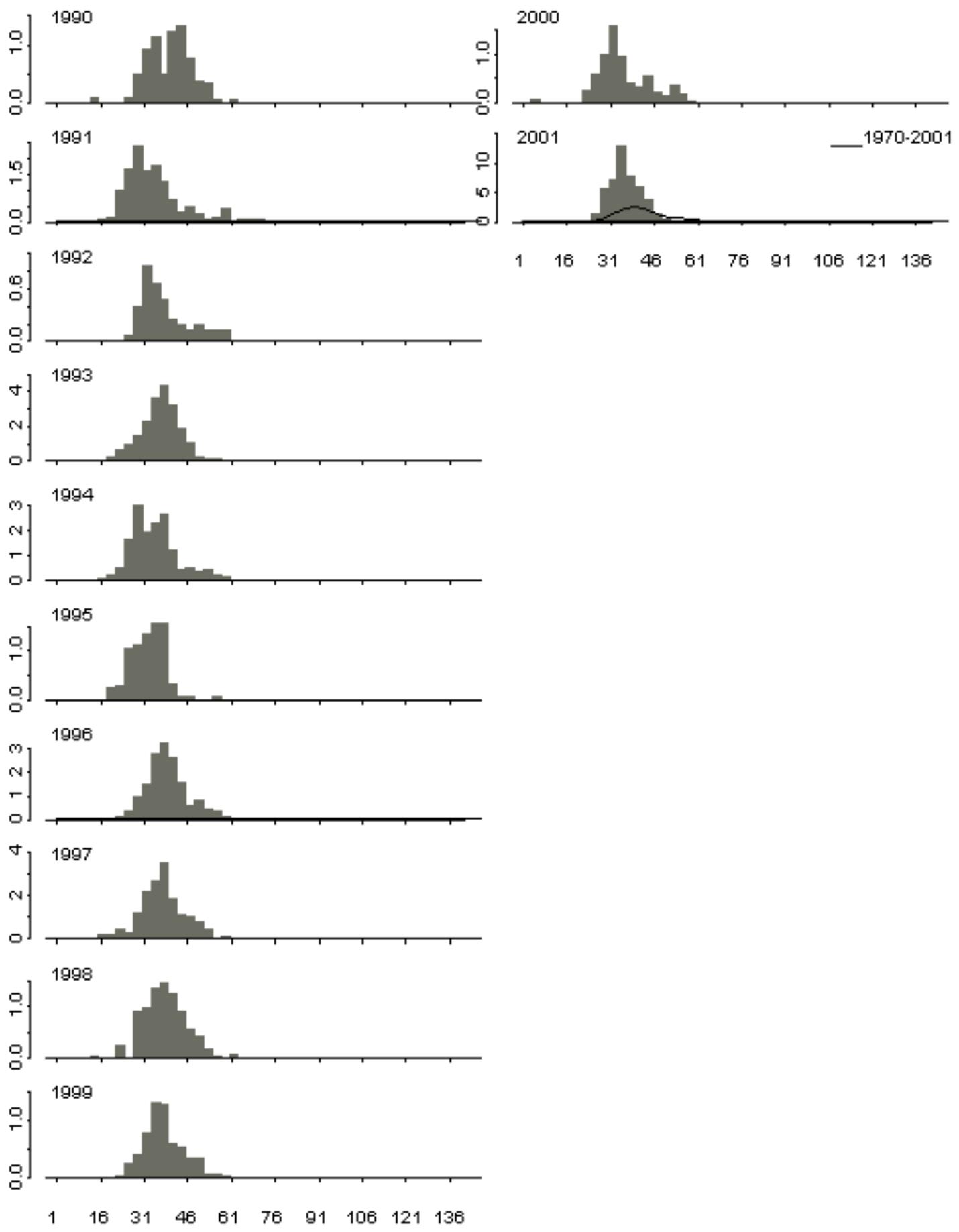


Figure 33 (cont.). Length frequency of white hake in 4Vn from summer DFO RV surveys.

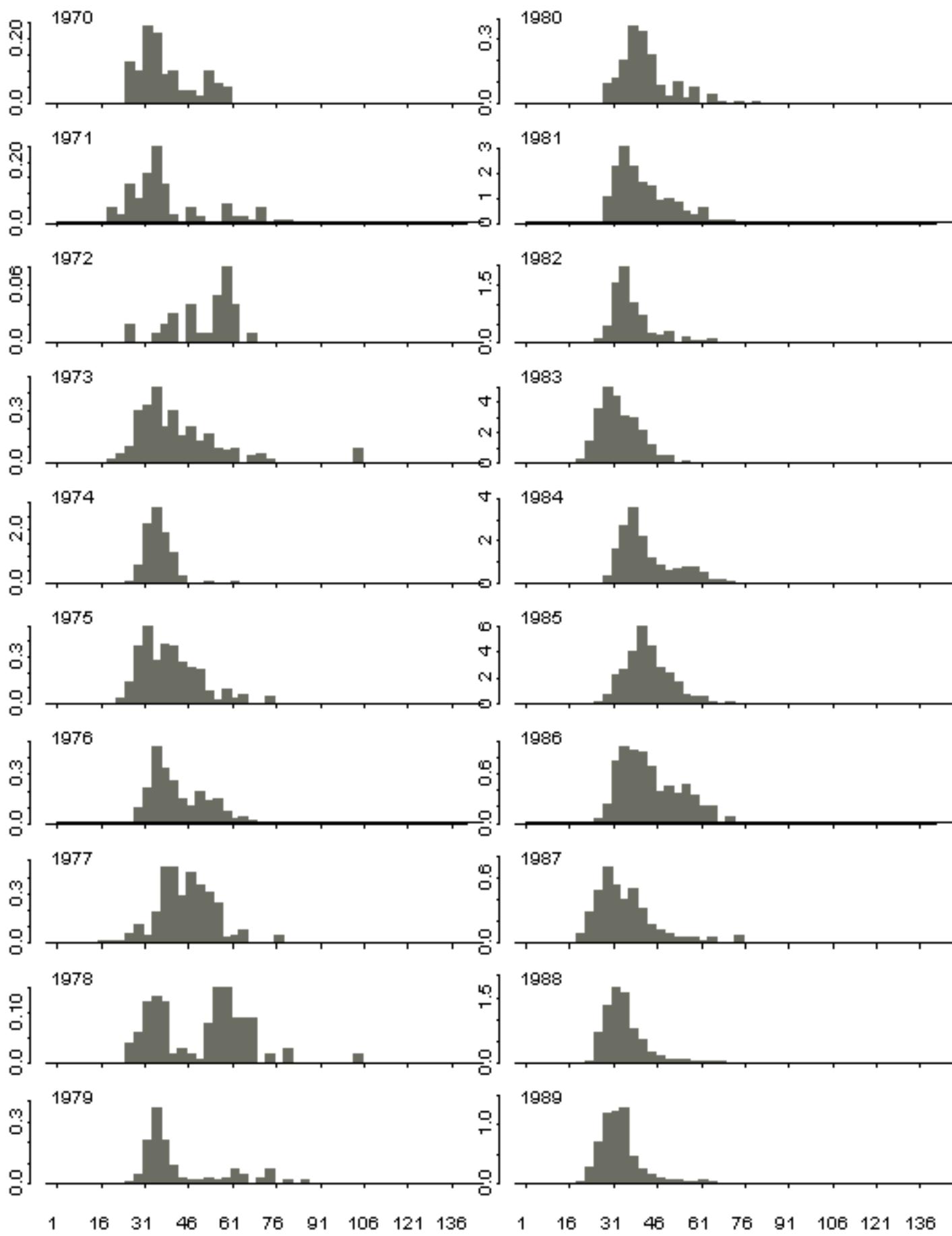


Figure 34. Length frequency of white hake in 4Vs from summer DFO RV surveys. Note: scales differ.

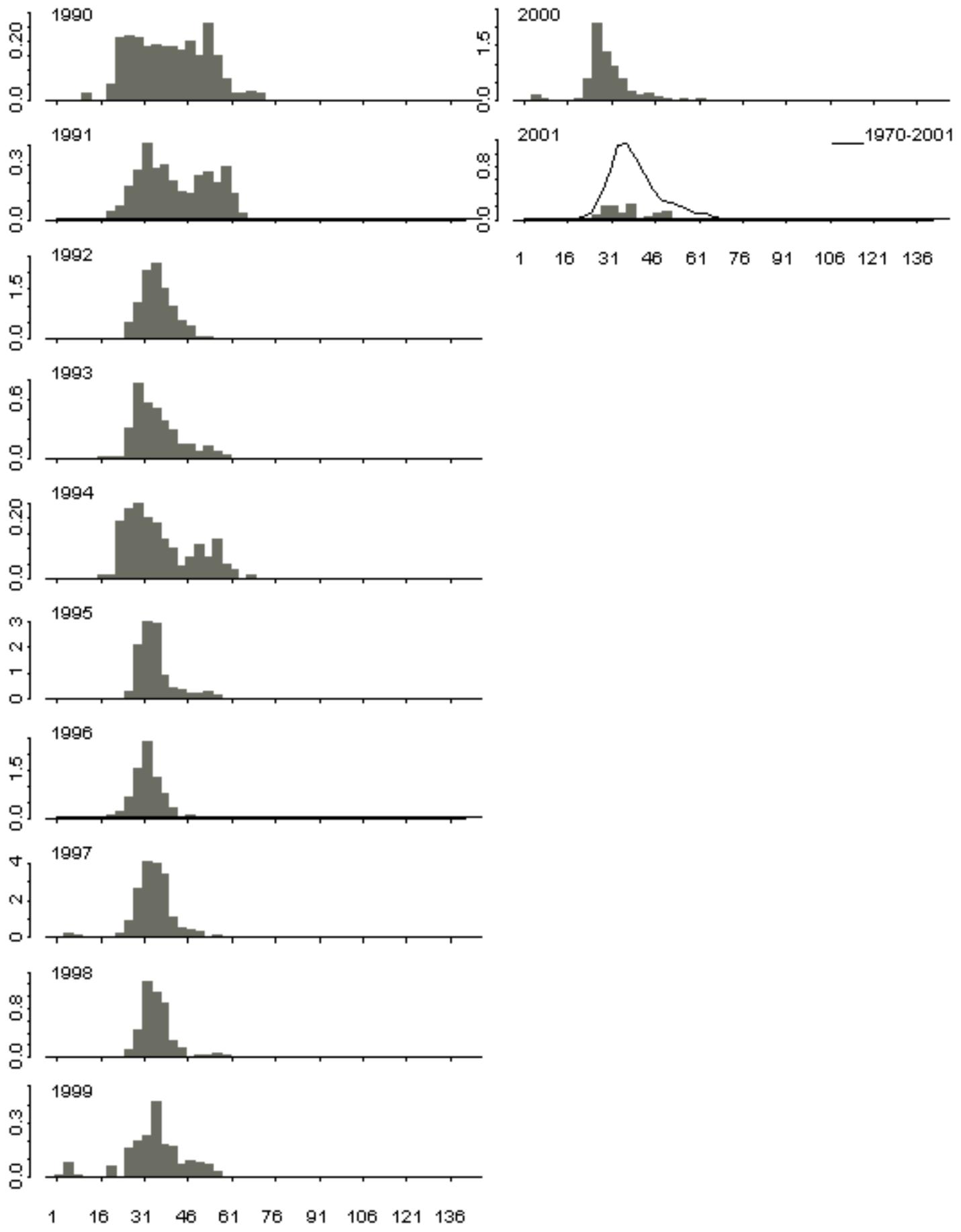
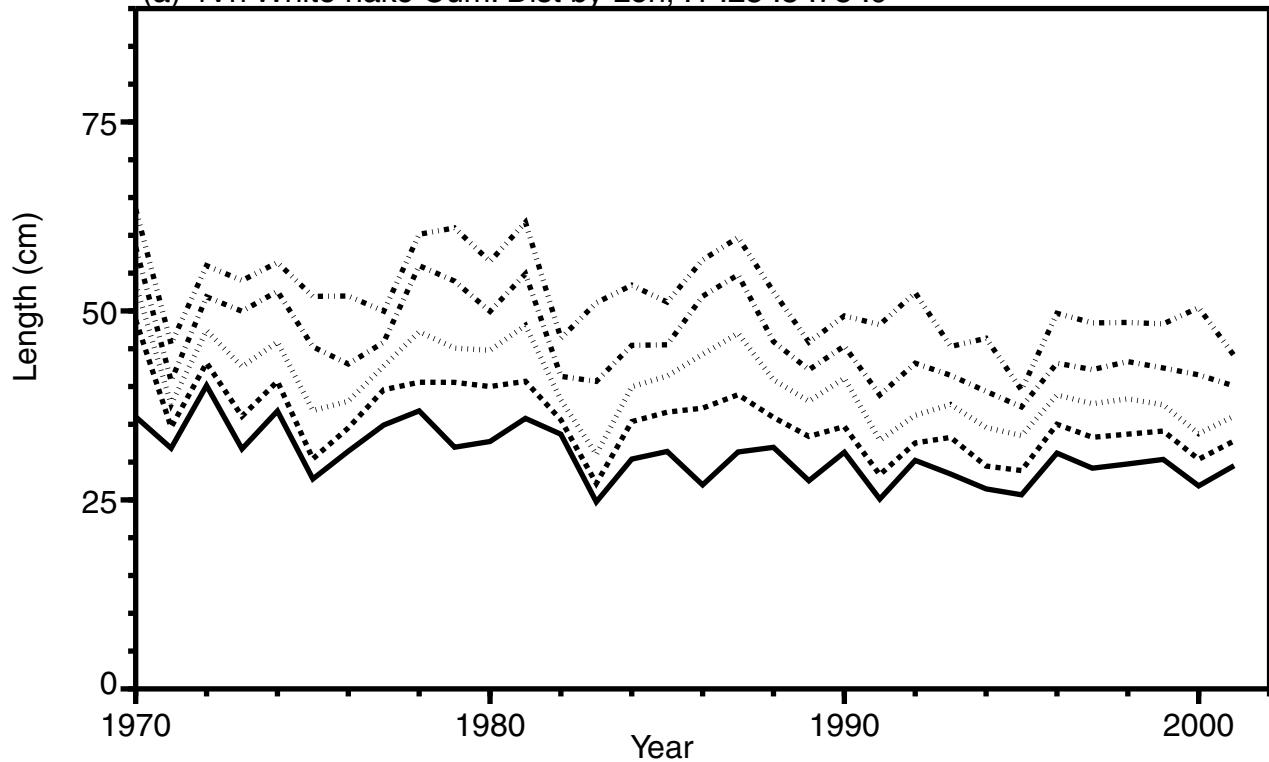


Figure 34 (cont.) Length frequency of white hake in 4Vs from summer DFO RV surveys. Note: scales differ.

(a) 4Vn White hake Cum. Dist by Len, .1 .25 .5 .75 .9



(b) 4Vs White hake Cum. Dist by Len, .1 .25 .5 .75 .9

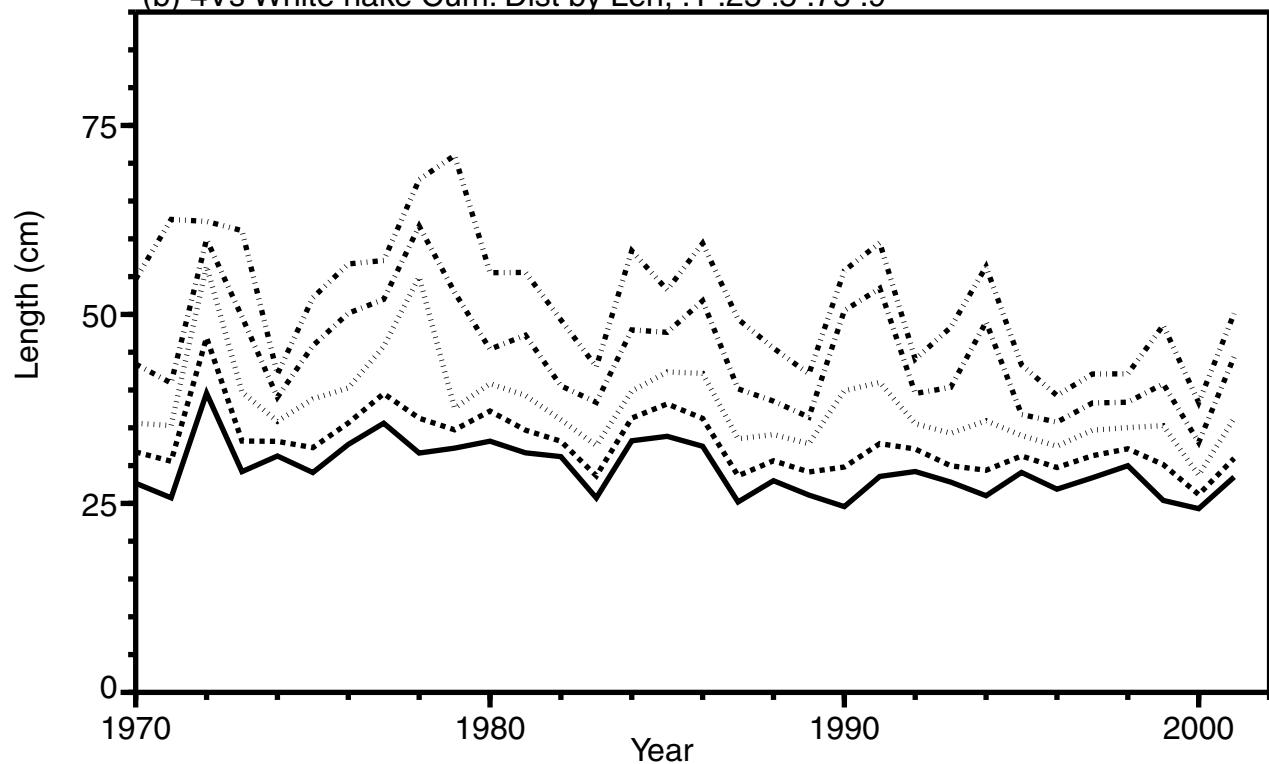


Figure 35. Cumulative length frequency plots for (a) 4Vn and (b) 4Vs from the DFO summer RV survey.

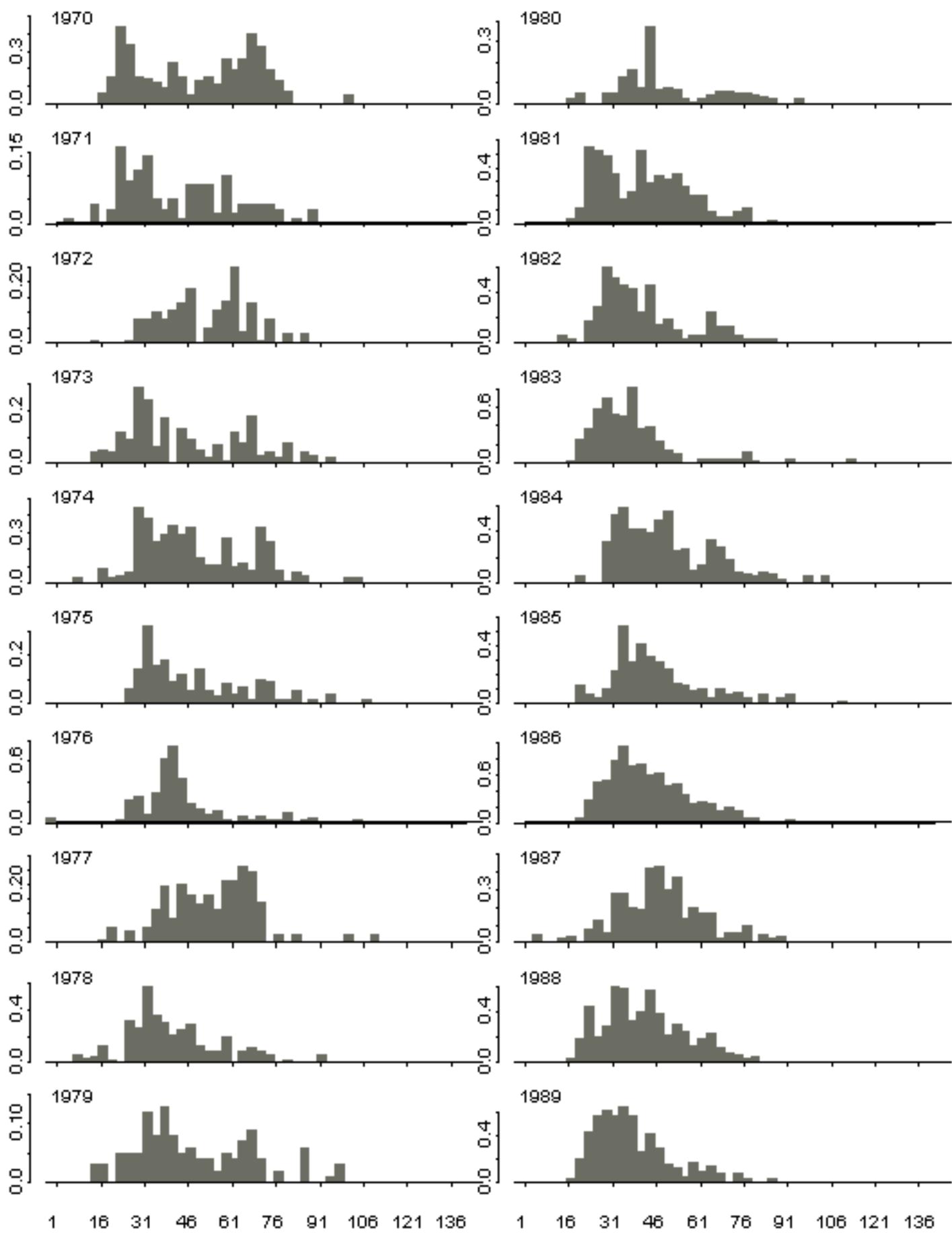


Figure 36. Length frequency of white hake in 4W from summer DFO RV surveys. Note: scales differ.

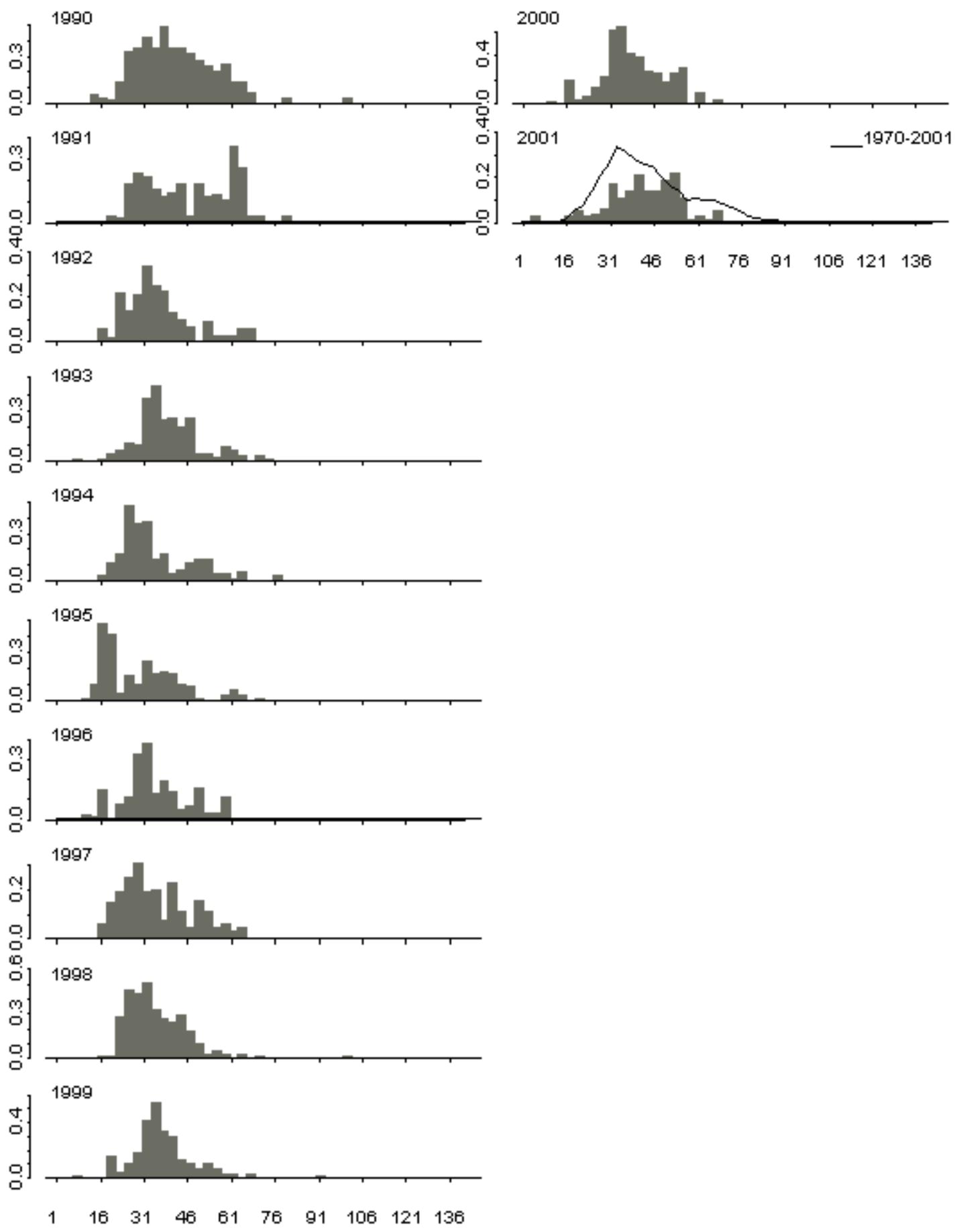


Figure 36 (cont.). Length frequency of white hake in 4W from summer DFO RV surveys. Note: scales differ.

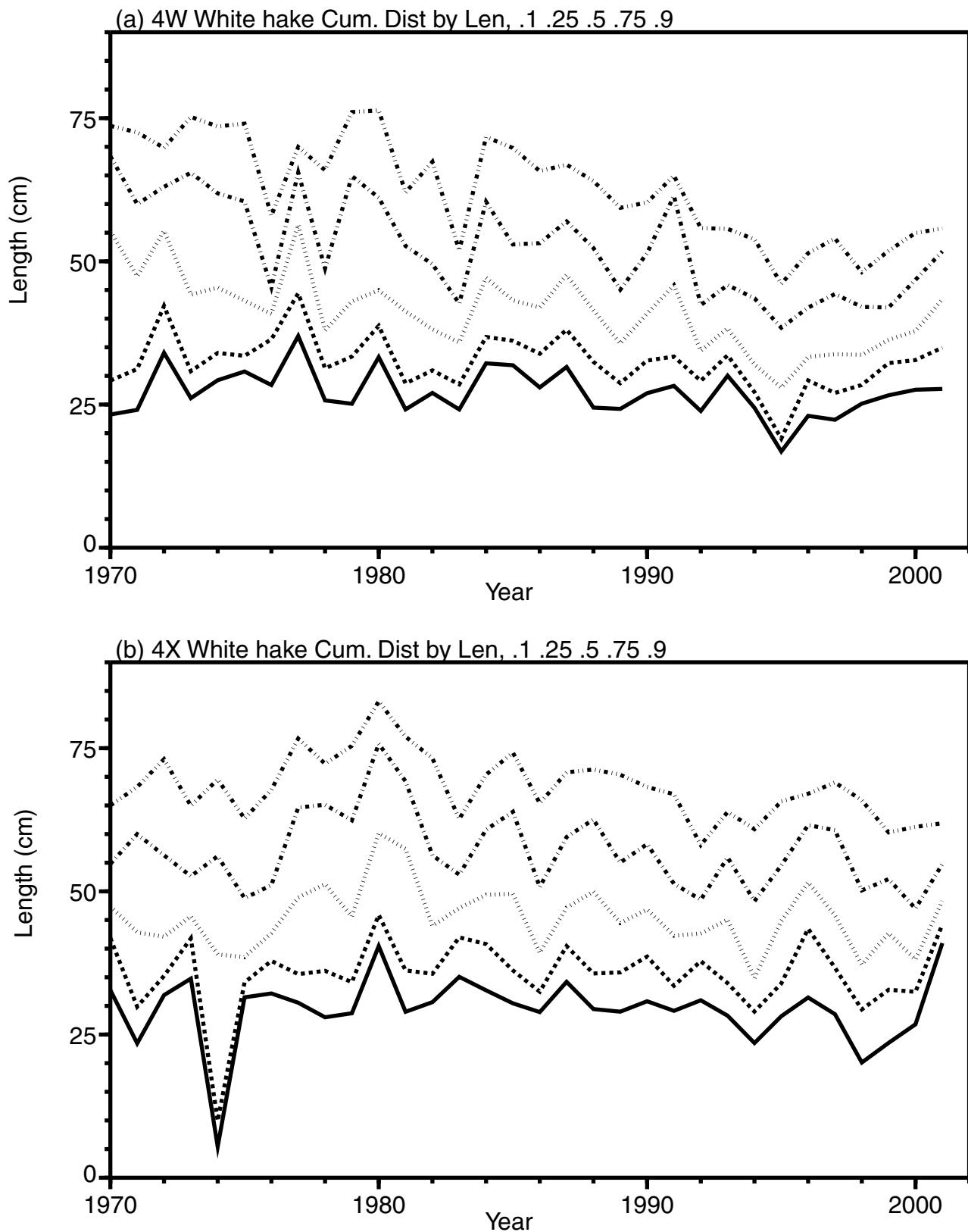


Figure 37. Cumulative length frequency plots for (a) 4W and (b) 4X from the DFO summer RV survey.

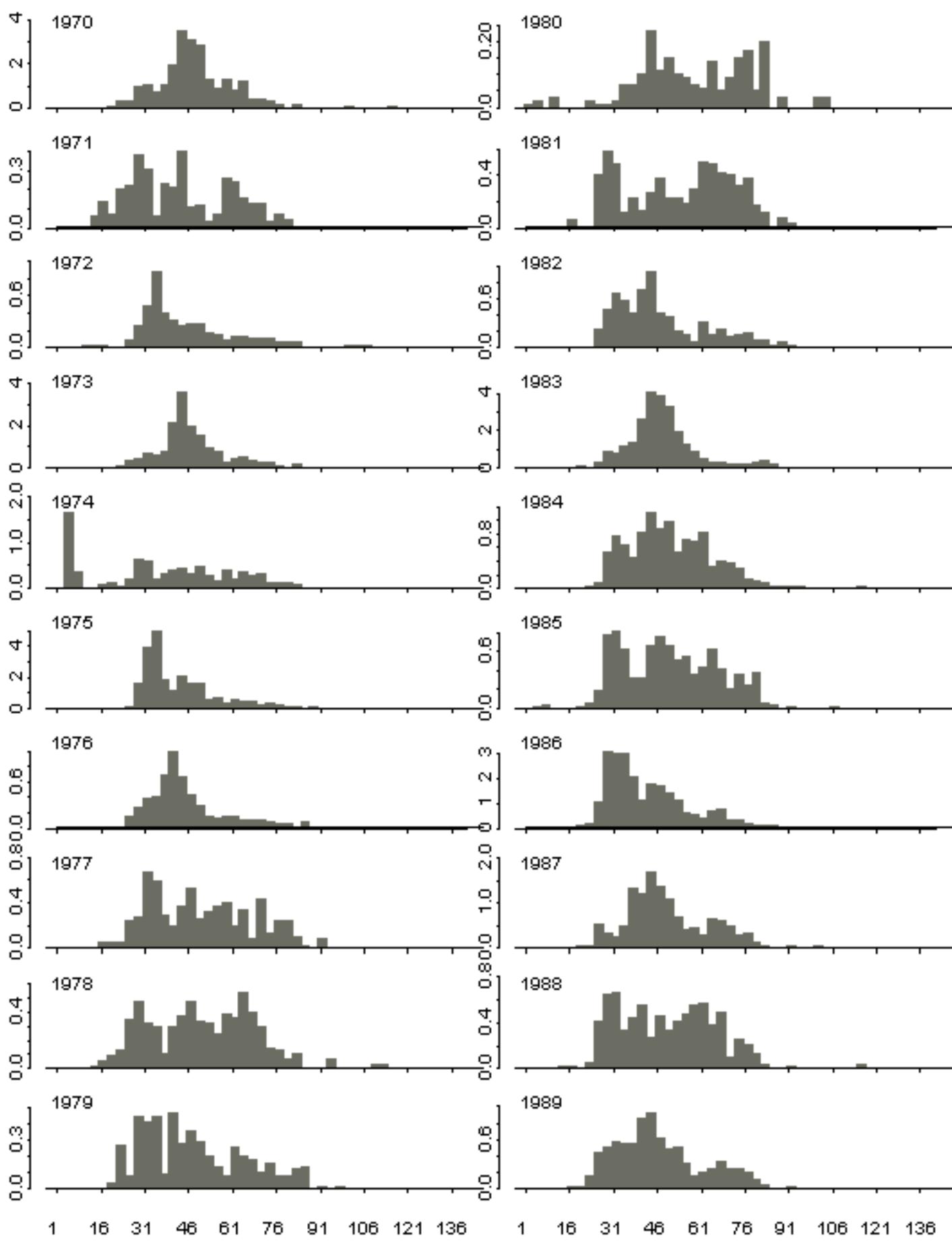


Figure 38. Length frequency of white hake in 4X from summer DFO RV surveys. Note: scales differ.

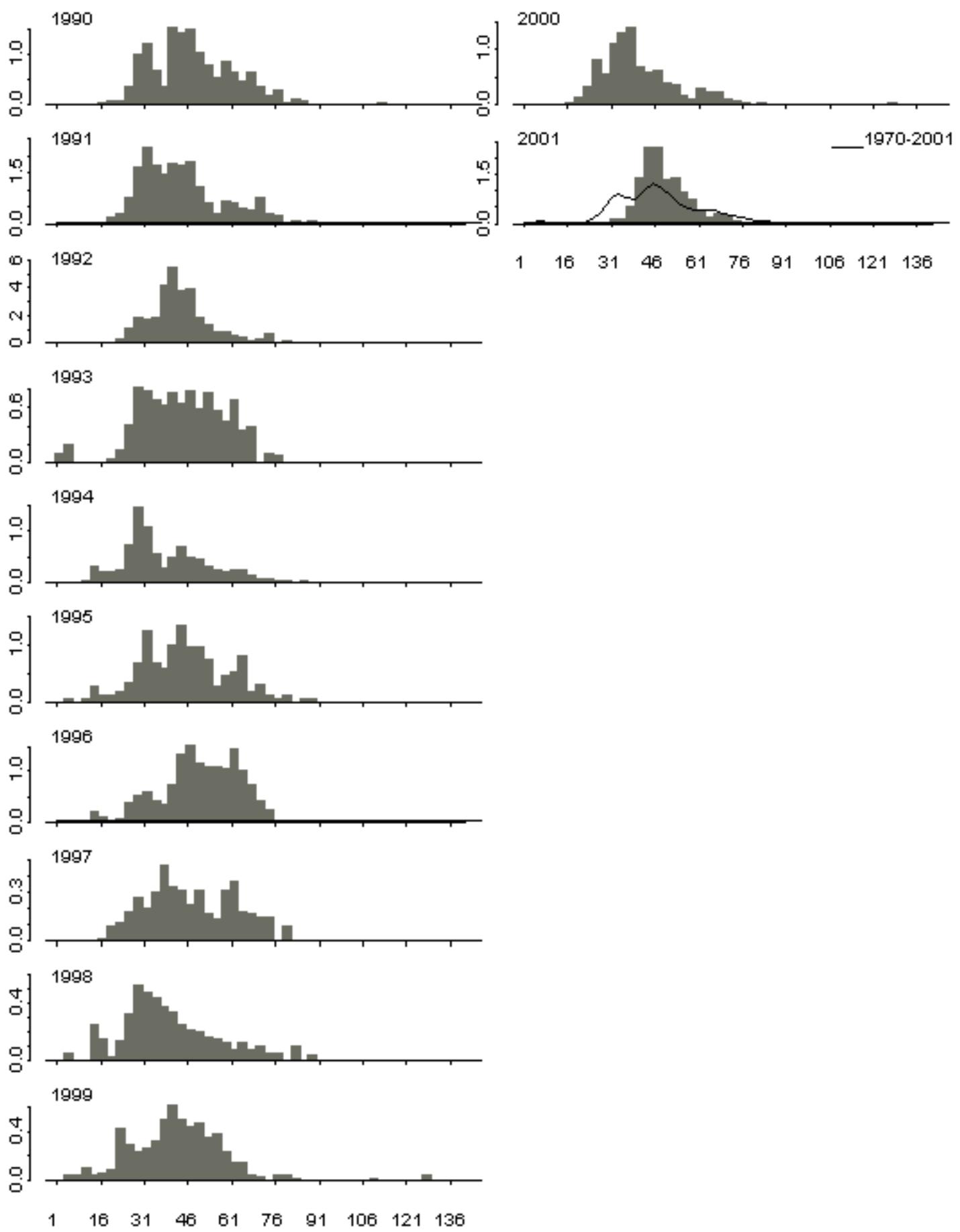


Figure 38 (cont.) Length frequency of white hake in 4X from summer DFO RV surveys. Note: scales differ.

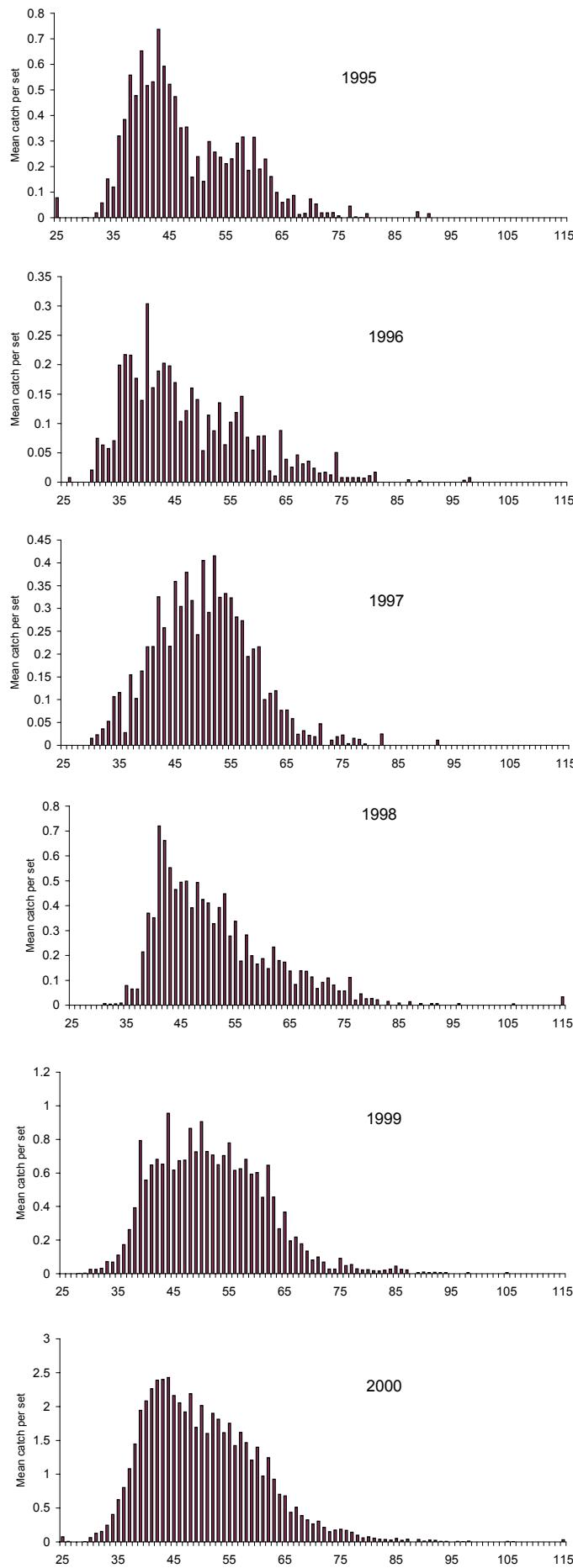


Figure 39. Length composition of 4VsW Sentinel Survey catches. Note that the scale on the y-axis is not standardised.

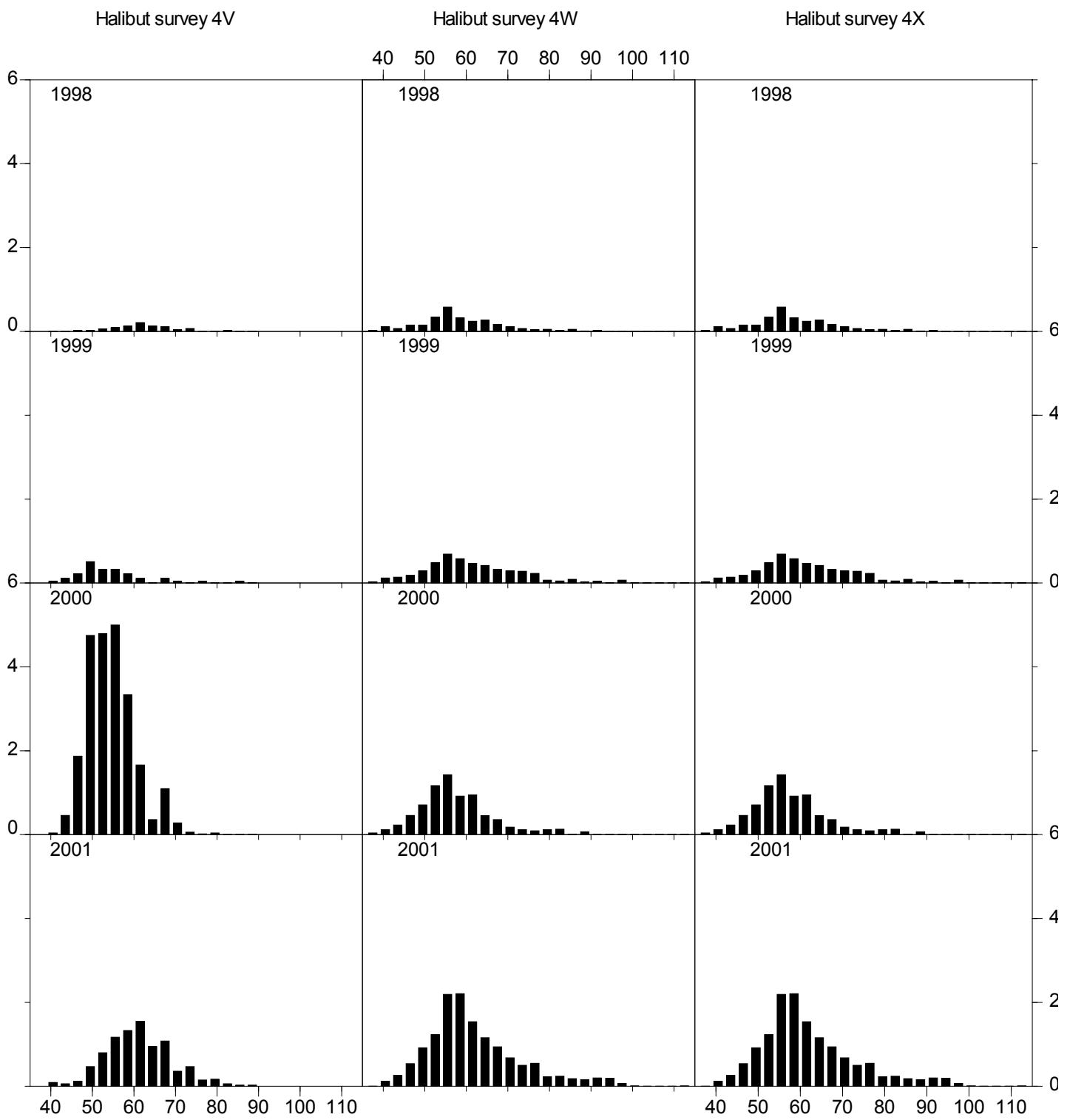


Figure 40. Length frequency composition of white hake in the Halibut Survey, 1998-2001. Note that the y-axis is mean catch per set.

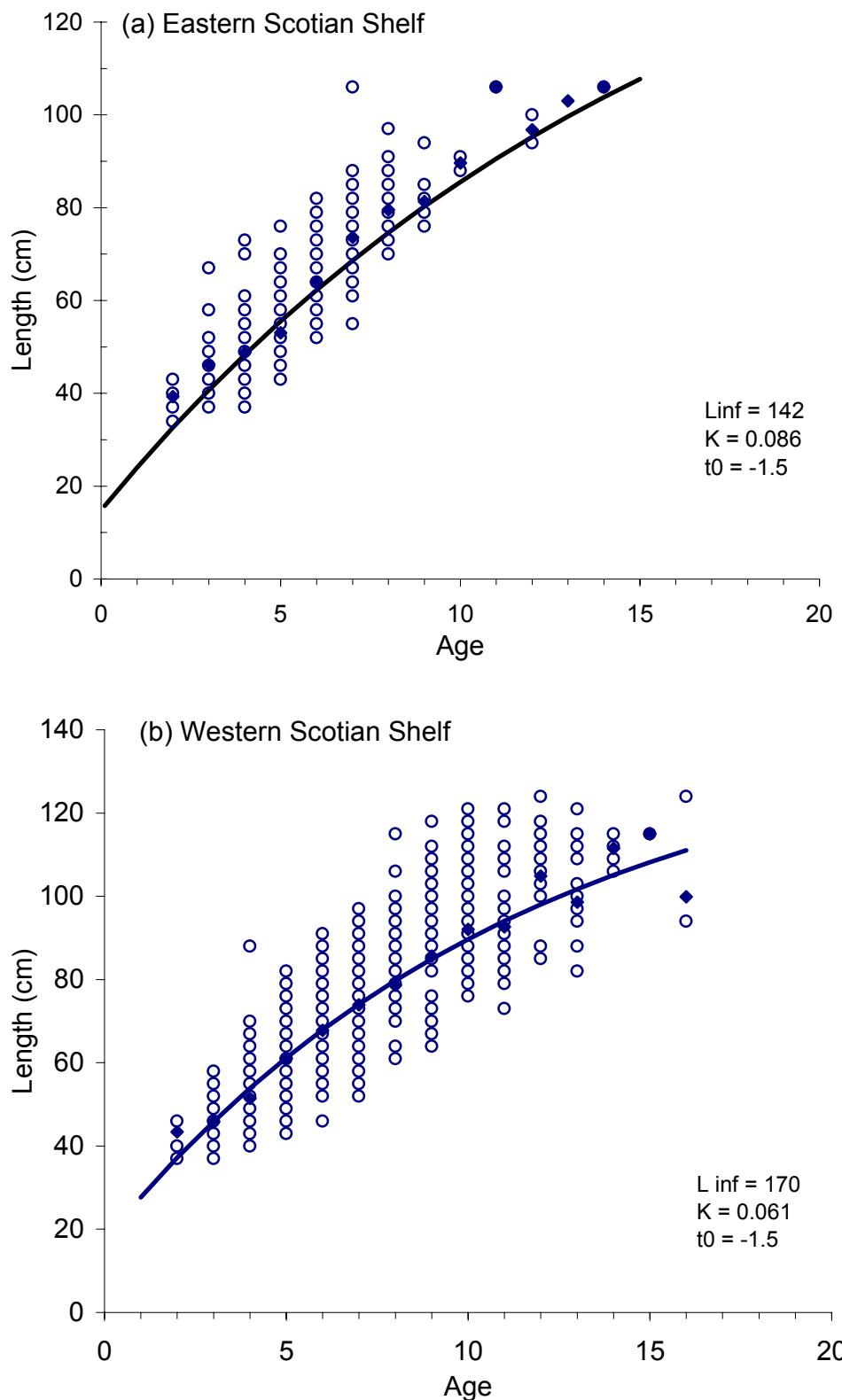


Figure 41. Von Bertalanffy growth curves for the eastern Scotian Shelf and western Scotian Shelf.

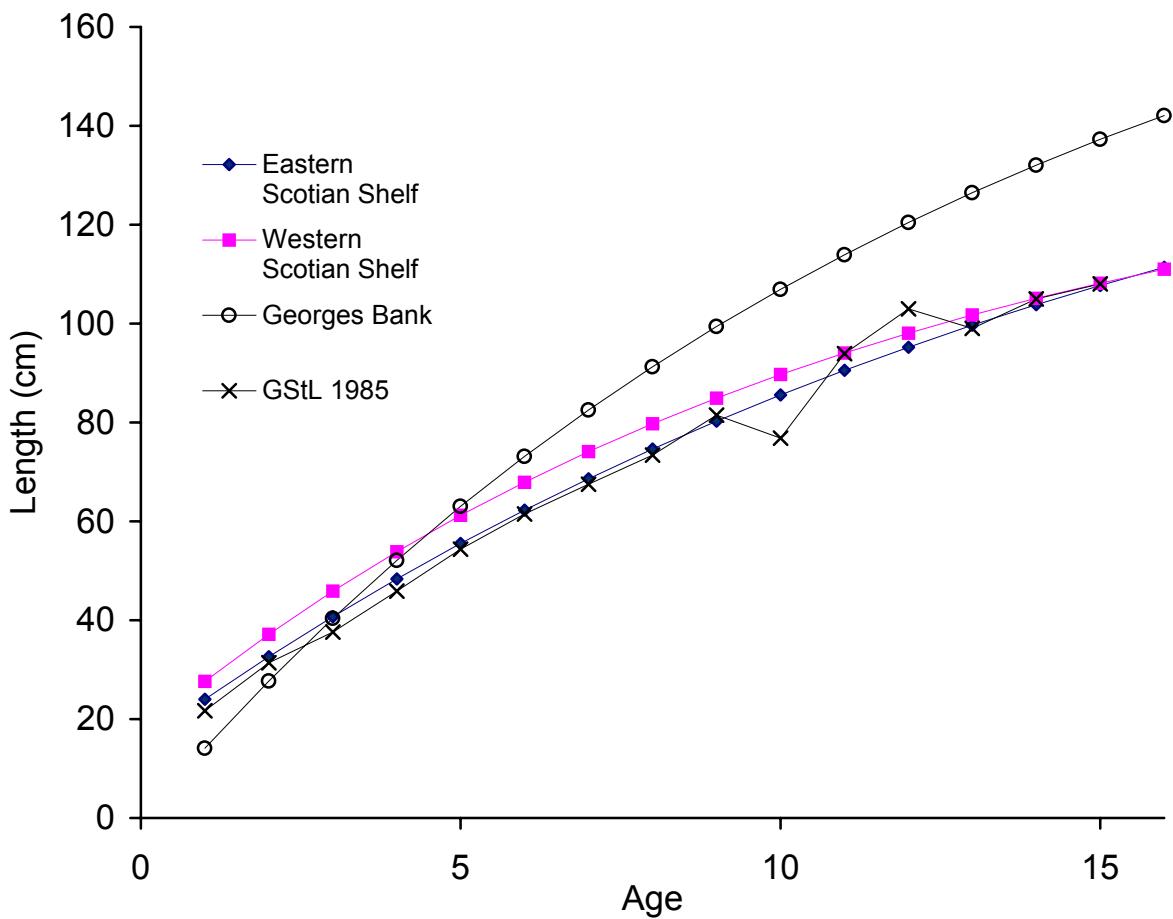


Figure 42. Comparison of von Bertalanffy Growth Curves for the Scotian Shelf, Georges Bank and the Gulf of St. Lawrence. The Georges Bank curve is based on RV data where as the Scotian Shelf and Gulf of St Lawrence curves are based on fisheries data.

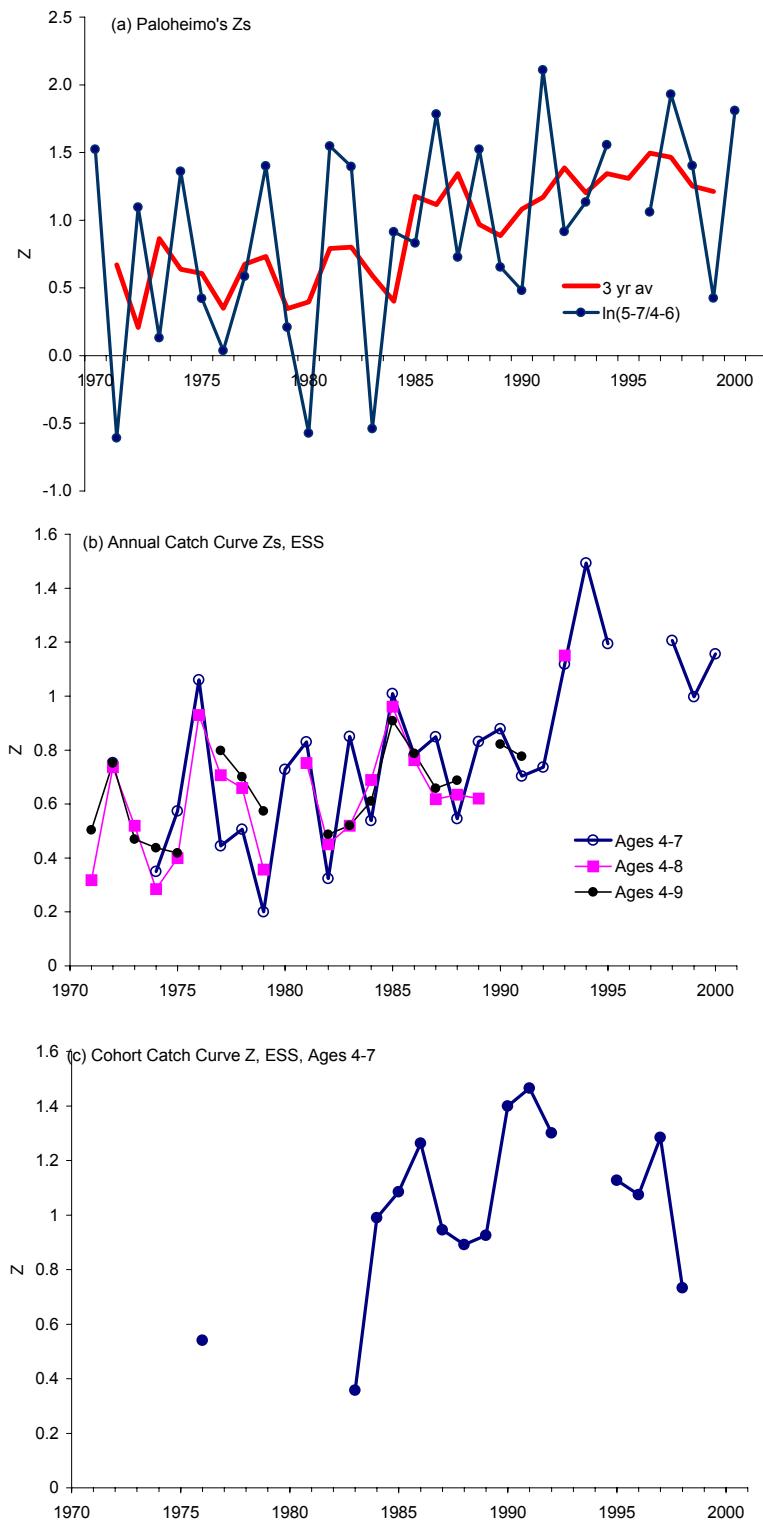


Figure 43. Mortaliy estimation for the eastern Scotian Shelf using (a) Paloheimo's method of estimating Z and (b) annual catch curves to estimate Z (c) cohort catch curves.

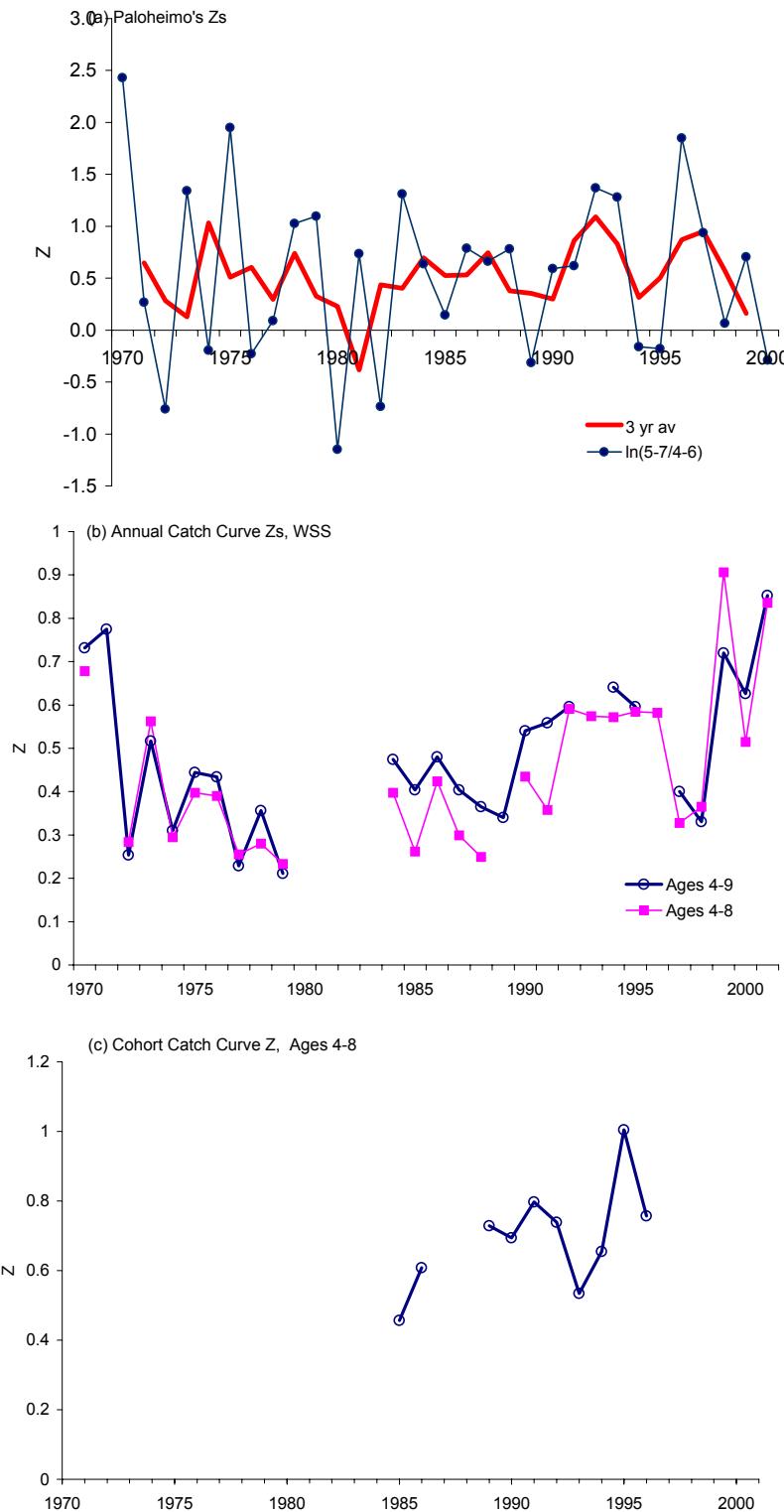


Figure 44. Mortality estimation for the western Scotian Shelf (a) using Paloheimo's method of estimating Z and (b) using annual catch curves to estimate Z .

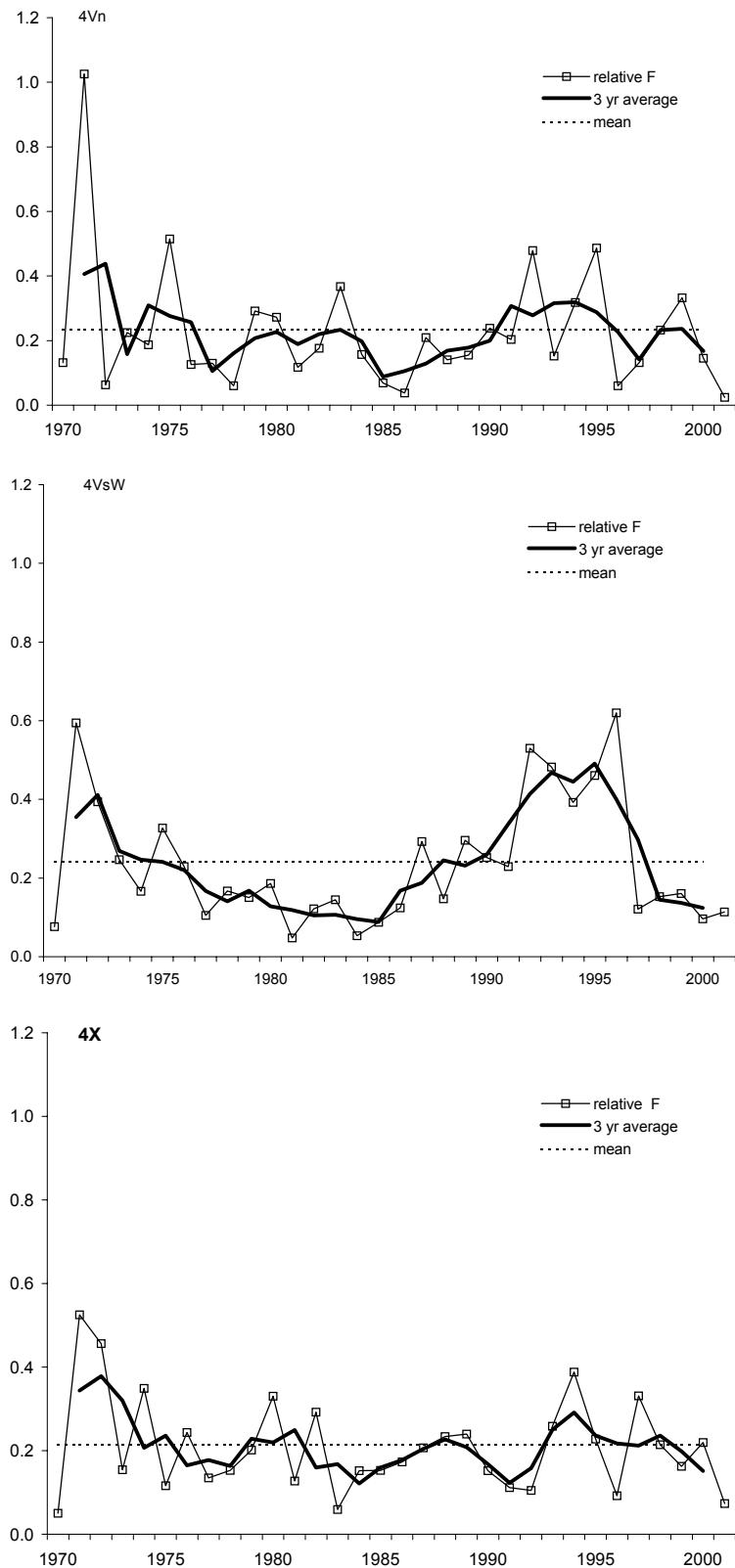


Figure 45. Relative fishing mortality (F) in 4Vn, 4VsW and 4X.

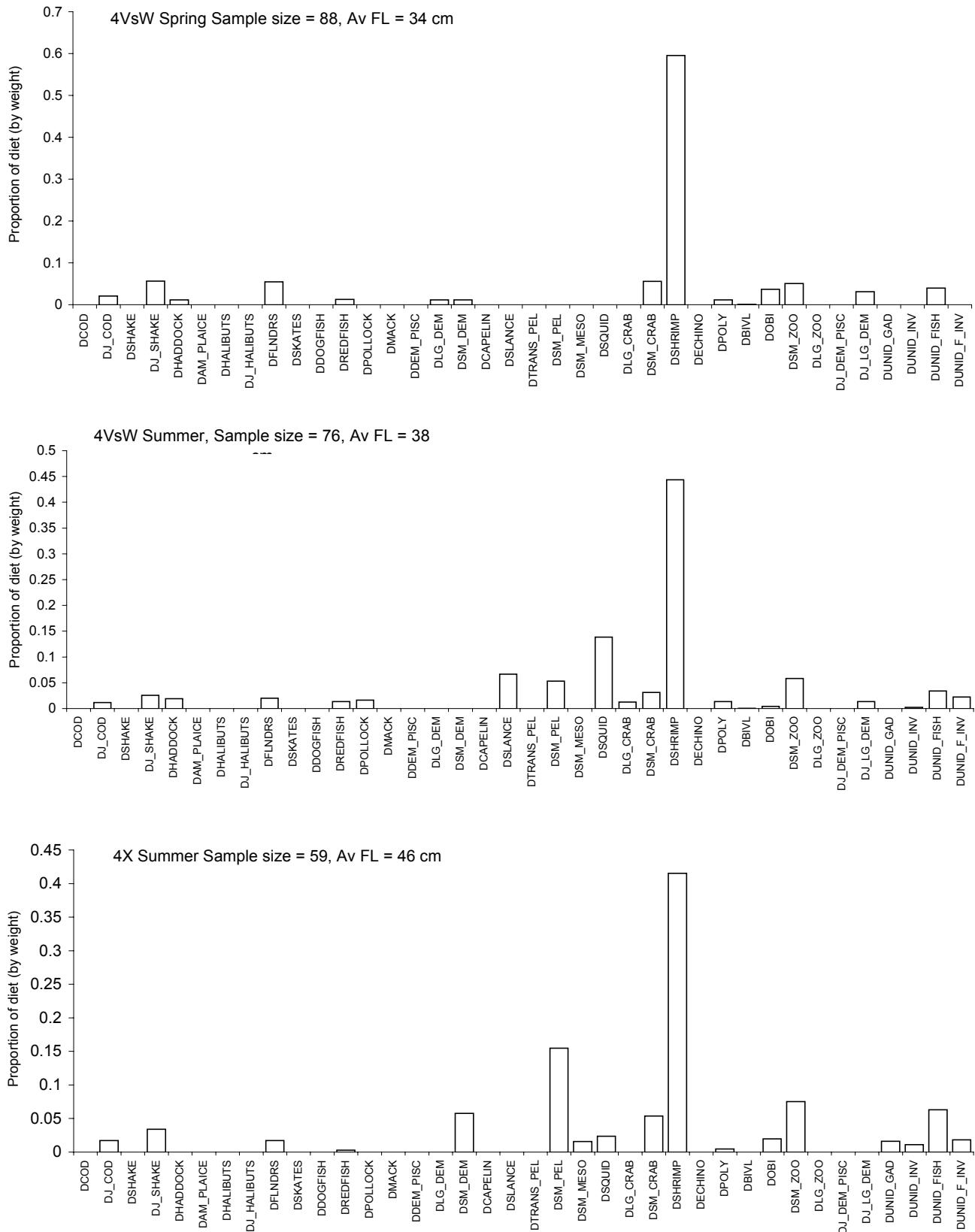


Figure 46. Diet composition of white hake from DFO RV Survey in 4VsW in the spring and summer, and in 4X in the spring.

Appendix

Table A1. Age Length Keys in 4Vs, 4Vn and 4V.

4VS

Sex: Combined

	4	5	6	Tot
40	3	-	-	3
43	2	-	-	2
46	1	2	-	3
49	1	2	-	3
52	-	2	1	3
55	-	3	-	3
58	-	2	1	3
61	-	-	2	2
64	-	-	-	0
67	-	-	3	3
Tot	7	11	7	25

4VN

Sex: Combined

	2	3	4	5	6	7	8	9	Tot
37	3	-	1	-	-	-	-	-	4
40	1	2	4	-	-	-	-	-	7
43	-	8	20	3	-	-	-	-	31
46	-	1	20	11	-	-	-	-	32
49	-	1	14	18	-	-	-	-	33
52	-	-	9	22	2	-	-	-	33
55	-	-	5	22	3	1	-	-	31
58	-	-	-	26	6	-	-	-	32
61	-	-	-	14	15	1	-	-	30
64	-	-	-	5	16	1	-	-	22
67	-	-	-	-	15	2	-	-	17
70	-	-	-	1	9	-	-	-	10
73	-	-	-	-	3	5	1	-	9
76	-	-	-	-	1	1	2	1	5
79	-	-	-	-	1	3	-	-	4
82	-	-	-	-	-	1	-	-	1
85	-	-	-	-	-	1	-	-	1
Tot	4	12	73	122	71	16	3	1	302

4V

Sex: Combined

	2	3	4	5	6	7	8	9	Tot
37	3	-	1	-	-	-	-	-	4
40	1	2	7	-	-	-	-	-	10
43	-	8	22	3	-	-	-	-	33
46	-	1	21	13	-	-	-	-	35
49	-	1	15	20	-	-	-	-	36
52	-	-	9	24	3	-	-	-	36
55	-	-	5	25	3	1	-	-	34
58	-	-	-	28	7	-	-	-	35
61	-	-	-	14	17	1	-	-	32
64	-	-	-	5	16	1	-	-	22
67	-	-	-	-	18	2	-	-	20
70	-	-	-	1	9	-	-	-	10
73	-	-	-	-	3	5	1	-	9
76	-	-	-	-	1	1	2	1	5
79	-	-	-	-	1	3	-	-	4
82	-	-	-	-	-	1	-	-	1
85	-	-	-	-	-	1	-	-	1
Tot	4	12	80	133	78	16	3	1	327

Appendix

Table A2. Age Length Key for white hake in 4X/5.

4X5

Sex: Combined

	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Tot
37	1	-	-	-	-	-	-	-	-	-	-	-	-	-	1
40	1	-	-	-	-	-	-	-	-	-	-	-	-	-	1
43	1	7	-	-	-	-	-	-	-	-	-	-	-	-	8
46	6	18	1	-	-	-	-	-	-	-	-	-	-	-	25
49	-	26	9	-	-	-	-	-	-	-	-	-	-	-	35
52	-	20	26	2	-	-	-	-	-	-	-	-	-	-	48
55	-	10	36	4	1	-	-	-	-	-	-	-	-	-	51
58	-	5	41	10	-	-	-	-	-	-	-	-	-	-	56
61	-	2	40	13	1	1	-	-	-	-	-	-	-	-	57
64	-	1	22	29	1	1	-	-	-	-	-	-	-	-	54
67	-	1	16	33	6	-	1	-	-	-	-	-	-	-	57
70	-	-	10	26	14	4	1	-	-	-	-	-	-	-	55
73	-	-	5	35	10	3	-	-	1	-	-	-	-	-	54
76	-	-	5	26	15	2	1	2	-	-	-	-	-	-	51
79	-	-	1	19	21	6	1	1	1	-	-	-	-	-	50
82	-	-	-	9	16	8	1	1	2	-	1	-	-	-	38
85	-	-	-	2	12	7	10	-	1	1	-	-	-	-	33
88	-	1	-	2	9	10	5	1	2	1	1	-	-	-	32
91	-	-	-	1	2	10	6	3	-	-	-	-	-	-	22
94	-	-	-	-	-	4	7	-	3	1	1	-	-	1	17
97	-	-	-	-	1	3	2	2	1	-	1	-	-	-	10
100	-	-	-	-	-	-	3	2	2	2	-	-	-	-	9
103	-	-	-	-	-	-	1	-	-	-	-	-	-	-	1
106	-	-	-	-	1	-	-	3	3	2	-	2	-	-	11
109	-	-	-	-	-	1	-	-	1	1	1	1	-	-	4
112	-	-	-	-	-	-	1	1	1	1	1	1	-	-	5
115	-	-	-	-	-	-	-	-	1	-	1	1	-	-	3
118	-	-	-	-	-	-	-	-	1	-	-	-	-	-	1
121	-	-	-	-	-	-	-	1	-	-	-	-	-	-	1
124	-	-	-	-	-	-	-	-	-	1	-	-	-	-	2
Tot	9	91	212	211	110	59	36	19	17	12	8	5	1	2	792

Appendix

Table A3 (a). Age Length Key for white hake on the eastern Scotian Shelf (4VWXmn).

	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Total
34	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
37	3	-	1	-	-	-	-	-	-	-	-	-	-	-	-	4
40	1	2	7	-	-	-	-	-	-	-	-	-	-	-	-	10
43	-	9	22	3	-	-	-	-	-	-	-	-	-	-	-	34
46	-	1	24	13	-	-	-	-	-	-	-	-	-	-	-	38
49	-	1	16	22	-	-	-	-	-	-	-	-	-	-	-	39
52	-	-	11	29	3	-	-	-	-	-	-	-	-	-	-	43
55	-	-	7	32	3	1	-	-	-	-	-	-	-	-	-	43
58	-	-	-	35	9	-	-	-	-	-	-	-	-	-	-	44
61	-	-	-	22	18	1	-	-	-	-	-	-	-	-	-	41
64	-	-	-	5	24	2	-	-	-	-	-	-	-	-	-	31
67	-	-	-	1	24	4	-	-	-	-	-	-	-	-	-	29
70	-	-	-	1	13	4	1	-	-	-	-	-	-	-	-	19
73	-	-	-	-	10	6	1	-	-	-	-	-	-	-	-	17
76	-	-	-	1	5	3	3	2	-	-	-	-	-	-	-	14
79	-	-	-	-	3	8	1	1	-	-	-	-	-	-	-	13
82	-	-	-	-	3	6	1	1	-	-	-	-	-	-	-	11
85	-	-	-	-	-	3	2	3	-	-	-	-	-	-	-	8
88	-	-	-	-	-	1	2	-	-	-	-	-	-	-	-	3
91	-	-	-	-	-	2	-	1	-	-	-	-	-	-	-	3
94	-	-	-	-	-	-	1	-	-	1	-	-	-	-	-	2
97	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	1
100	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	1
103	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
106	-	-	-	-	-	1	-	-	1	-	-	1	-	-	-	3
109	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
112	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
115	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
118	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
121	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
124	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
127	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	4	13	88	164	115	40	14	8	1	1	2	-	1	-	-	451

Table A3 (b). Age Length Key for white hake on the western Scotian Shelf (4Xopqrs5Ze).

	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Total
34	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
37	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	1
40	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	1
43	-	-	7	-	-	-	-	-	-	-	-	-	-	-	-	7
46	-	6	15	1	-	-	-	-	-	-	-	-	-	-	-	22
49	-	-	25	7	-	-	-	-	-	-	-	-	-	-	-	32
52	-	-	18	21	2	-	-	-	-	-	-	-	-	-	-	41
55	-	-	8	29	4	1	-	-	-	-	-	-	-	-	-	42
58	-	-	5	34	8	-	-	-	-	-	-	-	-	-	-	47
61	-	-	2	32	12	1	1	-	-	-	-	-	-	-	-	48
64	-	-	1	22	21	-	1	-	-	-	-	-	-	-	-	45
67	-	-	1	15	27	4	-	1	-	-	-	-	-	-	-	48
70	-	-	-	10	22	10	3	1	-	-	-	-	-	-	-	46
73	-	-	5	28	9	3	-	-	1	-	-	-	-	-	-	46
76	-	-	4	22	13	1	-	2	-	-	-	-	-	-	-	42
79	-	-	-	1	17	16	5	-	1	1	-	-	-	-	-	41
82	-	-	-	-	6	11	7	-	1	2	-	1	-	-	-	28
85	-	-	-	-	2	10	5	7	-	1	1	-	-	-	-	26
88	-	-	1	-	2	8	8	5	1	2	1	1	-	-	-	29
91	-	-	-	-	1	2	8	6	2	-	-	-	-	-	-	19
94	-	-	-	-	-	4	6	-	3	-	1	-	-	1	-	15
97	-	-	-	-	-	1	2	2	2	1	-	1	-	-	-	9
100	-	-	-	-	-	-	-	3	2	1	2	-	-	-	-	8
103	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	1
106	-	-	-	-	-	-	-	3	2	2	-	1	-	-	-	8
109	-	-	-	-	-	-	-	1	-	1	1	1	-	-	-	4
112	-	-	-	-	-	-	-	1	1	1	1	1	-	-	-	5
115	-	-	-	-	-	-	-	-	-	1	-	1	1	-	-	3
118	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	1
121	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	1
124	-	-	-	-	-	-	-	-	-	1	-	-	-	1	-	2
127	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	-	8	83	181	174	86	48	29	18	16	10	8	4	1	2	668