

INTERNATIONAL COMMISSION FOR



RESTRICTED  
THE NORTHWEST ATLANTIC FISHERIES

Serial No.2271  
(D.c.11)

Seal Contribution No.3  
(also ICNAF Res.Doc.69/28)

ANNUAL MEETING - JUNE 1969

Additional results of Norwegian research on seals  
1964, 1967, 1968 and 1969

by T. Øritsland

Note: Reference should be made also to the data and figures in Seal Contribution No.2 (ICNAF Res.Doc.69/54)

Table 1.

- 2 -

Age analysis of harp seals in Front area, Newfoundland, 1964, 1967 and 1968  
(Fig.1)

Age	1964		1967		1968	
	No.	%	No.	%	No.	%
1	3	2.4	55	19.6	135	19.2
2	6	4.7	31	11.0	74	10.5
3	8	6.3	5	1.8	42	6.0
4	11	8.7	6	2.1	27	3.8
5	7	5.5	19	6.8	30	4.3
6	12	9.4	22	7.8	20	2.8
7	6	4.7	19	6.8	46	6.6
8	5	3.9	13	4.6	38	5.4
9	5	3.9	5	1.8	31	4.4
10	8	6.3	8	2.8	28	4.0
11	4	3.1	13	4.6	22	3.1
12	4	3.1	6	2.1	12	1.7
13	3	2.4	5	1.8	15	2.1
14	3	2.4	10	3.6	18	2.6
15	5	3.9	10	3.6	14	1.9
16	4	3.1	6	2.1	12	1.7
17	5	3.9	8	2.8	15	2.1
18	8	6.3	9	3.2	26	3.7
19	4	3.1	9	3.2	21	3.0
20	0	0.0	4	1.4	16	2.3
21	4	3.1	4	1.4	10	1.4
22	2	1.6	1	0.4	17	2.4
23	2	1.6	3	1.1	8	1.1
24	3	2.4	2	0.7	7	1.0
25	1	0.8	2	0.7	3	0.4
26	0	0.0	1	0.4	5	0.7
27+	4	3.1	5	1.8	10	1.4
SUM	127	99.7	281	100.0	702	99.6
UNDETERM.					35	(4.7% of total sampl.)

**Table 2.**  
Sex ratio of harp seals in Front area, Newfoundland, 1967 and 1969.

Dates	Males		Females		Sum
	No.	%	No.	%	
<u>Pups</u>					
11.03.67-23.03.67	241	48.2	258	51.7	499
25.03.69-10.04.69	234	51.2	223	48.8	457
Sub total	475	49.7	481	50.3	956
<u>Immatures</u>					
12.04.67-23.04.67	38	52.8	34	47.2	72
02.04.69-22.04.69	434	50.3	428	49.7	862
Sub total	472	50.5	462	49.5	934
Total	947	50.1	943	49.9	1890

Table 3.  
 HARP SEALS IN FRONT AREA, NEWFOUNDLAND. SEXUAL MATURITY OF BREEDING FEMALES  
 COLLECTED 12 - 20 MARCH 1964 AND 11 - 23 MARCH 1967.

Age at last ovulation	No.	Age at "first" ovulation															
		4	5	6	7	8	9	10	11	12	13	14	15				
4	0																
5	2	1	1														
6	6	—	3	3													
7	8	1	3	2	2												
8	10		—	4	3	3											
9	3			—	2	1	0										
10	2				—	1	1	1									
11	6				1	1	3	1	0								
12	6				1	2	0	1	2	0							
13	9								3	4	0						
14	9							1	2	2	3	0					
15	3									1	1	0					
	64																
Sum	(48)	1	7	9	7	4	4	3	6	3	4	0					
%		2.1	14.6	18.8	14.6	8.3	8.3	8.3	12.5	6.3	8.3	0					
Acc. %		2.1	16.7	35.5	50.1	58.4	66.7	73.0	85.5	91.8	100.1						

! 4 !

Table 4.  
 HARP SEALS IN FRONT AREA, NEWFOUNDLAND. SEXUAL MATURITY OF MOULTING FEMALES  
 COLLECTED 3- 30 APRIL 1964 AND 14 - 26 APRIL 1967.

Age	No.	Age at "first ovulation"															
		4	5	6	7	8	9	10	11	12	13	14	15				
4	7	0															
5	6	0	0														
6	5	<u>1</u>	2	1													
7	5	<u>2</u>	<u>2</u>	0	1												
8	3	1	1	<u>1</u>	1	0											
9	2	1	1	0	<u>0</u>	1	0										
10	4			3	1	<u>0</u>	0	0									
11	1			1	0	0	<u>0</u>	0	0								
12	3				1	0	1	0	1	0							
13	2			1	0	0	0	0	<u>0</u>	1	0						
14	1								1	0	0	0					
15	<u>3</u>								1	1	<u>1</u>	0	0				
Sum	(14)	1	4	2	2	1	1	0	1	1	1	1	0	0			
%		7.1	28.6	14.3	14.3	7.1	7.1	0.0	7.1	7.1	7.1	7.1	0.0	0.0			
Acc. %		7.1	35.7	50.0	64.3	71.4	71.4	71.4	78.5	85.6	92.7	99.8	100.0	100.0			

Table 5. CATCH AND SURVIVAL HARPSEALS FRONT, NFLD.

Year class	Pup catch 1000	<u>Survival in sample</u>		
		1964	1967	1968
1949	169	++	++	++
1950	174	+	+	++
51	215	+	+	+
52	126	+	++	+
53	161	+	++	+
54	109	++	-	+
1955	159	+	-	-
56	245	+	++	-
57	71	+	+	+
58	56	++	-	+
59	181		+	+
1960	81		++	++
61	127		++	++
62	114		+	-
63	170		--	-
64	168		--	--
1965	90		+	-
66	167		+	+
67	185			+
68	97			

Table 7.

Moulting harp seals in Front area, Newfoundland. Catch composition by age, sex and date in 1967 and 1969.

DATE IN APRIL	SAMPLE SIZE	IMMATURE				MATURE			
		N	%	N	%	N	%	N	%
<u>1967</u>									
12 - 14	237	30	12.7	25	10.5	163	68.8	19	8.0
23.	119	8	6.7	9	7.5	74	62.2	28	23.5
Subtotal	356	38	10.7	34	9.6	237	66.6	47	13.2
<u>1969</u>									
02 - 05	391	97	24.8	87	22.3	205	52.4	2	0.5
12 - 13	343	110	32.1	104	30.3	125	36.4	4	1.2
16 - 20	720	188	26.1	193	26.8	261	36.3	78	10.4
22	132	39	29.5	44	33.3	35	26.5	14	10.6
Subtotal	1586	434	27.4	428	27.0	626	39.5	98	6.2
<u>1967 + 1969</u>									
0 - 05	391	97	24.8	87	22.3	205	52.4	2	0.5
06 - 10	-	-	-	-	-	-	-	-	-
11 - 15	580	140	24.1	129	22.2	288	49.7	23	4.0
16 - 20	720	188	26.1	193	26.8	261	26.3	78	10.4
21 - 25	251	47	18.7	53	21.1	109	43.4	42	16.7
26 - 30	-	-	-	-	-	-	-	-	-
Total	1.942	472	24.3	462	23.8	863	44.4	145	7.5

Table 6. Survival Index, 1964, 1967 and 1968.

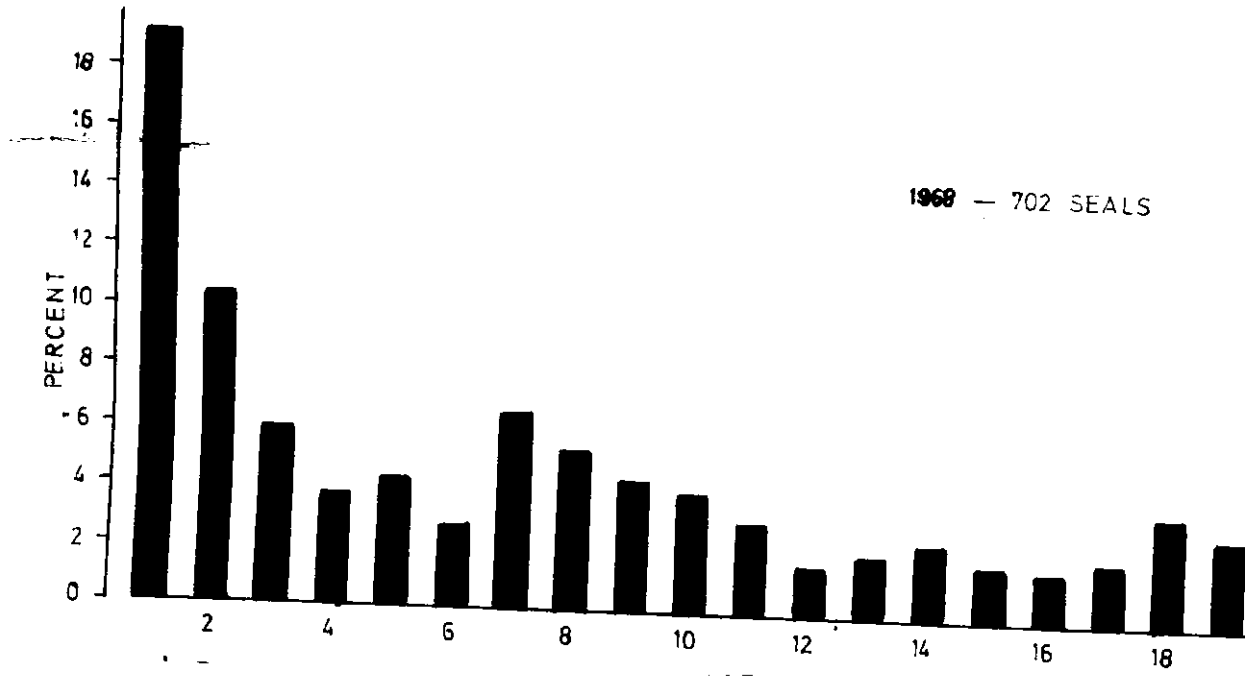
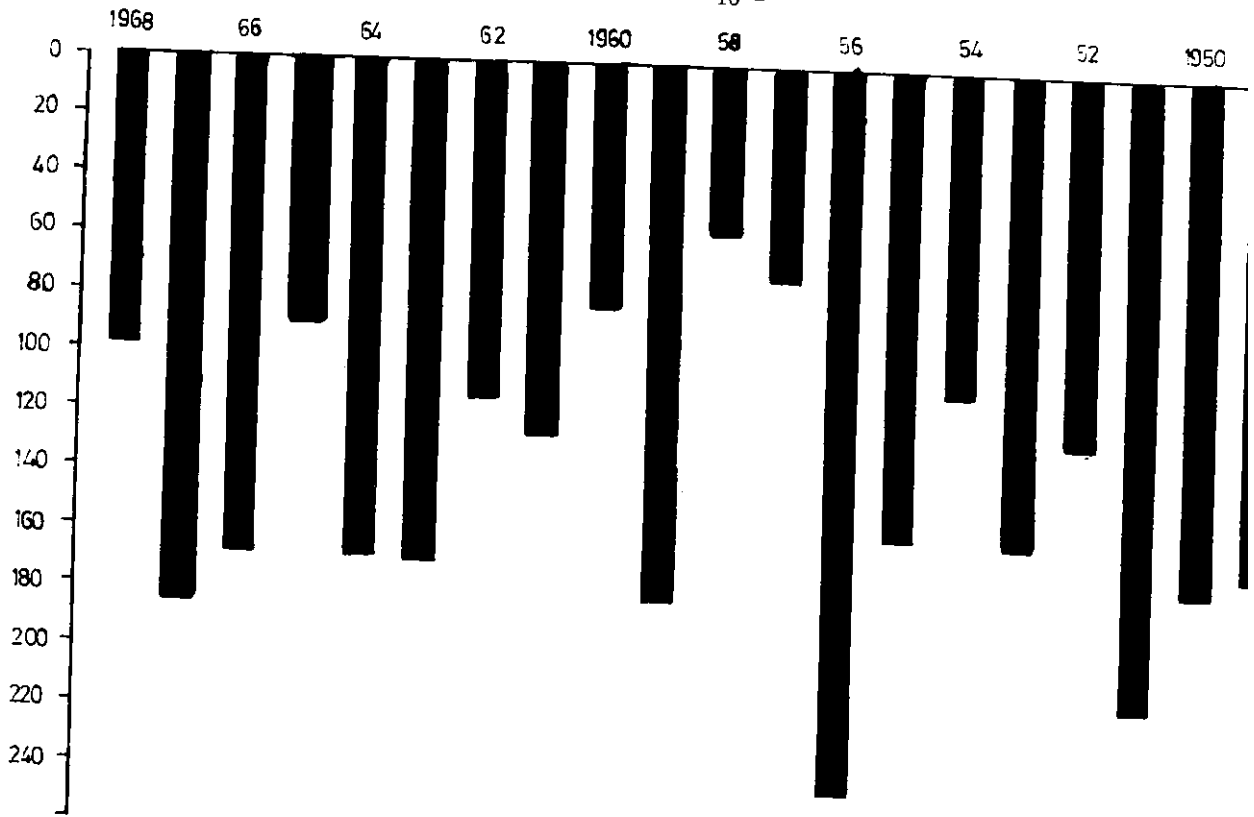
AGE GROUP	D.E.S. 1960 LIFE TABLE	SURVIVAL INDEX III IN SAMPLE		
		1964	1967	1968
0	18.6			
1	11.4	0.21	1.72	1.68
2	9.0	0.52	1.22	1.17
3	7.4	<u>0.85</u>	<u>0.24</u>	<u>0.81</u>
4	6.3	1.38	0.33	0.60
5	5.4	1.02	1.26	0.80
6	4.9	1.92	1.59	0.57
7	4.4	1.07	1.55	1.50
8	4.0	0.98	1.15	1.35
9	3.6	1.08	0.50	1.22
10	3.2	1.97	0.88	1.25
11	2.9	1.07	1.59	1.07
12	2.6	1.19	0.81	0.65
13	2.3	1.04	0.78	0.91
14	2.1	1.14	1.71	1.24
15	1.9	<u>2.05</u>	1.89	1.00
16	1.7	1.82	1.24	1.00
17	1.5	2.60	1.87	1.40
18	1.2	5.25	<u>2.67</u>	3.08
19	1.0	3.10	3.20	<u>3.00</u>
20	0.9	0.00	1.56	2.56
21	0.8	3.88	1.75	1.75
22	0.6	2.67	0.67	4.00
23	0.5	3.20	2.20	2.20
24	0.4	6.00	1.75	2.50
25	0.4	2.00	1.75	1.00
26	0.3	0.00	1.33	2.33
27+	0.8	3.88	2.25	1.75

Survival index III =  $\frac{\text{Rel. freq. in sample}}{\text{Rel. freq. life table}}$



Table 8.  
TOTAL HARP SEAL CATCHES PER SHIP IN FRONT AREA, NEWFOUNDLAND,  
1946 — .

Year	Canadian ships	Norwegian ships
1945		
46		6.894
47		9.081
48		6.870
49	8.704	8.064
1950	20.332	7.265
51	16.372	11.635
52	7.714	11.354
53	9.506	10.356
54	7.360	14.262
1955	12.343	16.477
56	25.269	18.994
57	4.845	7.633
58	3.674	9.824
59	14.419	17.026
1960	6.985	7.690
61	2.469	8.670
62	8.736	12.192
63	9.592	10.013
64	7.504	10.669
1965	5.602	4.797
66	6.335	11.590
67	7.254	12.488
68		8.826
69		<del>8.387</del> (10.085)



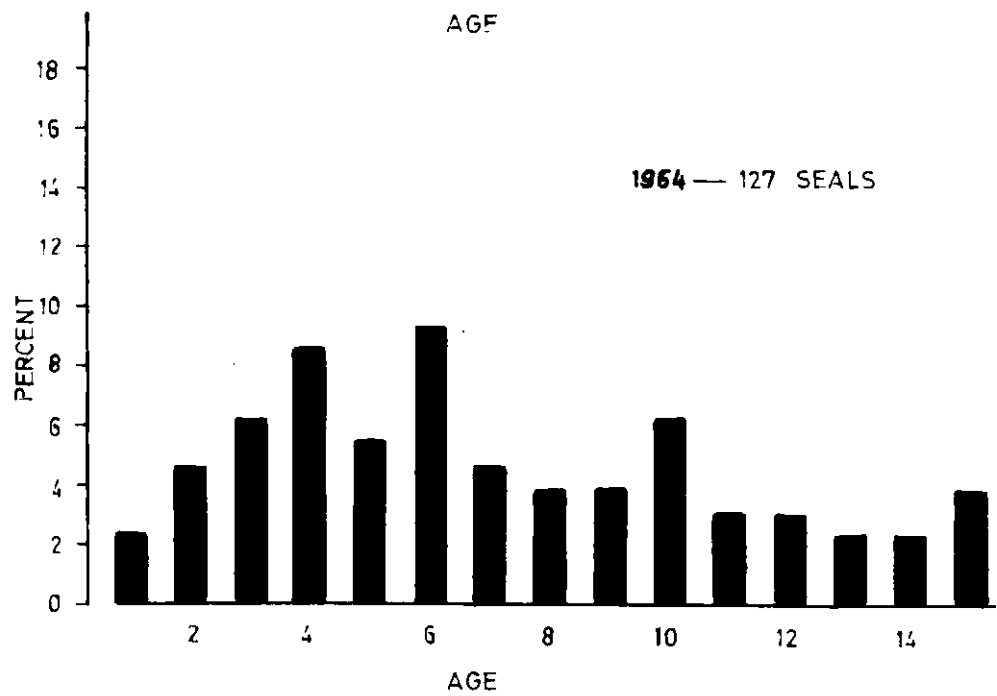
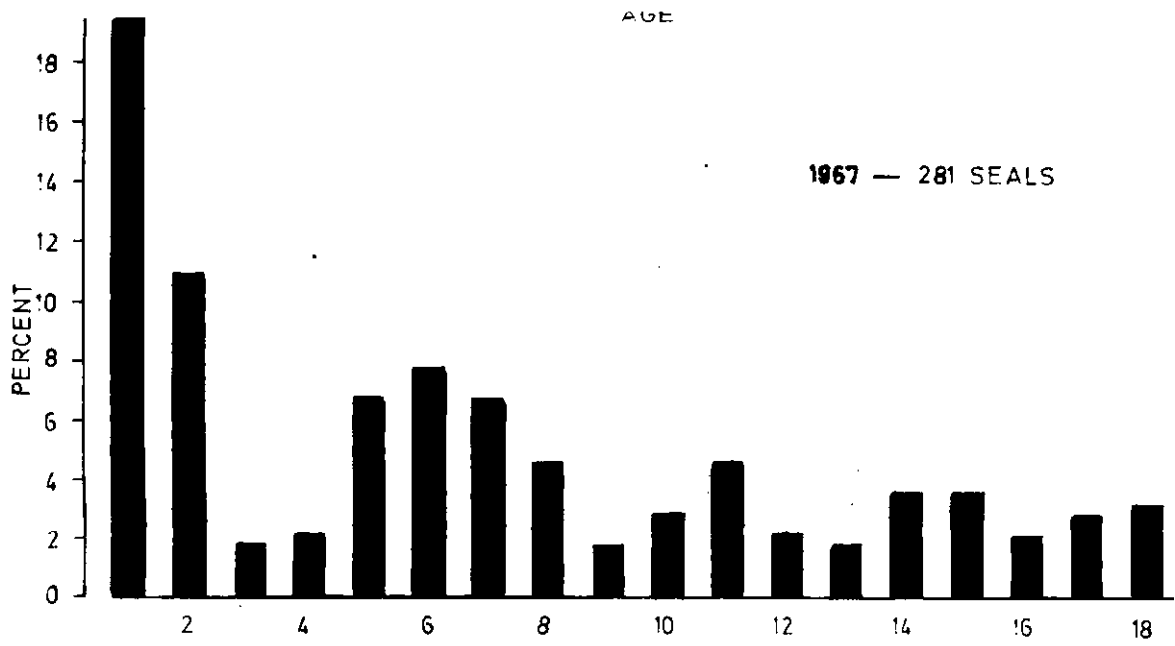


Fig. 1