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Girth, Length and Weight Measurements
of Cod from Subareas 1,2,3 and 4.
(1963)

by
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(Lisbon, Portugal)

Continuing our study of the relations that exist between the length on one hand, and the girths and weight of cod on the other hand, we present additional data from Subareas 1,2,3 and 4.

The observations of the girths and weights were made on round, fresh fish immediately after capture, and according to Recommendation (24) of the 1963 Annual Meeting of the ICNAF (Redbook, 1963, Part I: 50), using the fork length of the fish. All measurements were taken to the nearest unit (cm, mm and gram).

Table I shows the random samples obtained from catches of commercial trawlers operating in the ICNAF area in 1963. In Tables II and III, length/girth and length/weight distributions respectively are tabulated, together with some estimates of the parameters, and the regression lines.

The meanings of some symbols used in these Tables are:

- L - fork length in cm (1) W - weight in grams (1)
AA' - head girth in mm BB' - maximum girth in mm
SPD - sum of products of deviations from the means SSD - sum of squares of deviations from the mean
b - slope of a straight line
(1) - the calculations of the mean, SSD, SPD and b, expressed in Table III are obtained from the logarithms of those measurements (L and W).

Table I

ICNAF Division	Sample no.	Date	No. of observations	
			Girths	Weight
1F	4	9-VII	75	75
2J	1-5	2/9-V	297	-
2J	11	31-VIII	-	100
2J	15-24	4/15-IX	-	200
3K	21	27-VII	100	100
3K	35	22-IX	-	100
3L	8	24-VI	-	49
3L	8-11	24/28-VI	199	-
3L	16	21-VII	100	99
3L	38	26-IX	-	100
3M	32	18-VIII	-	100
4R	1	5-VIII	75	75

Division Month No. of samples No. of obser- vations cm/mm/mm	1 F July 1			2 J May 2			3 K July 1			3 L June 2			3 I July 1			4 R August 1				
	n	L	AA'	BB'	n	L	AA'	BB'	n	L	AA'	BB'	n	L	AA'	BB'	n	L	AA'	BB'
	1	45	195	153	1	35	147	194	1	39	144	194	1	44	196	203	1	42	187	205
	2	47	215	170	2	36	172	220	1	41	209	220	1	45	205	213	1	45	218	224
	2	48	210	174	8	37	172	219	1	42	206	215	1	46	210	226	2	46	227	223
	2	49	228	170	7	38	169	215	1	44	196	225	1	47	220	234	2	48	237	240
	1	50	222	176	9	39	176	225	3	45	210	228	2	48	227	244	2	49	240	239
	4	51	224	184	10	40	189	232	2	46	209	240	1	49	215	233	2	50	228	234
	3	52	232	182	7	41	184	235	1	47	210	235	1	50	229	255	1	51	260	279
	1	53	254	193	4	42	197	239	3	48	225	244	3	51	230	248	2	52	238	248
	1	54	238	198	7	43	206	247	3	49	229	247	3	52	237	254	4	55	250	266
	1	55	239	204	10	44	209	260	2	50	224	260	2	53	243	257	5	56	258	262
	1	56	248	205	8	45	208	268	4	51	233	274	4	54	246	273	3	57	266	264
	3	57	274	218	7	46	208	264	1	52	229	264	1	55	256	266	5	58	269	277
	5	59	260	226	8	47	222	266	3	53	244	266	3	56	248	264	2	59	279	327
	4	60	267	224	14	48	239	278	10	54	240	278	4	57	257	275	2	60	297	294
	6	61	267	226	7	49	229	281	7	55	251	278	2	58	262	273	2	61	299	326
	2	62	280	231	11	50	234	288	6	56	262	288	3	59	271	287	2	62	291	294
	1	63	269	234	13	51	238	290	4	57	264	290	2	60	270	275	3	63	320	338
	2	64	283	243	13	52	243	304	6	58	262	289	1	61	283	291	2	64	299	309
	3	65	292	240	20	53	240	290	5	59	289	289	2	62	290	299	3	65	277	322
	5	66	301	251	12	54	250	319	5	60	270	308	3	63	291	304	2	66	327	331
	2	67	327	250	19	55	247	307	11	61	275	313	4	64	284	305	5	67	315	323
	2	68	303	257	16	56	254	307	1	62	280	313	10	65	305	305	1	68	331	362
	3	69	312	252	8	57	254	291	1	63	278	312	2	66	294	312	3	69	331	333
	4	70	309	264	10	58	270	304	3	64	293	304	3	67	265	285	1	70	315	336
	4	71	327	263	13	59	266	331	4	66	309	336	5	68	315	339	1	71	348	355
	2	72	325	265	10	60	269	323	4	67	304	333	12	69	318	342	1	72	358	330
	1	73	344	265	5	61	283	347	2	68	310	333	6	71	335	378	2	74	359	362
	1	74	359	277	7	62	270	346	2	69	325	347	4	73	340	370	2	75	345	357
	1	75	299	271	5	63	275	346	1	70	329	346	4	74	331	347	1	76	340	369
	2	77	317	274	5	64	317	340	1	71	333	340	6	75	346	353	1	77	360	388
	1	80	366	297	4	65	310	339	6	72	323	352	6	76	346	353	1	79	368	380
	1	82	343	294	3	66	304	352	8	73	332	500	8	77	398	399	3	82	435	443
	2	82	383	301	2	67	314	629	6	77	332	500	9	78	398	399	1	86	413	427
	2	82	383	307	3	69	314	629	1	109	459	540	1	88	430	467	1	88	430	467
	2	82	383	307	3	69	314	629	1	109	459	540	1	104	585	585	1	104	585	585

Division Month No. of samples No. of obser- vations cm/mm/mm	1 F July			2 J May			3K July			3L June			3L July			4R August					
	n	L	AA'	BB'	n	L	AA'	BB'	n	L	AA'	BB'	n	L	AA'	BB'	n	L	AA'	BB'	
	75				100				199				100				75				
MEAN	32	62.34	282.66	297.09	39	54.33	248.21	252.03	62	71.15	315.95	371.10	31	59.68	271.52	288.19	36	65.92	316.00	330.81	
SSD		3.277	76.975	81.839		5.443	116.594	125.691		22.528	665.683	744.744		3.273	69.562	74.617		8.023	230.992	297.326	
SFD			15.275	15.719			24.860	25.777		119.884	124.730				14.815	15.041		41.774	45.849		
a			4.66	4.80			4.57	4.74		5.32	5.54				4.53	4.60		5.21	5.71		
b																					
REGRESSION LINES		AA' = 4.66	L - 7.84			AA' = 4.57	L - 0.08			AA' = 5.32	L - 32.57			AA' = 4.53	L + 1.17			AA' = 5.21	L - 27.44		
		BB' = 4.80	L - 2.14			BB' = 4.74	L - 5.49			BB' = 5.54	L - 23.07			BB' = 4.60	L + 13.66			BB' = 5.71	L - 45.59		

Division Month No. of samples No. of obser- vations cm/2g	1F July			2J August			2J September			3K July			3K September			3L June		
	n	L	w	n	L	w	n	L	w	n	L	w	n	L	w	n	L	w
	1	45	800	2	38	495	2	38	580	1	39	500	1	44	920	1	49	1200
	2	47	900	1	39	500	2	39	585	1	41	740	1	45	900	1	64	2700
	2	48	875	1	41	750	8	40	711	2	42	825	2	47	1000	1	65	3010
	2	49	1000	3	43	923	1	42	910	1	44	750	1	48	1050	4	66	2845
	1	50	950	5	44	784	8	43	804	1	45	850	1	49	1050	1	67	3080
	4	51	1118	1	46	980	10	44	882	1	46	900	5	50	1286	1	68	3400
	3	52	1243	2	47	1005	9	45	958	1	47	1000	5	51	1316	70	70	2997
	1	53	1500	1	48	1000	15	46	975	1	48	1000	3	52	1340	71	71	3250
	1	54	1260	1	49	1130	13	47	1016	2	49	1085	5	53	1502	72	72	3190
	1	55	1350	5	50	1240	14	48	1133	3	50	1163	8	54	1516	73	73	3530
	3	56	1493	8	51	1309	10	49	1229	1	51	1220	9	55	1656	74	74	3280
	5	57	1770	7	53	1474	15	50	1227	3	52	1247	2	56	1607	76	76	3850
	4	59	1633	9	54	1531	9	51	1300	10	53	1418	7	57	1807	77	77	4238
	6	60	2033	5	55	1598	12	52	1411	7	54	1420	7	58	1727	80	80	5650
	2	61	1880	8	56	1628	17	53	1442	6	55	1550	6	59	1890	81	81	4110
	1	62	2100	5	57	1748	4	54	1638	4	56	1528	6	60	2140	82	82	5430
	2	63	2050	4	58	1968	9	55	1628	8	57	1690	7	61	2110	83	83	5398
	3	64	2153	3	59	1883	5	56	1794	6	58	1828	3	62	2323	84	84	6490
	5	65	2422	3	60	2007	7	57	1930	5	59	1938	2	63	2550	85	85	5660
	2	66	2970	10	61	2119	7	58	1934	11	60	1892	4	64	2505	86	86	5500
	2	67	2365	4	62	2220	5	59	1868	1	61	2060	5	65	2778	87	87	6667
	3	68	2567	2	63	2280	4	60	2100	1	62	2210	1	66	2730	88	88	6350
	4	69	2655	1	64	2750	2	62	2260	1	63	2128	1	68	2650	89	89	6030
	4	70	2925	4	66	2675	1	63	2400	3	64	2130	2	70	3010	92	92	7900
	2	71	2940	2	64	2637	3	64	2637	4	66	2740	3	72	3417	96	96	7870
	1	72	3410	2	65	2700	2	65	2700	1	67	2550	1	76	4510	97	97	7310
	1	73	4000	1	66	3050	1	66	3050	1	68	2750	1	80	5100	100	100	9800
	1	74	2320	1	67	2800	1	67	2800	2	69	2925	1	102	12500	102	102	12500
	1	75	3105	1	69	2930	1	69	2930	1	70	3000	1	105	12300	105	105	12300
	1	77	3780	1	70	2800	1	70	2800	1	71	3200	1	106	12210	106	106	12210
	1	80	3500	1	72	3260	1	72	3260	1	72	3000	1	112	15500	112	112	15500
	2	82	4825	1	76	3660	1	76	3660	1	97	8760	1					
											109	12500						

Division Month No. of samples No. of obser- vations cm/2g	1F July 1		2J August 1		2J September 2		3K July 1		3K September 1		3L June 1	
	n	L	n	L	n	L	n	L	n	L	n	L
$\sum n$	75		100		200		100		100		49	
N	32		27		32		34		27		31	
Mean	1.789		1.736		1.733		1.762		1.763		1.908	
SSD	0.163		0.195		0.215		0.321		0.123		0.185	
SPD	3.291		3.185		3.193		3.246		3.273		3.706	
b	1.409		1.613		1.597		2.787		1.070		1.962	
	0.467		0.556		0.580		0.940		0.361		0.571	
	2.87		2.85		2.70		2.93		2.93		3.09	
Regression lines	w= 0.014L		w=0.017L		w=0.033L		w=0.012L		w=0.013L		w=0.006L	

Division Month No. of samples No. of obser- vations cm/2	3L July I			3L September I			3M August I			4R August I		
	n	L	W	n	L	W	n	L	W	n	L	W
	1	44	700	2	38	535	6	40	588	1	42	700
	2	45	775	1	39	560	2	41	595	1	45	850
	1	46	950	3	41	683	4	43	690	2	46	880
	2	47	1000	1	42	600	5	44	810	2	48	1010
	4	48	1025	3	43	743	1	45	900	2	49	1065
	1	49	1000	5	44	786	2	46	880	2	50	985
	3	50	1157	6	45	917	1	47	910	1	51	1450
	4	51	1203	3	46	927	10	49	1030	2	52	1205
	8	52	1238	9	47	1011	6	50	1162	4	55	1468
	7	53	1399	7	48	1026	12	51	1218	5	56	1512
	3	54	1487	7	49	1129	4	52	1333	3	57	1493
	7	55	1434	5	50	1102	5	53	1292	5	58	1652
	4	56	1445	4	51	1215	7	54	1450	2	59	2020
	6	57	1533	3	52	1250	7	55	1460	2	60	1875
	5	58	1734	7	53	1357	5	56	1556	2	61	2220
	6	59	1803	6	54	1455	5	57	1686	3	62	1990
	5	60	1742	7	55	1501	4	58	1748	2	63	2400
	3	61	1937	5	56	1530	4	59	1858	3	64	2297
	3	62	2037	3	57	1567	3	60	1903	2	65	2530
	5	63	2222	4	58	1725	1	61	2030	5	66	2626
	5	64	2182	1	59	1900	1	62	1960	1	67	2500
	2	65	2425	2	61	2075	3	63	2357	3	68	3000
	1	66	2370	1	62	2070	1	66	2550	2	69	2305
	1	67	1780	1	63	2130	1	102	11460	1	70	2750
	1	68	2800	2	64	2260				1	71	3500
	2	69	2725	1	65	2250				1	72	2770
	2	71	3225	1	66	2500				2	74	3500
	1	73	3200							2	75	3625
	2	74	3120							1	76	3760
	1	75	3500							1	77	4250
	1	88	5600							3	79	4407
										1	82	5450
										1	86	5300
										2	88	6285
										1	104	13210
										1	106	9200

Division Month No. of samples No. of obser- vations cm/2 ^q	3L July				3L September				3M August				4R August			
	n	L	w		n	L	w		n	L	w		n	L	w	
$\sum n$	99				100				100				75			
N	31				27				24				36			
Mean	1.769		3.242		1.712		3.093		1.730		3.147		1.808		3.374	
SSD	0.168		1.330		0.131		1.030		0.167		1.623		0.326		2.995	
SPD			0.465				0.365				0.520				0.983	
b			2.77				2.79				3.11				3.02	
Regression lines	w=0.022L		2.77		w=0.021L		2.79		w=0.006L		3.11		w=0.008L		3.02	



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Amendment

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Of Cod From Subareas 1, 2, 3 And 4

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Page 3 - FIRST COLUMN - BOTTOM OF PAGE:
B should read b
SECOND COLUMN - BOTTOM OF PAGE:
BB should read BB'

Page 4 - FIRST COLUMN - TOP OF PAGE:
cm/2 should read cm/g

Page 5 - FIRST COLUMN - TOP OF PAGE:
cm/2 should read cm/g

Regression lines - These data are to be shown with the upper numbers as exponents (or powers) of the lower numbers, for example:

$$w = 0.014L^{2.87}$$

Page 6 - FIRST COLUMN - TOP OF PAGE:
cm/2 should read cm/g

Page 7 - FIRST COLUMN - TOP OF PAGE:
cm/2 should read cm/g

Regression lines - These data are to be shown with the upper numbers as exponents (or powers) of the lower numbers, for example:

$$w = 0.022L^{2.77}$$