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SOME THOUGHTS ON PUBLICATION OF SAMPLING DATA

BY: J. A. GULLAND

FISHERIES LABORATORY, LONESTOFT

THE SIZE OF THE SAMPLING YEAR BOOK INCREASES EACH YEAR. THE COST MUST BE CONSIDERABLE, AND USING IT HAS BECOME WEARISOME. THIS NOTE MAKES SOME SUGGESTIONS FOR REDUCING THE MASSIVE SIZE OF THIS PUBLICATION.

THREE SETS OF DATA ARE GIVEN: LENGTH, AGE AND AGE-LENGTH KEYS; FOR THE 1960 YEAR BOOK THESE DATA FOR COD TOOK UP 41, 47 AND 100 PAGES RESPECTIVELY. THE LENGTH COMPOSITION OF CATCHES FROM THE SAME STOCK WILL VARY, POSSIBLY QUITE WIDELY, WITH THE TYPE OF GEAR USED, THE SEASON AND THE PRECISE GROUND FISHED. LENGTH DATA CANNOT THEREFORE BE EASILY COMBINED; MUCH THE SAME IS TRUE OF AGE DATA. THE FORM OF PRESENTATION MAY, HOWEVER, BE CONSIDERED. THE LENGTH OR AGE COMPOSITIONS MAY BE EXPRESSED IN SEVERAL WAYS INCLUDING PERCENTAGE (OR PER MILLE), NUMBERS IN THE ACTUAL SAMPLES (I.E. THE NUMBER OF FISH ACTUALLY MEASURED), IN THE SAMPLED CATCHES, OR IN THE TOTAL CATCHES IN THE RELEVANT AREA/SEASON, OR NUMBERS PER UNIT EFFORT.

TWO MAIN USES OF AGE DATA ARE THE ESTIMATION OF MORTALITY RATES FOR STUDIES OF POPULATION DYNAMICS, AND THE COMPARISON OF THE STRENGTH OF YEAR-CLASSES FOR PURPOSES OF PREDICTION, STUDIES OF THE EFFECT OF THE ENVIRONMENT ON YEAR-CLASSES ETC. FOR BOTH THESE THE MOST USEFUL FORM IS IN TERMS OF CATCH PER UNIT EFFORT, WITH PERCENTAGES A RATHER POOR SECOND BEST.

LENGTH DATA ARE USED FOR COMPARING IN GENERAL TERMS, THE DIFFERENCES BETWEEN DIFFERENT AREAS, OR BETWEEN DIFFERENT GEARS, AND USED IN STOCK ASSESSMENT, PARTICULARLY IN STUDIES OF MESH REGULATION. FOR THE FORMER PERCENTAGES ARE THE MOST USEFUL, FOR THE LATTER TOTAL NUMBERS IN THE RELEVANT AREA/PERIOD CAUGHT BY CERTAIN GROUPS OF VESSELS (OF TOTAL BRITISH LANDINGS OF EACH 3 CM GROUP OF COD FROM SUB-AREA 1F IN THE LAST QUARTER OF 1962), AND THE GRAND TOTAL FOR ALL VESSELS.

AGE-LENGTH KEYS SEEM TO OFFER THE GREATEST OPPORTUNITY FOR CONDENSATION. AGE-LENGTH KEYS FROM A PARTICULAR STOCK AT A GIVEN SEASON ARE DETERMINED BY THE GROWTH AND MORTALITY IN THE STOCK, AND SHOULD NOT BE AFFECTED BY THE SELECTIVITY (IN THE WIDEST SENSE) OF THE GEAR CONCERNED. THERE WILL BE A CHANGE WITH TIME, MORE PRECISELY, IN STEADY CONDITIONS, FOR FISH WITHIN ANY LENGTH GROUP THE AVERAGE NUMBER OF COMPLETED YEARS WILL DECREASE BY ONE YEAR IN THE PERIOD BETWEEN SUCCESSIVE BIRTHDAYS. HOWEVER, MOST FISH IN THE I.C.N.A.F. GROW FAIRLY SLOWLY, AND INDIVIDUAL FISH GROW AT DIFFERENT RATES, SO THAT A COMPARATIVELY LARGE NUMBER OF YEAR-CLASSES ARE PRESENT IN ANY ONE LENGTH GROUP. AS A RESULT THE PROPORTION OF FISH OF A GIVEN AGE IN A LENGTH GROUP, I.E. THE AGE LENGTH KEY, DOES NOT CHANGE MUCH IN TWELVE MONTHS.

THE ACTUAL DIFFERENCES IN THE AGE-LENGTH KEYS OBTAINED FOR THE SAME STOCK WERE EXAMINED BY TAKING AS AN EXAMPLE THE COD AT WEST GREENLAND AND LABRADOR (REGIONS 1 AND 2), FOR WHICH THESE ARE DATA FROM MORE COUNTRIES AND GEARS THAN ANY OTHER STOCK. THE DETAILS OF THE AGE-LENGTH KEYS FOR LENGTH GROUPS 48-50, 57-59, 66-68 AND 75-77 CMS WERE EXAMINED, AND THOSE FOR 57-59 AND 75-77 ARE GIVEN IN THE ATTACHED TABLE. THE FIGURES ARE TAKEN

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DIRECT FROM THE SAMPLING YEAR BOOK, AND ARE VARIOUSLY PERCENTAGES OF FISH IN THE COMPLETE SAMPLE, OR IN THE LENGTH GROUP OR ACTUAL NUMBERS OF FISH. BEARING IN MIND THAT THE ACTUAL NUMBERS IN THE SAMPLES ARE USUALLY QUITE SMALL, IT SEEMS THAT WITHIN EACH AREA THERE ARE NO SYSTEMATIC DIFFERENCES BETWEEN THE VARIOUS KEYS. ALL KEYS COULD THEREFORE BE COMBINED TO GIVE A SINGLE AGE-LENGTH WHICH CAN BE APPLIED TO ANY LENGTH DATA OF THAT STOCK TO OBTAIN AN AGE COMPOSITION. THIS USE IS THE MAIN PURPOSE OF PUBLISHING AGE-LENGTH KEYS, AND DATA OF THE INDIVIDUAL KEYS ARE NOT OF MUCH GENERAL INTEREST. THE ACCURACY OF ANY KEY IS DETERMINED CHIEFLY BY THE NUMBER OF AGE DETERMINATIONS MADE (ASSUMING THAT THE AGE-DETERMINATION TECHNIQUES THEMSELVES ARE SATISFACTORY).

THE BEST COMBINED KEY IS THEREFORE OBTAINED BY ADDING THE ACTUAL NUMBER OF OBSERVATIONS OF EACH AGE IN THE RELEVANT LENGTH GROUP. PROBABLY ONLY THIS SUMMARY KEY, PREPARED BY THE I.C.N.A.F. SECRETARIAT, NEED BE PUBLISHED IN THE SAMPLING YEAR BOOK. THE WORK IN SUMMARIZING THE DATA WOULD BE SMALL PROVIDING THE ORIGINAL DATA WAS PROVIDED IN THE SUITABLE FORM, I.E. ACTUAL NUMBERS OF AGE-DETERMINATION MADE. COPIES OF THESE ORIGINAL DATA COULD BE PRESERVED AT I.C.N.A.F. HEADQUARTERS FOR DETAILED EXAMINATION IF THIS WERE REQUIRED. IN THE SAMPLING YEAR BOOK AN ANCILLARY TABLE COULD BE GIVEN TO SHOW IN DETAIL THE SOURCE OF THE DATA - COUNTRY, GEAR, MONTH OF SAMPLING ETC. AGE-LENGTH KEY MATERIAL IN THE SAMPLING YEAR BOOK COULD THEREFORE BE REDUCED TO ONE KEY PER STOCK, I.E. NOT MORE THAN ABOUT 10 PAGES, COMPARED WITH THE PRESENT 100 PAGES.

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AGE/LENGTH DATA

REGION	57-59 CMS										75-77 CMS					
	3	4	5	6	7	8	9	10	11	12	13	14	15	16		
<b>REGION 1B</b>																
<b>DENMARK</b>																
HANDLINE - JULY																
LONGLINE - "																
(SERIAL No. 17)																
COMMERCIAL LANDINGS																
JULY-AUGUST																
(SERIAL No. 16)																
COMMERCIAL LANDINGS																
AUGUST-SEPTEMBER																
(SERIAL No. 15)																
COMMERCIAL LANDINGS																
SEPTEMBER-OCTOBER																
<b>REGION 1A</b>																
<b>DENMARK</b>																
No. 14 COMMERCIAL LANDINGS																
AUG. & SEPT.																
No. 13																
<b>REGION 1E</b>																
<b>DENMARK</b>																
No. 20 COMMERCIAL LANDINGS																
MAY-JUNE																
No. 21																
OCTOBER																
<b>GERMANY (AGE/LENGTH FREQUENCIES IN 0/00)</b>																
OTTER TRAWL																
COMMERCIAL LANDINGS																
No. 41-44																
OTTER TRAWL																
COMMERCIAL LANDINGS																
No. 18-20																
APRIL																

75-77 CMS																
57-59 CMS																
REGION IE	3	4	5	6	7	8	9	10	11	12	13	14	15	16		
<b>PORTUGAL (AGE/LENGTH FREQUENCIES IN 0/00)</b>																
NO. 6 <sub>9</sub> COMMERCIAL LANDINGS M																
OTTER TRAML MAY F																
			17	7	3	7	3	10	3	7	3	3	3	3		
<b>U. S. S. R. (AGE/LENGTH FREQUENCIES IN 0/00)</b>																
OTTER TRAML MAY																
				5	1			6	25	16	10	32	10	6		
<b>REGION IC</b>																
<b>DENMARK</b>																
NO. 2 HANDLINE JULY																
" " "																
NO. 2A LONGLINE " "																
" " " "																
NO. 4 HANDLINE " "																
NO. 4A LONGLINE " "																
" " " "																
			3	2	1			1	14	5	4	4	1	4		
			2	2	1			1	19	3	1	4	1	4		
		1	2	1				2	7	4	5	3		5	1	
			2	1				1	9	1	2	4		4		
			6					2	14	2	1			1		
<b>GERMANY (AGE/LENGTH FREQUENCIES IN 0/00)</b>																
COMMERCIAL LANDINGS																
NO. 46 JUNE																
NO. 58 DECEMBER																
NO. 49 JULY OTTER TRAML IC/D																
RESEARCH CATCHES																
NOS. 2,3,5,9 APRIL OTTER TRAML																
		53	21	24				7	72	14		21				
		40	11	6				9	42							
		104	9						55	7	14			21		
									48							
<b>NORWAY IC, ID, IE (COMBINED)</b>																
I.C.D. APRIL MALE } OTTER TRAML																
" " FEMALE } " "																
I.C.D.E. APRIL MALE } BOTTOM																
" " FEMALE } LONGLINE																
		1	5	3	1				1	1	1	1		1		
		9	1	3	3				6	7	3	6	2	3	1	
		9	9	4	1				15	12	7	8	1	1	1	

REGION IC		57-59 CMS												75-77 CMS											
U. S. S. R. #	(Age/Length Frequencies in 0/00)	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21					
OTTER TRAWL - APRIL		3	54	13	3																				
OTTER TRAWL - MAY		4	30	23																					
OTTER TRAWL - JUNE		1	42	4																					
REGION ID																									
DENMARK																									
No. 8 HANDLINE JULY		9	8																						
No. 5 LONGLINE FEBRUARY			2	1																					
No. 6 LONGLINE APRIL																									
No. 8(A) LONGLINE JULY																									
No. 9 LONGLINE JULY																									
No. 10 HANDLING JULY																									
No. 10A LONGLINE JULY																									
No. 11 HANDLING AUGUST																									
No. 11A LONGLINE AUGUST																									
No. 23 HANDLINE FEBRUARY		15	7	3	1																				
No. 34 HANDLINE FEBRUARY		2	2																						
No. 24 HANDLINE APRIL		5	1	2	1																				
No. 32 HANDLINE APRIL		12	6																						
No. 25 HANDLINE JUNE		2	8																						
No. 27 HANDLINE JULY		5	3	1	1																				
No. 28 HANDLINE SEPTEMBER		2	6																						
No. 23 LONGLINE APRIL		1	1																						
No. 26 LONGLINE JULY																									
No. 29 LONGLINE OCTOBER		2	2																						
No. 30 LONGLINE NOVEMBER		9	5																						
No. 31 LONGLINE NOVEMBER		20	8																						
No. 18 COMMERCIAL LANDING JULY																									
No. 19 COMMERCIAL LANDING SEPTEMBER																									
PORTUGAL																									
No. 7-10 OTTER TRAWL COMMERCIAL F		5	43	14	5																				
No. 35 OTTER TRAWL COMMERCIAL APRIL		10	10																						
No. 10-12 OTTER TRAWL RESEARCH CATCH APRIL		29	23																						
No. 13-16, 17 OTTER TRAWL RES. CATCH APRIL																									
FURTHER																									
No. 7-10 OTTER TRAWL COMMERCIAL F		5	5																						
No. 7-10 OTTER TRAWL COMMERCIAL F		10	10																						
U. S. S. R.																									
OTTER TRAWL - APRIL		6	17	10	2																				
OTTER TRAWL - MAY		3	10	15	2																				

REGION 1F		57-59 CMS										75-77 CMS																						
		3	4	5	6	7	8	9	10	11	12	13	14	15	16	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
DENMARK HANDLINE SEPTEMBER/OCTOBER LONGLINE SEPTEMBER/OCTOBER No. 22 COMM. LANDS- SEPTEMBER			1	5	1	2	1	3												5	5	5	8	1	8	3	8	3	2					
GERMANY (AGE/LENGTH FREQUENCIES IN 0/00) 25-41 OTTER TRAWL MAY								39											25	25	25	25	1	1	1	3								
PORTUGAL (AGE/LENGTH FREQUENCIES IN 0/00) 1-3 COMMERCIAL OTTER TRAWL M F			5	5	5	5													5	10	5	5												
U.S. S. R. (AGE/LENGTH FREQUENCIES IN 0/00) OTTER TRAWL APRIL			4	3	17														10	5	10	10												
REGION 2H																																		
PORTUGAL (AGE/LENGTH FREQUENCIES IN 0/00) 37,39,40,41 COMM. OTTER TRAWL M F					5	15	10	8								3																		
REGION 2J					5	15	10	25	18	10	5	8	2	2																				
PORTUGAL (AGE/LENGTH FREQUENCIES IN 0/00) NO. 1 COMMERCIAL OTTER TRAWL M F					10	30	20	10	10	10	10	10	10	10	10																			
MAY					2	6	4	8	6	8	2	2	6	2	2																			
COMMERCIAL OTTER TRAWL					4	20	12	18	30	10	16	4	9	4	2																			
JUNE					3	1	16	16	10	7	12	6	6	5	5					1	1	1	1											
COMMERCIAL OTTER TRAWL																																		
AUGUST					5	23	10	20	10	10	10	10	10	10	10																			
COMMERCIAL OTTER TRAWL																																		
SEPTEMBER					5	13	15	10	10	10	5	3	2																					
COMMERCIAL OTTER TRAWL																																		
OCTOBER					10	13	15	8	8	8	2	2																						
COMMERCIAL OTTER TRAWL																																		
NOVEMBER					2	2	11	14	23	14	14	7	9	7	5																			
COMMERCIAL OTTER TRAWL					4	4	4	36	15	5	14	9	3	3	7																			
MAY					10	10	19	24	41	17	14	7	8																					
COMMERCIAL OTTER TRAWL																																		
JUNE					28	16	36	23	12	4																								
COMMERCIAL OTTER TRAWL																																		
NOVEMBER																																		
COMMERCIAL OTTER TRAWL																																		
DECEMBER																																		
COMMERCIAL OTTER TRAWL																																		