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Stratification scheme for the West Greenland area, ICNAF Subarea 1

by

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INTRODUCTION.

At its meeting in Bonn in May 1978 the STACRES recommended that member countries submit their stratum numbering schemes to the Secretariat with a view to developing a common numbering scheme for consideration at the 1979 Annual Meeting.

In July 1976 a random stratified trawl survey was conducted at West Greenland to estimate the total fishable biomass of shrimp in the offshore area of ICNAF Div. 1B and southern most part of Div. 1A based on a depth stratification scheme (Horsted, 1978; Carlsson, Horsted and Kannevorff, 1978). Since 1977 the same stratification scheme has been used in photographic bottom surveys to estimate the shrimp biomass (Kannevorff, 1978). The present stratification scheme for Subarea 1 has been developed on experiences gained during this work.

PROPOSAL FOR A STRATIFICATION SCHEME AT WEST GREENLAND

Requirements to the scheme.

To avoid the hazard of the rigid conventional stratification systems - where a change in opinion on the biological significance of parameters may cause that a completely new stratification scheme has to be made - the following requirements to the system have been set up:

1. The system should be so flexible that construction of different strata for different jobs can be made without modifying the basic system.
2. It should be possible to assign data from both commercial and research fishing directly to strata in the stratification system.
3. It should be possible to process stratification data by ADP.

For these reasons the present system is based on the geographical coordinate system and 50 depth intervals as constant elements, while a stratification - according to the character of the job - could follow other variables of geographical, hydrographical or biological significance.

Physical description of strata.

The stratification system is based on a statistical unit of 7.5 x 15' used in the official trawler logbooks.

A basic stratum is bounded by 0.5 x 1' latitude-longitude limits, and within these by depth boundaries for each 50 m depth intervals. These 0,5 x 1' areas, including 16 statistical units, are referred to as 'blocks'.

If more than one area (basic stratum) belonging to the same depth interval is found within a block they are defined as different basic strata and are thus numbered in succession from North and East starting with No. 1. A serial No. 0 means that only one basic stratum of a given depth interval is found.

Numbering.

The numbering of basic strata is described by an 8-digit code:

digit 1:	Subarea
digit 2:	Division
digits 3,4,5:	Block number
digits 6,7:	Depth interval
digit 8:	Stratum serial number

COMBINATION OF BASIC STRATA.

These basic strata have an extent so that they can be used as basic elements in different compositions of strata, which different jobs may demand. The basic strata may be combined without limitations. It is also possible to compose strata which are not following the boundaries of the basic strata as long as such areas follow the boundaries of the statistical units.

The Tables 1-5 and the Figures 1-3 show an example of a stratification using the basic strata mentioned. The block limits have been kept as boundaries for these strata, and 100 m depth intervals have been chosen to bound the strata within the blocks (down to 1000 m). The tables are giving the calculated areas in square-kilometres in Div. 1A (South of 69°30'N) to 1E.

LITERATURE.

Carlsson, D.M., Sv. Aa. Horsted, and P. Kanneworff, 1978.
Danish Trawl Surveys on the Offshore West Greenland Shrimp Grounds
in 1977 and Previous Years. Sel. Pap. ICNAF, (No. 4), 67-74.

Horsted, Sv. Aa., 1978.
A Trawl Survey on the Offshore Shrimp Grounds in ICNAF Division 1B
and an Estimate of the Shrimp Biomass. Sel. Pap. ICNAF, (No. 4), 23-30.

Kanneworff, Per, 1978.
Estimated Density of Shrimp, Pandalus borealis, in Greenland Waters
and Calculation of Biomass on the Offshore Grounds Based on Bottom
Photography. Sel. Pap. ICNAF, (No. 4), 61-65.

Table 1. Area of strata in Div. 1A in squarekilometres.

Depth m.	Block No.											
	113	114	115	116	117	118	213	214	215	216	217	218
0-100	-	-	-	-	-	-	+	-	14	-	-	-
100-200	190	220	200	-	-	-	+	640	460	-	-	-
200-300	100	77	95	150	1	-	200	500	660	860	21	-
300-400	-	-	-	140	290	1	-	-	-	290	690	-
400-500	-	-	-	-	4	37	-	-	-	-	160	4
500-600	-	-	-	-	-	18	-	-	-	-	100	7
600-700	-	-	-	-	-	+	-	-	-	-	71	+
700-800	-	-	-	-	-	+	-	-	-	-	29	+
800-900	-	-	-	-	-	+	-	-	-	-	14	+
900-1000	-	-	-	-	-	+	-	-	-	-	-	+

Symbols for Tables 1-5:

- +: The Depth interval is represented in the stratum, but the area has not been measured.
- : The depth interval is not represented in the stratum.
- B: The area given represents the bank part only.

Table 2a. Area of strata in Div. 1B in squarekilometres. For symbols see Table 1.

Depth m.	013	014	015	113	114	115	116	213	214	215	216	217	313	314	315	316	317	318
0-100	310	-	-	850	420	-	-	1240	770	-	-	-	1150	850	-	-	-	-
100-200	120	480	240	180	920	470	-	40	510	750	-	-	69	380	950	-	-	-
200-300	130	180	33	140	-	110	-	-	-	340	380	4	8	-	280	1020	326	35
300-400	82	-	41	130	-	120	-	-	-	88	80	7	-	-	-	210	600	61
400-500	20	-	66	25	-	150	-	-	-	64	88	8	-	-	-	-	80	42
500-600	-	-	140	-	-	200	-	-	-	20	100	12	-	-	-	-	35	48
600-700	-	-	130	-	-	260	-	-	-	13	130	12	-	-	-	-	23	+
700-800	-	-	-	-	-	3	+	-	-	-	230	16	-	-	-	-	21	+
800-900	-	-	-	-	-	-	+	-	-	-	250	88	-	-	-	-	20	+
900-1000	-	-	-	-	-	-	+	-	-	-	32	170	-	-	-	-	20	+

Depth m.	Block No.											
	413	414	415	416	417	418	513	514	515	516	517	518
0-100	260	220	-	-	-	-	-	-	-	-	-	-
100-200	150	260	230	-	-	-	190	200	120	-	-	-
200-300	430	90	330	80	170	110	430	380	180	100	66	-
300-400	280	92	300	860	190	440	230	250	520	770	810	180
400-500	80	370	360	280	860	99	11	58	40	-	-	100
500-600	-	180	31	-	-	120	-	-	-	-	-	73
600-700	-	-	-	-	-	65	-	-	-	-	-	91
700-800	-	-	-	-	-	65	-	-	-	-	-	66
800-900	-	-	-	-	-	54	-	-	-	-	-	44
900-1000	-	-	-	-	-	31	-	-	-	-	-	44

Table 3. Area of strata in Div. 1C in squarekilometres. For symbols see Table 1.

Depth m.	Block No.													
	011	012	013	014	015	111	112	113	114	115	212	213	214	215
0-100	5B	180	-	-	-	+	330	-	-	-	450B	120	-	-
100-200	70	240	140	-	-	+	740	630	-	-	640	1120	30	-
200-300	45	90	290	-	-	130	130	610	43	-	140	36	9	-
300-400	74	120	61	1	-	100	130	95	87	-	63	45	10	-
400-500	27	110	23	2	-	100	65	40	52	-	-	54	59	-
500-600	68	1	23	5	-	35	17	29	78	-	-	72	160	-
600-700	-	-	30	6	23	-	-	-	156	190	-	5	350	840
700-800	-	-	45	18	550	-	-	-	200	760	-	-	750	550
800-900	-	-	54	69	160	-	-	-	480	370	-	-	91	30
900-1000	-	-	45	320	54	-	-	-	290	39	-	-	-	-

Depth m	Block No.						
	312	313	314	315	413	414	415
0-100	+	340	-	-	470	-	-
100-200	340	1030	750	9	180	400	180
200-300	82	-	90	10	-	250	37
300-400	-	-	43	19	-	4	33
400-500	-	-	110	39	-	-	74
500-600	-	-	210	170	-	-	160
600-700	-	-	150	1090	-	-	170
700-800	-	-	17	39	-	-	-
800-900	-	-	-	-	-	-	-
900-1000	-	-	-	-	-	-	-

Table 4. Area of strata in Div. 1D in squarekilometres. For symbols see Table 1.

Depth m.	Block No.													
	109	110	111	210	211	311	312	314	315	411	412	413	414	415
0-100	+	540	3	310B	420	690B	57	-	-	270B	23	-	-	-
100-200	150	320	29	310	190	220	48	-	-	130	27	-	-	-
200-300	73	190	16	150	95	120	86	-	-	5	300	-	-	-
300-400	48	120	3	48	95	140	5	-	-	6	180	9	-	-
400-500	-	58	3	52	24	110	5	-	-	-	23	11	-	-
500-600	-	26	3	5	24	29	5	-	-	-	26	15	-	-
600-600	-	5	3	-	15	3	5	-	-	-	23	36	-	260
700-800	-	5	3	-	15	3	5	-	48	-	23	54	-	240
800-900	-	4	5	-	15	3	48	10	170	-	27	81	27	180
900-1000	-	4	5	-	15	3	96	67	220	-	32	185	180	-

Table 5. Area of strata in Div. 1E in squarekilometres. For symbols see Table 1.

Depth m.	Block No.									
	107	108	207	208	209	308	309	409	410	
0-100	+	-	+	+	5	+	100B	95B	-	
100-200	440	240	260	620	160	230	620	160	29	
200-300	30	85	7	210	26	5	31	190	58	
300-400	-	3	-	52	2	-	31	240	8	
400-500	-	3	-	2	2	-	2	24	6	
500-600	-	3	-	2	2	-	2	14	6	
600-700	-	3	-	2	2	-	5	3	6	
700-800	-	3	-	2	2	-	5	9	6	
800-900	-	3	-	2	2	-	2	4	3	
900-100	-	3	-	2	2	-	2	4	3	

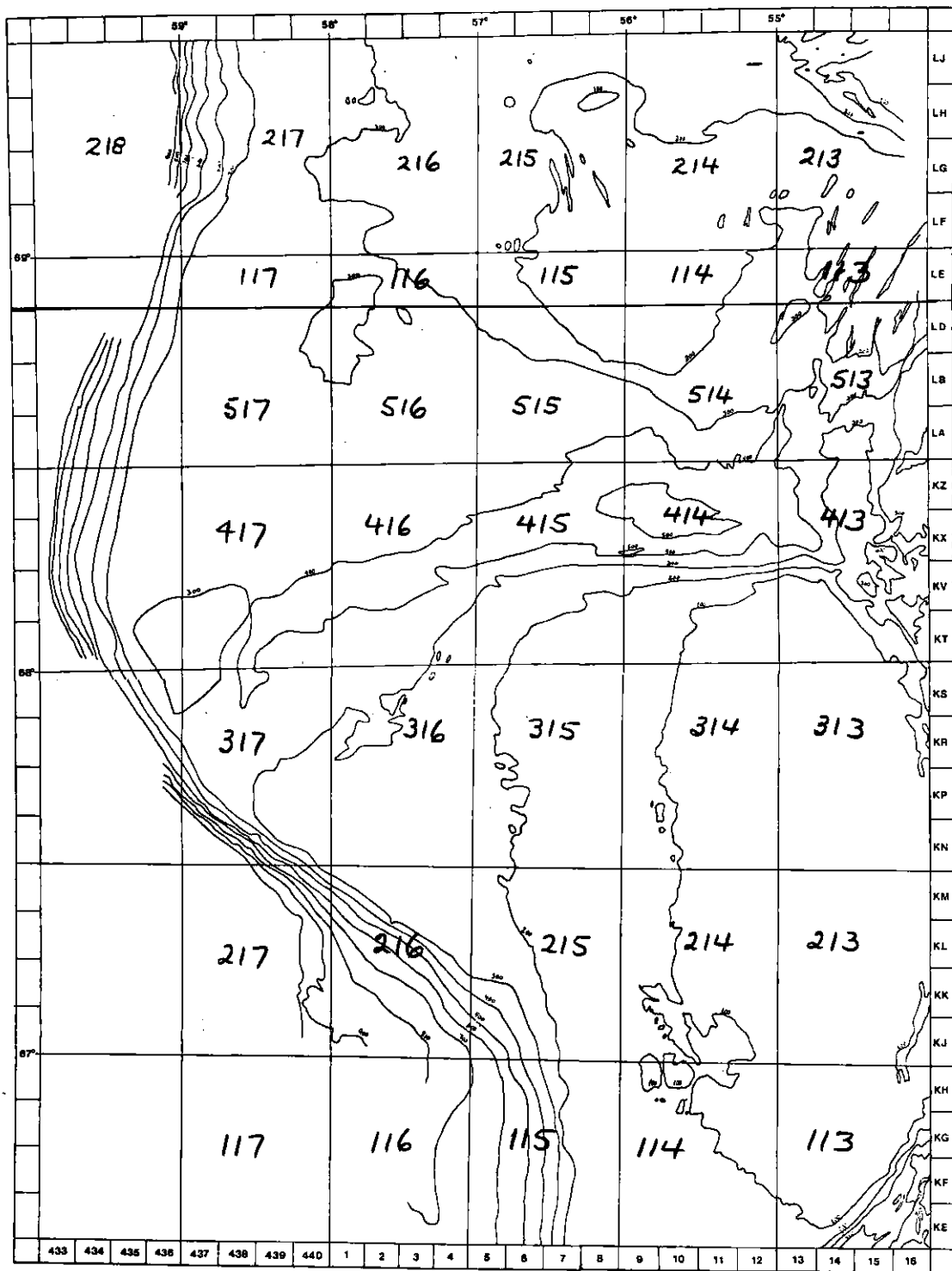


Fig. 1. Strata in ICNAF Subarea 1. The numbers shown on the map are block numbers as given in Tables 1-5.

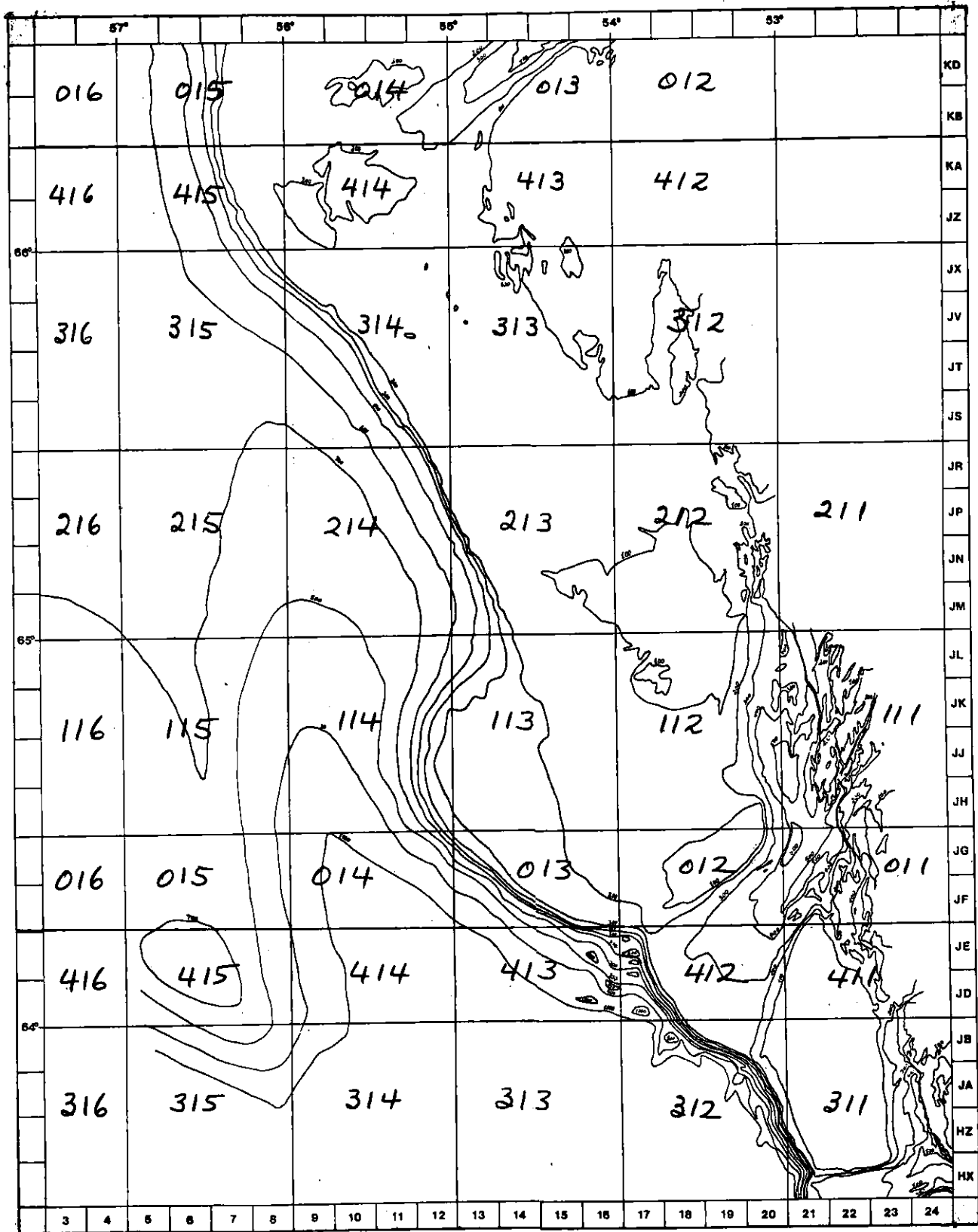


Fig. 2. Strata in ICNAF Subarea 1. The numbers shown on the map are block numbers as given in Tables 1-5.

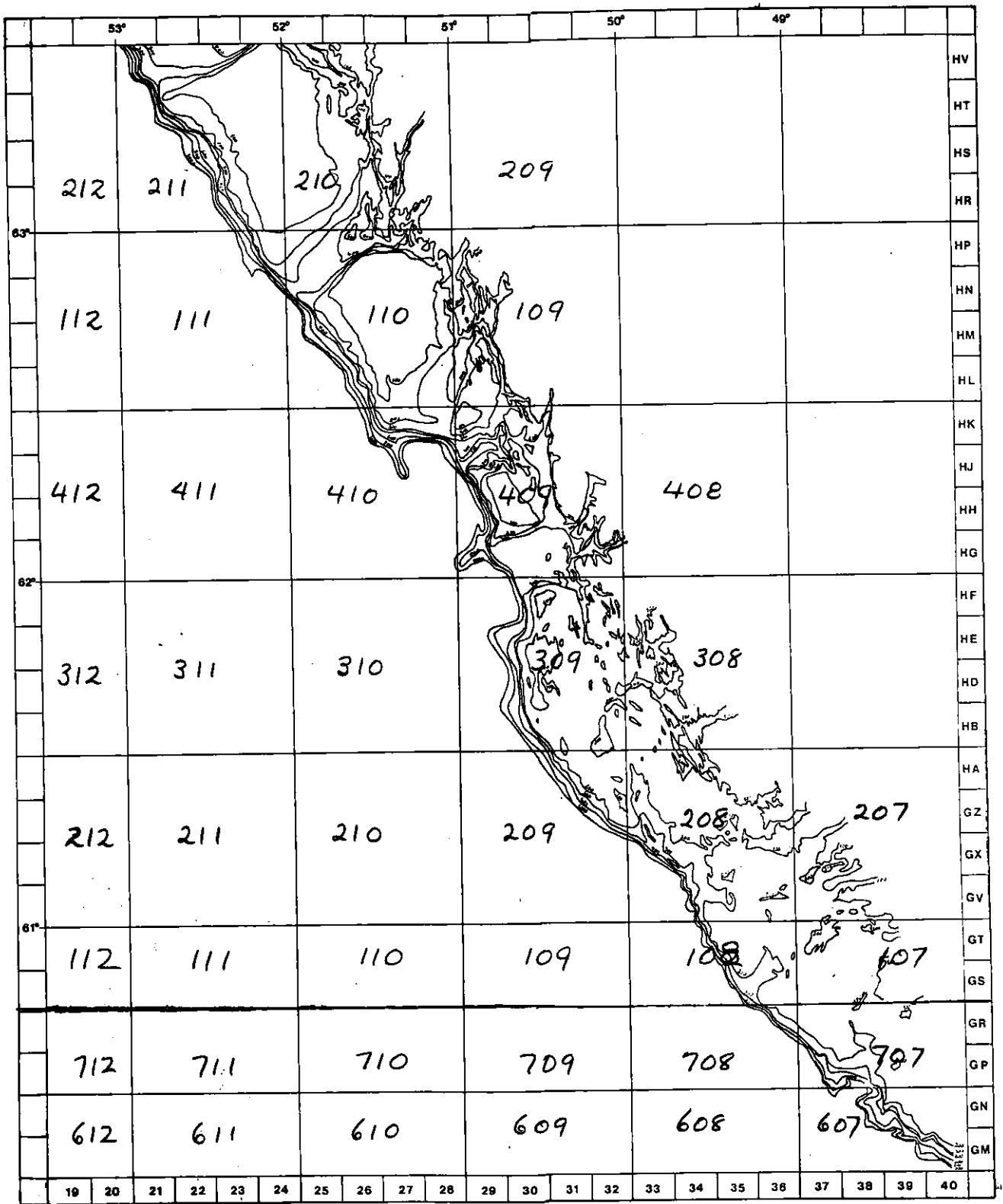


Fig. 3. Strata in ICNAF Subarea 1. The numbers shown on the map are block numbers as given in Tables 1-5.

