MEDDELELSER

FRA

KOMMISSIONEN FOR HAVUNDERSØGELSER

SERIE: **FISKERI** · BIND VI

KØBENHAVN

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Trykt hos J. Jørgensen & Co. (Ivar Jantzen)

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THE ATLANTO-SCANDIAN SPRING HERRING SPAWNING AT THE FAROES

BY

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In a paper »On the large spring-spawning Sea-Herring (Clupea harengus L.) in the North-West European Waters«[1]) I have described a sample of herrings consisting of 207 young herrings and 9 mature specimens captured at Kongshavn on the Faroes on September 10th 1915. I have there shown that the young herring belong to the same race or race group of herrings as the Icelandic spring spawning herring and the large Norwegian spring herring, but as the herrings were not mature when examined I was not able to say whether this race group of herring which I call »The Atlanto-Scandian Spring Herring« does spawn at the Färoes.

Through the kindness of Dr. Johs. Schmidt I have however received a sample of mature herrings captured at Kongshavn in the beginning of April 1920 and these herrings also appeared to belong to the Atlanto-Scandian spring herring.

The sample in question consisted of 160 specimens of a length of 29—35 cm, and the specimens were mature, as a rule of maturity V—VI. A few specimens were blood-herrings (maturity VII) having just completed the spawning. It is therefore beyond doubt, that we are concerned here with a herring spawning at the Faroes. The distribution of the specimens according to length and sex was as follows:

Length cm	♂	♀	?	Total
29	2	1	—	3
30	11	7	—	18
31	15	17	—	32
32	25	23	—	48
33	13	17	1	31
34	4	15	—	19
35	3	6	—	9
Number	73	86	1	160

The distribution of the specimens according to length and number of winter rings was as follows:

Kongshavn. April 1920.

Length in cm . . .		29	30	31	32	33	34	35	Total	Average length	+ 0.5
Age group	No. of winter rings										
1917	3	1	8	3	3	—	—	—	15	30.5	31.0
1916	4	1	4	1	1	—	—	—	7	30.3	30.8
1915	5	—	2	8	4	—	—	—	14	31.1	31.6
1914	6	—	3	8	6	4	1	1	23	31.8	32.3
1913	7	1	1	7	23	10	7	1	50	32.3	32.8
1912	8	—	—	3	7	10	6	2	28	32.9	33.4
1911	9	—	—	—	3	5	4	2	14	33.3	33.8
1909	11	—	—	—	—	—	—	1	1	35.0	35.5
—	5—6	—	—	—	1	—	—	—	1	32.0	32.5
—	8—9	—	—	—	—	2	—	—	2	33.0	33.5
—	?	—	—	2	—	—	1	2	5	33.2	33.7
		3	18	32	48	31	19	9	160		

[1]) Meddelelser fra Kommissionen for Havundersøgelser. Ser. Fiskeri Bd. V. Nr. 8. København 1919.

It will be seen that the average length of specimens of ca. 9—11 years age was ca. 34 cm or about the same as in the case of the Atlanto-Scandian spring herring spawning at Norway and Iceland (JOHANSEN l. c. 1919).

The numerical values found for the various characters were as follows:

Vertebrae.

Vert. S. No.	Vert. S. Freq.	Prec. Vert. No.	Prec. Vert. Freq.	Caud. Vert. No.	Caud. Vert. Freq.
55	2	22	1	29	1
56	9	23	23	30	2
57	84	24	74	31	4
58	65	25	46	32	35
		26	13	33	77
		27	2	34	34
		28	1	35	7
n	160		160		160
m	57.33		24.36		32.97
σ	0.64		0.91		0.961
σ_m	0.051		0.072		0.076
σ_σ	0.036		0.051		0.054

Anal fin rays.

Total No.	Total Freq.	Unbranched rays No.	Unbranched rays Freq.	Branched rays No.	Branched rays Freq.
16	1	2	1	13	1
17	31	3	147	14	37
18	87	4	12	15	83
19	32			16	33
20	9			17	6
n	160		160		160
m	18.11		3.07		15.04
σ	0.80		0.271		0.784
σ_m	0.063		0.022		0.062
σ_σ	0.045		0.016		0.044

Dorsal fin rays.

Total No.	Total Freq.	Unbranched rays No.	Unbranched rays Freq.	Branched rays No.	Branched rays Freq.
18	17	3	1	13	1
19	93	4	142	14	19
20	47	5	16	15	99
21	3			16	39
				17	1
n	160		159		159
m	19.23		4.09		15.13
σ	0.65		0.314		0.634
σ_m	0.052		0.025		0.050
σ_σ	0.037		0.018		0.036

Keeled scales (K_2) No.	Keeled scales (K_2) Freq.	Ventr. fin rays No.	Ventr. fin rays Freq.
12	8	16	5
13	55	17	9
14	62	18	143
15	33	19	2
		20	1
n	158		160
m	13.76		17.91
σ	0.84		0.46
σ_m	0.067		0.036
σ_σ	0.047		0.026

A comparison between the herring described here, and samples of the Atlanto-Scandian spring herring from Norway and Iceland will shew that they belong to the same race or race group. We shall compare for example the Faroe spring herring with the sample of the Icelandic spring herring from the Eyjafiord district, (JOHANSEN l. c. 1919) the samples of »large herrings« and »fat herrings« from the Nordland district (after BROCH) and the samples described by HEINCKE and BROCH of Norwegian spring herring of maturity IV—VI, captured between Haugesund and Aalesund (JOHANSEN l. c. 1919, pp 16 and 19).

Herring. — Kongshavn April 1920 minus Eyjafiord Sept. 1915.

Diff.	Vert. S.	— 0.03	st. dev. of diff.	0.072
—	prec. Vert.	— 0.05	—	0.094
—	caudal Vert.	+ 0.01	—	0.102
—	keeled scales (K_2)	— 0.08	—	0.085
—	ventral fin rays	— 0.02	—	0.054

Herring. — Kongshavn April 1920 minus Nordland-District (Hj. Broch).

Diff.	Vert. S.	— 0.03	st. dev. of diff.	0.071
—	prec. Vert.	— 0.19	—	0.098
—	keeled scales (K_2)	— 0.15	—	0.090
—	ventral fin rays	— 0.01	—	0.073

Herring. — Kongshavn April 1920 minus Norwegian spring herring, Haugesund-Aalesund.

Diff. Vert. S.	— 0.23	st. dev. of diff.	0.061
— prec. Vert.	— 0.28	—	0.119
— keeled scales (K_2)	— 0.30	—	0.079
— ventral fin rays	+ 0.04	—	0.051

The survey shews, that no real difference has been found to exist between the Faroe spring herring and the Icelandic large herring from the Eyjafiord district and the Norwegian fat herring and large herring from the Nordland district, whilst there is a slight difference between the sample of Faroe spring herring and the samples of Norwegian spring herring captured between Haugesund and Aalesund. We cannot judge at present whether this slight difference is of any real importance. A similar difference has been found between the above mentioned samples of fat herrings and large herrings from the Nordland district and the spring herring from the stretch Aalesund-Haugesund (Johansen l. c. 1919). According to Lea's investigations, the herring at the northern coasts of Norway have not always such a low number of vertebrae as that found by Broch in the Nordland district. Lea has, for instance, observed an average number of vertebrae of 57.72[1]) in 241 herrings (with two winter-rings) captured at the northern coasts of Norway in the autumn of 1915, and the standard deviation of this average may be estimated to ca. 0.04. (In a younger age group with one winter-ring the average figure was only 57.37). As I have shown, we can, in different age groups of mature herrings of the same race, find a real difference with regard to several of the individually constant characters of the same magnitude as that which has been observed between the spring herring from the Faroes and the Norwegian spring herring from the south-west coasts of Norway[2]).

The material at hand is, on the whole, too small to form the basis of an investigation in order to determine whether the different age groups differ decidedly from each other in the characters investigated. Small deviations occur probably here. Thus the age groups 1915, 1916 and 1917 put together appear to have a lower number of vertebrae as well as a lower number of keeled scales than the age groups 1909 to 1914 taken together. The number of vertebrae for the two groups is as follows:

No.	Age groups 1915—17 Freq.	Age groups 1909—14 Freq.
55	—	2
56	5	4
57	20	57
58	10	52
n	35	115
m	57.143	57.383
σ	0.648	0.643
σ_m	0.110	0.060
σ_σ	0.077	0.042

The difference is 0.24 with a standard deviation of 0.125. If we calculate the correlation between the number of winter-rings and the number of vertebrae, and between the length in cm and the number of vertebrae, we obtain the following result:

[1]) Einar Lea: Age and Growth of the Herring in Canadian Waters. Canadian Fisheries Expedition 1914—15 under the direction of Dr. Johan Hjort. Ottawa 1919.

[2]) A. C. Johansen: On the summer-spawning Herring of Iceland. Meddelelser fra Kommissionen for Havundersøgelser. Ser. Fiskeri. Bd. 6. Nr. 3 1921.

	No. of vertebrae				Total
	55	56	57	58	
No. of winter-rings					
3	—	1	11	3	15
4	—	—	4	3	7
5	—	4	6	4	14
6	—	1	12	10	23
7	2	3	21	24	50
8	—	—	18	10	28
9	—	—	6	8	14
11	—	—	1	—	1
	2	9	79	62	152

$r = 0.137$; $\sigma_r = 0.0798$; $\frac{r}{\sigma_r} = 1.72$.

	No. of vertebrae				Total
	55	56	57	58	
Length cm					
29	1	—	2	—	3
30	—	3	12	3	18
31	—	1	23	8	32
32	1	5	18	24	48
33	—	—	15	16	31
34	—	—	10	9	19
35	—	—	4	5	9
	2	9	84	65	160

$r = 0.289$; $\sigma_r = 0.0727$; $\frac{r}{\sigma_r} = 3.98$.

The correlation between the length and the number of vertebrae is an expression for the same phenomenon as the correlation between number of winter-rings and number of vertebrae.

The number of keeled scales (K_2) is as follows for the groups treated above:

	Age groups 1915—17	Age groups 1909—14
No.	Freq.	Freq.
12	2	5
13	17	37
14	10	49
15	6	24
n	35	115
m	13.571	13.800
σ	0.850	0.819
σ_m	0.144	0.076
σ_σ	0.102	0.054

The difference is 0.29, and st. dev. of the diff. 0.16.

A calculation of the correlation between the number of winter-rings and keeled scales gives the following result:

No. of keeled scales (K_2).

No. of winter-rings	12	13	14	15	Total
	1	9	2	2	14
4	—	2	4	1	7
5	1	6	4	3	14
6	2	11	7	2	22
7	2	13	22	13	50
8	1	9	14	4	28
9	—	4	6	4	14
11	—	—	—	1	1
	7	54	59	30	150

$r = 0.199$; $\sigma_r = 0.079$; $\frac{r}{\sigma_r} = 2.5$.

The correlation between the number of winter-rings and the number of keeled scales seems in this case to be almost certain.

It is now known that the Atlanto-Scandian spring herring is spawning at the Faroes, but at present we do not know anything about the extent of its spawning places there. The extent and exact situation of its spawning places at the coasts of Iceland are not known either, but it spawns at suitable localities in the »warm area«, probably on the whole stretch from Snäfjällsnäs on the west coast to Loonsvig on the south-east coast. P. JESPERSEN has found larvae of this herring of less than 16 mm length in the month of April at 10 stations distributed over this stretch[1]), and, according to communications from Sæmundsson, blood-herrings which have evidently spawned recently are known to occur on various places of this stretch in the months of April and May.

Off the coast of Norway spawning places of this herring occur on the stretch between Kristianiafiord and Kristianssund, and according to IVERSEN[2]) the most important spawning places are found here between Flekkefiord and Aalesund, where the water in the spawning season has a higher temperature than elsewhere at the coast of Norway.

The spawning time for the Atlanto-Scandian spring herring is at the Faroes as at Iceland and Norway the early spring, (probably in the main March-April). As far as we know at present the temperature on the spawning places in the spawning time lies between ca. 3° C and ca. 6° C.

[1]) P. JESPERSEN: On the occurrence of the postlarval stages of the Herring and the »Lodde« at Iceland and the Færoes. Medd. fra Komm. for Havundersøgelser Ser. Fiskeri Bd. VI No. 1. 1920.

[2]) THOR IVERSEN: »Om en subvenert ferskfiskrute«. Aarsberetning vedk. Norges Fiskerier for 1915.

General Survey of the Analyses of spring-spawning Herrings from Kongshavn, the Faroes. Beginning of April 1920. Maturity V—VII. A letter r after the figure denoting number of winter-rings indicates that the last winter-ring is situated quite at the margin, not inside the margin.

No.	Total length cm	Sex	Maturity	Vertebrae			Keeled Scales K_2	Rays in Dorsal Fin	Rays in Anal Fin	Rays in Ventral Fins		No. of winter-rings in scales, approxim.
				Pre-caudal	Caudal	Total				right	left	
1	35.1	♂	V—VI	25	33	58	15	4+16	3+15	9	9	9 r
2	33.2	♂	V—VI	23	34	57	15	4+14	3+16	9	9	8 r
3	32.2	♂	V—VI	24	33	57	14	5+14	3+14	10	9	ca. 7 r
4	32.5	♀	V—VI	23	32	55	14	5+14	4+14	9	9	7 r
5	30.5	♂	V—VI	26	31	57	14	4+15	3+15	9	9	ca. 4 r
6	33.5	♂	V—VI	23	35	58	13	4+15	3+15	9	9	9
7	31.7	♂	V—VI	25	32	57	14	4+16	3+16	9	9	7 r
8	34.8	♀	V—VI	24	34	58	13	4+15	3+15	9	9	ca. 7 r
9	31.7	♂	V—VI	24	33	57	13	4+15	4+16	9	9	5
10	33.7	♀	V—VI	24	33	57	14	4+15	3+15	9	9	ca. 9
11	31.5	♂	V—VI	25	33	58	15	4+15	3+14	8	8	7
12	34.2	♀	V—VI	24	33	57	13	4+15	3+15	9	9	ca. 8 r
13	33.5	♀	V—VI	23	34	57	15	5+16	3+15	9	9	ca. 9
14	31.5	♀	V—VI	25	32	57	15	def.18tot.	3+15	9	9	8 r
15	32.7	♀	V—VI	23	34	57	15	4+15	3+15	9	9	7 r
16	31.7	♀	V—VI	23	35	58	14	4+15	3+16	9	9	5 r
17	29.5	♀	V—VI	23	32	55	14	4+15	3+14	9	9	7 r
18	33.2	♀	V—VI	25	32	57	14	4+15	4+14	9	9	8 r
19	31.1	♀	V—VI	24	33	57	12	4+16	3+15	9	9	5 r
20	30.5	♂	V—VI	24	33	57	13	4+15	3+15	9	9	3
21	32.0	♂	V—VI	25	32	57	14	4+15	3+16	9	9	7 r
22	33.0	♂	V—VI	24	33	57	12	4+15	3+15	9	9	8
23	30.5	♂	V—VI	24	33	57	13	4+15	3+15	9	9	ca. 7 r
24	33.5	♀	V—VI	24	34	58	14	4+15	3+17	8	9	8 r
25	31.7	♀	V—VI	24	33	57	14	4+15	3+15	9	9	7
26	35.2	♀	V—VI	24	34	58	13	4+15	3+15	9	9	ca. 7 r
27	34.5	♀	V—VI	25	33	58	13	4+15	3+15	9	9	7 r
28	33.7	♂	V—VI	25	32	57	13	4+15	3+14	9	9	ca. 7 r
29	32.2	♀	V—VI	25	33	58	14	4+15	3+16	9	9	ca. 7 r
30	33.5	♂	V—VI	24	34	58	13	4+15	4+14	9	9	8
31	32.5	♂	V—VI	24	34	58	13	5+15	3+16	9	9	4 r
32	34.2	♀	V—VI	26	32	58	14	4+15	3+15	9	9	9
33	32.3	♂	V—VI	26	32	58	14	4+16	3+15	9	9	8 r
34	33.5	♂	V—VI	24	34	58	14	4+16	4+16	9	9	6 r
35	32.9	♂	V—VI	25	33	58	13	4+16	3+15	9	9	ca. 5 r
36	31.0	♂	V—VI	25	32	57	14	5+14	3+15	9	9	3 r
37	31.4	♂	V—VI	25	33	58	14	4+15	3+15	9	9	ca. 6 r
38	32.3	♂	V—VI	24	33	57	14	4+15	3+15	9	9	8
39	33.1	♂	V—VI	23	35	58	14	4+15	3+16	9	9	8 r
40	32.7	♀	V—VI	24	33	57	14	4+15	3+15	8	9	8 r
41	32.7	♀	V—VI	24	34	58	15	4+15	3+15	9	9	7 r
42	30.6	♀	V—VI	24	33	57	def.	4+15	3+16	9	9	6 r
43	31.5	♀	V—VI	23	34	57	13	4+14	3+15	9	9	ca. 6 r
44	31.0	♂	V—VI	24	33	57	14	4+15	3+15	9	9	?
45	30.8	♂	V—VI	25	33	58	13	4+16	3+16	8	9	3 r
46	32.1	♀	V—VI	23	33	56	12	4+14	4+14	9	9	ca. 7 r
47	31.3	♂	V—VI	24	33	57	14	4+14	3+15	9	9	5
48	32.5	♂	V—VI	25	32	57	14	4+15	2+15	9	9	6
49	32.8	♀	V—VI	25	33	58	15	4+15	3+15	9	9	7 r
50	29.8	♂	V—VI	23	34	57	15	4+16	3+14	9	9	4 r
51	30.7	♂	V—VI	24	32	56	13	4+14	3+14	9	9	3 r
52	30.5	♀	V	24	33	57	13	4+16	3+17	9	9	3 r
53	32.0	♂	V—VI	24	33	57	12	4+15	3+14	9	9	3 r
54	30.6	♀	V	24	34	58	13	4+15	3+16	9	9	3 r
55	32.8	♂	V—VI	23	34	57	13	4+14	3+15	8	8	9

No.	Total length cm	Sex	Maturity	Vertebrae			Keeled Scales K_2	Rays in Dorsal Fin	Rays in Anal Fin	Rays in Ventral Fins		No. of winter-rings in scales, approxim.
				Pre-caudal	Caudal	Total				right	left	
56	31.4	♂	V—VI	23	34	57	14	4+16	3+16	9	9	5 r
57	30.5	♂	V—VI	24	33	57	14	3+15	3+14	8	9	4 r
58	32.0	♀	V—VI	25	33	58	15	5+15	3+14	9	9	ca. 7
59	31.3	♂	V—VI	25	33	58	14	4+16	3+16	9	9	4
60	29.5	♂	V—VI	24	33	57	13	4+15	3+16	9	9	3
61	31.1	♂	V—VI	23	34	57	13	5+15	3+16	8	9	ca. 6
62	33.3	♀	V—VI	26	32	58	14	4+15	3+15	9	9	ca. 7
63	32.2	♂	V—VI	24	33	57	14	4+15	4+14	9	9	7
64	32.7	♂	V—VI	24	34	58	15	4+15	3+14	9	9	7 r
65	31.6	♂	V—VI	25	31	56	15	4+15	3+16	9	9	5 r
66	32.4	♂	V—VI	24	33	57	13	4+16	3+15	9	9	ca. 7 r
67	31.8	♀	V—VI	24	34	58	14	4+16	3+16	9	9	ca. 7 r
68	31.3	♂	V	25	32	57	14	4+15	3+15	9	9	6 r
69	32.5	♀	V—VI	25	33	58	14	4+15	3+15	8	9	6
70	32	♂	V—VI	25	33	58	15	4+16	3+13	9	9	5 r—6 r
71	35.6	♂	V—VI	26	32	58	14	5+16	4+15	9	9	8 r
72	30.5	♀	V	25	32	57	13	4+15	3+15	9	9	3 r
73	34	♂	V—VI	24	33	57	15	5+14	4+14	8	8	7 r
74	30.1	♀	V	25	32	57	def.	4+46	3+14	8	8	3 r
75	32.7	♂	V – VI	25	33	58	13	5+15	3+15	9	9	8 r
76	35.5	♀	V—VI	25	32	57	15	4+15	3+14	8	9	ca. 11 r
77	31.7	♀	V—VI	25	33	58	15	4+15	4+14	9	9	7 r
78	33.0	♂	V—VI	23	34	57	14	4+16	3+17	9	9	ca. 7 r
79	32.5	♀	V—VI	26	31	57	14	4+15	3+15	9	9	5 r
80	33.6	♂	V—VI	24	34	58	13	4+15	3+15	9	9	7 r
81	31.3	♂	V—VI	24	34	58	13	4+15	3+15	9	9	ca. 5 r
82	30.6	♀	V—VI	25	32	57	13	4+15	3+15	9	9	6 r
83	34.7	♀	V—VI	24	33	57	14	4+14	3+16	9	9	7 r
84	33.2	♂	V—VI	24	33	57	12	4+15	3+16	9	9	8 r—9 r
85	31.8	♀	V—VI	24	33	57	13	5+15	3+15	9	9	?
86	31.5	♀	V	24	33	57	13	4+15	3+15	9	9	3 r
87	35.2	♀	V—VI	24	33	57	14	4+16	3+14	9	9	?
88	35.3	♀	V—VI	24	33	57	15	4+16	3+15	9	9	?
89	31.7	♀	V—VI	24	33	57	13	4+16	3+15	9	9	5
90	35.1	♀	V—VI	24	33	57	14	4+15	3+15	9	9	8 r
91	32.3	♀	V—VI	24	34	58	15	4+15	3+15	9	9	7
92	34.8	♂	V—VI	24	33	57	14	4+15	3+14	9	9	8 r
93	32.7	♀	V—VI	24	32	56	13	4+14	3+14	9	9	7 r
94	32.7	♀	V—VI	24	33	57	15	4+16	3+15	9	9	ca. 7 r
95	33.0	♀	VII[1])	24	34	58	13	4+17	4+16	9	9	6 r
96	32.9	♂	V—VI	25	33	58	15	4+14	3+15	8	9	3 r
97	32.7	♀	V – VI	24	34	58	13	4+15	3+15	9	9	9
98	32.0	♀	V—VI	25	33	58	15	4+16	3+15	9	10	ca. 9
99	34	♀	V—VI	25	33	58	14	4+16	3+15	9	9	7
100	31.2	♀	V—VI	24	33	57	13	4+16	3+15	9	9	8 r
101	33.7	♀	V—VI	24	33	57	14	5+15	3+16	9	9	7 r
102	32.6	♀	V—VI	26	32	58	13	4+15	3+17	9	9	8 r
103	30.6	♂	V – VI	24	33	57	14	4+15	3+14	9	9	4
104	33.3	♀	V—VI	26	32	58	13	4+15	3+17	9	9	7
105	32.0	♀	V—VI	23	35	58	14	4+16	3+15	9	9	7 r
106	31.5	♂	V—VI	24	33	57	13	4+15	3+15	9	9	8 r
107	32.0	♀	VII[1])	24	33	57	13	4+15	3+16	9	9	3
108	35.8	♂	V—VI	25	33	58	15	4+15	3+15	9	9	6 r
109	32.2	♂	V – VI	22	34	56	15	4+15	3+15	9	9	5
110	31.4	♀	V—VI	24	33	57	13	4+15	3+14	9	9	6 r
111	34.2	♀	V—VI	25	32	57	13	5+15	3+16	9	9	9 r
112	33.2		V—VI	25	32	57	14	4+15	3+16	9	9	9 r
113	31.5	♀	V—VI	23	34	57	13	4+15	3+16	9	9	7 r
114	34.1	♂	V—VI	24	33	57	14	4+15	3+15	9	9	8

[1]) Some relic eggs.

No.	Total length cm	Sex	Maturity	Vertebrae			Keeled Scales K_2	Rays in Dorsal Fin	Rays in Anal Fin	Rays in Ventral Fins		No. of winter-rings in scales, approxim.
				Pre-caudal	Caudal	Total				right	left	
115	32.3	♂	V—VI	24	33	57	15	4+15	3+14	9	9	ca. 8 r
116	33.4	♀	V—VI	25	33	58	14	4+15	3+14	9	9	ca. 7 r
117	33.4	♀	V—VI	25	32	57	14	4+16	3+16	9	9	8
118	33.3	♀	V—VI	24	33	57	15	4+15	3+15	9	9	8 r
119	34.6	♀	V—VI	23	35	58	15	4+15	3+15	9	9	9 r
120	31.2	♂	V—VI	23	34	57	13	4+15	3+14	9	9	ca. 6 r
121	32.0	♂	V—VI	24	32	56	14	4+15	3+15	9	9	ca. 7
122	33.4	♀	V—VI	24	34	58	14	4+15	3+16	9	9	6 r
123	33.0	♀	V—VI	23	34	57	14	4+15	3+15	9	9	9 r
124	35.0	♀	V—VI	26	32	58	14	4+15	3+15	9	9	9 r
125	34.5	♂	V—VI	25	33	58	14	4+15	3+15	9	9	7 r
126	32.3	♂	V—VI	23	35	58	13	4+15	3+14	9	9	6
127	30.9	♂	V—VI	24	32	56	13	4+15	3+15	9	9	5 r
128	33.0	♀	V—VI	27	31	58	13	4+16	3+15	9	9	6 r
129	32.3	♀	V—VI	24	34	58	13	5+15	3+14	9	9	8 r
130	33.7	♂	V—VI	25	32	57	14	4+14	3+15	9	9	ca. 8 r
131	34.4	♀	V—VI	26	32	58	15	4+14	3+15	9	9	?
132	32.6	♂	V—VI	24	33	57	14	4+15	3+15	9	9	7
133	34.2	♀	V—VI	25	32	57	13	4+16	3+15	9	9	ca. 7 r
134	31.4	♂	V—VI	25	32	57	12	4+16	3+15	9	9	ca. 6
135	32.3	♀	V—VI	26	32	58	15	4+15	3+15	9	9	6 r
136	32.6	♀	V—VI	23	34	57	15	4+15	3+16	9	9	7 r
137	32.7	♂	V—VI	25	33	58	14	4+14	3+16	9	9	7 r
138	33.8	♀	V—VI	23	35	58	14	4+15	3+14	9	9	ca. 8 r—9 r
139	34.4	♀	V	24	33	57	12	4+15	3+16	10	10	6 r
140	32.1	♂	V—VI	24	33	57	13	5+13	3+15	9	9	6
141	34.8	♀	V—VI	25	33	58	14	4+16	3+15	9	9	9
142	30.5	♂	V—VI	24	33	57	15	4+16	3+14	9	9	3 r
143	32.6	♂	V—IV	24	34	58	15	4+15	3+14	9	9	5 r
144	30.5	♂	V—VI	25	33	58	13	4+16	3+14	9	9	ea. 4 r
145	33.2	♂	V—VI	25	33	58	13	4+15	3+15	9	9	7 r
146	31.5	♂	V—VI	24	33	57	15	4+14	3+14	9	9	ca. 7
147	34.8	♀	V—VI	27	30	57	13	4+16	4+15	8	8	8 r
148	30.1	♀	V—VI	26	30	56	13	5+15	3+15	9	9	5 r
149	32.3	♂	V—VI	24	32	56	13	4+16	3+16	9	9	6 r
150	32.8	♂	V—VI	24	34	58	14	4+15	3+15	9	9	ca. 7
151	33.0	♀	V—VI	25	33	58	14	4+14	3+15	9	9	ca. 8
152	32.3	♂	V—VI	24	33	57	15	4+16	3+15	9	9	7 r
153	33.6	♀	V—VI	24	34	58	12	4+15	3+17	9	9	7 r
154	33.8	♂	V	24	33	57	13	4+16	3+14	9	9	7 r
155	30.5	♂	V—VI	24	33	57	13	4+16	3+15	9	9	6 r
156	32.5	♂	V—VI	25	33	58	14	4+15	3+16	9	9	7 r
157	31.3	♀	V—VI	25	33	58	14	4+14	3+14	9	9	6 r
158	31.0	♀	V—VI	24	33	57	14	4+16	3+15	9	9	3 r
159	34.7	♀	V—VI	28	29	57	13	4+15	3+14	9	9	ca. 8 r
160	34	♀	V—VI	26	32	58	14	4+15	3+15	8	9	8 r

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