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THE SCIENTIFIC NAME, DISTRIBUTION AND CHARACTERISTICS OF THE BLUE LING, *MOLVA DYPTERYGIA* (PENNANT), FROM WEST GREENLAND AND NEWFOUNDLAND AREAS

By

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INTRODUCTION

Morphometric characteristics have been described previously for only one blue ling from the western Atlantic (TEMPLEMAN and SQUIRES 1962) and meristic characteristics for only four, and two of these were described as *Molva molva* (L.) by JENSEN (1948). Hence more morphological and meristic data are needed for comparison with specimens from the Northeast Atlantic. Data for three new specimens are presented (Tables 1, 2). Unless otherwise noted, morphometric and meristic data were obtained by the methods of HUBBS and LAGLER (1958).

There is, moreover, considerable confusion regarding the scientific name of the blue ling and this subject is discussed and conclusions drawn.

Additional scientific records help to outline the present distribution of the blue ling in the western Atlantic (Figs. 1, 2, Table 3) and an attempt is made to bring order to the statistics of blue ling and ling as reported to ICNAF and to correct some of the major errors in these reports.

SCIENTIFIC NAME OF THE BLUE LING

Neglecting the previous period when even more variations of scientific names were used (see SVETOVIDOV 1948 and FRASER-BRUNNER and PALMER 1951 for lists of these), in recent years two main scientific names, with some variations of spelling, have been used for the blue ling. Some of the references to these names are: *Molva byrkelange* (Walbaum, 1792)

Contribution given in honour of Gunnar Rollefsen at his 70th birthday.

by FRASER-BRUNNER and PALMER (1951), KOTTHAUS and KREFFT (1957), RAHARDJO (1961), TEMPLEMAN and SQUIRES (1962), NIELSEN (1963) and NETZEL and STANEK (1966). On the other hand, SVETOVIDOV (1948) and TÅNING (1958) have used *Molva dipterygia* (Pennant, 1784) and KOTTHAUS and KREFFT (1967) *Molva dypterygia* (PENNANT, 1784).

STRØM (1765) in Danish and (1767) for the same paper in German introduced a recognizable description and figure for the blue ling referring to the common name "Byrkelange". The paragraph from STRØM (1767) containing this description is quoted below:

"Dem Lysing (Gadus Merluccius) ist er in gewissen Stücken, nämlich in Ansehung des Unterkinnes, und der Beschaffenheit des Fadens unter der Kehle, zwar am ähnlichsten; hingegen aber ist er von demselben, in Betrachtung der Anzahl der Strahlen in den Finnen oder Flossfedern, und anderer Eigenschaften, so in der Beschreibung von Sundmöer bereits angeführt worden, und daher nicht nöthig hier zu wiederholen, doch zu unterscheiden. Da aber Linnaeus in Syst. Nat. Edit. 10 p. 254, den Lysing Gadus dipterygius, cirratus, maxilla inferiore longiore nennt, und diese Beschreibung sich eben sowohl vor den Byrkelange schickt, so kann ich nicht besser unterscheiden, als wenn ich den letztern so nenne: Gadus dipterygius, cirratus, maxilla inferiore longiore, pinna ani ossiculorum 70."

MÜLLER (1776) refers to the blue ling and I quote below three of his entries of which no. 346 refers to the blue ling:

"345. G. *Mustela* dipterygius cirratus cirris quinque, pinna dorsali priore exoleta. D. *Kroll-Qvabbe*, *Moer-Qvabbe*, N. *Rødbrune Tang-Brosme*.

346. G. dipterygius, cirratus, maxilla inferiore longiore, pinnis analibus LXX. N. *Byrke-Lange* Str. S. 275. Act. nidr. 3, 446 t. 8. Aph. 1, 494.

347. G. *Aeglefinus* tripterygius cirratus albicans, cauda biloba, maxilla superiore longiore. D. *Kuller* N. *Kollie*, *Hyse*. I. *Ise*. Isl. R. 528 t. 26. Aph. 4, 537."

The use of "Byrke-Lange" by MÜLLER is quite definitely as a common name. He lists it in his index of Danish and Norwegian vernacular names.

PENNANT (1784) says: "Among the fishes which have hitherto shunned our shores are the Raia Clavata, Müller no. 309;...*Squalus Spinax*, 312; ...*Chimera Monstrosa*, 320, a most singular fish; ...*Gadus Brosme*, 341; *G. Dypterygius*, or *Byrke-lange*, 346; ...

Thus STRØM (1765, 1767) produced a description, figure, genus, common name and location that are sufficient to recognize the species in comparison with other lings, MÜLLER (1776) quoted STRØM, and PENNANT (1784) gave MÜLLER as his reference.

MÜLLER italicizes his specific but not his generic names and begins his specific names with a capital letter, but his "dipterygius" of G. dipterygius is not italicized and does not begin with a capital. It is

evident that the "dipterygius" of STRØM as used in referring to "Byrkelange", the blue ling, is the same word he has used immediately above in his description of the hake (Lysing) and consequently is descriptive, meaning two-finned (dorsal) in the same way that the next word "cirratus" and the phrases following are descriptive.

Similarly in MÜLLER's account "G. *Mustela* dipterygius, G. *Aeglefinus* tripterygius, G. dipterygius", it is evident that the dipterygius (two-finned) and tripterygius (three-finned) are descriptive and that because also it is not italicized nor does the dipterygius begin with a capital, dipterygius is not presented as a species name.

Apart from his slip in naming the blue ling, MÜLLER (1776) is consistently binominal and his names are recognized. PENNANT's (1784, p. 76) fish names are quoted from MÜLLER's binominal list, and in addition the blue ling scientific name is made binominal. It is my conclusion that PENNANT's name can be accepted both on the basis of the rules set down by INTERNATIONAL COMMISSION ON ZOOLOGICAL NOMENCLATURE (1964), Article 11C, and on the basis also that PENNANT's reference to MÜLLER fulfils the requirements of Article 16(a) as a valid indication.

Since the word dipterygius as used by STRØM (1765, 1767) and MÜLLER (1776) is descriptive and not specific, PENNANT (1884), who first set up the name as a scientific name *Gadus Dypterygius*, was perfectly at liberty to use the species term *Dypterygius* instead of the descriptive word dipterygius. FLEMING (1828, p. 192) introduced the genus *Molva* (type *Gadus molva* L.) for the ling group. I conclude, therefore, that the scientific name of the blue ling is *Molva dypterygia* (Pennant, 1784).

MORPHOMETRIC AND MERISTIC CHARACTERS

The morphometric and meristic characters of the north-west Atlantic specimens (Tables 1, 2) are usually within or occasionally overlapping the range of *Molva dypterygia* from the north-east Atlantic. (Compare SVETOVIDOV 1948, FRASER-BRUNNER and PALMER 1951, TEMPLEMAN and SQUIRES 1962, RAHARDJO 1961, NIELSEN 1963, allowing for the fact that SVETOVIDOV's and NIELSEN's body proportions of this species are based on the total length. See later.) The pelvic fin ending anterior to the posterior end of the pectoral separates them from *M. macrophthalma* (Rafinesque). The ratios of the length of the 1st dorsal base in 2nd dorsal base (6.5–7.4) are intermediate between and separate from those of *M. molva* (3.5–4.5) and *M. macrophthalma* (9.2–11.0) but are included in the range of this ratio for *M. dypterygia* of the north-east Atlantic (5.3–7.5).

The least height of the caudal peduncle is similar to that of *M. dypterygia* of the north-east Atlantic and lower than that of *M. molva*.

Table 1. Morphometric characteristics of the blue ling, *Molva dypterygia*, from the north-west Atlantic. (S.L. = standard length, H.L. = head length. Otherwise all percentages are of standard length. Apart from the total length occasionally measured fresh at sea, all other measurements were taken in the condition on examination, item No. 43.)

Item	Body character	No. 1 Dana Bank, W Greenland, 17 Aug. 1965	No. 2 Fylla Bank, W Greenland, 14 Aug. 1965	No. 3 Hermitage Bay, Nfld., 17 Sept. 1959. TEMPLEMAN and SQUIRES (1962)	No. 4 SE slope Grand Bank, 24 Nov. 1964
1	Total length: sea, fresh, mm[1]	777.0	858.0	1150.0	—
2	Total length: shore, mm[1]	—	847.0	1121.0	1241.0
3	Standard length: snout—end hypural, mm	723.0	783.0	1047.0	1152.0
4	Head length: snout—end bony operculum, mm	147.2	160.0	235.0	250.8
5	Head length: snout—end bony operculum, %	20.4	20.4	22.4	21.8
6	Snout length, % S.L.	6.4	6.6	6.9	7.1
7	Snout length, % H.L.	30.9	32.2	32.1	33.3
8	Orbit: horizontal diameter, % S.L.	5.3	4.5	4.9	4.9
9	Orbit: horizontal diameter, % H.L.	25.8	22.1	21.7	22.4
10	Orbit: vertical diameter, % S.L.	4.1	3.5	4.3	4.1
11	Orbit: vertical diameter, % H.L.	20.4	17.0	19.1	19.0
12	Cornea: horizontal diameter, % S.L.	3.7	3.6	ca. 3.4	4.2
13	Cornea: horizontal diameter, % H.L.	18.3	17.5	ca. 15.3	19.3
14	Interorbital: width, least fleshy, % S.L.	2.8	2.6	2.8	—
15	Interorbital: width, least fleshy, % H.L.	13.8	12.5	12.3	—
16	Interorbital: width, least bony, % S.L.	1.7	1.6	2.0	1.9
17	Interorbital: width, least bony, % H.L.	8.2	7.9	8.9	8.6
18	Post-orbital length: to end bony operculum, % S.L.	9.2	9.3	9.2	9.2

[1] Anterior tip lower jaw, with mouth closed, to post. end of caudal fin.

Table 1 (continued).

Item	Body character	No. 1 Dana Bank, W Greenland, 17 Aug. 1965	No. 2 Fylla Bank, W Greenland, 14 Aug. 1965	No. 3 Hermitage Bay, Nfld., 17 Sept. 1959. TEMPLEMAN and SQUIRES (1962)	No. 4 SE slope Grand Bank, 24 Nov. 1964
19	Post-orbital length: to end bony operculum, % H.L.	44.7	45.4	42.6	43.1
20	Lower jaw: protrusion beyond upper, % S.L.	0.7	0.6	0.5	0.9
21	Lower jaw: protrusion beyond upper, % H.L.	3.4	2.8	2.1	4.0
22	Barbel: length, % S.L.	1.9	2.2	0[2]	[3]
23	Barbel: length, % H.L.	9.5	10.8	0[2]	[3]
24	Body: greatest height, %	12.1	12.3	ca. 10.9	18.7
25	Caudal peduncle: least height, %	2.6	3.0	—	2.6
26	Snout—ant. base 1st dorsal, %	27.7	28.8	28.7	29.4
27	Snout—ant. base anal, %	45.2	46.0	47.5	48.8
28	1st dorsal base: length, %	7.5	7.9	7.8	8.2
29	2nd dorsal base: length, %	55.5	55.4	51.7	52.8
30	1st dorsal: greatest height, %[4]	7.9	8.4	8.4	7.6
31	2nd dorsal: greatest height, %[4]	5.7	6.1	6.1	5.7
32	Tip pelvic anterior to vertical from posterior end pectoral, %	3.7	4.1	5.6	6.5
33	Interorbital width, least fleshy, in length of head	7.3	8.0	8.1	—
34	First dorsal base in 2nd dorsal	7.4	7.1	6.6	6.5

[2] Absent, only a stub present.
[3] Unsuitable for measurement.
[4] Longest fin ray.

Table 1 (continued).

Item	Body character	No. 1 Dana Bank, W Greenland, 17 Aug. 1965	No. 2 Fylla Bank, W Greenland, 14 Aug. 1965	No. 3 Hermitage Bay, Nfld., 17 Sept. 1959. TEMPLEMAN and SQUIRES (1962)	No. 4 SE slope Grand Bank, 24 Nov. 1964
35	Height 2nd dorsal in height 1st dorsal	1.4	1.4	1.4	1.3
36	Sex	♀	♀	♀	♀
37	Sexual maturity	Imm.	Imm.	Mat. (spent)	Mat.
38	Ovary weight, kg	—	—	—	0.94
39	Egg diameter, mm	[5]	[5]	—	0.5
40	Round weight, sea, kg	1.41	2.36	—	—
41	Round weight on examination, kg	1.36[6]	2.18	3.8	9.9
42	Gutted and gilled weight, after examination, kg	—	1.96	—	7.1
43	Condition on examination	Excellent, measured fresh 1–1½ hr after capture	Good, fresh after freezing on ship and thawing in ice	Good, ex 10% formalin	Good, fresh after freezing on ship and thawing in ice

[5] Eggs not visible to naked eye.

[6] Weight on shore after freezing on ship, and thawing in ice on shore.

Table 2. Meristic characters of the blue ling, *Molva dypterygia*, from the north-west Atlantic.

Body character	1	2	3	4	5[1]	6[2]	7[3]
1st dorsal rays, No.	12	13	12	13	13	14	12
2nd dorsal rays, No.[4]	76	77	73	78	76	78	72
Anal rays, No.[4]	74	76	68	74	73	74	69
Pectoral rays, No.	19	20	20	21	19	20	18, 20
Pelvic rays, No.	6	6	6	6	6	7	7, 6
Vertebrae, No.	79[5]	78[5]	77[5]	79[5]	—	77	75

1–4, author, from St. John's Station specimens. Numbers from Table 1.

[1] Off S Labrador, February 1965 (NETZEL and STANEK 1966).

[2] Off outermost islands near Narssalik, Frederikshaab District, SW Greenland, September 1928 (JENSEN 1948).

[3] Near Narssak, Julianehaab District, SW Greenland, 1939 (JENSEN 1948).

[4] In my counts all rays counted, i.e. last two rays counted as two.

[5] Including urostylar half-vertebra as one vertebra.

The relative head length (20.4–22.4 S.L.), the predorsal length (27.7–29.4 S.L.), and the preanal length (45.2–48.8 S.L.) of the four western Atlantic blue ling are considerably greater than those of blue ling from the eastern Atlantic in NIELSEN (1963). These measurements of NIELSEN attributed to standard length, are, however, taken from SVETOVIDOV (1948) and are based on total length. When SVETOVIDOV's measurements are adjusted upward for a standard length of 92.9% of total length (average of the four western Atlantic specimens in Table 1) the relative length ranges for the eastern Atlantic specimens become: for the head length (18.5–19.0 S.L.), for the predorsal length (25.5–27.2 S.L.), and for the preanal (40.8–47.6 S.L.). These eastern Atlantic ranges are close to or overlapping with those of the western Atlantic but the head and the predorsal (a large part of which is the head) measurements are still somewhat greater for the western Atlantic. SVETOVIDOV's ranges are presumably for blue ling from the north-eastern Atlantic and the western Atlantic blue ling are presumably related to those of Iceland. Icelandic blue ling have higher meristic counts than those of northern Norway (RAHARDJO 1961) suggesting lower temperatures and the possibility of slower growth rate and consequently a larger head at Iceland than in northern Norway.

In meristic characters, the number of 1st dorsal rays (12–14) is within the range of *M. dypterygia* of the eastern Atlantic (11–15), higher than that of *M. macrophthalma* (10–11, rarely 12) and lower than that of *M. molva* (13–16). The number of 2nd dorsal rays (72–78) is within the range of the eastern Atlantic *M. dypterygia* (69–83) and of *M. macrophthalma*

(74–82) but higher than that of *M. molva* (57–70). Anal ray count (68–76) is within the range of eastern Atlantic *M. dypterygia* (62–81) and that of *M. macrophthalma* (70–79) and higher than that of *M. molva* (55–67).

Vertebral number (75–79) is within the range of eastern Atlantic *M. dypterygia* (72–79), but higher than that of *M. molva* (62–67) and below that of *M. macrophthalma* (80–84). The number of pectoral rays (18–21) overlaps with that of *M. dypterygia* from the eastern Atlantic (18–20), is the same as that of *M. molva* and is higher than that of *M. macrophthalma* (15–18).

The meristic counts of the western Atlantic blue ling are high on the average and, apart from those of the 1st dorsal, are higher than the Icelandic averages which in turn are higher than those for the north-east Atlantic (RAHARDJO 1961).

DISTRIBUTION

Records from scientists, and research and exploratory vessels

These records (Fig. 1, 2, Table 3) show a distribution of the blue ling from 66° 32′ N, ICNAF (International Commission for the Northwest Atlantic Fisheries) Division 1B, southward along the west coast of Greenland to ca. 60° 56′ N, Division 1F (see Fig. 2 for ICNAF area, Subareas 1–5 and divisions). There are no records for the Labrador subarea, ICNAF Subarea 2, three records from Subarea 3 and none south of this point, the most southerly record being at 43° 35′ N, Division 3N.

These records represent all the published and unpublished records of blue ling from the Canadian and West German research vessels.

A few of these are documented for meristic and morphometric characteristics (Table 1). Also, the blue ling is so different in appearance from the common ling that no errors in separation should be made by scientists and the European scientists are familiar with both species. Only one specimen of the common ling, *Molva molva*, has been reported in published records from the western Atlantic (from Subarea 3, TEMPLEMAN and FLEMING 1954). Also, Mr. ERLING BRATBERG (letter, 13 March 1969) says that he observed one common ling caught by a Norwegian research vessel on bottom longline in West Greenland waters several years ago, but that no other data are available regarding this capture. He also says that blue ling have not been observed on Norwegian research vessel cruises to the ICNAF area.

The two ling from West Greenland, reported by JENSEN (1948) as the common ling, *Molva molva*, were actually blue ling, *Molva dypterygia* (TÅNING 1958; Table 2). Canadian fisheries research vessels which have fished in all ICNAF subareas and for twenty years in Subareas 2–4 and

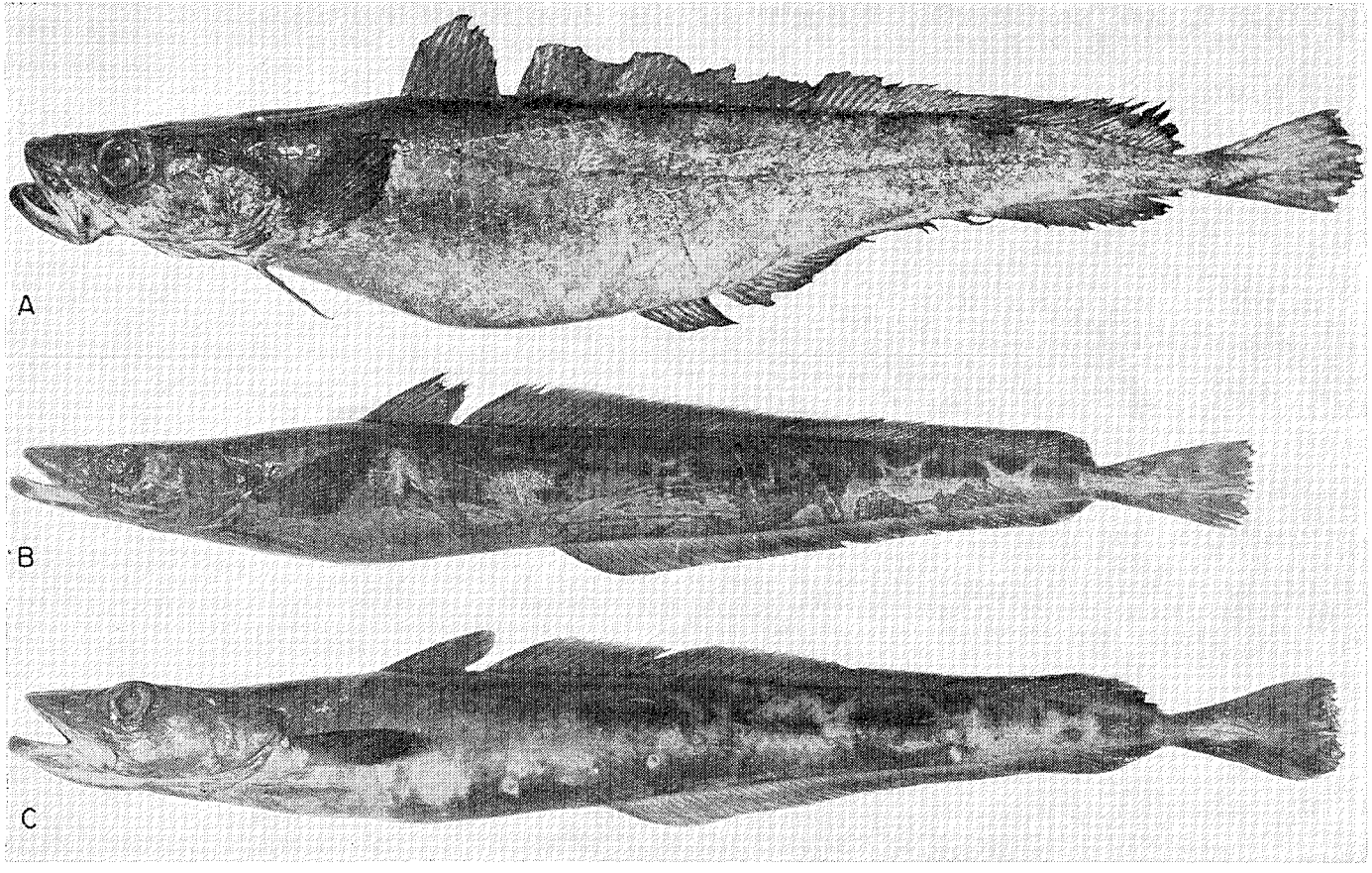

Fig. 1. Blue ling, *Molva dypterygia:* A, 1241 mm in total length, from the SE slope of the Grand Bank, November 1964, Table 1, No. 4, B, 858 mm in total length, from Fylla Bank, W Greenland, August 1965, Table 1, No. 2; C, 777 mm in total length, from Dana Bank; W Greenland, August 1965, Table 1, No. 1.

Table 3. Records of the blue ling, *Molva dypterygia*, from scientists and research vessels in the ICNAF area.

ICNAF div.	Year	Month	Position		Depth (m)	Bottom temp. (C)	No. fish	Length (cm)	Observer or reporter, ship, etc.
			N lat.	W long.					
1B	1967	27 Oct.	66° 32′	56° 25′	285–300	3.8	2	79, 86	*Walther Herwig*, J. Messtorff.
1C	1955	28 Sept.	65° 05′	54° 45′	250–300	—	1	77 ♂	Kotthaus and Krefft (1957). *Anton Dohrn*, A. Meyer.
1C	1965	25 July	64° 42′	54° 33′	260	4.6	1	1	*Anton Dohrn*, H. H. Reinsch.
1C	1965	25 July	64° 37′	54° 28′	260	4.6	6	—	*Anton Dohrn*, H. H. Reinsch.
1C	1965	25 July	64° 30′	54° 25′	260	—	1	—	*Anton Dohrn*, H. H. Reinsch.
1C	1965	24 July	64° 18′	54° 08′	220	4.6	1	—	*Anton Dohrn*, H. H. Reinsch.
1D	1959	3 Jan.	64° 10′	53° 33′	270	—	1	—	Trawler *Island*, explor. cruise, H. Koops.
1D	1965	14 Aug.	63° 34′	53° 00′	455–485	5.61	2	86, ca. 115[1]	*A. T. Cameron*, longline, author.
1D	1965	17 Aug.	62° 45′	51° 50′	385–395	5.3	1	78	*A. T. Cameron*, longline, author.
1D	1967	2 Nov.	62° 58′	52° 14′	300–315	5.1	6	70–90	*Walther Herwig*, J. Messtorff.
1D, 1E	1959	30 Apr.–15 May	ca. 62°	ca. 51°	—	—	ca. 50	—	Joensen (1960). Faroese otter trawler *Skalaberg* with research personnel on board.
1E	1928	Sept.	ca. 61° 38′	ca. 49° 25′	0	—	1	108	Jensen (1948). Reported as *Molva molva*.

[1] Floated away from close to ship. Observed by author.

Table 3 (continued).

ICNAF div.	Year	Month	Postion		Depth (m)	Bottom temp. (C)	No. fish	Length (cm)	Observer or reporter, ship, etc.
			N lat.	W long.					
1F	1939		ca. 60° 56′	ca. 46° 04′	—	—	1	133	JENSEN (1948). Reported as *Molva molva*.
3K	1965	5 Feb.	52° 10′	55° 00′	236–260	—	1	99	NETZEL and STANEK (1966). *Feniks* (Polish factory trawler).
3N	1964	24 Nov.	43° 35′	48° 50′	510–550	3.84	1	124	*A. T. Cameron*, E. J. SANDEMAN.
3Ps	1959	17 Sept.	47° 33′	56° 06′	240	—	1	115	Nfld. otter trawler *Pennyworth*.

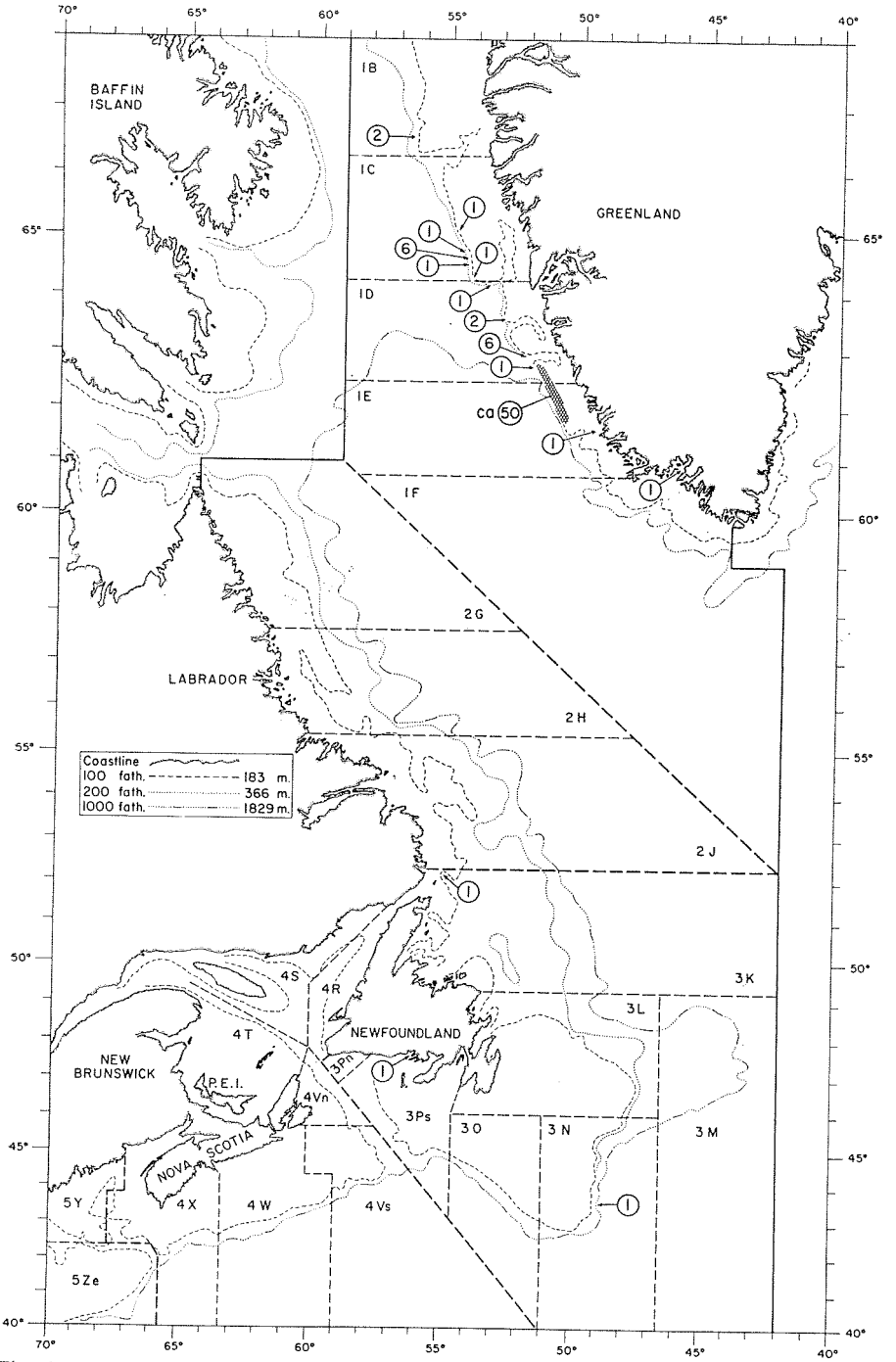

Fig. 2. Distribution of the blue ling, *Molva dypterygia*, as recorded from the ICNAF area by scientists.

for over half this period down to 730 m have never caught a common ling. Dr. J. MESSTORFF has informed me (June 1968) that research vessels of the Federal Republic of Germany have never caught a common ling in the ICNAF area although a number of blue ling were captured (Table 3).

SEREBRYAKOV (1965) reported four eggs of *Molva molva* from the Scotian Shelf portion of Subarea 4 from Soviet ichthyoplankton collections in 1959–1962. I am not certain whether or not eggs of blue ling can be distinguished from eggs of common ling and if so at what stages.

The blue ling are usually reported from deep water, 220–485 m, in West Greenland and 236–550 m in the Newfoundland area but one of the West Greenland fish reported by JENSEN (1948) was harpooned at the surface near shore. Temperatures for the deep water catches were between 3.8 and 5.6 C (Table 3).

Although only the blue ling in Table 3 have been reported by scientists, and only the smaller number of Tables 1 and 2 further authenticated by morphometric and meristic characters, much larger quantities of ling and blue ling have been reported in commercial statistics from the ICNAF area.

The ICNAF Statistical Bulletins, 1955–1967, indicate (Table 4) small commercial landings of ling, *M. molva*, usually from Subarea 1 (West Greenland) but also from Subarea 2 (Labrador) and Subarea 3 (the Newfoundland area).

At my request, Dr. B. J. KOWALEWSKI of ICNAF has supplied the ling catch records in all the national submissions of fisheries statistics to ICNAF

Table 4. Landings of ling (metric tons) from ICNAF subareas (as published in ICNAF Statistical Bulletins after screening out probable errors. Ling always defined in ICNAF list of species as *Molva molva* (L.)).

Year	ICNAF Subareas					Total 1–5
	1	2	3	4	5	
1954	2	0	0	0	0	2
1955	18	0	0	0	0	18
1956	2	0	0	0	0	2
1957	6	0	0	0	0	6
1958	0	22	0	0	0	22
1959	0	0	0	0	0	0
1960	5	0	4	0	0	9
1961	3	0	1	0	0	4
1962	1	0	0	0	0	1
1963	4	1	0	0	0	5
1964	0	0	0	0	0	0
1965	0	0	10	0	0	10

since 1952. The result is Table 5 which is not very much different from the published records (Table 4) except for the considerably larger landings in 1964. All the ling except the small amount caught by the Faroese fishermen (which was caught by longline) were taken by otter trawl in redfish, cod or mixed cod and redfish fishing.

There are seventy-four records of ling, *M. dypterygia*, from West Greenland by scientists, and apart from BRATBERG's sight observation of a single specimen, *M. molva* has not been recorded from this area. Although in my cruise in West Greenland in July–August 1965 on the *A. T. Cameron*, three blue ling were taken among the small number of fish caught by longline, in about twenty years of groundfish dragging by the *Investigator II* since 1946 and by the *A. T. Cameron* since 1958, in Subareas 2, 3 and 4 at depths in many cruises to 730 m, no ling have been caught by the *Investigator II* and only one by the *A. T. Cameron*. Ling are thus apparently very rare in Subareas 2 and 3, no records of *M. dypterygia* having been reported by scientists from Subarea 2 and only three specimens from Subarea 3.

The larger landings of 1964 (Table 5) from Subareas 1 to 3 and the small landings from Subarea 4 were all reported by Germany except for three tons by the United Kingdom in Subarea 1. Moreover Germany reported 259 tons as blue ling and the remaining 26 tons as ling. Also the one ton of ling caught by Germany (the remaining five tons were landed by Iceland) in Subarea 1 in 1957 and the two tons caught by Germany in Subarea 1 in 1959 were reported as blue ling. All the remaining catches were reported as ling with no indication of separation into common ling or blue ling except that ling was designated in the ICNAF list of species as *Molva molva* and ling is the European name (in English) for *Molva molva*. Dr. ARNO MEYER, in his letter of 26 February 1968, says that *Molva molva* is always reported in German statistics as ling and *Molva dypterygia* as blue ling.

The 601 tons of ling from Subarea 5 (Gulf of Maine-Georges Bank) in 1964 (Table 5) were reported by Poland and must refer to one or both of the hakes, *Urophycis chuss* or *Urophycis tenuis*. Ling is one of the common names for these hakes in eastern Canada and eastern United States.

After the ICNAF Statistical Bulletin for 1963 (1965) the ling, *Molva molva* (L.), was deleted from the list of common and scientific names used in the Statistical Bulletin.

Although the relatively large quantities of ling caught by Poland in Subarea 5 in 1964 (Table 5) were presumably hake, it is not possible to explain the reported landings of ling from Subareas 2 and 3 in this way. The total landings from Subareas 2 and 3 between 1958 and 1966 are in metric tons from ICNAF Divisions 2G(1), 2H(12), 2J(47), 3K(33),

Table 5. Landings of ling from the ICNAF area (metric tons round fresh. Original data as reported to ICNAF).

Year	ICNAF subareas					
	1	2	3	4	5	Total
1953	Ø (Iceland)	—	—	—	—	Ø
1954	—	—	—	—	—	—
1955	14 (Iceland 14, Germany Ø)	—	—	—	—	14
1956	1 (Germany)	—	—	—	—	1
1957	6 (Iceland 5, Germany 1[1])	—	—	—	—	6
1958	—	22 (Germany)	Ø (Germany)	—	—	22
1959	2 (Germany)[2]	—	—	—	—	2
1960	5 (UK 1, Germany 1, Iceland 3)	—	4 (Iceland)	—	—	9
1961	3 (Germany)	—	1 (Germany)	—	—	4
1962	1 (UK 1, Germany Ø)	—	—	—	—	1
1963	4 (Germany 3, UK 1)	1 (UK)	—	—	—	5
1964	220 (Germany 217[3], UK 3)	37 (Germany)[4]	28 (Germany)[5]	Ø (Germany Division 4W)[6]	601 (Poland)	886
1965	1 (Denmark (Faroes))	—	12 (Iceland 9, Denmark (Faroes) 2, UK 1)	—	—	13
1966	4 (Denmark (Faroes) 2, UK 2)	—	—	—	—	4

[1] Blue ling.
[2] Blue ling only.
[3] Blue ling plus ling—197 tons of blue ling included.
[4] 35 tons of blue ling included.
[5] 27 tons of blue ling included.
[6] Ling plus blue ling.
Ø Magnitude more than zero but less than $\frac{1}{2}$ ton.

3L(1), 3M(5), 3P (less than 0.5) and Subarea 3, Division unknown (6). Thus the reported landings are from Subarea 2 and mainly the northern sections of Subarea 3. Of these ICNAF divisions, only 3P possesses any but rare specimens of hake. The only fish in Subarea 2 at all hake-like and which occurs in modest numbers in the deep water is the small blue hake, *Antimora rostrata*, which is presumably unlikely to be called ling. In any case 52 tons of these ling from Subareas 2 and 3 are reported by Germany in 1964 as blue ling which shows that it is not hake that is being reported.

Dr. ARNO MEYER has written me (26 February 1968) that the German blue ling statistics reported to ICNAF for 1964 are incorrect. These blue ling reported by West-German vessels were caught off East Greenland and were referred to the ICNAF area by wrong assignments of areas when splitting mixed trips, mainly of cod and redfish, which were caught in the different areas on the same trip.

For Subarea 1 (West Greenland), neglecting the incorrect West-German records for 1964, in the years from 1955 to 1966 where records are available for the divisions of Subarea 1, the following total landings of ling (occasionally reported as blue ling) are reported (in metric tons): 1A(0), 1B($<\frac{1}{2}$ ton), 1C(2), 1D(3), 1E(2), 1F(11). If the monthly records of $<\frac{1}{2}$ ton are equated as $\frac{1}{4}$ ton each the landings from these divisions become: 1A(0), 1B($\frac{1}{4}$), 1C($2\frac{1}{4}$), 1D($5\frac{3}{4}$), 1E($3\frac{3}{4}$), 1F(12). It is apparent that most landings come from the southern divisions of Subarea 1 where deep-water fishing is carried out for cod and redfish. Although some of the ling statistics from Subarea 1 may still be incorrect assignments from mixed landings from East and West Greenland, the quantities and locations appear to be reasonable and possible.

It is presumed that all ICNAF landings of blue or common ling reported from Subareas 2 and 3 are falsely assigned in the same way from the landings of vessels which had fished East and West Greenland waters. Some of the very small catches of one to several tons of blue ling in West Greenland are presumably local catches in this area, but there is no certainty that they are always correctly allotted between the divisions of Subarea 1, as assignment of ling, pro rata with landed catches of cod and redfish, may spread the blue ling into more divisions and may also divide some East Greenland blue ling among the West Greenland divisions.

CONCLUSION

From the data presented, it is concluded that, apart from rare specimens, the common ling, *Molva molva*, is not present in the ICNAF area.

The blue ling is scarce but not rare in West Greenland but is rare in areas south of West Greenland, the most southern records being from ICNAF Subarea 3.

SUMMARY

1. A discussion of the various scientific names used for the blue ling leads to the conclusion that the correct name is *Molva dypterygia* (Pennant, 1784).
2. Meristic and morphometric characteristics are provided for two blue ling from West Greenland and one from the Newfoundland area.
3. The morphometric and meristic characters of blue ling from the north-west Atlantic specimens are usually within, overlapping or close to the ranges of these characters for *Molva dypterygia* from the north-east Atlantic.
4. The commercial statistics for ling in the ICNAF area are discussed and attention called to some of the errors.
5. It is concluded that blue ling are present in small numbers in the West Greenland area and rare in the remaining areas, the most southern definite records being from ICNAF Subarea 3.

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I have consulted Mr. G. PALMER of the British Museum, Natural History on the correct scientific name for the blue ling and have benefited much from my correspondence with him on this subject.

Photographs are by Mr. E. L. ROWE.

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