

SOME ADDITIONAL NOTES ON EXTERNAL FEATURES AND ON THE JAW MUSCLES OF ORTHRAGORISCUS MOLA (L.)

by

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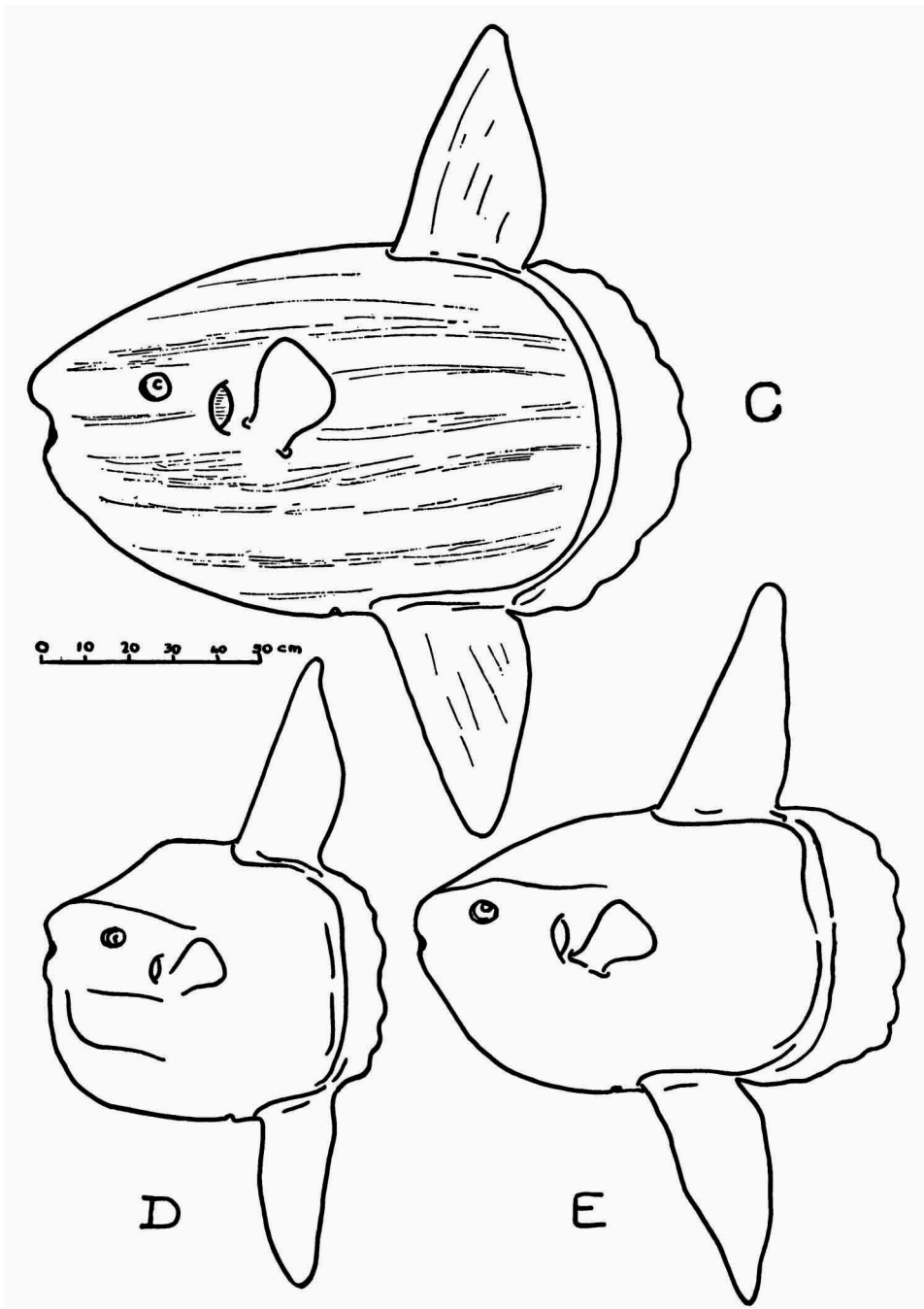
In 1939 J. M. van Roon and J. J. ter Pelkwijk published some data on two specimens of *Orthragoriscus mola* (L.) stranded on the Dutch coast. Measurements of bones and muscles of the jaw were given on account of the functional treatise concerning the mechanism of the jaw of *Orthragoriscus* given by Van Dobben (1935), based upon one specimen that differed in many ways from both individuals we dissected.

In the following years, we got three more specimens and an examination of the jaw muscles proved them to be fully agreeing with the two fishes described before. It seems worth while to publish corresponding data and measurements.

Specimen C, a female, stranded December 12, 1939 near Kamperduin in the neighbourhood of Schoorl. This fish was more oblong than either of the others. The sides were covered with longitudinal ripples. J. J. ter Pelkwijk dissected it on the beach on December 13.

Specimen D, a male caught in a trawl near the coast off Scheveningen December 13, 1940, was brought to the Zoological Garden at The Hague where it was exhibited for a month in a 4 % formol solution. Then it was brought to the Rijksmuseum van Natuurlijke Historie at Leiden, where it was dissected by J. M. van Roon and P. H. Creutzberg. This fish was much smaller than the others and more circular. It had a conspicuous ridge above the eyes and a curved ridge under the eyes and pectoral fins.

Specimen E, a female, stranded November 30, 1941 near Schoorl; it was found by Mr. K. Kuiper at Alkmaar, who sent it to the Rijksmuseum van Natuurlijke Historie, where it was dissected by J. M. van Roon and G. P. Baerends on December 11. This fish differed less than C and D from specimens A and B, described in our previous publication (1939). It had



Orthragoriscus mola (L.), the three specimens stranded in 1939, 1940 and 1941.

about the same length and shape as A and B. The ridge above the eye was well marked.

External features (figs. C, D and E):

	C 1939	D 1940	E 1941
Total length	145 cm	75 cm	112 cm
Total height of body	82	65	64
Total height from tip of anal fin to tip of dorsal fin	178	115	150
Height of tail fin	71	45	54
Distance from tip of snout to gill-slit	40	30	34
Distance from tip of snout to front of pectoral fin	46	28	36
The tip of snout protrudes over upper jaw	4	5	?
Distance from tip of snout to front of dermal opening of eye	23	12	13
Length of dermal opening of eye	6	5	5.5
Height of dermal opening of eye	4.5	4	4.5
Distance from bottom of eye to lower border of the body, measured vertically	36	31	31
Distance from back of eye to gill-slit	17.5	10	16
Straight distance from tip of snout to front of dorsal fin	91	48	65
Width of dorsal fin at the base	29	18	24
Height of dorsal fin	53	40	48
Straight distance from tip of snout to anus	88	60	65
Distance from anus to front of anal fin	14	6	7
Length of tail fin	16	10	10
Width of anal fin at the base	26	19	21
Height of anal fin	50	40	46
Width of pectoral fin at the base	11	7	8
Length of pectoral fin	19	12	15
Height of gill-slit	8.5	6	7
Width of skin lobe covering gill-slit	4	3	3.5

Concerning the muscles, that were missing on the right side in the specimen Van Dobben (1935) dissected, the following remarks can be made.

The muscoli geniohyoidei inferior and superior, the musculus hyohyoideus and the musculus sternohyoideus were well developed in C, D and E, and shaped as in specimens A and B described in 1939.

The uppermost lobe of the musculus geniohyoideus inferior measured from the attachment to the dentale to the most caudal point of the attachment to the skin in specimen D was 11 cm, in E 12 cm; from the attachment to the skin to the joint at the branchiostegalia in D 10 cm, in E 13 cm.

The second lobe of the musculus geniohyoideus inferior was in specimen D 7 cm and in E 10 cm wide and in D 7 cm, in E 9 cm high.

The musculus geniohyoideus superior was in specimen D 1 mm, in E 5 mm thick between the branchiostegalia I and II; in D 1 mm, in E 5 mm thick between the branchiostegalia II and III. Part of the musculus genio-

hyoideus superior and the musculus hyohyoideus in specimen C was covered with parasitic larvae of *Floriceps saccatus* Cuvier, that usually live in the liver. There were 21 specimens of *Floriceps* on the right side scattered over the m. hyohyoideus and the musculus geniohyoideus superior and as many as 17 on the left side between the branchiostegalia III and IV only, and three more between II and III. Perhaps this parasite may reduce the muscles to a state as observed by Van Dobben (1935). However, in C parasites and muscles both were well developed.

The musculus hyohyoideus in D was a very thin membranaceous muscular layer. In C the muscle was well developed. In E it seemed better developed than in either of the other specimens, being in E 4 to 16 mm thick.

The musculus sternohyoideus in D was 12 cm, in E 18 cm long and in both 3 cm thick.

The muscoli adductores mandibulae were better developed than in the specimen of Van Dobben (1935) and shaped as in specimens A and B. The lobes were difficult to separate. The length of the first lobe was 9 cm in D, 10 cm in E; this lobe was $\frac{1}{2}$ cm thick in D and $1\frac{1}{2}$ cm in E. The length of the second lobe in D was 14.5 cm, in E 17.5 cm, its thickness $\frac{1}{2}$ cm and 2 cm respectively.

Besides the musculus dilatator operculi and musculus levator operculi there was in C, D and E just as in specimens A and B a third muscle that runs medial from the musculus dilatator and levator from the operculum to the pteroticum. These three muscles were well developed in C.

The length of the musculus dilatator operculi in D was	5.5 cm, in E	6.5 cm
the length of the musculus levator operculi	5	6.5
the length of the third muscle	5	6
the width near the pteroticum of the m.d. op.	2.5	4.5
the width near the pteroticum of the m.l. op.	4.5	5.5
the width near the pteroticum of the third muscle	3	4.5
the width near the operculum of the m.d. op.	1.5	?
the width near the operculum of the m.l. op.	1.5	?
the width near the operculum of the third muscle	1	?
the thickness of the musculus dilatator operculi	0.5	1
the thickness of the musculus levator operculi	1	1
the thickness of the third muscle	0.5	1

Van Dobben found 5 branchiostegalia, whereas we found 6 in all the specimens we examined, although the 6th was rather thin. The measurements were:

branchiostegale	length in	C	D	E	breadth in	C	D	E
I		15	7	11		2	1.5	1.2 cm
II		13	7.5	11		1.5	1.5	1.2
III		14	9.5	13		1.5	1	1.4
IV		19	12	14		1.5	2	1.5
V		20	12	14		1.5	1.5	1.4
VI		22	12	13		1	0.3	0.5

The bones of the jaw and gills in these three specimens were all developed as in those described previously (1939).

From the data on these 5 fishes it is clear that Van Dobben accidentally described an aberrant individual of *Orthragoriscus mola* (L.), for in our fishes—larger as well as smaller ones—the jaw muscles were about equally developed.

LITERATURE CITED

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