

FISHERIES RESEARCH BOARD OF CANADA

Translation Series No. 1091

Cottidae family. (Cottus scorpius L.) from:
Northern Plankton, Zoological part, Eggs and Larvae

By E. Ehrenbaum

Original title: Fam. Cottidae (Cottus scorpius L.)
Nordisches Plankton. Zoologischer Teil. Eier
und Larven.

From: Nordisches Plankton, Vol. 1, pp. 55-57, 1905.

Translated by the Translation Bureau(PJW)
Foreign Languages Division
Department of the Secretary of State of Canada

Fisheries Research Board of Canada
Biological Station
St. John's, Newfoundland

1968

6 pages typescript

Rec'd.

FRB 1091

DEPARTMENT OF THE SECRETARY OF STATE
TRANSLATION BUREAU



SECRETARIAT D'ÉTAT
BUREAU DES TRADUCTIONS

FOREIGN LANGUAGES
DIVISION

DIVISION DES LANGUES
ÉTRANGÈRES

TRANSLATED FROM - TRADUCTION DE German	INTO - EN English
---	--------------------------

AUTHOR - AUTEUR

E. Ehrenbaum

TITLE IN ENGLISH - TITRE ANGLAIS

Cottidae Family (Cottus scorpius L.)

Fam. Cottidae (Cottus scorpius L.)

REFERENCE IN FOREIGN LANGUAGE (NAME OF BOOK OR PUBLICATION) IN FULL. TRANSLITERATE FOREIGN CHARACTERS.
RÉFÉRENCE EN LANGUE ÉTRANGÈRE (NOM DU LIVRE OU PUBLICATION), AU COMPLET. TRANSCRIRE EN CARACTÈRES PHONÉTIQUES.

Nordisches Plankton. Zoologischer Teil. Eier und Larven.

REFERENCE IN ENGLISH - RÉFÉRENCE EN ANGLAIS

Nordic Plankton. Zoological Part. Ova and Larvae.

PUBLISHER - ÉDITEUR --	DATE OF PUBLICATION DATE DE PUBLICATION			PAGE NUMBERS IN ORIGINAL NUMÉROS DES PAGES DANS L'ORIGINAL 55-57
	YEAR ANNÉE	VOLUME	ISSUE NO. NUMÉRO	
PLACE OF PUBLICATION LIEU DE PUBLICATION	1905	--	--	NUMBER OF TYPED PAGES NOMBRE DE PAGES DACTYLOGRAPHIÉES 6

REQUESTING DEPARTMENT
MINISTÈRE-CLIENT Fisheries Research Board of Canada TRANSLATION BUREAU NO.
NOTRE DOSSIER N° 3109

BRANCH OR DIVISION
DIRECTION OU DIVISION St. John's, Newfoundland TRANSLATOR (INITIALS)
TRADUCTEUR (INITIALES) ETW

PERSON REQUESTING
DEMANDE PAR M. G.P. Ennis DATE COMPLETED
ACHEVÉ LE August 1, 1968

YOUR NUMBER
VOTRE DOSSIER N° 769-18-14

DATE OF REQUEST
DATE DE LA DEMANDE May 7, 1968 (Rec'd at FLD, Translation Bureau on June 26/68)

UNEDITED DRAFT TRANSLATION
Only for information
TRADUCTION NON REVISÉE
Information seulement

DEPARTMENT OF THE SECRETARY OF STATE
TRANSLATION BUREAU
FOREIGN LANGUAGES DIVISION



Archives
FRB 1091
SECRETARIAT D'ÉTAT
BUREAU DES TRADUCTIONS
DIVISION DES LANGUES ÉTRANGÈRES

YOUR NO. VOTRE N ^o 769-18-14	DEPARTMENT MINISTÈRE Fisheries Research Board of Canada	DIVISION/BRANCH DIVISION/DIRECTION	CITY VILLE St. John's, Nfld.
OUR NO. NOTRE N ^o 3109	LANGUAGE LANGUE German	TRANSLATOR (INITIALS) TRADUCTEUR (INITIALES) PFW	DATE 31.7.68

Partial translation of article published in "Nordisches Plankton. Zoologischer Teil. Eier und Larven" (Nordic Plankton, Zoological Part. Ova and Larvae)

Cottidae Family (Cottus scorpius L.)

(Familie Cottidae -- Cottus scorpius L.)

By E. Ehrenbaum

UNEDITED DRAFT TRANSLATION

Only for information

Cottus scorpius L.

TRADUCTION NON REVISEE

Information seulement

(syn: C. groenlandicus Cuv., C. glacialis Rich., Acanthocottus variabilis Ayres, A. labradoricus Girard, A. ocellatus Storer, A. mucosus Ayres.)

1882. Agassiz, A. Proceed. americ. acad. arts a. sci. vol. XVII, p. 285, Pl. II, Fig. 1 and 2 (presumably belong to another Cottus species; Pl. III is no Cottus at all; similarly Mem. mus. comp. zool. Harv. Vol. XIV, p. 7, Pl. II, Fig. 1 - 5 no Cottus.)

1885. McIntosh, W.C. Third annual report fish. board f. Scotland, pt. 3, p. 59.
1887. Cunningham, J.T. Transact. roy. Soc. Edinburgh. Vol. 33, pt. 1, p. 103, Pl. VI, Fig. 2.
1890. McIntosh, W.C., and E. Prince. Ibid. Vol. 35, pt. 3, p. 675, Pl. 1, Fig. 3 (not p. 861 -- *C. bubalis*), Pl. XIX, Fig. 4.
1891. McIntosh, W.C. Ninth annual rep. fish board f. Scotland, p. 323, Pl. X, Fig. 6.
1893. Holt, E.W.L. Scient. transact. roy. Dublin Soc. Second s., Vol. V, p. 20 - 26, Pl. IV, Fig. 30 - 33, 35 - 38.
1896. McIntosh, W.C. Fourteenth annual rep. fish. board f. Scotland, pt. 3, p. 181.
1904. Ehrenbaum, E. Wissensch. Meeresuntersuchungen Bd. IV, Abt. Helgoland (Scientific Sea Investigations, Vol. IV, Div. Helgoland), p. 131 - 137. Plate III, Fig. 4 - 6. Table V, Fig. 35.

This coastal fish is widely distributed in the northern seas. It usually deposits its eggs in heaps at moderate depths during the months of December to February. The hatching of the large 7.4 - 8.6 mm long larvae takes place about five weeks later. Since Nordquist and others before him have

observed (Meddel. societ. pr. fauna et flora fennica pt. 26 -- 1900) that in the North the embryos in Cottus scorpius develop already more or less completely in the body of the mother after a preceding fertilization, the hatching in this case will follow correspondingly quicker or else the small fishes are born alive.

The natural colour of the eggs -- cream yellow to dark red -- is preserved in the yolk of the just hatched larva. The large oil globule is visible in the anterior part of the vitelline sac. Black pigment in the shape of regular small stars is found in a characteristic distribution on the head, in the covering of the oil globule, especially dense and in shabrack-like arrangement in the peritoneum and in a series of mostly tender small stars along the base of the anal fin in the posterior part of same. In the head and the anterior body chrome-yellow pigment is also found alongside the black pigment. Very vivid and conspicuous is the blood circulation, as in almost all larvae which originate from firmly attached eggs: near the aorta and the corresponding large vein which both proceed just below the chorda, a single large yolk vessel which arises with numerous branches from the liver located in the venous circulation and, proceeding from left top to right bottom, inosculates at the front with the sinus venosus of the heart; in addition, artery and veins which distribute the blood in the head. The anus of the

larva is located directly behind the vitelline sac and not quite two fifth of the total length away from the apex of the head. The pectoral fins are unimpressive and just as the embryonic fin edge completely colourless.

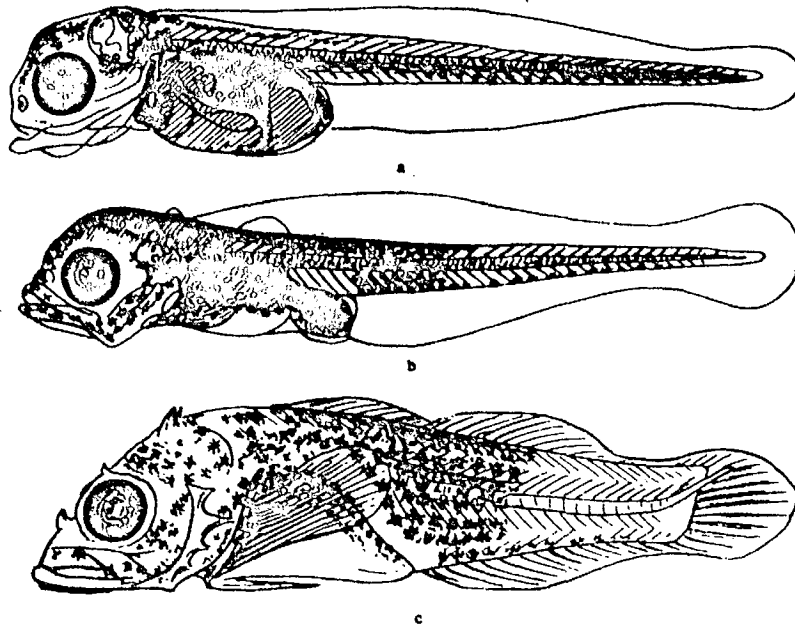


Fig. 22. *Cottus scorpius* L.

- a) just-hatched larva of Jan. 30, 01; 8.2 mm long. Helgoland.
- b) appr. 4 weeks old larva of Febr. 26, 01; 10 mm long. Helgoland.
- c) young fish of April 25, 00. 18 mm long. Helgoland.

Pigment: black and in addition yellow in the anterior body, yolk reddish; after Ehrenbaum.

During the resorption of the vitelline sac the larva P. 57 reaches a length of 10 mm and more. The black pigment stars increase greatly, especially on the head, along the back, and in the peritoneum, everywhere accompanied by the chrome yellow pigment. In the caudal part the pigment line at the base of the anus is unchanged; the fin edges inclusive of the widened caudal plate still do not possess a trace of fin rays.

Fairly soon thereafter the beginnings of a wide black transverse zone become visible under a further general increase of the pigment close behind the anus. The transverse zone is highly characteristic of this and the subsequent stages up to the development of the definitive form. In the caudal plate the earliest rudiments of the hypural tail fin becomes noticeable. The head has on each side above the otocysts small wide thorn-like attachments and a number of spines on the gill cover. The pectoral fins are greatly magnified; ventral fins are not visible, but a small pre-anal fin can be seen. The anus is moved a little farther back. This and subsequent planktonic youth forms of C. scorpius are encountered at fairly considerable distances from the land on the water (40 nautical miles). Toward the end of the month of April the planktonic young Cottus scorpius have reached a body length of approximately 17 - 21 mm. Following the caudal fin the other azygous fins and the ventral fins have by then also reached the stage of development. The two dorsal

fins are barely noticeably separated from one another, the pectoral fins reach backward almost to the anus. The most remarkable feature of the pigmentation is the development of the already mentioned black zone which extends right behind the anus transversely across the body. The two thirds of the body in front of this zone are abundantly provided with black pigment stars which are found in especially dense accumulations at a few places, e.g. at the base of the dorsal fins, in the peritoneum and other places. The posterior third of the body, on the other hand, remains completely pigment-free and only with difficulty can we discover along the base of the anus that row of tender pigment dots which characterize already the earliest larval stages. The equipment of the head shows the greatest similarity with that of the fully-developed animal: two thorns in front of the eyes between the nostrils, two above the eyes and two double-thorns on the occiput. In addition, 3 to 4 opercular spines are usually present of which the uppermost or the second one is the longest; the opercular spine is far less distinct. Soon thereafter the young C. scorpius receives its definitive shape and colour when the last end of the body also receives pigment. After that (end of May) it is not encountered planktonically any more, but rather on the ground in shallow water. The smallest such fishes are about 22 mm long.