FISHERIES AND MARINE SERVICE

Translation Series No. 3086

Morphological observations and infection experiments on Anisakinae larvae of fishes in Hokkaido coastal waters

by M. Otsuru, T. Shiraki, T. Hatsukano, and M. Kenmotsu

Original title: Hokkaido kinkai ni mirareru Anisakinae yochu no keitai kansatsu oyobi kausen jikken

From: Kiseichugaku Zasshi (Japanese Journal of Parasitology), 17 : 267, 1968

Translated by the Translation Bureau(GA/PS)
Multilingual Services Division
Department of the Secretary of State of Canada

Department of the Environment
Fisheries and Marine Service
Biological Station
St. John's, Nfld.

1974

2 pages typescript

DEPARTMENT OF THE SECRETARY OF STATE
TRANSLATION BUREAU

MULTILINGUAL SERVICES DIVISION

CANADA

SECRÉTARIAT D'ÉTAT
BUREAU DES TRADUCTIONS

DIVISION DES SERVICES MULTILINGUES

FoM 3086

TRANSLATED FROM – TRADUCTION DE	INTO – EN
Japanese	English

AUTHOR – AUTEUR

M. Otsuru, T. Shiraki, T. Hatsukano & M. Kenmotsu

TITLE IN ENGLISH – TITRE ANGLAIS

Morphological observations and infection experiments on Anisakinae larvae of fishes in Hokkaido coastal waters.

TITLE IN FOREIGN LANGUAGE (TRANSLITERATE FOREIGN CHARACTERS)
TITRE EN LANGUE ÉTRANGÈRE (TRANSCRIRE EN CARACTÈRES ROMAINS)

Hokkaido kinkai ni mirareru Anisakinae yochu no keitai kansatsu oyobi kausen jikken.

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 ROMAINS.

Japanese Journal of Parasitology

REFERENCE IN ENGLISH – RÉFÉRENCE EN ANGLAIS

PUBLISHER – ÉDITEUR	DATE OF PUBLICATION / DATE DE PUBLICATION			PAGE NUMBER IN ORIGINAL / NUMÉROS DES PAGES DANS L'ORIGINAL
	YEAR / ANNÉE	VOLUME	ISSUE NO. / NUMÉRO	267
PLACE OF PUBLICATION / LIEU DE PUBLICATION	1968	17		NUMBER OF TYPED PAGES / NOMBRE DE PAGES DACTYLOGRAPHIÉES: 2

REQUESTING DEPARTMENT / MINISTÈRE-CLIENT: Environment

BRANCH OR DIVISION / DIRECTION OU DIVISION: Fisheries Service

PERSON REQUESTING / DEMANDÉ PAR: Allan T. Reid

YOUR NUMBER / VOTRE DOSSIER N°:

DATE OF REQUEST / DATE DE LA DEMANDE:

TRANSLATION BUREAU NO. / NOTRE DOSSIER N°: 784500

TRANSLATOR (INITIALS) / TRADUCTEUR (INITIALES): GA / PS

JUN - 6 1974

UNEDITED TRANSLATION
For information only
TRADUCTION NON REVISÉE
Information seulement

SOS-200-10-6 (REV. 2/68)
7530-21-029-5333

DEPARTMENT OF THE SECRETARY OF STATE
TRANSLATION BUREAU

MULTILINGUAL SERVICES DIVISION

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DIVISION DES SERVICES MULTILINGUES

CLIENT'S NO. / N° DU CLIENT	DEPARTMENT / MINISTÈRE	DIVISION/BRANCH / DIVISION/DIRECTION	CITY / VILLE
	Environment	Fisheries Service	Ottawa, Ontario
BUREAU NO. / N° DU BUREAU	LANGUAGE / LANGUE	TRANSLATOR (INITIALS) / TRADUCTEUR (INITIALS)	
784500	Japanese	GA/PS	JUN - 6 1974

Morphological observations and infection experiments on Anisakinae larvae of fishes in Hokkaido coastal waters.

M. Otsuro, T. Shiraki, T. Hatsukano & M. Kenmotsu

(Hokkaido kinkai ni mirareru Anisakinae yochu no keitai kansatsu oyobi kansen jikken)

In the period, July 1967 to March 1968, observations were carried out on Anisakis and closely related larval nematodes in 18 species and about 600 fishes caught in Hokkaido coastal waters (mainly off Wakkanai, Kushiro and Otaru). Anisakis larvae were detected in 11 species of fish. Terranova larvae were detected in 7 species such as madara (gadus macrocephalus), akagarei (hippoglossoides classodon), kyuri-uo (osmerus dentex), hatahata (arctoscopus japonicus), etc. Contracaecum larvae were detected in 4 species such as Alaska pollack (theragra chalcogramma), madara, etc. The Anisakis larvae found were almost all of the type I, none of type II being seen. However, morphologically different forms of types I and II of Anisakis larvae were individually discovered in the digestive membranes of suketo-dara and the abdominal cavity of hora-anago caught off Kushiro. Their antimeres were extremely large, ~~stomachs~~ varying short, tails sharp and a small mucron was found at the tip. Because of their resemblance with type I and type II, it was proposed to call them Anisakis larva type III.

The body length of Terranova larva was 20.4 to 43.8 mm. and they presented a bright yellow color or a brown tone. The intestinal caecum was seen to extend from the mid-gut to the rear of the stomach region. The parasitic index of the musculature was large for Terranova larvae compared to others, being about 60%. Contracaecum larva had a short stomach region and possessed an intestinal caecum and ventricular appendix. The tip of the tail was sharp. Many of these were seen in the lower pylorus of the suketo-dara but were not found in the musculature.

Terranova larvae collected from the musculature of hatahata and Contracaecum larvae from suketo-dara, were orally administered to rabbits. Infection of the tissues by Contracaecum larvae was not observed but after 3 hours, most of them had died in the digestive organ. Terranova larvae however were observed to penetrate the stomach wall and to perforate the abdominal cavity in 3 hours. From the above it is thought that there is a strong possibility that Terranova larvae ingested by humans would move around and end up in the wall of the stomach and intestines.

(Addendum)

(Yokohama Univ. Dept. Parasitology) S. Kikuchi.

It is certainly not surprising that the larvae thought to be type III were collected from fishes. We have obtained many worms belonging to A. skrjakinesakis in komatsuko and furthermore, we might add that we have obtained many larvae thought to belong to the third type.