FISHERIES RESEARCH BOARD OF CANADA
Translation Series No. 698

Contributions to the parasitology of the fishes of the northern seas of the USSR. Parasites of Barents Sea fishes

By Yu. I. Polyanskii

Original title: Materialy po parazitologii ryb severnykh morei SSSR. Parazity ryb Barentsova morya.

From: Trudy Zoologicheskogo Instituta, Akademiya Nauk SSSR, Vol. 29, pp. 99-101, 1955. [Sbornik rabot po parazitologii]

Translated by: G. Guest,
Bureau for Translations, Foreign Languages Division,
Department of the Secretary of State of Canada

Fisheries Research Board of Canada
Biological Station, Nanaimo, B. C.

1966

A Collection of Studies in Parasitology

In loving memory of a dear teacher,
Valentin Alexandrovitch
Dogyel

Yu. I. Polyanskii

Contributions to the Parasitology of Fishes of the Northern Seas of the U.S.S.R.

Parasites of Barents Sea Fishes

Introduction

During the last twenty years in the U.S.S.R., the study of the parasites of fish has increased considerably. Because of the research of Professor V.A. Dogyel and his co-workers and students, a great amount of factual data has been accumulated. From it, important deductions and general conclusions, which are of great theoretical interest, and of vital significance to the national economy, have been made. The species structure of the parasites of freshwater fish has been established, on the whole, for the whole region of the Soviet Union; the fundamental regularities of the dissemination of the parasites have been exposed, and with these have been established the basic ecological regularity of their age dynamics, and their dependence upon the conditions of the life of their host (the migrations, the type of food, the biocenotic relationships with other organisms, and so on).

On the basis of a thorough ecological-faunistic analysis, the basic condition of fish parasites inflicting damage upon the economy has been exposed. Because of this, preventive and curative measures have been developed and set up, first of all in pond fish enterprises. Finally, during the last few years, researchers have begun to successfully work out the regional parasitology of fish. Indicative of this is the fact that an important book on the parasites of fishes in the Ukraine was written by Markevitch (1951). Studies on the parasitology of freshwater fish have acquired, at this time, an especially great significance to the national economy in connection with the construction of hydro power stations on the Volga, Don, and Dnioper rivers.

In relation to these advances, the studies of the parasites of marine fish have meanwhile hardly taken their first steps. Nevertheless, the diversity of climactic conditions, the hydrological conditions of the seas washing the borders of the U.S.S.R.; the variety of their ichthyofauna and the fauna of the invertebrates which serve as secondary hosts to the parasites; and the great food value of marine fish - all these things make the study of the parasites of sea fish extremely urgent and promising as much in the theoretical as in the practical field. The latter field is so much more indispensable, that Soviet parasitologists have in recent years established a number of cases of the pathogenic significance of parasites for marine Lernaeopodina cluthae, Clavella dubia, Salmincola salmonea, and Syphrion lumpi. Besides these, five more species of Copepoda have been indicated by other authors, but we have not found them (for information about these species, see the end of a detailed systematic survey of Copepoda).

Thus, at the present time, twenty species of the Copepoda are known to exist on the fish of the Barents Sea.

Genus Acanthochondria Oakley 1927

The species of the genus Acanthochondria (about 10 known) are characteristically parasitic on flounders. This genus has a wide dissemination. It is found in the Atlantic (on the European and American seacoasts), in the Baltic Sea (the western part),

on the coast of Alaska, and in the Sea of Japan. The data on hand allow us to assume that the genus Acanthochondria has a world-wide dissemination.

Acanthochondria soleae (Kröyer). This species is often found on the gills of Pleuronectes flesus of the Barents Sea (18.8%). From two to nine specimens are found on one fish. This crustacean has been found on the gills of various species of flounders on the coasts of England, Ireland, and Belgium.

Acanthochondria flurae (Kröyer) has been detected on the gills of ruffed flounders (Hippoglossides platessoides). Its percentage of infection is 20.0; the intensity of its occurrence is 1-14 specimens per fish. For the Barents Sea it was found on the same host and mentioned for the first time by Markevitch (1936).

Besides on ruffed flounders, this species has also been detected by different authors on other species of flounders. Its dissenimation is wide; it is found on the coasts of Scotland and Ireland, in the western portion of the Baltic Sea, and on the Atlantic coast of North America. In addition, on the shores of Alaska, it was observed to have penetrated into the basin of the Pacific Ocean.

Genus Chondracanthopsis Wilson, 1932

This genus was singled out by Wilson (1932) from a highly polymorphous genus Chondrcanthus of De la Roche (1811). For the present it appears to be a monotypic genus.

Chondracanthopsis nodosus (O.F.Müller). Rare specimens of the species have been detected by us several times (20.0% infection) on the gills of the Norway haddock (Sebastes marinus). This species is known to be a parasite of the genus Sebastes. It is found near the coasts of Scandinavia, in the Skagerrak, and near the Atlantic coast of North America.

Genus Caligus O.F. Müller, 1875

This is a highly polymorphous genus, including about 30 species; out of these, 8 are found in the basin of the North Sea. It has a very large range of hosts which include sea fish of different families. There are known occurrences of parasitism on freshwater fish (Caligus lacustris). It has a world-wide dissemination.

Caligus curtus O.F. Müller. In the Barents Sea, Caligus curtus is often found on the body surfaces of the cod (coalfish - 5%, haddock - 13.1%, cod (Gadus morhua) - 17.9%). These little crustaceans move actively about on the surfaces of the bodies of the fish. The quoted data on the the infection appear incontestably to be understated, since Caligus easily falls off when the fish are pulled out of the water. We have observed as many as 12 crustaceans on one fish (on Gadus morhua). A clear manifestation of seasonal fluctuation in the number found on one fish is observed in Caligus curtus. In winter months, this crustacean is almost completely absent from fish (table 19). In summer, the infection of cod by Caligus curtus increases considerably.

On Caligus curtus we have occasionally found a large number of Udonella calligorum (pg. 44).

For the Barents Sea, Caligus curtus has been pointed out by Bazikalova and Markevitch (on cod and haddock). This species has an extemely wide dissemination - from Arctic waters to southern latitudes. It is found (mainly

on cods) near the shores of Greenland and Scandinavia, in the Atlantic (on the European and American coasts), and in the Mediterranean Sea. However, Caligus curtus was not found by Gusyev (1951) in the Sea of Japan.

Genus Lepeophtherius Nordmann, 1832

Just like Caligus, this is a polymorphous genus with a world-wide dissemination. Seven species are found in the North Sea. The total number of known species is about 20. Most often it attacks Gadidae and Pleuronectidae, but it is found on other fish (Salmonidae, Anarhichas, Raja). One species is parasitic on sturgeons (L. sturionis, on Acipenser sturio).

Lepeophtheirus hippoglossi (Kröyer). We discovered isolated specimens on the body surfaces of Hippoglossus hippoglossus (9.1%). This widely disseminated parasite of flounders sometimes changes over to Raja. It is found in Arctic waters (Greenland), and also in temperate latitudes in the Atlantic (on the shores of Europe and America). It has not yet been found in the Pacific Ocean.