

**DISEASES AND PARASITES OF FLOUNDER *Platichthys flesus* (L.)
FROM THE MOUTH OF VISTULA RIVER****Jerzy Rokicki and Jolanta Morozińska**Department of Invertebrate Zoology University of Gdańsk,
Al. Pilsudskiego 46, 81-378 Gdynia, Poland**INTRODUCTION**

The parasite fauna of flounder, *Platichthys flesus* (L.) from Gdańsk Bay and adjacent areas was studied by Markowski (1933), Janiszewska (1939), Mulicki (1947), Rokicki (1975), Sulgostowska et al. (1984) and Sulgostowska (1988). Data on visible changes in flounder were limited in these studies. These papers clearly demonstrated the influence of the character of the fish habitat on the parasite fauna of flounder as large numbers of fresh water parasites in flounder from estuaries were observed. In the present study observation is made in addition to parasites recorded in flounder also on the presence of visible abnormalities in fish anatomy.

MATERIAL AND METHODS

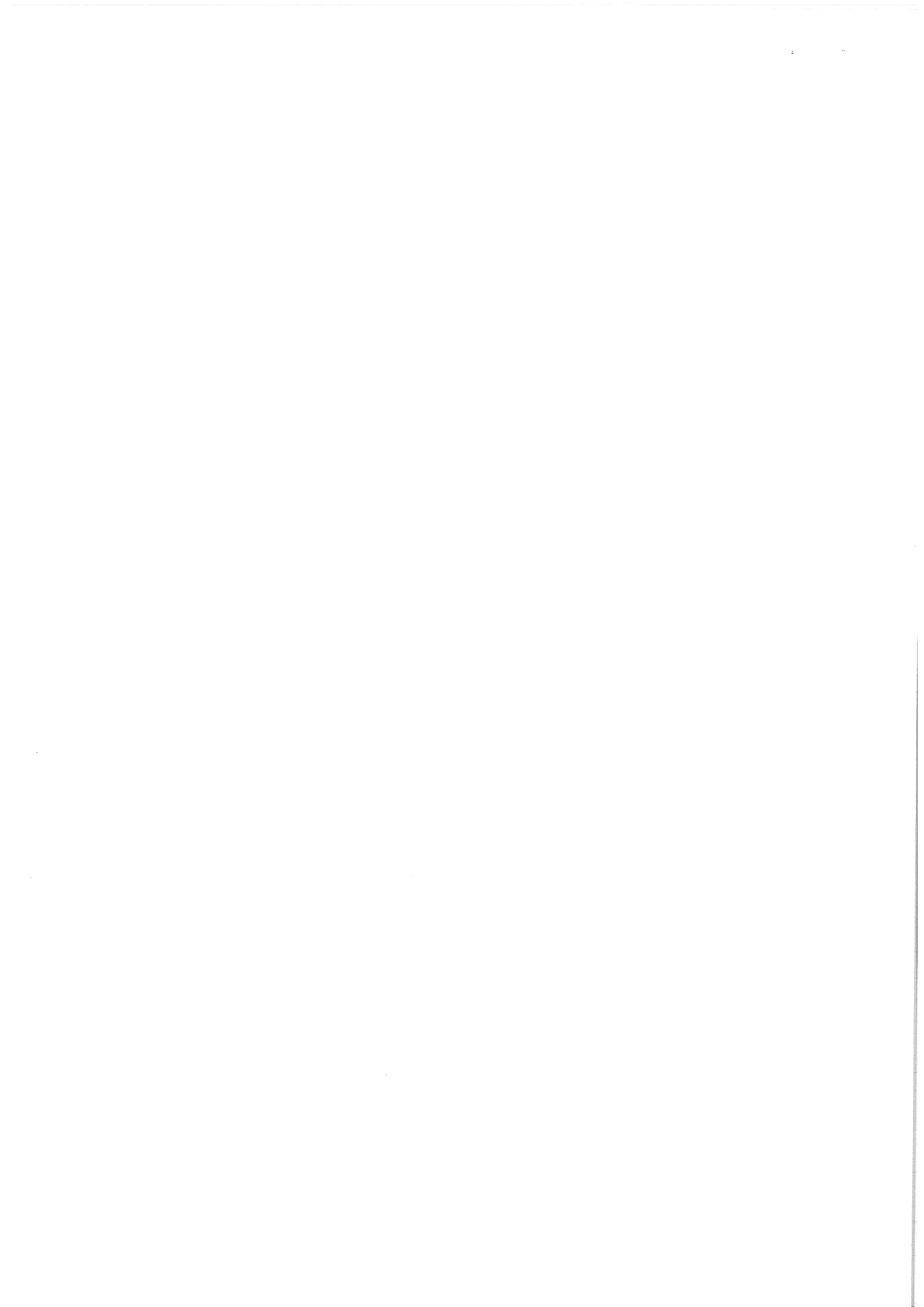
Samples of flounder were caught near the mouth of Vistula River (Gdańsk Bay) from July to September 1994. During this time 116 flounders were examined. The 3-8 year old fish were taken from commercial catches and 15 samples 4-6 month fish were caught by hand net on depth from 40-120 cm. They were dissected directly after being brought to the laboratory. Investigated fish were checked regarding beta and alfa radiation using dosimeter Berthold. The following organs were examined: skin and fins, eyes, gills, body cavity, liver, kidney and digestive tract. Parasites found were identified microscopically. The bacteria were collected from damaged skin and other tissue of fish and cultivated by standard methods. Histological slides were made from ulcers.

RESULTS AND DISCUSSION

Visible changes encountered in flounder in mouths of Vistula River are shown in Table 1.

Table 1: The visible changes in 116 flounders (*Platichthys flesus*)

Pathological changes	Site in host	Prevalence (%)
Hyperaemia	fins	6
Black pigment	skin	8
Lymphocystis	skin	3
Ulcer small	skin	2
Ulcer big	skin	1
Skeleton deformities	-	-
Radioactivity	-	-



Parasites found are presented in the Table 2. The site of the parasite in the host, the total prevalence and intensity of infection were recorded.

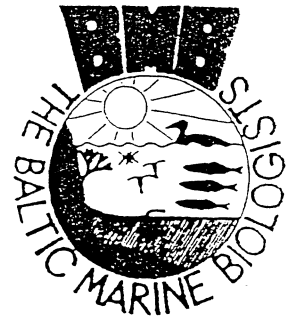
Table 2. Parasites in 116 flounder (*Platichthys flesus*)

Species	Site in host	Prevalence %	Intensity	
			range	mean
<i>Ciliata</i>				
<i>Trichodina borealis</i> (Dogiel, 1940)	gills	72.4	< 20	-
<i>Platyhelminthes</i>				
<i>Digenea</i>				
<i>Diplostomum spathaceum</i> (Rudolphi, 1819) (metacercariae)	lens	10.8	1-4	1.5
<i>Nematoda</i>				
<i>Raphidascaris acus</i> (Bloch, 1779) (larva)	intestine	2.1	1	1
<i>Hysterothylacium aduncum</i> (Rudolphi, 1802) (larva)	intestine mesenteries hepar	32.6	1-3	1.5
<i>Contraecum osculatum</i> (Rudolphi, 1802) (larva)	mesenteries	2.1	1	1
<i>Cucullanellus minutus</i> (Rudolphi, 1819)	intestine	80.4	1-38	9.5
<i>Acanthocephala</i>				
<i>Pomphorhynchus laevis</i> (Zoega in Müller, 1776)	intestine	56.5	1-39	8.9

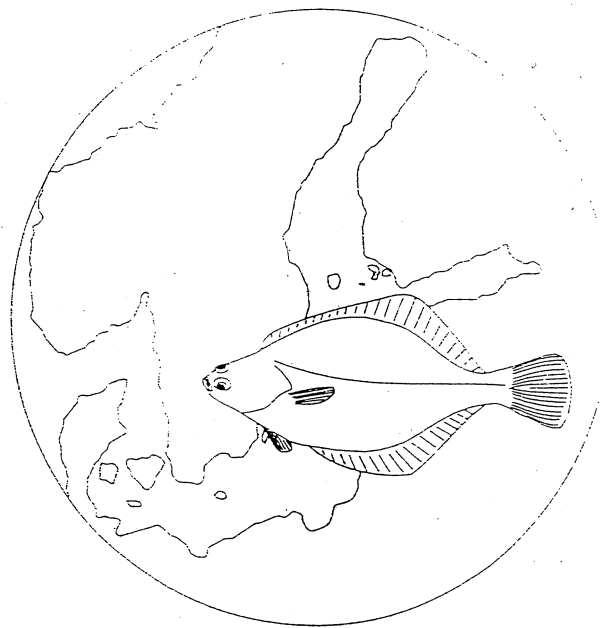
Some parasites found in the flounder from the Vistula mouth have a detrimental effect on the host. Species such as *Diplostomum spathaceum*, *Raphidascaris acus*, *Hysterothylacium aduncum*, *Contraecum osculatum*, *Pomphorhynchus laevis* are well known pathogens of flounder or other fish (Thulin, *et al.* 1989). However the degree of infection of these parasites was, with the exception of *H. aduncum* and *P. laevis*, so low that they probably have no effect on the health of the flounder. Pathological changes in the posterior part of the intestine together with perforation were caused by acanthocephalan *P. laevis*. In flounder from Gdańsk Bay Janiszewska (1938) described them. In liver of two fish specimens, about 2 mm in diameter unidentified nodules, were observed. External changes include small ulceration (2%) and bigger ulceration (1%). Damaged tissue included bacterias *Vibrio anguillarum*, *Vibrio sp.*, *Pseudomonas aeruginosa*, *Pseudomonas sp.*, *Aeromonas hydrophila*. They can play an important function in ethiology of ulceration. Histological slides of the skin ulcers indicated granulomatosis.

Trichodina borealis. The sizes of the collected samples indicate, that it is *T. borealis*. They are not different from the ones given by Stryjecka-Trembaczowska (1953) for *T. pediculu f. pleuronectes* and Calenius (1980) for *T. borealis* (Table 3). In small flounder this is the only parasite recorded.

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Table 3: Biometrical data of *Trichodina borealis* (mean and range given in μm)

Reference species	Stryjecka-Trembaczowska 1953 <i>T. pediculus f. pleuronectes</i>	Calenius 1980 <i>T. borealis</i>	present work <i>T. borealis</i>
Diameter of:			
body	30 (18-53)	43 (35-50)	36.5 (30-50)
adhesive disc	25 (13-43)	31 (29-34)	26.5 (24-32)
denticulate ring	14 (6-28)	16 (14-18)	18 (16-24)
number of denticles	26 (19-32)	25 (23-26)	26 (24-28)

Diplostomum spathaceum (metacercaria). Metric data of sampled specimens are comparable with the results of Shigin (1976) and Niewiadomska (1986) (Table 4).

Table 4: Comparison of the metric dimension (in μm) of *Diplostomum spathaceum* metacercariae from the lens.

Reference host		Shigin (1976) <i>Lenciscus idus</i>	Niewiadomska (1986) <i>Cyprinus carpio</i>	Present work <i>Platichthys flesus</i>
Body	length	324-387	340-451	410
	width	143-163	170-296	210
Oral sucker	length	37-44	42-54	53
	width	35-39	42-52	51
Ventral sucker	length	30-35	39-56	45
	width	32-37	42-59	49
Brande's organ	length	62-74	68-93	86
	width	53-65	62-102	69
Pharynx	length		25-39	
	width		12-25	
Lime bodies	number	151-233	300	207
AB body				
to AB Brande's		12.2-15.8		14.5
AB oral				
to AB ventral sucker		1.07-1.47		1.37
AB Brande's				
to AB ventral		2.88-4-28		2.69
B to A of body (%)		38.6-52.7		51.2

A total of 7 species of parasites were found. Of these only *T. borealis* have a direct life-cycle with no intermediate hosts. The other parasites apparently have indirect life-cycle with one or two intermediate host, although paratenic hosts may also be involved in some cases. The studies on the flounder diseases and parasites indicate an increasing number of diseases and parasites mentioned. However the number of parasites species encountered in Gdańsk Bay has apparently decreased as only 7-9 species were encountered compared with 14 species in the previous investigation. The absence of *Corynosoma semerme* in Gdańsk Bay is linked with decreasing number of seals which are the definite host of this parasite. Also a reduced number of trematode and acanthocephalan species is connected with absence

some intermediate and definitive host in Gdańsk Bay. This might be connected with the great communal and industrial pollution specially in the mouth of the Vistula River.

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