

SHORT COMMUNICATION

OCCURRENCE OF THE MARINE TAPEWORMS, *HEPATOXYLON TRICHIURI* AND *HEPATOXYLON MEGACEPHALUM*, IN FISHES FROM KAIKOURA, NEW ZEALAND

P.B. WATERMAN & F.Y.T. SIN

Department of Zoology, University of Canterbury, Private Bag, Christchurch, New Zealand.

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SUMMARY

Waterman, P.B. & Sin, F.Y.T. (1991). Occurrence of the marine tapeworms, *Hepatoxylon trichiuri* and *Hepatoxylon megacephalum*, in fishes from Kaikoura, New Zealand. *New Zealand Natural Sciences* 18: 71-73.

The occurrence of the plerocercoid of the marine tapeworms, *Hepatoxylon trichiuri* and *H. megacephalum*, was described. Of the fish hosts caught off the Kaikoura coast, eleven were new records for these two species of parasites. A single adult of *H. trichiuri* was found in the porbeagle shark, *Lamna nasus*. The state of infection of the different hosts was recorded.

KEYWORDS: marine tapeworms - *Hepatoxylon trichiuri* - *Hepatoxylon megacephalum* - plerocercoid - teleost - elasmobranch.

INTRODUCTION

The plerocercoid stage of the tapeworm *Hepatoxylon trichiuri* has been found in both teleost and elasmobranch fishes in New Zealand waters (Robinson 1959, Hewitt & Hine 1972, Vooren & Tracey 1976), while *H. megacephalum*, a related species, has been recorded in only elasmobranch hosts (Hewitt & Hine 1972). In this paper we update the host records and report the state of infection of the hosts by these two parasites.

MATERIALS AND METHODS

Between May 1985 and May 1987 *H. trichiuri* and *H. megacephalum* specimens were collected from fish caught with set-nets within the range 42°23'S - 42°53'S and 173°25'E - 173°45'E (coast off Kaikoura) at depths ranging from 80 m to 500 m. Net mesh size varied from 6 cm to 9 cm depending on the fish species being targeted by the commercial fishermen.

After removal from the net, all fish were eviscerated and their guts placed in individual plastic bags. The visceral cavities of the fish were checked for *Hepatoxylon* plerocercoids. On returning to

the laboratory, each set of guts was examined, and all specimens of *Hepatoxylon* species were removed and identified as previously described (Dollfus 1942). The numbers of dead and live parasites were recorded.

RESULTS

H. trichiuri plerocercoids were found in the visceral cavities of 15 species of teleost and 8 species of elasmobranch (Table 1). An adult specimen of *H. trichiuri* was recovered from the spiral valve of the porbeagle shark (*Lamna nasus*), caught off the Kaikoura coast. This was the first known report of an adult *H. trichiuri* from New Zealand waters. Of the 23 hosts recorded in this study 10 of these were new host records for *H. trichiuri*.

Plerocercoids of *H. megacephalum* were found in 4 species of elasmobranch (Table 2). Skate (*Raja* sp.) was the only new host record.

DISCUSSION

This study reports ten new hosts for *H. trichiuri*, and one for *H. megacephalum*.

Table 1. State of infection in teleost and elasmobranch by the marine tapeworm, *Hepatoxylon trichiuri*. *, new host record; N, number of fish; SE, standard error of mean.

Host	N	% infected	Total no. parasites	Mean/host (\pm SE)	No. alive	Alive:dead
<i>Genypterus blacodes</i> (ling)	100	93	3613	39 \pm 44	2	1:1806
<i>Hyperoglyphe antarctica</i> * (blue nose)	103	79	456	6 \pm 6	37	1:11
<i>Rexea solandri</i> * (southern kingfish)	71	98	314	4 \pm 3	82	1:2.8
<i>Macruronas novaezelandiae</i> (hoki)	63	89	421	8 \pm 9	418	1393:1
<i>Polyprion oxygeneios</i> (groper)	33	24	31	4 \pm 2	0	0:31
<i>Merluccius australis</i> (English hake)	1	-	20	-	15	3:1
<i>Beryx splendens</i> * (alfonsino)	7	43	3	-	2	2:1
<i>Hoplichthys haswelli</i> * (flathead)	4	50	2	-	0	2:1
<i>Mora moro</i> * (deep sea cod)	1	-	3	-	0	0:3
<i>Cyttus novaezelandiae</i> (silver dory)	1	-	1	-	0	0:1
<i>Cyttus traversi</i> * (lookdown dory)	1	-	1	-	0	0:1
<i>Caesioperca lepidoptera</i> * (butterfly perch)	5	20	1	-	0	0:1
<i>Lepidopus caudatus</i> (frostfish)	1	-	3	-	3	3:0
<i>Thyrssites atun</i> (barracouta)	1	-	1	-	1	1:0
<i>Pseudophycis bachus</i> (red cod)	10	10	1	-	0	0:1
<i>Dalatias licha</i> (black shark)	22	54	56	5 \pm 8	261:1	
<i>Galeorhinus galeus</i> (school shark)	20	5	2	2 \pm 0	2	2:0
<i>Deania calcea</i> (shovel-nose shark)	12	100	43	4 \pm 0	17	1:1.5
<i>Squalus acanthias</i> (spiny dogfish)	36	8	4	1 \pm 0	1	1:3
<i>Isurus oxyrinchus</i> (mako shark)	1	-	1	-	1	1:0
<i>Prionace glauca</i> (blue shark)	1	-	-	-	1	1:0
<i>Hexanchus griseus</i> * (six-gill shark)	1	-	1	-	1	1:0
<i>Centroscymnus owstonii</i> * (owstons dogfish)	1	-	2	-	2	2:0

Table 2. State of infection in elasmobranch by the marine tapeworm, *Hepatoxylon megacephalum*. *, new host record; N, number of fish; SE, standard error of mean.

Host	N	% infected	Total no. parasites	Mean/host (\pm SE)	No. alive	Alive:dead
<i>Galeorhinus galeus</i> (school shark)	20	45	18	2 \pm 2	16	8:1
<i>Dalatias licha</i> (black shark)	22	5	1	-	1	1:0
<i>Deania calcea</i> (shovel-nose shark)	12	8	1	-	1	1:0
<i>Raja</i> sp.* (skate)	2	100	4	2 \pm 0	4	4:0

Of the hosts of *H. trichiuri* plerocercoids reported in this study, eight are elasmobranch and 15 are teleosts. This is a ratio of 1 elasmobranch to 1.88 teleost hosts. This ratio is similar to the calculated ratio of 1:1.6 using the published New Zealand host records. It is also similar to the world-wide ratio of 1:2.1. These ratios probably reflect the respective ratios of elasmobranch to teleost species in New Zealand and world-wide waters.

This study found *H. megacephalum* plerocercoids in elasmobranch hosts only. World-wide host records show that *H. megacephalum* was found in 27 species elasmobranch, but only in three teleost species (Waterman 1988). The host *Raja* sp. found in the present study is a new host record for *H. megacephalum* plerocercoids.

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