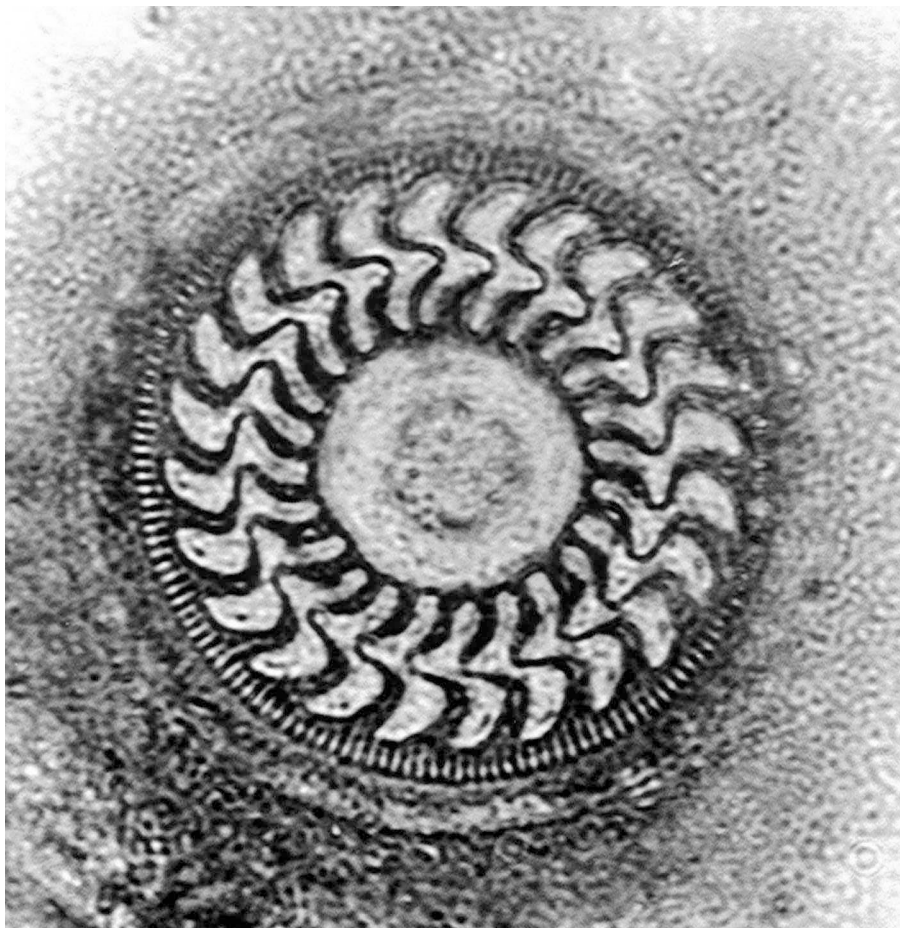


**A checklist of the parasites of New Zealand fishes,
including previously unpublished records**

**P. M. Hine
J. B. Jones
B. K. Diggles**



**NIWA Technical Report 75
ISSN 1174-2631
2000**

A checklist of the parasites of New Zealand fishes, including previously unpublished records

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**Published by NIWA
Wellington
2000**

Inquiries to:
Publication Services, NIWA,
PO Box 14-901, Wellington, New Zealand

**ISSN 1174-2631
ISBN 0-478-08469-2**

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Citation: Hine, P. M., Jones, J. B., & Diggles, B. K. 2000:
A checklist of the parasites of New Zealand fishes,
including previously unpublished records.
NIWA Technical Report 75. 95 p.

Cover: *Trichodina multidentis* from the gills of yellowbelly flounder

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Introduction

An earlier checklist of parasites of New Zealand fishes (Hewitt & Hine 1972) listed 356 parasite species from 143 fish species, most (78%) of which were reported in the 25 years up to 1972. Many of these parasites were reported by parasitologists working specific groups, such as blood parasites (Laird 1951, 1952, 1953), myxosporeans (Meglitsch 1960), digeneans (Manter 1954), monogeneans (Dillon & Hargis 1965a & b, 1968), cestodes (Alexander 1963) and nematodes (Brunsdon 1956).

The checklist of Hewitt & Hine (1972) is here updated to 1999. The species reported in the earlier checklist are listed here, but, for the sake of brevity, the references to those species are not included. The fish species listed here each have a code that indicates whether they are freshwater (**F**), shallow water (**SW**), inshore shelf (**I**), central to outer shelf (**C**), or outer shelf/oceanic (**O**), whether they are agnathans (lampreys and hagfishes) (**A**), elasmobranchs (sharks and rays) (**E**), holocephalans (ghost sharks) (**H**), or teleosts (**T**), and whether they are pelagic (**P**) or demersal (**D**). Each fish species then has its own number. This system has also been applied to the listed fishes from Hewitt & Hine (1972), and the taxonomy of fishes listed in Hewitt & Hine (1972) has been updated.

This paper firstly lists the hosts and their parasites. Hosts are in most cases listed alphabetically by genera within each host group (elasmobranchs, teleosts, etc) and within pelagic and demersal groups. Where the name is followed by “(see Hewitt & Hine 1972)”, this indicates that all the records occur in the earlier checklist. Where “(see also Hewitt & Hine 1972)” is used, this means that some of the records occur in the earlier checklist, and some are new. A list of the parasites and the hosts in which they occur is then given.

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FT4 <i>Cheimarrichthys fosteri</i> Torrentfish	
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FT20 <i>Oncorhynchus mykiss</i> (syn. <i>Salmo gairdneri</i>) Rainbow trout	
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FT22 <i>Oncorhynchus tshawytscha</i> Chinook salmon	
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SWT7 <i>Ericentrus rubrus</i> (syn. <i>Ericentrus ruber</i>)	
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SWT13 <i>Mugil cephalus</i> Grey mullet	
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SWT16 <i>Odax cyanoallix</i> Blue-finned butterfish	
SWT17 <i>Paranotothenia colbecki</i> (syn. <i>Notothenia colbecki</i>)	
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SWT19 *Pelotretis flavilatus* Lemon sole
 SWT20 *Peltorhamphus novaezeelandiae* New Zealand sole
 SWT21 *Notalabrus* (syn. *Pseudolabrus*) *celidotus* Spotty
 SWT22 *Notalabrus cinctus* (syn. *Pseudolabrus cinctus*) Girdled wrasse
 SWT23 *Notalabrus* (syn. *Pseudolabrus*) *fucicola* Bearded wrasse
 SWT24 *Pseudolabrus miles* Scarlet wrasse
 SWT25 *Rhombosolea leporina* Yellowbelly flounder
 SWT26 *Rhombosolea plebeia* Sand flounder
 SWT27 *Rhombosolea retiaria* Black flounder
 SWT28 *Rhombosolea tapirina* Greenback flounder
 SWT29 *Rhombosolea* sp. Flounder
 SWT30 *Scorpaena cardinalis* Hapuku's grandfather
 SWT31 *Scorpaena papillosus* (syn. *Helicolenus papillosus*) Red rock cod
 SWT32 *Spheroides richiei* (syn. *Contusus richiei*) Globefish
 SWT33 *Trachelochismus melobesia* Lumpfish
 SWT34 *Tripterygion* sp. Triplefin

Inshore shelf 29

Pelagic 29

IPE1 *Alopias vulpinus* Thresher shark
 IPT1 *Arripis trutta* Kahawai
 IPT2 *Pseudocaranx dentex* (syn. *Caranx georgianus*, *Caranx lutescens*) Trevally
 IPT3 *Sardinops sagax neopilchardus* Pilchard
 IPT4 *Scorpius aequipinnis* Sweep, hui
 IPT5 *Scorpius violaceus* Blue maomao
 IPT6 *Seriola hippos* Samson fish
 IPT7 *Seriola lalandi* Yellowtail kingfish

Demersal 31

IDE1 *Cephaloscyllium isabella* Carpet shark
 IDE2 *Dasyatis* sp.
 IDE3 *Galeorhinus australis* School shark
 IDE4 *Mustelus lenticulatus* (syn. *Mustelus antarcticus*) Rig
 IDE5 *Myliobatis tenuicaudatus* Eagle ray
 IDE6 *Notorhynchus cepedianus* Broadsnouted seven-gill shark
 IDE7 *Raja nasuta* Rough skate
 IDE8 *Sphyrna zygaena* Hammerhead shark
 IDH1 *Callorhinchus milii* Elephantfish
 IDT1 *Allomycterus jaculiferus* Porcupine fish
 IDT2 *Caesioperca lepidoptera* Red perch
 IDT3 *Cheilodactylus douglasii* Porae
 IDT4 *Cheilodactylus spectabilis* (syn. *Chironemus spectabilis*) Red moki
 IDT5 *Chelidonichthys kumu* Red gurnard
 IDT6 *Congiopodus leucopaecilus* Pigfish
 IDT7 *Ellerkeldia semicincta* Half-banded sea perch
 IDT8 *Genyagnus monopterygius* Spotted stargazer
 IDT9 *Gnathophis habenatus* Silver conger eel
 IDT10 *Hemerocoetes monopterygius* Opalfish
 IDT11 *Hemerocoetes waitei*
 IDT12 *Latridopsis ciliaris* Blue moki

IDT13 *Latris lineata* Trumpeter
IDT14 *Lepidoperca aurantia* (syn. *Anthias pulchellus*)
IDT15 *Lepidotrigla brachyoptera* Spotted gurnard
IDT16 *Lotella rhacina* Rock cod
IDT17 *Pagrus auratus* (syn. *Chrysophrys auratus*) Snapper
IDT18 *Paranotothenia* (syn. *Notothenia*) *microlepidota* Black cod
IDT19 *Parapercis colias* Blue cod
IDT20 *Parika* (syn. *Cantherines*) *scaber* Leatherjacket
IDT21 *Paristiopodus labiosus* Giant boarfish
IDT22 *Pseudophycis breviuscula* Northern bastard red cod
IDT23 *Pteraclis velifer* Batfish
IDT24 *Seriolella brama* Blue warehou
IDT25 *Zanclistius elevatus* Longfinned boarfish
IDT26 *Zeus faber* John dory

Central to outer shelf 41

Pelagic 41

CPT1 *Scomber australasicus* Blue mackerel
CPT2 *Scomber* sp.
CPT3 *Trachurus declivis* Herring scad
CPT4 *Trachurus novaezelandiae* Jack mackerel

Demersal 42

CDA1 *Eptatretus cirrhatus* Hagfish
CDE1 *Raja* sp. Skate
CDE2 *Squalus acanthias* Spiny dogfish
CDE3 *Squalus* sp.
CDE4 *Torpedo fairchildi* Electric ray
CDE5 *Typhlonarke aysoni* Blind electric skate
CDT1 *Arnoglossus scapha* Witch, megrim
CDT2 *Beryx splendens* Alfonsino
CDT3 *Capromimus abbreviatus* Rough dory
CDT4 *Genypterus blacodes* Ling
CDT5 *Hyperoglyphe antarctica* (syn. *Hyperoglyphe porosa*) Bluenose
CDT6 *Kathetostoma giganteum* Monkfish
CDT7 *Lepidopus caudatus* Frostfish
CDT8 *Nemadactylus macropterus* (syn. *Cheilodactylus macropterus*) Tarakihi
CDT9 *Paranotothenia* (syn. *Notothenia*) *microlepidota* Black cod
CDT10 *Paratrachichthys trailli* Roughy
CDT11 *Plagiogenion rubiginosus*
CDT12 *Polyprion moene* Bass, moene
CDT13 *Polyprion oxygeneios* Groper, hapuku
CDT14 *Pseudophycis bachus* (syn. *Physiculus bachus*) Red cod
CDT15 *Rexea solandri* Gemfish
CDT16 *Thyrsites atun* Barracouta
CDT17 *Zenopsis nebulosus* Mirror dory

Outer shelf/oceanic 52

Pelagic 52

- OPE1 *Carcharodon carcharias* White shark
- OPE2 *Cetorhinus maximus* Basking shark
- OPE3 *Isurus oxyrinchus* Mako shark
- OPE4 *Lamna nasus* Porbeagle shark
- OPE5 *Prionace glauca* Blue shark
- OPE6 *Scymnodon plunketi* Plunket's shark
- OPT1 *Allothunnus fallai* Slender tuna
- OPT2 *Centriscomps humerosus* Bellowsfish
- OPT3 *Centrolophus niger* Rudderfish
- OPT4 *Katsuwonus pelamis* Skipjack tuna
- OPT5 *Lampanyctodes hectoris* Lanternfish
- OPT6 *Lampris guttatus* (syn. *Lampris regius*) Moonfish
- OPT7 *Makaira indica* (syn. *Makaira mazara*) Black marlin
- OPT8 *Mola mola* Sunfish
- OPT9 *Remora brachyptera* Grey marlinsucker
- OPT10 *Tetrapturus audax* (syn. *Makaira mitsukurii*) Striped marlin
- OPT11 *Thunnus alalunga* Albacore tuna
- OPT12 *Thunnus albacares* Yellowfin tuna
- OPT13 *Thunnus maccoyii* Bluefin tuna
- OPT14 *Thunnus obesus* Bigeye tuna
- OPT15 *Trachurus murphii* Murphy's mackerel
- OPT16 Unidentified marlin given as *Histiophorus herschelii*
- OPT17 *Xiphias gladius* Broadbill swordfish

Demersal 57

- ODE1 *Bathyrajah* sp.
- ODE2 *Centroscymnus owstoni* Smoothskin dogfish
- ODE3 *Dalatias licha* Black shark
- ODE4 *Deania calcea* Shovelnosed shark
- ODE5 *Etmopterus baxteri* Baxter's shark
- ODE6 *Etmopterus* sp.
- ODE7 *Hexanchus griseus* Six-gill shark
- ODE8 *Oxynotus bruniensis* Prickly shark
- ODH1 Ghost sharks (Chimaeriformes)
- ODT1 *Alepocephalus australis* Small scaled brown slickhead
- ODT2 *Antimora rostrata* Violet cod
- ODT3 *Argentina elongata* Silverside
- ODT4 *Bathylagus antarcticus*
- ODT5 *Brama brama* Ray's bream
- ODT6 *Coelorinchus aspercephalis* Oblique banded rattail
- ODT7 *Coelorinchus australis* Rattail
- ODT8 *Coelorinchus bollonsi* Rattail
- ODT9 *Coelorinchus fasciatus*
- ODT10 *Coelorinchus innotabilis*
- ODT11 *Coelorinchus kermadecus*
- ODT12 *Coelorinchus* sp. Rattail
- ODT13 *Coelorinchus* sp. c
- ODT14 *Coelorinchus* sp. 3
- ODT15 *Coryphaenoides rudis*

ODT16 *Coryphaenoides serratulus*
 ODT17 *Cyttus novaezealandiae* (syn. *Cyttus australis*) Silver dory
 ODT18 *Cyttus traversi* Lookdown dory
 ODT19 *Emmelichthys nitidus* Redbait
 ODT20 *Gadomus aoteanus* Filamentous rattail
 ODT21 *Halargyreus johnsonii* Slender cod
 ODT22 *Hoplichthys haswelli* Flathead
 ODT23 *Hoplostethus atlanticus* Orange roughy
 ODT24 *Lepidion schmidtii*
 ODT25 *Lepidorhynchus denticulatus* Deepsea whiptail
 ODT26 *Macrourus carinatus* Ridge-scaled rattail
 ODT27 *Macruronus novaezealandiae* Hoki
 ODT28 *Merluccius australis* (syn. *Merluccius gayi*) Hake
 ODT29 *Micromesistius australis* Southern blue whiting
 ODT30 *Mora moro* (syn. *Mora pacifica*) Ribaldo
 ODT31 *Neophrynichthys angustus* Pale toadfish
 ODT32 *Neophrynichthys latus* Toadfish
 ODT33 *Nezumia bubonis* Bulbous rattail
 ODT34 *Notacanthus seppinis* Spiny eel
 ODT35 *Notopogon lilliei* Bellowsfish
 ODT36 *Psychrolutes* sp. Blobfish
 ODT37 *Seriolella caerulea* White warehou
 ODT38 *Seriolella punctata* (syn. *Seriolella maculata*, *S. porosa*) Silver warehou
 ODT39 *Simenchelys parasiticus* Parasitic eel
 ODT40 *Trachyrincus longirostris*
 ODT41 *Trachyrincus* sp.
 ODT42 *Ventrifossa nigromaculata* Blackspot rattail
 ODT43 *Allocyttus niger* Black oreo
 ODT 44 *Neocyttus rhomboidalis* Spiky oreo
 ODT 45 *Pseudocyttus maculatus* Smooth oreo

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Species examined

Freshwater

FT1 *Anguilla australis* Short-finned eel (see also Hewitt & Hine 1972)

PROTOZOA

Epieimeria anguillae (syn. *Eimeria anguillae*): intestine (Hine 1975b, Boustead 1982)

Scyphidia sp.: gills (Boustead 1982)

Trichodina sp.: surface, gills (Hine 1975a, McArthur 1976)

MYXOSPOREA

Chloromyxum sp.: urinary bladder (Hine 1978a)

Henneguya sp.: intestine (Hine 1978a)

Myxidium giardi (syn. *Myxidium zealandicum*, *Myxidium serum* Hine 1975): gills, gill arches, skin, wall of swim and urinary bladders, serosal stomach of surface, free spores in liver, gall and urinary bladders (Hine 1975a, 1978a, 1978b, 1979, 1980c)

Myxidium acinum: gills (Hine 1975a, 1980c)

Myxidium sp.: gills, reticulo-histiocytic cells, trophozoite in gall bladder (Hine & Boustead 1974, Hine 1975b, McArthur 1977, Boustead 1982)

Myxobolus sp.: skin, muscle, free spores in liver, urinary bladder and reticulo-histiocytic cells (Hine & Boustead 1974, McArthur 1977, Hine 1978a, Boustead 1982, McArthur & Sengupta 1982a)

Thelohanellus sp.: skin (Hine 1978a)

DIGenea

Coitocaecum parvum (syn. *Coitocaecum anaspidis*): intestine (Hine 1978a, 1980a, Hine & Francis 1980, Holton 1984a)

Coitocaecum zealandicum: intestine and rectum (Hine 1978a, Holton 1984a)

Deretrema minutum: intestine (Hine 1978a)

Grassitrema prudhoei: stomach (Yeh 1955)

Lecithochirium sp.: intestine (Rid 1973)

Paracardicoloides yamagutii: circulatory system, especially gills (Hine 1978a, 1980a)

Phyllodistomum magnificum Cribb 1987 (syn. *Phyllodistomum anguillae*): urinary bladder (Hine 1978a, 1980a, Boustead 1982, Cribb 1987)

Stegodexamene anguillae: anterior intestine (Rid 1973, Hine 1978a, 1980a, Hine & Francis 1980)

Telogaster opisthorchis: rectum (Rid 1973, McArthur 1978, McArthur & Sengupta 1982b, Hine 1978a, 1980a, Hine & Francis 1980)

Tricotyledonia genypteri: stomach

Tubulovesicula angusticauda: stomach

Unidentified bivesiculid: gut (Rid 1973)

Unidentified hemiurid: intestine (Hine 1978a)

CESTODA

Proteocephalid plerocercoid: intestine or body cavity (Hine 1978a)

NEMATODA

*Anguillicola novaezealandiae*¹: swim bladder (Rid 1973, Hine 1978a, Boustead 1982,

¹ The taxonomy of this species has not been satisfactorily addressed. Brunson (1956) described adult worms which conform to *A. novaezealandiae*. Modern authors have relied on previously published material and larval worms to synonymise *A. australiensis* and *A. novaezealandiae*.

Moravec & Tarashevski 1988)

Ascarophis sp.: intestine (Hine 1978a)

Cucullanus sp.: intestine (Rid 1973, Hine 1978a, 1980a, 1980b, Hine & Francis 1980)

Cucullanus sp. b: intestine

Eustrongylides (ignotus?): site not given (Hine 1978a)

Hedruris spinigera: stomach and anterior intestine (Rid 1973, Clark 1978, Hine 1978a, 1980a, Jellyman 1989)

Paraquimperia sp.: anterior intestine (Rid 1973, Hine 1978a, 1980b, Hine & Francis 1980)

Procamallanus sp. (syn. *Spirocamallanus*): mid intestine (Rid 1973, Hine 1978a, 1980a, 1980b, Hine & Francis 1980)

ACANTHOCEPHALA

Acanthocephalus galaxii: intestine (Hine 1977a, Hine 1978a, 1980a)

Neoechinorhynchus aldrichettae: posterior intestine (Hine 1978a)

COPEPODA

Abergasilus amplexus: gills (Hewitt 1978, Hine 1978a, Jones 1981)

MOLLUSCA

Hyridella sp. glochidia: gills (Hine 1978a)

FT2 *Anguilla dieffenbachii* Long-finned eel (see also Hewitt & Hine 1972)

PROTOZOA

Epieimeria anguillae (syn. *Eimeria anguillae*): intestine (Hine 1975b, Boustead 1982)

Trichodina sp.: gills (McArthur 1976, Hine 1978a, Boustead 1982)

MYXOSPOREA

Chloromyxum sp.: urinary bladder (Hine 1978a)

Myxidium giardi (syn. *Myxidium zealandicum*, *Myxidium serum* Hine 1975): gills, gill arches, skin, wall of swim and urinary bladders, serosal stomach of surface, free spores in liver, gall and urinary bladders (Hine 1975a, 1978a, 1978b, 1979, 1980c, McArthur & Sengupta 1982a)

Myxidium acinum: gills (Hine 1975a, 1980c)

Myxidium sp.: gills, reticulo-histiocytic cells, trophozoite in gall bladder (Hine & Boustead 1974, Hine 1975b, McArthur 1977, Boustead 1982)

Myxobolus sp.: skin, muscle, free spores in liver, urinary bladder and reticulo-histiocytic cells (McArthur 1977, Hine 1978a, Boustead 1982, McArthur & Sengupta 1982a)

Thelohanellus sp.: skin (Hine 1978a)

DIGENEA

Coitocaecum parvum (syn. *Coitocaecum anaspidis*): intestine (Hine 1978a, 1980a, Holton 1984a)

Coitocaecum zealandicum: intestine and rectum (Hine 1978a, Holton 1984a)

Deretrema minutum: intestine (Hine 1978a)

Grassitrema prudhoei: stomach (Yeh 1955)

Paracardicoloides yamagutii: circulatory system, especially gills (Hine 1978a, 1980a)

Phyllodistomum magnificum (syn. *Phyllodistomum anguillae*): urinary bladder (Hine 1978a, 1980a, Boustead 1982, Cribb 1987)

Stegodexamene anguillae: mid intestine (Rid 1973, Hine 1978a, 1980a, Hine & Francis 1980)

Telogaster opisthorchis: posterior intestine (Rid 1973, McArthur 1978, McArthur & Sengupta 1982b, Hine 1978a, 1980a, Hine & Francis 1980)

Tricotyledonia genypteri: stomach

Tubulovesicula angusticauda: stomach

Unidentified bivesiculid: gut (Rid 1973)

Unidentified hemiurid: intestine (Hine 1978a)

CESTODA

Proteocephalid plerocercoid: intestine (Hine 1978a)

NEMATODA

Anguillicola novaezealandiae : swim bladder (Rid 1973, Hine 1978a, Boustead 1982, Moravec & Tarashevski 1988)

Ascarophis sp. d: stomach

Cucullanus sp.: intestine (Rid 1973, Hine 1978a, 1980a, 1980b, Hine & Francis 1980)

Cucullanus sp. a: intestine

Cucullanus sp. b: intestine

Eustrongylides (ignotus?): site not given (Hine 1978a)

Hedruris spinigera: stomach and anterior intestine (Hine 1978a, 1980a, Jellyman 1989)

Paranisakis sp. larva: encysted in stomach wall (Hine 1978a)

Paraquimperia sp.: mid intestine (Hine 1980b)

Philometra sp. a: body cavity

Procamallanus sp. (syn. *Spirocamallanus*): mid intestine (Rid 1973, Hine 1978a, 1980a, 1980b, Hine & Francis 1980, Boustead 1982)

Hysterothylacium (syn. *Thynnascaris*) sp. larvae: stomach

ACANTHOCEPHALA

Acanthocephalus galaxii: intestine (Hine 1977a, Hine 1978a, 1980a)

COPEPODA

Abergasilus amplexus: gills (Hewitt 1978, Hine 1978a)

MOLLUSCA

Hyridella sp. glochidia: gills (Hine 1978a)

Other parasites of *Anguilla* spp.

PROTOZOA

Chilodonella sp.: gills, body surface (Boustead 1982)

Ichthyophthirius multifiliis: gills, body surface (Hine & Boustead 1974, Hine 1978a, Boustead 1982)

FT3 *Carassius auratus* Goldfish (see also Hewitt & Hine 1972)

DIGenea

Coitocaecum parvum (syn. *Coitocaecum anspidis*): intestine (Holton 1984a, McDowall 1990)

COPEPODA

Abergasilus amplexus: gills (Hewitt 1978)

Argulus japonicus: surface (Boustead 1982)

Lernaea cyprinacea: surface (Boustead 1982)

FT4 *Cheimarrichthys fosteri* Torrentfish

MYXOSPOREA

Myxobolus sp.: skin (Hine & Boustead 1974)

DIGENEA

Coitocaecum zealandicum: intestine and rectum (Hine 1977d, Holton 1984a)

FT5 *Ctenopharyngodon idella* Grass carp

PROTOZOA

Ichthyophthirius multifiliis: scales and fins (Edwards & Hine 1974)

Tripartiella sp.: scales and fins (Edwards & Hine 1974)

MONOGENEA

Dactylogyrus ctenopharyngodonis: gills (Edwards & Hine 1974)

Gyrodactylus ctenopharyngodontis: scales and fins (Edwards & Hine 1974)

CESTODA

Bothriocephalus gowkongensis: intestine (Edwards & Hine 1974, Boustead 1982)

COPEPODA

Lernaea cyrinacaea: surface and musculature, copepodites on gills (Edwards & Hine 1974)

FT6 *Galaxias argenteus* Giant kokopu

ACANTHOCEPHALA

Acanthocephalus galaxii: intestine (Hine 1977a)

FT7 *Galaxias brevipinnis* Koaro (see also Hewitt & Hine 1972)

PROTOZOA

Ichthyophthirius multifiliis: surface and gills (Boustead 1982)

MYXOSPOREA

Myxobolus sp.: muscle (Boustead 1982)

MONOGENEA

Gyrodactylus sp.: gills (Boustead 1982)

DIGENEA

Coitocaecum parvum (syn. *Coitocaecum anspidis*): intestine (Holton 1984a, McDowall 1990)

Deretrema sp.: gall bladder (McDowall 1978)

Phyllodistomum magnificum (syn. *Phyllodistomum anguillae*): urinary bladder

Stegodexamene anguillae: muscle, liver (MacFarlane 1951, McDowall 1978, Boustead 1982)

Telogaster opisthorchis: site not given (McDowall 1978)

MOLLUSCA

Hyridella sp. glochidia: gills (Boustead 1982)

FT8 *Galaxias divergens* Dwarf galaxias

DIGENEA

Deretrema philippae: gall bladder (Hine 1977d)

Stegodexamene anguillae: site not given (McDowall 1978)

Telogaster opisthorchis: site not given (McDowall 1978)

FT9 *Galaxias fasciatus* Banded kokopu

DIGENEA

Telogaster opisthorchis: site not given (McDowall 1978)

FT10 *Galaxias maculatus* Inanga (see also Hewitt & Hine 1972)

MYXOSPOREA

Myxobolus iucundus: musculature (Hine 1977c)

DIGENEA

Coitocaecum parvum (syn. *Coitocaecum anspidis*): intestine (Holton 1984a, McDowall 1990)

Deretrema minutum: intestine (Holton 1983)

Stegodexamene anguillae: site not given (McDowall 1978)

Telogaster opisthorchis: site not given (McDowall 1978)

CESTODA

Nippotaenia contorta: anterior and mid intestine (Hine 1977b)

NEMATODA

Aphelenchus sp.: stomach, possibly from food

Dorylaimus sp.: stomach, possibly from food

Eustrongylides (ignotus?): site not given (Hine 1978a)

Hedruris spinigera: stomach

ACANTHOCEPHALA

Acanthocephalus galaxii: intestine (Hine 1977a)

COPEPODA

Abergasilus amplexus: gills (Hewitt 1978)

FT11 *Galaxias postvectis* Short-jawed kokopu

DIGENEA

Telogaster opisthorchis: site not given (McDowall 1978)

FT12 *Galaxias vulgaris* Common river galaxias

DIGenea

Telogaster opisthorchis: site not given (McDowall 1978, Poulin 1993)

NEMATOMORPHA

Larval horsehair worms: cysts in gut wall (Blair 1983)

FT13 *Gobiomorphus basalis* Cran's bully

NEMATODA

Hedruris spinigera: site not given (Webb 1973)

ACANTHOCEPHALA

Acanthocephalus galaxii: intestine (Hine 1977a)

FT14 *Gobiomorphus breviceps* Upland bully

DIGenea

Coitocaecum sp.: gut (Blair 1983)

Coitocaecum parvum (syn. *Coitocaecum anspidis*): intestine (Holton 1984a, McDowall 1990)

Stegodexamene anguillae: body cavity (McDowall 1978, Boustead 1982)

Telogaster opisthorchis: body cavity (Boustead 1982, Poulin 1993, Hamilton & Poulin 1995, Stott & Poulin 1996)

NEMATODA

Eustrongylides (*ignotus*?): site not given (Hine 1978a)

NEMATOMORPHA

Larval horsehair worms: cysts in gut wall (Blair 1983)

FT15 *Gobiomorphus cotidianus* Common bully

PROTOZOA

Ichthyophthirius multifiliis: surface (Boustead 1982)

DIGenea

Coitocaecum parvum (syn. *Coitocaecum anspidis*): intestine (Holton 1984a, McDowall 1990)

Coitocaecum zealandicum: site not given (Hine 1977d)

Deretrema philippae: gall bladder (Weekes 1983)

Stegodexamene anguillae: liver (Hine 1978a, McDowall 1978, Holton 1984b)

Telogaster opisthorchis: site not given (McDowall 1978)

CESTODA

Amurotaenia decidua: intestine (Hine 1977b)

Ligula intestinalis: body cavity (Weekes & Penlington 1986)

ACANTHOCEPHALA

Acanthocephalus galaxii: intestine (Hine 1977a)

FT16 *Gobiomorphus gobioides* Giant bully (see also Hewitt & Hine 1972)

DIGenea

Coitocaecum parvum (syn. *Coitocaecum anspidis*): intestine

Phyllodistomum magnificum (syn. *Phyllodistomum anguillae*): urinary bladder

Stegodexamene anguillae metacercaria: muscle

NEMATODA

Eustrongylides (ignotus?) site not given (Hine 1978a)

FT17 *Gobiomorphus hubbsi* Blue-gilled bully

DIGenea

Coitocaecum parvum (syn. *Coitocaecum anspidis*): intestine (Jones: unpublished record)

Coitocaecum zealandicum: site not given (Hine 1977d)

Deretrema sp.: gall bladder (McDowall 1978)

Telogaster opisthorchis: musculature (Hine 1978a, McDowall 1978)

FT18 *Gobiomorphus huttoni* Red-finned bully

PROTOZOA

Microsporidium sp.: gills (Jones: unpublished record)

DIGenea

Coitocaecum parvum (syn. *Coitocaecum anspidis*): intestine (Holton 1984a, McDowall 1990)

Coitocaecum zealandicum: site not given (Hine 1977d)

Telogaster opisthorchis: site not given (McDowall 1978)

ACANTHOCEPHALA

Acanthocephalan: site not given (McDowall 1978)

FT19 *Neochanna apoda* Brown mudfish

DIGenea

Echinostome: encysted (Eldon 1978)

Telogaster opisthorchis: liver and gonads (Eldon 1978, McDowall 1978, Boustead 1982)

NEMATODA

Hedruris spinigera: stomach (Eldon 1978)

Unidentified rhabditoids: stomach (Eldon 1978)

ACANTHOCEPHALA

Acanthocephalan: (Eldon 1978)

FT20 *Oncorhynchus mykiss* (syn. *Salmo gairdneri*) Rainbow trout (see also Hewitt & Hine 1972)

PROTOZOA

Ichthyophthirius multifiliis: surface, gills (Boustead 1982)

MYXOSPOREA

Myxobolus cerebralis (syn. *Myxosoma cerebralis*): cartilage, cranium (Hewitt 1972, Hewitt & Little 1972, Boustead 1982, 1993)

CESTODA

Ligula intestinalis: stomach, intestine, body cavity (Weekes & Penlington 1986)

NEMATODA

Eustrongylides (ignotus?): site not given (Hine 1978a, Boustead 1982)

Hysterothylacium (syn. *Contracaecum*) sp.: throat (Boustead 1982), stomach

MOLLUSCA

Hyridella sp. glochidia: gills (Boustead 1982)

FT21 *Oncorhynchus nerka* Sockeye salmon

NEMATODA

Eustrongylides (ignotus?): site not given (Hine 1978a)

COPEPODA

Caligus longicaudatus: skin (Jones 1988a)

FT22 *Oncorhynchus tshawytscha* Chinook salmon (see also Hewitt & Hine 1972)

PROTOZOA

Ichthyophthirius multifiliis: body surface, gills (Boustead 1982)

Paramoeba sp.: gills (Howard & Carson 1993 cited in Akhlaghi *et al.* 1996)

MYXOSPOREA

Myxobolus cerebralis (syn. *Myxosoma cerebralis*): cartilage, cranium (Boustead 1993)

DIGENEA

Derogenes varicus: gastrointestinal tract (Margolis & Boyce 1990)

Lecithocladium seriolellae: gastrointestinal tract (Margolis & Boyce 1990)

Parahemiurus sp.: gastrointestinal tract (Margolis & Boyce 1990)

Tubulovesicula angusticauda: gastrointestinal tract (Margolis & Boyce 1990)

CESTODA

Tetraphyllidean metacestode (*Phyllobothrium* sp.): gastrointestinal tract (Margolis & Boyce 1990)

Unidentified trypanorhynch: ovary (Boustead 1982)

NEMATODA

Hedruris spinigera: stomach

Hysterothylacium (syn. *Contracaecum*) sp.: gastrointestinal tract (Margolis & Boyce 1990)

COPEPODA

Paemonodes nemaformis: gills, operculum, bases pectoral fins

ISOPODA

Cirolana sp. (syn. *Nerocila* sp.): mouth (Boustead 1982)

FT23 *Perca fluviatilis* Red-finned perch

NEMATODA

Hedruris spinigera: stomach and anterior intestine (Griffith 1976)

COPEPODA

Abergasilus amplexus: gills (Hewitt 1978)

FT24 *Retropinna retropinna* (syn. *Retropinna lacustris*) Smelt (see also Hewitt & Hine 1972)

DIGENEA

Coitocaecum parvum (syn. *Coitocaecum anspidis*): intestine (Holton 1984a, McDowall 1990)

Deretrema minutum: intestine (Holton 1983)

Telogaster opisthorchis: site not given (McDowall 1978, 1990)

CESTODA

Nippotaenia contorta: anterior and mid intestine (Hine 1977b)

Nippotaenia fragilis: anterior and mid intestine (Hine 1977b)

Hymenolepid cysticeroid: intestine

NEMATODA

Hedruris spinigera: stomach and pylorus (Clark 1978, Hine 1978a)

Hysterothylacium (syn. *Thynnascaris*) sp. larvae: in stomach, intestine and body cavity

ACANTHOCEPHALA

Acanthocephalus galaxii: intestine (Hine 1977a)

Unidentified acanthocephalan: site not given (McDowall 1978)

COPEPODA

Abergasilus amplexus: gills (Hewitt 1978, Jones 1981)

MOLLUSCA

Hyridella sp. glochidia: gills (Boustead 1982)

FT25 *Salmo trutta* Brown trout (see also Hewitt & Hine 1972)

MYXOSPOREA

Myxobolus cerebralis (syn. *Myxosoma cerebralis*): cartilage, cranium (Boustead 1993)

DIGENEA

Coitocaecum parvum (syn. *Coitocaecum anspidis*): intestine (Holton 1984a, McDowall 1990)

Derogenes varicus: stomach

Lecithocladium magnacetabulum: stomach

Lecithocladium seriolellae: stomach

Telogaster opisthorchis metacercaria: muscle

CESTODA

Pelichnobothrium (?) sp.: pyloric caeca and rectum

NEMATODA

Cucullanus antipodeus: stomach

Eustrongylides (ignotus?): stomach wall (Hine 1978a, Boustead 1982)

Hedruris spinigera: stomach

Hysterothylacium (syn. *Thynnascaris*) *aduncum* larvae: site not recorded

Hysterothylacium (syn. *Thynnascaris*) sp. larvae: site not recorded

ACANTHOCEPHALA

Corynosoma sp. encysted acanthellae: around pyloric caeca

Corynosoma sp. immature adults: wall of duodenum

COPEPODA

Paeonodes nemaformis: gills, operculum, bases of pectoral fins

ISOPODA

Nerocila orbigny: gills, fins, lower body surface (Scott 1964)

FT26 *Salvelinus fontinalis* Brook trout

PROTOZOA

Myxobolus (syn. *Myxosoma*) *cerebralis*: retrieved spores (Boustead 1993)

FT27 *Tinca tinca* Tench

NEMATODA

Eustrongylides (ignotus?): site not given (Hine 1978a)

Shallow water

SWT1 *Acanthoclinus quadridactylus* Rockfish (see Hewitt & Hine 1972)

PROTOZOA

Haemogregarina (Hepatozoon?) *acanthoclini*: blood

Scyphidia (*Gerda*) *acanthoclini*: gills

Trichodina multidentis: gills

Trichodina parabbranchicola: branchiae

MYXOSPOREA

Myxidium incurvatum: gall bladder

SWT2 *Acanthoclinus trilineatus* (see Hewitt & Hine 1972)

PROTOZOA

Trichodina parabbranchicola: branchiae

SWT3 *Aldrichetta forsteri* Yellow-eyed mullet (see also Hewitt & Hine 1972)

MONOGENEA

Diplasiocotyle johnstoni: gills, pleurobranchs (Rohde *et al.* 1980)

DIGENEA

Tergestia agnostomi: intestine (Jones 1978)

CESTODA

Lacistorhynchus tenue (syn. *Lacistorhynchus tenuis*) pleurocercus: body cavity

NEMATODA

Anisakis sp. larvae: encapsulated on viscera, mesenteries and under peritoneum

Hedruris spinigera: site not given (Webb 1973)

Hysterothylacium (syn. *Thynnascaris*) sp. larvae: body cavity and gut

ACANTHOCEPHALA

Neoechinorhynchus aldrichettae: intestine (Boustead 1982)

Neoechinorhynchus chilkaensis: site not given (Webb 1973)

COPEPODA

Lernaea sp.: surface (Boustead 1982)

SWT4 *Conger verreauxi* Conger eel (see also Hewitt & Hine 1972)

DIGENEA

Brevicreadium congeri: intestine

Derogenes varicus: stomach

Dolichoenterum longissimum: intestine

Lecithochirium conviva: stomach

Lecithochirium flexum: stomach

Lepidapedon congeri: intestine

Podocotyle caithnessi: intestine

Tricotylelonia genypteri: stomach
Tubulovesicula angusticauda: stomach

NEMATODA

Anisakis sp. larvae: encapsulated on viscera, mesenteries and under peritoneum
Ascarophis sp. b: stomach
Cucullanus robustus: intestine
Hysterothylacium (syn. *Thynnascaris*) *aduncum*: two types, in stomach, intestine, body cavity
Hysterothylacium (syn. *Thynnascaris*) sp. larvae: two types, in stomach, intestine, body cavity

COPEPODA

Congericola kabatai (formerly *Congericola pallidus*): gills (Hewitt 1975)

SWT5 *Crapatulus novaezelandiae* (see Hewitt & Hine 1972)

NEMATODA

Hysterothylacium (syn. *Thynnascaris*) sp. larvae: in stomach, intestine, body cavity

SWT6 *Diplocrepis puniceus* Clingfish (see Hewitt & Hine 1972)

PROTOZOA

Trichodina multidentis: gills
Trichodina parabbranchicola: on branchiae, outside operculum, ventral sucker

MYXOSPOREA

Davisia diplocrepis: urinary bladder
Leptotheca subelegans: bile
Myxidium incurvatum: gall bladder

SWT7 *Ericentrus rubrus* (syn. *Ericentrus ruber*) (see Hewitt & Hine 1972)

PROTOZOA

Caliperia longipes: gills
Haemogregarina bigemina: blood
Trichodina multidentis: gills
Trichodina parabbranchicola: gills
Trypanosoma tripterygium: blood

SWT8 *Forsterygion varium* (see Hewitt & Hine 1972)

PROTOZOA

Haemogregarina bigemina: blood
Trichodina multidentis: gills
Trichodina parabbranchicola: gills
Trypanosoma tripterygium: blood

MYXOSPOREA

Myxobolus (syn. *Myxosoma*) *tripterygii*: subdermal connective tissue of caudal peduncle

Sphaeromyxa tripterygii: gall bladder

Zschokkella sp.: urinary bladder

MONOGENEA

Microcotyle brevis: gills

SWT9 *Gobiopsis atrata* (syn. *Callogobius atratus*) Goby (see Hewitt & Hine 1972)

MYXOSPOREA

Leptotheca subelegans: bile

SWT10 *Helcogramma medium* (see Hewitt & Hine 1972)

PROTOZOA

Endosphaera engelmanni: in *Trichodina multidentis*

Haemogregarina bigemina: blood

Trichodina multidentis: gills

Trichodina parabbranchicola: gills

Trypanosoma tripterygium: blood

MYXOSPOREA

Sphaeromyxa tripterygii: gall bladder

SWT11 *Hyporhamphus* (syn. *Reporhamphus*) *ihi* Garfish (see Hewitt & Hine 1972)

ACANTHOCEPHALA

Micracanthorhynchina hemirhamphi: stomach

ISOPODA

Codonophilus lineatus: mouth

Irona melanosticta: gill arches, mouth

SWT12 *Leptoscopus macropygus* Stargazer (see Hewitt & Hine 1972)

PROTOZOA

Haemogregarina leptoscopi: blood

NEMATODA

Anisakis sp. larvae: encapsulated on viscera, mesenteries and under peritoneum

Cucullanus sp. a: intestine

Hedruris spinigera: stomach

Hysterothylacium (syn. *Thynnascaris*) sp. larvae: two types, in stomach, intestine, body cavity

HIRUDINEA

Makarabdella manteri: branchial chamber

SWT13 *Mugil cephalus* Grey mullet (see Hewitt & Hine 1972)

NEMATODA

Cucullanellus sp. b: intestine

Cucullanus sp. g: intestine

SWT14 *Notoclinus fenestratus* Top knot (see Hewitt & Hine 1972)

PROTOZOA

Haemogregarina bigemina: blood

Trichodina multidentis: gills

Trichodina parabranhicola: gills

MYXOSPOREA

Myxidium incurvatum: gall bladder

SWT15 *Odax pullus* (syn. *Coridodax pullus*) Butterfish (see also Hewitt & Hine 1972)

DIGENEA

Cardicola coridodacis: gills, coelom

CESTODA

Gymnorhynchus sp.: around spine, behind skull

Lacistorhynchus tenue (syn. *Lacistorhynchus tenuis*) larvae: body wall

NEMATODA

Philometra sp. c: nasal capsule

COPEPODA

Caligus brevis: skin, fins (Jones 1988a)

Lepeophtheirus erecsoni: body surface (Boxshall & Bellwood 1981)

ISOPODA

Codonophilus lineatus: throat

Ceratothoa (syn. *Meinertia*) *trigonocephala*: throat (Avdeev 1978)

SWT16 *Odax cyanoallix* Blue-finned butterfish

COPEPODA

Caligus brevis: skin, fins (Jones 1988a)

SWT17 *Paranotothenia colbecki* (syn. *Notothenia colbecki*) (see Hewitt & Hine 1972)

MONOGENEA

Pseudobenedenia nototheniae: body surface

NEMATODA

Porrocaecum decipiens larvae: muscles

ISOPODA

Elthusa (syn. *Livoneca*) *raynaudii*: gills

SWT18 *Paranotothenia macrocephala* (syn. *Notothenia macrocephala*) Maori chief (see Hewitt & Hine 1972)

MONOGENEA

Pseudobenedenia nototheniae: body surface

DIGENEA

Choanomyzus tasmaniae: intestine

Derogenes nototheniae: gills and stomach

Mitrostoma nototheniae: caeca and intestine

Proenenterum ericotylum: intestine

Proenenterum isocotylum: intestine

NEMATODA

Porrocaecum decipiens larvae: muscles

SWT19 *Pelotretis flavilatus* Lemon sole (see also Hewitt & Hine 1972)

MYXOSPOREA

Ceratomyxa uncinata: gall bladder

MONOGENEA

Neobivagina pelotretis: gills

DIGENEA

Benthotrema richardsoni: intestine

Unidentified echinostomatid metacercaria: skin and muscle (Boustead 1982)

SWT20 *Peltorhamphus novaezeelandiae* New Zealand sole (see also Hewitt & Hine 1972)

MYXOSPOREA

Ceratomyxa nitida: gall bladder

Leptotheca pinguis: gall bladder

Sphaerospora undulans: urinary bladder and ureters

MONOGENEA

Neobivagina pelotretis: gills

NEMATODA

Cucullanellus sp. a: intestine

Cucullanus antipodeus: site not given (Webb 1973)

Hysterothylacium (syn. *Thynnascaris*) *aduncum*: intestine

Hysterothylacium (syn. *Thynnascaris*) sp. larvae: two types, in stomach, intestine, body cavity

ACANTHOCEPHALA

Heteracanthocephalus peltorhampi: site not given (Webb 1973)

SWT21 *Notalabrus* (syn. *Pseudolabrus*) *celidotus* Spotty (see also Hewitt & Hine 1972)

DIGENEA

Decemtestis pseudolabri: intestine

NEMATODA

Hysterothylacium (syn. *Thynnascaris*) sp. larvae: in stomach

COPEPODA

Caligus brevis: skin, fins (Jones 1988a)

Lepeophtheirus erecsoni (syn. *Lepeophtheirus scutiger*): body surface (Boxshall & Bellwood 1981)

SWT22 *Notalabrus cinctus* (syn. *Pseudolabrus cinctus*) Girdled wrasse

COPEPODA

Lepeophtheirus erecsoni (syn. *Lepeophtheirus scutiger*): body surface (Boxshall & Bellwood 1981)

SWT23 *Notalabrus* (syn. *Pseudolabrus*) *fucicola* Bearded wrasse

DIGenea

Myzoxenus crowcrofti: intestine

COPEPODA

Caligus brevis: skin, fins (Jones 1988a)

Lepeophtheirus erecsoni: site not given (Hewitt 1963)

ISOPODA

Gnathia akaroensis: tail (Poore 1981)

SWT24 *Pseudolabrus miles* Scarlet wrasse (see also Hewitt & Hine 1972)

MYXOSPOREA

Ceratomyxa castigatoides: gall bladder

Ceratomyxa sp. h: gall bladder

DIGenea

Plagioporus interruptus: intestine

NEMATODA

Anisakis sp. larvae: encapsulated on viscera, mesenteries, under peritoneum

COPEPODA

Caligus brevis: skin, fins (Jones 1988a)

Lepeophtheirus erecsoni (syn. *Lepeophtheirus scutiger*): body surface (Boxshall & Bellwood 1981)

ISOPODA

Elthusa raynaudii: gills (Poore 1981, Bruce 1990)

SWT25 *Rhombosolea leporina* Yellowbelly flounder (see also Hewitt & Hine 1972)

PROTOZOA

- Microsporidium* sp.: gills and fins (Jones: unpublished record)
- Trichodina parabranchiola*: gills (Diggles: unpublished record)
- Trichodina multidentis*: gills (Diggles: unpublished record)
- Scyphidia* sp.: gills (Diggles: unpublished record)

MYXOSPOREA

- Ceratomyxa* sp.: gall bladder (Diggles: unpublished record)
- Sphaeromyxa* sp.: gall bladder (Diggles: unpublished record)

MONOGENEA

- Gyrodactylus* sp.: gills (Diggles: unpublished record)
- Trichodina* sp.: gall bladder (Diggles: unpublished record)

DIGENEA

- Diphtherostomum* sp.: rectum (Diggles: unpublished record)
- Microphallid sp. a: stomach (Diggles: unpublished record)
- Microphallid sp. b: stomach (Diggles: unpublished record)

CESTODA

- F. Eutetrarhynchidae plerocercus: stomach (Diggles: unpublished record)

NEMATODA

- Anisakis* sp. larvae: encapsulated on viscera, mesenteries, under peritoneum
- Cucullanus antipodeus*: site not given (Webb 1973)
- Cucullanellus* sp. a: intestine
- Ascarophis* sp.: stomach (Diggles: unpublished record)

ACANTHOCEPHALA

- Heteracanthocephalus peltorhampi*: site not given (Webb 1973)

COPEPODA

- Abergasilus amplexus*: gills (Hewitt 1978)
- Caligus epidemicus*: gills, body surface (Diggles: unpublished record)

ISOPODA

- Nerocila orbignyi*: site not given (Webb 1973)

HIRUDINEA

- Piscicolid leech: body surface, gills (Diggles: unpublished record)

SWT26 *Rhombosolea plebeia* Sand flounder (see also Hewitt & Hine 1972)

PROTOZOA

- Trypanosoma caulopsettae*: blood

NEMATODA

- Cucullanellus* sp. a: intestine
- Cucullanus* sp. a: intestine
- Hedruris spinigera*: site not given (Webb 1973), stomach

ACANTHOCEPHALA

Heteracanthocephalus peltorhamphi: site not given (Webb 1973)

Neoechinorhynchus chilkaensis: site not given (Webb 1973)

COPEPODA

Abergasilus amplexus: gills (Jones: unpublished record)

ISOPODA

Nerocila orbignyi: site not given (Webb 1973)

SWT27 *Rhombosolea retiaria* Black flounder (see also Hewitt & Hine 1972)

NEMATODA

Cucullanus antipodeus: site not given (Webb 1973)

Cucullanus sp. a: intestine

Eustrongylides (ignotus?): site not given (Hine 1978a)

Hedruris spinigera: stomach

COPEPODA

Abergasilus amplexus: gills (Hewitt 1978)

SWT28 *Rhombosolea tapirina* Greenback flounder (see Hewitt & Hine 1972)

NEMATODA

Hedruris spinigera: stomach

Porrocaecum decipiens larvae: muscles

SWT29 *Rhombosolea* sp. Flounder (see also Hewitt & Hine 1972)

NEMATODA

Cucullanus antipodeus: intestine

Hedruris spinigera: stomach

COPEPODA

Caligus elongatus: gill chamber (Jones 1988a)

ISOPODA

Elthusa (syn. *Livoneca*) *raynaudii*: site not recorded

SWT30 *Scorpaena cardinalis* Hapuku's grandfather (see also Hewitt & Hine 1972)

DIGENEA

Derogenes varicus: stomach

Gonocerca phycidis: on head

Tubulovesicula angusticauda: stomach

COPEPODA

Acanthochondria incisa: gills, buccal cavity (Ho 1975)

ISOPODA

Elthusa (syn. *Livoneca*) *raynaudii*: site not recorded (Poore 1981)

SWT31 *Scorpaena papillosus* (syn. *Helicolenus papillosus*) Red rock cod (see also Hewitt & Hine 1972)

MYXOSPOREA

Ceratomyxa angusta: gall bladder

Ceratomyxa inconstans: gall bladder

MONOGENEA

Megalocotyle australis: gills

Microcotyle neozelandicus: gills

DIGENEA

Derogenes varicus: stomach (Jones: unpublished record)

Ectenurus trachuri (syn. *Ectenurus lepidus*): stomach (Bray 1990b)

Helicometra grandora: intestine

Pseudopecoelus vulgaris: intestine and caeca

Tubulovesicula angusticauda: stomach

NEMATODA

Anisakis sp. larvae: encapsulated on viscera, mesenteries, under peritoneum

Ascarophis sp. e: stomach

Capillaria sp. d: site not recorded

Cucullanus sp. e: intestine

Hysterothylacium (syn. *Thynnascaris*) sp. larvae: two types, in stomach, intestine, body cavity

COPEPODA

Acanthochondria incisa: buccal cavity (Ho 1975)

Caligus buechlerae: skin (Jones 1988a)

Naobranchia sp.: gills (Pilgrim 1985)

SWT32 *Spheroides richiei* (syn. *Contusus richiei*) Globefish (see also Hewitt & Hine 1972)

DIGENEA

Diploproctodaeum plicatum: intestine

ACANTHOCEPHALA

Neoechinorhynchus chilkaensis: site not given (Webb 1973)

SWT33 *Trachelochismus melobesia* Lumpfish (see Hewitt & Hine 1972)

PROTOZOA

Caliperia longipes: gills

Haemogregarina bigemina: blood

Trichodina multidentis: gills

Trichodina parabranhicola: gills

MYXOSPOREA

Myxidium incurvatum: gall bladder

SWT34 *Tripterygion* sp. Triplefin (see also Hewitt & Hine 1972)

DIGENEA

Opegaster gobii: intestine

COPEPODA

Caligus buechlerae: skin (Jones 1988a)

Inshore shelf

Pelagic

IPE1 *Alopias vulpinus* Thresher shark (see Hewitt & Hine 1972)

COPEPODA

Nemesis robusta: Gills

IPT1 *Arripis trutta* Kahawai (see also Hewitt & Hine 1972)

MYXOSPOREA

Leptotheca annulata: gall bladder

Leptotheca minima: gall bladder

MONOGENEA

Kahawaia truttae (syn. *Gonoplasius truttae*): gills (Rohde 1987b, Rohde *et al.* 1980)

DIGENEA

Anahemiurus sp.: site not recorded

Parahemiurus arripidis (*species inquirenda* according to Bray 1990a) (Lebedev 1971)

Syncoelium filiferum: gills (Rohde 1987b, Rohde *et al.* 1980)

Telorhynchus arripidis: intestine

Unidentified digeneans: site not given (Webb 1973)

CESTODA

Nybelinia sp. larvae: stomach

NEMATODA

Anisakis sp. larvae²: encapsulated on viscera, mesenteries, under peritoneum

Hysterothylacium (syn. *Thynnascaris*) *aduncum*: site not given (Webb 1973)

Hysterothylacium (syn. *Thynnascaris*) sp. larvae: stomach, intestine, body cavity

ACANTHOCEPHALA

Neoechinorhynchus chilkaensis: site not given (Webb 1973)

COPEPODA

Abergasilus amplexus: gills (Hewitt 1978)

Caligus kahawai: body surface (Jones 1988a)

Caligus pelamydis: operculum, gills, buccal cavity, body surface (Jones 1988a)

Chondracanthus australis: (Ho 1991b)

ISOPODA

Ceratothoa imbricatus (syn. *Codonophilus imbricatus*): mouth and throat

Nerocila orbigny: site not recorded

² This record, from Brunson 1956, has not been confirmed. Though euphausiids are the main prey of kahawai examination of several hundred fish by Jones and Hurst has failed to produce any *Anisakis* larvae.

IPT2 *Pseudocaranx dentex* (syn. *Caranx georgianus*, *Caranx lutescens*) Trevally (see also Hewitt & Hine 1972)

MYXOSPOREA

Ceratomyxa inconstans: gall bladder

MONOGENEA

Genolopa microsoma: digestive tract (Lebedev 1968)

Microcotyle longirostri: gills

NEMATODA

Anisakis sp. larvae: encapsulated on viscera, mesenteries, under peritoneum

Ascarophis sp. i: stomach

Hysterothylacium (syn. *Thynnascaris*) *aduncum* larvae: stomach, intestine, body cavity

ISOPODA

Ceratothoa (syn. *Meinertia*) *usucarangis*: (Avdeev 1979)

IPT3 *Sardinops sagax neopilchardus* Pilchard (see Hewitt & Hine 1972)

MYXOSPOREA

Myxobolus sp.: kidney (Diggles: unpublished record)

CESTODA

Scolex polymorphus plerocercoid: intestinal caecae (Diggles: unpublished record)

NEMATODA

Anisakis sp. larvae: encapsulated on viscera, mesenteries, under peritoneum

Hysterothylacium (syn. *Thynnascaris*) sp. larvae: stomach, intestine, body cavity

IPT4 *Scorpius aequipinnis* Sweep, hui (see Hewitt & Hine 1972)

ISOPODA

Ceratothoa imbricatus (syn. *Codonophilus imbricatus*): throat

IPT5 *Scorpius violaceus* Blue maomao

DIGENEA

Accacladocoelium leontjevae: intestines (Korotaeva 1976)

IPT6 *Seriola hippos* Samson fish

COPEPODA

Brachiella sp. (Jones: unpublished record)

Caligus lalandei: skin (Jones 1988a)

IPT7 *Seriola lalandi* Yellowtail kingfish (see also Hewitt & Hine 1972)

MONOGENEA

Benedenia seriolae: skin (Diggles: unpublished record)

Zeuxapta seriolae: gills (Diggles: unpublished record)

NEMATODA

Anisakis sp. larvae: encapsulated on mesenteries, viscera and under peritoneum

Hysterothylacium (syn. *Thynnascaris*) *aduncum*: intestine

Hysterothylacium (syn. *Thynnascaris*) *seriolae*: stomach

Hysterothylacium (syn. *Thynnascaris*) sp. larvae: three types, stomach, intestine, body cavity

COPEPODA

Caligus aesopus: skin (Jones 1988a)

Caligus lalandei: skin (Jones 1988a)

Demersal

IDE1 *Cephaloscyllium isabella* Carpet shark (see Hewitt & Hine 1972)

MONOGENEA

Leptomicrobothrium longiphallus: gills

DIGENEA

Otodistomum veliporum: stomach

Probolitrema rotundatum: site not recorded

CESTODA

Calyptrobothrium chalarosomum: spiral valve

NEMATODA

Anisakis sp. larvae: stomach

Terranova sp. c: stomach

Hysterothylacium (syn. *Thynnascaris*) *aduncum*: intestine

IDE2 *Dasyatis* sp. (see Hewitt & Hine 1972)

COPEPODA

Charopinus parkeri: gills

ISOPODA

Ceratothoa (syn. *Meinertia*) *trigonocephala*: throat (Avdeev 1978)

IDE3 *Galeorhinus australis* School shark (see also Hewitt & Hine 1972)

MONOGENEA

Hexabothrium akaroensis: gills

CESTODA

Anthobothrium laciniatum var. *longicolle*: spiral valve
Hepatoxylon megacephalum: gut and visceral cavity (Sin *et al.* 1992)
Hepatoxylon trichiuri: gut and visceral cavity (Sin *et al.* 1992)
Lacistorhynchus tenue (syn. *Lacistorhynchus tenuis*): spiral valve

NEMATODA

Anisakis sp. larva: stomach
Hysterothylacium (syn. *Thynnascaris*) sp. larva: stomach

COPEPODA

Anthosoma crassum: buccal cavity
Dinemoura latifolia: buccal cavity, gills, body surface
Kroyeria sp. (?*lineata*): (Pilgrim 1985)
Lernaeopoda musteli: (Thomson 1890)
Pandarus bicolor: body surface and fins
Pandarus satyrus: buccal cavity, body surface

IDE4 *Mustelus lenticulatus* (syn. *Mustelus antarcticus*) Rig (see also Hewitt & Hine 1972)

MYXOSPOREA

Ceratomyxa sp. e: gall bladder
Ceratomyxa sp. g: gall bladder
Chloromyxum obliquum: gall bladder

MONOGENEA

Erpocotyle antarctica: gills

DIGENEA

Ptychogonimus megastoma: stomach

CESTODA

Calliobothrium eschrichtii: spiral valve
Calliobothrium tylocephalum: spiral valve
Calliobothrium verticellatum: spiral valve
Echinobothrium coronatum: spiral valve
Orygmatobothrium versatile: spiral valve
Phyllobothrium lactuca: spiral valve

NEMATODA

Acanthocheilus bicuspis: intestine
Terranova antarctica: stomach

COPEPODA

Lernaeopoda musteli (syn. *Lernaeopoda galei*): gills, cloaca
Nesippus orientalis: buccal cavity
Pandarus bicolor: body surface and fins (Jones: unpublished record)

ISOPODA

Elthusa (syn. *Livoneca*) *raynaudii*: stomach

HIRUDINEA

Branchellion parkeri: site not recorded

IDE5 *Myliobatis tenuicaudatus* Eagle ray (see Hewitt & Hine 1972)

CESTODA

Prochristianella aetobatis: site not given

IDE6 *Notorhynchus cepedianus* Broadsnouted seven-gill shark (see Hewitt & Hine 1972)

CESTODA

Grillotia heptanchi: spiral valve

Hepatoxylon megacephalum postlarva: body cavity

Phyllobothrium dohrnii: spiral valve

NEMATODA

Anisakis sp. larvae: stomach

COPEPODA

Nesippus orientalis: buccal cavity

Pandarus bicolor: body surface and fins

IDE7 *Raja nasuta* Rough skate

NEMATODA

Hysterothylacium (syn. *Thynnascaris*) *aduncum*: (Brunsdon 1956)

COPEPODA

Nesippus orientalis: buccal cavity

IDE8 *Sphyrna zygaena* Hammerhead shark (see Hewitt & Hine 1972)

COPEPODA

Perissopus dentatus: body surface and fins

IDH1 *Callorhynchus milii* Elephantfish (see also Hewitt & Hine 1972)

ASPIDOGASTREA

Macraspis elegans: gall bladder

MONOGENEA

Callorhynchicola multitesticulatus: gills (Beverley-Burton *et al.* 1993)

Callorhynchocotyle amatoi (syn. *Erpocotyle callorhynchi*): gills (Boeger *et al.* 1989)

CESTODARIA

Gyrocotyle rugosa: spiral valve

Gyrocotyle urna (syn. *Gyrocotyle maxima*?): spiral valve

HIRUDINEA

Branchellion parkeri: site not recorded

IDT1 *Allomycterus jaculiferus* Porcupine fish (see also Hewitt & Hine 1972)

NEMATODA

Anisakis sp. larvae: encapsulated on viscera, mesenteries and under peritoneum

COPEPODA

Hatschekia quadrata: gills (Jones 1985)

Pseudochondracanthus chilomycteri: mouth (Ho 1975)

IDT2 *Caesioperca lepidoptera* Red perch (see Hewitt & Hine 1972)

MYXOSPOREA

Ceratomyxa gemmaphora: gall bladder

Ceratomyxa sp. d: gall bladder

DIGENEA

Lecithocladium excisum: intestine

IDT3 *Cheilodactylus douglasii* Porae (see Hewitt & Hine 1972)

NEMATODA

Anisakis sp. larvae: encapsulated on viscera, mesenteries and under peritoneum

IDT4 *Cheilodactylus spectabilis* (syn. *Chironemus spectabilis*) Red moki (see Hewitt & Hine 1972)

MONOGENEA

Encotyllable chironemi: gills

DIGENEA

Genolinea anura: caeca

IDT5 *Chelidonichthys kumu* Red gurnard (see Hewitt & Hine 1972)

DIGENEA

Derogenes varicus: stomach

Helicometra grandora: intestine

Plagioporus preporatus: intestine

Stephanostomum australis: intestine

Tubulovesicula angusticauda: stomach

NEMATODA

Anisakis sp. larvae: encapsulated on viscera, mesenteries and under peritoneum

Ascarophis sp. f: stomach

Capillaria sp. c: stomach

Hysterothylacium (syn. *Thynnascaris*) sp. larvae: two types, in stomach, intestine, body cavity

IDT6 *Congiopodus leucopaecilus* Pigfish (see Hewitt & Hine 1972)

PROTOZOA

Trypanosoma congipodi: blood

MYXOSPOREA

Ceratomyxa castigata: gall bladder

Ceratomyxa gibba: gall bladder

Leptotheca sp. a: gall bladder

NEMATODA

Hysterothylacium (syn. *Thynnascaris*) sp. larvae: two types, in stomach, intestine, body cavity

ISOPODA

Elthusa (syn. *Livoneca*) *raynaudii*: site not given (Avdeev 1978)

IDT7 *Ellerkeldia semicincta* Half-banded sea perch (see Hewitt & Hine 1972)

MYXOSPOREA

Ceratomyxa angusta: gall bladder

IDT8 *Genyagnus monopterygius* Spotted stargazer (see Hewitt & Hine 1972)

DIGENEA

Neocreadium geniagni: intestine, pyloric caeca, gall bladder

NEMATODA

Hysterothylacium (syn. *Thynnascaris*) sp. larvae: in stomach, intestine, body cavity

IDT9 *Gnathophis habenatus* Silver conger eel (see Hewitt & Hine 1972)

NEMATODA

Ascarophis sp. b: stomach

IDT10 *Hemerocoetes monopterygius* Opalfish (see Hewitt & Hine 1972)

NEMATODA

Cucullanus sp. b larvae: stomach

Philometra sp. b: body cavity

Hysterothylacium (syn. *Thynnascaris*) sp. larvae: in stomach, intestine, body cavity

IDT11 *Hemerocoetes waitei* (see Hewitt & Hine 1972)

NEMATODA

Hysterothylacium (syn. *Thynnascaris*) sp. larvae: in stomach, intestine, body cavity

IDT12 *Latridopsis ciliaris* Blue moki (see also Hewitt & Hine 1972)

MONOGENEA

Mediavagina latridis: gills (Rohde *et al.* 1980)

DIGENEA

Genolinea dactylopagri: stomach

Holorchis pulcher: intestine

Proctoeces subtenue: posterior intestine

Tubulovesicula angusticauda: stomach

NEMATODA

Cucullanellus sheardi: intestine

COPEPODA

Aethon morelandi: gills (Rohde *et al.* 1980)

Lepeophtheirus erecsoni: gills (Rohde *et al.* 1980, Boxshall & Bellwood 1981)

Lepeophtheirus sp.: skin (Pilgrim 1985)

IDT13 *Latris lineata* Trumpeter (see Hewitt & Hine 1972)

MONOGENEA

Megalocotyle johnstoni: gills

Megalocotyle latridis: gills

NEMATODA

Anisakis sp. larvae: encapsulated on viscera, mesenteries, under peritoneum

Cucullanellus sp. d: intestine

IDT14 *Lepidoperca aurantia* (syn. *Anthias pulchellus*) (see also Hewitt & Hine 1972)

MYXOSPOREA

Ceratomyxa arcuata: gall bladder

CESTODA

Hepatoxylon trichiuri: gut and visceral cavities (Sin *et al.* 1992)

IDT15 *Lepidotrigla brachyoptera* Spotted gurnard (see Hewitt & Hine 1972)

NEMATODA

Anisakis sp. larvae: encapsulated on viscera, mesenteries, under peritoneum

Ascarophis sp. h: stomach

IDT16 *Lotella rhacina* Rock cod (see Hewitt & Hine 1972)

DIGENEA

Neolepidopedon cablei: intestine and caeca

Opecoelus lotellae: intestine

Sterrhurus lotellae: stomach

NEMATODA

Hysterothylacium (syn. *Thynnascaris*) sp. larvae: in stomach, intestine, body cavity

IDT17 *Pagrus auratus* (syn. *Chrysophrys auratus*) Snapper (see also Hewitt & Hine 1972)

MONOGENEA

Anoplodiscus cirrusspiralis: caudal fins (Roubal *et al.* 1983, Sharples & Evans 1995a, 1995b, 1995c)

Benedenia sekii: body surface (Roubal *et al.* 1983, Sharples & Evans 1995a, 1995b, 1995c)

Bivagina pagrosomi: gills (Roubal *et al.* 1983, Sharples & Evans 1995a, 1995b, 1995c)

Bivagina tai: gills (Korotaeva 1975)

Choricotyle australiensis: gill arches (Roubal *et al.* 1983, Sharples & Evans 1995a, 1995b, 1995c)

Lamellodiscus pagrosomi: gills (Roubal *et al.* 1983, Sharples & Evans 1995a, 1995b, 1995c)

DIGENEA

Diphtherostomum sp.: rectum (Sharples & Evans 1995a, 1995b, 1995d)

Lecithocladium magnacetabulum: site not given

Proctoeces sp.: digestive tract (Sharples & Evans 1995a, 1995b, 1995d)

Syncoelium filiferum: gills (Korotaeva 1975)

CESTODA

Dasyrhynchid plerocercoids: intestine (Sharples & Evans 1995a, 1995b, 1995d)

Phyllobothriid plerocercoids: digestive tract (Sharples & Evans 1995a, 1995b, 1995d)

NEMATODA

Anisakis sp. larvae: encapsulated on mesenteries, viscera and peritoneum (Sharples & Evans 1995a, 1995b, 1995d)

Cucullanellus cnidoglanis: stomach and intestine

Cuculanellus pleuronectidis: digestive tract (Korotaeva 1975)

Cucullanus sp.: intestine (Sharples & Evans 1995a, 1995b, 1995d)

Hysterothylacium (syn. *Thynnascaris*) sp. larvae: stomach, intestine, body cavity

Philometra lateolabracis (syn. *Philometra* sp.): gonads (Hine & Anderson 1981, Sharples & Evans 1995a, 1995b, 1995d)

COPEPODA

Caligus sp. 1: body surface (Sharples & Evans 1995a, 1995b, 1995c)

Caligus sp. 2: body surface (Sharples & Evans 1995a, 1995b, 1995c)

Clavellopsis sargi: mouth (Roubal *et al.* 1983)

Hatschekia pagrosomi: gills (Roubal *et al.* 1983, Jones 1985)

Lepeophtheirus sekii: body surface (Sharples & Evans 1995a, 1995b, 1995c)

Pseudoeucanthus sp.: Site unknown (Diggles: unpublished record)

Unicolax chrysophryenus: nasal cavities (Roubal *et al.* 1983, Sharples & Evans 1993, Sharples & Evans 1995a, 1995b, 1995c)

IDT18 *Paranotothenia* (syn. *Notothenia*) *microlepidota* Black cod (see Hewitt & Hine 1972)

NEMATODA

Porrocaecum decipiens larvae: muscles (Hurst 1984a)

HIRUDINEA

Notobdella nototheniae: body surface

ISOPODA

Ceratothoa (syn. *Meinertia*) *trigonocephala* (Avdeev 1978)

Elthusa (syn. *Livoneca*) *raynaudii*: gills (Avdeev 1978)

IDT19 *Parapercis colias* Blue cod (see also Hewitt & Hine 1972)

PROTOZOA

Trypanosoma parapercis: blood

MONOGENEA

Microcotyle constricta: gills

DIGENEA

Gonocerca phycidis: stomach

Lecithocladium excisum: stomach

Pancreadium otagoensis: intestine

Plagioporus (*Caudotestis*) *pachysomus*: intestine

Steringotrema rotundum: gall bladder and stomach

NEMATODA

Anisakis sp. larvae: encapsulated on mesenteries, viscera and under peritoneum

Hysterothylacium (syn. *Thynnascaris*) sp. larvae: stomach, intestine, body cavity

COPEPODA

Aethon percis: gills

Caligus buechlerae: skin (Jones 1988a)

Dentigryps sp.: (Jones: personal collection)

Trifur lotellae: gills, head buried in flesh

IDT20 *Parika* (syn. *Cantherines*) *scaber* Leatherjacket (see Hewitt & Hine 1972)

DIGENEA

Pseudocreadium monoacanthi: intestine

COPEPODA

Acanthocolax sp.: (Beresford 1991)

Pseudoeucanthus uniserratus: (Beresford 1991)

IDT21 *Paristiopterus labiosus* Giant boarfish (see Hewitt & Hine 1972)

NEMATODA

Hysterothylacium (syn. *Thynnascaris*) *aduncum*: intestine

IDT22 *Pseudophycis breviuscula* Northern bastard red cod

COPEPODA

Trifur lotellae: gills

IDT23 *Pteraclis velifer* Batfish (see Hewitt & Hine 1972)

NEMATODA

Anisakis sp. larvae: encapsulated on mesenteries, viscera and under peritoneum

IDT24 *Seriolella brama* Blue warehou (see also Hewitt & Hine 1972)

MONOGENEA

Eurysorchis australis: gills (Rohde *et al.* 1980)

Neogrubea seriolellae: gills (Rohde *et al.* 1980)

DIGENEA

Echinophallus seriolellae: (Korotaeva 1975)

Lecithocladium seriolellae: stomach (Korotaeva 1975)

Syncoelium filiferum: gills (Rohde *et al.* 1980)

CESTODA

Hepatoxylon trichiuri: (Korotaeva 1975, Jones 1997)

NEMATODA

Acanthocheilus quadridentatus: (Jones 1997)

Anisakis sp. larvae: encapsulated on mesenteries, viscera and under peritoneum

Hysterothylacium (syn. *Thynnascaris*) *aduncum*: intestine

Hysterothylacium (syn. *Thynnascaris*) sp. larvae: three types, stomach, intestine, body cavity

COPEPODA

Caligus pelamydis: operculum, gills, buccal cavity, body surface (Jones 1988a)

Lernanthropus microlamini: gills

ISOPODA

Ceratothoa (syn. *Meinertia*) *trillesi*: site not given (Avdeev 1979)

IDT25 *Zanclistius elevatus* Longfinned boarfish

COPEPODA

Lepeophtheirus histiopteridi: skin (Kazachenko *et al.* 1972)

IDT26 *Zeus faber* John dory (see Hewitt & Hine 1972)

CESTODA

Nybelinea (*Syngenes*?) postlarvae: body cavity

NEMATODA

Anisakis sp. larvae: encapsulated on mesenteries, viscera and under peritoneum

Cucullanus sp. a larvae: intestine

Hysterothylacium (syn. *Thynnascaris*) *aduncum*: intestine

Hysterothylacium (syn. *Thynnascaris*) sp. larvae: three types, stomach, intestine, body cavity

COPEPODA

Chondracanthus distortus: gills, buccal cavity (Ho 1975)

Central to outer shelf

Pelagic

CPT1 *Scomber australasicus* Blue mackerel (see also Hewitt & Hine 1972)

PROTOZOA

Goussia auxidis: spleen (Jones 1990a)

MYXOSPOREA

Ceratomyxa inconstans: gall bladder

Ceratomyxa sp. c: gall bladder

MONOGENEA

Grubea australis: gills (Rohde 1989)

Kuhnia scombri: gills (Rohde 1987a, 1991)

NEMATODA

Anisakis sp. larvae: encapsulated on mesenteries, viscera and under peritoneum

Hysterothylacium (syn. *Thynnascaris*) *aduncum*: intestine

Hysterothylacium (syn. *Thynnascaris*) sp. larvae: two types, stomach, intestine, body cavity

ISOPODA

Ceratothoa trigonocephala: Avdeev 1978

Ceratothoa trillesi (syn. *Meinertia trillesi* Avdeev 1979): buccal cavity (Avdeev 1979)

CPT2 *Scomber* sp.

COPEPODA

Caligus pelamydis: operculum, gills, buccal cavity, body surface (Jones 1988a)

CPT3 *Trachurus declivis* Herring scad (see also Hewitt & Hine 1972)

MYXOSPOREA

Octosporea sp.: cranial nerves (Jones 1990b)

NEMATODA

Anisakis sp. larvae: (Hurst 1984a)

Ascarophis sp. i: stomach

Hysterothylacium (syn. *Thynnascaris*) sp. larvae: stomach, intestine, body cavity

ISOPODA

Ceratothoa imbricatus (syn. *Codonophilus imbricatus*): buccal cavity (Stephenson 1976, Jones 1990b, Horn 1991)

Ceratothoa trigonocephala: buccal cavity (Avdeev 1978)

Ceratothoa trillesi (syn. *Meinertia trillesi* Avdeev 1979): buccal cavity (Jones 1990b)

CPT4 *Trachurus novaezealandiae* Jack mackerel (see also Hewitt & Hine 1972)

MYXOSPOREA

Ceratomyxa inconstans: gall bladder

MONOGENEA

Cemocotyle trachuri: gills

Gasterocotyle trachuri: gills (Korotaeva 1975)

Heteraxinoides novaezealandiae: gills

Pseudaxine bivaginalis: gills

Pseudaxine trachuri: gills (Korotaeva 1975)

Pseudaxine australis: gills (Korotaeva 1975)

DIGENEA

Ectenurus trachuri (syn. *Ectenurus lepidus*): stomach (Bray 1990b)

Genolopa microsoma: digestive tract (Lebedev 1968, Jones 1990b)

Lecithochirium genypteri: stomach

Neonotoporus novaezealandicus: digestive tract (Korotaeva 1975)

Opegaster sp.: site not given (Korotaeva 1975)

Pseudopecoeloides tenuis: stomach

Pseudopecoeloides carangis: digestive tract (Korotaeva 1975)

Syncoelium thyrsitae: (Jones 1997)

Tricotyledonia genypteri juvenile: digestive tract (Korotaeva 1975)

Tubulovescula angusticauda: stomach (Jones: personal collection)

CESTODA

Nybelinea (*Syngenes*?) sp. postlarvae: body cavity

Trypanorhyncha larvae: digestive tract (Korotaeva 1975)

NEMATODA

Anisakis sp. larvae: encapsulated on viscera, mesenteries, under peritoneum

Ascarophis sp. i: stomach

Hysterothylacium (syn. *Thynnascaris*) sp. larvae: two types in stomach, intestine, body cavity

Hysterothylacium aduncum larvae: digestive tract (Korotaeva 1975)

Porrocaecum sp. larvae: digestive tract (Korotaeva 1975)

ACANTHOCEPHALA

Australorhynchus tetramorphacanthus: digestive tract (Jones 1997)

ISOPODA

Ceratothoa imbricatus (syn. *Codonophilus imbricatus*): mouth (Jones 1990b, Horn 1991)

Demersal

CDA1 *Eptatretus cirrhatus* Hagfish (see Hewitt & Hine 1972)

PROTOZOA

Trypanosoma heptatrete: blood

MONOGENEA

Lophocotyle novaezeelandica: site not recorded (Malmberg & Fernholm 1989)

HIRUDINEA

Bdellamaris eptatrete: site not recorded

CDE1 *Raja* sp. Skate (see also Hewitt & Hine 1972)

PROTOZOA

Trypanosoma gargantua: blood

MONOGENEA

Empruthotrema raiae: nasal chamber

Merizocotyle amplidiscata: gills

DIGENEA

Distomum veliporum: site not given

Otodistomum veliporum: stomach

Ptychogonimus megastoma: stomach

CESTODA

Acanthobothrium filicolle var. *benedeni*: spiral valve

Acanthobothrium filicolle var. *paulum*: spiral valve

Acanthobothrium wedli: spiral valve

Clydonobothrium elegantissimum: spiral valve

Clydonobothrium leioformum: spiral valve

Echinobothrium coenoformum: spiral valve

Hepatoxylon megacephalum: guts and visceral cavities (Sin *et al.* 1992)

Phormobothrium affine: spiral valve

NEMATODA

Anisakis sp. larvae: stomach

Hysterothylacium (syn. *Thynnascaris*) *aduncum*: intestine

COPEPODA

Charopinus parkeri: gills

Nesippus orientalis: skin (Pilgrim 1985)

HIRUDINEA

Branchellion parkeri: site not recorded

Pontobdella benhami: site not recorded

CDE2 *Squalus acanthias* Spiny dogfish (see also Hewitt & Hine 1972)

MONOGENEA

Calicotyle ramsayi: cloaca

Erpocotyle squali: gills (Wierzbicka & Langowska 1984)

DIGENEA

Probilotrema philippi: body cavity

Probilotrema sp.: stomach (Wierzbicka & Langowska 1984)

CESTODA

Hepatoxylon megacephalum: body cavity (Wierzbicka & Langowska 1984)

Hepatoxylon trichiuri: gut and visceral cavity (Sin *et al.* 1992)

Trilocularia acanthiaevulgaris: spiral valve

NEMATODA

Anisakis simplex: external stomach wall (Wierzbicka & Langowska 1984)

Phlyctainophora lamnae: tail (Jones & Delahunt 1995)

Hysterothylacium (syn. *Thynnascaris*) *aduncum*: liver and intestine (Wierzbicka & Langowska 1984)

COPEPODA

Charopinus parkeri: (Thomson 1890)

Demoleus latus: site not recorded

Eudactylina acanthii: gills (Wierzbicka & Langowska 1984)

Lernaeopoda musteli: (Thomson 1890)

Pandarus bicolor: body surface and fins (Jones: unpublished record)

Pseudocharopinus bicaudatus: spiracles (Wierzbicka & Langowska 1984)

CDE3 *Squalus* sp. (see Hewitt & Hine 1972)

DIGENEA

Probilotrema clelandi: body cavity

CDE4 *Torpedo fairchildi* Electric ray (see Hewitt & Hine 1972)

MONOGENEA

Amphibdella cuticulovagina: site not given

Amphibdelloides maccallumi: gills

DIGENEA

Distomum veliporum: site not given

Otodistomum veliporum: stomach

CESTODA

Calyptrobothrium occidentale: spiral valve

Calyptrobothrium riggii: spiral valve

Hepatoxylon trichiuri postlarvae: body cavity

NEMATODA

Anisakis sp. larvae: stomach

Hysterothylacium (syn. *Thynnascaris*) sp. larvae: stomach

CDE5 *Typhlonarke aysoni* Blind electric skate (see Hewitt & Hine 1972)

CESTODA

Pentaloculum macrocephalum: spiral valve

CDT1 *Arnoglossus scapha* Witch, megrim (see Hewitt & Hine 1972)

PROTOZOA

Trypanosoma caulopsettae: blood

MYXOSPOREA

Ceratomyxa faba: gall bladder

Ceratomyxa hama: gall bladder

Ceratomyxa laxa: gall bladder

Ceratomyxa renalis: urinary bladder

Ceratomyxa torquata: gall bladder

Ceratomyxa uncinata: gall bladder

Ceratomyxa vepallida: gall bladder

Ceratomyxa sp. b: gall bladder

Ceratomyxa sp. f: gall bladder

Leptotheca pinguis: gall bladder

Leptotheca sp. b: gall bladder

Leptotheca sp. c: urinary bladder

Sphaerospora undulans: urinary bladder, ureters and oviducts

DIGENEA

Derogenes varicus: stomach

Opegaster caulopsettae: intestine

NEMATODA

Anisakis sp. larvae: encapsulated on viscera, mesenteries, under peritoneum

Hysterothylacium (syn. *Thynnascaris*) sp. larvae: stomach, intestine and body cavity

CDT2 *Beryx splendens* Alfonsino

CESTODA

Hepatoxylon trichiuri: guts and visceral cavities (Sin *et al.* 1992)

CDT3 *Capromimus abbreviatus* Rough dory (see Hewitt & Hine 1972)

NEMATODA

Anisakis sp. larvae: encapsulated on viscera, mesenteries, under peritoneum

Hysterothylacium (syn. *Thynnascaris*) sp. larvae: stomach, intestine, body cavity

CDT4 *Genypterus blacodes* Ling (see also Hewitt & Hine 1972)

MYXOSPOREA

Auerbachia anomala: gall bladder

Ceratomyxa inversa: gall bladder

Ceratomyxa recta: urinary bladder

Sphaerospora sp.: bile

DIGENEA

Derogenes varicus: stomach

Lecithochirium genypteri: stomach

Pseudopecoelus sewelli: intestine (Jones: personal collection)

Tricotyledonia genypteri: stomach (Grabda & Ślósarczyk 1981)

CESTODA

- Anoncocephalus chilensis*: intestine (Grabda & Slósarczyk 1981)
Grillotia sp.: abdominal cavity, muscle (Grabda & Slósarczyk 1981)
Gymnorhynchus sp.: muscle (Jones: personal collection)
Hepatoxylon trichiuri: abdominal cavity (Grabda & Slósarczyk 1981, Sin *et al.* 1992)

NEMATODA

- Anisakis simplex*: abdominal cavity (Grabda & Slósarczyk 1981)
Capillaria sp.: muscles (Grabda & Slósarczyk 1981)
Cucullanus sp. d: intestine
Pseudoterranova decipiens (syn. *Phocanema decipiens*): muscles, abdominal cavity (Grabda & Slósarczyk 1981)
Hysterothylacium (syn. *Thynnascaris*) *aduncum* larvae: in abdominal cavity, adults in the stomach and intestine (Grabda & Slósarczyk 1981)

ACANTHOCEPHALA

- Corynosoma semerme*: abdominal cavity (Grabda & Slósarczyk 1981)

COPEPODA

- Chondracanthus genypteri*: oral cavity (Grabda & Slósarczyk 1981)
Lepeophtheirus distinctus: site not recorded
Sphyrion laevigatum: skin (Grabda & Slósarczyk 1981)
Sphyrion lumpi: body surface (Kabata & Ho 1981)

ISOPODA

- Elithusa* (syn. *Livoneca*) *raynaudii*: site not recorded

CDT5 *Hyperoglyphe antarctica* (syn. *Hyperoglyphe porosa*) Bluenose (see also Hewitt & Hine 1972)

CESTODA

- Hepatoxylon trichiuri*: guts and visceral cavities (Sin *et al.* 1992)

COPEPODA

- Lepeophtheirus argenteus*: body surface

CDT6 *Kathetostoma giganteum* Monkfish (see also Hewitt & Hine 1972)

DIGenea

- Bucephalus longicornutus*: pyloric caeca, intestine

NEMATODA

- Anisakis* sp. larvae: encapsulated on viscera, mesenteries and under peritoneum
Hysterothylacium (syn. *Thynnascaris*) sp. larvae: in stomach

COPEPODA

- Mecaderochondria pilgrimi*: oral cavity (Ho & Dojiri 1987)

CDT7 *Lepidopus caudatus* Frostfish (see also Hewitt & Hine 1972)

MYXOSPOREA

Ceratomyxa elongata: gall bladder

MONOGENEA

Winkenthughesia australis: gills

CESTODA

Hepatoxylon trichiuri postlarvae: body cavity

NEMATODA

Anisakis sp. larvae: encapsulated on viscera, mesenteries, under peritoneum

Hysterothylacium (syn. *Thynnascaris*) sp. larvae: two types, stomach, intestine, body cavity

COPEPODA

Hatschekia crenata: gills (Jones 1985)

Lepeophtheirus heegaardi: skin

CDT8 *Nemadactylus macropterus* (syn. *Cheilodactylus macropterus*) Tarakihi (see also Hewitt & Hine 1972)

MYXOSPOREA

Ceratomyxa aggregata: gall bladder

Ceratomyxa insolita: gall bladder

MONOGENEA

Microcotyle nemadactylus: gills

DIGENEA

Cardicola whitteni: gills

Genolinea dactylopagri: stomach

Lecithochirium genypteri: gills (Bray 1991)

Plagioporus dactylopagri: intestine

CESTODA

Hepatoxylon trichiuri: muscle, body cavity (Vooren & Tracey 1976)

Nybelinea sp.: liver, intestinal wall, body cavity (Vooren & Tracey 1976)

NEMATODA

Anisakis sp. larvae: mesenteries, liver, intestinal wall, stomach wall (Vooren & Tracey 1976)

Cucullanellus sp. c larvae: intestine

Hysterothylacium (syn. *Thynnascaris*) *aduncum*: intestine

Hysterothylacium (syn. *Thynnascaris*) sp. larvae: body cavity, stomach wall (Vooren & Tracey 1976)

ACANTHOCEPHALA

Echinorhynchus sp.: body cavity (Vooren & Tracey 1976)

COPEPODA

Aethon garricki: gills (Vooren & Tracey 1976)

Aethon morelandi (Boxshall 1989)

Alella tarakihi: gills (Hewitt & Blackwell 1987)
Chondracanthus lotellae: Buccal cavity (Ho.1991)
Sagum (syn. *Paralernanthropus*) *foliaceus*: gills
Sphyrion quadricornis: skin (Ho 1992)
Sphyrion sp.: surface (Boustead 1982)

CDT9 *Paranotothenia* (syn. *Notothenia*) *microlepidota* Black cod (see Hewitt & Hine 1972)

NEMATODA

Pseudoterranova decipiens (syn. *Phocanema decipiens*): muscles, abdominal cavity (Grabda & Slósarczyk 1981)

HIRUDINEA

Notobdella nototheniae: body surface

ISOPODA

Elthusa raynaudii: buccal cavity (Jones: personal collection)

CDT10 *Paratrachichthys trailli* Roughy (see also Hewitt & Hine 1972)

NEMATODA

Anisakis sp. larvae: encapsulated on viscera, mesenteries, under peritoneum
Hysterothylacium (syn. *Thynnascaris*) sp. larvae: body cavity, stomach, intestine

COPEPODA

Hatschekia squamata: gills (Jones & Cabral 1990)

CDT11 *Plagiogenion rubiginosus* (see Hewitt & Hine 1972)

MYXOSPOREA

Ceratomyxa flexa: gall bladder
Ceratomyxa intexua: gall bladder

DIGENEA

Bivesiculoides otagoensis: intestine

NEMATODA

Anisakis sp. larvae: encapsulated on viscera, mesenteries, under peritoneum
Ascarophis sp. c: stomach
Hysterothylacium (syn. *Thynnascaris*) sp. larvae: body cavity, stomach, intestine
Camallanus aotea: intestine (Korotaeva 1974)

CDT12 *Polyprion moene* Bass, moene (see Hewitt & Hine 1972)

MYXOSPOREA

Ceratomyxa moenei: gall bladder

COPEPODA

Lepeophtheirus polyprioni: body surface

CDT13 *Polypriion oxygeneios* Groper, hapuku (see also Hewitt & Hine 1972)

MONOGENEA

Allocotylophora polyprionum: gills

DIGENEA

Neolepidapedon polyprioni: intestine

Tubulovesicula angusticauda: stomach

CESTODA

Hepatoxylon trichiuri: guts and visceral cavities (Sin *et al.* 1992)

NEMATODA

Anisakis sp. larvae: encapsulated on viscera, mesenteries, under peritoneum

Ascarophis sp. i: stomach

Cucullamus sp. c: intestine

Hysterothylacium (syn. *Thynnascaris*) sp. larvae: two types, body cavity, stomach, intestine

Hysterothylacium (syn. *Thynnascaris*) sp. cf. *legendrei*: stomach

COPEPODA

Jusheyus shogunus: (Deets & Benz 1987)

Lepeophtheirus polyprioni: body surface

CDT14 *Pseudophycis bachus* (syn. *Physiculus bachus*) Red cod (see also Hewitt & Hine 1972)

PROTOZOA

Trypanosoma coelorhynchi: blood

MYXOSPOREA

Ceratomyxa polymorpha: gall bladder

Kudoa sp.: muscle (Boustead 1982)

DIGENEA

Derogenes varicus: stomach

Stephanostomum pristis: intestine

Tubulovesicula angusticauda: stomach

CESTODA

Bothriocephalus scorpii: gut (McKinnon & Featherston 1982)

Hepatoxylon trichuri

NEMATODA

Anisakis sp. larvae: encapsulated on viscera, mesenteries, under peritoneum

Ascarophis sp. k: stomach

Hysterothylacium (syn. *Thynnascaris*) sp. larvae: body cavity, stomach, intestine

COPEPODA

Chondracanthus lotellae: gills and abdominal wall

Neobrachiella sp.: gills (Pilgrim 1985)

Sarcotaces sp.: skin (Pilgrim 1985)

Trifur lotellae: gills, head buried in flesh

ISOPODA

Elthusa (syn. *Livoneca*) *raynaudii*: (on?) stomach

CDT15 *Rexea solandri* Gemfish (see also Hewitt & Hine 1972)

MYXOSPOREA

Ceratomyxa intexua: gall bladder

Ceratomyxa minuta: gall bladder

Leptotheca annulata: gall bladder

MONOGENEA

Heteraxinoides regis: gills

Tagia gempylli: gills

CESTODA

Hepatoxylon trichiuri: gut and visceral cavity (Sin *et al.* 1992)

NEMATODA

Anisakis sp. larvae: encapsulated on viscera, mesenteries, under peritoneum

Hysterothylacium (syn. *Thynnascaris*) sp. larvae: two types, body cavity, stomach, intestine

COPEPODA

Sagum (syn *Paralernanthropus*) *foliaceus*: gills

ISOPODA

Ceratothoa trillesi (syn. *Meinertia trillesi*): buccal cavity (Avdeev 1979)

CDT16 *Thyrsites atun* Barracouta (see also Hewitt & Hine 1972)

MYXOSPOREA

Ceratomyxa minuta: gall bladder

Ceratomyxa sp. a: gall bladder

Leptotheca annulata: gall bladder

MONOGENEA

Udonella caligorum: gills

Winkenthughesia thyrsitae: gills (Wierzbicka & Gajda 1984)

DIGENEA

Lecithochirium australis: stomach

Syncoelium thyrsitae: gills, stomach and intestine (Wierzbicka & Gajda 1984)

CESTODA

Gymnorhynchus thyrsitae: muscles (Wierzbicka & Gajda 1984, Hurst & Bagley 1987)

Hepatoxylon trichiuri: body cavity (Wierzbicka & Gajda 1984, Sin *et al.* 1992)

Lacistorhynchus tenue (syn. *Lacistorhynchus tenuis*) pleurocercus: body cavity and muscle

Nybelinea (*Syngenes*?) sp. postlarva: body cavity

NEMATODA

Anisakis simplex: encysted in viscera (Hurst 1984a, Wierzbicka & Gajda 1984)

Hysterothylacium (syn. *Thynnascaris*) *aduncum*: digestive tract (Wierzbicka & Gajda 1984)

Hysterothylacium (syn. *Thynnascaris*) sp. larvae: two types from body cavity, a further two types from stomach, intestine and body cavity

Porrocaecum sp. larvae: body cavity and muscles

Pseudoterranova decipiens (syn. *Phocanema decipiens*): muscles (Wierzbicka & Gajda 1984, Hurst 1984a, Hurst & Bagley 1987)

Stomachus marinus: stomach

COPEPODA

Caligus pelamydis: operculum, gills, buccal cavity, body surface (Jones 1988a)

Chondracanthus australis: (Ho 1991b)

Sagum (syn. *Paralernanthropus*) *foliaceus*: gills (Wierzbicka & Gajda 1984)

ISOPODA

Ceratothoa (syn. *Meinertia*) *trigonocephala*: buccal cavity (Avdeev 1978)

CDT17 *Zenopsis nebulosus* Mirror dory (see Hewitt & Hine 1972)

CESTODA

Lacistorhynchus tenue (syn. *Lacistorhynchus tenuis*) pleurocercus: body cavity

NEMATODA

Anisakis sp. larvae: encapsulated on viscera, mesenteries, under peritoneum

Hysterothylacium (syn. *Thynnascaris*) *zenopsis*: intestine

Hysterothylacium (syn. *Thynnascaris*) sp. larvae: two types, body cavity, stomach, intestine

Outer shelf/oceanic

Pelagic

OPE1 *Carcharodon carcharias* White shark (see also Hewitt & Hine 1972)

CESTODA

Hepatoxylon megacephalum: spiral valve

Phyllobothrium lactuca: spiral valve

COPEPODA

Anthosoma crassum: buccal cavity

Dinemoura latifolia: beneath caudal peduncle and pelvic fin (Hewitt 1979)

Dinemoura producta: beneath caudal peduncle and pelvic fin (Hewitt 1979)

Echthrogaleus coleoptratus: beneath caudal peduncle and pelvic fin (Hewitt 1979)

Echthrogaleus denticulatus: beneath caudal peduncle and pelvic fin (Hewitt 1979)

Nemesis lamna lamna: branchial chamber (Thomson 1890)

Nemesis lamna vermi: angles of branchial chamber (Hewitt 1979)

Nesippus orientalis: angles of branchial chamber (Hewitt 1979)

Pandarus bicolor: beneath caudal peduncle and pelvic fin (Hewitt 1979)

Pandarus satyrus: angles of branchial chamber (Hewitt 1979)

OPE2 *Cetorhinus maximus* Basking shark (see Hewitt & Hine 1972)

COPEPODA

Echthrogaleus coleoptratus: skins, fins (Thomson 1890)

Nemesis lamna vermi: gills

OPE3 *Isurus oxyrinchus* Mako shark (see Hewitt & Hine 1972)

CESTODA

Ceratobothrium xanthocephalum: spiral valve

Gymnorhynchus (*Gymnorhynchus*) *isuri*: spiral valve

Hepatoxylon trichiuri postlarva: body cavity

NEMATODA

Anisakis sp. larvae: stomach

COPEPODA

Anthosoma crassum: buccal cavity

Dinemoura latifolia: buccal cavity, gills, body surface

Echthrogaleus denticulatus: (Thomson 1890)

Nemesis lamna lamna: gills

Nesippus borealis: body surface

Nogagus borealis: body surface (Hewitt 1967)

Pandarus bicolor: surface and fins (Jones: unpublished record)

Pandarus satyrus: buccal cavity, body surface

Phyllothyreus cornutus: site not recorded

OPE4 *Lamna nasus* Porbeagle shark (see Hewitt & Hine 1972)

COPEPODA

Anthosoma crassum: buccal cavity

Echthrogaleus coleoptratus: body surface

OPE5 *Prionace glauca* Blue shark (see also Hewitt & Hine 1972)

CESTODA

Anthobothrium laciniatum var. *brevicolle*: spiral valve

Hepatoxylon trichiuri postlarvae: gut and visceral cavities (Sin *et al.* 1992)

NEMATODA

Anisakis sp. larvae: stomach

COPEPODA

Echthrogaleus coleoptratus: body surface

Kroyeria carchariaeglauci: gills (Diggles: unpublished record)

Nemesis robusta: gills (Diggles: unpublished record)

OPE6 *Scymnodon plunketi* Plunket's shark (see Hewitt & Hine 1972)

MONOGENEA

Asthenocotyle kaikourensis: skin

DIGENEA

Otodistomum plunketi: body cavity and cardiac stomach (Gibson & Bray 1977)

NEMATODA

Terranova sp. b: stomach

OPT1 *Allothunnus fallai* Slender tuna

PROTOZOA

Goussia auxidis: liver (Jones 1990a)

COPEPODA

Euryphorus brachypterus: buccal cavity

OPT2 *Centriscops humerosus* Bellowsfish (see Hewitt & Hine 1972)

MYXOSPOREA

Ceratomyxa constricta: gall bladder

DIGENEA

Coitocaecum tylogonium: intestine

Pseudopecoelus japonicus: intestine

NEMATODA

Hysterothylacium (syn. *Thynnascaris*) sp. larvae: in body cavity, stomach and intestine

COPEPODA
Perissopus dentatus:

OPT3 *Centrolophus niger* Rudderfish

COPEPODA
Lernanthropus sp.: skin (Jones: personal observation)

OPT4 *Katsuwonus pelamis* Skipjack tuna (see also Hewitt & Hine 1972)

PROTOZOA
Goussia auxidis: liver (Jones 1990a)

DIGenea
Coeliodidymocystis sp.: (Lester *et al.* 1985)
Didymocylindrus filiformis: (Lester *et al.* 1985)
Didymocylindrus simplex: (Lester *et al.* 1985)
Didymoproblema fusiforme: (Lester *et al.* 1985)
Didymocystoides intestinomuscularis: (Lester *et al.* 1985)
Kollikeria / *Didymocystis* sp.: (Lester *et al.* 1985)
Lagenocystis / *Univitellannulocystis* sp.: (Lester *et al.* 1985)
Lobatozoum multisacculatum: (Lester *et al.* 1985)
Oesophagocystis dissimilis: (Lester *et al.* 1985)
Syncoelium filiferum: gills (Lester *et al.* 1985)

CESTODA
Scolex polymorphus: large intestine (Lester *et al.* 1985)
Tentacularia coryphaenae: wall of body cavity and viscera (Lester *et al.* 1985)

NEMATODA
Anisakis type 1: (Lester *et al.* 1985)
Anisakis type 2: (Lester *et al.* 1985)
Ctenascaphis lesteri: stomach (Lester *et al.* 1985, Crites *et al.* 1993)
Philometra sp.: ovaries (Lester *et al.* 1985)
Prospinitectus exiguus: stomach and intestine (Lester *et al.* 1985, Crites *et al.* 1993)

ACANTHOCEPHALA
Raorhynchus terebra: (Lester *et al.* 1985)

COPEPODA
Caligus bonito: mouth, gills, inside operculum, skin (Lester *et al.* 1985, Jones 1988a)
Caligus coryphaenae: skin (Jones 1988a)
Caligus productus: under operculum

OPT5 *Lampanyctodes hectoris* Lanternfish

COPEPODA
Cardiodectes bellotti: skin (Jones: personal collection)

OPT6 *Lampris guttatus* (syn. *Lampris regius*) Moonfish (see Hewitt & Hine 1972)

NEMATODA

Anisakis sp. larvae: encapsulated on viscera, mesenteries and under peritoneum

OPT7 *Makaira indica* (syn. *Makaira mazara*) Black marlin (see Hewitt & Hine 1972)

COPEPODA

Gloiopotes huttoni: body surface, particularly near vent

Penella histiophori: surface

OPT8 *Mola mola* Sunfish (see Hewitt & Hine 1972)

DIGENEA

Accacladocoelium alveolatum: site not recorded

Dihemistephanus lydiae: site not recorded

Odhnereum calyptrocotyle: intestine

Rhynchopharynx paradoxa: site not recorded

CESTODA

Ancistrocephalus microcephalus: intestine

Gymnorhynchus (*Molicola*) *horridus* pleurocercus: liver

NEMATODA

Anisakis sp. larvae: encapsulated on viscera, mesenteries and under peritoneum

COPEPODA

Cecrops latreillii: gills

Lepeophtheirus hastatus: body surface

Lepeophtheirus insignis: body surface

OPT9 *Remora brachyptera* Grey marlinsucker

COPEPODA

Lepeophtheirus crassus: skin (Shiino 1963)

OPT10 *Tetrapturus audax* (syn. *Makaira mitsukurii*) Striped marlin (see Hewitt & Hine 1972)

NEMATODA

Anisakis simplex larvae: encysted in stomach wall (Diggles: unpublished record)

Maricostula sp.: stomach (Diggles: unpublished record)

COPEPODA

Gloiopotes huttoni: body surface, particularly near vent

OPT11 *Thunnus alalunga* Albacore tuna (see also Hewitt & Hine 1972)

PROTOZOA

Goussia auxidis: liver and spleen (Jones 1990a, 1991)

DIGENEA

Didymozoid B (*Didymocystis* sp.): buccal cavity (Jones 1991)

Didymozoid B (*Koellikeria* sp.): buccal cavity (Jones 1991)

Didymozoid C: gills (Jones 1991)

Didymozoid D: pyloric caeca (Jones 1991)

Didymozoid E: Gill rakers (Jones 1991)

Didymozoid G: gills (Jones 1991)

Didymozoid I: intestine wall (Jones 1991)

Didymozoid L: blood sinus (Nematobothriinae) (Jones 1991)

Didymozoid R: gill rakers (Jones 1991)

Didymozoid S: stomach wall (Jones 1991)

Didymozoid Z: blood sinus (*Koellikeria* sp.) (Jones 1991)

Hirudinella ventricosa: stomach lumen (Jones 1991)

CESTODA

Hepatoxylon trichiuri: mesenteries, gut cavity (Jones 1991)

Tentacularia coryphaenae: muscle of body flap (Jones 1991)

Cestode A: pyloric caeca (Jones 1991)

Cestode B: pyloric caeca (Jones 1991)

NEMATODA

Anisakis simplex: gut mesenteries (Jones 1991)

Hysterothylacium aduncum: stomach lumen (Jones 1991)

Hysterothylacium (syn. *Thynnascaris*) sp. larvae: body cavity

Oncophora sp.: pyloric caeca (Jones 1991)

ACANTHOCEPHALA

Rhadinorhynchus sp.: mesenteries around intestine (Jones 1991, Gibson & Jones 1993)

COPEPODA

Brachyiella thynni: skin (Jones 1991)

Euryphorus brachypterus (syn. *Elytrophora brachyptera*): gills, buccal cavity (Jones 1991)

Pseudocycnus appendiculatus: gills, buccal cavity (Jones 1991)

OPT12 *Thunnus albacares* Yellowfin tuna

PROTOZOA

Goussia auxidis: liver (Jones 1990a)

OPT13 *Thunnus maccoyii* Bluefin tuna (see Hewitt & Hine 1972)

COPEPODA

Euryphorus brachypterus (syn. *Elytrophora brachyptera*): inner surface of operculum

OPT14 *Thunnus obesus* Bigeye tuna

COPEPODA

Caligus coryphaenae: skin (Jones: personal collection)

OPT15 *Trachurus murphi* Murphy's mackerel

DIGENEA

Syncoelium thyrsites: gills (Jones: personal collection)

OPT16 Unidentified marlin given as *Histiophorus herschelii*

COPEPODA

Lepeophtheirus huttoni: skin (Thomson 1890)

OPT17 *Xiphias gladius* Broadbill swordfish (see also Hewitt & Hine 1972)

MONOGENEA

Tristoma adcoecineum: gills (Diggles: unpublished record)

COPEPODA

Philichthys xiphiae: inside bones of skull

Demersal

ODE1 *Bathyrajah* sp.

COPEPODA

Dendrapta sp.: skin (Jones 1988b)

ODE2 *Centroscymnus owstoni* Smoothskin dogfish

CIRRIPEDA

Anelasma sp. under skin (Jones: personal collection)

ODE3 *Dalatias licha* Black shark (see also Hewitt & Hine 1972)

DIGENEA

Otodistomum veliporum: stomach

CESTODA

Hepatoxylon megacephalum postlarva: body cavity

Hepatoxylon trichiuri: gut and visceral cavities (Sin *et al.* 1992)

Monorygma hyperapolytica: spiral valve

NEMATODA

Anisakis sp. larva: stomach

Terranova sp. a: stomach

ODE4 *Deania calcea* Shovelnosed shark (see also Hewitt & Hine 1972)

CESTODA

Hepatoxylon megacephalum: gut and visceral cavities (Sin *et al.* 1992)

Hepatoxylon trichiuri: gut and visceral cavities (Sin *et al.* 1992)

NEMATODA

Anisakis sp. larva: stomach

ODE5 *Etmopterus baxteri* Baxter's shark

DIGENEA

Otodistomum plunketi: intestine (Jones: personal collection)

COPEPODA

Albionella sp.: skin, nares (Jones: personal collection)

CIRRIPEDA

Anelasma sp. Under skin (Jones: personal collection; Newman & Foster 1987)

ODE6 *Etmopterus* sp.

COPEPODA

Lernaeopoda sp.: skin (Jones: personal collection)

ODE7 *Hexanchus griseus* Six-gill shark

CESTODA

Hepatoxylon trichiuri: gut and visceral cavities (Sin *et al.* 1992)

ODE8 *Oxynotus bruniensis* Prickly shark

MONOGENEA

Asthenocotyle taranakiensis: gills (Beverley-Burton *et al.* 1987)

CIRRIPEDA

Anelasma sp.: under skin (Jones, personal collection)

ODH1 Ghost sharks (Chimaeriformes)

COPEPODA

Schistobrachia pilgrimi: gills (Kabata 1988)

Vanbenedenia sp.: dorsal spine (Jones 1988b)

ODT1 *Alepocephalus australis* Small-scaled brown slickhead

COPEPODA

Periplexis antarcticensis: skin (Kabata 1965)

ODT2 *Antimora rostrata* Violet cod

COPEPODA

Sarcotaces sp. muscle just under skin (Jones: personal collection)

ODT3 *Argentina elongata* Silverside (see also Hewitt & Hine 1972)

DIGenea

Accacladocoelium leontjevae: intestines (Korotaeva 1976)

NEMATODA

Anisakis simplex: abdominal cavity (Grabda & Słószarczyk 1981)

Hysterothylacium (syn. *Thynnascaris*) *aduncum*: abdominal cavity (Grabda & Słószarczyk 1981)

ODT4 *Bathylagus antarcticus*

COPEPODA

Periplexis antarcticensis: skin (Kabata 1965)

ODT5 *Brama brama* Ray's bream

COPEPODA

Hatschekia conifera: gills (Jones 1985)

ODT6 *Coelorinchus aspercephalus* Oblique banded rattail

DIGenea

Gonocerca phycidis: stomach (Jones: personal collection)

Lepidapedon blairi: intestine (Jones: personal collection)

COPEPODA

Sarcotaces sp. muscle (Jones: personal collection)

ODT7 *Coelorinchus australis* Rattail (see Hewitt & Hine 1972)

PROTOZOA

Haemogregarina coelorhynchi: blood

Trypanosoma coelorhynchi: blood

MYXOSPOREA

Auerbachia monstrosa: gall bladder

Ceratomyxa subtilis: gall bladder

MONOGENEA

Diclidophora coelorhynchi: gills

DIGENEA

Gonocerca phycidis: stomach

Lepidapedon australis: intestine

NEMATODA

Anisakis sp. larvae: encapsulated on viscera, mesenteries, under peritoneum

Ascarophis sp. j: intestine

Capillaria sp. b: intestine

Hysterothylacium (syn. *Thynnascaris*) *aduncum*: intestine

Paranisakiopsis australiensis: gut

ODT8 *Coelorinchus bollonsi* Rattail

DIGENEA

Lepidapedon blairi: gut (Bray & Jones 1993)

ODT9 *Coelorinchus fasciatus* (see Hewitt & Hine 1972)

DIGENEA

Genolinea ?laticauda: (Jones: personal collection)

Gonocera phycidis: gills (Jones: personal collection)

Glomerocirrus ?macrouri: (Jones: personal collection)

Lecithochirium sp.: (Jones: personal collection)

Lepidapedon sp.: (Jones: personal collection)

COPEPODA

Lophoura (syn. *Rebelula*) *laticervix*: surface just behind head

Sarcotaces sp.: muscle just under skin (Jones: personal collection)

ODT10 *Coelorinchus innotabilis*

COPEPODA

Sphyrion quadricornis: skin (Jones: personal collection)

ODT11 *Coelorinchus kermadecus*

COPEPODA

Trifur lotellae: skin

ODT12 *Coelorinchus* sp. Rattail

COPEPODA

Lophoura (syn. *Rebelula*) *laticervix*: skin (Hewitt 1964)

Sarcotaces sp.: skin (Pilgrim 1985)

ODT13 *Coelorinchus* sp. C Small banded rattail

COPEPODA

Sarcotaces sp.: muscle (Jones: personal collection)

ODT14 *Coelorinchus* sp. 3

COPEPODA

Lophoura sp.: skin (Jones: personal collection)

ODT15 *Coryphaenoides rudis*

COPEPODA

Clavella zini: skin (Kabata 1979)

ODT16 *Coryphaenoides serratulus*

COPEPODA

Lophoura sp. c: skin (Jones: personal collection)

ODT17 *Cyttus novaezelandiae* (syn. *Cyttus australis*) Silver dory (see also Hewitt & Hine 1972)

MYXOSPOREA

Ceratomyxa declivis: gall bladder

DIGENEA

Derogenes varicus: stomach

Lecithocladium seriolellae: stomach

Plagioporus (*Caudotestis*) *pachysomus*: intestine

Pseudopecoelus hemilobatus: intestine

Tubulovesicula angusticauda: stomach

CESTODA

Hepatoxylon trichiuri: gut and visceral cavities (Sin *et al.* 1992)

NEMATODA

Anisakis sp. larvae: encapsulated on viscera, mesenteries, under peritoneum

Hysterothylacium (syn. *Thynnascaris*) sp. larvae: two types, in stomach, intestine, body cavity

COPEPODA

Chondracanthus distortus: buccal cavity (Ho 1991b)

ODT18 *Cyttus traversi* Lookdown dory

DIGENEA

Derogenes varicus: stomach (Jones: personal collection)

Lecithochirium genypteri: stomach (Jones: personal collection)

ODT19 *Emmelichthys nitidus* Redbait

MONOGENEA

Microcotyle emmelichthyops: digestive tract (Korotaeva 1975)

DIGENEA

Bivesiculoides otagoensis digestive tract (Korotaeva 1975)

Pseudopecoelus vulgaris: digestive tract (Korotaeva 1975)

Tergestia magna: digestive tract (Korotaeva 1975)

CESTODA

Nybelinia sp. larvae: digestive tract (Korotaeva 1975)

Scolex polymorphus: digestive tract (Korotaeva 1975)

NEMATODA

Anisakis sp. larvae: digestive tract (Korotaeva 1975)

Hysterothylacium sp. larvae: digestive tract (Korotaeva 1975)

ODT20 *Gadomus aoteanus* Filamentous rattail

COPEPODA *Sarcotaces* sp.: muscle (Jones: personal collection)

ODT21 *Halargyreus johnsonii* Slender cod

COPEPODA

Lophoura sp. h: skin (Jones: personal collection)

ODT22 *Hoplichthys haswelli* Flathead (see also Hewitt & Hine 1972)

PROTOZOA

Haemogregarina hoplichthys: blood

CESTODA

Hepatoxylon trichiuri: gut and visceral cavities (Sin *et al.* 1992)

NEMATODA

Anisakis sp. larvae: encapsulated on viscera, mesenteries, under peritoneum

Hysterothyacium (syn. *Thynnascaris*) sp. larvae: in stomach, intestine, body cavity

COPEPODA

Prochondracantus platycephali: (Ho 1975)

ODT23 *Hoplostethus atlanticus* Orange roughy

MYXOSPOREA

Sphaeromyxa sp.: gall bladder (Lester *et al.* 1988)

DIGENEA

Glomerircirrus amadai: digestive tract (Jones 1997)

Pseudopecoelus sewelli: digestive tract (Jones 1997)

CESTODA

Callitetrarhynchus: body cavity (Lester *et al.* 1988)

Hepatoxylon trichiuri: encapsulated in the mesenteries (Lester *et al.* 1988)

NEMATODA

Anisakis sp.: (Gibson & Jones 1993)

Anisakis type 1: mesentery, gut wall, especially the stomach (Lester *et al.* 1988)

Anisakis type 2: mesentery, gut wall, especially the stomach (Lester *et al.* 1988)

Anisakis type 3: mesentery, gut wall, especially the stomach (Lester *et al.* 1988)

Ascarophis sp. larvae: (Jones 1997)

Spirurid: embedded in stomach wall (Lester *et al.* 1988)

Terranova sp.: stomach wall and mesentery (Lester *et al.* 1988)

Hysterothylacium sp. stomach (Jones: personal collection)

ACANTHOCEPHALA

Echinorhynchus sp.: digestive tract (Lester *et al.* 1988)

ODT24 *Lepidion schmidtii*

DIGENEA

Gonocera phycidis: gills (Jones: personal collection)

COPEPODA

Sarcotaces sp.: muscle (Jones: personal collection)

ODT25 *Lepidorhynchus denticulatus* Deepsea whiptail (see Hewitt & Hine 1972)

NEMATODA

Anisakis sp. larvae: encapsulated on viscera, mesenteries, under peritoneum

Ascarophis sp. a: stomach

Hysterothylacium (syn. *Thynnascaris*) sp. larvae: stomach, intestine, body cavity

ODT26 *Macrourus carinatus* Ridge-scaled rattail

COPEPODA

Chondracanthodes radiatus: buccal cavity (Ho 1991b)

Clavella sp.: skin (McCann & McKnight 1980)

ODT27 *Macruronus novaezelandiae* Hoki (see also Hewitt & Hine 1972)

DIGENEA

Derogenes macrostoma: stomach (Vorotaeva & Leonteva 1972)

Derogenes varicus: stomach

Gonocerca phycidis: stomach (Grabda & Ślósarczyk 1981)

Pseudopecoelus hemilobatus: digestive system (Vorotaeva & Leonteva 1972)

Tubulovesicula angusticauda: stomach

CESTODA

Grillotia sp.: abdominal cavity (Grabda & Slósarczyk 1981)

Hepatoxylon trichiuri: gut and visceral cavities (Grabda & Slósarczyk 1981, Sin *et al.* 1992)

Unidentified Trypanorhynch cestode: abdominal cavity (Vorotaeva & Leonteva 1972)

NEMATODA

Anisakis simplex larvae: abdominal cavity (Grabda & Slósarczyk 1981)

Ascarophis cooperi: (Vorotaeva & Leonteva 1972)

Ascarophis sp. g: stomach

Capillaria tasmanica: (Vorotaeva & Leonteva 1972)

Capillaria sp. a: intestine

Pseudoterranova decipiens (syn. *Phocanema decipiens*): muscles, abdominal cavity (Grabda & Slósarczyk 1981)

Hysterothylacium (syn. *Thynnascaris*) *aduncum*: larvae in abdominal cavity, adults in stomach and intestine (Grabda & Slósarczyk 1981)

Hysterothylacium (syn. *Thynnascaris*) sp. larvae: two types, stomach, intestine, body cavity

ACANTHOCEPHALA

Corynosoma semerme: abdominal cavity (Grabda & Slósarczyk 1981)

Echinorhynchus gadi: abdominal cavity (Vorotaeva & Leonteva 1972)

COPEPODA

Chondracanthus australis: roof of mouth (Ho 1991a, b)

Trifur lotellae: submentum, branchial cavity (Grabda & Slósarczyk 1981)

ODT28 *Merluccius australis* (syn. *Merluccius gayi*) Hake (see also Hewitt & Hine 1972)

DIGENEA

Gonocerca phycidis: gills

Tubulovesicula angusticauda: stomach

CESTODA

Hepatoxylon trichiuri: gut and visceral cavity (Grabda & Slósarczyk 1981, Sin *et al.* 1992)

NEMATODA

Hysterothylacium (*Thynnascaris*) *aduncum*: intestine

Hysterothylacium (*Thynnascaris*) sp. larvae: stomach, intestine, body cavity

COPEPODA

Neobrachiella insidiosa f. *lageniformis*: gills (Kabata & Ho 1981)

ODT29 *Micromesistius australis* Southern blue whiting

PROTOZOA

Eimeria sp.: liver (Hine: unpublished observations)

CESTODA

Hepatoxylon trichiuri: abdominal cavity (Grabda & Slósarczyk 1981)

NEMATODA

Anisakis simplex: abdominal cavity (Grabda & Slósarczyk 1981)

Hysterothylacium (syn. *Thynnascaris*) *aduncum*: stomach and intestine (Grabda & Slósarczyk 1981)

ODT30 *Mora moro* (syn. *Mora pacifica*) Ribaldo (see also Hewitt & Hine 1972)

DIGENEA

Accacladocoelium leontjevae: intestines (Korotaeva 1976) (host identification: L. J. Paul: pers. comm.)

CESTODA

Hepatoxylon trichiuri: peritoneal cavity (Waterman & Sin 1990)

NEMATODA

Anisakis sp. larvae: encapsulated on viscera, mesenteries, under peritoneum

Capillaria sp. e: stomach

Cucullanus sp. f: intestine

Hysterothylacium (syn. *Thynnascaris*) *aduncum*: intestine

COPEPODA

Sarcotaces sp. I: muscle (Avdeev & Avdeev 1975; Jones: personal collection)

ODT31 *Neophrynichthys angustus* Pale toadfish

COPEPODA

Neobrachiella amhipacifica: gills (Ho 1982)

ODT32 *Neophrynichthys latus* Toadfish (see Hewitt & Hine 1972)

NEMATODA

Cucullanus sp. h: intestine

Hysterothylacium (syn. *Thynnascaris*) *aduncum*: intestine

Hysterothylacium (syn. *Thynnascaris*) sp. larvae: two types, in stomach, intestine, body cavity

ODT33 *Nezumia bubonis* Bulbous rattail

COPEPODA

Clavella sp.: skin (McCann & McKnight 1980)

ODT34 *Notacanthus seipinis* Spiny eel

DIGENEA

Accacladocoelium leontjevae: intestines (Korotaeva 1976) (host identification: L. J. Paul: pers. comm.)

Tinrovia papiliocauda: (Mamaev & Mamaev 1987)

ODT35 *Notopogon lilliei* Bellowsfish (see Hewitt & Hine 1972)

NEMATODA

Anisakis sp. larvae: encapsulated on viscera, mesenteries, under peritoneum

Hysterothylacium (syn. *Thynnascaris*) sp. larvae: stomach, intestine, body cavity

ODT36 *Psychrolutes* sp. Blobfish

COPEPODA

Chondracanthus yanezi: buccal cavity (Jones: personal collection)

ODT37 *Seriolella caerulea* White warehou

DIGENEA

Accacladocoelium leontjevae: intestine (Korotaeva 1976) (host identification: L. J. Paul: pers. comm.)

ODT38 *Seriolella punctata* (syn. *Seriolella maculata*, *S. porosa*) Silver warehou (see also Hewitt & Hine 1972)

MONOGENEA

Neogrubea seriolellae: gills (Korotaeva 1975)

DIGENEA

Accacladocoelium leontjevae: intestine (Korotaeva 1976) (host identification: L.J. Paul: pers. comm.)

Didymozoonidae gen. sp.: gonads (Grabda & Slósarczyk 1981)

Lecithocladium seriolellae: (Korotaeva 1975, Jones 1997)

Prosorchis australis: (Korotaeva 1975, Jones 1997)

Syncoelium filiferum: (Korotaeva 1975, Jones 1997)

NEMATODA

Acanthocheilus quadridentatus: (Korotaeva 1975, Jones 1997)

Anisakis sp. larvae: site not recorded (Korotaeva 1975)

Hysterothylacium (syn. *Thynnascaris*) *aduncum*: stomach and intestine (Grabda & Slósarczyk 1981)

Hysterothylacium (syn. *Thynnascaris*) sp. larvae: stomach, intestine, body cavity

COPEPODA

Caligus pelamydis: skin (Korotaeva 1975)

Lernanthropus microlamini: site not recorded (Korotaeva 1975)

ISOPODA

Ceratothoa (syn. *Meinertia*) *trillesi*: buccal cavity (Avdeev 1979)

ODT39 *Simenchelys parasiticus* Parasitic eel (see Hewitt & Hine 1972)

DIGENEA

Hypertrema ambovatum: intestine

ODT40 *Trachyrincus longirostris* (see Hewitt & Hine 1972)

NEMATODA

Anisakis sp. larvae: encapsulated on viscera, mesenteries, under peritoneum

ODT41 *Trachyrincus* sp.

COPEPODA

Sphyrion laevigatum: skin (Jones: personal collection)

ODT42 *Ventrifossa nigromaculata* Blackspot rattail

COPEPODA

Sarcotaces sp. muscle (Jones: personal collection)

ODT43 *Allocyttus niger* Black oreo

ISOPODA

Elthusa (syn. *Livoneca*) *neocyta*: buccal cavity (Stephenson 1987)

ODT44 *Neocyttus rhomboidalis* Spiky oreo

ISOPODA

Elthusa (syn. *Livoneca*) *neocyta*: buccal cavity (Avdeev 1975)

ODT45 *Pseudocyttus maculatus* Smooth oreo

DIGENEA

Unidentified digenean sp. a: stomach (Diggles: unpublished record)

Unidentified digenean sp. b: stomach (Diggles: unpublished record)

Unidentified digenean sp. c: stomach (Diggles: unpublished record)

Unidentified digenean sp. d: intestine (Diggles: unpublished record)

Unidentified digenean sp. e: rectum (Diggles: unpublished record)

CESTODA

Hepatoxylon trichuri: viscera (Diggles: unpublished record)

NEMATODA

Anisakis sp. larvae: encapsulated on viscera, mesenteries (Diggles: unpublished record)

ISOPODA

Elthusa (syn. *Livoneca*) *neocyta*: buccal cavity (Stephenson 1987, Diggles: unpublished record)

Parasite/Host list

Protozoa

Caliperia longipes: SWT7, SWT33
Chilodonella sp.: FT1, FT2
Eimeria sp.: ODT29
Endosphaera engelmanni: SWT10
Epieimeria anguillae: FT1, FT2
Goussia auxidis: CPT1, OPT1, OPT4, OPT11, OPT12
Haemogregarina (Hepatozoon?) *acanthoclini*: SWT1
Haemogregarina bigemina: SWT7, SWT8, SWT10, SWT14, SWT33
Haemogregarina coelorhynchi: ODT7
Haemogregarina hoplichthys: ODT22
Haemogregarina leptoscoli: SWT12
Ichthyophthirius multifiliis: FT1, FT2, FT5, FT7, FT15, FT20, FT22
Microsporidium sp.: FT18, SWT25
Paramoeba sp.: FT22
Scyphidia (Gerda) *acanthoclini*: SWT1
Scyphidia sp.: FT1, SWT25
Trichodina multidentis: SWT1, SWT6, SWT7, SWT8, SWT10, SWT14, SWT25, SWT33
Trichodina parabranhicola: SWT1, SWT2, SWT6, SWT7, SWT8, SWT10, SWT14, SWT25, SWT33
Trichodina sp.: FT1, FT2, SWT25
Tripartiella sp.: FT5
Trypanosoma caulopsettae: SWT26, CDT1
Trypanosoma coelorhynchi: CDT14, ODT7
Trypanosoma congiopodi: IDT6
Trypanosoma gargantua: CDE1
Trypanosoma heptatrete: CDA1
Trypanosoma paraperis: 1DT19
Trypanosoma tripterygium: SWT7, SWT8, SWT10

Myxozoa

Auerbachia anomala: CDT4
Auerbachia monstrosa: ODT7
Ceratomyxa aggregata: CDT8
Ceratomyxa angusta: SWT31, IDT7
Ceratomyxa arcuata: IDT14
Ceratomyxa castigata: IDT6
Ceratomyxa castigatoides: SWT24
Ceratomyxa constricta: OPT2
Ceratomyxa declivis: ODT17
Ceratomyxa elongata: CDT7
Ceratomyxa faba: CDT1
Ceratomyxa flexa: CDT11
Ceratomyxa gemmaphora: IDT2
Ceratomyxa gibba: IDT6
Ceratomyxa hama: CDT1
Ceratomyxa inconstans: SWT31, IPT2, CPT1, CPT4
Ceratomyxa insolita: CDT8

Ceratomyxa intexua: CDT11, CDT15
Ceratomyxa inversa: CDT4
Ceratomyxa laxa: CDT1
Ceratomyxa minuta: CDT15, CDT16
Ceratomyxa moenei: CDT12
Ceratomyxa nitida: SWT20
Ceratomyxa polymorpha: CDT14
Ceratomyxa recta: CDT4
Ceratomyxa renalis: CDT1
Ceratomyxa subtilis: ODT7
Ceratomyxa torquata: CDT1
Ceratomyxa uncinata: SWT19, CDT1
Ceratomyxa vepallida: CDT1
Ceratomyxa sp. a: CDT16
Ceratomyxa sp. b: CDT1
Ceratomyxa sp. c: CPT1
Ceratomyxa sp. d: IDT2
Ceratomyxa sp. e: IDE4
Ceratomyxa sp. f: CDT1
Ceratomyxa sp. g: IDE4
Ceratomyxa sp. h: SWT24
Ceratomyxa sp.: SWT25
Chloromyxum obliquum: IDE4
Chloromyxum sp.: FT1, FT2
Davisia diplocrepis: SWT6
Henneguya sp.: FT1,
Kudoa sp.: CDT14
Leptotheca annulata: IPT1, CDT15, CDT16
Leptotheca minima: IPT1
Leptotheca pinguis: SWT20, CDT1
Leptotheca subelegans: SWT6, SWT9
Leptotheca sp. a: IDT6
Leptotheca sp. b: CDT1
Leptotheca sp. c: CDT1
Myxidium acinum: FT1, FT2
Myxidium giardi: FT1, FT2
Myxidium incurvatum: SWT1, SWT6, SWT14, SWT33
Myxidium sp.: FT1, FT2
Myxobolus cerebralis: FT20, FT22, FT25, FT26
Myxobolus iucundus: FT10
Myxobolus (syn. *Myxosoma*) *tripterygii*: SWT8
Myxobolus sp.: FT1, FT2, FT4, FT7, IPT3
Octosporea sp.: CPT3
Sphaeromyxa tripterygii: SWT8, SWT10
Sphaeromyxa sp.: SWT25, ODT23
Sphaerospora undulans: SWT20, CDT1
Sphaerospora sp.: CDT4
Thelohanellus sp.: FT1, FT2
Zschokkella sp.: SWT8

Aspidogastrea

Macraspis elegans: IDH1

Monogenea

Allocotylophora polyprionum: CDT13
Amphibdella cuticulovagina: CDE4
Amphibdelloides maccallumi: CDE4
Anoplodiscus cirrusspiralis: IDT17
Asthenocotyle kaikourensis: OPE6
Asthenocotyle taranakiensis: ODE8
Benedenia sekii: IDT17
Benedenia seriola: IPT7
Bivagina pagrosomi: IDT17
Bivagina tai: IDT17
Calicotyle ramsayi: CDE2
Callorhynchicola multitesticulatus: IDH1
Callorhynchocotyle amato (syn. *Erpocotyle callorhynchi*): IDH1
Cemocotyle trachuri: CPT4
Choricotyle australiensis: IDT17
Dactylogyrus ctenopharyngodonis: FT5
Diclidophora coelorhynchi: ODT7
Diplasiocotyle johnstoni: SWT3
Empruthotrema raiae: CDE1
Encotyllable chironemi: IDT4
Erpocotyle antarctica: IDE4
Erpocotyle squali: CDE2
Eurysorchis australis: IDT24
Gasterocotyle trachuri: CPT3
Genolopa microsoma: IPT2
Grubea australis: CPT1
Gyrodactylus ctenopharyngodontis: FT5
Gyrodactylus sp.: FT7, SWT25
Heteraxinoides novaezealandiae: CPT4
Heteraxinoides regis: CDT15
Hexabothrium akaroensis: IDE3
Kahawaia (syn. *Gonoplasius*) *truttae*: IPT1
Kuhnia scombri: CPT1,
Lamellodiscus pagrosomi: IDT17
Leptomicrobothrium longiphallus: IDE1
Lophocotyle novaezealandiae: CDA1
Mediavagina latridis: IDT12
Megalocotyle australis: SWT31
Megalocotyle johnstoni: IDT13
Megalocotyle latridis: IDT13
Merizocotyle amplidiscata: CDE1
Microcotyle brevis: SWT8
Microcotyle constricta: IDT19
Microcotyle emmelichthyops: ODT19
Microcotyle longirostri: IPT2
Microcotyle nemadactylus: CDT8
Microcotyle neozelandicus: SWT31
Neobivagina pelotretis: SWT19, SWT20

Neogrubea seriolellae: IDT24, ODT38
Pseudaxine australis: CPT4
Pseudaxine bivaginalis: CPT4
Pseudaxine trachuri: CPT4
Pseudobenedenia nototheniae: SWT17, SWT18
Tagia gempylli: CDT15
Tristoma adococcineum: OPT17
Udonella caligorum: CDT16
Winkenthughesia thyrsitae: CDT7, CDT16
Zeuxapta seriola: IPT7

Digenea

Accacladocoelium alveolatum: OPT8
Accacladocoelium leontjevae: IPT5, ODT3, ODT30, ODT34, ODT37, ODT38
Anahemiurus sp.: IPT1
Benthotrema richardsoni: SWT19
Bivesiculoides otagoensis: CDT11, ODT19
Brevicreadium congeri: SWT4
Bucephalus longicornutus: CDT6
Cardicola coridodacis: SWT15
Cardicola whitteni: CDT8
Choanomyzus tasmaniae: SWT18
Coeliodidymocystis sp.: OPT4
Coitocaecum parvum: FT1, FT2, FT3, FT7, FT10, FT14, FT15, FT16, FT17, FT18, FT24, FT25
Coitocaecum tylogonium: OPT2
Coitocaecum zealandicum: FT1, FT2, FT4, FT15, FT17, FT18
Coitocaecum sp.: FT14
Decemtestis pseudolabri: SWT21
Deretrema minutum: FT1, FT2, FT10, FT24
Deretrema philippae: FT8, FT15
Deretrema sp.: FT7, FT17
Derogenes nototheniae: SWT18
Derogenes macrostoma: ODT27
Derogenes varicus: FT22, FT25, SWT4, SWT30, SWT31, IDT5, CDT1, CDT4, CDT14, ODT17, ODT18, ODT27
Didymocylindrus filiformis: OPT4
Didymocylindrus simplex: OPT4
Didymoprolema fusiforme: OPT4
Didymocystoides intestinomuscularis: OPT4
Didymozoid B (Didymocystis sp.): OPT11
Didymozoid B (Koellikeria sp.): OPT11
Didymozoid Z (Kollikeria sp.): OPT11
Didymozoid C: OPT11
Didymozoid D: OPT11
Didymozoid E: OPT11
Didymozoid G: OPT11
Didymozoid I: OPT11
Didymozoid L: OPT11
Didymozoid R: OPT11
Didymozoid S: OPT11
Didymozoonidae gen. sp.: ODT38
Dihemistephanus lydiae: OPT8

Diphtherostomum sp.: SWT25, IDT17
Diploproctodaeum plicatum: SWT32
Distomum veliporum: CDE1, CDE4
Dolichoenterum longissimum: SWT4
Echinophallus seriolellae: IDT24
Echinostome: FT19
Ectenurus trachuri (syn. *Ectenurus lepidus*): SWT31, CPT4
Genolinea anura: IDT4
Genolinea dactylopagri: IDT12, CDT8
Genolinea ?laticauda: OTD9
Genolopa microsoma: CPT4
Glomericirrus amadai: ODT23
Glomericirrus ?macrouri: OTD9
Gonocerca phycidis: SWT30, IDT19, ODT6, ODT7, ODT9, ODT24, ODT27, ODT28
Grassitrema prudhoei: FT1, FT2
Helicometra grandora: SWT31, IDT5
Hirudinella ventricosa: OPT11
Holorchis pulcher: IDT12
Hypertrema ambovatum: ODT39
Kollikeria / Didymocystis sp.: OPT4
Lagenocystis / Univitellannulocystis sp.: OPT4
Lecithochirium australis: CDT16
Lecithochirium conviva: SWT4
Lecithochirium flexum: SWT4
Lecithochirium genypteri: CPT4, CDT4, CDT8, ODT18
Lecithochirium sp.: FT1, OTD9
Lecithocladium excisum: IDT2, IDT19
Lecithocladium magnacetabulum: FT25, IDT17
Lecithocladium seriolellae: FT22, FT25, IDT24, ODT17, ODT38
Lepidapedon australis: ODT7
Lepidapedon blairi: OTD6, OTD8
Lepidapedon congeri: SWT4
Lepidapedon sp.: OTD9
Lobatozoum multisacculatum: OPT4
Microphallid sp. a: SWT25
Microphallid sp. b: SWT25
Mitrostoma nototheniae: SWT18
Myzoxenus crowcrofti: SWT23
Neocreadium geniagni: IDT8
Neonotoporus novaezealandicus: CPT4
Neolepidapedon cablei: IDT16
Neolepidapedon polyprioni: CDT13
Odhnerium calypetrocotyle: OPT8
Oesophagocystis dissimilis: OPT4
Opecoelus lotellae: IDT16
Opegaster caulopsettae: CDT1
Opegaster gobii: SWT34
Opegaster sp.: CPT4
Otodistomum plunketi: OPE6, ODE5
Otodistomum veliporum: IDE1, CDE1, CDE4, ODE3
Pancreadium otagoensis: IDT19
Paracardicoloides yamagutii: FT1, FT2
Parahemiurus arripidis: IPT1
Parahemiurus sp.: FT22

Phyllodistomum magnificum: FT1, FT2, FT7, FT16
Plagioporus dactylopagri: CDT8
Plagioporus interruptus: SWT24
Plagioporus (Caudotestis) pachysomus: IDT19, ODT17
Plagioporus preporatus: IDT5
Podocotyle caithnessi: SWT4
Probilotrema clelandi: CDE3
Probilotrema philippi: CDE2
Probilotrema rotundatum: IDE1
Probilotrema sp.: CDE2
Proctoeces subtenue: IDT12
Proctoeces sp.: IDT17
Proenenterum ericotylum: SWT18
Proenenterum isocotylum: SWT18
Prosorchis australis: ODT38
Pseudocreadium monoacanthi: IDT20
Pseudopecoeloides carangis: CPT4
Pseudopecoeloides tenuis: CPT4
Pseudopecoelus hemilobatus: ODT17, ODT27
Pseudopecoelus japonicus: OPT2
Pseudopecoelus sewelli: CDT4, ODT23
Pseudopecoelus vulgaris: SWT31, ODT19
Ptychogonimus megastoma: IDE4, CDE1
Rhynchopharynx paradoxica: OPT8
Stegodexamene anguillae: FT1, FT2, FT7, FT8, FT10, FT14, FT15, FT16
Stephanostomum australis: IDT5
Stephanostomum pristis: CDT14
Steringotrema rotundum: IDT19
Sterrhurus lotellae: IDT16
Syncoelium filiferum: IPT1, IDT17, IDT24, OPT4, ODT38
Syncoelium thyrsitae: CPT4, CDT16, OPT15
Telogaster opisthorchis: FT1, FT2, FT7, FT8, FT9, FT10, FT11, FT12, FT14, FT15, FT17, FT18, FT19, FT24, FT25
Telorhynchus arripidis: IPT1
Tergestia agnostomi: SWT3
Tergestia magna: ODT19
Tinrovia papiliocauda: ODT34
Tricotyledonia genypteri: FT1, FT2, SWT4, CPT4, CDT4
Tubulovesicula angusticauda: FT1, FT2, FT22, SWT4, SWT30, SWT31, IDT5, IDT12, CPT4, CDT13, CDT14, ODT17, ODT27, ODT28
Unidentified bivesiculid: FT1, FT2
Unidentified digeneans: IPT1
Unidentified echinostomatid metacercaria: SWT19
Unidentified hemiurid: FT1, FT2
Unidentified digenean sp. a: ODT45
Unidentified digenean sp. b: ODT45
Unidentified digenean sp. c: ODT45
Unidentified digenean sp. d: ODT45
Unidentified digenean sp. e: ODT45

Cestodaria

Gyrocotyle rugosa: IDH1
Gyrocotyle urna (syn. *Gyrocotyle maxima*?): IDH1

Cestoda

Acanthobothrium filicolle var. *benedini*: CDE1
Acanthobothrium filicolle var. *paulum*: CDE1
Acanthobothrium wedli: CDE1
Amurotaenia decidua: FT15
Ancistrocephalus microcephalus: OPT8
Anoncocephalus chilensis: CDT4
Anthobothrium laciniatum var. *brevicolle*: OPE5
Anthobothrium laciniatum var. *longicolle*: IDE3
Bothriocephalus gowkongensis: FT5
Bothriocephalus scorpii: CDT14
Calliobothrium eschrichtii: IDE4
Calliobothrium tylotocephalum: IDE4
Calliobothrium verticellatum: IDE4
Callitetrarhynchus: ODT23
Calyptrobthrium chalarosomum: IDE1
Calyptrobthrium occidentale: CDE4
Calyptrobthrium riggii: CDE4
Ceratobothrium xanthocephalum: OPE3
Clydonobothrium elegantissimum: CDE1
Clydonobothrium leioformum: CDE1
Dasyrhynchid plerocercoids: IDT17
Echinobothrium coronatum: IDE4
Echinobothrium coenoformum: CDE1
F. Eutetrarhynchiae: SWT25
Grillotia heptanchi: IDE6
Grillotia sp.: CDT4, ODT27
Gymnorhynchus (*Gymnorhynchus*) *isuri*: OPE3
Gymnorhynchus (*Molicola*) *horridus* pleurocercus: OPT8
Gymnorhynchus thyrstiae: CDT16
Gymnorhynchus sp.: SWT15, CDT4
Hepatoxylon megacephalum: IDE3, IDE6, CDE1, CDE2, OPE1, ODE3, ODE4
Hepatoxylon trichiuri: IDE3, IDT14, IDT24, CDE2, CDE4, CDT2, CDT4, CDT5, CDT7, CDT8, CDT13, CDT14, CDT15, CDT16, OPE3, OPE5, OPT11, ODE3, ODE4, ODE7, ODT17, ODT22, ODT23, ODT27, ODT28, ODT29, ODT30, ODT 45
Hymenolepid cysticeroid: FT24
Lacistorhynchus tenue pleurocercus: SWT3, SWT15, IDE3, CDT16, CDT17
Ligula intestinalis: FT15, FT20
Monorygma hyperapolytica: ODE3
Nippotaenia contorta: FT10, FT24
Nippotaenia fragilis: FT24
Nybelinea sp.: CDT8, CDT16
Nybelinia sp. larvae: IPT1, IDT26, CPT4, ODT19
Orygmatobothrium versatile: IDE4
Pelichnobothrium (?) sp.: FT25
Pentaloculum macrocephalum: CDE5
Phormobothrium affine: CDE1

Phyllobothrium dohrnii: IDE6
Phyllobothrium lactuca: IDE4, OPE1
 Phyllobothriid plerocercoids: IDT17
Prochristianella aetobatis: IDE5
 Proteocephalid plerocercoid: FT1, FT2
Scolex polymorphus: IPT3, OPT4, ODT19
Tentacularia coryphaenae: OPT4, OPT11
 Tetraphyllidean metacestode (*Phyllobothrium* sp.): FT22
Trilocularia acanthiaevulgaris: CDE2
 Trypanorhyncha larvae: CPT4
 Unidentified trypanorhynch: FT22, ODT27
 Cestode A: OPT11
 Cestode B: OPT11

Nematoda

Acanthocheilus bicuspis: IDE4
Acanthocheilus quadridentatus: IDT24, ODT38
Aphelenchus sp.: FT10
Anguillicola novaezealandiae: FT1, FT2
Anisakis sp. larvae: SWT3, SWT4, SWT12, SWT24, SWT25, SWT31, IPT1, IPT2, IPT3, IPT7, IDE1, IDE3, IDE6, IDT1, IDT3, IDT5, IDT13, IDT15, IDT17, IDT19, IDT23, IDT24, IDT26, CPT1, CPT3, CPT4, CDE1, CDE2, CDE4, CDT1, CDT3, CDT4, CDT6, CDT7, CDT8, CDT10, CDT11, CDT13, CDT14, CDT15, CDT16, CDT17, OPE3, OPE5, OPT4, OPT6, OPT8, OPT10, OPT11, ODE3, ODE4, ODT3, ODT7, ODT17, ODT19, ODT22, ODT23, ODT25, ODT27, ODT29, ODT30, ODT35, , ODT38, ODT40, ODT 45
Ascarophis cooperi: ODT27
Ascarophis sp. a: ODT25
Ascarophis sp. b: SWT4, IDT9
Ascarophis sp. c: CDT11
Ascarophis sp. d: FT2
Ascarophis sp. e: SWT31
Ascarophis sp. f: IDT5
Ascarophis sp. g: ODT27
Ascarophis sp. h: IDT15
Ascarophis sp. i: IPT2, CPT3, CPT4, CDT13
Ascarophis sp. j: ODT7
Ascarophis sp. k: CDT14
Ascarophis sp.: FT1, SWT25, ODT23
Camallanus aotea: CDT11
Capillaria tasmanica: ODT27
Capillaria sp. a: ODT27
Capillaria sp. b: ODT7
Capillaria sp. c: IDT5
Capillaria sp. d: SWT31
Capillaria sp. e: ODT30
Capillaria sp.: CDT4
Ctenascarophis lesteri: OPT4
Cucullanellus cnidoglanis: IDT17
Cucullanellus pleuronectidis: IDT17
Cucullanellus sheardi: IDT12
Cucullanellus sp. a: SWT20, SWT25, SWT26
Cucullanellus sp. b: SWT13

Cucullanellus sp. c larvae: CDT8
Cucullanellus sp. d: IDT13
Cucullanus antipodeus: FT25, SWT20, SWT25, SWT27, SWT29
Cucullanus robustus: SWT4
Cucullanus sp. a: FT2, SWT12, SWT26, SWT27, IDT26
Cucullanus sp. b: FT1, FT2, IDT10
Cucullanus sp. c: CDT13
Cucullanus sp. d: CDT4
Cucullanus sp. e: SWT31
Cucullanus sp. f: ODT30
Cucullanus sp. g: SWT13
Cucullanus sp. h: ODT32
Cucullanus sp.: FT1, FT2, IDT17
Dorylaimus sp.: FT10
Eustrongylides (ignotus?): FT1, FT2, FT10, FT14, FT16, FT20, FT21, FT25, FT27, SWT27
Hedruris spinigera: FT1, FT2, FT10, FT13, FT19, FT22, FT23, FT24, FT25, SWT3, SWT12, SWT26, SWT27, SWT28, SWT29
Hysterothylacium (syn. *Thynnascaris*) *aduncum*: SWT4, SWT20, IPT1, IPT7, IDE1, IDE7, IDT21, IDT24, IDT26, CPT1, CPT4, CDE1, CDE2, CDT4, CDT8, CDT16, OPT11, ODT3, ODT7, ODT28, ODT29, ODT30, ODT32, ODT38
Hysterothylacium (syn. *Thynnascaris*) *aduncum* larvae: FT25, ODT27
Hysterothylacium (syn. *Thynnascaris*) *seriolae*: IPT7
Hysterothylacium (syn. *Thynnascaris*) sp. cf. *legendrei*: CDT13
Hysterothylacium (syn. *Thynnascaris*) *zenopsis*: CDT17
Hysterothylacium (syn. *Thynnascaris*) sp. larvae: FT2, FT20, FT22, FT24, FT25, SWT3, SWT4, SWT5, SWT12, SWT20, SWT21, SWT31, IPT1, IPT2, IPT3, IPT7, IDE3, IDT5, IDT6, IDT8, IDT10, IDT11, IDT16, IDT17, IDT19, IDT24, IDT26, CPT1, CPT3, CPT4, CDE4, CDT1, CDT3, CDT6, CDT7, CDT8, CDT10, CDT11, CDT13, CDT14, CDT15, CDT16, CDT17, OPT2, OPT11, ODT17, ODT19, ODT22, ODT23, ODT25, ODT27, ODT28, ODT32, ODT35
Maricostula sp.: OPT10
Oncophora sp.: OPT11
Paranisakiopsis australiensis: ODT7
Paranisakis sp.: FT2
Paraquimperia sp.: FT1, FT2
Philometra lateolabracis: IDT17
Philometra sp. a: FT2
Philometra sp. b: IDT10
Philometra sp. c: SWT15
Philometra sp.: OPT4
Phlyctainophora lamnae: CDE2
Porrocaecum decipiens larvae: SWT17, SWT18, SWT28, IDT18
Porrocaecum sp. larvae: CPT4, CDT16
Procamallanus sp.: FT1, FT2
Pseudoterranova decipiens: CDT4, CDT9, CDT16, ODT27
Prospinitectus exiguus: OPT4
Spirurid: ODT23
Stomachus marinus: CDT16
Terranova antarctica: IDE4
Terranova sp. b: OPE6
Terranova sp. c: IDE1
Terranova sp.: ODE3, ODT23
Unidentified rhabditoids: FT19

Acanthocephala

Acanthocephalus galaxii: FT1, FT2, FT6, FT10, FT13, FT15, FT24
Australorhynchus tetramorphacanthus: CPT4
Corynosoma semerme: CDT4, ODT27
Corynosoma sp.: FT25
Echinorhynchus gadi: ODT27
Echinorhynchus sp.: CDT8, ODT23
Heteracanthocephalus peltorhampi: SWT20, SWT25, SWT26
Micracanthorhynchina hemirhamphi: SWT11
Neoechinorhynchus aldrichettae: FT1, SWT3
Neoechinorhynchus chilkaensis: SWT3, SWT26, SWT32, IPT1
Raorhynchus terebra: OPT4
Rhadinorhynchus sp.: OPT11
Acanthocephalan: FT18, FT19, FT24

Copepoda

Abergasilus amplexus: FT1, FT2, FT3, FT10, FT23, FT24, SWT25, SWT26, SWT27, IPT1
Acanthochondria incisa: SWT30, SWT31
Acanthocolax sp.: IDT20
Aethon garricki: CDT8
Aethon morelandi: IDT12, CDT8
Aethon percis: IDT19
Albionella sp.: ODE5
Alella tarakihi: CDT8
Anthosoma crassum: IDE3, OPE1, OPE3, OPE4
Argulus japonicus: FT3
Brachiella thynni: OPT11
Brachiella sp.: IPT6
Caligus aesopus: IPT7
Caligus bonito: OPT4
Caligus brevis: SWT15, SWT16, SWT21, SWT23, SWT24
Caligus buechlerae: SWT31, SWT34, IDT19
Caligus coryphaenae: OPT4, OPT14
Caligus elongatus: SWT29
Caligus epidemicus: SWT25
Caligus kahawai: IPT1
Caligus lalandei: IPT6, IPT7
Caligus longicaudatus: FT21
Caligus pelamydis: IPT1, IDT24, CPT2, CDT16, ODT38
Caligus productus: OPT4
Caligus sp. 1: IDT17
Caligus sp. 2: IDT17
Cardiodectes bellotti: OPT5
Cecrops latreillii: OPT8
Charopinus parkeri: IDE2, CDE1, CDE2
Chondracanthodes radiatus: ODT26
Chondracanthus australis: IPT1, CDT16, ODT27
Chondracanthus distortus: IDT26, ODT17
Chondracanthus genypteri: CDT4
Chondracanthus lotellae: CDT8, CDT14

Chondracanthus yanezi: ODT36
Clavella zini: ODT15
Clavella sp.: ODT26, ODT33
Clavellodes sp.: CDT8
Clavellopsis sargi: IDT17
Congericola kabatai (formerly *Congericola pallidus*): SWT4
Demoleus latus: CDE2
Dendrapta sp.: ODE1
Dentigryps sp.: IDT19
Dinemoura latifolia: IDE3, OPE1, OPE3
Dinemoura producta: OPE1
Echthrogaleus coleoptratus: OPE1, OPE2, OPE4, OPE5
Echthrogaleus denticulatus: OPE1, OPE3
Eudactylina acanthii: CDE2
Euryphorus brachypterus: OPT1, OPT11, OPT13
Gloiopotes huttoni: OPT7, OPT10
Hatschekia conifera: ODT5
Hatschekia crenata: CDT7
Hatschekia pagrosomi: IDT17
Hatschekia quadrata: IDT1
Hatschekia squamata: CDT10
Jusheyus shogunus: CDT13
Kroyeria carchariaeglauci: OPE5
Kroyeria sp. (?*lineata*): IDE3
Lepeophtheirus argenteus: CDT5
Lepeophtheirus crassus: OPT9
Lepeophtheirus distinctus: CDT4
Lepeophtheirus erecsoni: SWT15, SWT21, SWT22, SWT23, SWT24, IDT12
Lepeophtheirus hastatus: OPT8
Lepeophtheirus heegaardi: CDT7
Lepeophtheirus histiopteridi: IDT25
Lepeophtheirus huttoni: OPT16
Lepeophtheirus insignis: OPT8
Lepeophtheirus polyprioni: CDT12, CDT13
Lepeophtheirus sekii: IDT17
Lepeophtheirus sp.: IDT12
Lernaea cyrinaca: FT3, FT5
Lernaea sp.: SWT3
Lernaeopoda musteli: IDE3, IDE4, CDE2
Lernaeopoda sp.: ODE6
Lernanthropus microlamini: IDT24, ODT38
Lernanthropus sp.: OPT3
Lophoura laticervix: ODT 7, ODT12
Lophoura sp. c: ODT16
Lophoura sp. h: ODT21
Lophoura sp.: ODT14
Mecaderochondria pilgrimi: CDT6
Naobranchia sp.: SWT31
Nemesis lamna lamna: OPE1, OPE3
Nemesis lamna vermi: OPE1, OPE2
Nemesis robusta: IPE1, OPE5
Neobrachiella amphipacifica: ODT31
Neobrachiella insidiosa f. lageniformis: ODT28
Neobrachiella sp.: CDT14
Nesippus borealis: OPE3

Nesippus orientalis: IDE4, IDE6, IDE7, CDE1, OPE1
Nogagus borealis: OPE3
Paenodes nemaformis: FT22, FT25
Pandarus bicolor: IDE3, IDE4, IDE6, CDE2, OPE1, OPE3
Pandarus satyrus: IDE3, OPE1, OPE3
Penella histiophori: OPT7
Periplexis antarcticensis: ODT1, ODT4
Perissopus dentatus: IDE8, OPT2
Philichthys xiphae: OPT17
Phyllothyreus cornutus: OPE3
Prochondracanthus platycephali: ODT22
Pseudocharopinus bicaudatus: CDE2
Pseudochondracanthus chilomycteri: IDT1
Pseudocycnus appendiculatus: OPT11
Pseudoeucanthus uniserratus: IDT20
Pseudoeucanthus sp.: IDT17
Sagum (syn. *Paralernanthropus*) *foliaceus*: CDT8, CDT15, CDT16
Sarcotaces sp.: CDT14, ODT2, ODT6, OTD9, ODT12, ODT13, ODT20, ODT24, ODT30, ODT42
Schistobranchia pilgrimi: ODH1
Sphyrion laevigatum: CDT4, ODT41
Sphyrion lumpi: CDT4
Sphyrion quadricornis: CDT8, ODT10
Sphyrion sp.: CDT8
Trifur lotellae: IDT19, IDT22, CDT14, ODT11, ODT27
Unicolax chrysophryenae: IDT17
Vanbenedenia sp.: ODH1

Isopoda

Ceratothoa imbricatus: IPT1, IPT4, CPT3, CPT4
Ceratothoa trigonocephala: SWT15, IDE2, IDT18, CPT1, CPT3, CDT16
Ceratothoa (syn. *Meinertia*) *trillesi*: IDT24, CPT1, CPT3, CDT15, ODT38
Ceratothoa (syn. *Meinertia*) *usucarangis*: IPT2
Cirolana sp. (syn. *Nerocila* sp.): FT22
Codonophilus lineatus: SWT11, SWT15
Elthusa (syn. *Livoneca*) *raynaudii*: SWT17, SWT24, SWT29, SWT30, IDE4, IDT6, IDT18, CDT4, CDT9, CDT14
Elthusa (syn. *Livoneca*) *neocyta*: ODT 43, ODT 44, ODT 45
Gnathia akaroensis: SWT23
Irona melanosticta: SWT11
Nerocila orbigny: FT25, SWT25, SWT26, IPT1

Hirudinea

Bdellamaris eptatreti: CDA1
Branchellion parkeri: IDE4, IDH1, CDE1
Makarabdella manteri: SWT12
Notobdella nototheniae: IDT18, CDT9
Pontobdella benhami: CDE1
Piscicolid leech: SWT25

Nematomorpha

Larval horsehair worms: FT12, FT14

Mollusca

Hyridella sp. glochidia: FT1, FT2, FT7, FT20, FT24

Cirripeda

Anelasma sp: ODE2, ODE5, ODE8

Discussion

In the above lists, the synonymy of some species of *Retropinna* and *Seriola* and genera of freshwater bullies (*Philypnodon* and *Gobiomorphus*), and the exclusion of unidentified species, including *Gobiomorphus* sp., reduces the number of species in Hewitt & Hine (1972) to 135. Up to 1972, the 135 host species were infected with 342 parasite species in 652 host-parasite associations. Since Hewitt & Hine (1972) was published, a further 73 host species, mainly offshore and from deep water, have been reported with a further 224 parasite species in 550 host-parasite associations. Thus the list here comprises 566 parasite species infecting 208 host species in 1202 host-parasite associations.

Research over the last 25 years has concentrated on the study of the parasite fauna of host species, rather than on parasite groups which was the focus of the 25 years before that. Analysis of species studied in relation to depth shows that from 1947 to 1972, most research was carried out on marine fishes, particularly shallow water and inshore shelf species that supported the predominantly coastal fishery. Between 1973 and 1999, research was more concentrated on freshwater and deepwater species (Table 1), the latter reflecting the development of deepwater fishing following the establishment of the 200 nautical mile Exclusive Economic Zone in 1978. Studies on nematodes were predominantly carried out before 1972, almost exclusively by Brunson (1956). Since 1972 there has been an increase in the number of studies on acanthocephalans and copepods (Table 1).

Comparing the numbers of reports of different parasite groups to the number of elasmobranch and teleost species examined (Table 2) suggests that elasmobranchs are less frequently parasitised by protozoans, myxosporeans, digeneans, acanthocephalans, and isopods, than teleosts. Conversely, elasmobranchs are more frequently parasitised by cestodes.

Of the 208 species of fish reported on here, 86 are commercial species (Appendix 1). The number of studies per commercial species shows that of the 86 species listed here, 17 (20%) have been studied only once, and in 15 of those studies only one parasite group was investigated, and 18 (21%) were studied only twice, of which 11 involved one parasite group. About another third (31–37%) have been the subject of 3–7 studies, 18 of which involved only one parasite group. Our knowledge of the parasite faunas of New Zealand commercial fish species is therefore superficial.

Life cycles

Protozoans, monogeneans, copepods, and isopods usually transmit directly and horizontally, fish-to-fish, without the use of intermediate hosts for larval stages. However, digeneans, cestodes, nematodes, and acanthocephalans have life cycles in which larval stages occur in intermediate hosts.

Freshwater species

The life cycles of several freshwater parasites are known (McDowall 1990). Monogeneans transmit horizontally and directly, fish to fish, making them one of the most common groups to be introduced with movements of host fish. Thus, although monogeneans are noticeably lacking in native New Zealand freshwater fishes, the only three species reported (*Dactylogyrus ctenopharyngodonis*, *Gyrodactylus ctenopharyngodontis*, *Gyrodactylus* sp.) have almost certainly been introduced into New Zealand on cyprinid hosts. The life cycle of *Phyllodistomum magnificum* in Australian eels probably involves freshwater bivalves (*Pisidium* sp.) as first intermediate hosts, and odonatan nymphs as second intermediate hosts

(Cribb 1987). In New Zealand, *Pisidium casertanum* is the probable first intermediate host (Hine 1978a). The life cycles of *Stegodexamene anguillae* and *Telogaster opisthorchis* involve the gastropod *Potamopyrgus antipodarum* as first intermediate host, and small fishes as second intermediate hosts (Hine 1978a). *S. anguillae* may be progenetic in small fishes in the absence of eels as definitive hosts (Hine 1978a). *Deretrema minutum* may also infect *P. antipodarum* as first intermediate host, and uses *Tenagomysis chiltoni* as second intermediate host (Holton 1983). *Coitocaecum parvum* also infects *P. antipodarum*, and then *T. chiltoni* or the amphipod *Paracalliope fluviatilis*, in which it can be progenetic, negating the need for a fish definitive host (Manter 1954). *Paracalliope fluviatilis* also acts as intermediate host for the nematode *Hedruris spinigera* and the acanthocephalan *Acanthocephalus galaxii*. The life-cycle of *Anguillicola novaezelandiae* has not been elucidated, but like *Anguillicola crassus* in European eels, it probably uses cyclopoid copepods as intermediate hosts (De Charleroy *et al.* 1990). The larvae of the cestode *Ligula intestinalis* in fish develop into mature tapeworms in piscivorous birds. The eggs pass out from the birds, and copepods act as first intermediate hosts. After fish have eaten infected copepods, the parasite burrows through the gut wall into the fish's peritoneal cavity. There it grows to be large, causing abnormal behaviour in the fish and attracting the attention of piscivorous birds.

Marine species

The life cycles of marine parasites are less certain. The Myxozoa, which are now considered to be parasitic cnidarians, comprise two taxonomic groups, the myxosporeans, which are parasites of fish and bryozoans (Canning *et al.* 1996), and the actinosporeans, which are parasitic in tubificid oligochaetes (Brinkhurst 1996) and polychaetes (Bartholomew *et al.* 1997). These are artificial groupings because actinosporeans are the developmental stage of myxosporeans that parasitise fish and bryozoans. They are structurally dissimilar, therefore until life cycles can be elucidated it is not possible to identify which actinosporean is the developmental stage of which myxosporean. The life cycles of several freshwater myxozoans have now been determined (Lom *et al.* 1997), and there is one report of the life cycle of a marine myxozoan (Roubal *et al.* 1997). There is circumstantial evidence that some myxosporean species may be able to transmit directly between fish, and some evidence has been produced to support this (Diamant 1997). Of the 65 myxosporeans reported from New Zealand fishes, the only pelagic species infected were kahawai (IPT1) with *Leptotheca* sp., blue mackerel (CPT1) with *Ceratomyxa* sp., jack mackerel (CPT4) with *Ceratomyxa inconstans* and *Octosporea* sp., bellowsfish (OPT2) with *Ceratomyxa conscripta*, and silver dory (OPT17) with *Ceratomyxa declivis*.

The life cycles of most marine helminth parasites of New Zealand fishes are also largely unknown. Sometimes likely life cycles can be deduced from studies of conspecific or congeneric species overseas. All digeneans have a molluscan primary host; for example *Proctoeces* (Wardle 1980) and *Steringotrema* (Koie 1980) infect bivalves. Metacercariae may be found in other hosts, including paratenic or accidental hosts (McGladdery *et al.* 1990). *Lecithocladium excisum* from *Scomber scomber* in the northeast Atlantic use gastropods as intermediate hosts (Koie 1991). Crustaceans may be used as second intermediate hosts by *Helicometra* (Meenaakshi *et al.* 1993) and *Podocotyle* (Gollasch & Zander 1994). The most enigmatic digenean reported from New Zealand fishes is *Tubulovesicula angusticauda*, as it has been reported from catadromous freshwater eels (FT1, FT2) (Yeh 1955), anadromous salmon (FT22) (Margolis & Boyce 1990), shallow water fishes (SWT4, SWT30, SWT31), inshore shelf species (IDT5, IDT12), central to outer shelf fishes (CPT4, CDT13, CDT14), and outer shelf/oceanic hosts (ODT17, ODT27, ODT28) (Manter 1954). Although the life cycle of *Tubulovesicula angusticauda* is unknown, it is probably similar to that of *Tubulovesicula pinguis*, which uses a gastropod as first

intermediate host, and copepods as second intermediate host (Stunkard 1980). Presumably the parasite is acquired by eels and salmon while they are at sea or in an euryhaline environment.

The cestode parasites of fishes are of importance to the New Zealand fishing industry because the larval stages occur in the muscle of commercial teleost species, and they subsequently develop to mature tapeworms in sharks and rays that eat those fishes. Teleosts use melanin and hydrogen peroxide to generate oxygen radicals that kill these parasites, leaving orange to brown bodies that are very apparent in infected fillets. Depending on the cestode species involved, teleosts may act as intermediate or paratenic (transport) hosts.

Lacistorhynchus tenue uses copepods as first intermediate hosts, and several fish species and squid as second intermediate or paratenic hosts (Stunkard 1981). In New Zealand, yellow-eyed mullet (SWT3), butterfish (SWT15), barracouta (CDT16), and mirror dory (CDT17) are known secondary or paratenic hosts, and adult *L. tenue* occur in the spiral valves of school sharks (IDE3). The degenerating plerocercoid stage of *L. tenue* are some of the "worms" found in the muscle of "wormy" barracouta (CDT16). However, barracouta are most heavily infected with the plerocercoids of *Gymnorhynchus thyrstitae*, which occurs at high prevalence (Mehl 1970). Off Namibia, plerocercoids of *Gymnorhynchus gigas* occur in the muscles of *Thyrstites atun* at similar high prevalence (Musykiewicz 1985). Other worms of barracouta are the degenerating plerocercoids of *Nybelinia*, which infect fish (CDT8, CDT16) and cephalopods (Smith *et al.* 1981, Palm *et al.* 1994, Pascual *et al.* 1995) intermediate or paratenic hosts, and elasmobranchs as definitive hosts (Sao Clemente & Gomes 1989). Similarly, the larval stages of *Phyllobothrium* are common in cephalopods (Pascual *et al.* 1995) and fish (IDT17), with adult worms occurring in elasmobranchs (IDE4, IDE6, OPE1) and marine mammals (Bowie 1984). *Bothriocephalus* sp. infect copepods as first intermediate hosts, and use fishes, such as grass carp (FT5) and red cod (CDT14), as paratenic or definitive hosts (Zander *et al.* 1994, Morand *et al.* 1995). Similarly, the life cycle of *Callitetrarhynchus* involves copepod first intermediate hosts, and larval stages in fish intermediate and paratenic hosts (Cappo 1992, Palm *et al.* 1994), such as orange roughy (ODT23), with elasmobranchs as likely definitive hosts (Cappo 1992). *Grillotia* also encysts in, and uses, teleosts as intermediate hosts (Palm *et al.* 1994). Rig (*Mustelus lenticulatus*), like *Mustelus canis*, may become infected with *Calliobothrium verticillatum*, from eating hermit crabs (Cherry *et al.* 1991). Another cestode parasitising crustaceans is *Prochristianella*, which infects copepods, then crustaceans such as penaeid or callinassid shrimps, and finally as mature worms in elasmobranchs, particularly rays, such as eagle rays (IDE5).

Fish nematodes also have complex life cycles. When mature worms are found in the gut of fish, the fish is the definitive host. However, it is the species that encyst in fish as larvae, and have marine mammals (pinnipeds, cetaceans) as definitive hosts, that are of more importance to commercial fisheries. This is because they may establish infections in humans, if ingested alive in raw or undercooked fish. *Anisakis* in particular may infect humans, and many of the closely related genera in the Anisakidae (Order Ascaridoida), which normally infect marine mammals (Bowie 1984), may also be zoonotic (Deardorff & Overstreet 1991). This includes the genera *Anisakis*, *Hysterothylacium* (syn. *Contracaecum* and *Thynnascaris* [see Deardorff & Overstreet 1980]), *Paranisakis*, *Porrocaecum*, *Pseudoterranova* (syn. *Phocanema* [see Hurst 1984a]), *Raphidascaris*, and *Terranova*, and those genera given in bold, occur in New Zealand fishes. Around New Zealand, *Anisakis simplex* larvae may occur in the euphausiid *Nyctiphanes australis* and the galatheid crab *Munida gregaria*, and *Hysterothylacium* (syn. *Thynnascaris*) *adunca* larvae and adults occur in *M. gregaria*, and earlier larval stages probably occur in zooplankton, such as copepods, decapod larvae, cnidarians and chaetognaths (Hurst 1984b). The hosts of larval stages of *Pseudoterranova* (syn. *Phocanema*) *decepiens* around New Zealand are unknown (Hurst 1984b), but the life cycle probably involves a crustacean first intermediate host, such as amphipods or mysids

(Marcogliese 1992), fish as second or third intermediate hosts, and seals as definitive hosts. *Hysterothylacium* may use benthic crustaceans as intermediate hosts (Zander *et al.* 1994). Bivalves may act as first intermediate hosts for *Paranisakis* (Cannon 1978).

Nematodes such as *Ascarophis*, *Capillaria*, *Cucullanellus*, *Cucullanus*, and *Procamallanus* (syn. *Spirocamallanus*) occur in the digestive tracts of fishes, which serve as definitive hosts. Snapper (IDT17) are definitive hosts of *Philometra lateolabracis*, which infects the gonads (Hine & Anderson 1981). The larvae occur in copepods which are ingested by snapper. After the male and female nematode have mated, the male dies and the female migrates to the gonad, which becomes highly inflamed and a capsule forms around the worm. There larvae are released that feed on the inflammatory tissue, and eventually pass out through the gonoduct to be ingested by copepods.

Acanthocephalans use crustaceans, such as isopods or amphipods (Marcogliese 1994), as intermediate hosts, with fish as definitive hosts. Birds or marine mammals may also be definitive hosts, acquiring their infections from crustaceans or infected fish (Hoberg 1986). *Corynosoma semerme* encysts in fish such as ling (CDT4) and hoki (ODT27), and develop to maturity when eaten by marine mammals (Bowie 1984).

Acknowledgments

We are very grateful to Larry Paul for his patient discussions on fish taxonomy and host habitat.

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Table 1: The numbers of host:parasite associations recorded post (N) and pre (O) Hewitt & Hine (1972). For “No. host species”, N = number of new host species examined since Hewitt & Hine (1972), and O = the number of host species in Hewitt & Hine (1972)

	Freshwater	Shallow water	Inshore	Central	Offshore
	N:O	N:O	N:O	N:O	N:O
Protozoa	14:0	3:30	0:2	1:4	5:3
Myxosporea	16:1	1:19	1:13	2:33	5:3
Monogenea	3:0	1:8	7:12	2:16	2:3
Digenea	46:27	2:29	8:28	3:27	35:21
Cestoda	12:1	1:3	6:17	11:21	18:11
Nematoda	13:30	1:42	3:54	6:52	24:42
Acanthocephala	10:3	6:2	1:0	3:0	4:0
Copepoda	9:3	14:8	27:18	21:16	50:25
Isopoda	2:0	3:5	2:3	5:3	2:0
Hirudinea	0:0	1:1	0:3	0:4	0:0
No. host species	17:10	2:32	6:37	2:25	47:30

Table 2: The composition of parasite faunas in pelagic and demersal elasmobranch and teleost hosts. Data include number of parasite species reported/number of fish species examined (ratio in parentheses) for inshore, central, and offshore teleosts and elasmobranchs

	Pelagic	Demersal	Elasmobranchs	Teleosts
Totals	4/35 (0.11)	9/109 (0.08)	1/28 (0.03)	12/116 (0.10)
Protozoa	6/35 (0.17)	45/109 (0.41)	3/28 (0.11)	48/116 (0.41)
Myxosporea	10/35 (0.28)	31/109 (0.28)	10/28 (0.36)	31/116 (0.27)
Monogenea	40/35 (1.14)	78/109 (0.71)	10/28 (0.36)	108/116 (0.93)
Digenea	19/35 (0.54)	65/109 (0.6)	43/28 (1.54)	41/116 (0.35)
Cestoda	37/35 (1.06)	141/109 (1.29)	21/28 (0.75)	157/116 (1.35)
Nematoda	4/35 (0.11)	4/109 (0.04)	0/28 (0.0)	8/116 (0.07)
Acanthocephala	51/35 (1.45)	100/109 (0.91)	52/28 (1.86)	99/116 (0.85)
Copepoda	9/35 (0.26)	5/109 (0.04)	1/28 (0.03)	13/116 (0.11)
Isopoda				

Appendix 1. Commercial fish species

Freshwater: (FT) 1, 2, 10, 22.

Shallow water: (SWT) 3, 4, 11, 13, 15, 16, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 30, 31.

Inshore shelf: (IPT) 1, 2, 3, 5, 7; **(IDE)** 1, 2, 3, 4, 5, 7; **(IDH)** 1; **(IDT)** 3, 4, 5, 8, 12, 13, 15, 17, 19, 20, 24, 26.

Central shelf: (CPT) 1, 3, 4; **(CDE)** 1, 2; **(CDT)** 2, 4, 5, 6, 7, 8, 11, 12, 13, 14, 15, 16.

Outer shelf: (OPT) 1, 4, 11, 12, 13, 14, 17; **(ODE)** 3,4; **(ODH)** 1; **(ODT)** 5, 7, 17, 23, 27, 28, 29, 30, 37, 38, 43, 44, 45.