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Parasites of the Silversides *Odontesthes smitti* and *Odontesthes nigricans* (Pisces: Atherinopsidae) from Argentinean Patagonia

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ABSTRACT: Seventeen parasite species (1 microsporidean, 1 cestode, 5 digeneans, 6 nematodes, 2 acanthocephalans, and 2 copepods) were recovered from a total of 356 *Odontesthes smitti* and 125 *Odontesthes nigricans* (Atherinopsidae). Fishes were collected from Nuevo and San José gulfs, Argentinean Sea, from April 2003 to February 2005. The following parasites were found: Microsporidia (xenomas); Cestoda: Tetraphyllidea plerocercoid larvae; Digenea: *Proisorhynchoides* sp. metacercariae (Bucephalidae), *Aponurus laguncula*, *Lecithaster* sp. (Lecithasteridae), *Proctotrema* sp. (Monorchidae), *Diptherostomum* sp. (Zoogonidae); Nematoda: *Cucullanus marplatensis* (Cucullanidae), *Huffmanella moravecii* (Trichosomoididae), *Cosmocephalus obvelatus* L3 (Acutariidae), *Anisakis* sp. L3, *Pseudoterranova* sp. L3, *Contracaecum* sp. L3 (Anisakidae); Acanthocephala: *Corynosoma* sp. cystacanth larvae (Polymorphidae), *Hypoechinorhynchus* sp. (Arhythmacanthidae); Crustacea: *Bomolochus globiceps* (Bomolochidae) and *Peniculus* sp. (Penelidae). *Odontesthes smitti* and *O. nigricans* are new host records for most these parasites.

KEY WORDS: silversides, *Odontesthes smitti*, *Odontesthes nigricans*, Atherinopsidae, Microsporidia, Cestoda, Digenea, Nematoda, Acanthocephala, Copepoda, Northpatagonics gulfs, Southwestern Atlantic Ocean, Argentina.

In the Argentinean Sea, fishes of genus *Odontesthes* (Atherinopsidae), commonly known as silversides, are part of the pelagic coastal resources (Cousseau and Perrotta, 2004), and are of considerable economic importance to commercial and sport fishing (Dyer, 2003, 2006). *Odontesthes smitti* (Lahille) is distributed from the coast of Mar del Plata (38°S) to Tierra del Fuego (53°S) in Argentina. This species constitutes the main resource for artisanal fishermen in the area of Península Valdés (42°04'–42°53'S; 63°21'–65°04'W). *Odontesthes nigricans* (Richardson) is sympatric with *O. smitti* and utilizes similar resources (Elías et al., 1991; Ré and Berón, 1999). Furthermore, both species are prey of other fishes, birds, and marine mammals (Punta et al., 1993; Bertellotti, 1998; unpublished thesis, Universidad Nacional de la Patagonia San Juan Bosco, Argentina; Scolaro et al., 1999). The parasite fauna of *Odontesthes* spp. in Patagonia, Argentina is currently unknown. This study reports on the parasite fauna of *O. smitti* and *O. nigricans* from Northpatagonic gulfs, Southwestern Atlantic Ocean.

MATERIALS AND METHODS

A total of 356 adult specimens of *O. smitti* were collected from April 2003 to February 2005, from Puerto Madryn Beach (42°47'S, 65°02'W), Nuevo Gulf (NG) ($n = 183$;

mean total length = 24.3 cm \pm 16.26), and Larralde Beach (42°25'S; 64°07'W), San José Gulf (SJG) ($n = 173$; mean total length = 23 cm \pm 3.6), southwestern Atlantic Ocean. Additionally, from June to February 2003, 105 specimens of *O. nigricans* (mean total length = 16.6 cm \pm 1.48) were collected from NG, and 20 specimens (mean total length = 16.3 cm \pm 2.8) from SJG. Fishes were slit open prior to being fixed with 5% formalin, and then examined with use of a stereomicroscope in the laboratory. Some fishes were examined fresh, and live parasites were killed with hot physiological solution, and fixed with 5% formalin. Parasites were stored in 70% ethanol. Cestodes and digeneans were stained with carmine, dehydrated through a graded ethanol series, cleared in methyl salicylate, and mounted in Canada balsam. Nematodes and acanthocephalans were cleared in lactophenol or in 25% glycerine alcohol. All specimens were studied using a light microscope. Prevalence (P) and mean intensity (MI) were calculated according to Bush et al. (1997). Specimens were deposited in the Helminthological Collection of the Museo de La Plata (MLP), La Plata, Argentina.

RESULTS

Seventeen parasites species (1 microsporidean, 1 cestode, 5 digeneans, 6 nematodes, 2 acanthocephalans, and 2 copepods) were found, of which 7 species were in the larval stage.

Fungi

Microsporidia (Balbiani, 1882) Weisser, 1977 (spores)

Host: *Odontesthes smitti* (Pisces: Atherinopsidae).

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Site of infection: Xenomas in gills.

Locality: San José gulf.

Prevalence: 1.7%.

Specimens deposited: 65 MLP.

Remarks

Based on molecular studies, microsporidians were recently classified as Fungi (Lom, 2002; Adl et al., 2005). Fourteen genera of microsporidians are known from fish hosts. However, only members of *Glugea*, *Loma*, and *Neonosemoides* provoke xenoma formation in gills (Lom, 2002). This is the first report of microsporidians in *Odontesthes* from Northpatagonic gulfs.

Cestoda

Tetraphyllidea Carus, 1863 (plerocercoid larvae)

Host: *Odontesthes smitti*.

Site of infection: Body cavity and mesenteries.

Localities: Nuevo and San José gulfs.

Prevalences and mean intensities: NG: P = 4.9%, MI = 1.6 (1–4); SJG: P = 4%, MI = 8.6 (1–40).

Specimens deposited: 6097 MLP.

Remarks

Tetraphyllidean plerocercoid larvae are difficult to identify because they do not possess the diagnostic characters of the adult's scolex (Stunkard, 1977; Agustí et al., 2005). *Galeorhynchus galeus* (Chondrichthyes, Triakidae) acts as a definitive host of *Anthobothrium galeorhini* Suriano, 2002 (Cestoda: Tetraphyllidea) in Puerto Madryn coast (Suriano, 2002). This shark includes silversides in its diet (Cousseau and Perrotta, 2004). Subsequently, the plerocercoid larvae here reported could be the same species found in sharks. This is the first report of tetraphyllideans in *O. smitti*.

Digenea

Bucephalidae Poche, 1907

***Prosorhynchoides* Dollfus, 1929 (syn.**

***Bucephalopsis* Diesing, 1855;**

***Neobucephalopsis* Dayal, 1948;**

***Bucephaloides* Hopkins, 1954) (Overstreet and Curran, 2002)**

***Prosorhynchoides* sp. (metacercariae)**

Hosts: *Odontesthes smitti* and *O. nigricans*.

Sites of infection: Mainly in caudal fin, also in heart, opercules, and eye muscle.

Localities: Nuevo and San José gulfs.

Prevalences and mean intensities: *Odontesthes smitti* NG: P = 83.5%, MI = 103.7 (1–638); SJG: P = 95.4%, MI = 167.3 (2–690). *Odontesthes nigricans* NG: P = 52.1%, MI = 17.53 (1–144); SJG: P = 45%, MI = 50.4 (1–222).

Specimens deposited: 6098, 6099, 6100, 6101 MLP.

Remarks

There are 3 reports of Bucephalidae metacercariae in marine fishes from Argentina, *Prosorhynchus* sp. in *Oncopterus darwini* (Pleuronectidae) from Puerto Quequén, Buenos Aires Province (Szidat, 1961), and *Rhipidocotyle* sp. in *Engraulis anchoita* Hubbs and Marini (Engraulidae) from coasts off Patagonia, and in *Odontesthes argentinensis* Valenciennes and *Odontesthes incisa* Jenyns (Atherinopsidae) from coasts of Mar del Plata (Timi, 1999; unpublished thesis, Universidad Nacional de Mar del Plata, Argentina; Daniel, 2002; unpublished undergraduate thesis, Universidad Nacional de Mar del Plata, Argentina). The high prevalence and intensity of *Prosorhynchoides* sp. metacercariae in *O. smitti* and *O. nigricans* suggest that they are frequent prey to other teleosts in the study area. Some species of flounders have been reported as definitive hosts for *Prosorhynchoides* in other regions (Manter and Van Cleave, 1951; Lunaschi, 2003). It is probable that in the study area flounders include silversides in their diet, and could be the definitive hosts of *Prosorhynchoides* sp. The present finding of *Prosorhynchoides* metacercariae in *O. smitti* and *O. nigricans* from the Argentine Sea constitutes new host and geographical records.

Monorchiidae Odhner, 1911

***Proctotrema* sp. (adults)**

Hosts: *Odontesthes smitti* and *O. nigricans*.

Sites of infection: Stomach and intestine.

Localities: Nuevo and San José gulfs.

Prevalences and mean intensities: *Odontesthes smitti* NG: P = 7.7%, MI = 218 (1–1,403); SJG: P =

14.5%, MI = 321.6 (1–2,964). *Odontesthes nigricans* SJG: P = 23.8%, MI = 12.4 (2–38), NG: P = 3.8%, MI = 3 (1–8).

Specimens deposited: 5881, 5882, 5988, 5989, 5990, 5991 MLP.

Remarks

Only 2 Monorchidae species have been reported from the Argentinean coast, *Monorcheides popovicii* Szidat, 1950 and *Postmonorcheides maclovini* Szidat, 1950, parasites from *Eleginops maclovinus* (Cuvier) (Eleginopidae) (Szidat, 1950; Gosztonyi, 1979; unpublished thesis, Universidad Nacional de Buenos Aires, Argentina; MacKenzie, 1997). Specimens found in silversides constitute a new species that will be formally described in a later article. This species utilizes the clam *Darina solenoides* (King) (Mactridae) as first and second intermediate hosts (F. Cremonte, unpublished data).

Lecithasteridae Odhner, 1905

Aponurus laguncula Looss, 1907 (adults) (syn. *Aponurus trachinoti* Manter, 1940; *Aponurus elongatus*, Siddiqi and Cable, 1960) (Bray and Cribb, 2000)

Host: *Odontesthes smitti*.

Sites of infection: Stomach and intestine.

Locality: San José gulf.

Prevalence and mean intensity: P = 4%; MI = 1.7 (1–3).

Specimens deposited: 6102 MLP.

Remarks

In the Argentinean Sea, *Aponurus* sp. was reported from *Eleginops maclovinus* Cuvier (Eleginopidae) in Tierra del Fuego Province (Szidat, 1950), and from *Parona signata* Jenyns (Carangidae) in Mar del Plata, Buenos Aires Province (Ivanov, 1996; unpublished thesis, Universidad Nacional de La Plata, Argentina). *Aponurus laguncula* was found in *Paralichthys patagonicus* Jordan and Goss (Paralichthyidae) from Puerto Quequén, Buenos Aires Province (Szidat, 1961), in *O. argentinensis*, and in *O. incisa* from coasts of Mar del Plata (Daniel, 2002; unpublished undergraduate thesis, Universidad Nacional de Mar del Plata, Argentina). The present finding of *A.*

laguncula in *O. smitti* from San José Gulf constitutes new host and locality records.

Lecithaster Lühe, 1901

Lecithaster sp. (adults)

Hosts: *Odontesthes smitti* and *O. nigricans*.

Site of infection: Intestine.

Localities: Nuevo and San José gulfs.

Prevalences and mean intensities: *Odontesthes smitti* NG: P = 2.2%, MI = 1.75 (1–6); SJG: P = 15.6%, MI = 9.5 (1–49). *Odontesthes nigricans* NG: P = 12.4%, MI = 2.62 (1–12); SJG: P = 4.8% MI = 1.

Specimens deposited: 6103, 6104, 6105, 6106 MLP.

Remarks

Specimens found in this work resemble *Lecithaster micropsi* Zdzitowiecki, 1992 and *Lecithaster macrocytle* Szidat and Graefe, 1963 (Zdzitowiecki, 1992), but differ from both mainly by the smaller suckers, ovary, testes, sinus sac, and seminal receptacle. Adult specimens of *Lecithaster* sp. were found in the stomach of *O. argentinensis* and *O. incisa* from the coasts of Mar del Plata, Buenos Aires Province (Daniel, 2002; unpublished undergraduate thesis, Universidad Nacional de Mar del Plata, Argentina). The specimens found in this study are similar in morphology and measurements to those of Mar del Plata, and are probably the same species. The present finding of *Lecithaster* sp. in *O. smitti* and *O. nigricans* from Nuevo and San José gulfs constitutes new host and localities records.

Zoogonidae Odhner, 1902

Diptherostomum Stossich, 1903 (syn.

Diptherostomum Stafford, 1905;

Zoonogenus Nicoll, 1912) (Bray and Gibson, 1986)

Diptherostomum sp. (adults)

Hosts: *Odontesthes smitti* and *O. nigricans*.

Site of infection: Intestine.

Localities: Nuevo and San José gulfs.

Prevalences and mean intensities: *Odontesthes smitti* NG: P = 1.1%, MI = 1; SJG: P = 4%, MI = 2.4 (1–17). *Odontesthes nigricans* NG: P = 13.3%, MI = 3.6 (1–18); SJG: P = 10%, MI = 1.5 (1–2).

Specimens deposited: 6107, 6108, 6109, 6110 MLP.

Remarks

In the Argentinean Sea, Zoogonidae is represented by *Diptherostomum americanum* Manter, 1947 from Puerto Quequén (Schulze, 1970), *Steganoderma-toides allocytti* (Tkachuk, 1979), and *Brachyenteron magnibursatum* Gaevskaya and Rodyuk, 1983 from Islas Malvinas (Kohn et al., 2007). Based on the morphological characteristics, specimens found in silversides might belong to a new species. The present finding constitute the first record of *Diptherostomum* parasitizing *O. smitti* and *O. nigricans*, and extends the distribution range of the genus.

Nematoda

Trichosomoididae Hall, 1916

Huffmanella moraveci Carballo and Navone, 2007 (adults)

Hosts: *Odontesthes smitti* and *O. nigricans*.

Sites of infection: Gill mucosae, epithelia of oper-cules, skin of fins.

Localities: Nuevo and San José gulfs.

Prevalences and mean intensities: *Odontesthes smitti* NG: P = 40%, MI = 3.1 (1–18); SJG: P = 20.8%, MI = 2.3 (1–7). *Odontesthes nigricans* NG: P = 14.3%, MI = 2 (1–4); SJG: P = 14.3%, MI = 1.6 (1–2).

Specimens deposited: Specimens from Carballo and Navone (2007): holotype male 5558, allotype female 5559 and 6 paratypes (3 males and 3 females) 5560, 5561, and 5562 MLP.

Remarks

Carballo and Navone (2007) reported the genus *Huffmanella* for the first time in South America. *Huffmanella moraveci* is the second record of the genus from atheriniform fishes and the third species of *Huffmanella* for which the adult stage had been described (Carballo and Navone, 2007).

Cucullanidae Cobbold, 1964

Cucullanus marplatensis Daniel, Timi and Sardella, 2002 (adults)

Hosts: *Odontesthes smitti* and *O. nigricans*.

Sites of infection: Stomach and intestine.

Localities: Nuevo and San José gulfs.

Prevalences and mean intensities: *Odontesthes smitti* NG: P = 87%, MI = 10.5 (1–78); SJG: P = 70%, MI = 6.6 (1–91). *Odontesthes nigricans* NG: P = 57.1%, MI = 5.5 (1–29); SJG: P = 35%, MI = 2.6 (1–4).

Specimens deposited: 6111, 6112, 6113, 6114 MLP.

Remarks

Cucullanus marplatensis was first described parasitizing *O. argentinensis* from Mar del Plata coast (Daniel et al., 2002). The present finding constitutes new host and locality records.

Acuariidae (Seurat, 1913)

Cosmocephalus obvelatus (Creplin, 1825) (third-stage larvae–L3)

Hosts: *Odontesthes smitti* and *O. nigricans*.

Sites of infection: Encapsulated in liver and body cavity.

Localities: Nuevo and San José gulfs.

Prevalences and mean intensities: *Odontesthes smitti* NG: P = 2.2%, MI = 1.5 (1–2); SJG: P = 2.3%, MI = 1 (1–4). *Odontesthes nigricans* NG: P = 8.6%, MI: 1.1 (1–2); SJG: P = 9.5%, MI = 1.

Specimens deposited: 6115, 6116, 6117, 6118 MLP.

Remarks

The Magellan's penguin (*Spheniscus magellanicus*) is the definitive host of *Cosmocephalus obvelatus* in the study area (Diaz et al., 2001). These birds prey on hakes (*Merluccius hubbsi*), anchovys (*Engraulis anchoita*), and silversides (*Odontesthes* spp.) (Scolaro et al., 1999). Acuariidae larvae were not found parasitizing hakes and anchovies in the study area (Szidat, 1950; Sardella and Timi, 1996; Timi, 1999; unpublished thesis, Universidad Nacional de Mar del Plata, Argentina). Therefore, the Magellan's penguin could acquire *C. obvelatus* by eating infected silversides in the study area. This finding constitutes the first record of the infective stage (L3) of *C. obvelatus* parasitizing *O. smitti* and *O. nigricans*.

Anisakidae Raillet and Henry, 1912

Anisakis Dujardin, 1845

Anisakis sp. (third-stage larvae–L3)

Hosts: *Odontesthes smitti* and *O. nigricans*.

Site of infection: Muscles of body wall.

Localities: Nuevo and San José gulfs.

Deposited specimens: 6119, 6120, 6121 MLP.

Remarks

The Peale's dolphin (*Lagenorhynchus australis*), the Commerson's dolphin (*Cephalorhynchus commersonii*) (Delphinidae), and the Burmeister's porpoise (*Phocoena spinipinnis*) (Phocoenidae) from Northpatagonic gulfs, eat silversides (Bastida and Rodríguez, 2003). Larvae 3 and L4 of *Anisakis simplex* were found parasitizing *P. spinipinnis* and *L. australis* in the study area (Reyes, unpublished data). Marine mammals could acquire larvae when eating infected silversides. This finding of L3 *Anisakis* sp. in *O. smitti* and *O. nigricans* constitutes new host records.

Contracaecum Raillet and Henry, 1912 **Contracaecum sp. (third-stage larvae–L3)**

Hosts: *Odontesthes smitti* and *O. nigricans*.

Site of infection: Muscles of body wall.

Localities: Nuevo and San José gulfs.

Specimens deposited: 6122, 6123, 6124 MLP.

Remarks

Third-stage larvae of *Contracaecum* sp. were reported from several fish species in the southwestern Atlantic Ocean (Timi, 1999; unpublished thesis, Universidad Nacional de Mar del Plata, Argentina). Adults of *Contracaecum travassosi* Gutierrez, 1943 and *Contracaecum chubutensis* Garbin, Diaz, Cremona and Navone, 2008 were described from specimens found in *Phalacrocorax atriceps* (Aves: Phalacrocoracidae) from Chubut Province coasts (Gutierrez, 1943; Garbin et al., 2008). Adults of *Contracaecum pelagicum* were found parasitizing *Spheniscus magellanicus* from Península Valdés (Garbin et al., 2007). Recently, and based on molecular analysis, Garbin (2009; unpublished thesis, Universidad Nacional de La Plata, Argentina) established the correspondence between L3 and adults of *Contracaecum pelagicum* from *Engraulis anchoita* and *S. magellanicus*, respectively, from the same area. Among marine mammals, *Contracaecum ogmorhyni* Johnston and Mawson, 1941 (sensu stricto), *Contracaecum osculatum* (Rudolphi, 1802)

(sensu lato), and *Contracaecum miroungae* Nikolskii, 1974 were found in *Mirounga leonina* (Phocidae) from Península Valdés (Mattiucci et al., 2003). The finding of L3 of *Contracaecum* sp. in *O. smitti* and *O. nigricans* constitutes new host records.

Pseudoterranova Mozgovi, 1951 **Pseudoterranova sp. (third-stage larvae–L3)**

Hosts: *Odontesthes smitti* and *O. nigricans*.

Site of infection: Muscles of body wall.

Localities: Nuevo and San José gulfs.

Specimens deposited: 6125, 6126, 6127 MLP.

Remarks

Mature specimens of *Pseudoterranova decipiens* were found parasitizing the South American sea lion (*Otaria flavescens*) on the coasts of Patagonia, Argentina (Berón-Vera et al., 2005). Although there are no reports of silversides in the diet of the South American sea lion (Koen Alonso et al., 1999), the presence of *Pseudoterranova* sp. larvae in *O. smitti* and *O. nigricans*, and the adults in *O. flavescens*, could be indicating that these pinnipeds include silversides in their diet. This finding constitutes a new host record for *Pseudoterranova* larvae.

Anisakidae larvae

Hosts: *Odontesthes smitti* and *O. nigricans*.

Prevalences and mean intensities of Anisakidae larvae: *Odontesthes smitti* NG: P = 3.3%, MI = 1.2 (1–3); SJG: P = 2.3%, MI = 1. *Odontesthes nigricans* NG: P = 28.6%, MI = 1.4 (1–3); SJG: P = 10%, MI = 1.

Acanthocephala

Polymorphidae Meyer, 1931 **Corynosoma Lühe, 1904 (syn. Chentrosoma Monticelli, 1905, nec Porta, 1906; Echinostoma Porta, 1907, partim, preoccupied (Yamaguti, 1963) Corynosoma sp. (cysthacanth larvae)**

Hosts: *Odontesthes smitti* and *O. nigricans*.

Sites of infection: Body cavity and liver.

Localities: Nuevo and San José gulfs.

Prevalences and mean intensities: *Odontesthes smitti* NG: P = 13.7%, MI = 3.4 (1–45); SJG: P = 38.1%,

MI = 2.4 (1–16). *Odontesthes nigricans* NG: P = 21%, MI = 2 (1–8); SJG: P = 20%, MI = 1.

Specimens deposited: 6128, 6129, 6130, 6131 MLP.

Remarks

Braicovich et al. (2005) reported significant morphometric variations in morphology and measures observed among individuals of *Corynosoma australe* Johnston, 1937 from the same host. Amin (1975) and Amin and Redlin (1980) attributed the variations observed in morphology of proboscis, size, number and distribution of the hooks, and body size of *Acanthocephalus parksidei* Amin, 1974 and *Echinorhynchus salmonis* Müller, 1784 to worm age, host species, and geographical location. We suspect specimens from the present study belong to *Corynosoma australe*. The present finding of *Corynosoma* larvae in *O. smitti* and *O. nigricans* constitutes a new host record.

Arhythmacanthidae Yamaguti, 1935 (syn. Hypoechinorhynchidae Golvan, 1960) (Pichelin, 1999)

***Hypoechinorhynchus* Yamaguti, 1939**

Hosts: *Odontesthes smitti* and *O. nigricans*.

Site of infection: Intestine.

Localities: Nuevo and San José gulfs.

Prevalences and mean intensities: *Odontesthes smitti* NG: P = 2.2%, MI = 1.7 (1–4); SJG: P = 3.5%, MI = 1.5 (1–2). *Odontesthes nigricans* NG: P = 8.6%, MI = 1, SJG: P = 4.7%, MI = 1.

Specimens deposited: 6132, 6133, 6134 MLP.

Remarks

Based on morphological characteristics, specimens found in silversides belongs to the genus *Hypoechinorhynchus*. Szidat (1950) described *Hypoechinorhynchus magellanicus* parasite of Patagonian mullet *Eleginops maclovinus* (Eleginopidae) from Tierra del Fuego, and Laskowski and Zdzitowiecki (2008) redescribed the species based on specimens from *Champscephalus esox* (Günther) (Notothenidae) from the Beagle Channel. The study of new material will allow us to determine these specimens at specific level. This finding constitutes the first report of *Hypoechinorhynchus* from marine fishes of the genus *Odontesthes*.

Arthropoda

Bomolochidae Von Nordmann, 1832 *Bomolochus globiceps* (Vervoort and Ramírez, 1968) (adults)

Hosts: *Odontesthes smitti* and *O. nigricans*.

Sites of infection: Opercules and gills.

Localities: Nuevo and San José gulfs.

Prevalences and mean intensities: *Odontesthes smitti* NG: P = 30.6%, MI = 1.4 (1–4); SJG: P = 40.4%, MI = 1.6 (1–7). *Odontesthes nigricans* NG: P = 66.7%, MI = 7.6 (1–29); SJG: P = 61.9%, MI = 4.2 (1–10).

Specimens deposited: 26456, 26457, 26458, 26459 MLP.

Remarks

Bomolochus globiceps was originally described by Vervoort and Ramírez (1968) as *Parabomolochus globiceps* from *O. smitti* in Mar del Plata, Argentina. The species was later transferred to genus *Bomolochus* von Nordmann, 1832 (Vervoort, 1969). Timi and Etchegoin (1998) redescribed *B. globiceps* from the gills of *O. smitti* and *O. argentinensis* in Buenos Aires Province, and Daniel (2002; unpublished undergraduate thesis, Universidad Nacional de Mar del Plata, Argentina) registered its presence in the branchial cavity of *O. argentinensis* and *O. incisa* from Mar del Plata coast. This finding constitutes a new geographical record for *B. globiceps* and the first record of *O. nigricans* as hosts.

Pennellidae Burmeister, 1835 *Peniculus* von Nordmann, 1832 *Peniculus* sp. (adult females)

Hosts: *Odontesthes smitti* and *O. nigricans*.

Sites of infection: Fins and body surface.

Localities: Nuevo and San José gulfs.

Prevalences and mean intensities: *Odontesthes smitti* NG: P = 7.1%, MI = 1.1 (1–2); SJG: P = 7.5%, MI = 1.1 (1–3). *Odontesthes nigricans* NG: P = 17.1%, MI = 1.6 (1–7), SJG: P = 19%, MI = 1.3 (1–2).

Specimens deposited: 26460, 26461, 26462, 26463 MLP.

Remarks

The genus *Peniculus* includes 16 known species, most of them distributed in North America, India,

Australia, and Japan. In South America, the genus is represented by *Peniculus haemuloni* Alexander, 1983 parasite of *Haemulon steindachneri* Jordan and Gilbert (Haemulidae) in Brazil (Alexander, 1983), and *Peniculus* sp. parasitizing *Hemilutjanus macrophtalmus* Tschudi (Lutjanidae), *Mugiloides chilensis* Mol. (Mugilidae), and *Sciaena fasciata* De Buen (Sciaenidae) in Chile (Castro and Baeza, 1989). The present finding constitutes the first records of genus *Peniculus* in Argentina and for *O. smitti* and *O. nigricans* as hosts.

DISCUSSION

Of the 17 parasite taxa collected in this study, 14 were helminths, 2 were copepods, and 1 was a fungus. The dominant group from both host species were trematodes, followed by nematodes. Bucephalid metacercariae were the most abundant taxa, indicating that silversides are frequent prey of other teleosts in the study area. Moreover, *O. smitti* and *O. nigricans* act as intermediate and/or paratenic hosts for Tetraphyllidea plerocercoid larvae (these larvae were only present in *O. smitti* in low prevalences), for Anisakidae and Acuariidae third-stage larvae, and for Polymorphidae cystacanth larvae, which indicate that they are also prey items of cartilaginous fishes, birds, and marine mammals in the study area.

The presence of both larval and adult helminths suggest that the silversides studied here are at an intermediate level in the trophic webs of the region, and have a significant role in trophic relationships.

Component communities of *O. smitti* and *O. nigricans* from Northpatagonic gulfs share most of the parasitic species. That was predictable because they are phylogenetically closely related fish species. However, differences in prevalences and abundances of parasites species between hosts species were observed. Three parasite taxa (Microsporidia, Tetraphyllidea plerocercoids, and *Aponurus laguncula*) present in *O. smitti* communities were absent in *O. nigricans*. Different feeding habits or food preferences and body size would be the most important factors explaining the observed variations in the composition of parasitic fauna from these host species.

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