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Helminths of Three Species of Goby (Pisces: Gobiidae) from Mission Bay, San Diego

From August 1971 to June 1973, 351 gobies representing three species, *Ilypnus gilberti* (Eigenmann and Eigenmann), *Clevelandia ios* (Jordan and Gilbert), and *Quietula y-cauda* (Jenkins and Evermann), were collected by the junior author from Mission Bay, San Diego, California, and examined for helminths. The worms were removed from the organs to saline solution, fixed in 40% isopropyl alcohol or

warm AFA, and stored in 70% ethanol. All platyhelminths were stained in Mayer's hematoxylin and mounted in Canada balsam. Nematodes were cleared in glycerine and mounted in glycerine gel. Representative mounts are on deposit with the H. W. Manter Laboratory, Division of Parasitology, University of Nebraska State Museum. Specimens of one digenetic trematode, two larval cestodes, and one nema-

tode were recovered. This is the first report of any of these fish species as hosts for helminth parasites.

The trematode, *Lecithaster minimus* Martin and Multani, 1970, has previously been reported only in *Gillichthys mirabilis* Cooper from Scammon Lagoon, Baja California, Mexico [39 (34%) of 116 fish infected, a mean of 1.3 worms per infected host]. The present collection represents a range extension for this worm. Twenty-six (22%) of 118 *Clevelandia ios* harbored a mean of 3.4 worms per infected host, 18 (17%) of 96 *Quietula y-cauda* harbored a mean of 7.2 worms per host, and 39 (37%) of 137 *Ilypnus gilberti* harbored a mean of 10.9 worms per host.

All three host species were infected with a larval trypanorhynch cestode belonging to the genus *Callitetrarhynchus* Pintner, 1931. Infection rates were 20%—a mean of 9.0 worms per host for *Clevelandia ios*, 29%—a mean of 8.6 worms per host for *Quietula y-cauda*, and 27%—a mean of 4.9 worms per host for *Ilypnus gilberti*.

A larval tetraphyllidean cestode was found in 62% of the *Quietula y-cauda* and 15% of the *Ilypnus gilberti*, primarily in the gall bladder, occasionally in the gut, or in the mesenteries around the esophagus, surrounded by fibrocytic cells. Dr. Juan Carvajal (pers. comm.) indicated his belief that it is *Scolex pleuronectis* Mueller, 1788, reported from various fish in the Atlantic Ocean by many authors (notably Euzet, 1959, Thèse (Montpellier), 263 p.; and

Williams, 1969, Nytt Mag. Zool. 17: 1–56). They are thought to be larval forms of members of the family Onchobothriidae, possibly of the genus *Acanthobothrium* Van Beneden, 1849, in which the bothridial hooks have not yet developed. Our specimens, the first members of this form reported from the Pacific Ocean, are similar to the larvae reported by Hamilton and Byram (1974, J. Parasit. 60: 20–28), a fact which supports this conclusion.

An adult nematode was recovered from all three host species. A member of the genus *Spirocamallanus* Olsen, 1952, the worm resembles *S. pereirai* (Annereaux, 1946) Olsen, 1952, but may belong to an undescribed species. We feel that further work must be done before the taxonomic status of this species is ascertained. *Clevelandia ios* (10% infected—mean of 4.7 worms per host) was again more lightly infected than *Quietula y-cauda* (51%—a mean of 3.7 worms per host) and *Ilypnus gilberti* (74%—a mean of 5.5 worms per host).

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