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David K. Caldwell
Editor

NORMICHTHYS YAHGANORUM, A NEW SEARSIID FISH FROM ANTARCTIC WATERS

By ROBERT J. LAVENBERG[1]

ABSTRACT: A new species of searsiid fish, *Normichthys yahganorum*, is described from two specimens obtained in the southeastern Pacific Ocean. The new species is the third known member of the genus. *N. yahganorum* differs from both previously known species, *N. operosa* and *N. campbelli*, in having fused gill filaments. Other features utilized to distinguish the three species include longitudinal scale rows, ventral rays and gill rakers.

In the exploratory investigations of the Antarctic biota by members of the department of biological sciences of the University of Southern California, the United States Antarctic Research Vessel USNS *Eltanin* has undertaken several cruises along the Chilean coast in the southeast Pacific Ocean. The ship usually departs from Valparaiso, and proceeds south to 40° where biological operations in the Antarctic begin. Among the fishes collected off southern Chile during Cruises 5 and 15 are two moderate-sized searsiids. The combination of dermal pits above the lateral line canal and the absence of photophores readily diagnoses these individuals as members of the genus *Normichthys* Parr (1960).

In identifying these two slickheads, an unusual arrangement of the gill filaments was noted. This characteristic and several other meristic features were noted that distinguish the Antarctic forms from all other known species of the genus. The material differs so markedly from the other *Normichthys* that I consider them representatives of a distinct species.

The material has been deposited in the fish collections of the Los Angeles County Museum (LACM). The new species may be known as:

Normichthys yahganorum, new species

Figures 1 and 2

Holotype.—LACM 10264; immature male; 95.3 mm. in standard length (SL); off southern Chile, approximately 60 miles W and just S of Isla Gamblin (45° 01′ S, 76° 33′ W at beginning of haul); *Eltanin* station 215; 10-foot midwater trawl (IKMWT); maximum depth of trawl 1100 m., over a bottom of 3180 m.; 14 September 1962.

Paratype.—LACM 10265; immature female; 76 mm. in SL; off southern Chile (38° 00′ S, 74° 48′ W at beginning of haul); *Eltanin* station 1286; 10-

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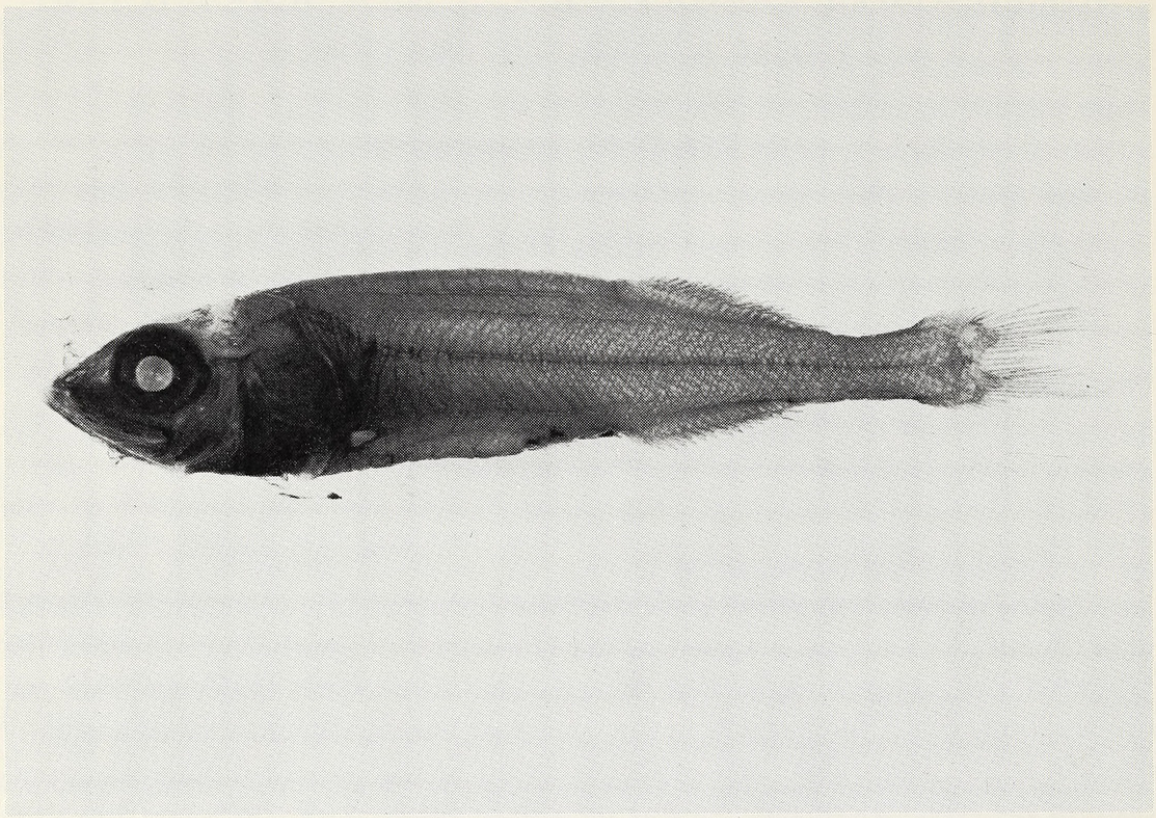

Figure 1. Normichthys yahganorum, new species, Paratype, LACM 10265. Immature female, 76 mm. SL, illustrating the slender shape of young individuals.

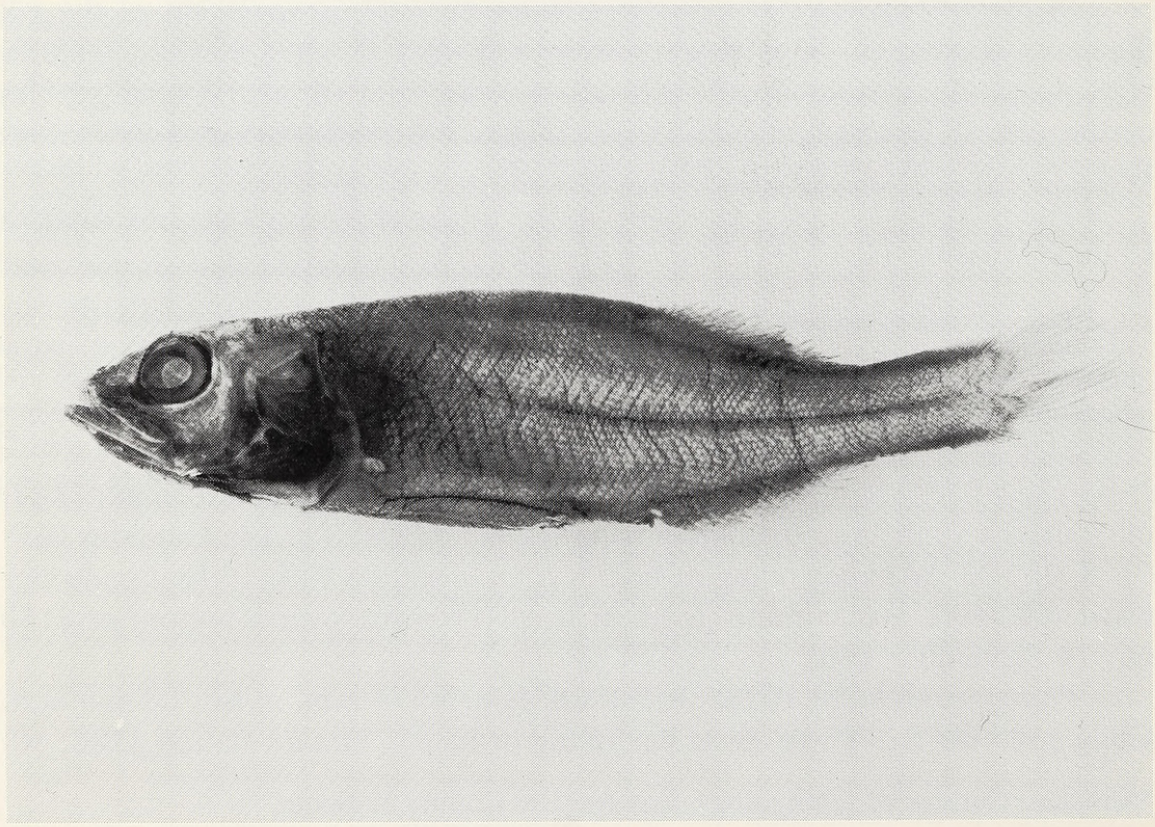

Figure 2. Normichthys yahganorum, new species, Holotype, LACM 10264. Immature male, 95 mm. SL.

foot IKMWT; maximum depth of trawl 2350 m., over a bottom of 4660 m.; trawl fished between 2045 and 0330 hours; 2 October 1964.

Diagnosis.—A *Normichthys* differing from *N. operosa* and *N. campbelli* in having the gill filaments fused and forming a flap-like extension of tissue from the gill arch instead of no fusion of gill filaments; short gill filaments present on periphery of tissue flap in *yahganorum*; in having smaller scales, 111-117 in the longitudinal series rather than 80-90 *(operosa)* or 65-71 *(campbelli)*; in having seven ventral rays rather than six *(operosa)* or eight *(campbelli);* and in having an intermediate number of gill rakers, 6-8+1+16-17 rather than 7+20-21 *(operosa)* or 5-6+1+12-14 *(campbelli).*

Description.—Body strongly compressed, tapering slightly to caudal peduncle in larger individuals and more strongly in smaller individuals; greatest depth just anterior to ventral fins, depth tapering more strongly from origin of dorsal to caudal peduncle in larger than in smaller forms, caudal peduncle depth variable with size of individual; depth slightly increased by a moderately sharp, short fleshy dorsal comb as in the Platytroctinae, and a similar but less distinct ventral fleshy portion extending through length of anal fin base; dorsal and ventral combs probably more prominent in smaller individuals; greatest width at head directly behind eye. Dorsal, anal, and procurrent rays moderately elevated, ventral fins not elevated. Shoulder organ inconspicuous, small basal portion lying directly above the insertion of the pectoral fins, short tube extending posteriorly over five scale rows. Two dermal pits just above lateral line canal, their position above and midway between angle of preopercle and shoulder organ. Cleithra protruding from body on ventral side of body between gill membranes, a flap of scaled tissue surrounding protruding cleithra. Anal papilla strongly tapered. Head moderately pointed; dorsal comb structure originating at nape directly above preopercle; flattened in nape region but concave in interorbital space; roof of skull with a wide extent in interorbital space but narrowing sharply just anterior to orbits; frontals laterally flattened, extending slightly over margin of eye, upper lateral surface rugose; dorsal profile descending in a gentle slope from posterior interorbital region to tip of snout; ventral profile following a straight line between slightly protruded cleithra and posterior margin of lower jaw, lower jaw rising in a gentle slope from posterior margin to snout tip; snout pointed, ending at junction with forward directed premaxillary tusks. Snout length greater than interorbital width at mid-orbits, both less than eye diameter. Nares flapless. Jaws of moderate length, pointed; two supramaxillaries; upper jaw shorter than lower jaw; posterior edge of maxillary extending just behind pupil; teeth on premaxillary well developed and uniserial, a pair of tusks directed anteriorly; maxillary dentition weaker than premaxillary, teeth small and uniserial; dentitional pattern of dentary like that of maxillary, a short mid-dentary tooth row present; one pair of elongate teeth on head of vomer; palatine toothless; tongue without teeth but covered with numerous spinous papillae. Teeth of lower jaw insert inside upper jaw series when mouth is closed.

Scales cycloid, thin and oval in shape; small and adherent, completely covering the body; head scaleless; heavily marked by annuli, a few ridge-like

furrows on scales suggesting radii; 111 to 117 scales in a longitudinal series along lateral line, 19 scale rows above lateral line and 16 scale rows below; lateral line semi-distinct, 31 to 34 pores present along its longitudinal extent; a small series of lateral line pores present over urostyle; a single pore present in epidermis below each body scale.

Gill rakers moderately long, constituting about five per cent of SL. Gill filaments fused along entire extent of gill arch giving rise to a broad flap of gill filament tissue, gill filament tissue flap about two to three per cent of SL at its greatest width on lower limb of arch; small pseudobranch present; a large white gland present under gill cover in region of preopercle.

Dorsal and anal fins subequal, anal origin slightly posterior to dorsal origin; origin of dorsal nearer to caudal fin than snout, first three or four rays anterior to anal origin but closer to anal origin than to ventral origin; ventral fins originate nearer to caudal fin than snout; pectoral fin base inserted about one-fifth of way up side of body, its position horizontal with body plane, pectoral rays short and slender, length of rays about equal to length of base; ventral rays short, although slightly damaged they apparently equal length of pectoral fin rays.

Inner surface of peritoneum slightly pigmented with various shades of brown, from light tan to dark brown, in a reticulate pattern. A thin-walled stomach present. Four large pyloric caeca, the first and third branched.

Counts and Measurements.—The following counts are for both specimens. Dorsal rays 19, anal rays 17, pectoral rays 16, ventral rays 7, branchiostegal rays 7, gill rakers 6-8+1+16-17, and vertebrae 44. Measurements for the specimens are given in Table 1.

Remarks.—Normichthys yahganorum represents the first occurrence of this genus in the Antarctic region of the Pacific Ocean. Although the new species is quite distinct from *N. operosa* Parr (1951) and *N. campbelli* Lavenberg (1965), it shares certain characteristics with these species including the absence of photophores, the presence of dermal pits, subequal dorsal and anal fins, and a thickened ventral abdominal wall. The distinctness of *N. yahganorum* is shown in several features including the reduced number of dermal pits; only two pits are present in *N. yahganorum* while in the other species the number ranges from three to seven. There is no pore in the body scales of the new species as reported in *N. operosa* (Parr, 1960). A pore exists in the epidermis beneath each scale. The lateral line is distinct in *N. yahganorum* but reduced and indistinct in *N. operosa* and *N. campbelli.* A striking feature of *N. yahganorum* is the development of a dorsal and ventral keel similar to that of the Platytroctinae. This keel or comb is weakly developed but present.

N. yahganorum and *N. operosa* have dermal pits lying equidistant between the top of the gill slit and the shoulder organ. The dermal pits of *N. campbelli* are just anterior to the top of the gill slit.

In all three species of *Normichthys* the upper branchiostegal rays are broad and flattened while the lower rays are slender ray-like structures.

This species is named for the Yahgan Indians, archipelagic shellfish gatherers of Tierra del Fuego, who practiced shellfish conservation and avoid-