California Fish and Game 93(1):52-55 2007

FIRST RECORD OF THE WOLF-EEL, *ANARRHICHTHYS OCELLATUS* (PISCES: ANARHICHADIDAE), FROM BAJA CALIFORNIA, MEXICO

RICHARD F. FEENEY and ROBERT N. LEA
Natural History Museum of Los Angeles County
900 Exposition Blvd.
Los Angeles CA 90007
Email: rfeeney@nhm.org

SEAN DYER
Speedy Solutions, Inc.
5080 Dawne Street, San Diego, CA 92117

SCOTT GIETLER
Quantitative Financial Management
2928 4th Street, Suite 17, Santa Monica, CA 90405

The wolf-eel (*Anarrhichthys ocellatus* Ayres, 1855) is an elongate, benthic perciform that inhabits the temperate North Pacific from the southeastern Bering Sea and eastern Aleutian Islands to southern California (Mecklenburg et al. 2002) and occurs from the intertidal zone (Miller and Lea 1972) to the offshore shelf, up to 244 m depth (CAS 19447; see Table 1 for abbreviations). Records from the Sea of Japan (Miller and Lea 1972; Eschmeyer and Herald 1983) are not valid and were most likely based on *Anarhichas orientalis* Pallas, 1814. The species is one of the early fishes described from California (Ayres 1855a and b) and was characterized as, "In color perhaps no more beautiful fish than this has yet been found in our waters." The original two specimens were taken from "the Bay of San Francisco." The southern limit for the species is off Imperial Beach, San Diego County, but it is not common south of Point Conception (Fitch and Lavenberg 1971). Previously, Barnhart (1936) noted it to be "one of our most remarkable fishes: feeding chiefly on sea-urchins and sand dollars" and gave Redondo as the southern limit; Hubbs and Barnhart (1944) extended this to La Jolla Submarine Canyon, San Diego County.

On 26 November 2005, a wolf-eel was photographed by Sean Dyer while SCUBA diving off the Pacific coast of Baja California, Mexico, on Escondido Reef near La Bufadora (approx. lat. 31°42'N, long. 116°42'W) (Fig 1). The photographs represent the first record of a wolf-eel in Baja Californian waters and a new southern limit for the species. This locality is approximately 100 km southeast of Imperial Beach, California.

The wolf-eel was photographed at a depth of 70 ft (21.3 m) at 1100 hr with an Olympus C-5060 Wide Zoom digital camera off the dive boat "Dale's Panga." The water temperature at the bottom (site of observation) was 12.8° C.

Identification was confirmed by the large rounded head and snout, large upturned mouth, and purple-gray color with numerous round spots around the eye and posteriorly on the head and body. The head was estimated as ca. 10 cm in depth which

Table 1. Museum records of wolf-eels from southern California. Listing is by latitude from Point Conception south to San Diego County; two Channel Island records are included.

Locality	Date of collection	Museum number[a]	Depth[b] (in feet)	Size[c] (mm SL)	Method of capture
Off Point Conception	Aug 1974	SIO 74-122	20-60	440	spear
Santa Barbara	1882	USNM 31238	unknown	unknown	unknown (skeleton)
San Miguel Island, Castle Rock	06 Oct 1962	LACM 3334	unknown	unknown	spear
Santa Cruz Island	Mar 1966	LACM 6912-1	unknown	982	hook and line
Harrison's Reef, County Line	23 May 1965	UCLA W65-26	45	455	ichthyocide
Redondo Beach barge reef	29 Dec1967	LACM 38325-1	90	572	by hand
Off San Pedro	05 Jun 1956	LACM 50122-1	unknown	476	unknown
Horseshoe Kelp, off Long Beach	21 Mar 1961	LACM 51467-1	unknown	820	hook and line
Off La Jolla	03 Apr 1946	CAS 19447[d]	800	949	setline
Off La Jolla	01 Feb 1953	SIO 53-13	65-70	925	hook and line
Off La Jolla	10 July 1976	SIO 76-269	420-480	2015	gill net
Point Loma	17 Dec 1975	SIO 75-577	50	363	by hand
Off San Diego Bay	28 July 1953	SIO 53-124	unknown	1134	hook and line
4 mi. SW of Pt. Loma	4 Mar 1949	UCLA W49-335	unknown	617	lobster trap

[a]CAS – California Academy of Sciences. LACM – Natural History Museum of Los Angeles County. SIO – Scripps Institution of Oceanography. UCLA – University of California at Los Angeles. USNM – United States Museum of Natural History.
[b]Depth of capture is given in feet as originally reported.
[c]Length is given as Standard Length.
[d]CAS 19447. This specimen was originally catalogued as SIO H46-36.

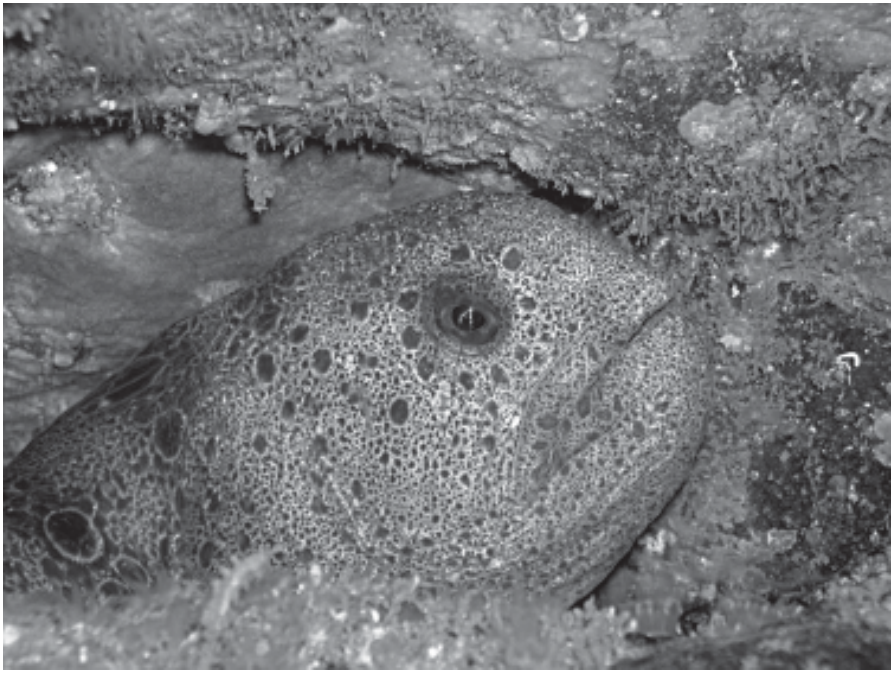

Figure 1. Wolf-eel from Escondido Reef, near La Bufadora, Baja California, Mexico. Photograph by S. Dyer.

would make the wolf-eel roughly 125 cm in length, based on known body proportions. Three digital photographs were taken; two are lateral views of the head protruding from a crevice and the third is an anterior view showing more of the body wrapped around in the crevice. Copies of the photographs have been cataloged and stored in the Ichthyology files at the Natural History Museum of Los Angeles County (LACM 56373-1).

Fourteen museum records of wolf-eel are known from southern California of which six are from San Diego County (Table 1). The previous southern record from Imperial Beach is not supported by a museum specimen but is listed in Radovich (1967, Table 6): "Wolf-eel -1 - May 22, 1958 -1 to1½ miles off Imperial Beach, San Diego County, in 8½ fathoms." The nearest museum specimen was collected in 1949 and housed at UCLA (W49-335) from "4 mi. SW of Point Loma", estimated to be just north of Imperial Beach.

The Pacific coast of northern Baja California is known to be an area of strong upwelling (Bakun and Nelson 1977), bringing cold water close to shore and creating a cold-temperate environment for populations of shorefishes usually more common north of Point Conception (Stepien et al. 1991; Robinson 2004). This record represents another cold-temperate species occurring in the cool waters off northern Baja California.

ACKNOWLEGMENTS

We thank C. Thacker and J. Seigel for reviewing the manuscript and J. Stritzker for participating in the dive. R. J. Lavenberg provided information on southern records. D. G. Buth helped with specimens at the University of California at Los Angeles. H. J. Walker, Jr. and C. Klepadlo aided with specimens at the Marine Vertebrates Collection, Scripps Institution of Oceanography. D. Smith provided information on the Santa Barbara wolf-eel at the National Museum of Natural History.

LITERATURE CITED

Ayres, W. O. 1855a. Report of meeting of California Academy of Natural Sciences [Original description of *Anarrhichthys ocellatus*]. The Pacific 4:13 [March 2].

Ayres, W. O. 1855b. [Description of a new species of California fish.] Proc. Calif. Acad. Nat. Sci.1:32-33 [second edition, reprinted in 1873].

Bakun, A. and C. S. Nelson. 1977. Climatology of upwelling related processes off Baja California. California Cooperative Fisheries Investigations Reports 19:107-127.

Barnhart, P. S. 1936. Marine fishes of southern California. University of California Press, Berkeley.

Eschmeyer, W. N. and E. S. Herald. 1983. A field guide to Pacific coast fishes of North America. Houghton Mifflin Co., Boston.

Fitch, J. E. and R. J. Lavenberg. 1971. Marine food and game fishes of California. University of California Press, Berkeley, Los Angeles, and London.

Hubbs, C. L. and P. S. Barnhart. 1944. Extensions of range for blennioid fishes in southern California. Calif. Fish and Game 30(1):49-51.

Mecklenburg, C. W., Mecklenburg, T. A., and L. K. Thorsteinson. 2002. Fishes of Alaska. American Fisheries Society, Bethesda, Maryland.

Miller, D. J. and R. N. Lea. 1972. Guide to the coastal marine fishes of California. California Dept. of Fish and Game, Fish Bulletin 157.

Radovich, J. 1961. Relationships of some marine organisms of the northeast Pacific to water temperatures, particularly during 1957 through 1959. California Dept. of Fish and Game, Fish Bulletin 112:1-62.

Robinson, C. J. 2004. Responses of the northern anchovy to the dynamics of the pelagic environment: identification of fish behaviours that may leave the population under risk of overexploitation. Journal of Fish Biology 64:1072-1087.

Stepien, C. A., H. Phillips, J. A. Adler, and P. J. Mangold. 1991. Biogeographic relationships of a rocky intertidal fish assemblage in an area of cold water upwelling off Baja California, Mexico. Pacific Science 45(1):63-71.

Received: 4 February 2006
Accepted: 9 April 2006