

California Academy of Sciences

---

**ANNOTATED CHECKLISTS OF FISHES**

---

Number 8

September 2003

**Family Cryptacanthodidae Gill 1861**

wrymouths

By

Catherine W. Mecklenburg

*Field Associate, Department of Ichthyology, California Academy of Sciences  
c/o Point Stephens Research, P.O. Box 210307, Auke Bay, Alaska 99821, U.S.A.  
email: ptstephens@alaska.com*

Wrymouths are eel-like, benthic zoarcoid fishes inhabiting cold-temperate North Pacific and western North Atlantic coastal waters. They make extensive systems of tunnels with numerous exits by burrowing in soft substrate. Body elongate, rounded anteriorly and compressed posteriorly; head broad, depressed, with eyes set high. Lower jaw projecting; mouth large, oblique to nearly vertical. Dorsal and anal fins long, extending to caudal fin base or confluent with caudal fin; dorsal fin with 60–80 stiff spines, anal fin with 0–3 spines and 43–52 soft rays. Pectoral fins very small. Pelvic fins absent, pelvic girdle present. Nostrils tubular, one pair (posterior absent). Scales absent, except small cycloid scales present in *Cryptacanthodes giganteus*. Cephalic mechanosensory canals not opening to the outside. Trunk lateral line represented by widely spaced pit organs (superficial neuromasts). Vomerine teeth present; palatine teeth present in all except *C. aleutensis*. Gill membranes broadly connected to the isthmus, gill openings not continued far forward. Branchiostegal rays 6. Gill rakers very short, less than 15 in number. Swim bladder absent. Vertebrae 71–88. Pale brown above and cream-colored below, with or without spots; or uniformly pink or red. Attain total lengths of 31–127 cm (12–50 in). \* Feed on crustaceans and other invertebrates. Four species in one genus.

The first use of the family-group name evidently was by Gill (1861:46 [ref. 1766]), from the type genus *Cryptacanthodes* Storer. Wrymouth classification herein follows Makushok (1958 [ref. 2878], 1961 [ref. 26623]). Cryptacanthodidae are classified as a separate family from the Stichaeidae, and *Lyconectes*, *Delolepis*, and *Cryptacanthoides* are included in *Cryptacanthodes*. Makushok separated the Cryptacanthodidae from the Stichaeidae on the basis of differences in skull and cephalic sensory system structure and proportions of the pectoral radials, as well as differences in external appearance, and showed that all four species of wrymouths differ from each other by such insignificant features that generic separation is not justifiable. Nawojchik (1986 [ref. 26620]), applying a cladistic analysis, established monophyly for the Cryptacanthodidae.

**Genus *Cryptacanthodes* Storer 1839**

*Cryptacanthodes* Storer 1839:323 [27 of separate] [ref. 4278]. Type species *Cryptacanthodes maculatus* Storer 1839. Type by monotypy.

*Delolepis* Bean 1882:465 [ref. 224]. Type species *Delolepis virgatus* Bean 1882. Type by original designation (also monotypic).

---

\*A 127-cm *C. giganteus* was collected in October 2001 near Dundas Island, northern British Columbia, by the Canadian Department of Fisheries and Oceans; reported to the author in February 2003, with photographs, by William van Orden of Heriot Bay, British Columbia, who has made a life-size model of the fish from a mold. Previously documented to 123 cm TL by Mecklenburg et al. (2002 [ref. 25968]).

*Lyconectes* Gilbert 1896:452 [ref. 1628]. Type species *Lyconectes aleutensis* Gilbert 1896. Type by original designation (also monotypic).

*Pseudophidium* Gratzianov 1907:420 [ref. 1871]. Type species *Ophidium giganteum* Kittlitz 1858. Type by monotypy.

*Zoarcites* Zugmayer 1914:3 [ref. 4848]. Type species *Zoarcites pardalis* Zugmayer 1914. Type by monotypy.

*Cryptacanthoides* Lindberg in Soldatov & Lindberg 1930:482 [ref. 4164]. Type species *Cryptacanthoides bergi* Lindberg 1930. Type by original designation (also monotypic).

***Cryptacanthodes aleutensis* (Gilbert 1896)**

*Lyconectes aleutensis* Gilbert 1896:452, Pl. 34 (bottom) [ref. 1628] (north of Unalaska I., Alaska, 53°59'11"N, 166°25'09"W, *Albatross* sta. 3312, 45 fm). Holotype (unique): USNM 48620.

DISTRIBUTION: Eastern North Pacific: southeastern Bering Sea to northern California.

***Cryptacanthodes bergi* (Lindberg 1930)**

*Cryptacanthoides bergi* Lindberg in Soldatov & Lindberg 1930:484, Figs. 66–67 [ref. 4164] (Peter the Great Bay, Japan Sea, Russia). Holotype (unique): missing, not at ZIN.

*Lyconectes ezoensis* Hikita & Hikita 1950:140, Fig. [ref. 15630] (Kushiro, Hokkaido, Japan, about 50 fm). Holotype: HUMZ 107950.

DISTRIBUTION: Western North Pacific: Japan from Hokkaido to southern Honshu.

REMARKS: Possibly a synonym of *Cryptacanthodes aleutensis* (Gilbert 1896).

***Cryptacanthodes giganteus* (Kittlitz 1858)**

*Ophidium giganteum* Kittlitz 1858:226 [ref. 18421] (Siberia, Russia). No types known.

*Delolepis virgatus* Bean 1882:466 [ref. 224] (Kingcome Inlet, British Columbia, Canada, 18 fm). Lectotype: USNM 29149.

DISTRIBUTION: Eastern North Pacific: southeastern Bering Sea to northern California.

REMARKS: The lectotype of *Delolepis virgatus* Bean 1882 was designated in an unpublished master's thesis by Nawojchik (1986:53 [ref. 26620]) and later validated by Springer and Anderson (1997:13 [ref. 22953]).

***Cryptacanthodes maculatus* Storer 1839**

*Cryptacanthodes maculatus* Storer 1839:323 [28 of separate] [ref. 4278] (outer basin of Boston Harbor, Gulf of Maine, Massachusetts, U.S.A.). Holotype: MCZ 35790.

*Fierasfer borealis* DeKay 1842:316 [ref. 1098] (New York, U.S.A.). No types known.

*Cryptacanthodes inornatus* Gill 1863:332 [ref. 17582] (Maine, U.S.A.). No types known.

*Zoarcites pardalis* Zugmayer 1914:3 [ref. 4848] (near Halifax, Nova Scotia, Canada, *Hirondelle II*, sta. 3432, 25 m). Holotype (unique): MOM 97 1404.

DISTRIBUTION: Western North Atlantic: southern Labrador to New Jersey.

REMARKS: Storer (1839) had three specimens of *C. maculatus*, and clearly stated that his species description was based on the 21-inch specimen (MCZ 35790), which was collected from Boston Harbor. Of the two paratypes, both from Quincy Market, Norfolk, Massachusetts, one survives (MCZ 35798) and the other is missing.

*Cryptacanthodes inornatus* first appeared as a nomen nudum with the genus-group name misspelled, as *Cryptocanthodes inornatus* Gill, in Holmes (1862:61 [ref. 26847]). Gill (1863 [ref. 17582]) later described it in an available way with correct spelling of the generic name. The whereabouts of “the specimen which afforded the foundation on which it was inserted in the Catalogue of Maine Fishes” and “male and female specimens [from Massachusetts] ... preserved in the Zoological Museum of Cambridge” (Gill 1863:332–333) are not known. The sole basis for

the name *C. inornatus* seems to be that this form “is extremely closely related to *C. maculatus* ... but is entirely destitute of spots” (*loc. cit.*).

*Zoarcites pardalis* was classified in the Zoarcidae by Zugmayer (1914:3 [ref. 4848]; see also 1940:210 [ref. 4850]) and Bélloc (1949:14 [ref. 21544]). The holotype was examined and referred to *C. maculatus* by C. Carpine, Musée océanographique de Monaco (Nawojchik 1986:59 [ref. 26620]; confirmed by Michèle Bruni, MOM, pers. comm., 6 Jan. 2003).

### Summary Lists

#### Genus-Group Names of Family Cryptacanthodidae

*Cryptacanthodes* Storer 1839 = *Cryptacanthodes* Storer 1839  
*Cryptacanthoides* Lindberg 1930 = *Cryptacanthodes* Storer 1839  
*Delolepis* Bean 1882 = *Cryptacanthodes* Storer 1839  
*Lyconectes* Gilbert 1896 = *Cryptacanthodes* Storer 1839  
*Pseudophidium* Gratzianov 1907 = *Cryptacanthodes* Storer 1839  
*Zoarcites* Zugmayer 1914 = *Cryptacanthodes* Storer 1839

#### Incertae Sedis Genus-Group Names

None

#### Unavailable Genus-Group Names

None

#### Species-Group Names of Family Cryptacanthodidae

*aleutensis*, *Lyconectes* Gilbert 1896 = *Cryptacanthodes aleutensis* (Gilbert 1896)  
*bergi*, *Cryptacanthoides* Lindberg 1930 = *Cryptacanthodes bergi* (Lindberg 1930)  
*borealis*, *Fierasfer* DeKay 1842 = *Cryptacanthodes maculatus* Storer 1839  
*ezoensis*, *Lyconectes* Hikita & Hikita 1950 = *Cryptacanthodes bergi* (Lindberg 1930)  
*giganteum*, *Ophidium* Kittlitz 1858 = *Cryptacanthodes giganteus* (Kittlitz 1858)  
*inornatus*, *Cryptacanthodes* Gill 1863 = *Cryptacanthodes maculatus* Storer 1839  
*maculatus*, *Cryptacanthodes* Storer 1839 = *Cryptacanthodes maculatus* Storer 1839  
*pardalis*, *Zoarcites* Zugmayer 1914 = *Cryptacanthodes maculatus* Storer 1839  
*virgatus*, *Delolepis* Bean 1882 = *Cryptacanthodes giganteus* (Kittlitz 1858)

#### Incertae Sedis Species-Group Names

None

#### Unavailable Species-Group Names

*inornatus*, *Cryptacanthodes* Gill in Holmes 1862:61 [ref. 26847]. Nomen nudum. Described in an available way as *Cryptacanthodes inornatus* Gill 1863.

### Literature Cited

- Bean, T. H. 1882 (ca. 16 Aug.) [ref. 224]. Notes on a collection of fishes made by Captain Henry E. Nichols, U. S. N., in British Columbia and southern Alaska, with descriptions of new species and a new genus (*Delolepis*). Proc. U. S. Natl. Mus. v. 4 (no. 255): 463–474.
- Bélloc, G. 1949 (20 Oct.) [ref. 21544]. Catalogue des types de poissons du Musée océanographique de Monaco. Bull. Inst. Oceanogr. (Monaco) No. 958: 1–23, Pls. 1–3.
- DeKay, J. E. 1842 [ref. 1098]. Zoology of New York; or, the New York fauna; comprising detailed descriptions of all the animals hitherto observed within the state, with brief notices of those occasionally found near its borders. In: Natural history of New York. Part 4. Fishes: 1–415, Pls. 1–79.
- Gilbert, C. H. 1896 (9 Dec.) [ref. 1628]. The ichthyological collections of the steamer *Albatross* during the years 1890 and 1891. Rep. U. S. Fish Comm. v. 19 [1893]: 393–476, Pls. 20–35.

- Gill, T. N. 1861 (Feb.) [ref. 1766]. Catalogue of the fishes of the eastern coast of North America, from Greenland to Georgia. Proc. Acad. Nat. Sci. Phila. v. 13 (Suppl.): 1–63.
- Gill, T. N. 1863 (Nov.) [ref. 17582]. Note on some recent additions to the ichthyological fauna of Massachusetts. Proc. Acad. Nat. Sci. Phila. v. 15: 332–333.
- Gratzianov, V. J. 1907 [ref. 1871]. A synoptic essay of the fishes of the Russian Empire. Trudy Otdela Ikhtiol. Russ. Obsc. Akklimat. Zhiv. Moskva v. 4: i–xxx + 1–567. [In Russian.]
- Hikita, T. and T. Hikita. 1950 (20 Oct.) [ref. 15630]. On a new wry-mouth fish found in Japan. Jpn. J. Ichthyol. v. 1 (no. 2): 140–142.
- Holmes, E. 1862 [ref. 26847]. Dr. Holmes' report on the fishes of Maine. Part II. Descriptive ichthyology. Second Ann. Rep. Nat. Hist. and Geol. State of Maine, Part 1: 11–119.
- Kittlitz, F. H. von. 1858 [ref. 18421]. Denkwürdigkeiten einer Reise nach dem russischen Amerika, nach Mikronesien und durch Kamschatka. Justus Perthes, Gotha. v. 1: i–xvi + 1–383; v. 2: 1–463.
- Makushok, V. M. 1958 [ref. 2878]. The morphology and classification of the northern blennioid fishes (Stichaeidae, Blennioidei, Pisces). Trudy Zool. Inst. Akad. Nauk SSSR v. 25: 3–129. [In Russian. English translation by A. R. Gosline and W. A. Gosline, Ichthyological Laboratory, U. S. Fish and Wildlife Service, U. S. National Museum, Washington, D.C., 1959. 1–105.]
- Makushok, V. M. 1961 [ref. 26623]. Additional information on the morphology and systematics of wrymouths (Cryptacanthodidae, Blennioidei, Pisces). Trudy Inst. Okeanol. Akad. Nauk SSSR v. 43: 184–197. [In Russian.]
- Mecklenburg, C. W., T. A. Mecklenburg and L. K. Thorsteinson. 2002 (Mar.) [ref. 25968]. Fishes of Alaska. American Fisheries Society, Bethesda, Maryland. i–xxxvii + 1–1037, 40 pls.
- Nawojchik, R. 1986 [ref. 26620]. A systematic revision of zoarcoid fishes of the family Cryptacanthodidae (Teleostei: Perciformes). M.S. thesis, University of Washington, Seattle. i–ix + 1–87.
- Soldatov, V. K. and G. U. Lindberg. 1930 [ref. 4164]. A review of the fishes of the seas of the Far East. Izv. Tikhookean. Nauchn. Inst. Rybn. Khoz. v. 5: i–xlvii + 1–576, Pls. 1–15. [In Russian and English.]
- Springer, V. G. and M. E. Anderson. 1997 [ref. 22953]. Catalog of type specimens of Recent fishes in the National Museum of Natural History, Smithsonian Institution, 8: Suborder Zoarcoidei (Anarhichadidae, Bathymasteridae, Pholidae, Ptilichthyidae, Scytalinidae, Stichaeidae, Zoarcidae). Smithson. Contrib. Zool. No. 589: i–iii + 1–27.
- Storer, D. H. 1839 [ref. 4278]. Report upon the fishes of Massachusetts. Boston J. Nat. Hist. v. 2 (nos. 3–4): 289–558, Pls. 6–8. [Also as a separate publication, possibly published first: Boston, 1839. 1–202.]
- Zugmayer, E. 1914 (20 Mar.) [ref. 4848]. Diagnoses de quelques poissons nouveaux provenant des campagnes du yacht *Hirondelle II* (1911–1913). Bull. Inst. Oceanogr. (Monaco) No. 288: 1–4.
- Zugmayer, E. 1940 [ref. 4850]. Diagnoses de quelques poissons nouveaux provenant des campagnes du yacht *Hirondelle II* (1911–1913). Result. Campagnes Sci. Monaco Fasc. 103: 209–211.

### Acknowledgments

The California Academy of Sciences Department of Ichthyology provided financial and technical support. Collection localities for the *Cryptacanthodes maculatus* types are from Karsten E. Hartel in the online MCZ Fish Collection Database.

Suggested citation format:

Mecklenburg, C. W. 2003. Family Cryptacanthodidae Gill 1861 — wrymouths.  
Calif. Acad. Sci. Annotated Checklists of Fishes No. 8. 4 pp.