

Ctenophora: comb jellies, ctenophores

UNDERWATER FIELD GUIDE TO ROSS ISLAND & MCMURDO SOUND, ANTARCTICA

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Photographs: Paul Dayton, Shawn Harper, Bruce A Miller, & Dirk Schories



The National Science Foundation's Office of Polar Programs sponsored Norbert Wu on an Artist's and Writer's Grant project, in which Peter Brueggeman participated. One outcome from Wu's endeavor is this Field Guide, which builds upon principal photography by Norbert Wu, with photos from other photographers, who are credited on their photographs and above. This Field Guide is intended to facilitate underwater/topside field identification from visual characters. Organisms were identified from photographs with no specimen collection, and there can be some uncertainty in identifications solely from photographs.

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platyctenean ctenophore *Lyrocteis flavopallidus*



Lyrocteis flavopallidus has been found in Antarctica and South Shetland Islands at depths from 36 to 761+ meters [1,2,3,4,6].

Video transects of the Ross Sea observed *L. flavopallidus* rarely, and principally on shallow banks having a mean depth of 377 meters [5].



Lyrocteis flavopallidus is saddle-shaped, pale straw-yellow in color, and has been collected at sizes up to eleven centimeters high [1,4,7]. *L. flavopallidus* has been found perched on sponges (Rossellid sponges, *Antarctotetilla leptoderma*) or elevated surfaces, is soft and fragile, and secretes mucus when disturbed [1].



Lyrocteis flavopallidus sits with its oral end down and usually moves less than two to three centimeters over a long period of time [1]. One *L. flavopallidus* moved 35 centimeters in 24 hours onto a marker rod like this, probably to gain a higher perch for better filter feeding [1]. *L.*

flavopallidus has a skirt on the base of its trunk around the oral area which it uses to glide forward [1].



Lyrocteis flavopallidus has adhesive, retractile tentacles (branched on one side) which extend to lengths up to seventy centimeters [1]. Food is caught by the sticky tentacles and transferred to the mouth [1]. The body and arms of *L. flavopallidus* usually bend in the same direction of current flow with the tentacles streaming out [1]. *L. flavopallidus* adults do not have the characteristic ctene (comb) rows seen in many other ctenophores [1].

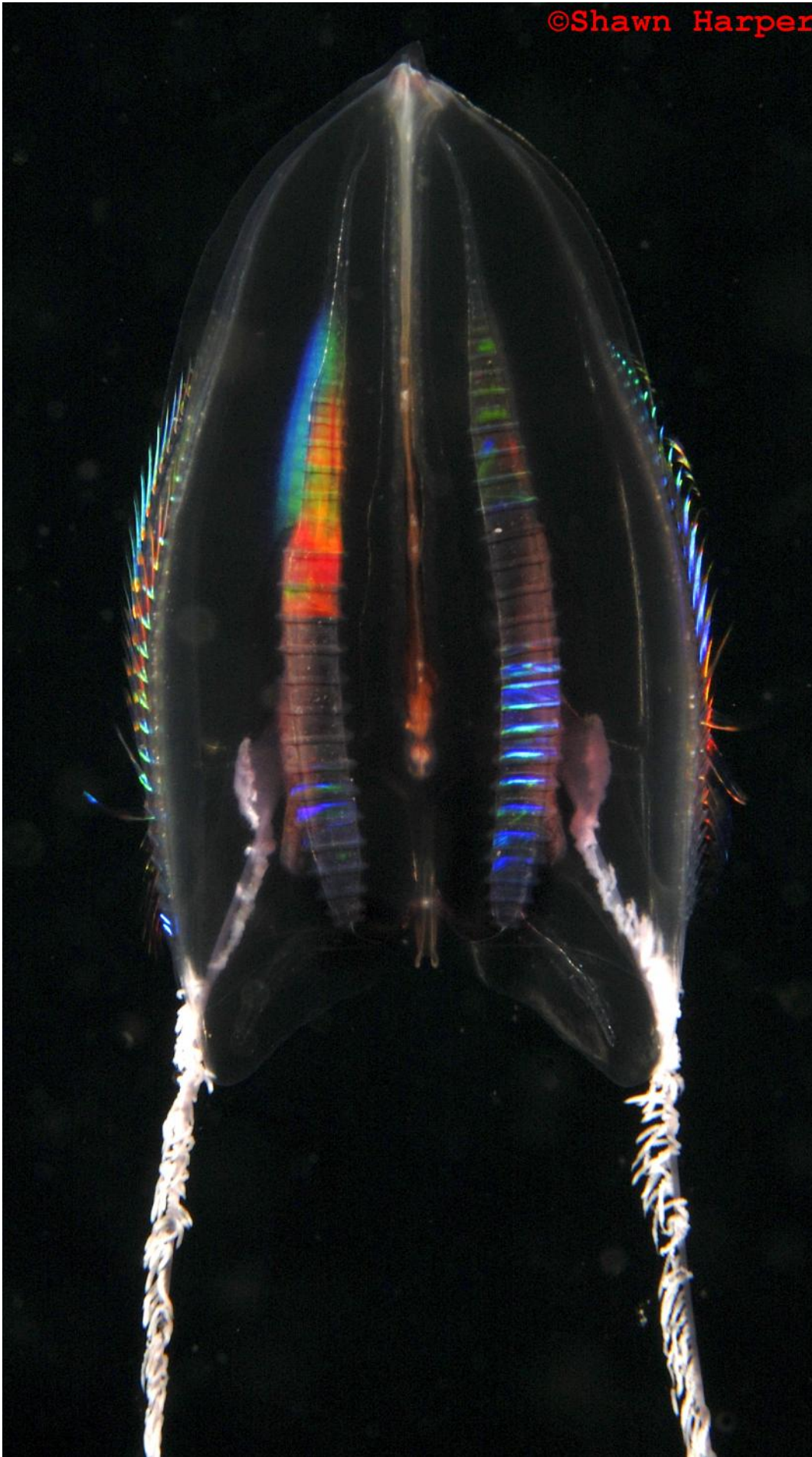
References: **1:** Canadian Journal of Zoology 50:47-53, 1972; **2:** Annales de l'Institut Oceanographique 73(2):139-158, 1997; **3:** Polar Biology 20(4):229-247, 1998; **4:** Guide to the Ctenophores of the Southern Ocean and Adjacent Waters. D O'Sullivan. ANARE Research Notes 36. Kingston, Australia : Australia Antarctic Division, 1986; **5:** Biogeochemistry of the Ross Sea. GR DiTullio & RB Dunbar, editors. Antarctic Research Series Volume 78. Washington, D.C.: American Geophysical Union, 2003. pp.327-354; **6:** Guia Marina Antarctica. D Schories. www.guiamarina.com ; **7:** Antarctic Macrobenthos, a Field Guide of the Invertebrates Living at the Antarctic Seafloor. Martin Rauschert & Wolf Arntz. Arntz & Rauschert Selbstverlag, Wurster Nordseekueste, Germany, 2015. Page 28

mertensiid ctenophore



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This mertensiid ctenophore has two tentacles which it can extend; they have specialized adhesive structures to capture other zooplankton, including copepods, euphausiid larvae, mysids, and fish larvae. The tentacles are retracted towards the mouth to ingest the prey.



Ctenophores are commonly known as comb jellies, are biradially symmetrical with a transparent gelatinous ectomesoderm containing muscle fibers, have a nervous system and a separate muscular system, and have eight ciliary comb rows [1]. Ctenophores combs propel their movement; the comb rows beat in a regular sequence starting from the aboral end (away from the mouth) thus propelling the ctenophore with its mouth forward [1].

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This mertensiid ctenophore has caught a zooplankter.

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References: 1: Guide to the Ctenophores of the Southern Ocean and Adjacent Waters. D O'Sullivan. ANARE Research Notes No.36. Kingston, Tasmania : Australian National Antarctic Research Expeditions, 1986

comb jelly *Beroe cucumis*



Beroe cucumis is found worldwide [1]. *Beroe cucumis* can be pinkish, and up to fifteen centimeters long [1,4].

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The prey of *Beroe cucumis* includes the lobate ctenophore *Bolinopsis infundibulum* [3]. *Beroe* species can completely engulf prey as large as themselves; larger prey are bitten into pieces with bundles of fused cilia lining the inner lips [1].

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Beroe cucumis has been observed making vertical diel migrations [2].



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