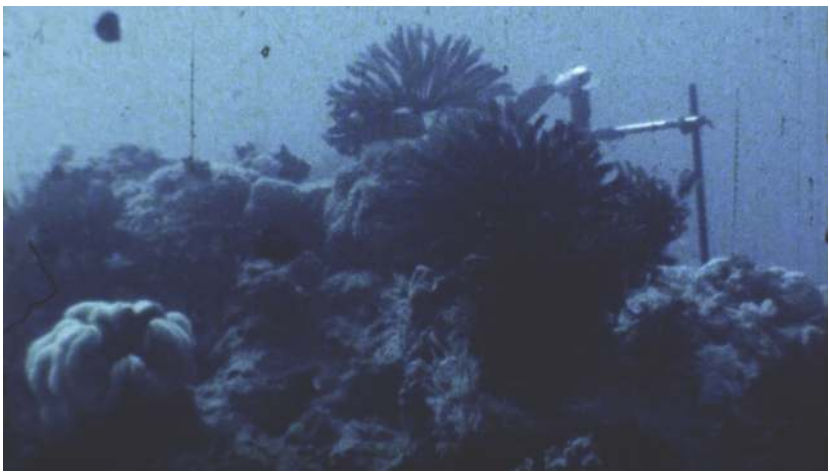
1 Feather Stars at Lizard Island, Great Barrier Reef (14° 38' S, 145° 30'E)

David L.Meyer



Video 1 Day–night time-lapse record of a cluster of feather stars at 10 meter depth on a fringing reef, Lizard Island, Great Barrier Reef. Video available at www.cambridge.org/meyer-resources.

Video 1 is a time-lapse record of a cluster of feather stars at 10 meter depth on a fringing reef. It was filmed in April, 1983, using a Super8 film camera at 1 frame per minute, starting at 1535 hrs, continuing through the night and following day for a total of 25 hr (Meyer, 1997). During daylight, metered exposures were made with available light, and after dark, illuminated by an electronic flash. The current was unidirectional from the southeast and related to the tidal cycle. Current velocity increased to about 25 cm/s just after LW, slacking to 0 at HW, peaking again at about 10 cm/s during the ebb-tide.

A recording current meter placed near the crinoids shows that the crinoids form filtration fans at currents speeds below the 5 cm/s threshold sensitivity of the meter (Fig. 1; also Meyer, 1997). As current speed increases, the filtration fans are increasingly deflected but individuals identified as *Himerometra robustipinna* (P. H. Carpenter) maintained position even at maximum current speed > 20 cm/s. A nonfeeding posture with arms curled over the oral disk occurred only at dead slack water. Some individuals of *H. robustipinna* situated in close proximity form "common fans" of overlapping arms. In Meyer et al. (1984), some of these "partners" were identified as *H. bartschi* (A. H. Clark), but subsequent taxonomic revision (Taylor et al., 2017) has determined *H. bartschi* to be a junior synonym of *H. robustipinna.*

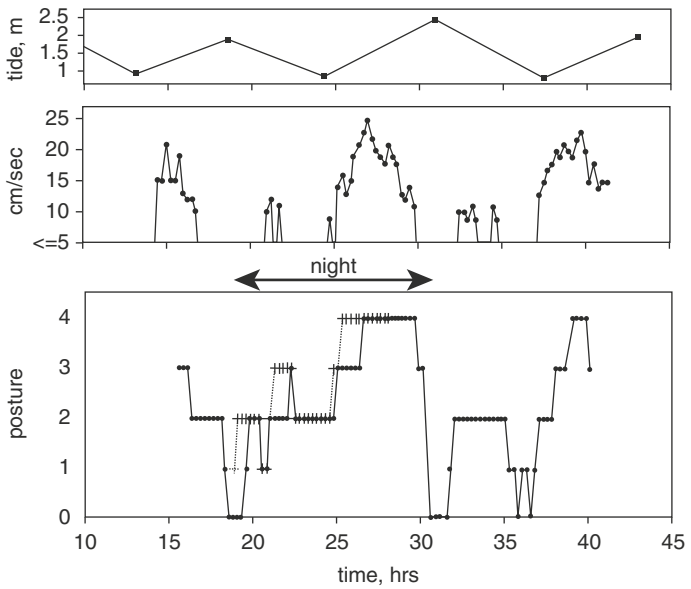


Figure 1 Tide height, current velocity, and behavior of feather stars as shown in Video 1, Lizard Island, GBR. H. robustipinna =•, D. articulata =+. Feeding postures: 0 = no feeding fan; 1=partial fan, 2=full fan; 3=deflected fan; 4=extreme deflected fan From Meyer, 1997

Individuals of *H. robustipinna* responded to current speed fluctuations and formed filtration fans day and night. Shortly after nightfall, a single individual identified as *Dichrometra* (formerly *Liparometra*) *articulata* (Müller) crawled from the lower margin of the frame to a perch on a substrate ridge and formed a filtration fan. This crinoid did not move directly to its perch but first approached the ridge occupied by two individuals of *H. robustipinna*; it then moved a short distance away before forming its feeding fan. As current increased, this crinoid was strongly deflected until it disappeared from view and did not reappear when current abated. Other crinoid species may be present in this assemblage but are semi-cryptic, extending only the arms from a crevice.

2 Arm Postures in Living Crinoids

Charles G.Messing

This section provides an overview of a newly proposed classification of arm postures for crinoids both living and extinct (Messing et al., in review) for the online, revised crinoid volume of the *Treatise on Invertebrate Paleontology*. The order of posture types in the video follows the submitted article, which includes many still images in color and black and white, as well as line drawings. The