

# Dense Populations of Benthopelagic Hydromedusae Found in Deep Water Off Anvers Island, Western Antarctic Peninsula



Michelle E. Deal

Faculty Advisor: Dr. Aronson, Dept. of Biological Sciences, Florida Institute of Technology



## Abstract

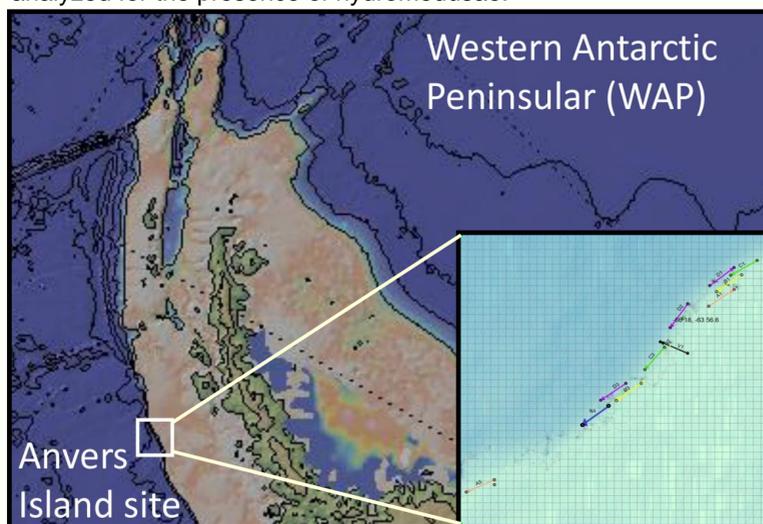
Scant data are available on the abundance and distribution of benthopelagic hydromedusae in Antarctic waters. A photographic survey of the sea floor off Anvers Island, western Antarctic Peninsula (WAP) was conducted during November–December 2013. Our survey encompassed the slope and shelf environment from approximately 400–2050 m depth within a 100 km by a 100 km study area. I describe the distribution and abundance of dense populations of hydromedusae in the deep water off the WAP. The data provide a record of two hydromedusae genera present in a largely unstudied region of the world.

## Introduction

The Antarctic sea floor supports unique biological communities composed of endemic taxa. Many locations around the continent have not previously been investigated<sup>1</sup>. The objective of this study was to identify hydromedusae associated with the benthos off Anvers Island, western Antarctic Peninsula (WAP).

## Methods

SeaSled, a towed camera-vehicle operated by the Woods Hole Oceanographic Institution, was used to photograph the sea floor in a depth-range of 400–2050 m off Anvers Island, WAP. SeaSled was towed ~3 m above the sea floor along 11 independent transects (Fig. 1). A total of 36,434 images covering 147,000 m<sup>2</sup> were analyzed for the presence of hydromedusae.

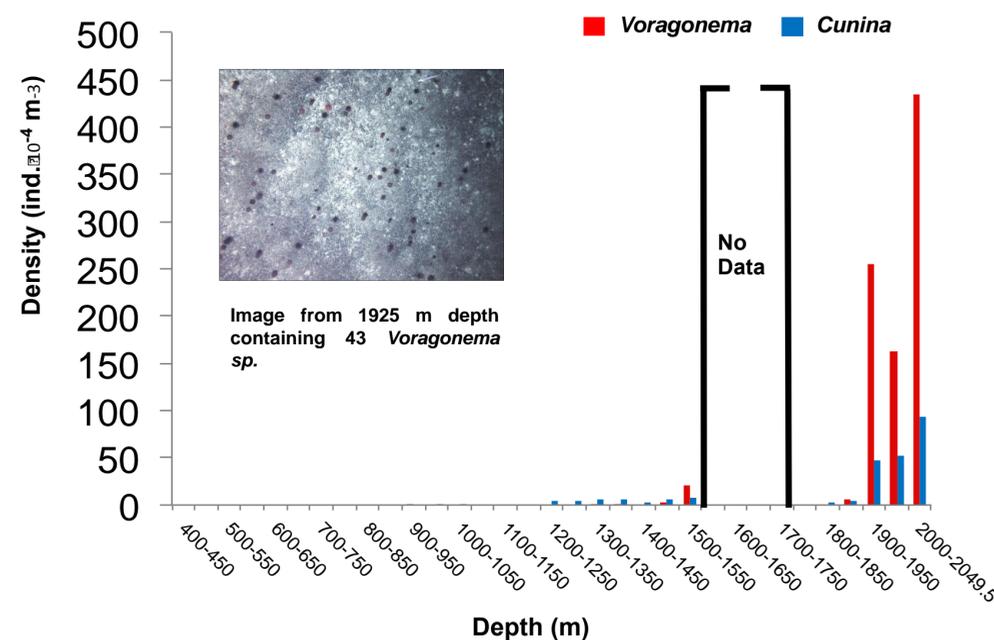


**Figure 1:** Map of western Antarctic Peninsula with the study site, Anvers Island, boxed in white and shown in insert. Transects are marked in the insert. Transects averaged 8 km in length.



**Figure 2:** Top left: oral view of *Cunina* sp. at 1980 m. depth Top right: aboral view of *Cunina* sp. at 1926 m. Bottom left: aboral view of *Voragonema* sp. at 1997 m. Bottom right: aboral view of *Voragonema* sp. at 1988 m.

## Depth distribution of hydromedusae



**Figure 3:** Densities of *Voragonema* and *Cunina* spp. off Anvers Island, WAP. Densities are calculated for 50-m depth-bins. No data were available between 1500–1750 m depth.

## Results

Two genera of hydromedusae were identified in the images: *Cunina* and *Voragonema* (Fig. 2). The individuals could not be identified to species level.

All hydromedusae were observed to be on or near the sea floor. Densities were highest in the deepest water, peaking at 2000–2050 m. A total of 2,929 hydromedusae were identified, of which 2,337 were *Voragonema* and 592 were *Cunina* (Fig. 3).

## Discussion

Dense populations of hydromedusae were discovered at depths greater than 1900 m off the WAP. In a previous study, *Voragonema laciniata* and *V. naumov* were collected in the Weddell Sea at depths of 1583–2034 m<sup>2</sup>. Ours is the first record of the genus *Cunina* from the Southern Ocean.

The abundance of gelatinous zooplankton is dependent on flow patterns, availability of food resources, temperature, oxygen, seasonality, abundance of predators, and disturbance regime<sup>3,4</sup>. This study is part of an effort to establish a baseline of hydromedusae populations for future comparisons.

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