Observations on the epipelagic gelatinous fauna of McMurdo Sound

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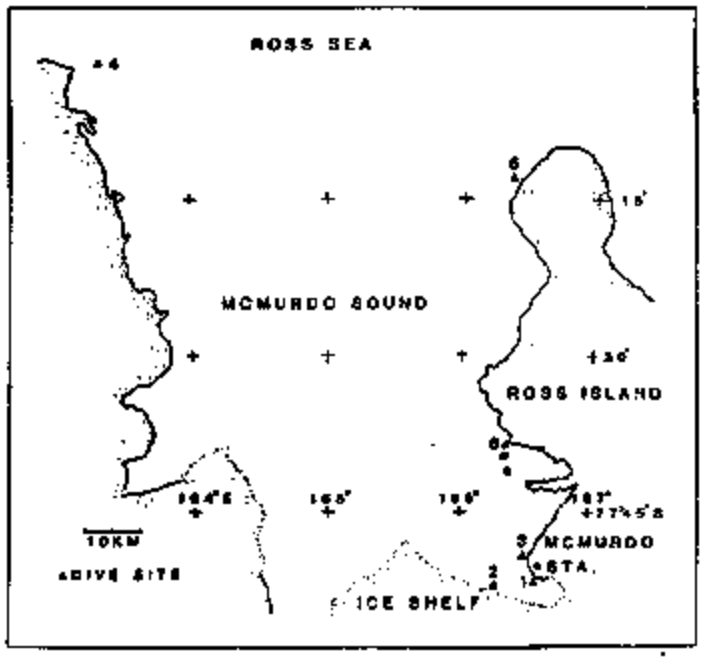
During the 1987–1988 field season, we made 19 dives at six different locations (figure), to assess the abundance of gelatinous zooplankton, as well as to determine the best dive locations for the 1988–1989 season. These initial results indicated that dive sites near the ice edge or in open water were far superior for our work than those well back under the ice cover. Most of our dives (16) were made at these latter locations (figure, sites 1, 2, and 3). While the diversity of gelatinous animals was as great as these sites as at the other three sites in open water or near the ice edge (table), the major problem with sites 1, 2, and 3 was the low density of animals in the water column.

Even though we made only one dive at each of the other three sites, the contrast was striking. At Cape Roberts (site 4), we dove through a permanent crack caused by glacial stress. In comparison with sites 1, 2, and 3, this site seemed lush—we collected 11 different taxa that we were interested in, including *Leuckartiara rossi* n.sp. (Larson in press) and a new genus and species of cydippid ctenophore. There were great numbers of *Limacina helicina*, which were being preyed upon by numerous *Solmundella bitentaculata*, as well as by *Clione ant-*



Dive sites.

Specimens of gelatinous zooplankton collected or seen at our six dive sites. We made seven dives at site 1, three dives at site 2, six dives at site 3, and one dive at each of the other three sites. For comparison the average number of these taxa we saw per dive was 4.4 at site 1, 2.6 at site 2, and 4.6 at site 3. A plus sign (+) indicates that the animals were present, and a double plus (+ +) indicates that they were abundant.

Taxon	Dive sites					
	1	2	3	4	5	6
Medusae						
Diplulmaris antarctica	+	+	+		+	+ +
Koellikerina massi	+					
Mitrocomella frigida				+		+
Solmundella bitentaculata	+		+	+ +		+ +
Leuckartiara rossi n.sp.	+		+	+		+ +
Hyalinocodon suberebus n.gen.n.sp.	+					
Siphonophora						
Diphyes antarctica		+				+
Bargmannia sp.	+		+	+		+
Amphicaryon sp.				+		
Ctenophora						
Beroe cucumis	+		+		+	
Callianira cristata					+ +	+
Dryodora glandiformis?			+			+
Cydippid n.gen.n.sp.				+		+ +
Mollusca						
Limacina helicina	+	+	+	+ +	+	+ +
Clione antarctica		+	+	+	+	+
Limacosphaera sp.	+		+	+		
Salpidae						
Salpa thompsoni						–

arctica; however, the Cape Roberts site seemed sparse in comparison with the two other sites, Cape Bird (site 5) and Inaccessible Island (site 6). At Cape Bird, which was ice-free, *L. helicina, C. antarctica, Beroe cucumis,* and *Callianira cristata* (= *antarctica?*) were extremely abundant. The culmination of our stay in McMurdo came, however, at site 6. This site was about 100 meters back from the ice edge. The following large gelatinous organisms were abundant: *L. helictna; C. antarctica; S. bitentaculata; D. antarctica;* the new cydippid collected at Cape Roberts; *Callianira cristata;* and *Salpa thompsoni.* Further, an unidentified physonect siphonophore was abundant here, as well as the ice fishes, *Pagothenia borchgrevinki* and *Trematomus bernacchii.* As one might expect, this was the last dive of our trip.

The main objective of our first trip was to determine the best way to study the gelatinous zooplankton of the Ross Island area, and we feel that this was accomplished. It is apparent to us that open water or the ice edge are the best places to collect gelatinous zooplankton. Because we had our laboratory close to McMurdo Station, we had to make long trips to and from all of our dive sites except for site 1. This made working in McMurdo much more difficult than working off a ship. This coming season, we plan to work out of a field camp, so as to minimize travel time from dive site to laboratory.

The results of our first trip were encouraging. One paper has been submitted (Larson, in press), and another is in final draft form (Janssen and Harbison, in preparation). The second paper deals with a previously unrecorded association between the hyperiid amphipod, *Hyperiella dilatata,* and the scyphomedusa, *Diplulmaris antarctica.* It appears that this association provides a refuge (for certain size classes) from predation by *P. borchgrevinki.* This amphipod can constitute a major part of the stomach contents of the fish (Foster, Cargill, and Montgomery 1987). Work is continuing on the description of the new cydippid ctenophore. More data is needed before work on any other papers can be completed.

This research was supported by National Science Foundation grant DPP 86-13388.

References

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Larson, R.J. In press. Two new hydromedusae from the Ross Sea. *Polar Biology.*