

## The first specimens of Humboldt squid in British Columbia

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*A scuba diver for more than 45 years and a certified diving instructor since 1971, James Cosgrove has long been interested in the plants and animals of the ocean. For 30 years he served as the Diving Safety Officer at the University of Victoria (UVic) and is a founding member of the Canadian Association for Underwater Science. Jim remains an external member of the UVic Diving Control Board. After obtaining Bachelor and Master of Science degrees (Marine Biology), he worked for 10 years in the Biology Department of a community college before moving, in 1987, to a new position at the Royal British Columbia Museum, where he is currently working as the Manager of the Natural History Section. He supervises a staff of 12 who research and care for more than half a million specimens. As a scientist, Jim continues his research into the life histories of the octopuses and squids of British Columbia.*



It all began, as these things often do, with an e-mail from a colleague. “Jim, are you getting reports of strange squid in British Columbia? Albacore fishers in Washington and Oregon are reporting finding hundreds of large squid mixed in with the schools of albacore.” A quick check with local Fisheries and Oceans staff did not reveal any sighting of these strange squid in British Columbia waters.

Several weeks later, I received another e-mail with photos of the strange squid. From the photos it was clear that this squid was *Dosidicus gigas*, the Humboldt or jumbo flying squid. Two things were very unusual about this find. One, Humboldt squid seldom come farther north than central California, and this picture was taken near Sitka, Alaska. Two, if there were Humboldt squid in Alaska there were sure to be Humboldt squid in British Columbia, too.

Within a couple of days, the Royal British Columbia Museum (RBCM) received a phone call from a local fisher saying that he had a large squid caught while salmon fishing off the entrance to Juan de Fuca Strait. It was anticipated that it was probably a specimen of *Dosidicus*, however it could have been *Moroteuthis* or *Ommastrephes*, both large squid known to be in waters of British Columbia. It turned out that my anticipation was correct, and we received our first Humboldt squid specimen and the first documented specimen ever retained in British Columbia (Photo 1).

The specimen was in good condition having only a couple of cuts from the fishing line and having lost one eye to a hook on the fishing gear. Easily identified by its size, broad fins and hole-saw-like rims on its suckers, the Humboldt squid has a unique pattern on the tentacular suckers (Photo 2).



*Photo 1. Senior Collection Manager Kelly Sendall with the RBCM's first Humboldt squid specimen.*



Photo 2. Note the toothed rims on the suckers to hold captured prey.

The media were notified of this large addition to the RBCM collection, and a Times Colonist reporter did a story on the find. To everyone's surprise, the interest in this specimen generated a number of other requests to see the specimen and to interview RBCM staff. Three of the reports (1 from Alaska and 2 from British Columbia) stated having seen Humboldt squid in previous years, and 1997/98 was the most common time. Of interest is the fact that the northeastern Pacific was experiencing an El Niño at the time.

The Times Colonist article also went worldwide and generated a number of new reports (7 from Alaska, 2 from Washington State and 9 from British Columbia) of encounters with the squid. The article also resulted in the RBCM receiving an additional 7 specimens, including 4 from the Canadian Coast Guard Ship *W.E. Ricker*. The Chief Scientist, Dr. Marc Trudel, noted that 10 specimens were captured at one time, but only 4 were retained. Some fishers reported having seen "hundreds" of squid at a time, and one reported steaming through thousands of squid lying on the surface at night.

The RBCM also received a document from Mr. Frank Whitney of the Ocean Chemistry Section of the Institute of Ocean Sciences (Fisheries & Oceans Canada), showing that this year the ocean waters in British Columbia and Alaska were the warmest ever surveyed, reaching 18.9°C at one site.

In Figure 1, surface temperature along Line P in August 2004 is compared to the 3 previously warmest years (late summers of 1994, 1997 and 1998). Warmest waters this August were seen between 127°W and 134°W. Temperature anomalies (Fig. 2; computed by Marie Robert) show that surface waters were as much as 4°C above the 1959-1991 average for August.

All through October and early November, sightings were reported and specimens were caught up and down the coast. There were also mass strandings, estimated in the thousands of animals, of Humboldt squid in Oregon and Washington.

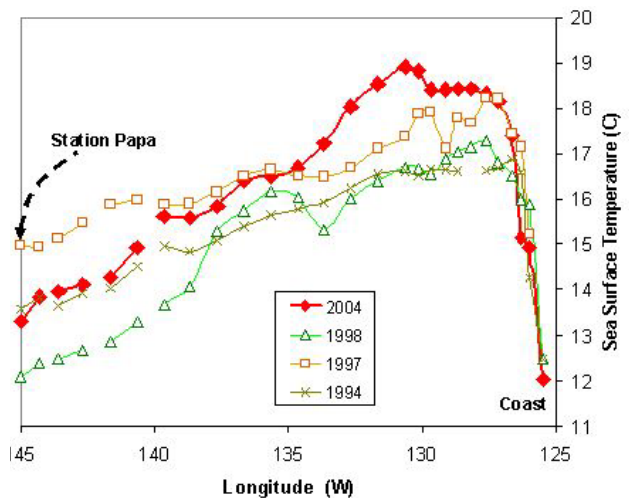


Fig. 1 SST along Line P during the warmest years of the 1990s and in August 2004.

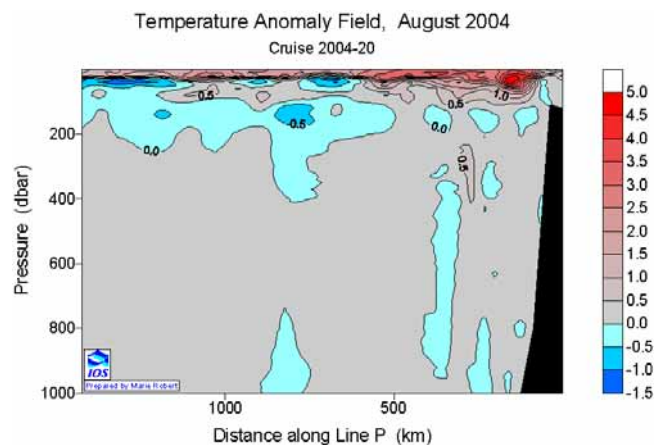


Fig. 2 Temperature anomalies along Line P in August 2004 (courtesy, M. Robert).

What was the cause of this influx of these large predators? While it is yet to be proven, there does appear to be a relationship between the unusually warm surface water and the large number of Humboldt squid reported. Will these animals return next year with the predicted El Niño? Time will tell.