

present in the 1970s survey, but many of the technical advances that could be applied in the 1999–2000 survey were not available 30 years ago. The 1970s estimate of around 800 000 crabeater seals may therefore be biased. Even if we allow for bias, there is no strong evidence in support of the four-fold increase from the 1970s to 2000 that is predicted by the krill surplus hypothesis.

And what of the predicted circumpolar population of 50 million crabeater seals in 2000? Testing this prediction must await the analysis of data collected by the other nations who participated in APIS. However, with only one million or so seals estimated to be in a zone covering one-quarter of the circumpolar region, it seems hard to imagine another 49 million in the remaining three-quarters!

After 25 years of discussion and speculation about the

possible impact of a krill surplus, there is finally some evidence to examine whether the predictions can be substantiated. The results of the Australian APIS survey suggest that we may need to re-assess the krill surplus hypothesis and, more broadly, our understanding of the structure of the krill-based ecosystem in the Southern Ocean.

Improved modelling of the krill-based ecosystem is now a priority activity for scientists working within both the International Whaling Commission and the Convention for the Conservation of Antarctic Marine Resources. The results from the APIS surveys will be pivotal to these modelling efforts.

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Massive icebergs on the move

Massive icebergs that calved during 2000–2002 are now spread around the Antarctic coastline. Of these, B22 remains within a few kilometres of its source – the Thwaites Glacier. Of the bergs that calved from Ronne Ice Shelf in March 2000 (A42 and A43), small sections of A43 remain in the Weddell Sea, while the others have drifted out into the South Atlantic and dissipated.

Iceberg B15 created a lot of interest when one of its progeny, B15A, drifted west across the front of Ross Ice Shelf, ultimately blocking the entrance to McMurdo Sound, affecting wildlife in the area and hindering shipping movements (see figure). During 2004 another two sections (B15J and B15K) broke off B15A, allowing its northern end to clear Franklin Island and swing into the northern part of McMurdo Sound. Here it became temporarily grounded, blocking movement of sea ice out of the sound. Some months later it began moving slowly north, giving a glancing blow to the outer end of the Drygalski Ice Tongue and then almost colliding with the Aviator Glacier Tongue. On October 28 2005, as B15A was exiting the Ross Sea round Cape Adare,

it broke into several more sections. The list of progeny now extends to B15N.

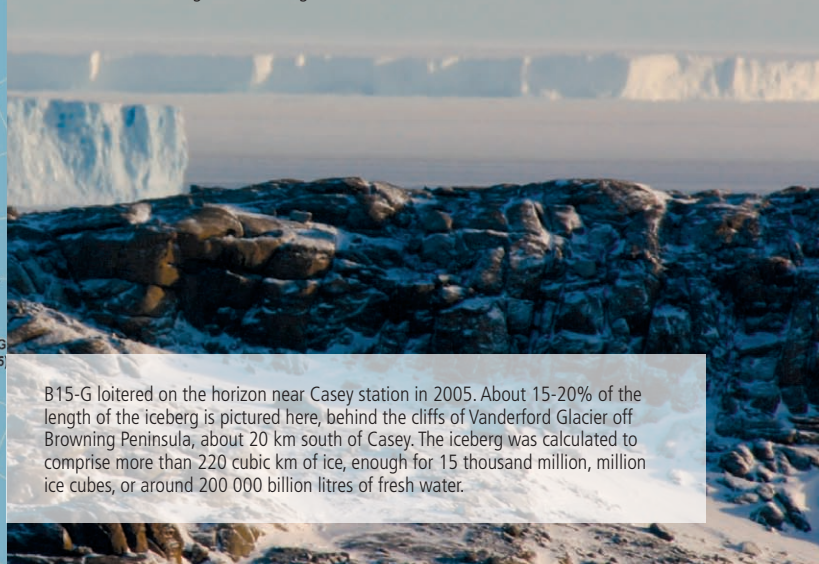
Almost all of the massive icebergs coming from Ross Ice Shelf have drifted westwards out of the Ross Sea and onto the continental shelf east of the Mertz Glacier, where they have been either grounded or locked in by fast ice (sea ice that is joined to the coast, islands, or grounded icebergs) for some time. B9B, which calved in 1987 is still there. B15D is now off Dronning Maud Land, a half circumnavigation from its calving site. B15G followed, but then drifted into the coast near Casey station, where it became grounded for some weeks and made a prominent sight on Casey station's horizon. It is now adjacent to the Shackleton Ice Shelf. B15B, which is now the largest of the B15 progeny, as of November 2005, is passing just north of Law Dome.

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Movement of icebergs since calving.



B15-G loitered on the horizon near Casey station in 2005. About 15–20% of the length of the iceberg is pictured here, behind the cliffs of Vanderford Glacier off Browning Peninsula, about 20 km south of Casey. The iceberg was calculated to comprise more than 220 cubic km of ice, enough for 15 thousand million, million ice cubes, or around 200 000 billion litres of fresh water.