

Ceridwen Fraser

Australian National University, Australia

Breaking down the barrier: biological dispersal to the Antarctic

Ceridwen Fraser [1], Adele Morrison [1], Andrew Hogg [1], Erasmo Macaya [2], Jonathan Waters [3]

[1] Australian National University, Canberra, Australia; [2] Laboratorio de Estudios Algales / ALGALAB, Departamento de Oceanografía, Universidad de Concepción, Concepción, Chile; [3] University of Otago, Dunedin, New Zealand

Antarctica has long been considered to be biologically isolated. Indeed, many Antarctic organisms are endemic, found nowhere else on the planet, and many have probably remained and evolved in the Antarctic for millions of years. Yet molecular studies are starting to show some post-Gondwanan biological connections between Antarctica and other parts of the world, suggesting that – at least occasionally – movement into and out of Antarctica has occurred. Recent observations of floating marine organisms drifting on either side of the Antarctic Polar Front also challenge the assumption that the Southern Ocean is an impassable barrier to dispersal.

In this talk, I will present evidence that Antarctica is not biologically isolated – that organisms can, and frequently do, cross the Southern Ocean and reach Antarctica. The unique ecosystems of Antarctica are therefore probably more a consequence of environmental extremes in the region than of isolation. With global warming, we should expect to see successful establishment of numerous non-Antarctic species, even without human-mediated transport of organisms to the region.