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Sommario/riassunto	Animals living in the Southern Ocean have evolved in a singular environment. It shares many of its attributes with the high Arctic, namely low, stable temperatures, the pervading effect of ice in its many forms and extreme seasonality of light and phytoplankton productivity. Antarctica is, however, the most isolated continent on Earth and is the

only one that lacks a continental shelf connection with another continent. This isolation, along with the many millions of years that these conditions have existed, has produced a fauna that is both diverse, with around 17,000 marine invertebrate species living there, and has the highest proportions of endemic species of any continent. The reasons for this are discussed. The isolation, history and unusual environmental conditions have resulted in the fauna producing a range and scale of adaptations to low temperature and seasonality that are unique. The best known such adaptations include channichthyid icefish that lack haemoglobin and transport oxygen around their bodies only in solution, or the absence, in some species, of what was only 20 years ago termed the universal heat shock response.

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