No barrier to emergence of bathyal king crabs on the Antarctic shelf

Significance For tens of millions of years, cold conditions have excluded shell-crushing fish and crustaceans from the continental shelf surrounding Antarctica. Rapid warming is now allowing predatory crustaceans to return. Our study of the continental slope off the western Antarctic Peninsula showed that abundant, predatory king crabs comprise a reproductively viable population at 841- to 2,266-m depth. Depth profiles of temperature, salinity, habitat structure, food availability, and predators indicate that there are no barriers to prevent king crabs from moving upward onto the outer shelf at 400–550 m. A cold-water barrier above 200 m could be breached within the next few decades. Emergence of king crabs on the shelf could have catastrophic consequences for the unique seafloor communities of Antarctica.

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