

A modern-day unpinning of the Ross Ice Shelf from Ross Bank

Philip J. Bart¹, Matthew DeCesare¹, Brad E. Rosenheim², Jack Cadigan¹, Austin J. McGlannan¹

¹Department of Geology & Geophysics, Louisiana State University, Baton Rouge, La 70803;

pbart@lsu.edu

²College of Marine Science, University of South Florida, St. Petersburg, FL 33701, USA.

Abstract

Islands and submarine banks stabilize and buttress the offshore flow of Antarctic ice shelves. The Ross Ice Shelf fronts the West Antarctic Ice Sheet in Ross Sea. Its modern calving front is pinned in two places, Ross Island (on its western side) and Roosevelt Island (on its eastern side). Seafloor photographs and video show that the crest of Ross Bank (in central Ross Sea, ~100 km north of the modern calving front) is covered by a thin sediment layer that is densely inhabited by benthos. A box core recovered abundant calcareous fossil foraminifera and bivalves from the bank crest. Here we present fourteen radiocarbon dates to propose that the Ross Ice Shelf unpinned from Ross Bank within the last 600 (calibrated) years BP.