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OZONE DEPLETION INHIBITS NATURAL ANTARCTIC PHYTOPLANKTON BLOOMS

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Satellite data was used to examine the effect of ozone depletion on chlorophyll concentrations ([chl]) over approximately 10^6 km^2 contained in five regions around the East Antarctic coast between 1997 and 2000. Results showed a threshold stratospheric ozone concentration of 300 Dobson Units (DU), below which enhanced UVBR reduced the seasonal accumulation of [chl] by around 60%. Previous studies suggest Antarctic phytoplankton are inhibited around 6% by ozone depletion but, crucially, have neglected the cumulative effect of UV-induced inhibition of successive generations. Such marked inhibition would have profound ramifications for productivity, trophodynamics and biogeochemistry in Antarctic waters.