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Chronology of the last glaciation of the British-Irish Ice Sheet

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Over fifty AMS ^{14}C ages, 20 ^{10}Be ages, and 23 ^{36}Cl dates from four of the major ice marginal sectors of the British-Irish Ice Sheet (NW Ireland, W Ireland, Irish Sea Basin and E Scotland) provide constraints on the timing of the last glaciation. Most ^{14}C ages are based on monospecific samples of the foraminfera *E. clavatum* representing *in situ* biocoenoses obtained from marine muds deposited at the periphery of the ice sheet during both growth and decay phases. Cosmogenic ages on glacial boulders are primarily associated with prominent glacial moraine sequences. Our data provides a robust means to date glacial events because similar-age events can be identified from widely spaced sites, they are consistent with stratigraphy, and they can be related to large basal and areal changes in the configuration of a dynamic ice sheet. The following events are recognised. (1) In western Ireland, glacigenic and marine sediments record a major ice sheet advance onto and retreat from the continental shelf around 23.5 ^{14}C kyr BP. Earlier high relative sea levels up to 80m asl are recorded by shells with ages as old as 39.5 ^{14}C kyr BP in basal till. These data suggest substantial loading by stage 3 ice in western Ireland. (2) ^{14}C and ^{36}Cl ages from western Ireland, southern Ireland and eastern Scotland record early deglaciation $\sim$21-22 cal ka. (3) In the Irish Sea Basin (ISB), stratified diamict formed during early deglaciation is channelled corresponding to a sea level lowstand. These channels are infilled with fossiliferous marine mud recording a rapid eustatic $\sim$19.0 cal ka. (4) In the ISB, glacial till containing fossiliferous mud records a readvance of ice between 15.5 and 16 ^{14}C kyr BP. (5) Subsequent deglaciation from the ISB and NW Ireland occurred $\sim$18.5-19.0 cal ka. (6) The Killard Point Readvance occurred at 14 ^{14}C kyr BP. (7) Final deglaciation of the northern ISB, western and northwestern Ireland, and eastern Scotland $\sim$14.5 cal ka. In Ireland stagnation zone retreat occurred because no marked deglacial events

followed the collapse of the ice sheet. (8) Readvance of cirque glaciers in western Ireland occurred during the Younger Dryas.