Radocarbon dating of Baltic Sea sediments

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Dating of Baltic Sea sediments have traditionally been done by radiocarbon (^{14}C) . They should preferably be performed on terrestrial macrofossils to avoid the marine reservoir effect and the error introduced by "old" carbon being resuspended from the shores present in the sedimentary system. In the open Baltic Sea, however, are terrestrial macrofossils rare and the only datable material is often the sediment itself. This raises a problem as it has been shown on several occasions that the sediment gives ages older ages than fossils and other time markers from the dated levels in the sediment sequence.

Within the presently running project UPPBASER (Understanding Past and Present Baltic Sea Ecosystem Response) we have sampled sites in the archipelago in the western Baltic Sea between Norrköping and Stockholm on the Swedish eastcoast. The sediment sequences from several of the sites cored contains both marine and terrestrial macrofossils which have been dated. We have also dated the sediment itself from the same coredepths and the mean difference between the two types of material is 730 ± 50 cal yr BP. In this presentation we will demonstrate and discuss the entire material dated and the possible explanation for the difference in age between the two types of material with special emphasis on changing sedimentary environment over time.