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## Assessment of terrigenous organic carbon input to the total organic carbon in sediments from Scottish transitional waters (sea lochs): methodology and preliminary results

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**Abstract.** This paper addresses the assessment of terrestrially derived organic carbon in sediments from two Scottish sea lochs. The results illustrate a smooth decrease in area-specific sediment oxygen uptake rates along a transect of six stations from the head of Loch Creran to the sea, from 18.7 mmol O<sub>2</sub>m<sup>-2</sup>d<sup>-1</sup> to 6.6 mmol O<sub>2</sub>m<sup>-2</sup>d<sup>-1</sup>. Measurement of the losses on ignition at two temperatures (250°C and 500°C) of the sediment fraction from 1–2 cm depth at the same stations enabled the proportion of weight loss that occurred over the high temperature range to be calculated. These show a smooth increase from 0.33 to 0.62. These observations indicate that (a) the amount of easily biodegradable organic material in the sediment decreases by two-thirds along the transect and (b) the proportion of refractory organic material in the sediment increases along the same transect. This suggests strongly that terrigenous organic material, brought down by the River Creran is a very important fuel for sediment diagenetic processes in this system. Preliminary analyses of the lignin composition of the same sediments indicate the predominance of non-woody gymnosperm tissue. Lignin is used as a proxy for terrigenous allochthonous material. Comparative data for Loch Etive are also presented.

**Keywords:** sedimentary organic carbon, Loch Creran, Loch Etive, oxygen uptake, lignin analysis

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