Supplementary Material

The importance of the soluble and colloidal pools for trace metal cycling in deep-sea pore waters

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**Supplementary Figure S1:** Solid-phase Mn for the German area, the German No Nodule area, and the Belgian area for selected cores. Manganese concentrations are highest in the German area, lower in the surface sediments of the No Nodule area and overall lower in the Belgian area. The peak at 3 cm in the Belgian area suggests the presence of micronodules, leading to the substantially higher Mn content locally.

**Solid-phase analyses**

Solid-phase analyses of Mn were performed on digestion solutions (for details see Paul et al., 2018) of 50 mg freeze-dried, homogenized sediments from which pore water had been extracted by centrifuging. The sampling procedures are described in the main text. Manganese was analyzed at Jacobs University Bremen (now Constructor University) using inductively coupled plasma optical emission spectrometry (ICPOES, SpectroCiros Vision Side On Plasma instrument). To check analytical accuracy and precision, the certified reference materials BHVO-2 (USGS) and MESS-4 (NRC) were digested and analyzed with the samples (Table S1).

Supplementary Table S1: Information on limit of quantification (LOQ), accuracy, and precision for Mn solid-phase analyses. n=5 digested samples, averages from multiple measurements per ICP-OES run taken for the calculations, if the digested sample was measure more than once.

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|  | **LOQa** **[mg/kg]** | **MESS-4 reference** | **MESS-4 measured** | **BHVO-2 reference** | **BHVO-2 measured** |
| **Mn** | 21-97 | 298±14 | 286±12 | 1290±40 | 1364±43 |

a10 x standard deviation of acid blank per ICP-OES run