High resolution carbon stock and soil data for three salt marshes along the northeastern coast of North America

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Abstract

The data presented here includes a table of soils measurements taken at high resolution depth intervals (5 cm) for three salt marshes, two along the New Brunswick coast of Canada and one on the southern coast of Maine, USA. The data includes a table which includes the bulk density, percent organic matter, percent organic carbon, carbon stock, and rhizome dominance (if identifiable) at 5 cm depth intervals for each soil core. Shapefiles are also included which indicates the GPS position of acquired cores and sites where marsh depth was measured but no material was recovered. These shapefiles also include marsh peat depth and estimates of carbon stock for each point. For further information and interpretation of the included data please see the companion research article titled “The Importance of Geomorphic Context for Estimating the Carbon Stock of Salt Marshes” [1].

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Table 1

Location of sample sites.

| Marsh location/name        | Latitude   | Longitude  |
|---------------------------|------------|-----------|
| Wells Marsh, ME, USA      | 43°18'58" N | 70°34'15" W |
| Grants Beach, NB, Canada  | 46°10'21" N | 64°3'32" W  |
| Point Carron, NB, Canada  | 47°39'03" N | 65°36'44" W |
species; they collectively sum to 100 for each subsection. Percent organic matter is expressed as a proportion (0–1) of the dry mass of each subsection. All other data in the table is represented in the units indicated in the column name. Corers used to collect the data include 25 and 60 mm gauge corers, indicated in the table as “25 mm” and “60 mm” respectively, and two similar Russian peat corers “T-Russian” and “G-Russian” respectively.

The included shapefiles contain the GPS positions of acquired cores and sites where marsh depth was measured but no material was recovered. These shapefile attribute tables contain marsh peat depth and estimates of carbon stock for each point, and well as the relevant core name. Core names which do not have an analogue in the core data table are sites where only depth was measured. The shapefile for Wells has been split into two sections, with one containing all the data points in the marsh interior while the other contains the points on a small back barrier section.

2. Experimental design, materials and methods

Full detail of the core collection and processing procedures are described in the associated research article [1]. Cores were collected along transects from the upland to the seaward edge of the marshes and vegetation was recorded within an ~ 0.5 m radius around each site where a core was collected, or depth recorded. Locations of each sample site was recorded using a Lecia Viva differential GPS.

Soil cores were extracted using a variety of hand corers, with additional soil depths determined using either an aluminum probe rod (Wells only) or via the use of the corers. Cores were packed, placed on ice in the field and stored at 4 °C once returned to the field base and lab. All sites were cored until refusal. 46 soil cores were collected, and 157 further soil depths were recorded.

Cores were processed in 5 cm depth intervals, excepting the top 50 cm, which were done at 1 cm depth intervals for a separate project. All sections were dried until no mass was lost between daily measurements and the soil bulk density was calculated from the mass of the dried sections and their initial wet volume. Percent organic matter was determined through loss on ignition (LOI) of ground samples. Percent organic carbon was calculated from LOI using a conversion equation for salt marsh soils developed by Craft et al. [3], from which the carbon density was determined for each sample by multiplying the bulk density by the organic carbon fraction. The carbon density of the 1 cm depth intervals was averaged into 5 cm subsections as displayed in the data.

Acknowledgements

This work was supported financially through a grant from Natural Resources Canada (540007-000) to SJ, a Natural Sciences and Engineering Research Council of Canada (NSERC) Discovery Grant to GLC (105665-13), a grant from the Commission for Environmental Cooperation (241. 00334. 037.) to GLC and DB, and an NSERC fellowship to LBvA. We appreciate the cooperation of Mr. Jobst Wagner who permitted our research on the privately-owned Grants Beach marsh. We thank to Wells National Estuarine Research Reserve for allowing field work there.

Transparency document. Supplementary material

The Transparency document associated with this article can be found in the online version at https://doi.org/10.1016/j.dib.2018.07.037.

Appendix A. Supplementary material

Supplementary data associated with this article can be found in the online version at https://doi.org/10.1016/j.dib.2018.07.037.
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