

Project	Blue carbon audit of Scottish saltmarsh soils
Funding	The Scottish Blue Carbon Forum (Scottish Government)
Staff Responsible	Craig Smeaton
Research Team	<ol style="list-style-type: none"> 1. Craig Smeaton (University of St Andrews) 2. Lucy C. Miller (University of St Andrews) 3. Simone Riegel (University of St Andrews) 4. Paulina Ruranska (University of St Andrews) 5. William E.N. Austin (University of St Andrews/Scottish Association of Marine Science)

Metadata Type	Details
Data Resource ID	Organic carbon density of surficial soils across Scottish saltmarshes.
Description of dataset	<p>Mapped organic carbon (OC) density of surficial soils across Scottish saltmarsh. The OC density (kg m^{-2}) for the surficial soils (top 10 cm) is mapped across Scottish saltmarshes identified in the Scottish Saltmarsh Survey (Haynes, 2016). Additionally, OC densities have been extrapolated for saltmarsh soils to a depth of 15cm for the purposes of comparison to United Kingdom terrestrial soil carbon inventories.</p> <p>The spatial maps are built upon surficial (top 10 cm) soil bulk density and carbon data produced by the NERC C-Side project (Ruranska et al., 2020) combined with existing saltmarsh vegetation maps (Haynes, 2016).</p>
Locations of the observations	Scotland: 238 Scottish saltmarshes identified in the Scottish Saltmarsh Survey (Haynes, 2016).
Location Descriptions	<p>Scotland</p> <p>60.923995, -9.412258 54.729659, -9.412258 60.923995, -0.381497 54.729659, -0.381497</p>
Names of the variables or	Organic Carbon Density (kg OC m^{-2}) for the top 10 and 15cm of saltmarsh soil.

parameters observed or simulated	
All procedures used to make observations or simulations (field/lab where applicable)	<p>OC densities were calculated for each class of saltmarsh vegetation found in Scotland. The OC content (% wt.) and dry bulk density (kg m^{-2}) for saltmarsh soils were provide by the NERC C-Side project (Ruranska et al., 2020). This data resource contains 471 data points from across 46 Scottish saltmarshes. A portion of these data points were assigned National Vegetation class (NVC) based on in person surveys. The points without NVC data were assigned classes based upon the Saltmarsh NVC mapping (Haynes, 2016). Following the standard methodology (Smeaton et al., 2020), saltmarsh C stocks and densities were calculated. The calculations were carried out within an Monte Carlo Markov Chain Framework (MCMC). MCMC analysis was applied by taking 1,000,000 out of 100,000,000 random samples from a normal distribution of each variable (OC content, Bulk density, etc.) to populate the stock calculations.</p> <p>The mean OC density of each NVC class was combined with the NVC mapping of Scottish saltmarshes (Haynes, 2016) to produce a bespoke GIS layer mapping the OC density across Scottish saltmarsh soils to a depth of 10 and 15 cm.</p> <p>Full details outlined in accompanying report.</p>
Calibration procedures, where applicable	NA
Statistical treatment of the observations or simulations	NA
Data checking procedures (quality control)	NA
File formats used	.Shp .lyr .lpk
Other information	Spatial projection: OSGB 1936 Software: ESRI ArcGIS, OpenBugs
References	Haynes, T.A. (2016). Scottish saltmarsh survey national report. Scottish

	<p>Natural Heritage Commissioned Report No. 786.</p> <p>Ruranska, P.; Miller, L.C.; Hindle, C.; Ladd, C.J.T.; Smeaton, C.; Skov, M.W.; Austin, W.E.N. (2020). Dry bulk density, loss on ignition and organic carbon content of surficial soils from Scottish salt marshes, 2018-2019. NERC Environmental Information Data Centre. https://doi.org/10.5285/81a1301f-e5e2-44f9-afe0-0ea5bb08010f</p> <p>Smeaton, C., Barlow, N.L. and Austin W.E.N., (2020). Coring and compaction: Best practice in blue carbon stock and burial estimations. <i>Geoderma</i>, 364. https://doi.org/10.1016/j.geoderma.2020.114180</p>
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