Project	Sources, Sinks and Subsidies: Understanding Sedimentary Carbon Across Scotland's Coastal Seas
Funding	Scottish Blue Carbon Forum
Staff Responsible	Craig Smeaton
Research Team	Craig Smeaton (University of St Andrews) Corralie A. Hunt (University of St Andrews) William R. Turrell (Marine Scotland) William E.N. Austin (University of St Andrews/Scottish Association of Marine Science)

Metadata Type	**Details**
Data Resource ID	Organic and inorganic carbon content of surficial sediments within Scottish adjacent waters.
Description of dataset	Organic and inorganic carbon content of 886 surficial (top 10cm) sediment samples from across Scottish adjacent waters.
Locations of the observations	Scottish Adjacent Waters Geographic Extent: 60.987999, -8.335598 60.987999, 1.903659 54.628029, -8.335598 54.628029, 1.903659
Location Descriptions	Sample were collected across the Scottish portion of the UK EEZ with the aim of understanding the organic carbon and inorganic content across differing sediment types and oceanographic conditions.
Names of the variables or parameters observed or simulated	Sediment type based upon the Folk Classification Organic carbon content (%) Inorganic Carbon content (%)

All procedures used to make observations or simulations (field/lab where applicable)	**Sampling:** Archival surficial sediment samples were acquired from the British Geological Survey (BGS) sample repository (Keyworth, UK). A total of 379 UKHO samples were obtained from 18 surveys conducted since 2005 from across the Scottish sector of the UK EEZ. Sample collection was exclusively undertaken using a Day grab. A further 101 samples were acquired from the BGS repository, collected during large scale BGS surveys throughout the 1970's and early 1980's. Samples were collected using a gravity corer. The remaining 406 samples were collected by the research team between 2009-2019 from a variety of vessel using a variety of methods (*detailed in data resource*) **Sediment Description:** The sediments were inspected upon collection by experienced marine geologists, and classified using the modified Folk Scheme (Folk, 1954, Kaskela et al., 2019). The classification scheme allowed the samples to be classified as one of 5, 7 or 16 differing sediment types, and the data is presented in all three forms (*Supplementary Table 1*). **Carbon Quantification:** The samples were freeze dried and milled to a fine powder. 50 mg of milled sample was placed in a crucible. The samples were analysed using an Elementar Soli TOC using the temperature gradient method (DIN 19539, Natali et al., 2020) of elemental analysis to quantify OC and IC from a single untreated sample. The Soli TOC ramped heated each sample at a rate of 70°C min^{-1} through sequential furnace temperatures of 400°C, 600°C and 900°C. The CO_2 evolved at the different temperatures represents the contribution of the various carbon fractions of the sample: 0-400°C Total Organic Carbon (TOC), 400-600°C Residual Oxidizable Carbon (ROC) and 600-900°C Total Inorganic Carbon (TIC). The amount of CO_2 produced from each of the temperature windows is measured by infrared spectrometry. For the purposes of this study, OC was calculated as the sum of TOC and ROC, while IC equals the TIC value.
Calibration procedures, where applicable	The Soli TOC was calibrated using Calcium Carbonate ($CaCO_3$) and Silty soil TOC/ROC/TIC standards (B2290).
Statistical treatment of the observations or simulations	NA
Data checking procedures (quality control)	All laboratory equipment were calibrated in accordance with the laboratory practises at the University of St Andrews Sediment type was determined through applying the classification method of Folk, (1954) and Kaskela et al., (2019). To assure the quality of these assessments experienced sediment geologists undertook the classification independently of one another with the combined result being reported.

File formats used	.csv
Other information	NA indicates no data in cells
References	DIN 19539: 2015-08, Investigation of solids Temperature dependent differentiation of Total Carbon (TOC400, ROC, TIC900). Folk, R.L., (1954). The distinction between grain size and mineral composition in sedimentary-rock nomenclature. *The Journal of Geology*, *62*(4), pp.344-359. Kaskela, A.M., Kotilainen, A.T., Alanen, U., Cooper, R., Green, S., Guinan, J., van Heteren, S., Kihlman, S., Van Lancker, V. and Stevenson, A., 2019. Picking up the pieces—harmonising and collating seabed substrate data for european maritime areas. *Geosciences*, *9*(2), p.84. Natali, C., Bianchini, G., & Carlino, P. (2020). Thermal stability of soil carbon pools: Inferences on soil nature and evolution. *Thermochimica Acta*, 683, 178478.

Dataset Description		
Header	**Description**	**Cell Format**
Survey	Survey/Cruise ID	Text
Sample_ID	Sample ID	Text
Year	Year of sample collection	Number
Research_vessel	Name of research vessel which conducted sampling	Text
Sampling_org	Organisation which conducted sampling	Text
Sample_archive_location	Location archived of physical samples	Text
Location	Description of sampling location	Text
Lat_dec_deg	Latitude reported in decimal degrees using the WGS84 projection	Number
Long_dec_deg	Longitude reported in decimal degrees using the WGS84 projection	Number
X_easting	Location reported as X (Easting)	Number
Y_northing	Location reported as Y (Northing)	Number
Sampling_depth_m	Water depth (m) at sampling site	Number
Sampling_method	Method of sample collection: Day Grab, Van Veen Grab, Gravity Corer, Sholkovitch Corer	Text
Folk_5	Sediment description based on the 5 folk classification (*see Supplementary Table 1*)	Text
Folk_7	Sediment description based on the 7 folk classification (*see Supplementary Table 1*)	Text
Folk_16	Sediment description based on the 16 folk classification (*see Supplementary Table 1*)	Text
OC_Perc	Organic carbon content (% wt.)	Number
IC_Perc	Inorganic carbon content (% wt.)	Number

Folk 5	**Folk 7**	**Folk 16**
Rock & Boulders	Rock & Boulders	Rock & Boulders
Coarse Sediment	Gravel	Gravel
	Coarse Sediment	sandy Gravel
		gravelly Sand
Mixed Sediment	Mixed Sediment	muddy Gravel
		muddy sandy Gravel
		gravelly Mud
		gravelly muddy Sand
Mud to muddy Sand	Mud	(gravelly) Mud
		Mud
	sandy Mud	(gravelly) sandy Mud
		sandy Mud
	muddy Sand	(gravelly) muddy Sand
		muddy Sand
Sand	Sand	(gravelly) Sand
		Sand

Supplementary Table 1. *Folk classification (Folk, 1954; Kaskela et al., 2019) of seabed sediments used to describe samples within this dataset.*