



Schedule of Works

University College Dublin: Seabed Survey and
Sampling in support of marine Blue Carbon Research

Schedule of Works

We propose to carry out survey work between 26/11/2024 - 04/12/2024 and 10/12/2024 -15/12/2024 onboard the *RV Tom Crean* with 24 hour operations, where possible, to maximise ship-time use. The main activities and equipment include:

- Day grab and coring equipment for sediment sampling;
- Deployment of Unisense MiniChamber Lander System;
- Hull-mounted multibeam echosounder (MBES), sub-bottom profiler and acoustic Doppler current profiler acquisition;

A Primary Study Areas (high-priority) for characterising soft sediments, quantifying carbon stock levels, assessing anthropogenic impacts on sediments has been identified from existing data (Figure 1).



Figure 1 Proposed Survey Areas

26/11/2024

- Mobilise in Cork

27/11/2024 – 03/12/2024

- Leave Port, to the first Primary Study Area south of Ireland.
- we propose a day schedule of deployment of the Unisense MiniChamber Lander System coupled with sediment sampling at targeted locations within the Primary Study Area. The deployment of the Unisense MiniLander System is expected to take approximately 4 hours at each site.
- We propose a night schedule of acquiring geophysical data at targeted locations. Starting in the evening this would include;
 - Perform SVP dip at site and undertake MMO activity
 - Regional and detailed MBES and pinger survey across the site, as dictated by site conditions (8 hours approximately overnight).

04/12/2024

- Transit home to Cork

- De-mobilise in Cork.

10/12/2024

- Mobilise in Cork

11/12/2024 – 14/12/2024

- Leave Port, to the first Primary Study Area south of Ireland.
- we propose a day schedule of deployment of the Unisense MiniChamber Lander System coupled with sediment sampling at targeted locations within the Primary Study Area. The deployment of the Unisense MiniLander System is expected to take approximately 4 hours at each site.
- We propose a night schedule of acquiring geophysical data at targeted locations. Starting in the evening this would include;
 - Perform SVP dip at site and undertake MMO activity
 - Regional and detailed MBES and pinger survey across the site, as dictated by site conditions (8 hours approximately overnight).

14/12/2024

- Transit home to Cork
- De-mobilise in Cork.

Equipment*MBES*

We propose using the EM2040 Multi-beam echosounder onboard the RV Tom Crean as it offers high-quality MBES data.

Sub-bottom Profiler

We propose using the Knudsen 3260, with Coda acquisition, onboard the RV Tom Crean

Sampling

We propose using the existing box corer, vibrocoreer, gravity corer and day grab sampling equipment available from the Marine Institute

Unisense MiniChamber Lander System

We will utilise the Unisense MiniChamber Lander System available from the Agri-Food and Biosciences Institute. The Unisense shallow water instruments can be deployed to up to 300 meters depth and can stay deployed for up to a month, depending on the temporal resolution of measurements. The instruments are controlled online via cables from a PC on a ship or run by an autonomous program until retrieved. The MiniChamber Lander is a lightweight unit for shallow water benthic chamber measurement of multiple parameters, including shallow water sediment chamber studies and measurements for O₂, H₂, N₂O, NO, pH, H₂S and Redox.

Acoustic Doppler Current Profiler

We propose to use the RDI Teledyne 4 Pinnacle ADCP that is drop keel mounted. This unit measures the absolute speed of water currents with sound waves (Doppler effect) at multiple depths within the water column. It emits acoustic pings at 45 kHz and can profile up to 1000 m water depth.

Sample Locations

ID	Operation	Lat	Long
1	Box Core	51.36626667	-6.16516667
2	Box Core	51.2417	-6.23428333
3	Box Core	51.21821667	-6.25385
4	Vibrocore	51.51855634	-6.93600462
5	Box Core	51.52781886	-6.49267086
6	Vibrocore	51.5275609	-6.08048438
7	Vibrocore	51.19299492	-6.68572137
8	Box Core	51.43185195	-6.95678419

9	Box Core	51.32406367	-6.95465543
10	Box Core	51.19891752	-6.94617822
11	Box Core	51.19227644	-6.45462628
12	Box Core	51.28054756	-6.77977414
13	Box Core	51.41330253	-6.71164495
14	Box Core	51.35556742	-6.52036112
15	Box Core	51.45373779	-6.23309177
16	Box Core	51.21147921	-6.13869181
17	Box Core	51.2311302	-6.2287845
18	Box Core	51.2726442	-6.2567265
19	Box Core	51.0493088	-6.3333786
20	Box Core	51.1374234	-6.5306184
21	Box Core	51.075069	-6.5780385
22	Box Core	51.40164941	-6.36824178
23	Box Core	51.16450365	-6.13960658
24	Box Core	51.13746727	-6.48195458
25	Box Core	51.1335819	-6.22774599
26	Box Core	51.05931019	-6.61826086
27	Box Core	51.13634761	-6.48506191
28	Box Core	51.16370856	-6.1427431
29	Box Core	51.40099528	-6.372013