
Robin Rigg Monitoring Windfarm Site Benthic Macro Invertebrate Data Report, July 2007

1. Introduction

In order to comply with Marine Environment Monitoring Programme (MEMP) and FEPA licence requirements for the construction of the Robin Rigg Offshore Wind Farm a benthic survey of the wind farm site was undertaken on 13th July 2007.

This survey was the first benthic survey of the wind farm site out of a biannual (twice per year) survey programme and represents a pre-construction survey of the site.

This technical note summarises the methodology and results of this survey. No data interpretation has been undertaken.

2. Method

A benthic survey of the Robin Rigg windfarm site for macro invertebrates was conducted using the fisheries patrol vessel *Solway Protector*. Six sampling stations were sampled within the wind farm site itself as well as 3 reference (control) sampling stations just outside the wind farm area. Locations of sampling stations are presented **Figure 1**. The sampling stations were selected at positions that were sampled during the original baseline survey for the EIA pre-construction in accordance with the requirements of the MEMP.

Samples were recovered using a 0.1m² Day grab. At each sampling station duplicate grab samples were collected. The exact time and location the grab was dropped was recorded using the vessel's Global Positioning System (GPS), while depth was measured using the vessel's sounder. Surface water salinity and temperature were measured using a portable probe¹ and turbidity was measured using a secchi disc.

After a visual assessment of sediment type was made each sample was sieved using a 1mm mesh and the material retained in the sieve was transferred to labelled sample bottles and preserved in 5% formaldehyde. A sediment sub-sample was taken for particle size (PSA) and Total Organic Carbon (TOC) analysis.

Taxonomic identification of the macro-faunal species found in the samples was undertaken by Identechaete, while the PSA and TOC analysis on the sediment samples was undertaken by AES Laboratories². Although duplicate grab samples were taken at each sampling station, in accordance with the approved methodology invertebrate identification, PSA and TOC was only performed on the first sample taken, with the second sample being preserved for reference.

¹ Using a WTW Multi 340i pH/Dissolved Oxygen/Conductivity measuring instrument

² United Kingdom Accreditation Service (UKAS) accredited laboratory

3. Results

The physical and environmental data from the survey are recorded in **Table 1.1**.

PSA distributions agree with the visual assessment that sediments in this area are largely comprised of fine sand (**Table 1.2**).

In total 27 species of invertebrates were identified from the samples collected by the day grab (**Table 1.3**). The invertebrate communities from this area are consistent with an impoverished sand associated community dominated by the amphipod *Bathyporeia* spp. and the polychaete *Nephtys cirrosa*.

Table 1.1 – Sampling Station locations and physical data

Sampling Station	Date	Lat	Long	Depth (m)	Salinity (‰)	Water Temp (°C)	Secchi Depth (m)	Visual Sediment Type	Time (BST)
Site 1	13/07/2007	54°45'857	3°41'093	7.32	34.4	16.0	5.0	Fine Sand	11.59
Site 2	13/07/2007	54°45'003	3°41'091	8.11	30.1	15.0	5.0	Fine Sand	12.11
Site 3	13/07/2007	54°44'999	3°44'101	11.61	31.0	14.7	5.5	Fine Sand	11.07
Site 4	13/07/2007	54°45'886	3°44'058	12.89	31.2	15.7	6.5	Fine Sand	11.18
Site 5	13/07/2007	54°44'104	3°44'089	15.67	31.3	15.2	6.0	Fine Sand	10.55
Site 6	13/07/2007	54°46'394	3°41'037	7.32	30.0	14.7	7.5	Fine Sand	11.51
Control 1	13/07/2007	54°47'334	3°43'416	6.98	29.3	14.3	3.5	Fine Sand	11.37
Control 2	13/07/2007	54°45'032	3°36'489	8.90	33.2	14.5	4.5	Fine Sand	12.28
Control 3	13/07/2007	54°42'799	3°43'401	13.35	30.1	14.3	6.0	Fine Sand	10.39

Table 1.2 – Particle Size Analysis (PSA) and Total Organic Carbon (TOC) for sediment from grab samples

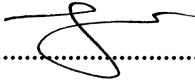
Sampling station	>4000 μm (%)	4000-2000 μm (%)	2000-1000 μm (%)	1000-500 μm (%)	500-250 μm (%)	250-125 μm (%)	125-63 μm (%)	<63 μm (%)	TOC (%)
Site 1	<0.1	<0.1	<0.1	<0.1	5.8	89.4	4.7	0.1	<0.1
Site 2	<0.1	<0.1	<0.1	<0.1	6.4	88.9	4.6	0.1	<0.1
Site 3	<0.1	<0.1	<0.1	<0.1	2.8	81.0	15.	0.9	1.2
Site 4	<0.1	<0.1	<0.1	<0.1	35.0	63.2	1.7	0.1	<0.1
Site 5	<0.1	<0.1	<0.1	<0.1	0.8	68.0	29.5	1.7	<0.1
Site 6	<0.1	<0.1	<0.1	<0.1	3.6	91.4	4.8	0.2	<0.1
Control 1	<0.1	<0.1	<0.1	<0.1	0.8	81.3	16.9	0.9	<0.1
Control 2	<0.1	<0.1	<0.1	<0.1	0.3	83.3	16.0	0.4	1.8
Control 3	<0.1	<0.1	<0.1	0.1	15.3	80.7	3.6	0.3	<0.1

Table 1.3 – Macro-invertebrate counts from Robin Rigg Windfarm site

Species	Sampling Station and Species Counts								
	S1	S2	S3	S4	S5	S6	C1	C2	C3
<i>Nemertea</i> sp.			1	1					2
<i>Sigalion mathildae</i>					1				
<i>Sthenelais limicola</i>							1		
<i>Glycera tridactyla</i>								1	
<i>Nephtys cirrosa</i>	1	2	17	3	16	4		11	11
<i>Paraonis fulgens</i>	1								
<i>Scolelepis mesnili</i>	8	9				6			
<i>Spio armata</i>							1		
<i>Spio decorate</i>					1				
<i>Spiophanes bombyx</i>			1						
<i>Magelona johnstoni</i>			13	5	7	2		1	
<i>Gastrosaccus spinifer</i>				5		1	1		
<i>Perioculodes longimanus</i>			1						
<i>Pontocrates altamarinus</i>									2
<i>Pontocrates arenarius</i>			2						
<i>Urothoe poseidonis</i>								1	
<i>Bathyporeia</i> sp.					1				
<i>Bathyporeia elegans</i>	4	5	28	6	11	7	2	7	9
<i>Bathyporeia nana</i>			6			2			
<i>Bathyporeia sarsi</i>			5		2				
<i>Haustorius arenarius</i>									
<i>Pseudocuma longicornis</i>			16		7			1	
<i>Nucula nitidosa</i>					1				
<i>Macra stultorum</i>				10				1	2
<i>Fabulina fibula</i>			1		6				
<i>Donax vittatus</i>					2			2	
<i>Echinocardium cordatum</i>			7		1				4
Juvenile Fish				1					

NB Juvenile fish are not macro invertebrate fauna but are shown here for reference.

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