



EIAR Addendum

Appendix 8-C DDV Wicklow
Reef Survey Report 2025



Appendix 8-C DDV Wicklow Reef Survey Report 2025

CWP-NPC-CON-10-REP-0010

Codling Wind Park Limited (CWPL)

02 February 2026



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Document history

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Issue	Date	Revision Details
A	27/03/2026	First Issue
B	13/04/2026	Final for issue

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Table C: Abbreviations used with the text

Acronym	Definition
CWP	Codling Wind Park
CWPL	Codling Wind Park Limited
DDV	Drop-Down Video
GPS	Global Positioning System
EIAR	Environmental Impact Assessment Report
EMODnet	European Marine Observation and Data Network
MAC	Marine Area Consent
MarLIN	Marine Life Information Network
MEDIN	Marine Environmental Data and Information Network
OWF	offshore wind farm
RFI	Request for Further Information
ROV	Remotely Operated Vehicle
SAC	Special Area of Conservation
WoRMS	World Register of Marine Species

1. Introduction

1.1. Project Background

Codling Wind Park Limited (CWPL) is proposing to develop the Codling Wind Park (CWP) Project, which is located in the Irish Sea approximately 13 - 22 km off the east coast of Ireland, at County Wicklow.

On Friday 6th September 2024 CWPL (referred to hereafter as the 'Applicant') applied for planning permission to An Coimisiún Pleanála (ACP) (referred to hereafter as the 'Commission') under Section 291 of the Planning and Development Act (PDA) 2000, as amended, for the construction, operation and decommissioning of the CWP Project.

On 1st August 2025, having reviewed the application documentation, including the Environmental Impact Assessment Report (EIAR) and the Natura Impact Statement (NIS), the Commission issued a Further Information Request (FIR) in relation to the CWP Project.

Natural Power Consultants Ltd (Natural Power) has been appointed to manage and execute the delivery of the Drop-Down Video (DDV) Wicklow reef survey to support the Applicant's FIR response.

This document is intended to support **Section 8** of the **EIAR Addendum** and provides a validation of the baseline characterisation provided in **Volume 3, Chapter 8 Subtidal and Intertidal Ecology** and **Volume 4, Appendix 8.3 Benthic Baseline Report** of the EIAR.

1.2. Document Purpose

This report has been produced to present the findings of the DDV Wicklow reef survey. The survey had two objectives:

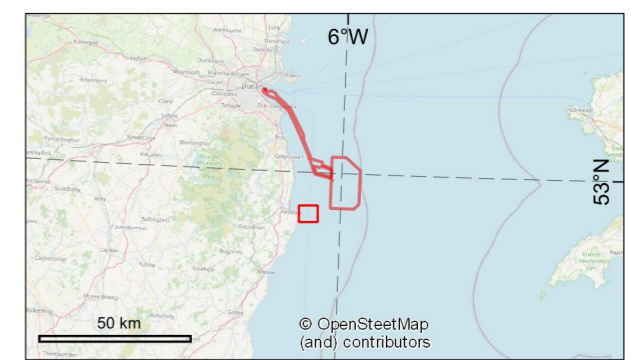
- To target areas of known reef to map the northerly extent of the reef feature; and
- To determine the nature of the reef feature qualifying interest i.e. whether it is biogenic or geogenic reef.

2. Wicklow Reef Special Area of Conservation (SAC) Survey

2.1. Survey Design

Wicklow reef Special Area of Conservation (SAC) lies circa 5.5 km southwest of the Codling Wind Park (CWP) offshore development area at its closest point and is designated for Annex I reef habitat, namely Current-swept subtidal reef community complex and *inter alia* for *Sabellaria alveolata* reef. The Wicklow reef survey consisted of 30 under water video transects (**Figure A**). The transects have been positioned to both target known areas of reef within the SAC, provided in the Wicklow Reef SAC Conservation Objectives Series (NPWS, 2013), (in areas within the CWP Foreshore Investigation Licence) and to provide information on the northerly extent of the reef features in accordance with Irish guidance (DCCA, 2018). Whilst the guidance recommends using geophysical data to target the locations of underwater video transects, in the absence of this data, transects were positioned in a grid design with an increased sampling effort closer to the SAC and slightly reduced sampling effort furthest from the SAC. The direction of the transects were positioned to follow the tidal movements allowing the vessel to drift along each transect during the survey.

Transects shown on the figure are indicative and 250 m in length. Video transects of 50 - 100 m were recorded within this 250 m extent using JNCC Procedural Guideline 1-6 (Davies *et. al.*, 2001) and the more current Epibiota remote monitoring from digital imagery: Interpretation guidelines (Turner *et. al.*, 2016).



Legend

- Planning Application Boundary (PAB)
- Foreshore Investigation Licence Area (FILA) boundary
- Wicklow Reef transect
- Special Area of Conservation (SAC)



Data sources: CWP, 2026; Natural Power, 2026; NPWS, 2026.
 Background: OSM
 Copyrights: Contains Irish Government Data licensed under a Creative Commons Attribution 4.0 International (CC BY 4.0) licence; © NPWS; © OpenStreetMap contributors.

	Project: Codling Wind Park	Contractor:			
Figure A Wicklow Reef survey DDV stations					
CWP doc. number: CWP-NPC-CON-09-MAP-2140					
Internal descriptive code: NA	Size: A3 Scale: 1:20,000	CRS: EPSG 25830			
Rev.	Updates	Date	By	Chk'd	App'd
00	For FIR submission	2026/04/21	AC	ME/EA	LJ

299,200
300,800
302,400
304,000

2.2. Underwater Video Survey

All sample locations were sampled using an observation class Remotely Operated Vehicle (ROV). The ROV recorded video footage within the unit at ultra-high definition 4K resolution which was viewed in real time at the surface during deployment, with a minimum of three minutes of video footage collected at each sample station. During deployment, whilst recording video imagery, a minimum of three still images were captured per sampling station. The system was equipped with video LED flood lights (6000 lumens) to provide illumination of the seabed.

Surveys were undertaken during appropriate tides/weather conditions to allow optimum visual imagery capture. At each sampling station, the immediate survey area was checked for obstructions e.g., static fishing gear. The ROV was prepared for deployment while the vessel moved into position to start the drop. The vessel approached the sample location identified and positioned itself so that wind and tide caused the vessel to drift away from the equipment whilst deployed to avoid snagging of the umbilical cable.

The image feed was reviewed as the data was collected to enable the confirmation of image quality, and any seabed features recorded.

Notes on the visible sediment conditions, seabed features and fauna were made *in-situ* together with Global Positioning System (GPS) position, water depth and date/time. Positions were fixed at the start and end of each deployment. The ROV was recovered to the vessel, and the haul line was coiled into a box to ensure it did not tangle for any subsequent deployments and to avoid trip hazards. The vessel then moved to the next sampling station. In accordance with Irish guidance (DCCA, 2018).

3. Imagery Analysis

Imagery was reviewed, processed, and analysed in accordance with current guidelines, including the standards for analysis in visual seabed surveys (BS EN 16260:2012) and Turner *et al.*, 2016. Imagery was also assessed using the NMBAQC image quality categories whereby the video footage is allocated a score of 'good', 'poor' or 'very poor'. The imagery was reviewed for features of conservation interest, including an Annex I reef assessment following the appropriate JNCC guidance notes (Gubbay, 2007; Irving, 2009; Golding *et al.*, 2020).

The main purpose of the analysis of the imagery was to identify what fauna and broadscale habitats exist in a video record or still image, and to provide quantitative and semi-quantitative data and to note where one substrate type changes to another. The imagery was viewed at normal or slower than normal speed, noting the physical and biological characteristics, such as substrate type and composition (in line with current guidelines), seabed character, conspicuous taxa, and life forms along with any modifiers or visible impacts present.

Taxa were identified visually and taxonomic guides and illustrations, along with websites (e.g., Marine Life Information Network (MarLIN), 2025), were used to confirm and assist with identifications. All taxonomic names used were checked to be accepted within the World Register of Marine Species (WoRMS). Where an analyst was uncertain of identification of epifauna at a certain taxonomic level, then a broader taxonomic level or morphological group was used.

3.1.1. Biotope Assignment

Underwater video samples were assigned habitat classifications based on species present according to the most current classification. Where appropriate, broadscale habitats, FOCI or Habitats Directive, Annex I Habitat were also assigned to each sampling station and still image. Guidance notes provided by JNCC report 546 (Parry, 2015) were used to assist this process.

3.1.2. Reefiness Assessment

Underwater video and stills were assessed for potential resemblance to stony reef habitats in accordance with the criteria outlined in Irving (2009) and Golding *et al.* (2020) for assessing stony reef and for assessing *Sabellaria spinulosa* reefs (Gubby, 2007). For an area to be considered Annex I stony reef (either on solid or soft seabed) all of the following four criteria must be met, as a minimum: composition (diameter of cobbles/boulders and 'patchiness'), elevation (height of constituent cobbles/boulders), extent (area) and biota (dominated by infaunal or epifaunal species). The level to which these criteria are met determine the 'resemblance' to stony reef, categorised as low, medium and high resemblance to being stony reef and not a reef (Irving, 2009, Golding *et al.*, 2020). The definition of *Sabellaria spinulosa* reef in the guidance is "An area of *Sabellaria spinulosa* which is elevated from the seabed and has a large spatial extent. Colonies may be patchy within an area defined as reef and show a range of elevations." Criteria used in the identification of *Sabellaria spinulosa* reef, are elevation (cm of the average tube height), area (m²) and patchiness (% cover).

4. Results

Underwater videos samples were collected from all 30 transects and a total of 149 still images were captured for analysis. The results from analysis of the video footage and still imagery showed that survey area consists of coarse mobile sands with varying degrees of silt and cobbles, pebbles as boulders. The most common species were *Dahlia anemone* (*Urticina felina*), hydroids *Flustra foliacea* and *Nemertesia antennina*, and the tube building polychaetes *Sabellaria spinulosa* and *Spirobranchus triqueter*. Other common species observed were the edible sea urchin (*Echinus esculentus*), common sun star (*Crossaster pappous*), common starfish *Asterias rubens* and hermit crab (*Pagurus bernhardus*). In areas of *Sabellaria spinulosa* aggregations, small shrimp species were observed, painted top shell (*Calliostoma zizyphinum*) individuals were present on the reef structures and the encrusting sponge *Phorbas fictitious* found growing on and around the reef structures.

4.1.1. Biotope Assignment

Five biotopes were identified from underwater video across the survey area. More than one biotope was present along a number of transects (**Table A, Figure B**).

Table A: Subtidal biotopes identified during analysis of video imagery

Biotope	MNCR classification description	Transects
SS.SCS.CCS	Circalittoral coarse sediment	2, 8, 13, 14, 19, 24, 28
SS.SCS.CCS.SpiB	<i>Spirobranchus triqueter</i> with barnacles and bryozoan crusts on unstable circalittoral cobbles and pebbles	21, 26
SS.SMx.CMx.FluHyd	<i>Flustra foliacea</i> and <i>Hydrallmania falcata</i> on tide-swept circalittoral mixed sediment	1, 5, 7, 10, 12, 15, 16, 18
CR.MCR.CSab.Sspi	<i>Sabellaria spinulosa</i> encrusted circalittoral rock	11, 22, 23, 25, 29
CR.MCR.EcCr.UrtScr	<i>Urticina felina</i> and sand-tolerant fauna on sand-scoured or covered circalittoral rock	3, 6, 20
CR.MCR.CSab.Sspi / SS.SMx.CMx.FluHyd	<i>Sabellaria spinulosa</i> encrusted circalittoral rock/ <i>Flustra foliacea</i> and <i>Hydrallmania falcata</i> on tide-swept circalittoral mixed sediment	4, 9, 17, 27, 30

The most common biotope present was *Flustra foliacea* and *Hydrallmania falcata* on tide-swept circalittoral mixed sediment. Full biotope descriptions are provided below, with an image from a station at which it was recorded.

Circalittoral coarse sediment

Tide-swept circalittoral coarse sands, gravel and shingle generally in depths of over 15-20 m. This habitat may be found in tidal channels of marine inlets, along exposed coasts and offshore. This habitat, as with shallower coarse sediments, may be characterised by robust infaunal polychaetes, mobile crustacea and bivalves. Certain species of sea cucumber (e.g. *Neopentadactyla*) may also be prevalent in these areas along with the lancelet *Branchiostoma lanceolatum*.

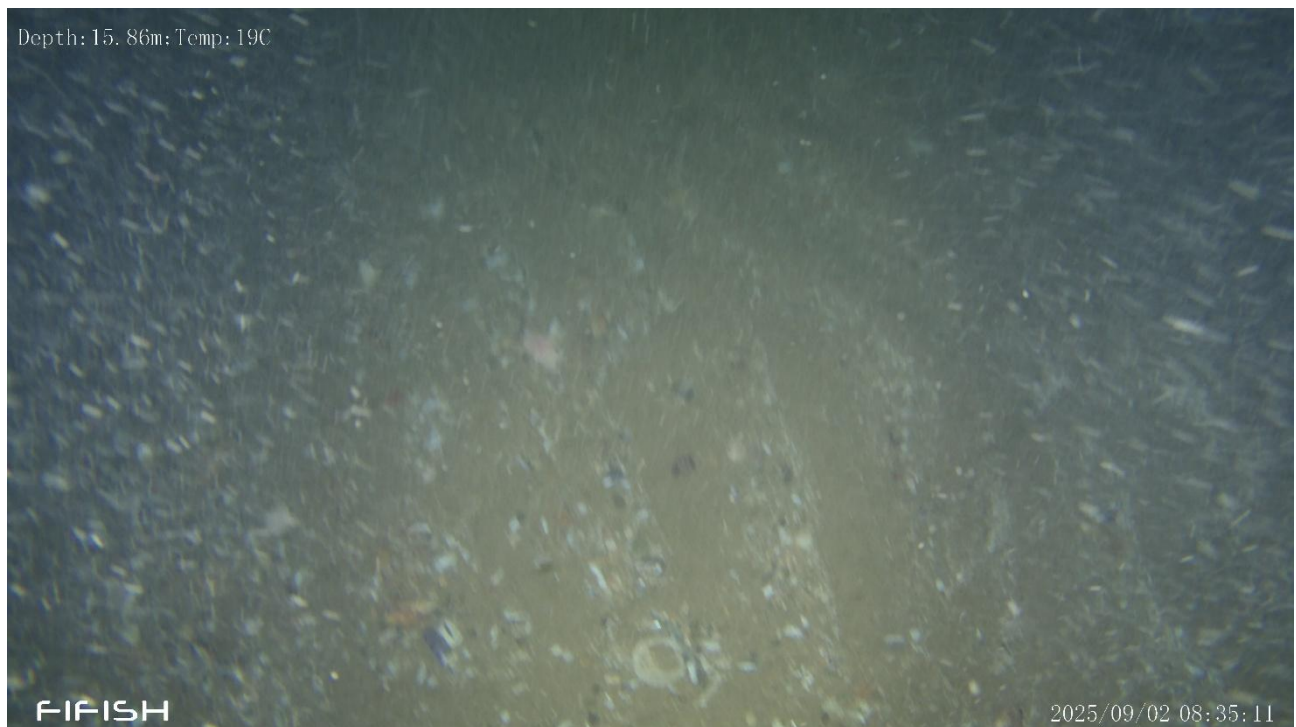


Image A: Circalittoral coarse sediment

Spirobranchus triqueter with barnacles and bryozoan crusts on unstable circalittoral cobbles and pebbles

This biotope is characterised by a few ubiquitous robust and/or fast growing ephemeral species which are able to colonise pebbles and unstable cobbles and slates which are regularly moved by wave and tidal action. The main cover organisms tend to be restricted to calcareous tube worms such as *Spirobranchus triqueter* or *S. lamarcki*, small barnacles including *Balanus crenatus* and *Balanus balanus*, and a few bryozoan and coralline algal crusts. Barnacles may be predominantly observed in shallower variants of the biotope. Scour action from the mobile substratum prevents colonisation by more delicate species. Occasionally, in tide-swept conditions tufts of hydroids such as *Sertularia argentea* and *Hydrallmania falcata* are present. Occasional epifauna may include *Asterias rubens*, *Cerianthus lloydii*, and *Alcyonium digitatum*. Bryozoa *Parazoanthus anguicomus*, *Ulva*, *Porania*, and Porifera can also be present. This biotope often grades into SS.SMx.CMx.FluHyd which is characterised by large amounts of the above hydroids on stones also covered in *Spirobranchus* and barnacles. The main difference here is that SS.SMx.CMx.FluHyd seems to develop on more stable, consolidated cobbles and pebbles or larger stones set in sediment in moderate tides. These stones may be disturbed in the winter and therefore long-lived and fragile species are not found.



Image B: *Spirobranchus triqueter* with barnacles and bryozoan crusts on unstable circalittoral cobbles and pebbles

Flustra foliacea and *Hydrallmania falcata* on tide-swept circalittoral mixed sediment

This biotope represents part of a transition between sand-scoured circalittoral rock where the epifauna is conspicuous enough to be considered as a biotope and a sediment biotope where an infaunal sample is required to characterise it and is possibly best considered an epibiotic overlay. *Flustra foliacea* and the hydroid *Hydrallmania falcata* characterise this biotope; lesser amounts of other hydroids such as *Sertularia argentea*, *Nemertesia antennina* and occasionally *Nemertesia ramosa*, occur where suitably stable hard substrata is found. The anemone *Urticina felina* and the soft coral *Alcyonium digitatum* may also characterise this biotope. Barnacles *Balanus crenatus* and tube worms *Spirobranchus triqueter* may be present and the robust bryozoans *Alcyonidium diaphanum* and *Vesicularia spinosa* appear amongst the hydroids at a few sites. *Sabella pavonina* and *Lanice conchilega* may be occasionally found in the coarse sediment around the stones. In shallower (i.e. upper circalittoral) examples of this biotope scour-tolerant robust red algae such as *Polysiphonia nigrescens*, *Calliblepharis* spp. and *Gracilaria gracilis* are found. In offshore areas, such as in the Greater Gabbard North Sea Area, where there is circalittoral mixed sediment, with pebbles and gravels, the biotope may further support rich encrusting fauna, including bryozoans, *Spirobranchus lamarcki*, and the barnacle *Verruca stroemia*, and occasionally *Sabellaria spinulosa*. Alongside these encrusting faunae, infauna such as *Lumbrinerids* (*Hilbigneris gracilis*), *Glycera lapidum*, *Echinocyamus pusillus*, *Amphipholis squamata*, *Caulleriella alata* may be present, and may represent a transitional form between SS.SMx.CMx.FluHyd and SS.SCS.CCS.MedLumVen.

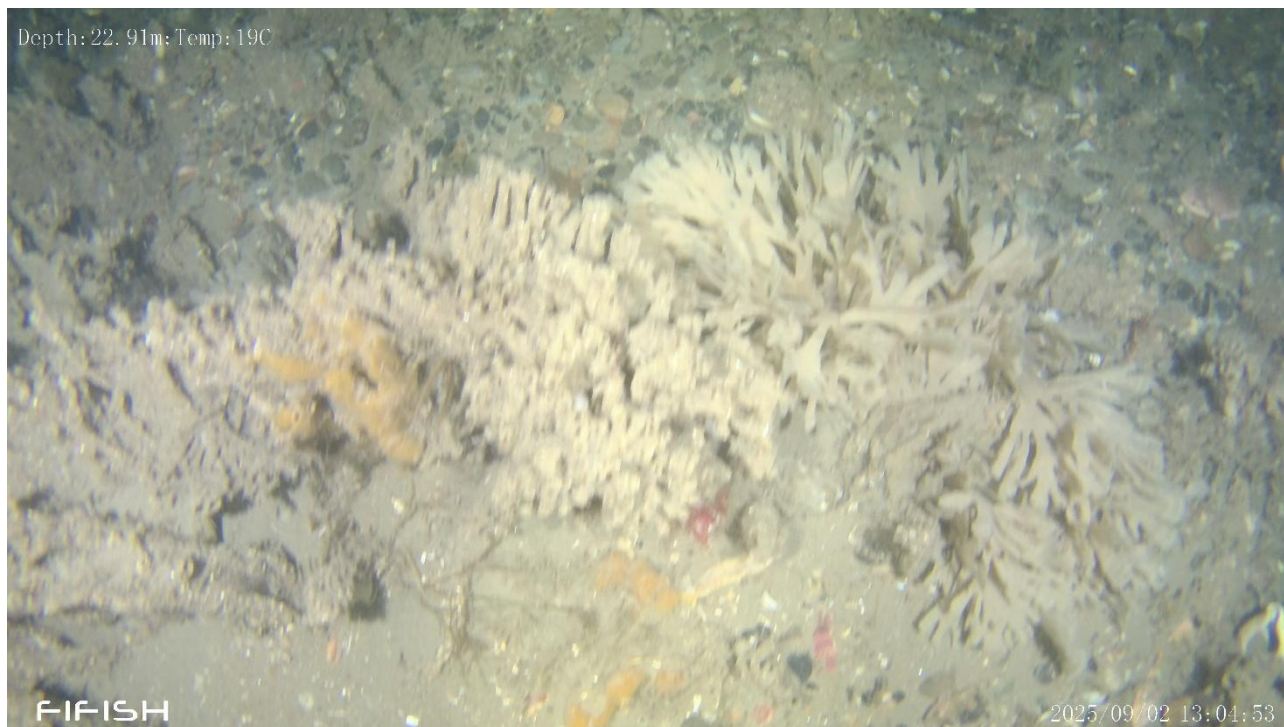


Image C: *Flustra foliacea* and *Hydrallmania falcata* on tide-swept circalittoral mixed sediment

Sabellaria spinulosa encrusted circalittoral rock

This biotope is typically found encrusting the upper faces of wave-exposed and moderately wave-exposed circalittoral bedrock, boulders and cobbles subject to strong/moderately strong tidal streams in areas with high turbidity. The crusts formed by the sandy tubes of the polychaete worm *Sabellaria spinulosa* may even completely cover the rock, binding the substratum together to form a crust. A diverse fauna may be found attached to, and sometimes obscuring the crust, often reflecting the character of surrounding biotopes. Bryozoans such as *Flustra foliacea*, *Pentapora foliacea* and *Alcyonidium diaphanum*, anemones such as *Urticina felina* and *Cylista elegans*, the polychaete *Spirobranchus triqueter*, *Alcyonium digitatum*, the hydroid *Nemertesia antennina* and echinoderms such as *Asterias rubens* and *Crossaster papposus* may all be recorded within this biotope. There are two variants. The first (Sspi.ByB) contains significant cover of barnacles (*Balanus crenatus*) and bryozoans. The second (Sspi.As) has a dense turf of didemnid ascidians as well as scour-tolerant bryozoans such as *F. foliacea*, sponges such as *Tethya aurantium* and *Phorbast fictitius*, colonies of the serpulid worm *Salmacina dysteri* and patchy occurrences of the ascidians *Distomus variolosus*, *Polycarpa pomaria* and *Polycarpa scuba*. This biotope has been recorded from the Llyn Peninsula, Lundy Island (including the wreck of the MV Robert) and the north-east and south coast of England.



Image D: *Sabellaria spinulosa* encrusted circular littoral rock

Urticina felina and sand-tolerant fauna on sand-scoured or covered circular littoral rock

This biotope typically occurs on tide-swept circular littoral bedrock, rock adjacent to mobile sand/gravel in gullies, and cobbles on gravel and sand, characterised by scour-tolerant robust species. Although many of these species are found on subtidal rock, they tend to occur in larger numbers in these highly sand-influenced conditions. The dominant species by far is the anemone *Urticina felina* which commonly occurs on rocks at the sand-rock interface, where the scour levels are at a maximum and few species can tolerate this abrasion. The sponge *Ciocalypta penicillus* is also very characteristic of shifting sand-covered rock. This biotope is only occasionally recorded as a separate entity, because its extent is typically restricted to a very narrow band of rock at the sediment interface. Only occasionally does it cover a large extent of rock (e.g. where the wave action is strong enough to cause sand abrasion well up the rock face or where the rock is low-lying). More often, this scoured zone is recorded as part of whatever biotope occurs on the nearby hard substrata. Other species (which are able to survive, and benefit from the reduced competition) include *Balanus crenatus*, *Spirobranchus triqueter*, *Cellepora pumicosa*, *Alcyonidium diaphanum*, *Cliona celata*, encrusting red algae and *Asterias rubens*.

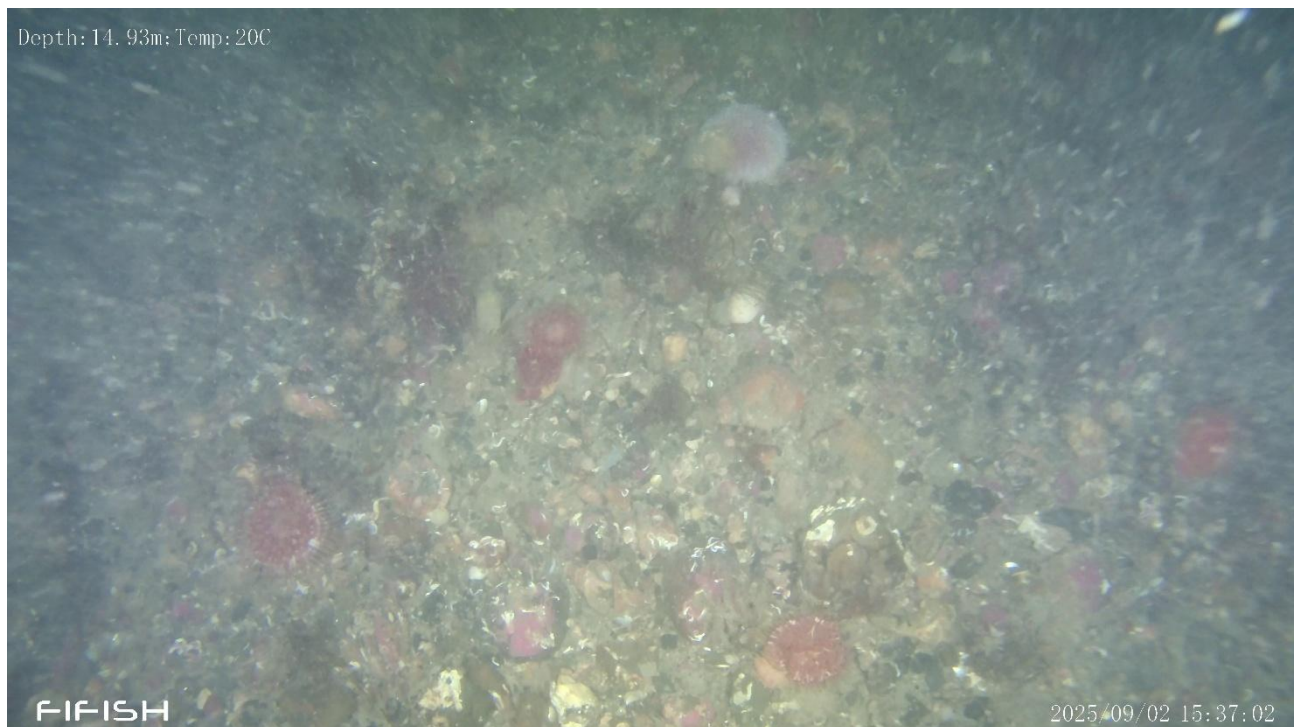
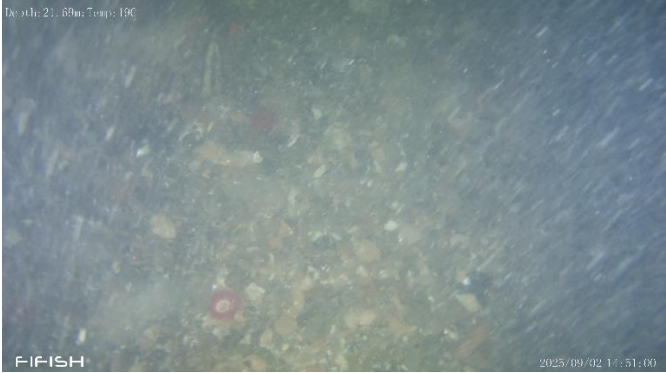






Image E: *Urticina felina* and sand-tolerant fauna on sand-scoured or covered circalittoral rock




4.1.2. Reefiness Assessment



Of the 30 transects sampled, 14 stations were assessed as having attributes that could qualify as low resemblance stony reef and 10 as having attributes that could qualify as low resemblance *Sabellaria spinulosa* reef. It should be noted that attributes of elevation and extent for assessing reefiness are best assessed using geophysical data. **Figure C** below shows transects where potential stony reef and *Sabellaria spinulosa* reef are present. Stony reef transects are distributed throughout the survey area, while *Sabellaria spinulosa* reefs are distributed to the east, further from the shore, and at transects within the SAC rather than those outside of it. **Table B** presents the underwater video biotopes and an image for each of these stations, transects 4, 9, 17, 22 and 27, have areas of both potential stony reef and *Sabellaria spinulosa* reef.



Table B: Transects assessed as having potential stony and/or *Sabellaria spinulosa* reef



Transect	Biotope	Stoney reef potential (Y/N)	<i>S. spinulosa</i> reef potential (Y/N)	Underwater video image
2	SS.SCS.CCS	Y	N	 <p>Depth: 21.68m Temp: 19C FIFISH 2025/09/02 17:51:00</p>
4	CR.MCR.CSab.Sspi / SS.SMx.CMx.FluHyd	Y	Y	 <p>Depth: 23.38m Temp: 19C FIFISH 2025/09/02 13:06:24</p>



Transect	Biotope	Stoney reef potential (Y/N)	<i>S. spinulosa</i> reef potential (Y/N)	Underwater video image
5	SS.SMx.CMx.FluHyd	Y	N	 <p>Depth: 11, 11m; Temp: 19C FIFISH 2025/09/02 10:20:21</p>
8	SS.SCS.CCS	Y	N	 <p>Depth: 18, 61m; Temp: 19C FIFISH 2025/09/02 13:51:15</p>
9	CR.MCR.CSab.Sspi / SS.SMx.CMx.FluHyd	Y	Y	 <p>Depth: 20, 21m; Temp: 19C FIFISH 2025/09/02 12:51:28</p>



Transect	Biotope	Stoney reef potential (Y/N)	<i>S. spinulosa</i> reef potential (Y/N)	Underwater video image
10	SS.SMx.CMx.FluHyd	Y	N	
11	CR.MCR.CSab.Sspi	N	Y	 <p>Depth: 15.22m Temp: 19C FIFISH 2025/09/02 09:38:17</p>
13	SS.SCS.CCS	Y	N	 <p>Depth: 23.99m Temp: 20C FIFISH 2025/09/02 11:58:09</p>


Transect	Biotope	Stoney reef potential (Y/N)	<i>S. spinulosa</i> reef potential (Y/N)	Underwater video image
14	SS.SCS.CCS	Y	N	
17	CR.MCR.CSab.Sspi / SS.SMx.CMx.FluHyd	Y	Y	

Transect	Biotope	Stoney reef potential (Y/N)	<i>S. spinulosa</i> reef potential (Y/N)	Underwater video image
18	SS.SMx.CMx.FluHyd	Y	N	
22	CR.MCR.CSab.Sspi	Y	Y	

Transect	Biotope	Stoney reef potential (Y/N)	<i>S. spinulosa</i> reef potential (Y/N)	Underwater video image
23	CR.MCR.CSab.Sspi	N	Y	 <p>Depth: 15.49m; Temp: 20°C FIFISH 2025/09/02 07:58:11</p>
24	SS.SCS.CCS	Y	N	 <p>Depth: 18.65m; Temp: 19°C FIFISH 2025/09/02 11:18:17</p>

Transect	Biotope	Stoney reef potential (Y/N)	<i>S. spinulosa</i> reef potential (Y/N)	Underwater video image
25	CR.MCR.CSab.Sspi	N	Y	 <p>Depth: 15.85m; Temp: 19C FIFISH 2005/09/02 09:58:52</p>
26	SS.SCS.CCS.SpiB	Y	N	 <p>Depth: 21.52m; Temp: 20C FIFISH 2005/09/02 11:40:32</p>

Transect	Biotope	Stoney reef potential (Y/N)	<i>S. spinulosa</i> reef potential (Y/N)	Underwater video image
27	CR.MCR.CSab.Sspi / SS.SMx.CMx.FluHyd	Y	Y	 <p>Depth: 36, 41m Temp: 20C FIFISH 00:05/09/02 10:08:34.27</p>
29	CR.MCR.CSab.Sspi	N	Y	 <p>Depth: 15, 33m Temp: 19C FIFISH 00:05/09/02 10:01:07</p>

Transect	Biotope	Stoney reef potential (Y/N)	<i>S. spinulosa</i> reef potential (Y/N)	Underwater video image
30	CR.MCR.CSab.Sspi / SS.SMx.CMx.FluHyd	N	Y	

5. Discussion

Wicklow Reef is situated just to the north of Wicklow Head and the substrate here is considered to be a mixture of cobbles, bedrock, and sand, and is subject to strong tidal streams (NPWS, 2013). These strong tidal streams were evident during the Wicklow Reef DDV survey, when operating the camera was optimal at slack tide. The epifaunal community reflects these conditions and was dominated by robust species, tolerant to substrate movement from tidal action and sand scour, such as the Dahlia anemone (*Urticina felina*), which commonly occurs at the sand-rock interface where scour levels are at a maximum and can withstand high levels of abrasion (Tillin *et al.*, 2023).

All of the five biotopes identified in the survey typically occur in areas of strong currents. The survey area is a mosaic of coarse mobile sands with varying degrees of silt and cobbles, pebbles as boulders. The most common biotope present was *Flustra foliacea* and *Hydrallmania falcata* on tide-swept circalittoral mixed sediment. The second most common biotope present was *Sabellaria spinulosa* encrusted circalittoral rock. At five transects, areas of both these biotopes were present interspersed along the transect, and both biotopes share characterising species with each other (Tillin *et al.*, 2023, JNCC 2022). The other biotopes present were similar in nature and may represent varying levels of tidal action and scour. For example, *Spirobranchus triqueter* with barnacles and bryozoan crusts on unstable circalittoral cobbles and pebbles may be present at transects where scour levels are too high for *Flustra foliacea* and *Hydrallmania falcata* to exist (JNCC 2022). Several transects were determined as Circalittoral Coarse Sediment where epifaunal community did not strongly suggest a higher level biotope. The final biotope present was *Urticina felina* and sand-tolerant fauna on sand-scoured or covered circalittoral rock where *Urticina felina* was present in high numbers. This biotope is found in tide-swept circalittoral bedrock, rock adjacent to mobile sand/gravel in gullies, and cobbles on gravel and sand (Tillin *et al.*, 2023).

Wicklow Reef SAC is designated for Annex I reef habitat, namely Current-swept subtidal reef community complex and *inter alia* for *Sabellaria aveolata* reef. No areas of *Sabellaria aveolata* reef were recorded in the survey, however only a section of the SAC, with the CWP Foreshore licence area was surveyed. Areas of *Sabellaria spinulosa* aggregations were observed however, at 10 transects. Six transects within the SAC, one transect on the northerly boundary of the SAC and three transects to the north of the SAC were assessed as having attributes that would qualify as low resemblance *Sabellaria spinulosa* reef (Gubbay, 2007). This suggests that the northerly extent of the *Sabellaria spinulosa* reef lies within or just north of the SAC as it is less frequent outside the SAC with only one of the five most northerly transects containing *Sabellaria spinulosa* reef attributes and therefore unlikely to meet the large extent criteria to qualify as reef. There is a lack of studies on the temporal stability of *Sabellaria spinulosa* reefs (Limpenny *et al.*, 2010). However, studies have shown that reefs may undergo annual cycles of erosion and recolonisation with a reduction in the reef extent in winter due to storms, spawning occurring in spring and recolonisation and reef thickness recovery observed in summer (Holt *et al.*, 1998, Lisco *et al.*, 2017 and 2021). Approximately half of the transects surveyed were assessed as having attributes that would qualify as low resemblance stony reef. There was no discernible spatial pattern in the stations with attributes pertaining to stony reef. For both types of reef, it is difficult to determine if the extent criteria would be met from the underwater video survey alone.

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Appendix A – Survey Transect Locations

Table AA: Wicklow Reef survey DDV Transects (positions in DDM)

Transect	Transect Start		Transect End	
	Latitude	Longitude	Latitude	Longitude
1	52°59'6.000" N	5°59'2.400" E	52°58'58.800" N	5°58'55.200" E
2	52°58'12.000" N	5°58'8.400" E	52°58'4.800" N	5°57'57.600" E
3	52°57'39.600" N	5°55'51.600" E	52°57'32.400" N	5°55'44.400" E
4	52°57'57.600" N	5°56'13.200" E	52°57'50.400" N	5°56'6.000" E
5	52°58'33.600" N	5°57'39.600" E	52°58'26.400" N	5°57'28.800" E
6	52°59'42.000" N	5°59'24.000" E	52°59'34.800" N	5°59'16.800" E
7	52°59'42.000" N	5°58'33.600" E	52°59'34.800" N	5°58'22.800" E
8	52°59'42.000" N	5°57'39.600" E	52°59'34.800" N	5°57'32.400" E
9	52°59'42.000" N	5°56'49.200" E	52°59'34.800" N	5°56'42.000" E
10	52°59'42.000" N	5°55'55.200" E	52°59'34.800" N	5°55'48.000" E
11	52°58'15.600" N	5°56'52.800" E	52°58'8.400" N	5°56'45.600" E
12	52°58'37.200" N	5°55'55.200" E	52°58'30.000" N	5°55'44.400" E
13	52°59'20.400" N	5°59'24.000" E	52°59'16.800" N	5°59'16.800" E
14	52°59'20.400" N	5°58'44.400" E	52°59'16.800" N	5°58'37.200" E
15	52°59'20.400" N	5°58'8.400" E	52°59'16.800" N	5°58'1.200" E
16	52°59'20.400" N	5°57'32.400" E	52°59'16.800" N	5°57'21.600" E
17	52°59'20.400" N	5°56'49.200" E	52°59'16.800" N	5°56'38.400" E
18	52°59'20.400" N	5°56'9.600" E	52°59'16.800" N	5°56'2.400" E
19	52°59'20.400" N	5°55'30.000" E	52°59'16.800" N	5°55'22.800" E
20	52°58'22.800" N	5°58'58.800" E	52°58'19.200" N	5°58'51.600" E
21	52°59'6.000" N	5°57'43.200" E	52°58'58.800" N	5°57'32.400" E
22	52°59'6.000" N	5°56'56.400" E	52°58'58.800" N	5°56'49.200" E
23	52°58'44.400" N	5°58'40.800" E	52°58'37.200" N	5°58'30.000" E
24	52°58'33.600" N	5°57'0.000" E	52°58'26.400" N	5°56'49.200" E
25	52°59'6.000" N	5°55'40.800" E	52°58'58.800" N	5°55'33.600" E
26	52°59'6.000" N	5°58'19.200" E	52°58'58.800" N	5°58'12.000" E
27	52°57'50.400" N	5°59'6.000" E	52°57'43.200" N	5°58'58.800" E
28	52°58'51.600" N	5°57'46.800" E	52°58'44.400" N	5°57'39.600" E
29	52°57'46.800" N	5°58'26.400" E	52°57'43.200" N	5°58'19.200" E
30	52°58'58.800" N	5°55'40.800" E	52°58'51.600" N	5°55'33.600" E



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